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## APPENDIX A: SOIL ASSOCIATION DESCRIPTIONS

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The following soil association descriptions are excerpted from the Soil Conservation Service "Soil Survey of the Imperial County California Imperial Valley Area" (Zimmerman 1981).

All of the major soils associations within the Imperial Valley are within the "wet" series of poorly drained soils due to their low (less than 0.5 inches per hour) permeabilities. For soil classification purposes, a soil separate, silt is defined as individual mineral particles that range in diameter from the upper limit of clay (0.002 mm) to the lower limit of very fine sand (0.05 mm). As a soil textural class, silt is defined as soil that is 80 percent or more silt and less than 12 percent clay. The following three general soil associations dominate Imperial Valley: Imperial, Imperial-Holtville-Glenbar, and Meloland-Vint-Indio [Soil Conservation Service 1981]. The Soil Conservation Service (now known as the Natural Resources Conservation Service) soil descriptions are as follows (Soil Conservation Service 1981):

Imperial Soil Association: The Imperial soil association is comprised of nearly level, moderately well drained silty clay. This unit consists of very deep, calcareous soils formed in alluvial deposits. The largest area of the unit is around the town of Calipatria. Smaller areas are scattered throughout the lake basin. Natural drainage of soils has been altered by the seepage of water from irrigation canals and by extensive irrigation. Slopes are less than 2%. Elevation levels range from about 230 feet below to 30 feet above MSL. The unit is about 85 percent Imperial Soils and 15 percent minor soils. Imperial soils have a pinkish gray silty clay surface layer. Underlying this layer is pinkish gray to light brown silty clay. Minor soils are the well drained Glenbar, Holtville, Meloland, and Indio soils.

Imperial-Holtville-Glenbar Soil Association: The Imperial-Holtville-Glenbar soil association is nearly level, moderately well drained and well drained silty clay, silty clay loam, and clay loam. This map unit consists of very deep calcareous soils formed in alluvial deposits throughout the lake basin. Natural drainage of soils has been altered by the seepage of water from irrigation canals and by extensive irrigation. Slopes are less than 2%. Elevation is about 230 feet below to 30 feet above MSL. The unit is about 40 percent Imperial soils, 20 percent Holtville soils, 20 percent Glenbar soils, and 20 percent minor soils:

- Imperial soils are moderately well drained. They have a pinkish gray silty clay surface layer. Underlying this layer is pinkish gray and light brown silty clay.
- Holtville soils are well drained. They have light brown silty clay loam or silty clay layers about two feet thick. Underlying these are stratified very pale brown silt loam and loamy very fine sand.
- Glenbar soils are well drained. They have a pinkish gray clay loam or silty clay loam surface layer. Underlying this is stratified light brown clay loam and silty clay loam.
- Minor soils are the well drained Meloland, Indio, and Vint soils, and the somewhat excessively drained Rositas soils.

Meloland-Vint-Indio Soil Association: The Meloland-Vint-Indio soil association is nearly level, well drained fine sand, loamy very fine sand, fine sandy loam, very fine sandy loam, loam and silt loam. This map unit consists of very deep, calcareous soils formed in alluvial deposits and in eolian material. Natural drainage of soils has been altered by the seepage of water from irrigation canals and by extensive irrigation. Slopes are less than 2%. Elevation is about 230

feet below to 30 feet above MSL. The map unit is about 30 percent Meloland soils, 25 percent Vint soils, 20 percent Indio soils, and 25 percent minor soils:

- Meloland soils have a light brown, very fine sandy loam or fine sand surface layer. Underlying this is stratified very pale brown loamy fine sand and silt loam to a depth of about 2 feet. Below this is pink silty clay.
- Vint soils have a light brown loamy very fine sand, fine sandy loam, or very fine sandy loam surface layer. Underlying this is stratified pink and light brown loamy fine sand.
- Indio soils have a pinkish gray loam or very fine sandy loam surface layer. This is underlain by stratified very pale brown and pink layers of silt loam and loamy very fine sand.
- Minor soils are the somewhat excessively well drained Holtville, Antho, and Glenbar.