



## Fences, Walls, Screens and Noise Barriers

### Permitted Inventory Items

- Fences and Barriers (FB)

This section relates all types of boundary fences and walls, anti-glare screen fences, snow fences and noise barriers. It does not include the structural elements of noise barriers or to retaining walls, which shall be regarded as Structures. Particular attention should be paid to damaged or missing fences or barriers as these may often constitute an immediate or imminent hazard.

Inspection Requirement	Detailed inspections of fences, walls, screen fences, snow fences and noise barriers	
Inspection Frequency	BF	Annual Detailed Inspection

Defect Description	Code	Attribute	Units	Min.	Max.
Rotten – wood fence	RWDF	Length:	metres	1	100
Rotten – wood post (fence / barrier)	RWDP	Length:	metres	1	100
Corroded – metal (fence / barrier)	CMTF	Length:	metres	1	100
Corroded – metal post (fence / barrier)	CMTF	Length:	metres	1	100
Corroded – concrete fence	CCTF	Length:	metres	1	100
Corroded – concrete post	CCTP	Length:	metres	1	100
Missing – section of fence / barrier	MISS	Length:	metres	1	100
Accident damage	ACCD	Length:	metres	1	100
		Height:	metres	1	25
Damaged / deformed – fence / barrier	DAMM	Length:	metres	1	100
Loose panel	LOSP	Number:		1	50
Loose anchor	LOSA	Number:		1	50
Loose bolt	LOSB	Number:		1	50
Incorrect Tension	CORT	Length:	metres	1	100
Incorrect or no tension (metal fence)	NTEN	Length:	metres	1	100
Not stockproof	NSTK	Length:	metres	1	100
Loose tension bolts	LTEN	Number:		1	50
Other	OTHR				
None	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

ACCD, MISS	Accident damage which compromises the security of the fence. Missing fences or barriers that may constitute an immediate or imminent hazard to road users, pedestrians or cyclists. Due regard must be paid to areas where animals or children could gain access.
RWDF, RWDP, CMTF, CMTP, CCTF, CCTP, LOSP, LOSA, LOSB, CORT, NTEN, NSTK, LTEN, DAMM	Corrosion, rot, or other serious defect likely to affect the structural integrity of the fence.

DDA defects associated with Fences and Barriers - FB inventory items.

DDA Defect Description	Code
Obstacle free width is < 1300mm	DD042
Inconsistent position of a succession of obstacles necessitates weaving	DD044
Width at footway is restricted locally to < 1000mm	DD045
Pole at front of footway outwith 500-600mm offset from c/way	DD046
Free standing object does not meet min. height criteria of 1000mm	DD076
Width between handrails is < 1000mm	DD077
Width between handrails is < 1800mm (this does not allow two way movement)	DD078
Width between handrails is > 1800mm	DD079
Handrails not provided on both sides of flight	DD080
Handrails on flight not provided at height of 900-1000mm	DD089
Handrails not continuous across intermediate landings	DD090
Handrails do not extend 300mm past top and bottom of flight	DD091
End of handrail projects into route of travel	DD092
End of handrail does not return into wall/ground or have 100mm downturn (to prevent injury to users)	DD093
Handrail of material which is cold to the touch	DD094
Handrails are not tonally contrasted with background	DD095
Circular handrails does not have cross section of 40-50mm diameter	DD096
Oval handrail does not have cross section of 50 x 35mm	DD097
Staggered barriers/access control less than 1200mm apart	DD098
Lack of adequate tonal contrast	DD099
Redundant street furniture	DD100
Gate latch inoperable by person with reach difficulties e.g. wheelchair user	DD101
Clear space between handrail and adjacent wall is < 60mm	DD102



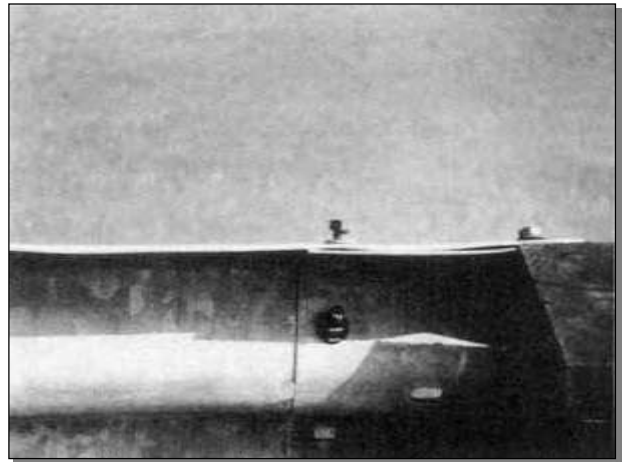
**RWDF** Rotten wood fence



**MISS** Missing



**DAMM** Damaged/deformed



**LOSB** Loose Bolt



**NSTK** Not Stockproof



## Road Markings

### Permitted Inventory Items

- Pedestrian Crossing (PX)
- Reference Marker Post (RF)
- Road Markings – Hatched (LH)
- Road Markings – Longitudinal (LL)
- Road Markings – Transverse and Special (RM)

This section relates to all road markings in paint or thermoplastic materials. Many road markings are used to give effect to regulatory provisions so it is important that their legal status is not affected by undue wear or damage.

As part of each Detailed Inspection, the Operating Company shall summarise the findings of the road marking surveys, inspections and measurements and include as part of the Bid submission process. Detailed Inspections shall be carried out in accordance with the Design Manual for Roads and Bridges, Volume 8, Section 2, Part 2, TD 26/07. TD 26/07 also provides guidance on the assessment of road markings and Categorisation of Defects.

Inspection Requirement	Detailed inspections of road markings, pedestrian crossings and reference marker posts	
Inspection Frequency	Detailed Inspections carried out in accordance with the Design Manual for Roads and Bridges, Volume 8, Section 2, Part 2, TD 26/07	
	RR	Road Markings – HSM – Retro-reflectivity by HSM Survey – Annual Inspection in accordance paragraph 2.6 of TD 26/07
	RVD	Reflection during daylight – 6 Monthly Visual Inspection
	RVN	Reflection during darkness – 6 Monthly Visual Inspection
	RH	Alternative inspection of road markings – Annual Inspection in accordance paragraph 2.7 of TD 26/07
	RS	Skid resistance measurement inspections – Annual inspection in accordance with paragraph 2.8 of TD 26/07

Defect Description	Code	Attribute	Units	Min.	Max.
Wear (for example erosion)	WEAR	Length:	metres	1	100
		% remaining	per cent	1	100
Spread (Area of wear)	SPRD	Length:	metres	1	100
		% of original	per cent	1	100
Colour (Discolouration)	COLR	Length:	metres	1	100
		percentage	per cent	1	100
Initiate skid test Measurement of skid resistance will not normally be carried out at the time of an inspection. This code should be used to initiate a test.	SKID	Length:	metres	1	100
Initiate retro-reflectivity measurement Measurements of retro-reflectivity will not normally be carried out during a normal inspection. This code should be used to indicate the need for a specialist inspection.	RETR	Length:	metres	1	100
Skid resistance test failure Skid resistance measurements of letters, numerals and arrows are a specialist inspection usually carried out by a materials laboratory.	SKIT	Length:	metres	1	100
		SRV:		0	100
Retro-reflectivity test failure	RETT	length:	metres	0	100

These inspections should be undertaken at night.					
Other	OTHR				
None	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

WEAR, SPRD, COLR	Defects that require prompt attention because they represent an immediate or imminent hazard, there is a breach of statutory duty (e.g. a badly worn STOP or GIVE WAY line, double white lines) or a slippery road marking.
RETT	Retroreflectivity $\leq 80$ mcd/m <sup>2</sup> /lux on unlit single carriageway and represents an immediate or imminent hazard.
SKIT	Area under investigation falls below threshold level and represents a risk to the road user through skidding or potential accidents, i.e. GIVE WAY lines, STOP lines, large areas of road markings (e.g. exit arrows to slips on the main line) and transverse yellow bars.

DDA defects associated with Pedestrian Crossings - PX inventory items.

DDA Defect Description	Code
Width of dropped kerb at uncontrolled crossing is < 1200mm	DD005
Width of dropped kerb at controlled crossing is < 2400mm	DD006
Crossfall of transition area between footway level and dropped kerb level in excess of 1:12 (8.3%)	DD007
Gradient in excess of 1:11 (9%) on dropper kerb	DD008
Kerb upstand adjacent to c/way < 25mm high (at vehicle crossing points eg driveway)	DD012
Longitudinal gradient in excess of 1:20 (5%)	DD036
Crossfall in excess of 1:40 (2.5%)	DD037
Abrupt change in gradient (should be rounded)	DD038
Identify areas (in excess of 10m <sup>2</sup> ) where surface irregularity exceeds 3mm in a vertical plane	DD039
Identify any gaps exceeding 10mm in a horizontal plane	DD040
Grating placed in area of main pedestrian flow	DD041
Obstacle free width is < 1300mm	DD042
Unobstructed height above footway is < 2300mm, incl overhanging vegetation	DD043
Inconsistent position of a succession of obstacles necessitates weaving	DD044
Width at footway is restricted locally to < 1000mm	DD045
Pole at front of footway outwith 500-600mm offset from c/way	DD046
Edge of footway has sudden level change	DD047
Lack of edge definition	DD048
Ramp longitudinal gradient in excess of 1:10 (10%) for ramp flight up to 600mm going	DD061
Ramp longitudinal gradient in excess of 1:12 (8.3%) for ramp flight up to 2m going	DD062
Ramp longitudinal gradient in excess of 1:15 (6.7%) for ramp flight up to 5m going	DD063
Ramp longitudinal gradient in excess of 1:20 (5%) for ramp flight up to 10m going	DD064
Lack of adequate tonal contrast	DD076
Redundant street furniture	DD077
Free standing object does not meet min. height criteria of 1000mm	DD078
Staggered barriers/access control less than 1200mm apart	DD080
Lack of tactile paving	DD081
Inappropriate tactile paving type	DD082
Inappropriate tactile paving colour	DD083
Inappropriate tactile paving layout	DD084

Outdated/worn profile on tactile paving	DD085
Tactile paving does not contrast tonally with surrounding paving	DD086
The back edge of the tactile surface is not at right angles to the direction of crossing/travel	DD087
Pedestrian route around a junction is not continuous	DD088
Crossfall beside parked vehicle in excess of 1:20 (5%)	DD111
Crossing point not on obvious pedestrian desire line	DD112
Crossing point at junction bellmouth not at ideal location	DD113
Lack of refuge at crossing	DD114
Refuge at crossing is < 1500mm wide	DD115
Pedestrian crossing is zebra type	DD116

DDA defects associated with Road Markings – Hatched - LH inventory items.

DDA Defect Description	Code
No dedicated accessible parking bay provided	DD105
Lack of 1.2m hatched aisles at dedicated accessible parking bay	DD106

DDA defects associated with Road Markings – Transverse and Special - RM inventory items.

DDA Defect Description	Code
Parking bay does not meet 4800 x 2400mm size	DD103
Accessible parking bay (parallel/kerb side) does not meet 6600 x 3600mm size	DD104
No dedicated accessible parking bay provided	DD105
Lack of 1.2m hatched aisles at dedicated accessible parking bay	DD106
Lack of signage at dedicated accessible parking bay	DD107
Clearance between parked vehicle and running lane is < 1200mm	DD108
Lack of footway facilities for parked vehicle	DD109
Footway is < 1500mm wide	DD110
Crossfall beside parked vehicle in excess of 1:20 (5%)	DD111
Pedestrian crossing is zebra type	DD116





**WEAR** Wear

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**COLR** Colour

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## Road Studs

### Permitted Inventory Items

- Road Studs (RS)

This section relates to all reflective and non-reflective road studs of all types and colours including depressible road studs. To be effective, all types of road studs must be firmly fixed and remain at the correct level. Reflecting types must retain their reflectivity. Most reflecting types are designed to be self-cleaning, but the lenses can become obscured by dirt or can become less effective by becoming more deeply embedded in the road surface. Displaced road studs lying on the carriageway, hard shoulder or in lay-bys should be removed immediately as should any loose ones (particularly those of the 'depressible' type). All depressible road studs should be considered as 'catseyes' for inspection purposes.

Detailed Inspections shall be carried out in accordance with the Design Manual for Roads and Bridges, Volume 8, Section 2, Part 2, TD 26/07. TD 26/07 also provides guidance on the assessment of road studs and Categorisation of Defects.

Inspection Requirement	Detailed inspections of retro reflective and non-reflective road studs of all types	
Inspection Frequency	Detailed Inspections carried out in accordance with the Design Manual for Roads and Bridges, Volume 8, Section 1, Part 2, TD 26/07	
	RS	Visual inspections during daylight (every 6 months)
	RC	Reflective Conspicuity Inspection to be carried out annually.
	IRS	Detailed Inspection – Intelligent Road Studs

Defect Description	Code	Attribute	Units	Min.	Max.
Loose "catseye" casing	LCAS	Number:		1	50
Loose "catseye" rubber	LCAR	Number:		1	50
Loose studs	LSTD	Number:		1	50
Initiate conspicuity test – "catseye" Measurement of road stud conspicuity will not normally be carried out at the time of normal inspections. This code should be used to indicate the need for a specialist inspection.	REFC	Length:	metres	1	250
Initiate conspicuity test – stud Measurement of road stud conspicuity will not normally be carried out at the time of normal inspections. This code should be used to indicate the need for a specialist inspection.	REFS	Length:	metres	1	250
Damaged "catseye"	DAMC	Number:		1	50
Damaged stud	DAMS	Number:		1	50
Missing "catseye"	MISC	Number:		1	50
Perished rubber	PRUB	Number:		1	50
Missing reflector	MISR	Number:		1	50
Conspicuity "catseye" test failure	REFF	Number:		0	50
Conspicuity stud test failure	REFT	Number:		0	50
Other	OTHR				
None	NONE				



**Category 1 Defects include but shall not be limited to the following Defects:**

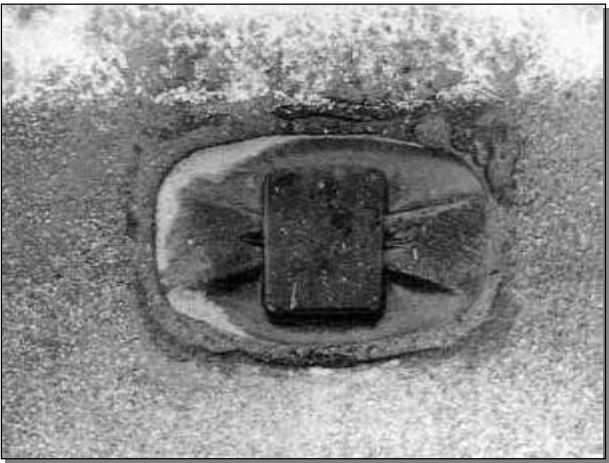
LCAR, LCAS, LSTD, MISC, MISR	Loss of any single road stud, missing or defective inserts on double white lines (legal requirement areas). Loose or displaced road stud lying in the carriageway or hardshoulder. Loose casing.
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**LCAS** Loose Catseye casing



**OTHR** Other



**DAMC** Damaged Catseye



**DAMS** Damaged stud



**MISC** Missing Catseye



**MISR** Missing Reflector



## Road Traffic Signs & Road Lighting

### Permitted Inventory Items

- Reference Marker Point (RF)
- Bollards (Safety) (SB)
- Road Traffic Signs (SG)
- Lighting Point
- Festive Lighting
- Sea & Navigation Lights

This section relates to Detailed Inspection of all permanent road traffic signs, including permanent bollards and permanent marker posts.

Particular attention should be paid to damaged, defective, displaced or missing traffic signs as well as to dirty or obscured ones. Many signs are required to be lit and their legal status is affected if the illumination has failed; it is important that such failures are detected and rectified promptly. Brackets, bolts and fittings should be tightened and adjusted at the time of inspection.

Measurements of Target Distance (TRGD), Legibility Distance (LEGD), Surface Luminance (SFLM) and Surface Colour (SFCL) will not normally be made at the time of an inspection. These codes should therefore be only be used to initiate these tests.

For inspection requirements and defect categorisation for any applicable electrical aspects of these inventory items see section 'Roadside Electrical Apparatus, Road Lighting and Power Supplies'.

Inspection Requirement	Detailed inspections of permanent road traffic signs, permanent bollards, permanent marker posts and the surfaces of road restraint systems which have been painted for road safety purposes	
Inspection Frequency	Detailed Inspections carried out in accordance with the Design Manual for Roads and Bridges, Volume 8, Section 1, Part 2, TD 25/01, paragraph 2.3 and 2.4	
	SS	14/28 days – Signs – Night Inspections – Lit signs
	SG	Annual Detailed Inspection – Visual performance and structural integrity
	SV	10 years after installation and then every 2 years Detailed Inspections – Sign plate replacement and visual performance

Defect Description	Code	Attribute	Units	Min.	Max.
Initiate target distance measurement	TRGD	Number:		1	50
Initiate legibility distance measurement	LEGD	Number:		1	50
Initiate surface luminance check	SFLM	Number:		1	50
Initiate surface colour check	SFCL	Number:		1	50
Physical condition of fittings	COFT	Number:		1	50
Physical condition of frame	COFR	Number:		1	50
Physical condition of post	COPT	Number:		1	50
Moving part malfunction Refers to moving parts of secret and variable message signs.	MOVP	Number:		1	50
Surface corrosion	SFCO	Number:		1	50
Accident damage	ACCD	Number:		1	50
Loss of surface / paint covering	LOPT	Number:		1	50
Obscured sign	OB SG	Number:		1	50
Dirty sign	DIRT	Number:		1	50

Missing	MISS	Number:		1	50
Damaged Damage other than accident damage	DAMG	Number:		1	50
Pointing wrong way	RWAY	Number:		1	50
Target distance test failure	TRGT	Number:		1	50
Legibility distance (direct) failure	LEGF	Number:		1	50
Surface luminance test failure Inadequate retro-reflectivity	SFLN	Number:		1	50
Surface colour test failure	SFCT	Number:		1	50
Lamp on during day	LPON				
Lamp failure	LAMP				
Moving part malfunction	MOVP				
Electrical Condition	COEL				
Exposed wiring	EXPW				
PECU failure	PECU				
Time switch failure	TMSW				
No electricity supply	NOSP				
No fuse	FUSE				
Electrical routine check failure	ERCK				
Electrical periodic inspection and test failure	EPIT				
Hazardous electrical defect	EHAZ				
Other	OTHR				
None	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

MISS	Missing regulatory or mandatory signs or belisha beacons.
ACCD, DAMG	Sign or post projecting into carriageway or footway. Damaged post or partly detached sign face that may fall into the carriageway, footway or private land. Damaged snow and hidden message signs during the Winter Service Period
COFT, COFR, COPT	Corrosion of the posts likely to cause the sign to collapse. Corrosion, loose or missing fixings that may allow the sign to become detached from the posts.
LEGF	Graffiti, posters or other defect, which reduces the legibility of regulatory or mandatory signs.
OBSG	Regulatory or mandatory signs obscured by growth or any other obstacle.

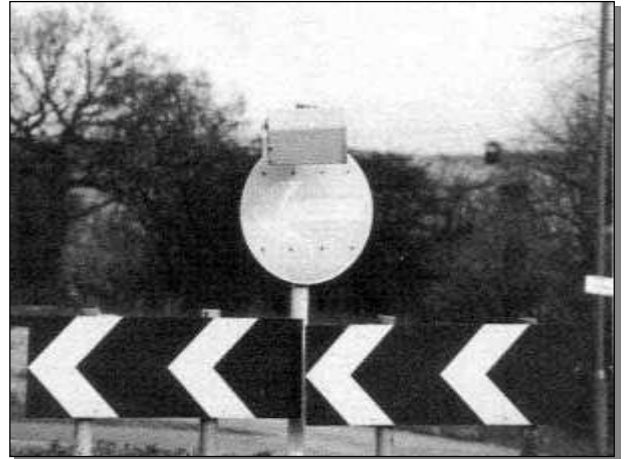
DDA defects associated with Bollards – SB, Road Traffic Signs – SG, Lighting Point - LP inventory items.

DDA Defect Description	Code
Unobstructed height above footway is < 2300mm, incl overhanging vegetation	DD043
Inconsistent position of a succession of obstacles necessitates weaving	DD044
Width at footway is restricted locally to < 1000mm	DD045
Pole at front of footway outwith 500-600mm offset from c/way	DD046
Lack of adequate tonal contrast	DD076
Redundant street furniture	DD077
Free standing object does not meet min. height criteria of 1000mm	DD078
Lack of signage at dedicated accessible parking bay	DD107





**SFLM** Initiate surface luminance check



**SFCL** Initiate surface colour check



**COEL** Electrical condition



**COFR** Physical condition of frame



**COPT** Physical condition of post



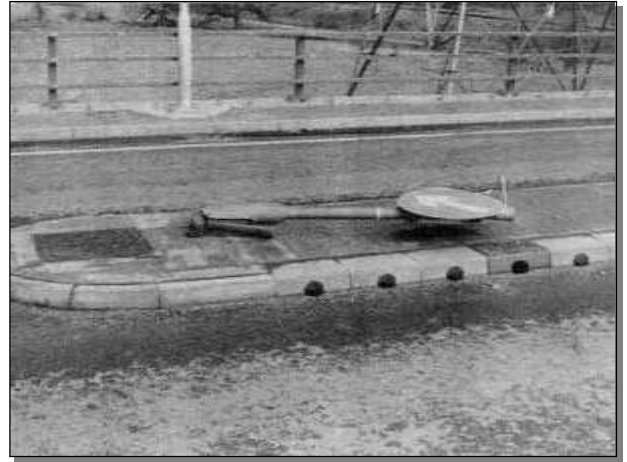
**EXPW** Exposed wiring





**SFCO** Surface corrosion

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**ACCD** Accident Damage

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**OBSG** Obscured sign

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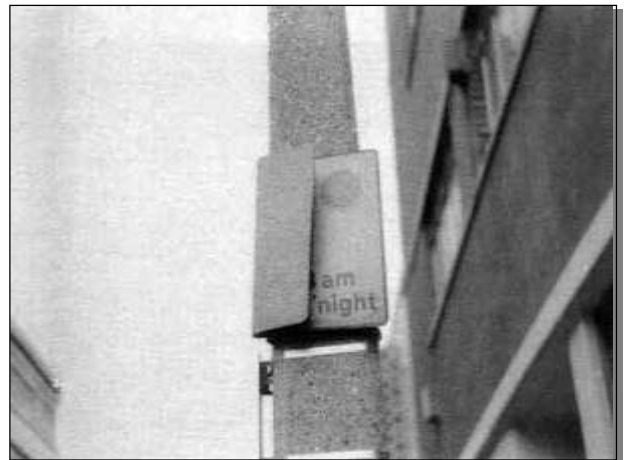
**DIRT** Dirty sign

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**MISS** Missing

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**DAMG** Damaged

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## Traffic Signals

### Permitted Inventory Items

- Road Traffic Signals (TS)
- Detector Loops (DL)
- Cabinets and Electrical Pillars (CA)

This section relates to the Detailed Inspection of permanent traffic signals at junctions or outside emergency vehicle stations and at controlled pedestrian crossings, and their associated equipment.

Modern signal equipment is expected to operate correctly without regular routine adjustments. The purpose of the inspection regime is to detect defects, which might lead to failure or which might otherwise render installations ineffective, in order to keep traffic signal installations fully operational.

Inspection Requirement	Detailed inspections of automated traffic signals, pedestrian controlled signals and their associated equipment	
Inspection Frequency	Detailed Inspections carried out in accordance with the Design Manual for Roads and Bridges, Volume 8, Section 1, Part 1, TD 24/97	
	ORTS	Annual Operational Review
	TD	Electrical Safety Inspection to be undertaken every 5 years.
	TG	Detailed Inspection every 12 months
	TGM	Detailed Inspection of items 1 to 12 of Table 2.2 of TD 24/97 every month
	TO	Obscuration Inspection in March
	TO	Obscuration Inspection in October
	TSPD	Detailed Inspections (labelling) undertaken every month.
	TSREV	Full Review 1 <sup>st</sup> 12 months of CoS
	VSM	Validate SCOOT and MOVA undertaken every 3 years

Defect Description	Code	Attribute	Units	Min.	Max.
Equipment cabinet condition	EQCB				
Condition of base seals	CBSL				
Presence of gas	PGAS				
Hardware physical condition	HPCD				
Condition of buttons / detectors	CBDT				
Condition of regulatory sign / illumination Condition of regulatory signs associated with traffic signals and the condition of their illumination	CRSI				
Condition of pole wiring / earth	CPWE				
Alignment or obscuration Alignment cleanliness and visibility of signal heads	ALOB				
Condition of loop / feeder	CLOF				
Equipment damaged or in dangerous condition - projecting into private land, post or signal head may fall onto carriageway, footpath, private land, exposes wiring/internal equipment	DAMG				
Signals failing to change	STUK				
Red Lamp Failure	RED				
Amber Lamp Failure	AMBER				
Green Lamp Failure	GREEN				
Condition poles / caps / heads / boards	PLCD				
No data sheets	NDTA				
Difficult access to cabinet	ACES				
Faulty mast arm assembly	MAST				
Equipment wiring and earth condition	EQWE				
No fuse	FUSE				
Audible circuit failure	AUDC				
No electricity supply	NOSP				
Controller failure	NOOP				
Speed assessment equipment failure	SPED				
Dimming unit failure	LDIM				
Electrical Fault	ELCM				
Phase times incorrect	TIME				
Red lamp monitor circuit fault	RLMC				
Link failure	LINK				
WAIT lamp failure	WAIT				
Push button failure	PUSH				
Condition of loop/feeder below ground detection equipment	CLOB				
Condition of regulatory sign/illumination	CRIS				
Conflicting Indications	CIND				
all signals unlit	ALLS				
Other	OTHR				
None	NONE				

DDA defects associated with Road Traffic Signals – TS inventory items.

DDA Defect Description	Code
Obstacle free width is < 1300mm	DD042
Unobstructed height above footway is < 2300mm, incl overhanging vegetation	DD043
Inconsistent position of a succession of obstacles necessitates weaving	DD044
Width at footway is restricted locally to < 1000mm	DD045
Pole at front of footway outwith 500-600mm offset from c/way	DD046
Crossing point not on obvious pedestrian desire line	DD112
Crossing point at junction bellmouth not at ideal location	DD113
Lack of refuge at crossing	DD114
Refuge at crossing is < 1500mm wide	DD115
Pedestrian crossing is zebra type	DD116
Controlled crossing has no infra-red detectors	DD117
Controlled crossing has no audible signals	DD118
Control unit at crossing has no rotating knurled cones	DD119
Control unit at crossing doesn't have red/green person indicator	DD120
Control unit at crossing not directed to oncoming traffic	DD121
Control unit at crossing has incorrect push button	DD122
Control unit at crossing not close to tactile surface	DD123
Control unit at crossing not at 1000-1100mm height	DD124
Control unit at crossing not placed at the RHS of the crossing	DD125
Green man shows for < 4 secs on a crossing up to 7.5m	DD126
Green man shows for < 7 secs on a crossing wider than 12.5m	DD127

**Category 1 Defects include but shall not be limited to the following Defects:**

DAMG	Post projecting into carriageway or footway. Damaged post or signal head that may fall onto the carriageway, footway or private land. Damage to cabinets that exposes wiring/internal equipment.
PGAS	Gas leaks
DAMG, STUK, NOOP, LDIM, TIME, WAIT, SPED, RED, AMBER, GREEN, EQWE, CPWE, FUSE, AUDC, RLMC, PUSH, ELCM, CLOB, CRIS, CIND, ALLS	Equipment damaged or in dangerous condition. Any apparent defect in operation like signals failing to change, signals giving conflicting indications, audible or tactile warnings not working, red or amber lamp unlit, all signals unlit. Defect likely to cause a hazard or abnormal and excessive delay. Failed or damaged below ground detection equipment. Exposed wiring or other electrical fault.





**HPCD** Hardware physical condition



**PLCD** Condition poles/caps/heads/boards



**ALOB** Alignment or obscuration



**CRSI** Condition of regulatory sign / illumination



**CLOF** Condition of Loop



**DAMG** Damaged

## Roadside Electrical Apparatus, Road Lighting and Power Supplies

### Permitted Inventory Items



- Cable Chambers (CC) (EMG025)
- Electrical Ducting and Cables (ED) (EMG024/027/028)
- Ancillary Drainage Items Powered (DP) (EMG009)
- Cabinets and Electrical Pillars (CA) (EMG003/026)
- Bollards (SB) (EMG005)
- Lighting Point (LP) (EMG001/002/008)
- Festive Lighting Supplies (FL) (EMG019)
- Structures (ST) (EMG011/029/030)
- Roadside Services (SV) (EMG013)
- Sea and Air Navigation Lights (SN) (EMG020)
- Traffic Control Barriers (CB) (EMG031)
- Traffic Signs (SG) (EMG004/006/012/014/015/016/017/018)
- Weather Stations (WS) (EMG010)
- Wildlife Counters (WC) (EMG023)
- Navigation Aids (NA) (EMG021)

This section relates to the Detailed Inspection of roadside electrical apparatus, road lighting and power supplies. Roadside electrical apparatus is listed in Schedule 4 Part 3 of the Transport Scotland Operating Company Contact. Detailed Inspections shall be carried out in accordance with the requirements and timescales of Transport Scotland guidance document *LDS8023\_09 – Electrical Maintenance Guidelines*.



## Cable Chambers

Inspection Requirement	Detailed inspections of cable chambers and their associated equipment: EMG 025 – Cable Chambers	
Inspection Frequency	CR	Routine Electrical Inspection - (EMG 025/1-7) - 24mth

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Unsafe electrical chamber covers and support frames plinths, aprons & surrounds	1	UECC	Number		1	1
Corrosion	2	SFCO	Number		1	1
Accident damage	2	ACCD	Number		1	1
Inadequate, damaged or incorrect ID label	2	LOLD	Number		1	1
Damaged other than accident damage	2	DAMG	Number		1	1
Ducting flooded	2	DUFL	Number		1	1
Unsafe chamber cover and support plinth	2	UNSF	Number		1	1
Defective chamber apron, plinth	2	DFAP	Number		1	1
Other	2	OTHR				
None	2	NONE				

### Category 1 Defects include but shall not be limited to the following Defects:

Unsafe electrical chamber covers and associated support frames providing access to electrical ducting including, but not limited to, plinths, aprons and similar surrounds at chambers. This shall include, but not be limited to, hazards arising from defects UECC which shall be repaired within the following timescales.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPIL defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Electrical Ducting and Cables

Inspection Requirement	Detailed inspections of electrical ducting and cables and associated equipment: EMG024 – Cable Ducts EMG027 – Electrical and Comms Supply Cables to 3rd Party Equipment EMG028 – Cables	
Inspection Frequency	DR	Routine Electrical Inspection – (EMG 024/1-6 & 027/1-3 & 028/1-5,7-8) - 24mth
	DE	Periodic Electrical Inspection – (EMG 028/6) - 60mth

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
<b>Corrosion</b>	2	SFCO	Number		1	1

Accident damage	2	ACCD	Number		1	1
Inadequate, damaged or incorrect ID label	2	LOLD	Number		1	1
Damaged other than accident damage	2	DAMG	Number		1	1
Ducting flooded	2	DUFL	Number		1	1
Unsafe chamber cover and support plinth	2	UNSF	Number		1	1
Defective chamber apron, plinth	2	DFAP	Number		1	1
Other	2	OTHR				
None	2	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT, EPIC, EPII, EPIE and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Ancillary Drainage Items (Powered)

Inspection Requirement	Detailed inspections of ancillary drainage items (Powered) and associated equipment: EMG009 – Drainage Pumps	
Inspection Frequency	AR	Routine Electrical Inspection, (EMG 009/1-8,10-11) - 24mth
	AE	Periodic Electrical Inspection, (EMG 009/9) - 60mth

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
<b>Pump malfunction</b>	2	PUMP	Number		1	1
<b>No electrical supply</b>	2	NOSP	Number		1	1
<b>Other</b>	2	OTHR				

None	2	NONE				
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**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT, EPIC, EPIL, EPIE and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPIL defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Cabinets and Electrical Pillars

Inspection Requirement	Detailed inspections of Cabinets , Electrical Pillars and associated equipment: EMG003 – Electrical Pillars and Cabinets EMG026 – Electrical Supplies to 3 <sup>rd</sup> Parties	
Inspection Frequency	RE	Routine Electrical Inspection, (EMG 003/1-7,9 & 026/1-7,9) - 24mth
	ST	Periodic Electrical Inspection, (EMG 003/8 & 026/8) - 60mth

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
<b>Surface corrosion</b>	2	SFCO	Number		1	1
<b>Accident damage</b>	2	ACCD	Number		1	1



Inadequate, damaged or incorrect ID label	2	LOLD	Number		1	1
Dirty cabinet	2	DICA	Number		1	1
Missing cabinet	2	MISS	Number		1	1
Damaged other than accident damage	2	DAMG	Number		1	1
Defective conspicuity banding on equipment located in areas accessible to the public	2	DDAD	Number		1	1
No electrical supply	2	NOSP	Number		1	1
Other	2	OTHR				
None	2	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT, EPIC, EPIL, EPIE and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPIL defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Bollards

Inspection Requirement	Detailed inspections of Bollards and associated equipment: EMG005 – Illuminated Bollards	
Inspection Frequency	CR	Routine Electrical Inspection, (EMG 005/1-6,8-9) - 24mth
	ST	Periodic Electrical Inspection, (EMG 005/7) - 60mth
	SS	Night Safety Inspection 14 day - Signs & lighting - 14d
	SS	Night Safety Inspection 28 day - Signs & lighting - 28d

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Any one lamp out where the bollard is regulatory/mandatory	1	LAMP	Number		1	1

Hazardous electrical defect	1	EHAZ	Number		1	1
Lamp on during day	2	LPON	Number		1	1
Electrical condition	2	COEL	Number		1	1
Lamp or other circuit failure causing a faulty illumination	2	LAMP	Number		1	1
PECU failure	2	PECU	Number		1	1
Timeswitch failure	2	TMSW	Number		1	1
No fuse	2	FUSE	Number		1	1
Damaged other than accident damage	2	DAMG	Number		1	1
No electrical supply	2	NOSP	Number		1	1
Accident Damage	2	ACCD	Number		1	1
Physical condition of fittings	2	COFT	Number		1	1
Loss of surface / paint covering	2	LOPT	Number		1	1
Electrical condition	2	ELCN	Number		1	1
Wiring deterioration	2	WDET	Number		1	1
Corrosion of columns	2	CCOR	Number		1	1
Need for tree pruning	2	NTPR	Number		1	1
Missing (door/lamp/bowl)	2	MISP	Number		1	1
Obscured lamp	2	OBLP	Number		1	1
Other	2	OTHR				
None	2	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNH, COEL, ERCK, EPIT, EPIC, EPII, EPIE, LAMP and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Lighting Point

Inspection Requirement	Detailed inspections of Lighting Point and associated equipment: EMG001 – Luminaires EMG002 – Support Structures for Luminaires EMG008 – Illuminated Bus Shelters	
Inspection Frequency	EA	Routine Electrical Inspection Lighting Points, (EMG 001/2-6,8-9 & 002/2-5,8 & 008/2-6,8-9) - 24mth
	ST	Periodic Electrical Inspection, (EMG 001/7 & 002/6 & 008/7) - 60mth
	CYCBLC12	Bulk Lamp Change 12mth, (EMG 001/1 & 002/1 & 008/1) - 12mth
	CYCBLC24	Bulk Lamp Change 24mth, (EMG 001/1 & 002/1 & 008/1) - 24mth
	CYCBLC36	Bulk Lamp Change 36mth, (EMG 001/1 & 002/1 & 008/1) - 36mth
	SS	Night Safety Inspection 14 day - Signs & lighting - 14d
	SS	Night Safety Inspection 28 day - Signs & lighting - 28d

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Columns or post projecting into carriageway or footway	1	COLP	Number		1	1
Total failure, visible instability, or damaged column or post that may fall onto the carriageway, footway or private land	1	COPF	Number		1	1
Damaged or defective, or visible instability of bracket, arm or lantern that may fall onto the carriageway, footway or private land	1	COLU	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1

Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
A structural fault requiring maintenance in advance of the next cyclic maintenance visit – Category 3 or 4 from column general inspection	1	SFNW	Number		1	1
Supply failure to two or more consecutive columns	1	NOSC	Number		1	50
A phase failure with one in three lamps out in a road section	1	NOPH	Number		1	1
Lamp failure on up to and including 12 metres mounting height - 3 or more consecutive	1	NOLT	Number		1	1
Lamp failure over 12 metres mounting height including both lamps in dual optic units - 2 or more consecutive	1	NOLW	Number		1	1
Lamp failure on single multi optic post top or high mast column - 25% or more	1	NOTF	Number		1	1
Lamp failure either side of a pedestrian crossing - 1	1	NOPX	Number		1	1
Lamp failure either side of a pedestrian crossing - 2 or more	1	NPXT	Number		1	1
Lamp failure opposite or immediately adjacent to a road junction - 1	1	JLFO	Number		1	1
Lamp failure opposite or immediately adjacent to a road junction - 2 or more	1	JLFW	Number		1	1
Lamp failure on roads subject to a speed limit of 30 mph or less - 1	1	RLFO	Number		1	1
Lamp failure on roads subject to a speed limit of 30 mph or less - 2 or more	1	RLFW	Number		1	1
<b>All other lamp failures outwith above criteria</b>	2	LAMP	LAMP	Number	1	1
<b>PECU failure Photo-electric circuit failure</b>	2	PECU	PECU	Number	1	1
<b>Lamp on during day</b>	2	LPON	LPON	Number	1	1
<b>Time switch failure</b>	2	TMSW	TMSW	Number	1	1
<b>Lamp or other circuit failure causing faulty illumination</b>	2	EFAL	EFAL	Number	1	1
<b>Electrical condition</b>	2	ELCN	ELCN	Number	1	1
<b>Wiring deterioration</b>	2	WDET	WDET	Number	1	1
<b>Corrosion of columns</b>	2	CCOR	CCOR	Number	1	1
<b>Need for tree pruning</b>	2	NTPR	NTPR	Number	1	1
<b>Missing (door / lamp / bowl)</b>	2	MISP	MISP	Number	1	1
<b>Damaged post / column Damage to post or column other than accident damage</b>	2	DAMG	DAMG	Number	1	1
<b>Loss of surface paint / coating</b>	2	LOPT	LOPT	Number	1	1

Obscured lamp	2	OBLP	OBLP	Number	1	1
Accident damage	2	ACCD	ACCD	Number	1	1
Physical condition of fittings	2	COFT	COFT	Number	1	1
No electrical supply	2	NOSP	NOSP	Number	1	1
RCD Failure	2	RCDF	RCDF	Number	1	1
No fuse	2	FUSE	FUSE	Number	1	1
Defective conspicuity banding on equipment located in areas accessible to the public	2	DDAD	DDAD	Number	1	1
Other	2	OTHR				
None	2	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects COLP, COPF, COLU, EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT, EPIC, EPII, EPIE, SFNW, NOSC, NOPH, NOLT, NOLW, NOTF, NOPX, NPXT, JLFO, RLFO, RLFW and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works..



## Festive Lighting

Inspection Requirement	Detailed inspections of Festive Lighting and associated equipment: EMG019 – Festive Lighting Supplies	
Inspection Frequency	EA	Routine Electrical Inspection, (EMG 019/1-5,7-8,10-11) - 12mth
	ST	Periodic Electrical Inspection, (EMG 019/9) - 60mth
	RD	RCD Test, (EMG 019/6) - 3mth
	SS	Night Safety Inspection 14 day - Signs & lighting - 14d
	SS	Night Safety Inspection 28 day - Signs & lighting - 28d

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Columns or post projecting into carriageway or footway	1	COLP	Number		1	1
Total failure, visible instability, or damaged column or post that may fall onto the carriageway, footway or private land	1	COPF	Number		1	1
Damaged or defective, or visible instability of bracket, arm or lantern that may fall onto the carriageway, footway or private land	1	COLU	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1

Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
<b>All other lamp failures outwith above criteria</b>	2	LAMP	Number		1	1
<b>PECU failure Photo-electric circuit failure</b>	2	PECU	Number		1	1
<b>Lamp on during day</b>	2	LPON	Number		1	1
<b>Time switch failure</b>	2	TMSW	Number		1	1
<b>Lamp or other circuit failure causing faulty illumination</b>	2	EFAL	Number		1	1
<b>Electrical condition</b>	2	ELCN	Number		1	1
<b>Wiring deterioration</b>	2	WDET	Number		1	1
<b>Corrosion of columns</b>	2	CCOR	Number		1	1
<b>Need for tree pruning</b>	2	NTPR	Number		1	1
<b>Missing (door / lamp / bowl)</b>	2	MISP	Number		1	1
<b>Damaged post / column Damage to post or column other than accident damage</b>	2	DAMG	Number		1	1
<b>Loss of surface paint / coating</b>	2	LOPT	Number		1	1
<b>Obscured lamp</b>	2	OBLP	Number		1	1
<b>Accident damage</b>	2	ACCD	Number		1	1
<b>Physical condition of fittings</b>	2	COFT	Number		1	1
<b>No electrical supply</b>	2	NOSP	Number		1	1
<b>RCD Failure</b>	2	RCDF	Number		1	1
<b>No fuse</b>	2	FUSE	Number		1	1
<b>Defective conspicuity banding on equipment located in areas accessible to the public</b>	2	DDAD	Number		1	1
<b>Other</b>	2	OTHR	Number		1	1
<b>None</b>	2	NONE	Number		1	1

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects COLP, COPF, COLU, EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNH, COEL, ERCK, EPIT, EPIC, EPII, EPIE, SFNW, NOSC, NOPH, NOLT, NOLW, NOTF, NOPX, NPXT, JLFO, RLFO, RLFW and EHAZ, as detected during the inspections...

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

Columns or post projecting into carriageway or footway. Damaged columns, arm lantern or post that may fall onto the carriageway, footway or private land. Damage to cabinets that exposes wiring/internal equipment.

Missing or unsecured doors on columns or feeder pillars (excluding central reservation). Insecure lanterns or arms. Total column failure. Component failure resulting in high safety risk. Any indications of instability of

columns or other equipment. A structural fault requiring maintenance in advance of the next cyclic maintenance visit – Category 3 or 4 from column general inspection.

Exposed live electrical apparatus, exposed or extraneous conductive parts of electrical apparatus made live under fault conditions, supply failure to two or more consecutive columns, a phase failure with one in three lamps out in a road section.

Cables that have failed safety electrical testing or present a safety risk such as earth loop impedance value in excess of the maximum allowable for the protective device, exposed live cores (including neutral), failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.

## Structures

Inspection Requirement	Detailed inspections of Structures and associated equipment: EMG019 – Festive Lighting Supplies EMG029 – Cathodic Protection Equipment EMG030 – Maintenance Access Equipment	
Inspection Frequency	RE	Routine Electrical Inspection, (EMG 029/1) - 24mth
	ST	Periodic Electrical Inspection, (EMG 011/1-7,9 & 029/2-6,8 & 030/1-5,7) - 60mth
	RD	RCD Test, (EMG 011/8 & 029/7 & 030/6) - 3mth

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1

RCD failure	2	RCDF	Number		1	1
Electrical condition	2	COEL	Number		1	1
Wiring deterioration	2	WDET	Number		1	1
Physical condition of fittings	2	COFT	Number		1	1
No electrical supply	2	NOSP	Number		1	1
No fuse	2	FUSE	Number		1	1
Other	2	OTHR	Number		1	1
None	2	NONE	Number		1	1

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT, EPIC, EPII, EPIE and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Roadside Services

Inspection Requirement	Detailed inspections of Roadside Services and associated equipment: EMG013 – Roadside Services	
Inspection Frequency	RE	Routine Electrical Inspection, (EMG 013/1-6,8-9) - 12mth
	ST	Periodic Electrical Inspection, (EMG 013/7) - 60mth

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
<b>Lighting failure</b>	2	LAMP	Number		1	1
<b>No electrical supply</b>	2	NOSP	Number		1	1
<b>Electrical condition</b>	2	COEL	Number		1	1



Other	2	OTHR	Number		1	1
None	2	NONE	Number		1	1

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPIL defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Sea and Air Navigation Lights

Inspection Requirement	Detailed inspections of Sea and Air Navigation Lights and associated equipment: EMG020 – Sea and Air Navigation Lights	
Inspection Frequency	RE	Routine Electrical Inspection, (EMG 020/1-6,8-9) -24mth
	ST	Periodic Electrical Inspection, (EMG 020/7) - 60mth
	SS	Night Safety Inspection 14 day - Signs & lighting - 14d
	SS	Night Safety Inspection 28 day - Signs & lighting - 28d

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
<b>Lighting failure</b>	2	LAMP	Number		1	1

Physical condition of fittings	2	COFT	Number		1	1
No electrical supply	2	NOSP	Number		1	1
Obscured lamp	2	OBLP	Number		1	1
Lamp or other circuit failure causing faulty illumination	2	EFAL	Number		1	1
Electrical condition	2	COEL	Number		1	1
Other	2	OTHR	Number		1	1
None	2	NONE	Number		1	1

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPIL defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

Failure in illumination of air or sea navigation lights.

## Traffic Control Barriers

Inspection Requirement	Detailed inspections of Traffic Control Barriers and associated equipment: EMG031 – Traffic Control Barriers	
Inspection Frequency	RE	Routine Electrical Inspection, (EMG 031/1-5,7-8) - 24mth
	TE	Periodic Electrical Inspection, (EMG 031/6) - 60mth

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
<b>Damaged gate</b>	2	DGTC	Number		1	1
<b>Mechanical/electrical failure</b>	2	METC	Number		1	1
<b>Exposed wiring</b>	2	EXPW	Number		1	1

No electrical supply	2	NOSP	Number		1	1
Other	2	OTHR	Number		1	1
None	2	NONE	Number		1	1

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Traffic Signs

<b>Inspection Requirement</b>	<b>Detailed inspections of Traffic Signs and associated equipment:</b> <b>EMG0004 – Illuminated Traffic Signs</b> <b>EMG006 – Lit Gantries</b> <b>EMG012 – Inclement Weather Signs</b> <b>EMG014 – 20mph School Zone Warning Signs</b> <b>EMG015 – Variable Message Signs (VMS)</b> <b>EMG016 – School Crossing Signs</b> <b>EMG017 – Speed Recognition and Warning Signs</b> <b>EMG018 – Automatic Hazard Warning Signs</b>	
<b>Inspection Frequency</b>	SE	Routine Electrical Inspection, (EMG 004/2-6,8-9 & 006/2-7,9-10 & 014/2-4,6-7,9-10 & 015/2-4,6-7,9-10 & 016/2-3,5-6,8-9 & 017/2-4,6-7,9-10 & 018/2-4,6-7,9-10) - 24mth
	ST	Periodic Electrical Inspection, (EMG 004/7 & 006/8 & 014/8 & 015/8 & 016/7 & 017/8 & 018/8) - 60mth
	RD	RCD Test, (EMG 014/5 & 015/5 & 016/4 & 017/5 & 018/5) - 3mth
	CYCCL1	Cyclic - Lamp Clean/Chng & Inspect - Lit Signs etc. (EMG 004/1 & 006/1 & 014/1 & 015/1 & 016/1 & 017/1 & 018/1) - 12mth
	CYCCM1	Cyclic - Lamp Clean/Chng & Inspect - Lit Signs etc., (EMG 004/1 & 006/1 & 014/1 & 015/1 & 016/1 & 017/1 & 018/1) - 24mth
	SS	Night Safety Inspection 14 day - Signs & lighting - 14d
	SS	Night Safety Inspection 28 day - Signs & lighting - 28d

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1



Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Any one lamp out where the sign is regulatory/mandatory	1	LAMP	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
Lamp on during day	2	LPON	Number		1	1
Electrical condition	2	COEL	Number		1	1
PECU failure	2	TMSW	Number		1	1
Timeswitch failure	2	FUSE	Number		1	1
No fuse	2	DAMG	Number		1	1
Damaged other than accident damage	2	NOSP	Number		1	1
No electrical supply	2	RCDF	Number		1	1
RCD failure	2	OTHR	Number		1	1
Other	2	NONE	Number		1	1
None	2	LPON	Number		1	1

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIC, EPII, EPIE, LAMP and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Weather Stations

Inspection Requirement	Detailed inspections of Weather Stations and associated equipment: EMG010 – Weather Stations	
Inspection Frequency	RE	Routine Electrical Inspection, (EMG 010/1-2,6-7,9-10) - 24mth
	ST	Periodic Electrical Inspection, (EMG 010/10) - 60mth
	RD	RCD Test, (EMG 010/5) - 3mth
	WH	Heater Check where applicable, (EMG 010/3) - 4mth
	WM12	12mth Manufacturers Checks, (EMG 010/4) - 12mth
	WM24	24mth Manufacturers Checks, (EMG 010/4) - 24mth
	IC	Detailed Inspection and calibration checks in accordance with the manufacturer's recommendations - August to September and December to February in each Annual Period

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Columns or post projecting into carriageway or footway	1	COLP	Number		1	1
Total failure, visible instability, or damaged column or post that may fall onto the carriageway, footway or private land	1	COPF	Number		1	1
Damaged or defective, or visible instability of bracket, arm or lantern that may fall onto the carriageway, footway or private land	1	COLU	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1

Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
Any functional failure of equipment	1	AFFE	Number		1	1
Missing equipment essential for operation essential for operation	1	MISS	Number		1	1
Obscuration effecting equipment performance particularly the CCTV cameras where fitted	1	ALOB	Number		1	1
<b>Accident damage</b>	1	ACCD	Number		1	1
<b>Road sensor failure</b>	2	ROSE	Number		1	1
<b>Damage to cabinets</b>	2	DAMG	Number		1	1
<b>Other sensor failure</b>	2	OTSE	Number		1	1
<b>CCTV Failure defined as loss of any function</b>	2	TVFL	Number		1	1
<b>Processor failure</b>	2	PROC	Number		1	1
<b>Electrical condition</b>	2	COEL	Number		1	1
<b>Defective conspicuity banding on equipment located in areas accessible to the public</b>	2	DDAD	Number		1	1
<b>No electrical supply</b>	2	NOSP	Number		1	1
<b>RCD failure</b>	2	RCDF	Number		1	1
<b>Structural Condition</b>	2	COPT	Number		1	1
<b>Obscuration</b>	2	ALOB	Number		1	1
<b>Other</b>	2	OTHR	Number		1	1
<b>None</b>	2	NONE	Number		1	1

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects COLP, COPF, EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT, EPIC, EPII, EPIE, AFFE, MISS, ALOB, ACCD and EHAZ, as detected during the inspections.

Faulty operation – Any defect in the operation of any aspect of the equipment.

Missing equipment essential for correct operation.

Accident damage – support posts projecting or overhanging carriageway, adjacent land or pedestrian area.

Structural condition – Corrosion of the posts likely to cause collapse. Corrosion, loose or missing fixings that may allow the post mounted equipment to become detached from the post.

Obscuration – affecting the performance of the equipment particularly the CCTV cameras, where fitted

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Wildlife Counters

Inspection Requirement	Detailed inspections of Wildlife Counters and associated equipment: EMG023 – Wildlife Counters	
Inspection Frequency	RE	Routine Electrical Inspection, (EMG 023/1-4,6-9,11-12) - 24mth
	ST	Periodic Electrical Inspection, (EMG 023/10) - 60mth
	RD	RCD Test, (EMG 023/5) - 3mth

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
<b>Electrical condition</b>	2	COEL	Number		1	1
<b>RCD failure</b>	2	RCDF	Number		1	1

Other	2	OTHR	Number		1	1
None	2	NONE	Number		1	1

**Category 1 Defects include but shall not be limited to the following Defects:**

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIT, EPIC, EPII, EPIE and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works

## Navigation Aids

Inspection Requirement	Detailed inspections of Wildlife Counters and associated equipment: EMG023 – Wildlife Counters	
Inspection Frequency	RE	Routine Electrical Inspection, (EMG 021/1-6,8-9) - 24mth
	ST	Periodic Electrical Inspection, (EMG 021/7) - 60mth

Defect Description	Maximum Defect Category	Code	Attribute	Units	Min.	Max.
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	1	EXLH	Number		1	1
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	1	EXLL	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	1	EXNH	Number		1	1
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	1	EXNL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	1	EHLH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	1	EHLL	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	1	EHNH	Number		1	1
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	1	EHNL	Number		1	1
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	1	COEL	Number		1	1
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	1	EPIT	Number		1	1
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	1	EPIC	Number		1	1
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	1	EPII	Number		1	1
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	1	EPIE	Number		1	1
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	1	ERCK	Number		1	1
Hazardous electrical defect	1	EHAZ	Number		1	1
<b>Physical condition of fittings</b>	2	COFT	Number		1	1
<b>No electrical supply</b>	2	NOSP	Number		1	1
<b>RACON or other device failure</b>	2	NAVF	Number		1	1



Other	2	OTHR	Number		1	1
None	2	NONE	Number		1	1

**Category 1 Defects include but shall not be limited to the following Defects:**

Failure of air or sea navigation lights or failure of RACON or other navigation aids.

Any defect introducing an immediate or potential electrical hazard to the public, road user, maintenance personnel, livestock and/or property. This shall include, but not be limited to, hazards arising from defects EXLH, EXLL, EXNH, EXNL, EHLH, EHLL, EHNH, EHNL, COEL, ERCK, EPIC, EPII, EPIE and EHAZ, as detected during the inspections.

EPIT defects - Ze faults shall be reported to DNO within 24hours. OLC shall advise TS if DNO progress goes beyond 7 days.

EPII defect shall also be identified on the certificate, checked at intervals not exceeding 12 monthly until remedied and entered into the programme of works



## Arrester Beds

### Permitted Inventory Items

- Arrester Beds (AB)

As part of the Detailed Inspection of arrester beds, the Operating Company shall prepare a report on the condition of arrester beds which shall be attached to the relevant inventory item in the Routine Maintenance and Management System.

The Operating Company's Detailed Inspection regime for the arrester beds shall ensure that the inspection identifies any deficiencies in the ability of the arrester bed to stop a heavy vehicle leaving the road.

Inspection Requirement	Detailed inspections of arrester beds	
Inspection Frequency	AB	Detailed Inspection every 6 months.

Defect Description	Code	Attribute	Units	Min.	Max.
Other	OTHR				
None	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

OTHR                      Any deficiency in an arrester bed to stop a heavy vehicle.



## Snow Poles

### Permitted Inventory Items

- Snow Poles (SP)
- Traffic Control Barriers (CB) – {Where 'Traffic Control Barrier Location'='Snow Gate'}
- Fences and Barriers (FB) – {Where 'Function'='Snow Fence'}
- Traffic Sign (SG) – {Where 'Category'='Hidden Message'}

This section deals with the Detailed Inspection of snow poles.

For inspection requirements and defect categorisation for any applicable electrical aspects of these inventory items see section 'Roadside Electrical Apparatus, Road Lighting and Power Supplies'

Inspection Requirement	Detailed inspections of snow poles, snow gates, snow fences and snow and ice hidden message signs	
Inspection Frequency	SP	Annual Detailed Inspection during June or July

Defect Description	Code	Attribute	Units	Min.	Max.
Missing snow pole	MISP	Number:		1	50
Damaged snow pole	DMSP	Number:		1	50
Other	OTHR				
None	NONE				

#### Category 1 Defects include but shall not be limited to the following Defects:

MISP, DMSP Missing or damaged snow pole during the Winter Service Period.



## Traffic Control Barriers

### Permitted Inventory Items

- Traffic Control Barriers (CB)

This section relates to the Detailed Inspection of traffic control barriers which are generally found at bridge crossings, canal crossings and where there may be weather related hazards. Defects could result in the road not being closed due to severe weather conditions and have major safety implications to the travelling public.

For inspection requirements and defect categorisation for any applicable electrical aspects of these inventory items see section 'Roadside Electrical Apparatus, Road Lighting and Power Supplies'

Inspection Requirement	Detailed inspections of traffic control barriers	
Inspection Frequency	TC	Structural Condition - Annual Detailed Inspection.
		Mechanically and electrically operated traffic control barriers - Annual Detailed Inspection or in accordance with manufacturer's instructions where more frequent.

Defect Description	Code	Attribute	Units	Min.	Max.
Damaged gate	DGTC	Number:		1	50
Mechanical/electrical failure	METC	Number:		1	50
Other	OTHR				
None	NONE				

### Category 1 Defects include but shall not be limited to the following Defects:

DGTC	Damaged can include defects such as corrosion, structural damage or faulty fixings to the adjacent surface (verge). Missing or damaged snow gate during Winter Service Period.
METC	Mechanical and Electrical failure includes defects effecting the smooth operation of the opening closing mechanism of the barrier or warning systems for approaching vehicles.

## Litter and Refuse



### Permitted Inventory Items

- Channel (CH)
- Central Island (CI)
- Central Reserve (CR)
- Cycle Facility (CT)
- Carriageway (CW)
- Embankments and Cuttings (EC)
- Footway (FW)
- Hardshoulder (HS)
- Kerb (KB)
- Lay-by (LB)
- Verge (VG)
- Crossover (XO)

This section relates to the removal of litter from motorways and strategic routes and on associated lay-bys, paved areas and verges, the sweeping and cleansing of all channels and motorway hard shoulders, cleansing and removal of debris from traffic lanes, hard shoulders, verges and central reserves and footway and cycle track sweeping.

Serious and extensive accumulations of detritus, leaf-fall and litter should be removed as soon as possible to prevent further unnecessary maintenance work.

Inspection Requirement	Detailed inspections of the trunk road network	
Inspection Frequency	SW	Sweeping and cleansing Inspections as necessary to ensure the Scottish Ministers comply with the <i>Code of Practice on Litter and Refuse</i> .

Defect Description	Code	Attribute	Units	Min.	Max.
Litter Grade C	LITC	Area:	sq metres	1	250
Litter Grade D	LITD	Area:	sq metres	1	250
<b>Excessive muck</b> Need for sweeping/cleansing in trunk road channels, motorway hardshoulders, traffic lanes, verges, central reserves, footways and cycle facilities.	MUCK	Area:	sq metres	1	250
<b>Need for herbicide</b> Growth of grass or other vegetation between the channel and kerb which shall be likely to obstruct the flow of water or cause structural deterioration.	HERB	Area:	sq metres	1	250
Debris in traffic lane	DBTL	Area:	sq metres	1	250
Debris in hardshoulder	DBHS	Area:	sq metres	1	250
Detritus	DETR	Area	sq metres	1	250
Other	OTHR				
None	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

DBTL, DBHS	Debris on the hardshoulder or carriageway that could damage a vehicle or cause road users to take avoiding action (note: immediate action should be taken to remove such debris).
DETR, MUCK	Any severe accumulation of dirt, stone, gravel or other material in the hardshoulder or carriageway (note: immediate action should be taken to deal with oil spillages).



**LITD** Litter grade D



**MUCK** Excessive Muck



**DBHS** Debris in hard shoulder



**DBTL** Debris in Traffic Lane



**HERB** Need for Herbicide

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## Dead Animals

### Permitted Inventory Items

- Carriageway (CW)
- Crossovers (XO)
- Central Reserves (CR)
- Central Islands (CI)
- Hard Shoulders (HS)
- Lay-by (LB)
- Verge (VG)

This section relates to the observation, removal and recording of animals found dead within the carriageway and immediate surrounds as a result of a collision with a vehicle. In particular it is used to record specified priority conservation species of animal.

Particular consideration should be given to any carcass found of the specified species which due to its size, type or location may constitute an immediate danger to road users, either directly (secondary strike) or indirectly (avoiding action).

The information relating to this section is required to be collated and reviewed before being summarised within the Annual Report which forms part of the Landscape Development Plan.

Inspection Requirement	Detailed inspections not required - summary report of road kill records and species to be included in Annual Landscape Management Plan as required by the Contract.
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Defect Description	Code	Attribute	Units	Min.	Max.
Otter carcass – male	OCMA	length	cm		
Otter carcass – female	OCFE	length	cm		
Otter carcass – gender unknown	OCGU	length	cm		
Otter carcass – lactating female	OCLF	length	cm		
Otter carcass – juvenile	OCJU	length	cm		
Badger carcass – male	BCMA	length	cm		
Badger carcass – female	BCFE	length	cm		
Badger carcass – gender unknown	BCGU	length	cm		
Badger carcass – lactating female	BCLF	length	cm		
Badger carcass – juvenile	BCJU	length	cm		
Red deer carcass – male	RDMA	length	cm		
Red deer carcass – female	RDFE	length	cm		
Red deer carcass – gender unknown	RDGU	length	cm		
Red deer carcass – juvenile	RDJU	length	cm		
Roe deer carcass – male	ROMA	length	cm		
Roe deer carcass – female	ROFE	length	cm		
Roe deer carcass – gender unknown	ROGU	length	cm		
Roe deer carcass – juvenile	ROJU	length	cm		
Fallow deer carcass – male	FDMA	length	cm		
Fallow deer carcass – female	FDFE	length	cm		

Fallow deer carcass – gender unknown	FDGU	length	cm		
Fallow deer carcass – juvenile	FDJU	length	cm		
Other deer species carcass	ODSP	length	cm		
Red squirrel carcass	RSQU	length	cm		
Barn owl carcass	BOWL	length	cm		
Other raptor species carcass	ORSP	length	cm		
Other carcass	OTHR				
None	NONE				

**Category 1 Defects include but shall not be limited to the following Defects:**

All Defect Codes      Dead animal on the hardshoulder or carriageway that could damage a vehicle or cause road users to take avoiding action.

Dead animals which could cause a risk to health or the environment.

If animal is tagged or marked by conservationists, the OC shall attempt to notify the police or the organisation responsible for the tag.



Barn Owl



Other Raptor Species



Red Deer



Roe Deer



Fallow Deer



Other Deer Species - Muntjac



## Removal of Graffiti

### Permitted Inventory Items

- n/a

Detailed Inspections to identify areas of graffiti which includes paint, posters and encrusted deposits. Offensive graffiti which is racist, religiously bigoted, inflammatory, sexually explicit or obscene shall be removed within two days of identification, and all other graffiti shall be removed within 25 Working Days of identification.

Inspection Requirement	Detailed inspections of the trunk road network	
Inspection Frequency	GT	Detailed Inspections shall be undertaken as necessary to identify areas of graffiti on the network.

Defect Description	Code	Attribute	Units	Min.	Max.
Presence of Graffiti	GRAF	Area:	sq metres	1	250
Other	OTHR				
None	NONE				

#### Category 1 Defects include but shall not be limited to the following Defects:

GRAF                      Graffiti which is racist, religiously bigoted, inflammatory, sexually explicit or obscene.



## Node Markers

### Permitted Inventory Items

- Reference Marker Point (RF)

This section relates to the Detailed Inspection of node markers. The start and end points of Links and Sections are marked by sets of studs, or nodes. Each node represents a fixed definable point on the road surface to which chainage can be related.

During inspections, the node marker location shall be checked against the location coordinates and documents stored in IRIS. Any node markers that are found to be missing or defective shall be replaced by the Operating Company within 25 Working Days of their identification to the location described in the node marker location document.

Inspection Requirement	Detailed inspections of node markers	
Inspection Frequency	NM	Annual Detailed Inspection

Defect Description	Code	Attribute	Units	Min.	Max.
Missing or damaged nodes	MIRF				
Other	OTHR				
None	None				

#### Category 1 Defects include but shall not be limited to the following Defects:

MIRF      Any missing or damaged network node marker used to reference and record Routine Management Maintenance System data.



## Network Referencing

### Permitted Inventory Items

- n/a

During the Detailed Inspection, the Operating Company shall review all network referencing attributes held against each link or section record in the Scottish Executive Road Information System. The section length shall be measured during each inspection. Any discrepancies in the network referencing attributes shall be recorded in the Routine Maintenance Management System and shall be notified in writing to the Director within 25 Working Days of identification.

Inspection Requirement	Detailed inspections of all network referencing	
Inspection Frequency	NR	Detailed Inspection of all network referencing at intervals not exceeding three years and on approximately one third of the network each year

Defect Description	Code	Attribute	Units	Min.	Max.
n/a					

## Flooding



### Permitted Inventory Items

- Balancing Pond (BP)
- Counterfort Drain (CD)
- Channel (CH)
- Catchpit (CP)
- Culvert (CV)
- Ditch (DI)
- Filter Drain (FD)
- Grip (GP)
- Gully (GY)
- Interceptor (IN)
- Manhole (MH)
- Piped Grip (PG)

This section relates to the flooding of the road caused by inadequate provision or operation of road drainage facilities, by abnormally high river and tidal water or by inadequacies in the non-road drainage system. The Operating Company shall ensure that the drainage systems and associated Structures referred to in Schedule 7 Part 1 of the Operating Company Contract are maintained in accordance with the requirements of paragraphs 4.5 to 4.12 to be structurally sound and able to remove water from trafficked surfaces and sub-layers without causing pollution and flooding and that the effects of any flooding are mitigated.

Flooding shall be defined as a sufficient amount of water lying on, or running along/across the carriageway which:

- represents a hazard to road users,
- may interrupt the free flow of traffic,
- cause damage to other Structures or the carriageway.

A flooding report shall be completed for each occurrence of flooding and attached to the relevant Defect Record in the Routine Maintenance and Management System within four days.

Inspection Requirement	Detailed inspections of the above inventory items.	
Inspection Frequency	FL	<p>Detailed Inspections during periods of wet weather, (i) at known flooding Disruption Risk Sites, and (ii) to identify other areas of flooding or evidence of flooding.</p> <p>Detailed Inspections as necessary to identify flooding reported as a result of an inspection, patrol, report from an Emergency Service, report or complaint from the public or other source.</p>

Defect Description	Code	Attribute	Units	Min.	Max.
Flooding	FLOD	Area:	sq metres	1	250
Pollution	POLN				
Flood Nuisance to Properties	NRNP				
Flood Nuisance to Services	NSER				
Other	OTHR				
None	NONE				

### Category 1 Defects include but shall not be limited to the following Defects:

NPRP, NSER	Indications that flooding of any private property is imminent.
FLOD	Sufficient amount of water lying on the network which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other Structures or the carriageway.
POLN	Visual evidence of pollution.





## Forth Road Bridge

### Permitted Inventory Items

- Structures (ST)

This section relates to the Inspection of the Forth Road Bridge only and in particular the identification of Category 1 defects which should be identified as a result of all inspection including safety inspections, safety patrols, night inspections, detailed inspections and ad-hoc inspections. This is in addition to the requirements of Schedule 7 Part 6 and Schedule 7 Part 7.

Defect Description	Code	Attribute	Units	Min.	Max.
Failure of end trimmer on side span	FRB01	Number:	No.	1	1
Failure of end trimmer on main span	FRB02	Number:	No.	1	1
Failure of the comb joints	FRB03	Number:	No.	1	1
Failure of movement joints between side tower and suspended span	FRB04	Number:	No.	1	1
Failure of the components of the demag expansion joints	FRB05	Number:	No.	1	1
Failure of welds or components of the Truss end links at main tower	FRB06	Number:	No.	1	1
Other	OTHR				
None	NONE				

#### Category 1 Defects include but shall not be limited to the following Defects:

FRB01,  
FRB02,  
FRB03,  
FRB04,  
FRB05,  
FRB06.

# Appendix A – Acronyms and Supporting Documents

## A1 Table of Acronyms

Acronym	Description
IRIS	Integrated Road Information System
RMMF	Routine Maintenance Management System
PMS	Pavement Management System
DCD	Data Capture Device
RRRAP	Road Restraint Risk Assessment Process
XSP	Cross Sectional Position
SRTDb	Scottish Roads Traffic Database
RAMP	Road Asset Management Plan

## A2 Supporting Documents

Name of Document
Design Manual for Roads and Bridges. HD41/03 Maintenance of Highway Geotechnical Assets
Design Manual for Roads and Bridges. TD26/07 Inspection and Maintenance of Road Markings and Road Studs on Motorways and All-Purpose Trunk Roads
Design Manual for Roads and Bridges. TD24/97 All-Purpose Trunk Roads Inspection and Maintenance of Traffic Signals and Associated Equipment
Design Manual for Roads and Bridges. TC19/06 Requirement for Road Restraint Systems
The Traffic Signs Regulations and General Directions
Transport Scotland LDS8023_09 – Electrical Maintenance Guidelines
4 <sup>th</sup> Generation Term Contract for Management and Maintenance of the Scottish Trunk Road Network
Well Maintained Highways Code of Practise for Highway Maintenance Management

## Appendix B – Pavement Surface Identification

### HRA (Hot Rolled Asphalt)

Hot rolled asphalt was the predominant surfacing material for UK main roads until about 1995. It is essentially a gap-graded material composed of coarse aggregate surrounded by a mixture or mastic of bitumen, sand and very fine material (filler). The strength is largely derived from the stiffness of the matrix for its mechanical stability, whereas coated macadam derives its strength from the mechanical interlock of the constituents.

Pre-coated high polished stone value (PSV) chippings are applied to the hot-laid material and rolled in to form a skid resistant surface. They are therefore referred to as positive texture materials. Individual chippings and the smooth asphalt layer are both seen.

### Anti-Skid Surface

Also known as High Friction Surfacing, this is a veneer treatment at locations where high resistance to skidding is required such as approaches to traffic signals, crossings, on bends or where high braking may occur. The systems comprise a resin binder which also acts as an adhesive for the fine single sized calcined bauxite aggregate. This is very hard and has a high PSV.

The Anti-Skid Surface is applied hot as a sprayed film of resin into which the aggregate is spread or as a mixture which includes the aggregate screeded onto the existing surface in bands. It is usually grey or natural buff colour but may be coloured through the pigmentation of the binder and coating of the aggregate.

### Surface Dressing

Traditionally known as “Tar and Chip” it is an economical treatment to seal the surface against water ingress and restore skidding resistance. The purpose of surface dressing is to create a stable mosaic of chippings securely attached to the road surface. It does not improve structural strength. Bitumen, usually in the form of an emulsion, is sprayed onto the road surface at an appropriate rate from the spray bar at the rear of a large tanker containing the bitumen emulsion. Chippings of an appropriate size are immediately applied to the bitumen by a large spreader, which usually tows behind it a lorry containing the chippings.

### Bituminous Macadam

Bituminous macadam, also known as Asphaltic Concrete, depends primarily on a well-graded aggregate and the mechanical interlock for its strength, using the bitumen as a binder. They are generally used on lightly trafficked or urban roads and may be open or close graded. The close graded materials may have a smooth overall surface with little texture although this will generally increase over the life of the material.

### Concrete

Concrete pavements may be either reinforced or unreinforced. They have regular length bays with transverse joints (at 25-30m spacing for reinforced and 4-6m spacing for Unreinforced). They are extremely durable and many are still in service as a concrete surface after 40 or 50 years. However they generally generate more traffic noise than bituminous pavements and for that reason cannot now be laid without a bituminous surface course.

## Slurry Seal and Microasphalt

Slurry seals are cold mixed materials based on bitumen emulsion, crushed rock aggregate, cement, water and a break-control additive. They can be either hand mixed for use on footways, or machine mixed for carriageway application. It is rapid setting even at low temperatures. In most situations the surface and surroundings will be fully operational and clean within a few hours. It leaves no loose chippings and will not fat or bleed in hot weather. Microasphalt is slurry containing coarse aggregate (up to 6mm) to enable a thicker application.

The materials can be made relatively stiff so that they will regulate rutting and trench reinstatements and can be used on all flexible footways and moderately heavily trafficked roads.

## Thin Surface Course Systems (TSCS)

Thin Surface Course Systems are all proprietary materials, i.e. they will all be sold as a brand named product, and will have received approval from the British Board of Agrément under HAPAS. They have replaced the more traditional hot rolled asphalt wearing course as the standard material for all new construction and maintenance work on UK trunk road networks.

They are open graded materials, have a negative texture and are composed entirely of high PSV aggregate. The open grading reduces the noise generated by vehicle tyres on this surface and for this reason are sometimes referred to as quieter surfacing. They derive their strength from the mechanical interlock of the constituents in a similar way to coated macadam, but their very open texture can result in extremely rapid failure once the fine particles start to fret away.

TSCS were derived from Stone Mastic Asphalts (SMA) which originated in Germany and are made and laid in the same way as the more common coated macadam. However TSCS are not SMA and these materials have no specification in the UK.



**01** Surface: Hot Rolled Asphalt (code 1)

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**02** Surface: Bitumen Macadam (code 2)

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**03** Surface: Concrete (code 3)

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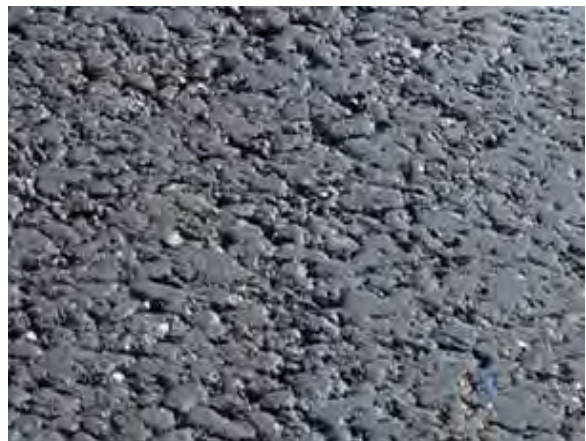
**04** Surface: Surface Dressed (code 4)

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**05** Surface: Block Paving (code 8)

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**06** Surface: Thin Surface Course System - TSCS (code 9)

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# Appendix C – Traffic Sign Guidance

## C1 Traffic Signs Schedule

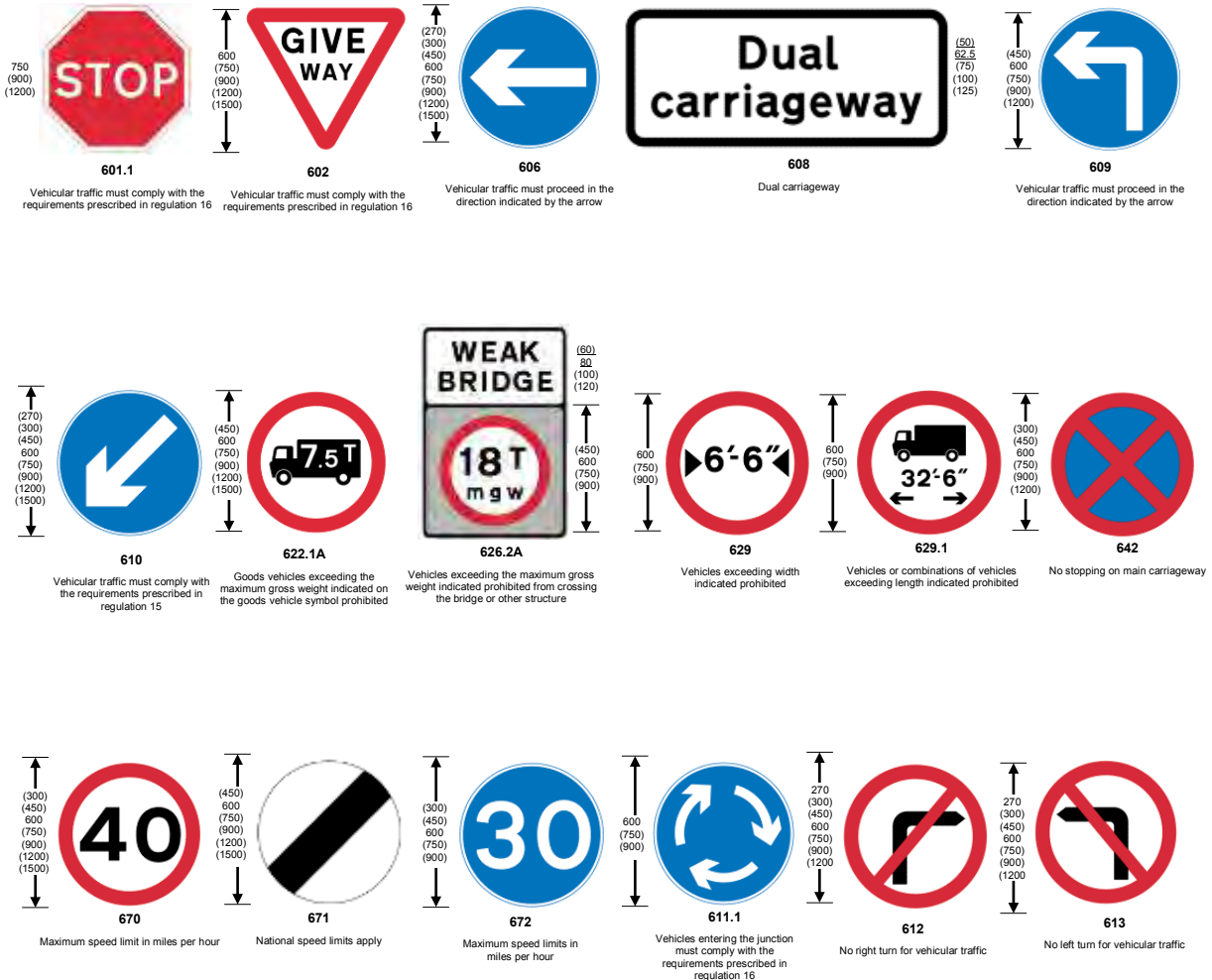
The page reference to locate various types of traffic signs in the Traffic Signs and Regulations and General Directions (TSRGD) 2002 manual is given in the table below.

Traffic Sign Type	TSRGD Page
Triangle warning	47 - 76
Round/oblong regulatory	77 - 90
Yellow loading	91 - 99
Parking	100 - 109
Speed restriction	110 - 111
Railway	112 - 118
Miscellaneous information	119 - 136
Directional arrow	137 - 141
Traffic camera	141
Bus	145 - 156
Primary route (green route) directional	207 - 222
Non-primary route (white route) directional	223 - 243
Brown services & tourist	244 - 258
Boundary	259 - 260
Directional signs to parking	262 - 264
Cycle & pedestrian	265 - 269
Temporary & emergency directional	270 - 276
Motorway directional	277 - 292

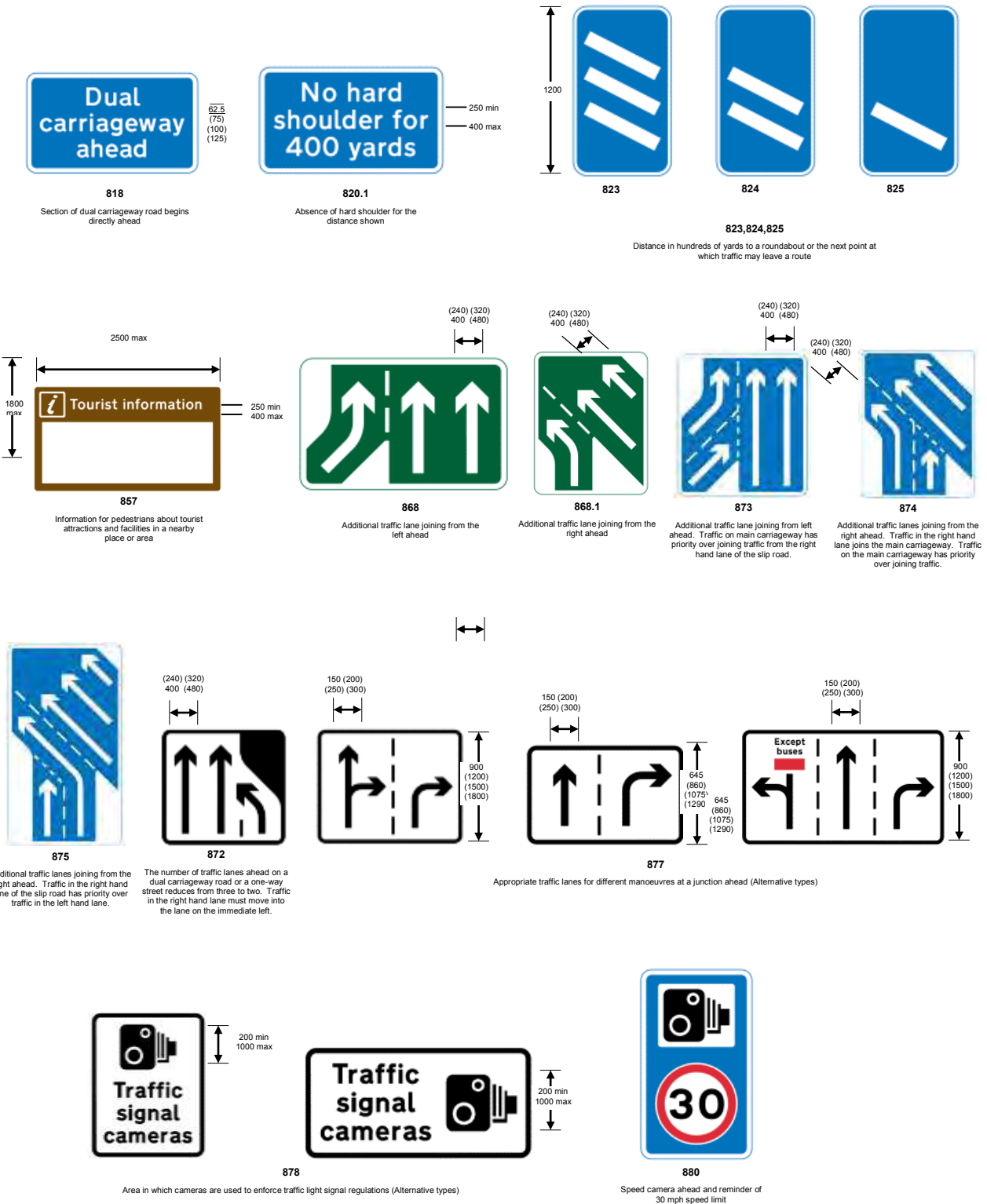




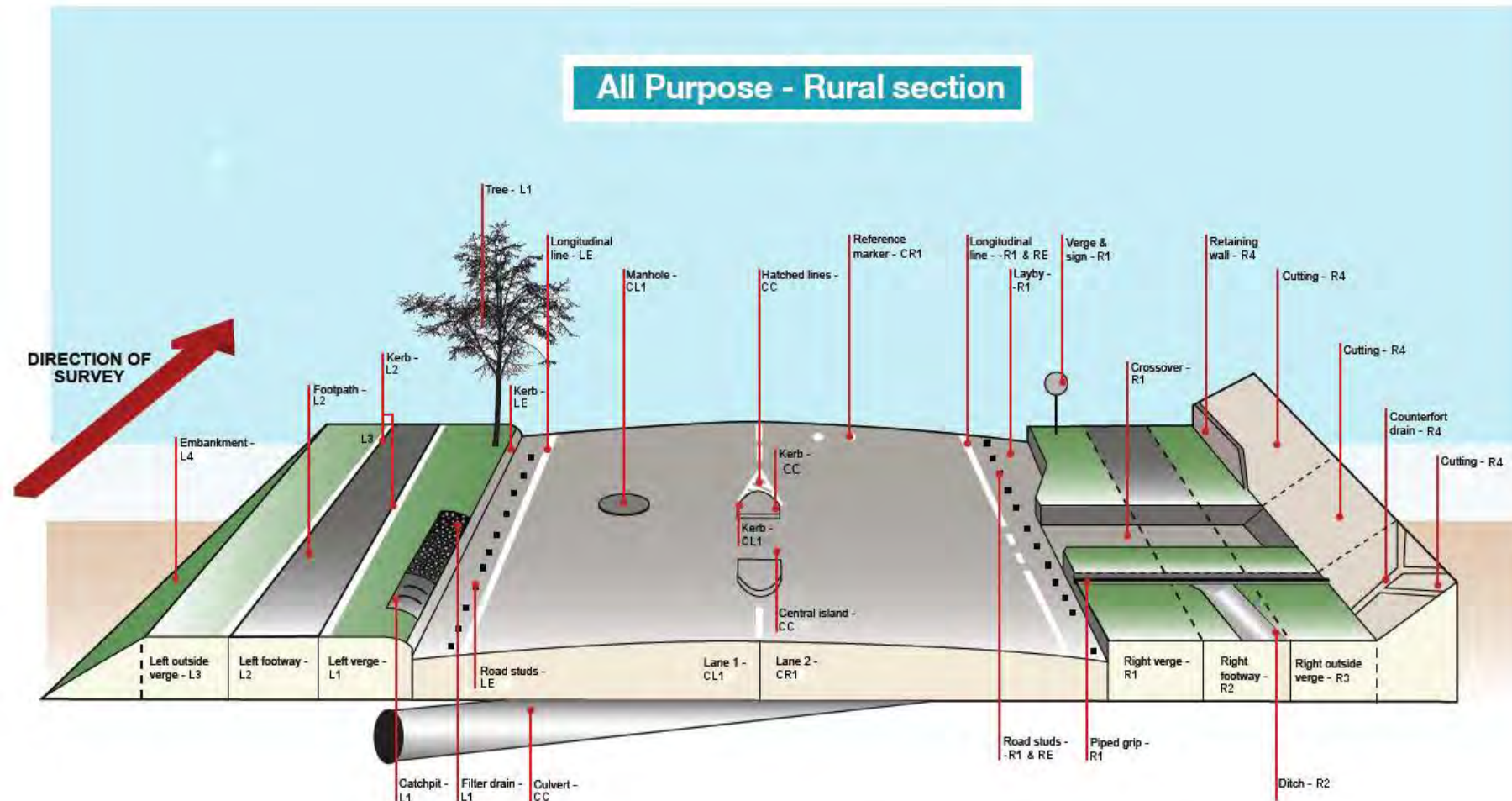
### C3 Regulatory Sign Examples

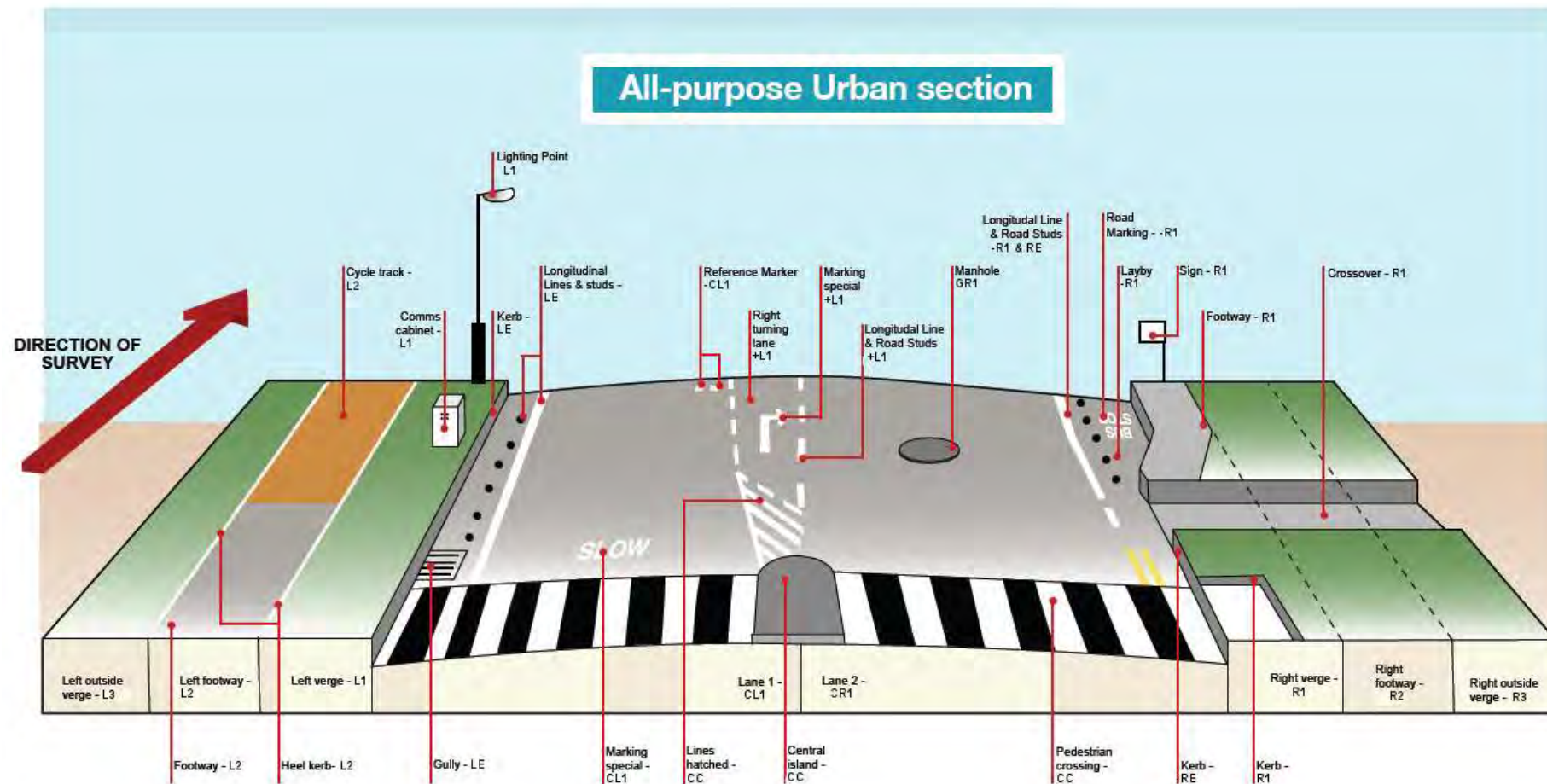


## C4 Information Sign Examples

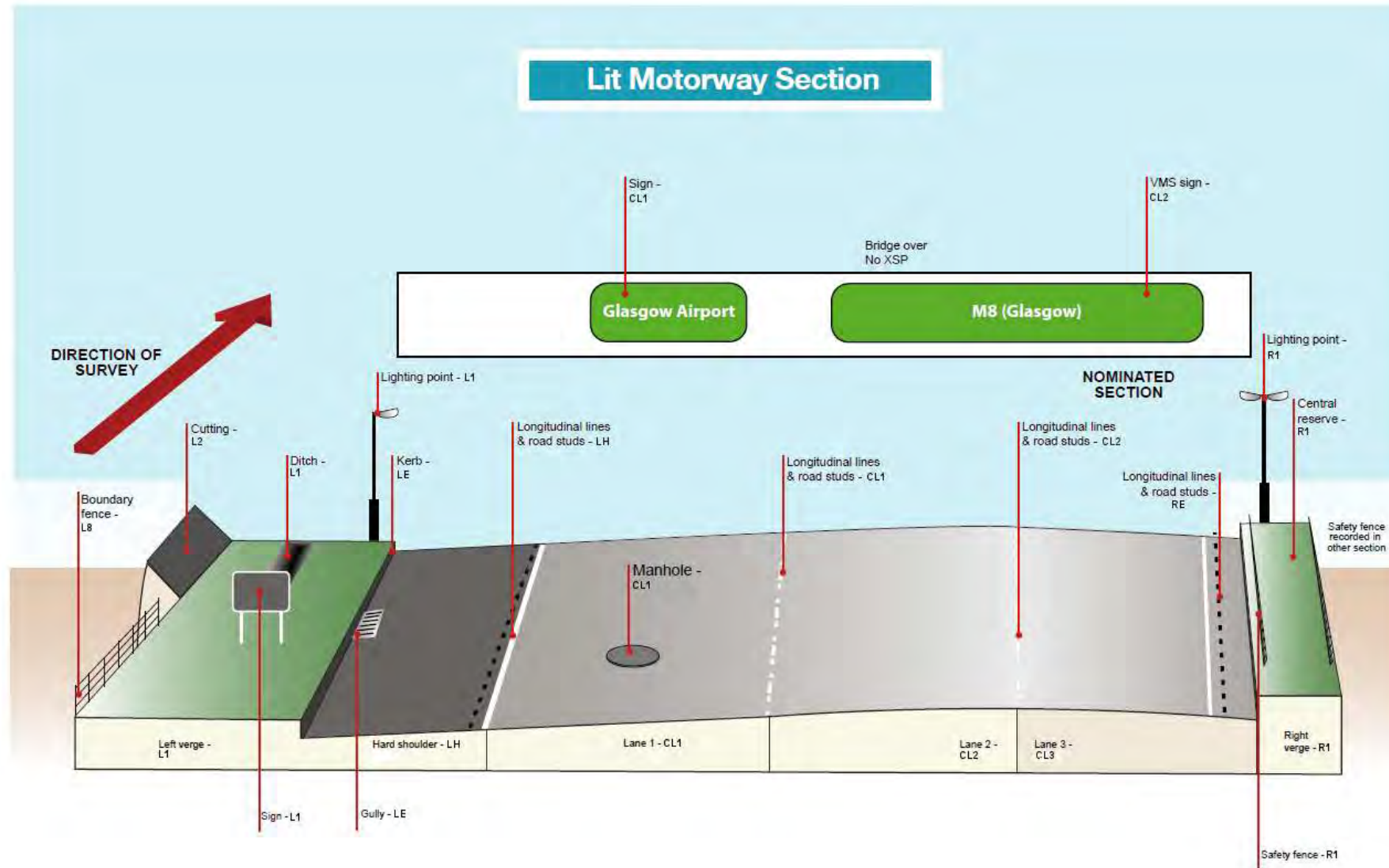


## Appendix D – XSP Examples









## Appendix E – Electrical Safety at Site

- 1) The Operating Company (OC) shall ensure all personnel at the site are familiar with the Equipment, the Equipment installed, any modifications and/or changes in configuration of the Equipment and the layout of mains power supply, such as methods of isolation, termination and distribution.
- 2) The Operating Company shall ensure the requirements for any special equipment or Works Site specific to health and safety precautions and welfare are adhered to. These requirements may include the possession of a Permit to Work certificate.
- 3) The Operating Company shall ensure any necessary interruption of supply to any Equipment has the prior agreement of Traffic Scotland and the appropriate Contracted Third Party or Parties.
- 4) The Operating Company shall ensure the availability of all required tools, including equipment for gaining access to the site that includes appropriate electrical keys.
- 5) The Operating Company shall ensure all personnel prior to attending the site, are fully aware of the consequential effects that could arise from defects of any Equipment at the site.
- 6) The Operating Company shall ensure all personnel are aware of the consequences of failing to conform to any applicable Electrical Regulations.
- 7) The Operating Company shall ensure inspection and testing works are co-ordinated with other centres, offices or organisations, where appropriate. The Operating Company shall ensure prior arrangement and agreements are in place before entering other premises that include Equipment.
- 8) The Operating Company shall prepare and have in use by their personnel all appropriate Method Statements, Work Procedures and similar documents covering, inter alia, safe access and safe working on site. Where required by the Contract such Method Statements and Work Procedures shall incorporate guidance as contained within LDS ('Lighting Documents Scotland') and similar issued Transport Scotland documents.

# Appendix F – Inspection Timetable

Table 1.1

This table is for initial guidance. More detailed descriptions of frequency can be found in each individual section.

Activity	Days (Repeat on this basis)		Monthly (Repeat on this basis)					Years (Repeat on this basis)									
	14	28	0	1	3	6	9	1	2	3	4	5	6	7	8	9	10
Bituminous Carriageways																	
Bituminous Carriageways								x	x	x	x	x	x	x	x	x	x
Central Reserve Inspection									x		x		x		x		x
Structural Pavement Condition Survey***													x		x		x
Concrete Carriageways																	
Concrete Carriageways								x	x	x	x	x	x	x	x	x	x
Central Reserve Inspection									x		x		x		x		x
Structural Pavement Condition Survey***													x		x		x
Pedestrian and Cycle Facilities																	
Category A				x													
Category B						x											
All other areas								x	x	x	x	x	x	x	x	x	x
Covers, Gratings and Frames																	
Covers, Gratings and Frames								x	x	x	x	x	x	x	x	x	x
Central Reserve Inspection									x		x		x		x		x
Kerbs, Channels, Edgings and Quadrants																	
Kerbs, Channels, Edgings and Quadrants								x	x	x	x	x	x	x	x	x	x
Central Reserve Inspection									x		x		x		x		x
Linear Drainage Systems																	
Counterfort Drian, Catchpit, Filter Drain, Manhole, Piped Drainage, Interceptor, Gully, Piped Grip								x	x	x	x	x	x	x	x	x	x
Special Investigation prompted by evidence of a specific problem***																	
Specialist Video Inspection***																	
Gullies, Catchpits, Interceptors, Soakaways, Manholes and Oil Separators																	
Gullies, Catchpits, Interceptors, Soakaways, Manholes and Oil Separators								x	x	x	x	x	x	x	x	x	x
Central Reserve Inspection									x		x		x		x		x
Drainage Grips																	
Drainage Grips								x	x	x	x	x	x	x	x	x	x
Central Reserve Inspection									x		x		x		x		x
Ditches								x	x	x	x	x	x	x	x	x	x
Filter Material																	
Filter Material								x	x	x	x	x	x	x	x	x	x
Central Reserve Inspection									x		x		x		x		x
Drainage Structures							x										
Balancing Ponds							x										
Ancillary Drainage Items																	
Headwalls, Aprons & Spillways								x	x	x	x	x	x	x	x	x	x
Trash Screens, Watergates & Grilles							x										
Sluices, Tidal Flaps, Penstocks, Valves & Other Specialist Equipment							x										
Communications and Miscellaneous Equipment ***																	
Geotechnical Assets ***																	
Grass, Bulbs and Wildflower Areas																	
Grassed Area								x	x	x	x	x	x	x	x	x	x
Bulb & Wildflower Area								x	x	x	x	x	x	x	x	x	x
Invasive Species								x	x	x	x	x	x	x	x	x	x
Woodland Areas and Trees, Scrub Areas, Shrub Areas and Hedges																	
Woodland Areas & Trees								x	x	x	x	x	x	x	x	x	x
Mature Woodland Areas																	
Shrub Areas								x	x	x	x	x	x	x	x	x	x
Wetland Areas								x	x	x	x	x	x	x	x	x	x
Special Ecological Measures									x		x		x		x		x
Road Restraint Systems – Vehicle and Pedestrian																	
Vehicle Restraint Systems									x		x		x		x		x
Pedestrian Restraint Systems								x	x	x	x	x	x	x	x	x	x
Fences, Walls, Screens and Noise Barriers								x	x	x	x	x	x	x	x	x	x
Road Markings																	
Retro Reflectivity								x	x	x	x	x	x	x	x	x	x
Reflection (Daylight)						x											
Reflection (Darkness)						x											
Alternative Inspection								x	x	x	x	x	x	x	x	x	x
Skid Resistance								x	x	x	x	x	x	x	x	x	x
Road Studs																	
Visual Inspection Daylight						x											
Reflective Conspicuity								x	x	x	x	x	x	x	x	x	x
Road Traffic Signs																	
Night Inspections (Dependant on time of year)	x	x															
Detailed Inspection								x	x	x	x	x	x	x	x	x	x
10 Year Inspection (Refer to section for further - biannual inspection)																	x
Traffic Signals																	
Annual Operational Review								x	x	x	x	x	x	x	x	x	x
Electrical Safety Inspection																	
Detailed Inspection								x	x	x	x	x	x	x	x	x	x
Obscuration Inspection (March)								x	x	x	x	x	x	x	x	x	x
Obscuration Inspection (October)								x	x	x	x	x	x	x	x	x	x
Detailed Inspection (Labelling)																	
Full Review						x											
Scoot and MOVA Validation								x									
Roadside Electrical Apparatus, Road Lighting and Power Supplies***																	
Arrester Beds						x											
Snow Poles (Annual June or July)								x	x	x	x	x	x	x	x	x	x
Traffic Control Barriers																	
Structural								x	x	x	x	x	x	x	x	x	x
Electrical***																	
Litter and Refuse***																	
Dead Animals***																	
Removal of Graffiti								x	x	x	x	x	x	x	x	x	x
Node Markers								x	x	x	x	x	x	x	x	x	x
Network Referencing***																	
Flooding***																	

\*\*\* Refer to individual Reference Type for these sections.