

*Section 2:**Introduction*

Site Details

Location	Bajir bawadi
Stretch Details	Latitude Longitude 31 24' 36" 77 37' 54"

General Information:

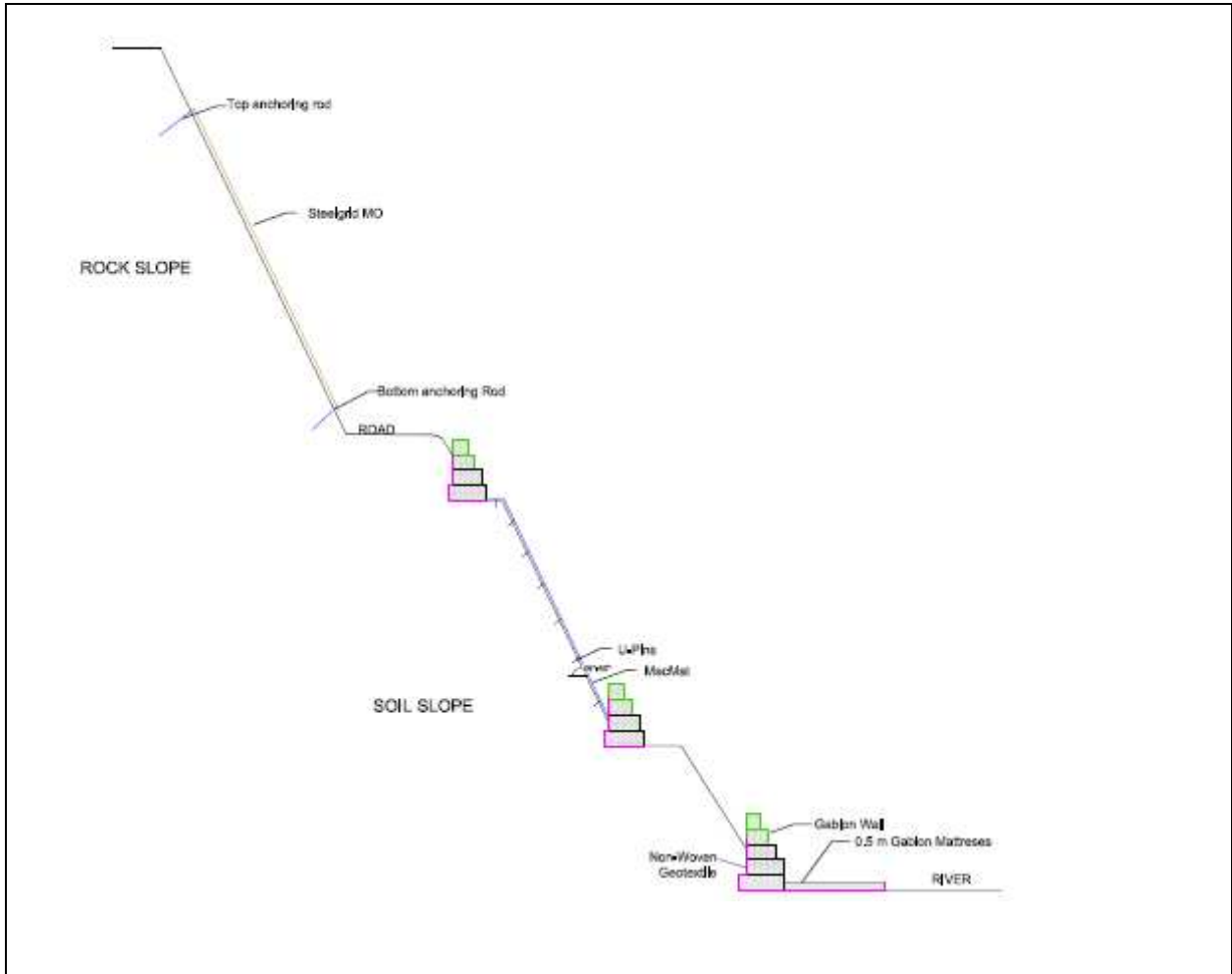
Type of surface	Rockfall , Soil slope with erosion, and road subsidence		
Average inclination of rock slope w.r.t. Horizontal	[°] Above the road	60	
	Below the road	45°	
Total Length of the stretch (L)	[m]	100 m	
Total Sloping Height (H)	[m] Above the road	100	
	Below the road	75	
Vegetation (if any)	Yes(Little)	Debris type(soil/ boulders)	Soil and small sized rocks





Approach to top portion of Slope	Yes / No	Yes
Distance required at the top of slope (for Top anchoring)	[m]	4
Type of strata at Top of Cutting slope	Soil/ Rock/Rock with Soil cover	Rock with soil cover
Distance between slope bottom and infrastructure	[m]	<1.0 m
Whether any erosion control measures to be provided on the face:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Whether Toe protection measures are to be provided	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p style="text-align: center;">Problem</p> <p>The slope in this area is of rock above the road and below the road the slope is made of soil. The rock slope has been eroded at some stretches leading to rockfall. The soil slope is posing a problem of stability and surface erosion. Also some parts of the stretch has the problem of road subsidence. The toe of the slope is subjected to erosion by the river at the bottom of the slope</p>	<p>Proposed Solution</p> <p>To take account of the stability and erosion of the slopes below the road level, gabions walls and Bio Mat (erosion control mat) along with DT Mesh is proposed to be laid on the slope surface. A toe wall made of gabion can be constructed at the bottom of the slope to prevent any toe erosion or encroachment leading to the failure of the slope, which also helps in stabilizing the slope.</p> <p>For road subsidence, gabion walls are to be constructed below the road to improve the stability of the slope and Bio Mat is proposed to take care of erosion on the slope. U pins of 0.6 m length are used to adhere Bio Mat to the slope which are placed at spacing of 3 m c/c. Bio Mat acts as erosion control mats and which after covering with vegetative soil will aid the local shrubs to establish firm roots.</p>	

Typical Cross-section:



Notes:



Gabion Wall for Mumbai-Pune Express way

Costing:

Location: Bajir Bawadi Stretch: Rockfall, Soil slope with erosion and Road subsidence Solution: Simple drapery system using Steel Grid MO and Erosion control Mat, Bio Mat on the failed slope and 5m High toe Gabion wall above the Road level & Series of Gabion walls of height 5m Each for Toe protection and Slope retention ; Assumed Avg. Ht. 100.0m, length 200m; Total No. of Gabion walls : 3 No's					
S.No	Description	Unit	Qty	Rate	Amount (`)
1	Providing and laying of mechanically woven double twisted hexagonal shaped Zn+PVC Coated Gabions of Mesh wire Dia. 2.7mm / 3.7mm and Mesh type 10x12 including lacing, tying and filling of Gabions with stones of required sizes and quality etc, with a thermally bonded geotextile at the rear of Gabions, etc complete.	Cum	6000	2700	16,200,000.00
2	Dressing of the soil-boulder slope to obtain a levelled surface	Sq.m	20000	250	5,000,000.00
3	Cutting of soil slope to required level and inclination as per drawing	Cum	6000	400	1,260,000.00
4	Backfilling at select areas with the excavated material to the required level and inclination as per drawings	Cum	6000	250	1,500,000.00
5	Providing and laying of Bio Mat Turf Reinforcement Mat made of an open three dimensional synthetic mat made of Polypropylene filaments with an additional Hexagonal shaped Double Twisted Wire Mesh of Mesh Type 10 x 12, Zn + PVC Coated 2.70/3.70 mm wire dia. including providing U Pins at every 3-4m c/c, necessary laps etc	Sq.m	20000	850	17,000,000.00
6	Spreading of vegetative soil over the Erosion Control Blanket and planting of local shrubs etc	Sq.m	20000		-
7	Providing and laying of Simple Drapery System for protection of falling of loose boulder using SteelGrid-MO, Mesh type 10x 12, reinforced with 8.0mm steel cable over the entire slope, including providing anchors at the top and bottom, use of required accessories, complete.	Sq.m	20000	1500	7,500,000.00
8	Other miscellaneous civil works such as providing proper drains, toe collection system of loose rocks, access roads to the top etc.	LS			9,692,000.00
	TOTAL				58,152,000.00

