TABLE 5.—*Estimated properties significant to engineering*

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soil. The soils in such mapping units may have different properties and limitations, and for this reason it is necessary to follow carefully the instructions for referring to other series that appear in the first column of this table. Absence of entry in a column indicates that properties are not estimated. The symbol > means greater than; the symbol < means less than]

Soil series and map symbol	Hydrologic group	Depth to bedrock	Depth from surface	USDA texture	Classification: Unified	Classification: AASHTO	Coarse fraction greater than 3 inches	Percentage passing sieve—: No. 4	Percentage passing sieve—: No. 10	Percentage passing sieve—Continued: No. 40	Percentage passing sieve—Continued: No. 200	Liquid limit	Plasticity index	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Corrosivity to—: Uncoated steel	Corrosivity to—: Concrete
		Inches	*Inches*				*Percent*							*Inches per hour*	*Inches per inch of soil*	*pH*	*Millimhos per centimeter at 25° centigrade*			
Brundage: BRA	D	>72	0–3	Fine sandy loam or loam.	SC, SM or SM–SC	A–2–4 or A–4	0	100	95–100	65–85	30–45	<29	[1] NP–10	0.60–2.0	0.10–0.15	5.6–7.3	0–2	Low	High	Moderate.
			3–9	Sandy clay loam or clay loam.	SC or CL	A–6	0	100	100	80–95	36–55	25–35	11–20	<0.06	0.05–0.14	6.1–7.8	4–16	Low	High	Moderate.
			9–38	Sandy clay loam or clay loam.	CL or SC	A–6 or A–7–6	0	100	100	95–100	40–60	30–50	15–25	0.06–0.20	0.05–0.14	7.4–8.4	4–16	Low	High	Moderate.
			38–78	Sandy clay loam	CL or SC	A–6	0	98–100	95–100	85–95	40–55	25–40	11–20	0.06–0.20	0.05–0.12	7.9–8.4	8–16	Low	High	Moderate.
Brystal: BYB	B	60–90	0–7	Fine sandy loam or loamy fine sand.	SM, SC or SM–SC	A–2–4 or A–4	0	98–100	98–100	60–80	25–49	<25	NP–10	0.60–2.0	0.10–0.15	6.6–7.8	0–2	Low	Moderate.	Low.
			7–33	Sandy clay loam or sandy loam.	SC or CL	A–6 or A–4	0	98–100	98–100	70–90	36–55	27–39	NP–15	0.60–2.0	0.10–0.15	6.6–7.8	0–2	Low	Moderate.	Low.
			33–80	Sandy clay loam or sandy loam.	SC or SM–SC	A–2–4, A–2–6, A–4, A–6	0	98–100	98–100	60–80	25–49	23–37	7–15	0.60–2.0	0.10–0.15	7.9–8.4	0–2	Low	High	Low.
Catarina: CAB	D	>72	0–52	Clay	CH	A–7–6	0	98–100	95–100	85–100	80–95	51–70	34–50	<0.06	0.10–0.20	7.9–8.4	2–20	Very high.	High	Moderate.
			52–78	Clay	CH or CL	A–7–6	0	98–100	95–100	85–95	80–95	41–60	25–40	<0.06	0.05–0.20	7.9–8.4	4–20	Very high.	High	Moderate.
Copita: CfB, CoA, CoB, CPB.	B	20–40	0–12	Sandy clay loam or fine sandy loam.	SC, SM–SC, CL, or CL–ML	A–2–4 or A–4	0	95–100	95–100	90–100	25–60	18–30	4–10	0.60–2.0	0.10–0.15	7.9–8.4	0–2	Low	High	Low.
			12–35	Sandy clay loam, clay loam, or fine sandy loam.	CL or SC	A–6	0	95–100	95–100	90–100	36–70	20–35	11–20	0.60–2.0	0.13–0.16	7.9–8.4	2–8	Low	High	Low.
			35–60	Sandstone.																
Dant: DAB	D	>72	0–11	Clay loam, sandy clay loam or clay.	CL	A–6	0	100	95–100	90–100	51–75	30–40	15–25	0.20–0.60	0.15–0.20	7.9–8.4	0–2	Moderate.	High	Low.
			11–41	Clay or clay loam.	CL	A–6 or A–7–6	0	100	95–100	95–100	70–80	29–48	22–31	0.06–0.20	0.12–0.18	7.9–8.4	0–8	High	High	Low.
			41–72	Clay or sandy clay.	CL, CH	A–6 or A–7–6	0	100	95–100	90–100	80–90	39–55	22–35	0.06–0.20	0.10–0.15	7.9–8.4	4–16	High	High	Low.
Darl: DRA	C	10–20	0–16	Clay loam or loam.	CL	A–6 or A–4	0	85–100	70–95	70–90	60–80	20–35	8–20	0.60–2.0	0.15–0.20	7.9–8.4	0–2	Low	Moderate.	Low.
			16–18	Indurated caliche.																
			18–50	Weakly cemented caliche.																
Elindio: EdA, EdB, EnA, EnB, EOA.	C	>72	0–15	Silty clay loam or clay loam.	CL	A–6	0	95–100	95–100	85–95	75–90	30–40	15–25	0.60–2.0	0.15–0.20	7.9–8.4	0–16	Moderate.	Moderate.	Low.
			15–39	Clay loam or clay.	CL	A–6 or A–7–6	0	98–100	95–100	90–100	75–90	35–45	15–25	0.60–2.0	0.15–0.20	7.9–8.4	0–16	Moderate.	Moderate.	Low.
			39–72	Clay loam or clay.	CL	A–6	0	85–100	80–100	80–100	70–90	30–40	15–25	0.60–2.0	0.12–0.18	7.9–8.4	0–16	Moderate.	Moderate.	Low.
Jimenez: JZD	C	7–20	0–9	Very gravelly loam or very gravelly clay loam.	GC, GM–GC, SC or SM–SC	A–1, A–2–4 or A–2–6	5–20	30–58	20–40	15–35	15–30	20–30	5–15	0.60–2.0	0.05–0.10	7.9–8.4	0–2	Low	High	Low.
			9–18	Strongly cemented caliche.																
			18–60	Weakly cemented caliche.																
Lagloria: LgA, LgB.	B	>72	0–44	Very fine sandy loam.	CL or CL–ML	A–4	0	100	100	95–100	70–95	20–30	4–10	0.60–2.0	0.15–0.22	7.9–8.4	0–4	Low	High	Low.
			44–80	Very fine sandy loam or silt loam.	CL, CL–ML, or ML	A–4	0	100	100	85–100	50–95	20–30	4–10	0.60–2.0	0.13–0.18	7.9–8.4	0–4	Low	High	Low.

TABLE 5.—*Estimated properties significant to engineering*

Soil series and map symbol	Hydrologic group	Depth to bedrock	Depth from surface	USDA texture	Classification: Unified	Classification: AASHTO	Coarse fragments greater than 3 inches	Percentage passing sieve—: No. 4	Percentage passing sieve—: No. 10	Percentage passing sieve—Continued: No. 40	Percentage passing sieve—Continued: No. 200	Liquid limit	Plasticity index	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Corrosivity to—: Uncoated steel	Corrosivity to—: Concrete
		Inches	*Inches*				*Percent*							*Inches per hour*	*Inches per inch of soil*	*pH*	*Millimhos per centimeter at 25° centigrade*			
Laredo: LrA, LrB	B	>72	0–18	Silty clay loam	CL	A–6 or A–7–6	0	100	100	90–100	85–100	30–45	11–25	0.60–2.0	0.15–0.20	7.9–8.4	0–16	Low	High	Low.
			18–60	Silty clay loam, silt loam.	CL	A–6	0	100	100	90–100	70–95	20–35	11–20	0.60–2.0	0.15–0.20	7.9–8.4	0–20	Low	High	Low.
Mavec: MaB, MCB.	C	>72	0–12	Loam or clay loam.	CL	A–6	0	90–100	90–100	85–95	70–85	25–40	15–20	0.60–2.0	0.15–0.20	7.9–8.4	0–2	Moderate.	Moderate.	Low.
			12–29	Clay loam or clay.	CL	A–6 or A–7–6	0	95–100	95–100	85–95	75–90	35–45	15–25	0.60–2.0	0.15–0.20	7.9–8.4	0–2	Moderate.	Moderate.	Low.
			29–70	Clay loam	CL	A–6 or A–7–6	0	90–100	85–95	80–90	70–85	35–45	15–25	0.60–2.0	0.12–0.18	7.9–8.4	0–2	Moderate.	Moderate.	Low.
Maverick: MdB, MKC.	C	20–30	0–5	Clay or clay loam.	CH, CL	A–7	0	98–100	95–100	90–100	85–95	45–60	20–35	0.06–0.20	0.15–0.20	7.9–9.0	2–8	High	High	High.
			5–21	Clay or clay loam.	CH	A–7–6	0	98–100	95–100	90–100	85–100	51–62	30–40	0.06–0.20	0.15–0.20	7.9–9.0	4–8	High	High	High.
			21–26	Clay	CH, MH	A–7–5	0	98–100	95–100	90–100	75–95	45–60	15–30	0.06–0.20	0.10–0.15	7.9–9.0	4–14	Moderate.	High	High.
			26–72	Shale or shaly clay.	CH, CL	A–7–6	0	90–100	90–100	80–100	60–100	45–60	20–35	<0.06	0.05–0.15	7.9–9.0	4–14	Moderate.	High	High.
Mercedes: MNA	D	>72	0–60	Clay	CH	A–7–6	0	95–100	90–100	90–100	75–95	60–80	45–55	<0.06	0.05–0.18	7.9–9.0	0–16	Very high.	High	Low.
Montell: MoA, MTA.	D	>72	0–80	Clay	CH	A–7–6	0	98–100	95–100	85–100	80–95	51–70	30–50	<0.06	0.15–0.20	7.9–8.4	0–16	Very high.	High	Moderate.
Olmos: OMC	C	7–20	0–11	Very gravelly loam, very gravelly clay loam, gravelly loam, or gravelly clay loam.	GC, SC	A–2–4, A–2–6	10–30	35–75	25–65	25–55	20–35	25–35	7–20	0.60–2.0	0.05–0.10	7.9–8.4	0–2	Low	High	Low.
			11–15	Indurated white caliche.																
			15–72	Whitish caliche.																
Pryor: PrA, PrB, PYC.	C	40–60	0–8	Clay loam or clay.	CL	A–6	0	100	95–100	90–100	70–90	25–40	15–25	0.20–0.60	0.15–0.20	7.9–8.4	0–2	Moderate.	High	Low.
			8–42	Clay loam or clay.	CL	A–6 or A–7–6	0	98–100	95–100	90–100	80–95	35–45	20–30	0.06–0.20	0.12–0.17	7.9–8.4	2–16	Moderate.	High	Low.
			42–72	Clayey shale	CL	A–6 or A–7–6	0	98–100	95–100	85–90	80–90	35–45	20–30	<0.06	0.12–0.15	7.9–8.4	4–16	Moderate.	High	Low.
Quemado: QMC	C	10–20	0–14	Very gravelly or gravelly loam, sandy clay loam, or sandy loam.	GM, GC, or GM–GC	A–2–4 or A–1	2–25	30–50	20–40	15–35	15–30	<25	NP–10	0.60–2.0	0.05–0.10	6.6–7.8	0–2	Low	Moderate.	Low.
			14–60	Strongly or weakly cemented caliche.																
Reynosa: ReA	B	>72	0–15	Silty clay loam	CL	A–6	0	100	100	95–100	80–95	25–35	11–16	0.60–2.0	0.18–0.24	7.9–8.4	0–8	Moderate.	High	Low.
			15–44	Silty clay loam or silt loam.	CL	A–6	0	100	100	95–100	85–100	30–40	11–21	0.60–2.0	0.18–0.24	7.9–8.4	0–8	Moderate.	High	Low.
			44–78	Silt loam	CL, ML, CL–ML	A–6 or A–4	0	100	100	85–100	85–100	20–40	2–21	0.60–2.0	0.12–0.24	7.9–8.4	0–8	Low	High	Low.
*Rio Grande: Rg, Rz. For the Zalla part of Rz, see Zalla series.	B	>72	0–80	Very fine sandy loam, loam, silt loam, silty clay loam.	CL or CL–ML	A–4 or A–6	0	100	100	95–100	70–100	20–35	4–16	0.60–2.0	0.15–0.24	7.9–8.4	0–4	Low	Moderate.	Low.

TABLE 5.—*Estimated properties significant to engineering*—Continued

Soil series and map symbol	Hydrologic group	Depth to bedrock	Depth from surface	USDA texture	Classification: Unified	Classification: AASHTO	Coarse fragments greater than 3 inches	Percentage passing sieve—: No. 4	No. 10	Percentage passing sieve—Continued: No. 40	No. 200	Liquid limit	Plasticity index	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Corrosivity to—: Uncoated steel	Concrete
		Inches	*Inches*				*Percent*							*Inches per hour*	*Inches per inch of soil*	*pH*	*Millimhos per centimeter at 25° centigrade*			
*Verick: VkC, VrD. For the Zapata part of VrD, see Zapata series.	C	12–20	0–6	Fine sandy loam or sandy clay loam.	SC or SM–SC	A–2–4 or A–4	0–5	95–100	75–100	70–100	25–49	18–30	4–10	0.60–6.0	0.11–0.16	7.9–8.4	0–2	Low	Low	Low.
			6–15	Sandy clay loam or fine sandy loam.	SC, CL, CL–ML or SM–SC	A–6, A–4	0–10	90–100	75–100	70–95	36–70	20–30	5–15	0.60–2.0	0.11–0.16	7.9–8.4	0–2	Low	Low	Low.
			15–50	Weakly cemented sandstone.																
Zalla	A	>72	0–4	Very fine sandy loam, loamy fine sand, silt loam.	CL, ML	A–4, A–6	0	100	100	75–90	60–80	<25	NP–15	2.0–6.0	0.10–0.15	7.9–8.4	0–2	Low	Low	Low.
Mapped only in an undifferentiated group with Rio Grande soils.			4–60	Loamy fine sand.	SM–SC, SM	A–2–4	0	100	100	70–85	13–25	<25	NP–7	6.0–10.0	0.05–0.10	7.9–8.4	0–2	Very low.	Low	Low.
Zapata: ZPC	C	3–10	0–8	Loam or clay loam.	SC or CL	A–4 or A–6	0–10	85–95	75–95	75–90	40–65	24–30	9–15	0.60–2.0	0.10–0.15	7.9–8.4	0–2	Low	High	Low.
			8–12	Indurated whitish caliche.																
			12–60	Massive caliche.																

[1] Nonplastic.