



public works
& infrastructure

Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

REPAIR, MAINTENANCE AND SERVICING CONTRACT

TENDER No: H21/016AI

REFERENCE No: H21/016AI

**BEITBRIDGE LAND PORT OF ENTRY: MAINTENANCE
AND REPAIRS OF BUILDINGS, CIVIL, ELECTRICAL AND
MECHANICAL INFRASTRUCTURE AND INSTALLATIONS
FOR THE PERIOD OF 36 MONTHS (APPOINTMENT OF A
CONTRACTOR)**

TENDER DOCUMENT

JANUARY 2022

ISSUED BY:

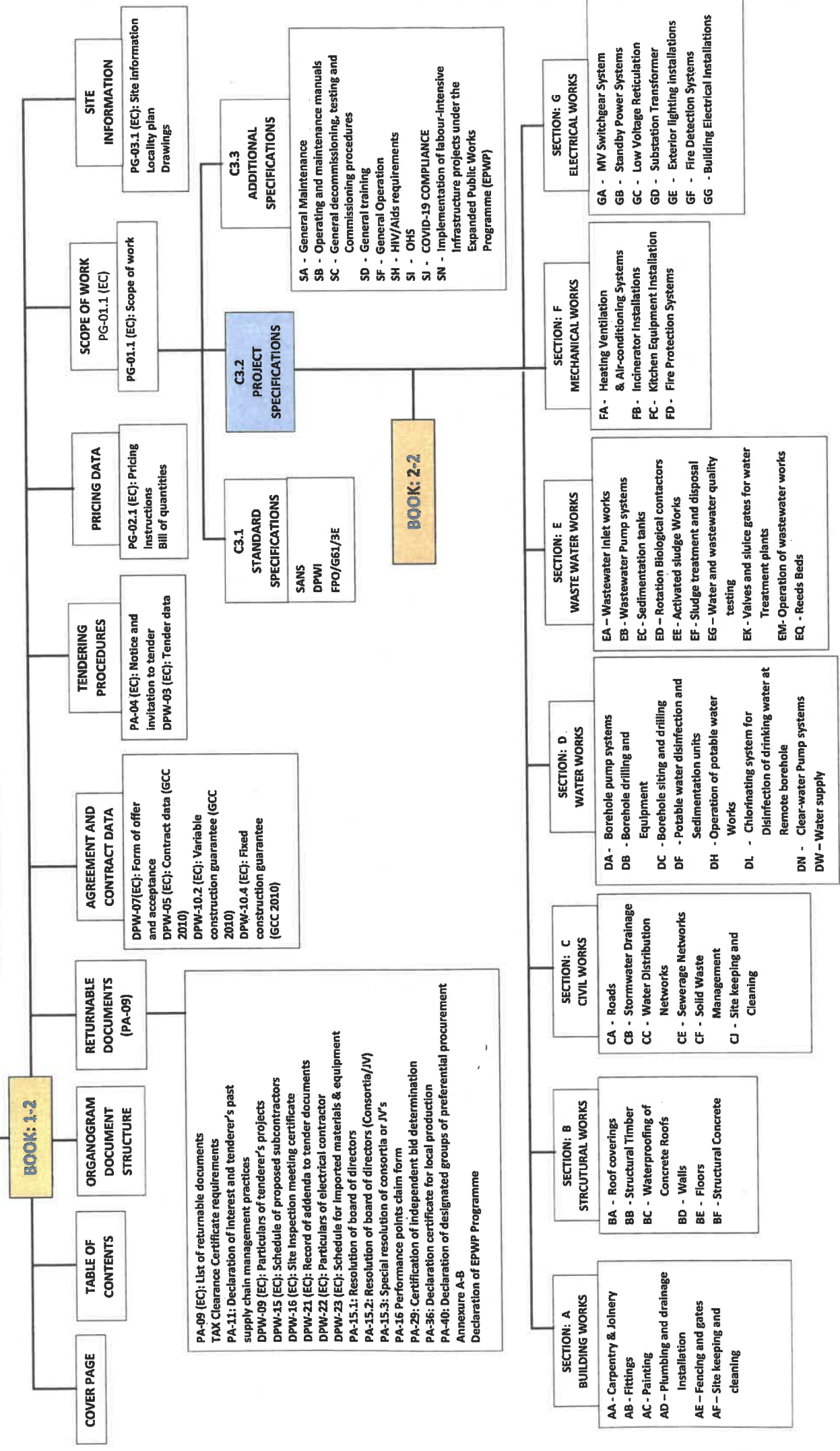
**DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE
Central Government Offices c/o Bosman & Madiba
(Vermeulen) Streets**

PRETORIA

0001

NAME OF TENDERER:

**BEITBRIDGE LAND PORT OF ENTRY DOCUMENT STRUCTURE
MAINTENANCE, SERVICING AND REPAIR CONTRACT: Tender No.: H21/016A1**





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MAINTENANCE AND REPAIR OF
BUILDING WORKS

TECHNICAL SPECIFICATIONS
SECTION AA-AF

AA. CARPENTRY AND JOINERY FOR ROOFS AND CEILINGS

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AA.01 **SCOPE**

Carpentry and joinery shall mean the maintenance of materials and components such as removal of existing timber roof trusses, purlins, ceilings, etc., and the installation of new timber trusses and other timber roof members, structural beams, purlins, battens and ceilings. This specification does not include work related to roof coverings and paintwork, which are specified elsewhere.

This specification covers the corrective maintenance repairs of existing timber members in roof trusses, the removal and replacement of existing timber members from roof trusses and associated timber roof members and ceilings. This specification also covers the supply, delivery and installation of new timber trusses, purlins, battens and beams for various types of timber related structures and ceilings.

The complete scope of repair work shall be as described in AA 04: Detail of repair work.

Maintenance of this part of the installation shall be performed in accordance with Additional Specification SA: General Maintenance and the specific requirements included in this Technical Specification.

AA.02 **STANDARD SPECIFICATIONS**

AA 02.01 **GENERAL STANDARD SPECIFICATIONS**

The latest edition, including all amendments up to date of tender, of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

PW 371	-	Specification of Materials and Methods to be used (Edition 2.1 July 2014)
SANS 10243	-	The design, manufacture and erection of timber trusses
SANS 266	-	Gypsum plasterboard
SANS 1783 - 2	-	Stress-graded softwood: general structural timber
SANS 1783 - 4	-	Softwood brandering and battens
SANS 803	-	Fibre-cement boards

AA 02.02 **ADDITIONAL SPECIFICATIONS**

Technical Specification AC: Paintwork
Technical Specification BA: Roof coverings
Technical Specification BD: Walls

AA.03 **VARIATIONS AND ADDITIONS TO STANDARD SPECIFICATIONS**

AA 03.01 **ADDITIONAL REQUIREMENTS FOR REPAIR OF TIMBER ROOF STRUCTURES**

AA 03.01.01 **Timber trusses**

(a) Replacing timber trusses

The Engineer shall inspect timber trusses for defects and establish which timber trusses must be replaced.

Reasons for replacing trusses will include but not be limited to the following:

- (i) Deflection exceeding acceptable limits;
- (ii) Inadequacy in design, e.g. structural strength, structural instability, load conditions;
- (iii) Decay of large portions of truss members (defective timber);
- (iv) Large portions of truss members having so many defects e.g. cracked timber, corroded connector nail plates, etc, that it will be uneconomical to repair the defects.

(b) Repair of timber trusses

Repair work shall include but not be limited to the following:

- (i) Strengthening of truss members, connections, splices and anchorage at supports;
- (ii) Strengthening of truss members due to unforeseen loads, notching and cutting for services by other contractors;
- (iii) Repair of truss members where large knots and waness occur;
- (iv) Replacing metal plate connectors in cases of corrosion, incorrect application of connector plates, incorrect size of connector plates, unsymmetrically fitted connector plates, connector plates with teeth flattened, minimum bite of less than 65 mm of a connector plate on a truss member;
- (v) Replacing of decayed timber, particularly rafter ends at roof overhangs and at roofing screws. Timber subjected to insect attack and fungal decay should be treated with an appropriate preservative. Where there is a low risk of decay or insect attack, two coats of Creosote may be applied to the timber. Refer to

clauses 8.1 and 8.2 in PW 371 for the preservation of wood in high-risk regions;

- (vi) Replacing and/or repair of cracked timber members. Galvanised connector plates and metal straps may be considered;
- (vii) Maximum slenderness ratio must be less than 180 for compression members that carry forces resulting from dead and live loads. Compression members 36 mm thick and longer than 1,8 m must have a continuous longitudinal runner centrally placed (or T-bracing) and properly connected and braced. For members that resist loads caused by wind, the slenderness ratio must be less than 250;
- (viii) Plumb of trusses should not exceed 100 mm or total span/20 whichever is the least;
- (ix) Exposed portions of the trusses shall be painted to match existing appearance.

The roof trusses shall be fully braced. The Engineer shall give instructions regarding the provision of bracing members to the roof system.

AA 03.01.02

Purlins (for sheeted roofs, battens for tiled roofs)

(a) Replacing timber purlins

The Engineer shall inspect timber purlins for defects and possible reuse. The Engineer shall establish which timber purlins need to be replaced.

Reasons for replacing purlins will include but not be limited to the following:

- (i) Decayed timber, particularly at gable overhangs;
- (ii) Broken, warped and brittle timber;
- (iii) Worn-out roof screw holes;
- (iv) Inadequacy in design, e.g., structural strength and excessive deflection due to large spans;
- (v) Inappropriate spacing of purlins for the specific roof covering.

(b) Repair of timber purlins

Repair work shall include but not be limited to the following:

- (i) For roof pitches under 45° the purlins shall be erected on edge (narrow edge).
- (ii) All purlins shall be secured to rafters at each intersection in addition to nails. In roof voids a single 3,2 mm diameter galvanised wire tie bound twice with twisted ends or a galvanised bent plate connector shall be used for securing purlins to rafters. On roof overhangs only galvanised bent plate connectors shall be used for securing purlins to rafters.
- (iii) Splices shall be staggered. Splices that do not conform to the requirements of clause 8.8 of PW 371, or clauses 8.5.1 and 8.5.2 of SANS 10234, must be repaired. Nailed galvanised plate connectors on either side of purlins are also acceptable.

- (iv) Exposed portions of the purlins shall be painted to match existing appearance.

Skew nailing of purlins to trusses shall not be closer than 30 mm from the edge of the member.

AA 03.01.03 Structural timber

(a) Replacing structural timber

The Engineer shall inspect members of structural timber, i.e. beams and columns, for defects and shall establish which of these members must be replaced. Reasons for replacement will include but not be limited to the following:

- (i) Deflection exceeding acceptable limits;
- (ii) Inadequacy in design, e.g. structural strength, structural instability, load conditions;
- (iii) Decay of a large portion of the member (defective timber);
- (iv) Replacing of decayed timber, particularly at ends of beams.

(b) Repair of structural timber

Repair work shall include but not be limited to the following:

- (i) Strengthening of members, connections, splices and anchorage at supports;
- (ii) Strengthening of members due to unforeseen loads, notching and cutting for services by other contractors;
- (iii) Exposed portions of structural timber shall be painted to match existing appearance;
- (iv) Bolt connections shall be in accordance with the requirements of SANS 10163.

AA 03.01.04 Ceilings

New ceilings shall be installed in accordance with section 9 of PW 371.

(a) Branding to ceilings

Branding to ceilings shall be replaced where:

- (i) Ceiling boards are replaced;
- (ii) Branding is broken, rotten and beyond any further use.

New branding shall be provided in accordance with clause 9.4 of PW 371. The branding shall continue over at least three bays and shall be staggered to ensure that splices do not all occur in one line. Branding must be provided for light fitting support.

(b) Gypsum ceiling boards

Repairs to existing ceilings shall include the installation of new 6,4 mm thick gypsum ceiling boards with metal H-section jointing strips. The new ceiling boards shall be nailed to brandering with galvanised or cadmium-plated clout-headed nails.

Gypsum ceiling boards shall not be used in wet areas such as in ablutions, abattoirs, kitchens and bathrooms.

Ceiling boards shall be in long lengths, symmetrically arranged with smaller panels, closely butted and secured at 150 mm centres to brandering as specified.

Where it is necessary to replace ceiling boards onto existing brandering, new boards shall be installed by first drilling through and then securing with cadmium-plated flat headed wood screws, or alternatively by shot nailing to suit, to avoid unnecessary vibration or impact damage to adjacent elements.

Gypsum cove cornices 76 mm wide shall be provided where existing cornices are to be replaced.

Existing trap doors in ceilings shall be reused. If required, new 650 x 650 mm trap doors shall be installed.

No ceiling insulation must be provided unless specified.

Painting of the ceiling shall be done in accordance with Technical Specification AC: Paintwork.

(c) Fibre cement ceiling boards

Fibre cement ceiling boards shall be installed in wet areas such as in ablutions, abattoirs, kitchens and bathrooms.

Fibre cement ceiling boards shall be 6 mm thick, complying with the requirements of SANS 803 and of the flat pressed type.

The boards shall be nailed to the brandering with 2 mm diameter galvanised or cadmium-plated clout-headed nails, spaced at 100 mm centres at edges of boards and 150 mm centres along the intermediate brandering. Ceiling boards shall be in long lengths, symmetrically arranged with smaller panels as required and closely butted.

Replacement of new ceiling boards onto existing brandering shall be done as described in AA 03.01.04(b) above.

Fibrous plasterboard cove cornices to ceilings shall be of 100 mm girth, provided by an approved manufacturer. Gypsum cove cornices 76 mm wide can be used in kitchens and bathrooms of houses. Powder-coated wall angles 25 mm wide shall be used for cornices in abattoirs.

Existing trap doors in ceilings shall be reused. If required, new 650 x 650 mm trap doors shall be installed.

Painting of the ceiling shall be done in accordance with Technical Specification AC: Paintwork.

(d) Exposed T-system suspended ceilings

Repairs to existing suspended ceilings will include but not be limited to the following:

- (i) Replace damaged panels with new ceiling boards;
- (ii) Replace sections of damaged T-strips or H-strips;
- (iii) Replace cornices;
- (iv) Tension, fix and realign existing hangers;
- (v) Install new hangers as required;
- (vi) Clean ceiling boards, including washing of the ceiling boards with a mixture of water and sugar soap and wiping dry, or painting the ceiling boards.

(e) External gable fibre cement boards for side cladding

External tongued and grooved boarding shall be removed and replaced with 6 mm thick flat pressed fibre cement boarding. The boarding shall be fixed to new bracking as specified in this section. Provide painted 25 x 25 mm meranti quarter rounds at edges as required.

The boarding shall be painted in accordance with Technical Specification AC: Paintwork.

AA 03.01.05 Fascia and barge boards

Repairs to fascia and barge boards shall include but not be limited to the following:

- (a) Replace damaged and broken fibre cement fascia and barge boards.
- (b) Replace missing, corroded and damaged H-profile jointing strips.
- (c) Replace all nails with suitable length and diameter brass screws. Provide nylon plugs to timber where necessary.
- (d) Align and fix existing fascia and barge boards.
- (e) Paint fascia and barge boards in accordance with Technical Specification AC: Paintwork. All sides including the edges must be painted.
- (f) The roof covering shall cover the top edge of the fascia on gables.

AA 03.01.06 Timber trusses, purlins and battens

(a) Existing timber trusses and roof structure

(i) General

- (1) The Contractor shall establish proper access and install adequate lighting to the roof voids to enable detailed inspections of structural deficiencies by the Engineer. Temporary scaffold planks shall be laid across bottom chords to allow access to all critical areas. After inspection, the extent of repairs is to be agreed with the Engineer.

- (2) All completed work shall be inspected and approved by the Engineer.
 - (3) All new timber work shall comply with SANS 10163.
 - (4) Timber grade shall be S5 and replacement sizes are to match existing unless otherwise agreed.
 - (5) Repair details on attached sheets R1 to R3 shall form the basis for repairs. Any deviations from or variations to these details are to be approved by the Engineer. Any types of failure not covered by these details shall be discussed with the Engineer who will then issue the necessary repair instructions.
- (ii) Procedures (watermarked and slightly rotten members)
- (1) Watermarked and slightly rotten members need not be replaced or repaired if the following test indicate these members to be satisfactorily:

Using a 3,5 mm nail, make scratch marks in all these members to expose good unaffected timber. If scratch depth is 2 mm or less, it is acceptable and these members need only to be treated as described in (2) below.
 - (2) The members shall be wire-brush cleaned, free of any loose or deleterious material, then treated with 1 coat of creosote, or similar approved. Apply by brush to affected areas and 200 mm beyond, all to the manufacturer's specifications. Safety precautions shall be taken against possible health or fire hazards as specified by manufacturer.
- (iii) Procedures (cracked and failed members)
- (1) All members that are cracked right through will be regarded as failed members. Members with minor longitudinal cracks shall be repaired, following procedure 5 on sheet R3.
 - (2) The Contractor must allow for propping and/or bracing at failed members to ensure complete structural stability during repairs.
 - (3) Failed members as indicated in details 1 to 4 on sheets R1 to R3 shall be realigned by means of clamping with temporary backing pieces, after which repairs can proceed.
 - (4) Members that are damaged too badly to effect repairs will have to be replaced or doubled up to suit the circumstances.
 - (5) Once all repair work has been completed the Contractor must clean out the ceiling void, free of all rubbish, excess building material and all other foreign matter and make good any damage caused to ceilings, etc.
 - (6) Any alternative repair proposal shall be submitted in writing to the Engineer.

AA.04 **DETAIL OF REPAIR WORK**

The detail of the work is described in the Schedule of Quantities.

AA.05 **MAINTENANCE**

This specification shall be read in conjunction with Additional Specification SA: General Maintenance.

All components forming part of this specification for carpentry and joinery for roofs and ceilings shall be maintained as part of the maintenance of installations as defined in Additional Specification SA: General Maintenance.

Maintenance shall include all repair work, replacing of components, routine inspections, fixing of defects or any other actions or rectifying measures necessary to maintain the perfect functional condition of carpentry and joinery for roofs according to the operation and maintenance manuals and as specified in this specification.

All timber trusses and members of timber roofs shall be preserved in a good condition, i.e. failure free, free from insect attack and decay due to exposure to moisture.

Maintenance on the carpentry and joinery for roofs shall also include all other actions related to (or resulting from) maintenance, such as:

- Cleaning of the site and ceiling voids of rubbish and dirt;
- replacing any element that has failed;
- tightening, fixing or replacing of loose fasteners, premature corrosion of galvanised items like screws, nail plates, etc.

Remuneration for maintenance of the complete carpentry and joinery for roofs shall be deemed included in the tendered monthly payment for maintenance of the applicable installation.

AA.06 **MEASUREMENT AND PAYMENT**

AA 06.01 **MEASUREMENT AND RATES**

AA 06.01.01 **General inclusion of costs**

Notes:

All material scheduled to be removed shall be deemed to be existing damaged materials in small or large sections. All such redundant material shall become the property of the Contractor and must be removed from site immediately.

All new material used for repair work shall be of approved equal quality, colours, profiles, thickness, etc and shall in all cases match the existing materials and shall be fixed (internally or externally) to existing material or surfaces.

All replacement, removal and repair work shall be done carefully as to not damage any adjacent or other material or work. Any damage to other or adjacent materials or areas caused by the negligence of the Contractor shall be repaired by him free of charge.

All work scheduled to be removed or taken out shall be deemed to include the cleaning and preparation of the remaining sections, areas, or work to receive the new material or work specified.

Repair work shall also include all cutting, grinding, cutting into, welding, bending, strengthening, drilling, etc to repair or to improve the items or areas as new and to match the existing.

Work scheduled to be realigned and refixed shall be deemed to include all necessary new additional materials, brackets, connector plates, bolts, pip rivets, nails, screws, spacer blocks, clamps, timber, and labour, etc to leave the items as new and totally functional.

All new works are measured net and shall include all cutting, lapping, waste, bending, fixing, corners, mitres, fixing screws, pip rivets, nails, adhesive, grout, putty, etc, as well as cleaning and preparation of surfaces not already prepared as part of removed items, etc.

Unless scheduled otherwise, new ceilings and ceilings in patchwork shall be fixed to existing branderings and the Contractor must take special care not to damage the existing branderings when removing damaged ceiling boards.

AA 06.02 SCHEDULED ITEMS

NEW WORK

AA.06.02.01 Structural timber:

- (a) Plates (sizes indicated) Unit: m
- (b) Beams (sizes indicated) Unit: m
- (c) Joists (sizes indicated) Unit: m
- (d) Rafters (sizes indicated) Unit: m
- (e) Purlins (sizes indicated) Unit: m
- (f) Roof trusses complete (drawing number indicated) Unit: number
- (g) Etc

The unit of measurement shall be the metre of individual types of timber elements or number of complete trusses installed.

The tendered rates shall include full compensation for the supply of all materials, manufacture, cutting, waste, jointing, scaffolding, temporary supports, hoisting facilities and installation of the timber as specified, scheduled or shown on the Drawings.

AA.06.02.02 Ceilings:

- (a) Ceiling boards, trapdoors, cornices, cover strips, etc
(type and/or thickness indicated):
 - (i) Thickness, shape and description of applications Unit: m², m, number
 - (ii) Etc for other thicknesses, shapes, etc

The unit of measurement shall be the number, metre or square metre of ceiling boards, trapdoors, cornices, etc installed complete as specified and scheduled.

The tendered rates shall also include supply, material and labour, for the construction, repair and/or fixing of the ceilings, trapdoors, cornices, cover strips, etc including jointing strips, insulation blankets and brandering as specified.

AA.06.02.03 Joinery:

(a) Items measured by number:

- (i) Doors, etc (type and size indicated) Unit: number
- (ii) Etc for other items measured by number

(b) Items measured by linear metre:

- (i) Skirtings, rails, cover strips, quadrant beads, etc(size indicated) Unit: m
- (ii) Etc for other items measured by length

(c) Items measured by area:

- (i) Eaves covering, etc (type and thickness indicated)..... Unit: m²
- (ii) Etc, for other items measured by area

The units of measurement shall be the number, metre or square metre of each type and/or size of joinery item specified and installed complete.

The tendered rates shall include full compensation for the supply of all materials, manufacture, cutting, waste, fixing, scaffolding, temporary supports, hoisting facilities and installation of the joinery items.

Ironmongery to be included in the rates tendered for doors shall be as specified in the Technical Specification BD: Walls.

New joinery, will except where otherwise specified, be fixed or hung to existing material or surfaces.

ALTERATION WORK

AA.06.02.04 Alterations and repairs to existing structures:

(a) Indicate if repairs, alterations, removal or sealing, etc:

- (i) Description of individual items to be repaired, replaced, altered, removed, sealed, etc..... Unit: m³, m², m, number

The unit of measurement for items repaired, replaced, altered, removed, sealed, etc shall be cubic metre, square metre, metre or number as scheduled. No distinction between sizes or profiles will be made for the removal of structural timber elements.

The tendered rates shall include full compensation for all costs to repair, refix, remove, cutting into, re-align, taking off, handling, temporary store, scaffolding, temporary supports, hoisting facilities and preparing existing remaining material or surfaces where applicable to receive new items as well as for credit for the redundant material becoming the property of the Contractor, etc as specified in the Standard and Technical Specifications and shall allow for all necessary labour, plant and new material needed for the repairs, replacement or alterations, etc to leave the scheduled items as new and to the approval of the Engineer. Refer also to the general inclusion of costs in AA.06.01.01."

AA.06.02.05 Repairs to watermarked and slightly rotten

timber roof members: _____ Unit: m

The unit of measurement shall be the linear metre of timber roof members repaired as specified. No distinction will be made for size, type of member or position.

The tendered rate shall include full compensation for the complete repair work, wire brushing, creosote, etc as specified by the Engineer.

AA.06.02.06 Repairs to damaged masonry, plastering and surface finishes:

(a) Items measured by number:

(i) Description of item _____ Unit: No

(ii) Etc _____ Unit: m

(b) Items measured by linear metre:

(i) Description of item _____ Unit: No

(ii) Etc _____ Unit: m

The unit of measurement shall be the number or metre as applicable to each item.

The tendered rates shall include full compensation for the making good of masonry (stock or face bricks), beam-filling, plastering, painting, closing ends to troughs of sheet metal roof sheeting, repairs to structure at ends of rafters and purlins, protruding through brick walls, etc.

The tendered rate shall also cover the cost of cutting, notching and waste and of all scaffolding, temporary supports, etc.

AA.06.02.07 Painting to top cords of timber trusses

in roof voids: _____ Unit: m

The unit of measurement shall be the metre.

The tendered rate shall include full compensation to prepare existing top cords (where applicable) to receive one coat creosote. No distinction will be made for size, type, new or existing members. The rate shall also cover the cost for waste, all scaffolding, etc.

AA.06.02.08 Painting of existing members in overhangs:..... Unit: m

The unit of measurement shall be the metre.

Separate items will be listed for paint and/or creosote as specified.

The tendered rate shall include full compensation to prepare existing overhangs to receive paint or creosote as specified. No distinction will be made for size of existing members. The rate shall also cover the cost for waste, all scaffolding, etc.

AB. FITTINGS

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AB.01 **SCOPE**

Fittings shall mean the scope of work to perform corrective maintenance repairs to materials and components related to cupboards, shelving, signage and counters.

The complete scope of repair work shall be as described in AB 04: Detail of repair work.

AB.02 **STANDARD SPECIFICATIONS**

AB.02.01 **GENERAL STANDARD SPECIFICATIONS**

The latest edition, including all amendments up to date of tender of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

PW 371	-	Specification of Materials and Methods to be used (Fourth edition, October 1993)
SANS 929	-	Plywood and composite board
SANS 1099	-	Hardwood furniture timber
SANS 1783-3	-	Softwood timber for industrial use
SANS 1385	-	Kitchen cupboards of steel, composite board and timber

AB.02.02 **ADDITIONAL SPECIFICATIONS**

Technical Specification BD: Walls
Technical Specification BG: Metalwork
Technical Specification AC: Paintwork

AB.03 **VARIATIONS AND ADDITIONS TO STANDARD SPECIFICATIONS**

AB.03.01 **ADDITIONAL REQUIREMENTS FOR REPAIR OF FITTINGS**

AB.03.01.01 **Built-in cupboards**

The Engineer shall inspect all cupboards for defects and shall establish which components are to be replaced or repaired. Reasons for replacement will include, but not be limited to:

- (a) Severely chipped or damaged block board;
- (b) Severely chipped or damaged decorative laminates;
- (c) Inadequacy of design, e.g. strength of hinges, failure of door furniture, etc;
- (d) Corroded steel elements.

Fixing of defects will include repairing or replacing damaged, corroded and worn-out fittings, e.g. door handles, knobs and hinges, door catches and holders, door locks, cupboard door vents, drawer slide rails, drawer handles, knobs and locks. Moving parts shall be serviced by cleaning, oiling, tightening loose screws, reinstating missing screws or aluminium pop rivets, etc. Refer to BD 03.08 and BD 03.09 of Technical Specification BD: Walls, for repairs or replacements of cupboard doors and ironmongery.

AB.03.01.02

Kitchen cupboards

Kitchen cupboards shall be inspected for defects. Defects will include repairing or replacing damaged, corroded and worn-out fittings, e.g. door handles, knobs and hinges, door catches and holders, door locks, cupboard door vents, drawer slide rails, drawer handles, knobs and locks. Moving parts shall be serviced by cleaning, oiling, tightening loose screws, reinstating missing screws or aluminium pop rivets, etc. Where the baked enamel of steel cupboards is scratched and worn off, the steel surface shall be sanded and painted with an approved gloss epoxy paint to match the existing colour. Severely corroded or damaged steel cupboards shall be replaced with approved new steel cupboards complying with SANS 1385, with the baked enamel complying with SANS 783 Type II.

Damaged kitchen cupboards manufactured from composite board with laminated plastic covering shall be repaired where possible by gluing loose laminated plastic covering or replacing components with new similar matching finished elements.

Damaged kitchen cupboards manufactured from timber shall be repaired by replacing cracked and broken timber components. Painted surfaces shall be varnished with water-resistant varnish (with matching stain) or painted with approved polyurethane paint. Refer to Technical Specification AC: Paintwork.

All cupboards shall be properly screwed and fixed to walls and floors with suitable corrosion resistant screws and plastic plugs, washers, etc.

Work tops and sinks against walls shall be sealed with an approved white one-part polyurethane sealant. The sealant shall be applied strictly according to the manufacturer's specifications. Old worn-out and damaged sealant shall also be replaced. Drop-in sink bowls shall also be sealed with this approved polyurethane sealant. Where the possibility exists that water can penetrate composite board, these joints in the worktops shall also be sealed.

AB.03.01.03

Shelving

The stability of shelves must be checked to determine the occurrence of sagging. Where required, provide adequate support for the specific application, e.g. steel tubing struts, additional timber bearers, steel brackets, etc.

Broken timber shelving shall be replaced with approved wrought hardwood or solid laminated pine varnished or painted to specification. Composite board will not be permitted. Shelves shall be in single lengths. Heads of nails and brass countersunk screws in exposed faces of joinery shall be sunk and pelleted.

AB.03.01.04 **Signage**

Safety signs shall comply with the requirements of SANS 1186 (1997).

The Engineer shall survey all signage and list those items that prove to be illegible. Signs that need to be replaced shall be done in the same fashion and material as to match similar signs in the same application. The size of the signs shall be as shown on the schedules.

Where required proper and appropriate signage must be provided for door numbers, room size and room description. The size, colour, position on the door, wall, etc., height above floor level of the lettering shall be instructed by the Engineer on site or shown on the schedules. The lettering must be stenciled on to the doors and walls.

All other fire protection signage will be provided for hydrants, hose reels, etc, shall be provided under separate contract.

AB.03.01.05 **Counters**

The Engineer shall inspect all counters and counter tops for defects and shall establish which components are to be replaced or repaired. Special attention shall be given to the condition of hinges at service hatches.

All joinery liable to be damaged shall be covered with temporary coverings to the satisfaction of the Engineer and special care shall be taken to protect surfaces that are to be varnished.

Where necessary, timber counters shall be sanded down, uneven surface spots filled with an approved wood filler, all blemishes removed and then finished off in order to restore the wood to its original state.

Steel tops that have been damaged excessively shall be replaced.

AB.04 **DETAIL OF REPAIR WORK**

The detail of the scope of work is described in the Schedule of Quantities.

AB.05 **MAINTENANCE**

This specification shall be read in conjunction with Additional Specifications SA: General Maintenance.

All components that form part of the waterproofing of concrete roofs shall be maintained during the maintenance phase of the Contract.

Maintenance shall include all repair work, replacing of components, routine inspections, repairing of defects or other actions or rectifying measures required to maintain the perfect functional condition of waterproofing on concrete roofs in accordance with the operation and maintenance manuals and as specified. All roofs shall be kept leak-free and watertight.

Maintenance of the waterproofed concrete roofs shall include all related actions such as replacing/repairing loose and blistering waterproofing, including cracked waterproofing membranes, loose seams, painting of waterproofing membranes, and cleaning and removing rubbish from waterproofed concrete roofs.

Remuneration for maintenance of the complete waterproofing of concrete roofs shall be deemed included in the tendered monthly payment for the maintenance thereof.

AB.06 **MEASUREMENT AND PAYMENT**

AB.06.01 **MEASUREMENT AND RATES**

AB.06.01.01 **General inclusion of costs**

Notes:

All material scheduled to be removed shall be deemed to be existing damaged materials in small or large sections. All such redundant material shall become the property of the Contractor and must be removed from site immediately.

All new material shall be deemed to be in patchwork and shall be of approved equal quality, colours, profiles, thickness, etc and shall in all cases match the existing materials and shall be fixed (internally or externally) to existing material or surfaces.

All replacement, removal and repair work shall be done carefully as to not damage any adjacent or other material or work. Any damage to other or adjacent materials or areas caused by the negligence of the Contractor shall be repaired by him free of charge.

All work scheduled to be removed or taken out shall be deemed to include the cleaning and preparation of the remaining sections, areas, or work to receive the new material or work specified.

Repair and service work shall also include all removing, cutting, grinding, cutting into, welding, bending, strengthening, drilling, tightening, fastening, oiling, greasing, adjusting, and providing missing or damaged screws or bolts, etc. to repair or to improve the items or areas as new and to match the existing. The service of cupboard doors and drawers shall be deemed to include for servicing all locks, hinges, glides, tracks, etc.

Work scheduled to be realigned and refixed shall be deemed to include all necessary new additional materials, brackets, connector plates, bolts, pip rivets, nails, screws, spacer blocks, clamps, timber, and labour, etc to leave the items as new and totally functional.

All new work is measured net and shall include all cutting, lapping, waste, bending, fixing, corners, mitres, fixing screws, pip rivets, nails, adhesive, grout, putty, etc, as well as cleaning and preparation of surfaces not already prepared as part of removed items, etc.

The removal of doors, gates or windows shall include for the removal of all existing locks, handles, striking plates, etc but exclude the hinges, etc, which shall be used for the new replaced items. All repair work (excluding paintwork) around and in the thresholds of new door frames, gates or windows build into existing brickwork in new or existing positions shall be deemed to be included in either the rates tendered for the new replacement item or the removal payment item of the frame, window, etc.

The new doors to toilets and wet areas as specified shall be fitted with rubber door stops, D-profiled pull handle and backplate sets, 15 mm roller ball catches with striking plates and all other ironmongery needed to install the doors complete. All new ironmongery shall be measured and paid for separately.

The new doors to offices, etc, as specified shall be fitted with rubber door stops, 4 lever mortice locksets with handle sets to match existing, striking plates and all other ironmongery

needed to install the doors complete. All new ironmongery shall be measured and paid for separately.

All ironmongery installed on the project shall bear the SANS approved trademark and codes. Samples of all ironmongery scheduled must be according to the samples of the Department of Public Works and samples must be handed to the engineer for approval before ordering the material.

AB.06.02 **SCHEDULED ITEMS**

NEW WORK

AB.06.02.01 **Joinery:**

(a) Items measured by number:

- (i) Timber cupboard doors, shelves, complete cupboards, etc (type and size indicated)Unit: number
- (ii) Etc for other items measured by number

(b) Items measured by linear metre:

- (i) Timber rails, planks, frames, shelves, etc (Size indicated)Unit: m
- (ii) Etc for other items measured by length

(c) Items measured by area:

- (i) Pinning boards, shelves, work tops, etc (Type and thickness indicated)Unit: m²
- (ii) Etc, for other items measured by area

The units of measurement shall be the number, metre or square metre of each type and/or size of joinery item specified.

The tendered rates shall include full compensation for the manufacturing and supplying of all materials, for transport, labour, cutting, waste, fixing, screws, bolts, clamps, etc and installation of the joinery items.

AB.06.02.02 **Steelwork:**

(a) Items measured by number:

- (i) Steel cupboard or locker doors, shelves, complete cupboards, etc (type and size indicated)Unit: number or units
- (ii) Etc, for other items measured by number

(b) Items measured by linear metre:

- (i) Steel rails, shelves, frames, etc (size indicated)Unit: m
- (ii) Etc, for other items measured by length

(c) Items measured by area:

- (i) Shelves, plates, etc (type and thickness indicated) Unit: m²
- (ii) Etc, for other items measured by area

The unit of measurement shall be the number, metre or square metre of each type and/or size of steelwork item specified.

The tendered rates shall include full compensation for the manufacturing, supplying of all materials and transport, and for all labour, cutting, welding, waste, fixing and installation of the steelwork items complete with a red oxide or equal approved steelwork primer or baked enamel paint finishing as specified.

ALTERATION WORK

AB.06.02.03 Alterations and repairs to existing fittings:

(a) Indicate if repairs, alterations, removal or sealing, etc:

- (i) Description of individual items to be repaired, altered, removed, sealed, etc Unit: m³, m², m, number

The unit of measurement for items repaired, altered, removed, sealed, etc shall be cubic metre, square metre, metre or number as scheduled.

The tendered rates shall include full compensation for all costs to repair, refix, remove, cutting into, realign, taking off, temporary store, etc as specified in the Standard and Technical Specifications and shall allow for all necessary labour, plant and new material needed to leave the scheduled items as new and to the approval of the Engineer. Refer also to the general inclusion of costs in AB 06.01.01.

AC. PAINTWORK

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AC.01 **SCOPE**

This specification covers the painting/repainting and maintenance of new and existing building components and maintenance thereafter for various types of buildings and structures.

Paintwork shall mean the scope of work related to the preparation, painting and maintenance of new and existing building components. This specification does not include work related to galvanising of steelwork, which is specified elsewhere.

The complete scope of paintwork shall be as described in AC 04: Detail of repair work.

AC.02 **STANDARD SPECIFICATIONS**

AC 02.01 **GENERAL STANDARD SPECIFICATIONS**

The latest edition, including all amendments up to date of tender of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

- SANS 515 - Decorative paint with a non-aqueous solvent base for interior use
- SANS 630 - Decorative high gloss enamel for interior and exterior
- SANS 631 - Decorative oil gloss paint for interior and exterior use
- SANS 633 - Emulsion paints for interior decorative purposes
- SANS 634 - Emulsion paints for exterior use
- SANS 678 - Primers for wood for interior and exterior use
- SANS 681 - Undercoats for paints
- SANS 683 - Roof paints (relevant sections)
- SANS 723 - Wash primer (metal etch primer)
- SANS 801 - Epoxy-tar paints
- SANS 887 - Varnish for interior use
- SANS 926 - Two-pack zinc-rich epoxy primer
- SANS 1227 - Textured wall coatings, emulsion base, for interior and exterior use
- SANS 1319 - Zinc phosphate primers for steel
- SANS 10064 - Preparation of steel surfaces for coating
- PW 371 - Specification of Materials and Methods to be used (Fourth edition, October 1993): Section 18.

AC 02.02 **ADDITIONAL SPECIFICATIONS**

Technical Specification BG: Metalwork

Paint manufacturers' specifications. These specifications shall take precedence over all others.

AC.03 **VARIATIONS AND ADDITIONS TO STANDARD SPECIFICATIONS**

AC 03.01 **ADDITIONAL REQUIREMENTS FOR PAINTWORK**

AC 03.01.01 **General**

a) Quality control

- i) Application of all paints must be supported by the relevant paint manufacturer's technical quality control systems with regard to preparation, application, film thickness, colour/pigmentation, mixing, etc.
- ii) The Contractor must submit his programme to the Engineer well in advance, particularly where high-risk surface applications (sheet metal roofs, etc) are concerned, in order to keep the manufacturer's technical personnel informed. Paint application may not commence until the manufacturer has inspected the surface preparation and given written approval thereof to the Engineer.

b) Paint systems

- i) All paint shall be delivered to the site in the unopened containers on which the manufacturer's name and trademark appear.
- ii) All materials for paintwork shall comply with the requirements for standards from the country from which it originated and shall be approved by the Engineer.
- iii) The Contractor shall submit copies of the paint manufacturer's specifications, recommendations and datasheets to the Engineer for approval.
- iv) The coating system shall be from one manufacturer unless otherwise specified. The paint manufacturer's instructions shall be strictly adhered to.
- v) Paints, etc, shall be suitable for application on the surfaces on which they are to be applied and various coats must be compatible with each other. Those paints used externally shall be of exterior quality or suitable for exterior use.

c) Guarantee

- i) The Contractor must give a 3-year written guarantee for the quality and workmanship of the paint work (fair wear and tear excepted). The Contractor shall be liable for any peeling or flaking paint applied by the Contractor and shall execute all such work of repair, rectification and making good of painted surfaces as may be ordered in writing by the Engineer. The manufacturer must carry out inspections at regular intervals during the construction period. The Manufacturer must issue a certificate of acceptance and compliance on completion to the client.

AC 03.01.02 General preparation of new and existing work

All walls and ceilings, etc, shall be thoroughly cleaned prior to commencement of painting and the premises kept clean and free from dust during painting operations. Protect all surfaces not to be painted against spotting and spilling. Clean down and make good as necessary. Locks, door handles and similar fittings or fixtures shall be removed (or masked) and refitted on completion of painting.

(a) Plaster

- (i) All surfaces, sills, ceilings, etc, shall be thoroughly dry before painting operations are started. Porous surfaces must be sealed with the appropriate sealer, thinned, if necessary, before applying the paint system.
- (ii) Exterior surfaces: Any cracks shall be scraped out and filled with an approved filler or patching plaster and rubbed down flush; the whole surface shall be well brushed down to remove all loose dust and powdery material before applying the first coat of the specified paint system.
- (iii) Interior surfaces: All cracks, blow holes, etc, shall be filled with suitable stopping and rubbed down flush. The whole surface shall be smoothed to an even finish and dusted down. Any grease marks, crayon marks, etc, shall be cleaned off with sugar soap and thoroughly rinsed with clean water. The surface shall be thoroughly dry before painting operations are started.
- (iv) Ceilings: Ceilings shall be brushed down and free of all dust and powdery materials. Cover strips and cornices shall be stopped where necessary and rubbed down smooth. All nail heads shall be primed, stopped and rubbed down flush. The surface shall then be wiped or brushed free of all loose or powdery materials before applying the recommended paint system.
- (v) Fibre cement: Fibre cement surfaces shall be cleaned down and primed with an approved sealer and undercoat.

(b) Metalwork

- (i) Iron and steel: new iron and steel metalwork shall be cleaned with an approved degreaser and the most effective method available (shot or sand blasting, mechanical wire brushing, hand wire brushing) used to remove all rust and millscale. Any salt deposits resulting from a marine or industrial environment shall be removed by washing with water prior to priming.
- (ii) Galvanised surfaces: New galvanised surfaces shall be well cleaned to remove all traces of oil and dirt with galvanised iron cleaner and rinsed with clean water.

(c) Woodwork

New woodwork shall be brushed down and the surface prepared as follows:

Knots shall be given a coat of an approved patented knotting. The surface shall be primed overall and all holes shall be filled. The surface shall then be rubbed down with glass paper until smooth and even. Woodwork that needs to be oiled, stained or varnished shall be free of all stains, pencil marks and other surface discolourations and blemishes and shall be stopped with tinted stopping and rubbed down.

(d) General

- (i) Colours: All colours and tints are to be submitted to the Engineer for approval. Sample colours are to be prepared in all cases for the final coat and all work must be finished to colour approved by the Engineer. Where necessary, universal undercoat must be tinted to a shade lighter than the finishing coat.
- (ii) Doors and windows: All doors and opening sections of windows must be left ajar after painting or varnishing until the paint is perfectly dry.
- (iii) Protection and cleaning off: All necessary precautions are to be taken for the protection of all finished work and other trades during painting, and all ironmongery shall be removed where possible prior to the commencement of painting and re-fixed after completion. All paint spots, stains, etc, are to be cleaned off floors, walls, glass, etc, after completion.

AC 03.01.03 Paint specifications for various components

(a) Fibre cement (ceilings)

(i) New work

(1) Interior

Ceilings to wet areas (ablutions, kitchens and laundries):

- Polyurethane alkyd enamel:

Prepare and apply one coat synthetic copolymer primer. Stop with interior crack filler, seal crack filler with above primer. Apply two coats of polyurethane alkyd enamel interior quality paint.

- Universal fungicidal additive:

To be added to above in proportions specified by the manufacturer. This additive will only be required in specific cases.

(2) Exterior

Preparation: Clean down to remove all dirt and grease, etc, fill nail-heads with exterior crack filler and sand down to a smooth and even surface.

Finishing coat (emulsion): Apply two coats of super acrylic copolymer PVA emulsion or polyurethane alkyd enamel.

(ii) Renovation (existing) work

(1) Interior

Ceilings previously painted, in good condition:

Preparation: Clean down to remove all dirt and grease, etc, fill nail-heads, cracks and defects with interior crack filler and sand down to a smooth and even surface.

Finishing coat (emulsion): Apply two coats of super acrylic copolymer PVA emulsion or polyurethane alkyd enamel.

Ceilings previously painted, in poor condition (to be finished in an emulsion system):

Preparation: Remove all loose and flaking paint, clean down to remove all dirt, grease, etc, prime nail-heads with zinc phosphate primer for steel. Apply one coat of primer to existing ceiling boards diluted with 20 % turpentine. Fill nail-heads, cracks and defects with interior crack filler and sand down to a smooth and even surface. Seal all repaired areas with above-mentioned primer.

Finishing coat: Apply two coats of super acrylic copolymer PVA.

Ceilings to wet areas:

Preparation as above, but to be followed by one coat synthetic copolymer primer and two final coats polyurethane alkyd enamel interior quality paint (with fungicidal additive, only if specified).

In cases where fungicidal attack is prevalent the prepared surface must be washed down with antiseptic solution, followed by sodium hypochlorite and allowed to react for 15 minutes before washing down with water. Once dry, primer and finishing coats may be applied.

(2) Exterior

Not applicable.

(b) Woodwork truss/rafters (overhangs)

(i) New work

(1) Interior

Not applicable.

(2) Exterior

- Egg-shell/High-gloss enamel:

Prepare and touch up knots with spirit soluble resin type knotting. Apply one coat of primer for wood. Stop with wood filler where necessary. Apply one coat of universal undercoat. Apply two coats of enamel.

- Creosote coating:

Prepare surface to be clean, dry and sound Apply on coat of creosote wood treatment coating.

(ii) Renovation (existing) work

(1) Interior

Not applicable.

(2) Exterior

Woodwork truss/rafters (overhangs) previously painted, in good condition (to be painted in egg-shell/high-gloss enamel):

Preparation: Clean down and sand to a smooth finish. Spot prime where necessary with primer for wood. Allow 24 hours drying. Stop with wood filler.

Undercoat: Apply one coat of universal undercoat. Allow 24 hours drying.

Finishing coat: Apply two coats of enamel paint.

Woodwork truss/rafters (overhangs) previously painted, in poor condition (to be finished in egg-shell/high-gloss enamel):

Preparation: Remove existing paint and sand down thoroughly. Touch up knots and resinous areas with knotting.

Primer: Apply one coat of universal undercoat. Allow 24 hours drying. Stop with wood filler and sand to a smooth finish.

Undercoat: Apply one coat of universal undercoat. Allow 24 hours drying.

Finishing coat: Apply two coats of enamel paint.

Creosote coating:

Preparation: Prepare surface. Apply two coats creosote wood treatment coating.

(c) Metalwork - steelwork and miscellaneous metal work (including general pipework)

(i) New work

(1) Interior

Unpainted:

Prepare and apply one coat zinc phosphate primer for steel. Apply one coat of universal undercoat. Apply two coats of high gloss enamel paint.

Shop-primed:

Touch up damaged primer with zinc phosphate primer for steel. Apply one coat of universal undercoat. Apply two coats of high-gloss enamel paint.

Cast-iron waste pipes:

Prepare and remove as much bitumen as possible. Apply one coat of aluminium paint. Apply one coat of universal undercoat. Apply two coats of high-gloss enamel paint.

(2) Exterior

Unpainted:

Prepare and apply one coat zinc phosphate primer for steel. Apply one coat of universal undercoat. Apply two coats of high-gloss enamel or oleoresinous aluminium paint (where applicable).

Shop-primed:

Touch up damaged primer with zinc phosphate primer for steel. Apply one coat of universal undercoat. Apply two coats of high-gloss enamel or oleoresinous aluminium paint (where applicable).

Cast-iron waste pipes:

Prepare and remove as much bitumen as possible. Apply one coat of universal undercoat. Apply two coats of high gloss enamel or oleoresinous aluminium paint (where applicable).

(ii) Renovation (existing) work

(1) Interior

Previously painted metalwork, in good condition (steel windows, door frames, miscellaneous steelwork, etc):

Preparation: Wash down with sugar soap and rise with clean water. Sand lightly and apply one coat universal undercoat.

Finishing: Apply two coats high-gloss enamel.

Previously painted metalwork, in poor condition:

Preparation: Remove all existing paint by means of scraping or wire brushing and sanding. Tightly adhering paint that cannot be removed may remain and be overcoated. Remove all signs of rust back to bright metal by sanding with emery cloth. Wash down with an approved degreaser, rinse with clean water to remove all traces thereof and allow to dry. Treat rusted areas with a water-based rust converter.

Primer: Apply one coat of zinc phosphate primer for steel. Allow overnight drying.

Undercoat: Apply one coat of universal undercoat. Allow overnight drying.

Finishing coat: Apply two coats high-gloss enamel. Allow overnight drying between coats.

Previously painted metalwork, to remove all previous paint to original surface:

Preparation: Remove all existing paint by means of scraping or wire Brushing, grinding and sanding Remove all signs of rust back to bright metal by sanding with emery cloth. Wash down with an approved degreaser, rinse with clean water to remove all traces thereof and allow to dry. Treat rusted areas with a water-based rust converter.

Primer: Apply one coat of zinc phosphate primer for steel. Allow overnight drying.

Undercoat: Apply one coat of universal undercoat. Allow overnight drying.

Finishing coat: Apply two coats high-gloss enamel. Allow overnight drying between coats.

(2) Exterior

Previously painted metalwork, in good condition:

Preparation: Wash down with sugar soap, followed by light sand-papering. Rinse with clean water.

Undercoat: Apply one coat of universal undercoat. Allow 24 hours for drying.

Finishing coat: Apply two coats of high-gloss enamel or oleoresinous aluminium paint (where applicable).

Previously painted metalwork, in poor condition:

Preparation: Remove all existing paint by means of scraping or wire brushing and sanding. Tightly adhering paint that cannot be removed may remain and be overcoated. Remove all signs of rust back to bright metal by sanding with emery cloth. Wash down with an approved degreaser, rinse with clean water to remove all traces thereof and allow to dry. Treat rusted areas with a water-based rust converter.

Primer: Apply one coat of zinc phosphate primer for steel. Allow for 24 hours drying.

Undercoat: Apply one coat of universal undercoat. Allow for 24 hours drying.

Finishing coat: Apply two coats of high-gloss enamel or oleoresinous aluminium paint (where applicable).

Previously painted metalwork, to remove all previous paint to original surface:

Preparation: Remove all existing paint by means of scraping or wire brushing, grinding and sanding. Remove all signs of rust back to bright metal by sanding with emery cloth. Wash down with an approved degreaser, rinse with clean water to remove all traces thereof and allow to dry. Treat rusted areas with a water-based rust converter.

Primer: Apply one coat of zinc phosphate primer for steel. Allow overnight drying.

Undercoat: Apply one coat of universal undercoat. Allow overnight drying.

Finishing coat: Apply two coats high-gloss enamel. Allow overnight drying between coats.

(3) Aggressive environments

Not applicable.

(d) Gypsum board (ceilings, etc)

(i) New work

(1) Interior (dry areas)

- Super acrylic PVA:

Prepare and apply one coat synthetic copolymer primer for gypsum board diluted with 20 % turpentine. Stop with interior crack filler, seal crack filler with above-mentioned primer. Apply two coats of super acrylic copolymer PVA paint.

(2) Exterior (dry areas)

- Super acrylic PVA:

Prepare and supply one coat of synthetic copolymer primer for gypsum board diluted with 20 % turpentine. Stop with interior crack filler, seal crack filler with above-mentioned primer. Apply two coats of super acrylic copolymer PVA paint.

(ii) Renovation (existing) work

(1) Interior

Previously painted gypsum board with PVA in good condition:

Preparation: Wash down with sugar soap to remove all dirt, grease, etc, and rinse off with clean water. When dry, make good all cracks and defects with interior crack filler and sand to a smooth and even surface.

Finishing coat: Apply two coats super acrylic copolymer PVA.

Previously painted gypsum board, in poor condition:

Preparation: Clean down. Remove all paint by sanding and scraping.

Primer: Allow overnight drying. Make good cracks and holes with crack filler. Seal crack filler with above primer and allow to dry.

Finishing coat (emulsion): Apply two coats of super acrylic copolymer PVA.

(2) Exterior

Not applicable.

(e) Cement plaster (walls) and concrete surfaces

(i) New work

(1) Interior

- Polyurethane alkyd enamel (in wet areas, kitchens, etc):
Prepare and apply one coat bonding liquid, followed by one coat of synthetic copolymer primer for new plaster. Apply one coat of polyurethane alkyd enamel paint.
- Acrylic emulsion:
Same as above, but apply acrylic emulsion with smooth velvet sheen interior quality paint.
- Gloss enamel:
Same as for polyurethane alkyd enamel, but apply two coats high-gloss enamel.
- Super acrylic PVA:
Prepare and apply one coat of synthetic copolymer primer. Apply two coats of super acrylic copolymer PVA.
- Semi-gloss pure acrylic finish:
Prepare and apply one coat of synthetic copolymer primer. Apply one coat of pure acrylic paint.

(2) Exterior

- Pure acrylic:
Prepare and apply one coat of alkali resistant synthetic resins bonding liquid. Stop with exterior crack filler. Apply one coat of copolymer primer. Apply one final coat of pure acrylic paint.
- Pure acrylic with Teflon:
Preparation, priming and application as above.
- Super acrylic PVA:
Prepare and apply one coat of synthetic copolymer primer. Apply two coats of super acrylic copolymer PVA.
- Acrylic emulsion (external textured):
Preparation as above, followed by two coats textured exterior acrylic emulsion, allowing one hour drying time between coats.

(ii) Renovation (existing) work

(1) Interior

Previously distempered:

Preparation: Remove all distemper with a peeling agent. Rinse with clean water. Allow 48 hours to dry. Fill cracks and defects with interior crack filler. Sand down to a smooth and even surface.

Primer: Apply one coat of bonding liquid, allow a minimum of 24 hours and maximum of 72 hours for drying. Final primers as specified in AC 03.01.03(e)(i).

Finishing coat: Apply similar paints to suit as specified in AC 03.01.03(e)(i).

(2) Exterior

Previously painted cement plaster (walls) and surfaces, in good condition:

Preparation: Wash down thoroughly with sugar soap. Rinse with clean water. Fill with suitable exterior crack filler. Sand smooth.
Prime with one coat bonding liquid

Finishing coat: Apply similar paints to suit as specified in AC 03.01.03(e)(i).

Previously painted cement plaster (walls) and surfaces, in poor condition (i.e. peeling, crazing, etc. not previously limewashed):

Preparation: Remove all paint and fill with suitable exterior crack filler.

Priming coat: Prime with one coat bonding liquid, allow to dry for a minimum of 24 hours and a maximum of 72 hours.

Finishing coat: Apply similar paints to suit as specified in AC 03.01.03(e)(i).

(f) Fibre cement board (fascia and ceilings)

(i) New work

(1) Interior

New and wet asbestos sheets shall be allowed to dry out before painting is commenced.

Ceiling boards must be well primed on both sides with an approved sealer/undercoat before fixing.

- Super acrylic PVA:

Prepare and apply one coat of sealer/undercoat. Prime nail heads with metal primer. Stop with filler. Apply two coats of super acrylic copolymer PVA.

(2) Exterior

New and wet asbestos sheets shall be allowed to dry out before painting is commenced.

Fascia boards and barge boards shall be well primed on both sides and edges painted with sealer/undercoat before fixing.

All sides of fascia boards must receive final coatings.

- Super acrylic PVA:

Prepare and apply one coat sealer/undercoat. Prime nail heads with zinc phosphate metal primer. Stop with filler. Apply two coats of super acrylic copolymer PVA.

(ii) Renovation (existing) work

(1) Interior

Previously painted fibre cement board with emulsion paint, in good condition:

Preparation: Clean down thoroughly to remove any signs of dirt or grease. Fill all screw heads with a flexible resistant filler after screw heads have been primed.

Finishing: Apply two coats of super acrylic copolymer PVA paint.

Previously painted fibre cement board in poor condition:

Preparation: Remove previous paint coatings with super paint stripper. Thoroughly wash down with sugar soap and rinse with clean water. Prime nail and screw heads with zinc phosphate metal primer. Allow to dry.

Primer: Apply one coat of synthetic copolymer primer to all surfaces including back and edges, allow to dry. Fill all screw heads with weather resistant filler, allow to dry, sandpaper smooth and touch up with primer.

Finishing: Apply two coats of super acrylic copolymer PVA paint.

(2) Exterior

Previously painted fibre cement board with emulsion paint in good condition:

Preparation: Clean down thoroughly to remove any signs of dirt or grease. Fill all screw heads with a flexible weather resistant filler after screw heads have been primed.

Finishing: Apply two coats of super acrylic copolymer PVA paint.

Previously painted fibre cement board, in poor condition:

Preparation: Remove previous paint coatings with super paint stripper. Thoroughly wash down with sugar soap and rinse with clean water. Prime nail and screw heads with zinc phosphate metal primer. Allow to dry.

Primer: Apply one coat of sealer/undercoat to all surfaces including back and edges, allow to dry. Fill all screw heads with weather resistant filler. Allow to dry and sandpaper smooth. Touch up with primer.

Finishing: Apply two coats of super acrylic copolymer PVA paint.

(g) Galvanised iron roof (also gutters and rainwater pipes)

(i) New work

(1) Interior

Not applicable.

(2) Exterior

Galvanised iron - roofs: Water-based pure acrylic emulsion paint:

Scrub down thoroughly with degreaser, followed by a cleaner for galvanised iron. Rinse off thoroughly and ensure that all traces of cleaner have been removed and that the surfaces are free of any grease and oil. Apply one coat of galvanised metal primer. Allow to dry for 5 hours. (Must be overcoated within 24 hours maximum.) Apply one coat of water-based pure acrylic emulsion paint with non-fading pigment.

Galvanised iron - roofs: Mat acrylic roof paint:

Scrub down thoroughly with degreaser, followed by a cleaner for galvanised iron. Rinse off thoroughly and ensure that all traces of cleaner have been removed and that the surface is free of any grease and oil. Apply two coats of mat acrylic roof paint.

Galvanised iron - gutters and rainwater pipes: Gloss enamel:

Scrub down thoroughly with degreaser, followed by a cleaner for galvanised iron. Rinse off thoroughly and ensure that all traces of cleaner have been removed and that the surface is free of any grease and oil. Apply one coat of primer for galvanised iron. Allow to dry for 5 hours. (Must be overcoated within 24 hours maximum.) Apply two coats of gloss enamel paint with non-fading pigment.

(ii) Renovation (existing) work

(1) Interior

Not applicable.

(2) Exterior

Previously painted galvanised iron, in good condition:

Preparation: Thoroughly scrub down with fibre scrubbing brushes and sugar soap and rinse with clean water.

Finishing coat: Apply one coat water-based pure acrylic emulsion paint with non-fading pigment.

Unpainted or previously painted galvanised iron, in poor condition (i.e. flaking, peeling and rusting):

Preparation: Remove all previous paint coatings with steel wire brushes, plumber's egg-shaped lead scrapers, and coarse floor sandpaper. Remove all traces of rust with emery cloth back to bright metal and apply approved rust converter. Thoroughly scrub down using galvanised iron cleaner and rinse with clean water.

Primer: Apply one coat of galvanised metal primer. Allow a minimum of 5 hours and a maximum of 72 hours for drying.

Finishing coat: Apply one coat of water-based pure acrylic emulsion paint with non-fading pigment.

(h) Timber (doors, cornices, window frames, counters, skirtings, etc)

(i) New work

(1) Interior

- Polyurethane alkyd enamel (wet areas, kitchens, etc):
Prepare knots with spirit soluble resin type knotting. Prime with primer (sanding sealer) for wood. Fill imperfections where necessary with wood filler. Apply one coat of universal undercoat. Apply two coats of polyurethane alkyd enamel.
- High-gloss/egg-shell enamel:
Prepare knots with spirit soluble resin type knotting. Prime with primer (sanding sealer) for wood. Fill imperfections where necessary with wood filler. Apply one coat of universal undercoat. Apply two coats of enamel.
- Gloss/suede varnish (interior quality solvent based):
Prepare knots with spirit soluble resin type knotting. Fill imperfections with wood filler. Sand surfaces to a smooth finish in grain direction and dust off. Thin first coat down in a ratio of 3 parts varnish to 1 part mineral turpentine and apply. Allow to dry for 24 hours. Apply two full-strength final coats with 24 hours drying time between applications.

(2) Exterior

- High-gloss/egg-shell enamel:
Prepare with spirit soluble resin type knotting. Apply one coat of primer for wood. Fill where necessary with wood filler. Apply one coat of universal undercoat. Apply two coats of high gloss enamel.
- Gloss/suede varnish (exterior quality ultraviolet resistant solvent based):
Prepare knots with spirit soluble resin type knotting. Fill imperfections with wood filler. Sand surfaces to a smooth finish in grain direction and dust off.
Thin first coat down in a ratio of 3 parts varnish to 1 part mineral turpentine and apply. Allow to dry for 24 hours. Apply two full-strength final coats with 24 hours drying time between applications.

(ii) Renovation (existing) work

(1) Interior

Previously painted woodwork, in good condition (to be finished in polyurethane alkyd enamel):

Preparation: Wash sown with sugar soap to remove all dirt, grease, etc, then rinse off with clean water. Sand down to a smooth and mat surface. Make good cracks and defects with wood filler and after 24 hours drying, sand down again. Finishing coat: Apply two coats of polyurethane alkyd enamel. Allow 24 hours for drying between coats.

Previously varnished woodwork in good condition (to be finished with interior quality varnish):

Repair defects with wood filler. Sand surfaces to a mat finish and apply two final coats varnish with 24 hours drying time between applications.

Previously painted woodwork in poor condition (to be finished with high-gloss/egg-shell enamel):

Preparation: Remove all paint, varnish and stain with super paint stripper. Wash down thoroughly with sugar soap and rinse with clean water. When surface is completely dry, sand down and apply one coat of spirit soluble resin type knotting to all knots. Fill all cracks and defects with wood filler and after 24 hours of drying, sand down to a smooth and even surface. Apply one coat oleoresinous wood primer. Apply one coat universal undercoat.

Finishing coat: Apply two final coats enamel.

Previously stained and varnished or painted woodwork in poor condition (to be finished in polyurethane alkyd enamel):

Preparation: Remove all paint, varnish and stain with super paint stripper. Wash down thoroughly with sugar soap and rinse with clean water. When surface is completely dry, sand down and apply one coat of spirit soluble resin type knotting to all knots. Fill all cracks and defects with wood filler and after 24 hours of drying, sand down to a smooth and even surface. Apply one coat oleoresinous wood primer.

Finishing coat: Apply one coat polyurethane alkyd enamel.

Previously varnished woodwork in poor condition (to be finished with interior quality varnish):

Remove all varnish with paint stripper. Wash down to dry completely. Further preparation and applications as for AC 03.01.03(h)(i): New work - interior.

(2) Exterior

Previously painted woodwork, in good condition (to be repainted with high-gloss/egg-shell enamel):

Preparation: Clean down and sand to a smooth finish. Spot prime where necessary with oleoresinous wood primer. Allow 24 hours for drying. Stop defects with a flexible weather resistant wood filler.

Undercoat: Apply one coat of universal undercoat. Allow 24 hours drying.

Finishing coat: Apply two coats of enamel.

Previously varnished woodwork in good condition (to be finished with exterior quality ultraviolet resistant solvent-based varnish):

Preparation and application as for similar interior item above.

Previously stained and varnished or painted woodwork, in poor condition (to be finished in high-gloss/egg-shell enamel):

Preparation: Remove all paint, varnish and stain with super paint stripper. Wash down thoroughly with sugar soap and rinse with clean water. When surface is completely dry, sand down and apply one coat of spirit soluble resin type knotting to all knots. Fill all cracks and defects with wood filler and after 24 hours drying, sand down to a smooth and even surface. Apply one coat oleoresinous wood primer. Apply one coat universal undercoat.

Finishing coat: Apply two final coats of enamel.

Previously stained and varnished or painted woodwork, in poor condition (to be finished in polyurethane alkyd enamel):

As for similar interior item above.

Previously varnished woodwork in poor condition (to be finished with exterior quality ultraviolet resistant solvent-based varnish):

Preparation and application as for similar interior item above.

(i) Concrete and cement surfaces - floor paint

(i) New work

Exterior and interior

Preparation: Remove laitance, residual cement spillage, etc. by means of carborundum grinding and vacuum clean to remove all dust. Remove oil, grease or any other surface contaminants with degreaser and wash off with clean water. Allow to dry. The floor must have less than 5 % moisture content before painting may be done.

Finishing coats: Apply two coats of an alkali resistant solvent based stoep (modified alkyd) paint. The first coat may be thinned with 25 % mineral turpentine. Sixteen hours drying time must be allowed between coats.

(ii) Renovation (existing) work

Exterior and interior

Previously painted concrete and cement surfaces, in good condition:

Preparation: Remove any loose and flaking paint by means of carborundum grinding, back to firm feathered edges. Remove any polish, grease, oil and other contaminants with degreaser, wash clean and allow to dry. Sand old paint to a mat finish and vacuum clean to remove all dust.

Finishing coats: Apply two coats as for new work above.

Previously painted concrete and cement surfaces, in poor condition:

Strip completely by suitable means and treat as for new work above.

(j) Cement plaster or facebrick walls and concrete surfaces where damp penetration is evident

(i) Renovation

Exterior and interior

Preparation: Remove all damaged paintwork, efflorescence, loose friable material, etc, back to bare and sound substrate. Repair all damaged surfaces with suitable approved materials to match original surface.

Surfaces may remain damp and, in some cases, will require additional wetting, depending on the particular coating used.

Damp sealing coats: Apply two coats approved synthetic polymer modified water barrier coating in strict accordance with the particular product manufacturer's specifications. Allow 24 hours between coats unless otherwise specified.

Finishing coats: Apply decorative finishing coats to suit, as in AC 03.01.03(e).

AC.04

DETAIL OF REPAIR WORK

The detail of the scope of work is described in the Schedule of Quantities.

AC.05

MAINTENANCE

This specification shall be read in conjunction with Additional Specifications SA: General Maintenance.

All components that form part of the waterproofing of concrete roofs shall be maintained during the maintenance phase of the Contract.

Maintenance shall include all repair work, replacing of components, routine inspections, repairing of defects or other actions or rectifying measures required to maintain the perfect functional condition of waterproofing on concrete roofs in accordance with the operation and maintenance manuals and as specified. All roofs shall be kept leak-free and watertight.

Maintenance of the waterproofed concrete roofs shall include all related actions such as replacing/repairing loose and blistering waterproofing, including cracked waterproofing membranes, loose seams, painting of waterproofing membranes, and cleaning and removing rubbish from waterproofed concrete roofs.

Remuneration for maintenance of the complete waterproofing of concrete roofs shall be deemed included in the tendered monthly payment for the maintenance thereof.

AC.06 **MEASUREMENT AND PAYMENT**

AC 06.01 **MEASUREMENT AND RATES**

AC 06.01.01 **General inclusion of costs and specific specifications**

Notes:

All material scheduled to be removed shall be deemed to be existing damaged material. All such redundant material shall become the property of the Contractor and must be removed from site immediately.

All new material shall be deemed to be in patchwork and shall be of approved equal quality, colours, profiles, thickness, etc and shall in all cases match the existing materials and shall be applied (internally or externally) to existing material or surfaces.

All removal and repair work shall be done carefully as to not damage any adjacent or other material or work. Any damage to other or adjacent materials or areas caused by the negligence of the Contractor shall be repaired by him free of charge.

All work scheduled to be removed or taken out shall be deemed to include the cleaning and preparation of the remaining sections, areas, or work to receive the new material or work specified.

Repair work shall also include all cutting, grinding, cutting into, welding, bending, strengthening, drilling, etc to repair or to improve the items or areas as new and to match the existing.

Work scheduled to be realigned and refixed shall be deemed to include all necessary new additional materials, brackets, connector plates, bolts, pip rivets, nails, screws, spacer blocks, clamps, timber, and labour, etc to leave the items as new and totally functional.

All new work is measured net and shall include all cutting, lapping, waste, bending, fixing, corners, mitres, fixing screws, pip rivets, nails, adhesive, grout, putty, etc, as well as cleaning and preparation of surfaces not already prepared as part of removed items, etc.

All paintwork shall include for surface preparation, cleaning, primer(s), undercoat(s) and final coat(s) as specified by the manufacturers and in the Technical Specifications. Scheduled items in the Schedule of Quantities are mainly brief descriptions of the final coat(s) to identify the paint system as specified in the Specifications.

Most steel surfaces such as gratings, screens, gates, doors, mesh, louvres, burglar proofing, windows, etc are measured both sides on the net flat overall area of the item. Paint to roof covering and side cladding, etc are measured wet on the flat overall area of the items and not along the girth of the sheeting. All final re-measurements for payment purposes will be done on the same principles.

Rates tendered for paintwork shall be deemed to include for all "line cutting" between different colours of paint specified by the Engineer in dados, skirtings, etc.

Rates tendered for paintwork on ceilings and cornices shall be deemed to include for paint on cover and jointing strips.

Rates tendered for paintwork on ceilings, wall paneling, divisions, etc shall be deemed to include for timber door frames, jointing and cover strips, skirtings, cornices, quadrant beads, etc if painted with the same specified paint material and in the same colour schemes.

Where specified to be painted in contrasting colours, varnished or with a different paint material the paintwork on the door frames, skirtings, cornices, beads, cover strips, etc will be measured and paid for separately per linear metre.

Specific specification for floor paint

Preparation:

The concrete floor must have less than 3% moisture before painting is attempted. Remove laitance, residual cement spillage, etc by Carborandum grinding. Vacuum clean to remove all dust. Remove oil, grease, or any other surface contaminants with degreaser. Allow to dry thoroughly before painting.

Paint system:

Apply one coat of an alkali resistant solvent based stoep (modified alkyd) paint. The first coat may be thinned with approximately 25% mineral turpentine to aid penetration.

Apply one finishing coat of an alkali resistant solvent based stoep (modified alkyd) paint.

Protection of existing furniture, carpets, finishings, cupboards, etc during paint procedures

Protection, sheets and screens:

All existing finishings, carpets, floors, furniture, etc shall be carefully handled, moved when instructed within the specific room, building or area to be painted, covered with sheets, screens or other approved methods to protect the items or finishings against damage or spilled paint spots or stains. Any damage caused to the mentioned existing items shall be rectified or replaced by the Contractor without additional payment.

The costs of sheets, covers, screens and all labour to address the above shall be deemed to be included in the tendered rates for the individual payment items or in the general preliminary cost items. No claims by the Contractor in this regard will be entertained.

AC 06.02 SCHEDULED ITEMS

NEW UNPAINTED SURFACES:

AC 06.02.01 Paint to new unpainted surfaces:

(a) Description of surface:

(i) Brief description of final paint type:

(a) Description of application area or item
to be painted..... Unit: m², m, number

(b) Etc. for other areas or items

The unit of measurement shall be the number, metre or square metre as applicable to each item.

The tendered rates shall include full compensation for manufacturing, providing and applying each item complete as per specifications, drawings, descriptions as scheduled or as the existing and shall include for all labour, material, preparation work, waste, plant, transport, delivery, access, scaffolding, fuel, miscellaneous items and material, etc to the Engineer's approval.

PREVIOUSLY PAINTED SURFACES:

AC 06.02.02 Paint to previously painted surfaces:

(a) Description of surface:

(i) Brief description of final paint type:

(a) Description of application area or item
to be painted..... Unit: m², m, number

(b) Etc, for other areas or items

The unit of measurement shall be the number, metre or square metre as applicable to each item.

The tendered rates shall include full compensation for manufacturing, providing and applying each item complete as per specifications, drawings, descriptions as scheduled or as the existing and shall include for all labour, material, preparation work, waste, plant, transport, delivery, access, scaffolding, fuel, miscellaneous items and material, etc to the Engineer's approval.

PREVIOUSLY PAINTED SURFACES IN POOR CONDITION:

AC 06.02.03 Paint to previously painted surfaces in poor condition:

(a) Description of surface:

(i) Brief description of final paint type:

(a) Description of application area or item
to be painted..... Unit: m², m, number

(b) Etc, for other areas or items

The unit of measurement shall be the number, metre or square metre as applicable to each item.

The tendered rates shall include full compensation for manufacturing, providing and applying each item complete as per specifications, drawings, descriptions as scheduled or as the existing and shall include for all labour, material, preparation work, waste, plant, transport, delivery, access, scaffolding, fuel, miscellaneous items and material, etc to the Engineer's approval.

PREVIOUSLY PAINTED SURFACES TO REMOVE ALL PREVIOUS PAINT TO ORIGINAL SURFACE:

AC 06.02.04 Paint to previously painted surfaces to remove all previous paint to original surface

(a) Description of surface:

(i) Brief description of final paint type:

(a) Description of application area or item
to be painted..... Unit: m², m, number

(c) Etc, for other areas or items

The unit of measurement shall be the number, metre or square metre as applicable to each item.

The tendered rates shall include full compensation for manufacturing, providing and applying each item complete as per specifications, drawings, descriptions as scheduled or as the existing and shall include for all labour, material, preparation work, waste, plant, transport, delivery, access, scaffolding, fuel, miscellaneous items and material, etc to the Engineer's approval.

AD. PLUMBING AND DRAINAGE INSTALLATION

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AD.01 SCOPE

This specification covers the particulars of the maintenance work to the plumbing and drainage installations at Beitbridge Port of Entry. This particular specification shall be read in conjunction with the Technical Specification AA: Plumbing and Drainage Installation, and all additional and technical specifications compiled as part of this document, in particular the following Additional Specifications:

- SA: General Maintenance
- SB: Operating and Maintenance Manuals
- SC: General Decommissioning, Testing and Commissioning Procedures
- SD: General Training

1. Beitbridge Port of Entry

(i) Residences Beitbridge (54 Building Structures):

ITEM	CODE	DESCRIPTION	ROOF TYPE
1	B201	House 1	Steel & tiles pitched
2	B202	House 1 Outbuilding	Steel pitched
3	B217	House 01	Steel double pitched
4	B218	House 01 Outbuilding	Steel double pitched
5	B203	House 02	Steel double pitched
6	B204	House 02 Outbuilding	Steel double pitched
7	B205	House 03	Steel double pitched
8	B206	House 03 Outbuilding	Steel double pitched
9	B214	House 04	Steel double pitched
10	B215	House 04 Outbuilding	Steel pitched
11	B216	House 04 Garage	Steel Mono pitched
12	B219	House 05	Steel double pitched
13	B220	House 05 Outbuilding	Steel double pitched
14	B221	House 05 Garage	Steel Mono pitched
15	A202	House 06	Steel double pitched
16	A203	House 06 Outbuilding	Steel Mono pitched
17	A204	House 07	Steel double pitched
18	A205	House 07 Outbuilding	Steel Mono pitched
19	A206	House 08	Steel double pitched



20	A207	House 08 Outbuilding	Steel Mono pitched
21	A211	House 09	Steel double pitched
22	A212	House 09 Outbuilding	Steel Mono pitched
23	A213	House 10	Steel double pitched
24	A214	House 10 Outbuilding	Steel Mono pitched
25	A215	House 11	Steel double pitched
26	A216	House 11 Outbuilding	Steel Mono pitched
27	A217	House 12	Steel double pitched
28	A218	House 12 Outbuilding	Steel Mono pitched
29	A219	House 13	Steel double pitched
30	A220	House 13 Outbuilding	Steel Mono pitched
31	A221	House 14	Steel double pitched
32	A222	House 14 Outbuilding	Steel double pitched
33	A223	House 14 Carport	Steel double pitched
34	A224	House 18	Steel double pitched
35	A225	House 18 Outbuilding	Steel double pitched
36	A226	House 17	Steel double pitched
37	A227	House 17 Outbuilding	Steel double pitched
38	A228	House 16	Steel double pitched
39	A229	House 16 Outbuilding	Steel double pitched
40	A230	House 15	Steel double pitched
41	A231	House 15 Outbuilding	Steel double pitched
42	A232	House 20	Steel double pitched
43	A233	House 20 Outbuilding	Steel double pitched
44	A234	House 21	Steel double pitched
45	A235	House 21 Outbuilding	Steel double pitched
46	A236	House 22	Steel double pitched
47	A237	House 22 Outbuilding	Steel double pitched
48	B213	House 23	Concrete clay tiles
49	B212	House 24	Concrete clay tiles
50	B211	House 25	Concrete clay tiles
51	B210	House 26	Concrete clay tiles
52	B209	House 27	Concrete clay tiles
53	B208	House 28	Concrete clay tiles
54	B207	House 29	Concrete clay tiles



(ii) Residences Musina (74 Building Structures):

ITEM	CODE	DESCRIPTION	ROOF TYPE
55	D101	1 Willem Smit	Steel double pitched
56	D101A	1 Willem Smit Outbuilding	Steel double pitched
57	D102	3 Willem Smit	Steel double pitched
58	D102A	3 Willem Smit Outbuilding	Steel double pitched
59	D103	1 Kremetart	Concrete clay tiles double pitched
60	D103A	1 Kremetart Outbuilding	Concrete clay tiles double pitched
61	D104	6 Kremetart	Concrete clay tiles double pitched
62	D104A	6 Kremetart Outbuilding	Concrete clay tiles double pitched
63	D105	7 Kremetart	Concrete clay tiles double pitched
64	D105A	7 Kremetart Outbuilding	Concrete clay tiles double pitched
65	D106	11 Kremetart	Concrete clay tiles double pitched
66	D106A	11 Kremetart Outbuilding	Concrete clay tiles double pitched
67	D107	33 Kremetart	Concrete clay tiles double pitched
68	D107A	33 Kremetart Outbuilding	Concrete clay tiles double pitched
69	D108	39 Kremetart	Concrete clay tiles double pitched
70	D108A	39 Kremetart Outbuilding	Concrete clay tiles double pitched
71	D109	41 Kremetart	Concrete clay tiles double pitched
72	D109A	41 Kremetart Outbuilding	Concrete clay tiles double pitched
73	D110	43 Kremetart	Concrete clay tiles double pitched
74	D110A	43 Kremetart Outbuilding	Concrete clay tiles double pitched
75	D111	48 Kremetart	Concrete clay tiles double pitched
76	D111A	48 Kremetart Outbuilding	Concrete clay tiles double pitched
77	D112	54 Kremetart	Concrete clay tiles double pitched
78	D112A	54 Kremetart Outbuilding	Concrete clay tiles double pitched
79	D113	3 Sering Crescent	Concrete clay tiles double pitched



80	D113A	3 Sering Crescent Outbuilding	Concrete clay tiles double pitched
81	D114	4 Sering Crescent	Concrete clay tiles double pitched
82	D114A	4 Sering Crescent Outbuilding	Concrete clay tiles double pitched
83	D115	5 Sering Crescent	Concrete clay tiles double pitched
84	D115A	5 Sering Crescent Outbuilding	Concrete clay tiles double pitched
85	D116	8 Sering Crescent	Concrete clay tiles double pitched
86	D116A	8 Sering Crescent Outbuilding	Concrete clay tiles double pitched
87	D117	11 Sering Crescent	Concrete clay tiles double pitched
88	D117A	11 Sering Crescent Outbuilding	Concrete clay tiles double pitched
89	D118	13 Sering Crescent	Concrete clay tiles double pitched
90	D118A	13 Sering Crescent Outbuilding	Concrete clay tiles double pitched
91	D119	15 Sering Crescent	Concrete clay tiles double pitched
92	D119A	15 Sering Crescent Outbuilding	Concrete clay tiles double pitched
93	D120	18 Sering Crescent	Concrete clay tiles double pitched
94	D120A	18 Sering Crescent Outbuilding	Concrete clay tiles double pitched
95	D121	21 Sering Crescent	Concrete clay tiles double pitched
96	D121A	21 Sering Crescent Outbuilding	Concrete clay tiles double pitched
97	D122	27 Sering Crescent	Concrete clay tiles double pitched
98	D122A	27 Sering Crescent Outbuilding	Concrete clay tiles double pitched
99	D123	29 Sering Crescent	Concrete clay tiles double pitched
100	D123A	29 Sering Crescent Outbuilding	Concrete clay tiles double pitched
101	D124	31 Sering Crescent	Concrete clay tiles double pitched
102	D124	31 Sering Crescent Outbuilding	Concrete clay tiles double pitched
103	D125	39 Sering Crescent	Concrete clay tiles double pitched
104	D125A	39 Sering Crescent Outbuilding	Concrete clay tiles double pitched

105	D126	41 Sering Crescent	Concrete clay tiles double pitched
106	D126A	41 Sering Crescent Outbuilding	Concrete clay tiles double pitched
107	D127	12 Kerk	Steel double pitched
108	D127A	12 Kerk Outbuilding	Steel double pitched
109	D128	16 Kerk	Steel double pitched
110	D128A	16 Kerk Outbuilding	Steel double pitched
111	D129	17 Van Zyl	Steel double pitched
112	D129A	17 Van Zyl Outbuilding	Steel double pitched
113	D130	40 Paul Mills	Steel double pitched
114	D130A	40 Paul Mills Outbuilding	Steel double pitched
115	D131	44 Paul Mills	Steel double pitched
116	D131A	44 Paul Mills Outbuilding	Steel double pitched
117	D132	9 Ds Henrico	Steel double pitched
118	D132A	9 Ds Henrico Outbuilding	Steel double pitched
119	D133	23 Irwin Street	Steel double pitched
120	D133A	23 Irwin Street Outbuilding	Steel double pitched
121	D134	54 Irwin Street	Steel double pitched
122	D135	2 Rooibos Crescent	Concrete clay tiles double pitched
123	D135A	2 Rooibos Crescent Outbuilding	Concrete clay tiles double pitched
124	D136	8 Rooibos Crescent	Concrete clay tiles double pitched
125	D138	33 Sekelbos Crescent	Concrete clay tiles double pitched
126	D138A	33 Sekelbos Crescent Outbuilding	Concrete clay tiles double pitched
127	D139	6 Murphy Street	Steel double pitched
128	D139A	6 Murphy Street Outbuilding	Steel Mono pitched

(iii) Office and Support facilities

ITEM	CODE	DESCRIPTION	BUILDING TYPE	ROOF TYPE
1	A101	South Gate/ control post	Control point	Steel double pitched (Main) & Concrete
2	A102	SAPS Investigation Building	Office	Concrete clay tiles
3	A103	Temporary holding cells	Holding cells	Concrete clay tiles
4	A104	SAPS Barracks parking	Parking (Covered)	Steel Mono pitched
5	A105	SAPS Barracks	Residence (Communal)	Concrete clay tiles
6	B101	South gate departure	Control point building	Steel double pitched
7	B102	Public ablutions Southgate	Ablutions	Steel Mono pitched
8	B103	Vehicle Inspection	Inspection office	Concrete slab + Steel structure
9	B104	Staff Parking South Gate	Parking (Covered)	Steel Mono pitched

10	B105	SAPS charge Office	Office building	Concrete clay tiles
11	B106	Transition kiosk	Impermanent structure	Steel double pitched
12	B107	Bus Passenger Public Ablutions	Ablutions	Concrete clay tiles
13	B108	Customs & Immigration Building	Office building	Concrete clay tiles
14	B109	Transformer Building	Power distribution	Steel Mono pitched
15	B110	Genset 01	Power distribution	Steel Mono pitched
16	B111	Incinerator	Incinerator	Steel Mono pitched
17	B112	Immigration Arrival/departure Park home	Temporary structure	Steel structure
18	B113	SAPS Logistic Building	Office building	Concrete clay tiles
19	B114	SAPS support building	Office building	Concrete clay tiles
20	B115	Public toilets-Outbound	Ablutions	Concrete clay tiles
21	B116	Retail Outlet	Retail facility	Steel double pitched
22	B301	Wastewater Treatment Plant	Residence	Steel double pitched
23	C104	Export release building	Inspection/ commercial	Steel double pitched
24	C105	Radiation scan facility	Scanning/ Commercial	Steel double pitched
25	C106	Commercial Public Ablution Outbound	Ablutions	Steel double pitched
26	C107	Substation 02	Substation/ Power distribution	Steel double pitched
27	C108	Port Health 01	Park home	Modulated
28	C109	Port Health 02	Park home	Modulated
29	C110	Manica Bypass Park homes	Park home	Modulated
30	C201	Commercial building inspection Inbound	Inspection/ commercial	Steel double pitched
31	C202	Commercial Office Building	Offices	Steel double pitched
32	C203	Commercial Inspection Building-Outbound	Inspection/ commercial	Steel double pitched
33	C204	Sewer Pump Station	Sewer Pump Station	Steel double pitched
34	C206	Duty free International Retail Outlet	Retail facility	Steel double pitched
35	C207	Light Vehicle Inspection (Outbound)	Inspection Area	Steel double pitched
36	C208	Light Vehicle Inspection Office	Office	Steel double pitched
37	C209	Queuing Shelter	Transition space	Steel Mono pitched
38	C212	North Gate	Control Point	Steel double pitched
39	C213	North Gate Public Ablutions	Ablutions	Concrete

The intended maintenance work to this installation will restore the existing installations to safe, efficiently functional systems that comply with all statutory regulations and applicable standards, in the process repairing all defects and

shortfalls.

On completion of the repair work, the completed installations shall be maintained and serviced by the Contractor for the remainder of the 36-month contract period.

The various sites consist of various facilities, as listed below, which form part of the maintenance and servicing contract for plumbing and drainage installation.

AD 01.01 **GENERAL DESCRIPTION OF INSTALLATIONS**

The existing plumbing and drainage installations provide potable hot and cold water to the various buildings on these sites. The potable cold-water installation is provided with supply points from the underground reticulation networks outside the buildings to an above ground reticulation network via service ducts, ceiling voids and chased into walls to outlet points. The potable hot-water installation is provided with supplies from various domestic or industrial geysers where applicable.

This contract also provides for repair and maintenance of the fire water piped reticulation network, excluding the firefighting equipment which is dealt with under Particular Specification PJC: Conventional Fire Fighting equipment.

Technical details of sanitary and brassware, as well as the plumbing and drainage installations are given in AD 03.

AD.02 **TECHNICAL DETAILS OF EXISTING INSTALLATIONS**

At the time of compilation of this document the existing installations consisted of the equipment and plant listed below with their relevant technical details.

AD 02.01 **SANITARY AND BRASSWARE: GENERAL**

	SANITARY WARE	BRASSWARE	TRAP
WCs (cistern)	Armitage Shanks/Vaal: white, floor-mounted, vitreous China	Brass shut-off valves	Not applicable
Cistern (WC)	Wall-mounted, white, CI; Wall-mounted, white, vitreous China; Wall-mounted, white, plastic	Brass shut-off valves	Not applicable
Urinals (flush)	Armitage Shanks, white, wall-mounted, vitreous China; Citimetal stainless steel wall-mounted.	Junior flush valve, exposed type, shut-off valves; Brass shut-off valves	CP bottle trap. Flexi P-trap; Flexi S-trap
WHBs	Armitage Shanks, white wall-mounted, white enamel; Wall-mounted stainless steel	Cobra 15 mm, CP star handle pillar taps	Flexi P-trap; Flexi S-trap
Showers		15 mm CP under-tile stop-cocks	
Wash troughs	Stainless steel, double bowl, wall-mounted	Cobra 15 mm, CP star handle wall type taps	Flexi P-trap

Baths	Steel enamel, white, 2 m long	Cobra 20 mm, CP star handle wall type taps	Not applicable
Sinks	Stainless steel, cabinet-mounted	20 mm CP star handle taps, 20 mm Cobra taps CP sink mixer with over arm swivel outlet	Flexi P-trap, lead P-trap
Wash tubs	Concrete double bowl	CP wall type taps	Lead P-trap

AD 02.02 SANITARY DRAINAGE PIPING: GENERAL

	PIPE	FITTINGS	EQUIPMENT
Gullies	VCP	CI or plastic grating	Not applicable
Waste pipes	GMS, uPVC	Brass, uPVC	Not applicable
Soil pipes	S&S CI, uPVC	S&S CI, uPVC	Not applicable
Cleaning eyes	CI (ABC), uPVC	Not applicable	Not applicable
Vent pipes	S&S CI	S&S CI	Not applicable

AD 02.03 DOMESTIC WATER PIPING: GENERAL

	PIPE	FITTINGS	EQUIPMENT
Cold-water piping	Cu	Conex, soldered	Brass gate shut-off valve
	GMS	GMS	Brass gate shut-off valve
Hot-water piping	Cu	Conex, soldered	Brass gate shut-off valve
	GMS	GMS	Brass gate shut-off valve

AD 02.04 FIRE WATER PIPING: GENERAL

	PIPE	FITTINGS	EQUIPMENT
Fire water piping	GMS, Cu	GMS, Conex soldered	See specifications

AD 02.05 FIRE WATER INSTALLATION QUANTITIES

The firefighting equipment currently installed is listed in Particular Specification PJC: Conventional Fire Fighting Equipment. The piped reticulation networks to these equipment items shall form part of this contract where applicable.

AD.03 STATUS OF EXISTING INSTALLATION

The status of the equipment and installation at the time of compilation of this document is summarised below:

AD 03.01 SANITARY AND BRASSWARE

The condition of sanitary and brassware varies between the different buildings and are therefore grouped as shown earlier.

- (a) Cisterns: some cisterns need to be replaced;
- (b) WHBs: numerous replacements, some are to be detained or re-enamelled;
- (c) Baths: Some are to be replaced, some are to be detained or re-enamelled;

- (d) Pillar, wall-mouthed and hose bib taps, sink mixers and under-tile stop cocks are to be serviced and replaced where necessary;
- (e) Some of the shower heads are to be replaced;
- (f) Domestic water geysers: those in working order are to be serviced and cleaned; some are to be replaced.

AD 03.02 PLUMBING AND DRAINAGE INSTALLATION

- (a) Some cleaning eyes to be replaced;
- (b) A number gully gratings are missing or broken;
- (c) Some gullies are blocked and requires cleaning;
- (d) Septic tanks are to be cleaned out;
- (e) Sewer pipes are to be unblocked;
- (f) Broken waste pipes are to be replaced;
- (g) Ventilation pipes are to be shortened; roofs repaired and vent valves installed.

AD.04 DETAILS OF REPAIR WORK

The following work shall form part of the repair work to Building Services. This work shall be done in accordance with the relevant regulations, codes, specifications and Technical Specification AA: Plumbing and Drainage Installations, as set out in this document. The work to be included is set out in AD 05.01 and AD 05.02 below and shall be read in conjunction with the Schedule of Quantities and Technical Specifications.

The repair work shall be carried out in accordance with the requirements of Additional Specification SC: General Decommissioning, Testing and Commissioning Procedures.

AD 04.01 GENERAL DESCRIPTION OF REPAIR WORK

AD 04.01.01 The Contractor shall at the start of the Repair and Maintenance Contract inspect the items, systems, equipment, components and installations listed below. This inspection shall involve the determination of any defects, leaks, damages, shortfalls, structural soundness, repairs required, details of existing equipment, suitability of equipment for the purpose it serves, etc. The Contractor shall report back to the Engineer in writing on all the above and the following items. No repair work shall commence prior to approval by the Engineer:

- (a) Sanitary and brassware, including traps, brackets, piping, pan connectors, etc;
- (b) Sanitary drainage installation, including fittings, traps, floor drains, gullies, cleaning eyes, manholes, grease and oil separators, etc;
- (c) Domestic water piped installation, including fittings, valves, strainers, lagging and cladding, non-return valves, safety valves, etc;
- (d) Fire water piped installation, including fittings, valves, non-return valves, pressure gauges, etc;
- (e) Bracketing system;
- (f) Domestic geysers including valves, pressure reducing valves, strainers, vacuum breakers, safety valves, non-return valves, lagging and cladding, etc.
- (g) Industrial geysers including valves, pressure reducing valves, strainers, vacuum breakers, safety valves, non-return valves, lagging and cladding, etc.

AD 04.01.02 The general scope of work at the time of going on tender is defined as follows:

- (a) Replacing of irreparably damaged, missing and unsuitable sanitary and brassware, including the isolation, removal and stripping of the existing equipment;
- (b) Replacing of irreparably damaged, corroded and unsuitable sanitary drainage piping, including fittings, brackets, traps, floor drains, oil and grease separators, cleaning eyes and gullies, etc;
- (c) Replacing of irreparably damaged, corroded and unsuitable domestic water piping, including fittings, brackets, valves, strainers, water meters, lagging and cladding, etc;
- (d) Replacing of irreparably damaged, corroded and unsuitable fire water piping, including fittings, brackets, valves, non-return valves, pressure gauges, etc;
- (e) Replacing of irreparably damaged and corroded domestic or industrial geysers, including valves, pressure-reducing valves, air release valves, strainers, non-return valves, vacuum breakers and safety valves;
- (f) Servicing, cleaning and repair of existing sanitary ware including removal of stains, repair of chipped enamel, replacing of damaged and missing seats and lids, de-scaling and cleaning of cisterns and servicing of filling and flushing mechanisms, fixing of loose fixtures and brackets, cleaning of traps, etc;
- (g) Servicing, overhauling and cleaning of existing brassware, including dismantling, de-scaling, repair kits, replacing of washers, gland packing and gaskets, replacing of missing tap handles and flushing assemblies, etc;
- (h) Servicing, cleaning and repair of existing domestic water and drainage pipe installations, including traps, floor drains, gullies, manholes, valve chambers, grease and oil separators, brackets, valves, vacuum breakers, strainers, pipe lagging and cladding, etc;
- (i) Servicing and repair of existing fire water piped reticulation, including fittings, valves, pressure gauges, brackets, etc;
- (j) Servicing, cleaning and repair of domestic geysers, including de-scaling, testing for leaks, replacing of elements, safety valves and thermostats if required, etc;
- (k) Handing over of complete systems on completion of the repair work to the satisfaction of the Engineer, when the maintenance period shall commence;
- (l) The supply and compilation of operating and maintenance manuals;
- (m) The testing, adjusting and commissioning of all systems;
- (n) The introduction of a maintenance control plan, including logging, recording and control procedures.

AD 04.02

REPAIR WORK TO PLUMBING AND DRAINAGE INSTALLATION

The repair work to this installation shall at least include, but not be limited to the work listed below. Any items, components or installations not detailed in particular but found to be defective or inoperative during the inspection and report phase, shall be repaired or replaced as instructed by the Engineer.

AD 04.02.01 Various Sites

- (i) Service and repair domestic hot and cold-water installations, including pressure testing of existing systems, and replace items that are beyond repair. Where necessary, replace entire system with capillary soldered copper pipe system.
- (ii) Service and repair drainage system, including rodding of system, and replace damaged
- (iii) or leaking pipes and fittings, manhole covers, cleaning and inspection eyes, gullies and gully gratings.
- (iv) Service and repair brassware, such as taps, stop-cocks and flushing mechanisms with repair kits, and replace items that are missing or beyond repair.
- (v) Service and repair sanitary ware, including chip repair, de-staining and re-coating of baths, WC bowls and wash hand basins, dent removal and de-staining of wash troughs and kitchen sinks and replacement of damaged or missing parts such as WC seats and lids and cistern lids. Replace missing or irreparably damaged equipment. The following replacement items shall be installed where required:
 - (1) Ceramic and Plastic cisterns
 - (2) Steel enamel bathtubs
 - (3) Stainless steel wash troughs
 - (4) Ceramic wash hand basins
- (vi) Service and repair domestic geysers, including de-scaling, testing for leaks, replacement of electrical heating elements if required, servicing or replacement of valves, or replace leaking and corroded geysers where necessary.

AD 05 MEASUREMENT AND PAYMENT

All new building work and repair work to existing structures and buildings necessitated by repairs to the plumbing and drainage services as scheduled, shall be done in accordance with the structural and building section of the Technical and Particular Specifications. The costs of such building and repair works shall be deemed to be included in the tendered rates for the applicable items as scheduled in this section.

AD 05.01. INSPECTION AND REPORT ON EXISTING INSTALLATIONS..... Unit: installation

The unit of measurement shall be the installation reported on.

The tendered rate for the installation shall include full compensation for the inspection and written report on all items, systems, components, equipment and installations, including the establishment of defects, leaks, damage, shortfalls, structural soundness, repairs required, details of existing equipment and suitability of the equipment for the purpose it serves.

AD 05.02. **ISOLATION, STRIPPING, DISMANTLING AND REMOVAL OF EXISTING BRASSWARE, SANITARY WARE AND PIPING INSTALLATIONS** Unit: number, metre

The unit of measurement shall be the number of each item of brassware and sanitary ware and metre of piping removed, including fixtures and fittings.

The tendered rates shall include full compensation for the isolation, dismantling and removal of irreparably damaged, broken and/or unsuitable brassware (flush valves, taps, mixers, shower roses, under tile stop-cocks, demand bib taps, hose bib taps, shut-off valves, etc) and sanitary ware (water closets, cisterns, basins, urinals, baths, wash troughs, sinks, etc) including all associated pipe work, brackets, traps, pan connectors, etc.

The tendered rates shall also include full compensation for the isolation, stripping, dismantling and removal of irreparably damaged, broken or unsuitable pipe work installed on surface, underground, chased into walls, in ceiling voids and/or service ducts, as well as the plugging off of connections to this pipe work.

The tendered rate shall also include full compensation for the removal off site and/or to storage of all removed items as mentioned above.

AD 05.03. **ISOLATION, STRIPPING, DISMANTLING AND REMOVAL OF EXISTING GEYSER INSTALLATIONS**..... Unit: number

The unit of measurement shall be the number of each geyser installation removed, including associated pipe work and fittings.

The tendered rates shall include full compensation for the isolation, stripping, dismantling and removal of irreparably damaged, broken and/or corroded domestic geysers, including shut-off valves, non-return valves, strainers, pressure-reducing valves, vacuum breakers, air release valves, safety valves, etc, and the removal off site.

AD 05.04. **SUPPLY AND INSTALLATION OF SANITARY WARE AND BRASSWARE** Unit: metre, number

The unit of measurement shall be the number of each item of sanitary and brassware supplied and installed, including all associated pipe work and fittings.

The tendered rate shall include full compensation for the supply, delivery, positioning, installation, testing, cleaning, commissioning and hand-over of sanitary and brassware including all necessary pipe work, traps, brackets, fittings, bends, junctions, cleaning eyes, etc, to connect the sanitary and brassware to the existing water supply and/or drainage installation.

The tendered rate shall also include full compensation for chasing and/or building into walls and the reinstating of existing surfaces such as floors, walls, ceilings, etc.

AD 05.05. SUPPLY AND INSTALLATION OF DRAINAGE

PIPINGUnit: metre

The unit of measurement shall be the metre of each type of piping in the installation supplied and installed, including all fixtures and fittings.

The tendered rates shall include full compensation for the supply, delivery, installation, testing, cleaning, commissioning and handover of new drainage piping, installed on surface against walls or soffits, underground, in ceiling voids, chased or built into walls and/or service ducts, including all necessary bends, junctions, tees, cleaning eyes, covers, traps, floor drains, gratings, brackets, hangers, etc, to hand over a complete and effective installation that complies with local government regulations.

The tendered rates shall also include full compensation for the necessary underground works such as excavation, pipe bedding, fill blanket, backfilling and compaction and for the reinstatement of existing surfaces such as floors, walls, ceiling, roads, paving, etc, as well as connection to the existing drainage installation.

AD 05.06. SUPPLY AND INSTALLATION OF DOMESTIC

WATER PIPINGUnit: metre

The unit of measurement shall be the metre of each type of piping in the installation supplied and installed, indicating all fixtures and fittings.

The tendered rates shall include full compensation for the supply, delivery, installation, testing, cleaning, sterilizing, commissioning and hand-over of new water piping installed on surface against walls or soffits, underground, in ceiling voids, chased or built into walls and/or in service ducts, including all necessary bends, tees, reducers, elbows, valves, strainers, adapters, brackets, hangers, etc, to hand over a complete and effective installation that complies with local government regulations.

The tendered rates shall also include full compensation for the supply and installation of hot-water pipe insulation and cladding.

The tendered rates shall also include full compensation for the necessary underground works such as excavation, pipe bedding, fill blanket, backfilling and compaction and for the reinstatement of existing surfaces such as floors, walls, ceilings, roads, paving, etc, as well as connection to the existing domestic water installation.

AD 05.07. SUPPLY AND INSTALLATION OF DOMESTIC

GEYSERUnit: number

The unit of measurement shall be the number of each geyser installation supplied and installed, including all associated pipe work and fittings.

The tendered rates shall include full compensation for the supply and installation of domestic geysers, including shut-off valves, non-return valves, strainers, pressure-reducing valves, vacuum breakers, air release valves, safety valves, etc, as well as connection to existing piping and electrical supply.

AD 05.08. SUPPLY AND INSTALLATION OF FIRE WATER

RETICULATION PIPEWORKUnit: metre

The unit of measurement shall be the metre of each type of pipe work supplied and installed in the firewater reticulation, including all fixtures and fittings.

The tendered rate shall include full compensation for the supply, delivery, installation, testing, cleaning, commissioning and hand-over of new fire water reticulation pipe work installed on surface against walls or soffits and/or underground, including all necessary bends, tees, reducers, elbows, valves, adapters, brackets, hangers, pressure gauges, etc, to hand over a complete and effective installation that complies with local government regulations.

The tendered rates shall also include full compensation for the necessary underground work such as excavation, pipe bedding, fill blanket, backfilling and compaction and for the reinstatement of existing surfaces such as floors, walls, ceilings, roads, paving, etc, as well as connection to the existing fire water reticulation network.

AD 05.09. SERVICING, CLEANING AND REPAIR OF
SANITARY WAREUnit: number

The unit of measurement shall be the number of each item of sanitary ware serviced, cleaned and repaired, including all associated pipe work and fittings.

The tendered rate shall include full compensation for the repair or replacement of all damaged or missing parts, servicing of all movable parts, cleaning of stained sanitary ware with approved cleaning agent, fixing of loose fixtures and brackets according to manufacturer's specifications, de-scaling and cleaning of cisterns and servicing of filling and flushing mechanisms; cleaning of all traps, fixing or replacing of damaged or missing shower, urinal and channel outlet gratings and any other work or action required to hand over an effective system that complies with local government regulations.

AD 05.10 SERVICING, OVERHAULING AND CLEANING
OF BRASSWAREUnit: number

The unit of measurement shall be the number of each item of brassware serviced, overhauled or cleaned, including all associated pipe work and fittings.

The tendered rate shall include full compensation for dismantling, cleaning and de-scaling, replacement of all gaskets, gland packing and seals on all valves, repair or replacement of all damaged or missing parts, replacement kits for worn or leaking flush valves, taps and mixers, repair or replacement of leaking, corroded or damaged flush pipes, readjusting of timing mechanisms on flush valves and metering taps and any other work or action required to hand over an effective system that complies with local government regulations.

AD 05.11. SERVICING, CLEANING AND REPAIR OF DOMESTIC WATER AND DRAINAGE
PIPE INSTALLATIONSUnit: number, metre, item

The unit of measurement shall be the metre of each type of pipe installation serviced, cleaned and repaired, including all fixtures and fittings.

The tendered rates shall include full compensation for inspection, sampling testing, servicing, cleaning and repair of existing piping and equipment such as:

- (a) Video surveying of all underground drainage pipe work to establish root ingress, damaged and corroded pipe work, fat build-up, blockages, incorrect falls, sagging and to provide as-built information;
- (b) Initial unblocking and cleaning of all drainage pipe work, traps, floor drains and gullies;
- (c) Pressure testing of piping and taking of water piping samples to determine state of corrosion and scaling;
- (d) Repair work to damaged manholes, gullies, cleaning eyes, valve chambers, etc, including builders' work and benching;
- (e) Repair of existing bracketing systems including fixing and repair of existing brackets and hangers, as well as the supply and installation of additional brackets where required;
- (f) Emptying, cleaning, checking, testing and repair of oil and grease separators;
- (g) Service and repair to all valves, strainers, pressure-reducing valves, water meters, non-return valves, air release valves and vacuum breakers, including new gaskets, gland packing and seals;
- (h) Taking of water samples and bacteriological testing to determine the compliance with the relevant codes of practice;
- (i) Repairing and/or replacement of damaged hot-water pipe lagging and cladding;
- (j) Preparation, painting and repainting of pipe work and;
- (k) Any other work or action to hand over an effective installation that complies with local government regulations.

AD 05.12. SERVICING, CLEANING AND REPAIR OF DOMESTIC GEYSERSUnit: number

The unit of measurement shall be the number of domestic geysers serviced, cleaned and repaired, including all fixtures and fittings.

The tendered rate shall include full compensation for the isolation, servicing, cleaning and repair of domestic geysers in accordance with the manufacturer's specifications, including de-scaling, testing for leaks, replacing of elements, replacement of safety valve and replacement of thermostat and set point, and replacement of connections if required and any other work or action to hand over an effective system that complies with local government regulations.

AD 05.13. SERVICING AND REPAIR OF FIRE WATER PIPED RETICULATION NETWORKSUnit: metre

The unit of measurement shall be the metre of each type of piping in the firewater network serviced and repaired, including all fixtures and fittings.

The tendered rates shall include full compensation for the inspection, testing, servicing and repair of existing piping and equipment such as:

- (a) Pressure testing of piping and taking of pipe samples to determine the extent of corrosion and scaling;
- (b) Repair or replacement of damaged, leaking, broken and corroded pipe work or fittings;
- (c) Repair and service to all valves, including new gaskets, gland packing and seals;
- (d) Repair, service, adjustment and calibration of all pressure gauges;

- (e) Repair and fixing of existing brackets and hangers and the installation of additional brackets and hangers where required;
- (f) Any other work or action to hand over an effective system that complies with local government regulations.

AD 05.14. CLEANING OUT SEPTIC TANKS AND DISPOSE OF CONTENTS OFF-SITEUnit: number

The unit of measurement shall be the number of septic tanks thoroughly cleaned and pumping the waste into a tanker and disposing of all the waste off site at a wastewater dumping area.

AD 05.15. SUPPLY AND INSTALLATION OF DOMESTIC GEYSERUnit: number

The unit of measurement shall be the number of each geyser installation supplied and installed, including all associated pipe work and fittings.

The tendered rates shall include full compensation for the supply and installation of industrial geyser installations including isolating lever-ball valves (from 22 to 50mm), 400kPa expansion relief valve, drain connection, overflow pipe, inline circulating pump (25mm), Temperature and pressure safety valve, electrical control panel, bulk hot water vessel, pump supply cable, dual thermostat, hot water outlet, y-strainer, pressure gauge, non-return valve, temperature gauge, balanced cold water and expansion valve stand pipe.

AD 05.16. SERVICING, CLEANING AND REPAIR OF INDUSTRIAL GEYSERSUnit: number

The unit of measurement shall be the number of industrial geysers serviced, cleaned and repaired, including all fixtures and fittings.

The tendered rate shall include full compensation for the isolation, servicing, cleaning and repair of industrial geysers in accordance with the manufacturer's specifications, including de-scaling, testing for leaks, servicing, checking or replacing of isolating lever-ball valves

(from 22 to 50mm), 400kPa expansion relief valve, drain connection, overflow pipe, inline circulating pump (25mm), Temperature and pressure safety valve, electrical control panel, dual thermostat, y-strainer, pressure gauge, non-return valve, temperature gauge, and any other work or action to hand over an effective system that complies with local government regulations.

AD 05.17. RE-INSTALLATION OF EXISTING GEYSER INSTALLATIONS AT LOCATION INDICATED BY ENGINEERUnit: number

The unit of measurement shall be the number of each geyser re-installed including associated pipe work and fittings.

The tendered rates shall include full compensation for the re-installation of the isolated domestic geysers, including servicing, cleaning and repair of domestic geysers in accordance with the manufacturer's specifications scaling, testing for leaks, replacing of elements, and replacement of thermostat and set point, replacement of two shut-off valves, non-return valve, strainer, two

vacuum breakers, safety valve and replacement pipe work not exceeding 10m from the previous location according to SANS specifications and any other work or action to hand over an effective system that complies with local government regulations.

AD 05.18. SUPPLY AND INSTALLATION OF DOMESTIC

GALVANISED GEYSER DRIP TRAYUnit: number

The unit of measurement shall be the number of each geyser drip tray installation supplied and installed, including isolation and re-installation of geyser.

The tendered rates shall include full compensation for the supply and installation of the geyser drip trays including isolation of geyser and re-installation of geyser on drip tray.

AD 05.19. SUPPLY AND INSTALLATION OF SOLAR POWERED

GEYSER INSTALLATIONUnit: number

The unit of measurement shall be the number of each solar powered geyser installations supplied and installed, including all associated pipework and fittings.

The tendered rates shall include full compensation for the supply and installation of solar powered geysers which shall include all solar storage tanks and solar collector panels, including shut-off valves, non-return valves, strainers, pressure-reducing valves, vacuum breakers, air release valves, safety valves, etc, as well as connection to existing piping, electrical, lagging & cladding supply.

AD 05.20 DETAILS OF MAINTENANCE WORK

AD 06 GENERAL

The Contractor shall be responsible for the complete maintenance of all the equipment, components, installations and systems forming part of this repair and maintenance contract and as set out in AD 03.05. The Contractor shall strictly adhere to Additional Specification SA: General Maintenance, and Technical Specification AA: Plumbing and Drainage Installations, with regard to the maintenance period, obligations, responsibilities, actions and activities, etc, which shall also include the following maintenance actions:

- (a) Routine preventative maintenance. A guideline to the required actions is provided in specification AA. The actions will not be limited to these guidelines, but shall include all additional actions, work, materials, etc. necessary to maintain this installation at an acceptable level.
- (b) Corrective maintenance as described and defined in Additional Specification SA: General Maintenance.
- (c) Breakdown maintenance as described and defined in Additional Specification SA: General Maintenance.

Fatal breakdown shall be defined as any equipment, components and systems preventing the supply of water to fire hydrants and fire hoses due to a failure of this system at the particular point of incident.



Emergency breakdown shall be defined as any equipment, components and systems preventing the provision of water and the drainage of the equipment to the consumer points due to a failure of part of this system at the particular point of incident.

AE. FENCING AND GATES

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AE.01 **SCOPE**

This specification covers the repair and maintenance of fencing and gates.

This specification shall form an integral part of the maintenance contract document and shall be read in conjunction with portion 3: Additional Specifications included in this document.

Where a particular specification has been included in the documents to supplement Technical Specification AE: Fencing and gates, this technical specification shall act as a guideline to the Particular Specification and, in the event of any discrepancies between the Technical Specification and the Particular Specification, the latter shall take precedence. The Contractor shall at all times adhere to this technical specification, unless otherwise specified in the applicable Particular Specification.

AE.02 **STANDARD SPECIFICATIONS**

AE 02.01 **GENERAL STANDARD SPECIFICATIONS, REGULATIONS AND CODES**

The latest edition, including all amendments up to date of tender, of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

- SANS 935 - Hot-dip (galvanised) zinc coatings (other than on continuously zinc-coated sheet and wire) (1988)
- SANS 675 - Zinc-coated fencing wires (plain and barbed) (1993)
- SANS 1373 - Chain-link fencing and its wire accessories (1983)

AE 02.02 **OCCUPATIONAL HEALTH AND SAFETY ACT OF 1993**

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act of 1993: Construction Regulations, 2003 as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003 shall be adhered to.

AE 02.03 **MANUFACTURERS' SPECIFICATIONS, CODES OF PRACTICE AND INSTALLATION INSTRUCTIONS**

All equipment and materials shall be installed, serviced and repaired strictly in accordance with the manufacturers' specifications, instructions and codes of practice.

AE 02.04 **MUNICIPAL REGULATIONS, LAWS AND BY-LAWS**

All municipal regulations laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

AE.03 **OPERATING AND MAINTENANCE MANUALS**

No operating and maintenance manuals will be developed for this section.

The Contractor shall use the Maintenance Control Plan (see SA Maintenance) to schedule routine preventative maintenance activities.

AE.04 **EXECUTION OF WORK**

The Contractor shall investigate and inspect all areas of the installation to confirm the extent of the repair work required and shall report to the Engineer. The Engineer will thereafter demarcate any areas to be repaired and shall instruct the Contractor with regard to the repair work to be done.

Any fencing work identified either by the Contractor or during inspection by the Engineer shall be carried out on the instruction of the Engineer.

The Contractor shall ensure that the necessary materials, skilled personnel, tools and equipment are available at all times to maintain the fences in a state of good repair.

The Engineer shall indicate where existing fences are to be moved to new locations, where new fences are to be erected, or where other repairs are necessary.

Whenever a part of the fence is taken down to repair/replace it, it will be replaced on the same day it has been taken down.

Unless otherwise instructed by the Engineer, similar type fencing material to that in the existing fence line shall be used where fences are to be repaired.

AE 04.01 **SCOPE OF WORK**

The scope of work has been divided into the following sections:

- (a) Perimeter fences at the various sites;
- (b) Residential fences of the residential areas, and
- (c) Other internal fences at the various sites.

AE 04.02 **CLEARING THE FENCE ROUTE**

The fence route shall be cleared over a width of at least 0,5 m on each side of the center line of the fence and surface irregularities shall be levelled so that the fence will follow the general contour of the ground.

The bottom of the fence shall be located at a uniform distance above the ground line, but no more than 50 mm.

AE 04.03 **INSTALLATION OF POSTS AND STANDARDS**

Posts shall be accurately set in holes and be provided with concrete bases to the dimensions specified.

Holes shall be dug to their full specified depth.

Posts shall be firmly planted into the ground at the same spacing as the existing posts or as instructed by the Engineer. The spacing of posts between any two straining posts shall be uniform.

AE 04.04 **ERECTING FENCE WIRES**

All fencing wire shall be wired to the sides of posts in order to prevent the wires from being displaced or becoming loose. The wire shall be carefully strained and hung without sag, and with true alignment, care being exercised not to strain the wire so tightly that it will break or that end, corner, straining or gate posts will be pulled up.

Each strand of fencing wire shall be securely fastened in the correct position to each post with soft galvanised binding wire.

Splices in the fencing wire shall be permitted if made in the following manner using a splice tool. The end of each wire at the splice shall be carried at least 75 mm past the splice tool and wrapped snugly around the other wire for not less than six complete turns, the two separate wire ends being turned in opposite directions. After the splice tool is removed, the space left by it in the splice wire shall be closed by pulling the wire ends together. The unused ends of wire shall be cut close so as to leave a neat splice.

AE 04.05 **ERECTING DIAMOND MESH OR WIRE NETTING**

Wire netting or diamond mesh shall be stretched against the fence and properly secured to the fencing wire. The diamond mesh or wire netting shall be secured by means of soft binding wire at 1,2 m centres along the top and bottom wires and at 3 m centres along each of the other fencing wires unless otherwise specified.

AE 04.06 **CLOSING OPENINGS UNDER FENCES**

At ditches, drainage channels or other hollows where it is not possible to erect the fence so that it follows the general contour of the ground, the Contractor shall cover the openings with wire netting or diamond mesh fixed to the fence.

AE 04.07 **EXISTING FENCES**

Where a new fence joins an existing fence, whether in line or at an angle, the new fence shall be erected with a new straining post positioned at the terminal of the existing fence.

Existing fences that require to be taken down or moved to a new location shall be dismantled. Material not required for re-erection or declared unsuitable for re-use shall be neatly stacked at approved locations in accordance with the Engineer's instructions.

AE 04.08 **GATES**

Gates shall be hung on gate fittings in accordance with the requirements specified. The gates shall be so erected that they swing in a horizontal plane at right angles to the gateposts, clear of the ground in all positions.

Double swing gates shall not leave a gap of more than 25 mm between them when closed and other gates shall not be further than 25 mm from the gatepost when closed. The clearance below the gates shall not exceed 75 mm with the gates closed.

AE 04.09 **REPAIRS TO FENCES**

In the case of fences that require repairing, the Contractor shall use new material as may be required to re-erect the fence to the standard specified.

AE 04.10 **ERECTING NEW FENCING MATERIAL**

All new material used to replace old material shall be similar to the old material replaced unless new material is specified by the Engineer.

AE.05 **QUALITY STANDARD**

The completed fences shall be plumb, taut, true to line and ground contour, with all posts, standard and stays firmly set.

The Contractor shall, on completion of each section of fence, remove all cut-offs and other loose wire or netting so as not to create a hazard to grazing animals or a nuisance to the owners of the ground.

AE.06 **MATERIALS**

AE 06.01 **POSTS**

AE 06.01.01 **Steel posts**

New posts or posts that need to be replaced shall be of the same type and size as the existing posts. Tubular posts shall be galvanised in accordance with SANS 763 for Class B1 articles.

Tubular stays shall have a minimal bore of at least 60 mm and a wall thickness of at least 2,95 mm. These stays shall be galvanised as specified in SANS 763.

AE 06.01.02 Wooden posts

New posts or posts that need to be replaced shall be of the same type and size as the existing posts. Wooden posts shall be treated in accordance with SANS 457 (Hazard class H4 articles), or as specified and shall have a minimum diameter of 50 mm.

AE 06.02 WIRE

AE 06.02.01 Barbed wire

Barbed wire shall comply with the requirements of SANS 675 and shall be one or more of the following types:

- (a) High-tensile grade, oval shaped, single-strand wire, 3,15 mm x 2,50 mm (2,81 mm equivalent diameter), and fully galvanised;
- (b) High-tensile grade, oval shaped, single-strand wire, 2,80 mm x 1,90 mm (2,31 mm equivalent diameter), fully galvanised (first class coating). This wire shall not be used less than 500 mm above ground where there is danger of grass fires;
- (c) Mild-steel grade, double strand, unidirectional twist wire, each strand 2,50 mm diameter, for use at any height above ground. The wire shall be fully galvanised;
- (d) Barbs shall be manufactured from 2,0 mm galvanised wire and shall be spaced at not more than 152 mm.

AE 06.02.02 Barbed tape coil

The product shall be fully galvanised and of high-tensile grade.

AE 06.02.03 Smooth wire

Smooth wire shall comply with the requirements of SANS 675 and shall be of the types specified below:

- (a) Straining wire shall be 4,0 mm diameter and fully galvanised.
- (b) Fencing wire shall be high-tensile grade, 2,24 mm diameter wire fully galvanised.
- (c) Tying wire shall be 2,50 mm diameter, mild steel, galvanised wire for tying fencing wire to standards and droppers, and 1,60 mm diameter, mild steel, galvanised wire for tying netting and mesh wire to fencing wire.

AE 06.03 DIAMOND MESH

- (a) Diamond mesh (chain-link) fencing shall comply with the requirements of SANS 1373. The edge finish shall be both sides clinched or barbed.
- (b) The nominal diameter of the wire shall be 2,5 mm and the mesh size shall be 64 x 64 mm.
- (c) The wire shall be fully galvanised.

AE 06.04 **WELDED MESH**

Wire netting shall be fully galvanised with mild steel wire with a minimum diameter of 1,8 mm and 75 mm mesh.

AE 06.05 **RAZOR MESH**

Razor mesh shall be welded with reinforcing shoulders and blade strips 8 mm wide galvanised steel, on 2.5 mm dia. galvanised wire.

Standard diamond aperture size shall be 150 mm x 300 mm center

to center. High density diamond aperture size shall be 75 mm x 150

mm center to center. Standard panel length shall be 6 m.

AE 06.06 **MANUFACTURING TOLERANCES FOR WIRE**

The actual diameter of wire supplied shall nowhere be less than the specified diameter by more than the following tolerances:

Specified diameter	Tolerance
1,00 - 1,8 mm	0,05 mm
2,00 - 2,8 mm	0,08 mm
3,15 - 4,0 mm	0,10 mm

AE 06.07 **GATES**

New gates or gates that need to be replaced shall be the same type and size as existing gates. Gates shall be galvanised in accordance with SANS 763 for class B1 articles.

AE 06.08 **HIGH SECURITY FENCE (HOTDIPPED GALVANISED**

Post - 3750 mm long x 100 mm x 70 mm x 8 mm angle iron posts. predrilled holes for fixing panels, including 2922 mm x 70 mm x 6 mm flat iron section predrilled holes for fixing mesh to posts using stainless steel M8 x 40 mm countersunk flush locks bolts 9 per cover plate. Include 20 Mpa/19mm stone concrete footing specified elsewhere. Fence to be equipped with bottom and top rails with predrilled holes for fixing to rail.

Panel - Heavy high security welded panel fence, with rectangular mesh liner apertures 72.2 mm x 8.7 mm wire diameter 4 mm vertical wires are welded on both sides of the

horizontal wires

Width of panel 3050 mm

Height of panel 2 995 m

Tensile strength 600 - 900 mm²

Weld strength 60 -80%

Weight 10 000 kg/m²

Coating: Calfan Class A Coated in accordance with SANS 10244-2-2003

AE 07 MAINTENANCE

This specification must be read in conjunction with Additional Specification:
General Maintenance.

All components of the fencing and gates infrastructure shall be maintained during the maintenance phase of the Contract.

The scope of the maintenance work for the fencing and gates infrastructure comprises the following:

Beitbridge Port of Entry:

- a) Maintenance of approximately 4500 m of perimeter fence and gates around the operational area consisting of 3,0 m high (100 X 50mm wide) welded mesh with Y type tubular posts and a 700mm Ø barb tape coil, with a 2.5m wide fire break on both sides;
- b) Maintenance of approximately 2000 m of perimeter fence and gates within the operational area consisting of 3,0 m high (100 X 50mm wide) welded mesh with Y type tubular posts and a 700mm Ø barb tape coil;
- c) Maintenance of approximately 5100 m of perimeter fence and gates for the pedestrian walk way of 3,0 m high (100 X 50mm wide) welded mesh with Y type tubular posts and a 700mm Ø barb tape coil;
- d) Maintenance of approximately 460 m of perimeter fence and gates for the waste water treatment works of 1.8 m high razor wire with 45o single overhang tubular posts and a 700mm flat wrap;
- e) Maintenance of approximately 1 200 m of perimeter fence and gates consisting of 1,8 m high diamond mesh with 45o angle barbed wire around residential area;
- f) Maintenance of approximately 1 200 m of perimeter fence and gates consisting of 1,2 m high diamond mesh around residential buildings.

The above description of the fencing and gates infrastructure to be maintained is not necessarily complete and shall not limit the maintenance work to be carried out by the Contractor under this contract.

Monthly maintenance responsibilities for each installation, including all units and components as specified, shall commence with access to the site. A difference shall be made in payment for the maintenance prior to and after practical completion of repair work.

Maintenance responsibilities of the completed installation shall commence upon the issue of a certificate of practical completion for repair work and shall continue for the remainder of the 36-month contract period.

Maintenance implies and shall include monthly routine preventative maintenance, corrective maintenance, as well as breakdown maintenance on all components of the specified installation. Maintenance shall include all repair work, replacing of components, fixing defects or any other actions or rectifying measures necessary for complete operation of the fencing installation, keeping the installation free of litter and any growth or any other element interfering with the function or integrity of the system.



Remuneration for maintenance of fencing will be deemed included in the monthly remuneration based on the point system, as tendered for maintenance of Installation: Fencing and Gates.

The following maintenance actions will be required under this contract:

- routine preventative maintenance
- corrective maintenance
- breakdown maintenance

These actions are defined in the Additional Specification SA – General Maintenance. The maintenance schedules and frequency of maintenance activities shall be developed under the maintenance control plan which will be instituted by the Contractor. The Contractor's responsibility in this regard is specified in the Additional Specification SA – General Maintenance.

SCOPE OF ROUTINE PREVENTIVE MAINTENANCE

The routine maintenance work to be performed and executed shall include, but not be limited to the items listed below. These actions and findings shall be logged and reported on the relevant approved schedules and reports.

Monthly maintenance

- (a) Clearing the 1m wide fence route.
- (b) Cleaning fire 5m wide fire break areas.
- (c) Inspect and report on the installation.
- (d) Inspect and repair any visible damages to the installation.
- (e) Corrosion protection on fencing, gates and tubular posts.
- (f) Inspect fence for tightness to straining wire and redress or repair if necessary.
- (g) Inspect tension of straining wires and repair if necessary.
- (h) Inspect gate hinges and repair or replace if necessary.

Annual maintenance

- (a) Paint all previously painted posts, stays, gates, and mesh fences
- (b) Tighten all straining wires
- (c) Tighten all straining bolts
- (d) Ensure alignment of all gates

AE 08 MEASUREMENT AND PAYMENT

AE 08.01 CLEARING THE FENCE ROUTE:

AE 08.01.01 1 m wide strip.....Unit: metre (m)

AE 08.01.02 5 m wide strip.....Unit: metre (m)

The unit of measurement for the clearing of the fence route shall be the metre of fence line measured along each fence line.

The tendered rate shall include full compensation for the clearing of the fence line as specified, including the removal of trees, stones, growth in the fences itself and other obstructions in the fence route and the disposal as directed of all material resulting from clearing operations.

AE 08.01.02 Extra over AE.01.01 for cleaning the area between double fences and road shoulders in residential areas (up to 2.5 m wide) Unit: square metre (m²)

The unit of measurement shall be the square metre of the area cleared between the two parallel fences of a double fence line, or between the edge of the road and the fence in residential areas. The measured area shall not include the 0,5m strips on the inside of each fence line of the double fence measured as part of AE.01.01

The tendered rate shall include full compensation for the clearing of the area as specified, including the removal of trees, stones and other obstructions and the disposal as directed of all material resulting from the clearing operations.

AE 08.02 SUPPLY AND ERECTION OF NEW FENCING MATERIAL TO REPLACE OLD MATERIAL:

(a) Barbed wire.....Unit: metre (m)

(b) Smooth wire.....Unit: metre (m)

(c) Diamond mesh.....Unit: square metre (m²)

(d) Barbed tape coil.....Unit: metre (m)

(e) Posts Unit: number

(f) Gates.....Unit: number

(g) Y-standards..... Unit: number

(h) Reinforced high density mesh fence including posts and concrete footing... Unit: number

(The tendered rate shall include full compensation for all overheads and transporting all labour, tools and materials from the Contractor's for installation of reinforced high density mesh fence as specified by the Engineer)

The quantity of material used shall be determined by measuring the quantities of individual items of material installed in the completed fence. No linear measure of completed fence shall be applicable. Clearing of the fence line will be paid for under item AE.01.

The payment for the installation of the fencing material shall include for the removal of the existing fencing material including removal of concrete footings for fence posts.

The applicable units of measurement are as follows:

(a) Fencing wire

The unit of measurement shall be the metre of each type of fencing wire measured in place and between end posts. Binding wire and wire used for bracing and anchoring of posts shall not be measured for payment.

(b) Diamond mesh

The unit of measurement shall be the linear metre of diamond mesh replaced and the quantity shall be calculated using the prescribed length between straining posts or gate posts, or the length of strips for covering openings under fences, or the length used for the covering of gates.

(c) Posts

The unit of measurement shall be the number of posts, as follows:

All straining posts erected in accordance with the maximum specified spacing or such lesser spacing as authorised by the Engineer, all corner and gateposts authorised by the Engineer and all end posts. Gateposts for new gates shall not be measured for payment.

(d) Gates

The unit of measurement shall be the number of each type of gate repaired or replaced.

AE 08.03 REPAIR OF FENCESUnit: metre (m)

The unit of measurement shall be the metre of each type of existing fence repaired as instructed by the Engineer.

The tendered rate shall include full compensation for all overheads and transporting all labour, tools and materials from the Contractor's base to the point of repair.

The tendered rate shall also include full compensation for all labour, tools, binding and tying wire for repairing the fence.

The cost for procurement of materials needed shall be paid for under item AE.02.

AE. 08.04 REDRESS, TREAT AND PAINTING OF FENCEUnit: metre (m)

The unit of measurement for the redressing, treating and painting the fence line shall be the metre of fence line measured along each fence line.

The tendered rate shall include full compensation for performing minor repairs, treating the existing fence with an approved rust remover/inhibitor and then applying cold galvanising as specified by the Engineer.

AE 08.05 TREATING AND PAINTING OF POSTS AND STANDARDS.....Unit: number



The unit of measurement shall be the number of posts and standards treated and painted along the fence line.

The tendered rate shall include full compensation for predetermining minor repairs, including sanding, treating the existing posts and standards with an approved rust remover/inhibited and then applying cold galvanising as specified by the Engineer.

**AE 08.06
number**

REPAIR, RE-FIXING AND ALIGNING OF GATES Unit:

The unit of measurement shall be the number of each type of existing gate repaired as instructed by the Engineer.

The tendered rate shall include full compensation for all overheads and transporting all labour, tools and materials from the Contractor's base to the point of repair.

The tendered rate shall also include full compensation for all labour, tools, binding and tying wire for repairing the fence.

The tendered rate shall also include full compensation replacement of hinges, bolts, catches, wheels and all other fixtures necessary to repair and refix gates into the original position including aligning the gate to ensure proper opening and closing of the gate.

AF. SITE KEEPING AND CLEANING

CONTENTS

AF 01	SCOPE
AF 02	STANDARD SPECIFICATIONS
AF 03	EXECUTION OF REPAIR WORK
AF 04	MAINTENANCE
AF 05	MEASUREMENT AND PAYMENT

AF 01 SCOPE

This specification covers the cleaning and site keeping of the facilities at the various installations. The scope of work has been divided into:

- Site-keeping; and
- Cleaning of offices and support facilities

AF 01.01 SITE KEEPING

The area where site keeping is to be performed is the area included within the perimeter fence of the applicable installation and all areas falling within fenced-in residential properties (See Table AF 01.01). Site keeping will include removal of rubble, removal of weeds, shrubs and other objects and cutting of the grass.

AF 01.01.01 TABLE: OPEN AREAS

TABLE AF 01.01.01: BUILDINGS AND AREAS

NO	LOCATION	CODE	AREA	DESCRIPTION
1	Office Buildings:			
1.1	One building used by Customs, SAPS and Immigration officials.		1154m ²	No. of rooms: 76 <input type="checkbox"/> Vinyl floor tiles, screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are plastered and painted with face brick areas Interior walls are plastered & painted <input type="checkbox"/> approx. 160 m ² windows
1.2	One building used by SARS		786m ²	<input type="checkbox"/> No. of rooms: 24 <input type="checkbox"/> Vinyl floor tiles, screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are face brick <input type="checkbox"/> Interior walls are plastered & painted <input type="checkbox"/> approx. 120 m ² windows



1.3	One building used by SAPS and Agriculture	172m ²	<input type="checkbox"/> No. of rooms: 16 <input type="checkbox"/> Vinyl floor tiles, screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are plastered & painted with face brick areas <input type="checkbox"/> Interior walls are plastered & painted <input type="checkbox"/> approx. 24 m ² windows
1.4	One building used by SAPS Vehicle Theft Unit	145m ²	<input type="checkbox"/> No. of rooms: 13 <input type="checkbox"/> Vinyl floor tiles, screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are face brick <input type="checkbox"/> Interior walls are plastered and painted <input type="checkbox"/> Approx. 20 m ² windows
1.5	One building used by SAPS Logistical Support	109m ²	<input type="checkbox"/> No. of rooms: 8 <input type="checkbox"/> Vinyl floor tiles, screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are face brick <input type="checkbox"/> Interior walls are plastered and painted <input type="checkbox"/> Approx. 16 m ² windows
1.6	One building used by SAPS Auxiliary	133m ²	<input type="checkbox"/> No. of rooms: 7 <input type="checkbox"/> Vinyl floor tiles, screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are face brick <input type="checkbox"/> Interior walls are plastered and painted <input type="checkbox"/> Approx. 19 m ² windows
1.2	Generator rooms:		
	1) Substation 1	59 m ²	<input type="checkbox"/> No of rooms: 4 <input type="checkbox"/> 52 m ² floor screed with epoxy paint <input type="checkbox"/> Exterior walls: Face Brick <input type="checkbox"/> Interior walls: Plastered & painted
	2) Substation 2	28 m ²	No of rooms: 1 <input type="checkbox"/> 26 m ² floor screed with epoxy paint <input type="checkbox"/> Exterior walls: Face Brick <input type="checkbox"/> Interior walls: Plastered & painted
1.3	Ablutions:		
	1) Commercial Ablution	20 m ²	No. of rooms: 4 <input type="checkbox"/> Floors include screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are face brick <input type="checkbox"/> Interior walls are plastered and painted <input type="checkbox"/> Approx. 3 m ² windows
	2) North Gate Ablution	47 m ²	<input type="checkbox"/> No. of rooms: 6 <input type="checkbox"/> Floors include screeds and ceramic

	3) Ablution Outbound	56 m ²	<p>floor tiles</p> <ul style="list-style-type: none"> <input type="checkbox"/> Exterior walls are face brick <input type="checkbox"/> Interior walls are plastered and painted <input type="checkbox"/> Approx. 7 m² windows <p><input type="checkbox"/> No. of rooms: 3</p> <ul style="list-style-type: none"> <input type="checkbox"/> Floors include screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are face brick <input type="checkbox"/> Interior walls are plastered and painted <input type="checkbox"/> Approx. 8 m² windows
	4) Passenger Ablution	34 m ²	<ul style="list-style-type: none"> <input type="checkbox"/> No. of rooms: 3 <input type="checkbox"/> Floors include screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are face brick <input type="checkbox"/> Interior walls are plastered and painted <input type="checkbox"/> Approx. 5 m² windows
	5) Pool Ablution	11 m ²	<ul style="list-style-type: none"> <input type="checkbox"/> No. of rooms: 3 <input type="checkbox"/> Floors include screeds and ceramic floor tiles <input type="checkbox"/> Exterior walls are face brick <input type="checkbox"/> Interior walls are plastered and Painted <input type="checkbox"/> Approx. 2 m² windows
1.4	Light Vehicle Inspection: Two buildings	56m ²	<ul style="list-style-type: none"> <input type="checkbox"/> No. of rooms: 4 <input type="checkbox"/> Flooring: Vinyl and ceramic floor tiles and screed <input type="checkbox"/> Exterior walls: face brick <input type="checkbox"/> Interior walls: plastered, painted and tiled <input type="checkbox"/> Approx. 7 m² windows
1.5	Pedestrian Inspection One building	11 m ²	<ul style="list-style-type: none"> <input type="checkbox"/> No. of rooms: 1 <input type="checkbox"/> Flooring: Screed <input type="checkbox"/> face brick <input type="checkbox"/> Interior walls: plastered, painted and tiled <input type="checkbox"/> Approx. 10 m² windows
1.6	Water works building One building	15 m ²	<ul style="list-style-type: none"> <input type="checkbox"/> No. of rooms: 2 <input type="checkbox"/> Screed floor <input type="checkbox"/> Exterior walls: face brick <input type="checkbox"/> Interior walls: plastered & painted <input type="checkbox"/> 2 m² windows
1.7	Sewer works building One building	24 m ²	<ul style="list-style-type: none"> <input type="checkbox"/> No. of rooms: 2 <input type="checkbox"/> Screed floor <input type="checkbox"/> Exterior walls: face brick <input type="checkbox"/> Interior walls: plastered & painted <input type="checkbox"/> 2 m² windows



1.8	Cargo release building One building	52 m ²	<input type="checkbox"/> No. of rooms: 6 <input type="checkbox"/> Screed floor <input type="checkbox"/> Exterior walls: face brick <input type="checkbox"/> Interior walls: plastered & painted <input type="checkbox"/> 8 m ² windows
1.9	Commercial Inspection Outbound One building	216 m ²	<input type="checkbox"/> No. of rooms: 6 <input type="checkbox"/> Screed floor, carpet and vinyl floor tiles <input type="checkbox"/> Exterior walls: face brick <input type="checkbox"/> Interior walls: face brick with plastered & painted areas <input type="checkbox"/> 8 m ² windows
1.10	Commercial Inspection Inbound One building	1020 m ²	<input type="checkbox"/> No. of rooms: 6 <input type="checkbox"/> Screed floor, carpet and vinyl floor tiles <input type="checkbox"/> Exterior walls: face brick Interior walls: face brick with plastered & painted areas <input type="checkbox"/> 8 m ² windows
1.11	Commercial Warehouse One building	1115 m ²	<input type="checkbox"/> No. of rooms: 6 <input type="checkbox"/> Screed floor, carpet and vinyl floor tiles <input type="checkbox"/> Exterior walls: face brick <input type="checkbox"/> Interior walls: face brick with plastered & painted areas <input type="checkbox"/> 8 m ² windows
1.12	Gate Houses Five separate buildings	8 m ² each	<input type="checkbox"/> No. of rooms: 1 each <input type="checkbox"/> Exterior walls: face brick Interior walls: face brick with plastered & painted areas <input type="checkbox"/> 2 m ² windows each
1.13	Cell Block One building	42 m ²	<input type="checkbox"/> No. of rooms: 4 <input type="checkbox"/> Screed floor <input type="checkbox"/> Exterior walls: face brick <input type="checkbox"/> Interior walls: face brick with plastered & painted areas <input type="checkbox"/> 6 m ² windows
1.14	Pool Building One building	42 m ²	<input type="checkbox"/> No. of rooms: 2 <input type="checkbox"/> Screed floor <input type="checkbox"/> Exterior walls: plastered & painted <input type="checkbox"/> Interior walls: plastered & painted <input type="checkbox"/> 4 m ² windows
1.15	Bulk water Pump Room One building	66 m ²	<input type="checkbox"/> No. of rooms: 2 <input type="checkbox"/> Screed floor <input type="checkbox"/> Exterior walls: plastered & painted <input type="checkbox"/> Interior walls: plastered & painted <input type="checkbox"/> 5 m ² windows

1.16	Barracks One building	500 m ²	<input type="checkbox"/> No. of rooms: 9 <input type="checkbox"/> Screed floor <input type="checkbox"/> Exterior walls: face brick (Interior walls: face brick with plastered & painted areas) <input type="checkbox"/> 72 m ² windows
	OPEN AREAS		
1	Beitbridge Port of Entry Open areas (Site Keeping)	263 000 m ²	All areas within the perimeter fence, including areas within residential fences. The areas between the vehicle and pedestrian bridges and the open area next to the Border line base.
	HOUSES ON PORT		
	All repairs and maintenance at 29 Houses on Port		All areas within the perimeter fence, including areas within residential fences.
	HOUSES IN TOWN		
	All repairs and maintenance at 28 Houses Musina Town		All areas within the perimeter fence, including areas within residential fences.

HOUSING IN MUSINA TOWN

BUILDING CODE	BUILDING NAME	CLUSTER REF No.	FOOT PRINT AREA	NO. OF ROOMS
A105	SAPS Barracks	CS1	100m ²	36
A202	House 06	RS1	-	7
A203	House 06 Outbuilding	RS1	1166m ²	2
A204	House 07	RS1	138m ²	7
A205	House 07 Outbuilding	RS1	180m ²	2
A206	House 08	RS1	1125m ²	7
A207	House 08 Outbuilding	RS1	100m ²	2
A211	House 09	RS1	40m ²	7
A212	House 09 Outbuilding	RS1	120m ²	2
A213	House 10	RS1	185m ²	7
A214	House 10 Outbuilding	RS1	180m ²	2
A215	House 11	RS1	32m ²	7
A216	House 11 Outbuilding	RS1	1020m ²	2
A217	House 12	RS1	27m ²	9
A218	House 12 Outbuilding	RS1	-	2
A220	House 13 Outbuilding	RS1	120m ²	9
A221	House 14	RS1	-	2
A222	House 14 Outbuilding	RS1	128m ²	8
A223	House 14 Carport	RS1	140m ²	2
A225	House 18 Outbuilding	RS1	-	8
A226	House 17	RS1	-	2
A227	House 17 Outbuilding	RS1	185m ²	8

A228	House 16	RS1	-	2
A229	House 16 Outbuilding	RS1	120m ²	8
A230	House 15	RS1	32m ²	1
A231	House 15 Outbuilding	RS1	100m ²	8
A232	House 20	RS1	140m ²	2
A233	House 20 Outbuilding	RS1	119m ²	8
A234	House 21	RS1	-	2
A235	House 21 Outbuilding	RS1	35m ²	9
A236	House 22	RS1	140m ²	1
A237	House 22 Outbuilding	RS1	28m ²	9
B101	South gate departure	CS1	20m ²	2
B202	House 1 Outbuilding	RS1	150m ²	9
B203	House 02	RS1	40m ²	1
B204	House 02 Outbuilding	RS1	150m ²	9
B205	House 03	RS1	50m ²	1
B206	House 03 Outbuilding	RS1	170m ²	9
B207	House 29	RS1	30m ²	2
B208	House 28	RS1	140m ²	5
B209	House 27	RS1	50m ²	5
B210	House 26	RS1	11m ²	5
B211	House 25	RS1	58m ²	5
B212	House 24	RS1	32m ²	5
B213	House 23	RS1	-	5
B214	House 04	RS1	206m ²	5
B215	House 04 Outbuilding	RS1	108m ²	7
B216	House 04 Garage	RS1	80m ²	1
B217	House 19	RS1	80m ²	1
B218	House 01 Outbuilding	RS1	80m ²	-
B219	House 05	RS1	80m ²	1
B220	House 05 Outbuilding	RS1	80m ²	8
B221	House 05 Garage	RS1	80m ²	1
D101	1 Willem Smit	RS2	100m ²	-
D101A	1 Willem Smit Outbuilding	RS2	22m ²	-
D102	3 Willem Smit	RS2	100m ²	10
D102A	3 Willem Smit Outbuilding	RS2	22m ²	2
D103	1 Kremetart	RS2	100m ²	7
D103A	1 Kremetart Outbuilding	RS2	22m ²	2
D104	6 Kremetart	RS2	100m ²	7
D104A	6 Kremetart Outbuilding	RS2	22m ²	2
D105	7 Kremetart	RS2	100m ²	7
D105A	7 Kremetart Outbuilding	RS2	22m ²	2
D106	11 Kremetart	RS2	100m ²	7
D106A	11 Kremetart Outbuilding	RS2	22m ²	2
D107	33 Kremetart	RS2	100m ²	7
D107A	33 Kremetart Outbuilding	RS2	22m ²	2
D108	39 Kremetart	RS2	100m ²	7

D108A	39 Kremetart Outbuilding	RS2	22m ²	2
D109	41 Kremetart	RS2	100m ²	7
D109A	41 Kremetart Outbuilding	RS2	22m ²	2
D110	43 Kremetart	RS2	100m ²	7
D110A	43 Kremetart Outbuilding	RS2	22m ²	2
D111	48 Kremetart	RS2	100m ²	7
D111A	48 Kremetart Outbuilding	RS2	22m ²	2
D112	54 Kremetart	RS2	100m ²	7
D112A	54 Kremetart Outbuilding	RS2	22m ²	2
D113	3 Sering Crescent	RS2	100m ²	7
D113A	3 Sering Crescent Outbuilding	RS2	22m ²	2
D114	4 Sering Crescent	RS2	100m ²	7
D114A	4 Sering Crescent Outbuilding	RS2	22m ²	2
D115	5 Sering Crescent	RS2	100m ²	7
D115A	5 Sering Crescent Outbuilding	RS2	22m ²	2
D116	8 Sering Crescent	RS2	100m ²	7
D116A	8 Sering Crescent Outbuilding	RS2	22m ²	2
D117	11 Sering Crescent	RS2	100m ²	7
D117A	11 Sering Crescent Outbuilding	RS2	22m ²	2
D118	13 Sering Crescent	RS2	100m ²	7
D118A	13 Sering Crescent Outbuilding	RS2	22m ²	2
D119	15 Sering Crescent	RS2	100m ²	7
D119A	15 Sering Crescent Outbuilding	RS2	22m ²	2
D120	18 Sering Crescent	RS2	240m ²	7
D120A	18 Sering Crescent Outbuilding	RS2	40m ²	2
D121	21 Sering Crescent	RS2	320m ²	7
D121A	21 Sering Crescent Outbuilding	RS2	40m ²	2
D122	27 Sering Crescent	RS2	265m ²	7
D122A	27 Sering Crescent Outbuilding	RS2	40m ²	2
D123	29 Sering Crescent	RS2	240m ²	7
D123A	29 Sering Crescent Outbuilding	RS2	40m ²	2
D124	31 Sering Crescent	RS2	160m ²	7
D124	31 Sering Crescent Outbuilding	RS2	40m ²	2
D125	39 Sering Crescent	RS2	240m ²	7
D125A	39 Sering Crescent Outbuilding	RS2	40m ²	2
D126	41 Sering Crescent	RS2	80m ²	7
D126A	41 Sering Crescent Outbuilding	RS2	40m ²	2

D127	12 Kerk	RS2	240m ²	8
D127A	12 Kerk Outbuilding	RS2	100m ²	2
D128	16 Kerk	RS2	22m ²	10
D128A	16 Kerk Outbuilding	RS2	120m ²	3
D129	17 Van Zyl	RS2	100m ²	11
D129A	17 Van Zyl Outbuilding	RS2	-	3
D130	40 Paul Mills	RS2	240m ²	9
D130A	40 Paul Mills Outbuilding	RS2	-	3
D131	44 Paul Mills	RS2	-	9
D131A	44 Paul Mills Outbuilding	RS2	-	2
D132	9 Ds Henrico	RS2	-	9
D132A	9 Ds Henrico Outbuilding	RS2	-	2
D133	23 Irwin Street	RS2	-	5
D133A	23 Irwin Street Outbuilding	RS2	40m ²	3
D134	54 Irwin Street	RS2	30m ²	11
D135	2 Rooibos Crescent	RS2	52m ²	7
D135A	2 Rooibos Crescent Outbuilding	RS2	848m ²	2
D136	8 Rooibos Crescent	RS2	-	9
D138	33 Sekelbos Crescent	RS2	20m ²	-
D139	6 Murphy Street	RS2	14m ²	-

Note: Site Information list of areas/buildings for scope of works.

Scope of Work not limited to list above. other areas/ building can be included not listed.

AF 01.02 CLEANING OF OFFICES AND SUPPORT FACILITIES

All offices, ablutions and support buildings are to be cleaned and maintained in a sanitary condition at all times.

AF 01.03 ABLUTION EQUIPMENT AND CLEANING AGENTS

All offices, ablutions and support buildings are equipped with sanitizing and abluion equipment which must be maintained at all times. The following indicates the equipment that must be maintained in working order as well as providing of consumables such as toilet paper, hand-wash soap, air fresheners refills, sanitizer refills and plastic refuse bags for all waste bins and sanitary bins which will be the responsibility of the Contractor.

AF 02 STANDARD SPECIFICATIONS

AF 02.01 GENERAL STANDARD SPECIFICATIONS, REGULATIONS AND CODES

The latest edition, including all amendments up to date of tender, of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof.

CODE	DESCRIPTION
CKS 285-1971	Dispensers for paper towels
CKS 340-1979	Plastic Refuse Bags (Disposable)
SANS 1344:2009	Medium duty solvent detergent
SABS 1868	Gel detergent cleaner (non-abrasive)
SANS 1887-1:2008	Tissue paper Part 1: General requirements
SANS 1887-2:2008	Tissue paper Part 2: Toilet paper
SANS 1887-4:2008	Tissue paper Part 4: Paper towels
SANS 1924:2007	Toilet soaps intended for use in dispensers
SANS 60335-1:2007	Household and similar electrical appliances – Safety Part 1: General requirements
SANS 60335-2-67:2003	Household and similar electrical appliances – Safety Part 2-67: Particular requirements for floor treatment and floor cleaning machines, for industrial and commercial use

AF 02.02 OCCUPATIONAL HEALTH AND SAFETY ACT OF 1993

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act of 1993: Construction Regulations, 2003 as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003 shall be adhered to.

AF 02.03 MANUFACTURERS' SPECIFICATIONS, CODES OF PRACTICE AND INSTALLATION INSTRUCTIONS

All equipment and materials shall be installed, serviced and repaired strictly in accordance with the manufacturer's specifications, instructions and codes of practice.

AF 02.04 MUNICIPAL REGULATIONS, LAWS AND BY-LAWS

All municipal regulations laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

AF 03 EXECUTION OF WORK

AF 03.01 GENERAL

The Contractor shall ensure that the necessary materials, skilled personnel, tools and equipment are available at all times to accommodate the site keeping and cleaning of the facilities.

The Contractor shall be responsible for cleaning ablution facilities as frequently as necessary to maintain them in a clean and healthy condition. The actions outlined serve only as a benchmark for the cleaning and maintaining of the facilities.

The ablution facilities and operational buildings will be kept clean during the operational periods of the Port of Entry as indicated below:

(i) Beitbridge Port of Entry is operational for 24 hours a day 7 days a week.

Cleaning activities will include providing all cleaning agents and equipment necessary for cleaning.

Providing of consumables such as toilet paper, hand-wash soap, air fresheners refills, sanitizer refills and plastic refuse bags for all waste bins and sanitary bins will be the responsibility of the Contractor.

AF 03.02 ABLUTIONS

Each ablution facility shall be equipped with the following equipment:

- 1) Hand Dryer
- 2) Stainless steel air freshener
- 3) Stainless steel toilet paper dispenser units
- 4) Stainless steel she bins
- 5) Stainless steel hand soap dispensers
- 6) Stainless steel sanitizer
- 7) Stainless steel paper towel dispenser
- 8) Stainless steel wall bin

AF 03.02.01 Hand Dryer

The hand dryer unit shall comply with at least the following specifications:

- Blower Output: 450 Watt @ 20,000 rpm
- Air Heater Output: 900 W
- Air Flow Rate: 81 metre per second @ 100 mm from the air outlet nozzle
- Air Temperature: 55 °C @ 100 mm from the air outlet nozzle.

The hand dryers units shall be of the wall mounted kind and shall be installed in accordance with the manufacturer's specifications.

AF 03.02.02 Air Freshener Doser

The stainless-steel air freshener dosing units shall be battery operated, wall mounted and lockable. The device shall possess an adjustable automatic timer between at least 5 to 30 minutes and the aerosol spray shall be metered.

AF 03.02.03 Toilet Paper Dispensing Unit

The stainless-steel toilet paper dispensing units shall be able to accommodate two standard size 500 sheet single-ply toilet paper rolls and shall be lockable. The device shall be wall mounted.

AF 03.02.04 She Bin

One stainless steel she bin shall be supplied for each of the female ablutions. The she bins shall possess a self-closing lid and shall accommodate for plastic bag liners which can be removed and replaced with a new liner.

AF 03.02.05 Hand Soap Dispenser

There shall be at least one stainless steel liquid hand soap dispenser per ablution. The liquid soap dispenser shall be of the wall mounted kind. The dispenser shall dispense a metered amount of liquid soap.

AF 03.02.06 Urinal Sanitiser Dispenser

There shall be one stainless steel, battery operated, wall mounted, urinal sanitiser dispenser per urinal.

AF 03.02.07 Paper Towel Dispenser

The paper towel dispenser shall comply with CKS 285-1971. The unit shall be a Type 2, closed dispenser designed to dispense paper towels in sheets.

There shall be at least one stainless steel wall mounted paper towel dispenser per ablution.

AF 03.02.08 Wall Bin

There shall be one stainless steel wall bin per ablution. The wall bin shall possess a self-closing lid and shall accommodate for plastic bag liners which may be removed and replaced with a new liner. The device shall be wall mounted.

AF 04 MAINTENANCE

AF 04.01 GENERAL

The maintenance work to be performed under site keeping and cleaning shall be done strictly in accordance with Additional Specification SA: General Maintenance, and as specified in this specification.

Maintenance implies and shall include routine cleaning (which is the equivalent of routine preventative maintenance), routine preventative maintenance of site keeping and cleaning equipment, corrective cleaning (which is the equivalent of corrective maintenance), corrective maintenance of site keeping and cleaning equipment as well as breakdown maintenance of all site keeping and cleaning equipment.

The maintenance scope in terms of site keeping is set out in table AF 01.01.01.

The maintenance scope in terms of cleaning is set out in table AF 01.02

The maintenance scope in terms of equipment is set out in table AF 01.03.

Monthly maintenance responsibilities for site keeping and cleaning of installations shall commence with access to the site. The maintenance schedules and frequency shall be developed under the maintenance control plan to be implemented by the Contractor.

Remuneration for maintenance of site keeping and cleaning will be deemed included in the tendered monthly payment for maintenance based on the point system, as described in Additional Specification SA: General Maintenance and in accordance with installation: A4: Cleaning and Site Keeping.

AF 04.02 **ROUTINE PREVENTATIVE MAINTENANCE**

The tasks related to routine preventative maintenance work shall include but not be limited to the general actions listed in table AF 04.02.01 and AF 04.02.01 and AF 04.02.03 below.

Please note that the operational times for the Port of Entry is from as follows

- (i) Beitbridge Port of Entry is operational for 24 hours a day 7 days a week.

TABLE AF 04.02.01: SITE KEEPING

No	ROUTINE PREVENTATIVE MAINTENANCE TASKS	FREQUENCY
1.	Cleaning out of and supply of black refuse bags to all waste bins in public areas.	At least daily
2.	Watering of plants, shrubs, grass and trees	Weekly
3.	Removal of weeds	Weekly
4.	Clearing of weeds and grass along the edges of paved areas.	Weekly
5.	Cutting of grass. No grass to exceed the length of 50 mm.	Monthly
6.	Cutting of grass at residential units. No grass to exceed the length of 30 mm.	Weekly
7.	Restore lawns	Monthly
8.	Trimming of dense shrubs.	2 Monthly
9.	Fertilisation of lawns	Quarterly
10.	Fertilisation of flower beds and trees	Quarterly
11.	Removal of undesirable shrubs	Quarterly
12.	Trimming of trees where branches cause obstruction.	Quarterly
13.	Collecting of litter and foreign objects.	Continuous

TABLE AF 04.02.02: CLEANING OF OFFICES AND SUPPORT FACILITIES

	ACTION	FREQUENCY
1.	Cleaning of floors in public areas and open plan offices	Daily (before opening of port of entry)
2.	Cleaning of counter tops and under counter shelves in public areas and open plan offices.	Daily (before opening of port of entry)
3.	Emptying of waste baskets in offices and service buildings	Daily
4.	Cleaning of office floors	Daily
5.	Vacuum carpets	Weekly
6.	Clean carpets	Six Monthly
7.	Washing of windows and dusting of window sills and ledges	Weekly
8.	Clean and polish all fittings	Weekly
9.	Washing of interior and exterior walls	Monthly
10.	Dusting of interior of the building to remove dust and spider webs	Weekly
8.	Clean and polish all vinyl floors	Monthly

TABLE AF 04.02.03: CLEANING OF ABLUTION FACILITIES

	ACTION	FREQUENCY
1.	Cleaning and ensuring that the ablution facilities are in a sanitary condition	Continuous
2.	Washing and cleaning of floors	Daily
3.	Empty and clean all waste receptacles	Daily
4.	Clean all bowls, basins and urinals	Daily
5.	Clean and polish all fittings and mirrors	Daily
6.	Washing and cleaning out of the bins	Twice weekly
7.	Washing of windows and dusting of window sills, ledges, pipes and fittings	Weekly
8.	Washing of walls	Weekly
9.	Dusting of interior of the building to remove dust and spider webs	Weekly

AF 04.03 **SITE KEEPING AND CLEANING EQUIPMENT**

All site keeping and cleaning equipment will be supplied by the Contractor and shall be maintained in a perfect working order for the duration of the Contract period. Remuneration for provision of cleaning equipment will be deemed included in the monthly tendered monthly payment for maintenance based on the point system, as described in Additional Specification SA: General Maintenance.

AF 04.03.01 **Grass, Shrub and Tree Cutting Equipment**

Distinction will be made amongst 4 different types of grass, shrub and tree cutting equipment:

1. Light duty grass and shrub cutter (Weed Eater)

The light duty grass and shrub cutter shall be similar to a light duty Brush cutter and comply with the following:

Nylon or blade head;
Minimum displacement of 40.2 cm³; Minimum power output of 1.6 kW; and Length of 1.77 m.

2. Heavy duty shrub and tree cutter

The heavy-duty shrub and tree cutter shall be similar to a heavy-duty Brush cutter and comply with the following:

Blade head;
Minimum displacement of 51.7 cm³; Minimum power output of 2.4 kW; Length of 1.69 m.

3. Lawn mower for small lawns

The lawn mower for small lawns to be used at the residential areas shall comply with at least the following:

Walk behind 4 stroke petrol self-propelled rotary mower; Power output of 4 kW;
422 mm cutting width;
200 mm heavy duty sealed ball bearing wheels; and 54-liter polymer catcher with metal lining.

4. Lawn mower for large lawns

The lawn mower for large lawns shall comply with at least the following: Walk behind 4

stroke petrol self-propelled rotary mower;
Power output of 12 kW;
750 mm cutting width; Rubber wheels.

AF 04.03.02 Vacuum Cleaner

Vacuum cleaners shall be wet and dry and comply with at least the following:

Tank capacity: 25 litre Cable length: 10 m
Airflow rate: 56 litre per second

AF 04.03.03 Carpet Cleaner

Carpet cleaners shall comply with at least the following:

Tank capacity fresh water: 40 litre Tank capacity dirty water: 25 litre Cable length: 10 m
Suction motor: 2 x 1250 W;
Airflow rate: 2 x 60 litre per second
Pump delivery: 2.8 litre per minute @ 3 bar

Carpet cleaners shall be similar to Wetrok's Extravac 400.

AF 04.03.04 Mop and bucket system

A two-bucket mopping system shall be provided and be fitted with metal wringers.

The mops provided shall be suitable for use with the buckets provided.

Th

Mop and bucket systems shall be similar to Wetroks Socar L40.

AF 04.03.05 Window cleaning kit

Window cleaners shall have a telescopic handle with a length of 0.5 to 3 m. It shall be possible to fit squeegees and brushes to the telescopic handle as required in order cleaning windows. A bucket with capacity of at least 10 litres shall be provided that is suitable for use with the window cleaning kit.

AF 04.03.06 Sign boards

Sign boards shall be yellow in colour, free standing and printed on both sides. It shall clearly indicate the dangerous situation.

AF 04.04 CONSUMABLES FOR SITE KEEPING AND CLEANING

Provision of consumables will be the responsibility of the Contractor. Remuneration for provision of consumables will be deemed included in the monthly tendered monthly payment for maintenance based on the point system, as described in Additional Specification SA: General Maintenance.

AF 04.04.01 Refuse Bags

Refuse bags shall comply with CKS 340-1979.

AF 04.04.02 Toilet Paper

Toilet paper shall comply with SANS 1887 Part 1 & Part 2.

Toilet paper provided shall be single-ply, soft with a nominal number of 500 sheets per roll and a nominal outside diameter of 125 mm.

AF 04.04.03 Toilet soap for hand soap dispensers

Toilet soap shall comply with SANS 1924:2007 – Toilet soaps intended for use in dispensers.

Toilet soap shall be Type 1, liquid toilet soap and shall be perfumed. The toilet soap shall be suitable for use in the hand soap dispensers provided.

AF 04.04.04 Biological detergent for urinal dispenser

The urinal dispenser detergent may not contain any disinfectants. A biological detergent shall be used. The biological detergent shall have an EU ECO-LABEL accreditation and shall be endorsed by Indalo Yethu (South Africa's official environmental campaign)

The biological detergent shall be similar to nu flush from innu-science.

AF 04.04.05 Air freshener

Air freshener shall be supplied that is suitable for use in the air freshener doser.

Air fresheners shall be similar to Technical Concepts Neutrale Metered Aerosols (available from Steiner Hygiene or equivalent).

AF 04.04.06 SHE bin liners

She bin liners shall be provided that is suitable for use in the she bins.

AF 04.04.07 Paper towels

Paper towels shall comply with SANS 1887 Part 1 & Part 4.

Paper towels provided shall be supplied in packets of folded towels that can be dispensed from the supplied paper towel dispenser without sticking or other undue difficulty.

AF 04.04.08 Wall bin liners

Wall bin liners shall be provided that is suitable for use in the wall bins.

AF 04.04.10 Biological detergents for cleaning of ablutions and public areas

Disinfectants and Detergent-disinfectants shall not be allowed to clean ablutions and public areas. A biological detergent shall be used. The biological detergent shall have an EU ECO-LABEL accreditation and shall be endorsed by Indalo Yethu (South Africa's official environmental campaign)

The biological detergent shall be similar to nu kleen smell from innu-science.

AF 04.04.11 Medium duty solvent detergent

Medium duty solvent detergents shall comply with SANS 1344:2009 Medium duty solvent detergent. It shall be used in cases where surfaces, walls and floors are soiled with oil, grease or similar soils.

A biological detergent may be used as an alternative where surfaces are soiled with oil, grease or similar soils. The biological detergent shall have an EU ECO-LABEL accreditation and shall be endorsed by Indalo Yethu (South Africa's official environmental campaign)

AF 04.04.12 Other

Brooms, dusters and muslin cloths shall be seen as consumables.

The Contractor shall furthermore be responsible for the supply of batteries for all battery-operated equipment, e.g., the urinal sanitizer and the air freshener dozer.

AF 04.05 SOLID WASTE MANAGEMENT

All solid waste that is generated as a result of site keeping and cleaning shall be managed in accordance with specification CG Solid Waste.

AF 05 MEASUREMENT AND PAYMENT

AF.05.01	<u>HAND DRYERS</u>	<u>Unit</u> No
	The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.	
AF.05.02	<u>AIR FRESHENER DOSERS</u>	<u>Unit</u> No
	The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.	
AF.05.03	<u>TOILET PAPER DISPENSING UNITS</u>	<u>Unit</u> No
	The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.	
AF.05.04	<u>SHE BINS</u>	<u>Unit</u> No
	The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.	
AF.05.05	<u>HAND SOAP DISPENSER</u>	<u>Unit</u> No
	The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.	

AF.05.06	<u>URINAL SANITIZER</u>	<u>Unit</u> No
<p>The tendered rate shall include full compensation for the supply, delivery, labour and installation and commissioning of the urinal sanitizer. The unit shall be installed in accordance with the manufacturer's instructions.</p>		
AF.05.07	<u>PAPER TOWEL DISPENSER</u>	<u>Unit</u> No
<p>The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.</p>		
AF.05.08	<u>WALL BIN</u>	<u>Unit</u> No
<p>The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.</p>		
AF.05.09	<u>WASTE BIN</u>	No
<p>The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.</p>		
AF.05.10	<u>TIGHT HEAD DRUMS</u>	<u>Unit</u> No
<p>The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.</p>		
AF.05.11	<u>AAA heavy duty alkaline batteries for Auto digital aerosol</u>	<u>Unit</u> No
<p>The tendered rate shall include full compensation for the supply, delivery, labour, installation and commissioning of the unit. The unit shall be installed in accordance with the manufacturer's instructions.</p>		