

CARTOGRAPHIC SYMBOLS

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|--|--|--|--|
| | Post Survey Route with kilometre post and reverse kilometre post | | Telecommunications cable position, in Service/Out of Service/Planned (As found in magenta) |
| | Beach Mark/Alter Course | | Pipeline position, in Service/Out of Service/Planned (As found in magenta) |
| | Survey Route | | Power cable position, in Service/Out of Service (As found in magenta) |
| | Coastline (from Admiralty Charts) | | Chart Matchline |
| | Territorial Sea / EEZ limit | | |

BATHYMETRY

Bathymetric contours in metres. Contour interval may be reduced to aid in clarity. All bathymetry reduced to Lowest Astronomical Tide (LAT)

Downslope gradient in degrees (°) as measured over the shortest significant distance

Approximate limit of swath bathymetry coverage (shown only in areas of flat seabed)

SEABED FEATURES AND SHALLOW GEOLOGY

| | | | |
|--|---|--|---|
| | Coral | | Isolated sonar contact with reference number (length x width x height in metres where measurable; n/m = no measurable height) |
| | Gas seepage area with predominant sediment classification | | Linear sonar contact, dashed where partially buried |
| | Boulder with predominant sediment classification | | Unidentified magnetic anomaly with reference number and amplitude |
| | Fine sediment (predominantly CLAY/SILT) | | Cable/Pipeline position, as determined by magnetometer, with reference number and amplitude |
| | Coarse sediment (SAND and GRAVEL) | | Seabed sample location with reference number |
| | Very coarse sediment (COBBLES and BOULDERS) | | IC (Piston Core) |
| | Subseeping ROCK with predominant sediment classification (sediment thickness = target burial depth) | | OS (Grab Sample) DS (Diver Sample) DP (Diver Probing) SP (Beach Probing) |
| | ROCK outcrop | | MxyCPT (CP) Location with reference number |
| | HARDGROUND (Very dense/consolidated sediment) | | Small outcrop of rock with height in metres if discernible |
| | Sediment or feature boundary | | Seabed DEPRESSION or ROCKMARK with diameter (d) and depth (D) in metres, where discernible |
| | Inferred Sediment or Feature Boundary | | Orientation of SANDWAVE crest (with wavelength and height in metres) |
| | Approximate limit of side scan sonar coverage and survey swath | | Orientation of MEGARIPPLE crest (with wavelength and height in metres) |
| | Seabed scar (trail or anchor) | | Orientation of sediment ribbon |
| | Charted or reported wreck | | Fault with depth below seafloor (fractures on down side) |
| | Dumping ground database position | | Isobath Contours shown at 1m interval with labels every 1m |
| | Wall / Platform | | Located wreck with reference no. (length x width x height in metres where measurable) |
| | Oil Concession Block | | Anchorage Area / Fishing Area (Admiralty chart position) |
| | | | Anchorage / Fishing Prohibited (Admiralty chart position) |

CHART COMMENT:

GENERAL NOTES:

| | | | |
|---|--|--|---|
| SURVEY VESSEL: M.V. Ocean Endeavour | Positioning system: Furuno Starfix HP 1000S | Survey Vessel: M.V. Capibá Rio III | Positioning system: Applan POSMV Watermaster, Verpos LDS |
| Underway positioning system: Sonarteck Ranger 1 USBL | Bathymetry: Kongsberg EM120, Kongsberg EM60 Combi | Underway positioning system: Sonarteck Ranger 1 USBL | Bathymetry: Reson Seabat T-20 |
| Morphology and stratigraphy: Edgetech 4200-FS, Kongsberg Chirp and prap, SEB Seaglobe SSS/SBP | Geotechnical: Kullenberg Piston Core, Neptune 3000 CPT | Morphology and stratigraphy: Edgetech 4200 MP, Kongsberg Geosonics, Chirp/Seaglobe | Geotechnical: Marine Magnetics Seagrey, Van Veen Grab Sampler |

Target burial depth: 1.0m below seabed

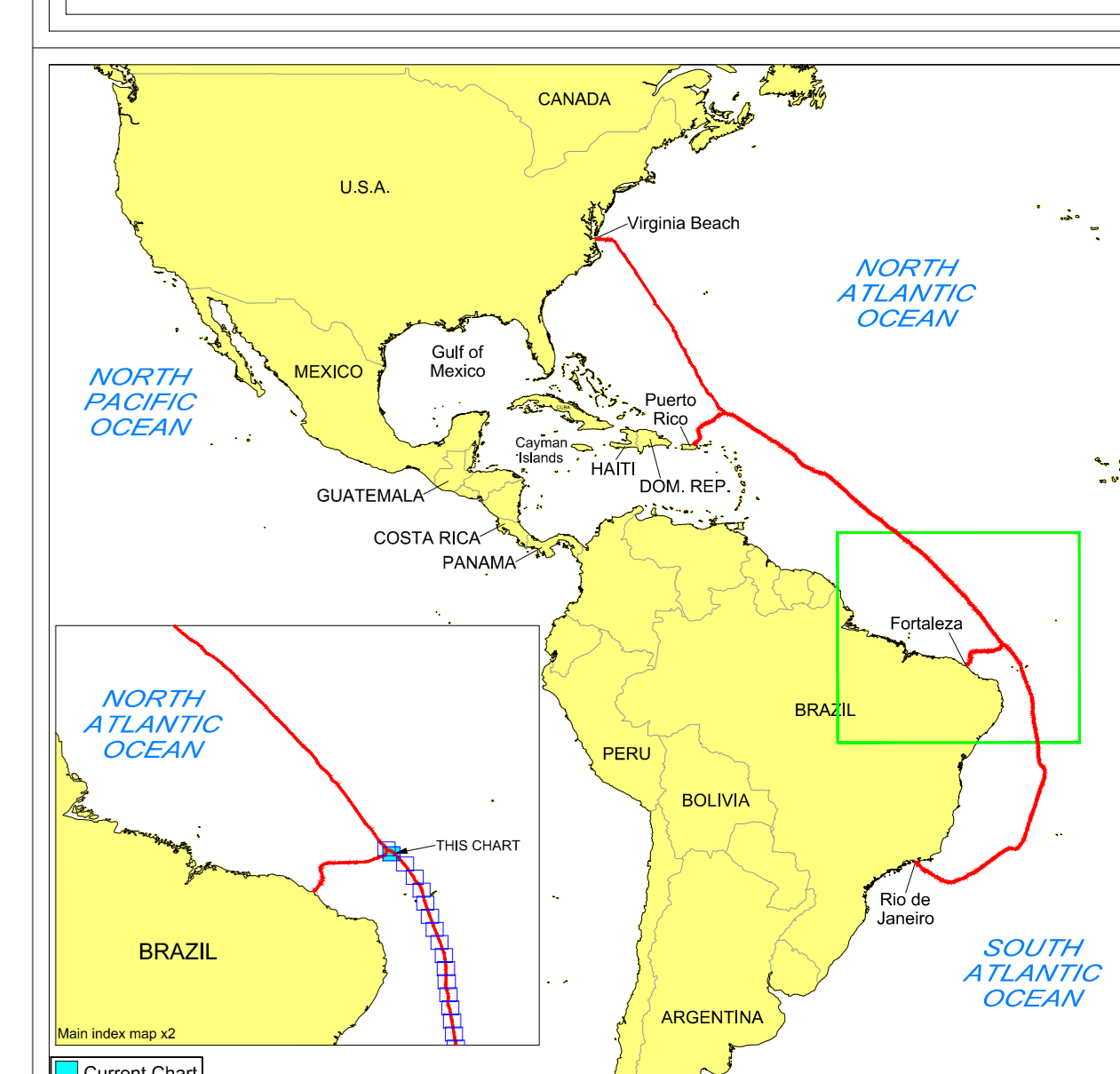
Descriptive Terms and Definitions:
The criteria used for interpretation and descriptions are presented in the Survey Results

Multi-beam Processing Parameters: Depths in metres, reduced to LAT

Predictions used from tide stations: Rio de Janeiro, Brazil

GEODETIC PARAMETERS:

| | |
|--|---------------------------|
| Projection: MERCATOR | Scale Factor: 1 |
| Longitude of Origin: 53°W | Datum: WGS84 |
| Standard Parallel: 7°N | False Easting: 3 000 000 |
| Semi-Major Axis (a) (metres): 6378137.000 | False Northing: 5 000 000 |
| Reciprocal Flattening (1/f): 298.257223563 | |



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Survey Date: MAY to AUGUST 2016

Scale: **NATURAL SCALE 1 : 100,000 at 7°N**

(At Mid-Latitude of Chart)
TRUE SCALE 1 : 100666.05 km

Purchaser: **TELXIUS** (Enabling Connectivity)

Contractor: **Alcatel-Lucent**

Surveyor: **Gardline**

Project Name: **BRUSA CABLE ROUTE SURVEY**

Document Title: **SEGMENT 7 NORTH-UP CHART CHART NO. 001 OF 071 (KP 0.000 - KP 98 627)**

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|-----|------------|-------------|------------|-------------|
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ROUTE BASED UPON: BRUSA PRR2 File Name: BRUSA.S7.NU001

REVISION 01