CABONNE COUNCIL

CONTRACT No. 1008628

LUMP SUM CONTRACT

for the

CONSTRUCTION OF TRUCK WASH FACILITY, MOLONG NSW 2866

PREPARED BY:
COUNCIL'S DEPARTMENT OF
ENGINEERING & TECHNICAL SERVICES
DATE: APRIL 2019

CABONNE COUNCIL

CONTRACT No. 1008628

LUMP SUM CONTRACT

for the

CONSTRUCTION OF TRUCK WASH FACILITY, MOLONG NSW 2866

INFORMATION FOR TENDERERS

PREPARED BY:
COUNCIL'S DEPARTMENT OF
ENGINEERING & TECHNICAL SERVICES
DATE: APRIL 2019

CONTENTS

INFORMATION FOR TENDERERS

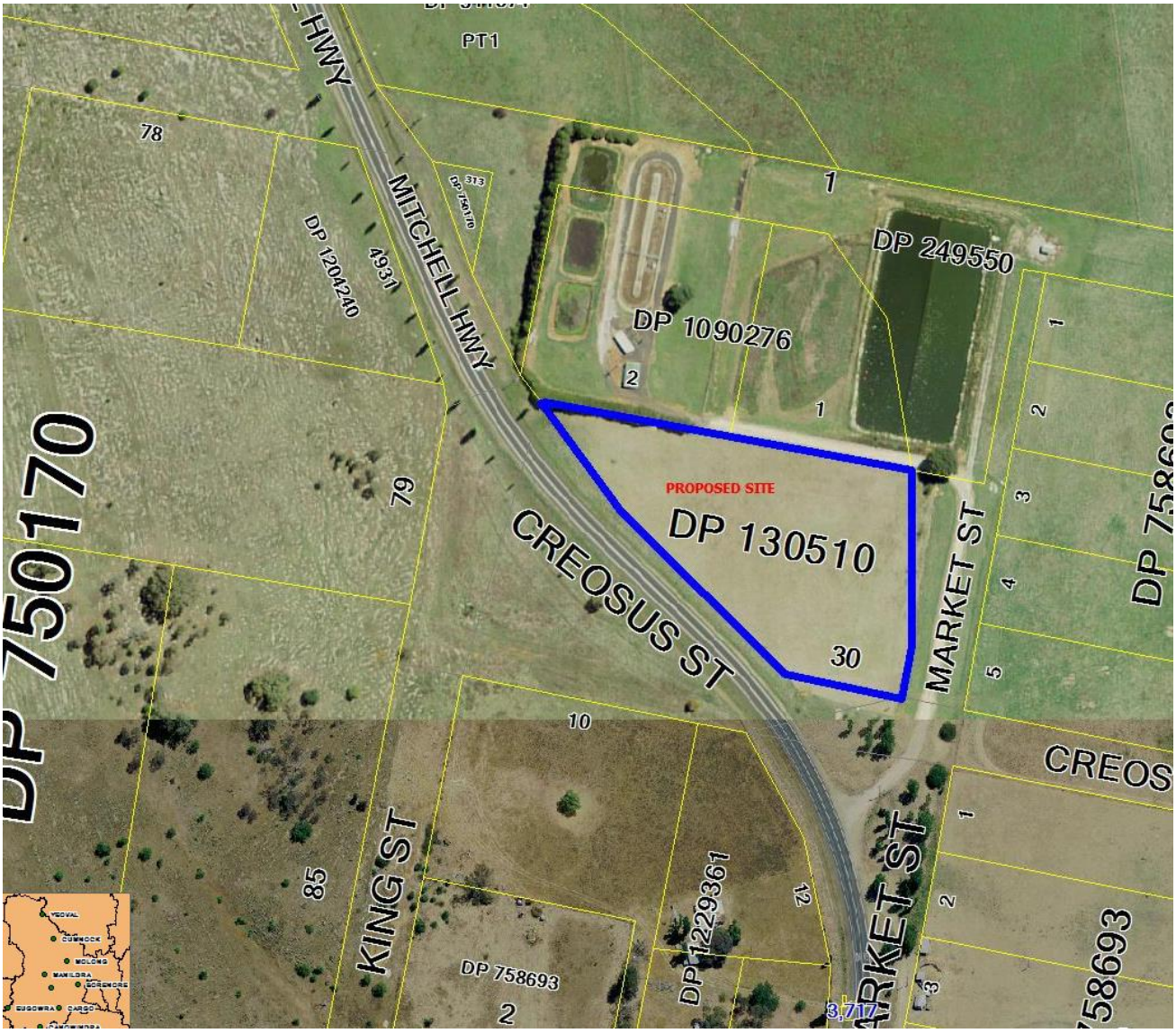
GENERAL

1 PROJECT IDENTIFICATION AND DESCRIPTION

This tender is for Contract No. 1008628 Construction of Truck Wash Facility, Molong NSW 2866.

This is a Lump Sum Contract.

LOCATION PLAN



2 RELEVANT DOCUMENTS

(a) The Contract Documents for this project are:

- **General Conditions of Contract (AS 4000-1997) ***
- **Specifications**
- **Drawings**
- **Tender Submission Forms**

*** AS 4000-1997 is not included as part of the contract documentation. Copies are available from Standards Australia**

(b) The following documentation is provided for the information of the Tenderers and does not form part of the Contract Documents:

- Information for Tenderers and Conditions of Tendering
- Geotechnical Investigation Report
- Survey Report

The documents are available from Council's Engineering and Technical Services Department, Main Street, Cudal, Council's website www.cabonne.nsw.gov.au and Council's E- tendering website www.tenderlink.com/cabonne.

The Tenderer warrants and represents that it will, prior to submission of tender, obtain the information and documentation referred to above and will obtain all other information relevant to the works, contingencies and other circumstances having an effect on its tender.

3 TENDERING METHOD

This Contract shall follow the "The Procedures of Open Tendering" in accordance with AS4120-1994 Clause 6.2.3(b), The Principal invites the public advertisement without restriction on the numbers of tenders sought.

4 COUNCIL'S CONTACT PERSON

Enquiries regarding this tender may be directed to:

Name:	Jeeva San	Phone:	02 6390 7100
Position:	Project Engineer		

5 SITE INSPECTION

A compulsory pre-tender briefing meeting and site inspection will be held on:

Day: Wednesday

Date: 08 May 2019

Time: 12:00 noon

Place: Proposed Site (Near the intersection of Mitchell Highway and Market Street in Molong)

The meeting will be minuted and the minutes shall become part of the tender documents. The minutes will be available on request.

Tenderers are required to attend the meeting and sign the meeting attendance sheet in order to submit a conforming tender. A conforming tender must also include a signed statement that the Tenderer has visited the site and has included all site conditions in their Tender Price.

6 TENDER LODGEMENT REQUIREMENTS

Tenders shall be submitted on the Tender Forms provided by the Principal, Tender Submission Documents, and are to be enclosed in a sealed envelope and the envelope marked legibly as follows:

Contract No. **1008628**

Tender for **Construction of Truck Wash Facility, Molong NSW 2866**

and either:

delivered by hand or by courier and placed in the:

Tender Box
Cabonne Council
97 Bank Street
MOLONG NSW 2866

or

mailed to the Tender Box addressed as follows, and marked:

"Contract 1008628 Construction of Truck Wash Facility, Molong NSW 2866"

Tender Box
Cabonne Council
PO BOX 17
MOLONG NSW 2866

or

submitted electronically on

www.tenderlink.com/cabonne

so as to be received **before the closing time and date for tenders**.

Time: 12:00 pm, noon

Date: Wednesday, 22 May 2019

CABONNE COUNCIL

CONTRACT No. 1008628

LUMP SUM CONTRACT

for the

CONSTRUCTION OF TRUCH WASH FACILITY, MOLONG NSW 2866

CONDITIONS OF TENDERING

PREPARED BY:
COUNCIL'S DEPARTMENT OF
ENGINEERING & TECHNICAL SERVICES
DATE: APRIL 2019

CONTENTS

CONDITIONS OF TENDERING

GENERAL

1. PREAMBLE

The Conditions of Tendering have been prepared in accordance with the obligations of the Principal contained in the Australian Standard 4120-1994, Code of Tendering, which sets out the ethics and obligations of the Principal and Tenderers in tendering in the construction industry.

Tenderers and Principal shall comply with the requirements of this AS 4120-1994. In particular attention is drawn to the obligations of Tenderers, in the preparation and submission of their tender for this project.

Without limiting the above obligations: -

- Tenderers shall not submit tenders without a firm intention to proceed.
- Tenderers must not engage in any form of collusive practice.
- Any Tenderer who directly or indirectly canvasses support from an elected member or servant of the Council will be disqualified.

It should be noted that in all contract documentation words importing a gender include every gender.

2. PROJECT INFORMATION

The complete project description, scope of work, specific site and project requirements shall be as defined in the Specification.

This tender is for Contract No. 1008628 Construction of Molong Truck Wash Facility, Molong NSW 2866.

It is a Lump Sum Contract.

3 RELEVANT DOCUMENTS

(a) The contract documents for this project are:

CONDITIONS OF CONTRACT

- General Conditions of Contract (AS 4000-1997) *.
- Annexures to General Conditions of Contract.

* AS 4000-1997 is not included as part of the contract documentation. Copies are available from Standards Australia.

TENDER SUBMISSION FORMS

SPECIFICATIONS

DRAWINGS

4 CONTRACTOR'S RESPONSIBILITY

It shall be the responsibility of the Contractor to ascertain all information relating to the services, the works and site conditions that may affect the progress or method of performing all services and works as specified within the scope of this contract and to prepare for every contingency that may arise. It is further understood that just provision for these contingencies have been accounted for, implicitly or explicitly within the Bill of Quantities or Schedule of Rates submitted.

5 COUNCIL'S CONTACT PERSON

Enquiries regarding this tender may be directed to:

Name: **Jeeva San** Phone: **02 6390 7100**

Position: **Project Engineer**

TENDER SUBMISSION INFORMATION

6 SUPPORTING INFORMATION FROM TENDERERS

The Tenderer shall provide documentary evidence to prove they have the necessary competence, resources, industrial relations, quality and safety management and financial capacity to carry out the Works.

- Copy of Certificate of Currency for Public Liability Insurance
- Copy of Certificate of Currency for Professional Indemnity
- Copy of Work, Health & Safety (WHS) Plan
- Copy of Safe Work Method Statement (SWMS)
- Copy of Environmental Management Plan

7 SUBCONTRACTORS

The Tenderer is required to provide, on the tender form in the Tender Submission Documents, the names and telephone numbers of Tenderer's Subcontractors and recognise by initials the Principal's listing of Selected and Nominated Contractors.

8 SITE INSPECTION

Tenderers are required to attend the pre-tender briefing meeting and site inspection and sign the attendance sheet in order to submit a conforming tender.

The compulsory briefing meeting and site inspection will be held on:

Day: Wednesday

Date: 08 May 2019

Time: 12:00 noon

Place: Proposed Site (Near the intersection of Mitchell Highway and Market Street in Molong)

The meeting will be minuted and the minutes shall become part of the tender documents. The minutes will be available on request.

A conforming tender must also include a signed statement that the Tenderer has visited the site and has included all site conditions in their Tender Price.

9 ALTERNATIVE PROPOSALS

Alternative proposals, which satisfy the Principal's basic commercial and performance objectives, technical and legal requirements, may be submitted as options but only in addition to a conforming tender. All costs associated with the design and documentation of any alternative proposal shall be borne by the Tenderer.

10 TENDER VALIDITY PERIOD

Tenders will be valid for a period of 60 days from the tender closing date. In the event of the withdrawal of the tender prior to the expiration of this period, the Tenderer shall be liable for all costs, losses or damages suffered by the Principal by reason of that withdrawal.

11 TENDER LODGEMENT REQUIREMENTS

Tenders shall be submitted on the forms provided by the Principal in the Tender Submission Documents, and are to be enclosed in a sealed envelope and the envelope marked legibly as follows:

Contract No. **1008628**

Tender for **Construction of Truck Wash Facility, Molong NSW 2866**

and either:

delivered by hand or by courier and placed in the:

Tender Box
Cabonne Council
Bank Street
MOLONG NSW 2866

or

mailed to the Tender Box addressed as follows, and marked

"Contract No 1008628 Construction of Truck Wash Facility, Molong NSW 2866"

Tender Box
Cabonne Council
PO BOX 17
MOLONG NSW 2866

or

submitted electronically on www.tenderlink.com/cabonne

so as to be received **before the closing time and date for tenders**.

Time: 12:00 noon

Date: Wednesday, 22 May 2019

12 LATE TENDERS

A tender which is received after the closing time and date will only be considered if the Tenderer can satisfy Council that it complies with Clause 177 (5) of the Local Government (General) Regulations 2005.

13 TENDER EVALUATION AND SELECTION

Evaluation, negotiation and selection of tenders shall be in accordance with the requirements of AS 4120 (1994), Code of Tendering and Local Government Regulations 2005 under the Local Government Act 1993.

The evaluation criteria shall be:

- Conformity with the tender documents
- Evidence of technical and financial capability
- Industry reputation
- Quality Management System and Work Health and Safety Environmental Management System

The Principal is not bound to accept the lowest, or any tender.

The successful Tenderer which is accepted shall be notified in writing to all Tenderers.

14 POST TENDER SUBMISSIONS

The Principal may call for post tender submissions from some or all tenderers in order to assist with the evaluation.

Such submissions will be confidential between the Principal and Tenderer.

The call for such submissions will not bind the Principal to proceed to accept a tender.

15 POST TENDER NEGOTIATIONS

The Principal may enter into negotiation with a Preferred Tenderer or a number of candidate tenderers.

Such negotiations will be confidential between the Principal and Tenderer and will be conducted in accordance with guidelines set out in AS 4120 (1994).

The undertaking of negotiations will not bind the Principal to proceed to accept a tender.

16 COST OF TENDERING

All costs associated with tender preparation and submission shall be borne by the Tenderer.

17 CONTRACT COMMENCEMENT DATE

The commencement of the Contract is nominated as the date of instrument of agreement between Council and the successful Tenderer. There shall be no Contract prior to the issue of a letter of acceptance and a signed Instrument of Agreement.

CABONNE COUNCIL

CONTRACT No. 1008628

LUMP SUM CONTRACT

for the

CONSTRUCTION OF TRUCK WASH FACILITY, MOLONG NSW 2866

CONDITIONS OF CONTRACT

PREPARED BY:
COUNCIL'S DEPARTMENT OF
ENGINEERING & TECHNICAL SERVICES
DATE: APRIL 2019

CONTENTS

GENERAL CONDITIONS OF CONTRACT

THE GENERAL CONDITIONS OF CONTRACT

SHALL BE

AUSTRALIAN STANDARD (AS) 4000 - 1997

THIS DOCUMENT IS DEEMED TO BE INCLUDED IN THE

CONTRACT DOCUMENTS

Copies are available from Standards Australia. Copies may be viewed at Cabonne Council's Cudal office by appointment with the Contact Officer nominated in the Conditions of Tendering.

ANNEXURE

to the

GENERAL CONDITIONS OF CONTRACT

ANNEXURE to the Australian Standard General Conditions of Contract AS4000-1997

PART A –

This Annexure shall be completed and issued as part of the tender documents and, subject to any amendments to be incorporated into the *Contact*, is to be attached to the General Conditions of Contract and shall be read as part of the *Contract.*

Item		
1	*Principal* (clause 1)	**CABONNE COUNCIL** ABN: **41 992 919 200**
2	*Principal's address*	**PO Box 17** **MOLONG NSW 2866** **Ph 6390 7100** **Principals Representative: Cabonne Council's Director of Engineering and Technical Services**
3	*Contractor* (clause 1)	ABN: .....
4	*Contractor's address*	
5	*Superintendent* (clause 1)	**Cabonne Council's Technical Services Manager** **Ph 6390 7100** **Superintendent's Representative: Cabonne Council's Project Engineer**
6	*Superintendent's address*	**PO Box 17** **MOLONG NSW 2866**
7	Period of time for practical completion (clause 1)	**16 weeks from the date of acceptance of the tender**
8	Governing law: (page 5, clause 1(h))	**New South Wales**
9	(a) Currency (page 5, clause 1(g))	**Australian Dollars**

(b)	Place of payments (page 5, clause 1(g))	**PO Box 17 MOLONG NSW 2866**
(c)	Place of Business of Bank (page 5, clause 1(d))	**MOLONG, NSW 2866**
10	*Bill of quantities* (subclause 2.2)	
(a)	Alternative applying (subclause 2.2)	**Alternative 1**
(b)	If Alternative 2 applies, is the *bill of quantities* to be priced: (subclause 2.2)	**N/A**
(c)	Lodgement time (subclause 2.3(b))	**At the time of Tender Submission**
11	Quantities in *schedule of rates*, limits of accuracy (Clause 2.5(b))	**N/A**
12	*Provisional sum*, percentage for profit and attendance (clause 3)	**As assessed by the Superintendent**
13	Contractor's Security	
(a)	Form (clause 5)	**Retention Money**
(b)	Amount or maximum percentage value of this *contract sum* (clause 5)	**5%** **If nothing stated, 5% of value of this separable portion**
(c)	If retention moneys, percentage of each *progress certificate* applicable to this *contract sum* (clause 5 and subclause 37.2)	**10%** **If nothing stated, 10%, until the limit in *Item* 13(b)**
(d)	Time for provision (except for retention moneys) (clause 5)	**14 Days after acceptance of tender** **If nothing stated, within 28 days after due *date* of *acceptance of tender***
(e)	Additional *security* for unfixed plant and materials (subclauses 5.4 and 37.3)	**N/A**
(f)	*Contractor's security* upon *certificate of practical completion* is reduced by (subclause 5.4)	**50 % of amount held** ***If nothing stated, 50% of amount held***
14	Principal's security	

	(a) Form (clause 5)	**N/A**
	(b) Amount or maximum percentage of value of this *separable portion* (clause 5)	**N/A**
	(c) Time for provision (clause 5)	**N/A** **If nothing stated, within 28 days *after date of acceptance of tender***
	(d) *Principal's security* upon *certificate of practical completion* is reduced by (subclause 5.4)	**N/A** **If noting stated, 50% of amount held**
15	*Principal*-supplied documents (Clause 6.1)	**Contract documents including:** • **Conditions of Contract** • **Specifications** • **Tender Submission Documents.** • **Drawings**
16	Time for *Superintendent's direction* about documents (subclause 8.3)	**14 days**
17	Subcontract *work* requiring approval (subclause 9.2)	**All Subcontract *work***
18	Novation (subclause 9.4)	**N/A**
19	*Legislative requirements*	
	(a) Those excepted (subclause 11.1)	**N/A**
	(b) Identified *WUC* (subclause 11.2(a)(ii))	**N/A**
20	Insurance of *the Works* (clause 16)	
	(a) Alternative applying	**Alternative 1**
	If Alternative 1 applies (b) Provision for demolition and removal of debris	**NIL**

	(c)	Provision for consultant's fees	**NIL**
	(d)	Value of materials or things to be supplied by the *Principal*	**NIL**
	(e)	Additional amount or percentage	**NIL**
21	Public liability insurance (clause 17)		
	(a)	Alternative applying	**Alternative 1**
	If Alternative 1 applies		
	(b)	Amount per occurrence shall be not less than	**$20,000,000**
22	Time for giving possession (subclause 24.1)		***Date of acceptance of tender***
23	Qualifying cause of delay. Cause of delay for which *EOTs* will not be granted (page 3, paragraph (b)(iii) of clause 1 and subclause 34.3)		**N/A**
24	Liquidated Damages, rate (subclause 34.7)		**$300 per day**
25	Bonus for early *practical completion* (Clause 34.8)		**N/A**
26	Delay damages, other compensable causes (page 1, clause 1 and subclause 34.9)		**Nil**
27	Defects liability period (Clause 35)		**12 months from the date of practical Completion of the Works Under the Contract**
28	Progress Claims (subclause 37.1)		
	a) Times for progress claims		**By the fourteenth (14th) day of each month for *WUC* done to the last day of the previous month**

29	Unfixed plant and materials for which payment claims may be made (subclause 37.3)	**N/A**
30	Interest rate on overdue payments (subclause 37.5)	**N/A**
31	Time for *Principal* to rectify inadequate possession (subclause 39.7)	**14 days**
32	Arbitration and *Expert Determination*: (subclause 42.3)	
	(a) Person to nominate an arbitrator or *Expert*:	**Chairperson for the time being of the Chapter of the Institute of Arbitrators & Mediators Australia in New South Wales**
	(b) Rules for arbitration:	**Rules 5-18 of the Rules of The Institute of Arbitrators & Mediators Australia for the Conduct of Commercial Arbitrations**
	(c) Rules for expert determination:	**Guidelines for Expert Determination of the Australian Commercial Disputes Centre**

ANNEXURE - PART B

ANNEXURE PART B

1. Deletions

The following clauses have been deleted from the General Conditions in AS4000-1997.

Clause 29.2 Quality Assurance

Clause 34.8 Bonus for Early Practical Completion (optional)

2. Amendments

The following clauses from the General Conditions in AS 4000-1997 have been amended.

CLAUSE 1. INTERPRETATION AND CONSTRUCTION OF CONTRACT

The following interpretations shall be included:

Equipment means the goods to be supplied or supplied by the *Contractor* pursuant to the *Contract;*

3. Additions

The following clauses have been added to AS4000-1997:

CLAUSE 29.6. QUALITY REQUIREMENTS

The Contractor shall:

(a) Comply with all the quality requirements as provided in the contract documents for all works under the Contract.

(b) Ensure that each of its Subcontractors and Consultants comply in like manner.

(c) Demonstrate to the Principal whenever required that all the quality requirements of the contract are being met.

Where inappropriate or inadequate provision of quality supervision by the Contractor or Contractor's Subcontractor results in costs, losses or damages incurred by the Principal or claims by third parties against the Principal for either direct or consequential costs, losses or damages, the Contractor shall be liable for costs, losses or damages associated with any claim including but not limited to administration costs incurred by the Principal in resolving such claim.

CLAUSE 44. WORK, HEALTH AND SAFETY (W H & S)

The *Contractor* shall:

(a) Comply with all requirements of the *Contract,* Cabonne Council's Work Health and Safety Policy and Manual, and all statutory requirements for Work, Health and Safety

(b) Ensure that each of its subcontractors and *Consultants* comply in like manner

(c) Demonstrate to the *Principal* whenever requested that requirements of the *Contract* and statutory requirements for Work, Health and Safety are being met

(d) Prior to the commencement of work, provide the *Principal* with certification that safety requirements of the *Contract* and statutory requirements for Work, Health and Safety are capable of being met

(e) If the period of the contract exceeds three months the *Contractor* is to provide the *Principal* with a monthly certification that requirements of the Contract and statutory requirements for Work, Health and Safety are being met

(f) The *Contractor* is to submit to the *Superintendent* an Occupational Health and Safety Management Plan to ensure compliance with relevant legislation and responsible work practices are followed. The Work, Health and Safety Management Plan shall address, but not be limited to, the following issues:

- *Contractor* WH & S policies and objectives
- Defining responsibilities of personnel responsible for WH & S matters and their qualifications
- Identifying and allocation of human, technical and financial resources adequate to meet the WH & S needs
- Managing compliance with WH & S legislation regulations, standards and codes
- Acquiring and disseminating WH & S information
- Planning and conducting safety training, including induction for new employees
- Developing and implementing emergency procedures
- Assessing subcontractors' abilities to comply with WH & S requirements;
- Ensuring compliance with safe working rules
- Preparing work method statements
- Verifying that work areas, work methods, materials, plant and equipment comply with safety legislation standard and codes
- Quarantining unsafe work areas, materials, plant and equipment
- Reporting incidents and accidents and collating accident and injury statements;
- Investigating incidents and accidents and initiating corrective actions to eliminate or reduce risk
- Rehabilitating injured employees.

The WH & S plan shall be submitted by the *Contractor* to the Superintendent within 7 days of acceptance of the tender and shall be used by the Superintendent to gain confidence that the *Contractor* has recognised and has the ability to meet the statutory requirements and will utilise responsible work practices.

Where inappropriate or inadequate provision of Work Health and Safety Management by the *Contractor* or Contractor's Subcontractor results in costs, losses or damages incurred by the *Principal* or claims by third parties against the *Principal* for either direct or consequential costs, losses or damages, the *Contractor* shall be liable for costs, losses or damages associated with any claim including but not limited to administration costs incurred by the *Principal* in resolving such claim.

CLAUSE 45. ENVIRONMENTAL SYSTEMS PLANNING

The *Contractor* shall:

(a) Comply with all requirements of the *Contract* and statutory requirements for protection of the environment

(b) Ensure that each of its subcontractors and *Consultants* comply in like manner

(c) Demonstrate to the *Principal* by mutual inspection and/or documentation whenever requested that requirements of the *Contract* and statutory requirements for the protection of the environment are being met

(d) Prior to the commencement of work, provide the *Principal* with certification that the requirements of the *Contract* and statutory requirements for the protection of the environment are capable of being met by the *Contractors'* organisation and management

(e) If the period of the contract exceeds three months the *Contractor* is to provide the *Principal* with a monthly certification that the requirements of the *Contract* and statutory requirements for protecting the environment are being met

(f) The *Contractor* is responsible for and must at its own cost make good any damage to the environment caused by the execution of the works.

Where inappropriate or inadequate provision of environmental management by the *Contractor* or subcontractor results in costs, losses or damages incurred by the *Principal* or claims by third parties against the *Principal* for either direct or consequential costs, losses or damages, the *Contractor* shall be liable for costs, losses or damages associated with any claim including but not limited to administration costs incurred by the *Principal* in resolving such claim.

CLAUSE 46. HOURS OF WORK

The hours of work under the *Contract* shall be limited to:

7.00am	to	6.00pm	Mondays to Fridays
8.00am	to	1.00pm	Saturdays
No Work			Sundays or Public Holidays

If, in the interests of the safety or to protect life or property the *Contractor* finds it necessary to carry out, without the prior approval of the *Superintendent,* work outside the defined hours of work, the *Contractor* shall inform the *Superintendent* in writing of the circumstances within 24 hours.

ANNEXURE - PART C

ANNEXURE PART C
STATUTORY DECLARATION

I, _____
(Full name of Declarant)

of _____
(Address)

do hereby solemnly declare and affirm that:

1. I am the representative of the Contractor: _____
(Name of Contractor and ACN if applicable)

in the Office Bearer capacity of: _____
(Position Title of Declarant)

the said Contractor having a contract for: _____
(Name of Contract)

with _____ and I am in a position to know the facts attested to.
(Name of Principal)

2. All workers who have at any time been engaged by the Contractor have been paid all moneys due and payable to them in respect of their employment on work under the Contract, with the exception of the workers and the respective amounts listed below: *(INSERT NAMES & ADDRESSES OF WORKERS, THE AMOUNTS OWING, AND WHETHER IN RESPECT OF WAGES, HOLIDAY PAY, ALLOWANCES, ETC).*

_____

_____

3. All subcontractors and suppliers to the Contractor have been paid all moneys due and payable to them for the performance of work under the Contract and the supply of materials for use in work under the Contract, with the exception of the subcontractors and suppliers and the respective amounts listed below: *(INSERT NAMES & ADDRESSES OF SUBCONTRACTORS AND SUPPLIERS, THE AMOUNTS OWING AND WHETHER IN RESPECT OF MATERIALS SUPPLIED, WORK PERFORMED, ETC).*

_____

_____

4. The Contractor has been informed by each subcontractor to the Contractor by Statutory Declaration in equivalent terms to this declaration that all workers, subcontractors, and suppliers engaged by them or their subcontractors have been paid all moneys due and payable to them in respect of their work under the Contract, with the exception of the workers, subcontractors and suppliers and the respective amounts listed below. I am not aware of anything to the contrary, and on the basis of the contents of the statutory declarations provided I believe that information to be true: *(INSERT NAMES & ADDRESSES, THE AMOUNTS OWING AND WHETHER IN RESPECT OF WAGES, MATERIALS, ETC).*

_____

_____

I make this solemn declaration, as to the matter aforesaid, according to the law in this behalf made, and subject to the punishment by law provided for any wilfully false statement in any such declaration.

_____
(Signature of Declarant)

Declared at: _____ this _____
(day month year)

before me _____
(Signature of JP or authorised person)

CABONNE COUNCIL

CONTRACT No. 1008628

LUMP SUM CONTRACT

for the

CONSTRUCTION OF TRUCK WASH FACILITY, MOLONG NSW 2866

SPECIFICATIONS

PREPARED BY:
COUNCIL'S DEPARTMENT OF
ENGINEERING & TECHNICAL SERVICES
DATE: APRIL 2019

SPECIFICATION

CLAUSE CONTENTS PAGE

GENERAL REQUIREMENTS

TS.01 DEFINITIONS

1. The following definitions shall be used:

Definitions

- **Project Manager** - Council appointed officer responsible for the management of the project. The Project Manager fulfils the role of Superintendents Representative under the terms of the Contract.

TS.02 PROJECT DESCRIPTION

1. The Contract involves the Construction of Truck Wash Facility, Molong NSW 2866. ***Description***

TS.03 LOCATION OF THE PROJECT

1. The location of the project is:

Location

- Near the intersection of Mitchell Highway and Market Street, Molong NSW 2866. Shown in the location map in Information for Tenderers: - **1. Project Identification and Description.**

TS.04 SCOPE OF WORKS

1. The works under this Contract consists of the following:

Scope of Works

- Construction of Truck Wash Facility and Associated Structures;
- Installation of Avdata Truck Wash Control System;
- Construction of Road and Associated Structures.

The Contractor shall supply all plant, labour and materials specified in this Contract.

In addition to the above works the Contractor shall carry out the following works, which are essential for the proper completion of the Works.

- Site inspections and rectifying defects during the Defects Liability Period;
- Provision of Work As Executed documentation;
- Provision of Quality Assurance Documentation;
- Other minor works not stated above but necessary for the proper completion of the Works;

- All temporary works such as environmental management, establishment, disestablishment etc. as necessary.

SEPARABLE PROTIONS

The contract has two (2) separable portions:

Separable Portion 1 (SP1)

List of drawings

Construction of Truck Wash Facility and Associated Structures.

Separable Portion 2 (SP2)

Construction of Road and Associated Structures.

TS.05 DRAWINGS

1. The following drawings are included in the Specification:

Documents

- Proposed Truck Wash Mitchell Highway, Molong NSW 2866 prepared by Calare Civil.
- Proposed New Truck Wash, Mitchell Highway, Molong prepared by Designs AT M.
- Molong Truck Wash Lot 30 DP130510 Molong NSW 2866 prepared by Marline.

TS.06 SPECIFICATION DOCUMENTS

1. All works under the contract shall be executed in accordance with relevant current Australian Standards, Council requirements and industry best practice, based on current documentation at date of calling for tender submissions.

TS.07 GEOTECHNICAL INFORMATION

1. The geotechnical report included with the documentation has been prepared by the Principal and is available to Tenderers. This report shall not form part of the Contract to be entered into for the execution of the works and is given to. Tenderers only in compliance with any duty to disclose relevant information. Tenderers should re-appraise all information provided, bearing in mind their own intentions for the use of that information.

Geotechnical information

This geotechnical information is given in good faith but is not intended to be a complete and exhaustive statement of all relevant geotechnical information. The interpretation of and conclusions drawn from the information collected are those of the reporting consultant. It should be understood that the nature and limitations of site investigation procedures often meant that more than one interpretation of data is possible. The drilling logs included are the interpretation of the logging officer and Council accepts no responsibility for these accuracy or suitability for use. Tenderers are encouraged to contact Envirowest Consulting Pty Ltd directly for further information regarding the geotechnical information.

TS.08 SURVEY DATA

1. The Principal shall provide survey reference stations at the site and all levels in undertaking the Works shall be related to this benchmark. ***Principal to install benchmark for works***

2. Tenderers are advised to locate all public utilities in the site area for themselves. ***Public utilities***

TS.09 WORKING AREA

1. The working area available to the Contractor during construction of the works under this Contract is within the boundaries shown on the location map in Information for Tenderers: - **1. Project Identification and Description.** ***Working Area***

2. If further clearing of the site is required, approval must be gained from the Principal.

3. If at any time the fences in the working area are damaged the Contractor will be responsible for any cost associated with damage restoration and or fines imposed. ***Damage to Fences***

4. All refuelling should be done within the site facility area. ***Refuelling within Site Area***

TS.10 ACCESS TO SITE

1. Access to site shall only be via the local road. Workers, materials and equipment are not allowed onto adjacent properties without the relevant landowner's and the Principal's permission. ***Access to site***

2. The Contractor shall be responsible for the maintenance of roadways required on the worksite to undertake the work under the Contract. ***Maintenance of roadways within site area***

3. The Contractor shall be responsible for the safe movement of traffic and pedestrians into and out of the working area in accordance with RMS G10. ***Movement of traffic***

4. The Contractor will be responsible for site inductions. All workers / people deemed necessary will be given a site induction and have their names added to the register, if required with the Contractors WH&S Management Plan. ***Site inductions***

TS.11 POSSESSION OF SITE

1. The time for giving possession of site for establishment of the Contractor's facilities only is from the date of execution of the Formal Instrument of Agreement. ***Formal Instrument of Agreement***

2. Possession shall be denied to the remainder of the site to allow for:

Possession to be withheld

- Submission of the Construction Programme
- Release of the Hold Point for the Project Work Health & Safety (WHS) Management Plan
- Release of the Hold Point for the Contractor's Environmental Management Plan and
- Submission of the Project Quality Plan.

TS.12 CONTRACTORS REPRESENTATIVE

1. The Contractor shall provide a Representative on the site at all times during which any activities relating to the execution of the Works under the Contract are taking place and, if required by the Superintendent, at such other times and at such other places at or in which any activities relating to the execution of the Works under the Contract are taking place.

Contractors Representative

2. The Representative shall have a minimum of five years of proven and demonstrated contract management experience including programming of works and engagement and management of subcontractors.

Technical Requirement for Representative

TS.13 PROJECT MEETINGS

1. The Project Manager and the Contractor shall hold a minuted meeting each fortnight, to cover such issues as

Agenda for meetings

- Progress in relation to the works program.
- Any Project Manager directions to the Contractor
- Other as required.

2. The Project Manager shall keep a written record of these meetings. A copy of the minutes shall be sent to all attendees.

Minutes of meeting

3. Where no meeting is held this, needs to be formally recorded along with the reasons for not holding the meeting.

TS.14 LOCATING SERVICES

1. It is the Contractor's responsibility in Consultation with the relevant assets owners to locate all services. The Contractor is to contact "Dial Before You Dig" and other concerned asset owners to locate the services.

Contractors responsibility

2. Council shall in no way be responsible for locating services on public or private property.

Council not liable

TS.15 PHOTOGRAPHIC RECORD OF THE SITE

Photographs to be taken

1. Prior to any work on-site the Contractor shall provide a photographic record of the site. The photographs shall record:

    - Location of pits
    - Location of pipe lines
    - Location of light posts
    - Any relevant features that may be disturbed during construction
    - Water infrastructure
    - Electrical infrastructure

Time & Date

2. The photograph image shall include a time and date stamp of when the photograph was taken.

File Name

3. The filename for the photographs shall include the street name and pit number and/or pipe location.

Submission of Photographs

4. All photographs are to be submitted to the Project Manager prior to final completion of the Works.

TS.16 DAMAGE TO PUBLIC PROPERTY

Damage to Public Property

1. If during construction any public utility is damaged it is to be repaired by the appropriate authority at the Contractors cost.

Interruption of Services

2. Where existing services must be interrupted to enable carrying out of the works such interruption shall be at a time agreed by the superintendent. Organise with the responsible servicing authority so that the interruption shall be for the minimum practical time. Give notices of the interruption to all the affected parties.

TS.17 MATERIALS SUPPLIED BY THE PRINCIPAL

Materials supplied by the Principal

1. No materials shall be supplied by the Principal.

TS.18 DELAYS DUE TO WET WEATHER AND FLOODING

Wet weather days

1. Notwithstanding anything to the contrary in the Contract, all costs arising from delays to the completion of the Works due to wet weather and its consequences shall be borne by the Contractor.

2. The Contractor shall make every endeavour to reschedule construction activities to

minimise all wet weather or flooding delays to the Works over the contract period. The Superintendent shall be entitled to take into account the Contractor's endeavours to mitigate such delays when assessing claims against extensions of time.

Mitigation of wet weather delays

3. Should the Superintendent direct a suspension of the whole or any part of the Works during prolonged flooding delays, the time of such suspension shall not qualify as "Excessive wet weather delay". Entitlement to payment in such circumstances shall be determined by the Superintendent.

Loss of time due to flooding

TS.19 QUALITY SYSTEM

1. The Contractor shall plan, establish, document and maintain a Quality System, which conforms to the requirements of the Contract access to the Contractor's and Sub Contractor's quality systems for monitoring and quality auditing the quality system.

Required

2. The Quality System proposed by the Contractor and Sub Contractors shall be used as an aid to achieve compliance with the requirements of the Contract and to document such compliance

Manual to Support Contract Requirements

TS.20 QUALITY MANUAL

1. The Contractor shall conform to the policies stated in the Quality Manual submitted with the Tender and approved by the Project Manager.

Conforms with Quality Manual

TS.21 INSPECTION AND TEST PLANS

TS.22

1. The Contractor shall submit relevant Inspection and Test Plans to the Project Manager for verification before commencing work on activities covered by the Quality Manual. The Inspection and Test Plans shall include where applicable, observations, measurements or tests at the Contractor's or Sub Contractor's facilities.

Inspection and Test Plan

TS.22 QUALITY RECORDS

1. The Superintendent may require the Contractor to submit inspection and test results as evidence that the work complies with the Contract prior to certifying work for payment.

Evidence of Completed Work

2. Quality records must be retained by the Contractor for a minimum of five (5) years after the date of issue of the Final Certificate.

Records to be held for Five years

3. The Contractor shall be responsible for the quality of all products, processes, and services under the Contract and shall provide all test facilities and perform demonstrative conformance of all products, processes, and services to technical requirements of the Contract.

Contractor is responsible for quality tests

4. The Contractor shall submit to the Project Manager quality records as evidence that the work has complied with the specific quality requirements. These records shall include summaries of inspection and test results.

Submission of records

5. Within one (1) month from the date of practical completion, the Contractor shall make available a register of all quality records held. The Contractor shall supply copies of all quality records of parts thereof as required by the Project Manager.

Submission of records at completion of works

TS.23 AUDIT, SURVEILLANCE AND TESTING

1. The Superintendent is entitled to conduct audits, surveillance and testing as the Superintendent considers appropriate to verify that the Contractor is implementing an effective quality system. The Contractor must provide every assistance to the Superintendent.

Audit of Quality system

2. The Project Manager shall be given access in conjunction with or through the Contractor to all laboratories and other facilities used for quality control tests to verify that specific requirements are being met.

Access for Project Manager

CONSTRUCTION REQUIREMENTS

TS.24 GENERAL SITE CONSIDERATION

1. Time for Completion

- 16 weeks from the date of Acceptance of Tender.

Contract Period

2. Protection of Adjoining Buildings and Structures

- The Contractor must ensure that no activity shall cause damage to, or adversely affect the structural integrity of adjoining buildings and structures.

Protection

- The effects of vibration on adjoining buildings and their occupants shall be minimised, by the Contractor at all times and as far as practicable, by selecting construction methods and equipment appropriate to the circumstances.

TS.25 SITE CLEARING

1. The Contractor shall remove everything on or above the site surface including rubbish, scrap, grass, vegetable matter and organic debris, scrub, trees, timber, stumps, boulders and rubble.

Clearing and grubbing

2. All topsoil shall be stripped over the area on which construction takes place. This topsoil shall be carefully stockpiled to be reused for landscaping on completion of the building construction or otherwise disposed of as directed.

Topsoil

3. The Contractor shall remove cleared and grubbed material from the site.

Disposal of material

TS.26 DEMOLITION

1. All demolition shall be carried out with the requirements of AS 2601-2001- The Demolition of Structures. ***Standards and Specifications***

2. Materials required to be demolished shall become the property of the Contractor and the Contractor shall remove the demolished materials from the site. Do not burn or bury on site. ***Ownership and implementation***

3. The photographic and written record made before commencement of demolition work of the condition of the portion of the existing building being retained, adjacent buildings and other relevant structures or facilities by the Contractor is to be submitted to the Project Manager prior to final completion of the works. ***Submission of records***

4. Do not use explosives in the demolition process. ***Explosives***

4. The Contractor shall require to give at-least 3 working days' notice of completion of demolition so that adjacent structures may be inspected following completion of demolition. ***Notice of completion***

TS.27 EARTHWORKS

1. The Contractor shall carry out all excavation works necessary to allow the construction of the new works at his own expense. The Contractor shall arrange and bear all costs and charges required for compliance with any Authority having jurisdiction over the works for such aspects as disconnection of services, temporary services and continuation of supply. ***General required***

2. Re-use of the excavated material must be in accordance with the geotechnical report. Any testing required of the excavated material is to be at the cost of the Contractor.

3. The Contractor shall carry out all earthworks necessary for the preparation and shaping of the subgrade formation including trimming, compaction (including compaction tests) and grading in all soil materials found on site.

4. Works are to be planned to minimise excessive loading likely to cause damage to subgrade or construction work in progress. Water is to be kept from excavation by pumping or other suitable means. No variation will be accepted for any soft spots or faulty subgrade due to works. The Contractor shall make good any soft spots or faulty subgrade, as required.

5. The Contractor shall provide supports to adjacent structures where necessary, sufficient to prevent damage arising from the works. This applies to all structures where the zone of influence is interfered with by the proposed excavation works. ***Temporary supports***

TS.28 CONCRETE WORKS

Standards and Specifications

1. All concrete works shall be in accordance with relevant current Australian Standards and Specifications.

TS.29 STEEL WORKS

Standards and Specifications

1. All steel works shall be in accordance with relevant current Australian Standards and Specifications.

TS.30 CERTIFICATES

1. The following certificates and warranties are to be provided to the Superintendent prior to practical completion:

    - Copies of Manufacturer's warranties
    - Certificates of Authorities

Certificates

TS.31 PROJECT COMPLETION

1. Site Clean Up

- On completion of all work all excess materials and soils must be removed from the site to the satisfaction of the Superintendent.
- All disturbed grass areas to be reinstated to the satisfaction of the Superintendent.
- All temporary fences and signage to be removed and any damaged areas to be made good.
- All damaged areas must be repaired to the same condition or better as they were prior to the works commencing and to the Superintendent's satisfaction.

Site clean up

2. Practical Completion

- The Contractor is to apply for a certificate of practical completion no later than 14 days prior to the expected date of practical completion.
- Prior to practical completion being awarded the Principal, Contractor and Superintendent are to conduct a joint site inspection to determine if all works as per the approved design and specifications are completed.
- If completed works are not satisfactory, then the Contractor will be issued notice under the contract works, stating the non-compliant items and be given 14 days to complete or rectify the works as appropriate.

Certificate of practical completion

ENVIRONMENTAL PROTECTION REQUIREMENTS

TS.32 GENERAL ENVIRONMENTAL PROTECTION REQUIREMENTS

1. The Contractor shall be responsible for ensuring that all works comply with all relevant regulations relating to the protection of the environment. ***Contractors responsibilities***

TS.33 STOCK PILE SITES

1. The Contractor shall ensure that stockpile sites are not located in or near areas susceptible to overland runoff such as creeks and gullies. ***Location of stockpile***

2. No material shall be stockpiled on public land without the approval of the Project Manager. ***Stockpiles on Public Land***

TS.34 DUMPING OF RUBBISH AND EXCESS MATERIAL

1. All debris and excess material from the works shall be transported to the approved landfill site. ***Dumping of rubbish***

2. No debris or excess material shall be dumped on private property without the approval of the Project Manager. ***Approval of Project Manager***

TS.35 RESTORATION OF DISTURBED GROUND

1. The Contractor shall restore all ground disturbed by the works to a standard similar or better than that prior to the commencement of the work. ***General required***

2. In accordance with Clauses TS.15 a photographic record of the site shall be taken prior to commencing work. Should such documentation not be taken and submitted, the Contractor shall restore the disturbed surface to the satisfaction of the property owner. ***Photographs***

3. The Contractor is to ensure that settlement of backfill in trenches and other areas is minimised and is responsible for filling any sunken areas. ***Settlement of trenches***

4. On completion of the project, the site office and any security fencing must be totally removed. If the site office is on private property, the Contractor will need to obtain from the property owner a letter indicating that they are satisfied with the condition ***Removal of site office***

that the site has been left in.

5. The Project Manager shall be the final arbiter of the quality of the restoration. ***Project Manager as final arbiter***

WORK HEALTH AND SAFETY REQUIREMENTS

TS.36 WORK HEALTH AND SAFETY

1. The following Safety Standards shall apply for the Works:

   - Work Health and Safety Act 2011 and relevant Codes and Regulations.
   - Work Health and Safety Regulations 2011 & related Codes and Practice as well as:

     a) The Contractor shall implement a training program for all personnel working on the Works under this Contract, including any Sub Contractors personnel, and satisfy the requirements of Occupational Health and Safety legislation. ***General requirements***

     b) The Contractor must ensure that all personnel and Sub Contractors engaged on activities associated with the project adopt safe work practices

     c) The Contractor must ensure that the Sub Contractors fulfils all requirements of the Work Health and Safety Act and all relevant [State] Work cover Authority Regulations. The Contractor shall ensure that work is carried out in a safe manner for the safety of the work force and general public alike. The Contractor must detail how WH&S issues and training will be handled during the construction of the Works.

2. The Contractor must comply with and ensure that it's employees, subcontractors and agents comply with any Acts, regulations, local laws and by-laws, Codes of Practice, Australian Standards, Councils' WH & S document, policies and procedures, which are in any way applicable to this contract or the performance of the services under this contract. ***Legislation***

3. The Contractor shall prepare and implement a Project Work Health and Safety Management Plan. ***WHS Plan***

4. It is a policy of Council that all Contractors, Sub Contractors, Consultants and agents who undertake works for or on behalf of Council comply with the requirements of the Cabonne Council WH&S Manual and Policies. ***Council WH&S Handbook***

5. All Contractor and Sub-Contractor employees will be required to attend a CENTROC WHS induction prior to the commencement of the works. Employees who have

completed the CENTROC induction since 2014 are not required to redo. Employees will need to provide proof of attendance.

CENTROC Induction

WORKS AS EXECUTED DOCUMENTATION REQUIREMENTS

TS.37 WORKS AS EXECUTED DRAWINGS

1. The Contractor shall progressively prepare and, no later than 4 weeks after the date of Practical Completion, supply the Superintendent with fully marked-up and certified Work-as-Executed Drawings for the whole of the Contract. Prints of the latest revisions of the Drawings will be supplied by the Principal at no cost to the Contractor for this purpose. The progressively prepared Work-as-Executed Drawings shall be updated each month and be made available for inspection by the Superintendent.

Provision of Works as Executed Drawings

2. The Drawings shall be stamped and certified by the Contractor as being a true record of the work constructed.

3. The cost of maintaining the Work-as-Executed records and progressively preparing the Work-as-Executed Drawings shall be deemed to be included in the rates and prices generally in the Contract.

INSURANCE REQUIREMENTS

TS.38 INSURANCE REQUIREMENTS

1. Council will require the successful tenderer to register with Statewide Mutual Contractor Insurance Management System (CIMS) and provide insurance documents as per the information sheet at Attachment – 1.

Insurance requirements

designsatm

BUILDING DESIGNERS
ASSOCIATION OF AUSTRALIA

PROPOSED NEW TRUCK WASH

At lot 30 DP130510, MITCHELL HWY

MOLONG

CABONNE COUNCIL

MARCH 2019

.

BDASpec Edition 3

A model specification for small to medium housing.

SCOPE

Scope of work of this specification is the architectural as well as the services components of the Works.
Provide all work as shown on the attached drawings and where scheduled.
The scope and extent of work are subject to the attached Conditions of Approval and to specific requirements of the principal certifying authority.
Ensure full compliance with relevant statutory regulations and the supply authorities and to Australian Standards listed in this specification.
Comply with all relevant conditions of the NCC (formerly BCA).
Ensure full coordination with all services components and provide Works to meet listed performance requirements of the following: thermal compliance as applicable in NatHERS protocols and relevant sections of NCC.
The specification is to be read in conjunction with signed Conditions of Contract, NCC report, the Access Report and any other included documentation as applicable.

ASSOCIATED DOCUMENTS

Read the specification in conjunction with the following:
Listed associated documents and reports as listed with this specification.
Structural engineer's documents.
Services engineer's documents
Energy Compliance Report
Conditions of Approval and the associated reports
Note that where the information contained in these reports is incorporated into the design, it remains the responsibility of the contractor to certify all items listed for compliance to be fully certified.

QUALITY CONTROL

Provide all materials and components to required level of finish and performance, all subject to submission of samples, control panels and technical data as applicable.
Submit in timely manner for approval and keep protected for ongoing reference during the construction of the Works.
Submit samples, control panel installation and technical data and obtain approval prior to commencing work or ordering the components.
Refer to Hold Point requirements where listed on the Conditions of Contract and ensure compliance.

Samples

Provide all samples minimum size 200mm x 200mm and paint samples A4 size minimum for approval and to meet the listed performance levels.

Samples schedule

Sample	Requirements	Comments

AUSTRALIAN STANDARDS AND REFERENCES

Read this component of the specification with reference to current Australian Standards as applicable to each trade section and refer to the product manufacturer's specification where no specific Australian Standards exist.
Refer to Workcover regulations having jurisdiction over the site.
Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Read this trade section in conjunction with the Council Conditions of Approval and other supply authority regulations.
Confirm compliance with Australian Standards and ensure full approval of the principal certifying authority on completion of the Works.

DEFINITIONS

Ensure that all definitions listed in signed Conditions of Contract are coordinated with the Preliminaries (where applicable) and are not in conflict with the Consultant Documentation.
Refer also to definitions within the Conditions of Approval and coordinate as necessary.
Seek clarification if in doubt.

SITE MANAGEMENT

Provide all necessary site management components such as provision of site facilities and temporary Works as listed on the council approved conditions or as required by statutory regulations for the Works.
Provide all storage and sanitary provisions during the procurement of the Works and all structural and non-structural Works such as hoardings and dewatering measures.
Refer to full list of temporary provisions and confirm adequacy of all components at the submission stage of the Works.
Set out of the Works: to be done by a licenced land surveyor unless otherwise authorised in writing by the building designer.

MATERIALS

Provide all materials necessary for the proper procurement of the Works.
Where specifically named materials or goods are scheduled or noted, no substitution is to be made unless approved in writing by the building designer
Where no specific materials are listed, ensure that all are fit for the intended use and provide the necessary information confirming the suitability and chemical compatibility of all components.

ON SITE ACTION
Investigate site conditions and evaluate the site with commencement of on-site work meaning total acceptance of site conditions. Note that reports such as geotechnical information are given as a guide only and the contractor is to evaluate site conditions following thorough site investigations. Notify building designer and geotechnical engineer of any revealed conditions differing from the report for on-going guidance.

PERFORMANCE
Refer to drawings for listed performance of building components and the items of equipment where listed.
Ensure that all listed components are in full compliance with statutory regulations such as fire and sound rating levels.
Seek clarification and certify for compliance on completion.

WARRANTIES
Provide valid warranties for all listed components with the required procedures for maintenance of Warranty Condition included as part of the submission.
Refer with specific attention to finishes and equipment items where listed.

Warranty schedule

Item	Warranty duration	Comments

CERTIFICATION
Certify all items listed for certification on the council approved Conditions of Approval or where specifically listed on the supply authority requirements.
Refer to NatHERS and NCC reports as well as the Acoustic Report where items are listed for certification and confirm compliance with the listed performance levels.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to*:
Pay fees in connection with this trade to authorities having jurisdiction.
Demolish building components and services in accordance with demolition drawings or as required for new work and in compliance with relevant authorities having jurisdiction.
Investigate site conditions and identify material containing hazardous materials such as asbestos and take responsibility for safe, authorised removal and disposal, according to relevant authorities having jurisdiction.
Provide all temporary structural and non-structural components of the Works as required for this trade section of the Specification and remove on completion.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Clean site thoroughly on completion.
Comply with all relevant occupational health, safety and environmental requirements of relevant authorities having jurisdiction.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operate and comply with relevant authority requirements for Excavation & Fill so as to resolve possible problems before starting work.
Standards**:** comply with the applicable clauses of current editions of these and other relevant building Standards:
AS 2436 2010 Guide to noise and vibration control on construction, demolition and maintenance sites.
AS 2601 2001 Demolition of structures.
Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply with other relevant Codes of Practice for the state in which the project is being built.
National Code Practice for the Safe removal of Asbestos 2nd Edition [NOHSC: 2002 (2005)]
Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).
Explosives: no blasting for demolition purposes is permitted.
Restoration: make good to original condition, any damage to retained structures and adjacent property resulting from demolition operations, or damage caused from failure to provide adequate protection.
Provide dilapidation report with photographic record of the Works and adjacent structures, buildings, roads etc, before commencement of demolition and again at completion so as to identify any damage created by demolition Works, submit documentation, including photographs, to the building designer, and perform restoration work without expense to the proprietor.
Noise, dust, erosion and sediment: ensure requirements of relevant authorities having jurisdiction for environment management are known and complied with without exception, so as to maintain adjoining neighbour “quiet enjoyment”.
Submissions: Prepare erosion and sediment control plans and information for removal of demolished material should this be required.

MATERIALS
Provide all materials for temporary Works, dewatering and diversion of services.
Supply sufficient equipment, competent and experienced operators and labour to complete the work to meet the contract completion date.
Provide Code compliant containers for disposal required. Provide for safe removal of any identified toxic substances (egg asbestos – see notes in 00800 Supplementary Conditions of Contract in the Preliminaries) in compliance with relevant authority requirements.
Material required to be demolished becomes the property of the contractor. Remove it from the site and ensure the demolished material is disposed of in compliance with relevant authority requirements. Coordinate fully this component of the Works with the Excavation and Fill trade section as applicable.

ON-SITE ACTIONS
Inspection**:** undertake a dilapidation survey and report of the surrounding area including buildings, structures, roads, etc, adjacent to the Works of the contract and inspect conditions at site before starting work. Provide a copy of the dilapidation report and any unsatisfactory situation to the building designer prior to commencing work. Start of work means total acceptance of conditions.
Existing services**:** obtain and comply with relevant service provider requirements for working on or near existing services to ensure unwanted existing utilities, such as gas reticulation, electrical wiring and other installed services, are legally disconnected. Ensure details of types of services, depths and physical location of disconnected services are documented and copies provided to the building designer at the earliest possible time after disconnection. Obtain confirmation of disconnection, in writing, by service provider where relevant.
Protection: provide measures required by laws and regulations for the protection of the public, occupants, workmen, surrounding property, footpaths, streets and kerbs during demolition operations. Comply by means of barricades, hoardings, fences, warning lights, signs, rubbish chutes, etc. Protect and indicate vegetation which is to be preserved (Refer to Planning Conditions).
Execution: exercise due care in executing this work.
No debris to be burnt on the site.
Provide shoring as necessary in accordance with geotechnical engineer or qualified structural engineer’s instructions. Alter, adapt, and maintain temporary Works as necessary, and strike or withdraw them progressively as the work proceeds.

COMPLETION
Leave site ready for construction work and ensure that all services components are in accordance with services installation requirements.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to*:
Prepare site, excavate for pads, foundations, slabs, paving, drains, pits and roads. Remove trees and other vegetation authorised for removal, including any roots where they prevent building work, paving, trenches etc. Remove topsoil from building footprint, stockpile and protect, as per relevant environmental requirements on site for later re-spreading as directed.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Provide for installation of material required for termite control where shown on the drawings or required under specific conditions of the principal certifying authority.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Consult with existing service providers and coordinate with relevant trades to resolve possible problems before starting work: water distribution, sanitary sewerage, storm drainage, pavements, concrete.
***Standards*:** comply with the applicable clauses of current editions of these building Standards:

AS 3660 2014	Termite management set.
AS 3798 2007	Guidelines on earthworks for commercial and residential developments.
AS/NZS 4200.2 2017	Pliable building membranes and underlays - Installation requirements.
AS 4678 2002	Earth-retaining structures. *(Incorporates Amdmts 1 and 2, 2003, 2008)*

Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply with other relevant Codes of Practice for the state in which the project is being built.
Comply with particular specifications in Building Regulations and/or Local Council publications.
Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).
Explosives: no blasting for excavation purposes is permitted.
Restoration: make good to original condition, any damage to retained structures and adjacent property resulting from excavation operations, or damage caused from failure to provide adequate protection. Photograph (date-stamped) pre-existing damage before commencing work and submit to building designer, and perform restoration work of all subsequent damage to approval of the building designer without expense to the proprietor.
Noise, dust, erosion and sediment: ensure requirements of relevant authorities having jurisdiction for environment management are known and complied with without exception, so as to maintain adjoining neighbour “quiet enjoyment”.
Provide equipment needed to affect a termite treatment which complies with the applicable Australian Standards.

MATERIALS TO BE USED

Item	Description	Manufacturer
Rock removal	ALLOW $ PCM	
Filling	Hardcore: 15 to 40mm, 100 mm thick Fine crushed rock: 5 to 15mm, 50mm thick Sand: clean, salt free, 50mm thick	
Back filling	Approved clean excavated inorganic material	
Termite control	Select appropriate material	

QUALITY CONTROL

ON-SITE ACTIONS
Inspection: inspect conditions at site before starting work. Start of work means total acceptance of conditions.
Site drainage: on all sloping sites or where clay is present, arrange for a geotechnical report from a qualified professional.
***Erosion and sediment control*:** install erosion and sediment controls in consultation with geotechnical engineer to protect adjacent properties, waterways etc. from harm. Prepare the sediment control plan if not available as part of the documentation.
***Protection*:** prepare to protect excavations from damage and ensure protection of existing structures or new work.
Clear site under building and paving of plants, trees, rocks shown on plan. Leave surface free of any ponding depressions.
***Execution*:** install surface and sub-soil drainage to the satisfaction of the authorities and the structural engineer. Excavate for strip footings and edge beams, paving, water and piped supply and drains, pits. Provide fill and compact in 150 mm layers, to 95% of maximum density, by vibrating or watering – refer method to structural engineer. Maintain excavations free of water. Install waterproof membrane over sand. Seal laps. Underlay to extend to top of slab level and under base of wall flashing and protect from damage. Seal service pipe penetrations. Inspect and repair membrane/taping damage before concrete pour. Monitor pour to ensure no puncturing of membrane occurs and rectify if it occurs before proceeding further.
Below footings and slabs on ground, install hardcore, beams and other structural elements, plant mixed blinding concrete to be of strength, minimum 15MPa.
In service trenches: site mixed 1:2:4 concrete or approved compacted pipe bedding material.
Apply termite protection.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Supply and install or lay: pipes to distribute water from water main supply to each required outlet.

- pipes from hot water heater to each required outlet.
- reticulate a complete system as required to connect scheduled appliances to gas supply mains.
- a complete system of sewer drains to discharge sewage waste to the authority's sewer main, or to on-site septic tank, bio-cycle, pump out tank etc.
- a complete system of site stormwater drainage including agricultural drains, drains below slabs and pavements, retaining wall drains, culverts, pits, frames, manhole covers, including treatment of same prior to discharge to water course in compliance with local authority requirements.
- water storage materials and equipment for storage of rain and other potable water, including tanks, stands, filters, reticulation
- Roof plumbing.

Apply for permits and pay required fees and charges to authorities having jurisdiction. Provide permits and approval certificates to contractor.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Preparation: by Excavation & Fill contractor.
Design: provide a design to the building designer for installation of sanitary sewerage prior to construction.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work co-operate and co-ordinate with each trade involved in the construction of the building including: concrete, carpentry, plasterer, and tiler.
Standards**:** comply with the applicable clauses of current editions of these building Standards:

AS 1056.1 1991	Storage water heaters - General requirements (Available - superseded)
AS/NZS 1260 2017	PVC-U pipes and fittings for drain, waste and vent application.
AS 1432 2004 (R2016)	Copper tubes for plumbing, gasfitting and drainage applications.
AS/NZS 2032 2006	Installation of PVC pipe systems.
AS 2118.1 2006	Automatic fire sprinkler systems - General systems.
AS/NZS 2712 2007	Solar and heat pump water heaters - Design and Construction.
AS/NZS 3500 2003	Plumbing and drainage.
	3500.2 2015 Sanitary plumbing and drainage.
	3500.4 2015 Heated water services
	3500.5 2012 Housing installations.
AS 3688 2005	Water supply - Metallic fittings and end connectors.
AS 4809 2003	Copper pipe and fittings - Installation and commissioning.
AS/NZS 5065 2005	Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications.
AS/NZS 5601.1 2013	Gas installations - General installations. *2 Amdmts 2015, 2016.*
HB 230 2008	Rainwater Tank Design and Installation Handbook.
HB 326 2008	Urban Greywater Installation Handbook for Single Households.

Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply with particular specifications in Building Regulations and/or Local Council publications.
Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).

MATERIALS TO BE USED ***No variations to the selected materials will be accepted without building designer's written approval***

Item	**Description**			**Manufacturer/Supplier**
Solar water heater				
Booster & Controls				
Cold water pipes	Galvanised steel	Size from main:		
	Polyethylene	Size of branches:		
	Copper			
	Polybutylene			
	PVC			
Hot water pipes	Prelagged copper			
	Polybutylene			
Sewer drain pipes	UPVC sewer grade with solvent joints			
Concrete for pits etc.	20MPa			
Pit covers	Cast iron or galv. pressed metal			
Septic tanks	As approved by local council.			
Stormwater pipes	Reinforced concrete Un-reinforced concrete			
Stormwater pipes other For grey water	Untested vitrified clay with rubber joints UPVC stormwater grade pipes Low density			
Steel pipes	Galvanised steel			

Item	Description	Manufacturer/Supplier
Agricultural drains	Aggregate	
Culverts	Concrete, metal or plastic	
Pits	Concrete, plastic	
Manhole frames and covers	Concrete, metal	

MATERIALS TO BE USED – WATER TANKS

Item	Description	Manufacturer
Rainwater tank	4,000 litres	
Tank stands		
Filters		
Pipes		
Connections		
OTHER		

ON-SITE ACTIONS

Investigate site conditions and prepare fully approved plans for this trade section.

Inspection: visit site and inspect conditions, comparing conditions to the drawings before delivery of materials to site. Start of work means total acceptance of conditions. Report any situations requiring preparatory work to the building designer.

Spoil and materials: Ensure spoil and materials brought to site are protected and located clear off and do not impact on erosion and sediment controls installed by the builder. Ensure spoil and materials to be taken from the site are compliant with statutory or local authorities requirements, i.e. fire ants, contaminants etc.

Execution: form straight and true trenches 600mm clear of walls and not deeper than adjacent footings unless approved by geotechnical engineer in writing. Maintain sides, and keep free from water. Form trenches and bedding to provide constant falls as approved by the local authorities.

Prepare trenches and paths of pipes through structure.

Contractor to form cutouts of minimum size to take pipes. Not to be done by plumber. Penetrations to the fabric of the building to be sealed for air/moisture leakage.

Ensure correct pipe sizes. Provide upstands and connect (vermin proof) to bottom of downpipes. Provide inspection openings where authority requires (maximum 6 metre intervals), bends and junctions. Provide complete seals at junctions and ends in accordance with manufacturer's written instructions.

Arrange for inspection by local authority. When issued, provide a copy to building designer and back fill with material approved by local council, principal certifying authority and building designer. Remove debris and clean areas beside excavation for drains.

Connect sanitary fittings to sewer pipes with permanently secure joints.

Jointing of pipes: on manufacturer's advice, select from: capillary, brazed, compression, pushfit, solvent-welded. Chrome plate all exposed pipes.

Gas reticulation**:** To comply with supply authority regulations and relevant standards.

Roof plumbing: provide gradients, flashings, sealing and related work to ensure that no water penetrates to the inner part of the building.

Installation of Water Tank(s): ensure that each part of the site or building to which equipment will be connected is secure and will permanently support components. Connect a minimum of 50 square metres of roof catchment to the rainwater tank.

Ensure that falls will promote water flows.

Arrange installed components in logical sequence. Form secure connections without causing damage to existing building or structures. Connect other services (mains supply/ electrical power) as required by specified equipment to ensure operability to manufacturer's recommendations. House electrical equipment (pressure pump, switching system) in weatherproof accessory covers.

Install reticulation pipes to match where possible the materials described in this trade section

As Built: provide "as built" drawings to building designer showing, types of services, depths of services and locations of services to fixed references, i.e. site boundary peg, structure or building. Cover no pipes until local authority or responsible consultant has issued certificate. Protect installation until completion of project.

See Schedule of Sanitary & Equipment Items.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Supply and install material required for termite control, all in-situ concrete, reinforcing steel, formwork for strip footings, floor slabs, paving, pits etc.
Where applicable, allow for environmental termite baiting systems in conjunction with 'termi-mesh' and approved sleeves for pipe penetrations. Avoid the spraying of building footprint or impregnation of soil with any product labelled as a poison.
Install waterproof membrane to manufacturer's recommendations over 50m sand beds as shown on drawings before pouring concrete slab directly on the ground.
Excavations to be adjusted to accommodate the thickness of insulation.
Co-ordination: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular excavation & fill, storm drainage, sanitary sewerage, other services, pavements, concrete screeds.
Concrete finishes, built in items, concrete encasing, waterproofing, termite management, services engineer's documentation.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL:
***Standards*:** comply with the applicable clauses of current editions of these building Standards:

AS 1012	Methods of testing concrete. *There are numerous parts, 1991-2014.*
AS 1379 2007	Specification and supply of concrete. *There is 2 Amdmts 2009; 2015.*
AS 1428	Design for access and mobility.
	1428.1 New building work *2 Amdmts 2010, 2017*
AS 2870 2011	Residential slabs and footings.
AS 2876 2000	Concrete kerbs and channels (gutters) - Manually or machine placed.
AS 3600 2009	Concrete structures. *There are Supplements.*
AS 3610 1995	Formwork for concrete. *There are Supplements.*
	3610.1 2010 Documentation and surface finish.
AS 3660	Termite management
AS/NZS 3661.2 1994	Slip resistance of pedestrian surfaces - Guide to the reduction of slip hazards.
AS 3727.1 2016	Pavements - Residential
AS/NZS 4200.2 2017	Pliable building membranes and underlays - Installation.
AS/NZS 4586 2013	Slip resistance classification of new pedestrian surface materials.
AS 4654	Waterproof membranes for external above ground use
	4654.1 2012 Materials
	4654.2 2012 Design and installation
AS/NZS 4663 2004	Slip resistance measurement of existing pedestrian surfaces.
AS/NZS 4671 2001	Steel reinforcing materials.
AS/NZS 4858 2004	Wet area membranes.
AS 6669 2016	Plywood - Formwork
HB 64 2002	Guide to concrete construction.
HB 71 2011	Reinforced concrete design in accordance with AS 3600 2009.
HB 84 2006	Guide to concrete repair and protection.
HB 197 1999	An introductory guide to the slip resistance of pedestrian surface materials.
HB 198 2014	Guide to the specification and testing of slip resistance of pedestrian surfaces.
CCA* T49 2003	Guide to Residential Floors (*Cement Concrete & Aggregates Australia).
CCAA T57	Guide to Off-form Concrete Finishes (Cement Concrete & Aggregates Australia

Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply with: statutory authorities having jurisdiction, the current edition of the NCC, structural engineer's documentation, service engineer's documentation.
Performance: fire and sound rating requirements:

MATERIALS TO BE USED – CONCRETE ***No variations to selected materials will be accepted without building designer's written approval.***

Item	Description	Location	Slip Resistance Level
Formwork **SELECT**	Timber, steel, or manufactured formwork		
Highest quality finish			
Good quality			
To be painted			
To be rendered or concealed			
For footings or in ground			
Reinforcing steel:	IDENTIFY Clean, no mud, oil or rust. Provide bar chairs		
Waterproofing membrane:	0.2mm thick plastic premium quality		
Concrete: Refer building designer	To attain to __MPa IDENTIFY strength at 28 days. Use no additives without authority		

Item	Description	Location	Slip Resistance Level
Termite control	Refer to Excavation and Fill where applicable		
Termite control & environmental	Termi-mesh, Homegard, Kordon		
baiting system			
Sleeves for pipe penetrations			

No site-mixed concrete is to be used for structural elements (including blinding) only plant mixed concrete placed within 60 minutes of adding water.

PREPARATION *Inspect conditions at site before starting work*
Prepare surfaces to receive concrete smooth, clean and stable under concrete load.

QUALITY CONTROL

ON-SITE ACTIONS *Start of work means total acceptance of conditions*
NOTE Do not place concrete when temperature exceeds 30 degrees.
Arrange for installation of pipes, cables, conduits etc. Over prepared surface, install WP membrane. Place reinforcement, secure in place and prevent movement during pour, maintain required concrete cover.
Comply with structural engineer's requirements for joints, splices etc. of reinforcement.
Where critical off-form finishes are scheduled, ensure all details of required finish are discussed with building designer and understood prior to installation of formwork materials and release agents.
Cure finished slabs for 5 days with plastic film secured in place. Use packing sand for curing concrete paving. Keep damp for 5 days.
Slump Tests*:* Refer to structural engineer's specification. Provide and pay for slump test reports: one on first batch and one for every 15 cubic meters of concrete delivered thereafter. Tests and rejection criteria in accordance with AS 3600. Vibrate concrete to achieve compaction. Do not "travel" vibrators. Strip formwork in accordance with Table in AS 3610 Minimum stripping times.
Exposed concrete edges to be free from all imperfections, membrane ripples, air pockets, honeycombing etc.
Substandard surface: finishes cement rendered/made good to building designer's and/or proprietor's satisfaction at no cost to proprietor.
Termite treatment: under slab foams should be encapsulated and have boron-based additives or alternatives that are non-toxic to occupants. Ensure that vertical face of slab edge is smooth off-form and does not contain areas of honeycombing, folds or rough surface. Rectify any discrepancy or unsuitability of substrata if needed to comply with AS 3660 and arrange for ongoing co-operation of other trades to ensure effective pest control. Take care of materials. Prevent damage before and during installation. Protect personnel and surrounding work, including other finishes, equipment and components during installation. Provide protective covering where necessary. Install barriers per council preference Part A or Part B in accordance with AS 3660. Comply in all respects with manufacturer's recommendations contained in technical bulletins. Call for technical advice where necessary. Remove surplus material. Protect finished work.
Concreting: NOTE: relevant building inspector to inspect all preparatory work, including reinforcing before beginning concrete pour for any footings, pads and slabs. Comply with structural engineer's requirements for concrete/brick stumps, joints, splices etc of reinforcement.
Provide uniform 1:60 maximum fall to outlets: Dispose of concrete waste, including liquids containing cement product in compliance with local environmental requirements.
Paving: 75mm thick, 20Mpa. Grade paving away from external walls of building. All paving to be located at minimum 10mm below vents and weepholes.
Clean the site where work of this trade is performed.

COMPLETION
Complete work in accordance with instructions and written variation orders.

WARRANTY
Provide to proprietor a warranty covering satisfactory performance of the complete installation, and required strength at 28 days.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Concrete finishes on a prepared base, with coves, risers, kerbs, margins, pit covers etc.
waterproofing materials, curing and protection.
Pay all fees relating to this trade to relevant authority having jurisdiction.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
See Schedule of Finishes.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-ordination: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: excavation & fill, storm drainage, sanitary sewerage, other services, pavements, concrete screeds.
Standards: comply with the applicable clauses of current editions of these building Standards:

AS 1379 2007	Specification and supply of concrete.
AS 1428	Design for access and mobility.
AS 2870 2011	Residential slabs and footings - Construction.
AS 2876 2000	Concrete kerbs and channels (gutters) - Manually or machine placed.
AS 3610.1 2010	Formwork for concrete - Documentation and surface finish.
AS 3660 2014	Termite management set
AS 3727.1 2016	Pavements - residential
AS 3740 2010	Waterproofing of wet areas within residential buildings.
AS 3972 2010	General purpose and blended cements.
AS 4349.3 2010	Inspection of buildings - Timber pest inspections.
AS/NZS 4586 2013	Slip resistance classification of new pedestrian surface materials.
AS/NZS 4671 2001	Steel reinforcing materials.
HB 155 2002	Guide to the use of recycled concrete and masonry materials.
HB 197 1999	An introductory guide to the slip resistance of pedestrian surface materials.
HB 198 2014	Guide to the specification and testing of slip resistance of pedestrian surfaces.

Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).

MATERIALS TO BE USED NOTE THAT HIGH QUALITY WORK IN FORMED FINISHED CONCRETE IS CLASS 2 TO APPROVED SAMPLE PANEL.

Item	Description	Location	Non-Slip Level
Polished Concrete			
Broom finish			
Wood Float Finish			
Steel Trowel Finish			
Exposed Aggregate Finish			
Coloured Concrete			
Off-Form Finishes:			
Highest quality finish			
Good quality			
To be painted			
To be rendered or concealed			
For footings or in ground			

ON SITE ACTIONS:
Submission: submit sample panels for each of the listed concrete finishes and ensure approvals prior to commencing work. With applied finishes, ensure that all work is in accordance with the product manufacturer's specifications and that all non-slip performance levels are certified for compliance.
Inspection: visit site and inspect conditions. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.
Execution: *Co-ordinate* with and ensure preparatory work by other trades is done prior to commencement of work and arrange for provision and fixing grounds.
Finish exposed floor surfaces. Refer table. Provide set downs for concrete finishes to maintain required floor or pavement levels. Provide fall to outlets: see Schedule of Finishes for further details.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Supply, fabricate, apply surface treatment, anchor bolts and other attachments, field welding, permanent grouting and cold-formed steel framing. All work to be fully coordinated with structural engineer's requirements including specific coatings in harsh environments.
Submit steel fabricator's shop drawings to building designer.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: concrete, wall construction, roof construction, painting.
Standards**:** comply with the applicable clauses of current editions of these building Standards:

AS/NZS 1554	Structural steel welding.
AS 1627.0 1997	Metal Finishing - Preparation and pretreatment of surfaces - Method selection guide.
AS/NZS 3679.1 2010	Structural steel - Hot-rolled bars and sections
AS 4100 1998	Steel structures.
AS/NZS 4680 2006	Hot-dip galvanised (zinc) coatings on fabricated ferrous articles.
AS/NZS 4994	Temporary edge protection.
AS/NZS 5131 2016	Structural steelwork – Fabrication and erection

Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply throughout with the current edition of the NCC - National Construction Code (formerly the BCA).

MATERIALS TO BE USED
Provide all structural steel work and secondary steel support members for items such as the external cladding in full coordination with structural requirements and to structural engineer's detailed drawings, as applicable.
Ensure that all work is subject to approved submission of samples and shop drawings for all listed components of the Works.
Coordinate fully with other structural components such as concrete.
Advise building designer when fabrications may be inspected before delivery. Steel components bent or buckled before erection will be rejected.

ON-SITE ACTIONS
General: All structural work to approved submission of steel fabricator's shop drawing and fully approved by the structural engineer.
Inspection: visit site and inspect conditions, comparing to drawings before delivery of materials to site. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.
Work methodology: Ensure the method of delivery, unloading, storage, erection and sign-off of Works is compliant with relevant occupational health, safety and environmental requirements.
Execution: use bolt connections in preference to welded connections. Minimum on site welding –refer to building designer before executing. Provide holding down bolts to concreter for building in. Comply with instructions.
Erect plumb and secure in place. Erect so that components can be fixed without distortion. Provide temporary bracing against wind and other stresses. Weld in accordance with AS/NZS 1554. Advise building designer when erected steel is ready for inspection. Adjust as required. Grout under base plates in high strength grout/mortar. Touch up steel with zinc-rich paint after installation, if acceptable given the location and exposure to salt or other substances that could have deleterious effects.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Supply and erect framing both structural and non-structural. Components Include floor panels, wall cladding, roof framings, verge, fascia, eave, barge, decking, balustrades, steps and stairs, incidental framing.
Supply, install and finish wood strip flooring on floor framing members.
Supply and install fibre cement and associated equipment and fixing to:
Wall linings internal, ceiling linings, internal, fire-rated walls, external cladding, wet area wall lining, eaves lining, fascias, partitions, wet area flooring, underlays, external decks, lattice, bracing panels, ceramic faced panels, fibre cement pipe columns. Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Refer to Wall Types drawings showing the construction type and the required performance levels for each of the listed wall types. Note that in wet areas specific detailing for wet areas are to be shown on the drawings. Refer to manufacturer's details and submit for approval prior to commencing work.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: concrete, masonry, wall lining, plumbing, electrical, insulation, painting, fibre cement products.
Standards**:** comply with the applicable clauses of current editions of these building standards:

AS 1428	Design for access and mobility.
AS 1684.3 2010	Residential timber-framed construction - Cyclonic areas. *1 Amdmt 2012.*
AS 1684.4 2010	Residential timber-framed construction - Simplified non-cyclonic areas *(Special reprint with Amdmt 1 [June 2012] included).*
AS 1720.5 2015	Timber structures - Nailplated timber roof trusses
AS/NZS 2269.0 2012	Plywood - Structural – Specifications *1 Amdmt 2015*
AS 2796.2 2006	Timber - Hardwood - Sawn and milled products - Grade description.
AS/NZS 2908.2 2000	Cellulose cement products - Flat sheet.
AS 3959 2009	Construction of buildings in bush-fire prone areas.
AS 4786.2 2005	Timber flooring - Sanding and finishing.

Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply with recommendations of the National Assoc. of Forest Industries technical bulletins.
Comply with relevant technical bulletins and published instructions produced by manufacturer.
Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).
Storing timber: store on site neatly stacked above ground to allow for water run-off. Protect from rain, damage and other material.

MATERIALS TO BE USED: GENERAL ***No variations to selected materials will be accepted without building designer's written approval.***
Any wood panel products are to be certified formaldehyde emission level of E1 or E0.
Any other panels to be asbestos or hazardous substance free.

MATERIALS TO BE USED:

MATERIALS TO BE USED: FIBRE CEMENT ***No variations to selected materials will be accepted without building designer's written approval.***

JAMES HARDIE PRODUCTS		**CSR BUILDING MATERIALS EQUIVALENT (Cemintel)**	
HardieFlex	Thickness: 4.5,6.0	Cladding sheet	4.5, 6.0
Villaboard	Thickness: 6.0. 9.0, 12.0	Wallboard FC	6.0, 9.0, 12.0
Versilux	Thickness: 6.0	sq. edge	6.0
HardiePlank Smooth	230, 300 wide, 7.5	cladding plank, smooth	230, 300
Eaves - HardieFlex	4.5mm	Eaves lining	4.5
HardiePanel Compressed sheet	6.0, 9.0, 12.0, 15.0, 18.0, 24.0	Compressed sheet decking	6.0, 9.0, 12.0, 15.0, 18.0, 24.0
Pineridge (impact resistant)		X	
Underlay for ceramic tile		CT Underlay	6
Underlay for vinyl and cork		X	
Hardietex (external sheet)	7.5	X	
Hardiebrace	5.0	X	
Partitions toilet and shower		X	

QUALITY ASSURANCE

Provide samples and technical information from product manufacturers. Where secondary components for wall cladding are required, provide technical data.

ON-SITE ACTIONS

General: Coordinate work with provision of insulation material and sarking and ensure that all components meet the structural and timber species for the intended use requirement. Seek clarification if unclear.

Inspection: visit site and inspect conditions, comparing to drawings before delivery of materials to site. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.

Work methodology: Ensure the method of delivery, unloading, storage, erection, placement and sign-off of Works is compliant with relevant occupational health, safety and environmental requirements

Execution: review drawings when erecting framing and provide additional framing at every location where extra loads will be applied to finished walls.

Timber Flooring Execution: Check moisture content of timber; coastal areas maximum 13 % moisture, dry areas and air conditioned spaces 9%.

Install flooring in the smallest room of the building. Stop. When approved by building designer, continue.

Form junctions of different materials (e.g. tiles to carpet) so that they occur under the centre line of doors.

Face Nailed Flooring

Provide expansion gaps of 10-15mm around the edges of each floor area. Nail at minimum 20mm from edge of the board. Two nails for wide boards. Pre-drill nail holes in dense boards. Nails to be no less than 2.5 times the thickness of the board. Punch nails a minimum of 3mm below the surface.

Secret Nailed Flooring

Fix boards up to 80mm wide with secret nailing gun and apply polyurethane adhesive to top of floor joist before nailing.

Floor Finishing

Fill nail holes with fast drying nail filler. Rough and fine sand. Comply with AS 4786.2. Finish with an approved method and to an approved sample and ensure non slip is met in commercial installations.

Comply throughout with the written instructions of the manufacturer of a selected material.

Eaves, fascias and barges: secure each of these boards to the framing. Line soffit with fibre cement 4.5mm thick fixed to framing members and finish with moulds, jointing strips or straps.

Box or concealed gutters*:* provide timber framing for support of box or concealed gutters. Provide constant fall to the top of the downpipe in each gutter.

Timber decking: fix with galvanised nails and screws.

External Cladding

Timber cladding*:* unless otherwise specified, all timber to be primed and treated with a penetrating wood preservative to all exposed faces and edges before fixing. Fix with galvanised nails.

Weatherboards: select quality timber in long lengths, lapped vertically not less than 25mm. Butt joints at studs or corners over galvanised steel angles.

Fibre cement sheeting*:* or other external cladding to be fixed in accordance with manufacturer's instructions. Provide and fix all necessary flashings and other materials required to ensure weathertight joints.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Provide complete roof installations of the type specified with associated gutters and down pipes, sarking, safety mesh and skylights.
Provide in accordance with the product manufacturer's specifications and technical data, i.e. zinc/Colorbond compatibility.
Metal roofing and sarking, downpipes, gutters, translucent roofing.
Comply with Bushfire Attack Level (BAL level and AS 3959-2009 Section 3 requirements) site assessment requirements for roof installation.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: carpentry, steel house frames, drainage.
***Standards*:** comply with the applicable clauses of current editions of these building Standards:

AS/NZS 1214 2016	Hot-dip galvanized coatings on threaded fasteners
AS 1273 1991	Unplasticized PVC (UPVC) downpipe and fittings for rainwater. Design and installation of sheet roof and wall cladding
AS 1720.5 2015	Timber structures - Nailplated timber roof trusses
AS 2049 2002	Roof tiles.
AS 2050 2002	Installation of roof tiles.
AS/NZS 2179.1 2014	Specifications for rainwater goods, accessories and fasteners - Metal shape or sheet rainwater goods, and metal accessories and fasteners.
AS 3959 2009	Construction of buildings in bush-fire prone areas. *There are 3 Amdmts, 2009 - 11*
AS 3999 1992	Thermal insulation of dwellings - Bulk insulation - Installation requirements (redline set)
AS/NZS 4200.2 2017	Pliable building membranes and underlays - Installation.
AS 4285 2007	Skylights.
AS/NZS 4389 2015	Roof safety mesh.
HB 39 2015	Installation code for metal roof and wall cladding.

Comply with state requirements and codes of practice in relation to work on roofs.
Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).
Roof shall be designed and installed to comply with site Terrain Category

MATERIALS TO BE USED – ROOF TILES ***No variations to selected materials will be accepted without building designer's written approval.***

Item	Description	Manufacturer/Supplier
Roof tiles		
Battens		
Gutters and downpipes		
Sarking		
Pointing		
Skylights		
Flashings		
Sealing penetrations		

MATERIALS TO BE USED – METAL ROOFING/SIDING ***No variations to selected materials will be accepted without building designer's written approval.***

Item	Material Supplier	Trade Name	Finish	Base Metal Thickness
Metal roof				
Translucent roofing				
Sarking				
Skylights				
Flashing				
Accessories				
Wire safety mesh	One steel	Roofsafe or Ausmesh		
Insulation				
Box gutter support				
Box gutters and sumps				
Soakergutter				
Roof access hatch				
Rainwater heads				
Downpipes				
Sealing of penetrations				
Metal siding (cladding)				

Install to manufacturer's recommendations any man-proof mesh to AS/NZS 4389 Roof Safety Mesh.

QUALITY CONTROL
Provide quality control measures such as submission of samples and shop drawings as may be required by the building designer.

ON-SITE ACTIONS – ROOF TILES
General: provide all components complete with a sarking membrane and installed in full accordance with the product manufacturer's specifications.
Inspection: visit site and inspect conditions, comparing to drawings before delivery of materials to site. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.
Work methodology: ensure the method of delivery, unloading, storage, erection and sign-off of Works is compliant with relevant occupational health, safety and environmental requirements and prevents falls of workers, materials and objects from locations at height and through unprotected openings in working surfaces.
Execution**:** ensure roof framing, fascias, barges etc. are complete.
Install sarking, battens and tiles in accordance with manufacturer's instruction.
Install seals to penetrations, skylights etc. to manufacturer's instructions.
Point up at barges, valleys and ridge tiles with colour-matched flexible cement mortar. No dry joints.
Bed barge pointing on fibre cement strips.
Test roof on completion. Remove debris from gutters and downpipes.
Ensure entire gutter system drains uniformly to downpipe outlets with no ponding.

ON-SITE ACTIONS – METAL ROOFING
General: Provide all components complete with an insulation layer and installed in full accordance with the product manufacturer's specifications.
Fall arrest system: Where fall arrest system is required by statutory regulations provide the necessary design and construct information and provide all necessary components for the item. Obtain approval prior to commencing work. Ensure safety equipment is in place. Install safety mesh in accordance with AS/NZS 4389 Roof safety mesh.
Install each item in accordance with manufacturer's current written instructions. Form penetration flashings neatly with material matching roofing material or install EPDM collars. Provide flashings at all upstands lapped 150mm at junctions. Step flashings evenly. Finish top corners to a line parallel to the roof slope.
Close and seal ends of cut ribs. Form back gutters not less than 100mm wide with falls towards the sides of the penetration collars. Seal joints with compatible sealant. Secure downpipes through cladding to structure. Seal at stormwater pipe upstands. Remove debris from gutters and downpipes. Ensure entire gutter system drains uniformly to downpipe outlets with no ponding.
Test on completion.
Glass, plastic, fibreglass or other roofing material
Note: Ensure, where glass, plastic, fibreglass or other material is used as a trafficable surface during installation, end user use and maintenance, it has been certified as trafficable and is compliant with manufacturer's instructions for delivery, storage, installation and maintenance.
If non-trafficable, ensure the way it is installed prevents a person, object or materials used in installing it from falling through the working surface.

WARRANTIES

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Supply labour and install materials. Build in miscellaneous materials (flashing, wall ties, damp proof course, anchors etc.)
Include staging, scaffolding and cleaning.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: concrete, structural steel, wall framing, doors and windows.
***Standards*:** comply with the applicable clauses of current editions of these building Standards:

AS 1316 2003	Masonry cement.
AS/NZS 1576.1 2010	Scaffolding - General requirements.
AS/NZS 2904 1995	Damp-proof courses and flashings.
AS 3700 2011	Masonry structures. *2 Amdmts 2012, 2015.*
AS 3959 2009	Construction of buildings in bush-fire prone areas.
AS/NZS 4200.2 2017	Pliable building membranes and underlays - Installation.
AS 4773.2 2015	Masonry in small buildings - Construction.

Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).

MATERIALS TO BE USED ***No variations to selected materials will be accepted without building designer's written approval.***
Brickwork: Provide all brickwork to approved submission of samples and to an approved sample panel constructed on site and incorporated into the Works. For all face work ensure that efflorescence control measures are submitted with applications made to the sample panel**.**
Coordinate work with structural engineer's requirements for all structural components and ensure that exposure category of the site is incorporated into the detailing of all brickwork.
Blockwork: *Provide all blockwork including face work and core filled blockwork as applicable to the Works* Read this component of the specification in conjunction with Wall Types drawings and structural engineer's documentation.

Item	Description	Manufacturer/Supplier
IDENTIFY -CLAY BRICKS OR CONCRETE BLOCKS		IDENTIFY
Sizes		
Colour		
Specials		
Sizes		
Colour		
Mortar	6 parts sand, 1 part cement, 1 part lime	
Pigment for mortar		
Reinforcement	Galvanised mesh	
Wall ties		
Damp proof course		
Expansion (control) joints		
Lintels		
Anchors to columns or beams		

ON-SITE ACTIONS
Inspection: visit site and inspect conditions, comparing to drawings before delivery of materials to site. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.
NOTE*:* Block or brick walls should be provided with temporary bracing when they reach an unstable height. Clause C11.9.1 of AS 3700 Supplement 1 Masonry Structures states, in part "Generally new masonry walls lacking support from cross walls or returns can be built to a height not exceeding 10 times the thickness of the wall without the need for temporary support. Lesser heights may apply in regions subject to extremely high winds, or when lightweight masonry is used.
***Execution*:** review work with other trades, piping, ducts etc. Clean base before laying masonry. Set doors and windows plumb, square and braced. Construct a sample wall of 3 square metres. Stop. When approved by building designer, continue.
Machine mix. Mortar life: 2 Hours.
Joints: . Weep holes at 1200mm centres
Check Bushfire Attack Level for weephole ember proofing insert requirements.
***Bonding*:** Stretcher bond,
Bed joints: 10mm. Install DPC, wall ties, reinforcement, flashing to AS 3700.
Install ties to anchor masonry to structure, doors, windows etc. Remove excess mortar from rear of masonry and wall ties in cavity walls at the end of each day. Construction joints @ max 6000mm centre. Clean with 5% hydrochloric acid or other manufacturer recommended product, to face work. Bagged finish on completion same material as for mortar. Chase walls no more than 1/3 thickness for conduits and refer to specific requirements where listed on the attached reports.
Install heavy-duty scaffolding, including access and edge protection, to accommodate workers and materials as required by relevant authority requirements.
LINTELS in Masonry walls

HOT DIP GALVANISE LINTELS TO EXTERNAL OPENINGS.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Scope of work of this trade section is the provision of external cladding.
Read in conjunction with the External Finishes Schedule and refer to NatHERS and NCC requirements for provision of insulation to external walls.
Coordinate this trade section with provision of wall framing and secondary framing components as may be applicable with proprietary wall systems. Provide the following components: External cladding of the types shown on the drawings fixed to cross battens over sarking. Provide for cavity drainage. Permeable sarking to cladding where required by the cladding manufacturer.
Insulation material to R values indicated on the drawings.
All fixings and trims recommended by material manufacturer or standard practice for material selected.
Coordinate work with installation of external glazing, flashing, trims, mouldings, services.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with: Timber or metal frame doors and windows, Floor and wall construction, Painting
Standards: comply with the applicable clauses of current editions of these building Standards:

AS/NZS 1170	Structural design actions. *There are many parts, 1990 - 2007 and Supplements as Commentaries, Amdmts.*
AS 1366	Rigid cellular plastics sheets for thermal insulation. *There are 4 parts, 1989 - 1992.*
AS 1562	Design and installation of sheet roof and wall cladding, *There are 3 parts, 1992-2006*.
AS/NZS 2908	Cellulose – cement products. 2908.2 2000 Flat sheet.
AS 3660	Termite management. *There are 3 parts 2000 - 2014.*
AS 3999 2015	Bulk thermal insulation– Installation.
SA HB 39 2015	Installation code for metal roof and wall cladding.

IF A PRODUCT IS NOT DTS, PROVIDE REQUIRED DOCUMENTATION TO ENABLE THE RELEVANT BUILDING SURVEYOR TO ASSESS THE PRODUCT.
Current written instructions issued by manufacturers of specified products. Comply with the requirements of statutory authorities having jurisdiction on this project.
Comply throughout with the current edition of the NCC.
Manufacturer's specifications: read this trade section in conjunction with the product manufacturer's specifications and install in full accordance with the listed manufacturer's instructions and data

MATERIALS TO BE USED
NOTE : ENSURE THAT IMPORTED PRODUCTS HAVE WRITTEN EVIDENCE OF COMPLIANCE WITH THE REQUIREMENTS OF RELEVANT AUSTRALIAN STANDARDS AND NCC PERFORMANCE GUIDELINES.

Item and reference to the Legend	Description	Manufacturer/Supplier
Fire-retardant reinforced reflective sarking		
Polystyrene foam panel		
Polyurethane foam panel		
Polystyrene hollow blocks		
Fibreglass mesh		
Acrylic render		
Insulclad Rendered Wall Cladding System		
Fibre cement panels/ natural/ pre-finished		Cemintel, Scyon
Concrete		
Masonry products – brick/ block/ stone	Thin stone or masonry veneers	
Timber products – engineered timber/ plywood/ profiled timber		
Rendered Rapidwall precast plaster panel system	Glass fibre reinforced Gypsum plaster panels	Rapid Building Systems
Metal cladding materials	Steel/aluminium/zinc etc sheeting	

Include accessories provided by selected manufacturer.

CLADDING TYPES
Provide cladding types as shown on the drawings and to the following requirements:
Cladding type:
Location: refer to the drawings and the External Finishes Schedule.
Components:
Finish: refer to the External Finishes Schedule.
Submission: submit samples, technical data from the product manufacturer and shop drawings as applicable to each type of wall cladding. Where conditions of approval from the council require verification, provide prior to commencing work.

ON-SITE ACTIONS

Inspection: inspect conditions at site before starting work. Start of work means total acceptance of conditions.

General: only tradesmen with wide experience and knowledgeable in this class of work to undertake the work.

Co-ordinate with other trades prior to commencement of work and arrange for fixing grounds required for satisfactory execution of the work of this trade including penetrations.

Fully coordinate with provision of insulation material and adjacent building components.

Work Methodology: ensure the method of delivery, unloading, storage, erection and sign-off of Works is compliance with relevant occupational health, safety and environmental requirements. Provide an approved control panel as directed on site by the building designer. When approved by building designer, apply cladding as specified in compliance with manufacturer's detailed instructions and drawings where applicable. When approved by building designer, continue.

Execution: take care of and protect surrounding work, including other finishes, equipment and components, during installation.

Provide protective covering where necessary.

Stop.

Finish joints and secure fasteners. Remove surface defects to achieve uniform appearance of each type of installation. Make good damage in every respect at no additional cost to the proprietor.

Clean exposed surfaces including trim, edge mouldings, and comply with manufacturer's instructions for cleaning and touch-up of minor finish damage.

Remove spatterings, droppings and surplus material.

Complete each part of the work in accordance with instructions of manufacturer before starting next stage of the work.

Completion: complete work in accordance with instructions and written variation orders. Certify that the completed installation meets the product manufacturer's specifications and that all NatHERS and NCC performance levels are met.

WARRANTY

Provide to the proprietor a warranty covering complete installation that it will remain waterproof and weathertight, including integrity of any/all penetrations through the walling and the satisfactory performance and security of the complete installation against weather for a period of ….. years.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Electrical Layout Drawings and Schedules.
This is a Design and Construct package and the Contractor is to complete the design shown on architectural drawings and to coordinate work with the supply authority to ensure full compliance with statutory and supply authority requirements.
Design, supply and installation of electrical transmission and reticulation materials from mains supply to required electrical power and light outlets, telephone, internal communication system, smoke alarms, fans and television antenna.
Meter box located as shown on drawings or as required by the supply authority. Provide full coordination if specific items of equipment are used in the Works such as the swimming pool equipment or AC systems.
The maximum total wattage for Class 1 building is not to be exceeded.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: floor construction, wall construction, ceiling construction, carpentry, joinery.
Licensed electrical technicians only may perform work, experienced in the requirements of the project. Licences are those issued by the state authority having direct control or interest in the work.
Perform the entire installation in accordance with the requirements of the statutory authority having jurisdiction.
***Standards*:** comply with the applicable clauses of current editions of these building Standards:

AS 1680	Interior lighting.
AS/NZS 3000	Electrical installations (Wiring Rules) *2 Amdmts 2009, 2012*
AS/NZS 3010 2017	Electrical installations – Generating sets
AS/NZS 3012 2010	Electrical installations - Construction and demolition sites. *1 Amdmt 2015*
AS 3786 2015	Smoke alarms using scattered light, transmitted light or ionization..

Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.

SUBMISSION
Submit confirming specification data for all components and submit samples and technical information to allow evaluation of the proposed installation of components into the Works.

MATERIALS TO BE USED ***No variations to selected materials will be accepted without building designer's written approval.***

Supply only products which bear the required indication of approval of the statutory authority having jurisdiction.

Item	Description	Manufacturer/Supplier
Temporary supply	Maintain during construction period	
Light outlets	Refer Electrical Plan & Schedule	
Power outlets	Refer Electrical Plan & Schedule	
Fittings		
Mains connection to building	By supply authority	
Meters	By supply authority	
Switchboards	MCB type with 4 added expansion slots	
Reticulation cable	Comply with Standards & Regs.	
Power outlets	Refer Electrical Plan & Schedule	
Light fittings	Refer Electrical Plan & Schedule	
Lamps	Low energy fluoro or LED as scheduled	
Floodlighting	Refer Electrical Plan & Schedule	
Site lighting	Refer Electrical Plan & Schedule	
Earthing	Check/ Provide if not installed	
Alarm and detection systems	Refer Electrical Plan & Schedule	
Clock systems	Refer Electrical Plan & Schedule	
Telephone systems	Refer Electrical Plan & Schedule	
Inter-communication system	Refer Electrical Plan & Schedule	
Television antenna	Refer Electrical Plan & Schedule	
Heating cables and units	Refer Electrical Plan & Schedule	
Fans, exhaust and heating	Refer Electrical Plan & Schedule	
Smoke alarms	Refer Electrical Plan & Schedule	
Residual Current Device (Safety Switch)	Provide if not installed	

ON-SITE ACTIONS
The following preparatory actions are to be performed by the contractor for the electrician:
A. Slab penetrations for floor-mounted GPO's, telephone outlets etc.
B. Chasing and making good for conduit access for skirting
C. Chasing and wiring duct, GPO's switches etc.
D. Supply and installation for access opening(s) where required.

Inspection: visit site and inspect conditions, comparing to drawings before delivery of materials to site. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.
Work methodology*:* Ensure the method of delivery, unloading, storage, installation and sign-off of Works is compliant with relevant occupational health, safety and environmental requirements.
NOTE: No person is to work live or be exposed to unprotected live installation or equipment. Use lock out procedure to ensure worker safety.
Execution: provide necessary safety or security controls where required to ensure safe practices and installations.
Comply with Standards throughout and requirements of supply authority. Install light fittings, switchboard and distribution board, metre board and box. Arrange for inspection by supply authority inspector. Obtain compliance certificate. Connect to main supply.

WARRANTIES
Provide all warranties on completion and ensure that all components are certified for compliance with the supply authority requirements.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Supply and installation of thermal insulation to walls, ceilings, roofs in full compliance with NatHERS or NCC requirements and installed in full accordance with the product manufacturer's specifications.
Installation is to be certified to provide required Energy Rating.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work. Where installed as part of the external cladding system, coordinate with provision of sarking material.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: wall and roof framing, roofing, wall lining, masonry.
***Standards*:** comply with the applicable clauses of current editions of these building Standards:

AS 3959 2009	Construction of buildings in bushfire-prone areas.
AS 3999 1992	Thermal insulation of dwellings - Bulk insulation - Installation requirements.
AS/NZS 4200.1	Pliable building membranes and underlays - Materials.
	4200.2 2017 Pliable building membranes and underlays - Installation.
HB 63 1994	Home insulation in Australia.

Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply throughout with the current edition of the NCC - National Construction Code (formerly the BCA).

MATERIALS TO BE USED ***No variations to selected materials will be accepted without building designer's written approval.***

Read this trade section in conjunction with relevant reports such as NatHERS or relevant sections of the NCC.
Check with the PCA prior to commencing work.

Item	Description	R-Rating	Location	Manufacturer/ Supplier
Floor insulation				
Wall insulation				
Roof insulation and sarking				
Building paper				
Reflective type				
Flame retardants				
Sarking				
Vapour barriers				
Bulk				
Sealed batts				
Blankets				
Rigid cellular				

ON-SITE ACTIONS
Inspection: visit site and inspect conditions, comparing to drawings before delivery of materials to site. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.
Work methodology: Ensure the method of delivery, unloading, storage, installation and sign-off of Works is compliant with relevant occupational health, safety and environmental requirements.
Execution: prepare surfaces and or framing material and ensure that no obstructions will prevent rapid and effective installation. Install insulation to all new floors, walls, ceilings and roofs forming the building envelope, so as to prevent moisture contact. Install snugly between framing members, forming a continuous barrier without affecting safe effective operation of services or fittings.
Reflective insulation: Install with necessary airspace between reflective side and building lining or cladding. To be closely fitted, taped or sealed to any penetration, door or window opening and adequately supported. Comply with manufacturer's current written instruction.
Roll membrane: each sheet to be lapped not less than 150mm and/or taped at joints.
Bulk insulation: installed so as to maintain position and thickness, except where crossing roof battens, pipes, cables.
Protect any down-lights with insulated covers to allow close fitting of insulation. Where required, comply with AS 3959.
Provide certification that the installation is installed according to NCC standards.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Supply and install metalwork items shown on drawings and Metalwork Schedule.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: electrical installation, gas installation, building finishes.
Co-ordinate with other trades as to the proper fastening systems suitable for the substrates to which the item is to be secured. Refer to building designer if in doubt.
Fastenings: fasten galvanised items with galvanised fasteners.
Standards**:** comply with the applicable clauses of current editions of these building Standards:

AS/NZS 1214 2016	Hot-Dip galvanised coatings on threaded fasteners
AS/NZS 1554	Structural steel welding.
AS 1627.0 1997	Metal finishing - Preparation and pretreatment of surfaces - Method selection guide.
AS/NZS 1664	Aluminium structures.
AS/NZS 1665 2004	Welding of aluminium structures.
AS/NZS 1841.1 2007	Portable fire extinguishers - General requirements.
AS/NZS 4680 2006	Hot-dip galvanised (zinc) coatings on fabricated ferrous articles.

Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).
Drill or punch and ream in the Workshop and not on site.
Design necessary lugs, brackets and similar items so that work can be assembled and installed in a neat, substantial manner.

MATERIALS TO BE USED ***No variations to selected materials will be accepted without building designer's written approval.***
Fasteners **:** Provide bolts, screws, inserts, fasteners, templates and other accessories required for a complete installation. Refer Metalwork Schedule.
The following items may be specified here:

- Balustrading including pool fences
- Bollards
- Gratings of various types
- Handrails for external locations and fire stairs
- Grab rails for toilets
- Mail boxes

ON-SITE ACTIONS
Inspection*:* visit site and inspect fabrication and conditions, comparing to drawings before delivery of materials to site. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.
Do not repair fabrication or cut metal on site.
Work methodology*:* ensure the method of delivery, unloading, storage, installation and sign-off of Works is compliant with relevant occupational health, safety and environmental requirements and prevents falls of workers, materials and objects from locations at height and through unprotected openings in working surfaces.
Execution: do not delay job progress for field measurements. Allow for adjustments and fitting of the work in the field where taking of measurements might cause delay.
Provide holes and connections as required to accommodate the work of other trades and for site assembly of metalwork.
Smooth finishes to exposed surfaces with sharp well-defined lines and arrises. Mill machined joints to a close fit.
Each item to be installed by bolting or screwing to structural elements of building. Locate anchorages accurately and ensure secure installation.
Whitegoods and similar items to be installed in accordance with manufacturer's instructions.
Protect glass and other finished surfaces from potential weld or other substance splatter till completion of the Works. Remove weld spatter and touch up with zinc-rich paint immediately.
Protect work until project completion.
Replace damaged items.

WARRANTIES
Hand over warranties on completion.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Supply and apply paints and other finish coatings. Refer Schedule of Finishes.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: each trade as listed to be painted. Refer Painting Schedule.
Standards**:** comply with the applicable clauses of current editions of these building Standards:
AS/NZS 2311 2009 Guide to the painting of buildings.
AS/NZS 2312 2014 Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings.
Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).

MATERIALS TO BE USED ***No variations to selected materials will be accepted without building designer's written approval.***

Use low VOC emitting paints internally.

Surface or Item	Catalogue/Product No.	Manufacturer/Supplier
Internal		
Walls: dry areas		
Walls: wet/other areas		
Ceilings: dry areas		
Ceilings: wet areas		
Joinery: trim		
Block/brickwork		
Concrete		
Steel		
External		
Block/brickwork		
Concrete		
Fibre cement		
Timber		
Steel		

Delivery storage and handling:
A. Bring materials to the building and store in manufacturer's original sealed containers, bearing the manufacturer's standard label, indicating type and colour. Deliver materials in sufficient quantities in order that work will not be delayed.
B. Store materials in designated spaces in a manner which meets the requirements of applicable codes and fire regulations. Provide each space with a fire extinguisher of carbon dioxide or dry chemical type bearing a tag of recent inspection.
Ensure contractor leaves adequate left over paint (min 0.5 litre of each colour or type in airtight & labelled container) for touching up and maintenance.

ON-SITE ACTIONS
Inspection*:* visit site and inspect conditions, comparing to drawings before delivery of materials to site. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.
Work methodology*:* ensure the method of delivery, unloading, storage, installation and sign-off of Works is compliant with relevant occupational health, safety and environmental requirements.
NOTE: ensure manufacturer recommendations for Occupational Health, Safety and Environment as listed on Australian material safety data sheets (MSDS) are implemented as a minimum to protect persons from harm.
Execution:
Prepare each surface to be painted in accordance with manufacturer's instructions.
Prepare a sample panel of 2 square metres of each paint type. Stop. When approved by building designer, continue.
Building designer will check each prepared surface. Do not proceed with painting until check completed. Apply scheduled coats and paint types to manufacturer's instructions, and AS/NZS 2311.

END OF SECTION

SCOPE OF WORK *Perform work described here and shown on drawings including but not limited to:*
Supply and install vinyl, linoleum, cork or other sheet, laminated or floating floor or tile materials and skirtings.
Refer to Finishes Schedule for material details and locations.
Install compliant Waterproof Membrane to wet area walls and floor and adjacent to plumbing fixtures as required Table 3.8.1.1 of NCC.
Complete all contract Works in accordance with instructions. Execute written variation orders for changes to existing documentation or new work.
Refer to GENERAL REQUIREMENTS before proceeding.

GENERAL
Co-operation: to resolve possible problems before starting work, co-operate and co-ordinate with other trades, in particular: concrete, carpentry, floor and wall construction.
Standards**:** comply with the applicable clauses of current editions of these building Standards:

AS 1428.1 2009	Design for access and mobility - General requirements for access–New building work. *1 Amdmt 2010*
AS 1884 2012	Floor coverings - Resilient sheet and tiles - Installation practice.
AS/NZS 3661.2 1994	Slip resistance of pedestrian surfaces - Guide to the reduction of slip hazards.
AS/NZS 4586 2013	Slip resistance classification of new pedestrian surface materials.
HB 197 1999	An introductory guide to the slip resistance of pedestrian surface materials.
HB 198 2014	Guide to the specification and testing of slip resistance of pedestrian surfaces.

Refer: Model Code of Practice, Preventing Falls in Housing Construction:
https://www.safeworkaustralia.gov.au/system/files/documents/1705/mcop-preventing-falls-in-housing-construction-v2.pdf.
Comply throughout with the current edition of the NCC - National Construction Code (formerly BCA).

MATERIALS TO BE USED ***No variations to selected materials will be accepted without building designer's written approval.***

Item	Material	Thickness	Name	Colour	Manufacturer/Supplier
Floor backing board					
Flooring sheet					
Flooring tile					
Skirting					

ON-SITE ACTIONS
General: check all sizes and dimensions on job.
Inspection*:* visit site and inspect conditions, comparing to drawings before delivery of materials to site. Report any situations requiring preparatory work to the building designer. Start of work means total acceptance of conditions.
Work methodology: ensure the method of delivery, unloading, storage, installation and sign-off of Works is compliant with relevant occupational health, safety and environmental requirements.
Install a sample of 3 square metres. Stop. When approved by building designer, continue.
Execution**:** prepare concrete floor; fill cracks with a self-levelling type compound e.g. Ardit. Remove lumps. Produce dead flat and level surface. Test for moisture content, which is required to be 5.5% or less. Refer to AS 1884 Appendix A.
Apply waterproofing membrane to floor and walls in compliance with the NCC requirements. Ensure manufacturer recommendations, to prevent respirable vapours to workers and others, are complied with before application. Arrange inspection.
Prepare Timber Floor: ensure moisture content is stabilised. Rough sand the floor to achieve level and flat plane. Install underlay to manufacturer's recommendations. Apply waterproofing membrane to floor and walls in compliance with the NCC requirements. Arrange inspection.
Install a sample of 3 square metres. Stop. When approved by building designer, continue to approved standard.
Install to manufacturer's instructions. Weld joints in sheet vinyl. Clean thoroughly, allow to dry. Cover completed floors until completion of project.
Form junctions of different materials (e.g. tiles to carpet) so that they occur under the centre line of doors. Install trims as selected and/or scheduled in Finishes Schedule.

WARRANTY

END OF SECTION

Arrange for temporary power supply.				
Connect to power supply on completion.				
Install meterbox : M.D.F or metal.				
Install switchboard. Circuit breaker/fuses.				
LIGHT OUTLETS: Refer drawings				
Item	**Manufacturer**	**Model No.**	**Type**	**Colour**
Front door				
Rear door				
Verandah/porch				
Other				
Switches				
Switches (2way)				
Dimmer				
Switches w/proof				
Lamp holders				
POWER OUTLETS: Refer drawings				
Internal:				
GPO's double				
GPO's single				
External:				
GPO's double				
GPO's single				
Specials				
Connect power to the following items (circle choice) : Security system, doorbell, intercom.				

KITCHEN:	Refrigerator	Dishwasher	
Oven	Microwave oven	Freezer	
Cooker	Garbage disposal	Rangehood	
LAUNDRY:	Washing machine	Drying machine	
	Exhaust fan		
BATHROOMS:	Towel dryer	Ceiling heater	Spa bath
GENERAL:	Hot water unit	Space heater	
Air conditioning			

Revision:	**Date:**	**Description:**	**Building designer:**	**Project:**

FINISHES SCHEDULE

Room		Floor		Ceiling		Walls								Trims			
						North		South		East		West					
No	**Name**	**Base**	**Finish**	**Type**	**Finish**	**Type**	**Finish**	**Type**	**Finish**	**Type**	**Finish**	**Type**	**Finish**	**Skirts.**	**Archs**	**Doors/ frames**	**Notes**
1	Entry	C	CT.1	CP	P.01	WP	P.02	T	P.03	WP	P.02	WP	P.02	P.04	P.04	P.04 /05	
2																	
3																	
Revision:		**Date:**		**Description:**					**Building designer:**				**Project:**				

C **Concrete**
CT **Ceramic Tile**
CP **Ceiling Plasterboard (10mm)**
P.# **Paint (See Paint Schedule)**
WP **Wall Plasterboard (10mm)**
T **Timber lining**

PAINTING SCHEDULE

Finish	Type	Manufacturer	Colour	Coats over Sealer Undercoat
P.01	Flat acrylic		Ceiling White	2
P.02	Washable Low Sheen acrylic		Chalk USA	2
	Non-toxic wall paint			
	Non-toxic ceiling paint			

Revision:	Date:	Description:	Building designer:	Project:

Item	Description	Manufacturer	Supplied by	Colour	Size
Handrail	Steel tube	HRA	Owner. Builder to install	Powdercoat - White	40mm dia
Shade devices					

Avdata Truckwash Control System

Overview and installation planning

Avdata Pty Ltd trading as Avdata Australia
ABN: 25 008 556 723
Mail: PO Box 877 Mitchell ACT 2911
Tel: (02) 6262 8111
Email: mail@avdata.com.au
Web: www.avdata.com.au

CONTENTS

1. Introduction

The National Truckwash System is a network of truckwash facilities at which access is controlled and monitored through the use of specialised electronic 'keys'. The National Truckwash System was established by Avdata in 1993 with the support of the saleyard and transporters associations, and enables transporters to receive a single monthly account for their use of truckwash facilities at saleyards and other sites across Australia. Over 8,000 keys are currently being used to access truckwashes in the network.

Owners of National Truckwash System truckwashes are generally local councils or business owners. Installation of Avdata's computerised control systems allows them to limit and monitor who has access to their facilities, and to charge fees to customers of those facilities through an efficient centralised billing system. Administrative load is reduced because all aspects of the billing and payment collection process are taken care of by Avdata – there is just a single payment to receive each month. And the system is extremely attractive to transporters because they only need to carry a single key and receive one monthly account covering their use of any truckwashes in the system.

1.1. About this guide

This document will provide an introductory guide to how the National Truckwash System operates and what you will need in order to become part of this network of facilities. Professional advice should be sought from your appropriately licensed engineer, plumber and electrician regarding installation and safety requirements for your specific circumstances.

Compliance with all relevant regulations, including those associated with plumbing and electrical installations and workplace health and safety issues, is the responsibility of the facility owner.

1.2. Other useful information

If you decide to install an Avdata Truckwash Control System then we recommend that you also consult the other Avdata publications listed below.

Existing Avdata clients can access these documents by logging in to WebView (http://members.avdata.com.au) and choosing 'Information sheets' under the 'Miscellaneous' menu. Alternatively, contact Avdata to request a copy.

Avdata Truckwash Control System – Instructions for installation and use	• Detailed instructions for installing and connecting your MACS*Plus* controller, control panel and modem. • Instructions for connecting the MACS*Plus* unit to the equipment which is to be controlled. • Recommended post-installation checks (technical and administrative). • Overview of equipment use. • Summary of ongoing responsibilities of facility owner.
Maintenance and Troubleshooting for MACS-based Systems	• Information to help you with looking after your system and with working out what action to take if problems occur.
Avdata Control Systems – Guide for Administrators	• Information about administration of access keys. • Guide to using Avdata's online WebView interface.

2. Truckwash Control System – overview

The parts of an Avdata Truckwash Control System are summarised in Figure 1. Avdata supplies the MACS*Plus* controller (described in Section 2.1), a customised control panel, and a wireless modem. Flow from the water outlet in the truckwash bay is controlled via a solenoid valve (not supplied) installed in the supply line and connected to the controller. Usage is generally recorded as the length of time for which the outlet was switched on (although a flow meter could be included if more accurate records of water use are required).

Operation of the truckwash requires an electronic 'key'. When the key is touched against a read head on the control panel it is read by the controller. If the key is valid, the user can switch on the chosen outlet and water flow begins.

Each key is identified and recorded by the electronic controller each time it is used. The MACS*Plus* unit communicates with Avdata's systems over the Internet via the wireless modem. Records of truckwash use can then be examined, customers can be billed for their use, and access privileges for keys can be managed securely online.

Use of additional equipment such as floodlights or access gates can also be controlled as part of the system.

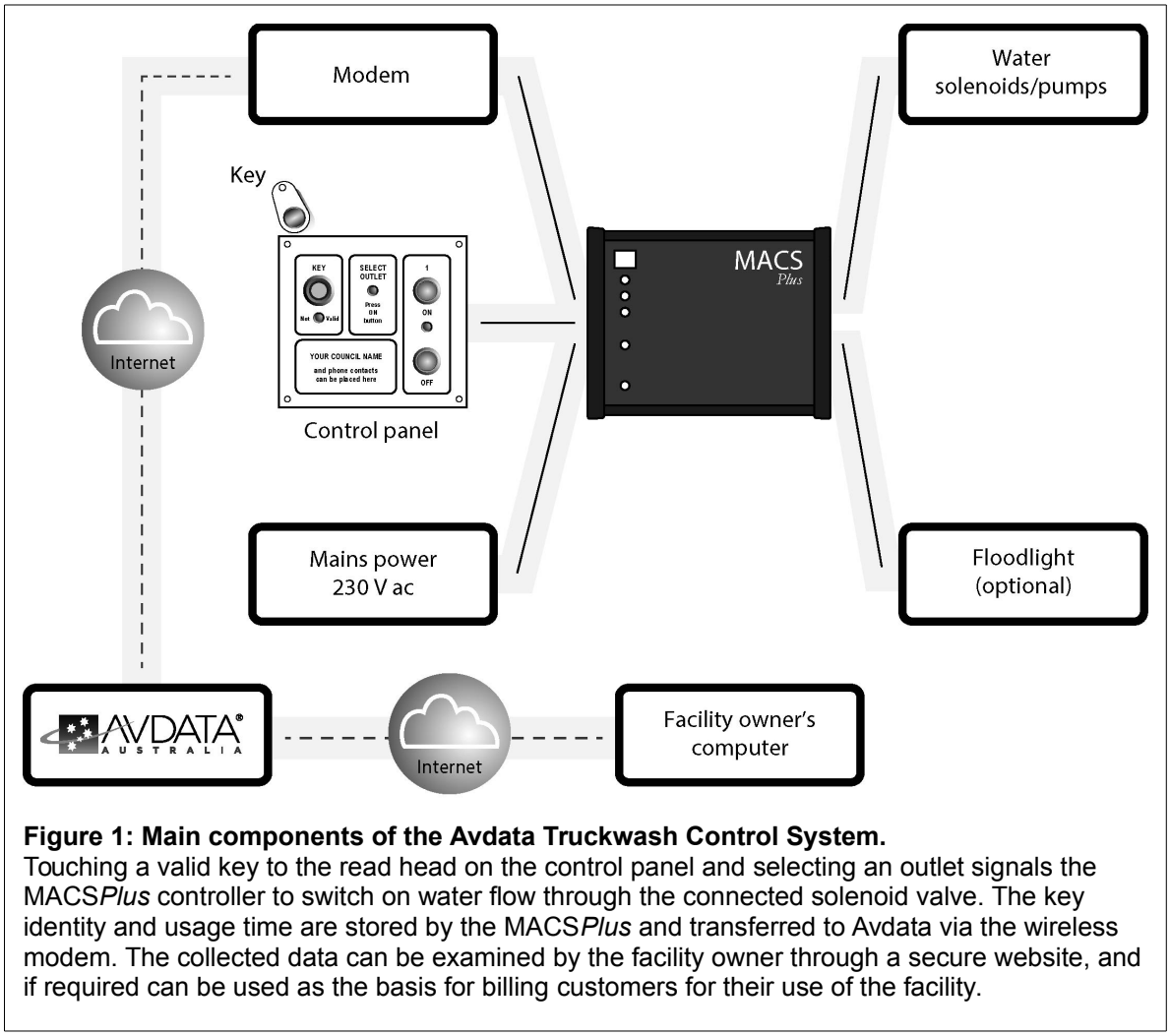


Figure 1: Main components of the Avdata Truckwash Control System.
Touching a valid key to the read head on the control panel and selecting an outlet signals the MACS*Plus* controller to switch on water flow through the connected solenoid valve. The key identity and usage time are stored by the MACS*Plus* and transferred to Avdata via the wireless modem. The collected data can be examined by the facility owner through a secure website, and if required can be used as the basis for billing customers for their use of the facility.

2.1. Avdata Monitoring and Access Control System Plus (MACS*Plus*)

The electronic controller for the system is the Avdata Monitoring and Access Control System Plus (MACS*Plus*). This purpose-built unit is essentially a small computer with a number of inputs and outputs, each of which can be set up to perform a different role as required.

In addition to being the basis of the Avdata Truckwash Control System, MACS and MACS*Plus* controllers are also used across Australia in a variety of other applications. These include Avdata Water Management Systems (in which they enable control of access to facilities such as standpipes and effluent discharge systems) as well as in systems controlling access to doors, gates, winches, sporting field lights and other equipment.

MACS*Plus* controller

Features of the Avdata MACS*Plus* controller include:

- Recognition of iButton® devices as keys to uniquely identify customers.
- Up to four outlet relays, each of which can be connected to a pump, solenoid etc. to control water flow in a truckwash bay.
- An extra relay (e.g. for floodlighting), which can be set to turn on while any outlet is in use and then turn off after a fixed time.
- Plug-in connections for simple installation.
- Supplied with a pre-fabricated, plug-in control panel.
- Operation from regular 230 V AC mains power, or alternative sources such as solar power when required.
- Time-out capacity to turn off the water flow if a user forgets to press the OFF button.
- Storage of a circular time-stamped log of events, which can be analysed for reporting and/or billing purposes.
- Recording of key usage (including attempts to use invalid keys) and outlet operating time and can count meter pulses if a flow meter is connected.
- Capacity to manage large numbers of keys (over 12,000) and events.
- Internal battery for memory backup in case of power interruption.
- Recognition of a range of commands for management of keys, data logging and other functions.
- Automatic connection (via the connected modem) to Avdata's central system to exchange data.
- Capacity to enter commands and extract data via the connected modem.
- Communications error checks.
- Switch-operated override mode.

Access keys

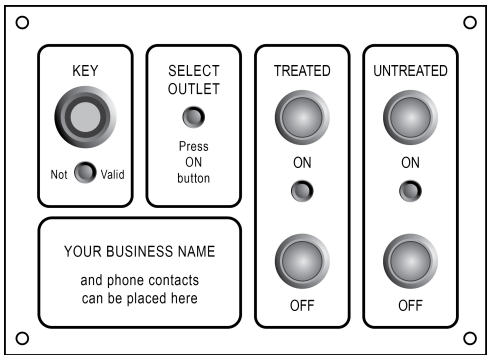
The keys issued to customers and recognised by the controller are iButton® devices, which are about the size of a watch battery.

- Each key stores a unique identification number.
- Keys are simple and rugged, and are not affected by dirt, water, oil or magnetic fields.
- Keys are mounted on metal tags stamped with an easily readable number; an Avdata database keeps track of the tags and serial numbers.

Two types of key are available. National Truckwash System keys simply record truckwash usage associated with the key and can be set up to allow use at all of the facilities in the National Truckwash System or at specified truckwashes only. ‘Prepaid’ keys may be used in the same way as prepaid phone cards, allowing a customer to pay in advance for specified amounts of time at a particular truckwash. See page 14 for further details about key use.

Control panel

Users access the facilities via a control panel. The panel is made from heavy gauge aluminium plate and is engraved to suit the requirements of the application and number of outlets. It can include customised labelling and contact details, and is fitted with:



- A stainless steel contact (the ‘read head’) on which the keys are touched to be read.
- ON and OFF buttons for each outlet that are designed to be resistant to weather and vandalism.
- High intensity LEDs to indicate the result of a key being read and status of outlets; e.g. whether the key can be used at this truckwash facility, which bay (outlet) is in use, and when credit is low for a prepaid key.

Tracking usage

When a user’s key has been recognised as valid by the MACS*Plus* controller and they press the ON button for an outlet, the following takes place:

- A time-stamped entry is stored in the controller’s log to identify the key and the outlet.
- Counting is commenced for the outlet timer.
- The controller keeps track of the remaining allowed usage if the key is a prepaid key; an LED on the control panel will flash when credit is low, and the controller will turn the outlet off if the pre-purchased time limit is reached.
- When the user presses the OFF button (or the controller time-out function turns the outlet off), a time-stamped entry is stored in the log recording the time.

The log data can be extracted from the controller, and analysed to determine which key was used and the times at which the outlet was turned on and off. If customers are to be charged,

then this information provides the basis for calculation of charges that can then be entered into a billing system (see page 15).

Floodlights

Floodlights can also be operated by the same controller that is controlling truckwash operation. The appropriate controller relay contact will be closed (switching the light on) whenever any outlet is operating, and the light remains on for a set period (3 to 5 minutes) after all outlets are turned off. This contact could be used in conjunction with a daylight sensor so that the floodlights would be turned on only at night, saving on power costs.

Use of MACS*Plus* to control other equipment

A MACS or MACS*Plus* controller can also be used to switch on and off other electronically operated equipment such as access gates, doors, winches etc. Use of this additional equipment can then be controlled and recorded using the same (or other) electronic keys as those used to operate your truckwash bay outlets. (Note that these functions would normally require installation of another controller unit(s) in addition to the one used to control operation of the truckwash).

3. Setup and installation considerations

Installation of your Truckwash Control System will require planning of construction, plumbing and wiring and purchase of additional hardware to suit your needs. Avdata can supply general advice, but it is your responsibility to ensure that your system design and installation satisfies all necessary regulations and safety requirements.

3.1. Notes on truckwash design

The design notes provided below should be considered when building or modifying a truckwash. You may also wish to seek input from livestock transporters who will be using the truckwash.

Truck access and bays

- Where possible, truck access should be drive-through. This is particularly important if B-doubles or road trains will use the facility.
- Bays should be large enough to accommodate the whole of the washable body with appropriate overhangs. Routine trailers are likely to require a bay around 18 m long and 5 m wide, plus an allowance for separation and splash protection. The length will need to be supplemented by drainage collection areas, which could add up to 10 m. Additional length will be required for B-doubles or road trains.
- The slope of the bays is critical not only for drainage of the pavement but also for drainage of the trucks. A longitudinal grade of 5% is generally recommended, with a cross fall to suit pavement drainage.
- Experience indicates that the number of bays should be a minimum of one bay for each 25,000 cattle or 250,000 sheep sold per year.

Water supply and outlets

- Water would be drawn from the commercial supply or from a storage or recycling pond. In the latter case consideration must be given to regulatory and health issues.
- Outlet pressure of 500 to 1000 kPa is recommended – a booster pump may be necessary. Outlets should accept 32 mm hose fittings as standard.
- Solenoid control valves and backflow prevention devices (and possibly other equipment such as pressure cutouts etc.) will be required for water flow control – see page 12 for additional notes on these.

Effluent disposal

- Appropriate treatment and/or disposal of effluent will be required. This may be a significant operating cost.

Lighting

- Flood lighting should be provided for night operation. Costs can be minimised by connecting the lights to the same controller used to control access to the facility (see page 8).

3.2. Equipment supplied by Avdata

The MACS*Plus* controller, outlet control panel, modem and access keys are supplied by Avdata. Some details you will need to consider regarding set up and installation of these items are noted below. To order, please contact Avdata.

Avdata supplies...

- Control panel
- MACS*Plus* controller (plugs into 230 V AC mains supply)
- Wireless modem (plugs into 230 V AC mains supply)
- Access keys (to order)

Avdata does not supply...

- Truckwash bay
- Plumbing fixtures and fittings (including manual valve(s), strainer(s), back-flow preventer(s), solenoid valve(s), hose connections)
- Associated electrical components
- 230 V AC power supply
- Cabling and trenching
- Control box or other equipment housing
- Reliable mobile phone coverage at the site (for data transfer via the supplied modem)
- SIM card and Internet data plan
- Other equipment specific to your installation (e.g. pumps, floodlights, daylight sensors etc.)

MACS*Plus* controller and wireless modem

Installation requirements include:

- The controller and connected modem each require a power supply (see page 11).
- The controller and modem should be located inside a suitable housing (not provided by Avdata) located near the water outlet. The housing must be designed to keep the equipment dry – that is, to be not only weather-proof but also to exclude water spray generated during use of the facility. Appropriate locations include a meter box or inside a shed or other building.
- The housing should be secured to prevent unauthorised access (e.g. to prevent vandalism or switching of the unit to override mode).
- The MACS*Plus* controller is supplied in a box designed for wall mounting which is approximately 110 mm high, 150 mm wide and 60 mm deep.
- Sufficient clearance must be allowed around the installed units for connector plugs, power supply connections and appropriate air flow. Provision of extra space may be useful to allow for possible future equipment changes.
- The controller and modem are electronic devices and should be protected against temperature extremes, pests, moisture and dust.
- There must be consistent mobile phone network coverage at the proposed installation site if data transfer via the modem is to be successful. This can be confirmed by looking at the signal strength on a mobile phone that uses your proposed network provider. If you suspect that there may be issues with signal strength then please contact Avdata to discuss options.
- Wireless modems typically use an aerial, which may be mounted discretely overhead or on a building and wired to the modem. A standard aerial is supplied with the modem; if this is insufficient for your circumstances then you will need to source an alternative from another supplier.
- You will need to purchase a mini SIM card with an Internet data plan (see further details on page 13), or arrange for Avdata to supply a SIM card (monthly fee applies).

Outlet control panel

The outlet control panel (illustrated on page 7) is approximately 135 mm high. For a one-outlet controller the panel is approximately 145 mm wide; the panel width increases by 40 mm for each additional outlet, up to a maximum of about 270 mm (for a four-outlet controller). The panel is supplied with a pre-wired cable and plug for connection into a socket on the MACS*Plus* controller. The standard cable is 1.8 m long – this length will be supplied unless Avdata is advised that a longer cable is required (to a maximum of 10 m). The outlet control panel can be engraved with the name of your organisation and contact details.

The control panel would normally be mounted on the surface of a wall or housing box. Sealant must be used to ensure that water cannot reach the components at the rear.

We suggest that signage be posted near the control panel to explain the new access arrangements to your customers.

Power supply considerations

The MACS*Plus* controller and wireless modem are powered from the 230 V AC mains and should be protected from transient spikes, surges, lightning etc. Avdata can supply a surge protector suitable for reducing the risk of equipment damage under normal conditions. If your locality is particularly subject to such problems then you should consult your local electrician about appropriate protection.

The controller and modem are each supplied with a transformer that plugs into a mains power socket. Please ensure that these connections are secure, and that transformers cannot fall out of their power sockets as a result of vibration or accidental contact etc.

Solar power can be used as an alternative to mains power (for example, if your installation is in a remote location). Contact Avdata for further details about this option.

3.3. Equipment not supplied by Avdata

Items and services that are not supplied by Avdata and will need to be sourced locally include: truckwash bay construction and associated drainage and effluent treatment measures, all plumbing fixtures and fittings, associated electrical works (e.g. solenoids and contactors), 230 V AC mains or alternative power supply, cabling, trenching, housing, pumps, floodlights and daylight sensors (if used). SIM card and Internet access can be arranged through Avdata or purchased separately. Notes regarding some of these items are provided below.

Avdata does not endorse or recommend any particular equipment or supplier for these additional items and services. However, we can arrange for you to make contact with other users of our systems if you wish to discuss specific equipment choices with them and/or see an existing system in operation.

Solenoid valves

A solenoid valve allows the flow of water to be turned on and off by the MACS*Plus* controller – when power is supplied to the solenoid the water is on, and when power is removed the water is shut off. The type of solenoid valve that is normally used for irrigation purposes has generally been found to be suitable.

The MACS*Plus* unit is fitted with relays that have switched contacts that open and close, switching the solenoid on and off. Note that the MACS*Plus* relays provide contact closure only – the controlled equipment will require separate connection to a power supply for operation.

> ***Note***
>
> **The MACS*Plus* relay contacts are rated for low voltage applications (2 A at 24 V AC/DC) and must NOT be directly connected to a 230 V AC supply.**
>
> **If equipment with a higher voltage and/or current rating is to be connected to the MACS*Plus* then appropriate external relays or contactors with high voltage/current contacts must be connected so that they are operated by the controller's relays.**

Backflow preventers

A backflow preventer may be required to prevent flow of potentially contaminated water back into the water supply. The type of backflow prevention valve that is normally used for irrigation purposes is generally suitable. It is your responsibility to ensure that your choice of components and installation satisfies any relevant regulations.

SIM card

If mobile phone coverage is available at your site then you can either obtain a SIM card through Avdata (for a monthly fee) or purchase an **Internet-enabled mini SIM card** for the modem.

If you decide to purchase your own SIM card, please make sure that it is 'mini' size and tell your chosen network provider (e.g. Telstra, Optus, Vodafone etc.) that you require:

- an account or plan with a data allowance of at least 1 GB per month (normally sufficient for transfer of MACS*Plus* data); and
- any message bank, diversion or SMS features permanently deactivated (not just turned off).

You will also need to turn off any activation PIN (or “SIM lock”). This can be done by inserting the SIM card into a normal mobile phone and turning off this feature via the appropriate menus.

We recommend that you arrange to send the activated SIM card to Avdata prior to dispatch of your ordered equipment. We can then test communications and send your modem to you with the SIM card already installed.

3.4. Other points to consider

Avdata recommends that you consult your plumber about appropriate measures for avoiding problems related to water hammer.

The MACS*Plus* system will not operate without power. Avdata recommends that a manual override be incorporated into your system design if operation may be required during a power failure.

Compliance with all relevant regulations, including those associated with engineering, plumbing and electrical installations and workplace health and safety issues, is the responsibility of the facility owner.

4. System management

Becoming part of the National Truckwash System means that you don't have to deal with the detail of billing and fee collection associated with use of your facility. Avdata collects and processes the necessary data, maintains a database of keyholders, calculates charges, generates and sends invoices to customers, processes payments and answers queries from transporters.

Avdata's central system manages the MACS*Plus* controller by regular communications (multiple times each day) through the connected wireless modem. During each of these communication sessions, logged data is extracted to guard against data loss, the status of individual keys is updated, limits associated with any prepaid keys are updated, the clock is checked, and communications are rescheduled.

4.1. Operation of Keys

National Truckwash System keys

When your truckwash becomes part of the National Truckwash System, transporters who already hold a National Truckwash System key will be able to access your facility. They will be charged for their use of your truckwash at your specified rate, and the money collected will be forwarded to you in your monthly payment.

You may also wish to have some National Truckwash System keys available for local customers who do not yet have access to the system. You would purchase a specified number of these pre-activated keys from Avdata, provide them to customers (usually by selling them), and use supplied "Sale of key" forms to tell Avdata the name and address of each customer (so that they can be invoiced for their use of truckwashes in the System).

Avdata can remove the access of a particular key at any time if required (e.g. if a key is lost or a customer has failed to pay bills).

'Prepaid' keys

Although they are not often used by National Truckwash System facilities, prepaid keys are also available if required. For example, they may be useful for a low-frequency local customer, or if a particular customer has had a history of problems with bill payment.

The facility owner can order prepaid keys from Avdata, specifying the amount of time and the truckwash at which each key can be used. If appropriate, access can also be limited to a specified outlet (e.g. if different outlets operate at different flow rates). The owner then sells these keys to customers, allowing them to use the truckwash at the associated location until the limit on the key is reached.

A warning light will flash on the control panel to alert the user when credit associated with the key is low.

Customers can 'recharge' their prepaid keys by contacting Avdata and using a credit card.

Some facilities also accept payments directly from customers to 'recharge' their keys. If your facility chooses to do this then your staff will need to accept the payment and then record the transaction through Avdata's online WebView interface.

'Management' keys

One 'management' key will be supplied by Avdata with each MACS*Plus* controller. This key will operate the facility without generating any usage charges. Additional management keys can be purchased from Avdata if required.

4.2. Online access to data using WebView

Facility owners can use Avdata's WebView site to examine customer account and usage details and/or to add credit to prepaid keys. Access over the Internet requires a login identity and password provided by Avdata.

Reports of usage at your truckwash can be viewed and/or downloaded, including:

- Usage at each outlet;
- Usage for each key; and
- Remaining allowed usage times for a prepaid key.

4.3. Avdata Billing Service

Avdata routinely extracts the event log from your MACS*Plus* controller(s) and constructs a history of usage for each key, including which outlet was used, date and time of use, and elapsed time. The entire billing process is then undertaken on your behalf by Avdata: key usage will be matched to individual customers, charges calculated, invoices issued, payments from customers collected and receipted, and overdue accounts followed up. A single monthly report and payment will then be forwarded to you as the facility owner.

5. Getting started

The list below provides some brief prompts that may be helpful in planning your Truckwash Control System installation. Each client's requirements will be unique, and this list is not intended to be comprehensive. You are welcome to contact Avdata at any stage in the planning and installation process to discuss your requirements.

- ❑ Decide how many truckwash bays will be included in your system. Each MACS*Plus* controller (with control panel and modem) can control up to four water outlets in close proximity. When placing your order with Avdata you will need to tell us how many controllers you require and how many outlets will be controlled by each one.
- ❑ Identify who will do the hardware installation, which will require plumbing and electrical expertise. You may want to discuss requirements with them before ordering equipment.
- ❑ Use the information in this guide to consider siting and equipment needs. For example:
    - Is mains power available, or will you need to install a suitable alternative (e.g. solar power)?
    - What additional plumbing and electrical components will be required and where can they be obtained? Examples include valves, backflow preventers, pipes, connections, external relays, surge protectors, cabling etc.
    - What type of housing will be used to protect and secure the MACS*Plus*, and where will the control panel be located?
    - What customised engraving will be required on the control panel?
    - Is there reliable mobile phone coverage at the site? (If not, be sure to consult Avdata about whether the installation is feasible). Which telecommunications provider will provide the mini SIM card and data plan for the modem?
    - What signage will be needed to explain the new access system to your customers?
- ❑ Does your planned installation satisfy all relevant safety and other regulatory requirements?
- ❑ Decide on the rate at which you want customers to be charged for using your truckwash.
- ❑ Decide whether you will need to purchase additional keys. If so, how many do you need and of what kind (National Truckwash System keys, management keys, prepaid keys, or a combination).
- ❑ Contact Avdata to obtain current pricing details and order forms.

    Tel: (02) 6262 8111
    Email: mail@avdata.com.au

6. Glossary

National Truckwash System key	A *key* that allows a transporter to use facilities that are part of the National Truckwash System and subsequently be billed for that use.
Avdata P/L	Company which manufactures and sells the *Monitoring and Access Control System Plus* (MACS*Plus*) and manages the National Truckwash System on behalf of the *facility owners*.
Control panel	Panel with which the truckwash *user* interacts. Each panel contains a *read head* for access *keys*, status LEDs, and one or more push buttons (if required).
Customer	The entity that has financial responsibility for use of a *key.* In many cases this will be the *user.*
Facility owner	The owner of the *truckwash* at which the MACS*Plus* is installed. Note that a facility owner may operate several *truckwashes*.
Key	An electronic button attached to a labelled *key tag*, which is identified by the *read head* on the *control panel* and (if found to be valid) allows water to be delivered at the truckwash bay.
Key tag	Metal tag attached to a *key*. The term is sometimes also used to refer to the number engraved on the tag which uniquely identifies the *key* in the Avdata database.
MACS*Plus*	Electronic controller supplied by Avdata (the Avdata Monitoring and Access Control System Plus) to control and record events at a *truckwash*. These units are also used in other applications (e.g. in Avdata Water Management Systems and to control access to electrically operated equipment such as gates, lights, winches etc.).
Outlet	An access point through which water is delivered to a *truckwash bay*. Outlets are usually numbered on the *control panel* from 1 to 4. Note that use of a *key* may be restricted to certain outlets. Also usage from different outlets can be charged at different rates.
Prepaid key	A *key* that allows use of a specified *truckwash* up to a defined time limit. Note that a prepaid key credit is assigned to one particular *truckwash*. Usage associated with a prepaid key is normally paid for in advance.
Read head	The contact point on the *control panel* that reads the identity of a *key* that is touched against it.
Solenoid valve	An electronically controlled valve. When power is supplied to the solenoid water is allowed to flow through it, and when power is removed the water flow is shut off.
Truckwash	A facility at which water is supplied for purposes of cleaning large vehicles. A truckwash may have more than one *truckwash bay*.
Truckwash bay	An area with design features (size, surface, drainage, effluent control etc.) such that it is appropriate for washing down large vehicles. A truckwash bay can have more than one water *outlet* (e.g. *outlets* with recycled or non-recycled water, or with water supply at different pressures).
User	The person who holds a *key* and uses it to access a *water point*. In many cases this person will also be the *customer*.

7. MACS Specification

Designed and made in Australia

Processor	24 MHz CPU, 4K RAM, 1 to 4 Mbytes Flash data memory (build option).
Power Supply	• Auto-sensing AC or DC input. 10 to 22 V AC (RMS) or 10 to 31 V DC. Reverse polarity protected. Onboard self-resetting fuse. • Rectified power output. Onboard self-resetting fuse.
Real-time clock	Battery backed temperature compensated clock.
Serial Interfaces	Two independent. Both either 5-wire RS232 or 2-wire RS-485.
External Interfaces	• Two sets, each consisting of: 2 LEDs, switch, switched power, iButton® ReadHead. • One set consisting of: 6 LEDs, 8 switches, switched power, iButton® ReadHead.
Relays	5 total, 4 SPST Normally open, 1 SPDT, 24 V AC/DC 2 A.
Digital Inputs	5 digital inputs, 4 of which can also be used as pulse counter inputs.
Temperature Sensor	Internal, range exceeds –15º to +85ºC.
Interface Protection	• All interface signals protected by 600 W bi-directional protection diodes. • Relays fitted with 100 V bi-directional protection diodes. • RS232 and RS485 designed for +/-15 kV Human Body Model. • Power input and outputs protected with 1.5 A self-resetting fuses on power inputs and outputs.
In-circuit programming	Programmed through onboard J-Tag header or remotely over network.
Identification Number	Unique 64-bit identification number.
Case	• Screen-printed aluminium. • 106 x 144 x 63 mm maximum overall dimension excluding mounting bracket and cables.
Standard Operating Modes	One or more of each of the following modes can be operated simultaneously and independently.

- Water management role (1 to 4 outlets).
- Truckwash control (1 to 4 bays).
- 1-way Gate/Door (uses 1 control panel for 1-way access through a controlled gate).
- 2-way Gate/Door (uses two control panels for entry and exit through a controlled gate).
- Additional modes on request.
- All modes can use time-based schedules, database authentication and event logging as required.

Avdata Truckwash Control System

Instructions for installation and use

Avdata Pty Ltd trading as Avdata Australia
ABN: 25 008 556 723
Mail: PO Box 117 Dickson ACT 2602
Tel: (02) 6262 8111
Fax: (02) 6262 8119
Email: mail@avdata.com.au
Web: www.avdata.com.au

CONTENTS

LIST OF FIGURES

1. Introduction

1.1. About this guide

Your Truckwash Control System requires installation of specialist equipment supplied by Avdata together with other hardware. This guide provides particular information about installing and connecting the equipment manufactured by Avdata. For requirements regarding additional equipment, please consult the documentation provided by the manufacturers of that equipment.

Important safety note

Incorrect installation of electrical and/or plumbing equipment can result in significant risks of injury or damage, including the possibility of death, electric shock, fire or other adverse events. The information provided in this guide is general in nature and cannot address all aspects of your customised installation.

Planning and installation of your truckwash control system must be undertaken by appropriately qualified personnel, with due regard to all relevant regulations and safety considerations.

1.2. Other useful information

We recommend that you also consult the following Avdata publications. Existing Avdata clients can access these by logging in to WebView (http://members.avdata.com.au) and choosing 'Information Sheets' under the 'Miscellaneous' menu. Alternatively, contact Avdata to request a copy.

Avdata Truckwash Control System – Overview and installation planning	• General guidance in the planning of your system. • Lists of the equipment supplied (and not supplied) by Avdata. • Consideration of requirements regarding the controlled equipment (e.g. water outlet solenoids, pumps, floodlights etc.) and associated housing etc. • Discussion of management options. • Glossary of terms. • Technical specifications for MACS controllers.
Maintenance and Troubleshooting for MACS-based Systems	• Information to help you with looking after your system and with working out what action to take if problems occur.
Avdata Control Systems – Guide for Administrators	• Information about administration of access keys. • Guide to using Avdata's online WebView interface.

2. Equipment installation

2.1. Important points to remember

- The following will be required and are not supplied by Avdata:
    - 230 V AC mains (or appropriate alternative) power supply with surge protection.
    - Reliable mobile phone coverage at the site (if this is not available, be sure to talk to Avdata about whether the planned system is feasible *before* beginning the installation).
    - Data-enabled mini SIM card (this may have been installed in the modem prior to delivery - refer to section *2.5: Installing the modem).*
    - Plumbing fixtures and fittings, solenoid valve(s) and associated electrical components, cabling and trenching, and pump(s), flow meter(s), floodlight(s) and daylight sensor(s) (if used).
    - Appropriate weather-proof equipment housing.
- Note that the MACS*Plus* relays switch on the controlled equipment (e.g. solenoid valves, pumps, lights etc.) – they do not supply power to operate that equipment.
- Arrangements should be made for emergency bypass of the MACS*Plus* system if access to water may be needed during a power failure or failure of the MACS*Plus* system. For example, a manually operated (and physically secured) tap might be required on the water source side of the electrically controlled valve.

MACS*Plus* controllers can be used for a variety of purposes in different situations. Your installation will have been designed to suit your local environment, equipment and purpose – for guidance, please refer to the related publication *Avdata Truckwash Control System – Overview and installation planning* (available from Avdata).

The descriptions provided below refer to a typical truckwash control system installation. Please contact Avdata if you require additional information or have any questions regarding the specific circumstances of your system.

2.2. Overview of the MACS*Plus* controller

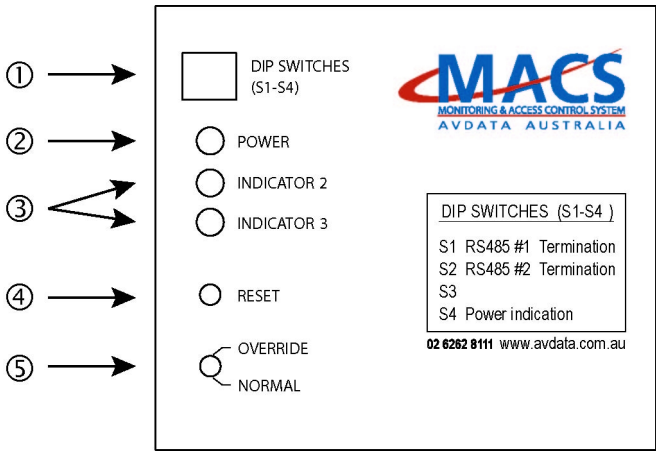
Technical specifications

A detailed technical specification listing is provided in the related publication *Avdata Truckwash Control System – Overview and installation planning.* Please contact Avdata if you require a copy.

Connections and features

Diagrams on following pages illustrate the connections and features on the top panel and end plates of the MACS*Plus* controller.

Figure 1: Top panel of MACS*Plus*



① DIP switches (S1-S4)

Functions as listed on the label on the right-hand side of the panel. These switches are preset and should not need to be altered.

② 'POWER' indicator (LED)

Should be lit when the controller is connected to a mains power outlet that is switched on.

③ INDICATOR 2 (LED)

Should flash during startup of the unit. On models running updated software, this LED will flash during operation each time a pulse input is received.

INDICATOR 3 (LED)

Should flash during startup of the unit.

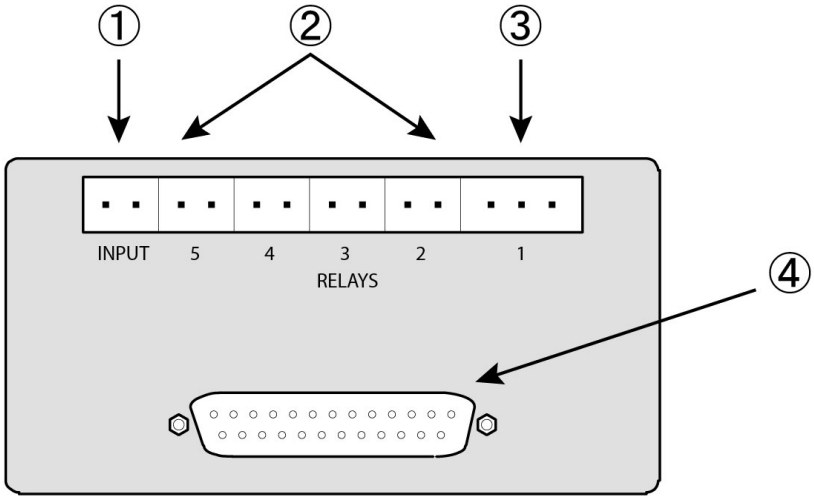
④ Reset button

Pressing the reset button will restart the controller. If any outlet(s) is in use at the time of the reset then the user(s) will need to touch their key(s) to the control panel again before usage can be continued.

⑤ Override/normal switch

Should be set to NORMAL for ordinary use; see page 15 for additional information about OVERRIDE mode.

Figure 2: Relay end plate of MACS*Plus*



① **Digital input**

Not generally used in truckwash control system applications.

② **RELAYS 2-5 (single throw – normally open)**

Used for connecting to the equipment for which access will be controlled and monitored (e.g. solenoid valves). Rated for 2 A at 24 V AC/DC.

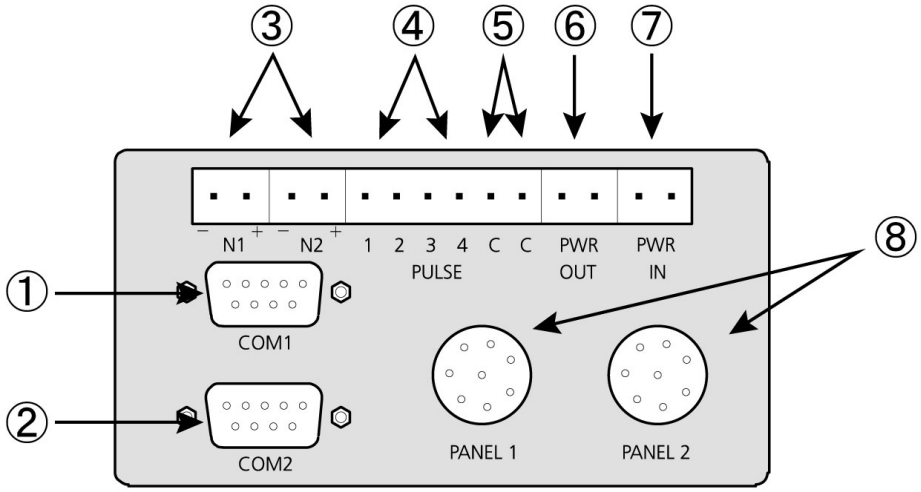
③ **RELAY 1 (double throw – can be wired as normally open or closed)**

Reserved for control of a floodlight or similar equipment that is to operate while the control panel is in use. Rated for 2 A at 24 V AC/DC.

④ **DB25 connector**

Used for connection to control panel.

Figure 3: Communications end plate of MACS*Plus*



① **COM1 (RS232 interface)**

Used for connecting MACS*Plus* to modem. Note that the supplied cable must be connected according to the attached labels – it will not work if installed the wrong way around.

② **COM2 (RS232 interface)**

Not generally used in truckwash control system applications.

③ **N1 and N2 (RS485 interfaces)**

Not generally used in truckwash control system applications.

④ **Pulse inputs 1-4**

Can be wired to collect electrical pulses from up to four flow meters installed in the plumbing lines. Not generally used in truckwash control system applications.

⑤ **Ground for pulse inputs**

⑥ **Power out (12 V DC)**

Not generally used in truckwash control system applications.

⑦ **Power in (12 V AC/DC)**

Use plug pack supplied.

⑧ **Panel 1 and Panel 2 connectors**

Buccaneer connectors. Not generally used in truckwash control system applications.

2.3. Installing the MACSPlus controller

The MACS*Plus* is the 'brains' of the Truckwash Control System:

- It collects information from the control panel (to identify the facility user and which equipment they want to use).
- It sends signals to switch the controlled equipment on and off (through the RELAY connections).
- It stores information about which key-holders are allowed to use the facility and what usages have occurred.
- It communicates with Avdata's central system (via the attached modem).
- It does not supply power to operate the controlled equipment.

Installation steps:

1. Secure the controller in the weather-proof housing.
    - The housing must provide appropriate protection against temperature extremes, moisture, dust, pest infestation, unauthorised access etc.
2. Connect the MACS*Plus* controller to the 230 V AC supply via a surge protector.
    - Use the supplied plug pack and connect to the PWR IN connection on the communications end plate of the controller.
3. Ensure that the plug is secured in the power socket.
    - Take appropriate action to prevent unintended disconnection (as a result of vibration, accidental contact etc.).

2.4. Installing the control panel

The control panel allows the customer to present an authorised electronic 'key' and then switch the required equipment on and off.

Installation steps:

1. Mount the control panel in an appropriate location.
    - Users must be able to access the front of the panel.
    - Rear of the panel must be accessible for connection to the MACS*Plus* controller.
    - This usually requires a suitably sized hole to be cut into a wall or housing box.
    - Apply weather-proof sealant to the back of the panel (around the outside edges). It is important to ensure that moisture cannot reach the components at the rear.
2. Connect the control panel to the MACS*Plus*.
    - Use the 25-pin connection and the cable supplied with the panel.
    - Note that the pre-wired cable will be 1.8 m long, unless a different length has been specified when ordering from Avdata.

2.5. Installing the modem

Advice about SIM card requirements is provided in *Avdata Truckwash Control System – Overview and installation planning*. We recommend that the activated SIM card be sent to Avdata prior to dispatch of your ordered equipment – if this has been done, then the modem will be delivered with the SIM card already installed and tested.

Installation steps:

1. Check whether there is an Internet-enabled mini SIM card installed in the modem. If not, obtain and install one.
    - The associated data plan should allow at least 1 GB per month data transfer.
    - Any message bank, SMS or diversion features should be permanently deactivated. Contact your service provider to check.
    - Any activation PIN (or “SIM lock”) must be turned off. This can be done by inserting the SIM card into a normal mobile phone and turning off this feature via the appropriate menus.
2. Secure the modem in the weather-proof housing, with appropriate protection against temperature extremes, moisture, dust, pest infestation, unauthorised access etc.
3. Connect the power cable supplied with the modem to a 230 V AC supply via a surge protector.
4. Connect the modem to the MACS*Plus* unit by plugging the supplied cable into COM1 on the controller and into the serial port on the modem.
    - Note that the connectors **must** be installed according to the attached labels (both ends of the cable have the same connector type, but the connection will not work if the cable is installed the wrong way around).
5. Ensure that all connections are made securely, and take any necessary action to prevent unintended disconnection (as a result of vibration, accidental contact etc.).
6. When the modem (with installed SIM card) is connected to the MACS*Plus,* and the modem and MACS*Plus* are both connected to the power supply, please contact Avdata to confirm that communication from your site to Avdata has been successfully established (see section 2.7: *Post-installation checks)*.

2.6. Connecting controlled equipment to MACS*Plus*

> ***Note***
>
> **The MACS*Plus* relay contacts are rated for low voltage applications (2 A at 24 V AC/DC) and must NOT be directly connected to a 230 V AC supply.**
>
> **If equipment with higher voltage and/or current rating is to be connected to the MACS*Plus* then you will need to connect appropriate external relays or contactors with high voltage/current contacts so that they are operated by the controller's relays.**

Solenoids

Up to four RELAY connections are available on the MACS*Plus* for connection of solenoid valves (each valve controlling one water outlet).

Installation:

For a typical **one bay** installation, use the wiring diagram in Figure 4 (page 12).

- The solenoid controlling operation of the water flow is connected to RELAY 2. RELAY 2 is normally open; the relay closes when the control panel ON button is pressed.
- If controlled equipment (solenoid valve, pump etc.) is rated at more than 24 V or 2 A, then the connection must be made via an appropriate external relay or contactor.

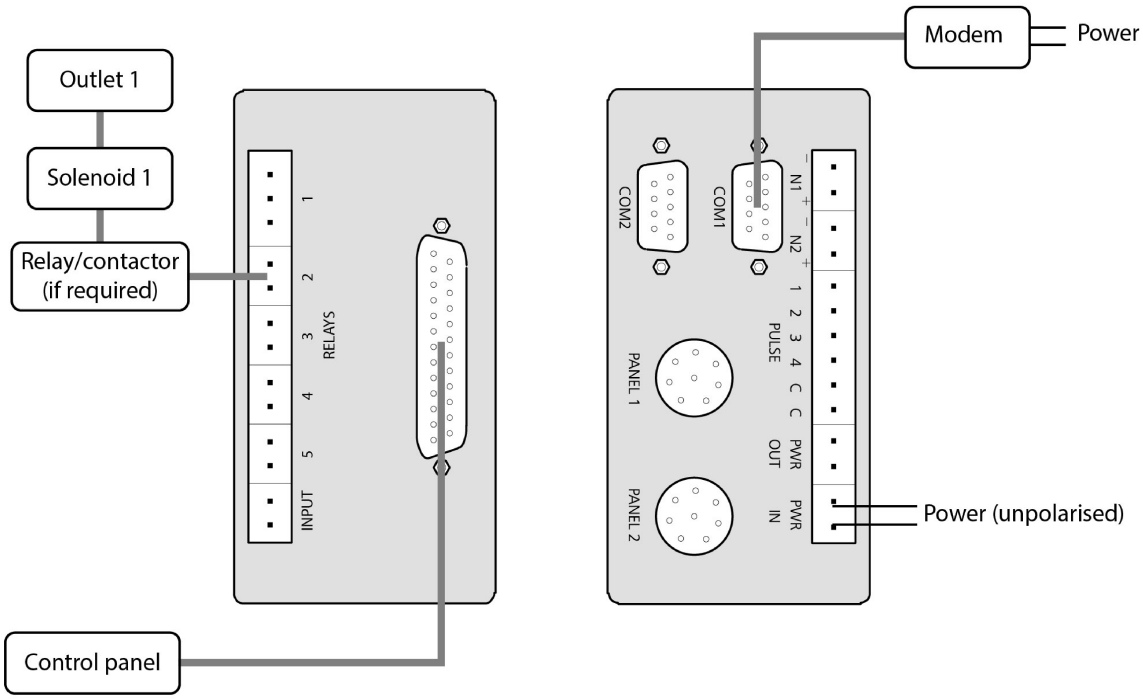
For a typical **two bay** installation, use the wiring diagram in Figure 5 (page 13).

- The solenoid controlling operation of the first outlet is connected to RELAY 2 and that controlling the second outlet to RELAY 3. These relays are normally open; the relay closes when the associated control panel ON button is pressed.
- If controlled equipment (solenoid valve, pump etc.) is rated at more than 24 V or 2 A, then connections must be made via appropriate external relays or contactors.

A typical installation for **three or four bays** would be as described for two bays above, with additional connection of the equipment controlling the third bay to RELAY 4 (and the fourth bay to RELAY 5 if required).

Note that if your truckwash has more than four water outlets then a second MACS*Plus* unit will be required.

Figure 4: Connections for MACS*Plus* truckwash installation with a single bay.



RELAY 1 is reserved for control of a floodlight (or possibly other equipment).

RELAY 2 is used to control water flow to the truckwash bay via an electronically operated valve or pump.

If you are connecting equipment rated at more than 2 A and/or 24 V

MACS*Plus* components are rated for low voltage applications (2 A at 24 V AC/DC) and must NOT be directly connected to a 230 V AC supply.

If equipment with higher voltage or current rating is to be connected to the MACS*Plus* then you will need to connect an appropriate external relay with high voltage/current contacts so that it is operated by the controller's relay.

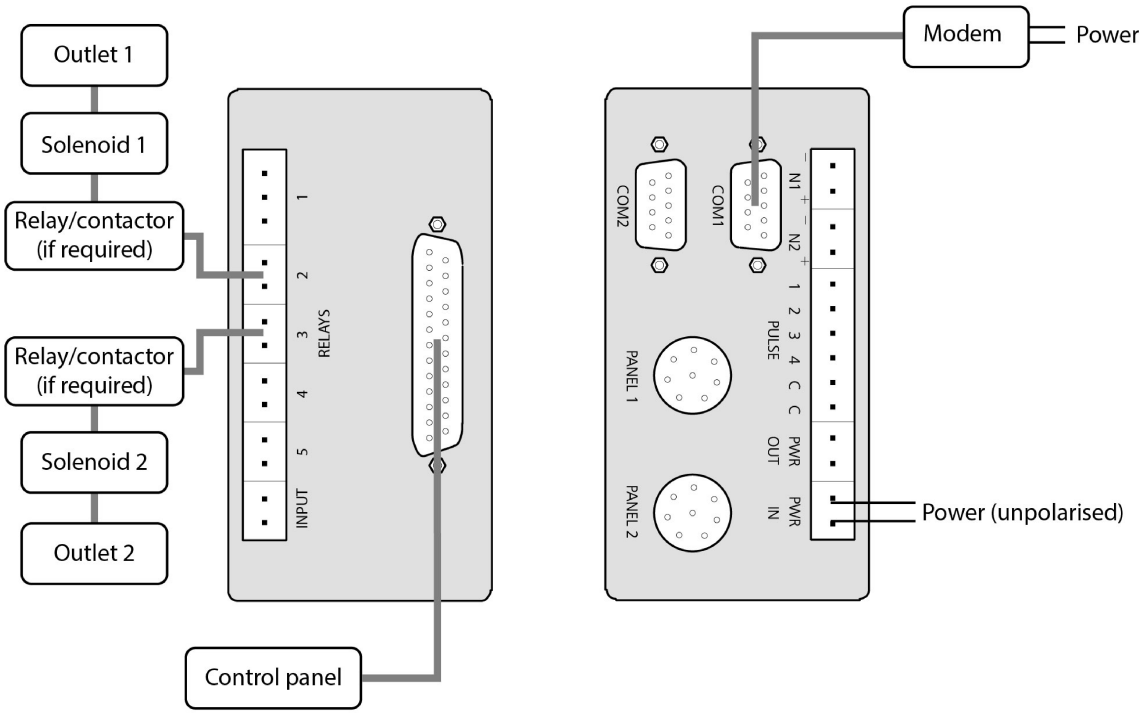
Floodlight (OPTIONAL)

The MACS*Plus* unit can also be used to control a nearby floodlight. If this is done, any activity on the control panel will turn the floodlight on and it will remain on for a short period after the water outlet has been turned off.

Installation steps:

1. Note that the light requires a separate power source – power to run the light cannot be provided through the MACS*Plus* unit.
2. Connect RELAY 1 on the MACS*Plus* to the switch operating the floodlight (via an external relay or contactor if required – see safety note on page 11). RELAY 1 can be wired as either normally open or normally closed.
3. (Optional) Install a daylight sensor to prevent the floodlight from switching on during daylight hours.

Figure 5: Connections for MACS*Plus* truckwash installation with two bays



RELAY 1 is reserved for control of a floodlight (or possibly other equipment). See additional notes on page 12.

RELAY 2 is used to activate Solenoid 1 and/or Pump 1 (which controls water flow for Bay 1).

RELAY 3 is used to activate Solenoid 2 and/or Pump 2 (which controls water flow for Bay 2).

If you are connecting equipment rated at more than 2 A and/or 24 V

MACS*Plus* components are rated for low voltage applications (2 A at 24 V AC/DC) and must NOT be directly connected to a 230 V AC supply.

If equipment with higher voltage or current rating is to be connected to the MACS*Plus* then you will need to connect appropriate external relays with high voltage/current contacts so that they are operated by the controller's relays.

2.7. Post-installation checks

Technical

- ❑ Confirm that the MACS*Plus* device is receiving power (green LED on top panel is lit).
- ❑ Ensure that the switch located on the top panel of the MACS*Plus* is at NORMAL (not OVERRIDE).
- ❑ Confirm that the SELECT OUTLET LED lights up when a valid key is touched against the read head on the control panel.
- ❑ After a valid key is touched, test whether each outlet can be switched on and off using the buttons on the control panel and check that water is delivered as expected.
- ❑ Check that the modem is connected and powered on.
- ❑ Phone Avdata to confirm that communications have been established between your MACS*Plus* and Avdata's system
- ❑ (If required) Check that the emergency bypass system works.

If you encounter problems with your installation then it may be useful to consult the troubleshooting guide in the document *Maintenance and Troubleshooting for MACS-based Systems* (available from Avdata).

Administrative

- ❑ Contact Avdata to check what other actions are necessary to set up your ongoing service. You will need to do some or all of the following before the service can commence:
  - ❑ Complete an Authorisation Form to request billing services from Avdata.
  - ❑ Advise Avdata of applicable charge rates for customers.
  - ❑ Purchase necessary keys from Avdata, and obtain a book of 'Sale of Key' forms and copies of the Terms and Conditions of Use to be provided to key-holders.
  - ❑ Provide any other special instructions (such as particular keys or customers which should be exempt from charges).
  - ❑ Request password-protected access to WebView (must be arranged over the phone).

3. Equipment use

3.1. Use of keys and control panel

1. Touch access key against read head on the top left corner of the control panel.
2. If the key is valid for use at this controller (and, in the case of a prepay key, has sufficient credit) then the SELECT OUTLET indicator will be lit.
3. Press the ON button for the desired truckwash bay.
4. Press the OFF button when finished (or others may access the truckwash at the expense of this user).
5. The maximum single usage is set at 60 minutes, and the water flow will be automatically shut off after this length of time. If more water is required, begin again at Step 1.

For prepay keys only:

- SELECT OUTLET indicator will flash when remaining prepaid credit is 16 minutes or less.
- If prepaid credit limit is reached then water flow will be switched off and the NOT VALID indicator will be lit. No further access will be allowed until the key is recharged.

A summary of control panel LED outputs is provided below. For additional information regarding types of keys, procedures for obtaining and issuing keys, recharge of prepay keys and monitoring of key use, please see the document *Avdata Control Systems – Guide for Administrators* (available from Avdata).

Action	LED output	Meaning
Touch key to read head	"SELECT OUTLET" lit	The key is valid for use at this controller and an outlet can be selected
	"Not Valid" lit	The system does not permit this key to be accepted by this controller
Press "ON" button for selected outlet	"ON" lit	Outlet is on
	"Not Valid" lit	The key is not valid for this outlet; the key should be touched on the read head again and a different outlet selected
During use	"SELECT OUTLET" flashing	The prepay key that is currently in use is low in credit (16 minutes or less remaining)

3.2. Override mode

During normal use, the switch on the top panel of the MACS*Plus* unit should be set to NORMAL (see Figure 1 on page 5).

This switch is useful for troubleshooting: when the switch is set to OVERRIDE then any access key will be treated as valid by the controller. However, if the unit is left in OVERRIDE mode then any user with an iButton® (regardless of whether it has been issued by your facility) will be able to access the connected outlets.

3.3. Ongoing responsibilities of the equipment owner

Avdata is committed to supporting our clients in their use of equipment purchased from us. We will provide over-the-phone technical support as reasonably required during the installation process. For ongoing clients of our Data Collection and Billing Services, we will also provide follow-up support (if necessary) to help you to keep your system in working order.

Please **contact us as soon as possible** if you become aware of a problem – a delay in informing us of a problem, or failure to respond to our advice in a timely fashion, could result in significant losses to you (e.g. if your facility is not able to be used by your customers or if usage data is lost or is not collected by your equipment).

Note that equipment supplied by Avdata is NOT designed to withstand damage due to improper installation, non-authorised electrical connections, incorrect voltage, exposure to excessive heat or cold, exposure to abnormally corrosive conditions, repair or modification carried out by non-Avdata personnel, or use of non-authorised, non-standard, defective or incompatible parts.

It is the responsibility of the purchaser to ensure that hazard to personnel and risk of damage to equipment are minimised by:

- protection of equipment from moisture;
- protection from electrical spikes, thunderstorm activity, power surges and dips;
- protection from exposure to extremes of temperature and other adverse environmental conditions;
- protection from damage by pests or physical force;
- physical security against interference by any unauthorised person;
- other reasonable precautions for installation and use of electrical and associated equipment.

The Avdata MACS*Plus* has no user-serviceable parts. In particular, opening the external casing of the unit could result in the loss of all stored data and associated revenue.

4. Quick start guide

Important safety note

Incorrect installation of electrical and/or plumbing equipment can result in significant risks of injury or damage, including the possibility of death, electric shock, fire or other adverse events. The information provided in this guide is general in nature and cannot address all aspects of your customised installation.

Planning and installation of your truckwash control system must be undertaken by appropriately qualified personnel, with due regard to all relevant regulations and safety considerations.

Note

The MACS*Plus* relay contacts are rated for low voltage applications (2 A at 24 V AC/DC) and must NOT be directly connected to a 230 V AC supply.

If equipment with higher voltage and/or current rating is to be connected to the MACS*Plus* then you will need to connect appropriate external relays or contactors with high voltage/current contacts so that they are operated by the controller's relays.

- ❑ Install modem and MACS*Plus* controller in secure weather-proof housing (pages 8-10).
- ❑ Install control panel, using weather-proof sealant (page 9).
- ❑ Connect control panel and modem to MACS*Plus* (page 9-10).
- ❑ Connect controlled equipment (e.g. water outlet solenoids and/or pumps) to RELAYS 2-5 on MACS*Plus* (page 11) - see Note above if equipment is rated at more than 24 V or 2 A.
- ❑ Connect floodlight (if using) to RELAY 1 (page 12).
- ❑ Connect modem and controller to 230 V AC supply via surge protector(s) (pages 8-10) and switch on power.
- ❑ Conduct post-installation checks, including phoning Avdata (page 14).

Purchase order number:

Truckwash Control System – Order form

Use this form to order components described in *Avdata Truckwash Control System – Overview and installation planning* and *Avdata Truckwash Control System – Pricing guide*.

Name of person completing this form[1]:

Phone: Mobile:

Email:

SECTION 1 – Council/Company contact details

Council/Company name:

Trading name (if applicable):

Name of main contact regarding this order:

Position of main contact:

Phone: Mobile: Fax:

Email:

Postal address for accounts and general correspondence

PO Box or No./Street:

Town: State: Postcode:

Delivery address for equipment[2]

Addressee:

For attention of: Contact phone:

No./Street (NOT PO Box):

Town: State: Postcode:

SECTION 2 – Location details

Name of Council/Company which owns the facility at which this equipment will be installed:

Location name	Street Address and GPS coordinates (if known)	Number of Bays	Code (Avdata use)
		☐ 1 ☐ 2 ☐ 3 ☐ 4	

Lat: Long:

Please specify equipment details on page 2...

Avdata Pty Ltd ABN: 25 008 556 723 **Mail:** PO Box 877 Mitchell ACT 2911 Australia
Tel: (02) 6262 8111 **Email:** mail@avdata.com.au **Web:** www.avdata.com.au

SECTION 3 – Equipment required [2,3]

Item	Price (ex-GST) [4]	Order qty	Amount
CONTROLLER			
MACS*Plus* Controller *[TW-MACS-Plus]*	$2,250.00		
CONTROL PANEL			
Control panel DB25 – 1 outlet [5] *[TW-Panel-DB-1]*	$550.00		
Control panel DB25 – 1 outlet & 10-digit keypad [5] *[TW-Panel-KP-DB-1]*	$1,200.00		
Control panel DB25 – 2 outlet [5] *[TW-Panel-DB-2]*	$700.00		
Control panel DB25 – 2 outlet & 10-digit keypad [5] *[TW-Panel-KP-DB-2]*	$1,350.00		
Control panel DB25 – 3 outlet [5] *[TW-Panel-DB-3]*	$850.00		
Control panel DB25 – 4 outlet [5] *[TW-Panel-DB-4]*	$1,000.00		
MODEM [6]			
Wireless Modem *[TW-Modem-04]*	$550.00		
SIM card supplied by Avdata (optional)[7]	$0.00		No upfront cost; monthly fee as per applicable fee schedule
ACCESS KEYS [8]			
National Truckwash System account key – Wholesale *[TW-Key-Wsale]*	$22.00		
Prepaid key (for use at this truckwash only) – Wholesale *[TW-Key-Ppd]*	$27.00		
Management key (1 complimentary key per controller) [9] *[TW-Key-Mgt]*	$0.00		
Extra management key [9] *[TW-Key-Mgt]*	$22.00		
ADDITIONAL SUPPORT [10]			
Technical support/Special programming *[TW-Support]*	Hourly rate		
ADDITIONAL PARTS – NOT REQUIRED FOR NEW INSTALLATIONS			
Replacement Touch Memory Read head for control panel *[TMRH-(1+)]*	POA		
Replacement vandal-resistant control panel switch *[MACS-Panel-Switch]*	POA		
	Discount Code *[TW-Discount]*		
		SUBTOTAL	
		Add 10% GST	
		TOTAL COST (EXCLUDING FREIGHT)[11]	

Additional details or comments:

Notes

[1] **Privacy** – Details collected on this form will be stored and used in accordance with Avdata's *Privacy Policy.*
[2] **Delivery** – Please allow 3 to 4 weeks from placement of order.
[3] **Not included** – Items and services that are not supplied by Avdata and will need to be sourced locally include: all plumbing fixtures and fittings (eg pumps), associated electrical works (eg solenoids and contactors), 230 V AC mains or alternative power supply, cabling, trenching and equipment housing. Refer to *Avdata Truckwash Control System – Overview and installation planning* for additional details.
[4] **Prices** effective 1 April 2018 and current at date of printing (12 April 2018). Prices specifically quoted are valid for 30 days from date of quote and are quoted exclusive of GST.
[5] **Standard cable** is 2 m in length. Contact Avdata if a longer cable is required.
[6] **Wireless coverage** – If you don't have 3G coverage at your facility please talk to us about options.
[7] **SIM card and internet costs** – If SIM card is supplied by Avdata then ongoing monthly fee will apply. Refer to applicable Avdata *Fee Schedule* for details. If SIM card is not supplied by Avdata then internet connection and ongoing related costs are the responsibility of the facility owner.
[8] **Access keys** can be onsold to your local facility users if appropriate. Recommended resale price for National Truckwash System key is $35.00 plus GST. Prepaid keys are not often required by truckwash facilities, but may be useful in some circumstances.
[9] **Management keys** – One management key is provided at no cost with each controller. Additional Management key(s) can be purchased if required.
[10] **Technical support** – Avdata provides pre-installation and post-installation support by phone, as well as documentation for use by your local qualified electrician, at no additional cost. Any extra support, including specialised programming requirements (if any), will be charged at an hourly rate.
[11] **Freight expenses** – Please note that freight charges will be passed on at cost and will be added to your invoice after your goods are dispatched.

Avdata Pty Ltd **ABN:** 25 008 556 723 **Mail:** PO Box 877 Mitchell ACT 2911 Australia
Tel: (02) 6262 8111 **Email:** mail@avdata.com.au **Web:** www.avdata.com.au

National Truckwash System

Specifications for text on new control panel

Use this form to specify the customised engraving on your new control panel.

Section 1 – Owner and location details

Truckwash owner/Council name:

Name of Truckwash location and address:

Avdata Location Code (if known):

Contact name for this order:

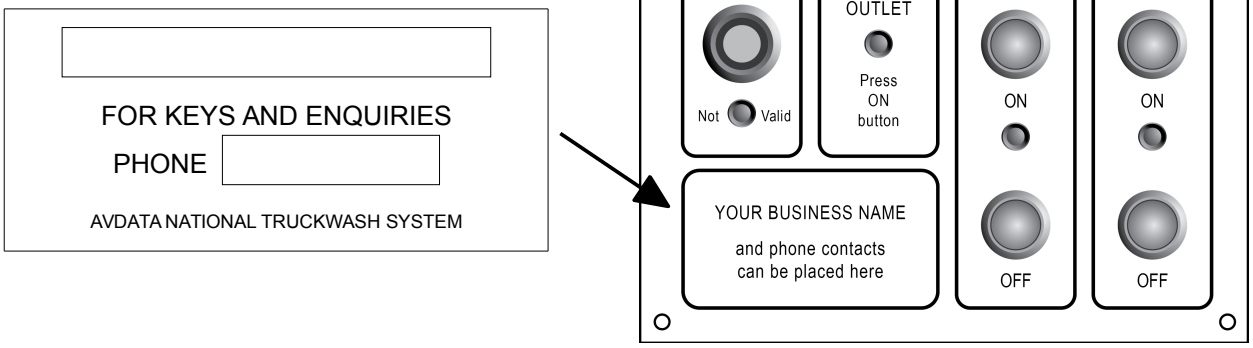
Phone: Email:

Section 2 – Plate details

Use boxes and checkboxes below to specify details for engraving on your control panel.
These would normally include the name of the Council or business which owns the truckwash, a contact phone number, and a label for each outlet control[1].

☐ Use outlet numbers

☐ Use other labels:
(max 9 characters for each)



Section 3 – Authorisation for engraving

Avdata is hereby authorised to supply a control panel engraved as specified in Section 2.

Please quote Purchase Order #

Signature: Date:

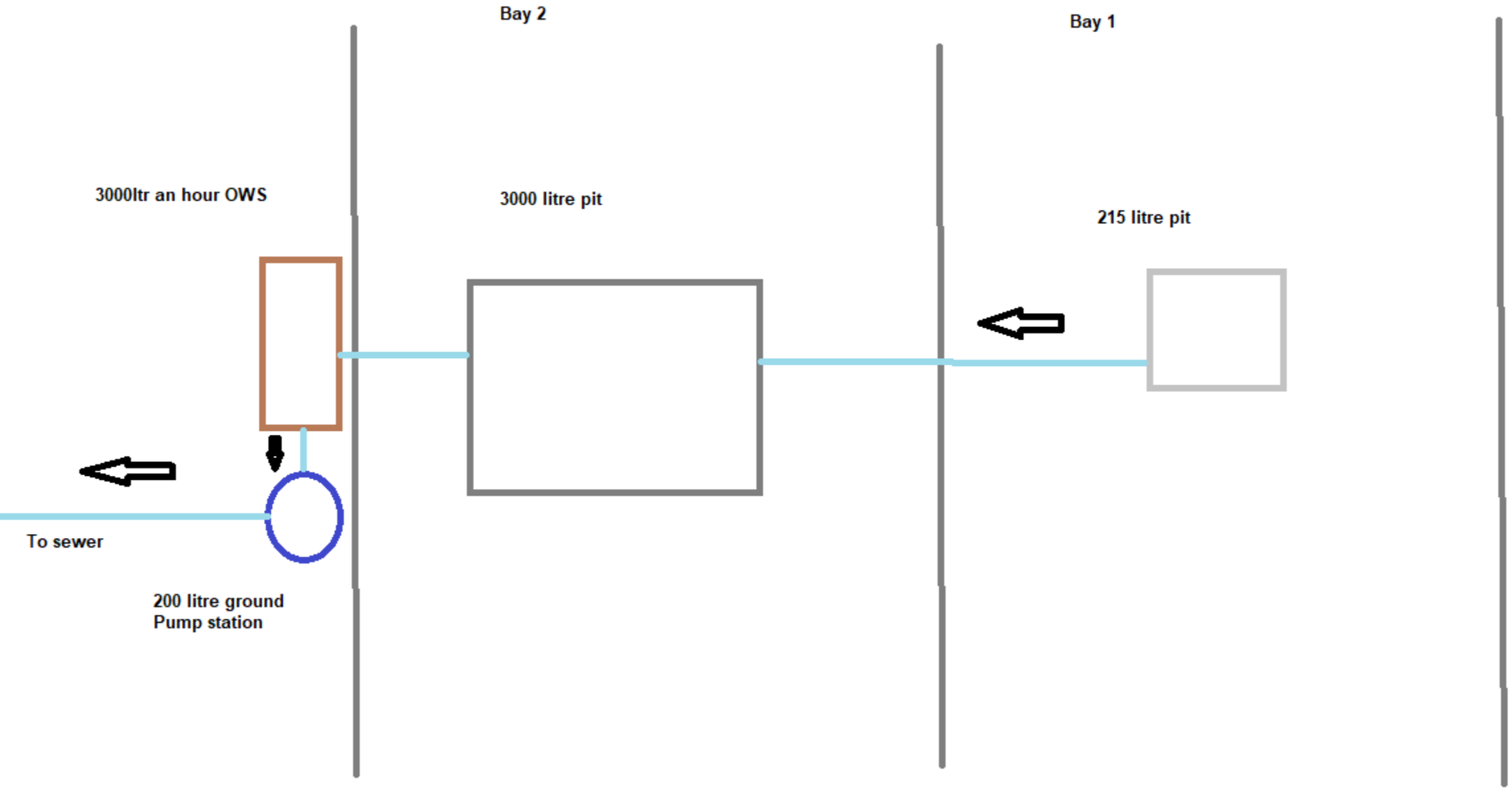
Name:

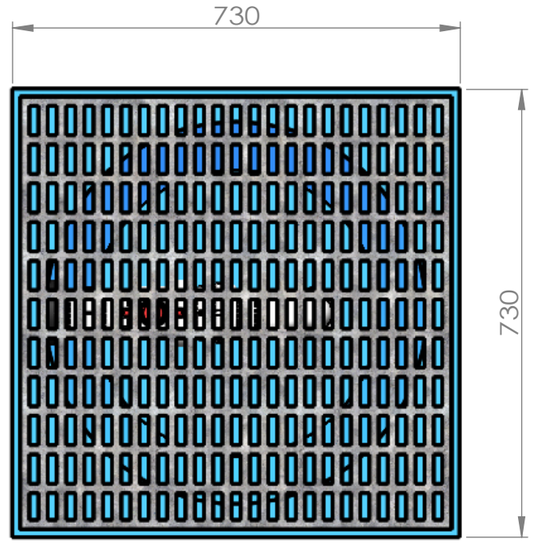
Position:

Phone: Email:

[1]Illustrated panel has 2 outlets – your panel will be supplied as specified in your order and may have fewer or more outlet controls than shown.

Avdata Pty Ltd **ABN:** 25 008 556 723 **Mail:** PO Box 877 Mitchell ACT 2911 Australia
Tel: (02) 6262 8111 **Email:** mail@avdata.com.au **Web:** www.avdata.com.au

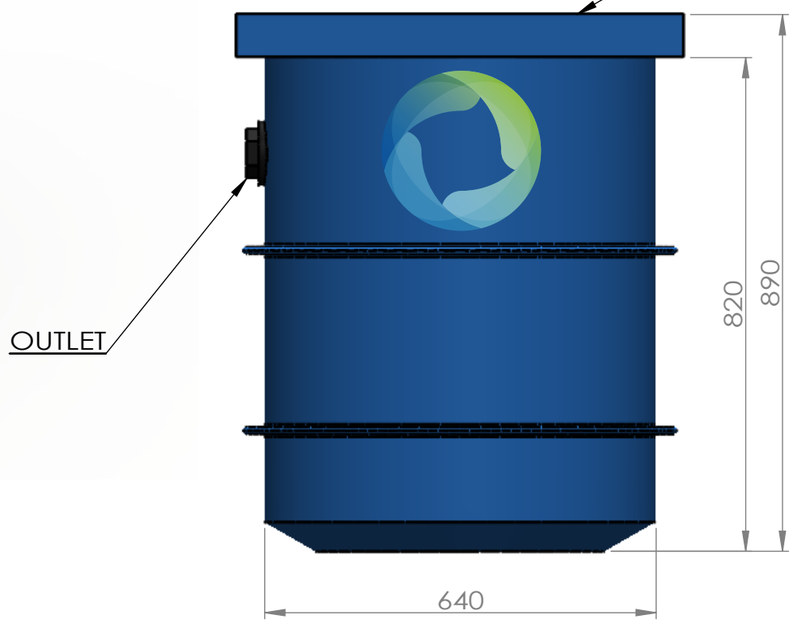

Bay 2
Bay 1
3000ltr an hour OWS
3000 litre pit
215 litre pit
To sewer
200 litre ground
Pump station



TOP VIEW

SPECIFICATIONS	
MANUFACTURER:	CLEANAWATER
MODEL:	PUMP1 - 250
DEPTH:	900mm
OUTER DIMENSIONS:	730mm
INNER DIAMETER:	650mm
NOMINAL LITRES:	250L
APPROXIMATE WEIGHT (EXC. PUMP):	25kg
ACCESS COVER:	600mm x 600mm
TANK CONSTRUCTION:	POLYETHYLENE TANK

ACCESS COVER OPTIONS	CLASS	WEIGHT	CONFIGURATION
LD CAST IRON SOLID TOP:	B	56	600X600
HD CAST IRON SOLID TOP:	D	115	600X600
LD GALVANISED GRATE:	B	50	600X600
HD GALVANISED GRATE:	D	105	600X600



FRONT SECTION VIEW

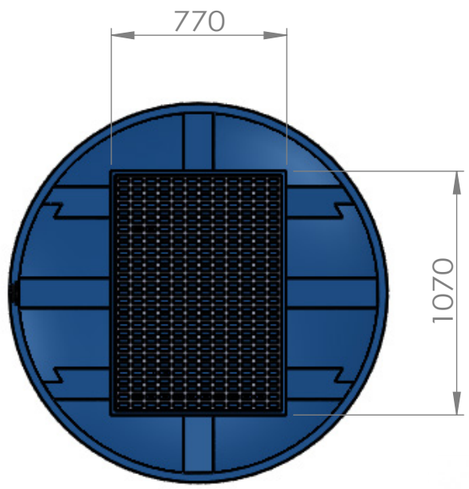
cleanawater

TITLE: 250L PUMPING STATION	DWG NO. AA - 123	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:	MATERIAL: POLYETHYLENE		NAME	SIGNATURE	DATE
				DRAWN	J.S		5/2013
	SHEET 1 OF 1 / SCALE: n/a / A3 / DO NOT SCALE DRAWING		WEIGHT: 25 KG	CHK'D	R.D		5/2013

REVISION

FINISH: DEBUR AND BREAK SHARP EDGES

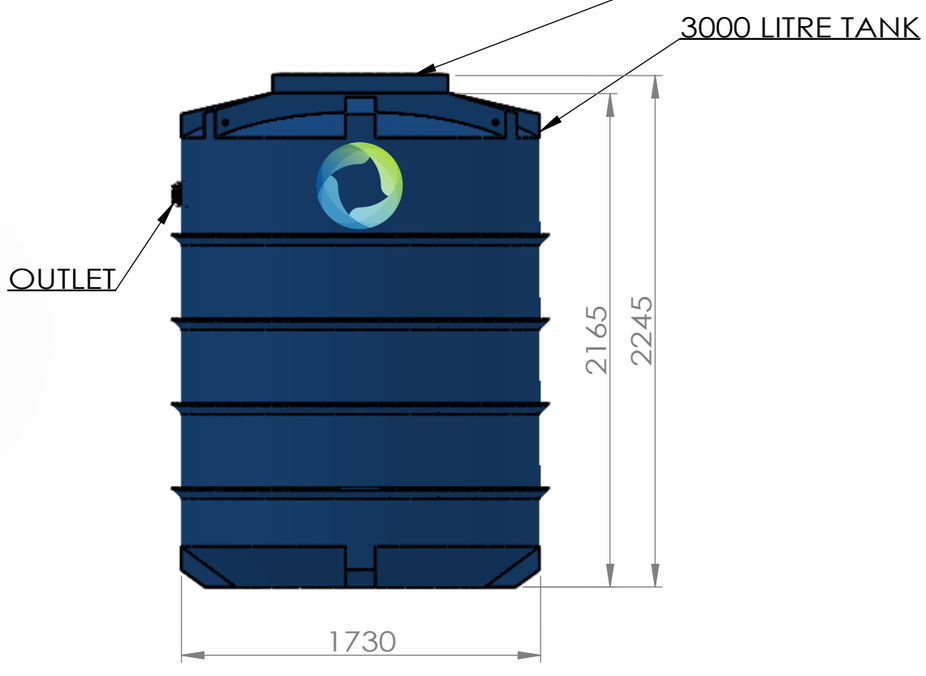
CLEANAWATER, 42 LATITUDE BOULEVARD, THOMASTOWN, VIC 3074. 1800 353 788



TOP VIEW

SPECIFICATIONS	
MANUFACTURER:	CLEANAWATER
MODEL:	PUMP2 - 3000
DEPTH:	2245mm
OUTER DIMENSIONS:	1730mm
INNER DIAMETER:	1600mm
NOMINAL LITRES:	3000L
APPROXIMATE WEIGHT (EXC. PUMP):	165kg
ACCESS COVER:	600mm x 900mm
TANK CONSTRUCTION:	POLYETHYLENE TANK

ACCESS COVER OPTIONS	CLASS	WEIGHT	CONFIGURATION
LD CAST IRON SOLID TOP:	B	56	600X900
HD CAST IRON SOLID TOP:	D	125	600X900
LD GALVANISED GRATE:	B	50	600X900
HD GALVANISED GRATE:	D	115	600X900



FRONT SECTION VIEW

cleanawater

TITLE: 3000L PUMPING STATION	DWG NO. AA - 126	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:	MATERIAL: POLYETHYLENE		NAME	SIGNATURE	DATE
	SHEET 1 OF 1 / SCALE:n/a / A3 / DO NOT SCALE DRAWING		WEIGHT: 165 KG	DRAWN	J.S		5/2013
				CHK'D	R.D		5/2013

REVISION

FINISH: DEBUR AND BREAK SHARP EDGES

CLEANAWATER, 42 LATITUDE BOULEVARD, THOMASTOWN, VIC 3074. 1800 353 788

cleanawater

Cleanawater

TS3000 SS Oil Water Separator

1800 353 788

www.cleanawater.com.au

cleanawater

TS3000 SS
Oil Water Separator

Why are they used?

Cleanawater's TS series oil water separator packages are installed to remove oils, grease and free hydrocarbons from waste water. They are a standard, low cost, pre treatment system for industrial applications commonly used in Australasia.

Features

- Low cost packages available from $4 per day*
- Small footprint – install to tight spaces
- Available with a selection of upgrades to suit site specific requirements
- Utilizes MPK coalescing media technology which is less prone to premature blockage
- No filter bag consumables required
- Removes hydrocarbons to 10ppm to exceed water authority regulations
- Commonly used as primary treatment for water recycling

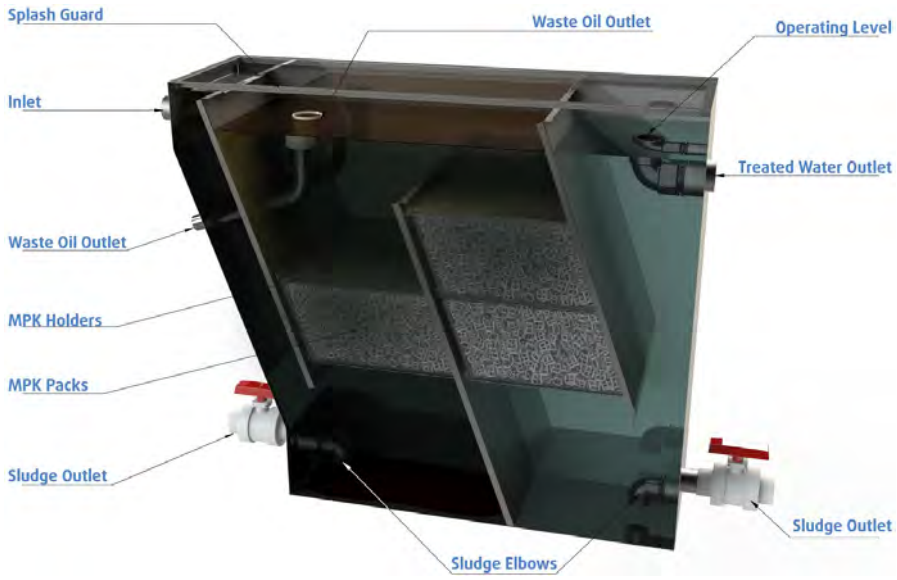
Benefits

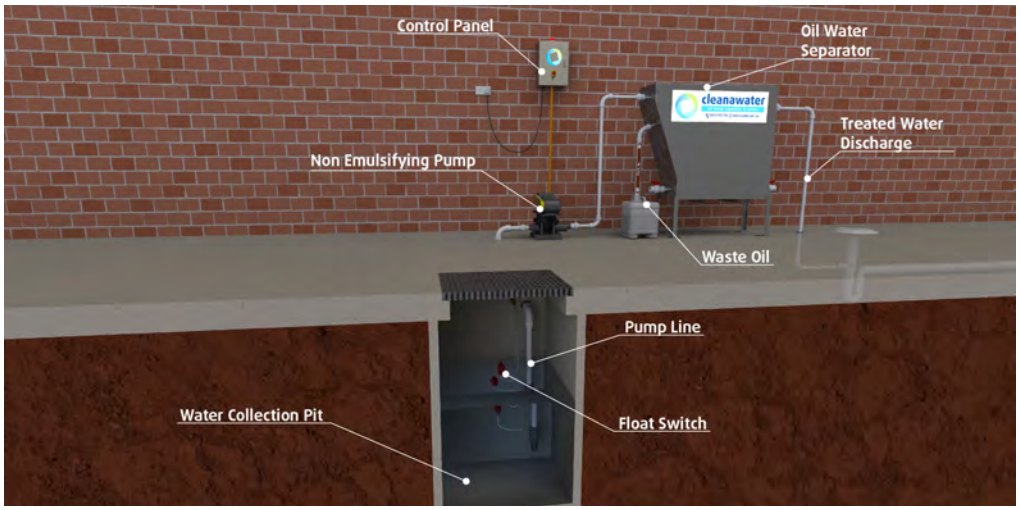
- Approved and appraised by all major metropolitan and regional authorities
- Turn key packages – easy and quick to install
- Avoid costly fines from authorities
- Avoid compromising the daily operations of your business
- Weatherproof for outdoor installation
- Automated operation and no consumables required
- Average working life of 20+ years

TS3000 SS Oil Water Separator

How do they work?

Coalescing media packs are positioned in two stages to force free oil droplets to impinge on surface area. Upon impingement on media packs, droplets rise to the surface and are skimmed off into a waste oil container.





Typical Layout Detail

Systems generally are setup to pump oily water from a sump or tank for treatment and discharged to sewer, leach drains, evaporative ponds or holding tanks. Contact Cleanawater to discuss your application.

cleanawater

TS3000 SS
Oil Water Separator

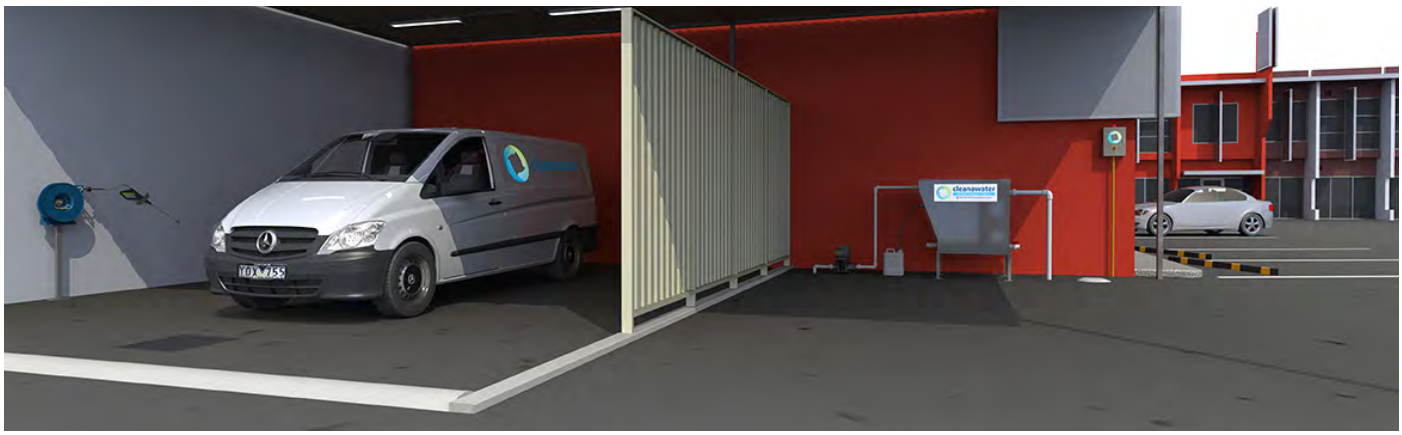
Common Applications

- Wash Down Bays
- Small to Large Industrial & Mechanical Workshops
- Mining Workshops
- Mining LV/HV Wash Down Bays
- Refuelling Areas
- Construction Sites
- Transformer Bunds
- Commercial Car Washes
- Vehicle & Equipment Wash Down Bays
- Truck & Heavy Vehicle Bays
- Service Stations
- AQIS Wash Down Facilities
- Hire Equipment Branches
- Food and Beverage Plants

Standard Inclusions List

Item	Standard
Cleanawater Oil Water Separator	✓
Non Emulsifying Pump	✓
Float Switch	✓
Control Panel 240V	✓
Galvanized Support Frame	✓
20 Litre Waste Oil Drum	✓

* Additional accessories available to suit your specific application, contact Cleanawater on 1800 353 788 to discuss your requirements.



cleanawater

TS3000 SS
Oil Water Separator

Specifications

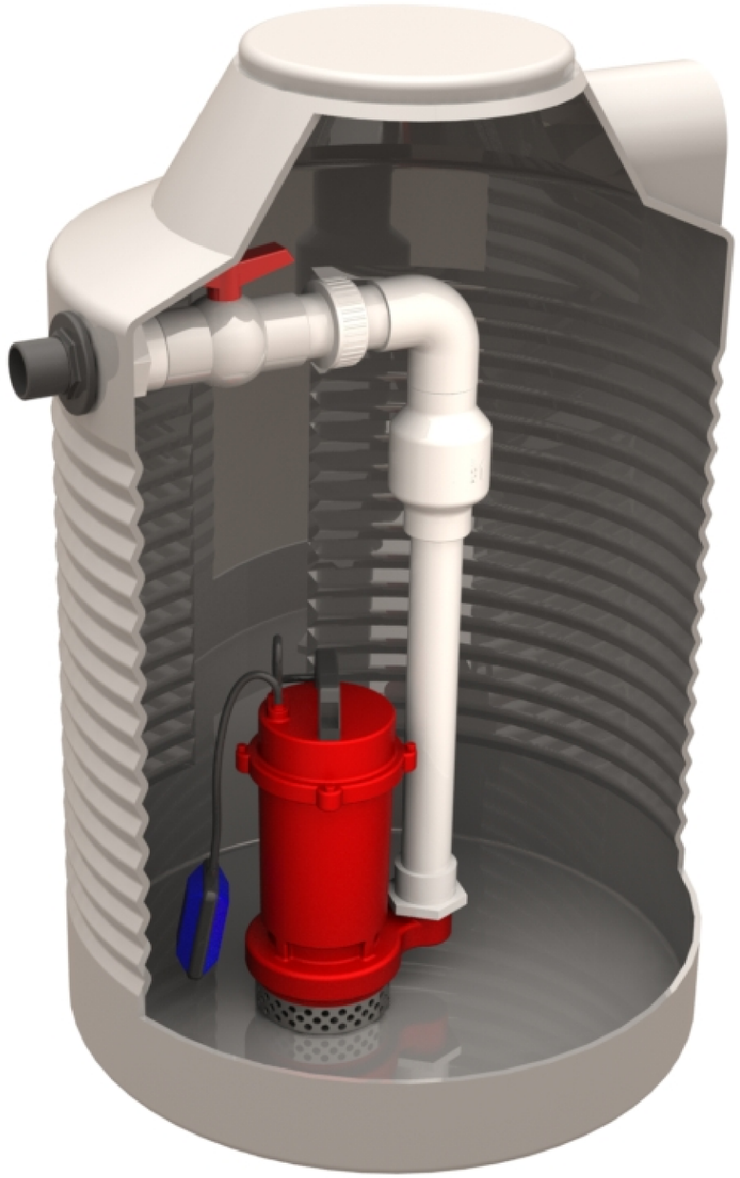
Model	TS3000 SS
System Info	
Dimensions	1150mm long x 720mm wide x 990mm high
Nominal Litres per Hour	3000 litres per hour
Maximum Litres per Hour	6000 litres per hour
Material	
Construction	304 SS
Shipping Weight / Operating Weight	100kg / 760kg
Pump Model	Helical Rotor / Diaphragm
Power	
Power Requirement	240V 10 amp
Power Usage	0.75kW
Performance	
Typical TPH Influent	< 5000-6000ppm*
Typical TPH Disharge (treated)	< 10 ppm*

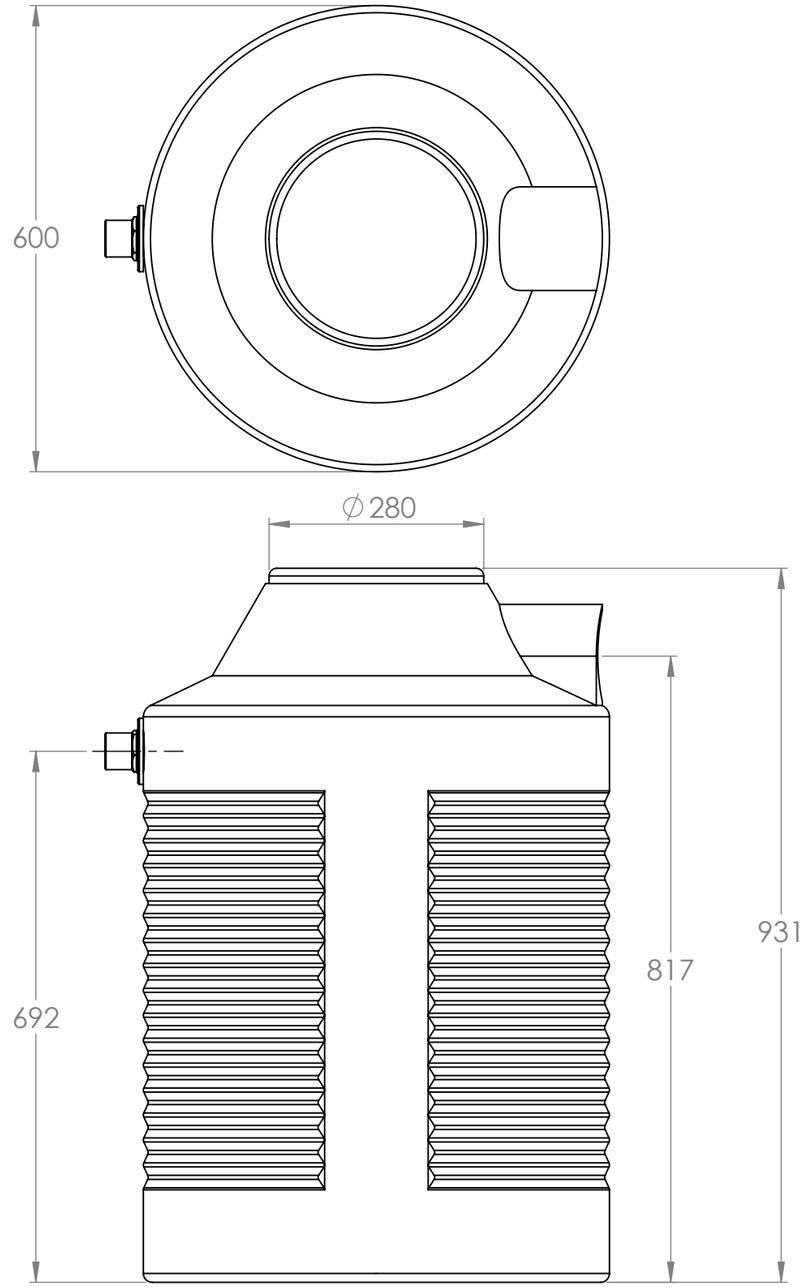
* TPH, oil and grease results are typical and based on free hydrocarbons only, emulsified hydrocarbons may affect discharge results and additional filtration may be required.

Attractive Finance and Lease options available from $4 per day.

For more information, contact Cleanawater on **1800 353 788** or email **info@cleanawater.com.au**

SPECIFICATIONS	
MODEL	200-220
PUMP	SP213
CONSTRUCTION MATERIAL	
TANK	HDPE
PIPING	UPVC
DIMENSIONS & WEIGHT	
DIAMETER	600mm
HEIGHT	930mm
OUTLET	40mm / 1 1/2" BSP
WEIGHT	43 kg
MAX FLOW RATE	220 L/min
CAPACITY	200 litres





UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
SURFACE FINISH:
TOLERANCES:
LINEAR: 0.05 mm
ANGULAR: 0.10°

MATERIAL:

DEBUR AND BREAK SHARP EDGES

cleanawater

A3

	NAME	SIGNATURE	DATE
DRAWN	B MUXLOW		20/07/15
CHK'D			

FINISH:

TITLE:

AG PUMP TANK 200L - 220 L/MIN

H2O CLEANAWATER, 40 LATITUDE BLVD, THOMASTOWN, VIC 3074. 1800 353 788

DO NOT SCALE DRAWING

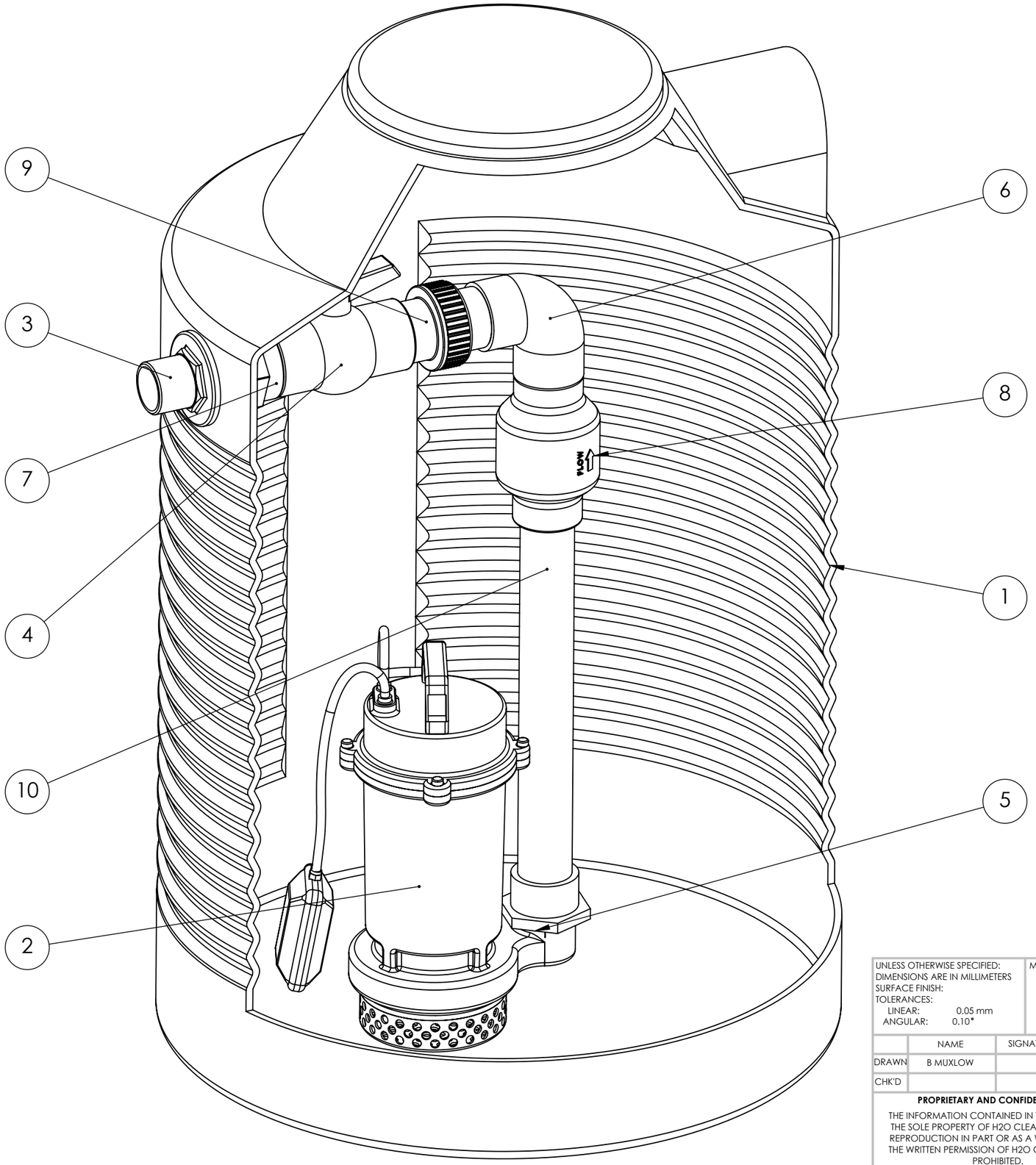
DWG NO. AA600-9-13-E

REVISION -

WEIGHT: 42843

SCALE:1:8

SHEET 1 OF 2



ITEM NO.	DESCRIPTION	Default/ QTY.
1	200L HD Polyethlyene Water Tank	1
2	SP213 Submersible Pump w Float	1
3	Tank Fitting PP DN40	1
4	Manual 2-Way Ball Valve - white	1
5	Socket PVC-U Cem to Thr DN 40	1
6	Elbow 90 deg FF Soc DN40 UPVC	1
7	Threaded Adaptor FF 1.5"-DN50 UPVC	1
8	Swing Check FF Soc DN40 UPVC	1
9	Barrel Union PVC-U DN 40	1
10	Pressure Pipe DN40 UPVC	1

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
SURFACE FINISH:
TOLERANCES:
LINEAR: 0.05 mm
ANGULAR: 0.10°

MATERIAL:

DEBUR AND BREAK SHARP EDGES

cleanawater

A3

	NAME	SIGNATURE	DATE
DRAWN	B MUXLOW		20/07/15
CHK'D			

FINISH:

TITLE:

AG PUMP TANK 200L - 220 L/MIN

H2O CLEANAWATER, 40 LATITUDE BLVD, THOMASTOWN, VIC 3074. 1800 353 788

DO NOT SCALE DRAWING

DWG NO. AA600-9-13-E

REVISION -

WEIGHT: 38844

SCALE:1:4

SHEET 2 OF 2

CABONNE COUNCIL

CONTRACT No. 1008628

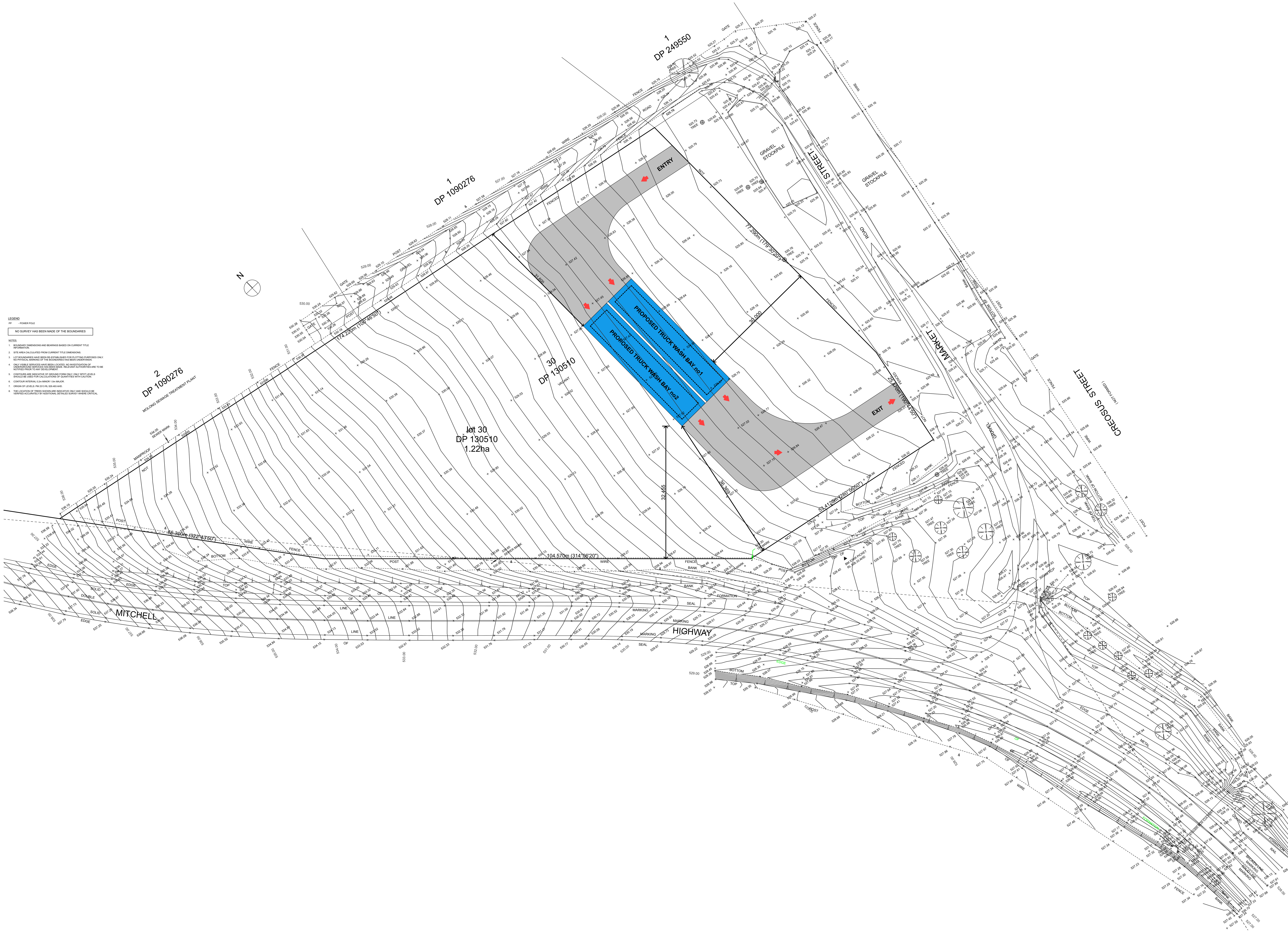
LUMP SUM CONTRACT

for the

CONSTRUCTION OF TRUCK WASH FACILITY, MOLONG NSW 2866

DRAWINGS

PREPARED BY:
COUNCIL'S DEPARTMENT OF ENGINEERING
& TECHNICAL SERVICES
DATE: APRIL 2019



PROPOSED SITE PLAN

1:500 at A1

TENDER ISSUE

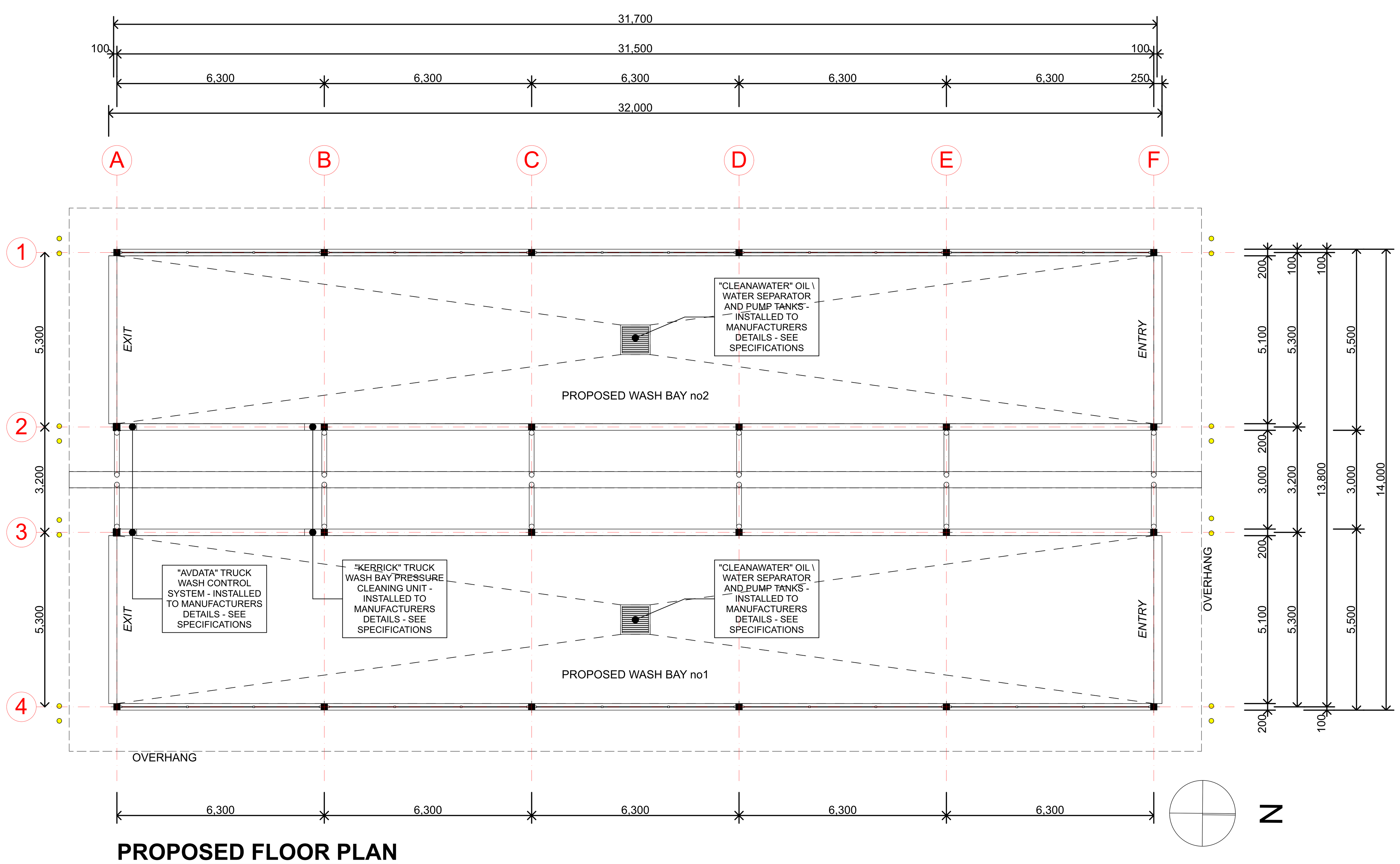
ISSUE	AMENDMENT	DATE
A	ISSUED FOR TENDER	28.02.19

10 Meters @ 1:100

DESIGN AWARDS 2016 WINNER

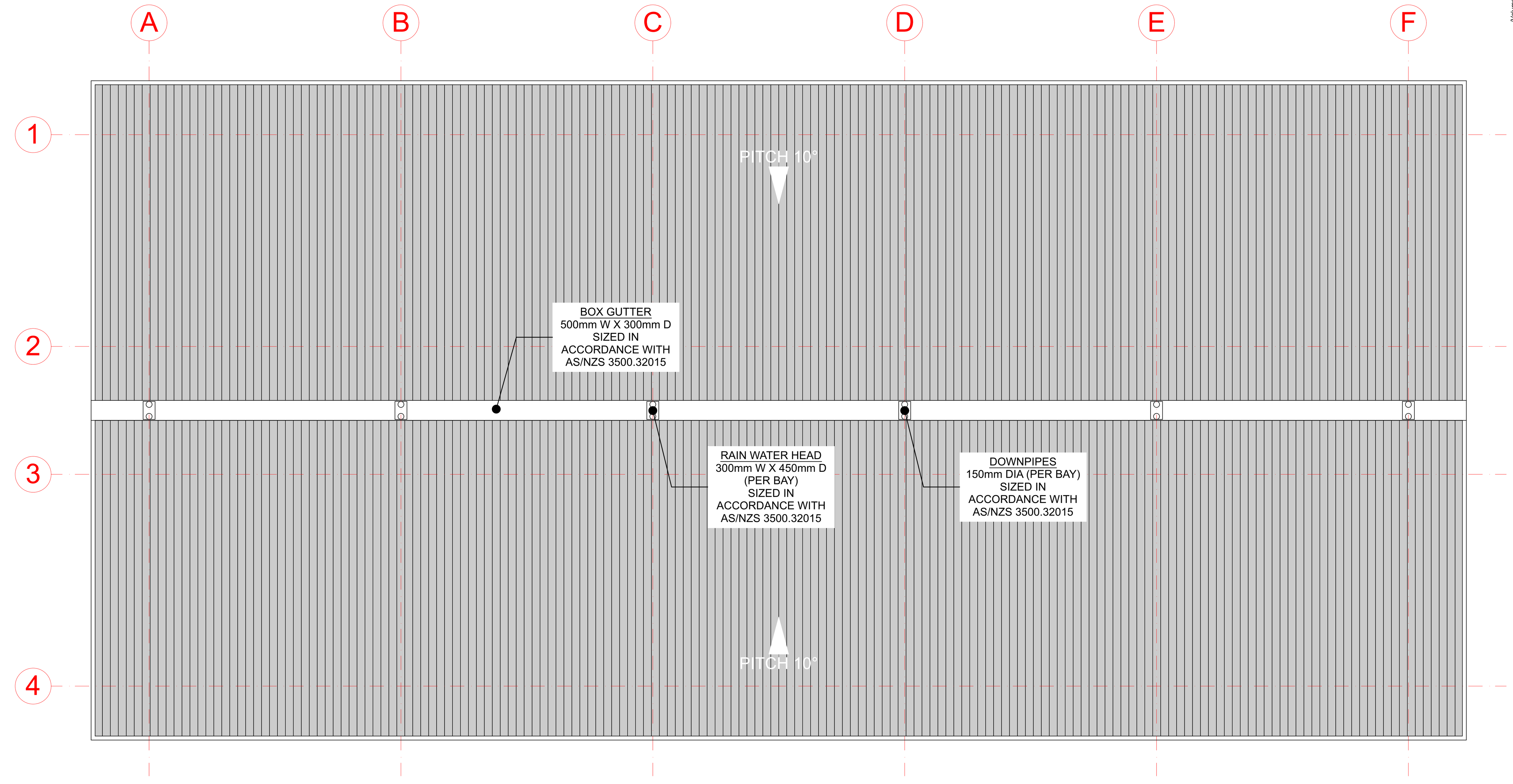
7 aminya place
orange nsw 2800
t.+612 6361 7461
m.0409 982 793
e.office@designsatm.com
www.designsatm.com
designsatm

CLIENT	PROJECT	TITLE	DATE	JOB No.	SHEET	REV
CABONNE COUNCIL	PROPOSED NEW TRUCK WASH, at Lot 30 DP130510, MITCHELL HWY, MOLONG	CONSTRUCTION CERTIFICATE	FEB 19	18-047	CC01	A



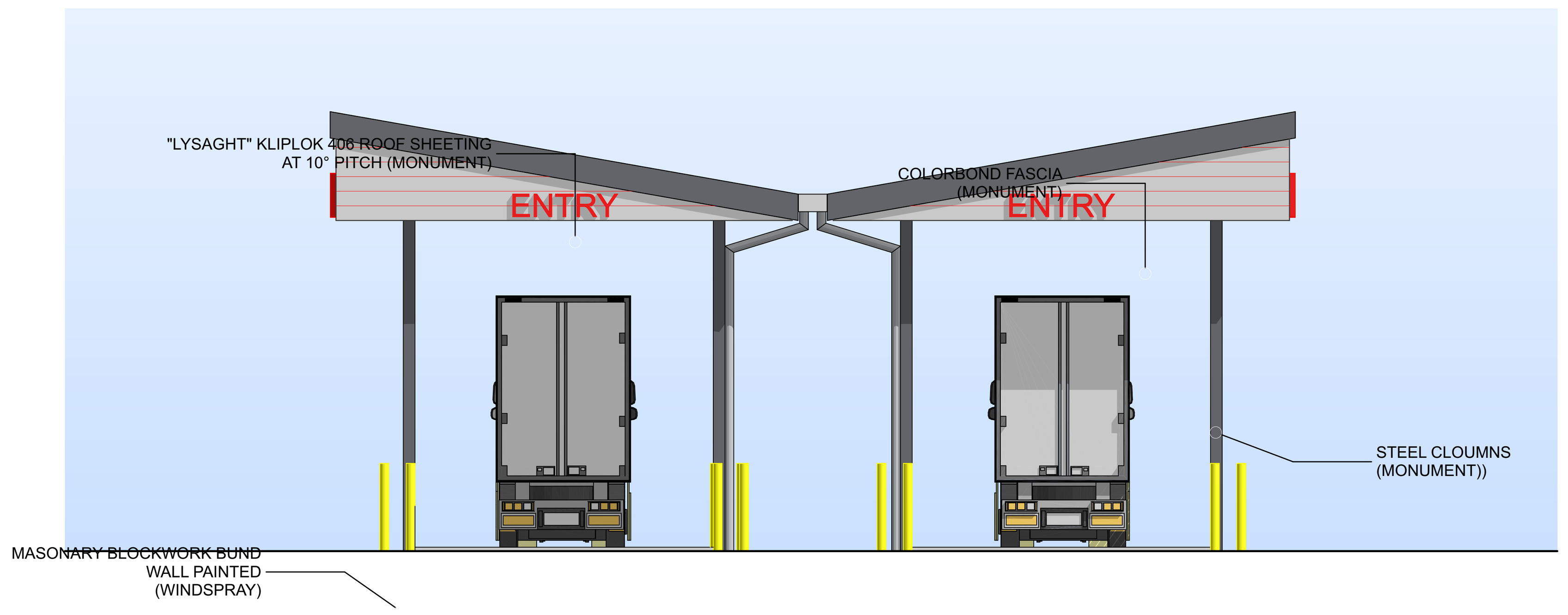
PROPOSED FLOOR PLAN

1:100 at A1



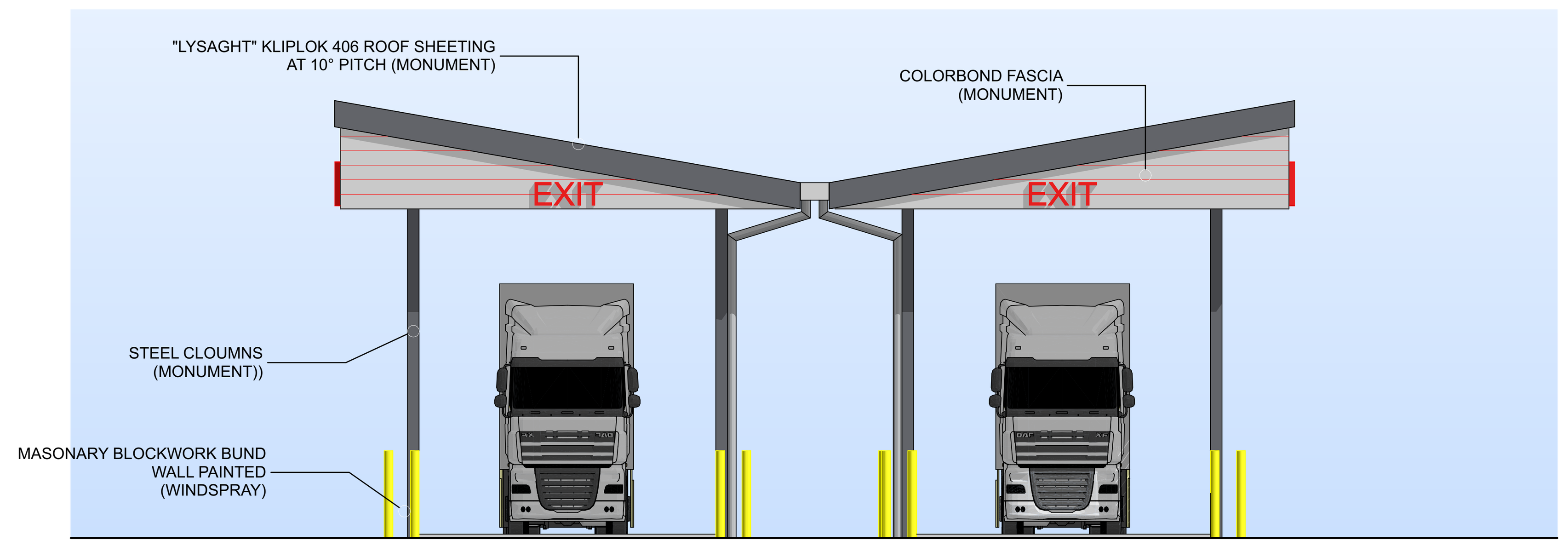
PROPOSED ROOF PLAN

1:100 at A1



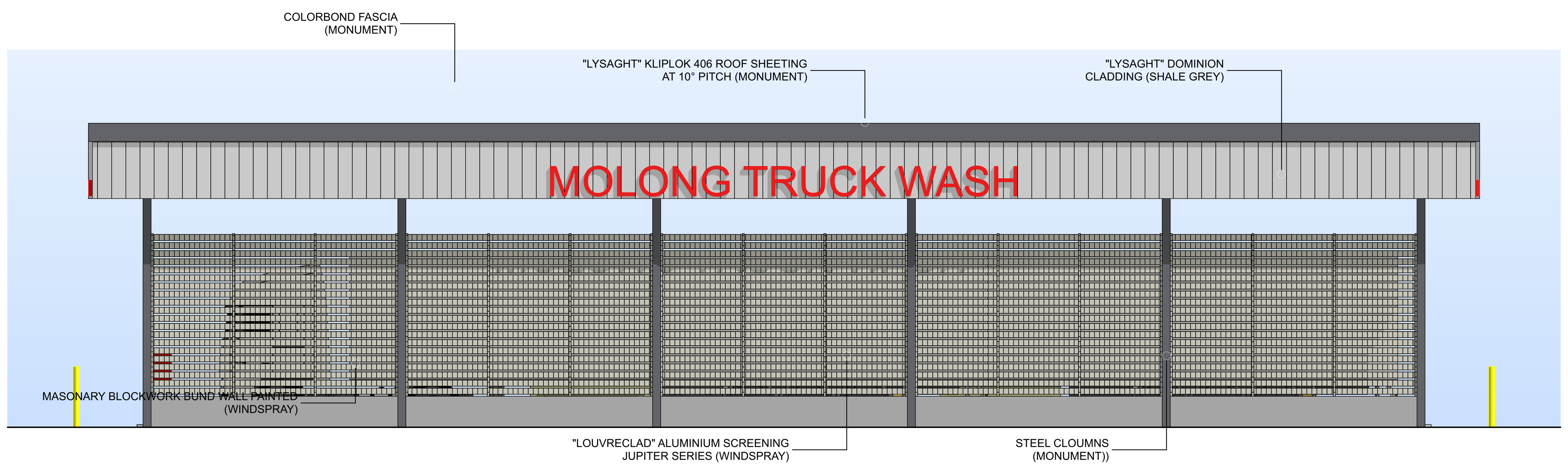
PROPOSED NORTH ELEVATION

1:100 at A1



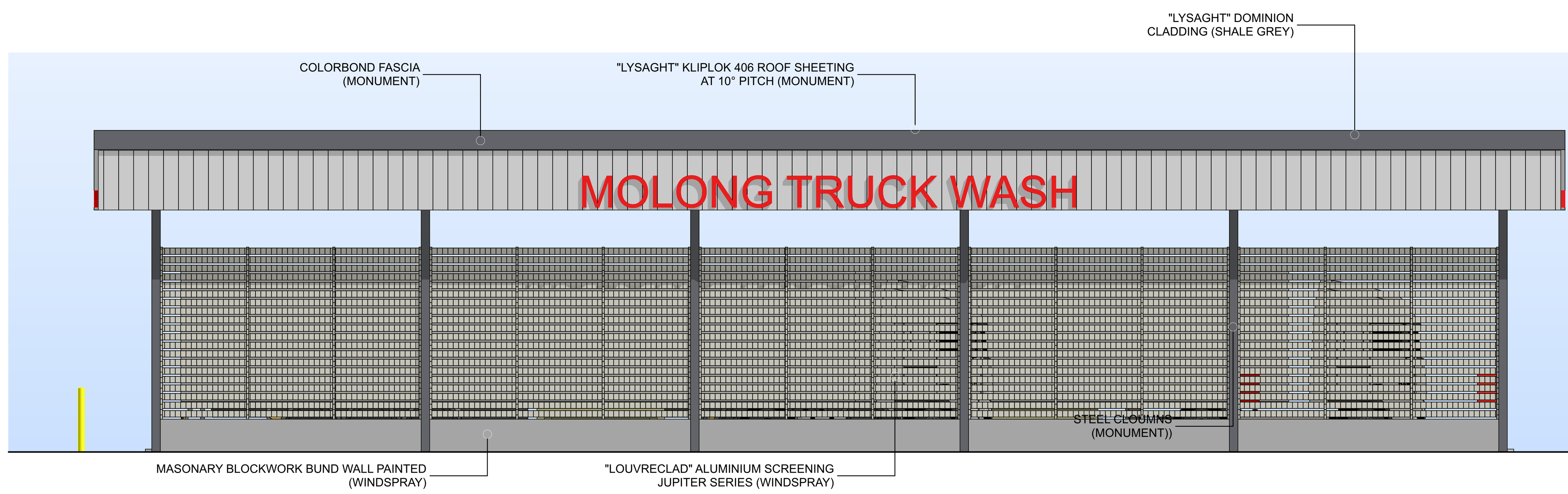
PROPOSED WEST ELEVATION

1:100 at A1



PROPOSED WEST ELEVATION

1:100 at A1



PROPOSED EAST ELEVATION

1:100 at A1

TENDER ISSUE

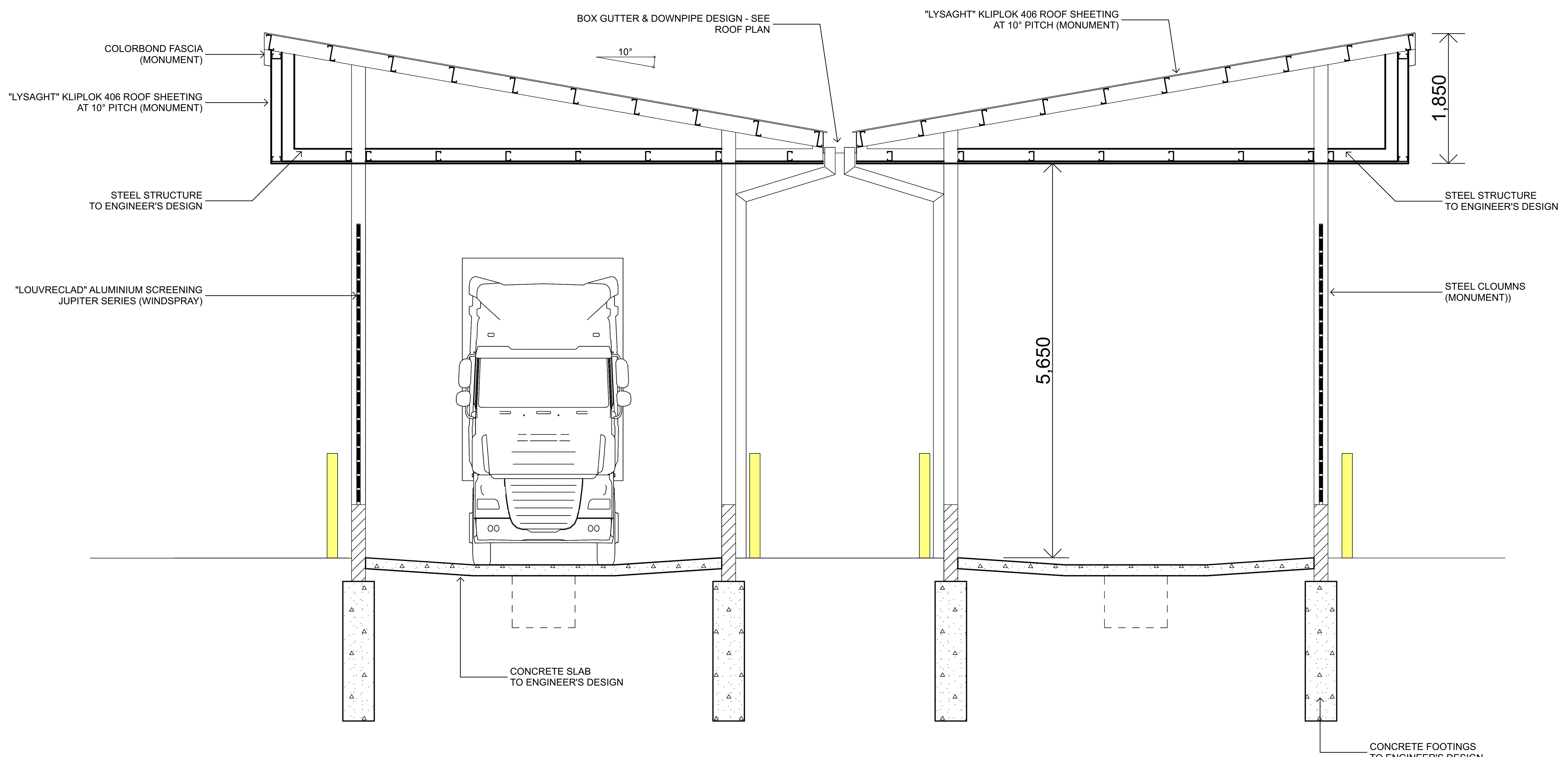
ISSUE	AMENDMENT	DATE
A	ISSUED FOR TENDER	28.02.19

1 2 3 4 5 10 Meters @ 1:100

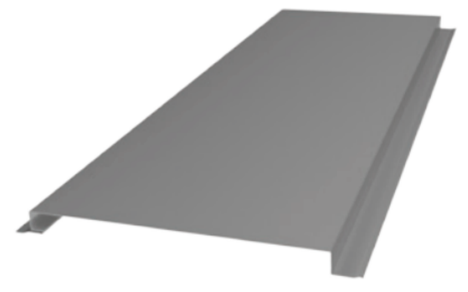
bda BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA DESIGN AWARDS 2016 WINNER

7 aminya place
orange nsw 2800
t.+612 6361 7461
m.0409 982 793
e.office@designsatm.com
www.designsatm.com
designsatm

CLIENT	PROJECT	TITLE	DATE	JOB No.	SHEET	REV
CABONNE COUNCIL	PROPOSED NEW TRUCK WASH, at Lot 30 DP130510, MITCHELL HWY, MOLONG	CONSTRUCTION CERTIFICATE	FEB 19	18-047	CC02	A



TYPICAL SECTION
1:50 at A1



LYSAGHT DOMINION™

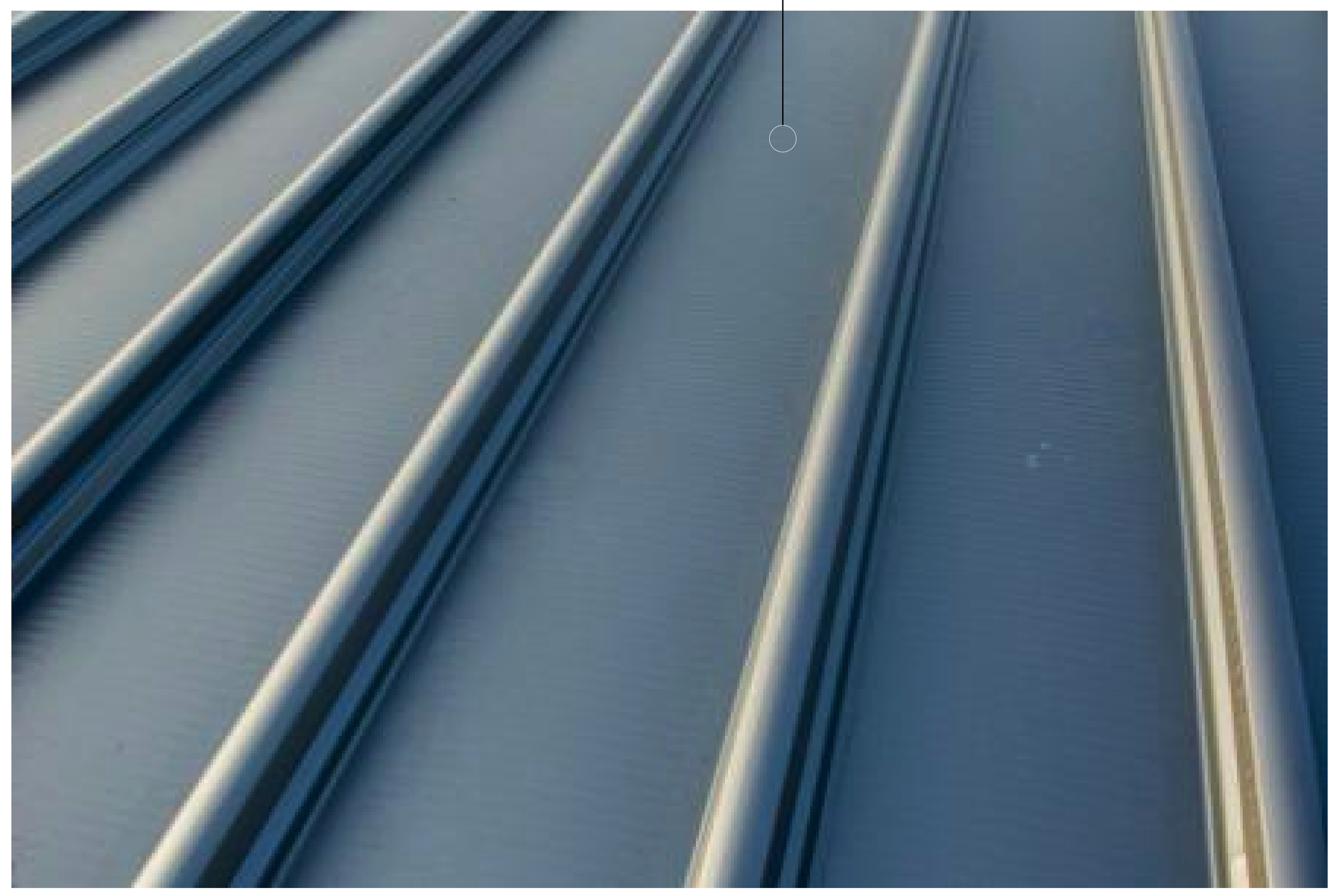
Whether used in long lengths running vertically or horizontally on a structure, or in shorter lengths to create a 'block-like' effect, LYSAGHT DOMINION™ makes a strong and extremely stylish statement. With raised panels and recessed, 'express' joins, this profile conveys a sleek, contemporary character with a pleasing detail created by the shadowed 'channels'.

"LYSAGHT" DOMINION CLADDING (SHALE GREY)

"LOUVRECLAD" ALUMINIUM SCREENING JUPITER SERIES (WINDSPRAY)

PERSPECTIVE VIEWS

"LYSAGHT" KLIPLOK 406 ROOF SHEETING AT 10° PITCH (MONUMENT)



TENDER ISSUE

ISSUE	AMENDMENT	DATE
A	ISSUED FOR TENDER	28.02.19

1 2 3 4 5 10 Meters @ 1:100

BDA BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA DESIGN AWARDS 2016 WINNER

7 aminya place
orange nsw 2800
t.+612 6361 7461
m.0409 982 793
e.office@designsatm.com
www.designsatm.com
designsatm

CLIENT	PROJECT	TITLE	DATE	JOB No.	SHEET	REV
CABONNE COUNCIL	PROPOSED NEW TRUCK WASH, at Lot 30 DP130510, MITCHELL HWY, MOLONG	CONSTRUCTION CERTIFICATE	FEB 19	18-047	CC03	A

PROPOSED TRUCK WASH
LOT 30 DP 130510 MITCHELL HWY, MOLONG

GENERAL:
(1-09-10)

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS, AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO CALARE CIVIL P/L FOR DECISION BEFORE PROCEEDING WITH THE WORK.

G2. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.

G3. ALL LEVELS AND SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED ON SITE BEFORE CONSTRUCTION.

G4. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED.

G5. STRUCTURAL WORK HAS BEEN DESIGNED FOR FOLLOWING LOADS:

SUPERIMPOSED DEAD / LIVE LOADS TO AS/NZS1170.1:

TYPE OF BUILDING OCCUPANCY	DEAD LOAD	LIVE LOAD
METALSHEETING	0.08 kPa	
INSULATION (50 GLASSWOOL)	0.02 kPa	
CEILING (10mm THICK PLASTERBOARD)	0.05 kPa	
SERVICES	0.10 kPa	
PURLINS	0.05 kpa	
NON-TRAFFICABLE ROOFS		0.25 kPa
BUILDING IMPORTANCE LEVEL	2	

WIND LOADS TO AS/NZS1170.2:

REGION	A1
AVERAGE RECURRENCE INTERVAL, R	500 years
ULTIMATE WIND SPEED Vu (3 sec GUST)	45m/s
SERVICEABILITY REGIONAL WIND SPEED Vu (3sec)	37m/S
DIRECTIONAL MULTIPLIER	1.0
TERRAIN CATEGORY	2.0
DESIGN BUILDING HEIGHT	6.9m
TERRAIN/HEIGHT MULTIPLIER ($M_{z,cat}$)	0.95
SHIELDING MULTIPLIER (M_s)	1.0
TOPOGRAPHIC MULTIPLIER (M_t)	1.0

G6. WHERE TEMPORARY CONSTRUCTION ACTIVITY WILL AFFECT EXISTING BUILDING ETC., PROVIDE TEMPORARY PROTECTION TO MAINTAIN THEM WEATHER-PROOF AND PREVENT WATER ENTRY AT ALL TIMES UNTIL ALL PERMANENT PROTECTION INCLUDING FLASHING ETC. ARE COMPLETED. REINSTATE OR REPLACE ALL ATTACHMENTS, SIGNS, FITTINGS AND SERVICES DAMAGED OR REMOVED DURING THE CONSTRUCTION ACTIVITIES.

G7. NO SUBSTITUTIONS WILL BE MADE WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.

G8. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED OTHERWISE (U.N.O.).

G9. ALL WORK MUST BE CARRIED OUT IN ACCORDANCE WITH STATUTORY REQUIREMENTS, INCLUDING ALL THE RELEVANT OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS.

G10. ALL RELEVANT JOB SAFETY ANALYSIS REPORTS SHOULD BE SUBMITTED FOR REVIEW PRIOR TO COMMENCEMENT OF WORK.

FOUNDATIONS:
(7-12-94)

F1. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF ____200_____kPa

F2. ALL TOPSOIL AND ORGANIC MATTER SHALL BE REMOVED PRIOR TO PLACING AND COMPACTING ROADBASE OR CRUSHER DUST UNDER SLABS.

F3. FILL UNDER SLABS SHALL BE COMPACTED TO 98% STANDARD COMPACTION UNLESS OTHERWISE NOTED. A MINIMUM OF 100mm OF COMPACTED ROADBASE OR CRUSHER DUST IS REQUIRED UNDER SLABS.

F4. FOUNDATION MATERIAL SHALL BE INSPECTED AND APPROVED FOR THE ABOVE SAFE BEARING PRESSURE BEFORE PLACING CONCRETE.

REINFORCED CONCRETE:
(12-7-02)

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

C2.

ELEMENT	SLUMP mm	MAX. SIZE AGG mm	CEMENT TYPE	F'c AT 28 DAYS MPa	AD-MIXTURE
SLAB, WALLS, REMAINDER	80	20	CLASS A PORTLAND CEMENT	N32	-
FOOTINGS	80	20	CLASS A PORTLAND CEMENT	N25	-
BLINDING	-	-	-	N20	-

C3. MINIMUM CLEAR CONCRETE COVER TO REINFORCEMENT INCLUDING TIES AND STIRRUPS SHALL BE AS FOLLOWS UNLESS OTHERWISE SHOWN.

ELEMENT	COVER mm
FOOTINGS	50
COLUMNS & BEAMS	50
SLAB ON GROUND	40
SUSPENDED SLABS	30
TILT PANELS	30

C4. COVER TO REINFORCEMENT SHALL BE OBTAINED BY THE USE OF APPROVED BAR CHAIRS, BAR CHAIR SPACING SHALL ENSURE THAT REINFORCEMENT REMAINS IN PLACE THROUGHOUT THE POUR AND SHALL BE AT MIN. C/C SPACING AS FOLLOWS:
MESH 800mm
BAR REINF'T 1000mm

C5. ALL CONCRETE SHALL BE COMPACTED WITH MECHANICAL VIBRATORS. VIBRATORS SHALL NOT BE USED TO SPREAD CONCRETE.

C6. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

C7. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS.

C8. TOLERANCES FOR THE SIZE AND SHAPE OF REINFORCEMENT AND FOR STRUCTURES AND MEMBERS SHALL BE IN ACCORDANCE WITH CLAUSES 19.2.2 AND 19.5 OF AS3600

C9. FORMWORK SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH AS3610.

C10. NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

C11. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER. ALL CONSTRUCTION JOINTS SHALL BE SCABBLED OVER THE WHOLE FACE AND ANY UNSOUND MATERIAL REMOVED. SAW CUT SHRINKAGE JOINTS SHALL BE MADE AT THE OPTIMUM TIME AFTER THE POUR. THIS TIME IS CONCRETE AND TEMPERATURE DEPENDENT BUT IS USUALLY WITHIN 48 HOURS OF CASTING CONCRETE.

C12. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY. IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION. HOOKS, COGS, LAPS, ETC., SHALL COMPLY WITH SECTION 13 OF AS3600 (U.N.O.).

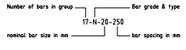
C13. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN UNLESS THE APPROVAL OF THE ENGINEER IS OBTAINED FOR ANY OTHER SPLICE.

C14. WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.

C15. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.

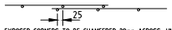
C16. REINFORCEMENT SYMBOLS:
Y DENOTES GRADE 410Y HOT ROLLED DEFORMED BARS TO AS1302.
R DENOTES GRADE 230R HOT ROLLED PLAIN BARS TO AS1302.
S DENOTES GRADE 230S HOT ROLLED DEFORMED BARS TO AS1302.
N DENOTES GRADE 500-N BARS TO AS/NZS4671.2001
F DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS1304.
L DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS/NZS4671.2001
TM DENOTES HARD-DRAWN WIRE TRENCH MESH TO AS1304.
W DENOTES HARD-DRAWN PLAIN WIRE TO AS1303.

NOTATION:



C17. ALL FABRIC FOR SLABS POURED ON GROUND MUST BE IN PLACE BEFORE CONCRETING COMMENCES AND SHALL BE SUPPORTED ON BAR CHAIRS IN ACCORDANCE WITH NOTE C4 ABOVE, SEATED ON SPREADER PLATES.

C18. FABRIC LAP DETAILS:



C19. EXPOSED CORNERS TO BE CHAMFERED 20mm ACROSS. UNLESS NOTED OTHERWISE (U.N.O.).

C20. PROVIDE CONTINUOUS MOIST CURING OR VRAP WITH AN IMPERVIOUS MEMBRANE ALL CONCRETE COMPONENTS FOR A MINIMUM 7 CONTINUOUS DAYS AFTER INITIAL SET.

C21. IF CONCRETE HAS NOT ACHEVED ITS CHARACTERISTIC COMPRESSIVE STRENGTH, APPROVAL FOR EARLY STRIPPING OF FORMWORK SUPPORTS SHALL BE OBTAINED FROM THE ENGINEER.

C22. ALL REINFORCEMENT SHALL BE INSPECTED BY THE ENGINEER PRIOR TO POURING CONCRETE.

STRUCTURAL STEELWORK:
(10-8-95)

S1. FABRICATION AND ERECTION TO BE IN ACCORDANCE WITH AS4100-1990 AND AS1554 EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

S2. STRUCTURAL STEELWORK SHALL BE OF THE FOLLOWING GRADES U.N.O.

SECTION	GRADE
HOT-ROLLED UB, UC, PFC 125 EA & GREATER 150x90 UA & GREATER	BHP - 300 PLUS
HOT-ROLLED TFB, TFC SMALL EA & UA	AS 3679.1 - 250
COLD-FORMED CHS 100x9 SHS & GREATER 150x100 RHS & GREATER 100x6 SHS & SMALLER 150x50 RHS & SMALLER	AS 1163 - 350 AS 1163 - 350 AS 1163 - 350 AS 1163 - 450 AS 1163 - 450
COLD-FORMED PURLINS 1.0mm & LESS GREATER THAN 1.0mm	AS 1397 - G550 AS 1397 - G450

S3. ALL DIMENSIONS GIVEN FOR MATERIAL ARE GROSS DIMENSIONS WITH NO REDUCTION FOR WELD PREPARATION.

S4. BOLTS DESIGNATED 4.6/S SHALL BE COMMERCIAL GRADE BOLTS TO AS1111 AND AS1112 (GRADE 4.6) TIGHTENED TO A SNUG FIT. BOLTS DESIGNATED:

8.8/S SHALL BE HIGH STRENGTH BOLTS TO AS1252 TIGHTENED TO A SNUG FIT.

8.8/TF AND 8.8/TB SHALL BE HIGH STRENGTH BOLTS TO AS1252 FULLY TENSIONED IN ACCORDANCE WITH AS4100.

ALL BOLTS SHALL BE OF SUFFICIENT LENGTH TO PROVIDE A MINIMUM OF ONE FULL THREAD BEYOND THE TIGHTENED NUT.

S5. ALL HIGH STRENGTH BOLTED JOINTS SHALL BE CLEARLY AND PERMANENTLY MARKED AS TB OR TF BEFORE ASSEMBLY.

S6. PERMANENT MARKS SHALL BE APPLIED TO ALL ASSEMBLED HIGH STRENGTH BOLTS AND NUTS TO INDICATE SNUG-TIGHT POSITION.

S7. ALL WASHERS FOR HIGH STRENGTH BOLTS SHALL BE HARDENED STEEL TO AS1252 EXCEPT FOR SNUG-TIGHT JOINTS WHERE BLACK STEEL WASHERS TO AS1237 MAY BE USED.

S8. A FLAT WASHER SHALL BE FITTED UNDER THE ROTATING COMPONENT OF EACH BOLT. ALL TAPERED WASHERS SHALL BE FITTED UNDER THE NON-ROTATING COMPONENT WHERE POSSIBLE.

S9. HIGH STRENGTH BOLTS FOR TF & TB JOINTS MUST NOT BE DRIVEN AND MUST NOT BE RE-USED. ALL WELDING TO BE COMPLETED PRIOR TO BOLTING.

S10. ALL BOLT HOLES SHALL BE THE NOMINATED DIA. (D) OF THE FASTENER + 2mm IN DIAMETER, EXCEPT BASEPLATES WHICH SHALL BE D + 4mm. SLOTTED HOLES SHALL ONLY BE USED WHERE SPECIFIED AND SHALL CONSIST OF 2 DRILLED HOLES, WITH PORTION BETWEEN REMOVED U.N.O. BURNING OF HOLES WILL NOT BE ALLOWED.

S11. SUBSTITUTIONS OF STEEL SECTIONS SHOWN ON THE DRAWING SHALL NOT BE MADE WITHOUT APPROVAL FROM CALARE CIVIL P/L.

S12. CONCRETE ENCASED STEELWORK SHALL BE WRAPPED WITH F41 FABRIC AND THE STEELWORK SHALL HAVE A MINIMUM 50mm COVER OF CONCRETE UNLESS OTHERWISE NOTED.

S13. AFTER FABRICATION THE STEEL SHALL BE CLEANED WITH A POWER WIRE BRUSH TO REMOVE ALL LOOSE RUST, MILL SCALE, WELD SPATTER, WELD SLAG & DIRT AND TREATED AS FOLLOWS:

ELEMENT	TREATMENT
ALL	POWER WIRE BRUSH CLASS 2.5 AND 2 COATS RDZP

S14. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT DIPPED GALVANISED BY THE MANUFACTURER.

S15. THE CONTRACTOR SHALL PROVDE ALL CLEATS AND DRILL ALL HOLES NECESSARY FOR FIXING STEEL TO STEEL, TIMBER TO STEEL WHETHER OR NOT DETAILED ON THE DRAWING.

S16. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEELWORK SHALL BE SUPERVISED BY A QUALIFIED ENGINEER EXPERIENCED IN SUCH SUPERVISION TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.

S17. WELDS SHALL BE 6mm CONTINUOUS FILLET, ELECTRODES E48XX, ALL BOLTS M20 DIAMETER, ALL GUSSET PLATES AND CLEATS 10mm THICK U.N.O.

S18. PROVIDE A SPACE OF 20mm BETWEEN ALL BEAMS/COLUMNS BEARING ON CONCRETE OR MASONRY AND CAULK WITH 2:1 SAND CEMENT MORTAR OF DAMP EARTH CONSISTENCY HARD RAMMED INTO POSITION OR AN APPROVED SHRINK COMPENSATING GROUT.

S19. SHOP DRAWINGS SHALL BE SUBMITTED IN DUPLICATE TO THE ENGINEER FOR STRUCTURAL REVIEW. FABRICATION SHALL NOT COMMENCE UNTIL THE REVIEW HAS BEEN COMPLETED.

MASONRY (BRICKWORK & BLOCKWORK)
(12-12-94)

M1. ALL BRICKWORK AND BLOCKWORK SHALL COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATION, AS 3700 SAA MASONRY CODE AND SHALL SATISFY THE FIRE RESISTANCE LEVEL REQUIREMENTS OF THE WALL. STRETCHER BOND SHALL BE USED UNLESS NOTED OTHERWISE.

M2. MORTAR SHALL BE 1:1:6, TYPE A, CEMENT:LIME:SAND BY VOLUME, EXCEPT WHERE THE MASONRY IS REINFORCED, IN WHICH CASE THE MORTAR SHALL BE 1:25:3. PLASTICISERS SHALL NOT BE USED IN THE MORTAR MIX.

M3. BRICKWORK
(a) MINIMUM CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF BRICKS IN ACCORDANCE WITH AS1225 SHALL BE 25 MPa UNLESS NOTED OTHERWISE U.N.O.
(b) THE UNRESTRAINED 5-YEAR EXPANSION OF BRICKS, IN ACCORDANCE WITH NATA REGISTERED TEST No.80.1 SHALL NOT EXCEED 1.0mm/m UNLESS LOW GROWTH BRICKWORK IS SPECIFIED, IN WHICH CASE IT SHALL NOT EXCEED 0.33mm/m.

M4. BLOCKWORK
(a) ALL BLOCKS SHALL COMPLY WITH AS2733 AND SHALL HAVE A CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF 15 MPa.
(b) ALL SOLID BLOCKS SHALL BE LAID WITH FULL MORTAR BEDDING TO BOTH THE HORIZONTAL AND VERTICAL JOINTS.
(c) ALL HOLLOW BLOCKS ABOVE THE FOUNDATION COURSE SHALL BE LAID WITH MORTAR TO THE FACE SHELLS AND THEIR VERTICAL PROJECTION THROUGH THE PERPEND JOINTS. GROUTED BLOCKWORK SHALL HAVE FULL BEDDING INCLUDING CROSS WEBS, AND FULL PERPEND JOINTS. ALL HOLLOW BLOCKS SHALL BE LAID ON A FULL BED OF MORTAR AT THE FIRST BED JOINT ON FOOTINGS.
(d) BONDING OF BLOCKWALLS SHALL COMPLY WITH THE REQUIREMENTS OF CLAUSE 3.7 AND 3.9 OF AS3700.

M5. GROUT FOR REINFORCEMENT MASONRY:
GROUT USED TO FILL REINFORCED CAVITIES AND CORE HOLES IN BRICKWORK AND BLOCKWORK SHALL BE A SLUMP OF 230-260mm AT THE TIME OF POURING WHEN TESTED IN ACCORDANCE WITH AS3012, PART 3, WITH A CHARACTERISTIC COMPRESSIVE STRENGTH OF F'c = 20 MPa AT 28 DAYS (AS DEFINED IN AS 3600). THE AGGREGATE SHALL BE ROUNDED GRAVEL OF A MAXIMUM SIZE OF 10mm, WITH THE COURSE AGGREGATE BEING NOT MORE THAN 30% OF THE VOLUME OF GROUT. WHERE GROUT SPACES ARE LESS THAN 30mm (e.g. EITHER SIDE OF HORIZONTAL REINFORCEMENT), THE COARSE AGGREGATE SHALL BE OMITTED. READY-MIXED GROUT SHALL BE USED. SITE-MIXED GROUT WILL ONLY BE PERMITTED WHERE READY-MIXED GROUT IS NOT AVAILABLE AND WITH APPROVAL OF THE ENGINEER.

M6. NON LOAD BEARING WALLS SHALL BE KEPT A MINIMUM OF 20mm BELOW SOFFIT OF SLABS AND BEAMS OVER. WHERE THE WALL HAS A FIRE RATING REQUIREMENT, FILL JOINTS WITH AN APPROVED FIRE RESISTANT AND EQUAL RATING MATERIAL.

M7. REINFORCEMENT MUST BE POSITIONED ACCURATELY AND TIED SECURELY BEFORE PLACING CONCRETE OR GROUT.

M8. MORTAR FINS PROJECTING INTO CORES SHOULD BE REMOVED BEFORE GROUTING.

M9. CLEAN OUT OPENINGS SHALL BE PROVIDED IN THE BOTTOM COURSE, IN ALL REINFORCED CORES, TO PERMIT REMOVAL OF MORTAR FINS AND OTHER DEBRIS, AND TO ALLOW POSITIONING AND TYING OF VERTICAL REINFORCEMENT. THESE OPENINGS MUST BE CLOSED BEFORE GROUTING.

M10. PROVIDE CONTROL JOINTS WHERE INDICATED ON THE DRAWINGS AND TO THE REQUIREMENTS OF AS3700.

M11. BUILD IN ALL BRICK AND WALL TIES, FRAMING ANCHORS AND TIE DOWNS, INCLUDING MASONRY FLEXIBLE ANCHORS (AS SUPPLIED BY BRUNSWICK SALES PTY LTD OR SIMILAR APPROVED), AS SPECIFIED OR IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

M12. WALL TIES FOR BRICKWORK AND BLOCKWORK WALLS:

least leaf thickness mm	Cavity width mm	Spacing vert. mm	Spacing horiz. mm	No. of ties @ openings support cols, piers, walls, joints	Type of tie
	80or less	600	600	2 per 600mm	A
90	80-100	400	600	height and/or length	B or C
	100-160	300	600		B or C

TYPES OF TIE:
A - AS IN FIG. 2 OF SAA INT. 324, OF 3.15mm DIA. GALVANISED STEEL WIRE OR EQUIVALENT CROSS SECTIONAL AREA.
B - 18x3mm TIES, TO AS1699
C - 6.3mm DIA. GALVANISED MILD STEEL.

M13. ALL WALL TIES AND ACCESSORIES SHALL COMPLY WITH AS2699 AND AS2975, AND SHALL HAVE CORROSION RESISTANCE RATING OF R2 AS DESCRIBED IN TABLE 2.2 OF AS3700. ALL WALL TIES SHALL BE EMBEDDED 50mm MINIMUM INTO MORTAR JOINTS (CLAUSE 3.11, AS3700).

M14. MASONRY FLEXIBLE ANCHORS SHALL BE FIXED TO EXISTING MASONRY WALLS, CONCRETE SURFACES, OR STEELWORK USING 2 No. RAMSET POWDER ACTUATED 3.8mm DIAMETER x 25mm LONG DRIVE PINS WITH A 16mm DIAMETER DISK OR AS PER MANUFACTURER'S RECOMMENDATIONS.

M15. MASONRY ANCHORS SHALL ONLY BE FIXED INTO SOLID MASONRY AND NOT THE MORTAR. WHERE THE MASONRY CONSISTS OF HOLLOW OR PERFORATED UNITS SUBSTITUTE A SOLID ONE OR GROUT TO MAKE SOLID.

M16. THE GROUT SHALL BE COMPACTED THOROUGHLY SO THAT VOIDS ARE NOT LEFT. COMPACTION SHALL BE BY RODDING WITH A PLAIN ROUND BAR (DO NOT USE VERTICAL REINFORCING BARS OR OTHER DEFORMED BARS) OR WITH HIGH FREQUENCY PENCIL VIBRATOR USED CAREFULLY.

M17. THE HEIGHT OF ANY SINGLE LIFT OF GROUTING SHOULD NOT EXCEED 30 TIMES THE MINIMUM CORE DIMENSIONS OR 3.6m, WHICHEVER IS LESS.

M18. ALL REINFORCEMENT SHALL BE INSPECTED AND APPROVED BY THE ENGINEER BEFORE PLACING GROUT.

SLAB ON GROUND:
(10-8-95)

D1. REFER TO CONCRETE NOTES FOR REINFORCED CONCRETE.

D2. CLEAR THE AREA FROM ALL ORGANIC SOIL, SOD, ROCK MATERIAL AND EXISTING PAVING.

D3. THE GROUND AROUND THE SLAB FOR A MINIMUM OF 1500 MUST BE WELL DRAINED BY GRADING THE SURFACE AWAY FROM THE SLAB INTO THE DRAINAGE SYSTEM. WHERE WATER SEEPAGE IS A PROBLEM, SUB-SURFACE DRAINS ARE TO BE PROVIDED AROUND THE HIGH SIDE TO A DEPTH OF NOT LESS THAN 450mm.

D4. FOOTINGS AND RIBS ARE TO BE FOUNDED IN ORIGINAL NATURAL GROUND U.N.O., HAVING A SAFE ALLOWABLE BEARING CAPACITY OF 150 kPa AND THE SLAB IS TO REST ON GROUND OF 50 kPa MINIMUM.

D5. AS BEAMS MAY NEED DEEPENING TO REACH NATURAL GROUND, THE EXTRA EXCAVATION MAY BE FILLED WITH LEAN (15MPa) CONCRETE.

D6. WHERE FILLING IS REQUIRED, IT SHALL BE ROAD BASE MATERIAL OR CRUSHER DUST PLACED IN LAYERS NOT EXCEEDING 150mm, COMPACTED TO 98% STANDARD COMPACTION IN ACCORDANCE WITH AS1289.5. MAXIMUM DEPTH OF FILLING 450mm U.N.O., EXCEPT FOR SUSPENDED SLABS WHICH MAY BE PLACED ON LOOSE FILL COMPACTED SUFFICIENTLY TO SUPPORT THE WEIGHT OF THE WET CONCRETE PLUS CONSTRUCTION LOADING.

D7. UNDER ALL SLABS, PROVIDE 100mm COMPACTED DEPTH OF LEVELLING ROADBASE MATERIAL OR CRUSHER DUST OVERLAIN BY 0.2mm THICKNESS POLYTHENE SHEETING LAPPED AND TAPED AT ALL JOINTS AND AROUND PLUMBING FITTINGS ETC. THE POLYTHENE SHALL BE FREE TO FOLLOW THE CONTOURS OF THE EXCAVATION, i.e. NOT RESTRAINED SO AS TO CAUSE THE CONCRETE TO HANG UP OFF FORMS.

D8. WHERE A SLAB IS SUPPORTED ON BRICKWORK, PROVIDE A DOUBLE THICKNESS STRIP OF 'ALCOR' OR EQUIVALENT ALONG THE TOP EDGE OF ALL THE BRICKWORK UNDER THE POLYTHENE.

D9. ACCURATELY FORM (CLASS 3 TO AS3610) THE EDGES OF ALL SLABS, REBATES, AND SET DOWNS TO THE REQUIRED DIMENSIONS WITH TOLERANCES TO AS3610.

D10. SERVICE PENETRATIONS SHALL HAVE FLEXIBLE CONNECTIONS WHERE THEY ENTER THE BUILDING AND SHALL NOT PASS THROUGH THE TOP OR BOTTOM THIRD OF THE DEPTH OF EDGE BEAMS OR INTERNAL BEAMS.

D11. UNDERGROUND PIPE SERVICES SHALL NOT BE EXCAVATED TO A DEPTH GREATER THAN THE DISTANCE BETWEEN THE CLOSET EDGE OF THE EXCAVATION AND THE EDGE OF THE SLAB, THOROUGHLY COMPACT ALL BACKFILL TO EXCAVATIONS ADJACENT TO BUILDINGS IN MAXIMUM 150mm THICKNESS LAYERS OF APPROVED GRANULAR MATERIAL.

D12. AVOID PLANTING TREES WITHIN 75% OF THEIR MATURE HEIGHT AWAY FROM THE FACE OF THE BUILDING.

DRAWING INDEX

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

PLOT INFO: C:\ACAD JOB FILES\18.447 Truck Wash\ 18.447-S.dwg, DATE: Feb 28,2019 - 9:18:48am

Amend	Date	Description	By
B	27-02-19	ISSUED FOR FINAL APPROVAL	D.S.
A	19-02-19	ISSUED FOR APPROVAL	D.S.

Drawn:	D.S.	Designed:	C.M.B.
CCQP No:		CCQP Checked:	
CAD Ref:	18.447-S.dwg	Approved for Construction:	
Scale:	AS SHOWN		
Date:	FEB. 2019		

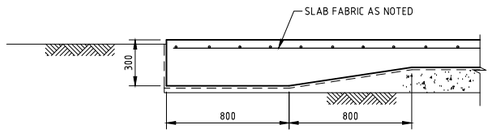
PROPOSED TRUCK WASH
LOT 30 DP130510
MITCHELL HWY, MOLONG

GENERAL NOTES

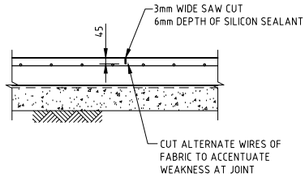
CABONNE COUNCIL

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447
DWG. No. S1 Issue B
No. in set 5



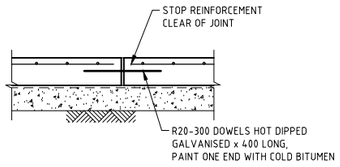
SECTION A
SCALE 1 : 20



SAWCUT SHRINKAGE JOINT (S.J.)

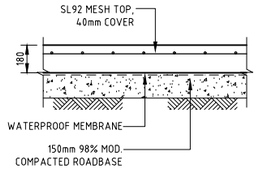
SCALE 1:20

NOTE: JOINT TO BE SAWN WITHIN 16 HOURS OF CONCRETE POUR



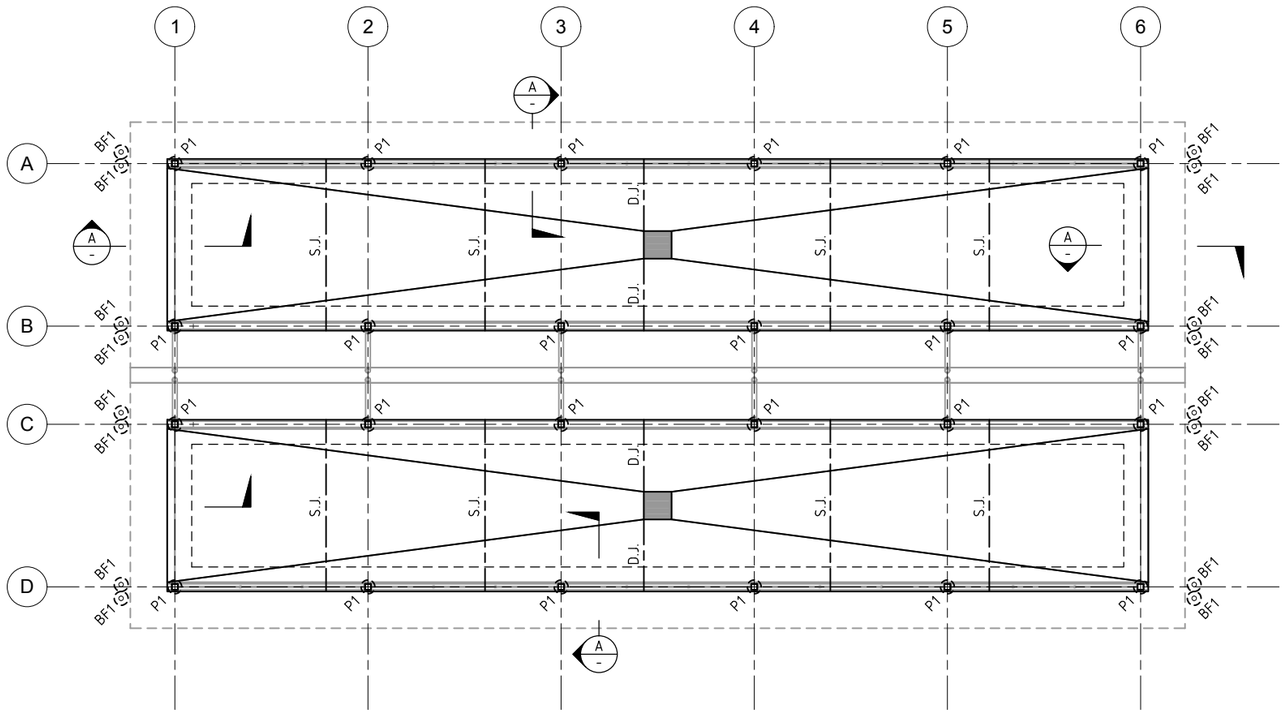
DOWELLED JOINT (D.J.)

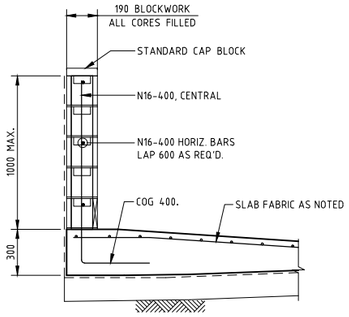
SCALE 1:20



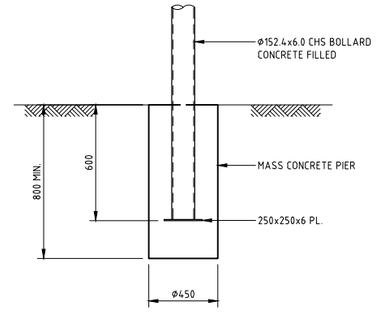
TYPICAL SHED SLAB DETAIL

SCALE 1:20





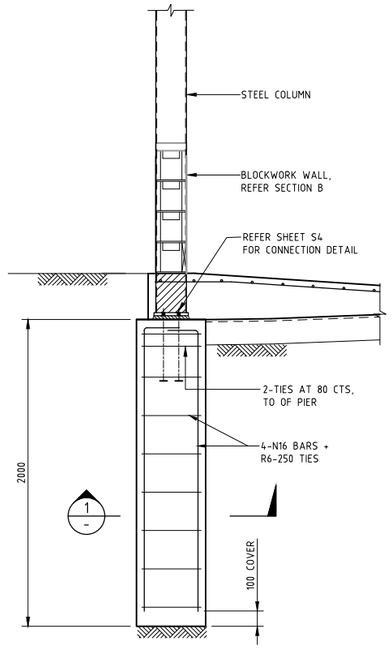
SECTION B
SCALE 1 : 20



BOLLARD FOOTING BF1

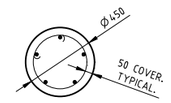
SCALE 1:20

LOCATION TO ARCHITECT'S DETAILS

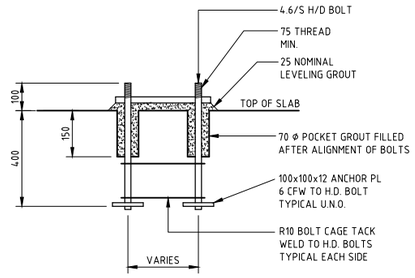


PIER P1 DETAIL

SCALE 1:20



SECTION 1
SCALE 1 : 20



TYPICAL H/D BOLT DETAIL FOR COLUMNS

TYPICAL UNLESS NOTED OTHERWISE

SCALE 1:20

SLAB & FOOTING LAYOUT

SCALE 1:100

180mm SLAB ON GROUND

1. SLABS TO BE POURED ON 150mm RECYCLED CONCRETE SUB-BASE COMPACTED TO 98% MODIFIED DRY DENSITY AND A VAPOUR BARRIER WITH ALL JOINTS LAPPED AND TAPPED.
2. REINFORCE SLABS WITH SL92 FABRIC TOP (40mm COVER). LAP 300 WHERE REQUIRED.

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

PLOT INFO: C:\ACAD JOB FILES\18.447 Truck Wash\ 18.447-S.dwg, DATE: Feb 28,2019 - 9:18:51am

Amend	Date	Description	By
B	27-02-19	ISSUED FOR FINAL APPROVAL	D.S.
A	19-02-19	ISSUED FOR APPROVAL	D.S.

Drawn:	D.S.	Designed:	C.M.B.
CCQP No:		CCQP Checked:	
CAD Ref:	18.447-S.dwg	Approved for Construction:	
Scale:	AS SHOWN		
Date:	FEB. 2019		

PROPOSED TRUCK WASH
LOT 30 DP130510
MITCHELL HWY, MOLONG

SLAB, FOOTING LAYOUT & DETAILS

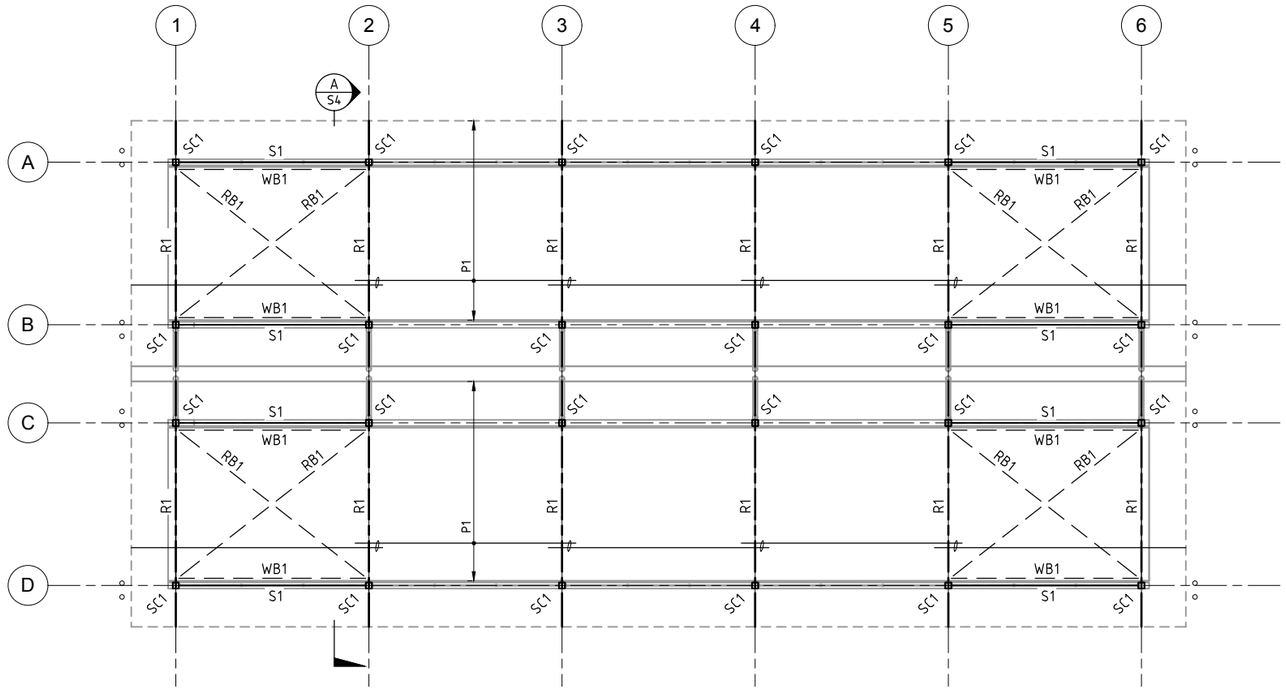
CABONNE COUNCIL

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447

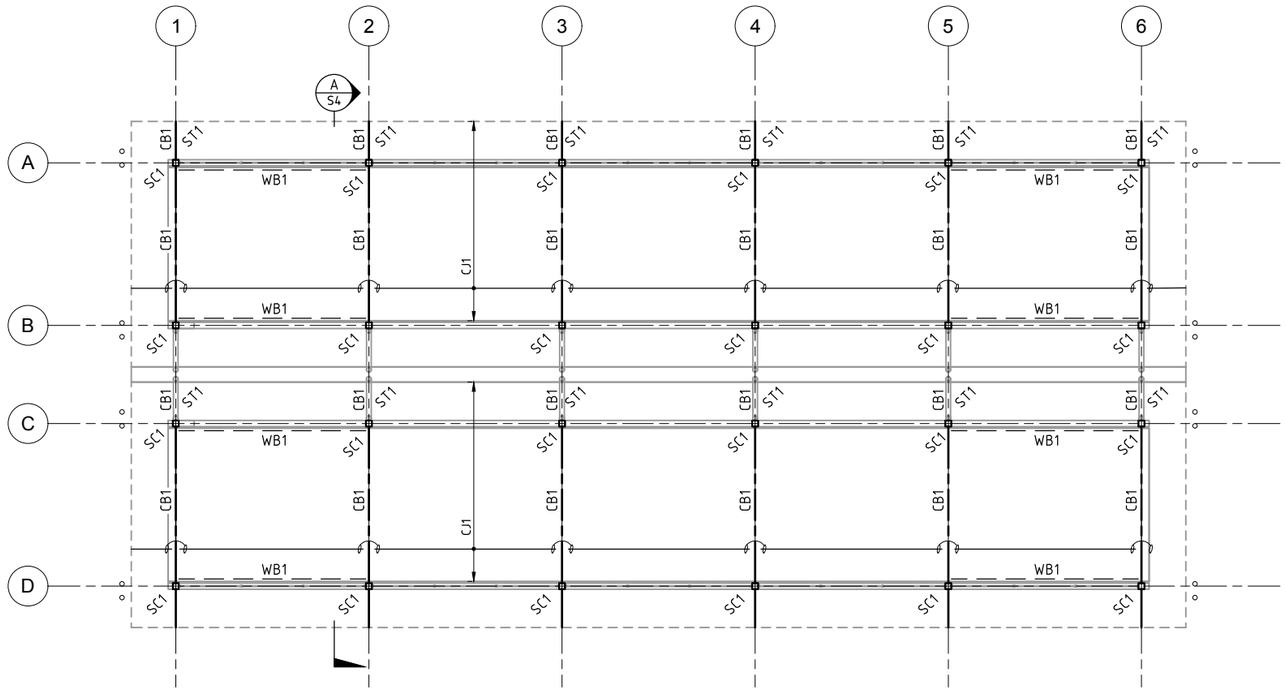
DWG. No. S2 | Issue B

No. in set 5



STEEL WORK ROOF MARKING PLAN

SCALE 1:100



STEEL WORK CEILING MARKING PLAN

SCALE 1:100

STEELWORK SCHEDULE		
MEMBER	SIZE	COMMENT
SC1	200 x 6.0 SHS	STEEL COLUMN
R1	200 UC 46	STEEL RAFTER
S1	75 x 3.0 SHS	STEEL STRUT
RB1	16ø ROD, TENSIONED	ROOF BRACING
WB1	16ø ROD, TENSIONED	WALL / VERTICAL BRACING
CB1	180 PFC	CEILING SUPPORT BEAM
CJ1	C 150 19	CEILING JOISTS AT 900 CTS + 2 ROWS OF BRIDGING
ST1	180 PFC	STEEL STUB
P1	Z 200 15	PURLINS AT 1200 CTS + 1 ROW OF BRIDGING
G1	Z 150 19	GIRTS AT 900 CTS + 2 ROWS OF BRIDGING, LAP 15%

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

PLOT INFO: C:\ACAD JOB FILES\18.447 Truck Wash\ 18.447-S.dwg, DATE: Feb 28,2019 - 9:18:56am

Amend	Date	Description	By
B	27-02-19	ISSUED FOR FINAL APPROVAL	D.S.
A	19-02-19	ISSUED FOR APPROVAL	D.S.

Drawn:	D.S.	Designed:	C.M.B.
CCQP No:		CCQP Checked:	
CAD Ref:	18.447-S.dwg	Approved for Construction:	
Scale:	AS SHOWN		
Date:	FEB. 2019		

PROPOSED TRUCK WASH
LOT 30 DP130510
MITCHELL HWY, MOLONG

STEEL WORK LAYOUTS

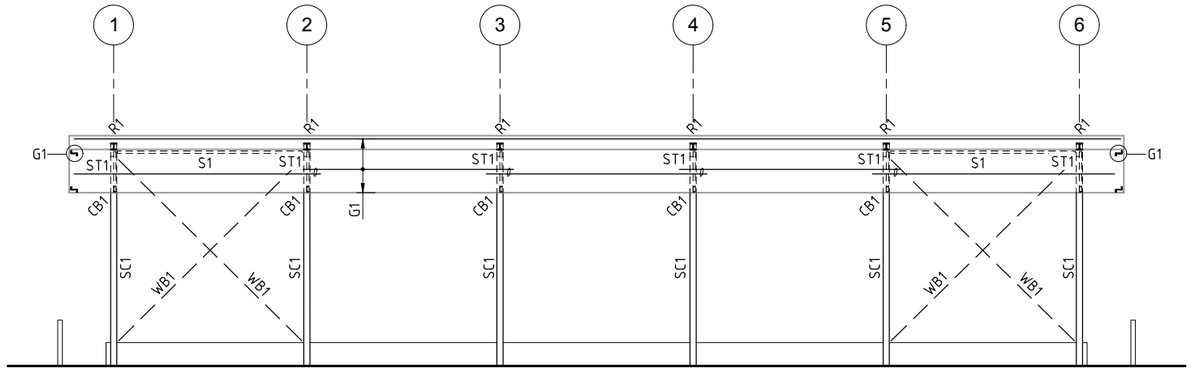
CABONNE COUNCIL

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447

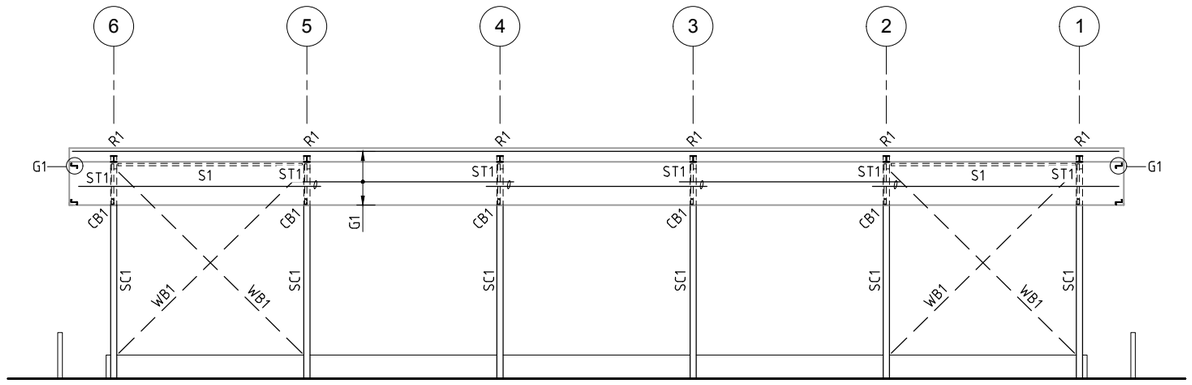
DWG. No. S3 | Issue B

No. in set 5



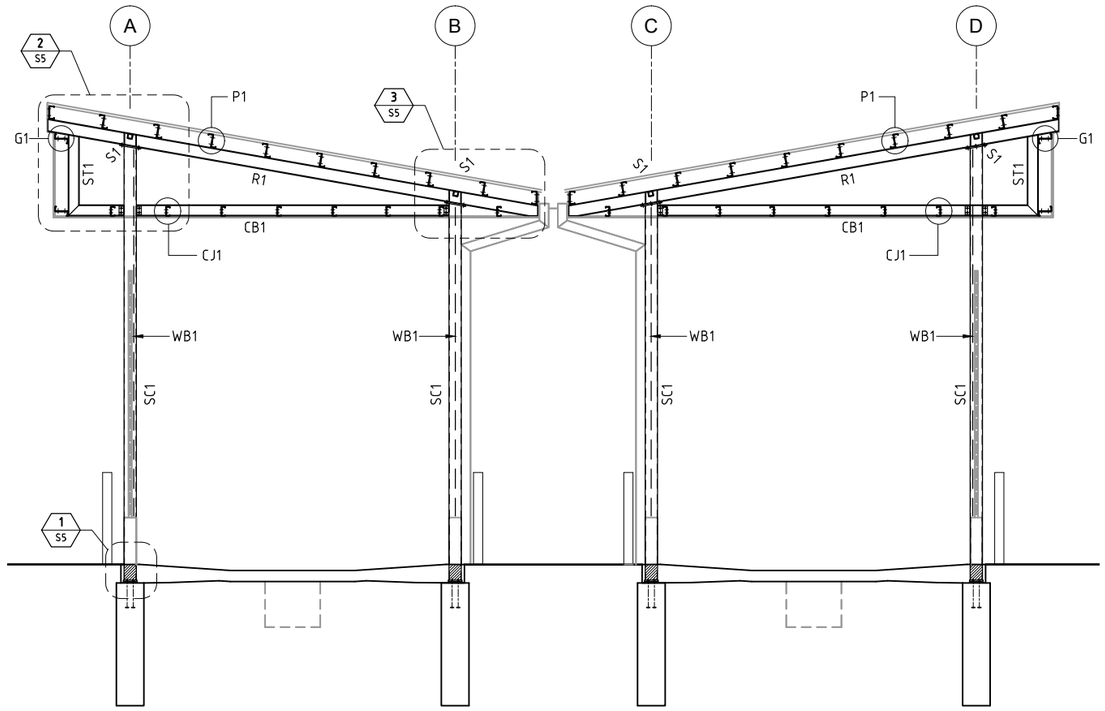
EAST ELEVATION

SCALE 1:100



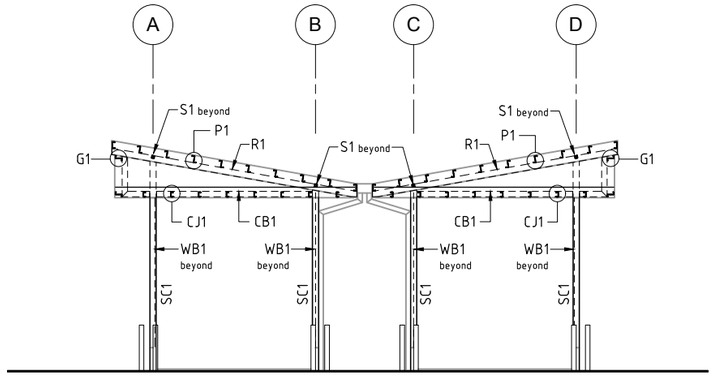
WEST ELEVATION

SCALE 1:100



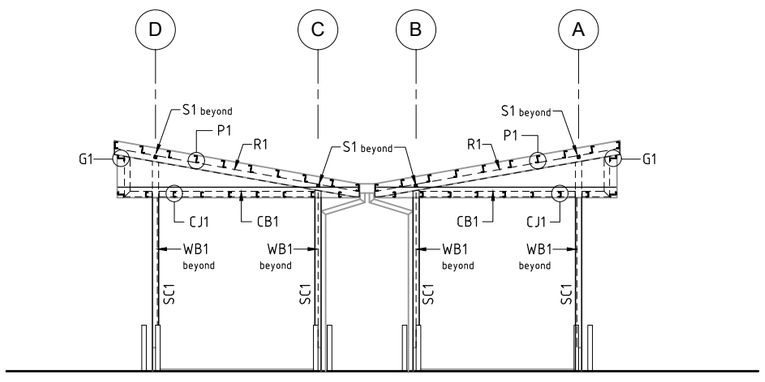
SECTION A/S3

SCALE 1 : 50



SOUTH ELEVATION

SCALE 1:100



NORTH ELEVATION

SCALE 1:100

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

PLOT INFO: C:\ACAD JOB FILES\18.447 Truck Wash\ 18.447-S.dwg, DATE: Feb 28,2019 - 9:19:01am

Amend	Date	Description	By
B	27-02-19	ISSUED FOR FINAL APPROVAL	D.S.
A	19-02-19	ISSUED FOR APPROVAL	D.S.

Drawn:	D.S.	Designed:	C.M.B.
CCQP No:		CCQP Checked:	
CAD Ref:	18.447-S.dwg	Approved for Construction:	
Scale:	AS SHOWN		
Date:	FEB. 2019		

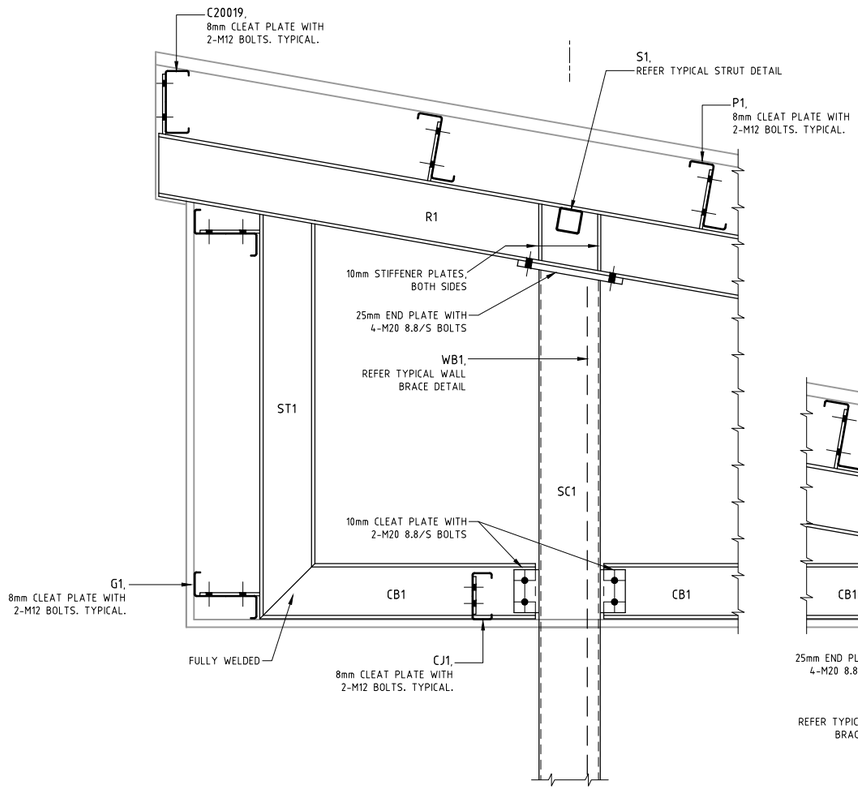
PROPOSED TRUCK WASH
LOT 30 DP130510
MITCHELL HWY, MOLONG

STEEL WORK ELEVATIONS & SECTION

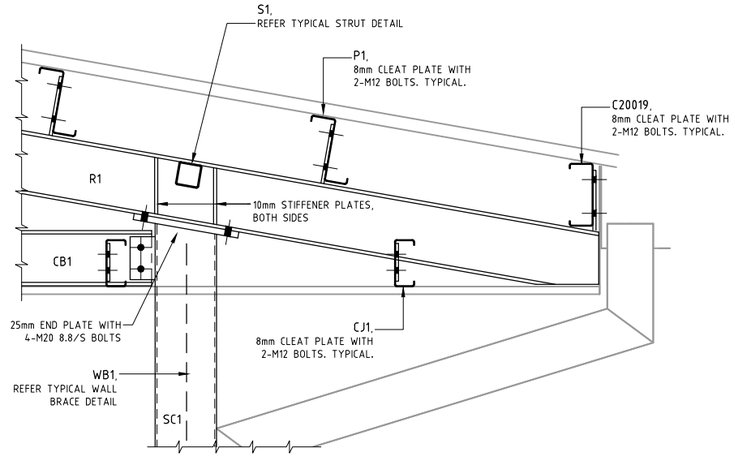
CABONNE COUNCIL

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

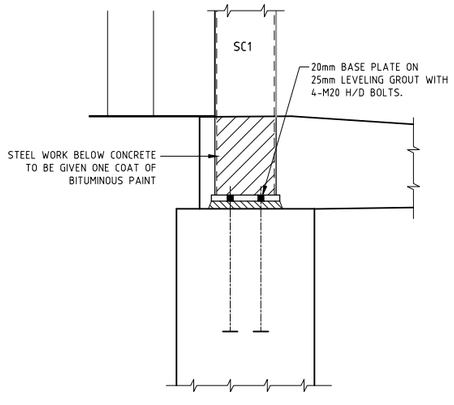
Job No.	18.447
DWG. No.	S4
Issue	B
No. in set	5



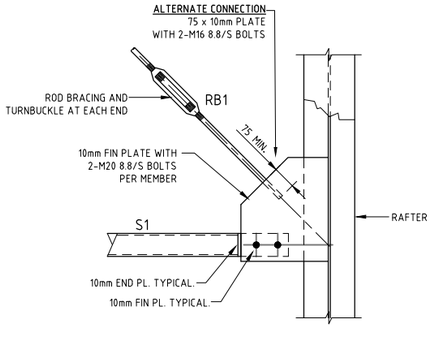
DETAIL 2 / S4
SCALE 1 : 10



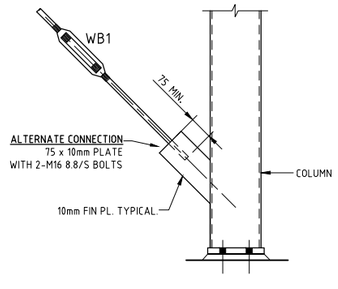
DETAIL 3 / S4
SCALE 1 : 10



DETAIL 1 / S4
SCALE 1 : 10



TYPICAL STRUT AND ROOF BRACE DETAIL
SCALE 1:10



TYPICAL VETICAL BRACE WB1 DETAIL
SCALE 1:10

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

PLOT INFO: C:\ACAD JOB FILES\18.447 Truck Wash\ 18.447-S.dwg, DATE: Feb 28,2019 - 9:19:06am

Amend	Date	Description	By
B	27-02-19	ISSUED FOR FINAL APPROVAL	D.S.
A	19-02-19	ISSUED FOR APPROVAL	D.S.

Drawn:	D.S.	Designed:	C.M.B.
CCQP No:		CCQP Checked:	
CAD Ref:	18.447-S.dwg	Approved for Construction:	
Scale:	AS SHOWN		
Date:	FEB. 2019		

PROPOSED TRUCK WASH
LOT 30 DP130510
MITCHELL HWY, MOLONG

STEEL WORK DETAILS

CABONNE COUNCIL

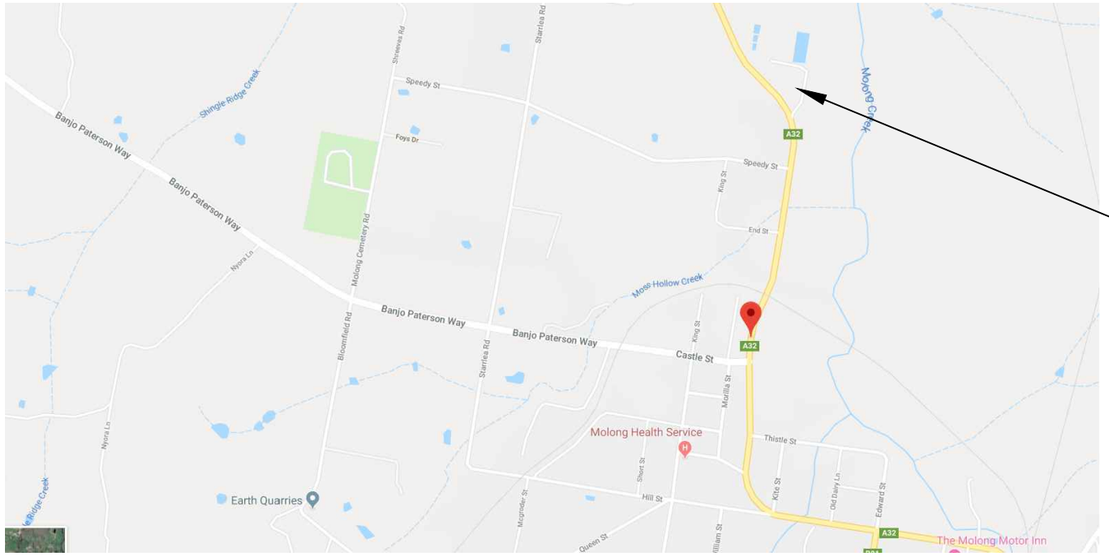
CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No.	18.447
DWG. No.	S5
Issue	B
No. in set	5

PROPOSED TRUCKWASH
MITCHELL HIGHWAY
LOT 30 DP130510
MOLONG
NSW 2866

FOR
DESIGNSATM

CABONNE COUNCIL



LOCATION OF WORKS

LOCALITY PLAN
N.T.S.

DRAWING INDEX

DRAWING NUMBER	REV NO	DRAWING TITLE
C100	1	COVER SHEET
C101	1	CONSTRUCTION NOTES & TYPICAL DETAILS
C102	1	OVERALL LAYOUT PLAN
C103	1	TRUCK WASH & STORMWATER DESIGN
C104	1	CONCRETE SLAB PLAN
C105	1	HARDSTAND SETOUT
C106	1	BAL/BAR INTERSECTION
C107	1	BAL TURNING MOVEMENTS
C108	1	BAR TURNING MOVEMENTS
C109	1	MARKET STREET LONGITUDINAL SECTION
C110	1	MARKET STREET CROSS SECTIONS
C111	1	MARKET STREET CROSS SECTIONS
C112	1	MARKET STREET CROSS SECTIONS
C113	1	MITCHELL HIGHWAY LONGITUDINAL SECTION
C114	1	MITCHELL HIGHWAY CROSS SECTIONS
C115	1	ENTRY/EXIT & ACCESS LONGITUDINAL SECTIONS
C116	1	ACCESS ROAD CROSS SECTIONS
C117	1	KERB RETURN LONGITUDINAL SECTIONS
C118	1	SOIL & WATER MANAGEMENT PLAN

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:39:25am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

COVERSHEET

DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447
DWG. No. C100
Issue 1
No. in set 19

GENERAL NOTES

1. THESE DRAWING SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATION, AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.
2. ALL DISCREPANCIES SHALL BE REFERRED TO CALARE-CIVIL P/L FOR DECISION BEFORE PROCEEDING WITH THE WORK.
3. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.
4. ALL LEVELS AND SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED ONSITE BEFORE CONSTRUCTION.
5. ALL WORKS MUST BE CARRIED OUT IN ACCORDANCE WITH STATUTORY REQUIREMENTS, INCLUDING THE OCCUPATIONAL HEALTH AND SAFETY REGULATION 2011.
6. ALL RELEVANT JOB SAFETY ANALYSIS REPORTS SHOULD BE SUBMITTED FOR REVIEW PRIOR TO COMMENCEMENT OF WORKS.
7. SITE TO BE FENCED AND SIGN POSTED WHILST CONSTRUCTION IS UNDERWAY.
8. LOCATE AND DEPTH ALL EXISTING UTILITY SERVICES PRIOR TO COMMENCEMENT OF WORKS.

BULK EARTHWORK NOTES

STRIPPING

1. STRIP ALL GRASS AND TOP SOIL (200mm) TO EXPOSE UNDERLYING SOIL.
2. SITE SHOULD BE STRIPPED AND REINSTATED PROGRESSIVELY AS REQUIRED (MINIMIZE EXPOSED SURFACES).
3. TOPSOIL TO BE STOCKPILED FOR FUTURE USE IN LANDSCAPING.

FILL PLATFORMS

1. FOR STRIPPED SLOPES STEEPER THAN 12.5% OVER WHICH FILL PLATFORMS ARE TO BE CONSTRUCTED, PROVIDE BENCHING NOT LESS THAN 300mm DEPTH.
2. FILL MATERIAL SHALL BE COMPACTED WITHIN 5% OF OPTIMUM MOISTURE CONTENT IN LAYERS LESS THAN 200mm.
3. STRUCTURAL FILL PLATFORMS TO BE COMPACTED TO 98% STANDARD DRY DENSITY.
4. FILL MATERIAL TO BE FREE OF ORGANICS, BUILDERS DEBRIS, AND OTHER DELETERIOUS MATERIAL. FURTHER MORE, FILL MATERIAL IS NOT TO CONSIST OF SILTS.
5. FILL MATERIAL TO BE UNIFORM MOISTURE CONTENT PRIOR TO PLACEMENT AND COMPACTION.
6. MAXIMUM ROCK FRAGMENT SIZE TO BE 70mm DIAMETER WITHIN FILL MATERIAL.
7. PLATFORMS TO BE CONSTRUCTED CONTINUOUSLY UNTIL COMPLETE. PART PLATFORM CONSTRUCTION IS NOT ACCEPTABLE.
8. FILL PLATFORMS TO BE CONSTRUCTED WITH 1 VERTICAL TO 3 HORIZONTAL BATTER UNLESS SPECIFIED OTHERWISE.
9. TERRACED CUT AND FILL AREA ARE TO BE CONSTRUCTED FROM UPPER LEVEL TO LOWER LEVEL WITH OVER FILLING AND CUTTING BACK AS NECESSARY.
10. ALL FILL SURFACES TO BE SHAPED TO PROVIDE DRAINAGE AND PREVENT PONDING OF SURFACE WATER.

CUT PLATFORMS

1. CUT PLATFORMS TO BE PROOFED ROLLED AND SHAPED TO PROVIDE DRAINAGE AND PREVENT PONDING OF SURFACE WATER. DIRECT SURFACE FLOW TO SWALES.

TESTING

1. TESTING TO BE CARRIED OUT IN ACCORDANCE WITH AS3798 BY NATA REGISTERED LABORATORY.
2. TESTING TO BE UNDERTAKEN PROGRESSIVELY THROUGHOUT BULK EARTHWORKS.
3. TESTING TO BE DISTRIBUTED UNIFORMLY THROUGHOUT DEVELOPMENT. ALLOW 1 TEST PER 50m³ FILL.
4. ANY PLATFORMS NOT ACHIEVING MINIMUM TEST RESULTS ARE TO BE STRIPPED BACK, RE-COMPACTED, AND RE-TESTED UNTIL COMPACTION LEVELS ACHIEVED.
5. COMPACTION CONTROL TESTING SHOULD BE CARRIED OUT TO VERIFY THE LEVEL OF COMPACTION ATTAINED IN THE PLACED FILL. LEVEL 2 SAMPLING AND TESTING AS DEFINED BY AS 3798 – 1996 IS RECOMMENDED.
6. COMPACTION TESTING SHALL ACHIEVE THE RESULTS AS NOTED ON THE DRAWING AND SPECIFIED IN THE GEOTECHNICAL REPORT.

RIGID PAVEMENT DESIGN				
AREA	WEARING SURFACE	SUBBASE COURSE	TOTAL DEPTH	COMPACTION
CONCRETE HARDSTAND	175mm N32 CONCRETE	300mm DGS40	475mm	100% STD

NOTE: TRAFFIC DESIGN OF $6x10^5$ HVAG – 175mm CONCRETE THICKNESS JOINTED REINFORCED WITH PROVISION OF CONCRETE SHOULDERS

SUBGRADE MATERIAL & CONSTRUCTION REQUIREMENTS

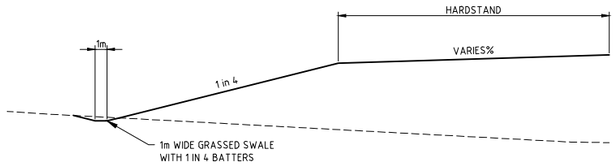
SUBGRADE DESIGN CBR 5% MIN 60-90% (OMC) STANDARD COMPACTION (PROOF ROLLED)

FLEXIBLE PAVEMENT DESIGN					
AREA	WEARING SURFACE	BASE COURSE	SUBBASE COURSE	TOTAL DEPTH	COMPACTION
CONCRETE HARDSTAND	40mm AC OR TWO COAT SEAL	150mm DGB20	250mm DGS40	440mm	100% STD

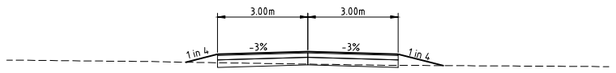
NOTE: TRAFFIC DESIGN OF $6x10^5$ ESA

SUBGRADE MATERIAL & CONSTRUCTION REQUIREMENTS

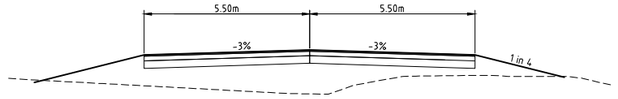
SUBGRADE DESIGN CBR 5% MIN 98% STANDARD COMPACTION (PROOF ROLLED)



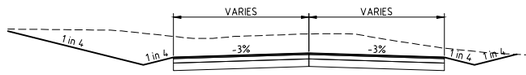
GRASSED SWALE TYPICAL SECTION
SCALE 1:40



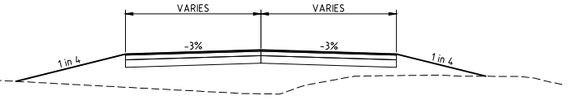
ENTRY/EXIT ROAD TYPICAL SECTION (IN FILL)
SCALE 1:20



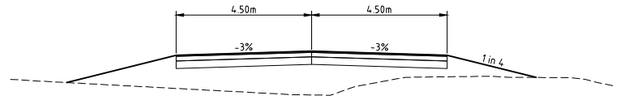
MARKET STREET TYPICAL SECTION CH0.00 TO CH115.00
SCALE 1:20



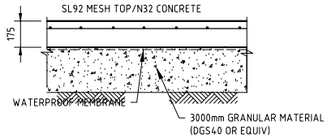
MARKET STREET TYPICAL SECTION (IN CUT)
SCALE 1:20



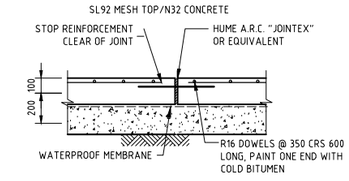
MARKET STREET TYPICAL SECTION (IN FILL)
SCALE 1:20



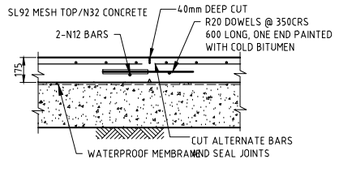
MARKET STREET TYPICAL SECTION CH115.00 TO END
SCALE 1:20



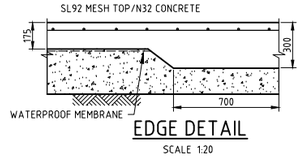
TYPICAL SLAB DETAIL
SCALE 1:20



DOWELLED EXPANSION JOINT (D.E.J.)
SCALE 1:20



CONTRACTION JOINT (C.J.)
SCALE 1:20
NOTE: JOINT TO BE SAWN WITHIN 48 HOURS OF CONCRETE POUR



EDGE DETAIL
SCALE 1:20

LEGEND

● H	WATERMAIN HYDRANT	SW	STORMWATER LINE
▬	STORMWATER KERB INLET PIT (K.I.P.)	S S	SEWER LINE & HOUSE CONNECTION LATERAL
◉	SEWER MANHOLE	W	WATERMAIN – DICL
■	INTERALLOTMENT PIT – GRATED (G.I.P.)	DP DP	ROOF WATER
		⋈	WATERMAIN STOP VALVE
H	EXISTING WATERMAIN HYDRANT	□	WATER METER BOX & 20Φ COPPER WATER PIPE SERVICE CONNECTION
⊏⊐	EXISTING STORMWATER KERB INLET PIT (K.I.P.)		
◎	EXISTING SEWER MANHOLE	sw	EXISTING STORMWATER LINE
▤	EXISTING GRATED INLET PIT (G.I.P)	S S	EXISTING SEWER LINE & HOUSE CONNECTION LATERAL
		W W	EXISTING WATERMAIN – DICL
3/2	STORMWATER PIT LABELS	⋈	EXISTING WATERMAIN STOP VALVE
1/A	SEWER PIT LABELS	◀	KERB DOWNPIPE CONNECTION ADAPTOR
		DP	DOWNPIPE
		ss ss	SUBSOIL DRAINAGE

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\20180447-C-1.dwg, DATE: Apr 15,2019 - 10:39:36am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

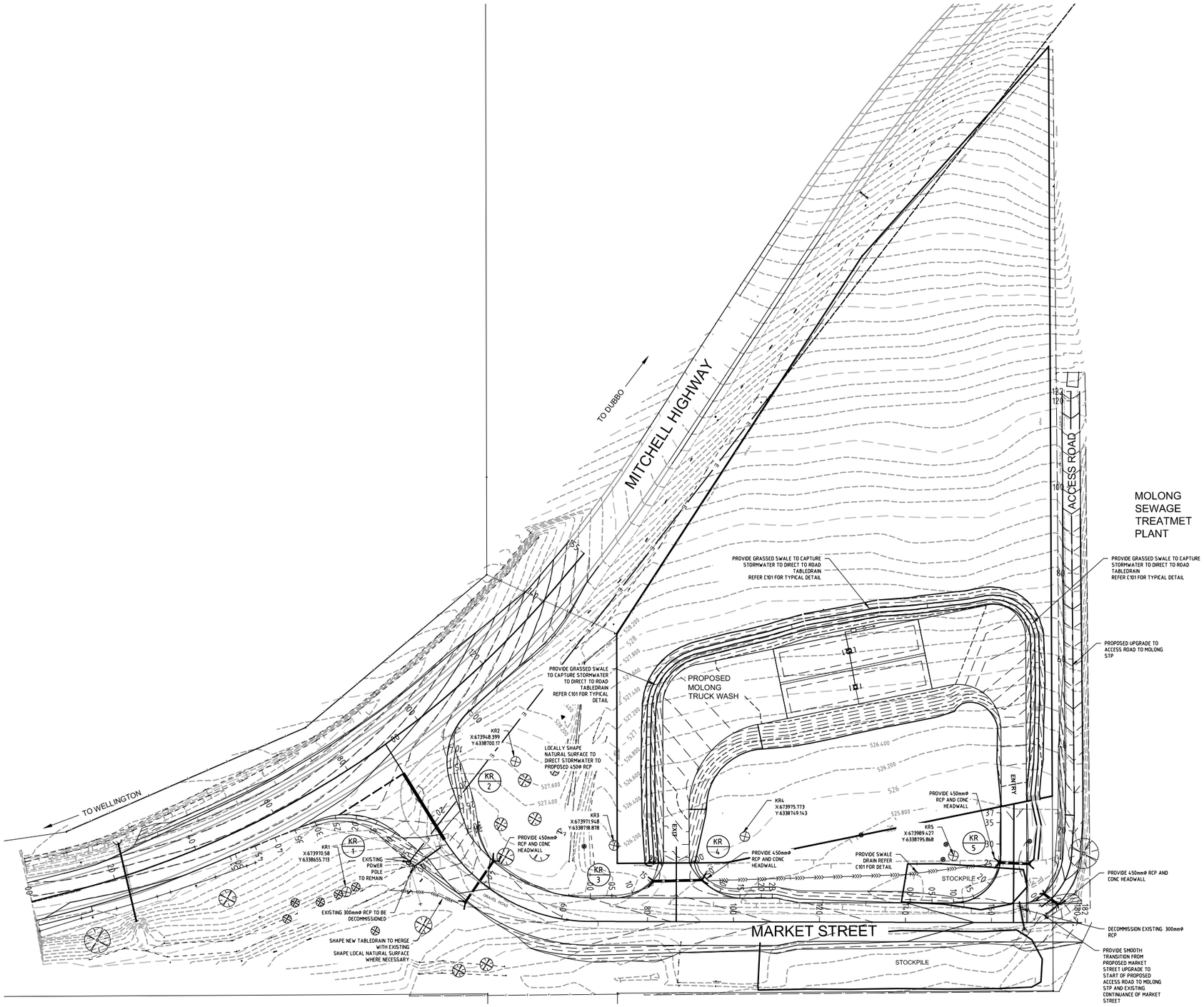
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

COVERSHEET

DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447
DWG. No. C100
Issue 1
No. in set 19



LAYOUT PLAN
1:500

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:39:48am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

OVERALL LAYOUT PLAN

DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 6332343 Fax: (02) 63318210

Job No.	18.447
DWG. No.	C102
Issue	1
No. in set	19

MITCHELL HIGHWAY

PROVIDE GRASSED SWALE TO CAPTURE STORMWATER TO DIRECT TO ROAD TABLEDRAIN REFER C101 FRO TYPICAL DETAIL

200l PUMP STATION

LINE TO STP

3Kl OWS

BATTER 1 IN 4

PROVIDE GRASSED SWALE TO CAPTURE STORMWATER TO DIRECT TO ROAD TABLEDRAIN REFER C101 FOR TYPICAL DETAIL

PROVIDE ROCK CHECK DAMS FOR SCOUR PROTECTION REFER C115 FOR DETAIL

PROPOSED MOLONG TRUCK WASH

PIT TOP RL528.161

3Kl PIT

PIT TOP RL527.991

215l PIT

BATTER 1 IN 4

PROVIDE ROCK CHECK DAMS FOR SCOUR PROTECTION REFER C115 FOR DETAIL

MOLONG SEWAGE TREATMENT PLANT

PROVIDE ROCK CHECK DAMS FOR SCOUR PROTECTION REFER C115 FOR DETAIL

UPRADE ACCESS ROAD TO MOLONG STP

ENTRY

LOCALLY SHAPE NATURAL SURFACE TO DIRECT STORMWATER TO PROPOSED 450Ø RCP

PROVIDE GRASSED SWALE TO CAPTURE STORMWATER TO DIRECT TO ROAD TABLEDRAIN REFER C101 FOR TYPICAL DETAIL

PROVIDE 450mmØ RCP AND CONC HEADWALL

PROVIDE ROCK CHECK DAMS FOR SCOUR PROTECTION REFER C115 FOR DETAIL

EXIT

PROVIDE ROCK CHECK DAMS FOR SCOUR PROTECTION REFER C115 FOR DETAIL

EXISTING STOCKPILES TO BE REMOVED

PROVIDE 450mmØ RCP AND CONC HEADWALL

PROVIDE GRASSED SWALE DRAIN REFER C101 FOR DETAIL

PROVIDE 450mmØ RCP AND CONC HEADWALL

STOCKPILE

EXTEND TABLEDRAIN TO DIRECT STORMWATER TO HEADWALL

PROVIDE 450mmØ RCP AND CONC HEADWALL

GRAVEL ROAD

PROVIDE SMOOTH TRANSITION FROM PROPOSED MARKET STREET UPGRADE TO START OF PROPOSED ACCESS ROAD TO MOLONG STP AND EXISTING CONTINUANCE OF MARKET STREET

MARKET STREET

DECOMMISSION EXISTING 300mmØ RCP

EXISTING STOCKPILES TO BE REMOVED

STOCKPILE

LAYOUT PLAN
1:200

PLOT INFO- C:\Users\ym\Documents\YLM DESIGN\Projects\20180447-Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:40:20am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

TRUCK WASH & STORMWATER DESIGN

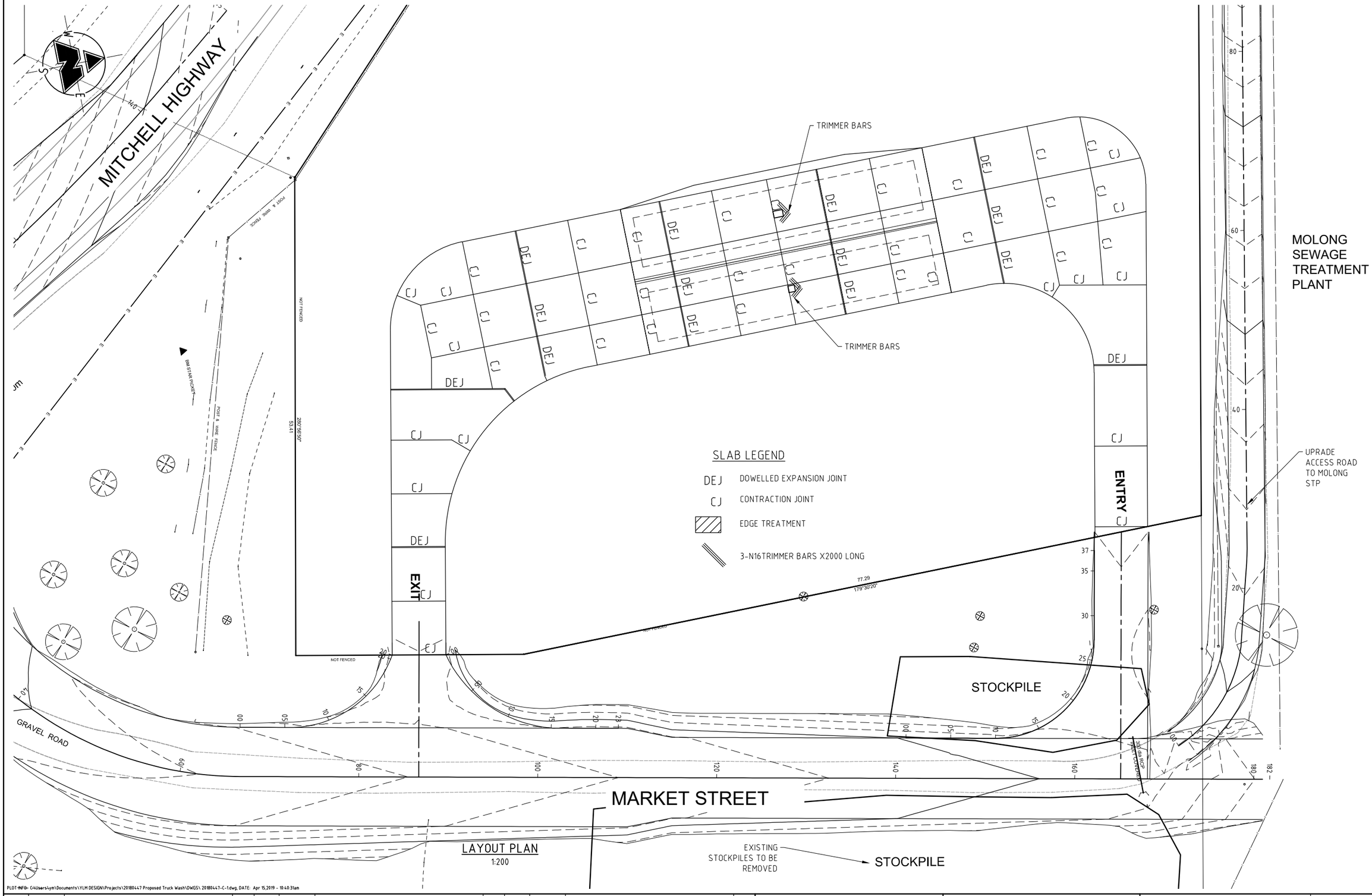
DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447

DWG. No. C103 | Issue 1

No. in set 19



LAYOUT PLAN
1:200

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:40:31am

Amend	Date	Description	By	Amend	Date	Description	By	Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM								
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM								
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM								
A	28.01.2019	PRELIMINARY	YLM								

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

CONCRETE SLAB PLAN

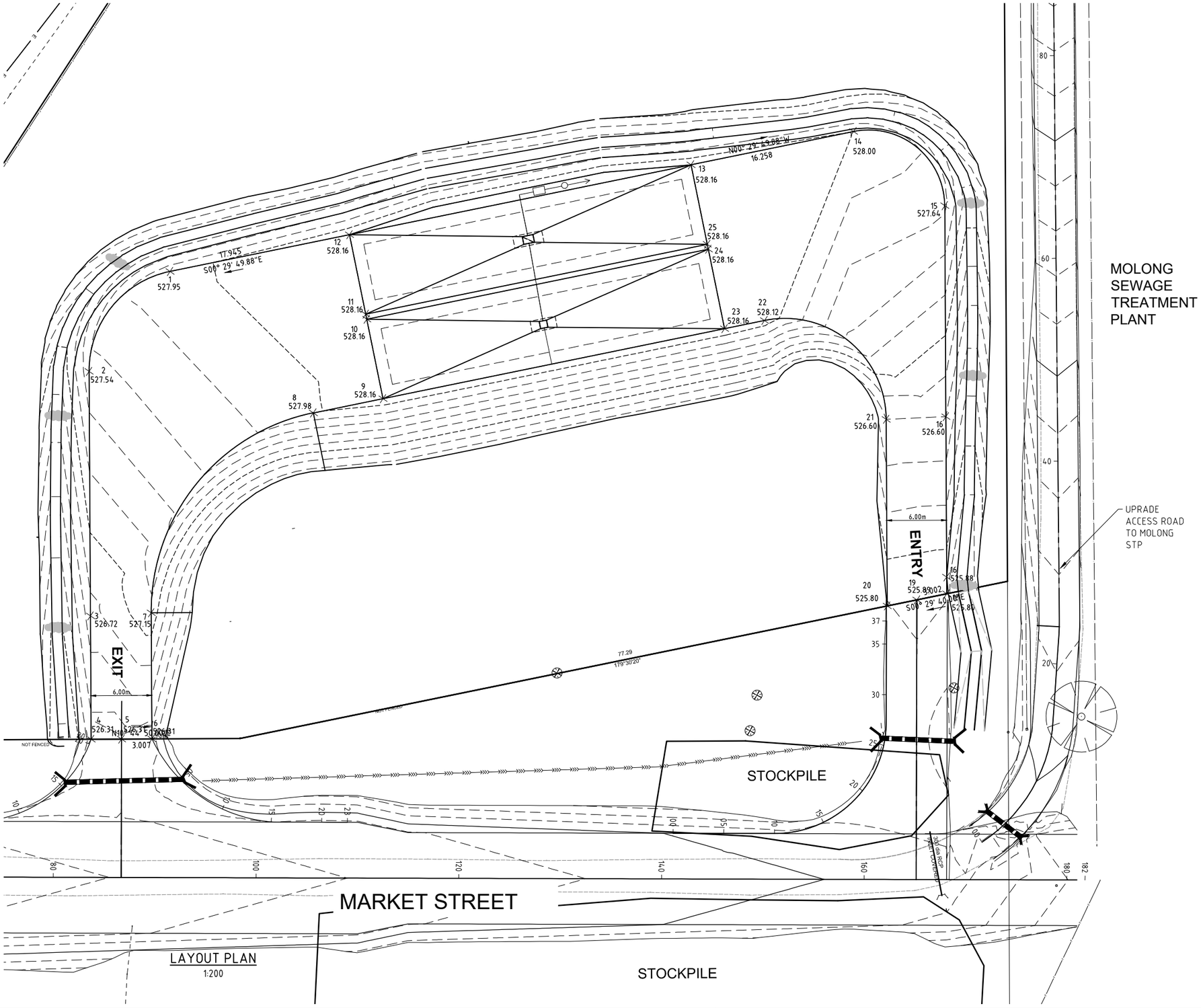
DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No.	18.447
DWG. No.	C104
Issue	1
No. in set	19

SETOUT TABLE

POINT NO	EASTINGS	NORTHINGS	LEVELS	
1	673934.37	6338745.85	527.95	
2	673942.50	6338736.12	527.54	
3	673966.19	6338731.62	526.72	
4	673978.15	6338729.35	526.31	
5	673978.70	6338732.29	526.31	
6	673979.27	6338735.25	526.31	
7	673967.04	6338737.57	527.15	
8	673950.77	6338757.04	527.98	
9	673950.71	6338764.06	528.16	
10	673942.71	6338763.99	528.16	
11	673942.21	6338763.99	528.16	
12	673934.21	6338763.92	528.16	
13	673933.91	6338798.31	528.16	
14	673933.77	6338814.68	528.00	
15	673942.67	6338822.11	527.64	
16	673963.12	6338818.22	526.60	
16	673978.65	6338815.26	525.88	
18	673980.27	6338814.95	525.80	
19	673980.30	6338811.95	525.89	
20	673980.32	6338808.95	525.80	
21	673962.25	6338812.39	526.60	
22	673950.38	6338802.48	528.12	
23	673950.41	6338798.46	528.16	
24	673942.41	6338798.39	528.16	
25	673941.91	6338798.38	528.16	



PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:40:48am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

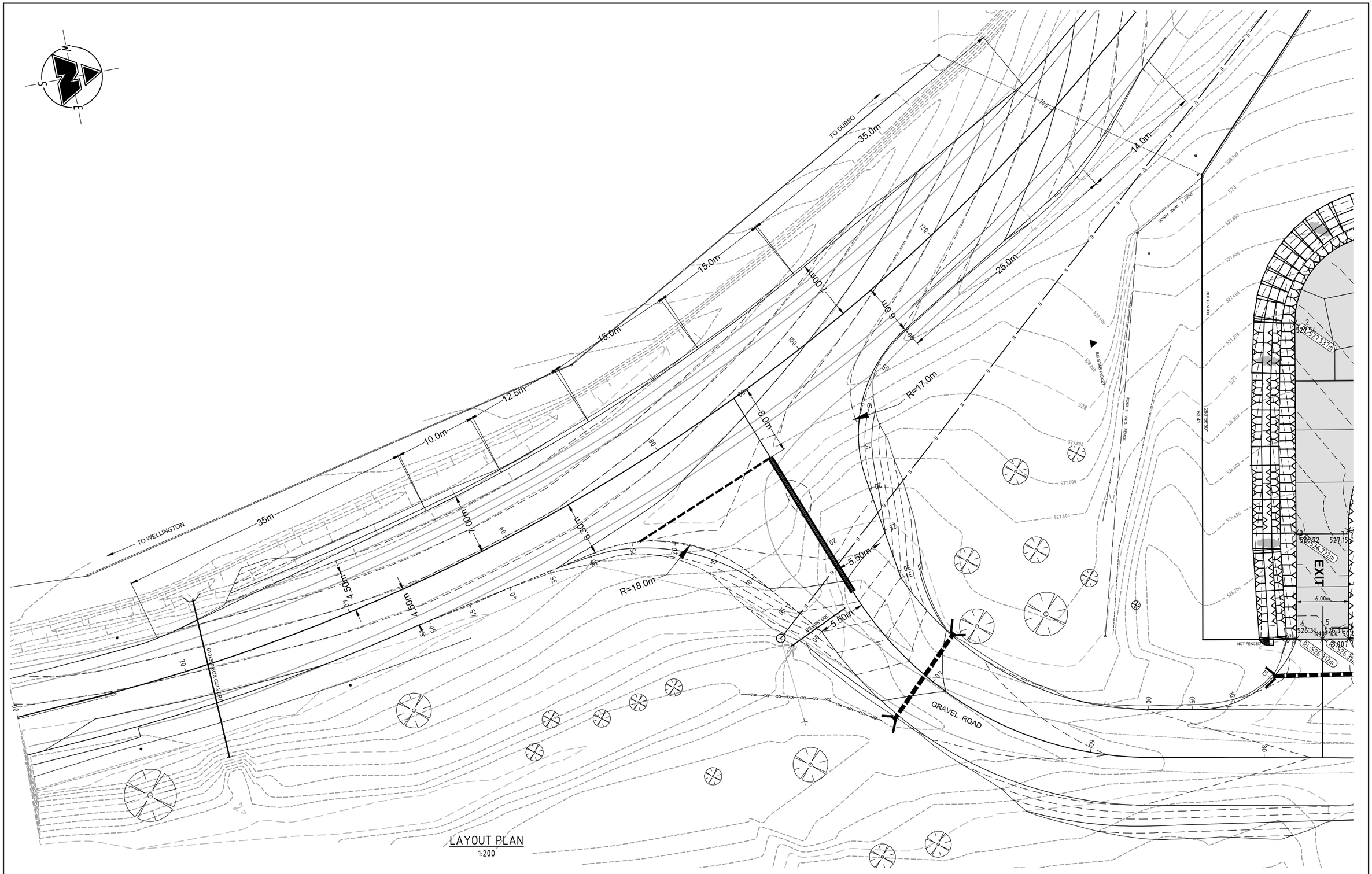
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

HARDSTAND SETOUT

DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No.	18.447
DWG. No.	C105
Issue	1
No. in set	19



LAYOUT PLAN
1:200

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:41:56am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

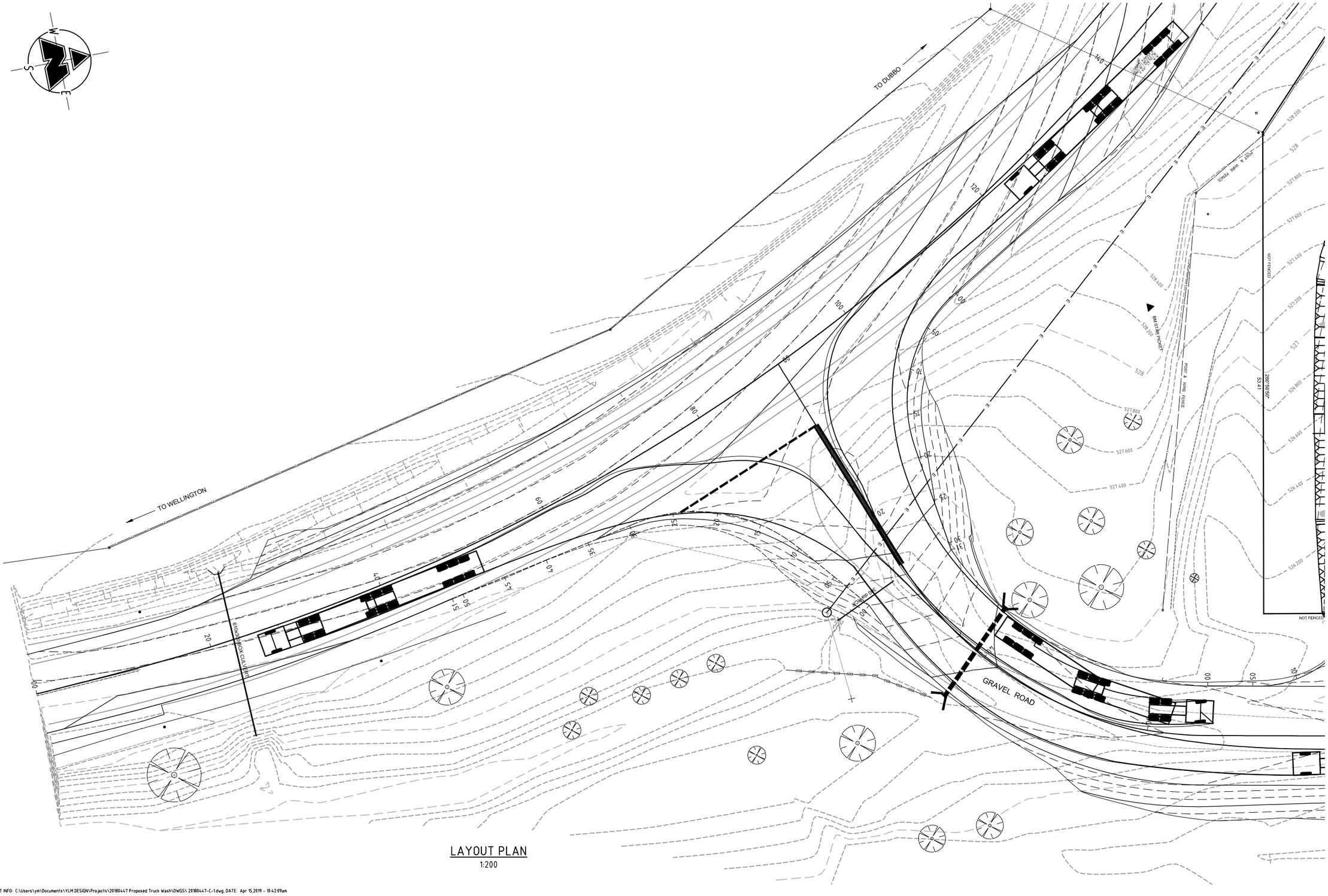
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

BAL/BAR INTERSECTION

DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447
DWG. No. C106
Issue 1
No. in set 19



LAYOUT PLAN
1:200

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:42:09am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

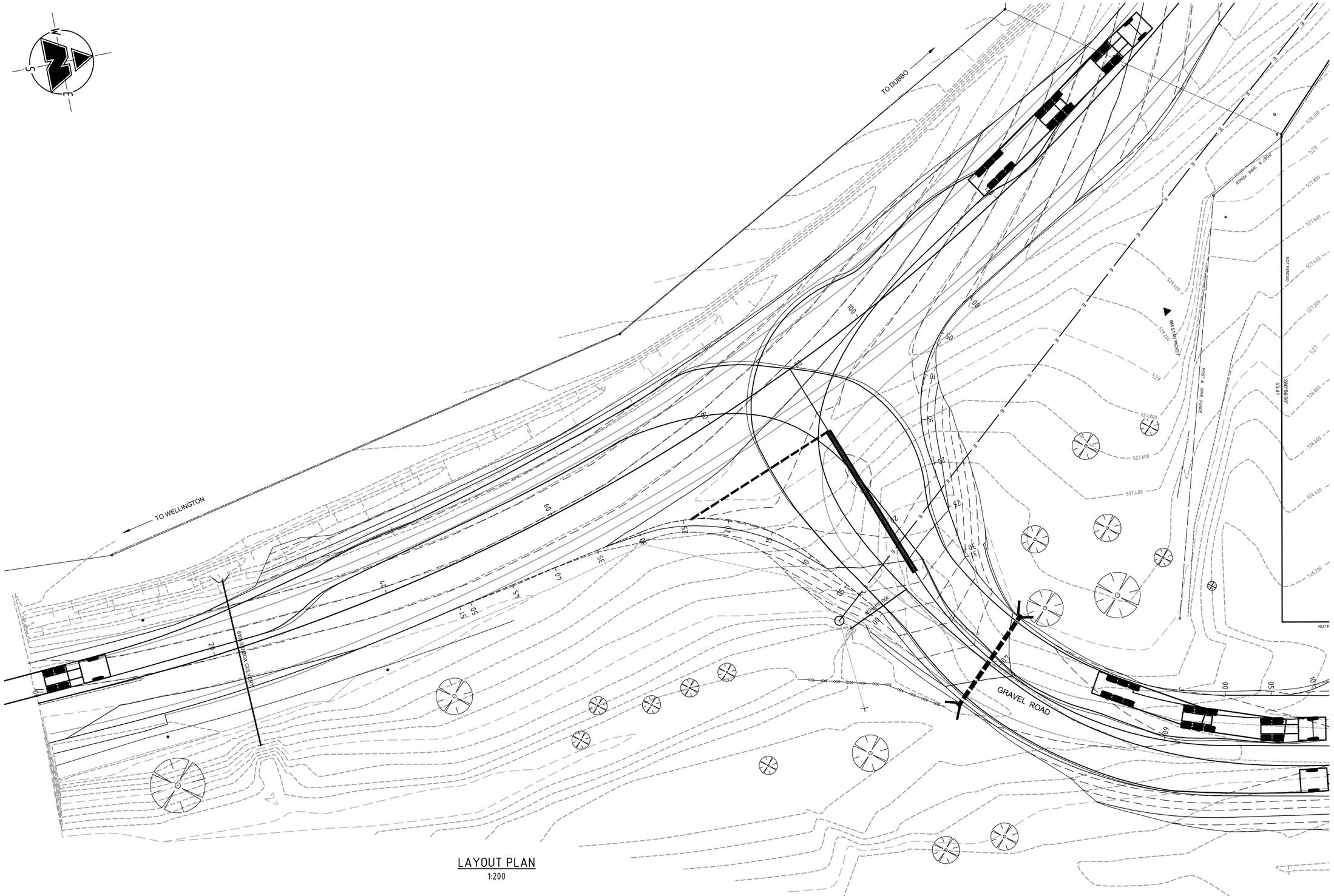
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

BAL TURNING MOVEMENTS

DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447
DWG. No. C107
Issue 1
No. in set 19



LAYOUT PLAN
1:200

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:42:22am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

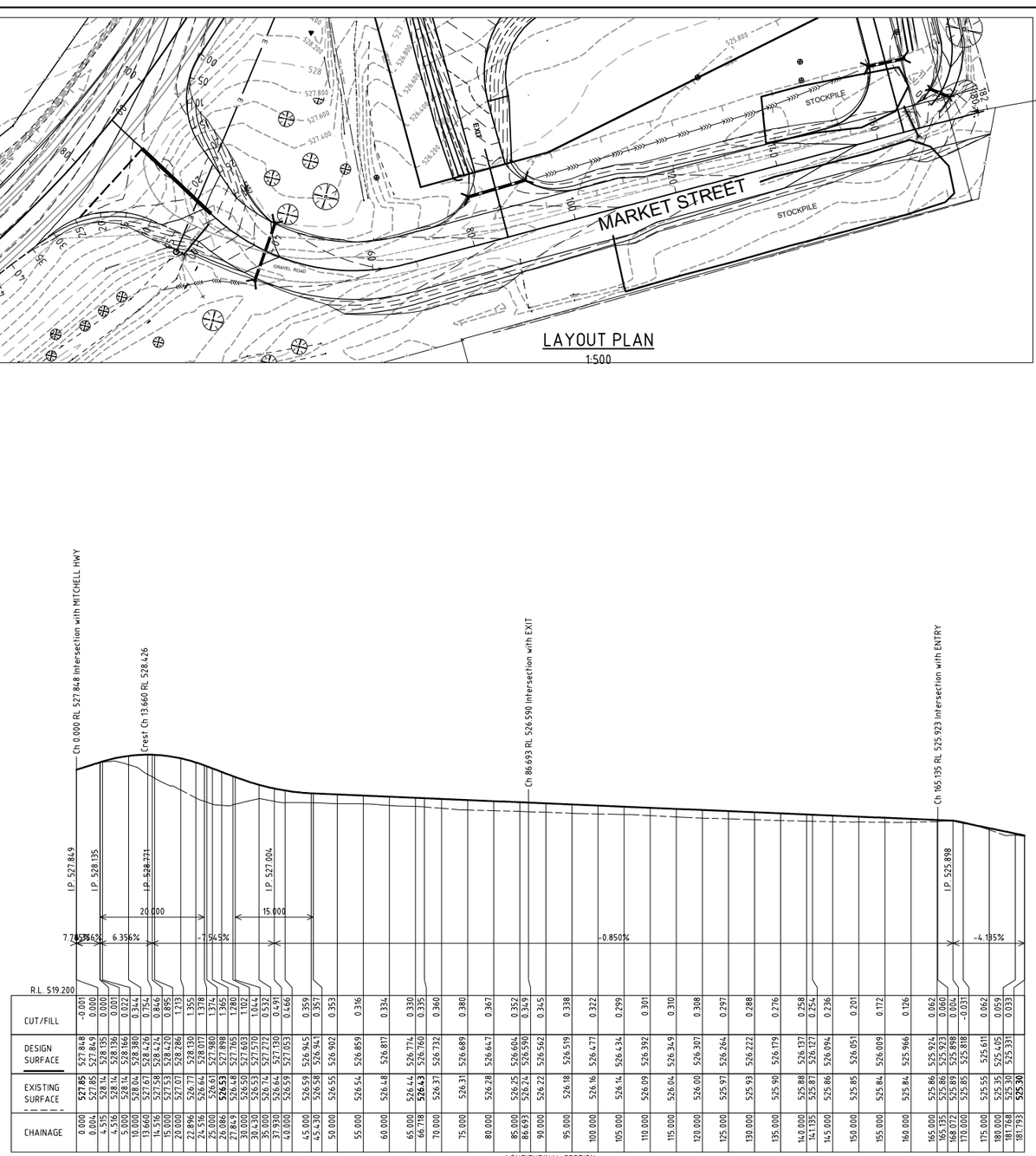
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

BAR TURNING MOVEMENTS

DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No.	18.447
DWG. No.	C108
Issue	1
No. in set	19



LAYOUT PLAN

1:500

PROVIDE SMOOTH
TRANSITION FROM
PROPOSED MARKET
STREET UPGRADE
TO START OF
PROPOSED ACCESS
ROAD TO MOLONG
STP AND EXISTING
CONTINUANCE OF
MARKET STREET

R.L. 519.200

CUT/FILL	-0.001	0.000	0.000	0.001	0.022	0.344	0.754	0.846	0.895	1.213	1.355	1.378	1.374	1.365
DESIGN SURFACE	527.848	527.849	528.135	528.136	528.166	528.380	528.426	528.424	528.420	528.286	528.130	528.017	527.980	527.898
EXISTING SURFACE	527.85	527.85	528.14	528.14	528.14	528.04	527.67	527.58	527.53	527.07	526.77	526.64	526.61	526.53
CHAINAGE	0.000	0.004	4.515	4.516	5.000	10.000	13.660	14.516	15.000	20.000	22.896	24.516	25.000	26.086

CUT/FILL	1.280	1.102	1.044	0.532	0.491	0.466	0.359	0.357	0.353	0.316	0.334	0.330	0.335	0.360
DESIGN SURFACE	527.765	527.603	527.570	527.272	527.130	527.053	526.945	526.941	526.902	526.859	526.817	526.774	526.760	526.732
EXISTING SURFACE	526.48	526.50	526.53	526.74	526.64	526.59	526.59	526.58	526.55	526.54	526.48	526.44	526.43	526.37
CHAINAGE	27.849	30.000	30.430	35.000	37.930	40.000	45.000	45.430	50.000	55.000	60.000	65.000	66.718	70.000

CUT/FILL	0.380	0.367	0.352	0.349	0.345	0.338	0.322	0.299	0.301	0.310	0.308	0.297	0.288	0.276
DESIGN SURFACE	526.689	526.647	526.604	526.590	526.562	526.519	526.477	526.434	526.392	526.349	526.307	526.264	526.222	526.179
EXISTING SURFACE	526.31	526.28	526.25	526.24	526.22	526.18	526.16	526.14	526.09	526.04	526.00	525.97	525.93	525.90
CHAINAGE	75.000	80.000	85.000	86.693	90.000	95.000	100.000	105.000	110.000	115.000	120.000	125.000	130.000	135.000

CUT/FILL	0.258	0.254	0.236	0.201	0.172	0.126	0.062	0.060	0.004	-0.031	0.062	0.059	0.033	
DESIGN SURFACE	526.137	526.127	526.094	526.051	526.009	525.966	525.924	525.923	525.898	525.818	525.611	525.405	525.331	
EXISTING SURFACE	525.88	525.87	525.86	525.85	525.84	525.84	525.86	525.86	525.89	525.85	525.55	525.35	525.30	525.30
CHAINAGE	140.000	141.135	145.000	150.000	155.000	160.000	165.000	165.135	168.072	170.000	175.000	180.000	181.768	181.793

LONGITUDINAL SECTION
MARKET STREET Ch 0.000 to Ch 181.793
SCALES: HORIZONTAL 1:500 VERTICAL 1:100

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:42:40am

Amend	Date	Description	By	Amend	Date	Description	By	Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM								
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM								
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM								
A	28.01.2019	PRELIMINARY	YLM								

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

MARKET STREET LONGITUDINAL SECTION

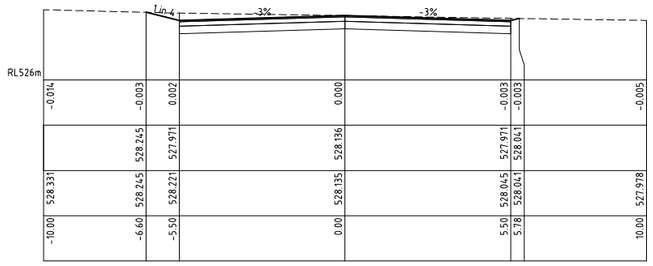
DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

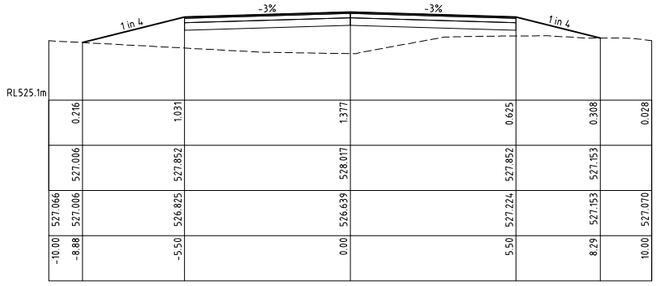
Job No. 18.447

DWG. No. C109 Issue 1

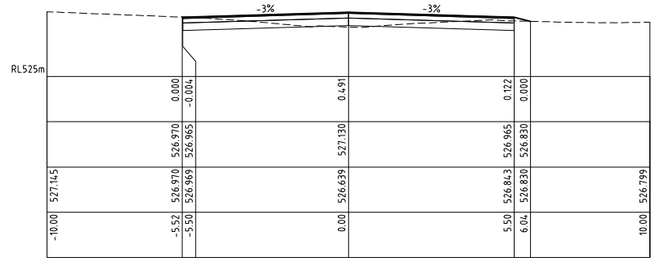
No. in set 19



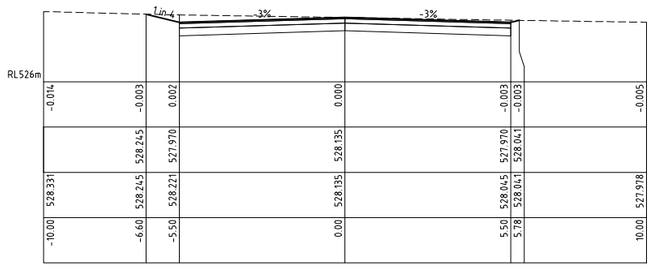
Ch 4.52 m



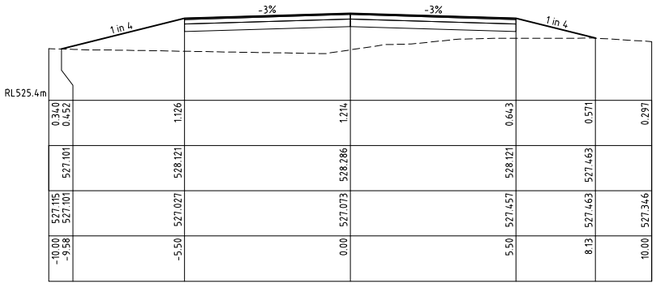
Ch 24.52 m



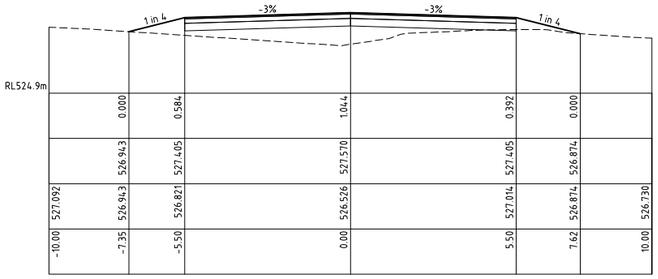
Ch 37.93 m



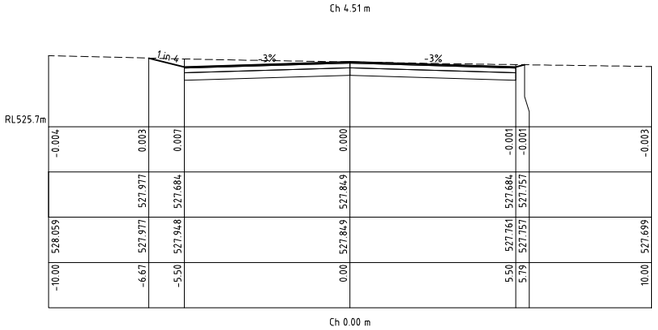
Ch 4.51 m



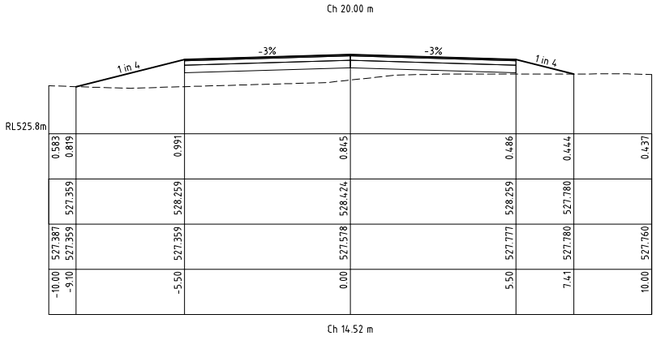
Ch 20.00 m



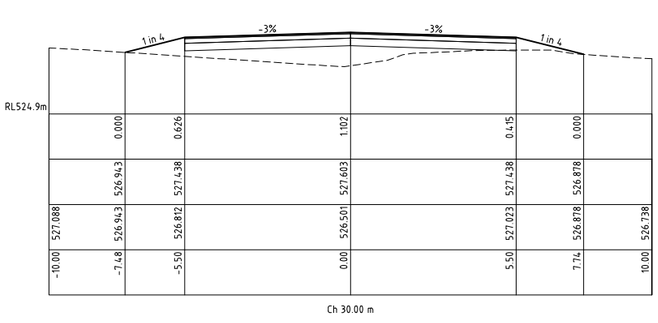
Ch 30.43 m



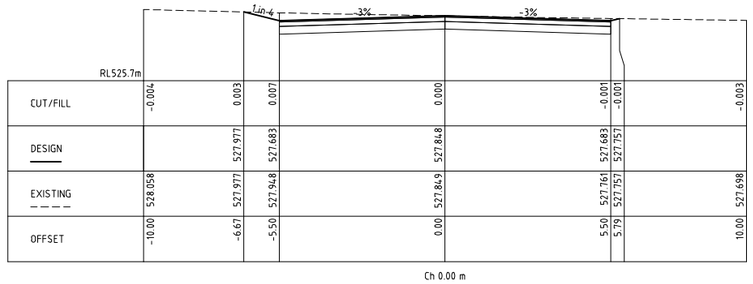
Ch 0.00 m



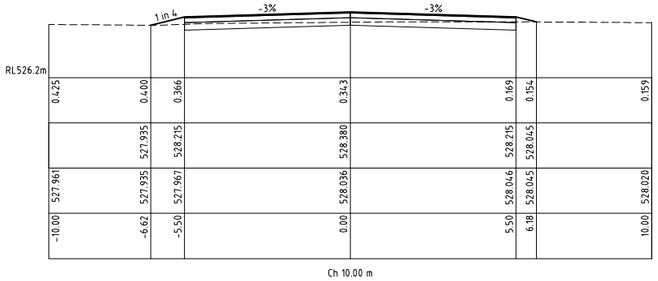
Ch 14.52 m



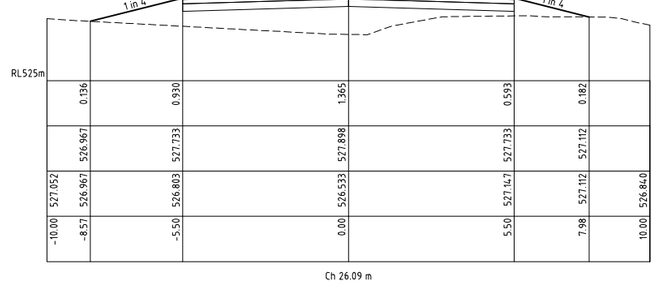
Ch 30.00 m



Ch 0.00 m



Ch 10.00 m



Ch 26.09 m

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:42:50am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

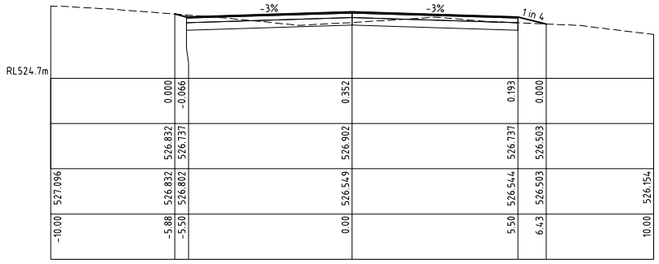
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

MARKET STREET CROSS SECTIONS

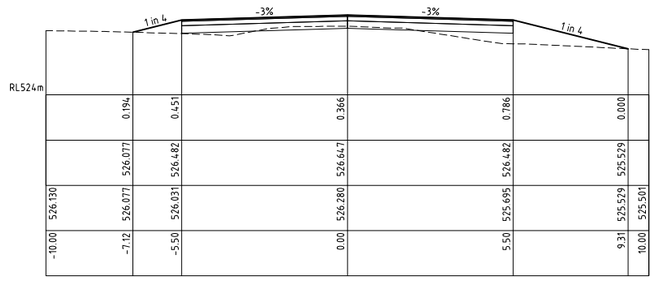
DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

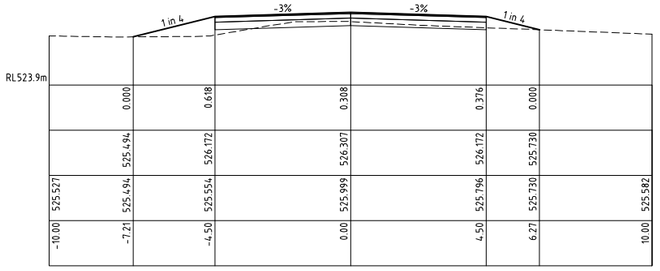
Job No. 18.447
DWG. No. C110
Issue 1
No. in set 19



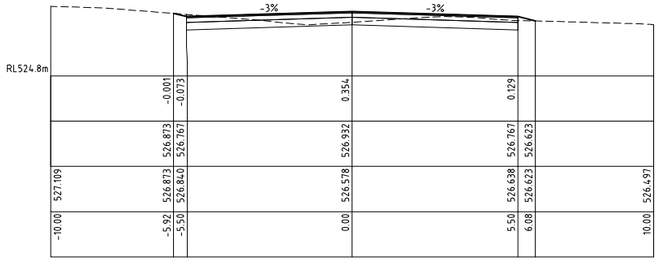
Ch 50.00 m



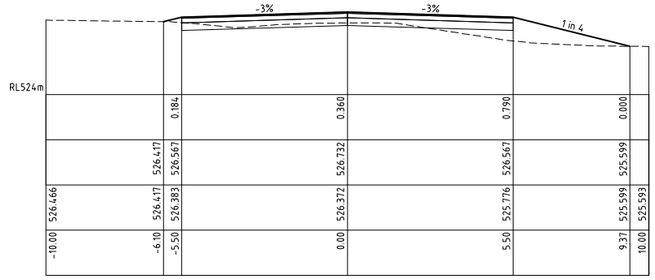
Ch 80.00 m



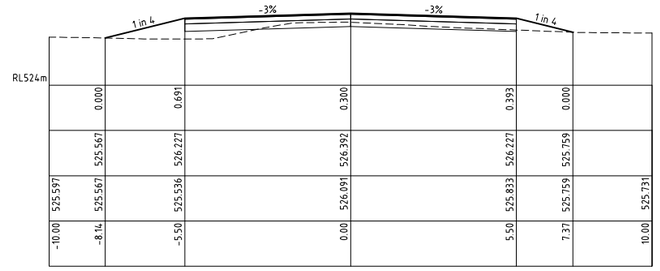
Ch 120.00 m



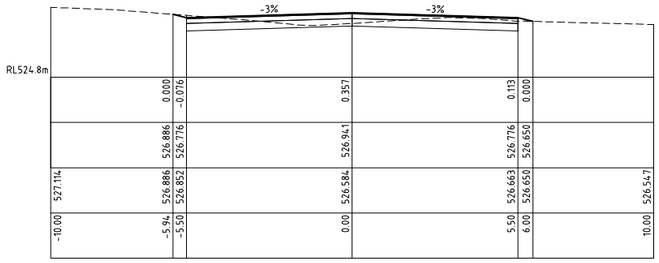
Ch 46.40 m



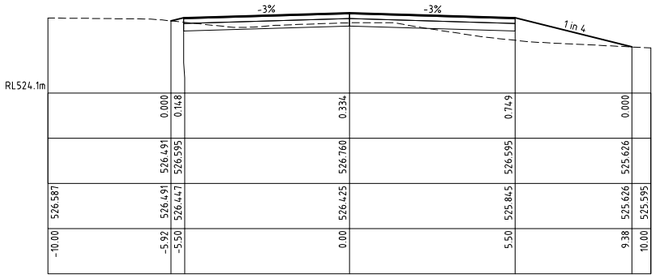
Ch 70.00 m



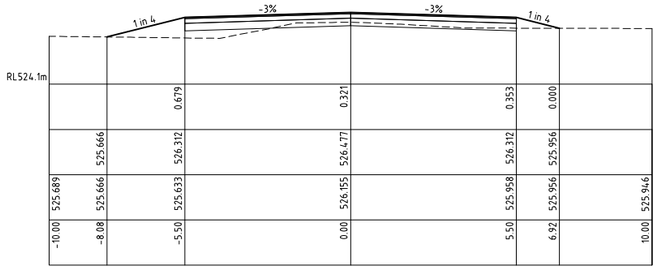
Ch 110.00 m



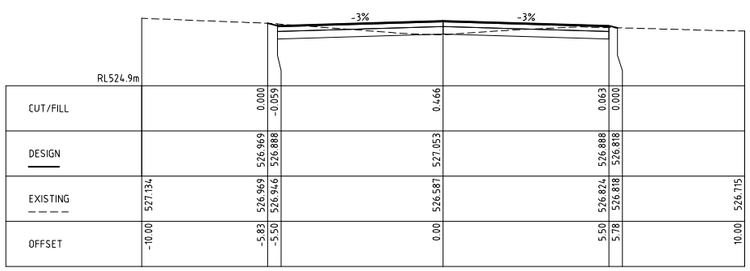
Ch 45.43 m



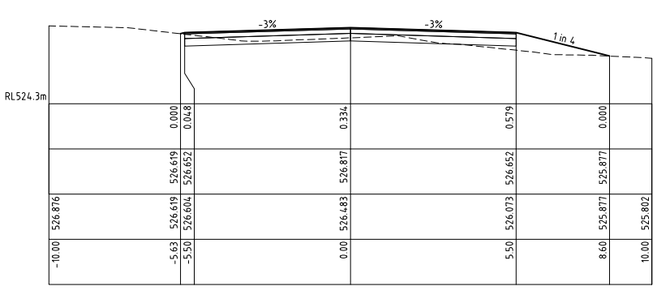
Ch 66.72 m



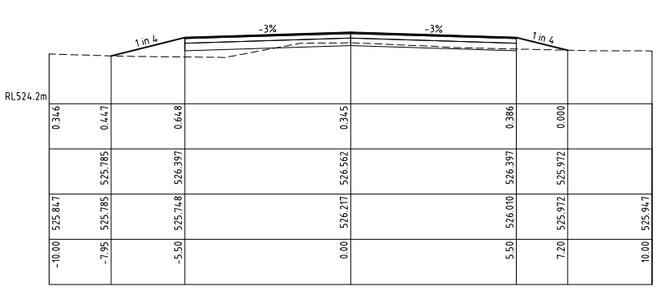
Ch 100.00 m



Ch 40.00 m



Ch 60.00 m



Ch 90.00 m

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:43:01am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

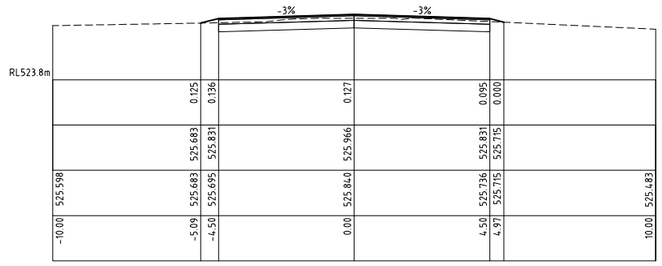
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

MARKET STREET CROSS SECTIONS

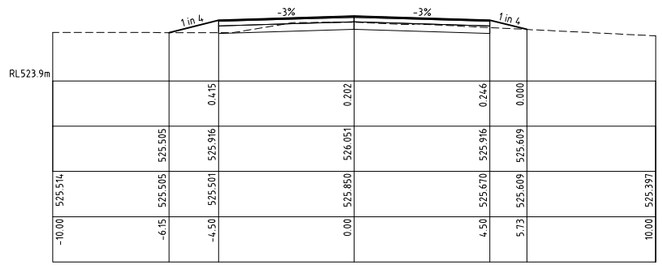
DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

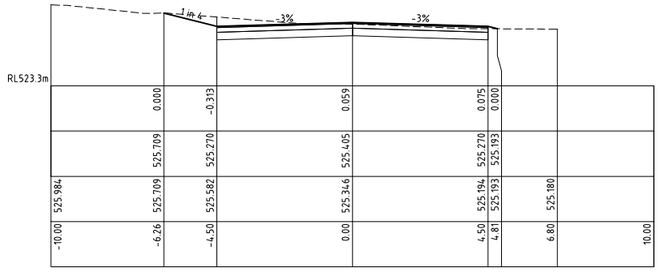
Job No.	18.447
DWG. No.	C111
Issue	1
No. in set	19



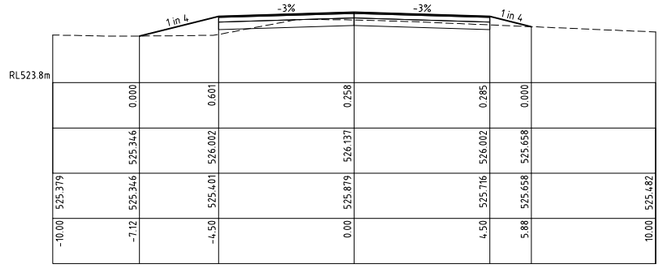
Ch 160.00 m



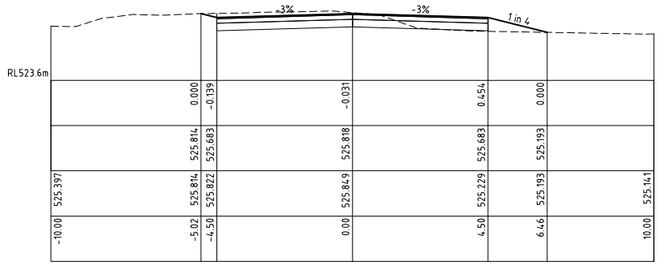
Ch 150.00 m



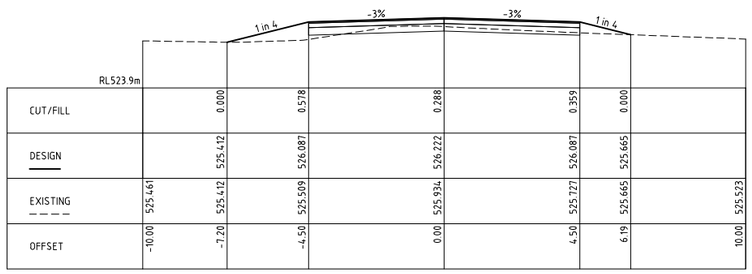
Ch 180.00 m



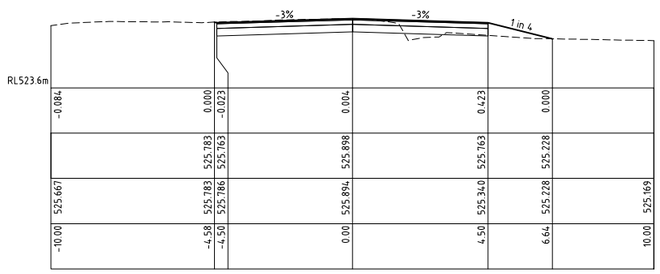
Ch 140.00 m



Ch 170.00 m



Ch 130.00 m



Ch 168.07 m

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:43:11am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

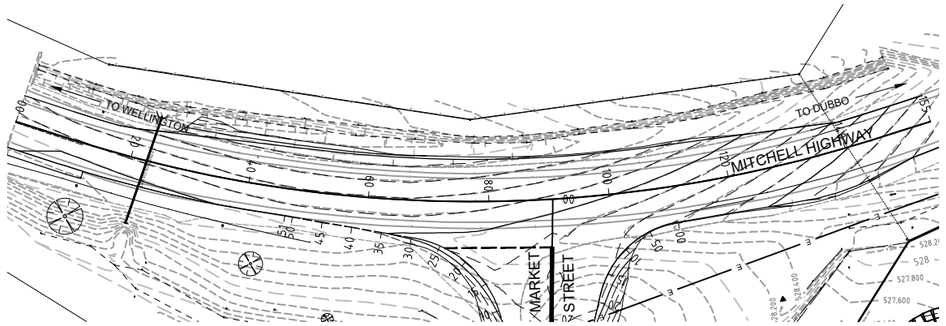
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

MARKET STREET CROSS SECTIONS

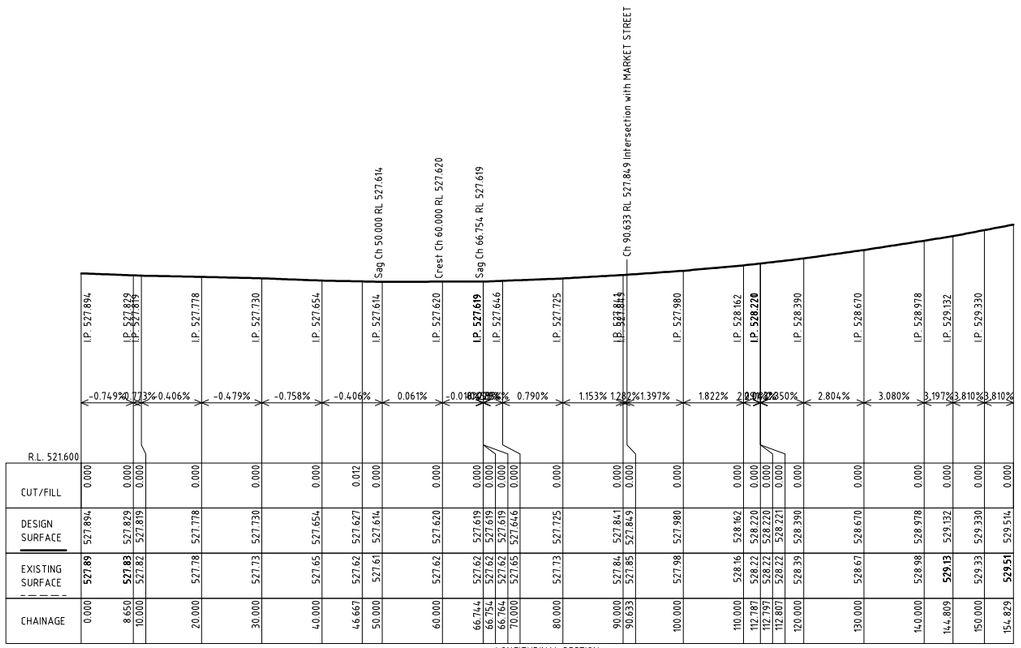
DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447
DWG. No. C112
Issue 1
No. in set 19



LAYOUT PLAN
1:500



LONGITUDINAL SECTION
MITCHELL HWY Ch 0.000 to Ch 154.829
SCALES: HORIZONTAL 1:500 VERTICAL 1:100

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:43:26am

Amend	Date	Description	By	Amend	Date	Description	By	Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM								
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM								
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM								
A	28.01.2019	PRELIMINARY	YLM								

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

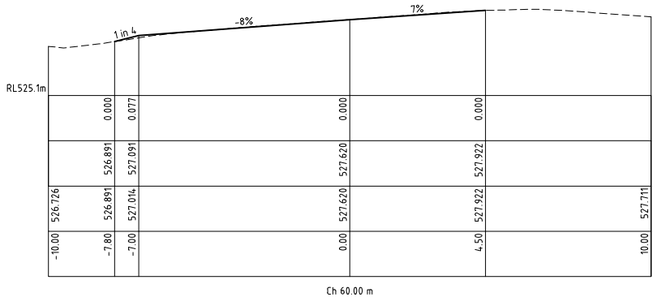
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

MITCHELL HIGHWAY LONGITUDINAL SECTION

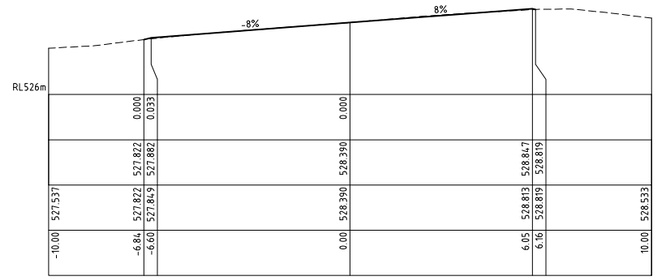
DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 6332 3343 Fax: (02) 6331 8210

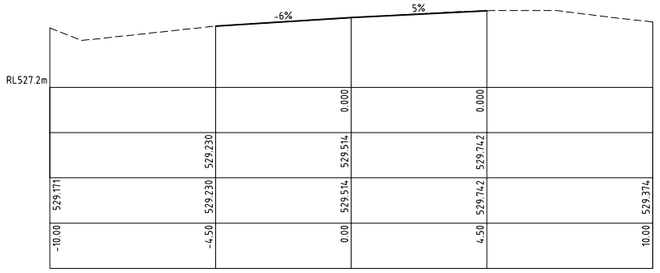
Job No. 18.447
DWG. No. C113
Issue 1
No. in set 19



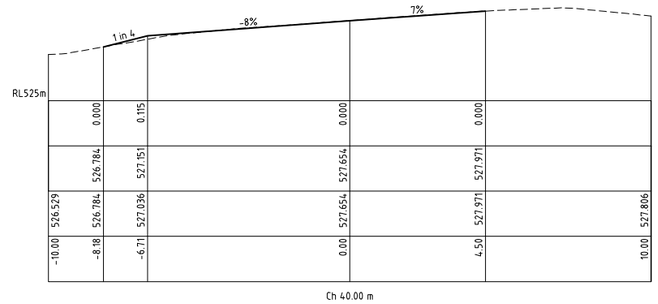
Ch 60.00 m



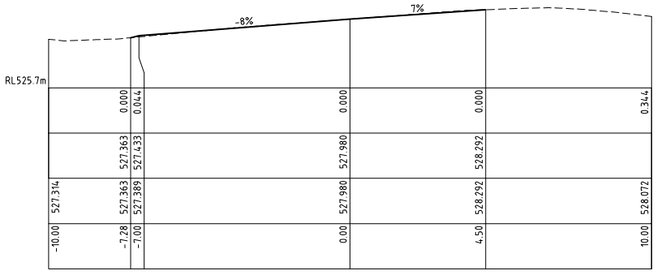
Ch 120.00 m



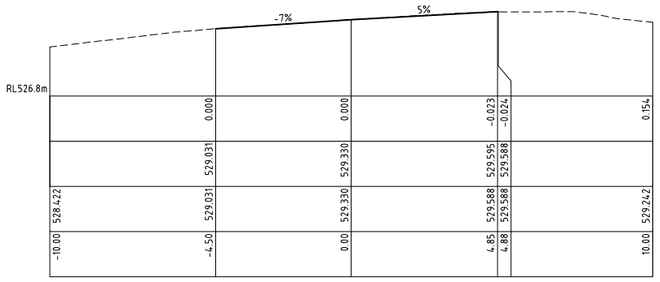
Ch 154.83 m



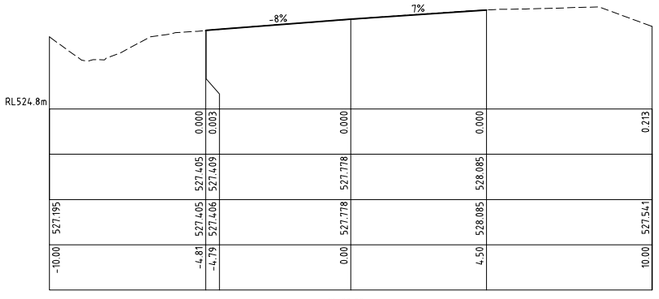
Ch 40.00 m



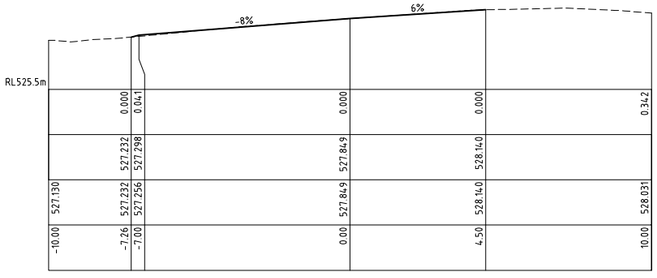
Ch 100.00 m



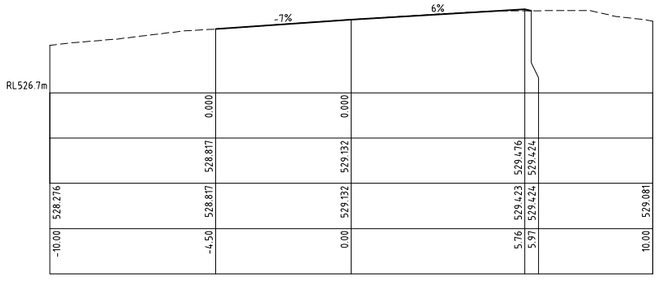
Ch 150.00 m



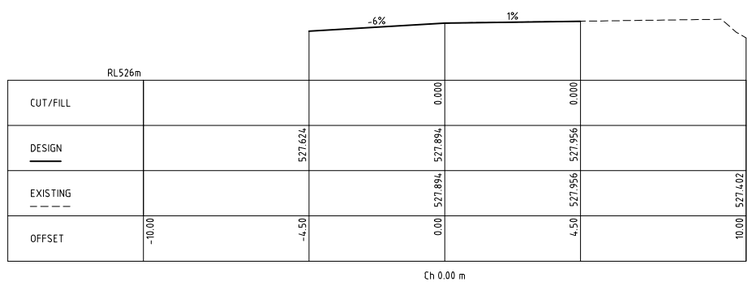
Ch 20.00 m



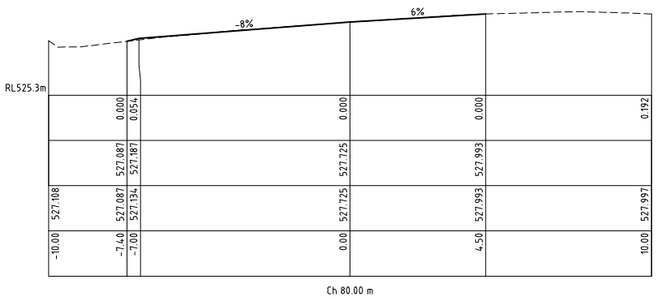
Ch 90.63 m



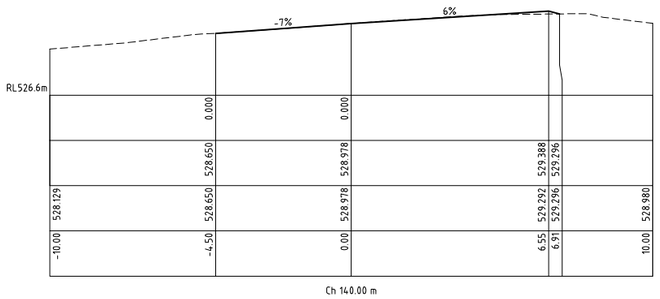
Ch 144.81 m



Ch 0.00 m



Ch 80.00 m



Ch 140.00 m

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:43:35am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

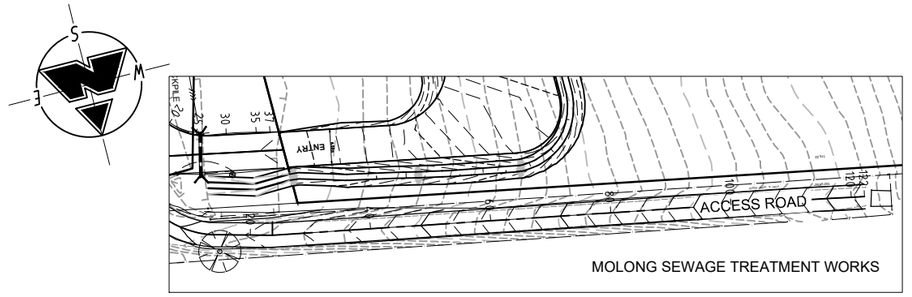
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

MITCHELL HIGHWAY CROSS SECTIONS

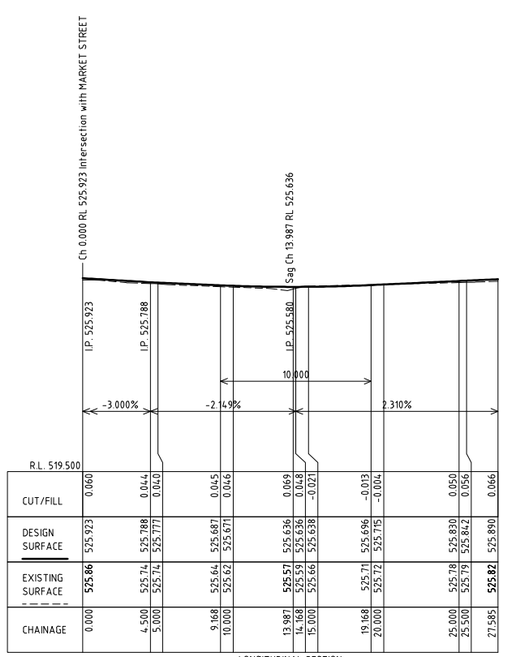
DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

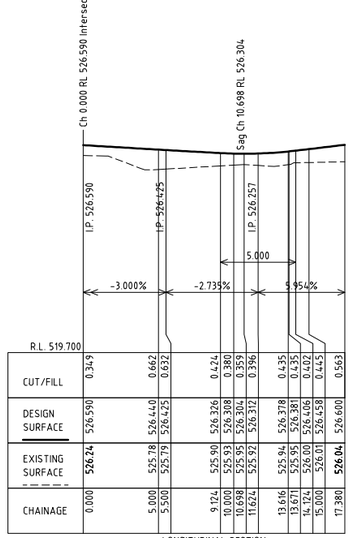
Job No.	18.447
DWG. No.	C114
Issue	1
No. in set	19



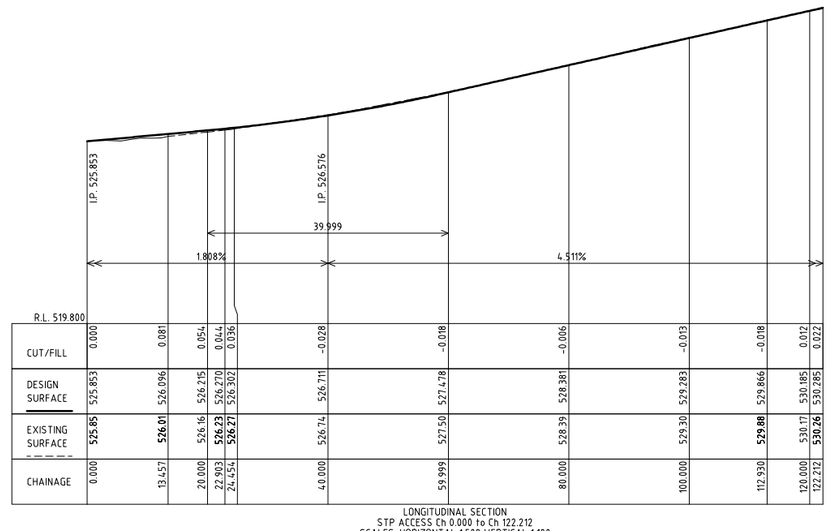
LAYOUT PLAN
1:500



LONGITUDINAL SECTION
ENTRY Ch 0.000 to Ch 27.585
SCALES: HORIZONTAL 1:200 VERTICAL 1:100



LONGITUDINAL SECTION
EXIT Ch 0.000 to Ch 17.380
SCALES: HORIZONTAL 1:200 VERTICAL 1:100



LONGITUDINAL SECTION
STP ACCESS Ch 0.000 to Ch 122.212
SCALES: HORIZONTAL 1:500 VERTICAL 1:100

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:43:48am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

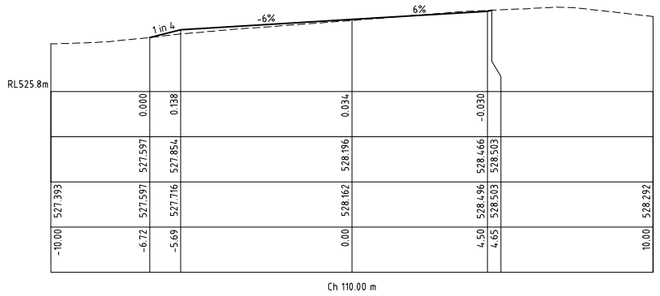
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

ENTRY/EXIT & ACCESS ROAD LONGITUDINAL SECTIONS

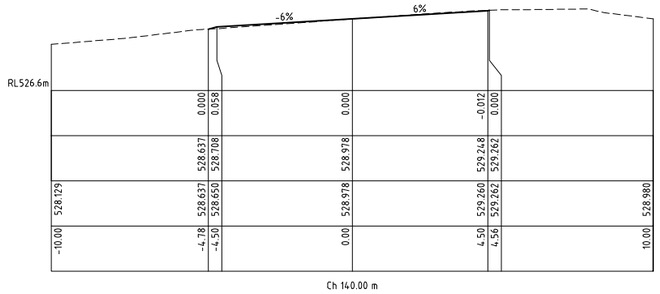
DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

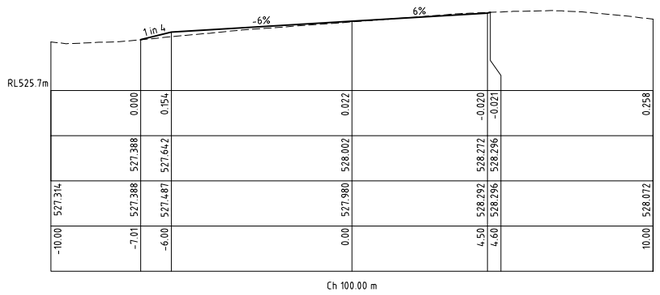
Job No. 18.447
DWG. No. C115
Issue 1
No. in set 19



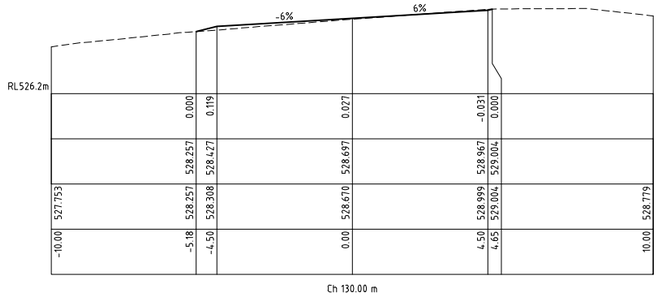
Ch 110.00 m



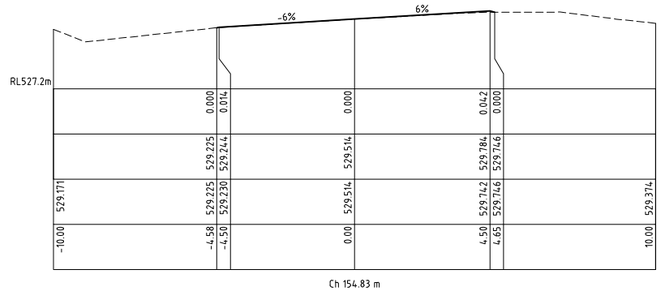
Ch 140.00 m



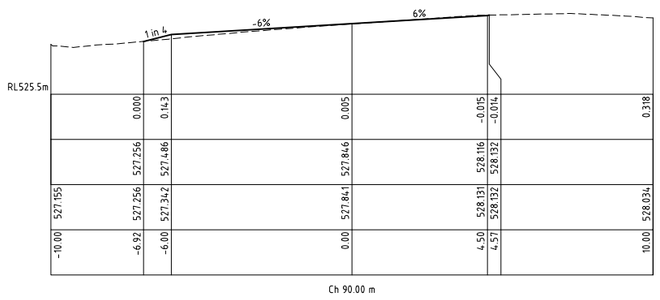
Ch 100.00 m



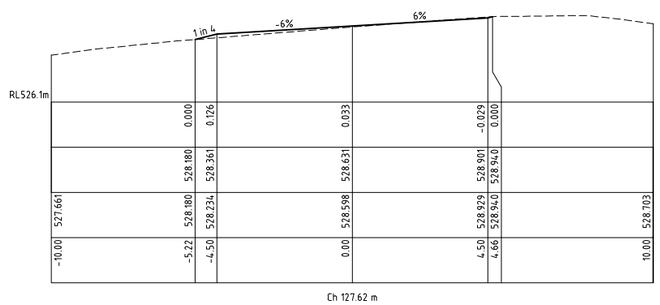
Ch 130.00 m



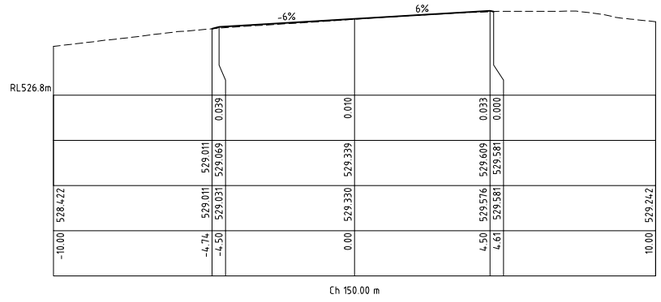
Ch 154.83 m



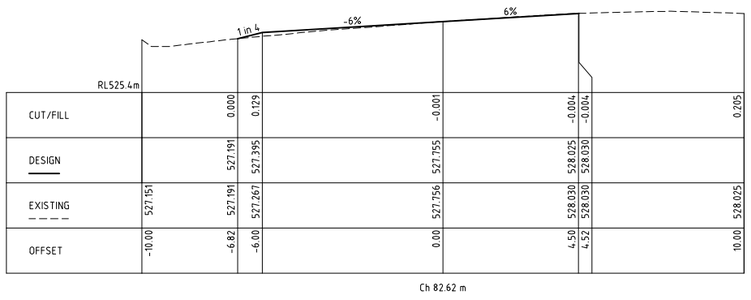
Ch 90.00 m



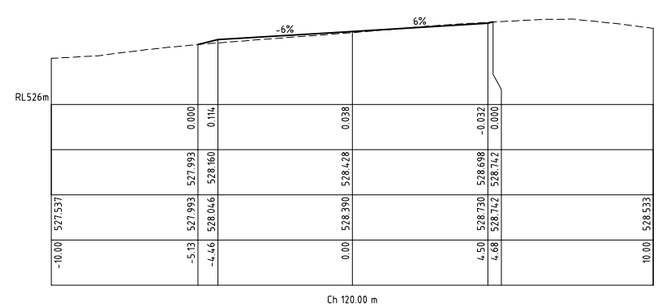
Ch 127.62 m



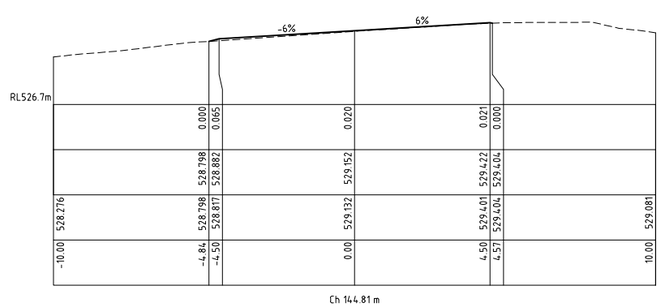
Ch 150.00 m



Ch 82.62 m



Ch 120.00 m



Ch 144.81 m

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:43:57am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

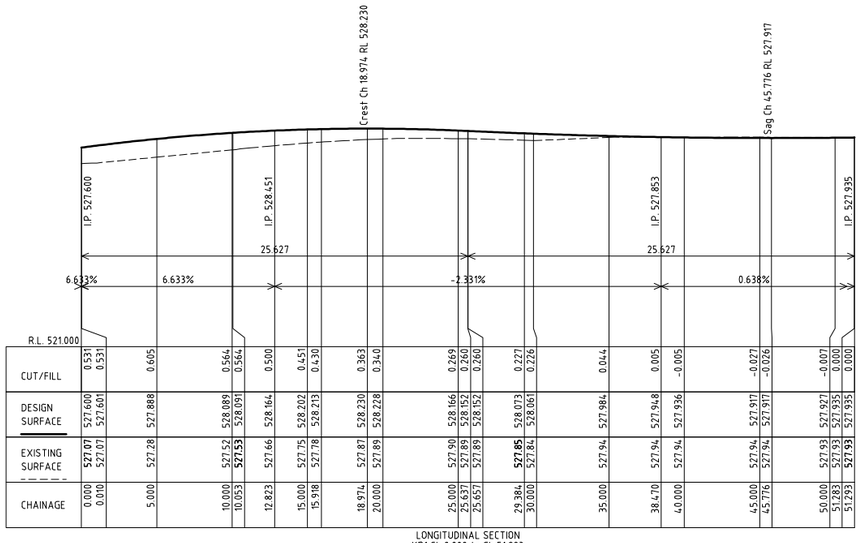
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

ACCESS ROAD CROSS SECTIONS

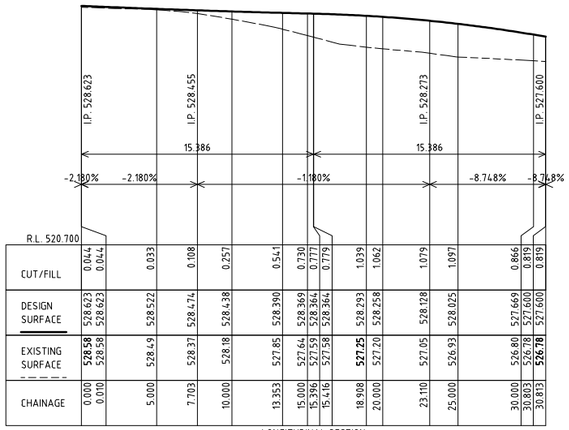
DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

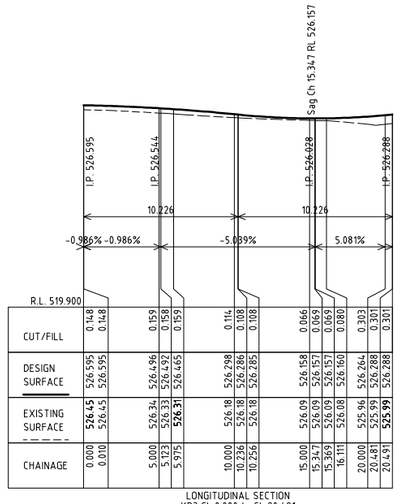
Job No. 18.447
DWG. No. C116
Issue 1
No. in set 19



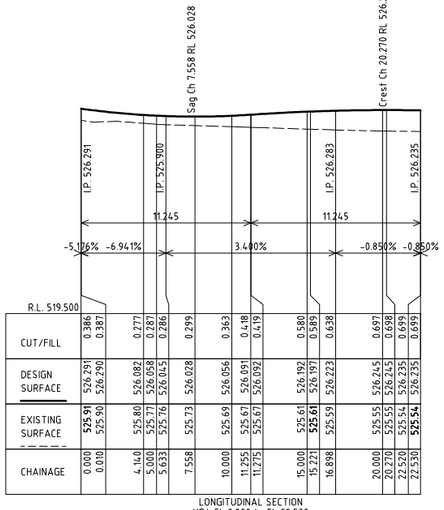
LONGITUDINAL SECTION
KR1 Ch 0.000 to Ch 51.293
SCALES: HORIZONTAL 1:200 VERTICAL 1:100



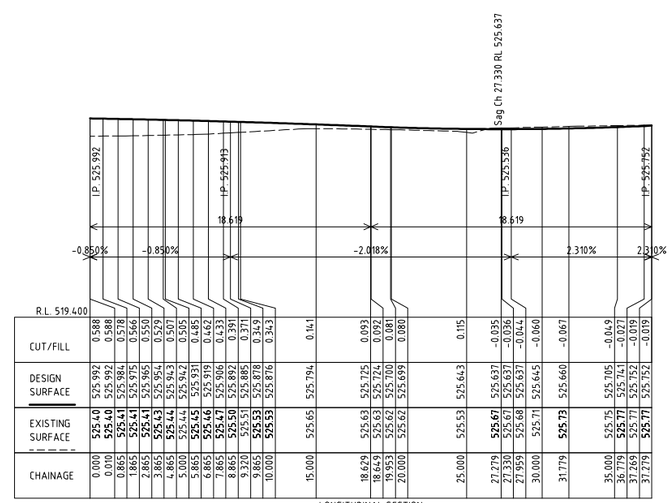
LONGITUDINAL SECTION
KR2 Ch 0.000 to Ch 30.813
SCALES: HORIZONTAL 1:200 VERTICAL 1:100



LONGITUDINAL SECTION
KR3 Ch 0.000 to Ch 20.491
SCALES: HORIZONTAL 1:200 VERTICAL 1:100



LONGITUDINAL SECTION
KR4 Ch 0.000 to Ch 22.530
SCALES: HORIZONTAL 1:200 VERTICAL 1:100



LONGITUDINAL SECTION
KR5 Ch 0.000 to Ch 37.279
SCALES: HORIZONTAL 1:200 VERTICAL 1:100

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:44:10am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

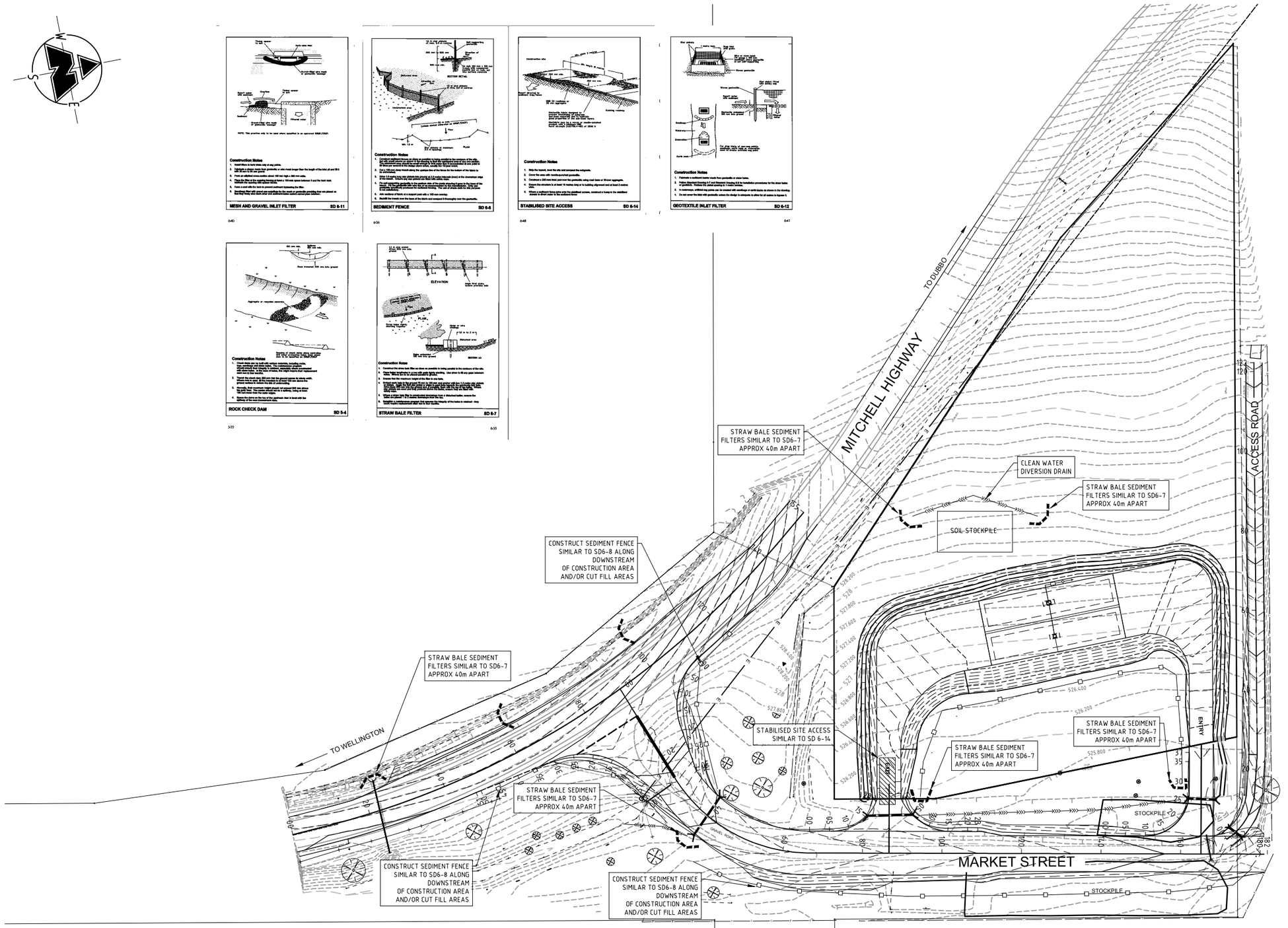
PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

KERB RETURN LONGITUDINAL SECTIONS

DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447
DWG. No. C117
Issue 1
No. in set 19



LAYOUT PLAN
1:500

NOTES
EROSION & SEDIMENT CONTROL MEASURES

1. EROSION CONTROL MEASURES TO BE IN PLACE PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION WORK. MEASURES ARE APPLIED TO PROTECT ADJOINING PROPERTIES FROM EROSION AND SILT DAMAGE.

2. BARRIER AND SILT FENCES SHALL BE LOCATED AS CLOSE AS PRACTICAL TO ANY ESSENTIAL CONSTRUCTION ACTIVITY AS SHOWN.

3. SITE SHOULD NOT BE DISTURBED BEYOND 5m FROM THE EDGE OF WORKS.

4. STOCKPILES SHALL BE CONFINED TO ONE CENTRAL AREA WHERE POSSIBLE.

5. SEDIMENT FENCES AND STRAW BALE SEDIMENT FILTERS TO BE ERECTED ON SITE AT DISCRETION OF DEVELOPER.

6. UPON COMPLETION OF CONSTRUCTION, ALL DENUDED AREAS SHALL BE STABILISED WITH ANNUAL VEGETATION.

7. EROSION CONTROL MEASURES NOT TO BE REMOVED UNTIL CONSTRUCTION IS COMPLETED AND SITE HAS BEEN REHABILITATED.

8. REHABILITATION INCLUDES COMPLETION OF ALL CONSTRUCTION WORK AND LANDSCAPING, SEEDING OR TURFING OF ALL BATTERS AND FILL AREAS.

9. ALL AREAS NOT SUBJECT TO CONSTRUCTION WORKS SHALL BE RETAINED FREE FROM DISTURBANCE OR DAMAGE DURING THE CURRENCY OF THE CONTRACT. SHOULD THESE AREAS BECOME DISTURBED OR DAMAGED, THEY SHALL BE REINSTATED BY THE CONTRACTOR AT NO COST TO THE PRINCIPAL.

10. THIS PLAN HAS BEEN DEVELOPED IN ACCORDANCE WITH THE NSW LANDCOM 'BLUE BOOK' SOILS AND CONSTRUCTION AND ALL DETAILS RELATE TO THIS TEXT.

SWMP LEGEND

- GEOTEXTILE/GRAVEL INLET FILTER
- SAND BAG
- STABILISED SITE ACCESS
- SEDIMENT FENCE SD6-8
- SEDIMENT SEDIMENT BASIN (SB 1)
- CLEAN WATER DIVERSION DRAIN
- DIRTY WATER DIVERSION DRAIN
- STRAW BALE SEDIMENT FILTER
- LIMIT OF DISTURBANCE

PLOT INFO: C:\Users\ym\Documents\YLM DESIGN\Projects\20180447 Proposed Truck Wash\DWGS\ 20180447-C-1.dwg, DATE: Apr 15,2019 - 10:44:32am

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn:	YLM	Designed:	YLM
CCQP No:		CCQP Checked:	
CAD Ref:	20180447	Approved for Construction:	
Scale:	AS SHOWN		
Date:	28.01.2019		

PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

SOIL & WATER MANAGEMENT PLAN

DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No. 18.447
DWG. No. C118
Issue 1
No. in set 19

ELECTRICAL SERVICES

FOR

MOLONG TRUCK WASH

LOT 30 DP130510, MOLONG NSW 2866

DRAWING SCHEDULE:

LEGEND

NOTE: NOT ALL SYMBOLS USED

RETICULATION

RETICULATION, CONDUIT AND/OR CABLING
No. = REFER TO RETICULATION SCHEDULE

C — C COMMUNICATION CABLE/CONDUIT

EX-E EXISTING REDUNDANT CABLE/CONDUIT

E — E ELECTRICAL CABLE/CONDUIT

EX-E EXISTING ELECTRICAL CABLE/CONDUIT

COMMUNICATION CABLE TRAY

POWER CABLE TRAY

PREFABRICATED CONCRETE PIT WITH TRAFFICABLE LID
C = COMMUNICATION PIT
E = ELECTRICAL PIT
P = PILLAR

EXISTING PIT

POWER

NEW MAIN SWITCH BOARD (MSB/DB) - SCHNEIDER

NEW DISTRIBUTION BOARD (DB) - SCHNEIDER

EXISTING DISTRIBUTION BOARD OR SWITCHBOARD PROVIDED BY OTHER TRADES

SINGLE GENERAL PURPOSE OUTLET (GPO) 10A

DOUBLE GENERAL PURPOSE OUTLET (GPO) 10A

SINGLE GPO ON WORK STATION, SOFTWIRED

DOUBLE GPO ON WORK STATION, SOFTWIRED

3P THREE PHASE GENERAL PURPOSE OUTLET (GPO) 10A

15A = 15A OUTLET
20A = 20A OUTLET
IP56 = IP56 RATED OUTLET
200 = 200mm AFFL
AD = AUTOMATIC DOOR
AT = AUTOMATIC TAPS / LOCATE TO SUIT
BWU = BOILING WATER UNIT
CAP = CAPTIVE OUTLET
CL = CLEANERS OUTLET
CM = CEILING MOUNTED
CS = CEILING SPACE
DW = DISHWASHER 750 AFFL IN ADJACENT CUPD
FM = FLOOR MOUNTED
HD = HAND DRYER
HW = HOT WATER
L = LARGE MECHANISM - 25mm
M = MICROWAVE
PDT = PENDANT
R = REFRIGERATOR
RH = RANGE HOOD
SS = STARTER SOCKET TO SUIT SOFT WORK STATION
WM = WASHING MACHINE
WP = WEATHERPROOF

A = 150mm ABOVE BENCH
B = MOUNTED ON BENCH LEG
C = 1200 ABOVE FLOOR
D = 1500 ABOVE FLOOR
E = 1800 ABOVE FLOOR
F = 450 ABOVE FLOOR
G = CEILING MOUNTED
H = 1000 ABOVE FLOOR
J = 1300 ABOVE FLOOR
S = SKIRTING MOUNTED
U = UNDERBENCH
FRIDGE = 1000mm ABOVE FLOOR / SUIT EQUIPMENT

NOTE: POWER OUTLETS TO BE MOUNTED AT 300mm AFFL U.N.O.

BUZZER

BELL

CLOCK

1- P 1 CIRCUIT DESIGNATION
CIRCUIT No.
P = POWER
L = LIGHTS
SWITCH BOARD No.

MOMENTARY PUSH BUTTON
A = AFTER HOURS
D = DOOR RELEASE
E = EMERGENCY

0 25mm 50mm 100mm ON A1 ORIGINAL

POWER cont...

PERMANENT CONNECTION TO ELECTRICAL APPLIANCE (APPLIANCE PROVIDED BY OTHERS) CONTRACTOR TO PROVIDE ELECTRICAL CONNECTION C/W LOCAL ISOLATOR
3P = 3 PHASE

AC = AIR CONDITIONING
BWU = BOILING WATER UNIT
CT = COOK TOP
D = DRYER
DHP = DIESEL HYDRANT PUMP
DW = DISHWASHER
EH = EXHAUST FAN
EHP = ELECTRIC HYDRANT PUMP
HD = HAND DRYER
HP = HOT PLATES
HW = HOT WATER
MW = MOTORISED WINDOW
O = OVEN
R = RANGE
RH = RANGE HOOD
RWR = RAIN WATER REUSE PUMP
RV = ROOF VENTILATOR
SAN = SANITISER
SOL = SOLENOID
SP = SPRINKLER PUMP
UW = UTENSIL WASHER
W = WALL OVEN
WM = WASHING MACHINE

LIGHTING

18/20W A1 = BATTEN, C/W PRISMATIC DIFFUSER, EQUAL TO THORN GLADIATOR
36/40W B2 = BATTEN, EQUAL TO PIERLITE NIPPER
C1 = 1x36W T5 WEATHERPROOF FITTING IP65 - THORN

HB1 65W LED HIGH BAY - ZUNKTOBELL -CRAFT S - IP65 -7500lm (PROVIDE ALL NECESSARY FIXED MOUNTING BRACKETS & SUPPORTS)

FLOODLIGHT
100W LED SPOTLIGHT BLACK IP54 - EQUAL TO THORN LEO

100W / 150W OUTPUT AS NOTED

LED EXIT SIGN, PICTOGRAPH & MAINTAINED, EQUAL TO LEGRAND WEATHERPROOF

LED RECESSED TUNGSTEN HALOGEN EMERGENCY LIGHT NON-MAINTAINED, EQUAL TO LEGRAND SATELITE SERIES 223037

2W ONE WAY SWITCH & SWITCHING
2P = TWO POLE SWITCH
2W = TWO WAY SWITCH
3W = THREE WAY SWITCH
L = 25mm MECHANISMS
T = TIME SWITCH - ELECTRONIC

NOTE: SWITCHES MOUNTED AT 1100mm AFFL U.N.O.

MD CEILING MOUNTED MOTION SWITCH - CLIPSAL 20MIN 360° 753R

MOVEMENT DETECTOR SWITCH
MS = WALL MOTION SENSOR (EXTERNAL) CLIPSAL 750 WPR

30W LED POST TOP LIGHT - 4M POLE - THORN CIVITEO BLACK

SINGLE LINE DIAGRAM

BUSBAR

CABLE OR WIRE (BROKEN LINES INDICATE EXISTING CABLE OR SWITCHWIRE)

SINGLE PHASE

THREE PHASE

ISOLATOR SWITCH

160 / 200 CIRCUIT BREAKER - SCHNEIDER MIN 10KA (25KA CASCADING)
ELCB = INTEGRAL EARTH LEAKAGE CIRCUIT BREAKER
RCD = INTEGRAL RECIDUAL CURRENT DEVICE CIRCUIT BREAKER (NORMALLY 30mA U.N.O.)
ST = SHUNT TRIP ATTACHED TO CIRCUIT BREAKER
160A SET CURRENT/ 200A FRAME SIZE

FAS SHUNT TRIP FIRE SHUT DOWN

FUSE

240V / 24V POWER TRANSFORMER

CURRENT TRANSFORMER

kWH KILOWATT POWER METER - ELECTRICITY DISTRIBUTOR

kWH METER
kWH = KILOWATT HOUR
kWHG = KILOWATT HOUR GROSS
M_{DI} = MAXIMUM DEMAND INDICATOR
PA = POWER ANALYZER
PkWH = PRIVATE KILOWATT HOUR METERING SYSTEM COMPLETE WITH RS485 MOD BUS OUT PUT EQUAL TO SCHNEIDER PM9C. PROVIDE LOCAL SOFTWARE SYSTEM VIA RS485 MODBUS OUTPUT TO ENABLE - SUBMIT DETAILS DURING TENDERING FOR APPROVAL
CO = CURRENT OVERLOAD METERING SYSTEM COMPLETE WITH DUAL RELAY OUTPUT & CONTROL SIGNAL - EQUAL TO SCHNEIDER PM5353 - SEE DETAILS

Date	Issue	Reason for Issue
13.3.19	3	TENDER ISSUE
19.11.18	2	FOR CO-ORDINATION
15.11.18	1	FOR CO-ORDINATION

SINGLE LINE DIAGRAM cont...

K_E CONTACT/RELAY COIL
A_C = AIR CONDITIONING
D_{OT} = DELAY ON TIMER (1 min)
E_F = EXHAUST FAN
E_{SS} = ENERGY SAVER SWITCH
GP = GENERATOR POWER
K_O = DRIVEWAY LIGHT CONTACTOR
K_E = EMERGENCY LIGHTS TEST RELAY
K_{EX} = EXTERNAL LIGHT CONTACTOR
K_L = LIGHT CONTACTOR
K_{LT} = TIME SWITCHED LIGHTS CONTACTOR
K_{SEC} = SECURITY CONTROL CONTACTOR
M_S = MOTION SENSOR
O_R = OVERRIDE SWITCH CONTROL
P_E = PHOTO ELECTRIC SWITCH
R = RELAY UNIT
R_{OT} = RUN ON TIMER
T_S = TIME SWITCH (24hr C/W 24hr BATTERY RESERVE MULTI-STAGE PROGRAMMABLE
T_{SR} = TIME SWITCH RELAY

SURGE DIVERTER - CRITEC TDS350

SURGE FILTER - CRITEC TDF 20A

T SURGE PROTECTION - CRITEC TDX 100M
T = TELEPHONE CRITEC HSP

A O M THREE POSITION SELECTOR SWITCH

TEE-OFF

FUSED TEE-OFF

AUTO TRANSFER SWITCH

CONTACTOR CONTACTS NORMALLY OPEN
ST = SHUNT TRIP

CONTACTOR CONTACTS NORMALLY CLOSED

2 NORMALLY OPEN PUSH BUTTON
2 = 2hr TIMER WITH RESET FACILITY
K = KEY OPERATED

NORMALLY CLOSED PUSH BUTTON

EARTH

CET COMMUNICATIONS EARTH TERMINAL

AV/DATA TRUCK WASH CONTROL SYSTEM -REFER TO SPECIFICATIONS

MAC MAC CONTROLLER
MODEM MAC MODEM
CO-ORDINATE WITH LEON - PH0462628111
MAIL@AUDATA.COM.AU

NOTES - GENERAL

1. NOT ALL SYMBOLS ON LEGEND ARE NECESSARILY USED.
2. SWITCHES ADJACENT TO DOORS ARE TO BE MOUNTED ON LOCKSIDE OF DOOR.
3. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH:
   - AS3000, AS1670, AS2293, AS3080, AS2220, AS3439, AS/NZS 4251.1, TEMPEST/IEC 6100-6-1, AS 5000.1, AS 3947.2, AS/NZS 60598.1, AS/NZS 60929, AS/NZS 60928, AS/NZS 60921, AS/NZS 60925, AS/NZS 61048
   - BUILDING CODE OF AUSTRALIA
   - SERVICES & INSTALLATION RULES
   - AUSTRALIAN GOVERNMENT INFORMATION & COMMUNICATIONS TECHNOLOGY SECURITY MANUAL ACSI33, ISM & AUSTRALIAN COMMUNICATION AUTHORITY

   ALLOW FOR ALL COSTS ASSOCIATED WITH CONNECTION OF POWER & COMMUNICATION.
4. DRAWINGS ARE DIAGRAMMATIC, REFER TO ARCHITECTURAL DRAWINGS, INTERNAL ELEVATIONS, &/OR INSTRUCTIONS FOR FINAL LOCATIONS.
5. ANY VARIANCE FROM NOMINATED BRANDS SHALL BE CLEARLY STATED IN TENDER WITH RESPECTIVE SAVINGS.
6. CABLES SHALL BE MULTI STRANDED CONDUCTORS OF THE FOLLOWING MINIMUM SIZES:
   LIGHTING 2.5mm²
   POWER 2.5mm²
   ALL OTHER CABLING SHALL BE RATED TO PROTECTIVE CIRCUIT BREAKER, NEUTRAL TO BE EQUAL TO CROSS SECTIONAL AREA OF PHASE CONDUCTORS UNLESS NOTED OTHERWISE.
7. LABEL ALL OUTLETS WITH FLEXIBLE LAMINATED LABELS EQUAL TO BROTHER P TOUCH TZ TAPES INDICATING CIRCUIT NUMBERS/DETAILS.
8. ALL MAINS, SUB MAINS & CONTROL CABLES HAVE NUMBERS ATTACHED TO EACH END TO IDENTIFY CABLE.
9. ALL WORKS TO BE STAGED TO SUIT BUILDING WORKS, ALSO REFER TO ARCHITECTURAL DOCUMENTS & CO-ORDINATE WITH EARLY/INFRASTRUCTURE WORKS FOR STAGING.
10. PROVIDE TEST CIRCUITS FOR EMERGENCY LIGHTS.
11. BEFORE PRACTICAL COMPLETION, THE CONTRACTOR IS TO PROVIDE:-
    * 'AS INSTALLED' DRAWINGS OF ALL THE SERVICES
    * BOUND MANUALS WITH DETAILS OF ALL SUPPLIED EQUIPMENT & COMPONENTS.
    * EXIT & EMERGENCY LIGHTS TEST BOOK.
12. ELECTRICAL CONTRACTOR TO FIRE SEAL ALL PENETRATIONS & CONDUITS NECESSARY FOR ALL POWER, LIGHTING & COMMS POINTS IN ALL WALLS & CEILINGS - SEE ARCHITECTURAL DRAWINGS FOR FIRE RATED WALLS & CEILINGS. CO-ORDINATE WITH OTHER TRADES (PAY ALL COSTS).
13. PROVIDE ALL NECESSARY SUPPLY & CONNECTION LEADS TO ALL MECHANICAL & HYDRAULIC EQUIPMENT FOR A FULLY FUNCTIONAL SYSTEM UPON COMPLETION.
14. PROVIDE ALL NECESSARY CABLE & EQUIPMENT TO CONNECT KITCHEN APPLIANCES. INCLUDING CONNECTION BETWEEN ISOLATOR & EQUIPMENT.
15. THE CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING SERVICES THAT ARE TO BE RETAINED IN THE VICINITY OF THE PROPOSED WORKS. ANY AND ALL DAMAGE TO THESE SERVICES AS A RESULT OF THESE WORKS, OR ANY ECONOMIC LOSS SUFFERED AS A RESULT OF DAMAGES TO SERVICES, SHALL BE REPAIRED OR REMEDIED BY THE CONTRACTOR UNDER THE DIRECTION OF THE AUTHORISED PERSON FOR THE PRINCIPAL, AND NO COST TO THE PRINCIPAL.
16. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR ADJUSTMENT IF REQUIRED OF EXISTING SERVICES IN AREAS AFFECTED BY WORKS.
17. PROVIDE ALL NECESSARY DEMOLITION WORKS TO ACHIEVE NEW LAYOUT. PRIOR TO COMMENCEMENT TO ANY WORKS THE CONTRACTOR SHALL GAIN WRITTEN APPROVAL FROM THE PRINCIPAL FOR ALL DEMOLITION, THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES AND FOR ANY ASSOCIATED INTERRUPTION OF SUPPLY.
18. CONTRACTOR TO CO-ORDINATE WITH BUILDER & PRINCIPAL TO INCORPORATE STAGING TO SUIT PRINCIPAL. SUBMIT STAGING PLAN FOR APPROVAL PRIOR TO TENDERING.
19. ENSURE ALL CIRCUIT BREAKERS ARE CASCADING. CONTRACTOR TO ENGAGE A SWITCHBOARD MANUFACTURER TO CONDUCT A CURVE STUDY WHERE REQUIRED.
20. THE CONTRACTOR SHALL REMOVE ALL EXISTING REDUNDANT SERVICES INCLUDING BUT NOT LIMITED TO CABLING AND CABLE LADDER.

EXISTING SERVICES & FEATURES
NOTES:
1. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING SERVICES THAT ARE TO BE RETAINED IN THE VICINITY OF THE PROPOSED WORKS. ANY AND ALL DAMAGE TO THESE SERVICES AS A RESULT OF THESE WORKS, OR ANY ECONOMIC LOSS SUFFERED AS A RESULT OF DAMAGES TO SERVICES, SHALL BE REPAIRED OR REMEDIED BY THE CONTRACTOR UNDER THE DIRECTION OF THE AUTHORISED PERSON FOR THE PRINCIPAL, AND NO COST TO THE PRINCIPAL.
2. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR ADJUSTMENT IF REQUIRED OF EXISTING SERVICES IN AREAS AFFECTED BY WORKS.
3. PRIOR TO COMMENCEMENT TO ANY WORKS SHALL GAIN WRITTEN APPROVAL FROM THE PRINCIPAL FOR THE RELOCATION AND/OR CONSTRUCTION OF NEW/TEMPORARY SERVICES AND FOR ANY ASSOCIATED INTERRUPTION OF SUPPLY.

marline BUILDING SERVICES ENGINEERS
MECHANICAL . ELECTRICAL . HYDRAULIC . FIRE . ENERGY

P (02) 4925 9300
mail@marline.com.au
www.marline.com.au
ABN 49 612 456 381

MARLINE NEWCASTLE PTY LTD
Unit 4 239 King Street
Newcastle NSW 2300
ACN 612 456 381

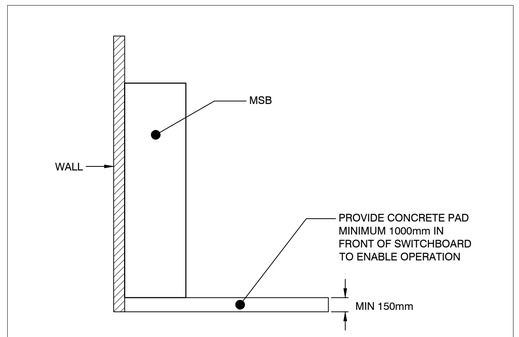
Client

Architect
DESIGNSATM

Project
MOLONG TRUCK WASH
MARKET ST & CREOSUS ST
MOLONG NSW 2866

Drawn : T.G	Design : S.RYAN	Verify : B.HUNT	
Scale @ A1 : N.T.S	Date : NOVEMBER 2018		

Discipline: ELECTRICAL SERVICES
Job No.: 10427
Drawing Title: LEGEND, NOTES & DRAWING SCHEDULE
Issue: 3
Drawing No.: E-01



TYPICAL MSB CONCRETE PAD DETAIL

POST TOP LIGHTS(60MIN)

MS PE TS LSP

LOCATE TO SUIT FUTURE SLIDING GATE

PROVIDE NEW WEATHERPROOF & LOCKABLE MAIN SWITCHBOARD & METER

PROVIDE LIGHT SWITCH PANEL & OVERRIDE TIME SWITCH CONTROL

LSP MDP

WP

IP56 OUTLET

DB1

LOCATE TO SUIT FUTURE SLIDING GATE

PROVIDE SPARE COMMS 2xØ25mm CONDUITS FOR FURTUR IN GROUND

MS PE TS LSP

DB1

FLOOD LIGHTS

DB1

POST TOP LIGHTS(60MIN)

POLE/ PILLAR

EXISTING OVERHEAD HIGH VOLTAGE CABLE.

TO ESSENTIAL ENERGY POWER POLE IN STREET TO ESSENTIAL ENERGY REQUIREMENTS. MAKE ALL NECESSARY APPLICATIONS & ARRANGEMENTS FOR NEW 63A 3Ø SUPPLY. LOCATE ALL SERVICES TO SUIT EXISTING HIGH VOLTAGE OVERHEAD CABLES & EASEMENTS - PAY ALL COSTS. ENGAGE AN ACCREDITED ASP 1,2&3 AS NECESSARY.

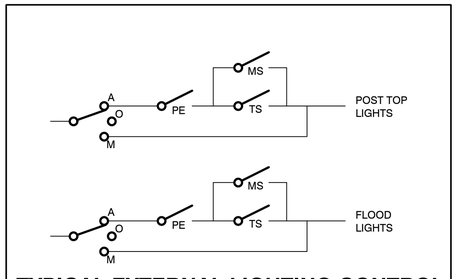
COMMS FOR FUTURE CONNECTION TO TELSTRA/NBN PIT IN STREET. (SHARE TRENCH).

ALLOW A PROVISIONAL COST SUM OF $50,000 FOR THE NEW POWER SUPPLY - CO-ORDINATE WITH CLIENT NOMINATED POWER SUPPLY/LEVEL 3 PROVIDER ACTIVE ENERGEY (HAYLEY Ph. 63628708)

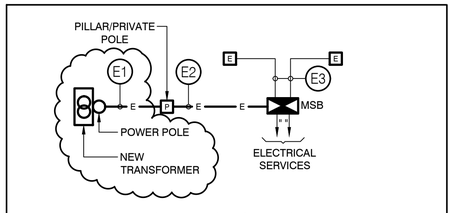
NOTES:
1. MSB FINAL LOCATION TO BE CONFIRMED WITH SUPERINTENDENT. CONTRACTOR TO CONFIRM LOCATION OF COUNCIL'S CLEARANCE REQUIREMENTS. MSB TOP OF CONCRETE PLINTH. CABLES & CONDUIT TO MAINTAIN MINIMUM OF 500mm.

ENGAGE A SERVICE LOCATOR TO DETERMINE ACTUAL LOCATIONS OF EXISTING SERVICES ON SITE FOR CO-ORDINATION. RELOCATE EXISTING SERVICES AS NECESSARY. PAY ALL COSTS.

ATTENTION: LOCATIONS SHOWN INDICATIVE ONLY - SEE ARCHITECTURAL/SURVEY DRAWINGS & CO-ORDINATE FINAL LOCATIONS WITH OTHER TRADES.



TYPICAL EXTERNAL LIGHTING CONTROL



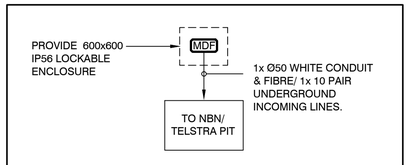
ELECTRICAL SERVICES BLOCK DIAGRAM

CABLE SCHEDULE

E1 PROVIDE NEW / 100A 3Ø ARIEL CABLE TO ACHIEVE NEW LAYOUT

E2 PROVIDE NEW 1x 4C + E 35mm^2 XLPE/PVC IN 2x Ø80 HD-uPVC CONDUIT (ONE AS SPARE)

E3 PROVIDE NEW 2x Ø40 HD-uPVC CONDUIT (SPARE)



COMMUNICATION BLOCK DIAGRAM FOR FUTURE

www.dialbeforeyoudig.com.au
DIAL 1100 BEFORE YOU DIG

Date	Issue	Reason for Issue
13.3.19	3	TENDER ISSUE
19.11.18	2	FOR CO-ORDINATION
15.11.18	1	FOR CO-ORDINATION

marline BUILDING SERVICES ENGINEERS
MECHANICAL . ELECTRICAL . HYDRAULIC . FIRE . ENERGY
P (02) 4925 9300
mail@marline.com.au
www.marline.com.au
ABN 49 612 456 381
MARLINE NEWCASTLE PTY LTD
Unit 4 239 King Street
Newcastle NSW 2300
ACN 612 456 381

Client

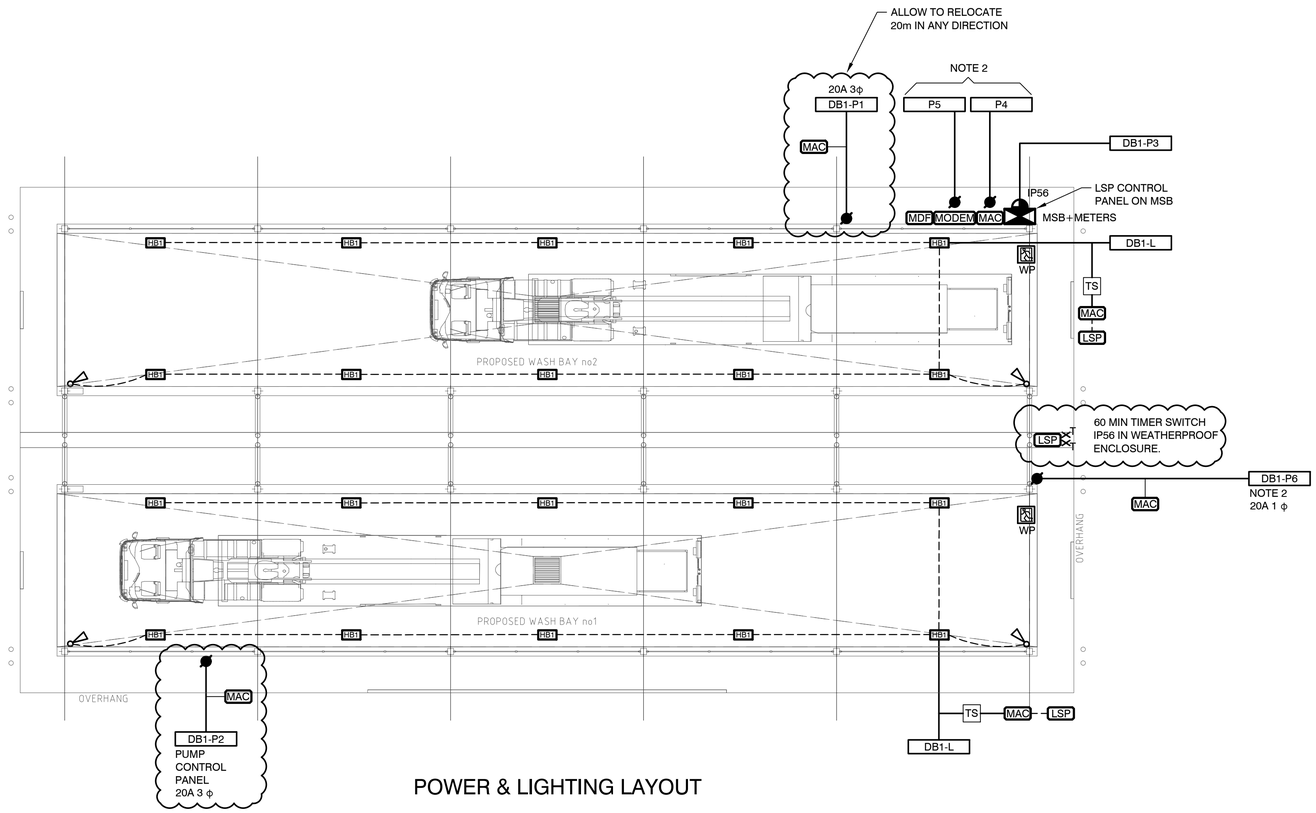
Architect
DESIGNSATM

Project
MOLONG TRUCK WASH
MARKET ST & CREOSUS ST
MOLONG NSW 2866

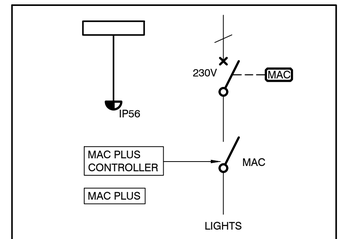
Drawn : T.G	Design : S.RYAN	Verify : K.HOYER
Scale @ A1 : 1:500	Date : NOVEMBER 2018	

Discipline: ELECTRICAL SERVICES
Job No.: 10427
Drawing Title: SITE RETICULATION & EXTERNAL LIGHTING
Issue: 3
Drawing No.: E-02

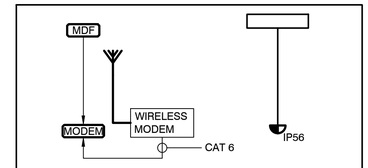
0 25mm 50mm 100mm ON A1 ORIGINAL



POWER & LIGHTING LAYOUT



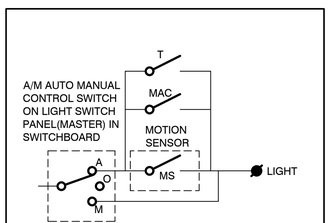
TYPICAL LIGHTING CONTROL



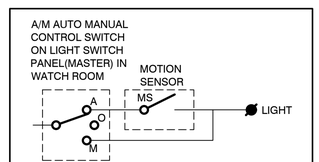
PHONE COVERAGE
WIRELESS CONTROLLER - TBC

NOTES:
1. PROVIDE IP65 LOCKABLE ENCLOSURE EQUAL TO B&R ENCLOSURE.
2. CO-ORDINATE WITH TRUCK WASH EQUIPMENT PROVIDER FOR FINAL DETAILS & LOCATIONS

NOTES:
1. PROVIDE LIGHTS, POWER & CONTROL TO ACHIEVE NEW LAYOUT. ANGLE EXTERNAL FLOOD LIGHTS DOWNWARDS TO PREVENT GLARE ON NEIGHBOURING PROPERTIES.
2. CO-ORDINATE WITH TRUCK WASH EQUIPMENT PROVIDER FOR FINAL DETAILS & LOCATIONS.



TYPICAL WASHBAY LIGHTING CONTROL



TYPICAL FLOOD LIGHTING CONTROL

Date	Issue	Reason for Issue
13.3.19	3	TENDER ISSUE
19.11.18	2	FOR CO-ORDINATION
15.11.18	1	FOR CO-ORDINATION

marline
BUILDING SERVICES ENGINEERS
MECHANICAL . ELECTRICAL . HYDRAULIC . FIRE . ENERGY
P (02) 4925 9300
mail@marline.com.au
www.marline.com.au
ABN 49 612 456 381
MARLINE NEWCASTLE PTY LTD
Unit 4 239 King Street
Newcastle NSW 2300
ACN 612 456 381

Client

Architect
DESIGNSATM

Project
MOLONG TRUCK WASH
MARKET ST & CREOSUS ST
MOLONG NSW 2866

Drawn : T.G | Design : S.RYAN | Verify : K.HOYER
Scale @ A1 : 1:100 | Date : NOVEMBER 2018

Discipline
ELECTRICAL SERVICES

Job No.
10427

Drawing Title
POWER & LIGHTING LAYOUT

Issue
3

Drawing No.
E-03

0 25mm 50mm 100mm ON A1 ORIGINAL

NOTES – GENERAL

THESE DRAWINGS ARE PROVIDED FOR TENDER ONLY AND SHALL NOT BE USED FOR CONSTRUCTION PURPOSES

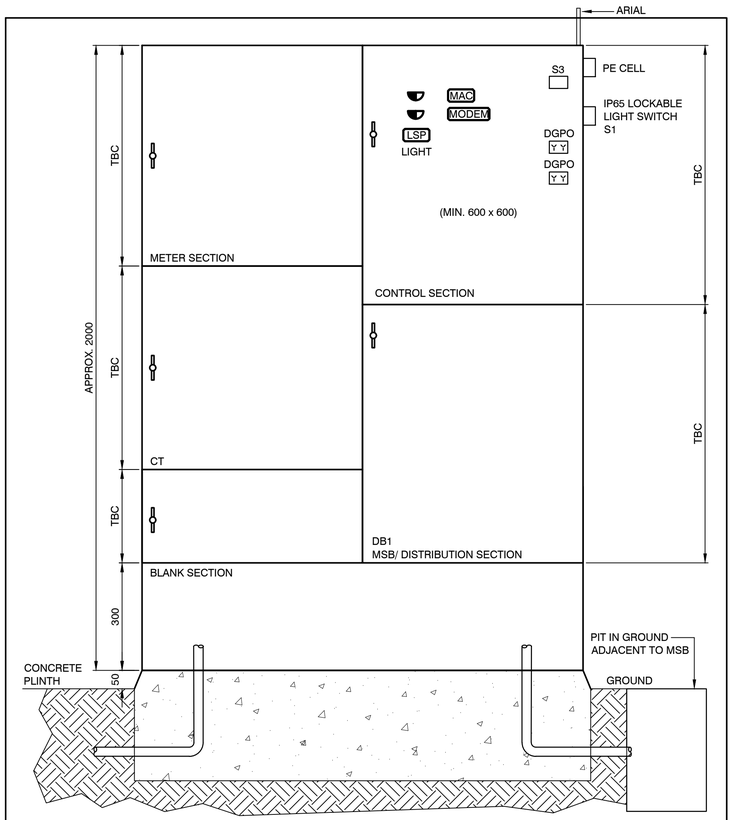
ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH:
- AS3000, AS2293, AS3080, AS3439 & AS1428.1
- BUILDING CODE OF AUSTRALIA
- NSW SERVICES & INSTALLATIONS

ALLOW FOR ALL COSTS ASSOCIATED WITH CONNECTION OF POWER.

ANY VARIANCE FROM NOMINATED BRANDS SHALL BE CLEARLY STATED IN TENDER WITH RESPECTIVE SAVINGS.

CABLES SHALL BE MULTI STRANDED CONDUCTORS OF THE FOLLOWING MINIMUM SIZES:
LIGHTING 2.5mm2
POWER 2.5mm2
ALL OTHER CABLING SHALL BE RATED TO PROTECTIVE CIRCUIT BREAKER, NEUTRAL TO BE EQUAL TO CROSS SECTIONAL AREA OF PHASE CONDUCTORS UNLESS NOTED OTHERWISE.

LABEL ALL OUTLETS WITH TRAFOLYTE LABELS INDICATED CIRCUIT NUMBERS.

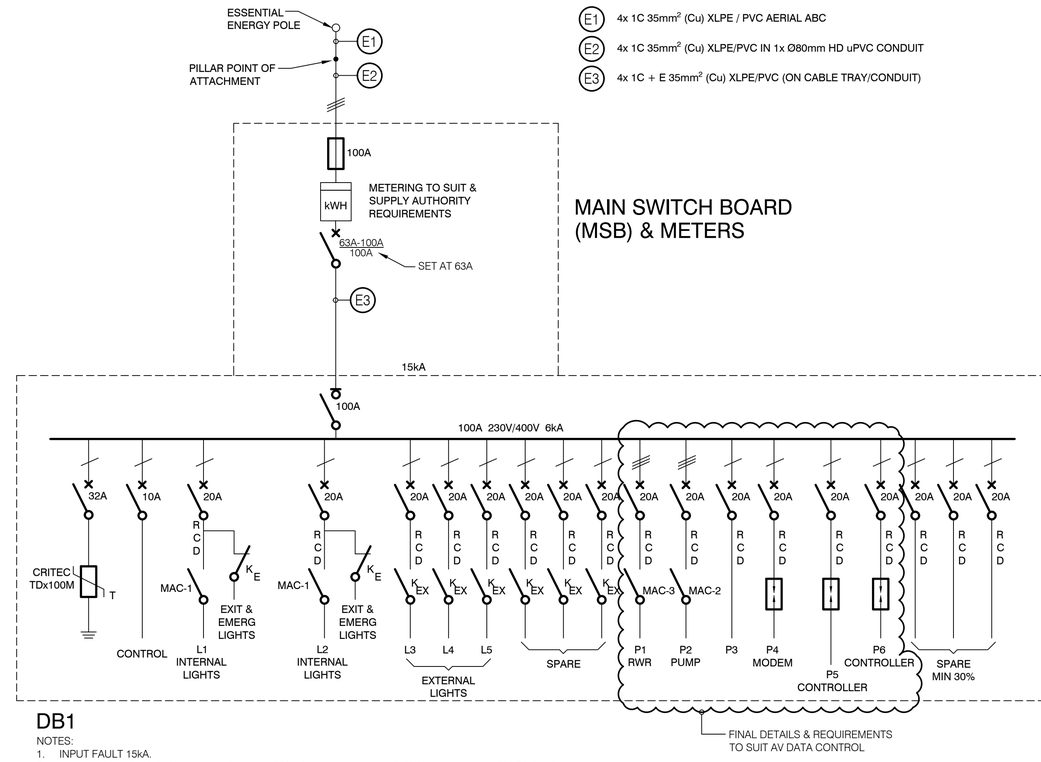


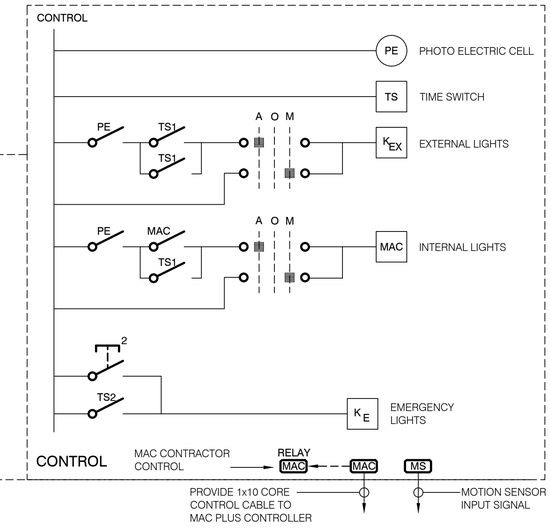
NOTES:
1. SWITCHBOARD TO BE IP65, VANDAL PROOF & CONSTRUCTED FROM POWDER COATED STEEL (COLOUR TO SUIT CLIENT/MANAGEMENT) WITH 4 SEPARATE LOCKABLE DOORS & MOUNTED ON A CONCRETE SLAB.
2. ALL EQUIPMENT TO BE MOUNTED ON HINGED PANELS WITH NO LIVE CONNECTIONS ON THE FRONT OF THE PANEL.
3. DGPOs ARE MOUNTED INSIDE SECTION SHOWN.
4. KEY SYSTEM TO SUIT COUNCIL.
5. PROVIDING AV DATA SYSTEM HOUSING, EQUIPMENT & CONTROL TO SUIT TRUCK WASH, SPECIFICATIONS & REQUIREMENTS. SUBMIT DETAILS TO AV DATA FOR REVIEW & APPROVAL PRIOR TO COMMENCING.

ELECTRICAL CABLE & CONDUIT SCHEDULE

- E1 4x 1C 35mm² (Cu) XLPE / PVC AERIAL ABC
- E2 4x 1C 35mm² (Cu) XLPE/PVC IN 1x Ø80mm HD uPVC CONDUIT
- E3 4x 1C + E 35mm² (Cu) XLPE/PVC (ON CABLE TRAY/CONDUIT)

MAIN SWITCH BOARD (MSB) & METERS





DB1

NOTES:
1. INPUT FAULT 15kA.
2. SWITCHBOARD TO BE SURFACE MOUNTED COMPLETE WITH HINGED DOOR - NHP TYPE CSB 24 ST (SIMILAR TO EXISTING DB).
3. ELECTRICAL CONTRACTOR TO SUBMIT APPLICATION TO CONNECT TO SUPPLY AUTHORITY FOR NEW WORK & PAY ALL COSTS.
4. IF BOILING WATER UNIT IS SUPPLIED WITH INBUILT TIMER & CONTROL THE EXTERNAL TIMER MAY BE DELETED.
5. PROVIDE SOLAR SYSTEM EQUIPMENT & CABLING AS PER AS4777 & SUPPLY AUTHORITY REQUIREMENTS.

Date	Issue	Reason for Issue
13.3.19	3	TENDER ISSUE
19.11.18	2	FOR CO-ORDINATION
15.11.18	1	FOR CO-ORDINATION

marline BUILDING SERVICES ENGINEERS
MECHANICAL . ELECTRICAL . HYDRAULIC . FIRE . ENERGY
P (02) 4925 9300
mail@marline.com.au
www.marline.com.au
ABN 49 612 456 381
MARLINE NEWCASTLE PTY LTD
Unit 4 239 King Street
Newcastle NSW 2300
ACN 612 456 381

Client

Architect
DESIGNSATM

Project
MOLONG TRUCK WASH
MARKET ST & CREOSUS ST
MOLONG NSW 2866

Drawn : T.G | Design : S.RYAN | Verify : K.HOYER
Scale @ A1 : N.T.S | Date : NOVEMBER 2018

Discipline: ELECTRICAL SERVICES
Job No.: 10427
Drawing Title: SINGLE LINE DIAGRAM & BLOCK DIAGRAMS
Issue: 3
Drawing No.: E-04

0 25mm 50mm 100mm ON A1 ORIGINAL

CABONNE COUNCIL

CONTRACT No. 1008628

LUMP SUM CONTRACT

for the

CONSTRUCTION OF TRUCK WASH FACILITY, MOLONG NSW 2866

TENDER SUBMISSION DOCUMENTS

PREPARED BY:
COUNCIL'S DEPARTMENT OF ENGINEERING
& TECHNICAL SERVICES
DATE: APRIL 2019

NOMINATION OF REQUIRED TENDER SUBMISSIONS

All Submitted information will be treated as confidential

TENDER FORMS AND DECLARATIONS

1. Tender Form
2. Lump Sum Tender Form
3. Schedule of Prices
4. Tenderer's Particulars - Personnel
5. Register of Tenderer's Subcontractors and Suppliers
6. Major Machinery and Equipment
7. Statutory Declaration on Non-Collusive Tender Submission
8. Acquaintance with Site
9. Receipt of Addenda
10. Statement of Conformance

INSTRUCTION TO TENDERER

The Tenderer shall complete in full and submit the forms in numerical order listed above. The completed forms, declarations and required information shall comprise the Tender Submission Documents**. Initial and date each form at the bottom right hand side of each page.**

COMPLETION OF DOCUMENTS

The omission of / failure to complete the forms listed above may, at the absolute discretion of the Principal, result in a nonconforming tender and be subject to rejection.

TENDERER'S ACKNOWLEDGMENT

Contract: Construction of Truck Wash Facility, Molong NSW 2866

Contract No: 1008628

Date: _____

Signature of Tenderer: _____

TENDER SUBMISSION FORM 1

TENDER FORM

The Tenderer must complete and submit with Tender submission.
All Submitted information will be treated as confidential

I, _____ *(Print name)*

of _____

_____ *(Address)*

on this _____ **day of** _____ **, Year** _____

having fully acquainted myself with the Conditions of Tender and accordingly the obligations and responsibilities of the Contract do hereby tender to perform the work described below:

Contract: Construction of Truck Wash Facility, Molong NSW 2866

Contract No: 1008628

as invited by: CABONNE COUNCIL, in accordance with the following documents.

Conditions of Contract

Information for Tenderers

Specifications

Drawings

Tender Submission Documents+

Addendum (if any)

By submitting this Tender, the Tenderer warrants and represents that the Tenderer has made their own enquiries and investigations and has obtained professional advice and all other relevant information so as to inform itself of all risks and contingencies which may affect the Tender price. The Tenderer warrants and represents that it has included for all such risks and contingencies in the Submission.

Contract	Construction of Truck Wash Facility, Molong NSW 2866		
Contract Number	1008628	Tenderer to Complete	
Council	Cabonne Council	Tenderer's Initial	
Submission Date	12.00 noon Wednesday, 22 May 2019	Date Submitted by Tenderer	

TENDER SUBMISSION FORM 1 continued

Signature of Tenderer: _____

Phone and facsimile numbers: _____

Subscribed and declared this: _____ **Day of** _____ **Year** _____

Before me: _____ *(Print name)*

Witness: _____ *(Signature)*

Referees

Name	**Position**	**Telephone No**
1.		
.....		
2.		
.....		

TENDER SUBMISSION FORM 2

LUMP SUM TENDER FORM

The Tenderer must complete and submit with tender.
All Submitted information will be treated as confidential

The Tenderer shall complete all of the following information in accordance with their Tender Submission. Amounts specified for these Lump Sum amount shall equal the extended totals from the relevant Schedule of Prices.

All amounts shall be inclusive of GST.

SCHEDULE: SEPARABLE PORTION ONE (SP1)

Construction of Truck Wash Facility and Associated Structures	
Works under the contract as per the tender documents	**Lump Sum Amount $ (GST Inclusive)**
Lump Sum Amount for Construction of Truck Wash Facility and Associated Structures	

EXECUTION

Executed by the Tenderer

_____ _____

Signature Signature

_____ _____

Name of Person Signing Name of Person Signing

_____ _____

Authority of Person Signing Authority of Person Signing

Contract	Construction of Truck Wash Facility, Molong NSW 2866		
Contract Number	1008628	Tenderer to Complete	
Council	Cabonne Council	Tenderer's Initial	
Submission Date	12.00 noon Wednesday, 22 May 2019	Date	

SCHEDULE: SEPARABLE PORTION TWO (SP2)

Construction of Road and Associated Structures	
Works under the contract as per the tender documents	**Lump Sum Amount $ (GST Inclusive)**
Lump Sum Amount for Construction of Road and Associated Structures	

EXECUTION

Executed by the Tenderer

_____	_____
Signature	Signature
_____	_____
Name of Person Signing	Name of Person Signing
_____	_____
Authority of Person Signing	Authority of Person Signing

TENDER SUBMISSION FORM 3

SCHEDULE OF PRICES – ALL WORKS UNDER CONTRACT

1. The Superintendent may, at their sole discretion, use this schedule for the purpose of pricing Works Under Contract or Variations.

2. The quantities shown are estimated quantities only and are not to be taken as correct quantities of work to be carried out.

3. The lump sum total price in the Form 2 – The total lump sum offer must be equal to total value of the works including GST shown in the Form 3 – Schedule of Prices. The total lump sum price in the Form 2 shall exclude the provisional sums (if any).

SEPERABLE PORTION ONE (SP1) - Construction of Truck Wash Facility and Associated Structures

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	**Construction of Truck Wash Facility and Associated Structures**				
1.1	**Preliminaries**	Item	1		
1.2	**Documentation** such as Work Health & Safety Management Plan, Environmental Management Plan, Safe Work Method Statement, etc.	Item	1		
1.3	**Excavation and Earthworks** including site clearing and hardstand in accordance with the Drawings and Specifications	Lump Sump	1		
1.4	**Concrete Works** including footing and slab in accordance with the Drawings and Specifications	Lump Sump	1		
1.5	**Steel Works** including column, beam, bracing, girt, purlin, rafter, strut, base plate, wall cladding, etc. in accordance with the Drawings and Specifications	Lump Sump	1		
1.6	**Roof Works** including cladding, guttering and downpipes	Lump Sump	1		
1.7	**Electrical Works** in accordance with the Drawings and Specifications	Lump Sump	1		
1.8	**Stormwater Drainage Works** in accordance with the Drawings and Specifications	Lump Sump	1		
1.9	**Supply and Installation of "AVDATA" Truck Wash Control System** in accordance with the Drawings and Specifications	Lump Sump	1		

1.10	**Supply and Installation of Truck Wash Way Pressure Cleaning Unit** in accordance with the Drawings and Specifications	Lump Sump	1		
1.11	**Supply and Installation of Pits, Oil Water Separator, Pump Station, etc.** in accordance with the Drawings and Specifications	Lump Sump	1		
1.12	**Supply and Installation of Bollards** in accordance with the Drawings and Specifications	Nos	16		
1.13	**As Built Drawings** at completion	Item	1		
1.14	**All Other Works under the Contract not included elsewhere** in accordance with the Drawings and Specifications (Provide Break Up)	Lump Sump	1		
				Subtotal (Excl. GST)	
				GST	
				TOTAL LUMP SUM CONTRACT PRICE (Incl. GST)	

SEPERABLE PORTION TWO (SP2) - Construction of Road and Associated Structures

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	**Construction of Road and Associated Structures**				
1.1	**Preliminaries**	Item	1		
1.2	**Documentation** such as Work Health & Safety Management Plan, Environmental Management Plan, Safe Work Method Statement, etc.	Item	1		
1.3	**Construction of Mitchell Highway Ch 0.000 to Ch 154.829** in accordance with the Drawings and Specifications	Lump Sump	1		
1.4	**Construction of Market Street Ch 0.000 to Ch 181.793** in accordance with the Drawings and Specifications	Lump Sump	1		
1.5	**Construction of Entry Ch 0.000 to Ch 27.585** in accordance with the Drawings and Specifications	Lump Sump	1		
1.6	**Construction of Exit Ch 0.000 to Ch 17.380** in accordance with the Drawings and Specifications	Lump Sump	1		
1.7	**Construction of Kerb Return KR1 Ch 0.000 to Ch 51.293** in accordance with the Drawings and Specifications	Lump Sump	1		
1.8	**Construction of Kerb Return KR2 Ch 0.000 to Ch 30.813** in accordance with the Drawings and Specifications	Lump Sump	1		
1.9	**Construction of Kerb Return KR3 Ch 0.000 to Ch 20.491** in accordance with the Drawings and Specifications	Lump Sump	1		
1.10	**Construction of Kerb Return KR4 Ch 0.000 to Ch 22.530** in accordance with the Drawings and Specifications	Lump Sump	1		
1.11	**Construction of Kerb Return KR5 Ch 0.000 to Ch 37.279** in accordance with the Drawings and Specifications	Lump Sump	1		
1.12	**Stormwater Drainage Works** in accordance with the Drawings and Specifications	Lump Sump	1		
1.13	**As Built Drawings** at completion	Item	1		

1.14	**All Other Works under the Contract not included elsewhere** in accordance with the Drawings and Specifications (Provide Break Up)	Lump Sump	1		
				Subtotal (Excl. GST)	
				GST	
				TOTAL LUMP SUM CONTRACT PRICE (Incl. GST)	

TENDER SUBMISSION FORM 4

TENDERER'S PARTICULARS - PERSONNEL

The Tenderer must complete and submit with tender
All Submitted information will be treated as confidential

Provide the names of the Project Manager and Site Manager or Responsible Officer in the event of a winning tender.

1. Contractor Project Manager _____

			Years Experience	
Name	**Company Role**	**Estimated Time Commitment (%)**	**In current firm**	**prior**

Work responsibilities for this Project:

2. Contractor Site Manager_____

			Years Experience	
Name	**Company Role**	**Estimated Time Commitment (%)**	**In current firm**	**prior**

Work responsibilities for this Project:

3. Design Sub Contractor _____

			Years Experience	
Name	**Company Role**	**Estimated Time Commitment (%)**	**In current firm**	**prior**

Work responsibilities for this Project:

TENDER SUBMISSION FORM 5

REGISTER OF TENDERER'S SUBCONTRACTORS AND SUPPLIERS

The Contractor must complete and submit with Tender submission
All Submitted information will be treated as confidential

The Tenderer is instructed to compile a listing below of all Selected Subcontractors and Suppliers which the Tenderer expects to use to execute the Works under the terms of this Contract.

Supplier or Contractor	Telephone No.	Description of work or materials
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

Contract	Construction of Truck Wash Facility, Molong NSW 2866		
Contract Number	1008628	Tenderer to Complete	
Council	Cabonne Council	Tenderer's Initial	
Submission Date	12.00 noon Wednesday, 22 May 2019	Date Submitted by Tenderer	

TENDER SUBMISSION FORM 6

MAJOR MACHINERY AND EQUIPMENT

The Tenderer must complete and submit with Tender submission
All Submitted information will be treated as confidential

The Tenderer is instructed to compile a listing below of all Major Equipment and Machinery proposed to execute the Works under the terms of this Contract.

Make / Model	Description	Year of Manufacture	Owned or Leased
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

Contract	Construction of Truck Wash Facility, Molong NSW 2866		
Contract Number	1008628	Tenderer to Complete	
Council	Cabonne Council	Tenderer's Initial	
Submission Date	12.00 noon Wednesday, 22 May 2019	Date Submitted by Tenderer	

TENDER SUBMISSION FORM 7

STATUTORY DECLARATION ON NON-COLLUSIVE TENDER DECLARATION

The Tenderer must complete and submit with Tender submission
All Submitted information will be treated as confidential

I, _____ *(Print name),*

of _____*(Address),*

do hereby solemnly declare and affirm the following;

1. I, after having made due inquiry believe the following to be completely accurate to the best of my knowledge.
2. Neither the Tenderer nor the Tenderers Agents or Servants have entered into any contract or agreement to offer payment of any kind to a representative of the Principal in the event of a winning tender.
3. Neither the Tenderer nor the Tenderers Agents or Servants have had any knowledge of the price of Tender submitted by its competitors nor did the Tenderer furnish the price of the enclosed tender to any external source prior to the close of the tender date as specified within this Contract.
4. Neither the Tenderer nor the Tenderers Agents or Servants have entered into any contract or agreement to offer payment of any kind to an unsuccessful Tenderer in the event of a winning submission.
5. The Tenderer is not aware of any facts which would affect the decision of the Principal in accepting the Tender nor has the Tenderer attempted to acquire information relevant to the Tenderer award process by soliciting the Principal, the Superintendent or their Representative's Agents or Servants.
6. Neither the Tenderer nor the Tenderers Agents or Servants have entered into any agreement with other Tenderers or third party which results in a payment of unsuccessful Tender fees.
7. The contents of this document are true and correct to the best of my knowledge and in no way have been written under duress of any form.

I make this solemn declaration as to the matter aforesaid, according to the law in this behalf made, and subject to the punishment by law provided for any wilfully false statement in any such declaration.

Signature of Tenderer: _____

Subscribed and declared at: _____

This: _____ **Day of** _____ **Year** _____

Before me: _____ *(Print name)*

Witness: _____*(Signature)*

(Justice of the Peace or authorised person)

Contract	Construction of Truck Wash Facility, Molong NSW 2866		
Contract Number	1008628	Tenderer to Complete	
Council	Cabonne Council	Tenderer's Initial	
Submission Date	12.00 noon Wednesday, 22 May 2019	Date Submitted by Tenderer	

TENDER SUBMISSION FORM 8

ACQUAINTANCE WITH SITE

The Tenderer must complete and submit with tender
All Submitted information will be treated as confidential

This form shall be signed by the Tenderer as a guarantee to the Principal that the Tenderer has undertaken a site inspection without direction of the Principal so as to be fully acquainted with the physical characteristics of the site.

Site Description: Near the intersection of Mitchell Highway and Market Street, Molong NSW 2866

DECLARATION OF SITE INSPECTION

I, _____ , of the Tendering Organisation _____

have, of my own accord, conducted an inspection of the aforementioned site and in doing so I have acquired a sound knowledge of the physical characteristics of the site and any consequential procedures and processes that may arise as a result of any environmental or geographical constraints or conditions and in doing so have abided by all National, State, and Council regulations, legislation and bylaws.

The Tenderer understands that it is the responsibility of the Tendering Organisation to inform all personnel, agents and Subcontractors of the Tendering Organisation of all information pursuant to the preceding paragraph.

Name: _____

Signature: _____

Date: _____

Contract	Construction of Truck Wash Facility, Molong NSW 2866		
Contract Number	1008628	Tenderer to Complete	
Council	Cabonne Council	Tenderer's Initial	
Submission Date	12.00 noon Wednesday, 22 May 2019	Date Submitted by Tenderer	

TENDER SUBMISSION FORM 9

RECEIPT OF ADDENDA

The Tenderer must complete and submit with tender
All Submitted information will be treated as confidential

The Tenderer is to acknowledge that it received the addenda listed below during the tender period and that the tender has been prepared having regard to these addenda.

Addenda No.	**Brief Description** (eg. Specification Page No, Clause No, Schedule No)	**Date Received**

This Tender has been prepared having regard to the addenda listed above.

Contract	Construction of Truck Wash Facility, Molong NSW 2866		
Contract Number	1008628	Tenderer to Complete	
Council	Cabonne Council	Tenderer's Initial	
Submission Date	12.00 noon Wednesday, 22 May 2019	Date Submitted by Tenderer	

TENDER SUBMISSION FORM 10

STATEMENT OF CONFORMANCE

The Tenderer must complete and submit with tender
All Submitted information will be treated as confidential

The Tenderer is to signify whether or not the submitted Tender conforms with the requirements of the Tender Documents by striking out below ** that which is not applicable.

This Tender **** does / does not ****** conform.

Should the Tender not conform with the requirements of the Tender Documents, the Tenderer shall list below all areas of non-conformance and the reasons for such non-conformance and shall value * each such non-conformance so that in the event of the non-conformance being deemed unacceptable, the Contract sum can be adjusted accordingly. If the non-conformances are not priced and are deemed to be unacceptable, the tender may not be further considered.

Area of Non-Conformance and Reason	*** Value of Non-Conformance ($)**

Contract	Construction of Truck Wash Facility, Molong NSW 2866		
Contract Number	1008628	Tenderer to Complete	
Council	Cabonne Council	Tenderer's Initial	
Submission Date	12.00 noon Wednesday, 22 May 2019	Date Submitted by Tenderer	

INSTRUMENT OF AGREEMENT

This instrument shall be completed by Principal and Contractor after acceptance of the tender.
It is included here for the Tenderer's information.

This form comprises a binding Contractual Agreement between:

CABONNE COUNCIL (Principal) **and …….. (**Contractor)

to faithfully execute the whole of the Works as set out in the documents below for the

Contract: Construction of Truck Wash Facility, Molong NSW 2866

Contract No: 1008628

Within the Area of Cabonne Council

in accordance with: Tenderers' Tender dated **..... and**

Letter of Acceptance dated **.....**

Contractual Document Parts Include

Conditions of Contract	**{**	**The General Conditions of Contract AS 4000-1997**
	{	**Annexure to the General Conditions of Contract**
Specifications		
Drawings		
Tender Submission Documents		
Addendums (if any)		

The Principal does not guarantee that information provided as additional to the Contract Documents to assist the Tenderer in the preparation of the tender is accurate or complete and the Tenderer must make their own assessment as to the validity of the information.

Name of Contractor: _____

Signature of Contractor: _____ **Date:** _____

Address: _____

Witness: _____ *(Signature)*

Signed for and on behalf of Cabonne Council.

.....	.....
General Manager	**Witness**
.....	.....
Name of General Manager (print)	**Name of Witness (print)**
.....	.....
Date	**Date**

CABONNE COUNCIL

CONTRACT No. 1008628

LUMP SUM CONTRACT

for the

CONSTRUCTION OF TRUCK WASH FACILITY, MOLONG NSW 2866

APPENDIXES

PREPARED BY:
COUNCIL'S DEPARTMENT OF
ENGINEERING & TECHNICAL SERVICES
DATE: APRIL 2019

CONTENTS

CIMS Quick Start Guide for Contractors

1. In your Web browser open the Statewide Mutual homepage **https://www.statewide.nsw.gov.au/.**
2. Select the **CIMS** icon in the bottom right hand corner of the homepage.
3. For existing users - enter your username and password to login.

   For new users - select **Create My Account** and follow the prompts to create a CIMS account for your business.

   A current email address is required and you will be asked to pay a subscription fee of $100 (incl. GST). Payment can be made via PayPal or Credit Card and the subscription is valid for one year.
4. Once logged in, select **CIMS SitePass Contractor Management** to access your account.
5. To add your insurances on CIMS, select the **Insurances** link on the left navigation panel.

6. In the **Insurances** page, scroll down to the bottom of the page and select the **Add Insurance** button to create a new insurance tab.

   The **Add Insurance** pop up box will appear.

   You will need to create an insurance tab for each insurance type that you wish to add on CIMS (e.g. Public Liability, Professional Indemnity, Workers Compensation etc).
7. Complete the fields in the **Add Insurance** box with your policy details; these will be located in your Policy Schedule or Certificate of Currency.
8. You will then need to upload your insurance documentation. CIMS allows for up to two (2) documents to be uploaded on the insurance tab for the policy - the documents can be uploaded in the fields **Copy of Policy/PDS** and **Copy of Schedule**.

   (TIP: If the 'Browse...' icon does not appear, select **Upload** from the drop down box.)

   Refer to the **CIMS Documentation Requirements** section of this Quick Start Guide (page 3) for further information on the documents that you will need to upload to obtain CIMS verification.

   Files must be in PDF or Microsoft Word format.
9. Once all fields have been completed and your files are selected, press **Save** and the policy will be submitted for verification.

   Your insurance policy will go through a review process by CIMS and may take up to one (1) week complete. This is to verify that CIMS has sufficient documentation and information regarding your policy, for member Councils to make an informed decision about whether your insurance coverage is appropriate for the work that you will be undertaking.

   You will be notified via email of the outcome of the review, keep monitoring your CIMS account during this time - Refer to the Verification Status Guide section below for further information.

   For further assistance please contact CIMS Support on cims.support@statewide.nsw.gov.au.

CIMS Documentation Requirements.

W **Policy Wording / Product Disclosure Statement (PDS)** - this is the generic policy document or 'booklet' for your cover.

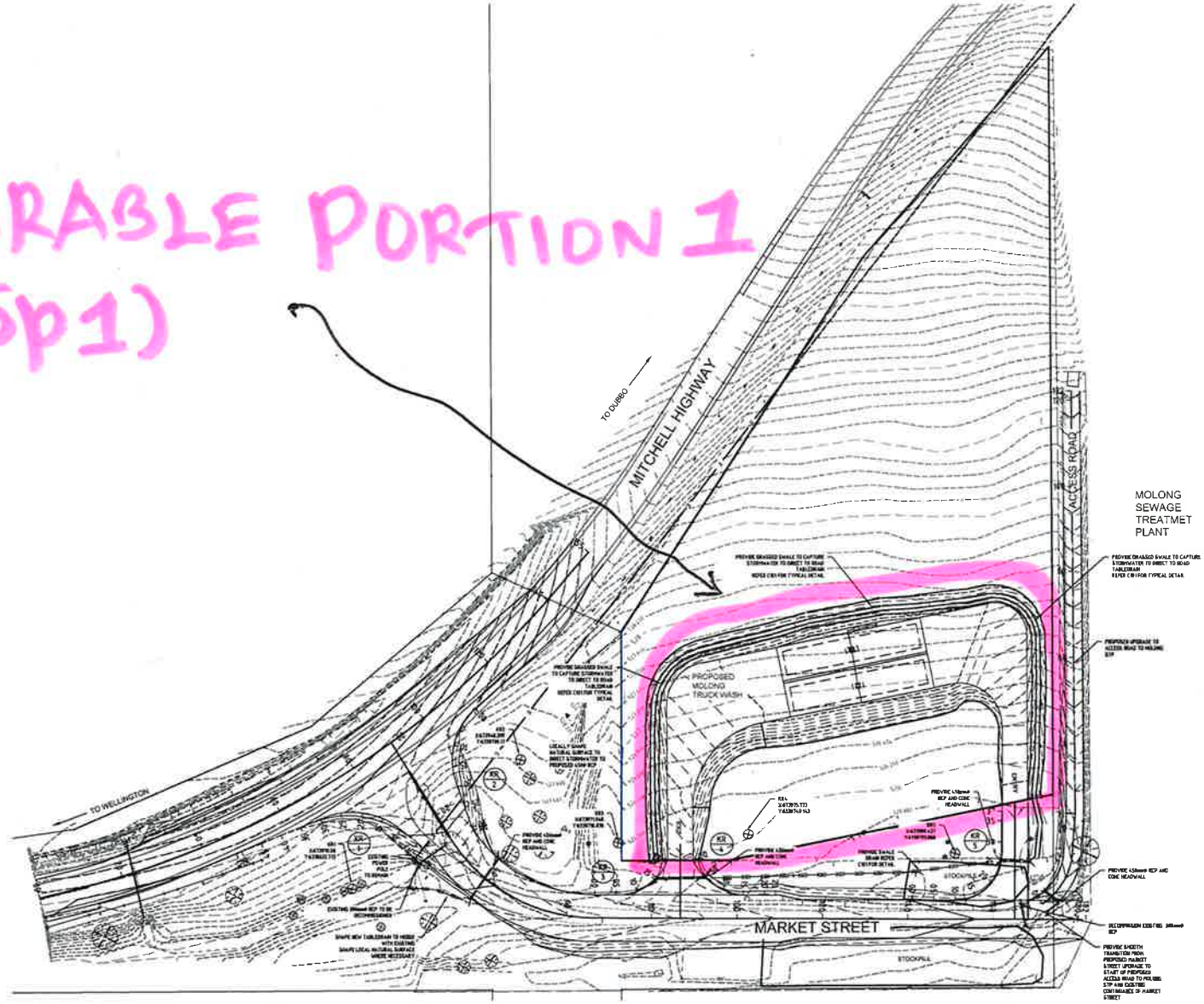
S **Policy Schedule** -contains details about your policy including policy number, coverage period, coverage amount, business activities covered, exclusions and endorsements.
This is **NOT** a Certificate of Currency. Renewal Invitations/quotations will not be accepted.

C **Certificate of Currency** - usually a one page document that confirms that a current policy is in place and details the insured name, insurer, policy number, coverage period and coverage amount.

M **Modified Certificate of Currency** - for businesses not wishing to provide the full Policy Wording and/or Schedule, you may claim 'Commercial in Confidence' and submit a modified Certificate of Currency.
This Certificate will need to include the insured and insurer's name, policy number, coverage period, coverage amount, business activities covered, exclusions and endorsements and **emailed directly to CIMS Support (cims.support@statewide.nsw.gov.au).**

Insurance Type	Documentation Requirements
Public & Products Liability	W and S or M
Professional Indemnity	W and S or M
Motor Vehicle	W and C or M
Workers Compensation	C
Personal Accident & Illness	C
Industrial Special Plant	W and S or M
Marine Liability	W and S or M
Umbrella or Excess Liability	W and S or M
Business Pack / Office Pack	W and S or M
All Other insurance types not listed above	W and S or M

SEPARABLE PORTION 1
(SP1)



LAYOUT PLAN
1:500

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn	YLM	Designed	YLM
CCDP No		CCDP Checked	
CAD Ref	2018447	Approved for Construction	
Scale	AS SHOWN		
Date	28.01.2019		

PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

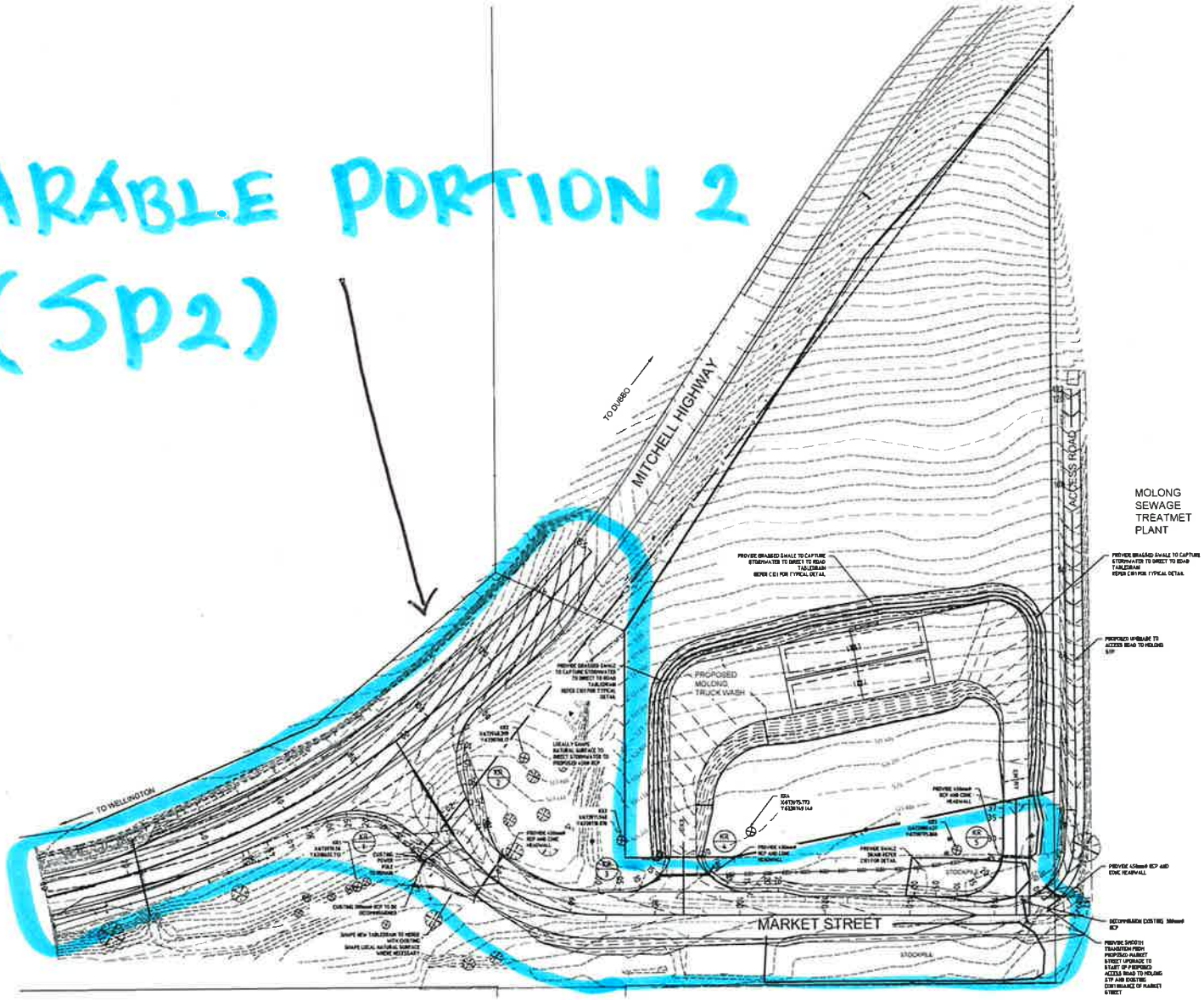
OVERALL LAYOUT PLAN

DESIGNSATM

CALARE CIVIL CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No.	18.447
DWG. No.	C102
Issue	1
No. in set	19

SEPARABLE PORTION 2
(SP2)



LAYOUT PLAN
1:500

Amend	Date	Description	By
1	15.04.2019	FOR CONSTRUCTION	YLM
C	8.04.2019	INTERSECTION AMENDMENTS FOR BAL/BAR TURNING	YLM
B	5.02.2019	AMENDMENTS TO MITCHELL HWY LS	YLM
A	28.01.2019	PRELIMINARY	YLM

Drawn	YLM
Designed	YLM
CCQP No:	
CCQP Checked	
CAD Ref:	20180447
Approved for Construction	
Scale:	AS SHOWN
Date:	28.01.2019

PROPOSED TRUCK WASH
MITCHELL HIGHWAY MOLONG NSW 2866
LOT 30 DP130510

OVERALL LAYOUT PLAN

DESIGNSATM

CALARE CIVIL
CONSULTING ENGINEERS
170 RANKIN STREET,
BATHURST, N.S.W. 2795
Tel: (02) 63323343 Fax: (02) 63318210

Job No.	18.447
DWG. No.	C102
Issue	1
No. in set	19