DESIGN OF CONTAINER WARF IN SEMARANG CONTAINER TERMINAL WITH DECK ON PILE CONSTRUCTION AND DIVIDING SHEET PILE

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Abstract

The increasing role of port Tanjung Emas in export activities, encourage Tanjung Emas Port to open special unit for container service that since 1 July 2001 become an independent business named Semarang Container Terminal, or in Indonesian known as Terminal Peti Kemas Semarang (TPKS). As the demand increased for shipping activities from 1155539 ton (in 2003) to 2201414 (in 2006), the container terminal need an expansion to add more capacities.

The development of container terminal done by extending the length of berthing facilities along 105m and add the area of container yard by 0.525 hectare. This extension will make the berth has 600m length that can be berthed by 3 ship. The depth of the basin will be extended because the eksisting condition is just -10 mLWS and not suficient for 45000DWT ship draft (the ship draft is -13.00mLWS). In this final project, the subject that discussed just the design of the berthing facilities, the design of sheet pile wall and the dredging plan.

The design result shown that the wharf use concrete slab with 40cm thick, the transerve and elongated with 90 120 cm, the crane beam 120 160, single pile cap 200 200 120 and double pile cap 400 200 160. The pile foundation has 101.6cm diameter with -50mLWS deep of vertical pile and -55mLWS deep of diagonal pile. Sheet pile was designed with tubular sheet pile ∅900mm with combination of diagonal pile as anchor. Tie rod with 100mm diameter used beared on 25025025 wale. The tie rod was casted with concrete pile cap with 300150150 size. The depth of the
compression pile for anchor was -20.00mLWS and for the tension pile was -25.00mLWS. The installation of the sheet pile wall started when the consolidation settlement of soil done for 12 week with Prefabrication Vertical Drain. dredging process was designed with 2 Trailing Suction Hopper Dredger with 5000m3 capacity. For the disposal of the dredging material, the used of split type hopper barge with 1000 m3 capacity. The total volume of material was 3,129,698.33 m3. The total cost that used for this design was Rp 124,021,555,000.00.

*Keywords : Wharf, Dredging, Consolidation, Sheet Pile*