

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-100

HIGHWAY PAVEMENT PATCHING AND CRACK SEALING

1. OBJECTIVE

To ensure paved Highway surfaces are safe, smooth, stable, and sealed; and, to prevent moisture from penetrating the pavement surface.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must construct Temporary Patches where pavement deficiencies are unsafe or have the potential to become unsafe for Highway Users.

2.2 Quantified Maintenance Services

The Contractor must:

- a) construct Permanent patches; and
- b) seal cracks.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) construct Temporary Patches to correct pavement deficiencies such as, but not limited to:
 - i) Pot-holes;
 - ii) Bleeding;
 - iii) Distortions;
- b) ensure that finished patches are consistent with the line, grade, and crossfall of the adjacent pavement; and

- c) not remove and replace Temporary Patches with a Permanent Patch where the Temporary Patch is performing to the specifications of a Permanent Patch.

3.1.1 Performance Time Frames

- a) The following table establishes the maximum time, from the time the deficiency was detected by or reported to the Contractor, within which the Contractor must complete repairs to each deficiency based on the severity rating in the Pavement Surface Condition Rating Manual:

Pavement Deficiency	Severity	Summer Highway Classification				
		1 & 2	3	4	5	6 & 7
Pot-hole on Travelled Lane or inner Shoulder of curved Highway sections	high	24 h	2 d	3 d	7 d	14 d
Pot-hole on outside Shoulder of curved Highway sections and tangents	high	3 d	7 d	10 d	21 d	45 d
Pot-hole on right edge of divided Highway in the direction of travel	high	24 h	2 d	3 d	7 d	14 d
Pot-hole on left edge of divided Highway in the direction of travel	high	3 d	7 d	10 d	21 d	45 d
Bleeding on Travelled Lane, or inside Shoulder of curved Highway sections	high	24 h	2 d	3 d	7 d	14 d
Distortions presenting a safety hazard	high	24 h	2 d	3 d	7 d	14 d

Legend

h - hours

d – days

3.2 Quantified Maintenance Services

The Contractor must:

- a) ensure that finished patches are consistent with the line, grade and crossfall of the adjacent pavement;
- b) ensure that the edges of the patch that tie in elevation to existing pavements are feathered to an angle of no less than 30 degrees from a line perpendicular to the centreline;
- c) ensure that Shoulders are built up and Compacted to match the pavement elevation and are consistent with the line, grade, and crossfall of the adjacent Shoulders;
- d) ensure that Overlay Patches are compacted to a minimum thickness of not less than 50 mm and at an average application rate of not less than 120 kilograms per square metre;
- e) ensure that patches are constructed to a depth equal to that of the distressed pavement but never less than 60 mm;
- f) ensure that the root cause of the pavement failure is determined and reasonable attempts are made to deal with the failure before commencing repairs;
- g) ensure that paved bicycle and/ or pedestrian paths adjacent to Travelled Lanes are patched as part of the Highway;
- h) ensure that paved bicycle and/ or pedestrian paths not adjacent to Travelled Lanes are maintained to the same standard as the adjacent or nearest Highway;
- i) ensure that Weigh-in-motion Sites are maintained in accordance with the Province's instructions;
- j) measure the size of the patch to include the area required to maintain a smooth, stable and safe pavement surface;
- k) seal cracks; and
- l) when crack sealing, give priority to newer pavements, Travelled Lanes and areas where the cracks have the potential to develop into other deficiencies.

3.2.1 Performance Time Frames

- a) The following table establishes the maximum time, from the time weather conditions are conducive to perform the work, within which the Contractor must complete repairs to each deficiency based on the Severity and Density ratings in the Pavement Surface Condition Rating Manual:

Pavement Deficiency	Severity	Density	Summer Highway Classification				
			1 & 2	3	4	5	6
Shoving	high	frequent	21 d	21 d	21 d	21 d	1 m
Distortion	high	frequent	21 d	21 d	1 m	3 m	6 m
Aligatored areas without Distortion	moderate	frequent	21 d	1 m	3 m	6 m	1 y
Aligatored areas with Distortion, broken or missing materials	high	frequent	21 d	21 d	1 m	3 m	6 m
Pot-holes	low	through out	21 d	21 d	1 m	3 m	6 m
Bleeding	moderate	frequent	21 d	21 d	1 m	3 m	6 m
Ravelling	high	extensive	21 d	1 m	3 m	6 m	1 y
Rutting	moderate	extensive	21 d	21 d	1 m	3 m	6 m
all Longitudinal Cracking	moderate	frequent	1 y	1 y	1 y	1 y	1 y
Pavement Edge Cracking	moderate	frequent	1 y	1 y	1 y	1 y	1 y
Transverse Cracking	moderate	any	1 y	1 y	1 y	1 y	1 y

Legend

d - days
m - months
y – years

Note: For the purposes of calculating Density in the above table, the length of the section to be rated will be 20 metres and will start at the beginning of the deficiency and continue in the direction of traffic flow.

- b) The Contractor must plan to perform all identified Permanent Patches and crack sealing within the Contract Year to the limit of the identified quantities. Where identified work exceeds the available quantities in any Contract Year the Contractor must ensure identified repairs are carried out in order of priority to ensure safety and to protect the infrastructure.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

4. WARRANTY

The Contractor warrants all Permanent Patches against defects for a period of 365 days from the completion of those Maintenance Services. The Contractor must rectify all defects covered by this warranty and all other ancillary work performed under other Maintenance Specifications, without credit for such work, within 1 month of detection by or notification to the Contractor by the Ministry.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-110

HIGHWAY SURFACE TREATMENT

1. OBJECTIVE

To provide safe, durable, dust-free, impermeable travelling surfaces that facilitate the safe and efficient movement of traffic; and to protect the underlying infrastructure.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

2.2 Quantified Maintenance Services

The Contractor must:

- a) treat paved and Sealed roads where Ravelling, weathering, fatigue, traction-loss or other surface deficiencies are present; and
- b) treat gravel surfaces where there is a need to provide a dust-free durable surface.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

3.1.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.2 Quantified Maintenance Services

The Contractor must:

- a) prepare roads prior to surface treatment;
- b) complete any required Road Base repairs in accordance the Maintenance Specification for *Road Base Maintenance*, with credit

for such work under the Maintenance Specification for *Road Base Maintenance*;

- c) patch paved Highway surfaces as required to provide a smooth and stable base in accordance with the Maintenance Specification for *Highway Pavement Patching and Crack Sealing*, with credit for such work under the Maintenance Specification for *Highway Pavement Patching and Crack Sealing*;
- d) Re-shape gravel surfaces as required to prepare the base in accordance with the Maintenance Specification for *Grading and Re-shaping*, with credit for such work under the Maintenance Specification for *Grading and Re-shaping*; and
- e) haul and place additional gravel as required in accordance with the Maintenance Specification for *Highway Surface and Shoulder Gravelling*, with credit for such work under the Maintenance Specification for *Highway Surface and Shoulder Gravelling*.

3.2.1 Performance Time Frames

The Contractor must plan to perform all identified surface treatment within the Contract Year to the limit of the identified quantities. Where identified work exceeds the available quantities in any Contract Year the Contractor must ensure identified repairs are carried out in order of priority to ensure safety and to protect the infrastructure.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

4. WARRANTY

The Contractor warrants all Highway surface treatment against defects for a period of 365 days from the completion of those Maintenance Services. The Contractor must rectify all defects covered by this warranty and all other ancillary work performed under other Maintenance Specifications, without credit for such work, within 1 month of detection by or notification to the Contractor by the Ministry.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-130

GRAVEL SURFACE GRADING AND RE-SHAPING

1. OBJECTIVE

To maintain Dirt and Gravel Highway surfaces in a safe and stable condition and to promote efficient drainage.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

2.2 Quantified Maintenance Services

The Contractor must:

- a) perform Re-shaping where the Crown and Superelevation of the Dirt and Gravel Highway requires re-establishment to protect Highway Users from situations that are unsafe or have the potential to become unsafe; and
- b) perform surface Grading where surface deformities exist and where the Crown and Superelevation of the Dirt and Gravel Highway require re-working to protect Highway Users from situations that are unsafe or have the potential to become unsafe.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

3.1.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.2 Quantified Maintenance Services

The Contractor must:

- a) perform Re-shaping to ensure the surface is smooth and Compacted;
- b) perform Re-shaping to ensure that the surface will
 - i) have a Superelevation;
 - ii) have a Crown with a vertical rise of 4 centimetres for every 1 metre of Dirt and Gravel Highway surface;
- c) perform Re-shaping to ensure that lost materials are retrieved from the Shoulder side slopes;
- d) perform Grading to ensure that the surface is smooth and stable;

3.2.1 Performance Time Frames

- a) The following table establishes the maximum time from the time the deficiency was detected by or reported to the Contractor, within which the Contractor must complete the repair of the following deficiencies:

Gravel Surface Deficiencies		Summer Highway Classification			
		3 & 4	5	6	7
i)	Pot-hole (average more than 1 per 25 metres of road), Rutting, Ponding and Wash-boarding (exceeding 30 mm depth)	2 d	3 d	6 d	15 d
ii)	loss of aggregates (needs reclaimed material)	4 d	5 d	15 d	30 d
iii)	1) lack of uniform Shoulder edge 2) loose material (exceeding 50 mm depth)	5 d	15 d	1 m	2 m

Legend

d – days

m – months

- b) In situations of significant public and stakeholder demands for Maintenance Services required under this Specification, the Contractor must provide an immediate response at an appropriate level; and
- c) The Contractor must plan to perform all identified Grading and Reshaping within the Contract Year to the limit of the identified quantities. Where identified work exceeds the available quantities in any Contract Year the Contractor must ensure identified repairs are carried out in order of priority to ensure safety and to protect the infrastructure.

3.3 Materials

Not applicable to this Maintenance Specification.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-140

DUST CONTROL AND BASE STABILIZATION

1. OBJECTIVE

To maintain Dirt and Gravel Highway surfaces in a stable condition with minimal dust which will facilitate the safe and efficient movement of traffic and protect adjacent properties and watercourses.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must re-apply dust palliative product as required by this Specification at locations where dust palliative products have been applied previously within the season.

2.2 Quantified Maintenance Services

The Contractor must:

- a) apply dust palliative product to control dust; and
- b) supply maintenance services to perform base stabilization.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must re-apply dust palliative product as required to prevent and/or minimize dust problems at dust sites treated previously in the season.

3.1.1 Performance Time Frames

The Contractor must re-apply a dust palliative product within a maximum of 2 days from the time the dust problem was detected by or reported to the Contractor.

3.2 Quantified Maintenance Services

The Contractor must:

- a) prepare the section of the Dirt and Gravel Highway to receive base stabilization by Re-shaping in compliance with the Maintenance Specification for *Gravel Surface Grading and Re-shaping*, with no credit for Re-shaping under the Maintenance Specification for *Gravel Surface Grading and Re-shaping*;
- b) carry out base stabilization by treating the entire Dirt and Gravel Highway surface, except for one metre on each side;
- c) maintain Dirt and Gravel Highway surfaces in a stable condition with minimal dust by applying dust palliative product for widths, distances and at locations established in the following table:

		Summer Highway Classification		
i)	Width	3 & 4	5	6
	minimum application width (total)	4.5 metres	3.5 metres	3.0 metres
ii)	Location for Control	3 & 4	5	6
(A)	residences, commercial businesses, community halls, hospitals and churches	a strip not less than 100 metres long, 50 metres each side of a point perpendicular to a building within 100 metres of the Travelled Lane	a strip not less than 100 metres long, 50 metres each side of a point perpendicular to a building within 75 metres of the Travelled Lane	a strip not less than 100 metres long, 50 metres each side of a point perpendicular to a building within 50 metres of the Travelled Lane
(B)	school zone Sign, playground Sign, stop Sign, Railway Crossing Sign and Bridge approaches Sign	strip 60 metres along the Highway(s) in all directions of the Sign	strip 60 metres along the Highway(s) in all directions of the Sign	strip 60 metres along the Highway(s) in all directions of the Sign
(C)	school zones, school bus pullouts, playgrounds, Rest Areas, lay-bys, stops of interest and cemeteries	strip through identified area and extending 40 metres either side	strip through identified area and extending 40 metres either side	strip through identified area and extending 40 metres either side
(D)	Bridge approaches and cattleguards	strip extending 30 metres in every direction of the Bridge approach	strip extending 30 metres in every direction of the Bridge approach	strip extending 30 metres in every direction of the Bridge approach

ii) Location for Control	3 & 4	5	6
(E) orchards (more than 10 trees) and vineyards within 50 metres of the Highway	strip extending 20 metres either side of the adjacent Highway frontage	strip extending 20 metres either side of the adjacent Highway frontage	strip extending 20 metres either side of the adjacent Highway frontage
(F) Highways with 40 or more commercial and industrial-type vehicles per day with 3 or more axles	entire Travelled Lanes	curves and alongside lakes and rivers	curves and alongside lakes and rivers
(G) other dust sites designated by the Province	continuous application for entire length of dust site	continuous application for entire length of dust site	continuous application for entire length of dust site

Notes:

1. Each of the locations identified in the above table is considered a dust site.
2. Use continuous application if 8 or more dust sites per kilometre.
3. Where there is doubt as to locations requiring dust control, the Province will make the final determination.
4. Dust control must be applied at locations on Class 7 Highways as directed by the Province.

3.2.1 Performance Time Frames

The Contractor must:

- a) schedule dust control applications for each season prior to commencement of that season;
- b) start dust control applications within 5 days from the time the dust problem was detected by or reported to the Contractor; and
- c) plan to perform all identified dust control and base stabilization within the Contract Year to the limit of the identified quantities. Where identified work exceeds the available quantities the Contractor must ensure repairs are identified and carried out in order of priority to ensure safety and to protect the infrastructure.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

4. WARRANTY

The Contractor warrants all base stabilization against defects for a period of 365 days from the completion of those Maintenance Services. The Contractor must rectify all defects covered by this warranty and all other ancillary work performed under other Maintenance Specifications, without credit for such work, within 1 month of detection by or notification to the Contractor by the Ministry.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-150

HIGHWAY SURFACE AND SHOULDER GRAVELLING

1. OBJECTIVE

To provide a uniform, smooth gravel surface to protect Highway Users from unsafe conditions and to strengthen roads.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

2.2 Quantified Maintenance Services

The Contractor must:

- a) apply gravel to Dirt and Gravel Highways to ensure a smooth condition with sufficient gravel depth to restore Superelevation and proper Crown;
- b) apply gravel to Dirt and Gravel Highways that require strengthening;
- c) apply gravel to Shoulders to widen and/or reconstruct existing gravel Shoulders where Shoulder settlement or erosion exists for a continuous length greater than 100 metres; and
- d) ensure all surfaces are Compacted.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

3.1.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.2 Quantified Maintenance Services

The Contractor must:

- a) repair deficiencies, including but not limited to Pot-holes, loss of traction, soft sections and Rutting, as required on Dirt and Gravel Highway surfaces;
- b) repair Dirt and Gravel Highway surfaces that:
 - i) become soft and muddy;
 - ii) have insufficient aggregate which causes clay or Fines to be exposed, or causes bedrock or rocks, that cannot be removed, to be exposed during Grading; and/or;
 - iii) have insufficient aggregate available to restore the Crown and/or the Superelevation when Grading in accordance with the Maintenance Specification for *Gravel Surface Grading and Re-shaping*.
- c) apply gravel to Dirt and Gravel Highway surfaces that have not been previously gravelled and/or require strengthening;
- d) widen or re-construct existing gravel Shoulders, where Shoulder settlement or erosion exists for a continuous length greater than 100 metres, to a condition that is smooth, free-draining, and consistent in width, line, grade and crossfall;
- e) perform all Grading associated with Sections 3.2 a), b), c) and d) above in accordance with the Maintenance Specification for *Gravel Surface Grading and Re-shaping* with no credit for this Grading under the Maintenance Specification for *Gravel Surface Grading and Re-shaping*;
- f) evaluate the Dirt and Gravel Highway to be gravelled to ensure that the Road Base is stable and where it is unstable, repair the area in accordance with the Maintenance Specification for *Road Base Maintenance*, prior to undertaking Highway surface gravelling, with credit for this work under the Maintenance Specification for *Road Base Maintenance*.

Note:

The Contractor must provide the Province with information necessary to support the method used to determine volume of aggregate hauled.

3.2.1 Performance Time Frames

The following table establishes the maximum time, from the time the deficiency was detected by or reported to the Contractor, within which the Contractor must complete the repair of the following deficiencies:

- a) gravel surface deficiencies

Gravel Surface Deficiency	Summer Highway Classification				
	3	4	5	6	7
i) Pot-holes	2 d	2 d	3 d	6 d	15 d
ii) surface soft and/or muddy	24 h	2 d	3 d	6 d	15 d
iii) loss of traction	24 h	2 d	3 d	6 d	15 d
iv) surface softening when wetted	30 d	2 m	6 m	9 m	1 y
v) insufficient surfacing aggregate	30 d	2 m	6 m	9 m	1 y

- b) Shoulder surface deficiencies

Shoulder Surface Deficiency	Summer Highway Classification				
	1 & 2	3	4	5	6 & 7
i) loose or soft Shoulders	14 d	30 d	45 d	3 m	6 m
ii) loss of line, grade, and crossfall	3 m	6 m	9 m	1 y	1 y

Legend

h - hours
d - days
m - months
y – years

- c) The Contractor must plan to address all identified gravelling within the Contract Year to the limit of the identified quantities. Where identified work exceeds the available quantities the Contractor must ensure repairs are identified and carried out in order of priority to ensure safety and to protect the infrastructure.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-160

HIGHWAY SHOULDER MAINTENANCE

1. OBJECTIVE

To provide a smooth and safe stopping area with free-flowing drainage off the Travelled Lanes and through the Road Base.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

2.2 Quantified Maintenance Services

The Contractor must:

- a) maintain Highway Shoulders in a condition that is safe, smooth, stable, free-draining, Compacted, free of vegetation; and
- b) repair Highway Shoulders that have been damaged by erosion, settlement or traffic use when the deficiencies are site-specific and less than 100 m in length.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

3.1.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.2 Quantified Maintenance Services

The Contractor must:

- a) control, remove and dispose of any vegetation from the Shoulder tops, except at locations where vegetation is not harmful, or where it is effective and necessary to prevent erosion and to stabilize the Shoulders;
- b) repair Shoulders that have settled or eroded and place sub-surface materials in accordance with the Maintenance Specification for *Road Base Maintenance*, with credit for this work under the *Road Base Maintenance* Specification;
- c) ensure the Shoulder tops are Compacted;
- d) correct Shoulder deficiencies such as settlements and eroded areas where such deficiencies are less than 100 m in continuous length;
- e) perform all Grading associated with 3.1 d) above in accordance with the Maintenance Specification for *Gravel Surface Grading and Re-shaping* with credit for this Grading under the Maintenance Specification for *Gravel Surface Grading and Re-shaping*;
- f) remove any granular or other material from the pavement surface in accordance with the Maintenance Specification for *Pavement Surface Cleaning* with no credit for this cleaning under the Maintenance Specification for *Pavement Surface Cleaning*;
- g) repair paved and treated Shoulder tops on paved Highways in accordance with the Maintenance Specification for *Highway Pavement Patching and Crack Sealing* with credit for this patching under the Maintenance Specification for *Highway Pavement Patching and Crack Sealing*; and
- h) widen, reconstruct or gravel the Shoulders in areas of continuous Shoulder settlement or erosion greater than 100 m in continuous length in accordance with the Maintenance Specification for *Highway Surface and Shoulder Gravelling* with credit for this gravelling under the Maintenance Specification for *Highway Surface and Shoulder Gravelling*.

Notes:

- 1. The Contractor will not grade the area where there is a Median, Roadside barrier or curbing between the pavement and the gravel Shoulder top; and

2. The Contractor will not undertake *Highway Shoulder Maintenance* where owners of property adjacent to Highways maintain a lawn up to the edge of the pavement provided the lawn does not impede the drainage of the Highway surface.

3.2.1 Performance Time Frames

Not applicable to this Maintenance Specification.

- a) The following table establishes the maximum time, from the time the deficiency was detected by or reported to the Contractor, within which the Contractor must complete the repair of the following deficiencies:

Shoulder Surface Deficiency	Summer Highway Classification				
	1&2	3	4	5	6&7
i) pavement edge drop-off 5 cm or more in depth on the inside edge of curving Highways	24 h	24 h	3 d	7 d	14 d
ii) pavement edge drop-off 5 cm or more in depth other than a) above	3 d	3 d	6 d	14 d	14 d
iii) settled and eroded sections more than 5 cm in depth presenting a safety hazard	3 d	3 d	6 d	14 d	14 d
iv) loose or soft Shoulders presenting a safety hazard	3 d	3 d	6 d	14 d	14 d
v) loss of line, grade, and crossfall presenting a safety hazard	3 d	3 d	6 d	14 d	14 d
vi) removal of vegetation presenting a safety hazard	3 d	3 d	6 d	14 d	14 d
vii) loss of line, grade and crossfall not presenting a safety hazard but requiring gravelling	3 m	3 m	9 m	1 y	1 y
viii) removal of turf, Sod and other vegetation	6 m	6 m	6 m	1 y	1 y
ix) prevent vegetation growth	1 y	1 y	---	---	---

Legend

h - hours

d – days

m - months

y – years

- b) The Contractor must plan to address all identified Shoulder maintenance within the Contract Year to the limit of the identified quantities. Where identified work exceeds the available quantities the Contractor must ensure repairs are identified and carried out in order of priority to ensure safety and to protect the infrastructure.

3.3 Materials

Refer to Section B of the Introduction of these Maintenance Specifications.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-170

ROAD BASE MAINTENANCE

1. OBJECTIVE

To provide a supporting structure and drainage for Highway surfaces.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

2.2 Quantified Maintenance Services

The Contractor must remove unsuitable materials in areas where Road Bases have failed to provide adequate strength and drainage to support imposed vehicle loading, as evidenced by surface deficiencies; and re-construct Road Bases with suitable materials.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

3.1.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.2 Quantified Maintenance Services

The Contractor must:

- a) identify and correct the source of Road Base failure;
- b) remove unsuitable materials;
- c) provide free drainage from excavation;
- d) complete Backfill with suitable materials;

- e) compact materials in accordance with the Standard Specifications for Highway Construction;
- f) use material consistent with adjacent Highway materials;
- g) apply dust palliative products on Dirt and Gravel Highways in accordance with the Maintenance Specification for *Dust Control and Base Stabilization*, with no credit for dust control under the Maintenance Specification for *Dust Control and Base Stabilization*;
- h) restore Hard Surfaced Highways in accordance with the Maintenance Specifications for *Highway Pavement Patching and Crack Sealing, Highway Surface Treatment and Concrete Bridge Deck Maintenance*, with credit for such work under the aforementioned Maintenance Specifications; and
- i) install drainage appliances in accordance with the Maintenance Specification for *Drainage Appliance Maintenance*, with credit for such drainage appliance maintenance under the Maintenance Specification for *Drainage Appliance Maintenance*.

3.2.1 Performance Time Frames

The Contractor must plan to perform all identified Road Base repairs within the Contract Year to the limit of the identified quantities. Where identified work exceeds the available quantities the Contractor must ensure repairs are identified and carried out in order of priority to ensure safety and to protect the infrastructure.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

4. WARRANTY

The Contractor warrants all Road Base repairs against defects for a period of 365 days from the completion of those maintenance services. The Contractor must rectify all defects covered by this warranty and all other ancillary work performed under other Maintenance Specifications, without credit for such work, within 1 month of detection by or notification to the Contractor by the Ministry.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-180

PAVEMENT SURFACE CLEANING

1. OBJECTIVE

To protect Highway Users from unsafe pavement surface conditions and to facilitate drainage.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must restore pavement surfaces to a safe, clean and free-draining condition.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) clean Hard Surfaced Highways by removing accumulations of dirt, Debris, sand and/or gravel from the Travelled Lanes, centerlines, Shoulders, curbs, intersections, traffic islands and along Medians and/or Roadside barriers throughout the year to provide a safe, clean, free-draining condition;
- b) clean paved bicycle and pedestrian paths; and
- c) ensure that traffic control is implemented in accordance with the Manual for Traffic Control and Work on Roadways during pavement cleaning operations so that hazardous conditions are not created for Highway Users.

3.1.1 Performance Time Frames

The Contractor must:

- (a) clean Hard Surfaced Highways in accordance with the frequencies established in the following table:

Routes and Highway Classification	Minimum Pavement Surface Cleaning Frequency
(i) all four lane and Urban Highways	every 120 days
(ii) all other Hard Surfaced Highways	once annually

- (b) program for major pavement marking, for which the Province will provide a general painting schedule in the spring of each year and a detailed schedule at least one week in advance of line marking;
- (c) complete spring surface cleaning of Hard Surfaced Highways within 1 month of the last winter abrasive application or when the application of Winter Abrasives is no longer anticipated;
- (d) notwithstanding the above, within 7 days from the time the accumulation was detected by or reported to the Contractor, clean Hard Surfaced Highways where dirt, Debris, sand and/or gravel have accumulated and:
 - i) obscures line visibility, or;
 - ii) creates a visibility problem for Highway Users, or;
 - iii) creates an air quality problem that conflicts with local by-laws;
- (e) notwithstanding the above, perform cleaning work where sand and silt have accumulated adjacent to curbing or barriers which impairs the free flow of drainage paths in accordance with the Performance Time Frames in the Maintenance Specification for *Curb, Island and Barrier Maintenance*, with no credit for such work under the Maintenance Specification for *Curb, Island and Barrier Maintenance*;

- (f) notwithstanding the above, immediately, upon detection by or notification to the Contractor, remove any dirt, Debris, sand and/or gravel on paved surfaces which pose a hazard to Highway Users; and
- (g) clean paved bicycle and pedestrian paths in accordance with the Performance Time Frames and other applicable conditions as per the adjacent or nearest Highway.

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.3 Materials

Not applicable to this Maintenance Specification.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-190

DEBRIS REMOVAL

1. OBJECTIVE

To protect Highway Users from situations that are unsafe or have the potential to become unsafe.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must maintain the Travelled Lanes, Shoulders, and Roadside in a safe and unobstructed condition.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) remove Debris in accordance with the Performance Time Frames set out in Section 3.1.1;
- b) if the Debris is too large for immediate removal, secure the area in accordance with the Maintenance Specification for *Highway Traffic Control*;
- c) establish additional patrols through the area when Debris over 1000 cc on the Travelled Lanes, Shoulders, and sidewalks is detected or reported to the Contractor more than once in a 24 hour period so that Debris is removed within the Performance Time Frames specified in Section 3.1.1, and discontinue the additional patrols when the frequency of Debris over 1000 cc falling on the Travelled Lanes, Shoulders, and sidewalks is less than 2 in a 24 hour period;

- d) dispose of dead animals in a manner acceptable to local regulatory agencies.

Note: For volumes of Debris on Travelled Lanes or Shoulders that are greater than 10 cubic metres per location, the Maintenance Specification for *Mud, Earth and Rock Slide Response* will apply.

3.1.1 Performance Time Frames

The following table establishes the maximum time, from the time the Debris was detected by or reported to the Contractor, within which the Contractor must start the removal of Debris:

Obstruction	Summer Highway Classification				
	1&2	3	4	5	6&7
a) Debris or spilled material over 1000 cc on the Travelled Lanes and sidewalks	60 min	60 min	3 h	5 h	24 h
b) Debris or spilled material equal to or less than 1000 cc on the Travelled Lanes and sidewalks	60 min	3 h	5 h	24 h	2 d
c) dead animals on the Shoulders and sidewalks	60 min	3 h	5 h	24 h	2 d
d) dead animals on the Right-of-way, excluding Travelled Lanes, Shoulders and sidewalks	3 h	5 h	24 h	2 d	3 d
e) Debris or spilled material more than 1000 cc on the Shoulders	5 h	24 h	2 d	3 d	7 d
f) Debris or spilled material equal to or less than 1000 cc on the Shoulders	24 h	2 d	3 d	7 d	14 d

Legend

min - minutes
h - hours
d - days

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.3 Materials

Not applicable to this Maintenance Specification.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-200

HIGHWAY STRUCTURES MAINTENANCE

1. OBJECTIVE

To provide a safe environment for Highway Users and to maximize the functional life of the Highway structures.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

All services for this Maintenance Specification are Routine.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) repair, clean and restore to a fully functional condition, cattleguards and gates, pedestrian underpasses, arrestor beds, Dragnet Vehicle Arresting Barriers and other Highway structures that have been damaged or have deteriorated to a state that is unsafe or has the potential to become unsafe for Highway Users;
- b) remove dirt, Debris and vegetation from cattleguards to a minimum depth of 45 cm measured from the top of the cattleguards;
- c) maintain all Underpass floors and walls, ramp walls, sidewalks, stairways and walkways free of all dirt, grime and winter chemicals;
- d) maintain Underpass walls in a uniformly-painted condition using paint materials and colours approved in writing by the Province;
- e) maintain pedestrian underpass lighting in Rural areas in a lights-on condition during all hours of darkness;

- f) maintain arrestor beds in accordance with the Province's written instructions as may be amended from time to time for the particular structure or installation;
- g) repair or replace Dragnet Vehicle Arresting Barrier components that have been damaged, destroyed or are missing;
- h) maintain concrete Highway structures in accordance with the Maintenance Specification for *Concrete Structure Maintenance*, with credit for the concrete patching under the Maintenance Specification for *Concrete Structure Maintenance*;
- i) maintain corrugated steel Highway structures in accordance with the Maintenance Specification for *Multiplate Structure Maintenance*, with no credit for the work under the Maintenance Specification for *Multiplate Structure Maintenance*; and
- j) maintain asphalt components of Highway structures in accordance with the Maintenance Specification for *Highway Pavement Patching and Crack Sealing*, with credit for the patching under the Maintenance Specification for *Highway Pavement Patching and Crack Sealing*.

3.1.1 Performance Time Frames

The following table establishes the maximum time, from the time the deficiency was detected by or reported to the Contractor, within which the Contractor must complete the repair of the following deficiencies:

Maintenance Requirement	Summer Highway Classification				
	1 & 2	3	4	5	6 & 7
a) Debris on sidewalks, stairways and Underpass floors	24 h	24 h	2 d	2 d	2 d
b) any malfunction to arrestor beds	24 h	24 h	2 d	2 d	2 d
c) damaged, destroyed or missing components of Dragnet Vehicle Arresting Barriers	3 d	3 d	3 d	3 d	3 d
d) broken, bent or damaged cattleguards	24 h	2 d	3 d	5 d	10 d

Maintenance Requirement	Summer Highway Classification				
	1 & 2	3	4	5	6 & 7
e) mismatched grades on cattleguard crossings	24 h	2 d	3 d	5 d	10 d
f) cleaning of cattleguards	15 d	15 d	30 d	30 d	30 d
g) lights out in pedestrian Underpasses	2 d	4 d	6 d	10 d	20 d
h) walls requiring patching or support	10 d	20 d	30 d	50 d	100 d
i) sand accumulations on sidewalks, stairways, walkways and Underpass floors	30 d	2 m	3 m	5 m	10 m

Legend

h - hours

d - days

m - months

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.2.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-220

CURB, ISLAND AND BARRIER MAINTENANCE

1. OBJECTIVE

To provide a safe operating environment for Highway Users and to allow for adequate drainage.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must maintain and repair all curbs, traffic islands, Roadside barriers and Median barriers, anti-glare screen, reflectors and impact attenuators to ensure that they are clean, highly visible, free of any Debris obstructing drainage and properly connected and positioned as safety devices.

2.2 Quantified Maintenance Services

The Contractor must:

- a) replace all curbs, traffic islands, Roadside barriers and Median barriers, anti-glare screens, reflectors and impact attenuators that fail to function as originally designed;
- b) construct new asphalt and/or concrete curbs as directed by the Province; and
- c) install new barriers as directed by the Province.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) maintain painted surfaces;
- b) repair chipped or scarred areas;

- c) remove dirt and Debris every spring to summer season when temperatures are above 5 degrees celsius and no further winter Highway maintenance is reasonably expected;
- d) re-align barriers as required to ensure safety of the Highway Users;
and
- e) remove drainage obstructions as required throughout the year.

3.1.1 Performance Time Frames

The Contractor must:

- a) start repair of concrete barriers with damage of less than 900 square centimetres of surface area using material of the same type and quality as the existing installation, or by using an epoxy repair product approved in writing by the Province, within 3 days from the time the deficiency was detected by or reported to the Contractor;
- b) clean all drainage holes once annually to ensure the free passage of water;
- c) notwithstanding 3.1.1 b) above:
 - i) when a blockage is causing Ponding in the Travelled Lanes, clean affected drainage holes of Debris within 12 hours from the time the deficiency was detected by or reported to the Contractor;
 - ii) when a blockage is causing a situation that is unsafe or has the potential to become unsafe to the Highway User, clean affected drainage holes of Debris immediately;
- d) complete the realignment of rails, curbs and concrete barriers as required to restore the designed alignment within 3 days from the time the deficiency was detected by or reported to the Contractor;
- e) treat or paint all wood components every 2 years to protect them from the elements, with the same material as on the existing components; notwithstanding the aforementioned, the Contractor must treat or paint wood components where wood is exposed or paint is cracked within 9 months from the time the deficiency was detected by or reported to the Contractor;

- f) paint end sections of concrete barrier with the same material as on the existing component once each year or, with prior written approval of the Province, initiate a planned program to eradicate paint on these components as they deteriorate;
- g) undertake maintenance of areas chipped or scarred by snowplows, other equipment or vandalism within 90 days from the time the deficiency was detected by or reported to the Contractor;
- h) replace damaged or missing concrete barrier reflectors in accordance with the Maintenance Specification for *Sign System Maintenance*, with no credit for the replacements under the Maintenance Specification for *Sign System Maintenance*;
- i) repair or replace all wood and steel components if posts are rotted, broken, settled or damaged and/or if steel rail is bent, rusted or damaged, within 6 months from the time the deficiency was detected by or reported to the Contractor;
- j) restore a smooth, stable condition to broken or Pot-holed asphalt, rock-paved or bricked traffic island surfaces within 15 days from the time the deficiency was detected by or reported to the Contractor;
- k) replace damaged, destroyed and missing impact attenuators, supports or fasteners within a 3 days from the time the deficiency was detected by or reported to the Contractor; and
- l) replace damaged, destroyed and missing anti-glare screen components within 7 days from the time the deficiency was detected by or reported to the Contractor.

3.2 Quantified Maintenance Services

The Contractor must:

- a) construct new asphalt concrete curb and concrete curb; and
- b) replace concrete barriers with damage in excess of 900 square centimetres or where there is structural damage including cracking and/or breakage.

3.2.1 Performance Time Frames

- a) The Contractor must repair or replace cracked and broken curbs as required to provide a smooth, sound and interconnected curb within 15 days from the time the deficiency was detected by or reported to the Contractor; and
- b) The Contractor must plan to perform all identified curb and barrier replacements and installations within the Contract Year to the limit of the identified quantities. Where identified work exceeds the available quantities the Contractor must ensure repairs are identified and carried out in order of priority to ensure safety and to protect the infrastructure.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 1-230

RAILWAY CROSSING MAINTENANCE

1. OBJECTIVE

To keep vehicular crossings of railway tracks in a safe condition for Highway Users and ensure proper operation of the railway.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair Railway Crossing surfaces under the direction of the Railway Authority and in accordance with the Railway Crossing agreement with the Province;
- b) maintain Railway Crossing Approaches in accordance with the following protocol requirements:
 - i) when maintenance work is required within three (3) metres of a rail, the Contractor must obtain a permit from the Railway Authority and make a copy of the permit available at the work site and at the local Ministry district office upon commencement of the work;
 - ii) when maintenance work is required within ten (10) metres of a rail, the Contractor must inform the Railway Authority, arrange for a mutually-agreeable work schedule and ascertain the level of protection the Railway Authority considers necessary; and
 - iii) when the Railway Authority performs maintenance work that is a cost responsibility of the Province, the Contractor must pay the Railway Authority invoices for such work and will not be reimbursed by the Province.

2.2 Quantified Maintenance

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) advise the Railway Authority immediately, from the time any deficiency was detected by or reported to the Contractor and respond immediately to safeguard Highway Users and railway traffic;
- b) under the direction of the Railway Authority, repair all Railway Crossings where the Province is responsible for a portion of the Railway Crossing maintenance costs (these Railway Crossings are listed in RIMS), and when:
 - i) the difference in elevation between the rail and the adjacent Highway surface is 25 mm or greater and requires re-setting the surface to matching grade; or when a crossing component is loose or presents a condition that is unsafe for either Highway Users or rail traffic; or
 - ii) water or Debris accumulates at the Railway Crossing;
- c) reset Railway Crossings and Approaches in accordance with the following:
 - i) the Maintenance Specification for *Highway Pavement Patching and Crack Sealing* for Hard Surfaced Highways, with no credit under the Maintenance Specification for *Highway Pavement Patching and Crack Sealing*; or
 - ii) the Maintenance Specification for *Highway Surface and Shoulder Gravelling* for Dirt and Gravel Highways, with no credit under the Maintenance Specification for *Highway Surface and Shoulder Gravelling*.

3.1.1 Performance Time Frames

The following table establishes the time, from the time the deficiency was detected by or reported to the Contractor, within which the Contractor must complete the repair of the following deficiencies:

Railway Crossing Deficiency	Summer Highway Classification				
	1&2	3	4	5	6&7
a) repair of broken, loose or damaged Railway Crossings	24 h	2 d	3 d	5 d	10 d
b) repair of mismatched grades on Railway Crossing	24 h	2 d	3 d	5 d	10 d
c) removal of water accumulation	24 h	2 d	3 d	5 d	10 d

Legend

h - hours

d - days

Note: The Contractor must seek approval of the Railway Authority so that repairs are completed within the time frames listed above. If the Railway Authority does not permit this scheduling, the Contractor must reschedule the repairs in accordance with the Railway Authority's requirements.

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

The Contractor must provide all materials of at least equal quality to the materials that exist at the Railway Crossing and of a quality acceptable to the Railway Authority.

4. WARRANTY

Not applicable to this Maintenance Specification.