

**RECONNAISSANCE
GEOTECHNICAL INVESTIGATION**

**HUFFMAN ROAD RECONSTRUCTION
OLD SEWARD HIGHWAY
TO LAKE OTIS PARKWAY
PROJECT NO. STP-0534(1)/53933**

Prepared for:

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1.0 INTRODUCTION

The section of Huffman Road under consideration extends from Old Seward Highway to Lake Otis Parkway. The scope of this initial phase of work includes preliminary engineering design, environmental documentation, and the gathering of public input. The objective of this project is to identify upgrades required to bring Huffman Road within the project limits, up to current standards for alignment, grade, width, drainage, lighting, general safety, and surfacing. Consideration will also be given to the addition/enhancement of pedestrian and bicycle facilities.

As part of this phase of work a search of existing subsurface information was performed. The purpose of the search was to determine if information was available which could be used to define the current roadway section and the soil and groundwater conditions. As part of our research effort, historic aerial photographs were reviewed and the entire project alignment was visually inspected during a reconnaissance of the area.

2.0 HISTORY

A review of aerial photographs indicates Huffman Road was constructed prior to 1961. From the aerial photograph it appears to have been a gravel surface at that time. In 1970, the construction of the New Seward Highway was started. Some improvements to Huffman Road may have occurred at that time. In 1982 the overpass at New Seward Highway and Huffman Road was constructed. The grades along Huffman Road may have been changed as part of that effort. In about 1996 Huffman Road was widened west of the New Seward Highway to accommodate another lane. Grades of the existing road were not changed, only a lane was added.

Review of the aerial photographs indicates that the area north of Huffman Road between the Old and New Seward Highway was a gravel pit from the late 1960s until the early 1980s. East of the New Seward Highway, Huffman Road gains elevation and appears to be in an area of glacial till with isolated areas of still water deposits (silts and clays). Low-lying areas in the high silt content till tend to have deeper deposits of organics and

peat. Existing borings indicate that more than three feet of surface organics were present just east of the New Seward Highway near Furrow Creek and near the Lake Otis and Huffman Road intersection. Deep organics are probably present in the wetlands area where Furrow Creek crosses Huffman Road near Woodland Drive. A copy of the aerial photographs reviewed for this project are attached as Appendix A.

3.0 RESEARCH RESULTS

A search of DOWL Engineers' files for soils information adjacent to Huffman Road was conducted. A copy of representative borings logs and a map indicating their location are attached. The results of any laboratory testing performed on samples from these borings is also included. The map includes a table indicating the approximate location of each of these borings.

Copies of two reports prepared by The Alaska Department of Transportation and Public Facilities (ADOT&PF) for the Huffman Road area were obtained. The first is a 1981 report prepared for the design and construction of the Huffman Road - New Seward Highway interchange. The second report was prepared for the upgrading of Huffman Road from Gregory Street to Bragaw Street. Copies of the boring logs that apply to the current project are included. The location of those borings is shown on the attached map. The information from the ADOT&PF borings indicates that in general, Huffman Road has about four inches of asphalt over six inches of D-1 and a gravel (NSF) section of about four feet. There appears to be a conflict in information between TH39 from the 1981 report and TH1 from the 1988 report. Both holes were drilled near the Huffman Road - Gregory Street intersection but the 1981 report hole only indicates about 0.5 meters of gravel below the pavement. The 1988 report hole (TH1) indicates 1.5 meters of gravel. We suspect the roadway section was improved during the intersection construction in 1982.

4.0 SITE INVESTIGATION

Our ground reconnaissance of the existing roadway indicated that in general the roadway section is performing relatively well. The pavement has been cut in many locations to allow utility installation or repair of disturbed areas. The roadway shows signs of

extensive wear. The only area where cracking, attributable to frost action, was identified was from the New Seward Highway east to Gregory Road.

5.0 DRAINAGE

Drainage along the roadway is well established and appears to be functioning well. Furrow Creek crosses the alignment from north to south near Woodland Drive. Furrow Creek reenters the alignment again just east of the New Seward Highway and is captured in a storm drain, which flows west along Huffman Road and exists the pipe just west of the Huffman Road and Old Seward Highway intersection. The drainage along Huffman Road from the New to Old Seward Highways needs some improvement. The development, which has occurred along this section of roadway, has resulted in some drainage deficiencies.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The existing roadway is performing relatively well but does exhibit extensive wear and some areas of longitudinal and transverse cracking. The existing boring logs from the roadway alignment indicate the roadway section is deficient. The borings indicate that the gravel section below the pavement (base course) does not meet current design standards. In many areas the gravel section is comprised of gravel having a frost classification of F-1 or F-2 with silt contents of nine percent or more. The gravel section is also not sufficient to prevent frost penetration into underlying frost susceptible silts or silty gravel subbase material.

Based on the information currently available it is recommended that rebuilding of the roadway section be considered. Included in the 1988 ADOT&PF report for Huffman Road from Gregory Street to Bragaw Street is a memorandum with design recommendations for upgrading the Huffman Roadway section. A copy of that memorandum is included in Appendix C. It should be noted that the recommendations were prepared in 1985 and were based on design parameters that may have changed substantially since 1985. The design recommendations should be reevaluated when new traffic data is available. The 1985 recommendations included a one-meter gravel section below 152 millimeters of crushed aggregate base and an asphalt section of 51 millimeters

to 76 millimeters depending on the desired design life. It is suggested that this section be considered until sufficient data is available to develop a new recommend section.