Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

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22 March 2019

Logos Property Group
Attention: Mr Fraser McDonald
Suite 2, Level 29 'Aurora Place'
SYDNEY NSW 2000

Dear Sir

Re: Lots 23 & 24 Hollinsworth Road, Marsden Park
Stage 2/3 Drainage Discharge & TC4 Channel Design

Introduction

We provide this letter in relation to The Department of Planning and Environment *Development Consent SSD8606* dated 16 August 2018, and proposed Lot 2 and 3 discharge arrangement from the development site and the extension of the Blacktown City Council master-planned and SP2 Zoned trunk drainage *Channel TC4*.

The development of Lots 23 & 24 requires the construction of a box culvert system through the existing Ingenia affordable living development land and construction of an open trunk drainage "*Channel TC4*" between the existing Ingenia Development and Darling Street.

The design concept for the channel has been discussed between various stakeholders (Logos, Ingenia, Blacktown Council and Sydney Business Park) related to the required works. The presented plans and this letter describes the arrangement as documented and agreed between the parties.

Reference Documentation

Reference to the following Costin Roe Consulting drawings should be made pertaining to the channel design:

- Co12829.06-DA420
- Co12829.06-DA421
- Co12829.06-DA430
- Co12829.06-DA431
- Co12829.06-DA432
- Co12829.06-DA443
- Co12829.06-DA453

Additional reference information is as follows:

- Figure 3 of the J.Whyndam Prince (JWP) *Post Exhibition WCMS Report* (dated Feb 2011), identified as *Channel TC4* and on JWP drawing *8955_SK17_RevB;*
- Calibre Consulting sketch drawings *SK05 TC4 LS to SK07 TC4 LS; and*
- Blacktown City Council Zoning Maps.

General Arrangement

The *TC4 Channel* has been designed in accordance with *Figure 3* of the *JWP Post Exhibition WCMS Report* (dated Feb 2011). The channel is aligned generally per the SP2 Zoned corridor and connecting to an existing culvert system (at Darling Street) constructed by the Sydney Business Park (SBP) and designed by Calibre Consulting for The SBP;

The *TC4 Channel* is proposed to be constructed between the Hollinsworth Road extension and Darling Street. The channel will convey flows from several contributing catchments as set out on drawing **Co12829.06-DA443**. These contributing catchments include Logos Stage 2 & 3 lots, the RMS corridor south of Logos development, the SBP land west of Logos/Ingenia & the land north of Ingenia. The channel has been designed to convey the 1% AEP (1 in 100 year ARI) design flows from 9.6m^3/s at the upstream extent and up to 17.9m^3/s at the downstream.

At the downstream/ Darling Street end of the proposed TC4 channel, an existing box culvert is present. This system conveys flows under Darling Street and through a recently constructed channel to the SBP Regional Basin E.

We note that the existing open channel which is currently adjacent to the southern side of Darling Street will be made redundant prior to the TC4 Channel construction.

It is noted that the Hollinsworth Road extension, Logos development and RMS corridor catchments will be conveyed between Hollinsworth Road and the existing Ingenia Affordable Living Development to the head of the TC4 Channel. This will be via 2x 2700mm wide by 1200mm high RCBC units. This arrangement being generally per the JPW SWMS concept noted above. The RCBC arrangement allows for emergency flow and maintenance access between the TC4 Channel and Hollinsworth Road.

As agreed with Council, Ingenia and SBP, the box culverts shall terminate within the Ingenia land on the southern side of the HV Transmission easement within the SP2 Zoned corridor. North of the transmission easement, water shall drain through open channel TC4 as documented on the Costin Roe civil drawings. Further, as agreed with Ingenia and SBP, consideration for future lot connections have been made and indicatively shown on plan;

Basis of the design for the TC4 channel was provided by JPW on drawing 8955_SK17_RevB;

Costin Roe Consulting, Logos, SBP & Blacktown Council agreed to a concept layout provided by Calibre following initial concepts and consultation between the parties. The provided documents are based on the agreed arrangement.

TC4 Channel Geometry

The TC4 Channel is contained within a 29m wide corridor as shown on **Section** 1 of drawing **Co12829.06-DA240** and **Figure 1** below.

The channel geometry is based on a trapezoidal arrangement and contains a base with of 9.5m, side batters of 1 in 4 and 5.0m and 2.5m major and minor access paths on each side of the channel.

The design allows for a minimum 500mm of freeboard to the 1% AEP flow depth.

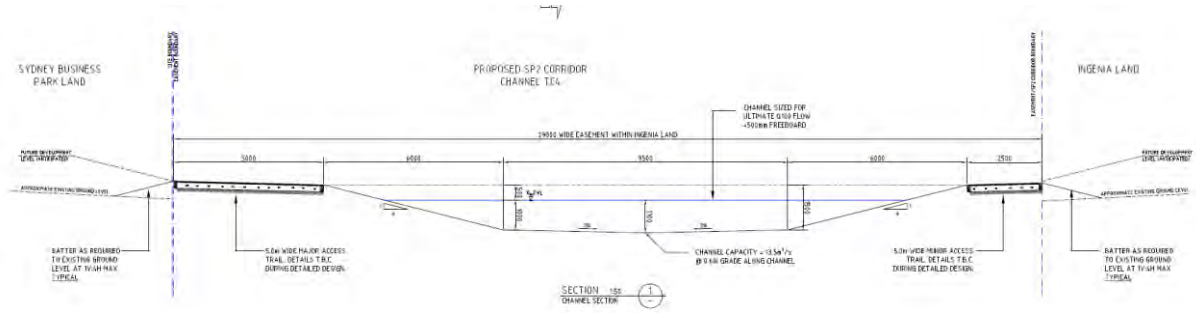

Figure 1. Channel Cross Section

The vertical geometry is based on a 0.5% slope, incorporating two drop sills in the upper third of the channel as shown on the longitudinal section on drawing **Co12829.06-DA430**.

As noted, the channel has been designed to convey the 1% AEP (1 in 100 year ARI) design flows of 9.6m^3/s at the upstream extent, and up to 17.9m^3/s at the downstream.

Conclusion

This letter is provided in relation to the TC4 Channel and proposed vertical and horizontal alignments, and cross section set out in the enclosed Costin Roe Consulting drawings and as agreed between Costin Roe Consulting, Logos, SBP & Blacktown City Council.

The TC4 Channel design is proposed to convey the 1% AEP designs flows from the associated contributing catchments including the RMS Corridor, Logos Stage 2/3, Hollinsworth Road and Ingenia Land.

We trust the information contained in this letter addresses your current requirements pertaining to the TC4 Channel and that the provided documents will result in the timely approval of the works with council.

Yours faithfully,
COSTIN ROE CONSULTING PTY LTD

MARK WILSON MIEAust CPEng NER
Director

LOT 23/24, HOLLINSWORTH ROAD

MARSDEN PARK, NSW

INFRASTRUCTURE DRAWINGS - SECTION 96 APPLICATION

DRAWING LIST

DRAWING NO.	DRAWING TITLE
C012829.06-DA 100	DRAWING LIST & GENERAL NOTES
C012829.06-DA 110	DEVELOPMENT STAGING PLAN
C012829.06-DA 200	EROSION AND SEDIMENT CONTROL PLAN
C012829.06-DA 250	EROSION AND SEDIMENT CONTROL DETAILS
C012829.06-DA 410	STORMWATER DRAINAGE KEY PLAN
C012829.06-DA 420	PROPOSED SP2 CORRIDOR PLAN
C012829.06-DA 421	WESTERN DRAINAGE EASEMENT PLAN - SHEET 1
C012829.06-DA 422	WESTERN DRAINAGE EASEMENT PLAN - SHEET 2
C012829.06-DA 423	LOT 3 DISCHARGE PLAN
C012829.06-DA 441	PRE-DEVELOPMENT CATCHMENT PLAN
C012829.06-DA 442	POST-DEVELOPMENT CATCHMENT PLAN
C012829.06-DA 443	DRAINAGE EASEMENT CATCHMENT PLAN
C012829.06-DA 451	STORMWATER DRAINAGE DETAILS - SHEET 1
C012829.06-DA 452	STORMWATER DRAINAGE DETAILS - SHEET 2
C012829.06-DA 453	STORMWATER DRAINAGE DETAILS - SHEET 3
C012829.06-DA 511	HOLLINSWORTH ROAD CIVIL WORKS PLAN - SHEET 1
C012829.06-DA 512	HOLLINSWORTH ROAD CIVIL WORKS PLAN - SHEET 2
C012829.06-DA 561	STORMWATER DRAINAGE LONGSECTIONS - SHEET 1
C012829.06-DA 562	STORMWATER DRAINAGE LONGSECTIONS - SHEET 2
C012829.06-DA 571	ROADWORKS LONGSECTION
C012829.06-DA 575	ROAD CROSS SECTIONS - SHEET 1
C012829.06-DA 576	ROAD CROSS SECTIONS - SHEET 2
C012829.06-DA 581	KERB RETURNS - SHEET 1
C012829.06-DA 582	KERB RETURNS - SHEET 2
C012829.06-DA 591	ROADWORKS TYPICAL DETAILS
C012829.06-DA 610	RETAINING WALL LAYOUT PLAN
C012829.06-DA 651	RETAINING WALL DETAILS - SHEET 1

STORMWATER DRAINAGE NOTES:

1. ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500.3:2003 PLUMBING AND DRAINAGE, PART 3: STORMWATER DRAINAGE.
2. THE MINOR (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR ARI STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR ARI STORM EVENT.
3. ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON FINISHED LEVELS PLANS DA511 & SSDA512.
4. PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
5. EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
6. ALL STORMWATER PIPES ⌀375 OR GREATER SHALL BE CLASS 2 REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
7. STORMWATER PIPES WITHIN ROAD RESERVES SHALL BE CLASS 3 REINFORCED CONCRETE WITH RUBBER RING JOINTS, AND STORMWATER PIPES CROSSING ROADS SHALL BE CLASS 4 REINFORCED CONCRETE. ALL PIPES SHALL HAVE RUBBER RING JOINTS PER BLACKTOWN CITY COUNCIL'S REQUIREMENTS.
8. ALL PIPES UP TO AND INCLUDING ⌀300 TO BE uPVC GRADE SN8 UNO.
9. PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
10. ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12-200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F'c 25 MPA. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
11. IN ADDITION TO ITEM 6 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
12. PIPES SHALL BE LAID AS PER PIPE LAYING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING AROUND AND UNDER BACK OF PIPES AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
13. WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED ⌀100 uPVC TO EACH SIDE OF PIPE.
14. ALL SUBSOIL DRAINAGE LINES SHALL BE ⌀100 SLOTTED uPVC WITH APPROVED FILTER WRAP LAID IN 300mm WIDE GRANULAR FILTER UNLESS NOTED OTHERWISE. LAY SUBSOIL LINES TO MATCH FALLS OF LAND AND/OR MIN 200 MINIMUM. PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT/ LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER) AND AS SHOWN ON PLAN.
15. ALL PIPE GRADES 1 IN 100 MINIMUM UNO.
16. PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.
17. MIN. 600 COVER TO PIPE OBVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
18. PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY', THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY' U.N.O.
19. PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
20. DOWN PIPES (DP) TO BE AS PER HYDRAULIC ENGINEERS DETAILS WITH CONNECTOR TO MATCH DP SIZE U.N.O. ON PLAN. PROVIDE CLEANING EYE AT GROUND LEVEL.
21. PIPE LENGTHS NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.

GENERAL NOTES

1. THESE NOTES ARE TO BE READ IN CONJUNCTION WITH BLACKTOWN CITY COUNCIL'S SPECIFICATIONS.
2. LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).
3. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SPECIFICATIONS AND WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.
4. IF THE CONTRACTOR HAS ANY QUESTIONS, REQUIRES CLARIFICATION OF ANY ISSUES, OR FINDS ANY DISCREPANCIES WITHIN THESE DRAWINGS, THE CONTRACTOR SHALL ADVISE THE SUPERINTENDENT REPRESENTATIVE BEFORE PROCEEDING.
5. ALL SET OUT DIMENSIONS SHOWN SHALL BE VERIFIED BY THE CONTRACTOR ON SITE BEFORE WORK COMMENCES. DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
6. THE CONTRACTOR SHALL LOCATE AND IDENTIFY ALL UNDERGROUND SERVICES CROSSING THE WORKS AREA PRIOR TO THE COMMENCEMENT OF WORK AND SHALL REPAIR ANY DAMAGE CAUSED TO SUCH SERVICES DURING THE COURSE OF THE WORKS. ANY SERVICE LOCATIONS SHOWN ON THE FOLLOWING DRAWINGS ARE INDICATIVE ONLY.
7. ALL LEVELS ARE IN METRES (m) & DIMENSIONS ARE IN MILLIMETRES (mm), UNLESS NOTED OTHERWISE.
8. ALL MATERIALS AND WORKMANSHIP USED IN THE CONSTRUCTION OF THIS DESIGN SHALL BE IN ACCORDANCE WITH ALL RELEVANT CURRENT AUSTRALIAN STANDARDS.
9. DURING CONSTRUCTION THE WORKS SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING AND BATTERS SHALL BE PROVIDED BY THE CONTRACTOR TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
10. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S STANDARDS & SPECIFICATIONS AND COUNCIL'S NOTICE OF DETERMINATION (DA CONDITIONS).
11. THE CONTRACTOR SHALL OBTAIN SETOUT CO-ORDINATES FROM THE SUPERINTENDENT REPRESENTATIVE, AND ARRANGE ALL SURVEY SETOUT BY A REGISTERED SURVEYOR.
12. THE CONTRACTOR SHALL OBTAIN THE REQUIRED PERMITS COVERING THE NECESSARY WORKS WITHIN THE ROAD RESERVE AND COMPLY WITH ALL THE CONDITIONS COVERING THE ISSUE OF SUCH PERMITS. A CHARGE IS MADE FOR PERMITS ISSUED IN RESPECT OF PAVEMENT OPENINGS. THE CONTRACTOR SHALL OBTAIN DETAILS FROM COUNCIL. THE CONTRACTOR IS TO PAY ALL FEES, MEET ALL REQUIREMENTS AND CARRY OUT ALL LIAISON AT NO EXTRA COST. ALL PAVEMENT SURFACING IS TO BE UNDERTAKEN BY THE CONTRACTOR. ALL PAVEMENT REINSTATEMENT IS TO BE UNDERTAKEN BY THE CONTRACTOR. ALL TO BLACKTOWN CITY COUNCIL'S STANDARDS AND APPROVAL.
13. ALL CONSTRUCTION WORK SHALL BE CARRIED OUT SO THAT AT ANYTIME ADJOINING PROPERTY OWNERS ARE NOT DEPRIVED OF AN ALL-WEATHER ACCESS OR SUBJECTED TO ADDITIONAL OR POLLUTED STORMWATER RUNOFF DURING THE PERIOD OF CONSTRUCTION.
14. THE CONTRACTOR SHALL PLACE CONDUITS WHERE REQUIRED BY THE RELEVANT AUTHORITIES.
15. THE CONTRACTOR SHALL UNDERTAKE ALL UTILITY ADJUSTMENTS NECESSARY FOR THE COMPLETION OF WORKS.

EXISTING SERVICES

1. DURING THE EXECUTION OF WORKS, THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF EXISTING SERVICES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED TO THE EXISTING SERVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE RELEVANT SERVICE AUTHORITY, AT NO COST TO THE PRINCIPAL.
2. WHERE IT IS NECESSARY TO REMOVE, DIVERT OR CUT INTO ANY EXISTING SERVICE, THE CONTRACTOR SHALL GIVE AT LEAST THREE (3) DAYS NOTICE OF ITS REQUIREMENTS TO THE SUPERINTENDENT, WHO WILL ADVISE WHAT ARRANGEMENTS SHOULD BE MADE FOR THE ALTERATION OF SUCH EXISTING WORKS.
3. EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA. THE ACCURACY IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO COMMENCING WORK. ALL CLEARANCES AND APPROVALS SHALL ALSO BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL NEW AND EXHUMED SERVICES THAT CROSS EXISTING AND FUTURE ROADS/PAVEMENTS WITHIN THE SITE SHALL BE BACKFILLED WITH DGB20 MATERIAL TO SUBGRADE LEVEL AND COMPACTED TO 98% STANDARD DENSITY RATIO. SUBJECT TO PRIOR APPROVAL FROM RELEVANT AUTHORITY.
5. ON COMPLETION OF SERVICES INSTALLATION. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AREAS, GRASSED AREAS AND ROAD PAVEMENTS.
6. CARE TO BE TAKEN WHEN EXCAVATING NEAR UTILITY SERVICES. NO MECHANICAL EXCAVATION TO BE UNDERTAKEN OVER SERVICES. LIAISE WITH RELEVANT AUTHORITY.
7. THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL IF REQUIRED OF ALL EXISTING SERVICES IN AREAS AFFECTED BY THE WORKS WITHIN THE CONTRACT AREA AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT. ALL TO REGULATORY AUTHORITY STANDARDS AND APPROVAL.
8. THE CONTRACTOR IS TO MAINTAIN EXISTING STORMWATER DRAINAGE FLOWS THROUGH THE ROADS AT ALL TIMES. MAKE DUE ALLOWANCE FOR ALL SUCH FLOWS AT ALL TIMES.
9. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL OBTAIN THE SUPERINTENDENT'S APPROVAL OF THE PROGRAM FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.
10. CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES AS REQUIRED TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
11. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE OR DAMAGE TO THE ADJACENT RESIDENCES. CONTRACTOR TO GAIN APPROVAL OF THE SUPERINTENDENT FOR TIME OF INTERRUPTION.
12. THE CONTRACTOR SHALL UNDERTAKE A DIAL BEFORE YOU DIG (DBYD 1100) SERVICES SEARCH BEFORE THE COMMENCEMENT OF ANY WORKS.

ELECTRONIC INFORMATION NOTES:

1. THE ISSUED DRAWINGS IN HARD COPY OR PDF FORMAT TAKE PRECEDENCE OVER ANY ELECTRONICALLY ISSUED INFORMATION, LAYOUTS OR DESIGN MODELS.
2. THE CONTRACTOR'S DIRECT AMENDMENT OR MANIPULATION OF THE DATA OR INFORMATION THAT MIGHT BE CONTAINED WITHIN AN ENGINEER-SUPPLIED DIGITAL TERRAIN MODEL AND ITS SUBSEQUENT USE TO UNDERTAKE THE WORKS WILL BE SOLELY AT THE DISCRETION OF AND THE RISK OF THE CONTRACTOR.
3. THE CONTRACTOR IS REQUIRED TO HIGHLIGHT ANY DISCREPANCIES BETWEEN THE DIGITAL TERRAIN MODEL AND INFORMATION PROVIDED IN THE CONTRACT AND/OR DRAWINGS AND IS REQUIRED TO SEEK CLARIFICATION FROM THE SUPERINTENDENT.
4. THE ENGINEER WILL NOT BE LIABLE OR RESPONSIBLE FOR THE POSSIBLE ON-GOING NEED TO UPDATE THE DIGITAL TERRAIN MODEL, SHOULD THERE BE ANY AMENDMENTS OR CHANGES TO THE DRAWINGS OR CONTRACT INITIATED BY THE CONTRACTOR.

SURVEY NOTE:

EXISTING SITE LEVELS AND DETAILS BASED ON A PLAN OF SURVEY 'SY074063.000.1.1' BY 'LAND PARTNERS CONSULTANTS P/L' DATED 27 OCT 2016.

SITE PREPARATION NOTES:

1. ALL EARTHWORKS SHALL BE COMPLETED GENERALLY IN ACCORDANCE WITH THE GUIDELINES SPECIFIED BY THE GEOTECHNICAL REPORT "GTE817rev1" PROVIDED BY GROUND TECHNOLOGIES DATED 17 MAY 2016
2. EXISTING LEVELS ARE BASED ON INFORMATION PROVIDED BY LAND PARTNERS TITLED SY074063 DATED 27 OCTOBER 2016.
3. STRIP ANY TOP SOIL OR DELETERIOUS MATERIAL AND DISPOSE OF FROM SITE OR STORE AS DIRECTED.
4. COMPLETE CUT TO FILL EARTHWORKS TO ACHIEVE THE REQUIRED LEVELS AS INDICATED ON THE DRAWINGS WITHIN A TOLERANCE OF +0mm/-10mm THROUGH BUILDING PADS/PAVEMENTS AND +0mm/-20mm ELSEWHERE.
5. PREPARE STEEP BATTERS TO RECEIVE FILL BY CONSTRUCTING BENCHING TO FACILITATE FILL PLACEMENT AND COMPACTION.
6. AREAS TO RECEIVE FILL (THAT ARE NOT ON BENCHED BATTERS) AND AREAS IN CUT SHALL BE PROOF ROLLED TO IDENTIFY ANY SOFT HEAVING MATERIAL. SOFT MATERIAL SHALL BE BOXED OUT AND REMOVED PRIOR TO FILL PLACEMENT. PROOF ROLLING TO BE INSPECTED BY A GEOTECHNICAL ENGINEER OR THE EARTHWORKS DESIGNER.
7. SITE WON FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
8. IMPORTED FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
9. ALL ENGINEERED FILL PARTICLES SHALL BE ABLE TO BE INCORPORATED WITHIN A SINGLE LAYER. FURTHER, LESS THAN 30% OF PARTICLES SHALL BE RETAINED ON THE 37.5 MM SIEVE. ENGINEERED FILL SHALL BE ABLE TO BE TESTED IN ACCORDANCE WITH THE STANDARD COMPACTION METHOD (AS1289.5.4.1) OR HILF TEST METHOD (AS1289.5.7.1). THESE METHODS REQUIRE LESS THAN 20% RETAINED ON THE 37.5 MM SIEVE. WHERE BETWEEN 20% AND 30% OF PARTICLES ARE RETAINED ON THE 37.5 MM SIEVE THE ABOVE TEST METHODS SHALL STILL BE ADOPTED AND TEST REPORTS ANNOTATED APPROPRIATELY. THESE REQUIREMENTS SHOULD BE MET BY THE MATERIAL AFTER PLACEMENT AND COMPACTION
10. ALL THE EARTHWORKS UNDERTAKEN AND THE SUBGRADE CONDITION IN THE CUT AREAS [IN THE STATED PERIOD] ARE DOCUMENTED IN THE REPORTS AND HAVE BEEN UNDERTAKEN IN ACCORDANCE WITH THE SPECIFICATION (EG. COSTIN ROE SITE PREPARATION NOTES IN DWG C013003.01-EWC10)
11. PRIOR TO ANY EARTHWORKS, EROSION CONTROL AS OUTLINED IN THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE COMPLETED.
12. EXISTING ROCK, IF ANY, SHALL BE REMOVED BY HEAVY ROCK BREAKING OR RIPPING.
13. MATCH EXISTING LEVELS AT BATTER INTERFACE.
14. CONTRACTOR TO MATCH EXISTING LEVELS AT THE INTERFACE OF EARTHWORKS AND EXISTING SURFACE AT BATTER LOCATIONS OR WHERE NO RETAINING WALLS ARE PRESENT. ANY DISCREPANCY BETWEEN DESIGN AND EXISTING LEVELS TO BE REFERRED TO THE ENGINEER FOR DIRECTION OR ADJUSTMENTS TO DESIGN LEVELS.

LOCALITY PLAN
N.T.S

FOR SECTION 96 APPLICATION

AMENDMENTS	DATE	ISSUE
DRAWING LIST UPDATED AS CLOUDED	20.03.19	E
ISSUED FOR SECTION 96 APPLICATION	12.04.18	D
ISSUED FOR DEVELOPMENT APPLICATION	22.03.18	C
ISSUED FOR SECTION 96 APPLICATION	22.11.17	B
ISSUED FOR INFORMATION	01.08.17	A

ARCHITECT

CLIENT LOGOS

PROJECT
INFRASTRUCTURE PACKAGE EARTHWORKS & WALLS
HOLLINGSWORTH ROAD MARSDEN PARK NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	DS	JUN 17	XC	A0	AS SHOWN	C012829.06-DA100

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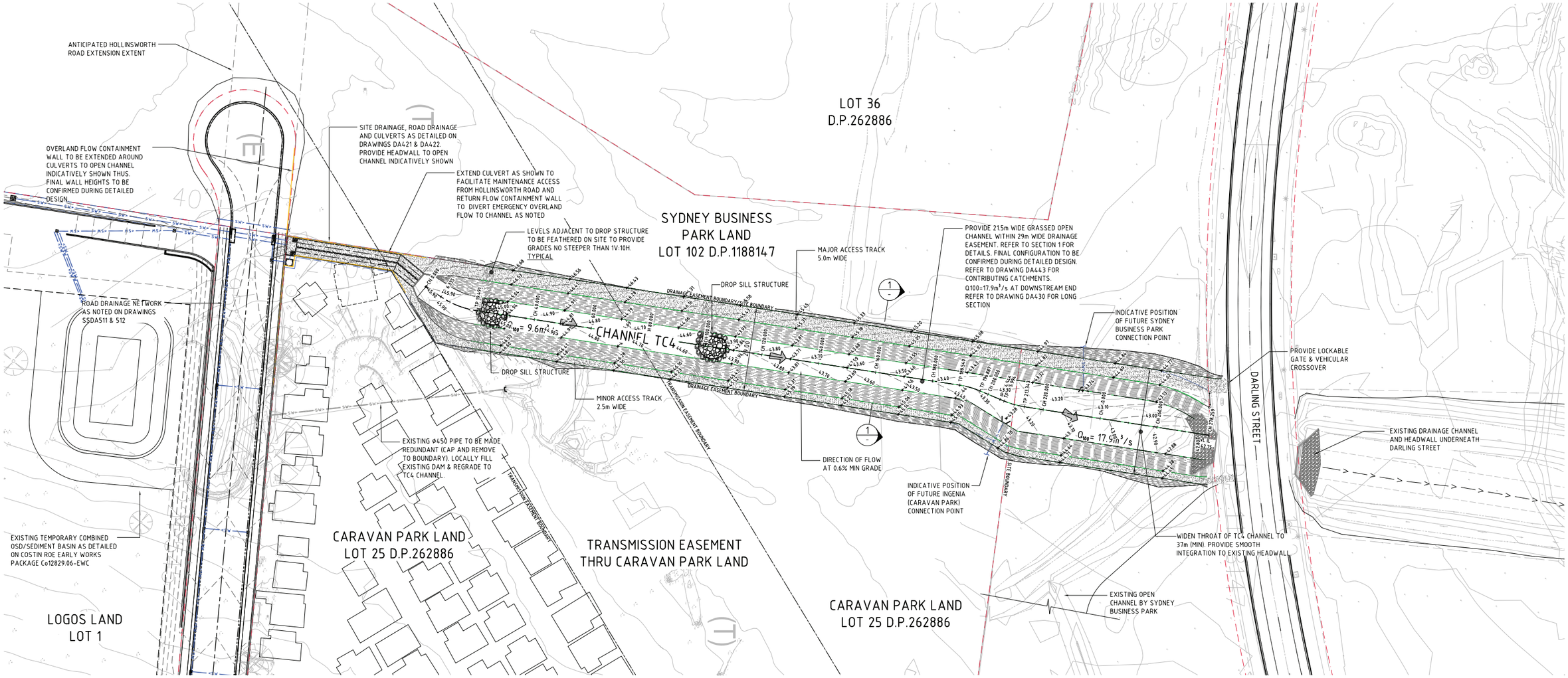
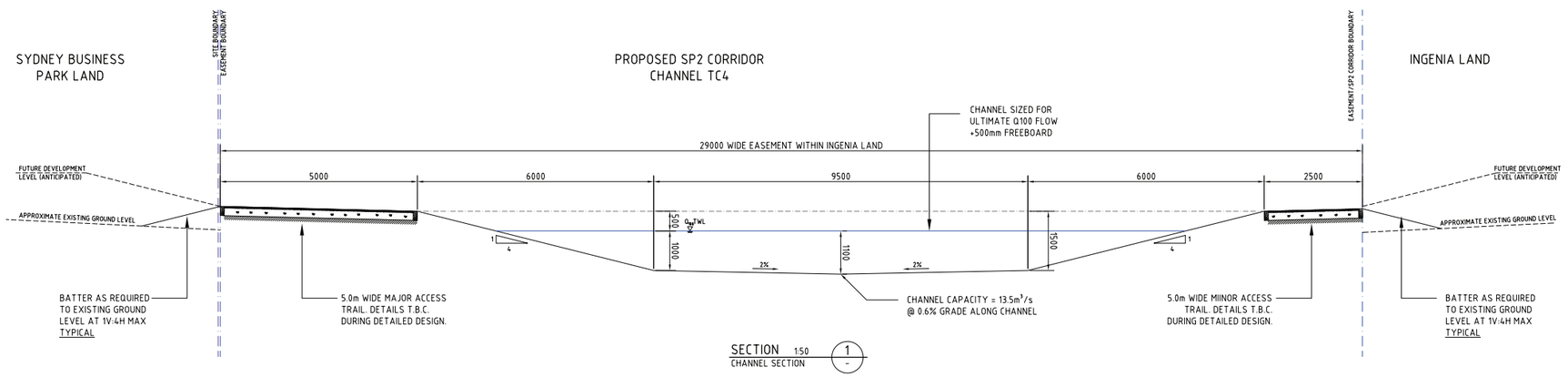
DRAWING TITLE
DRAWING LIST & GENERAL NOTES

DRAWING No. 12829.06-DA100 ISSUE E



PROPOSED SP2 DRAINAGE CORRIDOR PLAN
SCALE 1:500



SECTION 1:50 (1/-)
CHANNEL SECTION

LEGEND:
LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LAND PARTNERS DATED OCT' 2016.

- ⊠ – SJP, SEALED JUNCTION PIT
- ⊠ – EXISTING SJP
- – KIP, KERB INLET PIT
- SW – PROPOSED DRAINAGE LINE
- SW – EXISTING DRAINAGE LINE
- – STORMWATER DRAINAGE EASEMENT
- 50.00 – FINISHED PAVEMENT CONTOUR (MAJOR) 1.0m INTERVALS
- 50.50 – FINISHED PAVEMENT CONTOUR (MINOR) 0.5m INTERVALS

2m 0 5 10 15 20 25m
SCALE 1:250 AT A0 SIZE SHEET

FOR SECTION 96 APPLICATION

AMENDMENTS	DATE	ISSUE
REVISED FOR REVISED CHANNEL ALIGNMENT	20.03.19	D
REVISED FOR REVISED CHANNEL DETAILS	13.07.18	C
REVISED FOR SBP COMMENTS	24.05.18	B
ISSUED FOR SECTION 96 APPLICATION	12.04.18	A

ARCHITECT

CLIENT: LOGOS

PROJECT: INFRASTRUCTURE PACKAGE EARTHWORKS & WALLS
HOLLINGSWORTH ROAD MARSDEN PARK NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	DS	JUN 17	XC	A0	AS SHOWN	C012829.06-DA420

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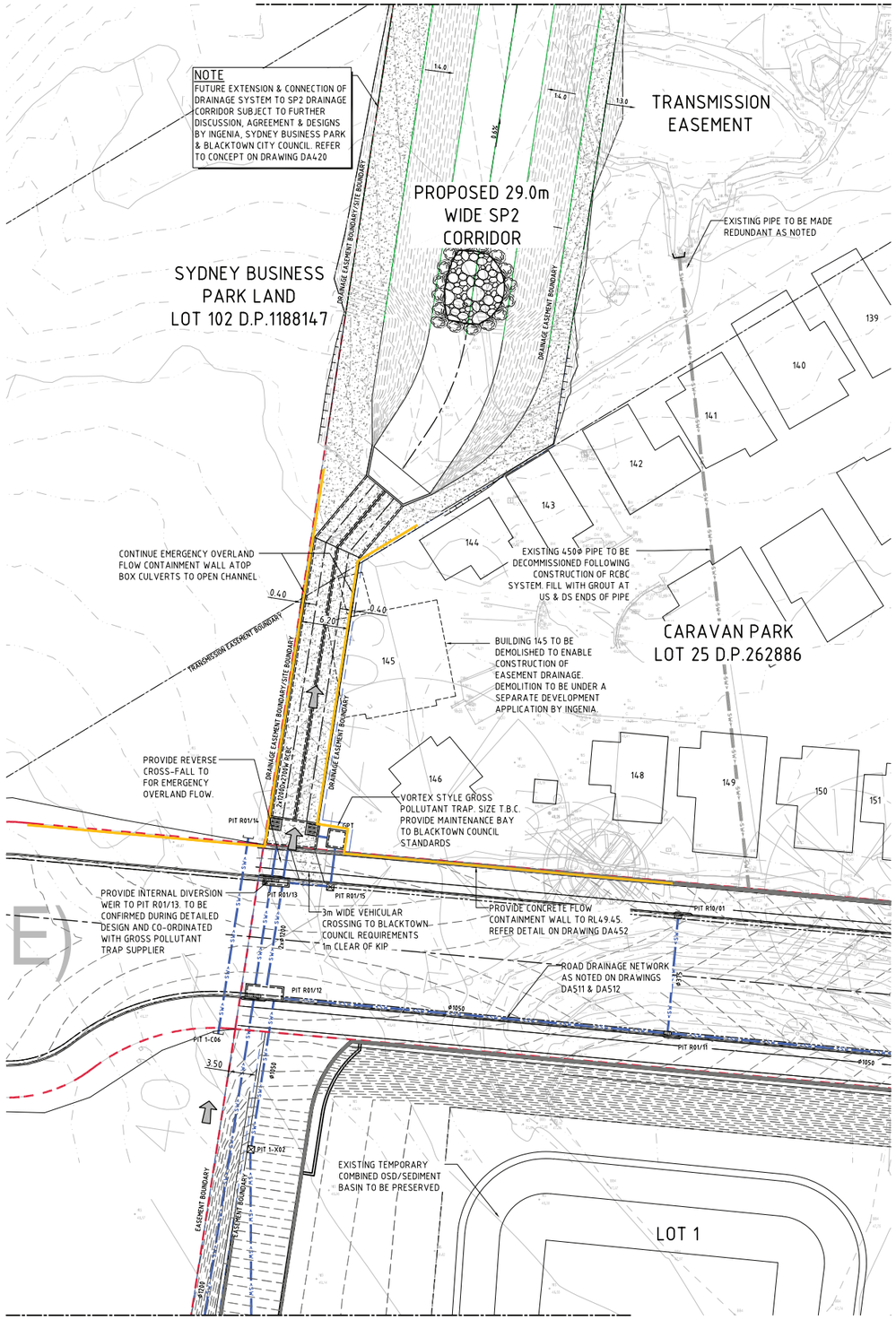
DRAWING TITLE: PROPOSED SP2 DRAINAGE CORRIDOR PLAN

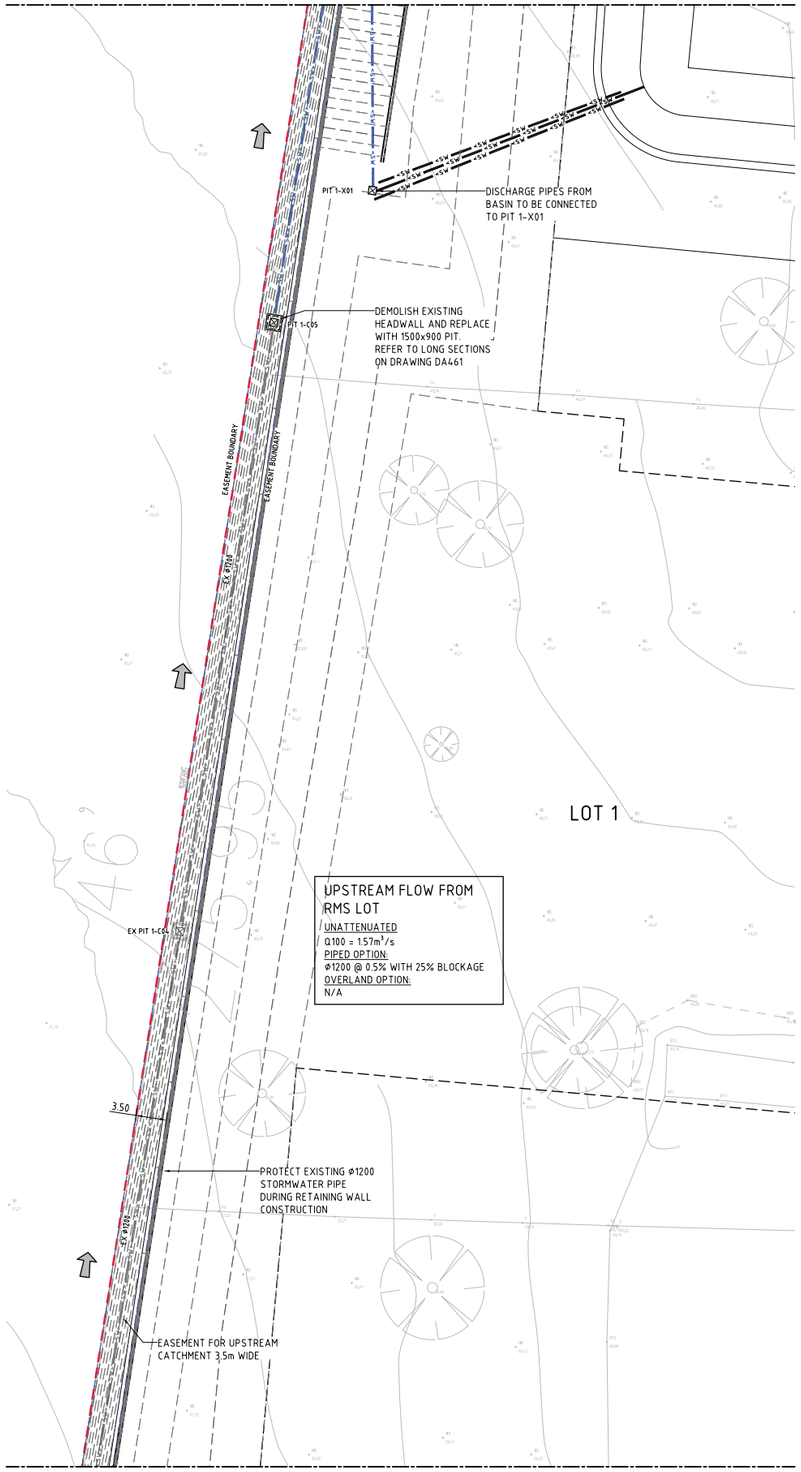
DRAWING No: 12829.06-DA420 ISSUE: D

REFER TO DRAWING DA420 FOR CONTINUATION



REFER TO ADJACENT FOR CONTINUATION

REFER TO ADJACENT FOR CONTINUATION



REFER TO DA422 FOR CONTINUATION

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LAND PARTNERS DATED OCT' 2016.

- SJP, SEALED JUNCTION PIT
- EXISTING SJP
- KIP, KERB INLET PIT
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- STORMWATER DRAINAGE EASEMENT
- 50.00 – FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- 50.10 – FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS

WESTERN DRAINAGE EASEMENT PLAN - SHEET 1
SCALE 1:250

2m 0 5 10 15 20 25m
SCALE 1:250 AT A0 SIZE SHEET

FOR SECTION 96 APPLICATION

AMENDMENTS	DATE	ISSUE
REVISED FOR UPDATED DRAINAGE LAYOUT	26.10.17	F
REVISED AS CLOUDED FOR UPDATED DRAINAGE LAYOUT	15.08.17	E
ISSUED FOR INFORMATION	01.08.17	D
ISSUED FOR INFORMATION ONLY	25.07.17	C
ISSUED FOR INFORMATION ONLY	05.07.17	B
ISSUED FOR INFORMATION ONLY	26.06.17	A

AMENDMENTS	DATE	ISSUE
REVISED FOR REVISED CHANNEL ALIGNMENT	20.03.19	K
REVISED FOR SBP COMMENTS	24.05.18	J
ISSUED FOR SECTION 96 APPLICATION	12.04.18	I
ISSUED FOR DEVELOPMENT APPLICATION	22.03.18	H
ISSUED FOR SECTION 96 APPLICATION	22.11.17	G

AMENDMENTS	DATE	ISSUE

ARCHITECT

CLIENT: LOGOS

PROJECT: INFRASTRUCTURE PACKAGE EARTHWORKS & WALLS
HOLLINGSWORTH ROAD MARSDEN PARK NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	DS	JUN 17	XC	A0	AS SHOWN	C012829.06-DA421

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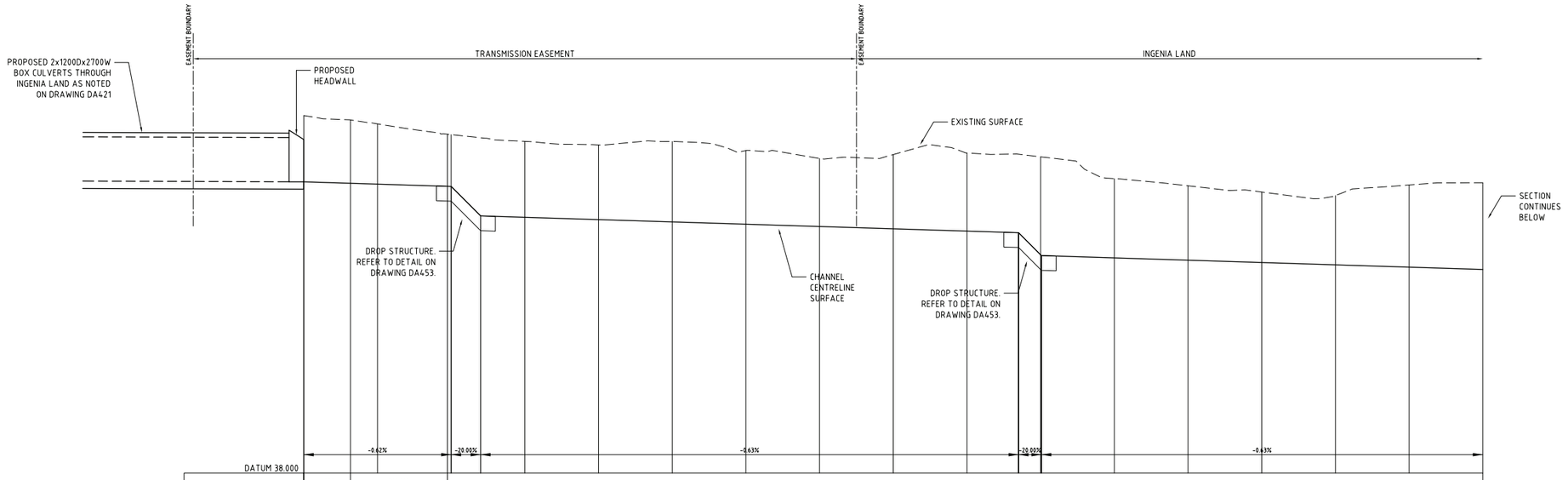
DRAWING TITLE: WESTERN DRAINAGE EASEMENT PLAN - SHEET 1

DRAWING No: 12829.06-DA421

ISSUE: K



LONGITUDINAL SECTION - CL CHANNEL

HORIZONAL SCALE 1:250
VERTICAL SCALE 1:50

LONGITUDINAL SECTION - CL CHANNEL

HORIZONAL SCALE 1:250
VERTICAL SCALE 1:50

SCALE 1:50 AT A0 SIZE SHEET

2m 0 5 10 15 20 25m
SCALE 1:250 AT A0 SIZE SHEET

FOR SECTION 96 APPLICATION

AMENDMENTS	DATE	ISSUE
REVISED FOR REVISED CHANNEL ALIGNMENT	20.03.19	B
ISSUED FOR SECTION 96 APPLICATION	13.07.18	A

AMENDMENTS	DATE	ISSUE

AMENDMENTS	DATE	ISSUE

ARCHITECT

CLIENT
LOGOS

PROJECT
INFRASTRUCTURE PACKAGE
EARTHWORKS & WALLS
HOLLINGSWORTH ROAD MARSDEN PARK NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	DS	JUN 17	XC	A0	AS SHOWN	CO12829.06-DA430

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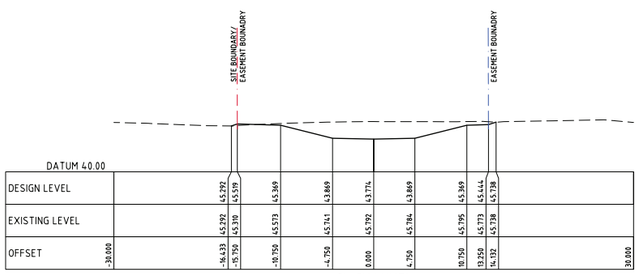
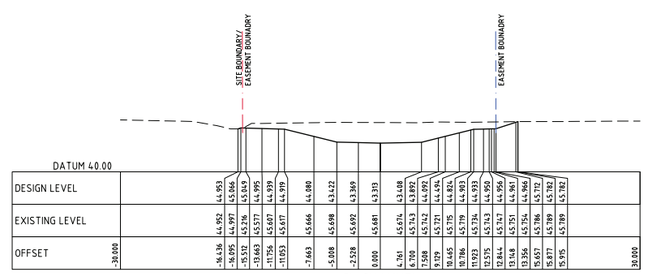
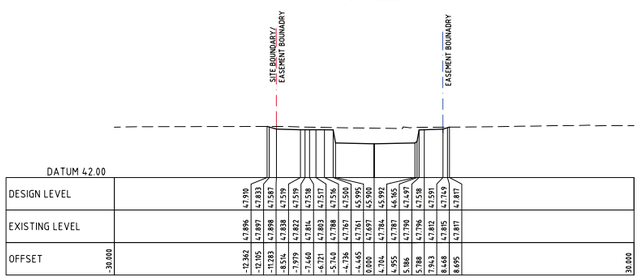
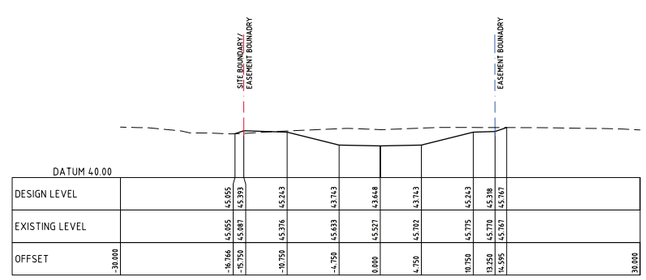
DRAWING TITLE
PROPOSED SP2 DRAINAGE
LONG SECTION

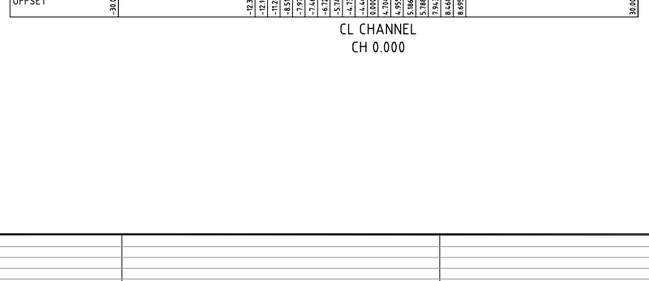
DRAWING No 12829.06-DA430
ISSUE B

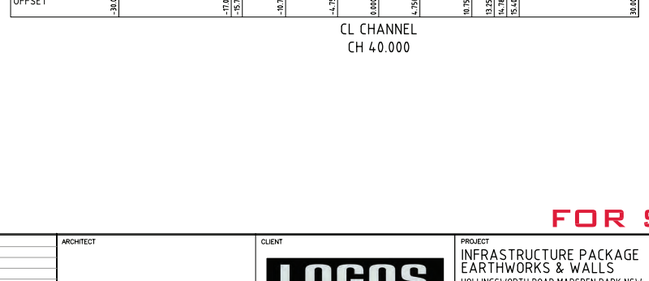












2m 0 5 10 15 20 25m
SCALE 1:250 AT A0 SIZE SHEET

FOR SECTION 96 APPLICATION

AMENDMENTS	DATE	ISSUE
REVISED FOR REVISED CHANNEL ALIGNMENT	20.03.19	B
ISSUED FOR SECTION 96 APPLICATION	13.07.18	A

ARCHITECT

CLIENT: LOGOS

PROJECT: INFRASTRUCTURE PACKAGE EARTHWORKS & WALLS
HOLLINGSWORTH ROAD MARSDEN PARK NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	DS	JUN 17	XC	A0	AS SHOWN	C012829.06-DA431

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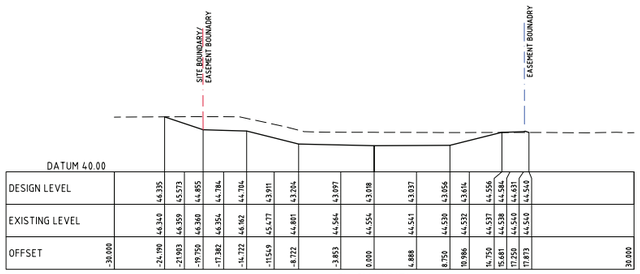
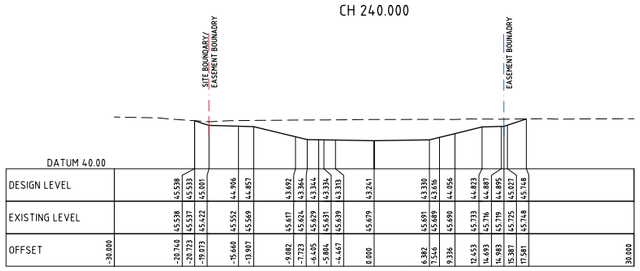
DRAWING TITLE: PROPOSED SP2 DRAINAGE CORRIDOR SECTIONS

DRAWING No: 12829.06-DA431 ISSUE: B



CL CHANNEL
CH 240.000



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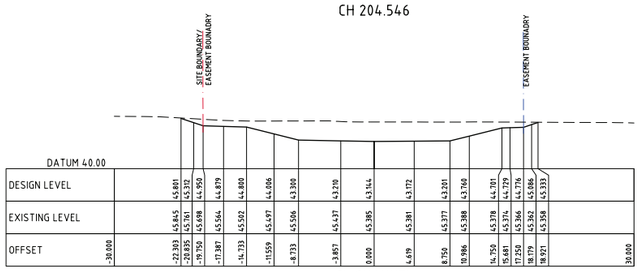
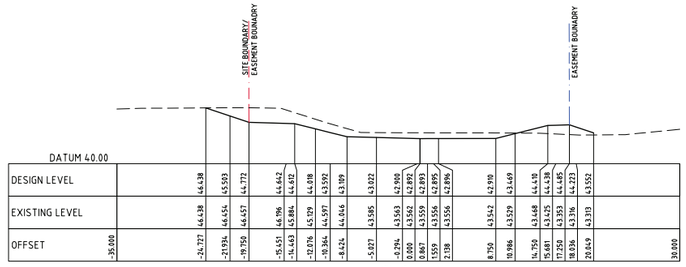
CH 204.546

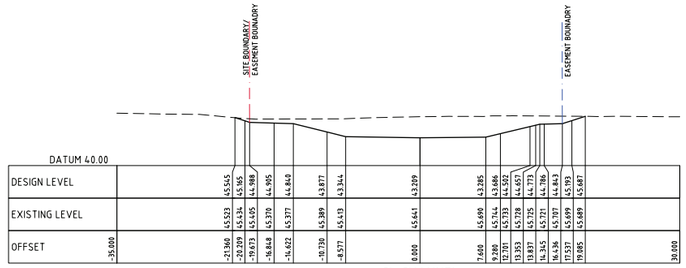


CL CHANNEL
CH 220.000

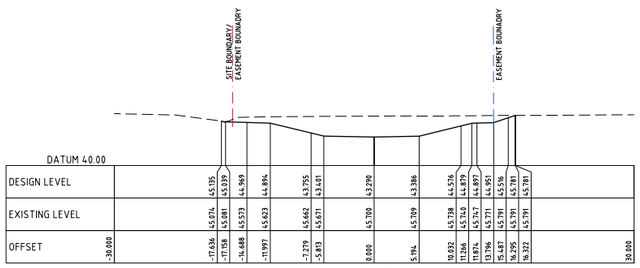


CL CHANNEL
CH 260.000

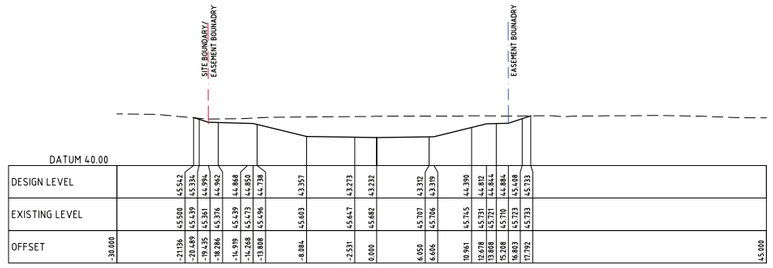
CL CHANNEL
CH 200.000



CL CHANNEL
CH 209.669



CL CHANNEL
CH 196.887



CL CHANNEL
CH 205.994

2m 0 5 10 15 20 25m
SCALE 1:250 AT A0 SIZE SHEET

FOR SECTION 96 APPLICATION

AMENDMENTS	DATE	ISSUE
REVISED FOR REVISED CHANNEL ALIGNMENT	20.03.19	B
ISSUED FOR SECTION 96 APPLICATION	11.07.18	A

ARCHITECT

CLIENT: LOGOS

PROJECT: INFRASTRUCTURE PACKAGE EARTHWORKS & WALLS
HOLLINGSWORTH ROAD MARSDEN PARK NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	DS	JUN 17	XC	A0	AS SHOWN	C012829.06-DA432

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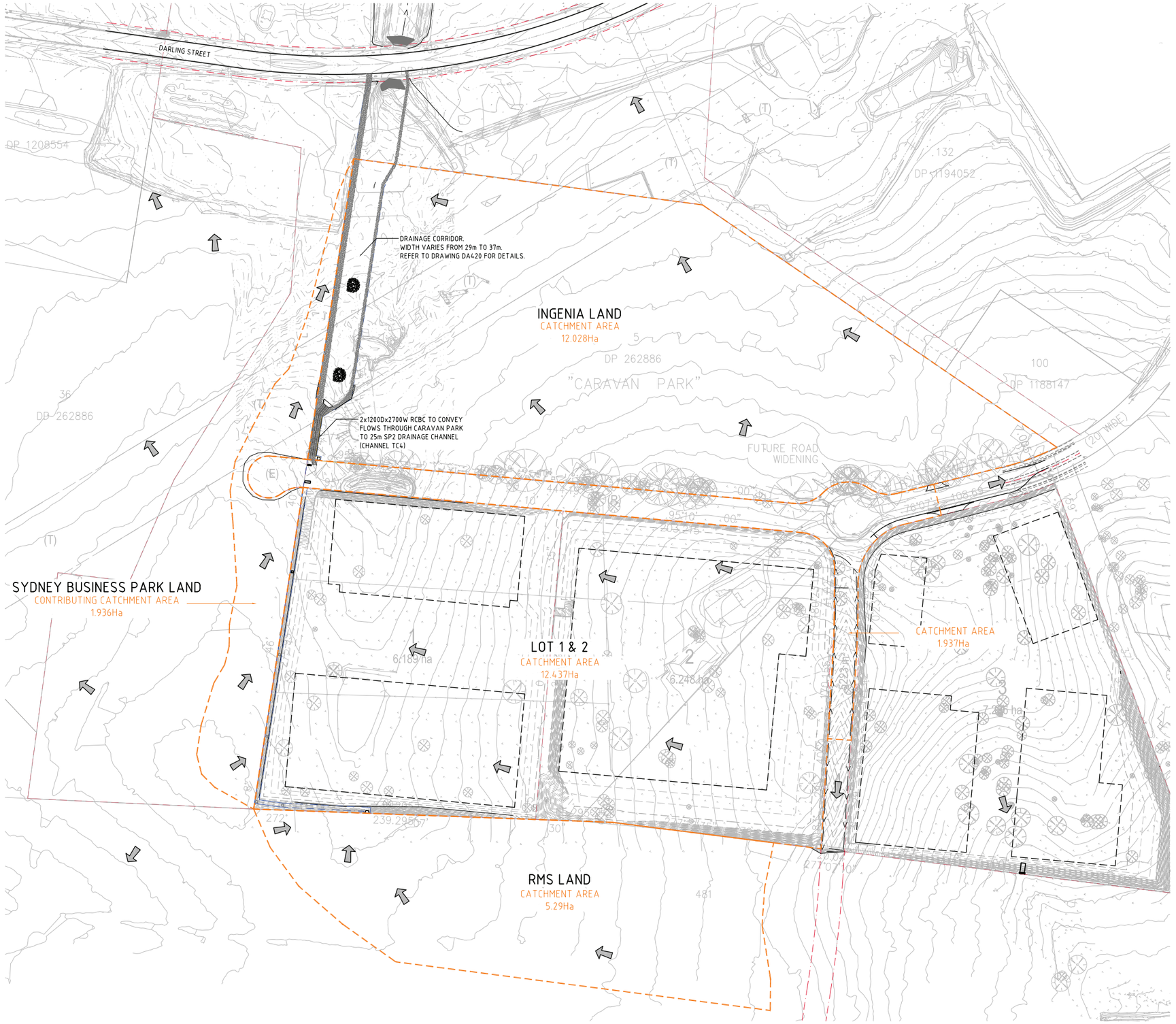
DRAWING TITLE: PROPOSED SP2 DRAINAGE CORRIDOR SECTIONS

DRAWING No: 12829.06-DA432 ISSUE: B



PROPOSED SP2 CORRIDOR CATCHMENT PLAN
SCALE 1:1250

10m 0 10 20 30 40 50 60 70 80 90 100m
SCALE 1:1250 AT A0 SIZE SHEET

FOR SECTION 96 APPLICATION

AMENDMENTS	DATE	ISSUE
REVISED FOR REVISED CHANNEL ALIGNMENT	22.03.19	B
ISSUED FOR SECTION 96 APPLICATION	12.04.18	A

ARCHITECT

CLIENT: LOGOS

PROJECT: INFRASTRUCTURE PACKAGE
EARTHWORKS & WALLS
HOLLINGSWORTH ROAD MARSDEN PARK NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	DS	JUN 17	XC	A0	AS SHOWN	C012829.06-DA443

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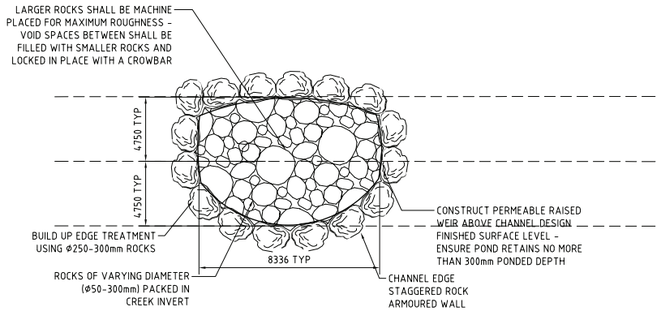
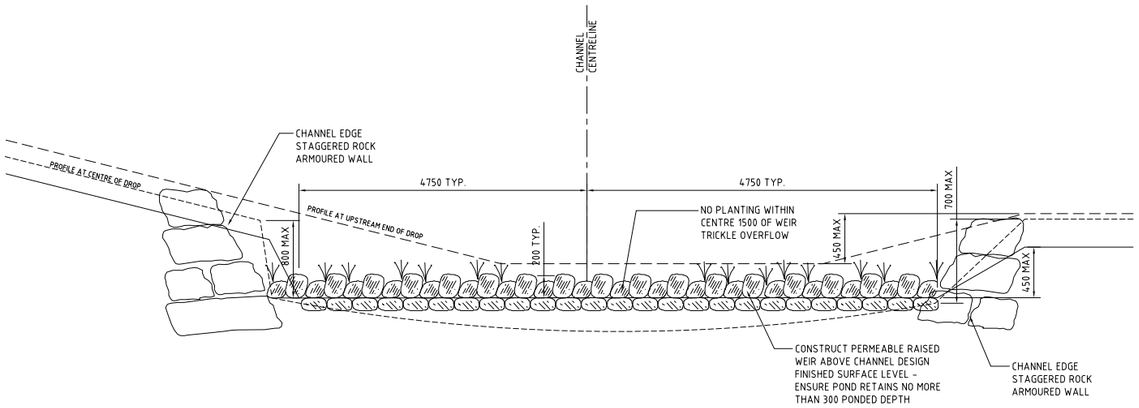
DRAWING TITLE: PROPOSED SP2 CORRIDOR CATCHMENT PLAN

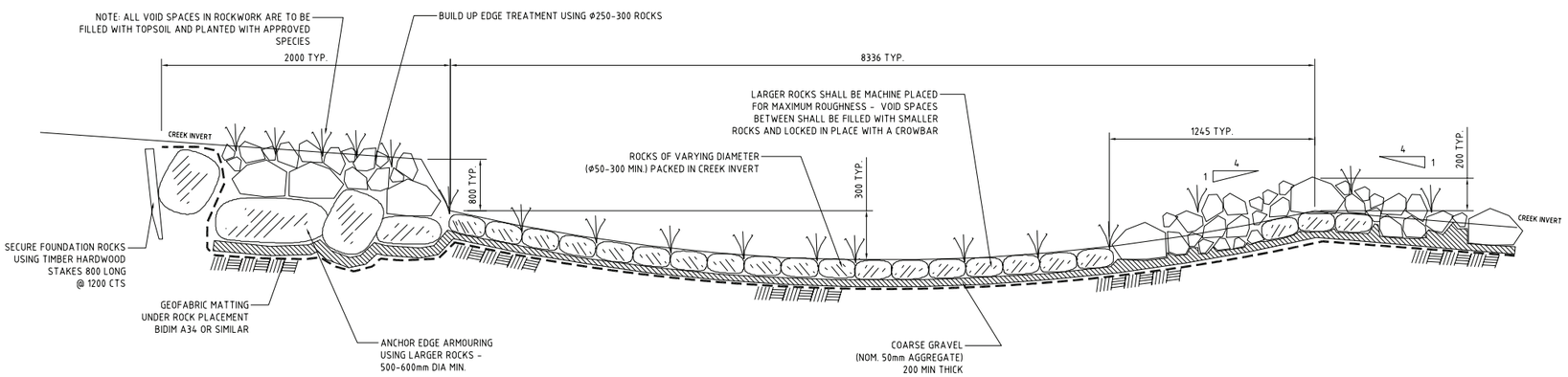
DRAWING No: 12829.06-DA443 ISSUE: B



TYPICAL PLAN - ROCK DROP SILL
SCALE 1:100



TYPICAL DETAIL - ROCK DROP SILL AND WEIR
SCALE 1:20



TYPICAL DETAIL - ROCK DROP SILL AND WEIR
SCALE 1:20

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT A0 SHEET SIZE

1m 0 1 2 3 4 5 6 7 8 9 10m
SCALE 1:100 AT A0 SHEET SIZE

FOR SECTION 96 APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR SECTION 96 APPLICATION	20.03.19	A

ARCHITECT

CLIENT
LOGOS

PROJECT
INFRASTRUCTURE PACKAGE
EARTHWORKS & WALLS
HOLLINGSWORTH ROAD MARSDEN PARK NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	DS	MAR 19	XC	A0	AS SHOWN	C012829.06-DA453

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DRAWING TITLE
STORMWATER DRAINAGE DETAILS
SHEET 3

DRAWING No 12829.06-DA453 ISSUE A