SECTION III

Geo-Engineering Aspects and Recommendations

Cut and fill Sections from Station 82/00 to Station 104/00

The Fort Riley Limestone and Oketa Shale Members are overlain by 2^{5}_{-} to 12 feet of mantle through these locations.

Backslopes

Backslopes of 3:1 or flatter are suggested for the mantle.

Slopes of $\frac{1}{2}$:1 are suggested for the Upper and Lower portion of the Fort Riley Limestone Member. The "Rimrock" will stand satisfactorily on a vertical slope.

A slope of $1\frac{1}{2}$:1 for common excavation and 1:1 for rock excavation is suggested for the Oketa Shale Member.

Excavation

The Upper portion of the Fort Riley Limestone Member has weathered to common excavation to a depth varying from 0^{0}_{-} to 1^{4}_{-} feet. The Fort Riley "Rimrock" will be rock excavation. The Lower portion of the Fort Riley Limestone Member has weathered the same as the Upper portion except where it is overlain by the "Rimrock" in which case it will all be rock excavation.

The Oketa Shale Member has weathered to common excavation to a depth varying from 1^{0}_{-} to 2^{5}_{-} feet.

Pond Location

At station 93/34 centerline crosses the northwest corner of a pond dam. This pond is used for watering live stock. At the time of this investigation this was their only source of water. The source of this water is surface run-off.

Cut Section from Station 108/00 to Station 128/50

A thick deposit of glacial till will be encountered through this area.

Backslopes

Backslopes of 3:1 or flatter are suggested for the glacial till.

Excavation

All excavation will be common.

Well Location

Station 122/88, 88 feet left of centerline, elevation 1451.9. This well has a cement covering. It has a hand pump which is powered by wind. Both the windmill and pump were in good condition. It was impossible to measure the well depth and the water level.

Cut and fill Sections from Station 135/00 to Station 240/00

A thick deposit of glacial till will be encountered through these locations.

Backslopes

Backslopes of 3:1 or flatter are suggested for the glacial till.

Excavation

All excavation will be common.

Pond Location

Between Station 188/81 and Station 190/25, centerline coincides with an old railroad fill. This fill is being used as the dam of a stock pond.

Well Location

Station 227/84, 116 feet left of centerline, elevation 1445.9. Well has a cement covering and a hand pump. This hand pump is broken. It was impossible to measure the well depth and water level. The well is not being used at the present time, but is enclosed by a fence.

Cut Section from Station 244/50 to Station 248/00

The Florence Limestone Member will be encountered through this location. It is overlain by 6 to 10 feet of glacial till and chert gravel.

Backslopes

Backslopes of 3:1 or flatter are suggested for the glacial till and chert gravel.

The Florence Limestone Member will stand satisfactorily on a vertical slope.

Excavation

The Florence Limestone will be rock excavation.

Cut and fill Sections from Station 251/50 to Station 409/50

Bedrock through these locations is overlain by a thick deposit of glacial till.

Backslopes

Backslopes of 3:1 or flatter are suggested for the glacial till.

Excavation

All excavation will be common.

Pond Locations

Between Station 329/00 and Station 330/45 approximately 200 feet right of centerline is located the dam of a stock pond.

Between Station 361/35 and Station 363/15, 34 feet left of centerline is located the dam of a small siltation pond.

Station 362/20 centerline crosses the upper end of a stock pond.

Between Station 386/72 and Station 388/92, 21 feet right is located the dam of a small siltation pond.

Between Station 395/55 and Station 397/95, 31 feet right is located the dam of a small siltation pond. This dam has a small hole in it. The pond contains a very small amount of water.

Cut Section from Station 414/50 to Station 418/00

A small amount of the Florence may be encountered in the ditch sections through this location. The Florence Limestone is overlain by a deposit of glacial clay varying from 1.5 to 6 feet.

Backslopes

Backslopes of 3:1 or flatter are suggested for the glacial clay.

An overall slope of $\frac{1}{4}$:1 or flatter is suggested for the Florence Limestone.

Excavation

The Florence Limestone will be rock excavation.

Cut Section from Station 421/00 to Station 433/00

The Florence Limestone will be encountered through this location. It is overlain by 1.0 to 9.0 feet of glacial clay and chert gravel.

Backslopes

Backslopes of 3:1 or flatter are suggested for the glacial clay.

An overall slope of $\frac{1}{4}$:1 or flatter is suggested for the Florence Limestone.

Excavation

The Florence Limestone will be rock excavation.

Cut and fill Section from Station 433/00 to Station 450/00

A thick deposit of glacial clay will be encountered through this area.

Backslopes

Backslopes of 3:1 or flatter are suggested for this glacial clay.

Excavation

All excavation will be common.

Cut Section from Station 450/00 to Station 461/00

The Florence Limestone and Blue Springs Shale will be encountered through this location. They are overlain by 3.5 to 8.5 feet of glacial clay.

Backslopes

Backslopes of 3:1 or flatter are suggested for the glacial clay.

An overall slope of $\frac{1}{4}$:1 is suggested for the Florence Limestone.

Slopes of 1:1 for rock excavation and $1\frac{1}{2}$:1 or flatter for common excavation is recommended for the Blue Springs Shale.

Excavation

The Florence Limestone will be rock excavation.

The Blue Springs Shale on the south facing slope will be rock excavation where it is overlain by 8.5 or more feet of the Florence Limestone. Where it is not overlain by the Florence Limestone or by less than 8 feet of the Florence Limestone, the Blue Springs Shale has weathered to common excavation to a depth varying from 1.0 to 14 feet. On the north facing slope, the Blue Springs Shale will be rock excavation. Where it is overlain by 5.5 of the Florence Limestone. Where it is not overlain by the Florence Limestone it has weathered to an approximate depth of 6 feet.

Cut Section from Station 478+50 to Station 481+00

A thick glacial deposit will be encountered through this location.

Backslopes

Backslopes of 3:1 or flatter are suggested for this glacial material.