

ABSTRAK

PERENCANAAN PIPA INDUK SISTEM PENYEDIAAN AIR BERSIH DI PERUMAHAN CITRALAND KELURAHAN KERAMASAN KOTA PALEMBANG

M. Zuli Saputra, Maretha Lestari, Nur Wulan Oktavia

Program Studi D–III, Jurusan Teknik Sipil, Politeknik Negeri Sriwijaya

Perencanaan pipa induk merupakan bagian penting dalam pengembangan sistem penyediaan air bersih untuk memenuhi kebutuhan masyarakat secara kuantitatif dan berkelanjutan. Kelurahan Keramasan mengalami peningkatan laju pertumbuhan sebesar 14,5% dalam lima tahun terakhir sehingga kebutuhan air bersih terus meningkat. Perencanaan ini bertujuan menentukan kebutuhan air bersih, dimensi pipa induk, volume pekerjaan, dan estimasi biaya pembangunan jaringan pipa induk. Metode yang digunakan meliputi pengumpulan dan analisis data, proyeksi jumlah pelanggan, perhitungan kebutuhan air domestik dan non domestik, kehilangan air, debit rencana, dimensi pipa, serta kehilangan energi akibat gesekan. Hasil perencanaan menunjukkan kebutuhan air bersih sebesar 1.630.789 liter/hari, terdiri atas kebutuhan domestik 1.247.963 liter/hari, non domestik 6.490 liter/hari, dan kehilangan air 376.336 liter/hari. Pipa induk yang direncanakan menggunakan HDPE Ø 400 mm sepanjang 1.060 meter dengan estimasi biaya pembangunan sebesar Rp1.171.949.000,00. Hasil perencanaan ini diharapkan menjadi acuan teknis dalam pengembangan jaringan penyediaan air bersih yang efektif dan berkelanjutan.

Kata Kunci: perencanaan jaringan, kebutuhan air bersih, pipa HDPE, debit rencana, sistem perpipaan.

ABSTRACT

PLANNING OF THE MAIN PIPELINE FOR THE CLEAN WATER SUPPLY SYSTEM IN CITRALAND HOUSING, KERAMASAN SUBDISTRICT PALEMBANG CITY

M. Zuli Saputra, Maretha Lestari, Nur Wulan Oktavia

Diploma Degree, Civil Engineering Department, State Polytechnic of Sriwijaya

The planning of a main pipeline is an important part of developing a clean water supply system to meet community needs quantitatively and sustainably. Keramasan Subdistrict has experienced a population growth rate of 14.5% over the past five years, resulting in an increasing demand for clean water. This planning aims to determine clean water demand, the main pipeline dimensions, work quantities, and the estimated cost of constructing the main pipeline network. The methods used include data collection and analysis, customer projection, calculation of domestic and non-domestic water demand, water losses, design discharge, pipe dimensions, and energy losses due to friction. The planning results indicate that the clean water demand is 1,630,789 liters/day, consisting of 1,247,963 liters/day for domestic demand, 6,490 liters/day for non-domestic demand, and 376,336 liters/day of water losses. The planned main pipeline uses HDPE Ø 400 mm with a length of 1,060 meters, with an estimated construction cost of IDR 1,171,949,000.00. The results of this planning are expected to serve as a technical reference for the development of an effective and sustainable clean water supply network.

Keywords: *network planning, clean water demand, HDPE pipe, design discharge, piping system.*