JARIIBAN LOCAL GOVERNMENT

Puntland State of Somalia

Technical specifications drawings and unpriced BoQs

Scope of works, site schedules, specifications, clean layout drawings and bidder pricing schedules for the four boreholes.

Particular	Details
Project	Solar-primary pumping conversion with retained diesel backup at four community boreholes
Sites	Doorshaanle, Bararweyne, Laan Fardood, Birxoog
District reference	JLG/PROC/2026/015
PNTB reference	PNTB / 52/2026
Programme	UNCDF LoCAL / Performance-Based Climate Resilience Grant
Publication date	19 November 2026
Submission deadline	3 December 2026 at 4:00 PM EAT (UTC+3)
Submission place	Jariiban District Office or Send through procurementjariibandistrict@gmail.com
Contact / document requests	procurementjariibandistrict@gmail.com

Read Documents 1and 2. Complete and return the bidder forms in Document 1 and the priced schedules in Document 2, with the supporting evidence required by the Invitation to Bid.

Document 1 - Bidding Document
Document 2 - Technical Specifications Drawings and Unpriced BoQs

Section 1 - Scope and design schedules

Convert the existing boreholes to ground-mounted solar-primary pumping, retaining the installed submersible pumps and diesel generators. Supply PV modules, racking and foundations, solar pump VFDs, protection, cabling, earthing/lightning protection, automatic generator interface, fencing and gates, signage, installation, testing and operator handover. Document 3 defines the site safeguards measures to be priced.

Existing tanks, troughs and distribution infrastructure are retained. Distribution-network extensions, storage-tank works, pump replacement and water-treatment installations are outside the stated V02 conversion scope. Any additional works require a written change to the bidding requirements.

Site	Existing pump kW	PV modules / capacity	Strings	VFD kW
Doorshaanle	11	42 x 600 Wp / 25.2 kWp	3 x 14	15
Bararweyne	18.5	52 x 600 Wp / 31.2 kWp	4 x 13	22
Laan Fardood	11	42 x 600 Wp / 25.2 kWp	3 x 14	15
Birxoog	15	48 x 600 Wp / 28.8 kWp	4 x 12	18.5

Total: 184 modules and 110.4 kWp. Existing generator ratings are 50, 66, 35 and 44 kVA at Doorshaanle, Bararweyne, Laan Fardood and Birxoog respectively. No guaranteed solar-only daily production is inferred from the feasibility estimates.

Site	TDH m	Design demand m3/day	Sustainable abstraction m3/hour
Doorshaanle	230	120	13
Bararweyne	300	100	12
Laan Fardood	210	120	14
Birxoog	220	120	15

Verify existing motor nameplates and site conditions before installation. The feasible operating flow must remain within the site-specific sustainable abstraction rate. The feasibility study estimates approximately 95, 94, 104 and 119 m3/day from solar alone respectively under its stated assumptions; these are modelling estimates, not guaranteed commissioning thresholds.

1.1 Layout and civil schedule

Borehole	Modules (2-Row Matrix)	Array Dimensions	Fenced Compound	Land Area
Doorshaanle	42 (2 × 21)	23.1 m long × 4.4 m slant depth	25.1 m × 7.5 m	188.3 m² (0.05 ac)
Bararweyne	52 (2 × 26)	28.6 m long × 4.4 m slant depth	30.6 m × 7.5 m	229.5 m² (0.06 ac)
Laan Fardood	42 (2 × 21)	23.1 m long × 4.4 m slant depth	25.1 m × 7.5 m	188.3 m² (0.05 ac)
Birxoog	48 (2 × 24)	26.4 m long × 4.4 m slant depth	28.4 m × 7.5 m	213.0 m² (0.05 ac)
PROJECT TOTAL	184 panels	-	-	819.0 m² (0.20 ac)

Site	Support legs	Concrete m3	Fence length m	Gate width m
Doorshaanle	20	3.24	66	1.4
Bararweyne	24	3.89	77	1.4
Laan Fardood	20	3.24	66	1.4
Birxoog	22	3.56	72	1.5

Layout dimensions and quantities follow the V02 text/BoQ schedules. Concrete and racking are measured in their separate BoQ lines; do not price the same foundations twice. Drawings D2-01 to D2-04 show the scheduled array arrangements and fenced compounds.

Section 2 - Technical specifications

2.1 PV modules and strings

Provide new 600 Wp monocrystalline bifacial PV modules with traceable manufacturer datasheets. Use the scheduled module quantities and strings. Submit open-circuit voltage, operating-voltage and short-circuit-current checks against the actual VFD ratings and relevant site temperature conditions. Do not treat the source's illustrative voltage calculations as manufacturer certification.

2.2 Racking and foundations

Provide hot-dip galvanised steel two-row portrait racking, fixed at 12 degrees and oriented true south. The V02 schedule uses a 1.0 m front clearance, 2.0 m rear supports and maximum leg spacing of 2.8 m. Footings are 450 x 450 x 800 mm, with four Y10 vertical bars and R6 stirrups at 150 mm. Rear supports are 3-inch NB Schedule 40 galvanised pipe; front supports 2.5-inch NB Schedule 40. Structural capacity, wind loading, soil suitability and anchorage require the responsible engineer's verification.

2.3 Solar pump VFD

Provide a three-phase solar pump VFD with MPPT, matched to the existing pump motor and scheduled power class. Protect against unsuitable DC voltage/current, dry running and electrical faults. Use manufacturer-supported settings compatible with the motor, hydraulic head and installed motor cable. Provide the necessary protection/filter interface required by that manufacturer; identify it in the technical offer.

2.4 Combiner and DC protection

Provide weatherproof IP66 DC combiner boxes with positive/negative string protection, DC-rated isolators and Type II surge protection. The V02 rating schedule below is the design basis; verify compatibility against the selected module and VFD datasheets. AC-rated breakers must not be substituted for DC-rated equipment.

2.5 Cabling

Provide dedicated UV-resistant XLPE PV1-F solar cable and compatible connectors, protected routes, identification and terminations. Design the main DC feeder for less than 3% voltage drop on the scheduled route basis of up to 40 m. Main feeder sizes in the V02 schedule are 10 mm2 at Doorshaanle/Laan Fardood and 16 mm2 at Bararweyne/Birxoog. String conductor size for the issued schedule: _____ mm2. Confirm actual route lengths and motor-cable compatibility in the installation submittal.

2.6 Generator interface and enclosures

Retain each existing diesel generator and provide automatic solar-generator transfer/changeover. Submit the complete manufacturer-compatible control and interlock arrangement before connection. Prevent unintended backfeed or simultaneous incompatible source connection. Locate equipment in ventilated weatherproof housing within the secure compound, adjacent to existing generator facilities where available.

2.7 Earthing lightning and site security

Provide the scheduled earth rods, bonding, down-conductors and air terminal, with electrical continuity and protection testing. Install 2.0 m galvanised welded-mesh fencing and lockable gates. Fence-post centres follow the BoQ: 2 m at Doorshaanle and 3 m at the other sites. Replace deteriorated Birxoog fencing safely and maintain temporary barriers.

2.8 Installation testing and handover

Provide qualified installation personnel and safe isolation. Inspect foundations, mounts, fixings and fencing; test polarity, string voltages, earthing/protection, dry-run response and solar-generator changeover using manufacturer procedures. Verify pump rotation, running conditions and flow without exceeding the sustainable site rate. Record test conditions and results. Supply as-built records, manufacturer manuals/warranties and operator training on safe use, fault reporting, pumping logs and panel cleaning.

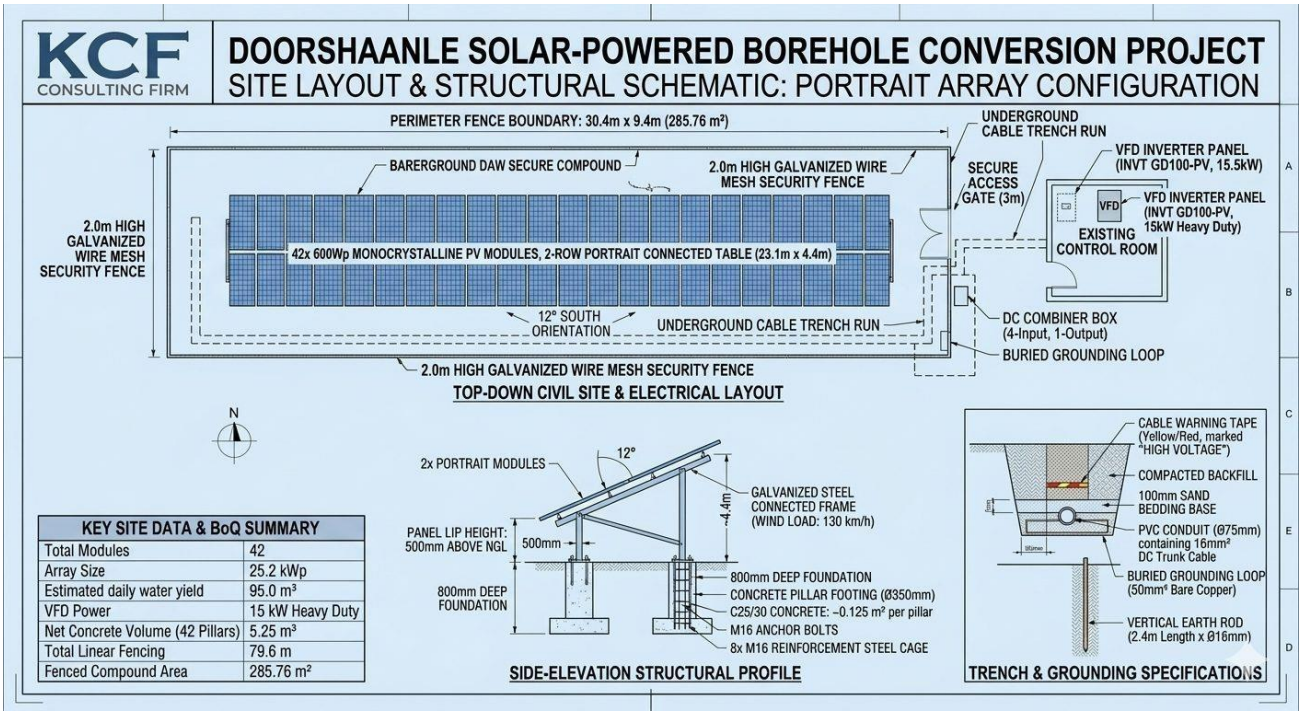
Borehole	Strings	DC Fuses	DC Surge Protection (SPD)	Main DC Isolator
Doorshaanle	3	6 × 30 A / 1,000 V DC (gPV)	Type II, 1,000 V DC, 20 kA	4-pole, 80 A DC isolator
Bararweyne	4	8 × 30 A / 1,000 V DC (gPV)	Type II, 1,000 V DC, 20 kA	4-pole, 100 A DC isolator
Laan Fardood	3	6 × 30 A / 1,000 V DC (gPV)	Type II, 1,000 V DC, 20 kA	4-pole, 80 A DC isolator
Birxoog	4	8 × 30 A / 1,000 V DC (gPV)	Type II, 1,000 V DC, 20 kA	4-pole, 100 A DC isolator

Training and commissioning are included in each site's installation/testing item. The contractor must hand over completed records and demonstrate the safeguards completion evidence in Document 3. Manufacturer warranties offered are identified in Form F7; contractual minimum periods are set in Document 1 Contract Data.

Section 3 - Drawings

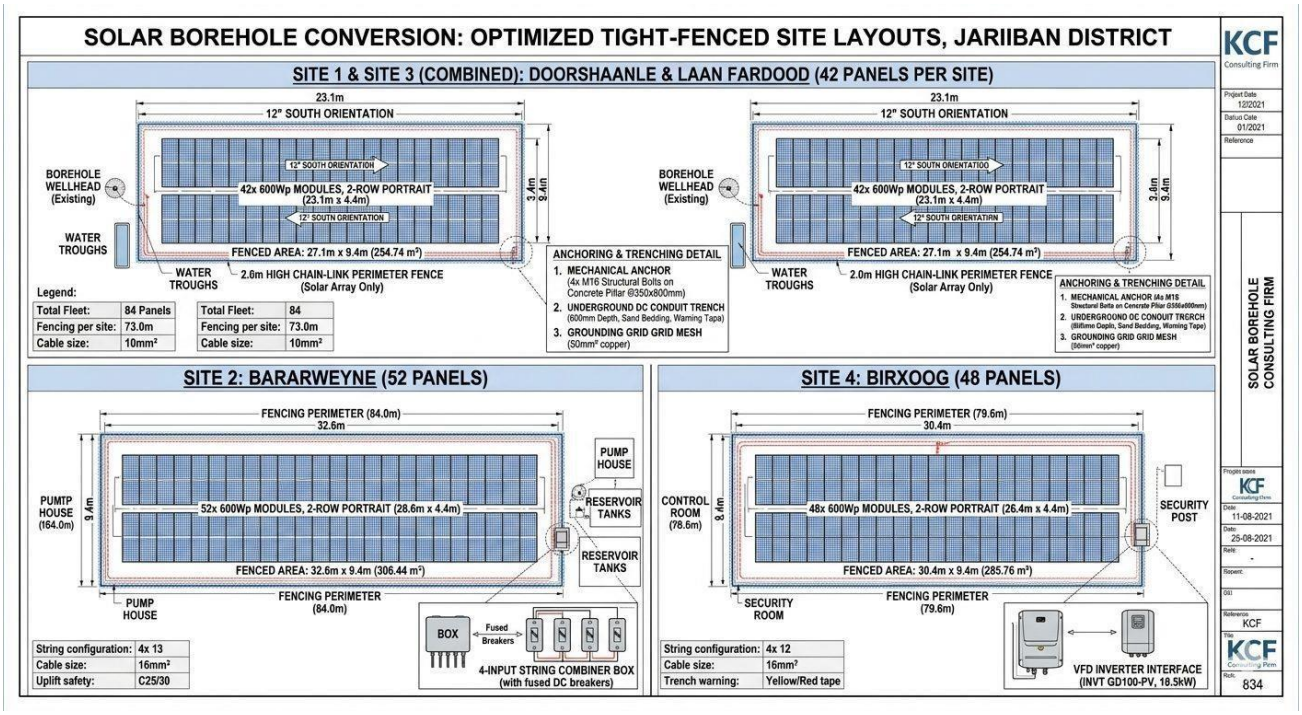
Drawings D2-01 to D2-04 use the source V02 dimensional and BoQ schedules. They show the array arrangement and compound boundaries. Final equipment siting must preserve existing water access and generator operation.

D2-01 Doorshaanle layout



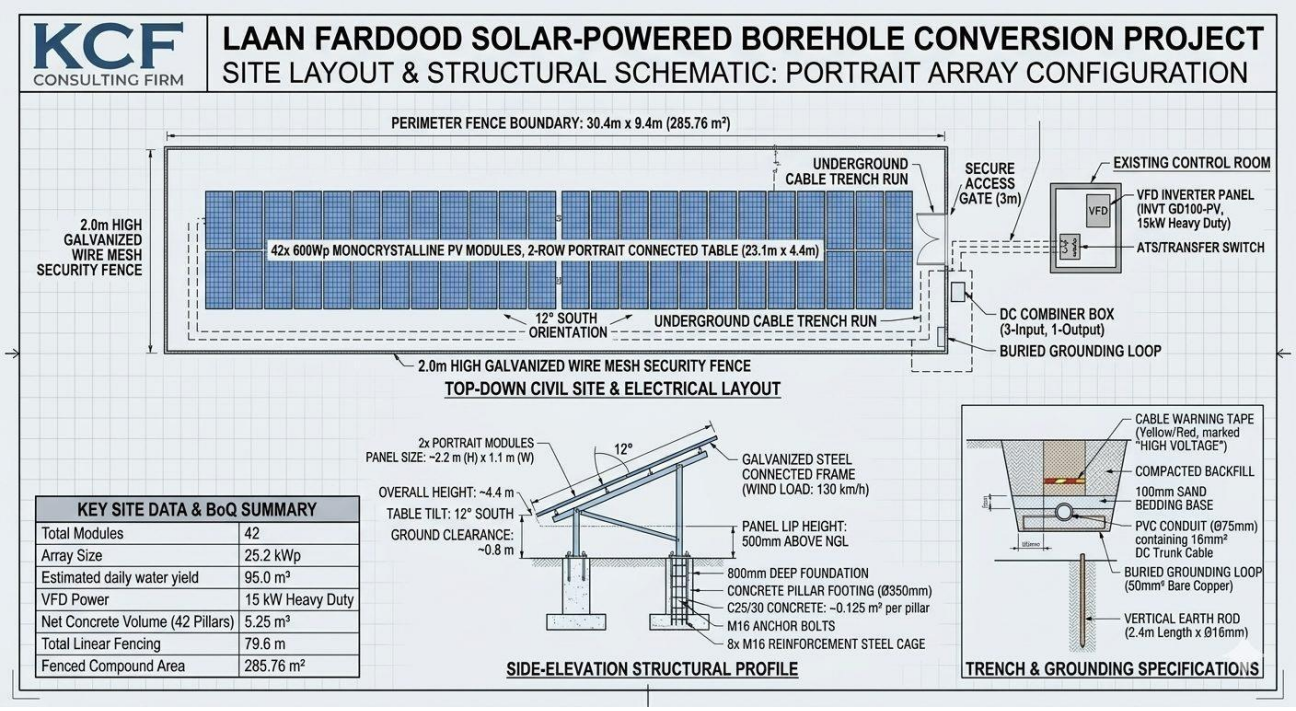
Doorshaanle: see Section 1 for the corresponding support-leg, foundation, pump and electrical schedules. Price the site BoQ in Section 4.

D2-02 Bararweyne layout



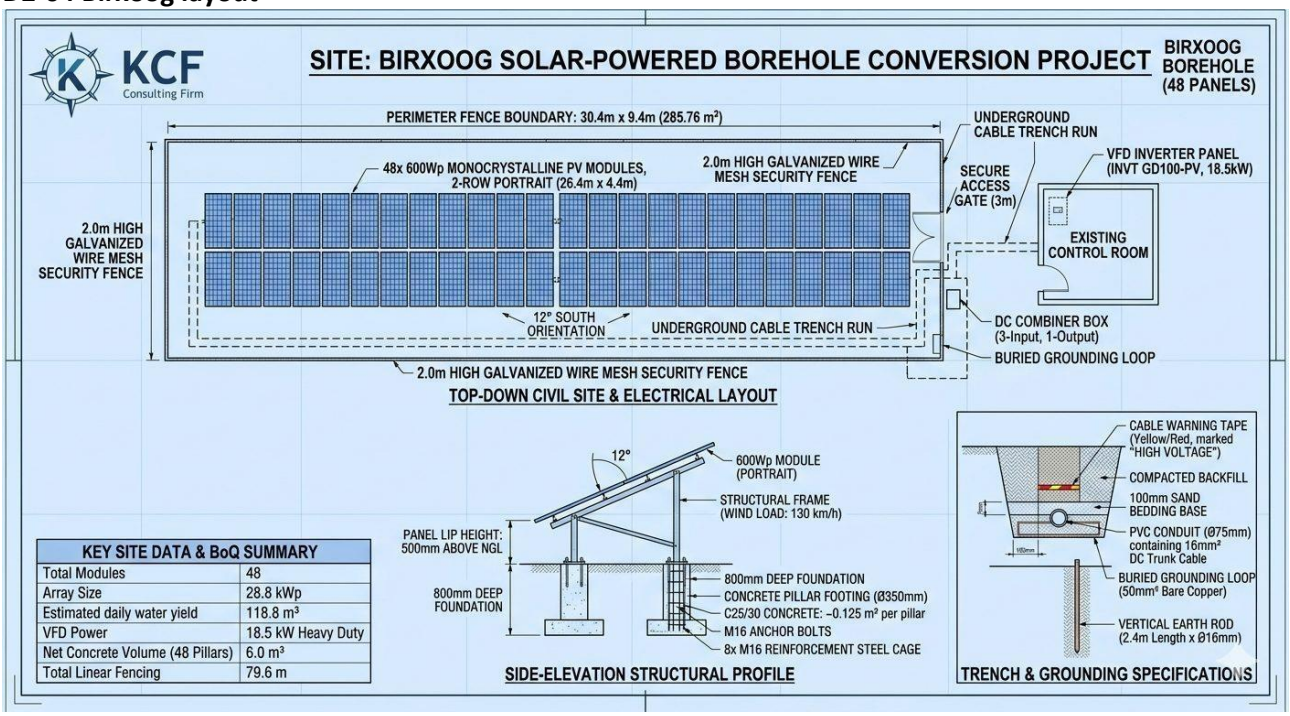
Bararweyne: see Section 1 for the corresponding support-leg, foundation, pump and electrical schedules. Price the site BoQ in Section 4.

D2-03 Laan Fardood layout



Laan Fardood: see Section 1 for the corresponding support-leg, foundation, pump and electrical schedules. Price the site BoQ in Section 4.

D2-04 Birxoog layout



Birxoog: see Section 1 for the corresponding support-leg, foundation, pump and electrical schedules. Price the site BoQ in Section 4.

Section 4 - Unpriced Bills of Quantities

Bidder: _____
District reference: JLG/PROC/2026/015
PNTB reference: PNTB / 52/2026

Enter rates and amounts in USD. Quantity x unit rate gives the line amount. Include all necessary delivery, labour, installation, testing and the specified contractor safeguards obligations in the appropriate lines. Do not duplicate costs between racking and the separately measured foundations. Show taxes separately in the consolidated summary. The source BoQs carry a 5% contingency; it is displayed separately and is not a second rate on individual items.

B1 Doorshaanle BoQ

Item description	Unit	Qty	Rate USD	Amount USD
Solar PV Module, 600 Wp monocrystalline (bifacial)	pcs	42		
Ground-mount racking, hot-dip galvanised steel, 2-row portrait-stacked table (2 rows × 21 columns), 12° fixed tilt, incl. rails & clamps	pcs	42		
Structural support columns - rear 3" NB Sch. 40 HDG pipe (2.0 m), front 2.5" NB Sch. 40 HDG pipe (1.0 m clearance)	leg	20		
Reinforced concrete foundation, 450×450×800 mm footings incl. 4×Y10 rebar cage & R6 stirrups @150mm	m^3	3.24		
Solar Pump Inverter / VFD, 3-phase, 15 kW, MPPT DC input	unit	1		
DC combiner box - 3 strings, 6× 30A/1000V DC gPV fuses, Type-II SPD (20kA), 80 A 4-pole DC isolator	set	1		
DC solar cable, XLPE PV1-F, UV-resistant, with connectors; string conductor size as Section 2.5; main feeder as scheduled	m	150		
Earthing & lightning protection system (earth rods, down-conductor, air terminal)	set	1		
Automatic Transfer/Changeover Switch (ATS) panel, solar-generator, 3-phase	unit	1		
Security fencing - 2.0 m galvanized welded mesh wire, supported on galvanized steel poles at 2 m centers	m	66		
Lockable steel access gate, 1.4 m	no.	1		
Warning & safety signage (PV / high voltage)	set	1		
Installation, testing & commissioning (labour & tools)	LS	1		
Transport & logistics to site	LS	1		
ESMP implementation (PPE, barricades and warning tape, dust suppression, temporary bunded fuel/oil storage, first-aid kit, grievance box)	LS	1		

Site price summary	USD
Subtotal - all listed items	
Contingency 5% of subtotal	
Site total before separately stated taxes	

Authorised signature: _____ Date: _____
Company stamp: _____

B2 Bararweyne BoQ

Item description	Unit	Qty	Rate USD	Amount USD
Solar PV Module, 600 Wp monocrystalline (bifacial)	pcs	52		
Ground-mount racking, hot-dip galvanised steel, 2-row portrait-stacked table (2 rows × 26 columns), 12° fixed tilt, incl. rails & clamps	pcs	52		
Structural support columns - rear 3" NB Sch. 40 HDG pipe (2.0 m), front 2.5" NB Sch. 40 HDG pipe (1.0 m clearance)	leg	24		
Reinforced concrete foundation, 450×450×800 mm footings incl. 4×Y10 rebar cage & R6 stirrups @150mm	m^3	3.89		
Solar Pump Inverter / VFD, 3-phase, 22 kW, MPPT DC input	unit	1		
DC combiner box - 4 strings, 8× 30A/1000V DC gPV fuses, Type-II SPD (20kA), 100 A 4-pole DC isolator	set	1		
DC solar cable, XLPE PV1-F, UV-resistant, with connectors; string conductor size as Section 2.5; main feeder as scheduled	m	150		
Earthing & lightning protection system (earth rods, down-conductor, air terminal)	set	1		
Automatic Transfer/Changeover Switch (ATS) panel, solar-generator, 3-phase	unit	1		
Security fencing - 2.0 m galvanised welded mesh wire, supported on galvanised steel poles at 3 m centres	m	77		
Lockable steel access gate, 1.4 m	no.	1		
Warning & safety signage (PV / high voltage)	set	1		
Installation, testing & commissioning (labour & tools)	LS	1		
Transport & logistics to site	LS	1		
ESMP implementation (PPE, barricades and warning tape, dust suppression, temporary bunded fuel/oil storage, first-aid kit, grievance box)	LS	1		

Site price summary	USD
Subtotal - all listed items	
Contingency 5% of subtotal	
Site total before separately stated taxes	

Authorised signature: _____ Date: _____
Company stamp: _____

B3 Laan Fardood BoQ

Item description	Unit	Qty	Rate USD	Amount USD
Solar PV Module, 600 Wp monocrystalline (bifacial)	pcs	42		
Ground-mount racking, hot-dip galvanised steel, 2-row portrait-stacked table (2 rows × 21 columns), 12° fixed tilt, incl. rails & clamps	pcs	42		
Structural support columns - rear 3" NB Sch. 40 HDG pipe (2.0 m), front 2.5" NB Sch. 40 HDG pipe (1.0 m clearance)	leg	20		
Reinforced concrete foundation, 450×450×800 mm footings incl. 4×Y10 rebar cage & R6 stirrups @150mm	m^3	3.24		
Solar Pump Inverter / VFD, 3-phase, 15 kW, MPPT DC input	unit	1		
DC combiner box - 3 strings, 6× 30A/1000V DC gPV fuses, Type-II SPD (20kA), 80 A 4-pole DC isolator	set	1		
DC solar cable, XLPE PV1-F, UV-resistant, with connectors; string conductor size as Section 2.5; main feeder as scheduled	m	150		
Earthing & lightning protection system (earth rods, down-conductor, air terminal)	set	1		
Automatic Transfer/Changeover Switch (ATS) panel, solar-generator, 3-phase	unit	1		
Security fencing - 2.0 m galvanised welded mesh wire, supported on galvanised steel poles at 3 m centres	m	66		
Lockable steel access gate,1.4 m	no.	1		
Warning & safety signage (PV / high voltage)	set	1		
Installation, testing & commissioning (labour & tools)	LS	1		
Transport & logistics to site	LS	1		
ESMP implementation (PPE, barricades and warning tape, dust suppression, temporary bunded fuel/oil storage, first-aid kit, grievance box)	LS	1		

Site price summary	USD
Subtotal - all listed items	
Contingency 5% of subtotal	
Site total before separately stated taxes	

Authorised signature: _____ Date: _____
Company stamp: _____

B4 Birxoog BoQ

Item description	Unit	Qty	Rate USD	Amount USD
Solar PV Module, 600 Wp monocrystalline (bifacial)	pcs	48		
Ground-mount racking, hot-dip galvanised steel, 2-row portrait-stacked table (2 rows × 24 columns), 12° fixed tilt, incl. rails & clamps	pcs	48		
Structural support columns - rear 3" NB Sch. 40 HDG pipe (2.0 m), front 2.5" NB Sch. 40 HDG pipe (1.0 m clearance)	leg	22		
Reinforced concrete foundation, 450×450×800 mm footings incl. 4×Y10 rebar cage & R6 stirrups @150mm	m^3	3.56		
Solar Pump Inverter / VFD, 3-phase, 18.5 kW, MPPT DC input	unit	1		
DC combiner box - 4 strings, 8× 30A/1000V DC gPV fuses, Type-II SPD (20kA), 100 A 4-pole DC isolator	set	1		
DC solar cable, XLPE PV1-F, UV-resistant, with connectors; string conductor size as Section 2.5; main feeder as scheduled	m	150		
Earthing & lightning protection system (earth rods, down-conductor, air terminal)	set	1		
Automatic Transfer/Changeover Switch (ATS) panel, solar-generator, 3-phase	unit	1		
Security fencing - 2.0 m galvanised welded mesh wire, supported on galvanised steel poles at 3 m centres	m	72		
Lockable steel access gate, 1.5 m	no.	1		
Warning & safety signage (PV / high voltage)	set	1		
Installation, testing & commissioning (labour & tools)	LS	1		
Transport & logistics to site	LS	1		
ESMP implementation (PPE, barricades and warning tape, dust suppression, temporary bunded fuel/oil storage, first-aid kit, grievance box)	LS	1		

Site price summary	USD
Subtotal - all listed items	
Contingency 5% of subtotal	
Site total before separately stated taxes	

Authorised signature: _____ Date: _____
Company stamp: _____

B5 Consolidated bid price summary

Site	Subtotal USD	5% contingency USD	Site total USD
Doorshaanle			
Bararweyne			
Laan Fardood			
Birxoog			
Four-site total before taxes			
Taxes / duties stated separately			
TOTAL BID PRICE USD			

Tax basis and amounts included: _____
_____
Total bid price in figures: USD _____
Total bid price in words: _____
_____

This total must equal Form F1 in Document 1. A contingency is payable only through the applicable contract authorisation; it is not an automatic entitlement to additional work. Bidder pricing assumptions or exclusions: _____

Authorised signatory and title: _____
Signature: _____ Date: _____
Company stamp: _____