Replacement of the NORTH TOPSAIL WATER MAIN
Overview

• Problem Statement
• Route Evaluation
• Scoping
• Design
• Easements
• Construction
Program Strategy

Assessment  Funding  Scoping  Design  Construction
Assessment – Results

Hangers

Pipe
Assessment – Results

Joints

Pipe
Combination of Open Cut and Directional Drill
PILE CLUSTER DOLPHINS

PLANS OF DOLPHIN HEADS

7-PILE DOLPHIN

19-PILE DOLPHIN

30-PILE DOLPHIN

ELEVATION OF 19-PILE DOLPHIN

Fig. 3.14
Slope Stability
Construction Documents

• General contractor Unlimited and Unclassified Classification
• Alternate for HDD from parking lot to guard rail on approach
• Schedule restriction for PNA
## Construction Cost

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>$530,550</td>
<td>Water Main only</td>
</tr>
<tr>
<td>2017</td>
<td>$1,000,000</td>
<td>Owner’s Budget</td>
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<tr>
<td>Bid</td>
<td>$799,000</td>
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Contractors

• State Utility Contractors
  Sandys Hauling and Backhoe
  Delta Directional Drilling
  King Electric
220,000 # Drill Rig &
True Tracker Wire Line
Magnetic Guidance System

Sharewell’s new Magnetic Guidance System (MGS) is a directional steering system that provides real time information for the Horizontal Directional Drilling Industry.

The MGS provides the contractor with known positioning by producing immediate information on tool face, azimuth (horizontal angle) and inclination (vertical angle). This data is processed at the surface by steering software to provide information on depth, course length and distance off a predetermined azimuth.

The MGS system has five main components: A probe, driller’s console, interface unit, computer, and printer. The probe is located in a non-magnetic bottom hole assembly that typically includes a collar, orientation sub and a bent sub with a bit when jetting or a mud motor. Information from the probe is sent up to the surface via a single conductor wireline. The information is processed at the interface unit and simultaneously transmitted to the driller’s console and computer to provide continuous information on the borehole orientation.

Horizontal Directional Drilling Contractors benefit by using Sharewell’s Trutacker® system which is a secondary, independent verification of the boreholes path. Trutacker can be operated at depths in excess of 300 feet and is accurate to +/- 2% of the vertical depth of the probe.

Performance Summary

Specifications

- Probe Length = 16'
- Probe Diameter = 1.375'
- Protective Housing Diameter = 1.75' x 25.75'
- Maximum Operating Temp = 75° C

Probe Accuracy

- Inclination = +/- 0.1°
- Azimuth = +/- 0.3°
- Tool Face = +/- 0.1°
## Horizontal Geometry

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<thead>
<tr>
<th>From</th>
<th>Station</th>
<th>Azimuth</th>
<th>Dist / Arc</th>
<th>RP #</th>
<th>Radius</th>
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**DELTA DIRECTIONAL DRILLING**

9027 HWY 15 N.

NEWTON, MS, 39345  601-683-0879

**Customer:** ONWASA  **Job No.:** P49

**Project:** NORTH TOPSAIL WATER MAIN REPLACEMENT  **Date:** 12/4/2017

**Location:** INTERCOASTAL WATERWAY BRIDGE

**Line Size:** 12"  **Scale:** 1" : 20 ft

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**HORIZONTAL TECHNOLOGY**

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Thank you

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