



# STANDARD FORMWORK FOR STRAIGHT AND CURVED WALLS

Sultan, Washington

3 Minute Read Time

## URGENT UPGRADE OF WASTEWATER TREATMENT PLANT

The city of Sultan, Washington, in the Skykomish River Valley, has experienced a surge in population since 2019. Planning for the future, the city council and citizens of Sultan committed to redeveloping the Wastewater Treatment Facility (WWTF), which was initially constructed in the late 1990s. The city contracted with Gray and Osborne engineering firm in 2020 to complete the design, and bids for the project were released in 2022.

*EFCO's REDI-RADIUS system is an interchangeable large panel form system that can be assembled and adjusted to any radius, concave or convex.*

## FORMWORK AND SHORING EQUIPMENT FOR WASTEWATER TREATMENT PLANTS

Harbor Pacific Contractors, Inc., based in Woodinville, Washington, was awarded the City of Sultan wastewater treatment facility upgrade project. Having worked with multiple EFCO forming and shoring systems on past projects, Superintendent Greg Schmidt reached out to the local EFCO Seattle team.

## ENGINEERING OF WATER AND WASTEWATER TREATMENT PLANTS (WWTP)

The project includes a new oxidation ditch, aerobic digester, headworks, solids handling building, and a secondary clarifier tank. EFCO's engineering team went to work designing the formwork layout for

the oxidation ditch, digester, and clarifiers. As trusted advisors, EFCO works with you from the project development stage through construction to deliver reliable products that are easy to operate and maintain.

## STRAIGHT WALLS AND CURVED WALLS USING FORMWORK

The oxidation ditch was designed with straight and curved walls and was built to a height of 17' (5.2 m). The **EFCO LITE**® and **REDI-RADIUS**® formwork systems were ideal for this project, as their all-steel face sheets allowed for a seamless transition from straight to curved walls. EFCO supplied approximately 3,100 ft<sup>2</sup> (288 m<sup>2</sup>) of EFCO LITE formwork for the straight walls. Approximately 2,660 ft<sup>2</sup> (247 m<sup>2</sup>) of REDI-RADIUS Sr. formwork was ▶





used to construct the 21-6" (6.6 m) radius exterior walls. Included in that solution were 1,465 ft<sup>2</sup> (136 m<sup>2</sup>) of **REDI-RADIUS**® Jr. panels for the tighter 10' (3 m) radius interior walls.

**RE-USEABLE FORMWORK**

With this formwork, the crew placed concrete and cycled the system twice, completing the radial ends of the oxidation ditch. The **EFCO LITE**®, straight wall formwork, was cycled three times on the structure and then reconfigured for use on the digester.

**INNOVATIVE APPROACHES  
ACHIEVE PRACTICAL RESULTS**

The aerobic digester structure was constructed using EFCO LITE formwork wall panels. Initially, the plan was to send the formwork panels to the building site only for the digester; however, the timeline worked in such a way that the contractor could take advantage of the equipment from the oxidation ditch and reuse them from the nearby digester walls.

**ON-SITE MODIFICATIONS  
PROVIDE VERSATILITY**

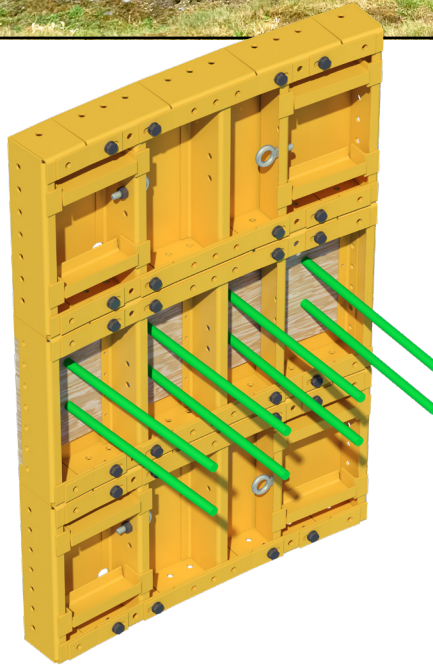
The efficiency of the Harbor Pacific Contractors following the plan provided by the EFCO engineering staff and EFCO LITE formwork's adaptability made it possible to modify the structure quickly and only require a few extra materials to finish the job of building a digester tank.

**PRE-SHAPED WALL FORMWORK  
FOR CLARIFIER TANK**

EFCO shipped 2,360 ft<sup>2</sup> (219 m<sup>2</sup>) of pre-shaped REDI-RADIUS panels, allowing for fast initial build-up and less handling of the forms and saving space on site. EFCO's REDI-RADIUS formwork was the ideal choice for the new clarifier tank, providing enough square footage to construct a 20' (6.1 m) radius wall measuring 67' (20.5 m) long, 18' (5.5 m) tall, and 12' (300 mm) thick. The design of the clarifier's launder slab necessitated that the rebar stubs out, which the EFCO REDI-RADIUS Dowel Rod panel allows while maintaining structural integrity through its steel frame.

**WHY CHOOSE ANYONE ELSE?**

The combination of EFCO LITE and REDI-RADIUS frequently proves to be the lowest-in-place concrete cost form system for wastewater treatment facility projects such as this one. With this proven solution, Harbor Pacific Contractors, Inc. is ready to complete the project in early 2024.



*The EFCO REDI-RADIUS Dowel Rod panel allows for protruding rebar while maintaining structural integrity through its steel frame.*

**EFCO EQUIPMENT**  
REDI-RADIUS, EFCO LITE

**HARBOR PACIFIC  
CONTRACTORS TEAM**

Greg Schmidt ..... Superintendent

**EFCO FORMWORK SPECIALISTS-  
SEATTLE**

Grant Overton..... Territory Manager  
Dennis Philpot .....Field Supervisor  
Juan Larrinaga ..... Engineer

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