1. Purpose

To detail the method to be used when extending the length of a footway 10 box by one additional cover, i.e. from 3 covers to 4 covers. This will increase the length of a 10 box by 775mm to 3090mm internal length.

2. Responsibilities

2.1 The **team leader** shall ensure staff extending a footway 10 box adhere to this method and are licensed under the BT scheme for the disciplines they are in charge of.

2.2 The **Site Supervisor** shall periodically monitor the compliance to this method statement.

2.3 If this method cannot be adhered to, contact your supervisor for advice before proceeding.

3. References & Definitions

- BT Specification LN 550– Underground Duct Laying and Associated Works
- BT CN Drawings
- HAUC – Specification for the Reinstatement of Openings in Highways
- Safety at Street Works and Road Works – A Code of Practice
- HS (G) 47 Avoiding Danger from underground services

4. Safety considerations

4.1 Hazards

Traffic	√	Fumes/Gas	√	Falls of material	√	Mobile Plant & Vehicles	√
Buried Services	√	Dust	√	Demolition	√	Noise & Vibration	√
Overhead Services		Deep Excavations	√	Collapse of Structure	√	Lifting Operations	√
Fire/Explosions		Confined Spaces	√	Soft Ground	√	Manual Handling	√
Flying Particles/Objects		Lighting Levels	√	Falls on Level		Working near Water	
Heat		Falls from Height	√	Defective Materials		Adverse Weather	√

4.2 Precautions

- **ASSESS THE RISK** - Ensure that prior to starting work a **SITE SPECIFIC RISK ASSESSMENT** is conducted and recorded on to identify specific risks that may be present, if in doubt contact your site supervisor.
- **ROAD WORKS GUARDING**
  - To be in accordance with Chapter 8.
  - Signs and barriers to be secured with sand bags if necessary.
  - Maintain a safe route for pedestrians to by pass by the works.
  - Guard pedestrians from vehicles when directed into carriageway.
  - Where required lights to be attached to signing and guarding.
- **PLANT, VEHICLES & WORK TOOLS**
  - To be kept inside the work area.

- To be in good working order and properly maintained.
- To have mufflers and silencers fitted where practicable.
- Vehicles to be fitted with, and use amber rotating beacon/s.
- Plant operators to be trained and competent in the use of the plant they are using.
- Switch plant off when not in use.
- Ensure that all guards are properly secured and unauthorised persons do not use the plant/vehicle.
- Rotate operators to reduce individual exposure.
- Keep plant & vehicles away from the edge of the excavation.
- Air hoses to be maintained in good order with joints correctly coupled.
- Hose check arrestors to be fitted and used on all compressed air lines.
- Dust suppression is to be used when saw cutting or using equipment that can cause airborne dust, i.e. water.
- Fuel oil to be stored and handled safely to prevent spillage or contact with skin or clothing.
- Ensure the correct PPE is used for the type of equipment.
- Ensure fumes do not enter confined space.

- **SAFE DIGGING**
  - Utility safe dig prints to be available on site at all times.
  - Visual & CAT (and Genny, where required) surveys to take place.
  - All identified services to be marked on the surface.
  - Pilot Holes will be excavated by hand to confirm positions of services.
  - Ensure where necessary that correct trench wall supports are available and are used.
  - Excavated material shall be stored a safe distance away from the excavation to stop possible collapse into the excavation, but kept within the guarded area.
  - Mechanical excavation equipment shall not be used in the vicinity of other utility services.
  - Adequate access/ingress to be maintained at all times.

- **CONFINED SPACE WORKING**
  - Ensure that gas-testing equipment is available, and is used when entering joint boxes or manholes.
  - Where man entry is required ensure that all involved are trained and competent in confined space working and that there is an approved safe system of work and the confined space is continually gas monitored.
  - Ensure that in confined spaces where there is no free flow of clean air, ensure there is adequate ventilation and where practicable used forced ventilation.

- **SAFE LIFTING TECHNIQUES**
  - When lifting materials and tools from/to the excavation or onto/off the truck ensure that items are not too heavy. Either reduce them into lighter pieces or/and seek assistance to spread the load or use suitable lift equipment. If in doubt seek advice.
  - When lifting manhole or box covers ensure that the proper lifting keys are used and that safe lifting techniques are employed. For carriageway covers lifting aids shall be used for lifting the covers wherever practicable, i.e. a suitable manhole lifter.

- **HOT WORKING**
  - Ensure that oxy-acetylene bottles are stored in a ventilated area and are kept upright in use away from the burner.
  - Ensure fumes do not enter confined space.

- Ensure adequate ventilation at all times.
- Ensure that hot plant and equipment is handled with care and PPE is worn.

4.3 Personal Protective Equipment

- Ensure the following is worn at all times during the works:
  - Hard Hat
  - Safety boots or wellingtons
  - High visibility jacket or jerkin
  - Coveralls
- Ensure the following is worn as required during the works:
  - Eye protection – grinding, sawing, cutting and welding
  - Ear protection – grinding, sawing, cutting, using jackhammers.
  - Dust masks – grinding, sawing, cutting or conducting activities that involve airborne dust.
  - Gloves – when using power equipment or manual handling.
  - Waterproofs – in wet weather.

5. Method

5.1 Prior to commencing work

- Erect road works guarding and signs in accordance with Chapter 8.
- Read the service prints and conduct a survey with the CAT and where practicable identify all services in the vicinity of the excavation.
- Ensure the area to be excavated for the box extension is free from services.
- Mark the surface to be excavated.
- Gas test the box directly prior to entering and periodically during the works.
- Conduct trail holes to locate existing services and to see what effect they might have on the works.

5.2 Survey the Box

- Survey the existing JRF 10 to ensure that the structure is suitable for extending by examining the following:
  - General condition of the concrete
  - The general build standard of the box
  - Any defects already in the box

  If any of the above is sub-standard then it would be better to demolish the box and rebuild with a non-standard box.

5.3 Breaking the surface and excavating

- Ensure the surface to be cut is adequately marked.
- Where practicable, for excavations in blacktop the surface shall be cut with a suitable road saw to ensure that the edges are straight and square.
- All excavation equipment used should be suitable for the work undertaken and mechanical excavating equipment should not be used near other services.
- Any services damaged by your or previous excavations should be reported to your supervisor.
- Any services found which are not identified on your service prints should be reported to your supervisor.
- Excavated material must be strictly controlled during all stages of the works, ensuring that it is stored at a practical and safe distance from the excavation, within the working area (barriered enclosure).
- Materials being collected by a grab wagon should be done in such a way to ensure that a

minimum disruption is caused to Pedestrians, Road Traffic or any other Third Party.

- Materials for reuse e.g.; topsoil and granular materials, etc. should be kept free from contamination, and handled in the appropriate manner.
- Where excavations deeper than 1.2m or in unsound ground, appropriate trench support equipment shall be used.
- All services excavated shall be suitably supported to prevent damage.

5.4 Remove Existing Frame and Covers

- Check the existing frame and covers for damage
- Remove the covers and store safely
- Carefully remove the frame and store safely

5.5 Demolishing the end Wall of the Existing Box

- Mark the sidewalls and the floor on the inside of the box 200mm back from the end wall to be extended.
- Run the Sthil saw along the line marked to a depth approximately 20mm.
- Stitch drill along the Sthil sawed line at regular intervals close enough to ensure that the existing floor and sidewalls are not damaged when the end wall is broken out.
- Breakout the end wall and the 200mm marked floor and sides area ensuring that the existing reinforcing is not damaged.
- Trim off the reinforcing bars ensuring that there is a minimum of 200mm of reinforcing bar exposed.

5.6 Position Concrete Protection

- Lay a 1000 or 1500 gauge plastic sheet into the excavated area ensuring that when the concrete is laid it will not be exposed to earth on the outside of the box.

5.7 Tie in the New Steelwork to the Old & Position Spacers

- Tie in the new reinforcement to the existing ensuring there is at least 200mm overlap on the existing and new reinforcing bars and mesh using suitably approved ties.
- Position the consumable spacers to ensure that there will be adequate cover of concrete over the reinforcing steel.

5.8 Position Formwork

- Position the shuttering to ensure that the box internal dimensions are correct and there is adequate concrete cover over the reinforcing steel.

5.9 Concrete Placing

- Prior to placing concrete ensure that the surfaces to be joined are free from dust, soil or other contaminants that could prevent a good join between the existing and new concrete.
- Using an approved C35 concrete mix place the concrete into the floor and behind the shuttering. Consolidate the concrete using a vibrating poker especially around the joint area to ensure a good bond to the existing.

5.10 Floor Finish

- Once the concrete has cured for 5 days the shuttering can be stripped out.
- Once the shuttering has been stripped out the floor shall have a screed to provide adequate fall to the sump.
- The frame shall be fitted that is suitable for the length and provides an adequate level base to

ensure the covers do not rock.

5.11 De-watering

- If de-watering is required during any stage of the work, then pumps and hoses should be positioned as to avoid any inconvenience to pedestrians, road traffic or any other third party.
- Before de-watering ensure that your Supervisor has agreed all discharge points.
- Samples of water should be taken prior to setting up the de-watering equipment.
- If the water shows any sign of contamination then the water should not be discharged and the Supervisor contacted.
- Ensure silt is not drawn from the excavation and where necessary use a settlement tank.

5.11 Housekeeping

- The roadwork's guarding and signs should be regularly checked to ensure they always meet the requirements of Chapter 8.
- All spoil, materials, vehicles and plant should be properly guarded in accordance with Chapter 8.
- The site should be kept as clean and tidy practicable during the works.
- Always be polite to the general public within the vicinity of the works and where necessary liaise with the local residents and other contractors present.

6. Steel Schedule to be Used for the Box Extension

6.1 End Wall

- 5 off 10mm □□ Tensile Bars running vertically evenly spaced with adequate length (height) to cover the full wall.
- 5 off 10mm □□bent Tensile Bars (430mm x 890mm x 430mm) spaced 200mm apart (and intruding into both sides).

6.2 Floor

- 2 off 10mm □□bent Tensile Bars (570mm x 860mm x 570mm) spaced 400mm apart (and intruding into both sides).
- Mesh - 8mm □□with 200mm spacing

6.3 Sides

- Mesh - 8mm □□with 200mm spacing

7. Frame Fabrication

- The frame will be fabricated using two standard JRF 110 frames.
- One frame will be cut across the middle of its length (1157.5mm) from each end. You will finish up with two equal lengths of 1157mm.
- The other frame will be cut at 385mm from one end along its length. You will finish up with one length of 385mm and another one of 1930mm.
- Mate the 1930mm length to one of the 1157mm lengths and jig, ensuring that the cover fits correctly in the frame.
- Place a suitable length of angle iron along outer edge of the joints on each side of the frame overlapping by a minimum of 150mm at each side of the joint.
- Weld the angle iron to the frame.

8. Attachments

APPENDIX A – 3 sheets
Sheet 1 – Exposed Re-bar
Sheet 2 – Steelwork Diagram
Sheet 3 – Frame Arrangement