ARC MEMORANDA

No.	Subject	Date
2	Road Standards	1/1/49
2 Rev.	" "	12/3/52
4 Rev.	Equipment Rental List	4/26/55
4 Rev. Sup. 1	" " "	4/29/55
4-2	" " "	4/16/56
4-3	" " "	4/16/56
4 Rev.	" " "	4/27/56
14	Instructions to Survey Parties on Pioneer Location	4/21/49
15	Reconstruction Location Surveys	4/21/49
16 Rev.	Construction Engineering Surveys	1/6/50
21	Warning Signs	5/4/49
28	Signs and Colors for Depots, Camps, Buildings, Bridges, Equipment, and Road Accessories	9/8/52
28-1	Modification for mile posts	4/7/53
30	Asphalt Paving for Individuals, Municipalities, etc.	6/28/49
30-1	" " " " "	6/6/50
30-2	" " " " "	11/15/50
30-3	" " " " "	4/17/51
32	Training of Subordinates	8/10/49
35	Certificate of Employee - Dual Compensation	8/25/49
36	Involuntary Separation of Classified Employees for Cause	8/25/49
38	Field Engineering	8/26/49
41	Submission of Compensation Commission Forms	9/23/49
41 Rev.	Injury Reports	5/18/53
44	Snow Removal	10/4/49

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46	Central Sign Shop	10/17/49
50	Accrual of leave while on compensation due to injury	10/28/49
51	Field Investigation of Accidents--Examinations by private physicians	10/28/49
61 Rev.	Emergency Field Printing	9/29/52
68	Paper Requirements for Highway Design	3/13/50
78	Designation for Acquisition of Rights-of-way	6/19/50
83	Activities of Employees Outside Duty Hours	8/18/50
84	Printing and Binding Regulations	8/24/50
84-1	Printed or Reproduced Material	4/17/51
85	Erection of Speed Control Signs	8/29/50
86	Policy regarding abandonment of roads	8/30/50
88	Relations with the Dept. of Int. and Other Agencies of the Govt. concerned with Finance Matters	11/7/50
90	Responsibility for Road Signs	12/1/50
91	Statement of Policy Regarding Lists of Employees	12/6/50
93	Situation Reports	1/19/51
93-1	" "	2/9/51
102	Tetlin Junction-Eagle Road (40 mi. rd.) Route 331, Designated "Taylor Highway"	8/8/51
102-1	Denali Highway	3/27/53
102-2	Copper River Highway	3/27/53
103 Rev.	Retirement Deductions	3/7/52
109	Correspondence - Style Handbook	1/18/52
110	Assignment of Message Precedence for Govt. Wires	2/14/52
112 2nd Rev.	Travel Time - Annual & Sick Leave Act	4/4/55
113	Procedures & Personnel Actions under Whitten Amend.	3/6/52
114	Personnel - Record Cards	3/5/52

No.	Subject	Date
115	Personnel Appointments - Documents Required	3/20/52
115-1	" " " "	5/16/52
115-2	" " " "	6/25/52
115 Rev.	Personnel - Appt. Documents & Office Records	6/30/54
116	Organization Changes in the ARC	3/17/52
116-1	" " " " "	1/19/55
116-2	" " " " "	3/25/55
116-3	" " " " "	4/18/55
116-4	" " " " "	5/18/55
116-5	" " " " "	6/10/55
116-6	" " " " "	7/20/55
116-7	" " " " "	8/24/55
116-8	" " " " "	10/11/55
116-9	" " " " "	3/22/56
118	Personnel - Procedure for Requesting and Processing personnel transactions	3/25/52
118 Sup. 1	" " " " " "	6/26/53
121	Withholding Tax on Employees	5/8/52
122	Testimony of Employees	5/7/52
123	Preparation of Official Telegrams	5/13/52
123-1	" " " "	4/19/53
123-2	Wording of Telegrams	5/4/55
125	Records & Procedures - Retention Preference in Reductions in Force	7/3/52
125-1	" " " " "	9/3/52
126 Rev.	Index to ARC Orders and Memoranda, Office Orders and Memoranda	10/29/53

No.	Subject	Date
127	Withholding compensation from employees	9/3/52
129	Indirect Cost Distribution	1/20/53
129 Sup. 1	" " "	5/20/53
129 Sup. 2	" " "	7/23/53
129 Sup. 3	" " "	8/26/53
129 Sup. 4	" " "	1/14/54
129 Sup. 5	" " "	4/23/54
129 Sup. 6	" " "	8/6/54
129 Sup. 7	" " "	11/9/54
129 Sup. 8	" " "	1/14/55
129 Sup. 9	" " "	4/13/55
129 Sup. 10	" " "	6/28/55
129 Sup. 11	" " "	10/7/55
129 Sup. 12	" " "	1/25/56
129 Sup. 13	" " "	4/17/56
129 Sup. 14	" " "	8/16/56
129 " 15	" " "	12/20/
130	Farm Road Surveys	4/13/53
130 Rev.	" " "	1/25/56
131 Rev.	Liability for Damage to Government Property	1/28/53
132	Conversion of Annual Leave to Sick Leave	2/2/53
133 Rev.	Report of Separations of Permanent Employees	7/14/54
134 Rev.	Deductions for Rental of Quarters	9/24/54
134 Rev.	" " " " "	3/2/56
134 Rev. Sup.1	" " " " "	4/13/56
134 Rev. Sup. 2	" " " " "	5/18/56
134 Rev. Sup. 3	" " " " "	6/22/56
135	Annual Report of Retirement Contributions, and Quarterly and Annual Reports of Individual Earnings of all Employees	5/29/53

No.	Subject	Date
137	Overhead Utility Lines Across & Along Roads & Highways	10/21/53

Balis

UNITED STATES
DEPARTMENT OF THE INTERIOR
Juneau, Alaska

October 21, 1953

A.R.C. MEMORANDUM NO. 137

SUBJECT: Overhead Utility Lines Across and Along Roads and Highways

1. Purpose: The purpose of this memorandum is to establish minimum heights at which overhead telephone and power lines may be constructed and maintained over and across roads and highways and within rights-of-way under the jurisdiction of the Alaska Road Commission if and when such installation and maintenance is authorized by the Alaska Road Commission.

2. The requirements for the above installations are as follows:

	Wire Type	Crossing, Min. Height	Within Right-of-Way But Not Crossing, Min. Height
(1)	Telephone and other communication wires; insulated guy wires; grounded continuous-metal-sheath cables of all voltages	18'	16'
(2)	Open Supply Line wires and service drops, 0 to 750 volts	20'	18'
(3)	Same as 2, 750 to 15,000 volts	22'	20'
(4)	Same as 2, 15,000 to 50,000 volts	24'	22'
(5)	Same as 2, over 50,000 volts	26'	24'

(6) The above clearances will apply for spans of 250' or less. For spans over 250' the clearance specified shall be increased by 0.1' for each additional 10' of span.

(7) Minimum height of crossing shall be measured from the wire at its lowest point above any portion of the finisned road from shoulder to shoulder.

3. The above clearances are based upon the recommendations of the National Electrical Safety Code. The minimum recommended crossing heights for supply lines have been increased by 2' to provide a margin for heavier loading, extreme temperatures and future additions to our surfacing.

4. Poles carrying telephone and/or power lines within the highway right-of-way shall be located within the outer 5-foot limits of such highway right-of-way, topography and other surface conditions permitting.

5. Subject to valid existing rights and to existing surveys and withdrawals for other than highway purposes, the established legal width of Alaska Road Commission through roads is 300 feet, being 150 feet on each side of their centerline; the legal width of feeder roads is 200 feet, being 100 feet on each side of the centerline; and the legal width of local roads is 100 feet, being 50 feet on each side of the centerline. (ARC memorandum No. 2).

6. The rights, privileges and authorities granted by the Alaska Road Commission are for full use and enjoyment by the Permittee for any and all purposes deemed necessary or desirable in connection with the control, management and administration of electric transmission and pole lines, and, insofar as compatible with our Permits of Use, the privileges and authorities granted by the Alaska Road Commission shall continue so long as used for the purposes granted.

7. However, if for any period of three years the Permittee shall cease to use the rights, privileges and authorities for the purposes granted or shall abandon the use of the granted permit, then the Alaska Road Commission may terminate said permit and all rights thereunder will revert to the Alaska Road Commission.

8. Further, the Alaska Road Commission's rights-of-way continue only so long as the said rights-of-way are used for highway purposes and, should the Alaska Road Commission abandon any or all of the rights-of-way on which permits have been granted, such permits shall become null and void as to such abandoned rights-of-way.

9. In the event that any relocation of said electric transmission and telephone lines is necessitated by a subsequent highway realignment or construction within the Alaska Road Commission's right-of-way, said relocation will be done at the expense of the Permittee and at no cost to the Alaska Road Commission.

B. D. Stewart, Jr.
Chief, Operations Division

Distribution: A

Interior - ARC - Juneau

UNITED STATES
DEPARTMENT OF THE INTERIOR
ALASKA ROAD COMMISSION
Juneau, Alaska

January 25, 1956

A.R.C. MEMORANDUM NO. 130 (Revised)

Subject: Farm Road Surveys

The purpose of this revision of A.R.C. Memorandum No. 130 is to set forth the newer concept of these surveys as discussed at the 1955 Resident Engineers' Conference; to incorporate various pertinent instructions issued by the Survey and Road Design Branch under the general heading of Cadastral Work; and to establish new standards. This is intended as an interim memorandum pending completion of a combined Engineering Manual, and will be revoked when the Manual is published.

The accurate survey of farm roads and preparation of as-built plans has a dual purpose. The first is to provide the Alaska Road Commission with record plans of alignment, grade, structures and adjacent property. These should be brought up to date annually, recording revisions and improvements made during the year. The second purpose is for filing definite location of each road with the Bureau of Land Management, as required in Secretarial Order No. 2665, dated October 16, 1951. Under this Order we have a clear obligation to compile plans for every road and to record them.

Previous requirement for accuracy of survey was a precision of one part in five thousand. Analysis of this requirement reveals that it is neither realistic nor necessary to demand such precise work. The new required order of accuracy will be that termed Class 2, with angular error of closure not to exceed 1 minute times the square root of the number of angles turned, and linear error of closure not to exceed 1 in 3,000. This order fits the middle of the allowable range of accuracy required by the Bureau of Land Management for Class 0 surveys, which include the public survey of agricultural lands and small tracts.

Even with this lowered degree of accuracy, all chains used must be compared to standard, and the temperature at the time of survey taken into consideration. If the combined linear error from these two sources approaches or exceeds the allowable linear error of 1 in 3,000, correction must be made for either or both, depending upon the circumstances.

An accurate determination of true bearing must be made for every survey, either by means of triangulation ties to two U.S.C. & G.S. monuments of known geographic position, or by astronomical observation. The derivation of bearing must be shown on the first sheet of plans for each specific road. The data should include the determined true bearing taken to the nearest second, but bearings shown thereafter on the plans or used in traverse computation may be taken to the nearest 30 seconds.

When the survey is a retracement of an existing road, every effort shall be made to exactly duplicate the centerline by splitting width on tangents and computing curves that fit. All curve data shall be computed by Lefax curve tables utilizing the Harger and Bonney curve.

Accurate ties must be made to B.L.M. section and quarter section corners adjacent to the road. In general, such ties should be made each mile, but if corners are difficult to recover, this distance may be extended up to five or six miles. If ties are being made each mile, they may be made on one side or the other and not necessarily on both sides of the road. Wherever possible, ties should be made by triangulation from two points, using the centerline as a true base, or, if from different tangents, a computed base. The transit work should be carefully performed. If obscured vision prevents this method, angle and chain ties will be necessary. All ties made must be indicated on the plans.

The station at which each section and quarter-section line crosses the centerline of the road must be established. This will usually be accomplished by computation of coordinates based on our survey, combined with B.L.M. record bearings and distances where required, and solving for intersection by either north-unknown or triangle calculation. If there is not too much field work involved the point of crossing may be established by transit and chain. The station and angle of crossing shall be indicated on the plans, and the distance to the adjacent corner shall be followed by "(calc.)" or "(ch.)" to indicate method of tie.

Office calculation of closures, based on a combination of our survey and B.L.M. record bearings and distances, must be performed immediately after making the survey in order to detect errors and recheck closures exceeding the allowable amounts. Such calculations must be made on our standard traverse form, using 7-place natural tables, and all calculations must be checked by a second engineer. The point of beginning will ordinarily have zero-zero coordinates, and all four quadrants may be used in the latitude and departure columns. Chainage and computed distances may be taken to the nearest tenth of a foot, provided this does not introduce error exceeding the allowable. If a recheck fails to establish the error in our survey, it will be assumed that the error lies in the B.L.M. layout of the sections. It will not be necessary to resurvey the section lines, but the error of closure and the fact that our work was rechecked must be noted on the plans.

All survey parties making ties to section and quarter-section corners shall be supplied with a tablet of blank forms issued by the Bureau of Land Management entitled, "Report on Corners of Cadastral Survey Grid". A form shall be completed in duplicate for each corner encountered by our party, indicating condition and other pertinent information. Upon the conclusion of a particular survey the originals of this form shall be transmitted by the District to the nearest office of the Bureau of Land Management. The transmittal shall state the name of the road being surveyed and shall include a tabulation of the corners by position, section, township, range, and meridian; and a copy of the transmittal shall be forwarded to the Survey and Road Design Branch at Juneau. The duplicates of the form shall be filed with the field notes in the District office.

The as-built plans for each road shall be prepared in the same general manner as our design plans for contract construction.

A standard master title sheet, similar to our standard contract title sheet, should be drawn up for use on each of the roads in a given area. This should be at the scale 1":1/2 mile and cover as large an area as the sheet permits, showing the whole road system. Cloth reproducibles should then be made, one for each road. The name of the specific road will be inked in heavily in the upper center of the sheet, the road heavied up with ink on the map, and an arrow brought from this point to a box in the lower center. This box will carry a summary showing length in feet and miles, type, and year of construction. Space should be provided for future addition to this information. The regular approval box should be shown in the lower right-hand corner. The Chief Engineer will approve all plans subsequent to final checking in Juneau and prior to filing prints with the Bureau of Land Management. Additions by later construction to an approved set of plans may be noted by date on the Index of Sheets, and such additions will be initialed for approval by the Chief Engineer.

A standard typical-section sheet should be prepared, showing a skeleton typical section with all dimensions left blank. A cloth reproducible will be made for each road, and the specific dimensions for that road inked in. The skeleton section and dimension lines should be rather open to leave ample room for addition of specific information. There will be room on this sheet for any special details peculiar to the road in question.

The plan sheets shall be standard Federal Aid cloth single plan and profile sheets, plotted to a scale of 1":100' horizontally and 1":10' vertically. The point of beginning should be from 10" to 12" right of the left-hand edge of the sheet, allowing space for noting the details of derivation of true bearing, and any other pertinent data. Section corner symbols shall be the same as shown on B.L.M. form "Report on Corners of Cadastral Grid". Whenever it is possible for the District to determine the right-of-way widths, these should be shown on the plans. Use a thin solid line on each side of centerline, positioned accurately by scale, and note by dimension and arrow the distance from centerline to each R/W line. Dimensions must be shown at the beginning and end of each sheet and at all changes in R/W width. The balance of the detail shall conform with all requirements for preparation of contract plan and profile sheets, except for the omission of quantities. All drainage structures should be shown.

It is realized that until we are current with this program, the plan details may often be completed before much information has been placed on the profile. As soon as the plan portion is complete for any specific road, reproducible copies should be forwarded to Juneau for review, approval and filing with the B.L.M. This work should be expedited by the Districts since we are constantly falling behind in our requirements to make record filing.

The cadastral form J-GEN-110, Centerline Location, will no longer be used except in very special cases. This was developed for use on the through system in specific areas where there was a need for cooperative work for the Bureau of Land Management. This particular phase of our as-built work is now complete.

As-built plans for contract construction on all roads shall carry the required plan information specified herein for farm road surveys. This particularly includes derivation of bearing and tieing of corners. In addition, on jobs of any appreciable length, bearings shall be adjusted at appropriate intervals for convergency, and the point and amount of adjustment shall be shown on the plans.

All location surveys in the future, whether for force account or for contract construction, shall adopt the same methods as outlined above. This will enable us to make our preliminary filing with the B.L.M. at the time of initiating construction, which is the most desirable procedure. A final filing will be made when as-built plans for the project are finished.

It will still be necessary to prepare special plats for all roads crossing School Sections as outlined in the memorandum to District Engineers from the Chief of the Engineering Division, dated January 18, 1955. The requirements of this memorandum should be reviewed from time to time, and the program of plat preparation kept current.

Wm. J. Niemi
Chief Engineer

Distribution: A

Interior - ARC - Juneau
January 25, 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
ALASKA ROAD COMMISSION
Juneau, Alaska

April 13, 1953

A.R.C. MEMORANDUM NO. 130

SUBJECT: Farm Road Surveys

Under the provisions of Secretarial Order No. 2665, dated October 16, 1951, it is necessary to submit plans and specifications for all farm roads to the Bureau of Land Management for right-of-way purposes.

Alignment surveys must be made to a precision of at least one part in five thousand for all future farm road construction, and in no case inferior to the limits of closure required during the survey of the land closed upon. As the alignment survey is run, complete ties must be made to all adjacent Bureau of Land Management survey monuments and all private property corners. In making ties to Bureau of Land Management survey corners, it is essential that the exact intersection of the road center-line with the section line or other B.L.M. survey line be obtained. Ties are also to be made to available U. S. Coast and Geodetic Survey and U. S. Geological Survey monuments to aid in checking positions and bearings. If alignment surveys of the above precision have not been made for farm roads previously constructed, such surveys should be made as soon as possible. Surveys of the same order should be made for all farm roads to be built during the 1953 season and thereafter.

As soon as necessary surveys covering previously constructed farm roads are made, the alignment shall be plotted to a scale of 1 inch = 400 feet and forwarded, with the original field notes, to Headquarters for review and transmittal to the proper land office of the Bureau of Land Management. In plotting, it is essential that all ties to Bureau of Land Management, private property, and other survey monuments be shown.

At the end of the 1953 and succeeding construction seasons, alignment maps and original survey notes for all farm roads constructed during the season shall be forwarded to Headquarters for review and filing of maps as above.

Wm. J. Niemi
Chief Engineer

Distribution: A

Interior-ARC-Juneau

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ARC MEMORANDA [1 OF 2] [2]

COPY

March 25, 1949

A.R.C. ORDER NO. 4

TO: ARC - Anchorage, Fairbanks, Nome, Valdez

SUBJECT: Anchorage District

The Alaska Road Commission district heretofore designated as the Southwestern District is hereby designated the Anchorage District.

JOHN R. NOYES
Commissioner of Roads for Alaska

GHS:rf

COPY x 1

W. S. P.

UNITED STATES
DEPARTMENT OF THE INTERIOR
ALASKA ROAD COMMISSION
Juneau, Alaska

March 27, 1953

A.R.C. MEMORANDUM NO. 102-2

SUBJECT: Cordova-Richardson Highway Road, Route 122, designated "Copper River Highway"

The Cordova-Richardson Highway road has been formally named the "Copper River Highway".

This road originates at Cordova on the Gulf of Alaska and will generally follow the course of the Copper River for approximately 131 miles to a point of intersection with the road known as the Edgerton Cutoff at Chitina. It is planned that this route will ultimately be extended easterly from Chitina to McCarthy. The road is being constructed in part on the abandoned road bed of the Copper River and Northwestern Railroad and will traverse a scenic and highly mineralized area which has long been associated in the minds of Alaskans with copper mining.

This action was approved by Assistant Secretary of the Interior Orme Lewis, March 17, 1953.

A. F. Ghiglione
Commissioner of Roads
for Alaska

Distribution: A

Interior - ARC - Juneau

W. S. P.

UNITED STATES
DEPARTMENT OF THE INTERIOR
ALASKA ROAD COMMISSION
Juneau, Alaska

March 27, 1953

A. R. C. MEMORANDUM NO. 102-1

SUBJECT: Paxson-McKinley Park Station Road, Routes 811 and 821, designated "Denali Highway"

The Paxson-McKinley Park Road has been formally named the "Denali Highway".

This road traverses an area previously designated as the Denali Mining District. According to Mr. Hudson Stuck in the preface to his book, "The Ascent of Denali (Mt. McKinley)", the term "Denali" means "the great one" and was used to identify Mt. McKinley by the relatively large Indian population of those extensive regions of the Interior of Alaska from which the mountain is visible. The natives of the middle Yukon, the lower 300 miles of the Tanana and its tributaries, and of the upper Kuskokwim have always referred to the mountain as "Denali".

This action was approved by Assistant Secretary of the Interior Orme Lewis, March 17, 1953.

A. F. Ghiglione
Commissioner of Roads
for Alaska

Distribution: A

Interior - ARC - Juneau

Miller

UNITED STATES
DEPARTMENT OF THE INTERIOR
ALASKA ROAD COMMISSION
Juneau, Alaska

August 8, 1951

A.R.C. MEMORANDUM NO. 102

SUBJECT: Tetlin Junction-Eagle Road (Forty Mile Road), Route 331, Designated "Taylor Highway"

The Tetlin Junction-Eagle Road, Route 331, has been formally named "Taylor Highway" in honor of Ike P. Taylor who for sixteen years served as head of the Alaska Road Commission.

The "Taylor Highway" extends from Tetlin Junction on the Alaska Highway through the Forty Mile mining district to Eagle on the Yukon River, with a branch road to the Canadian boundary where it connects with a road leading to Dawson, Y.T.

This action was approved by the Secretary of the Interior Oscar L. Chapman on June 12, 1951.

A. F. Ghiglione
Commissioner of Roads
for Alaska

Interior - ARC - Juneau, Alaska

ALASKA ROAD COMMISSION
Juneau, Alaska

February 9, 1951

A.R.C. MEMORANDUM NO. 93, Supplement No. 1

SUBJECT: Situation Reports

For your information and guidance there is set forth an outline of the 4 week report that we are required to submit to the Office of Territories.

INTRODUCTION

Report matters or developments of an unusual character or worthy of special attention.

SURVEYS AND PLANS

Report individually each location or relocation survey, the total miles of located line to date, separate mileage of alternate located lines, the number of men employed as of the close of the period and comments as to progress and other items of interest. Similar information is to be given in regard to office work on plans, specifications and estimates during the period of design.

CONSTRUCTION

By Contract:

A separate report is required for each contract giving the percent of completion, comments on the work and the number of Government employees engaged on the work at the end of the reporting period.

By Force Account:

A separate report is required for each individually programmed force account construction project covering miles (a) cleared and grubbed, (b) graded, (c) gravel surfaced or (d) crushed gravel surfaced whichever the case may be; comments on the work and the number of men employed at the close of the period should be included. Note that clearing and grubbing is but one item and this also includes any necessary stripping. In effect, we are reporting the number of miles ready for grading operations.

RECONSTRUCTION

Most of our road work contracts are really reconstruction but they are not reported under this heading. This covers only reconstruction by force account and reports must show relocated mileage as for new construction and separate mileage for regrading and resurfacing of the

existing roadway. Comments on progress and any developments of interest are included and the number of employees at the end of the period are shown.

FARM AND INDUSTRIAL

Farm roads are reported to Washington as consolidated mileage (a) cleared and grubbed, (b) graded, (c) gravel surfaced or (d) crushed gravel surfaced; also comments and the number of men employed are made. However, this office is now undertaking to maintain an accurate, current tabulation of mileage of each individual route. For this reason it is desired that the District reports show the mileage of work accomplished on each individual road and identify the road by name and by the new route number, using only the one number to the right of the decimal to indicate the local road or group of locals to which the road belongs.

In reporting increments of mileage constructed on a given road during the reporting period the greatest care must taken to make sure that the accumulated total of all construction reported on that road is in agreement with the actual total constructed length of the road.

MAINTENANCE AND GENERAL

Under this heading is reported maintenance activities throughout the Territory with special emphasis this winter on the Thompson Pass work because the Director is following that work very closely. Also a general discussion is given of noteworthy conditions, operations or events not covered previously in the report.

ADMINISTRATION

Under this heading are discussed administrative matters of interest to the Office of Territories including reports of personnel and finances.

The above outlines what we must report and our reports are necessarily based largely upon reports received from the several districts. In effect our reports are our advertising medium or sales representative in Washington circles. It is desired to place emphasis on accomplishment, whereas the usual engineer's attitude is to accept accomplishment as normal and therefore unworthy of note, so he is inclined to place emphasis on adverse conditions and disappointments. With our advertising objective in mind it is requested that the District Engineers carefully analyze the above outline and strive to furnish reports that will fully assist Headquarters. If adverse conditions and disappointments must be reported, let the report also contain a recital of what is being done about it.

A. F. Ghiglione
Chief Engineer

DEPARTMENT OF THE INTERIOR
ALASKA ROAD COMMISSION
Juneau, Alaska

January 19, 1951

A.R.C. MEMORANDUM No. 93

SUBJECT: Situation Reports

Effective immediately, monthly situation reports submitted to the Headquarters, Alaska Road Commission, by the Districts will become four-week situation reports. The first four-week report will be submitted for the period ending January 28, 1951. The District situation reports will be transmitted in triplicate to the Headquarters, Alaska Road Commission, promptly and in all cases so as to reach the Headquarters, Alaska Road Commission, not more than one week after the date of the report.

The Headquarters, Alaska Road Commission, submits a situation report to the Office of Territories in Washington. Effective immediately, this report will also be a four-week report. The four-week report from the Headquarters, Alaska Road Commission, will be prepared one week after the end of each four-week period and will be submitted to Washington not later than one week after that.

All situation reports will describe briefly the salient features of work on each project in the Districts. Projects may be grouped for report purposes consistent with allotments and work orders; in other words, an entire system may be reported as a single item in the situation report.

Care will be taken that situation reports are complete without being too detailed, though a tabulation of actual quantity accomplishments must be included. Narrative style will be used so as to present most understandably the salient features.

A. F. Ghiglione
Chief Engineer

Interior-ARC-Juneau, Alaska

ALASKA ROAD COMMISSION
Juneau, Alaska

January 6, 1950

ARC MEMORANDUM NO. 16 (Revised)

Subject: Construction Engineering

From experience gained during the past construction season, it becomes desirable to amend the original instructions (ARC Memorandum No. 16 dated April 21, 1949) to provide more detailed outline of the work necessary to engineer construction jobs.

It is necessary that a construction schedule chart be prepared for each project giving dates and time required for each operation, covering the entire length of the project by stationing or miles whichever is more practical. From this schedule, staking can be done in cooperation with construction forces on both contract and force-account construction. We should be in a better position this coming season with detailed plans so that a more realistic construction schedule can be prepared.

WORKING HOURS

The working hours are eight hours per day, six days per week and any deviation therefrom shall have prior approval from the District Engineer. Compensatory time should be kept to a minimum. When Contractors' hours conflict with the hours for ARC employees, the Resident Engineer should prepare a time schedule required for Contractors' activities together with the names of engineering personnel effected thereby and submit the schedule with recommendations to the District Engineer for approval, before any hours are changed or overtime granted.

CONSTRUCTION STAKING

Center line for construction should be staked on 50' stations except on long tangents where intermediate stationing is superfluous. The Contractor's superintendent, or the general foreman on force account work as the case may be, should be consulted on staking requirements and their requests granted as far as practicable. Stationing should be continuous from point of beginning, and where equations were necessary on preliminary surveys, these should be eliminated on final construction staking. All points on tangent and curve points not referenced should be adequately referenced before construction starts. Transit books shall be detailed as outlined in ARC Memorandum No. 38, and all line changes noted so that accurate as-built drawings can be prepared from these notes at the close of the construction.

After the transit line has been run, a construction profile shall be taken over the center line showing existing and proposed grade. This profile

shall be plotted immediately so that determination can be made of any deviation from the original plans. This is a very important step for grade purposes and will eliminate any large errors that might overrun the quantities from the original estimate. Also after plotting the profile overruns may be reduced by modifying the design grade subject to the approval of the District Engineer.

When profile elevations have been taken, these, together with grade elevations, shall be tabulated in the slope stake or cross section book and from this information slope staking can start. Slope stakes shall be run, plus or minus, from the center line, and the cut or fill clearly marked on the slope stake with the distance out from center line. At intervals of 100' or more in open country, a reference stake shall be placed well back of the slope stake (10' or more) with the distance to the center line and cut or fill noted thereon in reference to the center line elevation. It shall be the responsibility of the Resident Engineer to see that the construction personnel of the Contractor, or Government, are familiar with the slope stake markings, and that mutual understanding exists on the project.

Rough grade stakes shall be set only where requested by the construction forces, and then only when all slope stakes have been lost by construction activities. It should be realized that in some instances re-staking will be necessary, but continued carelessness in preserving stakes should be brought to the attention of the construction supervisor in an effort to hold rough grade staking to a minimum.

Finish grade stakes (blue top) shall be set at 50' intervals on curves and 100' on long tangents unless shorter intervals are requested by the construction supervisor. These stakes shall be 2 x 2 x 12 or 2 x 2 x 16, driven to grade and offset 2' from either shoulder on the right and left. The top of the stakes should be marked with blue keel, indicating grade, and a guard stake placed nearby, noting thereon the station and distance from center line.

Drainage structures shall be staked with a guinea and guard stake on center line at the inlet and outlet, noting on the guard stake the cut distance and size of pipe together with the stationing and distance from center line. A reference stake shall be set at least 10' out from the inlet with a guard stake noting cut distance and size of pipe. In staking drainage structures, a cross section shall be taken along the center line of the proposed structure so that excavation can be calculated.

All bridge sites shall be staked and will be referenced with permanent markings. These references should be on center line of abutments and piers and on the longitudinal center line of the bridge. At least two bench marks should be accurately established, one on each side of the stream banks. Careful consideration should be given to staking bridges, and all references placed well beyond the construction lines so that line and grade can be easily re-established at any station of construction with the minimum amount of field work.

It will be the responsibility of the Resident Engineer to see that all field notes and drainage structures type, size and length conform accurately with the construction as-built. This information should, if time is available,

be plotted on construction drawings. In any event, the field notes shall be comprehensive enough so that final drawings can be prepared from these notes in the District Office at the close of the construction season.

The Resident Engineer shall keep a daily diary noting the construction activities, the engineering progress, and discussions of consequence held with the construction forces. This diary should be the basis of preparing the weekly progress report. It also should carry the names of the personnel engaged on the engineering work, noting each party's progress.

Ike P. Taylor
Chief Engineer

ALASKA ROAD COMMISSION
Juneau, Alaska

April 21, 1949

ARC MEMORANDUM #15

SUBJECT: RECONSTRUCTION LOCATION SURVEYS

These instructions are prepared in an effort to obtain uniformity on reconstruction surveys.

TYPICAL PARTY

Survey parties will generally be smaller on this type of work as on many projects the survey will be handled by the construction engineering crews when not otherwise engaged in staking construction. Accordingly, the crew will operate from a construction camp. The number of personnel engaged on the work will be governed by the length of the relocation and the time available for survey work.

WORKING HOURS

Working hours will be the same as pioneer locations. (See ARC Memorandum #14)

METHOD OF SURVEY

In most cases on this type of survey it will not be necessary to run a stadia line. The only time that it may be required is when the proposed relocation materially leaves the existing roadway.

The transit line should be staked on at least 100' stations on tangents and 50' stations on curves, stationing all grade breaks and rolling areas so that a true profile may be accomplished. All curves shall be computed and points of intersection, beginning of curves and end of curves staked and adequately referenced.

Where township surveys exist, accurate ties shall be made to the nearest ection or quarter section corner along the section line, noting the intersection stationing at the roadway.

Ties shall be made to all crossroads, trails, driveways, buildings, utilities, and structures along the right of way and for 500' adjacent thereto, noting all dimensions, sizes and any details necessary for accurate plotting.

Cross sections shall be taken at each station, clearly noting edge of existing roadway, ditches and slopes. Sections shall be taken sufficiently wide to cover any proposed widening or line changes. All drainage structures shall be noted with the cross sectioning, giving size, length and type and condition of each structure.

Where bridges exist, complete information shall be noted as to type, size and state of repair, giving high water and deck elevations, stationing the beginning and end of the structure.

All clearing and grubbing shall be noted along with the cross sectioning. Notes should also be taken to cover the condition of the existing roadway, noting type and condition of wearing surface, and the depth of surfacing at frequent intervals, with remarks as to subgrade conditions.

PLAN DETAIL

Center line should be plotted usually to a scale of 200' to the inch by a single sharp line only. No right of way or clearing lines shall be indicated. Beginning and end of curves and points of intersections shall be stationed. Curve data will show degree of curve, central angle, semi-tangent and length of curve, mile posts to be noted in pencil. Lakes, streams, and any water courses shall be hown at a minimum distance of 500' each side of center line. Contours shall be noted at 5' intervals on flat country, and 10' to 25' in mountainous areas.

PROFILE DETAIL

The profile shall be plotted at the bottom of the sheet below the alignment, using identical stationing and scale. Gradients and vertical curves as required shall be noted in pencil. Between each mile post, a tabulation of the following items of proposed new work shall be noted on the profile.

(1) Clearing - In acres.

(2) Grubbing - In acres.

(3) Unclassified excavation - In cubic yards.

(4) Rock excavation - In cubic yards.

(5) Unclassified borrow - In cubic yards.

(6) Embankment - In cubic yards.

(7) Culverts - Sizes and lengths.

(8) Bridges - Number and length.

(9) Structure excavations - In cubic yards.

On the majority of reconstruction surveys, no attempt will be made to work up final plans on cloth as above mentioned. Usually the final plotting and design will be done in the district office during the winter months from the information obtained during the field season; however, field plotting of alignment and profile shall be kept right up with the survey and plotted in such a manner that it can easily be traced during the winter. A field diary shall be kept on reconstruction surveys the same as required on pioneer locations.

Ike Taylor

Ike P. Taylor,
Chief Engineer.

ALASKA ROAD COMMISSION
Juneau, Alaska

April 14, 1949

ARC MEMORANDUM NO. 14

SUBJECT: Instructions to Survey Parties on Pioneer Location.

These instructions should be considered as general and are prepared as a guide in an effort to have uniformity in securing engineering data that is required for highway design. Some variance to these instructions will be necessary, and the district or location engineer will have to use his judgment to accomplish their particular problems.

TYPICAL SURVEY PARTY

1 Chief of Party
1 Transitman
1 Instrumentman
1 Topographer
1 Rodman
2 Chainmen
1 Cook
Equipment Operators and Axemen as required.

WORKING HOURS

Minimum working hours (outside limitations) are from 6:45 a.m. to 4:00 p.m. or 7:45 a.m. to 5:00 p.m., whichever is desirable. In any event, employees must travel to work in the a.m. up to fifteen minutes on their own time, returning to camp in the evening at 4:00 or 5:00 p.m. as the case may be. Except for some circumstances, such as inclement weather or persistent insects, one hour should be taken for lunch to provide a rest period.

The work week is six days with time and one-half for the sixth day; however, at the discretion of the party chief and approval of the majority, the seventh day may be worked and time accumulated or applied to days lost because of bad weather. Classified employees will be allowed compensatory time for Sunday and no time should be shown for that day on the payrolls. For per diem or Wage Board employees, all time worked should be shown on the payroll. Legal holidays, namely May 30th, July 4th, September 5th, November 11th, November 24th, December 25th, and January 1st may be observed as Sundays if desired, and handled on the payroll as above mentioned.

METHOD OF SURVEY

A stadia preliminary line shall be made between control points to establish the location with the minimum amount of preliminary work. Topography shall be taken by the simplest and quickest method. The only time that special effort should be given to topography is when it is deemed advisable for further study of line and grade to save excessive yardage. No center line elevations in the way of profiles should be attempted until the definite location has been established.

Standards of alignment, grade and vertical sight distance shall be in conformity with the tabulation of Road Standards as outlined in Memorandum No. 2.

When the definite location is established between two control points, chaining, profiles and topography can then be completed. All work should be completed between controls before proceeding further on the survey, and particularly so when a camp move is necessary to continue. Staking should be done at least at 100' stations on tangents, and not less than 50' stations on curves. All points of intersection and points on tangent should be adequately referenced in a manner which will make replacement easy after clearing operations have been completed. Bench marks should be established well out of the lines of the clearing at approximately 2,000' intervals, using sea level datum. Curve stakes may be set by tangent offsets, but the line is to be cleared of all brush, trees, windfalls and logs between these stakes so as to use the alignment as a suitable trail for walking.

Where township surveys exist, a tie will be made at all section line crossings showing stationing on "L" Line at Section line and distance from intersection to nearest section or quarter corner along section line. Existing roads, trails, buildings, utilities or structures encountered within the limits of the right of way or within 500' adjacent thereto should be fully described, dimensioned, and tied to the center line.

Test holes shall be dug not less than 3' below the surface where it is apparent along the alignment that strata changes exist. It should not be necessary to dig these holes closer than 1,000' apart. Types of materials encountered by these excavations should be noted in the level book, clearly described. For example: 8" moss, 6" of black loam, 14" sandy clay, 16" gravel up to 2" diameter, top 8" frozen as of June 1st, etc. All prospective borrow pits observed along the right of way should be noted; however, no time should be spent searching for likely pits off the right of way.

One field book shall be used for the following information:

Clearing
Drainage
Bridge Crossings.

Under "Clearing" there should be noted the different density of growth classified as follows:

(1) Open - No trees and no brush over 3' high.
(2) Scattered - A few trees here and there - practically open.
(3) Medium - Just average.
(4) Thick - Where visibility is approximately 100'.
(5) Dense - Where visibility is less than 50'.

These classifications are to be followed by descriptions of the area. For example, "Open swamp", "Open dry", "Scattered alders up to 2' in diameter", "Scattered green spruce and poplars 2" to 8" in diameter". Where short stretches are encountered of less than 200', the area can be grouped together.

Under drainage, all drainage areas should be approximated, and where possible, culvert sizes recommended. Direction of flow and angle to proposed roadway noted.

The following is an outline of information necessary to be obtained in the field at all bridge sites; however, a supplemental sheet for standard information of every bridge site will be furnished to each locator to be prepared in the field before leaving the location.

(1) Accurate profile will be taken on center line 200' each side of the proposed crossing.

(2) Elevations should be taken for a distance of 100' each side of the center line so that a 2' contour map can be prepared of the site.

(3) Stream bed elevations for a minimum distance of 600' upstream and downstream from the bridge site will be taken.

(4) The angle and general direction of the flow of the stream shall be noted, and the angle of the crossing of the proposed roadway.

(5) Elevations of water should be taken at the time of the survey, and also average low water and high water elevations established. Most important of all, the extreme high water elevations with month and year noted of the occurrence, if possible.

(6) Does the stream carry an appreciable amount of drift or ice.

(7) Has stream bed been stable, or has it been filling, deepening, or widening; also, has there been any erosion apparent on the banks or lateral shifting of the stream bed.

(8) If there is an existing bridge at the site, note type of structure, type of bents, type of material of deck and superstructure, elevation of deck above high water, giving special attention to any damage that might have been done to the structure from ice or drift.

(9) Note all outcroppings of solid rock or shale adjacent to or at the proposed location.

MAP DETAILS

In order to keep the office work along with the survey, the Chief of Party, when not on reconnaissance or helping with the survey, should do most of the field plotting and mapping. Plotting of the alignment should be done on manila hard shell drafting paper with pencil from coordinants on a scale of 400' to the inch unless, due to heavy terrain, a better projection could be made by plotting on a larger scale. The locating engineer should exercise his judgment as to the scale the profile is to be plotted. In some areas, 400' to the inch should be sufficient for field details. It is highly desirable for all concerned that field plotting be kept right up with the location. No attempt, however, should be made to plot contours in the field unless it is shown by the profile that better alignment could be attained by making further study by a paper projection.

A daily diary shall be kept by the locator in a field book labeled "Diary". This book shall contain a daily history of the location, noting weather, party members, difficulties experienced in routing line, any information that the locator has found that might influence line changes before construction is started, which information would be impossible to reflect on the field plotting. The diary should be comprehensive enough so that a final location report could be made by anyone reviewing the notes.

Ike P. Taylor,
Chief Engineer.

UNITED STATES
DEPARTMENT OF THE INTERIOR
ALASKA ROAD COMMISSION
Juneau, Alaska

December 3, 1952

A.R.C. MEMORANDUM NO. 2 - Revised

SUBJECT: Road Standards

The following standards shall apply to all roads except arterials or other roads having a high traffic density. Such exceptions shall be as designed and approved by the Headquarters Office.

	Through Roads	Feeder Roads	Local Roads
R/w Width	300'	200'	100'
Width of Top Surface	24' 1/	24' 1/	20' 1/
Width of Paving	20' 2/	none	none
Width of Subgrade	28' 1/3/	24' 1/4/	20' 1/4/
Clear widths of new bridges	24'	20'	20'
Design Load, new bridges	H20	H15	H15
New bridges, vertical clearance	15'	15' 5/	15' 5/

1/ Width may be increased for widening of high embankments and curves of 10^{0} or over, as specified on Dwgs. J-GEN-1, 2 and 3.

2/ Width may be increased for widening of curves of 10^{0} or over.

3/ Provides for addition of 6" of surfacing material including paving.

4/ Does not provide for any addition of special surfacing material. If such addition is to be made, the subgrade width shall be increased so that the resulting top surface width is not decreased.

5/ New design only.

The following vehicle speeds shall be used in design of the various types of road:

	Through Roads	Feeder Roads	Local Roads
Very Heavy Construction	35	30	20
Heavy Construction	40	35	25
Medium Construction	45	40	30
Light Construction	50-60	50-60	40-50

The following minimum standards for the various design speeds shall be observed:

Design Speed	Degree of Curve	Non-Passing Sight Distance	Minimum Tangent between Reverse Curves
20	56	125	30
25	36	165	50
30	25	200	75
35	18	240	100
40	14	275	150
45	11	315	200
50	9	350	200
55	7	415	300
60	6	475	400

The following maximum grades shall not be exceeded. Grades less than maximum shall be used wherever economical construction will permit.

Through Roads	7%
Feeder Roads	8%
Local Roads	12%

Design speeds for new construction or reconstruction will be established by Headquarters based on recommendations of District Engineers. Different sections of the same road may be expected to require different design speeds. After construction, it shall be the District Engineer's responsibility to sign the road in accordance with the approved design speeds for the safety of the public.

Exceptions to the standards outlined above will be considered. Request for exceptions must be submitted to the Headquarters Office for approval.

A. F. Ghiglione
Commissioner of Roads
for Alaska

Distribution: E

Interior - ARC - Juneau

UNITED STATES
DEPARTMENT OF THE INTERIOR
ALASKA ROAD COMMISSION
Juneau, Alaska.

January 1, 1949.

A.R.C. MEMORANDUM NO. 2

SUBJECT: Road Standards

	Through Roads	Feeder Roads	Local Roads
R/w Width	300'	200'	100'
Width of Roadbed	28'	24'	20'
Width of Paving	20'	none	none
Clear widths of new bridges	24'	20'	20'
Design Load, new bridges	H20	H15	H15
New bridges, vertical clearance	15'	14'	14'
Bridges to remain, clear width	20'	14'	14'
Bridges to remain, safe load, posted, tons	H15	H10	H10

	Through Roads		Feeder Roads		Local Roads	
	min.	desirable	min.	desirable	min.	desirable
Sharpest curve, °						
Flat topography	11	7	14	7	14	--
Rolling "	18	11	25	11	25	--
Mountainous "	36	18	56	18	56	--
Maximum Grade, %						
Flat topography	5	--	5	--	8	--
Rolling "	7	--	7	--	10	--
Mountainous "	9	--	9	--	12	--
Non-Passing Sight Distance						
Flat topography	315	415	315	415	--	--
Rolling "	240	315	240	315	--	--
Mountainous "	165	240	165	240	--	--

Exceptions hereto will be considered and must be authorized by the Juneau Office.

John R. Noyes,
Commissioner of Roads for Alaska.

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