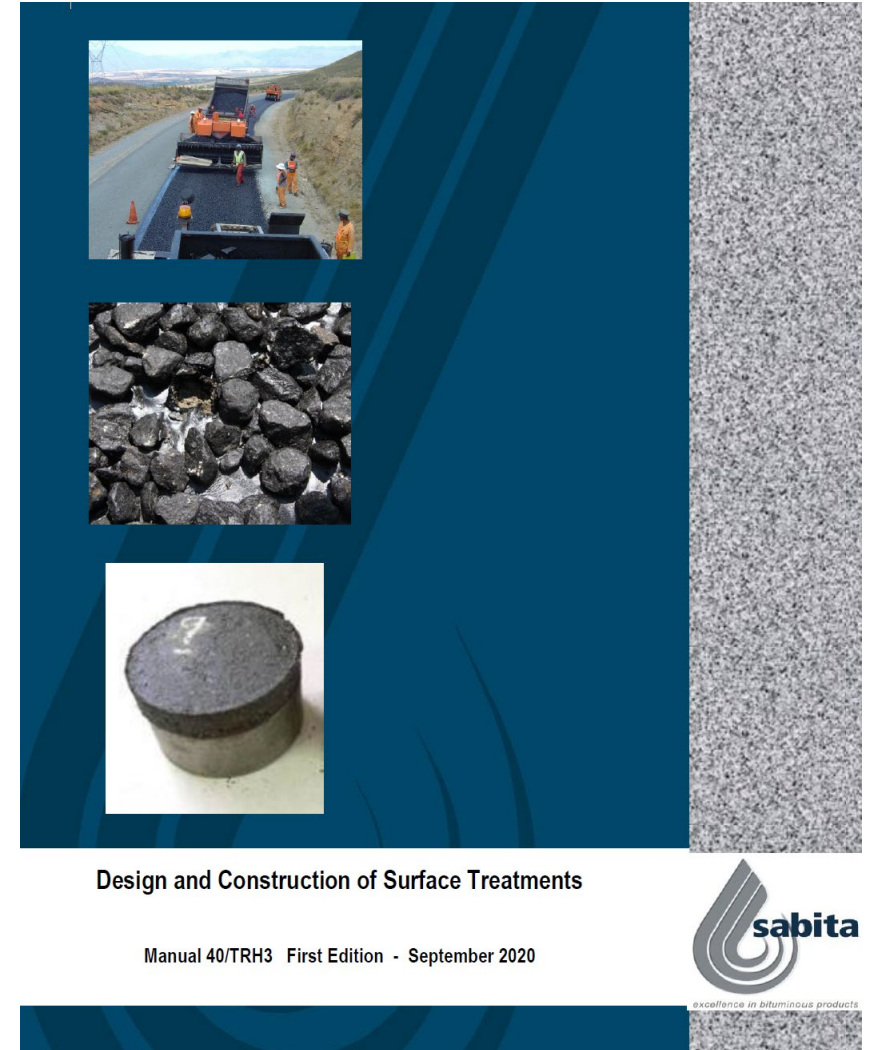


- Part A • General
- Part B • Materials
- Part C • Performance
- Part D • Seal type and binder selection
- Part E • Design
- Part F • Construction
- Part G • Quality assurance
- Part H • Repair of premature failures

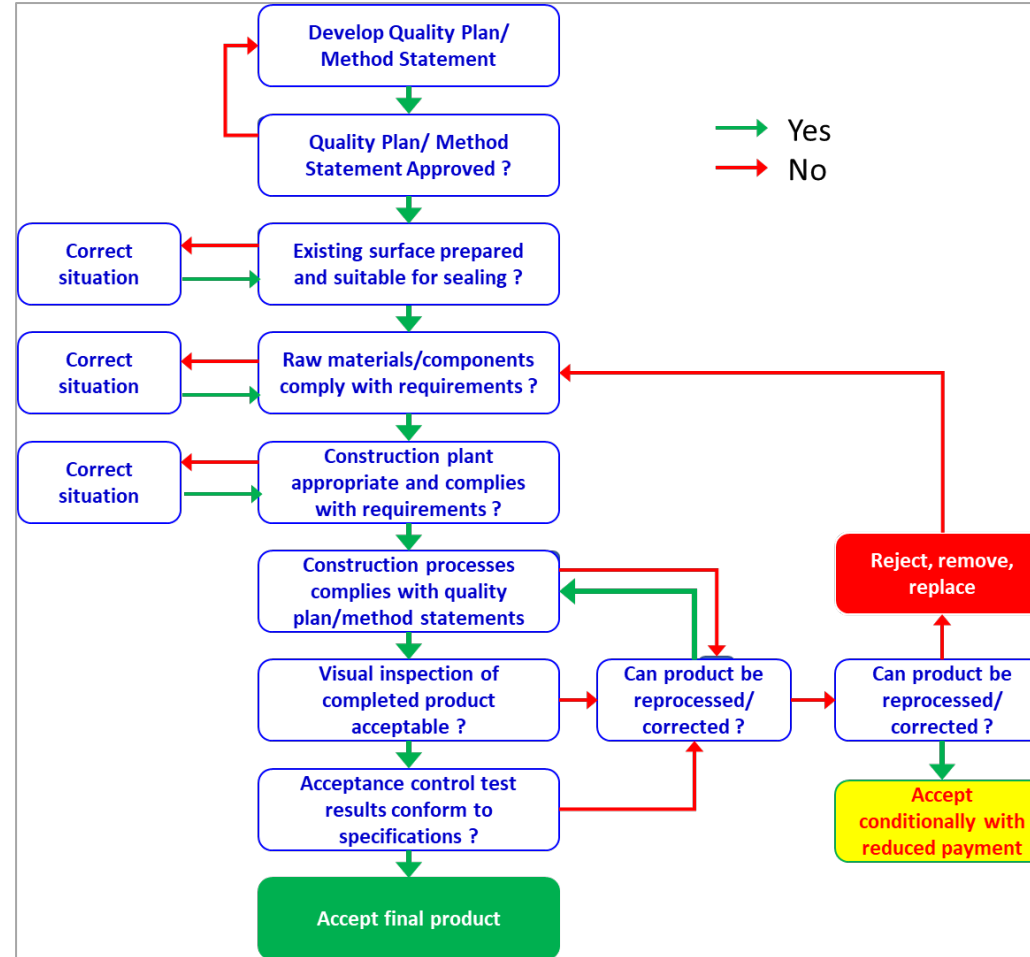


# Part G: Quality Assurance

- **Forms of contract**
- **Quality assurance**
- **Quality of the existing surface or new base**
- **Quality of construction plant**
- **Quality of materials**
- **Construction**

# Forma of Contract

Procurement Type	Comment	Suitability for surface treatments
<b>Conventional Procurement</b>	The contractor is appointed by the client to construct the works as designed by the designer. Normally the designer is a consulting engineer. The consulting engineer also administers the contract and monitors that the contractor constructs the Works as designed, and that the works comply with the specified requirements.	Suitable for new construction, rehabilitation and for reseal work. Historically, the responsibility for the design of asphalt and slurry in South Africa lied with the Contractor. <b>Current suggestions are that the design of all surface treatments become the responsibility of the Contractor</b>
<b>Product Performance Guarantee System (PPGS)</b>	The contractor includes a guarantee for one of the final products constructed/used in the works, which is normally a proprietary product or for the result of work utilising a proprietary product. Examples are a specific type of final surfacing, such as a UTFC, a type of bridge joint, or, the sealing of joints in concrete pavements utilising a proprietary joint sealant. Therefore, there is a reduced need for monitoring quality during construction on behalf of the client.	Only suitable for new construction or rehabilitation works and <b>not</b> for <b>reseal</b> work. The performance of the surface treatment is highly dependent on the quality of the pavement structure. COTO 2020 provides specifications regarding the required performance of surface treatments for a period of three years after construction
<b>Design and Construct</b>	The client specifies the works (facility) required and its intended purpose. The contractor employs a designer and delivers a Turnkey solution that must meet the intended purpose of the facility. Turnkey implies the client literally turns the key and takes over the road.	Only suitable for new construction or rehabilitation works and <b>not</b> for reseal work. The performance of the surface treatment is highly dependent on the quality of the pavement structure.
<b>Design, Build and Operate (DBO)</b>	The client specifies the works (facility) required and its intended purpose, as well as hand-over conditions. The contractor employs a designer and delivers a Turnkey solution that meets the client requirements. The contractor then operates and maintains the facility for a specified period before handing it over to the client.	Could be suitable for new construction, rehabilitation and reseal work. However, it could be difficult to price the required maintenance effort if the works only require minimal repair and reseal.
<b>Concession</b>	The concessionaire, which is typically a consortium consisting of a contractor, consulting engineer (designer) and financier, provides a complete solution for a section of road for a preset period of time, the concession period. Only the level of service provided to users is audited by the client during the concession period.	The concessionaire takes full responsibility for the performance.



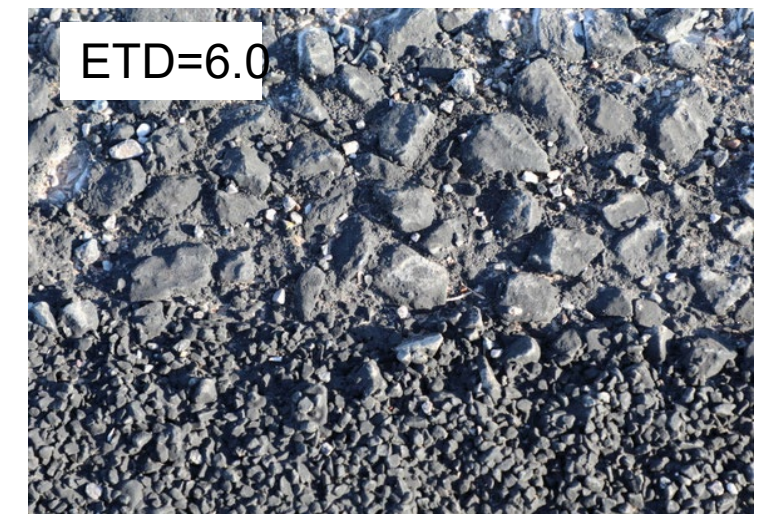
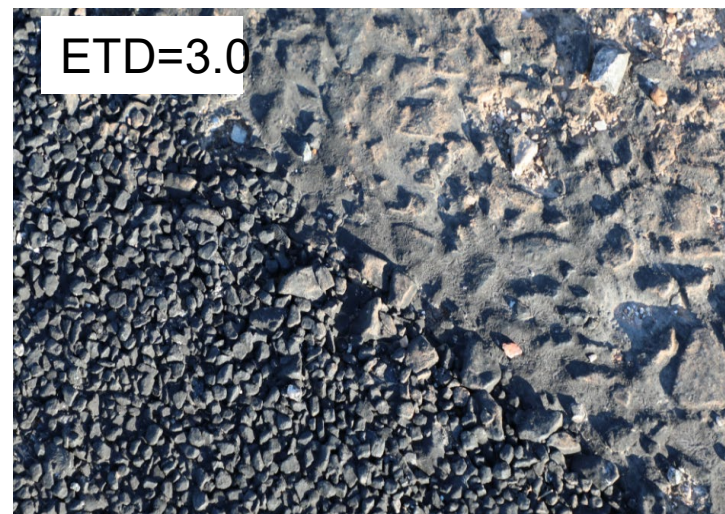
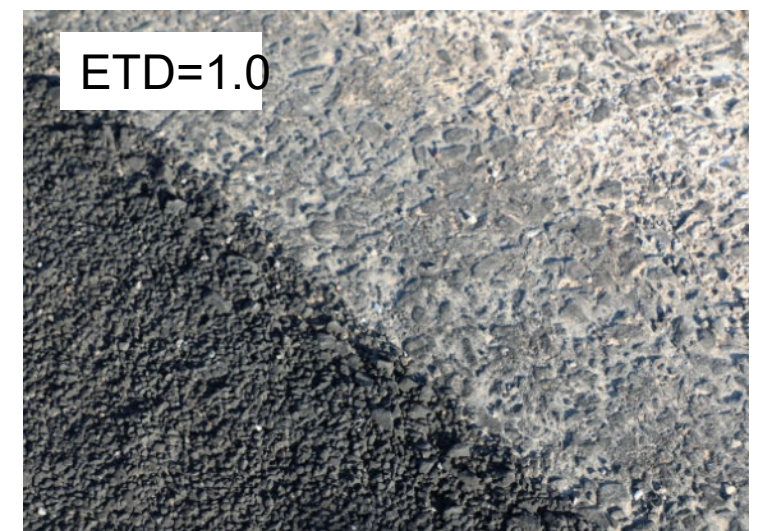
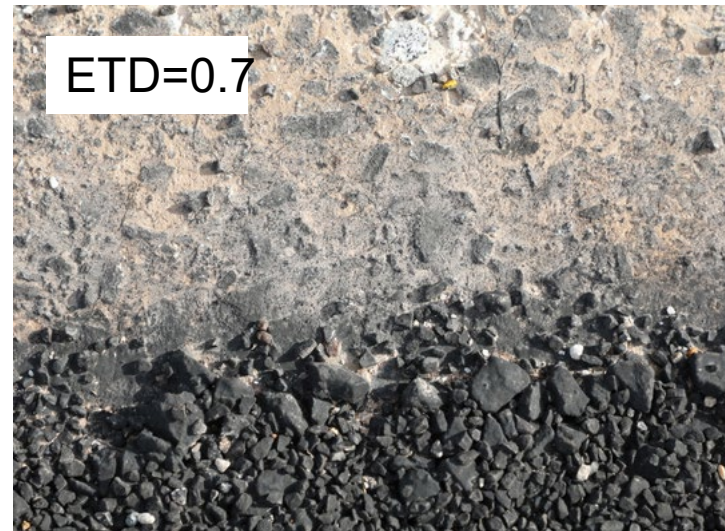


# Situations



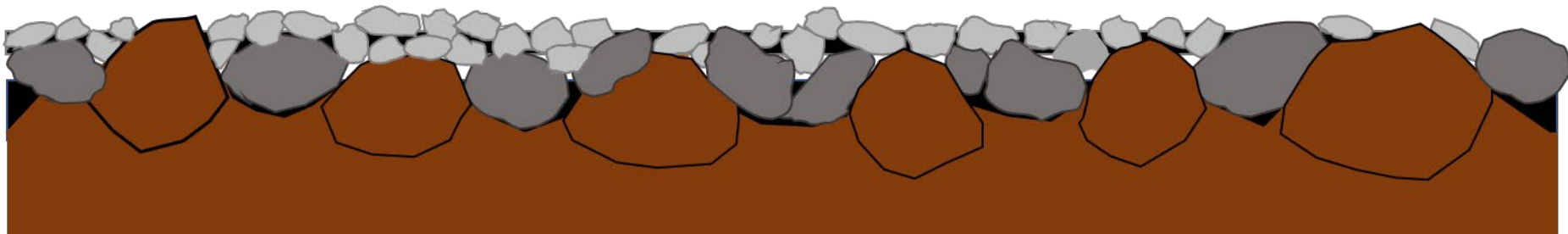


# Variations





# Impacts











# Quality of the base/ Substrate

Seal Code	Description	Max Texture Depth
S1(10)	Single seal with 10 mm aggregate	0.8
S1(10)	Single seal with 10 mm aggregate (with cover spray)	1.0
S1(14)	Single seal with 14 mm aggregate	0.8
S1(14)	Single seal with 14 mm aggregate (with cover spray)	1.2
S1(14)	Single seal with 14 mm aggregate (with Bitumen rubber)	1.2
S2(10/S)	Double seal with 10 mm aggregate and sand	1.0
S2(14/S)	Double seal with 14 mm aggregate and sand	1.5
S4(10)	Cape Seal with 10 mm aggregate and one layer of slurry	1.5
S4(14)	Cape Seal with 14 mm aggregate and one layer of slurry	1.8
S4(20)	Cape Seal with 20 mm aggregate and two layers of slurry	2.0
S2(14/7)	Double seal with 14 mm aggregate and a layer of 7 mm aggregate	1.5
S2(14/5)	Double seal with 14 mm aggregate and a layer of 5 mm aggregate	1.5
S2(20/10)	Double seal with 20 mm aggregate and a layer of 10 mm aggregate	1.8
S2(20/7)	Double seal with 20 mm aggregate and a layer of 7 mm aggregate	1.8
S2(20/7/7)	Double seal with 20 mm aggregate and two layers of 7 mm aggregate	1.5



**Table G 4 Specified Curing Periods Per Treatment Type (COTO 2020)**

Treatment type	Recommended curing period
Texture treatment using fine slurries <sup>1</sup>	6 weeks
Coarse slurry, rapid setting slurry or <u>microsurfacing</u> applied as screed or rut filling <sup>1</sup>	12 weeks
Crack sealing	2 weeks
Asphalt patches for pavement repair	6 weeks
Bitumen treated granular materials	4 weeks
Untreated granular and cement <u>stabilised</u> materials	2 weeks

**Note:**

**<sup>1</sup> Consideration could be given to reduce the specified curing period for slurry, microsurfacing and asphalt application, based on a representative corrected ball penetration (SANS 3001-BT10), at the expected operating road surface temperature of less than 2 mm.**

- **Purpose**

- ☐ Confirm the proficiency of the contractor, the equipment, safety, traffic accommodation and the seal process management.
- ☐ Verify appropriateness of design application rates and sequence, and aggregate spread rates.
- ☐ Verify sampling and testing location and frequency.
- ☐ Verify the appropriate roller type, methodology and sequence.

- **Followed up by a method statement**



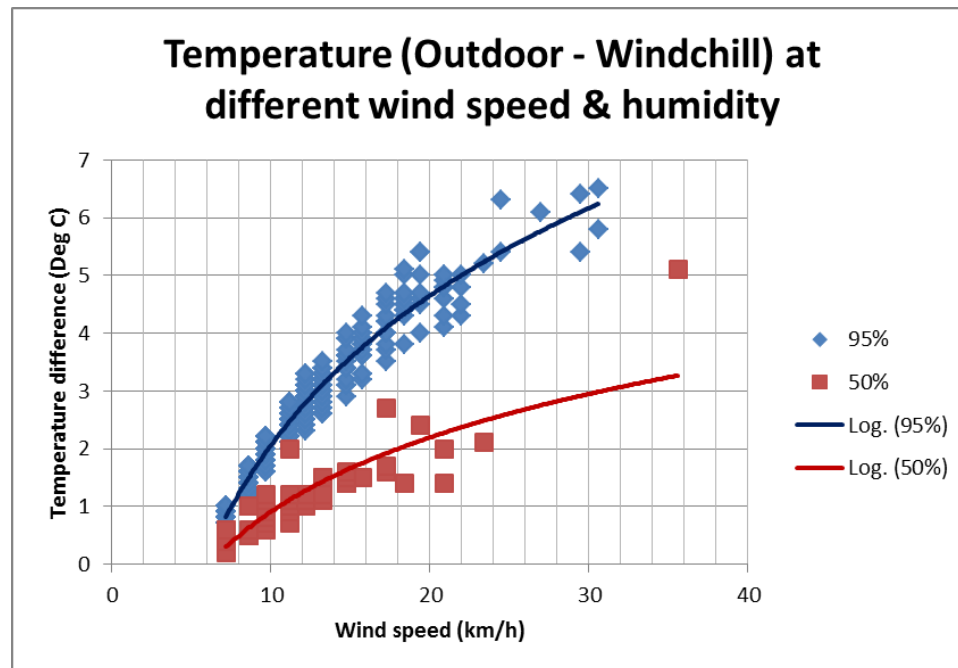
- **Date and time.**
- **Distributor detail.**
- **Start and end position.**
- **Lane (transverse spray configuration).**
- **Seal aggregate and binder type per layer.**
- **Binder and aggregate sample references.**
- **Road surface temperature.**
- **Aggregate temperature.**
- **Binder application rate, calculated from the recorded:**
  - ☐ Effective spray width.
  - ☐ Volume binder sprayed (Dip reading before and after ?).
- **Aggregate application**
- **Weather limitation.**

# Final checks before spraying

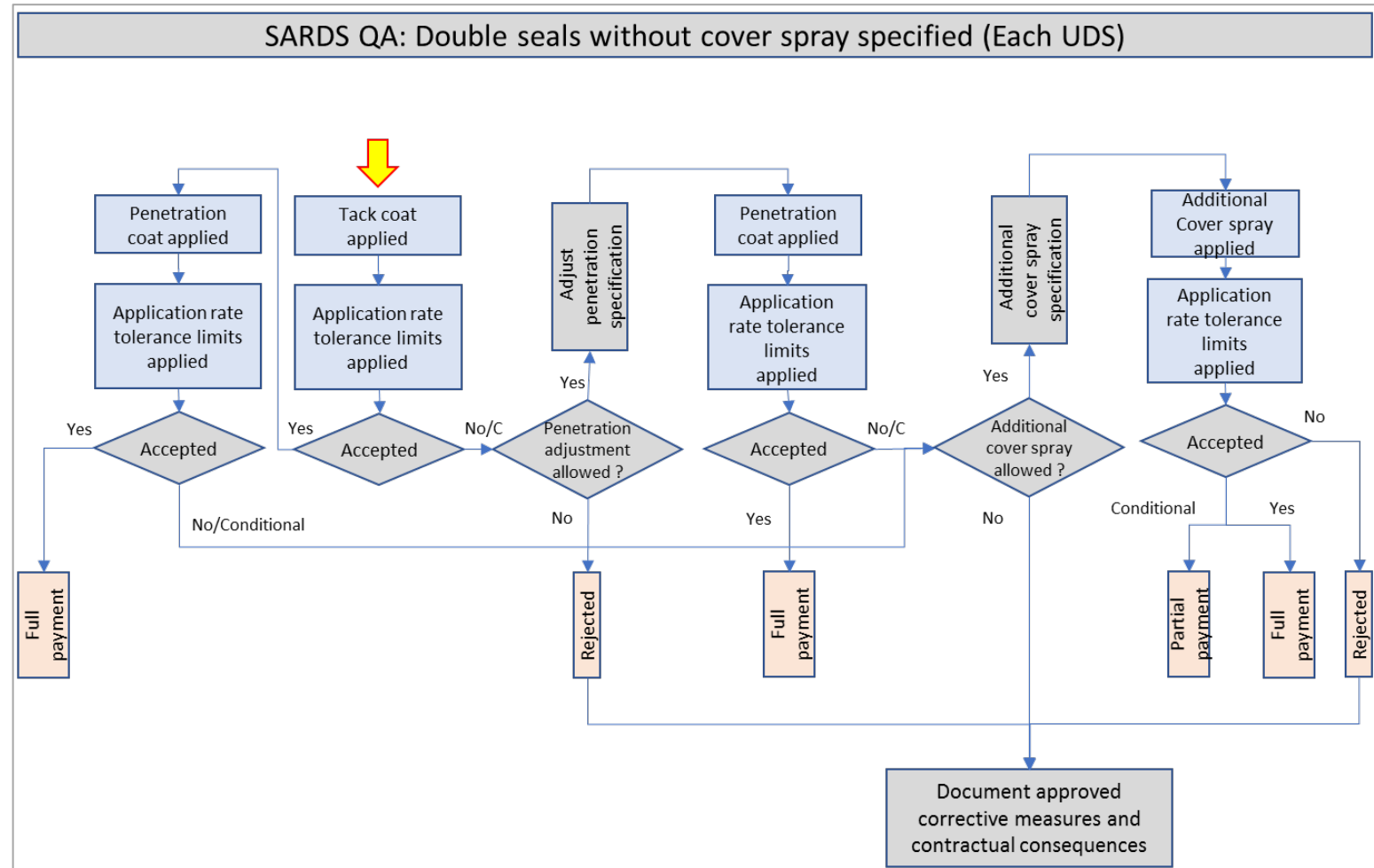
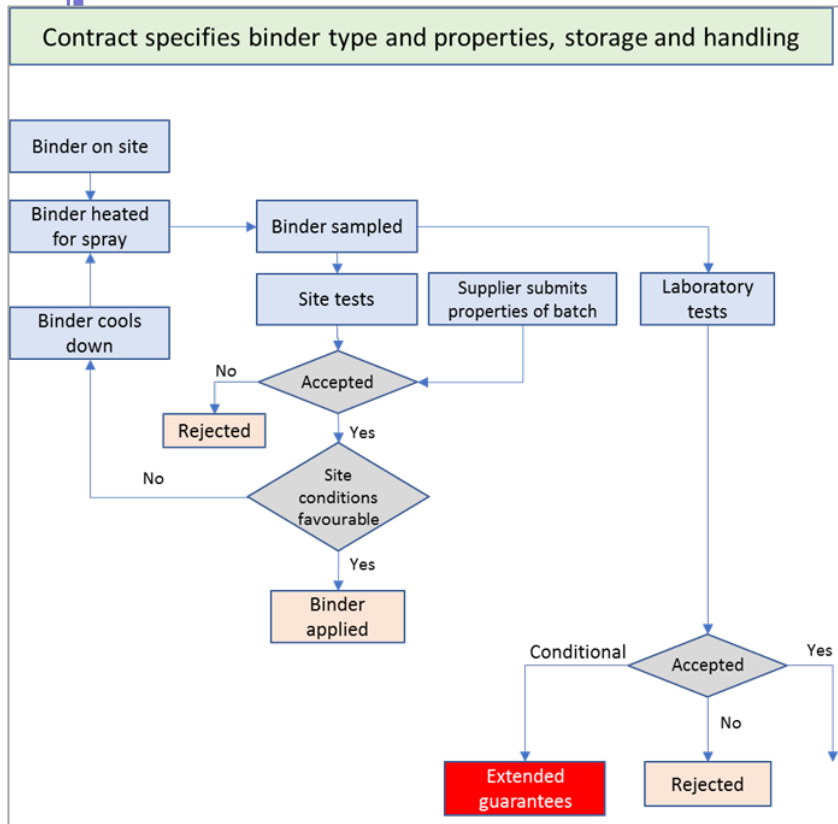
- Refer check lists



- Refer Manual 40
- Effect of wind and humidity



- Various processes
- In line with COTO



# Payment adjustment

**Table G 17 Calculation of Weighted Payment Adjustment**

Binder layer		Binder	Specified hot appli- cation rate	Applied rate	% out	Adjust- ment factor %	Accep- tance	Weighted adjustment	Variation (R/l) tendered	Cost of binder (R/l)	%Cost of layer
First application (tack coat)		Hot: S-R1	2.00	2.20	10.00	79.80	Condi- tional	46.49	6.00	12	58.25
Second application (penetration coat)		Hot: S-E1	1.30	1.20	7.69	91.61	Condi- tional	28.91	5.00	6.5	31.55
Cover spray		Diluted Cat 65	1.00	1.10							
% Emulsion in dilution	70	Cold: Cat 65	0.7	0.77	10.00	79.80	Condi- tional	8.13	3.00	2.1	10.19
							% Payment	83.53		20.60	
							Tendered price/m <sup>2</sup>	62.00			
							Payment /m <sup>2</sup>	51.79			



# End