

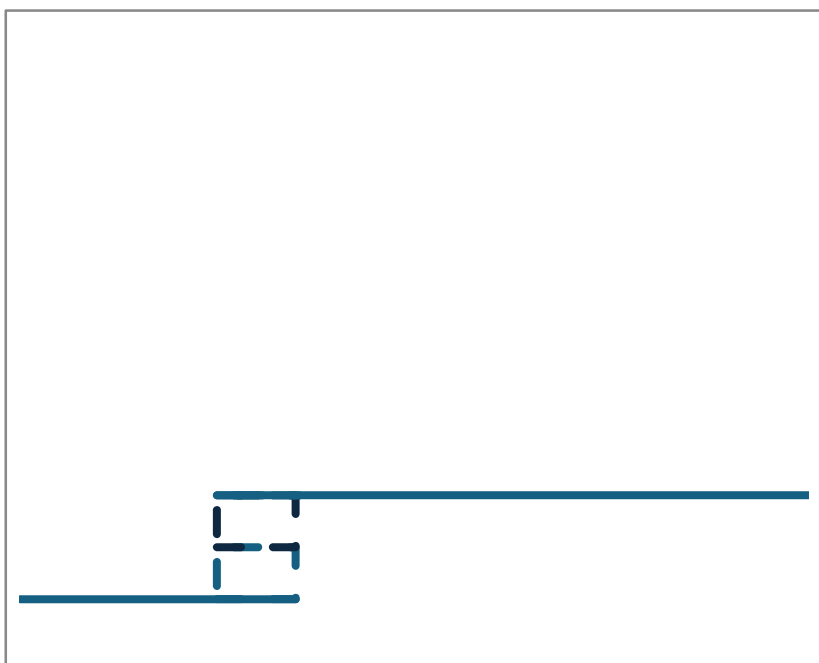
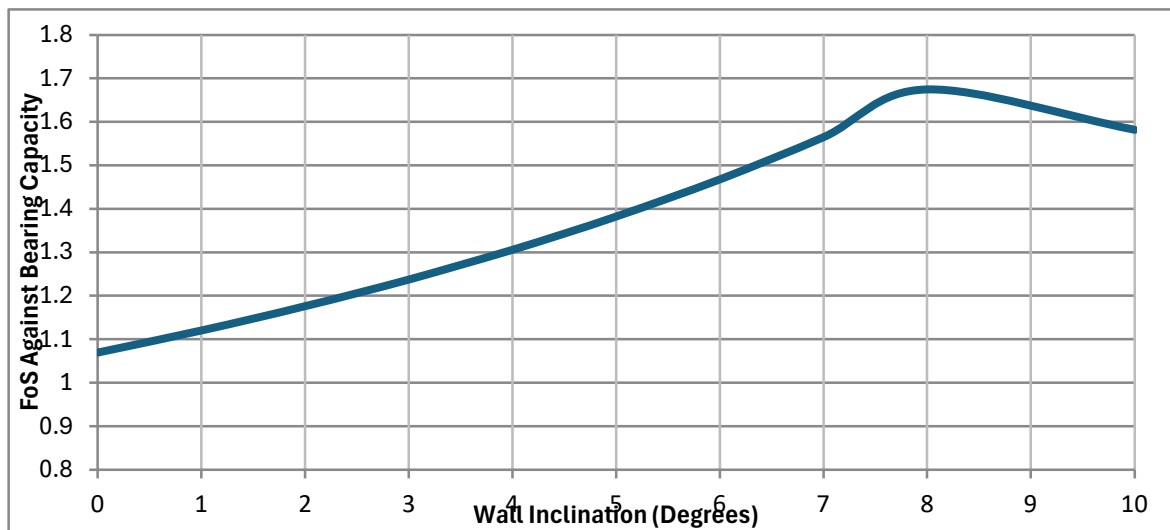
MJ Civil Engineering	Project:	40 Sweetwater Park		By:MAJ
	Calculation:	2.0m Gabion Wall Design		
	Sheet Number:	1	Date: 14.06.2025	Approved: JAJ

<u>Gabion Wall Geometry</u>			
Gabion Level 1	Width	1	m
	Height	1	m
Gabion Level 2	Width	1	m
	Height	1	m
	Step Between Level 1 & 2	0	m
Gabion Level 3	Width	1	m
	Height	0	m
	Step Between Level 2 & 3	0	m
Gabion Level 4	Width	0	m
	Height	0	m
	Step Between Level 3 & 4	0	m
Gabion Level 5	Width		m
	Height		m
	Step Between Level 4 & 5		m
Gabion Level 6	Width		m
	Height		m
	Step Between Level 5 & 6		m
Gabion Level 7	Width		m
	Height		m
	Step Between Level 6 & 7		m
Gabion Level 8	Width		m
	Height		m
	Step Between Level 7 & 8		m
Gabion Level 9	Width		m
	Height		m
	Step Between Level 8 & 9		m
Wall Inclination		6	Degrees
Slope of Retained Material		0	Degrees

<u>Other Details</u>		
Unit Weight of Gabions	18.00	kN/m ³
Friction Angle Between Gabions	35	Degrees
Loading - Variable Surcharge	5.00	kN/m ²
Soil Characteristic Effective Shearing Resistance Angle	34	Degrees
Soil Characteristic Saturated Density	18.00	kN/m ³
Coefficient for Wall Friction	0.75	
Wall Friction Angle	35	Degrees
Characteristic Base Friction Angle	34	Degrees
Bearing Capacity of Underlying Soil	100	kN/m ²

MJ Civil Engineering	Project: 40 Sweetwater Park		By: MAJ	
	Calculation: 2.0m Gabion Wall Design			
			Approved:	
	Sheet Number:	2	Date: 14.06.2025	JAJ
Results				
Pressures @ Base				
Total Unfactored Overturning Force			9.04 kN/m	
Total Unfactored Restoring Force			35.61 kN/m	
Eccentricity			0.03	Reaction Within Middle Third of Base
Pressure at Toe			68.12 kN/m ²	
Pressure at Heel			45.67 kN/m ²	
Factor of Safety			1.47	
Allowable Factor of Safety			1.00	Pass
Design Approach 1				
Partial Factors on Actions - Section A.3.1 - Combination 1				
Action Factor Set - A1				
Permanent unfavourable action			1.35	
Permanent favourable action			1.00	
Variable unfavourable action			1.50	
Variable favourable action			0.00	
Partial factors for soil parameters - Section A.3.2 - Combination 1				
Soil Factor Set - M1				
Angle of Shearing Resistance			1.00	
Weight Density			1.00	
Whole Structure				
Overturning Moment	14.45kN	Overturning Resistance	31.01kN	
Factor of Safety	2.15	Allowable FoS	1.00	Pass
Sliding Force	16.27kN	Sliding Resistance	34.22kN	
Factor of Safety	2.10	Allowable FoS	1.00	Pass
Check Overturning & Sliding Between Courses 1 & 2				
Overturning Moment	2.55kN	Overturning Resistance	15.29kN	
Factor of Safety	6.00	Allowable FoS	1.00	Pass
Sliding Force	5.05kN	Sliding Resistance	18.49kN	
Factor of Safety	3.66	Allowable FoS	1.00	Pass
Check Overturning & Sliding Between Courses 2 & 3				
Overturning Moment		Overturning Resistance		
Factor of Safety		Allowable FoS	1.00	
Sliding Force		Sliding Resistance		
Factor of Safety		Allowable FoS	1.00	
Check Overturning & Sliding Between Courses 3 & 4				
Overturning Moment		Overturning Resistance		
Factor of Safety		Allowable FoS	1.00	
Sliding Force		Sliding Resistance		
Factor of Safety		Allowable FoS	1.00	
Check Overturning & Sliding Between Courses 4 & 5				
Overturning Moment		Overturning Resistance		
Factor of Safety		Allowable FoS	1.00	
Sliding Force		Sliding Resistance		
Factor of Safety		Allowable FoS	1.00	
Check Overturning & Sliding Between Courses 5 & 6				
Overturning Moment		Overturning Resistance		
Factor of Safety		Allowable FoS	1.00	
Sliding Force		Sliding Resistance		
Factor of Safety		Allowable FoS	1.00	
Check Overturning & Sliding Between Courses 6 & 7				
Overturning Moment		Overturning Resistance		
Factor of Safety		Allowable FoS	1.00	
Sliding Force		Sliding Resistance		
Factor of Safety		Allowable FoS	1.00	
Check Overturning & Sliding Between Courses 7 & 8				
Overturning Moment		Overturning Resistance		
Factor of Safety		Allowable FoS	1.00	
Sliding Force		Sliding Resistance		
Factor of Safety		Allowable FoS	1.00	
Check Overturning & Sliding Between Courses 8 & 9				
Overturning Moment		Overturning Resistance		
Factor of Safety		Allowable FoS	1.00	
Sliding Force		Sliding Resistance		
Factor of Safety		Allowable FoS	1.00	

MJ Civil Engineering	Project:	40 Sweetwater Park			By:MAJ
	Calculation:	2.0m Gabion Wall Design			
	Sheet Number:	3	Date:14.06.2025		Approved: JAJ
	Design Approach 1				
	Partial Factors on Actions - Section A.3.1 - Combination 2				
	Action Factor Set - A2				
	Permanent unfavourable action			1.00	
	Permanent favourable action			1.00	
	Variable unfavourable action			1.30	
	Variable favourable action			0.00	
	Partial factors for soil parameters - Section A.3.2 - Combination 2				
	Soil Factor Set - M2				
	Angle of Shearing Resistance			1.25	
	Weight Density			1.00	
	Whole Structure				
	Overturning Moment	13.71kN	Overturning Resistance	31.46kN	
	Factor of Safety	2.29	Allowable FoS	1.00	Pass
	Sliding Force	14.81kN	Sliding Resistance	27.62kN	
	Factor of Safety	1.86	Allowable FoS	1.00	Pass
	Check Overturning & Sliding Between Courses 1 & 2				
	Overturning Moment	2.49kN	Overturning Resistance	15.37kN	
	Factor of Safety	6.18	Allowable FoS	1.00	Pass
	Sliding Force	7.43kN	Sliding Resistance	25.85kN	
	Factor of Safety	3.16	Allowable FoS	1.00	Pass
	Check Overturning & Sliding Between Courses 2 & 3				
	Overturning Moment		Overturning Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Sliding Force		Sliding Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Check Overturning & Sliding Between Courses 3 & 4				
	Overturning Moment		Overturning Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Sliding Force		Sliding Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Check Overturning & Sliding Between Courses 4 & 5				
	Overturning Moment		Overturning Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Sliding Force		Sliding Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Check Overturning & Sliding Between Courses 5 & 6				
	Overturning Moment		Overturning Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Sliding Force		Sliding Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Check Overturning & Sliding Between Courses 6 & 7				
	Overturning Moment		Overturning Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Sliding Force		Sliding Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Check Overturning & Sliding Between Courses 7 & 8				
	Overturning Moment		Overturning Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Sliding Force		Sliding Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Check Overturning & Sliding Between Courses 8 & 9				
	Overturning Moment		Overturning Resistance		
	Factor of Safety		Allowable FoS	1.00	
	Sliding Force		Sliding Resistance		
	Factor of Safety		Allowable FoS	1.00	



Results Sumamry

Eccentricity Reaction within Middle Third of Base
 Bearing Capacity FoS **1.47**

Combintion 1	Overturning	Sliding
Whole Structure	2.15	2.10
Between Levels 1 & 2	6.00	3.66

Combintion 2	Overturning	Sliding
Whole Structure	2.29	1.86
Between Levels 1 & 2	6.18	3.16