

- During EWSS system testing care must be taken to ensure all required (Electrical and Mechanical) Test Modes & Isolations are in place prior to works commencing and de-isolated or reinstated on the completion of works as appropriate.
- Prior to (post testing) Metron de-isolation, ensure all required cable terminations and system components are in place.
- All Zones on an Escalator must be Metron lamp tested within one visit to evidence system integrity.

4.10 Generic Heat Detection (inc Linear Heat Cable).

Testing in non-engineering hours will only be carried out where escalator to be worked on plus adjacent escalators are out of service.

Visit Frequency in accordance with BS 5839

- Check condition of Panel & System Status
- Carry out Battery Inspection & Testing as per maintenance requirements
- Remove any debris that may be inside the panel, clean panel with appropriate materials; ensure all locks are in good working order
- Carry out Power Source Inspection and Testing as per maintenance requirements
- Ensure all panel internal terminations from field wiring, internal wiring and ribbon cables are secure
- Check all field devices for status and condition
- Check all Mineral Insulated Copper Cable (MICC) field cabling and heat sense for damage
- Check all cable containment for correct/adequate support and fixings
- Check all Multi Jet Controller (MJC) Metrons for condition, record Metron actuator expiry date on provided table
- Ensure all panel test results and MFCP printouts have the correct messages and are inserted into the maintenance document
- Once testing is completed ensure system is back to normal
- Ensure Panel is in the correct position as per the asset drawing
- Record serial numbers, Loop and Device detail

Visit Frequency in accordance with BS 5839 – Common Tasks to Fibre Optic Cable and Encapsulated Address Heat Detector Cable systems

- Check condition of Panel & System Status
- Carry out Battery Inspection & Testing as per maintenance requirements
- Remove any debris that may be inside the panel, clean panel with appropriate materials; ensure all locks are in good working order
- Operate the 'Isolate Outputs' key-switch on the EWSS panel and confirm fault indication, and check for correct message "escalator metrons are isolated", on both EWSS panel and MFCP
- With outputs still isolated power down the DTS unit and confirm fault indication, and check for correct message, on the MFCP. Allow 5 minutes for the DTS unit to re-calibrate before continuing with tests
- Restore power to the DTS unit. Disconnect orange fibre-optic pigtailed from DTS unit and confirm fault indication, and check for correct message "sensor fault", on the EWSS panel
- Reconnect the fibre-optic pigtailed and enable the isolate key-switch.
- Disconnect wiring to the metrons/valves above and below the zone to be tested
- Note: Disconnect MICC from MJC test switch if installed.
- Megger using a 1000V test meter to test MICC cable integrity. Check and record resistance reading

- Note: Reconnect MICC to MJC test switch if installed.
- Fit test lamps in their place (unless fitted with MJC test Switches)
- Using an approved heat gun, apply heat to the fibre 500mm from the zone boundary for each zone on the escalator. Confirm fire activation of the zone being tested and the nearest adjacent zone
- Confirm correct indication at the Zone Lamp, EWSS Panel and MFCP; ensure that each zone has reset before next zone is tested
- Remove heat source after each test and allow a cooling down period of 2 minutes before resetting the panel and moving on to the next zone
- Ensure all ESPS panel test results and MFCP printouts have the correct messages and are inserted into the maintenance document
- Operate the 'Isolate Outputs' key-switch and repeat aforementioned test once on any Zone. In this case the test lamp should not illuminate.
- On completion of testing, remove all test lamps and reconnect metrons

Visit Frequency in accordance with BS 5839 – Specific Tasks to Linear Heat Cable system

- Check condition of Panel & System Status
- Carry out Battery Inspection & Testing as per maintenance requirements
- Remove any debris that may be inside the panel, clean panel with appropriate materials; ensure all locks are in good working order
- Clean all field components with appropriate materials
- Check and record settings; adjust as appropriate
- Disconnect MICC from Linear heat cables and confirm appropriate Zone fault
- Carry out an insulation resistance test to confirm detection MICC cable integrity. Check & record resistance readings
- Disconnect firing circuit from MJC and check for correct Zone fault
- Note: Disconnect MICC from MJC test switch if installed
- Carry out an insulation resistance test to confirm firing circuit MICC cable integrity. Check and record resistance reading
- Note: Reconnect MICC to MJC test switch if installed
- Record all the above disconnections and ensure correct printout at MFCP
- Replace Metron with appropriate test lamp (unless fitted with MJC test Switches)
- Carry out "test button" function and check for correct operation
- Using an approved heat gun, apply heat to the linear cable for each Stage 1 & Stage 2 zone on the Escalator
- Confirm correct indication at the Zone Lamp, Panel and MFCP; ensure that each zone has reset before next zone is tested
- Check remote sounder/strobes for audibility and visibility
- Check condition of all sounder and beacon units. Ensuring they are securely fixed and not impaired in any way, clean as required with appropriate materials
- Ensure all panel test results and MFCP printouts have the correct messages and are inserted into the maintenance document

Visit Frequency in accordance with BS 5839 – Specific Tasks to Fibre Optic Cable system

- Check condition of Panel & System Status
- Carry out Battery Inspection & Testing as per maintenance requirements
- Remove any debris that may be inside the panel, clean panel with appropriate materials; ensure all locks are in good working order

- With outputs still isolated power down the DTS unit and confirm fault indication, and check for correct message, on the MFCP. Allow 5 minutes for the DTS unit to re-calibrate before continuing with tests
- Restore power to the DTS unit. Disconnect orange fibre-optic pigtailed from DTS unit and confirm fault indication, and check for correct message "sensor fault", on the EWSS panel
- Reconnect the fibre-optic pigtailed and enable the isolate key-switch.

4.11 Trace Heating Panel

Visit Frequency in accordance with BS 5839

- Check the condition and status of the Trace heating panel including supply healthy lamp.
- Visually inspect all field wiring & cladding for damage.
- Check all Panel terminations from field wiring, internal wiring, PCBs and ribbon cables are secure.
- Ensure the thermostat is set so that the trace heating panel operates when temperatures drop below 5°C.
- Operate the test button and ensure trace heating panel operates heating the cable element.
- Carry out Power Source Inspection and Testing as per Maintenance Documentation requirements
- Remove any debris that may be inside the panel, clean panel with appropriate materials; ensure all locks are in good working order
- Ensure EWSS Panel is in the correct position as per the asset drawing.
- Record serial numbers, Loop and Device detail

4.12 High Sensitivity Smoke Detection (HSSD) / AIRSENSE / VESDA

This can only be done in engineering hours except in situations where the station is subject to partial/full station closure. For non-station locations, as agreed with Landlord.

During testing ensure that all Fans and Escalators are running to provide the correct operating environment.

The following checks/tests are to be carried out to Manufacturers Recommendations and where there is no risk that smoke used during Smoke Testing could cause closure.

When working on equipment on the escalator incline follow the escalator rules defined in section 4.9 of this document.

NOTE – Panel & battery checks/clean to be compliant with BS 5839

- Put relevant loop on MFCP into 'test mode'.
- Enable MFCP printer.
- Check and record the condition and status of the aspirating panel on arrival.
- Record serial numbers of panel.
- Record panel settings prior to testing.
- Check all detection devices and fans; ensure correct filters are fitted and record serial numbers.
- Check all enclosures are sealed; all screws and seals are in good order.
- Power down panel (if applicable). If this is not possible refer to live working section (6.0) of method statement.
- Check all connections from field wiring, internal wiring and ribbon cables are secure.
- Clean panel using a cloth and check operation and condition of all panel locks.

- Carry out voltage test on the external a.c. power supply, internal d.c. power supply and back up batteries using a calibrated multi-meter. Record all readings.
- Check battery condition and date of install (>5 yrs old – replace).
- Disconnect the external power source and battery back up in turn and check that MFCP registers the fault. Reset the MFCP after each test. Retain the printouts.
- Carry out smoke test; where possible ensure that all fans and escalators are running to simulate normal conditions. Activate a smoke pellet below a HSSD sampling point.
- Record, in seconds, of the time taken to rise to each indicator bar on the panel and the duration held at the maximum level.
- Should a detection head not operate after several tests then it should be replaced as soon as possible with a service spare. The defective device to be returned to the manufacturer for repair and re-calibration.
- Retain all printouts: Flow fault/Sensor fault/Common fault/Fire activation.
- Test all control buttons and ensure that they operate in the correct sequence.
- Check that all connections are re-instated and that fixings have been tightened.
- Carry out a visual inspection of all pipe-work for obstructions and damage. Check pipe-work supports and fixings.
- Disable MFCP panel printer and ensure printer has sufficient paper.

PURGING & CLEANING – The following checks/tests are to be carried out to comply with manufacturers recommendations.

- Isolate detector at the main fire panel.
- Inspect the case for signs of physical damage, moisture ingress and ensure the detector is securely mounted to wall.
- Note the flow readings as a benchmark for future service visits.
- Rectify any faults as indicated on the front panel.
- Check the correct operation of the front panel buttons (enable where necessary).
- Remove all power from the detector.
- Ensure the smooth operation of lock mechanism.
- Ensure all field wiring is secure and that all insulation material is undamaged.
- Ensure the exhaust port is not blocked or obstructed.
- After first taking the relevant safety precautions i.e. safety glasses, respiratory mask and gloves. Use an air duster to remove any debris from inside detector.
- Restore all power to the detector, mains first, followed by the battery.
- Carry out a functional smoke test on 25% of the system; subsequent functional testing must result in 100% system test per annum. Allow smoke to disperse and, if provided, the bar graph level on the relevant detector to return to normal before proceeding further.
- De-isolate the detector at the main fire panel and place the relevant detection loop of main fire panel in to test or commissioning mode to allow relay testing.
- Verify the correct operation of all relays through to main fire panel.
- Ensure that no existing faults or alarms are indicated on the detector front panel before restoring the main fire panel to normal operation.

COPPER PIPEWORK

- Inspect the sampling pipe network, checking that ALL sampling points are clean and clear of obstructions. Clean copper pipe work using a hand brush, wire wool and rag.
- Isolate the pipe work from the panel (utilising ball valves if applicable or physically disconnect pipe).
- Remove end cap from the pipe work installation.
- Connect the air compressor (110v via a PAT tested portable transformer) to the pipe work via a suitable connector and blow air through the section of pipe. The level of dust expected is minimal but ensure that appropriate PPE is worn to mitigate for dust expelled.
- Re-connect pipe work and end caps and visually check installation for integrity.
- Repeat the procedure for all sections of pipe connected to the aspirating panel.

4.13 Smoke Beam System

- Caution to be taken at all times as the Rx & Tx units may be knocked out of alignment when testing.
- Any Station signage that has been installed which may compromise the system needs to be noted within the Maintenance Documentation.

Visit Frequency in accordance with BS 5839

- Check condition of Panel & System Status
- Ensure all panel internal terminations from field wiring, internal wiring and ribbon cables are secure
- Carry out Power Source Inspection and Testing as per Maintenance Documentation requirements
- Check correct condition & location of RX and TX beam units and all associated cabling
- Check beam units are secured and there are no obstruction which would impair the operation of the system
- To test for Rx fault condition, obscure the beam by 75%, report should indicate at Beam Panel and MFCP
- To test for Fire obscure the beam by 25% or until fire activation is achieved. Report should be received at Beam Panel and MFCP
- Check for fault of disconnection of beam units, in field
- Check Smoke Beam Panel and ancillary components are in the correct position as per the asset drawing
- Clean panel and field devices with appropriate materials
- Ensure all Panel locks are in good working order
- Record Panel & field Device serial numbers

4.14 Video Smoke Detection

Typically only in use at depots.

Frequency

- The Video Smoke Detection System should be checked as recommended by the manufacturers. The loop driven addressable fire alarm devices connected to the Video smoke detection system should be checked in accordance with BS 5839. The Video Smoke Detection System is only used at Stratford Market Depot and will therefore be maintained during Traffic Hours when the depot is substantially empty.

Visit Frequency in accordance with BS 5839

- Clean camera external surfaces, front glass of housing
- Check camera mounting is secure
- Confirm correct camera field view with Benchmark photographs
- Check the Equipment Rack & Doors for operation & clean
- Check the Keyboard, Mouse & Monitor for operation & clean
- Check the Fibre optic connections for operation & clean
- Check all cables are secure and correctly labelled
- Visually inspect all Equipment and containment and report any damage
- Clean PC & Hub external surfaces
- Clean internal PC & Hub workings, checking for dust ingress
- Check all PC & Hub plugs, connectors and Boards are firmly in place
- Clean PC & Hub Fans and filters
- Change PC & Hub Dust Filters where necessary

- Perform full systems disk defragment
- Perform full system back up (including Configuration, alarm log, long term Reference data)
- Delete outdated System Log files
- Test output Card Relay's
- Test Monitor
- Test Interface to Main fire alarm panel
- Update software if not latest release
- Run Full System Health check
- Carry out Full smoke test to confirm operation of detection
- Record Panel & field Device serial numbers

4.15 Damper Control Panels and associated Field Equipment.

4.15.1 Conventional Damper Control Panel (DCP)

Visit Frequency in accordance with BS 5839

- Check condition of Panel & System Status
- Carry out single Cause & Effect test via Loop Detection activation. Confirm full and correct MSFD action via DCP indication LEDs
- Remove any debris that may be inside the panel and signs, clean panel and signs with appropriate materials; ensure all locks are in good working order

- Complete a Cause & Effects compliance check via cross checking the Cause & Effects with MSFD Layout and Fire Compliance Drawings

- Carry out Power Source Inspection and Testing as per Maintenance Documentation requirements
- Confirm via internal DCP indication that all Dampers 'Fail Safe' Close upon loss of AC supply
- Via manipulation of the status cabling simulate MSFD failure (closure) and confirm correct fault reporting at the MFCP
- Ensure all panel internal terminations from field wiring, internal wiring and ribbon cables are secure
- Ensure DCP Panel is in the correct position as per the asset drawing
- Record serial numbers, Loop and Device detail

4.15.2 Addressable DCP

Visit Frequency in accordance with BS 5839

- Check condition of Panel & System Status.
- Carry out Battery Inspection & Testing as per Maintenance Documentation requirements
- Carry out a single cause and effects test; this must include the testing of a supply and/or extract duct smoke detector. Confirm full and correct MSFD action via DCP indication
- Remove any debris that may be inside the panel, clean panel with appropriate materials; ensure all locks are in good working order
- Complete a Cause & Effects compliance check.
- Record checksums & obtain full panel printouts.
- Record timer settings, open 150 seconds & close 25 seconds.
- Activate test function for all MSFDs. Confirming acceptable open and close times.
- Confirm all Panel buttons work as required and in the correct order & full panel functionality including LEDs.
- Carry out Power Source Inspection and Testing as per Maintenance Documentation requirements
- Ensure all panel internal terminations from field wiring, internal wiring and ribbon cables are secure.
- Ensure DCP Panel is in the correct position as per the asset drawing.
- Record serial numbers, Loop and Device detail

4.16 Loop Driven Damper Interface Panel.

Visit Frequency in accordance with BS 5839

- Check condition of I/F Panel & System Status
- Carry out Battery Inspection & Testing as per Maintenance Documentation requirements
- Carry out single Cause & Effect test via Loop Detection activation. Confirm full and correct MSFD action via DCP indication
- Remove any debris that may be inside the panel and signs, clean panel and signs with appropriate materials; ensure all locks are in good working order
- Complete a Cause & Effects compliance check via cross checking the Cause & Effects with MSFD Layout and Fire Compliance Drawings
- Carry out Power Source Inspection and Testing as per Maintenance Documentation requirements
- Ensure all panel internal terminations from field wiring, internal wiring and ribbon cables are secure
- Ensure Interface Panel is in the correct position as per the asset drawing
- Record serial numbers, Loop and Device detail

4.17 Motorised Smoke & Fire Dampers and Magnetic Door Retainers

The Magnetic Door Retainers in public areas of stations will not be operated when the public are present in the area.

Visit Frequency in accordance with BS 5839

- All MSFD should be identified on the MSFD Layout Drawings as follows
- Low level dampers should be coloured blue
- High level dampers should be coloured green
- All dampers which require high level access equipment or are difficult to access should be coloured red.
- Visually check all MSFDs, MDRs and Solenoids for status and condition.
- Ensure correct action to the door closer; adjust as required using the instructions contained on the unit.
- Visually Check all connections to motors/actuators & MDR/Solenoids.
- All MSFD components should be visually and mechanically inspected, cleaned and lubricated
- Check all blades and spindles to dampers are intact
- Carry out local isolation of MSFD, confirm correct operation and indication at the DCP
- Any fusible links that require replacement must be done so
- Any defect to any part of the MSFD or debris that would impair its function must be cleared
- Any MSFD to be found inoperable or cannot be repaired immediately must be secured closed and highlighted immediately to the DER. The Night Fire Engineer must be informed immediately of any faulty MSFD that cannot be secured closed.
- Any dampers which show signs of wear and tear should be identified in the document
- Any faulty Electric Motors/Actuators are to be replaced
- Check all mechanical MSFD connections to ductwork
- Ensure all MSFDs, MDRs and Solenoids are indicated and correspond to the asset drawing.
- Check that all Compartmentation measures are adequate, and report any defects in the Maintenance Documentation.

4.18 Field Equipment

Visit Frequency in accordance with BS 5839

- All Devices should be checked on the MFCP messages, System Schematics and Asset drawings for correct Location, SID Number and position. Any discrepancies are to be addressed as per the documentation pack requirements.

4.19 Loop Driven Field Equipment

General Activity List

- During field activities use radio communication to cross check MFCP Messages with actual device location.
- During field activities use radio communication to cross check MFCP Messages against Station held Fire Compliance Plans. Note Fire Compliance inaccuracies within the documentation pack.
- During field activities confirm accuracy of the provided Fire Schematics and Asset Drawings; red line any differences on drawings and return with the Maintenance Documentation pack.

- During field activities check all devices, cabling & containment for obstructions, secure fixing and accurate labelling, note any discrepancies within the Maintenance Documentation.

4.20 Point Smoke & Heat Detection

Visit Frequency in accordance with BS 5839

- Using approved test equipment, carry out testing operation as per manufacturers guidelines
- Wait for the red LED to latch permanently (where applicable) and the message to register at the MFCP.
- All devices on the loop to be tested in this fashion, as required.
- When changing out of tolerance devices, provide a fault and Fire for each device exchange.
- Note: When changing devices, ensure appropriate delay prior to testing, as per manufactures guidelines.
Devices controlling/linked to doors in public areas will be tested in engineering hours.

4.21 Manual Call Points

All MCP's are to be tested as defined within the requirements of BS 5839.

Activity List

Using approved test equipment, carry out testing operation as per manufacturers guidelines

- Any overly stiff or inoperable units must be rectified or replaced and re-tested.
- All call points will be annually cleaned internally and externally (Cleaning will be done on a whole station basis and the cleaning activity identified on the document). Call points in public areas require general area to be risk assessed before cleaning commences.
- Where applicable, confirm correct HCI operation (Control Room Touch Screen System)

4.22 Loop Driven Sounders/Beacon

Visit Frequency in accordance with BS 5839

- Check condition of all sounder and beacon units. Ensuring they are securely fixed and not impaired (Audibly/Visually) in any way.
- Ensure all strobe/sounder units are in correct position as per the supplied asset drawing.

4.23 Loop Interface units (PA Monitoring, Inverter, Lift etc)

Any testing will see liaison with relevant 3rd parties and Landlord to ensure no disruption to station/premises operations.

Visit Frequency in accordance with BS 5839

- Visually check condition of all interface units and record loop address
- Test interface units (via appropriate method) and confirm correct MFCP message
- Where applicable test interface units (via appropriate method) and confirm correct cause & effects action (Lifts etc)

4.24 Picc Ex / T5C Shaft Network

Scope of Works, Access Times and Dates to be agreed with BAA Star Centre as they are the Landlords.

4.25 EWSS System.

Any PPM will ONLY be carried out on units taken out of service as planned by station staff/Landlord prior to Engineering Hours which also have the adjacent unit out of service, unless standalone.

All tests will be carried out per Escalator, with all valves being tested.

No compact or hard access units will be worked on during operational hours except behind a hoarding.

Visit Frequency in accordance with BS 5839 & BS 5306

- Check condition and status of system
- Check all valves for status and condition
- Check all valves are padlocked in correct position.
- Check Main Isolation valve is OPEN
- Check individual escalator isolator valve are OPEN
- Check Individual escalator air vent valves are CLOSED
- Check drain valves are CLOSED
- Check water availability testing isolation valves are CLOSED
- Check all pipe work for leaks or damage
- Check all pipe work for correct support and fixings
- Check pipe work electrical earthing for condition where provided
- Check all MJs are in good condition
- Check correct mounting position and angle of operation, of all nozzles
- Clean any items which would impair the operation of the system
- Exercise all valves for easy and full function
- For monitored valves, check correct functionality of monitored valve by opening or closing the valve 25% from its normal position. Check for fault indication and correct message at the MFCP
- Operate flow switches mechanically & confirm isolation valves operate, check indication at MFCP
- All flow alarms and valve status monitoring is to be recorded for each escalator as appropriate within the maintenance document.

4.26 Wet Sprinkler System.

Visit Frequency in accordance with BS 5839 & BS 5306

- Record the water pressures indicated on all gauges within the SVC
- Clean all items with appropriate materials
- Check all valves and local pipe work for supports, fixings, leaks & damage
- Check all straps, padlocks and labels are in correct position
- Check that all drains & tanks are in good order
- Check spares box is intact and holds required items

- Visually check that there are no obstructions to the sprinkler heads
- Visually check that the heads are not contaminated by paint or any other foreign bodies that would impair its function
- Check pipe work electrical earthing for condition where provided
- Check pipe work schematic is present, legible & accurate
- Check that the SVC temperature is at 4 degrees C or above
- Check Trace Heating System for integrity (Lagging condition etc) & visually confirm correct operation at the Trace Heating panel
- All stop valves to the sprinkler heads are to be fully actioned to ensure free movement
- Exercise monitoring on isolation valves for 25% movement from normal status, to register a fault at the MFCP
- Carry out an alarm test ensuring all valves operate
- Flow switches to be checked for correct mechanical function
- Pressure switches to be checked for correct function eg. low pressure & time delay
- Drain down system, strip down and service the main installation valve set – where isolation valves exist above & below.

4.26.1 Sprinkler Pumps and Tanks

Where sprinkler pumps are dual redundancy, they can be maintained in non-engineering hours.

This section gives the procedures for variations of types of system.

Visit Frequency in accordance with BS 5839 & BS 5306

- Check that the means of access is secure and fit for purpose
 - Ensure all notices and signage are correct and visible
 - Check that all equipment is in good working order and is fit for use
 - Check pump suction tank is full, adjust as required
 - Check all stop valve operation and position, including underground valves
 - Check monitoring devices on valves operate correctly
 - Start each pump set by reducing the water pressure
 - Each starting device must be exercised
 - Five minutes should elapse between successive tests, on any individual pumps
 - Check pump suction and delivery valves are fully open
 - Check pump starts at a nominated starting pressure. (For star delta starter record the delay between star and delta)
 - Check pump relief line operates
 - Check pump glands and drains operate correctly. Check for excessive vibration or noise
 - Check remote alarms operate
 - Run each pump for five minutes and then check manual start facility
 - Check phase failure alarm operates
 - Check all power supply healthy lamps are operational
 - Check jockey pump starts/stops at correct pressures. Record
 - Check rapid oscillation does not occur at pressure switch
 - Restore all pump sets to automatic operating condition
-
- Ensure all items are cleaned that could impair correct operation
 - Ensure all pumps are fed via the standby power supply
 - Pumps are to be run on full load conditions
 - Check and record inflow into the tank (where possible)
-
- Check tank ball valves and water level indicators operate correctly
 - Check remote-monitoring function is operational
 - Check tank and ensure that any foreign matter is removed
 - The vortex inhibitor is to be examined, cleaned or replaced – each site to be risk assessed)

- Examine the water storage tank externally for corrosion or damage. Report condition
- When drained, the tank should be examined internally for corrosion. Report condition
- Confirm if the tank is lined or un-lined
- Carry out electrical tests to all equipment and pumps. Record test results and types of protective devices
- Isolate electrical supplies
- Test the duty of each of the pumps and record results

4.26.2 Suction Tanks

Visit Frequency in accordance with BS 5839 & BS 5306

- Check that the means of access is secure and fit for purpose
- Ensure all notices and signage are correct and visible
- Ensure all items are cleaned that could impair correct operation
- Check that all equipment is in good working order and is fit for use
- Check pump suction tank is full, adjust as required
- Check all stop valves operation and position
- Check tank ball valves and water level indicators operate correctly
- Check tank and ensure that any foreign matter is removed
- The vortex inhibitor is to be examined, cleaned or replaced
- Examine the water storage tank externally for corrosion or damage. Report condition
- When drained, the tank should be examined internally for corrosion. Report condition
- Confirm if the tank is lined or un-lined

Note: If tanks are unlined steel they should be drained every three years, where tanks are lined they will require draining every fifteen years

4.27 Water Fog System.

Visit Frequency in accordance with BS 5839 & BS 5306

- Clean all items where appropriate
- Check all pipe work, valves & nozzles for leaks or damage
- Check all straps, padlocks and labels are in correct position
- Record the pressures indicated on all gauges
- Replace the nozzles and filters within the discharge head
- Check water condition by bleeding off 0.5ltr, via cylinder vent valve
- Reset all systems and leave fully operational

After 10 years' service the system actuator/s must be replaced.

The annual servicing of this item must be carried out by certified engineers, as detailed by the Pressure Systems Transportable Gas Regulations 1989.

4.28 Fire Water Mains Supplies

All Flow and Pressure tests for the Sprinkler and EWSS shall be checked via the test facilities in the Station/Location.

For Stations these works will be carried out initially at night.

The Fire Systems mains water supplies shall be availability tested quarterly. A further annual test shall be carried out with the local water authority present.

Visit Frequency in accordance with BS 5839 & BS 5306

- Enable printer on MFCP and put into Test Mode
- Exercise monitoring on all Station Water Supply Isolation Valves for 25% movement from normal. Check Fault Status has registered on MFCP.
- With all main valves open check the Static Pressure at the underside of the Sprinkler Control Valve Assembly (Bottom Gauge).
- With all Towns Main Valves open, test the Flow and Running Pressure Characteristics of the Towns Mains, and record the values achieved.
- The test must provide sufficient information to determine whether the Sprinkler and EWSS design requirements have been met
- Check SVC schematic is present, legible & accurate
- Record Static Pressure after test is completed.

4.29 Hose Reels.

Visit Frequency in accordance with BS 5839 & BS 5306

- Clean all items and signage with appropriate materials
- Check all local pipe work, valves, for leak or damage
- Check Trace Heating System for integrity (Lagging condition etc) & visually confirm correct operation at the Trace Heating panel
- Check pipe work electrical earthing for condition where provided
- Check hose for damage or kinks
- Check nozzle is undamaged and operational
- Check housing for defects, condition and operation

- Enable printer on MFCP put into test mode. (If applicable)
- Run out hose reel and subject to operational pressure
- Activate the nozzle valve and discharge in a safe manner; record the flow rate
- Ensure correct messages on MFCP where flow switches and or monitored valves are connected to system
- Where pumps are used to supply water tests must be carried out as above on the duty and standby pumps

4.30 Hydrant Systems

Flow testing can only be done in Engineering Hours or when the station is subject to full/partial closure.

4.30.1 External Hydrants

Hydrants above Ground (i.e. Depots)

Visit Frequency in accordance with BS 5839 & BS 5306

- If located in cabinet or enclosure checks this is in good order
- Check hydrant is not obstructed and fit for use
- Check that indicator plates are present and show correct information
- Check that all valves are strapped and padlocked. Blank cap and chain are fitted and retaining rubber washer in good order
- Check that all valves spindles; glands and washers are fit for use
- Check hydrant is not leaking or letting by
- Clean all items as required specifically those that could impair use

Hydrants in Underground Pits (Depots)

Visit Frequency in accordance with BS 5839 & BS 5306

- Check hydrant is not obstructed and fit for use
- Check that indicator plates are present and show correct information
- Check that the surface box cover is in good order
- Check pit for water and debris. Clean as required to return to standard
- Check that all valves are strapped and padlocked. Blank cap and chain is fitted and the retaining rubber washer is in good order
- Check that all valves spindles; glands and washers are fit for use
- Check that hydrant spindle is suitable for operation and length
- Clean all items as required specifically those that could impair use
- Check that hydrant is not leaking or letting by

4.30.2 External Mains Fed Hydrants (Depots)

Visit Frequency in accordance with BS 5839 & BS 5306

- If located in cabinet or enclosure checks this is in good order
- Check hydrant is not obstructed and fit for use
- Check that indicator plates are present and show correct information
- Check that all valves are strapped and padlocked. Blank cap and chain are fitted and retaining rubber washer in good order
- Check that all valves spindles; glands and washers are fit for use
- Check hydrant is not leaking or letting by
- Clean all items as required specifically those that could impair use
- Record Static Pressure readings
- With the three hydraulically remote (from supply) hydrants running simultaneously, record the running pressure & flow rate achieved from all three hydrants (Locations of tested hydrants must be recorded)

4.30.3 Hydrant Pumps

Visit Frequency in accordance with BS 5839 & BS 5306

- Slowly open test valve allowing pressure to drop and start the jockey pump. Record starting pressure.
- Check that the green pilot light on the control panel and any remote indication operates.
- Continue opening test valves 2 or 3 turns allowing the pressure to drop further, starting the duty pump. Record starting pressure.
- Allow pump to run for a minimum of 4 minutes, checking that pump running light is illuminated and jockey pump light extinguished at indication panels.
- Close the test valve, which should stop the duty pump.
- Using selector switch on the control panel, select the standby pump and repeat all above operations, recording all pressures.
- To check for automatic changeover, isolate the electrical supply to the control panel.
- Remove the HRC fuses for the duty pump, ensure control panel is secured and re-instate the electrical supply.
- Using the selector switch, select the AUTO position.
- Carry out the tests as before, monitoring the pressure and time, in seconds, it takes the standby pump to start.
- Close the valve and ensure that the pump runs until the system pressure is higher than the jockey pump cut-in pressure and stops. Record all pressures and times.
- Isolate the electrical supply once more and re-instate the HRC fuses, secure control panel re-energise the electrical supply, ensuring control panel remains in AUTO.
- Check the pressure vessel gas pre-charge pressure for leaks and condition.
- Check all control panels and remote indicators are in good condition and fit for use.

Flow testing on Stations will only be carried out during Engineering Hours

- Check the performance of the duty pump by opening the 3No hydraulically remote hydrants.
- Record the pressure from EACH hydrant.
- Repeat the above operation for the standby pump.
- Check all control panels and remote indicators are in good condition and fit for use.

All Electrical isolations and ensuing works carried out on electrical circuits must be done so by a competent engineer in possession of a current Level 3 isolations certificate.

4.30.4 Suction Tank - Pump Fed Hydrants

Visit Frequency in accordance with BS 5839 & BS 5306

- Check that the means of access is secure and fit for purpose
- Check that all equipment is in good working order and is fit for use
- Ensure the area is clean and tidy and all items that could impair correct operation are cleaned
- Check condition of tank and that any foreign matter is removed
- Ensure all notices and signage are correct and visible
- Check tank water levels and adjust as required
- Check tank ball valves and water level indicators operate correctly
- Exercise all stop valves for correct operation
- The vortex inhibitor is to be examined, cleaned or replaced
- Confirm if the tank is lined or un-lined
- When drained, the tank should be examined internally and externally for corrosion

Note: If tanks are unlined steel they should be drained every three years, where tanks are lined they will require draining every fifteen years

4.31 Dry & Damp Fire Mains

4.31.1 Dry & Damp Falling Mains

Visit Frequency in accordance with BS 5839 & BS 5306

- Check locking arrangements and conditions of Breeching Inlet locations
- Check the Spring Loaded Non- Return Valve & Drain Cock
- Ensure Blank Caps are fitted
- Ensure all valves are fitted with Straps and Padlocks
- Ensure that the valve spindles move freely, hand wheel is secure and drain valves operate freely
- Check signage is present & correct
- Clean all items with appropriate materials

4.31.2 Dry Falling Mains (With Pressure Reducing Hydrant Valves)

Visit Frequency in accordance with BS 5839 & BS 5306

- Check locking arrangements and conditions of Breeching Inlet locations
- Check the Spring Loaded Non- Return Valve & Drain Cock
- Ensure Blank Caps are fitted
- Ensure all valves are fitted with Straps and Padlocks
- Ensure that the valve spindles move freely, hand wheel is secure and drain valves operate freely
- Check signage is present & correct
- Clean all items with appropriate materials

Flow testing on Stations will only be carried out during Engineering Hours

Provide a Portable Fire Pump capable of providing Test Pressures in excess of 10.0 b and at a Test Flow of 1500 litres/min

By connecting the pump to the System Breeching Inlet Valve, check that running pressure from each of the Pressure Reducing Hydrant Landing Valves meets the requirement of between 4 & 5 bar.

Record all pressure readings, locations of individual Hydrant Valves and Breeching Inlets used

4.31.3 Platform Hydrants

Mains Feed Platform Hydrants

Visit Frequency in accordance with BS 5839 & BS 5306

- Check condition of cabinet or enclosure and ensure it is free from obstruction or debris
- Check condition of hydrant & ensure all valves are fitted with Straps and Padlocks
- Ensure Blank Caps are fitted; remove to inspect coupling washer
- Ensure that the valve spindles move freely, the valve wheel is secure and has 100% operation – hydrant tester with blanking plug fitted is to be inserted into outlet of hydrant
- Exercise monitoring on isolation valves for 25% movement from normal status to register fault at MFCP (where applicable)
- Check that the local system pipe work integrity is correct
- Check all flange nuts are in place and tight
- Check flange gaskets for leaks
- Check signage is present & correct
- Clean all items with appropriate materials

4.32 Definition of Corrective Maintenance

Corrective Maintenance is where asset condition issues or defects are identified during Planned or Emergency maintenance works, but do not require immediate attention. Spares will be sourced and corrective maintenance planned to attend and rectify/repair at a suitable time to repair/replace and ensure asset is returned to its optimum condition.

Appendix D.

Asset Management Information Schedule

To be provided by the Company within 6 weeks of the Commencement Date.
Provision of the Asset Management Information Schedule shall not constitute a variation and the Supplier shall not be entitled to any adjustment to the Target Cost or relief from its obligations or Abatements as a result of such provision by the Company.



SCHEDULE 4: PROGRAMME

The Supplier shall show on each update to the Programme (which shall subsequently become the Programme after acceptance by the Company's Representative):

(1) the starting date, access dates, key dates and Expiry Date;

Services Commencement Date - Please refer to Schedule 1

Expiry Date – Please refer to Schedule 1

(2) the order and timing of operations which the Supplier plans to do in order to provide the Services;

Operations will be undertaken in accordance with Schedule 3, Schedule 21 Appendix 2 and Schedule 18 Mobilisation

(3) the order and timing of the work of the Company and others as last agreed with them by the Supplier or, if not so agreed, as stated in the Specification;

Services will be undertaken in accordance with Schedule 3

(4) the dates when the Supplier plans to meet each condition stated for any key dates and to complete other work needed to allow the Supplier and others to do their work;

Services will be completed on 24th June 2022 or pursuant to Clause 2

(5) provisions for float, time risk allowances and environmental and health and safety requirements;

Provisions have been made as part of the annual programme of works

(6) the dates when, in order to provide the Services in accordance with its programme, the Supplier needs:

(a) access to a part of the Site if later than its access date;

(b) acceptances;

(c) plant and materials and other things to be provided by the Company; and

(d) information from others;

Services will be undertaken in accordance with Schedule 3

(7) for each operation, a statement of how the Supplier plans to do the work identifying the principal equipment and other resources which it intends to use;

Contained within Schedule 21 Appendix 2

(8) for each operation, a cost-loaded programme showing the forecast resources required for that operation;

Contained within Schedule 2

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(9) its access requirements in accordance with the Specification; and

Access shall be managed in accordance with Schedule 5

(10) other information which the Specification requires the Supplier to show on a programme submitted for acceptance.

SCHEDULE 5: ACCESS

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1. DEFINITIONS

Accepted Access Plan means the latest Access Plan accepted by the Company's Representative and the Access Manager and which supersedes previous Accepted Access Plans.

Access means a type of access set out in Appendix 4 (Access Subcategories)

Access Manager means the person designated by the Head of Access as the manager for access requests for the Services and who will act as the single point of contact for all access related matters.

Access Plan means the access plan prepared by the Supplier in accordance with the Access Plan Template.

Access Plan Template means the template provided as Appendix 1 (Access Plan Template) to this Schedule 5 (Access).

Access Subcategories has the meaning given in paragraph 1.9 of section 6 of this Schedule 5.

Access Visualisation Tool means a tool which provides a graphical overlay on a London Underground 'Harry Beck' map of planned and booked work for a user specified area (Track / Stations) for a user specified time period.

Application to Work Form means the form contained in Appendix 2 (Application to Work Form) to this Schedule 5.

Bank Holiday means a recognised UK Bank Holiday. Start and end times as per definition for "Sunday" stated below.

Emergency Access has the meaning given in paragraph 1.5 of section 6 of this Schedule 5.

Engineering Hours means any time when traction current is switched off (as published in the Guide to Switching Current On and Off subject to variance as published in an Engineering Notice) and trains are not running (ref LUL Rule Book 17 for the definition of Engineering Hours), as is applicable to the running line.

Engineering Notice means a publication produced and circulated within TfL at short notice containing details of engineering works, special current arrangements, engineers' possessions and engineers' trains and similar activities not included in the Traffic Circular.

Engineering Look Ahead Notice means a draft publication produced and circulated by TfL providing a week-view of items that, at that time, are planned to be published on the Engineering Notice for a specific shift.

Exclusive Access has the meaning given in paragraph 1.4 of section 6 of this Schedule 5.

General Access has the meaning given in paragraph 1.1 of section 6 of this Schedule 5.

Head of Access means the person responsible for managing access to the TfL infrastructure for the Services. This role includes but is not limited to the responsibility for the publication of safety documentation.

Incident Officer means the senior TfL operating officer responsible for managing an incident.

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L&E Closures has the meaning given in paragraph 1.8 of section 6 of this Schedule 5.

Latest Request Date means the last date an access request can be made in line with a given timescale.

Local Station Access Arrangement Reference Files means the files published by the Head of Access detailing where works may potentially be undertaken on Stations in Traffic Hours including details of possible locations for the storage of materials and equipment and Station opening and closing hours.

LUL Network means the stations and depots (wherever situate), assets, systems, track and other buildings which are used for the maintenance and provision of the underground service known as the London Underground.

LUL Rule Book means the rule books covering the operation of trains and Stations and accessing the Track.

Major Closure has the meaning given in paragraph 1.6 of section 6 of this Schedule 5.

Minor Closure has the meaning given in paragraph 1.7 of section 6 of this Schedule 5.

Monday to Friday means the time from start of Traffic Hours on Monday morning to the time at the end of Engineering Hours on Friday night/ Saturday morning.

Network Rail means Network Rail Infrastructure Limited company nr 02904587.

Network Rail Interface Locations means locations on the LUL Network where Network Rail infrastructure interfaces with TfL infrastructure including but not limited to the location identified in Appendix 5 (Network Rail Interface Locations) to this Schedule 5.

Nightly Engineering Protection Arrangements (NEPA) Notice means a publication produced and circulated within TfL at short notice containing details of safety related material for engineering Services and engineer's trains and vehicles.

Night Tube means the provision of a 24 hour revenue service commencing from the Night Tube Start Date.

Night Tube Start Date means 19 August 2016.

Night Tube Running Period means nominally the period between 21:00hrs Friday night and 06:00hrs Sunday morning.

Night Tube Sections means the sections of the TfL Network which provide Night Tube. The applicable sections of the TfL Network are:

- (a) The Central Line route between and including Hainault, Loughton and Ealing Broadway Stations (no Night Tube outside of this route)
- (b) The Jubilee Line entire network
- (c) The Northern Line route between and including High Barnet, Edgware and Morden Stations via the Charring Cross Branch (no Night Tube outside of this route)
- (d) The Piccadilly Line route between and including Cockfosters and Heathrow Terminal 5 Stations (no Night Tube outside of this route)

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- (e) The Victoria Line entire network.

Non-Restrictive/Exclusive Access has the meaning given in paragraph 1.2 of section 6 of this Schedule 5.

Operational Assurance means an Operational Assurance Notification made to TfL in accordance with the requirements of Standard 1-538 (Assurance).

Operation Managers means any or all of group station managers and train operations managers.

Others mean people or organisations who are not TfL, the Company's Representative, the Supplier or any employee, sub-contractor or supplier of the Supplier.

Possession Meeting means a meeting to discuss the viability of a proposed Track possession.

Pre-Closure Request Meeting means a meeting to discuss the viability of a proposed closure request.

Published means in respect of:

- (A) **Restrictive Access and Exclusive Access to Track, that the works need to be notified in the Engineering Look Ahead Notice, the Engineering Notice and the Nightly Engineering Protection Arrangements (NEPA) Notice; and**
- (B) Restrictive Access and Exclusive Access to Stations, that the works need to be notified in the Station Works Plan.

Restrictive Access has the meaning given in paragraph 1.3 of section 6 of this Schedule 5.

SABRE means Site Access Booking for Railway Engineering, being the system used to plan access, and any system that may supersede it at any time in the future.

Saturday means the time from start of Traffic Hours on Saturday morning to the time at the end of Engineering Hours on Saturday night/Sunday morning

Specialist Protection means all protection arrangements in addition to the Supplier's site person in charge (SPC) (with dual protection qualifications) including but not limited to possession masters; protection resources to implement possession protection arrangements; staff to isolate traction current, technical officers to implement a set of protection arrangements and protection on Network Rail Infrastructure.

Station Works Plan means the general access requests; planned works weekly and planned daily publications circulated by TfL detailing the access arrangements for works planned to be undertaken at all Stations.

Stations means areas to which LUL Rule Book 10 applies including buildings, equipment or facilities designed to be used by customers to access or leave a train.

Sunday means the time from start of Traffic Hours on Sunday morning to the time at the end of Engineering Hours on Sunday night/Monday morning.

Track means areas to which LUL Rule Book 17 applies including Track, tunnels,

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embankments and other line side infrastructure.

Traffic Circular means the weekly traffic circular which contains diverse information such as, infrastructure changes, train service changes, events affecting TfL, notification of restrictions to TfL operations and operational communications.

Traffic Hours means when traction current is switched on (as published in the Guide to Switching Current On and Off subject to variance as published in an Engineering Notice) and trains are running (ref LUL Rule Book 17 for the definition of Traffic Hours) as is applicable to the running line.

Work Request means the work request e-Form provided on TfL's access booking portal and which is completed by the Supplier to reflect the Access Plan and requirements for plant and equipment and specialist protection.

Working Time means a period of agreed access (including closures) in either Traffic Hours or Engineering Hours.

2. GENERAL OBLIGATIONS

1. The Supplier shall comply with its obligations under this Schedule 5.
2. The Supplier shall be responsible for supplying to the Company's Representative and the Access Manager all such information and taking all such steps as may be necessary to enable the Company's Representative to obtain where applicable Operational Assurance in respect of the Access required by the Supplier.
3. The Parties agree that:
 - 3.1 the dates and times of any Access approved may be cancelled, altered or delayed on notice (or no notice in the case of an Emergency or for safety reasons). Alternative arrangements shall be made as soon as the Company's Representative and Access Manager can permit;
 - 3.2 the provisions of Clause 30 of the Contract shall be deemed to apply during such cancellation, alteration or delay to approved Access provided that such cancellation, alteration or delay is not caused (in whole or part) by a failure by the Supplier to comply with its obligations under this Schedule 5;
 - 3.3 neither Party shall have any claim against the other as a consequence of such cancellation, alteration or delay; and
 - 3.4 the Supplier shall as soon as practicable take all reasonable steps necessary to avoid, overcome or minimise the effect of such cancellation, alteration or delay.
4. For access to Network Rail and/or train operating companies' infrastructure and stations, the Supplier is solely responsible for securing access. The Supplier shall make all necessary arrangements directly with Network Rail and/or train operating companies and shall comply with all their rules and regulations.
5. For Access, following a request to the Supplier from the Company's fault reporting centre for a part or all of the Services, the Supplier shall apply for Access in accordance with the requirements of this Schedule 5.
6. The Company shall have no responsibility to the Supplier, and the Supplier shall hold the Company harmless against any Losses that may arise out of any failure by the Supplier to comply with this Schedule 5.

3. THE ACCESS PLAN

1. The Supplier shall, in accordance with the timescales set out in Appendix 1 (Contract Mobilisation and Transition Plan) to Schedule 18 (Mobilisation Requirements), prepare an Access Plan with the objective of maximising the efficient use of the available Working Time and taking account of the following:
 - the information provided in the Local Station Access Arrangement Reference Files (the use of any potential storage areas identified by the Local Station Access Arrangement Reference Files remains subject to the Supplier obtaining the appropriate storage licences);
 - if the Services can be carried out in Traffic Hours (and the Supplier shall construct the Access Plan to achieve the optimisation of Working Time);
 - the minimisation of the number and duration of closures;
 - the utilisation and extension of existing planned closures;
 - the hours/shifts/days in the week required to be worked in order to comply with the Programme;
 - the timescales for booking access and closures as defined in this Schedule 5;
 - the sharing of Access with Others and the minimisation of disruption of the work of Others;
 - if the productivity of Engineering Hours working can be increased, safely, by completing the clearance of workers, materials tools and equipment tools in Traffic Hours (and the Supplier shall support its plans with method statements detailing appropriate measures for the protection of the public);
 - the maximisation of Working Time during Engineering Hours when accessing the Track through a Station (where it is safe to do so, all persons, plant and equipment may be positioned within the Station ready to access the Track immediately on confirmation of traction current being turned off);
 - a minimum call back time of twenty (20) minutes for Track access before the expiry of each shift of Engineering Hours (to allow for the safe removal of all workers, materials, tools, equipment and the like) unless a shorter period is agreed by the Company's Representative;
 - any limitation on Engineering Hours specific to the Services as may be specified by the Company's Representative;
 - the time required for the Supplier to ensure the Site is left clean and safe; and
 - Night Tube.
2. The Supplier shall submit its proposed Access Plan to the Company's Representative for acceptance. Within two weeks of the Supplier submitting an Access Plan for acceptance the Company's Representative shall either accept the Access Plan or notify the Supplier of his reasons for not accepting it. A (non-exclusive) reason for not

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accepting an Access Plan is that:

- it is not compatible with the Access Plan Template;
 - it does not take into account the information provided in the Local Station Access Arrangement Reference Files;
 - it does not optimise the Working Time;
 - it proposes an excessive number or duration of closures;
 - it does not adequately make use of existing planned closures;
 - it is not compatible with the Programme;
 - it does not comply with the timescales for booking Access and closures as set out in this Schedule 5;
 - it assumes the use of an existing closure for which an Application to Work Form has not been approved by the Access Manager;
 - it assumes an extension to an existing planned closure which has not had the prior approval of the Access Manager;
 - requests an access or closure type which is not appropriate for the Services;
 - it does not adequately provide for the work of Others;
 - it does not maximise the use of available access;
 - it does not allow for minimum call back periods or other working constraints detailed by the Company's Representative;
 - it does not provide as a minimum all the information provided in the Access Plan Template;
 - it does not allow sufficient time for the Site as a whole to be left clean and safe;
 - it does not allow for the operation of Night Tube.
3. The Supplier shall submit a revised Access Plan for acceptance in the following circumstances:
- if the Accepted Access Plan is no longer applicable in all the circumstances;
 - when a change is required to align with the Programme; or
 - within the period for reply after the Company's Representative has instructed the Supplier to do so. For the avoidance of doubt such instruction does not constitute a Variation Proposal or entitle the Supplier to apply for an extension of time.
4. Should the Supplier need to work hours additional to those stated in the Accepted Access Plan (within the constraint of the maximum working hours available within the booked access types), the Supplier shall give at least five (5) Working Days' notice and obtain the Company's Representative's prior written acceptance.

4. BOOKING AND ARRANGING ACCESS

1. The Supplier shall be required to book and co-ordinate access to the Site with the Access Manager in accordance with the Work Request/SABRE process and the Accepted Access Plan. The Supplier accepts that access to the Site will be refused without a valid SABRE number and the Supplier shall be responsible for checking that it is in possession of a valid SABRE number for all access requirements detailed on the Accepted Access Plan. If the Supplier is not in possession of the same it shall advise the Company's Representative accordingly.
2. The Supplier shall comply with the requirements of the use of LUCAS (London Underground Combined Access System) and Sentinel (Network Rail's Access and Competency System), particularly in the context of access control at the point of Site entry. The Supplier shall note that individuals will be refused access to Sites without a valid LUCAS or Sentinel Card.

The Supplier acknowledges that TfL is phasing out the use of LUCAS cards and is adopting Sentinel as a replacement access and competency control system. On expiry of existing LUCAS cards the Supplier shall sponsor Supplier Personnel required to work on TfL infrastructure to obtain replacement Sentinel cards if they are not already a Sentinel card holder.

3. Training, Certificates, Identity Cards and Entry Permits

- 3.1 The Supplier is responsible for ensuring that all staff and Supplier Personnel are suitably trained, competent and carry the appropriate and requisite certification for performing the roles required of them in carrying out the Services.

The Standards, and in particular QUENSH and the LUL Rule Book(s) set out the training and certifications required to be met by the Supplier.

- 3.2 Not used

- 3.3 The Supplier is responsible for arranging, booking, and paying for all requisite medicals, training and certification of its staff and / or Supplier Personnel.

- 3.4 The Supplier shall allow a minimum of 28 days' notice period for all TfL provided training and certification courses and will include the same on any proposed Access Plan or programme. The Supplier acknowledges that any time period less than this cannot be guaranteed, and although the Company may make efforts facilitate a shorter notice period wherever possible, the Supplier does not rely on such reduced time periods being accommodated.

- 3.5 At the Services Commencement Date, the Supplier shall produce a competency matrix for all its staff or Supplier Personnel involved in providing the Services detailing the training, certification and other competency information held on record. The Supplier shall update the matrix until the Expiry Date and make the same available on request of the Company's Representative.

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4. London Underground Access control

4.1 LUCAS (London Underground Combined Access System) smartcards have not been issued since 01/04/2015. Unexpired cards issued before this date remain valid until they expire or by further notification from TfL.

4.2 All Supplier Personnel require either

- A valid LUCAS smartcard OR
- A Sentinel smartcard endorsed with the Industry Common Induction (ICI) competence plus the LU-ICI endorsement

(in each case a "Smartcard")

in order to access the Sites and carry out works on London Underground operational infrastructure.

4.3 The Supplier shall register to become a Sentinel Sponsor (as such term is defined in the Rail Industry Supplier Qualification scheme (RISQs)) via the RISQs. Further details can be found at the following Achilles website address (Achilles administer the scheme on the behalf of RISQs).

http://www.achilles.com/en/?option=com_content&view=article&id=285.

4.4 The Supplier will and will procure that any sponsored individuals must abide by the Sentinel Scheme Rules, the latest version of these can be found at the following Sentinel website address:

<https://www.railsentinel.co.uk/Content/Downloads/SentinelSchemeRules.pdf>

4.5 The Smartcard is specific to an individual and is not transferable.

4.6 The Supplier shall procure that Supplier Personnel carry their Smartcard at all times when working on operational TfL Network property and present their Smartcard to any authorised representative of TfL for inspection when requested to do so. Failure to produce a valid Smartcard, or requisite certification, for inspection may result in the individual being instructed to leave the Site. A Smartcard is not required when working solely on non-operational TfL Network property.

4.7 The Smartcard does not entitle the Supplier Personnel to any benefits other than permitting access to the Site for the purpose of carrying out Services during the agreed hours of work. The LUCAS Smartcard remains the property of the Company and is required to be returned immediately upon request.

4.8 Details of required courses and medicals are detailed in QUENSH.

4.9 Exceptions to the Smartcard process;

For certain exceptional access circumstances it may not always be practical or cost effective to enrol the Supplier, the Supplier Personnel or Others onto the Sentinel Scheme. In such a case, the Company shall issue a temporary LUA-LU paper certificate.

Such scenarios whereby temporary LUA-LU paper certificates are issued would be;

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- Specialised contractors requiring limited access
- Survey work requiring limited access

If the Company's Representative decides to permit exceptional access to the Site or any working areas, the Supplier must obtain the Company's Representative's written acceptance regarding the personnel and work activities prior to commencement on Site.

- 4.10 The Supplier acknowledges that any person attempting to gain access to the Site or working areas who is not in possession of a valid LUCAS or Sentinel Smartcard shall be treated as a visitor. All visitors, except for authorised collection or delivery drivers, must be escorted or supervised at all times by an authorised member of staff whilst on Site.

The Supplier shall maintain a register of all visitors including:-

- Name;
- Employer;
- Nature of business / persons being visited;
- Time in;
- Time out;
- Supervisor/escort name including signature.

The Supplier shall provide a health and safety Site briefing to each visitor and shall procure that such visitor shall sign a form to confirm that they have received the briefing and understand the Site rules and their respective responsibilities as a visitor.

The Supplier shall issue the visitor with a temporary pass that is valid for a maximum 24 hours and which clearly indicates the expiry date and time of such visit.

The Supplier shall ensure the temporary pass is returned when the visitor leaves the Site and that a list of lost passes is maintained.

The Supplier shall ensure that lost electronic visitor passes are de-activated immediately on the Supplier being made aware of the loss.

5. **London Underground – Access Control**

- 5.1 When booking in and out of the Site, the Supplier shall procure that the Supplier Personnel report in, record entry and exit, and present their Smartcards when and where required, in accordance with the local access control arrangements.
- 5.2 Where a Smartcard reader is installed on Site as part of the local access control arrangements, then the Supplier shall procure that all Supplier Personnel as a mandatory requirement swipe their Smartcard on entry and egress from the Site. Any individuals found on Site where such a card-reading system is in place who have not followed such a procedure may be instructed to leave Site for the duration of the associated shift, regardless of whether they may hold the appropriate Smartcard. The Company takes no responsibility for any abortive costs or impact to schedule of any

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such instruction to any member of the Supplier's staff under such circumstances.

- 5.3 If the Supplier wishes to make a change to the Accepted Access Plan or to the Supplier's requirements for Access after being approved by the Company's Representative and Access Manager, the Supplier shall submit written request of such change and a revised programme and Access Plan to the Company's Representative and Access Manager confirming any and all revised Access requirements.

5. CLASH CHECKING

1. The Supplier shall be responsible for checking for clashes (Clash Checking) in respect of access booked by Others and the Company's Representative in respect of which the Company's Representative has provided the Supplier with the Access Visualisation Tool. The Supplier shall also monitor the following publications:
 - (a) Engineering Look Ahead Notice
 - (b) Engineering Notice
 - (c) Nightly Engineering Protection Arrangements (NEPA) Notice
 - (d) Traffic Circular
 - (e) Station Works Plan
2. In the event of clashes the Supplier shall notify the Company's Representative and, where instructed, submit a revised Access Plan for acceptance. The indicative publication timescales (in advance of proposed works) for the above notices are as provided in Appendix 3 (Indicative Timescales for the Publication of Notices) of this Schedule 5.
3. Clash Checking is a condition precedent in respect of any entitlement to apply for relief pursuant to Clause 30.
4. In the event that the Supplier attends the Site and access is not provided by TfL in accordance with the Accepted Access Plan the Supplier shall complete the Cancelled or Delayed/Curtailed Access Form contained in Appendix 6 (Cancelled or Delayed/Curtailed Access Form) to this Schedule 5.
5. Without prejudice to the generality of Clause 30, Clash Checking, the completion of a Cancelled or Delayed/Curtailed Access Form in full (including the obtaining of all necessary signatures) and the identification of the period of access in question on the Accepted Access Plan (with the relevant SABRE number) are all condition precedents in respect of any entitlement to apply for a Relief Event.

6. TYPES OF ACCESS

1. Summarised below are the types of access that the Supplier's Access Plan shall be based upon. In preparing the Access Plan the Supplier shall select the type of access required for the Services. The Supplier shall consult with the Access Manager as to the appropriateness of the selection as set out in the Access Plan. The Access Manager's decision as to the types of access and closures which can be used in the formulation of the Access Plan is final and binding.

1.1 General Access

General Access is a category of access for undertaking non-exclusive/non-restrictive works on the TfL Network, using all necessary tools and equipment. It is valid for both Station and Track. SABRE numbers may be valid for up to a whole financial year, but can also be issued for shorter time periods to suit work demands.

General Access may be applied for to cover large areas of the TfL Network, for example whole lines, or for more discreet locations or worksites to suit work demands. The Supplier may apply for a number of General Access SABRE numbers, but the Access Manager will aim to limit the proliferation of General Access SABRE numbers for the same or similar work teams, projects, or areas etc.

General Access does not need to be Published.

1.2 Non-Restrictive/Exclusive Access

Non-Restrictive/Exclusive Access is a category of access for undertaking non-restrictive and non-exclusive works on the TfL Network, using all necessary tools and equipment. It is valid for both Station and Track.

The Supplier shall clearly define the area covered by a Non-Restrictive/Exclusive Access request and shall limit the area to the minimum required to deliver the Services.

Non-Restrictive/Exclusive Access does not need to be Published.

1.3 Restrictive Access

Restrictive Access is a category of access that places a restriction on what can take place within a particular worksite and where the restriction will apply to all parties attempting to work that particular shift.

In the event that the Supplier believes that Restrictive Access is necessary, the Supplier shall demonstrate that this is the most appropriate form of access and shall take account of the impact that the granting of Restrictive Access would have on the network and other work streams. The Supplier acknowledges that Restrictive Access will not typically be permitted to cover a protracted number of shifts or consecutive shifts, across the same geographical area.

The Supplier shall clearly define the area covered by a Restrictive Access request and shall restrict the area to the minimum required to deliver the works and avoid unduly impeding the works of Others.

Restrictive Access will need to be Published.

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1.4 Exclusive Access

Exclusive Access is a category of access that prohibits any party not directly involved in the works (for which Exclusive Access has been booked) from working in that worksite.

In the event that the Supplier believes that Exclusive Access is necessary, the Supplier shall demonstrate that this is the most appropriate form of access and shall take account of the impact that granting Exclusive Access would have on the TfL Network and other work streams. Exclusive Access will not typically be permitted to cover a protracted number of shifts or consecutive shifts, across the same geographical area.

The Supplier shall clearly define the area covered by an Exclusive Access request and shall restrict it to the minimum area required to deliver the works and to avoid unduly impeding the works of others.

Exclusive Access will need to be Published.

1.5 Emergency Access

Emergency Access is access required to deal with an Incident as defined in the LUL Rule Book, or which is required to rectify the failure of an asset which, if not rectified, would have a material adverse impact on passenger services for the following day. Emergency Access takes precedence over any other booking or request as directed by the Incident Officer.

1.6 Major Closures

A Major Closure can be classified as any planned disruptive work which results in any TfL service being unavailable between 0600 and 2100 on a weekday (excluding Bank Holidays).

1.7 Minor Closures

A Minor Closure can be classified as any planned disruptive work, apart from L&E Closures (defined below) which results in any TfL services being unavailable outside the hours of 0600 and 2100 on a weekday (excluding Bank Holidays or at any other time at Weekends and Bank Holidays (including the Night Tube Period for work within the Night Tube Sections).

1.8 L&E Closures

Lift & Escalator (L&E) Closures are closures of lifts, escalators, travelators, fixed stairways, routeways or cross-passageways which can be accommodated without requiring a Station or platform to be closed. The Supplier will liaise with the Access Manager to review the impact of any requested L&E Closure in the context of any other concurrent TfL Network closures. The Company's Representative may also participate in such liaison.

1.9 Access Subcategories

Within the above access types there are a number of access subcategories which are used in the booking system. The subcategories are detailed in Appendix 4 (Access Subcategories) hereto and a description of the typical work to which they

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apply, such as track possession, is also provided in order to assist the Supplier in identifying the type of access applicable to particular works.

7. CLOSURE REQUESTS PROCESS

1. Where the Supplier intends to make a closure requests the Supplier shall attend a Pre-Closure Request Meeting or Possession Meeting with the Access Manager before a Work Request is submitted by the Supplier for approval. The Company's Representative may attend such meetings.
2. Where the Company's Representative and the Supplier agree that a proposed closure has business justification the Supplier shall confirm with the Access Manager the acceptability of the proposed closure. Where the Access Manager confirms that the proposed closure dates are not acceptable the Supplier will liaise with the Access Manager to identify alternative closures that are as near as possible and equivalent to, the closures originally proposed by the Supplier. The Company's Representative may also participate in such liaison. The Supplier acknowledges that the Access Manager's decision as to acceptability of a proposed closure or proposed alternative closures is final and binding.
3. The Access Manager may reject proposed closures on (without limitation) the grounds that if granted such proposed closures would unduly limit journey opportunities. By way of guidance, and without limitation, examples of such a limitation of journey opportunities would be:
 - a closure of a central London Station during a seasonal event;
 - a closure of key Station for access to a popular one-off event during the period of the event;
 - a closure of a key branch for access to airport terminals during a peak travel weekend; or
 - a closure on a part of a line when there is a concurrent closure on the only alternate line during an abnormally busy period.
 - Similarly a closure request may be rejected where it is considered that the level of disruption caused is not justifiable given the nature and the scope of the works.

8. TIMESCALES FOR BOOKING ACCESS AND CLOSURES

1. In preparing an Access Plan the Supplier shall make allowance for the minimum booking periods for the applicable access and closure types, as listed in the following table:

Type	Applicable to:			
	Station Access	Track Access	Working Time in	
			Engineering Hours	Traffic Hours
General Access Non-Restrictive/ Exclusive Access	Yes (14)	Yes (14)	Yes	Yes
Restrictive Access Exclusive Access	Yes (21)	Yes (56)	Yes	Yes
Major Closures	Yes (540)	Yes (540)	No	Yes
Minor Closure	Yes (222)	Yes (222)	No ⁽ⁱⁱⁱ⁾	Yes
L&E Closure	Yes (90)	N/A	Yes	Yes

Notes:

- i. The above table gives the T- date in brackets by which planning must be completed (the Latest Request Date). The Supplier must allow for sufficient time for adequate access planning.
 - ii. A Minor Closure may be applicable to Engineering Hours if a vehicle is being outstabled. Where no more than two vehicles are being outstabled at any single location the timescale for booking may, subject to the agreement of the Access Manager, be reduced to 90 days.
 - iii. A closure in respect of a depot or siding may be required if the proposed works affect the operational railway.
2. At specific locations the minimum booking period for closures stated in the above table may be able to be reduced. Where a reduced period applies this shall be specified by the Company's Representative.
 3. The Supplier shall plan access as early as possible and in no event shall apply for access or closures after the Latest Request Date has passed.
 4. Where access is required to Network Rail infrastructure at the Network Rail Interface Locations the minimum booking period for all access types is 294 days access except for Major Closures which remains unchanged.

9. UTILISING EXISTING CLOSURES

1. The Supplier shall actively seek to utilise TfL's existing closure programme to progress the Services. The Supplier may request details of such closure programme from the Company's Representative, to the extent relevant to the provision of the Services.
2. The Supplier shall identify all possible opportunities to use TfL's existing closure programme and shall provide any information necessary to complete the Application to Work Form. The Supplier shall complete the Application to Work Form and submit this to the Access Manager and the Company's Representative for approval. The Supplier shall submit the Application to Work Form a minimum of 15 (fifteen) weeks prior to the relevant closure start date. The Supplier shall attend the planning meetings for the relevant closure and prepare for submission by the Supplier any information as may be requested by the Access Manager as part of this planning process. The Company's Representative may attend such planning meetings.
3. The Supplier may also propose an extension to an existing planned closure. The Company's Representative shall consider the proposal and where the benefits of the extension more than offset the increased customer disruption, shall authorise the Supplier to seek endorsement by the Access Manager. The Access Manager shall determine whether the request should be taken forward as a formal application and shall advise the Supplier accordingly. Where such application has been approved by the Company's Representative, the Supplier shall submit an updated Access Plan, to reflect such application, to the Company's Representative for approval. Where such application has been approved by the Company's Representative, the Supplier shall submit an updated Access Plan, to reflect such application, to the Company's Representative for approval.
4. The Supplier recognises the level of disruption and limitation of journey opportunities which result from closures and where the Supplier plans any change to the scope or type of works to be undertaken under an existing closure, shall seek the approval of the Company's Representative accordingly. The Supplier shall seek consent for the change from the Access Manager. The Supplier accepts that if the Access Manager or the Company's Representative considers that the changes in scope are such that the business benefit of the works to be carried out is no longer commensurate with the disruption caused, that the closure may be cancelled. For the avoidance of doubt where a closure is cancelled in these circumstances, the provisions of Clause 30 do not apply and the Supplier shall submit a revised Access Plan for acceptance by the Company's Representative.

10. PROTECTION

1. The Supplier shall consult and agree all protection arrangements (including provision of additional Specialist Protection resources) with the Company's Representative and the Access Manager. The Supplier shall seek formal approval for the agreed protection arrangements (including provision of agreed Specialist Protection resources) by submitting a Work Request.
2. The Supplier shall provide a minimum of 1 qualified Site Person in Charge (SPC) for each work party where relevant. The Supplier's SPC (who shall work on the track) shall hold a dual qualification enabling them to provide protection as well as work site supervision and shall work as part of the protection detail. If works are planned to take place during Engineering Hours, the SPC shall hold a dual qualification enabling them to provide protection during Engineering Hours, and shall be familiar with the area that they will be working in and safe routes to / from the worksite, as such there should be no need for additional protection staff to be employed (e.g. PWT-EH).
3. In the event of additional Specialist Protection staff being required, the Supplier shall advise the Company's Representative accordingly and the Supplier shall request the additional Specialist Protection resources from the Access Manager a minimum of 21 days before the Specialist Protection is required. The Supplier will seek the approval of the Company's Representative before the submission of such request. The Access Manager will review the protection arrangements and determine the number and qualifications of any Specialist Protection staff that may be required. This will be done in consultation with the Supplier and the Company's Representative. Any Specialist Protection will be arranged by the Access Manager and provided by the Company.
4. The cost of Specialist Protection staff will be charged back to the Supplier in the event of cancellation (or non-utilisation) on the following basis:
 - (a) Cancellations made 96 hours or more in advance of the activity start date – no charge will be levied by the Company;
 - (b) Cancellations made less than 96 hours before the job start date – the full cost will be charged to the Supplier.

The above durations are subject to the cancellation being made before 12:00hrs on a weekday (Monday to Friday inclusive). Where a cancellation notice is received after 12:00hrs, the 96 hour cancellation period will be calculated from 09:00hrs on the next weekday.

11. EQUIPMENT ROOMS

The Supplier shall arrange access to Switch, Relay, Machine and other Equipment Rooms by giving the Company's Representative a minimum of two days' notice of his intention to access these areas.

The Supplier shall ensure that the security of Switch, Relay, Machine and other Equipment Rooms are maintained and that all access doors are securely locked when the work in the room is completed. The Supplier is responsible for the safe working conditions within the Switch, Relay, Machine and other Equipment Rooms.

The Supplier Personnel shall not leave the Site in possession of an LUL key and are not permitted to have a duplicate of any of LUL's keys manufactured.

Appendix 1: Access Plan Template

Transport for London

London Underground Limited

<Programme>

<Project>

<UIP Code>

<Document Reference>

Access Plan

Lifecycle Stage

<Lifecycle stage>

Prepared by		
Manager (LU Accountable Manager / LU Project Manager)	The Access Plan conforms to the template and the information is up to date, reflecting the current state of the project design and requirements for access.	
Name:	Signed:	Date:
Approved by		
LU Access Manager	I confirm that the Access Plan provides sufficient information to agree the access arrangements in principle and no further design details are needed at the current time.	
Name:	Signed:	Date:

Distributed to:

<Name>	<Role>	<Name>	<Role>
<Name>	<Role>	<Name>	<Role>
<Name>	<Role>	<Name>	<Role>
<Name>	<Role>	<Name>	<Role>

Document History

Revision	Date	Summary of changes

MAYOR OF LONDON

Transport for London



