

Appendix F

CIVIL

Stormwater Design Drawings (AT&L)

Civil Engineers & Project Managers

60 WALLGROVE ROAD, EASTERN CREEK

INTERNAL CIVIL WORKS PACKAGE

SSDA APPROVAL ISSUE

DRAWING LIST

DWG NO. DRAWING TITLE

DAC001 COVER SHEET AND LOCALITY PLAN

DAC002 NOTES AND LEGENDS

DAC005 PROJECT STAGING PLAN

DAC010 GENERAL ARRANGEMENT PLAN

DAC011 TYPICAL SITE SECTIONS SHEET 1

DAC012 TYPICAL SITE SECTIONS SHEET 2

DAC013 TYPICAL SITE SECTIONS SHEET 3

DAC014 TYPICAL SITE SECTIONS SHEET 4

DAC015 TYPICAL SITE SECTIONS SHEET 5

DAC016 TYPICAL SITE SECTIONS SHEET 6

DAC017 TYPICAL SITE SECTIONS SHEET 7

DAC025 TYPICAL ROAD SECTIONS

DAC030 BULK EARTHWORKS CUT TO FILL PLAN

DAC031 SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 1

DAC032 SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 2

DAC033 SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 3

DAC034 SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 4

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DAC050 ROAD MC03 LONGITUDINAL SECTION

DAC071 PAVEMENT PLAN SHEET 1

DAC072 PAVEMENT PLAN SHEET 2

DAC073 PAVEMENT PLAN SHEET 3

DAC074 PAVEMENT PLAN SHEET 4

DAC075 LINEMARKING AND SIGNAGE PLAN

DAC081 PRE/POST DEVELOPMENT CATCHMENT PLAN

DAC082 OVERALL CATCHMENT PLAN

DAC083 ONSITE DETENTION TANK PLAN AND DETAILS

DAC084 BIO-RETENTION BASIN PLAN AND DETAILS

DAC085 BIO-SWALE PLAN AND DETAILS

DAC091 SERVICES COORDINATION PLAN SHEET 1

DAC092 SERVICES COORDINATION PLAN SHEET 2

DAC093 SERVICES COORDINATION PLAN SHEET 3

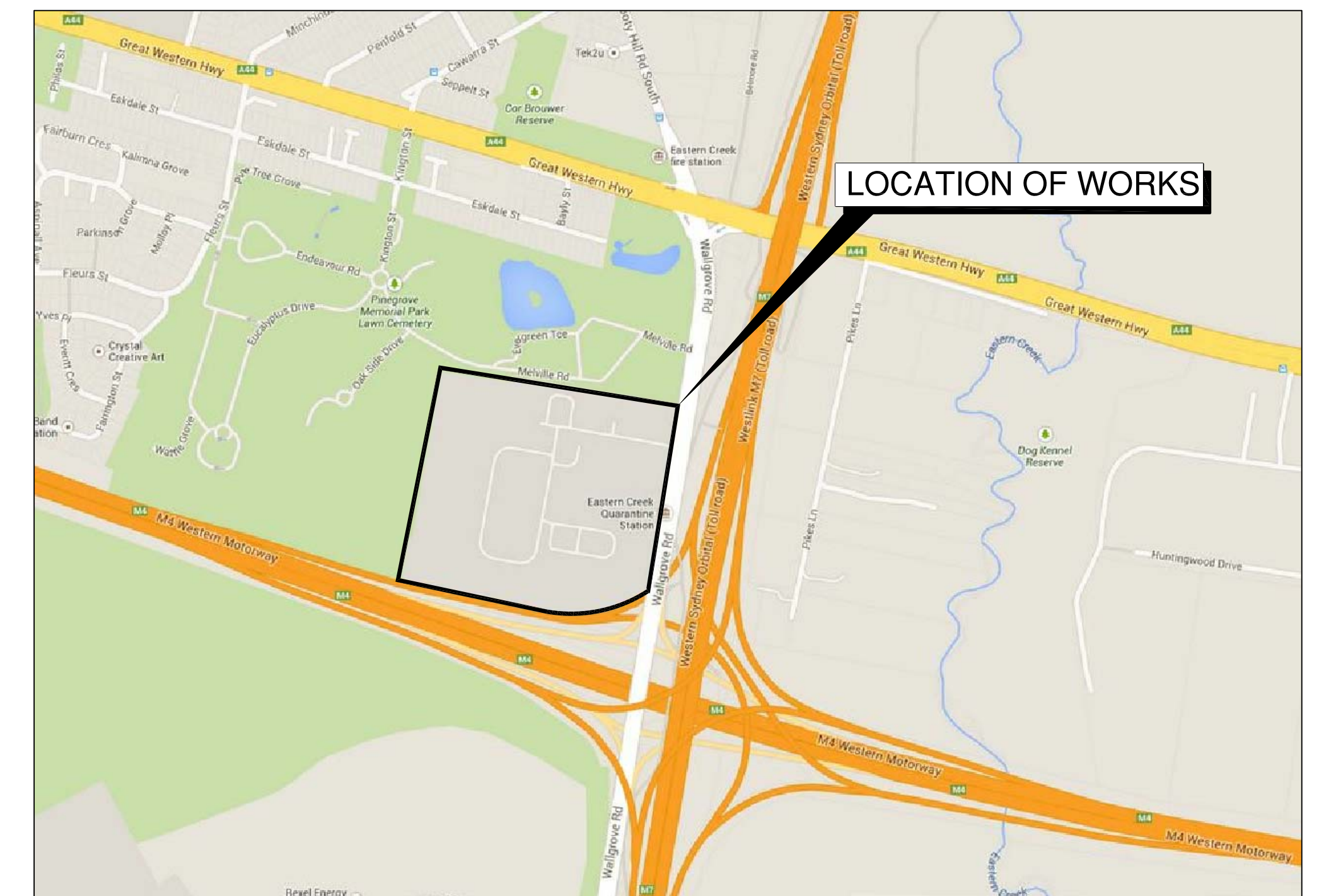
DAC101 EROSION AND SEDIMENTATION CONTROL PLAN SHEET 1

DAC102 EROSION AND SEDIMENTATION CONTROL PLAN SHEET 2

DAC103 EROSION AND SEDIMENTATION CONTROL PLAN SHEET 3



DAC104 EROSION AND SEDIMENTATION CONTROL PLAN SHEET 4

DAC111 VEHICLE TURNING PATH PLAN



LOCALITY PLAN
NTS



			Bar Scales	THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L	<div>Client</div> <div></div>	<div>Scales</div> <div><div>Drawn</div><div>Designed</div></div> <div><div>Grid</div></div> <div><div>Height Datum</div></div> <div></div>	<div><div>AH</div><div>AH</div><div>AMcL</div><div>MG</div></div>	<div>Project</div> <div>60 WALLGROVE ROAD INTERNAL WORKS</div>	<div>Civil Engineers and Project Managers</div> <div><div>Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au</div></div>	<div>Status</div> <div>FOR APPROVAL</div> <div>NOT TO BE USED FOR CONSTRUCTION</div>			<div>A1</div>
										<div>Drawing No.</div> <div>DAC001</div>	<div>Project No.</div> <div>12-108</div>	<div>Issue</div> <div>B</div>	

1. ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa U.N.O.
2. ALL KERBS, GUTTERS, DISH DRAINS, AND CROSSINGS TO BE CONSTRUCTED ON 100mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 95% MODIFIED DRY DENSITY (AS 1289 S.2.1).
3. EXPANSION JOINTS (E.J.) TO BE FORMED FROM 10mm COMPRESSIBLE CORR FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
4. WEAKENED PLANE JOINTS TO BE MIN 3mm wide AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
5. BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
6. IN THE REPLACEMENT OF KERB AND GUTTER :-
EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER NEW BASECOURSE AND SURFACE TO BE LAID 600mm wide U.N.O.

EXISTING KERB AND GUTTER IS TO BE COMPLETELY REMOVED WHERE
NEW KERB AND GUTTER IS SHOWN.



1. ORIGIN OF LEVELS-- REFER SURVEY NOTES.
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO AT & L.
3. MAKE SMOOTH CONNECTION WITH EXISTING WORKS.
4. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
5. 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)
6. PROVIDE 10mm WIDE EXPANSION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVEMENTS.
7. ASPHALTIC CONCRETE SHALL CONFORM TO R.T.A. SPECIFICATION R116.
8. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.T.A. FORM 3051 (UNBOUND), R.T.A. FORM 3052 (BOUND) 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 50m² OF BASECOURSE MATERIAL PLACED.
9. ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.T.A. FORM 3051, 3051+1 AND COMPACTED TO MINIMUM 95% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1
FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m² OF SUB-BASE COURSE MATERIAL PLACED.
10. AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL IN (9) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH R.T.A. FORM 3051 AND 3051+1 WILL BE CONSIDERED. SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF AT & L.
11. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THIS SHALL BE CLEARLY INDICATED IN THEIR TENDER AND THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.
12. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (eg. ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.

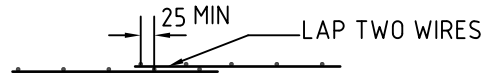
1. STORMWATER DESIGN CRITERIA:
 - (A) AVERAGE RECURRENT INTERVAL:
 - 100 YEARS ROOFED AREAS TO SURCHARGE PIT
 - 120 YEARS EXTENDED PAVEMENTS
 - (B) RAINFALL INTENSITIES:
 - TIME OF CONCENTRATION 5 MINUTES
 - 100 YEARS = 219 mm/hr
 - 120 YEARS = 168 mm/hr
 - (C) RUNOFF COEFFICIENTS:
 - ROOF AREAS: $C_{100} = 1.0$
 - EXTERNAL PAVEMENTS: $C_{20} = 0.7$
2. PIPES 750 DIA. AND LARGER TO UTILISE SULPHATE RESISTANT CEMENT
3. PIPES 300 DIA. AND LARGER TO BE FIBRE REINFORCED CONCRETE CLASS APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.
4. PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS.
5. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE 6. ENSURE ALL VERTICALS AND DOWNPIES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.
6. PIPES TO BE INSTALLED TO TYPE HS2 SUPPORT IN ACCORDANCE WITH AS 3725 (1989) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS IN PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED MATERIAL COMPACTED IN 50mm LAYERS TO MINIMUM 92% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.9.2 (OR A DENSITY INDEX OF NOT LESS THAN 75)
7. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2 (1998).
8. PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY AT & L.
9. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
10. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
11. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
12. GRATES AND COVERS SHALL CONFORM TO AS 3396.
13. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
14. 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.

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

2. CONCRETE QUALITY
ALL REQUIREMENTS OF THE CURRENT ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.

- CEMENT TYPE SHALL BE (ACSE SPECIFICATION) TYPE SL
- PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1379.

3. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY AT & L.
4. CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE 40mm TOP AND 70mm FOR EXTERNAL EDGES UNLESS NOTED OTHERWISE.
5. 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.
6. 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.
7. REINFORCEMENT SYMBOLS:
N DENOTES GRADE 450 N BARS TO AS 1302 GRADE N
R DENOTES R30 R HOT ROLLED PLAIN BARS TO AS 1302
SL DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS 1304
8. NUMBER OF BARS IN GROUP:  BAR GRADE AND TYPE
NOMINAL BAR SIZE IN mm  SPACING IN mm
- THE FIGURE FOLLOWING THE FABRIC SYMBOL SL IS THE REFERENCE NUMBER FOR FABRIC TO AS 1304.
9. FABRIC SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING DETAIL:



GENERAL INSTRUCTIONS

1. THE SITE SUPERINTENDENT/ENGINEER WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS DOCUMENTED.
2. 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.
5. 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.

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 WIND FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
- (B) INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
- (C) CONSTRUCT STABILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.
- (D) INSTALL SEDIMENT BASIN AS SHOWN ON PLAN
- (E) INSTALL SEDIMENT TRAPS AS SHOWN ON PLAN.
- (F) 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.

7. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
8. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

9. 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 STRUTURE.
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
 - (C) 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 15 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICHEVER IS THE GREATER
 - (II) A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (I.E. 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.

PROPOSED

- | | |
|--|---|
| | PROPOSED BOUNDARY |
| | EXISTING CONTOUR |
| | FINISHED SURFACE LEVEL |
| | PROPOSED CONTOUR |
| | KERB AND GUTTER
BCC - A(BS)101M |
| | KERB ONLY
BCC - A(BS)101M |
| | DISH DRAIN
BCC - A(BS)101M |
| | INTEGRAL KERB
BCC - A(BS)101M |
| | VEHICULAR CROSSING
BCC - A(BS)103S |
| | PRAM RAMP
BCC - A(BS)104M |
| | STORMWATER PIT, LINE & NUMBER |
| | STORMWATER DOWNPIPE AND
TRUNK LINE |
| | STORMWATER JUNCTION PIT
BCC - A(BS)107M |
| | STORMWATER SURFACE INLET PIT
BCC - A(BS)109M |
| | STORMWATER HEADWALL |
| | GRATED DRAIN |
| | RETAINING WALL |
| | GUARD FENCE |
| | FENCE LINE |
| | STREET SIGN |

2. STRIP ALL TOPSOIL/ORGANIC MATERIAL FROM CONSTRUCTION AREA AND REMOVE FROM SITE OR STOCKPILE AS DIRECTED BY SUPERINTENDENT.

3. EXCAVATED MATERIAL TO BE USED AS STRUCTURAL FILL PROVIDED THE PLACEMENT MOISTURE CONTENT OF THE MATERIAL IS +/- 2% OF THE OPTIMUM MOISTURE CONTENT.

4. COMPACT FILL AREAS AND SUBGRADE TO NOT LESS THAN:

LOCATION	STANDARD DRY DENSITY (AS 1289 E 5.1.1)
UNDER BUILDING SLABS ON GROUND	98%
UNDER ROADS AND CARPARKS	98%
LANDSCAPED AREAS UNLESS NOTED OTHERWISE	98%

5. FOR NON COHESIVE MATERIAL, COMPACT TO 75% DENSITY INDEX.

6. BEFORE PLACING FILL, PROOF ROLL EXPOSED SUBGRADE WITH AN 8 TONNE (M1) DEADWEIGHT SMOOTH DRUM VIBRATORY ROLLER TO DETECT THEN REMOVE SOFT SPOTS (AREAS WITH MORE THAN 2mm MOVEMENT UNDER ROLLER).

7. FREQUENCY OF COMPACTION TESTING SHALL BE NOT LESS THAN -
(A) 1 TEST PER 200m² OF FILL PLACED PER 300 LAYER OF FILL.
(B) 3 TESTS PER VISIT
(C) 1 TEST PER 1000m² OF EXPOSED SUBGRADE
TESTING SHALL BE "LEVEL 1" TESTING IN ACCORDANCE WITH AS 3798 (1996).


8. FILLING TO BE PLACED AND COMPACTED IN MAXIMUM 150mm LAYERS

9. NO FILLING SHALL TAKE PLACE TO EXPOSE SUBGRADE UNTIL THE AREA HAS BEEN PROOF ROLLED IN THE PRESENCE OF AT & L AND APPROVAL GIVEN IN WRITING THAT FILLING CAN PROCEED.

9. EARTHWORKS TO BE INDEBTAKEN IN ACCORDANCE WITH THE RECOMMENDATIONS OF DOUGLAS & PARTNERS GEOTECHNICAL REPORTS REF. 71089.00 AND 84798.00

10. SALINITY MANAGEMENT WILL BE REQUIRED ON SITE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE DOUGLAS & PARTNERS GEOTECHNICAL REPORT

EXISTING SERVICES

- | | |
|---|----------------------|
| — e — e — e — | ELECTRICITY |
| — EOH — — EOH — | ELECTRICITY OVERHEAD |
|  | LIGHT POLE |
| — T — — T — — T — | TELSTRA CONDUITS |
| — OP — — OP — | OPTUS CONDUITS |
| — s — — s — — s — | SEWER SERVICE |
| — w — — w — — w — | WATER SERVICE |
| — G — — G — — G — | GAS SERVICE |
| — SW — — SW — | STORMWATER |
| • | WATER HYDRANT |
| x | WATER STOP VALVE |

The diagram illustrates a cross-section of a utility trench with various services and their corresponding symbols. The services are listed on the right, with their symbols on the left:

- WATER SERVICE:** Represented by a blue line with 'W' markers.
- POWER POLE:** Represented by a red dot.
- PEDESTRIAN LIGHT POLE:** Represented by a red symbol of a pole with a single light fixture.
- LIGHT POLE:** Represented by a red symbol of a pole with two light fixtures.
- ELECTRICITY CONDUITS:** Represented by a red line with 'E' markers.
- TELSTRA CONDUITS:** Represented by a green line with 'T' markers.
- GAS (100mm SPARE CONDUIT):** Represented by a blue line with 'G' markers.
- SEWER SERVICE:** Represented by an orange line with 'S' markers.
- SEWER MANHOLE:** Represented by an orange circle with a cross inside.
- STORMWATER:** Represented by a black dashed line with a square manhole symbol.

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS
HAS BEEN COMPILED VIA WAE SURVEY
THE INFORMATION IS SHOWN TO PROVIDE A BASIS
FOR DESIGN. AT & L 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 AT & L.

THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM THE ORIGINAL SURVEY DOCUMENTS.

IMPORTANT NOTE:
THIS PLAN IS PREPARED FROM A COMBINATION OF FIELD SURVEY AND EXISTING RECORDS FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS ON THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE. THE TITLE BOUNDARIES SHOWN HEREON WERE NOT MARKED BY THE AUTHOR AT THE TIME OF SURVEY AND HAVE BEEN DETERMINED BY PLAN DIMENSIONS ONLY AND NOT BY FIELD MEASUREMENT.

A SERVICES SEARCH OF THE AREA SURVEYED ABOVE HAS NOT BEEN UNDERTAKEN. VISIBLE SERVICES SHOWN HEREON HAVE BEEN LOCATED WHERE POSSIBLE BY FIELD SURVEY. PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR POSSIBLE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES. THIS NOTE IS AN INTEGRAL PART OF THIS PLAN.

ORIGIN OF LEVELS: SSM 32540
RL 52487 AHD
BEARINGS SHOWN ARE MGA

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Client

Scales

Drawn

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Civil Engineers and Project Managers

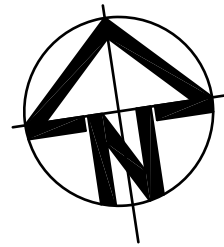


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Status **FOR APPROVAL**
NOT TO BE USED FOR CONSTRUCTION

Drawing No. DAC002	Project No. 12-108
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100mm on Original



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DP1091805

STAGE 1
ROAD AND
EARTHWORKS

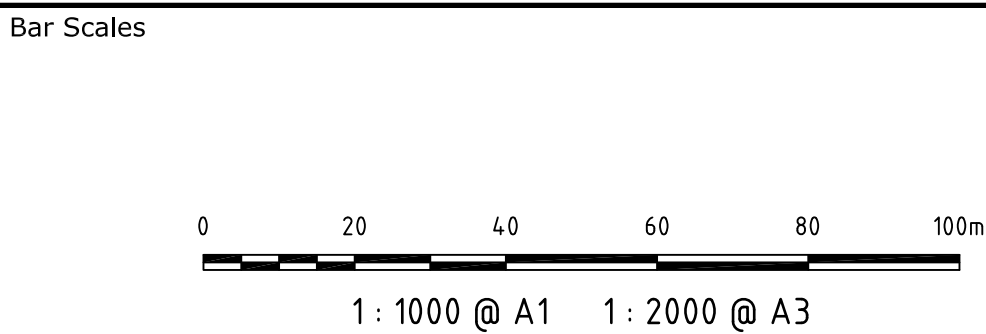
EXTERNAL INTERSECTION WORKS
AND LEAD-IN SERVICES TO BE
COMPLETED IN CONJUNCTION WITH
STAGE 1 INTERNAL WORKS

WALLGROVE ROAD

STAGE 2
ROAD EXTENSION

M4 MOTORWAY

B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date



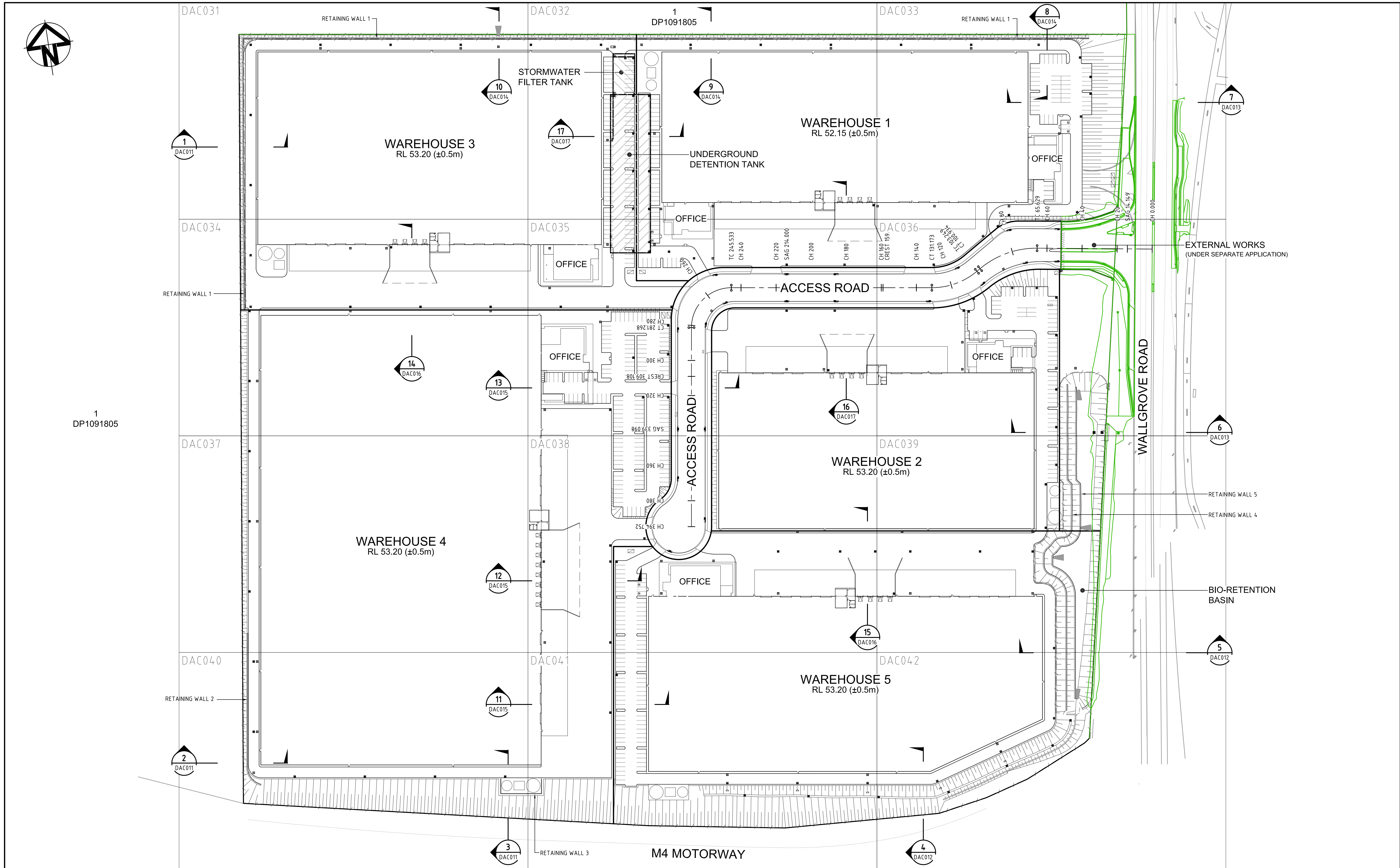
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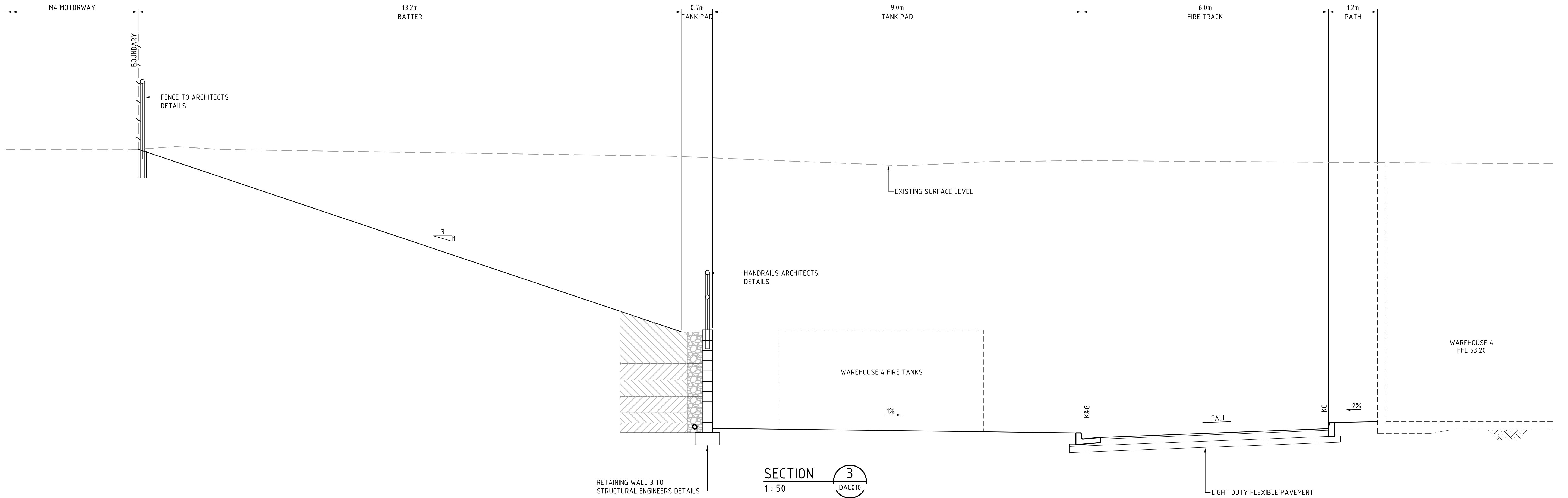
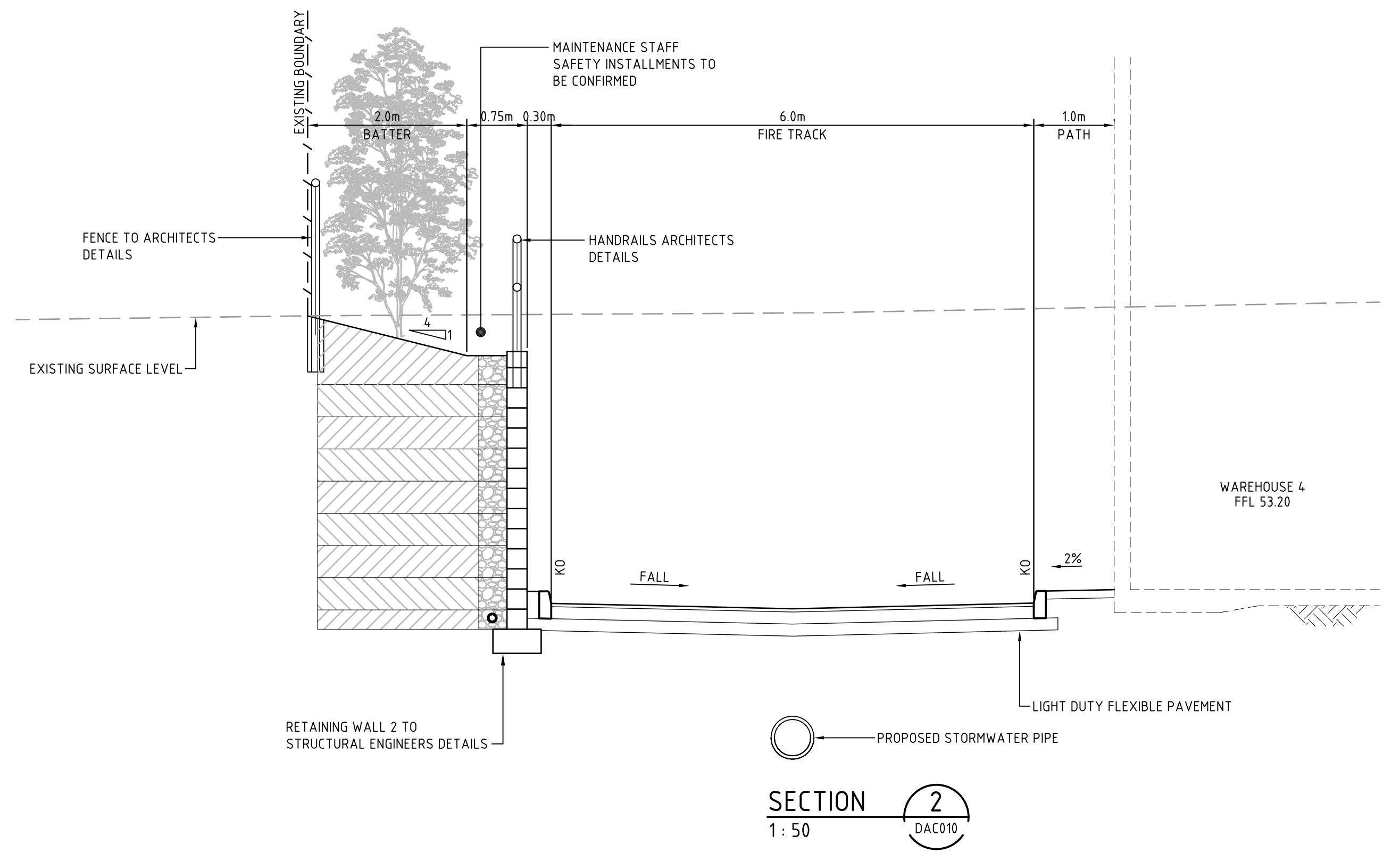
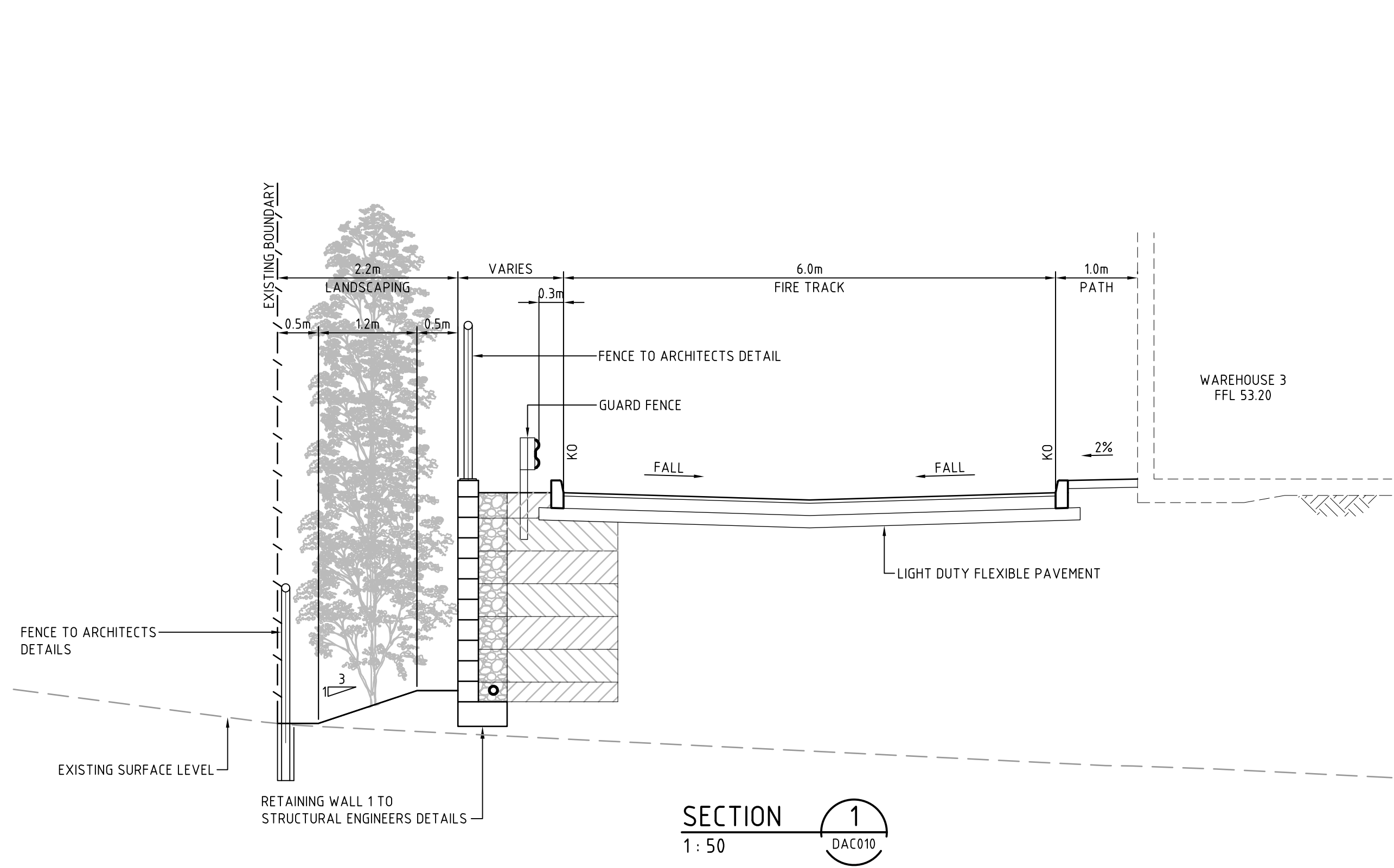
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	Height Datum	AHD
Drawn	Designed	AH
	Checked	AMcL
	Approved	MG

Project	
60 WALLGROVE ROAD INTERNAL WORKS	
Title	
PROJECT STAGING PLAN	

Civil Engineers and Project Managers		
Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au		
Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Drawing No.	Project No.	Issue
DAC005	12-108	B



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								1:1000 @ A1		AH		60 WALLGROVE ROAD INTERNAL WORKS			
								Grid MGA		Designed AH				Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au	
								Height Datum AHD		Checked AMcL				Status	
										Approved MG		GENERAL ARRANGEMENT PLAN		FOR APPROVAL	
														NOT TO BE USED FOR CONSTRUCTION	
Issue		Description		Date										Drawing No.	
														12-108	
														Issue	
														B	



B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date

Bar Scales
1:50 @ A1 1:100 @ A3

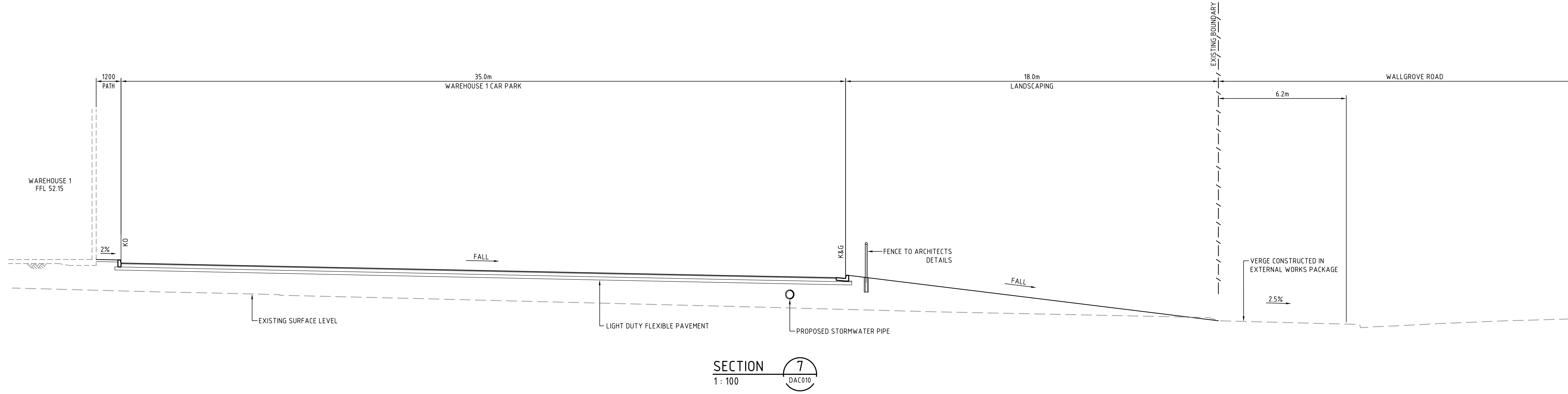
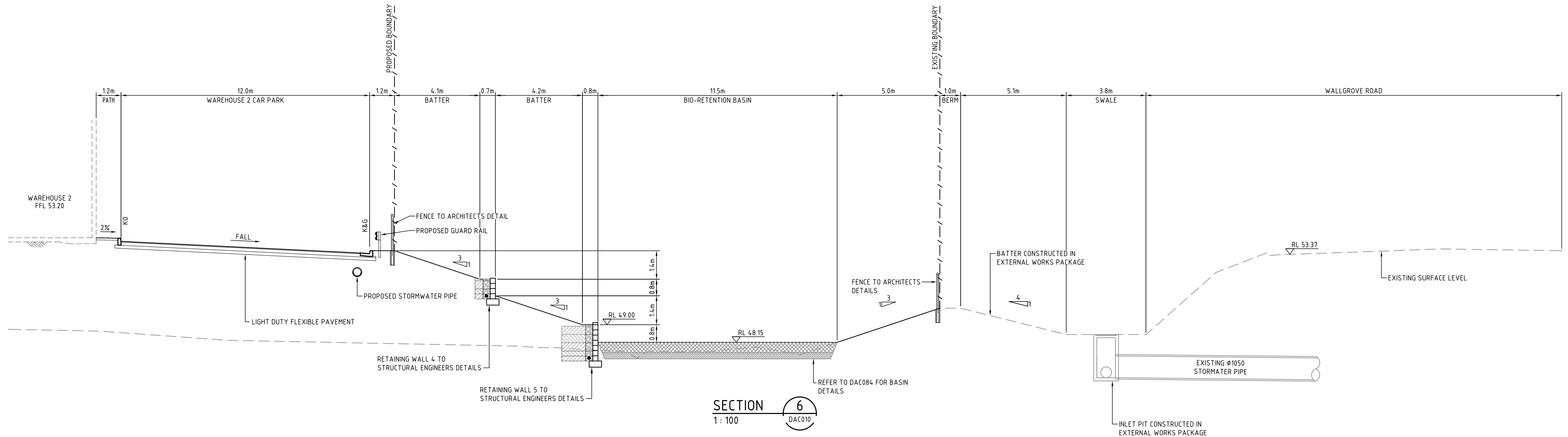
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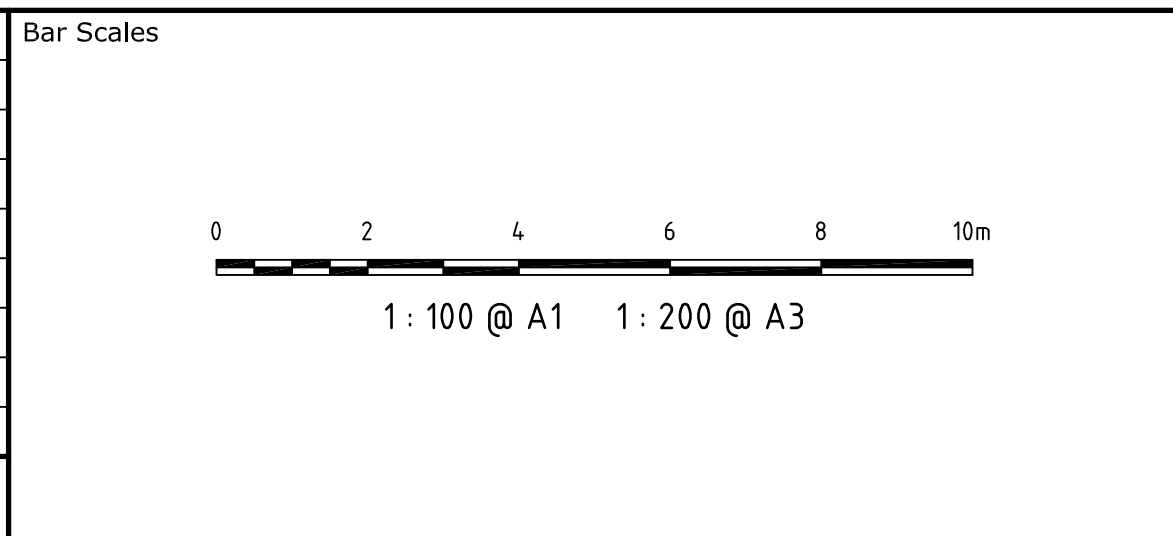
Scales	1:50 @ A1	Drawn	AH
		Designed	AH
Grid	MGA	Checked	AMcL
Height Datum	AHD	Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
Title	TYPICAL SITE SECTIONS SHEET 1

Civil Engineers and Project Managers		
Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au		
Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Drawing No.	12-108	Issue
DAC011		B



B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date



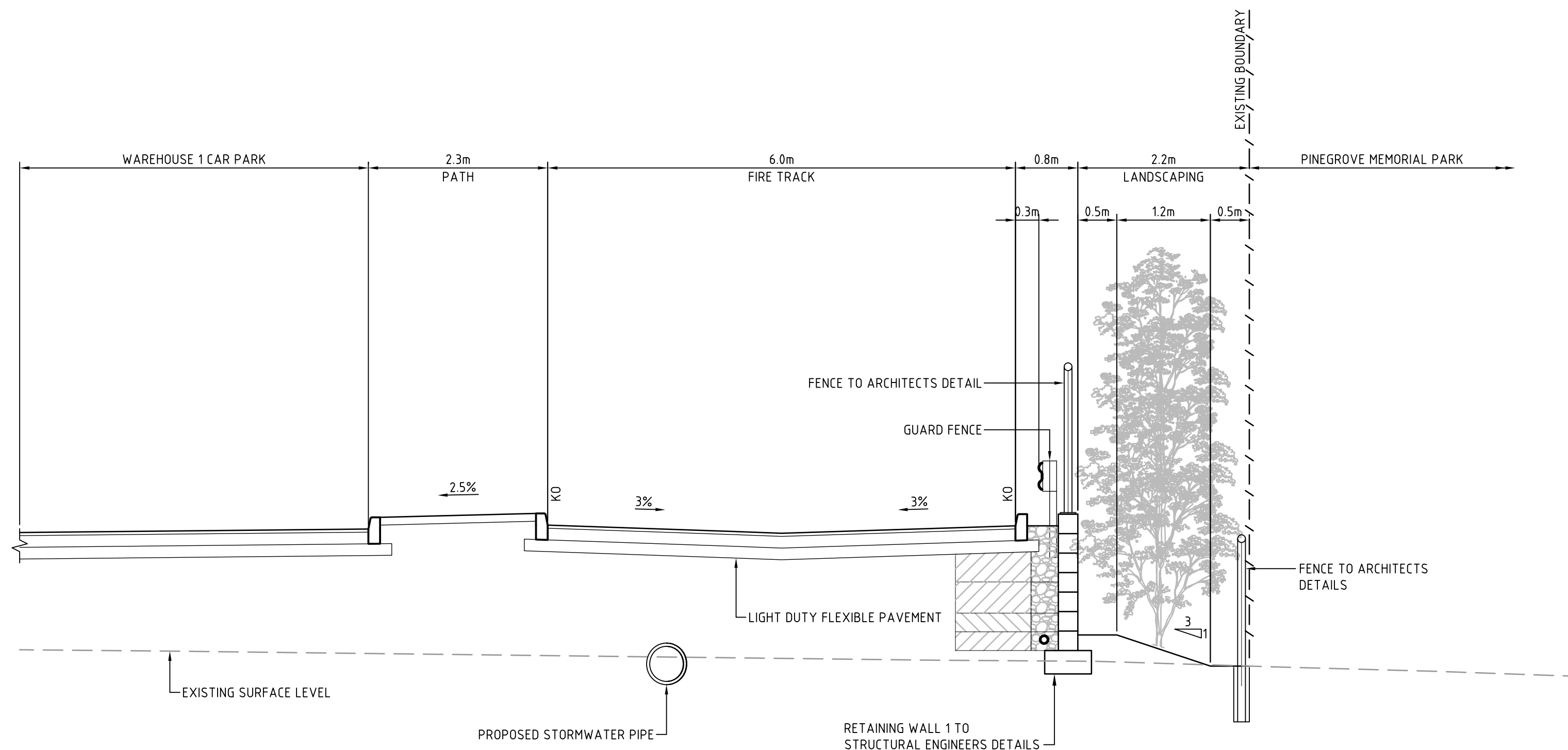
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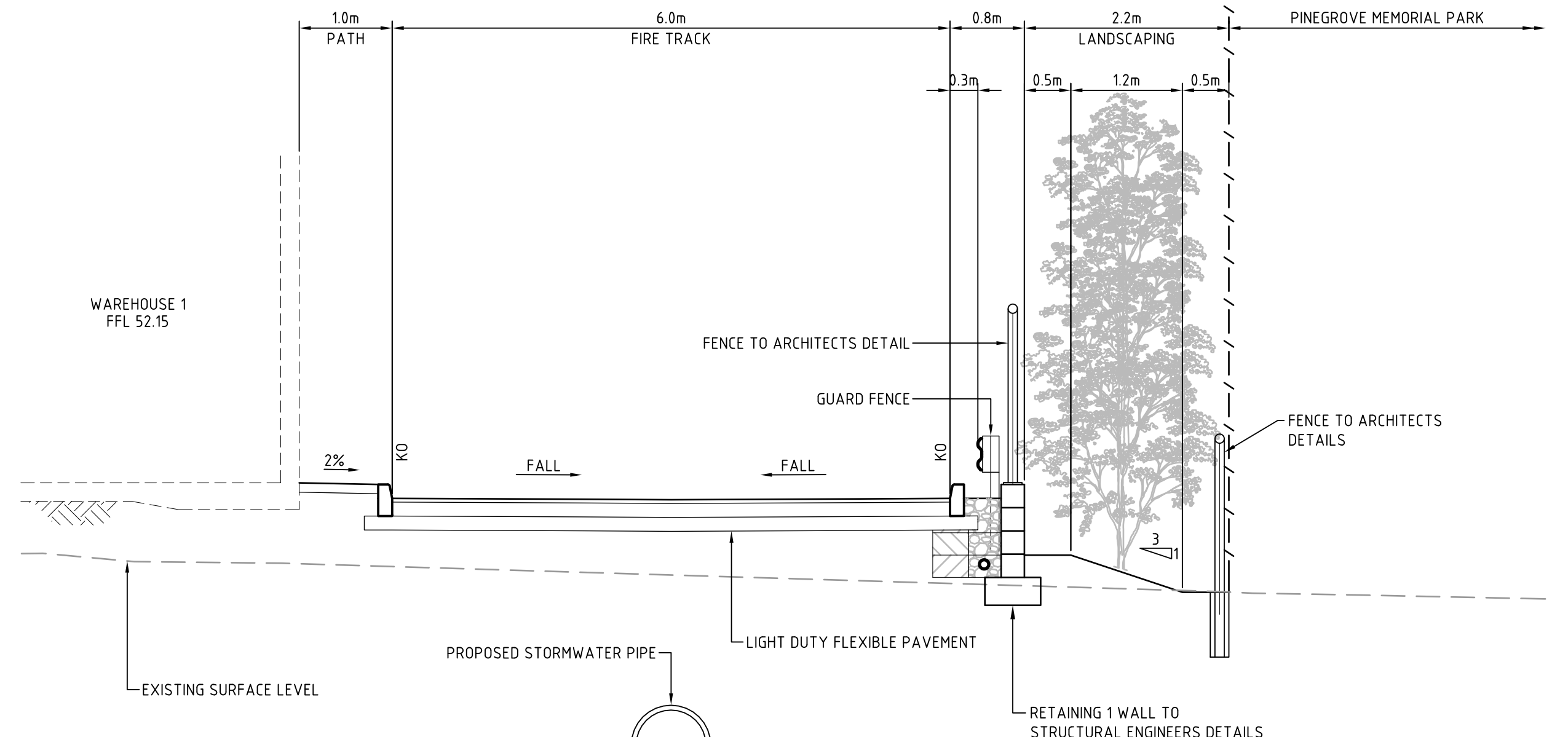
Scales	1:100 @ A1	Drawn	AH
		Designed	AH
Grid	MGA	Checked	AMcL
Height Datum	AHD	Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
Title	TYPICAL SITE SECTIONS SHEET 3

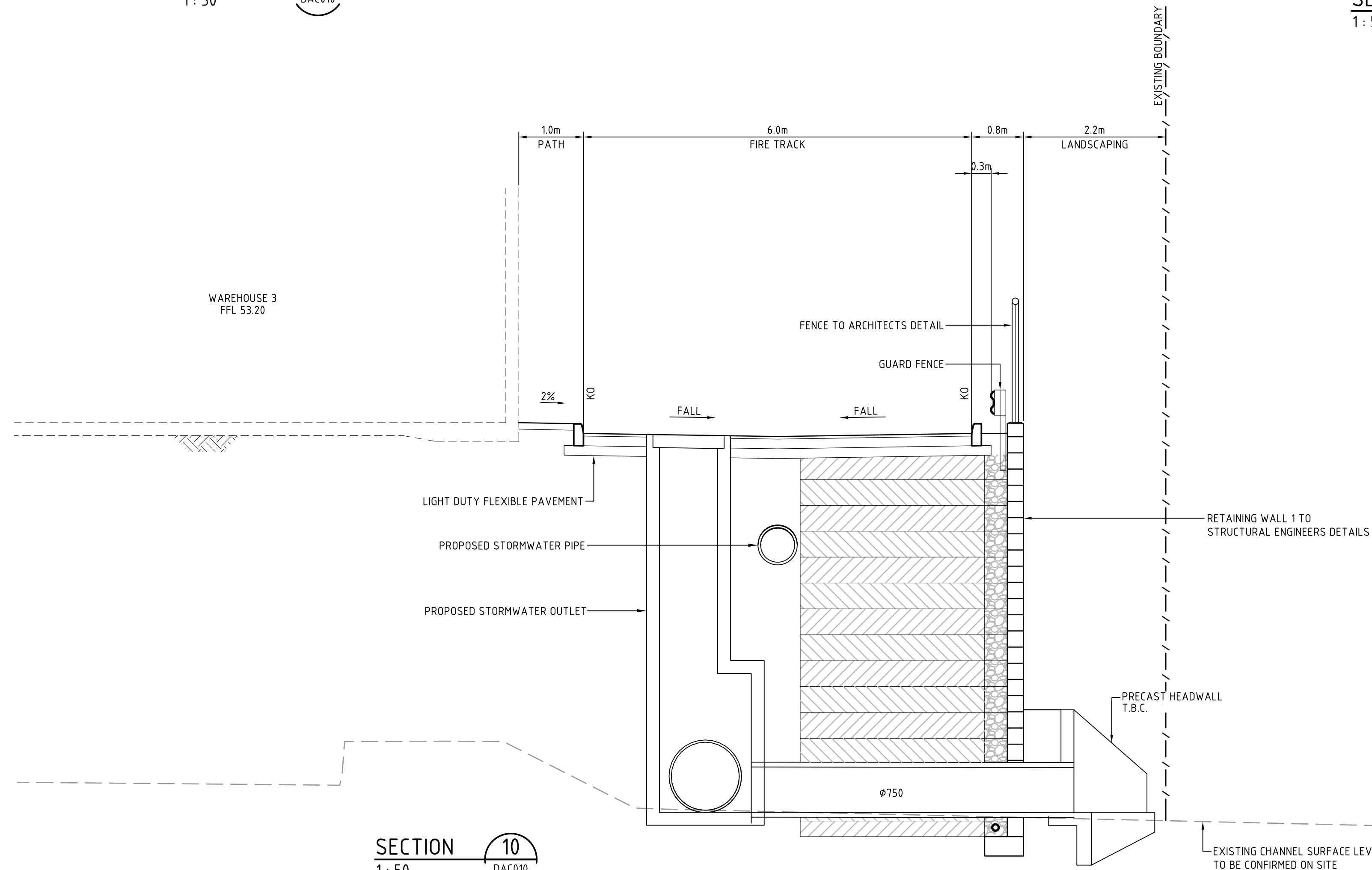
Civil Engineers and Project Managers at&l Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au		
Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Drawing No.	12-108	Issue
DAC013		B



SECTION 8
1: 50
DAC010

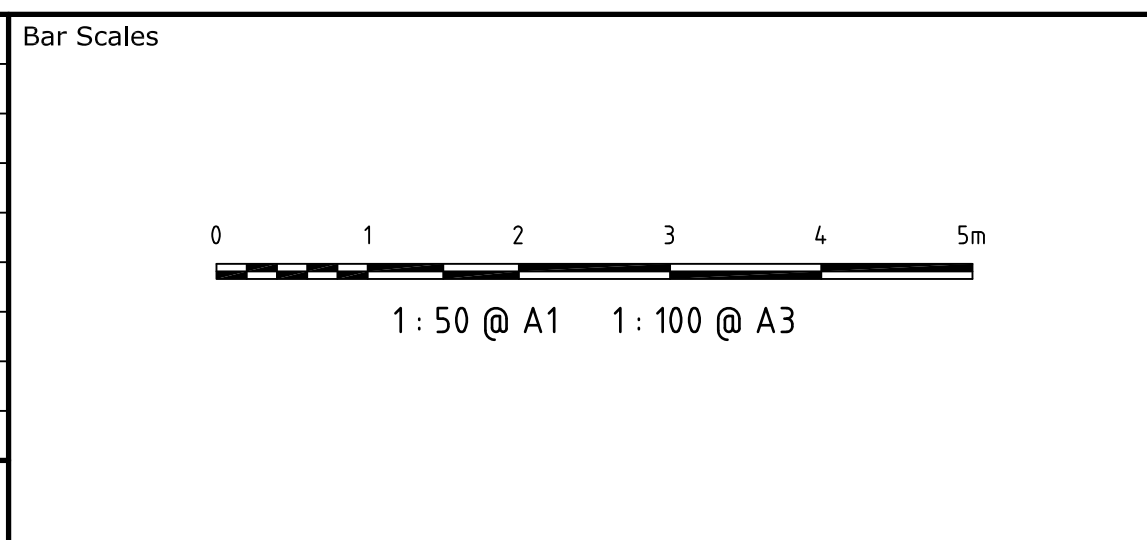


SECTION 9
1: 50
DAC010



SECTION 10
1: 50
DAC010

B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date



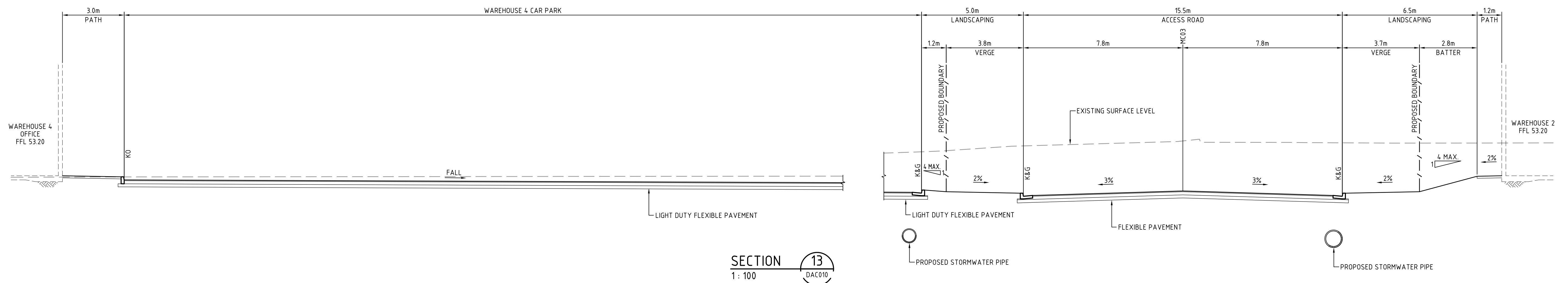
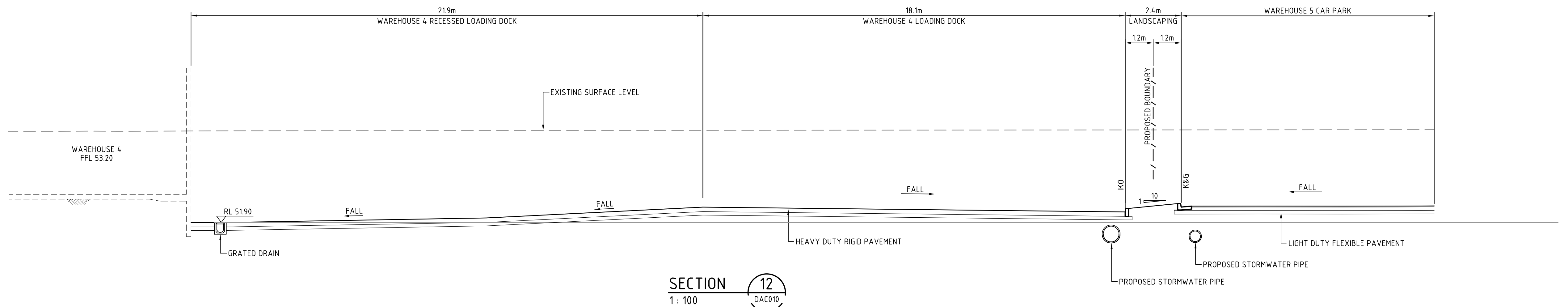
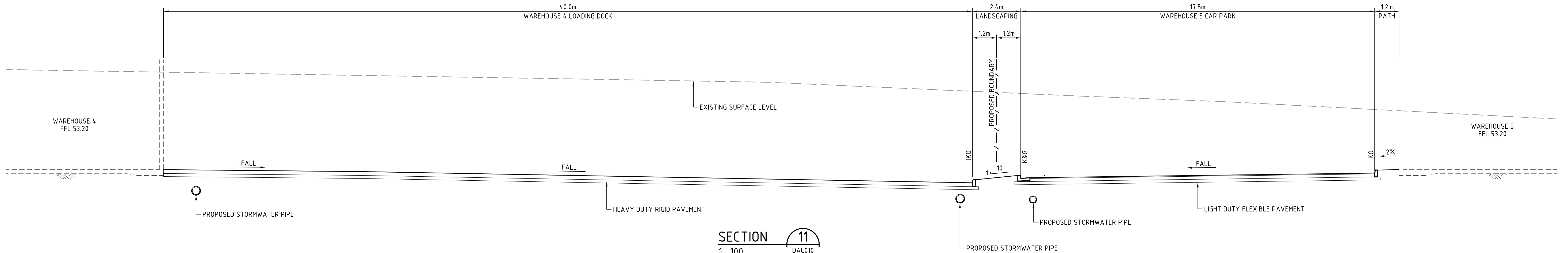
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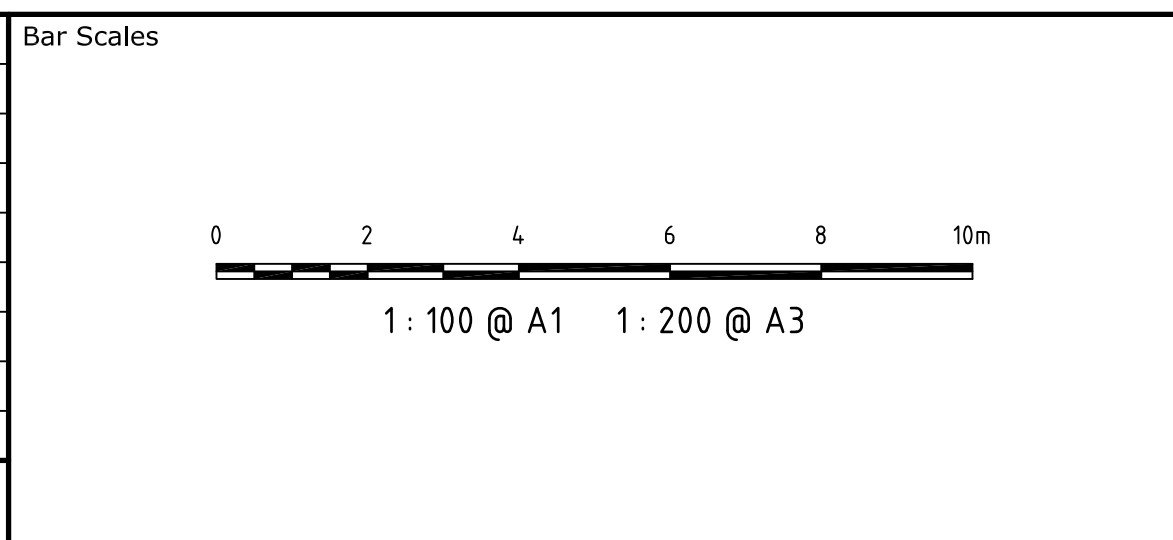
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		Designed	AH
Grid	MGA	Checked	AMcL
Height Datum	AHD	Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
Title	TYPICAL SITE SECTIONS SHEET 4

Civil Engineers and Project Managers		
at&I		
Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au		
Status	FOR APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		
Drawing No.	Project No.	Issue
DAC014	12-108	B



B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date



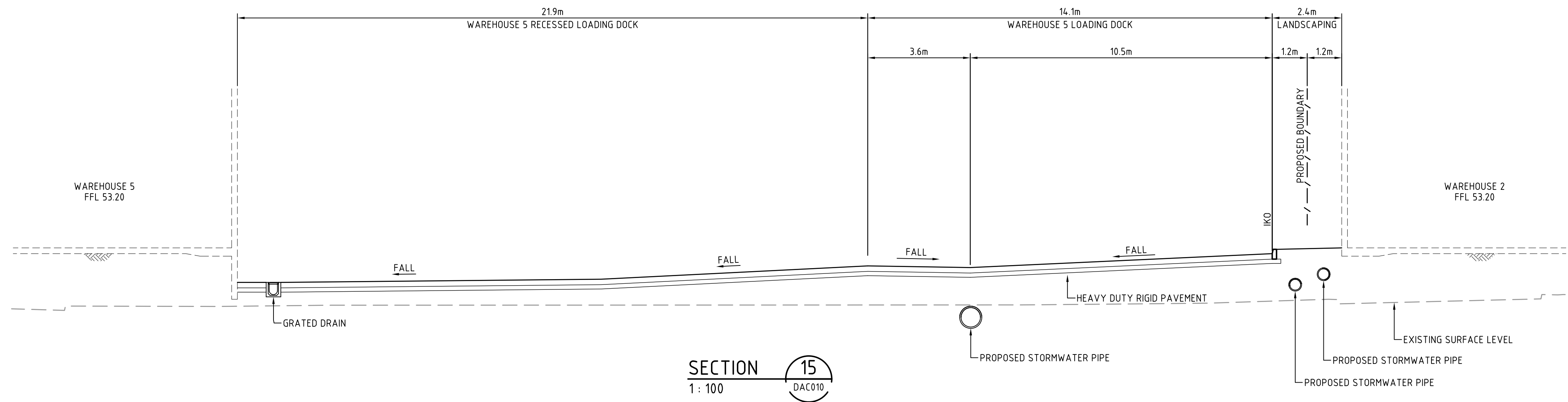
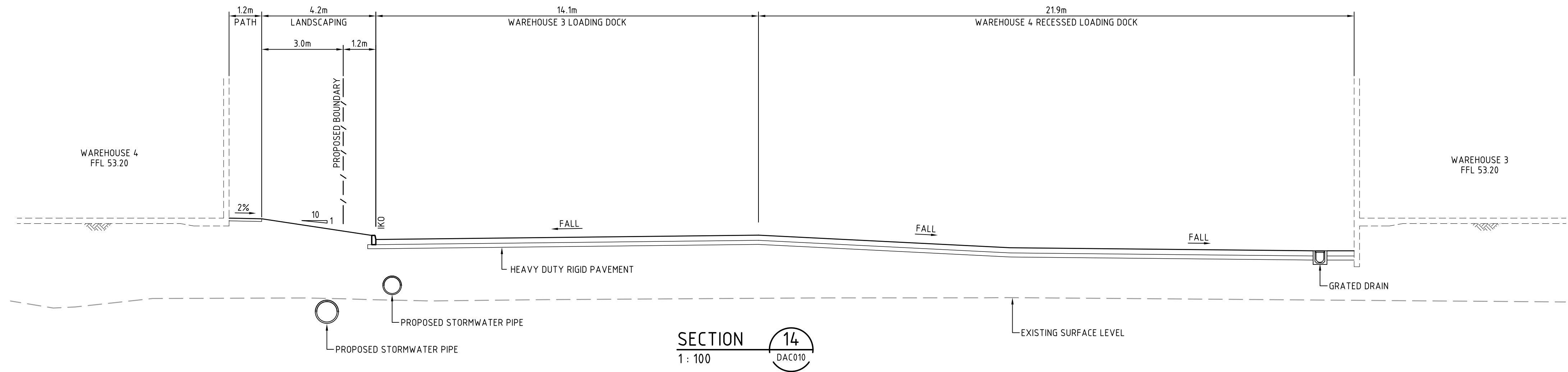
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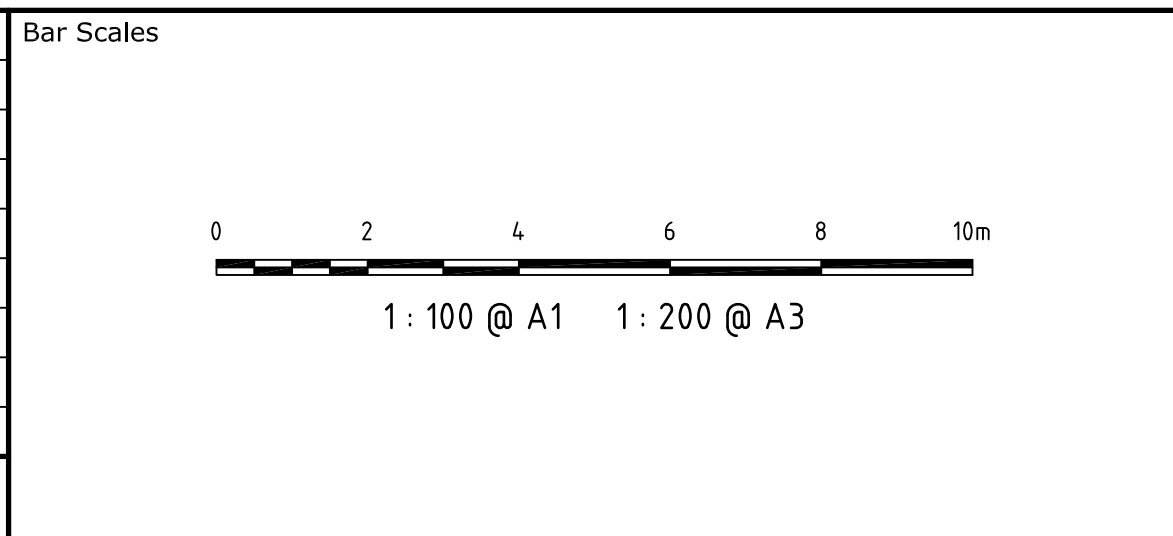
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		Designed	AH
Grid	MGA	Checked	AMcL
Height Datum	AHD	Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
Title	TYPICAL SITE SECTIONS SHEET 5

Civil Engineers and Project Managers		
at&L		
Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au		
Status	FOR APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		
Drawing No.	Project No.	Issue
DAC015	12-108	B



B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date



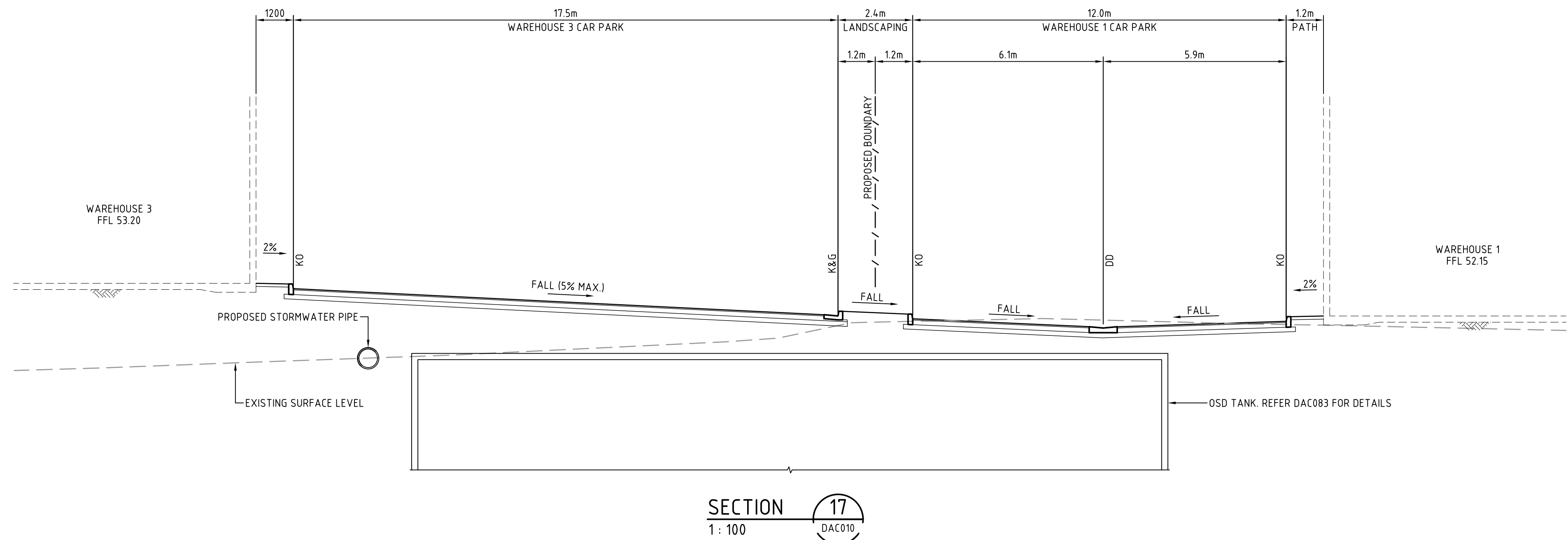
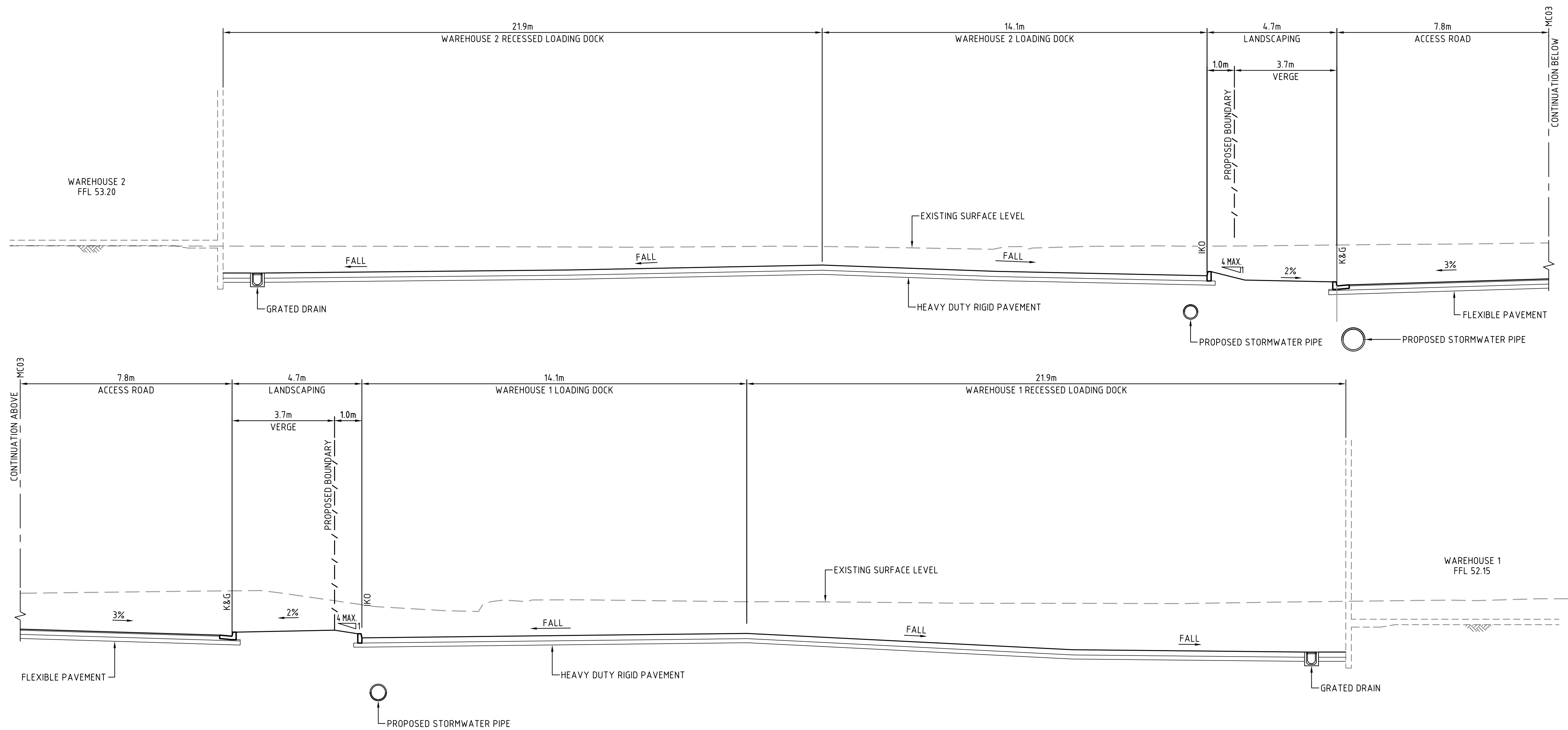
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THAT ORIGINALLY INTENDED
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PERMISSION OF AT&L




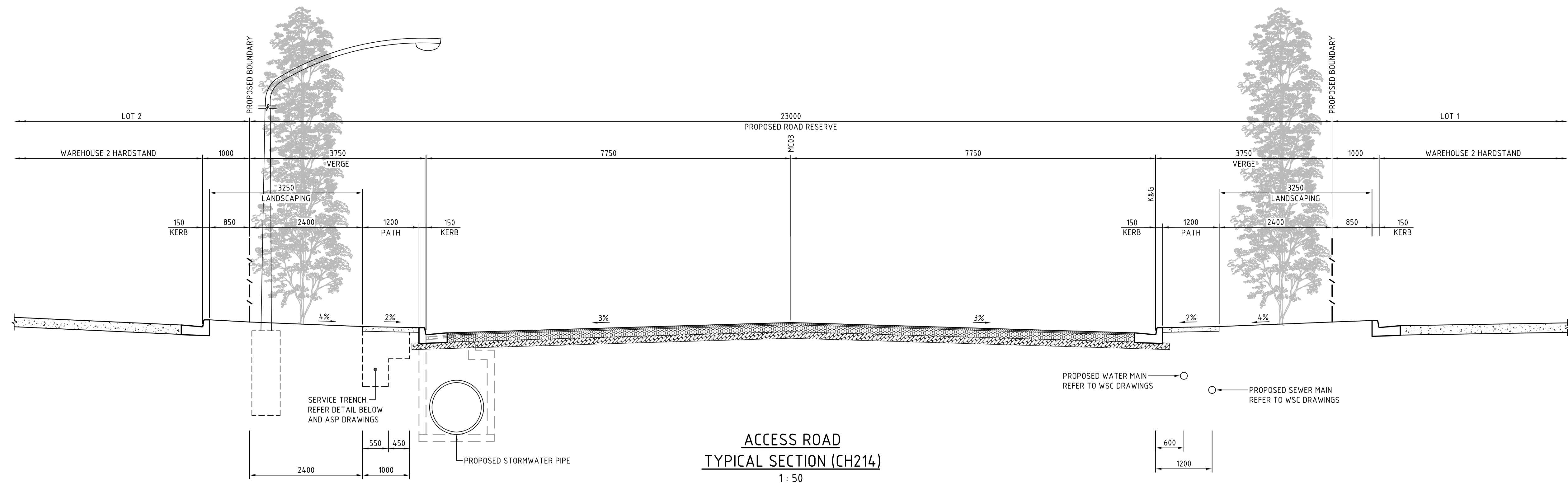
Scales	1:100 @ A1	Drawn	AH
		Designed	AH
Grid	MGA	Checked	AMcL
Height Datum	AHD	Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
Title	TYPICAL SITE SECTIONS SHEET 6

Civil Engineers and Project Managers		
at&l		
Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au		
Status	FOR APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		
Drawing No.	Project No.	Issue
DAC016	12-108	B

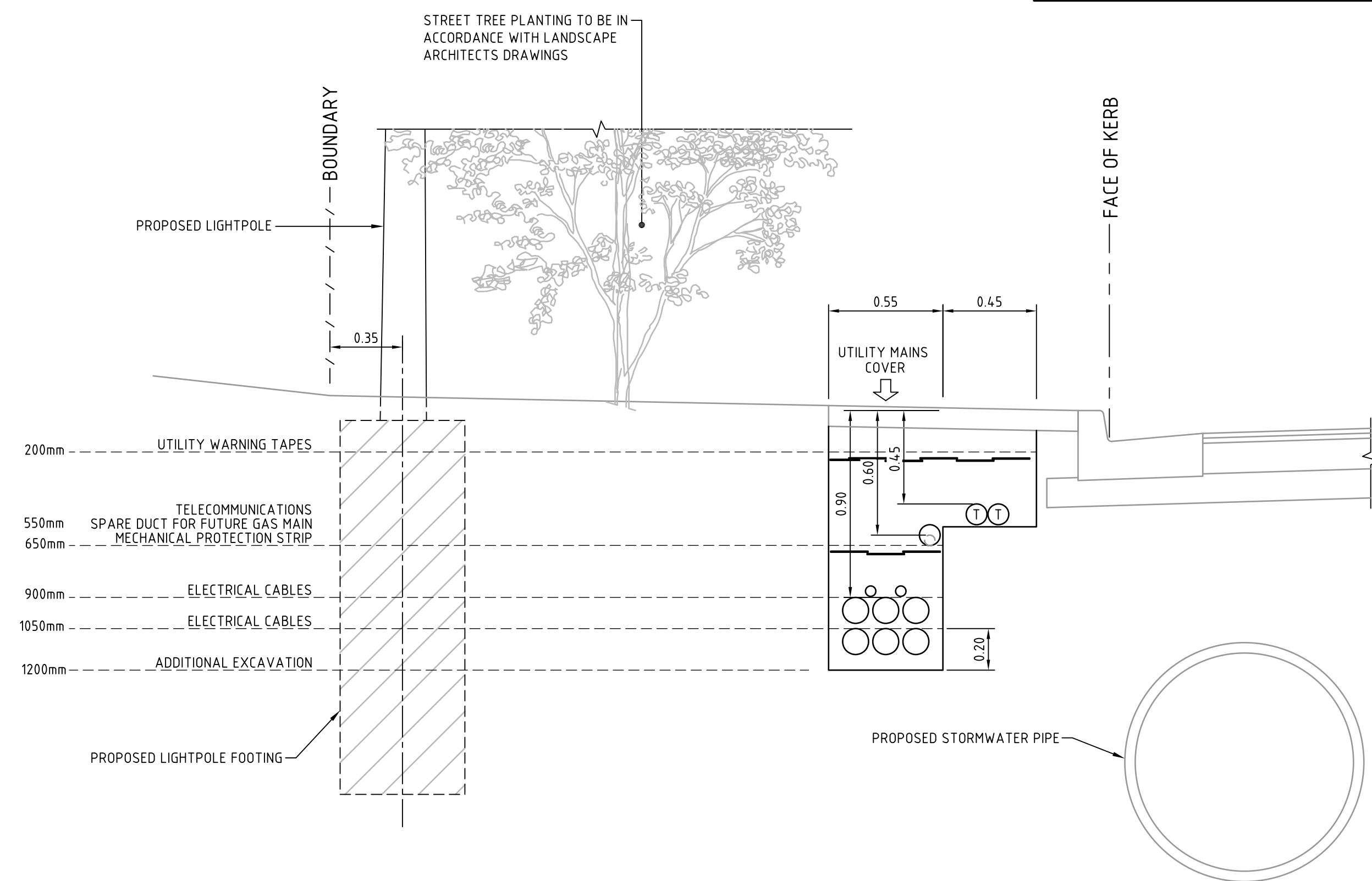


			Bar Scales		THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L	<div>Client</div> <div></div>	Scales		Drawn	AH	Project	Civil Engineers and Project Managers					
			 1 : 100 @ A1 1 : 200 @ A3				1:100 @ A1		Designed	AH		 <div>Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au</div>					
							Grid	MGA	Checked	AMcL							
							Height Datum	AHD	Approved	MG							
B	RE-ISSUED FOR APPROVAL	28-05-15									TYPICAL SITE SECTIONS SHEET 7	Status		A1			
A	ISSUED FOR APPROVAL	26-05-15										FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION					
Issue	Description	Date										Drawing No.	Project No.	Issue			
												DAC017	12-108	B			





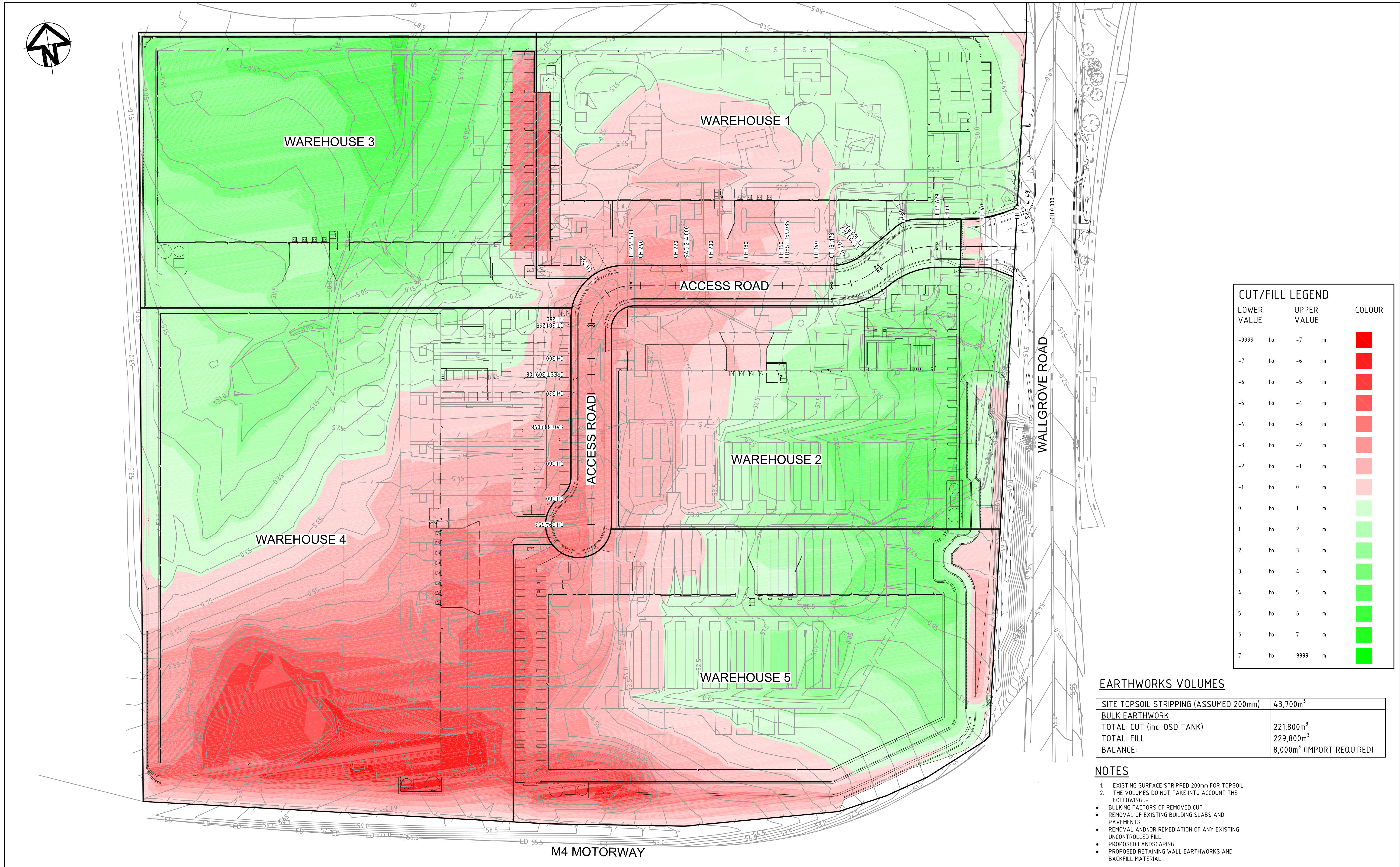
ACCESS ROAD
TYPICAL SECTION (CH214)
1: 50

NOTE
EASEMENT TO BE CREATED OVER SERVICES IN
ACCORDANCE WITH AUTHORITIES REQUIREMENTS



TYPICAL SERVICES TRENCH DETAIL
SCALE 1:20

			Bar Scales		THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L	Client <div></div>	Scales		Drawn		Project <div>60 WALLGROVE ROAD INTERNAL WORKS</div>	Civil Engineers and Project Managers				
			<div><div><div>0</div><div>500</div><div>1000</div><div>1500</div><div>2000mm</div></div><div>1: 20 @ A1 1: 40 @ A3</div></div>				AS SHOWN		Designed	AH		<div></div> <div>Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au</div>				
			<div><div><div>0</div><div>1</div><div>2</div><div>3</div><div>4</div><div>5m</div></div><div>1: 50 @ A1 1: 100 @ A3</div></div>				Grid		MGA	Checked			AMcL	Status <div>FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION</div>	A1	
							Height Datum		AHD	Approved	MG		Title <div>TYPICAL ROAD SECTIONS</div>			Drawing No. DAC025
B	RE-ISSUED FOR APPROVAL		28-05-15													
A	ISSUED FOR APPROVAL		26-05-15													
Issue	Description		Date													



CUT/FILL LEGEND				
LOWER VALUE		UPPER VALUE		COLOUR
-9999	to	-7	m	
-7	to	-6	m	
-6	to	-5	m	
-5	to	-4	m	
-4	to	-3	m	
-3	to	-2	m	
-2	to	-1	m	
-1	to	0	m	
0	to	1	m	
1	to	2	m	
2	to	3	m	
3	to	4	m	
4	to	5	m	
5	to	6	m	
6	to	7	m	
7	to	9999	m	

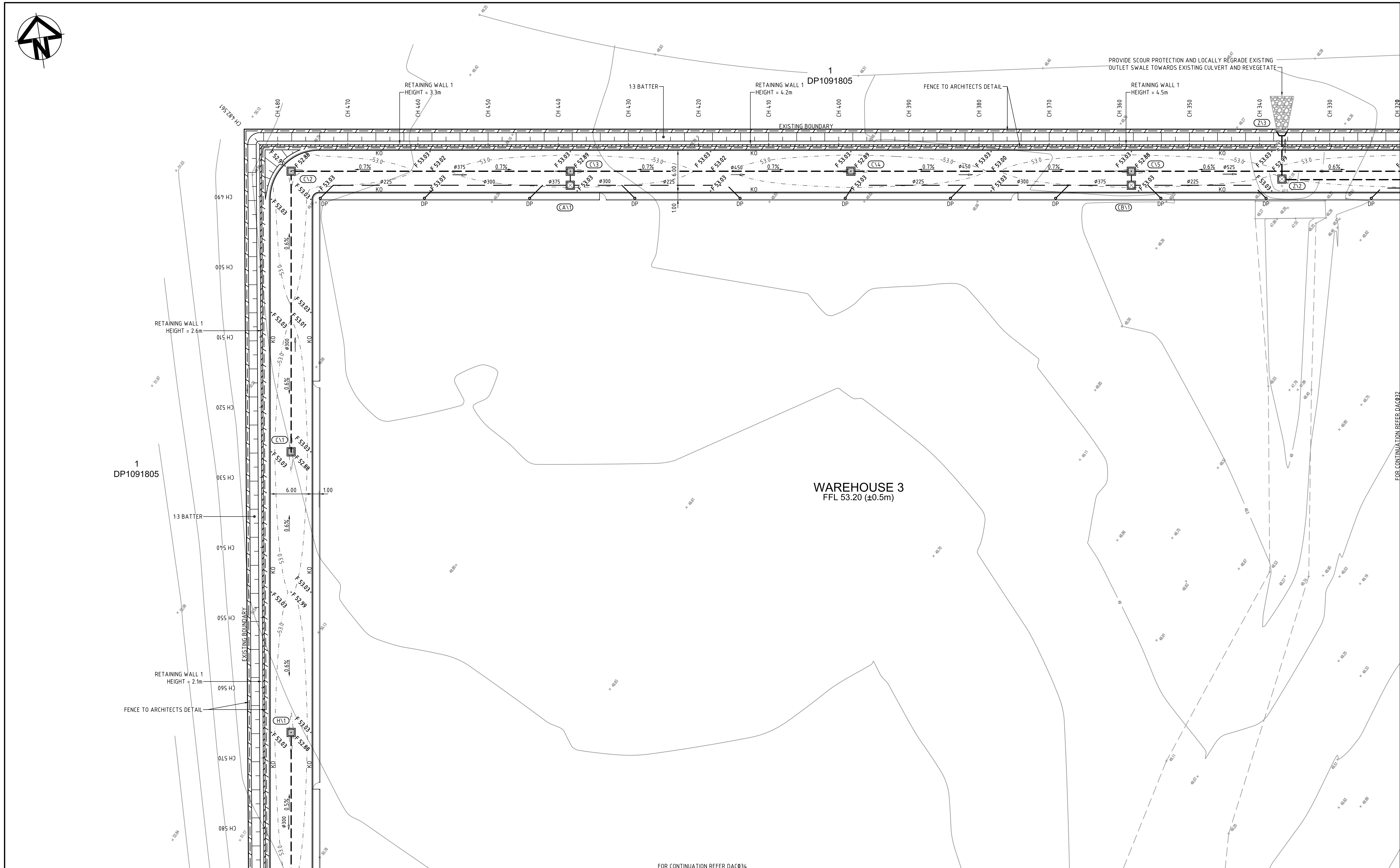
EARTHWORKS VOLUMES

SITE TOPSOIL STRIPPING (ASSUMED 200mm)	43,700m ³
BULK EARTHWORK	
TOTAL: CUT (inc. OSD TANK)	221,800m ³
TOTAL: FILL	229,800m ³
BALANCE:	8,000m ³ (IMPORT REQUIRED)

NOTES

- EXISTING SURFACE STRIPPED 200mm FOR TOPSOIL
- THE VOLUMES DO NOT TAKE INTO ACCOUNT THE FOLLOWING -
 - BULKING FACTORS OF REMOVED CUT
 - REMOVAL OF EXISTING BUILDING SLABS AND PAVEMENTS
 - REMOVAL AND/OR REMEDIATION OF ANY EXISTING UNCONTROLLED FILL
 - PROPOSED LANDSCAPING
 - PROPOSED RETAINING WALL EARTHWORKS AND BACKFILL MATERIAL

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100mm on Original

FOR CONTINUATION REFER DAC034



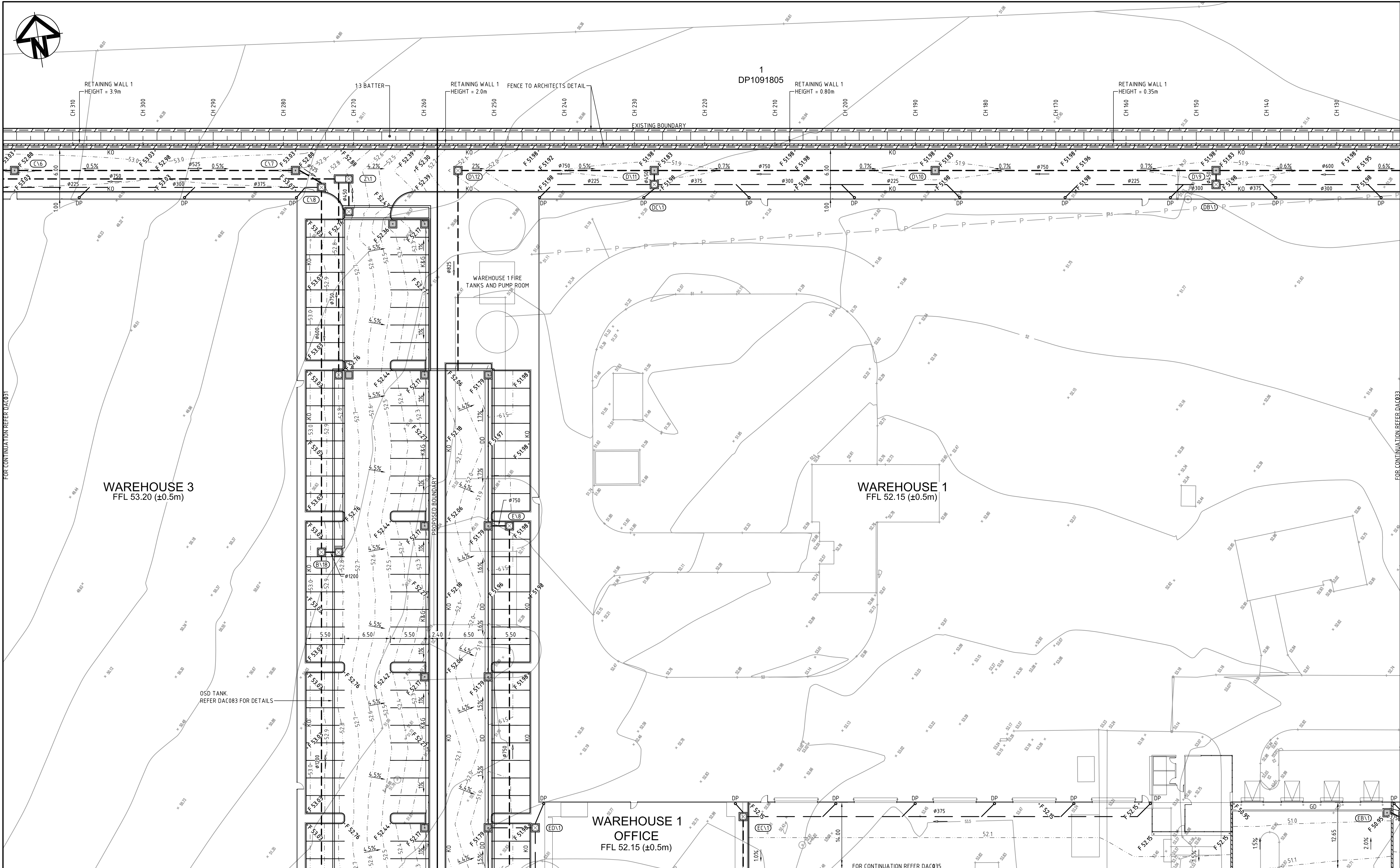
Scales 1:250 @ A1	Drawn	AH
	Designed	AH
Grid MGA	Checked	AMcL
Height Datum AHD	Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
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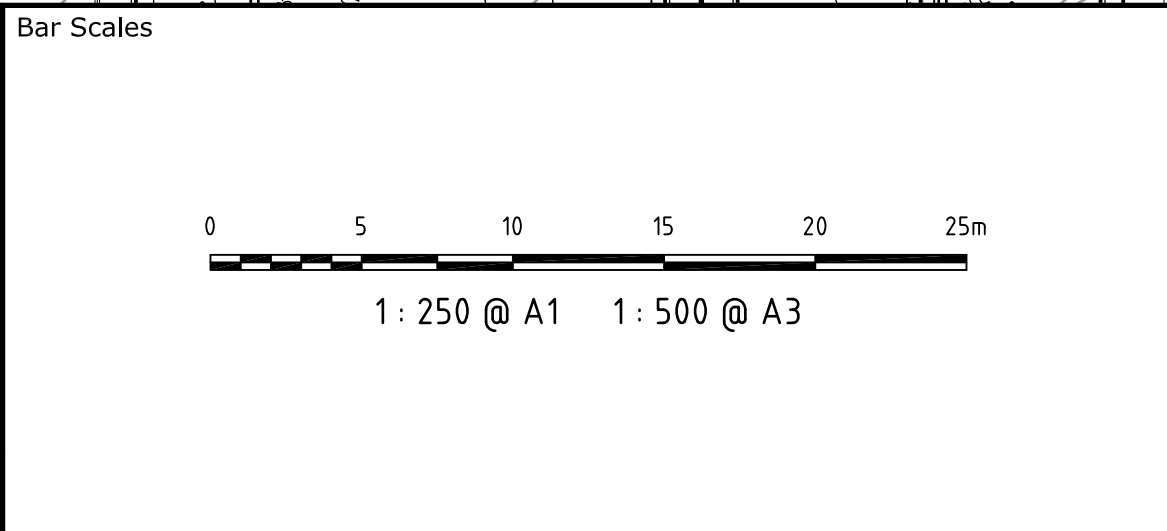
Civil Engineers and Project Managers

at&i

Suite 702, 154 Pacific Hwy
St Leonards NSW 2065
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9460 8413
www.atl.net.au
info@atl.net.au



B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date



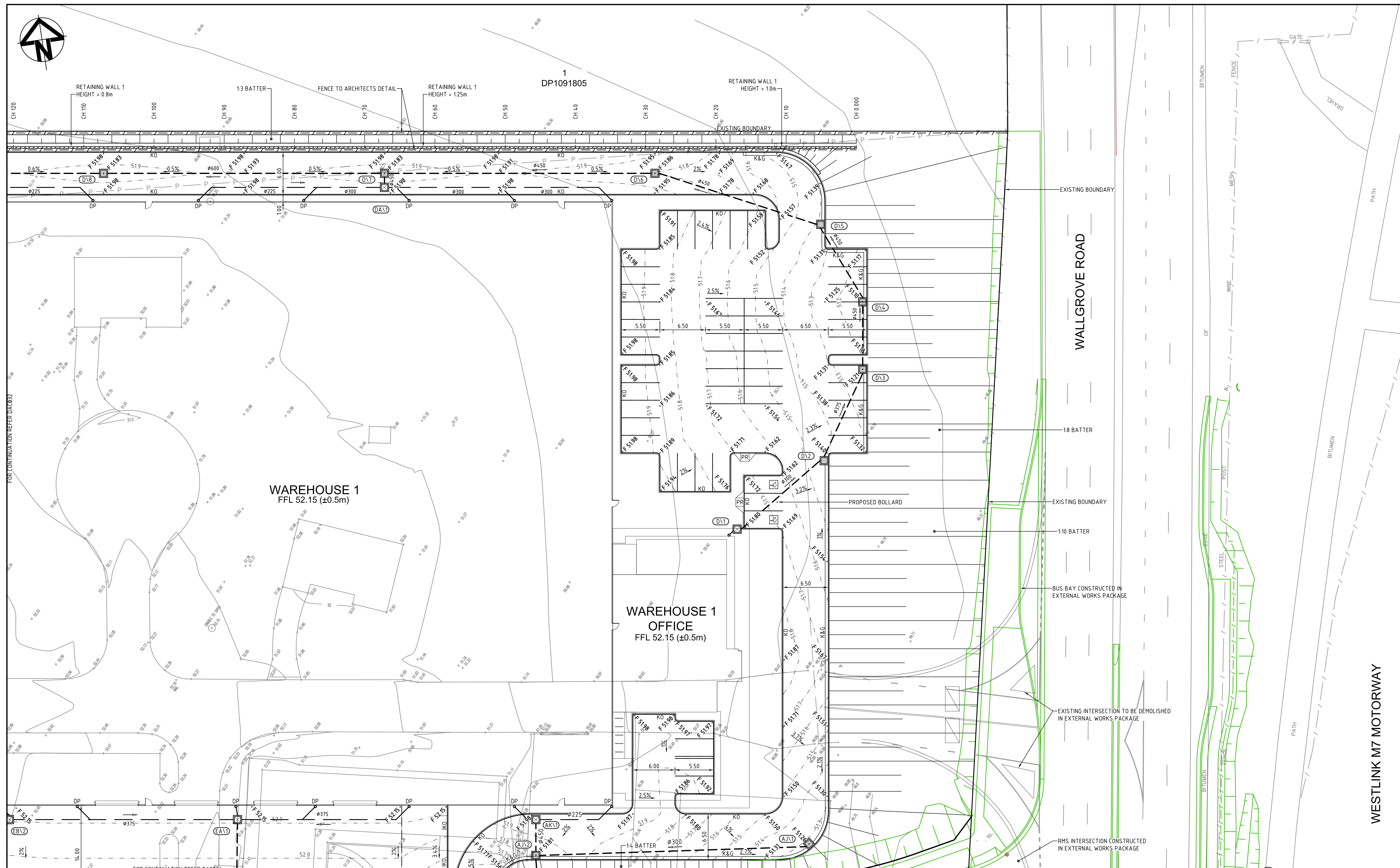
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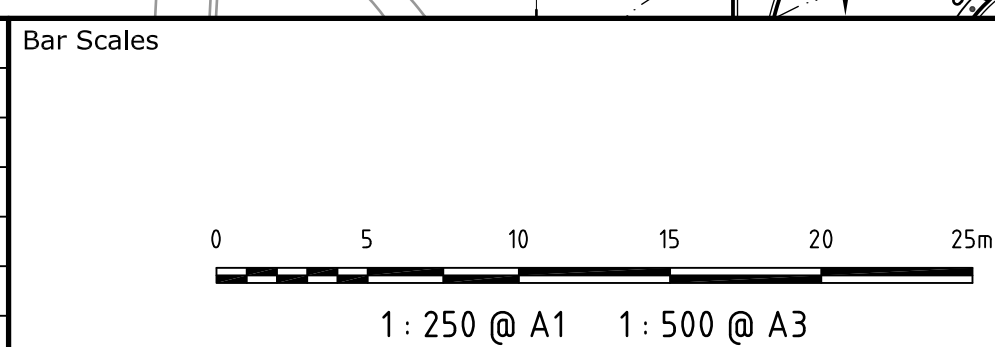
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Grid	MGA	Checked	AMcL
Height Datum	AHD	Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
Title	SITWORKS AND STORMWATER DRAINAGE PLAN SHEET 2

Civil Engineers and Project Managers		
at&l		
Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au		
Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Drawing No.	DAC032	Issue
Project No.	12-108	B



FOR CONTINUATION REFERENCE		
B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date



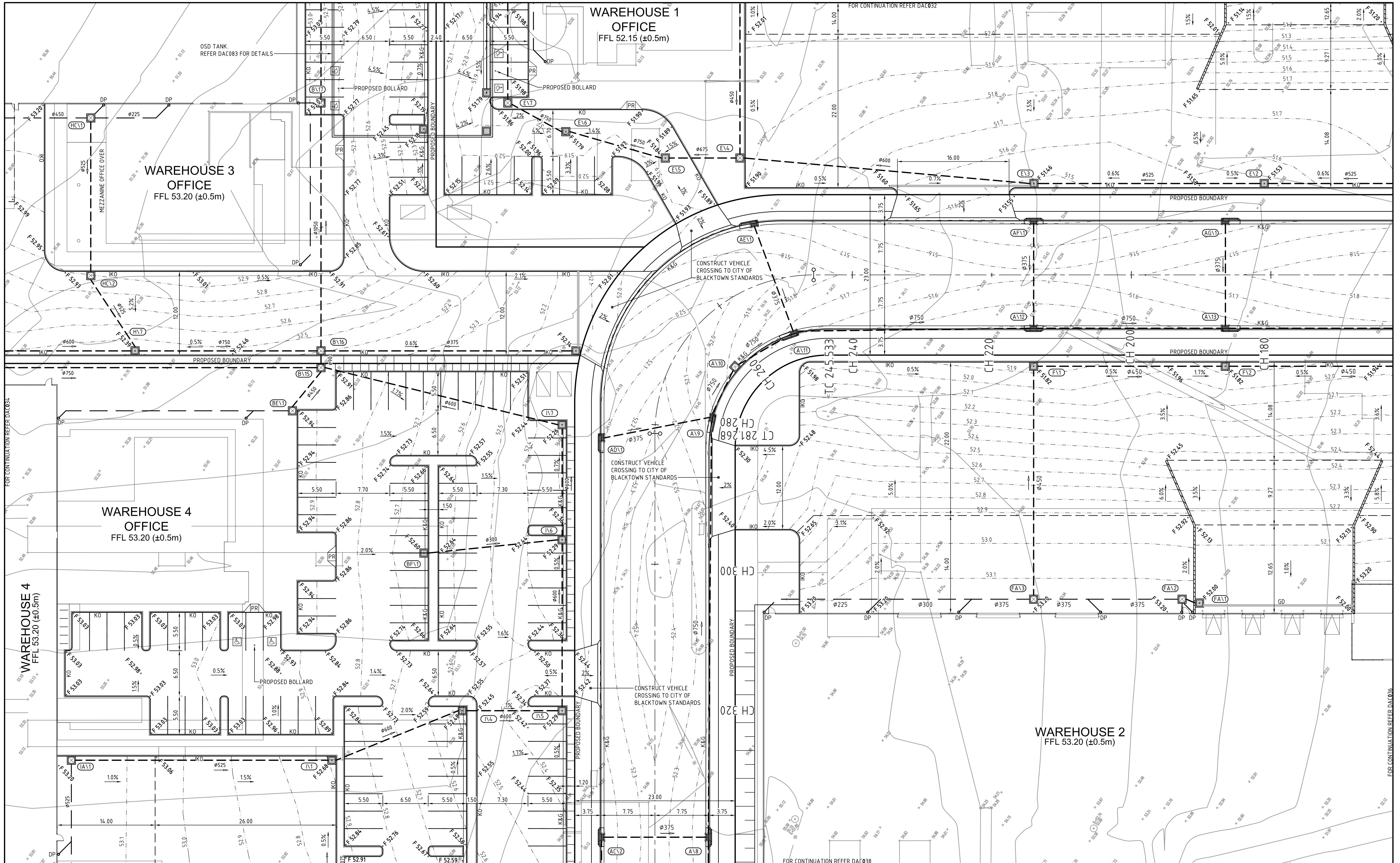
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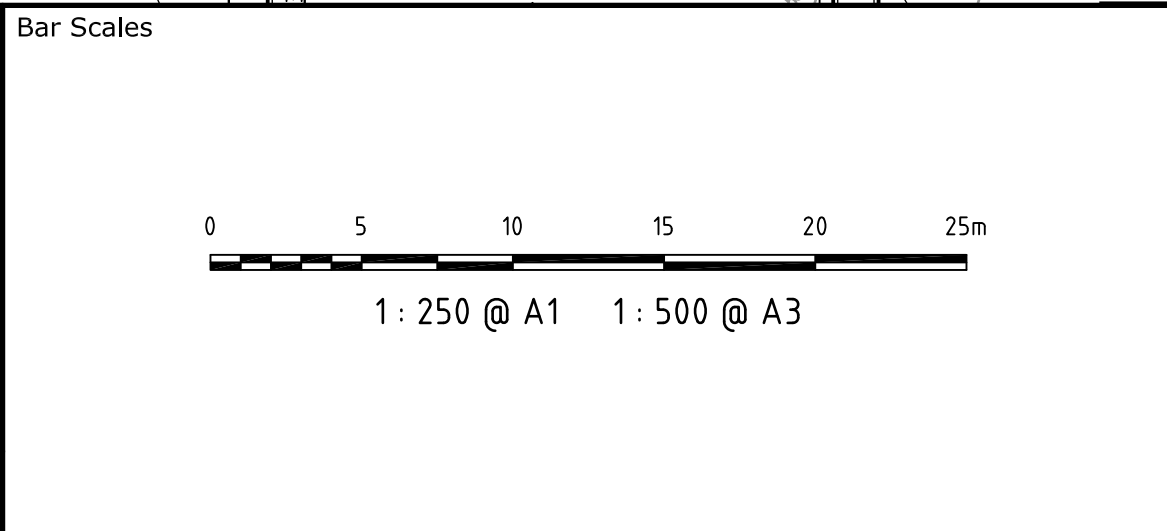
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Height Datum AHD	Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
Title	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 3

<p>Civil Engineers and Project Managers</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  </div> <div> <p>Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au</p> </div> </div>			
<p>Status</p> <p>FOR APPROVAL</p> <p>NOT TO BE USED FOR CONSTRUCTION</p>		<p>A1</p>	
<p>Drawing No.</p> <p>DAC033</p>		<p>Project No.</p> <p>12-108</p>	
		<p>Issue</p> <p>B</p>	



B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date



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Client



FOR CONTINUATION REFER DAC038

Scales	1:250 @ A1	Drawn	AH
		Designed	AH
Grid	MGA	Checked	AMcL
Height Datum	AHD	Approved	MG


Project

60 WALLGROVE ROAD
INTERNAL WORKS

Title

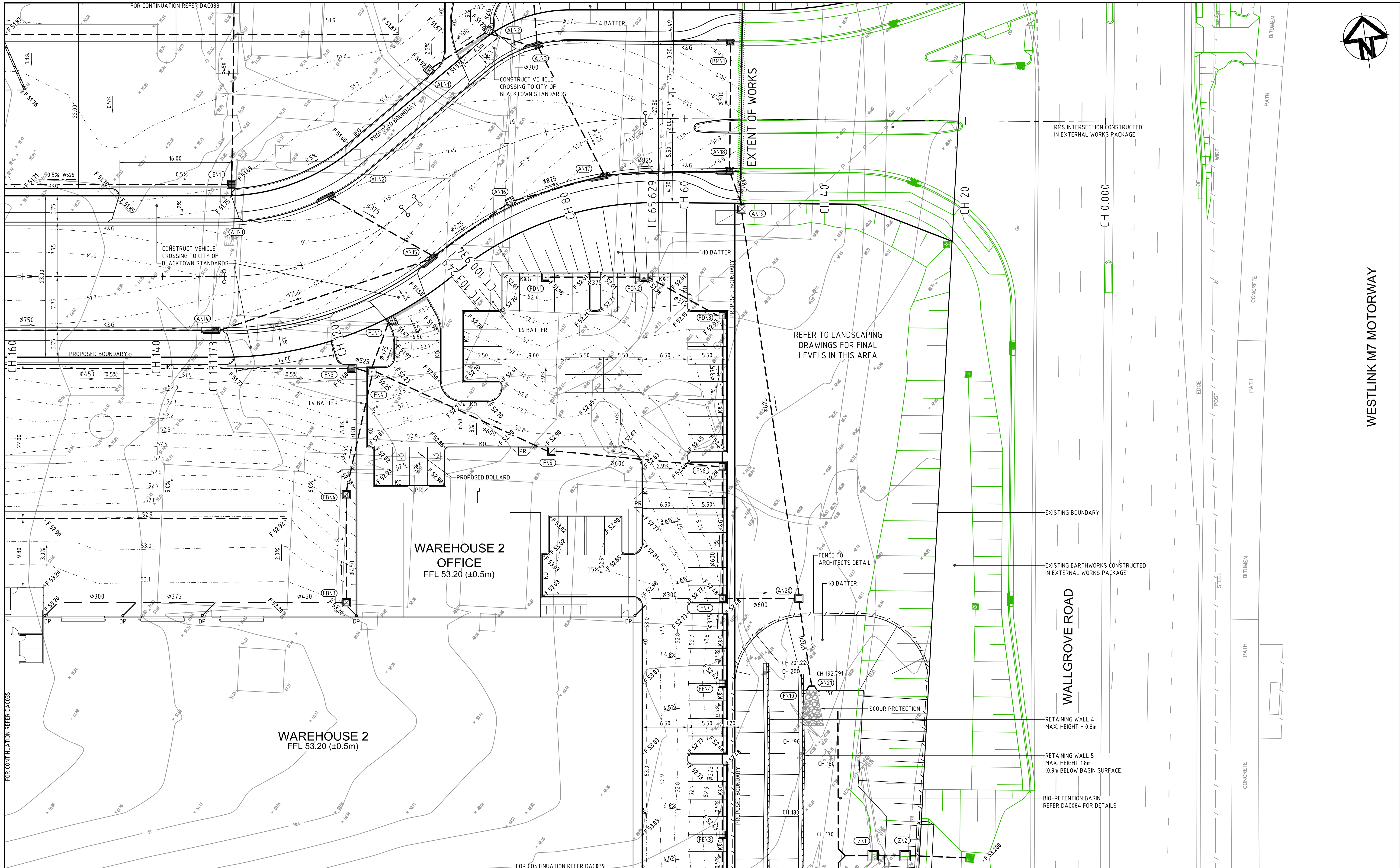
SITWORKS AND
STORMWATER DRAINAGE
PLAN
SHEET 5

Civil Engineers and Project Managers



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Status	FOR APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		
Drawing No.	Project No.	Issue
DAC035	12-108	B



B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date

Bar Scales

0 5 10 15 20 25m

1: 250 @ A1 1: 500 @ A3

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Scales	1:250 @ A1
Grid	MGA
Height Datum	AHD

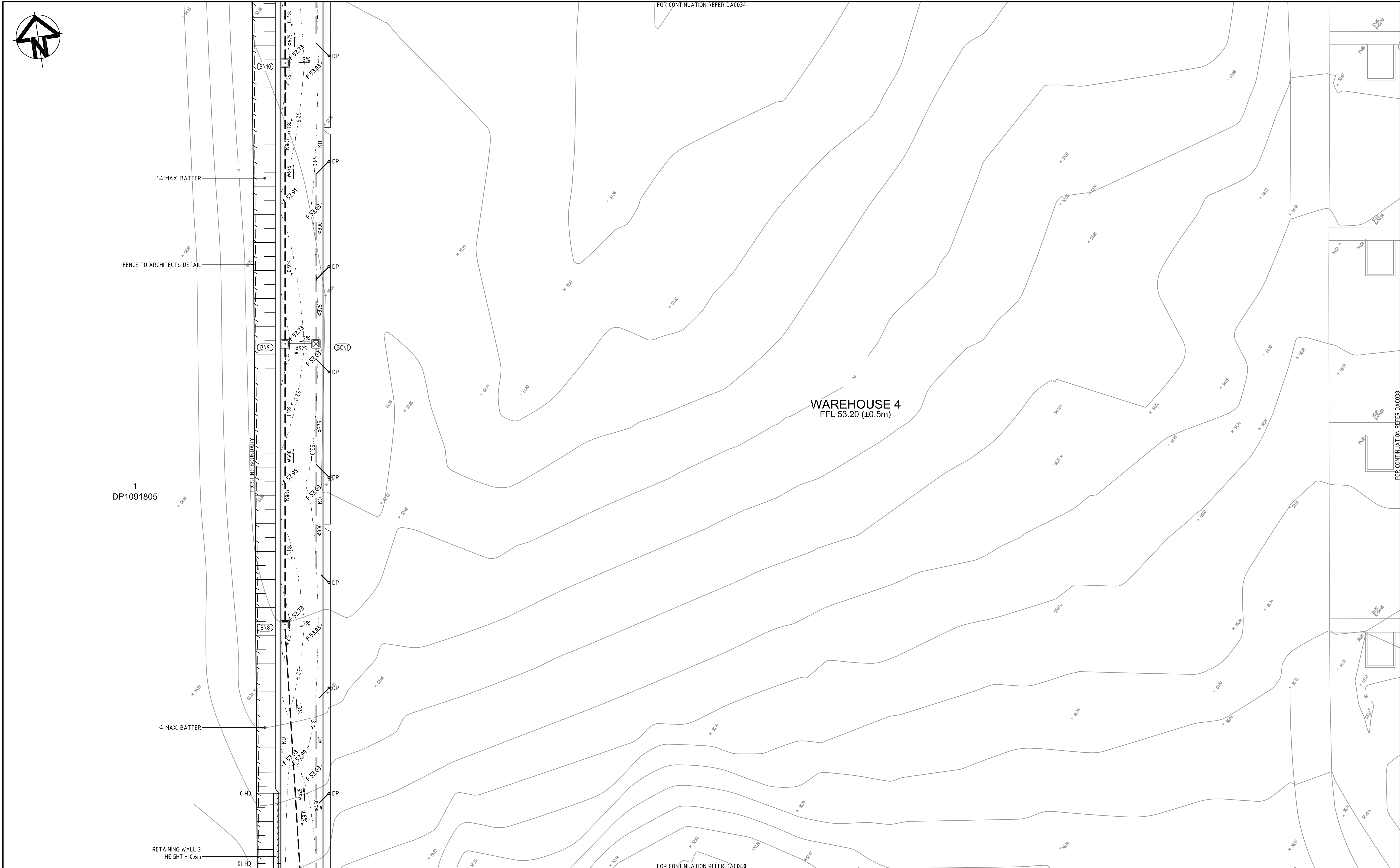
Drawn	AH
Designed	AH
Checked	AMcL
Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
Title	SITWORKS AND STORMWATER DRAINAGE PLAN SHEET 6

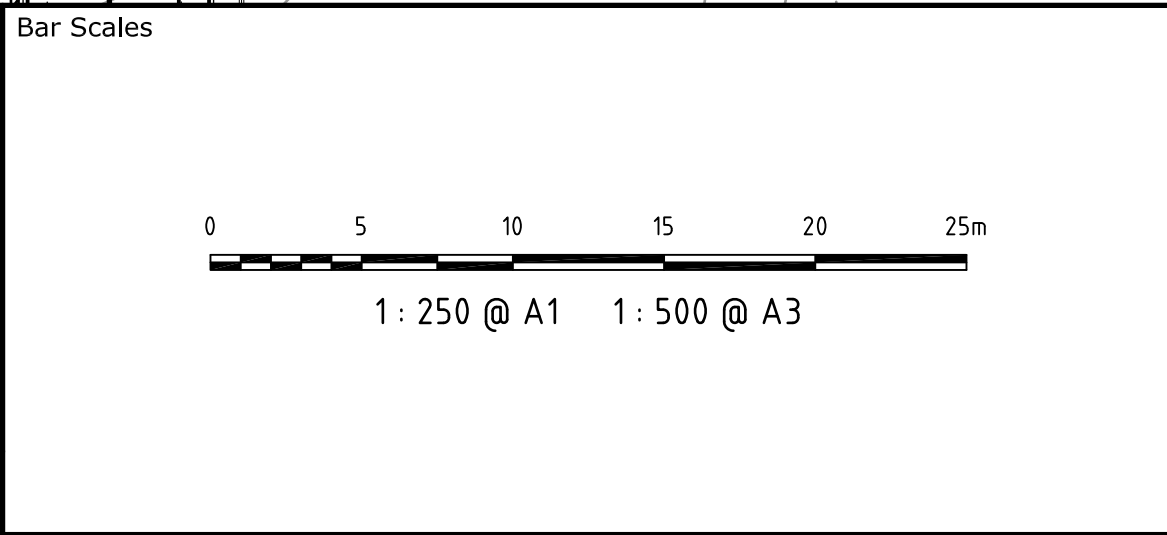
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Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Drawing No.	DAC036	Issue
Project No.	12-108	B



B	RE-ISSUED FOR APPROVAL	28-05-15
A	ISSUED FOR APPROVAL	26-05-15
Issue	Description	Date



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Scales	1:250 @ A1	Drawn	AH
		Designed	AH
Grid	MGA	Checked	AMcL
Height Datum	AHD	Approved	MG

Project	60 WALLGROVE ROAD INTERNAL WORKS
Title	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 7

Civil Engineers and Project Managers at&l Suite 702, 154 Pacific Hwy St Leonards NSW 2065 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9460 8413 www.atl.net.au info@atl.net.au		
Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Drawing No.	Project No.	Issue
DAC037	12-108	B