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September 1987

FIELD NOTE NO.: General--3

Previous Sheet Reference Nos.: None

SUBJECT: LOGYARD DEBRIS SCREENING AND ROCK SEPARATION

A new system for screening logyard debris and separating rocks from the screened debris has been developed and built by Parker Manufacturing Inc. of Bothell, Washington. One unit is in operation at Pacific Topsoils Inc. at Bothell and one unit is being built for Pacific Fiber of Longview, Washington.

Pacific Topsoils' site was visited on August 25, 1987 to view the system. It was processing logyard debris trucked to the site from Scott Paper's Riverside sortyard in Everett.

The system consists of the following pieces of equipment.

1. Infeed Hopper and Conveyor

The hopper walls are steel and capable of taking a full load of debris from the bucket of a Caterpillar 966 or 980-sized front-end loader without bridging. A 1.2 m wide by 9.1 m long, rubber-belt conveyor draws the debris from the hopper. The rubber belt has a chain feed for positive movement. During operation, the front-end loader loads two or three buckets of debris into the conveyor and then moves onto other yard duties. The design of the hopper and conveyor results in an even flow of debris to subsequent processing equipment.

2. Disc Screen

A six-row disc screen follows the infeed conveyor. The discs are spaced to pass 15-cm material. Oversize material (>15 cm) passes over the screen and is deposited on the ground.

3. Cross Conveyors and Drum Screen

A 1.2 m wide, rubber-belt conveyor takes the <15-cm material from under the disc screen and transfers it to a 0.8 m wide, rubber-belt conveyor. This inclined conveyor transfers the material up to the drum screen. The drum screen is 6.1 m long by 1.8 m in diameter. The first half of the drum screen has wire mesh with 1.9-cm openings and the second half has mesh with 1.6-cm openings. Material passing through the screen consists of dirt, bark fines, and small rocks. It is allowed to fall on the ground where it is reclaimed with a front-end loader. This material is mixed with other ingredients such as sawdust, silt, and peat, and then sold as topsoil. Material that is between 1.9 cm and 15 cm in size exits the drum and drops onto a 0.6 m wide, rubber-belt conveyor and is transferred to the rock/wood separator.

4. Rock/Wood Separator

The rock/wood separator is a steel tank 3.7 m wide by 7.6 m long by 3.7 m high. The steel tank is filled with water and make-up water can be added from an adjacent surge tank.

The rock/wood mixture is dropped into the tank and the rocks fall onto a ribbed, rubber belt that is 0.6 m wide and runs the length of the tank. A series of water jets is under the surface of the water where the rock/wood mixture is dropped into the tank. The water jets force the woody material across the width of the tank where it is recovered by a 1.2 m wide conveyor belt. An inclined conveyor with steel and ironwood flights and steel chuting runs the length of the tank for sludge recovery. It runs along the centerline of the tank and is operated about five minutes per hour to recover sludge from the base of the tank.

5. Ancillary Equipment

Ancillary equipment at the outfeed conveyors of the rock/wood separator at Pacific Topsoils consisted of:

- a) Settling Pond - Sludge recovered from the separator flows in a settling pond. Water from the settling pond is recycled through the surge tank and back into the rock/wood separator.
- b) Shredder - Woody material from the rock/wood separator is conveyed to a tub shredder where it is processed into beauty bark.
- c) Rock Screens - Rocks from the rock/wood separator are conveyed to a vibrating rock screen where three sizes of rock are separated.

Parker Manufacturing Inc. supplies the equipment from the infeed hopper to the short conveyors exiting the rock/wood separator. The estimated selling price is \$360 000 (U.S.) and includes cat walks, electric motors, and switch gear. They will supply ancillary equipment but at an additional cost. The unit was processing an estimated 115 m³ of logyard waste per hour. About 75 kW of electric power is needed to run the system. A ground man, front-end loader operator, and front-end loader are needed to operate the system and maintain it.

INFORMATION: The information contained in this report is based on limited field observation and is only published to disseminate information to FERIC member companies. More information may be obtained from:

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A short video has been prepared on the system and is available to FERIC member companies for \$15.00. Please write to Jennifer Breadon at FERIC and enclose a cheque for the correct amount.

Alex Sinclair

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