

APPENDIX A

AASHTO Soil Classification system

Table 4.3 Soil classification System of AASTHO [9]

General Classification	Grained Soil (The soil samples sieve 200 < 300)						Silt-Clay Soil (The soil samples sieve 200 > 300)					
	A-1		A-2		A-3		A-4		A-5		A-6	
Classification Group	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-7-5*	A-7-6**
Sieve Analysis (get away %)	Max 50											
No. 10	Max 30	Max 50										
No. 40	Max 15	Max 25	Max 35	Max 35	Max 35	Max 35	Min 36	Min 36	Min 36	Min 36	Min 36	
The nature of the sieve fraction 40	Max 6		NP				Max 40	Max 41	Max 40	Max 41	Max 40	Max 41
Liquid Limit (LL)							Max 10	Max 10	Max 11	Max 10	Max 11	Max 11
Plastis Index (PI)	Fractional stone, gravel and sand	Delicate sand	Gravel and sand that have silt or have clay				Silt soil	Silt soil	Clay soil			
The most dominant mineral types	Excellent until either											
Rate as a subgrade	Ordinary to bad											

- For A - 7 - 5, $PI \leq LL - 30$
- For A - 7 - 5, $PI > LL - 30$

APPENDIX B

USCS Soil Classification System

Main Divisions		Symbol of Group	The Common Name
Coarse grained soil is more than 50% granules retained on the 200 sieve	Sand more than 50% fraction passes sieve 4	Clean gravel (only gravel)	GW Gravel good gradation and gravel-sand mixture, little or is not at all delicate grains
		Gravel with delicate gradation	GP Gravel bad gradation and gravel-sand mixture, little or is not at all delicate grains
			GM Gravel silt, gravel-silt mixture
		GC Gravel clay, gravel-sand-silt mixture	
	50% Of the coarse fraction passes sieve 4	Clean sand (only gravel)	SW Sand good gradation and sand gravel, little or is not at all delicate gradation
		Gravel with delicate gradation	SP Sand bad gradation and sand gravel, little or is not at all delicate gradation
			SM Sand silt, sand-sand-silt mixture
		SC Sand clay, sand-sand-silt mixture	
	50% delicate-grained soil sieve or more sieve passes 200	Liquid limit silt and clay 50% or less	ML Organic silt, sand most delicate, rock powders, delicate sand which has silt or clay
			CL Organic clay with a low to moderate plasticity, gravelly clay. Sandy clay, silt clay, lean clays
OL Silt-organic, organic silt clay with a low plasticity			
Plastic Limit silt and clay more than 50%		MH Silt-organic or delicate sand or silt elastic	
		CH Organic clay with a high plasticity, fat clays	

		OH	Organic clay with a moderate to high plasticity
Soils with a high organic content		PT	gambut, muck, and other soils wirh a high organic content