STEINZEUG KERAMO

CERAMIC PRODUCTS – TRENDSETTING SINCE THE CLASSICAL ERA

WASTEWATER ALLA ROMANA

Antonio Marica, Societa del Gres Spa

The Romans were the first to make consistent use of their highly developed engineering skills and to constantly develop them further. With results so spectacular and long-lasting that they continue to impress today. The construction of road networks, aqueducts, sewage systems and bridges, whose remains may still be seen in the most far flung corners of their empire, are regarded as perhaps the most important attribute of the Roman civilization. A unique “trademark” for more than 2,000 years.

The construction of a wide network of systems for draining sewage and disposing of household and street waste undoubtedly counts as one of the most important achievements of the Roman engineers. The first of these structures, the Cloaca Maxima, is regarded as ancient Rome’s oldest and most magnificent urban planning project. Thanks to the use of ceramic projects, along with constant maintenance during the time of the Roman Empire, the Cloaca Maxima remains in operation to this day.

ACE ATO 2 Spa, a company of the ACEA Group, is the operator of the integrated water supply in the ATO 2 Central Lazio-Rome area, with a total of 3.7 million residents and 112 municipalities.

On the basis of its long years of experience, the company was tasked with building Frascati’s new sewage network, with construction of a new rainwater collector in the sewage treatment plant in the east of Rome. Vitrified clay pipes were used here.

The project comprises construction of two independent sewage routes to optimize the sewage networks of Frascati and Monte Porzio Catone by linking several rain and sewage collectors. Within this framework, a sewer in Fosso del Cavaliere that no longer meets the requirements and an ageing wastewater treatment plant for the village of Cocciano will be demolished. The total value of the project runs to € 14,465,500, to be fully financed by sewage charges. Amortization period: > 75 years.

Vitrified clay pipes are traditionally used in this region on account of this material's outstanding abrasion resistance and long service life. Given the high density of underground supply pipes, pipe sections of short length were mainly used for this project.

The construction works were subdivided into two construction phases. The following firms were awarded the contract, implementing the projects by open trench construction: Cicchetti Remo & Figlio S.r.l. di Torrita Tiberina – Roma K.C. Costruzioni S.r.l. di Castiglione Cosentino – Cosenza

The project was launched in 2009 with planning works by the Laboratori SpA engineering company of the ACEA Group. Following approval in 2010 the project was implemented in the period between 2012 and 2015. The construction components needed were supplied directly to the various construction sites by the company Societa del Gres – Steinzeug Keramo. The following quantities of vitrified clay pipes were used:

Dimension	Installed
DN	m
300 H	1,900
500 H	895
600 N	7,220
600 H	577
800 N	720
	11,312

In summary, it may be said that an environmentally friendly and high-quality system of this kind offers the best prospect of an economically viable and reliable operation over the long term. The Cloaca Maxima proves that it works.

- A multiplicity of underground construction works and pipes in the urban area
- Intersecting areas of major archaeological significance in the surroundings
- Sections with inclines of > 7% from an hydraulic perspective, and considerable abrasion resulting from excavation slurry
- Construction site primarily rock of pyroclastic origin, loose tufa in some parts, hard basalt rock in others
- Groundwater present
- Construction depth between 1.70 and 7.30 meters below ground level

Client + Operator: ACE ATO 2 Spa, Company of the ACEA group, (is the operator of integrated water services in ATO 2 Central Lazio-Rome, with 3.7 million inhabitants and 112 municipalities) | **Planning:** Laboratori S.p.A. engineering company of the ACEA Group | **Construction:** Cicchetti Remo & Figlio S.r.l. di Torrita Tiberina – Roma and K.C. Costruzioni S.r.l. di Castiglione Cosentino – Cosenza