

*KENNEDY BELL
INFRASTRUCTURE*

KBI

Kennedy Bell Infrastructure

Suite 3
322 St Kilda Rd
St Kilda Victoria, 3082

Mobile – 0447 864 085
Email – paul@kennedybell.com.au

AGnVET Services - Holbrook, NSW

Proposed Fertilizer storage upgrade and office development

10 Bond Street, Holbrook, NSW 2644

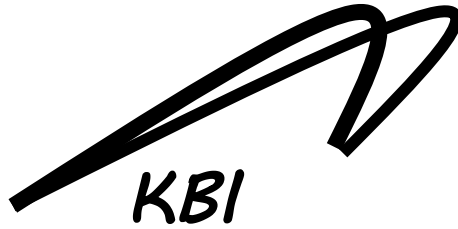
Project completed for

Mark Giffin

PAUL KENNEDY
BEng CPEng MStruct E
Chartered Structural Engineer
Registered Building Practitioner



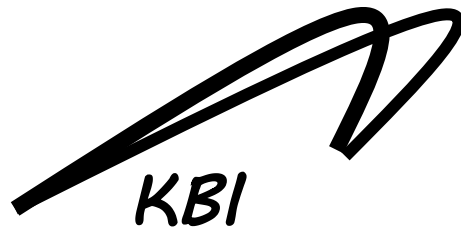
PE0003868/RPEQ26240



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Geotechnical Investigation



*KENNEDY BELL
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Statement of Compliance (Design)

STATEMENT OF COMPLIANCE—DESIGN

To

Relevant Building Surveyor: TBC

Postal address:

From

Structural Engineer: Paul Kennedy

Qualifications: Bachelor of Engineering (Hons) BEng

Chartered Structural Engineer CEng

Member of the Institution of Structural Engineers MStruct E (Reg No 020280171)

Registered Professional Engineer (Vic) PE0003868 RPEQ26240

Postal address:

Metro Office: Suite 3, 322 St Kilda rd, St Kilda Postcode:3082

Regional Office: PO Box 71, Tawonga South, Victoria.

Property details

Proposed Fertilizer storage upgrade and office development

AGnVET Services - Holbrook, NSW

10 Bond Street, Holbrook, NSW 2644

Statement

I did prepare the design and I certify that the part of the design described as proposed new fertilizer storage area and showroom office project complies with the following provisions of the Regulations**

** Includes BCA and relevant standards AS/NS1170 Pts 1-2, AS3600, AS4100,

Design documents

Drawing Nos:KBI-21-161 (S0 - S4 incl) Prepared by:Kennedy Bell Infrastructure Date: 03/09/2021

Computations:KBI-21-161 (Sheets 1-15) Prepared by: KBI Date: 03/09/2021

Reference Documentation

Geotechnical Investigation AS21-90 Prepared by: Aitken Rowe geotechnical Date: 12/08/2021

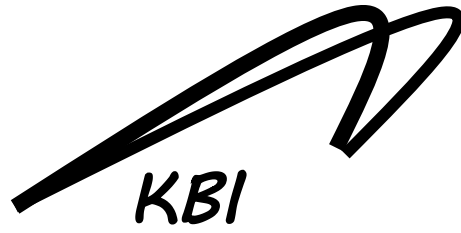
Signature

Signed:



Paul Kennedy BEng CPEng MStructE

Date: 6th September 2021



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Design Documentation

GENERAL

G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL AND ALL OTHER
CONSULTANT DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER INSTRUCTIONS WHICH MAY BE
ISSUED DURING THE COURSE OF THE CONTRACT, ANY DISCREPANCIES SHALL BE REFERRED TO THE
SUPERINTENDENT FOR DECISION PRIOR TO PROCEEDING WITH THE WORK

G2 ALL DIMENSIONS AND SET OUT RELEVANT TO THE SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR
BEFORE CONSTRUCTION AND FABRICATION IS COMMENCED. DO NOT SCALE DRAWINGS.

G3 DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN
A STABLE CONDITION AND ENSURING THAT NO PART SHALL BE OVERSTRESSED DURING CONSTRUCTION
ACTIVITIES. ALL TEMPORARY PROPPING AND BRACING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

G4 WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE RELEVANT CURRENT AUSTRALIAN
STANDARDS AND ALL AMENDMENTS TO THE BUILDING CODE OF AUSTRALIA.

G5 THE APPROVAL OF SUBSTITUTION SHALL BE SOUGHT BY THE FROM THE SUPERINTENDENT BUT IS NOT
AUTHORIZATION FOR A COST VARIATION. ALL COST VARIATIONS MUST BE AGREED BY THE
SUPERINTENDENT BEFORE WORK COMMENCES.

G6 UNLESS STATED OTHERWISE ALL DIMENSIONS ARE IN MILLIMETERS

G7 THE DESIGN OF THE FRAMING MEMBERS IS BASED ON A MAXIMUM BULK DENSITY OF 1300KG/M³.

G8 SHOWROOM/OFFICE ROOF LOAD 0.25KPA (MAINTENANCE ACCESS ONLY)

G9 WIND LOADING CLASSIFICATION N1 AS SETOUT IN AS4055-2006 TABLE 2.2 (TC3, PARTIAL SHIELDING)

F1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE AITKEN ROWE GEOTECHNICAL SITE INVESTIGATION
AS21-90 DATED 12 AUG 2021.

F2 THE FOUNDATION MATERIAL TO ALL FOOTINGS SHALL BE CHECKED BY THE BUILDING SURVEYOR OR
ENGINEER PRIOR TO CONCRETE PLACEMENT

F3 A 0.2mm THICK CONTINUOUS POLYTHENE APPROVED MEMBRANE SHALL BE LAYED UNDER ALL SLABS ON
GROUND. JOINTS SHALL BE LAPPED BY A MIN 200mm AND SECURELY TAPPED WITH 50mm POLYTHENE
TAPE. MEMBRANE IS TO BE TAPPED AROUND ALL PIPES AND SCREW PILES.

ALL PIPE WORK PENETRATING FOOTINGS SHALL BE LAGGED 20 MIN OR 40MIN FOR CLASS H1, H2, E OR P
SITES WITH SLEEVED CLOSED-CELL POLYETHYLENE LAGGING OR SIMILAR.

F4 PROVIDE FLEXIBLE COUPLINGS TO ALL SERVICE PIPES CONNECTED / PENETRATING THROUGH SLAB OR
BUILDING FOOTINGS LOCATED WITHIN 1.0m DISTANCE OF FOOTING BEAM AS PER MANUFACTURE
SPECIFICATIONS AND THE PLUMBING CODE TO ALLOW 75mm MOVEMENT IN ANY DIRECTION.

F5 FOUNDATION DEPTHS SPECIFIED ARE A MINIMUM ONLY. GREATER DEPTH MAY BE NECESSARY TO ACHIEVE
SPECIFIED FOUNIDNG REQUIREMENTS.

F6 ANY FILLING AS PART OF CUT /FILL OPERATIONS SHALL BE WELL COMPACTED AT OPTIMUM MOISTURE
CONTENT IN 150mm MAX. LAYERS WITH SUITABLE COMPACTION EQUIPMENT AS PER AS2870-2011
CLAUSE 6.42(a) AND AS3798 TO ACHIEVE A MIN. BEARING CAPACITY OF 80kPa. IF THE BUILDING
PLATFORM IS SOFT OR SUSPECT THEN CONTACT THIS OFFICE ADDITIONAL ADVICE.

S1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS4100 STEEL STRUCTURES

S2 WELDING SHALL BE PERFORMED BY A QUALIFIED OPERATOR IN ACCORDANCE WITH AS1554.

S3 BOLTS DESIGNATED 4.6/S SHALL BE COMMERCIAL BOLTS TO AS111 AND AS112 TIGHTENED TO SNUG TIGHT FIT, BOLTS DESIGNATED AS 8.8/S SHALL BE HIGH STRENGTH STEEL BOLTS TO AS1252 TIGHTENED TO A SNUG TIGHT FIT.

S4 THE ENDS OF ALL SHS AND RHS SECTIONS SHALL BE SEALED WITH 6mm THICK PLATE AND CONTINUOUS FILLET WELD.

S5 ALL EXPOSED STRUCTURAL STEEL WORK SHALL BE HOT DIPPED GALVANISED AND ALL INTERNAL STEEL WORK SHALL BE SHOP PRIMED UNLESS OTHERWISE SPECIFIED BY THE ARCHITECT. SITE WELDS TO EXISTING STEEL WORK SHALL BE CLEANED AND PREPARED PRIOR TO WELDING. SITE WELDS, CUTS AND HOLES SHALL BE PAINTED WITH A COAT OF ZINC RICH PRIMER.

S6 UNLESS STATED OTHERWISE;

A. ALL CLEATS AND, GUSSETS AND END PLATES SHALL BE 8mm THICK U.N.O

B. WELDING ELECTRODES SHALL BE E41XX

C. ALL FILLET WELDS SHALL BE 6mm CONTINUOUS

D. ALL BUTT WELDS SHALL BE FULL PENETRATION

E. ALL BOLTS SHALL BE M16 4.6/S U.N.O

F. BOLT HOLT CLEARANCE SHALL BE 2mm

G. ALL WELDS SHALL BE STRUCTURAL PURPOSE

S7 THE GRADE OF STRUCTURAL STEEL SHALL BE AS FOLLOWS;

1. HOT ROLLED SECTIONS 300 MPA

2. WELDED BEAM AND COLUMN SECTIONS 300 MPA

3. CIRCULAR HOLLOW SECTIONS 250 MPA

4. SQUARE AND RECTANGULAR HOLLOW SECTIONS 300 MPA

S8 A FULL SET OF FABRICATION DETAILS ARE TO BE PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCEMENT OF FABRICATION.

S9 COLD FORMED WALL AND ROOF FRAMING MAY BE USED FOR THE OFFICE CONSTRUCTION.

DETAILS TO BE PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO IMPLEMENTATION IF THIS METHOD OF CONSTRUCTION IS TO BE USED.

T1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACORDANCE WITH THE CURRENT VERSION OF AS1684.2 RESIDENTIAL TIMBER FRAMING CODE, AS1720 TIMBER STRUCTURES, NATIONAL CONSTRUCTION CODE AND OTHER RELEVANT AUSTRALIAN STANDARDS.

T2 ALL ROOF FRAMING AND TIE DOWN FIXING DETAILS, INCLUDING LINTEL TO STUD CONNECTIONS SHALL COMPLY WITH AS1684. PROPRIETARY TIE DOWN FIXINGS SHALL BE INSTALLED AS PER MANUFACTURE SPECIFICATIONS.

T3 ALL SUB-FLOOR FRAMING (JOISTS AND BEARERS) SHALL BE PRESERVATIVE TREATED TO AS1684, NCC/BCA AND RELEVANT AUSTRALIAN STANDARDS.

T4 ALL EXTERNAL TIMBER MEMBERS SHALL BE WEATHER / PRESERVATIVE TREATED TO AS1684, NCC/BCA AND RELEVANT AUSTRALIA STANDARDS.

-TIMBER MEMBERS WITHIN 300 OF GROUND LEVEL SHALL HAVE A 'CLASS 1' OR PRESERVATIVE TREATED TO 'H4' HAZARD RATING

-TIMBER MEMBERS 300 ABOVE GROUND LEVEL SHALL HAVE A 'CLASS 2' OR PRESERVATIVE TREATED TO 'H3' HAZARD RATING

-ALL EXPOSED TIMBER END GRAINS SHALL BE SEALED TO PREVENT MOISTURE ABSORPTION.

-REFER MANUFACTURE MATERIAL SAFETY DATA SHEETS 'MSDS' FOR SAFE HANDLING AND CONSTRUCTION DETAILS

T5 TERMITE DESIGNATED AREAS. ALL TIMBER SHALL BE TERMITE TREATED OR PROTECTED BY APPROVED TERMITE PROTECTION BARRIERS AND SYSTEMS AS SPECIFIED BY AS3660.1 TERMITE MANAGEMENT CODE, THE BCA AND NCC.

T6 TIMBER MEMBERS ADJACENT / PARALLEL TO MASONRY SHALL HAVE A MIN 5 GAP OTHERWISE A AN APPROVED WATERPROOF MEMBRANE SHALL BE INSTALLED BETWEEN THE MASONRY AND TIMBER FRAMING. TIMBER FRAMING FIXED TO MASONRY WALLS SHALL HAVE A MIN 6 CEMENT SHEET PACKER INSTALLED BETWEEN THE FRAMING AND MASONRY WALL.

T7 MULTIPLE MEMBERS SHALL BE LAMINATED TOGETHER AS PER AS1684 LAMINATION DETAILS AND SHALL NOT BE NOTCHED WITHOUT ENGINEERING APPROVAL.

T8 ALL TIMBER LINTELS / BEAMS SHALL BE SUPPORTED BY MIN 90 X 45 MGP10 STUD U.N.O AT EACH END.

T9 NON LOAD BEARING INTERNAL STUD WALLS SHALL BE IN ACCORDANCE WITH AS 1684.2 TABLE 6.2. WALLS SHALL BE RESTRAINED Laterally AT MAX 3000 CENTRES BY INTERSECTING WALLS, TIED TO ROOF BEAMS WITH VERTICALLY SLOTTED BRACKETS PROVIDING A MIN 10 SEPARATION BETWEEN TOP PLATE AND UNDERSIDE OF BEAM OR TIED BACK TO THE EXTERNAL WALLS

T10 STRENGTH GRADE SHALL BE MGP12 U.N.O.

T11 ALL FRAMING SHOWN ON THESE DRAWINGS IS BASED ON AS1684 U.N.O.

C1 ALL CONCRETE SHALL COMPLY WITH THE CURRENT ISSUE OF AS3600 AND OTHER RELEVANT STANDARDS REFERENCED THEREIN.

C2 THE CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 32MPa AT 28 DAYS U.N.O.

C3 UNLESS OTHERWISE SPECIFIED THE CEMENT SHALL BE TYPE GP OR GB AS DEFINED IN AS3972. THE NOMINAL MAXIMUM SIZE OF AGGREGATE SHALL BE 20mm. THE SLUMP OF THE CONCRETE SHALL BE 80mm UNLESS OTHERWISE SHOWN ON THE DRAWINGS AND SHALL BE DETERMINED FROM SAMPLES OBTAINED IN ACCORDANCE WITH THE ABOVE STANDARD.

C4 ALL CONCRETE TO BE MECHANICALLY VIBRATED.

C5 CLEAR CONCRETE COVER TO REINFORCEMENT SHALL BE DETERMINED IN ACCORDANCE WITH AS3600 REQUIREMENTS U.N.O.

C6 ALL CONCRETE SURFACES SHALL BE CURED BY MAINTAINING THEM CONSTANTLY DAMP OR WET FOR A MINIMUM OF 14 DAYS. CURING TO COMMENCE 24 HOURS AFTER POURING.

C7 SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED COATINGS.

C8 CONSTRUCTION JOINTS SHALL NOT BE USED EXCEPT WHERE SHOWN ON DRAWINGS OR APPROVED BY THE CONSTRUCTION MANAGER

C9 BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS (IF ANY).

C10 NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE DESIGN DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS, WITHOUT THE PRIOR APPROVAL OF THE CONSTRUCTION MANAGER.

C11 REINFORCEMENT IS ONLY REPRESENTED DIAGRAMATICALLY. IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

C12 SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN. ALTERNATIVE OR ADDITIONAL SPLICES CAN ONLY BE USED WITH THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT AS NOMINATED IN AS3600.

C13 WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SPECIFIED ON THE DESIGN DRAWINGS, OR APPROVED BY THE CONSTRUCTION MANAGER.

C14 PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE REINFORCEMENT COVER WITHOUT THE APPROVAL CONSTRUCTION MANAGER.

C15 REINFORCEMENT SYMBOLS:

N - DENOTES GRADE 500N HOT ROLLED DEFORMED BARS.

Y - DENOTES GRADE 400Y HOT ROLLED DEFORMED BARS.

R - DENOTES GRADE 250R HOT ROLLED PLAIN BARS.

F - DENOTES WELDED WIRE FABRIC REINFORCEMENT.

W - DENOTES STEEL REINFORCING WIRE.

C16 THE NUMBER PRECEDING THE ABOVE SYMBOLS DENOTES THE NUMBER OF BARS IN THE GROUP. THE NUMBER FOLLOWING THE SYMBOL DENOTES THE BAR SIZE IN "mm".

C17 MINIMUM LAP FOR FABRIC SHALL BE TWO TRANSVERSE WIRES $\pm 25\text{mm}$.

C18 SAMPLING, TESTING AND ASSESSMENT SHALL BE IN ACCORDANCE WITH AS3600.

C19 ALL CONCRETE SHALL BE STRENGTH TESTED BY AN INDEPENDENT NATA REGISTERED LABORATORY.

 <p>Suit 3, 333 St Kilda Road, St Kilda, Vic 3182 T: (03) 8376 6583 E: admin@kennedybell.com.</p>					PRO ECT AGnVET Services - Holbrook Proposed fertilizer storage area and office/showroom upgrade	SCALE	AS NOTED	DRAWING GENERAL NOTES	
						DRAWN	KP		
						DATE	Sept 2021		
							DRAWING NO		ISSUE
	A	FOR CONSTRUCTION	03/09/21	KP	CONSULTANTS PRO ECT NO KBI-21-161		KBI- S0		A
	ISSUE AMENDMENT		DATE	BY					
	CHECKED PK		AUTHORISED PK						



SITE LOCATION

AGnVET Services - 10
Bond Street, Holbrook,
NSW 2644



PROPOSED NEW OFFICE/SHOWROOM
AREA TO BE PLACED WITHIN EXISTING
MAIN SHED. SEE DETAILS ON DRAWING S4

EXISTING 40' SHIPPING CONTAINER WITH
KITCHNETTE AND TOILET FACILITIES TO BE
RETAINED IN POSITION.

PROPOSED SITE LAYOUT

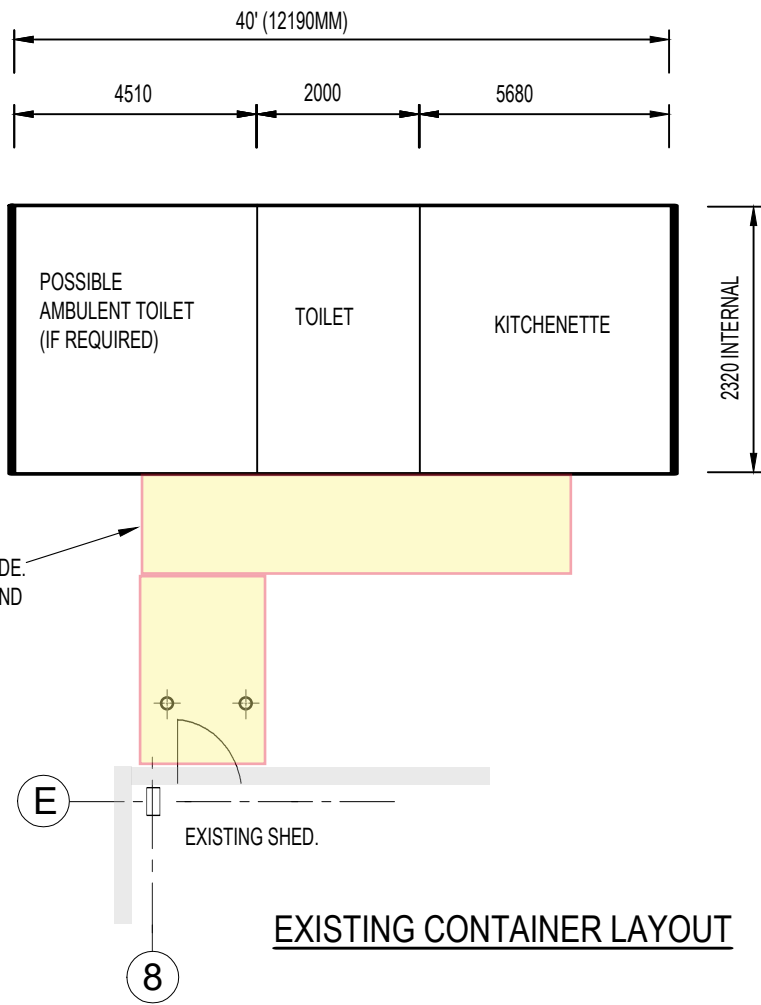
SITE CLASSIFIED AS H1-D (Highly reactive deep drying)

IN ACCORDANCE WITH AS 2870-2011
BY AITKEN ROWE GEOTECHNICAL
REPORT NO AS21-90 - DATED 12 AUGUST 2021
REFER TO SOIL REPORT FOR ALL FOUNDATION INFORMATION. THESE DRAWINGS SHALL BE READ IN CON UNCTION
WITH THE SOIL REPORT.

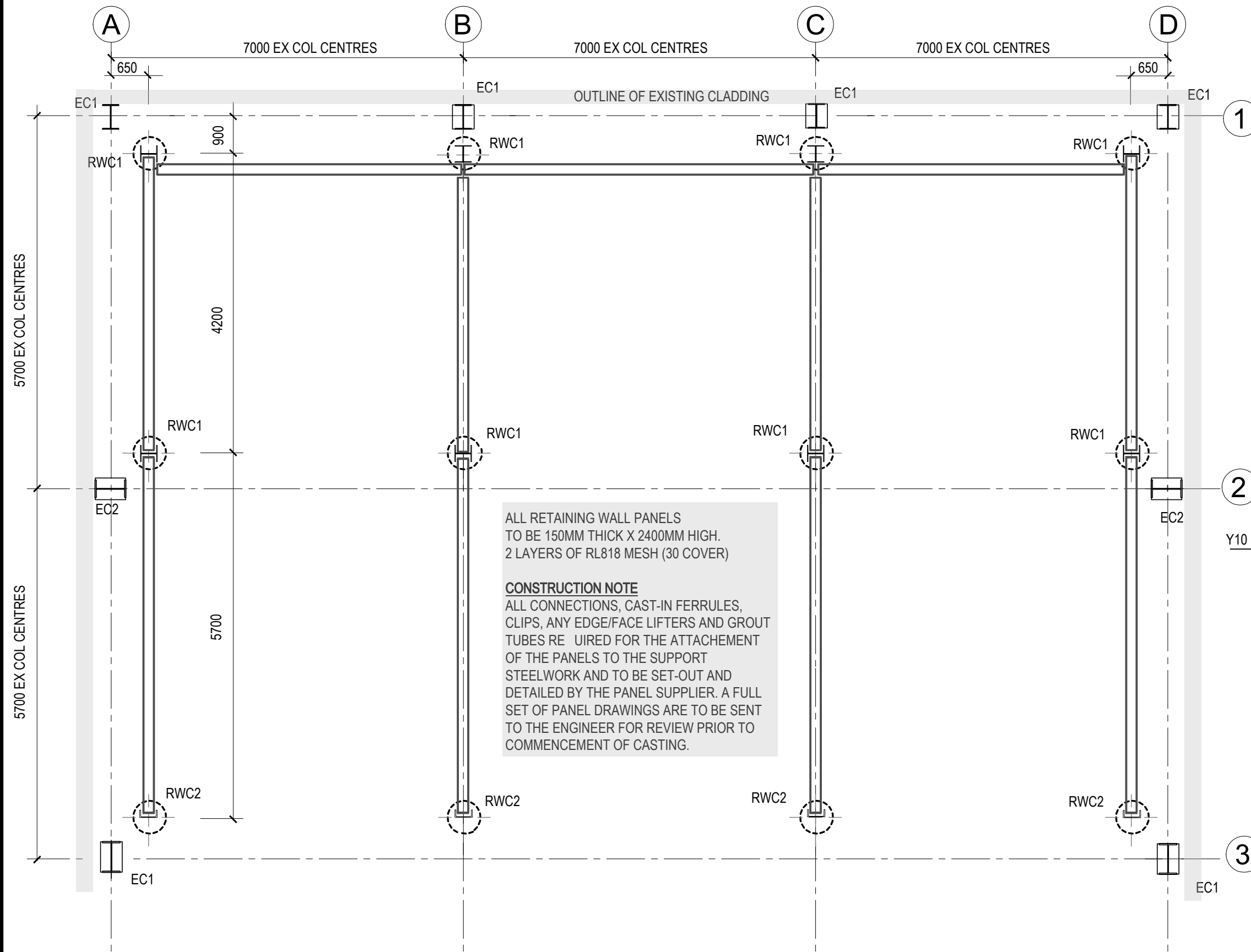
FOUNDATIONS AND SITE STRIP NOTE

REFER TO SOIL REPORT FOR ALL FOUNDATION INFORMATION.
SCRAPE AND REMOVE SURFACE SOIL CONTAINING GRASS, ROOTS AND ORGANIC MATTER FROM SITE
SURFACE. REMAINING SOIL OR FILL FOR WHERE SLAB PANELS ARE NOT SUSPENDED SHALL BE COMPACTED
WITH SUITABLE COMPACTION E UIPMENT AS PER AS2870-2011 CLAUSE 6.4.2(a) AND AS3798 TO ACHIEVE A
MINIMUM BEARING CAPACITY OF 80kPa. THE MAXIMUM DEPTH OF COMPACTED FILL (EXISTING OR PLACED
OR COMBINED EXISTING PLACED) SHALL NOT EXCEED 300mm. IF SOFT SPOTS ARE ENCOUNTERED WHERE
THE RE UIRED BEARING CAPACITY CANNOT BE ACHIEVED, CONTACT THIS OFFICE FOR ADDITIONAL
RE UIREMENTS.
CUT AND/OR FILL SITE TO FORM A LEVEL BENCH.
ANY FILLING PLACED AS PART OF CUT/FILL OPERATION SHALL BE WELL COMPACTED AT OPTIMUM
MOISTURE CONTENT IN 150mm MAX. LAYERS WITH SUITABLE COMPACTION E UIPMENT AS PER AS2870-2011
CLAUSE 6.4.2(a) AND AS3798 TO ACHIEVE A MIN. BEARING CAPACITY OF 80kPa. IF THE BUILDING PLATFORM
IS SOFT OR SUSPECT THEN CONTACT THIS OFFICE FOR ADDITIONAL ADVICE.

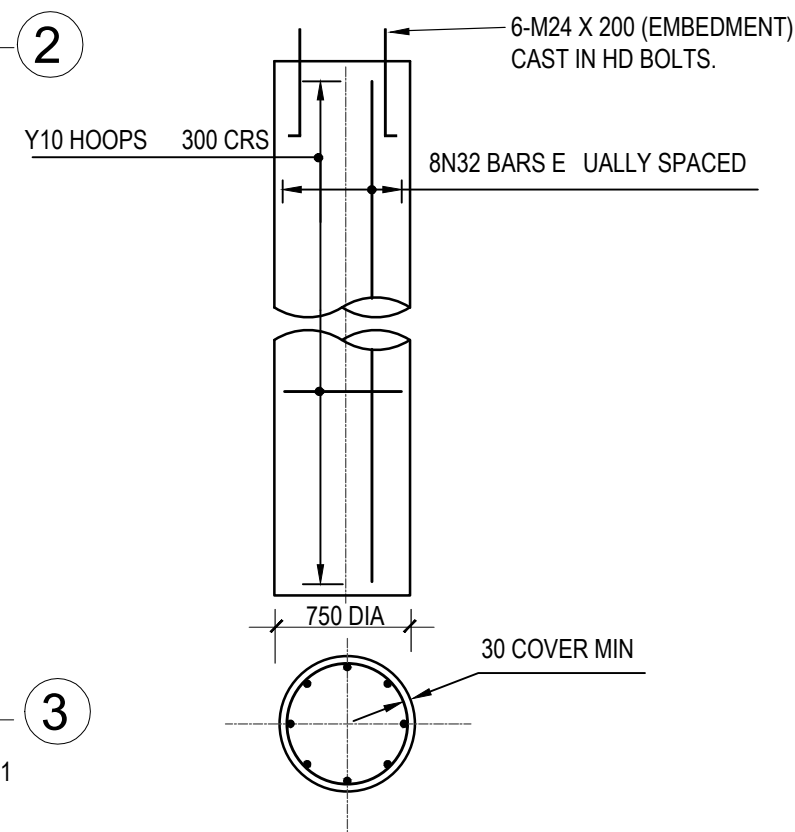
EXISTING 40' SHIPPING CONTAINER WITH
KITCHNETTE AND TOILET FACILITIES TO BE
RETAINED IN POSITION.



<div><div><div>KBI</div><div>KENNEDY BELL INFRASTRUCTURE</div></div><div>Suit 3, 333 St Kilda Road, St Kilda, Vic 3182 T: (03) 8376 6583 E: admin@kennedybell.com.</div></div>						PRO ECT	SCALE	AS NOTED	DRAWING SITE LAYOUT, LOCATION PLAN AND SITE NOTES			
						AGnVET Services - Holbrook Proposed fertilizer storage area and office/showroom upgrade	DRAWN	KP				
							DATE	Sept 2021				
										DRAWING NO	ISSUE	
	A	FOR CONSTRUCTION			03/09/21	KP	CONSULTANTS PRO ECT NO KBI-21-161		DESIGNER	PK	KBI- S1	A
	ISSUE	AMENDMENT			DATE	BY						
	CHECKED	PK			AUTHORISED	PK						



MEMBER SCHEDULE		
N0	SIZE	COMMENTS
EC1	200 UC46	EXISTING MAIN COLUMNS
EC2	180 UB16	EXISTING MULLIONS
NOTE - ALL EXISTING COLUMNS MULLIONS ARE PLACED ON 450 DIA X 1800MM DEEP REINFORCED BORED PIERS AS DERIVED FROM THE ORIGINAL ENGINEERING DOCUMENTATION.		
RWC1	200 UC46	NEW RETAINING WALL SUPPORT COLUMNS
RWC2	200 PFC	NEW RETAINING WALL END SUPPORT COLUMNS
NOTE - ALL NEW COLUMNS ARE TO BE PLACED ON 750 DIA X 2000MM DEEP REINFORCED BORED PIERS SEE DETAIL A.		



DETAIL A
TYPICAL BORED PIER
FOUNDATION DETAIL

FOUNDATION AND WALL LAYOUT

Suit 3, 333 St Kilda Road, St Kilda, Vic 3182
T: (03) 8376 6583 E: admin@kennedybell.com.

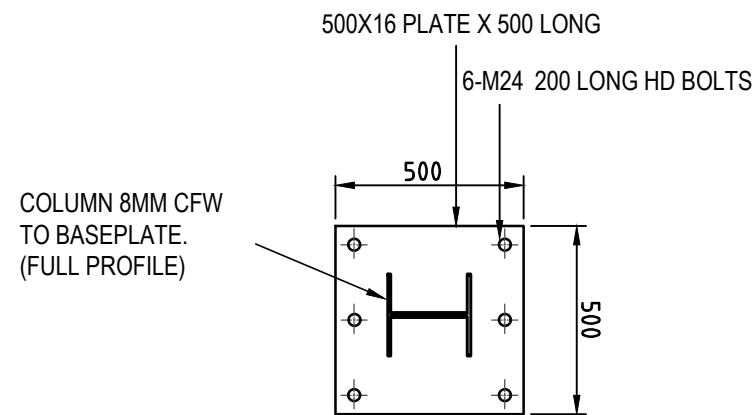
A	FOR CONSTRUCTION	03/09/21	KP
ISSUE	AMENDMENT	DATE	BY
CHECKED	PK	AUTHORISED	PK

PRO ECT
AGnVET Services - Holbrook
Proposed fertilizer storage area
and office/showroom upgrade

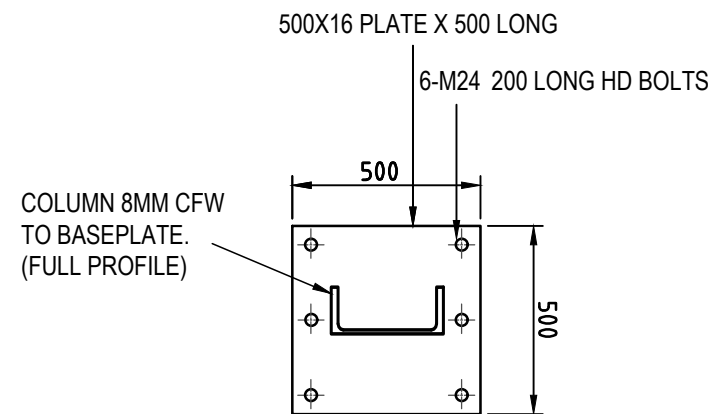
CONSULTANTS PRO ECT NO KBI-21-161

SCALE	AS NOTED
DRAWN	KP
DATE	Sept 2021
DESIGNER	PK

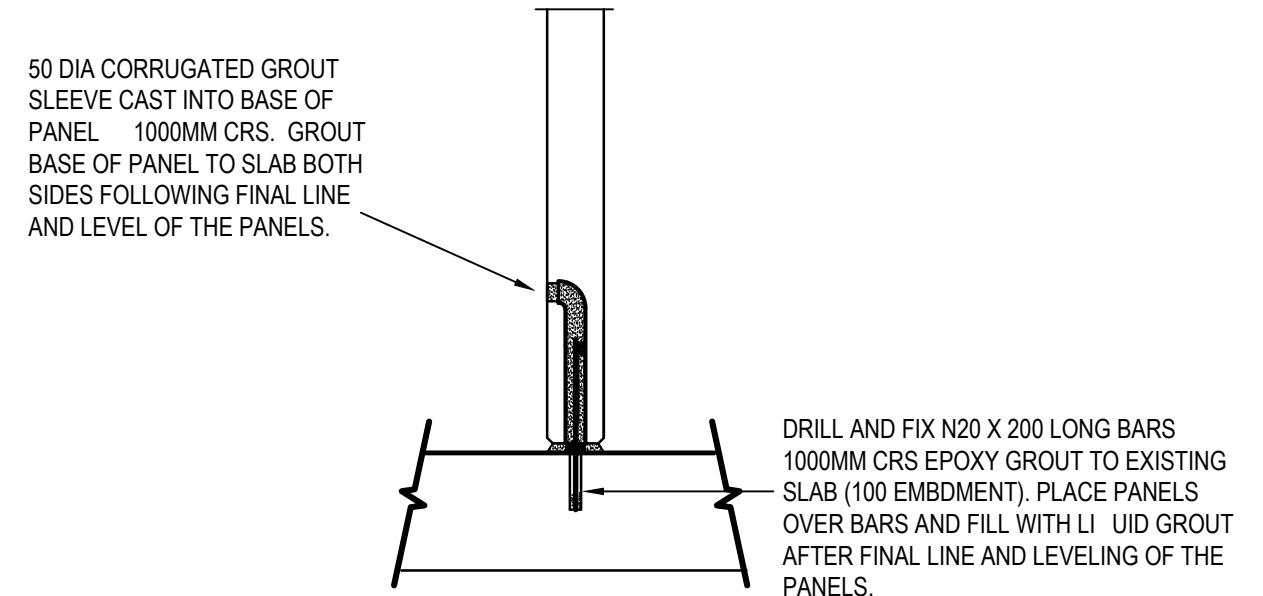
DRAWING	FERTILIZER STORAGE FOUNDATION PLAN AND DETAILS
DRAWING NO	KBI- S2
ISSUE	A



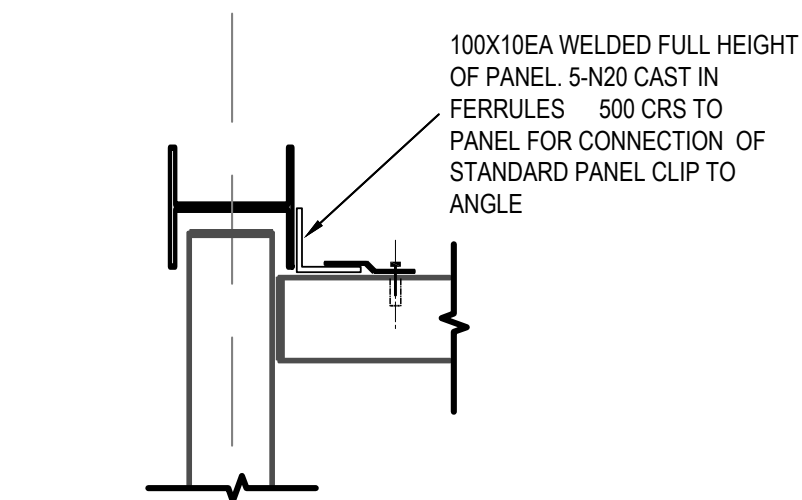
RWC1 BASEPLATE DETAIL



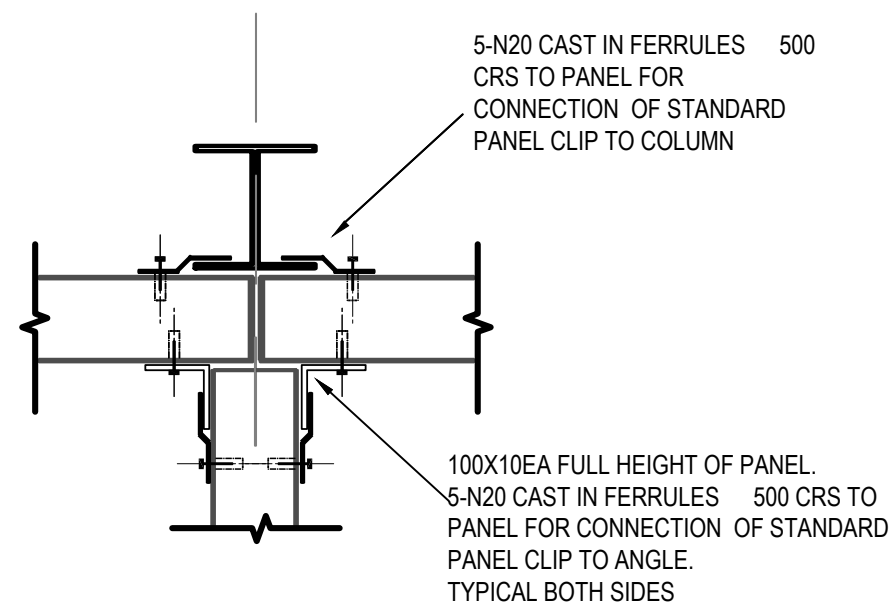
RWC2 BASEPLATE DETAIL



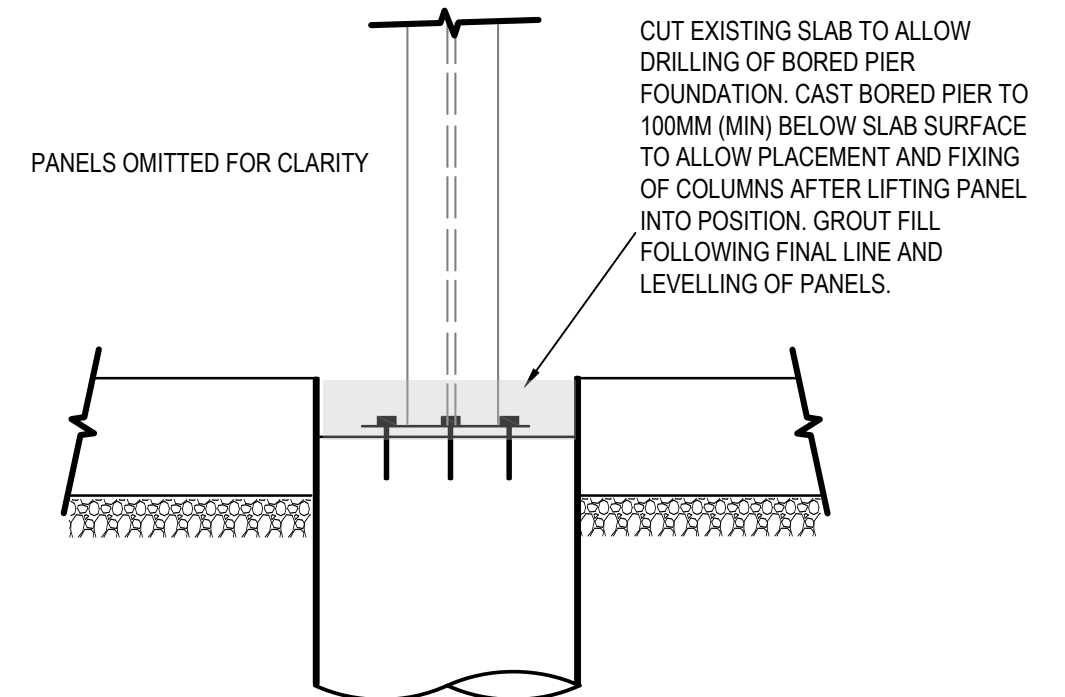
TYPICAL PANEL BASE DETAIL



TYPICAL CORNER PANEL DETAIL



TYPICAL CENTER PANEL DETAIL



TYPICAL COLUMN BASE DETAIL

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A	FOR CONSTRUCTION	03/09/21	KP		
ISSUE	AMENDMENT	DATE	BY		
CHECKED	PK	AUTHORISED	PK		

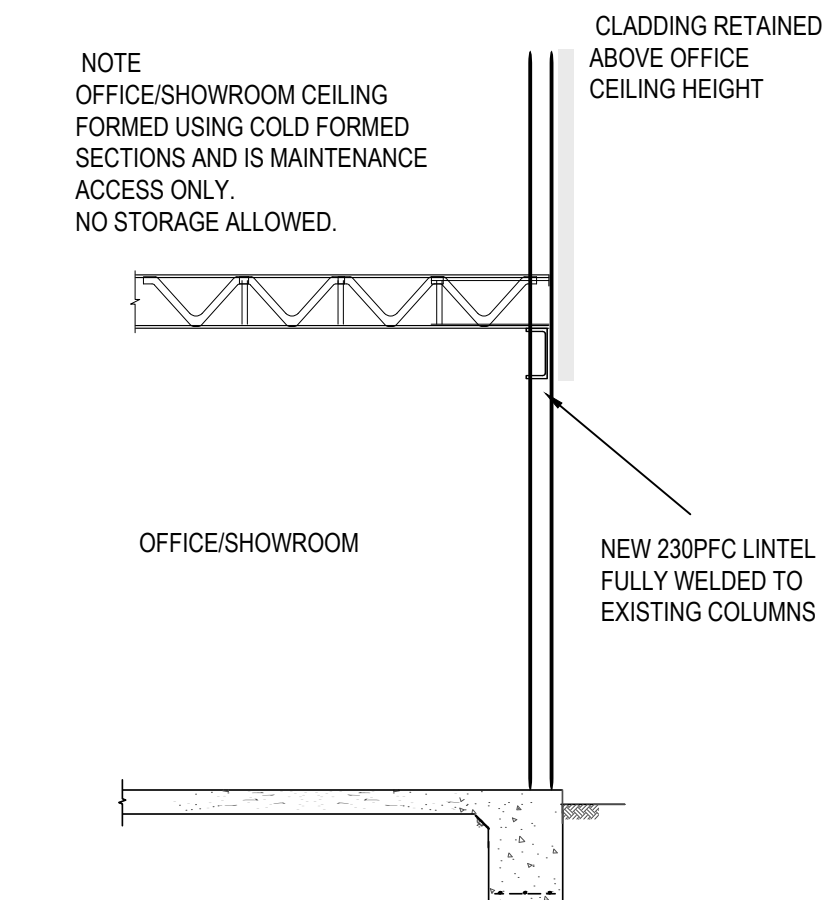
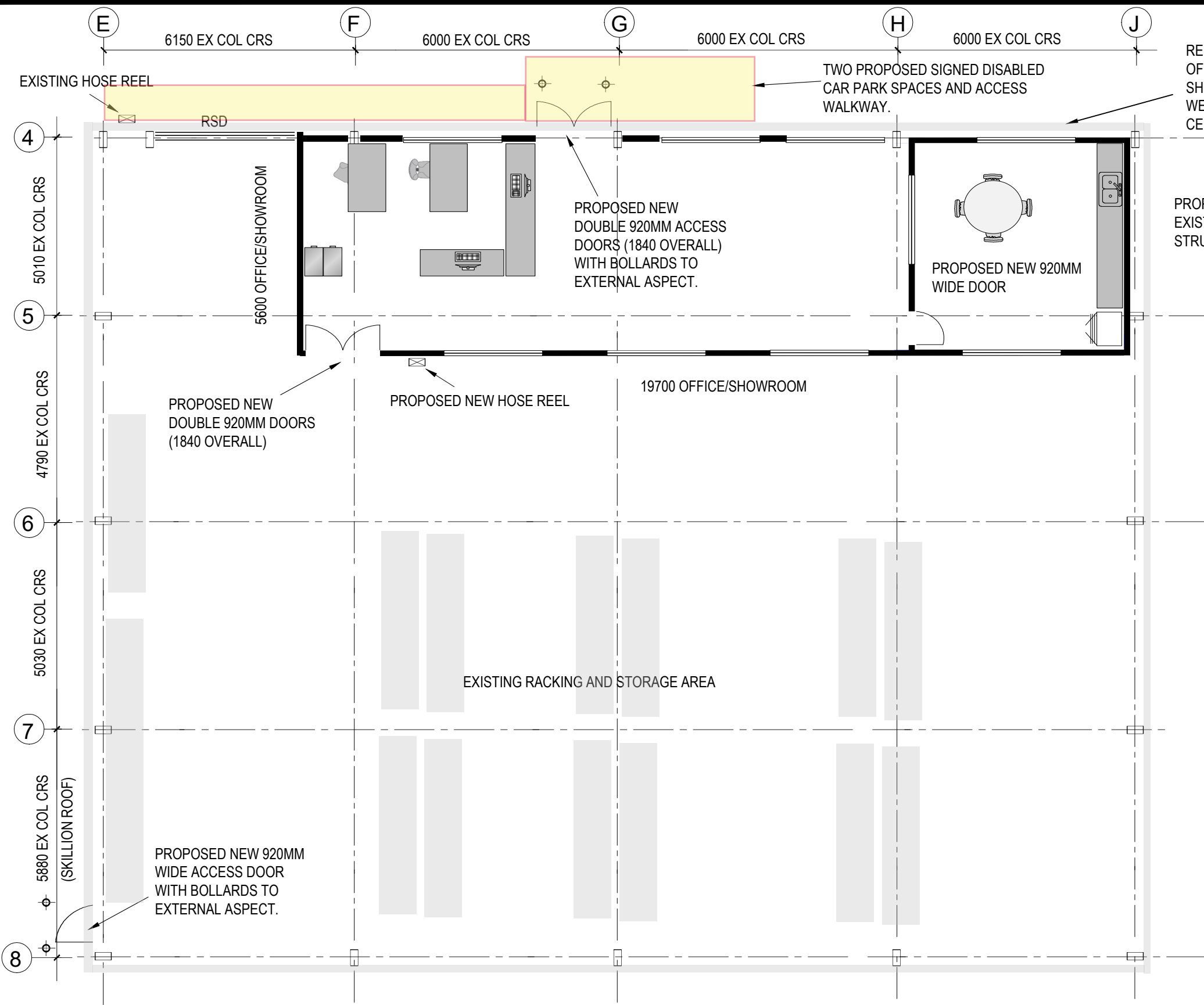
PRO ECT
AGnVET Services - Holbrook
Proposed fertilizer storage area
and office/showroom upgrade

CONSULTANTS PRO ECT NO KBI-21-161

SCALE AS NOTED
DRAWN KP
DATE Sept 2021
DESIGNER PK

DRAWING
FERTILIZER STORAGE
CONSTRUCTION DETAILS

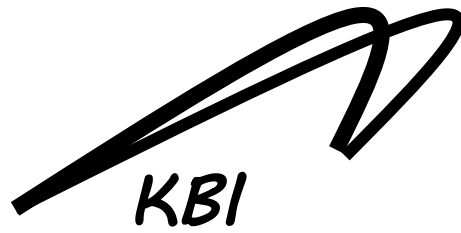
DRAWING NO KBI- S3
ISSUE A



PROPOSED OFFICE/SHOWROOM LAYOUT

PROPOSED OFFICE/SHOWROOM SECTION

 Suit 3, 333 St Kilda Road, St Kilda, Vic 3182 T: (03) 8376 6583 E: admin@kennedybell.com.	PROJECT				AGnVET Services - Holbrook Proposed fertilizer storage area and office/showroom upgrade	SCALE AS NOTED	DRAWING OFFICE/SHOWROOM CONSTRUCTION DETAILS	
	ISSUE					DRAWN KP		
	CHECKED PK					DATE Sept 2021		
	AUTHORISED PK					DESIGNER PK	DRAWING NO KBI- S4	ISSUE A
	A FOR CONSTRUCTION				03/09/21 KP	CONSULTANTS PROJECT NO KBI-21-161		



*KENNEDY BELL
INFRASTRUCTURE*

Geotechnical Investigation

12 August 2021

Reg. No.: AS21-90

AGnVET Services
11 Bond Street,
Holbrook, NSW 2644

Attn: Rohan Jarvis – Regional Manager Southern NSW

Dear Rohan,

**GEOTECHNICAL INVESTIGATION – PROPOSED BULK FERTILISER SHED,
No. 10 BOND STREET, HOLBROOK, NSW**

Further to your request, we drilled two (2) boreholes (BH1 and BH2) to the depth of 3.0m at the location of the proposed commercial development site as shown in the attached borehole and DCP test location plan, using our trailer-mounted drill rig on 20 July 2021. Dynamic Cone Penetrometer testing (DCP) was also carried out at each borehole location from the existing surface level in order to assess the strength of the underlying material. Disturbed samples were recovered from the boreholes for relevant laboratory testing.

The purpose of the investigation is to assess the type and condition of the underlying soil strata and make recommendation in respect to geotechnical design parameters for the proposed bulk fertiliser shed.

1. Site Description

The proposed development is located at No. 10 Bond Street, Holbrook, NSW. The proposed bulk fertiliser shed is situated directly south of the existing shed in the north-eastern corner of the subject site. The site was noted to be generally flat with a groundcover of gravel-based fill material with scattered medium to large trees along the eastern boundary as noted at the time of the investigation.

2. Subsurface Condition

The borehole investigation revealed that the site is generally underlain by fill material comprising fine to medium grained silty sandy gravel of 100mm thickness overlying natural alluvial material

comprising low plasticity silt to 0.2m in BH1 and BH2, and low plasticity sandy silt to 0.5m in BH2 only, which in turn is underlain by medium and high plasticity clays extending to the borehole termination depth at 3.0m in BH1 to BH2. The fill material encountered across the site appeared to have been placed “uncontrolled” and visually assessed as “moderately” compacted.

The moisture condition of the underlying fill material was noted as generally dry and moist throughout the gravel-based fill material where encountered in BH1 and BH2, with the underlying natural silt-based material noted as generally less than plastic limit in BH1 and BH2 and the underlying natural clay-based material noted as generally less than plastic limit in BH1, however greater than plastic limit throughout the tested profile in BH2 at the time of the investigation.

No seepage was encountered during the course of the drilling in BH1 and BH2 at the time of the investigation. It should however be noted that variations to the water table level could fluctuate with changes to the season, temperature and rainfall.

As per the DCP test results and visual observation of the resistance by auger TC bit, the underlying natural clay material is assessed to be generally stiff to very stiff consistency from 0.1m to 0.5m in BH1, then increasing to very stiff consistency throughout the tested profile in BH1 and generally firm consistency in the upper silt-based profile from 0.1m to 0.2m in BH2, then increasing to stiff consistency to 0.8m, then increasing to stiff to very stiff consistency with depth throughout the tested profile in BH2 at the time of the investigation.

The borehole logs with explanatory note and DCP test reports are herewith attached.

3. Laboratory Testing

To confirm and evaluate the results of the fieldwork, laboratory tests were carried out on the recovered soil samples from the boreholes. The laboratory tests included field moisture content (FMC) determination test and linear shrinkage (LS) test and they were carried out at our NATA accredited testing laboratory in Albury, NSW. The test reports for field moisture content and linear shrinkage are herewith attached. The FMC and LS test results are also incorporated in the respective borehole logs.

4. Site Preparation and Earthworks

The fill material encountered across the site appeared to have been placed “uncontrolled” and therefore considered “not suitable” to use as subgrade or foundation of any structure in its current state unless it is proven to be “controlled fill” and “well” compacted throughout. We therefore recommend excavation of this material and replace and re-compact with approved fill material in such a way that it achieves a minimum of 98% of Standard Maximum Dry Density (SMDD) if to be used as subgrade and foundation for the proposed construction.

It should be noted that if a deep footing system, such as bored and cast-in-place or screw pile footing system is to be adopted and the slab is to be suspended on the footing system, then the removal of the existing fill material may not be required.

In general, **if the slab is not to be fully suspended on the footing system**, the following site preparation is recommended as required once the fill and unsuitable materials, if any, are removed and cuts if required are undertaken.

- Remove fill and unsuitable material, including silt-based material, if any, and stockpile for later use as appropriate. An average stripping depth of 0.1m is anticipated for the gravel-based fill material. It should be noted that unsuitable silt-based material was noted to extend to 0.2m at the location of BH1 and 0.5m at the location of BH2.
- Once the fill and unsuitable silt-based materials, if any, are removed as required, the exposed natural clay subgrade material should then be scarified to a depth of about 200mm; moisture conditioned to within -2 to 0% of Standard Optimum Moisture Content (SOMC) and compacted to a minimum of 98% of Standard Maximum Dry Density (SMDD).
- Proof roll the exposed natural subgrade using a minimum of 10 passes of 12 tonne dead weight roller to detect any soft, loose or heaving areas.
- Any soft, loose or heave areas, if detected, should be excavated down and backfilled with appropriate approved materials, compacted in 150mm thick layers to the equivalent density of minimum 98% of SMDD.
- Any area of exposed subgrade, which exhibits shrinkage cracking and does not require re-compaction, should be watered and rolled until the shrinkage cracks do not reappear. During this undertaking, care should be exercised to ensure the surface does not become soft.

Subsequent to the above subgrade preparation, clean approved fill preferably granular material can be placed as required and compacted to the compaction requirements as given above. Any excavated fill material, if undertaken, may be used provided any organic matter and unsuitable materials are completely removed. The degree of compaction of any fill placement should be verified by a NATA accredited testing authority to ensure that it achieves specified density as specified above. The boundaries of the fill areas should be sloped to a maximum batter of 1.0 Vertical to 2.0 Horizontal or retained with the retaining wall as appropriate.

The structural fill supporting any structural element of the structures shall be prepared in such a way that it achieves a minimum of 98% of Standard Maximum Dry Density in every 150mm thick compacted layers and certified by a relevant NATA accredited testing laboratory for which a safe allowable bearing pressure of 100kPa may be adopted, provided proper drainage measures are incorporated in the design, during and after the construction.

It is highly recommended the construction of fill pads be undertaken under Level 1 supervision in accordance with “AS3798 – 2007 – Guidelines on earthworks for commercial and residential developments” if a fill pad is to be used for the foundation of any structure of the proposed sheds.

5. Footing Design and Foundation

Based on the field and laboratory investigation, the calculated characteristic surface movement (y_s) values noted to be above 40mm and below 60mm and therefore the site for the proposed development shall be classified as **“H1-D – Highly reactive deep drying”** in accordance with the Australian Standard AS 2870 - 2011 “Residential Slab and Footings”. The footing system for the proposed bulk fertiliser shed may be founded on the prepared subgrade as specified in Section 4 or into natural ground.

It is noted that medium to large sized trees are located across the subject site and therefore the building structures should be sited away from the trees at a distance equivalent to at least 100% of the mature height of the trees. If any trees are to be retained and the new structures are to be built within the distance equivalent to 100% of the mature height of the trees, then the footing system shall be designed similar to those recommended for “Class P – Problem site” classification.

If any fill placement is required on site during the site preparation, it is highly recommended to place granular fill comprising mainly sand and well graded gravel, but caution shall be exercised not to select a ‘raw’ or non-plastic material that may induce erosion. It should be noted that the clay soils are subject to saturation and shrink/swell problems. **The fill shall be placed in accordance with clause 6.4.1 & 6.4.2 of AS2870, or otherwise the site classification shall be reviewed as appropriate.**

The shallow footings such as deep edge beam or pad and strip footings may be adopted and they may be proportioned for a maximum allowable bearing pressure of 100kPa and a subgrade reaction modulus (k) of 30kPa/mm founded on the natural stiff consistency or better clay-based material (refer to borehole logs) or on the prepared “controlled fill” subgrade as specified in Section 4, provided proper drainage measures are incorporated during and after the construction.

The deep pad footing system, if adopted, may be taken into the underlying stiff to very stiff consistency or better clay-based material at or below a depth of 0.8m measured from the existing surface level (refer to borehole logs) as required and the footing system may be proportioned for an allowable end bearing pressure of 150kPa.

The bored and cast-in-place or screw pile footing system, if adopted, should be taken into the underlying natural very stiff or better consistency clay material at or below a depth of 2.0m measured from the existing ground level as required and the footing system may be proportioned for an allowable end bearing pressure of 250kPa and an allowable shaft adhesion of 25kPa within the clay formation. The average skin friction of 20kPa and the average undrained shear strength of 60kPa within the clay formation may also be adopted. The skin friction within the top 1.0m depth of natural soil and within structural fill, if any, shall be ignored.

Care would be required to ensure the bases of the pile shafts and footings must be clean and free of soft, remoulded and loose material and the sides of bored pier holes where side adhesion is

adopted must be free of smear prior to concreting. To achieve this, bases of bored pier holes should be cleaned using a cleaning bucket and the sides of the pile holes should be roughed to remove the smear zone associated with drilling, or the side adhesion values given above should be reduced by 50%. Some localized seepage or pile wall instability requiring temporary liners may be expected within natural materials during the footing excavation if the footing excavation is carried out after prolonged period of rainfall in the area.

If uplift forces are to be assessed, the allowable side resistance on the footing system may be taken as equivalent to 50% of the allowable side adhesion values given above.

Care would be required to ensure the bases of the footings must be clean and free of soft, remoulded and loose material prior to concreting.

The settlement should be minimal provided the design is made within the allowable design parameters recommended and the maintenance of the structure and proper drainage measures are adopted around the structures.

The slab panel, internal beams and load support thickening may be founded on the natural ground or prepared fill subgrade as specified in Section 4 as required. The ground slab may either be suspended on the footing system or by ground bearing slab if required. For the latter, we recommend that the structure be supported on a stiffened raft placed on the natural ground or prepared fill subgrade, comprising a grid of reinforced beam cast integrally with the floor slab, with load bearing beams thickened to extend to the clay stratum as required in order to minimise the risk of significant damage from the reactive clay foundation. The maximum edge beam pressure of the stiffened raft slab should not exceed the allowable bearing capacity of the underlying clay foundation of 100kPa founded on natural stiff consistency clay-based material or on a “controlled fill” building pad, prepared as specified in Section 4.

A minimum of 100 mm thick of approved granular fill materials should be placed on the prepared subgrade before the construction of the slab to cater surface movements, such as shrink/swell movements as the natural clays are considered moderately to highly reactive.

The footing excavations should not be left exposed for prolonged periods as deterioration of footing bases may occur when subjected to wetting and drying processes. Care should be exercised during construction to ensure water ponding does not occur since this may lead to subsequent softening of the founding materials. Groundwater seepage may be encountered in the footing excavation. Any such seepage should be readily controllable by conventional sump and pump dewatering systems installed at the base of the excavation as appropriate. The footing excavations shall be cleared off the debris and ponding water prior to the placement of the concrete in order to adopt the above recommended bearing pressures.

If water ponds in the base of footings or the base founding materials are affected by moisture ingress, then this material should be excavated to expose the natural subgrade, which has not been exposed to moisture, and pour the concrete immediately. If a delay in pouring the concrete

is anticipated, then a blinding layer should be placed over the base of the footing to prevent softening of the footing base.

It is highly recommended to incorporate proper drainage measures around the perimeter of the structure to ensure surface run-off does not ingress into the founding material.

It is also highly recommended to undertake inspections of the footing construction by an experienced geotechnical engineer to ensure that the specified allowable bearing capacity is achieved for the footing system during the construction.

6. Site Sub-Soil Class – Earthquake Design

The site sub-soil class in accordance with Section 4.2 of AS1170.4-2007 “Part 4: Earthquake actions in Australia”, is assessed to be “Class C_e- Shallow soil site”.

7. General Comment

Occasionally, the subsurface soil conditions within the site may be found different (or may be interpreted to be different) from those expected. This can also occur with groundwater conditions, especially after climatic changes. If such differences appear to exist, we recommend that you immediately contact us.

Should you have any queries, please do contact us.

Yours truly,



Peter Forbes-Taber
Graduate Geotechnical Engineer



Tin Maung
Senior Geotechnical Engineer

Attachments:

- Addendum
- Plan showing borehole and DCP test locations
- Borehole logs with explanatory note
- Dynamic Cone Penetrometer test reports
- Laboratory test reports

ADDENDUM

LIMITS OF INVESTIGATION

The recommendations made in this report are based on the assumption that the test results are representative of the overall subsurface conditions. However, it should be noted that even under optimum circumstances, actual conditions in some parts of the building site may differ from those said to exist, because no geotechnical engineer, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal all that is hidden by earth, rock and time.

The client should also be aware that our recommendations refer only to our test site locations and the ground level at the time of testing.

The recommendations in this report are based on the following: -

- a) The information gained from our investigation.
- b) The present "state of the art" in testing and design.
- c) The building type and site treatment conveyed to us by the client.
- d) Historical Information

Should the client or their agent have omitted to supply us with the correct relevant information, or make significant changes to the building type and/or building envelope, our report may not take responsibility for any consequences and we reserve the right to make an additional charge if more testing is necessary.

Notwithstanding the recommendations made in this report, we also recommend that whenever footings are close to any excavations or easements, that consideration should be given to deepening the footings.

Unless otherwise stated in our commission, any dimensions or slope direction and magnitude should not be used for any building costing calculations and/or positioning. Any sketch supplied should be considered as only an approximate pictorial evidence of our work.



Aitken Rowe Testing Laboratories Pty Ltd

Registration Number: AS21-90



Client: AGNVET SERVICES – HOLBROOK, NSW
Project: GEOTECHNICAL INVESTIGATION
 PROPOSED BULK FERTILISER SHED,
 No. 10 BOND STREET, HOLBROOK, NSW
 BOREHOLE & DCP TEST LOCATION PLAN

AITKEN ROWE TESTING LABORATORIES PTY LTD							Borehole No.: 1 Sheet No.: 1 of 1	
Ground Level: Existing Method: Auger Drilling with TC Bit							Date: 20/07/2021 GPS N: 6047562 E: 0528439	
USCS Symbol	Description	Depth (m)	Moisture Condition	Consistency/ Rel. Density	Sample		Lab. Test L.S % -425µm	Remarks & Field Records
					Type	No.		
GM	FILL: Silty Sandy GRAVEL; fine to medium grained, fine to coarse sand, fines of low plasticity, yellow brown		D	MD	D	1A		FILL: Appears moderately compacted 'Uncontrolled'
ML	SILT; low plasticity, with fine to coarse sand, trace gravel, yellow brown		MC<PL	St.-VSt.	D	1B		NATURAL
CI	CLAY; medium plasticity, with fine to coarse sand, trace gravel, yellow brown	0.5			D	1C	10.0	
CH	CLAY; high plasticity, trace sand, yellow orange brown			VSt.	D	1D	19.5	Iss = 3.91
CH	CLAY; high plasticity, trace sand, orange grey brown	1.0						
		1.5						
		2.0			D	1F	14.5	
CH	CLAY; high plasticity, trace sand, mottled orange grey yellow brown	2.5			D	1G	15.0	
		3.0						
	End of Borehole (BH1) @ 3.0m	3.5						
		4.0						
Registration No.: AS21-90							Logged By: DRR	
Location: Geotechnical Investigation - Proposed Bulk Fertiliser Shed, No. 10 Bond Street, Holbrook, NSW							Scale: As shown	
Client: AGnVET Services - Holbrook, NSW							Dry on completion	

AITKEN ROWE TESTING LABORATORIES PTY LTD						Borehole No.: 2 Sheet No.: 1 of 1		
Ground Level: Existing Method: Auger Drilling with TC Bit						Date: 20/07/2021 GPS N: 6047573 E: 0528416		
USCS Symbol	Description	Depth (m)	Moisture Condition	Consistency/Rel. Density	Sample		Lab. Test L.S. % -425µm	Remarks & Field Records
					Type	No.		
GM	FILL: Silty Sandy GRAVEL; fine to medium grained, fine to coarse sand, fines of low plasticity, grey brown		M	MD	D	2A		FILL: Appears moderately compacted 'Uncontrolled'
ML	SILT; low plasticity, with fine to coarse sand, trace gravel, grey brown		MC<PL	F	D	2B		NATURAL
ML	Sandy SILT; low plasticity, fine to coarse sand, trace gravel, grey brown	0.5		St.	D	2C	0.0	FMC = 13.9%
CI	CLAY; medium plasticity, with fine to coarse sand, orange grey brown		MC>PL		D	2D		
CH	CLAY; high plasticity, with fine to coarse sand, trace gravel, orange grey brown	1.0		St.-VSt.	D	2E		
		1.5						
CH	CLAY; high plasticity, trace sand, yellow grey brown	2.0			D	2F		FMC = 20.9%
		2.5			D	2G	14.0	
		3.0						
	End of Borehole (BH2) @ 3.0m	3.5						
		4.0						
Registration No.: AS21-90							Logged By: DRR	
Location: Geotechnical Investigation - Proposed Bulk Fertiliser Shed, No. 10 Bond Street, Holbrook, NSW							Scale: As shown	
Client: AGnVET Services - Holbrook, NSW							Dry on completion	



AITKEN ROWE TESTING LABORATORIES PTY LTD **LOG SYMBOLS**

LOG COLUMN	SYMBOLS	DEFINITION		
Groundwater Record		Standing water level. Time delay following completion of drilling may be shown.		
		Groundwater seepage into borehole or excavation noted during drilling or excavation.		
Samples	D	Small disturbed bag sample taken between the depths indicated by lines.		
	B	Bulk disturbed sample taken between the depths indicated by lines.		
	U	Undisturbed 50mm diameter tube sample taken between the depths indicated by lines		
Field Tests	N=17 4, 7, 10		Standard Penetration Test (S.P.T.) performed between depths indicated by lines. Individual figures show blows per 150mm penetration driven by SPT hammer.	
	N _c	5	Dynamic Cone Penetration Test performed between depths indicated by lines.	
		7	Individual figures show blows per 100mm penetration for 60 degree solid cone driven by 9 Kg hammer.	
		3		
Moisture Condition (Clay or Silt based)	MC>PL		Moisture content estimated to be greater than plastic limit.	
	MC=PL		Moisture content estimated to be approx. equal to plastic limit.	
	MC<PL		Moisture content estimated to be less than plastic limit.	
Moisture Condition (Gravel or Sand based)	D		DRY – runs freely through fingers.	
	M		MOIST – does not run freely but no free water visible on soil surface.	
	W		WET – free water visible on soil surface.	
Consistency (Clay or Silt based)	VS		VERY SOFT – unconfined compressive strength less than 25kPa.	
	S		SOFT – unconfined compressive strength 25-50 kPa.	
	F		FIRM – unconfined compressive strength 50-100kPa.	
	St.		STIFF – unconfined compressive strength 100-200kPa.	
	VSt.		VERY STIFF – unconfined compressive strength 200 – 400kPa.	
	H		HARD – unconfined compressive strength greater than 400kPa.	
Relative Density (Gravel or Sand based)		Description	Density Index Range % S.P.T.	'N' Value Range Blows/300mm
	VL	VERY LOOSE	<15	0-4
	L	LOOSE	15-35	4-10
	MD	MEDIUM DENSE	35-65	10-30
	D	DENSE	65-85	30-50
	VD	VERY DENSE	>85	> 50
Hand Penetrometer Readings	300 250 280	Numbers indicate individual test results in kPa on representative undisturbed material unless noted otherwise.		
Laboratory Test	L.S. %	Linear Shrinkage (As per RTA Method T113)		
	M.C. %	Field Moisture Content (As per Australian Standard AS1289.2.1.1 or RTA Method T120)		
	I _{ss}	Shrink-Swell Index (As per Australian Standard AS1289.7.1.1)		
Remarks	'V' bit	Hardened steel 'V' shaped bit.		
	'TC' bit	Tungsten Carbide wing bit.		
	T ⁶⁰	Penetration of auger string in mm under static load of rig rear axle without rotation of augers.		

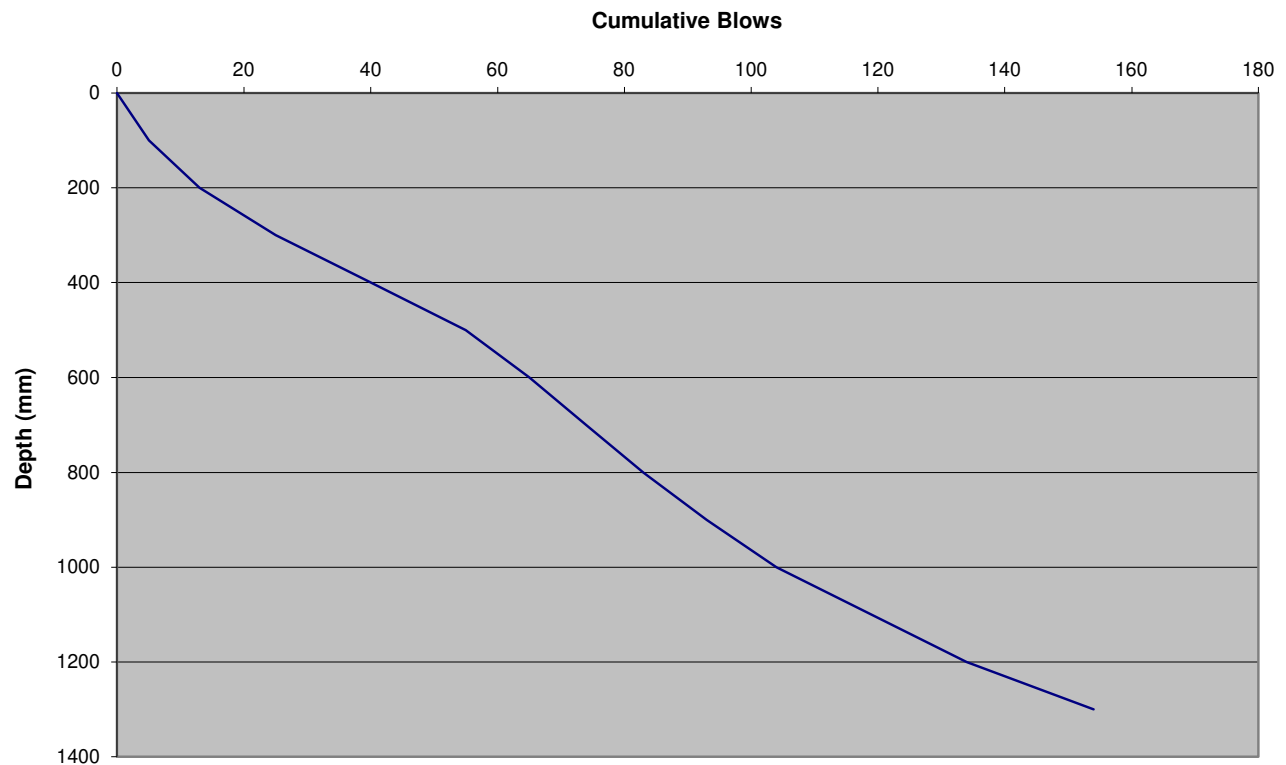
Aitken Rowe Testing Laboratories Pty Ltd

ARTL Albury: 1/60 Boronia Street, Albury 2640

DYNAMIC CONE PENETROMETER REPORT

CLIENT: AGNVET SERVICES - HOLBROOK, NSW	PAGE: 1 OF: 2
PROJECT: GEOTECHNICAL INVESTIGATION	REGISTRATION NO: AS21-90
PROPOSED BULK FERTILISER SHED,	DATE OF TEST: 20/07/2021
LOCATION: No. 10 BOND STREET, HOLBROOK, NSW DCP: 1 (BH1)	DEPTH BELOW FSL (mm): 200
SOIL DESCRIPTION: REFER TO BOREHOLE LOGS	MOISTURE CONDITION: REFER TO LOGS
DEPTH OF GROUND WATER TABLE IF INTERSECTED: N/A	TEST METHOD: AS 1289.6.3.2


Depth(m)	Blows	Est. CBR	Depth(m)	Blows	Est. CBR	Depth(m)	Blows	Est. CBR	Depth(m)	Blows	Est. CBR
0.0 - 0.1	5	9	1.5 - 1.6	*	*	3.0 - 3.1	*	*	4.5 - 4.6	*	*
0.1 - 0.2	8	17	1.6 - 1.7	*	*	3.1 - 3.2	*	*	4.6 - 4.7	*	*
0.2 - 0.3	12	28	1.7 - 1.8	*	*	3.2 - 3.3	*	*	4.7 - 4.8	*	*
0.3 - 0.4	15	38	1.8 - 1.9	*	*	3.3 - 3.4	*	*	4.8 - 4.9	*	*
0.4 - 0.5	15	38	1.9 - 2.0	*	*	3.4 - 3.5	*	*	4.9 - 5.0	*	*
0.5 - 0.6	10	23	2.0 - 2.1	*	*	3.5 - 3.6	*	*	5.0 - 5.1	*	*
0.6 - 0.7	9	20	2.1 - 2.2	*	*	3.6 - 3.7	*	*	5.1 - 5.2	*	*
0.7 - 0.8	9	20	2.2 - 2.3	*	*	3.7 - 3.8	*	*	5.2 - 5.3	*	*
0.8 - 0.9	10	23	2.3 - 2.4	*	*	3.8 - 3.9	*	*	5.3 - 5.4	*	*
0.9 - 1.0	11	25	2.4 - 2.5	*	*	3.9 - 4.0	*	*	5.4 - 5.5	*	*
1.0 - 1.1	15	38	2.5 - 2.6	*	*	4.0 - 4.1	*	*	5.5 - 5.6	*	*
1.1 - 1.2	15	38	2.6 - 2.7	*	*	4.1 - 4.2	*	*	5.6 - 5.7	*	*
1.2 - 1.3	20	55	2.7 - 2.8	*	*	4.2 - 4.3	*	*	5.7 - 5.8	*	*
1.3 - 1.4	END	*	2.8 - 2.9	*	*	4.3 - 4.4	*	*	5.8 - 5.9	*	*
1.4 - 1.5	*	*	2.9 - 3.0	*	*	4.4 - 4.5	*	*	5.9 - 6.0	*	*



Accredited for compliance with ISO/IEC 17025 - Testing. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

ACCREDITATION NUMBER: 4679

REMARKS:


 APPROVED SIGNATORY: Peter Forbes-Taber

DATE: 12/08/2021

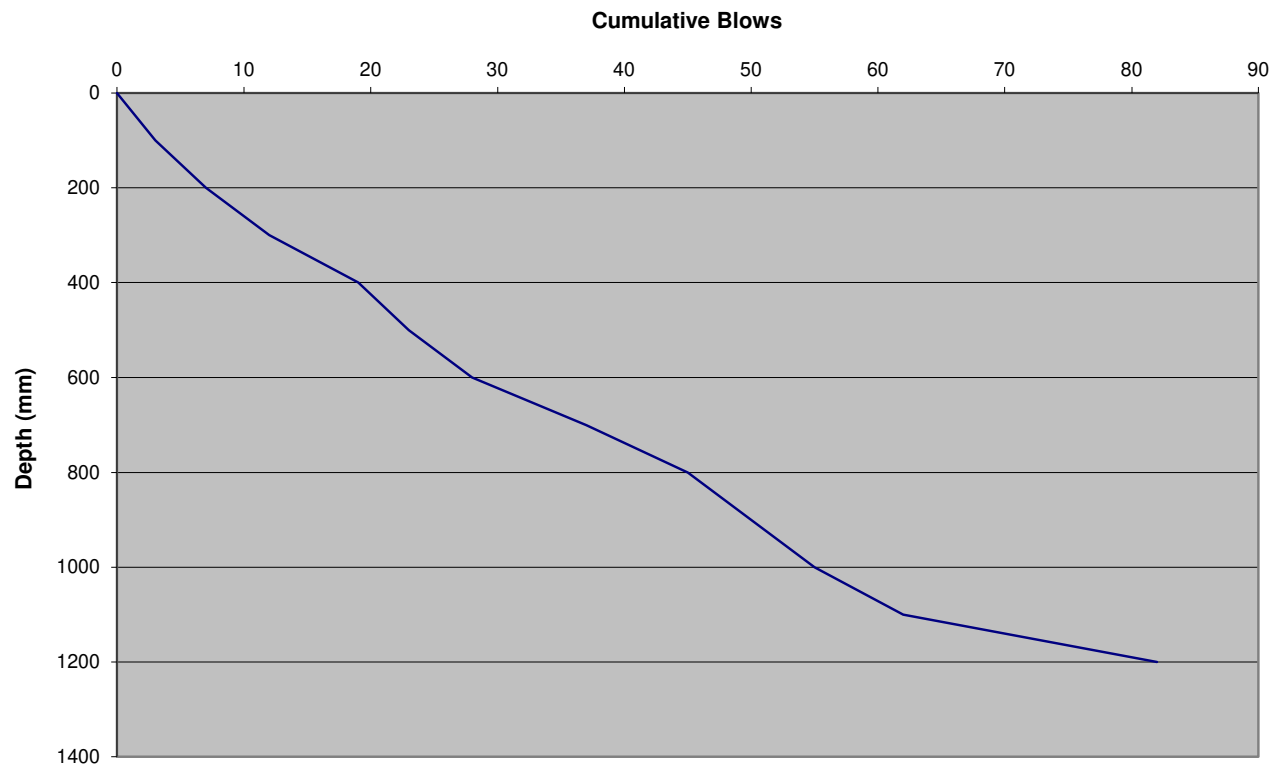
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DYNAMIC CONE PENETROMETER REPORT

CLIENT: AGNVET SERVICES - HOLBROOK, NSW	PAGE: 2 OF: 2
PROJECT: GEOTECHNICAL INVESTIGATION	REGISTRATION NO: AS21-90
PROPOSED BULK FERTILISER SHED,	DATE OF TEST: 20/07/2021
LOCATION: No. 10 BOND STREET, HOLBROOK, NSW DCP: 2 (BH2)	DEPTH BELOW FSL (mm): 100
SOIL DESCRIPTION: REFER TO BOREHOLE LOGS	MOISTURE CONDITION: REFER TO LOGS
DEPTH OF GROUND WATER TABLE IF INTERSECTED: N/A	TEST METHOD: AS 1289.6.3.2


Depth(m)	Blows	Est. CBR	Depth(m)	Blows	Est. CBR	Depth(m)	Blows	Est. CBR	Depth(m)	Blows	Est. CBR
0.0 - 0.1	3	5	1.5 - 1.6	*	*	3.0 - 3.1	*	*	4.5 - 4.6	*	*
0.1 - 0.2	4	7	1.6 - 1.7	*	*	3.1 - 3.2	*	*	4.6 - 4.7	*	*
0.2 - 0.3	5	9	1.7 - 1.8	*	*	3.2 - 3.3	*	*	4.7 - 4.8	*	*
0.3 - 0.4	7	14	1.8 - 1.9	*	*	3.3 - 3.4	*	*	4.8 - 4.9	*	*
0.4 - 0.5	4	7	1.9 - 2.0	*	*	3.4 - 3.5	*	*	4.9 - 5.0	*	*
0.5 - 0.6	5	9	2.0 - 2.1	*	*	3.5 - 3.6	*	*	5.0 - 5.1	*	*
0.6 - 0.7	9	20	2.1 - 2.2	*	*	3.6 - 3.7	*	*	5.1 - 5.2	*	*
0.7 - 0.8	8	17	2.2 - 2.3	*	*	3.7 - 3.8	*	*	5.2 - 5.3	*	*
0.8 - 0.9	5	9	2.3 - 2.4	*	*	3.8 - 3.9	*	*	5.3 - 5.4	*	*
0.9 - 1.0	5	9	2.4 - 2.5	*	*	3.9 - 4.0	*	*	5.4 - 5.5	*	*
1.0 - 1.1	7	14	2.5 - 2.6	*	*	4.0 - 4.1	*	*	5.5 - 5.6	*	*
1.1 - 1.2	20	55	2.6 - 2.7	*	*	4.1 - 4.2	*	*	5.6 - 5.7	*	*
1.2 - 1.3	END	*	2.7 - 2.8	*	*	4.2 - 4.3	*	*	5.7 - 5.8	*	*
1.3 - 1.4	*	*	2.8 - 2.9	*	*	4.3 - 4.4	*	*	5.8 - 5.9	*	*
1.4 - 1.5	*	*	2.9 - 3.0	*	*	4.4 - 4.5	*	*	5.9 - 6.0	*	*



Accredited for compliance with ISO/IEC 17025 - Testing. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

ACCREDITATION NUMBER: 4679

REMARKS:


 APPROVED SIGNATORY: Peter Forbes-Taber

DATE: 12/08/2021



AITKEN ROWE Testing Laboratories Pty Ltd

ARTL Albury: 1/60 Boronia Street, Albury 2640

*

TEST REPORT: GEOTECHNICAL INVESTIGATION - SOIL ANALYSIS

CLIENT : AGNVET SERVICES - HOLBROOK, NSW
JOB DESCRIPTION : GEOTECHNICAL INVESTIGATION
PROPOSED BULK FERTILISER SHED,
No. 10 BOND STREET, HOLBROOK, NSW

PAGE 1 OF 2

SAMPLED BY: ARTL

DATE SAMPLED: 20/07/2021

DATE SUBMITTED: 20/07/2021

SAMPLING METHOD: AS1289.1.2.1

SAMPLING CLAUSE: 6.5.3

DATES TESTED: 22-30/07/2021

ORDER No.: *

MATERIAL SOURCE : IN-SITU BOREHOLES

PROPOSED USE : DESIGN

MATERIAL TYPE : REFER TO BOREHOLE LOGS

REGISTRATION No : R28 **AS21-90**

SAMPLE NUMBER :			1C	1D	1E	1F	1G	2C
SAMPLING LOCATION :			BH1	BH1	BH1	BH1	BH1	BH2
DEPTHS BETWEEN WHICH SAMPLES TAKEN (mm) :			200-500	500-800	1000-1300	1600-1900	2300-2600	200-500
TESTS	TEST ELEMENT		*	*	*	*	*	*
T106		PASS 75.0mm SIEVE %	*	*	*	*	*	*
		PASS 53.0mm SIEVE %	*	*	*	*	*	*
		PASS 37.5mm SIEVE %	*	*	*	*	*	*
		PASS 26.5mm SIEVE %	*	*	*	*	*	*
		PASS 19.0mm SIEVE %	*	*	*	*	*	*
		PASS 13.2mm SIEVE %	*	*	*	*	*	*
		PASS 9.50mm SIEVE %	*	*	*	*	*	*
		PASS 6.70mm SIEVE %	*	*	*	*	*	*
		PASS 4.75mm SIEVE %	*	*	*	*	*	*
		PASS 2.36mm SIEVE %	*	*	*	*	*	*
T107	WHOLE SAMPLE	PASS 425 µm SIEVE %	*	*	*	*	*	*
		PASS 75 µm SIEVE %	*	*	*	*	*	*
		LESS THAN 13.5 µm %	*	*	*	*	*	*
T107	-2.36mm	PASS 425 µm SIEVE %	*	*	*	*	*	*
		PASS 75 µm SIEVE %	*	*	*	*	*	*
		LESS THAN 13.5 µm %	*	*	*	*	*	*
		OBSERVATIONS	*	*	*	*	*	*
RATIOS	A-	PASS 425 µm %	*	*	*	*	*	*
	B-	PASS 75/425 µm %	*	*	*	*	*	*
	C-	BELOW 13.5/75 µm %	*	*	*	*	*	*
AS1289.3.1.2		LIQUID LIMIT %	*	*	*	*	*	*
AS1289.3.2.1		PLASTIC LIMIT %	*	*	*	*	*	*
AS1289.3.3.1		PLASTICITY INDEX	*	*	*	*	*	*
		PREPARATION METHOD	*	*	*	*	*	*
T111	STANDARD MAX. DRY DENSITY (1L MLD, A.1ii) t/m ³		*	*	*	*	*	*
		OPTIMUM MOISTURE CONTENT %	*	*	*	*	*	*
T113	LINEAR SHRINKAGE %		10.0	19.5	19.0	14.5	15.0	0.0
AS1289.2.1.1	FIELD MOISTURE CONTENT %		*	*	*	*	*	13.9



Accredited for compliance with
ISO/IEC 17025 - Testing.
The results of the tests,
calibrations and/or measurements
included in this document are
traceable to Australian/national
standards.

ACCREDITATION NUMBER 4679

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All samples are oven dried and dry sieved during prep. unless otherwise stated

APPROVED SIGNATORY :

Peter Forbes-Taber

DATE: 12/08/2021



AITKEN ROWE Testing Laboratories Pty Ltd

ARTL Albury: 1/60 Boronia Street, Albury 2640

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TEST REPORT: GEOTECHNICAL INVESTIGATION - SOIL ANALYSIS

CLIENT : AGNVET SERVICES - HOLBROOK, NSW
JOB DESCRIPTION : GEOTECHNICAL INVESTIGATION,
PROPOSED BULK FERTILISER SHED
No. 10 BOND STREET, HOLBROOK, NSW

PAGE 2 OF 2

SAMPLED BY: ARTL

DATE SAMPLED: 20/07/2021

DATE SUBMITTED: 20/07/2021

SAMPLING METHOD: AS1289.1.2.1

SAMPLING CLAUSE: 6.5.3

DATES TESTED: 22-30/07/2021

ORDER No.: *

MATERIAL SOURCE : IN-SITU BOREHOLES

PROPOSED USE : DESIGN

MATERIAL TYPE : REFER TO BOREHOLE LOGS

REGISTRATION No : R28 AS21-90

SAMPLE NUMBER :		2F	2G	*	*	*	*
SAMPLING LOCATION :		BH2	BH2	*	*	*	*
DEPTHS BETWEEN WHICH SAMPLES TAKEN (mm) :		1600-1900	2300-2600	*	*	*	*
TESTS	TEST ELEMENT	*	*	*	*	*	*
T106	PASS 75.0mm SIEVE %	*	*	*	*	*	*
	PASS 53.0mm SIEVE %	*	*	*	*	*	*
	PASS 37.5mm SIEVE %	*	*	*	*	*	*
	PASS 26.5mm SIEVE %	*	*	*	*	*	*
	PASS 19.0mm SIEVE %	*	*	*	*	*	*
	PASS 13.2mm SIEVE %	*	*	*	*	*	*
	PASS 9.50mm SIEVE %	*	*	*	*	*	*
	PASS 6.70mm SIEVE %	*	*	*	*	*	*
	PASS 4.75mm SIEVE %	*	*	*	*	*	*
	PASS 2.36mm SIEVE %	*	*	*	*	*	*
T107	WHOLE SAMPLE	PASS 425 µm SIEVE %	*	*	*	*	*
		PASS 75 µm SIEVE %	*	*	*	*	*
		LESS THAN 13.5 µm %	*	*	*	*	*
T107	-2.36mm	PASS 425 µm SIEVE %	*	*	*	*	*
		PASS 75 µm SIEVE %	*	*	*	*	*
		LESS THAN 13.5 µm %	*	*	*	*	*
	OBSERVATIONS	*	*	*	*	*	*
RATIOS	A-	PASS 425 µm %	*	*	*	*	*
	B-	PASS 75/425 µm %	*	*	*	*	*
	C-	BELOW 13.5/75 µm %	*	*	*	*	*
AS1289.3.1.2	LIQUID LIMIT %	*	*	*	*	*	*
AS1289.3.2.1	PLASTIC LIMIT %	*	*	*	*	*	*
AS1289.3.3.1	PLASTICITY INDEX	*	*	*	*	*	*
	PREPARATION METHOD	*	*	*	*	*	*
T111	STANDARD MAX. DRY DENSITY (1L MLD, A.1ii) t/m ³	*	*	*	*	*	*
	OPTIMUM MOISTURE CONTENT %	*	*	*	*	*	*
T113	LINEAR SHRINKAGE %	*	14.0	*	*	*	*
AS1289.2.1.1	FIELD MOISTURE CONTENT %	20.9	*	*	*	*	*



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