TITLE: Detection of Buried Services		**STANDARD:**	211
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Definitions (in relation to this Standard)

Services	Electrical, water, gas, telecommunications, sewage, surface water drainage, fiber optics etc…

Cross-References

- Standard 212 – Excavations & Trenching

Standard

1. Contractor shall conduct a Risk Assessment and Safe Sequence of Work for all excavation operations which will include the detection of buried services, to be included in the Construction Phase ES&H Plan in accordance with Standard 204 – Planning & Preparedness.

2. Contractor should obtain from the Utility Companies as-laid (built) drawings showing where services exist, for verification.

3. Once approval of the Construction ES&H Plan has been given, a site visit shall be conducted by the Contractor and using the as-built drawings for reference, attempts shall be made to trace buried services.

4. When using as-laid (as-built) drawings, it should be borne in mind that reference points may have been moved, surfaces may have been upgraded, services moved without authority or consent, and that not all service connections or private services are shown.

5. Using a cable detector (calibrated according to manufacturer instruction) (See Figure 1), utilities should be marked out with paint, tape or markers.

Figure 1 – Example of a cable detector

6. All cable detector operators should be trained in their use. The best locators in the most skilled hands will not find every service every time. The majority of detectors cannot distinguish between services running parallel close together and will only record the one service.

7. Other indicators that buried services exist should also be used, such as the presence of street lighting, illuminated traffic signs, manhole covers, fire hydrants, valve pit covers etc…..

Figure 2 – Typical Example of an electric cable marker

8. Cables or pipes may be laid loose in the ground, run in concrete, metal or plastic ducts, or be buried in loose sand. Polythene tape or plastic mesh marked "danger – services buried below" may have been used, however these could have been removed, damaged or laterally displaced by ground water movement; the absence of tape should not be taken as evidence that there are no services at that location.

9. Planned excavations should then be marked out, using paint, tape or markers.

10. Once the approximate location of a service has been identified, where the service is in the vicinity of the planned excavation, trial holes should be dug carefully by hand using round-nosed shovels to establish the exact location and depth of the service. All open excavations or holes must be suitably barricaded as per Standard 212.

11. Before work commences, a pre-task briefing must be given by either the Site Supervisor or the nominated (excavations) competent person. All hazards and controls must be documented on the pre-task briefing and all those taking part in the work must read and sign the document. A copy of the pre-task briefing must be kept at the work location.

12. A utility clearance form (or Permit-to-Dig) must be then be issued (Appendix 1) and signed by the Contractor ES&H Manager/Officer and Site Manager. A copy of the utility clearance form (or Permit-to-Dig) must be kept at the work location.

13. Digging may then commence; this must comply with Standard 212 – Excavations & Trenching.

14.

15. Mechanical excavators and power tools must not be used within 0.5m of the indicated line of services. Only hand digging is permitted, and then with round nose shovels only. Care and consideration must also be given to overhead power lines.

16. During excavation, closed, capped, sealed, loose services must always assume to be live or charged until proven otherwise.

17. When a service is exposed in the bottom of a trench or excavation, it must be protected to prevent it becoming damaged.

18. Services across a trench or running along a trench off the bottom must be supported to prevent damage or stress.

19. Cables and services must never be used as anchorage points, footholds or climbing points.

20. If a service pipe or cable needs to be moved to allow work to progress, the owner must be consulted beforehand.

21. All excavations and trenches shall have suitable edge protection in accordance with Standard 212 – Excavations & Trenching.

22. If services are not found to be in the location shown on the as-laid (as-built) drawings provided by the utility company, Contractor shall inform the said Company so the as-laid drawings can be updated to reflect where the services are actually located.

23. Contractor must update site drawings to show where services have been laid.

24. Any damage to buried services must be immediately reported to Royal Commission Construction Department, ES&H Department and the owner of the utility.

25. Surplus concrete, hard-core, rock and rubble etc… must never be tipped onto a service while backfilling a trench or excavation.

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