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| **Terrace**(Ht., m) | **Horizon**on | **Depth** (cm) | **Color** (dry)b | **Structure**c | **Consistd** | **Roots**e | **Pores** e | **Coatings** f | **CaCO3; other** g | **Boundary** h |
| **Qt5** (~5) |  |  |  |  |  |  |  |  |  |  |
| [*lithofacies 6b*] | O |  0-8 | 10YR 4/3 | lo | lo | 3f-m | 3m ir | n.d. | k: n.d.; O mat, twigs, grass | as |
|  | Ck |  8-10 | 10YR 5/4 | m-sg | lo | 1-2f | 1-2f ir | n.d. | k: diss sl; f-vf sand | as |
|  | O´ | 10-16 | 10YR 4/3 | lo | lo | 3f-m | 3m ir | n.d. | k: diss sl; O mat, twigs, grass | cs |
|  | C´k | 16-40 | 10YR 6/3 | m-sg | sh-lo | 2f; 1vc | 1-2fm irt | n.d. | k: diss m; f-vf massive sand | aw |
|  | Ak | 40-44 | 10YR 6/3 | m | lo | v1m-c | 1f ir | n.d. | k: diss m | cs |
|  | C´k | 44-47 | 10YR 7/4 | m | sh | v1f-m | 1-2ft | n.d. | k: diss m | cw-i |
|  | A´k | 47-52 | 10YR 5/2 | m | sh | 1-2f; 1m-c | 1ft r | n.d. | k: diss m; fine bioturbation | gs |
|  | C´k | 52-68 | 10YR 5/3 | m | sh-lo | 1f | 1f ir | sil: v1 vpat D-P po | k: diss m | aw |
| [*lithofacies 5b*] | Bwk1b | 68-83 | 10YR 5/2 | m to v1msbk | sh-h | 1m-c | 1ft; 1f ir | sil: v1 vpat F-D po | k: diss m-str; bioturbation | gs |
|  | Bwk2b | 83-118 | 10YR 6/2 | m to 1msbk | h | 1c | 1-2ft | sil: v1 vpat-pat F-P po | k: diss m-s | gw-i |
| [*lithofacies 4e*] | Ck | 118-503+ | 10YR 7/2 | m | sh | v1vc | 1-2ft | sil: v1 vpat F-D po | k: diss m; vf k dust to ~3m depth | n.o. |
| **Qt4** (~10) [*lithofacies 7b*] | A |  0-12 | 10YR 4/2 | sg to m; v1fgr | lo-so | 3vf | 1vf ir | n.d. | k: n.d. | cs |
|  | AB | 12-25 | 10YR 4/4 | m to v1msbk | so-sh | v1f | 1fv-fir | n.d. | k: n.d. | gs |
|  | Bw1 | 25-45 | 10YR 5-3/4 | 1-2msbk | sh | v1f | v1vft r | sil: 1 vpat F-D gr | k: n.d. | gs |
|  | Bw2 | 45-55 | 10YR 5/4 | v1msbk | so-sh | v1f | fvf-ft | sil: v1vpat F-D po gr | k: n.d. | gs |
|  | Bw3 | 55-85 | 10YR 5/3 | m to v1msbk | sh | v1f | 1vf ir | sil: v1 vpat F-D gr | k: n.d. | cs |
|  | Bwk | 85-120 | 10YR 5-6/3 | 1-2msbk | sh | v1vf;3vf | v1vfir vft | sil: v1 vpat F+D gr | k: diss sl | cs |
| *Qt4-buried* | Bwkb | 120-130 | 10YR 3-4/2 | 1-2msbk | sh | v1vf | 1vf ir | clay: v1 vpat F+D gr | k: diss sl -m; wk bioturb, fb | cs |
| [*lithofacies 4d*] | Btk1b | 130-150 | 10YR 5/3 | 2msbk | h | v1vf | 1ft | clay: v1 vpa, F+D gr | k: diss m | cs |
|  | Btk2b | 150-190 | 10YR 5/4 | 2msbk | sh-h | v1vf | 1ft | clay: v1 vpat F+D gr pf | k: diss sl -vs, vf-f fil 15 cm thk | cs |
|  | Btk3b | 190-260+ | 10YR 5-6/4 | 2-3msbk | sh-h | v1f | 1ft, fir | clay: v1 vpat F+D po pf | k: diss sl-m  | n.o. |

\*Field descriptions only include dry color and dry consistence.

 Explanation of shorthand notation is provided following tabulated data.

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| **Terrace**(Ht., m) | **Horizon**a | **Depth** (cm) | **Color** (dry)b | **Structure**c | **Consistd** | **Roots**e | **Pores** e | **Coatings** f | **CaCO3; other** g | **Boundary**h |
| **Qt3** (~12) |  |  |  |  |  |  |  |  |  |  |
| *Qt3* | Ak |  0-10 | 10YR 4/2 | m | so | v1vf | 1vftr | n.d. | k: diss sl; no gravel  | cs |
| [*lithofacies 4c*] | ABkb | 10-22 | 10YR 6/3 | 2fgr | h-eh | 1-2vf | v1vft | sil: v1 vpat D po | k: diss sl -m; 3fp | gs |
|  | Bk1b | 22-36 | 2.5Y 7/2 | 2-3msbk | eh | 1vf | 1ft | sil: 1 pat D po | k: diss vs; 2-3 fb, fp | gs |
|  | Bk2b | 36-58 | 10YR 7/2 | 2-3csbk | eh | v1f | 1-ft | sil: 1 vpat-pat F-D po | k: diss m-s; 2-3 fb, casts | gs |
|  | Bk3b | 58-86 | 10YR 7/3 | m to 2csbk | h-eh | v1vf | 2ft | sil: 1-2 pat D po | k: diss vs-v; kr 10x4cm; 2fb | gs |
|  | Bk4b | 86-108 | 2.5Y 7/2 | m | h | v1vf | 1-ft | n.d. | k: diss vs; v1 kr 2x2 cm | gs |
|  | Ck | 108-200 | 10YR 7/3 | m-lo | sh |  n.d. | v1fir | n.d. | k: diss m | gs |
|  | C | 200-250 | 10YR 7/2 | m | sh |  n.d. | v1f-m, ir | n.d. | k: n.d.; pebble lenses at contact | gs |
| [*lithofacies 2*] | 2C | 250-500+ | 10YR 7/2 | m | lo |  n.d. |  n.d. | n.d. | k: n.d.; 90% gravel 3-7 cm eq+ob | n.o. |
| **Qf2/Qt2** (~15) |  |  |  |  |  |  |  |  |  |  |
| *Qf3* | A |  0-10 | 10YR 4/3 | m | so-sh | 1f-vf; v1mc | 1fir | n.d. | k: n.d.; f, sa, sil sand;<5% f pebbles  | a-cs |
| [*lithofacies 7b*] | Bw1 | 10-40 | 10YR 4/4 | 2m-csbk | sh | 1-f; v1vc | 1-2ft | sil: 1 vpat F-D po | k: n.d.;15% cse sand | cs |
|  | Bw2 | 40-120 | 10YR 4/3 | 1-2f-msbk | sh | 1vf+f | 1ft+ir | sil: 1 vpat F-D gr | k: n.d.; pebbly, 5% grvl 8-10 cm | cs |
| *Qf2* | Bwk1b | 120-175 | 10YR 5/3 | m,1-2msbk,1fgr | sh | v1vf | 2vfir; 1ft | sil: 1 vpat F-D gr po | k: diss sl-m; grvl 7-15cm r-sr clasts | gs |
| [*lithofacies 7a*] | Bwk2b | 175-215 | 10YR 6/3 | m to 2fmsbk | sh | v1vf | 3ft | sil: 1 vpat F-D po | k: diss m-s, fil and lining po | cs |
|  | Bwk3b | 215-265 | 10YR 4/3 | m-1csbk | sh-h | v1vf;1c | 3vft;3ft | sil: 1-2 pat F-P po | k: diss vs-v and 1-2 pat-nc D-P bots | aw-ir |
| *Qt2* | 2ABk1b | 265-305 | 2.5Y 8/1-2 | m to 2-3f-mpl | h-vh | v1vf | 3vft;3ft | sil: 2 nc F-P po br | k: diss v;3f-vf fb, fp bioturbation | aw |
| [*lithofacies* *6a*] | 2ABk2b | 305-365 | 2.5Y 7/2 | m | sh | v1vf | 3ft mt-ct | sil: 2-3 nc D-P po br | k: diss s;3f fb, 3m fb | aw-ir |
|  | 2ABk3b | 365-385 | 10YR 7/2 | m to 1-2csbk | h-vh | v1vf | 3ft;2-3mt | sil: 2-3 nc F-P po br | k: diss v; 3f fb; f-m tubes | aw-ir |
|  | 2Bk1b | 385-425 | 10YR 7-8/2 | m to 1msbk | lo-sh | v1vf | 1-2fir;2ft | sil: 1-2 pat F-P po | k: diss m-s; 1f-m kr, 2-3f-vf fp,fb | aw-ir |
|  | 2Bk2b | 425-435 | 2.5Y 7/2 | m | h | v1vf, v1m | 2vft,2ft | sil: 1 vpat F-D po br | k: diss s-v;2-3vf fb | aw-ir |
| [*lithofacies 4b*] | 2Ck | 435-495 | 10YR 7/1-2 | m + sg | sh-lo | v1vf, v1m | 1-2vfir | n.d. | k: diss m;1-2c fb;1-2f, fp | aw |
|  | 2Bk1b2 | 495-530 | 10YR 7-8/2 | m + sg | sh | v1vf, 1m | 1-2ft | sil: 1-2 vpat F-D po | k: diss m | aw-ir |
|  | 2Bk2b2 | 530-535 | 2.5Y 7/2 | m to 1msbk | h-vh | v1vf | 2-3f+vft | sil: 2 vpat-pat F-P po | k: diss s-v, diss;1-2 f-m fp, fb | aw-ir |
|  | 2Ck | 535-565 | 10YR 7/1-2 | m to sg | so-lo;h | 2f-vf, v1m | 1-2fir | n.d. | k: diss m; 2-3f fb, fp | aw-ir |
| [*lithofacies 2*] | 3C | 565-1400+ |  n.r. | lo | lo |  n.r. |  n.r. | n.d. | k: n.d.; >80% basalt, 3-8 cm eq+ob  | n.o. |

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| **Terrace**(Ht., m) | **Horizon**a | **Depth** (cm) | **Color** (dry)b | **Structure**c | **Consist**d | **Roots**e | **Pores** e | **Coatings** f | **CaCO3; other** g | **Boundary** h |
| **Qt2** (~20) |  |  |  |  |  |  |  |  |  |  |
| [*lithofacies 7c*] | Ak |  0-8 | 10YR 5/3 | 2f cr | vsh | 3vf,1-2m-c | n.d. | n.d. | k: diss m-s; 2ffp | aw |
|  | Ak1b |  8-18 | 10YR 7/2 | 1-2f pl-2f cr | vsh | 2-3vf | 1f tr | n.d. | k: diss m-s; 2-3ffp | aw |
| [*lithofacies 4b*] | Bk1b | 18-28 | 10YR 6/3-4 | m-1m sbk | sh | 1-2vf-f | 2ft, v1ft | sil: 1vpat D po br | k: diss vs; 2f fp | as |
|  | Bk2b | 28-50 | 10YR 6/2 | m-1fabk,1msbk | sh | v1vf | 2frt | sil: 1 vpat D po gr | k: stage II;2 f-m fp;1m-c cemented fb | gw |
|  | Bk3b | 50-66 | 10YR 7/2 | m-2f-msbk | sh-h | v1vf | 2f-vf vt | sil: 1-2vpat D po br | k: diss vs-v; 3ffb, 1-2fmfb, 1-2fftubes | gs |
|  | Bk4b | 66-81 | 10YR 6-7/3 | m-v1m-csbk | vso | v1vf | 1-2vf vt | sil: v1 vpat D po gr | k: diss s; v1ffb-v1mfb, F stratified |  |
|  | Ck | 81-126 | 10YR 5-6/3 | m-sg | so-so | v1vf |  n.d. | n.d. | k: stage II; massive silty sand | aw |
| [*lithofacies 2*] | 2Ck | 126-250 |  nr | sg | lo |  n.d. |  n.d. | n.d.. | k: stage II 1 vpat bots; Bfg 4-7 cm | cs |
|  | 2C | 250-1400+ |  nr | n.d. | n.d. |  n.d. |  n.d. | n.d. | k: n.d.; Bfg 4-7 cm eq+ob clasts  | n.o. |

**Notes to Soil Profile Descriptions**

nr = not recorded (may or may not be present, time constraints precluded field determinations, for example consistency, moist color, etc); n.o. = not observed; n.d. = investigated for, but not detected; [*lithofacies 4b*, etc.] = parent deposit on which soil formed at each site (see text for descriptions).

1. **Genetic Horizon and modifiers**: standard nomenclature for soil horizon designations follows Soil Survey Staff (1999) and Schoeneberger et al. (2012). *Horizons*: O = residual macro-organic litter, A = zone of organic matter accumulation, B = zone of weathering, Bw = weak oxidation and structure but no presence of translocated clay (i.e., cambic horizon), Bt = translocated clay in the B horizon, C = parent material. Horizon modifiers(after Birkeland, 1999):

k = accumulation of CaCO3, t = translocated clay, b = buried. Numeral preceding horizon designation designates a change in parent material.

1. **Color**: describes the dominant hue, chroma and value of soil matrix, following procedures contained in the Munsell soil color charts (Munsell, 2000).
2. **Soil structure**: description of soil ped morphology. *Type*: m = massive (no structure), sg = single grain, gr = granular, abk = angular blocky, sbk = subangular blocky, cr=crumb; pl = platy. *Grade*: v1 =very weak; 1 = weak, 2 = moderate, 3 = strong. *Size*: f = fine, m = medium, c = coarse.
3. **Consistence (dry)**: lo = loose, sh = slightly hard, h = hard, vh = very hard, eh = extremely hard.
4. **Roots and pores –** frequency, size, orientation, and shape. *Frequency:* v1 = very few, 1 = few, 2 = common, 3 = many. *Size:* vf = very fine, f = fine,

m = medium, c = coarse. *Orientation and Shape:* r = random, v = vertical, i = irregular, t = tubular.

1. **Coatings**: surface coatings on ped faces and clasts. sil = silt coatings, clay = clay films. *Amount:* v1 = very few, 1 = few, 2 = common, 3 = many.

*Continuity*: vpat = very patchy, pat = patchy, nc = nearly continuous. *Distinctness*: F = faint, D = distinct, P = prominent. *Location:* pf = ped faces, po = pores, gr = grains, br = bridging grains; co = colloidal stains.

1. **CaCO3, other secondary accumulations, miscellaneous notes:** k = Presence of calcium carbonate in horizon and stage of carbonate accumulation (I, II, III, IV) following nomenclature of Birkeland (1999). *Continuity, Distinctness, Location*: pat = patchy, F = faint, bots + tops = bottoms and tops of clasts or peds, pf = ped faces. *Kind:* diss = disseminated; fil = filaments (followed by zone thickness [cm]), sm = spherical masses. *Reaction to HCl* (*degree of effervescence*): sl = slight, m = moderate, s = strong, vs = very strong, v = violent. *Bioturbation*: *Frequency:* v1 = very few, 1 = few, 2 = common, 3 = many. *Size:* f = fine,

m = medium. *Kind:* fp = fecal pellets, fb = faunal burrows; kr = krotovina. *Sediment*: Bfg = Bonneville flood gravel; *clast shape*: eq = equant, ob = oblate.

1. **Horizon boundary**: *Distinctness:* a = abrupt, c = clear, g = gradual, d = diffuse. *Topography:* s = smooth, w = wavy, i = irregular, b = broken.

***References***

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