

Comprehensive Borehole Project Pre-Quotation & Site-Visit Checklist

This checklist consolidates all technical, legal, logistical, and financial considerations required before issuing a quotation or commencing a borehole project. It is designed for use by contractors, engineers, or consultants during client consultations and site inspections.

1. Client & Property Information

- ☐ Full Name of Property Owner
- ☐ Property Address and GPS Coordinates
- ☐ Property Type: Residential / Commercial / Agricultural / Industrial
- ☐ Municipality: City of Johannesburg / Ekurhuleni / Tshwane / Other
- ☐ Site Plan / House Plans available (showing buried utilities)
- ☐ Contact Details (Phone, Email)

2. Legal & Regulatory Compliance

- ☐ Confirm applicable municipal by-laws and registration requirements
- ☐ Written municipal consent obtained (CoJ/Ekurhuleni/Tshwane)
- ☐ Confirm property zoning and land-use approval (LUM/EISD)
- ☐ Check if property falls within a dolomite risk zone (Centurion, Lenasia, etc.)
- ☐ Check for proximity to abandoned mine workings or basins
- ☐ Confirm awareness of National Water Act (Act 36 of 1998) and SANS 10299 compliance
- ☐ Confirm environmental clearance if required

3. Site Access & Logistics

- ☐ Confirm clear access for 15-tonne triple-axle drilling rig (3m width, 10m length)
- ☐ Check for overhead obstructions (power lines, trees, cables)
- ☐ Assess surface conditions: Level / Sloped / Soft / Rocky
- ☐ Confirm location of underground utilities (electric, sewer, water, fiber)
- ☐ Minimum distances observed:
 - ☐ 5–10m from building foundations
 - ☐ 30–50m from septic tanks or soakaways
 - ☐ 3–5m from boundary walls
- ☐ Confirm safe working area for rig and crew
- ☐ Verify noise and dust management plan (neighbour notification if required)

4. Hydrogeological Survey & Siting

- ☐ Professional geophysical survey completed or scheduled
- ☐ Survey method selected: PQWT / Proton Magnetometer / Resistivity
- ☐ Survey conducted by SACNASP-registered hydrogeologist
- ☐ Geophysical traverse length (min. 200m) and 5m data intervals confirmed
- ☐ Identify target aquifer and anticipated drilling depth
- ☐ Assess geological risks (dolomite, dikes, faults, mining voids)
- ☐ Review hydrogeological report and recommendations
- ☐ Confirm survey report forms part of quotation documentation

5. Drilling & Borehole Construction

- ☐ Anticipated drilling depth (m): _____
- ☐ Borehole diameter and casing specifications determined
- ☐ Casing material selected:
 - ☐ Steel (unstable ground / >200m depth)
 - ☐ uPVC Class C ($\leq 120\text{m}$)
 - ☐ uPVC Class D ($\leq 200\text{m}$)
- ☐ Sanitary seal method: Cement Grouting / Bentonite Seal
- ☐ Gravel pack and well screen design specified
- ☐ Driller's log to be maintained (formation, yield, static level)

6. Hydraulic Testing & Yield Verification

- ☐ Borehole development (air surging / flushing) planned
- ☐ SANS 10299-4 yield test scheduled:
 - ☐ Step Drawdown Test
 - ☐ Constant Discharge Test (8–24 hours)
 - ☐ Recovery Test
- ☐ Sustainable yield determined (L/hr)
- ☐ Yield Test Certificate to be issued
- ☐ Confirm water level and drawdown data recorded

7. Pump & Electrical System Design

- ☐ Intended water use: Garden / Household / Irrigation / Livestock
- ☐ Estimated daily demand (L/day): _____
- ☐ Total Dynamic Head (TDH) calculated (static + dynamic + friction + pressure)
- ☐ Pump type selected:
 - ☐ AC Submersible
 - ☐ Solar DC
 - ☐ Variable Speed (VSD)
- ☐ Motor size (kW): _____
- ☐ Cable size and length verified (voltage drop check per SANS 10142-1)
- ☐ Control box with thermal and dry-run protection specified
- ☐ Power source: Grid / Solar / Hybrid
- ☐ Confirm IP65-rated enclosure for electrical components

8. Storage & Reticulation Infrastructure

- ☐ Tank capacity: 2,500L / 5,000L / 10,000L / Custom
- ☐ Tank base: Reinforced concrete slab (85–150mm thick, level, stable)
- ☐ Tank stand height (if applicable): _____ m
- ☐ Pressure requirement: Gravity feed / Booster pump
- ☐ Booster pump type: Constant Speed / VSD
- ☐ Reticulation piping layout confirmed
- ☐ Backflow prevention method: Air Gap / Certified Device
- ☐ Confirm compliance with SANS 10252-1 (plumbing standards)

9. Water Quality & Treatment

- ☐ SANS 241 laboratory test required: Chemical / Microbiological
- ☐ Visible water issues: Staining / Odor / Turbidity
- ☐ Treatment system options:

- ☐ Sediment Filtration (5-micron)
- ☐ Carbon Filtration
- ☐ UV Sterilization
- ☐ Iron/Manganese Removal
- ☐ Reverse Osmosis (RO)
- ☐ Confirm SANAS-accredited lab testing
- ☐ Record any Acid Mine Drainage (AMD) indicators or regional contamination risks

10. Automation & System Control

- ☐ Float switches installed for tank level control
- ☐ Pressure controller or mechanical switch for booster pump
- ☐ Variable Frequency Drive (VFD) for constant pressure system
- ☐ Surge protection and grounding verified
- ☐ Optional IoT monitoring (remote water level and pump health)

11. Financial & Contractual Framework

- ☐ Itemized quotation prepared (survey, drilling, casing, pump, tank, etc.)
- ☐ Confirm cost-per-meter drilling rate and casing rate
- ☐ Include all provisional sums (mobilization, testing, electrical, etc.)
- ☐ Client informed of “dry hole” clause (payment per meter regardless of yield)
- ☐ Deposit and payment schedule agreed
- ☐ Warranty terms explained (12-month equipment & workmanship)
- ☐ Client acknowledges ownership transfer upon full payment
- ☐ Quotation validity period (14–30 days) confirmed
- ☐ Include Terms & Conditions referencing SANS 10299 and municipal compliance

12. Documentation & Handover Requirements

- ☐ Geophysical Survey Report
- ☐ Driller’s Log (depth, formations, yield)
- ☐ Yield Test Certificate (SANS 10299-4)
- ☐ Water Quality Report (SANS 241)
- ☐ Electrical Compliance Certificate (SANS 10142-1)
- ☐ Warranty Certificates (Pump, Control Box, Booster)
- ☐ Maintenance Schedule and User Guide provided

13. Final Site & Safety Checks

- ☐ Confirm safe borehole head protection (manhole or concrete collar)
- ☐ Verify all electrical enclosures are sealed and labelled
- ☐ Ensure all trenches and piping are backfilled and compacted
- ☐ Confirm signage or labelling for borehole identification
- ☐ Conduct final inspection with client and obtain sign-off

Contractor Signature: _____

Client Signature: _____

Date: _____

This checklist ensures that every borehole quotation and site assessment aligns with South African engineering, safety, and legal standards, minimizing risk and ensuring transparency for both contractor and client.

