

Project Controls

Master Specification

PC-US1 Utility Services

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PC-US1 Utility Services

1 General

- 1.1 This Part specifies the requirements for the identification and protection of Utility Services and the requirements for undertaking utility adjustment works, including:
- electricity and street lighting;
 - water supply and wastewater;
 - telecommunications;
 - gas;
 - irrigation pipes and recycled water supplies;
 - private utilities;
 - DPTI traffic signals and intelligent transport system (ITS) infrastructure;
 - DPTI rail signalling.
- 1.2 The Principal is not liable for any damage to Utility Services or claims from Service Authorities resulting from the Contractor's failure to comply with the requirements of this Part.
- 1.3 The definitions given in AS5488 also apply to this specification, unless overridden by the definitions given below.

Term	Definition
Accredited constructor	A constructor that has been accredited by the utility owner to undertake construction work on its utility asset.
Contestable	Work that Service Authorities will permit to be performed by appropriately experienced and qualified contractors (as determined by the Service Authority); this may be the Contractor directly or sub contracted by the Contractor.
Inadequate foundation material	Material beneath or adjacent to the proposed utility structure(s), which the Principal deems to be of insufficient strength to support the structure and loads on the structure, or material whose characteristics the Principal deems would adversely affect the performance or construction of the structure.
Joint telecommunications trench	A common trench in which the utilities of different telecommunications utility owners such as Telstra and Optus are installed either side by side or one above the other.
Non Contestable	Work that Service Authorities may not permit to be performed and / or sub contracted by the Contractor. Non Contestable work is not a Reimbursable Cost and will be paid for directly by the Principal.
Potholing	Defined in AS 5488 as an "excavation technique to locally expose a subsurface utility at a point".
Premises connections	Refers to the physical connection between the distribution network of the utility owner and the private domestic or commercial or public facility premises.
Redundant utility infrastructure	Defined in AS 5488 as utility infrastructure that is out of service, abandoned, decommissioned or not in use.
Relocation	Relocation of Utility Services is deemed to include as a minimum the realignment and adjustment of Utility Services, any necessary protective measures (including associated construction methodologies to provide protection) and support measures.
Service Authority	Any government, semi-government or private organisation responsible for the care and / or control of Utility Services.
Shared trench	Defined as a trench in which normally unrelated utilities such as gas and telecommunications, or electricity and telecommunications, are installed either side by side or one above the other.

Term	Definition
Utility adjustment works	Includes both protection modification and / or relocation of existing utility infrastructure, and installation of new utility infrastructure. Existing utility infrastructure can be either above ground or underground. It also includes works for protection of existing utility infrastructure.
Utility owner	Includes both the owner and operator of the assets associated with the utility service.
Utility Service	Defined in AS 5488 as “a publicly, privately or jointly owned and operated entity, located on either public or private property, the purpose of which is to transport for either the public or a private party a service or commodity such as electricity, communications, gas, light, oil, power, television, water and waste by means of cables, conduits, ducts, fibre optics, pipes and wires and includes related objects, such as access chambers, pits, valves and other appurtenances”.

- 1.4 Service Authorities responsible for Utility Services relating to the Works include:
- APA Group – Envestra’s (gas) transmission and distribution infrastructure;
 - SA Power Networks – overhead and underground electrical distribution infrastructure including 66kV, 11kV and LV, plus their own telecommunications network;
 - SA Water – distribution water and sewer (gravity and pumping) infrastructure;
 - Telstra – distribution and local copper, fibre network; and
 - Telecommunications (Other) – SABRENet, Vocus (previously Amcom), Optus, Primus, Nextgen, NBN Co, iiNet, TPG and Others who manage fibre telecommunications networks.

2 General Design Requirements

General

- The Contractor shall undertake all design works associated with relocation or protection of Service Authorities’ infrastructure, in accordance with the requirements set out in any agreements with the relevant Service Authority.
- The Contractor shall submit designs to each Service Authority for review and approval where relevant.
- The Contractor must maintain a Utility Services Register which outlines the current status and impact on Utility Services. If this register is provided by the Principal, the Contractor must maintain any pre-existing unique ID system for the identification of Utility Services.
- The Contractor is responsible for:
 - assessing the impact on all Utility Services due to the works;
 - undertaking any additional service locating or depthing required to identify the Utility Services;
 - incorporating the requirements of the Service Authorities into the overall project design;
 - providing all the relevant information, and in the appropriate format, as requested by the Service Authority to allow the Service Authority to undertake their design;
 - undertaking the design of Utility Services as specified in this Part; and
 - including details of existing Utility Services and any relocations on the drawings.
- The Contractor must forward any Service Authority designs to the Principal for independent review whenever a new design is provided to the Contractor.
- The Contractor shall supply updated Design Documents via the IMS (within five (5) days) to Service Authorities when a modification to the design is proposed and:
 - that changes the impact to a Utility Service; or
 - where the Service Authority has provided, or is undertaking a design for that Utility Service.

- 2.7 Where possible, the Contractor shall minimise or eliminate impacts (including outages) to existing Utility Services through innovative design practices and work methodologies.
- 2.8 Where possible, the Contractor shall align services in roadways so that any associated topstones and inspection point covers are located outside of the vehicular wheel paths.
- 2.9 Construction works shall be undertaken in such a manner that wherever possible temporary relocations are avoided or minimised. The Contractor shall demonstrate to the Principal the necessity for all temporary relocations.
- 2.10 The Contractor shall give consideration to constructability through design so that appropriate staging during construction can be undertaken to ensure that all Utility Services can be maintained until final cutover of the new service takes place.
- 2.11 Safety in design shall be considered especially for infrastructure that will need to be accessed frequently for maintenance.
- 2.12 The Contractor shall provide ongoing technical feedback to the Service Authorities relating to the placement of utility services within the Project's footprint, so that relocations, designs and commencement of the procurement of critical long lead time items can continue in parallel with design development.

Coordinate System

- 2.13 Designs undertaken by Service Authorities may be in either the Project's Local Coordinate System, or GDA 94 MGA Z 54H.
- 2.14 The Contractor shall provide Design Documents in both the Project's Local Project Coordinate System and GDA 1994 MGA Zone 54 whenever a design is provided to the Service Authorities. The Contractor shall transform the Design Documents into the relevant co-ordinate system as required.

Common Service Trenches

- 2.15 The Contractor shall include common service trenches (CST) where appropriate.
- 2.16 The Contractor shall provide a detailed design for the common service trenches, including long sections and cross sections.
- 2.17 The Contractor must allow for additional, 'spare' conduits to be provided as directed by the service authorities.

Bridges

- 2.18 Where Utility Services are to be suspended from a bridge:
 - a) relevant materials for the conduits, pipes and supports shall be utilised as per Service Authority requirements;
 - b) the Utility Services shall be provided with mechanical protection to protect against impacts;
 - c) the minimum structural clearances as set out in DPTI's Master Specification – Structures shall be maintained;
 - d) adequate clearance around the Utility Services shall be provided for the purpose of inspection and maintenance;
 - e) urban design shall be considered in accordance with the Urban Design Framework; and
 - f) envelopers shall have appropriate durability.
- 2.19 Where utility services are to be located beneath approach slabs:
 - a) envelopers shall extend a minimum of two metres beyond the outer edge of the approach slabs;
 - b) envelopers shall have appropriate durability; and
 - c) lengths of pipe shall contain no manufactured fittings.

- 2.20 The Contractor must ensure that any bridge abutments requiring penetrations are made so that they are of a suitable size to accept installation of the utility service, possibly on an angle, without the need for further widening of the penetration.

Separation, Cover and Access

- 2.21 The Contractor must ensure that all necessary vertical and horizontal separation and clearances, as approved by the applicable Service Authorities, are met, including Utility Services that run in parallel and / or cross.
- 2.22 Stacking of services, owned by different Service Authorities, will not generally be permitted. Where the required separation and / or clearances cannot be met, the Contractor shall seek dispensation from the Service Authorities. The Contractor shall provide adequate evidence to the Service Authority for the reasons behind the dispensation and seek written approval from the Service Authority for the stacking or reduced clearances of services.
- 2.23 Where Utility Services are to be located within DPTI roads, the Contractor shall ensure a minimum of one metre of clear cover from the finished surface level to the top of the Utility Service is provided. The Contractor must also ensure that the minimum clear cover is maintained as per the Service Authority requirements, as in some instances more than one metre may be required (i.e. for SA Water services).
- 2.24 The Contractor must ensure that Utility Services do not intrude into the pavement layers. The Design Documentation must have regard for any protective treatments that the Service Authorities require.
- 2.25 The location of Utility Services and their associated final and working cover and clearance (including Office of the Technical Regulator (OTR) and Service Authority requirements) shall be considered when designing temporary and permanent pavements (i.e. for activities such as piling pads, haul roads and temporary rail / traffic diversions).
- 2.26 Clear and sufficient access shall be provided to existing and relocated Utility Services for both maintenance and installation, through consideration of the placement of infrastructure such as other services, soil nails, piles and footings.
- 2.27 Where directional boring is to be utilised for the installation of conduits, the Service Authority shall specify the minimum permissible bend radii.

Services Design Model

- 2.28 The Contractor shall develop and maintain a 3D services model to accurately display existing and proposed Utility Services and stormwater throughout the Project Site. The model shall be used for the purpose of demonstrating clearance envelopes and clash detection. Prior to the Date of Completion, the Contractor shall provide a copy of the model to the Principal in a native file format.

Trench Cross Section Drawings

- 2.29 The Contractor must prepare trench cross section construction drawings as part of the Design Documents to incorporate the relevant requirements of Service Authorities, the Principal, local government (i.e. council) as follows:
- a) The Service Authority specifications shall be adhered to for work directly associated with the physical Utility Service. E.g. conduits, pipe and pit works, backfill requirements around the conduits / pipe, warning tapes, etc.
 - b) On DPTI controlled roads trench backfill above the Service Authorities particular requirement surrounding conduits, pipes etc. shall be in accordance with the requirements of DPTI's Master Specification – Trench Excavation and Backfill and Pavement Reinstatement.
 - c) On Council controlled roads trench backfill above the Service Authorities particular requirements surrounding conduits, pipes etc. shall be in accordance with the relevant Council's specifications.

3 Authority Specific Design Requirements

APA

- 3.1 The Contractor must undertake all aspects of their design which interface with APA infrastructure in accordance with APA's Recoverable Works Agreement, Schedule 11 – Standards, Procedures and Industry Practice.

South Australian Power Networks (SAPN)

- 3.2 The Contractor must undertake all aspects of their design which interface with SAPN infrastructure in accordance with the Information for Participants and Customers library; available from http://www.sapowernetworks.com.au/centric/industry/contractors_and_designers/network_information_for_contractors_customers.jsp.
- 3.3 The Contractor must nominate the location and anticipated loading of all electrical supply points so that they can be incorporated into the final SAPN design. Consideration shall be given to the use of existing transformers / supply points so as to minimise the number of new installations.

SA Water

- 3.4 The Contractor must undertake all aspects of their design which interfaces with SA Water's infrastructure, in accordance with SA Water's Engineering Standards and Guidelines, available from <https://www.sawater.com.au/developers-and-builders/engineering-standards-and-guidelines-introduction>.
- 3.5 Proving of the location, condition and size of SA Water infrastructure shall be undertaken prior to:
- a) the Detailed Design of the elements, including structures, that are impacted or associated with the relocated Utility Services; and
 - b) the construction of all tie in points.
- 3.6 MSCL pipe shall be used where relocated water and sewer mains are to be incorporated into bridge structures, unless otherwise approved by SA Water.
- 3.7 Where non-standard angle bends are to be incorporated into new works, new Utility Services shall have the pipe runs surveyed and bends fabricated to suit.
- 3.8 The Contractor shall ensure there is a minimum of 1m of horizontal separation and 300mm of vertical separation between SA Water and adjacent services. Any relaxation of this requirement requires submission of details and supporting information to SA Water for approval.

Telstra

- 3.9 The Contractor must undertake all aspects of their design which interfaces with Telstra infrastructure in accordance with "Industry Code C524:2013- External Telecommunication Cable Networks", available from <https://www.commsalliance.com.au/Documents/all/codes/c524>.

Telecommunications (Other)

- 3.10 The Contractor must design the new and relocated Telecommunications (Other) assets (excluding cabling design) in accordance with the respective Service Authority requirements. Designs for Telecommunications (Other), including proposed conduit alignment, placement within the trench, pit locations and conduit support systems, shall be submitted to the appropriate Service Authority for review and comment at each Design Stage Review. The Service Authority will use the Contractor's design to undertake their own cabling design. The Contractor shall allow adequate duration in their program for this activity.
- 3.11 The Contractor shall minimise the length of the conduit routes for each Service Authority where possible.

Installation of New Utility Services

- 3.12 This Clause applies where a Service Authority wishes to install a new Utility Service, prior to Completion that is not a relocation of an existing service:
- a) The Contractor must negotiate in good faith with any Service Authority who wishes to install new Utility Services within the Site to agree on the terms on which the Service Authority may install a Utility Service; and
- 3.13 The Contractor must act reasonably in all their dealings with a Service Authority to identify the period in which the Utility Services can be installed and any other conditions required.

4 Existing Utility Services

Information Provided by the Principal

- 4.1 The location of Utility Services (either existing or proposed) shown on any drawings or other documentation provided by the Principal:
- a) is approximate only; and
 - b) cannot be relied upon as being sufficiently accurate to carry out construction activities without further steps to determine the accurate location.

Location of Existing Utilities

- 4.2 Prior to commencement of construction work, the Contractor shall contact 'Dial Before You Dig' (DBYD) to obtain the plan locations of all existing utilities. The Contractor shall comply with all requirements stated in the DBYD documentation.
- 4.3 In addition to any information provided by the Principal, the Contractor shall undertake all investigations, including potholing or other non-destructive digging as may be necessary to locate and identify all existing utilities.
- 4.4 The Contractor must regularly inspect the Site to verify that Utility Services that have been identified are correctly located and check whether any Utility Services, not previously identified, are in existence.

Identified Utility Services

- 4.5 Costs incurred by the Contractor as a result of the any of following pursuant to this clause shall be borne by the Contractor:
- a) liaison and negotiation with Service Authorities;
 - b) locating Utility Services;
 - c) changes in work methodology or the implementation of temporary protective measures or restrictions reasonably required by the Service Authorities during construction;
 - d) damage to the Utility Service due to the Contractor's negligent work practices; and
 - e) staging, interruption, loss of productivity, rework, inefficiency or delay of the Contractor's work resulting from the presence of Utility Services.
- 4.6 The Principal will not make separate payment for these costs. Compliance with the requirements of this clause will not entitle the Contractor to an extension of time.
- 4.7 The Contractor is deemed to be fully informed as to the nature and extent of the work necessary to accommodate the requirements of Service Authorities and is deemed to be aware of the policies of the Service Authorities in regard to:
- a) locating of services and the costs thereof; and
 - b) using appropriately trained and / or accredited personnel to perform work which affects the Utility Services.

Unidentified Utility Services

- 4.8 This Clause only applies where a Utility Service exists that:
- a) will affect the work under the Contract;
 - b) is located within the “footprint” of any design provided by the Principal; and
 - c) prior to the Date of Acceptance of Tender, that Utility Service had not been identified.
- 4.9 If the Contractor identifies any such unidentified Utility Service, it must immediately inform the Principal and the relevant Service Authority and comply with the requirements of this part.

Conflicts with Existing Utility Services

- 4.10 Where any Utility Service has been identified which may conflict with the Work under the Contract, the Contractor shall confirm with the Utility Owners whether such detected utilities are live or not.
- 4.11 Where the identified Utility services are live and potentially conflict with the Works, the Contractor shall:
- a) determine the potential extent of the conflict and advise the Principal immediately;
 - b) prior to commencement of Work on Site, arrange a site meeting to be attended by the Contractor, the Principal and representatives from the relevant Service Authorities;
 - c) liaise with the relevant Service Authorities to confirm the location of the Utility Services and take all reasonable steps to determine the accurate location of the Utility Services;
 - d) liaise with Service Authorities or any industry regulator regarding their requirements for clearance, cover and / or temporary protection;
 - e) submit details of the conflict including any associated survey results and your proposals for resolving the conflict to the Principal for the Principal's direction;
 - f) allow Service Authorities or their authorised representatives reasonable access to the site for the purpose of identifying, relocating, modifying or installing Utility Services;
 - g) comply with any reasonable requirement of a Service Authority regarding the protection of a Utility Service;
 - h) keep the Principal fully informed of the progress and status of its liaison or negotiations with Service Authorities and works associated with Utility Services; and
 - i) ensure that the Contractor's program identifies any activities and constraints associated with Utility Services.
- 4.12 The Contractor shall determine if there are locations other than those shown, where the proposed utilities conflict with other existing or proposed utilities or structures which are not shown on the Drawings but identified on the Site.
- 4.13 Where conflicts exist, The Contractor shall determine the extent of the conflict and advise the Principal immediately. Submit details of the conflict including any associated survey results and your proposals for resolving the conflict to the Principal for the Principal's direction.

Protection of Existing Utility Services

- 4.14 The Contractor shall undertake all measures necessary to protect or prevent damage to any existing or newly installed Utility Services.
- 4.15 The Contractor shall comply with any vibration limits or other requirements specified under the Contract or set out by the utility owners to prevent damage from your activities to existing underground and overhead utilities.
- 4.16 If you damage any existing utility, notify the relevant utility owner immediately and arrange for repairs to be effected as soon as practicable.
- 4.17 The full cost of such repairs, including the cost of any additional reinstatement necessary and any charges or penalties imposed by the owner of the damaged utility will be borne by the Contractor.

5 Utility Adjustments – Works by the Principal

- 5.1 The Contractor is entitled to an extension of time for Practical Completion commensurate with the delay to the Contractor's work caused by the excess time taken by the Service Authority, if:
- a) the Principal engages a Service Authority to undertake the installation or relocation of a Utility Service within the Site;
 - b) the time taken by that Service Authority exceeds the time shown for the installation or relocation in a program or other documentation provided by the Principal prior to the Date of Acceptance of Tender; and
 - c) the Service Authority delays the Contractor's work on the critical path.
- 5.2 The Contractor must undertake all reasonable steps and measures to accommodate Service Authority programs and timelines in the overall works.

6 Utility Adjustments – Works by the Contractor

- 6.1 The Contractor must undertake the following as a minimum with regard to Utility Service relocations:
- a) liaise with the relevant Service Authorities to confirm the location of the Utility Services and take all reasonable steps to determine the accurate location of the Utility Services;
 - b) conduct regular site meetings to be attended by the Contractor and Service Authority representatives;
 - c) allow the Service Authority or authorised representatives reasonable access to the site for the purpose of identifying, relocating, modifying, installing, maintaining, salvaging or testing Utility Services;
 - d) liaise with the Service Authority or any industry regulator regarding requirements for permanent and temporary clearance, cover and / or protection;
 - e) comply with any reasonable requirement of the Service Authority regarding the protection of a Utility Service;
 - f) incorporate applicable Service Authority requirements for construction into the works;
 - g) keep the Principal fully informed of the progress and status of its liaison or negotiations with Service Authorities and works associated with Utility Services; and
 - h) liaise with the Service Authority with respect to program constraints and ensure that the Contractor's program identifies any activities, preferred staging of relocation works and constraints associated with Utility Services. The Contractor shall update the program regularly to reflect the progress of relocated services works and provide updates to the Service Authority.
- 6.2 The Contractor must obtain approval from the Service Authority in relation to the elements of installation, protection relocation works to be undertaken by the Contractor, prior to undertaking the works and shall provide a copy of the approval to the Principal.
- 6.3 All services shall be considered to be live until the Contractor, in liaison with the Service Authority, confirm their redundancy.
- 6.4 Any damage or identification of existing faults shall be notified immediately by telephone to the Service Authority through the relevant faults contact number.
- 6.5 Any works undertaken by the Contractor must:
- a) ensure that Service Authority surveillance personnel are in attendance at all times during the work, or as otherwise agreed by the Service Authority;
 - b) be undertaken in accordance with relevant specifications;
 - c) include the supply of all materials required to undertake the relocation works, unless otherwise indicated by the Principal; and
 - d) include management and completion of all quality requirements as specified by the Service Authority.

- 6.6 The Contractor must maintain records which reflect the current status of service installations and removals or decommissioning.
- 6.7 The Contractor must survey all installed services in situ prior to any backfilling and when bored, provide bore logs with surveyed entry and exit points in accordance with PC-SI 2 "Site Survey".

Utility Management Plan

- 6.8 The Contractor shall provide a Utility Management Plan (UMP) integrated with the Project Management Plan for the installation or relocation of Utility Services under the Contract.
- 6.9 The Utility Management Plan must include the following elements, where appropriate:
 - a) site management structure for managing the utility adjustment works;
 - b) name and responsibilities of the Utility Works Coordinator; where a full time Utility Works Coordinator is not required, the name(s) of the person(s) undertaking the duties of the Utilities Works Coordinator;
 - c) detailed program for utility adjustment works, showing proposed shutdown and cutover times and utility owners program float;
 - d) procedures for interfacing with concurrent works carried out directly by utility owners;
 - e) measures to locate, identify if necessary, and protect any existing or newly installed utilities from damage;
 - f) procedures for procurement and management of accredited constructors;
 - g) procedures for generating internal site specific permits to work near utilities;
 - h) Safe Work Method Statements for working near, or on, the utilities;
 - i) interface management details for Service Authorities working within or adjacent to the Contractor's project site;
 - j) Construction Work Method Statements for the various utility adjustment works.
- 6.10 Provision of the Utility Services Management Plan shall constitute a **Hold Point**.

Program

- 6.11 The Contractor shall Plan and schedule Utility adjustment work, including any temporary utility adjustments that may be required under the Contract.
- 6.12 The Contractor shall integrate Utility adjustment work with the project Program as detailed in PC-PM2 "Contract Program and Schedule".
- 6.13 The Contractor shall allow in its program for Construction times required by the utility owner, including procurement lead times, design review and approvals, delivery of components, shutdown notification periods, scheduled cutover periods installation actives and the Utility Owners float.
- 6.14 The Contractor shall plan and coordinate utility adjustment work with any such concurrent works carried out directly by the various utility owners, and with its Work under the Contract.
- 6.15 The Contractor shall notify the Principal immediately of any issues related to the Utility adjustment works which may impact on its Program and in particular the Critical Path under the Contract.

Contractor's Utility Works Coordinator

- 6.16 The Contractor shall provide a suitably qualified and experienced Utility Works Coordinator for the duration of the utility adjustment works.
- 6.17 The Utility Works Coordinator must have at least 5 years relevant experience in utility adjustment works and have experience in the management of utility adjustment contractors.
- 6.18 The Utility Works Coordinator's duties include the following:
 - a) liaising with the Principal and the Utility Owners and convening regular meetings as required;

- b) checking for potential conflicts between the proposed utilities and existing utilities and structures;
- c) engagement and management of subcontractors undertaking the utility adjustment works;
- d) coordinating the various utility adjustment works (including utility adjustment works carried out directly by the utility owners) with the rest of the Work Under the Contract;
- e) managing any temporary utility adjustments required, whether as part of construction staging or otherwise;
- f) notifying the utility owners for shutdowns and cutovers;
- g) negotiations with property owners on utility adjustment matters.

Coordination and Communication with Utility Owners

- 6.19 Within 15 working days after the Date of Contract, the Contractor shall organise start-up meetings with each utility owner to:
- a) confirm their requirements;
 - b) obtain their concurrence to the utility adjustment works; and
 - c) coordinate the utility adjustment works, including those carried out directly by the utility owner, with the rest of the Work Under the Contract.
- 6.20 Convene regular meetings with each utility owner to coordinate and assess the progress of the work.
- 6.21 Invite the Principal to the meetings. Record the minutes of these meetings and distribute them to all attendees and the Principal within 3 working days after the meeting.
- 6.22 Keep records of all communications with each utility owner.
- 6.23 The Contractor shall provide access required by the utility owners to construct and / or maintain their utilities located within the Site, or to inspect the completed utility adjustment works.

Notices to Utility Owners

- 6.24 Any notices to Utility Owners must be in writing, and be specific to a particular component of the utility infrastructure to be adjusted or near which work will be undertaken.
- 6.25 A copy of any notices to Utility Owners shall be provided to the Principal.

Variation Work Requested By Utility Owners

- 6.26 Where a Utility Owner requests work to be completed that is considered to be a Variation under the Contract, prior to carrying out the work, the Contractor shall notify the Principal in writing of that request.
- 6.27 The Contractor shall not undertake any Work it considers may be subject to a variation without first obtaining the Principal's agreement.
- 6.28 The Principal's agreement to Variations works requested by Utility Owners shall constitute a **Hold Point**.

Adjustments to Suit the Contractor's Construction Method

- 6.29 If the Contractor proposes to undertake temporary utility adjustments to suit your construction method, the Contractor shall comply with the requirements of the utility owner for the design and installation of the temporary adjustments, including engagement of a designer and / or constructor acceptable to the utility owner.
- 6.30 Any such adjustments are deemed to be incorporated within the Contractor's Works and Tender.
- 6.31 The Contractor is not entitled to any extensions of time for utility adjustments to suit your construction method, including any delays in design approval by the utility owner.

Existing Penetrants

- 6.32 This Clause applies where a penetrant (e.g. inspection pit, top stone or sewer lid) will be directly affected by the work under the Contract and the penetrant is located within a road pavement, footpath, median and / or driveway.
- a) Where work is carried out adjacent to, or around the penetrant, the Contractor must adjust the surface levels of the penetrant, if necessary, to ensure that its final level is flush with the final pavement surface. When measured with a 3 m straight edge centred over the penetrant, the maximum deviation in all directions between the straight edge and the surface must not exceed 5mm. Except for plane and reinstatement of asphalt pavements, the final adjustments to the penetrant must be completed prior to the application of surface course.
 - b) Where a penetrant protrudes through a temporary surface which is subject to traffic, it must not protrude by more than 60mm, must not be hazardous to traffic and must be ramped at the end of each working day with slopes not steeper than 1:10 in any direction.. Where a penetrant is covered with asphalt, its location must be marked with paint prior to being centrally exposed to a minimum diameter of 150 mm.
 - c) The Contractor must ensure that any penetrants requiring adjustment are adjusted by appropriately qualified personnel. All adjustment work must be undertaken in accordance with the relevant standards of each Service Authority.
 - d) The Contractor must ensure that access to fire hydrants is maintained at all times.

Shutdowns

- 6.33 The Contractor shall plan and carry out utility adjustment work in such a manner that disruption to the community, Utility Owners and road users is minimised.
- 6.34 The Contractor shall provide the required notices to the community in accordance with Specification PC-CS1 Community and Stakeholder management, in circumstances where such notices are not provided by the Utility Owner.
- 6.35 Times for shutdowns and cutovers of the utility services may be restricted by the Utility Owner (i.e. for seasonal or demand reasons). The Contractor must program all works to suit the utility owner's permitted shutdown times.

Reconnections

- 6.36 After cutover to a new utility asset, the Contractor shall promptly reconnect services to premises supplied by that asset.
- 6.37 The Contractor shall consult with and obtain agreement from property owners regarding the locations of the reconnection points or poles or other infrastructure, and any minor adjustments to gardens or pathways within the property, which are required as a consequence of the reconnection.

Removal of Redundant Utility Services

- 6.38 The Contractor is responsible for removal of all redundant services, unless otherwise agreed with a Service Authority.
- 6.39 If the Contractor obtains agreement from the Service Authority that a redundant service(s) may remain in situ then the service to remain in situ must be decommissioned in accordance with the Service Authority Requirements.
- 6.40 The Contractor must advise the Service Authority prior to the removal or demolition of any redundant services.
- 6.41 The Contractor must not decommission or remove any service until it has been confirmed by the Service Authority that the service is redundant and / or has been superseded by a newer commissioned installation.
- 6.42 The Service Authority may seek to salvage certain components of their infrastructure. Where the Service Authority proposes not to undertake salvage, the removal, disposal and reinstatement of the service and associated infrastructure is the responsibility of the Contractor.

- 6.43 Where asbestos containing materials (e.g. commonly Telstra pits and conduits, SA Water pipes) are identified for removal, or discovered during removal, the Contractor must notify the Service Authority, which may impose an additional level of authorisation over that required in PC-ENV1 “Environmental Management”.

7 Authority Specific Construction Requirements

APA

- 7.1 Any works undertaken on APA gas infrastructure shall be performed only by APA or an APA accredited sub-contractor, in accordance with APA’s Schedule 11 – Standards, Procedures and Industry Practice. The Contractor shall familiarise themselves with the relevant APA Schedule 11 Standards.
- 7.2 With the approval of APA, the civil works for gas main installations are Contestable, however these works must be performed under the surveillance of an APA representative. The civil works include excavation, bedding, backfill, placement of marker tape and / or barrier boards, reinstatement and traffic management as required.
- 7.3 The installation of any pipework is Non Contestable and shall be performed by an APA accredited contractor engaged directly by APA.
- 7.4 APA shall undertake civil works related to any cut and caps; however, the Contractor shall provide traffic management for APA when these works are within or in close proximity to the Project Boundary.
- 7.5 The Contractor shall arrange for APA Group to self-perform all disconnections of redundant services at the main. The Contractor shall undertake the civil works (including provision of traffic management) for APA disconnections within the Site, or adjacent to the Site but related to the Project works.
- 7.6 The Contractor shall allow a minimum of four months for the tendering and award of Non Contestable APA relocation works, which shall occur once the scope of works and construction drawings are finalised.
- 7.7 Any work within three metres of a gas transmission main or trunk main (high or medium pressure), as specified in Dial Before You Dig, shall require the attendance of an APA representative. Any excavation carried out within one metre of gas transmission mains which are proposed to remain in service shall be hand dug only. The Contractor shall provide APA a minimum of 48 hours’ notice for the site attendance of an APA site representative organised through Dial Before You Dig. Costs for the APA representative required to supervise works around gas mains are a Reimbursable Cost.
- 7.8 Any damage to gas assets shall be reported to APA (Emergency Hotline 1800 427 532).
- 7.9 Disruptions to gas distribution mains for the purpose of cutting in new pipes will only be permitted between the hours of 07:30 to 16:00 daily, and will also be restricted by seasonal demands. The duration of service disruptions will be limited to cut over timing only and will not be granted for extended periods.
- 7.10 APA requires a minimum of 6 weeks’ notice to program a service cut over and to advise customers.
- 7.11 Prior to the removal of any gas infrastructure that is decommissioned as part of the works, purging of the pipe shall occur as per the direction and requirements of APA.

SAPN – General

- 7.12 Any works undertaken on SAPN infrastructure shall be performed in accordance with the Electricity Act and Regulations and all relevant SAPN standards, including but not limited to: TS85; TS100; TS110; TS105; TS102; “E” drawings; NICC252; NICC405; “NICC 404; Working in the Vicinity of SA Power Networks Infrastructure – Network Access Permit Process”, available from http://www.sapowernetworks.com.au/centric/industry/contractors_and_designers/network_information_for_contractors_customers.jsp.
- 7.13 Any SAPN infrastructure relocated into a common service trench or adjacent / crossing other services shall be designed by the Contractor in accordance with appropriate design clearances.

- 7.14 All works in relation to SAPN shall be undertaken by SAPN or a SAPN approved sub-contractor. With the approval of SAPN, the Contractor shall directly engage SAPN approved sub-contractors to undertake the civil components (excavation, bedding, conduiting, backfill and reinstatement, installation of footings for pad mount transformers and switching cabinets) of electrical works, under the observation of a SAPN representative.
- 7.15 The lead time for supply of cabling, plant, conduits and fittings may be up to six months. The lead time for relocation of LV / 11kV / Telecommunications assets is generally 9 months from DPTI financial commitment, and for relocation of 66kV assets it is generally 18 months from DPTI financial commitment.
- 7.16 Cutovers associated with relocation work packages shall be staggered as per SAPN resourcing and network requirements. The Contractor shall allow sufficient time for the SAPN relocation works (including temporary), and decommissioning of existing infrastructure.
- 7.17 The Contractor shall undertake works in accordance with the clearance constraints specified by SAPN and the Electricity (General) Regulations 2012. The Contractor shall organise Network Access Permits and initiate network outages by initial contact with the SAPN Network Project Manager (or as per NICC-404). The Contractor shall allow a minimum of 28 days for granting Network Access Permits and up to four months for planning of service outages, however outages may not be granted until up to 12 months from the initial notice. Outages will be restricted to seasonally low demand times, may be limited in duration and subject to approval on a case by case basis by SAPN. Outages may be revoked at short notice subject to external demands. The Contractor's works methodology shall reflect the ability to be able to re-energise the asset at short notice.
- 7.18 Any work performed under a Network Access Permit will require the attendance of a SAPN representative.
- 7.19 The Contractor shall ensure that, prior to the removal of stobie mounted public lighting, road lighting is provided according to minimum standards set out in DPTI's Master Specification – Road Lighting.
- 7.20 The Contractor shall remove all redundant underground infrastructure as agreed with SAPN, including conduits, footings and pole 'stubs', as required.

SAPN – 66kV

- 7.21 Outage(s) will be seasonally restricted such that any interruptions to the 66kV infrastructure are not permitted between 1 November – 31 March. Other external demands including associated SAPN works on other DPTI Major Projects, major community events and extreme weather events may also affect the timing of any 66kV works. All 66kV outages are subject to SAPN approval.
- 7.22 Any outage(s) would need to commence after Friday 5pm and finish before 7am on Monday. The Network Access Permit would be issued in the morning at start of work and would be withdrawn in the evening at close of work, unless the work will continue for 24 hours during the outage period.
- 7.23 The Contractor must provide relevant documentation to show that work practices and procedures will not impact on the physical security of SAPN poles, conductors and other infrastructure.
- 7.24 Any requested outage(s) could be cancelled or cut short if the electrical assets need to be put back into service and therefore requires the Network Access Permit to be available on site at all times.
- 7.25 Any requested outage period would need to avoid other relevant Electranet outages.
- 7.26 Other conditions may become apparent at the time that SAPN outages are requested and SAPN may implement other measures to minimise the risk to their network. At all times, the Contractor must adhere to the directions as provided by SAPN.

SAPN 11kV and Other

- 7.27 Typically SAPN will remove redundant 11kV electrical infrastructure (including but not limited to cabling from within conduits, overhead conductors, poles, transformers, switching cubicles), however the Contractor shall be responsible for the removal of any additional redundant infrastructure (including but not limited to LV cabling, services, conduits) as required to complete the works.

- 7.28 Any new high demand sites (e.g. pump stations) are not Asset Relocation and shall be treated as Customer Connection. The Contractor must submit a SAPN Form B for these connections.
- 7.29 The Contractor shall be responsible for installation and connection to all required supply points. Any new LV supply points will require the Contractor to submit Form A / B as required.
- 7.30 SAPN are responsible for all telecommunication related works relating to SAPN pilot cable and fibre (if present), excluding any civil works or conduit installation.
- 7.31 The Contractor shall be responsible for removal and reconnection of any third party equipment (e.g. Telstra, Foxtel) from SAPN poles.

SA Water – General

- 7.32 Any works undertaken on SA Water infrastructure shall be performed in accordance with SA Water's Engineering Standards and Guidelines, available from <https://www.sawater.com.au/developers-and-builders/engineering-standards-and-guidelines-introduction>.
- 7.33 Permanent and temporary (construction) cover to water and sewer infrastructure shall be in accordance with SA Water's Technical Guideline TG120, unless otherwise approved by SA Water.
- 7.34 Design of any alterations to SA Water assets will need to be undertaken either by SA Water or by the Contractor and then approved by SA Water.
- 7.35 For each asset, the Contractor shall negotiate with SA Water the preferred delivery method for the alteration of the asset; the methods being:
 - a) Delivery Method 1 – SA Water self-perform / sub contract the works; or
 - b) Delivery Method 2 – the Contractor self-perform / sub contract the works.
- 7.36 Whilst SA Water will endeavour to do what is best for the project, SA Water reserves the right to make the final decision on whether Delivery Method 1 or 2 is selected for each asset.
- 7.37 If Delivery Method 1 is selected, SA Water will liaise closely with the Contractor to ensure alterations to that asset are completed by SA Water in line with the Contractor's program and requirements.
- 7.38 If Delivery Method 2 is selected, the Contractor shall engage approved SA Water contractors (SA Water will confirm suitable contractors) to undertake all components of the installation and commissioning of water and sewer mains, with site auditing and key hold point releases by SA Water as required. For all works delivered under Delivery Method 2, the Contractor shall submit their construction staging plans and methodology statements for review by SA Water.
- 7.39 All materials for SA Water asset alteration works shall be sourced from approved SA Water suppliers. Note that large diameter MSCL will constitute a long lead-time item.
- 7.40 The Contractor shall be responsible for the relocation of all redundant water or sewer main(s) affected by construction activity, or if SA Water assets are located within one metre of a structural element, unless otherwise approved by SA Water. Redundant mains shall be removed to a minimum of one metre past the extent of the works. Any abandoned main 300mm in diameter or greater shall be fully grouted or removed.
- 7.41 The sequence of decommissioning shall be developed by the Contractor and submitted to SA Water for approval prior to any decommissioning works being undertaken.
- 7.42 Any redundant connections shall be disconnected at:
 - a) the water main for water services; or
 - b) within one metre of the sewer main for sewer services.
- 7.43 All mechanical equipment, including valves, remains the property of SA Water and shall be dismantled in such a way that ensures no damage. The Contractor shall liaise with SA Water to determine which items are required to be salvaged from demolition of redundant water infrastructure. The Contractor shall return all dismantled equipment to:
 - a) All Water Network Depot, Happy Valley Reservoir
 - b) Chandlers Hill Road, Happy Valley, SA, 5158

- c) Southern Main Repair Supervisor, Greg Jesson, telephone (08) 8381 0313.

SA Water – Water

- 7.44 The Contractor shall negotiate the staging of any water main relocation or cut over with SA Water.
- 7.45 Shutdowns will not be permitted on large diameter water mains during seasonal high demand times, and may be restricted in their duration. Duration of shutdowns will be at the discretion of SA Water. SA Water will require a minimum of 10 working days to issue notices of interruption of service to consumers, and shutdowns will need to be booked as per SA Water procedures.
- 7.46 When live network shutdowns are required to facilitate cut-ins or connections, the Contractor shall assume that all existing isolation valves will pass water (sneet) and the Contractor shall make suitable provision to capture and dispose of, or divert the excess water appropriately.
- 7.47 Hydrostatic (pressure) testing and disinfection will be required for any newly installed water main prior to commissioning. The Contractor installing the water main shall undertake pressure testing and All Water, SA Water's maintenance contractor, will undertake all disinfection. The Contractor shall allow timely site access to undertake testing and disinfection processes, and shall make provision in the programme for these processes.
- 7.48 Any requirements for cathodic protection must be incorporated into the works as per SA Water's direction. The Contractor shall negotiate with SA Water the preferred delivery method for construction of cathodic protection (either Delivery Method 1 or Delivery Method 2).

SA Water – Sewer

- 7.49 Sewer mains shall remain operational at all times, unless agreed otherwise by SA Water.
- 7.50 Directional boring shall not be permitted for the installation of new gravity sewer mains, but may be employed for the installation of pressure mains. In the scenario that pipe jacking is utilised, CCTV shall be used to prove the gradients have been achieved and results issued to SA Water for review. SA Water will not accept non-conformances on the grade, including any low points, and will request replacement of pipe.
- 7.51 The Contractor shall be responsible for:
- a) removal of existing sewer connections from acquired properties; and
 - b) abandonment (and removal where appropriate) of existing sewer mains.
- 7.52 The Contractor shall undertake any reconnections of services as necessary.
- 7.53 Hydrostatic (pressure) testing is required for any newly installed sewer pressure mains prior to commissioning. The Contractor shall allow SA Water access to site to witness testing processes.

Telstra

- 7.54 Any works undertaken on Telstra infrastructure shall be performed in accordance with "Industry Code C524:2013 External Telecommunication Cable Networks", available from <https://www.commsalliance.com.au/Documents/all/codes/c524>.
- 7.55 The Contractor shall engage Telstra directly or, with Telstra approval, accredited contractors to undertake the installation of conduiting, manholes and pits for any Telstra relocation works throughout the project area.
- 7.56 The Contractor may undertake the civil components (excavation, bedding, backfill, placement of marker tape and reinstatement) and install conduit up to 1.5m from the existing and proposed Telstra pits / manholes, including under rail bores to comply with AS4799-2000. The Contractor shall also backfill around all manholes and pits.
- 7.57 Telstra will be responsible for excavation within 1.5m of all new, existing or re-built manholes and installing conduits the remaining 1.5m. Telstra can also supply Telstra branded conduits to the Contractor (if required), at the Contractor's cost.

- 7.58 Third party (i.e. sub-ducted) telecoms are to install their own sub-ducting in new and existing Telstra conduit.
- 7.59 All cable and optical fibre hauling, jointing and hybrid-fibre coaxial (HFC) works shall be undertaken by a Telstra accredited contractor engaged directly by Telstra.
- 7.60 The Contractor must allow at least 3-4 months for the design, tender, approval and procurement of cable for the works associated with the relocation of Telstra infrastructure.
- 7.61 The Contractor must allow up to three (3) months for the installation and commissioning of cables following the completion of all related civil works, including all road, rail and bridge crossings, as the Telstra network is likely to consist of major inter exchange cables. Live cutover of this network is controlled by Telstra Global Operations.
- 7.62 Any redundant Telstra infrastructure exposed during earthworks or within one metre of a structural component (e.g. drainage pipe, footings, piles, light pole bases etc.) shall be removed by the Contractor to a minimum of one metre past the extent of the works.
- 7.63 Typically, Telstra will remove copper cabling from within conduits; however, the Contractor shall be responsible for the removal of any redundant cabling as required to complete the works.
- 7.64 The Contractor shall provide Telstra with a minimum of 28 days' notice for attendance to site to salvage assets. Manhole lid sets and frames will be salvaged by Telstra Contractors.
- 7.65 The Contractor shall obtain the necessary approvals from Telstra prior to the removal of asbestos containing material, and on completion of each discrete removal, provide notice of completion and supply a copy of all necessary documentation to Telstra.
- 7.66 The Contractor shall be responsible for the removal and backfilling of all redundant Telstra manholes (including underlying cavity) and pits, unless otherwise organised with Telstra.
- 7.67 Where the Contractor is required to work around live Telstra cabling and manholes, the Contractor shall develop a work method statement, to be approved by Telstra prior to commencement of works.

Telecommunications (Other) – General

- 7.68 Telecommunications (Other) includes all telecommunication Service Authorities other than Telstra.
- 7.69 Unless otherwise indicated, the Contractor shall undertake civil components (excavation, bedding, backfill and reinstatement), conduit and pit installation for other telecommunications relocation works within the Site. The Contractor shall ensure that inspections are undertaken at the frequency as determined by the relevant telecommunications Service Authority. All other works, including cable hauling and jointing shall be arranged by accredited Contractors for the relevant telecommunications provider. The Contractor shall remove any redundant Other Telecommunications pits within the Site and backfill accordingly. Note that minor work outside of the Site may be required to connect to existing telecommunication services.
- 7.70 The Contractor shall provide a program of works to affected telecommunications Service Authorities 28 days prior to the commencement of works. Regular updates shall be provided, so that resourcing for inspections can be planned. A minimum of 48 hours' notice shall be provided for attendance for inspections related to works, unless otherwise indicated by the Service Authority.
- 7.71 The Contractor shall make allowance in their program for cabling works (hauling, jointing) by the Service Authority and any necessary notification periods and scheduling relating to cutovers, as required by individual Authorities.
- 7.72 The Contractor shall allow at least six weeks for Other Telecommunications Service Authorities to cutover the services. Scheduled cutovers typically take four to six hours each and are generally carried out between 12am and 6am.
- 7.73 The Contractor shall allow for Other Telecommunications Service Authorities personnel to be present on site for supervision of the contestable works (including installation of conduits and pits).

Optus

- 7.74 With approval from Optus, the Contractor shall install the required conduits within the Site. Note that minor work outside of the Site may be required to connect to existing telecommunication services.
- 7.75 Any works undertaken on Optus infrastructure shall be performed in accordance with relevant extracts from:
- a) OM 36628 Optus ADSS Fibre Network Construction Part C - Installation Requirements V6;
 - b) OM 10987 Optus Underground Network Construction Part D - Trenching, Conduit Installation & Direct Buried Cable V32;
 - c) OM 10991 Optus Underground Network Construction Part H - Cable Installation V9; and
 - d) All other Optus Technical Specifications.
- 7.76 Installation of conduits and pits are contestable works, and can be completed by the Contractor. Optus will supply the pits. All cable hauling and cutovers will be undertaken by Optus. Optus requires a minimum of 6-8 weeks' advance notice to program installation of pits. This is followed by a further 30 day lead time for cable hauling and cutover.
- 7.77 The Contractor shall allow a minimum of 1-2 weeknights for Optus to cutover the services, with cutovers needing to occur between the hours of 10pm and 6am. Cutovers will not be permitted to occur during 'peak' load periods (i.e. Christmas, Easter and major social events).
- 7.78 Any redundant connection joints, fibre cables and aerial strands will be recovered by Optus at the time the new service is cutover.

SABRENet

- 7.79 With approval from SABRENet, the Contractor shall install the required conduits and associated pits (and civil works) within the Site. Note that minor work outside of the Site may be required to connect to existing telecommunication services.
- 7.80 The Contractor shall allow at least six weeks for SABRENet to order cable and a further 3 weeks to cutover the services. Splicing of the SABRENet infrastructure can only occur between 10pm and 6am on weeknights excluding Fridays.
- 7.81 Any works undertaken on SABRENet infrastructure shall be performed in accordance with relevant SABRENet / Vocus specifications.

Telecoms Sub-ducted in Telstra Network

- 7.82 Telecommunications assets likely to be sub-ducted in the Telstra network include Primus, NBN Co, TPG and inet (amongst others). Where these telecommunication cables are located within Telstra infrastructure, civil components will be installed by others (i.e. conduits / subducts by the Contractor and pits by Telstra). Where these telecommunication cables are located in their own conduits (i.e. not in Telstra sub-ducts), the Contractor can complete the civil components.
- 7.83 The Other Telecommunications Service Authorities will undertake all cable hauling and cutovers. These Service Authorities will also supply and install break-out pits as part of the Non Contestable works.

8 Completion and Handover

Completion

- 8.1 Within 4 weeks of completing the utility adjustment works, the Contractor shall provide 'as-constructed drawings.
- 8.2 The Contractor shall comply with AS 5488 and the respective Utility Owners' requirements when preparing the "as-constructed" drawings.

- 8.3 Where the Utility Adjustment Work is not carried out directly by the Utility Owner, the Contractor shall submit to the respective Utility Owner the necessary project completion / handover documentation.
- 8.4 The Contractor shall obtain the Utility Owner's acceptance of the completed utility adjustment works. The new utility asset will become the property of the Utility Owner when the Utility Owner accepts the new utility asset in writing.
- 8.5 The Contractor shall provide a copy of the documentation and the Utility Owner's acceptance to the Principal. Provision of the Utility Owners acceptance shall constitute a **Hold Point**.

Records

- 8.6 The following records must be provided to the Principal:
- a) approvals, including endorsement of any departures from standard requirements, agreements and correspondence with Service Authorities regarding the relocation or protective measures required for Utility Services;
 - b) Service Authority Designs;
 - c) field records (e.g. sketches, diagrams, survey data) showing the location of relocated Utility Services; and
 - d) "As-Constructed" drawings showing the position of all relocated Utility Services as per the requirements of DPTI's Master Specification – Survey.

9 Hold Points

- 9.1 The following is a summary of Hold Points referenced in this Part:

Document Ref.	Hold Point	Response Time
6.10	Utility Services Management Plan	10 working days
6.28	Principal's agreement to Variation to Utility services	10 working days
8.5	Utility Owners written acceptance of the asset	10 working days