

**PERANCANGAN GEOMETRIK DAN TEBAL PERKERASAN KAKU
JALAN PESISIR TIMUR STA 287+450 - STA 295+550
KABUPATEN BANYUASIN
PROVINSI SUMATERA SELATAN**

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ABSTRAK

Skripsi ini menyajikan perancangan geometrik dan tebal perkerasan kaku pada ruas Jalan Pesisir Timur STA 287+450 – STA 295+550 Kabupaten Banyuasin, yang merupakan jalur strategis penghubung kawasan pesisir dengan pusat ekonomi Provinsi Sumatera Selatan. Pertumbuhan penduduk Kecamatan Air Saleh sebesar 5,39% pada periode 2022 – 2025 mendorong peningkatan kebutuhan transportasi, sementara kondisi tanah dasar berklasifikasi A-7-5 (AASHTO) dengan CBR 15% - 20% menjadi dasar pemilihan perkerasan kaku sebagai solusi struktural yang lebih handal terhadap deformasi. Perancangan mengacu pada PDGJ Nomor 13/P/BM/2021, MDPJ Tahun 2024, serta pedoman – pedoman yang relevan lainnya. Hasil perancangan menghasilkan trase sepanjang 7,988 km yang ditetapkan sebagai jalan Kolektor Kelas III, tipe 2/2 TT dengan lebar jalur 7,00 m, bahu jalan 1,00 m, dan kecepatan rencana 40 km/jam. Alinyemen horizontal mencakup 8 tikungan (2 SCS dan 6 FC) yang seluruhnya memenuhi persyaratan geometrik dengan derajat kejenuhan akhir umur rencana sebesar 0,36. Struktur perkerasan yang dipilih adalah *Jointed Reinforced Concrete Pavement* (JRCP) dengan tebal pelat beton 200 mm, fondasi bawah BK 100 mm, dan lapis fondasi atas 200 mm. Untuk umur rencana 40 tahun ($JSKN = 4,024 \times 10^6$) menghasilkan kerusakan fatigue 48,12% dan erosi 38,32%, keduanya jauh di bawah batas 100% sehingga desain dinyatakan aman. Sistem drainase samping direncanakan berbentuk trapesium dengan tinggi 1 m dan lebar penampang atas 1,5 m. Sedangkan volume pekerjaan tanah yang diperoleh adalah 88.290,26 m³ galian dan 110.997,73 m³ timbunan. Rencana Anggaran Biaya (RAB) total pembangunan ditetapkan sebesar Rp 68.756.554.000,00 (Enam Puluh Delapan Milyar Tujuh Ratus Lima Puluh Enam Juta Lima Ratus Lima Puluh Empat Ribu Rupiah) dengan estimasi durasi pelaksanaan konstruksi selama 123 hari kalender.

Kata Kunci: Geometrik Jalan, Perkerasan Kaku, Jalan Pesisir Timur, PDGJ 2021, MDPJ 2024

**GEOMETRIC DESIGN AND RIGID PAVEMENT THICKNESS
DESIGN OF PESISIR TIMUR ROAD STA 287+450 – STA 295+550
BANYUASIN REGENCY
SOUTH SUMATRA PROVINCE**

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ABSTRACT

This undergraduate thesis presents the geometric design and rigid pavement thickness design of the East Coastal Road section from STA 287+450 to STA 295+550 in Banyuasin Regency, which serves as a strategic corridor connecting coastal areas with the economic centers of South Sumatra Province. The population growth of Air Saleh District by 5.39% during the 2022 – 2025 period has increased transportation demands, while the subgrade condition, classified as A-7-5 according to AASHTO with a CBR value ranging from 15% to 20%, forms the basis for selecting rigid pavement as a more reliable structural solution against deformation. The design refers to the Geometric Design Guidelines for Roads (PDGJ) No. 13/P/BM/2021, the Road Pavement Design Manual (MDPJ) 2024, and other relevant guidelines. The design results indicate a road alignment length of 7.988 km, classified as a Class III Collector Road with a 2/2 Undivided (2/2 UD) configuration, a carriageway width of 7.00 m, shoulder widths of 1.00 m, and a design speed of 40 km/h. The horizontal alignment consists of eight curves, comprising two Spiral-Circle-Spiral (SCS) curves and six Full Circle (FC) curves, all of which satisfy the geometric requirements, with a degree of saturation at the end of the design life of 0.36. The selected pavement structure is Jointed Reinforced Concrete Pavement (JRCP), consisting of a 200 mm concrete slab, a 100 mm lean concrete subbase, and a 200 mm base course. For a design life of 40 years ($JSKN = 4.024 \times 10^6$), the analysis resulted in fatigue damage of 48.12% and erosion damage of 38.32%, both significantly below the allowable limit of 100%, indicating that the pavement design is structurally safe. The side drainage system is designed in a trapezoidal shape with a depth of 1 m and a top width of 1.5 m. Meanwhile, the calculated earthwork volumes consist of 88,290.26 m³ of excavation and 110,997.73 m³ of embankment. The total estimated construction cost is IDR 68.756.554.000,00 (Sixty-eight billion seven hundred fifty-six million five hundred fifty-four thousand rupiah), with an estimated construction duration of 123 calendar days.

Keywords: *geometric road design, rigid pavement, East Coastal Road, PDGJ 2021, MDPJ 2024.*