



UHSVB randelement

Modulaire geopolymerbetonplaten

Gewapende grond

Gerecycled of biobased asfalt 125mm

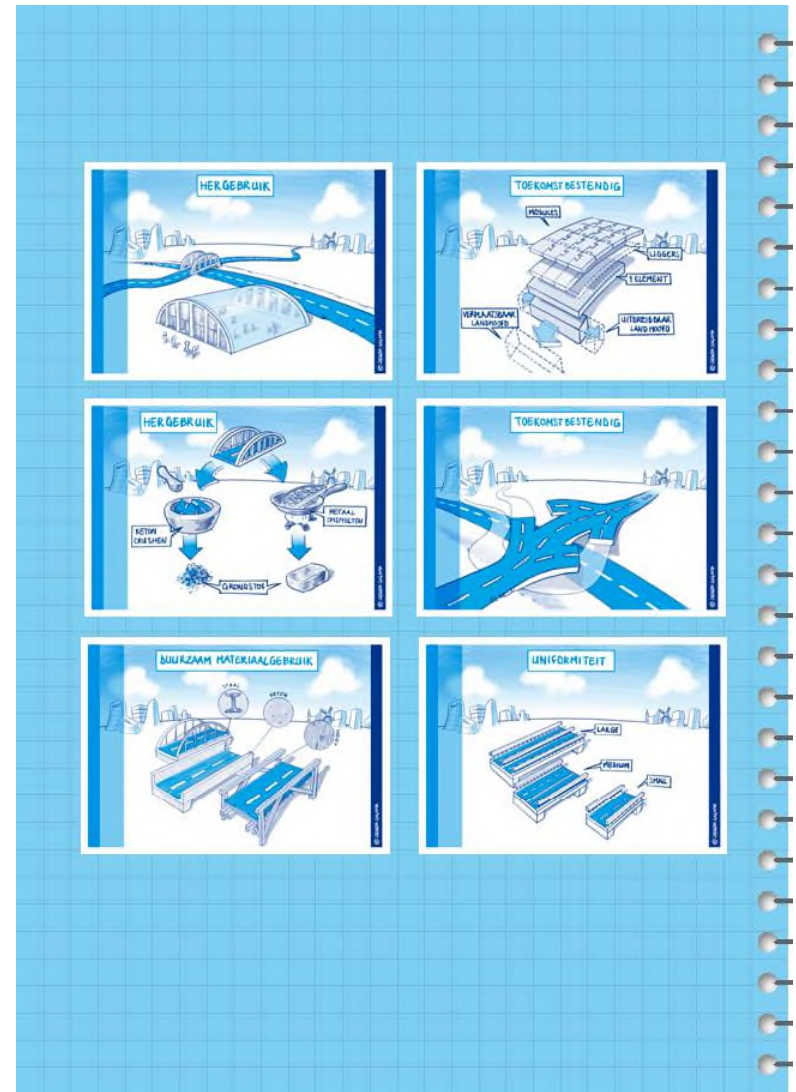
Menggranulaat 200mm

Circulair, secundair opvulmateriaal

UHSVB boog



het Circulaire BoogViaduct



Consortium



Samenwerkingspartners

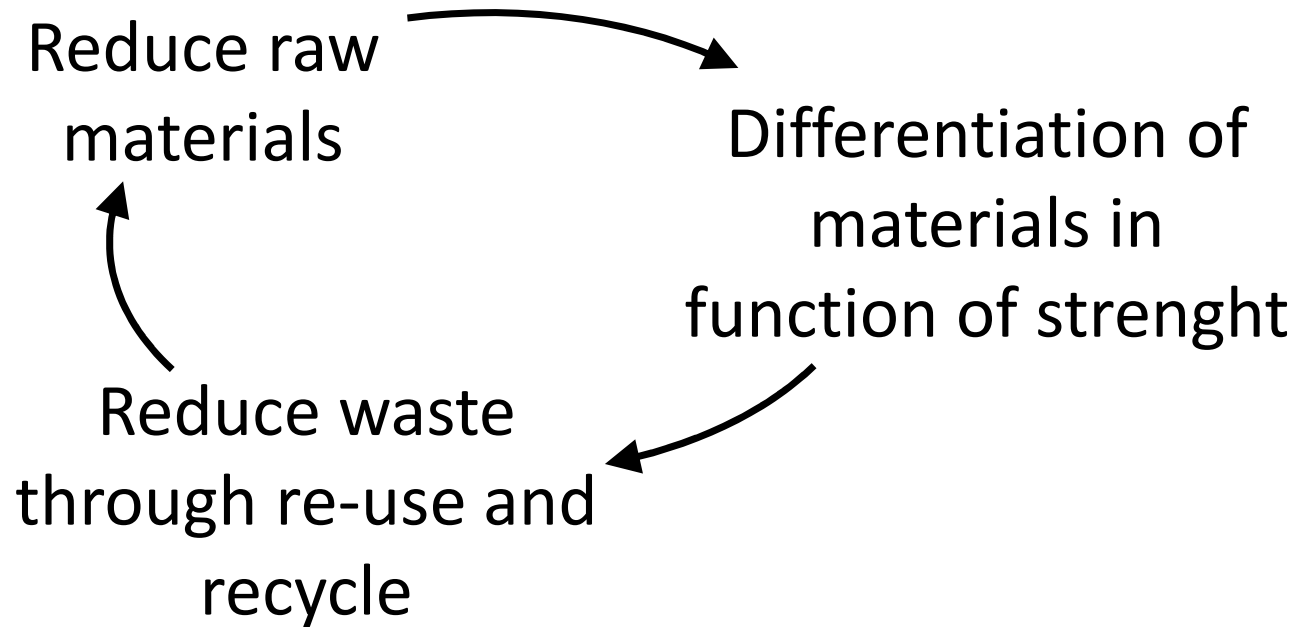






LESS IS MORE

—Ludwig Mies van der Rohe

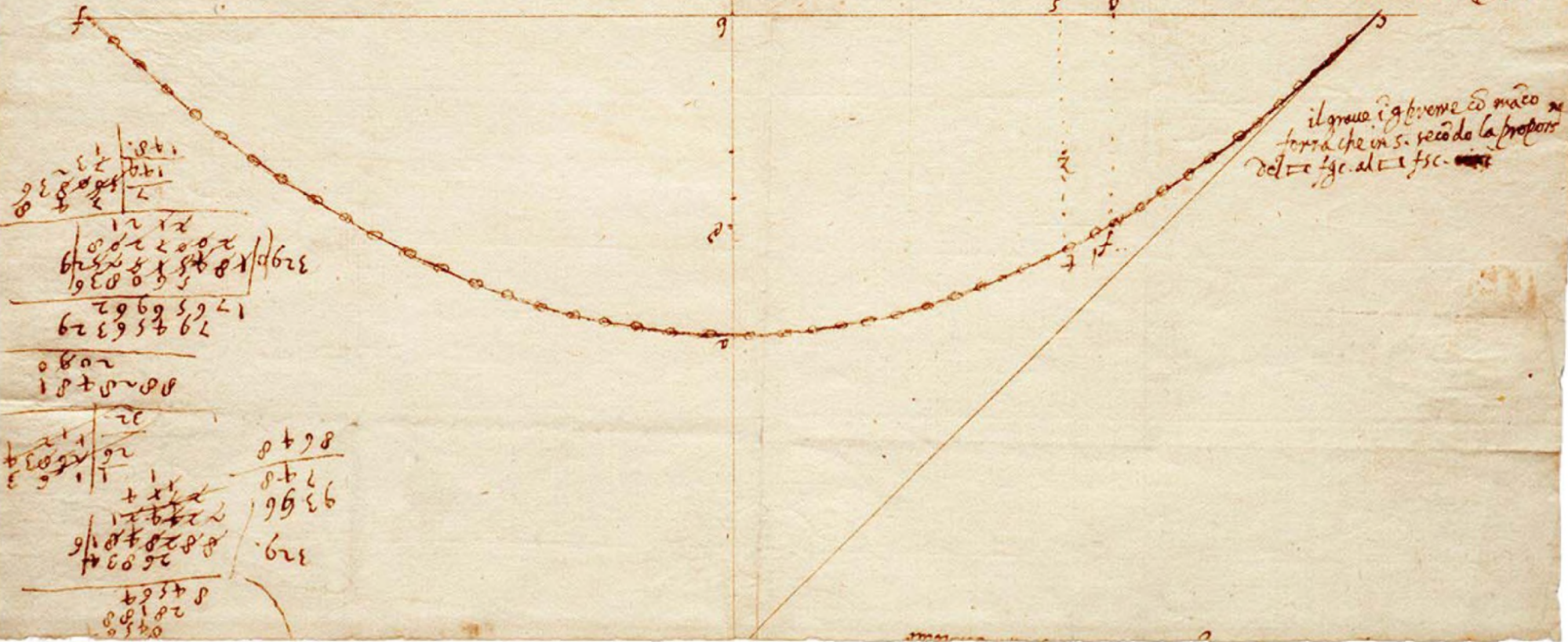


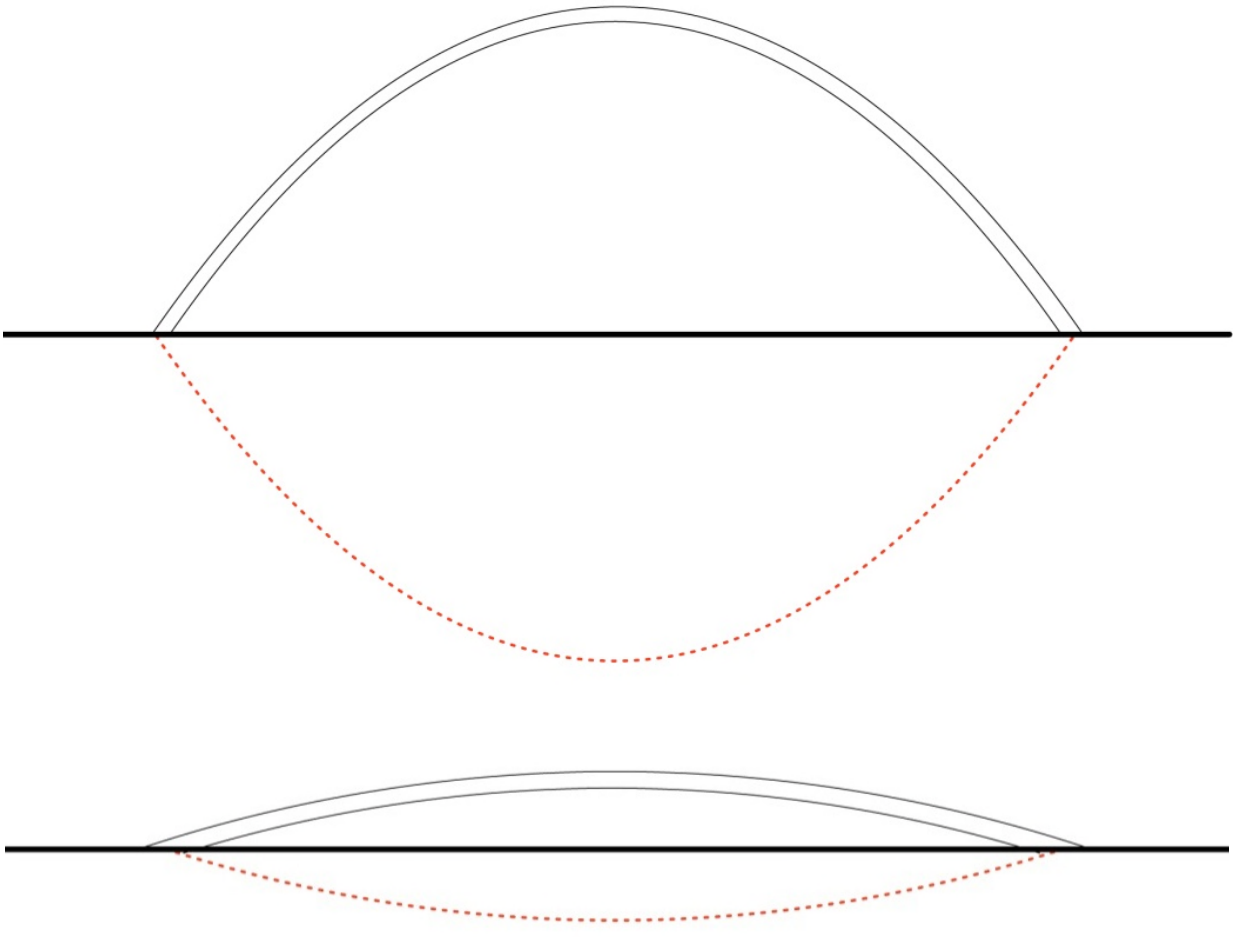




Palace of Ctesiphon, Baghdad, Iraq. 300 AD

Parsi la catenella in tanti pezzi e dato lo spazio z . tirata la catena di pezzi p e troverai la distanza sc . e l'ang. della elevaz.^{ne} Ap
 Come costruisci di picione è un posto. tiras la catena e retto così essere a posto. che il proietto scada mai e diritto se to nella Ap e su, come aco la catena a piedi si sceda e retto.
 Si come la Parabola di Proietto è descritta da 2. moti oriz. e di picione così la catenella risulta da 2. forze, oriz. da chi la tira nell' estremità, e di picione da cui scende la Ap peso.







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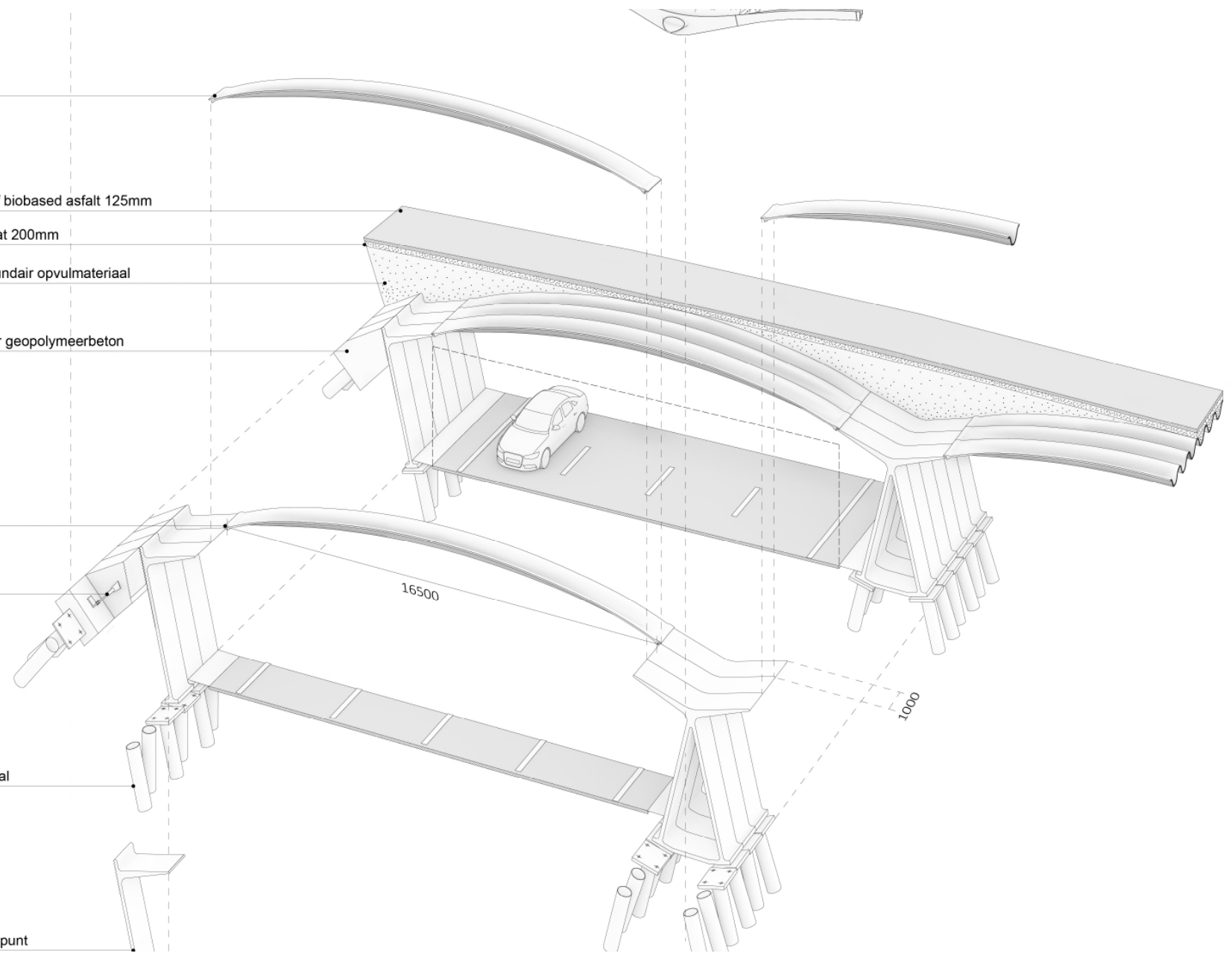
100% circulair geopolymerbeton

Scharnier

Span wartel

Stalen buispaal
h.o.h 1000

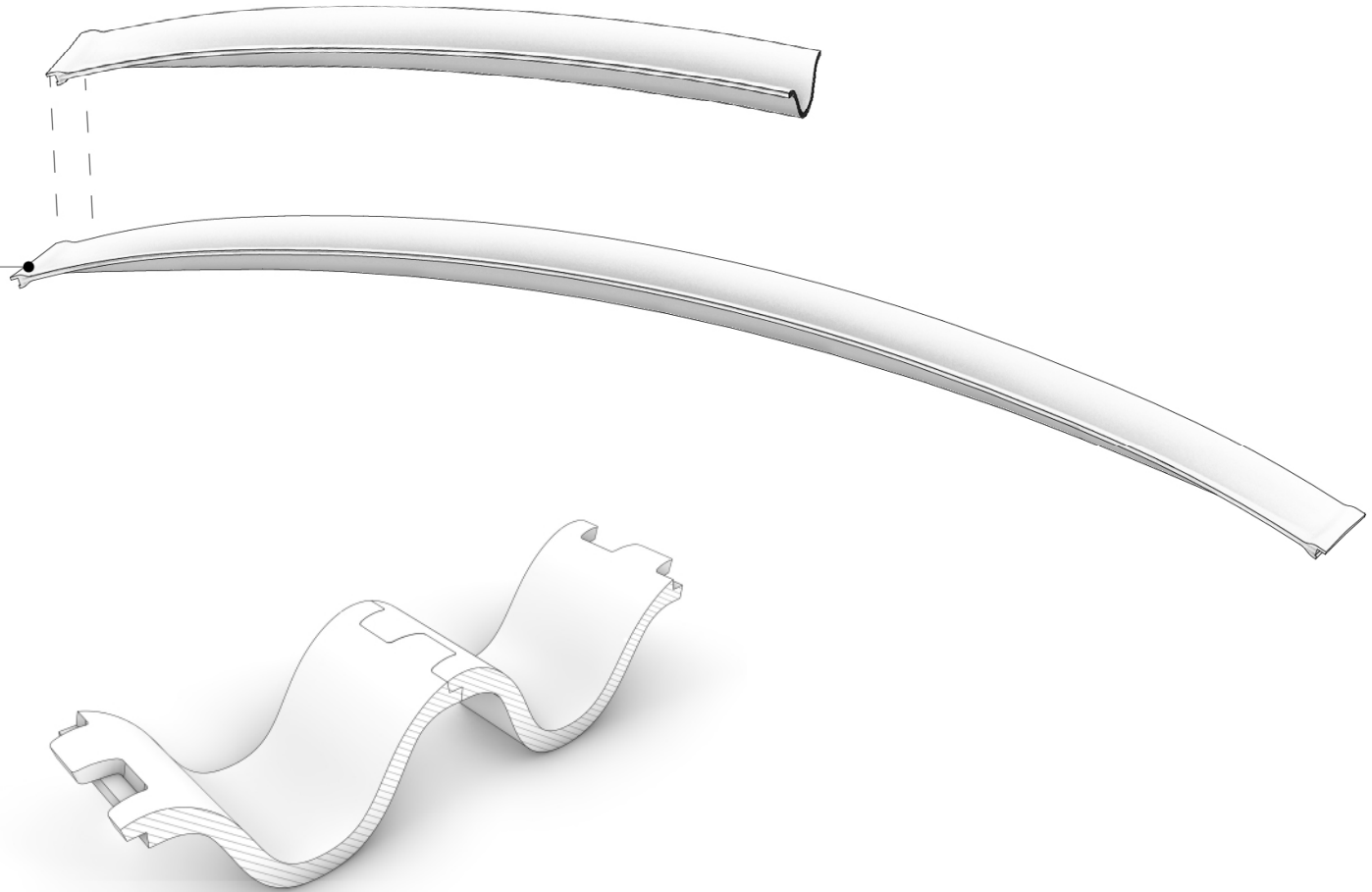
UHSVB steunpunt

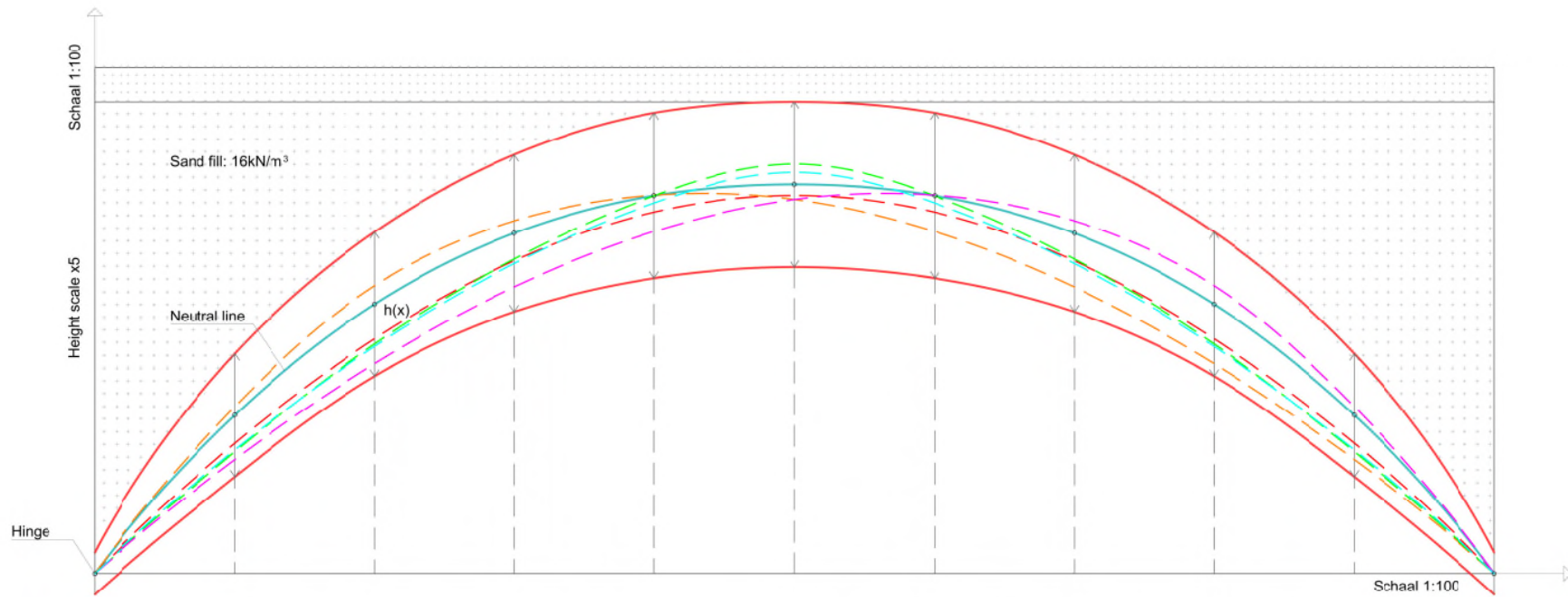


16500

1000

UHPFRC arch





X/L	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Y/L	0	0.022	0.038	0.048	0.054	0.055	0.054	0.048	0.038	0.022	0
h/L	0	0.015	0.018	0.02	0.021	0.021	0.021	0.02	0.018	0.015	0

Legende

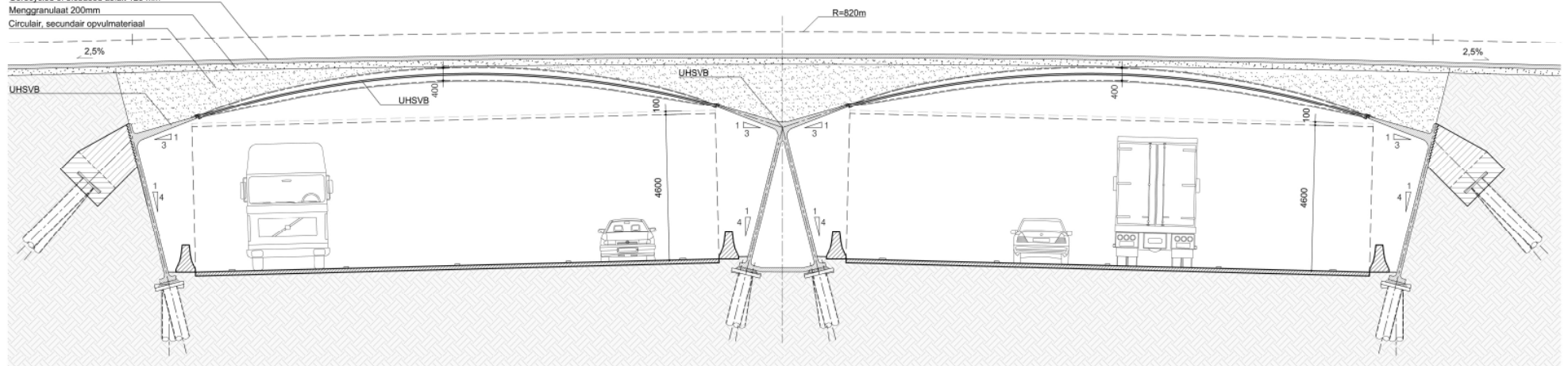
Eigenwicht (E) + Permanente last (P)		CO 0	
Konvool Mobilier E + P		CO 1	
Konvool Mobilier E + P		CO 2	
Konvool Mobilier E + P		CO 3	
Konvool Mobilier E + P		CO 4	
Resultierende neutrale lijn			



Schaal $\frac{1}{2}$ m

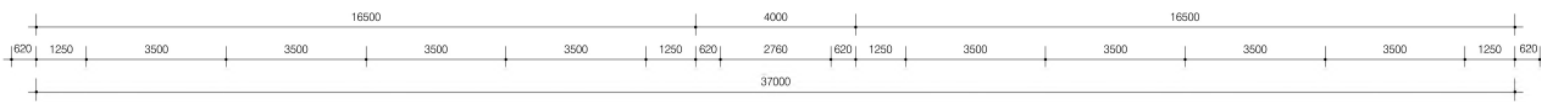
Zijaanzicht

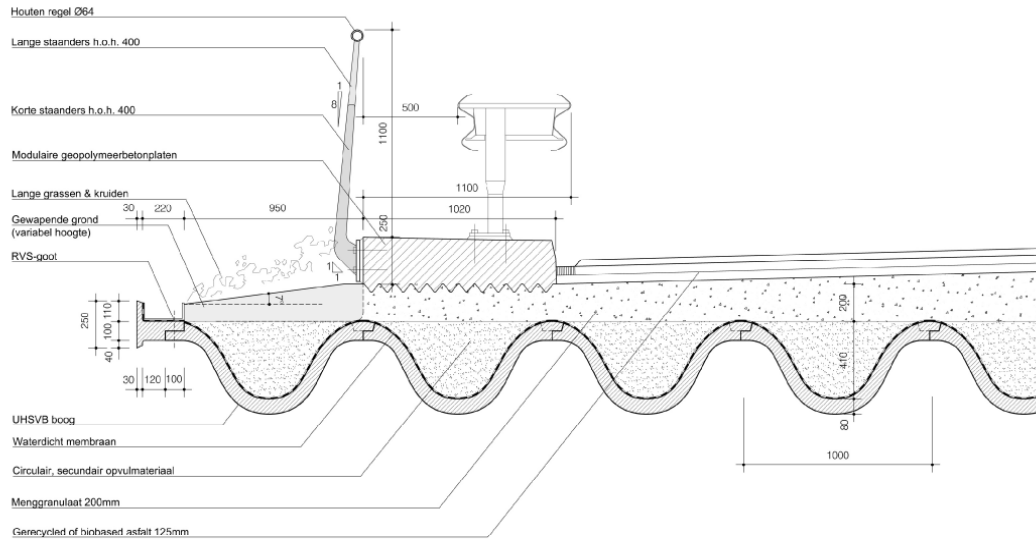
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Schaal $\frac{1}{2}$ m

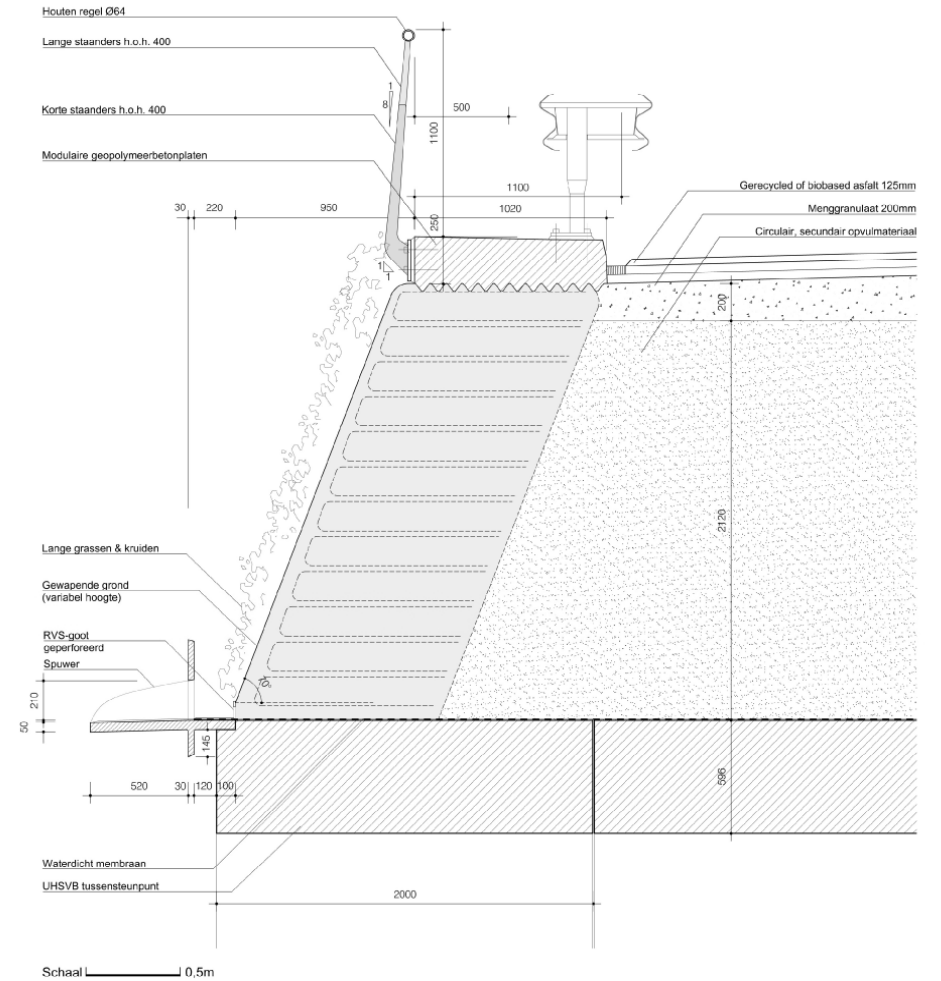
Langsdoorsnede





Schaal 0,5m

Randdetail D1



Schaal 0,5m

Randdetail D2





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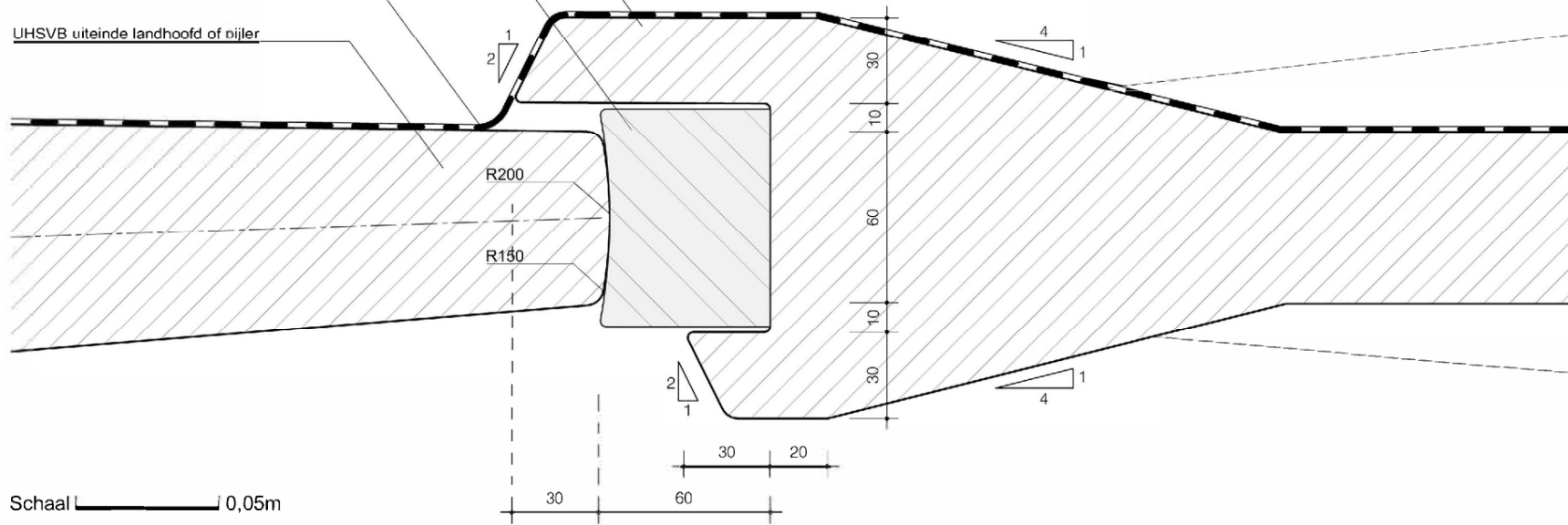
UHSVB boog

UHSVB uiteinde boogschaal

Gefreesd aluminium blok

Waterdicht membraan

UHSVB uiteinde landhoofd of pijler

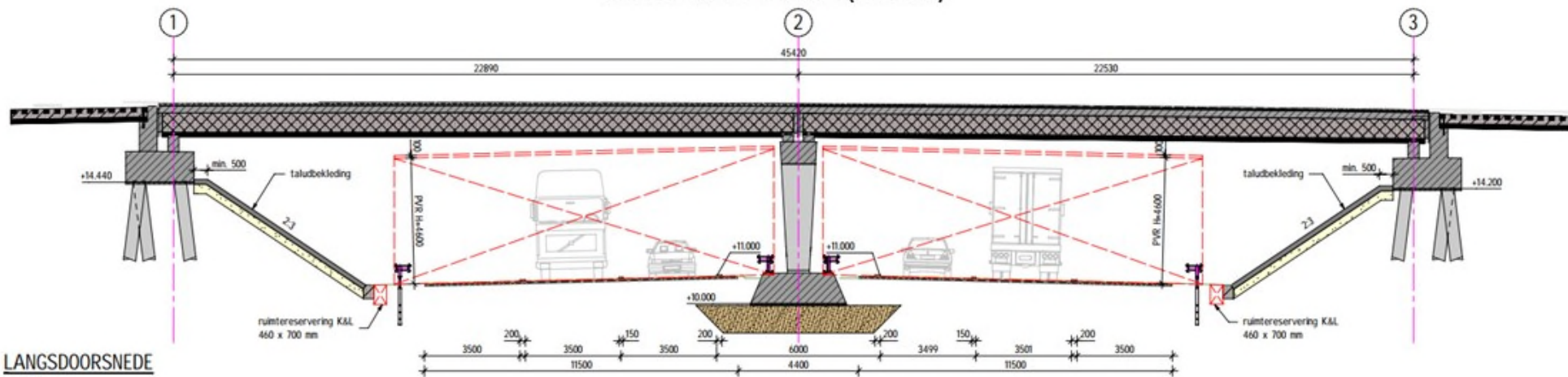


Schaal 1:2 0,05m

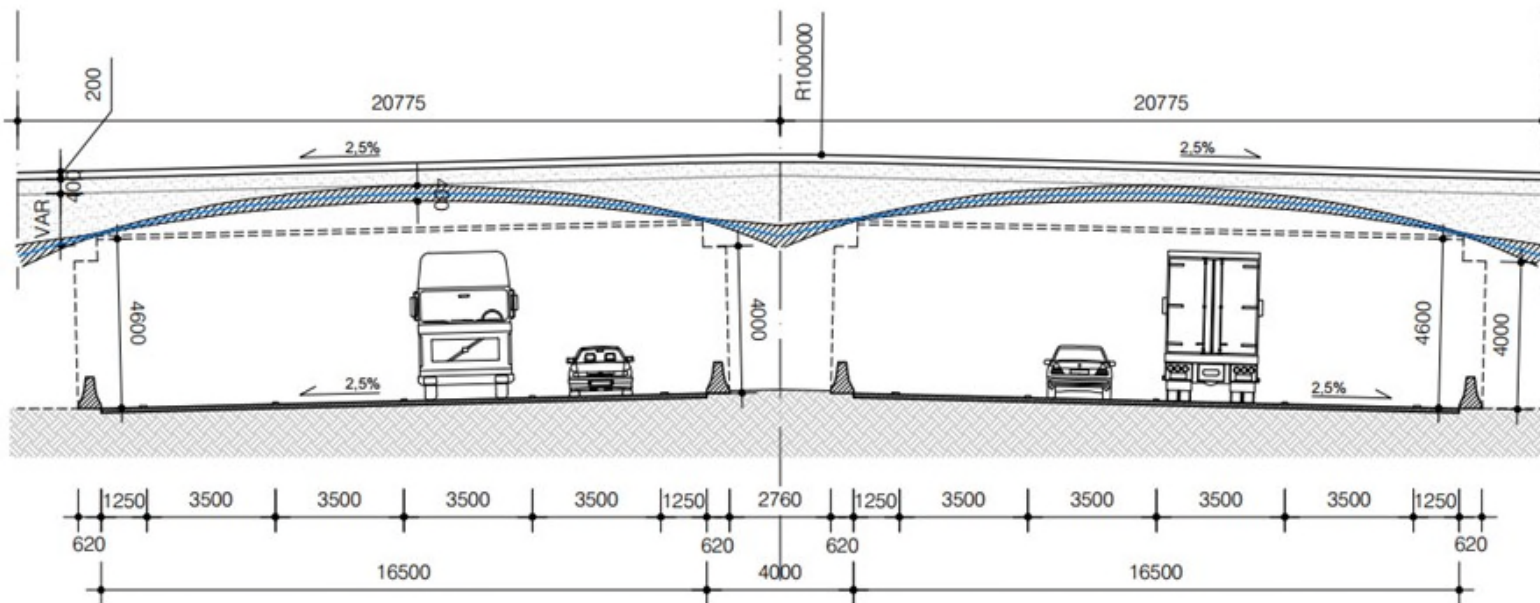
Scharnierpunt 1:2



Referentie Via15 (KW21)



LANGSDOORSNEDE
schaal: 1 : 100



	C60/75 railbalk- liggers	C30/37 of C35/45 in situ beton	UHSVB- beton	Geopoly- meerbeton			
Hoeveelheid cement [kg/m3]	450	350	600	0			
Hoeveelheid nieuw zand/grind [kg/m3]	1800	1800	1250	0			
Hoeveelheid staal [kg/m3]	140	120	234	120			
					Cement (alle typen)	Nieuw betongrind en zand (excl. ophoogzand)	Wapenings- staal (excl. fundering)
Referentie- viaduct	376 m3	638 m3	0	0	392 ton	1824 ton	129 ton
Circulair Boogviaduct	0	0	116 m3	327 m3	69 ton	145 ton	66 ton
Materiaalbesparing bij initiële nieuwbouw					-82%	-92%	-49%
Materiaalbesparing over 200 jaar bij 3x (her)bouw					-94%	-97%	-63%

Table 2. TCO comparison to the standard reference viaduct of ViA15.

Cost item in total life cycle	Cost difference for the Circular Arch Viaduct
Initial building costs	+9%
Maintenance costs	-3%
Demolition/disassembly	-44%
Rebuilding/remounting	-49%
Additional costs	Central storage and re-certification of UHPFRC elements

	Scenario A "Basisscenario huidige maatschappij"			Scenario B "Langere functionele levensduur"			Scenario C "Een duurzame toekomst"		
	<i>MKI in Euro</i>	<i>Kg CO2-eq.</i>	<i>kg Sb-eq</i>	<i>MKI in Euro</i>	<i>Kg CO2-eq.</i>	<i>kg Sb-eq</i>	<i>MKI in Euro</i>	<i>Kg CO2-eq.</i>	<i>kg Sb-eq</i>
Referentie-viaduct A15	179.992	1.929.536	264.807	131.238	1.407.095	192.791	115.930	1.242.544	170.559
Circulaire Boogviaduct	86.167	788.209	76.057	70.177	661.285	55.142	70.130	661.916	72.743
Vershil	-52%	-59%	-71%	-47%	-53%	-71%	-40%	-45%	-57%



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