FIRST Foundry Industry Recycling Starts Today

CASE STUDY: The City of Reedsburg Industrial Park

Grede Foundries, Inc.

Reedsburg, Wisconsin

The Grede Foundries, Inc. facility located in Reedsburg, Wisconsin, was purchased by Grede in 1954 and converted to produce ductile iron castings. The 300,000 square-foot facility can produce up to 130,000 casting tons per year and has received QS-9000, ISO 14001, and TS-16949 certifications. Grede Foundries is committed to achieving high environmental performance and has developed a broad and extensive set of programs to do so. In accordance with this, Grede's Reedsburg facility has been cooperating with both the City of Reedsburg and the Wisconsin Department of Natural Resources (WDNR) since 1999 to place its excess system sand as structural fill on sites being prepared by the City of Reedsburg for use as an industrial park.

Photo 1: Grede Foundries in Reedsburg, Wisconsin.

Portions of the 59 acre site being developed by the city were located in a flood fringe area, meaning that substantial filling was needed. The city knew at the time that Grede was interested in implementing a beneficial reuse program for its excess system sand at the Reedsburg facility, so they approached Grede, and the two parties eventually entered into a development agreement (April of 2000) to use Grede's co-product sand as structural fill for the industrial park. The initial agreement was for Grede to place approximately 154,000 cubic yards of sand over a period of several years on the site, but it was later amended to add an additional 65,500 cubic yards.

In the end, roughly 230,000 cubic yards of Grede's sand were placed on three phases of the site totaling 35 acres (Table 1).

Phase	Volume of System Sand	Area
Phase 1	11,166 cu. Yds.	10 acres
Phase 2	56,221 cu. Yds.	4.8 acres
Phase 3	162,350 cu. Yds.	20.2 acres
Totals	229,737 cu. Yds.	35 acres

Table 1: Volumes of system sand used and areas of the three phases.

Grede arranged to have the sand hauled just less than a mile from its facility to the site at a cost of about $3.30 per cubic yard (cy). The city prepared the site by installing drain tile throughout 58 acres of the site. They also excavated and filled portions of the site in order to provide a level subgrade for the sand, which was required to be two feet above the 100 year flood elevation in order to comply with city zoning ordinances and WDNR regulations.

This project was implemented in order to pursue benefits for both the city and the foundry. The city received 230,000 cubic yards of free structural fill, saving them approximately $900,000 on the development of their industrial park. The foundry avoided placing that same 230,000 cubic yards of excess system sand in their own landfill. Note that landfilling the material would have cost Grede roughly $16.20/cy and that, as previously

mentioned, hauling the sand to the site of the industrial park cost about $3.30/cy. This means that Grede saved approximately $12.50/cy on disposal of 230,000 cubic yards of sand, or more than $2.8 million total over the course of several years.

Photo 2: An aerial view of the industrial park under development. Phase 1 is furthest left in the bottom corner of the picture and already occupied by buildings. Phase 2 is in the center, faintly outlined in blue. It has been temporarily capped with asphalt. Phase 3 is furthest right, faintly outlined in red. It has been restored with topsoil and seeded.

Overall, Grede and the City of Reedsburg are very pleased with the project, as it is a good example of how the public and private sectors of a local community can work together with state agencies to accomplish their different objectives.

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Personnel	**Foundry:** Grede Foundries, Inc. **Engineers:** Vierbicher Associates **Contractors:** Ray Zobel & Sons James Theiding Construction City of Reedsburg Connors Trucking
Site	**Location:** Reedsburg, Wisconsin **Site Description:** Excess system sand from Grede's Reedsburg, Wisconsin, foundry was hauled just less than a mile from the foundry to a site that was being developed by the City of Reedsburg for use as an industrial park. It was then placed as structural fill.
Materials Utilized	Approximately 230,000 cubic yards of foundry excess system sand.
Project Costs and Benefits	**Costs Include:** • Grede assumed the cost of approximately $3.30 per cubic yard for hauling and placing the sand. • The City of Reedsburg assumed the cost of preparing the site. **Benefits Include:** • Grede avoided roughly $12.50 per cubic yard in disposal costs for 230,000 cubic yards of sand. This works out to more than $2.8 million in total savings. • The City of Reedsburg received 230,000 cubic yards of free structural fill, which would normally have cost them about $900,000, for developing their industrial park.