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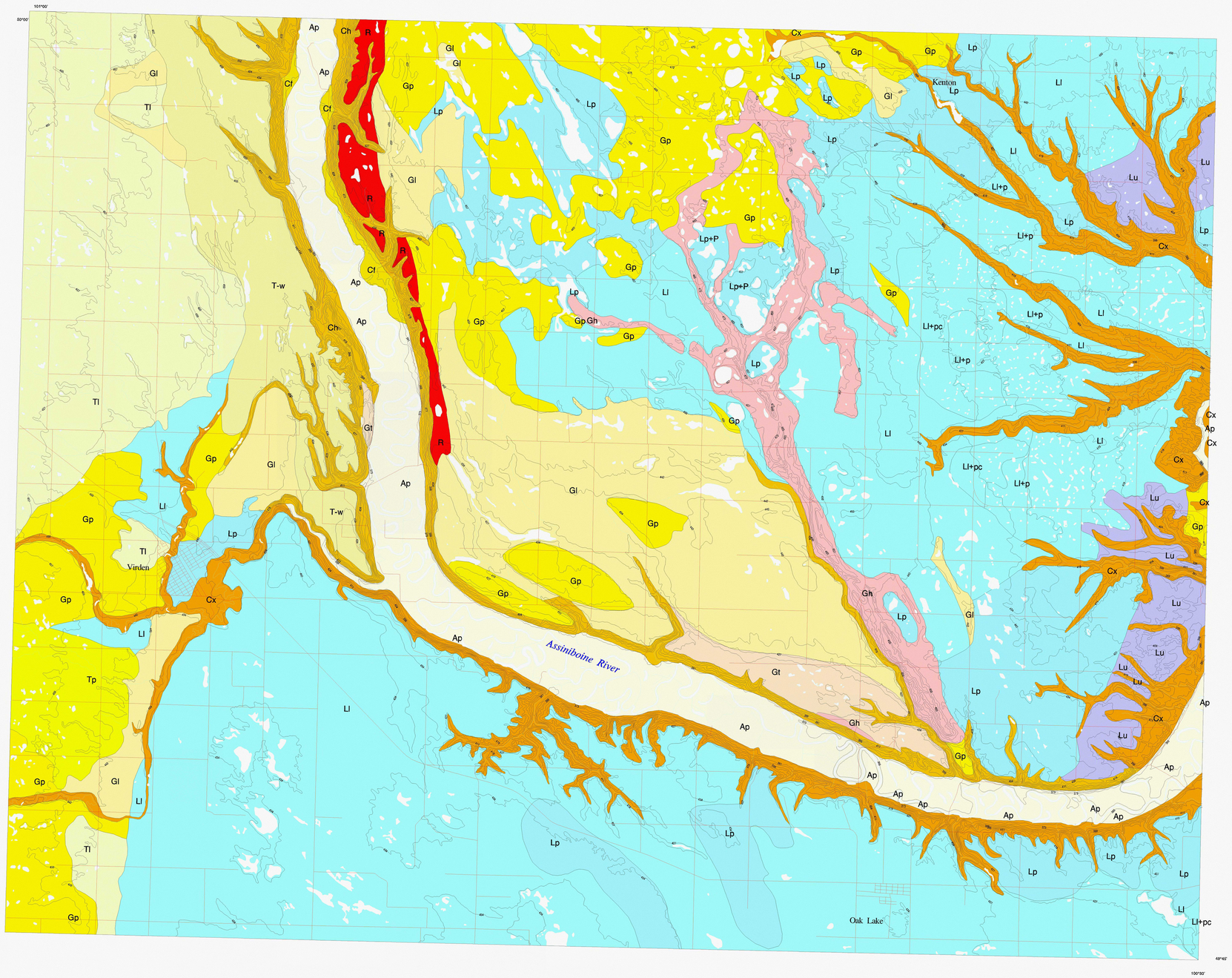

SURFICIAL GEOLOGY
VIRDEN,MANITOBA (62F/15)
NATMAP

(Not all units shown here appear on the map)

COLLUVIAL DEPOSITS: silty to clayey diamicton occurring as a variety of slope and slump deposits derived largely from till but in places from lacustrine deposits and shale.

Cf Colluvial Fan Sediments: Silty diamicton with thin sand beds; fan-shaped deposits occurring at the mouths of gullies cut in steep slopes; formed largely as mud and debris flows; unit thickness <5 m.

Ch Slope Failure Deposits: Silty to clayey diamicton and shale; occur as irregular hummocks, ridges, and steps on slopes, and as ridges and hummocks within valleys; formed by slumping and slope failure; unit thickness <10 m.

Cx Colluvial Complex: Silty to clayey diamicton; veneer, blankets, aprons, and fans of colluvial debris occurring on and at the base of steep slopes; complex of colluvial materials which can include areas of till, washed till and locally may contain small inclusions of alluvial plains and terraces; unit thickness <5 m.

ALLUVIAL DEPOSITS: clayey to sandy materials containing some gravel and organic-rich sediments; formed as stream floodplain deposits and now underlie modern floodplains or low terraces.

Ap Modern Floodplain Sediments: silt, clay, and sand with minor gravel and organic muck and organic-rich silt and clay; poorly sorted and stratified; occurs as gently undulating plains containing swales and abandoned stream channels; locally swampy; unit thickness <5 m most areas but in Assiniboine Valley is <20 m.

At Alluvial Terrace Sediments: sand, silt, and clay with minor gravel; generally well sorted and stratified; occurs as low benches up to 5 m above present stream level; unit thickness <5 m.

LACUSTRINE AND GLACIAL LACUSTRINE DEPOSITS: silt, sand, and clay; generally underlying flat to gently undulating plains with variable densities of small closed depressions (potholes); relief generally <2 m but locally up to 20 m; the surface (~1 m) of sandy lacustrine deposits, in many places have been reworked by wind and locally is overlain by isolated dunes <20 m high; includes deposits of glacial Lake Hind or other small temporary lakes.

Ll Lacustrine Plain Sediments: silt and sand with minor clay; well to moderately well sorted, massive to laminated structure; nearly flat (level) surface, with some low rises and shallow hollows (relief <2 m); Ll+p - lacustrine plain in which potholes make up >25% surface area, ~ 1 m organic muck in potholes; Ll+pc - potholes with rim riges in lacustrine plain; unit thickness < 50 m.

Lp Lacustrine Plain Sediments, Gently Undulating: clay, silt, and sand; well to moderately well sorted, massive to laminated structure; gently undulating surface (relief 2-5 m), marked by either sand dunes or erosional features such as scoured channels; in places relief may be inherited from underlying units; Lp+p - lacustrine plain in which potholes make up >25% surface area, ~ 1 m organic muck in potholes; unit thickness <50 m.

Lu Lacustrine Plain Sediments, Undulating: clay, silt, and sand; well to moderately well sorted, massive to laminated structure; broadly undulating to rolling with 4-10 m relief probably inherited from underlying units; unit thickness <30 m.

GLACIOFLUVIAL DEPOSITS: sand and gravel in ridges and hummocks, underlying benches well above present stream level, and broad flat to undulating plains; coarse clast composition variable and in many places dominated by shale; deposited as glaciofluvial materials in contact with melting ice, as glacial outwash plains and deltas, and as catastrophic flood deposits.

Gt Glaciofluvial Terrace Sediments: sand, gravel, and bouldery gravel; well washed and sorted; occurs as benches 5-40 m above modern valley floors; remnants of glaciofluvial outwash plains; unit thickness <5 m.

Gl Glaciofluvial Plain Sediments: sand, gravel, and bouldery gravel; well washed and sorted; nearly flat (level) to very gently undulating with relief <2 m; coarse clast composition in the area immediately east of Assiniboine River dominated by shale (locally <99%); largely formed as deltaic deposits at the margin of glacial Lake Hind or other small temporary lakes; unit thickness <10 m.

Gp Glaciofluvial Plain Sediments, Gently Undulating: sand, gravel, and bouldery gravel; well washed and sorted; gently undulating plain marked by low ridges and abandoned scour channels with relief 2-5 m; coarse clast composition in the area immediately east of Assiniboine River dominated by shale (locally <99%); deltaic deposits formed at the margin of glacial Lake Hind or other small temporary lakes; unit thickness <10 m; Gp+p - Glaciofluvial plain in which potholes make up >25% surface area.

Gm Glaciofluvial Plain Sediments, Rolling: gravel, bouldery gravel and sandy gravel; moderately well sorted and well stratified; occurs as area of closely spaced mounds and hummocks (relief 4-15 m); interpreted as catastrophic flood deposit; unit thickness <20 m.

Gh Hummocky and Ridged Gravels: gravel and gravelly diamicton with minor sand and silt; poorly sorted; in most places the coarser than sand sized material is dominantly shale (locally <99%); occurs as mounds, hummocks, and ridges with 2-20 m relief and deep potholes and lakes; formed as ice contact glaciofluvial deposits; unit thickness <15 m.

MORAINAL DEPOSITS: till (diamicton), in many areas includes a surface layer (~1 m) of massive, sparsely pebbly, clayey silt; in places also includes variable amounts of stratified glacial deposits, and minor veneers of postglacial alluvial and eolian silt and sand, and organic-rich silt and clay; till generally is a sandy, clayey, silt diamicton having a minor content of pebbles and variable content of boulders; morainal deposits are the direct deposits of glacial ice; till layers of different ages underlie the surface in most parts of the area but stratigraphy and thickness can be assessed only by drilling; thickness varies from 2 m where a single till sheet overlies shale to 100 m in buried valleys and the western part of the map area where multiple till layers are present.

T-w Till Plain, Eroded: till, gravel, boulders, sand, and muck; consists of till with an overlying discontinuous lag of gravel, sand, and boulders; includes muck in poorly drained valley floor locations; occurs as flat plains, benches in valley bottoms, and slopes at the margins of meltwater channels; patchy gravel and sand generally <2 m thick.

Tl Till Plain, Flat : Till, in many places with an overlay of massive clayey silt <2 m thick; nearly flat (level) to very gently undulating with relief <2 m in the form of low rises and shallow depressions. Tl+p - till plain in which potholes make up >25% of surface area. Tl+pc - potholes with rim riges in till plain.

Tp Till Plain, Gently Undulating: till and minor stratified sediments; gently undulating areas of low mounds and short ridges (relief 2-5 m); Tp+pc - gently undulating morainal plain with >25% potholes, many with rim ridges, ~ 1 m organic muck in potholes.

Tr Till Plain, Ridged: till with variable inclusions of stratified sediment; generally broad (50-175 m), moderate relief (2-10 m) ridges which are 500 m to 2 km long and spaced at intervals from 0.5 to 2 km.

R Rock: shale, soft greenish brown bentonitic, hard grey siliceous, and buff silty shale; outcrops locally in roadcuts and valley walls; locally present in scoured floors of meltwater channels but difficult to recognize because it quickly weathers to a clay indistinguishable from Quaternary sediments.

Contribution to Quaternary of the Southern Prairies NATMAP

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