



Transport  
for NSW

This is to certify that

## Caldis Cook Group Pty Ltd / CCG Architects Pty Ltd

Level 2  
5 Wilson Street  
Newtown NSW 2042

has achieved the status of

## Authorised Engineering Organisation

and is approved to provide engineering services in accordance  
with its scope of authorisation.

*J. Hardwick*

John Hardwick  
Executive Director  
Asset Management  
Transport for NSW

*AA*

Kim Appleby  
Director, Authorisation and Audit  
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AEO number: 25  
Issued Date: December 2020



T MU MD 00009 F1  
AEO Engineering Services Matrix  
Version 4.0  
Issued date: 29 August 2017

### Matrix use:

|   |                                                                                                                                                                                                                                                                                        |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X | In the version published on the ASA website an 'X' in a cell indicates the organisation is capable of producing or delivering and self-assuring the selected services.                                                                                                                 |
|   | Where an 'X' appears in a cell in the 'Specialist engineering disciplines' area it relates to the asset lifecycle activity for the specialist engineering sub-discipline whereas 'X' in a cell in the 'Non-asset specific engineering services' area covers the whole asset lifecycle. |
|   | Refer to T MU MD 00009 SP for more details.                                                                                                                                                                                                                                            |
|   | This asset lifecycle activity is not applicable for the selected specialist sub-discipline                                                                                                                                                                                             |

| Correct as at: 04 Dec 2020                                                           |                                                                                     | TNSW asset life cycle                                                   |  | Demand, need, plan                      |                                | Acquire                         |            | Operate and maintain      |                  | Dispose                     |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--|-----------------------------------------|--------------------------------|---------------------------------|------------|---------------------------|------------------|-----------------------------|--------|----------------------|------------------------------|------------------------------|-----------------------|---------------------------|---------------------|------------------------|----------------------------|---------------------------------|----------------------------------|-------------------------------------|--|
| Caldis Cook Group Pty Ltd /<br>CCG Architects Pty Ltd<br>Engineering Services Matrix |                                                                                     | AEO activities supporting TNSW asset life cycle                         |  | Transport needs analysis, model or plan | Operations concept development | Maintenance concept development | Optimising | BIDS or user requirements | BIDS development | Concept or reference design | Design | Material procurement | Manufacturing or fabrication | Construction or installation | Subsystem integration | Testing and commissioning | Acceptance services | Plan asset maintenance | Maintain or upgrade assets | Conduct asset condition surveys | Plan decommissioning or disposal | Conduct decommissioning or disposal |  |
| Specialist engineering disciplines                                                   | Rolling stock                                                                       | Locomotives                                                             |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Freight vehicles                                                        |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Heavy commuter electric multiple units or diesel multiple units         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Rail bound infrastructure maintenance vehicles                          |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Rail road vehicles                                                      |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Trolleys and trailers                                                   |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Light rail vehicles                                                     |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Other rail vehicles (must be specified in notes)                        |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Rolling stock subsystems (must be specified in notes)                   |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Signalling and control systems                                                      | Supervisory and control systems                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Interlocking systems                                                    |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Trackside systems (including cabling)                                   |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Communications                                                                      | Cables and routes, optical fibre and other                              |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Applications and systems - telephony (VOIP and analogue)                |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Applications and systems - passenger information systems                |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Applications and systems - alarm and CCTV surveillance                  |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Applications and systems - condition monitoring and wayside telemetry   |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Networks wired - packet switched (IP, MPLS)                             |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Networks wired - circuit switched (SDH, DWDM and other)                 |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Networks wireless - packet switched (WIFI, WiMax, 4G, LTE and other)    |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Networks wireless - circuit switched radio systems                      |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Telecommunications power systems and facilities                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Network and application management systems (must be specified in notes) |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Track engineering                                                                   | Wheel and rail interface                                                |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Geometry and alignment                                                  |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Components and structures                                               |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Railway surveying                                                       |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Civil and related engineering                                                       | Engineering surveying                                                   |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Geotechnical                                                            |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Combined services route                                                 |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Tunnelling                                                              |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Bridges and structures                                                  |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      |                                                                                     | Earthworks                                                              |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Roads and pavements                                                                 |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Drainage and hydrology                                                              |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
| Stations and buildings                                                               | Buildings architecture                                                              |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Buildings structure (note specific areas of specialisation if appropriate in notes) |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Buildings services (must be specified in the notes)                                 |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Specialist buildings expertise (must be specified in the notes)                     |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
| Electrical engineering                                                               | High voltage aerial feeders                                                         |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | High voltage cables                                                                 |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Traction substation and sectioning huts                                             |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Distribution substations                                                            |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | High voltage protection systems                                                     |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Low voltage power systems and low voltage protection                                |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Earthing, bonding, electrolysis and lightning protection                            |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Electrical control systems (SCADA) (must be specified in the notes)                 |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Overhead wiring                                                                     |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |
|                                                                                      | Electrical network planning and modelling                                           |                                                                         |  |                                         |                                |                                 |            |                           |                  |                             |        |                      |                              |                              |                       |                           |                     |                        |                            |                                 |                                  |                                     |  |

### Non-asset specific engineering services

Provided as specialist services directly to TNSW, or in relation to other service providers in the interest of or on behalf of TNSW (select from definitions in T MU MD 00009 SP if required)

| Service                                                                       | Service                                                                                                                           |   |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---|
| Asset management systems services (must be specified in the notes) See Note 3 | Systems engineering and assurance (including systems and safety integration) services (must be specified in the notes) See Note 5 | X |
| Engineering management services (must be specified in the notes) See Note 4   | Other professional engineering services (must be specified in the notes) See Note 6                                               | X |

### Notes: specify details of the selected activity for the discipline if required:

|   |                                                                                                                                                                                                                         |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | Assure only (i.e. providing confidence that the requirements are fulfilled). AEO does not produce the actual deliverable/service.                                                                                       |
| 1 | Specialist Building include Urban Planning, Heritage Architecture, Urban Design, Wayfinding and Signage and Landscape Architecture, management and co-ordination of DGA, BCA, Building Services, Landscape Architecture |
| 2 | The level of coverage of system safety processes is appropriate for architectural services only and not for integrating/leading role with the design asset lifecycle projects                                           |
| 3 | Asset Management in Architectural Services only                                                                                                                                                                         |
| 4 | Multi-Discipline Engineering Management in Architectural Services only                                                                                                                                                  |
| 5 | Requirement Management (AS) and Verification & Validation (AS) in Architectural Services only                                                                                                                           |
| 6 | Competency Management (B) in Architectural Services only                                                                                                                                                                |

Signed:

Name: John Hardwick

Position: Executive Director, Asset Management

Dated: 07.12.2020