



Oakdale West Estate Kemps Creek Lot 2B Civil Report

CLIENT/ GOODMAN

DATE/ NOVEMBER 2019

CODE/ REP101-10-15-272

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APPENDIX

Appendix A – Proposed Site Plans, Staging and Catchment Plans

Appendix B – List of Civil Works & Erosion and Sediment Control Drawings

Abbreviations

OWE	Oakdale West Estate
WNSLR	Western North South Link Road
TfNSW	Transport for NSW
OEH	Office of Environment and Heritage
EP	Equivalent Persons
ET	Equivalent Tenancy
IWM	Integrated Water Management
GPS	Goodman Property Services (Aust) Pty Ltd
STP	Sewerage Treatment Plant
SWC	Sydney Water Corporation
WELS	Water Efficiency Labelling
EIS	Environmental Impact Statement
SSDA	State Significant Development Application
RMS	Roads and Maritime Service
EPLR	Erskine Park Link Road

1 Executive Summary

Goodman Property Services (Aust) Pty Ltd is developing the Oakdale West Estate for the purposes of providing a warehouse and distribution complex. The Oakdale West site is a precinct within the wider 'Oakdale' Estate development and forms part of a progressive development designed to make 'Oakdale' a regional distribution park of warehouses, distribution centres and freight logistics facilities.

The Oakdale West project is a staged development including bulk earthworks, civil works, and services infrastructure and stormwater disposal and management. All reports, drawings are approved under a separate application SSD 7348.

For the purpose of this report, it is assumed that the infrastructure stage works are approved and completed. This includes but not limited to; Bulk earthworks, Access Roads, Services, Stormwater Basins, Stormwater system and connection into each lot.

This development application encompasses the planned phase of civil works on the Oakdale West site Lot 2B which includes:

- Proposed detailed earthworks to accommodate the building and external levels
- Proposed stormwater (piped) system and connection to drainage stub provided in the infrastructure works.
- Proposed overland flow path to relevant basin, outlined in SSD 7348.
- Proposed hardstand and carpark pavement.
- Proposed Erosion and Sediment control

This report is prepared to satisfy condition C11 with SSD 7348. This report is to be read in conjunction with REP003 – Civil Report with application SSD 7348.

The site is located in the Penrith City Council Local Government area. Under SSD 7348 a Precinct based bio-retention basin will be provided as part of the infrastructure works. The basin is designed to both attenuate stormwater flows and treat the nutrients to Penrith City Council treatment rates. The Precinct based Site Detention is designed to mitigate post development flows to pre-developed flows for peak Average Recurrence Interval (ARI) events and has been sized to ensure that for all storm events up to and including the 1:100 ARI event.

The SEAR's issued by the NSW Planning and Environment in November 2019 for SSD 10397 are applicable to the infrastructure stage. Refer to REP003-15-272 for SEAR's table.

2 Introduction

The aim of the report is to assess the potential impacts of the proposed development with respect to Stormwater and has been prepared in accordance with Penrith City Council current design guidelines and the relevant Australian Standards.

2.1 Scope of Report

Summary

This report generally discusses the design philosophy behind the following components of the Stormwater Management design for Oakdale West Estate (OWE):

- Stormwater Management
 - Infrastructure Biodiversity and Bioretention Basin
 - Piped and Overland Flows
 - Water Balance across the site
- Erosion and Sediment Control
- Pavement
- Site Services

The proposed Lot 2B is bound by Road No.3 to the west and Road No. 2 to the east.

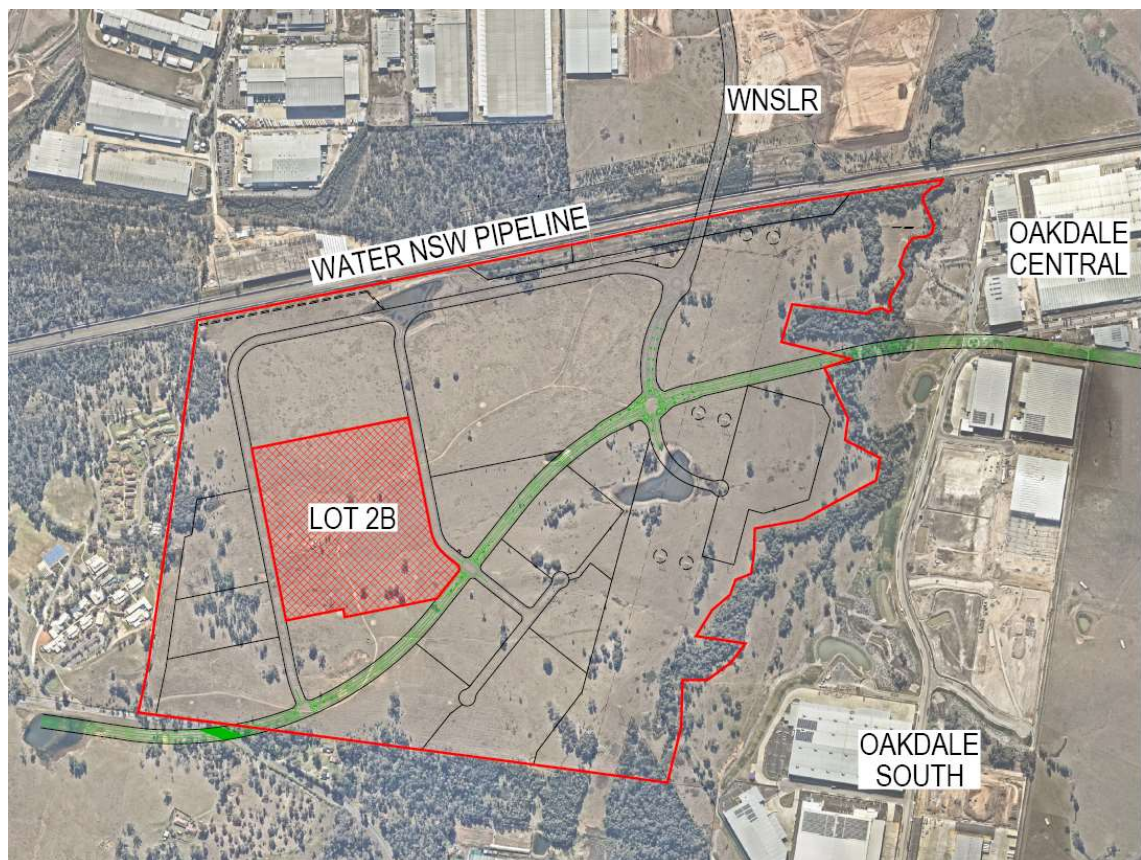


Figure 1 – Locality Plan

3 Stormwater Management

3.1 The Existing Site

For the purpose of this report, it is assumed that the infrastructure stage works are approved and completed. This includes but not limited to; Bulk earthworks, Access Roads, Services, Stormwater Basins, Stormwater system and connection into each lot. Which are detailed in Stage 1 consent, SSD 7348.

Refer to Drawing C0008 within Appendix A for a post-development stormwater catchment plan indicating the location of basins and catchments provided in the infrastructure stage.

3.2 Proposed Site Stormwater Drainage

Lot 2B is a part of a larger catchment which ultimately discharges into Bio-Retention Basin No.3 as shown in Appendix A. For additional details on Basin 3, refer to REP003-15-272.

Lot 2B is approximately 14.93Ha with a single stormwater discharge point to the north west of Lot 2B. An existing stormwater stub is provided into Lot 2B for connection into Road No.3 stormwater system. A GPT will be provided to capture the gross pollutants generated within Lot 2B before discharging into Road No. 3.

Refer to the Civil Drawings for layout and details for the proposed stormwater network across the site.

3.3 Council Requirements, SSD Consent Conditions & Recommendations

This report is prepared to satisfy condition C11 with SSD 7348, which states:

- C11** *Future DAs shall demonstrate the design of the warehouses, offices and hardstand areas are consistent with (or the latest revision of) the:*
- (a) Civil, Stormwater and Infrastructure Services Report, prepared by At&L, dated October 2018; and*
 - (b) Flood Impact Assessment: Oakdale West Estate, prepared by Cardno, dated 27 March 2017.*

All estate level stormwater drainage for the OWE development is designed to comply with the following:

- Penrith City Council Design Guidelines for Engineering Works;
- Penrith City Council Water Sensitive Urban Design (WSUD) Policy December 2013; and
- C3 Water Management DCP.

A summary of the design requirements adopted is listed below:

- All stormwater drainage within the lot 2B will be the responsibility of Goodman;
- Finished Floor Levels (FFL) of proposed buildings within the precinct (separate approval) to have minimum 500mm freeboard to 100 year overland flows; and

- A gross pollutant trap (GPT) will be installed within Lot 2B on the final downstream stormwater pit prior to discharging. As these GPT's will be located on-lot as they will be owned and maintained by Goodman. The GPT will capture 90% of Gross Pollutants from Lot 2B as per WSUD guidelines;

Rainwater tanks are desirable for re-use for irrigation, toilet and other non-potable water uses. Rainwater tank size is determined in accordance with the Penrith City Council C3 Water Management DCP to meet 80% of non-potable demand for irrigation and toilet flushing. Refer to Section 4 of this report for a more detailed description on rainwater harvest tanks.

3.3.1 Modelling Software

DRAINS modelling software has been used to calculate the Hydraulic Grade Line (HGL) of the estate level stormwater pipes. DRAINS is a computer program used for designing and analysing urban stormwater drainage systems and catchments. It is widely accepted by Council's across NSW as the basis for stormwater design and has been confirmed by Penrith City Council as the preferred stormwater software analysis package.

MUSIC modelling software will be used to evaluate the non-potable water from rainwater tanks once the tenant has confirmed the number of toilets. For a detailed description of the MUSIC modelling refer to Section 4 of this report.

3.3.2 Hydrology

- Pipe drainage shall be designed to accommodate the 20-year ARI storm event;
- The combined piped and overland flow paths shall be designed to accommodate the 100-year ARI storm event;
- Where trapped low points are unavoidable and potential for flooding private property is a concern, an overland flowpath capable of carrying the total 100-year ARI storm event shall be provided. Alternatively, the pipe and inlet system may be upgraded to accommodate the 100 year ARI storm event;
- Rainfall intensities shall be as per the Intensity-Frequency-Duration table in accordance with the Australian Rainfall and Runoff (AR&R) volume 2;
- Times of concentration for each sub catchment shall be determined using the kinematic wave equation;
- Runoff coefficients shall be calculated in accordance with AR&R. The fraction impervious shall be determined from analysis of the sub catchments;
- Flow width in gutter shall not exceed 2.5m for the minor design storm event;
- Velocity depth ratios shall not exceed 0.4 for all storms up to and including the 100-year ARI event;
- Inlet pits to be spaced so that flow width shall not exceed 80l/sec;
- Bypass from any pit on grade shall not exceed 15% of the total flow at the pit; and
- Blockage factors of 20% and 50% shall be adopted for pits on grade and at sags respectively, with these blockage factors in-built to each pit within the DRAINS model.

3.3.3 Hydraulics

- A hydraulic grade line HGL design method shall be adopted for all road pipe drainage design. The HGL shall be shown on all drainage long sections;
- The minimum pipe size shall be 375mm diameter RCP;

- Maximum spacing between pits shall not exceed 75m;
- The minimum pipe grade shall be 0.5%;
- All pipes shall be Rubber Ring Jointed unless noted otherwise;
- The minimum cover over pipes shall be 450mm in grassed areas and 600mm within carriageways;
- Where minimum cover cannot be achieved due to physical constraints the pipe class shall be suitably increased;
- All trafficable shall be Reinforced Concrete Pipes or Fibre Reinforced Cement equivalent;
- The pipe friction coefficients to adopted shall be:

Materials	Mannings – n	Colebrook-White – k	Min. Pipe Class
RCP	0.012	0.6	3
FRC	0.01	0.15	3

Table 1 – Pipe Details

- All pipes classes shall be designed for the ultimate service loads and where applicable, construction loads will be designed for;
- Pipes discharging to the overland flow path shall adopt a minimum tailwater level equivalent to respective overland flow level;
- Pit Loss coefficients shall be calculated in accordance with Missouri Charts;
- A minimum 150mm freeboard shall be maintained between pit HGL and pit surface levels for the minor storm event;
- Overland flowpaths shall maintain a minimum of 500mm freeboard to all habitable floor levels; and
- Pits deeper than 1.2m shall contain step irons at 300 mm centres.

3.3.4 Catchments

A Stormwater Catchment Plan for Lot 2B and flow paths into the Bio-retention Basins No. 3 are shown in Appendix 1.

3.3.5 Overland Flows

Overland flows within the hardstand area and carpark have been designed to be safely conveyed to Road No.3 for storms above the 5% AEP. All flow widths and velocities are design in accordance with the Penrith City Council Design Guidelines for Engineering Works.

Stormwater pipes from all recessed docks are design for the 1% AEP.

3.4 Conclusion

As highlighted in the above section all stormwater drainage within Lot 2B development has been designed in accordance with the Penrith City Council Engineering Guidelines. This includes design of the stormwater network (pits and pipes) and GPT.

Finished Floor Levels (FFL) to have minimum 500mm freeboard to 100-year overland flows.

4 Water Balance

4.1 General

The water balance was simulated using a water cycle management model as part of the MUSIC Model to allow the evaluation of various elements of the water cycle to be assessed at differing stages in the development.

Penrith City Council WSUD policy (July 2015) stipulates the rainwater tanks to meet 80% of non-potable demand including outdoor use, toilets and laundry.

4.2 Water Balance Objective

Potable water supplies in the Sydney area are in recognised short supply with projected population increases, potential climate change and periods of extended drought and any development in sources of the Sydney region places increasing demands on an already reduced water supply. As a result, government bodies, together with Sydney Water have encouraged sustainable development by the implementation of an integrated approach to water cycle management (potable water, sewage, stormwater and rainwater) to minimise demands of potable water supplies.

Whilst opportunities for Water Reuse include such initiatives as regional stormwater harvesting, black water recycling and recycled water, this development is limited to rainwater collection and reuse on an individual lot by lot basis.

Once the toilet numbers are confirmed we will use MUSIC to establish an estimated tank size for each lot within the development and demonstrate the volume of water reuse possible and provide a more sustainable servicing solution.

4.3 Water Balance End Uses

AT&L has identified the following water demand end uses to be required across the development:

- Toilet and urinal flushing; and
- Landscape watering (outdoor garden use).

The proportion of total water demands for irrigation and toilet flushing within the development could be met with the use of recycled roof water drained directly into a rainwater tank. The tank should be sized to ensure the site meets the requirement to meet the 80% non-potable reuse requirement. This is in accordance with Penrith City Council's WSUD policy.

4.4 Total Site Demands and Non-Potable Re-use Rates

The following rates were adopted from the Penrith City Council WSUD technical Guidelines for Industrial and Commercial developments (Section 4.5):

- 0.1 kL/day per toilet or urinal; and
- 0.4 kL/year/m² as PET-Rain for Sprinklers.

4.5 Rainwater Reuse

The use of rainwater collected in rainwater tanks from runoff on the roofs of the warehouse roofs provides a valuable alternative to potable water for a variety of non-potable end uses, such as vehicle washing, air conditioning cooling, and toilet flushing and watering.

We have assumed for this development, irrigation and toilet flushing will be plumbed to the rainwater tanks. Other uses such as truck washing maybe considered at the detailed design stage.

A rainwater tank model was constructed to simulate the rainwater tank operations and select the optimal rainwater tank size, in doing so, the following considerations were made:

- Rainfall received;
- Roof area or runoff area;
- Roof Wetting;
- First Flush; and
- Rainwater demands (by end use).

4.6 Rainwater Tank Model Assumptions

The rainwater tank model assumptions built into the scenarios assumed the following:

4.6.1 Rainfall Received

The rainfall runoff that could potentially be captured by the rainfall tank from the roof of each building was simulated individually for the 'dry', 'wet' and 'average' rainfall year within each scenario run.

4.6.2 Roof Wetting, First Flush Diversions and Overflow

While it is assumed that rainfall runoff has the potential to runoff 100% of the area of the roof into the rainwater tank, the proportion of rainfall that actually reaches the rainwater tank is affected by four factors:

- It is assumed that the initial 2mm of rainfall that falls on the roof is considered 'wetting', that is, potential rainfall runoff that is not captured by the rainwater tank, but is rather 'lost runoff' as evaporation or other;
- To prevent sediment and other pollutants entering the rainwater tank, a portion of the initial runoff from the roof is transferred to stormwater, this is known as the 'first flush'. The portion of water diverted as part of the first flush differs for each facility depending on the amount of pollution each roof is susceptible to;
- As the development is located in a predominantly light industrial area, where there may be potential for some roof pollution, a standard first flush volume of 1mm of runoff from across the roof area has been adopted; and
- Any roof runoff that exceeds the rainwater tank capacity is 'overflow' and is directed to the stormwater drainage system.

4.7 Conclusion

The use of rainwater harvest tanks and the design basis to size the tanks to ensure as a minimum, 80% of all non-potable water on each lot can be sourced from the tank, demonstrates a commitment to water recycling and minimising the usage of mains water.

This is in line with the industry best practise and the NSW State Government's objective of reducing the amount of potable (drinking) water consumed for non-potable uses.

5 Sedimentation and Erosion Control

5.1 Sedimentation and Erosion Control (Construction)

A Soil and Water Management Plan (SWMP) will be prepared in accordance with the NSW Department of Housing Publication titled: Managing Urban Stormwater – Soils and Construction (2004) for Lot 2B.

The key objective of the SWMP are:

- Acknowledging the activities on a construction site which may contribute to erosion, sedimentation and water quality impacts;
- The implementation of industry best management practices to minimise adverse water quality and sedimentation impacts brought about through construction activities on waterbodies surrounding the work; and
- Establishment of processes that effectively manage erosion, sedimentation and water quality practices during the life of the project.

5.1.1 Design of Sediment and Erosion Control Measures

Suitable erosion and sediment controls shall be provided by the Contractor and maintained throughout all stages of works, including at completion of the bulk earthworks.

All design, documentation, installation and maintenance of sediment and erosion controls will be in accordance with the requirements of:

- Protection of the Environment Operations Act;
- Penrith City Council's specifications; and
- Office of Environment and Heritage's 'Managing Urban Stormwater: Soils and Construction. Landcom, (4th Edition) (The "Blue Book") Volume 1 and Volume 2.

Temporary sediment basin in Lot 2B will be provided within the infrastructure stage associated with the SSD 7348 Stage 1 consent works. The basins are to be maintained throughout the construction phase of the on-lot works.

5.2 Site Inspection and Maintenance

The inspection and maintenance requirements outlined in this section must be carried out while either earthworks or quarrying is being conducted, and all areas re-established.

The Contractor will be required to inspect the site after every rainfall event and at least weekly, and will:

- Inspect and assess the effectiveness of the SWMP and identify any inadequacies that may arise during normal work activities or from a revised construction methodology;
- Construct additional erosion and sediment control works as necessary to ensure the desired protection is given to downstream lands and waterways;
- Ensure that drains operate properly and to affect any repairs;
- Remove spilled sand or other materials from hazard areas, including lands closer than 5 metres from areas of likely concentrated or high velocity flows especially waterways and paved areas;
- Remove trapped sediment whenever less than design capacity remains within the structure;
- Ensure rehabilitated lands have affectively reduced the erosion hazard and to initiate upgrading or repair as appropriate;
- Maintain erosion and sediment control measures in a fully functioning condition until all construction activity is completed and the site has been rehabilitated;
- Remove temporary soil conservation structures as the last activity in the rehabilitation.
- Inspect the sediment basin during the following periods:
 - During construction to determine whether machinery, falling trees, or construction activity has damaged and components of the sediment basin. If damage has occurred, repair it;
 - After each runoff event, inspect the erosion damage at flow entry and exit points. If damage has occurred, make the necessary repairs;
 - At least weekly during the nominated wet season (if any), otherwise at least fortnightly; and
 - Prior to, and immediately after, periods of 'stop work' or site shutdown.
- Clean out accumulated sediment when it reaches the marker board/post, and restore the original volume. Place sediment in a disposal area or, if appropriate, mix with dry soil on the site;
- Do not dispose of sediment in a manner that will create an erosion or pollution hazard;
- Check all visible pipe connections for leaks, and repair as necessary;
- Check all embankments for excessive settlement, slumping of the slopes or piping between the conduit and the embankment, make all necessary repairs;
- Remove the trash and other debris from the basin and riser; and
- Submerged inflow pipes must be inspected and de-silted (as required) after each inflow event.

5.2.1 Sediment Basin Maintenance

Stormwater within the settling zone should be drained or pumped out within 5 days (design time), if the nominated water quality targets can be met, to the satisfaction of the superintendent. Flocculation should be employed where extended settling is likely to fail to meet the objectives within the 5-day time period.

Flocculation is when flocculating agents are applied to the sediment basins causing the colloidal particles to clump into larger units or 'floc' that can either settle in a reasonable time or be filtered.

Refer to Appendix E4 of the Blue Book for flocculation methodologies and manufacturer's instructions for application rates, regarding the proposed sediment basins.

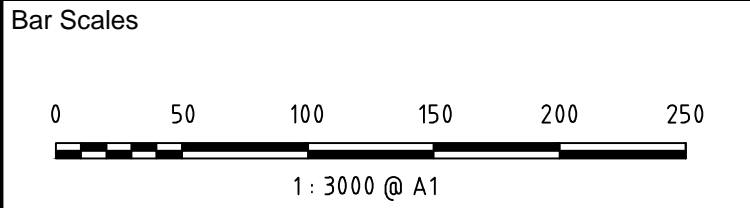
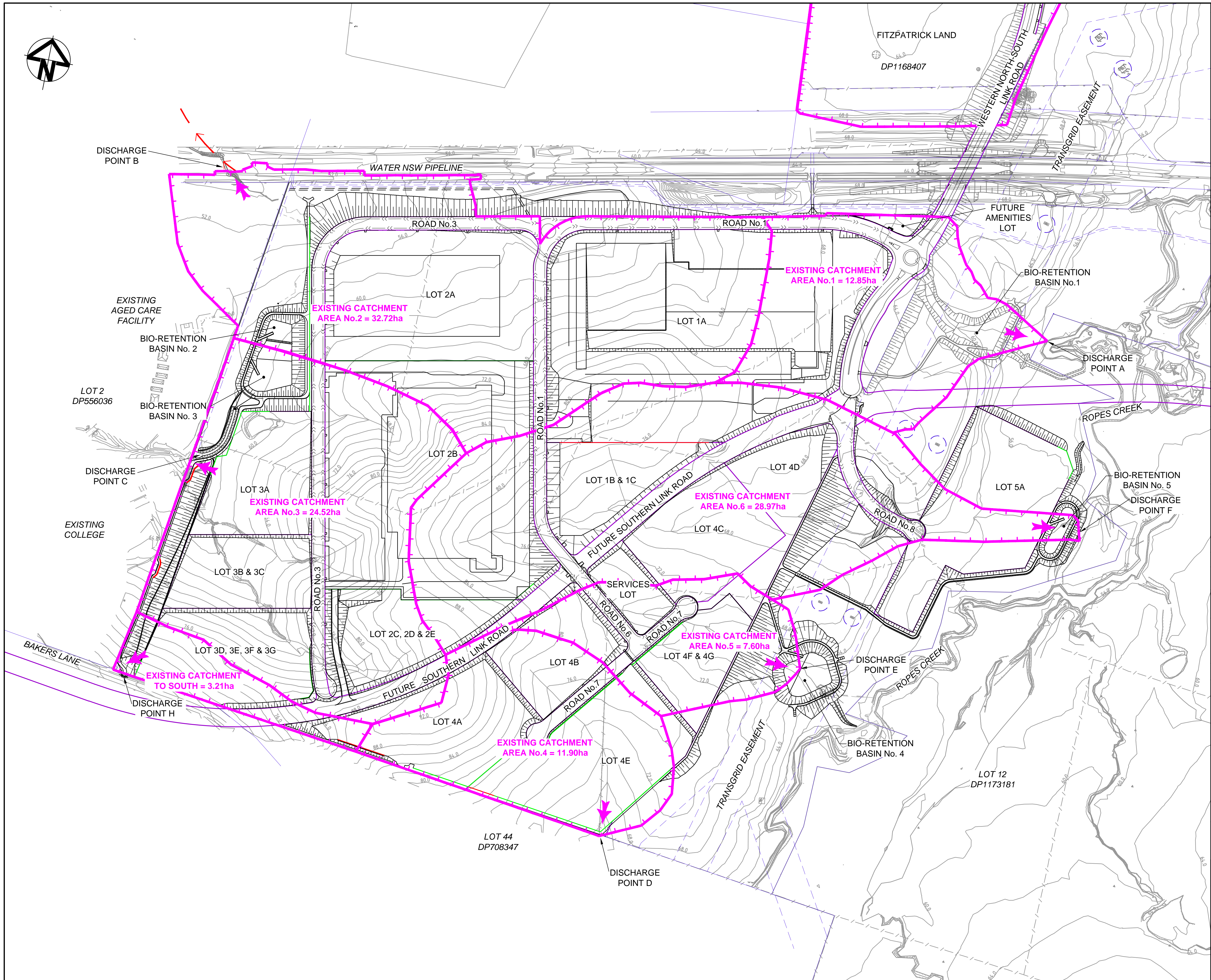
5.3 Conclusion

The erosion control measures proposed for the site will comply with the requirements of Penrith City Council Engineering Guidelines and in accordance with the latest revision AT&L infrastructure report.

A SWMP will ensure that the best management practice is applied to the development site in controlling and minimising the negative impacts of soil erosion.

Appendix A

Proposed Infrastructure Catchment Plans



A8	ISSUED FOR SSD APPROVAL MOD 3	06-12-19
A7	ISSUED FOR INFORMATION MOD 3	19-11-19
A6	ISSUED FOR INFORMATION MOD 3	12-11-19
A5	ISSUED FOR SSD APPROVAL MOD 2	18-09-19
A4	ISSUED FOR SSD APPROVAL MOD 2	24-07-19
A3	ISSUED FOR INFORMATION MOD 2	07-06-19

Issue	Description	Date
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Status	MOD 3 APPROVAL	A1
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		Checked	AM
Grid	MGA	Approved	AM

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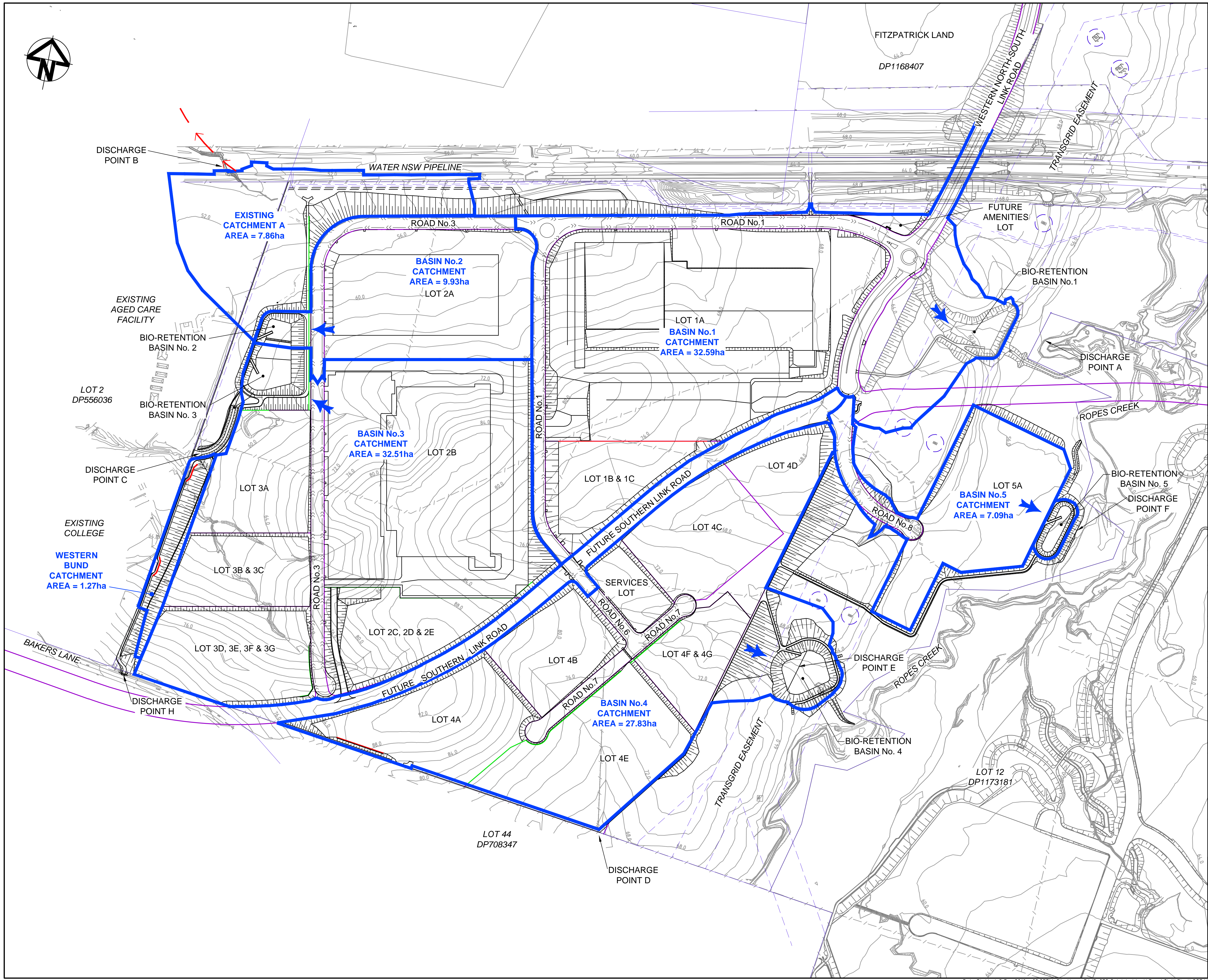
Project

PROPOSED INDUSTRIAL DEVELOPMENT OAKDALE WEST

Title

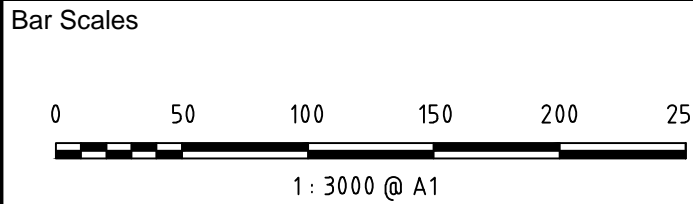
STORMWATER DRAINAGE CATCHMENT PLAN (PRE-DEVELOPED)

Drawing No.	Project No.	Issue
15-272-C1086	15-272	A8



LEGEND

CATCHMENT BOUNDARY



A8	ISSUED FOR SSD APPROVAL MOD 3	06-12-19
A7	ISSUED FOR INFORMATION MOD 3	19-11-19
A6	ISSUED FOR INFORMATION MOD 3	12-11-19
A5	ISSUED FOR SSD APPROVAL MOD 2	18-09-19
A4	ISSUED FOR SSD APPROVAL MOD 2	24-07-19
A3	ISSUED FOR INFORMATION MOD 2	07-06-19

Issue	Description	Date
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Project

PROPOSED INDUSTRIAL DEVELOPMENT OAKDALE WEST

Title

STORMWATER DRAINAGE CATCHMENT PLAN (POST-DEVELOPED)

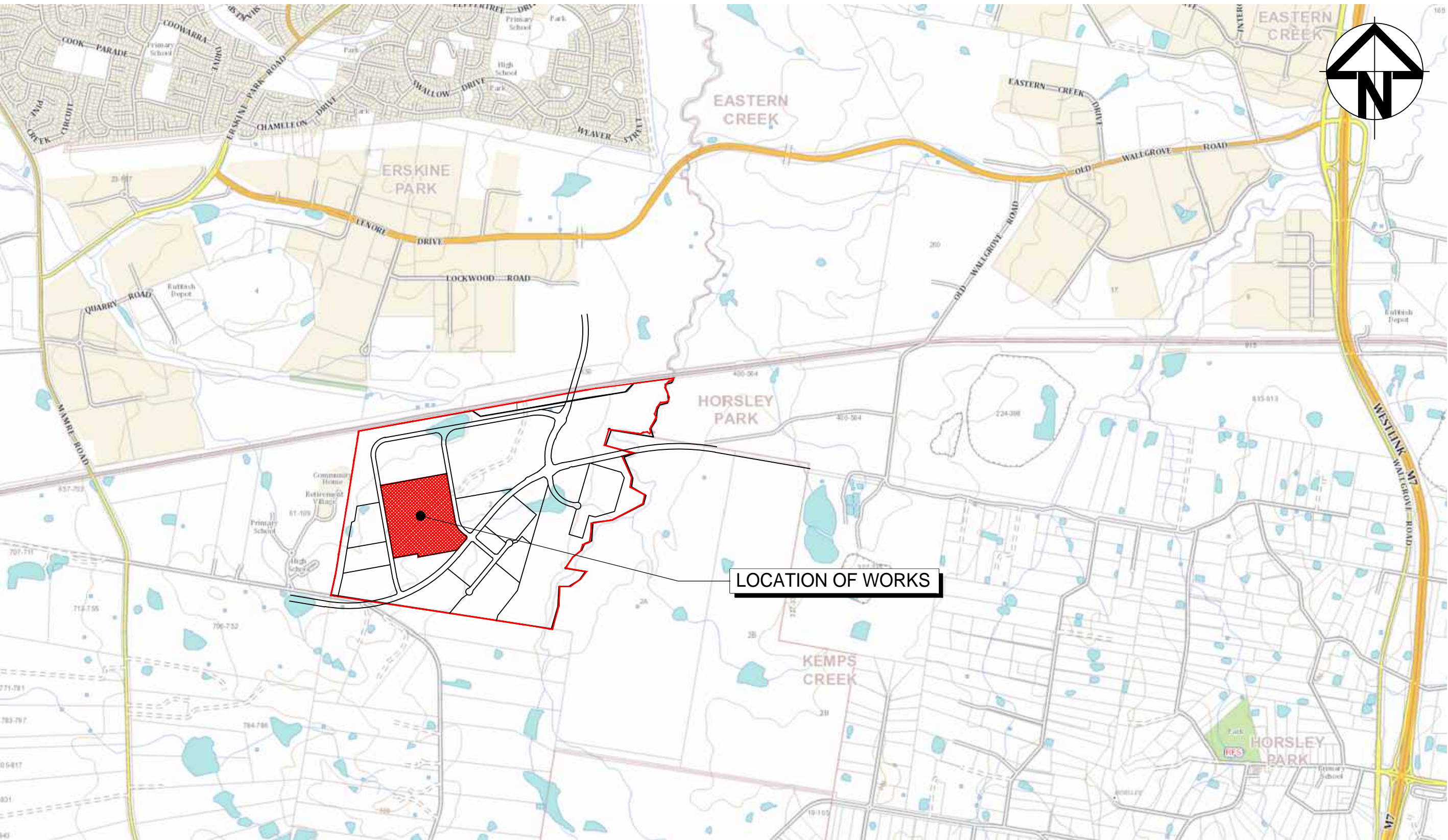
Drawing No.	Project No.	Issue
15-272-C1087	15-272	A8

Appendix B

AT&L – Drawing List of Civil Works

OAKDALE WEST
7100-SERIES LOT 2B
CIVIL WORKS PACKAGE
STATE SIGNIFICANT DEVELOPMENT
APPLICATION

DRAWING No.	DRAWING TITLE
15-272-C7100	COVER SHEET DRAWING LIST LOCALITY PLAN
15-272-C7101	GENERAL NOTES
15-272-C7102	GENERAL ARRANGEMENT PLAN
15-272-C7103	TYPICAL SECTIONS SHEET 1
15-272-C7104	TYPICAL SECTIONS SHEET 2
15-272-C7105	TYPICAL SECTIONS SHEET 3
15-272-C7106	TYPICAL SECTIONS SHEET 4
15-272-C7107	TYPICAL SECTIONS SHEET 5
15-272-C7109	BULK EARTHWORKS PLAN
15-272-C7110	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 1
15-272-C7111	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 2
15-272-C7112	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 3
15-272-C7113	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 4
15-272-C7114	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 5
15-272-C7115	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 6
15-272-C7116	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 7
15-272-C7117	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 8
15-272-C7118	PAVEMENT PLAN
15-272-C7119	EROSION AND SEDIMENT CONTROL PLAN
15-272-C7120	EROSION AND SEDIMENT DETAILS



LOCALITY PLAN
NTS

- NOTE:**
THIS APPLICATION RELATES TO THE FOLLOWING :-
1. BULK EARTHWORKS SITE WIDE
 2. STORMWATER BASINS AND ASSOCIATED STORMWATER INLET AND OUTLET
 3. BOUNDARY AND ROAD/LOT RETAINING WALLS
 4. WESTERN NORTH -SOUTH LINK ROAD
 5. PRECINCT 1 INFRASTRUCTURE WORKS

Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19
Issue	Description	Date
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	Designed	GB
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Grid	MGA	Approved AM
Client 		
Civil Engineers and Project Managers Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au		
Project PROPOSED INDUSTRIAL DEVELOPMENT OAKDALE WEST - LOT 2B		
Title COVER SHEET DRAWING LIST LOCALITY PLAN		
Drawing No. 15-272-C7100	Project No. 15-272	Issue C

SITEWORKS NOTES

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.M.S SPECIFICATION R116.
8. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S FORM 3051 (UNBOUND), R.M.S FORM 3052 (BOUND) COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1.
9. ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S FORM 3051, 3051.1 AND COMPACTED TO MINIMUM 95% MODIFIED DENSITY IN ACCORDANCE WITH A.S 1289 5.2.1
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.M.S 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 THE CONTRACTOR IS TO SEEK ACCEPTANCE OF THE PRODUCT FROM AT&L. 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.

SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY CARDNO HARD & FORESTER PTY LTD, BEING REGISTERED SURVEYORS. 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.

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.

AT & L 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.



CONTRACTOR SHALL CALL:
DIAL BEFORE YOU DIG 1100
PRIOR TO COMMENCEMENT OF WORK TO OBTAIN ALL CURRENT SERVICE AUTHORITY PLANS

CONCRETE NOTES

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.

ELEMENT	AS 3600 Fc MPa AT 28 DAYS	SPECIFIED SLUMP	NOMINAL AGG. SIZE
VEHICULAR BASE	32	60	20
KERBS, PATHS, AND PITS	25	80	20

- 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.M.S SPECIFICATION R83.
- 7. REINFORCEMENT SYMBOLS:
N DENOTES GRADE 450 N BARS TO AS 1302 GRADE N
R DENOTES 230 R HOT ROLLED PLAIN BARS TO AS 1302
SL DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS 1304
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.
- 8. FABRIC SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING DETAIL:

KERBING NOTES

1. ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 23MPa U.N.O IN REINFORCED CONCRETE NOTES.
2. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON MIN. 100mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 95% MODIFIED DRY DENSITY (AS 1289 5.2.1).
3. EXPANSION JOINTS (E.J.) TO BE FORMED FROM 100mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON 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 900mm WIDE U.N.O.

EXISTING ALLOTMENT DRAINAGE PIPES ARE TO BE BUILT INTO THE NEW KERB AND GUTTER WITH 100mm DIA HOLE.

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

DEWATERING

ANY DEWATERING WORKS TO BE AS PER THE DEWATERING PROCEDURE AS CONTAINED WITHIN THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP).

DECOMMISSIONING / DEMOLITION

DEMOLITION OF EXISTING DWELLING TO BE CONDUCTED IN ACCORDANCE WITH THE PROVISIONS OF AS2601-2001 - DEMOLITION OF STRUCTURES BY CONTRACTORS EXPERIENCED IN THIS CLASS OF WORK AND HOLDING REQUIRED CURRENT PERMITS AND LICENSES AS REQUIRED.

EXISTING INTERNALS FENCING, CATTLE YARDS, UTILITIES AND OTHER REDUNDANT STRUCTURES TO BE DEMOLISHED AND REMOVED TO AN APPROVED WASTE MANAGEMENT FACILITY.

DAM DECOMMISSIONING TO BE COMPLETED AS PER THE DAM DECOMMISSIONING PROCEDURE AS CONTAINED WITHIN THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP).

STORMWATER DRAINAGE NOTES

1. STORMWATER DESIGN CRITERIA:
(A) AVERAGE RECURRENCE INTERVAL:-
1:100 YEARS- MAJOR STORM (OVERLAND FLOW)
1:20 YEARS- MINOR STORM (PIPED NETWORK)
(B) RAINFALL INTENSITIES:
TIME OF CONCENTRATION:5 MINUTES
1:100 YEARS- 219 mm/hr
1:20 YEARS= 167 mm/hr
(C) RUNOFF COEFFICIENTS:
ROOF AREAS: C 100 =1.0
EXTERNAL PAVEMENTS: C 100 =1.0
2. PIPES 300 DIA. AND LARGER TO BE REINFORCED CONCRETE CLASS '2' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.
3. PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS.
4. EQUIVALENT STRENGTH VCP OR FRC PIPES MAY BE USED, SUBJECT TO THE APPROVAL OF PENRITH CITY COUNCIL.
5. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE 6. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.
6. 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)
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 3996.
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.

EMBANKMENT CONSTRUCTION SEQUENCE

1. STRIP VEGETATION AND TOPSOIL FROM EMBANKMENT AREA AND STOCKPILE TOPSOIL FOR LATER USE. CUT BACK AREA TO FIRM GROUND.
2. CONSTRUCT EMBANKMENT IN PRESENCE OF QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER IF NOT ROCK.
3. IN THE CASE WHERE THE EMBANKMENT AREAS SLUSH, GROUTING AND DENTAL CONCRETE MAY BE REQUIRED, AS DIRECTED BY A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER.
4. COMPACT CLAY STABILIZED WITH GYPSUM (3% BY DRY MASS, MINIMUM) AS APPROVED BY A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER INTO THE CUT-OFF TRENCH OF LAYERS NOT EXCEEDING 150mm LOOSE THICKNESS TO A DRY DENSITY EQUIVALENT TO 98% OF THAT DETERMINED BY STANDARD COMPACTION (AS 1289 5.1.1) AND AT A MOISTURE CONTENT OF -2% TO +2% OF OPTIMUM MOISTURE CONTENT.
5. GYPSUM STABILIZED NATURAL SOILS EXPOSED IN EMBANKMENT AREA WITH MINIMUM 3% GYPSUM BY DRY MASS AND COMPACT AS FOR #4. ALL TO THE APPROVAL OF A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER.
6. CONSTRUCT BODY OF EMBANKMENT WITH CLAYEY MATERIAL WON FROM SITE. COMPACT THE CLAYEY MATERIAL APPROVED BY A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER IN LAYERS NOT EXCEEDING 150mm THICKNESS TO A DRY DENSITY EQUIVALENT TO 98% OF THAT DETERMINED BY STANDARD COMPACTION (AS 1289 5.1.1) AND AT A MOISTURE CONTENT OF -2% TO +2% OF OPTIMUM MOISTURE CONTENT. MOST IMPORTANTLY, IF SHRINKAGE CRACKS OCCUR, AS DIRECTED BY A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER.
7. OVERFILL THE EMBANKMENT AND TRIM OFF, SO THAT THE ENTIRE BODY OF THE EMBANKMENT IS COMPACTED.
8. TRIM THE EMBANKMENTS BATTERS TO THE OVERFILLED MATERIAL, STABILIZE THE UPSTREAM CLAY BATTERS WITH WELL MIXED GYPSUM (3% BY DRY MASS, MINIMUM) AND COMPACT TO MIN. 98% STD -2% TO +2% OMC.
9. PLACE ROCK RIP-RAP AS SHOWN.
10. RECOVER TOPSOIL FROM STOCKPILE AND SPREAD OVER EMBANKMENT AND CUT BATTERS (A THIN COVER OF TOPSOIL ONLY HAS BEEN NOMINATED). ONLY LIGHTLY TRACK-ROLL THE TOPSOIL AND THEN LANDSCAPE IN ACCORDANCE WITH THE LANDSCAPE ART DRAWINGS.
11. WATER AND FERTILIZE LANDSCAPE AS REQUIRED BY CLIMATIC CONDITIONS TO ENSURE THE LANDSCAPE IS SUCCESSFUL.
12. AT THE COMPLETION OF WORK WRITTEN CONFIRMATION & CERTIFICATION IS TO BE PROVIDED FROM A QUALIFIED & EXPERIENCED GEOTECHNICAL ENGINEER THAT THE EMBANKMENTS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THESE DRAWINGS.

EROSION AND SEDIMENT CONTROL NOTES

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.

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 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.

EROSION CONTROL

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 30 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

SEDIMENT CONTROL

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 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
(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 1.5 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 (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.

FINISHED SURFACE LEVELS

1. ALL FINISHED SURFACE LEVELS ARE ±100mm U.N.O.

BIO-RETENTION FILTER MEDIA SPECIFICATION

MATERIALS:

BIO-RETENTION FILTER MEDIA, TRANSITION LAYER AND DRAINAGE LAYERS TO BE IN ACCORDANCE WITH CURRENT VERSION OF FAWB DOCUMENT 'STORMWATER BIO-FILTRATION SYSTEMS ADOPTION GUIDELINES' AND THE FOLLOWING.:

A) BIO-RETENTION FILTER MEDIA

1. BIO-RETENTION MEDIA IS TO BE FREE OF RUBBISH AND DELETERIOUS MATERIAL.
2. BIO-RETENTION FILTER MEDIA SATURATED HYDRAULIC CONDUCTIVITY TO BE 180mm/hr USING TEST METHOD ASTM F1815-06.

3. BIO-RETENTION FILTER MEDIA PARTICLE SIZE DISTRIBUTION IS TO BE AS FOLLOWS:

CLAY & SILT	<3% (<0.05mm)
VERY FINE SAND	5-30% (0.05-0.15mm)
FINE SAND	10-30% (0.15-0.25mm)
MEDIUM TO COARSE SAND	40-60% (0.25-1.0mm)
COARSE SAND	7-10% (1.0-2.0mm)
FIN GRAVEL	<3% (2.0-3.4mm)

THE COMBINED PERCENTAGE OF CLAY AND SILT MUST NOT EXCEED 3% (W/W) UNDER ANY CIRCUMSTANCES.

4. BIO-RETENTION FILTER MEDIA IS TO BE TESTED AND COMPLY WITH THE FOLLOWING REQUIREMENTS:

- a) ORGANIC MATTER CONTENT IN ACCORDANCE WITH AS 4419 AT LEAST 3% (W/W)
- b) TOTAL NITROGEN (TN) CONTENT <900mg/kg
- c) ORTHOPHOSPHATE (PO₄) CONTENT <30mg/kg WHERE PLANTS WITH MODERATE PHOSPHOROUS SENSITIVITY ARE TO BE USED, TOTAL PHOSPHOROUS CONCENTRATION SHOULD BE <20mg/kg
- d) AS SPECIFIED FOR "NATURAL SOILS AND SOIL BLENDS" AS4419 - pH 5.5-7.5 (pH 1.5 IN WATER)
- e) ELECTRICAL CONDUCTIVITY (EC) AS SPECIFIED FOR "NATURAL SOILS AND SOILS BLENDS" AS4419 <1.2ds/m
- f) DISPENSABILITY - AS SPECIFIED FOR "NATURAL SOILS AND SOIL BLENDS" AS4419 CATEGORY 1 OR 2
- g) TEXTURE - LOAMY SAND AS PER AS4419

5. PRIOR TO PLACEMENT OF THE FILTER MEDIA A STATEMENT IS TO BE SUBMITTED FROM A QUALIFIED HORTICULTURIST CONFIRMING THAT THE SOIL IS CAPABLE OF SUPPORTING A HEALTHY VEGETABLE COMMUNITY.

6. TESTS CONFIRMING THE REQUIREMENTS OF ITEMS 1 TO 4 ARE TO BE SUBMITTED FOR APPROVAL PRIOR TO PLACEMENT OF FILTER MEDIA.

B) DRAINAGE LAYER A

DRAINAGE LAYER MATERIAL IS TO BE CLEAN, FINE GRAVEL, SUCH AS A 2 - 5mm WASHED SCREENING, THE PARTICLE SIZE DISTRIBUTION TO BE: D₁₅ (DRAINAGE LAYER) < 5 x D₈₅ (TRANSITION LAYER) WHERE: D₁₅ (DRAINAGE LAYER) IS THE 15th PERCENTILE PARTICLE SIZE IN THE TRANSITION LAYER MATERIAL (i.e. 15% OF THE SAND IS SMALLER THAN D₁₅ mm), AND D₈₅ (TRANSITION LAYER) IS THE 85th PERCENTILE PARTICLE SIZE IN THE FILTER MEDIA.

C) DRAINAGE LAYER B

10-20mm CLEAN GRAVEL WITH 2% VOLUME FINE STRAW AND 4-6% VOLUME HARDWOOD CHIPS.

INSTALLATION:

FILTER MATERIAL IS TO BE LIGHTLY COMPACTED EG. A SINGLE PASS WITH A DRUM LAWN ROLLER. UNDER NO CIRCUMSTANCES SHOULD HEAVY EQUIPMENT OR MULTIPLE PASSES BE MADE. FILTER MEDIA SHOULD BE INSTALLED IN TWO LIFTS UNLESS THE DEPTH IS LESS THAN 500mm.

BULK EARTHWORKS NOTES

1. ORIGIN OF LEVELS: REFER SURVEY NOTES
2. REFER PELLIS SULLIVAN MEYNINK REPORT PSM1541-020S REV 0 (DATED 16-03-12) FOR BULK EARTHWORKS SPECIFICATIONS OF THE BIO-RETENTION BASIN AND ESTATE ROAD.
3. REFER PELLIS SULLIVAN MEYNINK REPORT PSM1541-003S REV 2 (DATED 06/05/13) FOR BULK EARTHWORKS SPECIFICATIONS OF ALL AREAS EXCEPT THE BIO-RETENTION BASIN AND ESTATE ROAD.

FINISHED SURFACE LEVELS

1. ALL FINISHED SURFACE LEVELS ARE ±100mm U.N.O.

Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

Issue	Description	Date
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Status	MOD 3 APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
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		Designed	GB
Height Datum	AHD	Checked	AM
Grid	MGA	Approved	AM

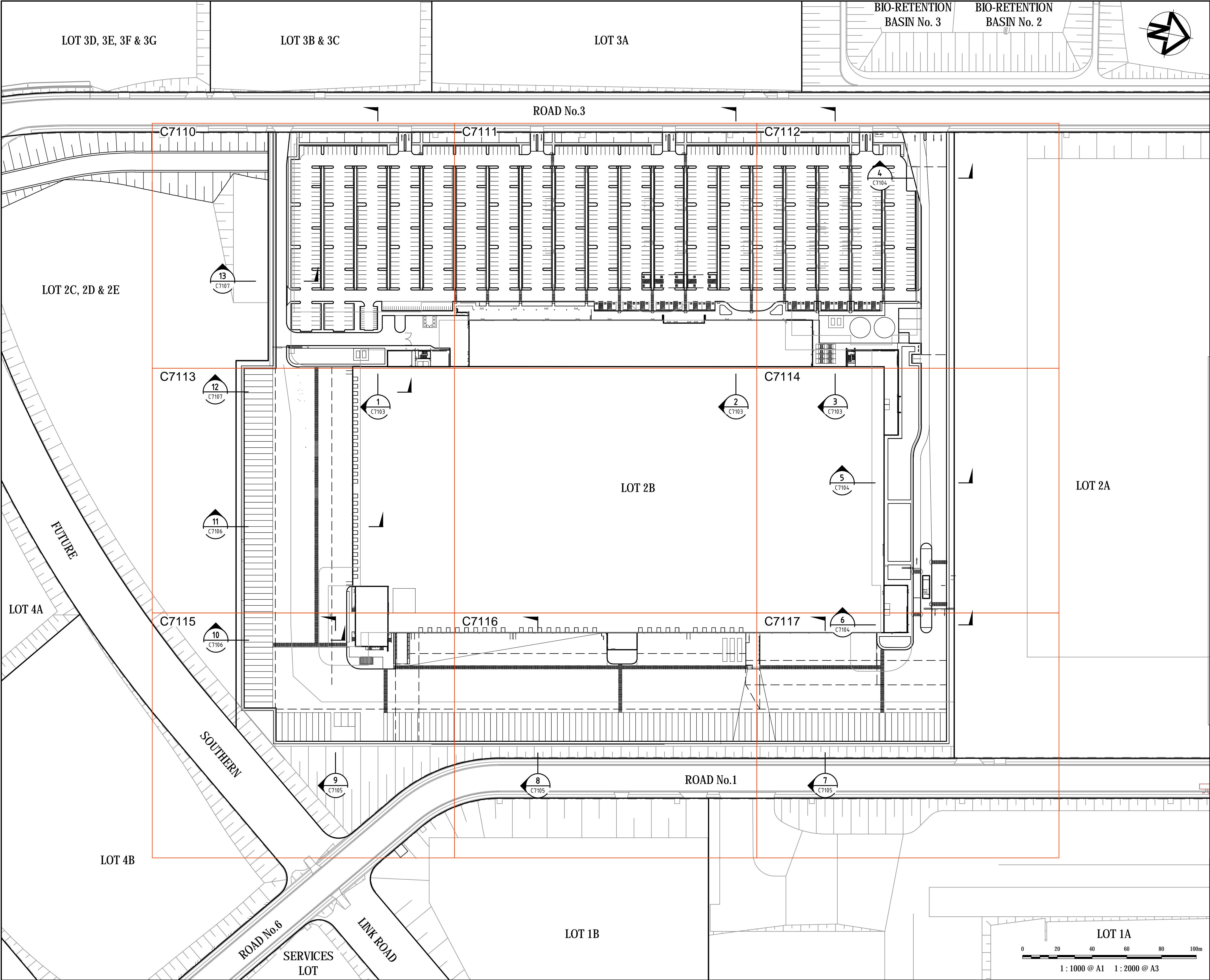
Client	
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Civil Engineers and Project Managers	Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au
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Project	PROPOSED INDUSTRIAL DEVELOPMENT OAKDALE WEST - LOT 2B
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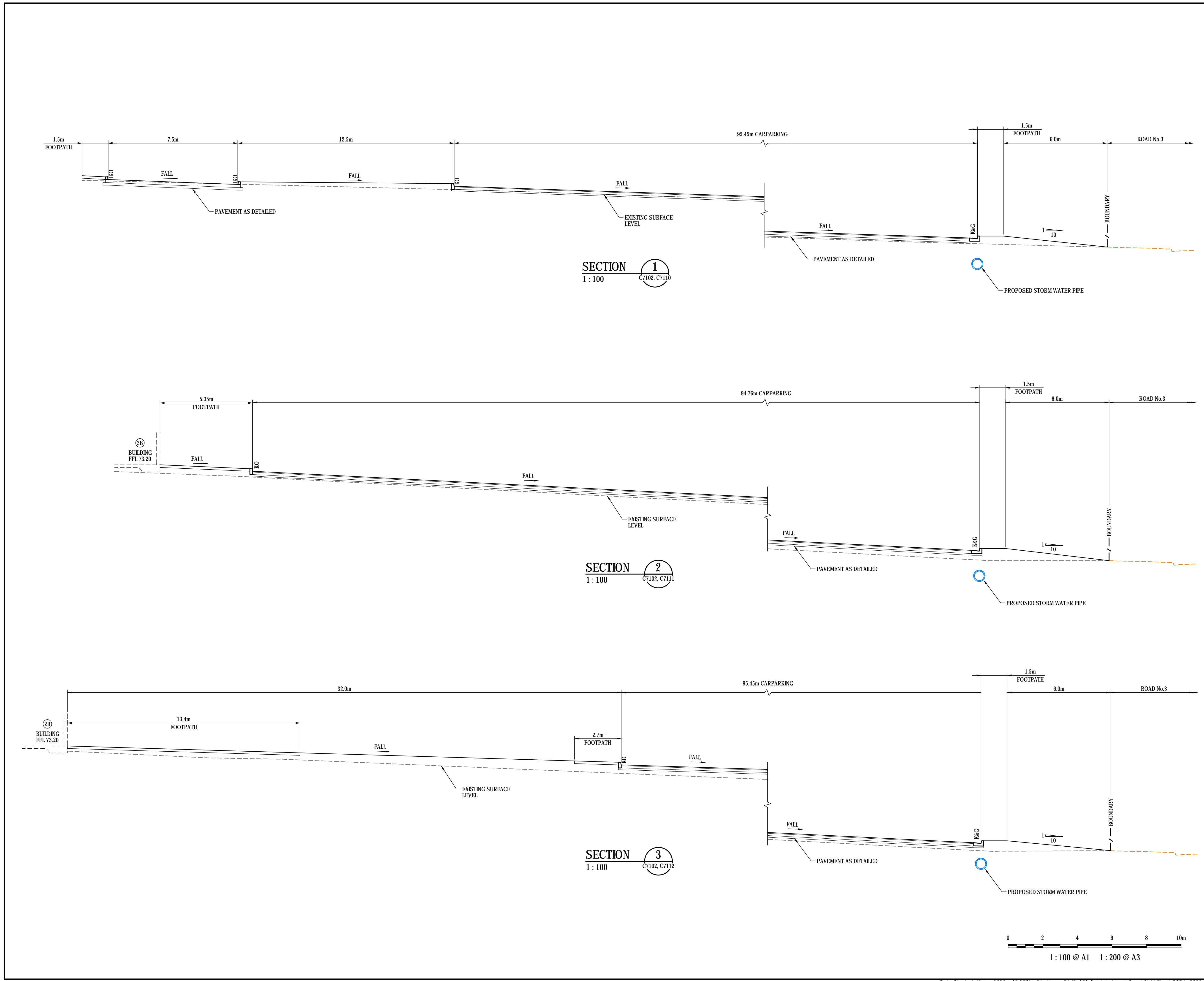
Title	GENERAL NOTES
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Drawing No.	Project No.	Issue
15-272-C7101	15-272	C



Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19
Issue	Description	Date
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&I		
Status	MOD 3 APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		
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	Drawn	JH
	Designed	GB
Height Datum	AHD	Checked
Grid	MGA	Approved
Client		
Civil Engineers and Project Managers		
Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au		
Project		
PROPOSED INDUSTRIAL DEVELOPMENT OAKDALE WEST - LOT 2B		
Title		
GENERAL ARRANGEMENT PLAN		
Drawing No.	Project No.	Issue
15-272-C7102	15-272	C



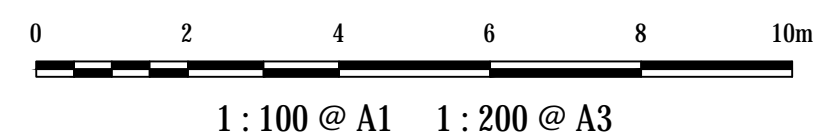
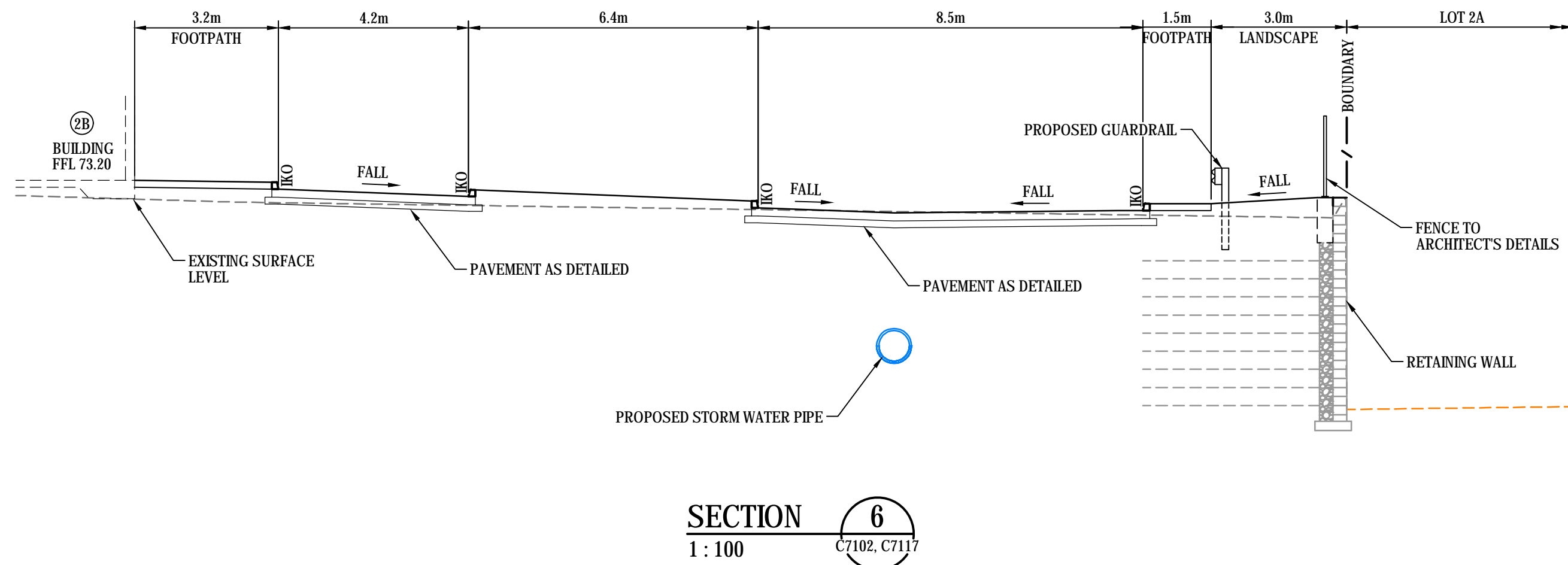
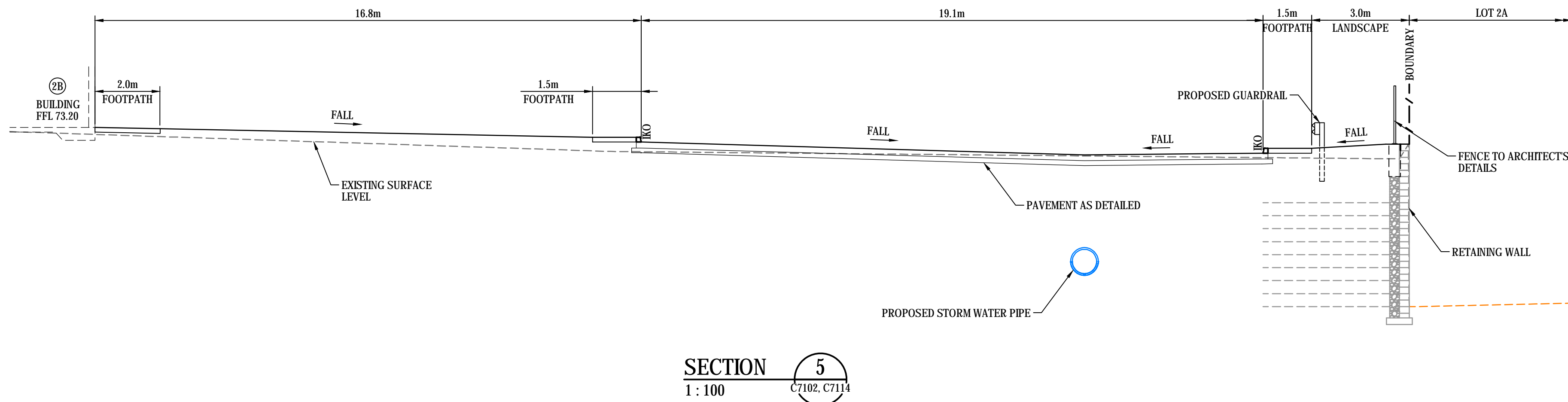
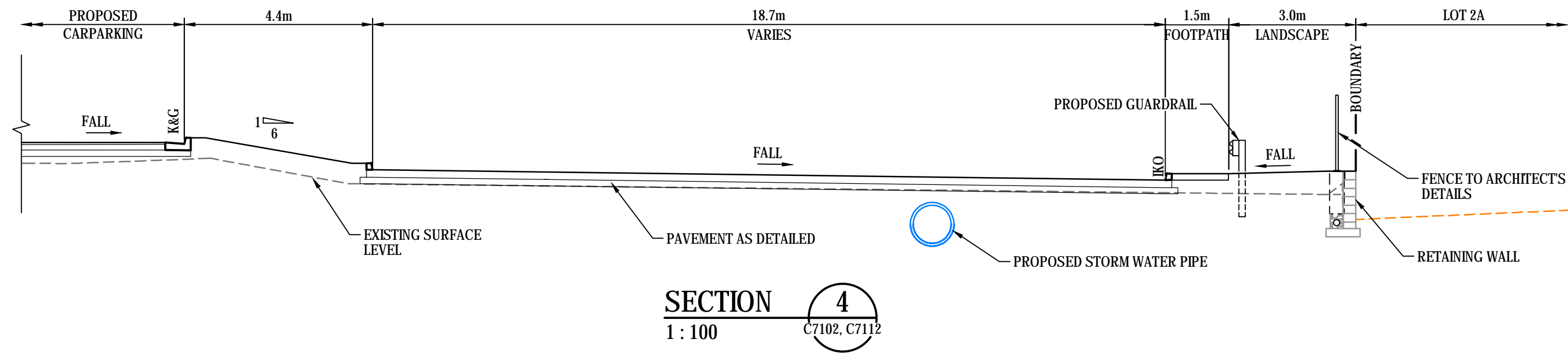
Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19
Issue	Description	Date
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Status	MOD 3 APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		
Scales	1 : 100	15-272-C7103.dwg
	Drawn	JH
	Designed	GB
Height Datum	AHD	Checked
Grid	MGA	Approved
Client		
Civil Engineers and Project Managers		
Project	PROPOSED INDUSTRIAL DEVELOPMENT OAKDALE WEST - LOT 2B	
Title	TYPICAL SECTIONS SHEET 1	
Drawing No.	Project No.	Issue
15-272-C7103	15-272	C

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Date Plotted: 13 Jan 2020 - 05:25PM
File Name: F:\15-272 Oakdale West\Draws\Civil\Final\SSDA\7000_On-Lot Works Packages\7100_LOT-2B\15-272-C7103.dwg

V1



Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19
Issue	Description	Date

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Status	MOD 3 APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		

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Grid	MGA	Approved	AM

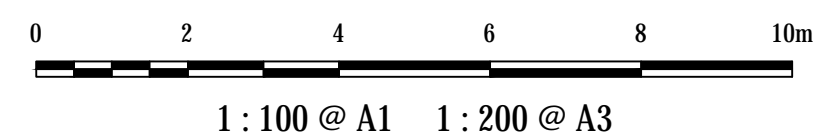
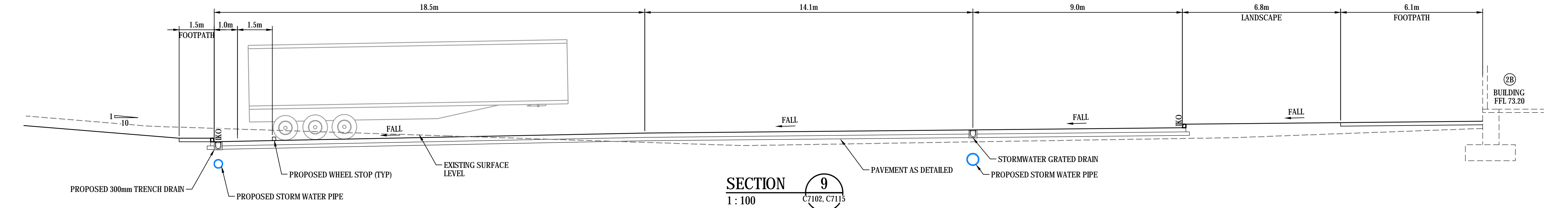
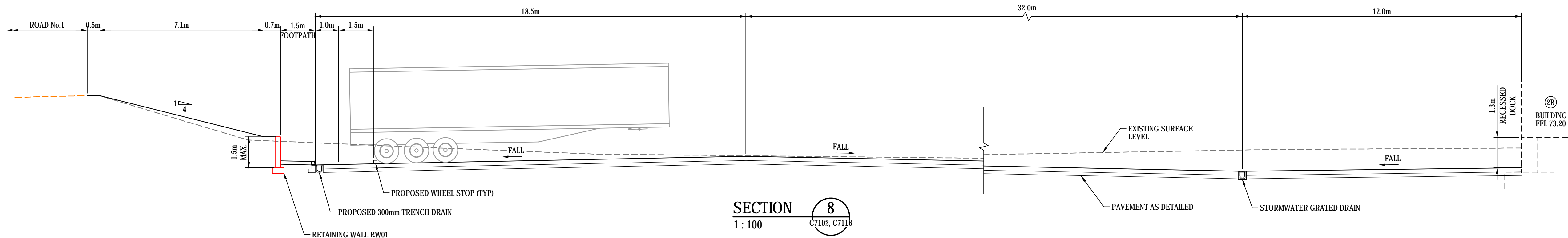
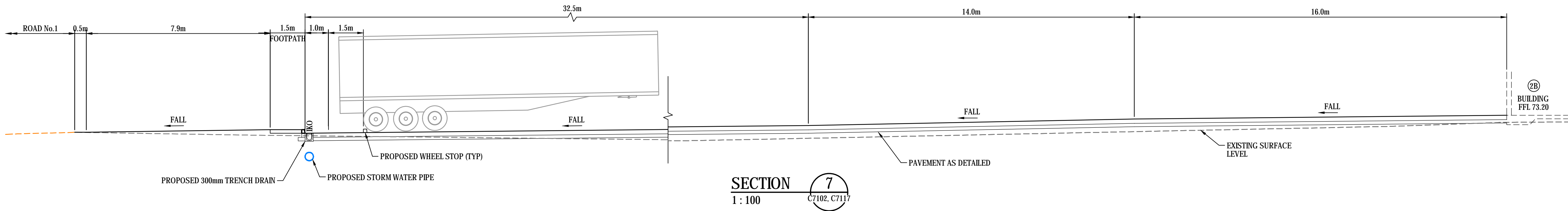


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Project
**PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B**

Title
**TYPICAL SECTIONS
SHEET 2**

Drawing No.	Project No.	Issue
15-272-C7104	15-272	C



Bar Scales

Issue	Description	Date
C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

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Status
MOD 3 APPROVAL
NOT TO BE USED FOR CONSTRUCTION
A1

Scales	15-272-C7105.dwg
1 : 100	Drawn JH Designed GB
Height Datum	AHD Checked AM
Grid	MGA Approved AM

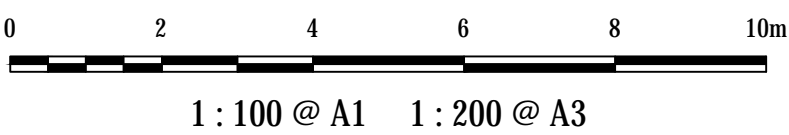
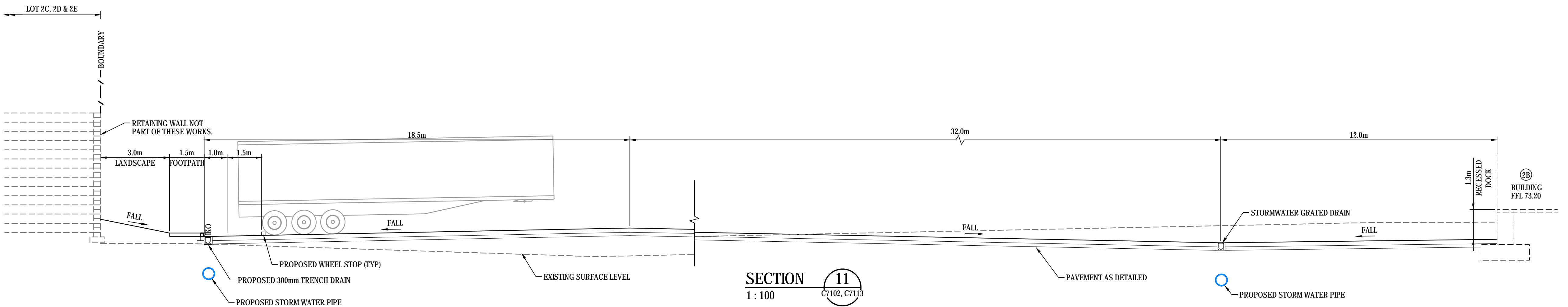
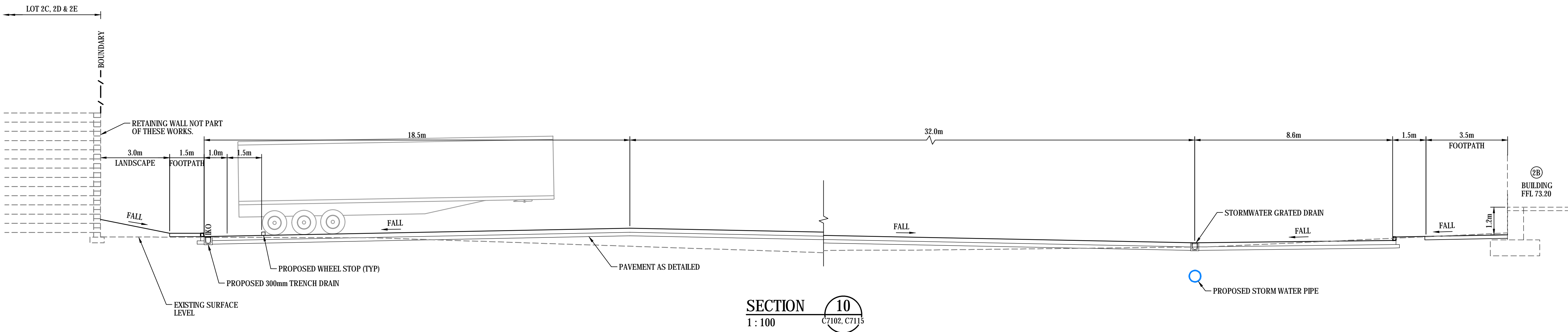


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Project
PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B

Title
TYPICAL SECTIONS
SHEET 3

Drawing No.	Project No.	Issue
15-272-C7105	15-272	C



Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

Issue	Description	Date
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Status	MOD 3 APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
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Scales	1 : 100	15-272-C7106.dwg	
		Drawn	JH
		Designed	GB
Height Datum	AHD	Checked	AM
Grid	MGA	Approved	AM



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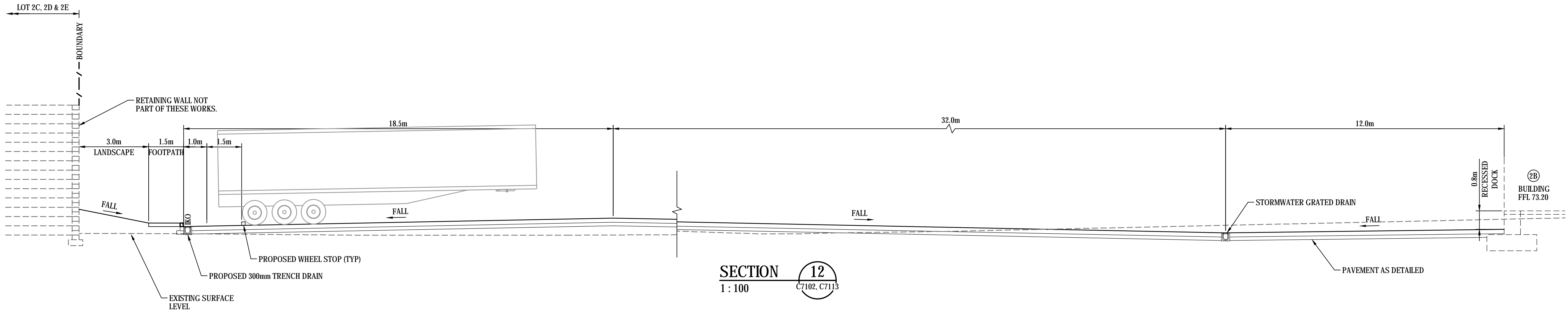
Project

**PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B**

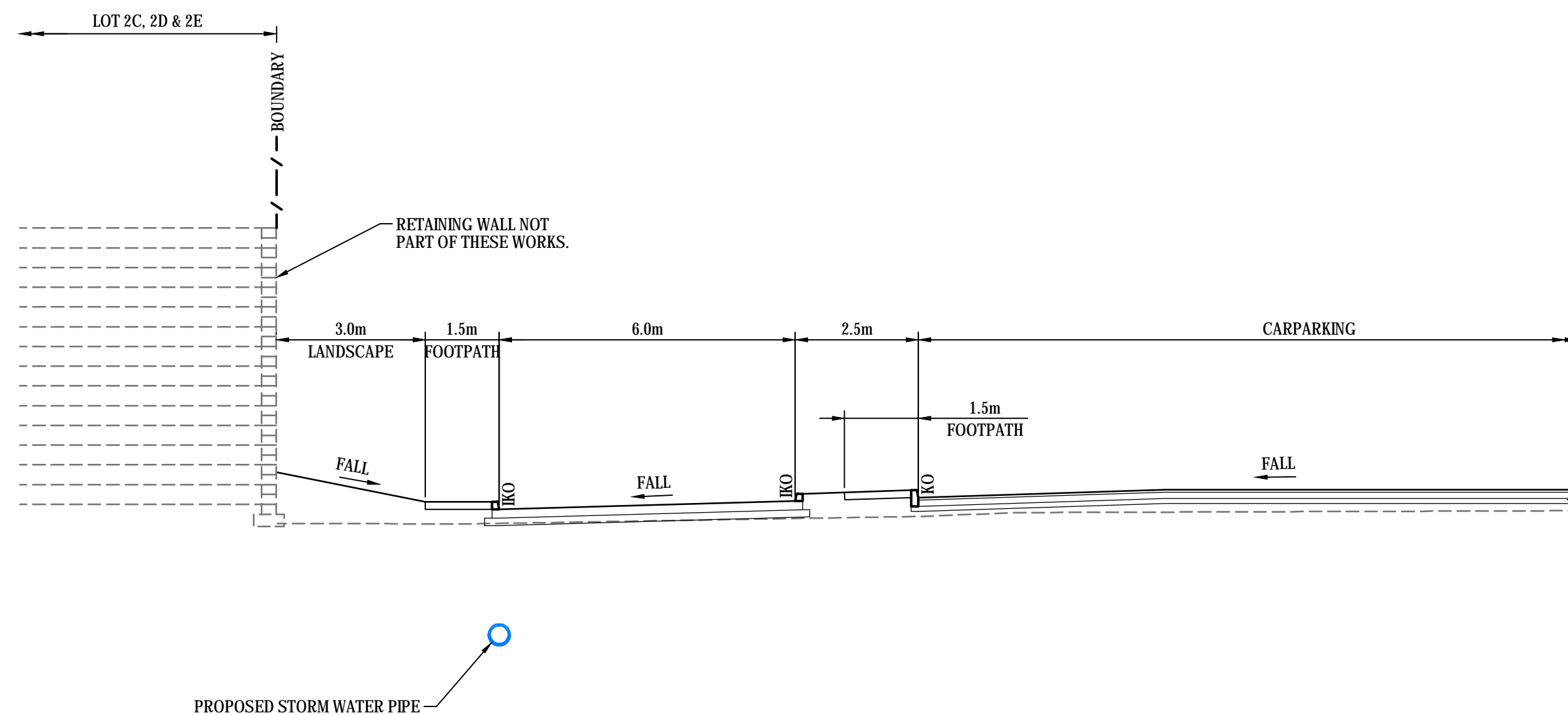
Title

**TYPICAL SECTIONS
SHEET 4**

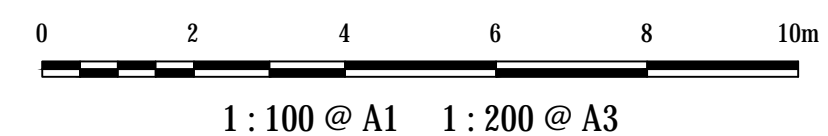
Drawing No.	Project No.	Issue
15-272-C7106	15-272	C



SECTION 12
1 : 100 C7102, C7113



SECTION 13
1 : 100 C7102, C7110



Bar Scales

Issue	Description	Date
C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
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A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

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Status	MOD 3 APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
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Scales	1 : 100	15-272-C7107.dwg	
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Height Datum	AHD	Checked	AM
Grid	MGA	Approved	AM

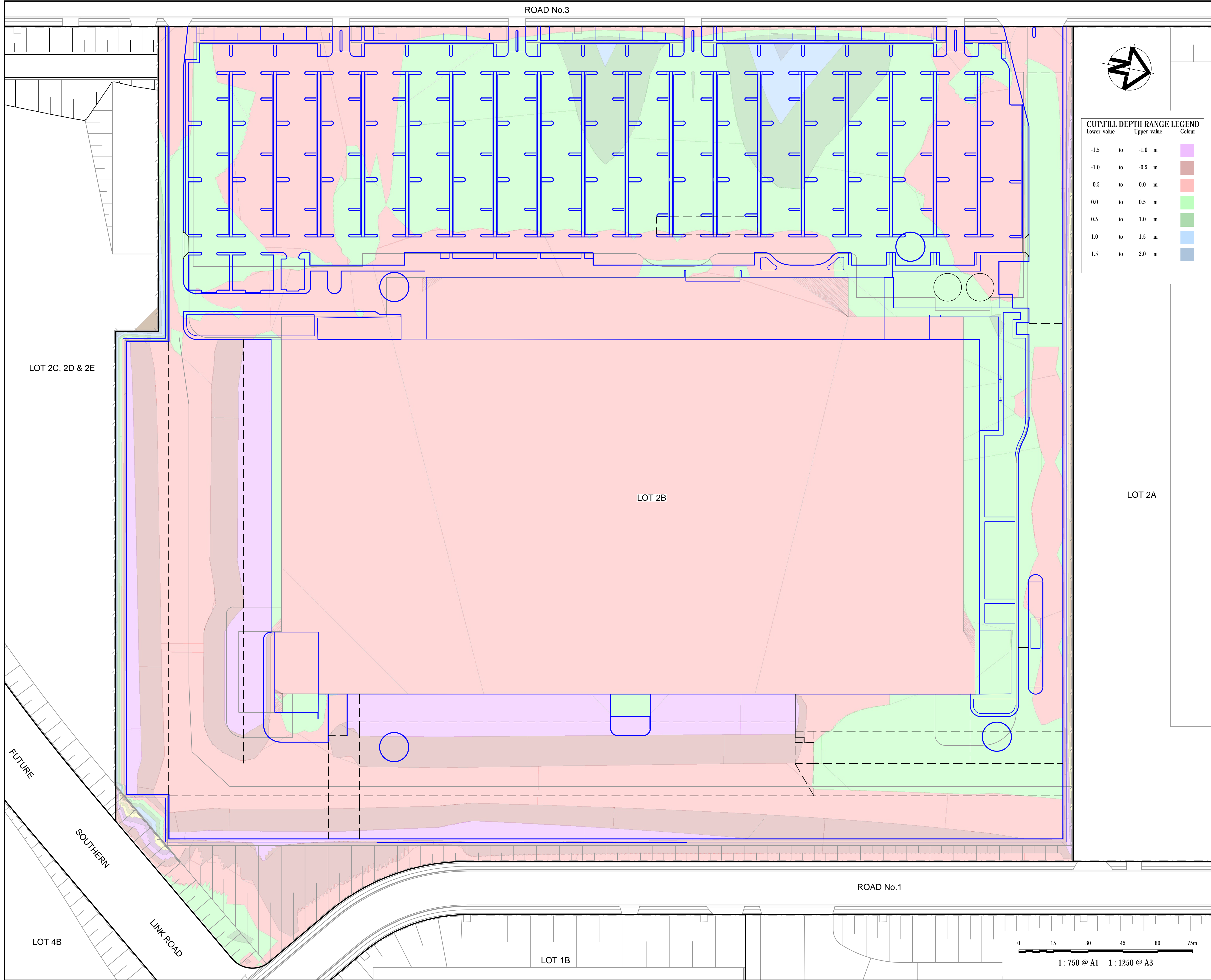


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Project
**PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B**

Title
**TYPICAL SECTIONS
SHEET 5**

Drawing No. 15-272-C7107	Project No. 15-272	Issue C
------------------------------------	------------------------------	-------------------



NET CUT (cu.m)	NET FILL (cu.m)	BALANCE (cu.m)
38,000	10,000	27,000 EXPORT

- NOTES**
1. THE ABOVE VOLUME ARE CALCULATED WITH THE ASSUMPTION THAT THE INFRASTRUCTURE WORKS ARE COMPLETED. REFER 1000 SERIES DRAWING PACKAGE FOR DETAILS.
 2. INFRASTRUCTURE EARTHWORKS ARE SUBJECT TO CHANGE TO REDUCE THE EXPORT AMOUNT. WAE SURVEY TO CONFIRM VOLUMES PRIOR TO DETAILED DESIGN.
 3. NO ALLOWANCE FOR RETAINING WALL BACKFILL MATERIAL.
 4. 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
 - STORMWATER AND UTILITY TRENCHING
 - EROSION AND SEDIMENTATION CONTROL SWALES AND BASINS

Bar Scales

Issue	Description	Date
C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

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Status	MOD 3 APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		

Scales	1 : 750	15-272-C7109.dwg	
		Drawn	JH
		Designed	GB
Height Datum	AHD	Checked	AM
Grid	MGA	Approved	AM

Client



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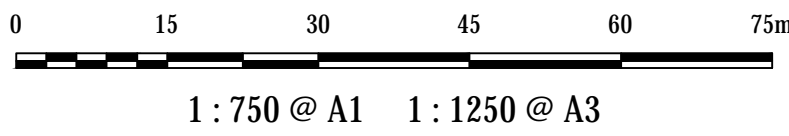
Project

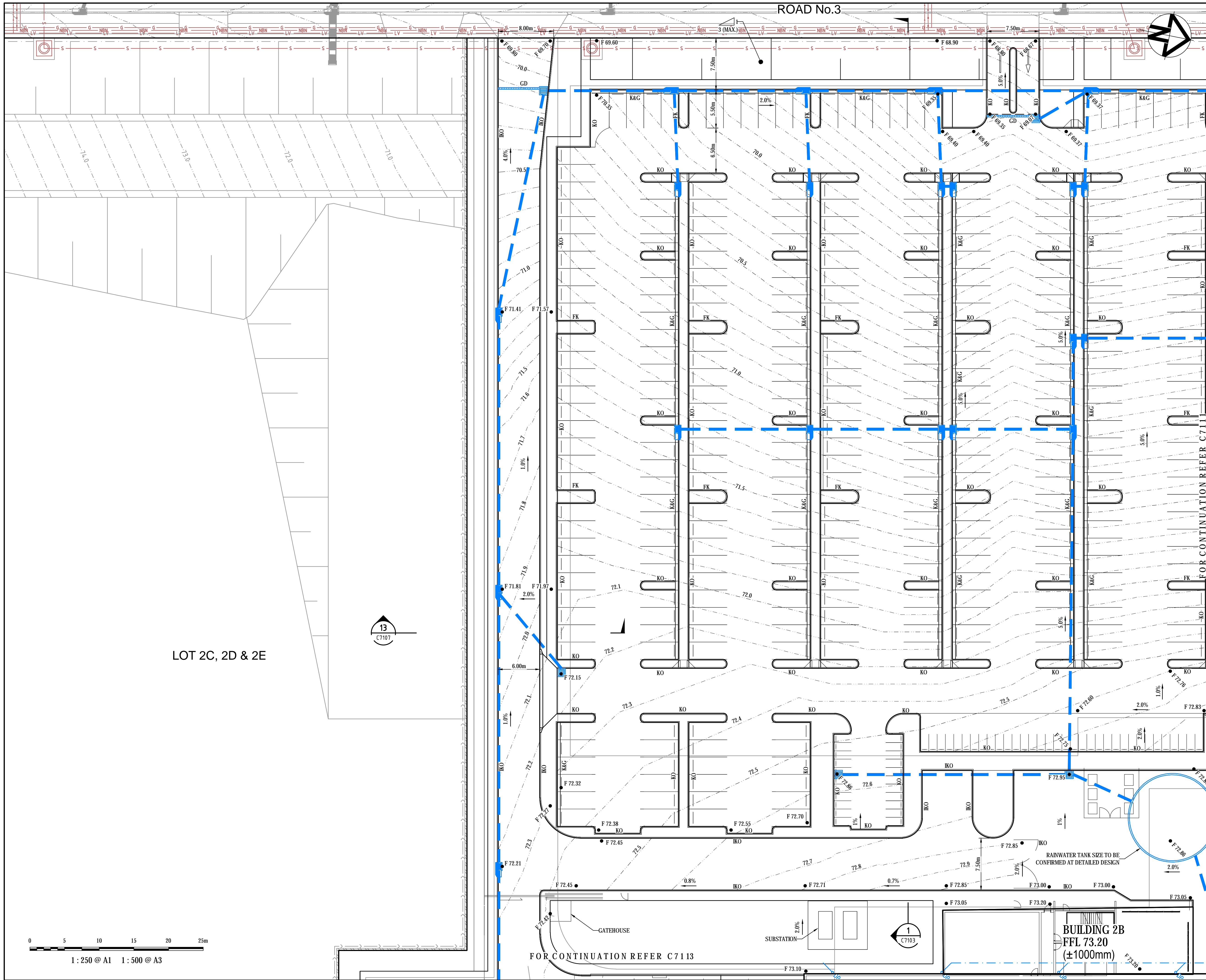
**PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B**

Title

BULK EARTHWORKS PLAN

Drawing No.	Project No.	Issue
15-272-C7109	15-272	C





KEYPLAN

LEGEND

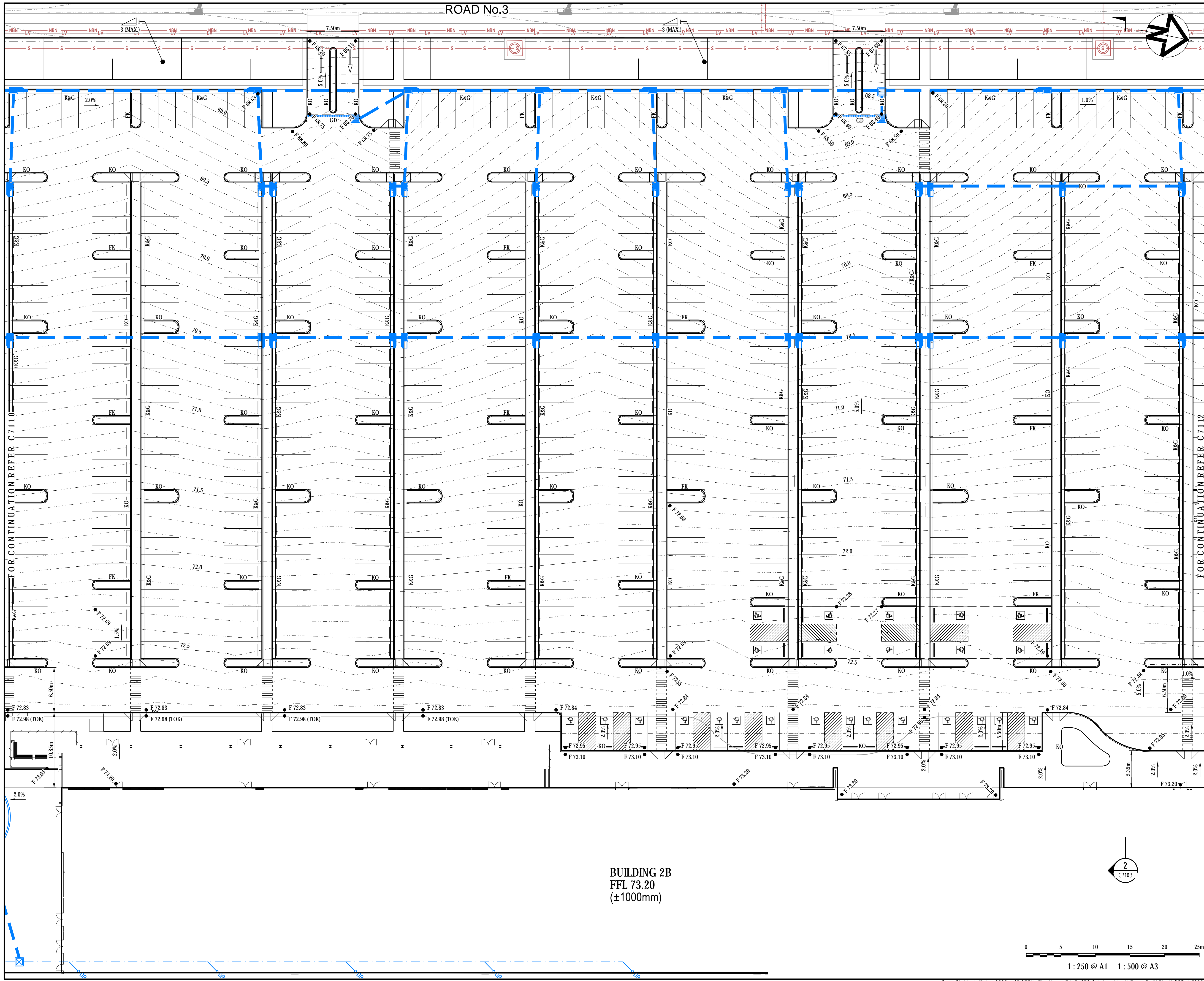
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- PROPOSED BOUNDARY
- PROPOSED CONTOUR
- K&G
- KO
- IKO
- FK
- FINISHED SURFACE LEVEL
- STORMWATER PIPE WITH SIZE
- STORMWATER OVERLAND FLOWPATH
- STORMWATER GRATED DRAIN
- KERB INLET PIT
- SURFACE INLET PIT
- JUNCTION PIT
- GUARDRAIL SAFETY BARRIER
- EXISTING STORMWATER PIPE
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING NBN
- EXISTING ELECTRICAL
- EXISTING GAS MAIN

Bar Scales

Issue	Description	Date
C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

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Status	MOD 3 APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Scales	1 : 250	15-272-C7110.dwg
Height Datum	AHD	Checked AM
Grid	MGA	Approved AM
Client	Goodman	
Civil Engineers and Project Managers	at&i	
Project	PROPOSED INDUSTRIAL DEVELOPMENT OAKDALE WEST - LOT 2B	
Title	SITWORKS AND STORMWATER DRAINAGE PLAN SHEET 1	
Drawing No.	Project No.	Issue
15-272-C7110	15-272	C



KEYPLAN

LEGEND

- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- 65.0
- PROPOSED CONTOUR
- K&G
- KERB AND GUTTER
- KO
- KERB ONLY
- IKO
- INTEGRAL KERB ONLY
- FK
- FLUSH KERB
- F74.00
- Q375
- FINISHED SURFACE LEVEL
- STORMWATER PIPE WITH SIZE
- STORMWATER OVERLAND FLOWPATH
- GD
- STORMWATER GRATED DRAIN
- KERB INLET PIT
- SURFACE INLET PIT
- JUNCTION PIT
- GUARDRAIL SAFETY BARRIER
- EXISTING STORMWATER PIPE
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- NBN
- EXISTING NBN
- LV/HV
- EXISTING ELECTRICAL
- G
- EXISTING GAS MAIN

Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

Issue	Description	Date
15-272-C7111.dwg		

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Status	MOD 3 APPROVAL		A1
NOT TO BE USED FOR CONSTRUCTION			

Scales	1 : 250	15-272-C7111.dwg	
Drawn	JH		
Designed	GB		

Height Datum	AHD	Checked	AM
Grid	MGA	Approved	AM

Client

Goodman

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Project

PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B

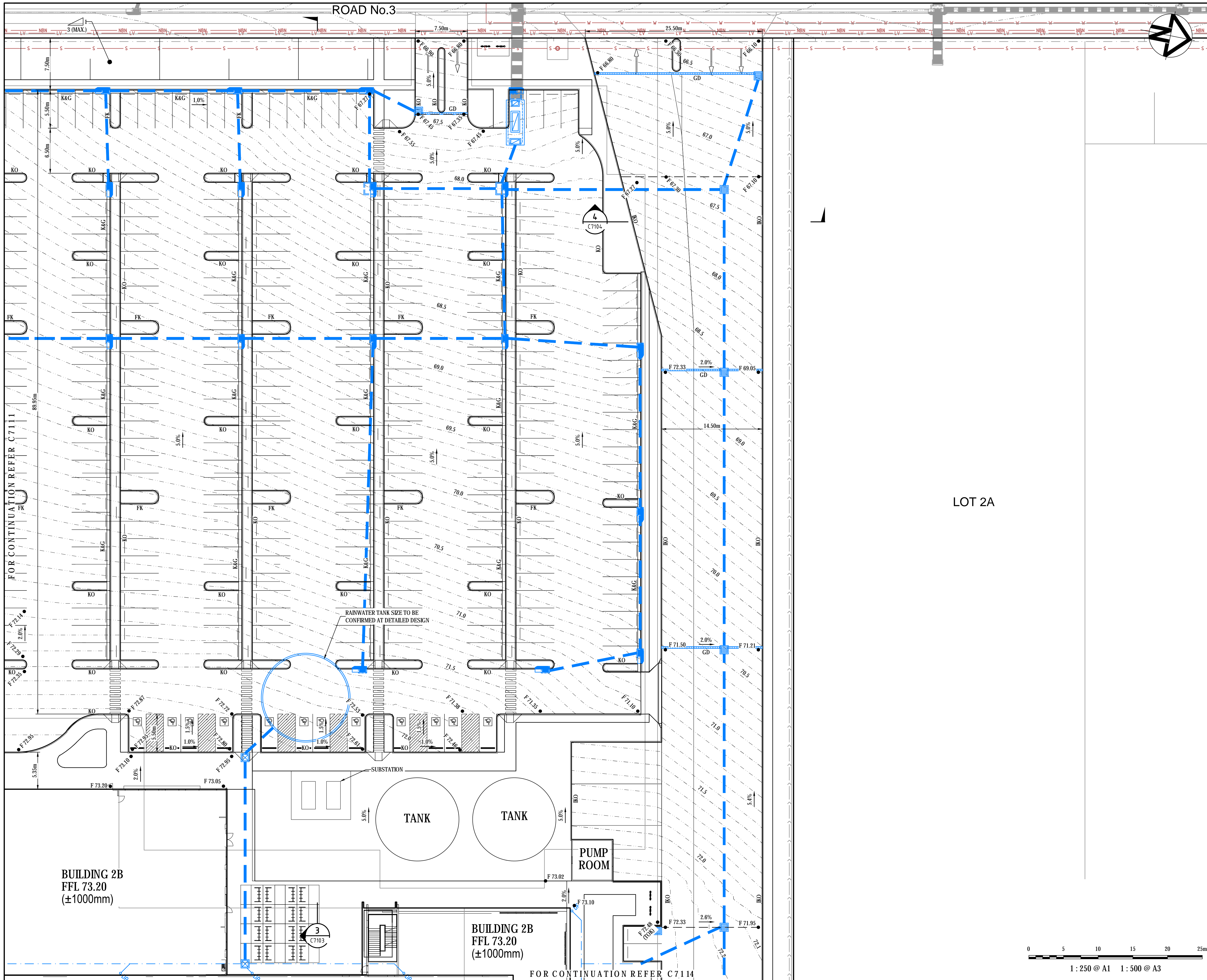
Title

SITWORKS AND STORMWATER DRAINAGE PLAN
SHEET 2

Drawing No.	Project No.	Issue
15-272-C7111	15-272	C

BUILDING 2B
FFL 73.20
(±1000mm)

Date Plotted: 13 Jan 2020 - 05:27PM File Name: F:\15-272 Oakdale West\Drgs\Civil\Final\SSDA\7000_On-Lot Works Packages\7100_L01-2B\15-272-C7111.dwg V1



KEYPLAN

LEGEND

- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- K&G KERB AND GUTTER
- KO KERB ONLY
- IKO INTEGRAL KERB ONLY
- FK FLUSH KERB
- F74.00 FINISHED SURFACE LEVEL
- Q375
- STORMWATER PIPE WITH SIZE
- STORMWATER OVERLAND FLOWPATH
- GD STORMWATER GRATED DRAIN
- KERB INLET PIT
- SURFACE INLET PIT
- JUNCTION PIT
- GUARDRAIL SAFETY BARRIER
- EXISTING STORMWATER PIPE
- S EXISTING SEWER MAIN
- W EXISTING WATER MAIN
- NBN EXISTING NBN
- LV/HV EXISTING ELECTRICAL
- G EXISTING GAS MAIN

Bar Scales

Issue	Description	Date
C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

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Scales	1 : 250	15-272-C7112.dwg
Drawn	JH	
Designed	GB	
Height Datum	AHD	Checked AM
Grid	MGA	Approved AM

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Project

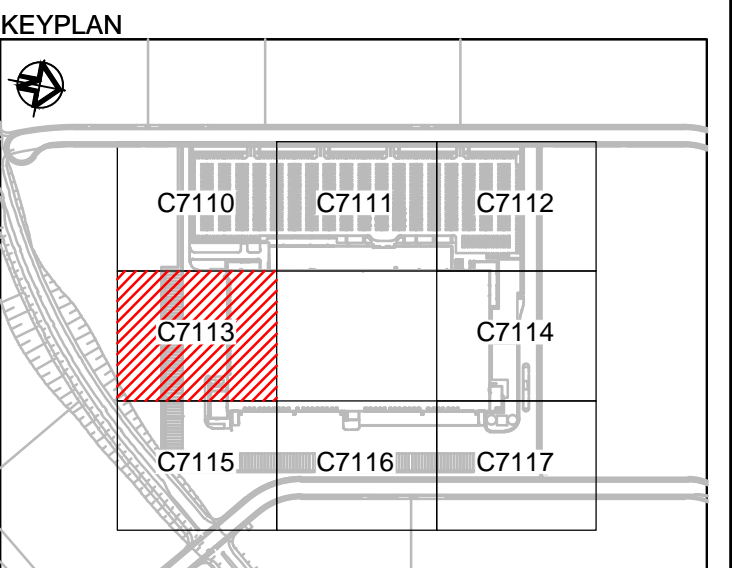
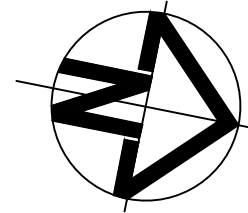
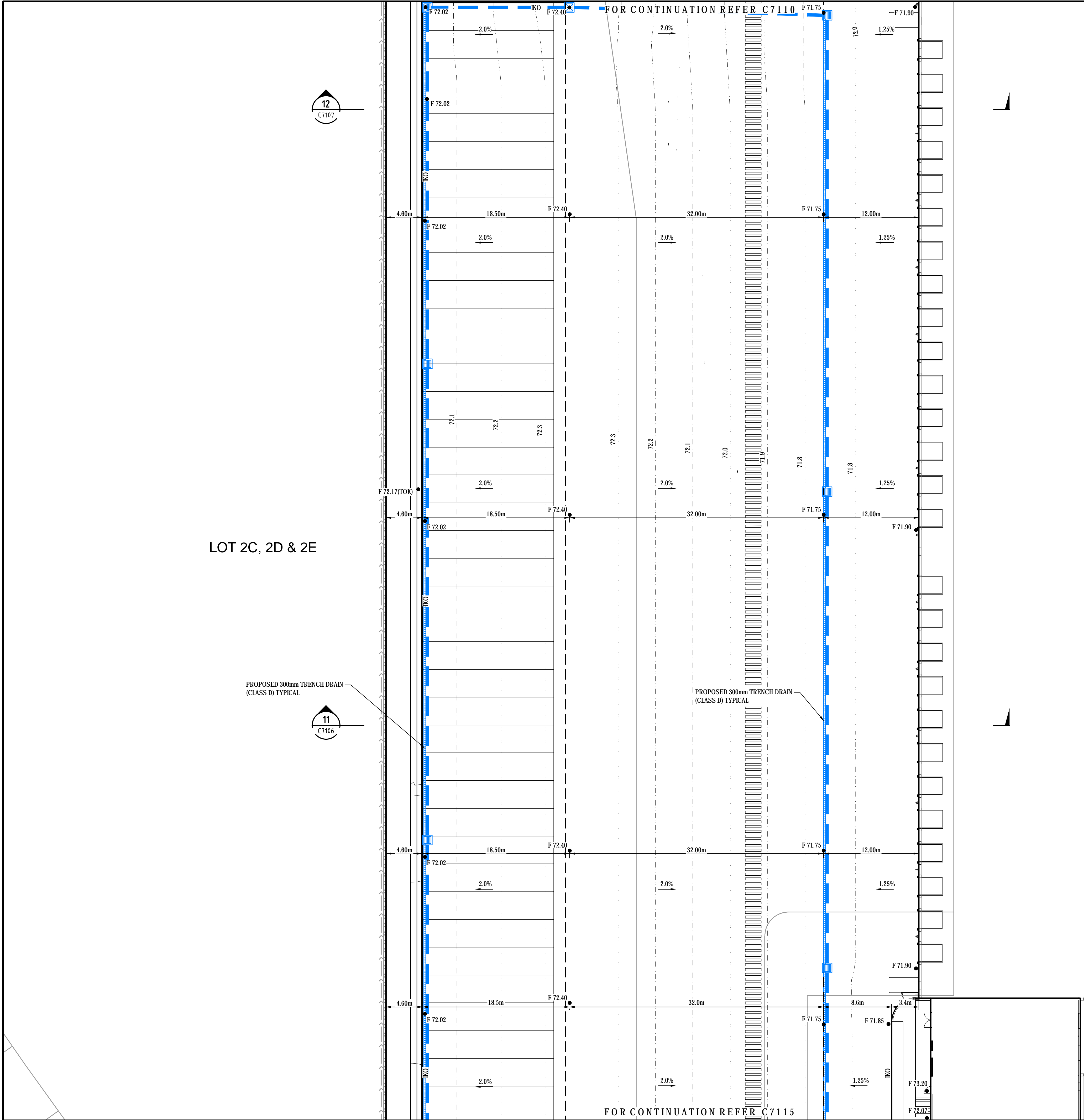
PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B

Title

SITWORKS AND STORMWATER DRAINAGE PLAN
SHEET 3

Drawing No.	Project No.	Issue
15-272-C7112	15-272	C

Date Plotted: 13 Jan 2020 - 05:27PM File Name: F:\15-272 Oakdale West\Orgs\Civil\Final\SSDA\7000_On-Lot Works Packages\7100_L01-2B\15-272-C7112.dwg V1



LEGEND

- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- PROPOSED CONTOUR
- K&G KERB AND GUTTER
- KO KERB ONLY
- IKO INTEGRAL KERB ONLY
- FK FLUSH KERB
- FINISHED SURFACE LEVEL
- STORMWATER PIPE WITH SIZE
- STORMWATER OVERLAND FLOWPATH
- STORMWATER GRATED DRAIN
- KERB INLET PIT
- SURFACE INLET PIT
- JUNCTION PIT
- GUARDRAIL SAFETY BARRIER
- EXISTING STORMWATER PIPE
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING NBN
- EXISTING ELECTRICAL
- EXISTING GAS MAIN

Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19
Issue	Description	Date

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Status	MOD 3 APPROVAL	A1
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Scales	1 : 250	15-272-C7113.dwg	
		Drawn	JH
		Designed	GB
Height Datum	AHD	Checked	AM
Grid	MGA	Approved	AM



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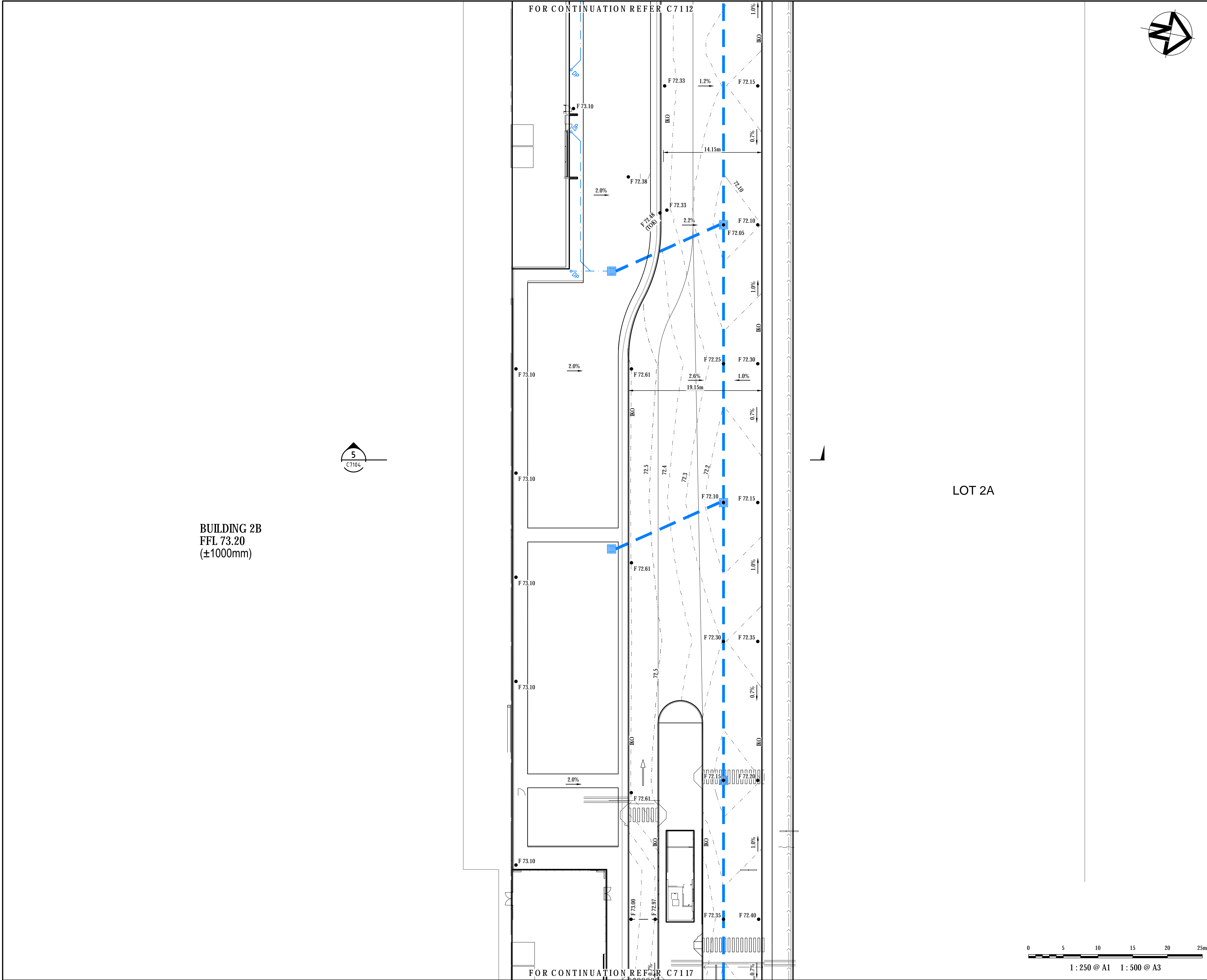
Project
**PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B**

Title
**SITWORKS AND STORMWATER DRAINAGE
PLAN
SHEET 4**

Drawing No.	Project No.	Issue
15-272-C7113	15-272	C

0 5 10 15 20 25m
1 : 250 @ A1 1 : 500 @ A3

FOR CONTINUATION REFER C7115



KEYPLAN

LEGEND

- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- K&G KERB AND GUTTER
- KO KERB ONLY
- IKO INTEGRAL KERB ONLY
- FK FLUSH KERB
- F74.00 FINISHED SURFACE LEVEL
- Ø375 STORMWATER PIPE WITH SIZE
- GD STORMWATER OVERLAND FLOWPATH
- STORMWATER GRATED DRAIN
- KERB INLET PIT
- SURFACE INLET PIT
- JUNCTION PIT
- GUARDRAIL SAFETY BARRIER
- EXISTING STORMWATER PIPE
- S EXISTING SEWER MAIN
- W EXISTING WATER MAIN
- NBN EXISTING NBN
- L V/HV EXISTING ELECTRICAL
- G EXISTING GAS MAIN

Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

Issue	Description	Date

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Status	MOD 3 APPROVAL		A1
NOT TO BE USED FOR CONSTRUCTION			

Scales	1 : 250	15-272-C7114.dwg	
		Drawn	JH
		Designed	GB
Height Datum	AHD	Checked	AM
Grid	MGA	Approved	AM

Client

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Project

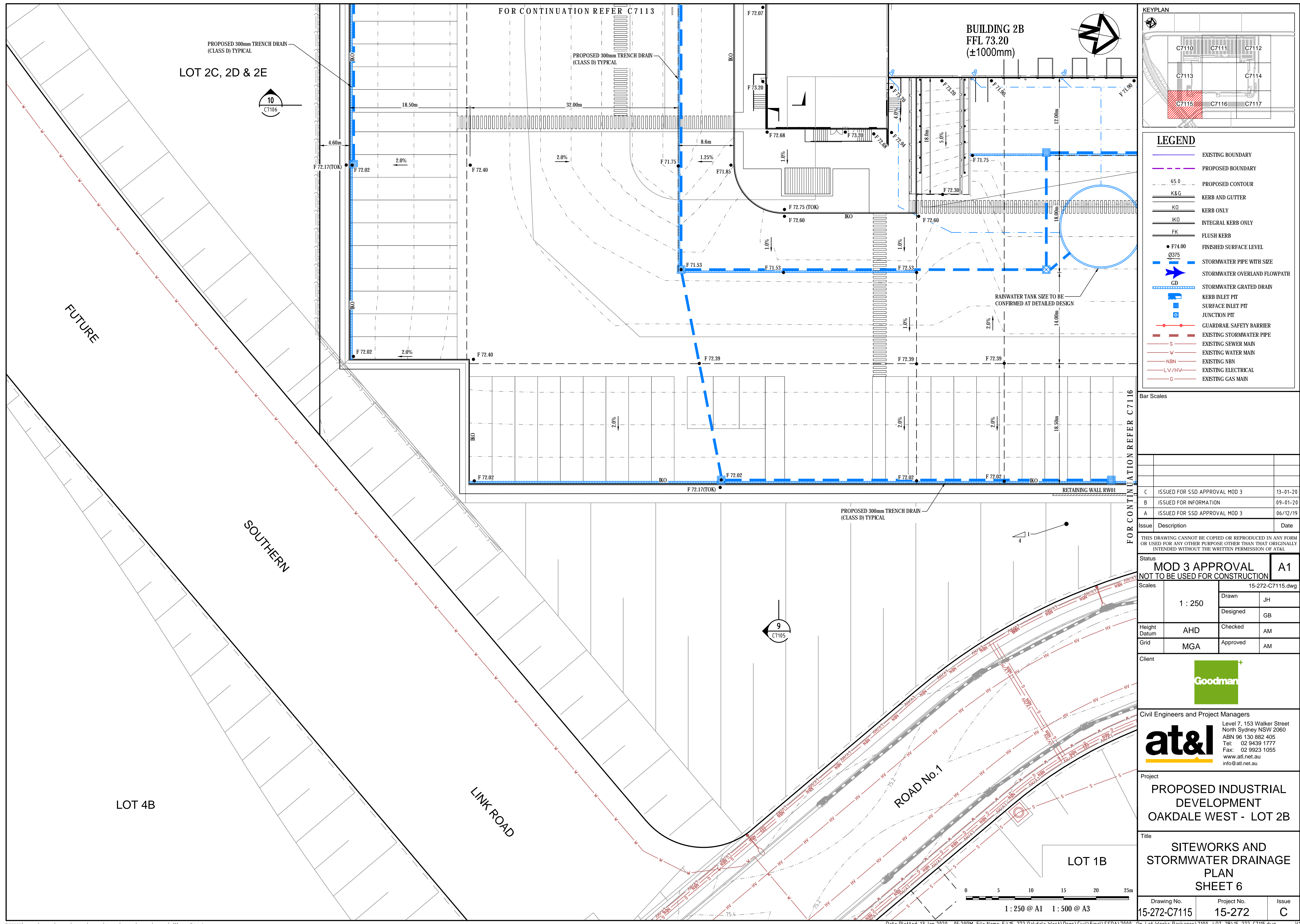
PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B

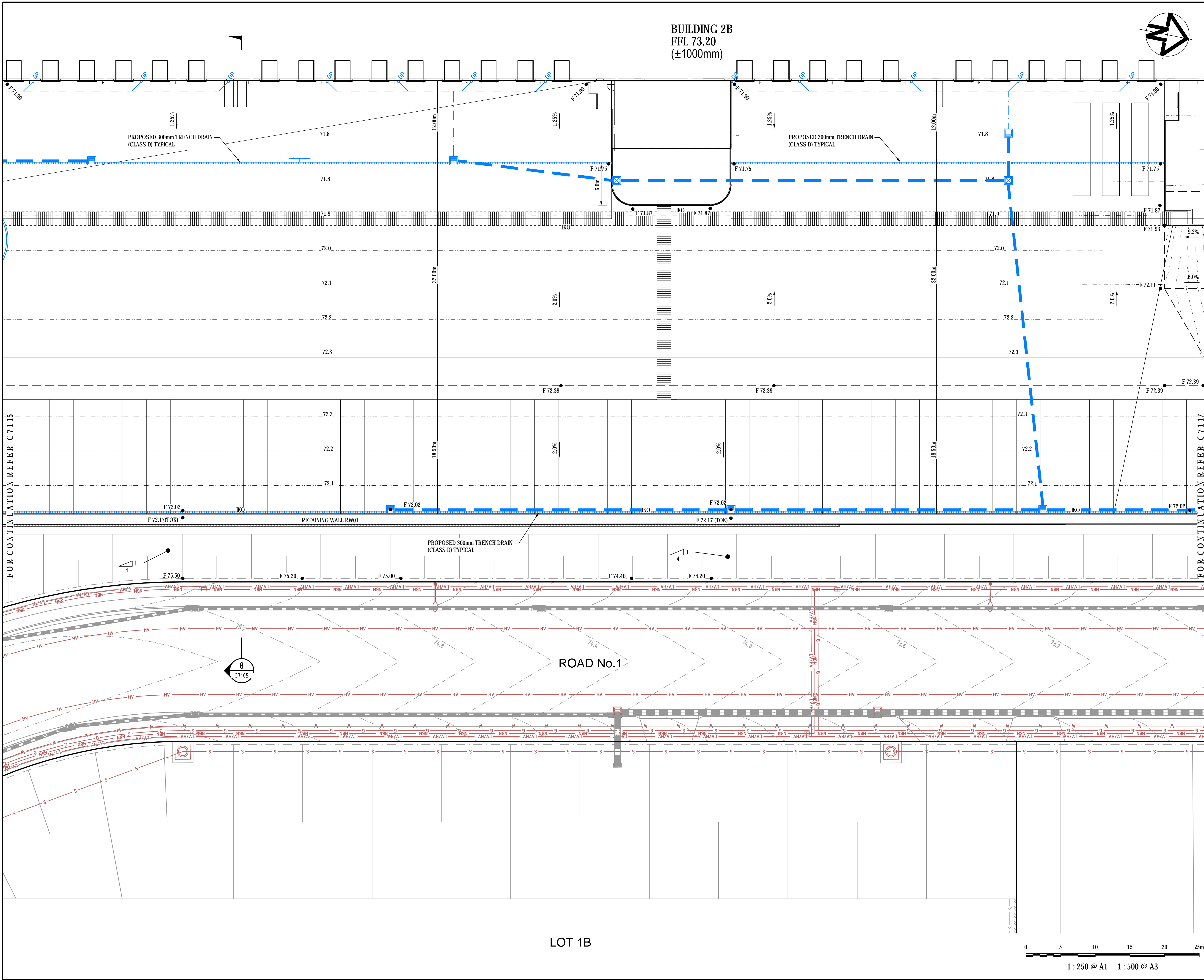
Title

SITEWORKS AND STORMWATER DRAINAGE PLAN
SHEET 5

Drawing No.	Project No.	Issue
15-272-C7114	15-272	C

Date Plotted: 13 Jan 2020 - 05:28PM File Name: F:\15-272 Oakdale West\Draws\Civil\Final\SSDA\7000_On-Lot Works Packages\7100_LOT-2B\15-272-C7114.dwg V1





KEYPLAN

LEGEND

- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- PROPOSED CONTOUR
- K&G KERB AND GUTTER
- KO KERB ONLY
- IKO INTEGRAL KERB ONLY
- FK FLUSH KERB
- FINISHED SURFACE LEVEL
- STORMWATER PIPE WITH SIZE
- STORMWATER OVERLAND FLOWPATH
- STORMWATER GRATED DRAIN
- KERB INLET PIT
- SURFACE INLET PIT
- JUNCTION PIT
- GUARDRAIL SAFETY BARRIER
- EXISTING STORMWATER PIPE
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING NBN
- EXISTING ELECTRICAL
- EXISTING GAS MAIN

Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

Issue Description Date

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Status

MOD 3 APPROVAL		A1
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NOT TO BE USED FOR CONSTRUCTION

Scales

1 : 250	15-272-C7116.dwg		
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Height Datum	AHD	Checked	AM
	Grid	MGA	Approved

Client

Civil Engineers and Project Managers

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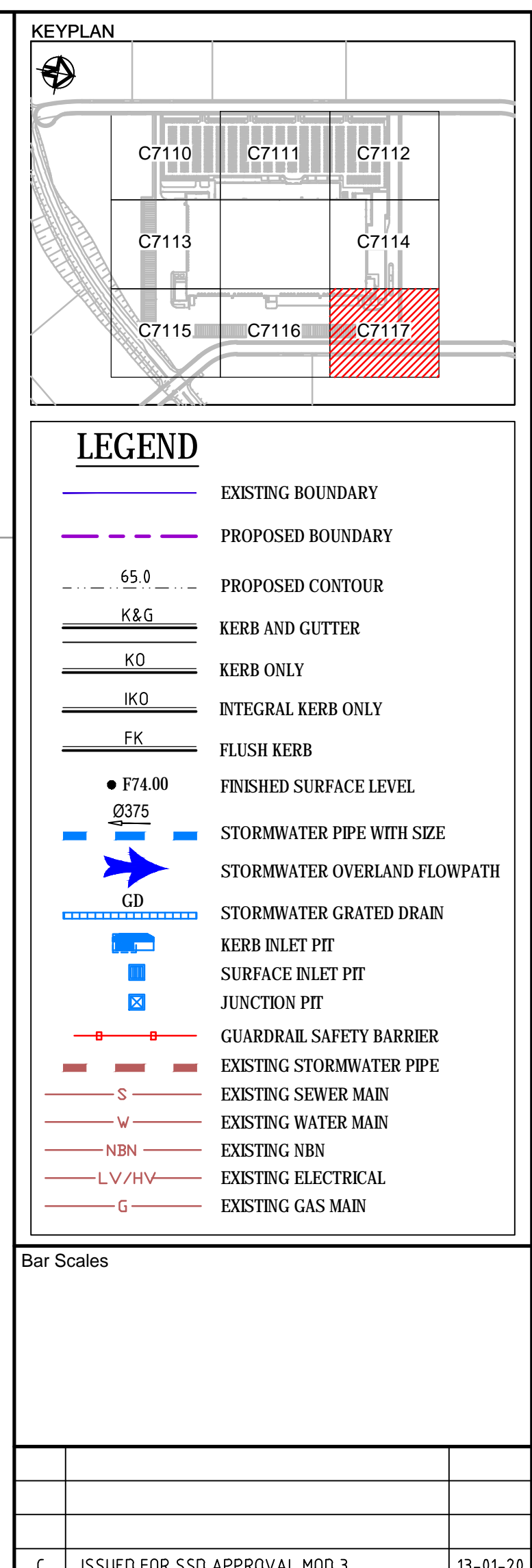
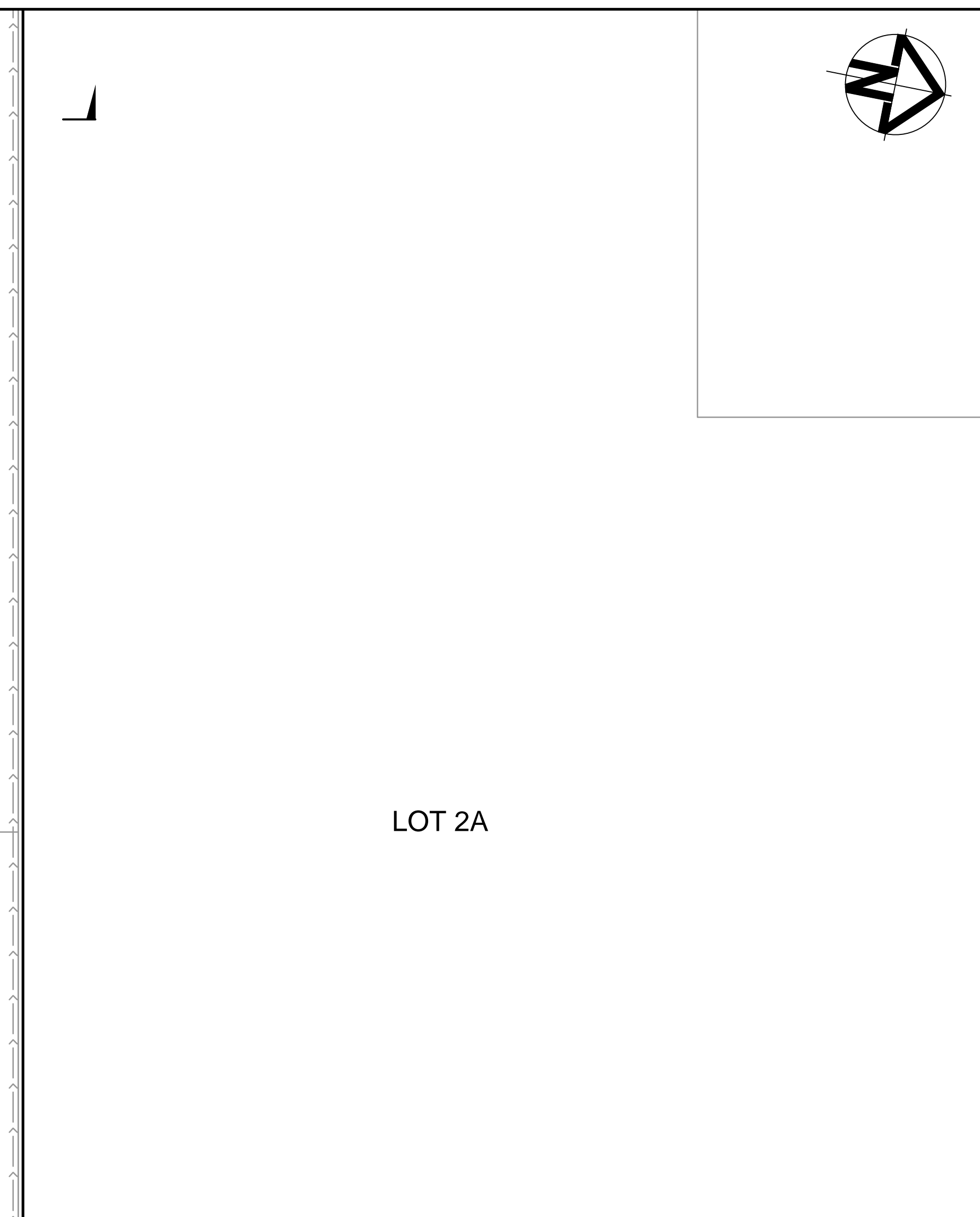
Project

PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B

Title

SITeworks AND STORMwater DRAINAGE PLAN
SHEET 7

Drawing No.	Project No.	Issue
15-272-C7116	15-272	C

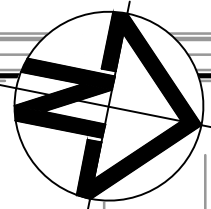
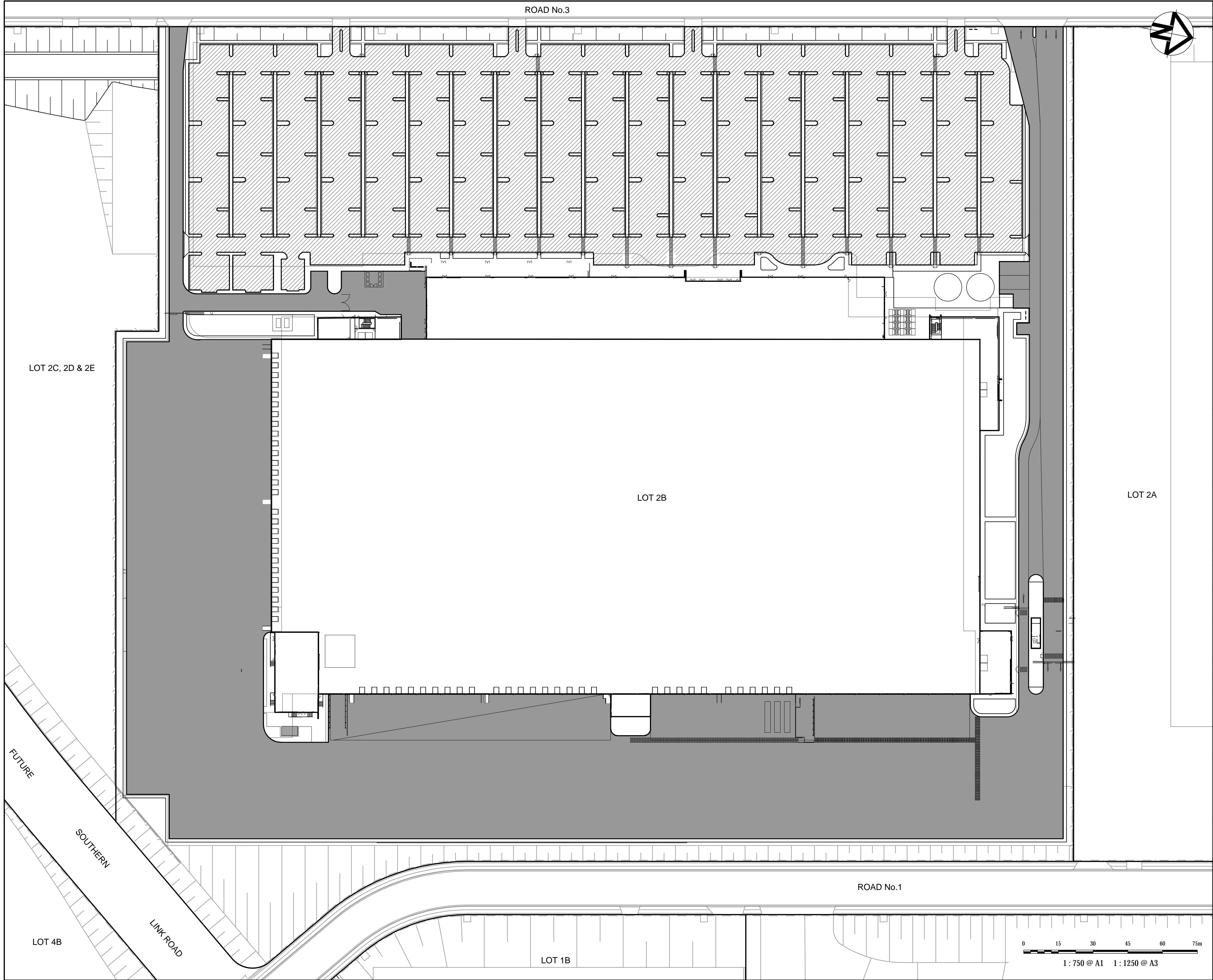


Status	MOD 3 APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
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Project

PROPOSED INDUSTRIAL
DEVELOPMENT
OAKDALE WEST - LOT 2B

Drawing No.	Project No.	Issue
15-272-C7117	15-272	C



LEGEND

- HEAVY DUTY RIGID PAVEMENT
- LIGHT DUTY FLEXIBLE PAVEMENT

Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19
Issue	Description	Date

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Status	MOD 3 APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		

Scales	1 : 750	15-272-C7118.dwg	
		Drawn	JH
		Designed	GB
Height Datum	AHD	Checked	AM
Grid	MGA	Approved	AM

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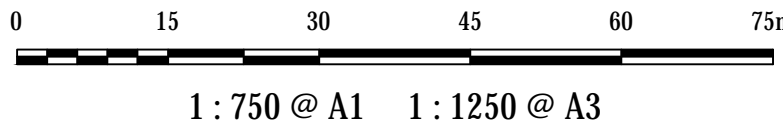
Project

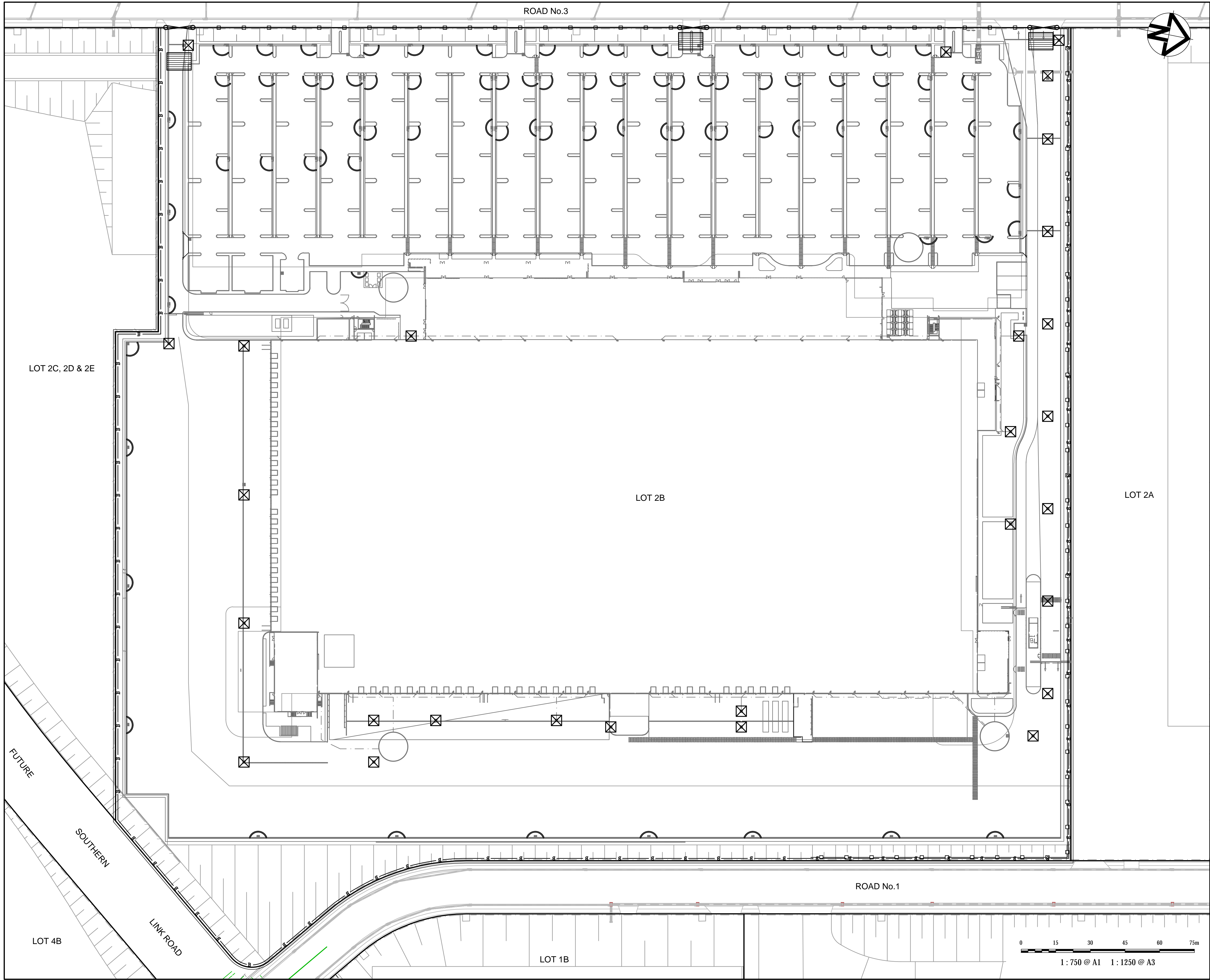
PROPOSED INDUSTRIAL DEVELOPMENT
OAKDALE WEST - LOT 2B

Title

PAVEMENT PLAN

Drawing No.	Project No.	Issue
15-272-C7118	15-272	C





LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

Bar Scales

C	ISSUED FOR SSD APPROVAL MOD 3	13-01-20
B	ISSUED FOR INFORMATION	09-01-20
A	ISSUED FOR SSD APPROVAL MOD 3	06/12/19

Issue	Description	Date

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Status	MOD 3 APPROVAL		A1
NOT TO BE USED FOR CONSTRUCTION			

Scales	1 : 750	15-272-C7119.dwg	
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		Designed	GB
Height Datum	AHD	Checked	AM
Grid	MGA	Approved	AM

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Project		
PROPOSED INDUSTRIAL DEVELOPMENT OAKDALE WEST - LOT 2B		

Title		
EROSION AND SEDIMENT CONTROL PLAN		

Drawing No.	Project No.	Issue
15-272-C7119	15-272	C

100mm on Original

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