TRANSPORT FOR NSW (TfNSW)

QA SPECIFICATION M3

ROUTINE SERVICES

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REVISION REGISTER

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
Ed 1/Rev 0		New Specification – replaces Specification RMS M20, RMS M30, RMS M40, RMS M50, RMS M60, RMS M200, RMS M300, RMS M400, RMS M500, RMS M600 and RMS M700.	J Statton (GM, IAM)	26.11.2013
Ed 1/Rev 1	4.5.2 Annex M	Clause reference to spec R173 changed to spec R54 to accord with change of spec reference number for "General Concrete Paving". Referenced document updated.	MCQ	30.09.19
Ed 2/Rev 0		Major review and reformatting of specification. Amendments to align with *Transport Administration (RMS Dissolution) Act 2019*, including changes from RMS to TfNSW.	T Orr (A/ED, Planning & Programs, ROMD)	Mar 2020
Ed 2/Rev 1	Global 1.3.1	Reformatted. Definition of Amenity Maintenance corrected from "< $20,000" to "> $20,000".	MCQ	29.04.20
Ed 2/Rev 2	7.10	Tables under previous Clauses 7.10 and 7.11 combined. Previous heading for Clause 7.11 deleted. Subsequent clauses renumbered.	MCQ	06.05.20

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
Ed 2/Rev 3	1.1	Scope modified to clarify limits of work responsibility as described in TfNSW M1	J McLeod (DC&IE)	17/6/2022
	1.2.4	Corrected reference to Annex D.		
	1.3.1	New acronym added: NWL (Nominal Work Limit).		
	1.3.2	New definitions added: Nominal Work Limit; non-frangible; pavement; rural; and urban.		
		Definitions modified: asset; debris; hazard; litter; maintenance clear zone; mature tree, poster; response time; sapling (definition for 'small tree' deleted); and vegetation-free zone.		
	2.2	Emphasised collaborative approach to RMAP approval and modification.		
	3.2	Reportable defects now include rest area lighting, overhead signs, and pavement delineation.		
	5.1	Provisions made for temporary pavement marking reinstatement.		
	5.3	New requirement of photographic evidence added to Daily Work Records.		
	6, 7 & 8	Intervention, response time, and/or the work standard modified for Activities: C-202, C-203, C-301, C-302, C-611, C-801, A-312, A-316, A-319, A-321, A-322, A-323, A-339, A-428, A-429, S-272, S-354, S-521, S-615		
	7	Activities A-421 and A-422 deleted. A-421 Service toilet was merged with A-428 Service rest area. A-422 Repair toilet was merged with A-429 Repair rest area facilities.		
	Annexures	Annexure numbering changed from Annex A to Annex M3/A, etc.		
	Annexures B	Typos corrected in Table M3.B.3 and measurement details modified for Activities A-428 and A-429.		

GUIDE NOTES

(Not Part of Contract Document)

Clause 1.1 – Scope

This Specification sets out the requirements for the routine maintenance of State Roads. The objective is to maintain and operate a safe and secure network that ensures continued access and efficient movement of people and goods across NSW. This specification specifically covers the following TfNSW program positions:

(a) PP-22001 Corrective Maintenance.

(b) PP-22002 Amenity Maintenance.

(c) PP-22003 Scheduled Maintenance.

Capitalised terms defined in the Contract or Specification TfNSW M1 have the meaning given in the relevant document unless the context indicates otherwise.

Clause 1.2 – Structure of the Specification

The work to be executed under this Specification consists of:

(a) Planning (Clause 2).

(b) Asset inspections (Clause 3).

(c) Defect management and work prioritisation (Clause 4).

(d) Scheduling and carrying out repair work (general requirements are provided in Clause 5 and activity specific requirements are specified in Clauses 6, 7 and 8).

(e) Contract specific details (see Annexure M3/A) that may take precedence over the general requirements of this Specification.

Clause 2.2 – Routine Maintenance Annual Plan

The Routine Maintenance Annual Plan (RMAP) is an essential planning tool for Routine Services. The RMAP is developed and agreed prior to each Maintenance Period. The aim is to develop a RMAP that best achieves customer levels of service, road safety and asset preservation objectives within a constrained budget environment. Significant thought and care are required to ensure that available funding is allocated to best achieve the objectives of the Contract and do not result in unacceptable levels of service.

Clause 3 – Asset Inspection Requirements

The inspection regime and intervention requirements vary depending on the Road Category. The definition of "Road Category" is based on TfNSW's methodology for the subnetwork ranking of roads. Three categories are used to define inspection, intervention, and response time requirements:

- Higher trafficked roads (**H**) – Subnetwork Rank 5 and 6 (SN 5-6).
- Moderately trafficked roads (**M**) – Subnetwork Rank 3 and 4 (SN 3-4).
- Lower trafficked roads (**L**) – Subnetwork Rank 1 and 2 (SN 1-2).

Clause 4.2 – Defect Prioritisation Principles

Prioritisation of defect rectification should consider:

(a) **Safety.** Does the defect represent a risk to human health or safety? Assess the need for temporary works to provide continued safe access to the road network.

(b) **Legislative requirements.** Is this activity required to ensure compliance with statutory obligations, such as work health and safety, environmental protection, heritage, or fire management legislation?

(c) **Specific work details.** Address any contract specific work instructions included in the Annexures or nominated in the approved RMAP.

(d) **Need for timely intervention.** Will more timely intervention:

- Offset potential adverse social and environmental effects?
- Ensure that an operational asset remains available for use?
- Ensure that the asset continues to deliver the appropriate level of service?
- Slow the physical deterioration of an asset and ensure optimal asset performance?

(e) **Cost impacts.** Consider the following:

- The impact on road user costs and travel time reliability.
- Broader community impacts and costs such as environmental damage.
- The economic life of the asset and whether it is more cost-effective to replace rather than maintain an asset.
- Replacement of the asset by new or possibly improved technology may result in lower total costs than on-going maintenance of the existing asset.

(f) **Capital works program.** Consider effective alignment with the capital works program to ensure, as much as possible, that maximum value from maintenance interventions is achieved.

Clauses 6, 7 and 8 – Intervention/Investigation, Response Time, and Work Standards

Refer to the following TfNSW documents as required for additional guidance on defect identification, risk assessment and appropriate treatment selection:

- Guide Geotechnical Instrumentation and Monitoring of Road Formation Structures.
- Guide Procedures Manual for Structural Integrity Inspection and Condition Assessment of Road Traffic Structure Assets.
- Guide Road Design Guide.
- Guide Selection of Treatments for Slopes and Retaining Structures.
- Guide Slope Risk Analysis.
- ILC-AM-TP1-602 Technical Procedure for Slope Stability Incident Response.
- Guide Treatment Selection at Rock Fall Sites.
- Guide Rest Area Planning Principles and Design.
- ILC-AM-TP1-401 Technical Procedure: Management of Skid Resistance.
- PTD 2013/004 Technical Direction: Selection of Surface Treatments to Improve Skid Resistance.

Annexure M3/A - Work Details

Any contract specific requirements should be included in the Work Details (e.g., maintenance tasks identified in a slope risk management plan) and issued to the Service Provider prior to the commencement of the Maintenance Period using the supplied spreadsheet template.

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QA SPECIFICATION M3

ROUTINE SERVICES

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FOREWORD

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REVISIONS TO PREVIOUS VERSION

This document has been revised from Specification TfNSW M3 Edition 2 Revision 2.

All revisions to the previous version (other than minor editorial and project specific changes) are indicated by a vertical line in the margin as shown here, except when it is a new edition and the text has been extensively rewritten.

PROJECT SPECIFIC CHANGES

Any project specific changes are indicated in the following manner:

(a) Text which is additional to the base document and which is included in the Specification is shown in bold italics e.g. ***Additional Text***.

(b) Text which has been deleted from the base document and which is not included in the Specification is shown struck out e.g. ~~Deleted Text~~.

TfNSW QA SPECIFICATION M3

ROUTINE SERVICES

1 GENERAL

1.1 SCOPE

This Specification sets out the planning, maintenance intervention and defect rectification requirements for Routine Services.

The Assets to be maintained comprise a mature road network and generally include the constituent components of the Road Network. The Road Network and Assets included in the Services are defined in TfNSW Specification M1. The maintenance activities included in the Services are typically restricted to the Assets located within the Nominal Work Limits, which are also defined in Specification TfNSW M1.

1.2 STRUCTURE OF THE SPECIFICATION

This Specification includes a series of annexures that detail additional requirements.

1.2.1 Work Details

Details of work are shown in Annexure M3/A.

1.2.2 Measurement and Payment

Annexure M3/A lists the maintenance activities and units of measure. Payment for the activities associated with completing work detailed in this Specification is in accordance with the provisions for Routine Services outlined in the Contract.

1.2.3 Schedules of HOLD POINTS and Identified Records

The schedules in Annexure M3/C lists the **HOLD POINTS** that must be observed. Refer to TfNSW QA Specification Q4M for the definitions of **HOLD POINTS**.

The records listed in Annexure M3/C are Identified Records for the purposes of TfNSW Q4M.

1.2.4 Planning Documents

The Project Quality Plan must include each of the documents and requirements listed in Annexure M3/D and must be implemented.

In all cases where this Specification refers to the manufacturer's recommendations, these must be included in the Project Quality Plan.

1.2.5 Referenced Documents

Unless otherwise specified, the applicable issue of a referenced document, other than a TfNSW Specification, is the issue current at the date one week before the closing date for tenders, or where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (e.g. AS 1234). For convenience, the full titles are listed in Annexure M3/M.

1.3 DEFINITIONS AND ACRONYMS

1.3.1 Acronyms

"NWL" Nominal Work Limit

"RMAP" Routine Maintenance Annual Plan

"RMS" Roads and Maritime Services

"TfNSW" Transport for NSW

1.3.2 Definitions

The following definitions apply to this Specification:

"**Abrupt discontinuity**" includes stepping at concrete joints, leading edge of stock grids, bridge abutments and pits, and any isolated "spot" defect such as a vertical projection.

"**Activity group**" means the grouping of maintenance activities as defined in Table M3.1.

"**Amenity Maintenance**" includes planned maintenance activities and services that are required to keep the roadway system operational and presentable to the public. Generally, it involves non-pavement works that can be planned. Activities include litter and graffiti removal, vegetation control (including grass mowing), roadside litter collection, landscape maintenance and servicing rest area toilets. The requirements for Amenity Maintenance are described in Clause 7. Defect repairs costing > $20,000 should be referred to TfNSW for possible inclusion in the Capital Works Program.

"**Asset**" includes any TfNSW owned asset such as road pavements, cycleways, structures, roadside assets, facilities, and traffic control devices included in the Contract.

"Asset Identifier" means the asset location code, as provided by TfNSW. The location code may refer to a section of road (i.e., road segment number) or specific asset code (e.g., culvert number, slope number, rest area number, etc.).

"**Capital Works Program**" means capital maintenance works (renewal of in-service assets) and capital enhancement works (expanded or new assets).

"**Contract**" means the Road Maintenance Council Contract, including its schedules, as amended from time to time, between TfNSW and the Service Provider in terms of which the Service Provider agrees to provide the Services to TfNSW in accordance with the terms and conditions set out thereunder.

"**Corrective Maintenance**" includes unplanned maintenance activities that are necessary to ensure continued access and the safe operation of the network including responding to incidents. The requirements for Corrective Maintenance are described in Clause 6. Defect repairs costing > $20,000 should be referred to TfNSW for possible inclusion in the Capital Works Program.

"**Culvert**" means one or more adjacent pipes or enclosed channels for conveying a watercourse or stream below the formation level of a road up to a maximum overall span of 6 m. A culvert marker peg or two guide posts mark each culvert position.

"**Days**" means Business Days.

"**Debris**" means any collection of fragments or material such as litter, detritus, shredded tyre pieces, road spillages, fallen leaves or branches, animal carcasses, deposits of wind-blown sand or grit, deposits of loose aggregates or rocks, slips (collapsing banks and fretting from cuttings and embankments), rockfall and build-up of any material resulting from road accidents, passing traffic or climatic conditions (e.g., sediment build-up).

"**Defect**" means an undesirable condition that has visible or measurable evidence of failure and may require rectification or further investigation.

"**Exceptional circumstances**" means a rare instance or extraordinary situation such as a natural disaster or very heavy and prolonged rainfall that results in widespread defects across the Road Network.

"**Fixed Upper Limit**" means the annual Routine Services budget.

"**Graffiti**" means any inscription or drawing scribbled, scratched, or sprayed on a surface or a poster.

"**Hazard**" is something with the potential to cause harm in terms of human injury or ill-health or damage to assets, property, or a combination of these. See Clause 4.3 for guidance on how to assess whether something is a hazard.

"**Incident**" includes but is not limited to abandoned vehicles, traffic accidents, vandalism, storm damage, rock falls and land slips, floods, fires, structural failures, spills, or discharges (accidental or intentional).

"**Incident response**" means the work involved in responding to one or more events requiring urgent action to protect life, property, the environment, or an occasion when NSW Emergency Services take control of a site. An incident need not arise from a defect, whether at the level where a defect is required to be rectified or otherwise.

"**Litter**" means any single item with any dimension greater than 100 mm. For example, items such as paper, refuse, rubbish, garbage, tyre parts, drink bottles, glass, cans, and any item of a similar nature.

"**Maintenance Activity**" means an activity defined in Annexure M3/B.

"**Maintenance Activity Code**" means the code assigned to each Maintenance Activity.

"**Maintenance Clear Zone**" means the area adjacent to the travelled way that should be kept free from features that would be potentially hazardous to errant vehicles. This includes the removal of non-frangible vegetation, including saplings, from within the area circumscribed by the edge of the travelled way to the line of existing mature trees. The maintenance clear zone is no wider than 14 m.

"**Maintenance Performance Objectives**" means the performance objectives of Routine Services as defined in Table M3.1.

"**Maintenance Period**" has the meaning given to that term in the General Conditions.

"**Mature tree**" is a non-frangible tree or shrub that is more than 10 years old.

"**Nominal Work Limit**" has the meaning given to that term in Specification TfNSW M1.

"**Non-frangible**" vegetation means tree species likely to develop a trunk diameter ≥ 100 mm, as measured 1.3 m from the ground, or shrub species likely to grow to a height ≥ 3.5 m.

"**NSW Emergency Service**" includes the NSW Police, NSW Ambulance Service, Fire and Rescue NSW, NSW Rural Fire Service and NSW State Emergency Service.

"**Pavement**" means all pavement assets such as State Road pavements, road shoulders, access roads, service roads, bus bays, and road pavement within rest areas.

"**Pedestrian fence**" means fences designed to direct and manage the flow of pedestrian traffic. Pedestrian fences include concrete, steel rail, timber, plastic, and steel wire rope fencing systems.

"**Pedestrian zone**" means areas in which there are significant pedestrian movements such as pedestrian crossings, footpaths, cycleways, bus stops and within rest areas.

"**Poster**" includes any poster, sign and supporting structure, sticker, unauthorised third-party sign etc.

"**Response time**" means the time elapsed from the time the Service Provider becomes aware of a defect to their attendance at the work site. The intervention, investigatory, and response time requirements may vary based on the road category of a section of road. The response time may also be extended for any delay in obtaining a road occupancy licence.

"**Rest area**" is a designated area adjacent to a highway where vehicles can stop temporarily, allowing time for drivers to rest. "Rest area" includes all associated items such as playgrounds, picnic tables, barbeques, water storage, buildings (including toilets), canopy, shelters, gates, electrical supply systems, site fencing, advisory signs, paved areas and other items.

"**RMS or Roads and Maritime Services**" means TfNSW or Transport for NSW, and a reference to "RMS" in a document (including an RMS specification or other document) is to be read as a reference to TfNSW or Transport for NSW.

"**Road Category**" means lengths of road identified as either "**H**" (higher trafficked roads), "**M**" (moderately trafficked roads) or "**L**" (lower trafficked roads) as nominated in Specification TfNSW M1.

"**Road Network**" means the network of roads included in the Contract.

"**Rural**" means the road sections and areas not defined as a 'Built-up Area' in Specification TfNSW M1.

"**Sapling**" is a small tree with a trunk diameter < 50 mm, as measured 1.3 m from the ground.

"**Service Provider**" is the relevant council under a Road Maintenance Council Contract, or the local internal TfNSW service delivery organisation.

"**Scheduled Maintenance**" is planned maintenance often involving cost-effective treatments that preserve the roadway system, retards future deterioration or improves the functional performance of an asset. The requirements for Scheduled Maintenance are described in Clause 8. Defect repairs costing > $20,000 should be referred to TfNSW for possible inclusion in the Capital Works Program.

"**Urban**" has the same meaning as 'Built-up Area' in Specification TfNSW M1.

"**Vegetation-Free Zone**" is the space 2.5 m above pedestrian pathways and cycleways and 5.0 m above trafficable road pavement and shoulders, and 1.2 m behind safety barriers.

"**Work Details**" means the details of work referenced in Annexure M3/A. For all other descriptions, definitions in the relevant TfNSW Specification or Austroads Glossary of Austroads Terms will apply.

2 PLANNING

2.1 MAINTENANCE RATIONALE

The purpose of Routine Services is to enable safe, reliable, and efficient journeys throughout NSW. More specifically the performance objectives are outlined in Table M3.1 and should inform the annual planning and defect prioritisation processes related to Routine Services.

Table M3.1 – Maintenance Activity Groups and Maintenance Rationale

Maintenance Activity Group		Performance Objectives
100	Asset Inspections	• Monitor the condition of assets and determine when routine maintenance intervention is likely to be required. • Inspect the condition of assets after potential road altering incidents such as a weather incident or an accident, or because of a public complaint. • Establish a process that will effectively manage the identification and rectification of hazards or defects. • Implement systems and processes that promote consistency in the identification and rectification of defects across the Road Network.
200	Pavement	• Provide safe travelling conditions by rectifying pavement failures. • Rectify defects in a timely fashion to minimise the rate of pavement deterioration and to provide safe, consistent driving conditions. • Protect the structural integrity of road pavements.
300	Roadside	• Provide safe travelling conditions by removing obstructions. • Preserve and maintain roadside assets and environment to ensure they are presentable and fit for purpose. • Protect and preserve the natural environment and heritage such as indigenous artefacts and significant historical sites.
400	Operational Assets	• Maintain amenities that improve the serviceability for the users of roadside assets such as rest areas. • Protect and sustain the natural environment.
500	Drainage	• Unblock any drainage structures causing water to flood the roadway. • Maintain drainage to ensure unrestricted flow of water away from the pavement and toward the designated point of discharge. • Maintain stormwater improvement devices to protect the natural environment. • Maintain subsoil drains to ensure the unrestricted flow of water. • Monitor and maintain dewatering pumping stations to protect road assets.
600	Traffic Facilities	• Support the enforceability of road traffic regulations through appropriate maintenance of signage. • Maintain warning signs and alert motorists to any hazardous situations or road conditions. • Provide clear information to road users in support of the safe and efficient operation of the road network. • Ensure good night-time delineation through the maintenance of non-pavement delineation such as guide posts. • Maintain safety barriers to minimise accident severity.

Maintenance Activity Group		Performance Objectives
		• Pedestrian fencing is maintained to ensure fencing is effective in controlling pedestrian movements and to stop pedestrians crossing at dangerous locations. • Protect and guide pedestrians with appropriate consideration of the vision or mobility impaired.
800	Incident Response	• Ensure all emergencies and hazardous incidents are actioned immediately. • Provide timely emergency response to assist customers and minimise service disruption caused by the temporary restriction of loss of an asset. • Support NSW Emergency Services to control hazardous materials.

2.2 ROUTINE MAINTENANCE ANNUAL PLAN (RMAP)

J 2.2.1 Agreed RMAP

The Routine Maintenance Annual Plan (RMAP) is an essential planning tool for Routine Services. The RMAP is developed and agreed prior to each Maintenance Period following the Joint Planning Assessment (JPA) collaborative process described in Specification TfNSW M1, and must include:

(a) A budgetary limit (Fixed Upper Limit) for Routine Services comprising the addition of three separate components, namely:

- Corrective Maintenance that is deemed sufficient to meet the requirements of Clause 6.
- Amenity Maintenance to address the requirements of Clause 7.
- Scheduled Maintenance Clause to address the requirements of Clause 8.

(b) A quantification of Amenity Maintenance and Scheduled Maintenance activities including addressing any Contract specific requirements included in the Work Details (Appendix M3/A).

(c) Indicative timing of planned Amenity Maintenance and Scheduled Maintenance works.

(d) Commentary on any risk mitigation measures proposed.

HOLD POINT

Process Held:	Payment for Routine Services.
Submission Details:	An RMAP that matches TfNSW's advice regarding indicative funding, maintenance priorities, and assessment of required maintenance activities, to best manage asset and service risks.
Release of Hold Point:	The TfNSW's approval of the submitted RMAP.

2.2.2 RMAP Moderation

The Service Provider must make the necessary adjustments to the approved RMAP to reschedule or postpone activities to remain within the Fixed Upper Limit. Corrective Maintenance and the work activities specified in the Work Details must be always prioritised. However, a reassessment of previously agreed work priorities may be necessary, and this should be discussed and agreed with TfNSW. The Fixed Upper Limit may also be modified in accordance with the provisions of the Contract.

3 ASSET INSPECTION REQUIREMENTS

3.1 INSPECTION REQUIREMENTS

The condition of Assets and defects are to be systematically identified and assessed during visual inspections of the Road Network to manage any potential safety, functionality, and performance issues. These inspections are to be undertaken by suitably trained, skilled, and competent personnel.

As appropriate, the Service Provider should seek to identify the root cause of a defect or underlying problem to ensure that the most appropriate treatment is always employed. This may involve the need to carry out inspections on-foot.

There are two categories of asset inspection:

(a) **Safety Inspection.** These are daytime inspections that identify all defects relating to Corrective Maintenance (see Clause 6) and Amenity Maintenance (see Clause 7). Inspections involve driving along each road carriageway and on-foot inspection of rest area facilities. Roads are inspected in one direction only but the direction of travel alternates between consecutive inspections. Inspections at night involve driving each road in both directions to identify delineation defects and evaluate overall night time driving conditions. Night inspections also include driving though rest areas to identify and report overhead lighting defects as per Clause 3.2. The safety inspection frequencies for each Road Category are specified in Table M3.2.

Table M3.2 – Frequency of Safety Inspections

Asset	Inspection frequency by Road Category		
	High (H)	**Moderate (M)**	**Low (L)**
Routine daytime inspection	Twice per week	Once per week	Once every 2 weeks
Night time inspection	6 months	1 year	1 year
Asset inspection triggered by: • An extreme weather event, including heavy and prolonged rainfall, or strong winds • Significant rainfall at known high-risk rock fall and/or slope stability sites. • Events likely to be declared as natural disasters. • Significant asset damage from vandalism or motor vehicle incidents.	1 day	1 day	1 day
Asset inspection triggered by a public complaint including reports of minor vandalism	2 days	3 days	5 days

(b) **Scheduled Inspection.** These include inspection of assets that are typically further away from the roadway and/or require on-foot inspections or the use of binoculars. Scheduled inspections should identify all defects for Scheduled Maintenance activities (see Clause 8). The condition and performance of assets are generally assessed visually but physical measurement may be warranted in some cases. The nominal frequency of inspections is specified in Table M3.3. The actual inspections to be completed during the current Maintenance Period will be specified in the approved RMAP.

Table M3.3 – Nominal Frequency of Scheduled Inspections

Activity Code	Asset	Inspection frequency by Road Category		
		High (H)	**Moderate (M)**	**Low (L)**
S-211 to S-214 & S-231	Sealed and concrete pavements	Inspections carried out as required to deliver the works program outlined in the RMAP		
S-221 & S222	Unsealed roads	1 year	1 year	1 year
S-241 & S242	Unsealed road shoulders	2 years	3 years	5 years
S-333	Fauna fencing	2 years	3 years	5 years
	TfNSW boundary fencing	5 years	7 years	10 years
S-336	Noise walls, sight screens and anti-glare screens	2 years	5 years	5 years
S-337	Wildlife structures – Pole structures	2 years	2 years	2 years
	Wildlife structures – Drop down ramps and escape mounds	1 year	1 year	1 year
	Wildlife structures – Koala grids	1 year	1 year	1 year
S-351, S-354 & S-355	Slopes and retaining structures – assets subject to risk assessment	Inspections separately arranged by TfNSW as part of the risk rating assessments		
	Rock fall fences and nets	3 years	4 years	5 years
S-521 & S-524	Drainage structures – assets subject to risk assessment	Inspections separately arranged by TfNSW as part of the risk rating assessments		
	Drainage structures - other	10 years	10 years	10 years
S-522 & S-525	Lined catch and table drains	3 years	4 years	5 years
S-523	Subsurface drains	Inspect the effectiveness of subsurface drainage when pavement failures indicate a potential issue		
S-526	Stormwater Improvement Devices	1 year	1 year	1 year
S-615 to S-623	Signs – higher risk-rated cantilever and gantry supports	Inspections separately arranged by TfNSW as part of the risk rating assessments		
	Safety barriers	3 years	5 years	7 years

3.2 REPORTABLE DEFECTS, CONDITIONS AND EVENTS

The Service Provider must notify TfNSW, and where appropriate the relevant NSW Emergency Service, as soon as practicable of:

(a) A fatal accident or serious injury crash.

(b) Known or suspected hazardous material spills or hazardous materials found in the road reserve.

(c) Bush fires and other natural disasters.

(d) Emergencies.

(e) Sink holes, culvert failures or other asset failures.

(f) All rock falls and earthwork subsidence, slumps etc.

(g) Any conditions resulting in a service interruption, significant delays, or network restriction (e.g., road or lane closure, temporary speed, or load restriction).

(h) Illegal use or occupation of a stockpile site or vacant land.

(i) Large defects that exceed the extent of work limits defined for some activities in Clauses 6 to 8. These large-scale repairs, typically costing > $20,000, are beyond the scope of Routine Services.

(j) Recurring defects or conditions that warrant capital renewal options to be considered by TfNSW.

(k) Where installed, non-functioning overhead rest area lighting.

(l) Noticeable damage to overhead infrastructure caused from impact with over height vehicles to cantilever signage, gantries, over height protection systems, etc.

(m) Noticeable quantities of missing, unmarked or worn areas of on-pavement delineation that may compromise guidance and safety especially under night situations. This includes line marking and raised pavement markers.

The defects, reported to TfNSW, that fall outside the scope of Routine Services, may require immediate further investigation, and/or will be considered for rectification under Ordered Work, the Capital Works Program, or issued to other service providers for action.

3.3 INSPECTION SYSTEM

A formal asset inspection system must be used that:

(a) Records the inspector's name, date and time of inspection, and road segments and/or assets inspected (known as the Inspection Record).

(b) Records all defects and their location in a form acceptable to TfNSW (known as the Defect Identification Record). Isolated defects are to be individually recorded. Where many defects exist nearby to each other, it is acceptable to record those defects as a group rather than individually. In all cases, the location description is to be suitably detailed to enable defects to be easily located. The defect management system must ensure reasonable accuracy when visually assessing the dimension of a defect.

(c) Registers all incidents, customer complaints and defects referred to TfNSW (see Clause 3.2).

(d) Provides a method or system for tracking compliance with the inspection and intervention requirements nominated in this Specification.

(e) Provides robust evidence for use in court.

4 DEFECT MANAGEMENT

4.1 RESPONSE TIME REQUIREMENTS

Defects must be managed to ensure that risks to loss of service and road safety are minimised. The general approach for managing defects is outlined below:

(a) **Corrective Maintenance** – Defects must be rectified within the response times specified in Clause 6. The response times for a particular defect may differ depending on the Road Category.

Defects associated with Corrective Maintenance typically occur without warning (e.g., following rain and storm events, traffic accidents and animal strikes) and must be addressed within the specified response time. Some events require response as soon as practicable to minimise serious consequences from a hazard or when an imminent danger exists. The requirements for responding to safety issues, including response to hazards and incidents, are specified in Clause 4.3.

(b) **Amenity Maintenance and Scheduled Maintenance** – The Service Provider has some degree of discretion in determining the need for and timing of rectification works to best meet the defect prioritisation principles specified in Clause 4.2.

4.2 DEFECT PRIORITISATION PRINCIPLES

A risk-based assessment to the prioritisation of defect repairs is necessary to enable:

(a) Continuing access to the road network.

(b) Operation of a safe road network.

(c) An efficient and effective response to traffic and weather-related incidents.

Prioritisation of defect repairs and maintenance activities should consider the following:

(i) Requirements specified in the Work Details (refer Clause 1.2.1).

(ii) The general maintenance performance objectives and rationale outlined in Table M3.1 (Clause 2.1).

(iii) Work prioritised in the approved RMAP (refer Clause 2.2).

(iv) Safety issues including response to hazards and incidents (Clause 4.3).

(v) The intervention and response standards defined for Corrective Maintenance (Clause 6).

(vi) The more specific activity level guidelines provided for Amenity Maintenance (Clause 7) and Scheduled Maintenance (Clause 8). Typically, all defects should be rectified within the periods specified but this is not always possible given competing needs and constrained budgets.

(vii) Legislative requirements.

(viii) Need for timely intervention to offset potential adverse customer, asset, social, and environmental impacts.

(ix) Impacts on TfNSW and road user costs.

(x) The economic life of the asset and cost-effectiveness of asset replacement.

(xi) Operational benefits from replacing a technically obsolete asset.

(xii) Coordination with Ordered Work and the Capital Works Program. In accordance with Clause 3.2 (i), TfNSW must be notified of large-scale repairs, typically costing > $20,000.

4.3 RESPONSE TO HAZARDS AND INCIDENTS

4.3.1 Response Times Applicable to Hazards and Incidents

Regardless of any specific intervention standard or guideline nominated in this Specification, the Service Provider must take all actions necessary to ensure the safety of road users and others. An incident response includes any activity necessary to make the site safe and to keep the road open to traffic, except for exceptional circumstances (refer to Clause 4.3.3).

All reasonable steps must be taken to rectify or manage the hazard to minimise harm firstly to any person, and then to the environment or any property. All hazards and incidents must be addressed as a priority and typically within:

(a) 30 minutes plus travel time (of nearest available work crew) during working hours.

(b) 2 hours plus travel time (from closest maintenance depot) during non-working hours.

4.3.2 Hazard Assessment

In determining whether a defect is a hazard consider the following:

(a) The extent and severity of the defect and interaction with surrounding defects.

(b) The location of the defect (e.g., wheel path, proximity to schools, retirement villages, pedestrian crossings).

(c) Traffic volumes – normal peak flow and other times of special peak flow.

(d) General road conditions (i.e., geometry, alignment, pavement width, and other relevant road conditions) and prevalent weather conditions.

(e) The effect or impact on different road users (e.g., pedestrians, cyclists, and motor cyclists).

(f) Tree hazards assessment and management in accordance with AS 4373.

4.3.3 Exceptional Circumstances

It is recognised that exceptional circumstances may be encountered where a timely or immediate response to a situation may not be possible. If exceptional circumstances exist, and it is not possible to rectify or remove a hazard immediately, the Service Provider must take all reasonable measures to ensure public safety and protect property, including:

(a) Controlling traffic and pedestrian movements.

(b) Closing road or limiting access.

(c) Erecting temporary warning signs and barriers.

(d) Providing appropriate assistance to members of the public.

(e) Immediately notify the local Police and request assistance.

(f) Advising TfNSW.

(g) Addressing any nonconformity in accordance with Specification TfNSW Q4M. A nonconformity arising out of exceptional circumstances has no bearing on the assessment of the Service Provider's performance.

5 STANDARDS OF WORK

The standard of work applicable to Corrective Maintenance, Amenity Maintenance and Scheduled Maintenance are specified in Clauses 6 to 8 respectively. In addition, the execution of all works must comply with the following general requirements.

5.1 GENERAL REPAIR REQUIREMENTS

All work and materials must comply with relevant TfNSW specifications referenced in Clauses 6, 7 and 8, TfNSW G22, TfNSW G36 and TfNSW's Environmental Assessment Procedure for Routine and Minor Works, and the Quality Management System.

Where a work standard is not specified for a particular repair, then the Service Provider must adopt best practice or follow the Manufacturer's recommendations. Repairs must be carried out with materials that are compatible with the existing asset. Where components must be replaced, ensure that the replaced components are of similar material and dimensions to the existing. All proprietary materials are to be used in accordance with the relevant Manufacture's specification.

Temporary repair methods should only be used where prompt action is required. Temporary repair work may need to be repeatedly carried out at the same location to maintain safe conditions prior to the completion of permanent repairs. Appropriate monitoring of temporary repairs must be instigated to ensure hazards do not return.

Any work area must always be left clean. Prevent the leakage of liquid or sediment during material transport (e.g., sealing the trays of trucks used for transporting to disposal area). Any debris or excess material must be swept from the travelled way and must not impede surface drainage or stormwater drainage systems. Loose stones must be swept from any patch and adjoining pavement. All waste, litter and debris must be disposed of legally and responsibly. Implement environmental control methods to minimise or prevent pollutant material from entering waterways.

Organise work to minimise damage to existing vegetation. Keep the movement of plant and machinery and disturbance to existing vegetation to a minimum. Vehicles must not be parked in vegetated or mulched beds. Keep harmful material (including oil, fuel, cement, bitumen, spillage from washing operations and similar contaminants) clear of trees, shrubs and grass including their root systems. Do not stockpile materials over root systems. Avoid damage to overhead tree trunks or canopies by machine or truck operations. All damage caused to any Asset must be promptly rectified including reinstatement of:

(a) Effective transverse drainage of the pavement or shoulder.

(b) Appropriate pavement markings to ensure adequate delineation. You must maintain effective temporary pavement delineation until such time that permanent reinstatement can be carried out. The permanent reinstatement of pavement markings must comply with Specifications TfNSW R142 and TfNSW R145. Arrangements for the permanent reinstatement of markings may need to be discussed and agreed upon with TfNSW.

(c) Road furniture and ancillary infrastructure.

5.2 INCIDENT MANAGEMENT

5.2.1 Emergency Equipment

Sufficient emergency vehicles, equipment and stores must be maintained to allow appropriate response to emergencies. Emergency vehicles must be strategically located to always allow for rapid response to emergencies. All vehicles used to attend to emergencies must be equipped with emergency response equipment and materials including either mobile phones or two-way communication equipment.

5.2.2 Incident Record

An Incident Record for each incident, accident and instance of vandalism must be recorded for each event nominated in Clause 6.11. Record all readily available information including:

(a) Unique incident number.

(b) Details of the employee who received the initial call.

(c) Date and time advice received.

(d) Location of the incident.

(e) Source of advice received (e.g., TfNSW/Resident/Police/Other-specify).

(f) Type of incident (e.g., accident-injury, accident-no injury, accident-death, TfNSW property damaged, oil spill, slope failure, rock fall, vandalism or other-specify).

(g) Name of the crew leader and date and time of arrival at the site.

(h) Time TfNSW advised site safe.

(i) Description of the incident and attach sketch or further notes if necessary.

(j) Weather and the condition of the asset (road/bridge/signals) at the time of the accident.

(k) Damage to TfNSW property (yes/no) and attach photos if necessary.

(l) Description of any work done.

(m) List any emergency or any other services present.

(n) State if any follow-up work is required.

(o) Details of persons and or vehicle/s causing damage including insurance policies.

(p) Details of any witnesses.

(q) Details of the Police Officer attending (name/station) and/or police incident number.

(r) Certification by the crew leader that the work recorded has been conducted in accordance with the relevant Quality, Work Health and Safety and Environmental requirements.

If costs of the incident are recoverable then refer to the provisions of Clause 5.2.5.

5.2.3 Management of Abandoned Vehicles

Advise TfNSW within one day of becoming aware of any suspected unattended or abandoned vehicle. TfNSW may direct that the vehicle be relocated to a legal parking spot or removed to a secure compound. The Service Provider must immediately remove vehicles to a safe location if the vehicle is a hazard or is obstructing traffic or pedestrian movements. Where possible, vehicles obstructing traffic must be dragged or pushed outside the danger area. If required, traffic control (such as barriers and signs) must be established around the vehicle pending relocation of the vehicle to a legal and safe site.

A Vehicle Removal Record must be completed and forwarded to TfNSW within 5 days of relocating or impounding any vehicle. The record should include the:

(a) Unique incident number.

(b) Date and time that the Service Provider became aware of the incident.

(c) Source of the advice received (e.g., TfNSW /Resident/Police/Other-specify).

(d) Location of the vehicle.

(e) Whether vehicle was obstructing traffic? (yes/no)

(f) Name of the crew leader and the date and time of arrival at site.

(g) Location of relocated vehicle.

(h) Time TfNSW advised that site safe.

(i) Vehicle details including make and model, registration number, and a description of any damage.

(j) Costs associated with relocation or removal.

(k) Date and time stamped photos of the vehicle.

5.2.4 Hazardous Materials within the Road Reserve

The following must be addressed when responding to a hazardous material spill and hazardous materials found within the road reserve:

(a) Any hazardous materials are to be managed by appropriately trained staff and contractors. At all times, comply with the directions of the attending NSW Emergency Service when removing spilt chemicals, fuel, contaminated soil, or attempting to prevent any spillage from entering the waterways.

(b) Manage any environmental incident in accordance with TfNSW G36.

(c) Identify all materials that are spilled by the HAZCHEM symbols and ensure that all personnel are suitably protected from any ill effects.

(d) Ensure the pavement is cleaned and made free of contamination and that the surface of the pavement is not slippery. Ensure proper capture and disposal of all contaminated materials. The clean-up must extend beyond the pavement to other areas where necessary (e.g., road shoulders, surface drains, sedimentation basins and other relevant areas).

5.2.5 Recoverable Costs

Adequate documentation must be provided to support the recovery of costs from third parties responsible for damage to assets. The Service Provider must, within 10 days of attending an incident, submit to TfNSW a recoverable cost record that includes:

(a) Contact details of the person and/or vehicle causing damage.

(b) Cost of materials used.

(c) Labour costs.

(d) Cost of plant and equipment.

(e) Any other applicable costs.

Further, the claim for recoverable costs must be accompanied by the following documents:

(i) Photos and diagrams of the damage.

(ii) Photos of the vehicles involved where possible.

(iii) Timesheets of staff responding to emergencies and incidents.

(iv) Copies of invoices for the purchase of material, where applicable.

(v) Copies of any other invoices, e.g., subcontractor invoices.

5.3 DAILY WORK RECORD

Records relating to work performed must be created daily and must contain:

(a) A record of the work done measured in accordance with the activity codes and units of measurement specified in Appendix M3/B.

(b) An identifier to record the completion of the defect repair.

(c) Date and time (commencement and completion) and hours worked.

(d) Location of the work (i.e., the Asset Identifier).

(e) Certification by the crew leader that the work recorded has been conducted in accordance with the relevant Quality, Work Health and Safety and Environmental requirements.

(f) Photographic evidence of the severity of defects and the quality of the repair work, when requested by TfNSW.

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6 CORRECTIVE MAINTENANCE REQUIREMENTS

6.1 SAFETY INSPECTION (ACTIVITY C-111)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Undertake all safety inspections (daytime, night time, and event-triggered inspections) at the frequencies nominated in Table M3.2.	Refer to Table M3.2			• Record and manage defects in accordance with Clause 3 and Clause 4.

6.2 REPAIR POTHOLE (ACTIVITY C-201)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Pothole or delamination > 300 mm diameter.	1 week	2 weeks	3 weeks	• Fill and compact potholes to within +5 mm of the surrounding pavement surface. Compaction must achieve a uniformly dense, free from segregation and well-bonded repair. • For emulsion repairs, the surface must provide a uniform water-resistant layer. Aggregate must remain proud of the binder so that the binder is not picked up by the tyres of traffic.
b. Pothole or delamination > 50 mm deep. (Note: All hazards must be addressed as a priority in accordance with Clause 4.3)				

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6.3 REPAIR PAVEMENT EDGE (ACTIVITY C-202)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Depth of edge drop-off > 50 mm and within 0.25 m from the travelled way.	1 week	2 weeks	4 weeks	• Extent of work limited to < 25 m. • Remove unsuitable shoulder material and replace with new. Compaction must achieve a uniformly dense, free from segregation and well-bonded repair. • The height of the repaired edge must not exceed the height of the surrounding road surface. The repaired surface must provide a uniform water-resistant layer. The aggregate must remain proud of the binder so that the binder is not picked up by the tyres of traffic.
b. Depth of edge drop-off > 75 mm and between 0.25 to 2.0 m from the travelled way	2 weeks	1 month	2 months	
c. Edge break > 150 mm wide and within 0.25 m from the travelled way.	2 weeks	1 month	2 months	

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6.4 REPAIR WEARING SURFACE (ACTIVITY C-203)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Localised bleeding or flushing resulting in bitumen pick up on vehicle tyres.	2 days	3 days	1 week	• Extent of work limited to < 50 m^2. • The repaired surface must improve the skid resistance of the defective surface and provide a uniform water-resistant layer to protect the pavement from surface infiltration of moisture. • Repaired surface must provide a uniform water-resistant layer. Aggregate must remain proud of the binder. • If warranted cool the bleeding surface with water and apply a 5 or 7 mm aggregate over the area where bitumen pick-up is likely. • Comply with Specification TfNSW R103.
b. Localised aggregate stripping or ravelling, or possibility that cracked blocks/cells may become dislodged.	3 days	1 week	2 weeks	
c. Three or more small (< 300 mm diameter and/or < 50 mm deep) potholes within a 10 m^2 area.	1 month	2 months	3 months	
d. The effectiveness of the safety ramp or arrestor bed is compromised (e.g., by vegetation growth).	2 weeks	1 month	2 months	• Safety ramps and arrestor beds must be raked level and be free from vegetation growth.
e. Frost warning indicating potential formation of black ice (i.e., a thin transparent layer of ice that forms the road surface).	1 day	1 day	1 day	• Use an appropriate ice melting product (e.g., salt or grit) to melt the ice and provide sufficient traction for pedestrians and vehicles. This activity includes all the necessary preparatory activities to enable a timely response.

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6.5 MINOR PAVEMENT PATCHING (ACTIVITY C-204)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Height/depth of trip hazard in a pedestrian zone > 15 mm.	1 week	2 weeks	1 month	• Extent of work limited to < 25 m^2. • Permanent repair of patches must comply with Specification TfNSW M250 or TfNSW M258. • Final compaction is to be such that no impressions are left by compaction equipment on the rectified area. • Levelling (and wearing) course must be repaired to within ±5 mm of the surrounding pavement surface. • Seal the patch as soon as possible. Use sufficient bitumen emulsion to prevent aggregate from stripping from the patch, but not so much as to cause a fatty surface. Use 5 mm and 7 mm aggregate. • The footpath and paved areas must be reinstated to a functional state, by matching the existing levels and appearance of existing adjoining areas using materials that are compatible in quality and colour. • Ensure the crossfall and longitudinal gradient is maintained for the repaired footpath and paved areas. Comply with Specifications TfNSW R53 and TfNSW R54.
b. Height/depth of an abrupt discontinuity > 40 mm.	2 weeks	3 weeks	6 weeks	
c. Concentrated water flow that results in an increased risk of aquaplaning.				
d. Height/depth of bump or depression > 50 mm.				
e. Height/depth of a shove or isolated rutting > 50 mm.				
f. Water ponding > 5 mm within the travelled way in a > 70 km/h posted speed zone.				

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6.6 REMOVE DEAD ANIMAL (ACTIVITY C-301)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Dead animals within the travelled way.	1 day	1 day	1 day	• Make the road safe. Identify any potential causes for the presence of animals within the road reserve. Check that fencing, stock/koala grids and races provide an effective barrier between animals and the road traffic. • Where possible, relocate the carcass to outside the table drain. Check the pouch of native animals and notify appropriate authorities to care for any surviving young. • Larger animals (e.g., deer and horses) may need to be buried for amenity and sanitation purposes.
b. Dead animals visible from the travelled way, located within the NWLs, and attracting public complaint.	2 days	3 days	1 week	

6.7 REMOVE CRITICAL GRAFFITI (ACTIVITY C-302)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Graffiti or poster that interferes with the effectiveness of a traffic control device; distracts a driver at a critical time; obscures a driver's view; gives instructions to traffic such as "Stop" or "Halt"; attempts to imitate a traffic control device.	2 days	3 days	1 week	• Remove graffiti and clean the surface well. Employ methods that ensure that the surface of an asset is not damaged by the process of removing the graffiti. High-pressure cleaning techniques are not to be used for the removal of graffiti from porous surfaces or those susceptible to damage from repeated use of this method. • Try to get the closest match possible when painting over graffiti. Paint in rectangular shapes and blend into the adjacent area as much as possible. Apply enough coats to minimise bleed through. • Unauthorised posters (including supporting structures) must be stored for at least one month. • If a traffic control device is repeatedly attacked, consider applying an anti-graffiti coating.
b. Offensive graffiti or poster that is visible from the travelled way or pedestrian zone.	4 days	1 week	2 weeks	
c. Graffiti or poster that is attracting public complaint.	2 weeks	2 weeks	2 weeks	

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6.8 REINSTATE NON-PAVEMENT DELINEATION (ACTIVITY C-611)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Broken, flattened, obscured or missing post or reflector (including vegetation growth obscuring a driver's line of sight to the guide post and/or reflector).	1 week	2 weeks	1 month	• Comply with Specification TfNSW R131. • Clean the posts and delineators to remove dirt and other contaminants and restore their colour or reflectivity. • Green reflectors are mounted on roadside guide posts in rural areas as a way of giving heavy vehicle drivers advance notice that they are approaching an appropriate informal heavy vehicle stopping area. • Green reflectors are installed in a three-two-one pattern as follows: three green reflectors on guide post 400 - 500 m before the site, two green reflectors on a guide post 200 - 250 m before the site and one green reflector on a guide post immediately before the site. • The green reflectors should be placed in a vertical row on the guide post below the existing red reflector. Where possible, spacing between the reflectors on a guidepost should be between 50 mm to 85 mm. • For vegetation control activities refer to Activities A-312, A-316, A-321, A-322 and A-323.
b. Poor reflector/post condition: i. Poor reflectivity or wrong colour of reflector ii. Covered in moss, mildew, or grime iii. Missing green reflectors (for informal heavy vehicle stopping areas iv. Posts >50% of white face marked or degraded	2 weeks	1 month	2 months	
c. Incorrect post positioning/spacing: i. Consecutive post offset inconsistently > 2 m ii. Incorrect spacing of posts iii. Posts displaced from vertical > 75 mm iv. Posts varying in height from standard by > 100 mm	2 months	4 months	6 months	

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6.9 REINSTATE SAFETY BARRIER AND PEDESTRIAN FENCE (ACTIVITY C-612)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Non-functional assets resulting from vehicle impact or vandalism. (Note: Defects, not affecting road safety or the functional performance of the barrier, should be scheduled for repair under Clauses 8.25-8.27 covering Activities S-621, S-622 or S-623)	1 month	2 months	3 months	• Comply with Specifications TfNSW M620, TfNSW R132 and TfNSW R201. • Replacement components (e.g., a post) must be similar in terms of material and dimensions to the existing component. • Ensure any signs attached to a safety barriers or pedestrian fencing are reinstated and clearly legible.

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6.10 REINSTATE SIGN (ACTIVITY C-614)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Missing or illegible warning, speed advisory and regulatory signs.	2 days	3 days	1 week	• Sign replacement works are limited to signs < 3 m^2 (single piece backing panel signs). For signs > 3 m^2 (multi-panel signs), refer to TfNSW for possible replacement under the Capital Works Program. • Vegetation clearing applies to all signs. Branches to be sufficiently trimmed back to avoid the need for a repeat visit within 2 years. • For vegetation control refer to Activities A-312 and A-316.New signs must comply with Specification TfNSW R143. Generally, reinstate the sign or supporting structure in the same position and height as the previous sign and structure. • Information and guide signs are location specific and need to be checked for currency of design and for this reason referred to TfNSW. For sign design requirements refer to AS 1742. • Cover and lock seasonal signs when not in use. • Where the existing sign is incorrectly or poorly located, regardless of whether the sign face only needs replacing, the entire sign (supporting structure) must be relocated to a more appropriate location (e.g., a site where sign is less likely to be hit by errant vehicles, or a site with improved visibility and sight distance).
b. Missing or illegible information or guide signs.	1 week	2 weeks	1 month	
c. Vegetation growth that reduces the continuous line of sight to a sign face or traffic signal, to less than: • 2.5 seconds for regulatory, advisory, and warning signs. • 5 seconds for information and guide signs.				
d. Supporting sign structures damaged.	3 months	3 months	3 months	
e. Operate permanent seasonal and event signs.	Prior to scheduled events, otherwise within 1 day of the triggering condition.			

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6.11 INCIDENT RESPONSE (ACTIVITY C-801)

Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
a. Natural events such as flooding, storm damage, fires, ice formation, and snowfall on the roadway.	30 minutes plus travel time during working hours and 2 hours plus travel time during non-working hours.			• Undertake all necessary preparatory activities to enable quick response to possible weather events and emergencies. • Comply with all relevant requirements of Clause 4.3. Create an Incident Record in accordance with Clause 5.2.2. • Ensure floodway is safe for traffic movements and depth indicator signs are sound, clean, and readable. • Restore the cross-sectional area of drains and waterways to ensure effective drainage. • Undertake snow and ice removal operations to keep roadway open and safe. • Undertake temporary repairs to make site safe including shielding damaged asset with barrier boards and erect warning signs where necessary. For permanent repair of safety barriers and pedestrian fences refer to Clause 6.9. • Ensure replaced components (e.g., fence post) are of similar material and dimensions to the existing.
b. Blocked drains including bridge scuppers causing water ponding or water flow within the travelled way.				
c. Traffic accidents resulting in asset damage or requiring environmental clean-up.				
d. Assets damaged by vandalism resulting in a hazard.				
e. Stray animals in the road reserve causing a potential hazardous situation.	30 minutes plus travel time during working hours and 2 hours plus travel time during non-working hours.			• Contact the appropriate authority to control stray animals. The removal of stray animals from the road reserve is a matter for the Police, a Council impounding officer, or the owner of the animal. • Ensure stray animals do not become a hazard to road users. Attempt to contact the owner of an animal as soon as practicable. • Comply with the requirements of Clause 5.2.3 for the management of abandoned vehicles.
f. Potentially hazardous stationary vehicle (e.g., abandoned, or broken-down), object, litter, or debris.				
g. Abandoned or unattended vehicles visible from the travelled way but not hazardous to traffic or pedestrians.	1 month	6 weeks	2 months	

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Intervention standard (Defect)	Response time by Road Category:			Work standard
	H	M	L	
h. Rock fall or slope related debris < 20 m^3 on edge line or within the travelled way.	1 day	1 day	1 day	• Comply with all relevant requirements of Clause 4.3 and any additional instructions provided by TfNSW. Create an Incident Record in accordance with Clause 5.2.2. • Restore the cross-sectional area of drains and waterways to ensure effective drainage. • Undertake debris and rock removal operations to keep roadway open and safe.
i. Rock fall or slope related debris > 20 m^3 on edge line or within the travelled way.	30 minutes plus travel time during working hours and 2 hours plus travel time during non-working hours.			• Comply with all relevant requirements of Clause 4.3 and any additional instructions provided by TfNSW. Create an Incident Record in accordance with Clause 5.2.2.
j. Culvert related pavement failure or sinkhole.				

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7 AMENITY MAINTENANCE REQUIREMENTS

7.1 TRIM TREE BRANCHES (ACTIVITY A-312)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **3 months** of identification.	• The pruning and trimming of trees must comply with AS 4373. • Pruning cuts are to be made cleanly to prevent stripping back of bark. • Branches to be sufficiently trimmed back to avoid the need for repeat visits within 2 years.
b. Non-frangible vegetation encroaching within the vegetation-free zone.	
c. Broken, dead, or diseased overhanging branches likely to fall on the travelled way, pedestrian zone, cycleway and/or private property.	
d. Vegetation growth that reduces the continuous line of sight to a sign face, non-pavement delineator, the bottom of safety barrier or traffic signal, vehicle on side road or turning bay to less than: • 5 seconds for regulatory, advisory, and warning signs. • 8 seconds for information and guide signs.	
e. Non-frangible vegetation identified as potentially hazardous and located within the Maintenance Clear Zone.	
f. Vegetation impeding the function of or causing damage to an asset, including vegetation touching or overhanging fauna and frog fencing, or safety barriers.	

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7.2 REMOVE TREE (ACTIVITY A-316)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Tree removal must comply with Specification TfNSW G36 and AS 4373. • Advise TfNSW, prior to the removal of any mature tree within the road reserve. • Firebreaks, unless otherwise specified, should be a minimum width of 6 m, and are formed by ploughing and removing all shrubs and trees. The maximum spacing of transverse firebreaks, from the edge of the carriageway to the boundary fence, is 500 m. • Avoid, where possible, the removal of deadwood with hollows as this may be providing wildlife habitat. If necessary and appropriate, consider relocating deadwood to a nearby safer location.
b. Mature trees located within 5 m of the travelled way, and where TfNSW has determined that tree removal is necessary to reduce the road safety risk.	
c. Vegetation growth that reduces the continuous line of sight to a sign face, non-pavement delineator, the bottom of safety barrier or traffic signal, a vehicle on a side road or turning bay, to less than: • 5 seconds for regulatory, advisory, and warning signs. • 8 seconds for information and guide signs.	
d. Mature trees that are potentially hazardous or are impeding the functioning of an asset. Refer to AS 4373 for guidance on the assessment of hazards. Consider the height and proximity of the tree to the roadway and the risk that the tree could fall onto the travelled way.	
e. Ineffective firebreaks or fire control measures.	
f. Unsightly or potentially hazardous fallen tree or tree branch.	
g. Saplings and non-frangible vegetation located within the Maintenance Clear Zone.	

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7.3 MAINTAIN LANDSCAPING (ACTIVITY A-319)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **4 months** of identification.	• Comply with Specification TfNSW M321 and TfNSW R178. • The pruning of amenity trees must comply with AS 4373.
b. Landscaped area is not presentable or neat.	
c. Dead or diseased plant.	
d. Unsightly weed in landscaped areas.	
e. Mulch coverage provides ineffective weed suppression.	
f. Plant stressed or in danger of dying from inadequate watering.	
g. The irrigation system is non-functional or results in water being sprayed onto the travelled way.	

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7.4 SLASHING (ACTIVITY A-321)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **1 month** of identification.	• Collect litter before mowing to ensure litter is not transformed into confetti-like pieces. This activity should be recorded against A-339 Collect Roadside Litter. • Move fallen timber to an adjacent area in the road reserve which is clear of drainage lines. • The required mowing width on rural road corridors is from the edge of seal to at least 1.2 m behind guide posts. This may necessitate the use of pesticides (see Activity A-322) and/or hand vegetation control (see Activity A-323). • Where feasible, the mowing width for Motorway sections and mountain passes should be at least 2.4 m. • Ensure that uncut grass around or under trees or road furniture or left behind between passes is kept to a minimum. Sweep clippings from the road surface, lined drains, footways or other paved areas, and rest areas. Clippings in other areas can remain where they fall. • Mowing operations must be deferred during periods of total fire bans. • During fire bans, weed spraying is an alternative to slashing.
b. Vegetation growth that reduces the continuous line of sight to a sign face, non-pavement delineator, the bottom of safety barrier or traffic signal, a vehicle on a side road or turning bay, to less than: • 5 seconds for regulatory, advisory, and warning signs. • 8 seconds for information and guide signs.	
c. Vegetation height > 200 mm in pedestrian zones.	
d. Vegetation height > 300 mm in urban areas and > 500 mm in rural areas.	
e. Vegetation growth within the vegetation-free zone.	
f. Vegetation impeding the function of, or causing damage to, an asset.	
g. Noxious and environmental weeds within the road reserve of freeways.	
h. Ineffective firebreaks or fire control measures.	

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7.5 WEED SPRAYING (ACTIVITY A-322)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **1 month** of identification.	• Pesticides are to be used in accordance with Specification TfNSW G36 and the manufacturer's recommendations. • All spraying is to be carried out to avoid damage to surrounding vegetation. Areas not targeted for spraying that are damaged by spraying activities are to be reinstated to their original form. • Restrictions on the use of pesticides include: – Areas that are prone to erosion. – Within 10 m of waterways or pedestrian areas. – Wet or windy conditions. • Beyond a 1 m radius around rest area facilities. • Typically, weed spraying activities are to be scheduled shortly after slashing or hand vegetation control.
b. Vegetation growth that reduces the continuous line of sight to a sign face, non-pavement delineator, the bottom of safety barrier or traffic signal, a vehicle on a side road or turning bay, to less than: • 5 seconds for regulatory, advisory, and warning signs. • 8 seconds for information and guide signs.	
c. Vegetation height > 200 mm in pedestrian zones.	
d. Vegetation height > 300 mm in urban areas and > 500 mm in rural areas.	
e. Vegetation that encroaches into the vegetation-free zone.	
f. Vegetation impeding the function of or causing damage to an asset.	
g. Noxious and environmental weeds within the road reserve of freeways.	
h. Ineffective firebreaks or fire control measures.	

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7.6 HAND VEGETATION CONTROL (ACTIVITY A-323)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **1 month** of identification.	• Move fallen timber to an adjacent area in the road reserve which is clear of drainage lines. • Avoid, where possible, the removal of deadwood with hollows as this may be providing wildlife habitat. Following a risk assessment, it may be desirable to reallocate deadwood to a more suitable nearby location. • The required vegetation control width on rural road corridors is from the edge of seal to at least 1.2 m behind guide posts. • Where feasible, the vegetation control width for Motorway sections and mountain passes should be at least 2.4 m. • Ensure that uncut grass around or under trees or road furniture or left behind between passes is kept to a minimum. Sweep clippings from the road surface, lined drains, footways or other paved areas, and rest areas. Clippings in other areas can remain where they fall. • Typically, weed spraying activities are to be scheduled shortly after slashing or hand vegetation control.
b. Vegetation growth that reduces the continuous line of sight to a sign face, non-pavement delineator, the bottom of safety barrier or traffic signal, a vehicle on a side road or turning bay, to less than: • 5 seconds for regulatory, advisory, and warning signs. • 8 seconds for information and guide signs.	
c. Vegetation height > 200 mm in pedestrian zones.	
d. Vegetation height > 300 mm in urban areas and > 500 mm in rural areas.	
e. Vegetation that encroaches into the vegetation-free zone.	
f. Vegetation impeding the function of or causing damage to an asset.	
g. Noxious and environmental weeds within the road reserve of freeways.	
h. Ineffective firebreaks or fire control measures.	

7.7 SERVICE VACANT PROPERTY AND STOCKPILE SITES (ACTIVITY A-331)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Vacant property and stockpile site must be left clean and tidy.
b. Ensure that environmental protection measures remain operational.	
c. Control vegetation when its height > 400 mm.	
d. Remove vermin and pests.	

7.8 REMOVE NON-CRITICAL GRAFFITI (ACTIVITY A-332)

Intervention guidance (Defects)	Work standard
a. Consider removing graffiti and posters visible from the travelled way or pedestrian zone within **6 months** of identification and at other locations within **9 months**. (Note: Graffiti that is offensive, represents a road safety risk or is attracting public complaint must be removed in accordance with Clause 6.7).	• Refer to Clause 6.7 (Activity C-302 Remove Critical Graffiti).

7.9 COLLECT ROADSIDE LITTER (ACTIVITY A-339)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **5 days** of identification.	• Remove entire contents of a garbage bin (or receptacle). • Repair or replace damaged bins with a similar item. • During cleaning operations ensure that any loose material does not enter the stormwater system and that all drainage paths remain clear.
b. Overflowing roadside bin.	
c. Damaged or non-functioning bin.	
d. Litter or debris on the roadway that reduces skid resistance of the road surface.	
e. Offensive roadside debris or litter (very unsightly, smelly, or attracting complaint).	
f. General roadside debris and litter located within the NWL and visible from the travelled way. Includes litter pick-up before mowing operations as per Activity A-321 Slashing.	

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7.10 SERVICE REST AREA (ACTIVITY A-428)

<table>
<tr><th>Intervention guidance (Defects)</th><th>Work standard</th></tr>
<tr><td>a. Typically, all defects within a rest area should be rectified at the time of servicing the rest area. Rest areas must be safe, clean, and operational. The frequency of servicing the rest area surroundings is as follows:
<table>
<tr><th>General</th><th>Holiday period</th></tr>
<tr><td>H: Weekly
M: Every 2 weeks
L: Monthly</td><td>H: Twice per week
M: Weekly
L: Every 2 weeks</td></tr>
</table></td><td>• Provide an aesthetically pleasing and hygienic area for resting motorists.
• Clean rest area facilities with an approved biodegradable phosphorus-free detergent.
• All stormwater diversions to minimise runoff entering the wastewater treatment and/or storage systems must be in place.
• Notify TfNSW of any non-functional rest area lights.</td></tr>
<tr><td>b. Empty rest area bins regularly to avoid overfilling. Litter and debris visible within the rest area, including playground areas. Flammable material in close proximity (within 5 m) to fireplaces, BBQ’s, or other rest area facilities (e.g. tables, structures).</td><td rowspan="2">• Remove entire contents of bin or receptacle.
• Garbage bins must remain functional and be replaced with a similar unit.
• Eradicate vermin and dispose of flammable materials.</td></tr>
<tr><td>c. Presence of vermin including spiders on playground equipment.</td></tr>
<tr><td>d. Storage level of water tank < 10% of capacity.</td><td>• Water tanks providing drinking water must be filled with potable water. Ensure signs are erected where water is not suitable for drinking.</td></tr>
<tr><td>e. Signs within rest area are not clean or legible.</td><td>• Replace signs that are damaged and cannot be repaired.</td></tr>
<tr><td>f. Landscaping is unsightly including dead, diseased plants and weed growth.</td><td>• Landscaping maintenance to comply with Clause 7.3 (Activity A-319 Maintain Landscaping).</td></tr>
<tr><td>g. The frequency of servicing toilets within rest areas is as follows:
<table>
<tr><th>Toilet type</th><th>General</th><th>Holiday period</th></tr>
<tr><td>Non-flush toilets</td><td>H: 3 times/week.
M: 2 times/week.
L: Weekly.</td><td>H: Every day.
M: 3 times/week.
L: Weekly</td></tr>
<tr><td>Flush toilets</td><td>H: Every day,
M: 3 times/week
L: 2 times/week</td><td>H: Twice/day
M: Every day
L: 2 times/week</td></tr>
</table></td><td>• Maintain and operate toilets in compliance with operation and maintenance manuals for the toilet system.
• Notify TfNSW of sites that require expensive asset renewal works.
• Where a public health issue is identified, temporary physical barriers preventing public access to affected areas must be erected as soon as possible. Closure of the whole rest area may be an appropriate response. When closure is necessary, notify TfNSW prior to, or as soon as possible after the closure of the facility, but no longer than 24 hours.</td></tr>
</table>

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Intervention guidance (Defects)	Work standard
h. Roadside toilet is unsafe, dirty, or aesthetically unpleasant. Servicing includes: i General cleaning including graffiti removal. ii Refilling paper and washing liquid soap. iii Emptying of sharps containers and bins. iv Pest and vermin control.	• Clean wet areas such as toilet bowls, sinks and urinals so that stains are removed, and unpleasant odours are minimised. • Ensure floors, walls and doors are clean and dry. • Only use chemical for cleaning that are compatible with the toilet system. Consider the impacts on the composting or decomposition processes within the treatment system (particularly relevant for cleaning and sanitising areas that drain to the treatment system, such as toilet pan and basin) of any cleaning chemical used. • Remove effluent (by appropriately licensed personnel) to a facility approved to dispose of human waste. Underground tanks must not be completely emptied. Not all underground tanks are anchored, and so there is a potential for floatation. No personnel must come in direct contact with effluent.
i. Sludge and effluent > 90% of capacity.	
j. Storage level of water tanks < 10% of capacity.	
k. Portable toilet is non-functional or dirty.	

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7.11 REPAIR REST AREA FACILITIES (ACTIVITY A-429)

Intervention guidance (Defects)		Work standard
a.	Consider repair of all defects within **3 months** of identification. Comply with any inspection and/or maintenance requirements of Australian Standards and the playground equipment manufacturer. Inspect each month and at the beginning of, and fortnightly during high usage periods such as school holidays	• All repairs to be undertaken in accordance with current Australian Standards and relevant TfNSW Specification. Some playground equipment manufacturers may require that accredited maintenance personnel undertake repair work.
b.	Rest area facilities are damaged or are non-functional.	
c.	Playground equipment and facility defects include: i. Inadequate or missing impact-absorbing material under equipment with fall heights > 500 mm. The depth of loose impact-absorbing material < 250 mm. ii. Loose nuts and bolts for tightness. iii. Sharp edges on hardware and equipment. iv. Faulty or damaged swing seats and chains including deterioration, severe rusting, or excessive wear, especially near the top swing hanger or at the seat connection. Cracks in the protective plastic sleeve or seat itself. v. Sharp edges, moving parts or protruding bolts etc. that could pinch a child's finger, cause bruising or act as a hook that could catch on a child's clothing. vi. Tables, seats, or structures with broken or missing parts or unstable.	• Appropriate impact absorbing materials are pine mulch, bark mulch, wet pour rubber and high-density foam. Grass and sand are not appropriate surfaces. These special surfaces must be, at least, 250 mm deep and extend 2.5 m beyond the equipment. For swings, the special surface must extend for the length of the swing's extension, plus another 2.5 m. • Replace broken, missing, or worn parts and make sure that all structures are stable. • Special signage must be installed to remind caretakers of their administrative role at playground facilities. • Lubricate all moving parts on playground equipment regularly. • Restrict access to any playground equipment deemed unsafe.
d.	Damaged or non-functional toilet or sink, including leaks and cistern faults. Prioritise rectification works within **2 weeks** of defect identification.	• Roadside toilets and sinks must be fit for purpose. Repair and replacement of non-functional systems. Close the rest area when sewage or treated effluent is leaking from the system or when the toilet facility is not functional or as directed by TfNSW. • Refer to wastewater system manufacturers' guidelines or maintenance manual for repair requirements.

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8 SCHEDULED MAINTENANCE REQUIREMENTS

8.1 SCHEDULED INSPECTIONS (ACTIVITY S-112)

Intervention guidance (Defects)	Work standard
a. Carry out the scheduled inspections nominated in the approved RMAP and Work Details (Table M3.A.1). The timing of scheduled asset inspections are informed by the nominal inspection frequencies specified in Table M3.3.	• Record and manage defects in accordance with Clause 3 and Clause 4.

8.2 SEAL PAVEMENT CRACK (ACTIVITY S-211)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW M211 and TfNSW M212. • Cross stitching is to precede surface crack routing and sealing (where required). Refer to Clause 8.3 (Activity S-213 Cross-Stitch Crack and Joint). • The use of emulsion and 5 or 7 mm aggregate is permissible for area-wide treatments.
b. Width of transverse, longitudinal and diagonal cracks > 5 mm.	
c. Crocodile or block cracking with plates < 100 mm.	
d. Water is entering the pavement and pumping fines.	

8.3 CROSS-STITCH CRACK AND JOINT (ACTIVITY S-213)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW M213. Cracks may be longitudinal, transverse or skewed. Joints requiring stitching will typically be longitudinal but could sometimes be transverse. • Do not carry out cross-stitch treatment on moving joints such as contraction, expansion, and isolation joints.
b. Tie bars have failed or are missing and involve non-moving joints.	

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8.4 REPAIR CONCRETE JOINT (ACTIVITY S-214)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW M214 and/or TfNSW M215.
b. The joint sealant has deteriorated allowing water to enter the pavement.	
c. Length of lost sealant > 2 m.	
d. Spalling of joint > 50 mm.	

8.5 GRADE FORMATION (ACTIVITY S-221)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW M220. • Provide safe and consistent driving conditions.
b. Depth of corrugation > 25 mm.	
c. Rut or scour depth > 75 mm.	
d. Depth of loose gravel > 50 mm.	
e. Loss of granular surface material > 20% of its original thickness or structural capacity of pavement is inadequate.	
f. Prioritise grading of road formation following rains that cause significant pavement damage.	

8.6 RESHEET FORMATION (ACTIVITY S-222)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW M220.
b. Significant loss of gravel.	

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8.7 STABILISE CONCRETE SLAB (ACTIVITY S-231)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW M231 and/or TfNSW M232.
b. Slab subsidence and movement that adversely affects ride quality.	
c. Stepping, settlement, heaving or abrupt discontinuity in rigid pavement slabs > 25 mm.	

8.8 GRADE SHOULDER (ACTIVITY S-241)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW M240. • Ensure that unsealed shoulders (including verge with rigid pavements) are graded and maintained adequately to provide safe driving conditions.
b. Pothole, rutting, or corrugations.	
c. Excessive edge break (> 300 mm) and edge drop-off (> 75 mm).	
d. Presence of vegetation on the shoulder.	
e. Poorly formed unlined table drain or shoulder/verge crossfall affecting drainage, e.g., scoring, siltation or vegetation.	

8.9 RESHEET SHOULDER (ACTIVITY S-242)

Intervention guidance (Defects)		Work standard
a.	Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW M240.
b.	Significant loss of shoulder material resulting in poor cross-fall, erosion of shoulder or exposed boulders.	

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8.10 SWEEP ROAD PAVEMENT (ACTIVITY S-272)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **3 months** of identification.	• Any loose material removed from the site must be disposed of legally. • Remove at least 95% of the loose material in urban areas. • During sweeping operations, loose material must not enter the storm water drainage system. After sweeping operations there should be an unimpeded passage for water to enter the drainage system.
b. Loose gravel and other debris particularly around intersections, side roads and crossovers.	
c. Loose material within drainage lines and kerb and guttering.	

8.11 REPAIR FAUNA AND BOUNDARY FENCE (ACTIVITY S-333)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **3 months** of identification.	• Comply with Specification TfNSW R201. • Remove all logs, boulders, stumps, roots, undergrowth, and rubbish, along the full length of the newly erected fence line, within 1 m on either side of a boundary fence or 3 m on the outer side of a fauna fence. • Where components must be replaced, ensure that the replaced components are of similar material and dimensions to the existing. • Remove sediment to a minimum of 400 mm below stock/koala grid. • Mulch to be level with the lip of escape mound.
b. Missing or non-functional gate (including flood gate or gate component such as the hinge or latch), boundary and fauna fence post that is missing, loose, broken, rotten, torn, degraded, corroded, or badly misaligned.	
c. Any rail, panel, mesh or wire not securely attached, adequately tensioned, overstretched, corroded or otherwise non-functional.	
d. Any non-functional stock/koala grid, including sediment < 150 mm below the grid and grid elements that are missing, loose, bent, or corroded.	
e. Any drop-down ramp or escape mound missing or non-functional, or mulch is not level with the top lip of the escape mound.	
f. Vegetation within 1 m on either side of TfNSW boundary fence line (but limited to within the road reserve and previously cleared area.).	
g. Vegetation within 3 m of the outside of a fauna fence but limited to within the road reserve and previously cleared area.	

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8.12 REPAIR NOISE WALL (ACTIVITY S-336)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW R271. • Remove loose material and clean surface of damaged noise wall in preparation for repairs. Paint (or similarly treat) all unexposed timber. Remove all unsound paint from timber posts and panels requiring repainting (or adopt an approved treatment). Achieve the closest match possible to the original paint, surface finish or surrounding area. • Where concrete repairs are required roughen the surface and expose the aggregate of the area to be repaired to promote adhesion of the repair. Clean the area to be repaired and ensure that no material enters the joint or cracked space. Apply an appropriate repair system to repair damaged areas. • Where cleaning of glass (or other similar materials, including Perspex) is required, ensure that cleaning methods and materials will not damage the noise wall components.
b. Noise wall must provide an ongoing ability to reduce the impacts of road traffic noise on adjacent properties.	
c. Post (< 100 mm wide) rail and/or panel (< 5 m^2) misaligned > 100 mm.	
d. Post (< 100 mm wide), rail and/or panel (< 5 m^2) is missing, broken, loose, rotten, or corroded.	
e. Panel (< 5 m^2) is missing, damaged (e.g., spalling, or exposed reinforcing), rotten or not securely fixed.	
f. Ensure the safety of the pedestrian and cyclic traffic behind the noise walls where applicable (e.g., falling panels).	

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8.13 MAINTAIN WILDLIFE CONNECTIVITY AND HABITAT STRUCTURE (ACTIVITY S-337)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification. **b.** Non-functioning fauna protection structure. **c.** Rope, cable and/or netting (< 20% of total structure) shows signs of deterioration (e.g., broken strands/fibres, rust, excessive slag), detached/hanging or missing component. **d.** Platform, cross bar, or other supporting element (timber, concrete or steel) (< 20% of total structure) is damaged, has a missing component, or shows signs of deterioration (e.g., rot, rust), affecting safety or functionality. **e.** Evidence of termite attack. **f.** Bolt in timber/steel element is broken or loose. **g.** Connectivity or habitat pole is unstable, collapsed, missing, or deteriorated and considered unsafe.	• Where components must be replaced, ensure that the replaced components are of similar material and dimensions to the existing. • Reconnect ropes, cables and netting to adjoining trees or connectivity poles. Repair rope connections (e.g., lattice rope attachment to wire rope). • Repair or replace the wire or synthetic and lattice rope, to the original condition. • Tighten ropes in accordance with in accordance with the manufacturer's recommendations. • Comply with AS 3569, AS 2759 and AS 4142.1. • All broken or missing bolts in timber and steel connections must be replaced, and all existing bolts must be tight. Remove deteriorated timber or steel and provide localised temporary support. • Repair or replace damaged or missing platforms, cross bars and other supporting elements on connectivity or habitat poles. • All timber design, construction, and materials to be in accordance with AS 1720.1 and AS 1720.2. • Apply anti-termite treatment in accordance with the manufacturer's recommendations. If there is no evidence of termite activity 6 weeks after treatment, follow up with preservative coating in accordance with the manufacturer's recommendations.

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8.14 MAINTAIN ROADSIDE SLOPE (ACTIVITY S-351)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **12 months** of identification.	• Work must comply with Specification TfNSW R55 and other relevant specifications. • Loose or unstable rocks are only to be removed with geotechnical supervision. • Catch drain or open drain repairs are carried out under Clause 8.18 (Activity S-522 Repair Surface Drain).
b. Ensure the stability of slopes to keep roads safe and open.	
c. Undertake any site-specific slope maintenance activities in accordance with the Work Details (Table M3.A.3).	
d. Deformation of batter protection system > 200 mm, as measured from the batter line.	
e. Area of broken or cracked batter protection surface > 5 m^2, and less than 10% of protection surface.	
f. Scour depth of a batter > 200 mm.	
g. Loose or unstable rock.	
h. Water flowing over batter due to blocked surface drain.	

8.15 REPAIR ROCK FALL PROTECTION FENCING AND NETTING (ACTIVITY S-354)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with the standard of work for Clause 8.14 (Activity S-351 Maintain Roadside Slope). • Remove all loose material from behind the debris barrier. Debris is to be disposed of legally and not dumped over the fill side of an embankment. • Replace missing or damaged components with equivalent items. • Tension grips to design torque.
b. Rockfall protection fencing, or netting is damaged or non-functional.	
c. Loose rock and soil material behind rock or debris barrier.	
d. Retaining shackle or cable grip missing, or inadequately tensioned.	
e. Bent fence post, missing or damaged netting/panels.	

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8.16 REPAIR RETAINING WALL (ACTIVITY S-355)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• The retaining wall must be structurally sound and free of defects. • All weepholes are to be clear of debris and able to flow freely. • Gabion baskets are to be correctly aligned and shaped, panel joints are to be fully laced or clipped, and mesh patches should overlap the existing mesh by a minimum of two sections. • Retaining structures are to be free of vegetation.
b. Number of weepholes blocked > 10% for each 50 m section of wall.	
c. Holes torn in gabion baskets > 200 mm.	
d. Vegetation growing from cracks/gaps in retaining structure.	

8.17 REPAIR DRAINAGE STRUCTURE (ACTIVITY S-521)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Comply with Specification TfNSW R11. • The drainage structure must be in good repair and free from damage or defects likely to adversely affect the continued safe passage of traffic, or to cause further deterioration impacting on the structural capacity of the structure. • Minor concrete repairs must comply with the standard of work for Clause 8.18 (Activity S-522 Repair Surface Drain). • The line and level of the drainage structure is to be restored.
b. Missing lintel, lid, grate, or grids.	
c. Lintel is broken or dislodged.	
d. Concrete broken > 1 m^2 or reinforcing exposed.	
e. Pit / pipe joints open > 25 mm or losing material.	
f. A differential level between the grate/lid and abutting pavement surface or the lid/grate is rocking with movement under axle load.	
g. Scour depth > 250 mm, or structure undermined > 100 mm.	
h. Pipe misaligned.	
i. Scour protection / embankment lining damage > 1 m^2.	

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8.18 REPAIR SURFACE DRAIN (ACTIVITY S-522)

Intervention guidance (Defects)	Work standard
a. Consider removal of defects within **9 months** of identification and **4 months** on mountain passes. **b.** Depth of scour > 200 mm **c.** Broken lining causing instability, undermining the drain, or has a continuous length > 2 m. **d.** Vertical projection in kerb/gutters/concrete drain > 40 mm or 15 mm within Pedestrian Zones. **e.** Missing/broken pieces in kerb/gutter > 100 mm. **f.** Cracks, spalls, evidence of corrosion, or substantial loss of reinforcement steel. **g.** Surface drain defects causing water ponding or water flow across the road.	• For earth table drains refer to Clause 8.8 (Activity S-241 Grade Shoulder). • Work must comply with Specification TfNSW R15, TfNSW R33, TfNSW R38, TfNSW R53, TfNSW R55 and other Specifications appropriate for the work. • The structure must be in good repair and free from any defects and the line and level of the surface drain must be restored. • Prepare the existing concrete to provide a sound foundation for the repair. Remove unsound material, debris, or any residue from the repair area. Roughen the surface and expose the aggregate of the area to be repaired to promote adhesion. • Avoid epoxy concrete repair systems when the exposed steel shows signs of corrosion. Where there is significant structural damage to a concrete drainage structure, it might be more efficient to replace the structure. • Fresh concrete/epoxy must bond permanently with the damaged concrete without any cracks developing. It must be UV stable, non-shrinking and non-expansive and have a similar colour to the surrounding surface when cured. The aggregate size within the concrete/epoxy mix must not exceed one third of the minimum depth of the repair. • Ensure that any existing joint is maintained. Provide a bond-breaker material against the face of joint and ensure that no material enters the joint space.

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8.19 REINSTATE SUBSURFACE DRAIN (ACTIVITY S-523)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **9 months** of identification.	• Completely clean the subsoil drain, including the inlets and outlets. The subsoil drain must be completely clear of any obstructions that may impede the flow of water. • The subsoil drain must be in good repair and free from damage or defects likely to adversely affect the flow of water. • Replace or clean the drain marker pegs and the outlet screens.
b. Drain outlet is obstructed/blocked causing adjacent pavement failure.	
c. Missing or broken subsoil drain outlet and headwalls resulting in scouring > 200 mm deep.	
d. Dirty or missing marker peg.	

8.20 CLEAN DRAINAGE STRUCTURE (ACTIVITY S-524)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification or within **3 months** on mountain passes.	• Pits, culverts, and bridge scuppers must be clear of obstructions affecting water flow. • Work may be carried out by sucker truck or mechanical methods.
b. Pipe/culvert flow is impeded by an obstruction (e.g., litter and debris) resulting in flow restriction > 50% at the inlet, outlet, or in the barrel/pit.	
c. Partially blocked bridge scupper affecting the effectiveness of deck drainage.	

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8.21 CLEAN SURFACE DRAIN (ACTIVITY S-525)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **3 months** of identification.	• Comply with the standard in Clause 8.20 (Activity S-524 Clean Drainage Structure). • Remove litter and debris from grates and scuppers. The structure must be clean of obstructions affecting water flows. • Debris is to be disposed of legally and not placed upstream of any drainage inlet to prevent it from being washed back into a drainage structure.
b. Debris, litter, or vegetation restricts the flow of water.	
c. The surface grate or bridge scupper is blocked or incapable of draining water away quickly enough to avoid water backing up. Obstruction results in water being diverted from drains or preventing over-edge run-off, etc.	
d. Drainage grate is blocked > 25% of its capacity	

8.22 MAINTAIN STORMWATER IMPROVEMENT DEVICE (ACTIVITY S-526)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **3 months** of identification.	• The basin must be in good repair and free from any damage. • Remove all litter and debris likely to adversely affect the function of the trap. • Maintain the gross pollutant traps in accordance with the manufacturer's recommendations and dispose of any waste legally.
b. Sedimentation basin capacity reduced by > 50%.	
c. Gross Pollution Trap capacity reduced by > 75%	
d. Stormwater Improvement Devices are to be maintained/serviced in accordance with Table M3.A.5.	

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8.23 SCHEDULED SIGN REPAIR OR REPLACEMENT (ACTIVITY S-615)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Refer to Clause 6.10 for the reinstatement of missing or illegible signs. • Extent of work limited to signs < 3 m^2 (single piece backing panel signs). For signs > 3 m^2 (multi-panel signs), refer to TfNSW for possible replacement under the Capital Works Program. • Comply with Specification TfNSW R143. Information and guide signs are location specific and need to be approved by TfNSW before purchasing. Refer to AS 1742 for sign design requirements. Ensure signs are correctly aligned (i.e., offset away) with on-coming traffic. • Generally, erect new signs or supporting structures in the same position and maintain the height of the previous sign and structure. Signs must be in good visible condition and clearly legible at night and during the day. Branches to be sufficiently trimmed back to avoid the need for a repeat visit within 2 years. • Where the existing sign is incorrectly located, regardless of whether the sign face only needs replacing, the entire sign (supporting structure) must be relocated to the correct position. If a sign is repeatedly attacked with graffiti, consider using a new sign with compatible anti-graffiti coating layer. Repeated graffiti removal will degrade night time visibility. • Note: TfNSW may provide a list of defects, separately identified by TfNSW and these defects must be added to the Service Provider's maintenance defects register for subsequent action.
b. Sign with deteriorating functionality (affecting legibility) resulting from such things as graffiti, posters or stickers, moss growth, holes, or perforations, bent or twisted sign faces, scraped or peeling sign symbols and legend, including minor defects notified by TfNSW.	
c. Faded or non-reflective sign at night.	
d. Loose sign fitting, e.g., nut, rivet, bracket, etc.	

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8.24 CLEAN OR ADJUST SIGN (ACTIVITY S-616)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **6 months** of identification.	• Refer to Clause 6.10 for the reinstatement of missing or illegible signs. • Comply with Specification TfNSW R143. • Dirty marks and materials must be removed. When cleaning the sign face, ensure that the cleaning method employed does not cause any damage to the sign. • Signs must be in good condition, visible and legible at night and day and correctly aligned (i.e., offset away) to on-coming traffic. A sign may be relocated to an area that is less likely to be damaged by errant vehicles (e.g., at an offset further from the travelled way) provided that the sight distance to the sign and the sign's message is not compromised.
b. Dirty sign (road grime, moss, graffiti, posters and/or stickers).	
c. Sign reflects glare back at motorists at night.	
d. Sign is incorrectly located (e.g., sign is repetitively damaged by errant vehicles or excessive vegetation control required to maintain appropriate lines of sight).	

8.25 MAINTAIN WIRE ROPE SAFETY BARRIER (ACTIVITY S-621)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **3 months** of identification.	• Refer to Clause 6.9 for the reinstatement of assets damaged by vandalism and vehicle impacts. • Comply with Specification TfNSW M620 and TfNSW R132. • Where isolated components (e.g., a post) must be replaced, ensure that replacement components are of similar material and dimensions to the existing components. • When retrofitting safety barriers ensure that road shoulder width is not compromised.
b. Post is loose, broken, buckled, bent, twisted, split, or missing.	
c. Post or spacer is misaligned > 150 mm.	
d. Rope cable is not adequately tensioned, broken, or damaged.	
e. The terminal end is sub-standard or misaligned.	

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8.26 MAINTAIN STEEL SAFETY BARRIER (ACTIVITY S-622)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **3 months** of identification.	• Refer to Clause 6.9 for the reinstatement of assets damaged by vandalism and vehicle impacts. • Comply with Specification TfNSW M620 and TfNSW R132. • Where isolated components (e.g., a post) must be replaced, ensure that replacement components are of similar material and dimensions to the existing components. • When retrofitting safety barriers ensure that road shoulder width is not compromised.
b. Post is loose, broken, buckled, bent, twisted, rotten, split or missing.	
c. Post or spacer is misaligned > 150 mm.	
d. Rail (including motorcycle underrun protection rail) is loose (either to post or adjoining rail), corroded (affecting strength), damaged (buckled, bent, twisted, or protruding > 200 mm displacement), incorrectly lapped, or missing.	
e. Terminal end cable is not adequately tensioned, broken or damaged.	
f. Terminal end is sub-standard or misaligned.	
g. Debris blocking drainage flow under motorcycle underrun protection rails.	

8.27 MAINTAIN CONCRETE BARRIER (ACTIVITY S-623)

Intervention guidance (Defects)	Work standard
a. Consider repair of the following defects within **3 months** of identification.	• Refer to Clause 6.9 for the reinstatement of assets damaged by vandalism and vehicle impacts. • Comply with Specification TfNSW M620 and TfNSW R132. • Where isolated concrete segments must be replaced, ensure that they are replaced with segments of similar material and dimensions to the original components. • When retrofitting safety barriers ensure that road shoulder width is not compromised.
b. Concrete barrier is damaged, misaligned, or de-bonded from the base.	
c. Terminal end is sub-standard or misaligned.	

ANNEXURE M3/A – WORK DETAILS

TfNSW will separately issue the Work Details applicable to the Services prior to the commencement of the next Maintenance Period. The Work Details will be specified in the following six tables:

(a) Table M3.A.1 – Asset inspections (Activity Group 100).

(b) Table M3.A.2 – Pavement (Activity Group 200).

(c) Table M3.A.3 – Roadside assets (Activity Group 300).

(d) Table M3.A.4 – Rest areas (Activity Group 400).

(e) Table M3.A.5 – Drainage (Activity Group 500).

(f) Table M3.A.6 – Traffic facilities (Activity Group 600).

ANNEXURE M3/B – MEASUREMENT

The maintenance activities and output recording requirements are listed in the following tables.

Table M3.B.1 – List of Corrective Maintenance Activities

Code	Activity name	Output recording requirements
C-111	Safety inspection	Record the distance travelled **(km)** while undertaking inspection or travelling to a site to carry out an inspection.
C-201	Repair pothole	Record the number of potholes repaired **(each)**.
C-202	Repair pavement edge	Record the length **(m)** of edge break or edge drop-off repaired.
C-203	Repair wearing surface	Record the area treated (**m^2**)
C-204	Minor pavement patching	Record the area treated (**m^2**)
C-301	Remove dead animal	Record the number (**each**).of carcasses removed or relocated.
C-302	Remove critical graffiti	Record the area treated (**m^2**).
C-611	Reinstate non-pavement delineation	Record the number of reflectors reinstated on guide posts and safety barriers (**each**).
C-612	Reinstate safety barriers and pedestrian fence	Record the length (**m**) of damaged safety barrier reinstated.
C-614	Reinstate sign	Record the number (**each**) of signs replaced or functionality reinstated.
C-801	Incident response	Record the number of incidents requiring an emergency response (**each**).

Table M3.B.2 – List of Amenity Maintenance Activities

Code	Activity name	Output recording requirements
A-312	Trim tree branches	Record the number of trees pruned (**each**).
A-316	Remove tree	Record the number of trees removed (**each**).
A-319	Maintain landscaping	Record the area treated (**m^2**). The area of an individual tree treated is the canopy area of the tree.
A-321	Slashing	Record the area treated (**m^2**).
A-322	Weed spraying	Record the area treated (**m^2**).
A-323	Hand vegetation control	Record the area treated (**m^2**).
A-331	Service vacant property and stockpile site	Record each instance of servicing a vacant property or stockpile site (**each**). Do not use any other Activity Code to record work that is undertaken within a vacant property or stockpile site.
A-332	Remove non-critical graffiti	Record the area treated (**m^2**).
A-339	Collect roadside litter	Record the volume of litter and debris collected (**m^3**).
A-428	Service rest area	Record each time that a rest area is serviced (each). Do not use any other Activity Code to record work that is undertaken within a rest area.
A-429	Repair rest area facilities	Record the number of defects rectified (**each**). Several repairs could be carried out, on different asset types, during one visit to a site.

Table M3.B.3 – List of Scheduled Maintenance Activities

Code	Activity name	Output recording requirements
S-112	Scheduled inspection	Record the duration of inspection including travel time (**hours**).
S-211	Seal pavement crack	Record the area treated (**m^2**) calculated by multiplying the width of the lane by the length of the lane treated.
S-213	Cross-stitch crack and joint	Record the length of joint repaired (**m**).
S-214	Repair concrete joint	Record the length of joint repaired (**m**).
S-221	Grade formation	Record the length treated (**km**).
S-222	Resheet formation	Record the length treated (**km**).
S-231	Stabilise concrete slab	Record the total area of slab treated (**m^2**).
S-241	Grade shoulder	Record the length of each shoulder treated (**km**).
S-242	Resheet shoulder	Record the length of each shoulder treated (**km**).
S-272	Sweep road pavement	Record the length road treated (**km**).
S-333	Repair fauna and boundary fence	Record the length of fence repaired (**m**).
S-336	Repair noise wall	Record the length of noise wall repaired (**m**).

Code	Activity name	Output recording requirements
S-337	Maintain wildlife connectivity and habitat structure	Record the number of structures maintained (**each**).
S-351	Maintain roadside slope	Record the number of slopes treated (**each**).
S-354	Repair rock fall protection fencing and netting	Record the length of rock fall protection fencing and netting repaired (**m**).
S-355	Repair retaining wall	Record the length of retaining wall repaired (**m**).
S-521	Repair drainage structure	Record the number of structures repaired (**each**).
S-522	Repair surface drain	Record the length surface drain repaired (**m**).
S-523	Reinstate subsurface drain	Record the length of subsurface drainage repaired or installed (**m**). Record nominal 10 m for inlet and outlet repairs or marker peg repairs.
S-524	Clean drainage structure	Record the number of structures cleaned (**each**).
S-525	Clean surface drain	Record the length of drains cleaned (**m**).
S-526	Maintain stormwater improvement device	Record the number of stormwater improvement devices maintained (**each**).
S-615	Scheduled sign repair or replacement	Record the number of signs, including supporting structure, replaced (**each**).
S-616	Clean or adjust sign	Record the number of signs, including supporting structure, cleaned, or adjusted (**each**).
S-621	Maintain wire rope safety barrier	Record the length of wire rope safety barrier maintained (**m**).
S-622	Maintain steel beam safety barrier	Record the length of steel beam safety barrier maintained (**m**).
S-623	Maintain concrete barrier	Record the length of concrete safety barrier maintained (**m**).

ANNEXURE M3/C – SCHEDULES OF HOLD POINTS AND IDENTIFIED RECORDS

C1 SCHEDULE OF HOLD POINTS

Refer to Clause 1.2.3.

Clause	Description
2.2	Payment for Routine Services

C2 SCHEDULE OF IDENTIFIED RECORDS

The records listed below are Identified Records for the purposes of TfNSW QA Specification Q4M.

Clause	Description
3.3(a)	Inspection Record
3.3(b)	Defect Identification Record
5.2.2	Incident Record
5.2.3	Vehicle Removal Record
5.2.5	Recoverable Cost Record
5.3	Daily Work Record

ANNEXURE M3/D – PLANNING DOCUMENTS

Refer to Clause 1.2.4. The following documents are a summary of documents that must be included in the PROJECT QUALITY PLAN. The requirements of this Specification and others included in the Contract must be reviewed to determine additional documentation requirements.

Clause	Description of Document
2.2	Routine Maintenance Annual Plan

ANNEXURES M3/E TO M3/L – (NOT USED)

ANNEXURE M3/M – REFERENCED DOCUMENTS

TfNSW Specifications

TfNSW M211	Crack Sealing (Bituminous Surface)
TfNSW M212	Routing and Sealing of Cracks and Joints (Concrete Pavement)
TfNSW M213	Cross Stitching of Cracks and Joints
TfNSW M214	Repair of Joint seals in Concrete Pavement
TfNSW M215	Repair of Spalls in Concrete Pavement
TfNSW M220	Formation Grading of Unsealed Roads
TfNSW M231	Pressure Grouting for Slab Jacking / Stabilisation
TfNSW M232	Injected Expanding Foam Slab Jacking / Stabilisation
TfNSW M240	Shoulder Grading
TfNSW M250	Heavy Patching (Flexible Pavement)
TfNSW M258	Slab Replacement (Concrete Pavement)
TfNSW M321	Landscape Maintenance
TfNSW M620	Maintenance of Road Safety Barriers
TfNSW R11	Stormwater Drainage
TfNSW R15	Kerbs and Channels (Gutters)
TfNSW R33	Trench Drains
TfNSW R38	Edge Drains
TfNSW R53	Concrete for General Works
TfNSW R54	General Concrete Paving
TfNSW R55	Rock Filled Gabions and Mattresses
TfNSW R103	High Pressure Water Blasting of Bituminous Seals
TfNSW R131	Guide Posts
TfNSW R132	Safety Barrier Systems
TfNSW R142	Retro Reflective Raised Pavement Markers
TfNSW R143	Signposting
TfNSW R145	Pavement Marking (Performance based)
TfNSW R178	Vegetation
TfNSW R201	Fencing
TfNSW R271	Design and Construction of Noise Walls
TfNSW G22	Work Health and Safety (Construction Work)
TfNSW G36	Environmental Protection
TfNSW Q4M	Quality Management System
TfNSW M1	General Maintenance Requirements

Other TfNSW Documents

Environmental Assessment Procedure for Routine and Minor Works

Australian Standards

AS 1720	Timber Structures
AS 1742	Manual of Uniform Traffic Control Devices
AS 2759	Steel Wire Rope – Use and Operation
AS 3569	Steel Wire Ropes – Product Specification.
AS 4142	Fibre Ropes
AS 4373	Pruning of Amenity Trees