CONSERVING THE HEART OF PAHANG:

# THE MUARA SUNGAI PAHANG PHASE 3 FLOOD MITIGATION PROJECT

The Muara Sungai Pahang Phase 3 Flood Mitigation Project is a testament to our expertise in climate change adaptation infrastructure projects, drawing on our specialised skills in water-related projects such as flood mitigation. Located in the Pekan District of Pahang Darul Makmur, this RM380 million design-andbuild, spearheaded by MRCB in partnership with the Department of Irrigation and Drainage (DID), represents an engineering marvel that blends infrastructure development with environmental stewardship.



## SAFEGUARDING A VITAL ECOSYSTEM

The Muara Sungai Pahang Phase 3 Flood Mitigation Project spans five years, from June 2022 to June 2027. This project is designed to:



Mitigate coastal flooding risks, particularly for Pekan Town and nearby communities



Create sustainable navigation channels and berthing zones



Address siltation challenges at the river mouth to ensure seamless discharge of peak flows and secure navigation for fishing vessels



Provide robust defences against extreme wave activity



Since we started this project in June 2022, we have managed to work safely without having any serious injury that caused our man-hours to be reset to zero and in early November 2024, reaching 500,000 working man-hours without Lost Time Injury.

The project's specific scope includes the construction of 683.5 metres of the Northern Arm 1 breakwater and 682.55 metres of the Northern Arm 2 breakwater, along with four dykes, two beacon lights for maritime safety, and a navigational channel dug out to a depth of 2.5 metres below the low tide level (measured from Chart Datum, a standard reference point for water depths), promising safe passage for vessels and enhancing local economic prospects.

These interventions safeguard a river system that serves not only as a lifeline for the fishing industry, supporting over 1,000 local fishermen and contributing 20% of Pahang's total fish catch, but also serves as a growing hub for ecotourism.



#### STRENGTHENING FLOOD RESILIENCE AND RIVER FLOW

The effectiveness of the breakwater system is evident in its ability to mitigate coastal flooding and improve river flow dynamics. The 2014–2015 floods, one of Malaysia's worst in decades, severely impacted upstream areas like Jerantut and Temerloh, yet Pekan Town experienced relatively milder flooding. This highlights the important role of maintaining an open and unobstructed river mouth.

By preventing sediment build-up and ensuring efficient water discharge, the newly constructed breakwaters and dykes under this project will further enhance flood resilience, safeguard communities, and support long-term environmental stability.

### **EXCELLENCE IN PROJECT EXECUTION**

MRCB adheres to stringent Quality Assurance and Quality Control (QAQC) protocols in executing this project.

The QAQC measures begin with rigorous material selection and testing processes, including laboratory analyses of rock samples from multiple quarries to ensure durability and compliance with specifications. Continuous visual inspections, monthly compliance audits, and detailed site observations are conducted to maintain the highest quality standards.

From meticulous stone sampling to regular visual inspections, every aspect of the construction is monitored to ensure compliance with environmental and safety standards. The project also utilises advanced materials, such as non-woven geotextiles, and state-of-the-art rock layering techniques, which are meticulously installed to prevent soil erosion and fortify breakwaters and dykes through the strategic placement of core, underlayer, and armour rocks. The construction process involved intricate planning and execution, supported by advanced monitoring tools and techniques to ensure alignment with design specifications while minimising environmental disruptions. Coordination among stakeholders is seamless, with regular reporting and reviews conducted to assess progress and address any challenges promptly. As of December 2024, the project has achieved 58.5% physical construction progress and was +3.8% ahead of schedule, reflecting MRCB's proactive approach to risk mitigation and operational efficiency.

#### **EMPOWERING COMMUNITIES AND THE ENVIRONMENT**

Beyond the tangible infrastructure, the Muara Sungai Pahang Flood Mitigation Project symbolises hope for the surrounding communities. By mitigating flooding risks and safeguarding fisheries, it secures livelihoods while providing a foundation for sustainable economic activities. Furthermore, MRCB's commitment to environmental management ensures minimal ecological disruption during the construction process.

The improved navigation channel facilitates trade and access for small-scale fishermen, enabling them to expand their operations and improve their incomes. Communities have also benefited from increased safety due to reduced flooding and clearer waterways, which have minimised the displacement of residents and damage to properties.

The Muara Sungai Pahang Flood Mitigation Project exemplifies MRCB's vision of "Building Meaningful Places for a Better Tomorrow". As we push the boundaries of engineering excellence, we simultaneously preserve natural ecosystems and empower local communities. Upon completion, this project will stand as a benchmark for

integrated, sustainable development that harmonises progress with ecological care.