

Template for Evidence(s) UI GreenMetric Questionnaire

University : Andijan State Institute Of Foreign Languages
Country : Uzbekistan
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[1] Setting and Infrastructure (SI)

[1.11] Total area on campus for water absorption besides the forest and planted vegetation (meter²) (SI.4)

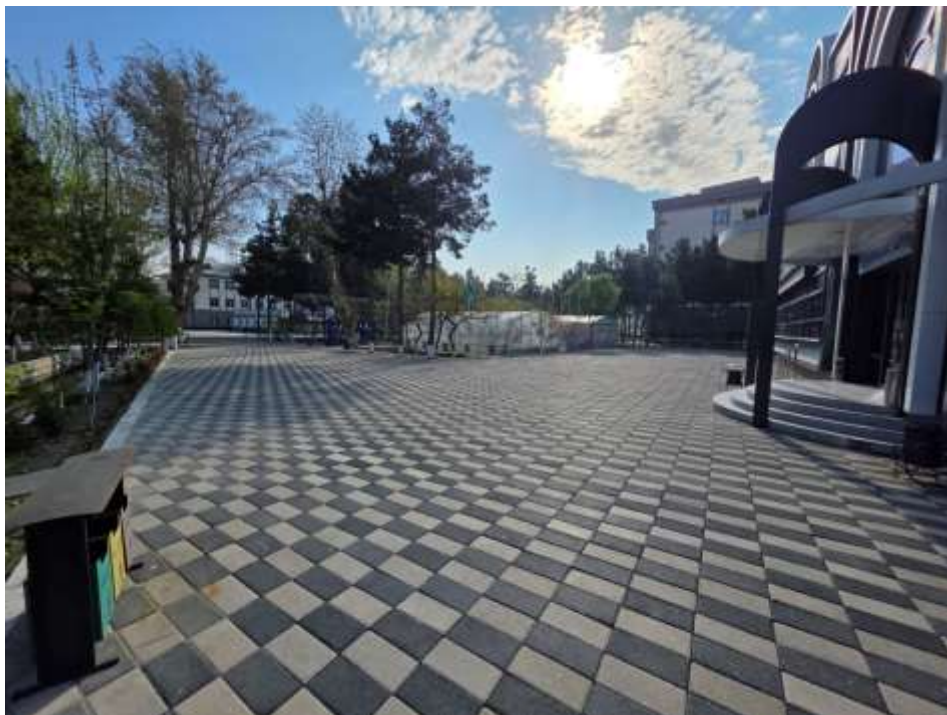








Figure 1. Google Maps measurement – Segment 1 (669 m²).



Figure 2. Google Maps measurement – Segment 2 (390 m²).



Figure 3. Google Maps measurement – Segment 3 (392 m²).



Description:

Water Absorption Area and Storage Capacity Report

Andijan State Institute of Foreign Languages

Prepared from Google Maps area measurements and permeable pavement system assumptions

University	Andijan State Institute of Foreign Languages
Measured permeable area	1,451 m ²
Estimated storage capacity	101.57 m ³ (≈ 101,570 liters)
Main calculation basis	Area × storage layer thickness × void ratio

1. Description for GreenMetric

Total water absorption area on campus: 1,451 m². This area consists of interlocking concrete pavers (bruschatka) installed as a permeable paved surface. The pavement allows rainwater to pass through joints and enter the subsurface structure. Beneath the surface, the system includes a bedding layer, geotextile, a water-absorbing aggregate layer, a perforated drainage pipe, and prepared base soil. This layered design helps reduce surface runoff, temporarily store stormwater, and gradually infiltrate water into the ground. Therefore, the paved area is counted as a water absorption area under GreenMetric SI.4.

2. Area measurement from Google Maps

The total permeable area was obtained from three separate places polygon measurements visible in the submitted screenshots. The measured parts are shown below and summed to calculate the total water absorption area.

Measured segment	Area	Note
Segment 1	669 m ²	Main permeable paved courtyard area
Segment 2	390 m ²	Linear permeable paved strip
Segment 3	392 m ²	Additional paved permeable section

Total area formula: $669 \text{ m}^2 + 390 \text{ m}^2 + 392 \text{ m}^2 = 1,451 \text{ m}^2$



Parameter	Value used	Explanation
Surface type	Interlocking pavers	Permeable paved surface with joints that allow infiltration
Storage layer thickness	0.20 m	Average assumed thickness within the 15–25 cm range
Void ratio / porosity	35% (0.35)	Typical internal empty space in washed gravel aggregate
Total permeable area	1,451 m ²	Measured from Google Maps screenshots
Conversion	1 m ³ = 1,000 liters	Used to convert the final storage volume

3. Pavement system used for the estimation

The storage capacity is estimated from the permeable pavement build-up shown in the engineering illustration below. The calculation uses a typical subsurface gravel reservoir approach for water-absorbing paved surfaces.

4. Detailed formula for water storage / absorption capacity

The estimate is based on the storage volume available inside the aggregate layer under the pavers. Only the empty pore space inside the gravel layer can hold water, therefore the aggregate thickness alone is not enough; it must be multiplied by the void ratio.

General formula: Storage volume (m³) = Area (m²) × Thickness of storage layer (m) × Void ratio

Insert measured area: Storage volume = 1,451 × 0.20 × 0.35

Multiply area and thickness: 1,451 × 0.20 = 290.2

Apply void ratio: 290.2 × 0.35 = 101.57 m³

Convert to liters: 101.57 m³ × 1,000 = 101,570 liters

Interpretation: The permeable pavement area can temporarily store approximately 101.57 cubic meters of stormwater inside the aggregate reservoir before gradual infiltration and drainage occur.

5. Rainfall capture equivalents

Because 1 mm of rainfall falling on 1 m² equals 1 liter of water, the same measured area can also be expressed as a direct rainfall-capture equivalent.

Rainfall depth	Water volume over 1,451 m ²
1 mm	1,451 liters
10 mm	14,510 liters
20 mm	29,020 liters
50 mm	72,550 liters



70 mm	101,570 liters
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6. Final statement

Total area on campus for water absorption besides forest and planted vegetation: 1,451 m²

Estimated water storage / absorption capacity of the permeable paved area: 101.57 m³
(approximately 101,570 liters)

Engineering note: This estimate is based on measured area, 20 cm average aggregate thickness, and a 35% void ratio. Actual performance may vary depending on materials, compaction, clogging, and soil permeability.