January 2023



Essential Checklist to Dig / Penetrate Ground

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What Constitutes Penetrating Ground?

- Use of waratahs, pegs, stakes etc
- Planting trees and vegetation
- Probing for services
- Earthworks
- Trenching
- Piling
- Hand Digging

ANY ACTIVITY WHICH INVOLVES BREAKING OR PENTRATING THE GROUND



Questions?

What colour duct is a high voltage electrical cable buried in?

- Orange

What constitutes high voltage?

- 1000v and above

Who owns high voltage cable systems? Council, private companies or both?

- Both

Sewer pipes are pressurised, yes, no?

- No, can be pumped but not pressurised

Can Stormwater pipes have perforated holes, yes , no?

- Yes, Nova Coil

Which way does a fire main valve turn to close? Left or right? - Left

Which way does a water main turn to close? Right or Left? - Right

What service would you find in metal pipe?

- Gas, Water, Electrical – depends on period of installation What colour is danger tape? How far under the danger tape should the service be?

- Orange, Green, Yellow, Blue depending on the utility. Half the depth. i.e. if the cable is at 1m the tape should be at 500mm

What is the difference between danger tape and cable cover?

- Tape is a identification tool, Cable cover is a protection method such as MagSlab

What are the backfill requirements over a newly installed service?

- 300mm of GAP20 (fines) and remainder soil

How deep should low voltage cable be buried?

- 600mm

What would be the result of hitting a gas pipe?

- Gas leak, fire, explosion, burns, death, inhalation Who completes the before you dig form and how long is it valid?

- Person responsibility for managing the works i.e. Site Manager with assistance from Services Engineer. Valid for 28 days only.

Can your services be damaged when backfilling?

- Yes, with excessive compression causing fractures etc. What are the differences between excavating a trench with no services present vs digging a trench with known services present?

- Special conditions apply. No mechanical excavations are to occur within the distances specified by the asset owner. A stand over must be in place. Close Approach Permit submitted and approved.



Internal Training – Why?



<u>beforeUdig's Safe Digging Month video – Don't play around with</u> <u>your safety</u> <u>https://youtu.be/YPFj1ZqB95s</u>



City Rail Link incident highlights risk of buried power cables - Indust... safetynews.co.nz

https://www.safetynews.co.nz/city-raillink-incident-highlights-risk-buriedpower-cables/



Internal Training – Why?

Naylor Love's Health, Safety & Environmental (HSE) Process is heavily focussed on identifying and controlling Critical Risks.

Critical Risks are activities that Naylor Love has identified that have the potential to cause serious harm or worse and, as such, require a higher level of pre-task planning.

Each one of Naylor Love's Critical Risk has either a Permit or Checklist which **must** be completed in addition to Task Analysis.

Dig/Ground Penetration is one of our key Critical Risks, requiring an Essential Checklist.





Essential Check to Dig / Penetrate Ground

| DIG / GRC | DUND PEN | IETRATIC | ON |
|--|---|--|----------------------------------|
| This checklist is to be completed for every lo be discussed with you | ocation before digging/grou r Site Manager/Supervisor | und penetration begin before commencing. | ns. Any questions must |
| NL SUPERVISOR TO COMPLETE | Y R | EQUIRED PRECAUTIO | N CHECKLIST |
| Site name: | TA for excav | vation/penetration in agement - attached | place and reviewed by |
| | Plans for but | ried services – availa | ble and reviewed |
| Activity: | confirmed | cavation/demolition | area scanned – |
| | HOLD POIN | T: Walk site and revie | w identified services |
| | expectation | is? - confirmed | mangs in line with |
| | Digging met outcome - c | thods within TA re-ass confirmed | sessed for best |
| | Specific clie | nt-driven requiremen | ts adhered to - |
| Location of work: | contirmed | onsent conditions, SM | IP & EMP checked |
| | (archaeolog | ical site?) - confirmed | d |
| | □ confirmed b | by provider as comple | ted and are |
| | capped/turi Daily pre-st | ned off - confirmed art meetings will be c | onducted and |
| | documente | d - confirmed | |
| Date: | Any change in th | e work activity will r | equire a re-submission r Love |
| | | ,,,,,,,,, | |
| Reviewed by: | Signature | | |
| (NL Supervisor) | | | |
| Date: | | | |
| omments: | | | |
| | | | |
| | | | |
| F | raonau | | Emerana |
| Provider: Company: Eme Cor | ntact: Provider: | Company: | Contact: |
| Power | Sewage | | |
| Telecoms | Storm | | |
| | Water | | |
| | _ | | |



How do we generate information regarding in-ground services?

Service Information: Standard NZ-Wide

- B4UDIG
- Existing As-builts
- Site Visit Visual Survey
- Ground Scanning
- Ground Scanning As-builts
- Services Marking

Service Information: Region Specific

- Auckland GIS
- 3 Waters Viewer Hamilton City Council GIS
- Wellington City Council GIS
- Nelson City Council GIS "Top of the South Maps"
- Queenstown Lakes District Council GIS – "QLDS Maps"
- Dunedin City Council GIS "Water Services Map"



Service Information: Standard NZ-Wide

BeforeUdig – free online service <u>https://www.beforeudig.co.nz/nz/home</u>

- You need to register as a user
- Letters issued by asset owners must be read and understood, they outline special conditions e.g. MADs
- Existing As-builts requested from Client / Consultants)
- Visual Assessment on site
- PLUS the GIS surveyor for the region, typically available from the local Council





Service Information: Region Specific (NI)

Auckland GIS Surveyor https://geomapspublic.auckl andcouncil.govt.nz/viewer/in dex.html





Hamilton City Council GIS http://hcc.maps.arcgis.com/ apps/webappviewer/index





Wellington City Council GIS https://gis.wcc.govt.nz/Local Maps/Viewer

> Absolutely Positively Wellington City Council Me Heke Ki Pöneke





Service Information: Region Specific (SI)

Nelson City Council GIS http://www.nelson.govt.nz/bu ilding-and-property/ property-land-use/mapsand-gis-information/





Christchurch City Council GIS https://canterburymaps.govt. nz/help/map-viewer/







Service Information: Region Specific (SI)

Dunedin City Council GIS https://www.dunedin.govt.nz/ do-it-online/maps-andphotos/water-services-mapand-wws-work-in-progress





Queenstown Lakes District Council GIS <u>https://qldc.maps.arcgis.com</u> /apps/webappviewer/index. <u>html</u>







What is the next step once you have reviewed this information?



Service Information: Ground Scanning

- Typically completed by Service Providers registered on BeforeUdig, if requested on your submission. However, not all Service Providers are registered on this service.
- Land-base data system is not always current with the latest information (hence the need to refresh your submission every 28 days).
- Scanning by utility owners will only identify the services they are responsible for. If all services providers aren't registered on 'BeforeUdig' or a service scan is not complete, there is a risk to trades working in the ground.
- Action: Utilise a ground scanning contractor to conduct a full ground scan of the site, utilising all information we have generated from in-ground services.





Ground Scanning

It is important that we request approximate depths to be marked at every metre and work to the shallowest depth when we engage ground scanning contractors.

This allows the ground scanning contractor and Naylor Love to identify any deviations/changes, whether it be depth or direction.

Historically, services were installed shallower than they are today - this process allows us to identify these. Other influences include tree roots, rocks, etc.



What is the next step once the scan has been completed?



Positive Identification: Pot Holing

Click Here to View Video, https://www.youtube.com/watch?v=BTbi4yWWBsA

Exceptions to the Minimum Approach Distances (MADs) may be approved by the utility asset owners following submission and approval of the excavation methodology for "strategic cables or pipes." For example, locating and identifying the exact position of the services using Pot Holing.





Protection Of Exposed Utilities





Protection Of Exposed Utilities



Visual Site Survey: Physical Indicators

Always remember to look for physical indications of services on site, e.g. pits, chambers, manholes, meters etc. Can you name the physical indicators shown below?









Discuss: What constitutes a strategic service?



Safe Digging Practices

Overview of what has been covered in the presentation so far.

- Identify the location of services within the work area. This can be completed using BeforeUdig, GIS, as-builts, physical site survey.
- Engage a service locator to complete a ground scan of the area.
- Submit any "Close Approach Permits" or "Works Over Permits" required.
- Pot hole to confirm the exact location of any strategic services.
- If using mechanical digging practices, excavate to permittable Minimum Approach Distance (MAD) of the service. Once reached, stop and use hydroexcavation or hand dig. If you find fines before the permittable Minimum Approach Distance (MAD), stop and use hydro-excavation or hand dig.
- Carry out a RAMS and select the best use of equipment, e.g. mechanical excavation, hydro-excavation or hand digging.
- If the ground conditions change: stop, review and re-evaluate.







Excavations near Power Poles

<u>Electrical Codes of Practice (ECP34)</u> sets out Minimum Safe Distances for excavations and construction near poles or stay wires. It is important to note the following:

- Any excavations deeper than 750mm between 2.2m – 5m from a pole will require written consent from the line owner.
- Any excavations deeper than 300mm within
 2.2m from a pole will require written consent from the line owner.
- Any excavations that creates an unstable batter within 8m from a pole will require written consent from the line owner.





Typical Utility Mark-out Colours

It is important to request approximate depths and work to the shallowest depth

| SERVICE | COLOUR | NETWORK | MARKING COLOUR/SYMBOL |
|--|----------------|---|-----------------------|
| ELECTRICAL , lighting, traffic signals, lines, cables and ducting | ORANGE | Electricity, Street lights and Traffic Signals | E |
| TELECOMMUNICATIONS , cables, fibre & ducting | PURPLE or PINK | Chorus, Vodafone, Vocus, Spark, CCTV | COM |
| GAS | YELLOW | GAS | GAS |
| PORTABLE WATER | BLUE | Water Authority | H2O |
| WASTEWATER | RED | Wastewater Authority | |
| STORMWATER | GREEN | Stormwater Authority | |
| PRELIMINARY MARK OUT | White | Design/Investigation/notes/UNKNOWN | |



| Electrical | 230V, 400V, 6600V – 11kV, 22kV, 22kV – 110kV | Risks: Disruption to businesses, Fire, Explosion, Injury and Death |
|---------------------------------------|---|--|
| Gas | Low Pressure Less than 100kpa (1bar), Medium Pressure 100 to 900kpa (1-9bar), Intermediate Pressure 1000-2000kpa (10-20bar), High Pressure 2000kpa and above | Risks: Disruption to businesses, Fire, Explosion, Injury and Death |
| Telecommunications including Fibre | Copper and Fibre Optic Cabling | Risks: Disruption to businesses, damage to eyesight |
| Stormwater | Pumped or gravity feed | Risks: Flooding, Disruption to businesses |
| Waste Water | Pumped or gravity feed | Risks: Infection, Contamination, Flooding, Disruption to businesses |
| Water Main | Pressurised – typically 200kpa (2bar) | Risks: Flooding, Disruption to businesses |



Typical Services, Colours and Risks: By Region

Click the link on the map to jump to the region





Typical Services, Colours and Risks: Auckland





| Electrical | | Northpower | Vector |
|----------------------|--|--|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities distance (MAD) you must approach the local asset owner. T All works within two metres of strategic cables or pipes be submitted and approved. Stand over requirements in Excavating within five metres of a power pole or within Excavating within 5 metres of a Distribution Sub Station Substation No mechanical excavation within 1000mm of strategic cables or pipes of the submitted excavation within 450mm of strategic cables or pipes of a power pole or within | , to identify this minim hese include: Close approach perm may apply. 12m of a tower or py n and 10 metres withir cable or pipe (Vector) able or pipe (Northpov | um approach nits need to lon n a Zone wer) |

Note: the Vector network is maintained by several contractors i.e. Northpower, Electrix, etc. It is important to understand the area that you are working in to ensure you understand which contractor this is. Vector will also provide this information.



| Gas | Northpower |
|----------------------|---|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: All works within two metres of strategic pipes. Close approach permits need to be submitted and approved. Stand over requirements may apply. No mechanical excavation within 1000mm of strategic cable or pipe (Vector). No mechanical excavation within 450mm of strategic cable or pipe (Northpower). |

Note: the Vector network is maintained by several contractors i.e. Northpower, Electrix, etc. It is important to understand the area that you are working in to ensure you understand which contractor this is. Vector will also provide this information.



| Telecommunications | vector fibre CHORUS vodafone |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: All works in close proximity of strategic cables or pipes will require a Close Approach Permit, which needs to be submitted and approved. Stand over requirements may apply. No mechanical excavation within 1000mm of strategic cable or pipe (Vector Communications) Excavating close proximity of a power pole supporting telecommunications. (Check MADs with pole owner). For all high capacity cables (e.g. fibre cables), a line is marked 750mm (or occasionally more if required) on either side of the estimated cable route. To minimise the risk of damage, we recommend using hand tools (where possible) to dig within the two marked lines. (Chorus) |



| Stormwater | Auckland Council Te Kaunihera o Tamaki Makaurau |
|----------------------|---|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: Any work within 10 metres of these assets requires Watercare consent. No mechanical excavation within 2000mm for pipes less than 300mm diameter and up to 15000mm for pipes larger than 300mm diameter or strategic pipes (Watercare/Auckland Council). This distance will be confirmed following engagement with Watercare. |



| Waste Water | Watercare An Auckland Council Organisation |
|----------------------|---|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: Waste water mains as well as their related assets are critical to the security of water and wastewater services throughout the Auckland Region. Any work within 10 metres of these assets requires Watercare consent. No mechanical excavation within 2000mm for pipes less than 300mm diameter and up to 15000mm for pipes larger than 300mm diameter or strategic pipes (Watercare/Auckland Council). This distance will be confirmed following engagement with Watercare. |



| Water Main | An Auckland Council Organisation |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: Transmission water mains as well as their related assets are critical to the security of water and wastewater services throughout the Auckland Region. Any work within 10 metres of these assets or any pipe 300mm diameter or greater requires Watercare consent. No mechanical excavation within 2000mm for pipes less than 300mm diameter and up to 15000mm for pipes larger than 300mm diameter or strategic pipes (Watercare/Auckland Council). This distance will be confirmed following engagement with Watercare. |



Emergency Procedures

- Useful Links
- In An Emergency Electrical: https://www.vector.co.nz/personal/help-safety/in-an-emergency
- In An Emergency Gas: https://www.vector.co.nz/personal/help-safety/in-an-emergency
- In An Emergency Fibre: https://www.vector.co.nz/personal/help-safety/in-an-emergency
- <u>In An Emergency Watercare:</u> <u>https://www.watercare.co.nz/Contact/Contact-us-(1)</u>



Typical Services, Colours and Risks: Waikato




| Electrical | POWERCO |
|----------------------|---|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: • Working within 4m of overhead power lines. • Digging within 5m of any electrical or gas asset (pole, switch, transformer, cables and gas lines). • Digging near important underground power cables. These are marked 'strategic' on plans and include 11KV (and above) cables and located within 1km of a zone substation. • Trimming or felling trees near power lines. The online application is for an appointment for our contractor to meet your contractor on site. Our contractor will assess the work you are doing and issue a permit while on site. |



| Gas | Firstgas Overco |
|----------------------|---|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. You must obtain a permit for all works within a pipeline easement or in the road reserve near a transmission pipeline, this includes: • All excavation works i.e. 2000mm of a service. • Laying or working on other services • Construction of roads and tracks • Removing or increasing soil cover • Under-boring/directional drilling • Blasting • Building construction • Operating heavy machinery • Placement of fence posts • Planting and deep ripping • Drain construction and cleaning • Tree felling |



| Telecommunications | Vodafone CHORUS |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: All works in close proximity of strategic cables or pipes will require a Close Approach Permit, which needs to be submitted and approved. Stand over requirements may apply. Excavating close proximity of a power pole supporting telecommunications. (Check MADs with pole owner). For all high capacity cables (e.g. fibre cables), a line is marked 750mm (or occasionally more if required) on either side of the estimated cable route. To minimise the risk of damage, we recommend using hand tools (where possible) to dig within the two marked lines. |



| Stormwater | Hamilton City Council Te kaunihera o Kirikiriroa | |
|----------------------|--|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. Hamilton City Council have advised: "In terms of lateral proximity we have a preference that excavation does not encroach the zone of influence on the pipe. This is ensured by keeping excavation to at least the pipe depth away from the pipe centreline. If trench sheeting is used to below the pipe depth we normally allow excavation to 0.5m from the outside of the pipe". | |
| | | |



| Waste Water | Hamilton City Council Te kaunihera o Kirikiriroa |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. Hamilton City Council have advised: "In terms of lateral proximity we have a preference that excavation does not encroach the zone of influence on the pipe. This is ensured by keeping excavation to at least the pipe depth away from the pipe centreline. If trench sheeting is used to below the pipe depth we normally allow excavation to 0.5m from the outside of the pipe". |



| Water Main | Hamilton City Council Te kaunihera o Kirikiriroa |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. Hamilton City Council have advised: "In terms of lateral proximity we have a preference that excavation does not encroach the zone of influence on the pipe. This is ensured by keeping excavation to at least the pipe depth away from the pipe centreline. If trench sheeting is used to below the pipe depth we normally allow excavation to 0.5m from the outside of the pipe". |



Emergency Procedures

Useful Links

- In An Emergency Electrical: <u>https://www.wel.co.nz/</u>
- In An Emergency Gas: https://firstgas.co.nz/safety-work-home/in-an-emergency/
- In An Emergency Fibre: <u>https://www.chorus.co.nz/help-and-support/network-damages/what-should-i-do-if-i-damage-cable</u>
- In An Emergency Water / Stormwater / Waste Water: https://www.hamilton.govt.nz/our-services/water/waterleaks/Pages/default.aspx



Typical Services, Colours and Risks: Wellington





| Electrical | | wellington Variation Variation Variation |
|--|---|---|
| <section-header><section-header></section-header></section-header> | No mechanical digging within close proximity of live utilities, to identi distance (MAD) you must approach the local asset owner. Wellington "Always find out first where network cables and pipes are as well as lines – order reference maps at least 2 days in advice by calling 0800 • You require a permit if your excavation requires equipment or ma 4.0 meters of an overhead line. • Wellington Electricity reference maps are only valid for <u>14 days</u> Close Approach Consents are required for all works: • Near sub-transmission (22,000 volts and above) electricity cables a • Excavating within 5.0 metres of a power pole. As Wellington Electricity have not defined MADs for working in close infrastructure such as 11kV, etc. we encourage you to engage with V ensure they are satisfied with our methodology and until they have Worksafe GPG's guidelines i.e. 2m. | fy this minimum approach Electricity state: the location of overhead B4UDIG (0800 248 344)". chinery to work within and lines. e proximity to their other Vellington Electricity to approved this use the |



| Gas | |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. Powerco states: Contractors may require a Close Approach Consent if working near gas or electricity networks. You must apply at least two working days before starting the work. Close Approach Consents are usually valid for a maximum of one week. We can advise minimum approach distances and whether you require an observer. Apply online for a Close Approach Consent if you plan to carry out any of the following. • Working within 4m of overhead power lines • Digging within 5m of any electrical or gas asset (pole, switch, transformer, cables and gas lines) • Digging near important underground power cables. These are marked 'strategic' on plans and include 11KV (and above) cables and located within 1km of a zone substation • Trimming or felling trees near power lines The online application is for an appointment for our contractor to meet your contractor on site. Our contractor will assess the work you are doing and issue a permit while on site. |



| Telecommunications | vector fibre CHORUS Vital. |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: All works in close proximity of strategic cables or pipes will require a Close Approach Permit, which needs to be submitted and approved. Stand over requirements may apply. Excavating close proximity of a power pole supporting telecommunications. (Check MADs with pole owner). For all high capacity cables (e.g. fibre cables), a line is marked 750mm (or occasionally more if required) on either side of the estimated cable route. To minimise the risk of damage, we recommend using hand tools (where possible) to dig within the two marked lines. |



| Stormwater | | Wellington Water | Absolutely Positively Wellington City Council Me Heke Ki Põneke |
|--|--|---|--|
| <pre> Special Conditions' </pre> | No Minimum Approach Distances specified Recommendation is to follow WorkSafe 'E starting point. Then engage with Wellingto and ask for confirmation that the Council i that are put in place. | d. Excavation Safety Good Prac on City Council and notify the s satisfactory with our meth | tice Guidelines' as a em of the scope of works odology and measure |



| Waste Water | | Wellington Water | Absolutely Positively Wellington City Council Me Heke Ki Pōneke |
|-------------|---|---|--|
| <pre></pre> | No Minimum Approach Distances specified Recommendation is to follow WorkSafe 'E starting point. Then engage with Wellingto and ask for confirmation that the Council is that are put in place. | d. Excavation Safety Good Prac on City Council and notify the s satisfactory with our meth | tice Guidelines' as a em of the scope of works odology and measure |



| Water Main | | Wellington Water | Absolutely Positively Wellington City Council Me Heke Ki Põneke |
|-------------|--|---|--|
| <pre></pre> | No Minimum Approach Distances specified Recommendation is to follow WorkSafe 'E starting point. Then engage with Wellingto and ask for confirmation that the Council i that are put in place. | d. Excavation Safety Good Prac on City Council and notify the s satisfactory with our meth | tice Guidelines' as a em of the scope of works odology and measure |



Emergency Procedures

- Useful Links
- In An Emergency Electrical: https://www.welectricity.co.nz/safety/damaged-power-lines-or-poles/
- In An Emergency Gas: https://www.powerco.co.nz/safety/in-anemergency/
- In An Emergency Fibre: https://www.chorus.co.nz/help-andsupport/network-damages/what-should-i-do-if-i-damage-cable
- <u>In An Emergency Water / Stormwater / Waste Water:</u> <u>https://www.wellingtonwater.co.nz/education/water-saver/be-a-leak-detective/</u>



Typical Services, Colours and Risks: Nelson





| Electrical | |
|---|---|
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| Gas | Contact rockgas |
|--|--|
| 'Special Conditions' <u>Rockgas-DigUp-InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. You must obtain a permit for all works within a pipeline easement or in the road reserve near a transmission pipeline, this includes: |
| <text><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></text> | Pothole for gas pipelines when working within one metre of the indicated position to physically locate the gas main. Never use a mechanical excavator or drilling machine within 500mm of the located gas main. Follow the WorkSafe Excavation Safety Good Practice Guideline. |



| Telecommunications | |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: All works in close proximity of strategic cables or pipes will require a Close Approach Permit, which needs to be submitted and approved. Stand over requirements may apply. Excavating close proximity of a power pole supporting telecommunications. (Check MADs with pole owner). For all high capacity cables (e.g. fibre cables), a line is marked 750mm (or occasionally more if required) on either side of the estimated cable route. To minimise the risk of damage, we recommend using hand tools (where possible) to dig within the two marked lines. |





| Stormwater | | Nelson City Council te kaunihera o whakatū |
|----------------------|--|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to ider distance (MAD) you must approach the local asset owner. Other Co "In terms of lateral proximity we have a preference that excavation of influence on the pipe. This is ensured by keeping excavation to a from the pipe centreline. If trench sheeting is used to below the pip excavation to 0.5m from the outside of the pipe". | ntify this minimum approach uncils have advised: does not encroach the zone t least the pipe depth away be depth we normally allow |



| Waste Water | | Nelson City Council te kaunihera o whakatū |
|----------------------|---|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to ider distance (MAD) you must approach the local asset owner. Other Co "In terms of lateral proximity we have a preference that excavation of influence on the pipe. This is ensured by keeping excavation to at from the pipe centreline. If trench sheeting is used to below the pip excavation to 0.5m from the outside of the pipe". | ntify this minimum approach uncils have advised: does not encroach the zone t least the pipe depth away be depth we normally allow |



| Water Main | | Nelson City Council te kaunihera o whakatū |
|----------------------|--|---|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to ider distance (MAD) you must approach the local asset owner. Other Co "In terms of lateral proximity we have a preference that excavation of influence on the pipe. This is ensured by keeping excavation to a from the pipe centreline. If trench sheeting is used to below the pip excavation to 0.5m from the outside of the pipe". | ntify this minimum approach ouncils have advised: does not encroach the zone t least the pipe depth away be depth we normally allow |

Emergency Procedures

- Useful Links
- <u>In an Emergency Electrical:</u> <u>https://www.nel.co.nz/contact-us/</u>
- In an Emergency Gas: https://rockgasnelson.co.nz/staying-safe/
- In an Emergency Fibre: <u>https://www.chorus.co.nz/help-and-support/network-damages/what-should-i-do-if-i-damage-cable</u>
- In An Emergency Water / Stormwater / Waste Water: http://www.nelson.govt.nz/footer-elements/contact/



Typical Services, Colours and Risks: Canterbury





| Electrical | | | |
|--|--|--|--|
| 'Special Conditions' <u>Presentation</u> (mainpower.co.nz) | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. Main Power states: | | |
| Close Approach to Power Lines | Close Approach Consent Close Approach Consent is required for any of the following activities near MainPower Network assets: Working within 4 metres of overhead power lines. Working above overhead power lines. Trimming or felling trees near overhead power lines. Digging within 5 metres of any pole or stay wire supporting an overhead power line. Digging within 12 metres of any tower supporting an overhead power line. Digging near underground power cables or communication cables | | |



| Gas | Contact Contact |
|---|--|
| 'Special Conditions' <u>Rockgas-DigUp-InfoSheet.pdf</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> <u>reckgas</u> | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. You must obtain a permit for all works within a pipeline easement or in the road reserve near a transmission pipeline, this includes: |
| <text><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><text><text><text><text></text></text></text></text></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></text> | Pothole for gas pipelines when working within one metre of the indicated position to physically locate the gas main. Never use a mechanical excavator or drilling machine within 500mm of the located gas main. Follow the WorkSafe Excavation Safety Good Practice Guideline. |



| Telecommunications | |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: All works in close proximity of strategic cables or pipes will require a Close Approach Permit, which needs to be submitted and approved. Stand over requirements may apply. Excavating close proximity of a power pole supporting telecommunications. (Check MADs with pole owner). For all high capacity cables (e.g. fibre cables), a line is marked 750mm (or occasionally more if required) on either side of the estimated cable route. To minimise the risk of damage, we recommend using hand tools (where possible) to dig within the two marked lines. |





| Stormwater | | Christchurch City Council |
|----------------------|--|---|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify to distance (MAD) you must approach the local asset owner. Understanding that the Canterbury Region services areas outside Christor recommend that you align with the Worksafe Good Practice Guidelines, slides, unless agreed in advance with the asset owner. If you are required or need to go within these minimum approach distances assessment must be undertaken including methodologies etc. | this minimum approach church City, we as shown in the coming nces, a robust risk |



| Waste Water | | Christchurch City Council |
|----------------------|--|---|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approdistance (MAD) you must approach the local asset owner. | |
| | Understanding that the Canterbury Region services areas outside Christor recommend that you align with the Worksafe Good Practice Guidelines, slides, unless agreed in advance with the asset owner. | church City, we as shown in the coming |
| | If you are required or need to go within these minimum approach distan assessment must be undertaken including methodologies etc. | ices, a robust risk |



| Water Main | | Christchurch City Council |
|----------------------|--|---|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify to distance (MAD) you must approach the local asset owner. Understanding that the Canterbury Region services areas outside Christon recommend that you align with the Worksafe Good Practice Guidelines, slides, unless agreed in advance with the asset owner. If you are required or need to go within these minimum approach distant assessment must be undertaken including methodologies etc. | chis minimum approach church City, we as shown in the coming nces, a robust risk |

Emergency Procedures

- Emergency Plan (Gas Example Only)
 <u>Click Here To Watch Video</u>
- Shut down all machinery if it is safe to do so
 Evacuate the area immediately by foot move quickly to a safe distance until you can no longer smell gas.
- Move upwind in the direction the wind is coming from until you no longer smell gas
- Do not use a naked flame or other ignition source
- Do not create sparks by using a vehicle, electronic devices (mobile phones, tablets, cameras, etc.), matches or lighters or by smoking
- Please report all damage no matter how minor

For a major incident, where there is risk to life or property, Call Emergency Services on 111 Call First Gas on **0800 734 567**. Emergency procedures will be set in motion and trained staff will be sent to the site.

Do not return to the area until you are advised that it is safe to do so by First Gas or Emergency Services.

Please don't cover up an accident.

Let us know. It is much safer and easier for us to repair problems when they occur, rather than later.

- Useful Links (Christchurch Example)
- In An Emergency Electrical
- In An Emergency Gas
- In An Emergency Fibre
- In An Emergency Water / Stormwater / Waste Water

Emergency Procedures

Useful Links

- In an Emergency Electrical: <u>https://mainpower.co.nz/get-in-touch</u> <u>https://www.transpower.co.nz/contact-us</u> <u>https://www.oriongroup.co.nz/contact-us/</u>
- In an Emergency Gas: https://rockgas.co.nz/contact-us/
- In an Emergency Fibre: <u>https://www.chorus.co.nz/help-and-support/network-damages/what-should-i-do-if-i-damage-cable</u>
- In An Emergency Water / Stormwater / Waste Water: https://ccc.govt.nz/contact-us



Typical Services, Colours and Risks: Queenstown





| Electrical | Aurora |
|-----------------------------------|---|
| <section-header></section-header> | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: •All works within two metres of strategic cables or pipes. Close approach permits need to be submitted and approved. Stand over requirements may apply. • Working within 4m of overhead power lines. • Digging within 5m of any electrical or gas asset (pole, switch, transformer, cables and gas lines). • Digging near important underground power cables. These are marked 'strategic' on plans and include 11KV (and above) cables and located within 1km of a zone substation. • Trimming or felling trees near power lines. The online application is for an appointment for our contractor to meet your contractor on site. Our contractor will assess the work you are doing and issue a permit while on site. |



| Gas | Contact rockgas | |
|--|--|--|
| 'Special Conditions' <u>Rockgas-DigUp-InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> <u>InfoSheet.pdf</u> | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. You must obtain a permit for all works within a pipeline easement or in the road reserve near a transmission pipeline, this includes: | |
| <text><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></text> | Pothole for gas pipelines when working within one metre of the indicated position to physically locate the gas main. Never use a mechanical excavator or drilling machine within 500mm of the located gas main. Follow the WorkSafe Excavation Safety Good Practice Guideline. | |



| Telecommunications | | CHORUS |
|----------------------|--|--------|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: All works in close proximity of strategic cables or pipes will require a Close Approach Permit, which needs to be submitted and approved. Stand over requirements may apply. Excavating close proximity of a power pole supporting telecommunications. (Check MADs with pole owner). For all high capacity cables (e.g. fibre cables), a line is marked 750mm (or occasionally more if required) on either side of the estimated cable route. To minimise the risk of damage, we recommend using hand tools (where possible) to dig within the two marked lines. | |


| Stormwater | | | | | | | ENSTOWN ES DISTRICT NCIL |
|----------------------|--|--------------------|-----|--------------------|---------------|--|--------------------------------|
| 'Special Conditions' | QLDC Land Development and Subdivision Code of Practice, no "MADs" but install clearance advised: Table 5.6 – Clearances between wastewater pipes and other underground services Table 6.4 – Clearances between water mains and underground services | | | | | earance is | |
| | Utility (Existing service) Minimum horizontal clearance for new pipe size ≤DN 300 Minimum vertical clearance ⁽¹⁾ Minimum horizontal clearance (mm) | | | | clearance | Minimum vertical clearance ⁽¹⁾ (mm) | |
| | | () | () | (Existing service) | New main size | _ | |
| | Gas mains | 300.47 | 150 | | DN ≤200 | DN >200 | |
| | Telecommunication conduits and cables | 300 ⁽²⁾ | 150 | Water mains | 600 | 600 | 500 |
| | Electricity conduits and cables | 500 | 225 | DN - 575 | | | |
| | Drains | 300 ⁽²⁾ | 150 | | | | |
| | | | | | | | |



| Waste Water | | | _ | | | | | ENSTOWN S DISTRICT NCIL | |
|----------------------|---|---|--|-----------------|--|--|---------|-------------------------------|--|
| 'Special Conditions' | QLDC Land Deve advised: Table 5.6 – Clea Table 6.4 – Clea | elopment and Sul rances between rances between en wastewater pipes and other u | bdivision Co wastewater water main | od r p is | le of Practice, no pipes and other and undergroun Table 6.4 - Cle | no "MADs" but install clearance is er underground services ound services | | | |
| | Utility (Existing service) Minimum horizontal clearance for new pipe size ≤DN 300 Minimum vertical clearance ⁽¹⁾ Minimum horizontal clearance (mm) | | | | learance | Minimum vertical clearance ⁽¹⁾ (mm) | | | |
| | | () | () | | (Existing service) | New main size | | | |
| | Gas mains | 300 (| 150 | | | DN ≤200 | DN >200 | | |
| | Telecommunication conduits and cables | 300 ⁽²⁾ | 150 | | Water mains | 600 | 600 | 500 | |
| | Electricity conduits and cables | 500 | 225 | | | | | | |
| | Drains | 300 ⁽²⁾ | 150 | | | | | | |
| | | | | | | | | | |



| Water Main | | | | | | | | ENSTOWN S DISTRICT NCIL |
|----------------------|--|--------------------|-----|----------|--|---------------|-------------|-------------------------------|
| 'Special Conditions' | QLDC Land Development and Subdivision Code of Practice, no "MADs" but install clearance i advised: Table 5.6 – Clearances between wastewater pipes and other underground services Table 6.4 – Clearances between water mains and underground services | | | | arance is | | | |
| | Utility (Existing service) Minimum horizontal clearance for new pipe size ≤DN 300 (mm) Minimum vertical clearance ⁽¹⁾ (mm) Minimum horizontal clearance (mm) | | | learance | Minimum vertical clearance ⁽¹⁾ (mm) | | | |
| | Gas mains | 300 ⁽²⁾ | 150 | | (Existing service) | New main size | / main size | |
| | Telecommunication conduits | 200 ⁽²⁾ | 150 | | | DN ≤200 | DN >200 | |
| | and cables | 500 | 150 | | Water mains | 600 | 600 | 500 |
| | Electricity conduits and cables | 500 | 225 | | | | | |
| | Drains | 300 ⁽²⁾ | 150 | | | | | |
| | | | | | | | | |



Emergency Procedures

- Useful Links
- <u>In An Emergency Electrical:</u> <u>https://www.auroraenergy.co.nz/safety/</u>
- In An Emergency Gas: https://rockgas.co.nz/staying-safe/
- <u>In An Emergency Fibre:</u> <u>https://www.chorus.co.nz/help-and-support/network-</u> <u>damages/what-should-i-do-if-i-damage-cable</u>
- In An Emergency Water / Stormwater / Waste Water: https://www.qldc.govt.nz/do-it-online/contact-us-fix-it#phone-us



Typical Services, Colours and Risks: Dunedin





| Electrical | THINK INFRASTRUCTURE AUTORA | | | | |
|---|---|--|--|--|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach | | | | |
| Safety-Working-Guide- | distance (MAD) you must approach the local asset owner. These include: | | | | |
| <pre>Final.pdf (auroraenergy.co.nz)</pre> | •All works within two metres of strategic cables or pipes. Close approach permits need to be | | | | |
| | submitted and approved. Stand over requirements may apply. | | | | |
| | Working within 4m of overhead power lines. | | | | |
| NEAR ELECTRICITY was in units and young have beings | Digging within 5m of any electrical or gas asset (pole, switch, transformer, cables and gas | | | | |
| | lines). | | | | |
| | Digging near important underground power cables. These are marked 'strategic' on plans | | | | |
| | and include 11KV (and above) cables and located within 1km of a zone substation. | | | | |
| | • Trimming or felling trees near power lines. | | | | |
| | The online application is for an appointment for our contractor to meet your contractor on | | | | |
| | site. Our contractor will assess the work you are doing and issue a permit while on site. | | | | |



| Gas | | | | Liquigas | genesis |
|---|--|---|--|---|------------------------------------|
| 'Special Conditions' Dunedin Network Description | No mechanical diggir distance (MAD) you r works within a pipeli | ng within close must approach ne easement d | proximity of live utilities, to the local asset owner. You or in the road reserve near | to identify this minimum a u must obtain a permit for a transmission pipeline, th | pproach ⁻ all nis |
| MAOP 200kPA Delivers LPG vapour at 55kPa 40.3km of PE100 SDR 11 of various dimensions, black gas pipe with a yellow stripe 7 railway crossing/bridge crossings | includes: ^s ^{(You need to apply to Genesis for Work Close Approval if your activities (above or ^{low} ground) are within the clearance distances (set out below) of our Assets.} | | | | |
| 1 tunnel | General Excavation | 15 meters | | | |
| 40.3km total length 90 network isolation valves | Piling | 15 meters | | | |
| 1 connection to the LPG bulk facility and | Tree Removal | 15 meters | | | |
| District Regulating Station (DRS) | General Excavation | 20 meters | | | |
| | If you are unsure about not mentioned abov | out the distan e, get in touch | ces to our assets or the type n with us to check if a Wor | pe of work you are comple k Close Approval is requir | eting is ed." |



| Telecommunications | CH RUS vodafone |
|----------------------|--|
| 'Special Conditions' | No mechanical digging within close proximity of live utilities, to identify this minimum approach distance (MAD) you must approach the local asset owner. These include: All works in close proximity of strategic cables or pipes will require a Close Approach Permit, which needs to be submitted and approved. Stand over requirements may apply. Excavating close proximity of a power pole supporting telecommunications. (Check MADs with pole owner). For all high capacity cables (e.g. fibre cables), a line is marked 750mm (or occasionally more if required) on either side of the estimated cable route. To minimise the risk of damage, we recommend using hand tools (where possible) to dig within the two marked lines. |



| Stormwater | | CITY COUNCIL kaunihera a-rohe o Otepoti |
|----------------------|--|---|
| 'Special Conditions' | No Minimum Approach Distances specified. Recommendation is to follow WorkSafe 'Excavation Safety Go starting point. Then engage with Dunedin City Council and noti and ask for confirmation that the Council is satisfactory with ou that are put in place. | od Practice Guidelines' as a fy them of the scope of works ur methodology and measure |



| Waste Water | | CITY COUNCIL kaunihera a-rohe o Ötepoti |
|----------------------|--|---|
| 'Special Conditions' | No Minimum Approach Distances specified. Recommendation is to follow WorkSafe 'Excavation Safety Go starting point. Then engage with Dunedin City Council and noti and ask for confirmation that the Council is satisfactory with ou that are put in place. | od Practice Guidelines' as a fy them of the scope of works ar methodology and measure |



| Water Main | | CITY COUNCIL kaunihera a-rohe o Ötepoti |
|----------------------|--|---|
| 'Special Conditions' | No Minimum Approach Distances specified. Recommendation is to follow WorkSafe 'Excavation Safety Go starting point. Then engage with Dunedin City Council and noti and ask for confirmation that the Council is satisfactory with ou that are put in place. | od Practice Guidelines' as a fy them of the scope of works ar methodology and measure |



Emergency Procedures

- Useful Links
- In An Emergency Electrical: https://www.auroraenergy.co.nz/safety/
- In An Emergency Gas: https://www.genesisenergy.co.nz/emergencies
- <u>In An Emergency Fibre:</u> <u>https://www.chorus.co.nz/help-and-support/network-damages/what-should-i-do-</u> <u>if-i-damage-cable</u>
- In An Emergency Water / Stormwater / Waste Water: https://www.dunedin.govt.nz/home/contact-us



Typical Services, Colours and Risks: this concludes the regional content!



External Legislation

WorkSafe document 'Excavation Safety Good Practice Guidelines' states

The MADs for cables, gas transmission or high pressure pipelines is **2m**. Any plant or excavation activity (including using hand-held tools) closer than the MADs summarised in Table 7 requires a documented permit or consent from the service owner. This should be held on site. Always check with the service owner, as they may have their own specific requirements for work on their service.

This document also refers to the OSH Guide for Safety with Underground Services, as well as ECP34.

| Service | Distance away |
|---|------------------|
| Cables, gas transmission or high pressure pipelines | 2 m or more |
| Overhead power line | 4 m or more |
| Pole or support stay | 5 m or more |
| Tower | 12 m or more |

Table 7: MADs to excavate with mobile plant (9)



Group Exercises: Split into working groups and discuss how you will manage the following activities.



Group Exercise

• Groups 1 - 4:

Please insert your own project example into this space and utilise the questions as part of the group exercise

As a group, answer these questions:

- 1. Where will you source existing services drawings?
- 2. How will you locate in-ground services?
- 3. Are there any 'special conditions' you need to comply with?
- 4. What is the process you will use to conduct the task to prevent striking a service?
- 5. What services are in the vicinity and what are the emergency protocols?



Spot the difference

The two sets of drawings below contradict one another. One was a service drawing request in May, the other was a separate request in June (28 days later). No physical works were undertaken between these dates – what can you see?





Services Whiskers

Following shared learnings, we have identified the need to reduce the use of spray paint as a key visual indicator and replace it with 'whisker' markings.





Services Whiskers



Questions?

What colour duct is a high voltage electrical cable buried in?

- Orange

What constitutes high voltage?

- 1000v and above

Who owns high voltage cable systems? Council, private companies or both?

- Both

Sewer pipes are pressurised, yes, no?

- No, can be pumped but not pressurised

Can Stormwater pipes have perforated holes, yes , no?

- Yes, Nova Coil

Which way does a fire main valve turn to close? Left or right? - Left

Which way does a water main turn to close? Right or Left? - Right

What service would you find in metal pipe?

- Gas, Water, Electrical – depends on period of installation What colour is danger tape? How far under the danger tape should the service be?

- Orange, Green, Yellow, Blue depending on the utility. Half the depth. i.e. if the cable is at 1m the tape should be at 500mm

What is the difference between danger tape and cable cover?

- Tape is a identification tool, Cable cover is a protection method such as MagSlab

What are the backfill requirements over a newly installed service?

- 300mm of GAP20 (fines) and remainder soil

How deep should low voltage cable be buried?

- 600mm

What would be the result of hitting a gas pipe?

- Gas leak, fire, explosion, burns, death, inhalation Who completes the before you dig form and how long is it valid?

- Person responsibility for managing the works i.e. Site Manager with assistance from Services Engineer. Valid for 28 days only.

Can your services be damaged when backfilling?

- Yes, with excessive compression causing fractures etc. What are the differences between excavating a trench with no services present vs digging a trench with known services present?

- Special conditions apply. No mechanical excavations are to occur within the distances specified by the asset owner. A stand over must be in place. Close Approach Permit submitted and approved.







Questions...?



Thank You

Disclaimer – This presentation has been shared as an example of "best practice" in identifying and working around in-ground services in New Zealand. The presentation is provided "as-is" and is to be used at your own risk. No warranties as to performance, fitness for a particular purpose, or any other warranties whether expressed or implied are provided. Naylor Love does not accept responsibility of any kind to any third parties who make use of the contents of the presentation.