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Test Sanitary Sewer: Air, Mandrel, CCTV Acceptance Checklist

Test sanitary sewer with an interactive checklist for air, mandrel, and CCTV. Commentable workflow and export as PDF/Excel help deliver compliant records, signatures, and faster acceptance.

Project:	
Date:	
Filled by:	

Pre-Test Controls	
1	Confirm testing approvals and traffic/confined space permits are current; verify work order references and applicable acceptance criteria per approved project specifications and authority requirements; attach permit copies to the test record.
2	Isolate the pipe reach between manholes with properly sized pneumatic plugs rated above intended test pressure; record plug sizes, serial numbers, and pressure ratings; photograph plug installation at each manhole.
3	Assess site conditions: measure ambient air temperature (°C) and note groundwater level relative to pipe crown (m); document values, as they influence air test results and CCTV visibility.
4	Verify all gauges and timers used for testing have calibration within the required interval; record certificate numbers, calibration date, and gauge accuracy (for example, ±1% full scale); photograph calibration stickers.
5	Confirm the pipeline was cleaned and flushed; remove debris and standing water as feasible using jet/vac equipment; capture pre-test photos showing clean invert and open flow path.

Low-Pressure Air Test	
6	Install test plugs with safety restraints and a bleed/vent valve; perform a soap solution check on plug interfaces to confirm no plug leakage before starting the pressure test; record findings.
7	Attach a calibrated pressure gauge and regulator; pressurize the isolated segment slowly to the specified test pressure; allow stabilization as required; record start pressure (kPa), temperature (°C), and stabilization time (min).
8	Begin the timing interval once pressure is stable; measure the time for pressure to decay between the specified limits; acceptance: decay time meets or exceeds the required minimum; record elapsed time to the nearest second.
9	If decay time is below the minimum, locate leaks using audible listening and soap solution along accessible joints and laterals; document defect locations by chainage and clock position; record corrective actions.
10	Depressurize the line safely through the bleed valve; verify gauges return to zero and plugs remain secured; document final gauge readings and capture post-test photos.

Mandrel Deflection Test	
11	Select a rigid mandrel sized to the allowable percent deflection for the pipe; verify mandrel outside dimensions with calipers (mm) and record measured diameters and mandrel ID.
12	Perform the mandrel pull after required backfill settlement/soak period; use a non-metallic line to pull from the downstream manhole unless specified otherwise; record pull direction and segment chainage.
13	Pull the mandrel at a slow, steady rate without forcing or rotating; acceptance: mandrel passes through the full reach without binding; if binding occurs, stop and mark chainage for investigation.
14	Log pipe size, material, reach length, manhole IDs, allowable deflection criterion, and pass/fail; photograph the mandrel at the manhole, showing size markings and verification measurements.
15	For deflection failures, delineate the affected area, initiate remediation (for example, re-compaction or replacement) per engineer direction, observe the required waiting period, and retest; attach before/after records.

CCTV Inspection	
16	Use a high-resolution pan/tilt camera with a calibrated distance counter; verify counter calibration against a measured tape (m) and record the deviation and equipment serial number.
17	Set camera focus, lighting, and lens cleanliness; confirm smooth crawler function; start recording with metadata: project, segment ID, date/time, operator, upstream/downstream manhole IDs, and chainage zero reference.
18	Survey at a steady speed to avoid motion blur; ensure water level and debris do not obscure the invert; acceptance: continuous, readable video with uninterrupted chainage; document any visibility limitations.
19	Code defects using the approved standard; note clock position, chainage (m), and extent; capture screenshots for cracks, offsets, intruding laterals, infiltration, sags, or debris; flag any structural or service-impacting issues.
20	Confirm lateral connections are identified and free of protrusions; acceptance: no active infiltration, blockages, or displaced joints exceeding allowable limits; record each lateral’s chainage and orientation.
21	Deliver MP4 video, a defect log (CSV/XLSX) with chainage references, and a concise segment report; include a plan or schematic if available; store files in the designated project repository with standardized filenames.

Acceptance & Records	
22	Compile air, mandrel, and CCTV outcomes; compare each against approved acceptance criteria; produce a pass/fail summary sheet for the segment and identify any required corrective actions and retests.
23	Obtain digital sign-offs from contractor, inspector, and owner’s representative; capture names, roles, and timestamps; attach signatures to the test package and archive within the project quality system.
24	Update as-built data: manhole IDs, reach length (m), pipe size/material, and invert levels (m); attach final CCTV index; export updates to GIS/CAD and store the export alongside the test package.
25	Raise a nonconformance for any failed criteria; record defect description, location, corrective method, responsible party, and target retest date; close out with evidence of satisfactory retest results.
26	Archive all evidence: permits, calibration certificates, photos, videos, logs, and summary sheets; ensure consistent filenames and metadata; back up to cloud and local storage; include a QR link for retrieval.
27	Export the completed interactive checklist to PDF and Excel; verify that hyperlinks to videos, photos, and certificates function; distribute to stakeholders per the project communication plan.
28	Issue final acceptance recommendation for the segment when all tests pass and records are complete; obtain owner/authority acceptance notification per approved project specifications and authority requirements.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Test sanitary sewer pipelines using low-pressure air, mandrel deflection, and CCTV inspection to verify integrity before acceptance. This checklist focuses on post-construction testing only, excluding installation, and supports inspectors, contractors, and owners. It assembles proven procedures for air testing, mandrel pulls (ovalization/deflection), and closed-circuit television (CCTV) sewer inspection, along with acceptance decisions and records management. By following these steps, teams reduce leakage risk, avoid sags and protruding laterals, and document clear pass/fail evidence per approved project specifications and authority requirements. The outcome is a compliant system with traceable calibration, photographs, videos, and signatures ready for handover. Use this interactive checklist—tick items, add comments, and export to PDF/Excel with a secure QR link for verification.	1. Preparation: Gather calibrated gauges, pneumatic plugs with restraints, mandrel and calipers, CCTV crawler with counter, jet/vac, thermometer, tape, PPE, permits, and approved acceptance criteria. 2. Preparation: Define the segment by manhole IDs, confirm access, cleaning status, and safety arrangements; brief the team on roles, hazards, and documentation requirements. 3. Using the Interactive Checklist: Start interactive mode, tick each step as completed, and add comments with photos, readings, and chainage references for traceability. 4. Using the Interactive Checklist: Attach calibration certificates, CCTV files, and defect logs; use tags for segment ID, date, and instrument IDs to keep records searchable. 5. Export: Generate an export as PDF/Excel that includes checkmarks, comments, embedded links to media, and a QR code to the full record bundle. 6. Sign-Off: Capture digital signatures from contractor, inspector, and owner; distribute the export to stakeholders and archive the QR-authenticated package in the project repository.