

Annex E: Quality Control Plan

1. Purpose

To define the procedures and criteria for inspecting and accepting the following goods received:

1. Gabion baskets (1m×1m×3m), ties, accessories
2. Gabion baskets (1m×1m×2m), ties, accessories
3. Gabion baskets (5m×1m×2m), ties, accessories
4. Gabion fabric
5. Portland cement
6. Aggregates (gravel, sand – referred to here as “Nice”)
7. Water

2. General Inspection Procedures

- Sampling Size: Randomly selected 10% of the total delivery quantity per batch or as per ISO 2859-1.
- Documentation Required: Certificate of Origin, or Test Certificates.
- Testing Performed By: Internal Consultant Engineer.
- Sample Storage: Samples labeled, sealed, and stored for minimum 60 days.
- Report Format: See attached Sample Quality Control Report template in Section 9.4.

2.1 Gabion Baskets (All Sizes):

Parameter	Target	Acceptable Tolerance	Standard/Source	Test Method	Responsibility
Wire Type	Galvanized steel or PVC-coated	As per ASTM A975	ASTM A641/A975	Visual, Coating Thickness	Internal QC
Wire Diameter	2.7mm ±0.2mm	±0.2mm	ASTM A975	Micrometer	Internal QC
Mesh Size	80×100mm	±5%	ASTM A975	Manual Measurement	Internal QC
Tensile Strength	≥380 N/mm ²	No negative deviation	ASTM A370	Tensile Test	Internal QC
Basket Dimension	As per item	±3%	Manufacturer Spec	Tape Measure	Internal QC
Accessories	Match basket type	Full set required	Visual count	Visual count	Internal QC

2.2 Gabion Fabric:

Parameter	Target	Acceptable Tolerance	Standard/Source	Test Method	Responsibility
Material	Woven geotextile (polypropylene)	As per EN ISO 10319	EN ISO 10319	Visual + tensile test	Internal QC
Weight	≥150g/m ²	±10%	ISO 9864	Weighing	Internal QC
Tensile Strength	≥10 kN/m	-5%	EN ISO 10319	Tensile Machine	Internal QC
UV Resistance	≥70% retention	-	ASTM D4355	Lab Test	Internal QC

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3.2 Portland Cement:

Parameter	Target	Acceptable Tolerance	Standard/Source	Test Method	Responsibility
Type	OPC Type I or II	As per ASTM C150	ASTM C150	Chemical analysis	Manufacturer/3rd Party
Fineness	$\geq 225 \text{ m}^2/\text{kg}$	-	ASTM C204	Blaine apparatus	Internal QC
Setting Time	Initial $\geq 45 \text{ min}$; Final $\leq 10 \text{ hrs}$	-	ASTM C191	Vicat apparatus	Internal QC
Compressive Strength	$\geq 28 \text{ MPa @ 28 days}$	-5%	ASTM C109	Cube Test	Internal QC

4.2 Aggregates ("Nice"):

Parameter	Target	Acceptable Tolerance	Standard/Source	Test Method	Responsibility
Gradation	Within ASTM C33 range	$\pm 5\%$	ASTM C33	Sieve Analysis	Internal QC
Moisture Content	2–6%	$\pm 1\%$	ASTM C566	Oven Drying	Internal QC
Abrasion (L.A.)	$\leq 40\%$	-	ASTM C131	LA Abrasion Machine	Internal QC
Organic Impurities	Not darker than standard	-	ASTM C40	Color Comparison	Internal QC

5.2 Water:

Parameter	Target	Acceptable Tolerance	Standard/Source	Test Method	Responsibility
pH	6–8.5	± 0.5	ASTM C1602	pH Meter	Internal QC
Chlorides	$< 500 \text{ ppm}$	Max	ASTM D512	Lab Test	Internal QC
Sulfates	$< 1000 \text{ ppm}$	Max	ASTM D516	Lab Test	Internal QC
Appearance	Clear, no oil or solids	-	Visual	Visual	Internal QC

4. Quality Control Inspections Procedures

Upon Delivery:

- Visually inspect packaging, labeling, and transport conditions.
- Verify delivery quantity and match with packing list.
- Collect representative samples for each batch.

Testing:

- Conduct internal tests and send samples to a third-party lab.
- Maintain test records with date, batch, and source details.

Non-Conformance Handling:

- Goods failing any essential test are rejected
- Supplier is notified and asked to replace the batch.
- Incident recorded in the Non-Conformance Report (NCR).

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5. Attachments

Sample Quality Control Report (Section 9.4) – includes:

- Item ID
- Date Received
- Supplier Name
- Sample Results
- Conformance Status (Pass/Fail)
- Inspector Signature

6. Sources of Specifications

- ISO: International Organization for Standardization
- ASTM: American Society for Testing and Materials
- EN: European Norms