



ELEVATING LIVES

# WATER MANAGEMENT



■ HIGH IMPORTANCE  
■ MEDIUM IMPORTANCE  
■ LOW IMPORTANCE

## SIGNIFICANCE

**P**ROLINTAS acknowledges Malaysia's abundant rainfall as a valuable resource while also understanding the limitations of treated water, particularly in light of climate change challenges. We prioritise responsible and conservative water usage in highway operations, reflecting our commitment to environmental stewardship and sustainable practices. Although Water Management may not be a high importance in our materiality matrix, our dedication to efficient water use underscores our broader environmental responsibility objectives. This approach remains aligned with our ongoing efforts to adapt to the evolving needs and conditions shaped by climate change.

### OUR APPROACH WATER MANAGEMENT

#### 01 ADVANCING SUSTAINABLE WATER USE AND CONSERVATION

#### 02 PRESERVING WATER QUALITY

#### 03 REPLENISHING GROUNDWATER AND PREVENTING FLOODS

As part of our commitment to the conservation of natural resources, we practice sustainable water management to ensure our operations contribute positively to the communities we serve and the environment.

Our approach flows through three focused areas:

**01:** We are taking steps to conserve water by reducing usage in operations and harvesting rainwater, contributing to the sustainable use of this resource.

**02:** Our commitment extends to maintaining high water quality standards, ensuring that our operational activities do not adversely affect the surrounding aquatic ecosystems.

**03:** We focus on innovative strategies that replenish groundwater sources and aid in effective flood prevention, thus safeguarding both the environment and local communities.



01

**ADVANCING SUSTAINABLE  
WATER USE AND  
CONSERVATION**

To ensure the efficient use of water and optimal daily consumption, we have installed rainwater harvesting systems on five highways: **GCE, LKSA, Kajang SILK, SUKE and DASH**. Through the collection and storage of rainwater, we decrease our reliance on commercial sources of treated piped water for activities like highway cleaning and landscaping. This reduces our consumption and lessens our dependence on external water supplies.

**RAINWATER HARVESTING SYSTEM****WHAT**

Inter-connected rooftop with storage tanks as the catchment to collect and store rainwater.

**WHY**

Access to alternative water sources to reduce reliance on treated water.

**USE**

Rainwater collected serves as non-potable water supply for cleaning and landscaping purposes.

**BENEFIT**

Rainwater harvesting supplements the supply of treated water and contributes to water security in the event of temporary water cuts or in areas with limited water resources.

A total of **2,097,335 litres** of rainwater was used for cleaning and landscaping operations at **DASH**.

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## WATER MANAGEMENT

### OUR PERFORMANCE

In 2023, PROLINTAS charted a 17% increase in absolute water consumption compared to 2022. Nevertheless, we saw an 11% decrease in intensity recorded per million traffic volume for the same year.



No. of Tanks/Ponds

**15**



Total Capacity (litres)

**235,200**

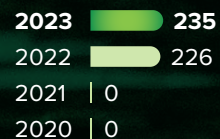
#### KEY HIGHLIGHT

Achieved a **4% increase** in **storage capacity** in 2023.

#### TOTAL WATER USE (m<sup>3</sup>)



#### TOTAL RAINWATER HARVESTING CAPACITY (m<sup>3</sup>)



#### WATER USAGE INTENSITY (m<sup>3</sup>/Mil Traffic)



#### RAINWATER HARVESTING: STORAGE CAPACITY\*

**15 tanks/ponds**  
**235,200 litres**

		ELMINA RSA (NORTH)	ELMINA RSA (SOUTH)	BUKIT JELUTONG LAY-BY				SG BALAK TOLL PLAZA
		2	2	1				1
		4,000	4,000	2,000				1,000
		DENAI ALAM SUPERVISION BUILDING	DENAI ALAM LAY-BY	RRIM (KWASA DAMANSARA)				SRI MUDA TOLL PLAZA
		1	1	1				1
		76,000	68,000	70,000				1,000
		AMPANG	TERATAI					
		2	3					
		2,400	6,800					

Location  
 No. of Tanks/Ponds  
 Total Capacity (litres)

\*In 2023, rainwater harvesting capacity was enhanced through additional facilities at the SUKE Ampang and Teratai toll plazas.





## 02

## PRESERVING WATER QUALITY

In line with our commitment towards water quality, the Group is steadfast in ensuring that wastewater is treated to meet permissible levels before discharge from our operation sites.

## COMPLIANCE WITH EFFLUENT DISCHARGE (Standard B)



## TREATMENT OF WASTEWATER

## WHY

Wastewater treatment preserves the quality of water discharged into the natural environment.

## WHERE

Managed by Indah Water Konsortium Sdn Bhd (IWK):



Managed by PROLINTAS:

LEBUHRAYA KAJANG

- STP Bukit Kajang
- STP Sg Balak
- STP Sg Long
- STP Sg Ramal



- STP Alam Impian
- STP Seri Muda
- STP Alam Impian lay-by



- STP Elmina
- STP Jelutong
- STP Lagong
- STP RSA (South)
- STP RSA (North)



- STP Alam Damai
- STP Teratai
- STP Ampang

## HOW

At our sewage treatment plants (STPs), wastewater is treated to meet environmental safety standards before being discharged into waterways.

Monthly sampling of treated effluent to ensure compliance with permissible levels.

Results submitted to DOE for transparency.

Routine maintenance of STPs according to ISO 9001 and ISO 14001.

Desludging activities to mitigate environmental impact.

Each STP operation is supervised by a competent person: Certified Environmental Professional Sewage Treatment Plant Operation (CePSTPO).

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Elevating Lives

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Data &amp; Assurance





ELEVATING LIVES

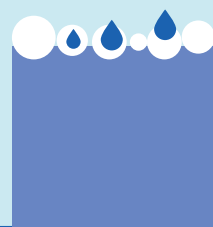
## WATER MANAGEMENT

03

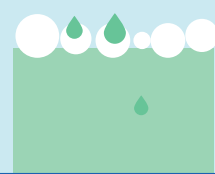
### REPLENISHING GROUNDWATER AND PREVENTING FLOODS

Our efforts in water management include the development of retention and detention ponds that can replenish groundwater levels while also minimising the risk of local flash floods.

#### CAPACITY OF RETENTION AND DETENTION PONDS



Retention Ponds  
**23,951 m<sup>3</sup>**



Detention Ponds  
**35,778 m<sup>3</sup>**

### OUR CASE STUDY

#### CROSSING OF PIPE CULVERT AND ON-SITE DETENTION FOR FOURTH LANE WIDENING OF KAJANG SILK HIGHWAY

Sungai Ramal Interchange to Uniten Interchange, Kajang SILK Highway

#### CHALLENGES

- Previously, the valley within Kajang SILK's right of way acted as a natural detention pond, collecting heavy water discharge from nearby developments.
- Recent construction developments have reduced the valley's capacity, leading to water overflow onto the mainline during heavy rains.
- The critical area spans from km 25.0 to km 26.4 on the Kajang SILK Highway, with frequent flash floods observed, especially at km 25.7 towards Kajang.

#### SOLUTIONS

To mitigate water overflow during heavy rains, we have implemented two key measures:

- Constructed an on-site detention pond with a capacity of 518 m<sup>3</sup>, approximately 20% the size of an Olympic swimming pool, to manage excess water.
- A pipe culvert with a discharge rate of 2.44 m<sup>3</sup> per second, equivalent to channelling 2,440 litres of water every second, has been installed, a substantial flow rate to reduce flood risk. For illustration, this is comparable to 2,440 mineral water bottles, one litre each, flowing every second.

Monitoring flooding on highways involves inspecting and maintaining drainage systems and infrastructure, as well as using sensors and cameras to detect water levels and blockages. This ensures timely interventions to minimise flood risks and maintain safe travel conditions for motorists.



Mitigation measures to deter flood incidents at Kajang SILK were undertaken as part of the Fourth Lane Widening project.





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# WATER MANAGEMENT

## BENEFITS

### ECONOMIC

Efficiently minimising highway floods improves traffic flow and connectivity, significantly reducing delays and economic costs for businesses and commuters. This results in more effective transportation, boosting productivity and contributing to the economic stability of the area.

### ENVIRONMENTAL

By implementing flood mitigation measures, we can significantly decrease water pollution from runoff, safeguarding nearby ecosystems. Additionally, it aids in preserving the highway's structural integrity, minimising the frequency of repairs needed. This approach not only protects the environment but also ensures long-term infrastructural resilience.

### SOCIAL

Effective flood mitigation not only enhances public safety by reducing the likelihood of accidents during heavy rainfall but also ensures uninterrupted access to vital services. This approach significantly contributes to improved living standards and bolsters the community's resilience, fostering a safer and more secure environment for all.

### GOVERNANCE

Adopting flood mitigation strategies on urban highways showcases proactive governance and a solid commitment to public safety and efficient resource utilisation. Such measures build public confidence in governing authorities and promote active community engagement in urban planning and sustainability efforts, fostering a collaborative approach to urban development and environmental stewardship.



## GOING FORWARD

We remain committed to proactive water management as a highway operator. Our focus will be on implementing sustainable solutions to manage water resources effectively, mitigate potential risks of water overflow, and minimise environmental impact. By prioritising responsible water usage and investing in resilience measures, we strive to uphold our commitment to environmental stewardship and contribute to a more sustainable future for all stakeholders.

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