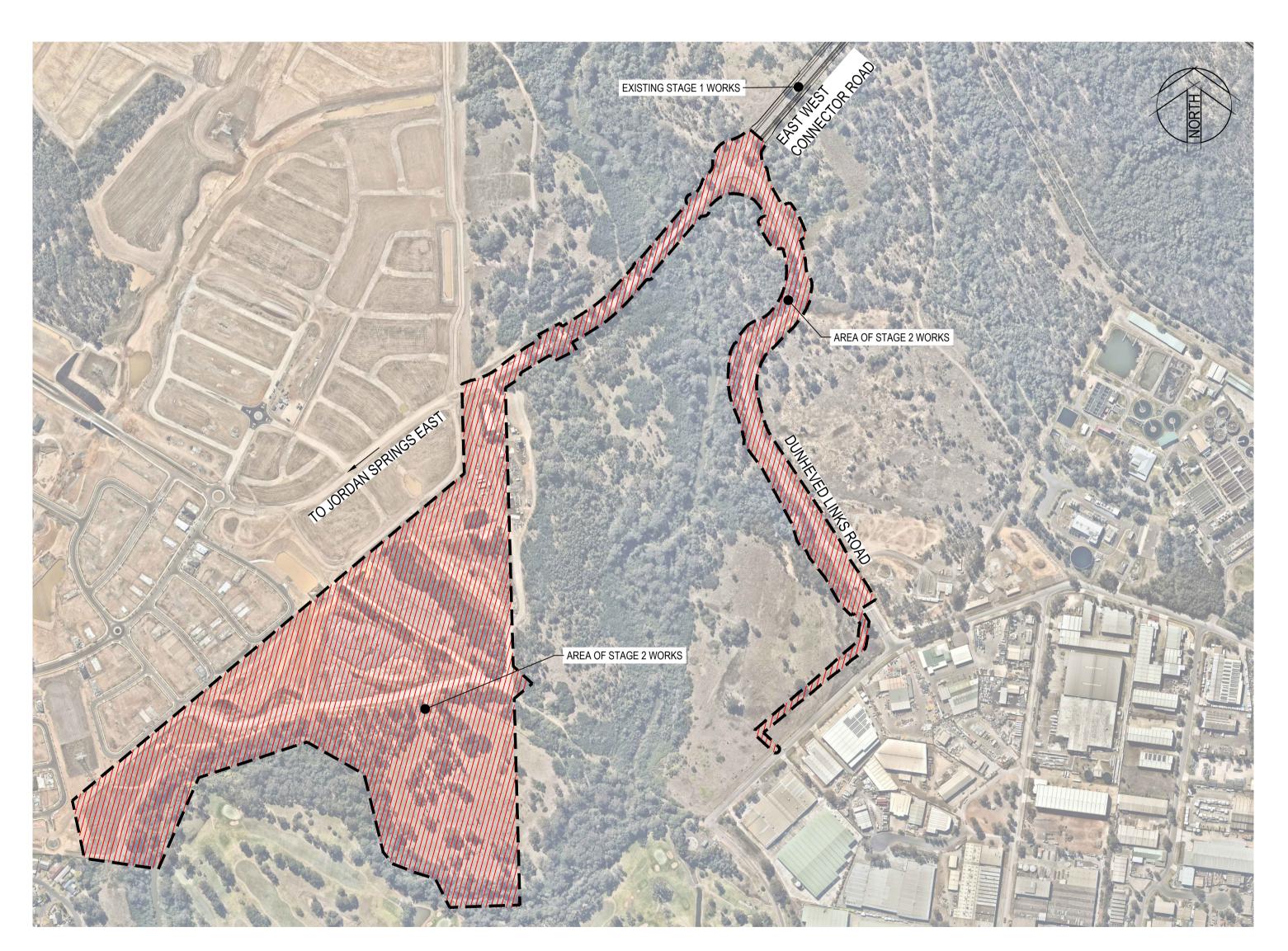
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LENDLEASE

lendlease EAST WEST CONNECTOR ROAD AND DUNHEVED LINKS ROAD - STAGE 2 CIVIL WORKS AND REGIONAL OPEN SPACE BULK EARTHWORKS DEVELOPMENT APPLICATION



SCHEDULE OF DRAWINGS

OOTILDULE OF	DIVAVIIVOO
DRAWING No.	DESCRIPTION
CV-CARDNO-EWC2-1001	COVER SHEET AND DRAWING SCHEDULE
CV-CARDNO-EWC2-1011	GENERAL NOTES AND LEGENDS
CV-CARDNO-EWC2-1021	GENERAL ARRANGEMENT PLAN
CV-CARDNO-EWC2-1031	DEVELOPMENT APPLICATION STAGING PLAN AND ROAD HIERARCHY PLAN
CV-CARDNO-EWC2-1041	CIVIL WORKS - EXISTING SERVICES AND SURVEY PLAN SHEET 01
CV-CARDNO-EWC2-1042	CIVIL WORKS - EXISTING SERVICES AND SURVEY PLAN SHEET 02
CV-CARDNO-EWC2-1051	REGIONAL OPEN SPACE - EXISTING SERVICES AND SURVEY PLAN SHEET 01
CV-CARDNO-EWC2-1052	REGIONAL OPEN SPACE - EXISTING SERVICES AND SURVEY PLAN SHEET 02
CV-CARDNO-EWC2-1101	CIVIL WORKS - EROSION & SEDIMENTATION CONTROL PLAN SHEET 01
CV-CARDNO-EWC2-1102	CIVIL WORKS - EROSION & SEDIMENTATION CONTROL PLAN SHEET 02
CV-CARDNO-EWC2-1111	REGIONAL OPEN SPACE - EROSION & SEDIMENTATION CONTROL PLAN
CV-CARDNO-EWC2-1131	EROSION & SEDIMENTATION CONTROL DETAILS
CV-CARDNO-EWC2-1141	CIVIL WORKS - CUT/FILL PLAN SHEET 01
CV-CARDNO-EWC2-1142	CIVIL WORKS - CUT/FILL PLAN SHEET 02
CV-CARDNO-EWC2-1151	REGIONAL OPEN SPACE - CUT/FILL PLAN
CV-CARDNO-EWC2-1161	CIVIL WORKS - TREE REMOVAL PLAN SHEET 01
CV-CARDNO-EWC2-1162	CIVIL WORKS - TREE REMOVAL PLAN SHEET 02
CV-CARDNO-EWC2-1171	REGIONAL OPEN SPACE - TREE REMOVAL PLAN
CV-CARDNO-EWC2-1251	TYPICAL ROAD CROSS SECTIONS
CV-CARDNO-EWC2-1301	CIVIL WORKS - ROADS & STORMWATER PLAN SHEET 01
CV-CARDNO-EWC2-1302	CIVIL WORKS - ROADS & STORMWATER PLAN SHEET 02
CV-CARDNO-EWC2-1303	CIVIL WORKS - ROADS & STORMWATER PLAN SHEET 03
CV-CARDNO-EWC2-1304	CIVIL WORKS - ROADS & STORMWATER PLAN SHEET 04
CV-CARDNO-EWC2-1305	CIVIL WORKS - ROADS & STORMWATER PLAN SHEET 05
CV-CARDNO-EWC2-1311	REGIONAL OPEN SPACE - BULK EARTHWORKS PLAN SHEET 01
CV-CARDNO-EWC2-1312	REGIONAL OPEN SPACE - BULK EARTHWORKS PLAN SHEET 02
CV-CARDNO-EWC2-1351	CIVIL WORKS - ROAD LONGITUDINAL SECTIONS SHEET 01
CV-CARDNO-EWC2-1352	CIVIL WORKS - ROAD LONGITUDINAL SECTIONS SHEET 02
CV-CARDNO-EWC2-1353	CIVIL WORKS - ROAD LONGITUDINAL SECTIONS SHEET 03
CV-CARDNO-EWC2-1601	SITEWORKS DETAILS
CV-CARDNO-EWC2-1701	CIVIL WORKS - PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 01
CV-CARDNO-EWC2-1702	CIVIL WORKS - PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 02
CV-CARDNO-EWC2-1703	CIVIL WORKS - PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 03
CV-CARDNO-EWC2-1704	CIVIL WORKS - PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 04
CV-CARDNO-EWC2-1705	CIVIL WORKS - PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 05
CV-CARDNO-EWC2-1851	TYPICAL RETAINING WALL DETAILS SHEET 01
CV-CARDNO-EWC2-1852	TYPICAL RETAINING WALL DETAILS SHEET 02
CV-CARDNO-EWC2-2201	STORMWATER DRAINAGE DETAILS SHEET 01
CV-CARDNO-EWC2-2202	STORMWATER DRAINAGE DETAILS SHEET 02
CV-CARDNO-EWC2-2301	INTERNAL STORMWATER CATCHMENT PLAN SHEET 01
CV-CARDNO-EWC2-2302	INTERNAL STORMWATER CATCHMENT PLAN SHEET 02

SOUTH CREEK BRIDGE DESIGN (BY NORTHROP) REFERENCE DRAWINGS

EXTERNAL STORMWATER CATCHMENT PLAN

DRAWING No. **DESCRIPTION**

CV-CARDNO-EWC2-2351

NL172056 S12.01 GENERAL ARRANGEMENT PLAN AND LONG SECTIONS

NL172056 S12.02 CROSS SECTIONS

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Drawn	Date	Status				
BML	19/01/2018					
Checked	Date			PROVAL		
MS	19/01/2018	NOT TO BE	USED FOR CO	ONSTRUCTIO	N PU	RPOSES
Designed	Date					
MS	19/01/2018					
/erified	Date	Datum		Scale	Size	
DAC	14/02/2018	AHD		N.T.S		A1
Approved		Drawing Number				Revision
ΛDM	14/02/2018	CV-CA	RDNO-E	NC2-1001		3

Des. Verif. Appd.

SITEWORKS NOTES

- 1. ORIGIN OF LEVELS:- REFER SURVEY NOTES
- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO CARDNO.
- 3. MAKE SMOOTH CONNECTION WITH EXISTING WORKS AND SURFACES.
- ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
- ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
- PROVIDE 10mm WIDE EXPANSION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVEMENTS.
- ASPHALTIC CONCRETE SHALL CONFORM TO R.M.S. SPECIFICATION R116.
- ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S. FORM 3051, COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m³ OF BASECOURSE MATERIAL PLACED.
- ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S. FORM 3051, AND COMPACTED TO MINIMUM 95% MODIFIED DENSITY IN ACCORDANCE WITH A.S 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 100m³ OF SUB-BASE COURSE MATERIAL PLACED.
-). AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL IN (9) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH R.M.S. FORM 3051 WILL BE CONSIDERED. SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF CARDNO AND THE SUPERINTENDENT.

BULK EARTHWORKS NOTES

- ORIGIN OF LEVELS: REFER SURVEY NOTES
- STRIP ALL TOPSOIL/ORGANIC MATERIAL FROM CONSTRUCTION AREA AND STOCK PILE AS DIRECTED BY SUPERINTENDENT FOR FUTURE REUSE.
- EXCAVATED MATERIAL TO BE USED AS STRUCTURAL FILL PROVIDED THE PLACEMENT MOISTURE CONTENT OF THE MATERIAL IS +/- 2% OF THE OPTIMUM MOISTURE CONTENT
- COMPACT FILL AREAS AND SUBGRADE TO NOT LESS THAN:

LOCATION STANDARD DRY DENSITY (AS 1289 E 5.1.1.) UNDER BUILDING SLABS

ON GROUND **UNDER ROADS AND** CARPARKS

LANDSCAPED AREAS UNLESS NOTED OTHERWISE 98%

- FOR NON COHESIVE MATERIAL, COMPACT TO 75% DENSITY INDEX.
- BEFORE PLACING FILL, PROOF ROLL EXPOSED SUBGRADE WITH AN 8 TONNE (MIN) DEADWEIGHT SMOOTH DRUM VIBRATORY ROLLER TO DETECT THEN REMOVE SOFT SPOTS (AREAS WITH MORE THAN 2mm MOVEMENT UNDER ROLLER).
- FREQUENCY OF COMPACTION TESTING SHALL BE NOT LESS THAN:-(A) 1 TEST PER 1,000m³ OF FILL PLACED PER LAYER OF FILL.
- (B) 3 TESTS PER VISIT
- (C) 1 TEST PER 1000m² OF EXPOSED SUBGRADE "LEVEL 1" TESTING SHALL BE TESTING IN ACCORDANCE WITH AS 3798 (1996).
- FILLING TO BE PLACED IN MAXIMUM 200mm LOOSE LAYERS AND COMPACTED AS SPECIFIED
- NO FILLING SHALL TAKE PLACE TO EXPOSED SUBGRADE UNTIL THE AREA HAS BEEN PROOF ROLLED IN THE PRESENCE OF A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER AND APPROVAL GIVEN IN WRITING THAT FILLING CAN PROCEED.

14/02/2018 ISSUED FOR DEVELOPMENT APPLICATION APPROVAL

Description

31/01/2018 DRAFT - ISSUED FOR CLIENT REVIEW

19/01/2018 | DRAFT - ISSUED FOR RSA

EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

- . THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONTROL OF EROSION AND SEDIMENTATION TO THE SATISFACTION OF COUNCIL, NSW OFFICE OF WATER, SYDNEY WATER, THE OFFICE OF ENVIRONMENT AND HERITAGE, AND LENDLEASE'S REPRESENTATIVE. TO THIS END, THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE DRAWINGS SHALL ONLY BE USED AS A GUIDE BY THE CONTRACTOR, AND REPRESENT THE MINIMUM REQUIREMENT ONLY.
- 2. THE CONTRACTOR SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS DOCUMENTED OR AS OTHERWISE DIRECTED BY THE SUPERINTENDENT
 - ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH a. LOCAL AUTHORITY REQUIREMENTS b. EPA REQUIREMENTS
 - c. NSW DEPARTMENT OF HOUSING MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.
- 3. MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE

SUPERINTENDENT AND THE LOCAL AUTHORITY.

- 4. WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
- . CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

LAND DISTURBANCE

- 6. WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:
- a. INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
- b. CONSTRUCT STABILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL. c. INSTALL SEDIMENT BASIN AS SHOWN ON PLAN (D) INSTALL SEDIMENT
- TRAPS AS SHOWN ON PLAN. d. UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE

EROSION CONTROL

- DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER
- . FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS IS PRACTICABLE AFTER THE COMPLETION OF CONSTRUCTION ACTIVITIES.

SEDIMENT CONTROL

- STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
- 10. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
- 11. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
- 12. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
- 13. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
- 14. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
- a. PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS. INSTALLED OUTSIDE THE DRIP LINE
- b. ENSURING THAT NOTHING IS NAILED TO THEM PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS.
- (I) ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICH EVER IS THE
- **GREATER** (II) A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL
- FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH (III) CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

EPA AND COUNCIL REQUIREMENTS MUST BE ADHERED TO REGARDING LEVEL OF NOISE AND WORKING HOURS TO ENSURE THAT RESIDENTS AND OTHER APPLICABLE NEIGHBORS TO THE SITE ARE NOT DISTURBED UNREASONABLY. THE GENERATION OF NOISE MUST BE MINIMISED.

AMENITY.

MS DAC ARM

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DUST MUST BE MINIMISED TO ENSURE THERE IS NO HEALTH RISK OR LOSS OF

STRIPPING WORKS ARE TO BE STAGED TO MINIMISE EXTENT OF EXPOSED AREA. WEATHER CONDITIONS TO BE ASSESSED PRIOR TO UNDERTAKING

STOCKPILE PROTECTION

STAGING OF WORKS

SEDIMENT RETENTION STRUCTURES TO BE PLACED DOWNSLOPE OF ANY STOCKPILES. STOCKPILE IN PLACE > 28 DAYS TO BE TEMPORARILY GRASSED.

VEHICLE AND ROAD MANAGEMENT

SITE ACCESS TO BE RESTRICTED TO ALLOCATED TRUCK ROUTES. EXTERNAL ROADS TO BE SWEPT REGULARLY FOR DURATION OF WORKS.

EXISTING UNDERGROUND SERVICES NOTES

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE. CARDNO CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.

CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY. CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS, CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE, SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.

STORMWATER DRAINAGE NOTES

- STORMWATER DESIGN CRITERIA: (A) AVERAGE RECURRENCE INTERVAL
- 5 YEAR ARI PIPED DRAINAGE 100 YEAR ARI OVERLAND FLOW
- (B) RAINFALL INTENSITIES: TIME OF CONCENTRATION:
- 5 MINUTES 5 YEAR ARI= 126mm/hr
- 100 YEAR ARI= 219mm/hr
- 2. PIPES 375 DIA. AND LARGER TO BE REINFORCED CONCRETE CLASS '2' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.
- 3. PIPES 300 DIA AND LESS SHALL BE DWV GRADE (CLASS SN8) uPVC WITH SOLVENT WELDED JOINTS.
- 4. EQUIVALENT STRENGTH FRC PIPES MAY BE USED.
- ALL PIPES ARE TO BE UNIFORMLY SUPPORTED ALONG THE LENGTH OF THE BARREL BY SUITABLE FILL MATERIAL. REFER TO BEDDING SUPPORT TYPE.
- 6. PIPES WITH SOCKETS SHALL BE LAID IN BEDDING WHERE SUITABLE RECESSES HAVE BEEN PROVIDED TO ENSURE PIPES DO NOT BEAR ON
- PIPES TO BE INSTALLED TO TYPE HS1 SUPPORT IN ACCORDANCE WITH AS 3725 (2007) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75).
- REFER TO AS/NZS 3725:2007 TABLE B1 FOR REQUIRED FILL DEPTHS ABOVE PIPE BARREL PRIOR TO USE OF COMPACTION MACHINERY OR TRAVERSING OF PIPES BY GENERAL SITE EQUIPMENT.
- 9. WHERE WORKING METHODS REQUIRE HIGHER CLASS PIPE, THE CONTRACTOR SHALL REFER TO AS 3725 (2007) TO DETERMINE THE APPROPRIATE PIPE CLASS. PROPOSED PIPE CLASS SHALL BE REVIEWED BY CARDNO PRIOR TO INSTALLATION.
- 10. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500.3 (2015).
- 11. THE USE OF PRECAST PITS IS ONLY PERMITTED WITH THE APPROVAL OF PENRITH/BLACKTOWN CITY COUNCIL'S ENGINEER.
- 12. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
- 13. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC DWV SEWER GRADE PIPE IS TO BE USED.
- 14. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- 15. GRATES AND COVERS SHALL CONFORM TO AS 3996. MINIMUM CLASS C.
- 6. ALL BOX CULVERTS SHALL BE STRUCTURALLY DESIGNED BY THE MANUFACTURER AND DELIVERED TO SITE AS FIT FOR PURPOSE.
- 17. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.

STORMWATER DRAINAGE NOTES CONTINUED

18. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

TELSTRA - DUTY OF CARE NOTE

TELSTRA'S PLANS SHOW ONLY THE PRESENCE OF CABLES AND PLANT. THEY ONLY SHOW THEIR POSITION RELATIVE TO ROAD BOUNDARIES. PROPERTY FENCES ETC. AT THE TIME OF INSTALLATION AND TELSTRA DOES NOT WARRANT OR HOLD OUT THAT SUCH PLANS ARE ACCURATE THEREAFTER DUE TO CHANGES THAT MAY OCCUR OVER TIME. DO NOT ASSUME DEPTH OR ALIGNMENT OF CABLES OR PLANT AS THESE VARY SIGNIFICANTLY. THE CONTRACTOR HAS A DUTY OF CARE WHEN EXCAVATING NEAR TELSTRA CABLES AND PLANT. BEFORE USING MACHINE EXCAVATORS TELSTRA PLANT MUST FIRST BE PHYSICALLY EXPOSED BY SOFT DIG POTHOLING TO IDENTIFY IT'S LOCATION TELSTRA WILL SEEK COMPENSATION FOR DAMAGES CAUSED

SURVEY NOTES

TO IT'S PROPERTY AND LOSSES CAUSED TO TELSTRA AND IT'S

CUSTOMERS.

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY WHELANS INSITES, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. CARDNO DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT CARDNO THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM THE ORIGINAL SURVEY DOCUMENTS.

STREET FURNITURE

- ALL LIGHT POLES, STREET NAMES AND BUS SHELTERS IN THIS SUBDIVISION WILL BE BLACK POWDER COATED TO THE SATISFACTION OF PENRITH/BLACKTOWN CITY COUNCIL. FURTHER THAT THESE LIGHT POLES WILL COMPLY WITH COUNCIL'S SPECIFICATIONS.
- 2. ALL LIGHT POLES ARE TO BE TYPE 'MACARTHUR'. REFER ELECTRICAL DESIGN DRAWINGS.

CONCRETE NOTES

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- . CONCRETE QUALITY ALL REQUIREMENTS OF THE CURRENT ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE LINI ESS NOTED OTHERWISE

ELEMENT	AS 3600 F'c MPa	SPECIFIED	NOMINAL
	AT 28 DAYS	SLUMP	AGG. SIZE
VEHICULAR BASE	32	60	20
KERBS AND PATHS	25	80	20
PITS, FOUNDATIONS &	40	80	20
CULVERT BASE SLABS			

- CEMENT TYPE SHALL BE (ACSE SPECIFICATION) TYPE SL - PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH

- 3. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN
- WRITING BY CARDNO. . CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE 40mm TOP AND 70mm FOR EXTERNAL EDGES UNLESS NOTED
- OTHERWISE ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1m CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
- THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED AND CURED IN ACCORDANCE WITH R.T.A. SPECIFICATION R83.

PROPOSED WORKS LEGEND

PROPOSED CONTOURS

TREES TO BE REMOVED AS PART OF

PROPOSED

—··—·100.0°—··—

SITE BOUNDARY **EXTENT OF STAGE 1 WORKS BATTER SLOPE**

BULK EARTHWORKS PACKAGE. TREES TO BE RETAINED

____K&G **KERB & GUTTER** REFER PENRITH CITY COUNCIL STANDARD DETAIL

BATTERS

KERB ONLY KO REFER PENRITH CITY COUNCIL STANDARD DETAIL PRAM RAMP

FOR DETAIL.

REFER PENRITH CITY COUNCIL

CONCRETE HEADWALL DRAINAGE LINE No. (A1\1) DRAINAGE PIT No.

STORMWATER PIPELINE/PIPE DIAMETER/FLOW DIRECTION DRAINAGE CAP

STORMWATER DRAINAGE PITS

SCOUR PROTECTION

EXISTING WATER COURSES AS

PER 1:10000 TOPOGRAPHIC MAPS

FLOW DIRECTION RW0X **RETAINING WALL** HAND RAIL

EXISTING WORKS LEGEND

EXISTING CONTOURS -··- ·100.0° -··-ELECTRICAL WATER STORMWATER **TELECOMMUNICATIONS**

REINFORCEMENT NOTES

- REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY. IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
- SPLICES IN THE REINFORCEMENT SHALL BE MADE ONLY IN THE POSITION SHOWN. THE WRITTEN APPROVAL OF THE ENGINEER SHALL BE OBTAINED FOR ANY OTHER SPLICES. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE
- WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED IN WRITING BY THE
- REINFORCEMENT SYMBOLS -N - DENOTES GRADE 400N TEMPCORE DEFORMED BARS TO AS 1302 R - DENOTES GRADE 250R HOT ROLLED PLAIN BARS TO AS 1302 SL - DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS 1304
- W DENOTES HARD-DRAWN PLAIN WIRE TO AS 1303 REINFORCEMENT COGS AND EXTENSIONS TO BE IN ACCORDANCE WITH

NUMBER OF BARS IN GROUP - BAR GRADE AND TYPE

NOMINAL BAR SIZE IN mm

THE FIGURES FOLLOWING THE FABRICS SYMBOL 'SL' IS THE

REFERENCE NUMBER FOR FABRIC TO AS 1304. ALL REINFORCEMENT FABRIC SHALL COMPLY WITH AS1303 AND AS1304 AND SHALL BE SUPPLIED AS FLAT SHEETS.

> • • • • • 25 MIN. TYPICAL FABRIC LAP

FABRIC SHALL BE LAPPED 2 TRANSVERSE WIRES PLUS 50mm. BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH 3 WRAPS OF WIRE.

PLACE SUFFICIENT BAR CHAIRS UNDER BOTTOM REINFORCING RODS AND TOP CROSSRODS IN SLABS TO ALLOW THEM TO BE SUPPORTED IN THEIR CORRECT POSITIONS DURING CONCRETING (NOT GREATER THAN 900mm CENTRES BOTH WAYS)

REINFORCEMENT LAYERS DENOTED THUS UNO TT - DENOTES TOP BARS LAID LAST IN TOP T - DENOTES TOP BARS LAID FIRST IN TOP B - DENOTES BOTTOM BARS LAID SECOND IN BOTTOM

BB - DENOTES BOTTOM BARS LAID FIRST IN BOTTOM WHERE TRANSVERSE TIE BARS ARE NOT SHOWN PROVIDE N12-300 SPLICED WHERE NECESSARY AND LAP WITH MAIN BARS 450mm UNLESS NOTED OTHERWISE.

MINIMUM LAP LENGTHS UNLESS NOTED OTHERWISE SHALL BE -500 FOR N12 BARS 600 FOR N16 BARS 900 FOR N20 BARS 1000 FOR N24 BARS

1200 FOR N28 BARS 1500 FOR N32 BARS 1800 FOR N36 BARS

(PRE BULK EARTHWORKS) SEWER

RECYCLED WATER

EASEMENT

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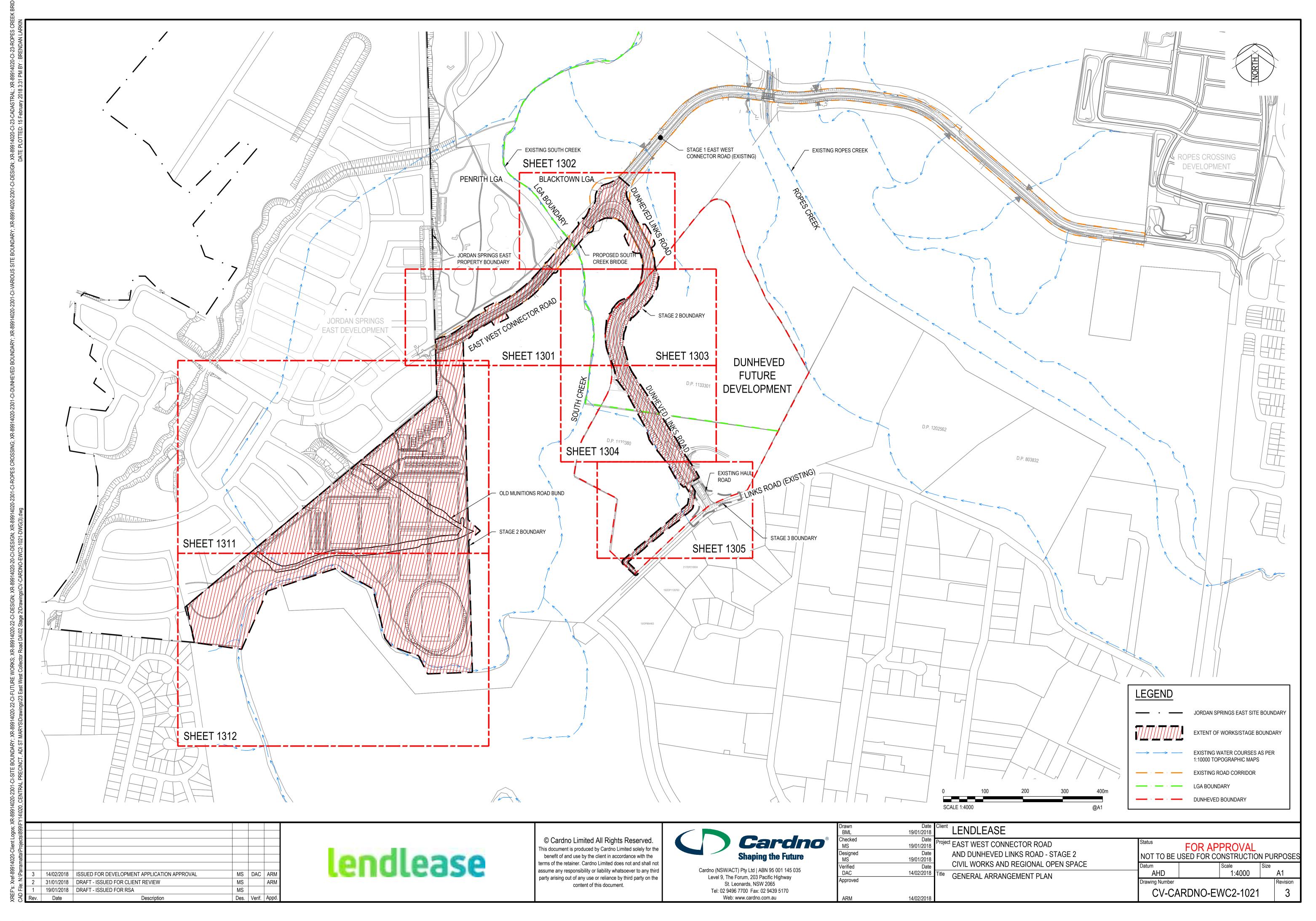


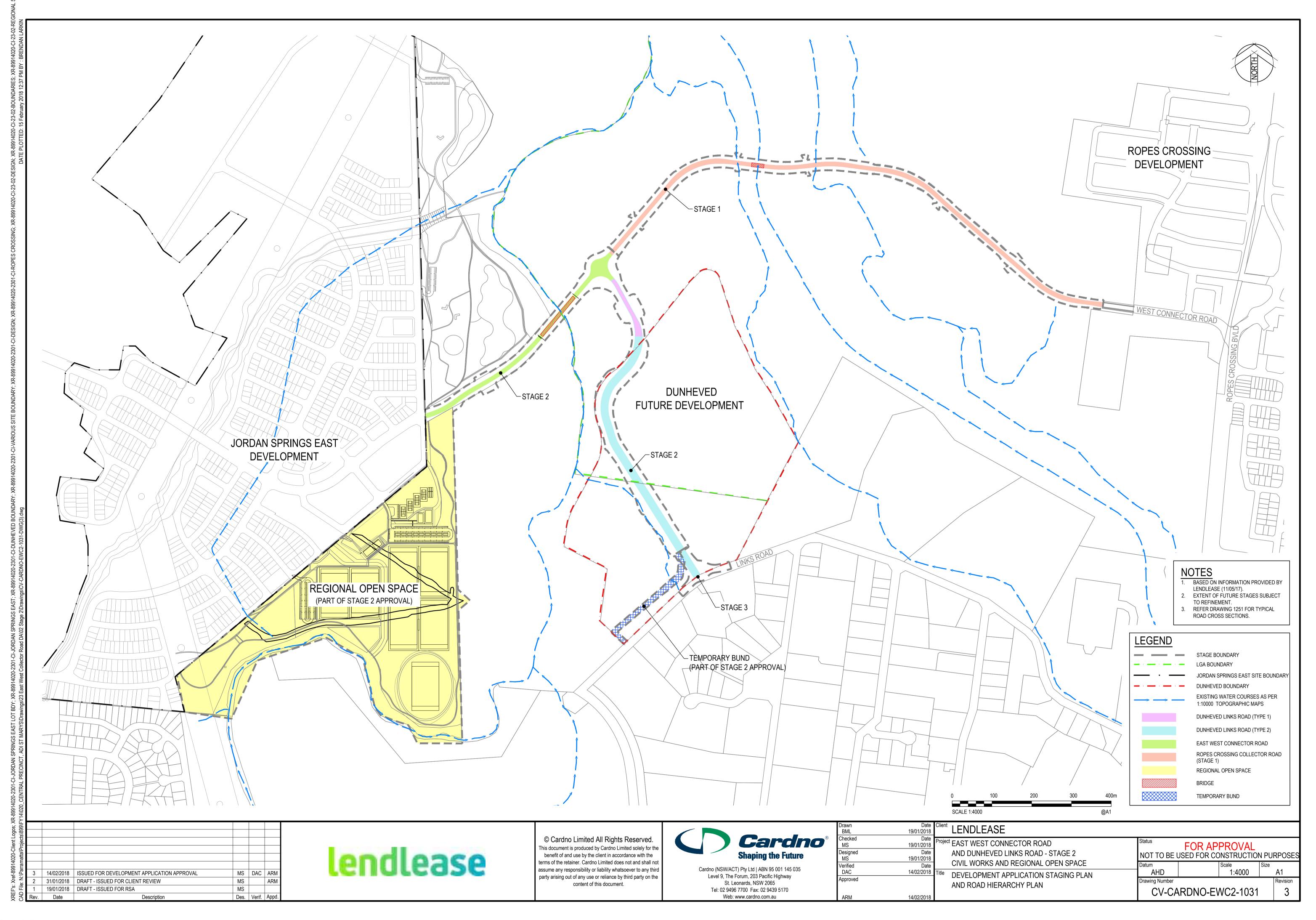
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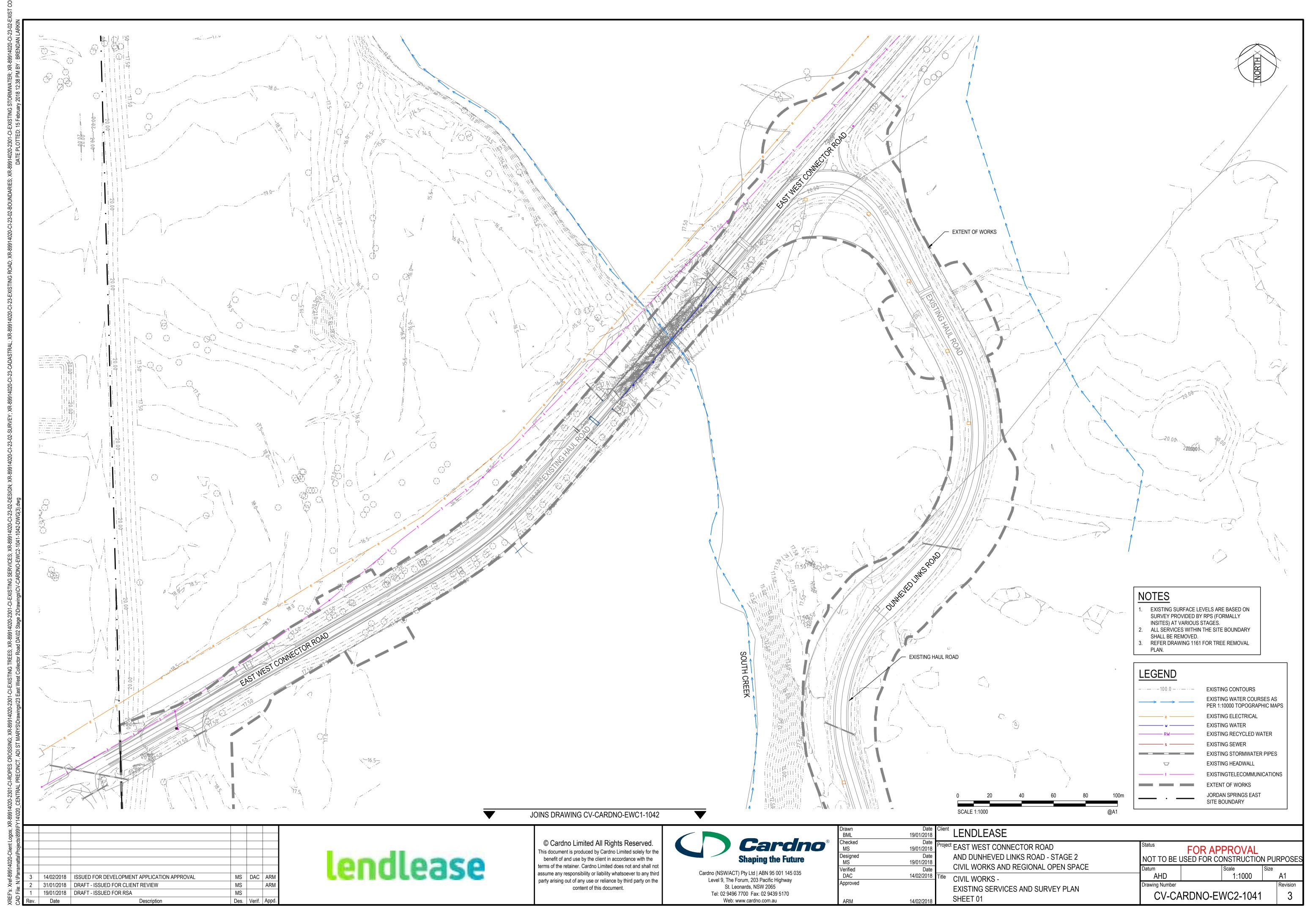
LENDLEASE 19/01/2018 roject EAST WEST CONNECTOR ROAD FOR APPROVAL 19/01/2018 AND DUNHEVED LINKS ROAD - STAGE 2 NOT TO BE USED FOR CONSTRUCTION PURPOSES 19/01/2018 CIVIL WORKS AND REGIONAL OPEN SPACE Verified DAC 14/02/2018 Title AHD N.T.S A1 GENERAL NOTES AND LEGENDS Approved CV-CARDNO-EWC2-1011 14/02/2018

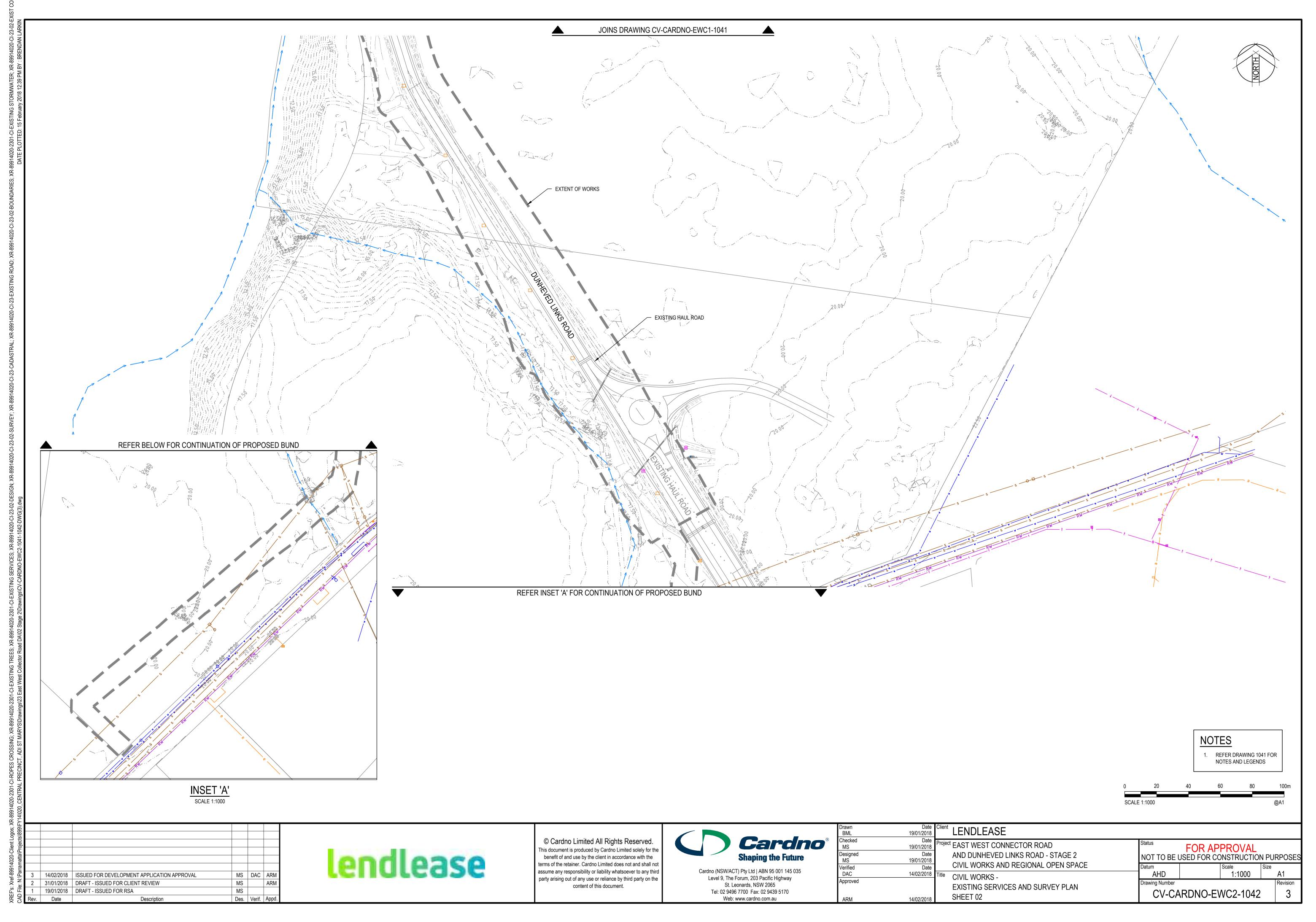
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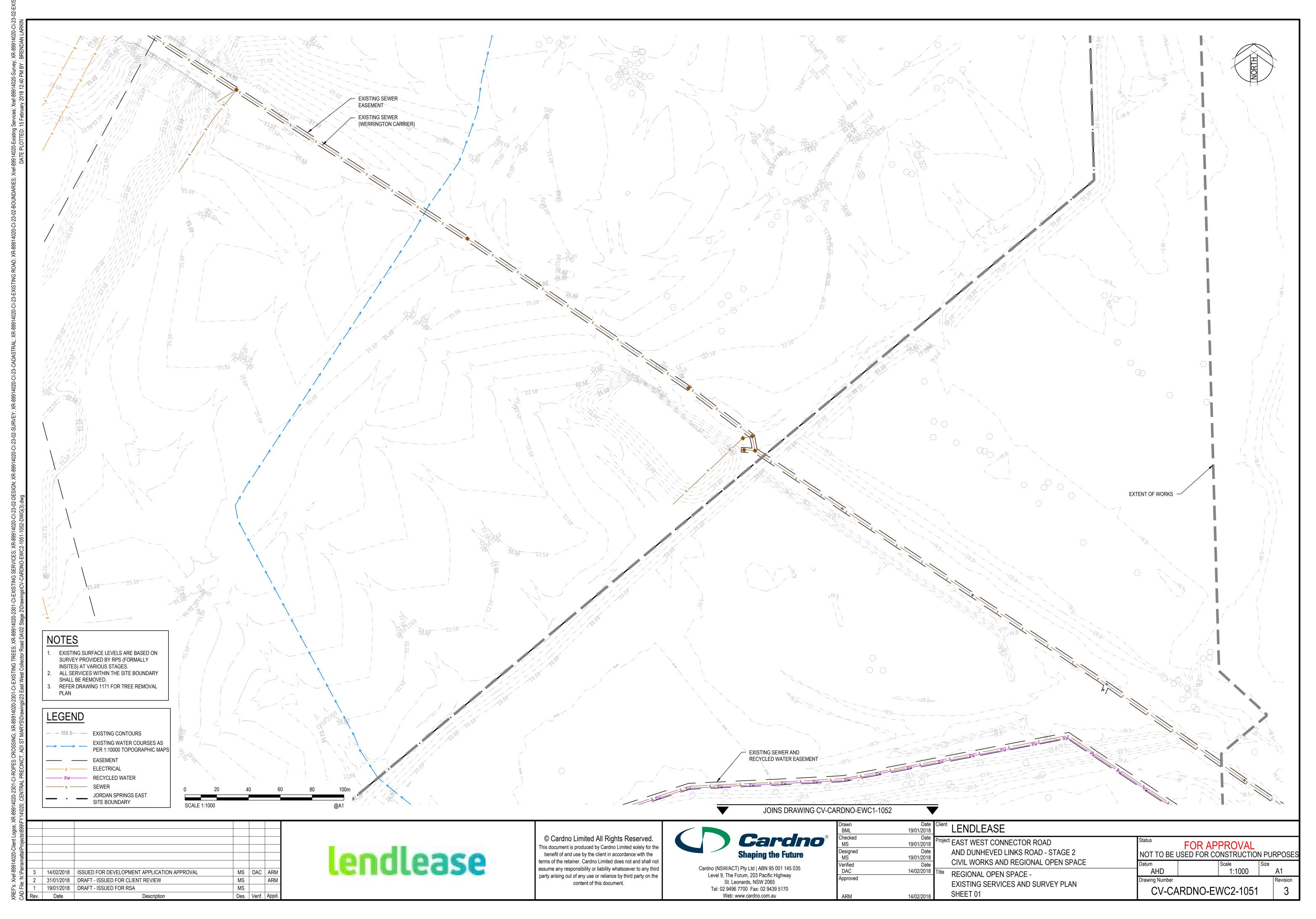
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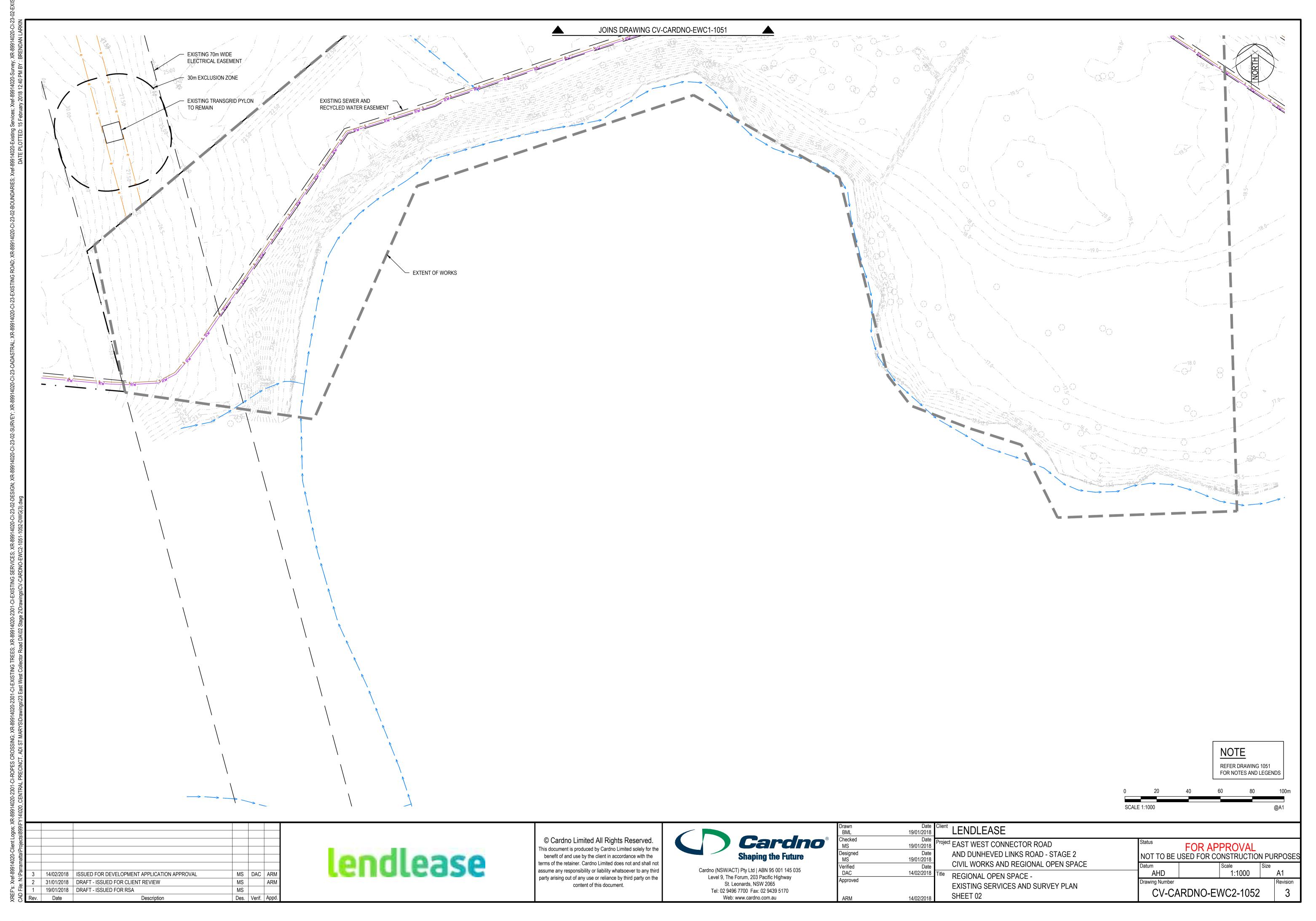


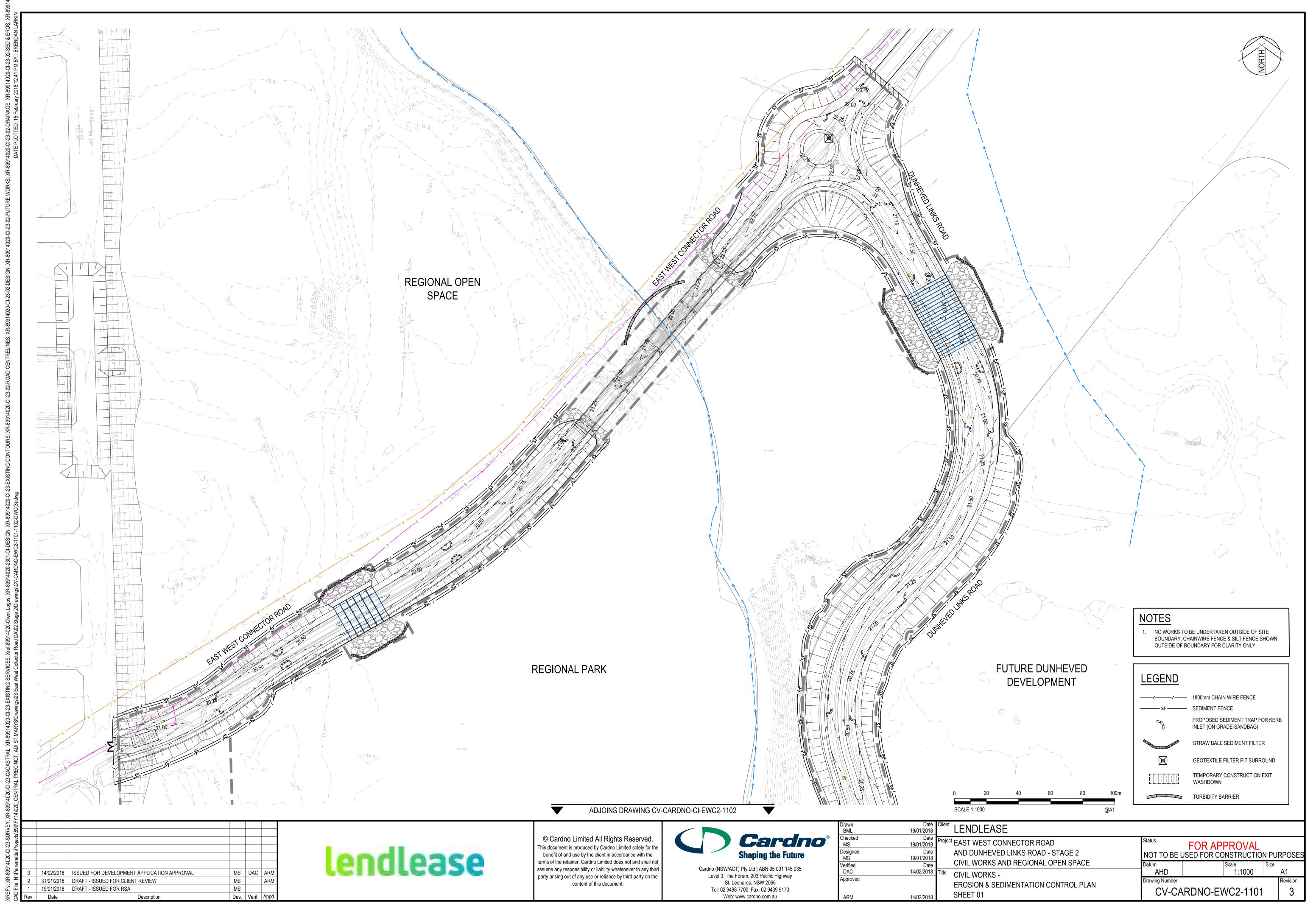


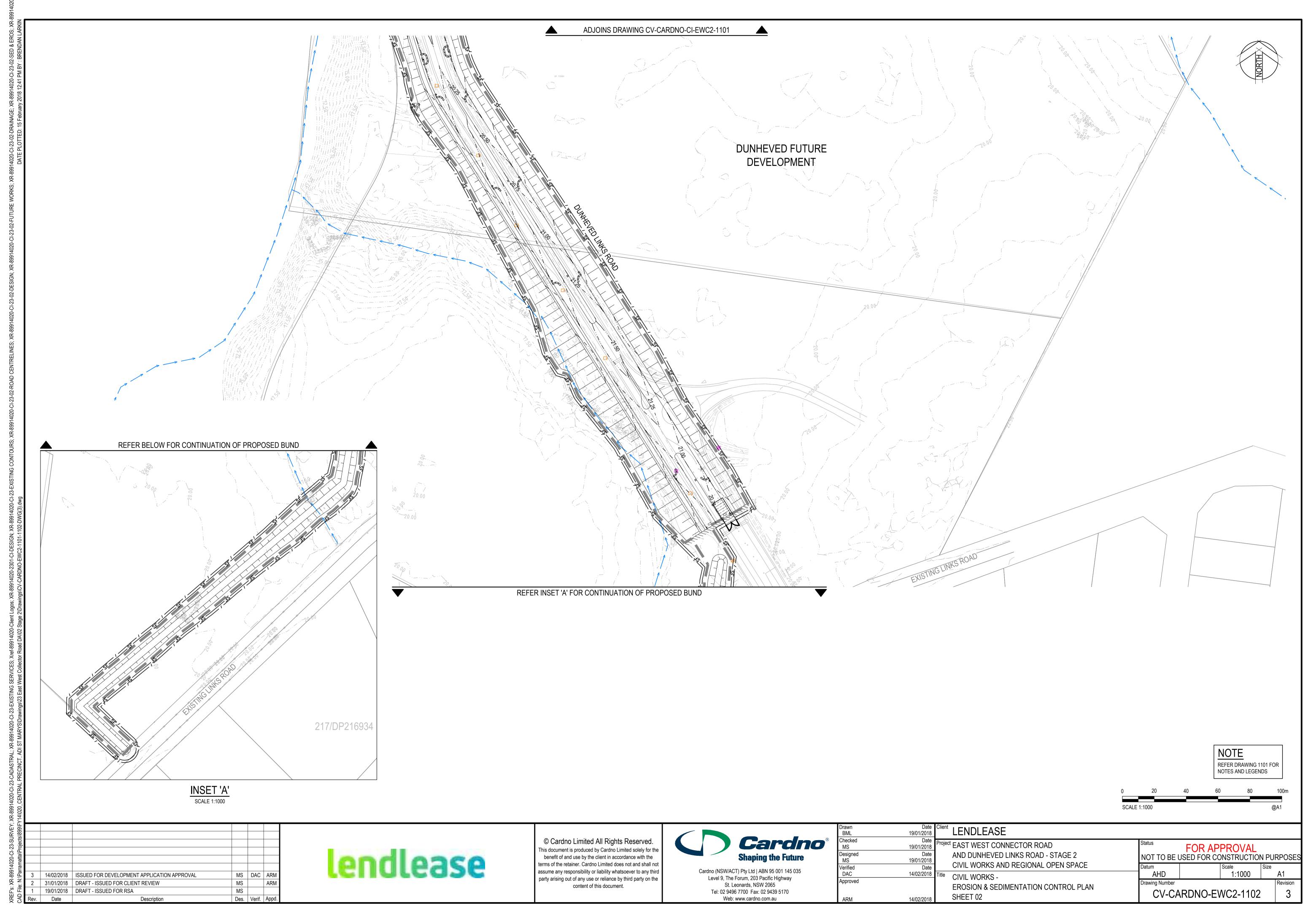


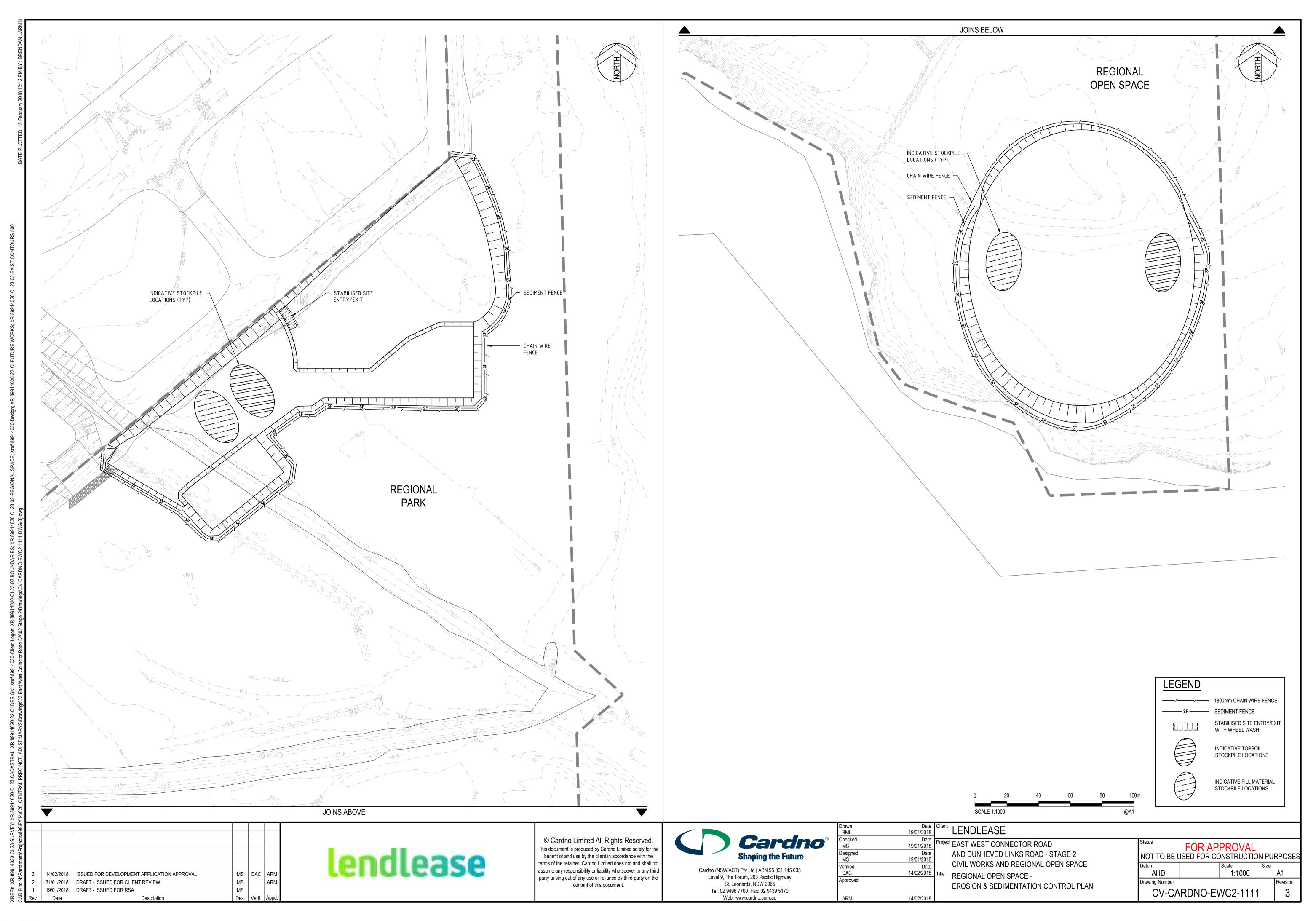


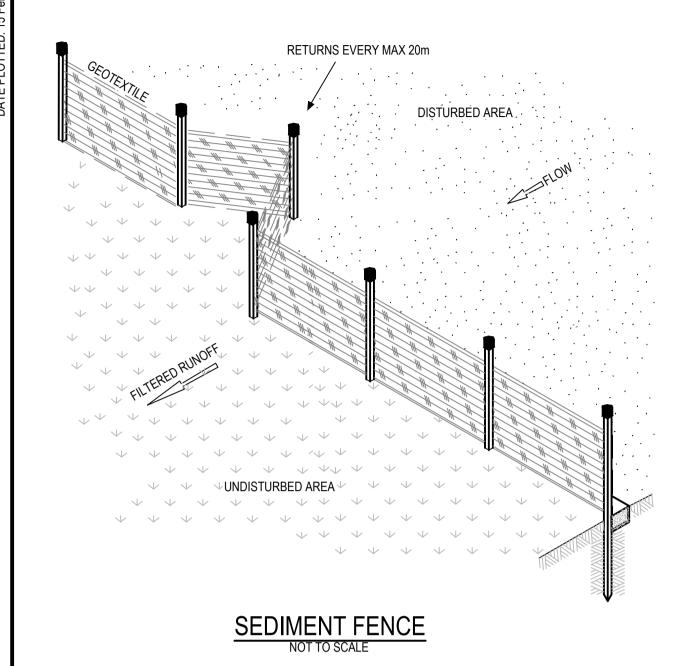


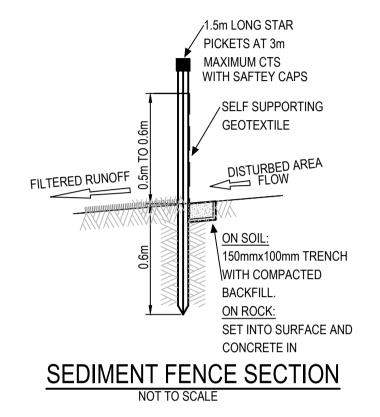


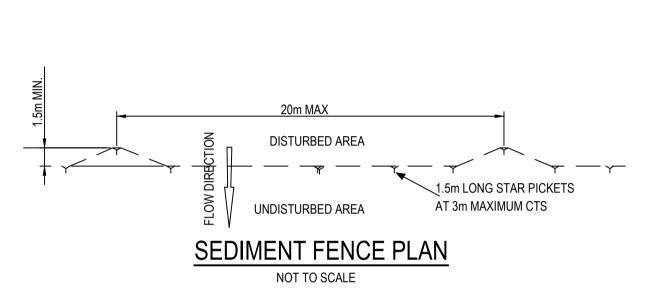


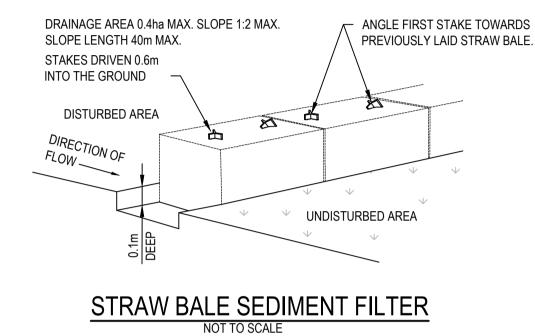










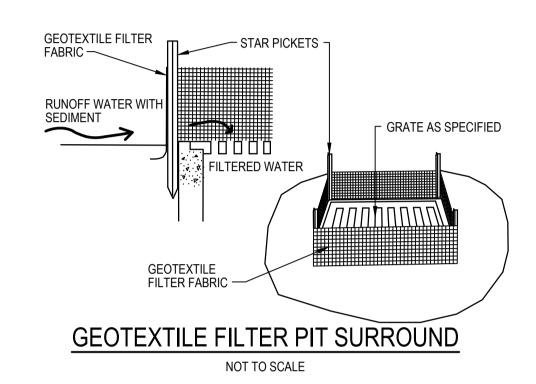


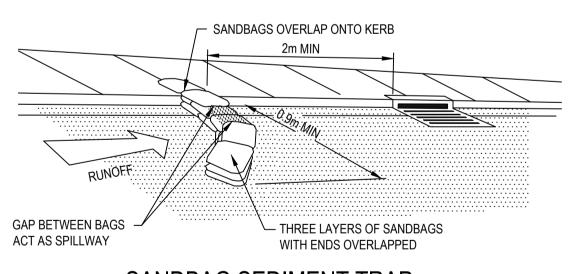
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STITCHING

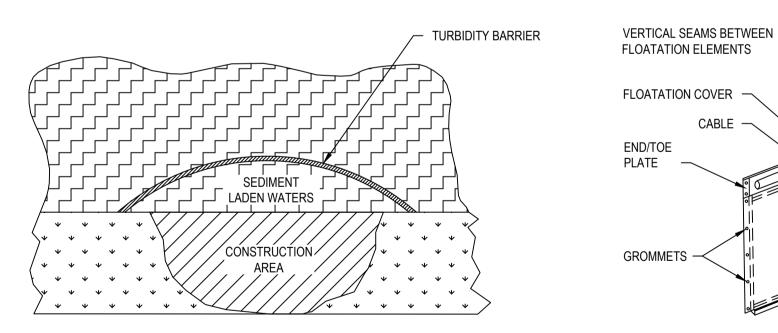
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CHAIN BALLAST



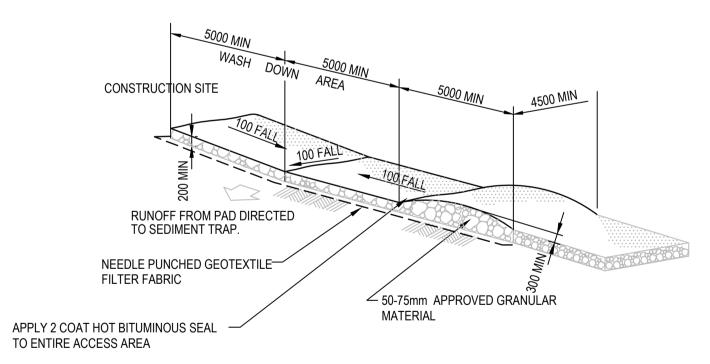


SANDBAG SEDIMENT TRAP FOR KERB INLET ON GRADE NOT TO SCALE



TURBIDITY BARRIER

NOT TO SCALE



STABILISED SITE ENTRY/EXIT WITH WHEEL WASH

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er-899140z0-Cilent Logos N:\Parramatta\Projects\899						
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e: N	2	31/01/2018	DRAFT - ISSUED FOR CLIENT REVIEW	MS		ARM
	1	19/01/2018	DRAFT - ISSUED FOR RSA	MS		
CAD	Rev.	Date	Description	Des.	Verif.	Appd.

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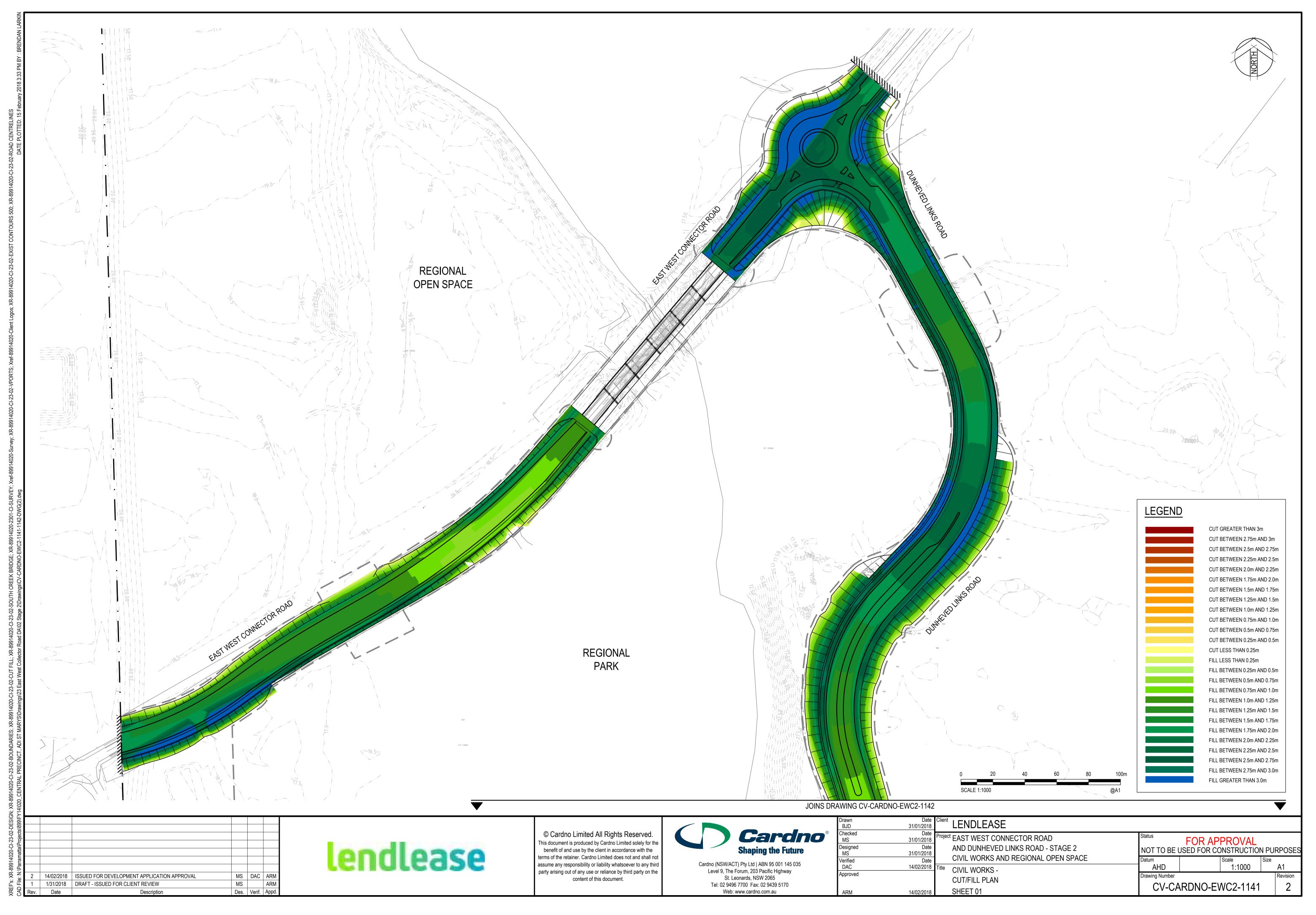
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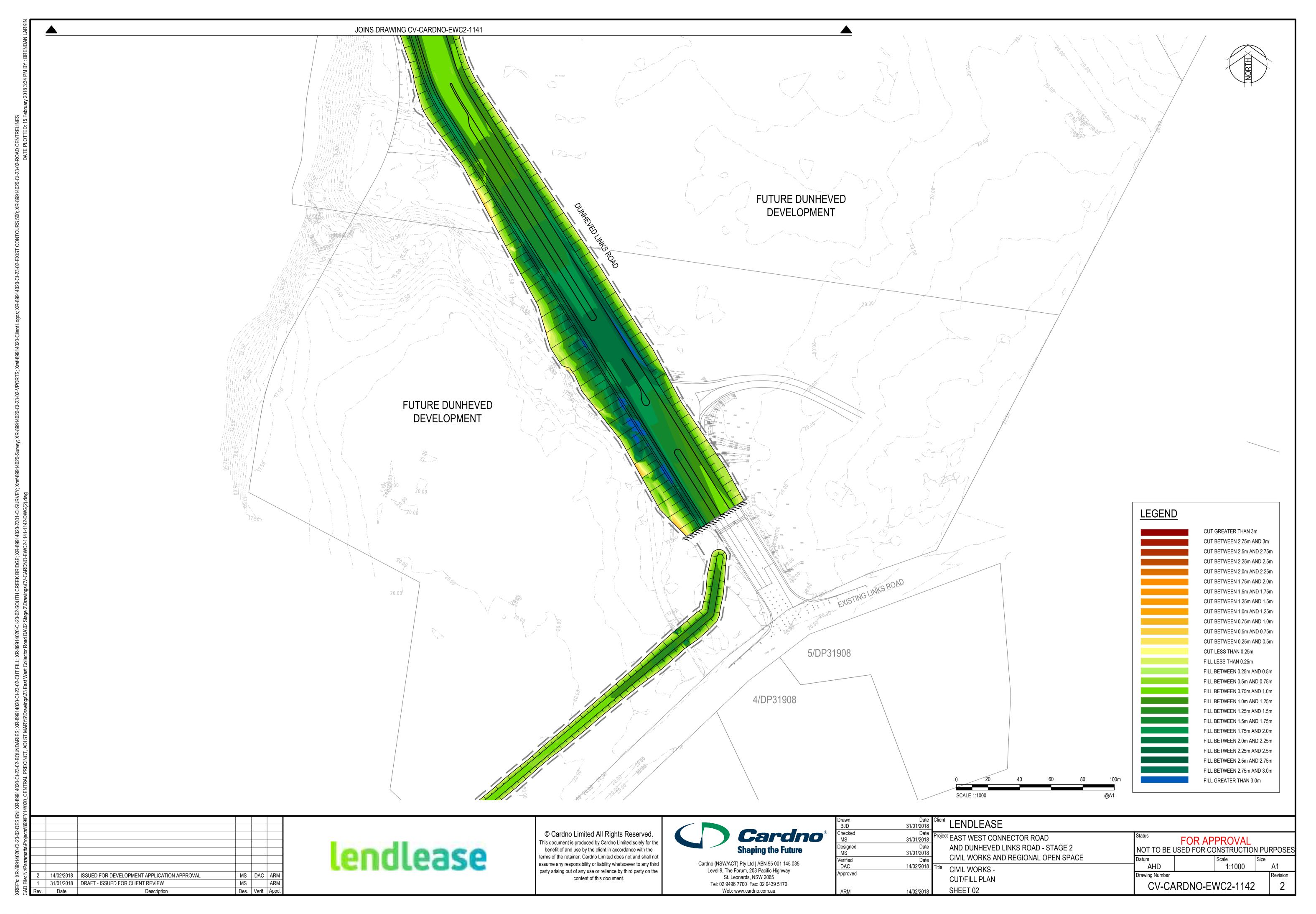


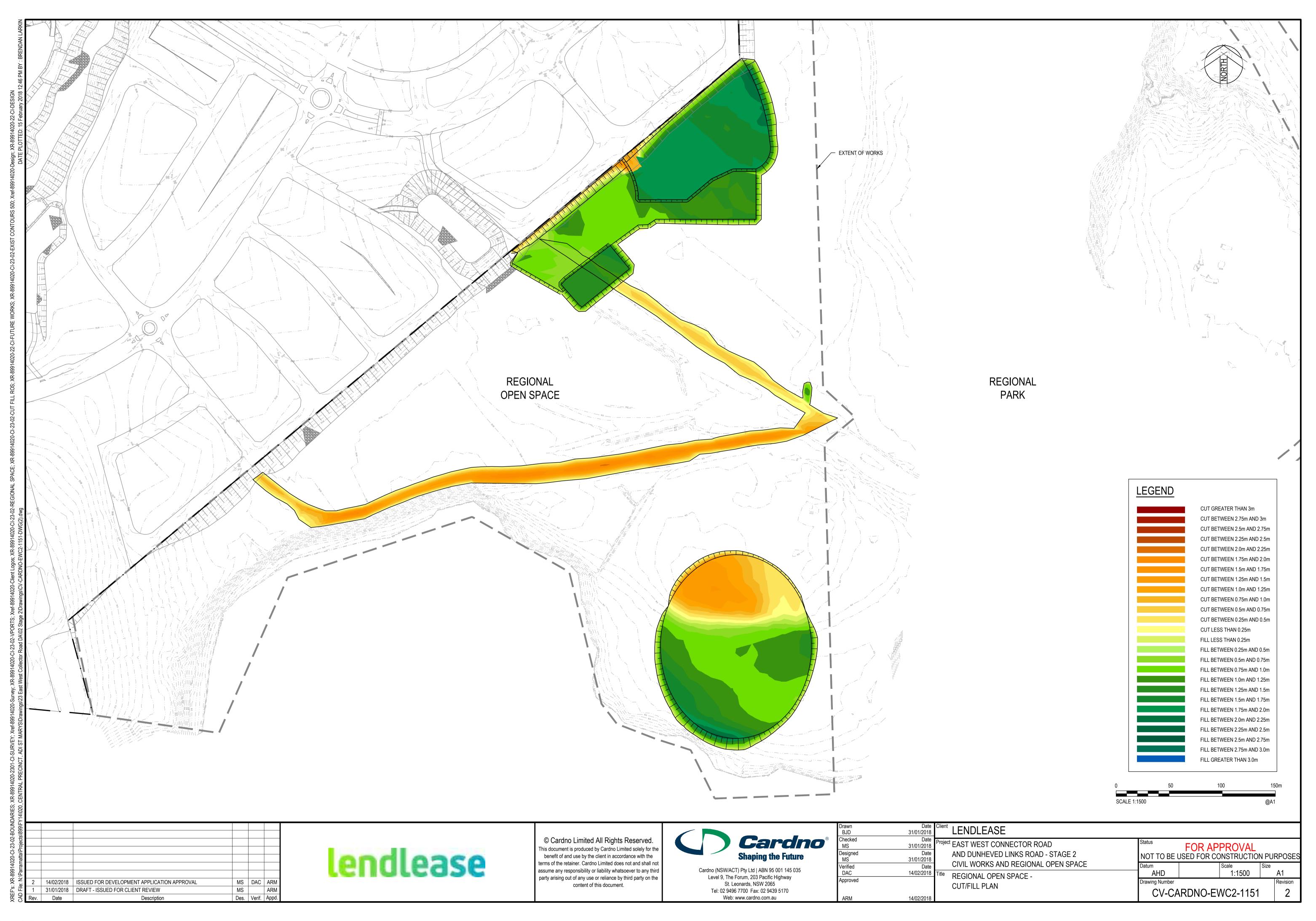
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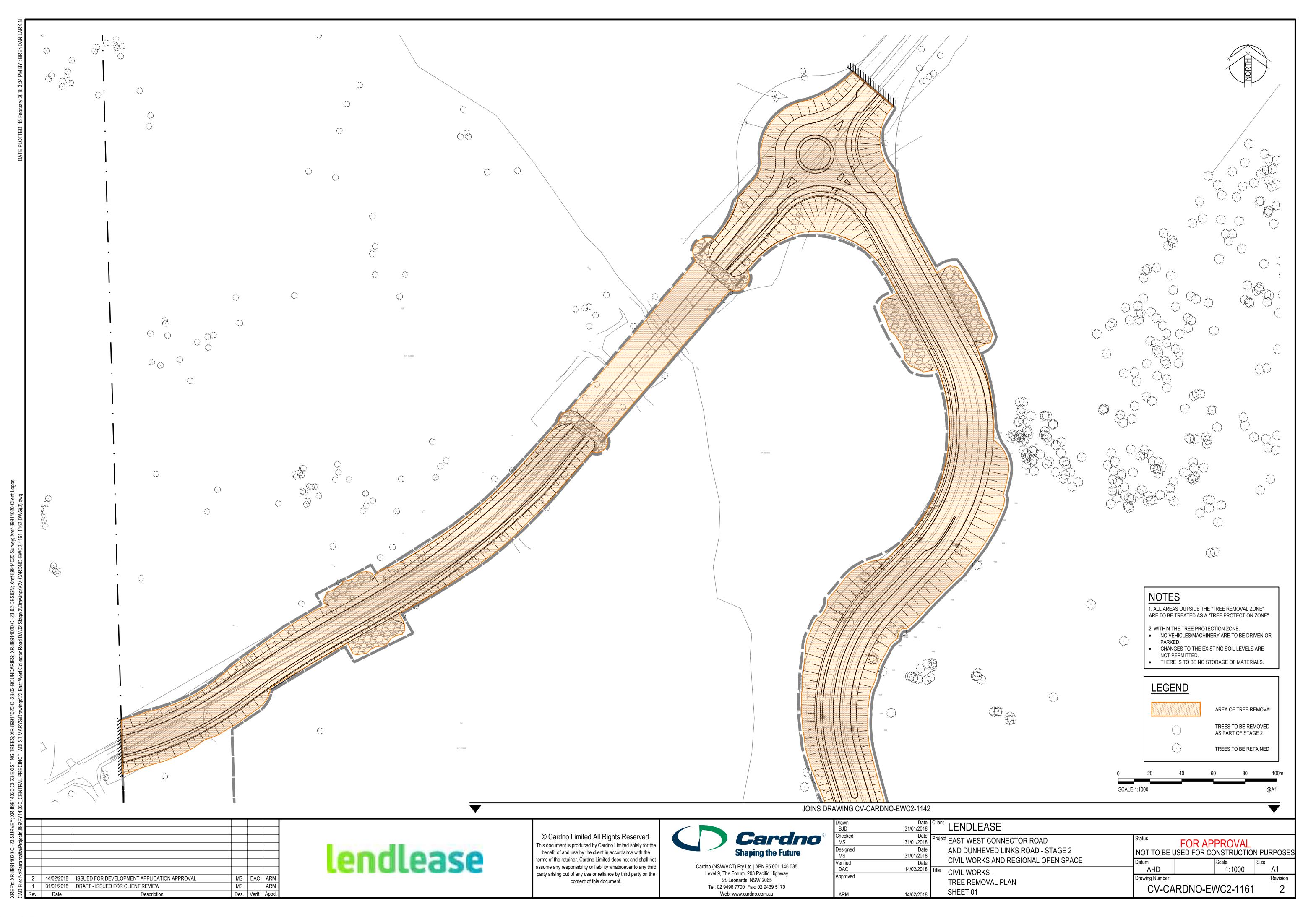
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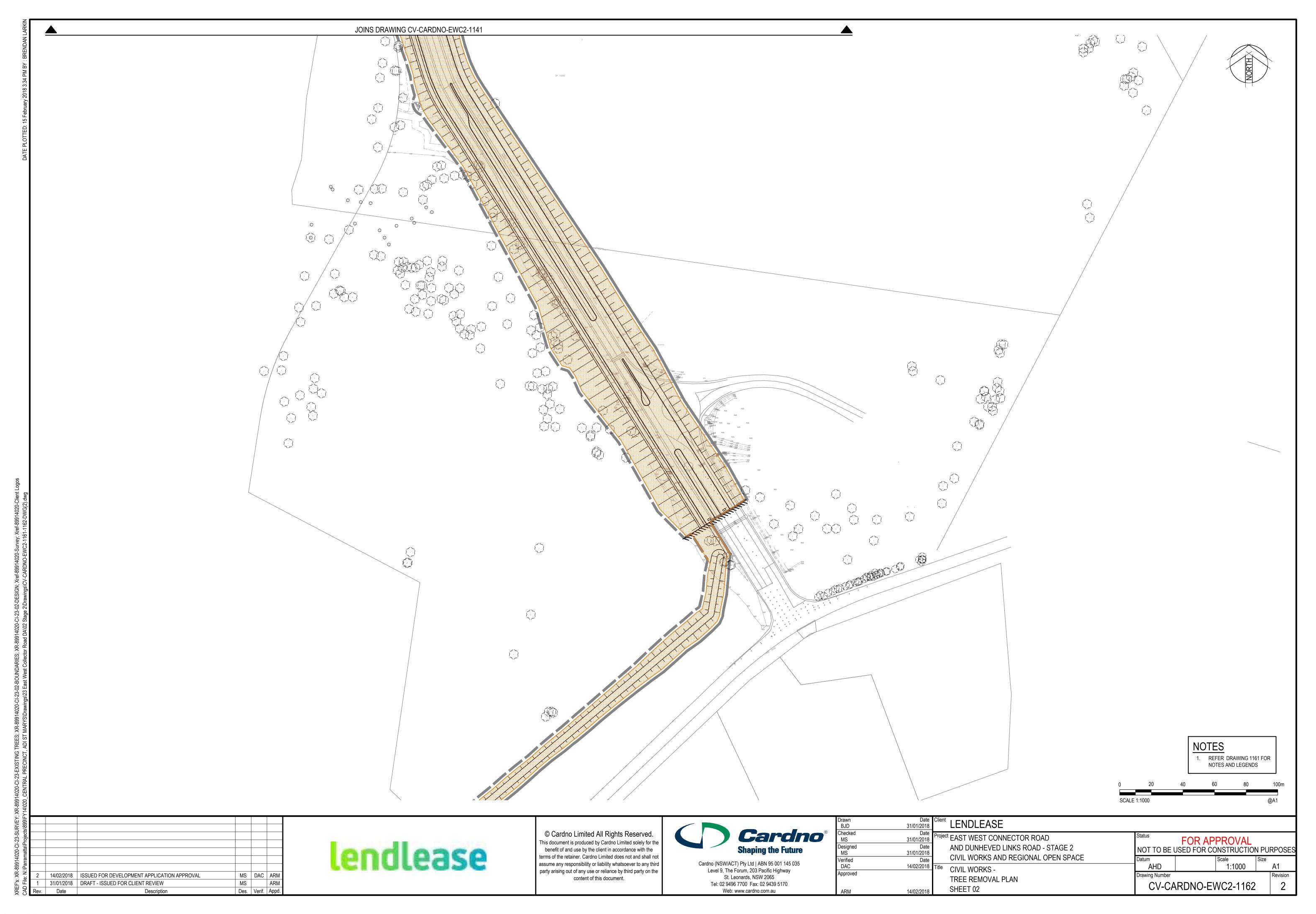
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	Checked Date MS 19/01/2018		^{CT} EAST WEST CONNECTOR ROAD	Status	FOR API	PROVAL		
	Designed Date MS 19/01/2018		AND DUNHEVED LINKS ROAD - STAGE 2	NOT TO BE U	JSED FOR CO	NSTRUCTIO		RPOSES
ľ	Verified Date DAC 14/02/2018		CIVIL WORKS AND REGIONAL OPEN SPACE	Datum AHD		Scale N.T.S	Size	A1
7	Approved	Title	EROSION & SEDIMENTATION CONTROL DETAILS	Drawing Number		14.1.0		Revision
	ARM 14/02/2018			CV-CA	ARDNO-EV	VC2-1131		3

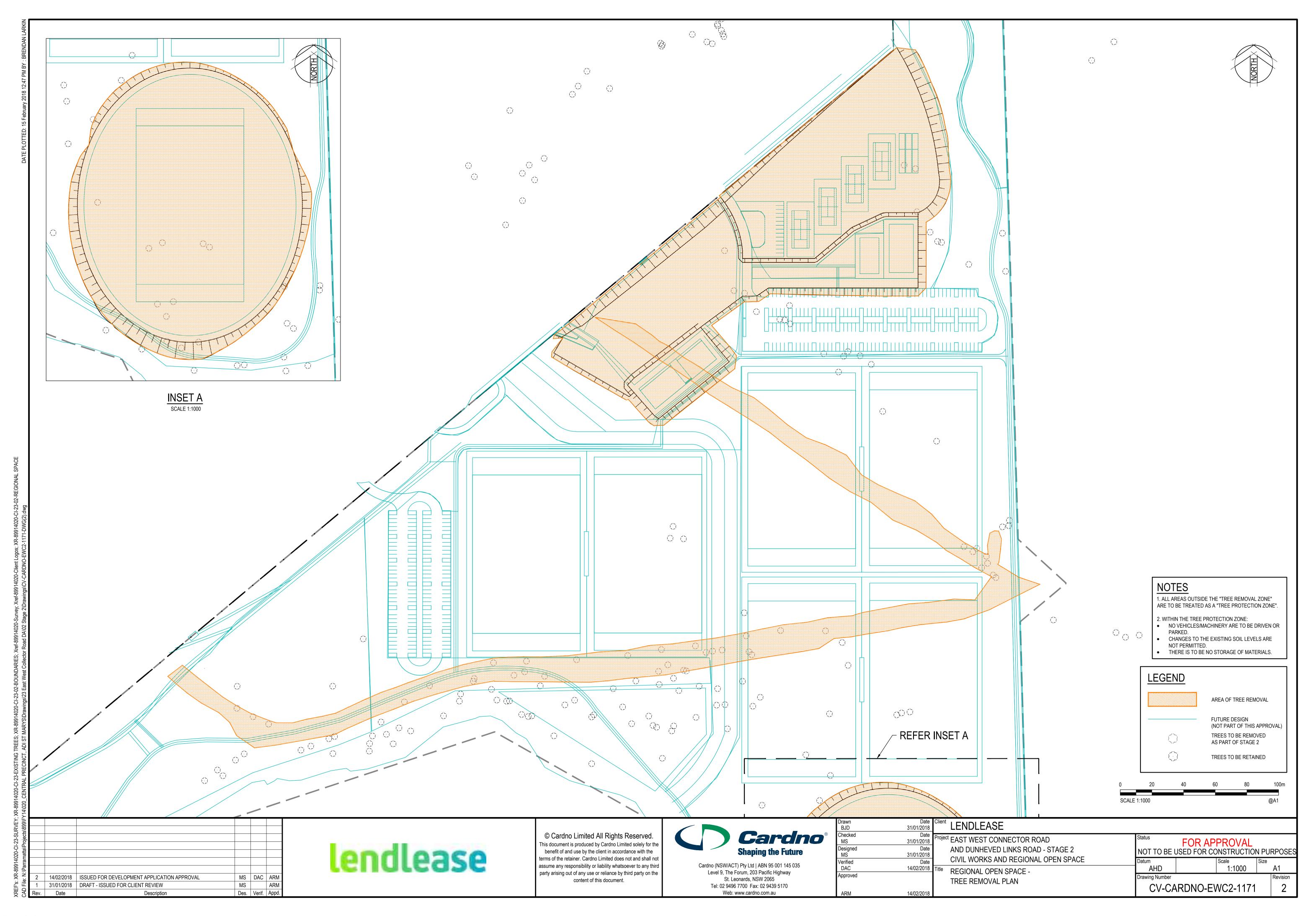


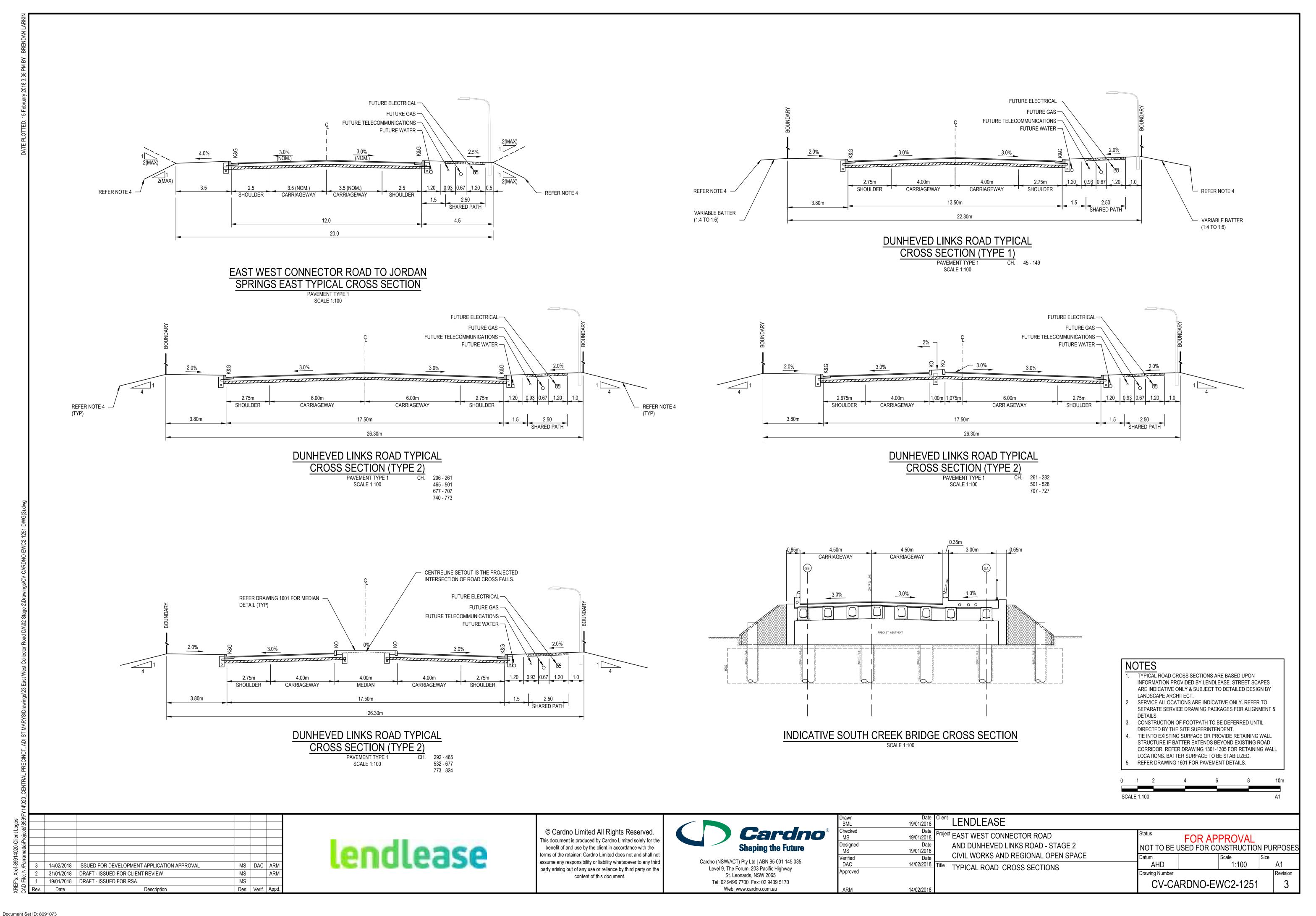


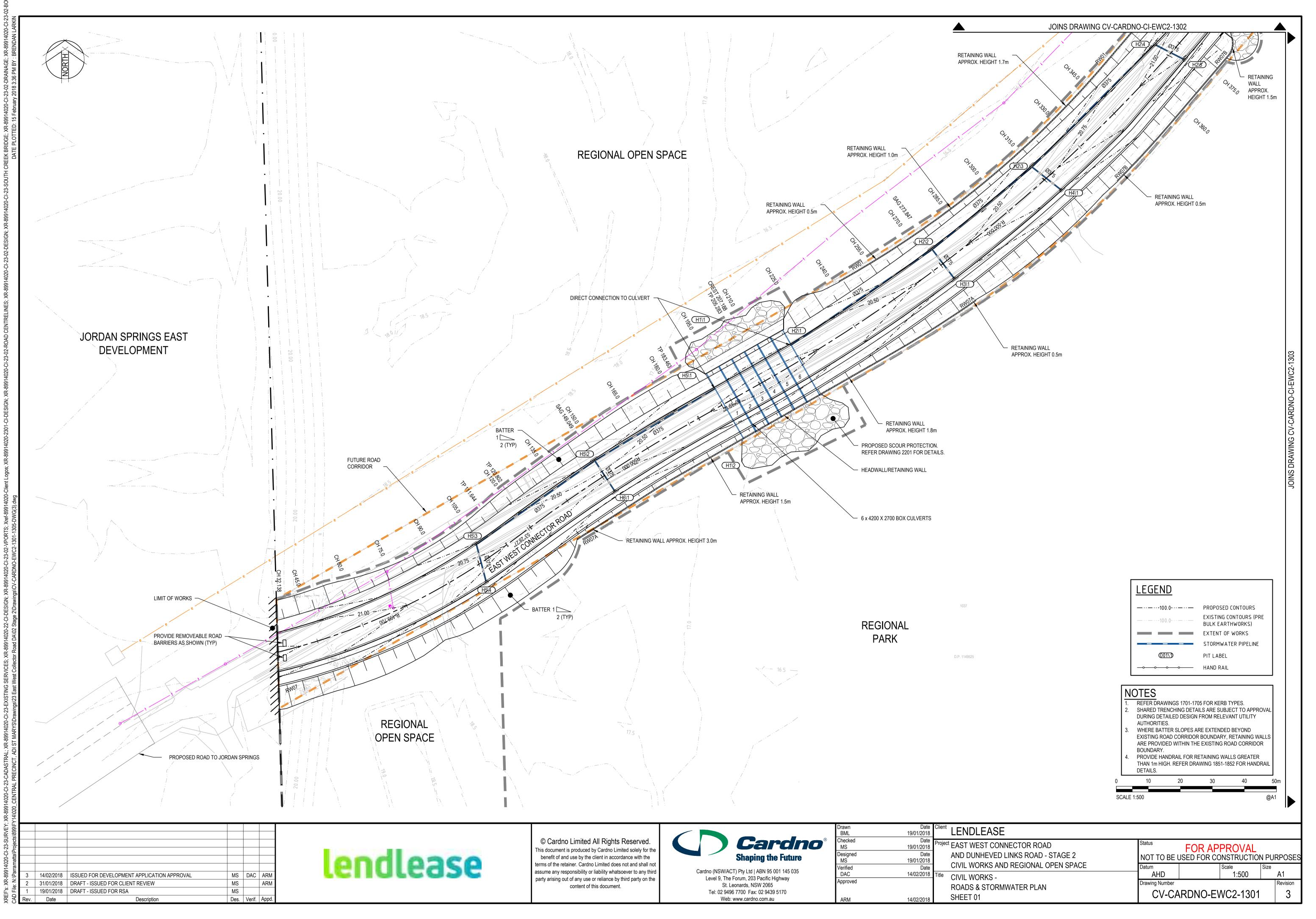


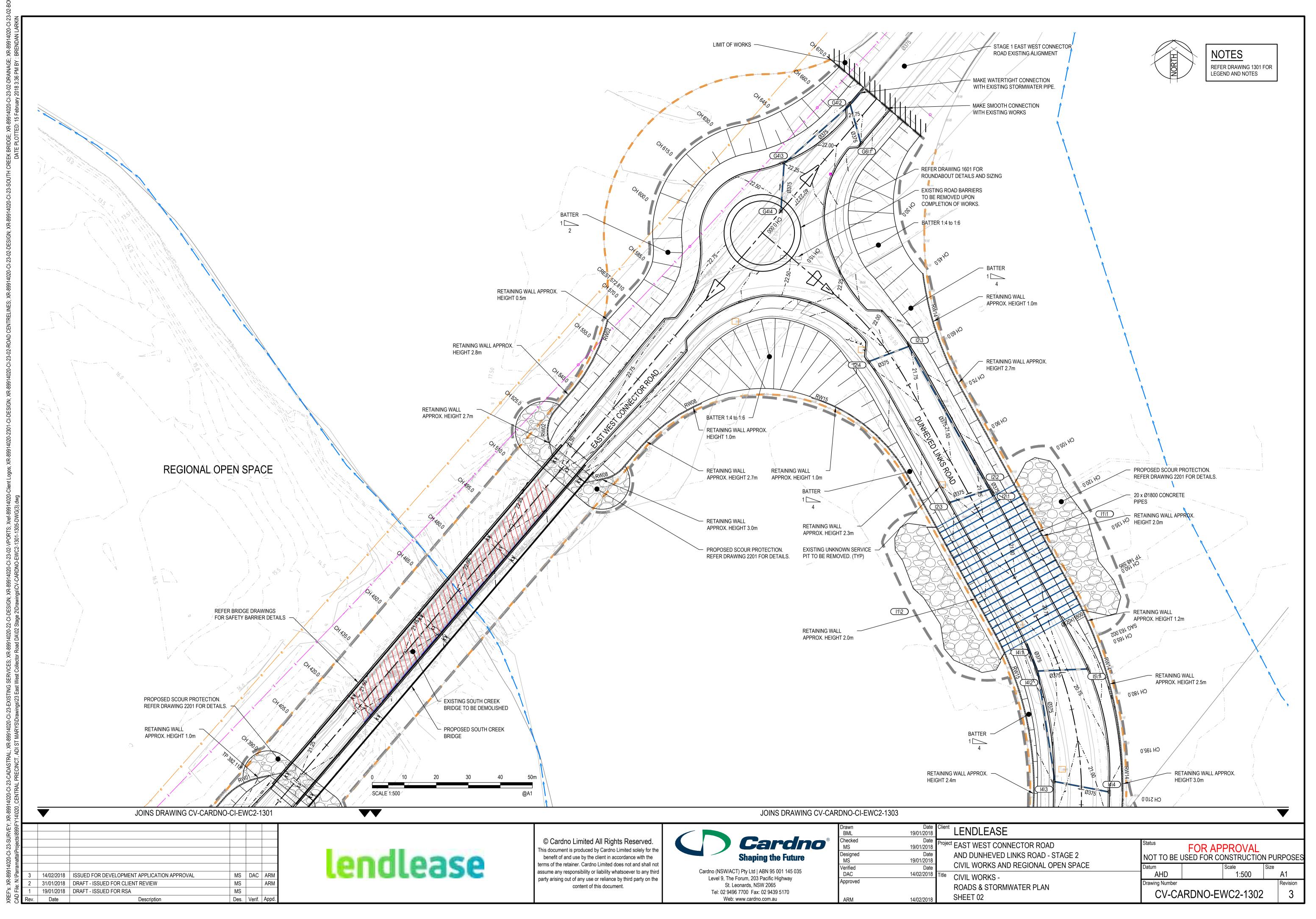


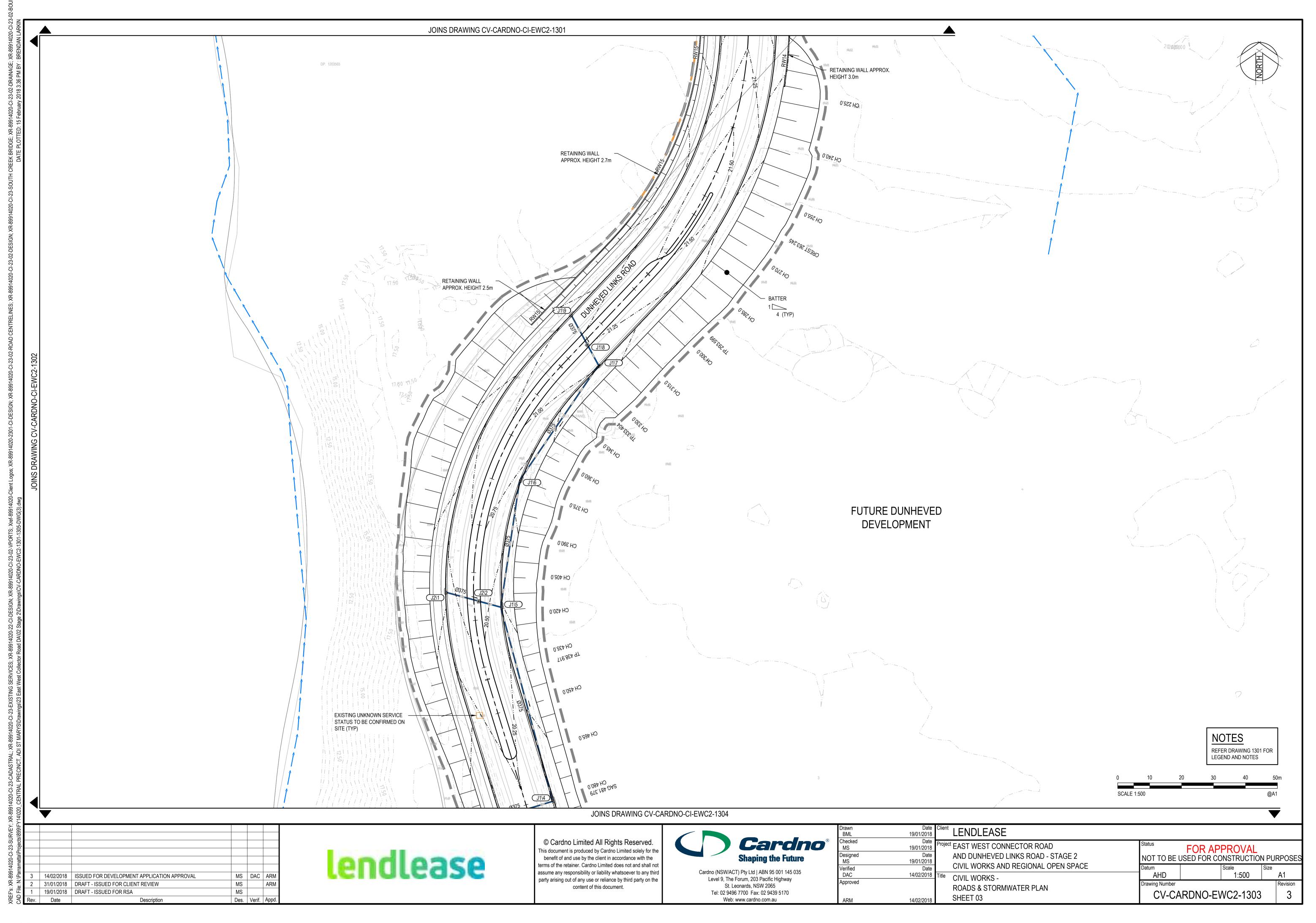


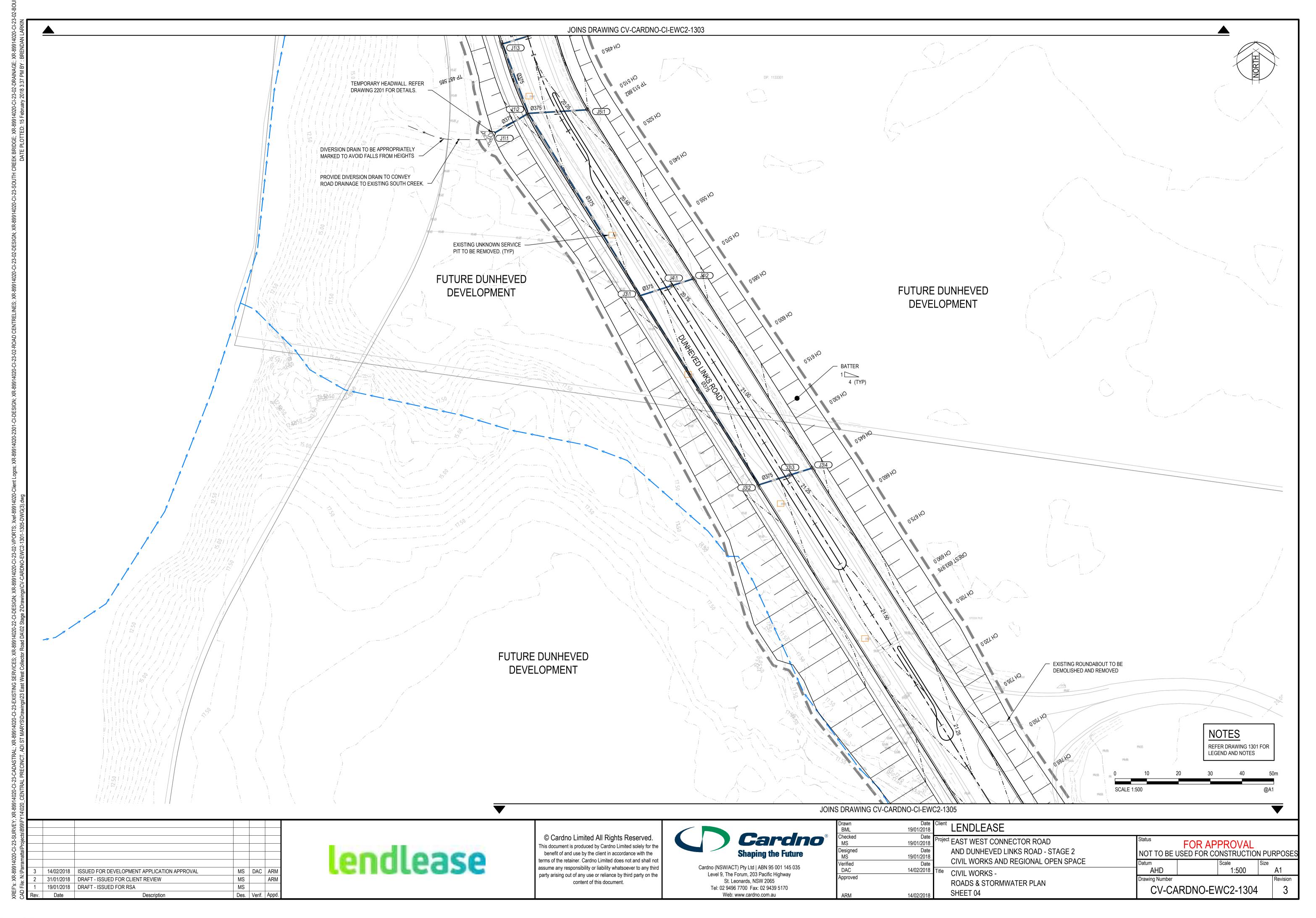


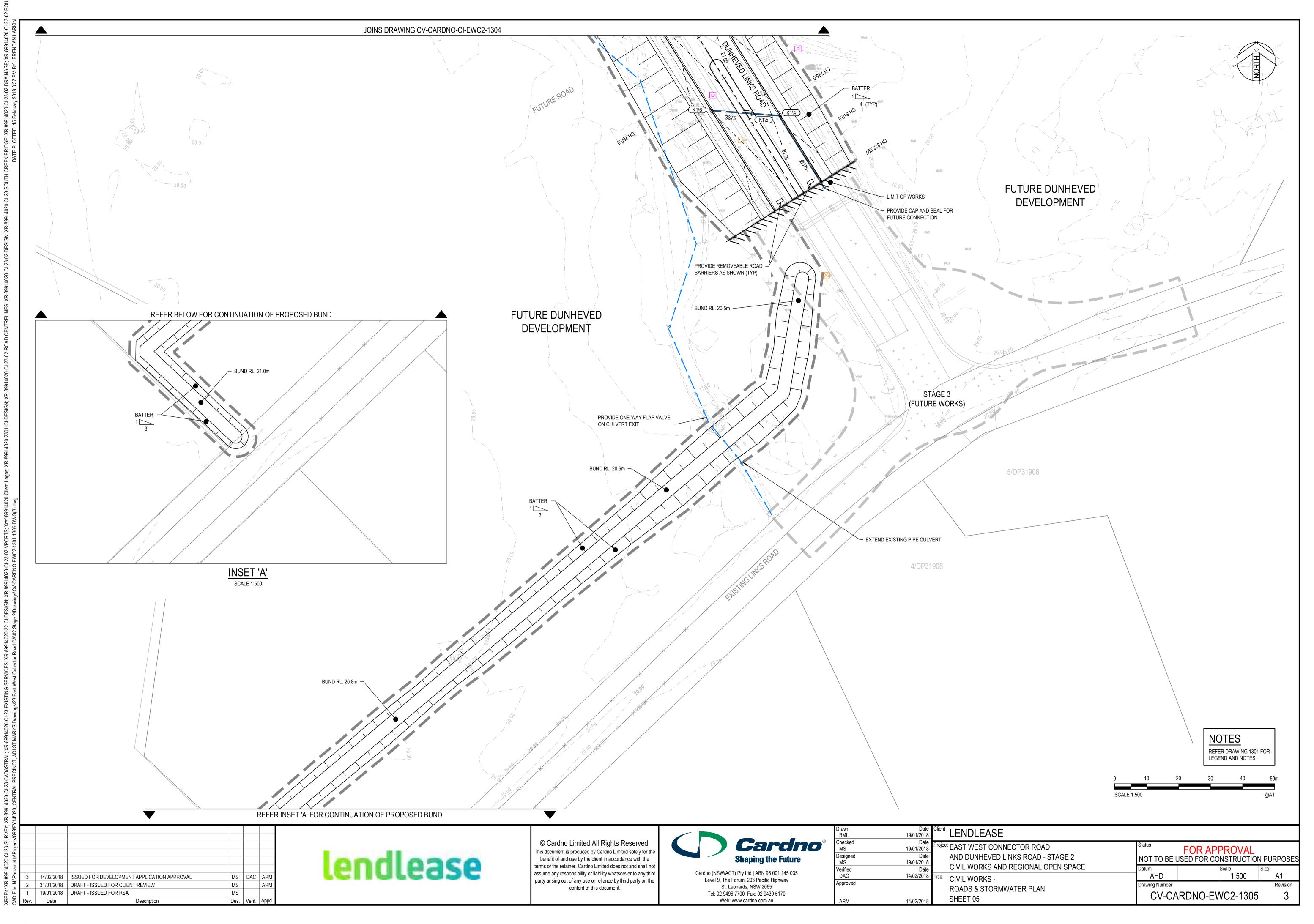


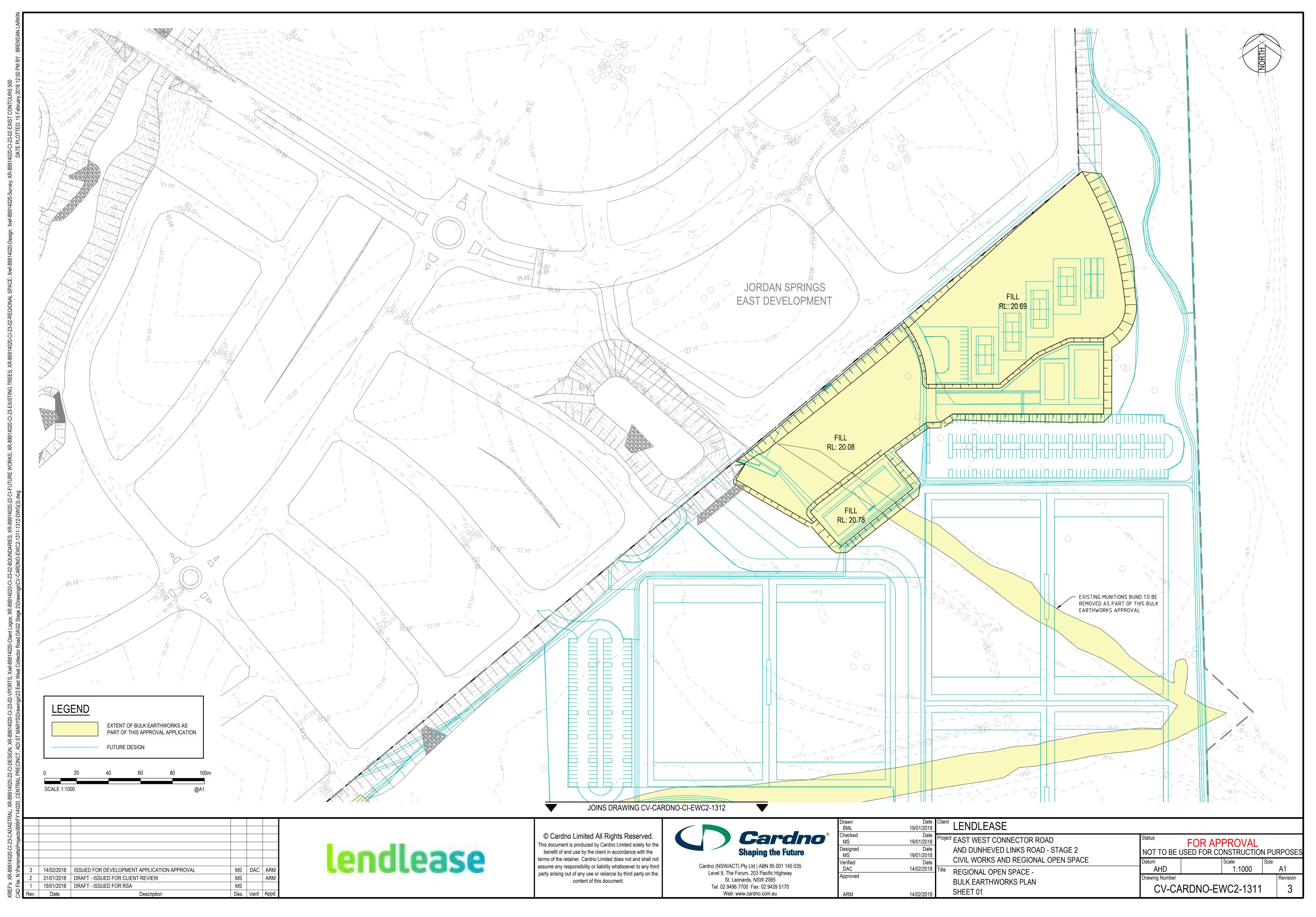


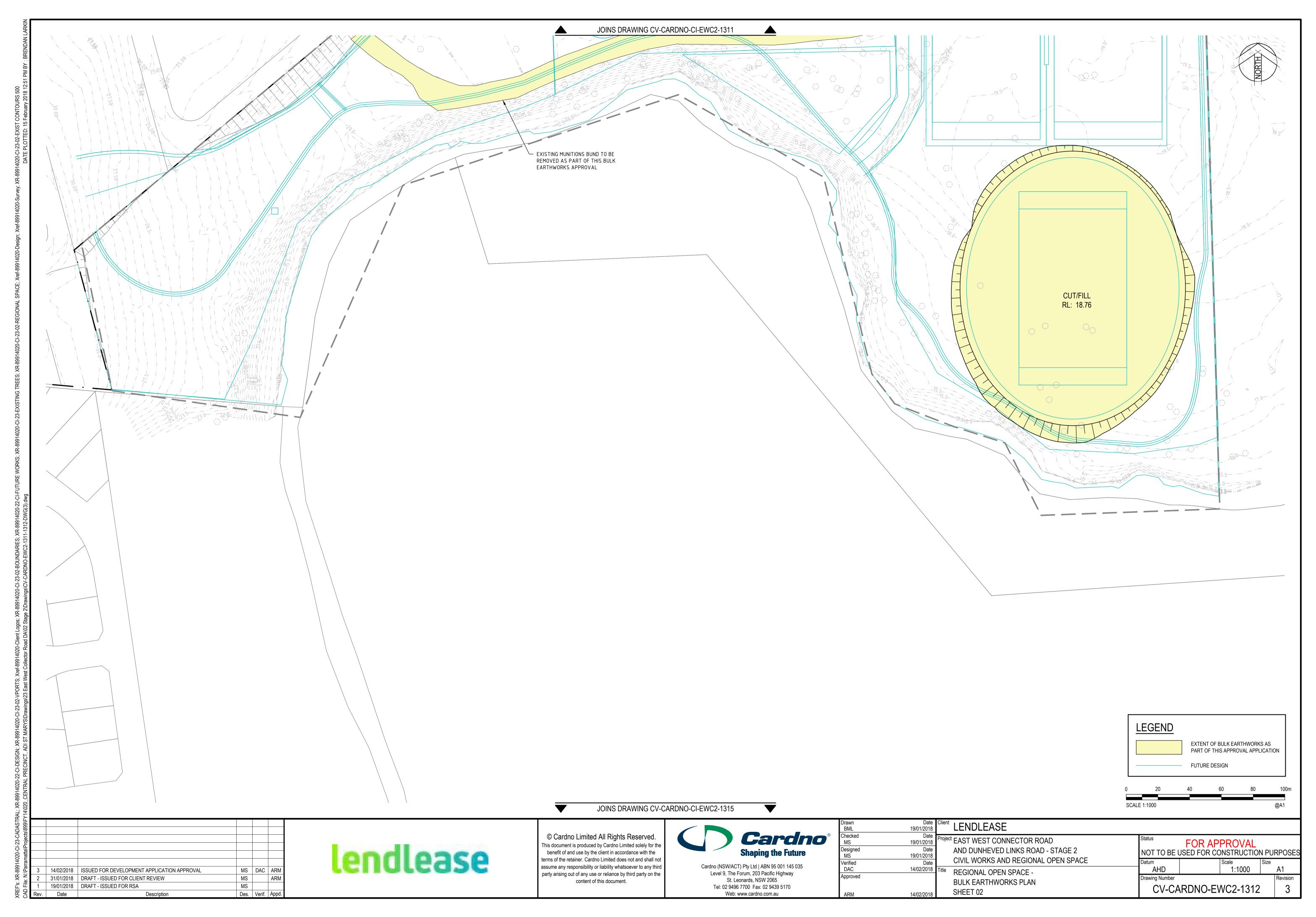


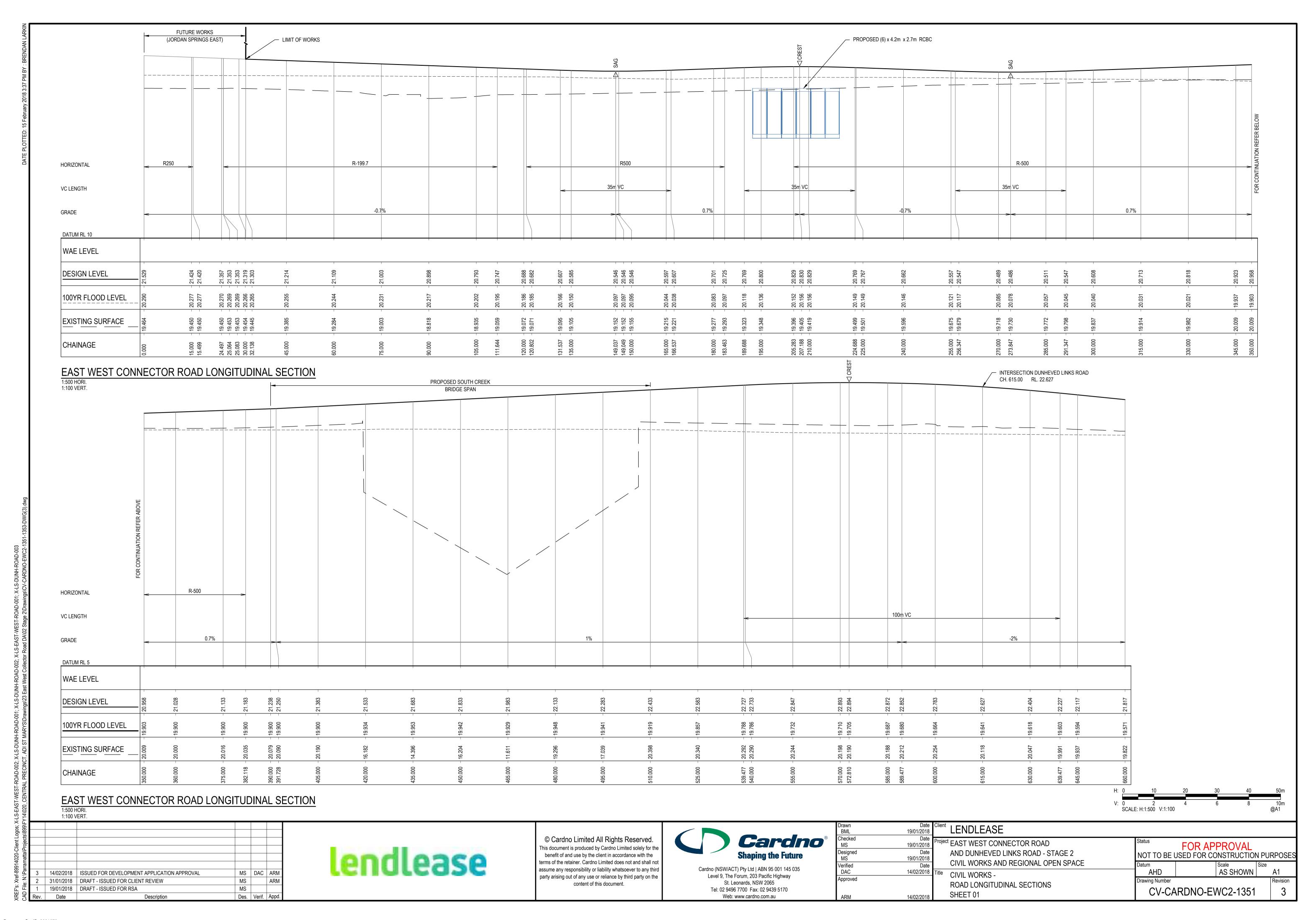


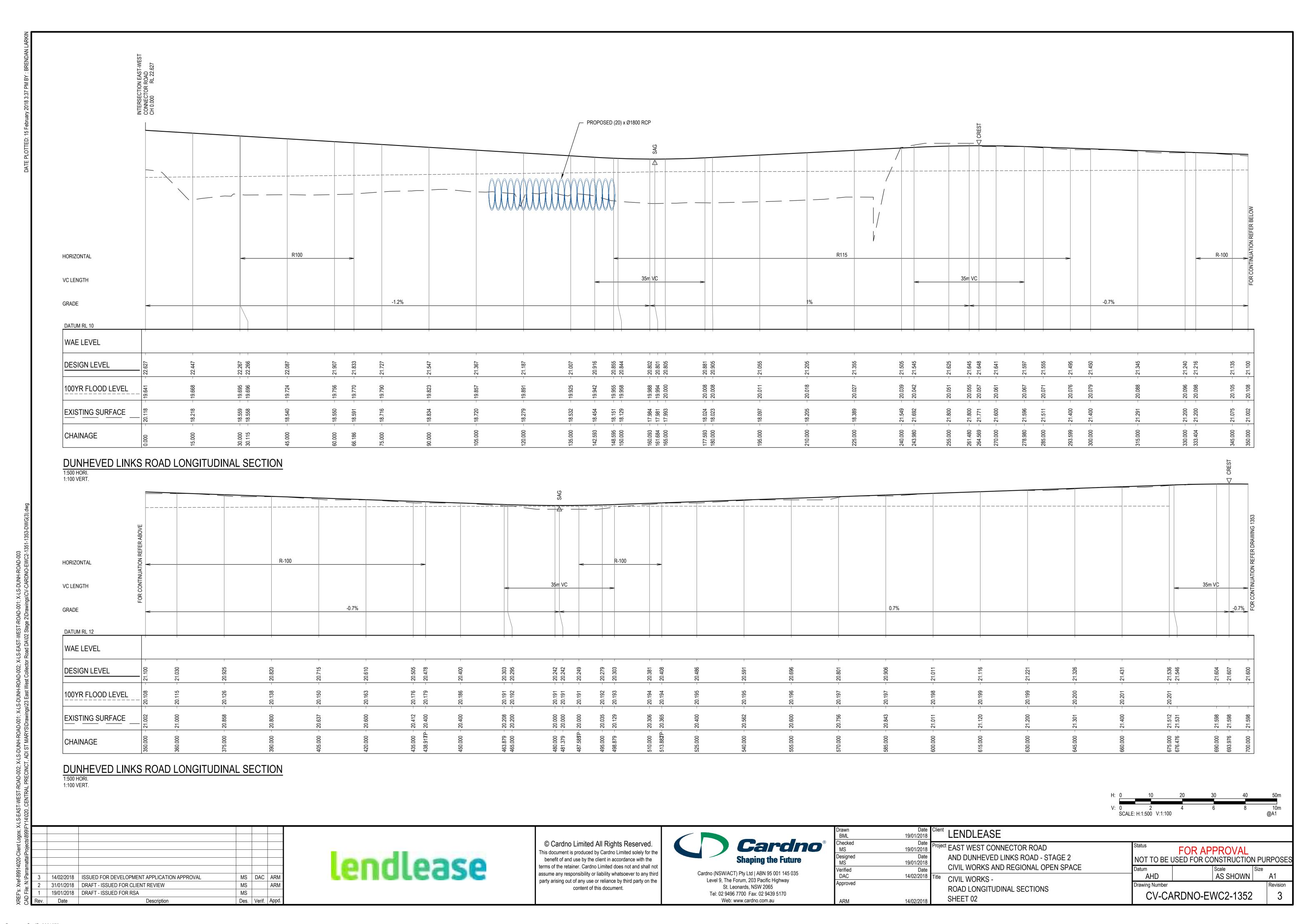


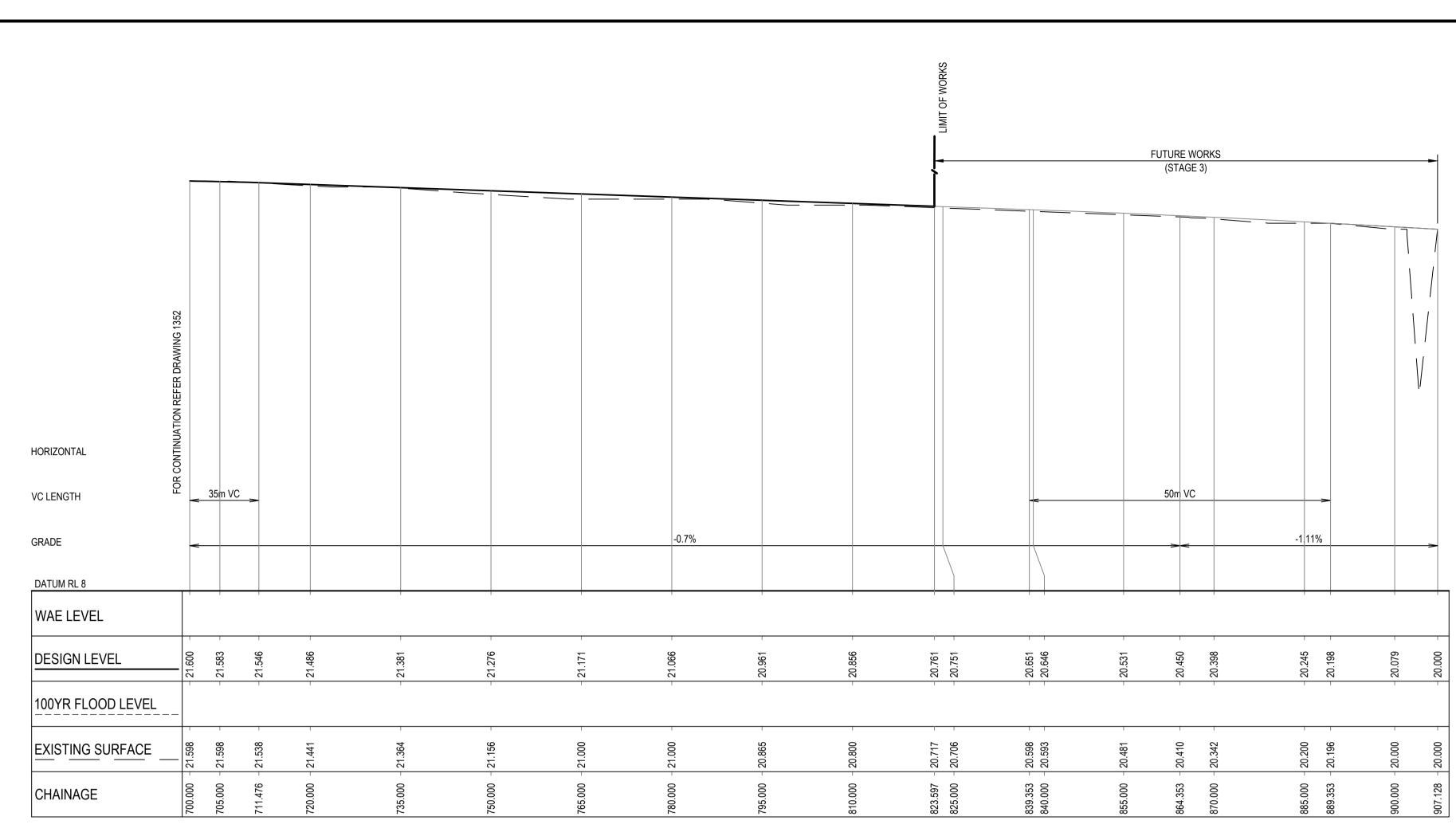






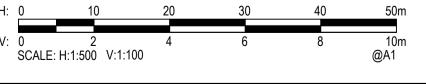






DUNHEVED LINKS ROAD LONGITUDINAL SECTION

1:500 HORI. 1:100 VERT.



| Comparison | Com



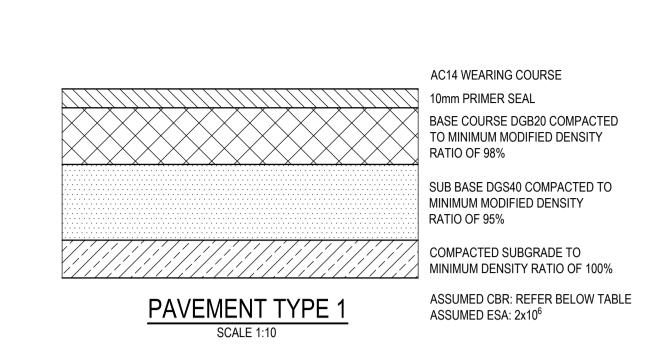
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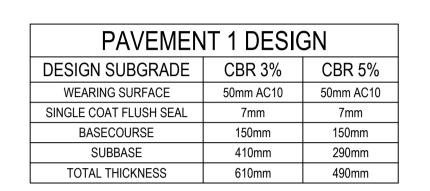
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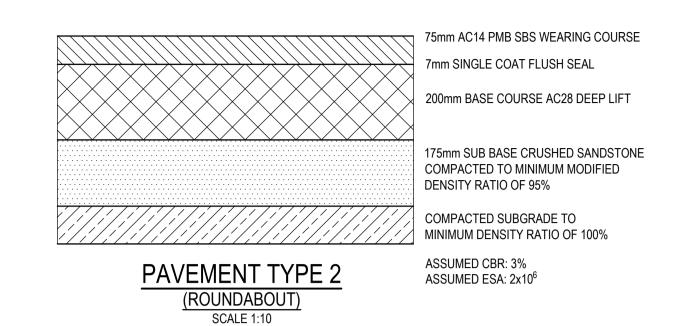


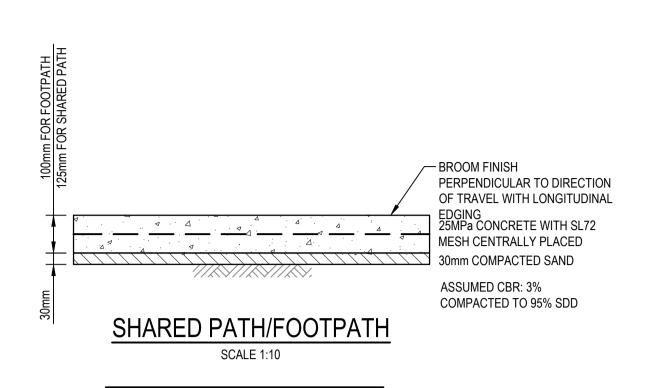
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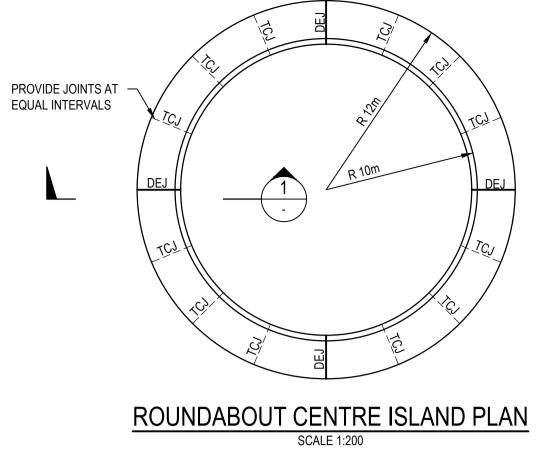
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Drawn BML	19/01/2018	Client LENDLEASE		
Checked MS	Date 19/01/2018	Project EAST WEST CONNECTOR ROAD	Status FOR APP	ROVAI
Designed MS	Date 19/01/2018	AND DUNHEVED LINKS ROAD - STAGE 2	NOT TO BE USED FOR CON	
Verified DAC	Date 14/02/2018	CIVIL WORKS AND REGIONAL OPEN SPACE		cale Size AS SHOWN A1
Approved	11102/2010	ROAD LONGITUDINAL SECTIONS	Drawing Number	Revision
ARM	14/02/2018	SHEET 03	CV-CARDNO-EW	C2-1353 3











NOTES

1. SAWCUT PATH OR TROWELLED DUMMY JOINT AT 2m SPACING.

2. EVERY THIRD JOINT TO BE FULL DEPTH DOWELLED EXPANSION JOINT.

Cardno[®]

Verified DAC

Shaping the Future

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St. Leonards, NSW 2065

Tel: 02 9496 7700 Fax: 02 9439 5170

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Project EAST WEST CONNECTOR ROAD

14/02/2018 Title SITEWORKS DETAILS

AND DUNHEVED LINKS ROAD - STAGE 2

CIVIL WORKS AND REGIONAL OPEN SPACE

19/01/2018

Date 19/01/2018

14/02/2018

Date

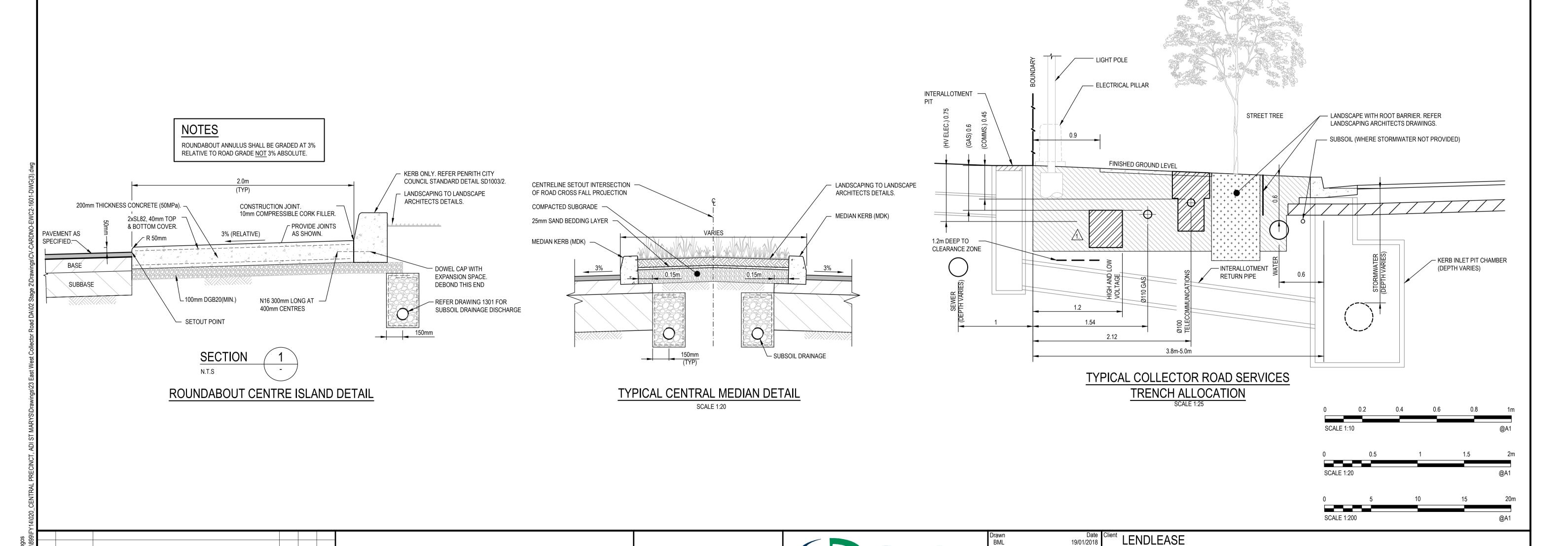
FOR APPROVAL

AS SHOWN

NOT TO BE USED FOR CONSTRUCTION PURPOSES

CV-CARDNO-EWC2-1601

AHD



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19/01/2018

Date

14/02/2018 | ISSUED FOR DEVELOPMENT APPLICATION APPROVAL

Description

31/01/2018 DRAFT - ISSUED FOR CLIENT REVIEW

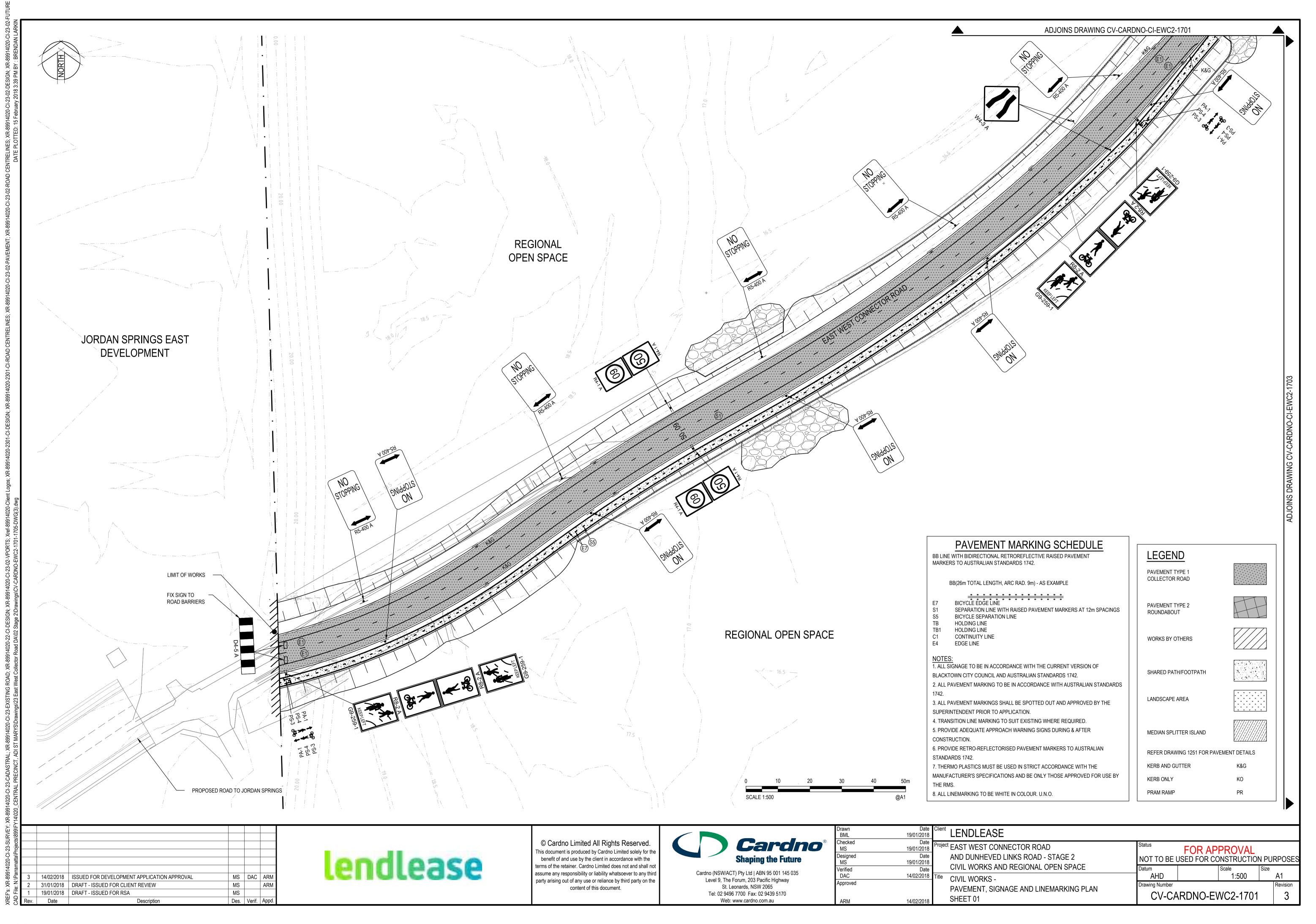
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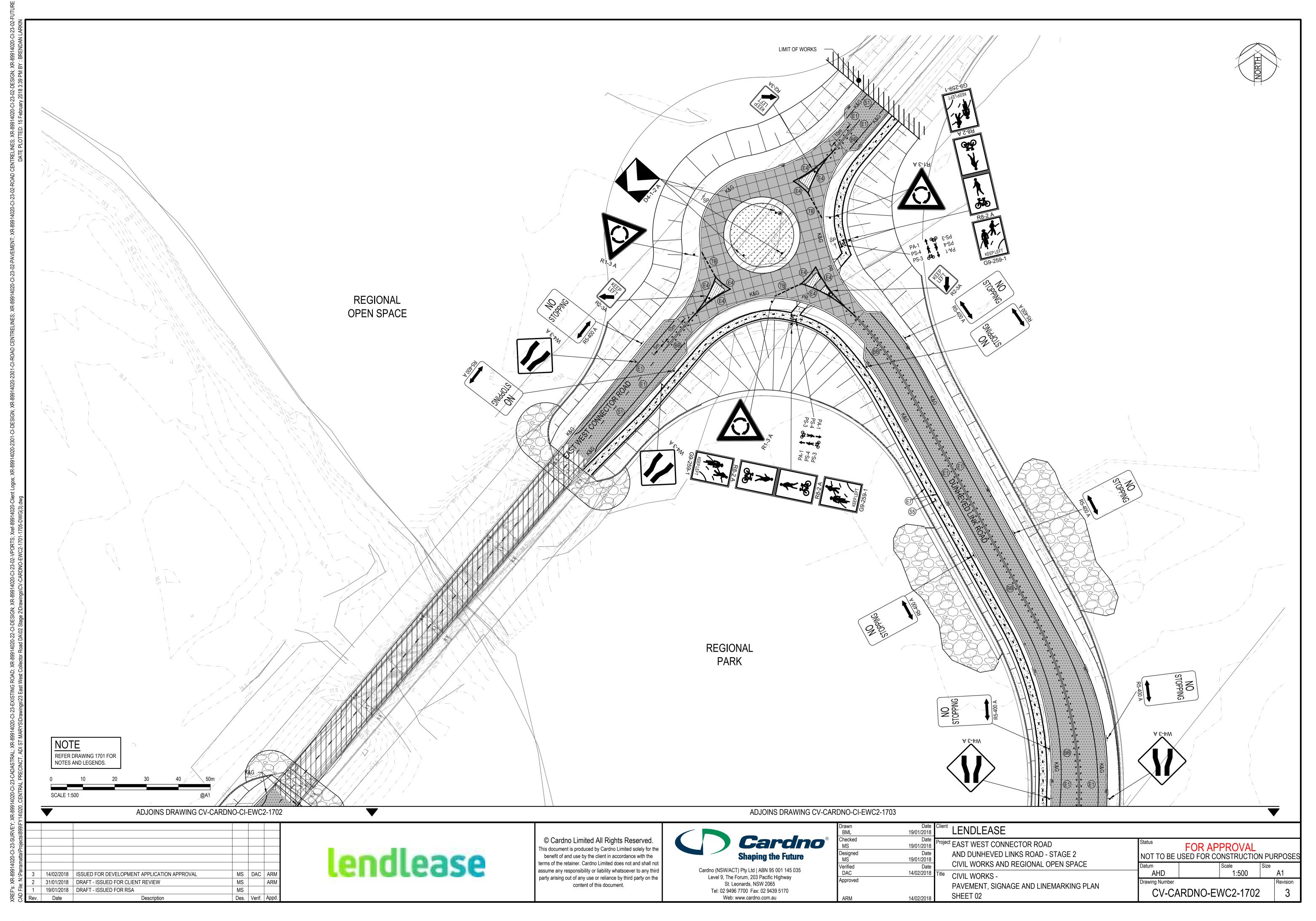
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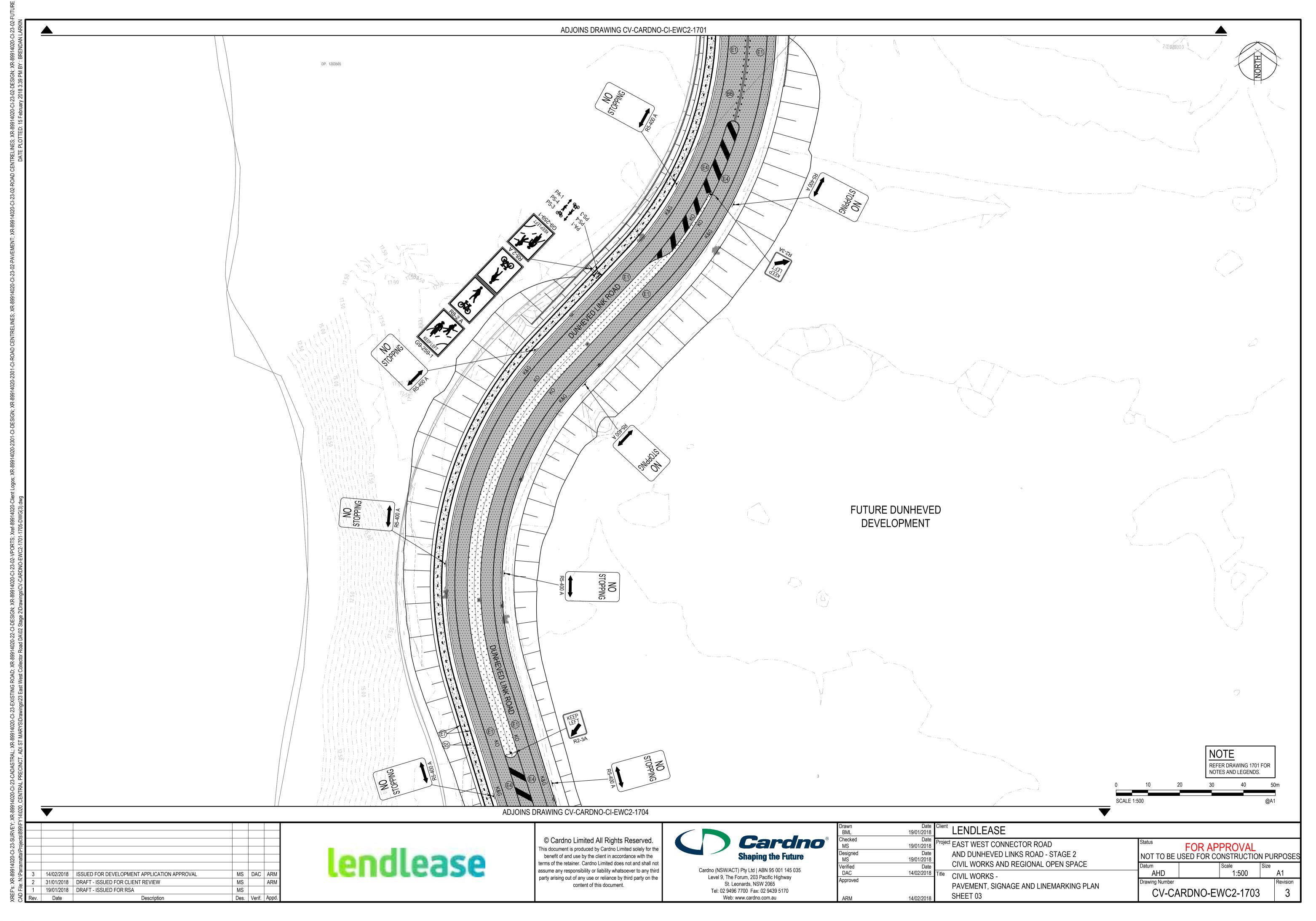
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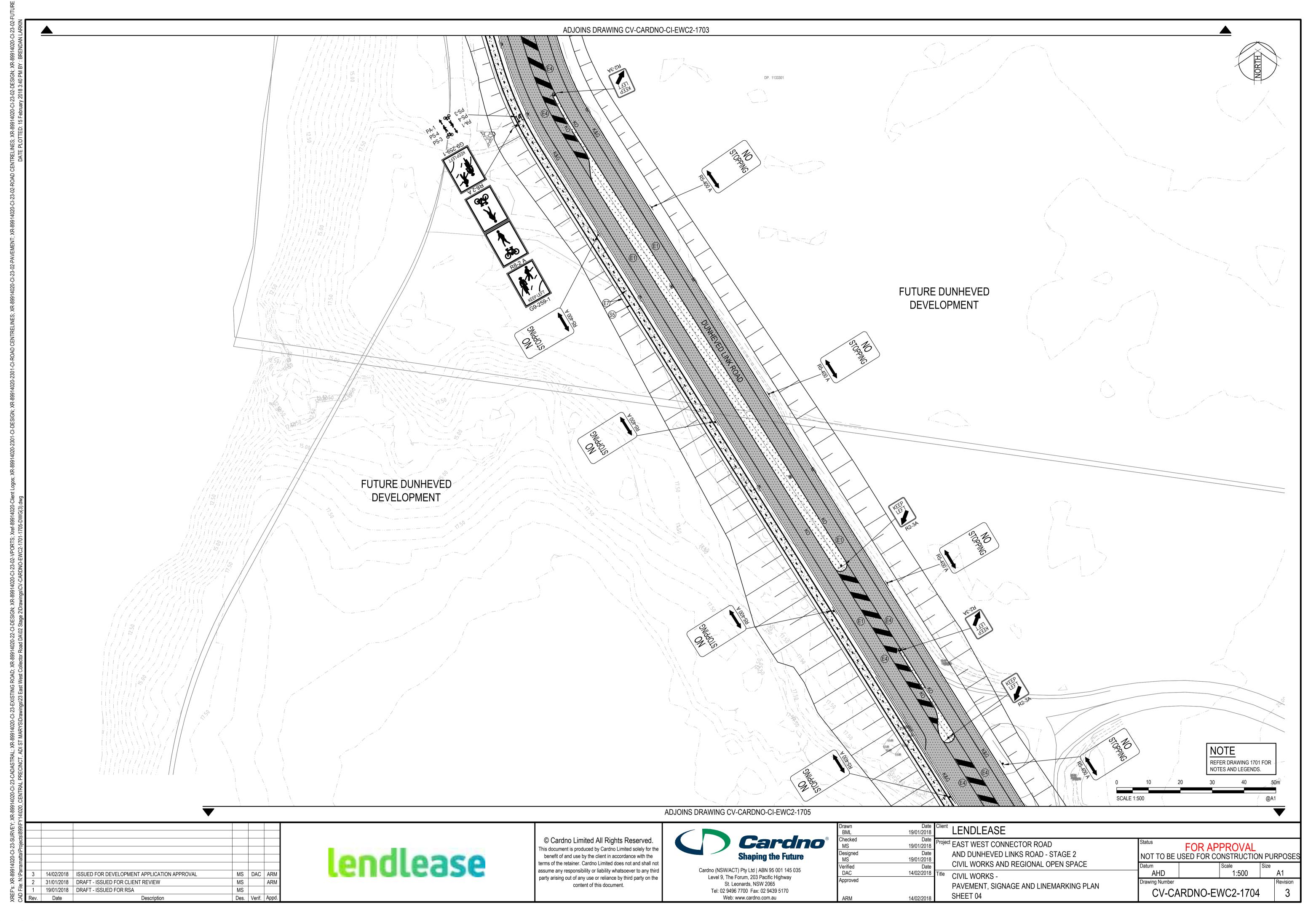
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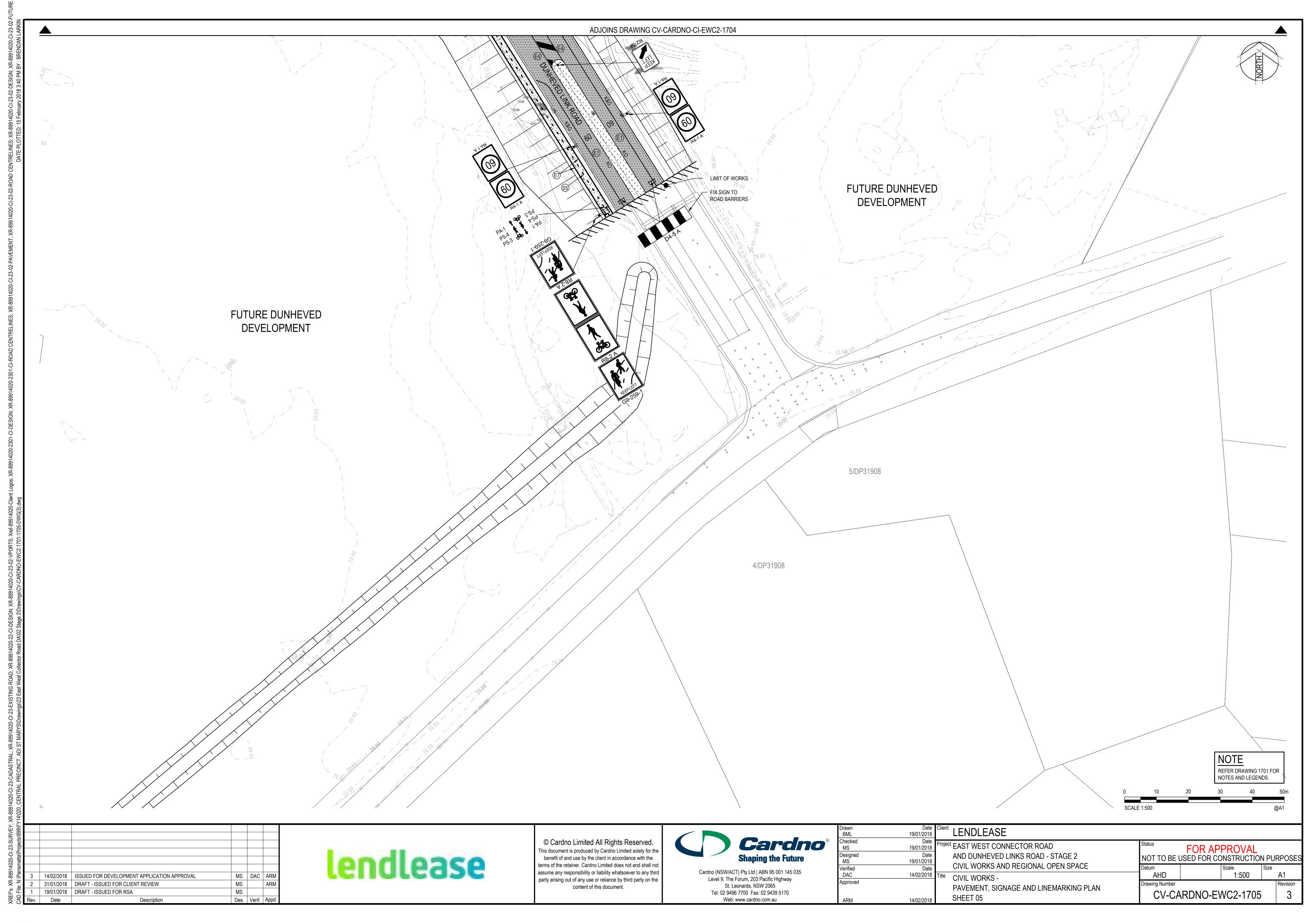
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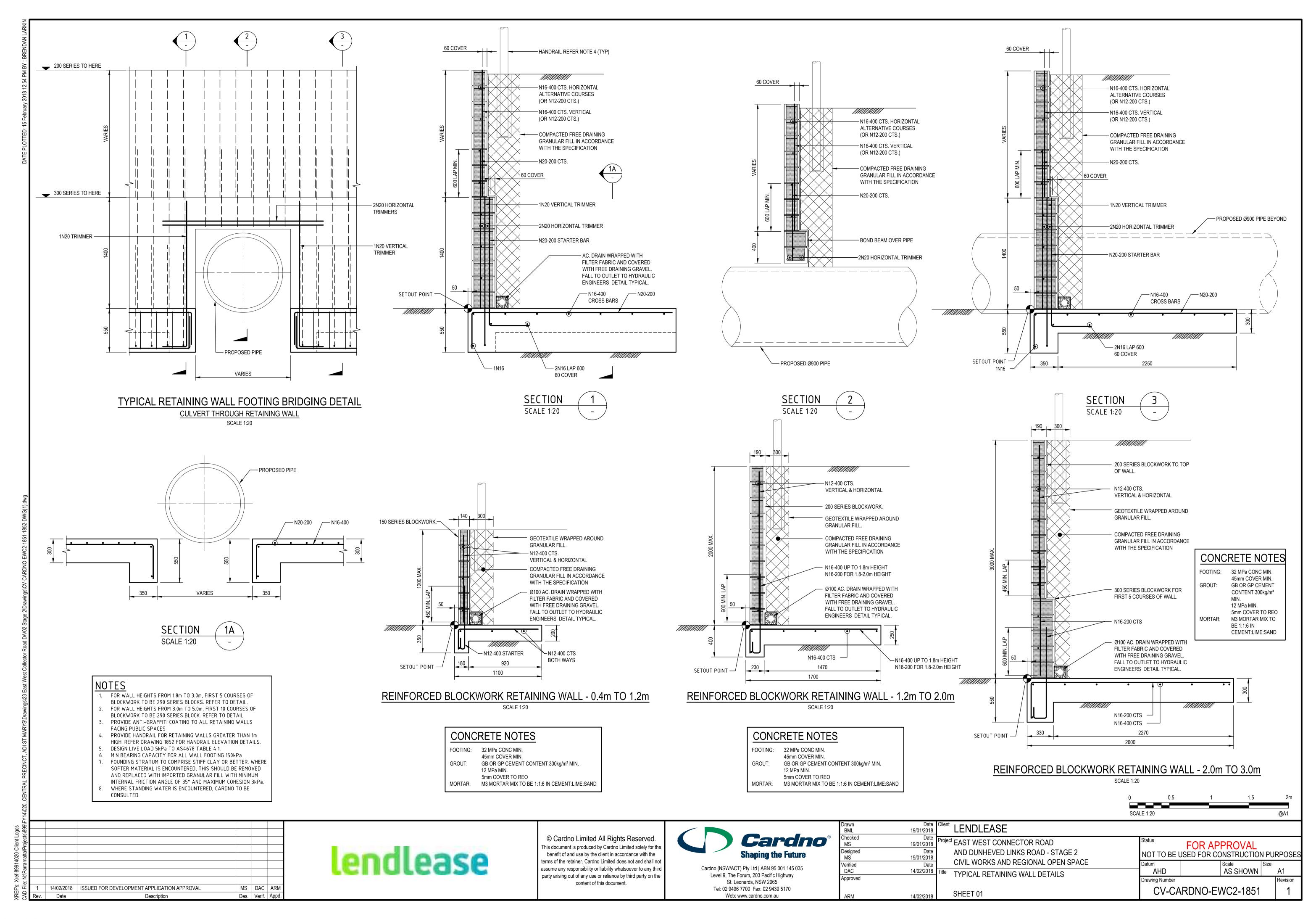


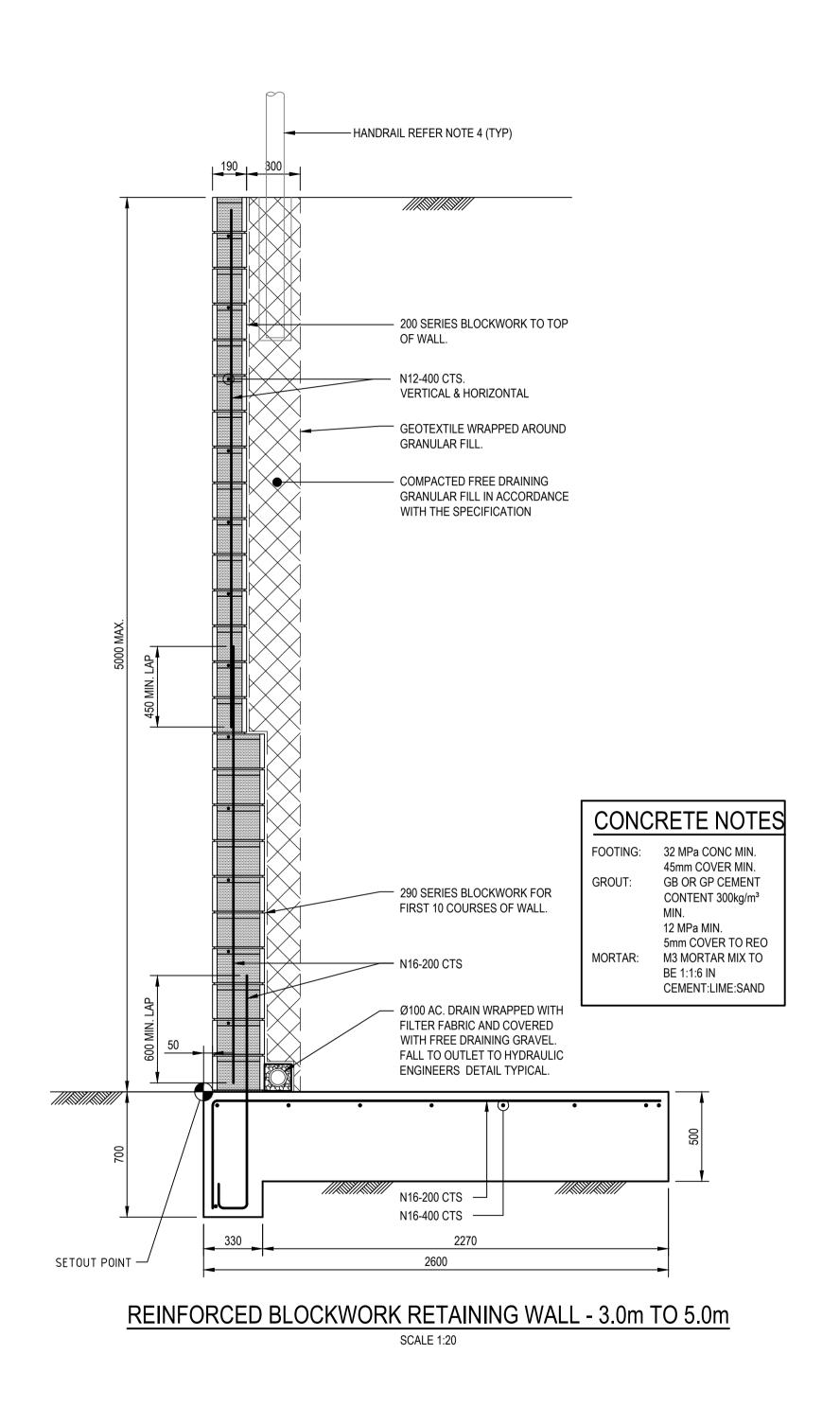


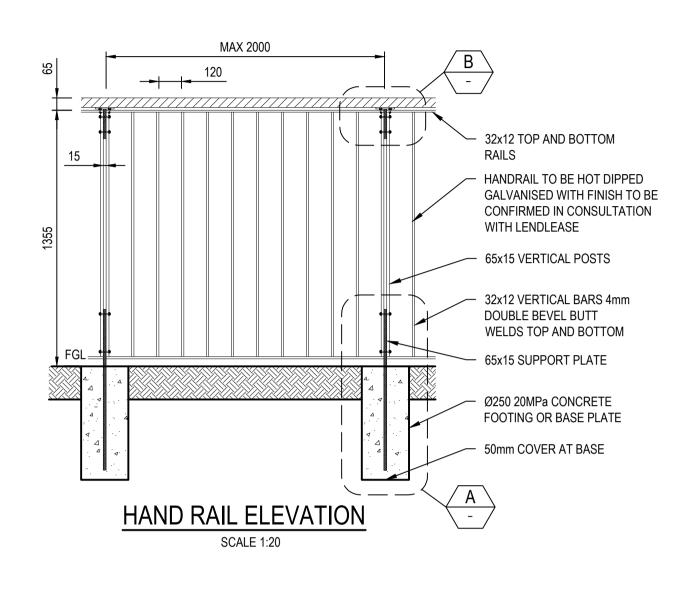


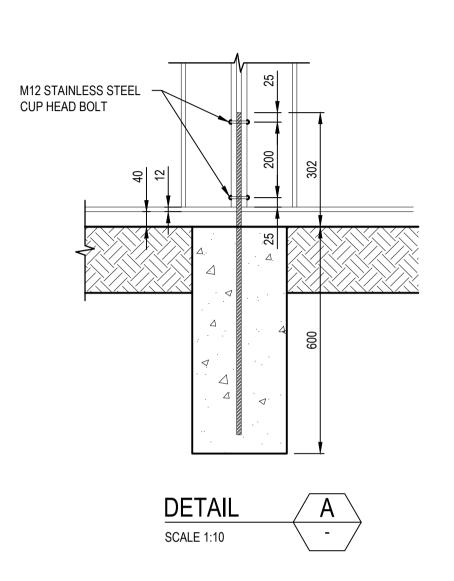


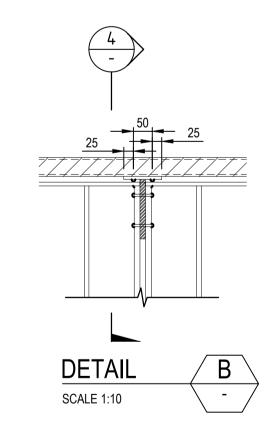


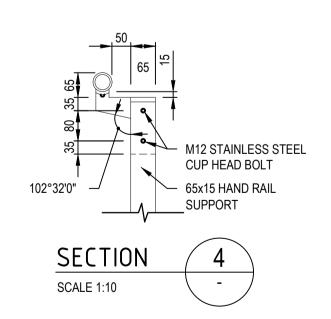






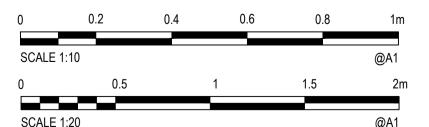








- 1. FOR WALL HEIGHTS FROM 1.8m TO 3.0m, FIRST 5 COURSES OF
- BLOCKWORK TO BE 290 SERIES BLOCKS. REFER TO DETAIL.
- 2. FOR WALL HEIGHTS FROM 3.0m TO 5.0m, FIRST 10 COURSES OF BLOCKWORK TO BE 290 SERIES BLOCK. REFER TO DETAIL.
- PROVIDE ANTI-GRAFFITI COATING TO ALL RETAINING WALLS FACING
- PUBLIC SPACES
- PROVIDE HANDRAIL FOR RETAINING WALLS GREATER THAN 1m HIGH. REFER TO HANDRAIL ELEVATION DETAILS.
- DESIGN LIVE LOAD 5kPa TO AS4678 TABLE 4.1.
- MIN BEARING CAPACITY FOR ALL WALL FOOTING 150kPa
- FOUNDING STRATUM TO COMPRISE STIFF CLAY OR BETTER. WHERE SOFTER MATERIAL IS ENCOUNTERED, THIS SHOULD BE REMOVED
- AND REPLACED WITH IMPORTED GRANULAR FILL WITH MINIMUM INTERNAL FRICTION ANGLE OF 35° AND MAXIMUM COHESION 3kPa. WHERE STANDING WATER IS ENCOUNTERED, CARDNO TO BE CONSULTED.



lendlease 14/02/2018 ISSUED FOR DEVELOPMENT APPLICATION APPROVAL MS DAC ARM

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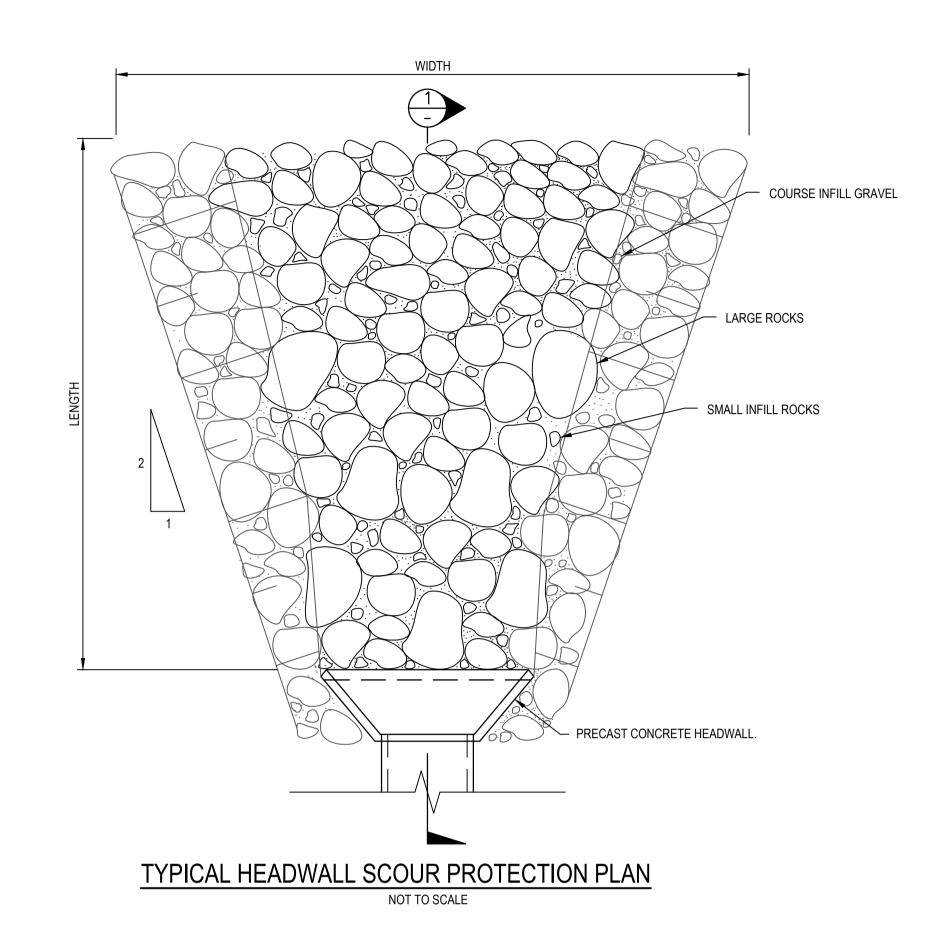


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Drawn BML	19/01/2018	Client LENDLEASE			
Checked MS	Date 19/01/2018	Project EAST WEST CONNECTOR ROAD	Status FOR A	APPROVAL	
Designed MS	Date 19/01/2018	AND DUNHEVED LINKS ROAD - STAGE 2	NOT TO BE USED FOR		RPOSES
Verified	Date	CIVIL WORKS AND REGIONAL OPEN SPACE	Datum	Scale Size	
DAC	14/02/2018	Title TYPICAL RETAINING WALL DETAILS	AHD	AS SHOWN	_A1
Approved			Drawing Number		Revision
ARM	14/02/2018	SHEET 02	CV-CARDNO-	-EWC2-1852	1

Date

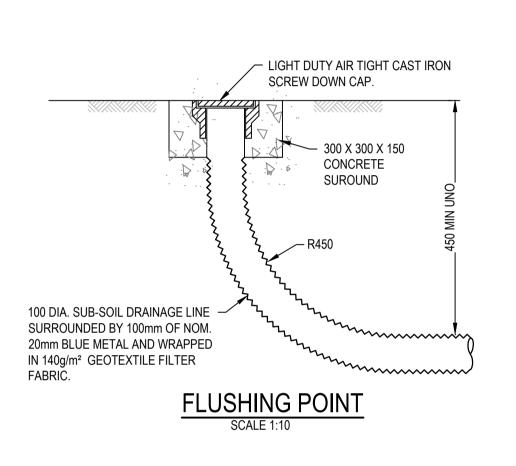
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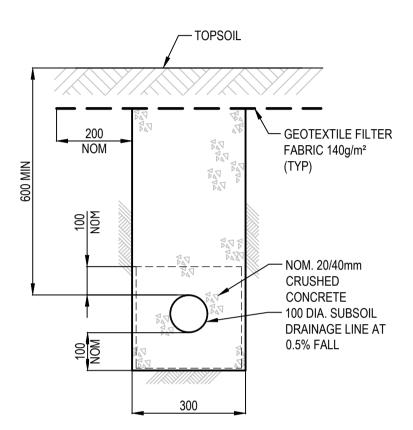


HEADWALL RIP-RAP SCOUR PROTECTION (MINIMUM DIMENSIONS)						
OUTLET NUMBER	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	D50 (mm)		
X	Х	X	X	X		

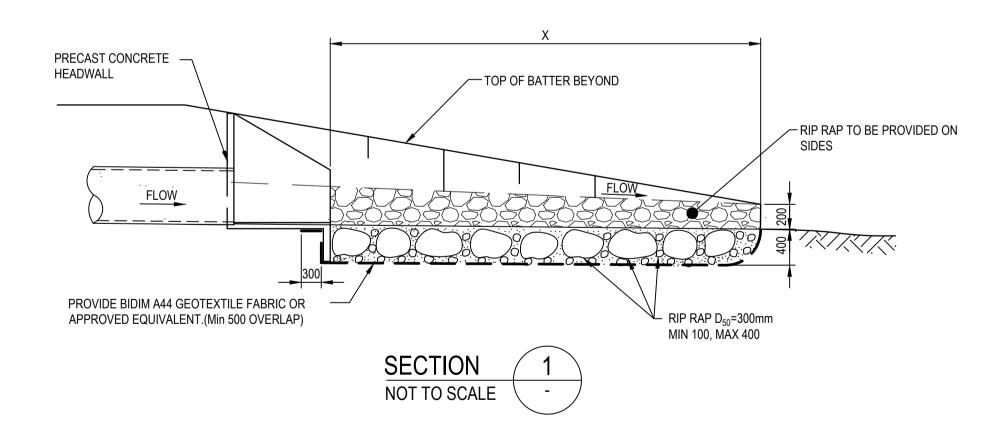
NOTE:

1. TABLE VALUES TO BE CONFIRMED AT DETAILED DESIGN.





SUBSOIL IN LANDSCAPED AREAS

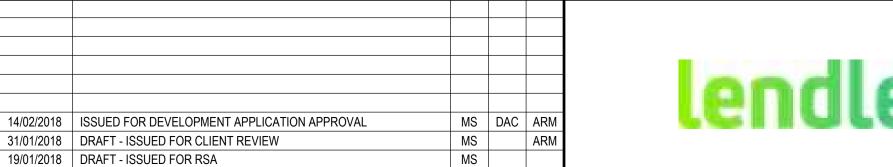


ROCK RIPRAP

NOTES:

- 1. ALL RIPRAP MUST CONSIST OF ANGULAR RUN-OF-QUARRY DURABLE ROCK PLACED OVER A 200MM LAYER OF ANGULAR COBBLES D50=100MM MIXED WITH GRAVEL D50=10MM.
- 2. ALL ROCK IS TO BE A HARD, DURABLE ROCK WITH A POINT INDEX LOAD IS50 GREATER THAN 1.0MPA AS DETERMINED IN ACCORDANCE WITH AS4133.4.1-2007.
 - 3. RIPRAP IS TO BE PLACED BY HAND AND CROW-BARERED INTO PLACE TO ENSURE FIT WITH MINIMUM VOIDS. 4. ALL ROCK AND COBBLES TO BE PLACED WITH TOPSOIL. GAPS IN RIPRAP TO
- BE PLANTED AS SPECIFIED IN LANDSCAPING PLANS 4.1. M50 - 60KG (NDW 300MD)
- 4.2. M15 25KG 4.3. 100 120KG

SUBSOIL DRAINAGE BEHIND KERB
REFER PENRITH CITY COUNCIL STANDARD DRAWING SD2004 FOR DETAILS.



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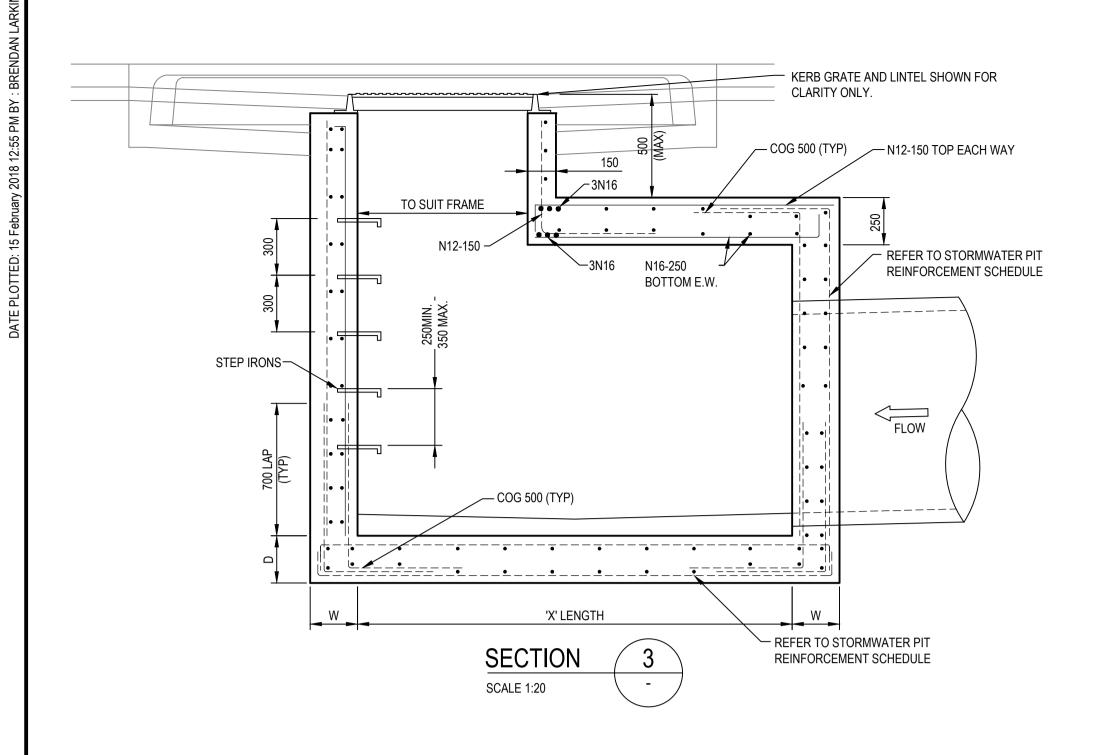
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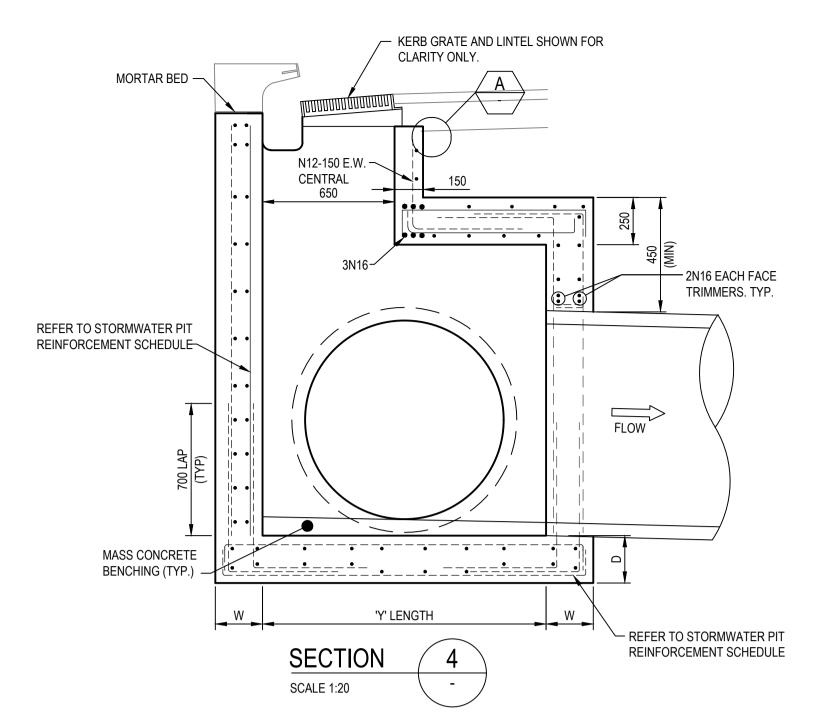
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	Designed MS	Date 19/01/2018		NOT TO BE USED FOR CO		RPOSES
	Verified	Date		Datum	Scale Size	
		14/02/2018	Title STORMWATER DRAINAGE DETAILS	AHD	AS SHOWN	A1
	Approved			Drawing Number	·	Revision
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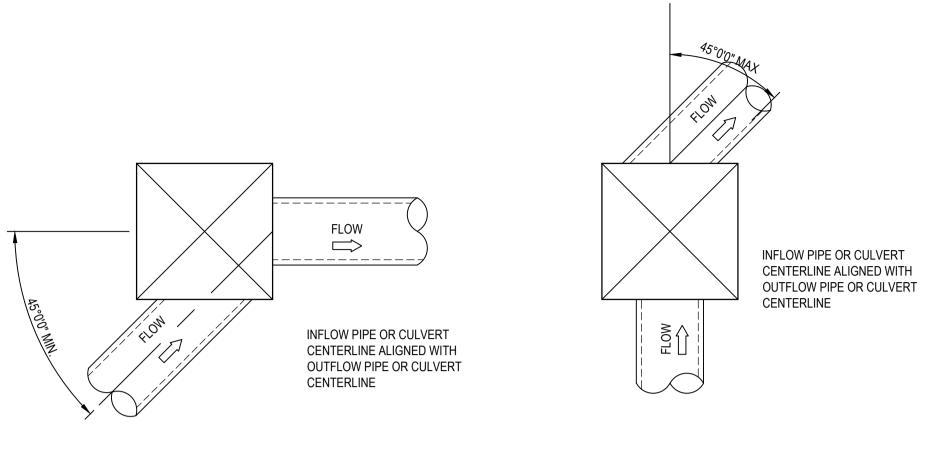
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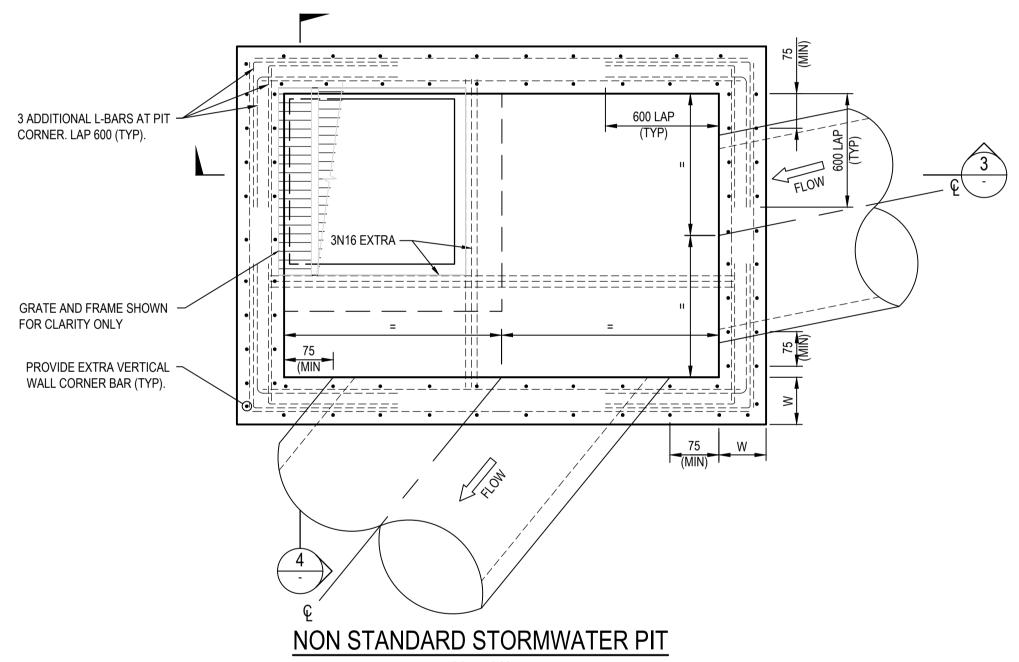


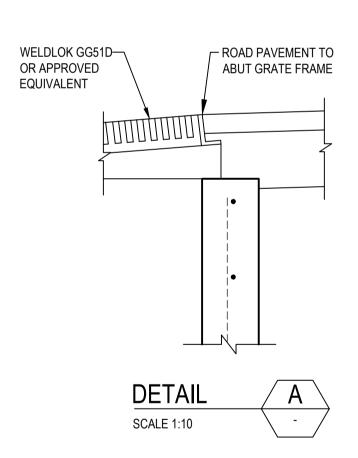


DEFLECTION ANGLE GREATER THAN 45° (SIDE OF PIT) SCALE 1:25

PIT ALIGNMENT REQUIREMENTS

TYPICAL DETAILS OF STORMWATER PIPE OR CULVERT ALIGNMENTS THROUGH STORMWATER PITS. STORMWATER PIPE OR CULVERT ALIGNMENTS NOT SHOWN SHOULD BE CONSTRUCTED SIMILARLY IN ORDER TO STREAMLINE FLOWS FROM UPSTREAM TO DOWNSTREAM AND MINIMISE HEADLOSS.





IMPORTANT NOTE: PIT STANDARD DETAILS

PENRITH COUNCIL STANDARD GRATED GULLY PITS DETAIL, SD2001 TO BE USED FOR PIT DETAILS WHERE:

A. PIT INTERNAL WIDTH IN ANY DIRECTION IS LESS THAN OR EQUAL TO 1200mm, AND B. PIT DEPTH FROM SETOUT POINT TO INVERT IS LESS THAN OR EQUAL TO 2000mm.

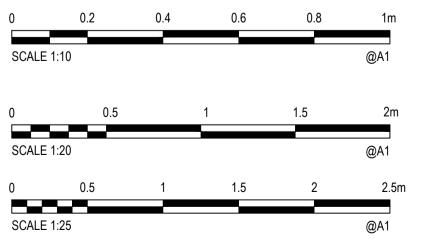
FOR PITS WIDER THAN 1200mm AND/OR DEEPER THAN 2000mm REFER TO THE BELOW TABLE AND DETAILS.

NON PCC STORMWATER PIT REINFORCEMENT SCHEDULE						
PIT DIMENSIONS(mm)		WALL DIMENSIONS(mm)		VERTICAL	HORIZONTAL	BASE
LENGTH 'X','Y'	DEPTH 'H'	BASE THICKNESS 'D'	WALL REINFORCEMENT R	1		
1200 <x,y<3300< td=""><td>2000<h<3900< td=""><td>230</td><td>230</td><td>N12-200 E.F.</td><td>N12-200 E.F.</td><td>N12-200 E.F.</td></h<3900<></td></x,y<3300<>	2000 <h<3900< td=""><td>230</td><td>230</td><td>N12-200 E.F.</td><td>N12-200 E.F.</td><td>N12-200 E.F.</td></h<3900<>	230	230	N12-200 E.F.	N12-200 E.F.	N12-200 E.F.
X,Y<1200	H<6000	230	230	N16-250 E.F.	N16-250 E.F.	N16-250 E.F.



NOTES:

- PIT REINFORCEMENT TO BE SELECTED USING MAXIMUM PIT DIMENSION.
- MINIMUM COVER TO REINFORCING AND CONCRETE STRENGTH AS SPECIFIED ON



3	14/02/2018	ISSUED FOR DEVELOPMENT APPLICATION APPROVAL	MS	DAC	ARM
2	31/01/2018	DRAFT - ISSUED FOR CLIENT REVIEW	MS		ARM
1	19/01/2018	DRAFT - ISSUED FOR RSA	MS		
Rev.	Date	Description	Des.	Verif.	Appd.



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Drawn		Client LENDLEASE			
BML	19/01/2018	LLNDLLAOL			
Checked MS	Date 19/01/2018	Project EAST WEST CONNECTOR ROAD	Status FOR APP	ROVAL	
Designed MS	Date 19/01/2018	AND DUNHEVED LINKS ROAD - STAGE 2	NOT TO BE USED FOR CON		RPOSES
Verified	Date	CIVIL WORKS AND REGIONAL OPEN SPACE	Datum Se	cale Size	
DAC	14/02/2018	Title STORMWATER DRAINAGE DETAILS	AHD /	AS SHOWN	A1
Approved		OTOTALIVATIEN BIVATIVACE BETTALES	Drawing Number		Revision
ARM	14/02/2018	SHEET 02	CV-CARDNO-EW	CV-CARDNO-EWC2-2202	

