

Information for 3rd Party Pre-shipment Inspection

| | | |
|---|--|--|
| 1 | Purchase Order No. | PROC-FE/CB/ECMP-4843/770066/2021 |
| 2 | Amount of Purchase Order | CNY 4,725,854.60 (CNY Four Million Seven Hundred Twenty Five Thousand Eight Hundred Fifty Four and fen sixty only) |
| 3 | Name/address of Manufacturer/Beneficiary | M/S Zhaofeng Sensor Equipment Co. Ltd., In North, Aote Automobile Factory Xushi, Baoding, Hebei, China |
| 4 | Contact person | Contact Person: Jay Feng Mobile: +86-15910239655 E-Mail: jayfeng@zfgeo.com |
| 5 | Local Agent/Contact person | M/s Dynamic Engineering & Automation, Suite No. 8, 4th Floor, Malik Arcade, Plot No. 26, Service Society Markaz, Sector E-11/2, Islamabad Contact Person: Sheraz Khan (Sr. Energy Specialist) Mobile: +92-333-8406307 Email: sheraz@dea.com.pk |
| 6 | Description of Material | Multi Geophone Strings and Spares |
| 7 | Scope of Work | As per attachment |

THIRD PARTY INSPECTION
SCOPE OF WORK
8000 No. Multi-Geophone Strings and Spares

ECMP(GS)/SOW/01/2021

Dated: 30-07-2021

Third party inspector shall carry out the pre-shipment inspection at M/s Zhaofeng Sensor Equipment Co. Ltd, China and must address the following:-

Physical inspection / verification of 8000 No. Multi-Geophone Strings (7000 No. Land Multi-Geophone Strings & 1000 No. Marshy Geophone Strings) and spares as per **Tender Specifications** (Flag C), **Technical Proposal** (Flag D) with **Clarifications** sought during technical evaluation (Flag E) and **Purchase Order** PROC-FE/CB/ECMP-4843/770066/2021 (Flag F).

1. Third Party inspector shall confirm that all the material being provided is brand new and Quantity of all items is as per purchase order.
2. Third Party Inspector must inspect **physically 100 %** equipment as per PO quantity and witness the test of randomly selected at least 5% of each of the indented items of purchase order items at Sr. No. 1 & 2 Multi-Geophone Strings (Land & Marshy each) with SMT-200 / SMT 300 / SMT 400 / SGT. *However, the manufacturer will provide the test results of 100 % of items at Sr. #1&2 of PO, to the inspector as well as to OGDCL.*
3. Third Party inspector shall confirm that **Multi-Geophone Strings (Land)** at Sr. No. 1 of PO, are as per tender requirement and meet the detailed specifications as given at Sr. No. 1 in attachment of OGDCL SOR.
4. Third Party inspector shall confirm that **Multi-Geophone Strings (Marshy)** at Sr. No. 2 of PO, are as per tender requirement and meet the detailed specifications as given at Sr. No. 2 in attachment of OGDCL SOR.
5. Third Party inspector shall confirm that **Geophone Coils** at Sr. No. 3 of PO, are as per tender requirement and meet the detailed coil specifications as given at Sr. No. 1 in attachment of OGDCL SOR.
6. Third Party inspector shall confirm that Items at Sr. No. 4 **Land Case** of PO are complete having austenitic stainless steel spikes (rust proof & non-magnetic) inclusive of **lock washers** as per OGDCL SOR.
7. Third Party inspector shall confirm that Items at Sr. No. 5 **Marsh Case** of PO are as per OGDCL SOR having **brass spikes**.
8. Third Party inspector shall witness and confirm the quality assurance test procedures as quoted by bidder in its technical quote term & condition 7(c).

9. Third Party inspector shall witness the tumble bar test, temperature test, leakage test and/or other industry standard tests to confirm the quality on randomly selected geophone groups as quoted by bidder in its technical quote term & condition 7(d).
10. Third Party inspector shall confirm that all the material is properly packed.
11. Maximum period for inspection will be **03 working days** and bidder shall submit the **lump sum amount** of the total inspection cost including all expenditure like air travel, lodging / boarding and hotel charges etc.
12. 3rd party inspector will ensure to extend full co-operation with OGDCL professional during inspection.
13. Third Party inspector will provide the detail report of inspected material to the buyer before shipment of the material.
14. Third Party Inspector will be responsible to contact with manufacturer for inspection schedule to avoid any delay for the shipment of material.
15. The bidder will submit the detailed CV of the persons deputed for inspection along with the bid. Inspector should have relevant experience of inspection.
16. 3rd Party Pre-shipment Inspection Company will carry out the inspection as per OGDCL TOR. Any service conditions or general/specific terms conditions of the inspection company will not be acceptable.
17. Post-Shipment inspection shall also be carried out by the committee of indenting department (OGDCL) on arrival of equipment in Pakistan and 3rd Party Pre-Shipment invoice will be verified accordingly.

***Note:** Any discrepancy in Part Number / Quantity / Item Description shall be reported to OGDCL immediately to resolve the issue. If any discrepancy is found later on during post shipment inspection in Pakistan and not reported in pre-shipment inspection report, invoice may not be verified.*

**ORACLE-ATTACHMENT REQUISITION FOR THE PROCUREMENT OF
8000 MULTI-GEOPHONE STRINGS & SPARES ECMP(GS)/F-03/2020**

Flag C

| SR # | DESCRIPTION | UNIT | QTY. | INDEX NO. |
|------|--|------|-------|-------------|
| 1 | <p>LAND GEOPHONE STRINGS</p> <p>a- Geophone element be designed to offer the Seismic industry standard with high quality product.</p> <p>b- Provide high fidelity data in 2-D & 3-D seismic surveys; allowing full bandwidth (10 to 240 Hz) at 2 msec sampling rate.</p> <p>c- Element is fully compatible with latest 24-bit seismic data recording systems especially 428XL,508XT & G3i HD Systems etc</p> <p>Geophone String Configuration</p> <p>Be consisting of twelve nos. of water proof geophones wired at 4 meters spacing in two parallel groups of six geophones in series using three conductor geophone cable.</p> <p>Lead-in 27.5 meters at both ends using <u>2/3</u> -conductor geo-cable. Geo- cable must have molded polyurethane pick-up D-loops spaced at 1 meter intervals. Each Geo-string be collected on a carrying hasp of iron with rust proof coating. The total length of geo- string is 99 meters.</p> <p>Connector Type. Both ends of Geophone strings be terminated with water proof '5517 Push Fit' or Equivalent connector array(male-female) with dust caps having interval of 0.5 m between male & female connectors. The D-loop between the male & female connector must be at a distance of 0.25m.</p> <p>Polarity: SEG polarity standard (geo. +ive to pin on male side)</p> <p>Geo-case: High strength rugged waterproof plastic land case (upright type) with 3.00" to 3.25" inch austenitic stainless steel spike (rust-proof & non-magnetic) for ground coupling, case stress relief equals cable break strength.</p> <p>A digital grade Geo-coil with following specifications: -</p> <p>Natural Frequency: 10 Hz (Tolerance: ± 2.5 %) for resistive Damping,</p> <p>Minimum Allowable Tilt = 10 degrees for specified frequency.</p> <p>Coil resistance: 375 Ohms (Tolerance: ± 2.5 %) with resistive damping</p> <p>Shunt resistance: 1000 Ohms (Tolerance: ± 5%)</p> <p>Spurious frequency: ≥240 Hz.</p> <p>Distortion: ≤ 0.1% Minimum Tilt angle for specified distortion = 10 degree, At frequency of distortion=12 Hz.</p> <p>Open circuit Damping: 0.25</p> <p>Damping: 68.6% (Tolerance: 0 to +5%)</p> <p>Sensitivity with shunt resistance: 20.9 V/m/s (Tolerance: ±2.5%)</p> <p>Moving mass: 11 g</p> <p>Max Coil travel (peak to peak): 2 mm</p> <p>Operating Temperature: - 40 degrees C to +100 degrees C</p> <p>(All parameters are specified at +20 to +25 degrees Celsius in vertical position).</p> <p>Cable conductor: Strand construction: 19 wires, Strands formation: Standard</p> <p>Cable O.D: <u>4.3 mm to 4.6 mm</u> for <u>three conductor wire</u>.</p> <p>Insulation: Extrude approved polypropylene, Jacket: - Approved thermoplastic polyurethane (black color), Hardness: min. 80 shore A Minimum breaking load (3-conductor) 78 kg</p> | No | 7,000 | 55-04-221-F |
| 2 | <p>MARSHY GEOPHONE STRINGS</p> <p>Having marsh cases with the same specifications of basic element and configurations as required for serial No. 1, both sides terminated with marsh '5517 Push Fit' or Equivalent connector array(male-female) with dust caps having interval of 0.5 m between male & female connectors. The D-loop between the male & female connector must be at a distance of 0.25m.</p> | No | 1000 | 55-04-222-F |

Drop cable of one-meter length with outer diameter 7.6 mm to 8.3 mm and a molded D-loop be installed at 0.35 meter from the marsh phone case entry point. Two or three leader conductor cable for marshy string, outer diameter be 6.35mm (Tolerance: $\pm 2.5\%$) Marsh phone case, with single cable connection, fitted with rust proof 3 to 3.25-inch **brass spike**, water tight and water proof molded T-joint for leader and drop cable.

| | | | | |
|----|--|----|--------|-------------|
| 3. | Geophone coil damped as per specifications at Sr. No 1. | No | 30,000 | 55-04-203-F |
| 4 | Geophone Land case complete with austenitic stainless steel spike (rust-proof & non-magnetic), inclusive lock washers etc as per specifications at Sr.No.1 | No | 500 | 55-04-224-F |
| 5 | Geophone Marsh case complete with brass spike etc as per specifications at Sr.No.2. | No | 200 | 55-04-225-F |

Terms and Conditions:

1. Delivery period: **120 Days (Maximum)**.
2. The bidder must be **original equipment manufacturer (OEM)** of the quoted Geophone Strings. Bid from middleman, distributor or supply house would not be accepted.
3. The bidder must have **valid quality certification**, ISO9001 or equivalent.
4. Bidder will provide **signed & stamped TOR/SOR** along with item and term & condition wise **compliance sheet**.
5.
 - a. The bidder must have **minimum 10 years' experience** of geophones' manufacturing. Experience will be considered from first sale contract to be provided with bid as proof, mentioning complete contact information of buyer that is name of buyer company, quantity sold, date of contract, email, web address, postal address, fax number etc.
 - b. Bidder will provide **sale record** of minimum sold quantity of **50,000 Nos** multi geophone strings sold to geophysical companies during **last 03 years**. Bidder would submit the Purchase orders / Contract as Sale Record clearly mentioning the details like name of buyer company, email, web address, postal address, contact information, quantity sold, year of sale etc.
 - c. Bidder will provide the satisfactory **performance certificate** from 03 different renowned international Geophysical Companies working for seismic data acquisition that they are using bidder's geophone groups satisfactory mentioning the complete contact information that is name of buyer company, quantity sold, date of contract, email, web address, postal address, fax number etc.
6. The bidder must provide **samples** for Technical Evaluation as per following:
 - a. Item No. 1 = 02 No (Complete Strings with carrying hasp).
 - b. Item No. 2 = 01 No (Complete String with carrying hasp).
 - c. Item No. 3, 4 & 5 = 05 No each
 - d. 01 Meter Geo-Cable having a molded D-loop and fitted with connector at any one end or both to confirm quality of cable / No of strands/insulation/connector type etc.
 - e. Test results for item No.1, 2, 3 of above provided samples performed with SMT/SGT (Geophone Analyzer), would also be submitted along with the bid .
 - f. All items should be clearly embossed/ printed or tagged with manufacturer's monogram / name on it in English, for identification. Samples without monogram/name will be considered as rejected.
 - g. All samples would be tested in Laboratory as well as in seismic field operation for data acquisition as part of technical evaluation..
 - h. The Supplied material will be inspected as per approved sample submitted with the bid.
 - i. **Non Submission of samples with the bid will result in the rejection of bid.**
7.
 - a. Bidder will provide Original Brochure of the indented items in English including **diagrams/drawings of all items** for technical evaluation.

- b. Bidder will confirm to provide 1st and 2nd Geophone String having 0.25 meters' distance } In Geophone to nearest molded D-loop, so that all geophones in a string may lay in center while in hanging position in hanger.
 - c. Bidder will provide step wise details of all quality tests performed during pre & post manufacturing process of items No 1 & 2 to ascertain its quality standard.
 - d. Geophone String/ coil should meet criteria to pass 'tumble barrel' test standards as 3rd party inspection's SOW may include tumble barrel test, temperature test, leakage test or other industry standards test to confirm the quality. Manufacturer will provide a **certificate** that it has facility to perform all standard tests including tumble barrel test, temperature test, leakage test etc.
 - e. Bidder will provide a **certificate** that all land and marshy geophones are water proof and leakage free.
- 8.
- a. **3rd Party Pre-shipment inspection (TPI)** of the equipment as per TOR/Scope of Work/Purchase Order will be carried out at manufacturer's place as per OGDCL policy at customer's account before shipment. Without TPI, the equipment will not be accepted. TPI may also be monitored by an OGDCL professional at OGDCL cost. Bidder will provide full co-operation to 3rd party inspection team.
 - b. Test record of each land / marshy geophone string by SMT / SGT (Geophone Analyzer), will be provided to OGDCL / third party inspector before shipment (01 soft copy & 01 hard copy).
 - c. TPI SOW is limited to physical inspection/random sample testing of equipment that does not void the performance/operational capability & warranty of equipment as already agreed by OEM & defined in OGDCL SOR.
- 9.
- a. Bidder will provide minimum **three years' warranty** for basic element (Geophone Coil) and **one year** for all other material. A **warranty certificate** to be submitted in this regard.
 - b. Defective items' replacement during warranty period will be **free of all charges** and the local supplier will also be fully responsible for in time warranty replacement.
 - c. Bidder must submit a **compatibility certificate** that Geophone Strings (Sr # 1 & 2) will work satisfactorily with latest data acquisition systems (428 XL, G3i HD, 508XT Systems etc) and will replace any incompatible item **free of all charges**.
 - d. The bidder or its authorized representative will sign the protocol of acceptance, commissioning and start of warranty.
10. The bidder will submit a **certificate** to ensure supply of spare parts for minimum 05 years.
11. Packing of all materials will be as per Geophysical industry standards in pallet form having proper labelling.
12. Evaluation will be on full package and C & F by Sea price basis.
13. Failure in meeting any criteria mentioned in specifications or any terms & conditions will result in rejection of the bid.
14. Reference Clause No 4 (Section-I) of tender document, all documents being provided should be in English. In case any document is in other language, bidder is required to submit its translated English version along with copy of original document.

Flag F



OIL & GAS DEVELOPMENT COMPANY LIMITED

Procurement Department

Fax : 051-9209673 & 9209803-7
Telex : 5892 OGDC PK & 5867 OGDC PK

Phone : 9218058
Cable : OILGASCORP

No. PROC-FE/CB/ECMP-4843/770066/2021
To ZHAOFENG SENSOR EQUIPMENT CO., LTD.
Supp. No 50800
Address IN NORTH, AOTE AUTOMOBILE FACTORY XUSHUI, BAODING, HEBEI, 072555, CHINA

Date : 09-AUG-2021

Subject: **Purchase Order No. PROC-FE/CB/ECMP-4843/770066/2021 For Procurement Of MULTI GEOPHONE STRINGS AND SPARES Against Your Quotation No. NIL**

Dear Sir,

We are pleased to issue purchase order in response to your above cited bid as detailed below :-

| Sr. No. | Description | Index No. | UOM | Qty | Unit Value C & F BY SEA CNY | Total Value C & F BY SEA CNY | Item Type |
|----------------|---|-------------|--------|-------|-----------------------------------|------------------------------------|-----------|
| 1 | MULTI GEOPHONE STRING LAND (SEE ATTACHMENT) | 55-04-221-F | Number | 7000 | 487.1660 | 3,410,162.00 | S-S |
| 2 | MARSHY GEOPHONE STRING (SEE ATTACHMENT) | 55-04-222-F | Number | 1000 | 734.2180 | 734,218.00 | S-S |
| 3 | COILS, GEOPHONE (SEE ATTACHMENT) | 55-04-203-F | Number | 30000 | 19.2220 | 576,660.00 | S-S |
| 4 | GEOPHONE LAND CASE (SEE ATTACHEMENT) | 55-04-224-F | Number | 500 | 5.4220 | 2,711.00 | S-S |
| 5 | GEOPHONE MARSH CASE (SEE ATTACHMENT) | 55-04-225-F | Number | 200 | 10.5180 | 2,103.60 | S-S |
| Total : | | | | | | 4,725,854.60 | |

CNY Four Million Seven Hundred Twenty Five Thousand Eight Hundred Fifty Four And Poi

Indent #
Name & Address of Manufacturer
Delivery Period
Country of Origin
Banker's Address

ECMP(GS)/F-03/2019
ZHAOFENG SENSOR EQUIPMENT CO. LTD., CHINA
120 DAYS
CHINA
Port of Shipment CHINA
Port of Discharge KARACHI
BANK OF CHINA; ACCONT NO: 100156691024; SWIFT: BKCHCNBJ220

Special Note

(1) THE CLARIFICATIONS OBTAINED DURING EVALUATION TO BE TREATED AS INTEGRAL PART OF THIS PURCHASE ORDER. (2) SUPPLIER TO PROVIDE PRODUCTION SAMPLE OF ITEM NO. 1 & 2 WITHIN 03 WEEKS OF ISSUANCE OF PURCAHSE ORDER PRIOR TO MAIN PRODUCTION, AS AGREED.

**"Condition of Contract (General/Special) of tende enquiry, should be treated a part of the Purhcase Order".
Letter of credit shall be established as per Terms & Conditions attached herewith.**

Vetted
with 14 pages
attachment.

NAMRA JAMEEL 09-08-21
Asstt. Data Acq Engineer (ECMP.GS)
Ext: 2296

SYED EJAZ ABAS RIZVI
Manager (SCM) Foreign
Oil & Gas Development Co. Ltd.
Islamabad
09/09/2021
MANAGER (SCM) FOREIGN

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Zhaofeng Sensor Equipment Co., Ltd.

China Geophysical

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|--|--|--------|-----|--|--|--|--|
| 4 | GEOPHONE LAND CASE (detail attached at Sr.No.4 of attachment) | Number | 500 | | | | |
| 5 | GEOPHONE MARSH CASE (detail attached at Sr No.5 of attachment) | Number | 200 | | | | |
| Total Bid Value FOB: <i>POZ 276000</i> | | | | | | | |
| Total Bid Value C&F (By Sea): | | | | | | | |

ORACLE ATTACHMENT REQUISITION FOR THE PROCUREMENT OF 8000 MULTI-GEOPHONE STRINGS & SPARES ECMP(GS)/F-03/2020

| SR# | DESCRIPTION | UNIT | QTY. | INDEX NO. |
|-----|---|------|------|-------------|
| 1 | <p>LAND GEOPHONE STRINGS</p> <p>a- Geophone element be designed to offer the Seismic industry standard with high quality product.</p> <p>b- Provide high fidelity data in 2-D & 3-D seismic surveys; allowing full bandwidth (10 to 240 Hz) at 2 msec. sampling rate.</p> <p>c- Element is fully compatible with latest 24-bit seismic data recording systems especially 428XL, 508XT & G3i HD Systems etc.</p> <p>Geophone String Configuration</p> <p>Be consisting of twelve nos. of geophones wired at 4 meters spacing in two parallel groups of six geophones in series using three conductor geophone cable.</p> <p>Lead-in 27.5 meters at both ends using 2/3-conductor geo-cable. Geo-cable must have molded polyurethane pick-up D-loops spaced at 1 meter intervals. Each Geo-string be collected on a carrying hasp of iron with rust proof coating. The total length of geo- string is 99 meters.</p> <p>Connector Type. Both ends of Geophone strings be terminated with water proof '5517 Push Fit' Equivalent connector array (male-female) with dust caps having interval 0.5 m between male & female connectors. The D-loop between the male & female connector must be at a distance of 0.25m.</p> <p>Polarity: SEG polarity standard (geo.+ ive to pin on male side)</p> <p>Geo-Case: High strength rugged waterproof plastic land case (upright type) with 3.00" to 3.25" inch austenitic stainless steel spike (rust-proof & non-magnetic) for ground coupling, case stress relief equals cable break strength.</p> <p>A digital grade Geo-Coil with following specifications:</p> | No | 7000 | 55-04-221-F |

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Handwritten signature



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Zhaofeng Sensor Equipment Co., Ltd:

China Geophysical

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|---|--|-------------|-------|------------------------|
| | <p>Natural Frequency: 10Hz (Tolerance: $\pm 2.5\%$) for resistive Damping</p> <p>Minimum Allowable Tilt: 10 degrees for specified frequency.</p> <p>Coil resistance: 375 Ohms (Tolerance: $\pm 2.5\%$) with resistive damping</p> <p>Shunt resistance: 1000 Ohms (Tolerance: $\pm 5\%$)</p> <p>Spurious Frequency:- ≥ 240 Hz.</p> <p>Distortion:- $\leq 0.1\%$ Maximum Tilt angle for specified distortion=10 degree. At frequency of distortion=12 Hz</p> <p>Open circuit Damping: 0.25</p> <p>Damping: 68.6% (Tolerance 0 to +5%)</p> <p>Sensitivity with shunt resistance: 20.9 V/m/s (Tolerance: $\pm 2.5\%$)</p> <p>Moving mass: 11g</p> <p>Max Coil travel (peak to peak): 2mm</p> <p>Operating Temperature: - 40 degrees C to +100 degrees C (All parameters are specified at +20 to +25 degrees Celsius in vertical position).</p> <p>Cable Conductor: Strand construction 19 wires, Strands formation: Standard. Cable O.D: 4.3 mm to 4.6 mm for three conductor wire.</p> <p>Insulation: Extrude approved polypropylene, Jacket: - Approved thermoplastic polyurethane (black color), Hardness: min. 80 shore A Minimum breaking load (3-conductor) 78kg</p> | Po# 99 0066 | | <p>②</p> <p>19/7/4</p> |
| 2 | <p>Marshy Geophone Strings</p> <p>Having marsh cases with the same specifications of basic element and configurations as required for serial No. 1, both sides terminated with marsh '5517 Push Fit' Equivalent connector array (male-female) with dust caps having interval 0.5 m between male & female connectors. The D-loop between the male & female connector must be at a distance of 0.25m.</p> <p>Drop cable of one-meter length with outer diameter 7.6 mm to 8.3 mm and a molded D-loop be installed at 0.35 meter from the marsh phone case entry point. Two or three leader conductor cable for marshy string, outer diameter be 6.35mm (Tolerance: $\pm 2.5\%$).</p> <p>Marsh phone case, with single cable connection, fitted with rust proof 3 to 3.25-inch brass spike, water tight and water proof molded T-joint for leader and drop cable.</p> | No | 1000 | 55-04-222-F |
| 3 | <p>Geophone coil damped as per specifications at Sr. No 1.</p> | No. | 30000 | 55-04-223-F |
| 4 | <p>Geophone Land case complete with austenitic stainless steel spike (rust-proof & non-magnetic), inclusive lock washers etc as per specifications at Sr. No 1.</p> | No | 500 | 55-04-224-F |
| 5 | <p>Geophone Marsh case complete with brass spike etc as per specifications at Sr. No 1.</p> | No | 200 | 55-04-225-F |

13/4/04



36. Technical Specification

Tender Enquiry No.: PROC-FE/CB/ECMP-4843/2020

1.1 Land Geophone Strings

- a- Geophone element be designed to offer the Seismic industry standard with high quality product.
- b- Provide high fidelity data in 2-D & 3-D surveys; allowing full bandwidth (10 to 240 Hz) at 2 m sec. sampling rate.
- c- Element is fully compatible with 24-bit seismic data recording systems especially 428XL, 508XT & G3i HD system etc.

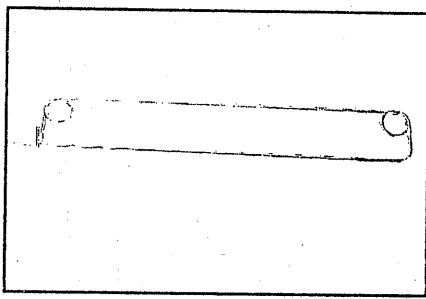
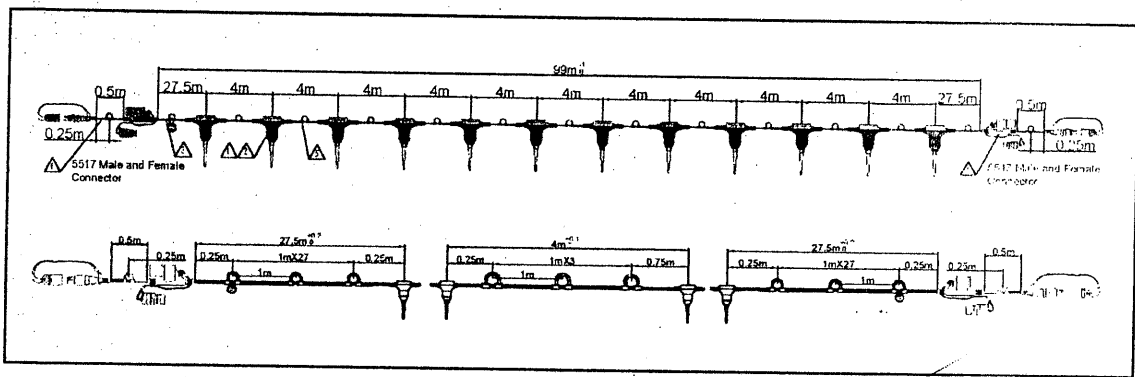
● Geophone String Configuration

Be consisting of twelve nos. of water proof geophones wired at 4 meters spacing in two parallel groups of six geophones in series using three conductor geophone cable.

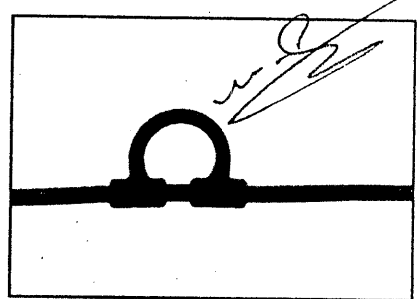
● Lead-in

27.5 meters at both ends using 3-conductor geo-cable, Geo-cable must have molded polyurethane pick-up D-loops spaced at 1 meter intervals. Each Geo-string be collected on a carrying hasp of iron with rust proof coating. The total length of geo-string is 99 meters.

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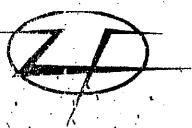
Carrying Hasp



Molded D-Loops

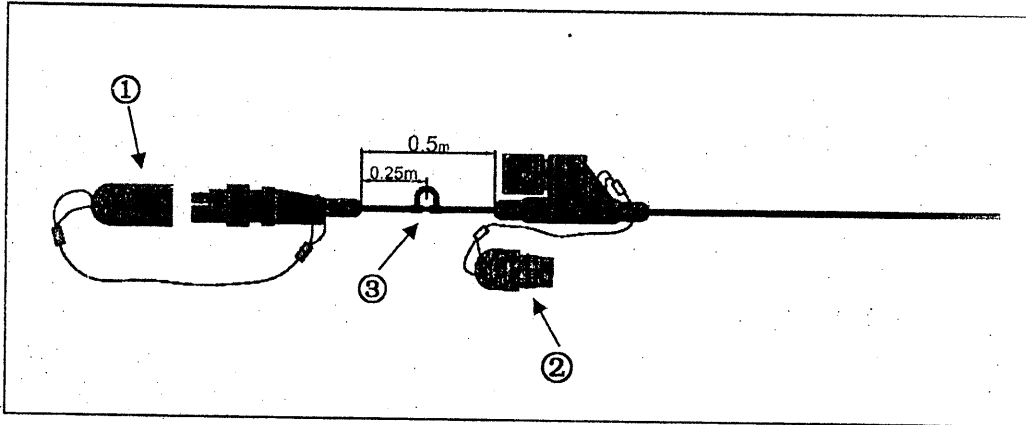
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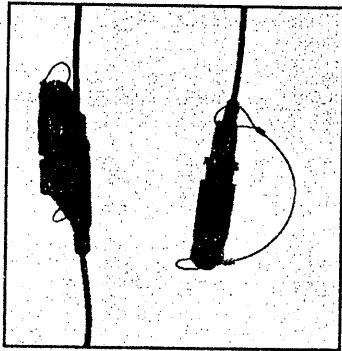


● Connector type

Both ends of Geophone strings be terminated with water proof "5517 Push Fit" with dust caps having interval 0.5 m between male & female connectors. The D-loop between the male & female connector is at a distance of 0.25m.



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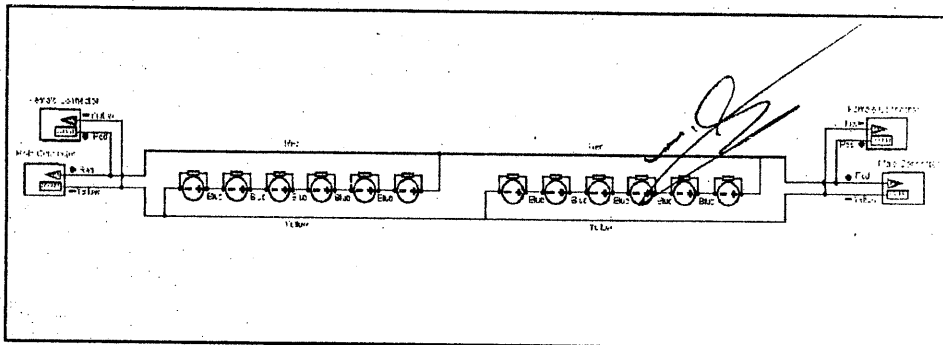


| No. | Description | Qty |
|-----|-------------------------------|-----|
| 1 | Dust Cap for Male Connector | 1 |
| 2 | Dust Cap for Female Connector | 1 |
| 3 | Molded D-Loop | 1 |

● Polarity

SEG polarity standard (geo. + ive to pin on male side)

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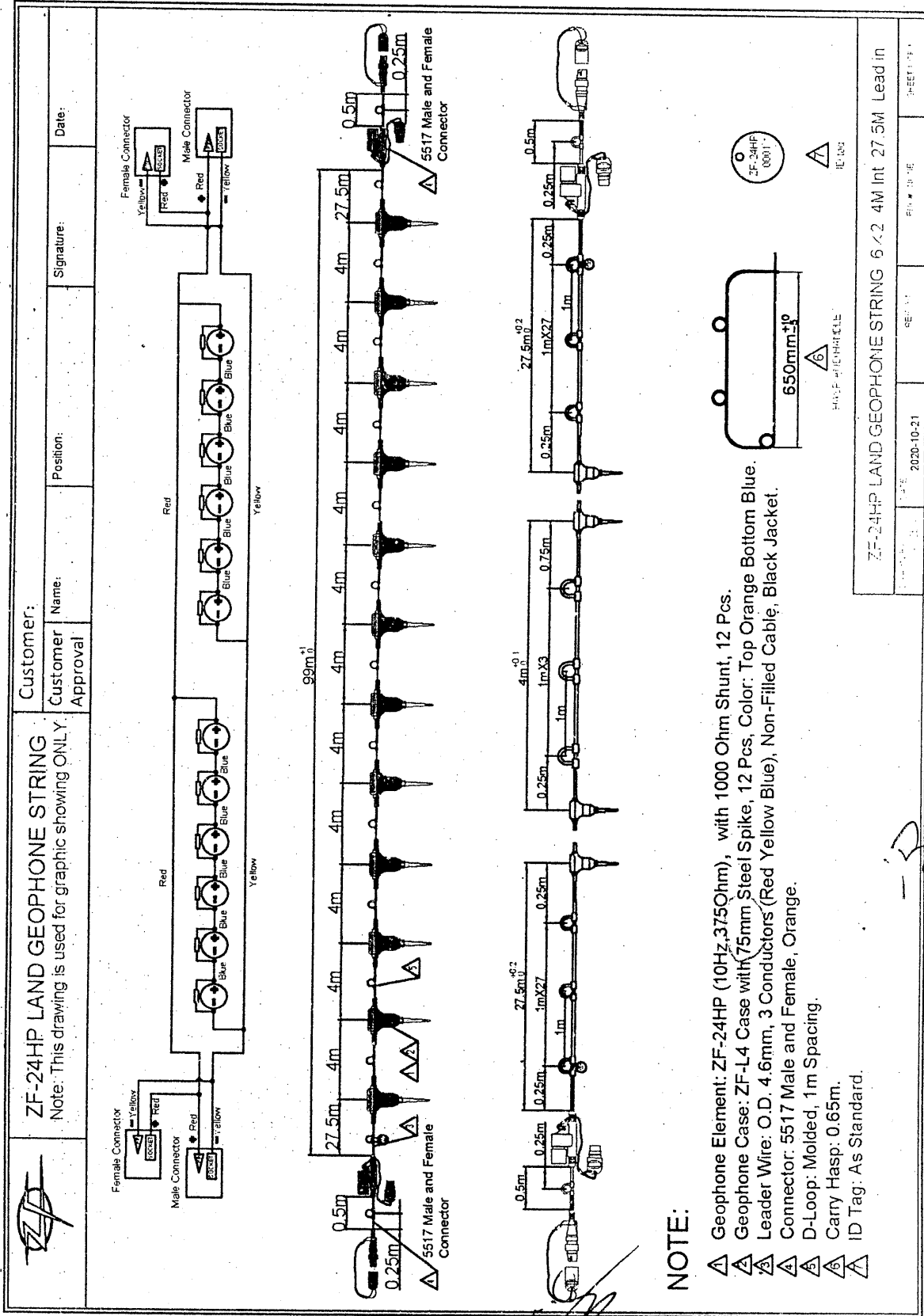
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Zhaofeng Sensor Equipment Co., Ltd.

China Geophysical

Land geophone strings drawing



NOTE:

- △ Geophone Element: ZF-24HP (10Hz, 375Ω), with 1000 Ohm Shunt, 12 Pcs.
- △ Geophone Case: ZF-L4 Case with 75mm Steel Spike, 12 Pcs, Color: Top Orange Bottom Blue.
- △ Leader Wire: O.D. 4.6mm, 3 Conductors (Red Yellow Blue), Non-Filled Cable, Black Jacket.
- △ Connector: 5517 Male and Female, Orange.
- △ D-Loop: Molded, 1m Spacing.
- △ Carry Hasp: 0.65m.
- △ ID Tag: As Standard.



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1.2 Marshy Geophone Strings

- a- Geophone element be designed to offer the Seismic industry standard with high quality product.
- b- Provide high fidelity data in 2-D & 3-D surveys; allowing full bandwidth (10 to 240 Hz) at 2 m sec. sampling rate.
- c- Element is fully compatible with 24-bit seismic data recording systems especially 428XL, 508XT & G3i HD Systems etc.

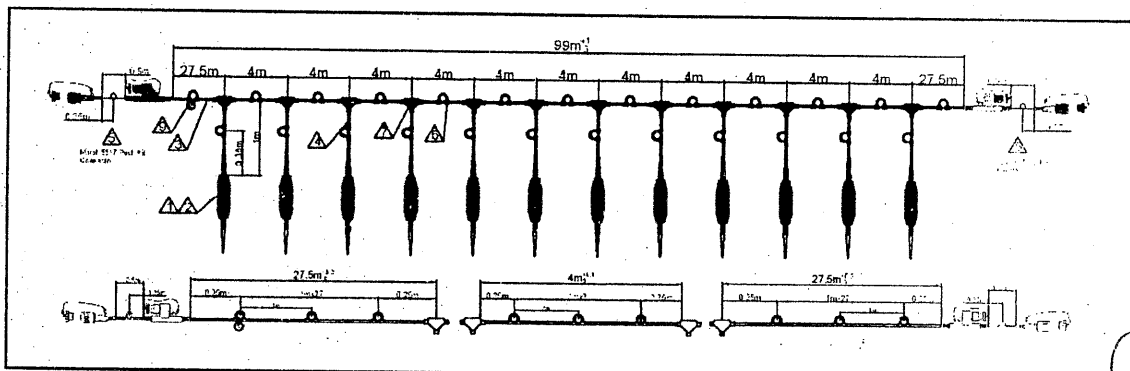
● Geophone String Configuration

Having marsh cases with the same specifications of basic element and configurations as required for serial No.1, both sides terminated with marsh "5517 Push Fit" with dust caps having interval 0.5 m between male & female connectors. The D-loop between the male & female connector is at a distance of 0.25m.

Drop cable of one-meter length with outer diameter 7.8mm and a molded D-Loop be installed at 0.35 meter from the marsh phone case entry point. Three leader conductor cable for marshy string, outer diameter be 6.35mm (tolerance +/-2.5%). Marsh phone case, with single cable connection, fitted with rust proof 3.15-inch brass spike, water tight and water proof molded T-joint for leader and drop cable.

● Lead in

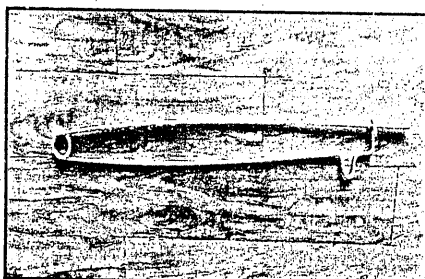
27.5 meters at both ends using 3-conductor geo-cable, Geo-cable must have molded polyurethane pick-up D- loops spaced at 1 meter intervals. Each Geo-string be collected on a carrying hasp of iron with rust proof coating. The total length of geo-string is 99 meters.



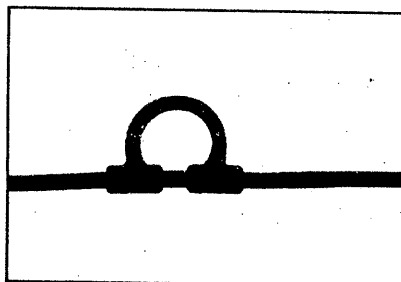
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Carrying Hasp

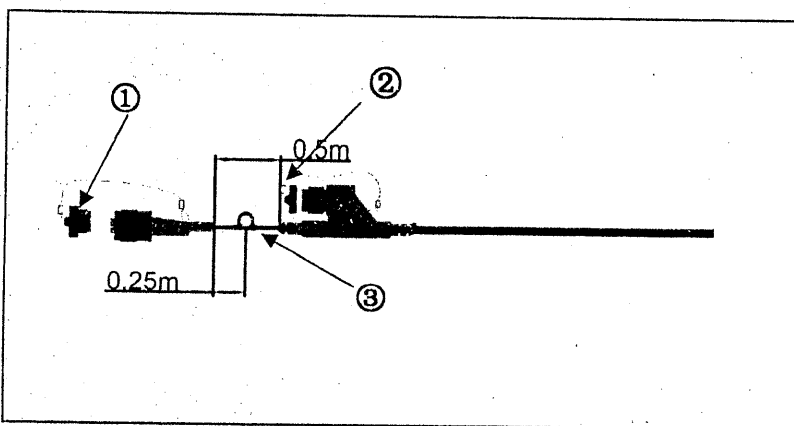


Molded D-Loops

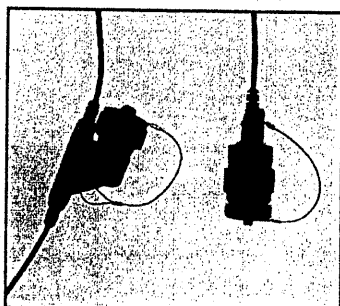
• Connector type

Both ends of Geophone strings be terminated with marsh "5517 Push Fit" with dust caps having interval 0.5 m between male & female connectors. The D-loop between the male & female connector is at a distance of 0.25m.

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| No. | Description | Qty |
|-----|-------------------------------|-----|
| 1 | Dust Cap for Male Connector | 1 |
| 2 | Dust Cap for Female Connector | 1 |
| 3 | Molded D-Loop | 1 |

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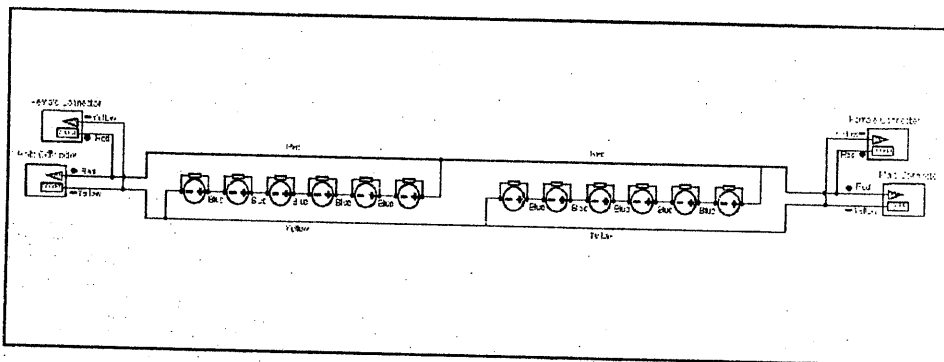
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● Polarity

SEG polarity standard (geo. + ive to pin on male side)



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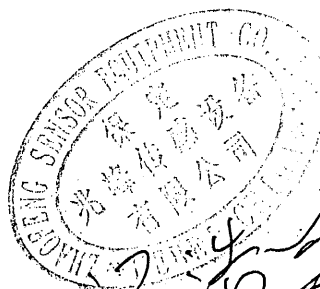
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● Molded T-Joint

Water Tight and water proof Molded T-Joint for leader and drop Cable



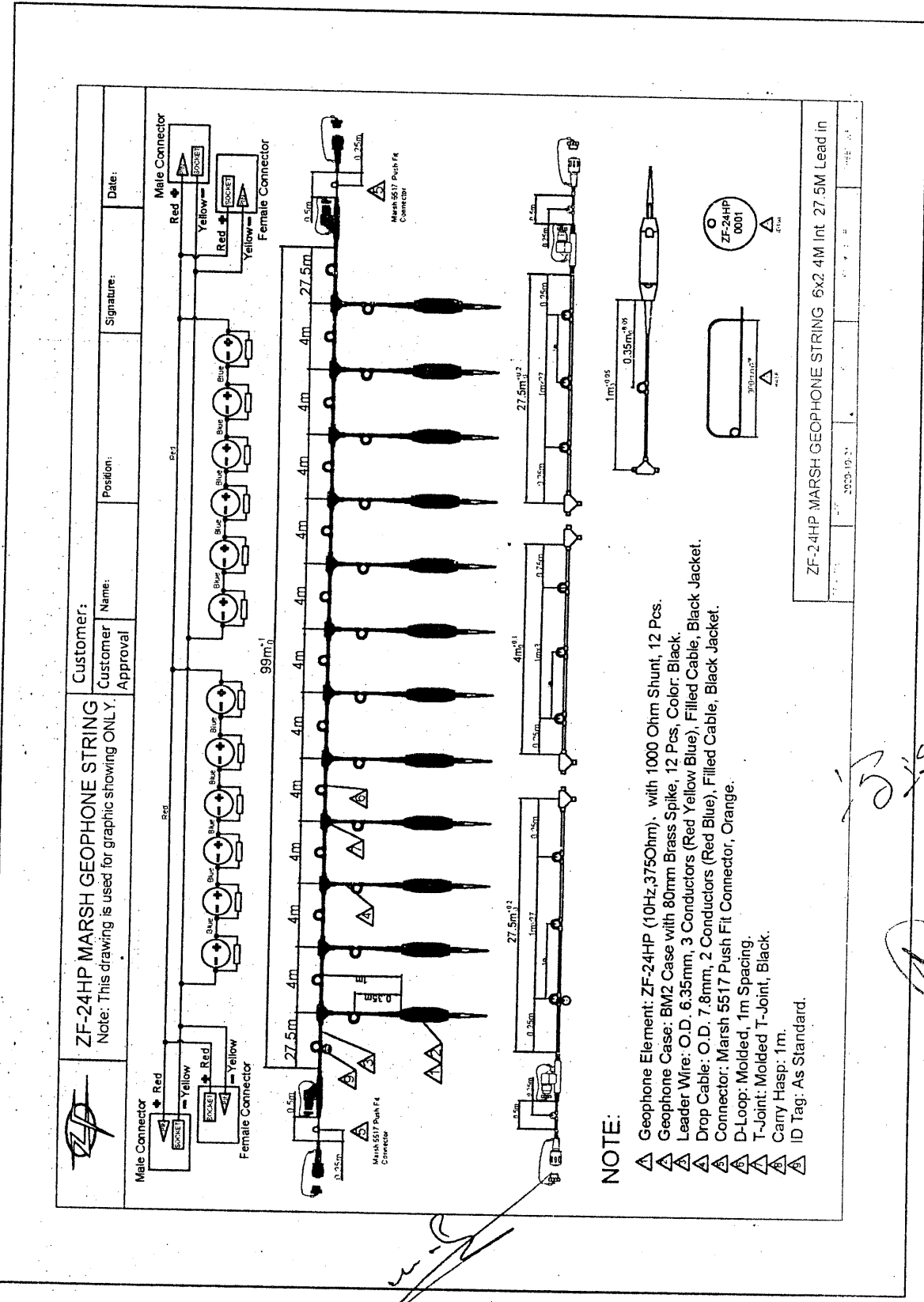
| No. | Description | Note |
|-----|----------------|---|
| 1 | Molded T-Joint | Polypropylene |
| 2 | Leader Cable | O.D. 6.35 mm three conductor waterproof cable |
| 3 | Drop Cable | O.D 7.8mm two conductor waterproof cable |



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● Marshy geophone strings drawing



NOTE:

- △ Geophone Element: ZF-24HP (10Hz, 3750hm), with 1000 Ohm Shunt, 12 Pcs.
- △ Geophone Case: BM2 Case with 80mm Brass Spike, 12 Pcs, Color: Black.
- △ Leader Wire: O.D. 6.35mm, 3 Conductors (Red Yellow Blue), Filled Cable, Black Jacket.
- △ Drop Cable: O.D. 7.8mm, 2 Conductors (Red Blue), Filled Cable, Black Jacket.
- △ Connector: Marsh 5517 Push Fit Connector, Orange.
- △ D-Loop: Molded, 1m Spacing.
- △ T-Joint: Molded T-Joint, Black.
- △ Carry Hasp: 1m.
- △ ID Tag: As Standard.

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Zhaofeng Sensor Equipment Co., Ltd.

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China Geophysical

1.3 Geophone Coil damped as per specifications of serial No.1

- A digital grade Geo-coil with following specifications

| Type | ZF-24HP | Tolerance |
|-------------------------------------|---------------------------------|------------|
| Natural frequency | 10Hz | ±2.5% |
| Tilt angle for specified frequency | 10 degrees min | -- |
| Coil resistance | 375 Ohms | ± 2.5% |
| Shunt Resistance | 1000 Ohm | ±5% |
| Spurious frequency | ≥240 Hz | -- |
| Distortion | ≤0.1% maximum | -- |
| Tilt angle for specified Distortion | 10 degrees | -- |
| Frequency of distortion | 12Hz | -- |
| Open Circuit Damping | 0.25 | -- |
| Damping (with Resistive damping) | 68.6% | 0 to + 5 % |
| Sensitivity with Shunt Resistance | 20.9 V/m/s | ± 2.5% |
| Moving mass | 11g | |
| Max. Coil travel(peak to peak) | 2mm | -- |
| Operating temperature | -40 degrees C to +100 degrees C | -- |

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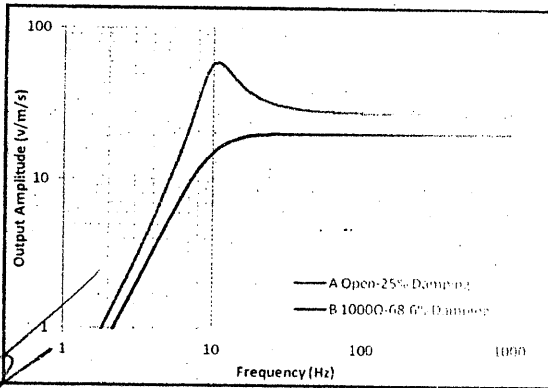
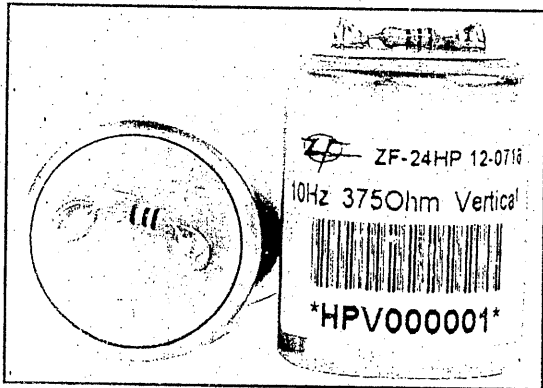
Note:

ZF-24HP is compatible to SM-24.

All parameters are specified at 20 degree C in vertical position.

Limited Warranty Period: 3 years.

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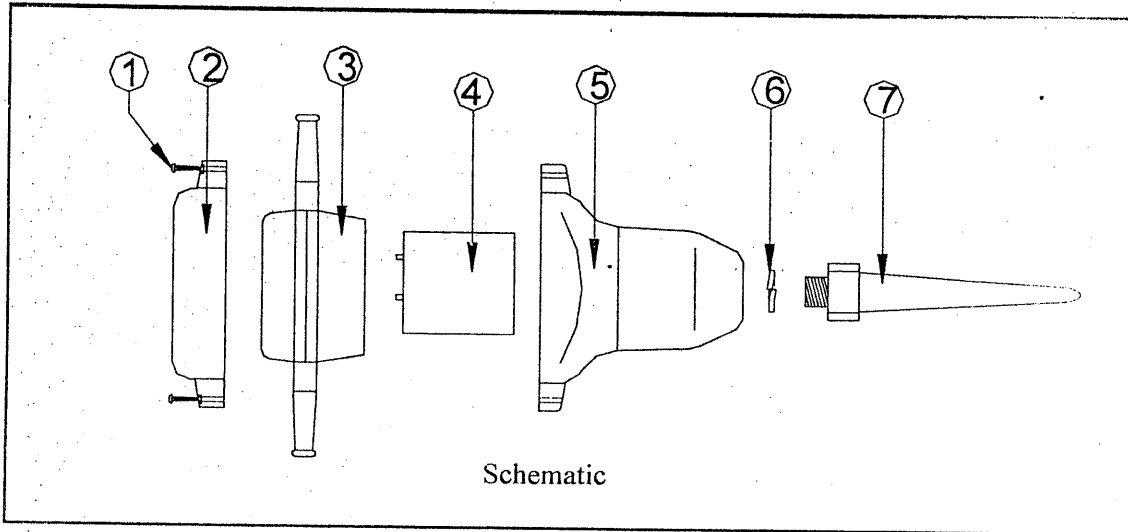


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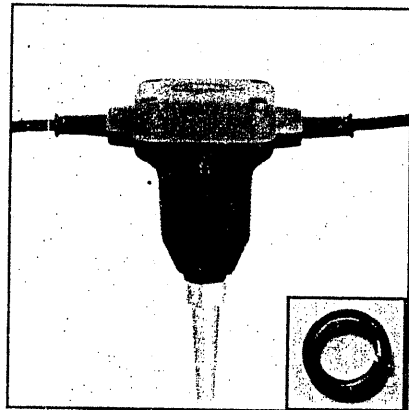


1.4 Geophone Land case complete with austenitic stainless steel spike (rust-proof & non-magnetic), inclusive lock washers etc as per specification at Sr. No.1

High strength rugged waterproof plastic land case (upright type) with 3.00" inch stainless steel spike for ground coupling, case stress relief equals cable break strength. Cable O.D. 4.6 mm for three-conductor wire. 4 pcs of land case screws will be offered.



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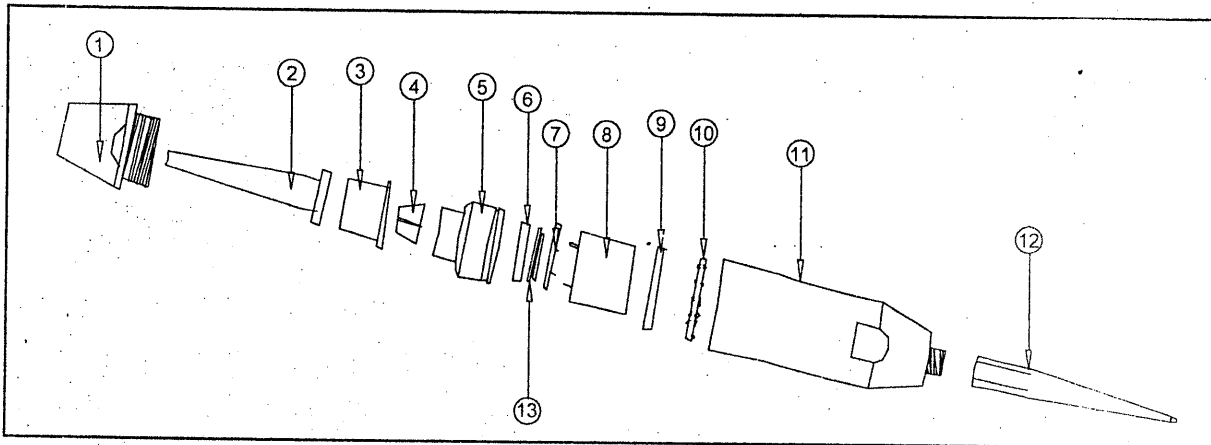
| NO. | Description | QTY |
|-----|-------------------|-----|
| 1 | Screw | 4 |
| 2 | Top Plate | 1 |
| 3 | Waterproof Sleeve | 1 |
| 4 | Element | -- |
| 5 | Bottom Case | 1 |
| 6 | Lock Washer | 1 |
| 7 | Steel Spike | 1 |

Zhaofeng Sensor Equipment Co., Ltd. 赵峰传感器设备有限公司
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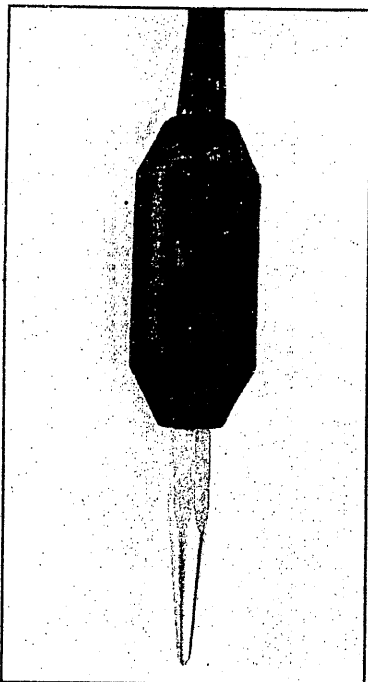


1.5 Geophone Marsh case complete with brass spike etc as per specification at Sr.No.2

High strength rugged waterproof plastic marsh case (upright) with single cable connection. fitted with 3.15" inch brass spike, case stress relief equals cable break strength. Cable O.D. 7.8mm.

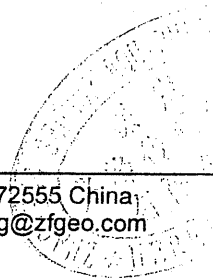


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| NO. | Description | QTY |
|-----|-----------------------|-----|
| 1 | Tail Sleeve | 1 |
| 2 | Wire Protected Sleeve | 1 |
| 3 | Cone Sleeve | 1 |
| 4 | Wire Lock | 1 |
| 5 | Waterproof Plug | 1 |
| 6 | Lock Washer | 1 |
| 7 | PCB | 1 |
| 8 | Element | -- |
| 9 | Gasket | 1 |
| 10 | Pad | 1 |
| 11 | Bottom Case | 1 |
| 12 | Brass Spike | 1 |
| 13 | Dummy Carrier | 1 |

Handwritten initials: R2 and a circled 'A'



Handwritten signature: 冯浩东



China Geophysical

Flag E 38
Zhaofeng Sensor Equipment Co., Ltd.

TO: Mr. Huhamamd Atif Malik Dy. Chief Engineer (D.A)

TEL: +92 51 9244444

FROM: Mr. Jay Feng/Sales Manager

TEL: +86 10 87576701

DATE: 26th Jan 2021

SUBJECT: Clarifications regarding Tender Enquiry No. PROC-FE/CB/ECMP-4843/2020 FOR MULTI GEOPHONE STRINGS 8000 NOs AND SPARES

Dear Sir,

We thank you for your email dated 25th Jan, 2021 issuing clarification against above tender. We **Zhaofeng Sensor Equipment Co. Ltd.**, China make the following clarifications:

1. For Item #1&4 of SOR, here we confirm that:

We will provide 3.00" to 3.25" inch non magnetic austenitic stainless steel spike.

2. For Sample at sr#1&2, here we confirm that:

We will provide production samples of items at sr#1&2 (01 each), and will proceed for mass production after confirmation from OGDCL.

We also agree that any discrepancy in production sample will result in rejection of bid/contract, and 3rd party inspection will be carried out in view of clarifications/confirmations received during evaluation process, and as per production sample.

Thank you! If you have any questions, pls do not hesitate to contact with us.

Sincerely yours,

Signature

In the Capacity of Sales Manger

Duly authorized to sign tenders for and on behalf of
Zhaofeng Sensor Equipment Co., Ltd.

Date: 26 Jan 2021

clarification

Jay Feng
19/7/21

page 3



Zhaofeng Sensor Equipment Co., Ltd.

China Geophysical

4
117

TO: Mr. Huhamamd Atif Malik Dy. Chief Engineer (D.A)

TEL: +92 51 9244444

FROM: Mr. Jay Feng/Sales Manager

TEL: +86 10 87576701

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1. For Item #1 of SOR, here we confirm that:

We will provide 3.00" to 3.25" inch non magnetic austenitic stainless steel spike.

2: For item #1 of SOR, here we confirm that:

We will provide Cable O.D 4.3mm to 4.6mm for three conductor wire.

Thank you! If you have any questions, pls do not hesitate to contact with us.

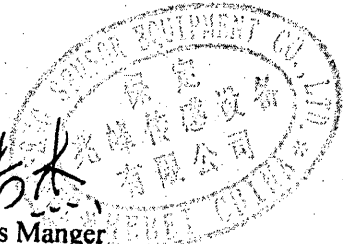
Sincerely yours,

Signature

In the Capacity of Sales Manger

Duly authorized to sign tenders for and on behalf of Zhaofeng Sensor Equipment Co., Ltd.

Date: 25 Jan 2021



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Handwritten signature and date: 19/1/21