NOT FOR CONSTRUCTION

41 GLENBROOK DRIVE, NAMBOUR

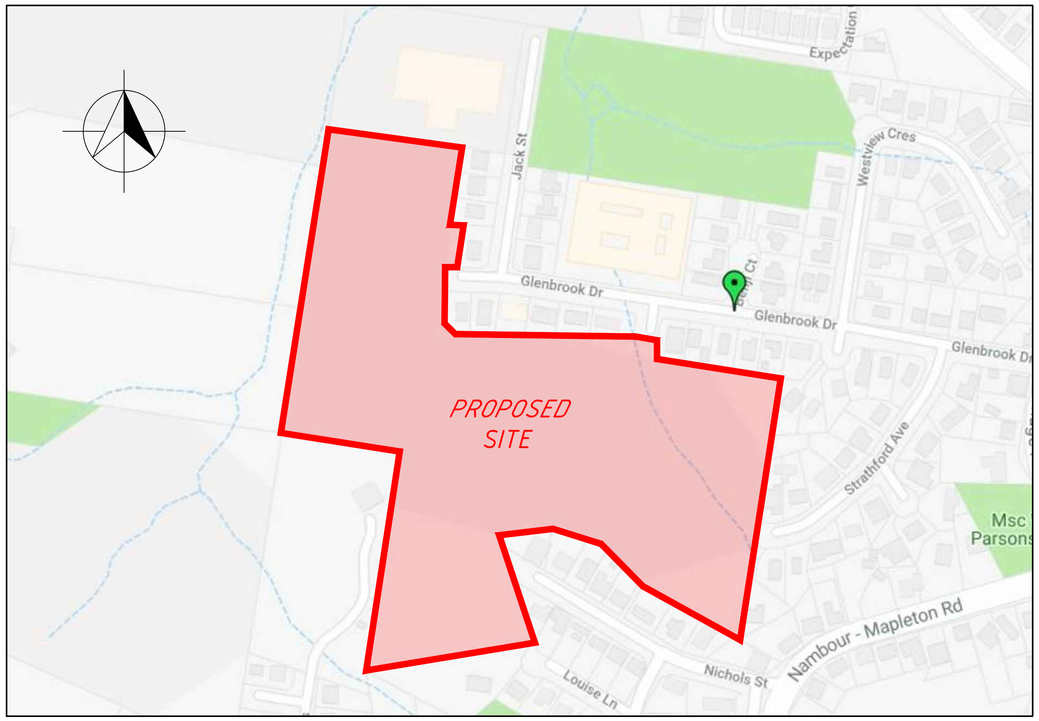
LOT 2 ON SP273404
CIVIL WORKS PACKAGE

LIST OF DRAWINGS

JOB NUMBER	DRAWING NUMBER	SHEET TITLE
C3602	CA100	COVERSHEET
C3602	CA200	STAGING LAYOUT PLAN
C3602	CA300	PROJECT GENERAL NOTES SHEET 1 OF 2
C3602	CA301	PROJECT GENERAL NOTES SHEET 2 OF 2
C3602	CE001	EROSION AND SEDIMENT CONTROL STAGE 1
C3602	CE002	EROSION AND SEDIMENT CONTROL STAGE 2
C3602	CE003	EROSION AND SEDIMENT CONTROL DETAILS
C3602	CE100	BULK EARTHWORKS OVERALL LAYOUT
C3602	CE200	BULK EARTHWORKS DETAIL LAYOUT PLAN - SHEET 1 OF 4
C3602	CE201	BULK EARTHWORKS DETAIL LAYOUT PLAN - SHEET 2 OF 4
C3602	CE202	BULK EARTHWORKS DETAIL LAYOUT PLAN - SHEET 3 OF 4
C3602	CE203	BULK EARTHWORKS DETAIL LAYOUT PLAN - SHEET 4 OF 4
C3602	CE300	BULK EARTHWORKS SECTIONS - SHEET 1 OF 5
C3602	CE301	BULK EARTHWORKS SECTIONS - SHEET 2 OF 5
C3602	CE302	BULK EARTHWORKS SECTIONS - SHEET 3 OF 5
C3602	CE303	BULK EARTHWORKS SECTIONS - SHEET 4 OF 5
C3602	CE304	BULK EARTHWORKS SECTIONS - SHEET 5 OF 5
C3602	CE400	RETAINING WALL LAYOUT PLAN REAR OF LOTS 28-43 AND 50-53
C3602	CE401	RETAINING WALL LONGITUDINAL SECTION REAR OF LOTS 28-43 AND 50-53
C3602	CE402	RETAINING WALL CROSS SECTION SHEET 1 OF 11
C3602	CE403	RETAINING WALL CROSS SECTION SHEET 2 OF 11
C3602	CE404	RETAINING WALL CROSS SECTION SHEET 3 OF 11
C3602	CE405	RETAINING WALL CROSS SECTION SHEET 4 OF 11
C3602	CE406	RETAINING WALL CROSS SECTION SHEET 5 OF 11
C3602	CE407	RETAINING WALL CROSS SECTION SHEET 6 OF 11
C3602	CE408	RETAINING WALL CROSS SECTION SHEET 7 OF 11
C3602	CE409	RETAINING WALL CROSS SECTION SHEET 8 OF 11
C3602	CR01	ROADWORKS TEMPORARY TURNAROUND DETAIL
C3602	CR100	ROADWORKS CONTROL LINE SETOUT OVERALL LAYOUT PLAN
C3602	CR200	ROADWORKS LAYOUT PLAN SHEET 1 OF 4
C3602	CR201	ROADWORKS LAYOUT PLAN SHEET 2 OF 4
C3602	CR202	ROADWORKS LAYOUT PLAN SHEET 3 OF 4
C3602	CR203	ROADWORKS LAYOUT PLAN SHEET 4 OF 4
C3602	CR204	ROADWORKS DETAILS SHEET 1 OF 7
C3602	CR205	ROADWORKS DETAILS SHEET 2 OF 7
C3602	CR206	ROADWORKS DETAILS SHEET 3 OF 7
C3602	CR207	ROADWORKS DETAILS SHEET 4 OF 7
C3602	CR208	ROADWORKS DETAILS SHEET 5 OF 7
C3602	CR209	ROADWORKS DETAILS SHEET 6 OF 7
C3602	CR210	ROADWORKS DETAILS SHEET 7 OF 7
C3602	CR300	ROADWORKS LINEMARKING SHEET 1 OF 2
C3602	CR301	ROADWORKS LINEMARKING SHEET 2 OF 2
C3602	CR400	TYPICAL ROAD SECTIONS SHEET 1 OF 2
C3602	CR401	TYPICAL ROAD SECTIONS SHEET 2 OF 2
C3602	CR402	ROADWORKS PAVEMENT DETAILS
C3602	CR500	ROADWORKS LONGITUDINAL SECTION - NICHOLS STREET
C3602	CR501	ROADWORKS CROSS SECTIONS - NICHOLS STREET SHEET
C3602	CR502	ROADWORKS LONGITUDINAL SECTIONS - ROAD A
C3602	CR503	ROADWORKS CROSS SECTIONS - ROAD A SHEET 1 OF 3
C3602	CR504	ROADWORKS CROSS SECTIONS - ROAD A SHEET 2 OF 3
C3602	CR505	ROADWORKS CROSS SECTIONS - ROAD A SHEET 3 OF 3
C3602	CR506	ROADWORKS LONGITUDINAL AND CROSS SECTIONS - ROAD B
C3602	CR507	ROADWORKS LONGITUDINAL AND CROSS SECTIONS - ROAD C
C3602	CR508	ROADWORKS LONGITUDINAL SECTIONS - GLENBROOK DRIVE
C3602	CR509	ROADWORKS CROSS SECTIONS - GLENBROOK DRIVE

LIST OF DRAWINGS

JOB NUMBER	DRAWING NUMBER	SHEET TITLE
C3602	CD100	STORMWATER DRAINAGE LAYOUT PLAN SHEET 1 OF 4
C3602	CD101	STORMWATER DRAINAGE LAYOUT PLAN SHEET 2 OF 4
C3602	CD102	STORMWATER DRAINAGE LAYOUT PLAN SHEET 3 OF 4
C3602	CD103	STORMWATER DRAINAGE LAYOUT PLAN SHEET 4 OF 4
C3602	CD200	STORMWATER LONGITUDINAL SECTION SHEET 1 OF 4 Q2 FLOWS
C3602	CD201	STORMWATER LONGITUDINAL SECTION SHEET 2 OF 4 Q2 FLOWS
C3602	CD202	STORMWATER LONGITUDINAL SECTION SHEET 3 OF 4 Q2 FLOWS
C3602	CD203	STORMWATER LONGITUDINAL SECTION SHEET 4 OF 4 Q2 FLOWS
C3602	CD204	STORMWATER LONGITUDINAL SECTION SHEET 1 OF 4 Q100 FLOWS
C3602	CD205	STORMWATER LONGITUDINAL SECTION SHEET 2 OF 4 Q100 FLOWS
C3602	CD206	STORMWATER LONGITUDINAL SECTION SHEET 3 OF 4 Q100 FLOWS
C3602	CD207	STORMWATER LONGITUDINAL SECTION SHEET 4 OF 4 Q100 FLOWS
C3602	CD300	STORMWATER DETAILS
C3602	CD400	STORMWATER CATCHMENT PLAN
C3602	CD500	STORMWATER DRAINAGE CALCULATIONS SHEET 1 OF 5 Q2 FLOWS
C3602	CD501	STORMWATER DRAINAGE CALCULATIONS SHEET 2 OF 5 Q2 FLOWS
C3602	CD502	STORMWATER DRAINAGE CALCULATIONS SHEET 3 OF 5 Q2 FLOWS
C3602	CD503	STORMWATER DRAINAGE CALCULATIONS SHEET 4 OF 5 Q2 FLOWS
C3602	CD504	STORMWATER DRAINAGE CALCULATIONS SHEET 5 OF 5 Q2 FLOWS
C3602	CD505	STORMWATER DRAINAGE CALCULATIONS SHEET 1 OF 5 Q100 FLOWS
C3602	CD506	STORMWATER DRAINAGE CALCULATIONS SHEET 2 OF 5 Q100 FLOWS
C3602	CD507	STORMWATER DRAINAGE CALCULATIONS SHEET 3 OF 5 Q100 FLOWS
C3602	CD508	STORMWATER DRAINAGE CALCULATIONS SHEET 4 OF 5 Q100 FLOWS
C3602	CD509	STORMWATER DRAINAGE CALCULATIONS SHEET 5 OF 5 Q100 FLOWS
C3602	CD600	STORMWATER SWALE SETOUT PLAN LAYOUT PLAN
C3602	CD601	STORMWATER SWALE SETOUT PLAN LAYOUT PLAN
C3602	CD602	SWALE CATCHMENT PLAN
C3602	CD700	SWALE 01 (EMERGENCY RELIEF) LONGITUDINAL AND CROSS SECTIONS
C3602	CD701	SWALE 02 & 03 (EMERGENCY RELIEF) LONGITUDINAL AND CROSS SECTIONS
C3602	CD702	SWALE 04 LONGITUDINAL AND CROSS SECTIONS
C3602	CD703	SWALE 05 LONGITUDINAL AND TYPICAL SECTIONS
C3602	CD704	SWALE 05 CROSS SECTIONS
C3602	CD705	SWALE 06, 08 & 09 LONGITUDINAL AND TYPICAL SECTIONS
C3602	CD706	SWALE 06, 08 & 09 CROSS SECTIONS
C3602	CD707	SWALE 07 LONGITUDINAL AND CROSS SECTIONS
C3602	CD708	SWALE 10 LONGITUDINAL AND CROSS SECTIONS
C3602	CD709	SWALE 11 LONGITUDINAL AND CROSS SECTIONS
C3602	CD710	SWALE 12 LONGITUDINAL AND CROSS SECTIONS
C3602	CD711	SWALE 13 LONGITUDINAL AND TYPICAL SECTION
C3602	CD712	SWALE 13 CROSS SECTION
C3602	CD713	SWALE 14 LONGITUDINAL AND TYPICAL SECTION
C3602	CD714	SWALE 14 CROSS SECTION
C3602	CD800	LOT 101 DETENTION AND BIORETENTION DETAILS SHEET 1 OF 3
C3602	CD801	LOT 101 DETENTION AND BIORETENTION DETAILS SHEET 2 OF 3
C3602	CD802	LOT 101 DETENTION AND BIORETENTION DETAILS SHEET 3 OF 3
C3602	CD803	LOT 101 BIORETENTION ACCESS LONG SECTION & CROSS SECTION
C3602	CD804	LOT 102 DETENTION AND BIORETENTION DETAILS SHEET 1 OF 3
C3602	CD805	LOT 102 DETENTION AND BIORETENTION DETAILS SHEET 2 OF 3
C3602	CD806	LOT 102 DETENTION AND BIORETENTION DETAILS SHEET 3 OF 3
C3602	CD807	LOT 102 BIORETENTION ACCESS LONG SECTION
C3602	CD808	LOT 102 BIORETENTION ACCESS CROSS SECTION
C3602	CD809	DETENTION & BIORETENTION TYPICAL DETAILS
C3602	ET100	ENERGEX ACCESS LAYOUT PLAN
C3602	ET101	ENERGEX ACCESS LONGITUDINAL SECTION
C3602	ET102	ENERGEX ACCESS CROSS SECTIONS



LOCALITY PLAN
SCALE 1:2500

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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TRAFFIC
PROJECT MANAGEMENT
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E mail@mnce.com.au
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CLIENT: PARKER PROPERTY NINGI PTY LTD
PROJECT: 41 GLENBROOK DRIVE, NAMBOUR
TITLE: COVERSHEET

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CA100
REV. B

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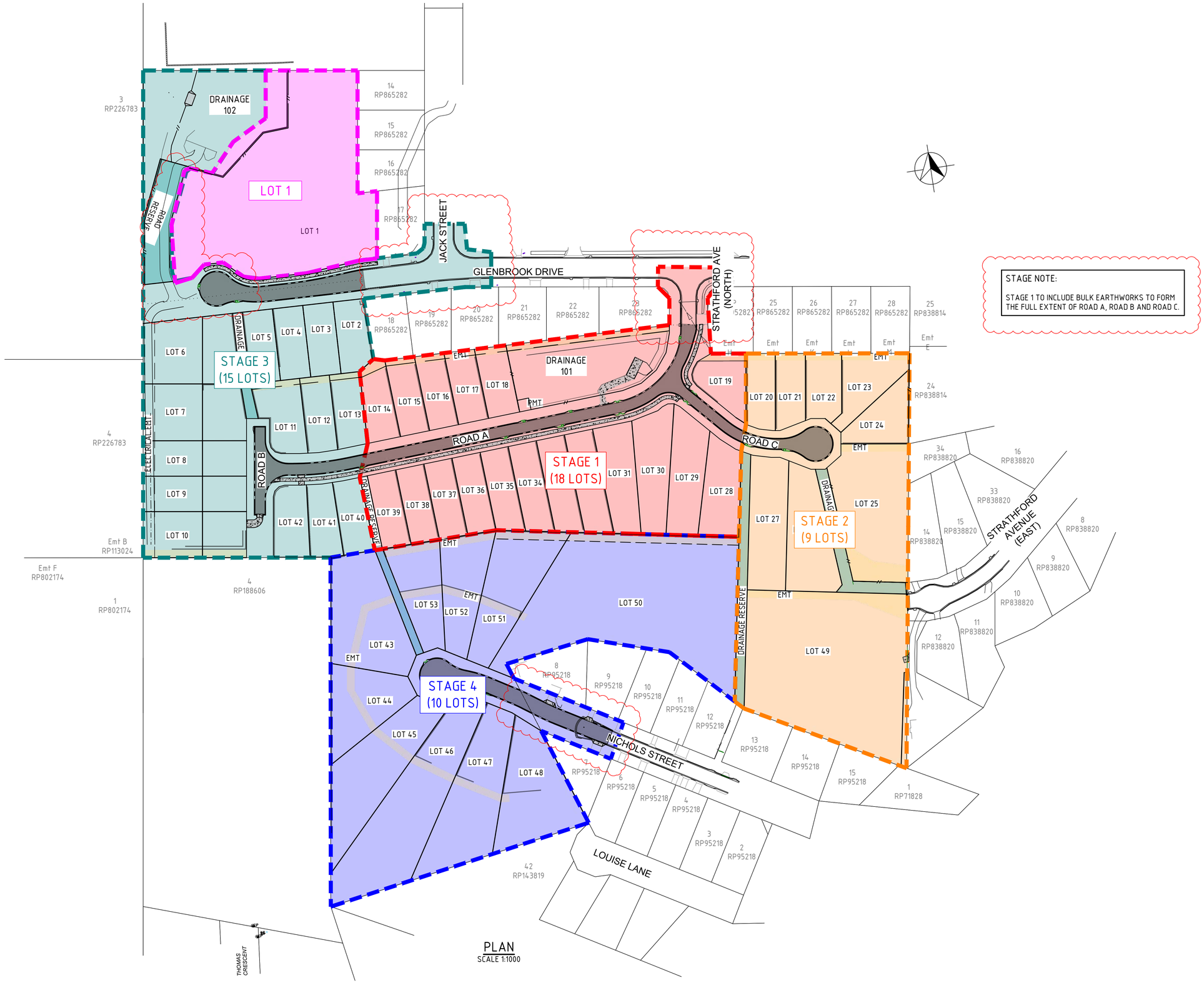

PLAN
SCALE 1:1000

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STAGING LAYOUT PLAN

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CA200 REV. B

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STORMWATER DRAINAGE NOTES

1 LEVELS TO AHD.
2 ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
3 ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON-SITE BEFORE WORK COMMENCES.
4 DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.
5 ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL AUTHORITIES CURRENT SPECIFICATIONS AND STANDARDS.
6 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH S.A.A CODES & BY-LAWS AND ORDINANCES OF THE RELEVANT LOCAL AUTHORITY AND WORKPLACE HEALTH AND SAFETY REQUIREMENTS.
7 THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL RELEVANT AUTHORITIES AND PAYING ALL FEES NECESSARY BEFORE COMMENCING WORK, FOR LOCATING ALL EXISTING SERVICES AND FOR REPAIR OF ANY SERVICES DAMAGED AS A RESULT OF THE WORKS.
8 FOOTPATHS AND PRIVATE PROPERTY SHALL BE REINSTATED TO THEIR ORIGINAL CONDITIONS.
9 THE CONTRACTOR'S ATTENTION IS DRAWN TO THE REQUIREMENTS OF THE WORKPLACE HEALTH AND SAFETY ACT 2011. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THIS ACT AND IN PARTICULAR THE CONTRACTOR IS TO ENSURE THE REQUIREMENTS OF THIS SPECIFICATION WITH REGARD TO 'NOTIFICATION IN RELATION TO A NOTIFIABLE PROJECT'S ARE FULFILLED.
10 ALL GULLIES TO BE 'LIP IN LINE' TYPE IN ACCORDANCE WITH COUNCIL STANDARD DRAWINGS.
11 PIPES SHALL NOT BE LAID WITHIN THE ZONE OF INFLUENCE OF STRUCTURAL LOADINGS UNLESS BRIDGING OF THE LOAD IS PROVIDED. ANY BRIDGING IS TO BE DESIGNED BY A RPEQ.
12 BENCHING OF PIT STRUCTURES SHALL HAVE A SMOOTH FINISHED SURFACE, AND PIPES SHALL NOT PROJECT INSIDE THE SHAFT OF THE PIT.
13 ALL ROOFWATER OUTLETS TO KERB TO BE MADE WITH FULL HEIGHT KERB ADAPTOR IN ACCORDANCE WITH RELEVANT COUNCIL STANDARD DRAWINGS.

SAFE ACCESS NOTE:

CONTRACTOR TO CLOSE FOOTPATH AND BARRICADE STABILISED ENTRY/EXIT. PROVIDE SAFE PEDESTRIAN ACCESS IN ACCORDANCE WITH THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICE.

ASBESTOS REMOVAL NOTE:

SHOULD ASBESTOS BE PRESENT, ITS REMOVAL SHALL BE CARRIED OUT IN ACCORDANCE WITH THE NATIONAL OH&S COMMITTEE - CODE OF PRACTICE FOR SAFE REMOVAL OF ASBESTOS AND ITS CODE OF PRACTICE FOR THE MANAGEMENT AND CONTROL OF ASBESTOS IN THE WORKPLACE.

WORKPLACE HEALTH AND SAFETY NOTE:

ALL WORKS UNDERTAKEN BY THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE QUEENSLAND WORK HEALTH AND SAFETY ACT 2011. CONTACT THE NEAREST OFFICE OF THE DIVISION OF WORKPLACE HEALTH AND SAFETY FOR INFORMATION. PHONE No. 1300 362 128.

DIAL BEFORE YOU DIG:

THIS DESIGN HAS BEEN PREPARED BASED ON SERVICE AUTHORITY AS CONSTRUCTED INFORMATION. NO POT HOLING HAS BEEN UNDERTAKEN TO VERIFY EXISTING SERVICE LOCATIONS AND DEPTHS. IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERTAKEN POT HOLING TO VERIFY THE DESIGN.

EXISTING SERVICES NOTE:

THIS DESIGN HAS BEEN PREPARED BASED ON SERVICE AUTHORITY AS CONSTRUCTED INFORMATION. NO POT HOLING HAS BEEN UNDERTAKEN TO VERIFY EXISTING SERVICE LOCATIONS AND DEPTHS. IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERTAKEN POT HOLING TO VERIFY THE DESIGN.

PAVEMENT CONSTRUCTION NOTES

1 UNBOUND, SOFT OR OTHERWISE DELETERIOUS MATERIAL AT SUBGRADE SHALL BE EXCAVATED AND REPLACED WITH IMPORTED MATERIAL WITH A MINIMUM CBR 10%.
2 MATERIAL EXCAVATED FROM CUT AREAS SHALL NOT BE USED AS FILLING FOR ROADS WITHOUT THE SUPERINTENDENTS APPROVAL.
3 SELECT FILL UNDER PAVEMENT TO BE PLACED AND COMPACTED IN 200mm MAXIMUM LOOSE THICKNESS LAYERS TO 95% MODIFIED COMPACTION.
4 ALL COMPACTION TO BE SUBJECTED TO TESTING IN ACCORDANCE WITH THE RELEVANT S.A.A. CODE.
5 MIN. DEPTH OF COURSES TO PAVEMENTS ARE DETAILED ON CROSS SECTIONS. ACTUAL PAVEMENT DEPTHS ARE TO BE DETERMINED FOLLOWING SOAKED CBR TESTS ON SUBGRADE.
6 ALL WORKS ARE TO BE GRADED TO PROVIDE DRAINAGE DURING CONSTRUCTION.
7 SUBGRADE IS TO BE COMPACTED AT OPTIMUM MOISTURE CONTENT TO ACHIEVE 98% STANDARD FOR THE TOP 300mm & 95% STANDARD BELOW THE TOP 300mm.
8 ALL TRENCHES IN ROADWAYS ARE TO BE BACKFILLED TO BOX LEVEL USING APPROVED MATERIAL WITH A MINIMUM CBR 15. THIS BACKFILL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm LOOSE AND COMPACTED UNTIL THE DRY DENSITY IS NOT LESS THAN 95% OF THE MATERIALS DRY DENSITY (MODIFIED COMPACTION). COMPACTION TESTS ARE TO BE CARRIED OUT IN EACH LAYER OF BACKFILL, ONE TEST EVERY 50m OR PART THEREOF. ONE IN FIVE TESTS TO BE LOCATED BESIDE A MANHOLE OR GULLY.
9 SIDE DRAINS SHALL CONNECT TO A FREE DRAINAGE OUTLET SUCH AS STORMWATER GULLY, KERB AND CHANNEL OR GROUND.
10 THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL RELEVANT AUTHORITIES BEFORE COMMENCING WORK, FOR LOCATIONS OF SERVICES & FOR REPAIR OF ANY DAMAGED SERVICES AS A RESULT OF THE WORK.
11 ALL WORK SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH THE RELEVANT LOCAL AUTHORITY REQUIREMENTS.
12 SIDE DRAINS ARE TO BE CONSTRUCTED UNDER ALL EXTERNAL KERB & CHANNEL IN ACCORDANCE WITH CURRENT SCRC STANDARDS.
13 REFER TO SCRC STANDARD SPECIFICATION FOR COMPACTION REQUIREMENTS AND TESTING FREQUENCIES.
14 REFER TO SCRC STANDARD SPECIFICATION FOR TRENCH BACKFILL REQUIREMENTS IN ROADS.

EROSION & SEDIMENT CONTROL GENERAL NOTES

1 THE SEQUENCE OF OPERATIONS SHALL BE AS FOLLOWS:
   a DELINEATION OF BUFFER AREAS AND DRAINAGE RESERVES, ERECTION OF BARRICADE FENCING.
   b LOCATION OF TOPSOIL STOCKPILES AND ERECTION OF DOWNHILL SILT FENCE.
   c CONSTRUCTION OF DIVERSION WORKS NECESSARY TO MINIMISE RUNOFF FROM ENTERING THE SITE.
   d CONSTRUCTION OF TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (eg. SILT FENCES).
   e LAND CLEARING AND TOPSOIL STRIPPING.
   f CONSTRUCTION OF STORMWATER DRAINAGE FACILITIES.
   g LAND SHAPING.
   h CONSTRUCTION OF ROADS AND ACCESSWAYS, INSTALLATION OF SERVICES.
   i FINAL REHABILITATION AND LANDSCAPING MAINTENANCE.
2 ALL SILT FENCES ARE TO BE INSTALLED PARALLEL TO CONTOURS UNLESS SHOWN OTHERWISE.
3 SILT FENCES ARE TO BE INSTALLED DOWNHILL AND DIVERSION BANKS UPHILL OF TOPSOIL STOCKPILES.
4 TOPSOIL STOCKPILES ARE TO BE MULCHED OR TEMPORARILY VEGETATED IF THEY ARE TO REMAIN FOR MORE THAN 30 DAYS.
5 MOVEMENT OF CONSTRUCTION EQUIPMENT SHALL BE LIMITED TO THE AREA OF WORK AND EXISTING ROADS.
6 DISTURBED AREAS ARE TO BE GRASSED FOLLOWING FINAL TRIMMING, AREAS ARE TO BE DISTURBED AND RESTORED PROGRESSIVELY.
7 ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED AND RE-INSPECTED AT THE END OF EACH DAY'S WORK DUE TO THE POSSIBILITY OF OVERNIGHT RAINS AND IMMEDIATELY PRIOR TO ANY POSSIBLE STORM EVENT.
8 KERB AND/OR SURFACE INLET SEDIMENT TRAPS ARE TO BE PROVIDED AT EACH DRAINAGE PIT UNTIL ADJACENT DISTURBED AREAS ARE FULLY RESTORED.
9 FILTER ROLLS TO BE PROVIDED AT ALL STORMWATER INLET PITS.
10 ANY DIRT/MUD/MATERIALS SPILT OR TRACKED ONTO THE COUNCIL'S ROADS IS TO BE BROOMED UP AND COLLECTED - NOT WASHED DOWN INTO THE STORM WATER DRAINS.

MINOR EROSION & SEDIMENTATION NOTES

1 FOLLOWING STORMS, THE ROAD RESERVE AND SEDIMENT BARRIERS ARE TO BE INSPECTED AND ALL SEDIMENT RESIDUES ARE TO BE REMOVED. OPEN PIPES AND GULLY PITS DURING CONSTRUCTION ARE TO BE CAPPEDOR PLUGGED (SOLID OR FILTER CLOTH) AT THE END OF EACH DAYS WORK.
2 ROADS AFFECTED BY WORKS ARE TO BE KEPT CLEAN. MATERIAL IS TO BE SWEPT FROM ROAD SURFACE.
3 REPAIR ANY DAMAGE TO EXISTING KERB AND CHANNEL, FOOTPATH OR ROADWAY THAT MAY OCCUR DURING ANY WORKS CARRIED OUT WITH THE APPROVED DEVELOPMENT.

EROSION & SEDIMENT CONTROL TRENCHING OPERATIONS

THE CONTRACTOR SHALL FOLLOW THE PROCEDURES BELOW TO MINIMISE SCOURING OF TRENCHES DURING RAINFALL EVENTS THAT OCCUR THROUGH THE CONSTRUCTION PHASE.

1 OPEN ONLY AS MUCH GROUND AS REQUIRED TO UNDERTAKE THE WORK AT HAND.
2 WHEREVER POSSIBLE CONSTRUCT LINES FROM UPSTREAM TO DOWNSTREAM.
3 PLACE BEDDING MATERIAL AS SOON AS PRACTICAL AFTER OPENING TRENCH.
4 CLOSE TRENCH AS SOON AS PRACTICABLE AFTER LAYING PIPE.
5 INSTALL FILTER ROLLS IN TRENCHES AT 10m CENTRES WHENEVER TRENCHES ARE PROPOSED TO BE LEFT OPEN AND UNATTENDED eg. OVERNIGHT.

ALL DISTURBED VERGE AREAS TO BE TURFED UPON COMPLETION OF WORKS.

EROSION STAGING NOTE:

THE EROSION MEASURES SHOWN ON THIS DRAWING ARE TO BE ADJUSTED THROUGHOUT THE COURSE OF CONSTRUCTION TO SUIT INTERIM STAGING OF THE BUILDING WORKS. ANY TEMPORARY SITE WORKS SHALL BE MANAGED IN A WAY NOT TO CAUSE ANY NUISANCE DRAINAGE IMPACTS TO ADJOINING OR DOWNSTREAM PROPERTIES. CONTACT CONSULTING ENGINEER FOR FURTHER DETAILS AS REQUIRED.

GENERAL EARTHWORKS NOTES

1 THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORK. ALL EXISTING SERVICES AND STRUCTURES ARE TO BE MAINTAINED IN GOOD ORDER FOR THE DURATION OF THE CONTRACT. ANY COSTS ASSOCIATED WITH REPAIRING DAMAGE TO EXISTING SERVICES SHALL BE PAID FOR BY THE CONTRACTOR.
2 THE CONTRACTOR SHALL VERIFY BENCH MARK LEVELS AND ADVISE THE SUPERINTENDENT OF ANY DISCREPANCY BEFORE COMMENCEMENT OF CONSTRUCTION.
3 ALL LEVELS ARE TO A.H.D.
4 THE SITE OF THE PROPOSED WORKS SHALL BE CLEARED OF ALL UNDESIRABLE MATTER. THIS SHALL INCLUDE DEAD TIMBER, GRASS, OLD FOUNDATIONS, CONCRETE, REDUNDANT MASONRY REMAINS, GARBAGE, DEBRIS, AND ALL OTHER OBSTRUCTIONS TO THE WORKS. HOLES LEFT BY THE REMOVAL OF ANY OF THE ABOVE SHALL BE FILLED WITH APPROVED COMPACTED MATERIAL WITH PROPERTIES AT LEAST SIMILAR TO INSITU SOILS.
5 CLEARED MATERIAL AND EARTHWORKS SPOIL SHALL BE REMOVED FROM THE SITE.
6 THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY ALL EARTHWORKS AND CLEARING OPERATIONS.
7 SITE EARTHWORKS GENERALLY, SHALL BE CARRIED OUT IN ACCORDANCE WITH AUSTRALIAN STANDARD AS 3798, GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS, UNLESS NOTED OTHERWISE.
8 TOPSOIL WHERE ENCOUNTERED SHALL BE STRIPPED AND STOCKPILED PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS OPERATION. THE LOCATION OF THE STOCKPILE ON SITE SHALL BE AS DIRECTED BY THE SUPERINTENDENT.
9 IF DURING EARTHWORKS OPERATIONS UNSUITABLE SUBGRADE MATERIAL IS ENCOUNTERED,THEN PRIOR TO ANY FILLING OPERATION THIS MATERIAL SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE SUPERINTENDENT WITH AN APPROVED SUITABLE MATERIAL.
10 FILL MATERIAL SHALL BE COMPACTED TO THE FOLLOWING STANDARD, WHERE DRY DENSITY RATIO IS DETERMINED IN ACCORDANCE WITH AS 1289 USING STANDARD COMPACTION METHODS.
   - 100% DRY DENSITY RATIO IN COHESIVE MATERIAL OR 80% IN COHESIONLESS MATERIAL FOR ROAD SUBGRADE.
   - 95% DRY DENSITY RATIO IN COHESIVE MATERIAL OR 65% IN COHESIONLESS MATERIAL FOR ALL AREAS OTHER THAN THE ROADWAY AND BUILDING PADS.
   - 98% DRY DENSITY RATIO IN COHESIVE MATERIAL OR 70% IN COHESIONLESS MATERIAL FOR BUILDING PADS.
11 THROUGHOUT THE EARTHWORKS OPERATION THE CONTRACTOR IS TO ENSURE THAT THE SITE IS SELF DRAINING. DAMAGE RESULTING FROM THE EXPOSURE SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.
12 FOR ANY TEMPORARY EARTHWORK BATTERS, APPROPRIATE STABILISATION, SLOPE AND LOCATION ONSITE IS TO BE SPECIFIED BY A SUITABILITY QUALIFIED GEOTECHNICAL ENGINEER. WORKS SHALL NOT PROCEED UNTIL ALL REQUIRED INFORMATION HAS BEEN RECEIVED FOR THE CONTRACTOR.

EARTHWORKS LEVEL 1 NOTE:

CONTRACTOR TO ARRANGE AND MAKE PAYMENT OF AN APPROVED RPEQ GEOTECHNICAL ENGINEER TO TEST, INSPECT AND CERTIFY ALL EARTHWORKS TO AS3798 LEVEL 1 CERTIFICATION.

SITE SPECIFIC EARTHWORKS & GEOTECHNICAL NOTES

1 THESE DRAWINGS TO BE READ IN CONJUNCTION WITH GEOTECHNICAL INVESTIGATION PREPARED BY "MORRISON GEOTECHNIC" DATED 05/05/20. CONTRACTOR TO CONSIDER TRAFFICABILITY DURING CONSTRUCTION AND MAKE ALLOWANCE IF DEEMED NECESSARY FOR A WORKING PLATFORM AS RECOMMENDED IN GEOTECHNICAL INVESTIGATION REPORT.
2 FOR THE RETAINING WALLS THAT ARE RETAINING FULL HEIGHT OF FILL MATERIAL, THE GROUND SLOPES IN FRONT OF THESE WALLS MUST BE RESTRICTED TO NO STEPPER THAN 1 IN 4.
3 STABILITY OF WALLS DEPEND ON ADEQUACY OF THE RETAINING WALL DESIGNS TO WITHSTAND INTERNAL STRUCTURAL FORCES AND AS SUCH THESE WALLS MUST BE DESIGNED AGAINST BASE SLIDING, OVERTURNING AND BEARING CAPACITY FAILURE.
4 BATTER SLOPES DO NOT EXCEED 1 IN 2.3 PROVIDED THAT THE LOWER TIER WALL ARE EMBEDDED/SOCKETED INTO WEATHERED ROCK.
5 AN EXPERIENCED GEOTECHNICAL ENGINEER AND ENGINEERING GEOLOGIST SHOULD ASSESS THIS AREA AT THE TIME OF EARTHWORKS TO ENSURE THE ADEQUACY OR SITE PREPARATION IN THIS AREA.
6 IT WILL BE IMPORTANT TO DEVELOP A COMPREHENSIVE CONSTRUCTION METHODOLOGY DURING DESIGN STAGE OF PROPOSED DEVELOPMENT, AND FOR ALL PARTIES INVOLVED TO LIAISE CLOSELY WITH MORRISON GEOTECHNIC
7 MORRISON GEOTECHNIC MUST CARRY OUT INSPECTIONS DURING EARTHWORKS AND CONSTRUCTION TO CONFIRM THE GEOTECHNICAL COMMENTS AND RECOMMENDATIONS GIVEN, AND IF GEOTECHNICAL 'CERTIFICATION' IS REQUIRED FOLLOWING CONSTRUCTION.
8 DURING CONSTRUCTION, STRIPPING OF MATERIAL CONTAINING ORGANICS WILL BE REQUIRED ACROSS DEVELOPMENT AREA. DEPTH TYPICALLY BETWEEN 0.1 m AND 0.3 m. DEEPER STRIPPING IS LIKELY TO BE REQUIRED IN SOME AREAS WHERE DEEPER ROOT AFFECTED MATERIALS ARE ENCOUNTERED. REMOVAL OF UNSUITABLE MATERIALS MAY BE REQUIRED ACROSS THE DRAINAGE OR GULLY LINES IF SOFT/LOOSE SEDIMENTS HAVE ACCUMULATED IN THESE AREAS.
9 THE VERY LOW TO LOW STRENGTH ROCK WAS NOTED TO GENERALLY HAVE PARTICLE SIZE OF LESS THAN 100mm UPON EXCAVATION FROM TEST PITS. THE LOW TO MEDIUM WAS NOTED TO HAVE A LARGER PARTICLE SIZE AFTER RIPPING FROM TEST PITS (GENERALLY UNDER 150mm BUT UP TO ABOUT 300mm). MEDIUM STRENGTH ROCK WON FROM EXCAVATIONS MAY CONTAIN SIGNIFICANT OVERSIZE PARTICLES DEPENDING ON THE METHOD OF EXCAVATION TOGETHER WITH DEFECT ORIENTATION AND SPACING WITHIN THE SUBJECT ROCK MASS. IF COMPACTION EFFORT DOES NOT BREAK DOWN THESE LARGER PARTICLES DURING PLACEMENT AS FILL, THIS MATERIAL MAY NOT BE SUITABLE FOR RE-USE UNLESS IT IS SORTED AND/OR CRUSHED TO MEET THE REQUIRED SPECIFICATION.
10 ALL EARTHWORKS PROCEDURES SHOULD BE CARRIED OUT IN A RESPONSIBLE MANNER IN ACCORDANCE WITH AS. 3798-2007 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS". THE EARTHWORKS CONTRACTOR SHOULD MAKE THEMSELVES FAMILIAR WITH THE SITE CONDITIONS.

ROADWORKS NOTES

1 ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2 ALL LEVELS ARE TO THE LIP OF KERB AND CHANNEL.
3 ROAD WIDTH DIMENSIONS REFER TO NOMINAL KERB LINE.
4 CO-ORDINATES FOR KERB/KERB & CHANNEL REFER TO NOMINAL KERB LINE/LIP OF CHANNEL RESPECTIVELY.
5 TOPSOIL IS TO BE STRIPPED AND REPLACED ON ALL DISTURBED EARTHWORKS AREAS WITHIN FOOTPATH AREA. EXCESS TOPSOIL SHALL BE DISPOSED OFF-SITE.
6 ALL TEMPORARY AND PERMANENT SIGNAGE AND LINEMARKING TO BE IN ACCORDANCE WITH MAIN ROADS STANDARDS (MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES).
7 ALL DIMENSIONS ARE TO BE CHECKED ON-SITE BEFORE WORK COMMENCES.
8 DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE DRAWING.
9 DURING CONSTRUCTION BARRIERS, LIGHTS & SIGNS SHALL BE MAINTAINED TO ENSURE SAFE PASSAGE OF TRAFFIC AND PEDESTRIANS IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY.
10 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE RELEVANT LOCAL AUTHORITY AND WORKPLACE HEALTH AND SAFETY REQUIREMENTS.
11 THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL RELEVANT AUTHORITIES AND PAYING ALL FEES NECESSARY BEFORE COMMENCING WORK, FOR LOCATING ALL EXISTING SERVICES AND FOR REPAIR OF ANY SERVICES DAMAGED AS A RESULT OF THE WORKS.
12 DAMAGED FOOTPATHS AND PRIVATE PROPERTY SHALL BE REINSTATED TO THEIR ORIGINAL CONDITION.
13 CONTRACTOR TO VERIFY ALL INVERT LEVELS, SURFACE LEVELS, COVER OVER DRAINAGE LINES, AND MINIMUM FALLS ARE CORRECT & OBTAINABLE PRIOR TO COMMENCEMENT OF WORK.
14 THE CONTRACTOR'S ATTENTION IS DRAWN TO THE REQUIREMENTS OF THE WORKPLACE HEALTH AND SAFETY ACT 2011. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THIS ACT AND IN PARTICULAR THE CONTRACTOR IS TO ENSURE THE REQUIREMENTS OF THIS SPECIFICATION WITH REGARD TO 'NOTIFICATION IN RELATION TO A NOTIFIABLE PROJECT' ARE FULFILLED.
15 ALL MANHOLE AND GULLIES DEEPER THAN 1.200m SHALL BE FITTED WITH STEPS IRONS IF REQUIRED BY STANDARD DRAWINGS.
16 CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORK. ALL EXISTING SERVICES AND STRUCTURES ARE TO BE MAINTAINED IN GOOD ORDER FOR THE DURATION OF THE CONTRACT. ANY COST ASSOCIATED WITH REPAIRING DAMAGE TO EXISTING SERVICES SHALL BE BORNE BY THE CONTRACTOR.

CONCRETE NOTES

1 ALL CONCRETE SUPPLY AND WORK SHALL MEET THE REQUIREMENTS OF AS3600.
2 CONCRETE GRADE SHALL BE N32.
3 AGGREGATE FOR CONCRETE SHALL BE CLEAN AND FREE OF CLAY PARTICLES.
4 NO ADMIXTURES TO THE CONCRETE SHALL BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT.
5 COMPLIANCE OF CONCRETE SUPPLY SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 20 OF AS3600.
6 CONCRETE SURFACE SHALL BE BROOM FINISHED.
7 CONCRETE SHALL NOT BE PLACED WHEN HOT DRY WIND CONDITIONS PREVAIL.
8 CONCRETE PLACED IN TEMPERATURES OVER 25 CENTIGRADE SHALL IMMEDIATELY AFTER PLACEMENT BE COATED WITH AN EVAPORATION RETARDANT AND/OR CURING OIL APPROVED BY THE ARCHITECT.
9 CONCRETE PAVEMENTS SHALL BE JOINTED AS DETAILED ON THE DRAWINGS. ALL SHRINKAGE CRACK CONTROL JOINTS SHALL BE SAWN WITHIN 24 HOURS OF CONCRETE PLACEMENT. ALL JOINTS SHALL BE SEALED WITH A PURPOSE MADE PROPRIETARY SEALANT. JOINT SEALANT SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
10 CONCRETE SHALL BE FULLY COMPACTED BEFORE SCREEDING WITH PARTICULAR CARE TAKEN AT EACH EXPANSION JOINT.
11 JOINT PREPARATION - BEFORE FRESH CONCRETE IS PLACED AT A CONSTRUCTION JOINT ROUGHEN AND CLEAN THE HARDENED CONCRETE SURFACE OF THE JOINT SO THAT ALL LOOSE OR SOFT FREE WATER, FOREIGN MATTER IS REMOVED. ALL JOINTS HOWEVER MADE SHALL BE PROVIDED WITH A GROOVE TO ACCOMMODATE SEALING MATERIAL.
12 DIMENSIONAL TOLERANCES.
   LENGTH SLAB (UP TO 18m): +or- 6mm
   WIDTH SLAB: +or- 6mm
   THICKNESS SLAB: + 10mm - 3mm
13 13. CURING. DURING THE CURING PERIOD MAINTAIN THE CONCRETE AT A REASONABLY CONSTANT TEMPERATURE, NOT EXCESSIVELY HOT OR COLD, TO MINIMISE MOISTURE LOSS, BY A SUITABLE METHOD WHICH MAY INCLUDE:
   - PONDING OR CONTINUOUS SPRINKLING WITH WATER (MOIST CURING)
   - AN IMPERMEABLE CLEAR MEMBRANE, TAPED AT JOINTS AND SEALED AT THE EDGES
   - AN ABSORPTIVE COVER KEPT CONTINUOUSLY WET
   - AN APPROVED CURING COMPOUND (SUBMIT DETAILS FOR APPROVAL PRIOR TO CONCRETING OPERATIONS TAKING PLACE, APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

   CURING PERIOD: CURE CONTINUOUSLY UNTIL THE CUMULATIVE NUMBER OF DAYS OR FRACTIONS THEREOF (NOT NECESSARILY CONSECUTIVE) DURING WHICH THE AIR TEMPERATURE IN CONTACT WITH THE CONCRETE IS ABOVE 10°, TOTALS NOT LESS THAN 7 DAYS.

STRUCTURAL ENGINEERING NOTES

1 ALL STRUCTURAL DESIGN AND DOCUMENTATION IS TO BE BY OTHERS AND IS NOT INCLUDED IN THIS SET OF DRAWINGS INCLUDING RETAINING WALLS AND LARGE STORMWATER CHAMBERS
2 ALL WALLS TO BE CONSTRUCTED AS SPECIFIED BY STRUCTURAL ENGINEER. STABILITY OF ALL EXISTING ADJACENT RETAINING WALLS AND STRUCTURES TO BE ASSESSED BY A STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF WORKS. PROPOSED RETAINING WALL CONSTRUCTION METHODOLOGY, INCLUDING STABILIZATION OF EXISTING RETAINING WALLS AND STRUCTURES, TO BE PROVIDED IN ACCORDANCE WITH STRUCTURAL ENGINEERS ADVICE.

BIO-RETENTION BASIN NOTES:

1. CONSTRUCTION TIMING MUST BE PLANNED TO PROTECT FILTER MEDIA FROM STORMWATER INFLOWS DURING CONSTRUCTION PROCESS. TYPICAL SUITABLE DRY PERIOD FOR CONSTRUCTION ARE AS FOLLOWS:
   SMALL SYSTEM - 1-2 DAYS
   LARGE SYSTEM - UP TO 5 DAYS

2. LANDSCAPING WORKS SHOULD OCCUR IMMEDIATELY AFTER CIVIL CONSTRUCTION OF BASIN COMPLETED TO LIMIT THE RISK OF EROSION OF BATTERS AND REDUCE LIKELIHOOD OF SILT LADEN RUNOFF ENTERING BASIN.

3. SUB-SURFACE DRAINAGE
   3.1. 100MM SLOTTED PVC PREFERRED.
   3.2. SLOTS TO BE NO GREATER THAN 2mm WIDE (AS REQUIRED BY AS2439 PART 1)
   3.3. MAXIMUM SPACING OF UNDER DRAINAGE PIPES SHOULD BE AS FOLLOWS:
      3.3.1. STREETSCAPE ZONES & SMALL PUBLIC ZONES (BIOSYSTEMS < 100m²) 1.5m CENTRE TO CENTRE.
      3.3.2. LOCAL PARKS & LARGE OPEN SPACES (BIOSYSTEMS > 100m²) 2.0m-2.5m CENTRE TO CENTRE.
   3.4. MAX. LENGTH OF 100ø SLOTTED PIPE IS 25m BEFORE PIPE SIZE MUST BE INCREASED.
   3.5. SUB-SURFACE DRAINAGE TO BE LAID AT 0.5% MINIMUM TOWARDS OVERFLOW PIT.

4. FILTER MEDIA
   4.1. SHOULD BE FREE OF RUBBISH AND DELETERIOUS MATERIAL AND THE LIKE.
   4.2. IN QUEENSLAND, BIO-SYSTEMS FILTER MEDIA MUST COMPLY WITH THE FOLLOWING:
      4.2.1. SATURATED HYDRAULIC CONDUCTIVITY: 100-500MM/HR
      4.2.2. MEET GUIDELINE SPECIFICATIONS FOR BIOFILTRATION FILTER MEDIA BY FACILITY FOR ADVANCED WATER BIOFILTRATION (FAWB)

5. TESTING FREQUENCIES
   5.1. SMALL TO MEDIUM BIOSYSTEMS (<100m²)
      5.1.1. ONE (1) SAMPLE PER 500m³ FOR FAWB GUIDELINE SPECIFICATION TESTS
   5.2. LARGE BIOSYSTEMS (>100m²)
      5.2.1. ONE (1) SAMPLE PER 2000m³ FOR THE FAWB GUIDELINE SPECIFICATION TESTS PLUS ONE (1) SAMPLE PER 500m³ FOR HYDRAULIC CONDUCTIVITY TEST.
   5.3. TESTS MUST BE PERFORMED ON ACTUAL MATERIAL TO BE DELIVERED TO THE BIORETENTION BASIN SITE. SUPPLIER & CONTRACTOR TO ENSURE FILTER MATERIAL MEETS SPECIFICATIONS AND CORRECT MATERIAL DELIVERED PRIOR TO INSTALLATION.

6. TRANSITION LAYER
   6.1. TO BE MINIMUM 100mm THICK.
   6.2. TO COMPRISE OF COARSE SAND (TYPICALLY 1mm).

7. DRAINAGE LAYER
   7.1. TO COMPRISED OF FINE GRAVEL (2 - 4mm).
   7.2. SATURATED HYDRAULIC CONDUCTIVITY - 4000mm/HR MINIMUM.
   7.3. DRAINAGE LAYER DEPTH - ENSURE AT LEAST 100mm COVER ABOVE UNDER DRAINAGE PIPES. I.E. TYPICAL DRAINAGE LAYER DEPTH 200mm MIN.

8. CERTIFICATION REQUIREMENTS
   8.1. SUPPLIER AND CONTRACTOR RESPONSIBLE FOR ENSURING BIO-SYSTEM MEDIA MEETS SPECIFICATIONS OUTLINED AND CORRECT MATERIAL DELIVERED TO SITE.
   8.2. SUPPLIER TO COMPLETE TESTING FOR FILTER MEDIA AND CERTIFY FILTER MEDIA.
   8.3. SUPPLIER TO PROVIDE CERTIFICATION AND TEST RESULTS TO CONTRACTOR WITH SUPPLY DOCKET.
   8.4. CONTRACTOR TO PROVIDE COPY OF SUPPLIERS' CERTIFICATION, TEST RESULTS AND SUPPLY DOCKET TO SITE SUPERVISOR AND/OR BIO-SYSTEM DESIGNER FOR REVIEW.

9. INSPECTION AND SURVEY REQUIREMENTS
   9.1. CONSTRUCTION SHOULD NOT PROCEED PAST ALL NOTED HOLD POINTS UNTIL AN INSPECTION IS UNDERTAKEN BY SUPERINTENDENT OR BIO-SYSTEM DESIGNER AND DIRECTION IS GIVEN TO DO SO.

PRIOR TO CONSTRUCTION THE DEVELOPER, SUPERINTENDENT, BIO-RETENTION DESIGNER, CIVIL ENGINEER, LANDSCAPE ARCHITECT, CIVIL CONTRACTOR AND LANDSCAPE CONTRACTOR TO SIGN OFF ON HEALTHY WATERWAYS BIO-RETENTION BASIN CONSTRUCTION PRESTART MEETING FORM.

   9.2.
      9.2.1. HOLD POINT 1 :- AFTER BULK EARTHWORKS ARE COMPLETE, GRATED PIT INSTALLED AND OVERFLOW WEIR CONSTRUCTED. AS CONSTRUCTED SURVEY IS TO BE PROVIDED TO SUPERINTENDANT OR BIO-SYSTEMS DESIGNER OF SUBGRADE SURFACE LEVEL AS WELL AS ASSOCIATED DRAINAGE PITS. SURVEY MUST DEMONSTRATE MIN 0.5% FALL ON SUBGRADE.

PRIOR TO PROCEEDING SUPERINTENDENT AND BIO-RETENTION DESIGNER TO SIGN OFF ON HEALTHY WATERWAYS BIO-RETENTION BASIN CONSTRUCTION FORM A.

      9.2.2. HOLD POINT 2 :- AFTER IMPERMIABLE LINER, SUB-SURFACE DRAINAGE AND CLEANOUTS CONSTRUCTED.

PRIOR TO PROCEEDING SUPERINTENDENT AND BIO-RETENTION DESIGNER TO SIGN OFF ON HEALTHY WATERWAYS BIO-RETENTION BASIN CONSTRUCTION FORM B.

      9.2.3. HOLD POINT 3 :- AFTER DRAINAGE LAYER INSTALLED COVERING SUB-SURFACE DRAINAGE.

      9.2.4. HOLD POINT 4 :- AFTER TRANSITION LAYER INSTALLED.

      9.2.5. HOLD POINT 5 :- AFTER FILTER MEDIA LAYER INSTALLED. AS CONSTRUCTED SURVEY TO BE TAKEN AT TOP OF THIS LAYER AND PROVIDED TO SUPERINTENDANT OR BIO-SYSTEMS DESIGNER.

PRIOR TO PROCEEDING SUPERINTENDENT AND BIO-RETENTION DESIGNER TO SIGN OFF ON HEALTHY WATERWAYS BIO-RETENTION BASIN CONSTRUCTION FORM C & D.

      9.2.6. HOLD POINT 6 :- AFTER SEDIMENT FOREBAY CONSTRUCTED (IF APPLICABLE).

PRIOR TO PROCEEDING SUPERINTENDENT AND BIO-RETENTION DESIGNER TO SIGN OFF ON HEALTHY WATERWAYS BIO-RETENTION BASIN CONSTRUCTION FORM E.

AFTER BIO-RETENTION BASIN CIVIL WORKS ARE COMPLETE PROTECTIVE MEASURES SHALL BE INSTALLED AS DIRECTED BY THE SUPERINTENDENT AND / OR BIO-RETENTION DESIGNER AND HEALTHY WATERWAYS BIO-RETENTION BASIN CONSTRUCTION FORM F COMPLETED.

AFTER BIO-RETENTION BASIN LANDSCAPE WORKS ARE COMPLETE THE SUPERINTENDENT AND BIO-RETENTION DESIGN TO SIGN OFF ON HEALTHY WATERWAYS BIO-RETENTION BASIN CONSTRUCTION FORM G.

AFTER BIO-RETENTION BASIN LANDSCAPE WORKS ARE ESTABLISHED THE SUPERINTENDENT AND BIO-RETENTION DESIGN TO SIGN OFF ON HEALTHY WATERWAYS BIO-RETENTION BASIN CONSTRUCTION FORM H.

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT	PROJECT	TITLE
PARKER PROPERTY NINGI PTY LTD	41 GLENBROOK DRIVE, NAMBOUR	PROJECT GENERAL NOTES SHEET 1 OF 2

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CA300		B

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ENVIRONMENTAL NOTES:

1. THE CONTRACTOR SHALL ENGAGE AN APPROVED CONSULTING ENGINEER TO PROVIDE ENVIRONMENTAL ADVICE ON THE GENERAL MANAGEMENT OF THE PROPOSED BASIN AND RELEASING STORMWATER FROM THE BASIN AND/OR SITE, UNCLUDING BUT NOT LIMITED TO:

   (I) ONLY CLEARING VEGETATION IMMEDIATELY PRIOR TO AN AREA BEING ACTIVELY WORKED;
   (II) STAGING THE WORKS TO MINIMISE THE AREA OF SOIL EXPOSED AT ANY ONE TIME;
   (III) EFFECTIVELY STABILISING CLEARED AREAS IF WORKS ARE DELAYED OR WORKS ARE NOT INTENDED TO OCCUR IMMEDIATELY;
   (IV) EFFECTIVELY STABILISING AREAS AT FINISHED LEVEL WITHOUT DELAY AND PRIOR TO RAINFALL; AND
   (V) EFFECTIVELY STABILISING STEEP AREAS, SUCH AS STOCKPILES, BATTERS AND EMBANKMENTS, WHICH ARE NOT BEING ACTIVELY WORKED AND PRIOR TO RAINFALL;

NOTE – AN EFFECTIVELY STABILISED SURFACE IS ONE THAT DOES NOT HAVE VISIBLE EVIDENCE OF SOIL LOSS CAUSED BY SHEET, RILL OR GULLY EROSION, LEAD TO SEDIMENTATION OR LEAD TO WATER CONTAMINATION.

2. THE CONTRACTOR SHALL ENSURE CLEAN STORMWATER IS DIVERTED OR MANAGED AROUND OR THROUGH THE SITE WITHOUT INCREASING THE CONCENTRATION OF TOTAL SUSPENDED SOLIDS OR OTHER CONTAMINANTS IN THE FLOW AND WITHOUT CAUSING EROSION (ON SITE OR OFF SITE). IF IT IS NOT FEASIBLE TO DIVERT ALL AREAS DISCHARGING CLEAN STORMWATER AROUND OR THROUGH THE SITE, MANAGE THE CLEAN STORMWATER RUNOFF AS FOR CONTAMINATED STORMWATER RUNOFF AND ENSURE THAT SEDIMENT BASINS ARE SIZED TO ACCOMMODATE THE ADDITIONAL VOLUME OF RUNOFF;

3. DIVERTING CLEAN STORMWATER RUNOFF INTO A SEDIMENT BASIN IS A CONSIDERED INFERIOR OPTION TO DIVERTING CLEAN STORMWATER AROUND OR THROUGH THE SITE BECAUSE IT WILL CAUSE AN INCREASE IN THE VOLUME AND FREQUENCY OF CONTAMINATED RELEASE FROM THE SEDIMENT BASIN. FOR THIS REASON, DIVERTING CLEAN STORMWATER INTO A SEDIMENT BASIN IS NOT ACCEPTABLE UNLESS THE CONTRACTOR DEMONSTRATES TO THE CONSULTING ENGINEER THAT DIVERTING CLEAN STORMWATER AROUND OR THROUGH THE SITE IS NOT FEASIBLE.

4. THE CONTRACTOR SHALL ENSURE SHEET FLOWS OF STORMWATER ARE MANAGED SUCH THAT SHEET AND RILL EROSION ARE PREVENTED OR MINIMISED;

5. THE CONTRACTOR SHALL ENSURE THAT ALL CONCENTRATED STORMWATER FLOWS INCLUDING DRAINAGE LINES, DIVERSION DRAINS, CHANNELS AND BATTER CHUTES ARE MANAGED ONTO, THROUGH, AND AT RELEASE POINTS FROM THE SITE IN ALL RAIN EVENTS UP TO AND INCLUDING THE AEP EVENT OF:-

   (I) 39% AEP IF THE DISTURBED AREA IS OPEN FOR LESS THAN 12 MONTHS; OR
   (II) 18% AEP IF THE DISTURBED AREA IS OPEN FOR BETWEEN 12 AND 24 MONTHS; OR
   (III) 10% AEP IF THE DISTURBED AREA IS OPEN FOR MORE THAN 24 MONTHS; AND

6. TEMPORARY SWALES AND CONCENTRATED STORMWATER FLOWS SHALL BE PROVIDED AND SHALL NOT CAUSE:

   (I) WATER CONTAMINATION; OR
   (II) SHEET, RILL OR GULLY EROSION; OR
   (III) SEDIMENTATION; OR
   (IV) DAMAGE TO STRUCTURES OR PROPERTY.

7. MIN FREEBOARD OF 150mm PER DERM 2010 SW GUIDELINES IS RECOMMENDED.

SEDIMENT BASINS

8. EACH SEDIMENT BASIN SHALL HAVE CAPACITY TO TREAT FLOWS TO CURRENT BEST PRACTICE STANDARDS AND AS A MINIMUM TO CONTAIN ALL THE STORMWATER RUNOFF FROM THE 80TH PERCENTILE 5 DAY RAINFALL DEPTH AND STORE 2 MONTHS SEDIMENT FROM THE RECEIVING CATCHMENT, AS DETERMINED USING THE REVISED UNIVERSAL SOIL LOSS EQUATION.

9. SEDIMENT BASINS SHALL BE MAINTAINED BY THE CONTRACTOR WITH SUFFICIENT STORAGE CAPACITY TO CAPTURE AND TREAT THE RUNOFF FOR BOTH PERCENTILE 5 DAY EVENT PER SCC SC6-251 GUIDELINE AND PER THE APPROVED DRAWINGS.

10. SEDIMENT BASINS SHALL BE DEWATERED AS SOON AS PRACTICABLE AFTER EACH RAINFALL EVENT AND WITHIN 2 DAYS OF RAINFALL CEASING. THE CONTRACTOR SHALL BE AWARE OF THEIR OBLIGATIONS UNDER THE ENVIRONMENTAL PROTECTION ACT IN REGARD AND SHALL SEEK …

11. STORMWATER CAPTURED IN SEDIMENT BASINS SHALL BE TREATED PRIOR TO DISCHARGE TO MINIMISE THE CONCENTRATION OF CONTAMINANTS RELEASED FROM THE SITE, HAVING DUE REGARD TO FORECAST RAINFALL AND ENSURING THAT RELEASES ARE IN ACCORDANCE WITH THE RELEASE LIMITS AS SPECIFIED IN THIS SECTION.

12. DEWATERED FLOWS FROM SEDIMENT BASINS SHALL BE TESTED BY A W.A.T.A TESTING AUTHORITY AND SHALL COMPLIANT WITH THE RELEASE LIMITS AS SPECIFIED, UNLESS IT CAN BE DEMONSTRATED THAT A NON-COMPLIANT RELEASE OCCURRED TO FACILITATE A BETTER ENVIRONMENTAL OUTCOME. FOR EXAMPLE, HIGHER TSS CONCENTRATIONS MAY BE ACCEPTABLE IN CIRCUMSTANCES WHERE FURTHER RAIN IS IMMINENT AND IT CAN BE SUBSTANTIATED THAT RELEASING PARTIALLY TREATED BASIN WATER THAT HAS A TSS CONCENTRATION EXCEEDING THE RELEASE LIMIT WOULD MINIMISE THE TOTAL CONTAMINATION RELEASED FROM THE SITE, BY PROVIDING FOR THE CAPTURE AND TREATMENT OF EXPECTED RUNOFF. HOWEVER, RELEASING WATERS FROM SEDIMENT BASINS WITHOUT TREATMENT IS NOT ACCEPTABLE.

13. SEDIMENT BASINS AND ASSOCIATED STRUCTURES SUCH AS INLETS, OUTLETS AND SPILLWAYS SHALL BE CONSTRUCTED TO BE STRUCTURALLY SOUND FOR A 10% AEP RAINFALL EVENT UNDER NORMAL CIRCUMSTANCES AND FOR A 1% AEP RAINFALL EVENT IF FAILURE OF THE BASIN POSES A THREAT TO DOWNSTREAM DWELLINGS OR PUBLIC SAFETY.

14. ACCUMULATED SEDIMENT FROM BASINS AND OTHER CONTROLS SHALL BE REMOVED AND DISPOSED OF APPROPRIATELY WITHOUT CAUSING WATER CONTAMINATION. BEFORE, DURING, AND IMMEDIATELY AFTER EACH RAINFALL EVENT …

EROSION AND SEDIMENT CONTROLS (OTHER THAN SEDIMENT BASINS)

15. MEASURES SHALL BE IMPLEMENTED SUCH THAT THE RUNOFF FROM ALL DISTURBED AREAS FLOWS TO A SEDIMENT BASIN. WHERE IT IS NOT FEASIBLE TO DIVERT RUNOFF FROM SMALL DISTURBED AREAS OF THE SITE TO A SEDIMENT BASIN, IMPLEMENT COMPENSATORY EROSION AND SEDIMENT CONTROLS PRIOR TO RAINFALL TO ENSURE THAT EROSION OF THOSE AREAS DOES NOT OCCUR, INCLUDING EROSION CAUSED BY EITHER SPLASH (RAINDROP IMPACT), SHEET, RILL OR GULLY EROSION PROCESSES.

16. COMPENSATORY CONTROLS ARE EROSION CONTROLS, FLOW CONTROLS AND SEDIMENT CONTROLS WHICH COMPENSATE FOR THE LACK OF SEDIMENT BASIN AND ARE APPLIED SUCH THAT THE TYPE, TIMING, PLACEMENT AND MANAGEMENT OF CONTROLS MINIMISE THE POTENTIAL FOR WATER CONTAMINATION AND ENVIRONMENTAL HARM. THIS IS PRIMARILY ACHIEVED BY REDUCING THE RISK OF EROSION AND SUBSEQUENT SEDIMENT RELEASE, FOR EXAMPLE, BY TURFING OR MULCHING AND MANAGING CONCENTRATED FLOWS IN THE AREA.

17. WHERE IT IS NOT FEASIBLE TO EFFECTIVELY STABILISE CLEARED AREAS OF EXPOSED SOIL, SUCH AS AREAS BEING ACTIVELY WORKED, A FULL SUITE OF EROSION AND SEDIMENT CONTROLS SHOULD BE IMPLEMENTED TO MAXIMISE SEDIMENT CAPTURE IN THOSE AREAS AND MINIMISE EROSION SUCH THAT ALL FORMS OF EROSION, OTHER THAN SPLASH EROSION (RAINDROP IMPACT) AND SHEET EROSION, DOES NOT OCCUR.

18. FOR AREAS OF EXPOSED SOIL WHERE IT IS NOT FEASIBLE TO EITHER EFFECTIVELY STABILISE THE SURFACE OR IMPLEMENT A FULL SUITE OF EROSION AND SEDIMENT CONTROLS (FOR EXAMPLE IN THE AREAS BEING ACTIVELY WORKED AND WHERE THE IMPLEMENTATION OF SOME EROSION AND SEDIMENT CONTROLS WOULD IMPEDE CONSTRUCTION ACTIVITIES) THE CONTRACTOR SHALL ENSURE CONTINGENCY MEASURES ARE AVAILABLE ON SITE AND ARE IMPLEMENTED, PRIOR TO RAIN, TO MAXIMISE SEDIMENT CAPTURE IN THOSE AREAS AND MINIMISE EROSION SUCH THAT ALL FORMS OF EROSION, OTHER THAN SPLASH EROSION (RAINDROP IMPACT) AND SHEET EROSION DOES NOT OCCUR. THIS DOES NOT APPLY TO MAJOR EROSION AND SEDIMENT CONTROLS SUCH AS SEDIMENT BASINS. MAJOR CONTROLS SHALL BE INSTALLED BEFORE OTHER WORKS COMMENCE.

19. ALL STOCKPILES, BATTERS AND EMBANKMENTS SHALL BE EFFECTIVELY STABILISED WITHOUT DELAY. WHERE IT IS NOT FEASIBLE TO EFFECTIVELY STABILISE A STOCKPILE, BATTER OR EMBANKMENT, SUCH AS AREAS BEING ACTIVELY WORKED, ENSURE THAT SEDIMENT CONTROLS ARE INSTALLED AND SURFACE STORMWATER FLOWS ARE MANAGED SUCH THAT EROSION OF STOCKPILES, BATTERS OR EMBANKMENTS IS NOT CAUSED BY CONCENTRATED STORMWATER FLOWS.

20. ALL REASONABLE MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO ENSURE SEDIMENT DOES NOT LEAVE THE SITE ON THE TYRES OF VEHICLES.

21. THE CONTRACTOR SHALL ALSO REFER TO THE ARBORIST'S REPORT FOR THE LOCATION OF THE PROTECTED ZONES (TPZ). ALL WORK UNDERTAKEN WITHIN OR ADJACENT TO THE TPZ SHALL BE SUPERVISED BY AN APPROVED ARBORIST.

EFFECTIVE STABILISATION PRIOR TO PLAN SEALING

22. PRIOR TO THE SEALING OF THE PLAN OF SURVEY FOR THE DEVELOPMENT, ALL SITE SURFACES SHALL BE EFFECTIVELY STABILISED (UNLESS OTHERWISE APPROVED) USING METHODS THAT WILL CONTINUE TO ACHIEVE EFFECTIVE STABILISATION IN THE MEDIUM TO LONG TERM. FOR THE PURPOSES OF THIS REQUIREMENT, AN EFFECTIVELY STABILISED SURFACE IS ONE THAT DOES NOT, OR IS NOT LIKELY TO, RESULT IN VISIBLE EVIDENCE OF SOIL LOSS CAUSED BY SHEET, RILL OR GULLY EROSION OR LEAD TO SEDIMENTATION, OR LEAD TO WATER CONTAMINATION.

SEDIMENT BASIN RELEASE LIMITS

23. ALL RELEASES OF STORMWATER CAPTURED IN A SEDIMENT BASIN, UNLESS APPROVED OTHERWISE BY THE LOCAL AUTHORITY, ARE NOT TO EXCEED THE FOLLOWING LIMITS:

   - 50 MILLIGRAMS LITRE (MG/L) OF TSS AS A MAXIMUM CONCENTRATION;
   - TURBIDITY (NTU) VALUE LESS THAN 10% ABOVE BACKGROUND; AND
   - PH VALUE MUST BE IN THE RANGE 6.5 TO 8.0 EXCEPT WHERE, AND TO THE EXTENT THAT, THE NATURAL RECEIVING WATERS LIE OUTSIDE THIS RANGE AND PRIOR WRITTEN APPROVAL IS OBTAINED FROM THE LOCAL AUTHORITY.

24. BACKGROUND REFERS TO RECEIVING WATERS IMMEDIATELY UPSTREAM OF SITE WATERS ENTRY POINTS AT THE TIME OF RELEASE.

25. THE CONCENTRATION OF TSS RELEASED BY DEWATERING MAY ONLY EXCEED 50MG/L WHERE IT CAN BE DEMONSTRATED AND SUPPORTED THROUGH SUNSHINE COAST COUNCIL APPROVED DOCUMENTATION THAT:-

   (A) FURTHER SIGNIFICANT RAINFALL IS FORECAST TO OCCUR BEFORE THE TSS CONCENTRATION IS LIKELY TO BE REDUCED TO 50MG/L;

   (B) RELEASING A HIGHER CONCENTRATION OF TOTAL SUSPENDED SOLIDS WILL RESULT IN A BETTER ENVIRONMENTAL OUTCOME BY PROVIDING STORAGE FOR THE CAPTURE AND TREATMENT OF RUNOFF FROM THE IMMINENT RAINFALL AND RUNOFF; AND

   (C) FLOCCULENT HAS BEEN APPLIED AND THE CONCENTRATION OF TSS IN THE CAPTURED WATER HAS ALREADY SIGNIFICANTLY DECREASED.

26. FOR ALL OTHER STORMWATER RELEASES, FLOWS AND DISCHARGES FROM THE SITE, THE RELEASE LIMITS PRESCRIBED IN (23) ABOVE ARE NOT TO BE EXCEEDED UNLESS THE DEVELOPMENT IS IN FULL COMPLIANCE WITH SC6.14.6.4 (STORMWATER MANAGEMENT PROGRAMS AND EROSION AND SEDIMENT CONTROL PLANS).

WATER QUALITY

27. DISCHARGE OF WATER POLLUTANTS, WASTEWATER OR STORMWATER FROM THE SITE MUST NOT CAUSE MEASURED LEVELS OF WATER POLLUTANTS IN THE RECEIVING WATERS TO FALL OUTSIDE THE ACCEPTABLE RANGES SPECIFIED IN THE 'AUSTRALIAN WATER QUALITY GUIDELINES FOR FRESH AND MARINE WATERS' AUSTRALIAN AND NEW ZEALAND ENVIRONMENTAL AND CONSERVATION COUNCIL (ANZECC) 2000.

WORKS WITHIN A WATERCOURSE

28. THE CONTRACTOR IS ADVISED THAT THE PROPOSAL MAY INVOLVE WORKS WITHIN A WATERCOURSE WHICH WILL REQUIRE REFERRAL TO THE DEPARTMENT OF NATURAL RESOURCES UNDER THE WATER ACT 2000 AND SUSTAINABLE PLANNING ACT 2009 AT THE TIME OF MAKING AN APPLICATION FOR OPERATIONAL WORKS.

29. DEVELOPER IS TO ARRANGE FOR A CONSTRUCTION PHASE STORMWATER MANAGEMENT PROGRAMME AND DESIGN CERTIFICATE AND SUBMIT TO COUNCIL MINIMUM TWO (2) DAYS PRIOR TO THE PRE-START MEETING. REFER TO SUNSHINE COAST PLANNING SCHEME 2014 SC6-249.

30. THE CONTRACTOR'S ATTENTION IS DRAWN TO THE REQUIREMENTS AND OBLIGATIONS OF THE ENVIRONMENTAL PROTECTION ACT (1994), PARTICULARILY THE ENVIRONMENTAL PROTECTION (WATER) POLICY 2009 AND THE APPROVED ENVIRONMENTAL AND GEOTECHNICAL DOCUMENTATION.

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: PROJECT GENERAL NOTES SHEET 2 OF 2

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 – CA301
REV. B

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LEGEND

- EXISTING CONTOURS
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- STABILISED ENTRY/EXIT POINT REFER TO C3602-CE02 FOR DETAILS
- SILT FENCE REFER TO C3602-CE02 FOR DETAILS
- TEMPORARY DIVERSION DRAIN REFER TO C3602-CE02 FOR DETAILS
- PROPOSED ROCK CHECK DAM REFER TO C3602-CE02 FOR DETAILS
- PROPOSED INLET SOCK PROTECTION REFER TO C3602-CE02 FOR DETAILS
- FUTURE/PREVIOUS STAGES
- FREE DRAIN AREAS
- CATCHMENT AREA FOR AREA OF WORKS

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

DO NOT SCALE FROM DRAWING
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: EROSION AND SEDIMENT CONTROL STAGE 1

DRAWN	DESIGNED	DATE
CA	MW	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 – CE001 REV. B

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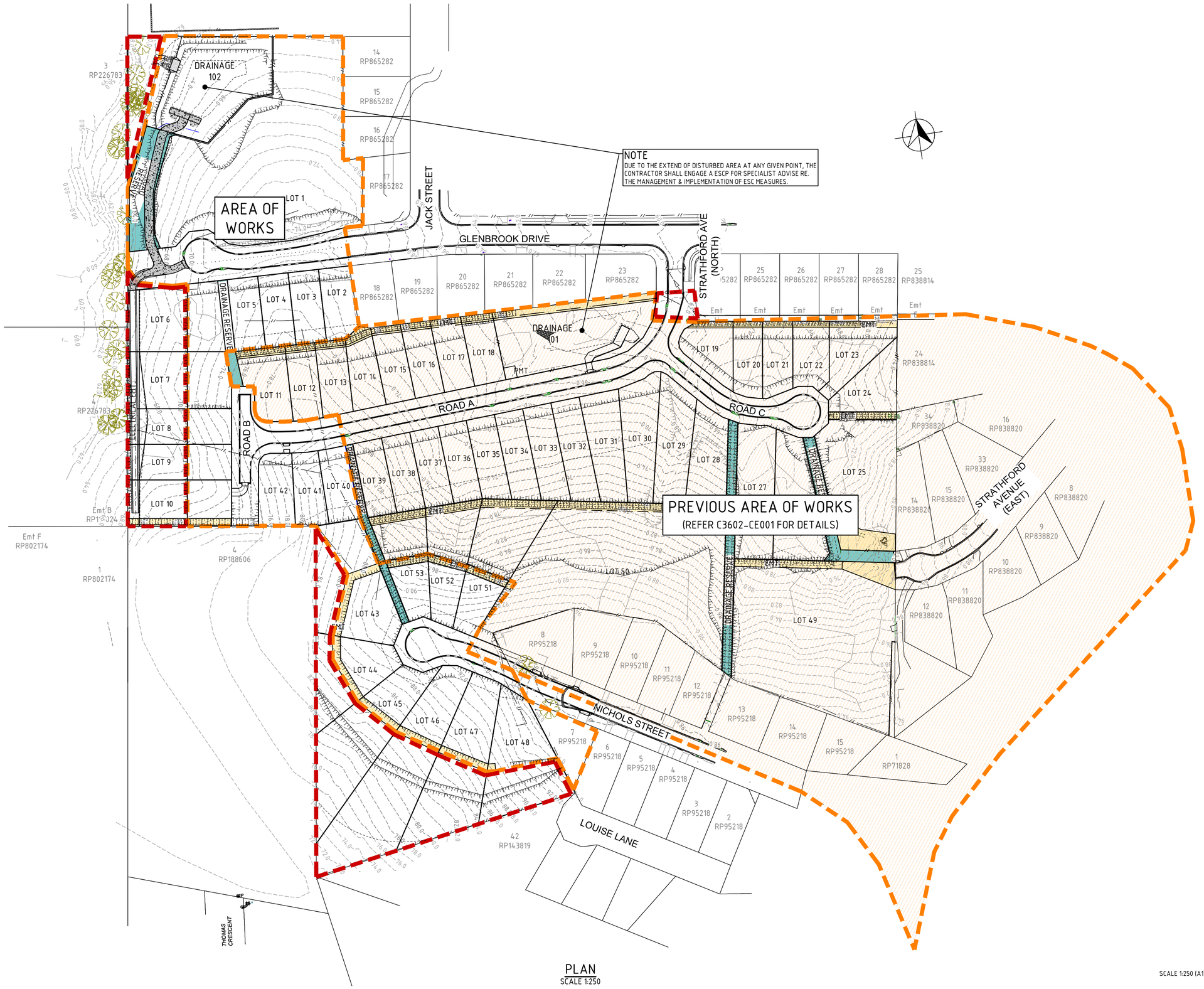
NOT FOR CONSTRUCTION



LEGEND

- EXISTING CONTOURS
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- STABILISED ENTRY/EXIT POINT — REFER TO C3602-CE02 FOR DETAILS
- SILT FENCE — REFER TO C3602-CE02 FOR DETAILS
- TEMPORARY DIVERSION DRAIN — REFER TO C3602-CE02 FOR DETAILS
- PROPOSED ROCK CHECK DAM — REFER TO C3602-CE02 FOR DETAILS
- PROPOSED INLET SOCK PROTECTION — REFER TO C3602-CE02 FOR DETAILS
- FUTURE/PREVIOUS STAGES
- FREE DRAIN AREAS
- CATCHMENT AREA FOR AREA OF WORKS

PLAN
SCALE 1:250

SCALE 1:250 (A1) 0 5 10 15m
(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: EROSION AND SEDIMENT CONTROL STAGE 2

DRAWN	DESIGNED	DATE
CA	MW	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 – CE002 REV. B

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ALL SCALES ARE AS SHOWN (A1)

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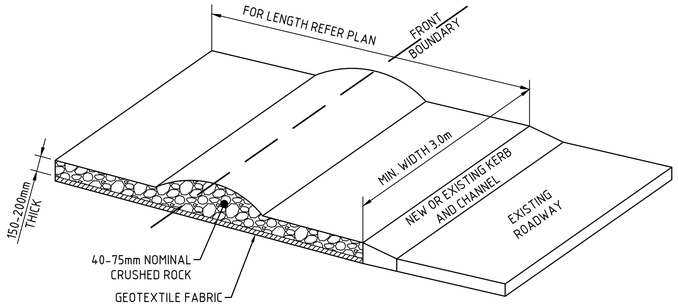
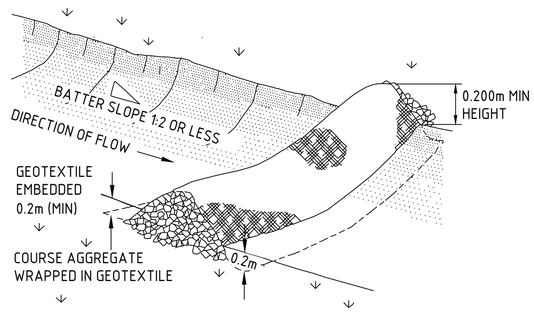


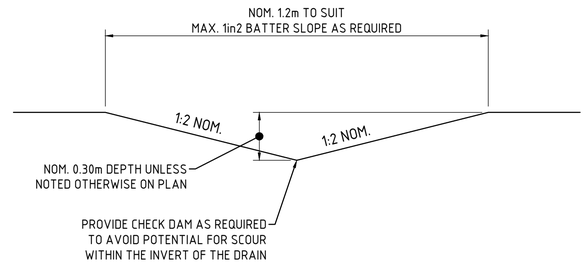
STABILISED ENTRY/EXIT POINT TYPICAL DETAIL DURING CONSTRUCTION PHASE

N.T.S.



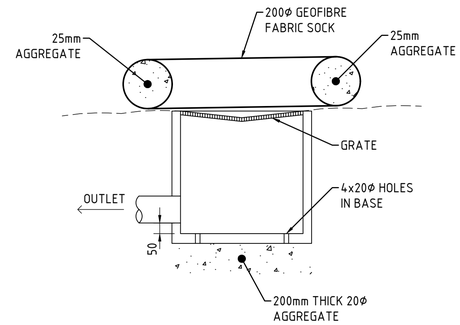
ROCK CHECK DAM

N.T.S.



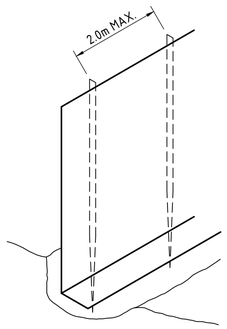
TEMPORARY DIVERSION DRAIN DETAIL

N.T.S.

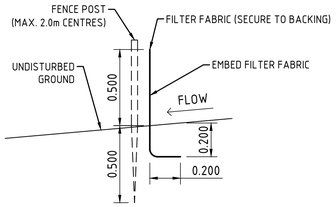


SECTIONAL DETAIL OF STORMWATER GULLY WITH GEOFABRIC SOCK

N.T.S.



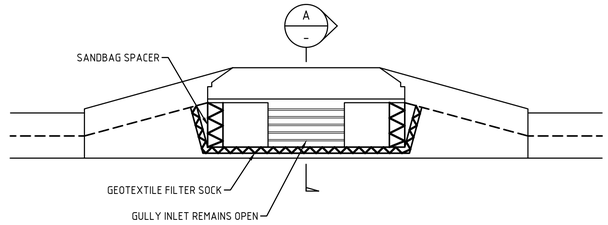
ISOMETRIC



SECTIONAL

TEMPORARY SILT FENCE DETAIL

N.T.S.



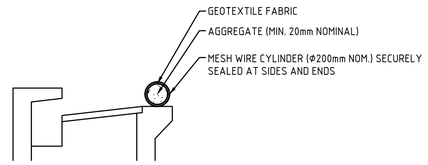
CONSTRUCTION

THESE FILTERS CONSIST OF A SINGLE LAYER ROLL OF GEOFABRIC FILLED WITH COARSE GRAVEL (14-20mm) SEALED AT BOTH ENDS. THIS ROLL CAN THEN BE WRAPPED IN WIRE MESH TO PROVIDE ANTIBURST STRENGTH. THE FINISHED TOLL SHOULD HAVE A MINIMAL DIAMETER OF 200mm. THE ROLL SEPARATED FROM THE GULL INLET BY THE USE OF SANDBAG SPACERS.

MAINTENANCE

THE FILTER ROLLS REQUIRE THE FOLLOWING MAINTENANCE UNTIL OFF MAINTENANCE:

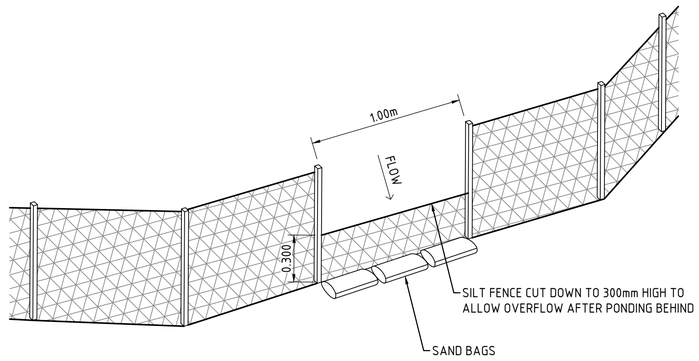
- PERIODIC INSPECTION OF CONDITION AND POSITION.
- REMOVAL OF SILT DEPOSITS AFTER PERIODS OF RAIN.
- REGULAR REVIEW OF EFFECTIVENESS AS INSTALLED.



SECTION A-A

SAG GULLY INLET SEDIMENT BARRIER

N.T.S.

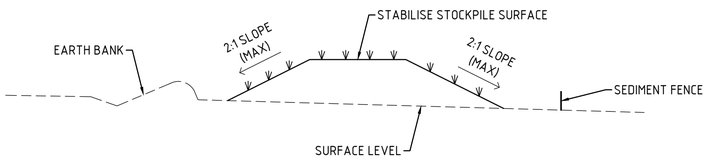


SILT FENCE WITH SANDBAG WEIR

N.T.S.

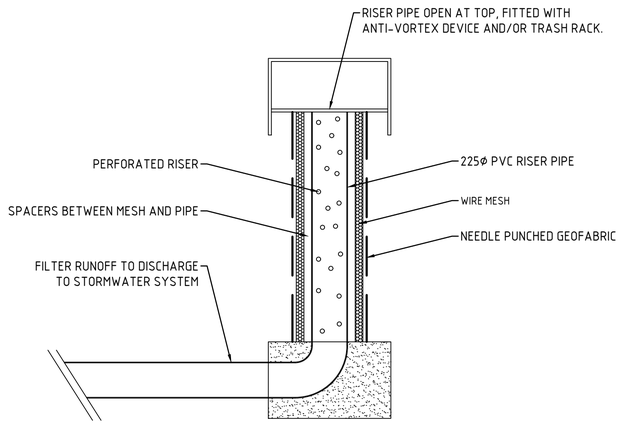
STOCKPILE CONSTRUCTION NOTES:

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 ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.



STOCKPILE DETAIL

N.T.S.

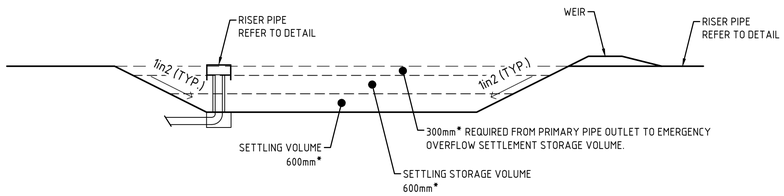


RISER PUMP DETAIL - WITHOUT PUMP

N.T.S.

NOTE

* DENOTES VALUES TO BE CONFIRMED BY DETAILED EROSION AND SEDIMENT CONTROL PLAN



SEDIMENT BASIN TYPICAL ARRANGEMENT

N.T.S.

NOT FOR CONSTRUCTION

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: EROSION AND SEDIMENT CONTROL DETAILS

DRAWN	DESIGNED	DATE
CA	MW	AUG 2020
CHECKED	APPROVED	
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DRAWING No. C3602 - CE003 REV. B

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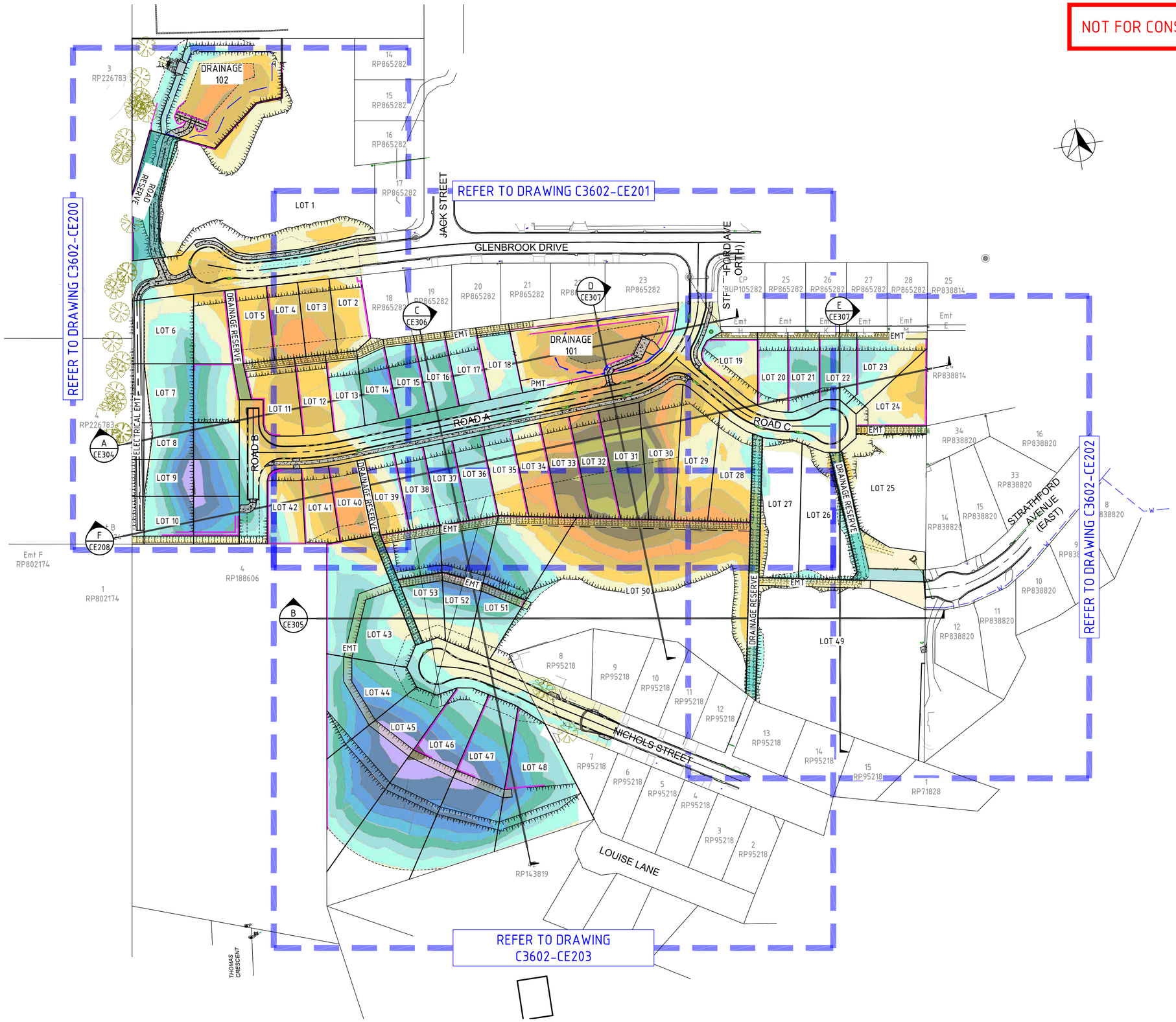

LEGEND

- 0m to 1.0m FILL
- 1.0m to 2.0m FILL
- 2.0m to 3.0m FILL
- 3.0m to 4.0m FILL
- 4.0m to 5.0m FILL
- 5.0m to 6.0m FILL
- 6.0m to 7.0m FILL
- 7.0m to 8.0m FILL
- 0m to 1.0m CUT
- 1.0m to 2.0m CUT
- 2.0m to 3.0m CUT
- 3.0m to 4.0m CUT
- 4.0m to 5.0m CUT
- 5.0m to 6.0m CUT
- 6.0m to 7.0m CUT
- 7.0m to 8.0m CUT
- 8.0m to 9.0m CUT
- 9.0m to 10.0m CUT
- ##.## EXISTING CONTOURS
- PROPOSED RETAINING WALL
- ##.## PROPOSED DESIGN CONTOURS
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- TREE TO BE RETAINED

STAGED EARTHWORKS VOLUMES

STAGE	CUT (m^3)	FILL (m^3)	EXCESS MATERIAL (m^3) POS = EXCESS FILL NEG= EXCESS CUT
STAGE 1	-35885	10576	-25309
STAGE 2	-2176	3829	1653
STAGE 3	-17797	15323	-2474
STAGE 4	-9570	49214	39644
LOT 1	-1905	324	-1581
OPTIONAL LOT 1	-4000	0	-4000
TOTAL	-67333	79266	
11933	m^3 OF IMPORTED FILL REQUIRED WITHOUT OPTIONAL LOT 1 ESTIMATES		
7933	m^3 OF IMPORTED FILL REQUIRED WITH OPTIONAL LOT 1 ESTIMATES		

NOTE
TREES LOCATED IN EARTHWORK AREAS NOT SHOWN FOR CLARITY

EARTHWORKS DESIGN ASSUMPTIONS:
EARTHWORKS DESIGN BASED ON THE FOLLOWING ASSUMPTIONS
(1) 100mm ALLOWANCE FOR EARTHWORKS UNDER PADS AND BATTERS
(2) 360mm ALLOWANCE FOR PAVEMENT BOXING
(3) 200mm ALLOWANCE FOR STRIPPING
(4) NO ALLOWANCE HAVE BEEN MADE FOR STAGE TEMPORARY BATTERS. VOLUMES HAVE BEEN TAKEN TO THE EXTENTS OF THE STAGE BOUNDARY ONLY.
(5) NO ALLOWANCE FOR UNCONTROLLED FILL OR SUBGRADE REPLACEMENT.

APPROXIMATE EARTHWORKS QUANTITIES

(APPROXIMATE SOLID CUT/FILL VOLUMES. EXCLUDES TRENCH, FOOTING AND/OR RETAINING WALL SPOIL). (NOT TO BE USED FOR TENDERING PURPOSES. TENDERER MUST SATISFY THEMSELVES OF EARTHWORKS VOLUMES BASED ON DESIGN LEVELS).

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:1000 (A1) 0 20 40 60m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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REV.	DESCRIPTION	DATE	INIT.
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS OVERALL LAYOUT

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
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JN		

DRAWING No. C3602 - CE100
REV. B

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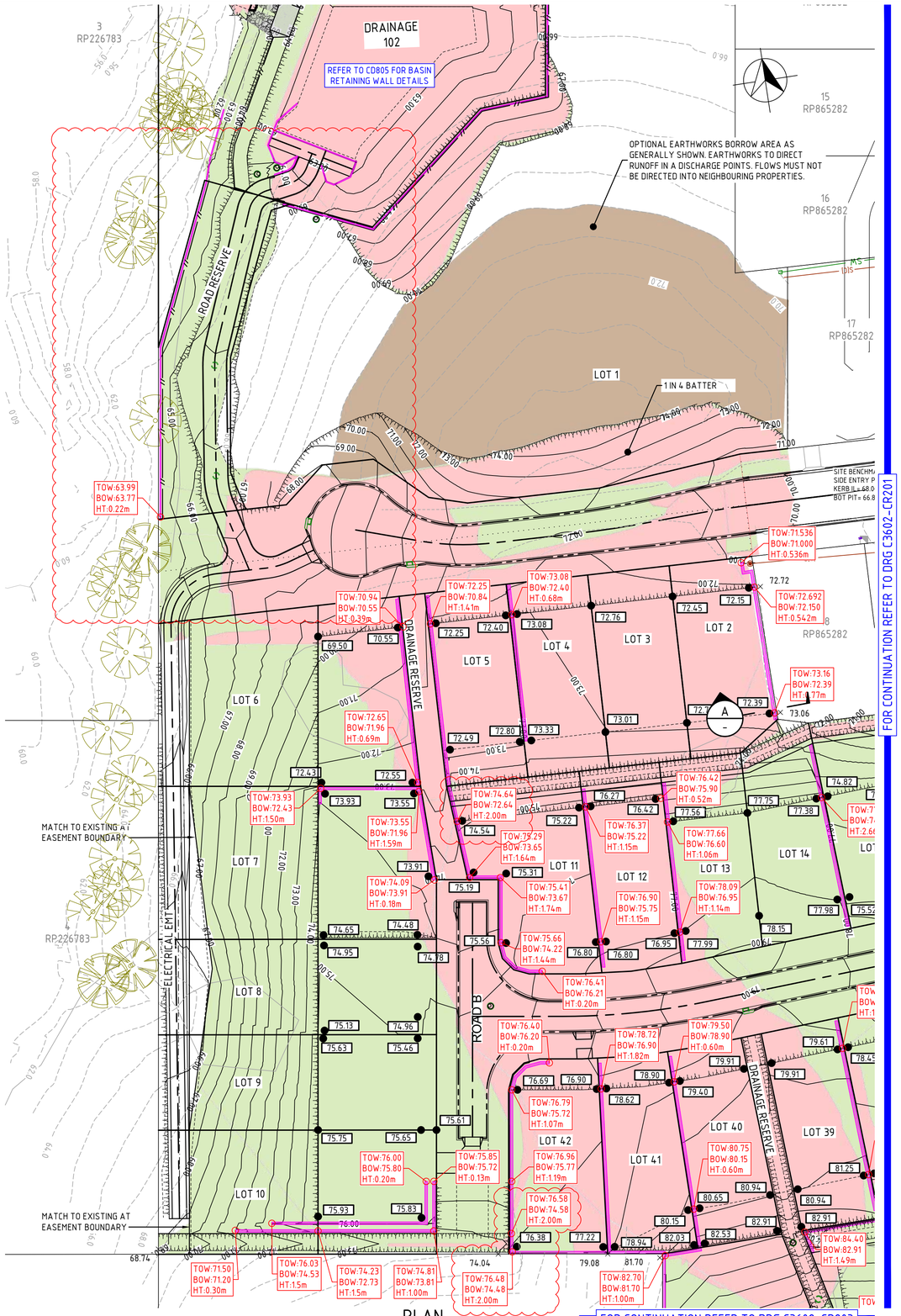
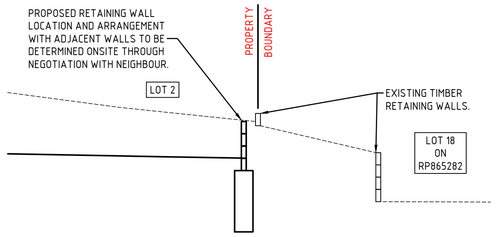
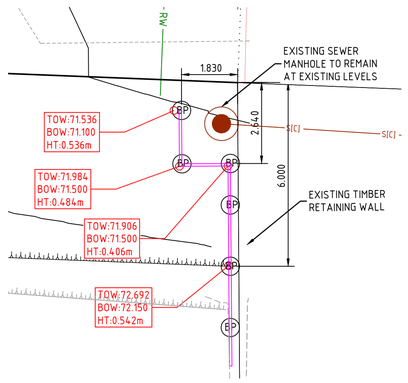


PLAN
SCALE 1:500



SECTION A
SCALE 1:50

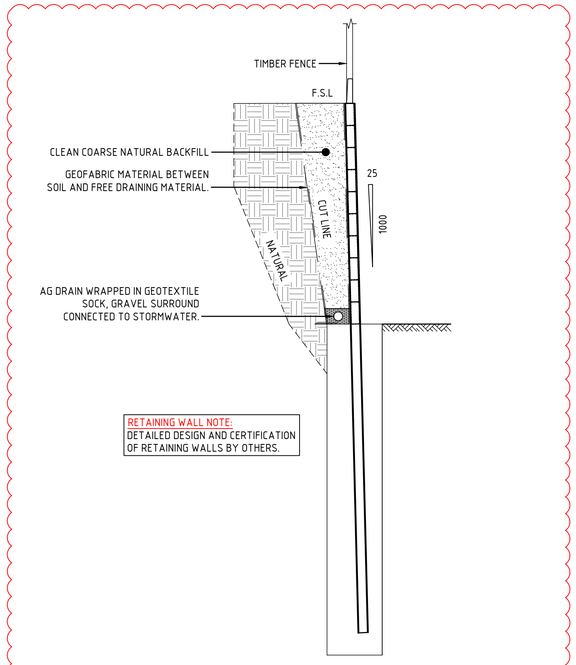


DETAIL PLAN
SCALE 1:100

LEGEND

- PROPOSED RETAINING WALL (BY OTHERS)
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED CUT
- PROPOSED FILL
- OPTIONAL EARTHWORKS AREA
- ##.## EXISTING CONTOURS
- × 83.68 EXISTING SURFACE LEVEL
- ##.## PROPOSED DESIGN CONTOURS
- ● 85.16 PROPOSED SURFACE LEVEL
- TOW:#.## BOW: #.## HT: #.##m — PROPOSED TOP OF WALL / PROPOSED BOTTOM OF WALL / PROPOSED WALL HEIGHT
- (BP) INDICATIVE BORED PIER

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.



RETAINING WALL NOTE:
DETAILED DESIGN AND CERTIFICATION OF RETAINING WALLS BY OTHERS.

TYPICAL CONCRETE SLEEPER WALL DETAIL
SCALE 1:25

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)
SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS DETAIL LAYOUT PLAN - SHEET 1 OF 4

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE200 REV. B

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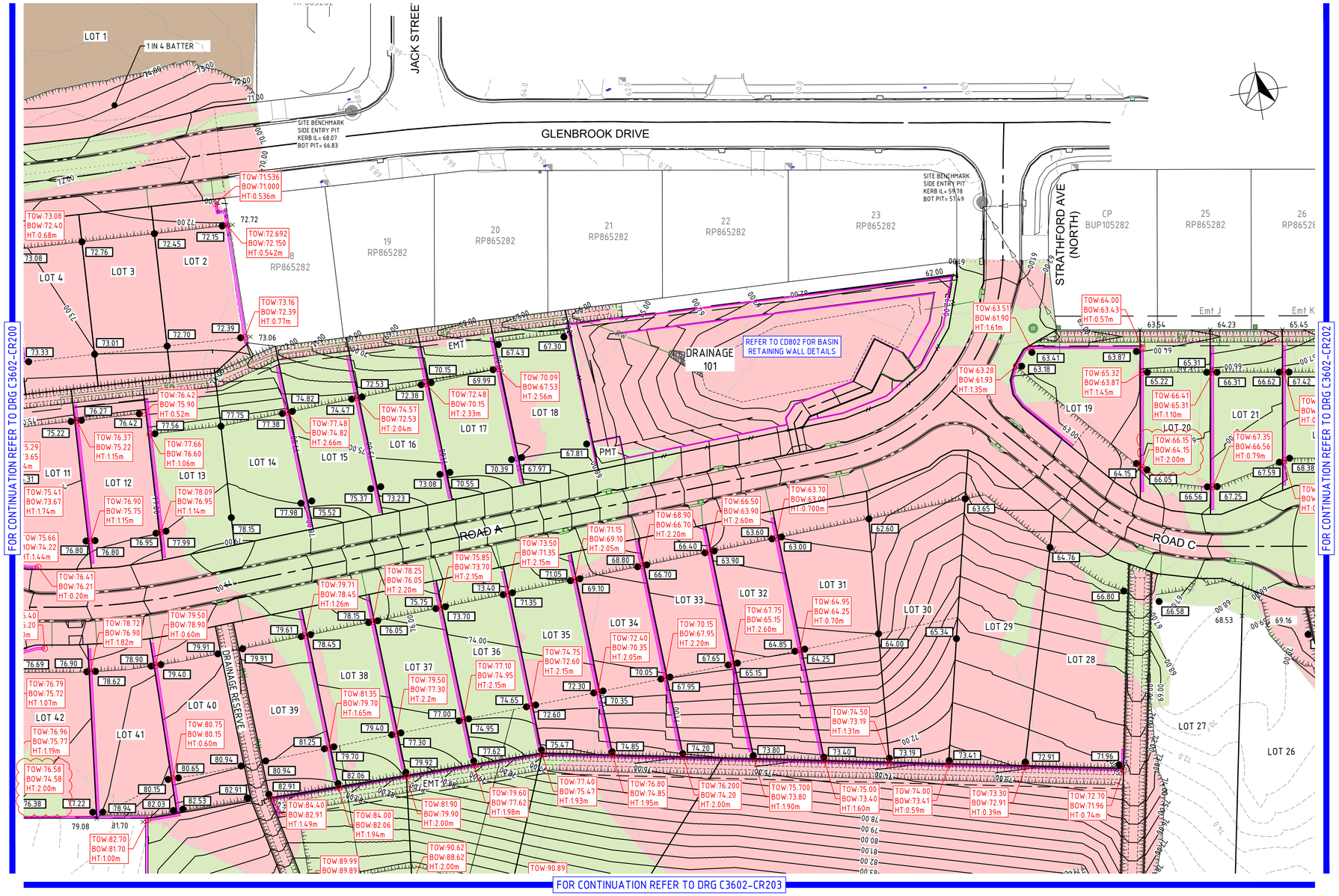

PLAN
SCALE 1:500

LEGEND

- PROPOSED RETAINING WALL (BY OTHERS)
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED CUT
- PROPOSED FILL
- OPTIONAL EARTHWORKS AREA
- ##.## — EXISTING CONTOURS
- × 83.68 — EXISTING SURFACE LEVEL
- ##.## — PROPOSED DESIGN CONTOURS
- ● 85.16 — PROPOSED SURFACE LEVEL
- TOW:#.## BOW: #.## HT: #.### — PROPOSED TOP OF WALL / PROPOSED BOTTOM OF WALL / PROPOSED WALL HEIGHT
- (BP) — INDICATIVE BORED PIER

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS DETAIL LAYOUT PLAN - SHEET 2 OF 4

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE201
REV. B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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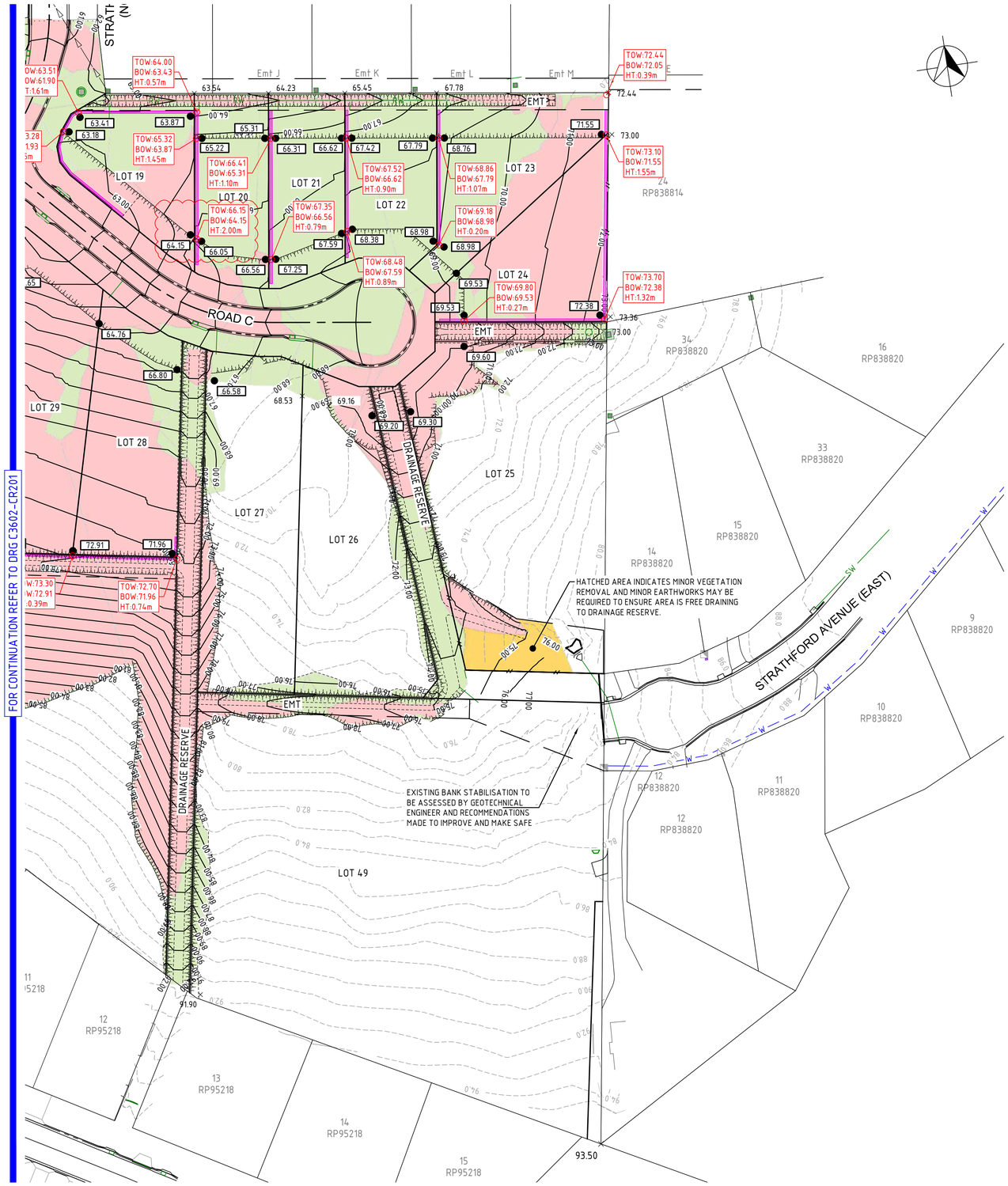
NOT FOR CONSTRUCTION



PLAN
SCALE 1:500

LEGEND

- PROPOSED RETAINING WALL (BY OTHERS)
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED CUT
- PROPOSED FILL
- MINOR VEGETATION REMOVAL/EARTHWORKS
- ##.## — EXISTING CONTOURS
- × 83.68 — EXISTING SURFACE LEVEL
- ##.## — PROPOSED DESIGN CONTOURS
- ● 85.16 — PROPOSED SURFACE LEVEL
- TOW:#.## BOW: #.## HT: #.##m — PROPOSED TOP OF WALL / PROPOSED BOTTOM OF WALL / PROPOSED WALL HEIGHT
- (BP) — INDICATIVE BORED PIER

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

COVENANT NOTE:
GEOTECHNICAL COVENANTS ARE TO BE REGISTERED AGAINST THE TITLE OF LOTS 49 AND 50 PURSUANT TO SECTION 97A OF THE LAND TITLE ACT 1994. THE COVENANT MUST INCLUDE THE FOLLOWING WORDS:

FOR THE PURPOSE OF PRESERVATION OF THE ALLOTMENT AND ANY BUILDING TO BE CONSTRUCTED ON THE ALLOTMENT SO THAT IT MAY BE USED FOR RESIDENTIAL PURPOSES WITHOUT RISK OF SUBTERRANEAN SOIL MOVEMENT THAT COULD RENDER THE ALLOTMENT UNFIT FOR RESIDENTIAL USE:

(a) ALL BUILDINGS MUST BE SITED AND CONSTRUCTED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN SECTION 4 OF THE REPORT ON GEOTECHNICAL INVESTIGATION ATTACHED TO COUNCIL APPROVAL RAL19/0005, AND ANY SUBSEQUENT GEOTECHNICAL REPORT RELATING SPECIFICALLY TO THE ALLOTMENT.
(b) NO DWELLINGS ARE PERMITTED IN THE EXCLUSION AREAS IDENTIFIED ON THE APPROVED PLANS.
(c) PRIOR TO ANY DEVELOPMENT APPROVAL FOR BUILDING WORKS AND ASSOCIATED EARTHWORKS FOR THE ALLOTMENT, THE OWNER MUST OBTAIN CERTIFICATION FROM A REGISTERED PROFESSIONAL ENGINEER EXPERIENCED IN GEOTECHNICAL INVESTIGATION STATING THAT THE PROPOSED WORKS ARE APPROPRIATE TO THE SITE.
(d) PRIOR TO UNDERTAKING EARTHWORKS ON THE PROPOSED LOT NOT BEING ASSOCIATED WITH (c) ABOVE, THE ALLOTMENT OWNER MUST BE RESPONSIBLE FOR OBTAINING CERTIFICATION FROM A REGISTERED PROFESSIONAL ENGINEER EXPERIENCED IN GEOTECHNICAL INVESTIGATION STATING THAT THE PROPOSED WORKS ARE APPROPRIATE TO THE SITE.
(e) THE CERTIFICATION DESCRIBED IN (c) AND (d) ABOVE MUST MAKE DUE REFERENCE TO THE REPORTS REFERRED TO IN (a) ABOVE.
(f) THIS COVENANT IS MADE UNDER SECTION 97A(3)(a) IN FAVOUR OF SUNSHINE COAST REGIONAL COUNCIL OF THE LAND TITLES ACT 1994.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
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E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS DETAIL LAYOUT PLAN – SHEET 3 OF 4

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 – CE202 REV. B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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FOR CONTINUATION REFER TO DRG C3602-CR201

FOR CONTINUATION REFER TO DRG C3602-CR202

NOT FOR CONSTRUCTION

LEGEND

- PROPOSED RETAINING WALL (BY OTHERS)
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED CUT
- PROPOSED FILL
- ##.## EXISTING CONTOURS
- × 83.68 EXISTING SURFACE LEVEL
- ##.## PROPOSED DESIGN CONTOURS
- ● 85.16 PROPOSED SURFACE LEVEL
- TOW:#.## BOW: #.## HT: #.##m — PROPOSED TOP OF WALL / PROPOSED BOTTOM OF WALL / PROPOSED WALL HEIGHT
- (BP) INDICATIVE BORED PIER

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

PLAN
SCALE 1:500

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS DETAIL LAYOUT PLAN - SHEET 4 OF 4

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE203 REV. B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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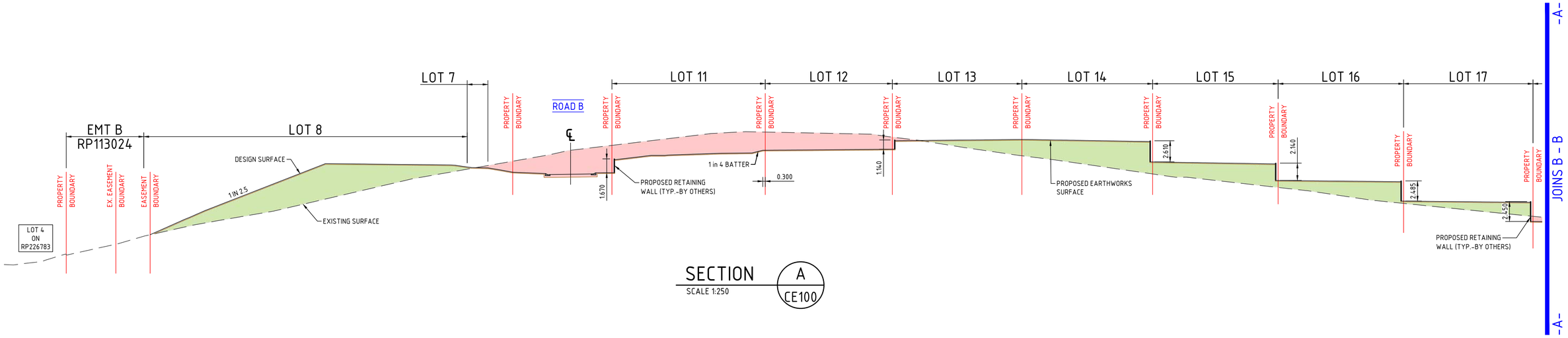
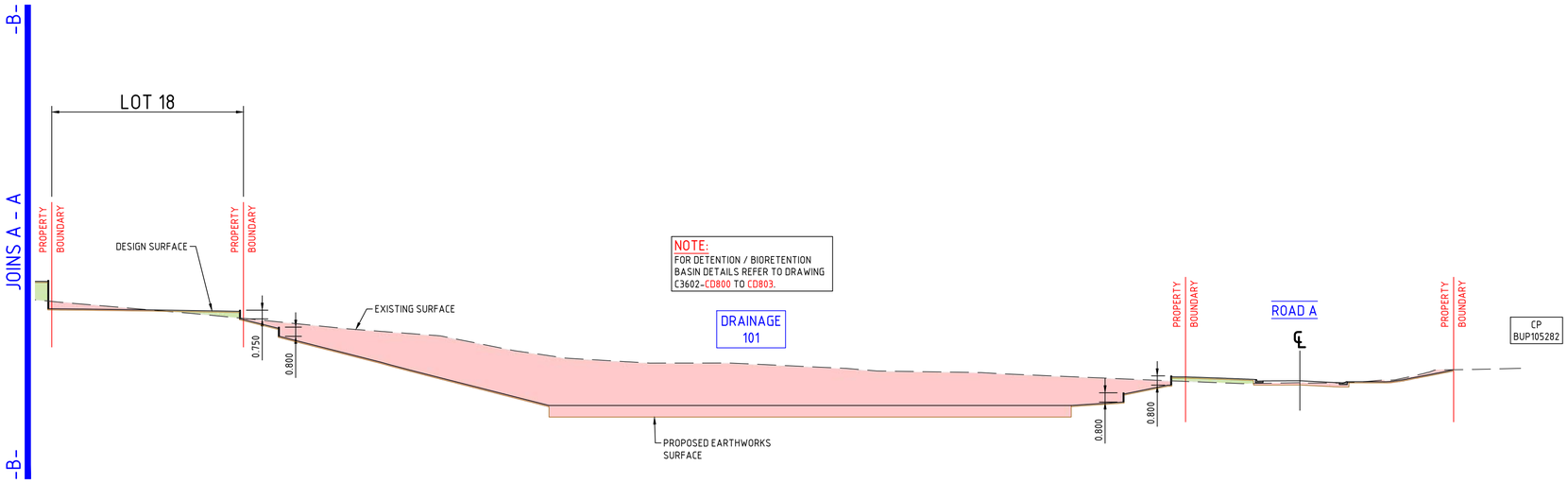


SECTION A / CE100
SCALE 1:250



SECTION A / CE100
SCALE 1:250

NOTE:
PROPOSED RETAINING WALLS BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

LEGEND

- EXISTING SURFACE
- PROPOSED SURFACE
- PROPOSED EARTHWORKS LEVELS
- PROPOSED CUT
- PROPOSED FILL

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:250 (A1) 0 5 10 15m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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E mail@mnce.com.au
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS SECTIONS - SHEET 1 OF 5

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE300
REV. B

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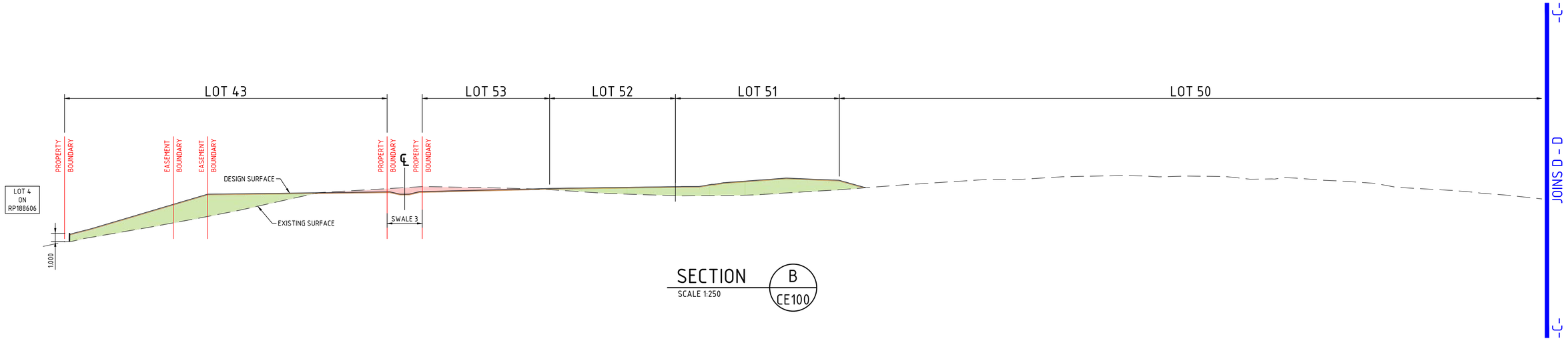
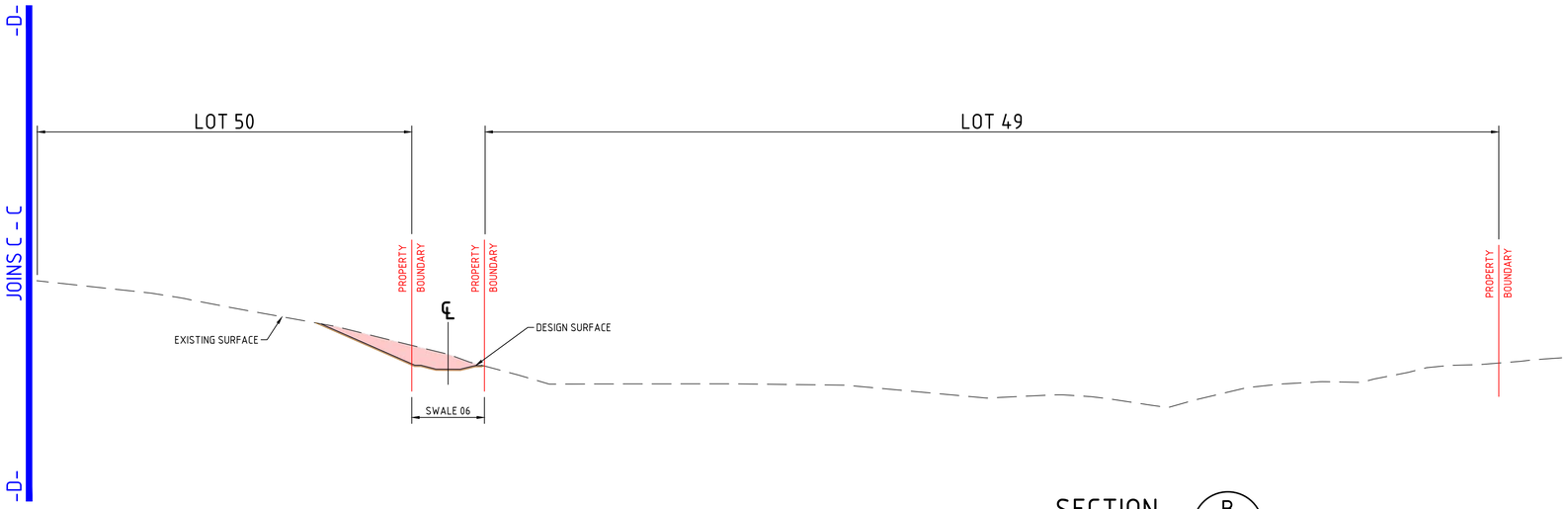


SECTION B / CE100
SCALE 1:250



SECTION B / CE100
SCALE 1:250

NOTE:
PROPOSED RETAINING WALLS BY OTHERS.
CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

LEGEND

- EXISTING SURFACE
- PROPOSED SURFACE
- PROPOSED EARTHWORKS LEVELS
- PROPOSED CUT
- PROPOSED FILL

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:250 (A1) 0 5 10 15m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
CIVIL
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS SECTIONS - SHEET 2 OF 5

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE301
REV. B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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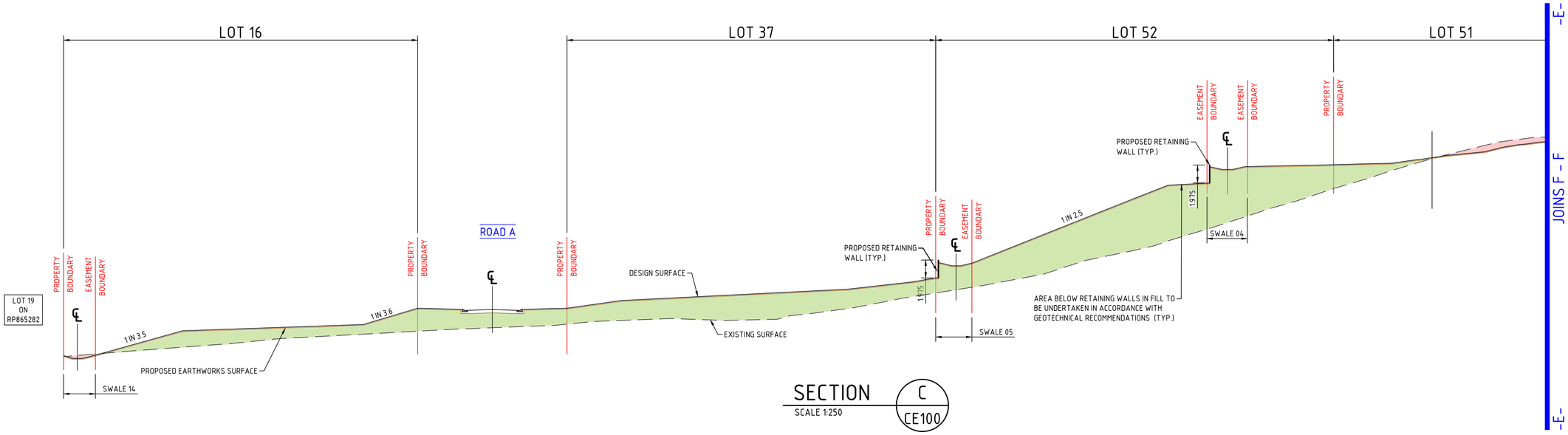
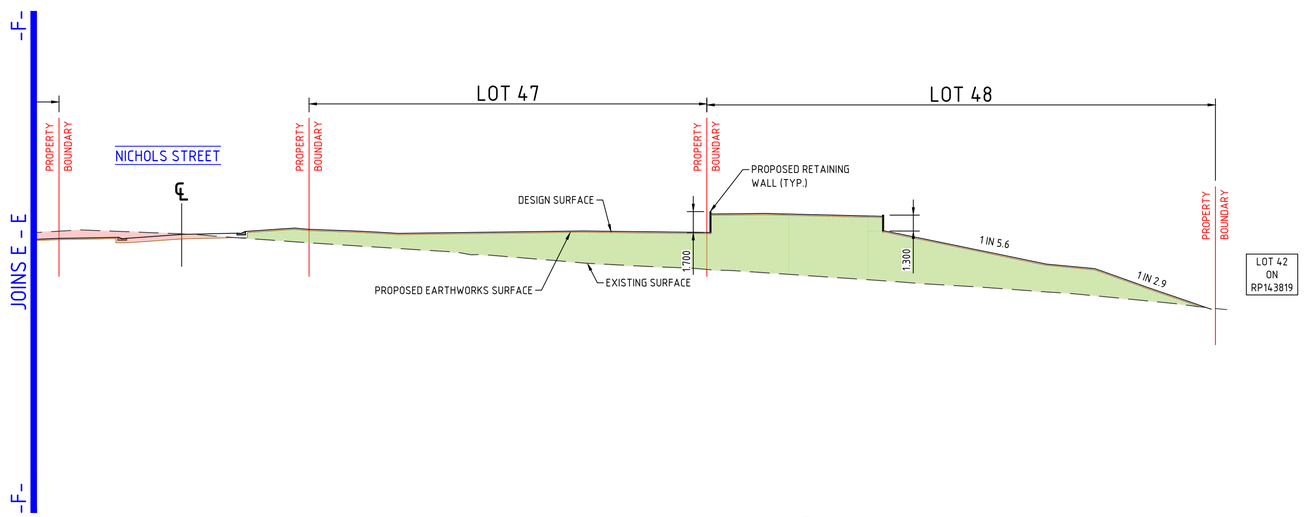


SECTION C / CE100
SCALE 1:250



SECTION C / CE100
SCALE 1:250

NOTE:
PROPOSED RETAINING WALLS BY OTHERS.
CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

LEGEND

- EXISTING SURFACE
- PROPOSED SURFACE
- PROPOSED EARTHWORKS LEVELS
- PROPOSED CUT
- PROPOSED FILL

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:250 (A1) 0 5 10 15m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS SECTIONS - SHEET 3 OF 5

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE302
REV. B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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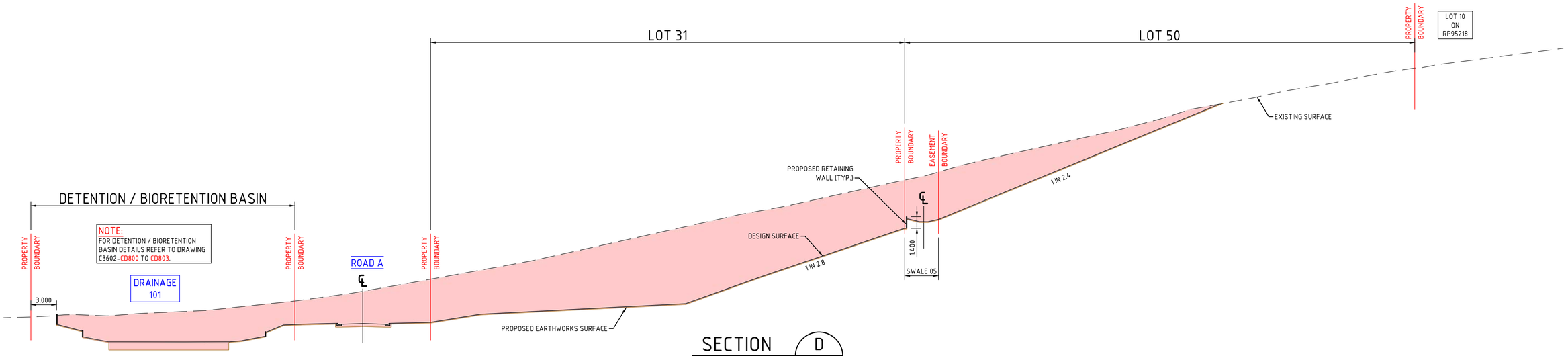
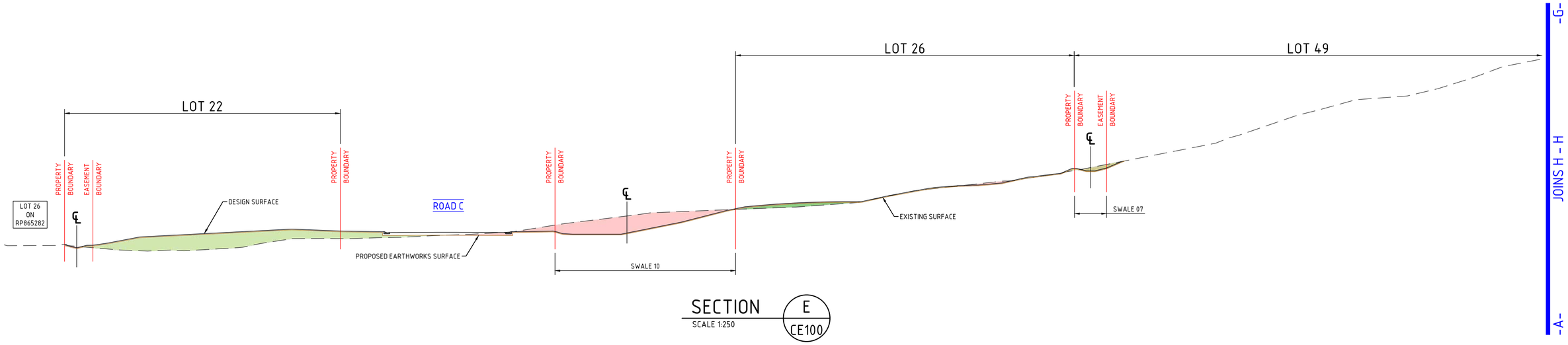


SECTION D / CE100
SCALE 1:250

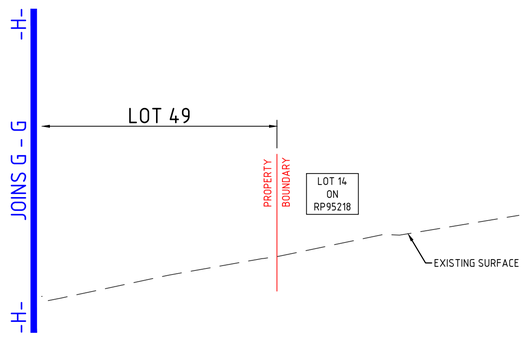


SECTION E / CE100
SCALE 1:250

NOTE:
PROPOSED RETAINING WALLS BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

LEGEND

- EXISTING SURFACE
- PROPOSED SURFACE
- PROPOSED EARTHWORKS LEVELS
- PROPOSED CUT
- PROPOSED FILL



SECTION E / CE100
SCALE 1:250

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:250 (A1) 0 5 10 15m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
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TRAFFIC
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BRISBANE PH No. (07) 3255 1877
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CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS SECTIONS - SHEET 4 OF 5

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE303
REV. B

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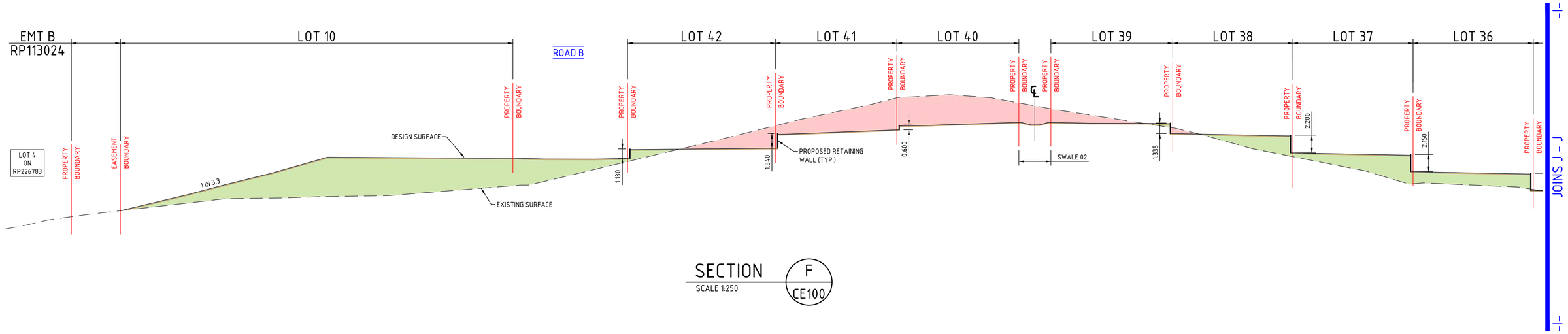
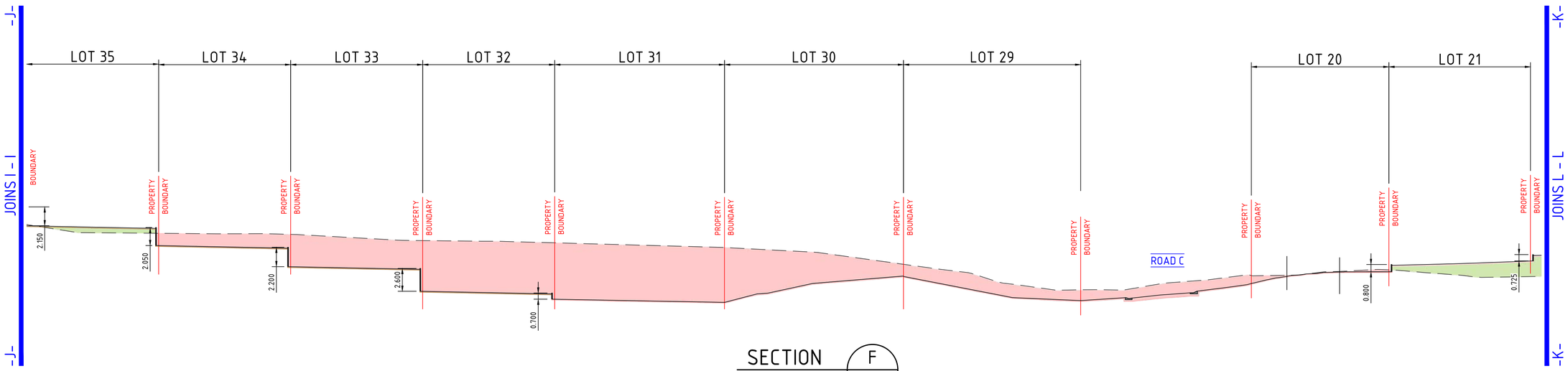


SECTION F
SCALE 1:250
CE100

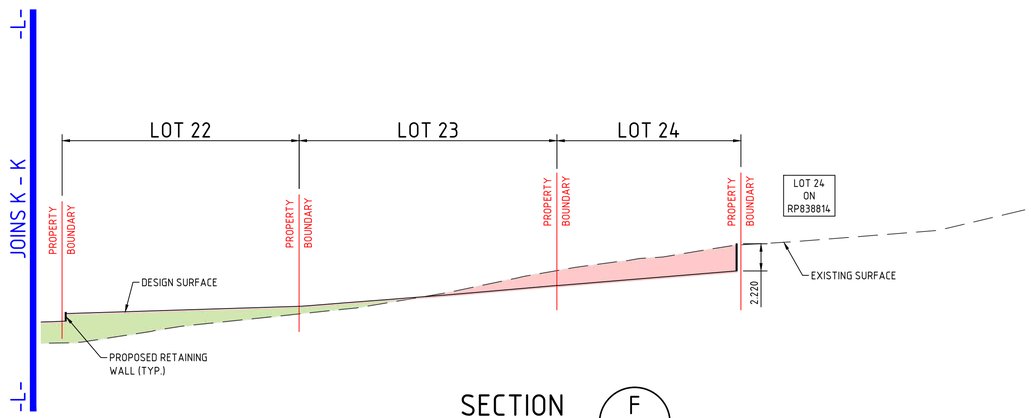


SECTION F
SCALE 1:250
CE100

NOTE:
PROPOSED RETAINING WALLS BY OTHERS.
CONTRACTOR TO PROVIDE RPEQ CERTIFICATION
FOR WALLS EXCEEDING 1.0m HIGH.

LEGEND

- EXISTING SURFACE
- PROPOSED SURFACE
- PROPOSED EARTHWORKS LEVELS
- PROPOSED CUT
- PROPOSED FILL



SECTION F
SCALE 1:250
CE100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:250 (A1) 0 5 10 15m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: BULK EARTHWORKS SECTIONS - SHEET 5 OF 5

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE304
REV. B

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NOT FOR CONSTRUCTION

PLAN
SCALE 1:500

LEGEND

PROPOSED RETAINING WALL (BY OTHERS)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
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MILANOVIC NEALE
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: RETAINING WALL LAYOUT PLAN REAR OF LOTS 28-43 AND 50-53

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE400
REV. B

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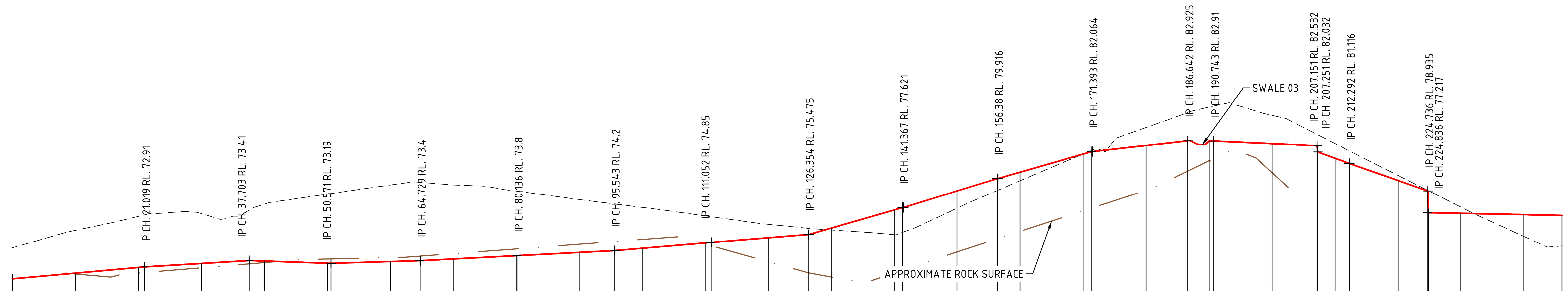

HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%)	VERTICAL GRADE LENGTH
4.518 %	21.019m
3 %	16.684m
-1.713 %	12.868m
1.493 %	14.057m
2.614 %	15.304m
2.614 %	15.304m
4.247 %	15.304m
4.084 %	15.302m
14.388 %	14.913m
15.394 %	14.913m
14.403 %	14.913m
5.684 %	15.149m
-0.363 %	4.1m
-2.304 %	16.409m
-18.182 %	0.1m
-499.994 %	5.041m
-17.522 %	12.444m
-1716.64 %	0.1m
-1.039 %	50.391m

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
DATUM R.L.59.000

CHAINAGE	NAT. SURFACE ALONG CONTROL LINE	CUT / FILL DEPTHS	NORTHING	EASTING	DESIGN LEVELS ALONG CONTROL LINE
0.000	74.421	-2.461	7055882.175	494473.592	71.960
10.000	75.809	-3.397	7055883.943	494463.749	72.412
20.000	76.920	-4.056	7055885.712	494453.907	72.864
21.019	77.044	-4.134	7055885.893	494452.904	72.910
30.000	77.144	-3.965	7055887.481	494444.065	73.179
37.703	77.446	-4.036	7055888.844	494436.483	73.410
40.000	77.893	-4.521	7055889.25	494434.223	73.371
50.000	78.686	-5.486	7055891.019	494424.38	73.200
50.571	78.727	-5.537	7055891.12	494423.818	73.190
60.000	79.403	-6.074	7055892.788	494414.538	73.329
64.729	79.622	-6.222	7055893.624	494409.884	73.400
70.000	79.409	-5.874	7055894.557	494404.696	73.535
80.000	78.926	-5.129	7055896.326	494394.853	73.796
80.136	78.916	-5.116	7055896.35	494394.72	73.800
90.000	78.260	-4.205	7055898.095	494385.011	74.055
95.543	77.912	-3.712	7055899.075	494379.556	74.200
100.000	77.635	-3.25	7055899.864	494375.169	74.385
110.000	76.961	-2.151	7055901.633	494365.326	74.810
111.052	76.887	-2.037	7055901.819	494364.291	74.850
120.000	76.290	-1.075	7055903.401	494355.484	75.215
126.354	75.960	-0.485	7055904.525	494349.23	75.475
130.000	75.836	0.149	7055904.492	494345.585	75.985
140.000	75.461	1.963	7055904.378	494335.585	77.424
141.367	75.650	1.971	7055904.363	494334.218	77.621
150.000	77.571	1.363	7055904.265	494325.586	78.934
156.380	78.972	0.944	7055904.192	494319.206	79.916
160.000	79.745	0.679	7055904.151	494315.587	80.423
170.000	81.863	0.001	7055904.037	494305.587	81.864
171.393	82.155	-0.09	7055904.021	494304.195	82.064
180.000	83.979	-1.431	7055903.985	494295.588	82.548
186.642	85.184	-2.259	7055903.958	494288.945	82.925
190.000	85.602	-2.689	7055903.829	494285.59	82.913
190.743	85.684	-2.773	7055903.801	494284.848	82.910
200.000	84.941	-2.244	7055903.696	494275.591	82.697
207.151	83.429	-0.897	7055903.614	494268.44	82.532
207.251	83.403	-1.371	7055903.613	494268.34	82.032
210.000	82.700	-1.167	7055903.582	494265.592	81.533
212.292	82.114	-0.998	7055903.556	494263.3	81.116
220.000	80.168	-0.402	7055904.717	494255.68	79.765
224.736	78.979	-0.043	7055905.43	494250.998	78.935
224.836	78.953	-1.737	7055905.445	494250.899	77.217
230.000	77.657	-0.494	7055906.209	494245.792	77.163
240.000	75.323	1.736	7055907.689	494235.902	77.059
246.026	74.571	2.426	7055910.539	494232.597	76.996

LONGITUDINAL SECTIONS RETAINING WALL

(BOTTOM OF WALL)
(REAR OF LOTS 28-43 AND 50-53)
SCALE 1:500 (HORIZONTAL) 1:250 (VERTICAL)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:500 (A1) 0 10 20 30m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: RETAINING WALL LONGITUDINAL SECTION REAR OF LOTS 28-43 AND 50-53

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CE401		B

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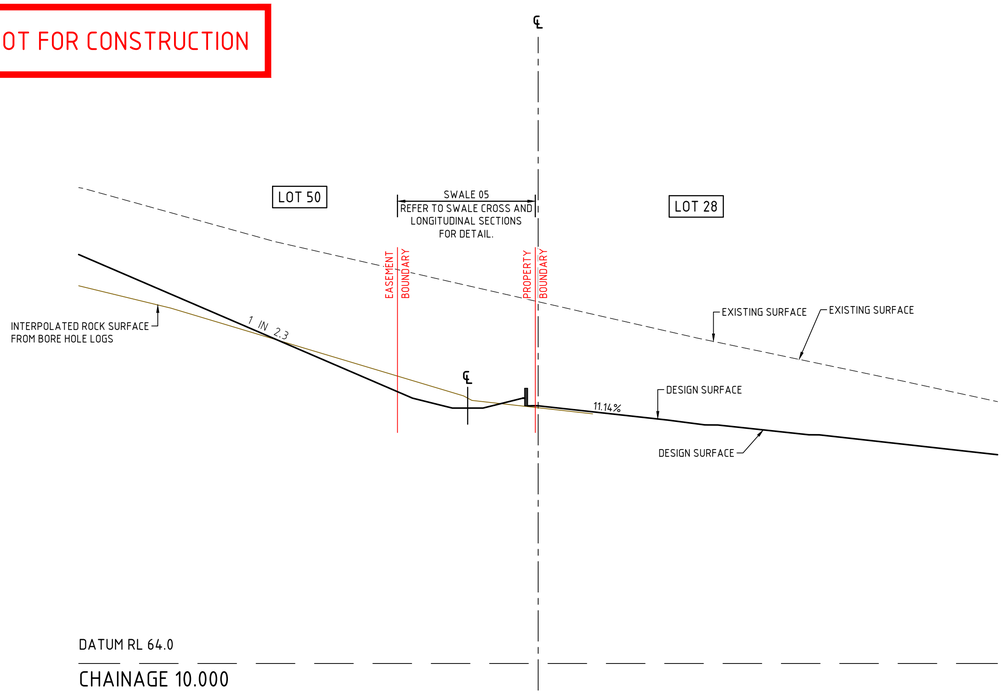

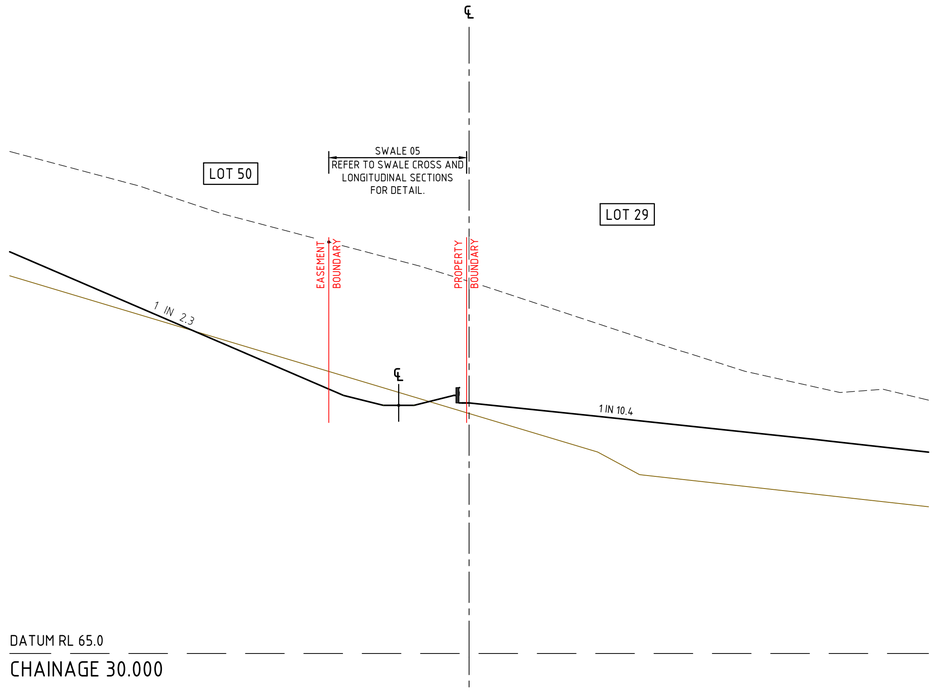

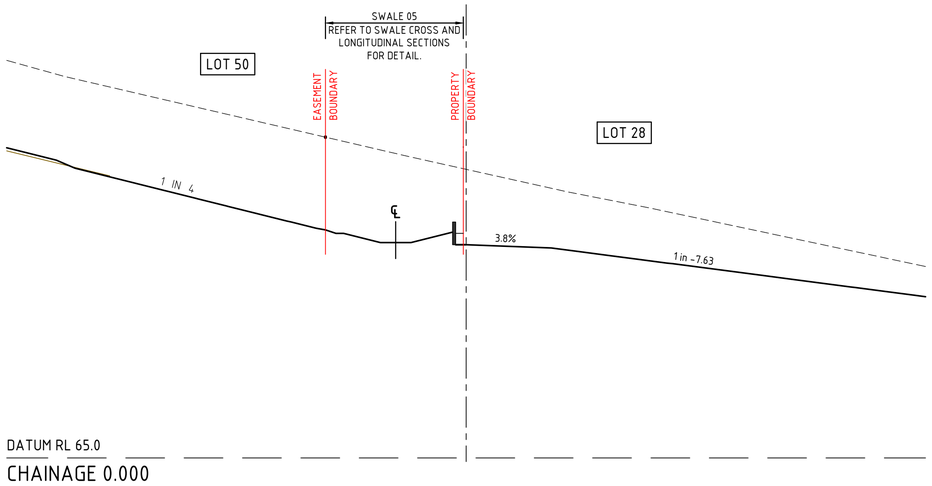

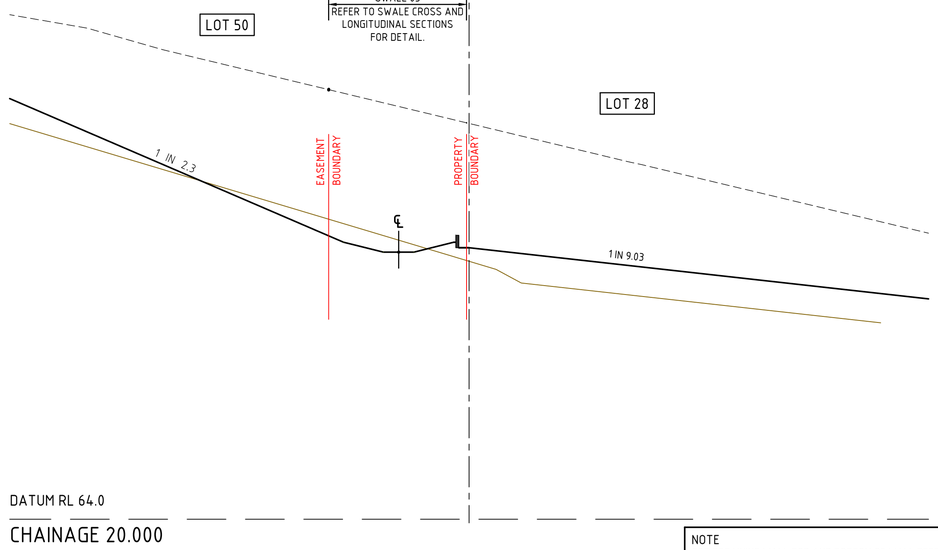

NOTE
FOR RETAINING WALL TOP AND BOTTOM OF WALL REFER TO DWG. C3602 CE200 - CE203.

NOTE
PROPOSED CONCRETE SLEEPER RETAINING WALL BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: RETAINING WALL CROSS SECTION SHEET 1 OF 8

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE402
REV. B

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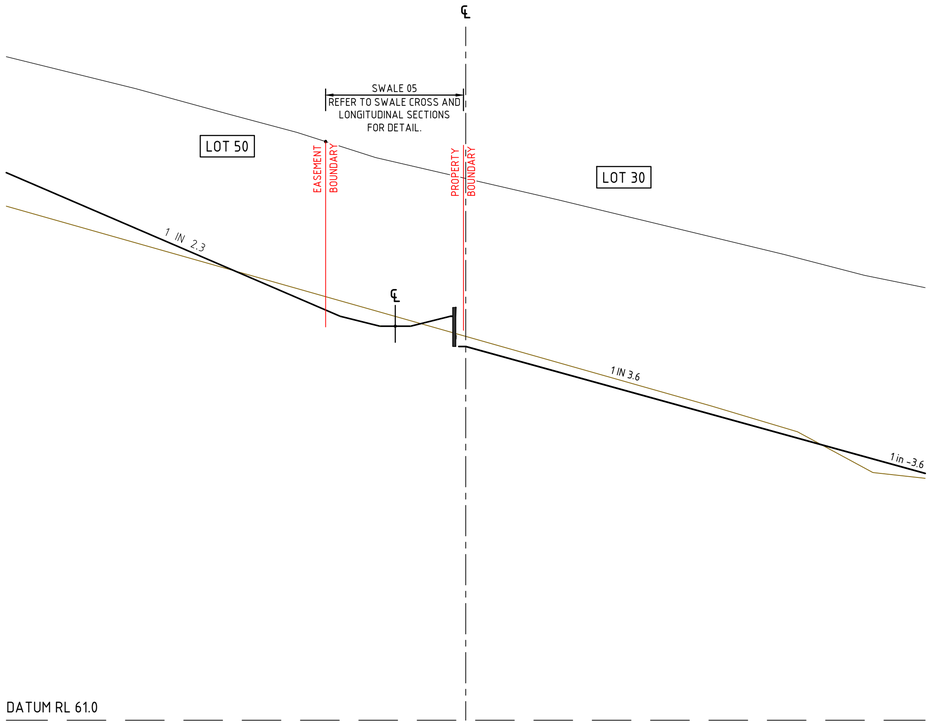

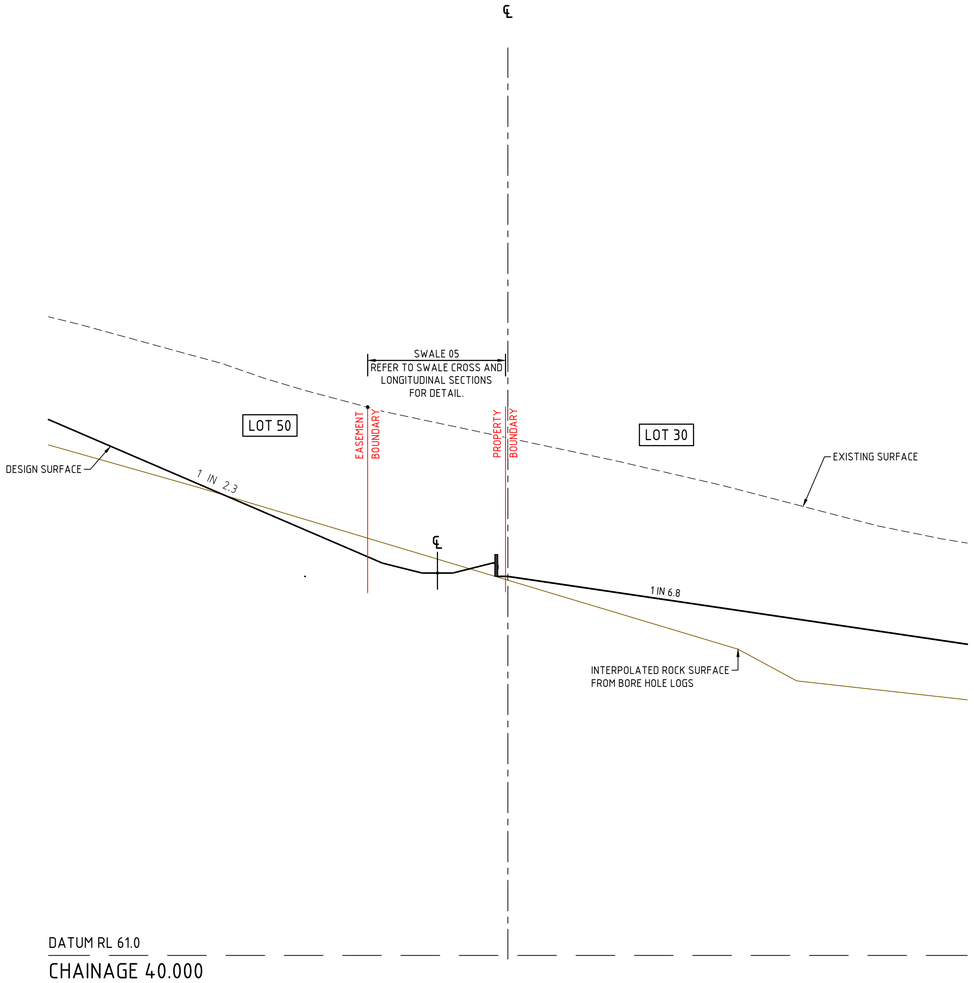

NOTE
FOR RETAINING WALL TOP AND BOTTOM OF WALL REFER TO DWG. C3602 CE200 - CE203.

NOTE
PROPOSED CONCRETE SLEEPER RETAINING WALL BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: RETAINING WALL CROSS SECTION SHEET 2 OF 8

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE403
REV. B

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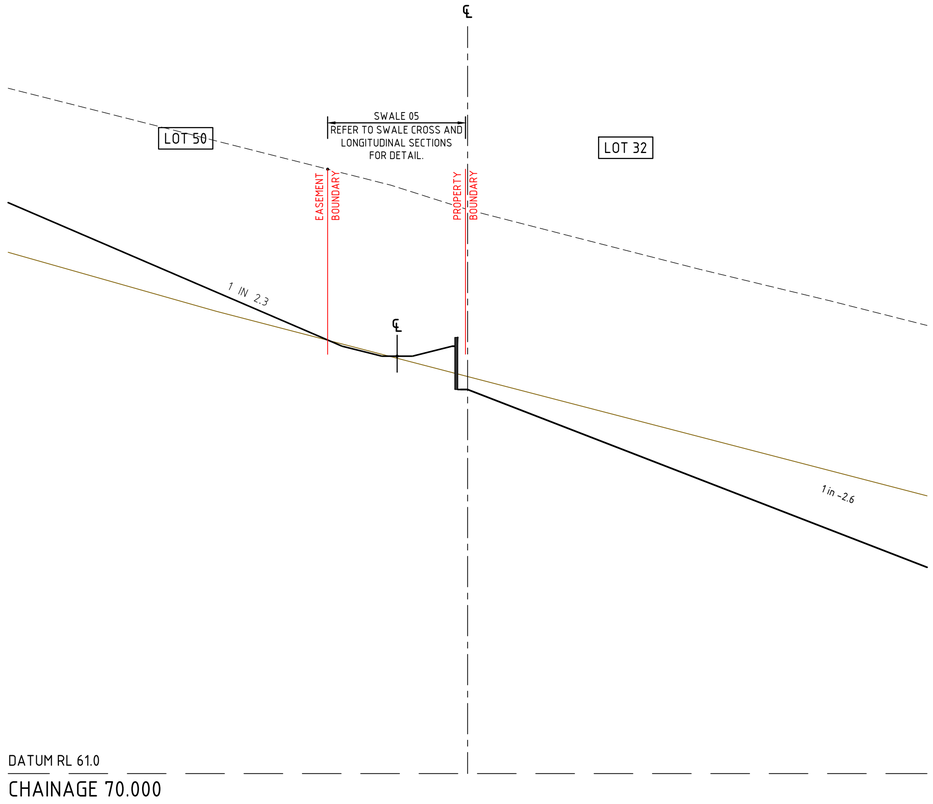

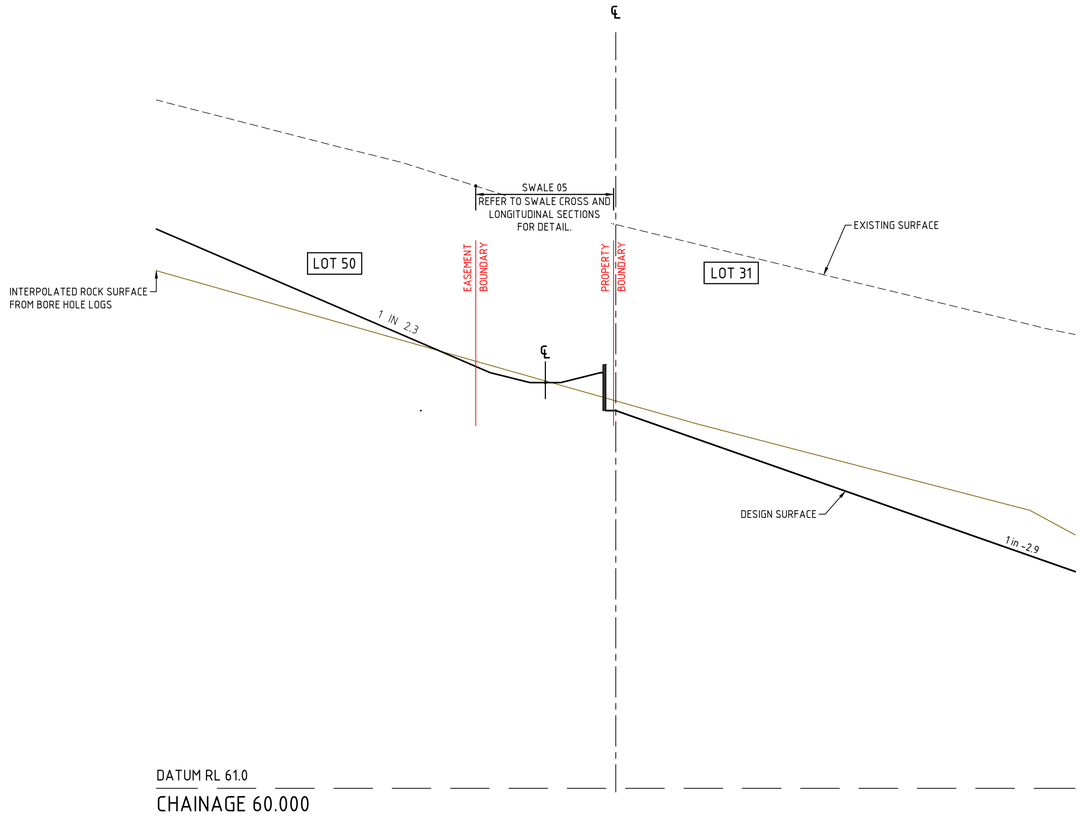

NOTE
FOR RETAINING WALL TOP AND BOTTOM OF WALL REFER TO DWG. C3602 CE200 - CE203.

NOTE
PROPOSED CONCRETE SLEEPER RETAINING WALL BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: RETAINING WALL CROSS SECTION SHEET 3 OF 8

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE404
REV. B

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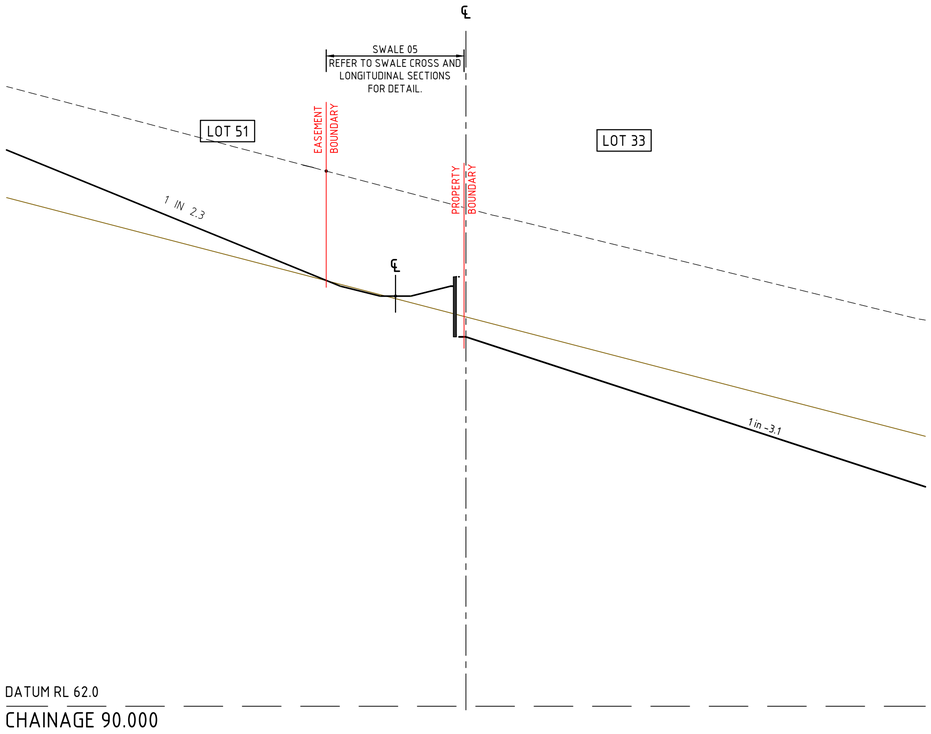
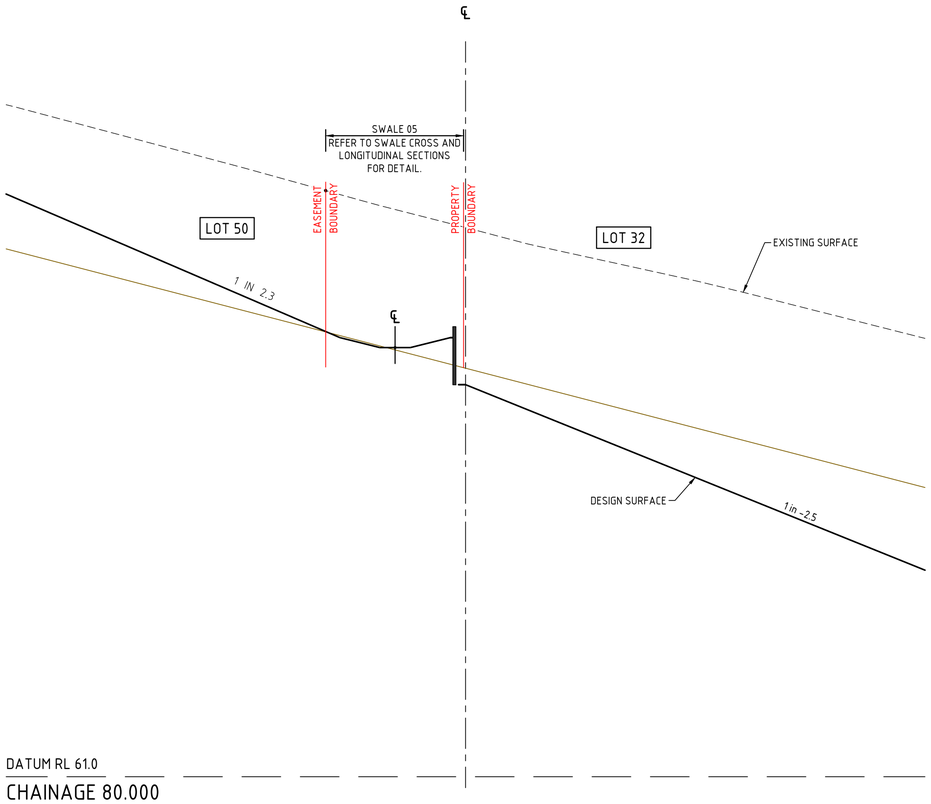
NOT FOR CONSTRUCTION





NOTE
FOR RETAINING WALL TOP AND BOTTOM OF WALL REFER TO DWG. C3602 CE200 - CE203.

NOTE
PROPOSED CONCRETE SLEEPER RETAINING WALL BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: RETAINING WALL CROSS SECTION SHEET 4 OF 8

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CE405		B

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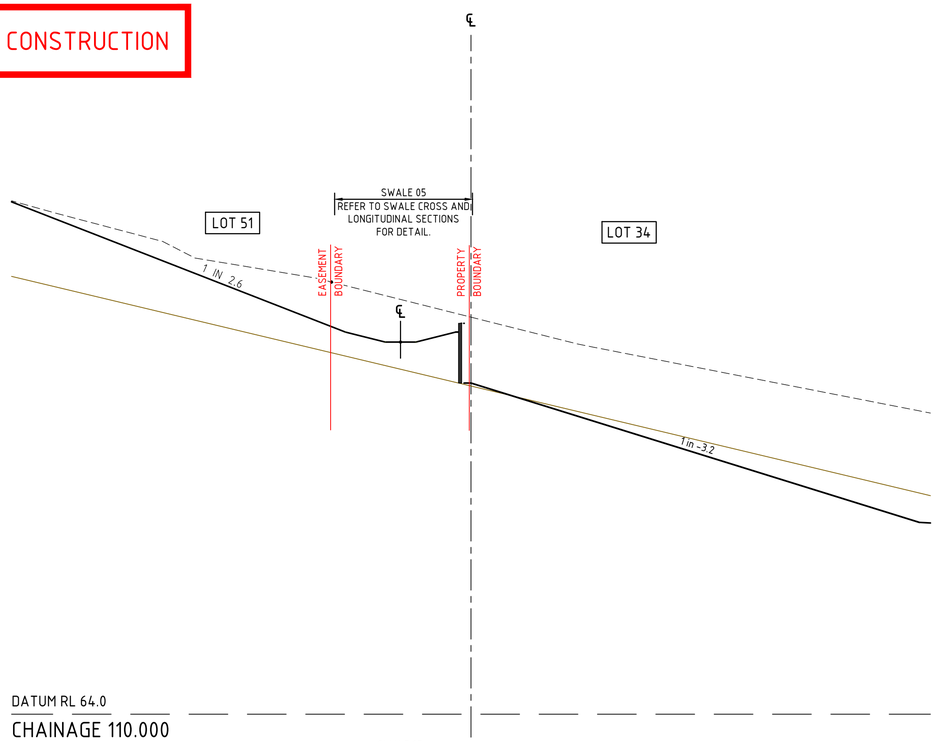
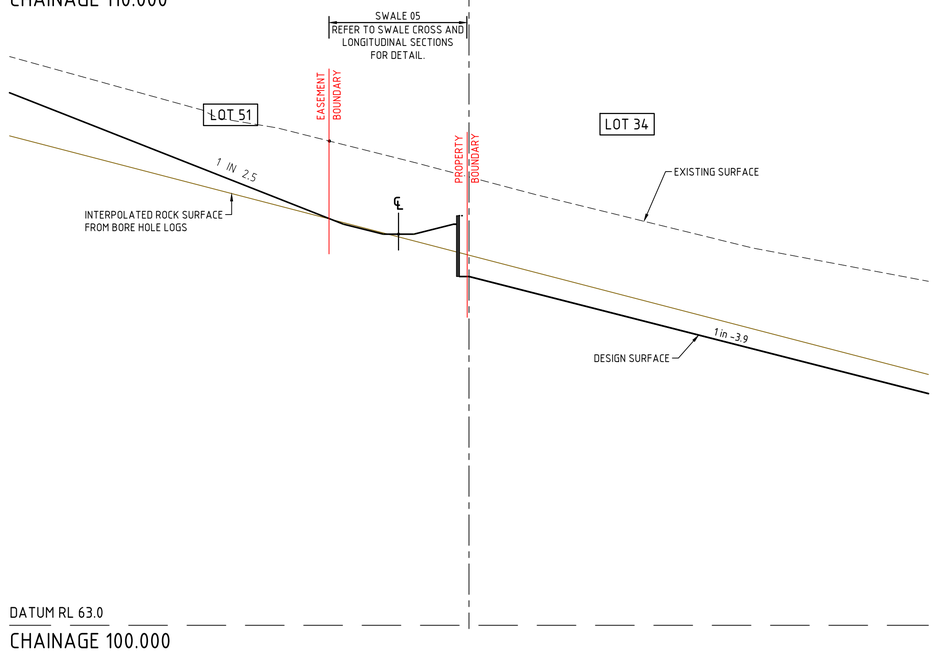
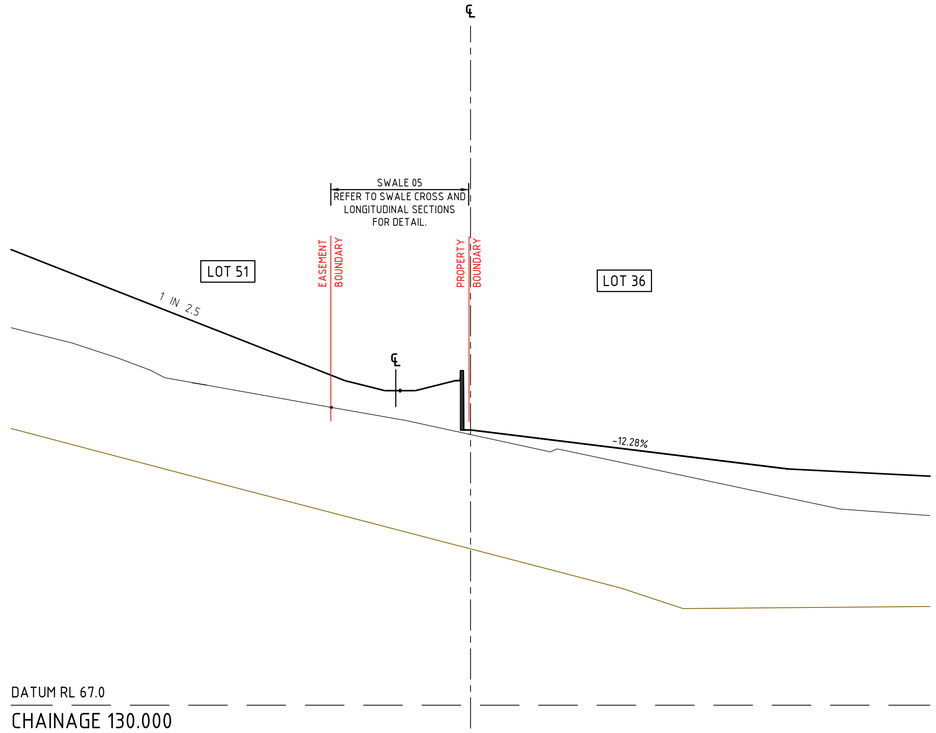
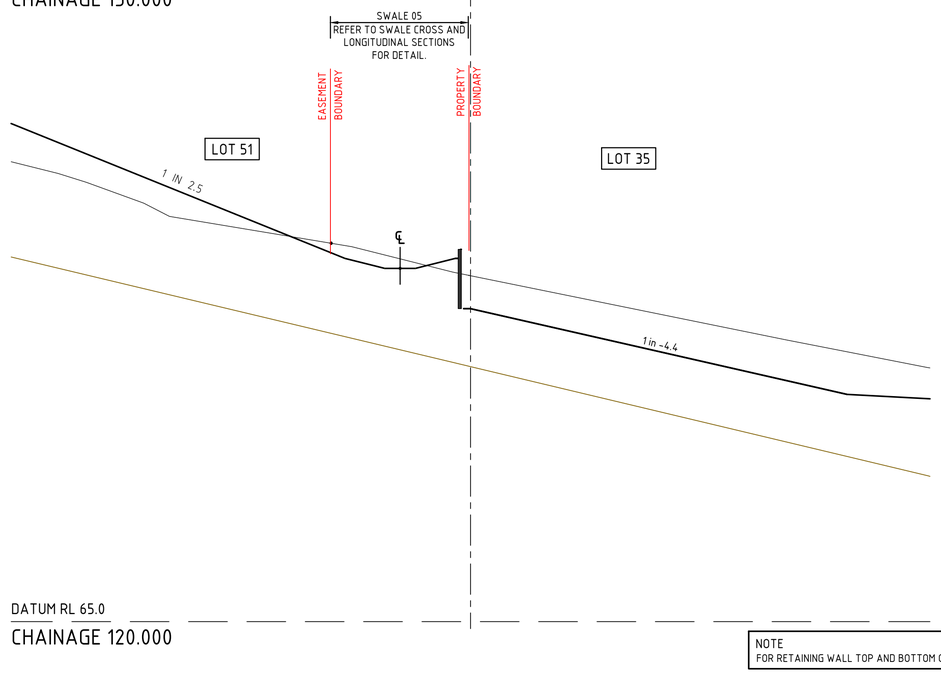
NOT FOR CONSTRUCTION









NOTE
FOR RETAINING WALL TOP AND BOTTOM OF WALL REFER TO DWG. C3602 CE200 - CE203.

NOTE
PROPOSED CONCRETE SLEEPER RETAINING WALL BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: RETAINING WALL CROSS SECTION SHEET 5 OF 8

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE406 REV. B

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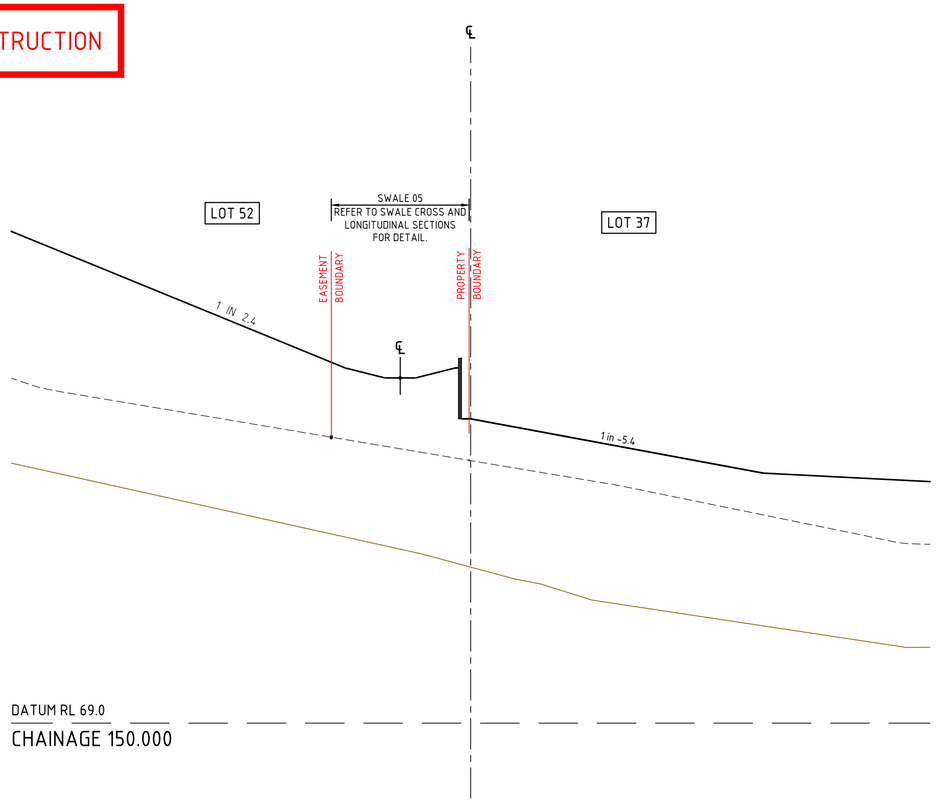

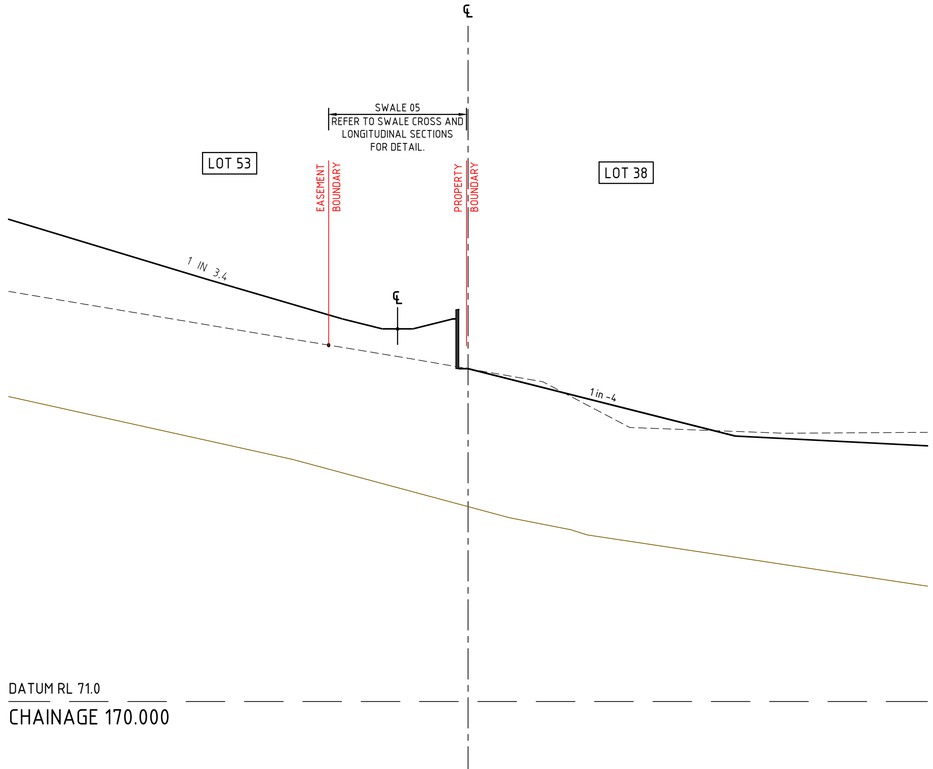

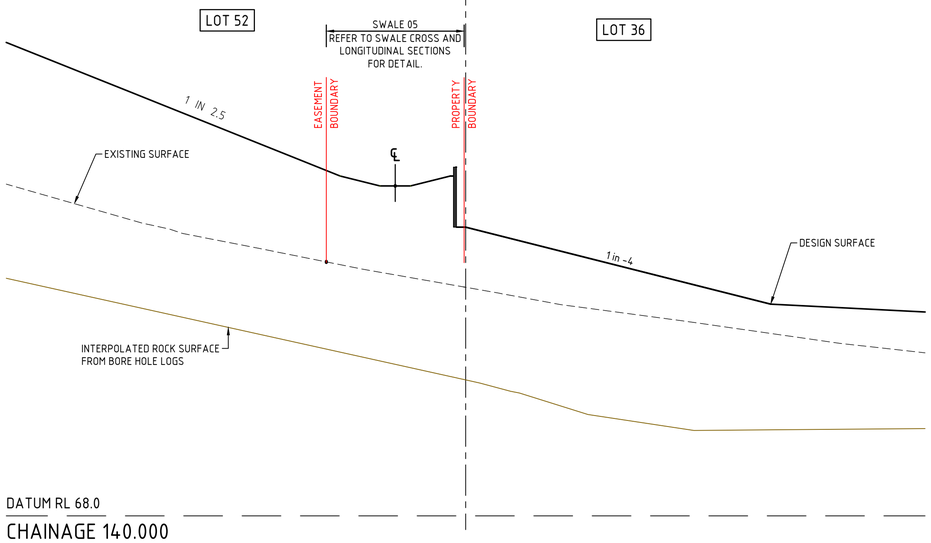

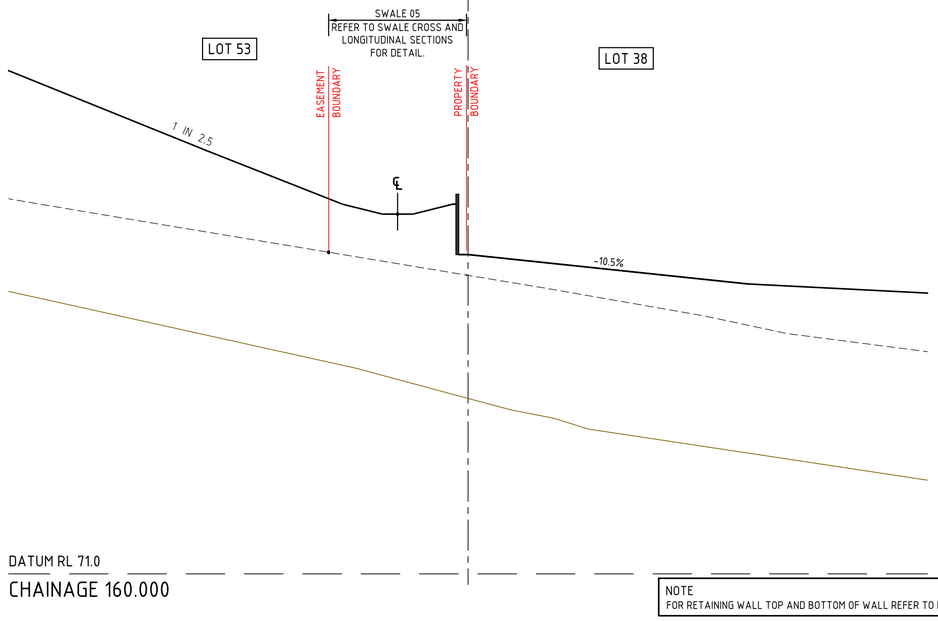

NOTE
FOR RETAINING WALL TOP AND BOTTOM OF WALL REFER TO DWG. C3602 CE200 – CE203.

NOTE
PROPOSED CONCRETE SLEEPER RETAINING WALL BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: RETAINING WALL CROSS SECTION SHEET 6 OF 8

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 – CE407		B

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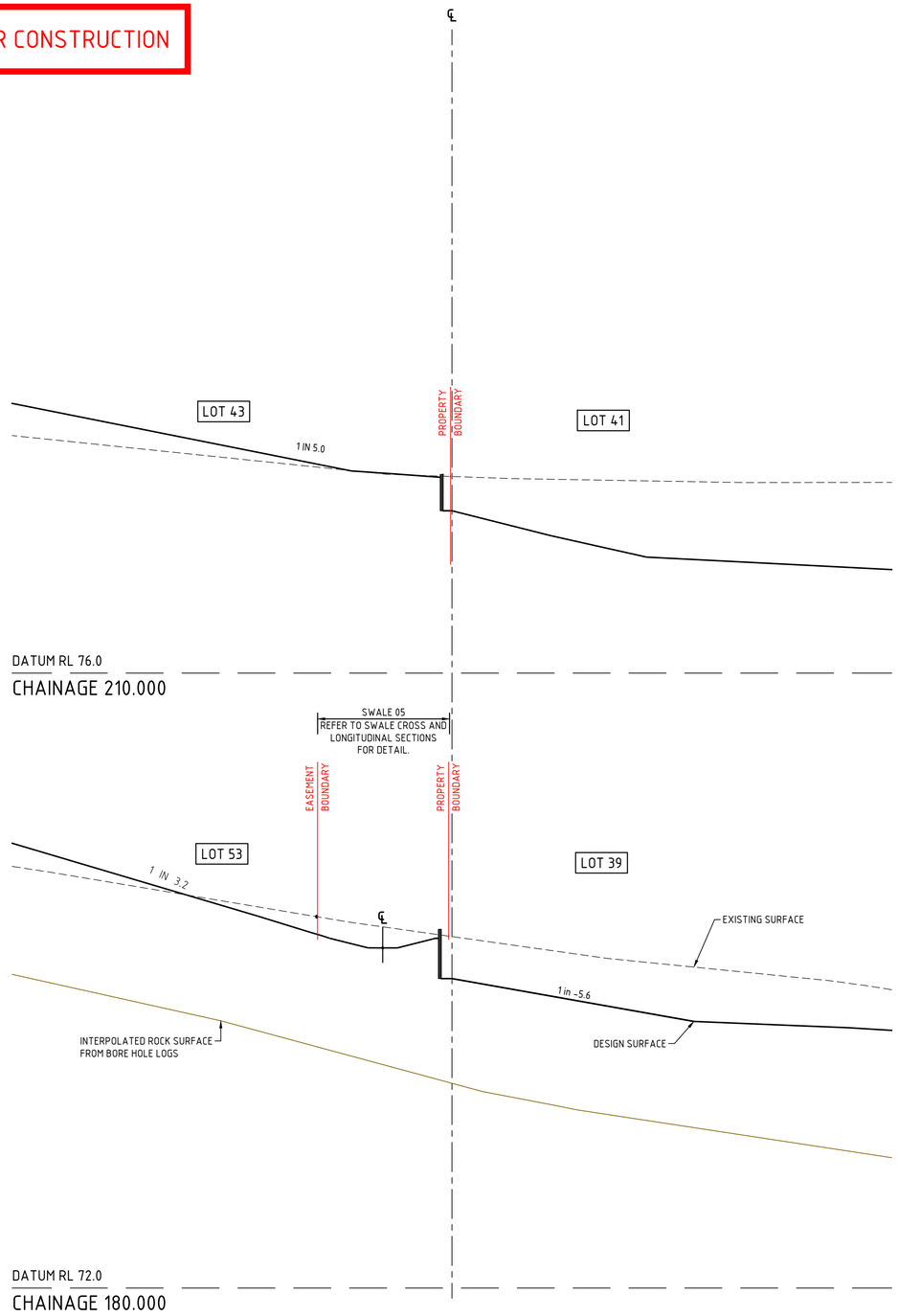

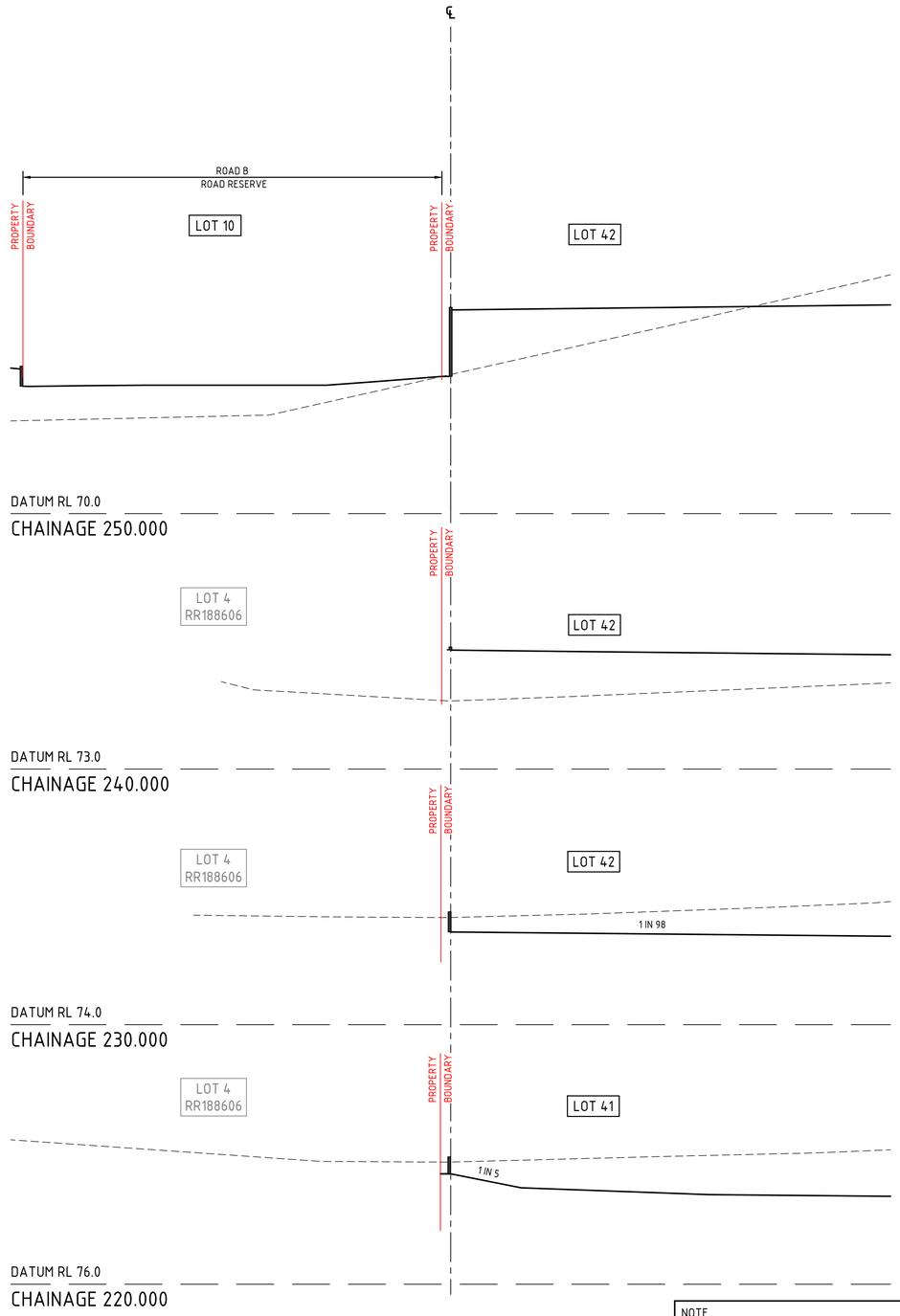

NOTE
FOR RETAINING WALL TOP AND BOTTOM OF WALL REFER TO DWG. C3602 CE200 - CE203.

NOTE
PROPOSED CONCRETE SLEEPER RETAINING WALL BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: RETAINING WALL CROSS SECTION SHEET 7 OF 8

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CE408
REV. B

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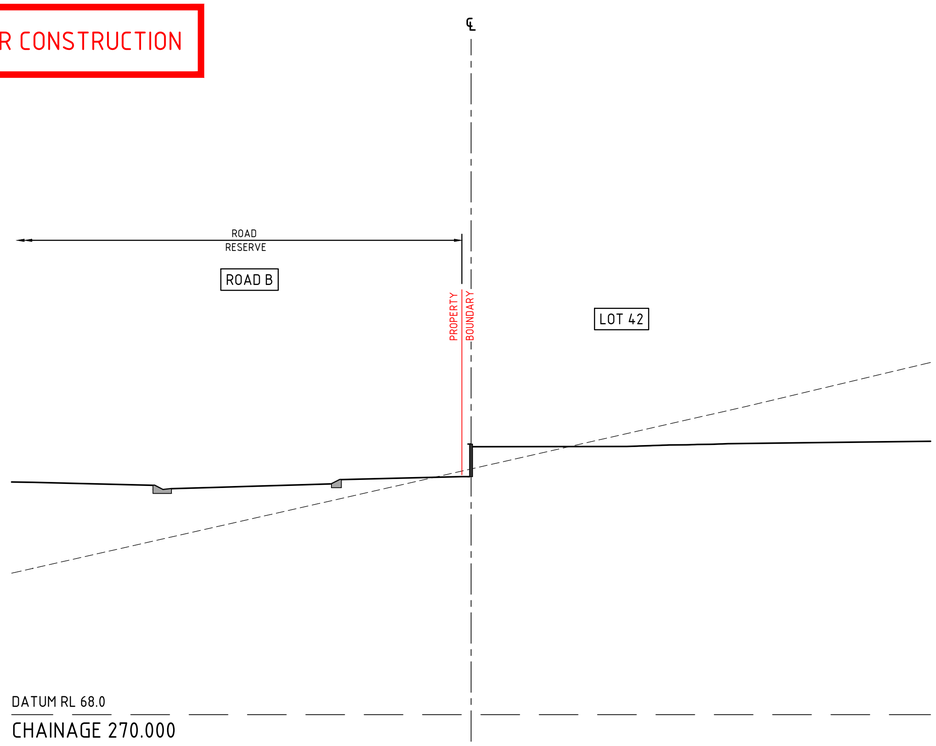

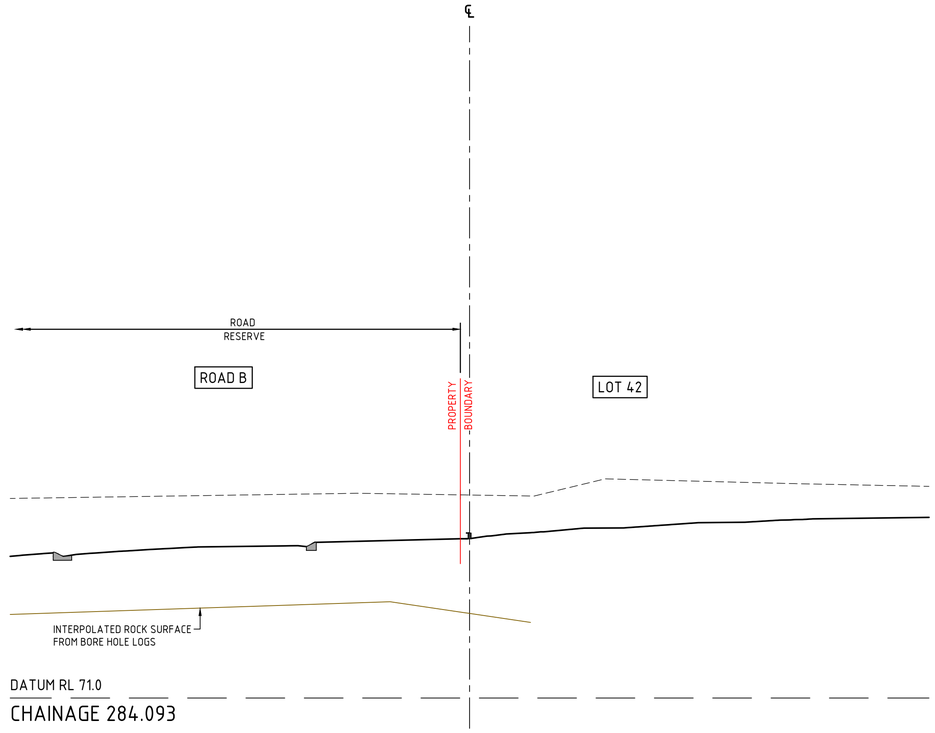

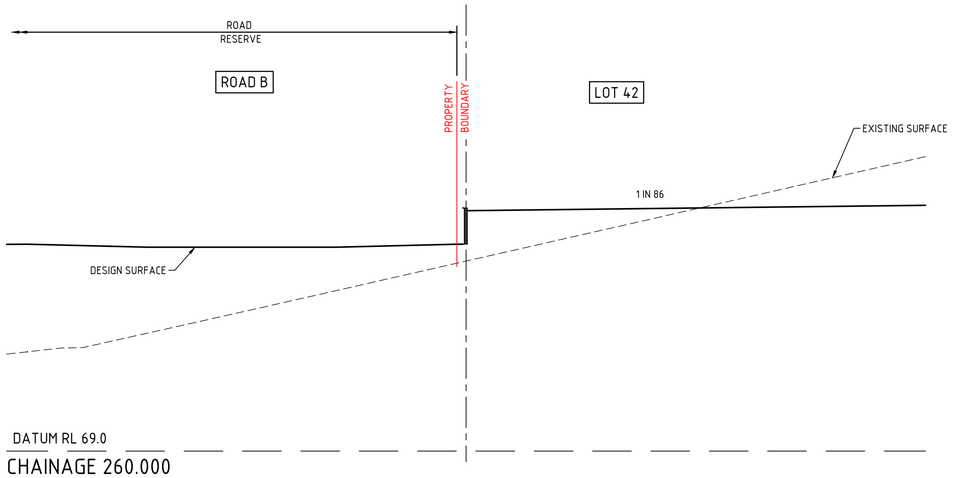

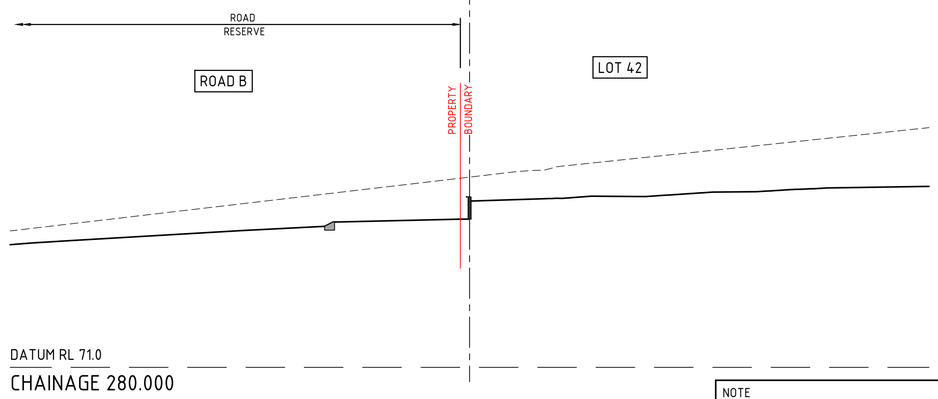

NOTE
FOR RETAINING WALL TOP AND BOTTOM OF WALL REFER TO DWG. C3602 CE200 – CE203.

NOTE
PROPOSED CONCRETE SLEEPER RETAINING WALL BY OTHERS. CONTRACTOR TO PROVIDE RPEQ CERTIFICATION FOR WALLS EXCEEDING 1.0m HIGH.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

JAS-ANZ SGS

CLIENT
PARKER PROPERTY
NINGI PTY LTD

PROJECT
41 GLENBROOK DRIVE,
NAMBOUR

TITLE
RETAINING WALL CROSS
SECTION SHEET 8 OF 8

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 – CE409		B

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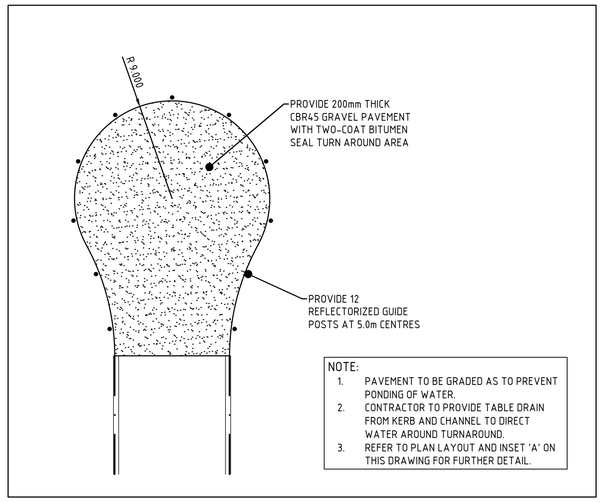
NOT FOR CONSTRUCTION

LEGEND

- PROPOSED EASEMENT BOUNDARY
- ROAD RESERVE
- PROPOSED PAVEMENT

PLAN

SCALE 1:1000



NOTE:
1. PAVEMENT TO BE GRADED AS TO PREVENT PONDING OF WATER.
2. CONTRACTOR TO PROVIDE TABLE DRAIN FROM KERB AND CHANNEL TO DIRECT WATER AROUND TURNAROUND.
3. REFER TO PLAN LAYOUT AND INSET 'A' ON THIS DRAWING FOR FURTHER DETAIL.

TYPICAL TEMPORARY TURN AROUND DETAIL

SCALE N.T.S

WORKPLACE HEALTH AND SAFETY NOTE:
ALL WORKS UNDERTAKEN BY THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE QUEENSLAND WORK HEALTH AND SAFETY ACT 2011. CONTACT THE NEAREST OFFICE OF THE DIVISION OF WORKPLACE HEALTH AND SAFETY FOR INFORMATION. PHONE No. 1300 362 128.

DIAL BEFORE YOU DIG:
IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT 'DIAL BEFORE YOU DIG' PH.1100 FOR THE LOCATION OF EXISTING PUBLIC UTILITIES PRIOR TO EXCAVATION. ANY DAMAGE CAUSED TO EXISTING PUBLIC UTILITIES BY THE CONTRACTOR WILL BE REPAIRED BY THE RELEVANT AUTHORITY AT THE CONTRACTOR'S EXPENSE.

EXISTING SERVICES NOTE:
THIS DESIGN HAS BEEN PREPARED BASED ON SERVICE AUTHORITY AS CONSTRUCTED INFORMATION. NO POT HOLING HAS BEEN UNDERTAKEN TO VERIFY EXISTING SERVICE LOCATIONS AND DEPTHS. IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERTAKEN POT HOLING TO VERIFY THE DESIGN.

SCALE 1:1000 (A1) 0 20 40 60m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
	RFI RESPONSE	23.12.20	CA

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
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SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS TEMPORARY TURNAROUND DETAIL

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 – CR01		A

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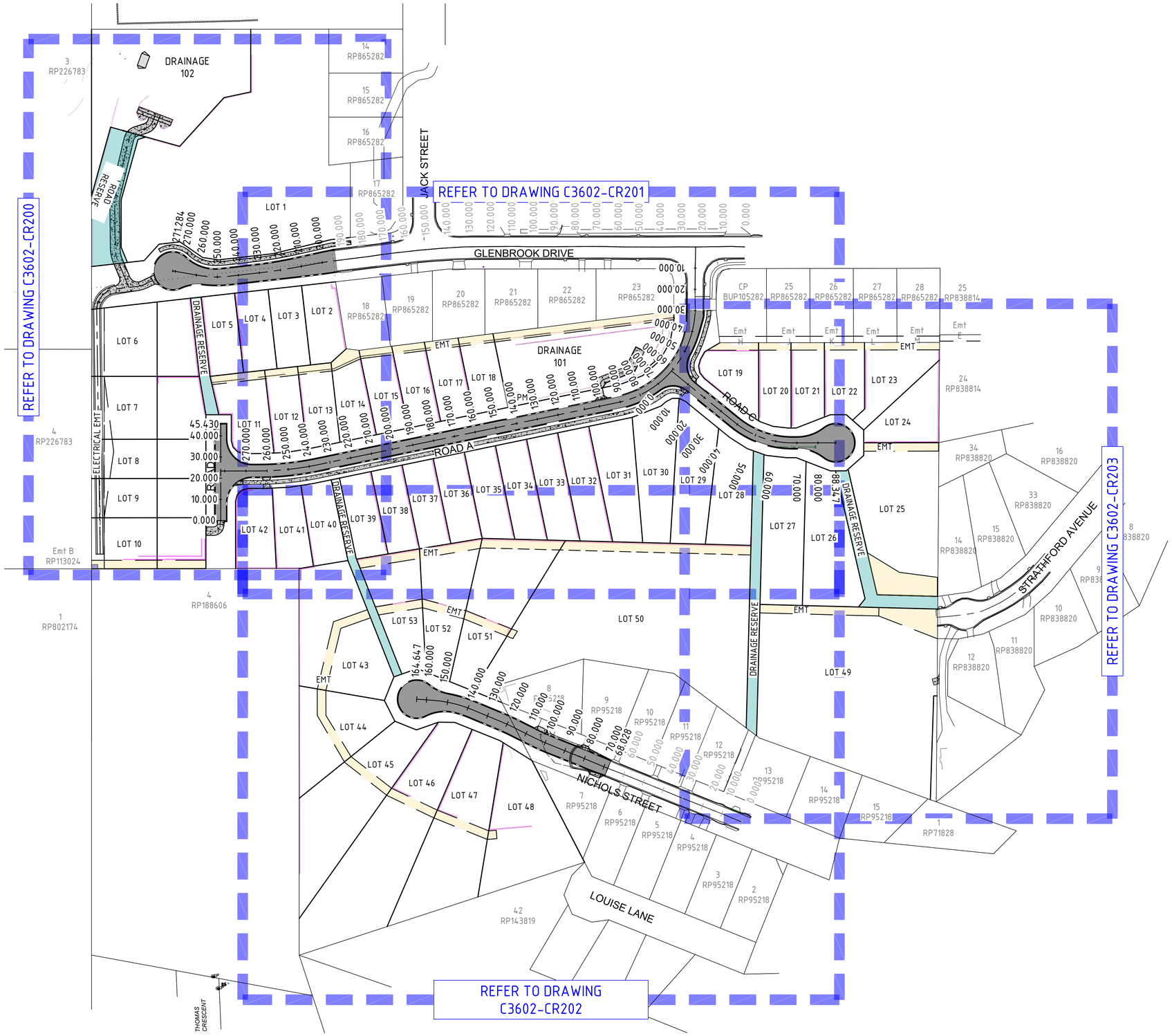

PLAN
SCALE 1:1000

LEGEND

- EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING CONTOURS
- PROPOSED DESIGN CONTOURS
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE MAIN
- PROPOSED STORMWATER MAIN
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED RETAINING WALL (BY OTHERS)
- PROPOSED PAVEMENT
- PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
- PROPOSED TYPE 'M1' KERB AND CHANNEL
- PROPOSED TYPE 'B1' KERB AND CHANNEL
- PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL
- PROPOSED EASEMENT
- PROPOSED DRAINAGE RESERVE

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)
SCALE 1:2500 (A1) 0 50 100 150m (SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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SYDNEY PH No. 1300 827 901
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CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS CONTROL LINE SETOUT OVERALL LAYOUT PLAN

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR100 REV. B

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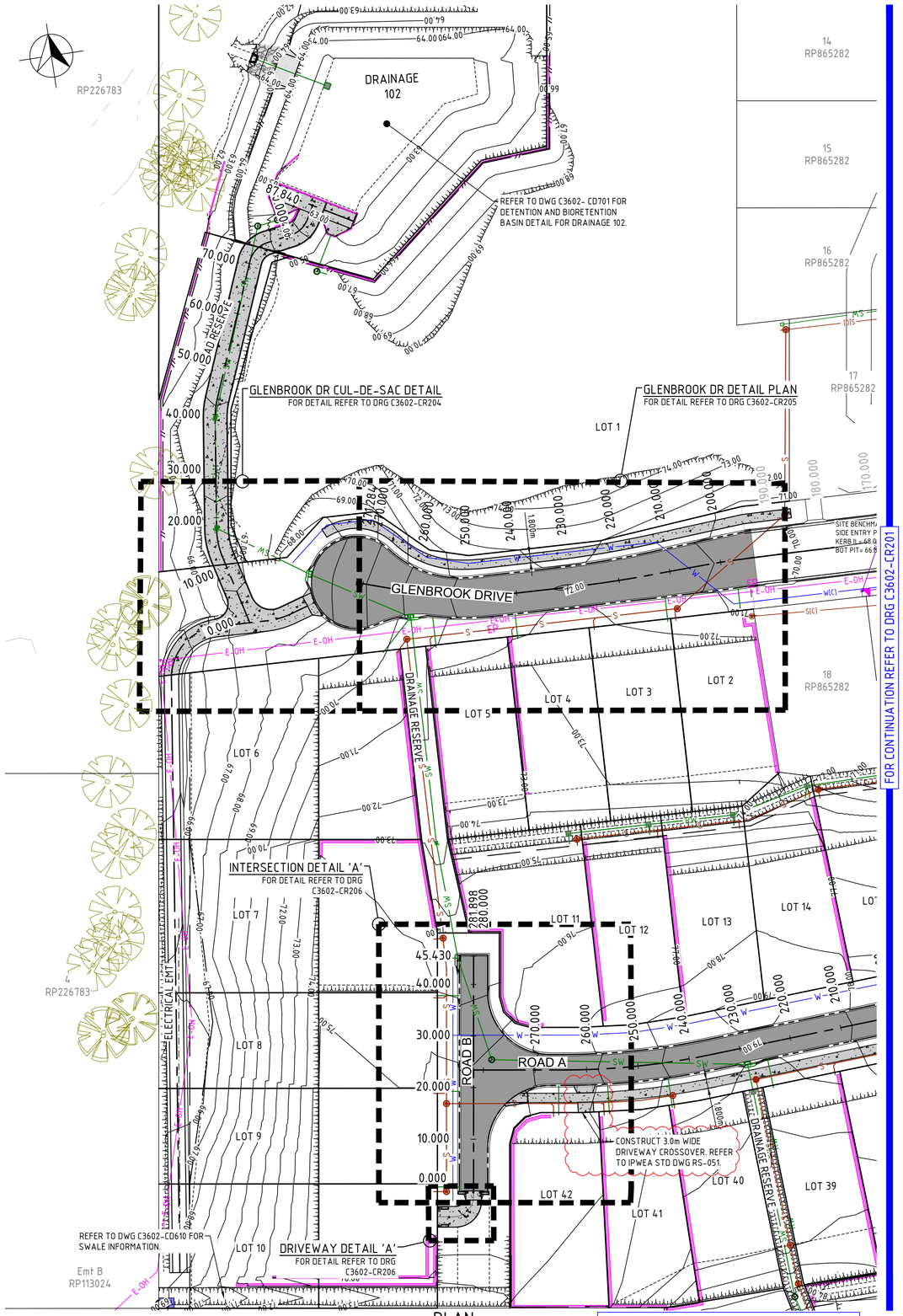

PLAN
SCALE 1:500

NOT FOR CONSTRUCTION

GLENBROOK DRIVE SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	494492.520	7056021.699	280°39'25.71"			
IP 2	6.260	494486.369	7056022.856				
	10.000	494482.663	7056023.367	277°50'32.47"			
IP 3	14.725	494477.983	7056024.011				
	20.000	494472.759	7056024.749	278°01'52.30"			
IP 4	23.180	494469.610	7056025.193				
	30.000	494462.874	7056026.260	279°00'13.69"			
IP 5	31.881	494461.016	7056026.555				
IP 6	39.140	494453.826	7056027.550				
	40.000	494452.977	7056027.683	278°56'36.02"			
	50.000	494443.098	7056029.238	278°56'36.02"			
IP 7	53.568	494439.573	7056029.793				
IP 8	54.466	494438.682	7056029.905				
	60.000	494433.226	7056030.826	279°34'31.26"			
IP 9	61.613	494431.635	7056031.094				
IP 10	65.155	494428.151	7056031.728				
	70.000	494423.363	7056032.475	278°52'22.42"			
IP 11	75.449	494417.980	7056033.316				
	80.000	494413.477	7056033.976	278°20'16.85"			
IP 12	87.320	494406.234	7056035.037				
	90.000	494403.583	7056035.432	278°28'09.67"			
IP 13	98.956	494394.725	7056036.751				
	100.000	494393.695	7056036.924	279°30'56.42"			
IP 14	108.413	494385.398	7056038.314				
	110.000	494383.828	7056038.548	278°27'31.61"			
	120.000	494373.937	7056040.019	278°27'31.61"			
IP 15	120.573	494373.370	7056040.103				
	130.000	494364.035	7056041.413	277°59'16.24"			
IP 16	132.908	494361.155	7056041.817				
	140.000	494354.090	7056042.439	275°01'48.10"			
IP 17	143.755	494350.350	7056042.768				
	150.000	494344.119	7056043.182	273°48'05.42"			
IP 18	153.198	494340.928	7056043.394				
	160.000	494334.132	7056043.686	272°27'28.24"			
IP 19	165.931	494328.206	7056043.940				
	170.000	494324.138	7056044.035	271°20'18.96"			
IP 20	172.226	494321.913	7056044.087				
IP 21	174.902	494319.237	7056044.092				
IP 22	178.506	494315.633	7056044.112				
	180.000	494314.140	7056044.160	271°48'58.92"			
IP 23	185.559	494308.584	7056044.336				
	190.000	494304.144	7056044.440	271°20'28.13"			
TC	195.371	494298.774	7056044.566	271°20'28.13"			
IP 24	199.382	494294.764	7056044.659		R = -150.000	8.021	3°03'49.85"
	200.000	494294.146	7056044.602	269°34'23.12"			
CT	203.392	494290.754	7056044.539	268°16'38.28"			
	210.000	494284.149	7056044.340	268°16'38.28"			
TC	214.897	494279.254	7056044.193	268°16'38.28"			
	220.000	494274.152	7056044.105	269°44'20.97"			
IP 25	221.836	494272.316	7056043.984		R = 200.000	13.877	3°58'31.73"
CT	228.774	494265.380	7056044.257	272°15'10.01"			
	230.000	494264.155	7056044.305	272°15'10.01"			
	240.000	494254.163	7056044.698	272°15'10.01"			
TC	244.560	494249.606	7056044.878	272°15'10.01"			
	250.000	494244.193	7056045.386	278°29'10.11"			
IP 26	251.636	494242.489	7056045.158		R = 50.000	14.151	16°12'56.68"
CT	258.711	494235.733	7056047.414	288°28'06.70"			
	260.000	494234.510	7056047.822	288°28'06.70"			
	270.000	494225.025	7056050.990	288°28'06.70"			
IP 27	271.284	494223.808	7056051.397	288°28'06.70"			

LEGEND

- EXISTING SEWER MAIN (*) DENOTES UTILITY CLASSIFICATION)
- EXISTING WATER MAIN (*) DENOTES UTILITY CLASSIFICATION)
- EXISTING STORMWATER (*) DENOTES UTILITY CLASSIFICATION)
- EXISTING TELECOMMUNICATIONS (*) DENOTES UTILITY CLASSIFICATION)
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE MAIN
- PROPOSED STORMWATER MAIN
- PROPOSED RETAINING WALL (BY OTHERS)
- EXISTING CONTOURS
- PROPOSED DESIGN CONTOURS
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED PAVEMENT
- PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
- PROPOSED TYPE 'M1' KERB AND CHANNEL
- PROPOSED TYPE 'B1' KERB AND CHANNEL
- PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

ROAD B SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING
IP 1	0.000	494228.391	7055931.485	8°42'31.00"
	10.000	494229.905	7055941.369	8°42'31.00"
	20.000	494231.419	7055951.254	8°42'31.00"
	30.000	494232.933	7055961.139	8°42'31.00"
	40.000	494234.447	7055971.023	8°42'31.00"
IP 2	45.430	494235.270	7055976.391	8°42'31.00"

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CONTACT DETAILS
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W www.mnce.com.au

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LAYOUT PLAN SHEET 1 OF 4

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR200
REV. B

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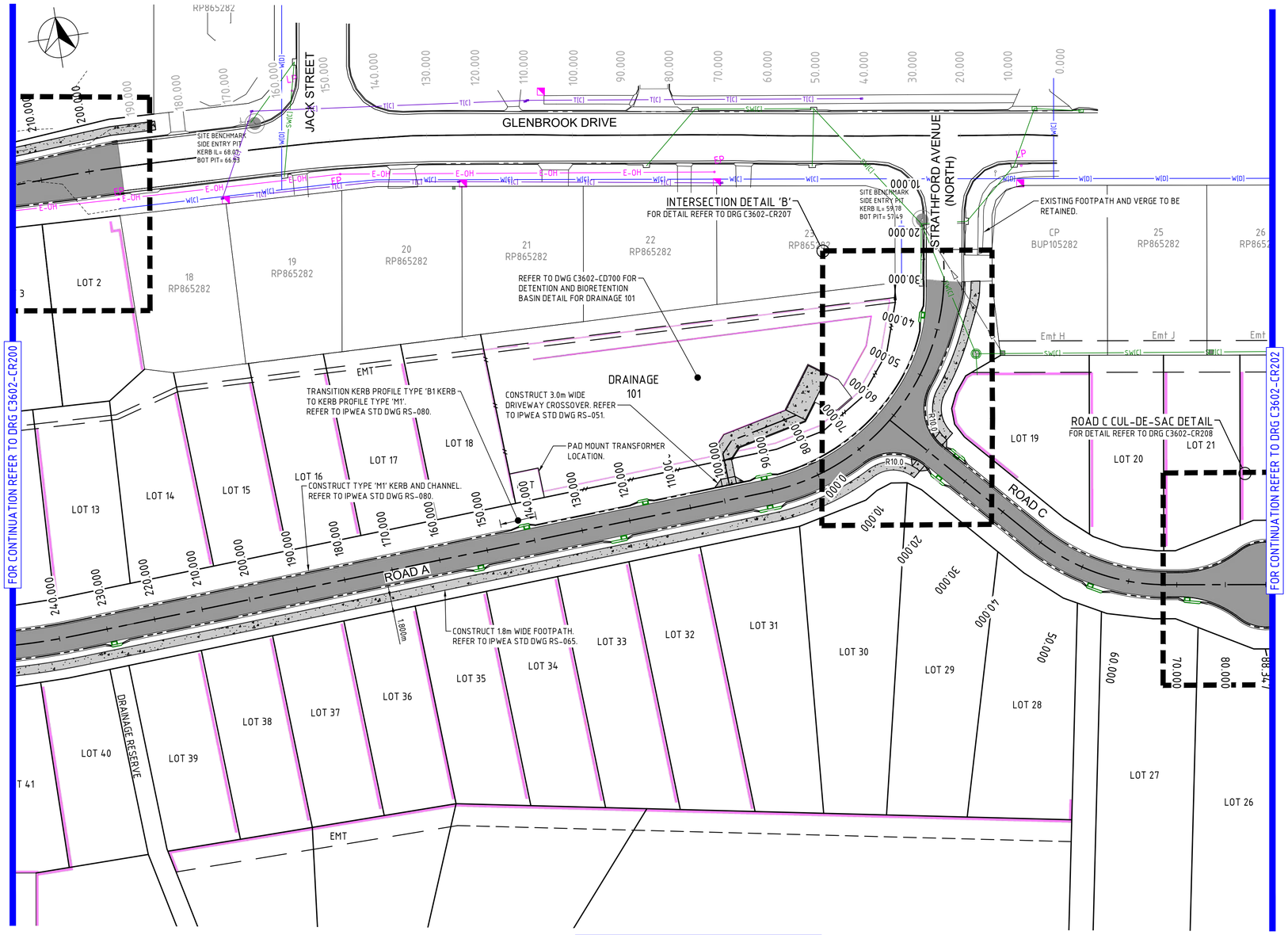

PLAN
SCALE 1:500

ROAD A SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	494469.610	7056025.193	190°04'22.15"			
IP 2	5.197	494468.701	7056020.076				
	10.000	494467.921	7056015.337	189°21'18.11"			
	20.000	494466.295	7056005.470	189°21'18.11"			
IP 3	20.642	494466.191	7056004.836				
IP 4	26.071	494465.406	7055999.464				
TC	27.028	494465.293	7055998.514	186°47'52.08"			
	30.000	494464.846	7055995.576	190°30'56.30"			
	40.000	494461.966	7055986.021	203°01'32.28"			
	50.000	494457.085	7055977.316	215°32'08.27"			
IP 5	59.080	494460.728	7055960.222		R = 45.800	64.104	80°11'38.14"
	60.000	494450.434	7055969.875	228°02'44.25"			
	70.000	494442.329	7055964.051	240°33'20.23"			
	80.000	494433.155	7055960.121	253°03'56.22"			
	90.000	494423.348	7055958.272	265°34'32.20"			
CT	91.132	494422.219	7055958.198	266°59'30.22"			
	100.000	494413.363	7055957.733	266°59'30.22"			
	110.000	494403.376	7055957.208	266°59'30.22"			
	120.000	494393.390	7055956.683	266°59'30.22"			
	130.000	494383.404	7055956.158	266°59'30.22"			
	140.000	494373.418	7055955.634	266°59'30.22"			
	150.000	494363.432	7055955.109	266°59'30.22"			
	160.000	494353.445	7055954.584	266°59'30.22"			
	170.000	494343.459	7055954.059	266°59'30.22"			
	180.000	494333.473	7055953.534	266°59'30.22"			
	190.000	494323.487	7055953.010	266°59'30.22"			
	200.000	494313.501	7055952.485	266°59'30.22"			
	210.000	494303.514	7055951.960	266°59'30.22"			
	220.000	494293.528	7055951.435	266°59'30.22"			
	230.000	494283.542	7055950.910	266°59'30.22"			
TC	236.131	494277.420	7055950.589	266°59'30.22"			
	240.000	494273.553	7055950.440	268°35'32.79"			
	250.000	494263.556	7055950.555	272°43'45.55"			
IP 6	250.235	494263.286	7055949.846		R = 138.500	28.209	11°40'10.73"
	260.000	494253.593	7055951.391	276°51'58.32"			
CT	264.339	494249.294	7055951.977	278°39'40.95"			
	270.000	494243.698	7055952.830	278°39'40.95"			
	280.000	494233.812	7055954.336	278°39'40.95"			
IP 7	281.898	494231.935	7055954.622	278°39'40.95"			

LEGEND

- EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE MAIN
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- PROPOSED RETAINING WALL (BY OTHERS)
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- PROPOSED DESIGN CONTOURS
- PROPOSED TOP OF BATTER
- PROPOSED TOE OF BATTER
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- PROPOSED TYPE 'M1' KERB AND CHANNEL
- PROPOSED TYPE 'B1' KERB AND CHANNEL
- PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CONTACT DETAILS
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LAYOUT PLAN SHEET 2 OF 4

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 – CR201
REV. B

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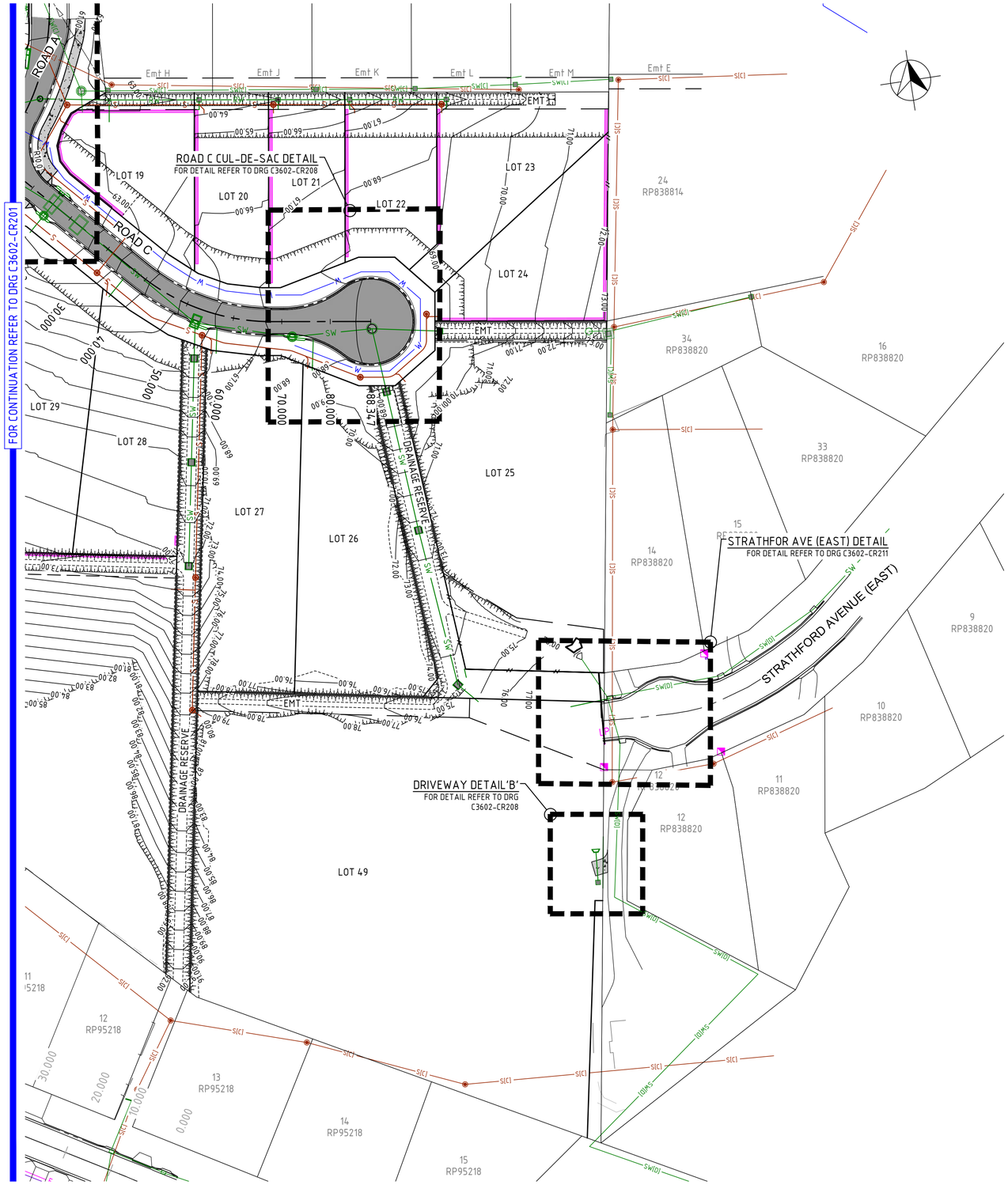

PLAN
SCALE 1:500

LEGEND

- EXISTING SEWER MAIN (*) DENOTES UTILITY CLASSIFICATION)
- EXISTING WATER MAIN (*) DENOTES UTILITY CLASSIFICATION)
- EXISTING STORMWATER (*) DENOTES UTILITY CLASSIFICATION)
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- PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

ROAD C SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	494449.487	7055969.046	137°48'10.61"			
	10.000	494456.203	7055961.638	137°48'10.61"			
	20.000	494462.920	7055954.230	137°48'10.61"			
	30.000	494469.637	7055946.821	137°48'10.61"			
TC	38.518	494475.358	7055940.511	137°48'10.61"			
	40.000	494476.373	7055939.430	135°49'39.63"			
	50.000	494484.108	7055933.129	122°30'11.07"			
IP 2	53.224	494485.641	7055929.170		R = -43.000	29.413	39°11'31.67"
	60.000	494493.088	7055928.780	109°10'42.51"			
CT	67.931	494500.776	7055926.878	98°36'38.94"			
	70.000	494502.822	7055926.568	98°36'38.94"			
	80.000	494512.709	7055925.071	98°36'38.94"			
IP 3	88.347	494520.963	7055923.821	98°36'38.94"			

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
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BRISBANE PH No. (07) 3255 1877
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CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LAYOUT PLAN SHEET 3 OF 4

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR202
REV. B

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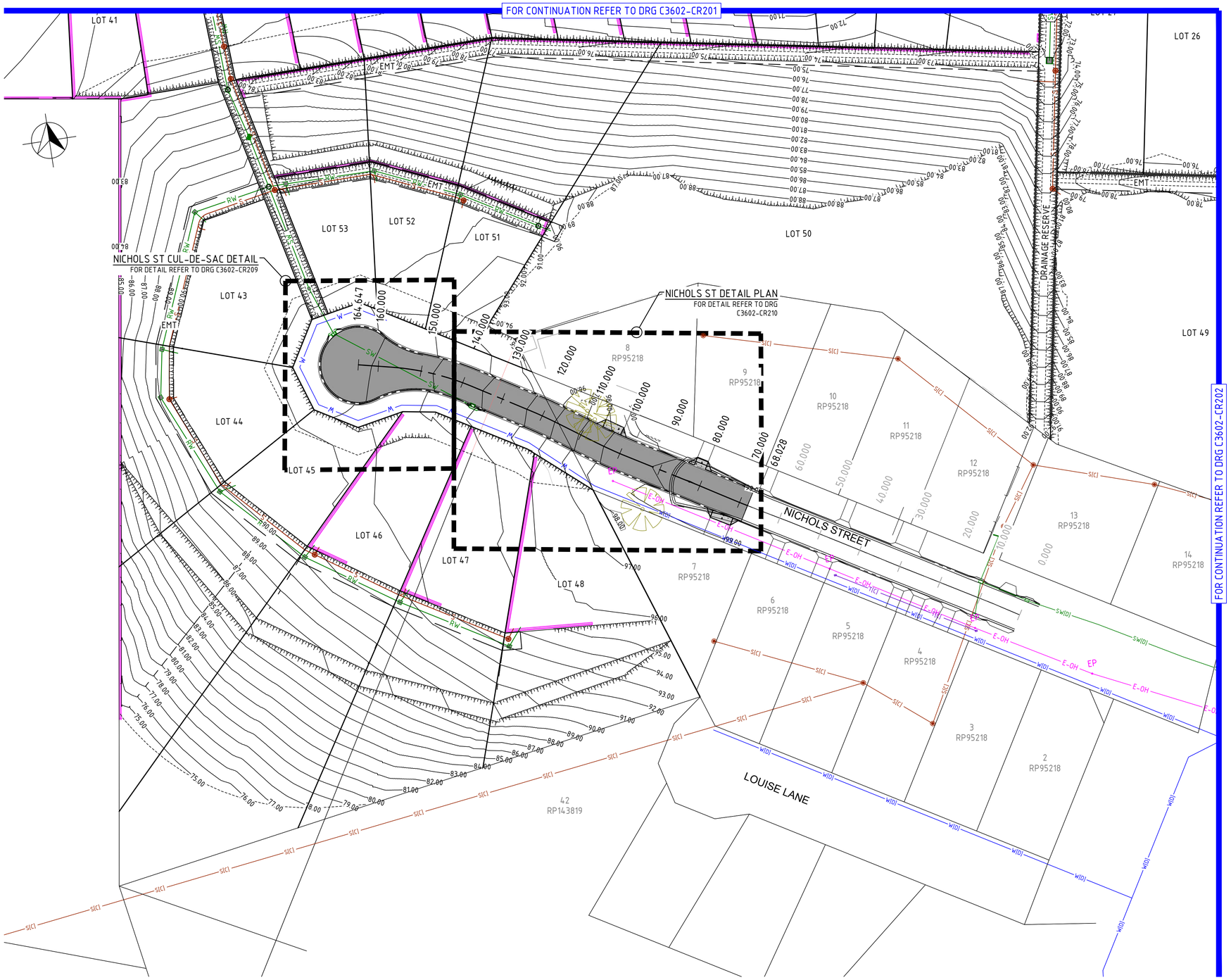

PLAN
SCALE 1:500

LEGEND

- EXISTING SEWER MAIN (*) DENOTES UTILITY CLASSIFICATION)
- EXISTING WATER MAIN (*) DENOTES UTILITY CLASSIFICATION)
- EXISTING STORMWATER (*) DENOTES UTILITY CLASSIFICATION)
- EXISTING TELECOMMUNICATIONS (*) DENOTES UTILITY CLASSIFICATION)
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE MAIN
- PROPOSED STORMWATER MAIN
- PROPOSED RETAINING WALL (BY OTHERS)
- EXISTING CONTOURS
- PROPOSED DESIGN CONTOURS
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED PAVEMENT
- PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
- PROPOSED TYPE 'M1' KERB AND CHANNEL
- PROPOSED TYPE 'B1' KERB AND CHANNEL
- PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

NICHOLS STREET SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 9	57.673	494400.334	7055783.108				
	60.000	494398.310	7055784.255	299°32'46.53"			
IP 10	63.709	494395.083	7055786.084				
IP 11	69.741	494389.864	7055789.109				
	70.000	494389.642	7055789.243	301°11'38.47"			
IP 12	75.198	494385.196	7055791.935				
	80.000	494381.105	7055794.450	301°34'51.64"			
IP 13	80.403	494380.762	7055794.661				
IP 14	82.415	494379.109	7055795.808				
IP 15	86.054	494375.906	7055797.536				
	90.000	494372.509	7055799.544	300°35'01.97"			
TC	97.825	494365.773	7055803.525	300°35'01.97"			
	100.000	494363.912	7055804.652	301°49'48.02"			
IP 16	101.994	494362.182	7055805.647		R = 100.000	8.337	4°46'36.00"
CT	106.162	494358.781	7055808.061	305°21'37.97"			
	110.000	494355.651	7055810.282	305°21'37.97"			
TC	116.142	494350.642	7055813.836	305°21'37.97"			
IP 17	119.688	494347.748	7055815.890		R = -100.000	7.092	4°03'48.94"
	120.000	494347.453	7055816.008	303°09'00.06"			
CT	123.234	494344.717	7055817.732	301°17'49.03"			
	130.000	494338.936	7055821.247	301°17'49.03"			
TC	137.725	494332.335	7055825.260	301°17'49.03"			
	140.000	494330.369	7055826.405	299°07'29.59"			
IP 18	147.460	494323.943	7055830.362		R = -60.000	19.469	18°35'28.28"
	150.000	494321.269	7055830.523	289°34'32.12"			
CT	157.194	494314.363	7055832.522	282°42'20.75"			
	160.000	494311.626	7055833.139	282°42'20.75"			
IP 19	164.647	494307.093	7055834.161	282°42'20.75"			

EXISTING

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
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CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LAYOUT PLAN SHEET 4 OF 4

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR203
REV. B

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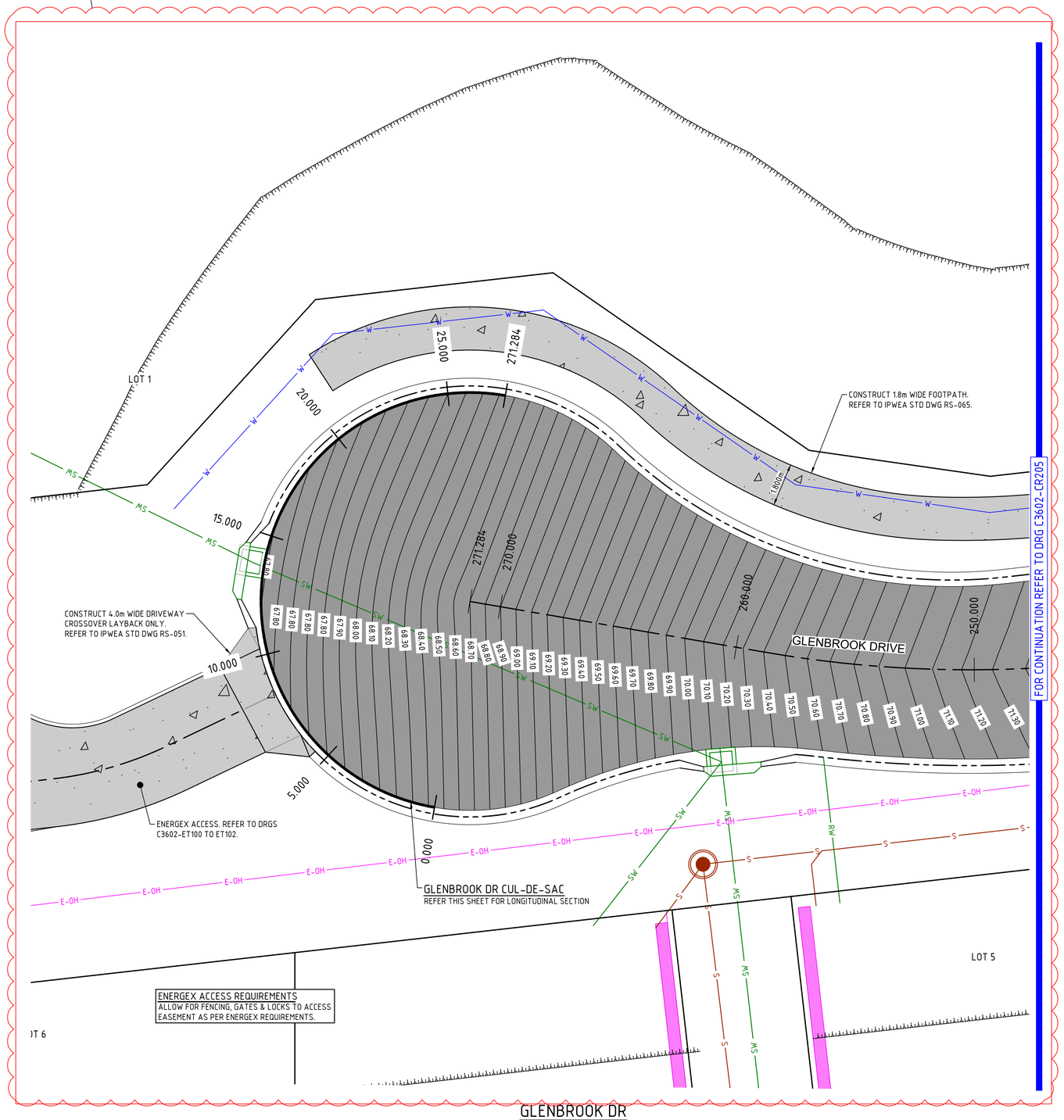
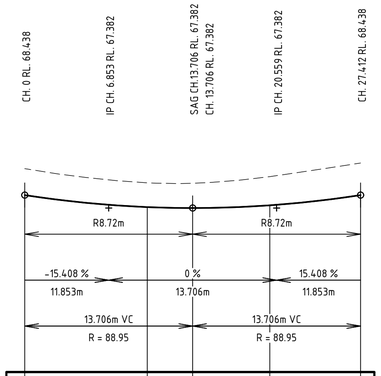


GLENBROOK DR
CUL-DE-SAC DETAIL
SCALE 1:100

LEGEND

- EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION
- EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION
- EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION
- EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE MAIN
- PROPOSED STORMWATER MAIN
- PROPOSED RETAINING WALL (BY OTHERS)
- EXISTING CONTOURS
- PROPOSED DESIGN CONTOURS
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED PAVEMENT
- PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
- PROPOSED TYPE 'M1' KERB AND CHANNEL
- PROPOSED TYPE 'B1' KERB AND CHANNEL
- PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.



HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

DATUM R.L.54.000

DESIGN SURFACE ON ROAD CENTRELINE	68.438	67.460	67.382	67.605	68.438
NAT. SURFACE ON ROAD CENTRELINE	70.593	69.437	69.404	69.944	71.058
CUT / FILL DEPTHS	-2.155	-1.978	-2.021	-2.339	-2.619
DESIGN LEVELS ON ROAD CENTRELINE	68.438	67.460	67.382	67.605	68.438
CHAINAGE	0.000	10.000	13.706	20.000	27.412

GLENBROOK DR CUL-DE-SAC
LONGITUDINAL SECTION
HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS DETAILS SHEET 1 OF 7

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR204 REV. B

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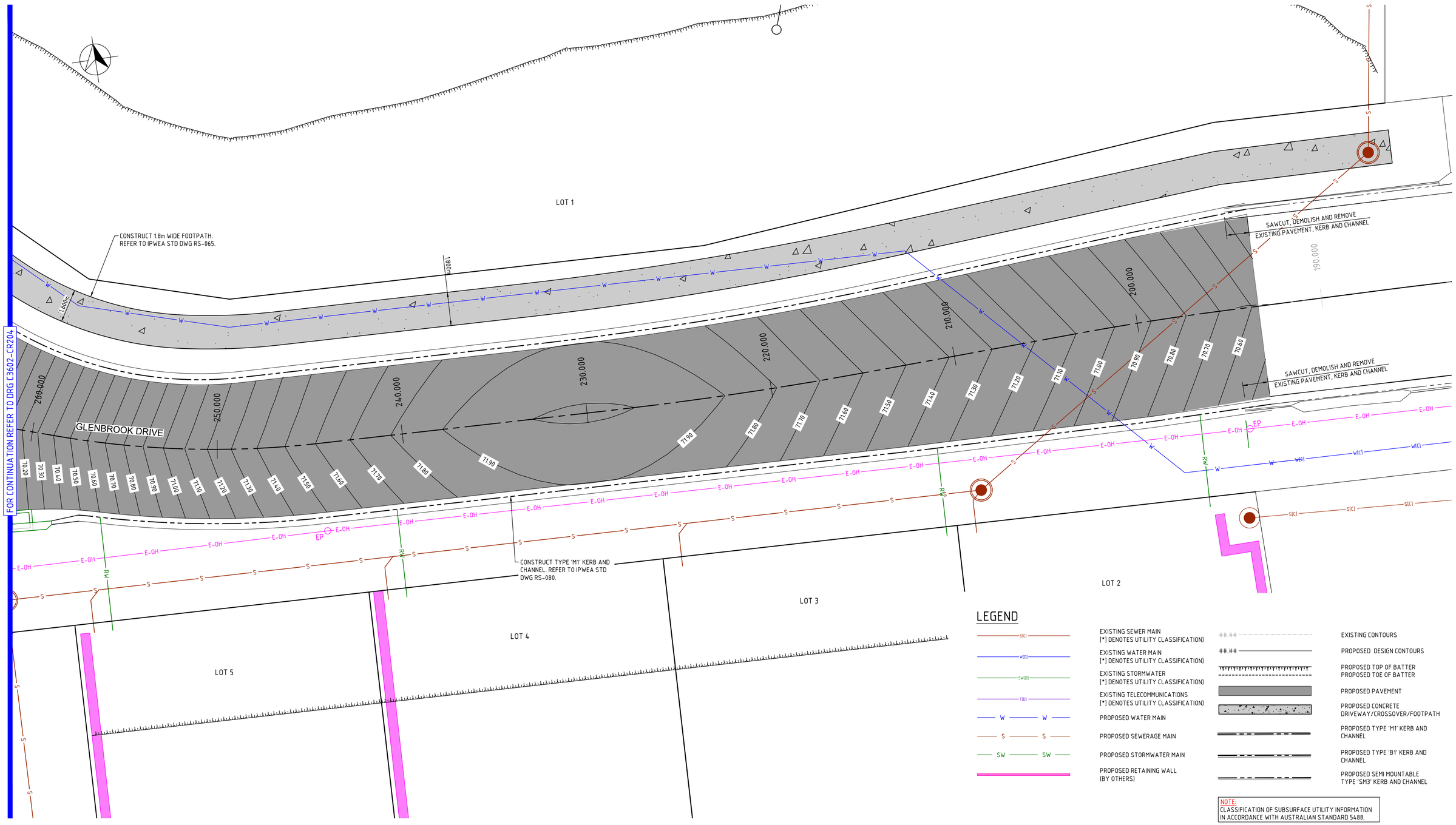

LEGEND

S(C)	EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)
W(D)	EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)
SW(D)	EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)
T(D)	EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)
W — W	PROPOSED WATER MAIN
S — S	PROPOSED SEWERAGE MAIN
SW — SW	PROPOSED STORMWATER MAIN
	PROPOSED RETAINING WALL (BY OTHERS)
##.##	EXISTING CONTOURS
##.##	PROPOSED DESIGN CONTOURS
	PROPOSED TOP OF BATTER PROPOSED TOE OF BATTER
	PROPOSED PAVEMENT
	PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
	PROPOSED TYPE 'M1' KERB AND CHANNEL
	PROPOSED TYPE 'B1' KERB AND CHANNEL
	PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

GLENBROOK DR DETAIL PLAN

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS DETAILS SHEET 2 OF 7

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR205
REV. B

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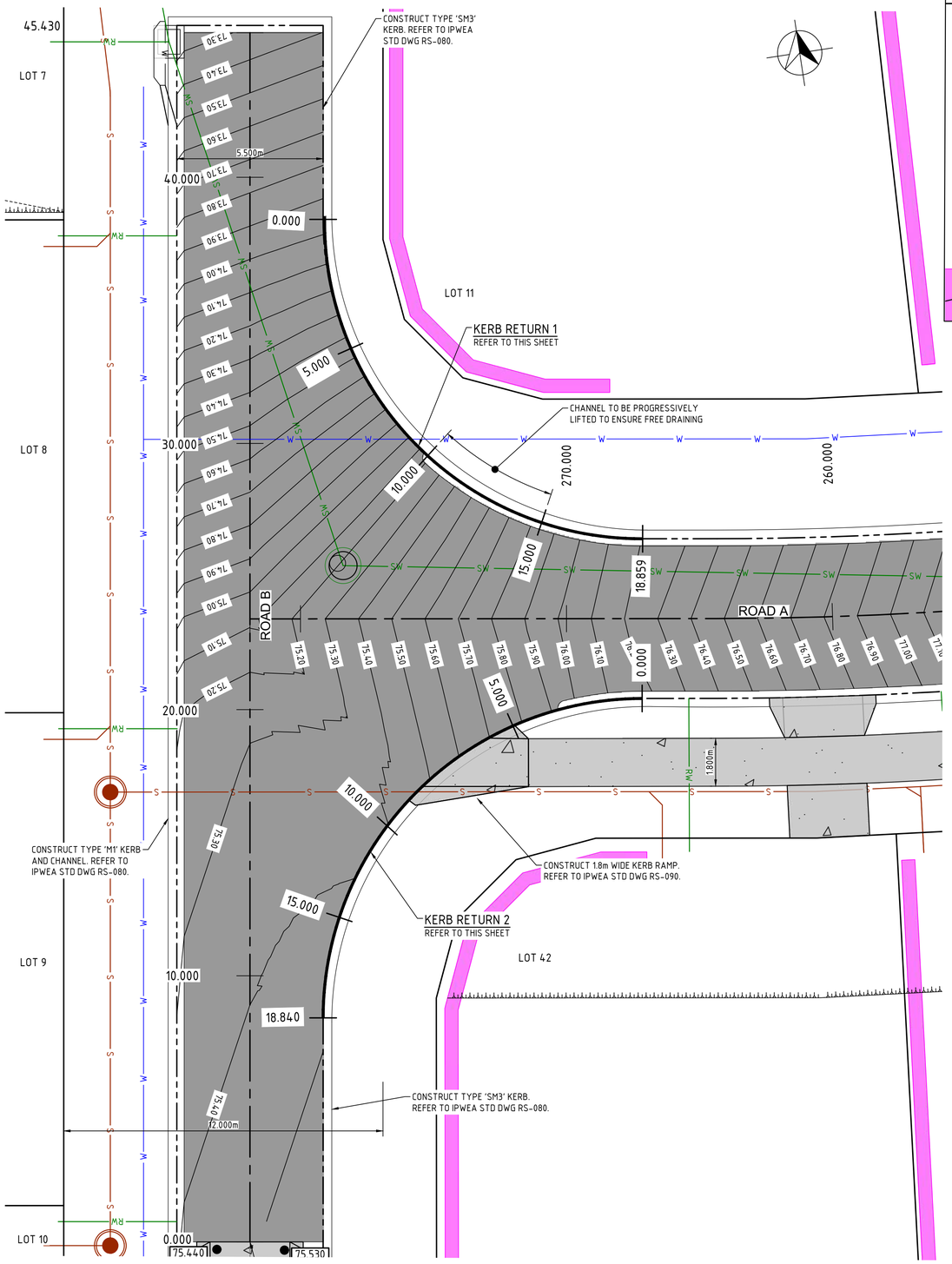
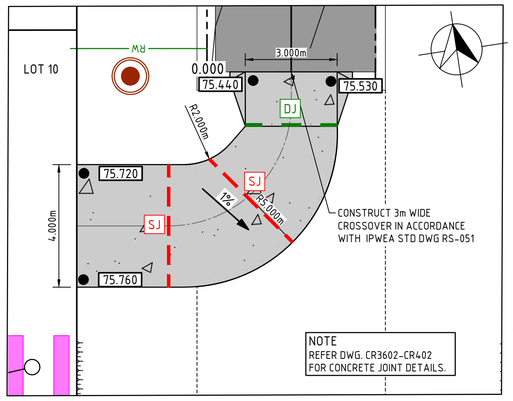


INTERSECTION DETAIL 'A'

SCALE 1:100



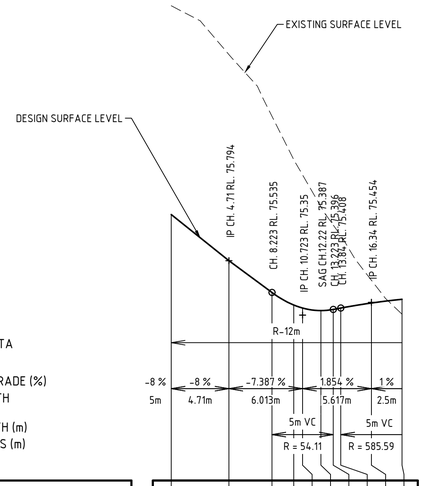
DRIVEWAY DETAIL 'A'

SCALE 1:100

LEGEND

- EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION
- EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION
- EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION
- EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE MAIN
- PROPOSED STORMWATER MAIN
- PROPOSED RETAINING WALL (BY OTHERS)
- EXISTING CONTOURS
- PROPOSED DESIGN CONTOURS
- PROPOSED TOP OF BATTER
- PROPOSED TOE OF BATTER
- SAW CUT JOINT, REFER TO JOINTING DETAILS PLAN
- DOWEL JOINT, REFER TO JOINTING DETAILS PLAN
- PROPOSED PAVEMENT
- PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
- PROPOSED TYPE 'M1' KERB AND CHANNEL
- PROPOSED TYPE 'B1' KERB AND CHANNEL
- PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

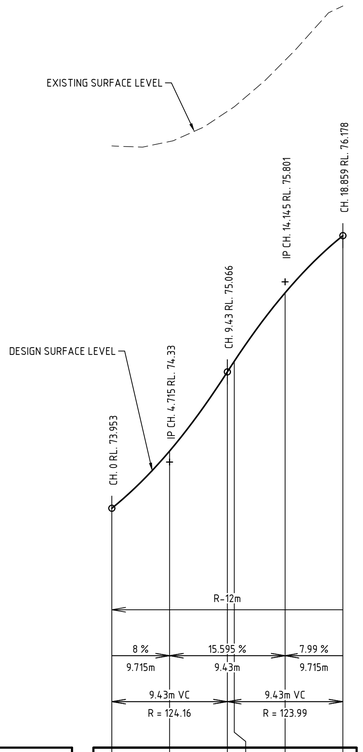
NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.



HORIZONTAL CURVE DATA										
VERTICAL GEOMETRY GRADE (%)	-8 %	-8 %	-7.387 %		1.854 %		1 %			
VERTICAL GRADE LENGTH	5m	4.71m	6.013m		5.617m		2.5m			
VERTICAL CURVE LENGTH (m)			5m VC		5m VC					
VERTICAL CURVE RADIUS (m)			R = 54.11		R = 585.59					
DATUM R.L.74.000										
NAT. SURFACE ON LIP OF KERB	77.875	77.476	76.967	76.619	76.486	76.231	76.076	75.988	75.622	75.358
CUT / FILL DEPTHS	-1.704	-1.682	-1.433	-1.186	-1.078	-0.844	-0.68	-0.58	-0.173	0.121
DESIGN LEVELS ON LIP OF KERB	76.171	75.794	75.535	75.433	75.408	75.387	75.396	75.408	75.449	75.479
CHAINAGE	0.000	4.710	8.223	10.000	10.723	12.220	13.223	13.840	16.340	18.840

KERB RETURN 1 - LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25



HORIZONTAL CURVE DATA										
VERTICAL GEOMETRY GRADE (%)	8 %		15.595 %		7.99 %					
VERTICAL GRADE LENGTH	9.715m		9.43m		9.715m					
VERTICAL CURVE LENGTH (m)			9.43m VC		9.43m VC					
VERTICAL CURVE RADIUS (m)			R = 124.16		R = 123.99					
DATUM R.L.72.000										
NAT. SURFACE ON LIP OF KERB	76.910	76.943	77.187	77.230	77.605	78.052				
CUT / FILL DEPTHS	-2.957	-2.523	-2.121	-2.076	-1.894	-1.874				
DESIGN LEVELS ON LIP OF KERB	73.953	74.420	75.066	75.153	75.711	76.178				
CHAINAGE	0.000	4.715	9.430	10.000	14.145	18.859				

KERB RETURN 2 - LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:25 (A1) 0 0.5 1.0 1.5m (SCALE BEFORE REDUCTION)
SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL STRUCTURAL TRAFFIC PROJECT MANAGEMENT
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SYDNEY PH No. 1300 827 901
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CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS DETAILS SHEET 3 OF 7

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR206 REV. B

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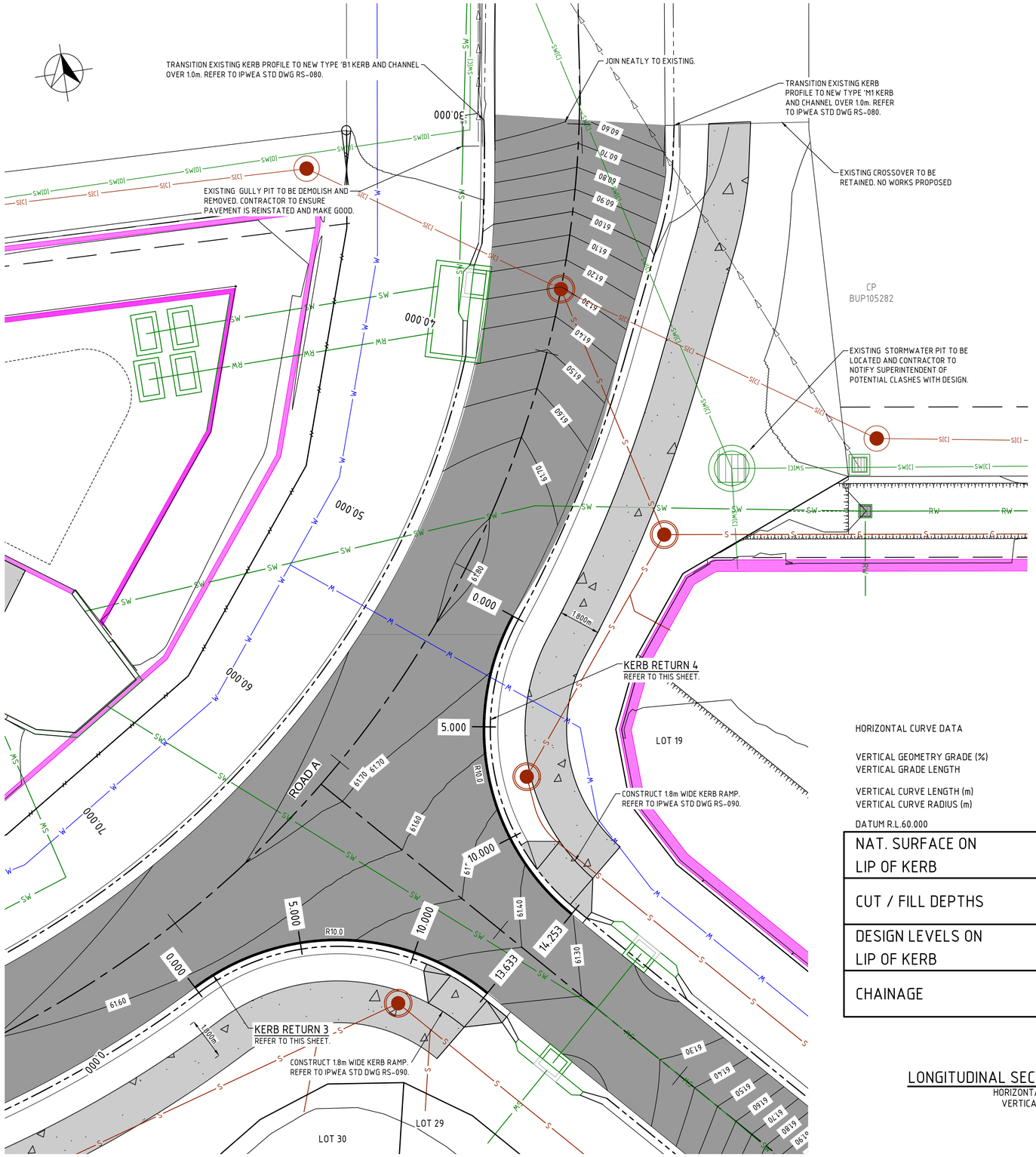
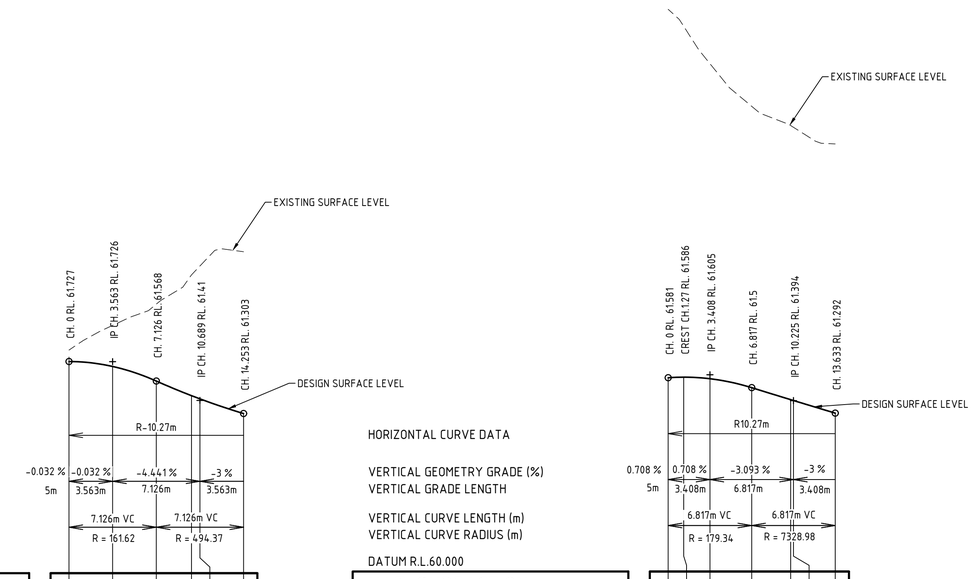


INTERSECTION DETAIL 'B'
SCALE 1:100

LEGEND

EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)	EXISTING CONTOURS
EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)	PROPOSED DESIGN CONTOURS
EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)	PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)	PROPOSED PAVEMENT
PROPOSED WATER MAIN	PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
PROPOSED SEWERAGE MAIN	PROPOSED TYPE 'M1' KERB AND CHANNEL
PROPOSED STORMWATER MAIN	PROPOSED TYPE 'B1' KERB AND CHANNEL
PROPOSED RETAINING WALL (BY OTHERS)	PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.



HORIZONTAL CURVE DATA
VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
DATUM R.L.60.000

NAT. SURFACE ON LIP OF KERB	61.820	62.025	62.198	62.434	62.517	62.623
CUT / FILL DEPTHS	-0.093	-0.338	-0.631	-0.986	-1.094	-1.32
DESIGN LEVELS ON LIP OF KERB	61.727	61.687	61.568	61.449	61.422	61.303
CHAINAGE	0.000	3.563	7.126	10.000	10.689	14.253

LONGITUDINAL SECTION - KERB RETURN 3
HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25

HORIZONTAL CURVE DATA
VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
DATUM R.L.60.000

NAT. SURFACE ON LIP OF KERB	64.588	64.439	64.134	63.785	63.639	63.621	63.489
CUT / FILL DEPTHS	-3.007	-2.854	-2.561	-2.285	-2.237	-2.226	-2.197
DESIGN LEVELS ON LIP OF KERB	61.581	61.586	61.573	61.500	61.402	61.395	61.292
CHAINAGE	0.000	1.270	3.408	6.817	10.000	10.225	13.633

LONGITUDINAL SECTION - KERB RETURN 4
HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25

SCALE 1:25 (A1) 0 0.5 1.0 1.5m (SCALE BEFORE REDUCTION)
SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL STRUCTURAL TRAFFIC PROJECT MANAGEMENT
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS DETAILS SHEET 4 OF 7

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR207 REV. B

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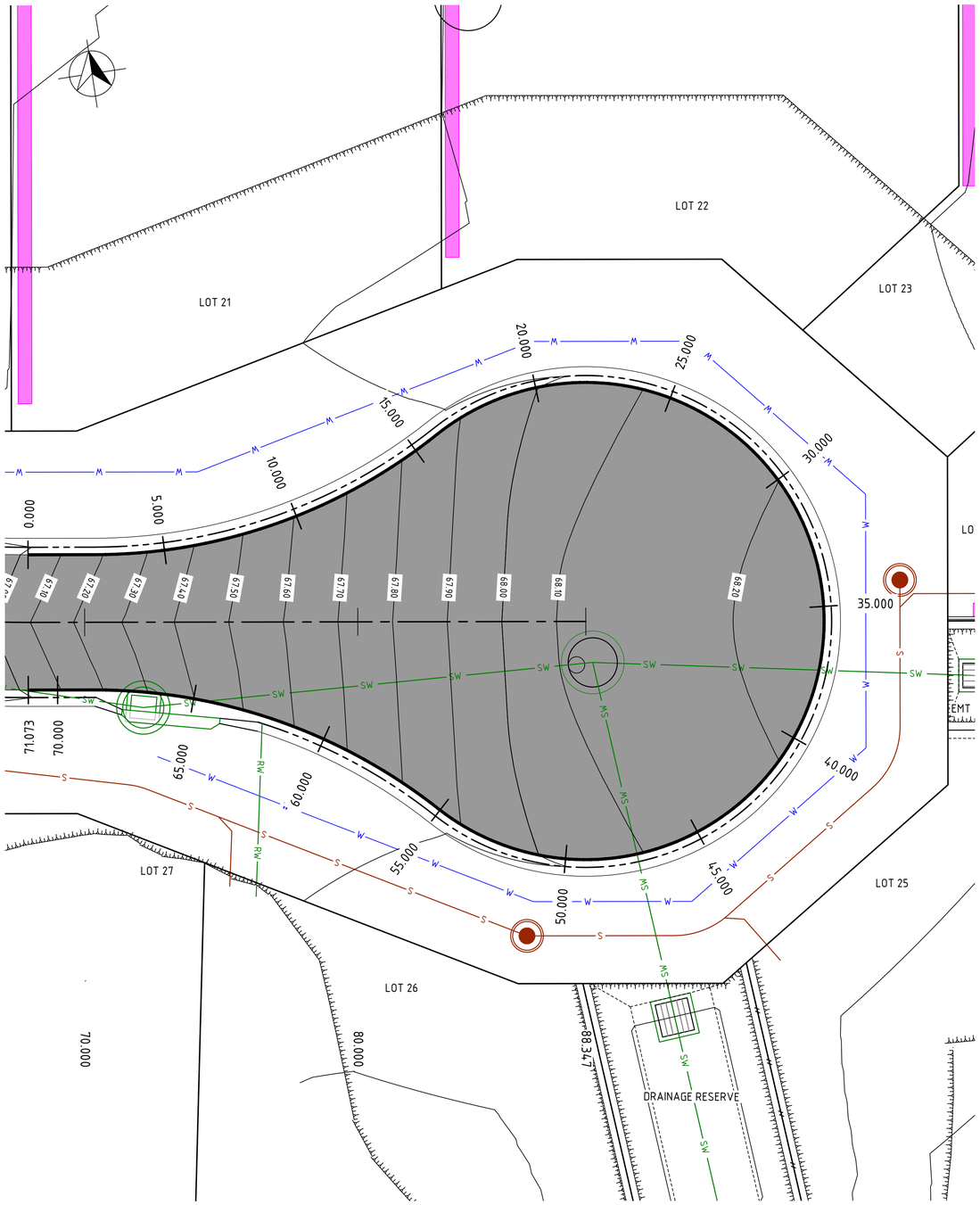
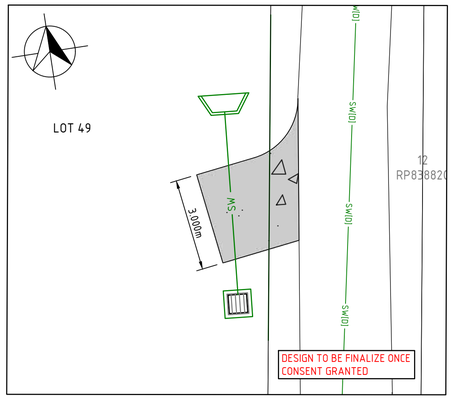


ROAD C CUL-DE-SAC DETAIL

SCALE 1:100



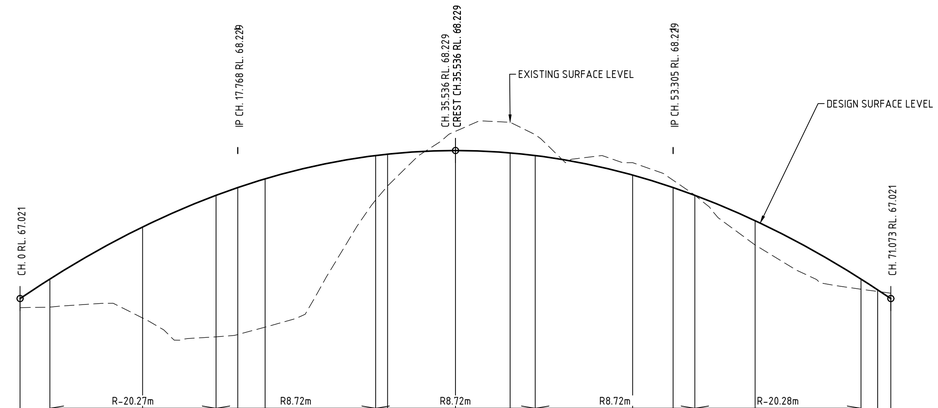
DRIVEWAY DETAIL 'B'

SCALE 1:100

LEGEND

- S(C) — EXISTING SEWER MAIN (*) DENOTES UTILITY CLASSIFICATION)
- W(D) — EXISTING WATER MAIN (*) DENOTES UTILITY CLASSIFICATION)
- SW(D) — EXISTING STORMWATER (*) DENOTES UTILITY CLASSIFICATION)
- T(D) — EXISTING TELECOMMUNICATIONS (*) DENOTES UTILITY CLASSIFICATION)
- W — PROPOSED WATER MAIN
- S — PROPOSED SEWERAGE MAIN
- SW — PROPOSED STORMWATER MAIN
- PROPOSED RETAINING WALL (BY OTHERS)
- ##.## — EXISTING CONTOURS
- ##.## — PROPOSED DESIGN CONTOURS
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED PAVEMENT
- PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
- PROPOSED TYPE 'M1' KERB AND CHANNEL
- PROPOSED TYPE 'B1' KERB AND CHANNEL
- PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.



HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

DATUM R.L.65.000

NAT. SURFACE ON LIP OF KERB	66.947	66.951	66.862	66.708	66.724	66.787	67.825	67.940	68.395	68.459	68.358	68.130	67.995	67.864	67.458	67.097	67.079	67.064
CUT / FILL DEPTHS	0.074	0.23	0.743	1.155	1.202	1.21	0.363	0.259	-0.167	-0.25	-0.17	-0.101	-0.069	0	0.198	0.084	0.014	-0.044
DESIGN LEVELS ON LIP OF KERB	67.021	67.180	67.605	67.863	67.927	67.998	68.188	68.199	68.229	68.210	68.188	68.028	67.927	67.863	67.656	67.180	67.092	67.021
CHAINAGE	0.000	2.432	10.000	15.995	17.768	20.000	29.023	30.000	35.536	40.000	42.050	50.000	53.305	55.078	60.000	68.641	70.000	71.073

ROAD C CUL-DE-SAC LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:25 (A1) 0 0.5 1.0 1.5m (SCALE BEFORE REDUCTION)
SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
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W www.mnce.com.au

JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS DETAILS SHEET 5 OF 7

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR208 REV. B

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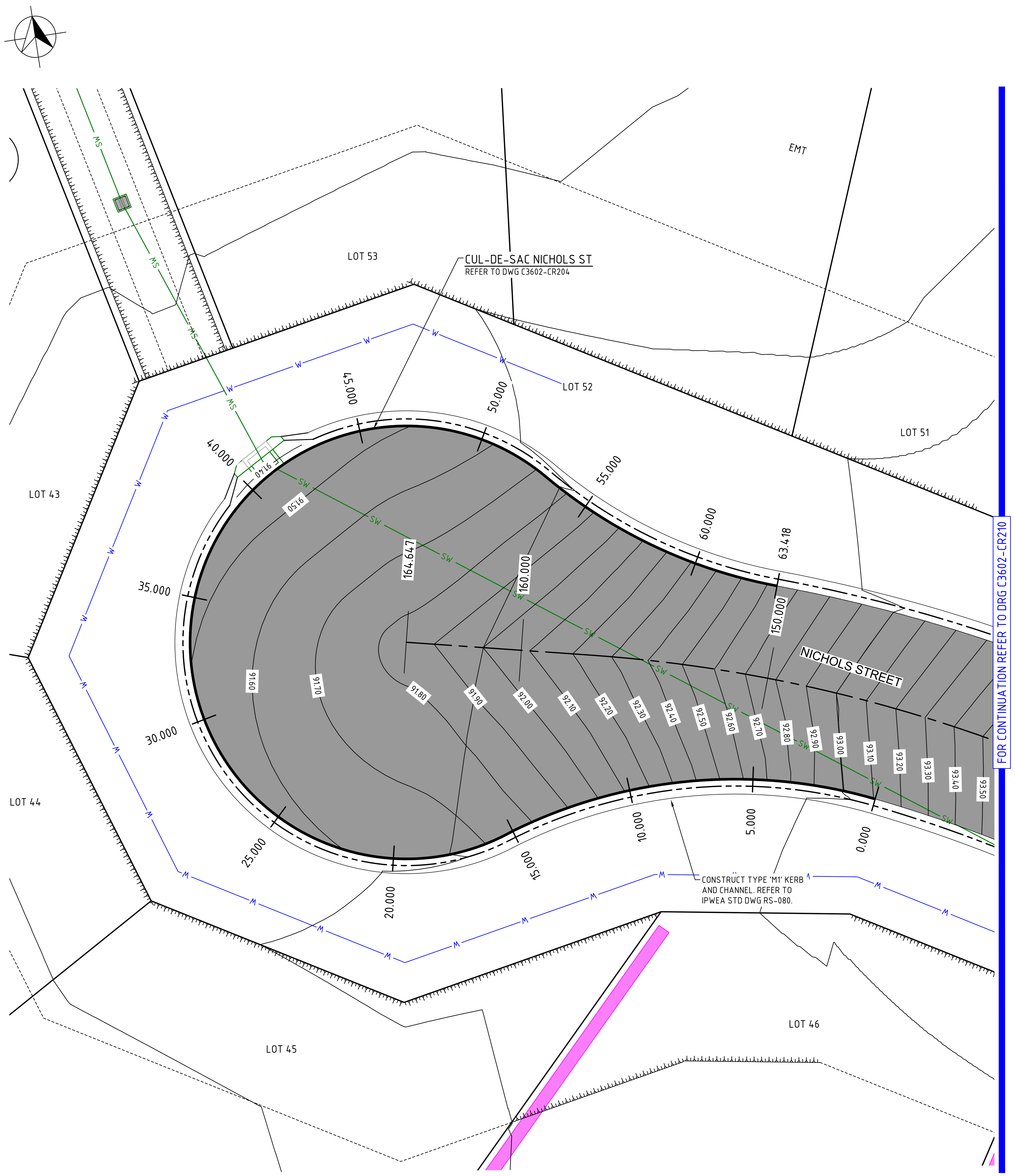


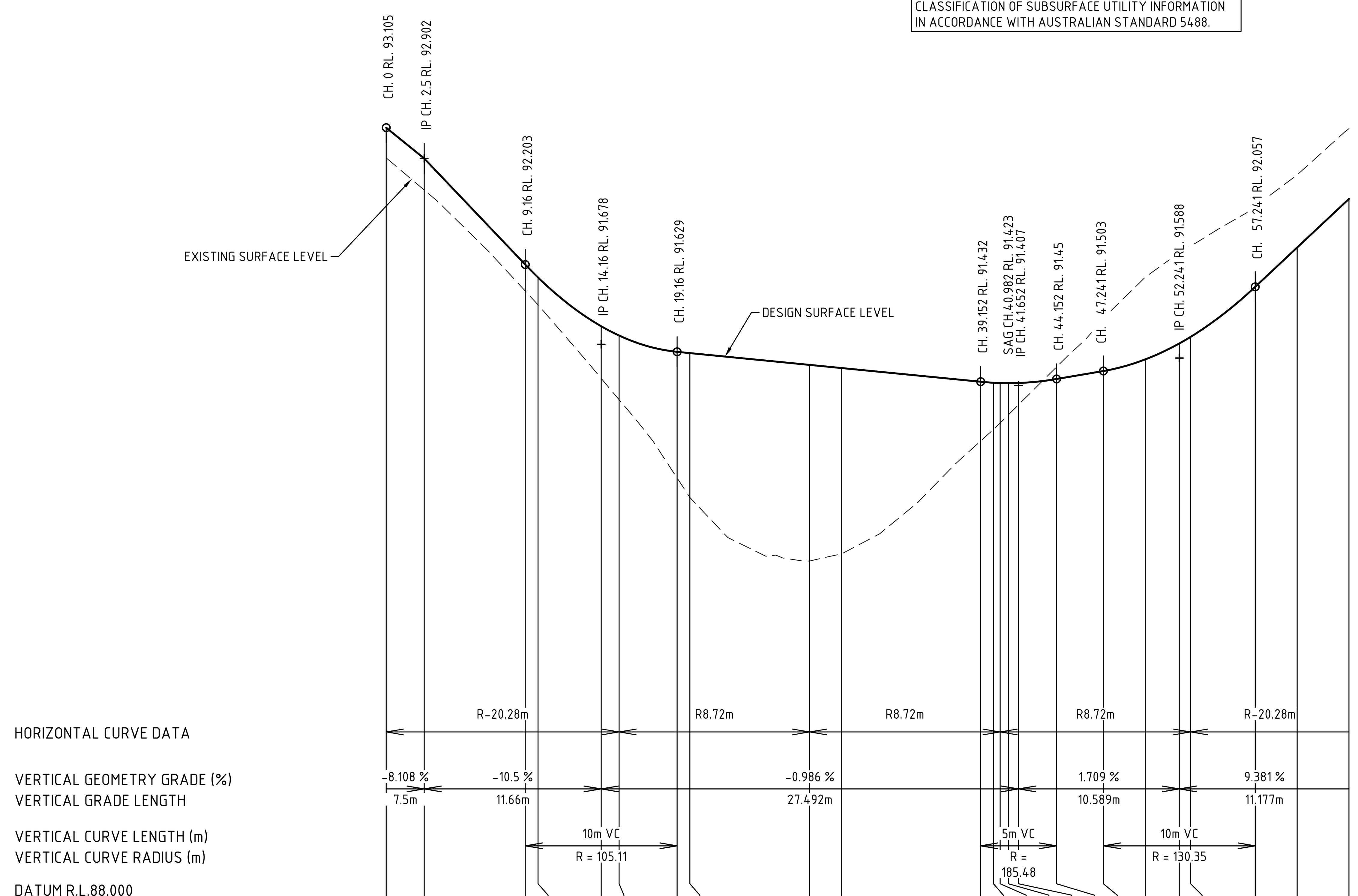
NICHOLS STREET CUL-DE-SAC DETAIL

SCALE 1:100

LEGEND

- EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION
- EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION
- EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION
- EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE MAIN
- PROPOSED STORMWATER MAIN
- PROPOSED RETAINING WALL (BY OTHERS)
- EXISTING CONTOURS
- PROPOSED DESIGN CONTOURS
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED PAVEMENT
- PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
- PROPOSED TYPE 'M1' KERB AND CHANNEL
- PROPOSED TYPE 'B1' KERB AND CHANNEL
- PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.



CHAINAGE	NAT. SURFACE ON LIP OF KERB	CUT / FILL DEPTHS	DESIGN LEVELS ON LIP OF KERB
0.000	92.906	0.199	93.105
2.500	92.699	0.203	92.902
9.160	92.032	0.171	92.203
10.000	91.939	0.18	92.118
14.160	91.455	0.343	91.797
15.337	91.313	0.423	91.736
19.160	90.786	0.843	91.629
20.000	90.669	0.951	91.621
27.887	90.252	1.291	91.543
30.000	90.298	1.224	91.522
39.152	91.038	0.394	91.432
40.000	91.118	0.308	91.425
40.438	91.160	0.263	91.423
40.982	91.213	0.209	91.423
41.652	91.280	0.144	91.424
44.152	91.530	-0.08	91.450
47.241	91.848	-0.345	91.503
50.000	92.121	-0.542	91.579
52.241	92.286	-0.602	91.684
52.988	92.328	-0.6	91.727
57.241	92.583	-0.526	92.057
60.000	92.794	-0.478	92.316
63.418	93.099	-0.463	92.636

NICHOLS STREET CUL-DE-SAC LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:25 (A1) 0 0.5 1.0 1.5m (SCALE BEFORE REDUCTION)
SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS DETAILS SHEET 6 OF 7

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR209 REV. B

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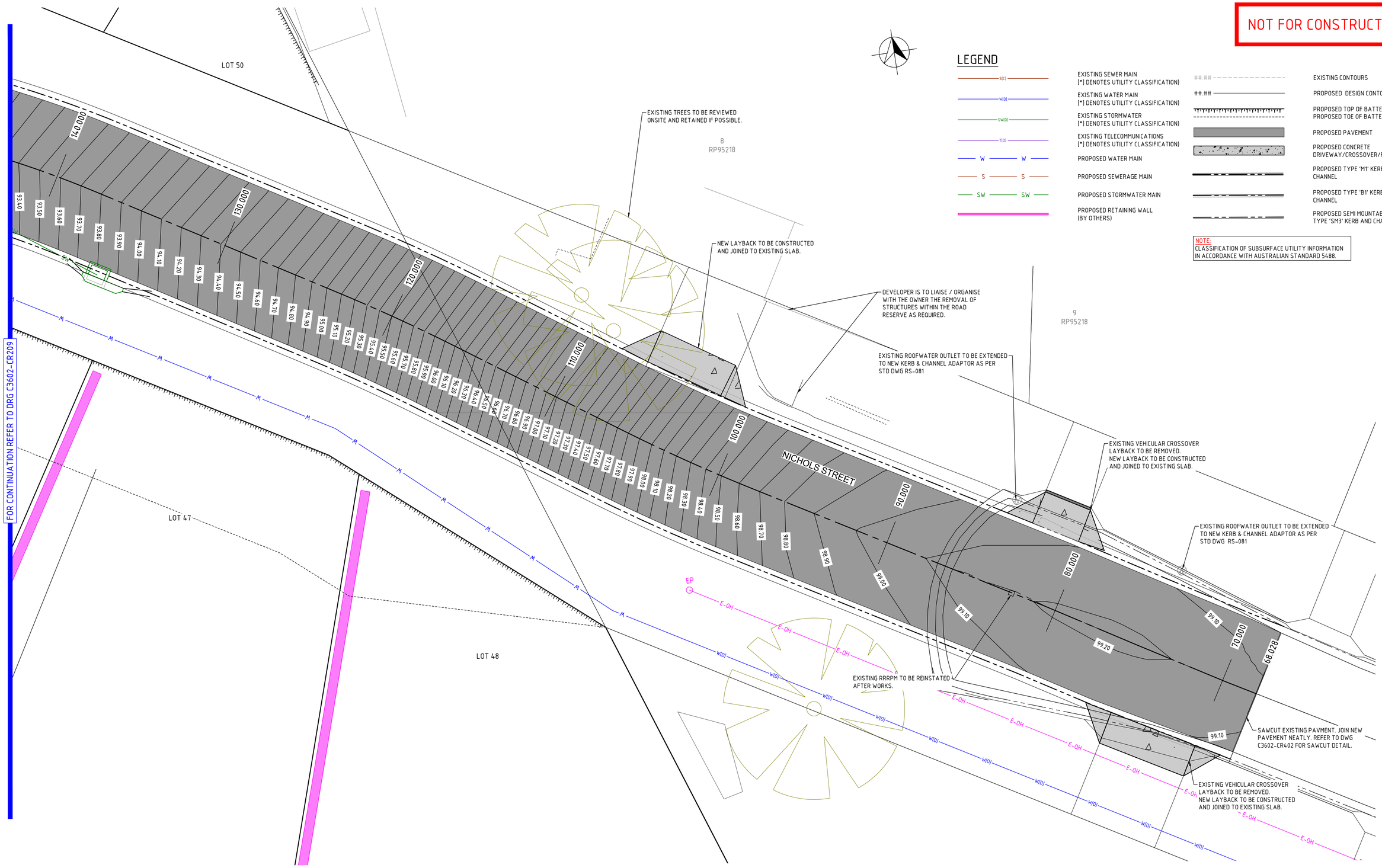

LEGEND

S(C)	EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)
W(D)	EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)
SW(D)	EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)
T(D)	EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)
W — W	PROPOSED WATER MAIN
S — S	PROPOSED SEWERAGE MAIN
SW — SW	PROPOSED STORMWATER MAIN
	PROPOSED RETAINING WALL (BY OTHERS)
##.##	EXISTING CONTOURS
##.##	PROPOSED DESIGN CONTOURS
	PROPOSED TOP OF BATTER PROPOSED TOE OF BATTER
	PROPOSED PAVEMENT
	PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH
	PROPOSED TYPE 'M1' KERB AND CHANNEL
	PROPOSED TYPE 'B1' KERB AND CHANNEL
	PROPOSED SEMI MOUNTABLE TYPE 'SM3' KERB AND CHANNEL

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

NICHOLS ST PLAN DETAIL

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

DO NOT SCALE FROM DRAWING
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS DETAILS SHEET 7 OF 7

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
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JN		
DRAWING No.		REV.
C3602 - CR210		B

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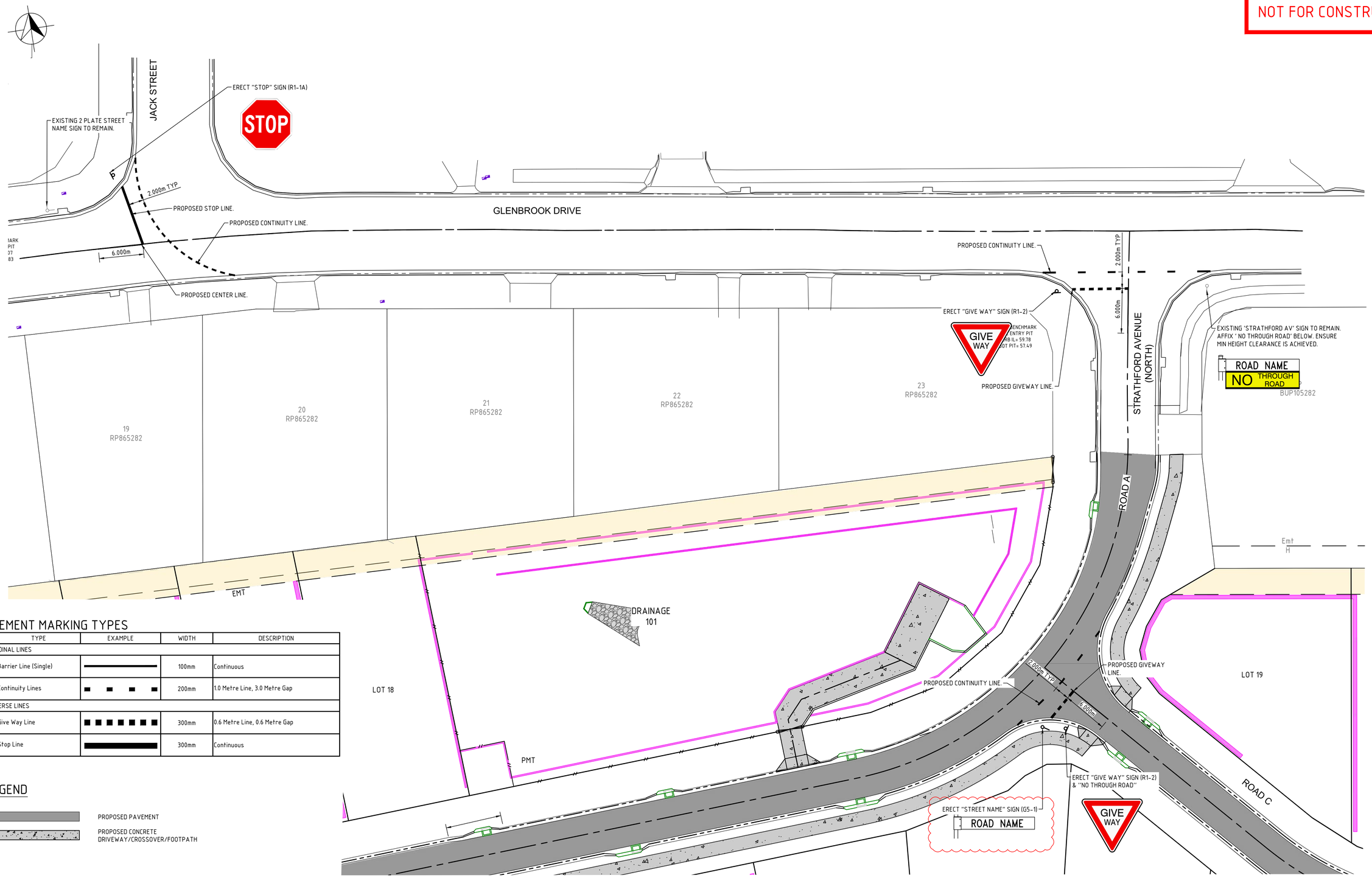

PAVEMENT MARKING TYPES

No.	TYPE	EXAMPLE	WIDTH	DESCRIPTION
LONGITUDINAL LINES				
A	Barrier Line (Single)		100mm	Continuous
B	Continuity Lines		200mm	1.0 Metre Line, 3.0 Metre Gap
TRANSVERSE LINES				
C	Give Way Line		300mm	0.6 Metre Line, 0.6 Metre Gap
D	Stop Line		300mm	Continuous

LEGEND

PROPOSED PAVEMENT

PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH

LINEMARKING PLAN

SCALE 1:250

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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REV.	DESCRIPTION	DATE	INIT.
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LINEMARKING SHEET 1 OF 2

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR300 REV. B

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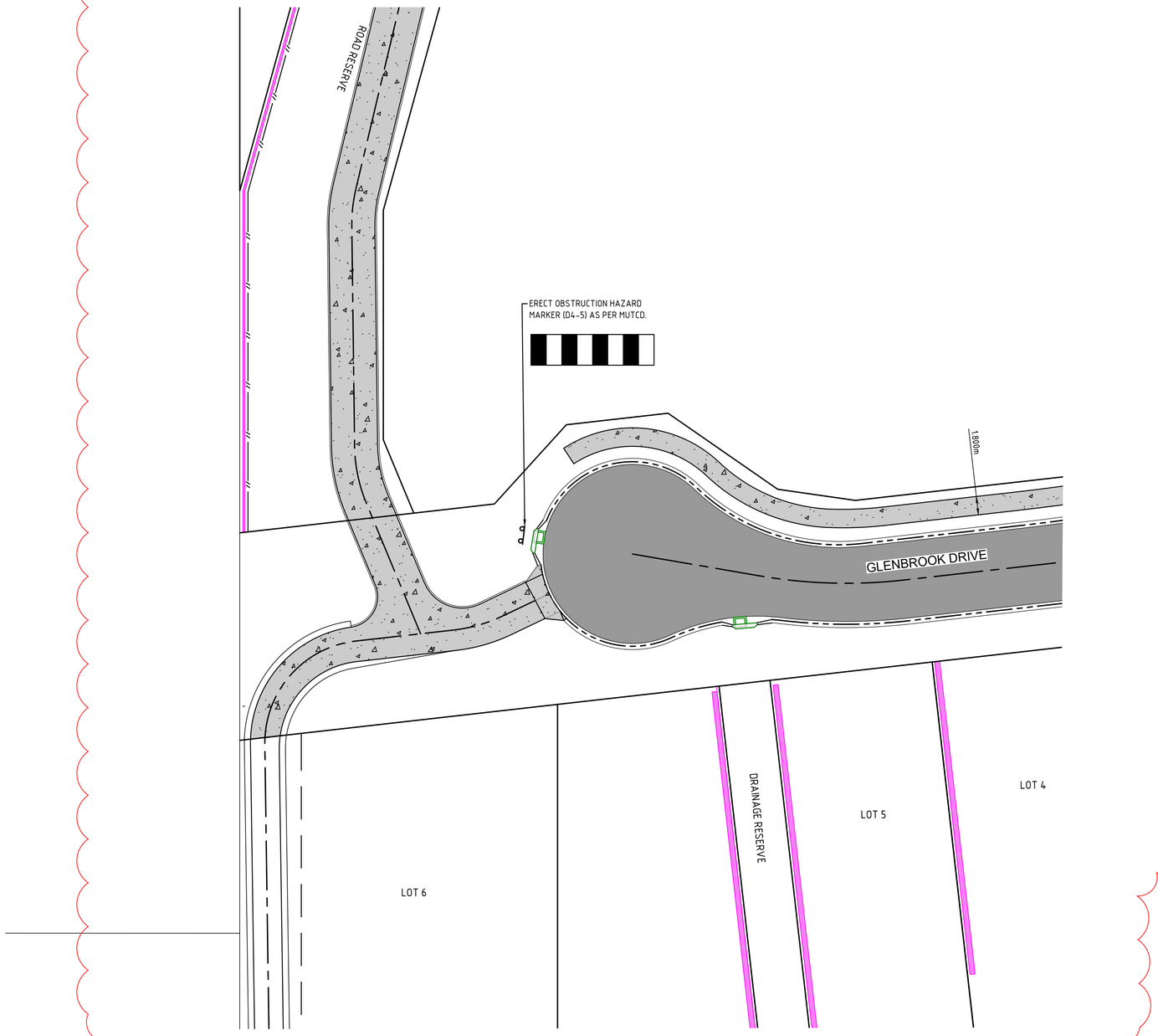
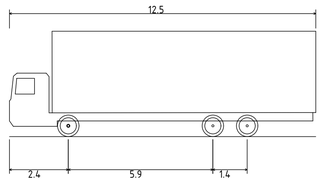
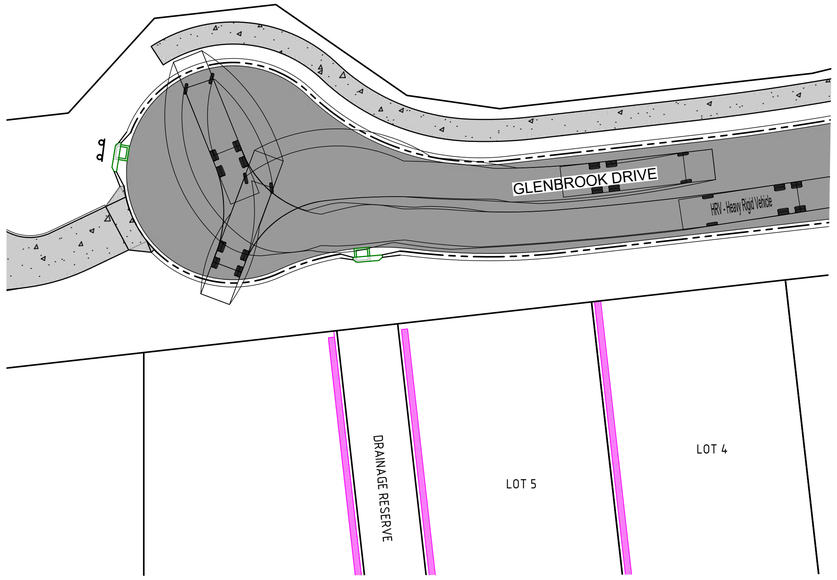


LINEMARKING PLAN

SCALE 1:250



HRV - Heavy Rigid Vehicle	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m



HRV VEHICLE TURNPATH

SCALE 1:250

LEGEND

PROPOSED PAVEMENT

PROPOSED CONCRETE DRIVEWAY/CROSSOVER/FOOTPATH

PAVEMENT MARKING TYPES

No.	TYPE	EXAMPLE	WIDTH	DESCRIPTION
LONGITUDINAL LINES				
A	Barrier Line (Single)		100mm	Continuous
B	Continuity Lines		200mm	1.0 Metre Line, 3.0 Metre Gap
TRANSVERSE LINES				
C	Give Way Line		300mm	0.6 Metre Line, 0.6 Metre Gap
D	Stop Line		300mm	Continuous

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:250 (A1) 0 5 10 15m

(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LINEMARKING SHEET 2 OF 2

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED: JN	APPROVED	
DRAWING No. C3602 - CR301		REV. B

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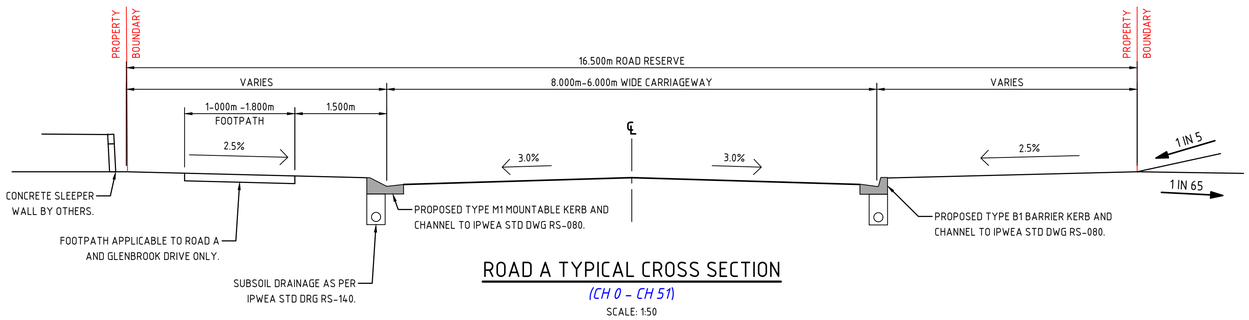
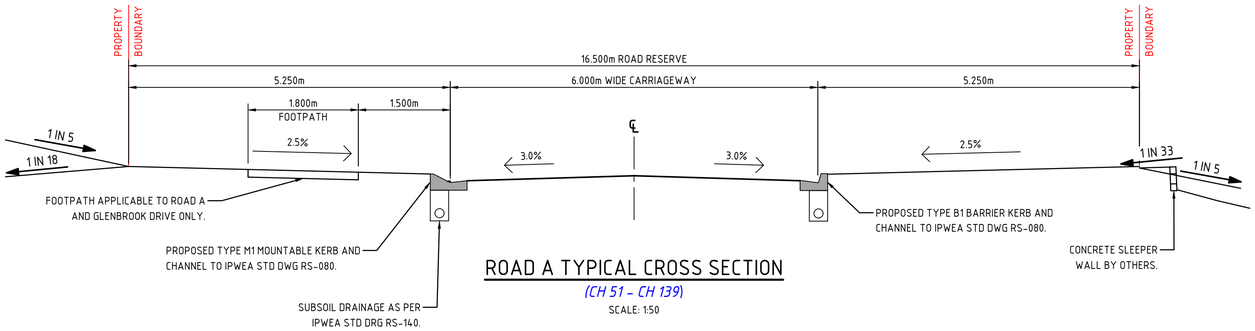


ROAD A TYPICAL CROSS SECTION

(CH 0 - CH 51)

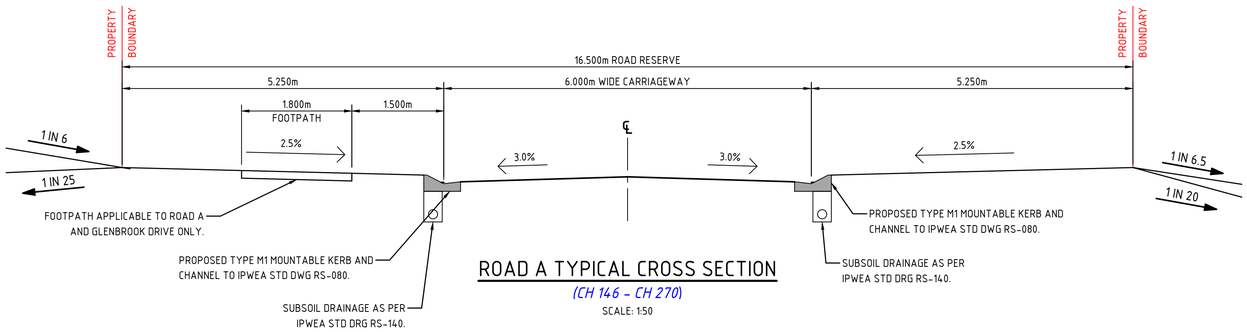
SCALE: 1:50



ROAD A TYPICAL CROSS SECTION

(CH 51 - CH 139)

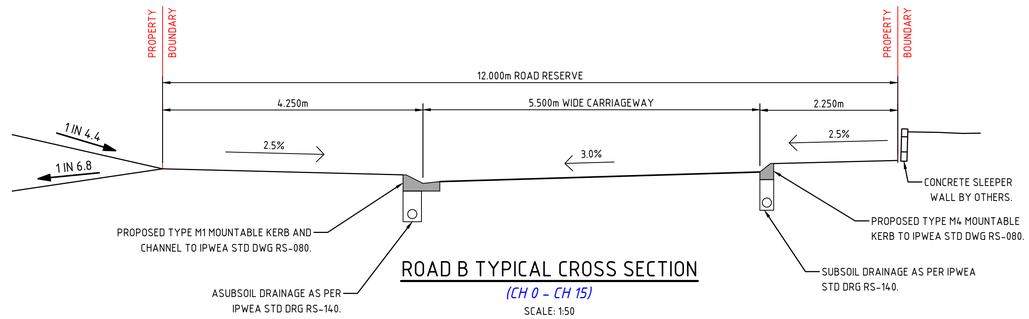
SCALE: 1:50



ROAD A TYPICAL CROSS SECTION

(CH 146 - CH 270)

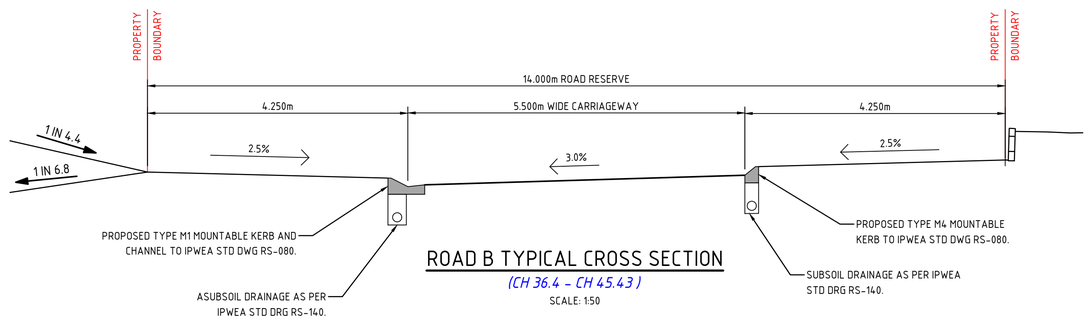
SCALE: 1:50



ROAD B TYPICAL CROSS SECTION

(CH 0 - CH 15)

SCALE: 1:50



ROAD B TYPICAL CROSS SECTION

(CH 36.4 - CH 45.43)

SCALE: 1:50

SCALE 1:50 (A1) 0 1 2 3m

(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: TYPICAL ROAD SECTIONS SHEET 1 OF 2

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR400 REV. B

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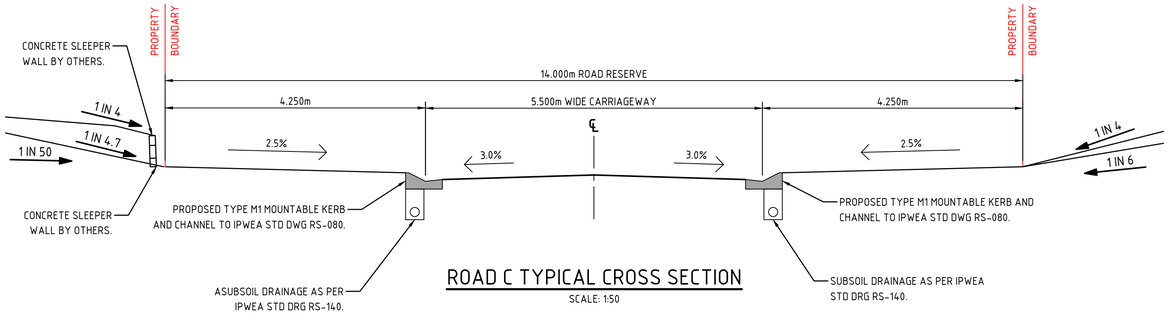
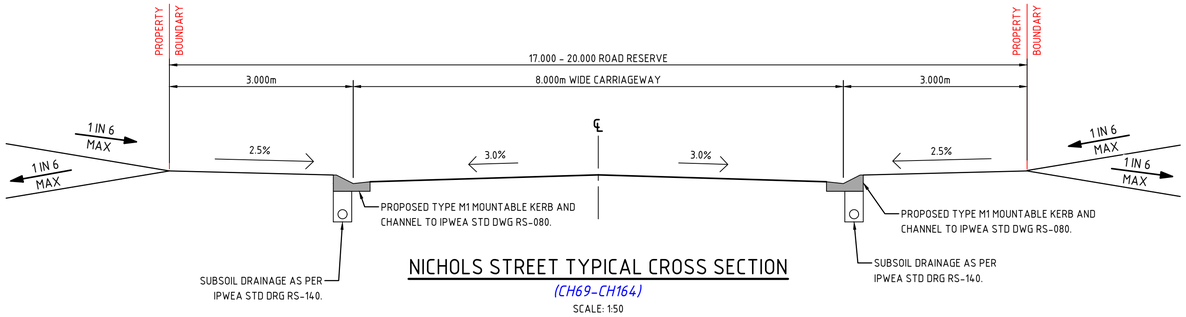


ROAD C TYPICAL CROSS SECTION

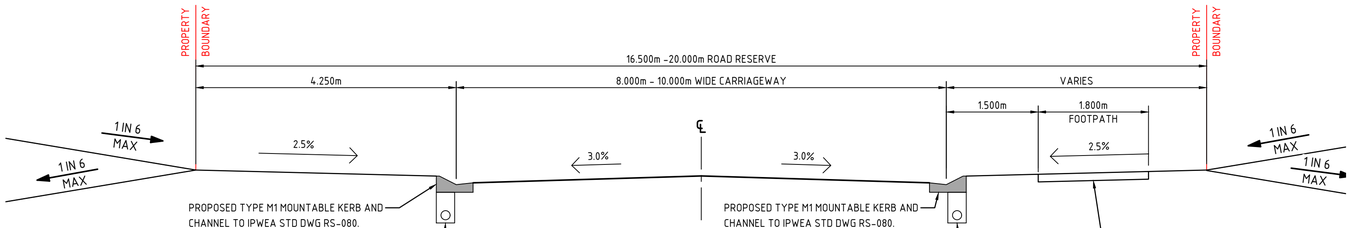
SCALE: 1:50



NICHOLS STREET TYPICAL CROSS SECTION

(CH69-CH164)

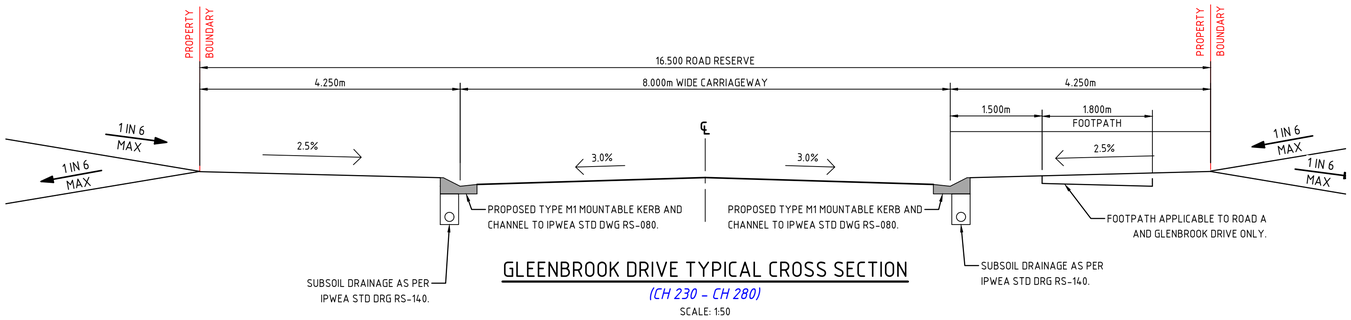
SCALE: 1:50



GLEENBROOK DRIVE TYPICAL CROSS SECTION

(CH 194 - CH 230)

SCALE: 1:50



GLEENBROOK DRIVE TYPICAL CROSS SECTION

(CH 230 - CH 280)

SCALE: 1:50

SCALE 1:50 (A1) 0 1 2 3m

(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
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JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: TYPICAL ROAD SECTIONS SHEET 2 OF 2

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR401 REV. B

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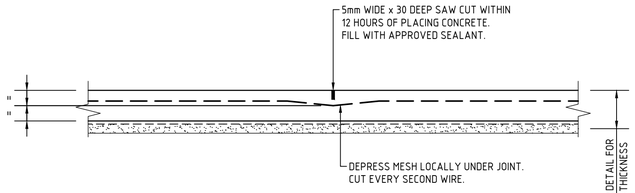
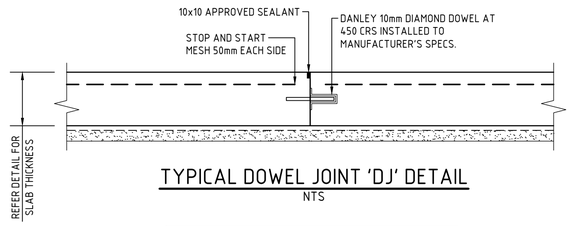
NOT FOR CONSTRUCTION

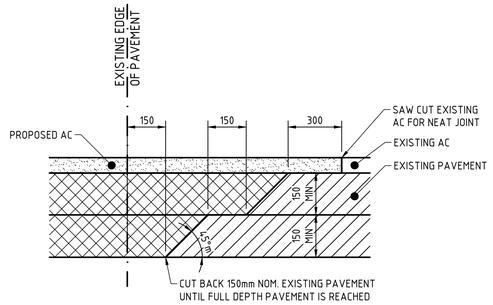


SAWCUT JOINT 'SJ' DETAIL
NTS

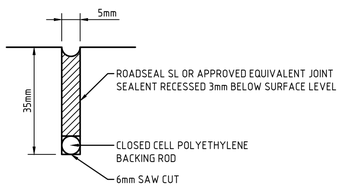


TYPICAL DOWEL JOINT 'DJ' DETAIL
NTS

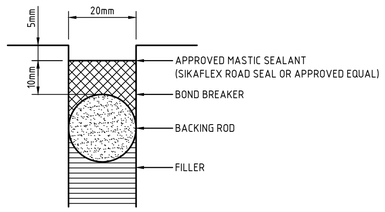
SDJ DETAIL NOTE:
SDJ DETAIL SAME AS 'DOWEL JOINT' DETAIL EXCEPT PROVIDE 400mm LONG DANLEY DOWELMASTER SQUARE DOWELS (20mm SQUARE AT 400mm CENTRES).



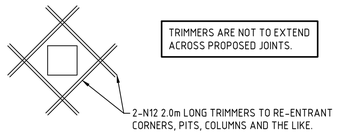
PAVEMENT JOINTING DETAIL
NTS



DETAIL A
NTS

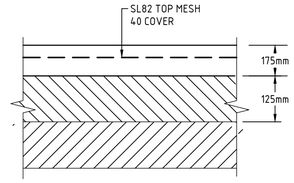


DETAIL B
NTS



TRIMMERS ARE NOT TO EXTEND ACROSS PROPOSED JOINTS.

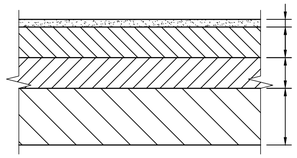
TRIMMER BAR DETAIL (TB)
NTS



SUB-BASE COURSE MATERIAL (MIN CBR45) COMPACTED TO RELATIVE DRY DENSITY OF 95% MODIFIED.

TOP 150mm OF SUBGRADE COMPACTED TO RELATIVE DRY DENSITY OF 100% STANDARD

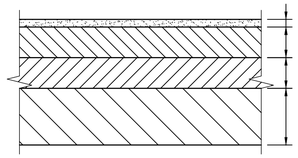
CONCRETE PAVEMENT DETAIL
N32 CONCRETE
SCALE: N.T.S.



35mm THICK AC
100mm THICK CLASS 1 BASE COURSE (CBR80)
125mm THICK CLASS 2 SUB-BASE COURSE (CBR45)
100mm THICK CLASS 3 LOWER SUB-BASE COURSE (CBR15) [PROVISIONAL]

PAVEMENT DETAIL
ACCESS STREET - 1 x 10^5
ROAD A
SCALE: N.T.S.
(ASSUMED SUBGRADE CBR 3)

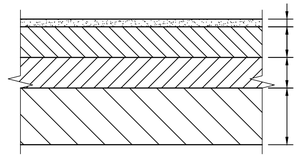
NOTE:
ALL LAYER THICKNESSES ARE PROVISIONAL AND ARE TO BE CONFIRMED AFTER SUBGRADE CBR TESTING.



35mm THICK AC
100mm THICK CLASS 1 BASE COURSE (CBR80)
125mm THICK CLASS 2 SUB-BASE COURSE (CBR45)
100mm THICK CLASS 3 LOWER SUB-BASE COURSE (CBR15) [PROVISIONAL]

PAVEMENT DETAIL
ACCESS STREET - 1 x 10^5
NICHOLS ST
SCALE: N.T.S.
(ASSUMED SUBGRADE CBR 3)

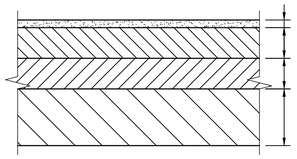
NOTE:
ALL LAYER THICKNESSES ARE PROVISIONAL AND ARE TO BE CONFIRMED AFTER SUBGRADE CBR TESTING.



35mm THICK AC
100mm THICK CLASS 1 BASE COURSE (CBR80)
125mm THICK CLASS 2 SUB-BASE COURSE (CBR45)
100mm THICK CLASS 3 LOWER SUB-BASE COURSE (CBR15) [PROVISIONAL]

ROAD B PAVEMENT DETAIL
ACCESS PLACE - 5 x 10^4
ROAD B
SCALE: N.T.S.
(ASSUMED SUBGRADE CBR 3)

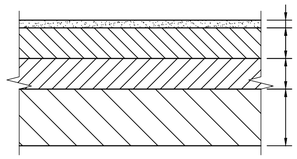
NOTE:
ALL LAYER THICKNESSES ARE PROVISIONAL AND ARE TO BE CONFIRMED AFTER SUBGRADE CBR TESTING.



35mm THICK AC
100mm THICK CLASS 1 BASE COURSE (CBR80)
125mm THICK CLASS 2 SUB-BASE COURSE (CBR45)
100mm THICK CLASS 3 LOWER SUB-BASE COURSE (CBR15) [PROVISIONAL]

PAVEMENT DETAIL
ACCESS STREET - 1 x 10^5
GLENBROOK ST
SCALE: N.T.S.
(ASSUMED SUBGRADE CBR 3)

NOTE:
ALL LAYER THICKNESSES ARE PROVISIONAL AND ARE TO BE CONFIRMED AFTER SUBGRADE CBR TESTING.



35mm THICK AC
100mm THICK CLASS 1 BASE COURSE (CBR80)
125mm THICK CLASS 2 SUB-BASE COURSE (CBR45)
100mm THICK CLASS 3 LOWER SUB-BASE COURSE (CBR15) [PROVISIONAL]

ROAD C PAVEMENT DETAIL
ACCESS PLACE - 5 x 10^4
ROAD C
SCALE: N.T.S.
(ASSUMED SUBGRADE CBR 3)

NOTE:
ALL LAYER THICKNESSES ARE PROVISIONAL AND ARE TO BE CONFIRMED AFTER SUBGRADE CBR TESTING.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS PAVEMENT DETAILS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR402
REV. B

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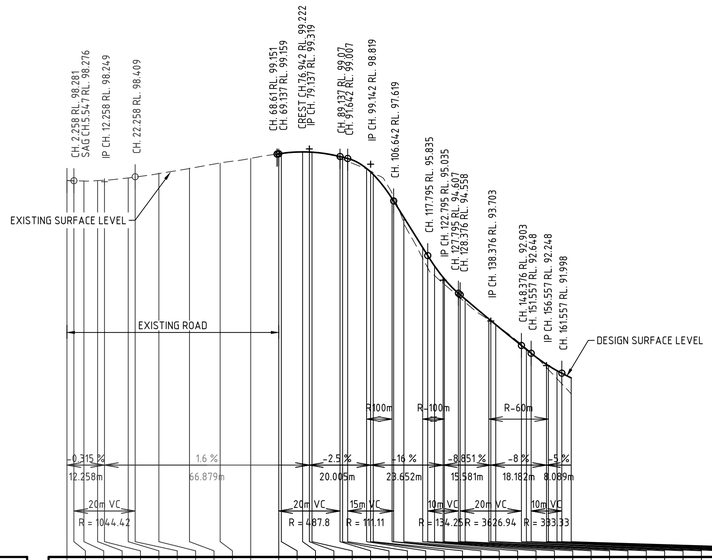

NAT. SURFACE ON ROAD CENTRELINE	CUT / FILL DEPTHS	DESIGN LEVELS ON ROAD CENTRELINE	CHAINAGE
98.288	0	98.288	0.000
98.281	-0	98.281	2.258
98.271	0.005	98.276	5.547
98.285	-0	98.285	10.000
98.298	-0	98.297	12.258
98.373	0.003	98.376	20.000
98.401	0.009	98.409	22.258
98.514	0.019	98.533	30.000
98.679	0.014	98.693	40.000
98.860	-0.007	98.853	50.000
99.011	0.003	99.013	60.000
99.158	0.001	99.159	69.137
99.169	0.003	99.173	70.000
99.210	0.012	99.222	76.942
99.210	0.007	99.217	79.137
99.210	0.002	99.212	80.000
99.014	0.055	99.069	89.137
98.979	0.069	99.048	90.000
98.912	0.094	99.007	91.642
98.662	0.019	98.681	97.817
98.598	-0.031	98.566	99.142
98.547	-0.063	98.484	100.000
97.872	-0.176	97.696	106.154
97.773	-0.153	97.619	106.642
96.898	0.184	97.082	110.000
95.751	0.35	96.101	116.134
95.433	0.402	95.835	117.795
95.188	0.312	95.500	120.000
94.937	0.191	95.128	122.795
94.900	0.176	95.076	123.226
94.506	0.102	94.607	127.795
94.456	0.102	94.558	128.376
94.316	0.103	94.419	130.000
93.740	0.031	93.771	137.717
93.696	0.02	93.716	138.376
93.585	-0.003	93.582	140.000
92.943	-0.04	92.903	148.376
92.806	-0.033	92.773	150.000
92.671	-0.023	92.648	151.557
92.183	0.103	92.286	156.557
92.116	0.129	92.245	157.186
91.819	0.26	92.080	160.000
91.655	0.343	91.998	161.557
91.323	0.521	91.844	164.639

NICHOLS STREET – LONGITUDINAL SECTION

HORIZONTAL SCALE – 1:1000
VERTICAL SCALE – 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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W www.mnce.com.au

JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LONGITUDINAL SECTION – NICHOLS STREET

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 – CR500 REV. B

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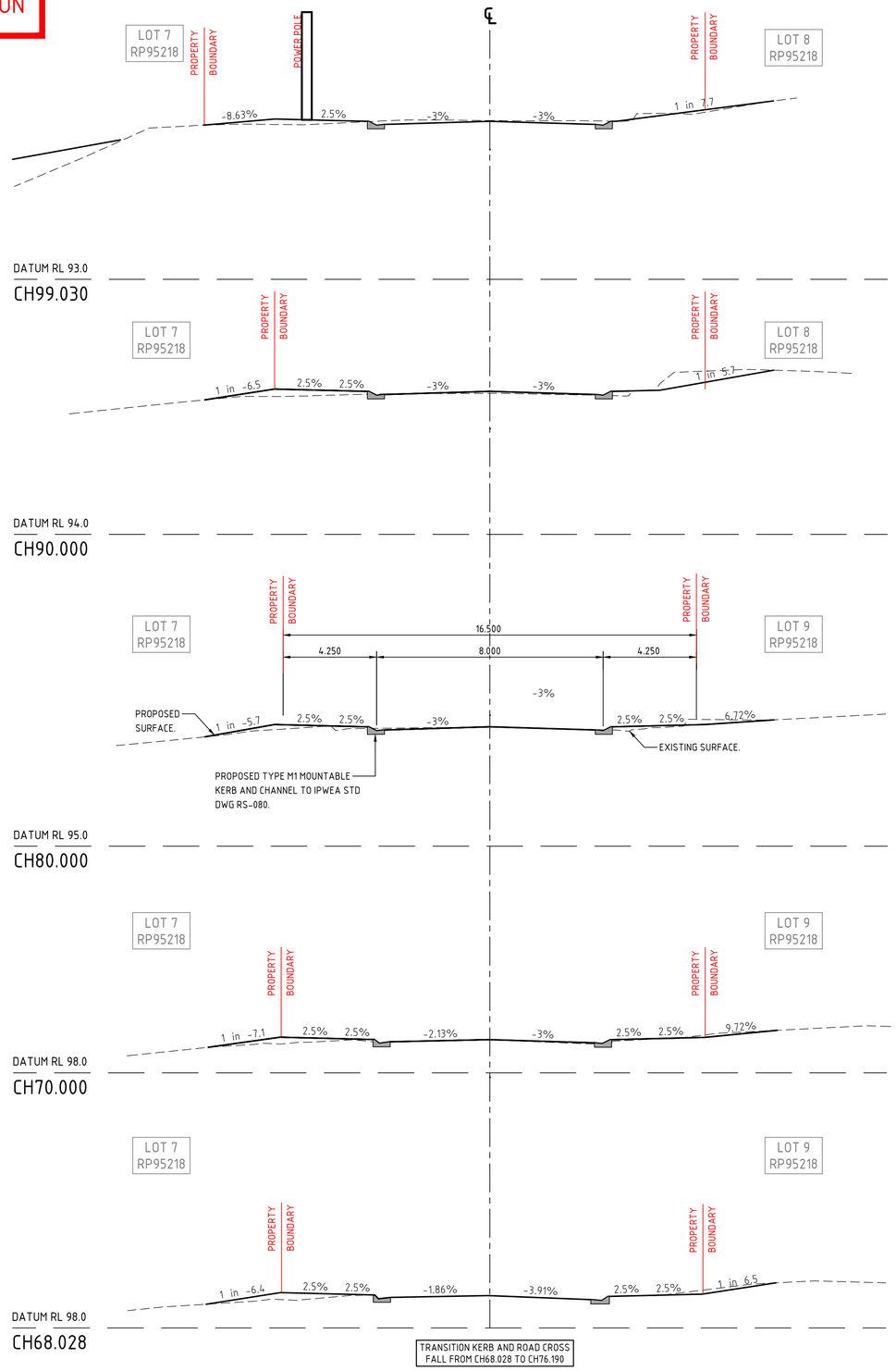

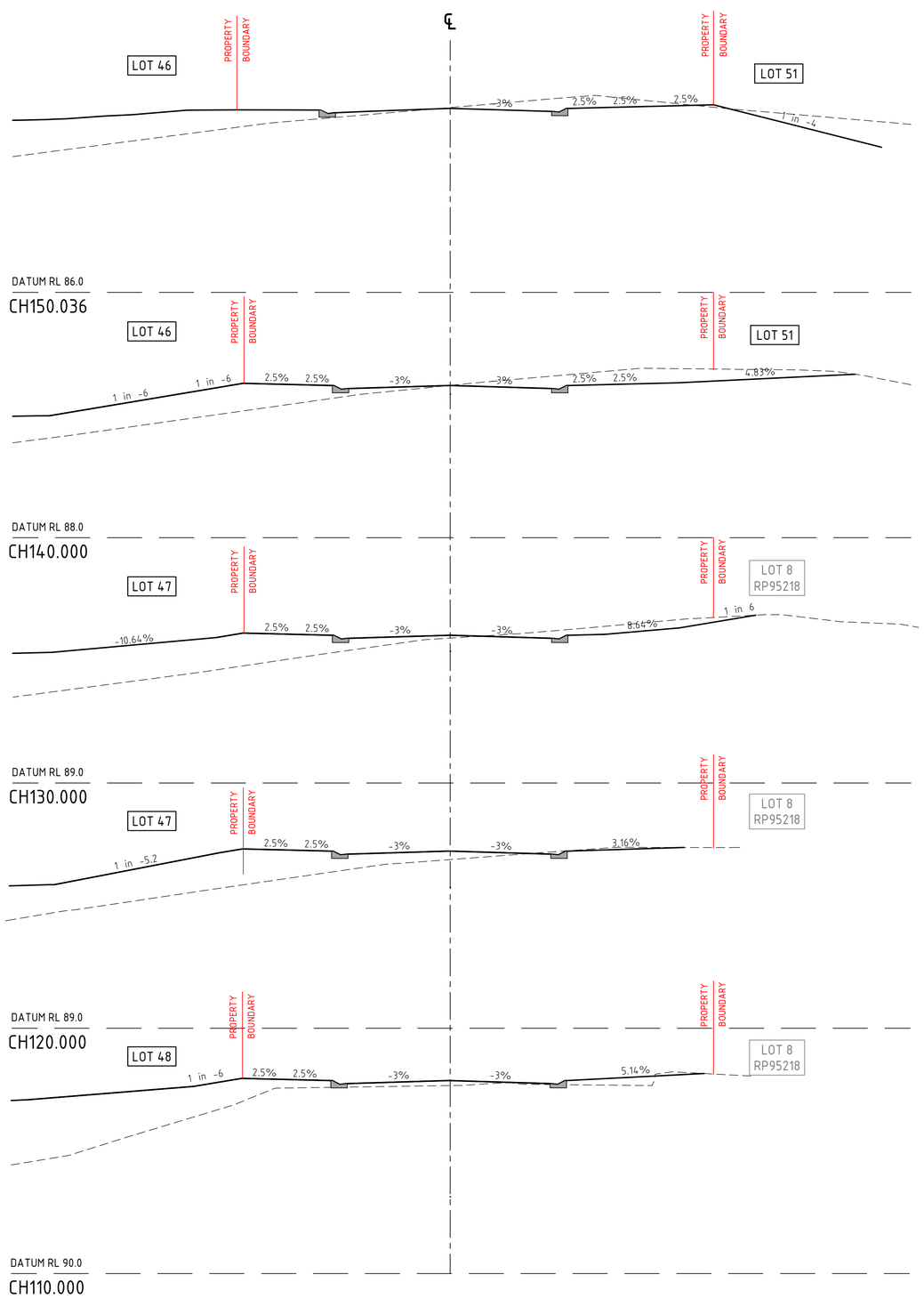

NICHOLS STREET - CROSS SECTIONS

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS CROSS SECTIONS - NICHOLS STREET

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CR501		B

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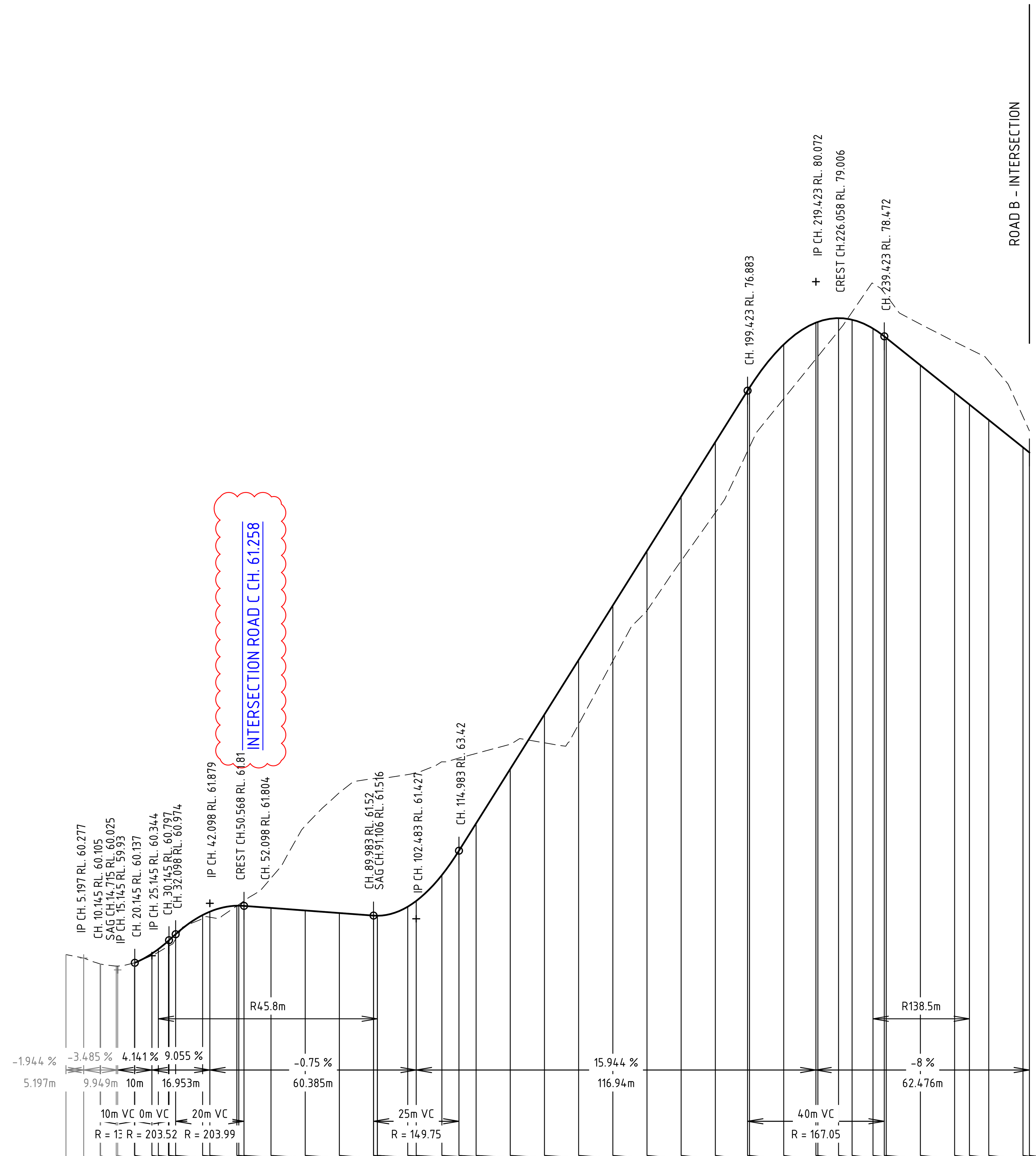
HORIZONTAL CURVE DATA
VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
DATUM R.L.54.000



CHAINAGE	NAT. SURFACE ON ROAD CENTRELINE	CUT / FILL DEPTHS	DESIGN LEVELS ON ROAD CENTRELINE
0.000	60.378	0	60.378
5.197	60.277	0	60.277
10.000	60.103	0.006	60.110
10.145	60.101	0.004	60.105
14.715	60.043	-0.018	60.025
15.145	60.042	-0.017	60.026
20.000	60.135	-0.004	60.131
20.145	60.139	-0.001	60.137
25.145	60.352	0.054	60.406
27.028	60.450	0.089	60.539
30.000	60.624	0.16	60.784
30.145	60.632	0.165	60.797
32.098	60.839	0.135	60.974
40.000	61.428	0.108	61.536
42.098	61.473	0.161	61.634
50.000	61.801	0.008	61.809
50.568	61.841	-0.031	61.810
52.098	61.948	-0.143	61.804
60.000	62.616	-0.871	61.745
70.000	64.151	-2.481	61.670
80.000	65.120	-3.524	61.595
89.983	65.532	-4.011	61.520
90.000	65.532	-4.012	61.520
91.106	65.539	-4.022	61.516
91.132	65.539	-4.023	61.516
100.000	65.647	-3.867	61.780
102.483	65.704	-3.756	61.948
110.000	66.019	-3.311	62.708
114.983	66.130	-2.711	63.420
120.000	66.265	-2.046	64.219
130.000	66.535	-0.721	65.814
140.000	66.576	0.832	67.408
150.000	67.120	1.883	69.003
160.000	68.971	1.626	70.597
170.000	70.446	1.746	72.192
180.000	71.903	1.883	73.786
190.000	73.312	2.069	75.381
199.423	75.113	1.77	76.883
200.000	75.235	1.739	76.974
210.000	76.647	1.588	78.235
219.423	77.814	1.061	78.875
220.000	77.885	1.011	78.896
226.058	78.636	0.37	79.006
230.000	79.183	-0.223	78.960
236.131	80.019	-1.316	78.703
239.423	79.753	-1.281	78.472
240.000	79.679	-1.254	78.426
250.000	78.830	-1.204	77.626
260.000	78.318	-1.492	76.826
264.339	78.102	-1.623	76.478
270.000	77.747	-1.721	76.026
280.000	76.124	-0.898	75.226
281.898	75.707	-0.634	75.074

ROAD A - LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LONGITUDINAL SECTIONS - ROAD A

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR502 REV. B

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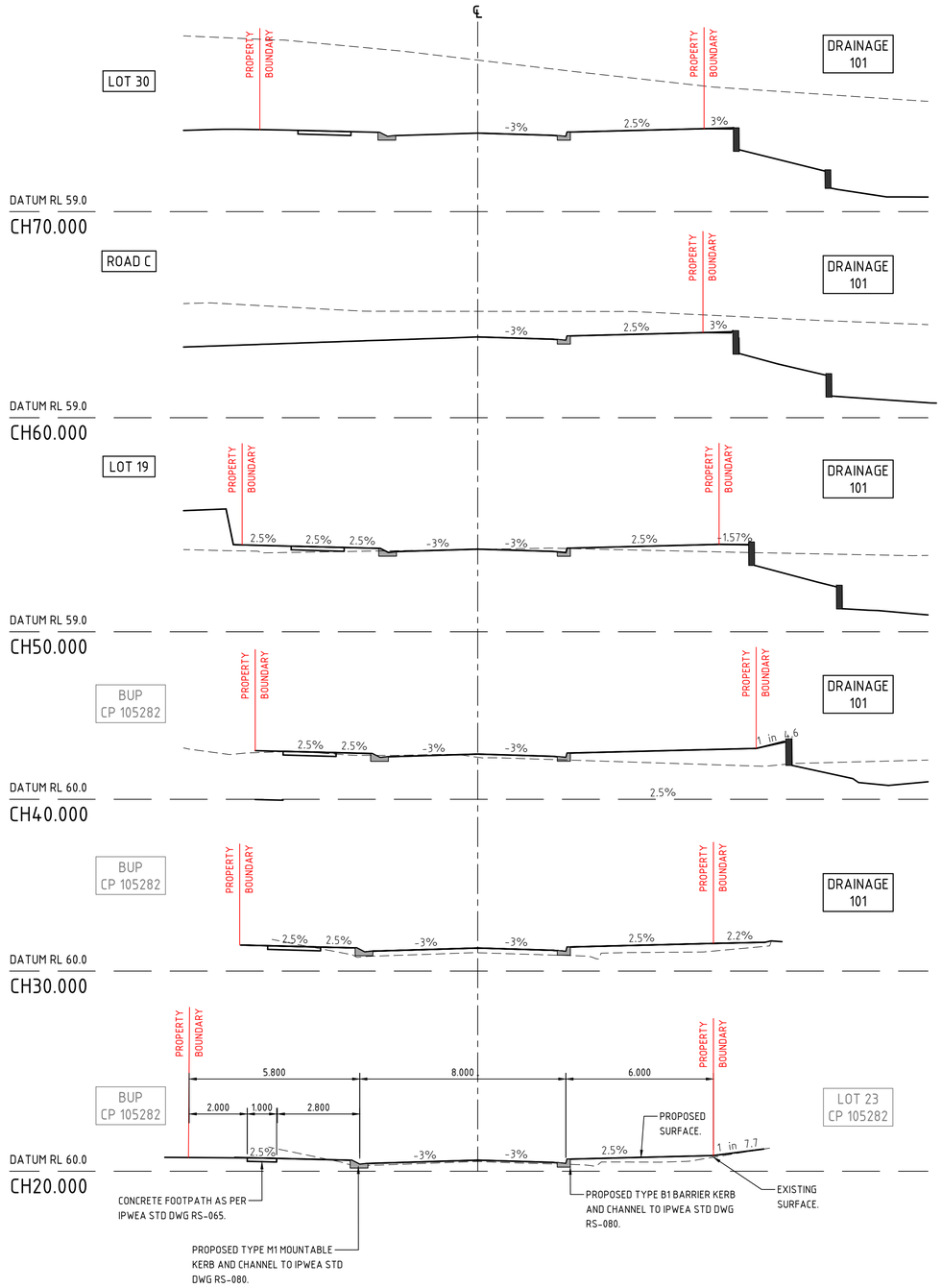

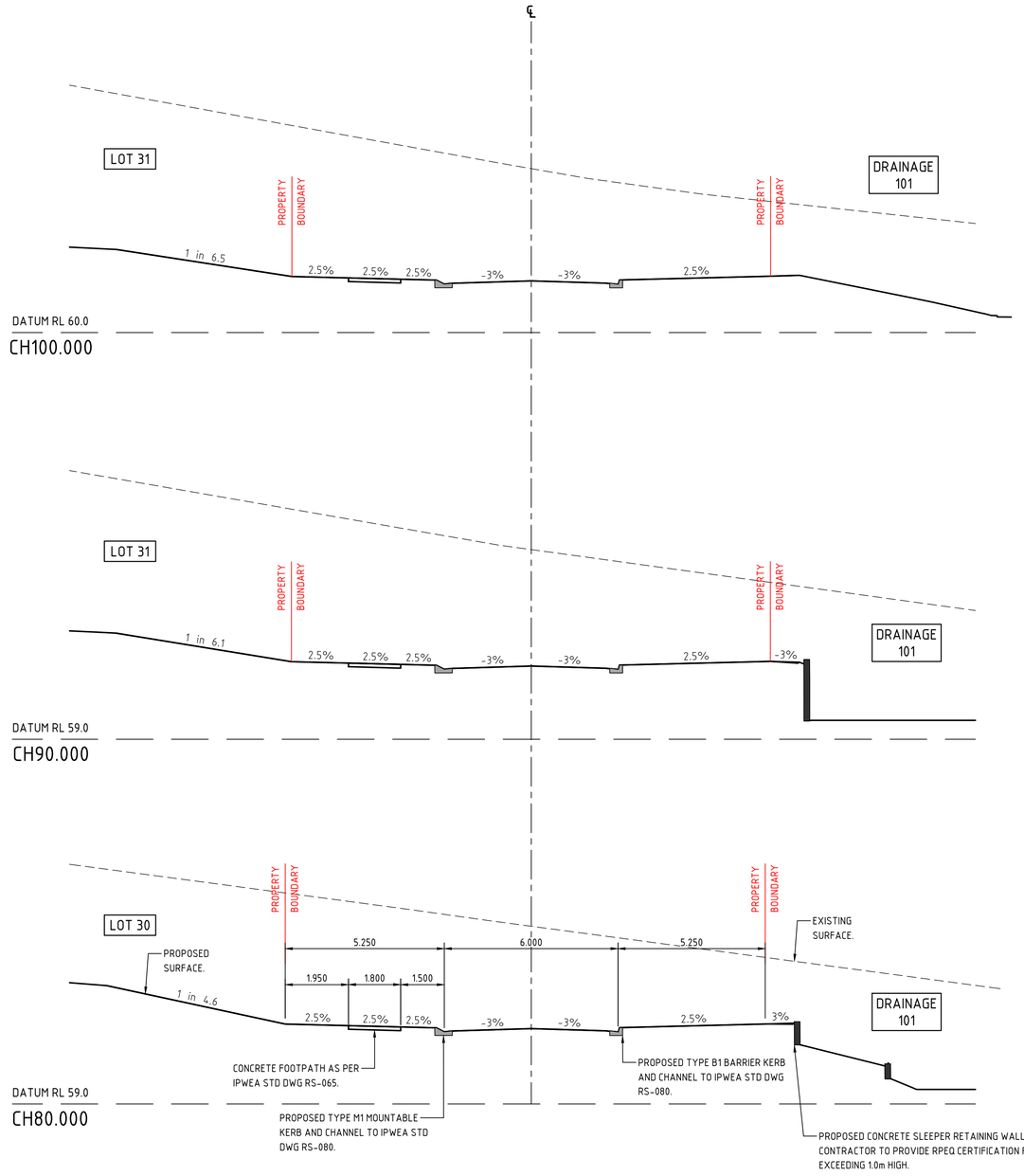

ROAD A - CROSS SECTIONS

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS CROSS SECTIONS - ROAD A SHEET 1 OF 3

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR503 REV. B

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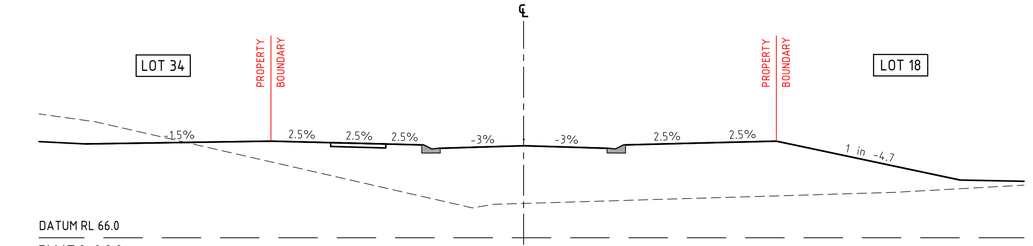
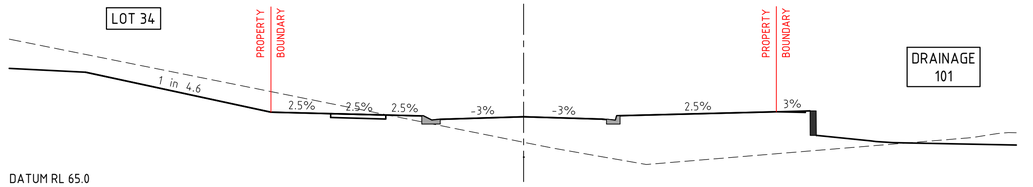
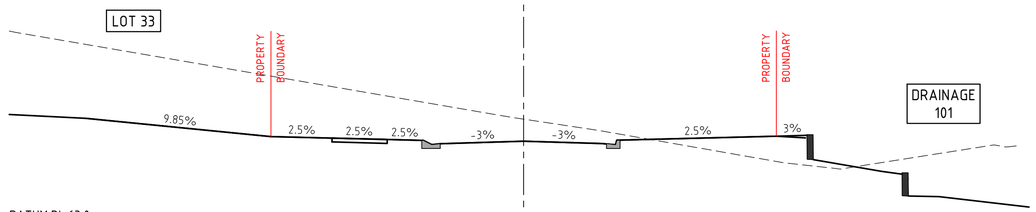


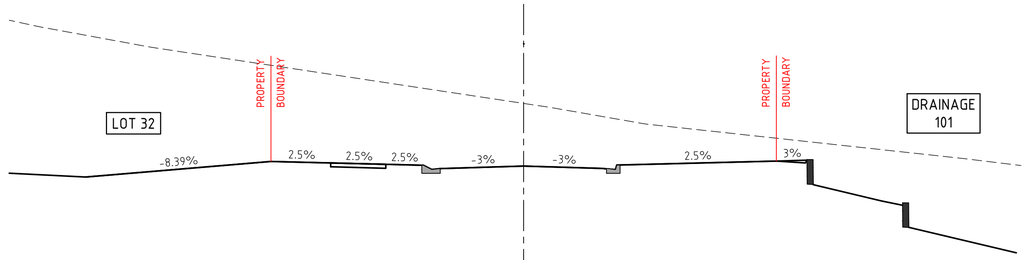
DATUM RL 66.0
CH150.000



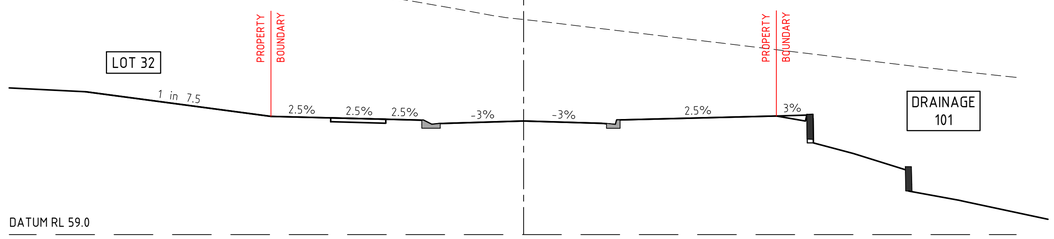
DATUM RL 65.0
CH140.000



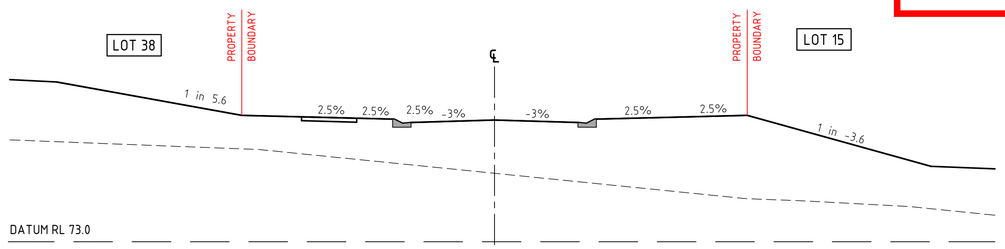
DATUM RL 63.0
CH130.000



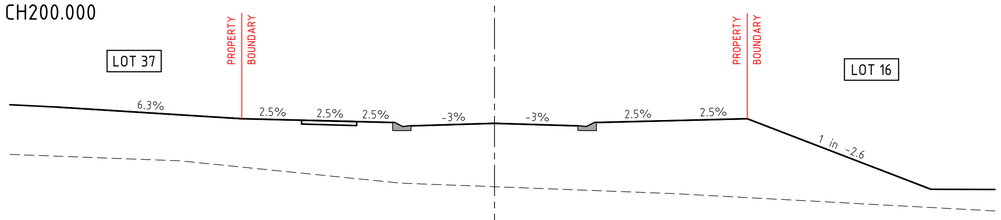
DATUM RL 60.0
CH120.000



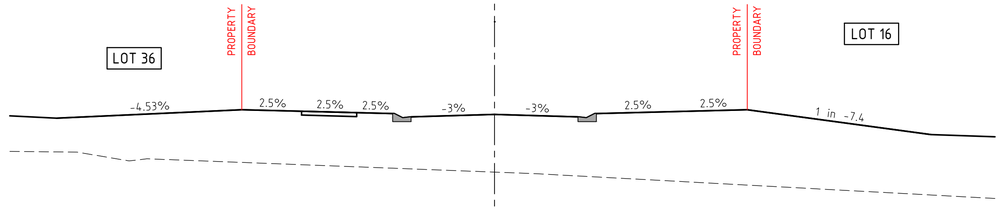
DATUM RL 59.0
CH110.000



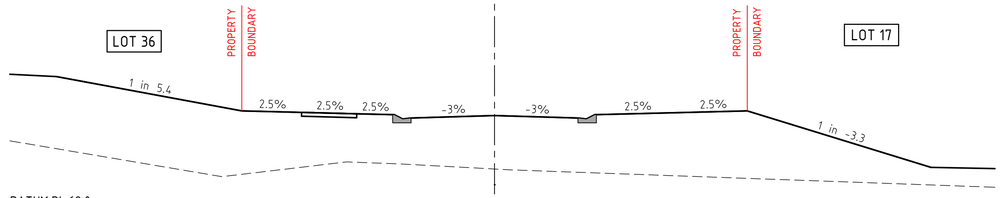
DATUM RL 73.0
CH200.000



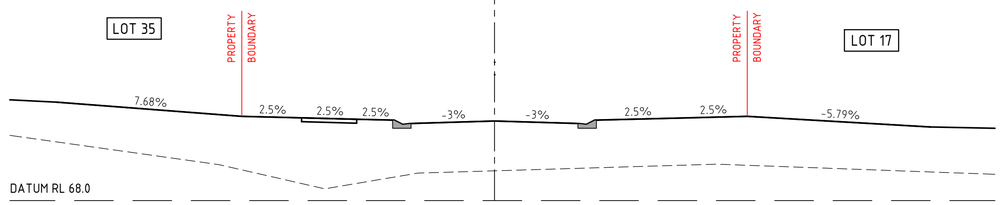
DATUM RL 71.0
CH190.000



DATUM RL 70.0
CH180.000



DATUM RL 69.0
CH170.000



DATUM RL 68.0
CH160.000

ROAD A - CROSS SECTIONS

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
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SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS CROSS SECTIONS - ROAD A SHEET 2 OF 3

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR504
REV. B

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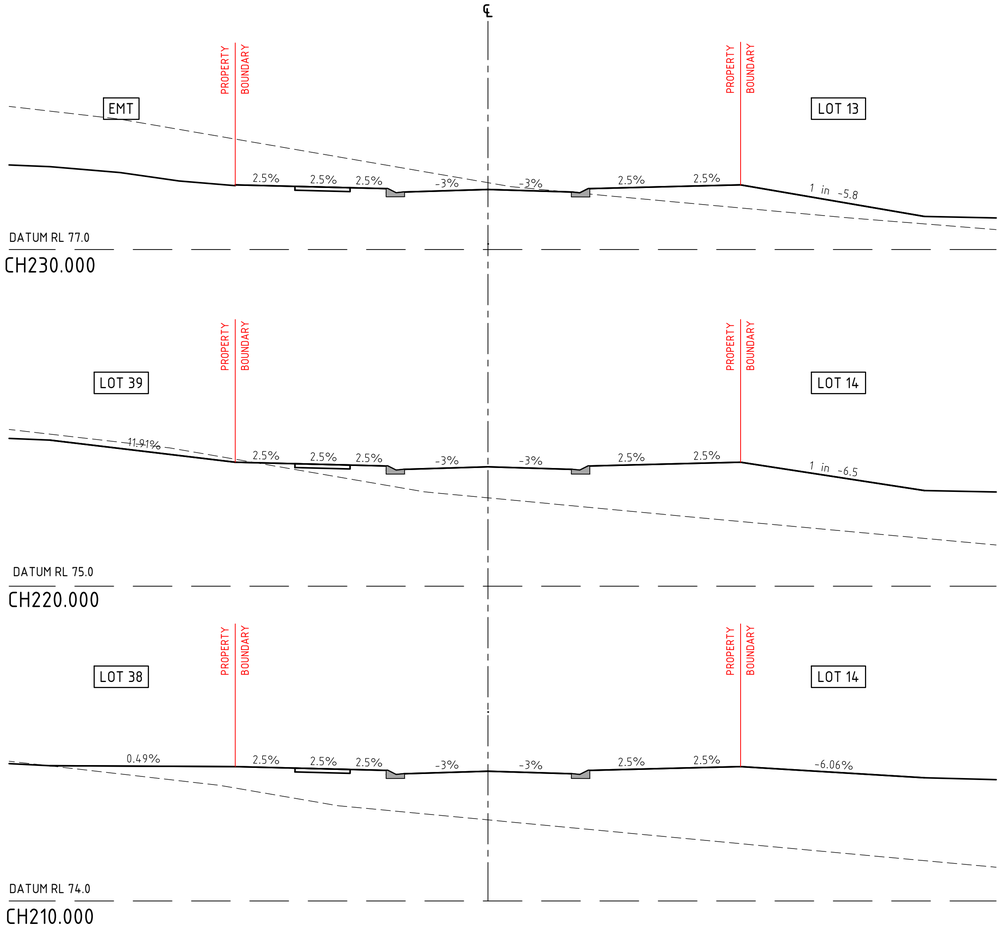

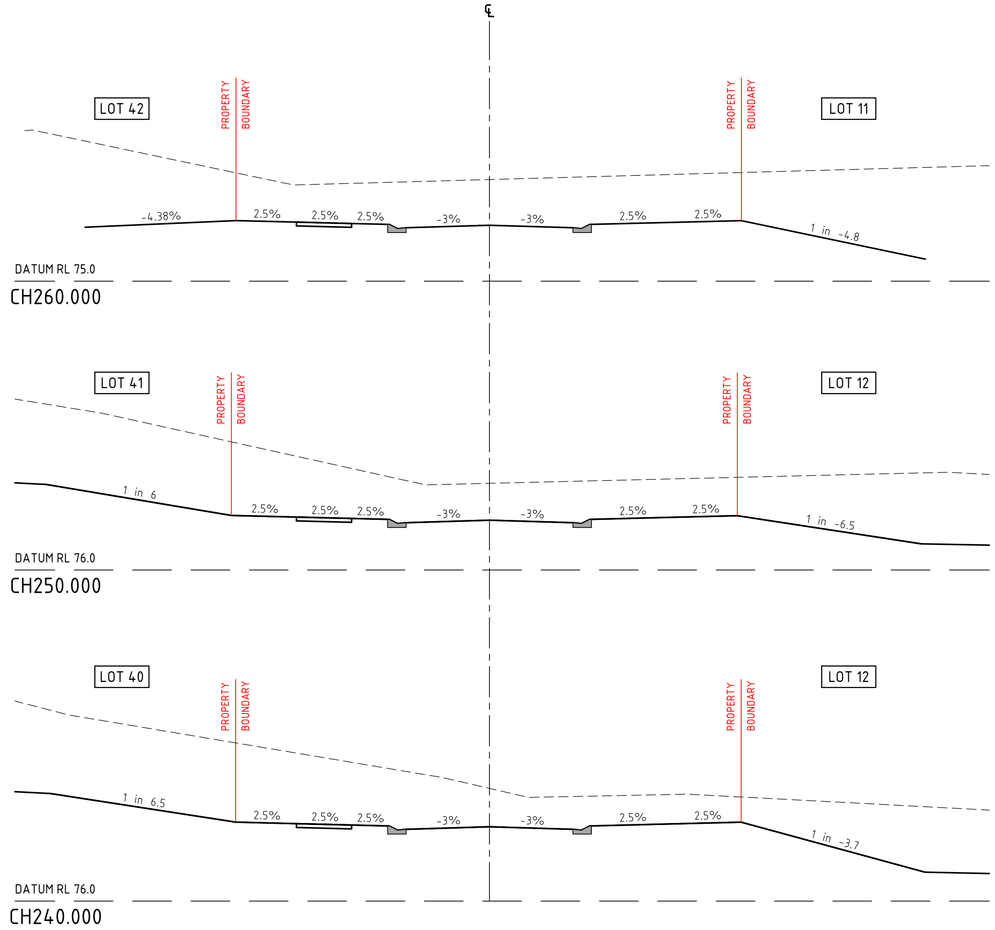

ROAD A - CROSS SECTIONS

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS CROSS SECTIONS - ROAD A SHEET 3 OF 3

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CR505		B

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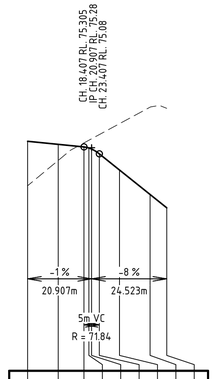


HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH

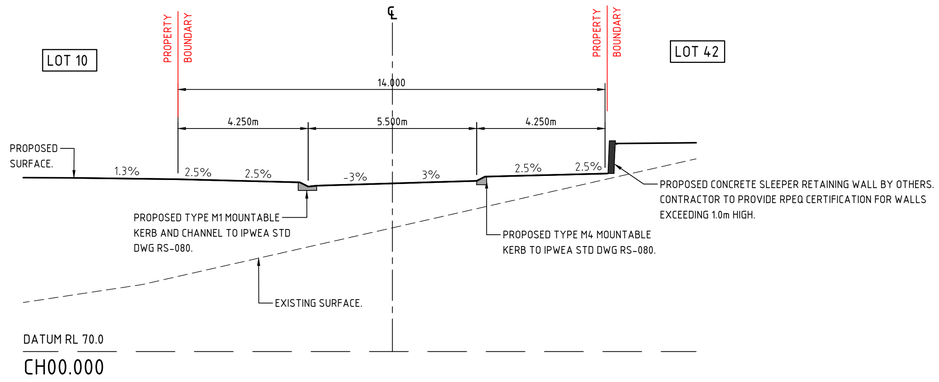
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

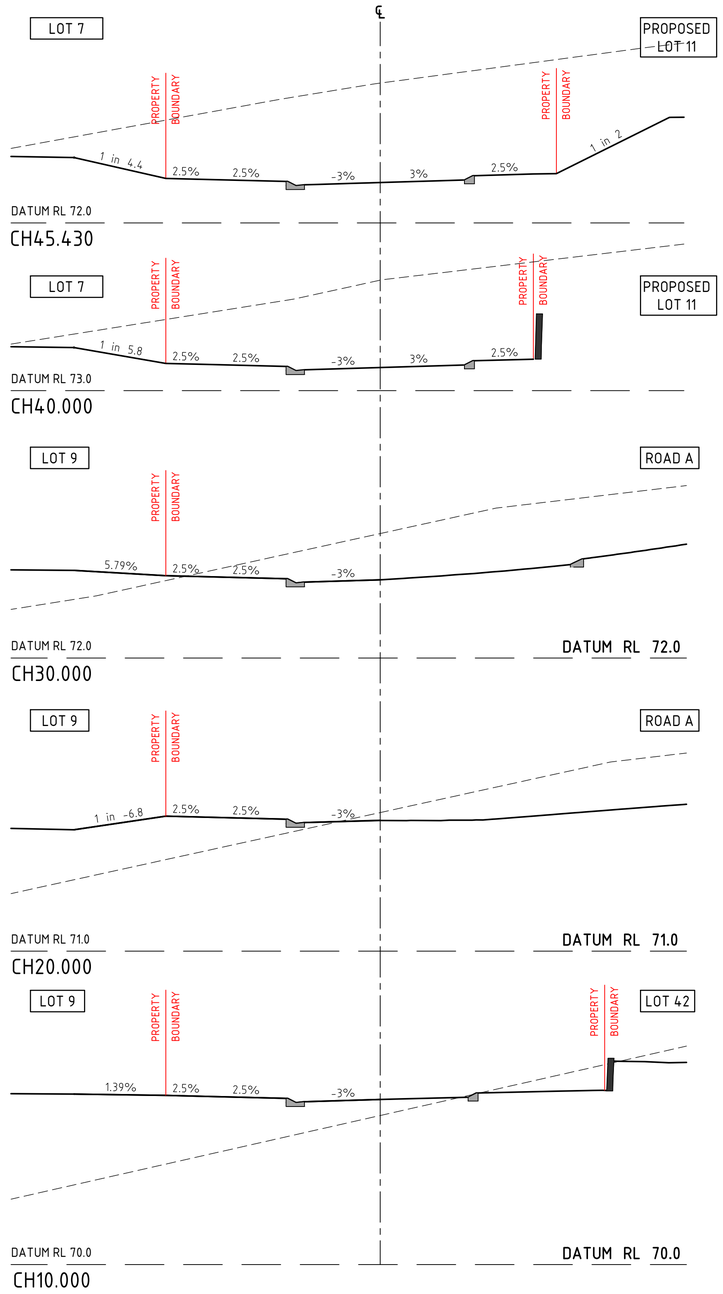
DATUM R.L.68.000

NAT. SURFACE ON ROAD CENTRELINE	74.038	74.865	75.437	75.523	75.572	75.707	76.064	76.605	76.565
CUT / FILL DEPTHS	1.451	0.524	-0.132	-0.252	-0.336	-0.627	-1.512	-2.853	-3.247
DESIGN LEVELS ON ROAD CENTRELINE	75.489	75.389	75.305	75.271	75.236	75.080	74.553	73.753	73.318
CHAINAGE	0.000	10.000	18.407	20.000	20.907	23.407	30.000	40.000	45.430

LONGITUDINAL SECTION - ROAD B

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - 1:100





ROAD B - CROSS SECTIONS

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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REV.	DESCRIPTION	DATE	INIT.
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LONGITUDINAL AND CROSS SECTIONS - ROAD B

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR506 REV. B

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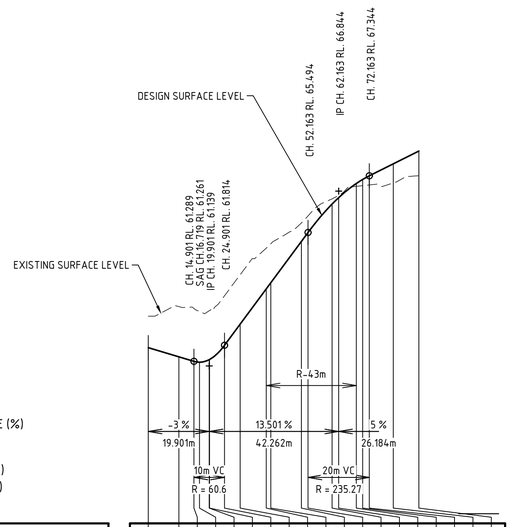


HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH

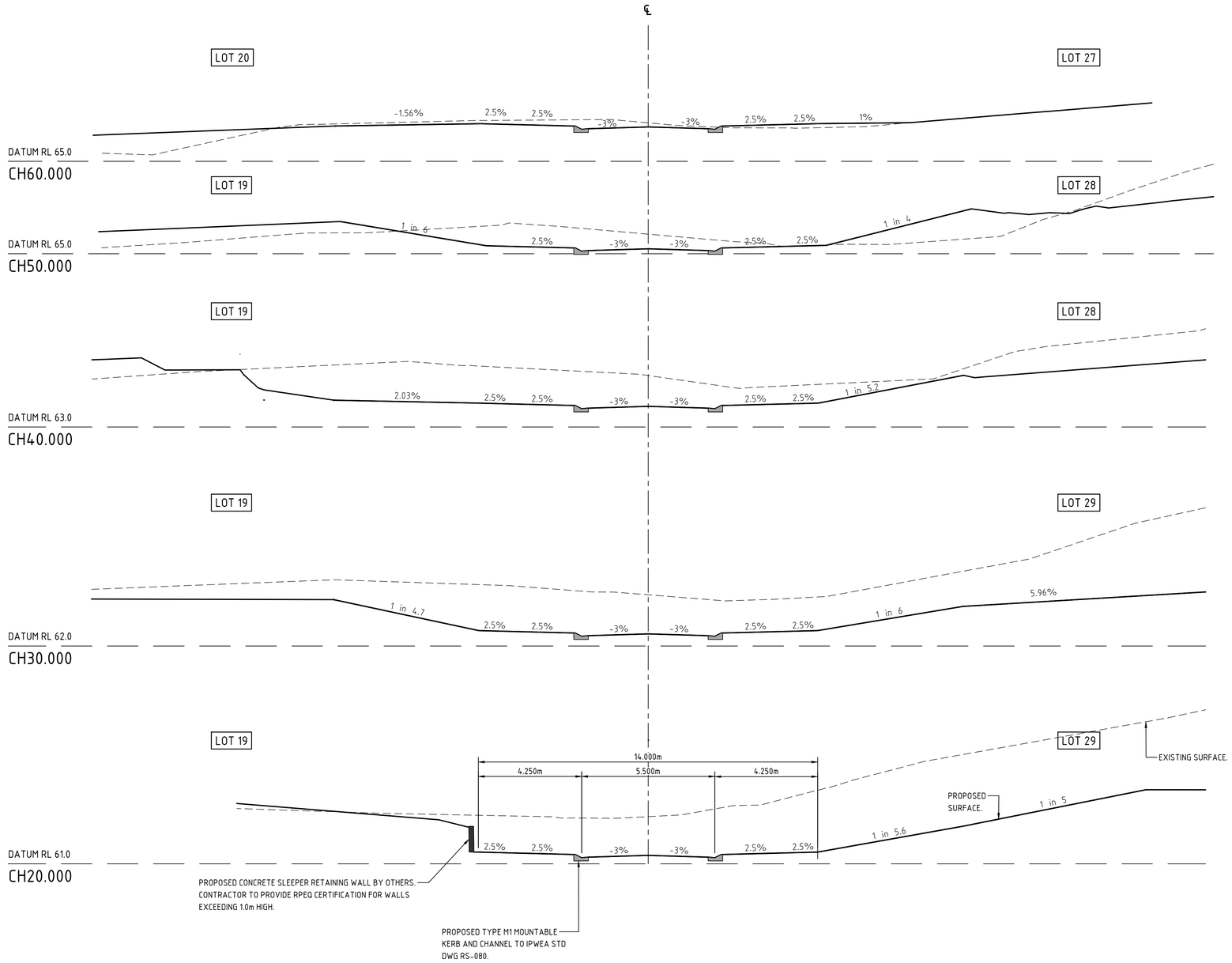
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

DATUM R.L.56.000

NAT. SURFACE ON ROAD CENTRELINE	62.763	63.076	63.016	62.916	62.942	62.949	63.432	64.115	64.985	65.125	65.807	66.031	66.591	66.701	67.002	67.024	67.047	67.112	67.349
CUT / FILL DEPTHS	-1.027	-1.64	-1.727	-1.655	-1.597	-1.599	-1.618	-1.613	-1.333	-1.273	-0.605	-0.537	-0.169	-0.069	0.092	0.202	0.297	0.624	0.804
DESIGN LEVELS ON ROAD CENTRELINE	61.736	61.436	61.289	61.261	61.345	61.350	61.814	62.502	63.652	63.852	65.202	65.494	66.422	66.632	67.095	67.226	67.344	67.736	68.154
CHAINAGE	0.000	10.000	14.901	16.719	19.901	20.000	24.901	30.000	38.518	40.000	50.000	52.163	60.000	62.163	67.931	70.000	72.163	80.000	88.347

ROAD C - LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - 1:100



ROAD C - CROSS SECTIONS

SCALE - 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:25 (A1) 0 0.5 1.0 1.5m (SCALE BEFORE REDUCTION)
SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LONGITUDINAL AND CROSS SECTIONS - ROAD C

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR507 REV. B

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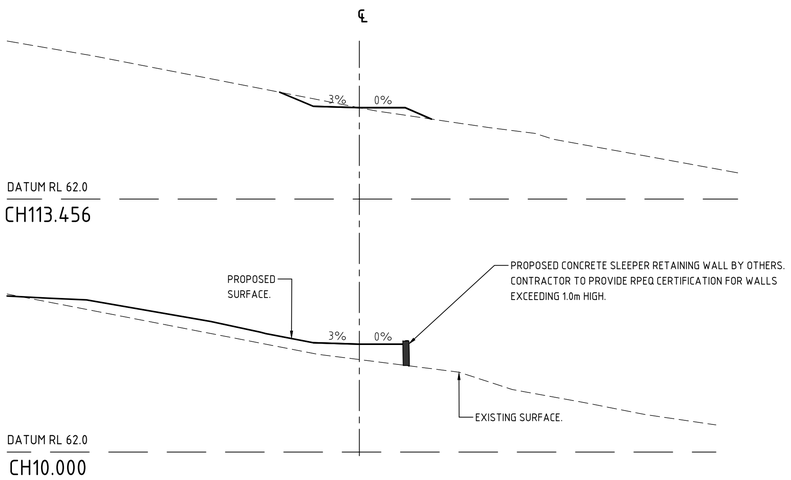
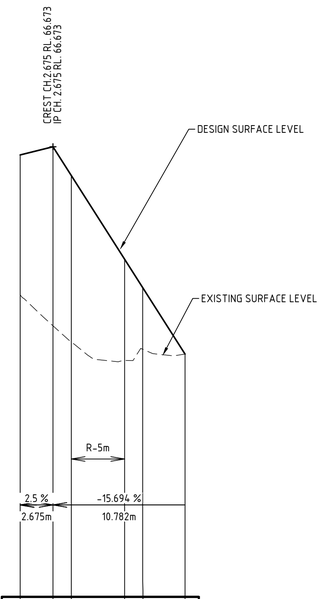


ENERGEX ACCESS - CROSS SECTIONS

SCALE - 1:100



HORIZONTAL CURVE DATA							
VERTICAL GEOMETRY GRADE (%)		2.5 %		-15.694 %			
VERTICAL GRADE LENGTH		2.675m		10.782m			
VERTICAL CURVE LENGTH (m)							
VERTICAL CURVE RADIUS (m)							
DATUM R.L.63.000							
NAT. SURFACE ON ROAD CENTRELINE	65.464	65.212	65.077	64.929	65.021	64.981	
CUT / FILL DEPTHS	1.142	1.461	1.361	0.826	0.503	-0	
DESIGN LEVELS ON ROAD CENTRELINE	66.606	66.673	66.438	65.755	65.523	64.981	
CHAINAGE	0.000	2.675	4.172	8.522	10.000	13.456	

ENERGEX ACCESS - LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LONGITUDINAL SECTIONS - GLENBROOK DRIVE

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
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DRAWING No. C3602 - CR508 REV. B

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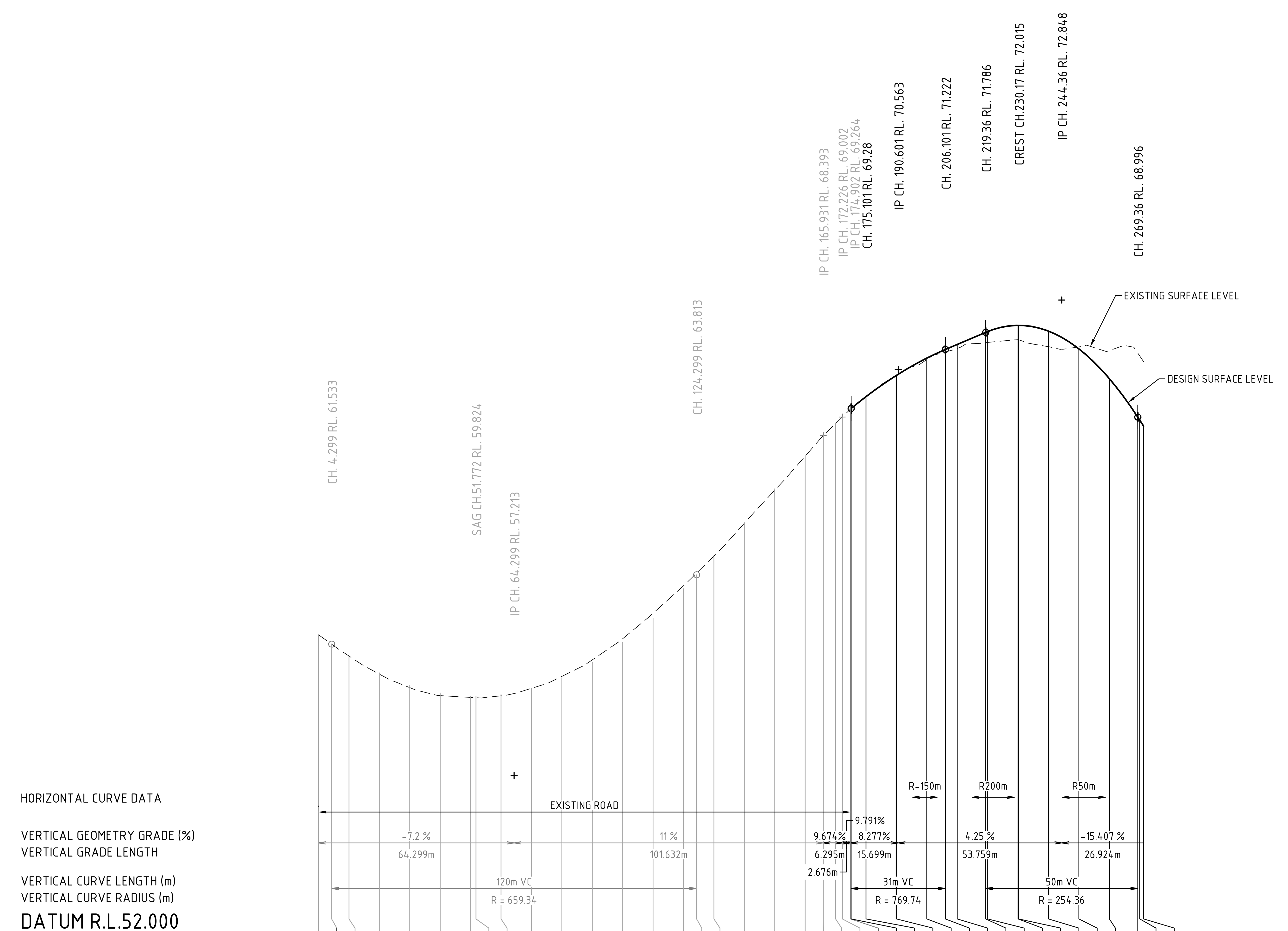

NAT. SURFACE ON ROAD CENTRELINE	61.843	61.533	61.145	60.549	60.104	59.841	59.784	59.773	59.835	60.082	60.475	61.016	61.712	62.550
CUT / FILL DEPTHS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DESIGN LEVELS ON ROAD CENTRELINE	61.843	61.533	61.148	60.590	60.184	59.930	59.827	59.824	59.876	60.076	60.429	60.933	61.588	62.396
CHAINAGE	0.000	4.299	10.000	20.000	30.000	40.000	50.000	51.772	60.000	70.000	80.000	90.000	100.000	110.000

NAT. SURFACE ON ROAD CENTRELINE	63.453	63.871	64.430	65.508	66.595	67.714	68.393	68.787	69.002	69.264	69.281	69.688	70.380	70.892
CUT / FILL DEPTHS	0	0	0	0	0	0	0	0	0	0	-0.001	-0.017	-0.01	0.047
DESIGN LEVELS ON ROAD CENTRELINE	63.355	63.813	64.441	65.541	66.641	67.741	68.393	68.787	69.002	69.264	69.280	69.670	70.369	70.939
CHAINAGE	120.000	124.299	130.000	140.000	150.000	160.000	165.931	170.000	172.226	174.902	175.101	180.000	190.000	200.000

NAT. SURFACE ON ROAD CENTRELINE	71.140	71.256	71.445	71.454	71.543	71.542	71.314	71.307	71.185	71.103	71.008	70.817
CUT / FILL DEPTHS	0.083	0.132	0.341	0.358	0.473	0.473	0.511	-0.065	-0.919	-2.106	-2.11	-2.117
DESIGN LEVELS ON ROAD CENTRELINE	71.222	71.388	71.786	71.812	72.015	72.015	71.825	71.242	70.266	68.996	68.898	68.700
CHAINAGE	206.101	210.000	219.360	220.000	230.000	230.170	240.000	250.000	260.000	269.360	270.000	271.284

GLENBROOK DRIVE - LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:1000
VERTICAL SCALE - 1:100

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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REV.	DESCRIPTION	DATE	INIT.
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ROADWORKS LONGITUDINAL SECTIONS - GLENBROOK DRIVE

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CR508 REV. B

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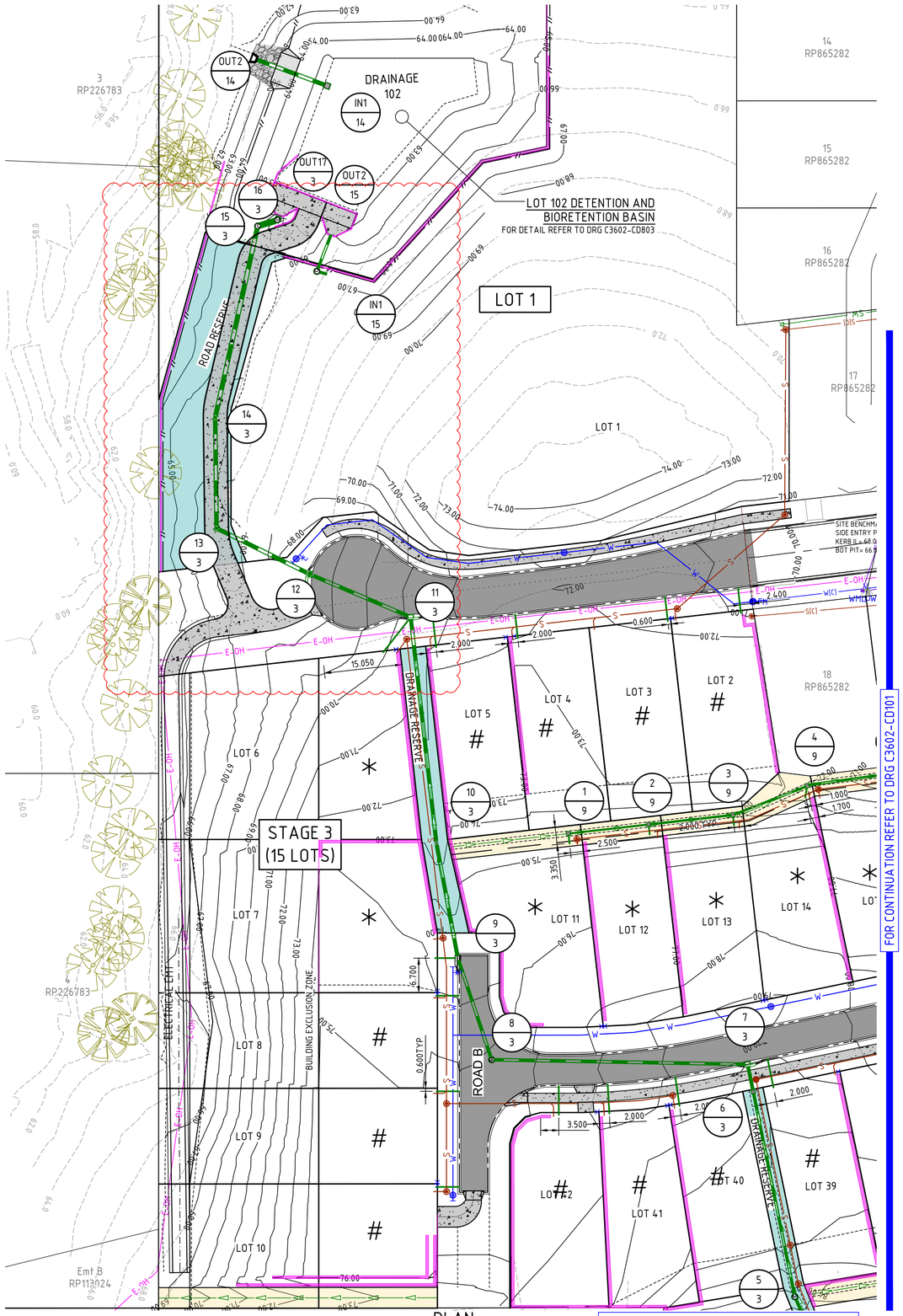
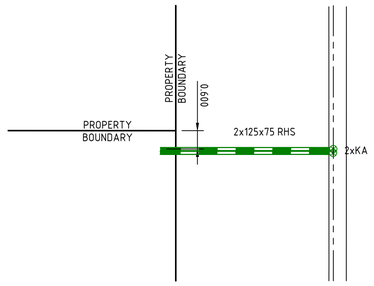
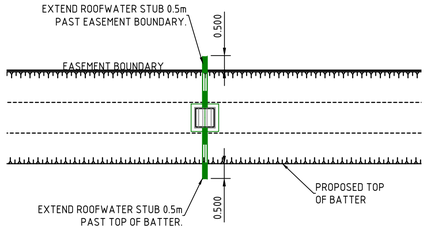


PLAN
SCALE 1:500



ROOFWATER KERB OUTLET DETAIL
SCALE 1:100



ROOFWATER PIT OUTLET DETAIL
SCALE 1:100

LEGEND

S(C)	EXISTING SEWER MAIN (*) DENOTES UTILITY CLASSIFICATION)
W(D)	EXISTING WATER MAIN (*) DENOTES UTILITY CLASSIFICATION)
SW(D)	EXISTING STORMWATER (*) DENOTES UTILITY CLASSIFICATION)
T(D)	EXISTING TELECOMMUNICATIONS (*) DENOTES UTILITY CLASSIFICATION)
E-OH	EXISTING OVERHEAD ELECTRICITY
W	PROPOSED WATER MAIN
S	PROPOSED SEWER MAIN
SW	PROPOSED STORMWATER
	PROPOSED RETAINING WALL
##.##	EXISTING CONTOURS
##.##	PROPOSED DESIGN CONTOURS
	PROPOSED TOP OF BATTER PROPOSED TOE OF BATTER
	PROPOSED ROAD RESERVE
	PROPOSED EASEMENT
1/1	PROPOSED DRAINAGE STRUCTURE NUMBER
1/1	EXISTING DRAINAGE STRUCTRUE NUMBER

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

* ROOFWATER CONNECTION NOTE:
SYMBOL DENOTES LOT IS TO BE SERVICED BY 1xØ150 uPVC PIPE STUB FROM CHAMBER.

\# KERB OUTLET NOTE:
SYMBOL DENOTES LOT IS TO BE SERVICED BY 2x125x75 RHS FITTED TO METAL KERB ADAPTORS TO COUNCIL APPROVAL.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

SCALE 1:500 (A1) 0 10 20 30m (SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE LAYOUT PLAN SHEET 1 OF 4

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD100 REV. B

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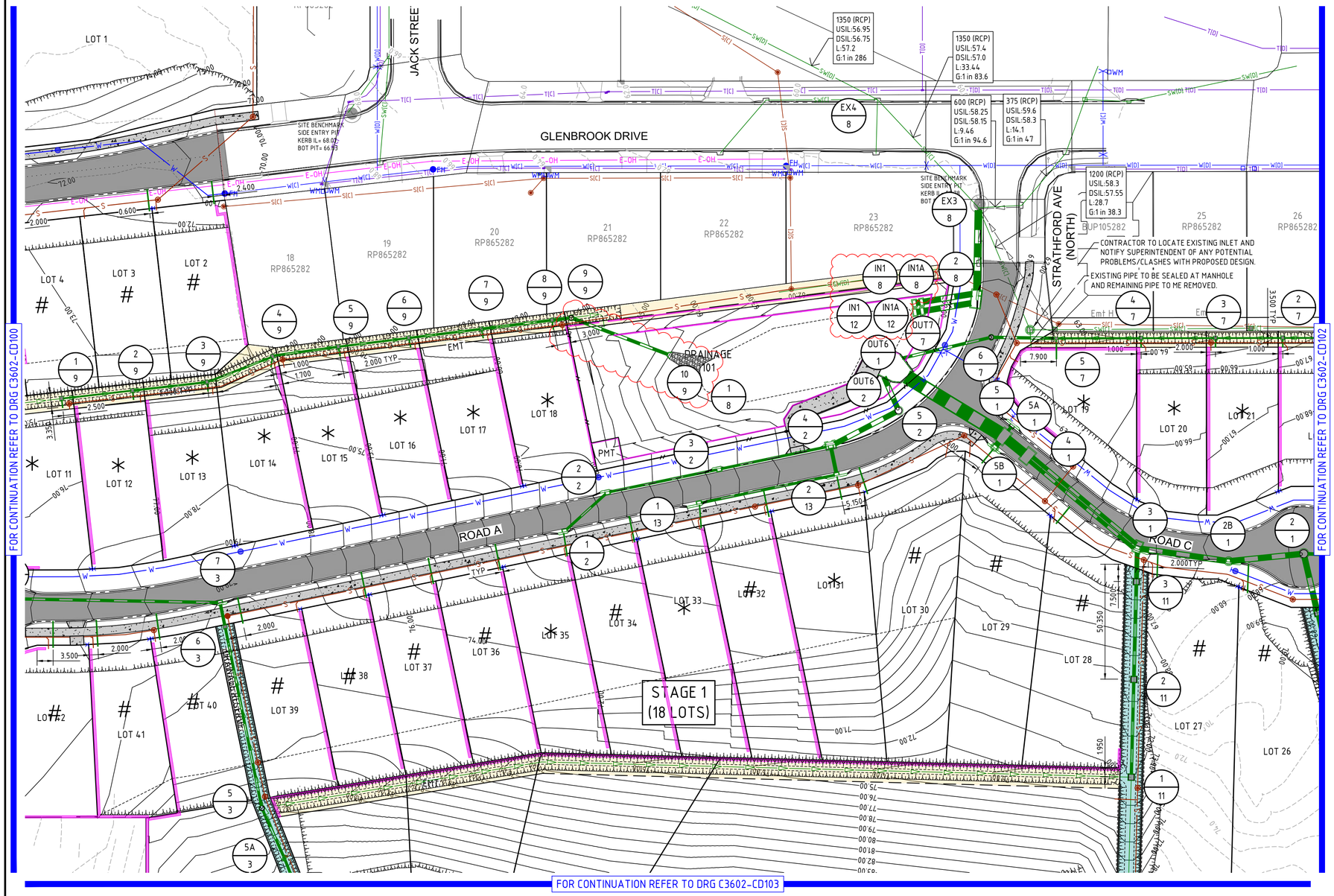

PLAN
SCALE 1:500

LEGEND

S(C)	EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)
W(D)	EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)
SW(D)	EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)
T(D)	EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)
E-OH	EXISTING OVERHEAD ELECTRICITY
W	PROPOSED WATER MAIN
S	PROPOSED SEWER MAIN
SW	PROPOSED STORMWATER
	PROPOSED RETAINING WALL
##.##	EXISTING CONTOURS
##.##	PROPOSED DESIGN CONTOURS
	PROPOSED TOP OF BATTER PROPOSED TOE OF BATTER
	PROPOSED ROAD RESERVE
	PROPOSED EASEMENT
1/1	PROPOSED DRAINAGE STRUCTURE NUMBER
1/1	EXISTING DRAINAGE STRUCTRUE NUMBER

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

* ROOFWATER CONNECTION NOTE:
SYMBOL DENOTES LOT IS TO BE SERVICED BY 1xØ150 uPVC PIPE STUB FROM CHAMBER.

\# KERB OUTLET NOTE:
SYMBOL DENOTES LOT IS TO BE SERVICED BY 2x125x75 RHS FITTED TO METAL KERB ADAPTORS TO COUNCIL APPROVAL.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE LAYOUT PLAN SHEET 2 OF 4

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD101 REV. B

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ALL SCALES ARE AS SHOWN (A1)

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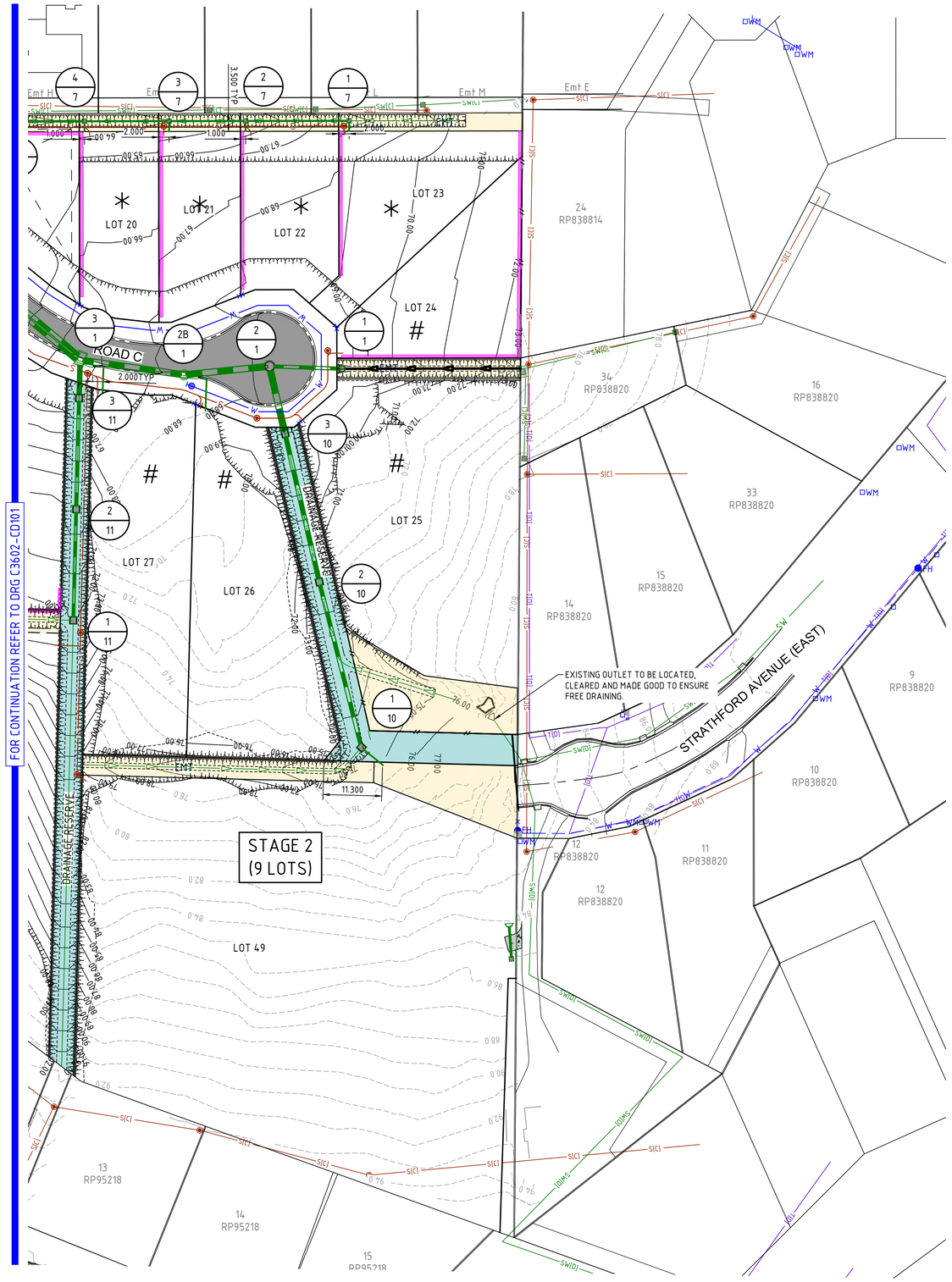

PLAN
SCALE 1:500

LEGEND

S(C)	EXISTING SEWER MAIN (*) DENOTES UTILITY CLASSIFICATION)
W(D)	EXISTING WATER MAIN (*) DENOTES UTILITY CLASSIFICATION)
SW(D)	EXISTING STORMWATER (*) DENOTES UTILITY CLASSIFICATION)
T(D)	EXISTING TELECOMMUNICATIONS (*) DENOTES UTILITY CLASSIFICATION)
E-OH	EXISTING OVERHEAD ELECTRICITY
W	PROPOSED WATER MAIN
S	PROPOSED SEWER MAIN
SW	PROPOSED STORMWATER
	PROPOSED RETAINING WALL
##.##	EXISTING CONTOURS
##.##	PROPOSED DESIGN CONTOURS
	PROPOSED TOP OF BATTER PROPOSED TOE OF BATTER
	PROPOSED ROAD RESERVE
	PROPOSED EASEMENT
1/1	PROPOSED DRAINAGE STRUCTURE NUMBER
1/1	EXISTING DRAINAGE STRUCTRUE NUMBER

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

* ROOFWATER CONNECTION NOTE:
SYMBOL DENOTES LOT IS TO BE SERVICED BY 1xØ150 uPVC PIPE STUB FROM CHAMBER.

\# KERB OUTLET NOTE:
SYMBOL DENOTES LOT IS TO BE SERVICED BY 2x125x75 RHS FITTED TO METAL KERB ADAPTORS TO COUNCIL APPROVAL.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
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CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
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SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE LAYOUT PLAN SHEET 3 OF 4

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CD102		B

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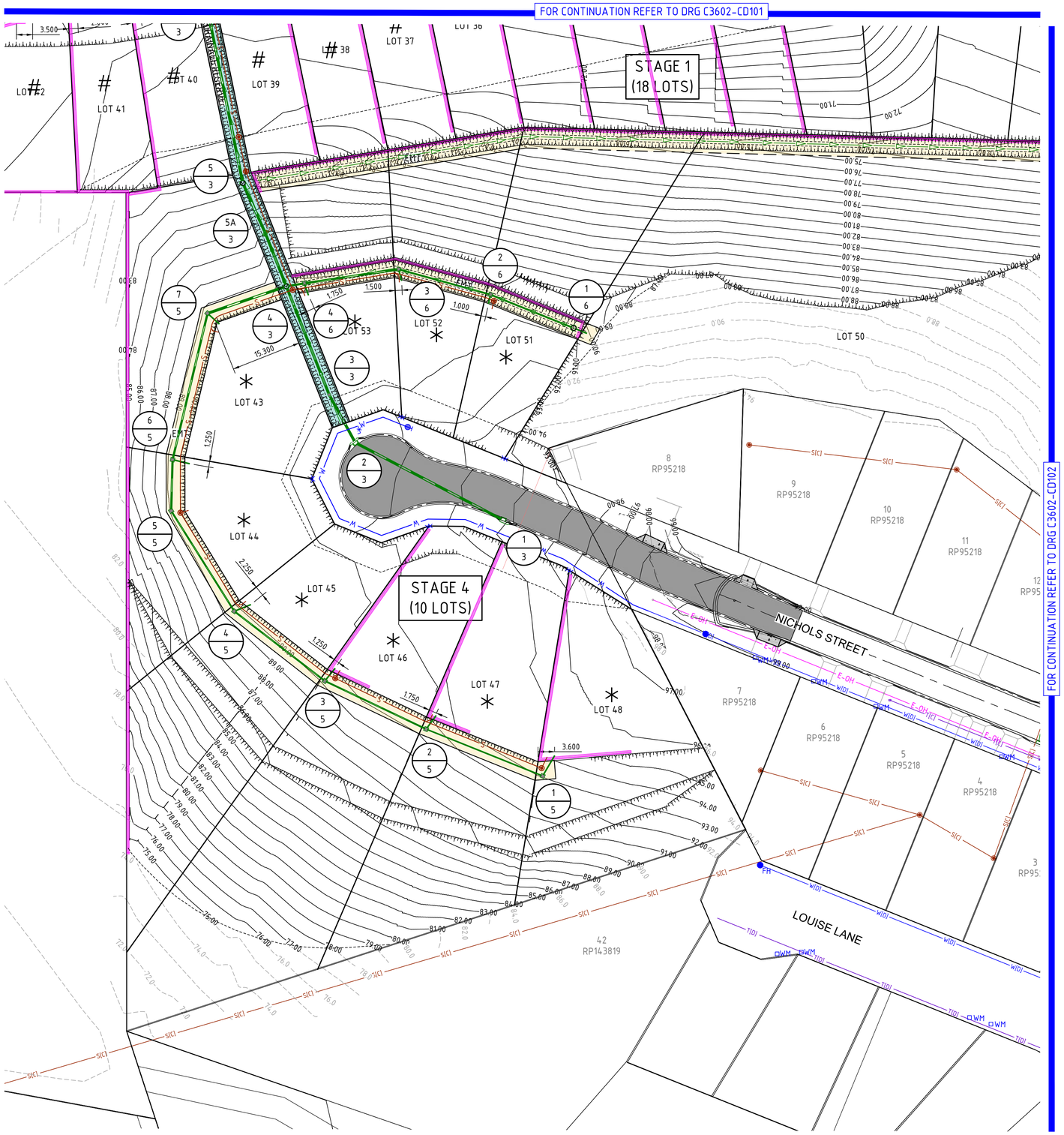

PLAN
SCALE 1:500

LEGEND

S(C)	EXISTING SEWER MAIN (*) DENOTES UTILITY CLASSIFICATION)
W(D)	EXISTING WATER MAIN (*) DENOTES UTILITY CLASSIFICATION)
SW(D)	EXISTING STORMWATER (*) DENOTES UTILITY CLASSIFICATION)
T(D)	EXISTING TELECOMMUNICATIONS (*) DENOTES UTILITY CLASSIFICATION)
E-OH	EXISTING OVERHEAD ELECTRICITY
W	PROPOSED WATER MAIN
S	PROPOSED SEWER MAIN
SW	PROPOSED STORMWATER
	PROPOSED RETAINING WALL
##.##	EXISTING CONTOURS
##.##	PROPOSED DESIGN CONTOURS
	PROPOSED TOP OF BATTER PROPOSED TOE OF BATTER
	PROPOSED ROAD RESERVE
	PROPOSED EASEMENT
1/1	PROPOSED DRAINAGE STRUCTURE NUMBER
1/1	EXISTING DRAINAGE STRUCTRUE NUMBER

NOTE:
CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION IN ACCORDANCE WITH AUSTRALIAN STANDARD 5488.

* ROOFWATER CONNECTION NOTE:
SYMBOL DENOTES LOT IS TO BE SERVICED BY 1x⌀150 uPVC PIPE STUB FROM CHAMBER.

\# KERB OUTLET NOTE:
SYMBOL DENOTES LOT IS TO BE SERVICED BY 2x125x75 RHS FITTED TO METAL KERB ADAPTORS TO COUNCIL APPROVAL.

SCALE 1:500 (A1) 0 10 20 30m
(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE LAYOUT PLAN SHEET 4 OF 4

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD103
REV. B

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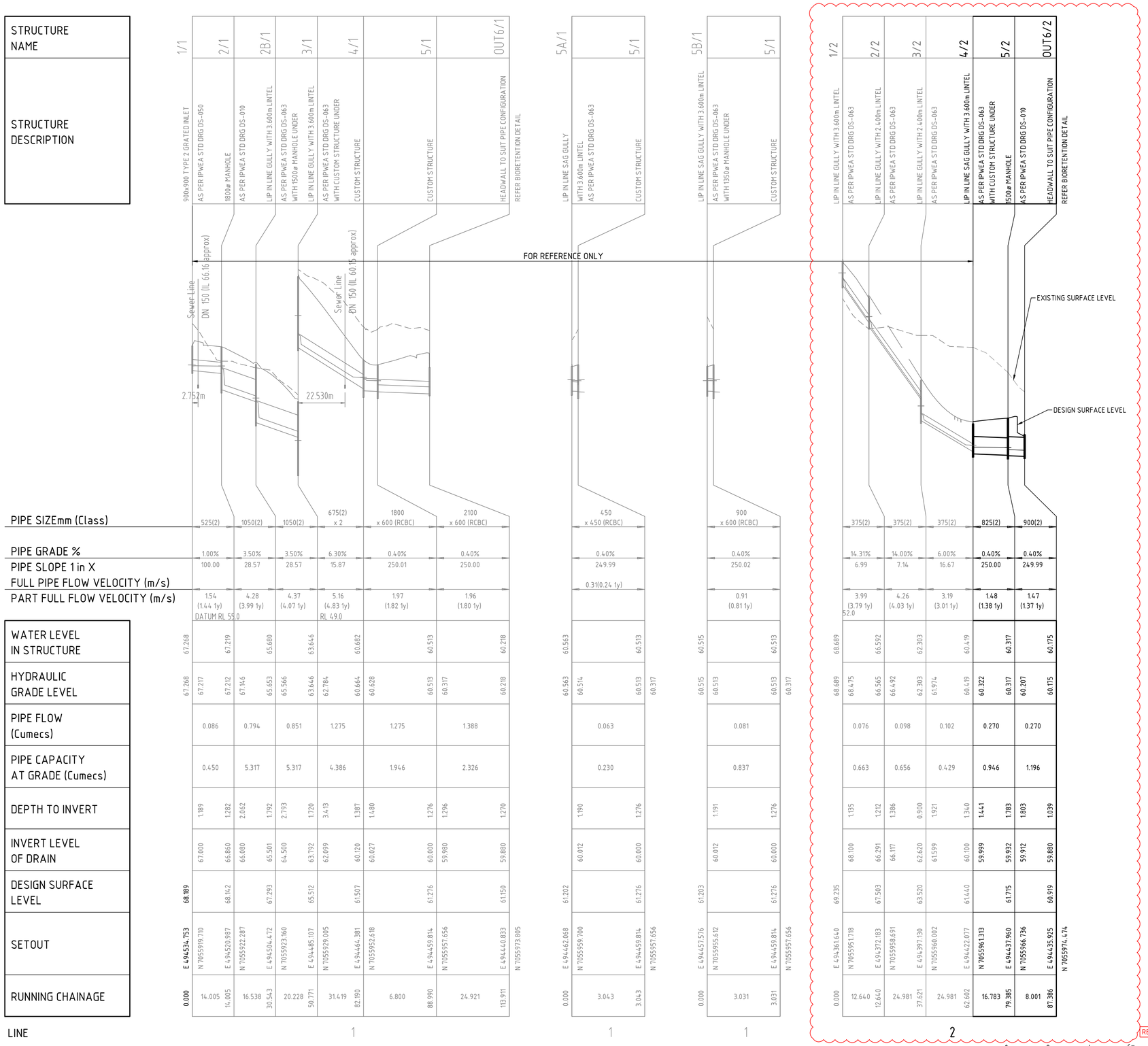

STRUCTURE NAME	1/1	2/1	2B/1	3/1	4/1	5/1	OUT6/1	5A/1	5/1	5B/1	5/1	1/2	2/2	3/2	4/2	5/2	OUT6/2
STRUCTURE DESCRIPTION	900x900 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1800ø MANHOLE AS PER IPWEA STD DRG DS-010	LIP IN LINE GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063	WITH 1500ø MANHOLE UNDER LIP IN LINE GULLY WITH 3.600m LINTEL	AS PER IPWEA STD DRG DS-063 WITH CUSTOM STRUCTURE UNDER CUSTOM STRUCTURE	CUSTOM STRUCTURE	HEADWALL TO SUIT PIPE CONFIGURATION REFER BIORETENTION DETAIL	LIP IN LINE SAG GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063	CUSTOM STRUCTURE	LIP IN LINE SAG GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063 WITH 1350ø MANHOLE UNDER	CUSTOM STRUCTURE	LIP IN LINE GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE GULLY WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE GULLY WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE SAG GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063 WITH CUSTOM STRUCTURE UNDER	1500ø MANHOLE AS PER IPWEA STD DRG DS-010	HEADWALL TO SUIT PIPE CONFIGURATION REFER BIORETENTION DETAIL
PIPE SIZEmm (Class)	525(2)	1050(2)	1050(2)	675(2) x 2	1800 x 600 (RCBC)	2100 x 600 (RCBC)		450 x 450 (RCBC)		900 x 600 (RCBC)		375(2)	375(2)	375(2)	825(2)	900(2)	
PIPE GRADE %	1.00%	3.50%	3.50%	6.30%	0.40%	0.40%		0.40%		0.40%		14.31%	14.00%	6.00%	0.40%	0.40%	
PIPE SLOPE 1 in X	100.00	28.57	28.57	15.87	250.01	250.00		249.99		250.02		6.99	7.14	16.67	250.00	249.99	
FULL PIPE FLOW VELOCITY (m/s)	1.54 (1.44 1y)	4.28 (3.99 1y)	4.37 (4.07 1y)	5.16 (4.83 1y)	1.97 (1.82 1y)	1.96 (1.80 1y)		0.31(0.24 1y)		0.91 (0.81 1y)		3.99 (3.79 1y)	4.26 (4.03 1y)	3.19 (3.01 1y)	1.48 (1.38 1y)	1.47 (1.37 1y)	
PART FULL FLOW VELOCITY (m/s)																	
WATER LEVEL IN STRUCTURE	67.268 / 67.219	65.680		63.646	60.682	60.513	60.218	60.563 / 60.513		60.515 / 60.513		68.689 / 66.592	62.303	60.419	60.317	60.175	
HYDRAULIC GRADE LEVEL	67.268 / 67.217	67.212 / 67.146	65.653	65.566 / 63.646	62.784 / 60.664	60.628 / 60.513	60.317 / 60.218	60.563 / 60.514	60.513 / 60.317	60.515 / 60.513	60.513 / 60.317	68.689 / 68.475	66.565 / 66.492	62.303 / 61.974	60.419 / 60.322	60.317 / 60.207	60.175
PIPE FLOW (Cumecs)	0.086	0.794		0.851	1.275	1.275	1.388	0.063		0.081		0.076	0.098	0.102	0.270	0.270	
PIPE CAPACITY AT GRADE (Cumecs)	0.450	5.317		5.317	4.386	1.946	2.326	0.230		0.837		0.663	0.656	0.429	0.946	1.196	
DEPTH TO INVERT	1.189	1.282 / 2.062	1.792	2.793 / 1.720	3.413	1.387 / 1.480	1.276 / 1.296	1.190	1.276	1.191	1.276	1.135	1.212 / 1.386	0.900 / 1.921	1.340 / 1.441	1.783 / 1.803	1.039
INVERT LEVEL OF DRAIN	67.000	66.860 / 66.080	65.501	64.500 / 63.792	62.099	60.120 / 60.027	60.000 / 59.980	60.012	60.000	60.012	60.000	68.100	66.291 / 66.117	62.620 / 61.599	60.100 / 59.999	59.932 / 59.912	59.880
DESIGN SURFACE LEVEL	68.189	68.142	67.293	65.512	61.507	61.276	61.150	61.202	61.276	61.203	61.276	69.235	67.503	63.520	61.440	61.715	60.919
SETOUT	E 494534.753 / N 7055919.710	E 494520.887 / N 7055922.287	E 494504.472 / N 7055923.160	E 494485.107 / N 7055929.005	E 494464.381 / N 7055952.618	E 494459.814 / N 7055957.656	E 494440.833	E 494462.068 / N 7055959.700	E 494459.814 / N 7055957.656	E 494457.576 / N 7055955.612	E 494459.814 / N 7055957.656	E 494361.640 / N 7055951.718	E 494372.183 / N 7055958.691	E 494397.130 / N 7055960.002	E 494422.077 / N 7055961.313	E 494437.960 / N 7055966.736	E 494435.925
RUNNING CHAINAGE	0.000 / 14.005	14.005 / 16.538	30.543 / 20.228	50.771 / 31.419	82.190 / 6.800	88.990 / 24.921	113.911	0.000 / 3.043	3.043	0.000 / 3.031	3.031	0.000 / 12.640	12.640 / 24.981	37.621 / 24.981	62.602 / 16.783	79.385 / 8.001	87.386
LINE	1							1		1		2					

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MINOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MAJOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

Q2 LONGITUDINAL SECTIONS

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER LONGITUDINAL SECTION SHEET 1 OF 4 Q2 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD200
REV. B

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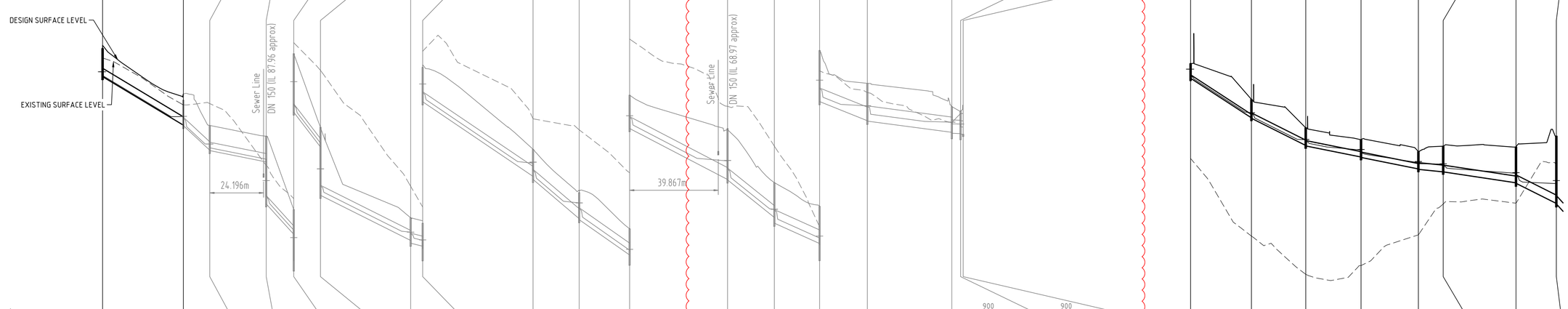

STRUCTURE NAME	1/3	2/3	3/3	4/3	5A/3	5/3	6/3	7/3	8/3	9/3	10/3	11/3	12/3	13/3	14/3	15/3	16/3	OUT17/3
STRUCTURE DESCRIPTION	EXISTING LIP IN LINE GULLY	WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE SAG GULLY	WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	900x900 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	1050ø MANHOLE WITH 600x600 TYPE 2 GRATED INLET	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	LIP IN LINE GULLY WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	LIP IN LINE GULLY WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE GULLY WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE SAG GULLY	WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063	1050ø MANHOLE WITH 600x600 TYPE 2 GRATED INLET	1050ø MANHOLE WITH 600x600 TYPE 2 GRATED INLET	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	HEADWALL TO SUIT 900.06 ø PIPE
PIPE SIZEmm (Class)		375(2)	375(2)	375(2)	375(2)	375(2)	450(2)	450(2)	450(2)	450(2)	525(2)	525(2)	525(2)	600(2)	600(2)	675(2)	900 x 600 (RCBC)	900 x 600 (RCBC)
PIPE GRADE %		6.00%	9.29%	2.00%	11.00%	13.00%	5.00%	2.50%	6.75%	8.50%	7.00%	5.20%	8.00%	4.50%	4.00%	1.32%	0.40%	0.40%
PIPE SLOPE 1 in X		16.67	10.77	50.00	9.09	7.69	20.00	40.00	14.81	11.76	14.29	19.23	12.50	22.22	25.00	75.68	250.03	250.09
FULL PIPE FLOW VELOCITY (m/s)		0.14(0.11 1y)							1.81(1.67 1y)	1.81(1.67 1y)		1.84(1.62 1y)			1.60(1.37 1y)			
PART FULL FLOW VELOCITY (m/s)		1.83 (1.69 1y)	3.18 (2.97 1y)	1.84 (1.72 1y)	5.24 (4.16 1y)	5.59 (5.48 1y)	3.90 (3.83 1y)	3.00 (2.95 1y)	4.37 (4.27 1y)	4.75 (4.65 1y)	4.83 (4.66 1y)	4.33 (4.18 1y)	5.16 (4.97 1y)	4.21 (4.04 1y)	4.04 (3.88 1y)	2.68 (2.57 1y)	1.60 (1.53 1y)	1.60 (1.53 1y)
		DATUM RL 77.0				70.0			63.0			57.0			50.0			
WATER LEVEL IN STRUCTURE	92.697	90.696	89.454	87.811	85.251	81.338	78.497	78.148	74.639	72.810	70.724		68.714	66.524	65.320	64.168	63.433	63.350	63.215
HYDRAULIC GRADE LEVEL	92.697	92.527	90.655	89.454	89.282	87.675	87.139	85.251	84.256	81.338	80.600	78.497	78.450	78.100	77.799	74.592	74.313	72.810	72.591	70.724	70.684	68.694	68.374	66.524	66.510	65.243	64.968	64.168	64.165	63.433	63.355	63.350	63.220	63.215
PIPE FLOW (Cumecs)		0.015	0.059	0.059	0.285	0.287	0.287	0.288	0.288	0.288	0.412	0.412		0.441	0.463	0.468	0.468	0.468	0.468
PIPE CAPACITY AT GRADE (Cumecs)		0.429	0.534	0.248	0.581	0.632	0.637	0.450	0.740	0.831	1.190	1.025		1.272	1.360	1.283	1.004	0.837	0.837
DEPTH TO INVERT		1.258	1.123	1.143	1.111	1.131	1.155	3.041	1.108	2.627	0.886	3.056	1.017	1.140	1.032	1.548	1.216	1.353	1.172	1.215	1.179	1.499	2.287	2.307	1.563	1.819	1.670	2.297	1.678	1.698	1.156	1.198	1.013	1.038	0.000
INVERT LEVEL OF DRAIN		92.479	90.300	90.280	89.177	89.157	88.650	86.764	85.400	83.881	82.320	80.150	78.123	78.000	77.865	77.349	74.000	73.863	72.100	72.057	70.470	70.150	67.860	67.840	66.156	65.900	64.985	64.358	63.500	63.480	62.978	62.936	62.920	62.895	62.890
DESIGN SURFACE LEVEL	93.737		91.423		90.288	89.805		86.508		83.206		79.140		78.897		75.216		73.272		71.649		70.147		67.719		66.655		65.178		64.134		63.933		62.890
SETOUT	E 494331.730	N 7055820.712	E 494302.484	N 7055842.230	E 494298.404	N 7055853.379	E 494292.804	N 7055878.121	E 494290.044	N 7055890.209	E 494286.820	N 7055901.772	E 494284.886	N 7055942.268	E 494284.595	N 7055947.669	E 494235.698	N 7055956.071	E 494232.211	N 7055976.515	E 494231.739	N 7055999.179	E 494233.176	N 7056043.186	E 494215.268	N 7056054.249	E 494198.599	N 7056065.905	E 494201.580	N 7056087.147	E 494215.349	N 7056122.555	E 494219.251	N 7056123.107	E 494219.871	N 7056124.090
RUNNING CHAINAGE	0.000	36.309	36.309	11.872	48.181	25.368	73.549	12.399	85.948	12.004	97.952	40.542	138.494	5.409	143.903	49.614	193.517	20.739	214.256	22.669	236.925	44.030	280.955	21.050	302.005	20.340	322.345	21.450	343.795	37.991	381.786	3.941	385.727	1.162	386.889

3

STRUCTURE NAME	1/5	2/5	3/5	4/5	5/5	6/5	7/5	4/3
STRUCTURE DESCRIPTION	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1050ø MANHOLE AS PER IPWEA STD DRG DS-010
PIPE SIZEmm (Class)	150(U)	225(U)	225(U)	225(U)	300(U)	300(U)	375(2)	
PIPE GRADE %	6.50%	5.00%	2.00%	2.00%	1.00%	1.50%	5.00%	
PIPE SLOPE 1 in X	15.38	20.00	50.00	50.00	100.00	66.67	20.00	
FULL PIPE FLOW VELOCITY (m/s)	1.07(1.07 1y)	0.87(0.87 1y)	1.31(1.31 1y)	1.75(1.75 1y)	1.10(1.10 1y)	1.38(1.38 1y)	1.09(1.09 1y)	
PART FULL FLOW VELOCITY (m/s)	2.49 (2.49 1y)	2.67 (2.67 1y)	2.11 (2.11 1y)	2.23 (2.23 1y)	1.75 (1.75 1y)	2.15 (2.15 1y)	3.12 (3.12 1y)	
	RL77.0							
WATER LEVEL IN STRUCTURE	92.815	90.857	89.659	89.208	88.667	88.564	88.166	87.811	
HYDRAULIC GRADE LEVEL	92.815	92.560	90.857	90.850	89.649	89.608	89.185	89.091	88.618	88.618	88.551	88.506	88.140	88.066	87.675	87.139
PIPE FLOW (Cumecs)		0.020	0.040	0.060	0.080	0.080	0.100	0.120	
PIPE CAPACITY AT GRADE (Cumecs)		0.050	0.143	0.090	0.090	0.118	0.145	0.392	
DEPTH TO INVERT		0.656	0.830	0.850	0.792	0.812	0.773	0.793	0.783	0.803	1.152	1.152	1.606	1.626	3.021	
INVERT LEVEL OF DRAIN		92.405	90.628	90.608	89.387	89.367	88.870	88.850	88.334	88.314	88.202	88.202	87.711	87.691	86.784	
DESIGN SURFACE LEVEL	93.061		91.458		90.179		89.643		89.117		89.354		89.317		89.805	
SETOUT	E 494331.828	N 7055764.365	E 494308.299	N 7055778.285	E 494288.079	N 7055791.987	E 494270.895	N 7055809.958	E 494260.628	N 7055833.609	E 494262.614	N 7055844.592	E 494274.956	N 7055874.891	E 494292.804	N 7055878.121
RUNNING CHAINAGE	0.000	27.338	27.338	24.425	51.763	24.865	76.628	25.783	102.411	11.161	113.572	32.716	146.288	18.138	164.426	

5

LINE

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MINOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MAJOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

Q2 LONGITUDINAL SECTIONS

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER LONGITUDINAL SECTION SHEET 2 OF 4 Q2 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD201 REV. B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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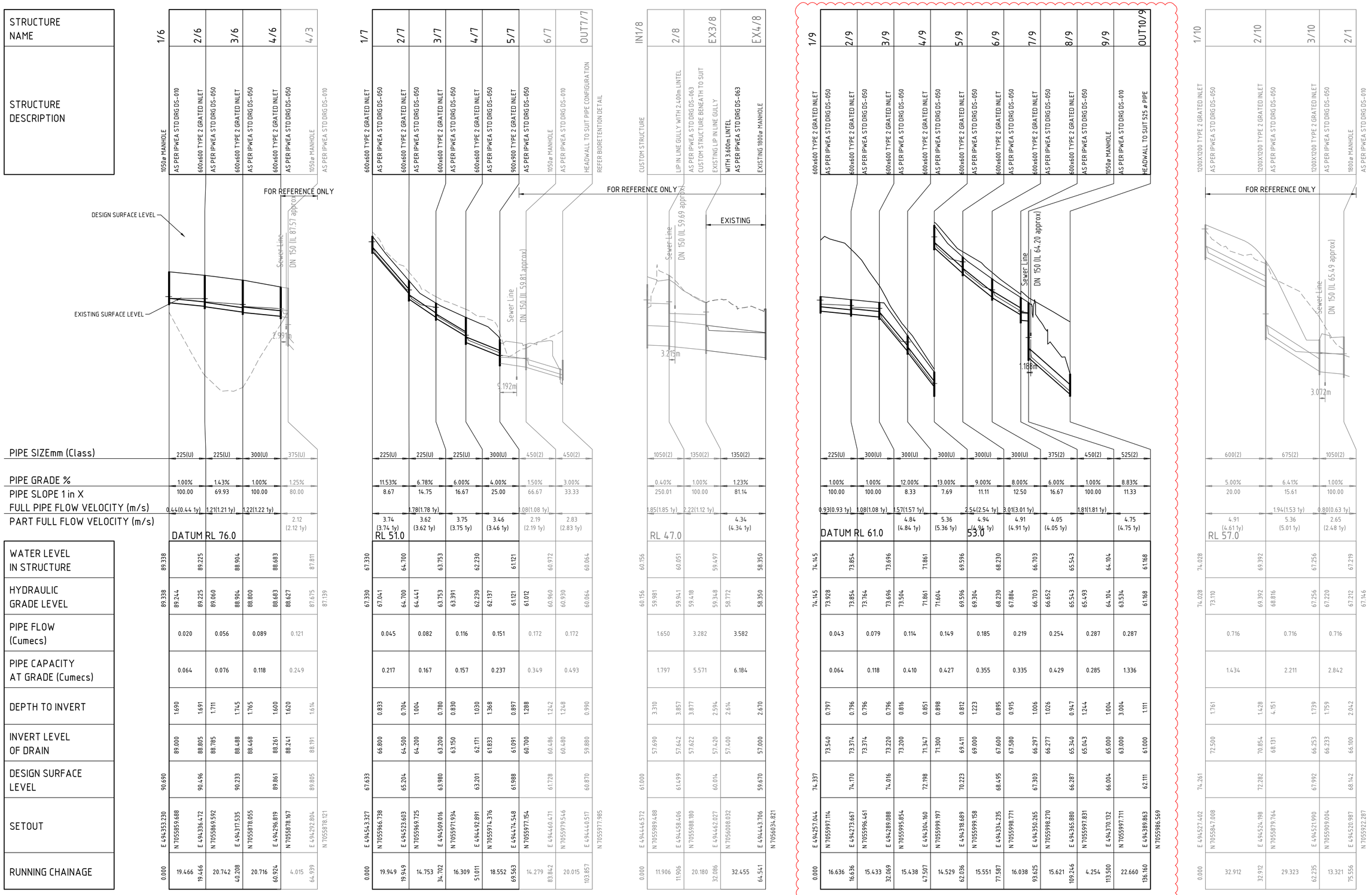

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MINOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MAJOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

Q2 LONGITUDINAL SECTIONS

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
CIVIL
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TRAFFIC
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CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

JAS-ANZ
SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER LONGITUDINAL SECTION SHEET 3 OF 4 Q2 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD202
REV. B

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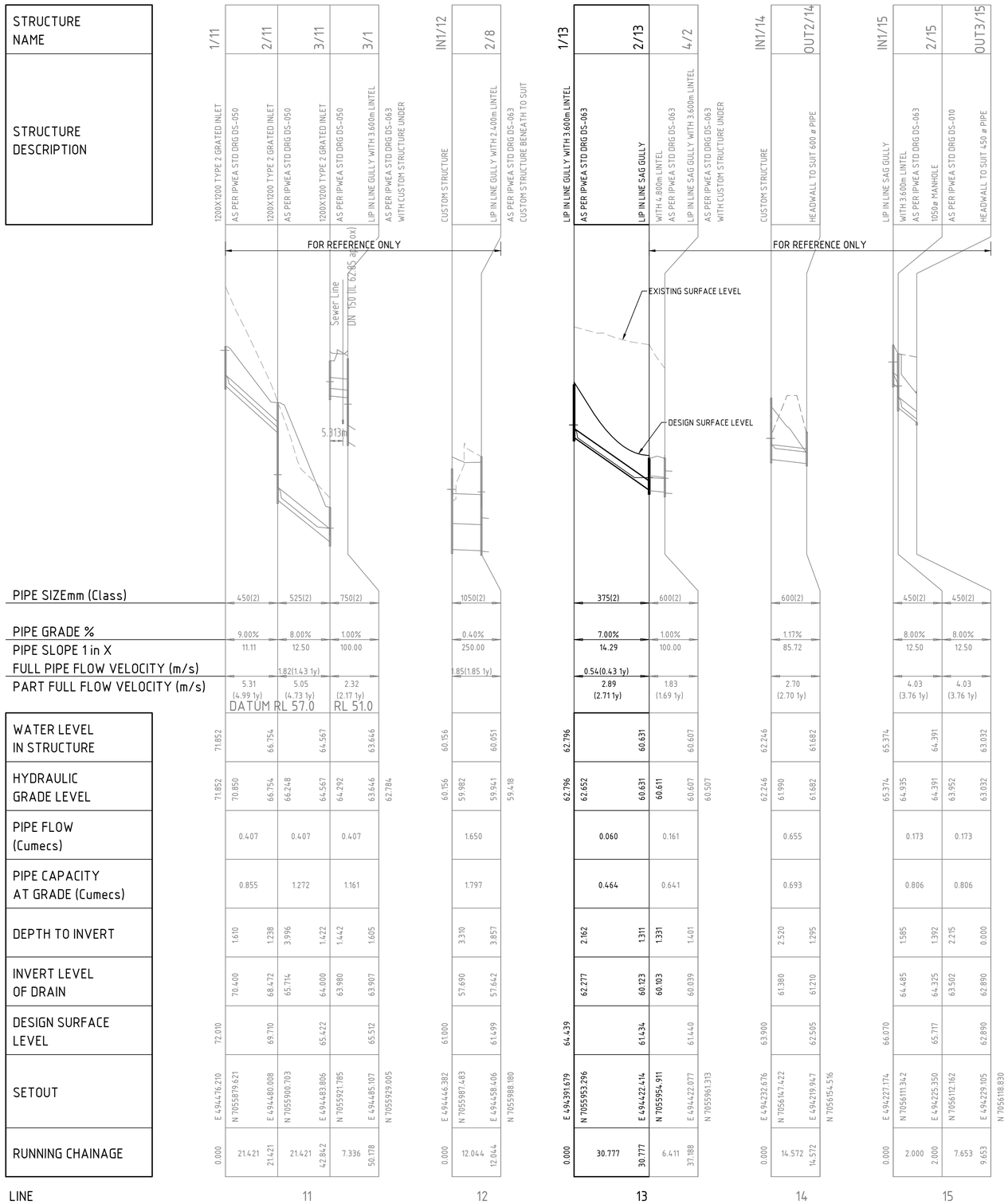

Q2 LONGITUDINAL SECTIONS

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MINOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MAJOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER LONGITUDINAL SECTION SHEET 4 OF 4 Q2 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD203 REV. B

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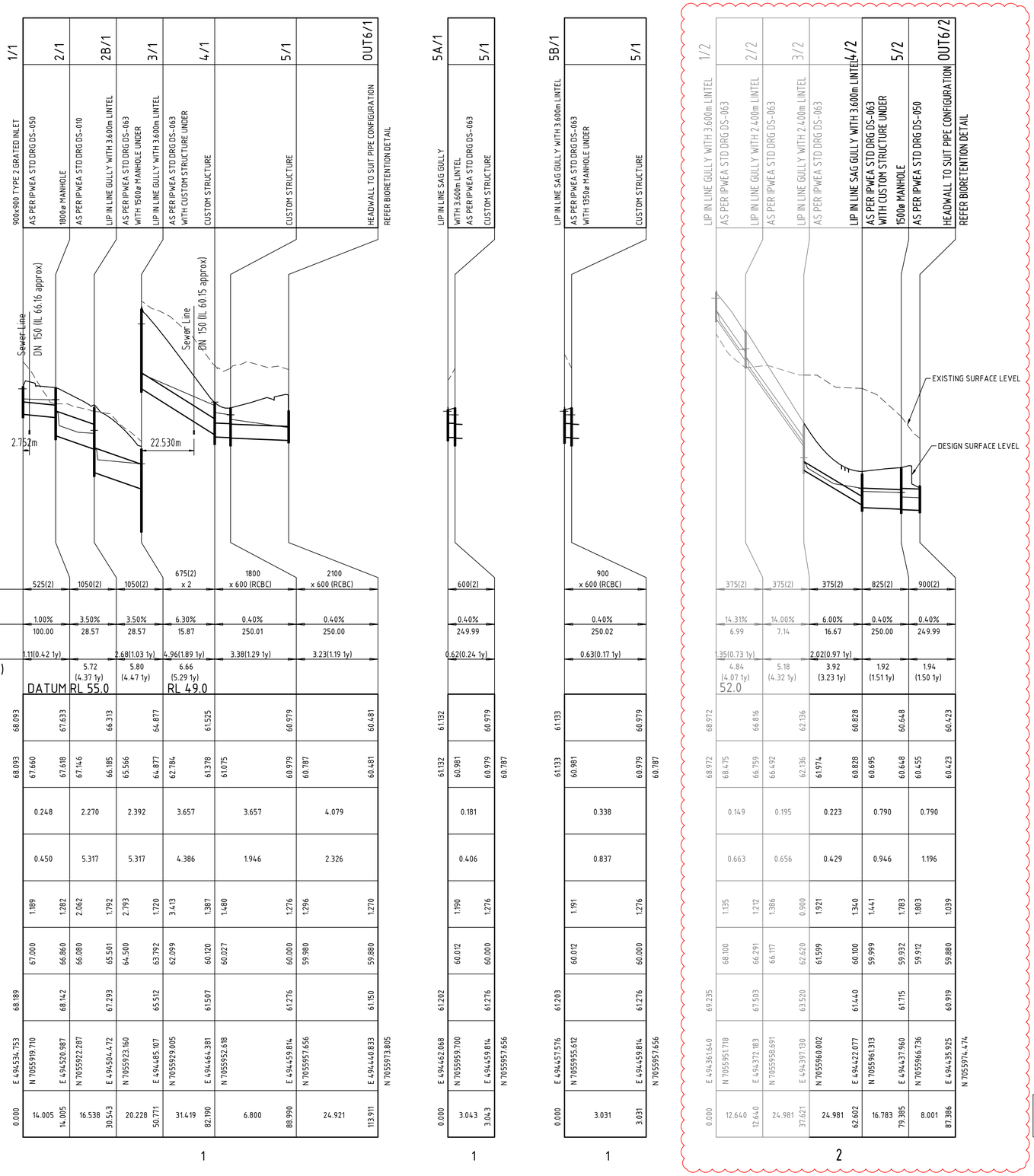

STRUCTURE NAME	1/1	2/1	2B/1	3/1	4/1	5/1	OUT6/1	5A/1	5/1	5B/1	5/1	1/2	2/2	3/2	4/2	5/2	OUT6/2
STRUCTURE DESCRIPTION	900x900 TYPE 2 GRATED INLET	AS PER IPWEA STD DRG DS-050	1800ø MANHOLE	AS PER IPWEA STD DRG DS-010	LIP IN LINE GULLY WITH 3.600m LINTEL	AS PER IPWEA STD DRG DS-063 WITH 1500ø MANHOLE UNDER	LIP IN LINE GULLY WITH 3.600m LINTEL	AS PER IPWEA STD DRG DS-063 WITH CUSTOM STRUCTURE UNDER	CUSTOM STRUCTURE	CUSTOM STRUCTURE	HEADWALL TO SUIT PIPE CONFIGURATION REFER BIORETENTION DETAIL	LIP IN LINE SAG GULLY	WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063 CUSTOM STRUCTURE	LIP IN LINE SAG GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063 WITH 1350ø MANHOLE UNDER	CUSTOM STRUCTURE	LIP IN LINE GULLY WITH 3.600m LINTEL	AS PER IPWEA STD DRG DS-063	LIP IN LINE GULLY WITH 2.400m LINTEL	AS PER IPWEA STD DRG DS-063	LIP IN LINE GULLY WITH 2.400m LINTEL	AS PER IPWEA STD DRG DS-063	LIP IN LINE SAG GULLY WITH 3.600m LINTEL	AS PER IPWEA STD DRG DS-063 WITH CUSTOM STRUCTURE UNDER 1500ø MANHOLE	AS PER IPWEA STD DRG DS-050	HEADWALL TO SUIT PIPE CONFIGURATION REFER BIORETENTION DETAIL
PIPE SIZEmm (Class)		525(2)	1050(2)	1050(2)	675(2) x 2	1800 x 600 (RCBC)	2100 x 600 (RCBC)	600(2)		900 x 600 (RCBC)			375(2)	375(2)	375(2)	825(2)	900(2)
PIPE GRADE %		1.00%	3.50%	3.50%	6.30%	0.40%	0.40%	0.40%		0.40%			14.31%	14.00%	6.00%	0.40%	0.40%
PIPE SLOPE 1 in X		100.00	28.57	28.57	15.87	250.01	250.00	249.99		250.02			6.99	7.14	16.67	250.00	249.99
FULL PIPE FLOW VELOCITY (m/s)		1.11(0.42 1y)		2.68(1.03 1y)	4.96(1.89 1y)	3.38(1.29 1y)	3.23(1.19 1y)	0.62(0.24 1y)		0.63(0.17 1y)			1.35(0.73 1y)		2.02(0.97 1y)		
PART FULL FLOW VELOCITY (m/s)			5.72 (4.37 1y)	5.80 (4.47 1y)	6.66 (5.29 1y)								4.84 (4.07 1y)	5.18 (4.32 1y)	3.92 (3.23 1y)	1.92 (1.51 1y)	1.94 (1.50 1y)
		DATUM RL 55.0			RL 49.0								52.0				
WATER LEVEL IN STRUCTURE	68.093	67.633	66.313	64.877	61.525	60.979	60.481	61.132	60.979	61.133	60.979	68.972	66.816	62.136	60.828	60.648	60.423
HYDRAULIC GRADE LEVEL	68.093	67.660	67.146	66.185	65.566	64.877	62.784	61.378	61.075	60.979	60.787	60.481	61.132	60.981	60.979	60.787	61.133	60.981	60.979	60.787	68.972	68.475	66.759	66.492	62.136	61.974	60.828	60.695	60.648	60.455	60.423
PIPE FLOW (Cumecs)		0.248	2.270	2.392	3.657	3.657	4.079	0.181		0.338			0.149	0.195	0.223	0.790	0.790
PIPE CAPACITY AT GRADE (Cumecs)		0.450	5.317	5.317	4.386	1.946	2.326	0.406		0.837			0.663	0.656	0.429	0.946	1.196
DEPTH TO INVERT		1.189	2.062	2.793	3.413	1.480	1.296	1.190		1.191			1.135	1.386	1.921	1.441	1.803
		1.282	1.792	1.720	1.387	1.276	1.270	1.276		1.276			1.212	0.900	1.340	1.783	1.039
INVERT LEVEL OF DRAIN		67.000	66.080	64.500	62.099	60.027	59.980	60.012		60.012			68.100	66.117	61.599	59.999	59.912
		66.860	65.501	63.792	60.120	60.000	59.880	60.000		60.000			66.291	62.620	60.100	59.932	59.880
DESIGN SURFACE LEVEL	68.189	68.142	67.293	65.512	61.507	61.276	61.150	61.202	61.276	61.203	61.276	69.235	67.503	63.520	61.440	61.715	60.919
SETOUT	E 494534.753	N 7055919.710	N 7055922.287	N 7055923.160	N 7055929.005	N 7055932.618	N 7055957.656	E 494462.068	N 7055959.700	E 494457.576	N 7055955.612	E 494361.640	N 7055951.718	N 7055958.691	N 7055960.002	N 7055961.313	N 7055966.736	N 7055974.474
		E 494520.987	E 494504.472	E 494485.107	E 494464.381	E 494459.814	N 7055957.656	E 494459.814	N 7055957.656	E 494459.814	N 7055957.656	E 494372.983	E 494397.130	E 494422.077	E 494437.960	E 494435.925	N 7055974.474
RUNNING CHAINAGE	0.000	14.005	16.538	20.228	31.419	6.800	24.921	0.000	3.043	0.000	3.031	0.000	12.640	24.981	24.981	16.783	8.001
		14.005	30.543	50.771	82.190	88.990	113.911		3.043		3.031		12.640	37.621	62.602	79.385	87.386
LINE					1				1		1				2		

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MAJOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MINOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

Q100 LONGITUDINAL SECTIONS

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL STRUCTURAL TRAFFIC PROJECT MANAGEMENT
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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER LONGITUDINAL SECTION SHEET 1 OF 4 Q100 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD204 REV. B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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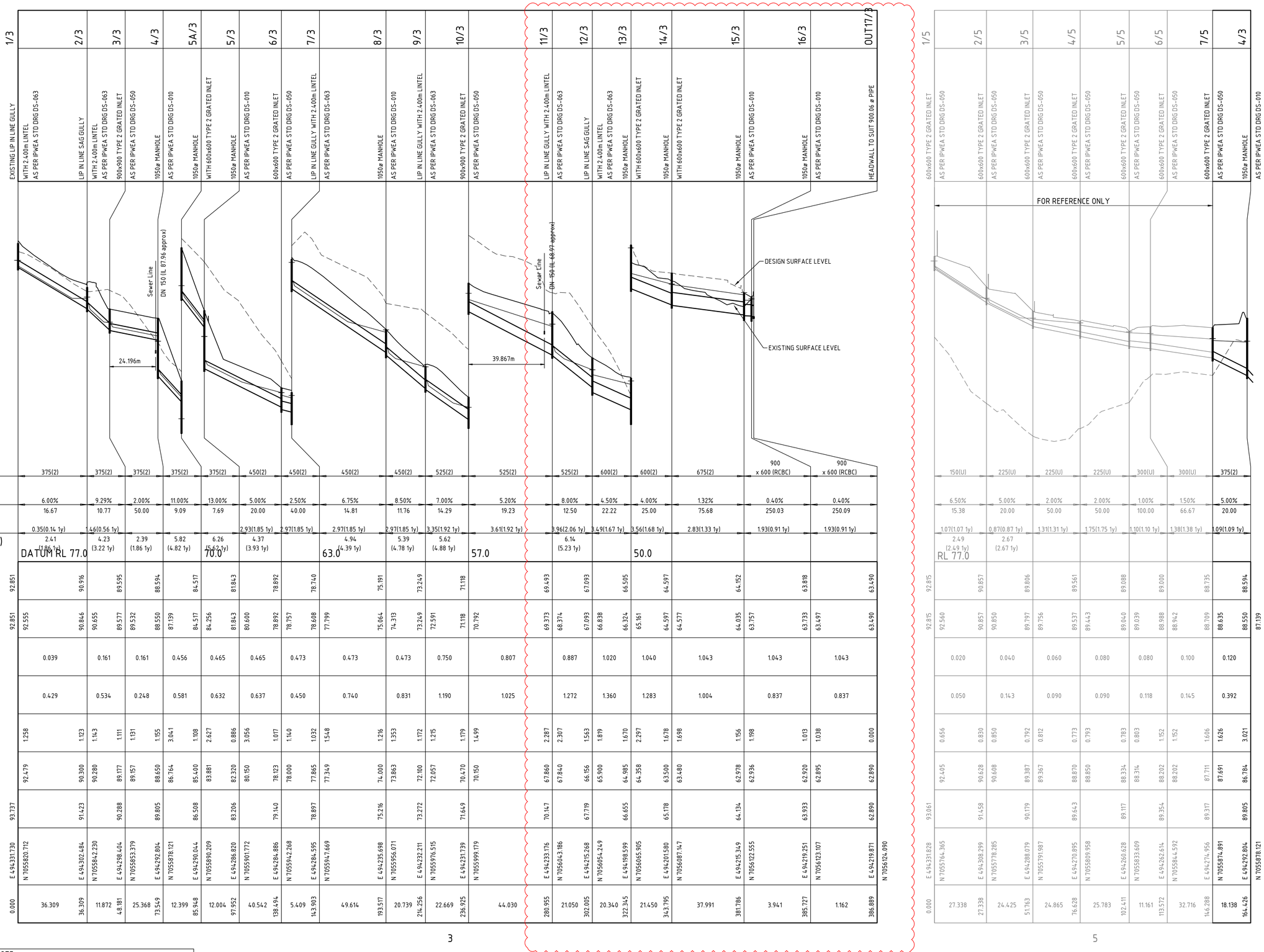

STRUCTURE NAME	1/3	2/3	3/3	4/3	5A/3	5/3	6/3	7/3	8/3	9/3	10/3	11/3	12/3	13/3	14/3	15/3	16/3	OUT17/3
STRUCTURE DESCRIPTION	EXISTING LIP IN LINE GULLY	WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE SAG GULLY	WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	900x900 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	1050ø MANHOLE WITH 600x600 TYPE 2 GRATED INLET	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	LIP IN LINE GULLY WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	LIP IN LINE GULLY WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE SAG GULLY	WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063	1050ø MANHOLE WITH 600x600 TYPE 2 GRATED INLET	1050ø MANHOLE WITH 600x600 TYPE 2 GRATED INLET	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	HEADWALL TO SUIT 900.06 ø PIPE
PIPE SIZEmm (Class)		375(2)	375(2)	375(2)	375(2)	375(2)	450(2)	450(2)	450(2)	450(2)	525(2)	525(2)	525(2)	600(2)	600(2)	675(2)	900 x 600 (RCBC)	900 x 600 (RCBC)
PIPE GRADE %		6.00%	9.29%	2.00%	11.00%	13.00%	5.00%	2.50%	6.75%	8.50%	7.00%	5.20%	8.00%	4.50%	4.00%	1.32%	0.40%	0.40%
PIPE SLOPE 1 in X		16.67	10.77	50.00	9.09	7.69	20.00	40.00	14.81	11.76	14.29	19.23	12.50	22.22	25.00	75.68	250.03	250.09
FULL PIPE FLOW VELOCITY (m/s)		0.35(0.14 1y)	1.46(0.56 1y)	2.39 (1.86 1y)	5.82 (4.82 1y)	6.26 (5.62 1y)	2.93(1.85 1y)	2.97(1.85 1y)	2.97(1.85 1y)	2.97(1.85 1y)	3.35(1.92 1y)	3.61(1.92 1y)	3.96(2.06 1y)	3.49(1.67 1y)	3.56(1.68 1y)	2.83(1.33 1y)	1.93(0.91 1y)	1.93(0.91 1y)
PART FULL FLOW VELOCITY (m/s)		2.41 (1.86 1y)	4.23 (3.22 1y)				4.37 (3.93 1y)		4.94 (4.39 1y)	5.39 (4.78 1y)	5.62 (4.88 1y)		6.14 (5.23 1y)					
		DATUM RL 77.0				70.0			63.0			57.0			50.0			
WATER LEVEL IN STRUCTURE	92.851	90.916	89.595	88.594	84.517	81.843	78.892	78.740	75.191	73.249	71.118	69.493	67.093	66.505	64.597	64.152	63.818	63.490
HYDRAULIC GRADE LEVEL	92.851	92.555 / 90.846	90.655 / 89.577	89.532 / 88.550	87.139 / 84.517	84.256 / 81.843	80.600 / 78.892	78.757 / 78.608	77.799 / 75.064	74.313 / 73.249	72.591 / 71.118	70.792 / 69.373	68.374 / 67.093	66.838 / 66.324	65.161 / 64.597	64.577 / 64.035	63.757 / 63.733	63.497 / 63.490
PIPE FLOW (Cumecs)		0.039	0.161	0.161	0.456	0.465	0.465	0.473	0.473	0.473	0.750	0.807	0.887	1.020	1.040	1.043	1.043	1.043
PIPE CAPACITY AT GRADE (Cumecs)		0.429	0.534	0.248	0.581	0.632	0.637	0.450	0.740	0.831	1.190	1.025	1.272	1.360	1.283	1.004	0.837	0.837
DEPTH TO INVERT		1.258 / 1.123	1.143 / 1.111	1.131 / 1.155	3.041 / 1.108	2.627 / 0.886	3.056 / 1.017	1.140 / 1.032	1.548 / 1.216	1.353 / 1.172	1.215 / 1.179	1.499 / 2.287	2.307 / 1.563	1.819 / 1.670	2.297 / 1.678	1.698 / 1.156	1.198 / 1.013	1.038 / 0.000
INVERT LEVEL OF DRAIN		92.479 / 90.300	90.280 / 89.177	89.157 / 88.650	86.764 / 85.400	83.881 / 82.320	80.150 / 78.123	78.000 / 77.865	77.349 / 74.000	73.863 / 72.100	72.057 / 70.470	70.150 / 67.860	67.840 / 66.156	65.900 / 64.985	64.358 / 63.500	63.480 / 62.978	62.936 / 62.920	62.895 / 62.890
DESIGN SURFACE LEVEL	93.737	91.423	90.288	89.805	86.508	83.206	79.140	78.897	75.216	73.272	71.649	70.147	67.719	66.655	65.178	64.134	63.933	62.890
SETOUT	E 494331.730	N 7055820.712 / E 494302.484	N 7055842.230 / E 494298.404	N 7055853.379 / E 494292.804	N 7055878.121 / E 494290.044	N 7055890.209 / E 494286.820	N 7055901.772 / E 494284.886	N 7055942.268 / E 494284.595	N 7055947.669 / E 494235.698	N 7055956.071 / E 494232.211	N 7055976.515 / E 494231.739	N 7055999.179 / E 494233.176	N 7056043.186 / E 494215.268	N 7056054.249 / E 494198.599	N 7056065.905 / E 494201.580	N 7056087.147 / E 494215.349	N 7056122.555 / E 494219.251	N 7056123.107 / E 494219.871	N 7056124.090
RUNNING CHAINAGE	0.000	36.309 / 36.309	11.872 / 48.181	25.368 / 73.549	12.399 / 85.948	12.004 / 97.952	40.542 / 138.494	5.409 / 143.903	49.614 / 193.517	20.739 / 214.256	22.669 / 236.925	44.030 / 280.955	21.050 / 302.005	20.340 / 322.345	21.450 / 343.795	37.991 / 381.786	3.941 / 385.727	1.162 / 386.889

STRUCTURE NAME	1/5	2/5	3/5	4/5	5/5	6/5	7/5	4/3
STRUCTURE DESCRIPTION	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1050ø MANHOLE AS PER IPWEA STD DRG DS-010
PIPE SIZEmm (Class)	150(U)	225(U)	225(U)	225(U)	300(U)	300(U)	375(2)	
PIPE GRADE %	6.50%	5.00%	2.00%	2.00%	1.00%	1.50%	5.00%	
PIPE SLOPE 1 in X	15.38	20.00	50.00	50.00	100.00	66.67	20.00	
FULL PIPE FLOW VELOCITY (m/s)	1.07(1.07 1y)	0.87(0.87 1y)	1.31(1.31 1y)	1.75(1.75 1y)	1.10(1.10 1y)	1.38(1.38 1y)	1.09(1.09 1y)	
PART FULL FLOW VELOCITY (m/s)	2.49 (2.49 1y)	2.67 (2.67 1y)						
	RL 77.0							
WATER LEVEL IN STRUCTURE	92.815 / 90.857	89.806	89.561	89.088	89.000	88.735	88.594	
HYDRAULIC GRADE LEVEL	92.815 / 92.560 / 90.857	90.850 / 89.797	89.756 / 89.537	89.443 / 89.040	89.039 / 88.988	88.942 / 88.709	88.635 / 88.550	87.139
PIPE FLOW (Cumecs)	0.020	0.040	0.060	0.080	0.080	0.100	0.120	
PIPE CAPACITY AT GRADE (Cumecs)	0.050	0.143	0.090	0.090	0.118	0.145	0.392	
DEPTH TO INVERT	0.656 / 0.830	0.850 / 0.792	0.812 / 0.773	0.793 / 0.783	0.803 / 1.152	1.152 / 1.606	1.626 / 3.021	
INVERT LEVEL OF DRAIN	92.405 / 90.628	90.608 / 89.387	89.367 / 88.870	88.850 / 88.334	88.314 / 88.202	88.202 / 87.711	87.691 / 86.784	
DESIGN SURFACE LEVEL	93.061 / 91.458	90.179	89.643	89.117	89.354	89.317	89.805	
SETOUT	E 494331.828 / N 7055764.365 / E 494308.299	N 7055778.285 / E 494288.079	N 7055791.987 / E 494270.895	N 7055809.958 / E 494260.628	N 7055833.609 / E 494262.614	N 7055844.592 / E 494274.956	N 7055878.891 / E 494292.804	N 7055878.121
RUNNING CHAINAGE	0.000 / 27.338	24.425 / 51.763	24.865 / 76.628	25.783 / 102.411	11.161 / 113.572	32.716 / 146.288	18.138 / 164.426	

LINE 3 5

NOTE
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Q100 LONGITUDINAL SECTIONS

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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STRUCTURAL
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER LONGITUDINAL SECTION SHEET 2 OF 4 Q100 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD205 REV. B

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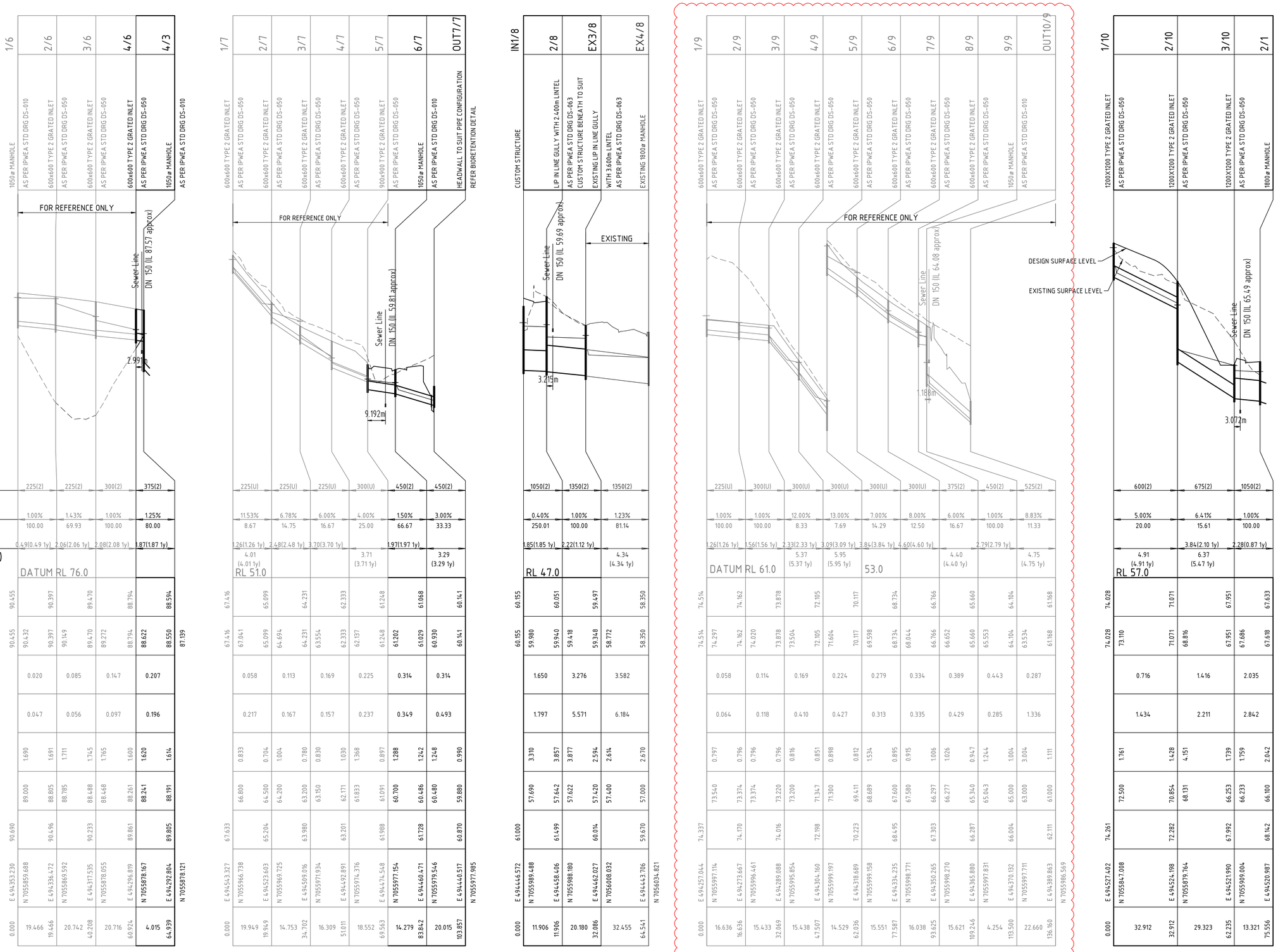

STRUCTURE NAME	1/6	2/6	3/6	4/6	4/3
STRUCTURE DESCRIPTION	1050ø MANHOLE	AS PER IPWEA STD DRG DS-010	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1050ø MANHOLE AS PER IPWEA STD DRG DS-010
PIPE SIZEmm (Class)		225(2)	225(2)	300(2)	375(2)
PIPE GRADE %		1.00%	1.43%	1.00%	1.25%
PIPE SLOPE 1 in X		100.00	69.93	100.00	80.00
FULL PIPE FLOW VELOCITY (m/s)		0.49(0.49 1y)	2.06(2.06 1y)	2.08(2.08 1y)	1.87(1.87 1y)
PART FULL FLOW VELOCITY (m/s)					
WATER LEVEL IN STRUCTURE	90.455		90.397	89.470	88.794	88.594
HYDRAULIC GRADE LEVEL	90.455	90.432	90.397	90.149	89.470	89.272	88.794	88.622	88.550	87.139
PIPE FLOW (Cumecs)		0.020	0.085	0.147	0.207
PIPE CAPACITY AT GRADE (Cumecs)		0.047	0.056	0.097	0.196
DEPTH TO INVERT		1.690	1.691	1.711	1.745	1.765	1.600	1.620	1.614
INVERT LEVEL OF DRAIN		89.000	88.805	88.785	88.488	88.468	88.261	88.241	88.191
DESIGN SURFACE LEVEL	90.690		90.496	90.233	89.861	89.805
SETOUT		E 494353.230 N 7055859.688	E 494336.472 N 7055869.592	E 494317.535 N 7055878.055	E 494296.819 N 7055878.167	E 494292.804 N 7055878.121
RUNNING CHAINAGE	0.000	19.466 19.466	20.742 40.208	20.716 60.924	4.015 64.939

LINE 6

STRUCTURE NAME	1/7	2/7	3/7	4/7	5/7	6/7	OUT7/7
STRUCTURE DESCRIPTION	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	900x900 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1050ø MANHOLE AS PER IPWEA STD DRG DS-010	HEADWALL TO SUIT PIPE CONFIGURATION REFER BIORETENTION DETAIL
PIPE SIZEmm (Class)	225(U)	225(U)	225(U)	300(U)	450(2)	450(2)
PIPE GRADE %	11.53%	6.78%	6.00%	4.00%	1.50%	3.00%
PIPE SLOPE 1 in X	8.67	14.75	16.67	25.00	66.67	33.33
FULL PIPE FLOW VELOCITY (m/s)	1.26(1.26 1y)	2.48(2.48 1y)	3.70(3.70 1y)	1.97(1.97 1y)	
PART FULL FLOW VELOCITY (m/s)	4.01 (4.01 1y)	3.71 (3.71 1y)	3.29 (3.29 1y)
WATER LEVEL IN STRUCTURE	67.416	65.099	64.231	62.333	61.248	61.068	60.141
HYDRAULIC GRADE LEVEL	67.416	67.041	65.099	64.694	64.231	63.554	62.333	62.137	61.248	61.202	61.029	60.930	60.141
PIPE FLOW (Cumecs)		0.058	0.113	0.169	0.225	0.314	0.314
PIPE CAPACITY AT GRADE (Cumecs)		0.217	0.167	0.157	0.237	0.349	0.493
DEPTH TO INVERT		0.833	0.704	1.004	0.780	0.830	1.030	1.368	0.897	1.288	1.242	1.248	0.990
INVERT LEVEL OF DRAIN		66.800	64.500	64.200	63.200	63.150	62.171	61.833	61.091	60.700	60.486	60.480	59.880
DESIGN SURFACE LEVEL	67.633		65.204		63.980		63.301		61.988		61.728		60.870
SETOUT	E 494543.327 N 7055966.738	E 494523.603 N 7055969.725	E 494509.016 N 7055971.934	E 494492.891 N 7055974.376	E 494474.548 N 7055977.154	E 494460.471 N 7055979.546	E 494440.517 N 7055977.985
RUNNING CHAINAGE	0.000	19.949 19.949	14.753 34.702	16.309 51.011	18.552 69.563	14.279 83.842	20.015 103.857

LINE 7

STRUCTURE NAME	IN1/8	2/8	EX3/8	EX4/8
STRUCTURE DESCRIPTION	CUSTOM STRUCTURE	LIP IN LINE GULLY WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063 CUSTOM STRUCTURE BENEATH TO SUIT	EXISTING LIP IN LINE GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063	EXISTING 1800ø MANHOLE
PIPE SIZEmm (Class)	1050(2)	1350(2)	1350(2)
PIPE GRADE %	0.40%	1.00%	1.23%
PIPE SLOPE 1 in X	250.01	100.00	81.14
FULL PIPE FLOW VELOCITY (m/s)	1.85(1.85 1y)	2.22(1.12 1y)	
PART FULL FLOW VELOCITY (m/s)	RL 47.0	4.34 (4.34 1y)
WATER LEVEL IN STRUCTURE	60.155	60.051	59.497	58.350
HYDRAULIC GRADE LEVEL	60.155	59.980	59.940	59.418	59.348	58.772	58.350
PIPE FLOW (Cumecs)	1.650	3.276	3.582
PIPE CAPACITY AT GRADE (Cumecs)	1.797	5.571	6.184
DEPTH TO INVERT	3.310	3.857	3.877	2.594	2.614	2.670
INVERT LEVEL OF DRAIN	57.690	57.642	57.622	57.420	57.400	57.000
DESIGN SURFACE LEVEL	61.000	61.499	60.014	59.670
SETOUT	E 494446.572 N 7055989.488	E 494458.406 N 7055988.180	E 494462.027 N 7056008.032	E 494443.706 N 7056034.821
RUNNING CHAINAGE	0.000	11.906 11.906	20.180 32.086	32.455 64.541

LINE 8

STRUCTURE NAME	1/9	2/9	3/9	4/9	5/9	6/9	7/9	8/9	9/9	OUT10/9
STRUCTURE DESCRIPTION	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	600x600 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1050ø MANHOLE AS PER IPWEA STD DRG DS-010
PIPE SIZEmm (Class)	225(U)	300(U)	300(U)	300(U)	300(U)	300(U)	375(2)	450(2)	525(2)
PIPE GRADE %	1.00%	1.00%	12.00%	13.00%	7.00%	8.00%	6.00%	1.00%	8.83%
PIPE SLOPE 1 in X	100.00	100.00	8.33	7.69	14.29	12.50	16.67	100.00	11.33
FULL PIPE FLOW VELOCITY (m/s)	1.26(1.26 1y)	1.56(1.56 1y)	2.33(2.33 1y)	3.09(3.09 1y)	3.84(3.84 1y)	4.60(4.60 1y)	2.79(2.79 1y)	
PART FULL FLOW VELOCITY (m/s)	DATUM RL 61.0	5.37 (5.37 1y)	5.95 (5.95 1y)	53.0	4.40 (4.40 1y)	4.75 (4.75 1y)
WATER LEVEL IN STRUCTURE	74.514	74.162	73.878	72.105	70.117	68.734	66.766	65.660	64.104	61.168
HYDRAULIC GRADE LEVEL	74.514	74.297	74.162	74.020	73.878	73.504	72.105	71.604	70.117	69.598	68.734	68.044	66.766	66.652	65.660	65.553	64.104	63.534	61.168
PIPE FLOW (Cumecs)	0.058	0.114	0.169	0.224	0.279	0.334	0.389	0.443	0.287
PIPE CAPACITY AT GRADE (Cumecs)	0.064	0.118	0.410	0.427	0.313	0.335	0.429	0.285	1.336
DEPTH TO INVERT		0.797	0.796	0.796	0.796	0.816	0.851	0.898	0.812	1.534	0.895	0.915	1.006	1.026	0.947	1.244	1.004	3.004	1.111
INVERT LEVEL OF DRAIN		73.540	73.374	73.374	73.220	73.200	71.347	71.300	69.411	68.689	67.600	67.580	66.297	66.277	65.340	65.043	65.000	63.000	61.000
DESIGN SURFACE LEVEL	74.337		74.170		74.016		72.198		70.223		68.495		67.303		66.287		66.004		62.111
SETOUT	E 494257.044 N 7055997.114	E 494273.667 N 7055996.461	E 494289.088 N 7055995.854	E 494304.160 N 7055993.197	E 494318.689 N 7055993.158	E 494334.235 N 7055998.771	E 494350.265 N 7055998.270	E 494365.880 N 7055997.831	E 494370.132 N 7055997.711	E 494389.863 N 7055986.569
RUNNING CHAINAGE	0.000	16.636 16.636	15.433 32.069	15.438 47.507	14.529 62.036	15.551 77.587	16.038 93.625	15.621 109.246	4.254 113.500	22.660 136.160

LINE 9

STRUCTURE NAME	1/10	2/10	3/10	2/1
STRUCTURE DESCRIPTION	1200X1200 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1200X1200 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1200X1200 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1800ø MANHOLE AS PER IPWEA STD DRG DS-010
PIPE SIZEmm (Class)	600(2)	675(2)	1050(2)
PIPE GRADE %	5.00%	6.41%	1.00%
PIPE SLOPE 1 in X	20.00	15.61	100.00
FULL PIPE FLOW VELOCITY (m/s)	3.84(2.10 1y)	2.28(0.87 1y)
PART FULL FLOW VELOCITY (m/s)	4.91 (4.91 1y) RL 57.0	6.37 (5.47 1y)
WATER LEVEL IN STRUCTURE	74.028	71.071	67.951	67.633
HYDRAULIC GRADE LEVEL	74.028	73.110	71.071	68.816	67.951	67.686	67.618	67.146
PIPE FLOW (Cumecs)	0.716	1.416	2.035
PIPE CAPACITY AT GRADE (Cumecs)	1.434	2.211	2.842
DEPTH TO INVERT	1.761	1.428	4.151	1.739	1.759	2.042
INVERT LEVEL OF DRAIN	72.500	70.854	68.131	66.253	66.233	66.100
DESIGN SURFACE LEVEL	74.261	72.282	67.992	68.142
SETOUT	E 494527.402 N 7055841.008	E 494524.198 N 7055819.764	E 494521.990 N 7055909.004	E 494520.987 N 7055922.287
RUNNING CHAINAGE	0.000	32.912 32.912	29.323 62.235	13.321 75.556

LINE 10

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Q100 LONGITUDINAL SECTIONS

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER LONGITUDINAL SECTION SHEET 3 OF 4 Q100 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD206 REV. B

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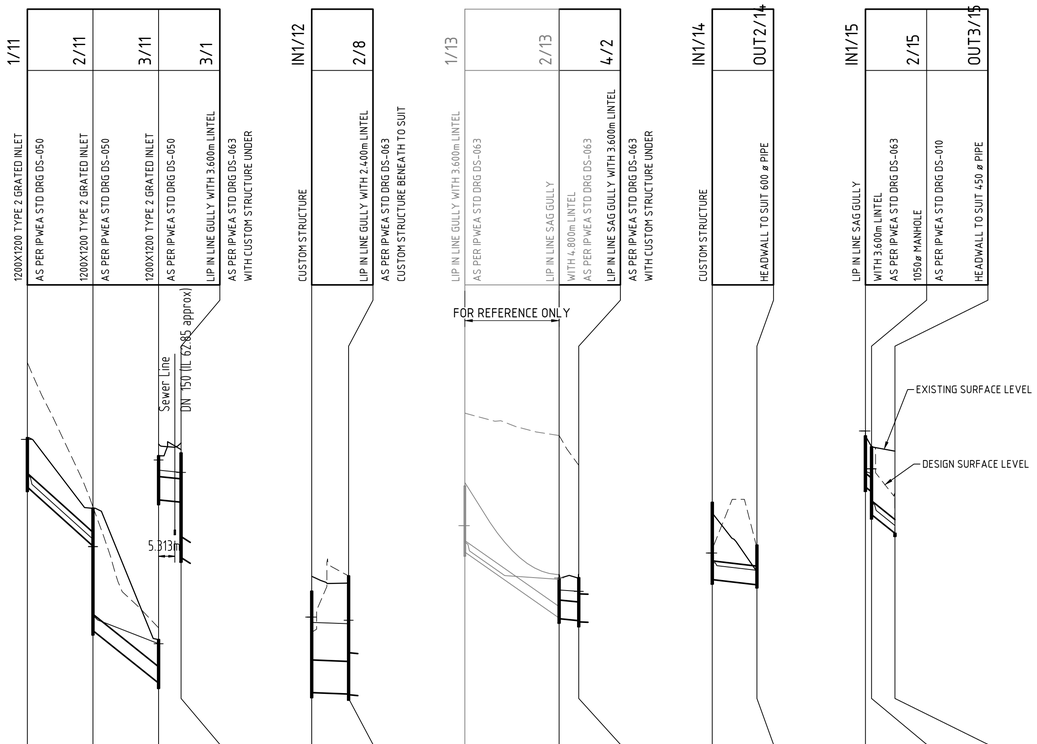

STRUCTURE NAME	1/11	2/11	3/11	3/1	IN1/12	2/8	1/13	2/13	4/2	IN1/14	OUT2/14	IN1/15	2/15	OUT3/15
STRUCTURE DESCRIPTION	1200X1200 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1200X1200 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	1200X1200 TYPE 2 GRATED INLET AS PER IPWEA STD DRG DS-050	LIP IN LINE GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063 WITH CUSTOM STRUCTURE UNDER	CUSTOM STRUCTURE LIP IN LINE GULLY WITH 2.400m LINTEL AS PER IPWEA STD DRG DS-063 CUSTOM STRUCTURE BENEATH TO SUIT		LIP IN LINE GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE SAG GULLY WITH 4.800m LINTEL AS PER IPWEA STD DRG DS-063	LIP IN LINE SAG GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063 WITH CUSTOM STRUCTURE UNDER	CUSTOM STRUCTURE HEADWALL TO SUIT 600 ø PIPE		LIP IN LINE SAG GULLY WITH 3.600m LINTEL AS PER IPWEA STD DRG DS-063	1050ø MANHOLE AS PER IPWEA STD DRG DS-010 HEADWALL TO SUIT 450 ø PIPE	
PIPE SIZEmm (Class)	450(2)	525(2)	750(2)		1050(2)		375(2)		600(2)	600(2)		450(2)	450(2)	
PIPE GRADE %	9.00%	8.00%	1.00%		0.40%		7.00%		1.00%	1.17%		8.00%	8.00%	
PIPE SLOPE 1 in X	11.11	12.50	100.00		250.00		14.29		100.00	85.72		12.50	12.50	
FULL PIPE FLOW VELOCITY (m/s)		3.80(2.00 1y)	2.56(0.98 1y)		1.85(1.85 1y)		1.32(0.60 1y)		1.83(0.62 1y)			3.12(1.19 1y)		
PART FULL FLOW VELOCITY (m/s)	5.38 (5.38 1y)	6.08 (5.18 1y)					3.72 (2.97 1y)			2.70 (2.70 1y)			5.33 (4.14 1y)	
	DATUM RL 57.0		RL 51.0											
WATER LEVEL IN STRUCTURE	71.956	68.456	65.285	64.877	60.155	60.051	63.139	61.434	60.995	62.246	61.682	66.230	64.996	63.145
HYDRAULIC GRADE LEVEL	71.956 / 70.850	68.456 / 66.248	65.285 / 64.951	64.877 / 62.784	60.155 / 59.981	59.940 / 59.418	63.139 / 62.652	61.388	61.040 / 60.995 / 60.914	62.246 / 61.990	61.682	66.230 / 64.906	64.845 / 63.952	63.145
PIPE FLOW (Cumecs)	0.428	0.850	1.168		1.650		0.146		0.535	0.655		0.496	0.496	
PIPE CAPACITY AT GRADE (Cumecs)	0.855	1.272	1.161		1.797		0.464		0.641	0.693		0.806	0.806	
DEPTH TO INVERT	1.610	1.238 / 3.996	1.422 / 1.442	1.605	3.310	3.857	2.162	1.311	1.331	2.520	1.295	1.666	1.473 / 2.215	0.000
INVERT LEVEL OF DRAIN	70.400	68.472 / 65.714	64.000 / 63.980	63.907	57.690	57.642	62.277	60.123	60.103 / 60.039	61.380	61.210	64.404	64.244 / 63.502	62.890
DESIGN SURFACE LEVEL	72.010	69.710	65.422	65.512	61.000	61.499	64.439	61.434	61.440	63.900	62.505	66.070	65.717	62.890
SETOUT	E 494476.210 N 7055879.621	E 494480.008 N 7055900.703	E 494483.806 N 7055921.785	E 494485.107 N 7055929.905	E 494446.382 N 7055987.483	E 494458.406 N 7055988.180	E 494391.679 N 7055953.996	E 494422.414	N 7055954.911 E 494422.077 N 7055961.313	E 494232.676 N 7056147.422	E 494219.947 N 7056154.516	E 494227.174 N 7056111.342	E 494225.350 N 7056112.162	E 494229.105 N 7056118.830
RUNNING CHAINAGE	0.000 / 21.421	21.421 / 21.421	42.842 / 7.336	50.178	0.000 / 12.044	12.044	0.000 / 30.777	30.777	6.411 / 37.188	0.000 / 14.572	14.572	0.000 / 2.000	2.000 / 7.653	9.653
LINE	11				12		13			14		15		

Q100 LONGITUDINAL SECTIONS

NOTE
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SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CONTACT DETAILS
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER LONGITUDINAL SECTION SHEET 4 OF 4 Q100 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD207
REV. B

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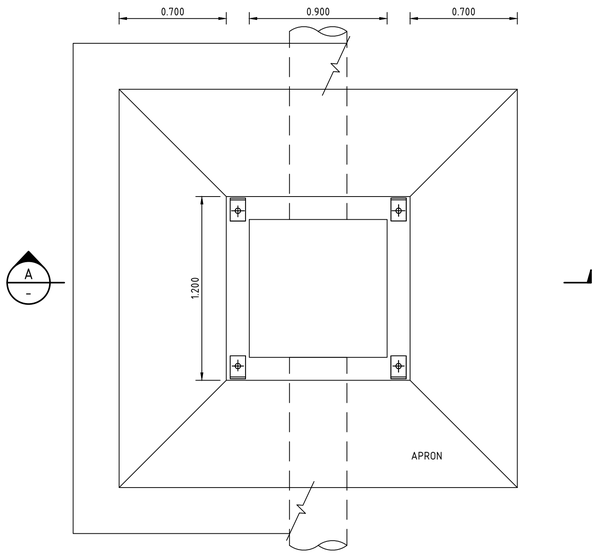
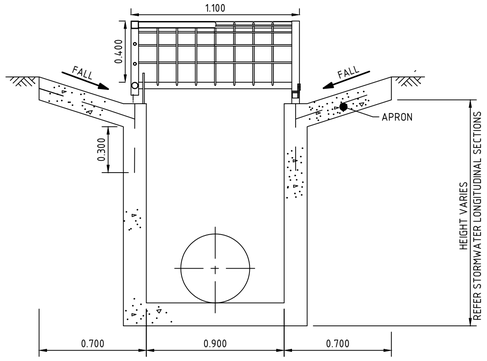


PLAN
SCALE 1:20



SECTION A
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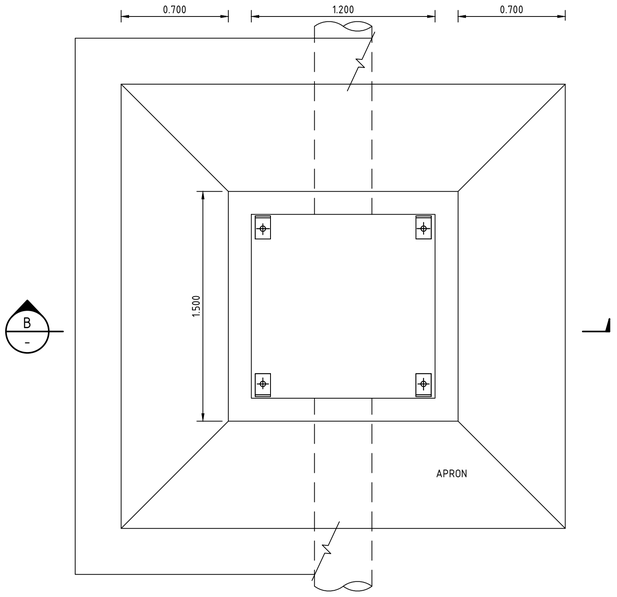
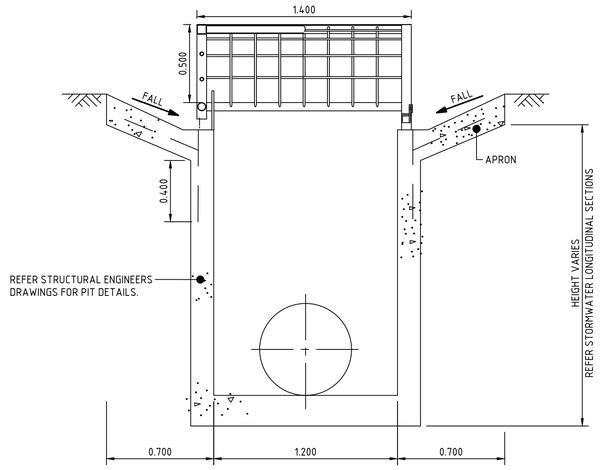


PLAN
SCALE 1:20



SECTION B
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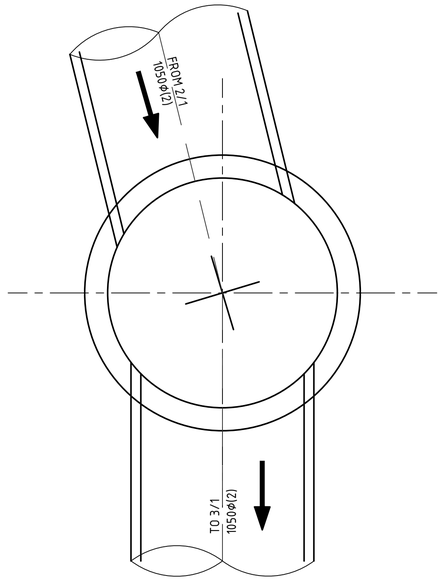
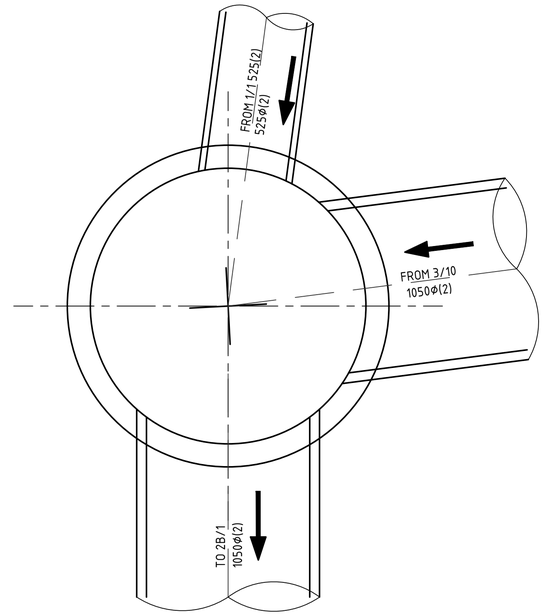
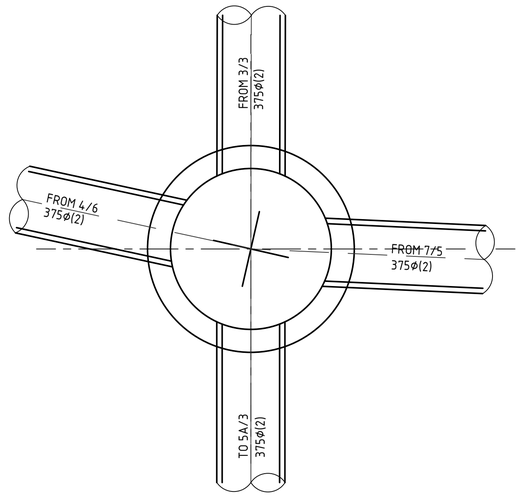


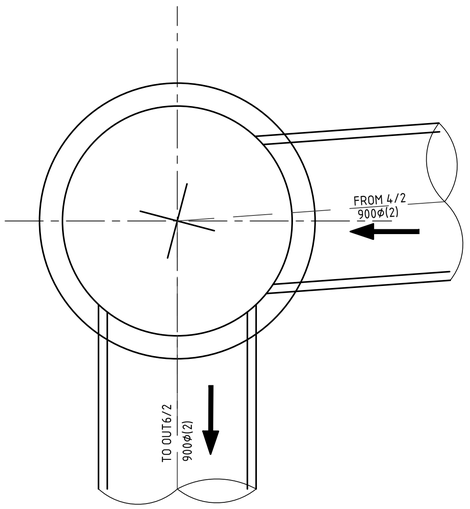
MANHOLE 2B/1 DETAIL
SCALE 1:20



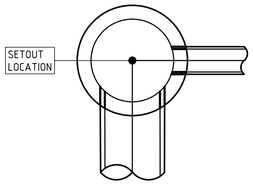
MANHOLE 2/1 DETAIL
SCALE 1:20



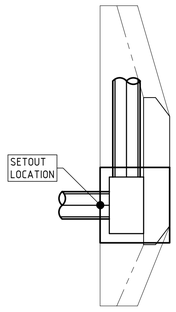
MANHOLE 4/3 DETAIL
SCALE 1:20



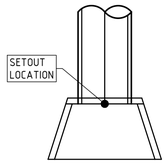
MANHOLE 5/2 DETAIL
SCALE 1:20



STORMWATER MANHOLE
SETOUT LOCATION



STORMWATER GULLY
SETOUT LOCATION



STORMWATER HEADWALL
SETOUT LOCATION

SCALE 1:20 (A1) 0 400 800 1200mm
(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DETAILS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CD300		B

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LEGEND

CATCHMENT AREA

CATCHMENT AREAS

CATCHMENT NAME	AREA (HA)
EX5/8	1.5080
2/8	0.0090
2/6	0.0590
3/6	0.0550
4/6	0.0540
1/3	0.0500
2/3	0.1480
5A/3	0.0180
6/3	0.0230
9/3	0.5510
10/3	0.0150
11/3	0.1680
12/3	0.1100
13/3	0.0330
14/3	0.0100
IN1/15	0.7170
EX1/4	2.0700
1/10	0.9900
1/1	0.3710
2B/1	0.4220
1/11	1.7900
3/1	0.1560
5A/1	0.2260
5B/1	0.2540
1/9	0.0830

CATCHMENT AREAS

CATCHMENT NAME	AREA (HA)
2/9	0.0620
3/9	0.0620
4/9	0.0640
5/9	0.0620
6/9	0.0590
7/9	0.6000
8/9	0.6000
1/2	0.3690
2/2	0.0700
3/2	0.0220
1/13	0.1720
2/13	0.3310
4/2	0.0490
1/7	0.0900
2/7	0.6500
3/7	0.6000
4/7	0.6000
5/7	0.0080
1/5	0.0880
2/5	0.0870
3/5	0.0800
4/5	0.0600
5/5	0.0615
6/5	0.0830

PLAN
SCALE 1:1000

SCALE 1:1000 (A1) 0 20 40 60m
(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER CATCHMENT PLAN

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD400
REV. B

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LOCATION					TIME			SUB-CATCHMENT RUNOFF						INLET DESIGN							DRAIN DESIGN														HEADLOSSES						PART FULL						DESIGN LEVELS						
						tc	I	C10	C	A	C×A	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T			V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp								
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C x A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.GL	UPSTREAM H.GL	LAT. H.GL	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.
yrs					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m	%	m	m	m/s	m	m	m	m	m	m	
2 2	IN1/12	IN1/12 to IN1A/12															26				5.00 5.00	154 154	3.857 3.857	1650		Additional (Pipe flow=	1650 flow 1.650 Sum upstr	1.600 cumecs atten flows)	0.40	1050(2)R	85(1.85 ty) (2.01)	0.01			0.174	1.00	0.175			1.00	0.175	0.34	0.005			58.772 58.766	60.046 60.041	60.221		60.221	59.533	IN1/12
2 2	IN1A/12	IN1A/12 to 2/8															26				5.01 5.01	154 154	3.857 3.857	1650		(Pipe flow=	1650 Sum upstr	12.044 atten flows)	0.40	1050(2)R	85(1.85 ty) (2.01)	0.11		Qo 1.650 Do 1050 CHART 50 Du/Do1.00 alpha 2 K'w 0.13 Vu 1.91 WSE 0.08 Ku 0.34 Kw 0.48	0.174	0.34	0.059			0.48	0.083	0.34	0.041			58.754 58.706	59.982 59.941	60.041		60.065	59.592	IN1A/12
2 2	IN1/8	IN1/8 to IN1A/8															26				5.00 5.00	154 154	3.857 3.857	1650		Additional (Pipe flow=	1650 flow 1.650 Sum upstr	1.613 cumecs atten flows)	0.40	1050(2)R	85(1.85 ty) (2.01)	0.01			0.174	1.00	0.175			1.00	0.175	0.34	0.005			58.772 58.766	60.058 60.053	60.233		60.233	59.579	IN1/8
2 2	IN1A/8	IN1A/8 to 2/8															26				5.01 5.01	154 154	3.857 3.857	1650		(Pipe flow=	1650 Sum upstr	11.906 atten flows)	0.40	1050(2)R	85(1.85 ty) (2.01)	0.11		Qo 1.650 Do 1050 CHART 50 Du/Do1.00 alpha 7 K'w 0.17 Vu 1.91 WSE 0.10 Ku 0.41 Kw 0.59	0.174	0.41	0.072			0.59	0.103	0.34	0.040			58.754 58.706	59.981 59.941	60.053		60.084	59.632	IN1A/8
2 2	2/8	2/8 to EX3/8	2/8			5.00 5.00	154 154		0.75 0.75	0.009 0.009	0.007 0.007	0.007 0.007	3 3	3	7.67	514	7	3 (UNLOCKED	0	EX3/8	5.12 5.12	153 153	7.721 7.721	3282		(Pipe flow=	3282 Sum upstr	20.180 atten flows)	1.00	1350(2)R	22(2.22 ty) (3.77)	0.15		Qg 0.003 Qo 3.282 Do 1350 Routine 2.15 Join Pipes: IN1A/12 and IN1A/8 Vel1.1893 Vel2.1893 Eq Dia 1484 Angle 261 Flow 3.279 Angle 81 Chart 47 S/Do 2.5 chartdeg Du/Do 1.10 K0 1.90 K0.5 2.00 Qu/Qo 1.00 Cg 0.00 K 1.90	0.251	2.08	0.523	S/Do 2.0 S/Do 1.5 Interp va CHART 46 S/Do 2.0 S/Do 1.5 Interp va	K0 2.41 K0.5 K0 2.65 K0.5 for S/Do 1.77 Kw 2.5 K0 2.07 K0.5 K0 2.09 K0.5 for S/Do 1.77 Ku 2.08	2.52 2.40 K 2.41 2.52 K 2.65 K 2.07 2.31 K 2.09	0.633	0.35	0.070			58.994 58.792	59.418 59.348	59.941		60.051	61.499	2/8
2 2	EX3/8	EX3/8 to EX4/8	2/8,EX3/8			8.00 8.00	130 130		0.65 0.65	1.308 1.308	0.850 0.850	0.850 0.850	307 307	307 FLOW WIDTH DOWNSTREAM	7.67 2.385 m 1.563m	514	8	180 (UNLOCKED	127	EX4/8	8.00 8.00	130 130	8.571 8.571	3095		(Pipe	3582 low set by	32.455 user)	1.23	1350(2)R	42(2.42 ty) (4.18)	0.22		Qg 0.794 Qo 3.582 Do 1350 Angle 44 Chart 39 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.80 K0.5 1.91 Qu/Qo 0.78 Cg 0.52 K 1.86 S/Do 2.0 K0 1.98 K0.5 2.10 K 2.04 S/Do 1.5 K0 2.39 K0.5 2.52 K 2.46	0.298	1.93	0.576	Interp va CHART 38 S/Do 2.0 S/Do 1.5 Interp va	for S/Do 1.53 Kw 2.43 K0 1.84 K0.5 K0 2.05 K0.5 for S/Do 1.53 Ku 1.95	2.43 1.75 K 1.72 1.84 K 1.95	0.725	0.41	0.134	0.749 (0.749 ty)	4.34 (4.34 ty)	58.772 58.372	58.772 58.350	59.348		59.497	60.014	EX3/8
2 2	**1/9**	**1/9 to 2/9**	**1/9**			**5.00 5.00**	**154 154**		**0.64 0.64**	**0.083 0.083**	**0.053 0.053**	**0.053 0.053**	**23 23**	**23 FLOW WIDTH/DEPTH 0.057Dp m**	**1.00**	**38**	**HD.08L2.4A.36**	**23 (UNLOCKED**	**0**	**2/9**	**5.00 5.00**	**154 154**	**0.053 0.100**	**43**		**Additional (Pipe flow=**	**43 flow: 0.020 Sum upstr**	**16.636 cumecs atten flows)**	**1.00**	**225(U)R**	**93(0.93 ty) (1.40)**	**0.28**		**Qg 0.043 Qo 0.043 Do 225 CHRT 32: Vo2/2gDo 0.18 H/Do 0.61 Kg side flow 4.93 end flow 4.04**	**0.044**	**4.93**	**0.217**			**4.93**	**0.217**	**0.45**	**0.074**			**73.782 73.615**	**73.928 73.854**	**74.145**		**74.145**	**74.337**	**1/9**
2 2	**2/9**	**2/9 to 3/9**	**1/9;2/9**			**5.00 5.00**	**154 154**		**0.64 0.64**	**0.062 0.062**	**0.040 0.040**	**0.040 0.040**	**17 17**	**17 FLOW WIDTH/DEPTH 0.047Dp m**	**1.00**	**38**	**HD.08L2.4A.36**	**17 (UNLOCKED**	**0**	**3/9**	**5.28 5.28**	**151 151**	**0.140 0.187**	**78**		**Additional (Pipe flow=**	**79 flow: 0.020 Sum upstr**	**15.433 cumecs atten flows)**	**1.00**	**300(U)R**	**108(1.08 ty) (1.63)**	**0.24**		**Qg 0.037 Qo 0.079 Do 300 CHART 33 Angle 0 S/Do 2.5 Du/Do 0.75 Qg/Qo 0.47 K 1.04 S/Do 1.58 cor 0.47 Ku 1.51 Kw 1.51**	**0.059**	**1.51**	**0.090**			**1.51**	**0.090**	**0.44**	**0.068**			**73.678 73.524**	**73.764 73.696**	**73.854**		**73.854**	**74.170**	**2/9**
2 2	**3/9**	**3/9 to 4/9**	**1/9;2/9;3/9**			**5.00 5.00**	**154 154**		**0.64 0.64**	**0.062 0.062**	**0.040 0.040**	**0.040 0.040**	**17 17**	**17 FLOW WIDTH/DEPTH 0.047Dp m**	**1.00**	**38**	**HD.08L2.4A.36**	**17 (UNLOCKED**	**0**	**4/9**	**5.52 5.52**	**149 149**	**0.227 0.276**	**114**		**Additional (Pipe flow=**	**114 flow: 0.020 Sum upstr**	**15.438 cumecs atten flows)**	**12.00**	**300(U)R**	**157(1.57 ty) (5.65)**	**0.16**		**Qg 0.037 Qo 0.114 Do 300 CHART 34 Angle 15 Case3 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.32 K 1.23 S/Do 1.63 cor 0.30 Ku 1.53 Kw 1.53**	**0.126**	**1.53**	**0.192**			**1.53**	**0.192**	**0.93**	**0.143**	**0.110 (0.110 ty)**	**4.84 (4.84 ty)**	**73.504 71.652**	**73.504 71.861**	**73.696**		**73.696**	**74.016**	**3/9**
2 2	**4/9**	**4/9 to 5/9**	**1/9;2/9;3/9;4/9**			**5.00 5.00**	**154 154**		**0.64 0.64**	**0.064 0.064**	**0.041 0.041**	**0.041 0.041**	**18 18**	**18 FLOW WIDTH/DEPTH 0.048Dp m**	**13.90**	**38**	**HD.08L2.4A.36**	**18 (UNLOCKED**	**0**	**5/9**	**5.68 5.68**	**147 147**	**0.317 0.366**	**149**		**Additional (Pipe flow=**	**149 flow: 0.020 Sum upstr**	**14.529 cumecs atten flows)**	**13.00**	**300(U)R**	**206(2.06 ty) (5.88)**	**0.12**		**Qg 0.037 Qo 0.149 Do 300 CHART 34 Angle 13 Case3 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.25 K 1.04 S/Do 1.85 cor 0.15 Ku 1.19 Kw 1.19**	**0.216**	**1.19**	**0.257**			**1.19**	**0.257**	**1.59**	**0.231**	**0.124 (0.124 ty)**	**5.36 (5.36 ty)**	**71.604 69.715**	**71.604 69.596**	**71.861**		**71.861**	**72.198**	**4/9**
2 2	**5/9**	**5/9 to 6/9**	**1/9;2/9;3/9;4/9;5/9**			**5.00 5.00**	**154 154**		**0.64 0.64**	**0.062 0.062**	**0.040 0.040**	**0.040 0.040**	**17 17**	**17 FLOW WIDTH/DEPTH 0.047Dp m**	**13.60**	**38**	**HD.08L2.4A.36**	**17 (UNLOCKED**	**0**	**6/9**	**5.80 5.80**	**146 146**	**0.406 0.455**	**185**		**Additional (Pipe flow=**	**185 flow: 0.020 Sum upstr**	**15.551 cumecs atten flows)**	**9.00**	**300(U)R**	**254(2.54 ty) (4.89)**	**0.10**		**Qg 0.036 Qo 0.185 Do 300 Flow 4/9 made eqv grate flow CHRT 32: Vo2/2gDo 1.08 H/Do 0.00 Kg side flow 2.73 end flow 2.53 K vals above for stepped pipes as grate flow grate flow decreased by 0.148 from 4/9**	**0.329**	**0.89**	**0.292**	**CHART 33 Angle 1 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.20 K 0.80 S/Do 1.96 cor 0.09 Ku 0.89 Kw 0.89 K vals step pipes as pipe flow Ku 0.89 Kw 0.89**			**0.89**	**0.292**	**2.43**	**0.378**	**0.156 (0.156 ty)**	**4.94 (4.94 ty)**	**69.304 67.904**	**69.304 68.230**	**69.596**		**69.596**	**70.223**	**5/9**
2 2	**6/9**	**6/9 to 7/9**	**1/9;2/9;3/9;4/9;5/9 ;6/9**			**5.00 5.00**	**154 154**		**0.64 0.64**	**0.059 0.059**	**0.038 0.038**	**0.038 0.038**	**16 16**	**16 FLOW WIDTH/DEPTH 0.045Dp m**	**9.00**	**38**	**HD.08L2.4A.36**	**16 (UNLOCKED**	**0**	**7/9**	**5.90 5.90**	**145 145**	**0.493 0.543**	**219**		**Additional (Pipe flow=**	**219 flow: 0.020 Sum upstr**	**16.038 cumecs atten flows)**	**8.00**	**300(U)R**	**301(3.01 ty) (4.61)**	**0.09**		**Qg 0.035 Qo 0.219 Do 300 CHART 33 Angle 1 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.16 K 0.70 S/Do 2.13 cor 0.05 Ku 0.75 Kw 0.75**	**0.462**	**0.75**	**0.346**			**0.75**	**0.346**	**3.41**	**0.547**	**0.179 (0.179 ty)**	**4.91 (4.91 ty)**	**67.884 66.601**	**67.884 66.703**	**68.230**		**68.230**	**68.495**	**6/9**
2 2	**7/9**	**7/9 to 8/9**	**1/9;2/9;3/9;4/9;5/9 ;6/9;7/9**			**5.00 5.00**	**154 154**		**0.64 0.64**	**0.060 0.060**	**0.038 0.038**	**0.038 0.038**	**16 16**	**16 FLOW WIDTH/DEPTH 0.045Dp m**	**7.15**	**38**	**HD.08L2.4A.36**	**16 (UNLOCKED**	**0**	**8/9**	**5.99 5.99**	**145 145**	**0.581 0.630**	**254**		**Additional (Pipe flow=**	**254 flow: 0.020 Sum upstr**	**15.621 cumecs atten flows)**	**6.00**	**375(2)R**	**230(2.30 ty) (3.89)**	**0.11**		**Qg 0.035 Qo 0.254 Do 375 CHART 33 Angle 0 S/Do 2.5 Du/Do 0.80 Qg/Qo 0.14 K -0.03 S/Do 1.13 cor 0.22 Ku 0.19 Kw 0.19**	**0.270**	**0.19**	**0.051**			**0.19**	**0.051**	**2.10**	**0.328**	**0.208 (0.208 ty)**	**4.05 (4.05 ty)**	**66.652 65.715**	**66.652 65.547**	**66.703**		**66.703**	**67.303**	**7/9**
2 2	**8/9**	**8/9 to 9/9**	**1/9;2/9;3/9;4/9;5/9 ;6/9;7/9;8/9**			**5.00 5.00**	**154 154**		**0.64 0.64**	**0.060 0.060**	**0.038 0.038**	**0.038 0.038**	**16 16**	**16 FLOW WIDTH/DEPTH 0.045Dp m**	**6.40**	**38**	**HD.08L2.4A.36**	**16 (UNLOCKED**	**0**		**6.10 6.10**	**144 144**	**0.668 0.718**	**287**		**Additional (Pipe flow=**	**287 flow: 0.020 Sum upstr**	**4.254 cumecs atten flows)**	**1.00**	**450(2)R**	**181(1.81 ty) (1.79)**	**0.04**		**Qg 0.035 Qo 0.287 Do 450 Flow 7/9 made eqv grate flow CHRT 32: Vo2/2gDo 0.37 H/Do 0.00 Kg side flow 4.42 end flow 3.78 K vals above for stepped pipes as grate flow grate flow decreased by 0.252 from 7/9**	**0.167**	**0.30**	**0.050**	**CHART 33 Angle 0 S/Do 2.5 Du/Do 0.83 Qg/Qo 0.12 K 0.10 S/Do 1.11 cor 0.20 Ku 0.30 Kw 0.30 K vals step pipes as pipe flow Ku 0.30 Kw 0.30**			**0.30**	**0.050**	**1.02**	**0.043**			**65.493 65.450**	**65.493 65.450**	**65.543**		**65.543**	**66.287**	**8/9**
2 2	**9/9**	**9/9 to OUT10/9**	**1/9;2/9;3/9;4/9;5/9 ;6/9;7/9;8/9**														**24**				**6.14 6.14**	**143 143**	**0.718 0.718**	**285**		**(Pipe flow=**	**287 Sum upstr**	**22.660 atten flows)**	**8.83**	**525(2)R**	**128(1.28 ty) (5.97)**	**0.30**		**Qo 0.287 Do 525 Flow 8/9 made eqv grate flow CHRT 32: Vo2/2gDo 0.16 H/Do 0.00 Kg side flow 6.83 end flow 5.40 K vals above for stepped pipes as grate flow**	**0.084**	**6.83**	**0.570**			**6.83**	**0.570**	**0.41**	**0.093**	**0.168 (0.168 ty)**	**4.75 (4.75 ty)**	**63.534 61.534**	**63.534 61.177**	**64.104**		**64.104**	**66.004**	**9/9**
2 2	**1/5**	**1/5 to 2/5**															**24**				**5.00 5.00**	**154 154**	**0.047 0.047**	**20**		**Additional (Pipe flow=**	**20 flow: 0.020 Sum upstr**	**27.338 cumecs atten flows)**	**6.50**	**150(U)R**	**107(1.07 ty) (2.65)**	**0.43**		**Qo 0.020 Do 150 CHRT 32: Vo2/2gDo 0.38 H/Do 0.00 Kg side flow 4.38 end flow 3.75**	**0.058**	**4.38**	**0.255**			**4.38**	**0.255**	**1.06**	**0.289**	**0.068 (0.068 ty)**	**2.49 (2.49 ty)**	**92.560 90.783**	**92.560 90.857**	**92.815**		**92.815**	**93.061**	**1/5**
2 2	**2/5**	**2/5 to 3/5**															**24**				**5.43 5.43**	**150 150**	**0.047 0.095**	**40**		**Additional (Pipe flow=**	**40 flow: 0.020 Sum upstr**	**24.425 cumecs atten flows)**	**5.00**	**225(U)R**	**087(0.87 ty) (3.12)**	**0.41**		**Qo 0.040 Do 225 CHART 50 Du/Do0.67 alpha 3 K'w 0.14 Vu 1.10 WSE -0.08 Ku -2.29 Kw -2.07**	**0.039**	**0.20**	**0.007**			**0.20**	**0.007**	**0.39**	**0.096**	**0.087 (0.087 ty)**	**2.67 (2.67 ty)**	**90.850 89.628**	**90.850 89.649**	**90.857**		**90.857**	**91.458**	**2/5**
2 2	**3/5**	**3/5 to 4/5**															**24**				**5.84 5.84**	**146 146**	**0.095 0.144**	**58**		**Additional (Pipe flow=**	**60 flow: 0.020 Sum upstr**	**24.865 cumecs atten flows)**	**2.00**	**225(U)R**	**131(1.31 ty) (1.98)**	**0.32**		**Qo 0.060 Do 225 CHART 50 Du/Do1.00 alpha 12 K'w 0.19 Vu 0.98 WSE 0.05 Ku 0.47 Kw 0.58**	**0.087**	**0.47**	**0.041**			**0.58**	**0.051**	**0.88**	**0.219**	**0.143 (0.143 ty)**	**2.11 (2.11 ty)**	**89.608 89.111**	**89.608 89.185**	**89.649**		**89.659**	**90.179**	**3/5**
2 2	**4/5**	**4/5 to 5/5**															**24**				**6.16 6.16**	**143 143**	**0.144 0.194**	**77**		**Additional (Pipe flow=**	**80 flow: 0.020 Sum upstr**	**25.783 cumecs atten flows)**	**2.00**	**225(U)R**	**175(1.75 ty) (1.98)**	**0.25**		**Qo 0.080 Do 225 CHART 50 Du/Do1.00 alpha 21 K'w 0.21 Vu 1.48 WSE 0.12 Ku 0.60 Kw 0.75**	**0.156**	**0.60**	**0.094**			**0.75**	**0.117**	**1.56**	**0.403**	**0.177 (0.177 ty)**	**2.23 (2.23 ty)**	**89.091 88.575**	**89.091 88.618**	**89.185**		**89.208**	**89.643**	**4/5**

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MINOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MAJOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

Q2 CALCULATIONS TABLE

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE CALCULATIONS SHEET 1 OF 5 Q2 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD500
REV. B

© MILANOVIC NEALE CONSULTING ENGINEERS

LOCATION					TIME		SUB-CATCHMENT RUNOFF						INLET DESIGN							DRAIN DESIGN														HEADLOSSES					PART FULL						DESIGN LEVELS						
						tc	I	C10	C	A	C×A	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S			V	T			V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp							
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C x A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.G.L	UPSTREAM H.G.L	LAT. H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.
yrs					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m		%	m	m	m/s	m	m	m	m	m	m	
2 2	5/5	5/5 to 6/5															24				6.41 6.41	141 141	0.194 0.194	76			80 (Pipe flow= Sum upstr atten flows)	11.161	1.00	300(U)	1.10(1.10 fy) (1.63)	0.17		Qo 0.080 Do 300 CHART 50 Du/Do0.75 alpha 33 K'w 0.23 Vu 2.01 WSE 0.05 Ku 0.01 Kw 0.79	0.062	0.01	0.000			0.79	0.049	0.46	0.051	0.183 (0.183 fy)	1.75 (1.75 fy)	88.618 88.506	88.618 88.551	88.618		88.667	89.117	5/5
2 2	6/5	6/5 to 7/5															24				6.58 6.58	140 140	0.194 0.246	96			100 Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	32.716	1.50	300(U)	1.38(1.38 fy) (2.00)	0.40		Qo 0.100 Do 300 CHART 50 Du/Do1.00 alpha 12 K'w 0.19 Vu 1.12 WSE 0.06 Ku 0.47 Kw 0.59	0.097	0.47	0.045			0.59	0.058	0.71	0.233	0.185 (0.185 fy)	2.15 (2.15 fy)	88.506 88.015	88.506 88.140	88.551		88.564	89.354	6/5
2 2	7/5	7/5 to 4/3															24				6.98 6.98	137 137	0.246 0.298	113			120 Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	18.138	5.00	375(2)	1.09(1.09 fy) (3.55)	0.28		Qo 0.120 Do 375 CHART 50 Du/Do0.80 alpha 58 K'w 0.27 Vu 1.38 WSE 0.10 Ku 1.22 Kw 1.65	0.061	1.22	0.074			1.65	0.100	0.47	0.085	0.142 (0.142 fy)	3.12 (3.12 fy)	88.066 87.159	88.066 87.675	88.140		88.166	89.317	7/5
2 2	1/6	1/6 to 2/6															24				5.00 5.00	154 154	0.047 0.047	20			20 Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	19.466	1.00	225(U)	0.44(0.44 fy) (1.40)	0.32		Qo 0.020 Do 225 CHRT 32: Vo2/2gDo 0.04 H/Do 0.01 Kg side flow 9.57 end flow 6.89	0.010	9.57	0.094			9.57	0.094	0.10	0.019			89.241 89.047	89.244 89.225	89.338		89.338	90.690	1/6
2 2	2/6	2/6 to 3/6	2/6			5.00 5.00	154 154		0.64 0.64	0.059 0.059	0.038 0.038	0.038 0.038	16 16 FLOW WIDTH/DEPTH 0.045Dg m	16	1.00	69	#D.12L2.4A.36	16 (UNLOCKED	0	3/6	5.32 5.32	151 151	0.085 0.132	55			56 Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	20.742	1.43	225(U)	1.21(1.21 fy) (1.67)	0.29		Qg 0.036 Qo 0.056 Do 225 CHART 33 Angle 7 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.65 K 1.78 S/Do 1.82 cor 0.42 Ku 2.20 Kw 2.20	0.075	2.20	0.165			2.20	0.165	0.75	0.156			89.026 88.730	89.060 88.904	89.225		89.225	90.496	2/6
2 2	3/6	3/6 to 4/6	2/6;3/6			5.00 5.00	154 154		0.64 0.64	0.055 0.055	0.035 0.035	0.035 0.035	15 15 FLOW WIDTH/DEPTH 0.043Dg m	15	1.00	69	#D.12L2.4A.36	15 (UNLOCKED	0	4/6	5.61 5.61	148 148	0.167 0.216	89			89 Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	20.716	1.00	300(U)	1.22(1.22 fy) (1.63)	0.28		Qg 0.034 Qo 0.089 Do 300 CHART 34 Angle 24 Case3 S/Do 2.5 Du/Do 0.75 Qg/Qo 0.39 K 0.91 S/Do 1.43 cor 0.46 Ku 1.37 Kw 1.37	0.076	1.37	0.104			1.37	0.104	0.56	0.117			88.772 88.565	88.800 88.683	88.904		88.904	90.233	3/6
2 2	4/6	4/6 to 4/3	2/6;3/6;4/6			5.00 5.00	154 154		0.64 0.64	0.054 0.054	0.035 0.035	0.035 0.035	15 15 FLOW WIDTH/DEPTH 0.043Dg m	15	0.00	69	#D.12L2.4A.36	15 (UNLOCKED	0	5A/3	5.89 5.89	145 145	0.251 0.301	121			121 Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	4.015	1.25	375(U)	1.04(1.04 fy) (2.14)	0.06		Qg 0.034 Qo 0.121 Do 375 CHART 33 Angle 1 S/Do 2.5 Du/Do 0.80 Qg/Qo 0.28 K 0.57 S/Do 1.15 cor 0.45 Ku 1.02 Kw 1.02	0.055	1.02	0.056			1.02	0.056	0.29	0.012	0.190 (0.190 fy)	2.12 (2.12 fy)	88.627 88.576	88.627 88.391	88.683		88.683	89.861	4/6
2 2	1/3	1/3 to 2/3	1/3			5.00 5.00	154 154		0.75 0.75	0.047 0.047	0.035 0.035	0.035 0.035	15 15 FLOW WIDTH 0.159 m	15	14.00	14.23	7	15 (UNLOCKED	0	2/3	5.00 5.00	154 154	0.035 0.035	15			15 (Pipe flow= Grate flow)	36.309	6.00	375(2)	0.14(0.11 fy) (3.89)	0.61		Qg 0.015 Qo 0.015 Do 375 CHRT 32: Vo2/2gDo 0.00 H/Do 0.00 Kg side flow 10.80 end flow 7.53 Part full downstream pipe	0.001	1.00	0.170	Upstrea pipe obv Set Kp 1	HGL 92.697 92.854 1	1.00 below outlet	0.170	0.01	0.003	0.048 (0.042 fy)	1.83 (1.69 fy)	92.854 90.675	92.527 90.681	92.697		92.697	93.737	1/3
2 2	2/3	2/3 to 3/3	1/3;2/3			5.00 5.00	154 154		0.75 0.75	0.144 0.144	0.108 0.108	0.108 0.108	46 46 FLOW WIDTH 0.161 m	46	0.05	183	13S.08	46 (UNLOCKED	0	3/3	5.61 5.61	148 148	0.143 0.143	59			59 (Pipe flow= Sum upstr atten flows)	11.872	9.29	375(2)	0.53(0.42 fy) (4.83)	0.20		Qg 0.044 Qo 0.059 Do 375 Angle 34 Chart 39 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.80 K0.5 1.91 Du/Do 0.24 Cg 1.25 K 1.94 S/Do 2.0 K0 1.98 K0.5 2.10 K 2.13 S/Do 1.5 K0 2.39 K0.5 2.52 K 2.55	0.014	1.83	0.026	Interp va CHART S/Do 2.0 S/Do 1.5 Interp va	for S/Do 1.11 Kw 2.87 38 K0 1.84 K0.5 1.75 K 1.78 K0 2.05 K0.5 1.84 K 1.79 for S/Do 1.11 Ku 1.83	2.87 0.041	0.11	0.013	0.084 (0.075 fy)	3.18 (2.97 fy)	90.655 89.552	90.655 89.454	90.681		90.696	91.423	2/3
2 2	3/3	3/3 to 4/3	1/3;2/3														#D.08L3.6A.81				5.81 5.81	146 146	0.143 0.143	58			59 (Pipe flow= Sum upstr atten flows)	25.368	2.00	375(2)	0.53(0.42 fy) (2.24)	0.42		Qo 0.059 Do 375 CHART 50 Du/Do1.00 alpha 7 K'w 0.17 Vu 0.53 WSE 0.01 Ku 0.41 Kw 0.58 Part full downstream pipe	0.014	1.00	0.172	Upstrea pipe obv Set Kp 1	HGL 89.454 89.532 1	1.00 below outlet	0.172	0.11	0.029	0.125 (0.110 fy)	1.84 (1.72 fy)	89.532 89.025	89.282 88.775	89.454		89.454	90.288	3/3
2 2	4/3	4/3 to 5A/3	2/6;3/6;4/6;1/3;2/3														24				7.26 7.26	135 135	0.742 0.742	278			285 (Pipe flow= Sum upstr atten flows)	12.399	11.00	375(2)	2.58(1.10 fy) (5.26)	0.08		Qo 0.285 Do 375 Flow 4/6 made eqv grate flow Flow 3/3 made eqv grate flow Angle 93 Chart 47 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.92 K0.5 2.12 Du/Do 0.41 Cg 1.10 K 2.14 S/Do 3.0 K0 2.00 K0.5 1.89 K 1.88 S/Do 2.5 K0 1.92 K0.5 2.12 K 2.14	0.339	1.58	0.536	Interp va CHART S/Do 3.0 S/Do 2.5 Interp va K vals above for stepped pipes as grate flow	for S/Do 2.80 Kw 1.93 46 K0 1.74 K0.5 1.52 K 1.5 K0 1.82 K0.5 1.71 K 1.6 for S/Do 2.80 Ku 1.53	1.98 0.672	2.65	0.329	0.186 (0.116 fy)	5.24 (4.16 fy)	87.139 85.775	87.139 85.586	87.675		87.811	89.805	4/3
2 2	5A/3	5A/3 to 5/3	2/6;3/6;4/6;1/3;2/3 ;5A/3			5.00 5.00	154 154		0.60 0.60	0.018 0.018	0.011 0.011	0.011 0.011	5 5 FLOW WIDTH/DEPTH 0.020Dg m	5	1.00	38	#D.08L2.4A.36	5 (UNLOCKED	0	6/3	7.34 7.34	134 134	0.753 0.753	280			287 (Pipe flow= Sum upstr atten flows)	12.004	13.00	375(2)	2.60(2.41 fy) (5.72)	0.08		Qg 0.004 Qo 0.287 Do 375 Flow 4/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.92 H/Do 0.00 Kg side flow 2.89 end flow 2.67 K vals above for stepped pipes as grate flow	0.345	2.89	0.995			2.89	0.995	2.69	0.323	0.178 (0.170 fy)	5.59 (5.48 fy)	84.256 82.695	84.256 82.498	85.251		85.251	86.508	5A/3
2 2	5/3	5/3 to 6/3	2/6;3/6;4/6;1/3;2/3 ;5A/3														24				7.42 7.42	133 133	0.753 0.753	278			287 (Pipe flow= Sum upstr atten flows)	40.542	5.00	450(2)	1.81(1.68 fy) (4.01)	0.37		Qo 0.287 Do 450 Flow 5A/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.37 H/Do 0.00 Kg side flow 4.42 end flow 3.78 K vals above for stepped pipes as grate flow	0.167	4.42	0.738			4.42	0.738	1.02	0.412	0.212 (0.203 fy)	3.90 (3.83 fy)	80.600 78.573	80.600 78.497	81.338		81.338	83.206	5/3
2 2	6/3	6/3 to 7/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3			5.00 5.00	154 154		0.60 0.60	0.023 0.023	0.014 0.014	0.014 0.014	6 6 FLOW WIDTH/DEPTH 0.023Dg m	6	8.00	38	#D.08L2.4A.36	6 (UNLOCKED	0	9/3	7.79 7.79	131 131	0.767 0.767	279			288 (Pipe flow= Sum upstr atten flows)	5.409	2.50	450(2)	1.81(1.67 fy) (2.83)	0.05		Qg 0.005 Qo 0.288 Do 450 Flow 5/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.37 H/Do 0.00 Kg side flow 4.42 end flow 3.78 K vals above for stepped pipes as grate flow grate flow decreased by 0.283 from 5/3	0.167	0.28	0.047	CHART 33 S/Do 2.5 Du/Do 1.0 S/Do 1.1 K vals st	Angle 0 0 Qg/Qo 0.02 K 0.25 cor 0.03 K0.28 Kw 0.28 ep pipes as pipe flow	0.28 Ku 0.28 Kw 0.28	0.047	1.02	0.055	0.261 (0.249 fy)	3.00 (2.95 fy)	78.450 78.315	78.450 78.126	78.497		78.497	79.140	6/3
2 2	7/3	7/3 to 8/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3														24				7.84 7.84	131 131	0.767 0.767	279			288 (Pipe flow= Sum upstr atten flows)	49.614	6.75	450(2)	1.81(1.67 fy) (4.65)	0.46		Qo 0.288 Do 450 Flow 6/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.37 H/Do 0.00 Kg side flow 4.42 end flow 3.78 K vals above for stepped pipes as grate flow grate flow decreased by 0.288 from 6/3	0.167	1.80	0.301	CHART 5 Du 450 K'w 0.29 Ku 1.80 K vals st	ti 516 Do 450 theta 70 r/Do 1.76 D/Do 1.00 K0 1.80 Vu 1.81 WSE 0.35 Kw 2.09 ep pipes as pipe flow	2.09 Ku 1.80 Kw 2.09	0.349	1.02	0.507	0.195 (0.187 fy)	4.37 (4.27 fy)	77.799 74.450	77.799 74.592	78.100		78.148	78.897	7/3
2 2	8/3	8/3 to 9/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3														24				8.30 8.30	128 128	0.767 0.767	273			288 (Pipe flow= Sum upstr atten flows)	20.739	8.50	450(2)	1.81(1.67 fy) (5.22)	0.19		Qo 0.288 Do 450 Flow 7/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.37 H/Do 0.00 Kg side flow 4.42 end flow 3.78 K vals above for stepped pipes as grate flow grate flow decreased by 0.288 from 7/3	0.167	1.67	0.279	CHART 5 Du 450 K'w 0.28 Ku 1.67 K vals st	ti 137 Do 450 theta 30 r/Do 1.29 D/Do 1.00 K0 1.67 Vu 1.81 WSE 0.33 Kw 1.95 ep pipes as pipe flow	1.95 Ku 1.67 Kw 1.95	0.326	1.02	0.212	0.183 (0.175 fy)	4.75 (4.65 fy)	74.313 72.550	74.313 72.810	74.592		74.639	75.216	8/3
2 2	9/3	9/3 to 10/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3			5.00 5.00	154 154		0.65 0.65	0.551 0.551	0.358 0.358	0.358 0.358	153 153 FLOW DEPTH 0.071 m	153	0.05	330	13S.15	153 (UNLOCKED	0	10/3	8.49 8.49	127 127	1.125 1.125	397			412 (Pipe flow= Sum upstr atten flows)	22.669	7.00	525(2)	1.84(1.62 fy) (5.31)	0.21		Qg 0.126 Qo 0.412 Do 525 CHART 33 Angle 9 S/Do 2.5 Du/Do 0.86 Qg/Qo 0.31 K 0.89 S/Do 1.41 cor 0.38 Ku 1.27 Kw 1.27	0.173	1.27	0.219			1.27	0.219	0.84	0.190	0.217 (0.202 fy)	4.83 (4.66 fy)	72.591 71.004	72.591 70.724	72.810		72.810	73.272	9/3
2 2	10/3	10/3 to 11/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3			5.00 5.00	154 154		0.60 0.60	0.015 0.015	0.009 0.009	0.009 0.009	4 4 FLOW WIDTH/DEPTH 0.011Dg m	4	8.00	75	#D.08L3.6A.81	4 (UNLOCKED	0	11/3	8.70 8.70	125 125	1.134 1.134	394			412 (Pipe flow= Sum upstr atten flows)	44.030	5.20	525(2)	1.84(1.62 fy) (4.58)	0.40		Qg 0.003 Qo 0.412 Do 525 Flow 9/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.32 H/Do 0.00 Kg side flow 4.72 end flow 4.02 K vals above for stepped pipes as grate flow grate flow decreased by 0.412 from 9/3	0.173	0.23	0.040	CHART 3 S/Do 2.5 Du/Do 1.0 S/Do 1.0 K vals st	Angle 3 0 Qg/Qo 0.01 K 0.22 cor 0.01 K0.23 Kw 0.23 ep pipes as pipe flow	0.23 Ku 0.23 Kw 0.23	0.040	0.84	0.370	0.235 (0.219 fy)	4.33 (4.18 fy)	70.684 68.394	70.684 68.694	70.724		70.724	71.649	10/3

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MINOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MAJOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

CALCULATIONS TABLE

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE CALCULATIONS SHEET 2 OF 5 Q2 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD501 REV. B

© MILANOVIC NEALE CONSULTING ENGINEERS

DESIGN ARI (yrs)	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT (%)	TIME: tc SUB-CATCHMENT TIME OF CONC. (min)	TIME: I RAINFALL INTENSITY (mm/h)	SUB-CATCHMENT RUNOFF: C10 10yr RUNOFF CO-EFFICIENT	C CO-EFFICIENT OF RUNOFF	A SUB-CATCHMENT AREA (ha)	C×A EQUIVALENT AREA (ha)	ΣCA SUM OF (C × A) (ha)	Q SUB-CATCHMENT DISCHARGE (l/s)	INLET DESIGN: FLOW IN K&C (INC. BYPASS) (l/s)	ROAD GRADE AT INLET (%)	MINOR FLOW ROAD CAPACITY (l/s)	INLET TYPE	Qg FLOW INTO INLET (l/s)	Qb BYPASS FLOW (l/s)	BYPASS STRUCTURE No.	DRAIN DESIGN: tc CRITICAL TIME OF CONC. (min)	I RAINFALL INTENSITY (mm/h)	ΣCA TOTAL (C × A) (ha)	Qt MAJOR TOTAL FLOW (l/s)	Qm MAJOR SURFACE FLOW CAPACITY (l/s)	Qs MAJOR SURFACE FLOW (l/s)	Qp PIPE FLOW (l/s)	L REACH LENGTH (m)	S PIPE GRADE (%)	PIPE / BOX DIMENSIONS (CLASS) (mm)	V FLOW VELOCITY FULL (PIPE GRADE VELOCITY) (m/s)	T TIME OF FLOW IN REACH (min)
2 2	11/3	11/3 to 12/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3			5.00 5.00	154 154		0.65 0.65	0.168 0.168	0.109 0.109	0.109 0.109	47 47	47 FLOW WIDTH 0.721 m	12.00	1350	7	44 (UNLOCKED C)	3	12/3	9.10 9.10	123 123	1.243 1.243	425			441 (Pipe flow= Sum upstr atten flows)	21.050	8.00	525(2)	1.97(1.72 1y) (5.68)	0.18
2 2	12/3	12/3 to 13/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3			5.00 5.00	154 154		0.65 0.65	0.109 0.109	0.071 0.071	0.071 0.071	30 30	33 FLOW WIDTH 0.000 m	0.05	338	14S.11	33 (UNLOCKED C)	0	13/3	9.28 9.28	122 122	1.314 1.314	445			463 (Pipe flow= Sum upstr atten flows)	20.340	4.50	600(2)	1.59(1.37 1y) (4.65)	0.21
2 2	13/3	13/3 to 14/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3;13/3			5.00 5.00	154 154		0.75 0.75	0.033 0.033	0.025 0.025	0.025 0.025	11 11	11 FLOW WIDTH 1.133 m	6.00	38	#D.08L2.4A.36	11 (UNLOCKED C)	0	14/3	9.49 9.49	121 121	1.339 1.339	450			468 (Pipe flow= Sum upstr atten flows)	21.450	4.00	600(2)	1.60(1.37 1y) (4.39)	0.22
2 2	14/3	14/3 to 15/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3;13/3;14/3			5.00 5.00	154 154		0.75 0.75	0.010 0.010	0.008 0.008	0.008 0.008	3 3	3 FLOW WIDTH 0.533 m	1.00	38	#D.08L2.4A.36	3 (UNLOCKED C)	0		9.71 9.71	120 120	1.347 1.347	449			468 (Pipe flow= Sum upstr atten flows)	37.991	1.32	675(2)	1.27(1.09 1y) (2.73)	0.50
2 2	15/3	15/3 to 16/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3;13/3;14/3														24				10.21 10.21	118 118	1.347 1.347	442			468 (Pipe flow= Sum upstr atten flows)	3.941	0.40	900 x 600 (RCBC)	0.87(0.75 1y) (1.55)	0.07
2 2	16/3	16/3 to OUT17/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3;13/3;14/3														24				10.28 10.28	117 117	1.347 1.347	438			468 (Pipe flow= Sum upstr atten flows)	1.162	0.40	900 x 600 (RCBC)	0.87(0.75 1y) (1.55)	0.02
2 2	IN1/14	IN1/14 to OUT2/14															24				5.00 5.00	154 154	1.531 1.531	655			655 (Pipe flow set by user)	14.572	1.17	600(2)	2.24(2.24 1y) (2.37)	0.11
2 2	EX1/4	EX1/4 to OUT2/4	EX1/4			8.00 8.00	130 130		0.65 0.65	2.070 2.070	1.346 1.346	1.346 1.346	486 486	380 CrnFL 106 FLOW WIDTH 4.028 m DOWNSTREAM 2.748m	1.00	380	7	224 (UNLOCKED C)	156 106	Crn ×	8.00 8.00	130 130	1.345 1.345	486			224 (Pipe flow= Grate flow)	8.355	10.77	375(2)	2.03(2.03 1y) (5.21)	0.07
2 2	IN1/15	IN1/15 to 2/15	IN1/15			8.00 8.00	130 130		0.65 0.65	0.717 0.717	0.466 0.466	0.466 0.466	168 168	168 FLOW WIDTH/DEPTH 0.000Dp m	1.00	1000	14S.11	168 (UNLOCKED C)	0		8.00 8.00	130 130	0.466 0.466	168			168 (Pipe flow= Grate flow)	2.000	8.00	450(2)	1.06(0.83 1y) (5.07)	0.03
2 2	2/15	2/15 to OUT3/15	IN1/15														24				8.03 8.03	129 129	0.466 0.466	167			168 (Pipe flow= Sum upstr atten flows)	7.653	8.00	450(2)	1.06(0.83 1y) (5.07)	0.12
2 2	1/10	1/10 to 2/10	1/10			8.00 8.00	130 130		0.65 0.65	3.060 3.060	1.989 1.989	1.989 1.989	718 718	718 FLOW WIDTH/DEPTH 0.310Dp m	0.05	716	#D.31L4.8A1.44	716 (UNLOCKED C)	2	2/10	8.00 8.00	130 130	1.989 1.989	718			716 (Pipe flow= Grate flow)	32.912	5.00	600(2)	2.45(1.93 1y) (4.91)	0.22
2 2	2/10	2/10 to 3/10	1/10;2/10			8.00 8.00	130 130		0.65 0.65	0.000 0.000	0.000 0.000	0.000 0.000	0 0	2 FLOW WIDTH/DEPTH 0.006Dp m	0.05	716	#D.31L4.8A1.44	2 (UNLOCKED C)	0	3/10	8.22 8.22	128 128	1.989 1.989	707			716 (Pipe flow= Sum upstr atten flows)	29.323	6.41	675(2)	1.94(1.53 1y) (6.00)	0.25
2 2	3/10	3/10 to 2/1	1/10;2/10														#D.31L4.8A1.44				8.47 8.47	127 127	1.989 1.989	702			716 (Pipe flow= Sum upstr atten flows)	13.321	1.00	1050(2)	0.80(0.63 1y) (3.18)	0.22
2 2	1/1	1/1 to 2/1	1/1			8.00 8.00	130 130		0.64 0.64	0.371 0.371	0.237 0.237	0.237 0.237	86 86	86 FLOW WIDTH/DEPTH 0.087Dp m	0.05	546	#D.3L3.6A.81	86 (UNLOCKED C)	0	2B/1	8.00 8.00	130 130	0.237 0.237	86			86 (Pipe flow= Grate flow)	14.005	1.00	525(2)	0.38(0.30 1y) (2.01)	0.23
2 2	2/1	2/1 to 2B/1	1/10;2/10;1/1														24				8.69 8.69	126 126	2.226 2.226	779			794 (Pipe flow= Sum upstr atten flows)	16.538	3.50	1050(2)	0.89(0.70 1y) (5.96)	0.28

STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	HEADLOSSES: V2/2g VELOCITY HEAD (m)	Ku U/S HEADLOSS COEFFICIENT	hu U/S PIPE STRUCT. HEADLOSS (m)	Kl LAT. HEADLOSS CO-EFFICIENT	hl LAT. PIPE STRUCT. HEADLOSS (m)	Kw W.S.E CO-EFFICIENT	hw CHANGE IN W.S.E (m)	Sf PIPE FRICTION SLOPE (%)	hf PIPE FRICTION HEADLOSS (L × Sf) (m)	PART FULL: DEPTH (m)	Vp VELOCITY (m/s)	DESIGN LEVELS: OBVERT LEVELS (m)	DRAIN SECTION H.G.L (m)	UPSTREAM H.G.L (m)	LAT. H.G.L (m)	W.S.E. (m)	SURFACE OR K&C INVERT LEVEL (m)	STRUCTURE No.
	Qg 0.035 Qo 0.441 Do 525 Angle 60 Chart 43 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.35 K0.5 1.93 Qu/Qo 0.92 Cg 0.20 K 1.47 S/Do 2.0 K0 1.41 K0.5 2.25 K 1.58 S/Do 1.5 K0 1.58 K0.5 2.53 K 1.77	0.198	1.62	0.320	Interp val for S/Do 1.64 Kw 1.72 CHART 42 S/Do 2.0 K0 1.35 K0.5 2.10 K 1.50 S/Do 1.5 K0 1.53 K0.5 2.17 K 1.66 Interp val for S/Do 1.64 Ku 1.62		1.72	0.340	0.96	0.202	0.217 (0.201 1y)	5.16 (4.97 1y)	68.374 66.690	68.374 66.524	68.694		68.714	70.147	11/3
	Qg 0.026 Qo 0.463 Do 600 Flow 11/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.21 H/Do 0.00 Kg side flow 5.79 end flow 4.77 K vals above for stepped pipes as grate flow grate flow decreased by 0.437 from 11/3	0.129	0.11	0.014	CHART 33 Angle 3 S/Do 2.5 Du/Do 0.88 Qg/Qo 0.06 K 0.01 S/Do 1.02 cor 0.10 Ku 0.11 Kw 0.11 K vals step pipes as pipe flow Ku 0.11 Kw 0.11		0.11	0.014	0.52	0.106	0.245 (0.226 1y)	4.21 (4.04 1y)	66.510 65.595	66.510 65.243	66.524		66.524	67.719	12/3
	Qg 0.008 Qo 0.468 Do 600 Flow 12/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.21 H/Do 0.00 Kg side flow 5.75 end flow 4.75 K vals above for stepped pipes as grate flow grate flow decreased by 0.459 from 12/3 Angle 63 Chart 45 S/Do 2.5 chartdeg Du/Do 1.00 K0 2.16 K0.5 1.81 Qu/Qo 0.98 Cg 0.05 K 2.15	0.130	2.11	0.275	S/Do 2.0 K0 2.47 K0.5 2.34 K 2.47 S/Do 1.5 K0 2.74 K0.5 2.80 K 2.75 Interp val for S/Do 1.58 Kw 2.70 CHART 44 S/Do 2.0 K0 1.99 K0.5 2.11 K 2.00 S/Do 1.5 K0 2.12 K0.5 2.17 K 2.13 Interp val for S/Do 1.58 Ku 2.11 K vals step pipes as pipe flow Ku 2.11 Kw 2.70		2.70	0.352	0.53	0.114	0.255 (0.234 1y)	4.04 (3.88 1y)	64.968 64.110	64.968 64.168	65.243		65.320	66.655	13/3
	Qg 0.003 Qo 0.468 Do 675 CHART 34 Angle 13 Case3 S/Do 2.5 Du/Do 0.89 Qg/Qo 0.01 K 0.03 S/Do 1.00 cor 0.01 Ku 0.04 Kw 0.04	0.082	0.04	0.003			0.04	0.003	0.29	0.109	0.328 (0.301 1y)	2.68 (2.57 1y)	64.165 63.663	64.165 63.433	64.168		64.168	65.178	14/3
	Qo 0.468 Do 720 CHART 50 Du/Do0.94 alpha 61 K'w 0.27 Vu 1.31 WSE 0.08 Ku 1.46 Kw 2.07 Part full downstream pipe	0.039	1.00	0.078	Upstream HGL 63.433 below outlet pipe obv 63.536 Set Kp to 1		1.00	0.078	0.13	0.005	0.325 (0.291 1y)	1.60 (1.53 1y)	63.536 63.520	63.355 63.350	63.433		63.433	64.134	15/3
	Qo 0.468 Do 720 CHART 50 Du/Do1.00 alpha 50 K'w 0.26 Vu 1.15 WSE 0.07 Ku 1.24 Kw 1.69 Part full downstream pipe	0.039	1.00	0.130	Upstream HGL 63.350 below outlet pipe obv 63.495 Set Kp to 1		1.00	0.130	0.13	0.001	0.325 (0.291 1y)	1.60 (1.53 1y)	63.495 63.490	63.220 62.915	63.350		63.350	63.933	16/3
		0.256	1.00	0.256			1.00	0.256	1.04	0.152	0.472 (0.472 1y)	2.70 (2.70 1y)	61.990 61.820	61.990 61.692	62.246		62.246	62.500	IN1/14
	Qg 0.224 Qo 0.224 Do 375 CHRT 32: Vo2/2gDo 0.56 H/Do 0.00 Kg side flow 3.69 end flow 3.27	0.210	3.69	0.775			3.69	0.775	1.63	0.136	0.162 (0.162 1y)	4.88 (4.88 1y)	79.805 78.905	79.805 78.692	80.580		80.580	82.148	EX1/4
	Qg 0.168 Qo 0.168 Do 450 CHRT 32: Vo2/2gDo 0.13 H/Do 0.00 Kg side flow 7.39 end flow 5.74	0.057	7.39	0.423			7.39	0.423	0.35	0.007	0.140 (0.123 1y)	4.01 (3.73 1y)	64.935 64.775	64.935 64.465	65.358		65.358	66.070	IN1/15
	Qo 0.168 Do 450 Flow IN1/15 made eqv grate flow CHRT 32: Vo2/2gDo 0.13 H/Do 0.00 Kg side flow 7.39 end flow 5.74 K vals above for stepped pipes as grate flow	0.057	7.39	0.423			7.39	0.423	0.35	0.027	0.140 (0.123 1y)	4.01 (3.73 1y)	63.952 63.340	63.952 63.030	64.375		64.375	65.717	2/15
		0.306	3.00	0.918			3.00	0.918	1.25	0.411	0.305 (0.266 1y)	4.91 (4.61 1y)	73.110 71.464	73.110 71.169	74.028		74.028	74.261	1/10
		0.192	3.00	0.576			3.00	0.576	0.67	0.197	0.268 (0.236 1y)	5.36 (5.01 1y)	68.816 66.938	68.816 67.256	69.392		69.392	72.282	2/10
	Part full downstream pipe Upstream HGL 67.256 below outlet pipe obv 67.299 Set Kp to 1	0.033	1.00	0.036			1.00	0.036	0.06	0.008	0.365 (0.322 1y)	2.65 (2.48 1y)	67.299 67.166	67.220 67.212	67.256		67.256	67.992	3/10
	Qg 0.086 Qo 0.086 Do 525 CHRT 32: Vo2/2gDo 0.01 H/Do 0.00 Kg side flow 10.46 end flow 7.36 Part full downstream pipe	0.007	1.00	0.051	Upstream HGL 67.268 below outlet pipe obv 67.534 Set Kp to 1		1.00	0.051	0.04	0.005	0.157 (0.140 1y)	1.54 (1.44 1y)	67.534 67.394	67.217 67.212	67.268		67.268	68.189	1/1
	Qo 0.794 Do 1050 Flow 1/1 made eqv grate flow Angle 83 Chart 47 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.92 K0.5 2.12 Qu/Qo 0.90 Cg 0.26 K 1.98 S/Do 2.0 K0 2.44 K0.5 2.40 K 2.43 S/Do 1.5 K0 2.67 K0.5 2.58 K 2.65 Interp val for S/Do 1.11 Kw 2.82 CHART 46 S/Do 2.0 K0 2.04 K0.5 1.92 K 2.01 S/Do 1.5 K0 2.09 K0.5 2.31 K 2.15 Interp val for S/Do 1.11 Ku 2.26 K vals above for stepped pipes as grate flow grate flow decreased by 0.083 from 1/1 Routine 2.2 CHART 52 B 900 In line 1/1 Latrl 3/10 Determine Kl	0.040	1.64	0.066	Dl/Do 1.00 B/Do 0.86 Qu/Qo 0.10 Do/Du 2.00 Do/Dl 1.00 K'l 1.28 Ml 0.96 Kl=K'l×Ml= 1.23 Determine Ku K'u 1.50 Mu 0.96 Ku=K'u×Mu= 1.44 Kw=Ku= 1.44 Combined pipes in line case Join Pipes: 3/10 and 1/1 Vel1 0.383 Vel2 0.821 Eq Dia 1141 Angle 255 Flow 0.794 CHART 50 Du/Do1.09 alpha 0 K'w 0.05 Vu 0.78 WSE 0.03 Ku 0.60 Kw 0.64 Interpolated Ku= 1.37 Kw= 1.38 K vals step pipes as pipe flow Ku 1.37 Kw 1.38 Averaged Ku 1.64 Kw 1.81		1.81	0.073	0.08	0.013	0.278 (0.246 1y)	4.28 (3.99 1y)	67.146 66.567	67.146 65.796	67.212		67.219	68.142	2/1

CALCULATIONS TABLE

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MINOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MAJOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

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A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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JAS-ANZ SGS

CLIENT
PARKER PROPERTY NINGI PTY LTD

PROJECT
41 GLENBROOK DRIVE, NAMBOUR

TITLE
STORMWATER DRAINAGE CALCULATIONS SHEET 3 OF 5 Q2 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 – CD502		B

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LOCATION						TIME		SUB-CATCHMENT RUNOFF						INLET DESIGN							DRAIN DESIGN														HEADLOSSES							PART FULL				DESIGN LEVELS						
						tc	I	C10	C	A	C×A	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T			V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp							
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C × A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C × A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L × Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.G.L	UPSTREAM H.G.L	LAT. H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.
yrs					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m	%	m	m	m/s	m	m	m	m	m	m	
2 2	2B/1	2B/1 to 3/1	1/10;2/10;1/1;2B/1			5.00 5.00	154 154		0.65 0.65	0.422 0.422	0.274 0.274	0.274 0.274	117 117	117 FLOW WIDTH 1.258 m DOWNSTREAM 0.466m	13.30	707	8	87 (UNLOCKED 0)	30	3/1	8.97 8.97	124 124	2.500 2.500	861			851 (Pipe flow= Sum upstr atten flows)	20.228	3.50	1050(2)	0.95(0.75 1y) (5.96)	0.34		Qg 0.070 Qo 0.851 Do 1050 Flow 2/1 made eqv grate flow CHRT 32: Vo2/2gDo 0.04 H/Do 0.00 Kg side flow 9.54 end flow 6.88 K vals above for stepped pipes as grate flow grate flow decreased by 0.781 from 2/1 Angle 14 Chart 36 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.51 K0.5 1.86 Qu/Qo 0.92 Cg 0.21 K 1.58	0.046	1.90	0.087	S/Do 2.0 K0 1.79 K0.5 2.07 K 1.85 S/Do 1.5 K0 2.11 K0.5 2.54 K 2.20 Interp val for S/Do 1.11 Kw 2.47 CHART 35 S/Do 2.0 K0 1.55 K0.5 1.74 K 1.59 S/Do 1.5 K0 1.75 K0.5 1.80 K 1.76 Interp val for S/Do 1.11 Ku 1.90 K vals step pipes as pipe flow Ku 1.90 Kw 2.47		2.47	0.114	0.09	0.018	0.288 (0.255 1y)	4.37 (4.07 1y)	65.566 64.858	65.566 64.097	65.653		65.680	67.293	2B/1
2 2	1/11	1/11 to 2/11	1/11			8.00 8.00	130 130		0.63 0.63	1.790 1.790	1.128 1.128	1.128 1.128	407 407	407 FLOW WIDTH/DEPTH 0.212Dp m	0.05	428	#D.22L4.8A1.44	407 (UNLOCKED 0)	0	2/11	8.00 8.00	130 130	1.128 1.128	407			407 (Pipe flow= Grate flow)	21.421	9.00	450(2)	2.56(2.01 1y) (5.37)	0.14			0.334	3.00	1.002			3.00	1.002	2.04	0.438	0.219 (0.191 1y)	5.31 (4.99 1y)	70.850 68.922	70.850 68.691	71.852		71.852	72.010	1/11
2 2	2/11	2/11 to 3/11	1/11														#D.22L4.8A1.44				8.14 8.14	129 129	1.128 1.128	404			407 (Pipe flow= Sum upstr atten flows)	21.421	8.00	525(2)	1.82(1.43 1y) (5.68)	0.20			0.169	3.00	0.506			3.00	0.506	0.82	0.176	0.208 (0.183 1y)	5.05 (4.73 1y)	66.248 64.534	66.248 64.567	66.754		66.754	69.710	2/11
2 2	3/11	3/11 to 3/1	1/11														#D.22L4.8A1.44				8.34 8.34	128 128	1.128 1.128	401			407 (Pipe flow= Sum upstr atten flows)	7.336	1.00	750(2)	0.89(0.70 1y) (2.55)	0.12		Part full downstream pipe Upstream HGL 64.567 below outlet pipe obv 64.742 Set Kp to 1	0.040	1.00	0.275			1.00	0.275	0.12	0.009	0.312 (0.273 1y)	2.32 (2.17 1y)	64.742 64.669	64.292 64.230	64.567		64.567	65.422	3/11
2 2	3/1	3/1 to 4/1	1/10;2/10;1/1;2B/1;1 /11;3/1			5.00 5.00	154 154		0.65 0.65	0.156 0.156	0.101 0.101	0.101 0.101	43 43	73 FLOW WIDTH 0.947 m DOWNSTREAM 0.028m	13.30	707	8	62 (UNLOCKED 0)	11	5B/1	9.31 9.31	122 122	3.729 3.729	1264			1275 (Pipe flow= Sum upstr atten flows)	31.419	6.30	675(2) x 2	1.73(1.37 1y) (5.95)	0.30		Qg 0.049 Qo 1.275 Do 954 Flow 2B/1 made eqv grate flow Flow 3/11 made eqv grate flow CHRT 32: Vo2/2gDo 0.22 H/Do 0.00	0.153	5.65	0.862	Kg side flow 5.65 end flow 4.67 K vals above for stepped pipes as grate flow		5.65	0.862	0.53	0.167	0.253 (0.223 1y)	5.16 (4.83 1y)	62.784 60.805	62.784 60.664	63.646		63.646	65.512	3/1
2 2	4/1	4/1 to 5/1	1/10;2/10;1/1;2B/1;1 /11;3/1														24				9.61 9.61	120 120	3.729 3.729	1243			1275 (Pipe flow= Sum upstr atten flows)	6.800	0.40	1800 x 600 (RCBC)	1.18(0.93 1y) (1.80)	0.10		Qo 1.275 Do 901 Flow 3/1 made eqv grate flow CHRT 32: Vo2/2gDo 0.12 H/Do 0.00 Kg side flow 7.57 end flow 5.84 K vals above for stepped pipes as grate flow grate flow decreased by 1.275 from 3/1	0.071	0.52	0.036	CHART 50 Du/Do1.06 alpha 1 K'w 0.11 Vu 1.78 WSE 0.05 Ku 0.52 Kw 0.77 K vals step pipes as pipe flow Ku 0.52 Kw 0.77		0.77	0.054	0.17	0.012	0.360 (0.307 1y)	1.97 (1.82 1y)	60.628 60.600	60.628 60.513	60.664		60.682	61.507	4/1
2 2	5A/1	5A/1 to 5/1	5A/1			5.00 5.00	154 154		0.65 0.65	0.226 0.226	0.147 0.147	0.147 0.147	63 63	63 FLOW WIDTH 0.000 m	0.05	338	14S.11	63 (UNLOCKED 0)	0		5.00 5.00	154 154	0.147 0.147	63			63 (Pipe flow= Grate flow)	3.043	0.40	450 x 450 (RCBC)	0.31(0.24 1y) (1.13)	0.05		Qg 0.063 Qo 0.063 Do 450 CHRT 32: Vo2/2gDo 0.01 H/Do 0.12 Kg side flow 10.08 end flow 7.07	0.005	10.08	0.049			10.08	0.049	0.03	0.001			60.462 60.450	60.514 60.513	60.563		60.563	61.202	5A/1
2 2	5B/1	5B/1 to 5/1	5B/1			5.00 5.00	154 154		0.65 0.65	0.254 0.254	0.165 0.165	0.165 0.165	71 71	81 FLOW WIDTH 0.098 m	0.05	338	14S.11	81 (UNLOCKED 0)	0		5.00 5.00	154 154	0.165 0.165	71			81 (Pipe flow= Grate flow)	3.031	0.40	900 x 600 (RCBC)	0.15(0.11 1y) (1.55)	0.05		Qg 0.081 Qo 0.081 Do 720 CHRT 32: Vo2/2gDo 0.00 H/Do 0.00 Kg side flow 10.82 end flow 7.55 Part full downstream pipe	0.001	1.00	0.002	Upstream HGL 60.515 below outlet pipe obv 60.612 Set Kp to 1		1.00	0.002	0.00	0.000	0.099 (0.080 1y)	0.91 (0.81 1y)	60.612 60.600	60.513 60.513	60.515		60.515	61.203	5B/1
2 2	5/1	5/1 to OUT6/1	1/10;2/10;1/1;2B/1;1 /11;3/1;5A/1;5B/1														24				9.71 9.71	120 120	4.041 4.041	1347			1388 (Pipe flow= Sum upstr atten flows)	24.921	0.40	2100 x 600 (RCBC)	1.10(0.86 1y) (1.84)	0.38		Qo 1.388 Do 934 Flow 5A/1 made eqv grate flow Flow 5B/1 made eqv grate flow CHART 33 Angle 8 S/Do 2.5 Du/Do 0.96 Qg/Qo 0.08 K 0.41 S/Do 1.06 cor 0.14 Ku 0.55 Kw 0.55	0.062	1.00	0.196	K vals above for stepped pipes as grate flow Part full downstream pipe Upstream HGL 60.513 below outlet pipe obv 60.580 Set Kp to 1		1.00	0.196	0.14	0.035	0.338 (0.286 1y)	1.96 (1.80 1y)	60.580 60.481	60.317 59.880	60.513		60.513	61.276	5/1
2 2	**1/2**	**1/2 to 2/2**	**1/2**			**5.00 5.00**	**154 154**		**0.65 0.65**	**0.369 0.369**	**0.240 0.240**	**0.240 0.240**	**103 103**	**103 FLOW WIDTH 1.140 m DOWNSTREAM 0.397m**	**15.94**	**741**	**8**	**76 (UNLOCKED 0)**	**26**	**1/13**	**5.00 5.00**	**154 154**	**0.240 0.240**	**103**			**76 (Pipe flow= Grate flow)**	**12.640**	**14.31**	**375(2)**	**0.69(0.57 1y) (6.00)**	**0.21**		**Qg 0.076 Qo 0.076 Do 375 CHRT 32: Vo2/2gDo 0.06 H/Do 0.00 Kg side flow 8.81 end flow 6.55**	**0.024**	**8.81**	**0.214**			**8.81**	**0.214**	**0.19**	**0.024**	**0.086 (0.078 1y)**	**3.99 (3.79 1y)**	**68.475 66.666**	**68.475 66.565**	**68.689**		**68.689**	**69.235**	**1/2**
2 2	**2/2**	**2/2 to 3/2**	**1/2;2/2**			**5.00 5.00**	**154 154**		**0.75 0.75**	**0.070 0.070**	**0.053 0.053**	**0.053 0.053**	**23 22**	**23 FLOW WIDTH 0.329 m**	**15.94**	**741**	**7**	**23 (UNLOCKED 0)**	**0**	**3/2**	**5.21 5.21**	**152 152**	**0.293 0.293**	**124**			**98 (Pipe flow= Sum upstr atten flows)**	**24.981**	**14.00**	**375(2)**	**0.88(0.72 1y) (5.94)**	**0.42**		**Qg 0.022 Qo 0.098 Do 375 Flow 1/2 made eqv grate flow CHRT 32: Vo2/2gDo 0.11 H/Do 0.00 Kg side flow 7.82 end flow 5.98 K vals above for stepped pipes as grate flow grate flow decreased by 0.075 from 1/2 Angle 30 Chart 36 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.51 K0.5 1.86 Qu/Qo 0.77 Cg 0.54 K 1.70**	**0.039**	**1.84**	**0.073**	**S/Do 2.0 K0 1.79 K0.5 2.07 K 1.94 S/Do 1.5 K0 2.11 K0.5 2.54 K 2.34 Interp val for S/Do 1.27 Kw 2.52 CHART 35 S/Do 2.0 K0 1.55 K0.5 1.74 K 1.65 S/Do 1.5 K0 1.75 K0.5 1.80 K 1.78 Interp val for S/Do 1.27 Ku 1.84 K vals step pipes as pipe flow Ku 1.84 Kw 2.52**		**2.52**	**0.100**	**0.31**	**0.078**	**0.098 (0.089 1y)**	**4.26 (4.03 1y)**	**66.492 62.995**	**66.492 62.718**	**66.565**		**66.592**	**67.503**	**2/2**
2 2	**3/2**	**3/2 to 4/2**	**1/2;2/2;3/2**			**5.00 5.00**	**154 154**		**0.75 0.75**	**0.022 0.022**	**0.017 0.017**	**0.017 0.017**	**7 7**	**7**	**15.94**	**741**	**7**	**7 (UNLOCKED 0)**	**0**	**4/2**	**5.63 5.63**	**148 148**	**0.310 0.310**	**127**			**102 (Pipe flow= Sum upstr atten flows)**	**24.981**	**6.00**	**375(2)**	**0.92(0.75 1y) (3.89)**	**0.42**		**Qg 0.007 Qo 0.102 Do 375 Flow 2/2 made eqv grate flow CHRT 32: Vo2/2gDo 0.12 H/Do 0.00 Kg side flow 7.63 end flow 5.87 K vals above for stepped pipes as grate flow**	**0.043**	**7.63**	**0.329**			**7.63**	**0.329**	**0.34**	**0.085**	**0.125 (0.112 1y)**	**3.19 (3.01 1y)**	**61.974 60.475**	**61.974 60.419**	**62.303**		**62.303**	**63.520**	**3/2**
2 2	**1/13**	**1/13 to 2/13**	**1/13**			**5.00 5.00**	**154 154**		**0.65 0.65**	**0.172 0.172**	**0.112 0.112**	**0.112 0.112**	**48 48**	**74 FLOW WIDTH 0.936 m DOWNSTREAM 0.142m**	**15.94**	**741**	**8**	**60 (UNLOCKED 0)**	**15**	**2/13**	**5.00 5.00**	**154 154**	**0.112 0.112**	**48**			**60 (Pipe flow= Grate flow)**	**30.777**	**7.00**	**375(2)**	**0.54(0.43 1y) (4.20)**	**0.51**		**Qg 0.060 Qo 0.060 Do 375 CHRT 32: Vo2/2gDo 0.04 H/Do 0.00 Kg side flow 9.65 end flow 6.94**	**0.015**	**9.65**	**0.144**			**9.65**	**0.144**	**0.12**	**0.036**	**0.091 (0.081 1y)**	**2.89 (2.71 1y)**	**62.652 60.498**	**62.652 60.478**	**62.796**		**62.796**	**64.439**	**1/13**
2 2	2/13	2/13 to 4/2	1/13;2/13			5.00 5.00	154 154		0.65 0.65	0.331 0.331	0.215 0.215	0.215 0.215	92 92	107 FLOW WIDTH 0.250 m	0.05	406	15S.14	107 (UNLOCKED 0)	0	4/2	5.51 5.51	149 149	0.327 0.327	135			161 (Pipe flow= Sum upstr atten flows)	6.411	1.00	600(2)	0.55(0.42 1y) (2.19)	0.11		Qg 0.103 Qo 0.161 Do 600 Angle 90 Chart 47 S/Do 2.5 chartdeg Du/Do 0.63 K0 2.75 K0.5 2.27 Qu/Qo 0.36 Cg 1.16 K 2.20 S/Do 2.0 K0 2.85 K0.5 2.49 K 2.44 S/Do 1.5 K0 3.14 K0.5 2.93 K 2.90 Interp val for S/Do 1.08 Kw 3.28 CHART 46	0.015	1.00	0.055	S/Do 2.0 K0 1.71 K0.5 2.01 K 2.06 S/Do 1.5 K0 2.10 K0.5 2.31 K 2.34 Interp val for S/Do 1.08 Ku 2.58 Part full downstream pipe Upstream HGL 60.478 below outlet pipe obv 60.713 Set Kp to 1		1.00	0.055	0.06	0.004	0.208 (0.181 1y)	1.83 (1.69 1y)	60.713 60.649	60.423 60.419	60.478		60.478	61.434	2/13
2 2	4/2	4/2 to 5/2	1/2;2/2;3/2;1/13;2/1 3;4/2			5.00 5.00	154 154		0.75 0.75	0.049 0.049	0.037 0.037	0.037 0.037	16 16	16 FLOW WIDTH 0.000 m	15.94	338	14S.11	16 (UNLOCKED 0)	0		6.05 6.05	144 144	0.674 0.674	270			270 (Pipe flow= Sum upstr atten flows)	16.783	0.40	825(2)	0.49(0.38 1y) (1.72)	0.28		Qg 0.015 Qo 0.270 Do 825 Routine 2.21 CHART 48 Du/Do 0.45 Qu/Qo 0.37 K 0.76 d/Do 2.0 chrt Qg/Qo 0.05 Kg 0.00 d/Do 1.5 chrt Qg/Qo 0.05 Kg 0.00 d/Do 1.00 Interp value Kg 0.00 Ku=Kw= 0.76 Combined pipes in line case Join Pipes: 3/2 and 2/13 Vel1 0.900 Vel2 0.550	0.012	1.00	0.097	Eq Dia 687 Angle 141 Flow 0.255 CHART 33 Angle 0 S/Do 2.5 Du/Do 0.83 Qg/Qo 0.05 K -0.25 S/Do 1.00 cor 0.10 Ku -0.15 Kw -0.15 Interpolated Ku= 0.76 Kw= 0.76 Part full downstream pipe Upstream HGL 60.419 below outlet pipe obv 60.837 Set Kp to 1		1.00	0.097	0.03	0.005	0.306 (0.269 1y)	1.48 (1.38 1y)	60.837 60.770	60.322 60.317	60.419		60.419	61.440	4/2
2 2	5/2	5/2 to OUT6/2	1/2;2/2;3/2;1/13;2/1 3;4/2														24				6.33 6.33	142 142	0.674 0.674	266			270 (Pipe flow= Sum upstr atten flows)	8.001	0.40	900(2)	0.41(0.32 1y) (1.82)	0.13		Qo 0.270 Do 900 CHART 50 Du/Do0.92 alpha 86 K'w 0.30 Vu 0.50 WSE 0.02 Ku 1.73 Kw 2.18 Part full downstream pipe	0.009	1.00	0.110	Upstream HGL 60.317 below outlet pipe obv 60.827 Set Kp to 1		1.00	0.110	0.02	0.002	0.295 (0.260 1y)	1.47 (1.37 1y)	60.827 60.795	60.207 60.190	60.317		60.317	61.715	5/2

NOTE
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Q2 CALCULATIONS TABLE

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE CALCULATIONS SHEET 4 OF 5 Q2 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CD503		B

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LOCATION					TIME			SUB-CATCHMENT RUNOFF						INLET DESIGN							DRAIN DESIGN												HEADLOSSES									PART FULL		DESIGN LEVELS						
						tc	I	C10	C	A	C×A	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T			V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp							
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C x A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.G.L	UPSTREAM H.G.L	LAT. H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.
yrs					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m	%	m	m	m/s	m	m	m	m	m	m	
2 2	1/7	1/7 to 2/7	1/7			5.00 5.00	154 154		0.64 0.64	0.090 0.090	0.058 0.058	0.058 0.058	25 25 FLOW	25 WIDTH/DEPTH 0.060Dp	13.20 m	38	#D.08L2.4A.36	25 (UNLOCKED	0 0)	2/7	5.00 5.00	154 154	0.058 0.105	45			45 Additional flow: 0.020 (Pipe flow= Sum upstr	19.949 cumecs atten flows)	11.53	225(U)(0.98(0.98 1y) (4.74)	0.33		Qg 0.045 Qo 0.045 Do 225 CHRT 32: Vo2/2gDo 0.20 H/Do 0.00 Kg side flow 5.89 end flow 4.84	0.049	5.89	0.289			5.89	0.289	0.49	0.098	0.074 (0.074 1y)	3.74 (3.74 1y)	67.041 64.741	67.041 64.700	67.330		67.330	67.633	1/7
2 2	2/7	2/7 to 3/7	1/7;2/7			5.00 5.00	154 154		0.64 0.64	0.065 0.065	0.042 0.042	0.042 0.042	18 18 FLOW	18 WIDTH/DEPTH 0.048Dp	11.60 m	38	#D.08L2.4A.36	18 (UNLOCKED	0 0)	3/7	5.33 5.33	151 151	0.147 0.194	81			82 Additional flow: 0.020 (Pipe flow= Sum upstr	14.753 cumecs atten flows)	6.78	225(U)(1.78(1.78 1y) (3.64)	0.14		Qg 0.038 Qo 0.082 Do 225 Flow 1/7 made eqv grate flow CHRT 32: Vo2/2gDo 0.67 H/Do 0.00 Kg side flow 3.38 end flow 3.06 K vals above for stepped pipes as grate flow grate flow decreased by 0.044 from 1/7	0.161	1.60	0.259	CHART 33 Angle 0 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.46 K 1.44 S/Do 2.07 cor 0.16 Ku 1.60 Kw 1.60 K vals step pipes as pipe flow Ku 1.60 Kw 1.60		1.60	0.259	1.63	0.240	0.119 (0.119 1y)	3.62 (3.62 1y)	64.441 63.441	64.441 63.753	64.700		64.700	65.204	2/7
2 2	3/7	3/7 to 4/7	1/7;2/7;3/7			5.00 5.00	154 154		0.64 0.64	0.060 0.060	0.038 0.038	0.038 0.038	16 16 FLOW	16 WIDTH/DEPTH 0.045Dp	6.09 m	38	#D.08L2.4A.36	16 (UNLOCKED	0 0)	4/7	5.47 5.47	149 149	0.232 0.281	116			116 Additional flow: 0.020 (Pipe flow= Sum upstr	16.309 cumecs atten flows)	6.00	225(U)(2.54(2.54 1y) (3.42)	0.11		Qg 0.036 Qo 0.116 Do 225 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.31 K 1.10 S/Do 2.50 cor 0.00 Ku 1.10 Kw 1.10	0.329	1.10	0.362			1.10	0.362	3.30	0.538	0.155 (0.155 1y)	3.75 (3.75 1y)	63.391 62.413	63.391 62.343	63.753		63.753	63.980	3/7
2 2	4/7	4/7 to 5/7	1/7;2/7;3/7;4/7			5.00 5.00	154 154		0.64 0.64	0.060 0.060	0.038 0.038	0.038 0.038	16 16 FLOW	16 WIDTH/DEPTH 0.045Dp	4.59 m	38	#D.08L2.4A.36	16 (UNLOCKED	0 0)	5/7	5.58 5.58	148 148	0.319 0.367	151			151 Additional flow: 0.020 (Pipe flow= Sum upstr	18.552 cumecs atten flows)	4.00	300(U)(2.08(2.08 1y) (3.26)	0.15		Qg 0.036 Qo 0.151 Do 300 Flow 3/7 made eqv grate flow CHRT 32: Vo2/2gDo 0.73 H/Do 0.00 Kg side flow 3.25 end flow 2.97 K vals above for stepped pipes as grate flow grate flow decreased by 0.115 from 3/7	0.221	0.42	0.093	CHART 33 Angle 0 S/Do 2.5 Du/Do 0.75 Qg/Qo 0.24 K 0.10 S/Do 1.30 cor 0.32 Ku 0.42 Kw 0.42 K vals step pipes as pipe flow Ku 0.42 Kw 0.42		0.42	0.093	1.63	0.302	0.176 (0.176 1y)	3.46 (3.46 1y)	62.137 61.395	62.137 61.271	62.230		62.230	63.201	4/7
2 2	5/7	5/7 to 6/7	1/7;2/7;3/7;4/7;5/7			5.00 5.00	154 154		0.60 0.60	0.008 0.008	0.005 0.005	0.005 0.005	2 2 FLOW	2 WIDTH/DEPTH 0.007Dp	0.05 m	75	#D.08L3.6A.81	2 (UNLOCKED	0 0)	0	5.73 5.73	147 147	0.372 0.421	172			172 Additional flow: 0.020 (Pipe flow= Sum upstr	14.279 cumecs atten flows)	1.50	450(2)(0.88(1.08 1y) (2.19)	0.22		Qg 0.022 Qo 0.172 Do 450 Flow 4/7 made eqv grate flow CHRT 32: Vo2/2gDo 0.13 H/Do 0.00 Kg side flow 7.30 end flow 5.68 K vals above for stepped pipes as grate flow grate flow decreased by 0.150 from 4/7 CHART 33 Angle 1 S/Do 2.5	0.059	1.00	0.109	Du/Do 0.67 Qg/Qo 0.13 K -1.24 S/Do 0.8 cor 0.25 Ku -0.99 Kw -0.99 K vals step pipes as pipe flow Ku -0.99 Kw -0.99 Part full downstream pipe Upstream HGL 61.121 below outlet pipe obv 61.150 Set Kp to -1		1.00	0.109	0.36	0.052	0.223 (0.223 1y)	2.19 (2.19 1y)	61.150 60.936	61.012 60.960	61.121		61.121	61.988	5/7
2 2	6/7	6/7 to OUT7/7	1/7;2/7;3/7;4/7;5/7														24				5.95 5.95	145 145	0.421 0.421	170			172 (Pipe flow= Sum upstr | 20.015 atten flows)	3.00	450(2)(0.88(1.08 1y) (3.10)	0.31		Qo 0.172 Do 450 CHART 59 Du/Do1.00 alpha 14 K'w 0.20 Vu 1.08 WSE 0.04 Ku 0.50 Kw 0.70	0.059	0.50	0.030			0.70	0.042	0.36	0.073	0.184 (0.184 1y)	2.83 (2.83 1y)	60.930 60.330	60.930 60.064	60.960		60.972	61.128	6/7

Q2 CALCULATIONS TABLE

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MINOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MAJOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE CALCULATIONS SHEET 5 OF 5 Q2 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD504 REV. B

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Q100 CALCULATIONS TABLE

LOCATION / TIME / SUB-CATCHMENT RUNOFF / INLET DESIGN

Design ARI (yrs)	Structure No.	Drain Section	Sub-catchments Contributing	Land Use	Slope of Catchment (%)	tc Sub-catchment Time of Conc. (min)	I Rainfall Intensity (mm/h)	C10 10yr Runoff Co-efficient	C Co-efficient of Runoff	A Sub-catchment Area (ha)	C×A Equivalent Area (ha)	+CA Sum of (C × A) (ha)	Q Sub-catchment Discharge (l/s)	Flow in K&C (inc. bypass) (l/s)	Road Grade at Inlet (%)	Minor Flow Road Capacity (l/s)	Inlet Type	Qg Flow into Inlet (l/s)	Qb Bypass Flow (l/s)	Bypass Structure No.
100 100	IN1/12	IN1/12 to IN1A/12															26			
100 100	IN1A/12	IN1A/12 to 2/8															26			
100 100	IN1/8	IN1/8 to IN1A/8															26			
100 100	IN1A/8	IN1A/8 to 2/8															26			
100 100	2/8	2/8 to EX3/8	2/8			5.00 5.00	316 316		1.00 1.00	0.009 0.009	0.009 0.009	0.009 0.009	8 8	8 FLOW WIDTH 0.042 m	7.67	514	7	8 (UNLOCKED 0)	0	EX3/8
100 100	EX3/8	EX3/8 to EX4/8	2/8;EX3/8			8.00 8.00	267 267		0.91 0.91	1.308 1.308	1.190 1.190	1.190 1.190	883 883	514 -CrnFL 369 FLOW WIDTH 3.000 m DOWNSTREAM 2.263m	7.67	514	8	240 (UNLOCKED 0)	274 369	EX4/8 Crn ×
100 100	1/9	1/9 to 2/9	1/9			5.00 5.00	316 316		0.90 0.90	0.083 0.083	0.075 0.075	0.075 0.075	66 66	66 FLOW WIDTH/DEPTH 0.080Dp m	1.00	38	#D.08L2.4A.36	38 (UNLOCKED 0)	28	2/9
100 100	2/9	2/9 to 3/9	1/9;2/9			5.00 5.00	316 316		0.90 0.90	0.062 0.062	0.056 0.056	0.056 0.056	49 49	77 FLOW WIDTH/DEPTH 0.080Dp m	1.00	38	#D.08L2.4A.36	38 (UNLOCKED 0)	40	3/9
100 100	3/9	3/9 to 4/9	1/9;2/9;3/9			5.00 5.00	316 316		0.90 0.90	0.062 0.062	0.056 0.056	0.056 0.056	49 49	89 FLOW WIDTH/DEPTH 0.080Dp m	1.00	38	#D.08L2.4A.36	38 (UNLOCKED 0)	51	4/9
100 100	4/9	4/9 to 5/9	1/9;2/9;3/9;4/9			5.00 5.00	316 316		0.90 0.90	0.064 0.064	0.058 0.058	0.058 0.058	51 51	102 FLOW WIDTH/DEPTH 0.080Dp m	13.90	38	#D.08L2.4A.36	38 (UNLOCKED 0)	65	5/9
100 100	5/9	5/9 to 6/9	1/9;2/9;3/9;4/9;5/9			5.00 5.00	316 316		0.90 0.90	0.062 0.062	0.056 0.056	0.056 0.056	49 49	114 FLOW WIDTH/DEPTH 0.080Dp m	13.60	38	#D.08L2.4A.36	38 (UNLOCKED 0)	76	6/9
100 100	6/9	6/9 to 7/9	1/9;2/9;3/9;4/9;5/9 ;6/9			5.00 5.00	316 316		0.90 0.90	0.059 0.059	0.053 0.053	0.053 0.053	47 47	123 FLOW WIDTH/DEPTH 0.080Dp m	9.00	38	#D.08L2.4A.36	38 (UNLOCKED 0)	85	7/9
100 100	7/9	7/9 to 8/9	1/9;2/9;3/9;4/9;5/9 ;6/9;7/9			5.00 5.00	316 316		0.90 0.90	0.060 0.060	0.054 0.054	0.054 0.054	47 47	133 FLOW WIDTH/DEPTH 0.080Dp m	7.15	38	#D.08L2.4A.36	38 (UNLOCKED 0)	95	8/9
100 100	8/9	8/9 to 9/9	1/9;2/9;3/9;4/9;5/9 ;6/9;7/9;8/9			5.00 5.00	316 316		0.90 0.90	0.060 0.060	0.054 0.054	0.054 0.054	47 47	143 FLOW WIDTH/DEPTH 0.080Dp m	6.40	38	#D.08L2.4A.36	38 (UNLOCKED 0)	105	
100 100	9/9	9/9 to OUT10/9	1/9;2/9;3/9;4/9;5/9 ;6/9;7/9;8/9														24			
100 100	1/5	1/5 to 2/5															24			
100 100	2/5	2/5 to 3/5															24			
100 100	3/5	3/5 to 4/5															24			
100 100	4/5	4/5 to 5/5															24			

DRAIN DESIGN

Structure No.	tc Critical Time of Conc. (min)	I Rainfall Intensity (mm/h)	+CA Total (C × A) (ha)	Qt Major Total Flow (l/s)	Qm Major Surface Flow Capacity (l/s)	Qs Major Surface Flow (l/s)	Qp Pipe Flow (l/s)	L Reach Length (m)	S Pipe Grade (%)	Pipe / Box Dimensions (Class) (mm)	V Flow Velocity Full (Pipe Grade Velocity) (m/s)	T Time of Flow in Reach (min)	Structure Chart No.
IN1/12	5.00 5.00	316 316	1.880 1.880	1650		Additional flow: 1.650 cumecs (Pipe flow= Sum upstr atten flows)	1650	1.600	0.40	1050(2)	1.85(1.85 1y) (2.01)	0.01	
IN1A/12	5.01 5.01	315 315	1.880 1.880	1645		(Pipe flow= Sum upstr atten flows)	1650	12.044	0.40	1050(2)	1.85(1.85 1y) (2.01)	0.11	
IN1/8	5.00 5.00	316 316	1.880 1.880	1650		Additional flow: 1.650 cumecs (Pipe flow= Sum upstr atten flows)	1650	1.613	0.40	1050(2)	1.85(1.85 1y) (2.01)	0.01	
IN1A/8	5.01 5.01	315 315	1.880 1.880	1645		(Pipe flow= Sum upstr atten flows)	1650	11.906	0.40	1050(2)	1.85(1.85 1y) (2.01)	0.11	
2/8	5.12 5.12	313 313	3.768 3.768	3276		(Pipe flow= Sum upstr atten flows)	3287	20.180	1.00	1350(2)	2.22(2.21 1y) (3.77)	0.15	
EX3/8	8.00 8.00	267 267	4.958 4.958	3678		(Pipe flow set by user)	3582	32.455	1.23	1350(2)	2.42(2.42 1y) (4.18)	0.22	
1/9	5.00 5.00	316 316	0.075 0.098	86		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	58	16.636	1.00	225(U)	1.26(1.26 1y) (1.40)	0.22	
2/9	5.22 5.22	311 311	0.154 0.177	153		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	114	15.433	1.00	300(U)	1.56(1.56 1y) (1.63)	0.16	
3/9	5.38 5.38	308 308	0.233 0.256	219		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	169	15.438	12.00	300(U)	2.33(2.33 1y) (5.65)	0.11	
4/9	5.49 5.49	306 306	0.314 0.338	287		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	224	14.529	13.00	300(U)	3.09(3.09 1y) (5.88)	0.08	
5/9	5.57 5.57	304 304	0.394 0.418	353		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	279	15.551	7.00	300(U)	3.84(3.84 1y) (4.31)	0.07	
6/9	5.64 5.64	303 303	0.471 0.494	416		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	334	16.038	8.00	300(U)	4.60(4.60 1y) (4.61)	0.06	
7/9	5.70 5.70	302 302	0.548 0.572	480		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	389	15.621	6.00	375(2)	3.52(3.52 1y) (3.89)	0.07	
8/9	5.77 5.77	301 301	0.626 0.650	543		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	443	4.254	1.00	450(2)	2.79(2.79 1y) (1.79)	0.03	
9/9	5.80 5.80	300 300	0.650 0.464	387		Additional flow: -0.155 cumecs (Pipe flow= Sum upstr atten flows)	287	22.660	8.83	525(2)	1.28(1.28 1y) (5.97)	0.30	
1/5	5.00 5.00	316 316	0.023 0.023	20		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	20	27.338	6.50	150(U)	1.07(1.07 1y) (2.65)	0.43	
2/5	5.43 5.43	307 307	0.023 0.046	39		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	40	24.425	5.00	225(U)	0.87(0.87 1y) (3.12)	0.41	
3/5	5.84 5.84	300 300	0.046 0.070	58		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	60	24.865	2.00	225(U)	1.31(1.31 1y) (1.98)	0.32	
4/5	6.16 6.16	294 294	0.070 0.095	78		Additional flow: 0.020 cumecs (Pipe flow= Sum upstr atten flows)	80	25.783	2.00	225(U)	1.75(1.75 1y) (1.98)	0.25	

HEADLOSSES / PART FULL

Structure No.	Structure Ratios for 'K' Value Calculations	V2/2g Velocity Head (m)	Ku U/S Headloss Coefficient	hu U/S Pipe Struct. Headloss (m)	Kl Lat. Headloss Co-efficient	hl Lat. Pipe Struct. Headloss (m)	Kw W.S.E Co-efficient	hw Change in W.S.E (m)	Sf Pipe Friction Slope (%)	hf Pipe Friction Headloss (L × Sf) (m)	Depth (m)	Vp Velocity (m/s)
IN1/12		0.174	1.00	0.175			1.00	0.175	0.34	0.005		
IN1A/12	Qo 1.650 Do 1050 CHART 50 Du/Do1.00 alpha 2 K'w 0.13 Vu 1.91 WSE 0.08 Ku 0.34 Kw 0.48	0.174	0.34	0.059			0.48	0.083	0.34	0.041		
IN1/8		0.174	1.00	0.175			1.00	0.175	0.34	0.005		
IN1A/8	Qo 1.650 Do 1050 CHART 50 Du/Do1.00 alpha 7 K'w 0.17 Vu 1.91 WSE 0.10 Ku 0.41 Kw 0.59	0.174	0.41	0.072			0.59	0.103	0.34	0.040		
2/8	Qg 0.008 Qo 3.287 Do 1350 Routine 2.15 Join Pipes: IN1A/12 and IN1A/8 Vel1 1.893 Vel2 1.893 Eq Dia 1484 Angle 261 Flow 3.279 Angle 81 Chart 47 S/Do 2.5 chartdeg Du/Do 1.10 K0 1.90 K0.5 2.00 Qu/Qo 1.00 Cg 0.01 K 1.90	0.251	2.08	0.523	S/Do 2.0 K0 2.41 K0.5 2.40 K 2.41 S/Do 1.5 K0 2.65 K0.5 2.52 K 2.65 Interp val for S/Do 1.77 Kw 2.52 CHART 46 S/Do 2.0 K0 2.07 K0.5 1.82 K 2.07 S/Do 1.5 K0 2.09 K0.5 2.31 K 2.09 Interp val for S/Do 1.77 Ku 2.08		2.52	0.633	0.35	0.070		
EX3/8	Qg 0.778 Qo 3.582 Do 1350 Angle 44 Chart 39 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.80 K0.5 1.91 Qu/Qo 0.78 Cg 0.52 K 1.86 S/Do 2.0 K0 1.98 K0.5 2.10 K 2.04 S/Do 1.5 K0 2.39 K0.5 2.52 K 2.45	0.298	1.93	0.576	Interp val for S/Do 1.53 Kw 2.43 CHART 38 S/Do 2.0 K0 1.84 K0.5 1.75 K 1.79 S/Do 1.5 K0 2.05 K0.5 1.84 K 1.94 Interp val for S/Do 1.53 Ku 1.93		2.43	0.725	0.41	0.134	0.749 (0.749 1y)	4.34 (4.34 1y)
1/9	Qg 0.058 Qo 0.058 Do 225 CHRT 32: Vo2/2gDo 0.34 H/Do 2.13 Kg side flow 2.68 end flow 2.42	0.081	2.68	0.217			2.68	0.217	0.81	0.135		
2/9	Qg 0.057 Qo 0.114 Do 300 CHART 33 Angle 0 S/Do 2.5 Du/Do 0.75 Qg/Qo 0.50 K 1.17 S/Do 2.59 cor -0.03 Ku 1.14 Kw 1.14	0.124	1.14	0.142			1.14	0.142	0.92	0.142		
3/9	Qg 0.057 Qo 0.169 Do 300 CHART 34 Angle 15 Case3 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.33 K 1.27 S/Do 2.23 cor 0.08 Ku 1.35 Kw 1.35	0.277	1.35	0.374			1.35	0.374	2.04	0.315	0.136 (0.136 1y)	5.37 (5.37 1y)
4/9	Qg 0.056 Qo 0.224 Do 300 CHART 34 Angle 13 Case3 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.25 K 1.05 S/Do 2.65 cor -0.02 Ku 1.03 Kw 1.03	0.487	1.03	0.501			1.03	0.501	3.59	0.522	0.157 (0.157 1y)	5.95 (5.95 1y)
5/9	Qg 0.056 Qo 0.279 Do 300 Flow 4/9 made eqv grate flow CHRT 32: Vo2/2gDo 2.47 H/Do 1.99 Kg side flow 1.77 end flow 1.72 K vals above for stepped pipes as grate flow grate flow decreased by 0.223 from 4/9	0.752	0.69	0.519	CHART 33 Angle 1 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.20 K 0.82 S/Do 4.69 cor -0.13 Ku 0.69 Kw 0.69 K vals step pipes as pipe flow Ku 0.69 Kw 0.69		0.69	0.519	5.56	0.864		
6/9	Qg 0.056 Qo 0.334 Do 300 CHART 33 Angle 1 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.17 K 0.72 S/Do 3.78 cor -0.08 Ku 0.64 Kw 0.64	1.078	0.64	0.690			0.64	0.690	7.97	1.278		
7/9	Qg 0.056 Qo 0.389 Do 375 CHART 33 Angle 0 S/Do 2.5 Du/Do 0.80 Qg/Qo 0.14 K -0.01 S/Do 1.30 cor 0.19 Ku 0.18 Kw 0.18	0.632	0.18	0.114			0.18	0.114	4.93	0.770	0.280 (0.280 1y)	4.40 (4.40 1y)
8/9	Qg 0.056 Qo 0.443 Do 450 Flow 7/9 made eqv grate flow CHRT 32: Vo2/2gDo 0.88 H/Do 0.13 Kg side flow 2.88 end flow 2.66 K vals above for stepped pipes as grate flow grate flow decreased by 0.388 from 7/9	0.397	0.27	0.107	CHART 33 Angle 0 S/Do 2.5 Du/Do 0.83 Qg/Qo 0.13 K 0.11 S/Do 1.38 cor 0.16 Ku 0.27 Kw 0.27 K vals step pipes as pipe flow Ku 0.27 Kw 0.27		0.27	0.107	2.42	0.103		
9/9	Qo 0.287 Do 525 Flow 8/9 made eqv grate flow CHRT 32: Vo2/2gDo 0.16 H/Do 0.00 Kg side flow 6.83 end flow 5.40 K vals above for stepped pipes as grate flow	0.084	6.83	0.570			6.83	0.570	0.41	0.092	0.168 (0.168 1y)	4.75 (4.75 1y)
1/5	Qo 0.020 Do 150 CHRT 32: Vo2/2gDo 0.38 H/Do 0.00 Kg side flow 4.38 end flow 3.75	0.058	4.38	0.255			4.38	0.255	1.06	0.289	0.068 (0.068 1y)	2.49 (2.49 1y)
2/5	Qo 0.040 Do 225 CHART 50 Du/Do0.67 alpha 3 K'w 0.14 Vu 1.10 WSE -0.08 Ku -2.29 Kw -2.07	0.039	0.20	0.007			0.20	0.007	0.39	0.096	0.087 (0.087 1y)	2.67 (2.67 1y)
3/5	Qo 0.060 Do 225 CHART 50 Du/Do1.00 alpha 12 K'w 0.19 Vu 0.98 WSE 0.05 Ku 0.47 Kw 0.58	0.087	0.47	0.041			0.58	0.050	0.88	0.219		
4/5	Qo 0.080 Do 225 CHART 50 Du/Do1.00 alpha 21 K'w 0.21 Vu 1.48 WSE 0.12 Ku 0.60 Kw 0.75	0.156	0.60	0.094			0.75	0.118	1.56	0.403		

DESIGN LEVELS

Obvert Levels (m)	Drain Section H.G.L (m)	Upstream H.G.L (m)	Lat. H.G.L (m)	W.S.E. (m)	Surface or K&C Invert Level (m)	Structure No.
58.772 58.766	60.046 60.041	60.221		60.221	59.533	IN1/12
58.754 58.706	59.982 59.941	60.041		60.065	59.592	IN1A/12
58.772 58.766	60.058 60.053	60.233		60.233	59.579	IN1/8
58.754 58.706	59.981 59.941	60.053		60.084	59.632	IN1A/8
58.994 58.792	59.418 59.348	59.941		60.051	61.499	2/8
58.772 58.372	58.772 58.350	59.348		59.497	60.014	EX3/8
73.782 73.615	74.297 74.162	74.514		74.514	74.337	1/9
73.678 73.524	74.020 73.878	74.162		74.162	74.170	2/9
73.504 71.652	73.504 72.105	73.878		73.878	74.016	3/9
71.604 69.715	71.604 70.117	72.105		72.105	72.198	4/9
68.993 67.904	69.598 68.734	70.117		70.117	70.223	5/9
67.884 66.601	68.044 66.766	68.734		68.734	68.495	6/9
66.652 65.715	66.652 65.660	66.766		66.766	67.303	7/9
65.493 65.450	65.553 65.450	65.660		65.660	66.287	8/9
63.534 61.534	63.534 61.177	64.104		64.104	66.004	9/9
92.560 90.783	92.560 90.857	92.815		92.815	93.061	1/5
90.850 89.628	90.850 89.797	90.857		90.857	91.458	2/5
89.608 89.111	89.756 89.537	89.797		89.806	90.179	3/5
89.091 88.575	89.443 89.040	89.537		89.561	89.643	4/5

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MAJOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MINOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
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GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
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JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE CALCULATIONS SHEET 1 OF 5 Q100 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CD505		B

© MILANOVIC NEALE CONSULTING ENGINEERS

LOCATION					TIME			SUB-CATCHMENT RUNOFF						INLET DESIGN							DRAIN DESIGN												HEADLOSSES							PART FULL				DESIGN LEVELS						
						tc	I	C10	C	A	C×A	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T			V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp							
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C x A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.G.L	UPSTREAM H.G.L	LAT. H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.
yrs					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m			m	m	%	m	m	m/s	m	m	m	m	m	m	
100 100	5/5	5/5 to 6/5															24				6.41 6.41	290 290	0.095 0.095	76			80 (Pipe flow= Sum upstr atten flows)	11.161	1.00	300(U)	1.01(1.10 ty) (1.63)	0.17		Qo 0.080 Do 300 CHART 50 Du/Do0.75 alpha 33 K'w 0.23 Vu 2.01 WSE 0.05 Ku 0.01 Kw 0.79	0.062	0.01	0.001			0.79	0.049	0.46	0.051			88.618 88.506	89.039 88.988	89.040		89.088	89.117	5/5
100 100	6/5	6/5 to 7/5															24				6.58 6.58	287 287	0.095 0.120	96			100 Additional flow: 0.02 cumecs (Pipe flow= Sum upstr atten flows)	32.716	1.50	300(U)	1.38(1.38 ty) (2.00)	0.40		Qo 0.100 Do 300 CHART 50 Du/Do1.00 alpha 12 K'w 0.19 Vu 1.12 WSE 0.06 Ku 0.47 Kw 0.59	0.097	0.47	0.046			0.59	0.058	0.71	0.233			88.506 88.015	88.942 88.709	88.988		89.000	89.354	6/5
100 100	7/5	7/5 to 4/3															24				6.98 6.98	281 281	0.120 0.145	113			120 Additional flow: 0.02 cumecs (Pipe flow= Sum upstr atten flows)	18.138	5.00	375(2)	1.09(1.09 ty) (3.55)	0.28		Qo 0.120 Do 375 CHART 50 Du/Do0.80 alpha 58 K'w 0.27 Vu 1.39 WSE 0.10 Ku 1.22 Kw 1.65	0.061	1.22	0.074			1.65	0.100	0.47	0.085			88.066 87.159	88.635 88.550	88.709		88.735	89.317	7/5
100 100	1/6	1/6 to 2/6															24				5.00 5.00	316 316	0.023 0.023	20			20 Additional flow: 0.02 cumecs (Pipe flow= Sum upstr atten flows)	19.466	1.00	225(2)	0.49(0.49 ty) (1.14)	0.32		Qo 0.020 Do 225 CHRT 32: Vo2/2gDo 0.05 H/Do 5.25 Kg side flow 1.90 end flow 1.81	0.012	1.90	0.023			1.90	0.023	0.18	0.035			89.229 89.034	90.432 90.397	90.455		90.455	90.690	1/6
100 100	2/6	2/6 to 3/6	2/6			5.00 5.00	316 316		0.90 0.90	0.059 0.059	0.053 0.053	0.053 0.053	47 47 FLOW WIDTH/DEPTH 0.092Dp m	47	1.00	69	#D.12L2.4A.36	47 (UNLOCKED (I)	0	3/6	5.32 5.32	309 309	0.076 0.099	85			85 Additional flow: 0.02 cumecs (Pipe flow= Sum upstr atten flows)	20.742	1.43	225(2)	2.06(2.06 ty) (1.37)	0.17		Qg 0.065 Qo 0.085 Do 225 CHART 33 Angle 7 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.77 K 2.00 S/Do 7.04 cor -0.85 Ku 1.15 Kw 1.15	0.216	1.15	0.248			1.15	0.248	3.27	0.679			89.014 88.717	90.149 89.470	90.397		90.397	90.496	2/6
100 100	3/6	3/6 to 4/6	2/6;3/6			5.00 5.00	316 316		0.90 0.90	0.055 0.055	0.050 0.050	0.050 0.050	44 43 FLOW WIDTH/DEPTH 0.088Dp m	44	1.00	69	#D.12L2.4A.36	44 (UNLOCKED (I)	0	4/6	5.49 5.49	306 306	0.149 0.173	147			147 Additional flow: 0.02 cumecs (Pipe flow= Sum upstr atten flows)	20.716	1.00	300(2)	1.08(2.08 ty) (1.37)	0.17		Qg 0.063 Qo 0.147 Do 300 CHART 34 Angle 24 Case3 S/Do 2.5 Du/Do 0.75 Qg/Qo 0.43 K 1.06 S/Do 3.34 cor -0.16 Ku 0.90 Kw 0.90	0.221	0.90	0.198			0.90	0.198	2.31	0.478			88.768 88.561	89.272 88.794	89.470		89.470	90.233	3/6
100 100	**4/6**	**4/6 to 4/3**	**2/6;3/6;4/6**			**5.00 5.00**	**316 316**		**0.90 0.90**	**0.054 0.054**	**0.049 0.049**	**0.049 0.049**	**43 43 FLOW WIDTH/DEPTH 0.087Dp m**	**43**	**0.00**	**69**	**#D.12L2.4A.36**	**43 (UNLOCKED (I)**	**0**	**5A/3**	**5.66 5.66**	**303 303**	**0.222 0.245**	**206**			**207 Additional flow: 0.02 cumecs (Pipe flow= Sum upstr atten flows)**	**4.015**	**1.25**	**375(2)**	**1.87(1.87 ty) (1.77)**	**0.04**		**Qg 0.061 Qo 0.207 Do 375 CHART 33 Angle 1 S/Do 2.5 Du/Do 0.80 Qg/Qo 0.30 K 0.63 S/Do 1.47 cor 0.34 Ku 0.97 Kw 0.97**	**0.178**	**0.97**	**0.172**			**0.97**	**0.172**	**1.39**	**0.056**			**88.616 88.566**	**88.622 88.566**	**88.794**		**88.794**	**89.861**	**4/6**
100 100	**1/3**	**1/3 to 2/3**	**1/3**			**5.00 5.00**	**316 316**		**1.00 1.00**	**0.047 0.047**	**0.047 0.047**	**0.047 0.047**	**41 41 FLOW WIDTH 0.625 m**	**41**	**14.00**	**1423**	**7**	**39 (UNLOCKED (I)**	**3**	**2/3**	**5.00 5.00**	**316 316**	**0.047 0.047**	**41**			**39 (Pipe flow= Grate flow)**	**36.309**	**6.00**	**375(2)**	**0.35(0.14 ty) (3.89)**	**0.61**		**Qg 0.039 Qo 0.039 Do 375 CHRT 32: Vo2/2gDo 0.02 H/Do 0.00 Kg side flow 10.37 end flow 7.31 Part full downstream pipe**	**0.006**	**1.00**	**0.296**	**Upstream HGL 92.851 below outlet pipe obv 92.854 Set Kp to 1**		**1.00**	**0.296**	**0.05**	**0.018**	**0.076 (0.050 ty)**	**2.41 (1.86 ty)**	**92.854 90.675**	**92.555 90.846**	**92.851**		**92.851**	**93.737**	**1/3**
100 100	**2/3**	**2/3 to 3/3**	**1/3;2/3**			**5.00 5.00**	**316 316**		**1.00 1.00**	**0.144 0.144**	**0.144 0.144**	**0.144 0.144**	**126 126 FLOW WIDTH 1.984 m**	**129**	**0.05**	**183**	**13S.08**	**129 (UNLOCKED (I)**	**0**	**3/3**	**5.61 5.61**	**304 304**	**0.191 0.191**	**161**			**161 (Pipe flow= Sum upstr atten flows)**	**11.872**	**9.29**	**375(2)**	**1.46(0.56 ty) (4.83)**	**0.14**		**Qg 0.124 Qo 0.161 Do 375 Angle 34 Chart 39 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.80 K0.5 1.91 Qu/Qo 0.23 Cg 1.26 K 1.94 S/Do 2.0 K0 1.98 K0.5 2.10 K 2.13 S/Do 1.5 K0 2.39 K0.5 2.52 K 2.55**	**0.109**	**1.76**	**0.191**	**Interp val for S/Do 1.69 Kw 2.40 CHART 38 S/Do 2.0 K0 1.84 K0.5 1.75 K 1.72 S/Do 1.5 K0 2.05 K0.5 1.84 K 1.78 Interp val for S/Do 1.69 Ku 1.76**		**2.40**	**0.261**	**0.85**	**0.101**	**0.141 (0.086 ty)**	**4.23 (3.22 ty)**	**90.655 89.552**	**90.655 89.577**	**90.846**		**90.916**	**91.423**	**2/3**
100 100	**3/3**	**3/3 to 4/3**	**1/3;2/3**														**#D.08L3.6A.81**				**5.75 5.75**	**301 301**	**0.191 0.191**	**160**			**161 (Pipe flow= Sum upstr atten flows)**	**25.368**	**2.00**	**375(2)**	**1.46(0.56 ty) (2.24)**	**0.29**		**Qo 0.161 Do 375 CHART 50 Du/Do1.00 alpha 7 K'w 0.17 Vu 1.46 WSE 0.06 Ku 0.41 Kw 0.58**	**0.109**	**0.41**	**0.045**			**0.58**	**0.063**	**0.85**	**0.215**	**0.220 (0.127 ty)**	**2.39 (1.86 ty)**	**89.532 89.025**	**89.532 88.870**	**89.577**		**89.595**	**90.288**	**3/3**
100 100	**4/3**	**4/3 to 5A/3**	**2/6;3/6;4/6;1/3;2/3**														**24**				**7.26 7.26**	**277 277**	**0.582 0.582**	**448**			**456 (Pipe flow= Sum upstr atten flows)**	**12.399**	**11.00**	**375(2)**	**4.12(1.87 ty) (5.26)**	**0.05**		**Qo 0.456 Do 375 Flow 4/6 made eqv grate flow Flow 3/3 made eqv grate flow Angle 93 Chart 47 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.92 K0.5 2.12 Qu/Qo 0.26 Cg 1.24 K 2.17 S/Do 4.0 K0 1.91 K0.5 1.66 K 1.60 S/Do 3.0 K0 2.00 K0.5 1.89 K 1.87 Interp val for S/Do 4.42 Kw 1.48 CHART 46 S/Do 4.0 K0 1.53 K0.5 1.43 K 1.41 S/Do 3.0 K0 1.74 K0.5 1.52 K 1.47 Interp val for S/Do 4.42 Ku 1.38 K vals above for stepped pipes as grate flow grate flow decreased by 0.189 from 4/6 Routine 2.14 Equiv defln 6 CHART 49 High vel lat 4/6 Dhv 375 Qhv 0.189**	**0.865**	**1.63**	**1.411**	**Dhv/Dlv 1.0 Dhv/Do 1.00 Qhv/Qo 0.41 H 2.01 Low vel latrl 7/5 Dlv 375 Qlv 0.118 Dlv/Do 1.00 Qlv/Qo 0.26 L 0.06 H-L 1.95 Ku=Kw= 1.95 Combined pipes in line case Join Pipes: 7/5 and 4/6 Vel1 1.709 Vel2 1.071 Eq Dia 516 Angle 167 Flow 0.307 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.38 Qg/Qo 0.33 K 1.15 S/Do 3.37 cor -0.12 Ku 1.03 Kw 1.03 Interpolated Ku= 1.89 Kw= 1.89 K vals stepp pipes as pipe flow Ku 1.89 Kw 1.89 Averaged Ku 1.63 Kw 1.68**	**1.68**	**1.455**	**6.76**	**0.838**	**0.250 (0.155 ty)**	**5.82 (4.82 ty)**	**87.139 85.775**	**87.139 85.650**	**88.550**		**88.594**	**89.805**	**4/3**
100 100	**5A/3**	**5A/3 to 5/3**	**2/6;3/6;4/6;1/3;2/3 ;5A/3**			**5.00 5.00**	**316 316**		**0.84 0.84**	**0.018 0.018**	**0.015 0.015**	**0.015 0.015**	**13 13 FLOW WIDTH/DEPTH 0.039Dp m**	**13**	**1.00**	**38**	**#D.08L2.4A.36**	**13 (UNLOCKED (I)**	**0**	**6/3**	**7.31 7.31**	**276 276**	**0.597 0.597**	**458**			**465 (Pipe flow= Sum upstr atten flows)**	**12.004**	**13.00**	**375(2)**	**4.21(2.66 ty) (5.72)**	**0.05**		**Qg 0.012 Qo 0.465 Do 375 Flow 4/3 made eqv grate flow CHRT 32: Vo2/2gDo 2.41 H/Do 0.00 Kg side flow 1.99 end flow 1.90 K vals above for stepped pipes as grate flow grate flow decreased by 0.454 from 4/3**	**0.903**	**0.29**	**0.261**			**0.29**	**0.261**	**7.06**	**0.847**	**0.240 (0.180 ty)**	**6.26 (5.62 ty)**	**84.256 82.695**	**84.256 82.560**	**84.517**		**84.517**	**86.508**	**5A/3**
100 100	**5/3**	**5/3 to 6/3**	**2/6;3/6;4/6;1/3;2/3 ;5A/3**														**24**				**7.36 7.36**	**276 276**	**0.597 0.597**	**458**			**465 (Pipe flow= Sum upstr atten flows)**	**40.542**	**5.00**	**450(2)**	**2.93(1.85 ty) (4.01)**	**0.23**		**Qo 0.465 Do 450 Flow 5A/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.97 H/Do 0.00 Kg side flow 2.84 end flow 2.62 K vals above for stepped pipes as grate flow**	**0.438**	**2.84**	**1.243**			**2.84**	**1.243**	**2.67**	**1.082**	**0.286 (0.215 ty)**	**4.37 (3.93 ty)**	**80.600 78.573**	**80.600 78.892**	**81.843**		**81.843**	**83.206**	**5/3**
100 100	**6/3**	**6/3 to 7/3**	**2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3**			**5.00 5.00**	**316 316**		**0.84 0.84**	**0.023 0.023**	**0.019 0.019**	**0.019 0.019**	**17 17 FLOW WIDTH/DEPTH 0.046Dp m**	**17**	**8.00**	**38**	**#D.08L2.4A.36**	**17 (UNLOCKED (I)**	**0**	**9/3**	**7.59 7.59**	**272 272**	**0.616 0.616**	**465**			**473 (Pipe flow= Sum upstr atten flows)**	**5.409**	**2.50**	**450(2)**	**2.97(1.85 ty) (2.83)**	**0.03**		**Qg 0.014 Qo 0.473 Do 450 Flow 5/3 made eqv grate flow CHRT 32: Vo2/2gDo 1.00 H/Do 0.68 Kg side flow 2.54 end flow 2.37 K vals above for stepped pipes as grate flow grate flow decreased by 0.459 from 5/3**	**0.450**	**0.30**	**0.135**			**0.30**	**0.135**	**2.76**	**0.149**			**78.450 78.315**	**78.757 78.608**	**78.892**		**78.892**	**79.140**	**6/3**
100 100	**7/3**	**7/3 to 8/3**	**2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3**														**24**				**7.62 7.62**	**272 272**	**0.616 0.616**	**465**			**473 (Pipe flow= Sum upstr atten flows)**	**49.614**	**6.75**	**450(2)**	**2.97(1.85 ty) (4.65)**	**0.28**		**Qo 0.473 Do 450 Flow 6/3 made eqv grate flow CHRT 32: Vo2/2gDo 1.00 H/Do 0.00 Kg side flow 2.81 end flow 2.60 K vals above for stepped pipes as grate flow grate flow decreased by 0.473 from 6/3**	**0.450**	**1.80**	**0.809**			**2.09**	**0.941**	**2.76**	**1.368**	**0.261 (0.197 ty)**	**4.94 (4.39 ty)**	**77.799 74.450**	**77.799 75.064**	**78.608**		**78.740**	**78.897**	**7/3**
100 100	**8/3**	**8/3 to 9/3**	**2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3**														**24**				**7.90 7.90**	**268 268**	**0.616 0.616**	**458**			**473 (Pipe flow= Sum upstr atten flows)**	**20.739**	**8.50**	**450(2)**	**2.97(1.85 ty) (5.22)**	**0.12**		**Qo 0.473 Do 450 Flow 7/3 made eqv grate flow CHRT 32: Vo2/2gDo 1.00 H/Do 0.00 Kg side flow 2.81 end flow 2.60 K vals above for stepped pipes as grate flow grate flow decreased by 0.473 from 7/3**	**0.450**	**1.67**	**0.751**			**1.95**	**0.878**	**2.76**	**0.572**	**0.243 (0.185 ty)**	**5.39 (4.78 ty)**	**74.313 72.550**	**74.313 73.249**	**75.064**		**75.191**	**75.216**	**8/3**

Q100 CALCULATIONS TABLE

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B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE CALCULATIONS SHEET 2 OF 5 Q100 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD506
REV. B

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LOCATION					TIME			SUB-CATCHMENT RUNOFF						INLET DESIGN							DRAIN DESIGN													HEADLOSSES						PART FULL						DESIGN LEVELS						
						tc	I	C10	C	A	C×A	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T			V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp							
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C x A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.G.L	UPSTREAM H.G.L	LAT. H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.
yrs					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m	%	m	m	m/s	m	m	m	m	m	m	
100 100	9/3	9/3 to 10/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3			5.00 5.00	316 316		0.91 0.91	0.551 0.551	0.501 0.501	0.501 0.501	440 440	440 FLOW DEPTH 0.150 m	0.05	330	13S.15	330 (UNLOCKED	110 0)	10/3	8.02 8.02	267 267	1.117 1.117	828		(Pipe flow= Sum upstr atten flows)	750	22.669	7.00	525(2)	3.35(1.92 ty) (5.31)	0.11		Qg 0.279 Qo 0.750 Do 525 CHART 33 Angle 9 S/Do 2.5 Du/Do 0.86 Qg/Qo 0.37 K 1.07 S/Do 2.23 cor 0.08 Ku 1.15 Kw 1.15	0.572	1.15	0.658			1.15	0.658	2.78	0.631	0.307 (0.222 ty)	5.62 (4.88 ty)	72.591 71.004	72.591 71.118	73.249		73.249	73.272	9/3
100 100	10/3	10/3 to 11/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3			5.00 5.00	316 316		0.84 0.84	0.015 0.015	0.013 0.013	0.013 0.013	11 11	121 FLOW WIDTH/DEPTH 0.0800	8.00 Dg m	75	#D.08L3.6A.81	75 (UNLOCKED	46 0)	11/3	8.13 8.13	265 265	1.130 1.130	832		(Pipe flow= Sum upstr atten flows)	807	44.030	5.20	525(2)	3.61(1.92 ty) (4.58)	0.20		Qg 0.063 Qo 0.807 Do 525 Flow 9/3 made eqv grate flow CHRT 32: Vo2/2gDo 1.24 H/Do 0.20 Kg side flow 2.51 end flow 2.35 K vals above for stepped pipes as grate flow grate flow decreased by 0.744 from 9/3	0.664	0.49	0.326			0.49 CHART 33 Angle 3 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.08 K 0.44 S/Do 1.82 cor 0.05 Ku 0.49 Kw 0.49 K vals step pipes as pipe flow Ku 0.49 Kw 0.49	0.326	3.22	1.419			70.684 68.394	70.792 69.373	71.118		71.118	71.649	10/3
100 100	11/3	11/3 to 12/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3			5.00 5.00	316 316		0.91 0.91	0.168 0.168	0.153 0.153	0.153 0.153	134 134	180 FLOW WIDTH 1.626 m DOWNSTREAM 1.014m	12.00	1350	7	103 (UNLOCKED	77 0)	12/3	8.33 8.33	263 263	1.283 1.283	937		(Pipe flow= Sum upstr atten flows)	887	21.050	8.00	525(2)	3.96(2.06 ty) (5.68)	0.09		Qg 0.086 Qo 0.887 Do 525 Angle 60 Chart 43 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.35 K0.5 1.93 Qu/Qo 0.90 Cg 0.24 K 1.49 S/Do 4.0 K0 1.22 K0.5 1.56 K 1.30 S/Do 3.0 K0 1.33 K0.5 1.66 K 1.41	0.799	1.25	0.999			1.40 Interp val for S/Do 3.09 Kw 1.40 CHART 42 S/Do 4.0 K0 1.13 K0.5 1.48 K 1.22 S/Do 3.0 K0 1.13 K0.5 1.64 K 1.26 Interp val for S/Do 3.09 Ku 1.25	1.119	3.89	0.819	0.328 (0.223 ty)	6.14 (5.23 ty)	68.374 66.690	68.374 67.093	69.373		69.493	70.147	11/3
100 100	12/3	12/3 to 13/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3			5.00 5.00	316 316		0.91 0.91	0.109 0.109	0.099 0.099	0.099 0.099	87 87	164 FLOW WIDTH 2.475 m	0.05	183	13S.08	164 (UNLOCKED	0 0)	13/3	8.42 8.42	262 262	1.382 1.382	1006		(Pipe flow= Sum upstr atten flows)	1020	20.340	4.50	600(2)	3.49(1.67 ty) (4.65)	0.10		Qg 0.136 Qo 1.020 Do 600 Flow 11/3 made eqv grate flow CHRT 32: Vo2/2gDo 1.02 H/Do 0.54 Kg side flow 2.60 end flow 2.40 K vals above for stepped pipes as grate flow grate flow decreased by 0.884 from 11/3	0.621	0.41	0.255			0.41 CHART 33 Angle 3 S/Do 2.5 Du/Do 0.88 Qg/Qo 0.13 K 0.35 S/Do 1.95 cor 0.06 Ku 0.41 Kw 0.41 K vals step pipes as pipe flow Ku 0.41 Kw 0.41	0.255	2.53	0.514			66.510 65.595	66.838 66.324	67.093		67.093	67.719	12/3
100 100	13/3	13/3 to 14/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3;13/3			5.00 5.00	316 316		1.00 1.00	0.033 0.033	0.033 0.033	0.033 0.033	29 29	29 FLOW WIDTH 2.233 m	6.00	38	#D.08L2.4A.36	29 (UNLOCKED	0 0)	14/3	8.52 8.52	261 261	1.415 1.415	1026		(Pipe flow= Sum upstr atten flows)	1040	21.450	4.00	600(2)	3.56(1.68 ty) (4.39)	0.10		Qg 0.024 Qo 1.040 Do 600 Flow 12/3 made eqv grate flow CHRT 32: Vo2/2gDo 1.06 H/Do 0.32 Kg side flow 2.64 end flow 2.44 K vals above for stepped pipes as grate flow grate flow decreased by 1.016 from 12/3 Angle 63 Chart 45 S/Do 2.5 chartdeg Du/Do 1.00 K0 2.16 K0.5 1.81 Qu/Qo 0.98 Cg 0.06 K 2.14	0.646	1.80	1.163			2.08 S/Do 4.0 K0 2.07 K0.5 1.58 K 2.04 S/Do 3.0 K0 2.15 K0.5 1.84 K 2.13 Interp val for S/Do 3.52 Kw 2.08 CHART 44 S/Do 4.0 K0 1.76 K0.5 1.60 K 1.75 S/Do 3.0 K0 1.85 K0.5 1.80 K 1.85 Interp val for S/Do 3.52 Ku 1.80 K vals step pipes as pipe flow Ku 1.80 Kw 2.08	1.344	2.63	0.564			64.968 64.110	65.161 64.597	66.324		66.505	66.655	13/3
100 100	14/3	14/3 to 15/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3;13/3;14/3			5.00 5.00	316 316		1.00 1.00	0.010 0.010	0.010 0.010	0.010 0.010	9 9	9 FLOW WIDTH 1.000 m	1.00	38	#D.08L2.4A.36	9 (UNLOCKED	0 0)	0	8.62 8.62	260 260	1.425 1.425	1029		(Pipe flow= Sum upstr atten flows)	1043	37.991	1.32	675(2)	2.83(1.33 ty) (2.73)	0.22		Qg 0.007 Qo 1.043 Do 675 CHART 34 Angle 13 Case3 S/Do 2.5 Du/Do 0.89 Qg/Qo 0.01 K 0.04 S/Do 1.63 cor 0.01 Ku 0.05 Kw 0.05	0.408	0.05	0.020			0.05	0.020	1.43	0.542			64.165 63.663	64.577 64.035	64.597		64.597	65.178	14/3
100 100	15/3	15/3 to 16/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3;13/3;14/3														24				8.84 8.84	257 257	1.425 1.425	1017		(Pipe flow= Sum upstr atten flows)	1043	3.941	0.40	900 x 600 (RCB	1.93(0.91 ty) C) (1.55)	0.03		Qo 1.043 Do 720 CHART 50 Du/Do0.94 alpha 61 K'w 0.27 Vu 2.92 WSE 0.39 Ku 1.46 Kw 2.08	0.190	1.46	0.278			2.08	0.395	0.62	0.024			63.536 63.520	63.757 63.733	64.035		64.152	64.134	15/3
100 100	16/3	16/3 to OUT17/3	2/6;3/6;4/6;1/3;2/3 ;5A/3;6/3;9/3;10/3; 11/3;12/3;13/3;14/3														24				8.87 8.87	257 257	1.425 1.425	1017		(Pipe flow= Sum upstr atten flows)	1043	1.162	0.40	900 x 600 (RCB	1.93(0.91 ty) C) (1.55)	0.01		Qo 1.043 Do 720 CHART 50 Du/Do1.00 alpha 50 K'w 0.26 Vu 2.56 WSE 0.32 Ku 1.24 Kw 1.69	0.190	1.24	0.236			1.69	0.321	0.62	0.007			63.495 63.490	63.497 63.490	63.733		63.818	63.933	16/3
100 100	IN1/14	IN1/14 to OUT2/14															24				5.00 5.00	316 316	0.746 0.746	655		(Pipe flow set by user)	655	14.572	1.17	600(2)	2.24(2.24 ty) (2.37)	0.11			0.256	1.00	0.256			1.00	0.256	1.04	0.152	0.472 (0.472 ty)	2.70 (2.70 ty)	61.990 61.820	61.990 61.692	62.246		62.246	62.500	IN1/14
100 100	EX1/4	EX1/4 to OUT2/4	EX1/4			8.00 8.00	267 267		0.91 0.91	2.070 2.070	1.884 1.884	1.884 1.884	1397 1397	699 CrnFL 699 FLOW WIDTH 5.179 m DOWNSTREAM 3.993m	1.00	380	7	326 (UNLOCKED	372 0) 699	Crn ×	8.00 8.00	267 267	1.884 1.884	1397		(Pipe flow= Grate flow)	326	8.355	10.77	375(2)	2.96(2.03 ty) (5.21)	0.05		Qg 0.326 Qo 0.326 Do 375 CHRT 32: Vo2/2gDo 1.19 H/Do 0.00 Kg side flow 2.63 end flow 2.43	0.447	2.63	1.174			2.63	1.174	3.47	0.290	0.202 (0.162 ty)	5.37 (4.88 ty)	79.805 78.905	79.805 78.732	80.979		80.979	82.148	EX1/4
100 100	IN1/15	IN1/15 to 2/15	IN1/15			8.00 8.00	267 267		0.91 0.91	0.717 0.717	0.652 0.652	0.652 0.652	484 484	484 FLOW WIDTH/DEPTH 0.0000	1.00 Dg m	1000	14S.11	484 (UNLOCKED	0 0)		8.00 8.00	267 267	0.652 0.652	484		(Pipe flow= Grate flow)	484	2.000	8.00	450(2)	3.04(1.16 ty) (5.07)	0.01		Qg 0.484 Qo 0.484 Do 450 CHART 32: Vo2/2gDo 1.05 H/Do 0.11 Kg side flow 2.72 end flow 2.52	0.471	2.72	1.281			2.72	1.281	2.88	0.058			64.806 64.646	64.858 64.800	66.139		66.139	66.070	IN1/15
100 100	2/15	2/15 to OUT3/15	IN1/15														24				8.01 8.01	267 267	0.652 0.652	484		(Pipe flow= Sum upstr atten flows)	484	7.653	8.00	450(2)	3.04(1.16 ty) (5.07)	0.04		Qo 0.484 Do 450 Flow IN1/15 made eqv grate flow CHRT 32: Vo2/2gDo 1.05 H/Do 0.00 Kg side flow 2.76 end flow 2.55 K vals above for stepped pipes as grate flow grate flow decreased by 0.484 from IN1/15	0.471	1.80	0.848		CHART 51 ti 694 Do 450 theta 95 r/Do 2.25 Du 450 Du/Do 1.00 Kd 1.80 K'w 0.30 Vu 3.04 WSE 0.99 Ku 1.80 Kw 2.10 K vals step pipes as pipe flow Ku 1.80 Kw 2.10	2.10	0.991	2.88	0.220	0.251 (0.146 ty)	5.30 (4.11 ty)	63.952 63.340	63.952 63.141	64.800		64.943	65.717	2/15
100 100	1/10	1/10 to 2/10	1/10			8.00 8.00	267 267		0.91 0.91	3.060 3.060	2.785 2.785	2.785 2.785	2066 2065	2066 FLOW WIDTH/DEPTH 0.310	0.05 Dg m	716	#D.31L4.8A1.44	716 (UNLOCKED	1349 0)	2/10	8.00 8.00	267 267	2.785 2.785	2066		(Pipe flow= Grate flow)	716	32.912	5.00	600(2)	4.52(4.45 ty) (4.91)	0.22			0.306	3.00	0.918			3.00	0.918	1.25	0.411	0.305 (0.305 ty)	4.91 (4.91 ty)	73.110 71.464	73.110 71.169	74.028		74.028	74.261	1/10
100 100	2/10	2/10 to 3/10	1/10;2/10			8.00 8.00	267 267		0.91 0.91	0.000 0.000	0.000 0.000	0.000 0.000	0 0	1349 FLOW WIDTH/DEPTH 0.310	0.05 Dg m	716	#D.31L4.8A1.44	716 (UNLOCKED	633 0)	3/10	8.22 8.22	264 264	2.785 2.785	2042		(Pipe flow= Sum upstr atten flows)	1416	29.323	6.41	675(2)	3.84(2.10 ty) (6.00)	0.13			0.752	3.00	2.255			3.00	2.255	2.63	0.771	0.399 (0.280 ty)	6.37 (5.47 ty)	68.816 66.938	68.816 67.951	71.071		71.071	72.282	2/10
100 100	3/10	3/10 to 2/1	1/10;2/10;3/10			8.00 8.00	267 267		0.91 0.91	0.000 0.000	0.000 0.000	0.000 0.000	0 0	633 FLOW WIDTH/DEPTH 0.285	0.05 Dg m	716	#D.31L4.8A1.44	633 (UNLOCKED	0 0)	2B/1	8.35 8.35	263 263	2.785 2.785	2035		(Pipe flow= Sum upstr atten flows)	2035	13.321	1.00	1050(2)	2.28(0.87 ty) (3.18)	0.10			0.265	1.00	0.265			1.00	0.265	0.51	0.068			67.299 67.166	67.686 67.618	67.951		67.951	67.992	3/10
100 100	1/1	1/1 to 2/1	1/1			8.00 8.00	267 267		0.90 0.90	0.371 0.371	0.334 0.334	0.334 0.334	248 248	248 FLOW WIDTH/DEPTH 0.177	0.05 Dg m	546	#D.3L3.6A.81	248 (UNLOCKED	0 0)	2B/1	8.00 8.00	267 267	0.334 0.334	248		(Pipe flow= Grate flow)	248	14.005	1.00	525(2)	1.11(0.42 ty) (2.01)	0.21		Qg 0.248 Qo 0.248 Do 525 CHRT 32: Vo2/2gDo 0.12 H/Do 0.24 Kg side flow 6.89 end flow 5.33	0.063	6.89	0.433			6.89	0.433	0.30	0.042			67.534 67.394	67.660 67.618	68.093		68.093	68.189	1/1

Q100 CALCULATIONS TABLE

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE CALCULATIONS SHEET 3 OF 5 Q100 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD507
REV. B

© MILANOVIC NEALE CONSULTING ENGINEERS

LOCATION					TIME		SUB-CATCHMENT RUNOFF						INLET DESIGN							DRAIN DESIGN													HEADLOSSES								PART FULL				DESIGN LEVELS						
						tc	I	C10	C	A	C×A	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T			V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp							
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C x A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.G.L	UPSTREAM H.G.L	LAT. H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.
yrs					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m	%	m	m	m/s	m	m	m	m	m	m	
100 100	2/1	2/1 to 2B/1	1/10;2/10;3/10;1/1			8.45 8.45	262 262			3.119 3.119			2270				24				8.45 8.45	262 262	3.119 3.119	2270			2270 (Pipe flow= Sum upstr | 16.538 atten flows)	3.50	1050(22	2.54(0.96 ty) (5.96)	0.11		Qo 2.270 Do 1050 Flow 1/1 made eqv grate flow Angle 83 Chart 47 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.92 K0.5 2.12 Qu/Qo 0.89 Cg 0.27 K 1.98 S/Do 2.0 K0 2.44 K0.5 2.40 K 2.43 S/Do 1.5 K0 2.67 K0.5 2.58 K 2.65 Interp val for S/Do 1.78 Kw 2.53 CHART 46 S/Do 2.0 K0 2.04 K0.5 1.92 K 2.01 S/Do 1.5 K0 2.09 K0.5 2.31 K 2.15 Interp val for S/Do 1.78 Ku 2.07 K vals above for stepped pipes as grate flow grate flow decreased by 0.243 from 1/1 Routine 2.2 CHART 52 B 900 In line 1/1 Latrl 3/10 Determine Kl	0.329	1.43	0.472		Dl/Do 1.00 B/Do 0.86 Du/Do 0.11 Do/Du 2.00 Do/Dl 1.00 K'1 1.28 Ml 0.95 Kl=K1x=Ml= 1.22 Determine Ku K'u 1.50 Mu 0.95 Ku=K'ux=Mu= 1.43 Kw=Ku= 1.43 Combined pipes in line case Join Pipes: 3/10 and 1/1 Vel1 1.123 Vel2 2.341 Eq Dia 1143 Angle 254 Flow 2.270 CHART 50 Du/Do1.09 alpha 0 K'w 0.05 Vu 2.21 WSE 0.21 Ku 0.60 Kw 0.64 Interpolated Ku= 1.36 Kw= 1.36 K vals step pipes as pipe flow Ku 1.36 Kw 1.36 Averaged Ku 1.43 Kw 1.48	1.48	0.487	0.64	0.106	0.486 (0.289 ty)	5.72 (4.37 ty)	67.146 66.567	67.146 66.185	67.618		67.633	68.142	2/1
100 100	2B/1	2B/1 to 3/1	1/10;2/10;3/10;1/1;2 B/1			5.00 5.00	316 316		0.91 0.91	0.422 0.422	0.384 0.384	0.384 0.384	337 337	337 FLOW WIDTH 2.151 m DOWNSTREAM 1.523m	13.30	707	8	170 (UNLOCKED	167 0)	3/1	8.56 8.56	260 260	3.503 3.503	2530			2392 (Pipe flow= Sum upstr	20.228 atten flows)	3.50	1050(22	2.68(1.03 ty) (5.96)	0.13		Qg 0.140 Qo 2.392 Do 1050 Flow 2/1 made eqv grate flow CHRT 32: Vo2/2gDo 0.34 H/Do 0.00 Kg side flow 4.57 end flow 3.91 K vals above for stepped pipes as grate flow grate flow decreased by 2.253 from 2/1 Angle 14 Chart 36 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.51 K0.5 1.86 Qu/Qo 0.94 Cg 0.15 K 1.56	0.366	1.69	0.619		S/Do 2.0 K0 1.79 K0.5 2.07 K 1.84 S/Do 1.5 K0 2.11 K0.5 2.54 K 2.17 Interp val for S/Do 1.70 Kw 2.04 CHART 35 S/Do 2.0 K0 1.55 K0.5 1.74 K 1.58 S/Do 1.5 K0 1.75 K0.5 1.80 K 1.76 Interp val for S/Do 1.70 Ku 1.69 K vals step pipes as pipe flow Ku 1.69 Kw 2.04	2.04	0.747	0.71	0.143	0.501 (0.301 ty)	5.80 (4.47 ty)	65.566 64.858	65.566 64.877	66.185		66.313	67.293	2B/1
100 100	1/11	1/11 to 2/11	1/11			8.00 8.00	267 267		0.89 0.89	1.790 1.790	1.593 1.593	1.593 1.593	1181 1182	1181 FLOW WIDTH/DEPTH 0.220Dp m	0.05	428	#D.22L4.8A1.44	428 (UNLOCKED	753 0)	2/11	8.00 8.00	267 267	1.593 1.593	1181			428 (Pipe flow= Grate	21.421 flow)	9.00	450(22	2.69(2.69 ty) (5.37)	0.13			0.369	3.00	1.106			3.00	1.106	2.26	0.484	0.225 (0.225 ty)	5.38 (5.38 ty)	70.850 68.922	70.850 68.697	71.956		71.956	72.010	1/11
100 100	2/11	2/11 to 3/11	1/11;2/11			8.00 8.00	267 267		0.89 0.89	0.000 0.000	0.000 0.000	0.000 0.000	0 0	753 FLOW WIDTH/DEPTH 0.220Dp m	0.05	428	#D.22L4.8A1.44	428 (UNLOCKED	325 0)	3/11	8.13 8.13	265 265	1.593 1.593	1173			850 (Pipe flow= Sum upstr	21.421 atten flows)	8.00	525(23	3.80(2.00 ty) (5.68)	0.09			0.736	3.00	2.208			3.00	2.208	3.57	0.765	0.319 (0.219 ty)	6.08 (5.18 ty)	66.248 64.534	66.248 65.285	68.456		68.456	69.710	2/11
100 100	3/11	3/11 to 3/1	1/11;2/11;3/11			8.00 8.00	267 267		0.89 0.89	0.000 0.000	0.000 0.000	0.000 0.000	0 0	325 FLOW WIDTH/DEPTH 0.183Dp m	0.05	428	#D.22L4.8A1.44	325 (UNLOCKED	0 0)	3/1	8.22 8.22	264 264	1.593 1.593	1168			1168 (Pipe flow= Sum upstr	7.336 atten flows)	1.00	750(22	2.56(0.98 ty) (2.55)	0.05			0.334	1.00	0.334			1.00	0.334	1.01	0.074			64.742 64.669	64.951 64.877	65.285		65.285	65.422	3/11
100 100	3/1	3/1 to 4/1	1/10;2/10;3/10;1/1;2 B/1;1/11;2/11;3/11;3/ 1			5.00 5.00	316 316		0.91 0.91	0.156 0.156	0.142 0.142	0.142 0.142	125 125	292 FLOW WIDTH 2.009 m DOWNSTREAM 1.364m	13.30	707	8	156 (UNLOCKED	136 0)	5B/1	8.69 8.69	259 259	5.238 5.238	3768			3657 (Pipe flow= Sum upstr	31.419 atten flows)	6.30	675(24 x 2	4.96(1.89 ty) (5.95)	0.11		Qg 0.128 Qo 3.657 Do 954 Flow 2B/1 made eqv grate flow Flow 3/11 made eqv grate flow CHRT 32: Vo2/2gDo 1.83 H/Do 0.00 Kg side flow 2.20 end flow 2.09 K vals above for stepped pipes as grate flow grate flow decreased by 2.383 from 2B/1 grate flow decreased by 1.146 from 3/11 Routine 2.13 Equiv defln 51 CHART 49 High vel latl 2B/1 Dhv 1050 Qhv 2.383 Dhv/Dlv 1.4 Dhv/Do 1.10 Qhv/Qo 0.65 H 2.19 Low vel latrl 3/11 Dlv 750 Qlv 1.146 Dlv/Do 0.79	1.254	1.67	2.093		Qlv/Qo 0.31 L 0.28 H-L 1.91 Ku=Kw= 1.91 Combined pipes in line case Join Pipes: 2B/1 and 3/11 Vel1 2.752 Vel2 2.594 Eq Dia 1289 Angle 174 Flow 3.529 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.35 Qg/Qo 0.03 K 0.33 S/Do 1.66 cor 0.03 Kb 0.36 Kw 0.36 Interpolated Ku= 1.03 Kw= 1.03 K vals step pipes as pipe flow Ku 1.03 Kw 1.03 Averaged Ku 1.67 Kw 1.67	1.67	2.093	4.38	1.376	0.478 (0.266 ty)	6.66 (5.29 ty)	62.784 60.805	62.784 61.367	64.877		64.877	65.512	3/1
100 100	4/1	4/1 to 5/1	1/10;2/10;3/10;1/1;2 B/1;1/11;2/11;3/11;3/ 1														24				8.80 8.80	257 257	5.238 5.238	3739			3657 (Pipe flow= Sum upstr | 6.800 atten flows)	0.40	1800 x 600 (RCBC)	3.38(1.29 ty) (1.80)	0.03		Qo 3.657 Do 901 Flow 3/1 made eqv grate flow CHRT 32: Vo2/2gDo 0.97 H/Do 0.73 Kg side flow 2.55 end flow 2.37 K vals above for stepped pipes as grate flow grate flow decreased by 3.657 from 3/1	0.582	0.52	0.303		CHART 50 Du/Do1.06 alpha 1 K'w 0.11 Vu 5.12 WSE 0.45 Ku 0.52 Kw 0.77 K vals step pipes as pipe flow Ku 0.52 Kw 0.77	0.77	0.450	1.41	0.096			60.628 60.600	61.064 60.968	61.367		61.514	61.507	4/1
100 100	5A/1	5A/1 to 5/1	5A/1			5.00 5.00	316 316		0.91 0.91	0.226 0.226	0.206 0.206	0.206 0.206	181 181	181 FLOW WIDTH 2.049 m	0.05	338	14S.11	181 (UNLOCKED	0 0)		5.00 5.00	316 316	0.206 0.206	181			181 (Pipe flow= Grate	3.043 flow)	0.40	450 x 450 (RCBC)	0.89(0.34 ty) (1.13)	0.05		Qg 0.181 Qo 0.181 Do 450 CHRT 32: Vo2/2gDo 0.09 H/Do 1.14 Kg side flow 4.79 end flow 3.77	0.040	4.79	0.193			4.79	0.193	0.25	0.008			60.462 60.450	60.976 60.968	61.169		61.169	61.202	5A/1
100 100	5B/1	5B/1 to 5/1	5B/1			5.00 5.00	316 316		0.91 0.91	0.254 0.254	0.231 0.231	0.231 0.231	203 203	338 FLOW WIDTH 3.667 m	0.05	338	14S.11	338 (UNLOCKED	0 0)		5.00 5.00	316 316	0.231 0.231	203			338 (Pipe flow= Grate	3.031 flow)	0.40	900 x 600 (RCBC)	0.63(0.17 ty) (1.55)	0.05		Qg 0.338 Qo 0.338 Do 720 CHRT 32: Vo2/2gDo 0.03 H/Do 0.60 Kg side flow 7.59 end flow 5.50	0.020	7.59	0.154			7.59	0.154	0.07	0.002			60.612 60.600	60.970 60.968	61.124		61.124	61.203	5B/1
100 100	5/1	5/1 to OUT6/1	1/10;2/10;3/10;1/1;2 B/1;1/11;2/11;3/11;3/ 1;5A/1;5B/1														24				8.83 8.83	257 257	5.675 5.675	4051			4079 (Pipe flow= Sum upstr | 24.921 atten flows)	0.40	2100 x 600 (RCBC)	3.23(1.19 ty) (1.84)	0.13		Qo 4.079 Do 934 Routine 3.5 Join Pipes: 4/1 and 5A/1 Vel1 5.740 Vel2 0.924 Eq Dia 933 Angle 184 Flow 3.804 Routine 2.1 CHART 52 B 3200 In line Eqv 4/1 & 5A/1 Latrl 5B/1 Determine Kl Dl/Do 0.77 B/Do 3.43 Qu/Qo 0.93 Do/Du 1.00 Do/Dl 1.30 K'1 2.19 Ml 0.16 Kl=K'1x=Ml= 0.35	0.532	0.34	0.181		Determine Ku K'u 2.76 Mu 0.13 Ku=K'ux=Mu= 0.36 Kw=Ku= 0.36 Combined pipes in line case Join Pipes: Eqv 4/1 & 5A/1 and 5B/1 Vel1 5.564 Vel2 0.675 Eq Dia 996 Angle 190 Flow 4.079 CHART 50 Du/Do1.07 alpha 0 K'w 0.05 Vu 5.24 WSE 0.35 Ku 0.53 Kw 0.66 Interpolated Ku= 0.34 Kw= 0.33	0.34	0.181	1.23	0.307			60.580 60.481	60.787 60.481	60.968		60.968	61.276	5/1
100 100	1/2	1/2 to 2/2	1/2			5.00 5.00	316 316		0.91 0.91	0.369 0.369	0.336 0.336	0.336 0.336	295 295	295 FLOW WIDTH 1.975 m DOWNSTREAM 1.386m	15.94	741	8	149 (UNLOCKED	146 0)	1/13	5.00 5.00	316 316	0.336 0.336	295			149 (Pipe flow= Grate	12.640 flow)	14.31	375(21	3.35(0.73 ty) (6.00)	0.16		Qg 0.149 Qo 0.149 Do 375 CHRT 32: Vo2/2gDo 0.25 H/Do 0.00 Kg side flow 5.35 end flow 4.45	0.093	5.35	0.497			5.35	0.497	0.73	0.092	0.121 (0.089 ty)	4.84 (4.07 ty)	68.475 66.666	68.475 66.759	68.972		68.972	69.235	1/2
100 100	2/2	2/2 to 3/2	1/2;2/2			5.00 5.00	316 316		1.00 1.00	0.070 0.070	0.070 0.070	0.070 0.070	61 61	61 FLOW WIDTH 0.826 m DOWNSTREAM 0.104m	15.94	741	7	48 (UNLOCKED	13 0)	3/2	5.16 5.16	312 312	0.406 0.406	352			195 (Pipe flow= Sum upstr	24.981 atten flows)	14.00	375(21	3.76(0.93 ty) (5.94)	0.24		Qg 0.048 Qo 0.195 Do 375 Flow 1/2 made eqv grate flow CHRT 32: Vo2/2gDo 0.42 H/Do 0.00 Kg side flow 4.16 end flow 3.62 K vals above for stepped pipes as grate flow grate flow decreased by 0.147 from 1/2 Angle 30 Chart 36 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.51 K0.5 1.86 Qu/Qo 0.76 Cg 0.57 K 1.71	0.158	1.69	0.267		S/Do 2.0 K0 1.79 K0.5 2.07 K 1.95 S/Do 1.5 K0 2.11 K0.5 2.54 K 2.36 Interp val for S/Do 1.86 Kw 2.06 CHART 35 S/Do 2.0 K0 1.55 K0.5 1.74 K 1.65 S/Do 1.5 K0 1.75 K0.5 1.80 K 1.78 Interp val for S/Do 1.86 Ku 1.69 K vals step pipes as pipe flow Ku 1.69 Kw 2.05	2.05	0.324	1.24	0.309	0.140 (0.100 ty)	5.18 (4.32 ty)	66.492 62.995	66.492 62.760	66.759		66.816	67.503	2/2

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MAJOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MINOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

Q100 CALCULATIONS TABLE

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

MILANOVIC NEALE
CONSULTING ENGINEERS
BRISBANE PH No. (07) 3255 1877
IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE CALCULATIONS SHEET 4 OF 5 Q100 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD508
REV. B

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LOCATION					TIME		SUB-CATCHMENT RUNOFF						INLET DESIGN							DRAIN DESIGN													HEADLOSSES					PART FULL						DESIGN LEVELS						
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C x A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.G.L	UPSTREAM H.G.L	LAT. H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.
						tc	I	C10	C	A	CxA	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T			V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp							
yrs					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m	%	m	m	m/s	m	m	m	m	m	m	
100 100	3/2	3/2 to 4/2	1/2;2/2;3/2			5.00 5.00	316 316		1.00 1.00	0.022 0.022	0.022 0.022	0.022 0.022	19 19	33 FLOW WIDTH:	15.94 0.497 m	74.1	7	32 (UNLOCKED	1	4/2	5.40 5.40	308 308	0.428 0.428	366		(Pipe flow=	223 Sum upstr	24.981 atten flows)	6.00	375(2)R	2.0(0.91 ty) (3.89)	0.21		Qg 0.031 Qo 0.223 Do 375 Flow 2/2 made eqv grate flow CHRT 32: Vo2/2gDo 0.55 H/Do 0.00 Kg side flow 3.71 end flow 3.29 K vals above for stepped pipes as grate flow grate flow decreased by 0.192 from 2/2	0.208	0.78	0.162	CHART 33 S/Do 2.5 Du/Do 1.00 S/Do 1.44 K vals step	Angle 0 Qg/Qo 0.74 cor 0.16 Ku pipes as pipe flow	0.78 K 0.62 0.78 Kw Ku 0.78 Kw	0.162 0.78	1.62	0.405	0.192 (0.128 ty)	3.92 (3.23 ty)	61.974 60.475	61.974 60.828	62.136		62.136	63.520	3/2
100 100	1/13	1/13 to 2/13	1/13			5.00 5.00	316 316		0.91 0.91	0.172 0.172	0.157 0.157	0.157 0.157	138 137	284 FLOW WIDTH:	15.94 1.938 m DOWNSTREAM 1.343m	74.1	8	146 (UNLOCKED	138	2/13	5.00 5.00	316 316	0.157 0.157	138		(Pipe flow=	146 Grate	30.777 flow)	7.00	375(2)R	2.0(0.60 ty) (4.20)	0.39		Qg 0.146 Qo 0.146 Do 375 CHRT 32: Vo2/2gDo 0.24 H/Do 0.00 Kg side flow 5.48 end flow 4.55	0.089	5.48	0.487			5.48	0.487	0.69	0.214	0.145 (0.095 ty)	3.72 (2.97 ty)	62.652 60.498	62.652 61.233	63.139		63.139	64.439	1/13
100 100	**2/13**	**2/13 to 4/2**	**1/13;2/13**			**5.00 5.00**	**316 316**		**0.91 0.91**	**0.331 0.331**	**0.302 0.302**	**0.302 0.302**	**265 265**	**403 FLOW WIDTH:**	**0.05 4.501 m**	**406**	**155.14**	**403 (UNLOCKED**	**0**	**4/2**	**5.39 5.39**	**308 308**	**0.459 0.459**	**393**		**(Pipe flow=**	**535 Sum upstr**	**6.411 atten flows)**	**1.00**	**600(2)R**	**3.0(0.62 ty) (2.19)**	**0.06**		**Qg 0.392 Qo 0.535 Do 600 Angle 90 Chart 47 S/Do 2.5 chartdeg Du/Do 0.63 K0 2.75 K0.5 2.27 Qu/Qo 0.27 Cg 1.24 K 2.16 S/Do 2.0 K0 2.85 K0.5 2.49 K 2.41 S/Do 1.5 K0 3.14 K0.5 2.93 K 2.88**	**0.171**	**2.11**	**0.360**	**Interp val CHART 46 S/Do 2.0 S/Do 1.5 Interp val**	**for S/Do 1.95 Kw 2.46 K0 1.71 K0.5 2.01 K 2.09 K0 2.10 K0.5 2.31 K 2.36 for S/Do 1.95 Ku 2.11**	**2.46**	**0.419**	**0.70**	**0.045**			**60.713 60.649**	**60.873 60.828**	**61.233**		**61.292**	**61.434**	**2/13**
100 100	**4/2**	**4/2 to 5/2**	**1/2;2/2;3/2;1/13;2/13;4/2**			**5.00 5.00**	**316 316**		**1.00 1.00**	**0.049 0.049**	**0.049 0.049**	**0.049 0.049**	**43 43**	**44 FLOW WIDTH:**	**15.94 0.000 m**	**338**	**14.5.11**	**44 (UNLOCKED**	**0**		**5.61 5.61**	**304 304**	**0.936 0.936**	**790**		**(Pipe flow=**	**790 Sum upstr**	**16.783 atten flows)**	**0.40**	**825(2)R**	**1.4(0.53 ty) (1.72)**	**0.20**		**Qg 0.042 Qo 0.790 Do 825 Routine 2.21 CHART 48 Du/Do 0.45 Qu/Qo 0.28 K 1.33 d/Do 2.0 chrt Qg/Qo 0.05 Kg 0.00 d/Do 1.5 chrt Qg/Qo 0.05 Kg 0.00 d/Do 1.00 Interp value Kg 0.00 Ku=Kw= 1.34 Combined pipes in line case Join Pipes: 3/2 and 2/13 Vel1 1.994 Vel2 1.867**	**0.104**	**1.00**	**0.133**	**Eq Dia 707 CHART 33 S/Do 2.5 Du/Do 0.86 S/Do 1.00 Interpolated Part full downstream pipe Upstream HGL 60.828 pipe obv 60.837 Set Kp to 1**	**Angle 132 Flow 0.748 Angle 0 Qg/Qo 0.05 K -0.11 cor 0.10 Ku -0.01 Kw -0.01 Ku= 1.34 Kw= 1.34 below outlet**	**1.00**	**0.133**	**0.28**	**0.047**	**0.586 (0.321 ty)**	**1.92 (1.51 ty)**	**60.837 60.770**	**60.695 60.648**	**60.828**		**60.828**	**61.440**	**4/2**
100 100	**5/2**	**5/2 to OUT6/2**	**1/2;2/2;3/2;1/13;2/13;4/2**														**24**				**5.81 5.81**	**300 300**	**0.936 0.936**	**780**		**(Pipe flow=**	**790 Sum upstr**	**8.001 atten flows)**	**0.40**	**900(2)R**	**1.2(0.45 ty) (1.82)**	**0.11**		**Qo 0.790 Do 900 CHART 50 Du/Do0.92 alpha 86 K'w 0.30 Vu 1.48 WSE 0.16 Ku 1.73 Kw 2.18 Part full downstream pipe**	**0.073**	**1.00**	**0.193**	**Upstream HGL 60.648 pipe obv 60.827 Set Kp to 1**		**1.00**	**0.193**	**0.17**	**0.014**	**0.543 (0.309 ty)**	**1.94 (1.50 ty)**	**60.827 60.795**	**60.455 60.438**	**60.648**		**60.648**	**61.715**	**5/2**
100 100	1/7	1/7 to 2/7	1/7			5.00 5.00	316 316		0.90 0.90	0.090 0.090	0.081 0.081	0.081 0.081	71 71 FLOW	71 WIDTH/DEPTH	13.20 0.080Dp	38 m	HD.08L2.4A.36	38 (UNLOCKED	34	2/7	5.00 5.00	316 316	0.081 0.104	91		Additional (Pipe flow=	58 flow: 0.02 Sum upstr	19.949 cumecs atten flows)	11.53	225(U)	1.2(1.26 ty) (4.74)	0.26		Qg 0.058 Qo 0.058 Do 225 CHRT 32: Vo2/2gDo 0.34 H/Do 0.00 Kg side flow 4.63 end flow 3.95	0.081	4.63	0.375			4.63	0.375	0.81	0.162	0.085 (0.085 ty)	4.01 (4.01 ty)	67.041 64.741	67.041 65.099	67.416		67.416	67.633	1/7
100 100	2/7	2/7 to 3/7	1/7;2/7			5.00 5.00	316 316		0.90 0.90	0.065 0.065	0.059 0.059	0.059 0.059	51 51 FLOW	84 WIDTH/DEPTH	11.60 0.080Dp	38 m	HD.08L2.4A.36	38 (UNLOCKED	47	3/7	5.26 5.26	310 310	0.162 0.185	159		Additional (Pipe flow=	113 flow: 0.02 Sum upstr	14.753 cumecs atten flows)	6.78	225(U)	2.4(2.48 ty) (3.64)	0.10		Qg 0.057 Qo 0.113 Do 225 Flow 1/7 made eqv grate flow CHRT 32: Vo2/2gDo 1.30 H/Do 1.05 Kg side flow 2.24 end flow 2.11 K vals above for stepped pipes as grate flow grate flow decreased by 0.056 from 1/7	0.313	1.29	0.405	CHART 33 S/Do 2.5 Du/Do 1.00 S/Do 3.73 K vals step	Angle 0 Qg/Qo 0.50 K 1.51 cor -0.22 Ku 1.29 Kw 1.29 pipes as pipe flow Ku 1.29 Kw 1.29	1.29	0.405	3.14	0.463			64.441 63.441	64.694 64.231	65.099		65.099	65.204	2/7
100 100	3/7	3/7 to 4/7	1/7;2/7;3/7			5.00 5.00	316 316		0.90 0.90	0.060 0.060	0.054 0.054	0.054 0.054	47 47 FLOW	94 WIDTH/DEPTH	6.09 0.080Dp	38 m	HD.08L2.4A.36	38 (UNLOCKED	57	4/7	5.36 5.36	308 308	0.239 0.262	224		Additional (Pipe flow=	169 flow: 0.02 Sum upstr	16.309 cumecs atten flows)	6.00	225(U)	3.0(3.70 ty) (3.42)	0.07		Qg 0.057 Qo 0.169 Do 225 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.33 K 1.17 S/Do 4.48 cor -0.20 Ku 0.97 Kw 0.97	0.698	0.97	0.677			0.97	0.677	7.00	1.141			63.391 62.413	63.554 62.413	64.231		64.231	63.980	3/7
100 100	4/7	4/7 to 5/7	1/7;2/7;3/7;4/7			5.00 5.00	316 316		0.90 0.90	0.060 0.060	0.054 0.054	0.054 0.054	47 47 FLOW	104 WIDTH/DEPTH	4.59 0.080Dp	38 m	HD.08L2.4A.36	38 (UNLOCKED	67	5/7	5.43 5.43	307 307	0.316 0.340	290		Additional (Pipe flow=	225 flow: 0.02 Sum upstr	18.552 cumecs atten flows)	4.00	300(U)	3.1(3.10 ty) (3.26)	0.10		Qg 0.056 Qo 0.225 Do 300 Flow 3/7 made eqv grate flow CHRT 32: Vo2/2gDo 1.61 H/Do 0.00 Kg side flow 2.30 end flow 2.18 K vals above for stepped pipes as grate flow grate flow decreased by 0.169 from 3/7	0.490	0.40	0.196	CHART 33 S/Do 2.5 Du/Do 0.75 S/Do 1.64 K vals step	Angle 0 Qg/Qo 0.25 K 0.17 cor 0.23 Ku 0.40 Kw 0.40 pipes as pipe flow Ku 0.40 Kw 0.40	0.40	0.196	3.62	0.671	0.236 (0.236 ty)	3.71 (3.71 ty)	62.137 61.395	62.137 61.331	62.333		62.333	63.201	4/7
100 100	**5/7**	**5/7 to 6/7**	**1/7;2/7;3/7;4/7;5/7**			**5.00 5.00**	**316 316**		**0.84 0.84**	**0.008 0.008**	**0.007 0.007**	**0.007 0.007**	**6 6 FLOW**	**73 WIDTH/DEPTH**	**0.05 0.078Dp**	**75 m**	**HD.08L3.6A.81**	**73 (UNLOCKED**	**0**		**5.53 5.53**	**305 305**	**0.347 0.370**	**313**		**Additional (Pipe flow=**	**314 flow: 0.02 Sum upstr**	**14.279 cumecs atten flows)**	**1.50**	**450(2)R**	**1.97(1.97 ty) (2.19)**	**0.12**		**Qg 0.090 Qo 0.314 Do 450 Flow 4/7 made eqv grate flow CHRT 32: Vo2/2gDo 0.44 H/Do 0.12 Kg side flow 3.97 end flow 3.48 K vals above for stepped pipes as grate flow grate flow decreased by 0.224 from 4/7**	**0.198**	**0.23**	**0.046**	**CHART 33 S/Do 2.5 Du/Do 0.67 S/Do 1.22 K vals step**	**Angle 1 Qg/Qo 0.29 K -0.20 cor 0.43 Ku 0.23 Kw 0.23 pipes as pipe flow Ku 0.23 Kw 0.23**	**0.23**	**0.046**	**1.21**	**0.173**			**61.150 60.936**	**61.202 61.029**	**61.248**		**61.248**	**61.988**	**5/7**
100 100	**6/7**	**6/7 to OUT7/7**	**1/7;2/7;3/7;4/7;5/7**														**24**				**5.65 5.65**	**303 303**	**0.370 0.370**	**312**		**(Pipe flow=**	**314 Sum upstr**	**20.015 atten flows)**	**3.00**	**450(2)R**	**1.97(1.97 ty) (3.10)**	**0.17**		**Qo 0.314 Do 450 CHART 50 Du/Do1.00 alpha 14 K'w 0.20 Vu 1.97 WSE 0.14 Ku 0.50 Kw 0.70**	**0.198**	**0.50**	**0.099**			**0.70**	**0.198**	**1.21**	**0.243**	**0.261 (0.261 ty)**	**3.29 (3.29 ty)**	**60.930 60.330**	**60.930 60.141**	**61.029**		**61.068**	**61.728**	**6/7**

Q100 CALCULATIONS TABLE

NOTE
STORMWATER NETWORK DESIGNED TO CONVEY MAJOR FLOWS SHOWN IN BOLD. ALL OTHER SECTIONS ARE DESIGNED TO CONVEY MINOR FLOWS AND ASSOCIATED CALCULATIONS ARE FOR REFERENCE ONLY.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: STORMWATER DRAINAGE CALCULATIONS SHEET 5 OF 5 Q100 FLOWS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD509 REV. B

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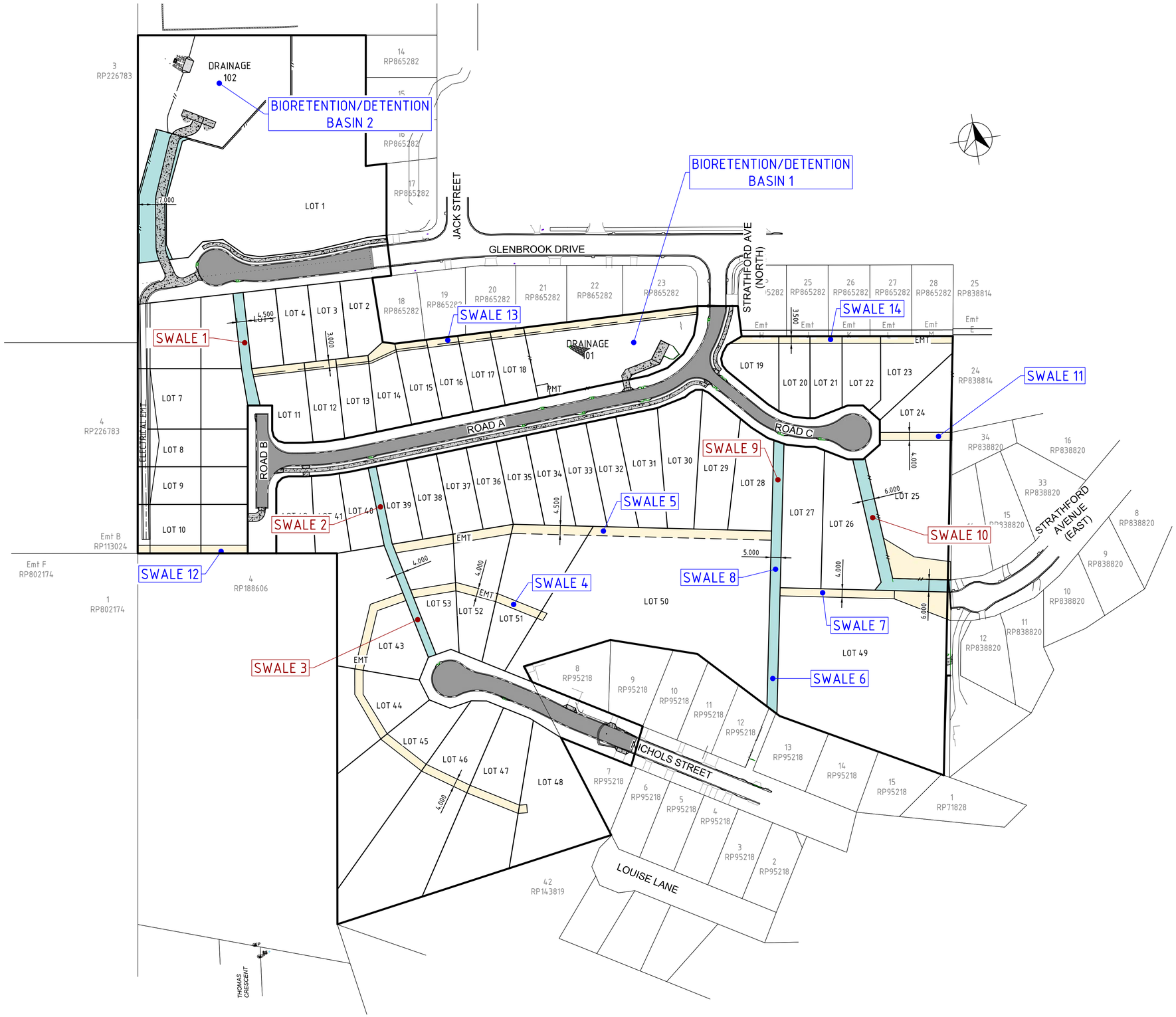

LEGEND

- PROPERTY BOUNDARY
- PROPOSED EASEMENT
- PROPOSED DRAINAGE RESERVE
- SWALE 10 — MAJOR FLOW SWALE
- SWALE 10 — EMERGENCY RELIEF SWALE

NOTE:
REFER TO SKS500 FOR CATCHMENT AREAS.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

SCALE 1:1000 (A1) 0 20 40 60m
(SCALE BEFORE REDUCTION)

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE LAYOUT PLAN

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD600 REV. B

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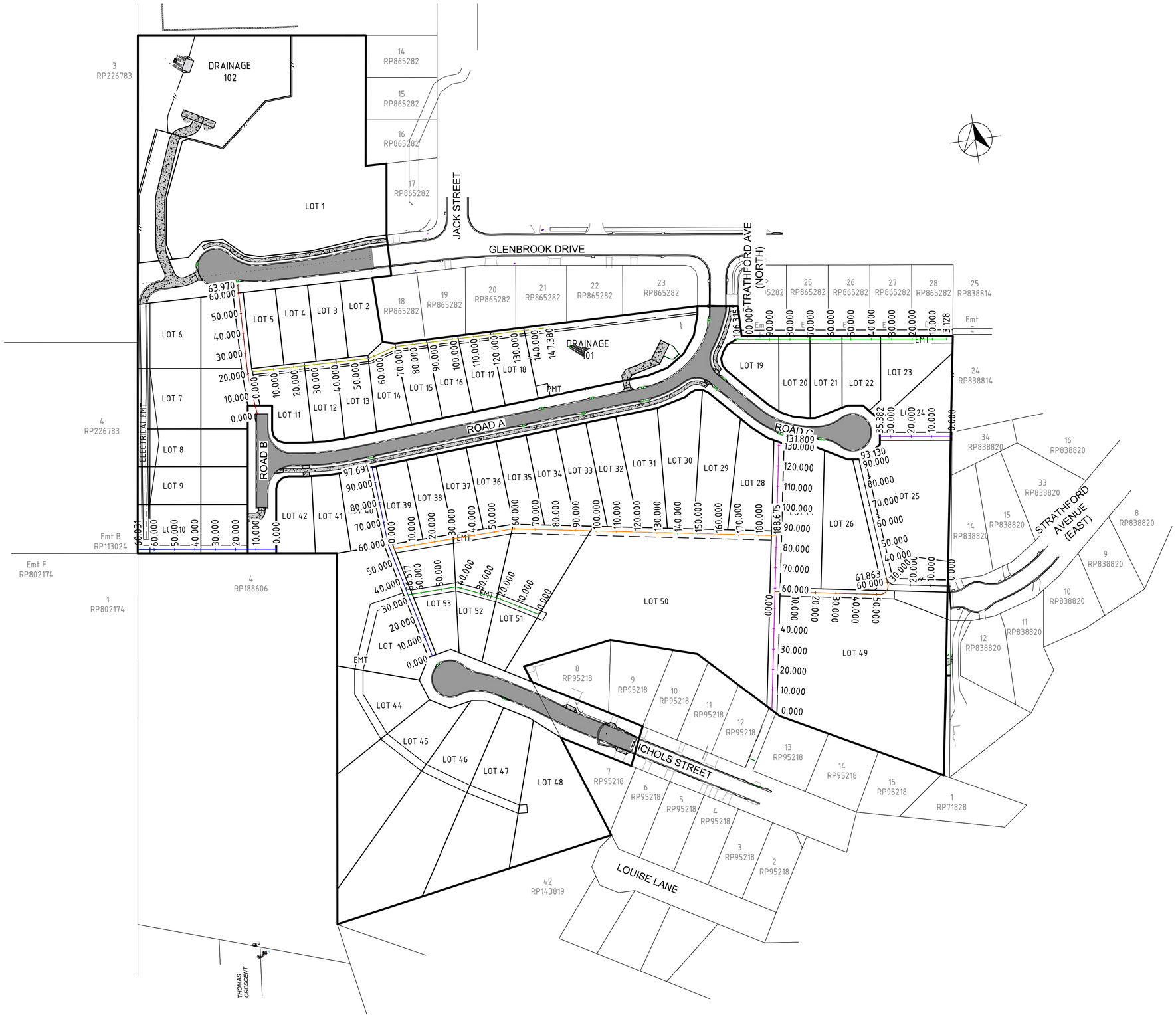

LEGEND

- SWALE 1
- SWALE 2 &3
- SWALE 4
- SWALE 5
- SWALE 6, 8 & 9
- SWALE 7
- SWALE 10
- SWALE 11
- SWALE 12
- SWALE 13
- SWALE 14

NOTE:
REFER TO SKS500 FOR CATCHMENT AREAS.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

SCALE 1:1000 (A1) 0 20 40 60m
(SCALE BEFORE REDUCTION)

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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JAS-ANZ

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE CHAINAGE PLAN

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD601 REV. B

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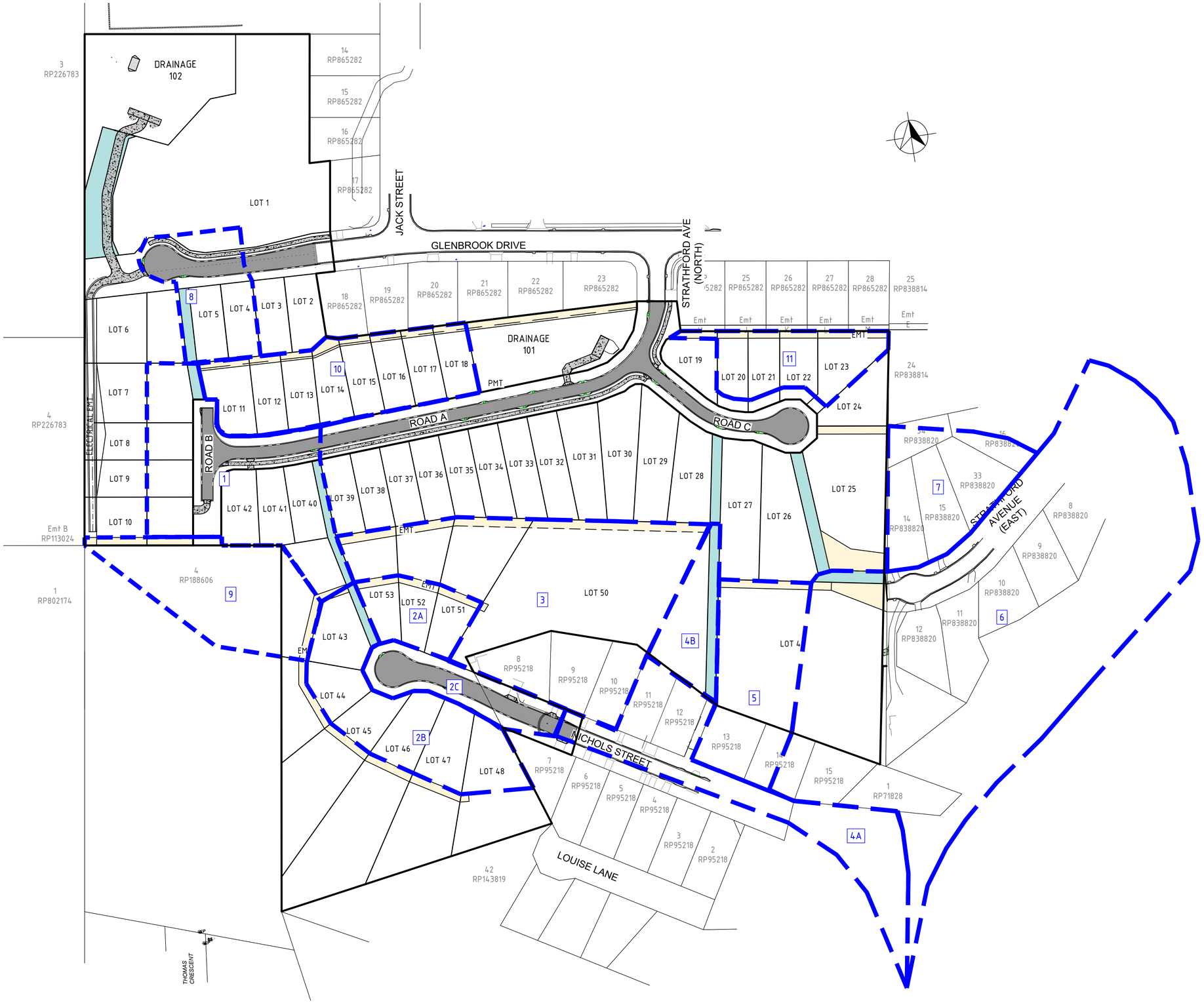
NOT FOR CONSTRUCTION



LEGEND

CATCHMENT AREA

CATCHMENT AREAS

CATCHMENT NAME	AREA (HA)	C_{10}	tc	Q_{100}
1	0.565	0.76	5	0.485
2A	0.168	0.75	5	0.134
2B	0.470	0.75	5	0.376
2C	0.204	0.76	5	0.165
3	1.073	0.74	8	0.725
4A	0.516	0.76	5	0.418
4B	0.171	0.74	8	0.116
5	0.443	0.74	8	0.299
6	2.590	0.76	5	2.100
7	0.357	0.75	8	0.245
8	0.268	0.76	5	0.255
9	0.379	0.74	8	0.233
10	0.510	0.75	5	0.408
11	0.252	0.75	5	0.200

NOTE:
REFER TO SKS500 FOR CATCHMENT AREAS.

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:1000 (A1) 0 20 40 60m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE CATCHMENT PLAN

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD602 REV. B

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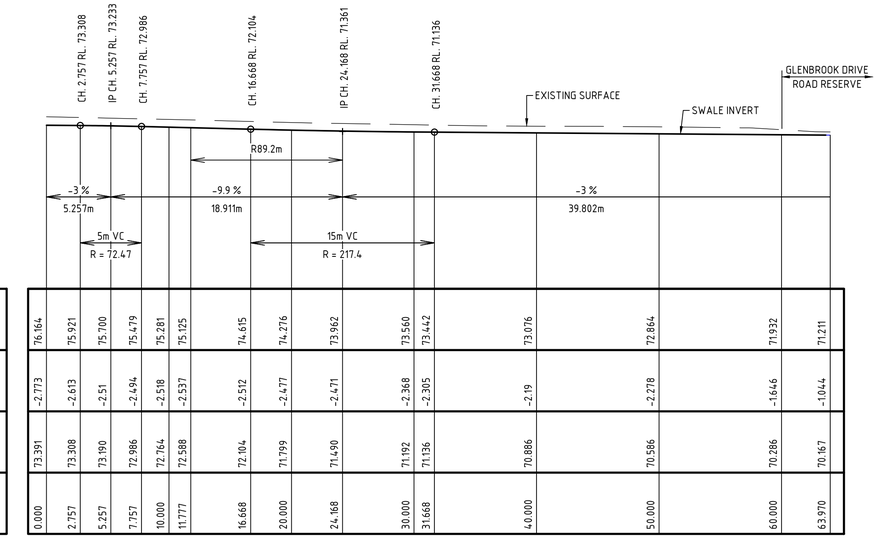
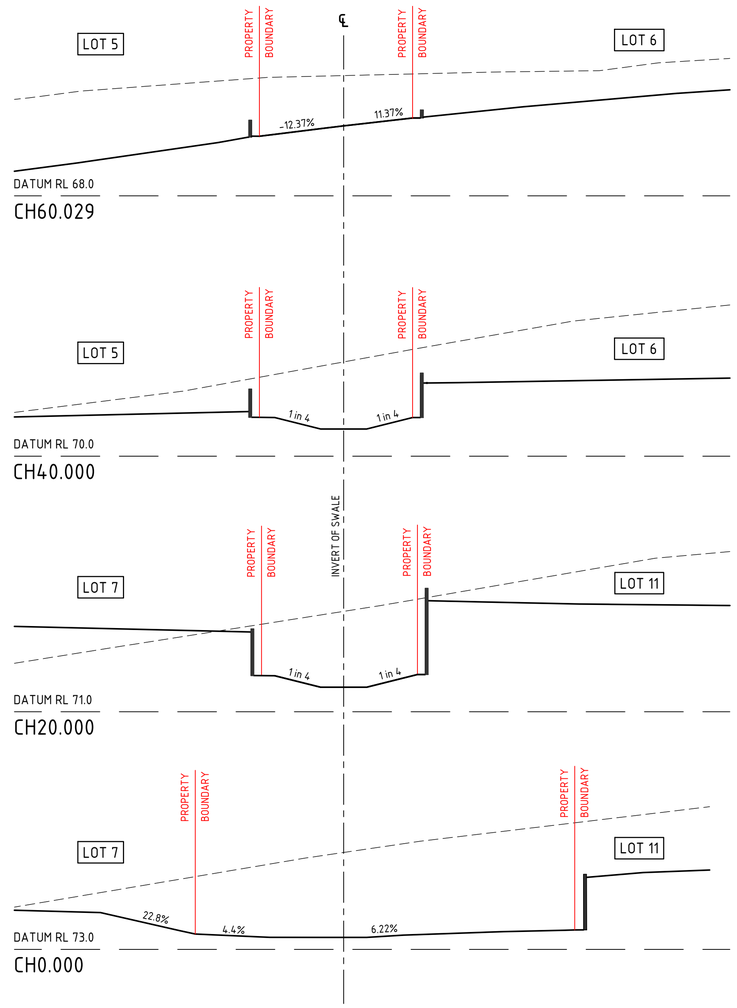


HORIZONTAL CURVE DATA															
VERTICAL GEOMETRY GRADE (%)	-3 %		-9.9 %								-3 %				
VERTICAL GRADE LENGTH	5.257m		18.911m								39.802m				
VERTICAL CURVE LENGTH (m)		5m VC					15m VC								
VERTICAL CURVE RADIUS (m)		R = 72.47					R = 217.4								
DATUM R.L.20.000															
NAT. SURFACE ON ROAD CENTRELINE	76.164	75.921	75.700	75.479	75.281	75.125	74.615	74.276	73.962	73.560	73.442	73.076	72.864	71.932	71.211
CUT / FILL DEPTHS	-2.773	-2.613	-2.51	-2.494	-2.518	-2.537	-2.512	-2.477	-2.471	-2.368	-2.305	-2.19	-2.278	-1.646	-1.044
DESIGN LEVELS ON ROAD CENTRELINE	73.391	73.308	73.190	72.986	72.764	72.598	72.104	71.799	71.490	71.192	71.136	70.886	70.586	70.286	70.167
CHAINAGE	0.000	2.757	5.257	7.757	10.000	11.777	16.668	20.000	24.168	30.000	31.668	40.000	50.000	60.000	63.970

LONGITUDINAL SECTION - SWALE 01 (EMERGENCY RELIEF)

SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)

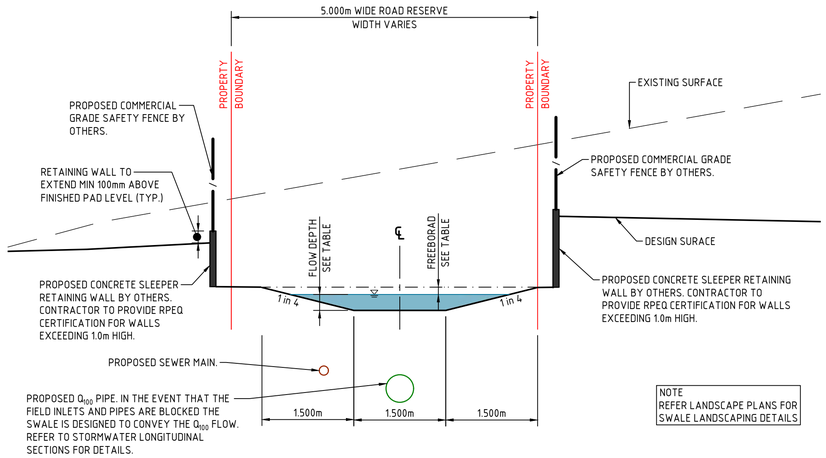
NOTE
SWALE TRANSITION FROM CH 54.026 TO CH 60.029 & MATCH NEATLY INTO VERGE. ENSURE SWALE DRAINS FREELY ACROSS VERGE.



CROSS SECTIONS - SWALE 01 (EMERGENCY RELIEF)

SCALE 1:100

CHANNEL PROPERTIES - SWALE 01 (CATCHMENT 2A,2B(Q_{20}),2C)	
DESIGN Q_{100} (m^3/s)	1.010
MANNINGS (n)	0.035 (TURF)
LONG SLOPE (m/m)	0.05
VELOCITY (m/s)	1.890
DV PRODUCT (m^2/S)	0.420
FLOW DEPTH (m)	0.220



NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS

SWALE TYPICAL SECTION - SWALE 01 EMERGENCY RELIEF

SCALE 1:50

SWALE 01 (EMERGENCY RELIEF) SETOUT TABLE							
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	494233.079	7055977.333	354°17'37.90"			
	10.000	494232.085	7055987.284	354°17'37.90"			
TC	11.777	494231.908	7055989.052	354°17'37.90"			
IP 2	17.972	494231.291	7055995.227		R = 89.201	12.391	7°57'32.21"
	20.000	494231.468	7055997.260	359°34'32.48"			
CT	24.168	494231.535	7056001.427	2°15'10.11"			
	30.000	494231.764	7056007.255	2°15'10.11"			
	40.000	494232.157	7056017.247	2°15'10.11"			
	50.000	494232.550	7056027.240	2°15'10.11"			
	60.000	494232.943	7056037.232	2°15'10.11"			
IP 3	63.970	494233.100	7056041.199	2°15'10.11"			

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
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CONTACT DETAILS
E mail@mnce.com.au
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 01 (EMERGENCY RELIEF) LONGITUDINAL AND CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD700 REV. B

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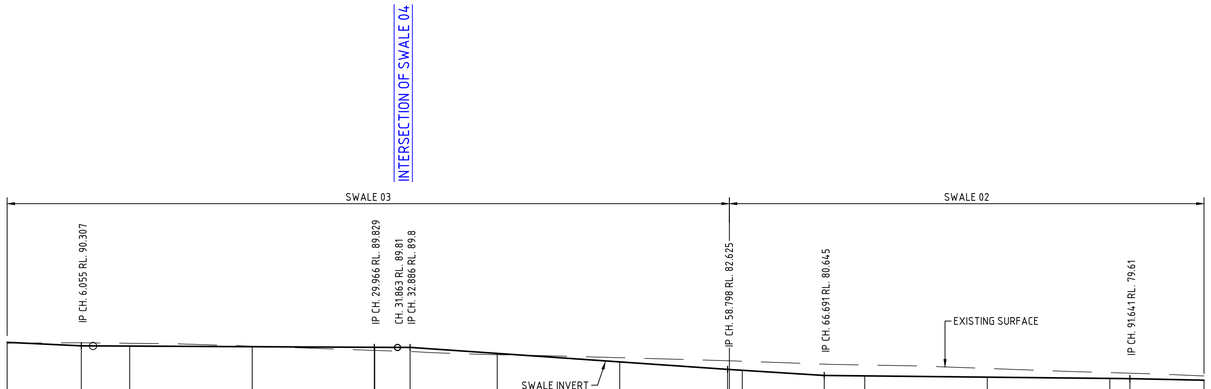


HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

DATUM R.L 29.000

NAT. SURFACE ON ROAD CENTRELINE	91.164	91.312	91.134	90.192	88.815	88.810	88.442	87.425	86.432	85.448	85.281	84.331	84.054	82.920	81.570	81.381	80.477
CUT / FILL DEPTHS	0.291	-1.005	-0.905	-0.164	1.014	1.018	1.357	0.405	-1.37	-2.823	-2.957	-3.686	-3.546	-2.828	-1.892	-1.772	-1.374
DESIGN LEVELS ON ROAD CENTRELINE	91.455	90.307	90.228	90.028	89.829	89.829	89.800	87.830	85.061	82.625	82.324	80.645	80.508	80.093	79.678	79.610	79.102
CHAINAGE	0.000	6.055	10.000	20.000	29.966	30.000	32.886	40.000	50.000	58.798	60.000	66.691	70.000	80.000	90.000	91.641	97.691

LONGITUDINAL SECTION - SWALE 02 & 03 (EMERGENCY RELIEF)

SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)

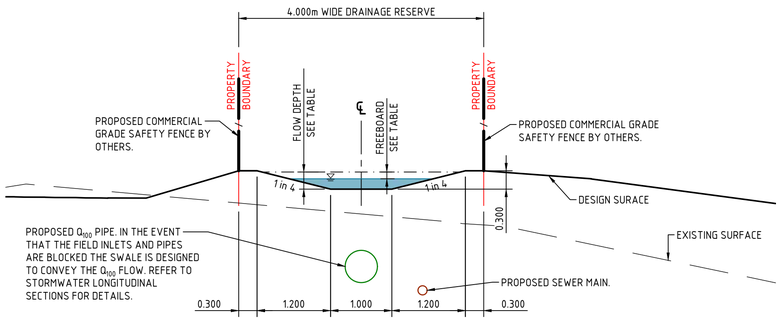
NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS

CHANNEL PROPERTIES - SWALE 02
(CATCHMENT 2A, 2B[Q_{20}],2C)

DESIGN Q_{100} (m^3/s)	0.550
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.090
VELOCITY (m/s)	1.570
DV PRODUCT (m^2/S)	0.310
FLOW DEPTH (m)	0.200
FREEBOARD (m)	0.100

CHANNEL PROPERTIES - SWALE 03
(CATCHMENT 2A, 2B[Q_{20}],2C)

DESIGN Q_{100} (m^3/s)	0.550
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.15
VELOCITY (m/s)	1.890
DV PRODUCT (m^2/S)	0.320
FLOW DEPTH (m)	0.170
FREEBOARD (m)	0.100

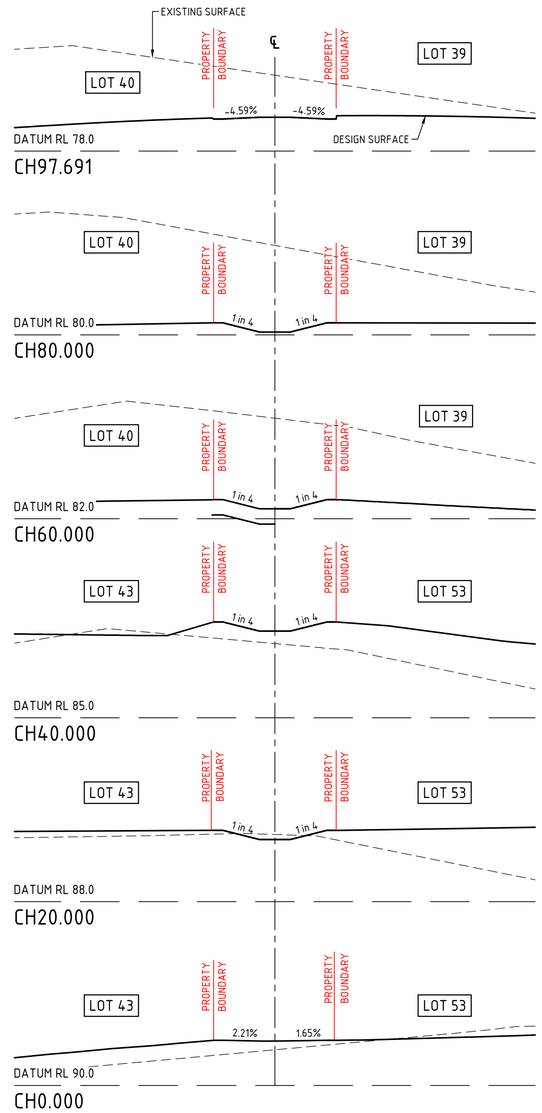


SWALE TYPICAL SECTION - SWALE 02 & 03 (EMERGENCY RELIEF)

SCALES 1:50

SWALE 02 03 SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING
IP 1	0.000	494300.010	7055846.559	347°08'19.03"
	10.000	494297.784	7055856.309	347°08'19.03"
	20.000	494295.558	7055866.058	347°08'19.03"
	30.000	494293.332	7055875.807	347°08'19.03"
	40.000	494291.107	7055885.556	347°08'19.03"
	50.000	494288.881	7055895.305	347°08'19.03"
IP 2	58.948	494286.889	7055904.029	
	60.000	494286.834	7055905.079	356°59'30.22"
	70.000	494286.309	7055915.065	356°59'30.22"
	80.000	494285.784	7055925.052	356°59'30.22"
	90.000	494285.259	7055935.038	356°59'30.22"
IP 3	97.691	494284.856	7055942.718	356°59'30.22"



CROSS SECTIONS - SWALE 02 & 03 (EMERGENCY RELIEF)

SCALE 1:100

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
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SYDNEY PH No. 1300 827 901
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CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 02 & 03 (EMERGENCY RELIEF) LONGITUDINAL AND CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD701 REV. B

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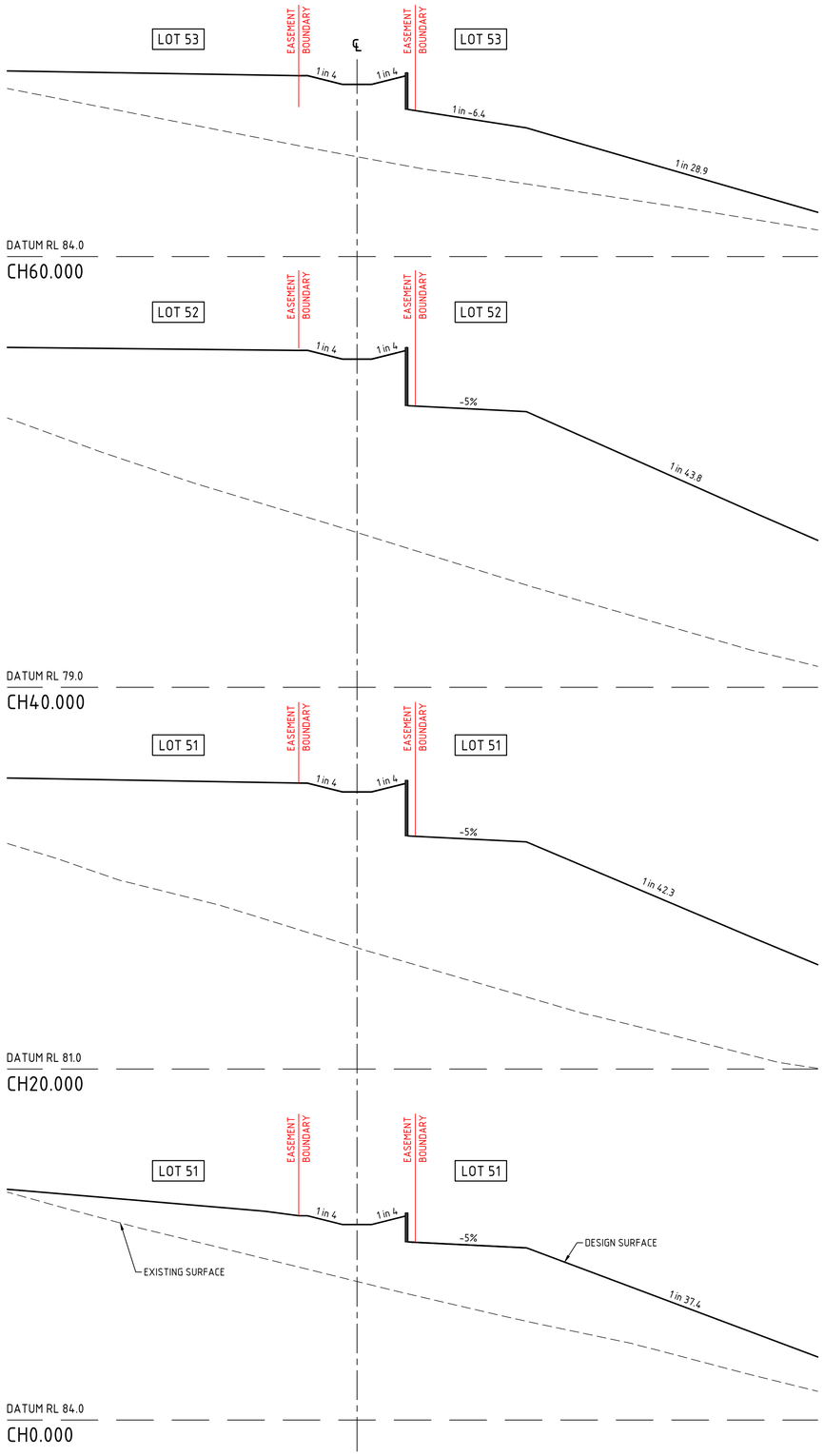
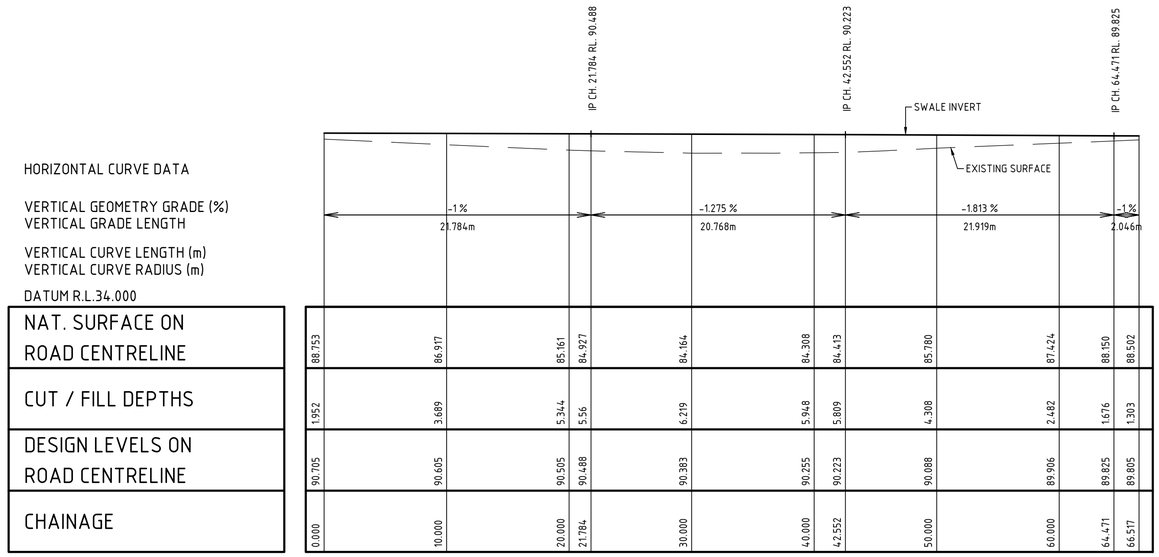


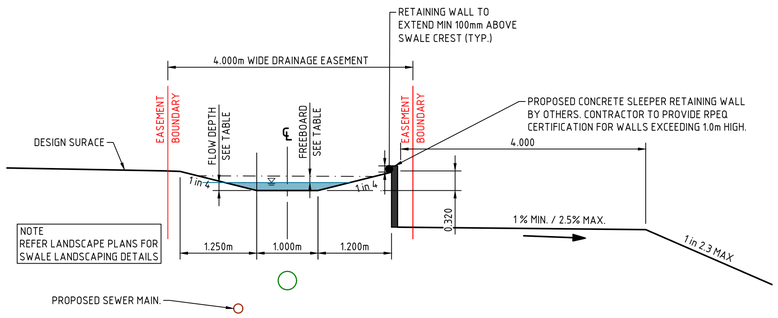
CROSS SECTIONS – SWALE 04

SCALE 1:100



LONGITUDINAL SECTION – SWALE 04

SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)



SWALE TYPICAL SECTION – SWALE 04

SCALES 1:50

CHANNEL PROPERTIES – SWALE 04

(CATCHMENT 2A)

DESIGN Q_{100} (m^3/s)	0.130
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.01
VELOCITY (m/s)	0.530
DV PRODUCT (m^2/S)	0.080
FLOW DEPTH (m)	0.160
FREEBOARD (m)	0.150

SWALE 4 SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING
IP 1	0.000	494354.521	7055858.924	300°35'01.97"
	10.000	494345.912	7055864.012	300°35'01.97"
	20.000	494337.303	7055869.100	300°35'01.97"
IP 2	21.784	494335.768	7055870.008	
	30.000	494328.251	7055873.326	293°48'54.83"
	40.000	494319.103	7055877.364	293°48'54.83"
IP 3	42.552	494316.768	7055878.394	
	50.000	494309.320	7055878.309	269°20'52.95"
	60.000	494299.321	7055878.196	269°20'52.95"
IP 4	66.517	494292.804	7055878.121	269°20'52.95"

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)

SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

SCALE 1:200 (A1) 0 4 8 12m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 04 LONGITUDINAL AND CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 – CD702 REV. B

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HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%) / VERTICAL GRADE LENGTH: -1% 0.091m; -2.695 % 12.227m; -14.195 % 14.721m; -15 % 30.04m; -3.809 % 88.548m; -3.815 % 35.016m

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

DATUM R.L.22.000

NAT. SURFACE ON ROAD CENTRELINE	84.969	84.953	83.044	82.558	80.920	79.417	78.786	76.528	76.155	76.446	76.611	77.310	78.009	78.662	79.316	80.080	80.188	79.456	78.732	77.965	77.392		
CUT / FILL DEPTHS	-1.277	-1.262	0.38	0.803	1.351	1.854	2.042	2.8	1.612	0.319	0.043	-1.037	-2.116	-3.15	-4.185	-5.33	-5.819	-5.468	-5.125	-4.572	-4.166		
DESIGN LEVELS ON ROAD CENTRELINE	83.692	83.691	83.424	83.361	82.271	81.272	80.827	79.327	77.827	76.766	76.654	76.273	75.893	75.512	75.131	74.750	74.369	73.988	73.607	73.393	73.226		
CHAINAGE	0.000	0.091	10.000	12.318	20.000	27.039	30.000	40.000	50.000	57.079	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	145.627	150.000		

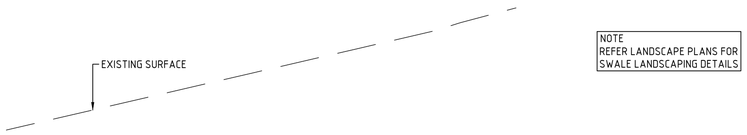
- JOINS BELOW -

LONGITUDINAL SECTION - SWALE 05

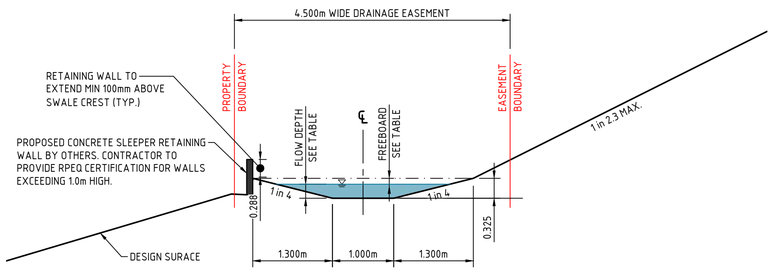
SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)

CHANNEL PROPERTIES - SWALE 05
(CATCHMENT 3)

DESIGN Q_{100} (m^3/s)	0.730
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.09
VELOCITY (m/s)	1.680
DV PRODUCT (m^2/S)	0.380
FLOW DEPTH (m)	0.230
FREEBOARD (m)	0.100



NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS.



SWALE SECTION - SWALE 05

SCALES 1:50

SWALE 05 SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING
IP 1	0.000	494289.503	7055901.554	89°20'52.93"
	10.000	494299.503	7055901.668	89°20'52.93"
	20.000	494309.502	7055901.781	89°20'52.93"
	30.000	494319.501	7055901.895	89°20'52.93"
	40.000	494329.501	7055902.009	89°20'52.93"
	50.000	494339.500	7055902.123	89°20'52.93"
IP 2	59.495	494348.995	7055902.231	
	60.000	494349.491	7055902.142	100°11'19.24"
	70.000	494359.334	7055900.373	100°11'19.24"
	80.000	494369.176	7055898.604	100°11'19.24"
	90.000	494379.018	7055896.835	100°11'19.24"
	100.000	494388.861	7055895.066	100°11'19.24"
	110.000	494398.703	7055893.297	100°11'19.24"
	120.000	494408.545	7055891.528	100°11'19.24"
	130.000	494418.388	7055889.759	100°11'19.24"
	140.000	494428.230	7055887.990	100°11'19.24"
	150.000	494438.072	7055886.221	100°11'19.24"
	160.000	494447.914	7055884.453	100°11'19.24"
	170.000	494457.757	7055882.684	100°11'19.24"
	180.000	494467.599	7055880.915	100°11'19.24"
IP 3	188.675	494476.138	7055879.380	100°11'19.24"

HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%) / VERTICAL GRADE LENGTH: -3.815 % 35.016m; -1 % 2.64m

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

DATUM R.L.22.000

NAT. SURFACE ON ROAD CENTRELINE	77.965	77.392	77.821	76.679	75.405	75.312	74.937
CUT / FILL DEPTHS	-4.572	-4.166	-4.977	-4.216	-3.324	-3.256	-2.907
DESIGN LEVELS ON ROAD CENTRELINE	73.393	73.226	72.844	72.463	72.081	72.057	72.030
CHAINAGE	145.627	150.000	160.000	170.000	180.000	180.643	183.283

- JOINS ABOVE -

LONGITUDINAL SECTION - SWALE 05

SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 05 LONGITUDINAL AND TYPICAL SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
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DRAWING No. C3602 - CD703 REV. B

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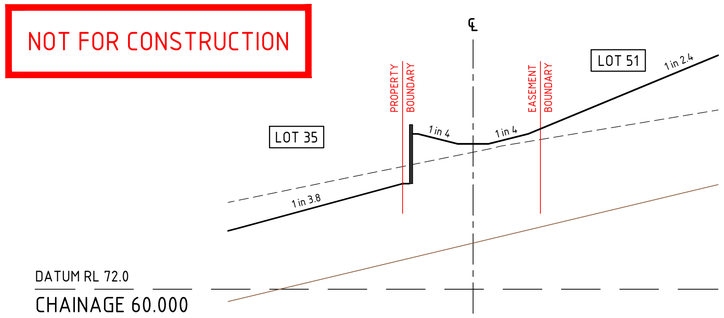

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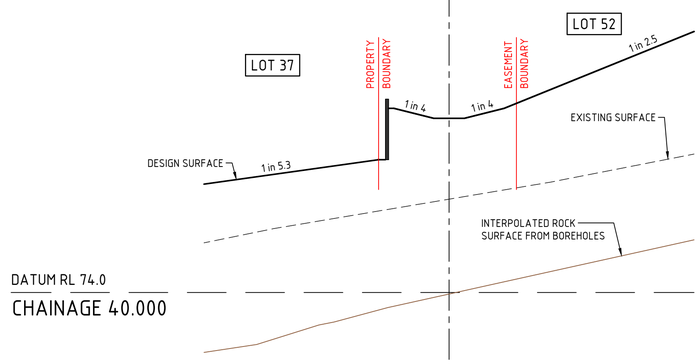

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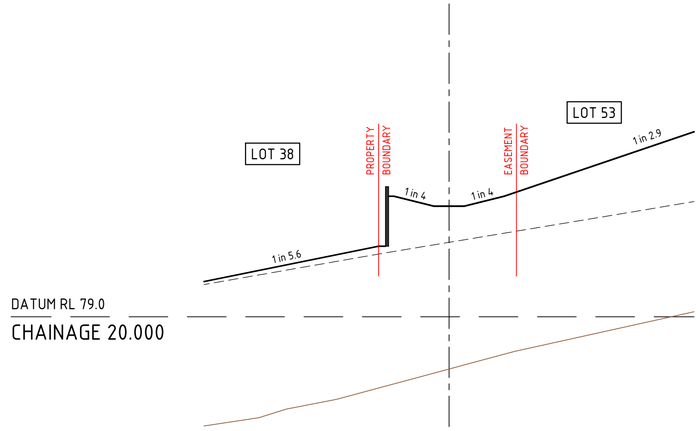

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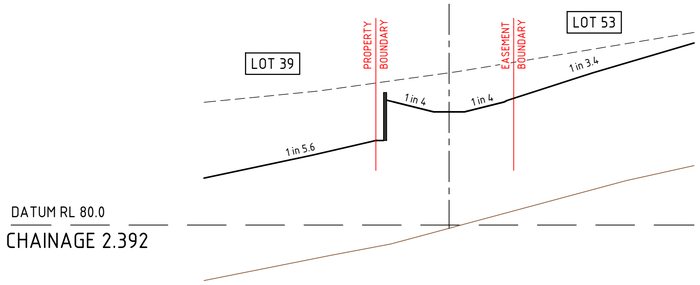

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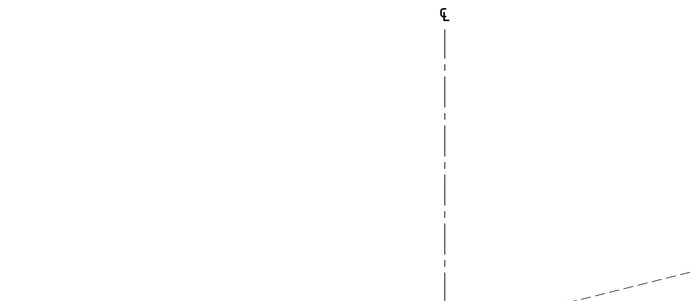

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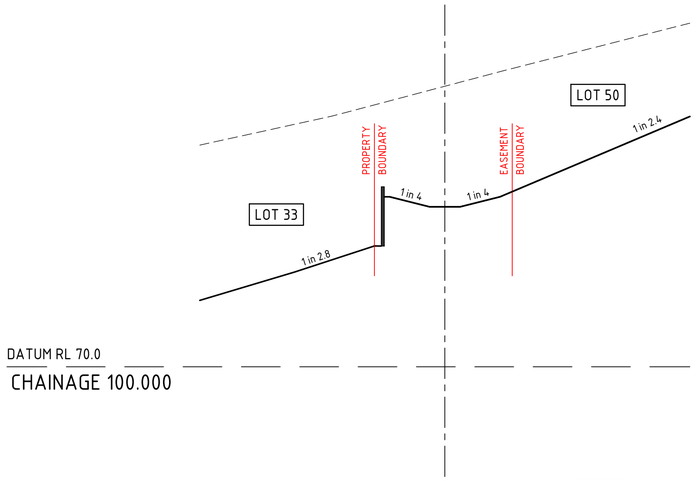

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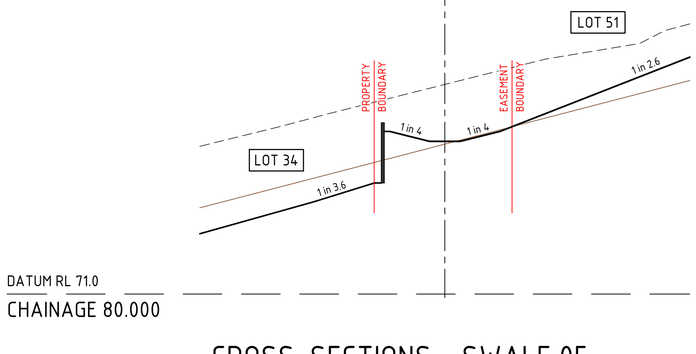

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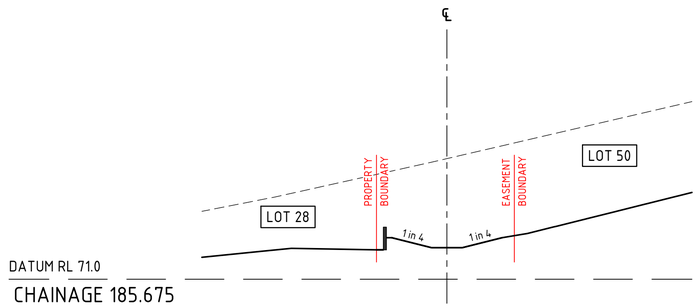

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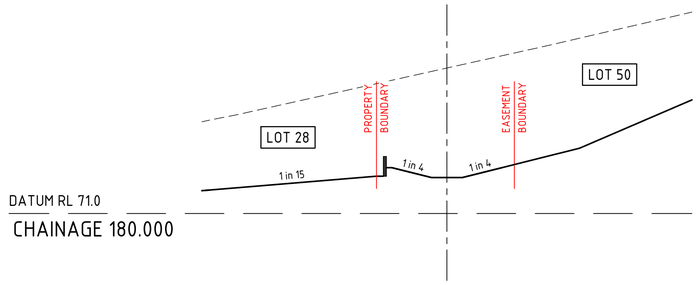

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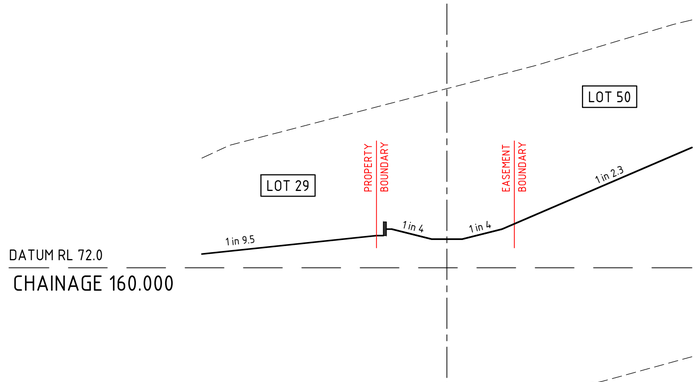

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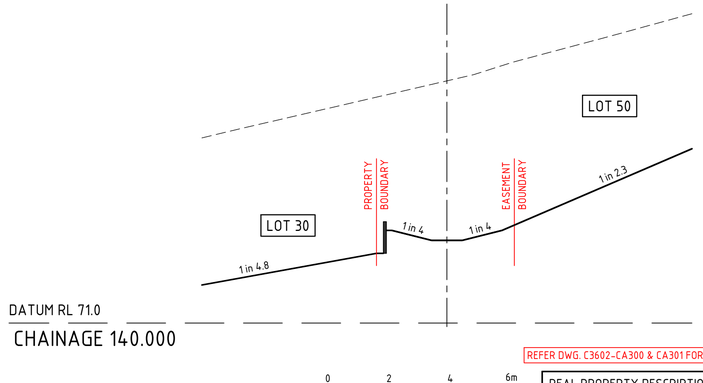

CHAINAGE 140.000

CROSS SECTIONS - SWALE 05

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 05 CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD704 REV. B

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ALL SCALES ARE AS SHOWN (A1)

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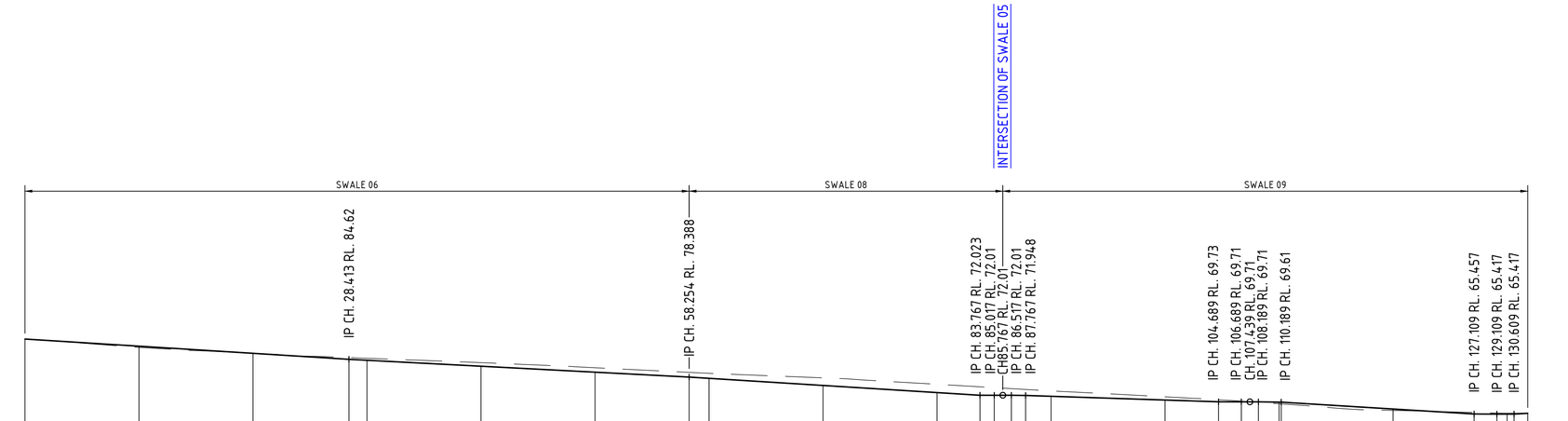


HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

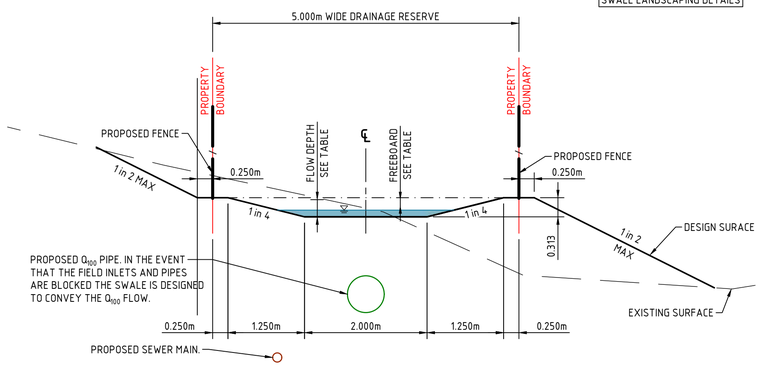
DATUM R.L.15.000

NAT. SURFACE ON ROAD CENTRELINE	91.723	88.790	86.743	85.224	84.984	83.446	81.657	80.051	79.711	78.124	75.864	74.988	74.697	74.348	74.057	73.555	71.486	70.472	69.957	69.546	69.050	68.998	66.705	65.989	65.778	65.732	65.727	65.717
CUT / FILL DEPTHS	-0	0.434	-0.019	-0.604	-0.695	-1.246	-1.545	-1.663	-1.758	-2.666	-2.901	-2.965	-2.687	-2.338	-2.11	-1.9	-1.141	-0.742	-0.247	0.164	0.569	0.612	0.497	-0.531	-0.36	-0.314	-0.309	-0
DESIGN LEVELS ON ROAD CENTRELINE	91.723	89.223	86.723	84.620	84.289	82.200	80.112	78.388	77.953	75.458	72.963	72.023	72.010	72.010	71.948	71.655	70.344	69.730	69.710	69.710	69.619	69.610	67.202	65.457	65.417	65.417	65.417	65.717
CHAINAGE	0.000	10.000	20.000	28.413	30.000	40.000	50.000	58.254	60.000	70.000	80.000	83.767	85.017	86.517	87.767	90.000	100.000	104.689	106.689	108.189	110.000	110.189	120.000	127.109	129.109	130.000	130.609	131.809

LONGITUDINAL SECTION - SWALE 06, 08 & 09
(EMERGENCY RELIEF)

SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)

NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS



SWALE SECTION - SWALE 06, 08 & 09
(EMERGENCY RELIEF)

CHANNEL PROPERTIES - SWALE 06 (CATCHMENT 4A)	
DESIGN Q_{100} (m^3/s)	0.420
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.23
VELOCITY (m/s)	1.820
DV PRODUCT (m^2/S)	0.170
FLOW DEPTH (m)	0.100
FREEBOARD (m)	0.220

CHANNEL PROPERTIES - SWALE 08 (CATCHMENT 4A & 4B)	
DESIGN Q_{100} (m^3/s)	0.530
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.22
VELOCITY (m/s)	1.940
DV PRODUCT (m^2/S)	0.220
FLOW DEPTH (m)	0.110
FREEBOARD (m)	0.200

CHANNEL PROPERTIES - SWALE 09 (CATCHMENT 3, 4A & 4B)	
DESIGN Q_{100}(m^3/s)	1.260
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.13
VELOCITY (m/s)	2.130
DV PRODUCT (m^2/S)	0.440
FLOW DEPTH (m)	0.210
FREEBOARD (m)	0.100

SWALE 06 08 09 SETOUT TABLE				
PT	CHAINAGE	EASTING	NORTHING	BEARING
IP 1	0.000	494460.967	7055794.965	10°12'26.43"
	10.000	494462.739	7055804.807	10°12'26.43"
	20.000	494464.511	7055814.649	10°12'26.43"
	30.000	494466.283	7055824.490	10°12'26.43"
	40.000	494468.055	7055834.332	10°12'26.43"
	50.000	494469.828	7055844.174	10°12'26.43"
	60.000	494471.600	7055854.015	10°12'26.43"
	70.000	494473.372	7055863.857	10°12'26.43"
	80.000	494475.144	7055873.699	10°12'26.43"
	90.000	494476.916	7055883.541	10°12'26.43"
	100.000	494478.688	7055893.382	10°12'26.43"
	110.000	494480.460	7055903.224	10°12'26.43"
	120.000	494482.232	7055913.066	10°12'26.43"
	130.000	494484.004	7055922.908	10°12'26.43"
IP 2	131.809	494484.325	7055924.688	10°12'26.43"

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
BRISBANE PH No. (07) 3255 1877
IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 06,08 &09 (EMERGENCY RELIEF) LONGITUDINAL AND TYPICAL SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD705 REV. B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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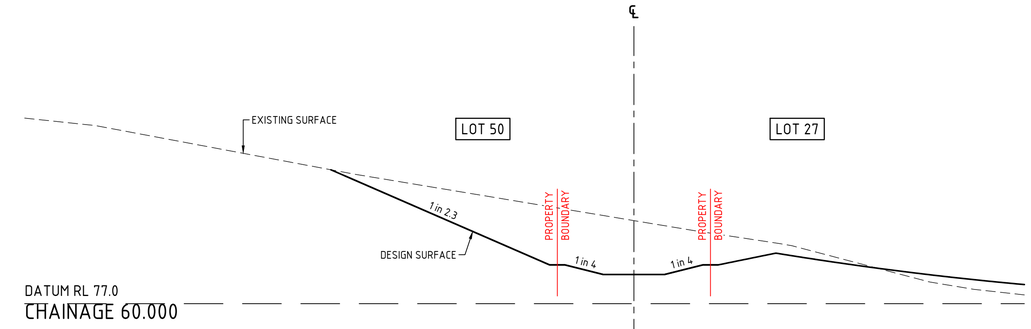

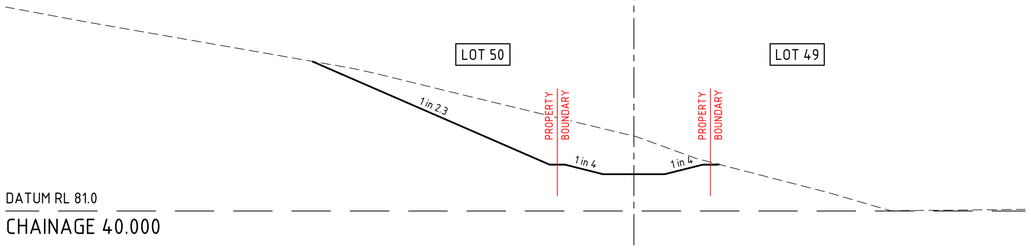

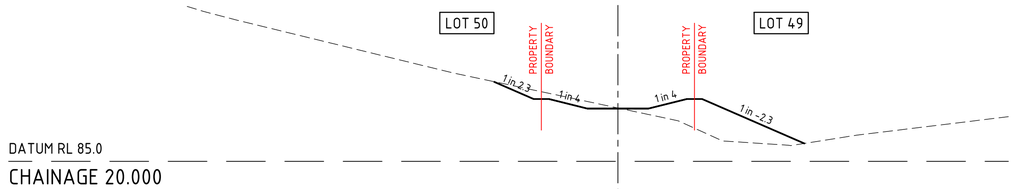

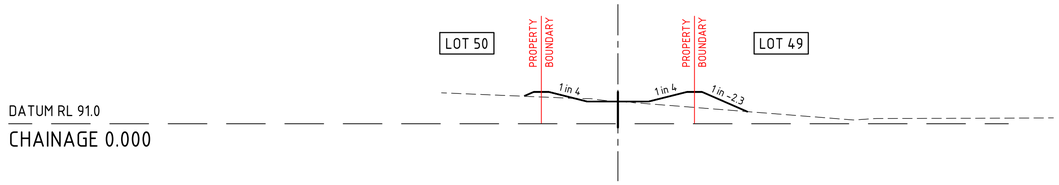

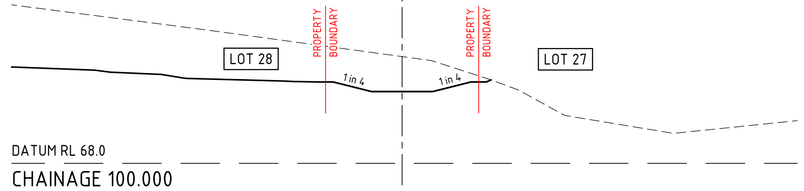

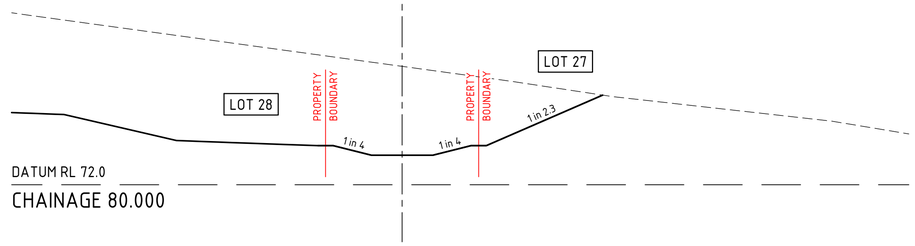

CROSS SECTIONS - SWALE 06, 08 AND 09 (EMERGENCY RELIEF)

SCALE 1:100

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)

SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS
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SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 06, 08 & 09 CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD706 REV. B

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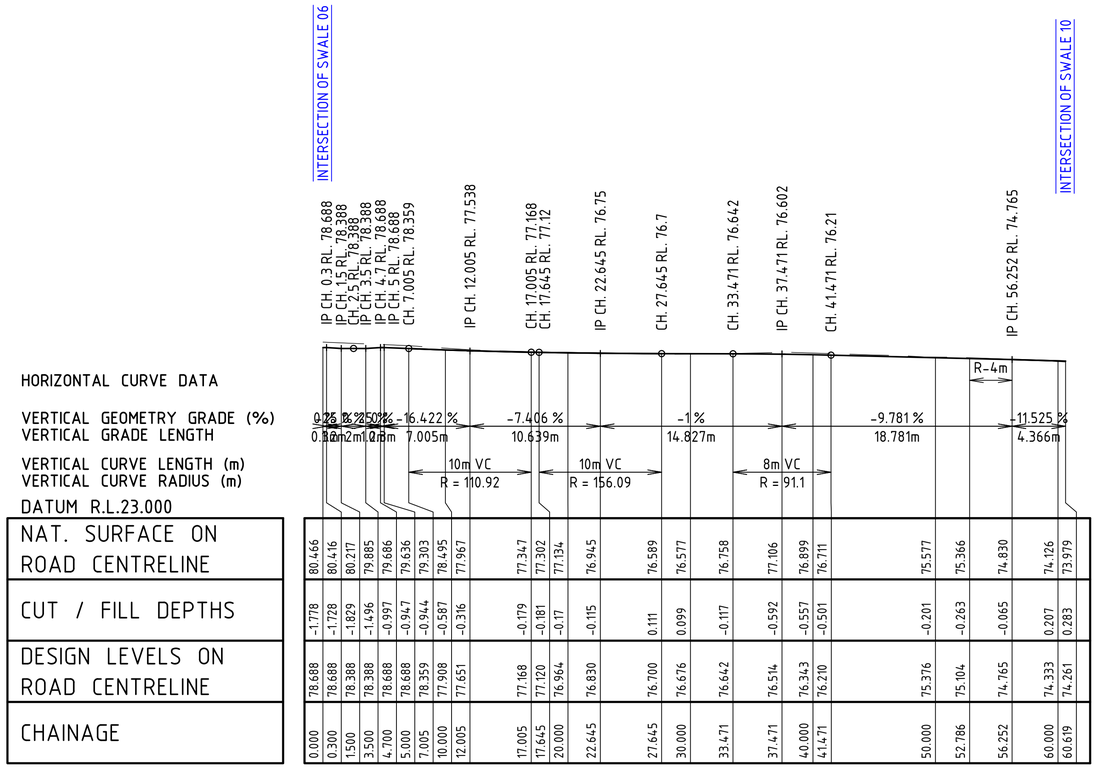
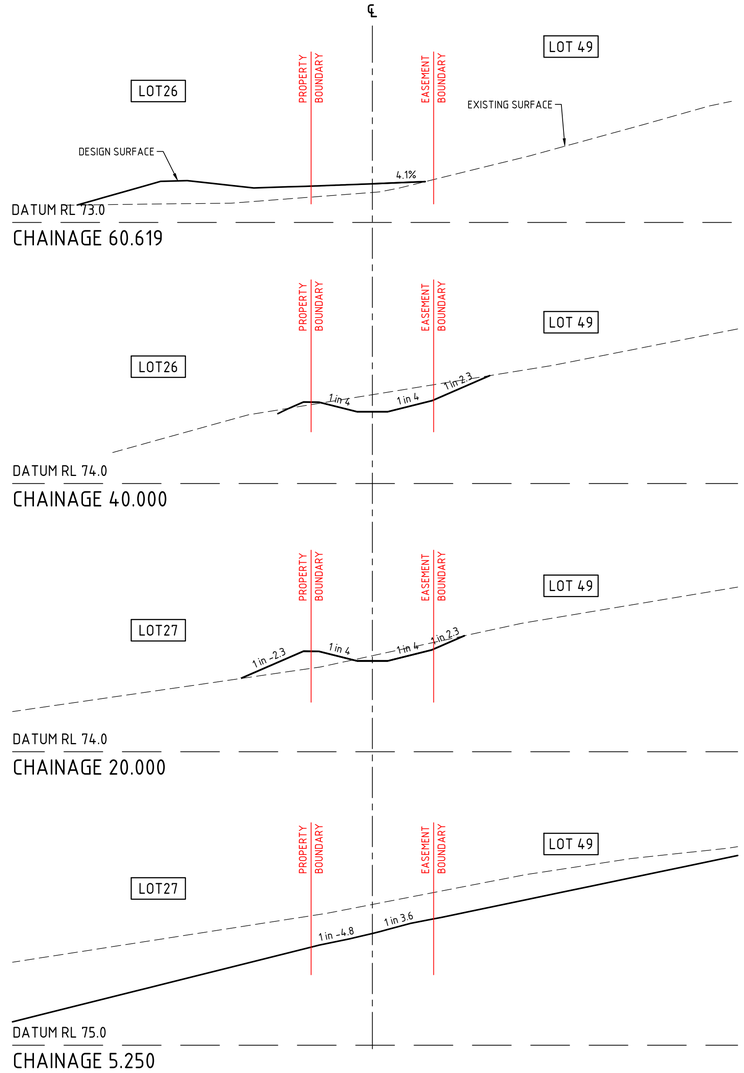


CHAINAGE	NAT. SURFACE ON ROAD CENTRELINE	CUT / FILL DEPTHS	DESIGN LEVELS ON ROAD CENTRELINE
0.000	80.466	-1.778	78.688
0.300	80.416	-1.728	78.688
1.500	80.217	-1.829	78.388
3.500	79.885	-1.496	78.388
4.700	79.686	-0.997	78.688
5.000	79.636	-0.947	78.688
7.005	79.303	-0.944	78.359
10.000	78.495	-0.587	77.908
12.005	77.967	-0.316	77.651
17.005	77.347	-0.179	77.168
17.645	77.302	-0.181	77.120
20.000	77.134	-0.17	76.964
22.645	76.945	-0.115	76.830
27.645	76.589	0.111	76.700
30.000	76.577	0.099	76.676
33.471	76.758	-0.117	76.642
37.471	77.106	-0.592	76.514
40.000	76.899	-0.557	76.343
41.471	76.711	-0.501	76.210
50.000	75.577	-0.201	75.376
52.786	75.366	-0.263	75.104
56.252	74.830	-0.065	74.765
60.000	74.126	0.207	74.333
60.619	73.979	0.283	74.261

LONGITUDINAL SECTION - SWALE 07

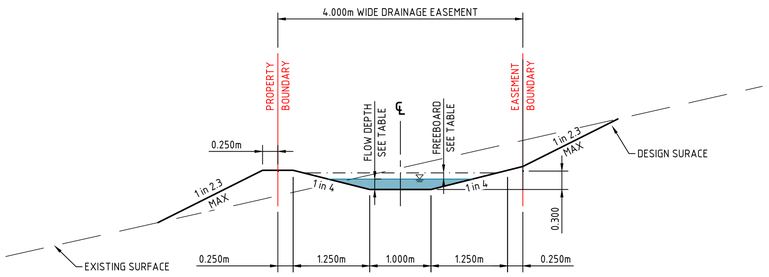
SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)



CROSS SECTIONS - SWALE 07

SCALE 1:100

NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS



SWALE SECTION - SWALE 07

SCALES 1:50

CHANNEL PROPERTIES - SWALE 07

(CATCHMENT 5)

DESIGN Q_{100} (m^3/s)	0.300
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.08
VELOCITY (m/s)	1.260
DV PRODUCT (m^2/S)	0.190
FLOW DEPTH (m)	0.150
FREEBOARD (m)	0.160

SWALE 07 SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	494468.830	7055852.740	100°12'26.42"			
	10.000	494478.672	7055850.968	100°12'26.42"			
	20.000	494488.513	7055849.196	100°12'26.42"			
	30.000	494498.355	7055847.424	100°12'26.42"			
	40.000	494508.197	7055845.652	100°12'26.42"			
	50.000	494518.039	7055843.879	100°12'26.42"			
TC	52.786	494520.780	7055843.386	100°12'26.42"			
IP 2	54.519	494522.601	7055843.058		R = -4.000	3.467	49°39'29.13"
CT	56.252	494524.031	7055844.234	50°32'57.29"			
	60.000	494526.924	7055846.615	50°32'57.29"			
IP 3	60.619	494527.402	7055847.008	50°32'57.29"			

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 07 LONGITUDINAL AND CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD707 REV. B

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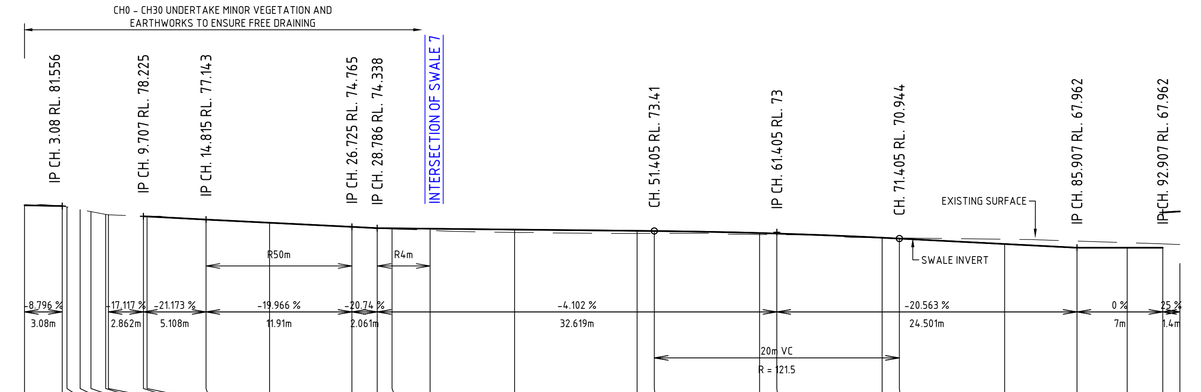


HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%) / VERTICAL GRADE LENGTH

-8.796 %		-17.117 %	-21.173 %		-19.966 %		-20.74 %			-4.102 %					-20.563 %			0 %		25.2 %	
3.08m		2.862m	5.108m		11.91m		2.061m			32.619m					24.501m			7m		1.4m	

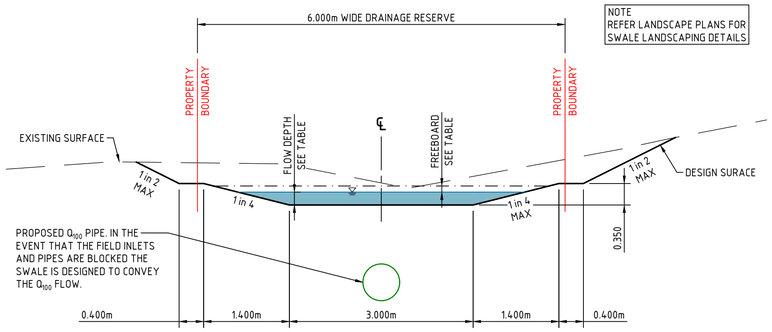
VERTICAL CURVE LENGTH (m) / VERTICAL CURVE RADIUS (m)

DATUM R.L.17.000

NAT. SURFACE ON ROAD CENTRELINE	81.826	81.556	81.269	80.387	79.754	78.832	78.715	78.225	78.228	77.143	76.122	74.765	74.338	74.080	73.631	72.939	72.609	72.627	72.271	72.221	71.213	71.145	70.729	70.119	69.601	69.224	68.993
CUT / FILL DEPTHS	0	0	0	0	0	0	0	0	-0.065	0	-0.014	0	0	0.208	0.53	0.939	0.859	0.783	0.483	0.368	0.012	-0.201	-1.553	-2.157	-1.64	-1.263	-0.681
DESIGN LEVELS ON ROAD CENTRELINE	81.826	81.556	81.269	80.387	79.754	78.832	78.715	78.225	78.163	77.143	76.108	74.765	74.338	74.288	74.161	73.878	73.468	73.410	72.754	72.588	71.225	70.944	69.176	67.962	67.962	67.962	68.312
CHAINAGE	0.000	3.080	3.468	4.539	5.424	6.627	6.845	9.707	10.000	14.815	20.000	26.725	28.786	30.000	33.103	40.000	50.000	51.405	60.000	61.405	70.000	71.405	80.000	85.907	90.000	92.907	94.307

LONGITUDINAL SECTION – SWALE 10 (EMERGENCY RELIEF)

SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)



NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS

SWALE SECTION – SWALE 10 (EMERGENCY RELIEF) CH 0 – 30 TYP

SCALES 1:50

SWALE 10 SETOUT TABLE

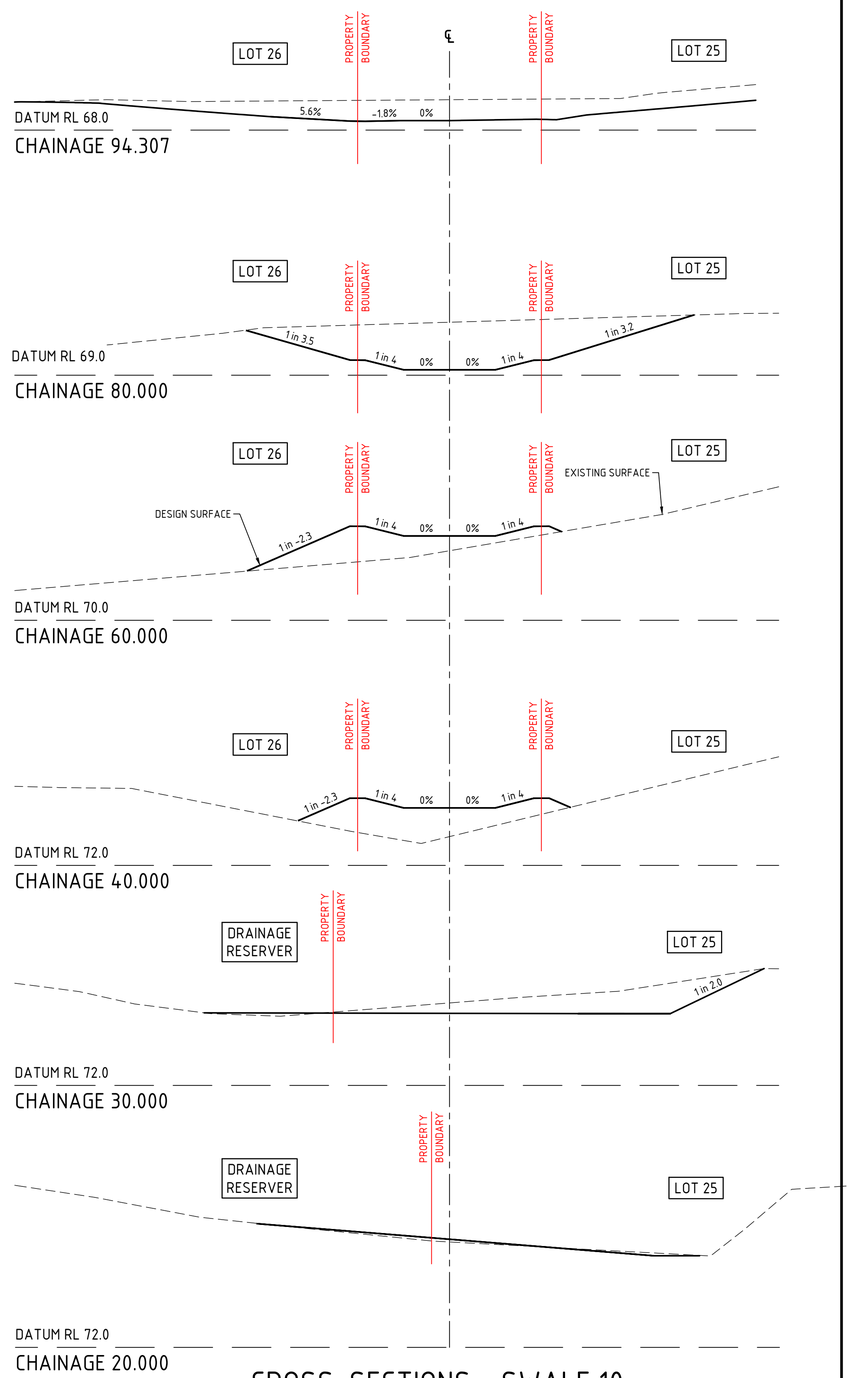
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	494556.700	7055838.952	280°12'26.42"			
	10.000	494546.858	7055840.724	280°12'26.42"			
TC	14.815	494542.119	7055841.578	280°12'26.42"			
	20.000	494537.073	7055842.759	286°08'56.35"			
IP 2	20.770	494536.230	7055842.638		R = 50.000	11.910	13°38'53.49"
CT	26.725	494530.758	7055845.058	293°51'19.91"			
TC	28.786	494528.873	7055845.892	293°51'19.91"			
	30.000	494527.854	7055846.542	311°14'18.26"			
IP 3	30.945	494526.682	7055846.860		R = 4.000	4.316	61°49'34.06"
CT	33.103	494526.502	7055849.249	355°40'53.97"			
	40.000	494525.983	7055856.126	355°40'53.97"			
	50.000	494525.230	7055866.098	355°40'53.97"			
	60.000	494524.477	7055876.070	355°40'53.97"			
	70.000	494523.724	7055886.041	355°40'53.97"			
	80.000	494522.971	7055896.013	355°40'53.97"			
	90.000	494522.218	7055905.984	355°40'53.97"			
IP 4	94.307	494521.893	7055910.279	355°40'53.97"			

CHANNEL PROPERTIES – SWALE 10

(CATCHMENT 5 & 6)

DESIGN Q_{100} (m^3/s)	2.400
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.13
VELOCITY (m/s)	2.430
DV PRODUCT (m^2/S)	0.590
FLOW DEPTH (m)	0.250
FREEBOARD (m)	0.100

NOTE: SWALE FLOW VELOCITY TO BE REDUCED TO ACCEPTABLE LEVELS THROUGH INCORPORATION OF ENERGY DISSIPATION DEVICES. DETAILS TO BE PROVIDED AT LATER DESIGN STAGE.



CROSS SECTIONS – SWALE 10

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)
SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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PROJECT MANAGEMENT
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SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 10 LONGITUDINAL AND CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 – CD708 REV. B

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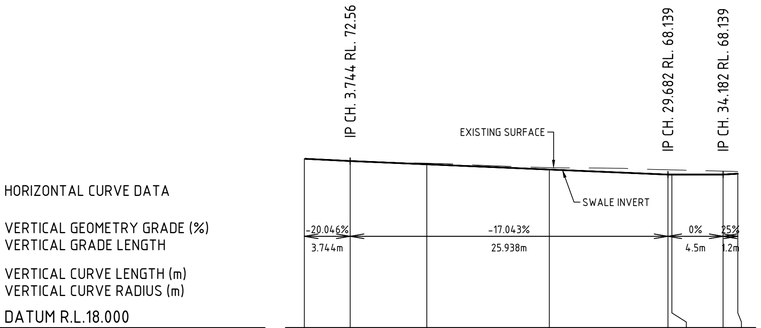


HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

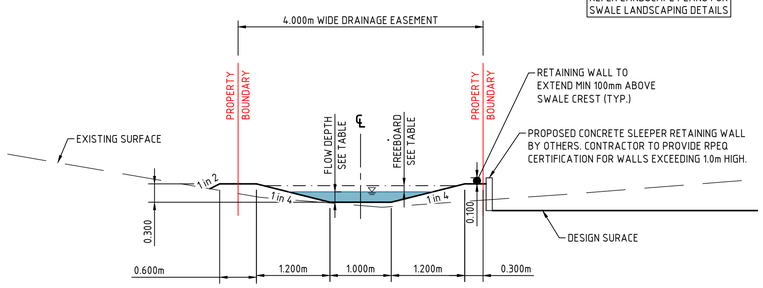
DATUM R.L.18.000

NAT. SURFACE ON ROAD CENTRELINE	73.310	72.434	71.851	70.426	69.714	69.683	69.272	69.147
CUT / FILL DEPTHS	0	0.126	-0.358	-0.636	-1.575	-1.544	-1.133	-0.708
DESIGN LEVELS ON ROAD CENTRELINE	73.310	72.560	71.493	69.789	68.139	68.139	68.139	68.439
CHAINAGE	0.000	3.744	10.000	20.000	29.682	30.000	34.182	35.382

LONGITUDINAL SECTION - SWALE 11

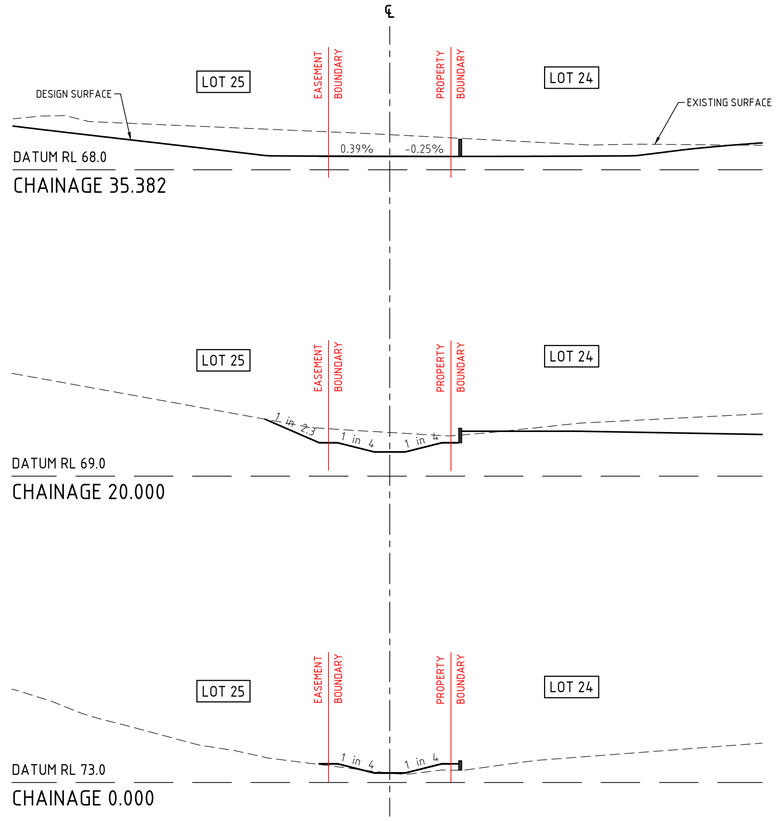
SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)

NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS



SWALE SECTION - SWALE 11

SCALES 1:50



CROSS SECTIONS - SWALE 11

SCALE 1:100

SWALE 11 SETOUT TABLE				
PT	CHAINAGE	EASTING	NORTHING	BEARING
IP 1	0.000	494568.747	7055914.562	278°36'41.00"
	10.000	494558.860	7055916.059	278°36'41.00"
	20.000	494548.972	7055917.556	278°36'41.00"
	30.000	494539.085	7055919.054	278°36'41.00"
IP 2	35.382	494533.764	7055919.860	278°36'41.00"

CHANNEL PROPERTIES - SWALE 11 (CATCHMENT 7)	
DESIGN Q_{100} (m^3/s)	0.240
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.13
VELOCITY (m/s)	1.440
DV PRODUCT (m^2/S)	0.170
FLOW DEPTH (m)	0.120
FREEBOARD (m)	0.180

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 11 LONGITUDINAL AND CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED: JN	APPROVED	
DRAWING No. C3602 - CD709		REV. B

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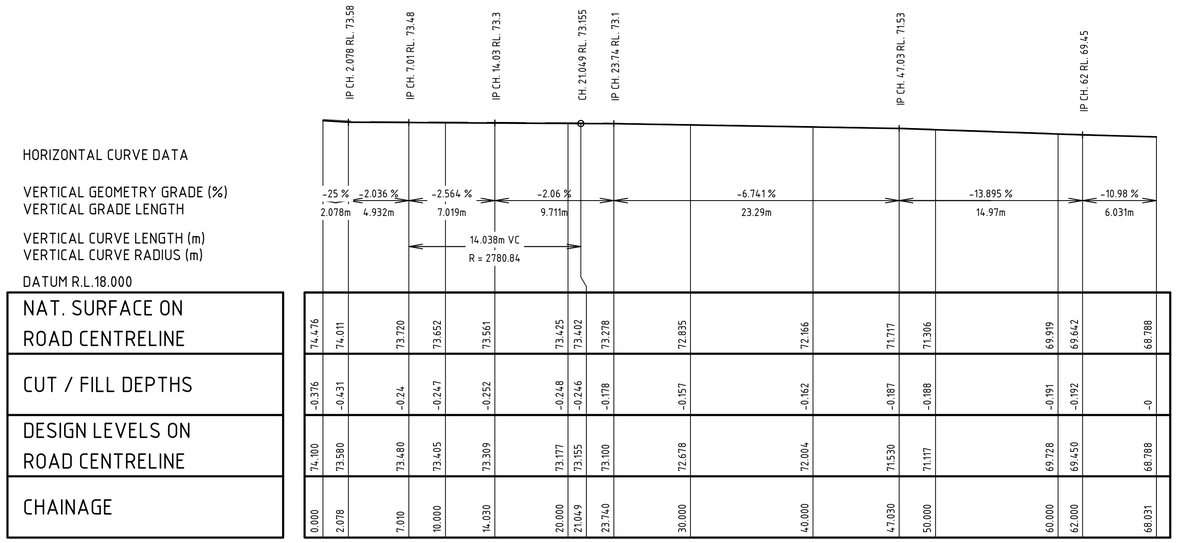
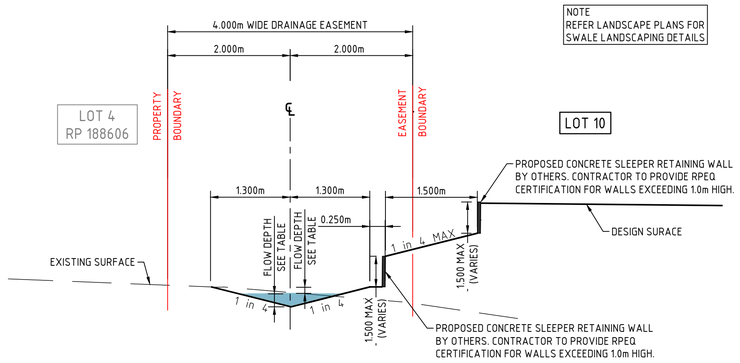


LONGITUDINAL SECTION - SWALE 12

SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)



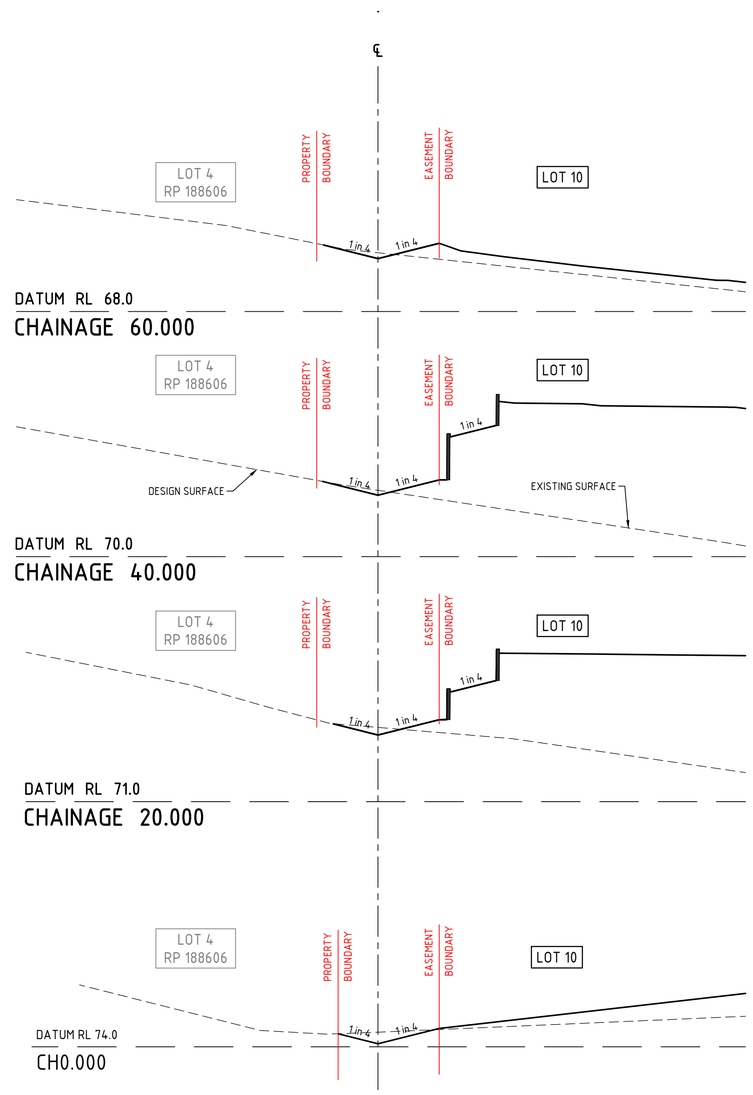
NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS

SWALE SECTION - SWALE 12

SCALES 1:50

CHANNEL PROPERTIES - SWALE 12 (CATCHMENT 9)	
DESIGN Q_{100} (m^3/s)	0.230
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.07
VELOCITY (m/s)	1.200
DV PRODUCT (m^2/S)	0.260
FLOW DEPTH (m)	0.220
FREEBOARD (m)	0.110

SWALE 12 SETOUT TABLE				
PT	CHAINAGE	EASTING	NORTHING	BEARING
IP 1	0.000	494232.206	7055909.962	278°39'41.00"
	10.000	494222.320	7055911.467	278°39'41.00"
	20.000	494212.434	7055912.973	278°39'41.00"
	30.000	494202.548	7055914.479	278°39'41.00"
	40.000	494192.662	7055915.985	278°39'41.00"
	50.000	494182.776	7055917.491	278°39'41.00"
	60.000	494172.890	7055918.997	278°39'41.00"
IP 2	68.031	494164.951	7055920.207	278°39'41.00"



CROSS SECTIONS - SWALE 12

SCALE 1:100

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)
SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)
SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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REV.	DESCRIPTION	DATE	INIT.
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GOLD COAST PH No. 1300 827 901
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 12 LONGITUDINAL AND CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED: JN	APPROVED	
DRAWING No. C3602 - CD710		REV. B

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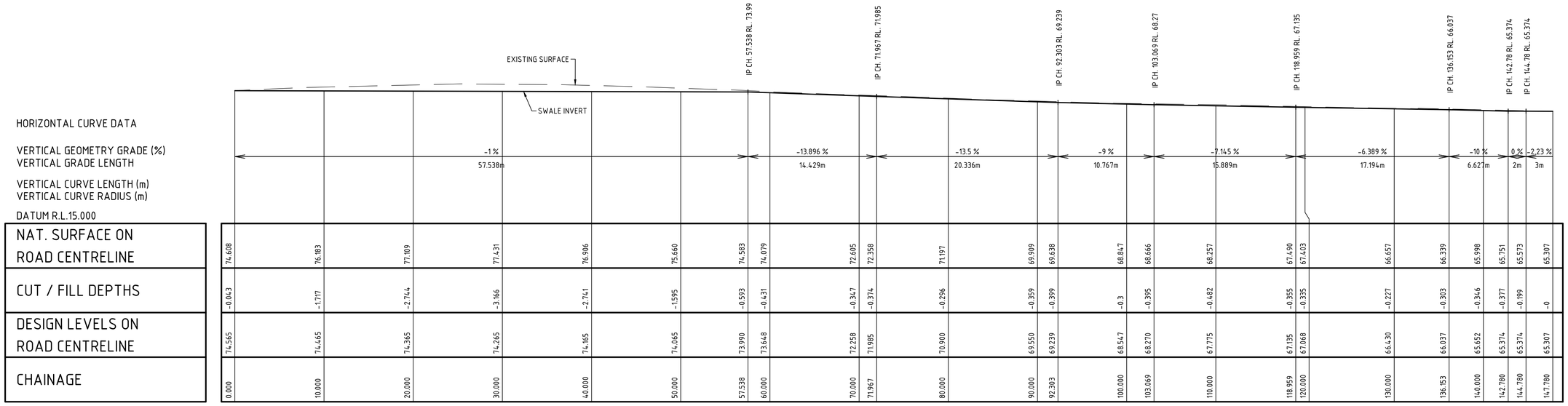


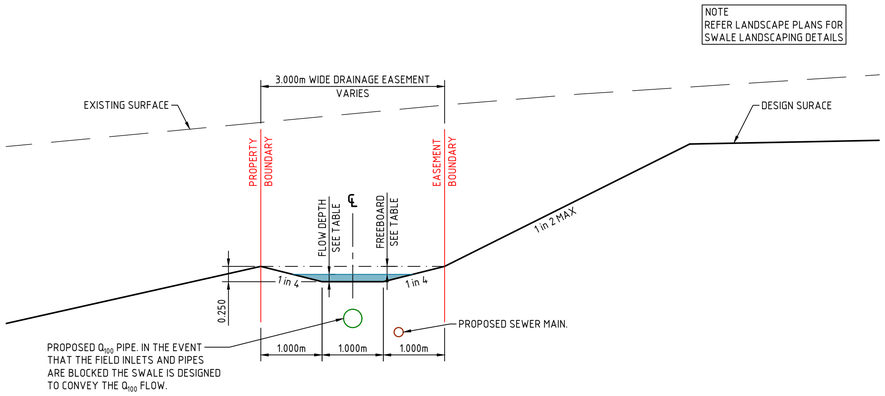
LONGITUDINAL SECTION – SWALE 13

SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)

CHANNEL PROPERTIES – SWALE 14

(CATCHMENT 10)

DESIGN Q_{100} (m^3/s)	0.410
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.07
VELOCITY (m/s)	1.150
DV PRODUCT (m^2/S)	0.160
FLOW DEPTH (m)	0.140
FREEBOARD (m)	0.110



SWALE SECTION – SWALE 13

SCALES 1:50

SWALE 13 SETOUT TABLE

PT	CHAINAGE	EASTING	NORTHING	BEARING
IP 1	0.000	494234.222	7055998.012	92°15'10.22"
	10.000	494244.214	7055997.619	92°15'10.22"
	20.000	494254.206	7055997.226	92°15'10.22"
	30.000	494264.199	7055996.833	92°15'10.22"
	40.000	494274.191	7055996.440	92°15'10.22"
	50.000	494284.183	7055996.047	92°15'10.22"
IP 2	57.138	494291.316	7055995.766	
	60.000	494294.078	7055996.514	74°51'10.24"
	70.000	494303.731	7055999.127	74°51'10.24"
IP 3	71.567	494305.243	7055999.537	
	80.000	494313.673	7055999.299	91°36'40.98"
	90.000	494323.669	7055999.018	91°36'40.98"
	100.000	494333.665	7055998.737	91°36'40.98"
	110.000	494343.661	7055998.456	91°36'40.98"
	120.000	494353.657	7055998.175	91°36'40.98"
	130.000	494363.653	7055997.893	91°36'40.98"
	140.000	494373.649	7055997.612	91°36'40.98"
IP 4	147.380	494381.027	7055997.405	91°36'40.98"

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)

SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

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E mail@mnce.com.au
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 13 LONGITUDINAL AND TYPICAL SECTION

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
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DRAWING No. C3602 – CD711 REV. B

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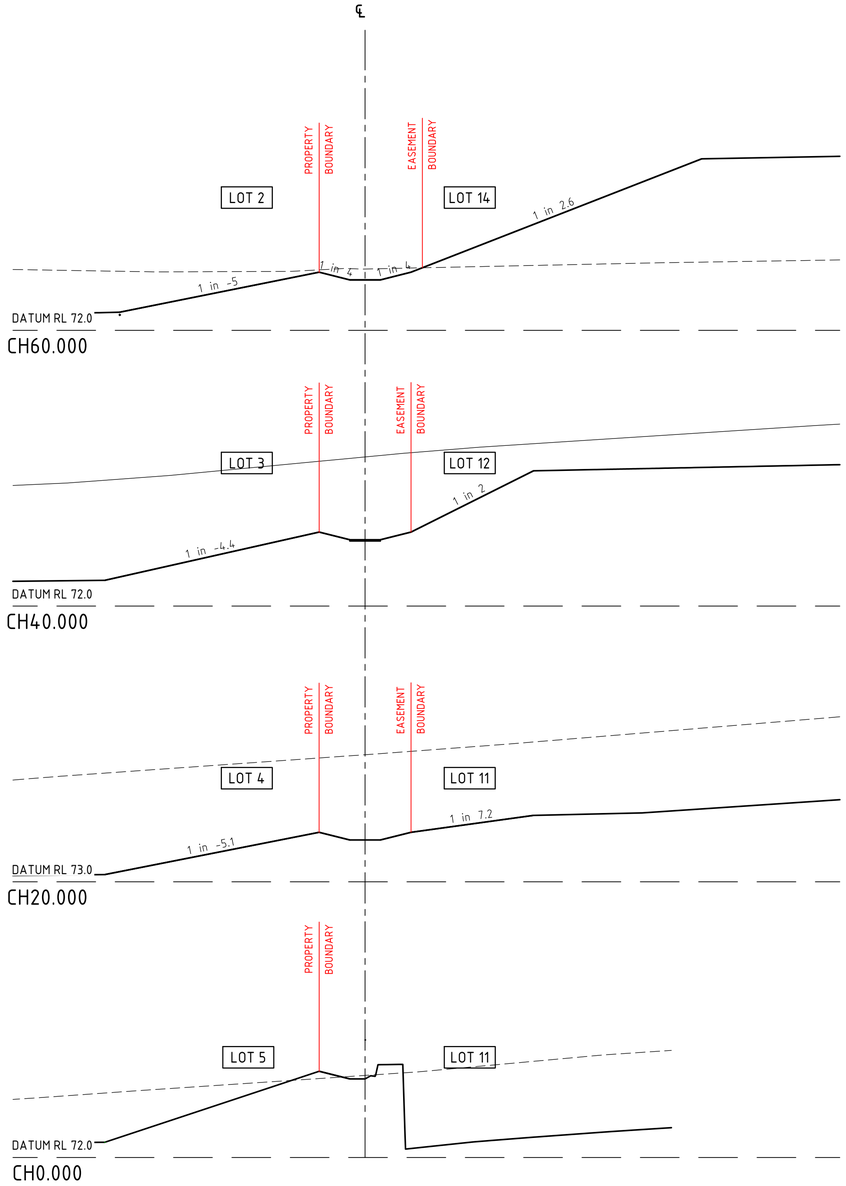

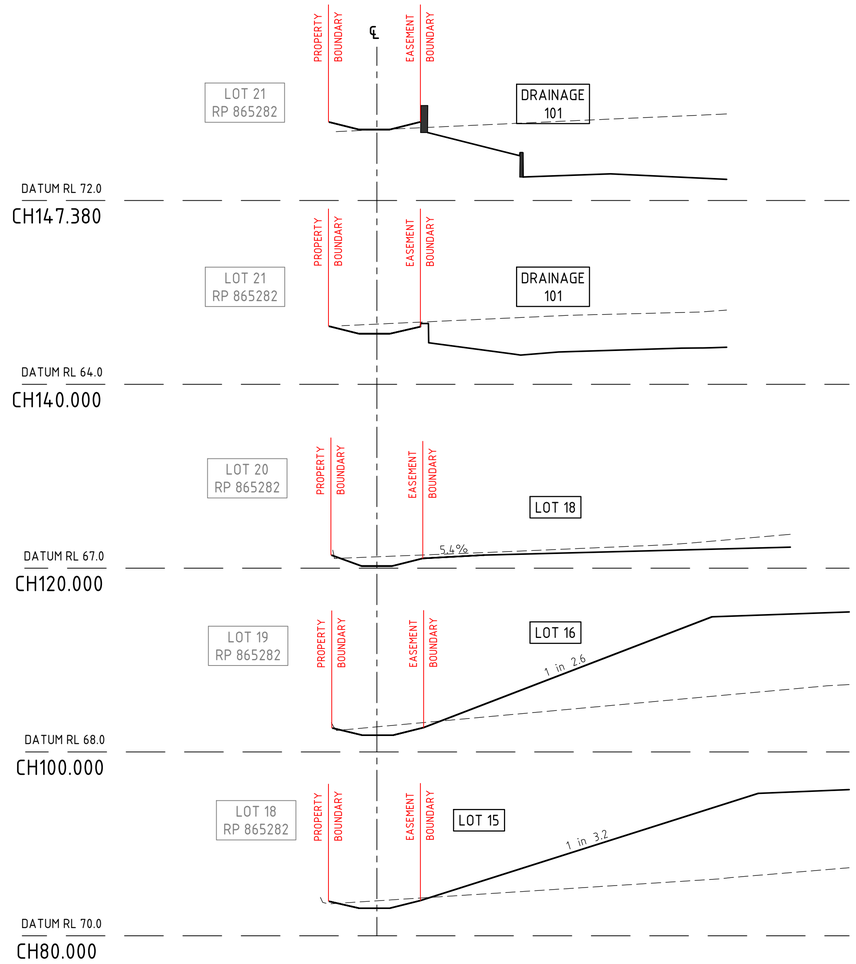

CROSS SECTIONS - SWALE 13

SCALE 1:100

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)

SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

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W www.mnce.com.au

JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 13 CROSS SECTION

DRAWN	DESIGNED	DATE
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DRAWING No. C3602 - CD712 REV. B

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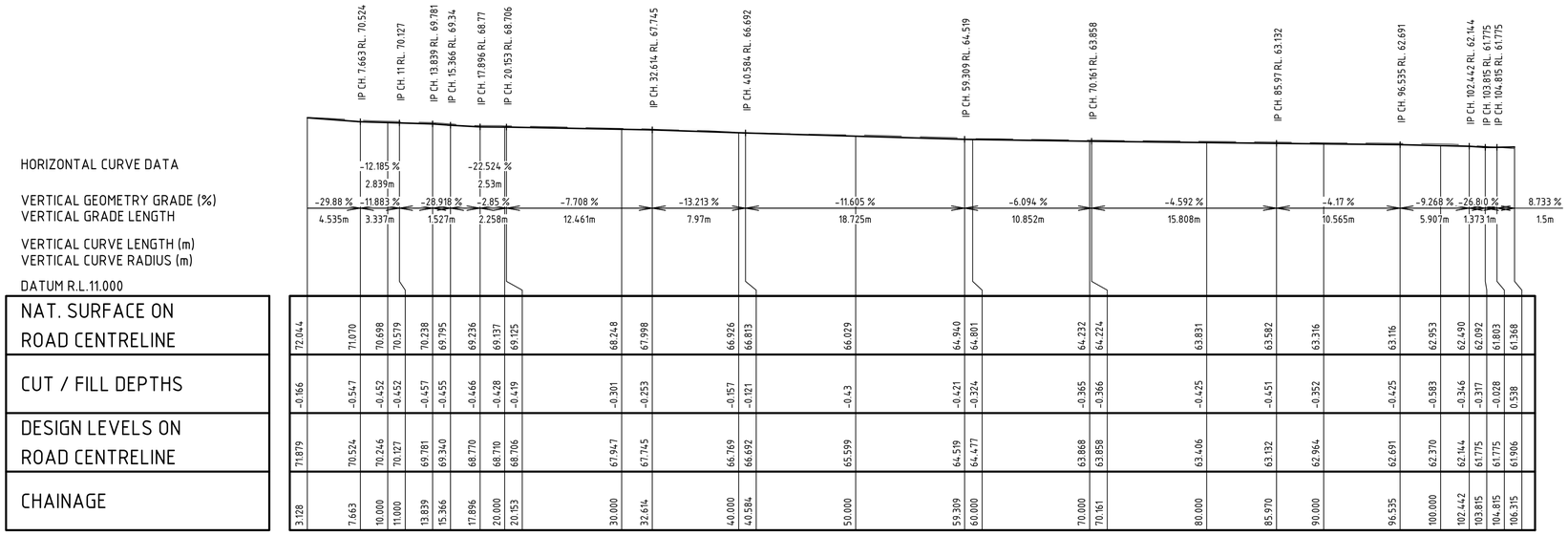


LONGITUDINAL SECTION - SWALE 14

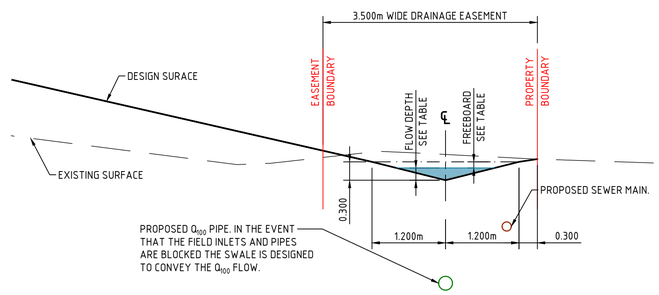
SCALES 1:250 (HORIZONTAL) / 1:1000 (VERTICAL)

CHANNEL PROPERTIES - SWALE 14

(CATCHMENT 11)

DESIGN Q (m^3/s)	0.200
MANNINGS (n)	0.050
LONG SLOPE (m/m)	0.10
VELOCITY (m/s)	1.362
DV PRODUCT (m^2/S)	0.280
FLOW DEPTH (m)	0.200
FREEBOARD (m)	0.100

NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS.

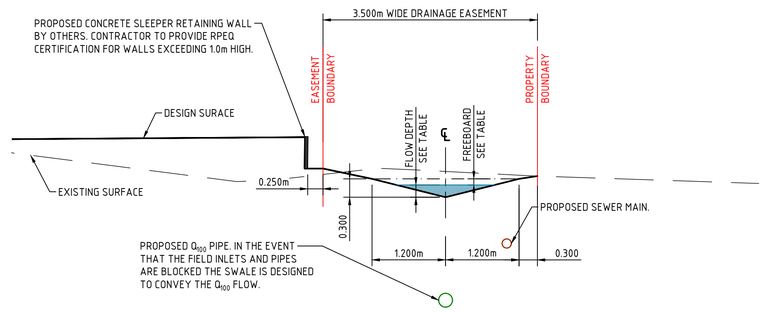


SWALE SECTION - SWALE 14

CH 0.00 TO CH 85.97

SCALES 1:50

NOTE
REFER LANDSCAPE PLANS FOR SWALE LANDSCAPING DETAILS.



SWALE SECTION - SWALE 14

CH 85.97 TO CH 106.315

SCALES 1:50

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)

SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

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W www.mnce.com.au

JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 14 LONGITUDINAL AND TYPICAL SECTION

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD713 REV. B

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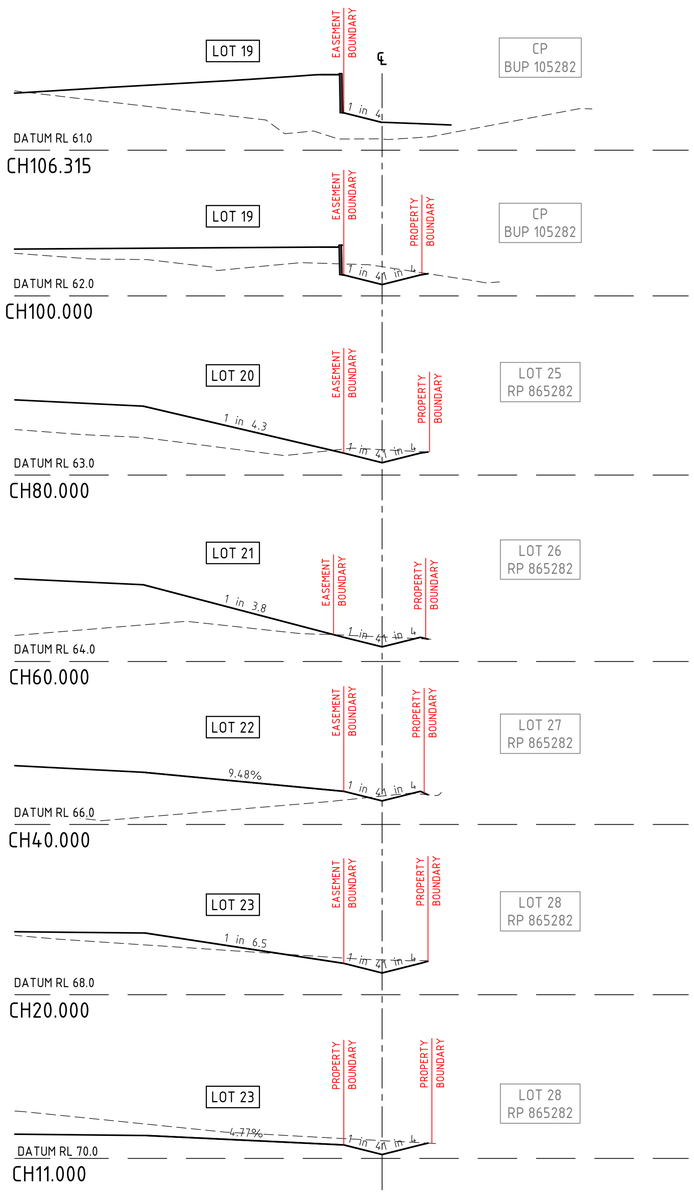

CROSS SECTIONS - SWALE 14

SCALE 1:100

SWALE 14 SETOUT TABLE					
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	3.128	494573.316	7055962.197	71.879	278°36'41.00"
	10.000	494566.521	7055963.226	70.246	278°36'41.00"
	20.000	494556.634	7055964.723	68.710	278°36'41.00"
	30.000	494546.747	7055966.220	67.947	278°36'41.00"
	40.000	494536.859	7055967.718	66.769	278°36'41.00"
	50.000	494526.972	7055969.215	65.599	278°36'41.00"
	60.000	494517.085	7055970.712	64.477	278°36'41.00"
	70.000	494507.198	7055972.210	63.868	278°36'41.00"
	80.000	494497.310	7055973.707	63.406	278°36'41.00"
	90.000	494487.423	7055975.204	62.964	278°36'41.00"
	100.000	494477.536	7055976.702	62.370	278°36'41.00"
IP 2	106.315	494471.292	7055977.647	61.906	278°36'41.00"

NOT FOR CONSTRUCTION

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:50 (A1) 0 1 2 3m (SCALE BEFORE REDUCTION)

SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

SCALE 1:1000 (A1) 0 20 40 60m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: SWALE 14 CROSS SECTION

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD714 REV. B

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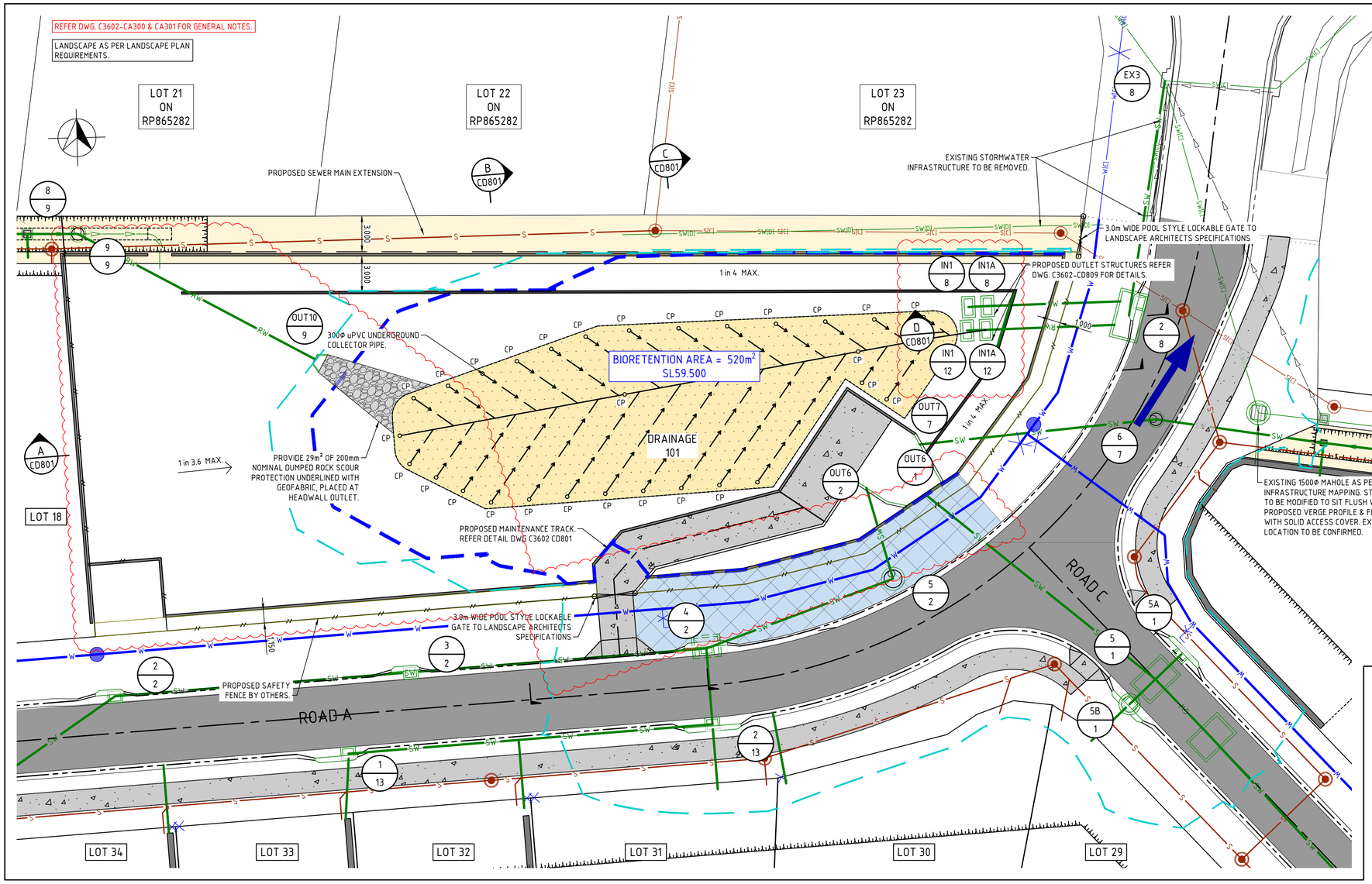

PLAN
SCALE 1:200

LEGEND

- EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)
- PROPOSED STORMWATER
- PROPOSED BIO RETENTION AREA
- EMERGENCY SPILLWAY AREA
- EMERGENCY OVERFLOW
- PROPOSED TOP OF BATTER
- PROPOSED TOE OF BATTER
- PROPOSED RETAINING WALL
- PROPOSED 1%AEP TWL
- PROPOSED 1%AEP TWL (ALL OUTLETS BLOCKED)
- PROPOSED DRAINAGE STRUCTURE NUMBER
- PROPOSED SLOTTED UNDER DRAINAGE
- BIORETENTION BASIN CLEANOUT POINT. REFER TO DETAIL ON C3602-CD809.

WATERPROOFING NOTE:
ALL RETAINING WALLS WITHIN DRAINAGE LOT 101 TO HAVE WATERPROOFING.

EDUCATION SIGNAGE:
PERMANENT EDUCATION SIGNAGE MUST BE ERECTED. WORDING FOR THE SIGNAGE AS FOLLOWS:

BIORETENTION BASIN - THIS BIORETENTION BASIN REDUCES THE POLLUTION OF OUR WATERWAYS BY REDUCING THE AMOUNT OF HEAVY METALS, LITTER, SUSPENDED SOLIDS, AND NUTRIENTS DISCHARGED TO TUCKERS CREEK.

DRAINAGE 101 BASIN STAGE STORAGE DISCHARGE TABLE

OPERATION	OUTFLOW MECHANISM	STAGE STORAGE DISCHARGE TABLE		
		BASIN LEVEL (m)	VOLUME (m^3)	OUTFLOW (m^3)
NORMAL	STRUCTURE OUTLETS	0.000	0.000	0.000
		0.100	199.300	0.000
		0.200	276.000	0.260
		0.300	355.700	0.368
		0.400	438.200	0.450
		0.500	524.100	0.520
		0.600	613.500	0.581
		0.700	706.500	0.637
		0.800	803.000	0.688
		0.900	903.200	1.333
		1.000	1007.300	1.624
		1.100	1115.400	1.856
		1.200	1227.500	2.057
		1.300	1343.200	2.489
		1.400	1462.300	3.117
EMERGENCY - (ALL STRUCTURE OUTLETS BLOCKED)	CREST OF OUTLET STRUCTURE (EFFECTIVE WEIR LENGTH = 8.4m)	1.500	1585.100	0.444
		1.600	1711.800	1.255
		1.700	1842.100	2.305
EMERGENCY - (ALL STRUCTURE OUTLETS & CRESTS BLOCKED)	CREST EMERGENCY STRUCTURES (EFFECTIVE WEIR LENGTH = 8.4m)	1.800	1976.000	0.444
		1.900	2006.200	1.255
EMERGENCY (ALL STRUCTURE OUTLETS & CRESTS & EMERGENCY STRUCTURES BLOCKED)	EMERGENCY SPILLWAY WEIR (EFFECTIVE WEIR LENGTH = 28.5m)	2.000	2142.500	1.505
		2.100	2278.800	4.257

FILTER MATERIAL CALCULATIONS:

BIO-DETENTION BASIN
FILTRATION RATE (DARCY'S EQUATION)

$Q_{MAX} = K_{SAT} \times A \times \frac{h_{MAX} + d}{d}$

$= 5.6 \times 10^{-5} \times 520 \times \frac{0.300+0.7}{0.7}$

$Q_{MAX} = 0.04m^3/s$

UNDERDRAINAGE CAPACITY
$Q_{SLOTTED}$ = no.pipes > 1.2 Q_{MAX}
90 mm Ø SLOTTED uPVC AT 1 IN 200

$Q_{SLOTTED} = 0.003m3/s$

No. PIPES= $\frac{1.2 \times 0.04}{0.003}$
Min. No. PIPES REQ = 16

COLLECTOR PIPE CAPACITY

$Q_{CAP\ COLLECTOR} > 1.2 \times Qmax$
$Q_{CAP\ COLLECTOR} > 0.048m^3/s$

COLLECTOR PIPE = 300mm Ø NON SLOTTED uPVC AT 1 IN 200
$Q_{CAP\ COLLECTOR} = 0.074m^3/s > 0.048\ m^3/s$ OK

SCALE 1:200 (A1) 0 4 8 12m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE CONSULTING ENGINEERS
CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT
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IPSWICH PH No. (07) 3281 6603
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CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: LOT 101 DETENTION AND BIORETENTION DETAILS SHEET 1 OF 3

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD800
REV. B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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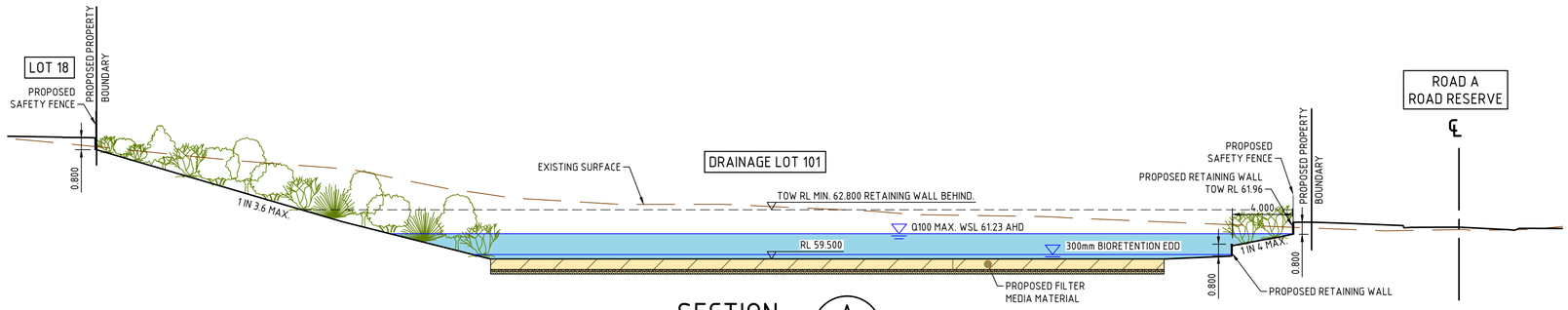
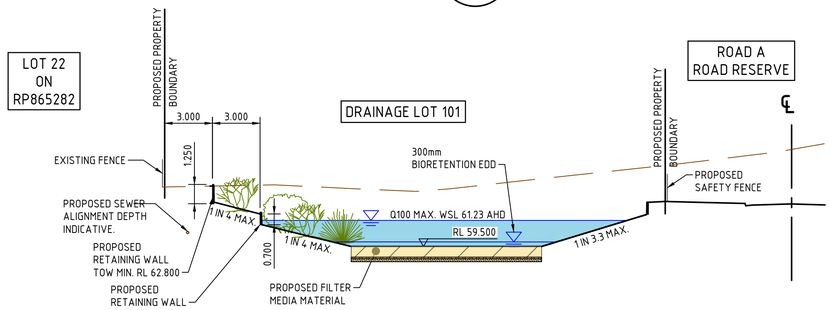
REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

LANDSCAPE AS PER LANDSCAPE PLAN REQUIREMENTS.

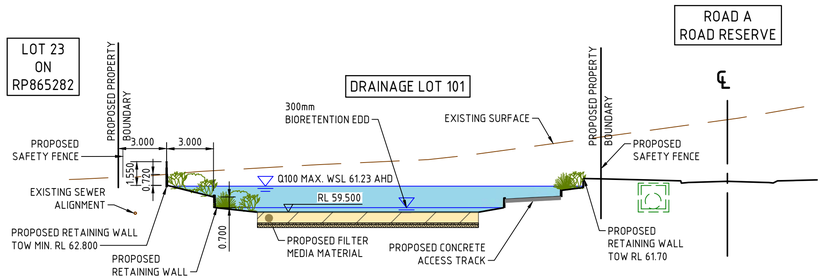
WATERPROOFING NOTE:
ALL RETAINING WALLS WITHIN DRAINAGE LOT 101 TO HAVE WATERPROOFING.



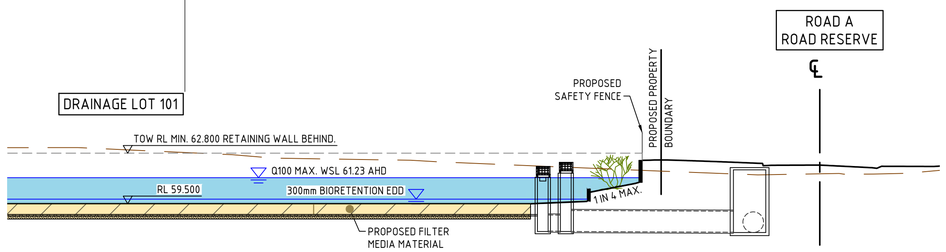
SECTION A CD800
SCALE 1:200



SECTION B CD800
SCALE 1:200



SECTION C CD800
SCALE 1:200



SECTION D CD800
SCALE 1:200

SCALE 1:200 (A1) 0 4 8 12m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: LOT 101 DETENTION AND BIORETENTION DETAILS SHEET 2 OF 3

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CD801		B

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

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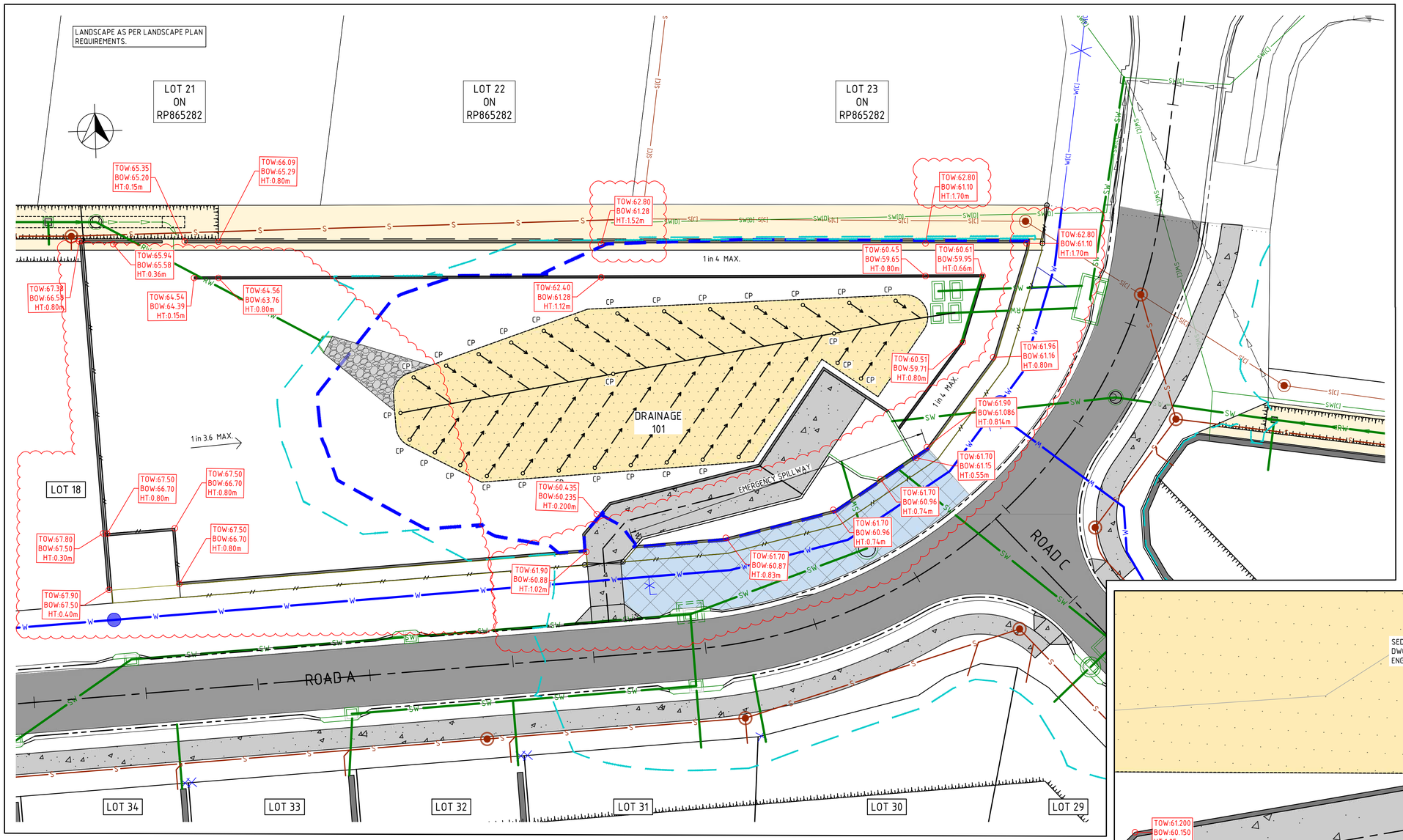
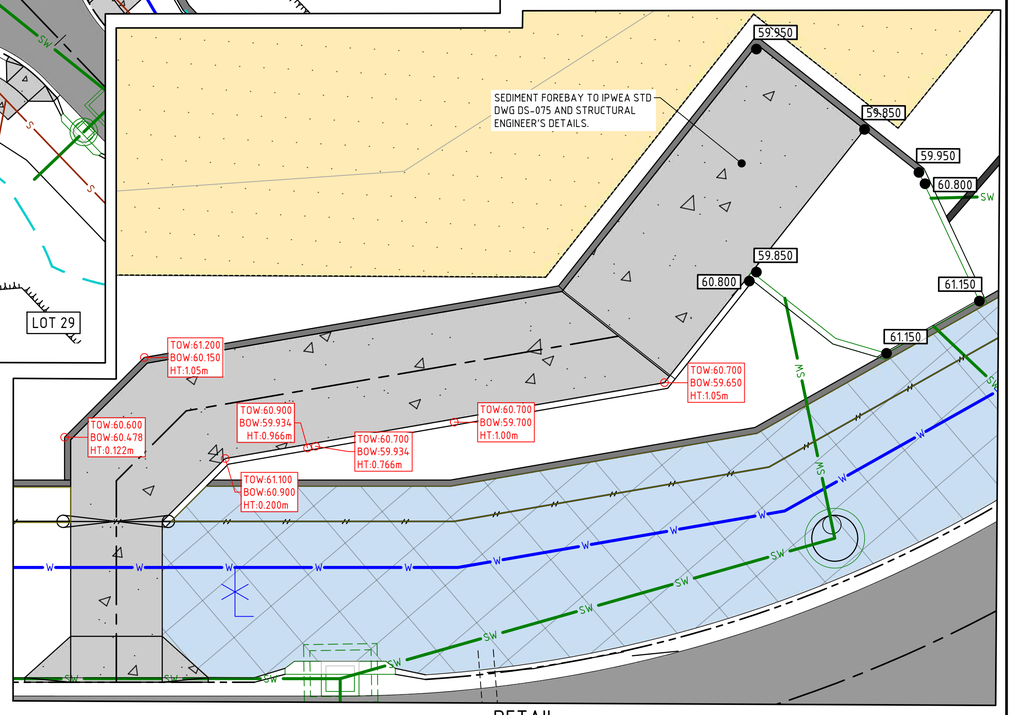


PLAN
SCALE 1:200

LEGEND

- EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)
- PROPOSED STORMWATER
- PROPOSED BIO RETENTION AREA
- EMERGENCY SPILLWAY AREA
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED RETAINING WALL
- PROPOSED 1%AEP TWL
- PROPOSED 1%AEP TWL (ALL OUTLETS BLOCKED)
- PROPOSED SLOTTED UNDER DRAINAGE
- CP — BIORETENTION BASIN CLEANOUT POINT. REFER TO DETAIL ON C3602-CD809.

WATERPROOFING NOTE:
ALL RETAINING WALLS WITHIN DRAINAGE LOT 101 TO HAVE WATERPROOFING.



DETAIL
SCALE 1:100

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

SCALE 1:200 (A1) 0 4 8 12m (SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: LOT 101 DETENTION AND BIORETENTION DETAILS SHEET 3 OF 3

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD802 REV. B

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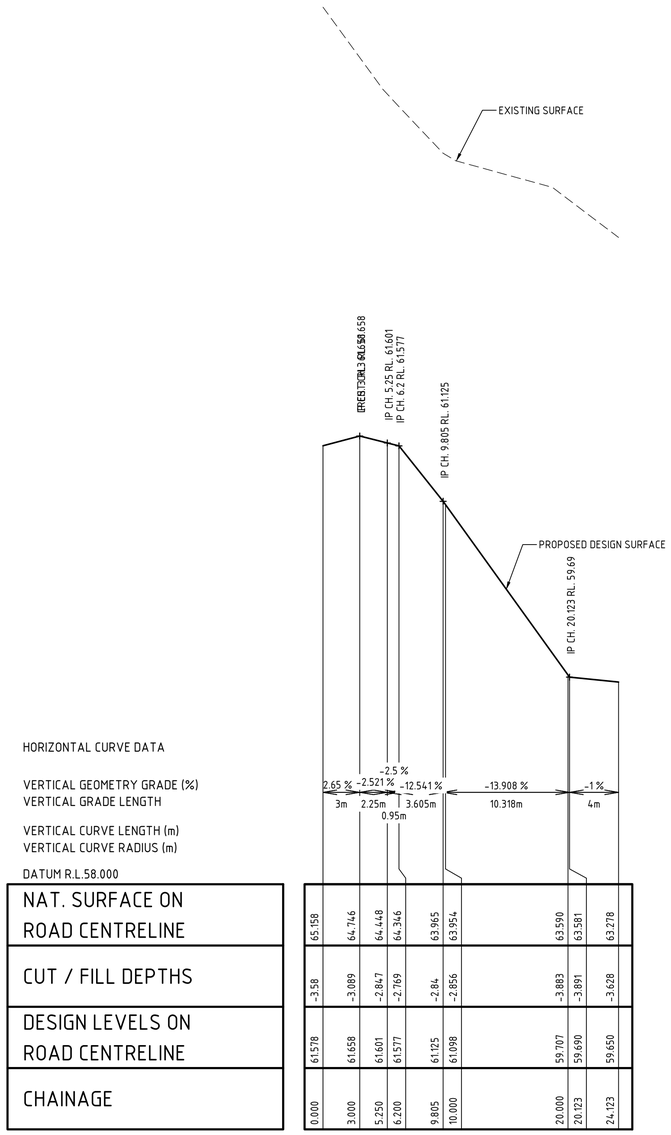
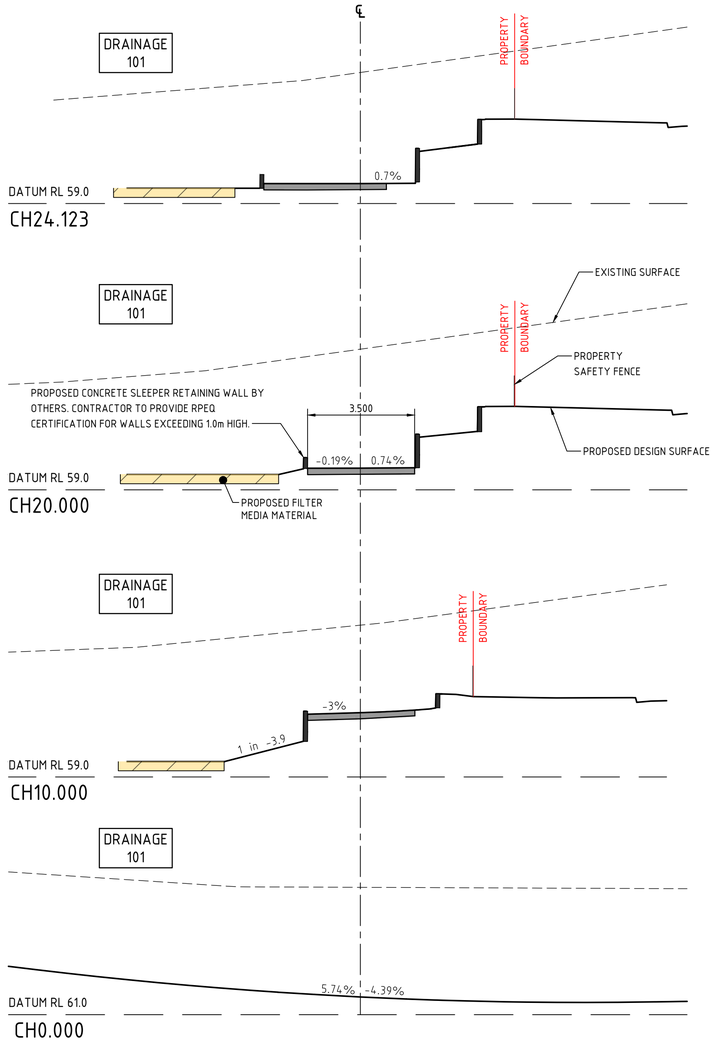


BIORENTENTION BASIN ACCESS LOT 101
LONGITUDINAL SECTION
HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25



BIORENTENTION BASIN ACCESS LOT 101
CROSS SECTIONS
SCALE - 1:100

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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REV.	DESCRIPTION	DATE	INIT.
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MILANOVIC NEALE
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: LOT 101 BIORETENTION ACCESS LONG SECTION & CROSS SECTION

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD803 REV. B

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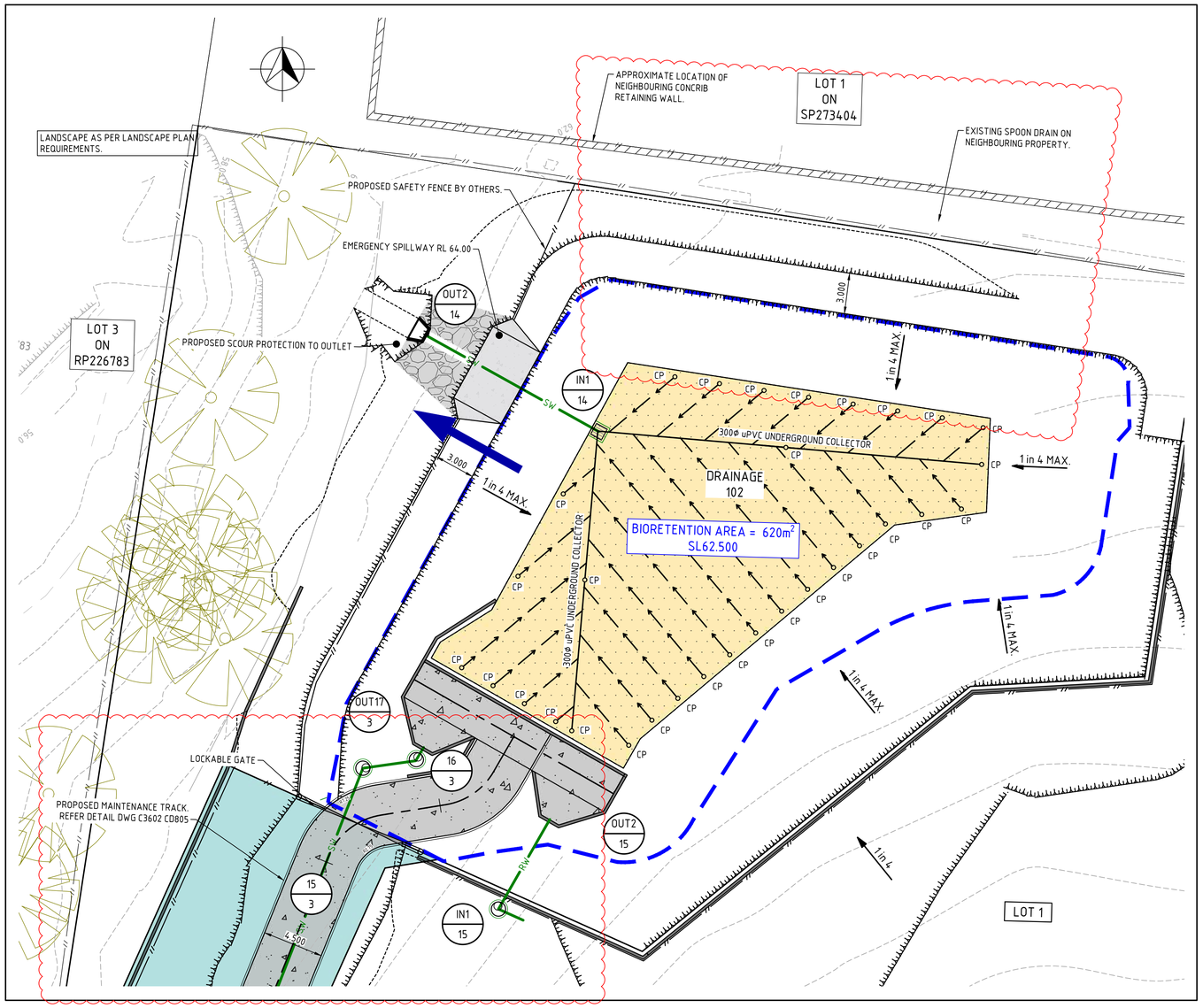


PLAN
SCALE 1:200

FILTER MATERIAL CALCULATIONS:

BIO-DETENTION BASIN
FILTRATION RATE (DARCY'S EQUATION)

$Q_{MAX} = K_{SAT} \times A \times \frac{h_{MAX} + d}{d}$

$= 5.6 \times 10^{-5} \times 620 \times \frac{0.300+0.7}{0.7}$

$Q_{MAX} = 0.05 m^3/s$

UNDERDRAINAGE CAPACITY
$Q_{SLOTTED}$ = no.pipes > 1.2 Q_{MAX}
90 mm Φ SLOTTED uPVC AT 1 IN 200

$Q_{SLOTTED} = 0.003 m3/s$

No. PIPES = $\frac{1.2 \times 0.05}{0.003}$

MIN. No. PIPES REQ = 20

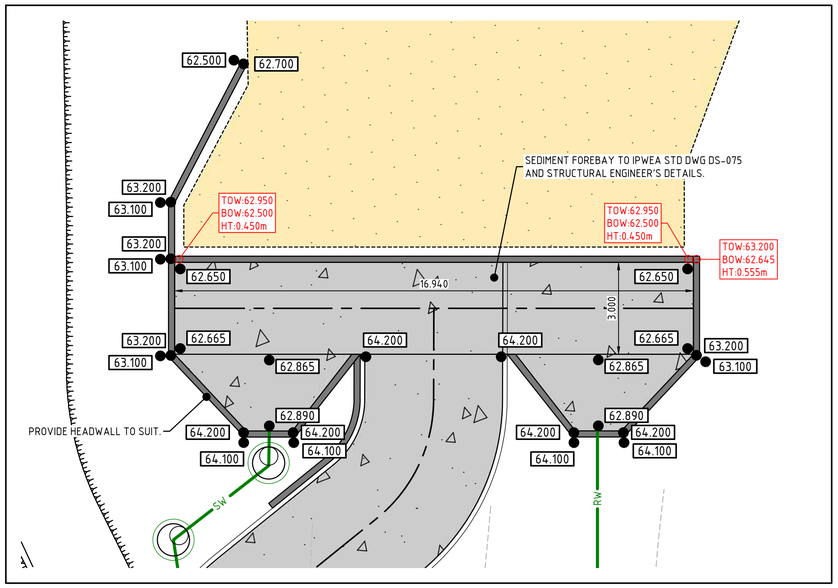
COLLECTOR PIPE CAPACITY

$Q_{CAP\ COLLECTOR}$ > 1.2 X Qmax
$Q_{CAP\ COLLECTOR}$ > 1.2 X 0.05
$Q_{CAP\ COLLECTOR}$ > $0.060 m^3/s$

COLLECTOR PIPE = 300mm Φ NON SLOTTED uPVC AT 1 IN 200
$Q_{CAP\ COLLECTOR}$ = $0.074 m^3/s$ > $0.060\ m^3/s$ OK

DRAINAGE 102 BASIN STAGE STORAGE DISCHARGE TABLE

BASIN LEVEL (m)	VOLUME (m^3)	OUTFLOW (m^3)
0.000	0.000	0.000
0.100	86.000	0.000
0.200	176.300	0.133
0.300	271.000	0.188
0.400	370.200	0.230
0.500	474.000	0.265
0.600	582.500	0.297
0.700	6925.800	0.325
0.800	814.100	0.351
0.900	937.400	0.464
1.000	1065.800	0.523
1.100	1199.500	0.573
1.200	1338.500	0.680



SEDIMENT FOREBAY DETAIL - DRAINAGE LOT 102
SCALE 1:100

LEGEND

- EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)
- PROPOSED STORMWATER
- PROPOSED BIO RETENTION AREA
- EMERGENCY OVERFLOW
- PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
- PROPOSED RETAINING WALL
- PROPOSED 1%AEP TWL
- PROPOSED 1%AEP TWL (ALL OUTLETS BLOCK)
- PROPOSED DRAINAGE STRUCTURE NUMBER
- PROPOSED SLOTTED UNDER DRAINAGE
- BIORETENTION BASIN CLEANOUT POINT. REFER TO DETAIL ON C3602-CD809.

SCALE 1:200 (A1) 0 4 8 12m
(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
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REV.	DESCRIPTION	DATE	INIT.
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SYDNEY PH No. 1300 827 901
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: LOT 102 DETENTION AND BIORETENTION DETAILS SHEET 1 OF 3

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD804
REV. B

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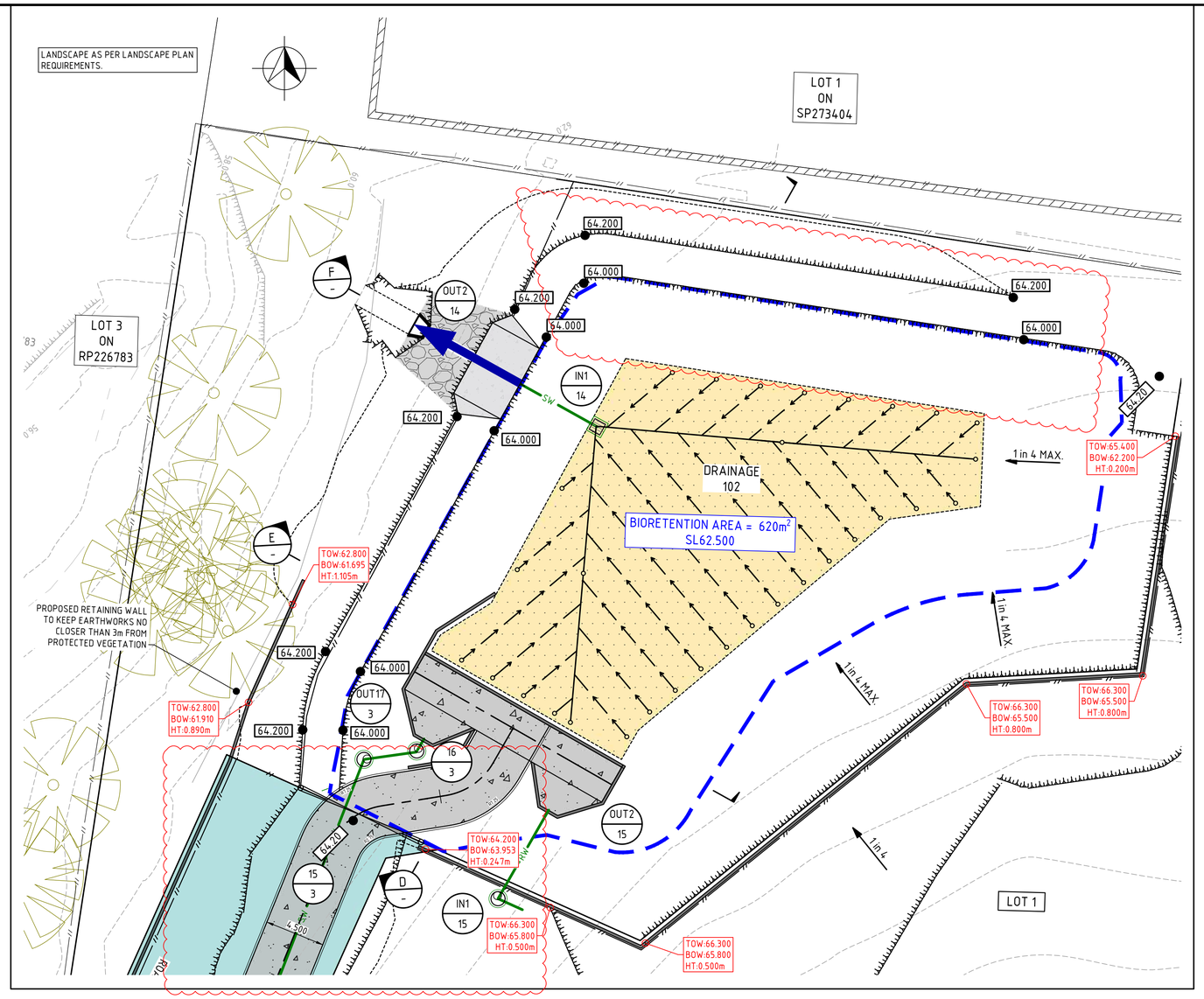


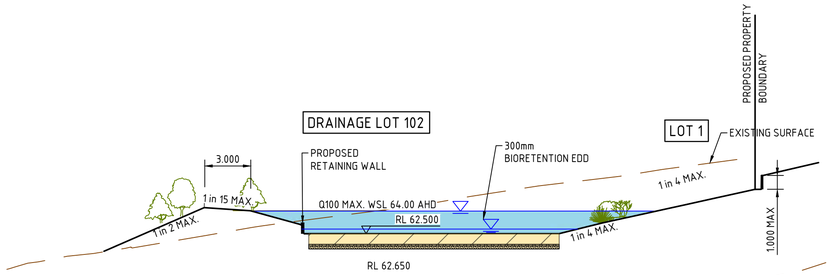
PLAN
SCALE 1:200

LEGEND

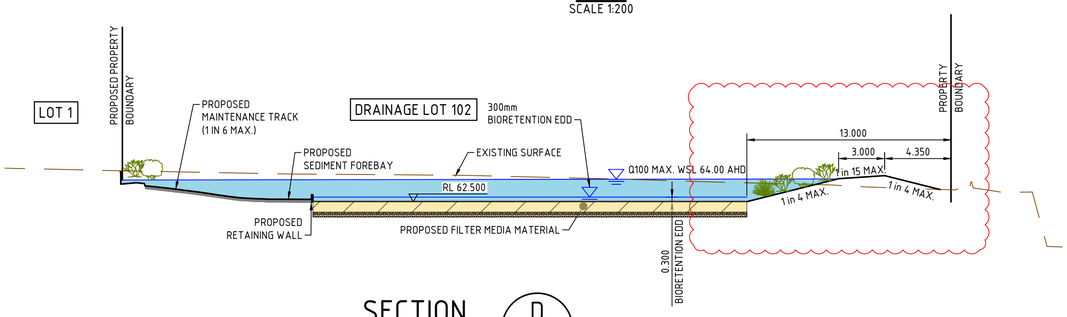
- EXISTING SEWER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING WATER MAIN [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING STORMWATER [*] DENOTES UTILITY CLASSIFICATION)
- EXISTING TELECOMMUNICATIONS [*] DENOTES UTILITY CLASSIFICATION)
- PROPOSED STORMWATER
- PROPOSED BIO RETENTION AREA
- EMERGENCY OVERFLOW
- PROPOSED TOP OF BATTER
- PROPOSED TOE OF BATTER
- PROPOSED RETAINING WALL
- PROPOSED 1%AEP TWL
- PROPOSED 1%AEP TWL (ALL OUTLETS BLOCK)
- PROPOSED DRAINAGE STRUCTURE NUMBER
- PROPOSED SLOTTED UNDER DRAINAGE
- CP — BIORETENTION BASIN CLEANOUT POINT. REFER TO DETAIL ON C3602-CD809.
- ##.## — PROPOSED DESIGN FINISHED LEVEL

EDUCATION SIGNAGE:
PERMANENT EDUCATION SIGNAGE MUST BE ERECTED. WORDING FOR THE SIGNAGE AS FOLLOWS:

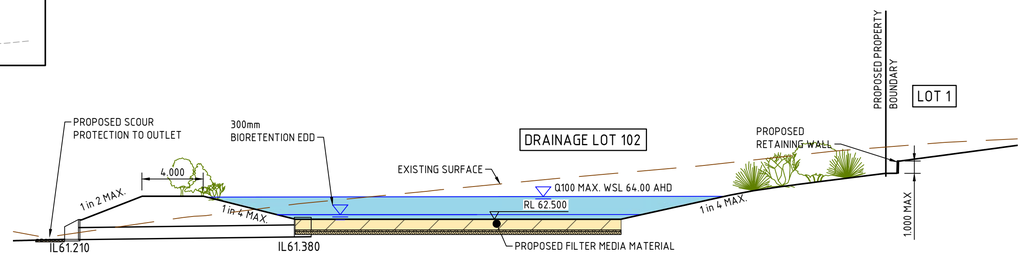
BIORETENTION BASIN - THIS BIORETENTION BASIN REDUCES THE POLLUTION OF OUR WATERWAYS BY REDUCING THE AMOUNT OF HEAVY METALS, LITTER, SUSPENDED SOLIDS, AND NUTRIENTS DISCHARGED TO TUCKERS CREEK.



SECTION E
SCALE 1:200



SECTION D
SCALE 1:200



SECTION F
SCALE 1:200

SCALE 1:200 (A1) 0 4 8 12m
(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

DO NOT SCALE FROM DRAWING
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W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: LOT 102 DETENTION AND BIORETENTION DETAILS SHEET 2 OF 3

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD805 REV. B

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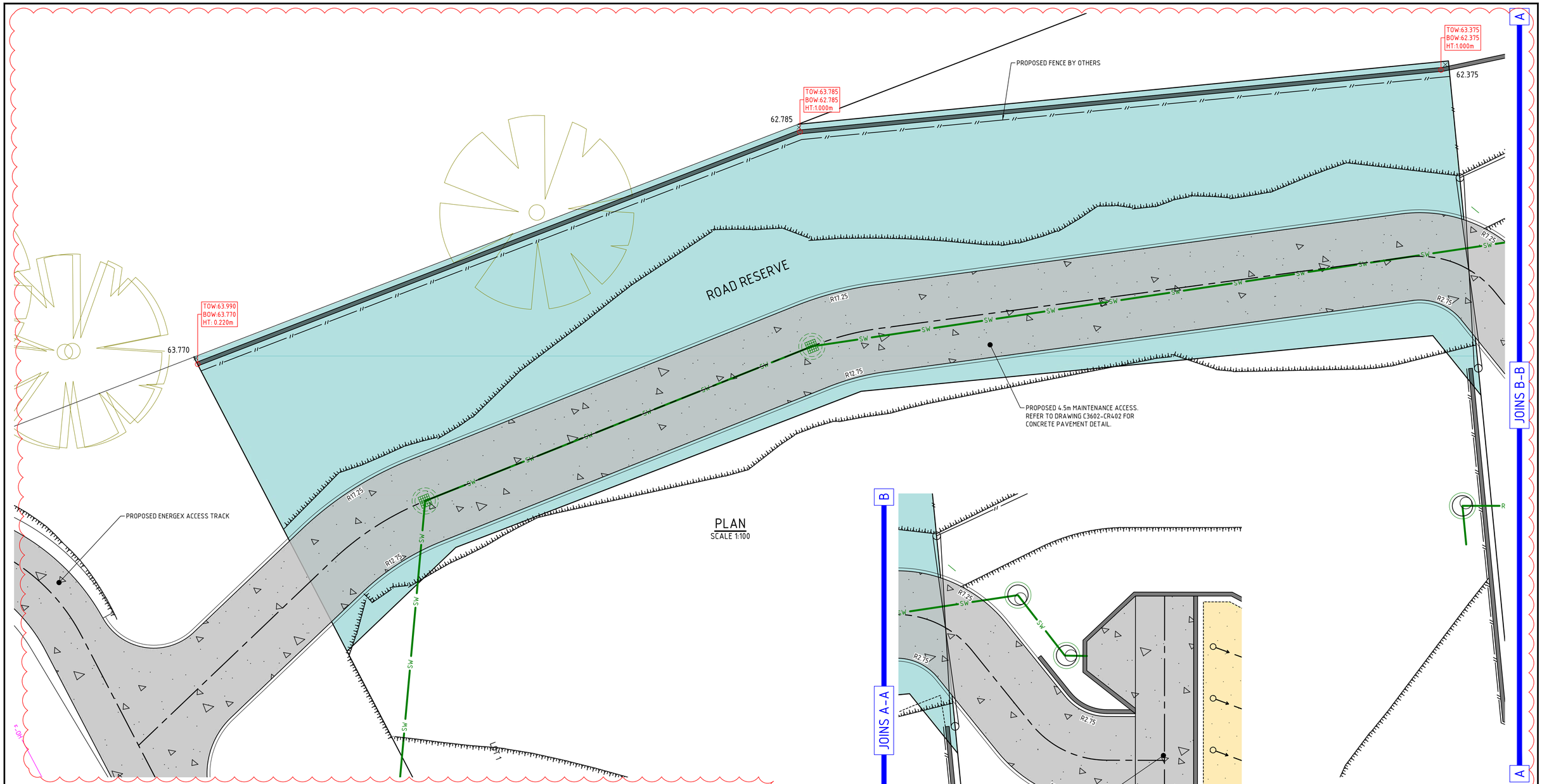

PLAN
SCALE 1:100

PLAN
SCALE 1:100

LEGEND

SE(*)	EXISTING SEWER MAIN (*) DENOTES UTILITY CLASSIFICATION)
W(D)	EXISTING WATER MAIN (*) DENOTES UTILITY CLASSIFICATION)
SW(D)	EXISTING STORMWATER (*) DENOTES UTILITY CLASSIFICATION)
T(D)	EXISTING TELECOMMUNICATIONS (*) DENOTES UTILITY CLASSIFICATION)
SW	PROPOSED STORMWATER
	PROPOSED BIO RETENTION AREA
	EMERGENCY OVERFLOW
	PROPOSED TOP OF BATTER / PROPOSED TOE OF BATTER
	PROPOSED RETAINING WALL
	PROPOSED 1%AEP TWL
	PROPOSED 1%AEP TWL (ALL OUTLETS BLOCK)
1 / 1	PROPOSED DRAINAGE STRUCTURE NUMBER
	PROPOSED SLOTTED UNDER DRAINAGE
CP	BIORETENTION BASIN CLEANOUT POINT. REFER TO DETAIL ON C3602-CD809.
##.##	PROPOSED DESIGN FINISHED LEVEL

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: LOT 102 DETENTION AND BIORETENTION DETAILS SHEET 3 OF 3

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CD806		B

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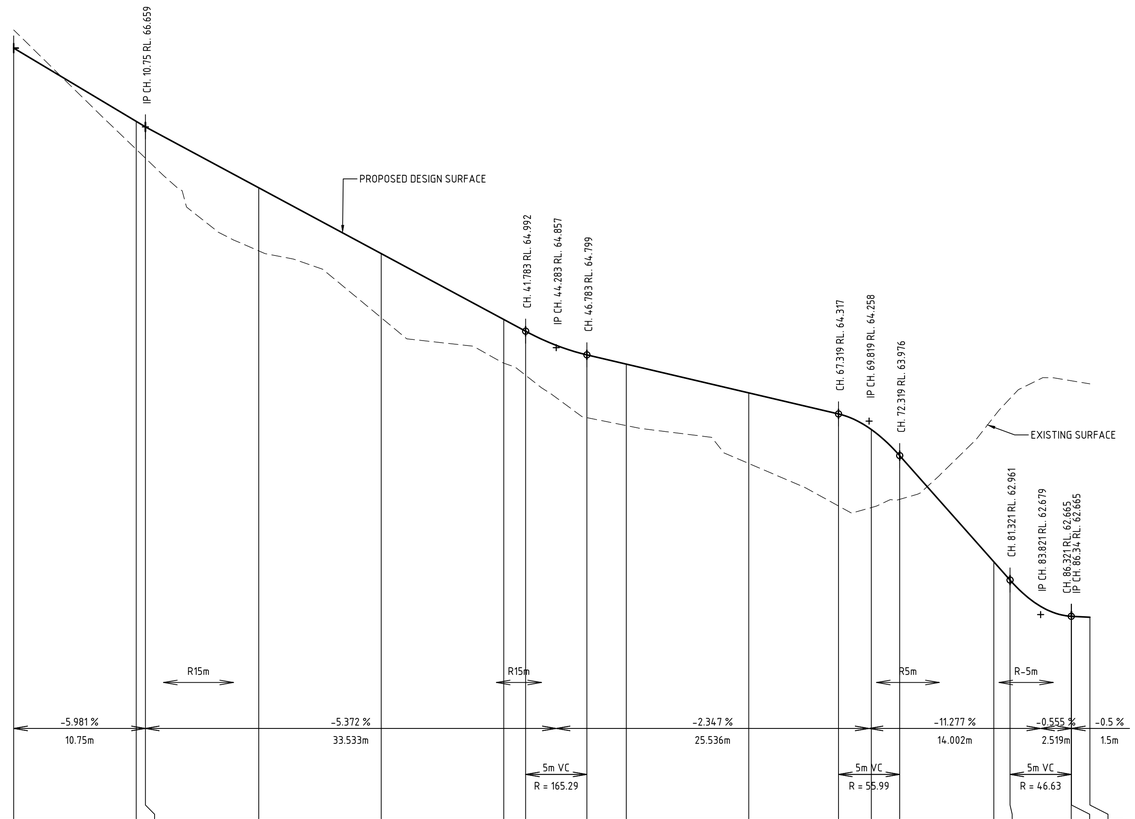

HORIZONTAL CURVE DATA

VERTICAL GEOMETRY GRADE (%)
VERTICAL GRADE LENGTH

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

DATUM R.L.61.000

NAT. SURFACE ON ROAD CENTRELINE	67.450		66.476	66.404	65.647	65.102	64.731	64.621	64.286	64.221	63.912	63.566	63.553	63.613	64.293	64.451	64.587	64.587	64.562
CUT / FILL DEPTHS			0.228	0.255	0.515	0.523	0.357	0.371	0.512	0.502	0.576	0.751	0.637	0.363	-1.183	-1.49	-1.922	-1.922	-1.904
DESIGN LEVELS ON ROAD CENTRELINE			66.704	66.659	66.162	65.625	65.087	64.992	64.799	64.723	64.488	64.317	64.190	63.976	63.310	62.961	62.665	62.665	62.658
CHAINAGE	0.000		10.000	10.750	20.000	30.000	40.000	41.783	46.783	50.000	60.000	67.319	70.000	72.319	80.000	81.321	86.321	86.340	87.840

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

BIORETENTION BASIN ACCESS LOT102
LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: LOT 102 BIORETENTION ACCESS LONG SECTION

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - CD807
REV. B

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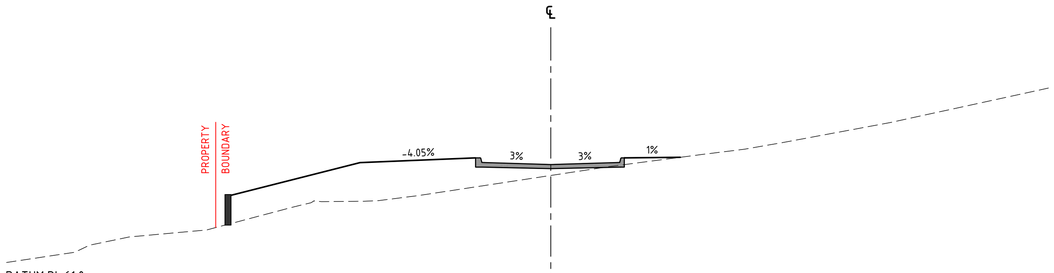
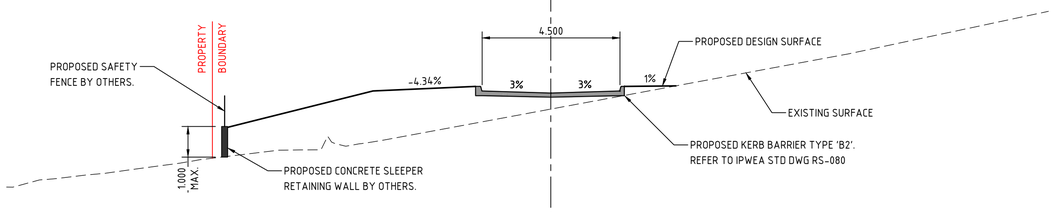


CH40.000



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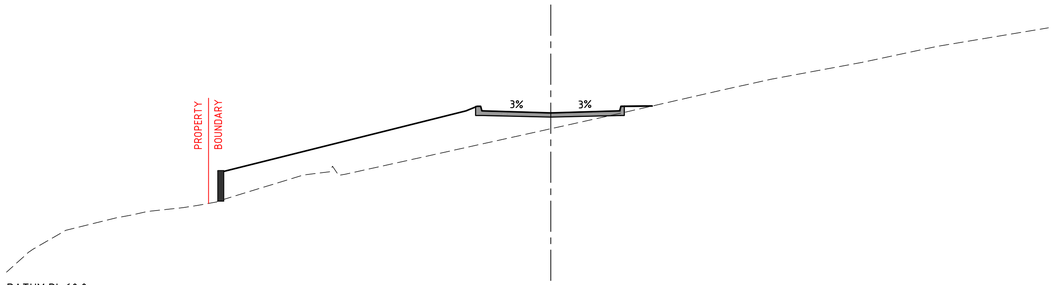

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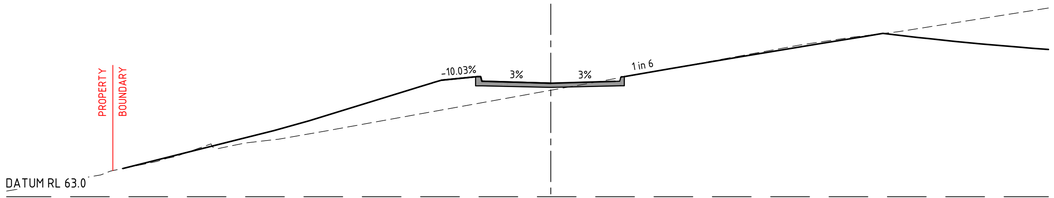

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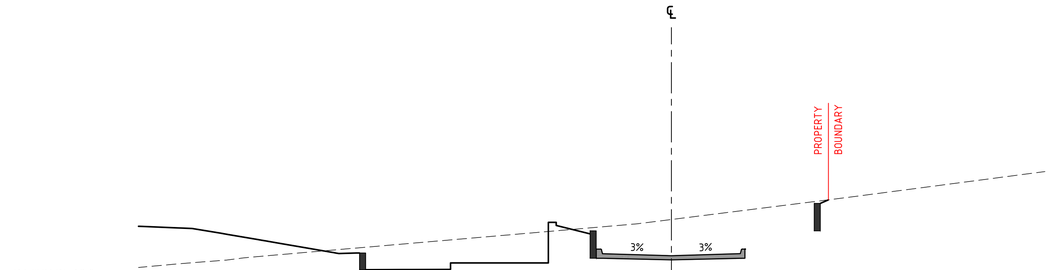

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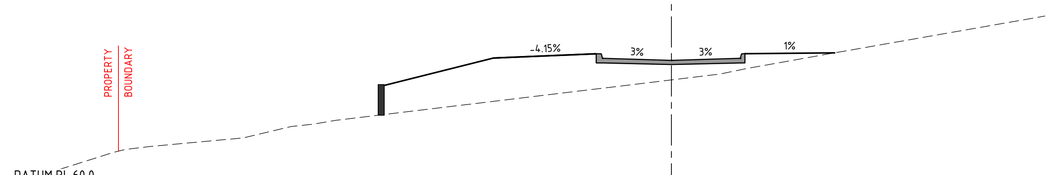

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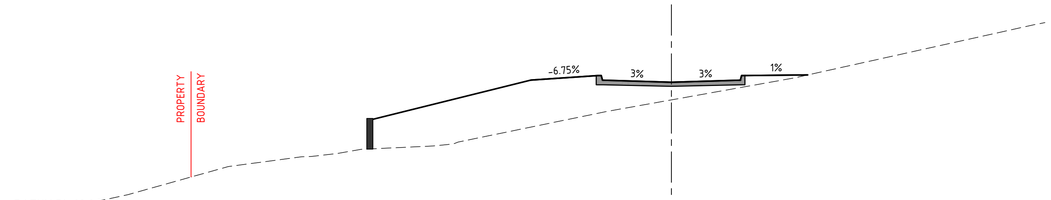

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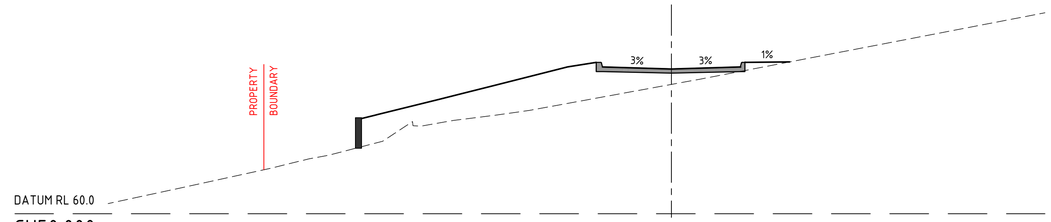

CH50.000

SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

ACCESS TRACK BIORETENTION 102 - CROSS SECTIONS

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
CONSULTING ENGINEERS

CIVIL
STRUCTURAL
TRAFFIC
PROJECT MANAGEMENT

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IPSWICH PH No. (07) 3281 6603
SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901

CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: LOT 102 BIORETENTION ACCESS CROSS SECTION

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED	APPROVED	
JN		
DRAWING No.		REV.
C3602 - CD808		B

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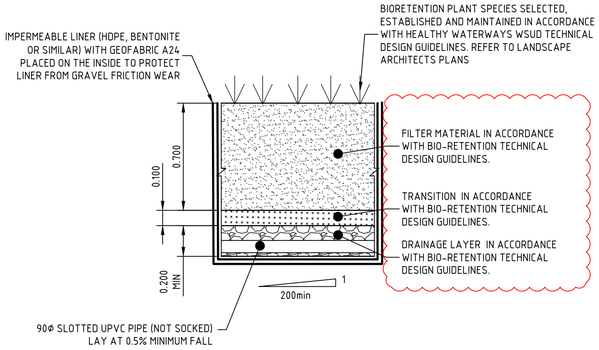
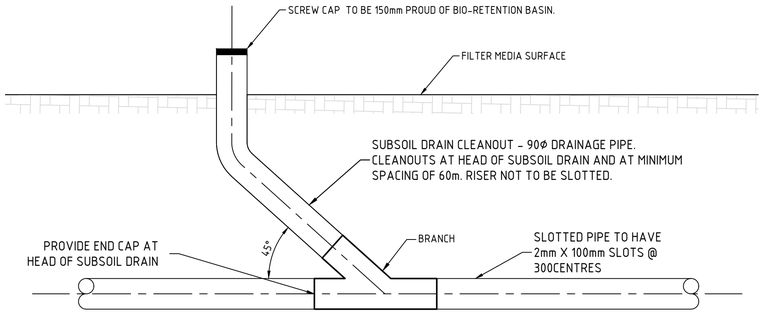


BIO-RETENTION BASIN FILTER MATERIAL DETAIL

SCALE 1:20

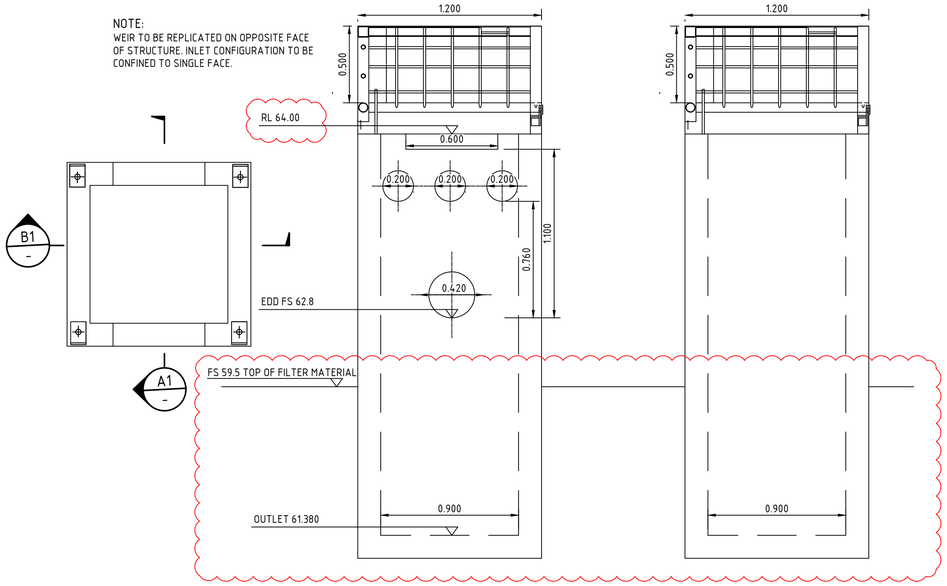


FILTER MATERIAL DRAIN CLEANOUT DETAIL

(SECTIONAL VIEW - NTS)

NOTES:
1. CLEANOUTS TO BE PROVIDED AT THE HEAD OF EACH SLOTTED PIPE WITHIN
2. SLOTTED PIPES TO SUBSOIL DRAINS TO BE MINIMUM 90mm DIAMETER:
   - uPVC PIPES AND FITTINGS FOR DRAIN, WAST AND VENT APPLICATIONS, JOINT TYPE, SOLVENT WELDED, MINIMUM SEWER CLASS SN8 MANUFACTURED IN ACCORDANCE WITH AS1260.

NOTE:
WEIR TO BE REPLICATED ON OPPOSITE FACE OF STRUCTURE. INLET CONFIGURATION TO BE CONFINED TO SINGLE FACE.



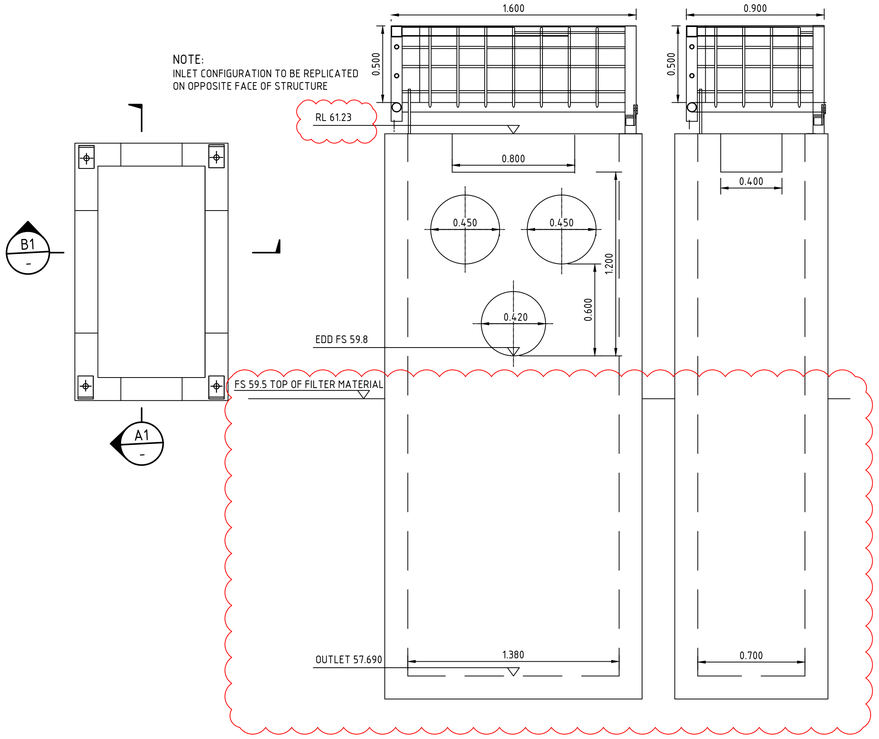
SECTION A1 - SCALE 1:20

SECTION B1 - SCALE 1:20

INLET STRUCTURE IN 1/14

SCALE 1:20

NOTE:
INLET CONFIGURATION TO BE REPLICATED ON OPPOSITE FACE OF STRUCTURE

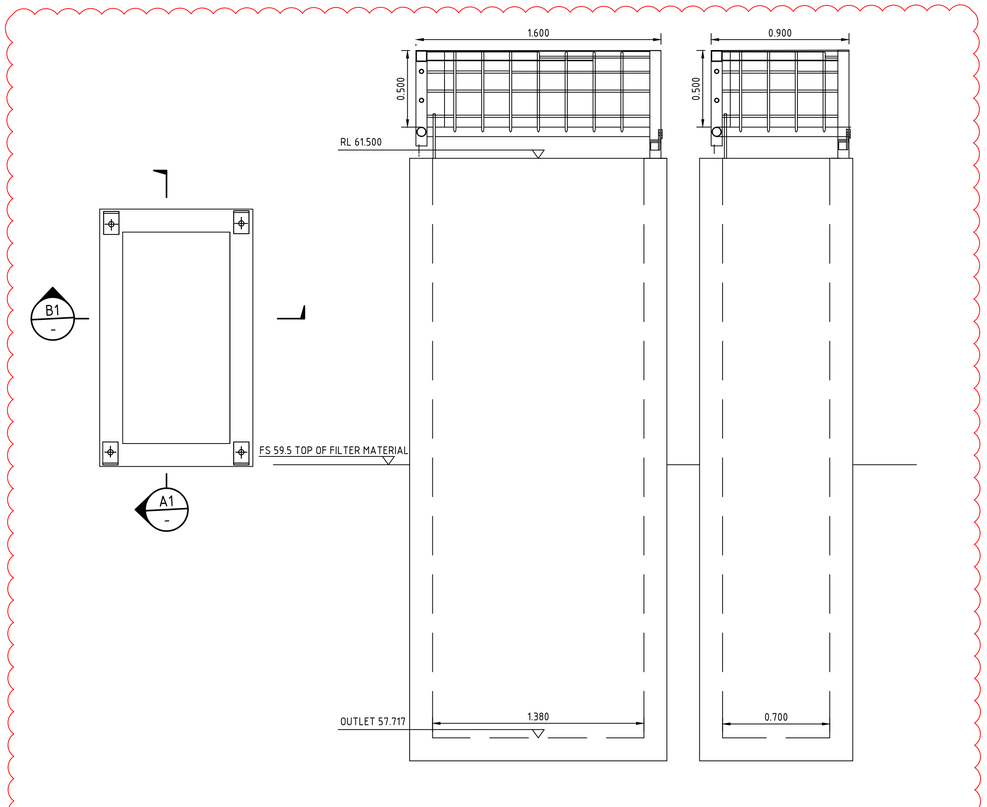


INLET STRUCTURE IN 1/8 & IN 1/12 DETAIL

SCALE 1:20

SECTION A1 - SCALE 1:20

SECTION B1 - SCALE 1:20



INLET STRUCTURE IN 1A/8 & IN 1A/12 DETAIL

SCALE 1:20

SECTION A1 - SCALE 1:20

SECTION B1 - SCALE 1:20

SCALE 1:20 (A1) 0 400 800 1200mm

(SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	APPROVAL ISSUE	02.10.20	CA
B	RFI RESPONSE	23.12.20	SG

MILANOVIC NEALE
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CIVIL
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SYDNEY PH No. 1300 827 901
GOLD COAST PH No. 1300 827 901
CONTACT DETAILS
E mail@mnce.com.au
W www.mnce.com.au

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: DETENTION & BIORETENTION TYPICAL DETAILS

DRAWN	DESIGNED	DATE
CA	CFR	AUG 2020
CHECKED: JN	APPROVED	
DRAWING No. C3602 - CD809		REV. B

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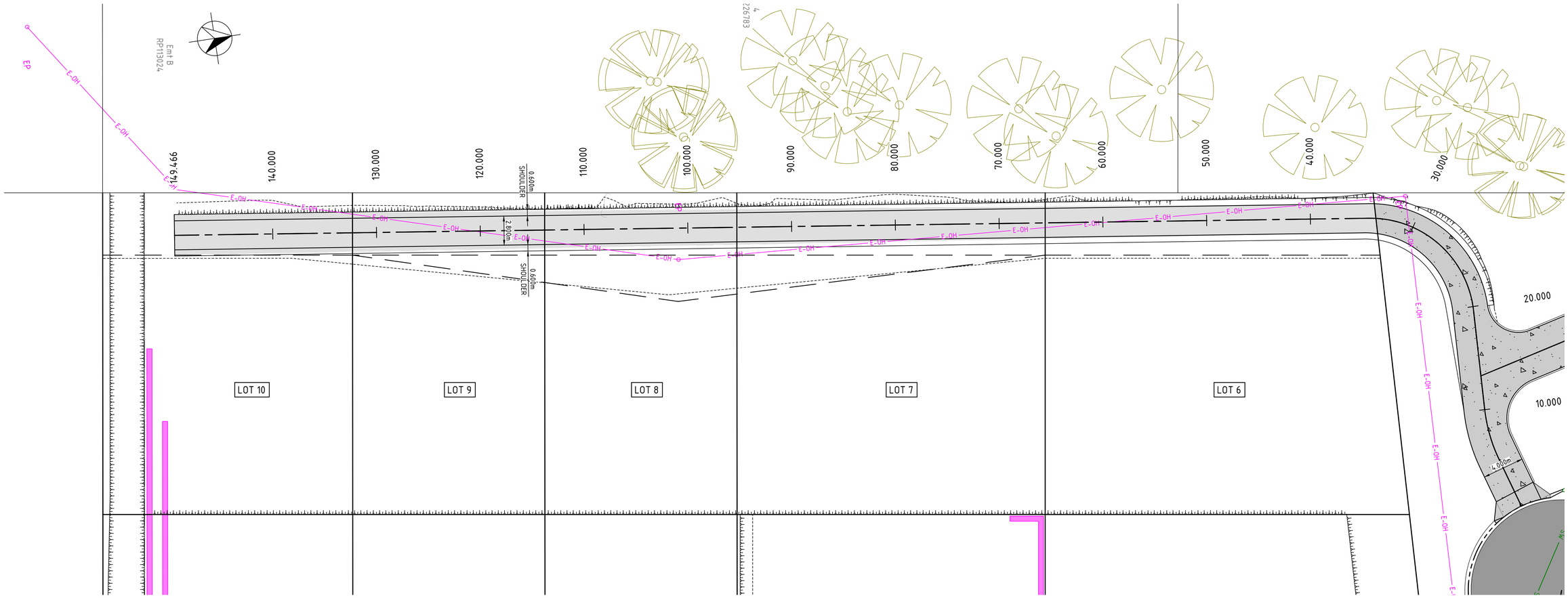
NOT FOR CONSTRUCTION



PLAN
SCALE 1:200

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:200 (A1) 0 4 8 12m
(SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	RFI REPSONSE	23.12.20	SG

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CONTACT DETAILS
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W www.mnce.com.au

CLIENT
PARKER PROPERTY
NINGI PTY LTD

PROJECT
41 GLENBROOK DRIVE,
NAMBOUR

TITLE
ENERGEX ACCESS LAYOUT PLAN

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - ET100
REV. A

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ALL SCALES ARE AS SHOWN (A1)

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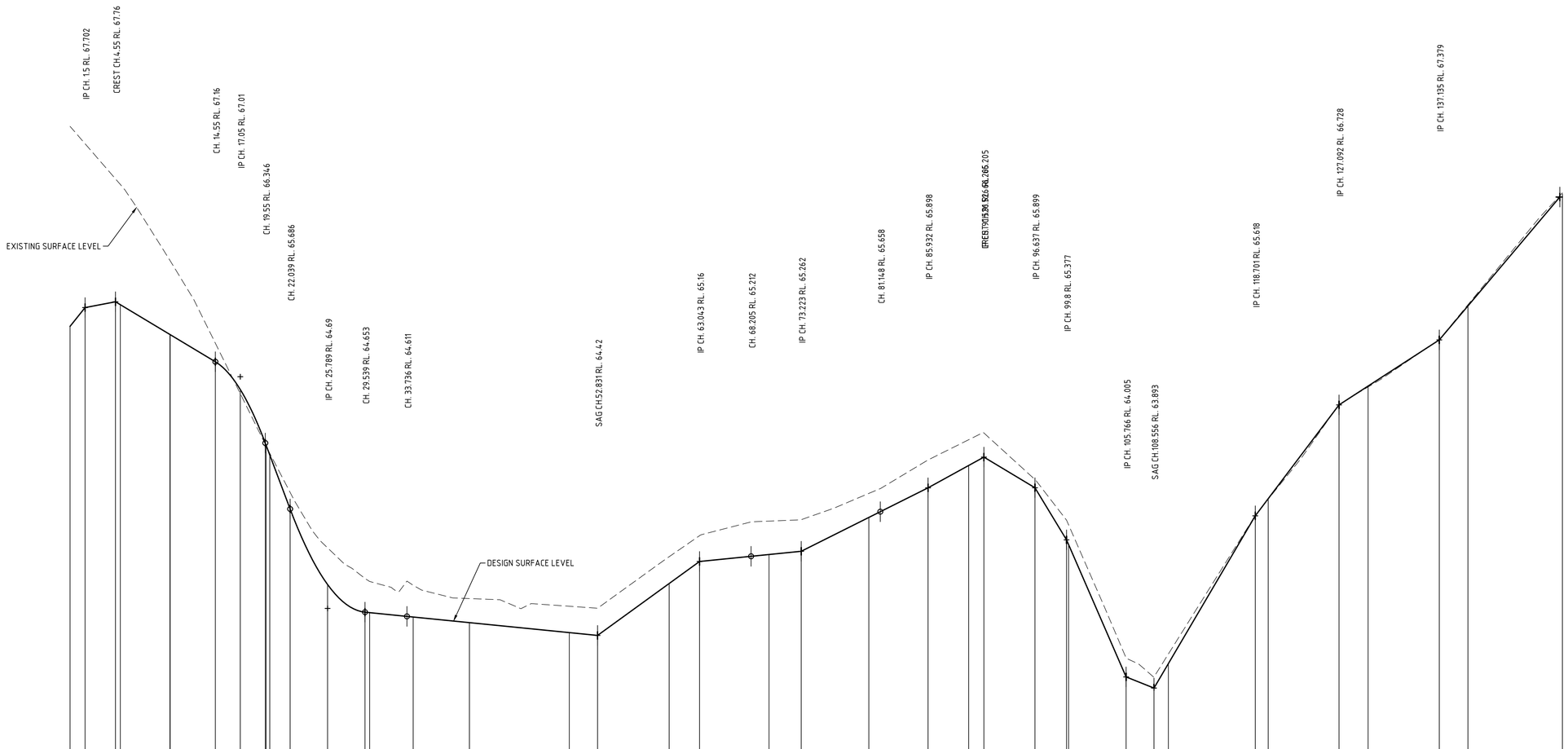
NOT FOR CONSTRUCTION



HORIZONTAL CURVE DATA

R15m | R-10m

VERTICAL GEOMETRY GRADE (%): 12.5 % | 4.906 % | -6.003 % | -26.547 % | -1 % | 7.253 % | 1 % | 5 % | 5.5 % | -6 % | -16.5 % | -23 % | -4 % | 17 % | 13.233 % | 6.481 % | 11.854 %

VERTICAL GRADE LENGTH: 1.5m | 3.05m | 12.5m | 8.739m | 27.042m | 10.213m | 10.179m | 12.709m | 5.594m | 5.111m | 3.162m | 5.967m | 2.79m | 10.145m | 8.391m | 10.043m | 12.067m

VERTICAL CURVE LENGTH (m): 5m VC | 7.5m VC

VERTICAL CURVE RADIUS (m): R = 24.34 | R = 29.36

DATUM R.L.62.000

CHAINAGE	NAT. SURFACE ON ROAD CENTRELINE	CUT / FILL DEPTHS	DESIGN LEVELS ON ROAD CENTRELINE
0.000	69.343	-1.641	67.515
1.500	68.991	-1.231	67.702
4.550	68.936	-1.204	67.760
5.028	68.175	-0.742	67.732
10.000	68.171	-0.74	67.433
10.025	67.346	-0.186	67.432
14.550	66.840	0.041	67.160
17.050	66.334	0.012	66.882
19.550	66.318	0.007	66.346
19.633	66.244	-0.017	66.324
20.000	65.848	-0.162	66.227
22.039	65.287	-0.357	65.686
25.789	64.983	-0.33	64.930
29.539	64.960	-0.312	64.653
30.000	64.922	-0.317	64.648
34.362	64.789	-0.241	64.604
40.000	64.712	-0.264	64.548
50.000	64.692	-0.273	64.448
52.831	65.208	-0.268	64.420
60.000	65.419	-0.258	64.940
63.043	65.564	-0.334	65.160
70.000	65.579	-0.316	65.230
73.223	65.842	-0.241	65.262
80.000	66.177	-0.28	65.601
85.932	66.379	-0.258	65.898
90.000	66.447	-0.241	66.121
91.526	65.981	-0.082	66.205
96.637	65.574	-0.197	65.899
99.800	65.528	-0.198	65.377
100.000	64.194	-0.19	65.331
105.766	64.002	-0.109	64.005
108.556	64.234	-0.095	63.893
110.000	65.622	-0.004	64.138
118.701	65.784	0.006	65.618
120.000	66.732	-0.004	65.789
127.092	66.907	0.009	66.728
130.000	67.383	-0.004	66.916
137.135	67.731	-0.013	67.379
140.000	68.851		67.718
149.466			

ENERGEX ACCESS- LONGITUDINAL SECTION

HORIZONTAL SCALE - 1:250
VERTICAL SCALE - 1:25

SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

SCALE 1:25 (A1) 0 0.5 1.0 1.5m (SCALE BEFORE REDUCTION)

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

DO NOT SCALE FROM DRAWING
ALL SCALES ARE AS SHOWN (A1)

REV.	DESCRIPTION	DATE	INIT.
A	RFI RESPONSE	23.12.20	SG

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W www.mnce.com.au

JAS-ANZ SGS

CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ENERGEX ACCESS LONGITUDINAL SECTION

DRAWN	DESIGNED	DATE
CA	SG	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - ET101 REV. A

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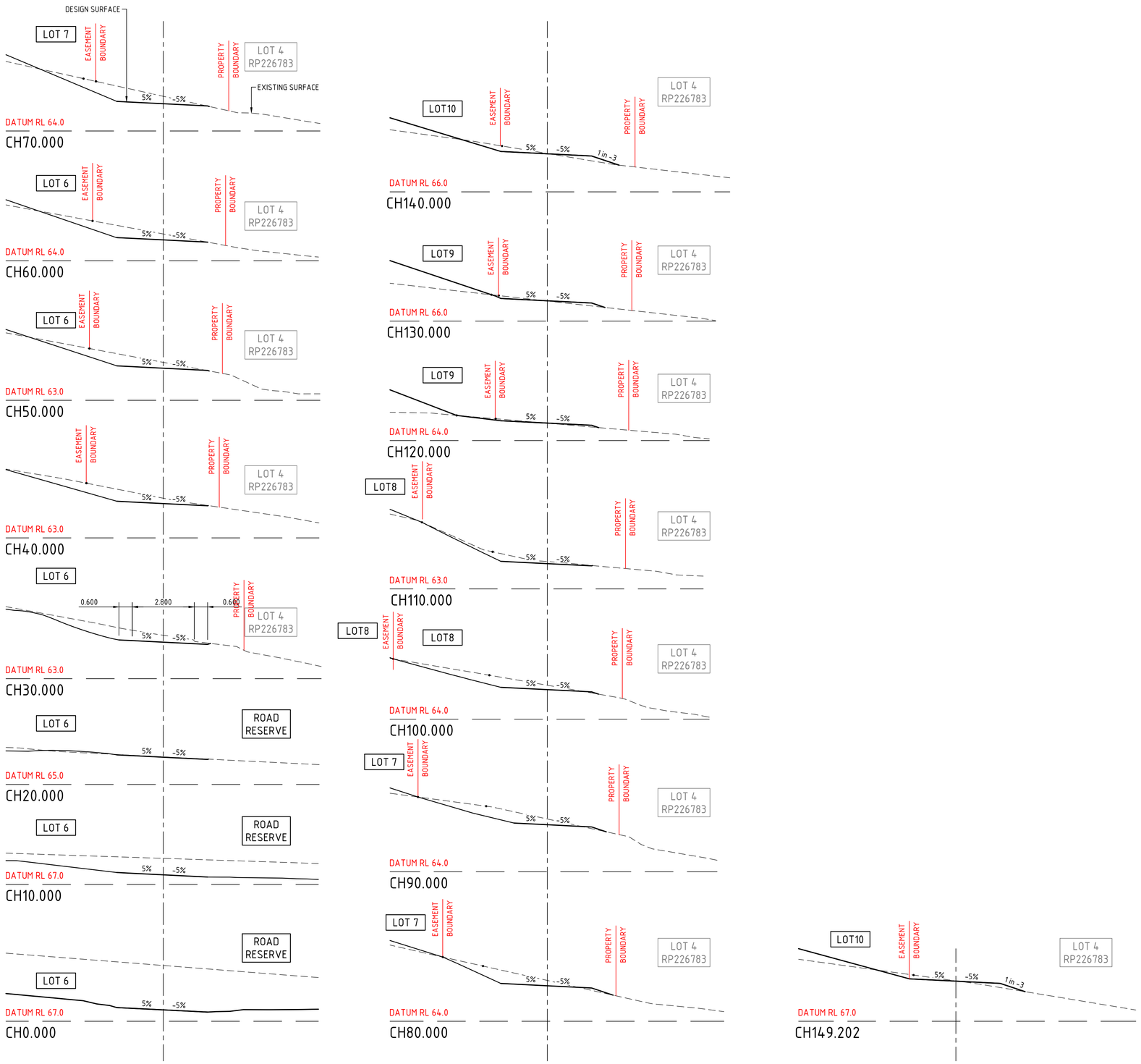

ENERGEX ACCESS - CROSS SECTIONS

SCALE 1:100

REFER DWG. C3602-CA300 & CA301 FOR GENERAL NOTES.

SCALE 1:100 (A1) 0 2 4 6m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 2 ON SP273404

REV.	DESCRIPTION	DATE	INIT.
A	RFI RESPONSE	23.12.20	SG

DO NOT SCALE FROM DRAWING
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CLIENT: PARKER PROPERTY NINGI PTY LTD

PROJECT: 41 GLENBROOK DRIVE, NAMBOUR

TITLE: ENERGEX ACCESS CROSS SECTIONS

DRAWN	DESIGNED	DATE
CA	SM	AUG 2020
CHECKED	APPROVED	
JN		

DRAWING No. C3602 - ET102 REV. A

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