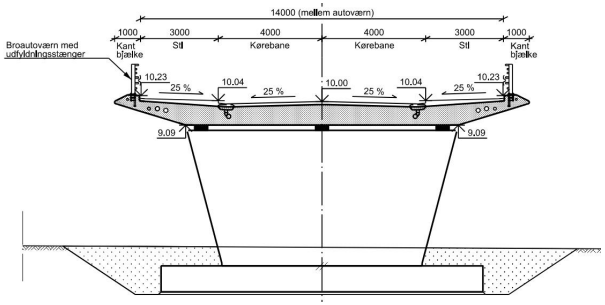
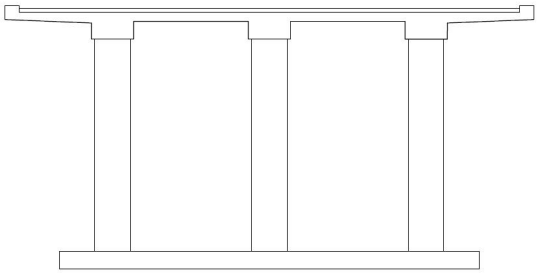
DESIGNOPTIMERING

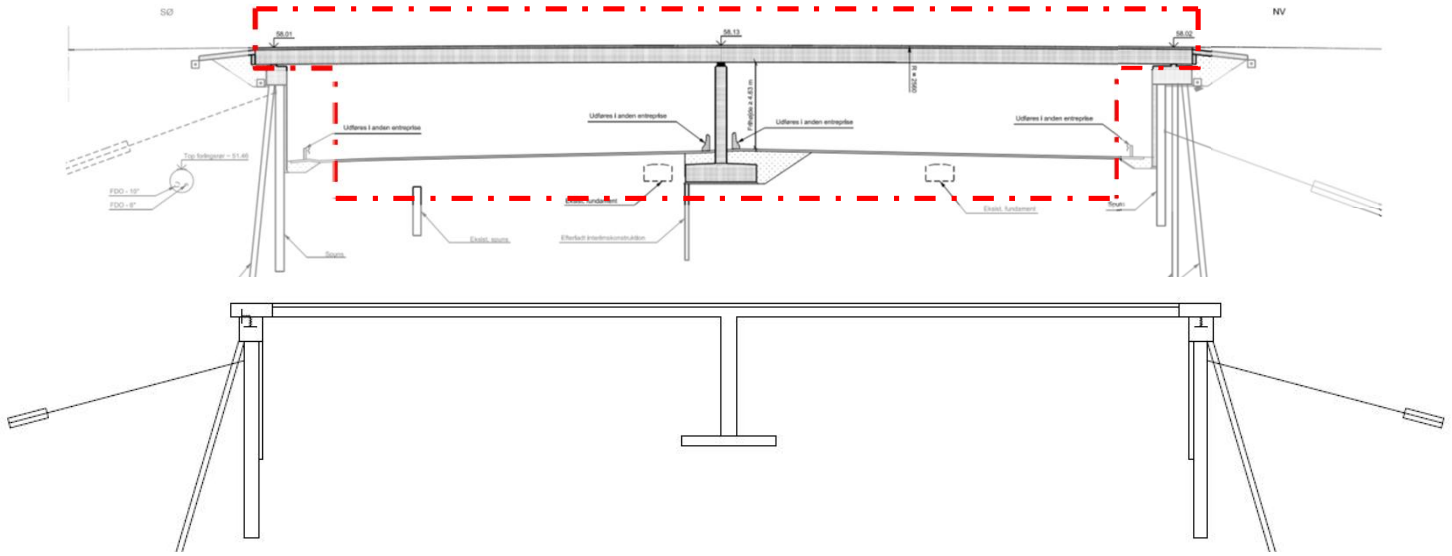
RAMBØLL Bright ideas. Sustainable change.

IN-SITU: VINDINGEVEJ

Variant 1: 3 webs







Material	Enhed	Oprindelig	Variant 1
C35	m^3	40	22
C40	m^3	739	477
C50	m^3	24	50
Armering	ton	82	77
Spændt armering	ton	18	12
Spuns	ton	78	78
Anker stål	ton	6	6
Anker beton	m^3	15	15

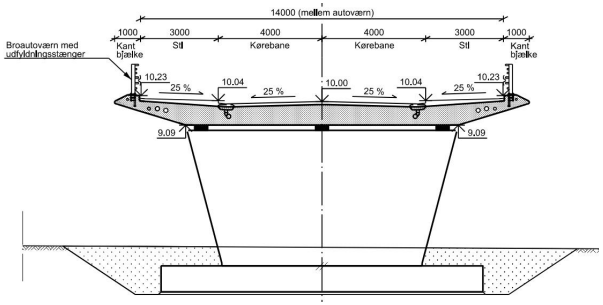
Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 1	550

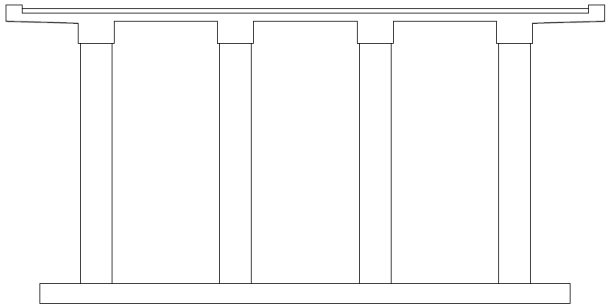
Besparelse:

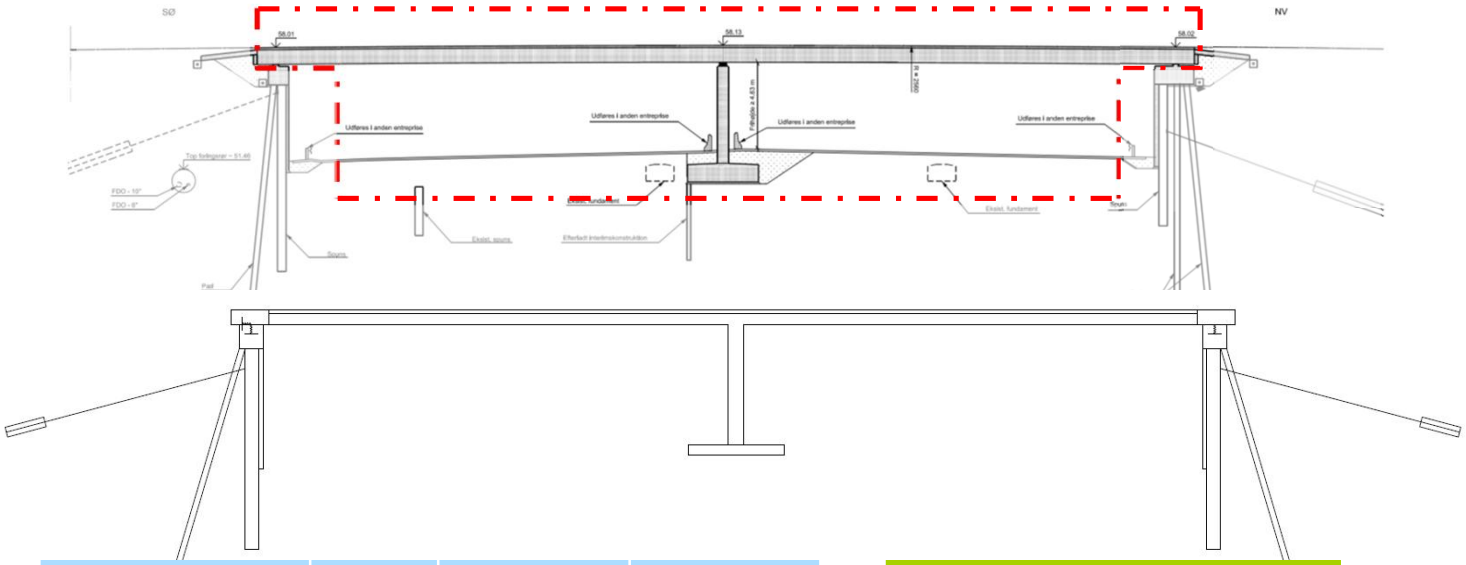
13%

IN-SITU: VINDINGEVEJ

Variant 2: 4 webs







Material	Enhed	Oprindelig	Variant 2
C35	m^3	40	22
C40	m^3	739	461
C50	m^3	24	43
Armering	ton	82	68
Spændt armering	ton	18	12
Spuns	ton	78	78
Anker stål	ton	6	6
Anker beton	m^3	15	15

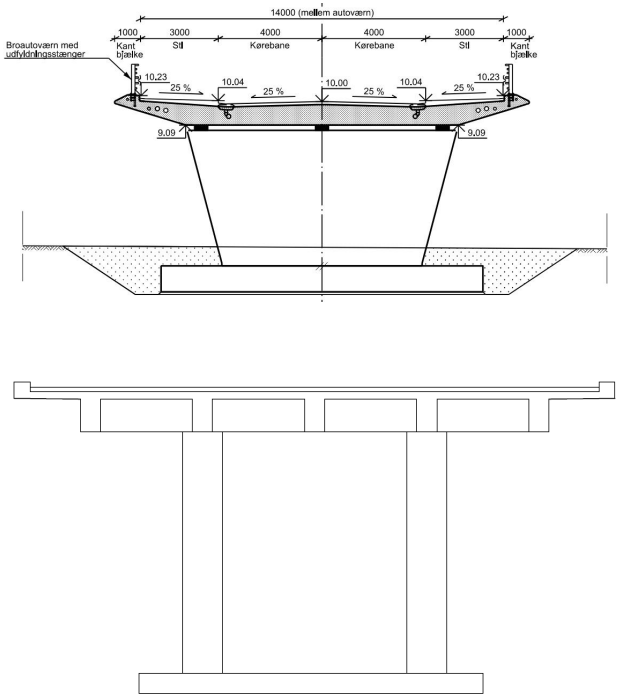
Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 2	531

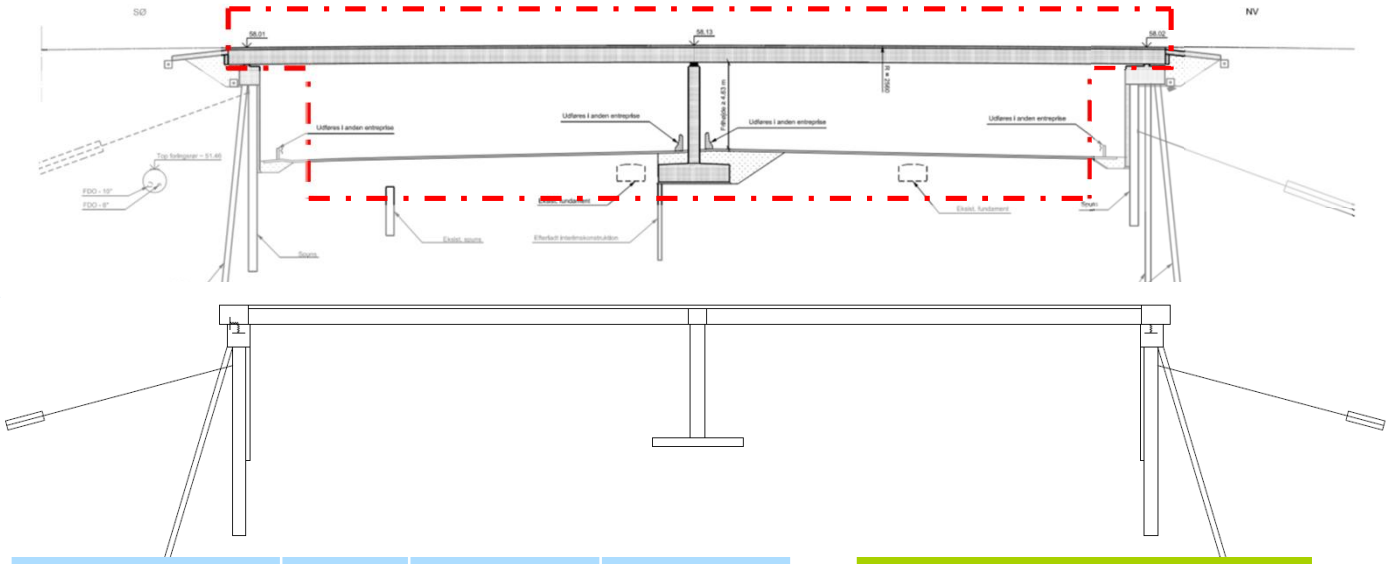
Besparelse:

16%

IN-SITU: VINDINGEVEJ

Variant 3: 5 webs





Material	Enhed	Oprindelig	Variant 3
C35	m^3	40	22
C40	m^3	739	478
C50	m^3	24	49
Armering	ton	82	71
Spændt armering	ton	18	8
Spuns	ton	78	78
Anker stål	ton	6	6
Anker beton	m^3	15	15

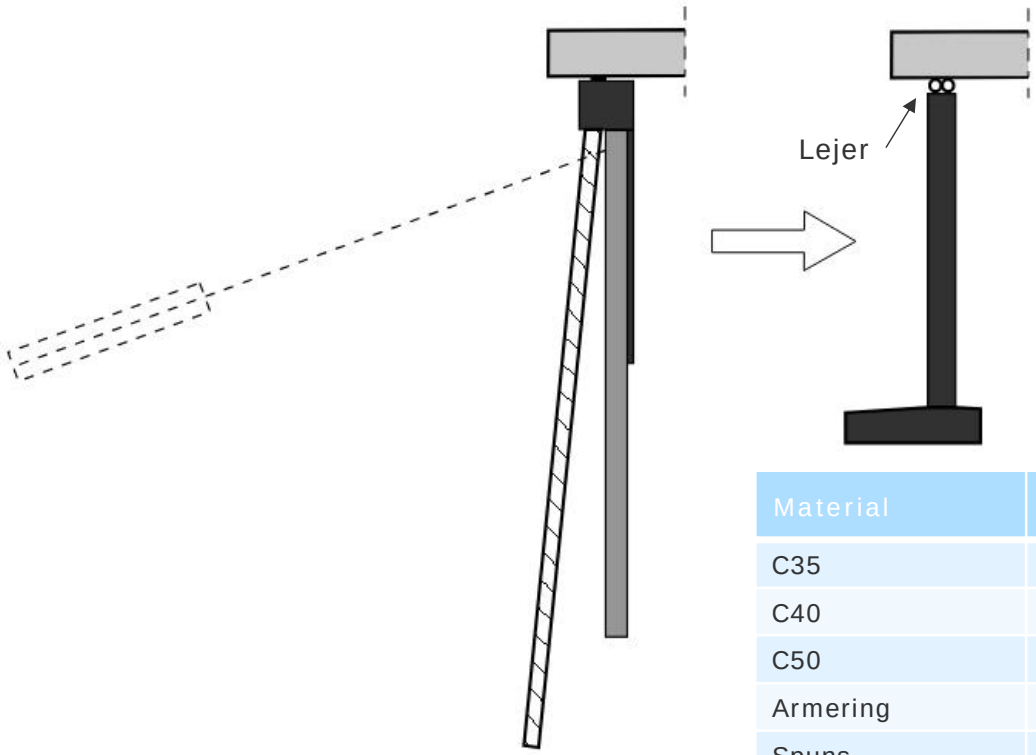
Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 3	520

Besparelse:

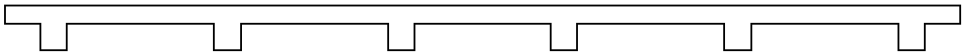
18%

IN-SITU: VINDINGEVEJ

End support variant



- Ribbed concrete wall on slab foundation



- The piles can be removed in this alternative solution, the ground conditions on the sides make direct foundations possible

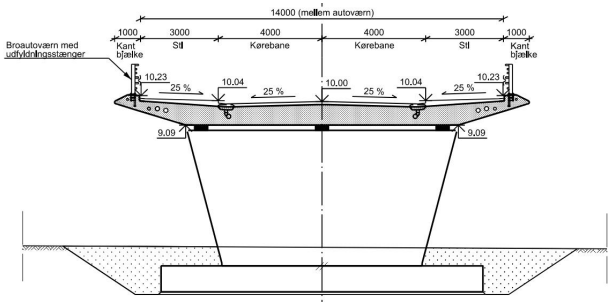
Material	Enhed	Oprindelig	Variant
C35	m^3	0	156
C40	m^3	177	168
C50	m^3	21	0
Armering	ton	19	36
Spuns	ton	78	0
Anker stål	ton	6	0
Anker beton	m^3	15	0

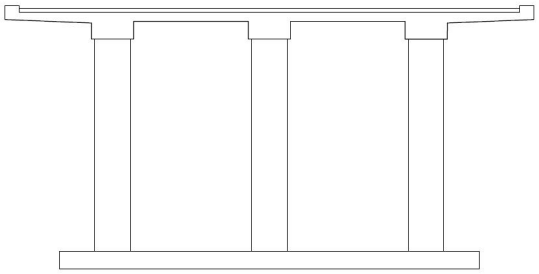
Embodied carbon [ton CO_2e]	
Oprindelig	312
Variant	171

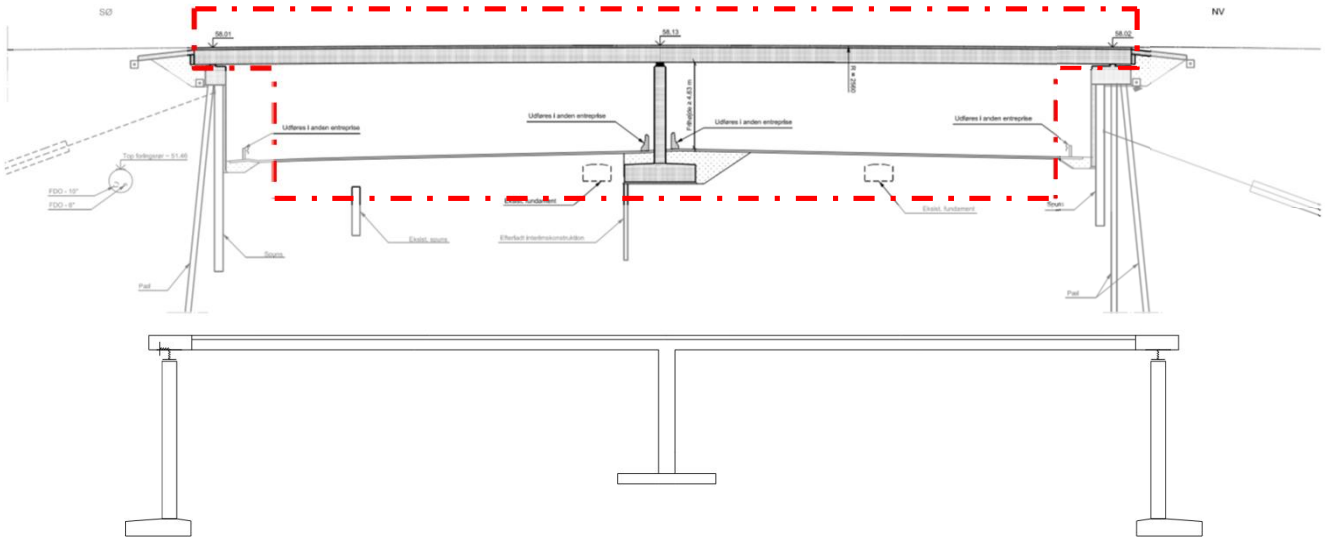
Besparelse: 45%

IN-SITU: VINDINGEVEJ

Variant 4: 3 webs







Material	Enhed	Oprindelig	Variant 4
C35	m^3	40	178
C40	m^3	739	469
C50	m^3	24	29
Armering	ton	82	93
Spændt armering	ton	18	12
Spuns	ton	78	0
Anker stål	ton	6	0
Anker beton	m^3	15	0

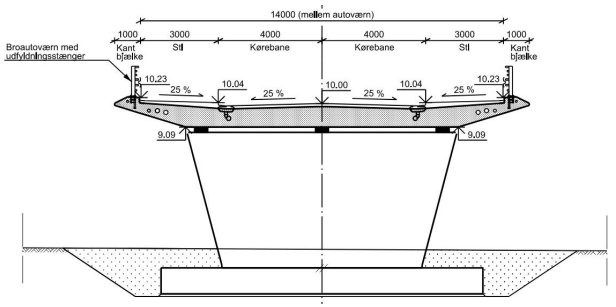
Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 4	410

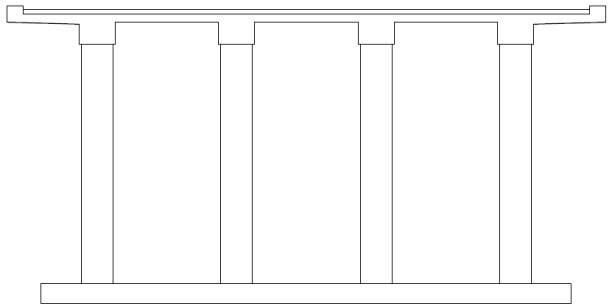
Besparelse:

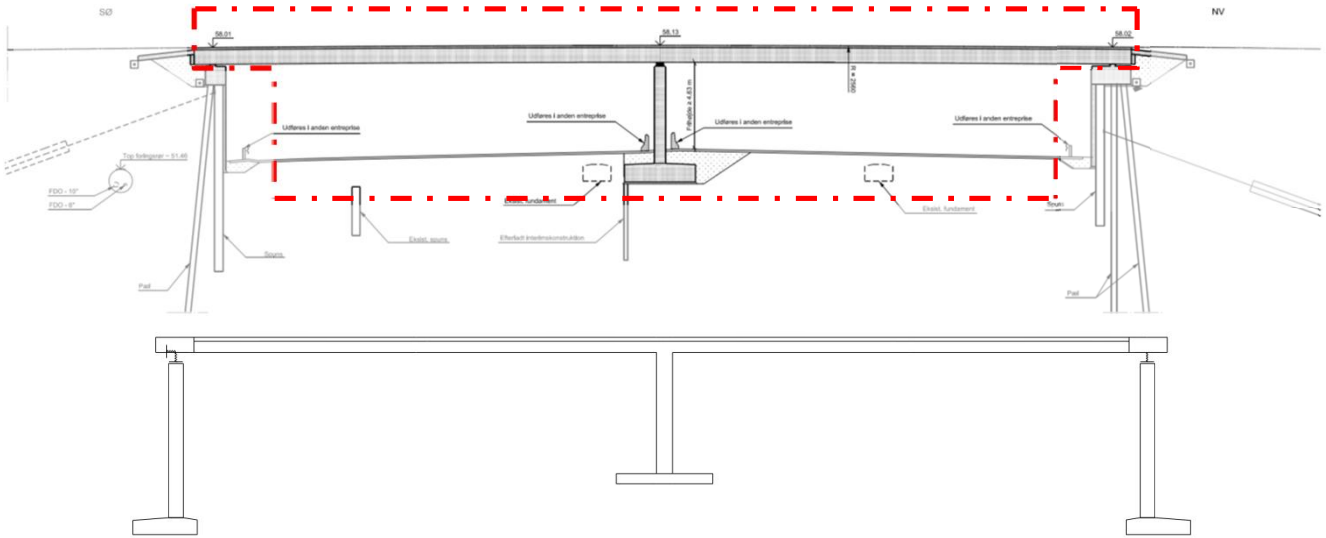
35%

IN-SITU: VINDINGEVEJ

Variant 5: 4 webs







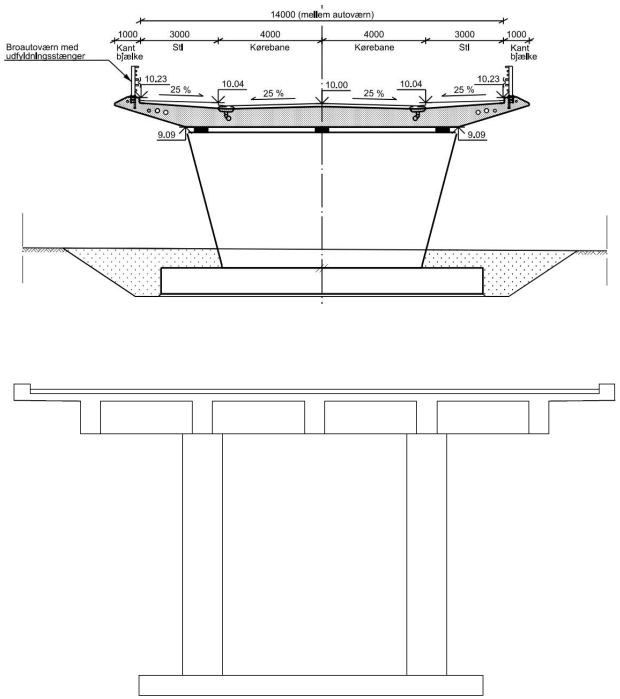
Material	Enhed	Oprindelig	Variant 5
C35	m^3	40	178
C40	m^3	739	452
C50	m^3	24	22
Armering	ton	82	85
Spændt armering	ton	18	12
Spuns	ton	78	0
Anker stål	ton	6	0
Anker beton	m^3	15	0

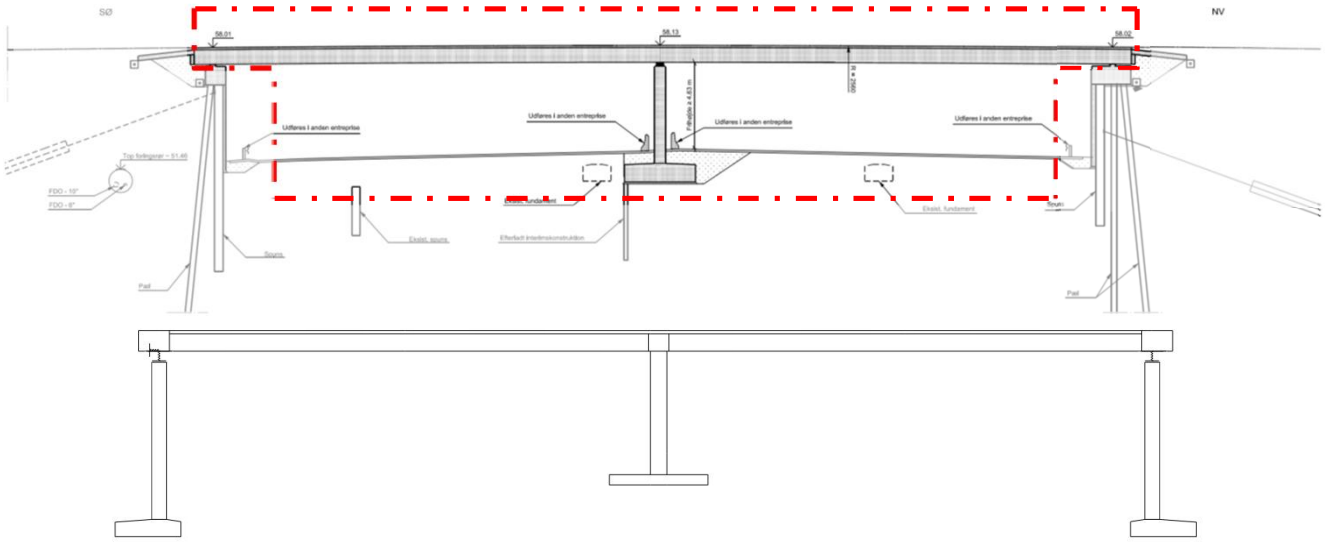
Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 5	390

Besparelse:
38%

IN-SITU: VINDINGEVEJ

Variant 6: 5 webs





Material	Enhed	Oprindelig	Variant 6
C35	m^3	40	178
C40	m^3	739	438
C50	m^3	24	28
Armering	ton	82	87
Spændt armering	ton	18	8
Spuns	ton	78	0
Anker stål	ton	6	0
Anker beton	m^3	15	0

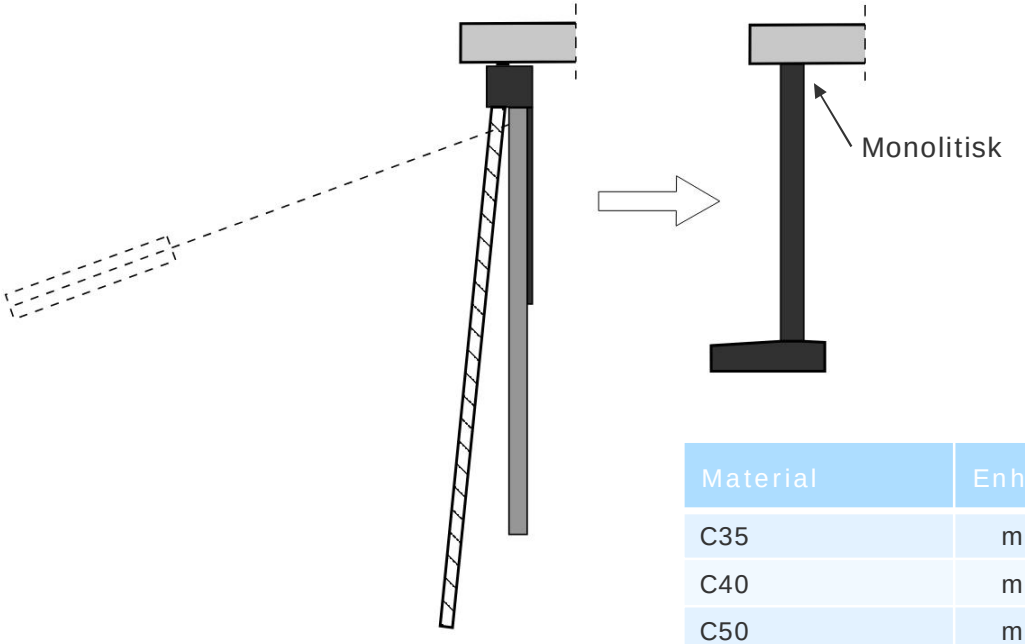
Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 6	379

Besparelse:

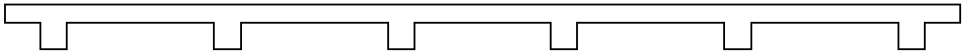
40%

IN-SITU: VINDINGEVEJ

End support variant



- Ribbed concrete wall on slab foundation



- The piles can be removed in this alternative solution, the ground conditions on the sides make direct foundations possible

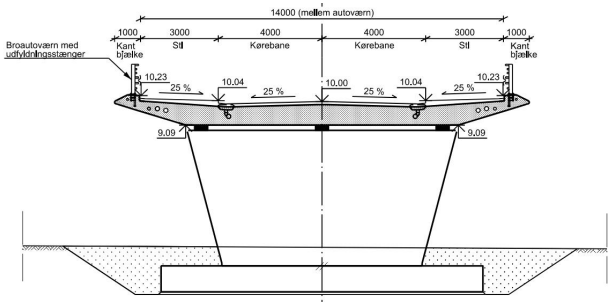
Material	Enhed	Oprindelig	Variant
C35	m^3	0	125
C40	m^3	177	168
C50	m^3	21	0
Armering	ton	19	32
Spuns	ton	78	0
Anker stål	ton	6	0
Anker beton	m^3	15	0

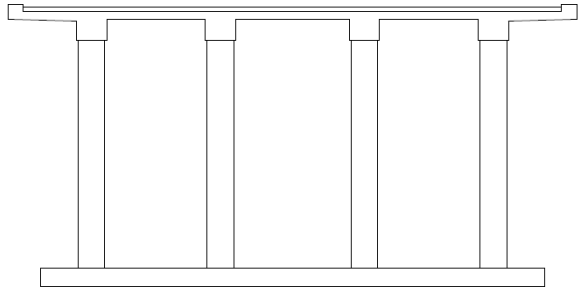
Embodied carbon [ton CO_2e]	
Oprindelig	312
Variant	155

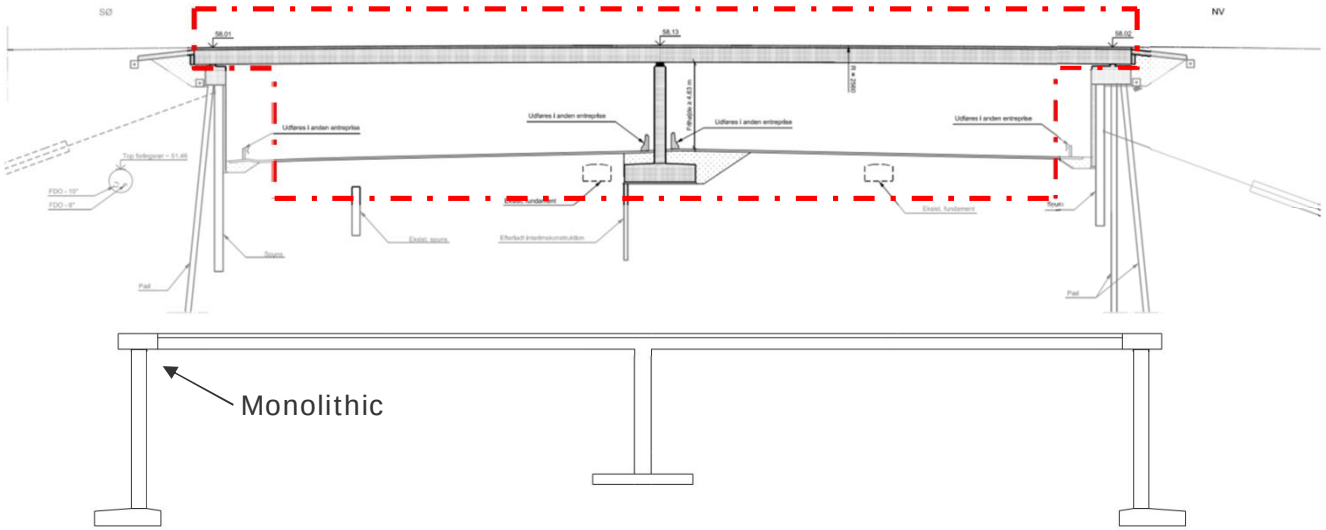
Besparelse: 50%

IN-SITU: VINDINGEVEJ

Variant 7: 4 webs, monolothic end supports







Material	Enhed	Oprindelig	Variant 7
C35	m^3	40	146
C40	m^3	739	431
C50	m^3	24	19
Armering	ton	82	79
Spændt armering	ton	18	9
Spuns	ton	78	0
Anker stål	ton	6	0
Anker beton	m^3	15	0

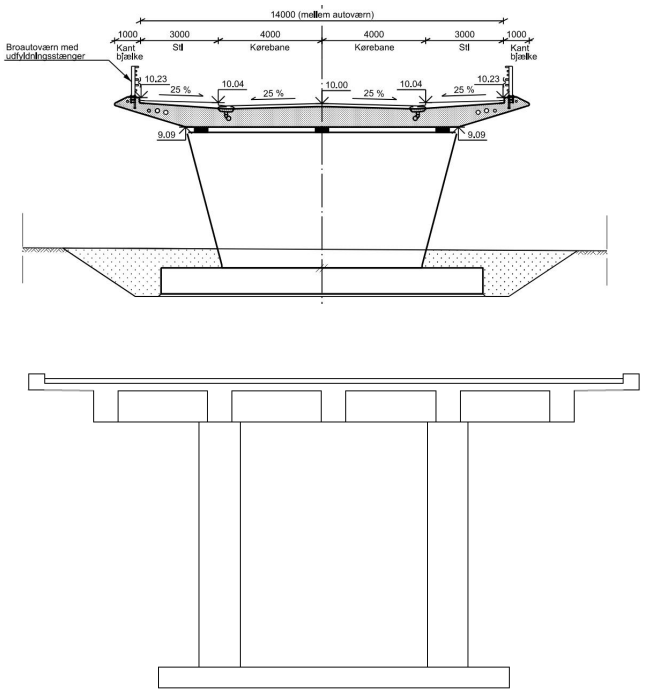
Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 7	355

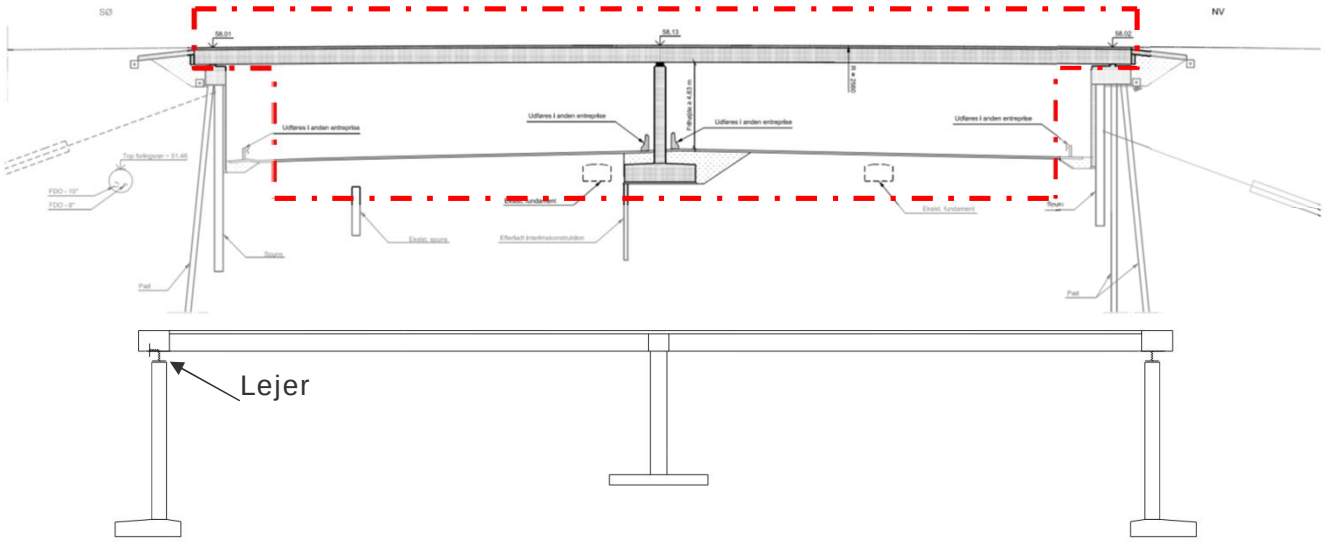
Besparelse:

44%

IN-SITU: VINDINGEVEJ

Variant 8: 5 webs, non prestressed





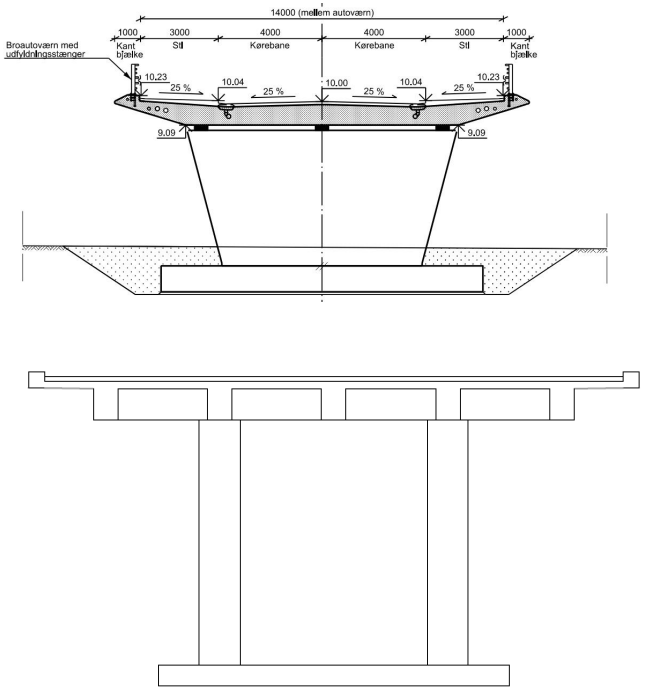
Material	Enhed	Oprindelig	Variant 8
C35	m^3	40	178
C40	m^3	739	469
C50	m^3	24	29
Armering	ton	82	99
Spændt armering	ton	18	0
Spuns	ton	78	0
Anker stål	ton	6	0
Anker beton	m^3	15	0

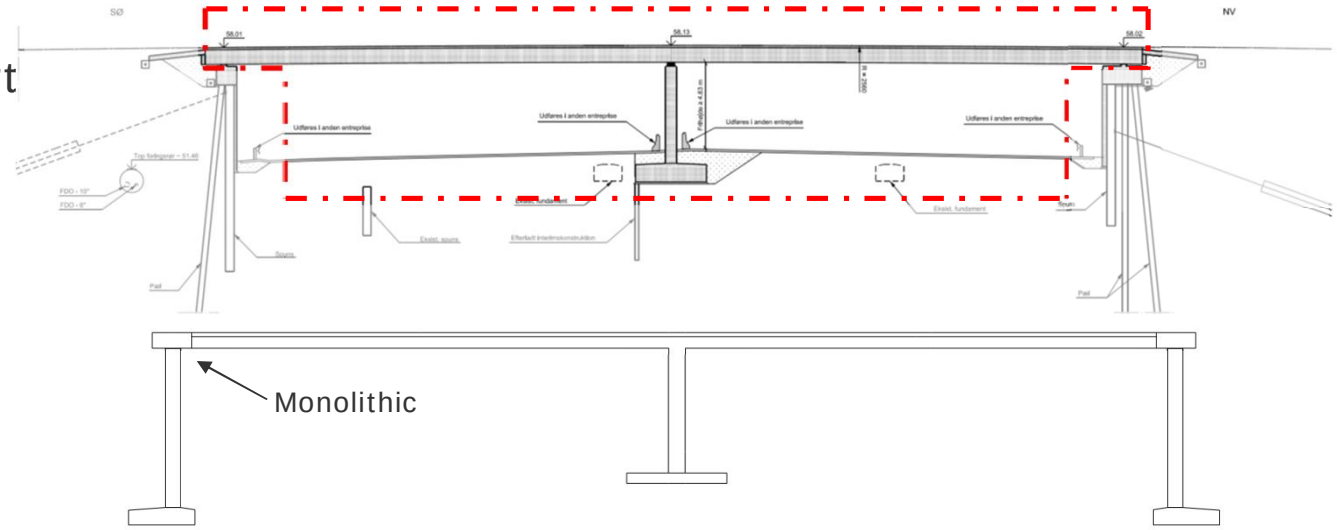
Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 8	389

Besparelse: 39%

IN-SITU: VINDINGEVEJ

Variant 9: 5 webs, non pre-stressed, monolithic end support





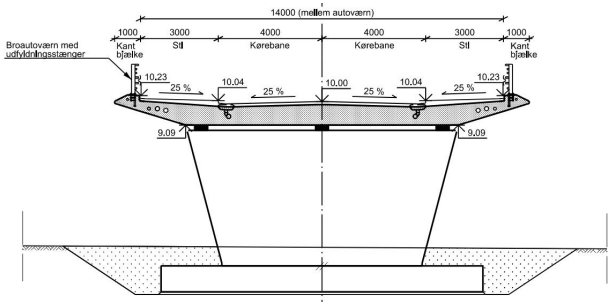
Material	Enhed	Oprindelig	Variant 9
C35	m^3	40	146
C40	m^3	739	435
C50	m^3	24	34
Armering	ton	82	97
Spændt armering	ton	18	0
Spuns	ton	78	0
Anker stål	ton	6	0
Anker beton	m^3	15	0

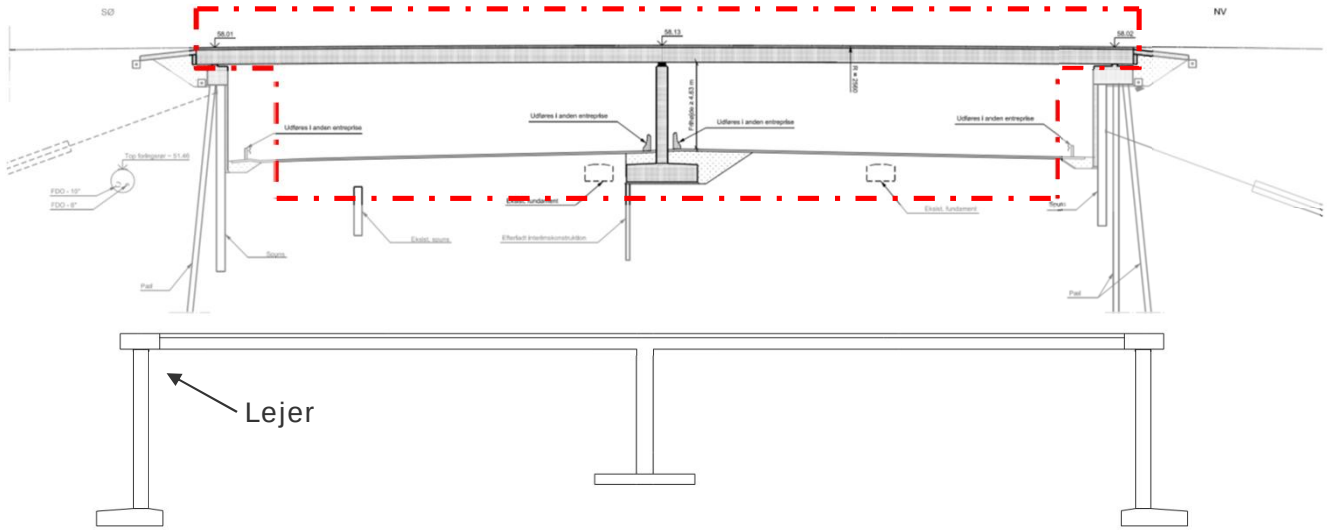
Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 9	363

Besparelse: 43%

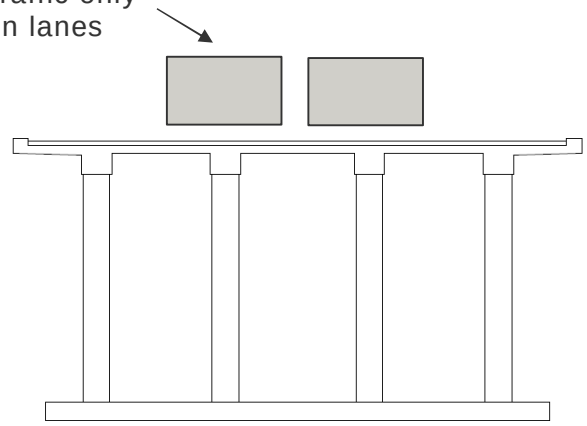
IN-SITU: VINDINGEVEJ

Variant 10: 4 webs, bearings at end supports





Traffic only on lanes



Material	Enhed	Oprindelig	Variant 10
C35	m^3	40	146
C40	m^3	739	431
C50	m^3	24	19
Armering	ton	82	79
Spændt armering	ton	18	9
Spuns	ton	78	0
Anker stål	ton	6	0
Anker beton	m^3	15	0

Embodied carbon [ton CO_2e]	
Oprindelig	633
Variant 10	355

Besparelse: 44 %

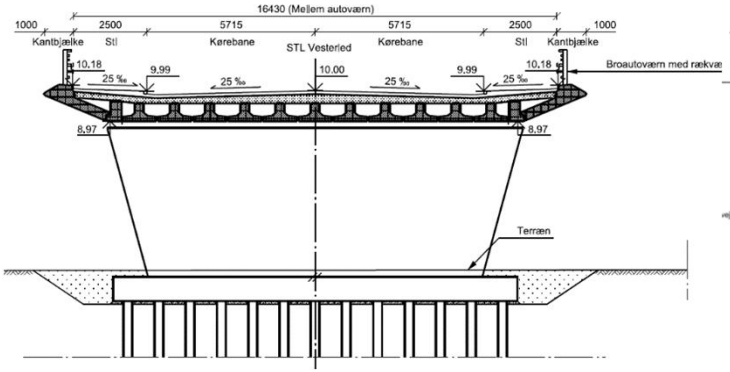
IN-SITU: VINDINGEVEJ

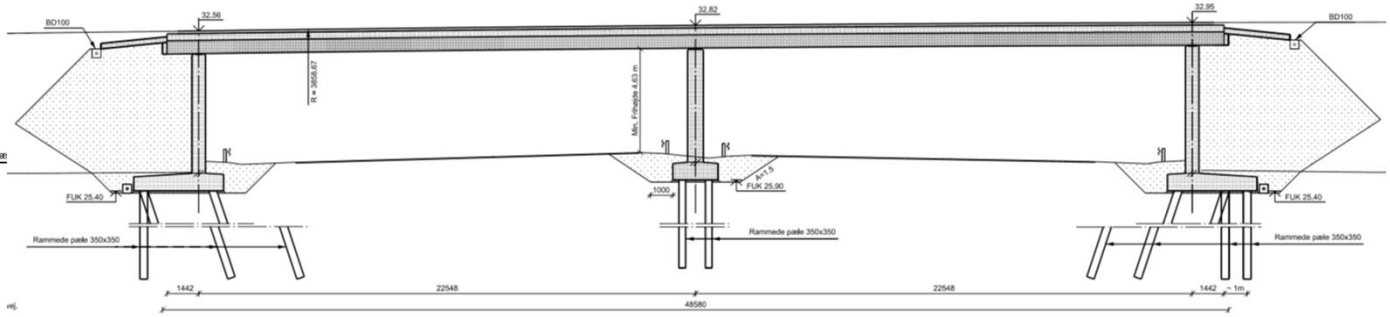
Results embodied carbon (A1-A3):

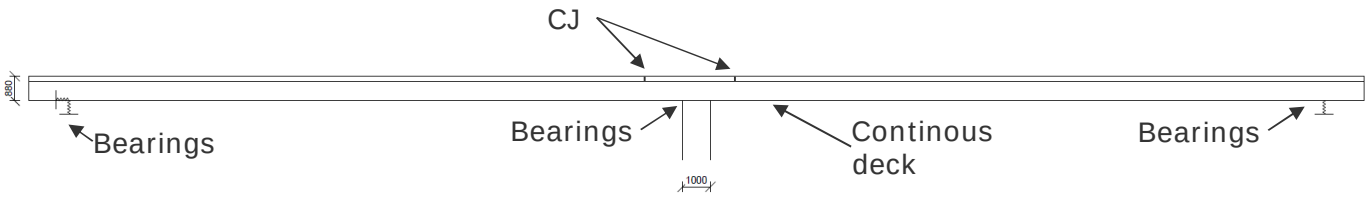
	Variant 1: 3 webs	Variant 2: 4 webs	Variant 3: 5 webs	Variant 4: 3 webs, new end support	Variant 5: 4 webs, new end support	Variant 6: 5 webs, new end support	Variant 7: 4 webs, monolithic	Variant 8: 5 webs, non pre-stressed	Variant 9: 5 webs, non pre-stressed, monolitisk	Variant 10: 4 webs, reduced load	Original
Embodied carbon [ton CO_2e]	550	531	520	410	390	379	355	389	363	355	633
Savings	13 %	16 %	18 %	35 %	38 % *	40 %	44 %	39 %	43 %	44 % *	0 %

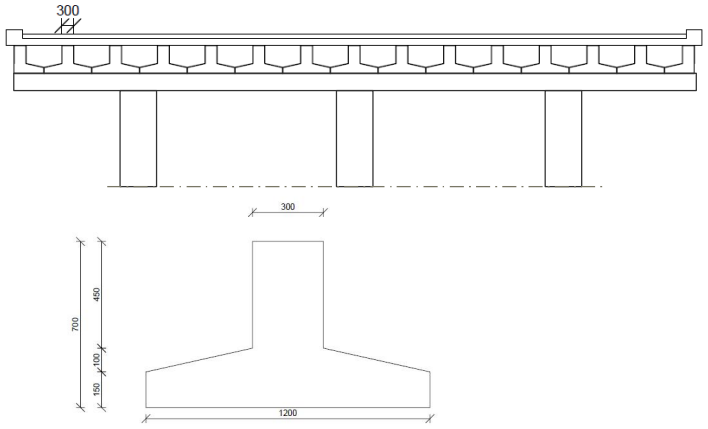
ELEMENTDÆK: VESTERLED

Variant 1: OT-beam, thin slab









Material	Enhed	Oprindelig	Variant 1
C35	m^3	248	205
C40	m^3	472	356
C50 piles	m^3	201	191
C50 element	m^3	293	263
Armering	ton	142	116
Spændt armering	ton	34	27

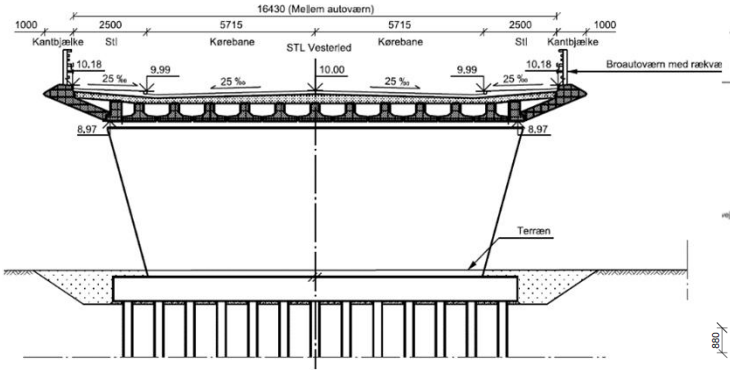
Embodied carbon [ton CO_2e]	
Oprindelig	765
Variant 1	641

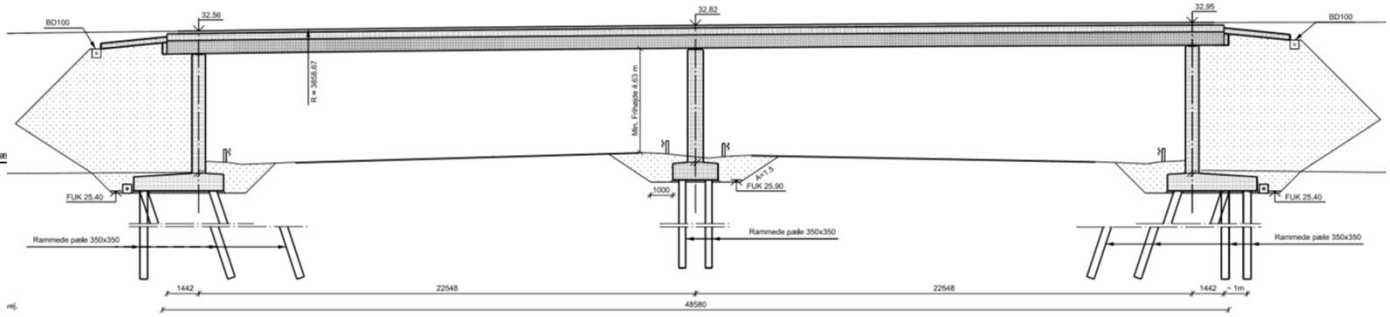
Besparelse:

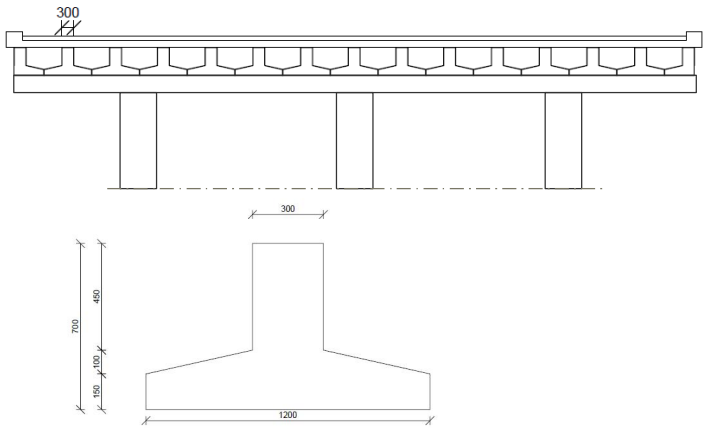
16%

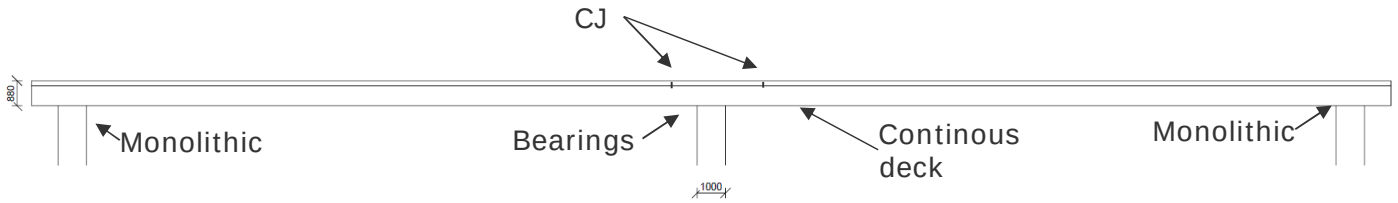
ELEMENTDÆK: VESTERLED

Variant 2: OT-beam, portal









Material	Enhed	Oprindelig	Variant 2
C35	m^3	248	172
C40	m^3	472	331
C50 piles	m^3	201	171
C50 element	m^3	293	199
Armering	ton	142	108
Spændt armering	ton	34	16

Embodied carbon [ton CO_2e]	
Oprindelig	765
Variant 2	538

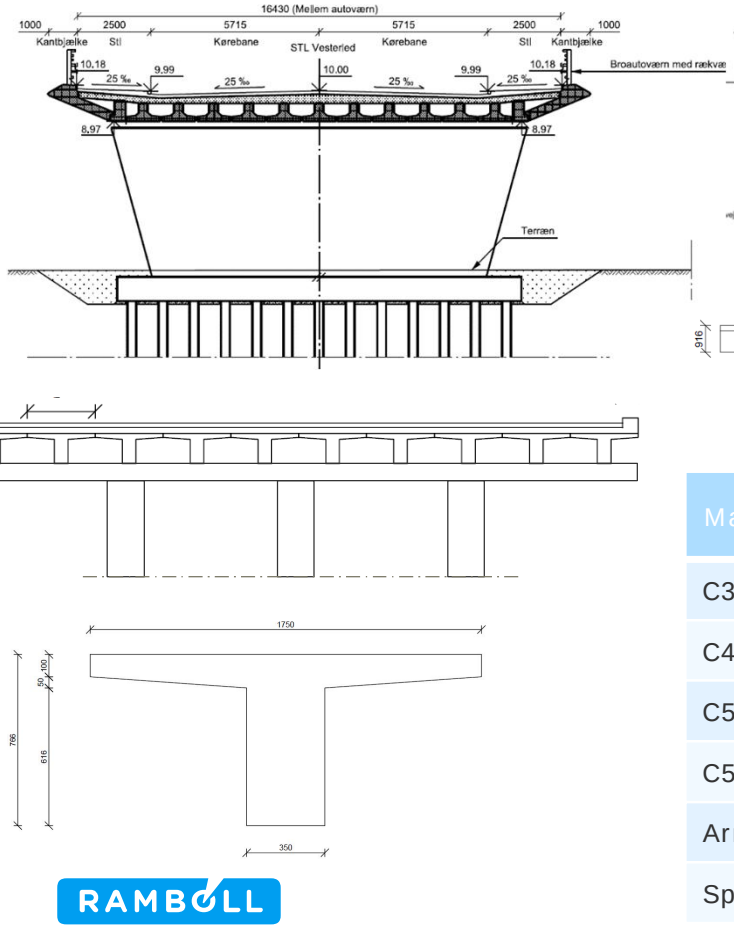
Besparelse:

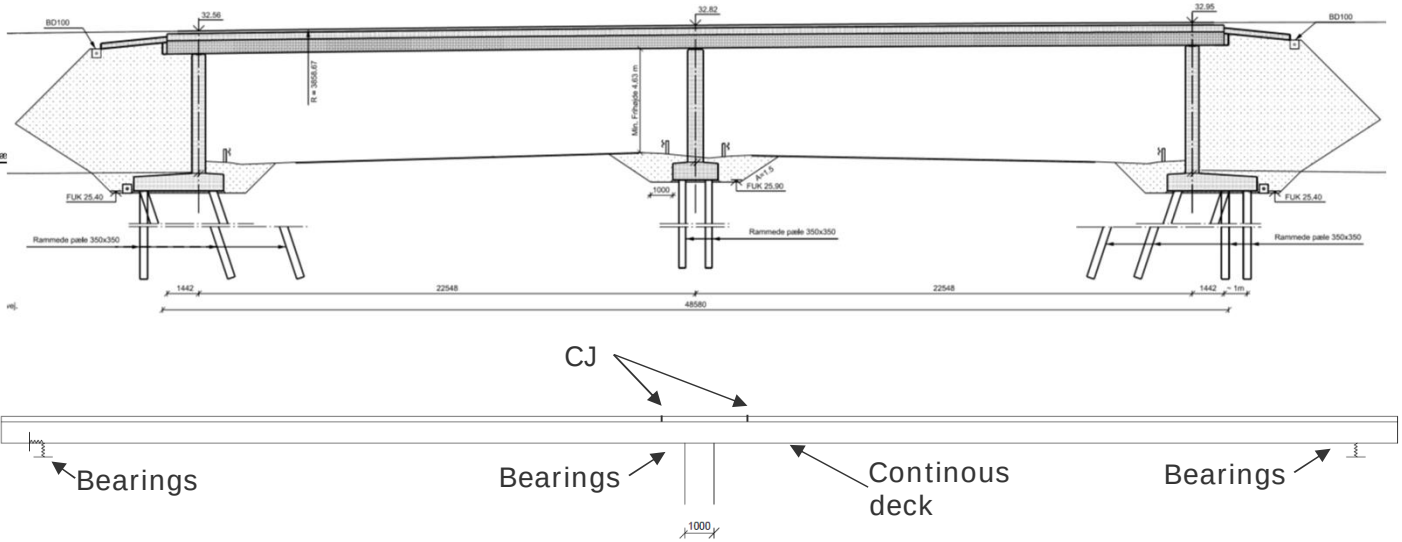
30%

RAMBØLL

ELEMENTDÆK: VESTERLED

Variant 3: T-beam





Material	Enhed	Oprindelig	Variant 3
C35	m^3	248	205
C40	m^3	472	365
C50 piles	m^3	201	191
C50 element	m^3	293	263
Armering	ton	142	114
Spændt armering	ton	34	23

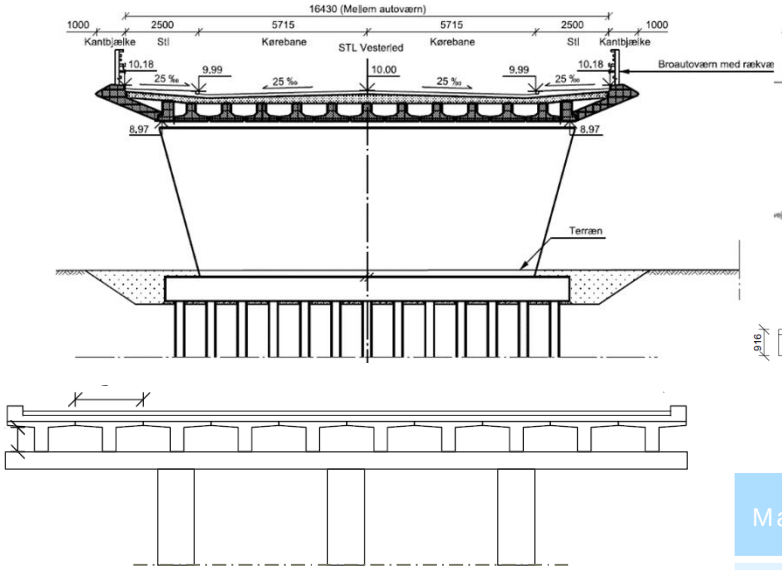
Embodied carbon [ton CO_2e]	
Oprindelig	765
Variant 3	630

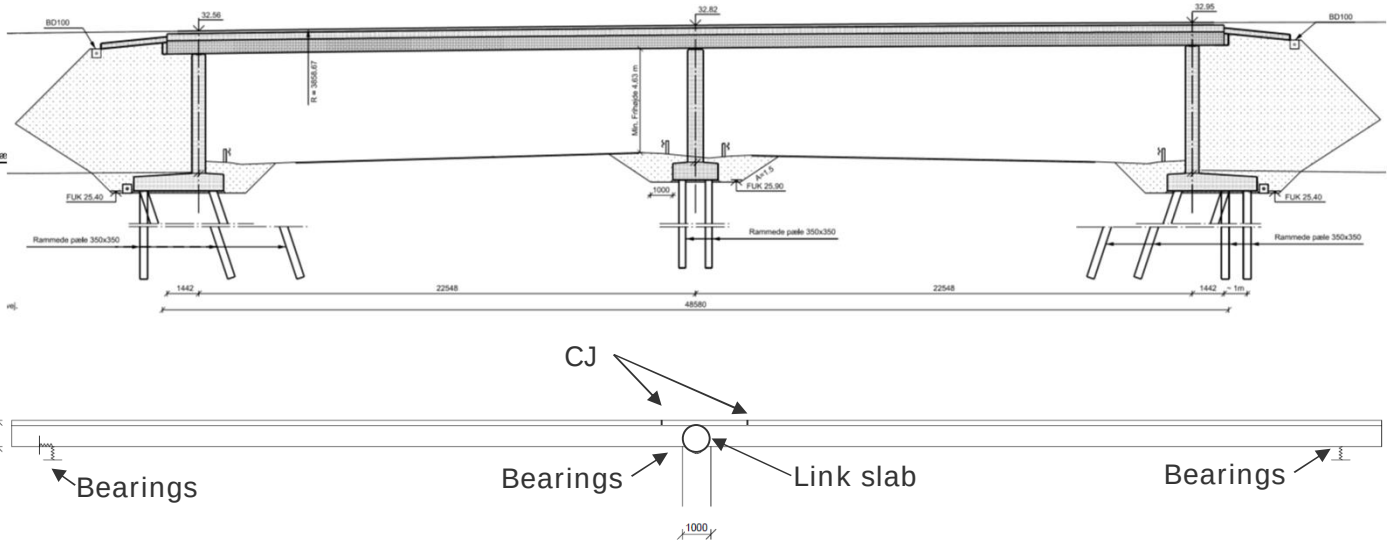
Besparelse:

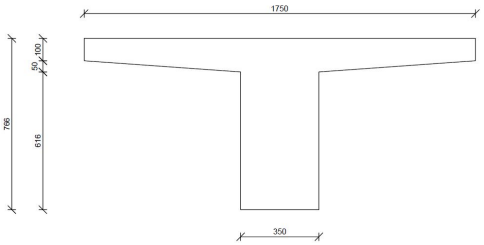
18%

ELEMENTDÆK: VESTERLED

Variant 4: T-beam, hinge







Material	Enhed	Oprindelig	Variant 4
C35	m^3	248	205
C40	m^3	472	318
C50 piles	m^3	201	191
C50 element	m^3	293	211
Armering	ton	142	111
Spændt armering	ton	34	19

Embodied carbon [ton CO_2e]	
Oprindelig	765
Variant 4	572

Besparelse:

25%

ELEMENTDÆK: VESTERLED

Results embodied carbon (A1-A3):

	Variant 1: OT beam, Thick slab	Variant 2: OT beam, portal	Variant 3: T beam,	Variant 4: T beam, hinge	Original
Embodied carbon [ton CO_2e]	641	538	630	572	765
Savings	16 %	30 %	18 %	25 %	0 %