VAOT EARTH RETAINING SYSTEM SELECTION CHART

GENERAL CLASSIFICATION		APPROVED SYSTEMS	COMMENTS
A. FILL WALLS (1,2)			
Rigid Gravity and Semi-Gravity Walls	→	Cast-in-place (CIP) Concrete Gravity Wall	10 ft. max. heightSettlement sensitiveMay require deep foundation
	→	CIP Concrete Cantilever/ Counterfort Wall	 Settlement sensitive 30 ft. max. height (cantilever) 60 ft. max. height (counterfort) May require deep foundation
2. Prefabricated Modular Gravity Walls	→	Modular Crib/Bin Wall -Doublewal® -Stawal® -Timber (VAOT) -Contech®	General •35 ft. max. height (except as noted) •Some systems not settlement tolerant
		-T-Wall [®] -Redi-Rock [™] * -Recon [™]	•*8 ft. max. height (without geogrid reinforcement)
		-Gabion**	 **25 ft. max. height **Labor intensive **Abrasion susceptible **Need good stone source **Wire baskets subject to corrosion **Settlement tolerant
		-Contech Precast Anchored Wingwall System***	•***Approved only for use with Contech Con/Span® Bridge Systems
3. Mechanically Stabilized Earth (MSE) Walls	→	Segmental, Precast Facing MSE wall -Reinforced Earth [®] -Retained Earth [™] -Tricon [™] (under eval.)	 65 ft. max. height Backfill must meet electrochemical requirements May Interfere w/underground utilities Scour susceptible Minimum base width = 0.7H Settlement tolerant
	→	Geotextile/Geogrid/Welded Wire Facing MSE Wall -Tailed Gabions -Redi-Rock with geogrids	See GabionsAlso suited for temporary conditions

VAOT EARTH RETAINING SYSTEM SELECTION CHART

GENERAL CLASSIFICATION	APPROVED SYSTEMS	COMMENTS
B. CUT WALLS (3)		
1. Non-Gravity Cantilevered Walls	→ Sheet Pile Wall→ Soldier Pile and Lagging Wall	 •15 ft max. height •Hard to drive in, dense gravel/boulders •Vibration during driving •Large lateral movements possible
2. Anchored Walls	 → Ground anchor (tieback) Sheet Pile Wall Soldier Pile and Lagging Wall → Deadman anchor Sheet Pile Wall Soldier Pile and Lagging Wall 	 •65 ft. max. height •Requires specialized equipment •Underground easement required for anchors •Difficult to develop anchor capacity in loose silts and soft clays •Requires corrosion protection
3. In-situ Reinforced Walls	→ Soil-Nailed Wall	 Soil must be self supporting for height of 5 ft. Nails require underground easements Not appropriate in loose silts and soft clays Permanent dewatering required Suited in areas with limited head space. Wall embedment not required
Notes:		
1. Fill Wall construction refers to wall systems that are constructed from the base of the wall to the top (bottom-up construction).		
2. Designers should consider Reinforced Soil Slopes (RSS) in applications where steepened slopes (1 on 1) may be an appropriate alternative to a wall.		
3. Cut Wall construction refers to wall systems that are constructed from the top of the wall to the base (top-down construction).		Revised: August 1, 2012