APPENDIX F

SOIL SUMMARIES

APPENDIX F

LOCAL SOIL PROFILE DESCRIPTIONS

Pond Loam (PO), Pond-Oban complex (PX)

The Pond series is a member of a fine-loamy, mixed, thermic family of Mollic Haplargids (the classification is tentative). These soils have light gray to light brownish gray, slightly hard, clay loam A1 horizons, very pale brown sandy clay loam Bt horizons and very pale brown sandy loam C horizons. These soils are somewhat poorly to moderately well drained, runoff is slow to very slow, and permeability is slow to moderately slow. These soils are calcareous throughout and developed on granitic alluvium. (NRCS, 2001)

Pond soils occur on nearly level to undulating alluvial fans formed from alluvium from granitic rock. They occur at elevations of 40 to 2,600 feet, in an arid and semiarid mesothermal climate with mean annual rainfall of 1 to 8 inches, with hot dry summers and cool moist winters. Mean annual temperature is about 58 to 63 degrees F., average January temperature about 45 degrees F., and average July temperature about 80 degrees F. Frost-free season averages about 230 - 260 days.

The soils have ochric epipedons with values of 4 or less, moist; an argillic horizon which has >15 percent ESP. The solum ranges from 16 to 56 inches inches in thickness. The soils are usually dry and the mean annual soil temperature is 59 to 72 degrees F. Soil mineralogy is mixed. The A horizons range in texture from fine sandy loam to loam and clay loam; in color from light gray and light brownish gray in hues of 10YR and 2.5Y with values of 5 to 7, chromas of 1 to 3; reaction from moderately to strongly alkaline and calcareous. There are areas in which the upper A, for a thickness up to 4 inches, may be light gray, massive, and noncalcareous. The B2t horizon ranges in color from light gray, light brownish gray, very pale brown, grayish brown, in 10YR and 2.5Y hues with values of 4 to 7, chromas of 2 to 4; in texture from clay loam, sandy clay loam, to silty clay loam; in reaction from strongly to very strongly alkaline and moderately to strongly calcareous; in structure from massive to angular blocky. The C horizons range in texture from sandy loam to loam and they may have thin weakly lime or silica cemented pans or plates which are not continuous. They are moderately to strongly alkaline and calcareous to noncalcareous. (NRCS, 2001)

Native vegetation on these soils typically consists of Atriplex polycarpa, pickle brush, vinegar weed, patches of annual grasses and tar weed. Many spots are bare of vegetation (typically localized to areas

with extremely high salinity). Soils are often used for range, cotton, alfalfa, barley and milo. (NRCS, 2001)

POND SERIES

TAXONOMIC CLASS: Fine-loamy, mixed, thermic Natric Haploxeralfs

TYPICAL PEDON: Pond clay loam - annual grass pasture. (Colors for dry conditions unless otherwise noted)

A11 0 to 1/2 inch; light gray (10YR 7/2) clay loam, brown (10YR 5/3) when moist; moderate thin platy structure; slightly hard, friable, slightly sticky; abundant very fine roots; very few very fine vesicular pores; strongly alkaline (pH 8.5) slightly effervescent; abrupt smooth lower boundary. (2 to 4 inches thick)

A12 1/2 to 11 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) when moist; strong coarse angular blocky structure; slightly hard, friable, nonplastic and slightly sticky; abundant very fine roots; very few very fine interstitial pores; strongly alkaline (pH 8.5), strongly effervescent; abrupt wavy lower boundary. (4 to 12 inches thick.)

A3 11 to 15 inches; brown (10YR 5/3) silty clay loam, dark brown (10YR 3/3) when moist; moderate very fine platy structure; slightly hard, friable, plastic and slightly sticky; some organic stains; strongly alkaline (pH 8.5), strongly effervescent; abrupt smooth lower boundary. (4 to 11 inches thick.)

B2t 15 to 44 inches; very pale brown (10YR 7/3) sandy clay loam, brown (10YR 4/3) when moist; massive; extremely hard, extremely firm, plastic and slightly sticky; very few very fine roots; common very fine tubular pores; few moderately thick clay films in pores and bridging sand grains; strongly alkaline (pH 8.5), strongly effervescent; abrupt wavy lower boundary. (8 to 30 inches thick.)

C 44 to 58 inches +; very pale brown (10YR 7/3) sandy loam, brown (10YR 4/3) when moist; massive; weakly cemented noncontinuous (NRCS, 2001).

OBAN SOILS

The Oban series is a member of the fine, montmorillonitic, thermic family of Typic Natrargids. Typically, Oban soils have light yellowish brown, moderately alkaline, fine sandy loam A1 horizons, pale brown and yellowish brown, very strongly alkaline, heavy clay loam B2t horizons grading to light olive brown and very pale brown, strongly alkaline C horizons. These soils are moderately well-drained, have very slow runoff, and slow permeability. (NRCS, 2001)

The Oban soils are nearly level and are in valley troughs and basins at elevations of 2,300 to 2,500 feet. They formed in alluvium derived mostly from granitic rock sources. The climate is arid with long hot dry summers and cool somewhat moist winters. Mean annual precipitation is about 5 inches. Average January temperature is 43 degrees F., average July temperature is 82 degrees F., and mean annual temperature is 62 degrees F. The freeze-free season is 240 to 260 days. (NRCS, 2001)

These soils typically ranges from 24 to 40 inches in thickness. The mean annual soil temperature is about 64 degrees F. The soil between depths of about 4 and 12 inches is usually dry and in most years is not continuously moist for as long as 60 consecutive days in winter or spring. Rock fragments of fine gravel size make up less than 5 percent of the A horizons and B horizons and less than 25 percent of the C horizons. The A horizon is pale brown, light yellowish brown or very pale brown in 10YR hue. It is sandy loam, fine sandy loam or loam. This horizon is massive in some or all parts or it has platy structure in some or all parts and is soft or slightly hard. Vesicular pores occur just below the upper plates in pedons with platy structure near the surface. This horizon is noneffervescent or is effervescent in some or all parts depending upon kind of local dust. Some pedons have a thin or discontinuous thin A2 horizon. The B2t horizon is pale brown, brown or yellowish brown in 10YR hue or light olive brown in 2.5Y hue. It is heavy clay loam, heavy silty clay loam or light clay with about 35 to 45 percent clay absolute. The upper part of this horizon has moderate or strong columnar or prismatic structure and an abrupt upper boundary. The lower part of this horizon has moderate or strong columnar or prismatic structure and an abrupt upper boundary. (NRCS, 2001)

The lower part of this horizon has moderate or strong prismatic or angular blocky structure and a gradual lower boundary or a transitional horizon or both. It is strongly or very strongly alkaline and has 15 to 40 percent exchangeable sodium. Some or all parts are effervescent and lime segregations are only in the lower part. The C horizon is somewhat stratified and is sandy loam to clay loam. Some pedons have lenses with weak cementation in the C horizon within 40 inches of the surface. Dominant cementing agent is calcium carbonate. (NRCS, 2001)

These soils are mostly used for grazing; due to their low forage yield. Native vegetation consists of fourwing saltbush, iodine bush, alkali blight, saltgrass, and alkali sacaton.

Principle soils types typically found in close proximity to these soils are Pond and Tray soils and the Hesperia, Rosamond, and Sunrise soils. Hesperia and Rosamond soils lack a natric horizon. Sunrise soils lack a natric horizon and have a calcic horizon. (NRCS, 2001)

OBAN SERIES

TAXONOMIC CLASS: Fine, smectitic, thermic Typic Natrargids

TYPICAL PEDON: Oban fine sandy loam - desert range. (Colors are for dry soil unless otherwise noted.)

A1 0 to 4 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky, nonplastic; common very fine roots; common very fine interstitial and few very fine tubular pores; moderately alkaline (pH 8.3); abrupt smooth boundary. (4 to 12 inches thick)

B21t 4 to 14 inches; pale brown (10YR 6/3) heavy clay loam, brown (10YR 5/3) moist; strong medium and coarse columnar structure; 1/4 to 3/8 inch very pale brown (10YR 7/3) massive caps of sandy loam on top of columns; very hard, friable, sticky, plastic; common very fine and few medium roots; common very fine interstitial and tubular pores; common moderately thick clay films lining pores and as bridges; violently effervescent disseminated lime; very strongly alkaline (pH 9.2); clear smooth boundary. (8 to 11 inches thick)

B22tca 14 to 25 inches; yellowish brown (10YR 5/4) heavy clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; very hard, very firm, sticky, plastic; common very fine roots; common very fine interstitial, few very fine tubular pores; common thick clay films on faces of peds; many moderately thick clay films lining pores and as bridges; strongly effervescent, disseminated lime, violently effervescent lime in soft bodies; very strongly alkaline (pH 9.2); gradual wavy boundary. (10 to 13 inches thick)

B3tca 25 to 31 inches; light olive brown (2.5Y 5/4) heavy loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, slightly sticky, slightly plastic; common very fine roots; common very fine interstitial, few very fine tubular pores; many moderately thick clay films lining pores and as bridges;

strongly effervescent, disseminated lime, line occurs also as soft bodies and in threads; very strongly alkaline (pH 9.4); gradual smooth boundary. (2 to 8 inches thick)

C1ca 31 to 39 inches; light olive brown (2.5Y 5/4) gravelly coarse sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, nonsticky, nonplastic; common very fine roots; common very fine interstitial pores; about 15 to 20 percent by volume fine gravel; strongly effervescent, disseminated lime, violently effervescent lime in soft bodies and threads; strongly alkaline (pH 8.6); gradual smooth boundary. (8 to 10 inches thick)

C2ca 39 to 53 inches; very pale brown (10YR 7/4) gravelly coarse sand, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable, nonsticky, nonplastic; common very fine roots; common very fine interstitial pores; about 25 percent by volume fine gravel; violently effervescent disseminated lime and in soft masses; strongly alkaline (pH 8.8). (NRCS, 2001)

Tray sandy loam (TV), Tray sandy loam saline-alkali (TV), Tray loam saline-alkali (TW)

The Tray series is a member of the coarse-loamy, mixed, thermic family of Typic Haplargids Typically, Tray soils have light yellowish brown, very strongly alkaline, sandy loam A horizons, yellowish brown, very strongly alkaline, heavy sandy loam B2t horizons grading to light yellowish brown, very strongly and strongly alkaline, sandy loam C horizon. These soils are moderately well-drained, have very slow runoff; and moderate permeability. (NRCS, 2001)

The Tray soils are nearly level and are along the rim or in basins at elevations of 2,300 to 2,400 feet. They formed in alluvium dominantly from granitic sources. The climate is arid with long hot summers and cool somewhat moist winters. Mean annual precipitation is 4 to 9 inches. Average January temperature is 44 degrees., average July temperature is 82 degrees., and mean annual temperature is 63 degrees. The freeze-free season is 240 to 260 days. (NRCS, 2001)

These soils range from 28 to 46 inches in thickness. The mean annual soil temperature is about 65 degrees. The soil between depths of about 8 and 25 inches is dry most of the year and is not moist for as long as 60 consecutive days in winter and spring. Rock fragments are in the form of fine gravel and they are less than 10 percent of all horizons. The soils are calcareous in all parts. Distinct lime segregations do not occur within 40 inches of the surface. The A horizon is grayish brown to light yellowish brown (10YR 5/2, 6/2, 6/3, 6/4; 2.5Y 6/2, 6/4). It is dominantly sandy loam, but in some pedons or parts of some pedons the upper few inches are loamy sand or sand, especially under shrubs. This horizon is soft or slightly hard and is massive or has weak platy structure in the upper part. The B2t horizon is grayish

brown to light gray (10YR 5/2, 5/3, 5/4, 6/4; 2.5Y 6/2, 7/2). It is sandy loam or heavy sandy loam with about 14 to 18 percent clay and has 3 to 6 percent more clay absolute than the A horizon. The B2 horizon is strongly or very strongly alkaline and has 15 to 30 percent exchangeable sodium in all parts. This horizon is massive or has weak coarse angular or subangular blocky structure. The C horizon is grayish brown to light olive brown (10YR 5/2, 6/2, 6/3, 6/4; 2.5Y 6/2, 6/4, 5/4). It is sandy loam or loamy sand and is uniform in texture or has some stratification. (NRCS, 2001)

Other soils found in close proximity to the Tray soils are the Oban, Pond, Rosamond, and Sunrise soils. Oban soils have fine textured natric horizons. Pond soils have 18 to 35 percent clay in the argillic horizon. Rosamond soils lack argillic horizons. Sunrise soils lack argillic horizons and have distinct calcic horizons within a depth of 40 inches. (NRCS, 2001)

These soil are used mostly for desert range. A few areas used for growing alfalfa and irrigated pasture. Native vegetation typically consists of fourwing saltbush and a few related shrubs and grasses.

TRAY SERIES

TAXONOMIC CLASS: Coarse-loamy, mixed, thermic Typic Haplargids

TYPICAL PEDON: Tray sandy loam - native shrubs (Colors are for dry soil unless otherwise noted.)

Al 0 to 8 inches; Light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky, nonplastic; common very fine, few fine roots; common very fine interstitial, few very fine tubular pores; slightly effervescent, disseminated lime; very strongly alkaline (pH 9.2); clear smooth boundary. (6 to 16 inches thick)

B2t 8 to 20 inches; Yellowish brown (10YR 5/4) heavy sandy loam near loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, slightly sticky, nonplastic; common very fine roots; many very fine, common fine tubular pores; common moderately thick and many thin clay films line pores and as bridges; strongly effervescent, disseminated lime; very strongly alkaline (pH 9.5); gradual smooth boundary. (12 to 16 inches thick)

B3 20 to 32 inches; Light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, nonsticky, nonplastic; few very fine roots; many very fine interstitial, common very fine and fine tubular pores; few thin clay films line pores and as

bridges; strongly effervescent, disseminated lime; very strongly alkaline (pH 9.5); diffuse smooth boundary. (10 to 14 inches thick)

C1 32 to 55 inches; Light yellowish brown (10YR 6/4) coarse sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, nonsticky, nonplastic; few very fine roots; many very fine interstitial and few very fine and fine tubular pores; strongly effervescent, disseminated lime; very strongly alkaline (pH 9.5); diffuse smooth boundary. (20 to 24 inches thick)

C2ca 55 to 70 inches; Light yellowish brown (10YR 6/4) coarse sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, nonsticky, nonplastic; few very fine roots; many very fine interstitial and tubular pores; about 2 to 3 percent of horizon is made up of very thin lime-cemented plates; violently effervescent, disseminated lime and some lime as threads; strongly alkaline (pH 8.6). (NRCS, 2001)

Rosamond loamy fine sand (RM), Rosamond fine sandy loam (RO), Rosamond loam (RP), Rosamond loam, saline-alkali (rR), Rosamond loam, sandy loam SUBSTRATUM (rS)

The Rosamond series consists of deep, well drained soils that formed in material weathered mainly from granitic alluvium. Rosamond soils are on the lower margin of the alluvial fans between the sloping fans and the playas and have slopes of 0 to 2 percent. The mean annual precipitation is about 5 inches and the mean annual air temperature is about 63 degrees F. These soils are well drained, have medium runoff; and moderate to moderately slow permeability. (NRCS, 2001)

Rosamond soils are typically located in the lower margins of fans, between the sloping fans and the basins and playas at elevations from 2,200 to 2,900 feet. Slopes are typically gradual at 0 to 2 percent. The soils formed in alluvium derived mostly from granite and similar rocks. The climate is arid. Precipitation is from 3 to 6 inches. Winters have gentle regional rains and a little snow and summers have very infrequent local thundershowers. The mean annual temperature is between 61 and 65 degrees F.; the average January temperature is about 44 to 45 degrees F.; and the average July temperature is about 80 to 82 degrees F. The frost free season is 200 to 260 days. (NRCS, 2001)

The mean soil temperature ranges from about 63 to 67 degrees F. The soils are usually dry more than 3/4 of the time and are not moist for as long as 60 consecutive days. The soil is very low in organic matter. The organic matter decreases irregularly with increasing depth. Some pedons have weak A1 horizons, other Ap horizons or lack either of these. The color is about the same throughout the soil. Hue is 10YR or 7.5YR, value is 5 or 6 dry, 4 or 5 moist and chroma ranges from 2 through 4. A few strata have colors of

higher chroma. The surface layer is sandy loam to silty clay loam. The 10 to 40 inch control section averages loam, clay loam or silty clay loam and contains 18 to 30 percent clay and more than 15 percent sand. The soil is stratified but lacks contrasting textures within the control section. (NRCS, 2001)

Some pedons have contrasting textures below the control section. Structure is weak or the horizons are massive. Usually the soil is calcareous and moderately alkaline throughout except that the upper few inches of some undisturbed pedons are mildly alkaline and noncalcareous. All parts below depths of 10 to 20 inches are calcareous. A few small soft to hard concretions or filaments of lime are common, but they are not definitive for the series. Some pedons contain some salt and alkali but the soil is not typically strongly saline alkali. (NRCS, 2001)

Large areas are used for desert range. Other extensive areas are irrigated and cropped to alfalfa and row crops. Native vegetation is rabbit brush, big sagebrush, a small amount of Atriplex and a little annual and perennial grass and weeds. (NRCS, 2001)

ROSAMOND SERIES

TAXONOMIC CLASS: Fine-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents

TYPICAL PEDON: Rosamond fine sandy loam, desert range. (Colors are for dry soil unless otherwise noted.)

C1 0 to 4 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium and thick platy structure; slightly hard, very friable, nonsticky and nonplastic; common fine roots; many very fine and few fine pores; mildly alkaline (pH 7.8); abrupt smooth boundary. (4 to 6 inches thick)

C2 4 to 8 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; many very fine and few fine pores; slightly effervescent, disseminated lime; moderately alkaline (pH 7.9); clear smooth boundary. (4 to 6 inches thick)

2C3 8 to 28 inches; pale brown (10YR 6/3) light silty clay loam, dark brown (10YR 4/3) moist; weak medium angular blocky structure; hard, friable, sticky and plastic; few fine, medium and coarse roots; many very fine and few fine pores; strongly effervescent;, disseminated lime, few soft

spherical concretions of lime; moderately alkaline (pH 8.2); clear wavy boundary. (18 to 24 inches thick)

3C4 28 to 34 inches; pale brown (10YR 6/3) light sandy clay loam, dark brown (10YR 4/3) moist; massive; hard, friable, sticky and plastic; few fine and medium roots; many very fine and few fine pores; slightly effervescent; disseminated lime and few fine filaments of lime; moderately alkaline (pH 8.2); clear wavy boundary. (4 to 10 inches thick)

4C5 34 to 60 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 4/3) moist; weak medium angular blocky structure; very hard, firm, sticky and plastic; few fine roots; many very fine, few fine and few medium pores; violently effervescent with disseminated lime and common irregular soft bodies of lime; moderately alkaline (pH 8.2). (NRCS, 2001)

Cajon loamy sand (CAA)

The Cajon series consists of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rocks. Cajon soils are on alluvial fans, fan aprons, fan skirts, inset fans and river terraces. Slopes are 0 to 15 percent. The average annual precipitation is about 6 inches and the mean annual temperature is about 65 degrees F. These soils are somewhat excessively drained, have negligible to low runoff, and rapid permeability. Cajon soils with sandy loam surface textures have moderately rapid over rapid permeability. Flooding is rare. (NRCS, 2001)

The Cajon soils have gradients of 0 to 15 percent and are on recent fans, fan skirts, fan aprons, inset fans and river terraces at elevations of 200 to 4,300 feet. The lower elevations commonly occur in the San Joaquin Valley. They formed in sandy alluvium, mostly granitic rock sources, but also a variety of sources are included. The climate is arid with hot dry summers and somewhat moist winters. Average annual precipitation is 2 to 9 inches, mostly in the form of winter rain. Mean January temperature is 43 degrees to 48 degrees F., mean July temperature is 82 degrees to 84 degrees F., mean annual temperature is 57 degrees to 70 degrees F. Frost-free season is 150 to 340 days. (NRCS, 2001)

The mean annual soil temperature is about 59 degrees to 72 degrees F. and soil temperature usually is not below 47 degrees F. at any time. The soil is dry from mid March to mid December and is not continuously moist for as long as 90 days in the winter. Rock fragments are mostly pebbles and they make up as much as 35 percent though many pedons have less than 15 percent gravel. There is weak stratification of sandy material in some or all parts. Typically the soil is slightly effervescent to strongly effervescent throughout although some pedons are noneffervescent in the A horizon. Typically the profile

is slightly alkaline or moderately alkaline although some pedons are neutral. Some pedons are strongly alkaline and mildly saline-alkali to strongly saline-alkali. Electrical conductivity ranges up to 16 mmhos/cm and the SAR to 20. (NRCS, 2001)

The A horizon has hue of 10YR or 2.5Y, value of 5 through 7 dry and 3 through 6 moist and chroma of 2 through 6 dry and moist. Some pedons have sandy loam overblown phases.

The C horizon has hue of 10YR or 2.5Y, value of 5 through 7 dry and 3 through 6 moist and chroma of 2 through 6 dry and moist. It is coarse sand, loamy coarse sand, sand, loamy sand, fine sand, or loamy fine sand or their gravelly or cobbly equivilents. Some pedons have a sandy loam horizon at a depth of more than 40 inches. (NRCS, 2001)

Soils in close proximity to Cajon soils are the Adelanto, Hesperia, and Rosamond soils. Adelanto soils have an argillic horizon. Hesperia soils have a coarse-loamy control section. Rosamond soils have a fine-loamy control section. (NRCS, 2001)

These soils are used mostly for range, watershed, and recreation. A few areas are irrigated and are used for growing alfalfa and other crops. Native vegetation is mostly desert shrubs including creosotebush, saltbush, Mormon-tea, Joshua trees, some Indian ricegrass, annual grasses and forbs. (NRCS, 2001)

CAJON SERIES

TAXONOMIC CLASS: Mixed, thermic Typic Torripsamments

TYPICAL PEDON: Cajon sand, on a 1 1/2 percent slope under creosotebush, spiny hopsage, and Mormon-tea at 3,060 feet elevation. (Colors are for dry soil unless otherwise stated. When described on 4/29/75 the soil was moist to 18 inches and dry below).

A 0 to 2 inches; light gray (10YR 7/2) sand, light brownish gray (10YR 6/2) moist; weak fine and medium subangular blocky structure; soft, very friable; few fine roots; many very fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary. (0 to 14 inches thick).

C1 2 to 7 inches; very pale brown (10YR 7/3) sand, light gray (10YR 7/2) moist; single grained; loose; common fine roots; many very fine interstitial pores; 1 to 2 percent 3/8 to 1/2 inch pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (3 to 6 inches thick).

C2 7 to 13 inches; very pale brown (10YR 7/3) sand, brown (10YR 5/3) moist; single grained; loose; common fine roots; common very fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (3 to 7 inches thick).

C3 13 to 18 inches; very pale brown (10YR 7/3) sand, brown (10YR 5/3) moist; single grained; loose; common fine roots; many very fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (3 to 7 inches thick).

C4 18 to 25 inches; very pale brown (10YR 7/3) sand, pale brown (10YR 6/3) moist; single grained; loose; common fine roots; many very fine interstitial pores; about 4 percent 1/2 inch pebbles; strongly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary. (3 to 8 inches thick).

2C5 25 to 38 inches; very pale brown (10YR 7/4) gravelly sand, light yellowish brown (10YR 6/4) moist; single grained; loose; common fine roots; many fine interstitial pores; 25 percent 1/2 to 1 inch pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (10 to 15 inches thick).

2C6 38 to 45 inches; very pale brown (10YR 7/3) gravelly sand, pale brown (10YR 6/3) moist; single grained; loose; few very fine roots; many fine interstitial pores; 20 percent 1/2 to 1 inch pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (3 to 8 inches thick).

2C7 45 to 60 inches; very pale brown (10YR 7/4) sand, light yellowish brown (10YR 6/4) moist; single grained; loose; few very fine roots; common fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.0). (NRCS, 2001)

Hesperia fine sandy loam (HKA), Hesperia fine sandy loam, loamy substratum (HMA)

The Hesperia series consists of very deep, well drained soils that formed in alluvium derived primarily from granite and related rocks. Hesperia soils are on alluvial fans, valley plains and stream terraces and have slopes of 0 to 9 percent. The mean annual precipitation is about 8 inches and the mean annual air temperature is about 64 degrees F. These soils are well drained, have negligible to low runoff, and moderately rapid permeability. (NRCS, 2001)

Hesperia soils are on long smooth alluvial fans, and valley fill. The alluvium is from granite and closely related rocks. Elevations are as low as 200 feet in the San Joaquin Valley and as high as 4,800 feet in the high desert. The climate is semiarid bordering on arid. Winters have some general widespread rains plus

occasional snow in the high desert. Summers have infrequent thunder showers in the high desert. Mean annual precipitation is 4 to 9 inches. Average January temperature is about 46 degrees F; average July temperature is about 83 degrees F; mean annual temperature is 57 degrees to 69 degrees F. Frost-free season is about 140 to 310 days. The soil is dry in all parts, unless irrigated, from early May until early November. Organic matter content is very low and decreases regularly with increasing depth. The soils are typically calcareous between depths of 16 and 40 inches. (NRCS, 2001)

The A horizon has a dry color of 10YR 5/2, 5/3, 5/4, 6/2, 6/3, 6/4, 7/2, 7/3, 8/3 and 7.5YR 5/2, 5/4, 6/2 and 6/4. Moist color is 10YR 3/2, 3/3, 4/2, 4/3, 4/4, 4/6, 5/3, 6/3; 7.5YR 3/2, 4/4, 5/4. It is loamy fine sand, loamy sand, sandy loam, fine sandy loam, very fine sandy loam or light loam, and has 0 to 5 percent rock fragments ranging from 2 mm to 2 cm. This horizon is slightly acid to moderately alkaline. (NRCS, 2001)

The C horizon is similar in color to the A horizon. It is fine sandy loam, sandy loam or coarse sandy loam. Contrasting textures are excluded from the 10 to 40 inches control section although some fine or weak stratification is common. Rock fragments 2 mm to 2 cm in diameter range from 0 to 15 percent. The soil is slightly acid to moderately alkaline. Lime is usually disseminated but a few pedons have lime veins in the lower part of the profile. Some pedons have loamy sand substratums. (NRCS, 2001)

These soils are used for desert range, and for production of irrigated orchards, row crops, field crops, grain, hay, pasture and grapes. Native vegetation consists of creosotebush in the high desert and sparse annuals in the valley. (NRCS, 2001)

HESPERIA SERIES

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, nonacid, thermic Xeric Torriorthents

TYPICAL PEDON: Hesperia fine sandy loam--disturbed site. (Colors are for dry soil unless otherwise stated).

Ap 0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine interstitial and few very fine tubular pores; slightly acid (pH 6.3); abrupt smooth boundary. (4 to 10 inches thick).

C1 4 to 22 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine interstitial and few very fine tubular pores; slightly alkaline (pH 7.5); gradual smooth boundary. (16 to 20 inches thick).

C2 22 to 54 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine interstitial, and few very fine tubular pores; slightly effervescent with disseminated lime moderately alkaline (pH 8.0); gradual smooth boundary. (30 to 34 inches thick).

C3 54 to 77 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine, few fine roots; common very fine interstitial, few very fine tubular pores; strongly effervescent with disseminated lime; moderately alkaline (pH 8.0). (NRCS, 2001)

NRCS, 2001. Nature Resource Conservation Service, Official Soil Series Descriptions, Web Site Accessed July 20, 2001