

ANNEXURE CQS-C MAXIMUM LOT SIZES AND MINIMUM TEST FREQUENCIES

GENERAL

1. The maximum lot sizes and minimum test frequencies are separately specified for all major activities covered by the Technical Specifications as listed hereunder.
2. The requirements applicable to this Contract are identified with an asterisk indicating that only these details are attached in this Annexure.
3. Where material/product quality certification can be obtained from the supplier, tests listed per contract/separable part need not be repeated.

Contents of Annexure CQS-C

Item	Sub-Annexure	Required (*) for this Contract	Reference Specification	Sub-Annexure Heading
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4	C4		C241	Stabilisation
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Sub-Annexure C1

EARTHWORKS (Specification C213)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Stripping Topsoil	Surface Levels	20,000m ²	1 Cross Section per 15m	Survey
Excavation	Geometry	20,000m ²	1 Cross Section per 15m	Survey
Floor of Cuttings	Material Quality - CBR	10,000m ²	1 per 2,000m ² *	T117A
	Compaction	10,000m ²	Table A1-Annexure CQS-A	T166, AS1289.F1.1
Foundation for Embankments	Compaction	20,000m ²	Table A1-Annexure CQS-A	T166
Embankments - General	Geometry	One layer 20,000m ²	1 Cross Section per 15m	Survey
	Material Quality - CBR	One layer 20,000m ²	1 per 1,000m ³	T117A AS1289.F1.1
	Compaction/Moisture Content	One layer 20,000m ²	Table A1-Annexure CQS-A	T166 AS1289.5.1.1 AS1289.5.7.1
	Geometry	One layer 20,000m ²	1 Cross Section per 15m	Survey
Road Carriageway Embankments - Select Zone	Material Quality - Maximum Particle Size	10,000m ²	1 per 1,000m ³ *	AS1289.F1.1 T106
	- CBR	10,000m ²	1 per 500m ³ *	T117A
	Compaction/Moisture Content	One layer 10,000m ²	Table A1-Annexure CQS-A	AS1289.5.1.1 T119, T120, T166
	Geometry	One layer 20,000m ²	1 Cross Section per 15m	Survey
Fill Adjacent to Structures: Bridges, Retaining Walls and Cast-in-Situ Culverts	Material Quality - Maximum Particle Size	1 Contract	1 per 200m ³ *	T106 AS1289.3.3.1
	- Plasticity Index	1 Contract	1 per 200m ³ *	
	Compaction/Moisture Content	1 Structure	2 per Structure	AS1289.5.1.1 T119, T120, T166

* Note: or part thereof, per lot.

Sub-Annexure C2**STORMWATER DRAINAGE - PIPE CULVERTS, BOX CULVERTS, OPEN DRAINS INCLUDING KERB & GUTTER, DRAINAGE STRUCTURES (Specifications C220, C221, C222, C223, C224)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Supply of Precast Units	Precast Quality - Suppliers documentary evidence and certification	1 delivery	1 per type/size/class per delivery	
Siting and Excavation	Geometry	1 drainage line/structure	1 per drainage line/structure	Survey
Foundation	Compaction	1 drainage line/structure	1 per 20 lin m *	T166
Material surrounding Steel Structures	Material Quality - pH/Electrical Resistivity	1 drainage line/structure	1 per material	AS1289.D3.1 AS1289.D4.1
Bedding	Material Quality - Particle Size Distribution Compaction/Moisture Content	1 contract 1 drainage line/structure	1 per 200m ³ * 1 per layer, max 100m ²	AS1141.11 T166 AS1289.5.7.1
Concrete Bedding or Lining	Refer 'Minor Concrete Works'			
Installation of Precast Units	Geometry	1 drainage line/structure	1 per drainage line/structure	Survey
Selected Backfill	Material Quality - Maximum Particle Size - Plasticity Index Compaction/Moisture Content	1 contract 1 contract 1 drainage line/structure	1 per 200m ³ * 1 per 200m ³ * 1 per 2 layers max 100m ²	T106 AS1289.3.3.1 T166 AS1289.5.7.1
Rock Fill for Gabions/ Wire Mattresses	Material Quality: - Particle Size Distribution - Wet Strength - Wet/Dry Strength Variation	1 contract 1 contract 1 contract	1 per 200m ³ 1 per contract 1 per contract	AS1141.11 AS1141.22 AS1141.22
Kerb and Gutter	Geometry		1 Cross Section per 15m	Survey and 3m Straight Edge

* Note: or part thereof, per lot.

**Sub-Annexure C3
SUBSURFACE DRAINAGE (Specifications C230, C231, C232, C233)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD	
Material Supply	Material Quality - Supplier's documentary evidence and certification of:				
	Pipe	1 contract/size	1 per type/size		
	Filter Material				
	- Grading (Type A, B, C, D)	1 contract/size	1 per type	AS1141.11	
	- Coefficient of Permeability (Type B)	1 contract/size	1 per type	AS1289.E5.1 ASTM-D2434-68	
	- Grading Variation after Treatment (Type B)	1 contract/size	1 per type	T102, T103, AS1141.11	
	- Wet Strength (Type C, D)	1 contract/size	1 per type	AS1141.22	
- 10% Fines Wet/Dry (Type C, D)	1 contract/size	1 per type	AS1141.22		
	Geotextile	1 contract	1 per type		
Excavation - Trench Base	Line and Grade	1 drainage line	1 per drainage line	Survey	
	Compaction	1 drainage line	1 per 200 lin m*	T166	
Bedding and Backfill					
	- Filter Material	Compaction	1 drainage line	1 per 100 lin m*	T166
	- Selected Backfill	Compaction	1 drainage line	1 per 100 lin m*	T166
- Earth Backfill	Compaction	1 drainage line	1 per 100 lin m*	T166	
Drainage Mat	Geometry	2000m ²	1 Cross Section per 25m	Survey	

* Note: or part thereof, per lot

**Sub-Annexure C4
STABILISATION (Specification C241)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Material Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- Cement	1 contract	1 per week	
	- Quicklime			
	· Available Lime (CaO content)	1 contract	1 per 100t *	T430
	· Slaking Rate	1 contract	1 per 100t *	T432
	· Particle Size Dist'n	1 contract	1 per contract	AS1141.11
	- Hydrated Lime			
	· Available Lime (CaOH ₂)	1 contract	1 per 100t	T430
	· Residue on Sieving	1 contract	1 per contract	T433
	- Ground Blast Furnace Slag	1 contract	1 per month	
- Flyash	1 contract	1 per month		
- Blended Stabilising Agent	1 contract	1 per month		
- Water				
Chloride ion conc'n	1 contract	1 per contract	T1004	
Sulphate ion conc'n	1 contract	1 per contract	AS1289.D2.1	
Undissolved solids	1 contract	1 per contract		
Mix Design	NATA certification - Supplier's documentary evidence and certification	1 mix	1 per mix	
In-Place Spreading	Spread rate	1 layer 5,000m ² , Max 1 day's spreading	1 per 1,000m ²	T136
Trimming and Compaction	Geometry	1 layer 5,000m ² , max 1 day's placement	One cross section per 15m	Survey
	Surface Quality	"	10 per 100m lane length	3m Straight Edge
	Layer thickness	"	6 per 200m length *	
	Alignment/Width	"	One cross section per 15m	Measure/Survey
	Compaction	"	Table A1-Annexure CQS-A	AS1289.5.7.1

* Note: or part thereof, per lot.

**Sub-Annexure C5
FLEXIBLE PAVEMENTS (Specification C242)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Base and Subbase Supply	Material Quality - Supplier's documentary evidence and certification	1 contract/ material type		
	- Particle Size Distribution		1 per 1,000t*	T106
	- Fine Particle Size Distribution Ratio		1 per 1,000t*	T107
	- Liquid Limit		1 per 1,000t*	T108
	- Plastic Limit		1 per 1,000t*	AS1289.3.3.1
	- Plasticity Index		1 per 1,000t*	AS1289.3.3.1
	- CBR		1 per 1,000t*	AS1289.F1.1
	- Maximum Dry Compressive Strength		1 per 5,000t*	T114
	- Particle Shape		1 per 5,000t*	AS1141.14
	- Aggregate Wet Strength		1 per 5,000t*	AS1141.22
	- Wet/Dry Strength Variation		1 per 5,000t*	AS1141.22
	- Modified Texas Triaxial Classification		1 per contract	T171
	- Unconfined Compressive Strength (Modified)		1 per 5,000t*	T116
- Unconfined Compressive Strength (Bound)		1 per 1,000t*	T131	
Placement	Geometry	One layer 5,000m ² max 1 day's placement	1 Cross Section per 15m 10 per 100 lin m* per lane	Survey 3m Straight Edge
	Deflection Control - Benkelman Beam	One layer 5,000m ² max 1 day's placement	1 per 30 lin m per lane minimum 6 per lot	T160
	Compaction/Moisture Content	One layer 5,000m ² max 1 day's placement	Table A1- Annexure CQS-A	AS1289.5.2.1, T119, T120, T130, T166, AS1289.5.8.1

* Note: or part thereof, per lot.

**Sub-Annexure C6
SPRAYED BITUMINOUS SURFACING (Specification C244)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Suppliers documentary evidence and certification of:			
	- Class 170 Bitumen	1 tanker load	1 per tanker load	
	- Refinery Cutback Bitumen	1 tanker load	1 per tanker load	
	- Polymer Modified Binder	1 tanker load	1 per tanker load	
	- Bitumen Adhesion Agent	1 delivery	1 per delivery	
	- Cutback Oils	1 delivery/ tanker	1 per delivery/tanker	
	- Aggregate Precoating Agent	1 delivery/ tanker	1 per delivery/tanker	
	- Aggregate			
	· Grading	1 stockpile	1 per 400m ³ *	AS1141.11
	· ALD	1 stockpile	1 per 200m ³ *	T235
	· Wet Strength	1 contract	†	AS1141.22
	· 10% Fines Wet/Dry	1 contract	†	AS1141.22
	· Particle Shape	1 contract	†	AS1141.14
· Fractured Faces	1 contract	†	T239	
· Stripping	1 contract	†	T230	
· Initial Adhesion	1 contract	†	T238	
· Polished Agg Friction V.	1 contract	†	AS1141.41	
Application Rates	Binder	1 day's operation	Calculate per spray run	
	Aggregate	1 day's operation	Calculate per spray run	

† One per Contract or change in material

* Note: or part thereof, per lot

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Production Mix	Temperature Sampling Moisture Content Grading Binder Content Voids in Compacted Mix Maximum Theoretical Density)) 1 day's) production) per site,) max 500t	1 per truck load 1 per 50t 1 per 50t* 1 per 50t* 1 per 50t* 1 per 50t* 1 per 50t*	Measure AS2150 T607 T607 T601,AS1507, T606 AS1507
Laying	Temperature Levels Surface Quality Relative Compaction/Layer Thickness	1 day's laying per site, max 500t 1 layer, max 500t 1 layer, max 500t 1 layer, max 500t	1 per truck load 1 cross section per 15m 10 per 100m* lane length Table A1 Annexure CQS-A	Measure Survey 3m Straight Edge T601, T606

* Note: or part thereof, per lot

Sub-Annexure C8
READY-MIXED CONCRETE PRODUCTION & SUPPLY
(Specifications C247, C248)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Raw Materials Supply	Material Quality - Supplier's documentary evidence and certification of:-			
	Cement	1 mth's prod'n	1 per week	AS3972
	Flyash	1 mth's prod'n	1 per month	AS3582.1
	Water	1 contract	1 per contract	T1004, AS1289.D2.1
	Admixtures	1 mth's prod'n	1 per month	AS 1478
	Fine Aggregates			
	- Grading	1 wk's prod'n	1 per 200m ³ concrete*	AS1141.11
	- Moisture Content	1 wk's prod'n	1 per day	
	- Sulphate Soundness	1 contract	1 per contract	AS1141.24
	- Bulk Density	1 contract	1 per contract	AS 2758.1
	- Unit Mass	1 contract	1 per contract	AS 2758.1
	- Water Absorption	1 contract	1 per contract	AS 2758.1
	- Material Finer 2µm	1 contract	1 per contract	AS 2758.1
	- Deleterious Material (Impurities/Reactive)	1 contract	1 per contract	AS 2758.1
	Coarse Aggregates			
	- Grading	1 wk's prod'n	1 per 200m ³ concrete*	AS1141.11
	- Moisture Content	1 wk's prod'n	1 per day	
	- Wet Strength	1 contract	1 per contract	AS1141.22
	- 10% Fines Wet/Dry	1 contract	1 per contract	AS1141.22
	- Abrasion (Los Angeles)	1 contract	1 per contract	AS1141.23
	- Sulphate Soundness	1 contract	1 per contract	AS1141.24
	- Particle Shape	1 contract	1 per contract	AS1141.14
	- Fractured Faces	1 contract	1 per contract	T239
- Bulk Density	1 contract	1 per contract	AS 2758.1	
- Unit Mass	1 contract	1 per contract	AS 2758.1	
- Water Absorption	1 contract	1 per contract	AS 2758.1	
- Material Finer 75µm	1 contract	1 per contract	AS 2758.1	

Raw Materials Supply (Cont'd)	- Weak Particles	1 contract	1 per contract	AS 2758.1
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ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
	- Light Particles	1 contract	1 per contract	AS 2758.1
	- Deleterious Materials (Impurities/Reactive)	1 contract	1 per contract	AS 2758.1
	- Iron Unsoundness	1 contract	1 per contract	AS 2758.1
	- Falling/Dusting Unsoundness	1 contract	1 per contract	AS 2758.1
Mix Design	Compressive Strength	1 contract mix	1 per mix per contract	AS1012.14
	Aggregate Moisture Content	1 contract mix	1 per mix per contract	
	Consistency - Slump	1 contract mix	1 per mix per contract	AS1012.3
	Air Content	1 contract mix	1 per mix per contract	T320
	Shrinkage	1 contract mix	1 per mix per contract	T321

* Note: or part thereof, per lot

Sub-Annexure C9
MASS CONCRETE SUBBASE (Specification C247)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Concrete Supply	Refer Sub-Annexure C8: Concrete Production and Supply			
	Concrete/Air Temperature	50m ³	1 per 50m ³ *	Measure
	Air Content	50m ³	1 per 50m ³ *	AS1012.4 Method 2
	Consistency - Slump	50m ³	1 per load	AS1012.3 Method 1
	Compressive Strength (7 day)	50m ³	1 pair per 50m ³ *	AS1012.1 AS1012.8 AS1012.9
	Compressive Strength (28 day)	50m ³	1 pair per 50m ³ *	AS1012.1 AS1012.8 AS1012.9
Placement	Thickness	50m ³	5m grid on plan area	Survey and
	Geometry	50m ³	1 cross section per 15m	Survey and 3m Straight Edge
Curing	Material Quality - Supplier's documentary evidence and certification	1 contract	1 per production batch	T864
	Application Rate	1 day's work	1 per 500m ² *	
Joints	Geometry	50m ³	All joints	Survey

* Note: or part thereof, per lot

**Sub-Annexure C10
PLAIN OR REINFORCED CONCRETE BASE (Specification C248)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Concrete Supply	Refer Sub-Annexure C8: Concrete Production and Supply			
	Concrete/Air Temperature	50m ³	1 per 50m ³ *	Measure
	Air Content	50m ³	1 per 50m ³ *	AS1012.4 Method 2
	Consistency - Slump	50m ³	1 per load	AS1012.3 Method 1
	Compressive Strength (7 day)	50m ³	1 pair per 50m ³ *	AS1012.1 AS1012.8 AS1012.9
	Compressive Strength (28 day)	50m ³	1 pair per 50m ³ *	AS1012.1 AS1012.8 AS1012.9
Placement	Relative Compaction			
	- Machine Placed	50m ³	1 per 50m ³ *	AS1012.14
	- Hand Placed	50m ³	2 per lot	AS1012.14
	Thickness	50m ³	5m grid on plan area	Survey
	Geometry	50m ³	1 cross section per 15m	Survey and 3m Straight Edge
Ride Quality	Profile Factor	50m ³	All lanes	T179
Surface Texture	Texture Depth	50m ³	2 per 50m ³	T240
Curing	Material Quality - Supplier's documentary evidence and certification	1 contract	1 per production batch	T864
	Application Rate	1 day's work	1 per 500m ² *	
Joints	Sealant Material Quality Supplier's documentary evidence and certification	1 contract	1 per prod'n batch	
	Geometry	50m ³	All joints	Survey

* Note: or part thereof, per lot

**Sub-Annexure C12
SEGMENTAL PAVING (Specification C254)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- Concrete Segmental Paving Units	1 contract	1 per contract	
	- Clay Segmental Paving Units	1 contract	1 per contract	
	- Bedding Sand · Grading	1 contract	1 per contract or change in material	AS1141.11
	- Joint Filling Sand · Grading	1 contract	1 per contract or change in material	AS1141.11
	- Joint Filler	1 contract	1 per contract	
Base	Geometry	One layer 5000m ² , max 1 day's placement	One cross section per 15m	Survey
	Surface Quality	"	10 per 50m per lane/paving length*	3m Straight Edge
Edge Restraints	Refer 'Minor Concrete Works'			
Laying Paver Units	Joint Width	1 day's placement	All joints	Measure
	Geometry	1 day's placement	One cross section per 15m	Survey
	Surface Quality	1 day's placement	10 per 50m per lane/paving length*	3m Straight Edge

* Note: or part thereof, per lot

Sub-Annexure C13 MINOR CONCRETE WORKS (Specification C271)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Subgrade	Compaction	1000 lin m or 1000m ²	1 per 200 lin m or 200m ²	T166
Gravel Subbase Construction	Compaction	1 day's placement	1 per 100 lin m or 100m ²	T166
	Subbase Geometry	1 day's placement	1 per 15 lin m	3m Straight Edge
Steel Supply	Material Quality - Suppliers documentary evidence and certification	1 delivery	1 per production batch	
Ready-Mixed Concrete Supply	Material Quality - Suppliers documentary evidence and certification	1 contract	1 per mix type	
	Consistency - Slump	15m ³	1 per load	AS1012.3 Method 1
	Compressive Strength (7 and 28 day)	15m ³	2 pairs per 15m ³	AS1012.1, AS1012.8, AS1012.9
Concrete Placement	Finished Levels	15m ³	1 cross section per 15m	Survey and 3m Straight Edge
Backfilling	Material Quality			
	- Maximum particle size	1 contract/ material type	1 per 200m ^{3*}	T106
	- Plasticity Index	1 contract/ material type	1 per 200m ^{3*}	AS1289.3.3.1
	Compaction	1 structure, max 200m ³	1 per layer, max 200m ^{2*}	T166
Sprayed Concrete	Test Panels and Cores	1 contract	3 test panels and 4 cores per mix design	AS1012.4, AS1012.9 AS1012.14
	Compressive Strength Cores	15m ³	2 per 15m ³	AS1012.4, AS1012.9 AS1012.14
	Curing Material Quality - Supplier's documentary evidence and certification	1 contract	1 per production batch	

* Note: or part thereof, per lot

**Sub-Annexure C14
PAVEMENT MARKINGS (Specification C261)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of: - Paint - Glass Beads - Thermoplastic Material - Raised Pavement Markers	1 contract 1 contract 1 contract 1 contract	1 per contract or change in material " " "	
Paint Application	Wet Film Thickness Application Rate of Glass Beads	1 contract 1 contract	1 per site visit or change in pressure settings 1 per site visit or change in pressure settings	Annexure C261A Annexure C261B
Thermoplastic Application	Cold Film Thickness Application Rate of Glass Beads	1 contract 1 contract	1 per site visit or change in pressure settings 1 per site visit or change in pressure settings	Measure by micrometer Annexure C261B

Sub-Annexure C15
SIGNPOSTING (Specification C262)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of: - Sign Blanks - Aluminium Extrusion Backing - Retro-reflective Material - Non-reflective Paint - Non-reflective Sheet Material - Steel Sign Support Structures	1 contract 1 contract 1 contract 1 contract 1 contract 1 contract	1 per contract, or change in material " " " " "	
Concrete Foundations	Refer 'Minor Concrete Works'			

**Sub-Annexure C16
LANDSCAPING (Specification C273)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Imported Topsoil	Material Quality - pH - Organic Content - Soluble Salt Content	10,000m ² 10,000m ² 10,000m ²	1 per 500m ³ 1 per 500m ³ 1 per 500m ³	AS 4419

Sub-Annexure C17 WATER RETICULATION (Specification C401)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- uPVC Pipes	1 contract	1 per contract	AS2977
	- Ductile Iron Pipes	1 contract	"	AS2280 and AS2129
	- Copper Pipe	1 contract	"	AS1432
	- Polyethylene Pipe	1 contract	"	AS1159
	- Stop Valves Material	1 contract	"	AS2638 and AS2129
	- Non Return Valves	1 contract	"	AS3578
- Spring Hydrants	1 contract	1 per contract	AS2544 or AS3952	
Siting and Excavation	Geometry	1 line	1 per line	Survey
Bedding	Material Quality - Grading	1 contract	1 per contract per source	AS2032
Thrust and Anchor Blocks	Refer Annexure C13			
Concrete Encasement	Refer Annexure C13			
Chamber Covers and Frames	Geometry	1 cover/frame	1 per cover/frame	survey
Testing of Pipelines	Pressure testing	1 line	1 per line	As specified C401.28
Backfill and Compaction	Compaction	1 line	1 per 2 layers max 100m ²	AS1289.5.7.1
Switchgear and Controlgear Assembly	Electrical function	each installation	1 factory test per installation	AS3439
Commissioning of Pumping Station	Certification testing of electrical installation in accordance with relevant Australian Standards	1 installation	1 per installation	

**Sub-Annexure C18
SEWERAGE SYSTEM (Specification C402)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- uPVC Pipes	1 contract	1 per contract	AS1477
	- Ductile Iron Pipes	1 contract	"	AS2280 and AS2129
	- Vitrified Clay Pipes	1 contract	"	AS1741
	- Precast Access Chambers	1 contract	"	AS4198
Siting and Excavation	Geometry	1 line/ structure	1 per line/ structure	Survey
Bedding	Material Quality - Grading	1 contract	1 per contract per source	T106
Concrete Bedding	Refer Annexure C13			
Laying and Jointing of Pipes, Access Chambers, Structures	Geometry	1 line	1 per line	Survey
Thrust and Anchor Blocks	Refer Annexure C13			
Concrete Encasement	Refer Annexure C13			
Cast-in-situ Access Chambers	Material Quality - Tri-Calcium Aluminate Content	1 contract	1 per contract per source	AS3972
	- Fineness Index	1 contract	"	AS3972
	- Minimum Cement Content	1 contract	"	AS3972
Acceptance Test of Gravitation Mains and Access Chambers	- Compressed Air Testing	1 line	1 per line	As specified C402.36 C402.37
	- Hydrostatic Testing	1 per test length Test length = 1370m pipeline dia.(mm)	1 per line	As specified C402.38
Backfill and Compaction	Compaction	1 line	1 per 2 layers max 100m ²	AS1289.5.7.1
Switchgear and Controlgear Assembly	Electrical Compliance	each installation	1 factory test per installation	AS3439
Commissioning of Pumping Station	Certification testing of electrical installation in accordance with relevant Australian Standards	1 installation	1 per installation	