CARMACKS - ONION CREEK

DEVELOPMENT ROAD

SOILS SURVEY MILE 0 - 30

1966

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MILE 0 - MILE 30

SOILS SURVEY

Introduction

The proposed route from Carmacks to Onion Creek required for area development is to be constructed according to " development road" standards. The route parallels the present access road into the " Discovery Mine," for the first 30 miles and then diverges westward. In its length of 40 miles, the route traverses three different types of terrain. These are described by Mr. P. Bochan as;

Mile 0 - 14 (km 0 - km 22.5)

From Mile 0 to Mile 14 the location parallels the Yukon River in a north-northwest direction. The terrain consists of high gravel terraces broken by stream erosion and by glacier kettleholes. The principal road building material is a coarse gravel with boulders and occasional bands of silt and sand. The overburden varies from 3" to 1 foot of moss, volcanic ash and silt on the north slopes and on some of the flats where the moss is thick, permafrost occurs.

This area is forested by a light poplar growth on the south slopes and the steep side hills. On the north slopes and some of the flats, there are dense stands of spruce.

The terrain materials and drainage resemble the area from Mile 917 to Mile 900 on the Alaska Highway, south of Whitehorse.

Mile 14 - 29

From Mile 14 to Mile 29 the location follows the north on the right side of the Crossing Creek Valley. The Crossing Creek Valley is narrow, 300 ft. in width from Sta. 830 to Sta. 870 where the location first enters, then it widens to 3000 ft. and this narrows again from Sta. 1250 to Sta. 1500 into a deep trough. The right side of the valley is bordered by granite mountains.

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Glacial till composed of gravel, sand, silt, and clay is the main road building material to Sta. 1250. From Sta. 1250 where the location follows the flanks of the granitic ridges, a decayed granite is the principal road building material.

The glacial till and the decayed granitic material are incorporated into the existing road forming a well compacted road bed.

Permafrost occurs throughout this area at varying depths, depending upon the forestation. Where light poplar has succeeded in the burned areas, the permafrost has receded five to ten feet. Where the spruce stands are thick, especially in the drainageways, permafrost appears.

Investigation

On July 7, 1966 a soils survey commenced on the Mile 0 - 30 section of the proposed route. The survey was performed utilizing a D - 7 tractor equipped with a Hyster backhoe unit. Pits approximately 3' x 8' x 10' were excavated at the indicated locations. Samples of soil types were obtained and subjected to laboratory classification testing in the Whitehorse soils laboratory. Attached are the summaries of the test results and soil logs.

Discussion

Considering the centerline profile, soil types, and conditions occuring, the following comments have been prepared to assist in the grade design and construction of the road.

General Comments

Station 72+00 located on the West bank of the Nordenskold River.

72+00 to 100+00

To construct the road through this area requires cuts in the order of 25 feet. The soils are sandy gravels (A-1-a) soils to at least eight feet according to test holes and changes to a sandy silt (A-4) at Sta. 75+00. The A-4 soil is generally highly frost susceptible and it is possible that permafrost conditions exist at depths in this area. For this reason, attempts should be made to establish the grade line as high as possible so as to limit excavation within this soil condition and to provide as much protection as possible in shallow cuts.

Sandy gravels (A-1-a) should be available in sufficient quantity for the fills. These soils have the properties for excellent grade material.

Sta. 100+00 to 150+00

Fills in this area are all relatively low and cuts are shallow. Approximately 6" of organic soils and volcanic ash overlie sandy gravels. The writer foresees no difficulty in construction in this area but stripping to waste is recommended of topsoils to improve grade stability and reduce settlements or subsidence during and after grade construction.

Sta. 150+00 to 175+00

Several substantial cuts and fills are required in this area according to the present grade line. Permafrost was identified in the test holes at Stations 163+00 and 172+00, at depths of 5 and 2 feet respectively.

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The frost conditions exist primarily in the (A-4), silty sands or sandy silts. Since it is advantageous to maintain the frozen condition of these soils rather than disturb them and the insulating properties of the overlying organic soils is good, it is recommended that no attempt be made to strip this area or construct drainage works.

Sandy gravels, available from Sta. 155+00 and 170+00 and local borrow is an excellent grade material and should be available in sufficient quantities.

Sta. 175+00 to 225+00

Permafrost conditions continue according to the test holes, up to Sta. 180+00 at shallow depths and then deepen through the depressions and creek crossings. It is recommended therefore that the subgrade not be stripped to Sta. 180+00 and then stripped from Sta. 180+00 to 225+00. Stripping of the organic soils and volcanic ash should produce a more stable grade and better foundation conditions. The major cut in this reach is 20 feet at Sta. 210+00 through a sandy gravel. I do not foresee any difficulties occuring during construction as the material, although granular, is dry and will excavate and place well under normal machine operation.

Sta. 225+00 to 250+00

At station 230+00 a large cut (30') through sandy gravels and sands may give considerable difficulty as the underlying sands are highly susceptible to frost action. The writer suspects the existence of frozen soils at Sta. 235+00 (TESTHOLE 27), in view of the proven existance of frozen soils at Sta. 235+00, it is recommended that a raise in gradeline be considered.

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This raise would have the effect of reducing the quantity of frozen soil to be excavated and increase protection against disturbance where the gradeline is above the present centerline.

Sta. 250+00 to 300+00

This is an area of shallow cuts and fills on a long grade and should not present problems. Although permafrost was encountered at Sta. 267+00 (3' depth in silty gravels), the writer believes this to be a local condition. The soils are generally sandy gravels and should be stripped of all organic soils before grade construction. Sandy gravels, available should be used for grade material and because of their nature, compact quickly and well under construction equipment.

Sta. 300+00 to 325+00

Here, the route traverses a definite permafrost area and the grade line as proposed, does not provide sufficient protection. In the writers opinion, the line should be raised at least 3 feet to provide against deterioration of the permafrost. In addition, the area should not be stripped prior to construction in this area and drainage channels immediately adjacent to the grade should not be constructed or improved. Both actions would serve to introduce heat or disturb the frozen condition of the foundation soils.

Sta. 325+00 to 400+00

The gradeline in this area is quite low and crosses one stream known as " Murray Creek". From the testhole, permafrost in silty soils exist at depth of approximately 5 feet over the complete section.

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Generally, the area should give little trouble in grade construction however, the organic soils should not be removed nor drainage work installed.

Two localized areas may present problems at Sta. 379+00 where a 7' cut could intercept permafrost boundaries and at Sta. 400+00 where the grade line is located approximately 2½ feet below the indicated permafrost level of 7 feet. It is probable that in both of these locations difficulties in excavation may occur as it does not appear feasible in view of adjacent grades and balance lines to instigate grade change. Therefore, from a foundation view point, it would be advantageous to subcut these areas to a depth of at least 3' and backfill using sandy gravels from borrow.

Sta. 400+00 to 450+00

This section is characterized by the large fills which occur at Sta. 403+50 (37 feet), at 435+50 (36 feet), and by the adjacent cuts. The fills may give considerable difficulty in maintenance due to the existing underlying permafrost conditions and the high pressures exerted on the surface of the permafrost due to the weight of fill. It is advisable to provide the least disturbance to the insulating organic surface cover as possible. Considerable consolidation and settlement must be anticipated in these deeper fills during construction. Emphasis placed upon proper compaction during construction will improve long term performance.

Sta. 450+00 to 500+00

A section of relatively shallow cuts and fills in sandy gravels (A-1-a soils). Stripping of organic topsoils, approximately 12" thick is recommended from Sta. 445+00 to 500+00.

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Sta. 500+00 to 600+00

Through this section several relatively deep cuts and fills must be constructed. Other than the problem of moving substantial quantities of material, the writer does not forsee any difficulties. The fill material is sandy gravel (A-1-a), an excellent construction material. Organic soils and volcanic ash appears to exist to depths of 12 inches over the complete section. Again, in order to improve foundation conditions, promote drainage and reduce settlements during and after construction, it would be advisable to waste this material.

Sta. 600+00 to 650+00

Again generally a section of relatively low cuts and fills with little evidence of permafrost problems. The writer forsees no difficulty in construction, although it is recommended that the organic soils and volcanic ash be stripped and wasted before placing fill.

Station 650+00 to 700+00

Two difficult zones occur in this section; the first, Sta. 660+00 to 664+00 involves a cut wherein boulders and rock occur in test holes 5 feet above the proposed grade line. A limited amount of rock excavation must be anticipated. The second problem is the large fill required at Sta. 675+00 (40 feet). Foundation soil is a sandy gravel (A-1-a), adequate for support of such fills. Material for the fill is a similar soil available from Sta. 680+00 to 685+00 and adjacent borrow areas. In order to reduce settlements, compaction during construction should be emphasized.

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Sta. 700+00 to 750+00

This is an area of low cuts and fills with localized permafrost conditions. Generally permafrost exists at depths which would not affect the grade and this section, in the writers opinion, should be treated as the ones previous to it; i.e. stripping to waste the organic soils and volcanic ash and utilizing for fill material the sandy gravels to as great an extent as possible.

Sta. 750+00 to 800+00

Generally, construction will consist of cuts and fills in a sandy gravel. Permafrost exists at the bottom of the 25 ft. fill at Station 764+00; but should not pose any problem if not stripped. The cuts appear to be in sandy gravels with the exception at Sta. 769+00. Here, permafrost may occur below the 5 ft. depth. It does not appear feasible to raise the grade line; consequently, the writer suggests subcutting approx. 2 ft. and backfilling with sandy gravels.

Sta. 800+00 to 900+00

The grade in this mile crosses a summit and introduces fills of 25 ft. on either side. Permafrost exists at the bottom of these fills and consequently stripping is not recommended. The cut at the summit appears to be through sandy gravels and should present very little problem. At station 835+00 the grade line occurs very close to the permafrost line before making the creek crossings. It would be advisable not to strip this area and to provide as much protection to the permafrost as possible by raising the grade line. Similarly any creek diversions should be directed towards Station 850+00. Structures of any

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magnitude over these streams should be treated separately and any culvert or equivilant provided with a granular base.

Sta. 900+00 to 945+00

In this area the grade is low, does not have any major cuts and fills but is to be constructed over permafrost. The permafrost is located at shallow depths from Sta. 893+00 to 950+00 in A-4 soils. Basically, stripping of organic soils is not recommended over this area. Soils for grade construction A-1-a are in short supply which will probably necessitate borrow, located at distances away from the road location. The present grade line appears to offer sufficient permafrost protection and provides a minimum of fill quantity. Drainage work should be minimized as this serves to disturb permafrost conditions.

Sta. 945+00 to 1000+00

The low fills and cuts continue but the subgrade soils change at Sta. 945+00 to a A-1-a or sandy gravel. Localized areas of permafrost which may give trouble were found to exist at Sta. 991+00. For approximately 200 feet the grade line is 3 feet within the permafrost. Again, it is recommended that the area be subcut and backfilled with A-1-a soils or A-2-4 soils; the latter available between Sta.'s 1000+00 and 1010+00. In addition, wet, unstable A-4 soils were encountered at Sta. 988+00, located in a depression. The fill is relatively low over this area and should not present a problem.

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Sta. 1000+00 to 1130+00

Low cuts and fills occur over this complete area, the largest not extensive at Sta. 1012+00. The subgrade through this reach is A-4 soil, in a reasonably dry condition up to approximately Sta. 1040+00, then changes to a A-6 - A-7. Through both of these soils drainage must be maintained as excessive moisture, particularly in the A-4 will make them very unstable. Frost action will probably be severe in the finished grade from Sta. 1010+00 to 1040+00; as A-4 soils will probably be required for grade construction due to the lack of better materials and since the depth of these soils exceed 10 feet it would not be feasible to excavate. The organic soils, consisting of approximately 6 inches of topsoil and 6 inches of volcanic ash, should be removed before grade construction for reasons of stability and future maintenance. Materials required for surfacing should be available in sufficient quantities from Sta. 1056+00 to 1062+00.

Sta. 1130+00 to Sta. 1190+00

The soils in this reach are basically A-4 with permafrost conditions occuring at shallow depths throughout. Over the major portion of the reach the frost conditions will not effect the grade construction nor its performance, providing these conditions are not destroyed by removal of topsoil or the construction of drainage channels. In fact, subgrade support is considerably improved through soil freezing. Between Stations 1154+00 and 1165+00 the proposed grade line is at or slightly above the surface of the frozen soil and would not in the writers opinion, provide sufficient protection against permafrost deterioraation. Therefore, it is recommended that within the limits outlined, the grade line be raised 3 feet.

Sta. 1190 - 1235

The soils in this reach are generally unfrozen and consist of approximately four feet of overburden overlying a fractured granite bedrock. The rock is badly fractured and rubble like for the most part in nature, should be easily ripped and will make an excellent fill material. On either side of the rock section transition soils are A-1-a or A-2-4 with the occasional boulder. Fill should present very little problem, drainage is good and the material should be handled readily.

Sta. 1235 - 1237

From the proceeding granular area the route moves into a very difficult perma frost area. The soils are A-4 and A-6 at which permafrost conditions exist at shallow depths. Of particular importance is the deep fill, sta.1235+00 to 1260+00, where heights of material in excess of 35 feet are required over permafrost conditions on an 8% grade. Permafrost conditions have been known to decay under fills similar in heights to this. The following cut, sta. 1260+00 to 1269+00, of 18 feet to the proposed grade line involves the removal of 13½ feet of frozen material. In order to provide a stable grade this would require a subcut of at least 3 feet leading to 16½ feet of permafrost removal over 600 feet. It does not appear likely to the writer that a change of grade would improve the situation as the 8% design is already maximum. Consequently a relocation of this section is recommended.

Sta. 1287+00 - 1350+00

The location is a cut and fill section where the cuts are principally in A-1-a or A-2-4 soils and the fills are to be placed over permafrost.

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Other than large quantities of material to be moved, cuts up to 20 feet and fills up to 35 feet, construction of the road in this section should pose little difficulty. It is recommended that in order to provide protection against permafrost deterioration the organic topsoils be left in place under the fills. A slight grade adjustment is suggested at sta. 1325+00 in order not to disturb the permafrost condition found to exist approximately 2 feet above the grade line. In lieu of this, since the area is short (250 feet), subcut and backfill with A-1-a soils may be more feasible.

Sta. 1350+00 to 1415+00

The subgrade soils over this complete section are in a frozen state. Permafrost levels are deep enough that they should not interfer with grade construction, provided that the organic soils are not removed nor the permafrost disturbed in anyway. Fill material appears to be in short supply, limited amounts of A-6 material available from sta. 1390 area. A-1-a soils were found to exist at the vicinity of the proposed culvert, sta. 1383, and may be available in larger quantities in borrow nearby. At present the writer has not investigated sources of borrow adjacent to the location, therefore cannot offer any suggestions.

Sta. 1415+00 to 1475+00

In this section very little difficulty is anticipated; the cuts are of A-2-4 soils and the fills the same, all overlying permafrost at depth. Again the same comments hold true i.e., it is not recommended that the depression be stripped before placing fill, and the fill material available from the cuts appears to be adequate in quality to provide good support.

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Sta. 1475+00 to 1555+00

The road location passes through a permafrost area which may pose considerable difficulties. The grade line falls below the surface of frozen soils at sta. 1498+00, 1511+00, 1523+00 and 1529+00. In these areas it is doubtful that any significant grade change is possible, consequently, the only remedial solution is to subcut and replace with A-1-a or equivalent soils. These soils are apparently available 300 feet left of center line near sta. 1520+00 in "unlimited" quantities.

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 1, 2, 3, and 4

LOGGED BY J. Maloney DATE April 7 /66 STATION 75+00, 78+30, 82+50, 88+40

ENTERED BY K. Yakemchuk DATE 1/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #1
												D = 0 - 1'
												Organic silt
												D = 1' - 8'
3006	3	10	19	22			NP	A-1a	1'-8'			Sandy gravel
3007	70	98	100	100	20	19	1	A-4	8'-10'	10		D = 8' - 10'
												Sandy silt
												T.H. #2
												D = 0 - ½'
												Organic silt
3008	34	97	100	100			NP	A-2-4	½'-10'	10		D = ½' - 10'
	Samples 3008 & 3009 are combined											Sand, silty
												T.H. #3
												D = 0 - ½'
												Organic silt
3009	34	97	100	100			NP	A-2-4	½'-5½'	10		D = ½' - 5½'
	Samples 3008 & 3009 are combined											Sand, silty
												D = 5½' Frost level
												T.H. #4
												D = 0 - 1½'
												Organic silt
3010	3	5	14	24			NP	A-1-a	1½'-8'	10		D = 1½' - 8'
												Sandy gravel
												Gravel exposed on either side of centerline.

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 5, 6, 7, And 8

LOGGED BY V. Sokalski / J. B. Maloney DATE 15/10/66 STATION 89+50, 100+00, 110+00, and 116+00

ENTERED BY K. Yakemchuk DATE 1/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D67 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #5
3011	6	16	38	49			NP	A-1-a	9'			D = 0 - ½' Organic silt D = ½' - 2' Sand D = 2' - 9' Sandy gravel (max. size = 12")
			Sta. 0+409							10		
												T.H. #6
3013	90	96	99	100	39	21	18	A-6	2'			D = 0 - 1' Brown, silty coarse sand with cobbles up to 6"Ø
3012	22	56	93	98			NP	A-2-4	2'-8'			D = 1' - 2' Grey to light grey silt D = 2' - 2½' Coarse clean sand (pinches out at various places in the pit) D = 2½' - 4' Fine clean sand interbomded with coarse clean sand and thin layers of silt. D = 4' - 8' Fine clean sand and very thin silt layer.
			Sta 0+725							10		
												T.H. #7
3015	9	17	31	40			NP	A-1-a	8"-5½'			D = 0 - 8" Volcanic ash D = 8" - 5½' Silty fine to coarse sand and gravel Cobbles up to 12" Ø D = 5½' Grey, very hard silty clay with pebbles (possibly frozen when first encountered)
3014	89	95	97	100	32	23	9	A-4	5½'			
	Samples 3015 & 3016 are combined									10		
			Sta 1+015									
												T.H. #8
3016	9	17	31	40			NP	A-1-a	½'-4½'			D = 0 - 2" Leaf mould D = 2" - 6" Volcanic ash D = 6" - 4½' Silty coarse sand and gravel with odd boulder up to 1½'Ø D = 4½' - 7½' Medium to fine clean sand with odd pebble
	Samples 3015 & 3016 are combined									10		
			Sta 1+225									

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 9, 10, 11, And 12

LOGGED BY J.B. Maloney DATE 5/7/66 STATION 127+00, 135+00, 151+00, and 155+00

ENTERED BY K. Yakemchuk DATE 1/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #9
												D = 0 - 2" Leaf mould
3017	3	8	24	31			NP	A-1-a	½'-7½'			D = 2" - ½' Volcanic ash
										10		D = ½' - 7½' sand and gravel with cobbles up to 10"ø, large lenses up to 3' thick of clean fine to medium sand also present.
	Samples 3017, 3018, and 3019 are combined Sta 1+535											
												T.H. #10
												D = 0 - ½' Organic silt
3018	3	8	24	31			NP	A-1-a	½'-10'	10		D = ½' - 10' Sandy gravel (max. size = 12")
	Samples 3017, 3018, and 3019 are combined (Interpolated @ 1+783) Not located - in new road?											
												T.H. #11
												D = 0 - ½' Organic silt
3019	3	8	24	31			NP	A-1-a	½'-10'	10		D = ½' - 10' sandy gravel
	Samples 3017, 3018, and 3019 are combined Sta 2+275											
												T.H. #12
												D = 0 - 1/2' Organic silt
" 3020	5	12	43	47			NP	A-1-a	½'-10'	10		D = 1/2' - 10' Sandy gravel (max. size = 12")
	Sta 2+425											

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks–Onion Creek Development Rd. TEST HOLE No. 13, 14, 15, and 16

LOGGED BY J.B. Maloney DATE 6/7/66 STATION 158+00, 163+00, 172+00, and 183+00

ENTERED BY K. Y akemchuk DATE 2/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #13
												D = 0 - 1/2'
												Organic silt
3021	5	13	21	22			NP	A-1-a	½'-10'	10		D = 1/2'- 10'
												Sandy gravel
												Sta 2+485
												T.H. #14
												D = 0 - 1/2'
3022	26	93	100	100			NP	A-2-4	½'-5'			Organic silt
										10		D = 1/2' - 5'
												Silty Sand
												D = 5' Frost level
												Sta 2+650
												T.H. #15
3023	96	99	100	100	24	20	4	A-4	½'-2'			D = 0 -1/2'
												Organic silt
										10		D = 1/2' - 2'
												silt
												D = 2' Frost level
												(Int @ 2+915)
												Not Located (on flat)
												T.H #16
												D = 0 - ½'
												Organic silt
3024	4	13	36	41			NP	A-1-a	½'-10'	10		D = 1/2' - 10'
												Sandy gravel (max. size = 8")
Samples 3024 and 3025 are combined												
												Sta 3+240

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 17, 18, 19, and 20

LOGGED BY J.B. Maloney DATE 7/7/66 STATION 186+50, 197+00, 203+00, and 211+00

ENTERED BY K. Yakemchuk DATE 2/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #17 D = 0' - 1' Organic silt
3025	4	13	36	41			NP	A-1-a	1'-10'	10		D = 1' - 10' Sandy gravel (max. size = 12")
	Samples 3024 and 3025 are combined											
	Sta. 3+335											
												T.H. #18 D = 0 - 1' Organic silt
3026	6	9	19	25			NP	A-1-a	1'-10'	10		D = 1' - 10' Sandy gravel (max. size = 14")
	(Int @ 3+668) Not located.											
												T.H. #19 D = 0 -1/2' Organic silt
3027	46	77	90	95	42	31	11	A-5	½'-10'	10		D = 1/2' - 10' Silty sand
	(Int @ 3+831) Not located.											
												T.H. #20 D = 0 - 1/2' Organic silt
3028	10	20	34	40	21	19	2	A-1-a	½'-10'	10		D = 1/2' - 10' Sandy gravel(max. size = 10")
	Sta. 4+107											

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks–Onion Creek Development Rd. TEST HOLE No. 21, 22, 23, and 24

LOGGED BY J.B. Maloney DATE 8/7/66 STATION 221+50, 223+00, 224+50, and 230+00

ENTERED BY K. Yakemchuk DATE 2/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #21
												D = 0 - 1/2'
												Organic silt
3029	3	20	57	65			NP	A-1-b	½'-10'	10		D = 1/2' - 10'
												Sandy gravel (max. size = 8") OR Gravelly Sand
	Samples 3029 and 3030 are combined											
												Sta. 4+25
												T.H. #22
												D = 0 - 1'
												Organic silt
3030	3	20	57	65			NP	A-1-b	1'-10'	10		D = 1' - 10'
												Gravelly sand (max. size = 6")
	Samples 3029 and 3030 are combined											
												Sta. 4+475
												T.H. #23
												D = 0 - 1/2'
												Organic silt
3031	4	20	45	51			NP	A-1-a	½'-10'	10		D = 1/2' - 10'
												Gravelly sand (max. size = 6")
	Samples 3031 and 3032 are combined											
												Sta. 4+520
												T.H. #24
												D = 0 - 1/2'
												Organic silt
3032	4	20	45	51			NP	A-1-a	½'-10'	10		D = 1/2' - 10'
												Sandy gravel (max. size = 4")
	Samples 3031 and 3032 are combined											
												Sta. 4+685

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 25, 26, 27, and 28

LOGGED BY J.B. Maloney DATE 8/7/66 STATION 232+00, 234+00, 235+00, and 239+00

ENTERED BY K. Yakemchuk DATE 2/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #25
3033	2	17	49	57			NP	A-1-a	½'-10'	10		D = 0 - 1/2' Organic silt D = 1/2' - 10' Sandy gravel (max. size = 4") Sta 4+750
												T.H. #26
3034	4	79	98	99			NP	A-3	½'-10'	10		D = 0 - 1/2' Organic silt D = 1/2' - 10' Sand Sta 4+800
												T.H. #27
3035	10	76	98	99			NP	A-2-4	1'-5'	10		D = 0 - 1' Organic silt D = 1' - 5' Sand D = 5' Frost level Sta 4+825
												T.H. #28
3035A	99	100	100	100	34	27	7	A-4	½'-2'	10		D = 0 - 1/2' Organic silt D = 1/2' - 2' Silt D = 2' Frost level Not Located

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks–Onion Creek Development Rd. TEST HOLE No. 29, 30, 31, and 32

LOGGED BY J.B. Maloney DATE 9/7/66 STATION 241+00, 244+00, 249+00, and 253+00

ENTERED BY K. Yakemchuk DATE 2/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES
												T.H. #29
3036	92	97	99	100	35	24	11	A-6	1/2'-5'			D = 0 - 1/2'
												Organic silt
3037	4	18	38	48			NP	A-1-a	5'-10'			D = 1/2' - 5'
										10		Silt
												D = 5' - 10' Sandy gravel (max. 4")
												Water seepage at D = 7'
												T.H. #30
												D = 0 - 1'
												Organic silt
3038	3	14	32	45			NP	A-1-a	1'-9'	10		D = 1' - 9'
												Sandy gravel (max. size = 4")
												D = 9' Frost level
												T.H. #31
												D = 0 - 1'
												Organic silt
3039	3	6	20	28			NP	A-1-a	1'-10'	10		D = 1' - 10'
												Sandy gravel (max. size = 12")
												T.H. #32
												D = 0 - 1'
												Organic silt
3040	3	6	20	28			NP	A-1-a	1'-10'	10		D = 1' - 10'
												Sandy gravel

Samples 3039 and 3040 are combined

Samples 3039 and 3040 are combined

S+030

~S+125 Under new Construction

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. ~~33, 34, 35, and 36~~

LOGGED BY J.B. Maloney DATE 9/7/66 STATION 254+50, 258+00, 267+00, and 290+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D - 7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #33
												D = 0 - 1/2'
												Organic silt
3041	4	9	26	34			NP	A-1-a	½'-10'	10		D = 1/2' - 10'
												Sandy gravel (max. size=16")
												T.H. #34
												D = 0 - 1/2'
												Organic silt
3042	15	29	37	41			NP	A-1-a	½'-10'	10		D = 1/2' - 10'
												sandy gravel(max. = 6")
												T.H. #35
3043	20	28	44	55			NP	A-1-b	½'-3'			D = 0 - 1/2'
												Organic silt
										10		D = 1/2' - 3'
												Silty gravel(max. size = 4')
												D = 3 ' Frost level
												T.H. #36
												D = 0 - 1/2'
												Organic silt
3044	13	24	35	40			NP	A-1-a	½'-10'	10		D = 1/2' - 10'
												SANDY gravel(max. size = 12")

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 37, 38, 39, and 40

LOGGED BY J.B. Maloney DATE 11/7/66 STATION 295+00, 300+00, 305+00, and 310+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #37
3045	28	48	65	71	30	19	11	A-2-6	½'-4'			D = 0 - 1/2' Organic silt
										10		D = 1/2' - 4' Silty sandy gravel (max. size = 12")
												D = 4' Frost level
												T.H. #38
										10		Permafrost under 6" of moss
												T.H. #39
										10		Permafrost under 6" of moss
												T.H. #40
										10		Permafrost under 6" of moss

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 41, 42, 43, and 44

LOGGED BY J.B. Maloney DATE 11/7/66 STATION 315+00, 320+00, 325+00, and 330+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #41
3046	55	90	98	99	25	23	2	A-4	½'-3'			D = 0 - 1/2'
												Organic silt
										10		D = 1/2' - 3'
												Sandy silty clay
												D = 3' Frost level
												T.H. #42
3047	47	74	85	94	26	25	1	A-4	1½'-8'			D = 0 - 1/2'
												Organic silt
										10		D = 1/2' - 1 1/2'
												Silty gravel
												D = 1 1/2' - 8'
												Silty sand Permafrost at 8'
												T.H. #43
3048	56	82	95	97	29	23	6	A-4	½'-6'			D = 0 - 1/2'
												Organic silt
										10		D = 1/2' - 6'
												Silty sand
												D = 6' Permafrost
												T.H. #44
3049	31	50	59	63	26	22	4	A-2-4	½'-5'			D = 0 - 1'
												Organic silt
										10		D = 1' - 5'
												Silty sandy gravel (max. = 5")
												D = 5' Permafrost

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 45, 46, 47, and 48

LOGGED BY J.R. Maloney DATE 12/7/66 STATION 335+00, 340+00, 345+00, and 350+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Bachoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES
												T.H. #45
												D = 0 - 1/2'
												Organic silt
3050	23	38	48	56	30	24	6	A-1-b	1/2'-10'	10		D = 1/2' - 10'
												Clayey, Silty, sandy gravel (max. = 12")
												T.H. #46
3051	47	71	80	85	29	21	8	A-4	1'-7'			D = 0 - 1'
												Organic silt
										10		D = 1' - 7'
	Samples 3051 and 3052 are combined											Clayey, Silty, sand
												D = 7' Permafrost
												T.H. #47
3052	47	71	80	85	29	21	8	A-4	1'-7'			D = 0 - 1'
												Organic silt
										10		D = 1' - 5'
	Samples 3051 and 3052 are combined											Clayey, Silty sand
												D = 5' Permafrost
												T.H. #48
												D = 0 - 1'
												Organic silt
3053	6	11	21	27			NP	A-1-a	1'-10'	10		D = 1' - 10'
	Samples 3053 and 3054 are combined											Silty sandy gravel (max. = 16")

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 49, 50, 51, and 52
LOGGED BY J.B. Maloney DATE 12/7/66 STATION 354+70, 360+00, 365+00, and 370+00
ENTERED BY K. Yakemchuk DATE 8/12/66
CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #49
												D = 0 - 1'
												Organic silt
3054	6	11	21	27			NP	A-1-a	1'-10'	10		D = 1' - 10'
	Samples 3053 and 3054 are combined											Sandy gravel(max. size = 2')
												T.H. #50
												D = 0 - 1'
												Organic silt
3055	1	15	23	29			NP	A-1-a	1'-10'	10		D = 1' - 10'
												Sandy gravel(max. size = 8")
												T.H. #51
												D = 0 - 1'
3056	26	44	84	93	19	19	0	A-2-4	1'-6'			Organic silt
										10		D = 1' - 6'
												Silty sand
												D = 6' Permafrost
												T.H. #52
3057	74	100	100	100	26	25	1	A-4	1'-4'			D = 0 -1'
												Organic silt
										10		D = 1' - 4'
												Sandy, Silt [illegible]
												D = 4' Permafrost

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 53, 54, 55, and 56

LOGGED BY J.B. Maloney DATE 12/7/66 STATION 375+00, 380+00, 385+00, and 390+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #53 D = 0 -1' Organic silt
3058	3	9	37	52			NP	A-1-a	1'-10'	10		D = 1'- 10' Sandy gravel(max. size = 6")
3059	93	99	100	100	23	22	1	A-4	1'-3'			T.H. #54 D = 0 - 1' Organic silt
										10		D = 1' - 3' Silty sand D = 3' Permafrost
3060	79	100	100	100	25	23	2	A-4	1'-6'			T.H. #55 D = 0 - 1' Organic silt
										10		D = 1' - 6' Silty [illegible] D = 6' Permafrost
3061	89	100	100	100	25	23	2	A-4	1'-5'			T.H. #56 D = 0 - 1/2' Organic silt
										10		D = 1/2' - 5' Silty D = 5' Permafrost

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 57, 58, 59, and 60

LOGGED BY J.B. Maloney DATE 13/7/66 STATION 395+00, 400+00, 405+00, and 409+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #57
3062	79	95	97	97	23	21	2	A-4	½'-5'			D = 0 - 1/2'
												Organic silt
										10		D = 1/2' - 5'
												Sandy Silt
Samples 3062 and 3063 are combined (Jct @ 9+698) Not located.												D = 5' Permafrost
												T.H. #58
3063	79	95	97	97	23	21	2	A-4	½'-7'			D = 0 - 1/2'
												Organic silt
										10		D = 1/2' - 7'
												Sandy, Silt
Samples 3062 and 3063 are combined Sta 9+850												D = 7' Permafrost
												T.H. #59
3064	82	99	100	100	23	22	1	A-4	1'-4'			D = 0 - 1'
												Organic silt
										10		D = 1' - 4'
												Silt
Samples 3064 and 3065 are combined Sta 10+020												D = 4' Permafrost
												T.H. #60
3065	82	99	100	100	23	22	1	A-4	1-7'			D = 0 - 1'
												Organic silt
										10		D = 1' - 7'
												Silt
Samples 3064 and 3065 are combined Sta 10+135												D = 7' Permafrost

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 61, 62, 63, and 64

LOGGED BY J.B. Maloney DATE 14/7/66 STATION 415+00, 421+60, 426+00, and 430+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #61
												D = 0 - 1'
												Organic silt
3066	14	27	43	46	19	18	1	A-1-a	1-10'	10		D = 1' - 10'
												sandy gravel(max. = 10")
												Sta. 10+350
												T.H. #62
												D = 0 - 1'
												Organic silt
3067	6	26	50	53			NP	A-1-a	1'-10'	10		D = 1' - 10'
												Gravelly sand(max. size = 4")
												Sta 10+524
												T.H. #63
												D = 0 - 1/2'
												Organic silt
3068	7	17	29	33	19	19	0	A-1-a	1'-10'	10		D = 1/2' - 10'
Samples 3068 and 3069 are combined												Sandy gravel(max. size = 8")
												Sta 10+650 % Sm Rt.
												T.H. #64
												D = 0 - 1'
												Organic silt
3069	7	17	29	33	19	19	0	A-1-a	1'-10'	10		D = 1' - 10'
Samples 3068 and 3068 are combined												Sandy gravel(max. size 24")
												Sta 10+790 % Sm Rt

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 65, 66, 67, and 68

LOGGED BY J.B. Maloney DATE 15/7/66 STATION 434+00, 439+00, 445+00, and 450+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES
												T.H. #65
												D = 0 - 1'
												Organic silt
3070	6	14	25	31			NP	A-1-a	1'-10'	10		D = 1' - 10'
												Sandy gravel (max. 10")
												Sta. 110+950
												T.H. #66
												D = 0 - 1'
												Organic silt
3071	2	6	15	21			NP	A-1-a	1'-10'	10		D = 1' - 10'
												sandy gravel (max. size = 6")
												Sta. 111+100
												T.H. #67
												D = 0 - 1'
												Organic silt
3072	3	10	28	35			NP	A-1-a	1'-10'	10		D = 1' - 10'
												Sandy gravel (max. size = 8")
												Sta. 111+300
												T.H. #68
3073	81	90	95	96	27	25	2	A-4	1'-3'			D = 0 - 1/2'
												Organic silt
3074	5	13	31	39			NP	A-1-b	3'-10'	10		D = 1/2' - 3'
												Silty sand
												D = 3' - 10'
												Sandy gravel (max. size = 6")
												Sta. 111+450

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 69, 70, 71, and 72

LOGGED BY J.B. Maloney DATE 15/7/66 STATION 454+00, 458+00, 459+00, and 470+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 10	No. 40	No. 4	Limits L.L.	P.I.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #69
3075	88	98	99	100	26	24	2	A-4	½'-3'			D = 0 - 1/2' Organic silt
3076	16	28	36	44	21	20	1	A-1-b	3'-10'	10		D = 1/2' - 3' Silty sand
												D = 3' - 10' Silty sandy gravel (max. size=6")
												Sta 11+560 9's 20m Lt.
												T.H. #70
3077	8	20	46	53	21	18	3	A-1-a	1'-10'	10		D = 0 - 1' Organic silt
												D = 1' - 10' Sandy gravel (max. size = 36")
												Sta 11+685
												T.H. #71
3078	2	10	46	53			NP	A-1-a	1'-10'	10		D = 0 - 1' Organic silt
												D = 1' - 10' Gravelly sand (max. size = 5")
	Samples 3078 and 3079 are combined											
												Sta. 11+725 9's 10m Rt
												T.H. #72
3079	2	10	46	53			NP	A-1-a	2½'-10'	10		D = 0 - 1' Organic silt
												D = 1' - 2 1/2' Silty sand
												D = 2 1/2' - 10' Sandy gravel (max. size = 8")
	Samples 3078 and 3079 are combined											
												Sta 12+050

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 73, 74, 75, and 76

LOGGED BY J.B. Maloney DATE 16/7/66 STATION 475+00, 480+00, 485+00, and 490+00

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.I.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES
												T.H. #73
												D = 0 - 1'
												Organic silt
3080	3	8	19	26		NP		A-1-a	2'-10'	10		D = 1' - 2'
												Silty sand
												D = 2' - 10'
												Sandy gravel(max. size =18")
	Samples 3080 and 3081 are combined											
	Sta 12+210											
												T.H. #74
												D = 0 - 1'
												Organic silt
3081	3	8	19	26		NP		A-1-a	1'-10'	10		D = 1' - 10'
												Sandy gravel(max. size = 10")
	Samples 3080 and 3081 are combined											
	Sta 12+350											
												T.H. #75
												D = 0 - 1'
												Organic silt
3082	5	8	18	23		NP		A-1-a	1'-10'	10		D = 1' - 10'
												Sandy gravel(max. size = 16")
	Samples 3082 and 3083 are combined											
	Sta 12+520											
												T.H. #76
												D = 0 - 1'
												Organic silt
3083	5	8	18	23		NP		A-1-a	2'-10'	10		D = 18 - 2'
												Silty sand
												D = 2' - 10'
												sandy gravel(max. =16")
	Samples 3082 and 3083 are combined											
	Sta 12+660											

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 77, 78, 79, and 80

LOGGED BY J.P. Maloney DATE 16/7/66 STATION 495+00, 500+00, 505+00, and 509+70

ENTERED BY K. Yakemchuk DATE 8/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES
												T.H. #77
												D = 0' - 1'
												Organic silt
3084	5	14	28	34		NP		A-1-a	1'-10'	10		D = 1' - 10'
												Sandy gravel (max. size = 10")
Samples 3084 and 3085 are combined												
Sta 12+810 o/s 5m Lt.												
												T.H. #78
												D = 0 - 1'
												Organic silt
3085	5	14	28	34		NP		A-1-a	1'10'	10		D = 1' - 10'
												Sandy gravel (max. size = 8")
Samples 3084 and 3085 are combined												
Sta 12+975 o/s 5m Lt.												
												T.H. #79
												D = 0 - 1'
												Organic silt
3086	3	9	18	25		NP		A-1-a	1'-10'	10		D = 1' - 2'
												Silty sand
Samples 3086 and 3087 are combined												D = 2' - 10'
Sta 13+125.												Sandy gravel(max. size = 10")
												T.H. #80
												D = 0 - 1'
												Organic silt
3087	3	9	18	25		NP		A-1-a	1'-10'	10		D = 1' - 10'
												Sandy gravel(max. size = 12")
Samples 3086 and 3087 are combined												
Sta 13+310												

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 81, 82, 83, and 84

LOGGED BY J.B. Maloney DATE 18/7/66 STATION 515+50, 519+80, 526+00, and 530+50

ENTERED BY K. Yakemchuk DATE 9/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #81
												D = 0 - 1/2' Organic silt
												D = 1/2' - 1' Volcanic ash
3088	3	9	25	31			NP	A-1-a	1'-8'	10		D = 1' - 8' Sandy gravel(max. size = 18")
												D = 8' Permafrost
	Samples 3088 and 3089 are combined											
	Sta 13+450 ??											
												T.H. #82
												D = 0 - 1/2' Organic silt
												D = 1/2' - 1' Volcanic ash
3089	3	9	25	31			NP	A-1-a	1'-10'	10		D = 1' - 10' Sandy gravel(max. size = 18")
	Samples 3088 and 3089 are combined											
	Sta 13+570											
												T.H. #83
												D = 0 - 1/2' Organic silt
												D = 1/2 - 1' Volcanic ash
3090	1	3	12	19			NP	A-1-a	1'-10'	10		D = 1' - 10' Sandy gravel(max. size = 12")
	Sta 13+770											
												T.H. #84
												D = 0 - 1/2' Organic silt
												D = 1/2' - 1' Volcanic ash
3091	5	15	34	41			NP	A-1-a	2'-10'	10		D = 1' - 2' Sand
	Samples 3091 and 3091A are combined											D = 2' - 10' Sandy gravel(max.8")
	Sta 13+900											

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 85, 86, 87, and 88

LOGGED BY J.R. Maloney DATE 19/7/66 STATION 540+50, 544+00, 549+00, and 554+00

ENTERED BY K. Yakemchuk DATE 9/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #85 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2' Silty sand D = 2' - 10' Sandy gravel(max. = 8")
3091A	5	15	34	41			NP	A-1-a	2'-10'	10		
Samples 3091 and 3091A are combined Sta 14+200												
												T.H. #86 D = 0 - 6" Organic silt D = 6" - 1' Volcanic ash D = 1' - 2' Silty sand D = 2' - 10' Sandy gravel(max. size = 6")
3092	3	12	30	35			NP	A-1-a	2'-10'	10		
Samples 3092 and 3093 are combined Sta 14+370 ± Sw Lg.												
												T.H. #87 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2' Silty sand D = 2' - 10' Sandy gravel (max. size = 10")
3093	3	12	30	35			NP	A-1-a	2'-10'	10		
Samples 3092 and 3093 are combined Sta 14+465												
												T.H. #88 D = 0 -1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2' Silty sand D = 2' - 10' Sandy gravel (max. size = 10")
3094	3	8	22	27			NP	A-1-a	2'-10'	10		
Samples 3094 and 3095 are combined Sta 14+610												

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 89, 90, 91, and 92

LOGGED BY J.B. Maloney DATE 19/7/66 STATION 560+00, 564+50, 571+00, and 576+00

ENTERED BY K. Yakemchuk DATE 9/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #89
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3095	3	8	22	27			NP	A-1-a	1'10'	10		Volcanic ash
												D = 1' - 10'
	Samples 3094 and 3095 are combined											Sandy gravel (max. size = 10")
	Sta 14+785											
												T.H. #90
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3096	2	11	30	34			NP	A-1-a	1'-10'	10		Volcanic ash
												D = 1' - 10'
	Samples 3096 and 3097 are combined											Sandy gravel (max. size = 8")
	Sta 14+925.											
												T.H. #91
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3097	2	11	30	34			NP	A-1-a	1'-10'	10		Volcanic ash
												D = 1' - 10'
	Samples 3096 and 3097 are combined											Sandy gravel (max. size = 6")
	Sta 15+125											
												T.H. #92
												D = 0 - 1/2'
												Organic silt
												D = 1/2 - 1'
3098	2	10	26	30			NP	A-1-a	2'-10'	10		Volcanic ash
												D = 1' - 2'
												Silty sand
	Samples 3098 and 3099 are combined											D = 2' - 10'
	Sta 15+280											Sandy gravel (max. size = 6")

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 93, 94, 95, and 96

LOGGED BY J.B. Maloney DATE 20/7/66 STATION 581+00, 585+00, 590+00, and 595+00

ENTERED BY K. Yakemchuk DATE 9/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #93
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3099	2	10	26	30			NP	A-1-a	2'-10'	10		Volcanic ash
												D = 1' - 2'
												Silty sand
												D = 2' - 10'
												Sandy gravel (max. size = 8")
	Samples 3098 and 3099 are combined											
	Sta. 15+425											
												T.H. #94
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3100	3	8	21	27			NP	A-1-a	2'-10'	10		Volcanic ash
												D = 1' - 2'
												Silty sand
												D = 2' - 10'
												Sandy gravel (max. size = 8")
	Samples 3100 and 3101 are combined											
	Sta 15+560											
												T.H. #95
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3101	3	8	21	27			NP	A-1-a	1'-10'	10		Volcanic ash
												D = 1' - 10'
												Sandy gravel (max. size = 6")
	Samples 3100 and 3101 are combined											
	Sta 15+710											
												T.H. #96
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3102	1	6	29	39			NP	A-1-a	1'-10'	10		Volcanic ash
												D = 1' - 10'
												Sandy gravel (max. size = 6")
	Samples 3102 and 3103 are combined											
	Sta 15+860											

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Union Creek Development Rd TEST HOLE No. 97, 98, 99, AND 100

LOGGED BY J.B. Maloney DATE 22/7/66 STATION 600+00, 605+00, 610+00, and 615+00

ENTERED BY K. Yakemchuk DATE 9/12/66

CHECKED BY ______ DATE ______ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class	Sample Depth	Depth ft	Profile	NOTES:
												T.H. #97
												D = 0 - 1/2' Organic silt
												D = 1/2' - 1'
3103	1	6	29	39			NP	A-1-a	1'-10'	10		Volcanic ash
			(Int @ 16+015)									D = 1' - 10'
	Samples 3102 and 3103 are combined											Sandy gravel (max. size = 6")
			Not located. Probably near pit on BCLS									
												T.H. #98
												D = 0 - 1/2' Organic silt
												D = 1/2' - 1'
3104	3	13	28	33			NP	A-1-a	1'-10'	10		Volcanic ash
												D = 1' - 10'
			Sta 16+170									Sandy gravel (max. size = 6")
												T.H. #99
												D = 0 - 1/2' Organic silt
												D = 1/2' - 1'
3105	1	6	25	35			NP	A-1-a	1'-10'	10		Volcanic ash
												D = 1' - 10'
			Sta 16+335 315 o/s 10m Rt.									Sandy gravel (max. size = 6")
												T.H. #100
												D = 0 - 1/2' Organic silt
3106	3	13	34	41			NP	A-1-a	1'-10'	10		D = 1/2' - 1' Volcanic ash
	Samples 3106 and 3107 are combined											D = 1' - 10'
			Sta 16+465 o/s 5m Lt									Sandy gravel (max. size = 8")

OK → POT 16+478 3 m upchain from 16+500 then double 16+500

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No 101, 102, 103, and 104

LOGGED BY J.B. Maloney DATE 25/7/66 STATION 620+00, 626+00, 630+00, and 635+00

ENTERED BY K. Yakemchuk DATE 9/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES.
												T.H. #101
												D = 1/2' - 0
												Organic silt
												D = 1/2' - 1'
3107	3	13	34	41			NP	A-1-a	1'-10'	10		Volcanic ash
												D = 1' - 10'
												Sandy gravel (max. size = 6")
	Samples 3106 and 3107 are combined											
	Sta 16+660											
												T.H. #102
												D = 0 -1/2'
												Organic silt
#108	2	15	30	36			NP	A-1-a	1'-10'	10		D = 1/2' - 1'
												Volcanic ash
												D = 1' - 10'
												Sandy gravel (max. size = 6")
	Samples 3108 and 3109 are combined											
	Sta 16+800											
												T.H. #103
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3109	2	15	30	36			NP	A-1-a	1'-10'	10		Volcanic ash
	(Int @ 16+922)											D = 1' - 10'
	Samples 3108 and 3109 are combined											Sandy gravel (max. size = 10")
	Not Located.											
												T.H. #104
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3110	6	21	49	53			NP	A-1-a	2'-7'	10		Volcanic ash
												dD = 1' - 2'
												Silty sand Permafrost at 7'
												D = 2' - 7'
	Sta 17+075 LHS											Sandy gravel (max. size = 18")

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd TEST HOLE 105, 106, 107, and 108

LOGGED BY J.B. Maloney DATE 26/7/56 STATION 620+00, 625+00, 629+50, and 654+50

ENTERED BY K. Yakemchuk DATE 9/12/56

CHECKED BY DATE HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.
3111	6	12	27	37	32	25	7	A-2-4	2'-6'	
Samples 3111 and 3112 are combined										
Not Located										
3112	6	12	27	37	32	25	7	A-2-4	1'-10'	
Samples 3111 and 3112 are combined										
Sta. 17+375										
3113	14	22	33	42	32	23	9	A-1-a	2'-5'	
Sta 17+525										
3114	6	13	33	44	29	24	5	A-1-a	1'-10'	
Samples 3114 and 3115 are combined										
Sta 17+670										

T.H. #105

D = 0 - 1/2'
Organic silt
D = 1/2' - 1'
Volcanic ash
D = 1' - 2'
Silty sand
D = 2' - 6'
Sandy gravel (max. size = 8")
D = 6' Permafrost

T.H. #106

D = 1/2' - 0
Organic silt
D = 1/2' - 1'
Volcanic ash
D = 1' - 10'
Sandy gravel (max. size = 12")

T.H. #107

D = 0 - 1/2'
Organic silt
D = 1/2' - 1'
Volcanic ash
D = 1' - 2'
sand
D = 2' - 5'
gravel (max. = 36")

T.H. #108

D = 0 - 1/2'
Organic silt
D = 1/2' - 1'
Volcanic ash
D = 1' - 10'
sandy gravel (max. = 24")

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 109, 110, 111, and 112

LOGGED BY J.B. Maloney DATE 27/7/66 STATION 659+00, 661+00, 663+70, and 666+50

ENTERED BY K. Yakemchuk DATE 9/12/66

CHECKED BY DATE HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class	Sample Depth	Depth ft.	PROFILE	NOTES
3115	6	13	33	44	29	25	4	A-1-a	1'-10'	10		T.H. #109 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' sandy gravel(max. size 24")
Samples 3114 and 3115 are combined Sta 17+810												
3116	5	8	11	14			NP	A-1-a	1'-8'	10		T.H. #110 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 8' sandy gravel(max. = 7') Unable to penetrate below 8'.
Sta 17+815												
(Int @ 17+950) Not Located										10		T.H. #111 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2' Silty sand D = 2' large rock(6' Ø) Unable to pemetrate
3117	10	17	30	38	40	27	13	A-2-6	1'-5'	10		T.H. #112 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcani c ash D = 1' - 5' sandy, gravel D = 5' Large rock(6' Ø) Unable tā penetrate below this depth
(Int @ 18+038) Not Located												

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, YT

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 113, 114, 115, and 116

LOGGED BY B. Guerins DATE 28/7/66 STATION 672+00, 676+00, 679+00, and 684+00

ENTERED BY K. Yakemchuk DATE 12/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES
												T.H. #113
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3118	10	17	36	45	32	25	7	A-1-a	1'-10'	10		Volcanic ash
												D = 1' - 10'
												gravel (max. size = 4")
												Sta 18+200
												T.H. #114
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3119	20	37	52	57	No Sample				1'-10'	10		Volcanic ash
												D = 1' - 10'
Samples 3119 and 3120 are combined												Sandy, Gravel
												Sta 18+340
												T.H. #115
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3120	20	37	52	57	Inadequate sample					10		Volcanic ash
												D = 1' - 10'
Samples 3119 and 3120 are combined												Sandy gravel (max. size = 2")
												Sta 18+420
												T.H. #116
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3121	16	26	33	37	18	15	3	A-1-b	1'-10'	10		Volcanic ash
												D = 1' - 10'
Samples 3121 and 3122 are combined												Sandy gravel (max. size = 2")
												Sta 18+565

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 117, 118, 119, and 120

LOGGED BY B. Guerins DATE 28/7/66 STATION 689+00, 694+00, 699+00, and 704+00

ENTERED BY K. Yakemchuk DATE 12/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #117
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3122	16	26	33	37	32	25	7	A-1-b	1'-10'	10		Volcanic ash
												D = 1' - 10'
												Sandy gravel (max. size = 2")
	Samples 3121 and 3122 are combined											
	Sta 18+720											
												T.H. #118
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3123	18	27	36	42	23	19	4	A-1-b	1'-10'	10		Volcanic ash
												D = 1' - 10'
												Sandy gravel (max. size = 3")
	Samples 3123 and 3124 are combined											
	Sta 18+865											
												T.H. #119
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3124	18	27	36	42	23	19	4	A-1-b	1'-10'	10		Volcanic ash
												D = 1' - 10'
												Frozen sandy gravel
	Samples 3123 and 3124 are combined											
	Sta 19+025											
												T.H. #120
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3125	42	62	75	82	23	18	5	A-4	1'-4'	10		Volcanic ash
												D = 1' - 4'
												Silty clay
												D = 4' Permafrost
	Sta 19+185											

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 121, 122, 123, and 124

LOGGED BY B. Guerins DATE 30/7/66 STATION 710+00, 717+00, 725+00, and 732+00

ENTERED BY K. Yakemchuk DATE 12/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #121
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3126	35	54	64	71	21	21	0	A-2-4	1'-10'	10		Volcanic ash
												D = 1' - 10'
												Silty sand (max. rock size = 2")
												Sta 19+350
												T.H. #122
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3127	60	70	77	80	23	18	5	A-4	1'-10'	10		Volcanic ash
												D = 1' - 10'
												Silty clay
												Sta 19+560
												T.H. #123
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
3128	41	58	66	71	20	19	1	A-4	1'-10'	10		Volcanic ash
												D = 1' - 10'
												Silty clay (max. rock size = 1")
												Sta 19+800
												T.H. #124
												D = 0 1/2'
												Organic silt
												D = 1/2' - 1'
3129	69	100		ASH						10		Volcanic ash
												D = 1' - 2'
												Silty sand
												D = 2'
												Permafrost
												Sta 20+030

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 125, 126, 127, and 128

LOGGED BY B. Guerins DATE 30/7/666 STATION 738+00, 744+00, 750+00, and 757+00

ENTERED BY K. Yakemchuk DATE 12/12/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #125
3130	17	29	39	46	18	17	1	A-1-b	1'-5'	10		D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 5' Frozen sandy gravel
												Sta 20+230 % 5m L.
												T.H. #126
3131	100%	Organic								10		D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2' Frozen black organic soil
												Sta 20+400
												T.H. #127
3132	5	13	25	39	15	15	0	A-1-a	1'-10'	10		D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic Ash D = 1' - 10' Sandy gravel(max. size = 2")
												Sta 20+595
												T.H. #128
3133	8	16	25	32	22	21	1	A-1-a	1'-10'	10		D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Sandy gravel(max. size = 4")
												Sta 20+785

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No 128A, 128B, and 128C

LOGGED BY B. Guerins DATE Aug. 3/66 STATION 763+00, 769+00, and 775+00

ENTERED BY K. Yakemchuk DATE Jan. 16/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #128A
3134			100%		Organic				1'-3'			Sta. 763+00
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
										10		Volcanic ash
												D = 1' - 3'
												Frozen black soil
		Sta. 20+975										
		Lt. of centre										
												T.H. #128B
3135	59	76	83	87	20	19	1	A-4	1'-5'			Sta. 769+00
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
										10		Volcanic ash
												D = 1' - 5'
												Sandy silt
		Sta. 21+150 Lt. of Centre										
												T.H. #128C
3136	30	51	63	68			0	A-2-4	1'-10'			Sta. 775+00
												D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
										10		Volcanic ash
												D = 1' - 10'
		Sta. 21+340										Silty gravelly sand (max. size 4")
												T.H. _____
										10		

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 128D, 128E, and 128F

LOGGED BY B. Guering DATE Aug. 3 /66 STATION 784+00, 788+70, and 794+00

ENTERED BY K. Yakemchuk DATE Jan. 16/66

CHECKED BY ______ DATE ______ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES
3137	7	13	19	23	25	25	0	A-1-a	1'-10'			T.H. #128D Sta. 784+00 D = 0 - 1/2' XXI Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Sandy gravel(max. size = 3")
3138	62	81	88	92	18	16	2	A-4	1'-6'			T.H. #128E Sta. 788+70 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 6' Frozen silt(max. rock size = 3")
3139	13	29	48	58			NP	A-1-a	1'-5'			T.H. # 128F Sta. 794+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcan ic ash D = 1' - 5' Sandy gravel(max. size = 2")
												T.H.

Handwritten (T.H. #128E): Hole 50' back from EC. Spoil pile shows gravel (max size 12" [illegible] 4"

Handwritten (T.H. #128F): Two trenches & one hole. Dirty gravelly material max size 8" [illegible]

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 129, 130, 131, and 132.

LOGGED BY B. Guerins DATE 5/8/66 STATION 799+50, 804+00, 809+00, and 814+00

ENTERED BY K. Yakemchuk DATE 16/1/67

CHECKED BY DATE HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
3140	6	16	35	45			N.P	A-1-a	1-10'	10		T.H. #129 Sta. 799+50 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Sandy gravel (max. size = 4") Spoil pile max size 12"
3141	9	22	39	46			NP	A-1-a	1'-10'	10		T.H. #130 Sta. 804+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Sandy gravel (max. size = 2") at existing road max size in pile Spoil
3142	93	97	99	100	26	23	3	A-4	1' - 2'	10		T.H. #131 Sta. 809+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2' Frozen silt
3143	23	42	53	58	16	16	0	A-1-b	1'-10'	10		T.H. #132 Sta. 814+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Sandy gravel (max. size = 1 1/2")

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No 133, 134, 135, and 136

LOGGED BY B. Guerins DATE 5/8/66 STATION 819+00, 824+00, 836+00, and 838+00

ENTERED BY K. Yakemchuk DATE 16/1/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												Sta. 819+00 T.H. #133
												D = 0 - 1/2'
3144			100% Organic						1'-3'			Organic silt
												D = 1/2' - 1'
										10		Volcanic ash
												D = 1' - 3'
												Frozen black soil
												Sta. 824+00 T.H. #134
												D = 0 - 1/2'
												Organic silt
3145	3	15	30	41		NP	A-1a		1'-10'			D = 1/2' - 1'
										10		Volcanic ash
	Samples 3145 and 3146 are combined											D = 1' - 10'
												Sandy gravel(max. size = 1½")
												Sta. 836+00 T.H. #135
												D = 0 - 1/2'
												Organic silt
3146	3	15	30	41		NP	A-1-a		1'-6'			D = 1/2' - 1'
										10		Volcanic ash
	Samples 3145 and 3146 are combined											D = 1' - 6'
												Sandy gravel (max. size = 3")
												Sta. 838+00 T.H. #136
												D = 0 - 1/2'
												Organic silt
3147	69	90	98	100	23	21	2	A-4	1'-2'			D = 1/2' - 1'
										10		Volcanic ash
												D = 1' - 2'
												Frozen silt

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 137, 138, 139, and 140

LOGGED BY B. Guerins DATE 10/8/66 STATION 873+00, 879+00, 884+00, and 889+00

ENTERED BY K. Yakemchuk DATE 16/1/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												T.H. #137
3148	62	97	100	100	25	18	7	A-4	1'-5'	10		Sta. 873+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 5' Frozen silt
												T.H. #138
3149	11	46	72	80			NP	A-1-b	1'-10'	10		Sta. 879+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Sandy gravel
	No sample taken									10		T.H. #139 Sta. 884+00 D = 0 - 1/2' Organic silt D= 1/2' - 1' Volcanic ash D = 1' - 6' Frozen clay
	No sample taken									10		T.H. #140 Sta. 889+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 6' Frozen clay

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 141, 142, 143, and 144

LOGGED BY B. Guerins DATE 10/8/66 STATION 894+00, 898+00, 903+00, and 908+00

ENTERED BY K. Yakemchuk DATE 16/1/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.I.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
3152	93	98	100	100	54	41	13	A-7-5	1'2½'			Sta. 894+00 T.H. #141 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2 1/2' Frozen clay
	Samples 3152 and 3153 are combined									10		
3153	93	98	100	100	54	41	13	A-7-5	1'-2½'			Sta. 898+00 T.H. #142 D= 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2 1/2' Frozen Clay
	Samples 3152 and 3153 are combined									10		
3153A	84	94	97	97	35	20	15	A-6	1'-5'			Sta. 903+00 T.H#143 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 5' Frozen, sandy, clayey, silt
										10		
3154	46	95	100		34	34	0	A-4	1'-2½'			Sta. 908+00 T.H. #144 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2 1/2' Frozen silt with some organic material.
										10		

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 145, 146, 147, and 148

LOGGED BY R. Guerins DATE Aug. 11/66 STATION 913+00, 918+00, 923+00, and 928+00

ENTERED BY K. Yakemchuk DATE Jan. 16/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Beckhoe

Sample No.	% PASSING 3"	3/4"	#10	#200	LIMITS LL	PL	PI	Unified Class.	Soils Class.	Sample Depth	Depth (ft.)	Profile	NOTES:
3155	46	92	100		33	32	1		A-4	1'-2½'			Sta. 913+00 T.H. #145 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D= 1' - 2 1/2' Frozen silt with some organic material
3156	6	29	69	88			NP		A-1-b	1'-6'	10		Sta. 918+00 T.H #146 D = 0 - 1/2' Orgmic silt D = 1/2' - 1' Volcanic ash D = 1' - 6' Frozen gravelly sand
3157	93	100	100		32	25	7		A-4	1'-10'	10		Sta. 923+00 T.H #147 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ~~ash~~ ash D = 1' - 10' Wet clayey silt
3158	72	100	100		23	22	1		A-4	1'-4'	10		Sta. 928+00 T.H #148 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 4' Frozen silt

DEPARTMENT PUBLIC WORKS

SOILS SECTION WHITEHORSE, Y.T.

PROJECT Carmacks- Onion [illegible] Development [illegible] TEST HOLE No. 149, 150, 151, and 152

LOGGED BY B. Guerins DATE Aug. 11/66 STATION 933+00, 938+00, 943+00, and 948+00

ENTERED BY K. Yakemchuk DATE Jan. 16/67

CHECKED BY ______ DATE ______ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	[illegible]	No. 4	[illegible]			[illegible]	[illegible]	Depth ft.	PROFILE	NOTES
3159	87	98	100		39	29	10	A-4	1'-10'			Sta. 933+00 T.H. #149 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Clayey sandy, silt
3160	94	100			35	23	12	A-6	1-2½'			Sta. 938+00 T.H. #150 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2 1/2' Frozen ~~[illegible]~~ clayey silt.
3161	3	14	27	36			NP	A-1-a	1'-10'			Sta. 943+00 T.H. #151 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Sandy gravel
3162	16	41	43	46			0	A-1-b	1'-10'	10		Sta. 948+00 T.H. #152 D = 0' - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Sandy gravel

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 153, 154, 155, and 156

LOGGED BY B. Guerins DATE Aug. 12/66 STATION 954+00, 960+00, 965+00, and 972+00

ENTERED BY K. Yakemchuk DATE Jan. 16/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES
												Sta. 954+00 T.H #153 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 8' Sandy gravel
3162	16	41	43	46			0	A-1-b	1'-10'	10		
												Sta. 960+00 T.H #154 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 8' Sandy gravel
3164	1	7	19	27			NP	A-1-a	1'-8'	10		
												Sta. 965+00 T.H #155 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 3 1/2' Frozen silty sand
3165	34	98	100				0	A-2-4	1'-3½'	10		
												Sta. 972+00 T.H #156 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 6' Silty, sandy, gravel
3166	36	56	64	67	18	17	1	A-2-4	1'-6'	10		

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 157, 158, 159, and 160

LOGGED BY B. Guerins DATE Aug. 12/66 STATION 977+00, 982+00, 988+00, and 993+00

ENTERED BY K. Yakemchuk DATE Jan. 12/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												Sta. 977+00 T.H. #157
3167	49	73	82	85	18	16	2	A-4		10		Silty sand----taken from roadside-Right-hand bank
												Sta. 982+00 T.H. #158
3168	48	68	78	83	30	20	10	A-4	1'-6'	10		D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 6' Silty, gravelly, sand
												Sta. 988+00 T.H. #159
3169	82	97	99	100	26	20	6	A-4	1'-8'	10		D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 8' Wet, clayey, silty, sand
												sta. 993+00 T.H. #160
3170	85	93	96	98	47	23	24	A-7-6	1'-2'	10		D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 2' Frozen silty clay

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 161, 162, 163, and 164

LOGGED BY B. Guerins DATE Aug. 12/66 STATION 998+00, 1002+00, 1007+00, & 1012+00

ENTERED BY K. Yakemchuk DATE Jan. 16/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
3171	85	93	96	98	47	23	24	A-7-6	1'-7'	10		T.H. #161 Sta. 998+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 7' Frozen silty clay
3172	35	55	64	69	20	18	2	A-2-4	1'-10'	10		T.H. #162 Sta. 1002+00 D = 0 -1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Silty sand and gravel
	Samples 3172 and 3173 are combined											
3173	35	55	64	69	29	18	2	A-2-4	18-8'	10		T.H. #163 Sta. 1007+00 D = 0 - 1/2' Organic silt D =1/2' - 1' Volcanic ash D = 1' - 8' Silty sandy gravel
	Samples 3172 and 3173 are combined											
3174	45	71	79	81	26	22	4	A-4	1'-10'	10		T.H. #164 Sta. 1012+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Silty sand

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 165, 166, 167, and 168

LOGGED BY B. Guerins DATE Aug. 16/66 STATION 1022+00, 1027+00, 1032+00, and 1037+00

ENTERED BY K. Yakemchuk DATE Jan. 16/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Bachoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												T.H. #165 Sta. 1022+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Clayey silty sand
3175	57	91	98	99	28	18	10	A-4	1'-10'	10		
	Samples 3175 and 3176 are combined											
												T.H. #166 Sta. 1027+00 D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 6' Clayey silty sand
3176	57	91	98	99	28	18	10	A-4	1'-10'	10		
	Samples 3175 and 3176 are combined											
												T.H. #167 Sta. 1032+00 D = 0 - 1/2' Organic silt D = 1/2' 1' Volcanic ash D = 1' - 10' Gravelly silty sand
3177	40	63	74	77	24	17	7	A-4	1'-10'	10		
	Samples 3177 and 3178 are combined											
												T.H. #168 Sta. 1037+00 D =0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Gravelly silty sand
3178	40	63	74	77	24	17	7	A-4	1'-10'	10		
	Samples 3177 and 3178 are conbined											

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE # 169, 170, 171, and 172

LOGGED BY B. Guerins DATE Aug. 19/66 STATION 1042+00, 1049+00, 1054+00, and

ENTERED BY K. Yakemchuk DATE Jan. 16/67 1059+00

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Soil Group Class.	Soils Classif.	Depth Ft.	Profile	NOTES
												Sta. 1042+00 T.H. #169
3179	82	96	98	99	43	21	22	A-7-6	1'-6'			D = 0 - 1/2' Organic silt
										10		D = 1/2' - 1' Volcanic ash
												D = 1' - 6' Hard silty clay
												Sta. 1049+00 T.H. #170
3180	50	82	92	97	31	17	14	A-6	1'-6'			D = 0 - 1/2' Organic silt
										10		D = 1/2' - 1' Volcanic ash
	Samples 3180 and 3181 are combined											D = 1' - 6' Hard clayey silty sand
												Sta. 1054+00 T.H. #171
3181	50	82	92	97	31	17	14	A-6	1'-10'	10		D = 0 - 1/2' Organic silt
	Samples 3180 and 3181 are combined											D = 1/2' - 1' Volcanic ash
												D = 1' - 10' Clayey silty sand
												Sta. 1059+00 T.H. #172
3182	7	21	35	48	24	23	1	A-1-b		10		Sandy gravel---sample taken from roadbed

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 173, 174, 175, and 176

LOGGED BY B. Guerins DATE Aug. 19/66 STATION 1064+00, 1069+00, 1076+00, And

ENTERED BY K. Yakemchuk DATE Jan. 16/67 1081+00

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.I.	P.L.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES
												Sta. 1064+00 T.H. #173
3183	18	52	76	89			NP	A-2-4		10		Gravelly sand---sample taken from roadbed.
	Samples 3183 and 3184 are combined											
												Sta. 1069+00 T.H. #174
3184	18	52	76	89			NP	A-2-4		10		Gravelly sand---sample taken from roadbed.
												Sta. 1076+00 T.H. #175
3185	48	73	83	87	20	18	2	A-4	1'-8'	10		D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 8' . Silty sand
												Sta. 1081+00 T.H. #176
3186	65	80	87	89	37	17	20	A-6	1'-10'	10		D = 0 - 1/2' Organic silt D = 1/2' - 1' Volcanic ash D = 1' - 10' Sandy silty clay

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 177, 178, 179, and 180

LOGGED BY B. Guerins DATE Aug. 22/66 STATION 1086+00, 1091+00, 1099+00, and 1104+00

ENTERED BY K. Yakemchuk DATE Jan. 16/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												Sta. 1086+00 T.H. #177
3187	75	85	89	91	45	18	27	A-7-6	1'-3'			D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
										10		Volcanic ash
												D = 1' - 3'
												Hard silty clay
	Samples 3187 and 3188 are combined											
												Sta. 1091+00 T.H. #178
												D = 0 - 1/2'
												Organic silt
3188	75	85	89	91	45	18	27	A-7-6	1'-10'	10		D = 1/2' - 1'
												Volcanic ash
												D = 1' - 10'
	Samples 3187 and 3188 are combined											Silty clayy
												Sta. 1099+00 T.H. #179
												D = 0 - 1/2'
3189	56	70	73	74	44	19	25	A-7-6	1'-6'			Organic silt
												D = 1/2' - 1'
										10		Volcanic ash
												D = 1' - 6'
												Hard silty gravelly clay
												Sta. 1104+00 T.H. #180
3190	62	80	87	90	36	16	20	A-6	1'-4'			D = 0 - 1/2'
												Organic silt
												D = 1/2' - 1'
										10		Volcanic ash
												D = 1' - 4'
	Samples 3190 and 3191 are combined											Hard sandy silty clay

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks–Onion Creek Development Rd. TEST HOLE No. 181, 182, 183, and 184

LOGGED BY B. Guerins DATE Aug. 22/66 STATION 1112+00, 1117+00, 1123+00, and 1126+00

ENTERED BY K. Yakemchuk DATE Jan. 16/66

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L. L.	Limits P. L.	Limits P. I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												Sta. 1112+00 — T.H. #181
												D = 0 - 1/2'
												Organic silt
3191	62	80	87	90	36	16	20	A-6	1'-10'	10		D = 1/2' - 1'
												Volcanic ash
	Samples 3190 and 3191 are combined											D = 1' - 10'
												Sandy silty clay
												Sta. 1117+00 — T.H. #182
			No sample taken							10		Silty clay and gravel
												Sta. 1123+00 — T.H. #183
			No sample taken							10		Silty clay and gravel
												Sta. 1126+00 — T.H. #184
												D = 0 - 1/2'
												Organic silt
3192	32	75	84	86	20	17	3	A-2-4	1'-10'	10		D = 1/2' - 1'
												Volcanic ash
												D = 1' - 10'
												Silty gravelly sand

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No 185, 186, 187, and 188

LOGGED BY V. Sokalski DATE Aug. 23/66 STATION 1131+00, 1149+00, 1137+60, and 1154+00

ENTERED BY K. Yakemchuk DATE Jan. 17/67

CHECKED BY DATE HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.I.	a.f.	Plate Roads Class.	Sample Depth	Depth ft.	Profile	NOTES.
												Sta. 1131+00 — T.H. #185
3193	42	66	74	77	24	19	5	A-4	1'-5'			D = 0 - 1/2' Organic silt
										1		D = 1/2' - 1' Volcanic ash
												D = 1' - 5' Hard silty gravelly sand
												Sta. 1149+00 — T.H. #186
3194	26	44	57	62	32	17	15	A-2-6	1'-2'			D = 0 - 1/2' Volcanic ash
3195	7	38	50	56			NP	A-1-b	2'-3½'			D = 1/2' - 2' Brown, sandy, silty, gravelly -pebbles & boulders up to 2' Ø
										10		D = 2' - 3½' Brown sand and gravel
												D = 3½' - 4½' Brown sandy, clayey, silt-pebbles and boulders up to 2' Ø
												Sta. 1137+60 (12" Ø scoop) — T.H. #187
												D = 0 - 1/2' moss and peat
										1		D = 1/2' - 1' Volcanic ash
												D = 1' - 2½' Brown, non-plastic clayey silt.
No sample taken												NOTE: water on surface in area. permafrost at D = 2½'
												Sta. 1154+00 — T.H. #188
3196	63	82	90	93	35	24	11	A-6	1½'-2½'			D = 0 - 1/2' peat and moss
												D = ½' - 1½' Volcanic ash
												D = 1½' - 2½' Brown silty, clay, med. to highly plastic with stones up to 6" in diameter.
												Permafrost at D+= 2½'
												Ice lenses up to 2" thick

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks–Onion Creek Development Rd. TEST HOLE No. 189, 190, 191, and 192

LOGGED BY V. Sokalski DATE Aug. 25/66 STATION 1159+00, 1164+00, 1170+75, and

ENTERED BY K. Yakemchuk DATE Jan. 17/67 1172+00

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.I.	Limits P.L.	Public Roads Class	Sample Depth	Depth Ft.	PROFILE	NOTES
3197	36	57	67	73	31	18	13	A-2-6	1½'-4½'	10		Sta. 1159+00 T.H. #189 D = 0 - 1/2' Organic silt D = 1/2' - 1½' Volcanic ash D = 1½' - 4½' Brown sandy, silty, clay with cobbles up to 6" dia. Permafrost at D = 2'
3198	No sample									10		Sta. 1164+00 T.H. #190 D = 0 - 1/2' Organic, peat & moss D = 1/2' - 1' Volcanic ash D = 1' - 3½' Sandy, clayey silt with pebbles and boulders up to 6" dia. D = 3½' - 8' Clean fine sand with lenses of silty clay & sandy gravel Permafrost at D = 8'
3199	10	68	86	93		NP		A-3	3½'-8'			
	Samples 3199 and 3200 are combined											
3200	10	68	86	93		NP		A-3	1' - 8'	10		Sta. 1170+75 T.H. #191 D = 0 - 1/2' Peat and moss D = 1/2' - 1' Volcanic ash D = 1' - 8' Fine clean sand with pebbles up to 2" dia. Clay lenses up to 1' thick at D = 6' Permafrost at D = 8'
	Samples 3199 and 3200 are combined											
	No sample taken									10		Sta. 1172+00 T.H. #192 A 4' cut showing fine sand with pebbles and lenses of clayey silt.

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE 193, 194, 195, and 196

LOGGED BY V. Sokalski DATE Aug. 26/66 STATION 1176+50, 1180+75, 1185+00, and 1190+00

ENTERED BY K. Yakemchuk DATE Jan. 17/67

CHECKED BY DATE HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	Description
3201	36	78	90	93	17	16	1	A-4	1'2"-5½'	10		Sta. 1176+50 — TH #193 D = 1/2' - 0 Peat and moss D = 1/2' - 1' Volcanic ash D = 1' - 1'2" Black decayed peat D = 1'2" - 5½' Brown, fine clean sand interbonded with brown sandy clayey silt with cobbles up to 5". Permafrost at D = 3' to D = 5½'
3202	32	56	65	69	18		0	A-2-4	1'-5½'	10		Sta. 1180+75 — TH #194 D = 0 - 1/2' Peat and moss D = 1/2' -1' Volcanic ash D = 1' - 2½' Brown, clean fine to coarse sand & gravel (well-graded) Cobbles up to 6" dia. D = 2½' - 3½' Brown, low to med. plas. sandy silty clay, cobbles up to 6". D = 3½' - 5½' Fine to very fine clean sand interbonded with clayey silty fine sand & lenses of clayey silt.
					Permafrost at D = 5'							
3203	7	37	49	54			NP	A-1-b	1'-10'	10		15' N of Sta. 1185+00 — TH #195 D = 0 - ½' Organic, peat and moss D = ½' - 1' Volcanic ash D = 1' - 6' Coarse gravel with fine to coarse sand, cobbles up to 8" Ø D = 6' - 10' Fine clean sand with odd pebble. Water at D = 10' on comletion.
										10		Sta. 1190+00 — TH #196 D = 0 - 1/2' Peat and moss D = 1/2 - 1' Volcanic ash D = 1' - 1'2" Black decayed peat D = 1'2" - 2'2" Clayey silt, fine to med. sand with pebbles up to 2"Ø. D = 2'2" - 2'5" Black, partially decayed peat. D = 2'5" - 5' Brown, clayey silt Permafrost at D = 4' - 5'

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks–Onion Creek Development Rd. TEST HOLE No. 197, 198, 199, and 200

LOGGED BY V. Sokalski DATE Aug. 27/66 STATION 1195+00, 1200+30, 1206+00, And

ENTERED BY K. Yakemchuk DATE Jan. 17/67 1210+50

CHECKED BY DATE HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.I.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES
												Sta. 1195+00 T.H. #197
3205	30	55	65	69	19	15	4	A-2-4	2' - 8'			D = 0 - 1/2' Moss and peat D = 1/2' - 1' Volcanic ash D = 1' - 2' Black decayed peat inter-bonded with silty clay. D = 2' - 2½' Brown, low plastic, silty clay with pebbles up to 2" Diameter D = 2½' - 3' Brown, clean fine sand with odd pebble up to 2" diameter. D = 3' - 3½' Brown, med. plastic, sandy silty clay with pebbles up to 5"Ø.
									D = 3½' - 8' Brown silty very fine sand, cobbles up to 8"Ø. D = 8' Permafrost			
												Sta. 1200+30 T.H. #198
3206	1	4	10	18			NP	A-1-a	1'-5'			D = 0 - 1/2' Organic, peat D = 1/2' - 1' Volcanic ash D = 1' - 1½' Brown sandy silt D = 1½' - 5' Angular granite boulders up to 1' Ø with rotten granite boulders and coarse angular sand. Rotten granite bedrock appears to start at D = 5'
												Sta. 1206+00 T.H. #199
3207	8	17	24	28	20	16	4	A-1-a	1'-4½'			D = 0 - 1/2' Peat and moss D = 1/2' - 1' Volcanic ash D = 1' - 4½' Brown, clayey sandy silt with angular granite boulders up to 1' Ø (50% of this layer is boulders) D = 4½' - 5' Badly fractured granite rock (possibly bedrock)
												Sta. 1210+50 T.H. #200
3208	32	60	71	76	16		0	A-2-4	1½'-8½'			D = 0 - 1/2' Organic, moss and peat D = 1/2' - 1' Volcanic ash D = 1' - 1½' Black decayed peat D = 1½' - 8½' Brown clayey sandy silt and silty sand mixture with cobbles and boulders up to 1' Ø.

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 201, 202, 203, and 204

LOGGED BY V. Sokalski DATE Aug. 29/66 STATION 1216+80, 1212+70, 1221+00, and

ENTERED BY K. Yakemchuk DATE Jan. 17/67 1226+00

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												Sta. 1216+80 T.H. #201
3209	10	20	30	40	18		0	A-1-a	1'-8'	10		D = 0 - 1/2' Organic, moss and peat D = 1/2' - 1' Volcanic ash D = 1' - 3' Brown, clayey, silty, fine to coarse angular sand+gravel D = 3' - 8' Rotten granite rock with silt and sand in crevices. 40% of rock is 3"Ø or smaller, remainder in pieces up to 1'Ø. D = 8' more solid rock encountered.
												Sta. 1212+70 T.H. #202
										10		D = 0 - 1' Moss and peat D = 1' - 2' Black partially decayed mixed with volcanic ash. D = 2' Permafrost- soil surface is saturated and quite soft.
					NO SAMPLE TAKEN							
												10' N of Sta. 1221+00 T.H. #203
3218	20	46	61	66			0	A-1-b	1'-4½'	10		D = 0 - 1/2' Peat and moss D = 1/2' - 1' Volcanic ash D = 1' - 4½' Brown clayey silty sand with pebbles and boulders (rounded and angular up to 1½'Ø) D = 4½' - 7' Large mass of angular rock badly fractured with crevices filled with silty sand. This green granite rock breaks rather easily, 50% of the rock is 10" or larger.
												Sta. 1226+00 T.H. #204
3219	28	57	65	67	18		0	A-2-4	¾'-10'	10		D = 0 - ¾' Moss and peat D = ¾' - ¾' Volcanic ash D = ¾' - 10' Brown fine clean sand with lenses up to 2' thick of sandy clayey silt, odd boulder up to 1½' diameter.

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 205, 206, 207, and 208

LOGGED BY V. Sokalski DATE Aug. 30/66 STATION 1232+00, 1239+50, 1245+50, and 1260+00

ENTERED BY K. Yakemchuk DATE Jan. 27/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
3220	18	44	59	66	19		0	A-1-b	¾'-7'	10		Sta. 1232+00 T.H. #205 D = 0 - ½' Peat and moss D = ½' - ¾' Volcanic ash D = ¾' - 7' Brown clean fine sand with pebbles up to 1" diameter, few boulders up to 10" diameter, layers of silty sand up to 1' thick also present.
3221	33	53	62	65	19	16	3	A-2-4	1'-5'	10		Sta. 1239+50 T.H. #206 D = 0 - 1/2' Moss and peat D = 1/2' - 1' Volcanic ash D = 1' - 5' Fine to medium sand with very silty fine sand layers, odd pebbles up to 2" diameter, cobbles up to 6" diameter, permafrost at D = 5'.
3222	48	70	80	84	22	16	6	A-4	1'-7'	10		Sta. 1245+50 T.H. #207 D = 0 - 1/2' Peat and moss D = 1/2' - 1' Volcanic ash D = 1' - 7' Brown clayey silty sand with pebbles up to 2" diameter, cobbles up to 8" diameter. Permafrost at D = 6'
3223	35	57	67	70	17	14	3	A-2-4	8"-7½'	10		Sta. 1260+00 T.H. #208 D = 0 - 2" Peat and moss D = 2" - 8" Volcanic ash D = 8" - 7½' Brown very hard, very fine silty sand with rounded pebbles and some rounded boulders up to 18" diameter, thin seam of black organic silt at D = 3' D = 7½' Permafrost with few ice crystals up to 1/16" diameter.

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No 209, 210, 211, and 212

LOGGED BY V. Sokalski DATE Aug. 30/66 STATION 1254+25, 1265+00, 1270+00, and

ENTERED BY K. Yakemchuk DATE Jan 30/67 1275+00

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.I.	P.L.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												Sta. 1254+25 T.H. #209
3223	92	98	99	100	30	19	11	A-6	0-8'	10		D = 0 - 8' Brown hard silt with odd rounded pebble up to 2" dia. D = 8' Permafrost, numerous large ice lenses, some upto 4"x2".
												Sta. 1265+00 T.H. #210
3225	63	79	84	85	27	16	11	A-6	8" - 4½'	10		D = 0 - 2" Peat and moss D = 2" - 8" Volcanic ash D = 8" - 4½' Brown stiff sandy silty low plastic clay with lenses of black partially decayed peat and lenses of fine clean sand. Pebbles and cobbles up to 8" dia. present. D = 4½' Permafrost, ice crystals up to 1/16" diameter.
												Sta. 1270+00 T.H. #211
3226	40	68	80	84	18	13	5	A-4	1½'-7'	10		D = 0 - ½' Moss and peat D = ½' - ¾' Volcanic ash D = ¾' - 1¾' Brown fine clean sand. D = 1¾' - 7' Brown clayey silty sand with pebbles and rounded cobbles up to 8" Ø, lenses of clayey silt up to 2' thick. D = 7' Permafrost
												Sta. 1275+00 T.H. #212
3227	26	52		69	15	14	1	A-2-4	¾'-10'	10		D = 0 - ½' Moss and peat D = ½' - ¾' Volcanic ash D = ¾' - 10' Brown silty sand with numerous rounded pebbles up to 2"Ø and cobbles up to 8"Ø.

DEPART[illegible] OF PUBLIC WORKS

SOILS [illegible]ION, WHITEHORSE, Y.T.

PROJECT Cormacks Union Creek Development Rd. TEST HOLE No. 213, 214, 215, and 216
LOGGED BY V. Sokalski DATE Aug. 30/66 STATION 1280+00, 1285+00, 1290+00, and
ENTERED BY K. Yakemchuk DATE Jan. 30/67 1296+00
CHECKED BY ________ DATE ________ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No 200	No 40	No [illegible]	No 4	Limits [illegible]	[illegible]	[illegible]	Public Roads Class	Sample Depth
3228	64	77	80	82	27	17	10	A-4	¾'-6'
3229	31	53		65	16	13	3	A-2-4	¾'-8'
3230	10	22	45	63	24	22	2	A-1-a	¾(-7½'
3231	6	14	35	60			0	A-1-a	¾'-7½'

NOTES:

Sta. 1280+00 T.H. #213
D = 0 - ¼' Moss and peat
D = ¼' - ¾' Volcanic ash
D = ¾' - 6' Brown stiff clayey sandy silt with rounded pebbles and cobbles up to 8"Ø, fine sand lenses also present.
D = 5½' Permafrost

Sta. 1285+00 T.H. #214
D = 0 - ¼' Moss and peat
D = ¼' - ¾' Volcanic ash
D = ¾' - 8' Brown clayey silty sand with rounded pebbles an d cobbles up to 8"Ø, odd rounded boulder up to 2'Ø.
D = 8' Permafrost

Sta. 1290+00 T.H. #215
D = 0 - ¼' Moss and peat
D = ¼' - ¾' Volcanic ash
D = ¾' - 4' Brown silty medium to coarse angular sand(becoming coarser with depth)
D = 4' - 7½' Rotten badly fractured granite rock(most of which can be crushed by hand) becoming harder at 7½'.

Sta. 1296+00 T.H. #216
D = 0 - ¼' Moss and peat
D = ¼' - ¾' Volcanic ash
D = ¾' - 3½'Silty angular sand becoming coarser with depth.
D = 3½' - 7½' Badly fractured rotten granite rock, some chunks up to 1'Ø are quite sound. Feldspars along root channels have completely disintergrated rock becomes more resistant to digging at D = 7½'.

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 217, 218, 219, and 220

LOGGED BY V. Sokalski DATE Aug. 31/66 STATION 1302+50, 1307+00, 1316+50, and 1321+00

ENTERED BY K. Yakemchuk DATE Jan. 30/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Bachoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES
												Sta. 1302+50 T.H. #217 D = 0 - ½' Moss and peat D = ½' - ¾' Volcanic ash D = ¾' - 2' Silty angular sand D = 2' - 4' Coarse angular sand with angular fragments of granite up to 2"Ø. D = 4' - 8½' Fine clean sand with angular granite boulders up to 1'Ø.
3232	11	28	45	59			NP	A-1-a	¾'-8½'	10		
												Sta. 1307+00 T.H. #218 D = 0 - ½' Moss and peat D = ½' - ¾' Volcanic ash D = ¾' - 10' Clean fine sand with odd rounded pebble up to 2"Ø. D = 10' Permafrost
3233	36	94	100	100			NP	A-4	¾'-10'	10		
												Sta. 1316+50 T.H. #219 D = 0 - ½' Moss and peat D = ½' - ¾' Volcanic ash D = ¾' - 5½' Very fine to medium sand with rounded pebbles up to 2"Ø and angular granite boulders up to 1½'Ø, lenses of coarse sand and gravel up to 6"Ø are also present.
3234	21	55	71	78			NP	A-2-4	¾'-5½'	10		
												Sta. 1321+00 T.H. #220 D = 0 - ½' Peat and moss D = ½' - ¾' Volcanic ash D = ¾' - 2½' Fine to medium sand with pebbles up to 2"Ø. D = 2½' - 8' Fine to coarse clean sand with pebbles up to 3"Ø. NOTE: Material quite loose and prone to caving in.
3235	4	16	44	54			NP	A-1-a	2½'-8'	10		

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks–Onion Creek Development Rd. TEST HOLE No. 221, 222, 223, and 224

LOGGED BY V. Sokalski DATE Aug. 31/66 STATION 1325+50, 1329+00, 1330+00, and

ENTERED BY K. Yakemchuk DATE Jan. 30/67 1334+40

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												Sta. 1325+50 T.H. #221
												D = 0 - ¼' Moss and peat
												D = ¼' - ¾' Volcanic ash
3236	25	41	94	96			NP	A-2-4	¾'-8'			D = ¾' - 8' Brown fine clean sand with odd rounded pebble up to 2"Ø. Occasional silty sand lense.
										10		D = 8' Permafrost
												Sta. 1329+00 T.H. #222
												D = 0 - ¾' Peat and moss
												D = ¾' - 1' Volcanic ash
												D = 1' - 1½' Black decayed peat
										10		NOTE: cobbles and boulders at D = 1½' Unable to auger further, hole advanced by 6"Ø hand auger.
					NO	SAMPLE		TAKEN				
												Sta. 1330+00 T.H. #223
3209A	21	69	85	90			0	A-2-4	½'-3½'			D = 0 - ½' Peat and moss
												D = ½' - 3½' Brown fine to coarse sand with thin layers of silty sand.
										10		NOTE: Hole advanced by 6"Ø scoop hand auger in old stream bed. Refusal at D = 3½' on stones.
												Sta. 1334+40 T.H. #224
												D = 0 - ¼' Peat and moss
												D = ¼' - ¾' Volcanic ash
3237	3	61	73	77		NP		A-2-4	¾'-9'			D = ¾' - 9' Clean fine sand with rounded pebbles up to 2"Ø, odd angular boulder up to 1'Ø, occasional sandy gravel lenses up to 4" thick.
										10		

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 225, 226, 227, and 228

LOGGED BY V. Sokalski DATE Sept. 1/66 STATION 1338+50, 1346+00, 1351+00, and

ENTERED BY K. Yakemchuk DATE Jan. 31/67 1356+00

CHECKED BY _____ DATE _____ HOLE ADVANCED BY _____

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
3238	74	85	91	94	30	19	11	A-6	1'-3'			**Sta. 1338+50** T.H. #225 D = 0 - ½' Moss and peat D = ½' - 1' Volcanic ash D = 1' - 3' Brown stiff silt and clay with rounded pebbles and cobbles up to 3"Ø. D = 3' - 5' Brown very fine sand D = 5' Permafrost
3239	50	67	77	81	26	16	10	(A-4) (A-6)	1'-6'			**Sta. 1346+00** T.H. #226 D = 0 - ½' Moss and peat D = ½' - 1' Volcanic ash D = 1' - 6' Brown med. stiff clayey sandy silt with pebbles and cobbles up to 6"Ø. D = 6' - 9' Clean fine sand Permafrost at D = 7'
3240	16	97	100	100			NP	A-2-4	6'-9'	10		
3241	27	59	75	81	16	16	0	A-2-4	8"-3½'			**10' S of Sta. 1351+00** T.H. #227 D = 0 - 2" Peat D = 2" - 8" Volcanic ash D = 8" - 3½' Brown saturated clayey silty sand with rounded pebbles and boulders up to 1'Ø. Permfrost at D = 3½', ice crystals up to ½"Ø.
3242	36	60	69	73	19	16	3	A-4	¾'-5'	10		**15' S Of Sta. 1356+00** T.H. #228 D = 0 - ¼' Peat D = ¼' - ¾' Volcanic ash D = ¾' - 4' Brown sandy silt with rounded pebbles up to 8"Ø. Permafrost at D = 5' D = 4' - 5' Clean fine to med. sand odd rounded pebble up to 2"Ø.

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 229, 230, 231, and 232

LOGGED BY V. Sokalski DATE Sept. 1/66 STATION 1363+00, 1367+75, 1373+00, and

ENTERED BY K. Yakemchuk DATE Jan. 31/67 1378+40

CHECKED BY _____ DATE _____ HOLE ADVANCED BY _____

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
												Sta. 1363+00 T.H. #229
3243	41	72	83	87	18	15	3	A-4	8"-6½'	10		D = 0 - 2" Peat and moss D = 2" - 8" Volcanic ash D = 8" - 1½' Brown fine silty sand D = 1½' - 6½' Brown clayey sandy silt with rounded pebbles, a few sub-angular and rounded boulders up to 2'Ø. Permafrost at D = 6½' with odd ice crystal up to 1/8"Ø.
												Sta. 1367+75 T.H. #230
3244	63	84	92	95	24	17	7	A-4	¾'-5½'	10		D = 0 - ¼' Peat and moss D = ¼' - ¾' Volcanic ash D = ¾' - 5½' Brown sandy silty clay low plastic medium stiff. D = 5½' - 7½' Grey saturated sand and gravel Permafrost at upper end of pit at 3½' with ice lenses up to 3"x3". No permafrost at lower end (towards depression on line)
												Sta. 1373+00 T.H. #231
3245	36	60	70	75	20	16	4	A-4	8"-5½'	10		D = 0 - 2" Peat and moss D = 2" - 8" Volcanic ash D = 8" - 5½' Brown clayey sandy silt med. stiff with rounded pebbles and cobbles up to 6"Ø with odd lense of clean fine to medium sand. Permafrost at D = 5½'
												Sta. 1378+40 T.H. #232
3246	51	73	80	83	22	15	7	A-4	8"-6'	10		D = 0 - 2" Moss and peat D = 2" - 8" Volcanic ash D = 8" - 6' Brown med. stiff clayey sandy silt with rounded pebbles and boulders up to 1'Ø. D = 6' - 8' Medium to coarse sand with rounded pebbles up to 2"Ø. Permafrost at D = 7'

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE NO. 233, 234, 235, and 236

LOGGED BY V. Sokalski DATE Sept. 1/66 STATION 1383+00, 1388+00, 1394+50, and

ENTERED BY K. Yakemchuk DATE Jan. 31/67 1399+75

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Group Index & Class.	Sample Depth	Depth ft.	Profile	NOTES
												Sta. 1383+00 T.H. #233
3247	6	15	56	80			NP	A-1-b	1½'-5'			D = 0 - 2" Moss and peat
3248	11	26	66	86			0	A-1-b	5'-6½'			D = 2" - 8" Volcanic ash
												D = 8" - 1½' Brown clayey sandy silt
												D = 1½' - 5' Brown med. to coarse sand with pebbles and angular boulders up to 2'Ø.
										10		D = 5' - 6½' Fine to coarse sand with numerous angular boulders up to 1½'.
												Sta. 1388+00 T.H. 234
3249	55	67	72	74	33	18	15	A-6	8"-5'			D = 0 - 2" Peat and moss
												D = 2" - 8" Volcanic ash
												D = 8" - 5' Brown sandy clayey silt with rounded and sub-angular cobbles up to 8"Ø, material becomes very hard at bottom of pit.
										10		
												Sta. 1394+50 T.H. 235
#250	45	17	39	51	-	-	0	A-1-a	8"-2½'			D = 0 - 2" Moss and peat
												D = 2" - 8" Volcanicash
3251	60	72	78	80	29	17	12	A-6	2½'-8'			D = 8" - 2½' Fine to coarse clean sand and gravel
										10		D = 2½' - 8' Sandy silty stiff low plastic clay with rounded pebbles cobbles, and boulders up to 2½'Ø
												D = 8' Permafrost
												10' N of Sta. 1399+75 T.H. 236
3252	8	79	98	100			NP	A-2-4	10"-3'			D = 0 - 4" Moss and peat
3253	63	83	92	96	26	15	11	A-6	3'-4½'			D = 4" - 10" Volcanic ash
												D = 10" - 3' Brown clean fine sand odd angular pebble up to 2½"Ø
										10		D = 3' - 4½' Brown low plastic sandy silty clay
												Permafrost at upper end of pit(furtherest from road) at 2½'

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks--Onion Creek Development Rd. TEST HOLE No. 237, 238, 239, and 240

LOGGED BY V. Sokalski DATE Sept. 1/66 STATION 1405+55, 1409+50, 1415+00, and

ENTERED BY K. Yakemchuk DATE Jan. 31/67 1420+00

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class	Sample Depth	Depth ft.	PROFILE	NOTES.
												10' S of Sta. 1405+55 T.H. 237
3210	26	58	69	76	-	-	0	A-2-4	$\frac{1}{2}$'-4$\frac{1}{2}$'			D = 0 - $\frac{1}{2}$' Partially decayed peat D = $\frac{1}{2}$' - 4$\frac{1}{2}$' Grey silty fine to coarse sand with odd pebble up to $\frac{3}{4}$"ϕ. Refusal at 4$\frac{1}{2}$' (possibly permafrost) Water at D = 1$\frac{1}{2}$' Hole advanced by 6"ϕ scoop auger
												Sta. 1409+50 T.H. 238
3254	9	52	71	79		NP		A-2-4	8"-4$\frac{1}{2}$'			D = 0 - 2" Peat and moss D = 2" - 8" Volcanic ash D = 8" - 4$\frac{1}{2}$' Brown silty fine sand with pebbles and cobbles up to 6"ϕ.
3255	32	66	75	79	17	16	1	A-2-4	4$\frac{1}{2}$'-9'			D = 4$\frac{1}{2}$' - 9' Brown med. stiff sandy silt rounded boulders and pebbles D = 8$\frac{1}{2}$' Permafrost
												Sta 1415+00 T.H. 239
3256	61	84	92	94	21	15	6	A-4	1'-4'			D = 0 - $\frac{1}{2}$' Moss and peat D = $\frac{1}{2}$' - 1' Volcanic ash D = 1' - 4' Brown silty sandy low plastic med. stiff clay, cobbles up to 6"ϕ. D = 4' Permafrost
												Sta. 1420+00 T.H. 240
3257	28	83	91	93			0	A-2-4	10"-4$\frac{1}{2}$'			D = 0 - 4" Moss and peat D = 4" - 10" Volcanic ash D = 10" - 4$\frac{1}{2}$' Brown silty fine sand odd rounded cobble up to 6"ϕ. D = 4$\frac{1}{2}$' Permafrost

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 241, 242, 243, and 244

LOGGED BY V. Sokalski DATE Sept. 3/66 STATION 1425+00, 1429+50, 1433+00, and 1443+00

ENTERED BY K. Yakemchuk DATE Jan. 31/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												Sta. 1425+00 T.H. 243
3258	14	78	91	95			NP	A-2-4	8"-4'			D = 0 - 2" Moss and peat
												D = 2" - 8" Volcanic ash
3259	33	53	65	68	18	15	3	A-2-4	4'-7'	10		D = 8" - 4' Brown silty fine sand with odd rounded pebble up to 1"Ø.
												D = 4' - 7' Brown silty sand with a few cobbles up to 6"Ø.
												D = 6½' Permafrost
												Sta. 1429+50 T.H. 242
												D = 0 - 2" moss and peat
												D = 2" - 8" Volcanic ash
3260	29	45	55	62	20	15	5	A-2-4	8"-9½'	10		D = 8" - 9½' Brown stiff clayey sandy silt with numerous rounded and angular pebbles and boulders up to a 1½Ø', clean fine sand lenses up to 3" thick also present
												Sta. 1433+00 T.H. 243
												D = 0 - ½'
												Moss and peat
3261	65	86	93	96	32	18	14	A-6	18-9'	10		D = ½' - 1'
												Volcanic ash
												D = 1' - 9'
												Sandy silty clay
												Sta. 1443+00 T.H. 244
												D = 0 - ½'
												Peat and moss
												D = ½' - 1'
				NO SAMPLE TAKEN						10		Volcanic ash

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks–Onion Creek Development Rd. TEST HOLE No. 245, 246, 247, and 248

LOGGED BY B. Gucrins DATE Sept. 7/66 STATION 1448+00, 1454+00, 1462+00, and

ENTERED BY K. Yakemchuk DATE Jan. 31/67 1467+00

CHECKED BY DATE HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
											Sta. 1448+00 T.H. 245
											D = 0 - ½' Moss and peat
											D = ½' - 1' Volcanic ash
									10		D = 1' - 8' Hard silty clay
					NO SAMPLE						
											Sta. 1454+00 T.H. 246
											D = 0 - ½' Moss and peat
											D = ½' - 1' Volcanic ash
									10		D = 1' - 7' Silty sand
					NO SAMPLE						
											Sta. 1462+00 T.H. 247
											D = 0 - ½' Moss and peat
											D = ½' - 1' Volcanic ash
									10		D = 1' - 10' Clean sand
					NO SAMPLE						
											Sta. 1467+00 T.H. 248
											D = 0 - ½' Peat and moss
											D = ½' - 1' Volcanic ash
									10		D = 1' - 6' Clean sand
3266	17	84	95	96		NP	A-2-4	1'-6'			

DEPARTMENT OF PUBLIC WORKS

SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 249, 250, 251, and 252

LOGGED BY B. Guerins DATE Sept. 7/66 STATION 1472+00, 1477+00, 1482+00, and 1484+85

ENTERED BY K. Yakemchuk DATE Jan. 31/67

CHECKED BY DATE HOLE ADVANCED BY D-7 Backhoe

Sample No.	% Passing No. 200	No. 40	No. 10	No. 4	Limits L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	Notes:
					NO SAMPLE					10		Sta. 1472+00 — T.H. 249 D = 0 - ½' Moss and peat D = ½' - 1' Volcanic ash D = 1 - 9' Silty clay
					NO SAMPLE					10		Sta. 1477+00 — T.H. 250 D = 0 - ½' Moss and peat D = ½' - 1' Volcanic ash D = 1' - 4' Frozen silty sand
					NO SAMPLE					10		Sta. 1482+00 — T.H. 251 D = 0 - ½' Moss and peat D = ½' - 1' Volcanic ash D = 1' - 2' Frozen black soil
3212	5	56	91	100			NP	A-3	½'-3'	10		Sta. 1484+85 — T.H. 252 D = 0 - ½' Moss and peat D = ½' - 3' Clean coarse to fine sand NOTE: Soil is saturated, water on surface, hole caving in unable to auger further (6"Ø scoop auger)

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 253, 254, 255, and 256

LOGGED BY V. Sokalski DATE Aug. 29/66 STATION 1494+20, 1498+00, 1490+20, and 1499+00

ENTERED BY K. Yakemchuk DATE Jan. 31/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY 6"Ø/scoop auger

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES
												Sta. 1494+20 T.H. 253 D = 0 - ½' Moss and peat D = ½' - 1' Volcanic ash D = 1' - 2' Clean fine to medium sand NOTE: Soil saturated, water on surface in area. Permafrost at D = 2'
					NO SAMPLE TAKEN					10		
												Sta. 1490+00 T.H. 254 D = 0 - 1' Moss and peat D = 1' - 1½' Grey sandy silt with organic matter D = 1½' - Grey silty sand NOTE: Soil is saturated, water on surface in area. Permafrost at D = 1½'
					NO SAMPLE TAKEN					10		
3211	51	91	99	100	49	44	5	A-5	½'-2'			**Sta. 1490+20** T.H. 255 D = 0 - ½' Moss and peat D = ½' - 2' Organic silty sand D = 2' Permafrost NOTE: Soil is saturated, water on surface in area.
Sample contained a high percentage of organic material										10		
3270	6	16	24	31			NP	A-1-a	1'-2'			**Sta. 1499+00** T.H. 256 D = 0 - ½' Peat and moss D = ½' - 1' Volcanic ash D = 1' - 2' Sandy gravel, hard digging
										10		

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. 257, 258, 259, and 260

LOGGED BY B. Guerins DATE Sept. 7/66 STATION 1504+00, 1509+00, and

ENTERED BY K. Yakemchuk DATE Jan. 31/67 1521+85, 1522+15

CHECKED BY _____ DATE _____ HOLE ADVANCED BY D-7 Backhoe and 6"Ø scoop auger

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES:
												Sta. 1504+00 T.H. 257
												D = 0 - ½'
3271	0	0	0	0				A-1-a	1' - [illegible]			Peat and moss
												D = ½' - 1'
										10		Volcanic ash
												D = 1' - 7'
												Stone and rock fragments
												Sta. 1509+00 T.H. 258
												D = 0 - ½'
3272	8	78	95	99			NP	A-3	1'-8'			Moss and peat
												D = ½' - 1'
										10		Volcanic ash
												D = 1' - 8'
												Sand, caving in.
												Sta. 1521+85 T.H. 259
												D = 0 - 2'
												Organic, silty fine sand
										10		D = 2'
												Permafrost, water on surface in area.
					NO SAMPLE TAKEN							
3213	92	97	99	100	36	22	14	A-6	0-1½'			Sta. 1522+15 T.H. 260
												D = 0 - 1½'
												Brown, very soft silty clay, low to medium plasticity.
										10		D = 1½'
												Permafrost, ice lenses up to ½"Ø.

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks-Onion Creek Development Rd. TEST HOLE No. 261, 262, 263, and 264

LOGGED BY V. Sokalski DATE Aug. 29/66 STATION 1527+50, 1535+00, 1540+00, and 1545+00

ENTERED BY K. Yakemchuk DATE Jan. 31/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY 6"ø scoop auger

Sample No.	% Passing No. 200	% Passing No. 40	% Passing No. 10	% Passing No. 4	Limits L.L.	Limits P.L.	Limits P.I.	Public Roads Class.	Sample Depth	Depth ft.	PROFILE	NOTES:
3214	81	92	97	100	26	22	4	A-4	1'-2'	10		**S ta. 1527+50** T.H. 261 D = 0 - 8" Moss and peat D = 8" - 1' Volcanic ash D = 1' - 2' Brown clayey silt, non-plastic, soft (soil saturated) D = 2' Permafrost, ice crystals-¼"ø.
					NO SAMPLE TAKEN					10		**Sta. 1535+00** T.H. 262 D = 0 - 9" Moss and peat D = 9" - 1' Volcanic ash D = 1' - 2' Grey, organic, clayey sandy silt NOTE: Permafrost at D =2', (no visible ice) Water on surface in surrounding area
					NO SAMPLE TAKEN					10		**Sta. 1540+00** T.H. 263 D = 0 - 8" Moss and peat D = 8" - 1' Volcanic ash D = 1' - 1½' Black decomposed peat D = 1½' Permafrost
					NO SAMPLE TAKEN					10		**Sta 1545+00** T.H. 264 D = 0 - 8" Moss and peat D = 8" - 1' Volcanic ash D = 1' - 1'8" Grey sandy clayey silt D = 1'8" - 2' Medium grained clean sand D = 2' Permafrost

DEPARTMENT OF PUBLIC WORKS
SOILS SECTION, WHITEHORSE, Y.T.

PROJECT Carmacks - Onion Creek Development Rd. TEST HOLE No. T.H. 265 and 266

LOGGED BY V. Sokalski DATE Aug. 29/66 STATION 1550+00 and 1555+00

ENTERED BY K. Yakemchuk DATE Feb. 1/67

CHECKED BY _____ DATE _____ HOLE ADVANCED BY 6"Ø scoop auger

Sample No.	% PASSING No. 200	No. 40	No. 10	No. 4	LIMITS L.L.	P.L.	P.I.	Public Roads Class.	Sample Depth	Depth ft.	Profile	NOTES
3215	58	90	98	100	26	23	3	A-4	1'-2'	10		Sta. 1550+00 T.H. 265 D = 0 - 8" Moss and peat D = 8" - 1' Volcanic ash D = 1' -2' Grey organic clayey sandy silt D = 2' Permafrost
3216	42	60	90	100	25	25	0	A-4	½' - 1½'	10		Sta. 1555+00 T.H. 266 D = 0 - 2" Moss and peat D = 2" - 6" Volcanic ash D = 6" - 1½' Brown clayey coarse sandy silt. D = 1½' - 4' Brown silty coarse sand
3217	17	41	81	95			0	A-1-b	1½'-4'			
										10		T.H.
										10		T.H.

Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

LAND USE SECTION
200 Range Road
Whitehorse, Yukon
Y1A 3V1

Your file *Votre référence*

Our file *Notre référence*

September 21, 1993

Government of Yukon
Community & Transportation Services
Transportation Engineering Branch (S-3)
Box 2703
Whitehorse, Yukon
Y1A 2C6

YA3E506

Attn: Mr. B. C. Fulcher

Dear Sir:

LAND USE PERMIT AMENDMENT REQUEST YA3F506
GEOTECHNICIAL INVESTIGATION
- VARIOUS LOCATIONS KM 2.4 TO KM 22.5 FREEGOLD ROAD

This is to acknowledge receipt of the above noted Land Use permit amendment request and to advise you it will be reviewed pursuant to Section 31(3) of the Territorial Land Use Regulations.

I will be providing First Nations and the Land Use Advisory Committee with 10 days for review which is 30 September 1993.

Should you have any questions or comments please contact me at 667-3173.

Yours truly,

for Marg White
A/Head, Land Use

/clt

c. R.M.O., Carmacks

BF'D 30 SEP 93

Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

LAND USE SECTION
200 Range Road
Whitehorse, Yukon
Y1A 3V1

Your file *Votre référence*

Our file *Notre référence*

YA3E506

September 21, 1993

To: - All LUAC Members
- R.M.O., Carmacks
- Yukon Conservation Society
- Council for Yukon Indians
- Selkirk First Nation
- Tsawlnjik First Nation

LAND USE PERMIT AMENDMENT REQUEST YA3E506
YTG TRANSPORTATION ENGINEERING
GEOTECHNICAL INVESTIGATIONS
- VARIOUS LOCATIONS KM 2.4 TO KM 22.5 FREEGOLD ROAD

Please find attached an amendment request for Land Use Permit YA3E506 as described above.

Your comments on this proposal would be appreciated by 30 September 1993.

Should you have any questions please contact me at 667-3173.

Yours truly,

for Marg White
A/Head, Land Use

/clt

Attach.

BFD 30 SEP 93

YA3E506

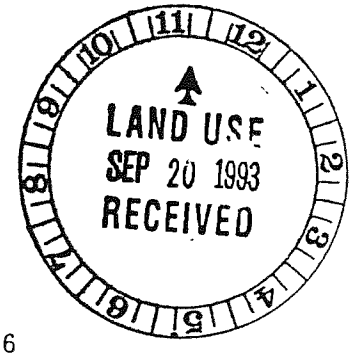
Yukon

Community and Transportation Services
Box 2703, Whitehorse, Yukon Y1A 2C6

Our File: 2090-3-1
Your File:

September 17, 1993

Indian and Northern Affairs Canada
Land Use Section
200 Range Road
Whitehorse, Yukon
Y1A 3V1



Attention: M. White, Land Use Administrator

Dear Ms. White:

Re: Application for Amendment to Land Use Permit # YA3E506
(Right-of-Way Clearing km 0.5 to 22.5, Freegold Road)
For Geotechnical Investigation, Various Locations km 2.4 to km 22.5

Please amend the above noted Land Use Permit to allow for geotechnical investigation, as outlined below and as shown on the attached plans, to be conducted from km 2.4 to km 22.5 (surveyed stationing), on the proposed relocation of the Freegold Road, west of Carmacks, Yukon.

A tracked backhoe excavator (Cat 225) will be utilized to conduct geotechnical testing to evaluate the material for use as common embankment borrow and or crushed aggregate sources at the following locations:

Station 2+400 RHS & LHS, station 3+100 RHS, station 5+324 RHS & LHS, station 11+100 RHS, station 12+800 RHS, and station 22+500 LHS.

Existing trails and roadways will be utilized wherever possible for access. All sites may not be tested dependant upon results of the exploration. Buffer zones will be maintained between exploration areas and the proposed right-of-way to ensure proper screening of potential pit development areas.

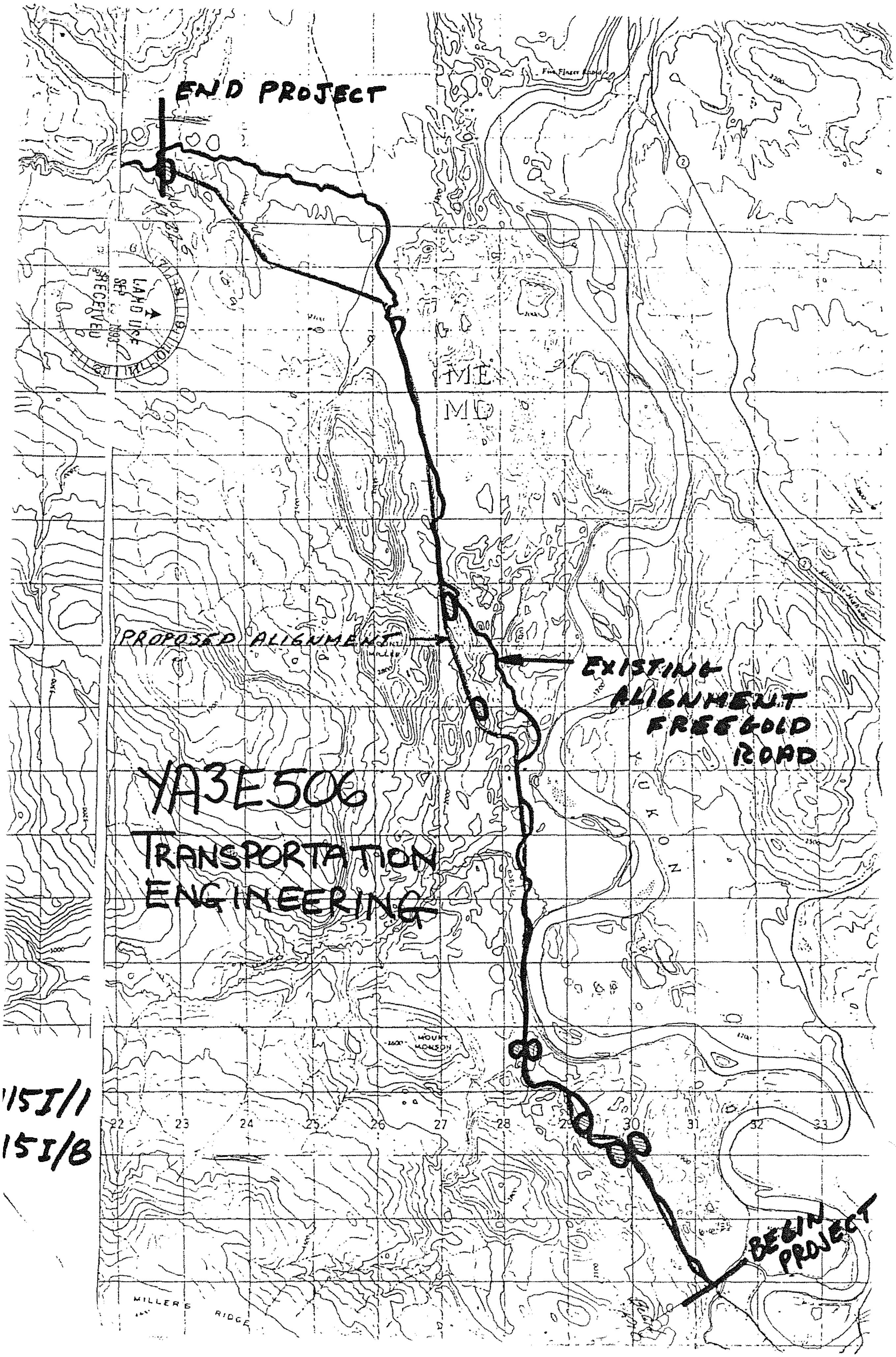
We would like to conduct this investigation as soon as possible in order to allow design work to proceed on construction specifications for work which is now scheduled for tender in 1994. The investigation is expected to have a duration of two weeks maximum.

Please contact me if you require further information.

Yours truly,

B. C. Fulcher,
Manager Geotechnical Services, Transportation Engineering (S3)
(403) 667-4320 (403) 667-2647 -FAX-

cc: Florian Vedress


END PROJECT
PROPOSED ALIGNMENT
EXISTING ALIGNMENT FREEGOLD ROAD
YA3E506
TRANSPORTATION ENGINEERING
BEGIN PROJECT
LAND USE
RECEIVED
Y U K O N
MOUNT MONSON
MILLERS RIDGE
15I/1
15I/8
22
23
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33