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## On the Rise with HOBAS® CC-GRP Shafts for Deep Tunnels in Minneapolis, US

On two recent large diameter tunnels in the Minneapolis-St. Paul area, Woodbury L73 and Victoria Intercept Sewer Tunnel, HOBAS GRP was the material of choice for both the tunnel and the manhole risers, says Vince Paparozzi, area sales manager for HOBAS Pipe USA. "They were about 23 m deep for Woodbury and 30.5 m on the Victoria project. Since the two-pass-tunnel used fiberglass pipes as the liner, it only made sense to continue the corrosion resistance in the shafts to the surface."

Engineers and contractors are discovering that the light weight, speed of installation and corrosion resistance make HOBAS Pipes an excellent choice for shafts and shaft liners. Wastewater tunnels are getting larger and deeper across the US and use of large diameter CC-GRP (Centrifugally Cast Glassfiber Reinforced) Pipes for these applications is increasing. "At HOBAS Pipe USA we are now offering up to DN 3200 diameter pipes and have made modifications to our manufacturing facility to accommodate even larger," stated Kimberly Paggioli, P.E.

**Flexible Design**

On the Woodbury project, the contractor opted to install the fiberglass risers in lieu of the specified product. The HOBAS Risers were shipped separately, and the contractor cut and laminated the risers to the mainline. HOBAS field service was present on-site to assist the contractor. The success led to the inclusion of HOBAS Shafts in the specifications for the next installation, the Victoria sewer. On Victoria, the installer opted to have HOBAS manufacture the T-Base systems at their manufacturing plant in Houston and the contractor installed the T-Base and risers using gasketed joints. "Either option is available depending on contractor preference. Both of these successful installations are for the same owner, the Metropolitan Council of Environmental Services (MCES)", says Paparozzi.



**Lightweight Risers**

Traditionally, risers for large diameter tunnels have been manufactured of concrete, but CC-GRP risers offer lighter weight, corrosion resistance and compressive strengths greater than most concrete products.

“We are talking about concrete risers with their thickness, weight and the necessary equipment to lower concrete down deep shafts as opposed to dealing with lightweight fiberglass pipe. And we have the flexibility to insert the steps or outlets that are needed,” says Paparozzi. “Another key issue is corrosion resistance. Instead of using PVC liner or some other kind of coating, they can just use CC-GRP Pipe and not worry about corrosion. The contractor receives the benefits of time and cost and the owner gets corrosion resistant design for up to 100 years.”

**Cost Savings**

The initial cost of concrete with a PVC liner may be less if you consider materials only but the overall cost of material plus installation often makes fiberglass pipe economically more attractive. A concrete shaft 23 or 25 meters deep can take weeks to form, pour the concrete and place a PVC liner for corrosion resistance, but the 6-m-long HOBAS can be stacked up in a day or two - two days versus five or six weeks makes a big difference. “I think we are successful on many of these projects because of the benefits it brings to the installer,” Paparozzi says.

On deep tunnel projects, corrosion resistance is a major concern as many systems are designed with storage. Often, combined storm and sanitary sewage is stored in the tunnel after a big rain event. As the rain event subsides, the sewage is gradually released for treatment. Storage can lead to increased hydrogen sulfide, which is then released at manholes due to turbulence. A resistant shaft is therefore just as important as the sewer line. With the corrosion resistant CC-GRP risers as well, MCEs has a complete corrosion resistant system.

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Year of Construction	Installation method
<b>2011</b>	<b>Open cut</b>
Product range	Client
<b>Shafts and risers</b>	<b>Minneapolis, MN</b>
Diameter	Contractor
<b>DN 1800</b>	<b>Lametti &amp; Sons</b>
Pressure Class	Advantages
<b>PN 1</b>	<b>Lightweight, corrosion resistance, installation ease</b>
Stiffness Class	
<b>SN 6500</b>	
Application	
<b>Wastewater</b>	