

Supplementary Materials- characteristics and typology of water objects in hardscaped public spaces: defining features and the resulting qualities of the place (plain text), and their desired features (highlighted text) - recommendations for shaping and locating

No.	Characteristic	Qualitative scale	Categories of directly dependent values - according to the dependency matrix (fig.1)	SEMI-NATURAL POND	PERCOLATION TRENCH	WATER SQUARE	SWIMMING POOL	MIST FOUNTAIN	WATER SCREEN (2D, 3D)	BASIN FOUNTAIN	CASCADE FOUNTAIN	REFLECTIVE POOL	PAVEMENT FOUNTAIN	URBAN TRICKLE
			PRINCIPAL EFFECT	relaxing	environmental	environmental	entertaining	entertaining	spectacular	relaxing	relaxing	spectacular	entertaining	entertaining
1	WATER			[highlighted text - desirable (supporting) features - depending on the project]										
1.1.	Visible amount of water	None, low (>15m2), medium (15-400m2), high (>400m2)	Use, Image, Social	low (1-15m2), medium (15-400m2), high (>400m2)	none	high	Medium high	low medium	Medium high			Medium high		
1.2.	Perceived water cleanness	(przejrzystość, kolor, none zanieczyszczeń constantch)- low, medium, high		Medium, high	N/A	Medium, high	high	high	medium, high	high	medium, high	high	medium, high	high
1.3	Water dynamics - overall	None, low (<1/day), medium, high	Use, Image, Health	none	none	low	None, medium, high	medium, high	medium, high	low, medium	low, medium	None		
1.3.1.	Water dynamics – flow direction	(none, lateral flow, vertical - upwards, diagonal - upwards, diagonal – downwards, vertical - falling, vertical - flowing)		none, lateral flow	N/A	none, lateral flow	None lateral flow, vertical - falling, vertical - upwards diagonal - upwards, diagonal – downwards	N/A	diagonal - downwards, vertical - falling,	none, vertical - upwards, diagonal - upwards	vertical - falling, vertical - flowing	none		
1.3.2.	Water dynamics - perceived flow rate	(none, low, medium, high)		none, low,	N/A	none	none, low, medium	N/A	high	low	high	none		
1.3.3.	Water dynamics – physical phenomena	vessel filling, waving, laminar flow, turbulent flow, whirling, dousing, frothing, droplets, mist, wet fog, dry fog, jet, mirror effect		vessel filling, mirror effect	Vessel filling	vessel filling, mirror effect	vessel filling, waving, frothing	Mist wet fog dry fog	jet	vessel filling jet	laminar flow, turbulent flow,	vessel filling, mirror effect	jet dousing	laminar flow, turbulent flow,
1.3.4.	Water dynamics – flow variability	None. Constant, periodic <0,1Hz, periodic >0,1Hz irregular,		None irregular	irregular	irregular	None periodic >0,1Hz irregular,	None Constant, periodic <0,1Hz, periodic >0,1Hz irregular	None Constant, periodic <0,1Hz, periodic >0,1Hz irregular			None		
1.3.5.	Water dynamics – flow interactivity	None dependent on user behaviour, dependent on other factors, program		None, or dependent on other factors	dependent on other factors	dependent on other factors	None, dependent on user behaviour	dependent on user behaviour, dependent on other factors, program	None, program			None		

1.4.	Water shape		Use, Image, Social											
1.4.1.	Visible water shape - depth	None / dousing, minimal depth, medium „safe” depth (usually <50cm), high depth (zwykle >50cm)			N/A	high, medium	Głębokość high	none	none	Medium, high		Minimal, medium		
1.4.2.	Visible water shape - longness	None, low longness (1/2-1/5), high longness (<1/5)			N/A	None	low							high
1.4.3.	Visible water shape - regularity	Geometric simple, geometric compound, organic			N/A	organic								
1.5.	Soundscape	Loudness relative to surroundings (high,medium, none dźwięków)	Use, Social, Health	none	none	none	none , medium	none	high,medium,	None, medium	high, medium,	none		
1.6.	Water lighting	None, constant, variable	Image, Use, Social	-	N/A	constant, variable	constant, variable	constant, variable	variable	constant, variable	constant, variable	None, constant, variable	constant, variable	constant, variable
1.7.	Water source	Water mains, woda opadowa, grey water, mixed	Environment	woda opadowa, grey water, mixed	woda opadowa	woda opadowa	water mains woda opadowa	water mains rainfall	water mains rainfall	water mains rainfall	water mains rainfall	water mains	water mains rainfall	water mains rainfall
1.8.	Water treatment	Traditional treatment (physical, microbiological), nature-based treatment, hybrid methods	Environment	nature-based treatment, hybrid methods	Traditional treatment, nature-based treatment, hybrid methods	Traditional treatment, nature-based treatment, hybrid methods	Traditional treatment	Traditional treatment	Traditional treatment	Traditional treatment	Traditional treatment	Traditional treatment	Traditional treatment	Traditional treatment
1.9.	Retention, percolation	None, retention, percolation rozsączanie	Environment	retention, percolation	retention, percolation	retention	none	none	none	none	none	none	none	none
II. ARCHITECTURAL ELEMENT														
2.1.	Architectural element size	Small (largest dimension <3m),medium – 3-25m, large (>25m)	Image	large	medium large	Large	medium large	medium	Medium large	medium large	medium large	medium large	small medium large	medium large
2.2.	Architectural element material	Hard modified (concrete, cut stone), hard semi-natural (splitstone), soft natural(gravel, sand, soil with vegetation, etc.)	Image, Cultural	soft natural	soft natural	Hard modified	Hard modified	Hard modified	Hard modified	Hard modified	Hard modified soft natural	Hard modified	Hard modified	Hard modified soft natural
2.3.	Proportion of architectural housing to water	dominant architecture, balance, dominant water	image	dominant water	dominant architecture	dominant architecture	Balance		dominant water	Balance	balance		dominant water	
2.4.	Housing shape	Simple geometric, compound geometric, organic	Image, Cultural	organic		Simple geometric, compound geometric,					compound geometric, organic			organic

2.5.	Enclosure	Interiors enclosed by elements high than 1,5m (none, small- interior area - each <20m2, large - >20m2)	Social	Small, large	None	Small, large	Small, large	None	None	Small, large	Small, large	None	None, Small, large	None, Small, large
2.6.	Vegetation	None, maintained vegetation, naturalistic vegetation	Use, Social, Health	naturalistic vegetation	roślinność utrzymana, naturalistic vegetation	None roślinność utrzymana, naturalistic vegetation	None	None roślinność utrzymana, naturalistic vegetation	None	None roślinność utrzymana, naturalistic vegetation	None roślinność utrzymana, naturalistic vegetation	None	None roślinność utrzymana, naturalistic vegetation	None roślinność utrzymana, naturalistic vegetation
2.7.	Shading	None, partial, mostly or fully shaded	Use	Partial		partial, mostly/fully shaded	none, partial	partial mostly/fully shaded		partial	partial	None partial	None partial	None partial mostly or fully shaded
2.9.	Visibility	% z 360 deg., distance (low, medium, high – city scale)	Use Image	low Medium	low	low Medium	low Medium	low Medium	high	low Medium	Medium	medium	medium	Low medium
2.10.	Solar Radiation Reflectance	Solar Reflectance Value - SRI	Use	low	low	low	Medium	low	low	Low, medium		Medium high	low	low
2.12.	Sittability	None, individual, social	Use, Social	individual social	individual	social	individual	Individual social	individual social	Individual social	individual social	individual social	social	individual social
2.13.	Surrounding lighting	None, low level (<5-25lm), normal level (>5-25lm)	Use, Social	normal level	normal level	normal level	normal level	normal level	None, low level	low level) normal level	low level normal level	None, low level	low level normal level	low level normal level
2.14.	Pavement	Flat (<5%), inclined(<5%) and undulating, stepped	Use, Social, Image	Flat (<5%), stepped	Flat (<5%), stepped	Flat (<5%), stepped	Flat (<5%), stepped							Flat (<5%), stepped
2.15.	Ambient noise	Low, medium, high	Use, Social,	medium, high		medium, high	medium, high	medium, high	medium, high			medium, high	medium, high	medium, high
III. PLACE														
A1.	Thermal comfort impact		Use, Social	none	none	none	Significant after getting wet	Significant after getting wet	none	Significant after getting wet	Significant after getting wet	none	Significant after getting wet	Significant after getting wet
A2.	Acoustic comfort impact	none, medium, high	Use, Social	none	none	none	none	none	Medium, high	Medium, high	Medium, high	none	Medium, high	None, medium
A3.	Psychological comfort impact	none, medium, high	Use, Social, Image	None, Medium, high	None, Medium, high	None, Medium, high	Medium, high	None, Medium, high	None, Medium, high	None, Medium, high	None, Medium, high	None, Medium, high	None, Medium, high	None, Medium, high
B1.	Affordances – possible activities	Observation of water, touching water, wading, play in water, play with water (dry), sitting, lying, swimming	Use, Social	Observation of water, touching water, sitting, lying	-	Observation of water wading, play in water, play with water (dry), touching water, sitting, lying	Swimming play in water	Observation of water play in water, sitting, lying	Observation of water, touching water, sitting, lying	Observation of water, touching water, wading, play in water, play with water (dry), sitting, lying	Observation of water, touching water, wading, play in water, play with water (dry), sitting, lying	Observation of water, touching water, sitting, lying	Observation of water, wading, play in water, play with water (dry), sitting, lying	Observation of water, touching water, wading, play in water, play with water (dry), sitting, lying
B2.	Activities – observed activities	Observation of water, touching water, wading, play in water, play with	Use, Social	Observation of water, touching water, sitting, lying	-	Observation of water, wading, zabawa z wodą touching water,	Swimming play in water	Observation of water play in water, sitting, lying	Observation of water, touching water, sitting,	Observation of water, touching water, wading, play in water,	Observation of water, touching water, wading, play in water,	Observation of water, touching water, sitting,	Observation of water, touching water, wading, play in	Observation of water, touching water, wading, play in

		water (dry), sitting, lying, swimming				sitting, lying			lying	play with water (dry), sitting, lying	play with water (dry), sitting, lying	lying	water, play with water (dry), sitting, lying	water, play with water (dry), sitting, lying
C.	Imageability	1.1., 1.3., 1.6., 2.10., K. low,medium, high	Image, Use, Social, Cultural	high	low	low, medium	Medium, high	high	Medium, high	high	high	Medium, high	Medium, high	Medium, high
D.	Sociability	low, medium, high	Use, Social	Medium	low	low,medium	Medium	Medium, high	Low,medium	Low,medium	Low, high		Medium, high	Low,medium
E.	Privacy	2.5., 1.5. (low,medium, high)	Use, Social	low,medium, high	low,medium, high	low,medium, high	low,medium, high	low,medium, high	low,medium, high	low,medium	low,medium, high	low,medium	low,medium, high	low,medium, high
F.	Sense of interest	Low, medium, high,	Image, Social, Use	Medium, high	low	Low, medium	medium	Medium, high	Medium, high	Medium, high	Medium, high	Low, medium	Medium, high	Medium, high
G.	Sense of pleasure	Low, medium, high,	Exchange, Use, Social,	high	Low. medium	Low. medium	Medium, high	Medium, high	Medium, high	Medium, high	Medium, high	Medium, high	Medium, high	Medium, high
H.	Robustness / responsiveness (engagement)	low, medium – up to 15 persons at one time or up to 110 mins., large (large groups >15 persons engaged for more than 10 mins.	Image, Use, Social, Cultural	low	low	low, medium	Medium, high	Medium, high	low, medium	low, medium	Medium, high	low, medium,	low, medium, high	low, medium, high
I.	Vitality	Medium frekwencja (low,medium, high)	Image, Use, Social	low, medium	low	Medium, high	low, medium	medium, high	Medium, high	Medium, high	Medium, high	low,medium	medium, high	medium, high
J.	Compostion - uniqueness		Image, Cultural	high	low	Medium, high		Medium high	Medium high	Medium high	Medium high	low, medium, high	low, medium, high	low, medium, high
K.	Symbolic meaning	None, abstract symbolism, figurative (representative) symbolism	Cultural	None	None	None, abstract symbolism, figurative (representative) symbolism	None	None, abstract symbolism, figurative (representative) symbolism	None, abstract symbolism, figurative (representative) symbolism	None, abstract symbolism, figurative (representative) symbolism	None, abstract symbolism, figurative (representative) symbolism			
L.	Ecosystem services – regulatory, support	none regulation of water biodiversity support	Environment	regulation of water biodiversity support	regulation of water	regulation of water	none	none	none	none	none	none	none	none
N.	Place accessibility	Universally easy, easy for fit, difficult for fit, practically unaccessible	Exchange, Use, Social	Universally easy	easy for fit , Universally easy	Universally easy	easy for fit , Universally easy	Universally easy	Universally easy	Universally easy	Universally easy	Universally easy	Universally easy	Universally easy
P.	Water accessibility	Universally easy, easy for fit , difficult for fit , practically unaccessible	Exchange, Use, Social	Universally easy	N/A	difficult for fit , easy for fit , unaccessible	easy for fit , Universally easy	Universally easy	Universally easy	easy for fit , Universally easy	easy for fit , Universally easy	Universally easy	Universally easy	easy for fit , Universally easy