PUBLIC

# Telecommunications Network Protection

Telecommunications

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**DISCLAIMER**



This document is reviewed periodically and new editions are published. It is important that readers use only the current document published on VicTrack's document management system portal.

This document is not, nor should it be relied on as a substitute for, professional engineering design expertise or any other professional advice.

Nothing in this document diminishes the responsibility of designers and constructors for applying the requirements of any applicable law or standard.

**Reviews and Amendments**

This document should be reviewed every three (3) years by the Manager External Plant or amended as appropriate if the nature of operations changes significantly.

# Contents

# 1. Purpose

VicTrack is a licensed telecommunications carrier under the Telecommunications Act 1997. It owns considerable telecommunications infrastructure in the form of fibre optic cables, copper cables and supporting facilities.

This infrastructure is used to provide telecommunications services to a number of customers including:

- The rail industry for voice, data and train signalling and control;
- Various state government departments; and
- Other licensed carriers.

As a result, the infrastructure must be protected from damage.

The purpose of this document is to specify the working protocols to be observed by contractors and rail operators working near VicTrack's telecommunications infrastructure so that it is not damaged in any way and the services carried on that infrastructure are not adversely affected in any way.

It is a fundamental principle of this protocol that all Contractors will exercise Due Care and observe good engineering practice while working near VicTrack's telecommunications infrastructure and will take all reasonable precautions to avoid damaging that infrastructure. VicTrack will, in this respect, assist Contractors by providing to them or their subcontractors the best available information and advice.

VicTrack, as a licensed telecommunications carrier, retains certain rights under the Telecommunications Act in regard to protection of its infrastructure. Contractors are reminded that it is an offence, for which penalties may apply under the Criminal Code Act 1995 (Commonwealth), to tamper with or interfere with a facility owned or operated by a telecommunications carrier. The potential penalties are more severe, if the normal operation of carriage services supplied by a telecommunications carriage service provider is hindered.

## 2. Scope

This specification is applicable to VicTrack staff, rail franchisee staff (ARO, RIM) or Contractors who will be carrying out any works within 5 metres of VicTrack's telecommunications infrastructure.

While the majority of VicTrack's infrastructure is on Victorian rail corridors, an increasing amount is off the rail corridors.

This infrastructure may be:

- In the rail corridor (GST/GLT/Buried Conduit/Direct Buried);
- Underground, in road reserves in VicTrack or other carriers' conduits;
- In Station Buildings, CER's and SER's;
- Aerial on tram or power poles; or
- Underground in private land.

## 3. Definitions and Abbreviations

| Terms | Definition |
|---|---|
| **1100** | This is the phone number for “Dial Before You Dig” - Australia's National Referral Service for Information on Underground Pipes & Cables. A free referral service for information on underground pipes and cables anywhere in Australia from all member Utilities and Authorities. Also: www.1100.com.au |
| **1800 619 111** | This is the phone number displayed on VicTrack route marker posts to contact VicTrack to seek information on underground communication and signalling cables in the Victorian rail corridors. |
| **1800 887 662** | This is the phone number of the VicTrack Network Operations Centre (NMC). |
| **ARO** | Accredited Rail Operator |
| **Carrier** | A body licensed under the Telecommunications Act, 1997 (or its replacement), as a general or mobile telecommunications carrier. |
| **Contractor** | Any person or persons carrying out discovery, construction, installation or maintenance activities. |
| **CER** | Communications Equipment Room |
| **CSR** | Combined Services Route where signalling and communications assets share the same route, but use separate conduits and pits. |
| **DBYD** | Dial Before You Dig - a referral service for information on locating underground utilities anywhere in Australia |
| **Due Care** | Appropriate care as required by the principles of the law of Tort and Contract as well as pursuant to Criminal Statute; along with the requirements for good engineering practices as required by the Act and the Telecommunications Code of Practice. Due care needs to be observed when undertaking works in accordance with the processes set out in this document. |
| **External Plant** | Includes all VicTrack fibre optic cables, copper cables, pits, bollards, conduits, trunking (GST), surface ducting (GLT), route markers, buildings, marker tape, termination boxes and associated infrastructure used to provide the communications services. |
| **External Plant Relocation** | A physical alteration to the configuration or alignment of an existing telecommunications cable or facility, with or without a cable cutover. |
| **FOC** | Fibre Optic Cable. |
| **Franchisee** | A Train or Tram Operator operating under a licence granted by the State. The Franchisees having responsibility for fixed infrastructure include Metro Trains Melbourne (MTM) (metropolitan lines), V/Line (country lines), Australian Rail Track Corporation (ARTC) (interstate corridors) and Yarra Tram. |

| Terms | Definition |
|---|---|
| **GLT** | Ground Level Troughing (steel, plastic or concrete) |
| **GST** | Galvanised Steel Troughing |
| **Hazard PTW** | Works that may pose a risk of damage to VicTrack Telecommunications infrastructure but do not require outages to services. |
| **High Risk** | Areas in which VicTrack Plant is located where VicTrack may require the development of a specific work methodology to protect the integrity of the plant. |
| **HV** | High voltage signalling power cable (over 1000V). |
| **Incident Report** | A report to be provided by the Contractor in the event of damage to VicTrack External Plant detailing events leading up to and including the damage event, plus proposed actions to be put in place to prevent a recurrence of this type of event in the future. |
| **Industry Specialist** | Industry Specialists are experienced design and construction companies capable of understanding protective and relocation works upon the live network without disruption to VicTrack customer traffic, without asset depreciation of network plant, and under broad VicTrack direction and with limited supervision. |
| **Internal Plant** | Racks, shelves, wall boxes and cabinets containing external cable termination equipment and/or VicTrack network equipment. |
| **Location, Confirmed** | Where the location of the cable or conduit has actually been confirmed by exposing it by Potholing. |
| **Location, Nominal** | Locations obtained by use of plans, verbal information, marker posts, trench lines, electronic devices or lines between confirmed locations (not to be treated as confirmed location). |
| **Network Protection Manager** | Position within the VicTrack Operations group that is dedicated to network protection and maintenance activities. |
| **EXTERNAL PLANT GROUP** | **EXTERNAL PLANT GROUP** – This is the function within VicTrack Customer Operations Group that provides damage minimisation principles and information on the location of VicTrack External Plant. VicTrack may delegate some or all of this function to an external company. |
| **NMC** | **Network Operations Centre** – This is the area responsible for the integrity and operation of VicTrack's network. It is staffed on a 24-hour 7-day basis. |
| **NDD** | **Non-Destructive Digging** (Water Lance and vacuum extraction technology) also known as Sucker Truck |
| **Outage PTW** | PTW that involves outages to services |
| **PTW - Permit To Work** | A request to the VicTrack Change Management group for permission to work on, or near, VicTrack telecommunications infrastructure. |

| Terms | Definition |
|---|---|
| **Pothole** | See Potholing below. |
| **Potholing** | Potholing is a non-destructive digging procedure which uses water lance and vacuum excavation techniques to expose a cable, conduit or marker tape. This process is also known as "Exploratory Trenching". At all times while carrying out such activities, Due Care is to be exercised to avoid any damage to the External Plant. If HV cables are present, the relevant ARO may require power isolation to be effected before potholing is carried out. |
| **RIM** | Rail Infrastructure Manager |
| **SER** | Signalling Equipment Room |
| **SWMS/JSEA** | Safe Work Method Statement (also known as Job Safety and Environment Analyses |
| **Target Separation** | Agreed minimum offsets for which no Potholing precautions are required to protect VicTrack's Plant. |
| **Telecommunications Network Protection** | . A document that sets out the procedures to be followed during the carrying out of Works to ensure satisfactory protection of VicTrack assets. |
| **VicTrack** | Victorian Rail Track, associated companies or their agents. |
| **VRT** | Victorian Rail Track, associated companies or their agents. |
| **Works** | For the purpose of this document, the carrying out of any investigative, construction or maintenance activities. |

# 4. Reference Documents

## 4.1. VicTrack Standards

| No: | Ref No: | Title |
|---|---|---|
| 1 | TS-SP-013 | Telecommunication - Installation |
| 2 | TS-SP-351 | External Plant - Maintenance |
| 3 | VT-SP 032 | Asbestos (and Hazardous Materials) Management Plan |
| 4 | IS-P009 | VicTrack Change Policy |
| 5 | TS-SP 032 | VicTrack Asbestos (and Hazardous Materials) Management Plan |
| 6 | TS-SP 066 | Attachments to Tram Poles |

Where requirements clash between standards, the more stringent requirement is to be adopted.

## 4.2. Australian standards

| No: | Ref No: | Title |
|---|---|---|
| 1 | AS/ACIF S008:2006 | Requirements for authorised cabling products; |
| 2 | AS/ACIF S009:2006 | Installation requirements for customer cabling (Wiring Rules); |
| 3 | AS/NZS 3000:2007 | Electrical Installations (known as the Australian / New Zealand Wiring Rules); |
| 4 | AS 4799 – 2000 | Installation of underground utility services and pipelines within railway boundaries; |
| 5 | Victoria Compliance Code | Managing Asbestos in Workplaces (2008) |

# 5. Responsibilities

Specific responsibilities and accountabilities include:

## 5.1. General Managers

Support and ensure that other departments comply with requirements.

## 5.2. Managers

Manages and ensures that internal and external parties working within 5 metres comply with requirements.

## 5.3. Supervisors/Team Leaders

Reviews, approves and ensures that internal and external parties working within 5 metres comply with requirements.

## 5.4. Department/Group/individuals

- VicTrack will, assist Contractors by providing to them or their subcontractors the best available information and advice to assist them to achieve Due Care and observe good engineering practice while working near VicTrack's telecommunications infrastructure and will take all reasonable precautions to avoid damaging that infrastructure;
- VicTrack EXTERNAL PLANT GROUP will refer to the information supplied by the Contractor for its general awareness and understanding of the Works.

## 5.5. All VicTrack Employees

- Follow all safety procedures to ensure infrastructure is protected from damage;
- Exercise Due Care and observe good engineering practice while working near VicTrack's telecommunications infrastructure.

## 5.6. Contractors

- Follow all safety procedures to ensure infrastructure is protected from damage;
- Exercise Due Care and observe good engineering practice while working near VicTrack's telecommunications infrastructure;
- Liaise with VicTrack Property Group when locating VicTrack's communications External Plant;
- Liaise with VicTrack EXTERNAL PLANT GROUP at all stages of its intention to undertake discovery, construction or maintenance Works in the vicinity of VicTrack Internal and External Plant, Detailed Works programs including timelines; Works details, including scale drawings and

method of carrying out the Works; and details of how the Contractor will protect VicTrack's assets from damage.

# 6. Procedure

## 6.1. Background information

Information on the location of VicTrack's communications External Plant is obtainable by contacting 1800 619 111. Information on the location of signalling External Plant is obtainable from the maintenance contractors for the rail franchisees. In the metropolitan area, the maintenance contractor is Metro Trains Melbourne. In the country area, the maintenance contractor for V/Line and ARTC is internal to those organisations.

Some of VicTrack's communication cables are carried in shared infrastructure. This includes trunking (GST), surface ducting (GLT), pits, and in some cases trenches (CSR). The infrastructure is generally shared with signalling cables that may contain voltages as high as 2.2 kV.

External cable infrastructure will terminate in External cabinets or racks, shelves, wall boxes or cabinets within buildings.

The telecommunications cable plans are only a guide and the drawings should not be scaled to locate the cable. No warranty is given that the information is accurate or complete. Furthermore, the information supplied is valid for 14 days only.

In the event that suspected asbestos is identified during works conducted by VicTrack personnel or contractors, the material will be managed in accordance with the ***VT-SP 032 VicTrack Asbestos (and Hazardous Materials) Management Plan.***

The use of asbestos products in new telecommunication infrastructure is prohibited.

## 6.2. Inductions and Worker Accreditation

In order to maintain VicTrack network standards for installation and maintenance, it is required that:

6.2.1. All workers that will have access to our network External Plant shall attend induction workshops where they will be given the required information contained in this document and the following: ***TS-SP-013 Telecommunication - Installation Procedure, TS-SP 351 External Plant - Maintenance Procedure, and TS-SP 066 Attachments to Tram Poles;***

6.2.2. On demonstrating an adequate understanding of our network requirements, these staff will be issued with a "VicTrack Network – External Plant" accreditation card. This card will enable these workers to work on or near VicTrack external plant for a period of five (5) years, after which a refresher workshop will be held. As industry workers often change employers, it is required that

companies used by VicTrack for EXTERNAL PLANT GROUP work will advise VicTrack on changes of staff to allow us to organise workshops for new workers and/or refresher courses.

6.2.3. The courses may be different for different areas of expertise, such as planning and design guidelines for design staff, and detailed courses on pits, conduits, etc. for field supervisors.

6.2.4. Minor specification changes will be advised to cardholders as a matter of keeping up to date with our standards.

6.2.5. Installation and maintenance contract companies will be required to advise which of their staff will be working on or near VicTrack external plant and will be required to provide their current accreditation details before those staff can perform those works.

## 6.3. Underground works

6.3.1. Planning Phase Process

6.3.1.1. The Contractor shall apply to Dial Before You Dig (DBYD) to seek plans from all underground asset owners well in advance of any Works activity.

6.3.1.2. Note that details of railway assets in rail corridors such as Telecommunications and signalling cables are not listed with DBYD. For these assets, the Contractor is to contact the VicTrack Property Group who will in turn notify the relevant VicTrack asset manager;

6.3.1.3. As soon as practicable during its Planning/Design Phase, the Contractor shall provide to VicTrack External Plant for each section of the Work's activities the following;

i. Advice of its intention to undertake discovery, construction or maintenance Works in the vicinity of VicTrack Internal and External Plant;
ii. Detailed Works programs including timelines;
iii. Works details, including scale drawings and method of carrying out the Works; and
iv. Details of how the Contractor will protect VicTrack's assets from damage;

6.3.1.4. VicTrack EXTERNAL PLANT GROUP, with whatever assistance it may require of the Contractor, will refer to the information supplied by the Contractor for its general awareness and understanding of the Works only. The Contractor shall examine its maps and plans, designs and protocols against VicTrack's network information and plans. VicTrack shall provide such plans free of charge as part of the standard External Plant location process. However, if the Contractor requires urgent plans or a large amount of simultaneous plans from VRT, then VRT may charge the Contractor a reasonable amount. Depending on the complexity and size of the Contractor's project, VicTrack may insist on the Contractor's key design and construction staff attending a VicTrack induction workshop where the Network Protection Plan (this Specification) and relevant portions of ***TS-SP-013 Telecommunication - Installation Procedure, TS-SP 351 External Plant - Maintenance Procedure,*** will be presented;

6.3.1.5. Based upon network plans and information provided by VicTrack, the Contractor will:

v. Identify any crossing points and close parallel working distances to VicTrack's network within agreed Target Separations and other potentially High Risk situations;
vi. Attempt to "design out" crossing points and areas inside agreed Target Separations;
vii. Notify EXTERNAL PLANT GROUP where the Target Separations cannot be achieved and engage in consultation with EXTERNAL PLANT GROUP to agree upon appropriate work methods which may include the requirement for VicTrack personnel to be in attendance during Outage PTW's;
viii. Undertake associated hazard prediction and risks to VicTrack plant; such as ancillary machinery activity, vehicle movements, temporary fencing, buildings or, storage compounds, star pickets, signs, likely soil ground differential settlement or disturbance because of proposed construction, and the like. EXTERNAL PLANT GROUP must be notified of such activities for advice and resolution as appropriate;
ix. Prepare a Network Protection Plan that will set out the procedures to be followed during the carrying out of the Works to ensure satisfactory protection of VicTrack Plant. This is also to include the protection of the alignment of underground conduits, not just visible assets. No excess trenching spoil or storage of materials is to be placed over the existing conduit alignment or within 5 metres of that alignment, without prior approval from the VicTrack Project Manager. The NPP is to be forwarded to EXTERNAL PLANT GROUP for approval prior to the commencement of any works. Collaboration with the VicTrack Network Protection Manager is advisable to ensure all items are covered and the time frame is minimised;
x. Apply for a Permit to Work (PTW) from the VicTrack Change Management group and receive the necessary approval to carry out the Works. The current PTW application form and information requirements can be sourced from the VicTrack Change Management Team on 03-9619 8008. Approval of a PTW application may take a minimum of ten business days for Works near existing External Plant. Where relocation of existing External Plant is required, the time depends on the complexity of the change; and

xi. Where necessary, apply to the relevant rail corridor ARO for permission to work on the corridor. Note that the VicTrack's approval of the PTW DOES NOT confer any rights to enter the rail corridor.

6.3.1.6. With Outage PTWs, EXTERNAL PLANT GROUP and the Contractor shall agree on work methods prior to the commencement of work. After agreement has been reached on work methods, the Contractor shall give EXTERNAL PLANT GROUP a minimum of 2 days advance notice in the Melbourne metropolitan area and 5 days advance notice in rural areas of its intention to commence those works;

6.3.1.7. The Contractor shall locate (Pothole for underground cabling), mark and protect VicTrack Plant in accordance with set and agreed procedures (see Section 6). No costs are to be borne by VicTrack in this regard;

6.3.1.8. VicTrack agrees to provide the Contractor with its standard level of free plan provisioning and engineering advice services as set out in accordance with VicTrack's Plant location procedure and policy. The Contractor will provide the necessary level of Industry Specialist support in the design and construction stages to ensure the observance of good engineering practice when working within the vicinity of VicTrack Plant. The Contractor is to refer to the design guidelines within TS-SP-013 when designing cable routes. VicTrack accepts that the Contractor may resource its Industry Specialist resources as it so chooses. This to be done to:

i. Minimise the impact of the Contractor's requirements on EXTERNAL PLANT GROUP's resources; and

ii. Ensure that the Contractor's construction program is adequately resourced in both the design and construction stages with the appropriate level of Industry Specialist servicing such that VicTrack's network is not placed at risk.

6.3.1.9. Any agreed relocation of VicTrack Plant shall only take place in accordance with set and agreed procedures (see Section 9).No costs are to be borne by VicTrack in this regard and all works are to comply with the requirements of TS-SP-013 Installation and Maintenance Specification – External Plant;

6.3.1.10. The Contractor will exercise Due Care and all agreed precautions taken when carrying out Works near VicTrack External Plant;

6.3.1.11. The Contractor is required to assess and predict circumstances or problems affecting the safety and wellbeing of VicTrack plant, and consult with EXTERNAL PLANT GROUP accordingly, before construction proceeds in that vicinity;

6.3.1.12. The Contractor recognises that EXTERNAL PLANT GROUP may at times require or deem it necessary to brief the Contractor's staff or its agents in relation to External Plant location and construction activity near VicTrack External Plant. This may be done in the form of Cable Awareness Presentations, toolbox meetings, induction meetings, etc. This shall be undertaken at a time mutually agreed between VicTrack and the Contractor; and

6.3.1.13. The Contractor shall consult with EXTERNAL PLANT GROUP as soon as a design change is proposed that may affect VicTrack plant. This is to minimise the risk of damage to VicTrack plant due to ad-hoc changes

## 6.4. Locating VicTrack Underground External Plant

6.4.1. External Plant locations obtained by the use of plans, verbal information, marker posts, trench lines, electronic devices or lines between locations are Nominal Locations only and MUST NOT be treated as Confirmed Locations;

6.4.2. The actual location of VicTrack External Plant can only be confirmed by physical exposure of that External Plant, i.e. Potholing. VicTrack EXTERNAL PLANT GROUP reserves the right to be present at the time, offer advice, or to coordinate potholing activity near VicTrack External Plant;

6.4.3. The use of water lance and vacuum extraction technology (Non-Destructive Digging NDD) is the preferred method of physical exposure of VicTrack External Plant.

6.4.4. Should this not be possible, then ***it is mandatory*** the Contractor proposes an alternative method to VicTrack for approval ***prior*** to works being carried out.

6.4.5. **Please note**: ***it is mandatory*** water lance pressure must be less than 1500psi (10443kPa) to prevent damage to the marker tape and direct buried cables. Once the level is below the marker tape, the pressure can be increased if all cables are in conduit, but care must still be taken. The water flow is to be stopped before removing the water lance to avoid damaging the marker tape;

6.4.6. It should be noted that, while the majority of VicTrack's buried cables are in conduit, some cables are directly buried. Also, in many cases, signalling control and power cables share the same trench;

6.4.7. When inside the required Target Separation distances, the Contractor is required to locate VicTrack External Plant with sufficient certainty to avoid damaging that External Plant. The External Plant location requirement needs to be ascertained by the Contractor well prior to excavating within the vicinity of VicTrack External Plant. If the marker tape trace wire is broken during the location process, it must be repaired using stainless steel 3mm wire and connected using crimp connectors suitable for underground use. Twisting the wire is not an acceptable connection method. If any other infrastructure (conduit, cable) is damaged during the location process, work is to temporarily cease and the Network Protection Manager is to be contacted via the VicTrack Call Centre on 1 800 619 111. The Network Protection Manager will ascertain what corrective measures are required at the Contractor's cost. Work cannot continue until advised by the Network Protection Manager;

6.4.8. Once VicTrack External Plant is located, the Contractor must ensure it is clearly marked and all necessary protective measures are to be implemented to ensure the integrity of the VicTrack External Plant during the Works. The potholes are to be left open and the Network Protection Manager contacted to arrange for on-site pothole inspections;

6.4.9. The Contractor must erect temporary markers to make the Plant location obvious and to act as an identifying mark for the proposed works showing where potholing has confirmed the actual location at the time;

6.4.10. Upon completion of the Works, the Contractor must make good permanent reinstatement for the protection of VicTrack External Plant and stabilisation of the existing network alignment. This

must include reinstatement of any marker tape, marker posts or bollards that were removed or damaged during the Works activity, or otherwise and the filling in of any potholes;

6.4.11. Where new marker tape with trace wire is used, the trace wire must be joined with an approved compression type connector approved by the Network Protection Manager;

6.4.12. VicTrack EXTERNAL PLANT GROUP will attend the Works site:

i. At its discretion; or
ii. To give direction from time to time; or
iii. In the event that the Contractor, after undertaking all reasonable efforts, is unable to locate the VicTrack External Plant, at the Contractor's request at a fair and reasonable cost to be agreed by the parties; and

6.4.13. The Contractor will ensure that all supervisors, plant operators, sub-contractors, and the like, are briefed of both the actual and nominal locations of all External Plant within the vicinity prior to the commencement of any work. The Contractor accepts and acknowledges that all accountability and responsibility needs to be taken for the actions of agents and sub-contractors in accordance with both the normal and tortious obligations of a vicarious liability employer.

## 6.5. Parallel Operations (Target Separations) from Underground Plant

6.5.1. The Contractor agrees that as a design principle, Works should be designed to avoid jeopardising or damaging existing underground External Plant;

6.5.2. The Contractor recognises that the location and alignment of existing underground plant can only be confirmed by exposing it (i.e. Potholing). Any other form of location is nominal only (see Section 5.4). In addition, the Contractor recognises that the alignment of existing plant may suddenly deviate for reasons that might not be obvious sometime after the plant had been installed;

6.5.3. In designing its Works, the Contractor will endeavour to secure the Target Separation from VicTrack External Plant. The following Target Separation from the nominal location of existing Plant must be used as a design target when planning Construction works:

| Installation | Target Minimum Separation |
|---|---|
| Mechanical excavation parallel to External Plant | 5 metres |
| NDD parallel to Plant | 1 metre |

6.5.4. VicTrack acknowledges, however, that this may not be achievable in all cases particularly where the Contractor is carrying out the Works in a narrow corridor;

6.5.5. When excavating parallel to the nominal or assumed line of VicTrack's network, the following potholing regime shall be followed unless written agreement is given by EXTERNAL PLANT GROUP to an alternate regime to confirm the location of the External Plant:

| Approach distance | Min. pothole frequency |
|---|---|
| < 1 metre | Every 5 metres |
| > 1 m, but less than 2.5m | Every 10 metres |
| 2.5m to 5m | Every 15 metres |
| > 5m | No potholing required |
| Change in cable direction | Pothole twice |
| If the excavation is by NDD between 1-5 metres | No potholing required provided the VicTrack asset has been electronically located. |

The minimum pothole depth shall be until the cable or conduit is exposed;

In certain circumstances, e.g., where the corridor is narrow, or where the likely path of the cable is not straight, VicTrack may direct more frequent potholing;

6.5.6. The Contractor must exercise particular care at creek and river crossings and elsewhere where the line of the existing route might not be clear;

6.5.7. Where installation of the Works is to take place within the Target Separation area the Contractor shall:

i. consult with EXTERNAL PLANT GROUP;
ii. agree with EXTERNAL PLANT GROUP on appropriate work methods (which may include a requirement to horizontal bore some critical sections as negotiated between EXTERNAL PLANT GROUP and The Contractor or its agents); and
iii. Before commencing work, physically locate (Pothole) and protect VicTrack Plant;

6.5.8. Pits and above ground plant, such as bollards, route marker posts and fibre terminating boxes are to be protected during the Works. Where damage might occur to these items, they are to be protected by star pickets and para-webbing to provide a 1.5m buffer around the External Plant. If a 1.5m buffer zone cannot be created, then pits are to be protected by the placement of 25mm steel plate (length minimum three metres and width minimum 2 metres). Pit protection bollards and cable marker posts are to be removed and subsequently replaced after the Works have been completed, all at the Contractors' cost. Ongoing inspections are to be carried out by VicTrack External Plant staff to ascertain if any damage may be occurring because of heavy construction vehicles. If damage is occurring or there is a high potential of damage, then further plant protection measures must be taken to the satisfaction of the VicTrack Network Protection Manager;

6.5.9. In carrying out Works within the Target Separation area (1 to 5 metres), the Contractor shall exercise Due Care to avoid damage to VicTrack Plant. If works are to be carried out within 1 metre of the nominal asset location then the Contractor is to present protective measures to VicTrack for approval. The Contractor is to comply with VicTrack's requirements for that asset protection. Damage is to be prevented at all cost and in the event of any such damage occurring, the Contractor shall:

i. immediately cease work at that location; and
ii. Immediately notify VicTrack Network Operations Centre on 1800 887 662;

6.5.10. See also Section 7.9: "Damage to existing External Plant" for a complete description of requirements following damage to VicTrack's plant;

6.5.11. Some of VicTrack's telecommunication cables are carried in trunking (GST) and surface ducting (GLT). In these instances the plant is easily visible making it much easier to avoid damage. In some of these instances the FOC is carried in sub-duct to provide additional protection. In carrying out Works on, or near, GST and/or GLT, the Contractor shall exercise Due Care to avoid damage to VicTrack External Plant and advise EXTERNAL PLANT GROUP of protective measures to be put in place to protect these assets. The Contractor is also to exercise Due Care

to avoid damaging the GLT and/or GST. This includes movement of the GST support posts or misalignment of the GLT sections.

## 6.6. Crossing of VicTrack Cables

6.6.1. The Contractor recognises that underground External Plant and GLT/GST may suffer damage from heavy surface loads and the Contractor will take all necessary steps to prevent exposure of underground External Plant and GLT/GST to such loads. For example, calculations would need to be undertaken by the Contractor, where machinery or other equipment might cross or impart any form of surface load to the in-situ underground plant alignment;

6.6.2. Where The Contractor crosses VicTrack underground External Plant, The Contractor shall:

a. Locate the underground External Plant in accordance with Section 7 – Locating VicTrack External Plant;
b. Provide VicTrack EXTERNAL PLANT GROUP with a detailed specification for each point of major cable crossing conflict. The options for The Contractor in this regard are to either cross over or under the existing underground plant, the most appropriate option becoming apparent following NDD excavation, and identification of the existing underground plant. However, VicTrack's preferred option will be for The Contractor to install plant under VicTrack existing plant; and
c. In areas of High Risk, agree with VicTrack EXTERNAL PLANT GROUP a work method which covers;

    i. Identification and exposure of VicTrack External Plant;
    ii. The Contractor installation process; and
    iii. Protection of VicTrack External Plant;

6.6.3. Whether the Contractor is crossing under or over VicTrack underground External Plant, a minimum of 100 mm vertical separation is required (unless a greater separation is required by a standard or code) between the underground External Plant and the Works unless alternative methods of protection are agreed between EXTERNAL PLANT GROUP and the Contractor well in advance. Manual Construction works are the only form acceptable in such circumstances. Back filling around the Plant must be with a suitable bedding material such as sand or stabilised sand;

6.6.4. In order to minimise risk of damage to existing underground VicTrack External Plant, suitable fully controlled mechanical excavation of the proposed crossing must be used between 5.0 metres and 0.5 metres from the existing (Potholed) underground External Plant alignment. This excavation must be fully controlled, including using a spotter and an appropriate Industry

Specialist. Under 0.5 metres, NDD must be used. Ripping, ploughing, impacting, or hammering shall not be considered as fully controlled mechanical excavation techniques and may not be used within 5.0 metres of an existing cable except as otherwise agreed upon by EXTERNAL PLANT GROUP well in advance. Excavations involving explosives are not permitted. See Figure 1;

6.6.5. If a Contractor is carrying out excavation works in the vicinity of GLT of GST, Due Care must be taken to avoid damaging these infrastructures. GLT and/or GST may be carrying operational HV cabling so permission is to be obtained from the relevant ARO section managing these HV cables, prior to any work being carried out. VicTrack is also to be advised if the excavation works are within 5 metres of the GLT/GST; and

6.6.6. If the Work involves cable installations or removals within the GLT/GST, all relevant ARO's are to be advised to gain site access and permissions to work within the GLT/GST. VicTrack is also to be advised to obtain a Hazard PTW.

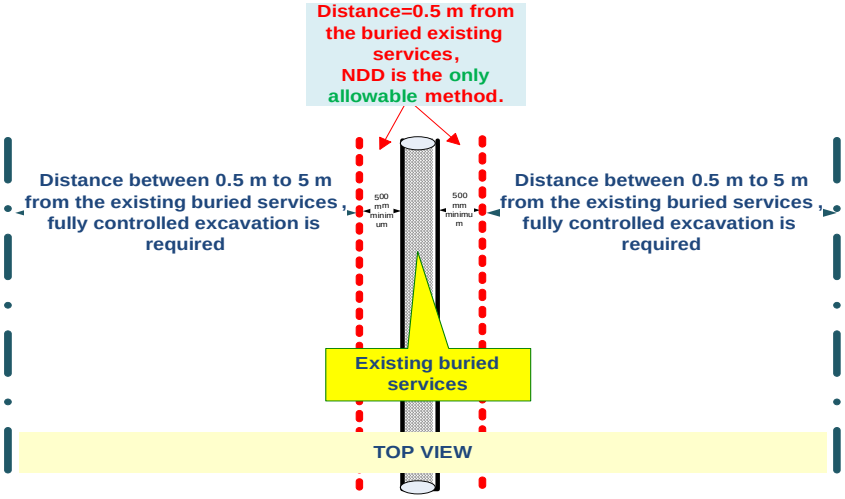


**Figure 1. Excavations when crossing VicTrack buried assets**

## 6.7. External Plant Relocation

6.7.1. Relocation of existing External Plant, particularly FOC, with or without a cable cutover, is a last resort to resolving cable crossing or close proximity issues and will only be considered in those

cases where it is not practical for the Construction works to avoid interference with the existing External Plant without relocation, and/or it is not feasible to use an alternative route;

6.7.2. Relocation can only occur with the prior agreement of VicTrack's Telecommunications Fibre Design Section;

6.7.3. Should VicTrack EXTERNAL PLANT GROUP and the Contractor agree that the best course of action is for VicTrack External Plant to be relocated, then the following must be observed:

i. All relocation work must be carried out so as not to cause any interruption to existing services;

ii. Industry Specialists are required to perform such work, and all relocations must be managed by VicTrack's EXTERNAL PLANT GROUP;

iii. Existing External Plant to be relocated must first be located and protected (see Section 7);

iv. All new construction works are to comply with the requirements of TS-SP-013 Telecommunication - Installation Procedure, TS-SP 351 External Plant - Maintenance Procedure,

v. All land access/tenure issues must be considered and addressed; and

vi. All costs associated with any relocation work are to be at the expense of the Contractor; no costs are to be borne by VicTrack. Recovery of costs necessarily incurred for the relocation work will be based on a fixed price quotation. Items should include, but are not restricted to, planning and supervision of the works, excavation of existing plant, alteration to depth and alignment of existing plant, provision of new underground conduits and/or GLT/GST, pits, cable hauling, cable jointing, and materials such as cable, joint enclosures and jointing chambers.

## 6.8. Hauling Cables in Infrastructure containing VicTrack Cables

6.8.1. Where the Contractor is required to haul cables in infrastructure containing VicTrack cables, irrespective of who owns the infrastructure, the following steps apply:

a. Apply to VicTrack for permission to use the infrastructure. The application should include:

- an accurate description of the location of the infrastructure;
- the type and dimensions of the infrastructure;
- the number and types of existing cables in the infrastructure;
- the number and type of cables to be hauled;
- a work method statement; and
- a network protection plan.

b. VicTrack will then consider the application and may require a site inspection and / or further consultation to clarify and confirm the proposed works. The Contractor will then be advised of the approval or rejection of the application.

c. Undertake associated hazard prediction and risks to VicTrack plant, such as ancillary machinery activity, vehicle movements, temporary fencing, buildings or, storage compounds, star pickets, signs, likely soil ground differential settlement or disturbance because of proposed Works, and the like.

d. Prepare a Network Protection Plan, which will set out the procedures to be followed during the carrying out of the Works to ensure satisfactory protection of VicTrack Plant. The NPP is to be forwarded to EXTERNAL PLANT GROUP for approval prior to the commencement of any works.

e. Should the proposed Works be approved, the Contractor will be required to lodge a PTW with the VicTrack NMC for approval.

6.8.2. The Contractor will exercise Due Care and all agreed precautions taken when carrying out Works near VicTrack External Plant.

6.8.3. VicTrack EXTERNAL PLANT GROUP will attend the Works site:

a. At its discretion; or

b. To give direction from time to time.

## 6.9. Damage to Existing External Plant

6.9.1. Nothing in the following should be taken to presume that damage might be permissible or acceptable, nor should it be read that damage could be a reasonable outcome or expectation. It is incumbent upon the Contractor to ensure that damage does not occur.

6.9.2. In those situations where VicTrack External Plant suffers damage or suspected damage, because of the activities of the Contractor or its agents, the following procedures apply in all instances, irrespective of the apparent severity of the damage:

a. Notification, as soon as possible, to VicTrack via the 1800 887 662 - Network Operations Centre number and the following details given:

i. (iv) PTW number

ii. (v) Location;

iii. (vi) Description and identity (if known) of the damaged External Plant;

iv. (vii) Description of the extent of the damage; and

v. (viii) Identity and contact details of the reporting party

b. The Contractor staff or their agents responsible for the damage are to:

i. Immediately cease all activities described in the relevant PTW;

ii. Remain on site if possible until a representative from VicTrack, or otherwise attends the site; and

iii. If requested, provide reasonable assistance with the immediate repair treatment of the damage.

6.9.3. Both VicTrack and The Contractor are to carry out their respective "In House" reporting and debriefing procedures and shall participate, if requested by each other, in a joint on site meeting within 48 hours of the incident in order to analyse the full circumstances of the damage. This meeting can also provide a forum for deciding action to avoid future damage incidents. A preliminary written report (Incident Report) is to be supplied to VicTrack by The Contractor with appropriate supporting documentation within 24 hours. The final Incident Report is to be provided within 72 hours. If the incident occurs during a critical occupation where many others are relying on the Contractor to complete their work, the incident reporting process will need to be accelerated. However the Contractor cannot resume the PTW activities until VicTrack has received and accepted the Incident Report, so it is incumbent on the Contractor to manage those accelerated activities;

6.9.4. The written report must contain a description of the incident and the activities leading up to it. The report must also include a risk management strategy to ensure there are no further occurrences of this type;

6.9.5. VicTrack reserves the right to suspend the Works until the above requirements are met and VicTrack is satisfied that its External Plant will be suitably protected in future;

6.9.6. Under no circumstances shall The Contractor staff or their agents repair damage unless specifically authorised by VicTrack;

6.9.7. The Contractor must take responsibility for ensuring that the site is safe and that no further damage occurs;

6.9.8. The foregoing deals only with accidental damage. VicTrack retains the right to take appropriate action where damage is caused by negligence or deliberate action;

6.9.9. The Contractor recognises it will be charged the costs necessarily incurred by VicTrack in carrying out repairs to External Plant brought about by damage as a result of the activities of The Contractor or its agents not exercising due care or, acting in a negligent or criminal manner;

6.9.10. This charge shall include, but is not limited to, supervision of temporary and final repairs, repairs to or replacement of cable, jointing chamber replacement, consequent acceptance testing of repaired External Plant or suspected damaged External Plant, re-establishment of services,

business loss, and any consequential loss if repairs are not completed in a prescribed time period, etc.;

6.9.11. It should be noted that unplanned outages in networks can have catastrophic effects on business and costs for outage such as lost revenue and third party customer impacts, would also be recovered; and

6.9.12. Recovery of costs will be based on existing standard procedures presently in place with VicTrack.

## 6.10. Project Review and Escalation of Issues

6.10.1. All parties are to first attempt to resolve issues on site in a cooperative manner and in an effort to seek a reasonable and practical solution;

6.10.2. VicTrack employees and / or contractors will, in the first instance, refer the issue to VicTrack's project manager for interpretation and resolution with the nominated VicTrack contacts. The appropriate project manager will be nominated for specific projects. Subsequent escalation will be to the Head of Engineering and Operations; and

6.10.3. The Contractor is required to provide VicTrack's nominated project manager with the name and contact details of the Project Manager and / or Field Supervisor involved in carrying out the Works.

## 6.11. Internal and above ground telecommunications assets

6.11.1. Apart from underground assets, VicTrack has many assets in aboveground infrastructure (aerial, GST and GLT) and internal situations such as cable terminations in racks in equipment rooms. The equipment rooms can be dedicated VicTrack equipment rooms, shared station equipment rooms, or signal equipment rooms and external signal cabinets.

6.11.2. Any planned works within 5 metres of these aboveground and internal assets will require a PTW to be provided and no works are to commence until VicTrack has reviewed and approved the PTW.