




1. UNFOLD EACH GABION ON A HARD FLAT SURFACE. STRETCH IT OUT AND STAMP OUT ANY KINKS. MAKE SURE THAT ALL CREASES ARE IN THE CORRECT POSITIONS FOR FORMING THE BOX – ONE AT THE EDGE OF EACH PANEL AND EACH DIAPHRAGM (FIGURE 1).
2. FOLD THE SIDE AND END PANELS INTO THE UPRIGHT POSITION TO FORM A RECTANGULAR BOX. JOIN THE TOP CORNERS OF THE BOX TOGETHER WITH THE THICK SELVEDGE WIRE STICKING OUT FROM THE CORNERS OF EACH PANEL. THIS ENSURES THAT THE TOPS OF ALL FOUR SIDES OF THE BOX ARE LEVEL AND MEET ANOTHER (FIGURE 2).
3. SECURING THE LACING WIRE AROUND THE TOP SELVEDGES OF THE PANELS TO BE JOINED TOGETHER, LACE THE WIRE AROUND THE TWO EDGE SELVEDGES WITH SINGLE LOOPS AND DOUBLE LOOPS IN TURN AT 100mm INTERVALS (FIGURE 3). FINALLY, FASTEN THE WIRE SECURELY AT THE BOTTOM CORNER SELVEDGES AND POKE THE LOOSE END INSIDE THE GABION BOX. THEN LIFT THE DIAPHRAGMS INTO THE VERTICAL POSITION AND WIRE THEM UP TO THE SIDE PANELS IN EXACTLY THE SAME WAY. THE TIGHTNESS OF THE MESH AND WIRING IS ESSENTIAL AT ALL TIMES.
4. IT IS GOOD CONSTRUCTION PRACTICE TO LACE SMALL GROUPS OF GABION BOXES TOGETHER AS COMPLETE SECTIONS BEFORE JOINING THEM TO THE REST OF THE STRUCTURE, USING EXACTLY THE SAME METHOD AS FOR ASSEMBLING SINGLE BOXES. PLACE THEM FRONT TO FRONT AND BACK TO BACK, SO THAT PAIRS OF FACING LIDS CAN LATER BE WIRED DOWN SIMULTANEOUSLY (FIGURE 4).
5. TO SUPPORT THE FACING AND TO CONNECT THE FRONT PANEL TO THE BACK PANEL OF A GABION 3,4mm Ø PRE-FORMED BRACING WIRES OR 2,2mm Ø BRACING WIRES ARE TO BE USED.

1. THE SURFACE ON WHICH THE GABION BOXES ARE TO BE CONSTRUCTED, SHALL BE LEVELLED TO THE SPECIFIED DEPTH SO AS TO PRESENT AN EVEN SURFACE. CAVITIES BETWEEN HARD PROTRUSIONS SHALL BE FILLED WITH MATERIAL SIMILAR TO THAT BEING USED FOR FILLING THE GABIONS.
2. ONLY ASSEMBLED BOXES, OR GROUPS OF BOXES, SHALL BE POSITIONED IN THE STRUCTURE. THE SIDE OR END, FROM WHICH WORK IS TO PROCEED, SHALL BE SECURED TO EITHER COMPLETED WORK OR BY RODS AS STAKES DRIVEN INTO THE GROUND AT THE CORNERS. THESE SHALL BE SECURED AND REACH AT LEAST TO THE TOP OF THE GABION BOX. FURTHER GABIONS SHALL THEN BE POSITIONED IN THE STRUCTURE AS REQUIRED, EACH BEING SECURELY LACED TO THE PRECEDING ONE AT ALL CORNERS AND DIAPHRAGM POINTS.
3. STRETCH THE OPPOSITE SIDE OF THE BOX OR SECTION BY INSERTING BARS INTO THE BOTTOM CORNERS AND LEVERING THEM FORWARD BY MEANS OF A WIRE STRAINER OR WINCH OF AT LEAST ONE TON CAPACITY. THE TOP AND BOTTOM ARE THEN KEPT STRETCHED IN THIS WAY UNTILL THE GABION HAS BEEN FILLED. WHILE THE GABION IS BEING STRETCHED, ENSURE THAT THE OPPOSITE WIRING OR ANCHORING HAS BEEN PROPERLY CARRIED OUT AND IS NOT PULLING APART OR COLLAPSING (FIGURE 5). THE NEXT STEP IS TO WIRE ALL THE OTHER SIDES AND ENDS OF THE STRETCHED SECTION TO ADJOINING ALREADY FILLED GABIONS (FIGURE 5). THE STRONG INTER-CONNECTION OF ALL UNITS IN A GABION STRUCTURE IS AN IMPORTANT FEATURE OF THE TECHNIQUE AND IT IS THEREFORE ESSENTIAL THAT THE WIRING IS SECURE. TENSION ON THE GABION BOXES SHALL BE RELEASED ONLY WHEN THEY ARE SUFFICIENTLY FULL TO PREVENT THE MESH FROM SLACKENING.
4. WHERE GABION STRUCTURES WITH NON-RECTANGULAR SHAPES ARE SPECIFIED, MODIFICATIONS TO THE BOXES ARE REQUIRED. GABION BOXES ARE FLEXIBLE ENOUGH TO CONFORM TO BENDS DOWN TO A RADIUS OF 25m WITHOUT MITRING. FIRST WIRE A NUMBER OF BOXES TOGETHER AND BEND THEM UP TO THE CURVE SET OUT PREVIOUSLY, HOLDING THEM IN POSITION DURING FILLING. OTHER SHAPES, BEVELS AND MITRES, SHOULD BE FORMED BY CUTTING AND FOLDING THE PANELS TO THE REQUIRED ANGLES AND SIZES (FIGURE 6). THE CUT EDGES OF THE MESH SHALL BE SECURELY LACED TOGETHER WITH LACING WIRE.

1. FILLING SHALL BE CARRIED OUT ONLY WHILST GABION BOXES ARE UNDER TENSION. FILLING MATERIAL SHALL CONSIST OF STONE PLACED TO PRODUCE A NEAT FACE AND LINE WITH A MINIMUM OF VOIDS.
2. FILLING MATERIAL SHOULD BE CLEANED, HARD UNWEATHERED BOULDERS OR ROCK FRAGMENTS. NO ROCK FRAGMENTS SHALL EXCEED THE MAXIMUM SIZE GIVEN IN TABLE 1 BELOW AND AT LEAST 85% OF THE ROCKS SHALL BE OF A SIZE EQUAL TO OR ABOVE THE AVERAGE LEAST DIMENSION GIVEN IN TABLE 1.

3. IN AREAS WHERE LARGE ENOUGH FILL IS DIFFICULT TO OBTAIN, THE COMPARTMENT IS LINED WITH LARGE MATERIAL AND THE INTERIOR FILLED WITH SMALLER. THE SMALL MATERIAL CAN BE 10% OF THE FILL (FIGURE 7). CARE SHALL BE TAKEN IN PACKING THE VISIBLE FACES OF GABION BOXES WHERE ONLY SELECTED STONE OF THE SPECIFIED SIZE SHALL BE USED SO AS TO OBTAIN AN EVEN FACE FINISH.
4. INTERNAL HORIZONTAL BRACING WIRE SHALL BE PROVIDED AT 330mm VERTICAL CENTRES IN 1,0m DEEP UNITS AT A RATIO OF FOUR TO EVERY 1,0m³ OF FILLING. THESE BRACING WIRES SHALL BE WRAPPED AROUND TWO MESH WIRES (FIGURE 9) AND EXTENDED FROM FRONT TO BACK SO POSITIONED TO ENSURE A NEAT FACE AND LINE FREE OF EXCESSIVE BULGES AND DEFS. GABION BOXES SHALL BE FILLED IN STAGES AND HORIZONTAL BRACING WIRES INSERTED AS FILLING IS BROUGHT UP (FIGURE 9). BRACING IN BOTH DIRECTIONS SHOULD BE USED IN GABIONS AT CORNERS OF STRUCTURES (FIGURE 10). AS AN ADDITIONAL SCAFFOLD PLANKING AS SHUTTERING ALONG THE FRONT FACE OR A PRE-FABRICATED SCAFFOLD TUBING FRAME SYSTEM CAN BE USED (FIGURE 11) TO ENSURE A NEAT FACE AND LINE.
5. LEVEL OFF THE FILL 25mm TO 50mm ABOVE THE TOP OF THE MESH TO ALLOW FOR SETTLEMENT. GABION BOXES SHALL BE FILLED BY 20 TO 50mm ABOVE THEIR TOPS TO ALLOW FOR SUBSEQUENT SETTLEMENT.
6. STRETCH THE LIDS TIGHTLY OVER THE FILLING USING A CROWBAR. SECURE THE CORNERS FIRST, BY MEANS OF THE THICK SELVEDGE WIRE PROTRUDING FROM THE LID CORNERS, TO ENSURE THAT THERE IS ENOUGH MESH TO COVER THE WHOLE AREA. SOME FILLING MAY HAVE TO BE REMOVED FROM THE TOP OF THE GABION BOX TO PREVENT THE LID FROM OVERSTRAINING, THEN SECURELY WIRE IT TO THE TOPS OF THE SIDES. ENDS AND DIAPHRAGMS, USING THE ALTERNATE SINGLE AND DOUBLE LOOPS (FIGURE 12). TIGHTNESS OF MESH, WELL PACKED FILLING AND SECURE LACING IS ESSENTIAL IN ALL STRUCTURES.

1. MATERIAL TO BE SIZED ACCORDING TO THE VELOCITY

REVISIONS	NO.	DATE	DESCRIPTION	EXAM	APP		H. SCHOLTZ DIRECTOR: ROADS INFRASTRUCTURE MANAGEMENT	S. MOHAMED HEAD: STRUCTURES ROADS INFRASTRUCTURE MANAGEMENT	CITY OF CAPE TOWN ROADS INFRASTRUCTURE MANAGEMENT	CONTRACT NO. 6Q/2025/26 STRUCTURES TERM TENDER		 CITY OF CAPE TOWN ISIXEKO SASEKAPA STAD KAAPSTAD Making progress possible. Together.	A0	SCALE	AS SHOWN				
							DESIGNED BY												
							DRAWN BY			M. VILJOEN	JAN 2024								
							CHECKED BY			W. KRIEL	JAN 2024								
							APPROVED BY			S. MOHAMED	JAN 2024								
00	AUGUST 2025	ISSUED FOR TENDER		S.M. S.M.			CORR FILE	CORR FILE	EST. No		TYPICAL GABION DETAILS ASSEMBLY & ERECTION OF GABION BOXES					00			

FOR TENDER