## TERRAIN INVENTORY LEGEND

| SYMBOL | NAME (AGE) | NATURE OF MATERIAL AND THICKNESS | DISTRIBUTION AND STRATIGRAPHY | GEOMORPHOLOGY AND DRAINAGE | PERMAFROST | OTHER ENGINEERING CHARACTERISTICS |
|---|---|---|---|---|---|---|
| Ap-*A* | Active floodplain (modern) | Generally cobble and pebble gravel with very coarse to coarse sand; rounded to well rounded; 1-5 m thick. | Broad active floodplains along Ogilvie and Blackstone rivers; along other streams, the units are too small to map. | Flat floodplain, usually inundated once annually during spring flood. Bars and meanders are active, shifting and meandering; unvegetated, well drained. | Aufeis occurs on many streams and rivers; remnants may last until August. Arctive layer is very thick. Permafrost not encountered in 1 m-deep test pits. | Flooding and high discharges are a constant hazard. Erosion on the outside of meanders; causes minor failures. Source of aggregate. In many small streams water flow is limited to seepage through bed materials for most of the year. |
| Ap | Floodplain | Well rounded cobble to pebble gravel with very coarse to coarse sand matrix; in places is capped by up to 1 m of sand and silt and up to 50 cm of organics; in places contains organics 3-10 m thick. | Borders most large streams. Bounded by active floodplains, low terraces, or stream-cut scarps. May include some unmapped areas of active floodplain and low terraces in small valleys. Floodplain deposits underlain by colluvium, drift, or rock. | Generally less than 2 m relief with slopes less than 2°. Few abandoned channels on the surface; in places shallow thermokarst depressions; depressions may contain up to 1 m of organics. Permeability high in gravels, low in silty areas. Well drained except in channels, depressions, and areas adjacent to valley sides where standing water may occur. Inundated by water during high floods. | Active layer is thick. Permafrost not encountered in 1 m-deep test pits. | Flooding probable at 3-10 year frequency. Surface generally stable. Source of aggregate. Placer mining in Klondike watershed. |
| Aa, fAa, gAa, fAa-*A*, fAa-*R̄*, bAa | Alluvial apron | Generally fine sand with pebble gravel north of the Ogilvie Mountains (fAa) and pebble to cobble gravel with silty sand matrix in the Ogilvie Mountains. The material is characteristically poorly sorted and stratifed, however, in places well sorted and stratified sand may occur. Apron tops are commonly capped by 30-100 cm of organic material. The mineral material at depth may be rich in organics. The thickness of aprons is highly variable, generally 2-5 m. | Occurs at the base of valley walls in glaciated areas and covers most low parts of valleys in unglaciated areas. In the unglaciated areas, aprons generally cannot be related to specific gullies but extend across the valley bottom from the break in slope of the valley wall to the trunk stream; overlies rock in unglaciated areas and drift or rock in glaciated areas. | In plateau areas slopes are 2°-5° with less than 1 m relief on the surface. In mountainous areas slopes may be up to 15° with surface relief generally less than 2 m. Active aprons (fAa-*A*) are channelled and unvegetated. Drainage is moderately good to imperfect although some areas may be well drained. In some places, water seeped into test pits from 12-25 cm above the frost table. The poor drainage is a reflection of the low slopes and poorly sorted material having low to medium permeabilities. | On Eagle Plain frozen ground was encountered at depths of 7-35 cm in the peat capping and up to 1 m in areas without an organic cap. In the Ogilvie Mountains, the active layer is generally thicker than 1 m in all fans. Ice types encountered were Vr, Vx, Vs, Nbn, and massive ice[1]. Ice wedges and frost cracks are common. Nonsorted circles and stripes are common on aprons on Eagle Plain but are absent farther south. Thermokarst lakes occur on the thicker parts of many aprons. Because of the constant flow of water through these units (particularly fAa-*R̄*), they are probably ice rich. | Surface vulnerable to thermokarst subsidence particularly if organic cap is removed. Surface easily disturbed by tracked vehicles; generally wet and soft. Has been used as a source of aggregate in places along the south Dempster Highway. Solifluction occurs on steep slopes on Eagle Plain; slow mass wasting occurs in all other areas. |
| Af, gAf, fAf, Af-*R̄*, gAf-*A* | Alluvial fan | Poorly sorted, poorly stratified silty sandy gravel; generally upper part is finer. Composition and grain size is dependent on the local source; silty sand with pebbles is most common in the Richardson Mountains; gravel with boulders up to 2 m diameter more common in the Ogilvie Mountains. Clasts are angular to subrounded. The surface layer of organics averages 30 cm thickness on Eagle Plain and 10 cm in the Ogilvie Mountains. Average thickness of the unit is 5 m and is more than 10 m in places. Fans in Tintina Trench commonly have a capping of loess. Most fans are loosely compacted; however some fan deposits underlie glacial deposits and are more compact. | Occurs along sides of deep valleys. Commonly overlies alluvial terrace deposits and in some places impinges on the present floodplain. | Slopes less than 8° on fAf and up to 15° on gAf. Generally well drained, but gently sloping, organic-covered, fine grained sediments (fAf) may be imperfectly drained. Permeability is highly variable; generally high to medium. Channels mark the surfaces of the more active fans (gAf-*A*). | Frozen sediment encountered in pits in the Richardson Mountains frost table at 30 cm depth in organics; ice types present are Vr, Vs, Vx, and massive ice[1] up to 2 cm thick. In the Ogilvie Mountains ground not frozen even at 1 m depth. Evidence of permafrost indicated by the presence of frost cracks, solifluction lobes and nonsorted circles. Ice contents may be high in some places as 3 m of subsidence occurred where the organic cover had been stripped. Where thermokarst depressions are common -*R̄* is used. | Surface vulnerable to moderate thermokarst subsidence, particularly if disturbed. Good source of aggregate. |
| $At^1$ | Low-level alluvial terrace | Typically less than 20 cm of organics (mainly peat) overlying 10-100 cm of silty sand over 10-200 cm of cobble to pebble gravel. Only at a few places was the thickness of material over the bedrock in excess of 4 m. The mineral material is well stratified and sorted, and well rounded to subrounded; it may contain disseminated or interbedded organic material throughout. | These deposits comprise the first major terrace level above the present floodplain. The unit occurs discontinuously along all major rivers and streams and many of their tributaries. Commonly overlies a rock bench but may overlie colluvium or drift. The silty sand near the top of the deposit may be of eolian origin. In narrow valleys, fans or aprons may encroach onto the top of the terrace and may even completely cover it ($\frac{Af}{At^1}$, $\frac{Aa}{At^1}$). | Stands 3-5 m above streams. Surfaces are flat except for minor terrace scarps and channel traces. Top slopes are less than 2° whereas foreslopes are greater than 15°. Well to moderately well drained except in old channel traces which are imperfectly drained and may contain standing water. Permeability varies with material. | Frozen ground was encountered at depths of 25 and 40 cm in undisturbed terrain with significant organic covers; where the surface has been disturbed by winter roads, the frost table is up to 30 cm deeper. Ice types are principally Vs, Vr, Vx, and Nbn[1]. Up to 80 cm of subsidence was seen along winter roads. Minor slumping due to thaw of permafrost occurs along the foreslope of some terraces. | These materials may be ice rich in places. Slumping along the foreslope due to thawing of permafrost and/or oversteepening by undercutting of the present stream are always hazards. Where terraces are very low, they may possibly be inundated during exceptional floods. Outer edges of terraces are favourable locations for development. |
| $At^2$ | Intermediate-level alluvial terrace | Typically composed of peat overlying sand and gravel. Peat is commonly more than 1 m thick, particularly in Engineer Creek valley where 3 m or more is common; however, in places peat is less than 1 m thick. In most places peat overlies a sequence of fluvial gravels with some interbeds of sand or silty sand, but locally areas mapped as this unit consist of peat overlying a rock bench. These materials are well rounded to subrounded and well stratified with moderate sorting.<br><br>Along Tintina Trench 10-20 cm of silt of possible eolian origin commonly lies between the gravels and overlying peat. The alluvial sequence may be sand or silty sand rather than gravel. | occurs mainly along major rivers and creeks as discontinuous deposits between the present floodplain or the lowest terrace deposits and the valley wall or more rarely the highest terrace deposits. Does not occur within the limit of Reid glaciation. Overlies rock in most places, but may overlie drift or colluvium. In narrow valleys, fans or aprons may encroach onto the terrace top and may even completely cover it ($\frac{Af}{At^2}$, $\frac{Aa}{At^2}$). | Stands 5-10 m above streams. Surfaces are flat. Top slopes are less than 2°, foreslopes are 8°-15°. Moderately well to well drained. Permeability is moderate in the peat and moderate to high in the underlying gravels. | Frozen ground was encountered at depths of 25-40 cm in peat and in excess of 50 cm where the peat was absent or thin. Ground ice types are principally Vs, Vr, and Nbn, with some massive ice[1] particularly in frost wedges. Nonsorted circles, polygons, and ice wedges were noted on some deposits. Subsidence due to thawing of permafrost caused by disturbance of the peat cover is of the order of 0.5-1.5 m on trails and winter roads and even greater if the road caused channelling of overland flow. At one locality, 2-5 m of subsidence was noted over thawed ice wedges. | Thick peat, particularly when frozen, is a very unstable foundation base. The surface can be easily disturbed by tracked vehicles. Peat may be a usable resource. The gravels may be used as a source of aggregate. |
| $At^3$ | High-level alluvial terrace | Typically composed of 20-50 cm of peat overlying 5 m of alluvial gravels. The gravels may be up to 50 m thick and in places may be capped by 10-20 cm of silty clay of possible eolian origin. Along Tintina Trench, 15 m of silt overlies the gravel at a few locations. The gravel is well rounded but poorly stratified. | Occurs as discontinuous deposits along all major rivers and streams and along some minor streams. Does not occur within the glaciated region. Lies between the lower valley terraces and the colluvial deposits on the valley sides. May be overlain in part by colluvial deposits and, rarely, by alluvial fans and aprons. | Stands 10-50 m above streams. Top surfaces are flat with slopes of 2°-5°. Moderately well to well drained though imperfectly drained where clay underlies the peat. Permeability is moderate in peat, moderate to high in gravels. | Depth to frost table is 20-40 cm except in Tintina Trench where it is greater than 2 m. Ice types present are Vr, Vx, and massive ice[1]. Nonsorted polygons and circles are present in many places. Disturbance of the surface along winter roads has resulted in average subsidence of 50-70 cm and up to 1.5 m where runoff was channelled by the road. On some roads disturbance had caused increased cryoturbation and the formation of nonsorted circles. In one area the road disturbance had resulted in thawing of permafrost in the organic cover, forming a loose spongy mat with depressed nonsorted circles. | Due to the ice-rich nature of these materials, thawing of permafrost is a major problem. The surface can be easily disturbed by tracked vehicles. May be usable as a source of aggregate. |
| Lp, fLp, Lp-*R̄* | Lacustrine plain | Stratified silt and fine sand containing minor amounts of clay and organics. May be capped by up to 50 cm of organics. Generally 3-5 m thick. | Units large enough to be mapped occur in upper Blackstone River and Brewery Creek valleys; minor deposits commonly overlie morainal and glaciofluvial sediments. The unit is commonly associated with alluvial terrace deposits. | Flat to gently rolling. In areas of high ice contents, thermokarst depressions are common. Generally moderately well to poorly drained. Permeability is low. | Active layer is generally 30-50 cm thick in areas of organic cover and is thicker where the cover is absent. Ice-rich areas are common, particularly where thermokarst depressions are present (Lp-*R̄* ). | Vulnerable to thermokarst subsidence and erosion where sediments with high ice contents are present. Slumps and flows may follow disturbance on steep slopes. |
| Gt, Gt-*R̄*, Gp, Gf | Outwash plains, outwash fans, valley trains | Sorted, stratified, subrounded medium to coarse sand and gravel. Gravel is composed mainly of pebbles and small cobbles, but material up to 30 cm diameter may be present. Commonly overlain by up to 30 cm of organics and silts, particularly in depressions. Deposits generally greater than 5 m thick and commonly over 10 m thick. | Restricted to valley floors south of 65°10'N. Set into older drift or along valley walls. More recent glaciofluvial or alluvial deposits commonly inset into unit. Age is designated by modifier. Underlain by rock or older drift; in places overlain by veneers of loess (unmapped), younger drift, lacustrine deposits, or alluvial fans and aprons (in narrow valleys). | Flat to gently sloping 1°-5°) on the upper surface; where incised by streams slopes may be up to 30°. Average relief of 1 m on the upper surface. Well drained except in depressions. Permeability high to moderate. | Ice generally not encountered in test holes except under peat accumulations where ice-rich sediments (Vs[1]) were encountered at depths of 32-52 cm. Presence of ice-rich permafrost is indicated by ice-wedge cracks and thermokarst depressions. Dry permafrost may exist in some of these materials. | Vulnerable to moderate erosion on steep slopes if disturbed. Generally not susceptible to permafrost degradation, however ice-rich areas may be present and are hazardous. Small landslides were noted on some steep scarps. Source of aggregate. |
| Gh, Gh-*R̄*, Gr | Kames, kame and kettle complexes | Well rounded, medium- to coarse-grained sand and fine gravel, and rare coarse bouldery gravel. Average thickness is 5 m but may be up to 20 m. Depressions commonly have veneers of silt and peat. | Restricted to valley floors south of 65°10'N. Adjacent to morainal landforms. Alluvial terraces commonly incised within this unit. May contain unmapped areas of till and lacustrine deposits. Age is designated by modifier. Commonly underlain by till or bedrock. In places veneered with loess (generally not mapped). | Hummocky (Gh) to ridged (Gr). In places channelled by meltwater. Well to moderately well drained except in depressions and broad flat areas having veneers of silt or organics. Permeability generally high. | Frost table not encountered in test pits 1 m deep. Active thermokarst depressions identified in some area (Gh-*R̄* ). | Vulnerable to moderate erosion on steep slopes if disturbed. Source of aggregate. |
| Gb | Glaciofluvial blanket | Subrounded, sorted, and poorly stratified gravel with small patches of sand. May include patches of glaciofluvial veneer. Overlying organics and silt are generally less than 10 cm thick. | Occurs along valley slopes and overlies older drift, colluvium, or rock. | Relief of 1-5 m and slopes of 5°-10° is mainly a reflection of the underlying topography. Well drained. Moderate to high permeability. | Permafrost not encountered in 1 m-deep test pits. Active layer may be thicker than unit. Dry permafrost may be present. | Generally stable. Hazard potential probably related to underlying material. Source of aggregate. |
| Mh, Mh-*R̄* | Disintegration moraine | Diamicton; subangular to subrounded pebbles and cobbles of various lithologies in hard, dense, silty, fine sand matrix. Where rich in fines, material is plastic and sticky. Coarse clasts are striated. In places crudely sorted and stratified. May be capped by less than 10 cm of organics, rarely loess. From -30 m thick, average is 5 m. | Locally present on valley floors south of 65°15'N. Commonly contains unmapped patches of outwash and lacustrine deposits. Fine grained pond sediments and organics in many depressions. Generally underlain by drift or rock. | Hummocky, generally 5-10 m relief, but up to 50 m in places. Gentle to moderate slopes (5-15°). Channelled in places; well drained on hills and ridges; imperfectly to poorly drained in swales and depressions. Medium to high permeability. | Permafrost not encountered in 1 m-deep test pits. Presence of ice-rich permafrost at depth indicated by extensive thermokarst activity (*R̄* ) and skin detachment flows on some slopes. Material may be ice rich in places. | Locally areas with moderate ground-ice contents vulnerable to thermokarst subsidence. Locally a source of construction material, including aggregate, especially when processed, e.g. crushed, screened. |

[1]Reference
Pihlainen, J.A. and Johnston, G.H., 1963: Guide to a field description of permafrost; Natl. Res. Counc., Tech. Mem. 79, 23 p.

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| SYMBOL | NAME (AGE) | NATURE OF MATERIAL AND THICKNESS | DISTRIBUTION AND STRATIGRAPHY | GEOMORPHOLOGY AND DRAINAGE | PERMAFROST | OTHER ENGINEERING CHARACTERISTICS |
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| Mr, Mr-*R̄* | Morainic ridges | Diamicton; subangular to subrounded boulders, pebbles, and cobbles of various lithologies in hard, dense, silty sand matrix. Where rich in fines, it is plastic, sticky, and thixotropic. May contain patches of crudely sorted and stratifed, loose material (ablation till). May be capped by less than 10 cm of organics or, rarely, by loess. Typically 5-10 m thick. | Individual ridges and groups of ridges common at limit of each glaciation. Colluvium and till or drift common upslope from ridges; drift or alluvium common downslope from ridges. Underlain by drift (commonly glaciofluvial gravel), colluvium, or rock. | Relief is 5-10 m and in places up to 50 m. Slopes 2-10°. Drainage and permeability are variable, depending on slope and material. | Permafrost was only observed at one location; below 2 m depth the deposit is ice rich. Other evidence for the existence of ground ice includes nonsorted circles and 0.5-1.0 m of subsidence along the Dempster Highway due to thawing of ice wedges. | Subsidence due to thaw of ground ice is possible in areas of high ice contents. Locally a source of construction material, including aggregate, especially when processed. |
| Mm, Mm-*R̄*, Mp, Mp-*R̄*, Mn | Till plain | Diamicton; angular to subrounded boulders, cobbles, and pebbles of various lithologies in a silty sand matrix. Very hard and dense. Where deficient in fines it may include poorly sorted and stratified material (ablation till). Commonly capped with up to 30 cm of organics, particularly in depressions. Typically 5-10 m thick. | Common throughout valleys south of 65°16'N and north of 67°N ($Mm^{2a}$); usually associated with other glacial deposits. Unit may contain unmapped patches of outwash. Fine grained pond and organic deposits overlie it in depressions; colluvial deposits and alluvial fans overlie it under steep slopes. Underlain by drift and bedrock. | Flat (Mp) to gently rolling (Mm) to irregular (Mn) surfaces with relief up to 5 m and slopes of 2°-10°. Moderately well to well drained except in depressions where it is poorly drained. Medium permeability. | Active layer was generally thicker than 75 cm, however in a few places frozen ground was encountered at 35-65 cm depth. Ice types are variable. Very ice-rich till was found in one active retrogressive slump. In other areas thermokarst depressions, ice-wedge cracks, nonsorted circles indicate the presence of ground ice. | Solifluction and slumping active on some slopes. Ground ice thawing may be a problem if the organic cover is disturbed, particularly in ice-rich deposits. Locally a source of construction material, including aggregate, especially when processed. |
| Mb | Till blanket | Diamicton; angular to subrounded boulders, cobbles, and pebbles of various lithologies in a silty sand matrix. Generally loose. Rarely contains patches of poorly sorted material. Generally 0.5-3 m thick. May be capped by up to 30 cm of organics. | Common on slopes within the glacial limits. Upslope of till blankets is colluvium or rock; downslope are other glacial deposits. Generally underlain by rock. May contain unmapped patches of outwash, colluvium, and bedrock. | Relief and slopes (indicated by modifier) are commonly a reflection of the underlying surface. Moderately well drained; low to medium permeability. | Permafrost not encountered in 1 m-deep test pits. In places where unit is thin, the frost table may be in the underlying material. Some nonsorted circles, frost cracks, and solifluction lobes present. | Mass wasting a problem on steep slopes. Material generally stable. Locally a poor source of construction material, including aggregate, especially when processed. |
| Mv | Till veneer | Diamicton; angular to subrounded boulders, cobbles and pebbles of various lithologies in a silty sand matrix. Generally loose. Rarely contains patches of poorly sorted material. May have incorporated some of the underlying material by frost action. Generally less than 50 cm thick. Organic cover generally less than 10 cm. | Common on slopes within the limit of glaciation. Morainal deposits common downslope from till veneer and colluvium upslope. Unit may contain unmapped patches of outwash, colluvium, and bedrock. | Relief and slopes (indicated by modifier) are a reflection of the underlying material. Moderately well drained; low to medium permeability. | Active layer generally thicker than unit. | Vulnerable to increased erosion on steep slopes if disturbed. Mass movement may be a hazard to development. |
| aDp | Drift plain | Rounded, sorted, and stratified silty sand to cobble gravel. Commonly overlain by up to 1 m of loess and rarely up to 10 cm of organics. Gravels are more than 4 m thick. | May be of glaciofluvial origin; underlain in one exposure by silty diamicton (till?); generally underlain by Tertiary silts, silty sands, and sands. | Flat surface, incised by steep-sided gullies in places. The unit ends in steep scarps which are prone to rotational slumps and active-layer detachment slides. Generally well drained. | Permafrost not seen in this unit. Dry permafrost may occur. | Apart from slope failures along the edges of the unit, it is generally stable. Good source of aggregate. |
| Db | Drift blanket | Undifferentiated till and outwash. Generally 0.5-3 m thick. | Occurs only along Brewery Creek on the valley wall in an area of rCb. | Bench- or terrace-like deposit along the valley wall. May be rock controlled. Moderately well drained. | Permafrost probably present. | Further investigation required to determine exact composition of unit. Probably a stable unit but due to steep slopes on edges of unit, mass movement may be a problem. Possibly a source of construction material, especially if processed. |
| Ct, bCt | Altiplanation terraces | Clayey diamicton with cobbles. Flaggy cobbles of sandstone are concentrated on the surface of the treads. Thickness estimated at 1-3 m. | Only mapped north of 66°N; small areas are included within other units. | Fronts of terraces are 2-4 m high with 35° slopes, tread surface has 5° slope. Springs originate in scarp fronts and streams flow across the upslope edges of active terraces. Poorly drained. | Sorted stripes on treads. Solifluction and cryoturbation are active. | Surface of tread is spongy and active; too soft for heavy land use. Mass wasting is a hazard to construction. |
| Ca, rCa | Tallus aprons | Angular cobbles and boulders having relatively narrow size range in any one area. Lithology of fragments same as that of adjacent cliffs. Greater than 6 m thick except near edges. | Occurs in the Ogilvie Mountains in steep-sided glaciated valleys and particularly in cirques. Overlies rock or drift. | Steep slopes at the angle of repose of the material. Well drained. | Permafrost present, but due to coarseness of material (talus) not bound by ice. | Looseness of talus, steep slopes, and mass movement are hazards to development. Potential source of aggregate, but will probably require crushing. |
| Cb, aCb, bCb, rCb, fCb, fCb-*R*, rfCb | Colluvial blanket | Variable composition from silty clay with fine sand (fCb) to poorly sorted cobble diamicton (rCb) to bouldery diamicton. (bCb). The matrix of the diamicton is commonly silty sand. May contain significant proportion of organics and lenses of stratified gravel or sand particularly in valley bottoms. Generally less than 3 m thick except in valley bottoms where it may be thicker. Fine grained colluvium is tough, sticky, and plastic; typically it is capped by 10-40 cm of organics. Coarse grained material is angular. | Ubiquitous on slopes underlain by bedrock in unglaciated terrain. Common on moderate to steep slopes in glaciated terrain. Commonly overlies bedrock or more rarely, terrace deposits and drift. May contain small unmapped areas of drift and alluvium. The contact between colluvium and weathered bedrock is gradational, particularly in unglaciated terrain. | The overall relief and slopes are a reflection of the underlying bedrock surface. The slopes are indicated by a modifier. The surface of the colluvium is smooth. Generally well to moderately well drained on slopes; imperfectly to very poorly drained in depressions and valley bottoms where standing water may exist. Rilled colluvium (Cb-*R*) has much surface runoff. Permeability high in bouldery colluvium (bCb) to low in fine colluvium (fCb). | In areas of organic cover, frost table occurred at depths of 25-40 cm; where the organic cover was absent, the frost table was deeper than 60 cm and commonly below 100 cm. Common ice types are Vs, Vr, and massive ice[1] as lenses and wedges. Man-induced thawing of permafrost, generally due to winter roads, has caused general subsidence of 30-60 cm, over ice wedges of 50-100 cm, and where water channelling occurred of 1-3 m. Colluvium generally is ice rich in low-lying areas, at concave breaks in slope, and in rilled units (Cb-*R*) where several metres of ice has been reported from drill hole logs. Excess ice occurs near the surface; ice contents decrease with depth, however in some locations several metres of ice occur between the base of the colluvium and the top of the bedrock. | Active-layer detachment slides occurred on steep slopes in fine grained colluvium (fCb2) after heavy rains. Retrogressive-thaw flow slides occur on all types of colluvium on moderate to steep slopes. Subsidence due to thaw of permafrost is variable and is generally greatest in low-lying areas. Thawing of this material produces very unstable terrain as the material has little shear strength. Care should be taken not to pond surface runoff by linear construction projects, particularly in areas of Cb-*R*. Gentle to moderate slopes are characterized by solifluction lobes and nonsorted and sorted circles. Creep and solifluction common forms of mass movement in active layer; isolated active-layer detachment flows occur, especially in fine colluvium (fCb). |
| Cv, bCv, rCv, fCv | Colluvial veneer | Poorly sorted diamicton. Silty clay with angular granules to small pebbles of shale (fCv) develops on shale. Silty sand with cobbles (rCv) or blocks (bCv) develops on sandstone, limestone, and other coarse grained rocks. Surface organics generally less than 5 cm thick although one site recorded 30 cm. Veneer generally less than 50 cm thick though locally may be thicker than 1 m. In unglaciated areas, the contact with the underlying weathered rock is gradational. | Ubiquitous in the area particularly on steep slopes, ridge crests, and glacially scoured rock. Overlies bedrock. Commonly includes unmapped areas or rock and, more rarely, areas of drift. | Variable slope as indicated by modifier; slopes and relief dependent on the underlying rock surface. Generally well drained. Permeability dependent on composition, fine colluvium having low and coarse colluvium having high permeability. | Active layer generally extends below the veneer. Nonsorted circles and polygons are common. At one locality ice wedges occurred within 10 cm of the surface; in places where they have melted out the resulting trough is 90 cm deep. | Detachment slides and rock falls may occur on steep slopes. Creep and sheetwash common forms of mass wasting and may be hazards to development. Proximity of bedrock and abundance of large blocks may make development difficult. Thawing produces unstable material with very low shear strength. |
| C̲, C̲m, C̲h, C̲r | Landslides | Landslide debris; extremely variable textures; large blocks of shattered bedrock and unsorted coarse grained diamicton most common. Clasts generally angular to subangular. Variable thicknesses to 30 m common. | Although small landslides, particularly retrogressive-thaw flow slides and active-layer detachment slides occur throughout the area, particularly associated with shale bedrock, they are generally too small to be mapped. Large mappable landslides, chiefly rotational slumps, occur primarily in Ogilvie Mountains and Tintina Trench; these occur in rock along the steep valley side. Note that along Tintina Trench many landslides are in unlithified Tertiary sediments. Generally overlies bedrock but may encroach on drift in the lower parts. | Surface may be hummocky (C̲h), ridged (C̲r), rolling (C̲m) or irregular (C̲). Failures generally occur on slopes greater than 25°, though small unmapped detachment slides may occur on very low slopes. Moderately well to well drained except in depressions which are imperfectly drained. Permeability is highly variable. | Permafrost generally present, probably ice rich. Many old slides seem to have been reactivated as rock glaciers. | Slopes adjacent to landslides are a potential site of future failures. Old landslides may still be active and moving by creep or as rock glaciers. Areas should generally be avoided. |
| $\frac{fCb}{Rp}$, $\frac{fCb}{Rp}$ -*R*, $\frac{fCp}{Rp}$ | Colluvium overlying rock pediment | Up to 3 m (fCb) or over 3 m (fCp) of fine grained colluvium overlying a flat rock-controlled surface. The colluvium is primarily silty fine sand with minor amounts of clay and angular to subangular fragments of local bedrock, most commonly shale but also sandstone and limestone. In local occurrences, the colluvium can be up to 100% blocks of sandstone. The surface is commonly covered by 30 cm of organics. In places up to 1 m of gravel may occur between the colluvium and the rock surface. | Extensive well developed deposits occur on Eagle Plain and in Northern Ogilvie Ranges; deposits are less well developed and sparsely disturbed in the southern Ogilvies and Tintina Trench. Occurs above the highest alluvial terrace, generally upslope from alluvial deposits and downslope from or intermixed with colluvial blankets and veneers. Thawing produces unstable material with very low shear strength. | Smooth to gently rolling with slopes up to 8° and relief generally less than 5 m. May be rilled ($\frac{fCb}{Rp}$-*R*) by gullies up to 1 m deep and 2-5 m across. Moderately well drained except near concave breaks in slope and beneath steep slopes which are poorly drained. Permeability is low to medium. Surface may be pitted by isolated thermokarst lakes or depressions. | Frozen ground was encountered beneath 25-35 cm of organic cover, and at depths greater than 60 cm where organics not present. Ice types present include Vr, Vs, and massive ice[1] commonly in the form of ice wedges. Nonsorted circles, stripes, solifluction lobes, and thermokarst depressions indicate the presence of permafrost; the material may be ice rich in places, particularly where rilled or at concave breaks in slope. Ice contents are excess at the surface generally decreasing with depth, however several metres of ice have been reported from drill hole logs. | Vulnerable to thermokarst subsidence, particularly if surface organics are disturbed. Surface organics are very prone to disturbance. Ice-rich areas are particularly prone to thermokarst subsidence. Care should be taken not to pond surface runoff in areas of $\frac{fCb}{Rp}$-*R* by linear construction projects. |
| $\frac{fEb}{Rp}$, $\frac{fEp}{Rp}$ | Loess overlying rock pediment | Up to 3 m (fEb) or over 3 m (fEp) of silt and fine sand overlying flat rock-controlled surface. The silts rarely contain coarse sand or pebbles. Organic cover is generally less than 5 cm thick. | Extensively developed on the north side of Tintina Trench beyond the limit of Reid Glaciation, it does not occur elsewhere in the area. It lies above all alluvial terraces and below the colluvial blankets and veneers which cover the mountain tops. | Smooth to gently sloping with slopes less than 3°. May be incised by channels and gullies. Moderately well to poorly drained; very poorly drained in swales. May be pitted by rare thermokarst lakes. Permeability is low. | Active layer is greater than 2 m thick. Permafrost is indicated only by the presence of thermokarst lakes. | Susceptible to wind and gully erosion if surface is disturbed. May be ice rich in places and hence vulnerable to thermokarst subsidence. |
| MR | Rock glacier | Primarily bouldery rubble, rarely substantial content of sand or fines. Generally 10-30 m thick. | Common throughout Southern Ogilvie Ranges, rarer in Northern Ogilvie Ranges; does not exist on Eagle Plain or in Richardson Mountains. Underlain by bedrock. | Range from tongue-shaped to lobate-shaped to spatulate-shaped. Surfaces either smooth on gentle to moderate slopes or ridged and furrowed on steep slopes. Distal edges generally marked by steep slopes. All are subject to continuous downslope movement. Well drained. | Permafrost present. Moderate to high ice contents. | Mass movement possible problem to development. Potential source of construction material, including aggregate; crushing probably required. |
| R | Bedrock outcrop | Varied bedrock types; Metamorphic rocks only in Southern Ogilvie Ranges and to the south, elsewhere predominantly sedimentary rocks. See Descriptive Notes for more information concerning bedrock lithologies. | Large areas of bedrock outcrop common in the Southern Ogilvie Ranges. Small scarps of bedrock sparsely distributed throughout the rest of the area. | Cliffs, arêtes, horns, and ridge crests. Slopes generally steep or precipitous. Rockfalls and avalanches common in areas of steep bedrock. Well drained. | May contain veins of ice in fractures. Evidence of frost shattering is ubiquitous in this unit. | Rock generally an impediment to economic development. Certain rock types are a source of aggregate if crushed, see Descriptive Notes. |

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