

ALFORDS SITE

SITE DESCRIPTION

The Alfords Site is a 360-acre former logging farm.

LOCATION

The site is located in Clackamas County, T2S, R3E WM, Sections 29, 30, 31 and 32 (Figures 1 and 2).

ZONING

The Alfords Site is zoned RA-1, rural (agricultural) single family residential district.

CURRENT SITE LAND USE

The site is currently a vacant logging farm.

ADJACENT LAND USE

Vacant land, farms, residencies and a school exist in the vicinity of the site.

GEOLOGY

The proposed landfill site is underlain by old alluvium of the Estacada Formation. This formation consists of cobble gravel and bouldery-cobble gravel with interbeds of finer sands and silts. This older alluvium terrace is a remnant of a more widespread unit deposited in the ancestral Clear Creek Valley. The terrace deposit overlays and is bounded to the southwest by the Sandy River mudstone. To the northeast the terrace is bounded by the Gresham Formation, which is older than the terrace but has similar composition.

Depth of the terrace alluvium ranges from zero, adjacent to Clear Creek, to about 40 or 50 feet along the contact with the Gresham Formation to the northeast.

The surficial geology of the site is mapped on Figures 3, 4 and 5.

GROUNDWATER

Groundwater produced locally occurs in the Gresham Formation, which outcrops adjacent to the Estacada Formation underlying the site. Local wells surveyed, as shown on the site map, have a typical depth of 60 to 100 feet and have a specific capacity of about 1 gallon per minute per foot of drawdown.

The better producing Troutdale Formation outcrops above the disposal site. The Columbia River basalt underlies the site but it is separated from the site by the Sandy River mudstone. Well data from the

USGS indicates no groundwater production from the Columbia River basalt near the disposal site.

From the geology and topography it would appear that groundwater movement is from the Gresham Formation toward the younger Estacada Formation underlying the site. Figure 6 depicts potential groundwater flow and existing wells.

Movement of groundwater downward from the disposal site into the Sandy River is possible, but not likely due to the low permeability of the mudstone. If saturation conditions were to develop, a more likely exit would be a seepage into the creek at the terrace margin. In addition to surface inflow, which can be routed, seepage into the pit could occur as groundwater seepage from the Gresham Formation. This seepage could also be diverted, at least in part. The low permeability of the Gresham Formation, exhibited in the low well yields, indicates that this lateral seepage should be minimal.

Generated leachate from precipitation and lateral seepage will most likely exit at the terrace margin.

SOIL

Due to the several different levels on the site and the terrace faces between the levels, soil on the property is quite complex. The following is a description of the on site soils in relation to their geomorphic setting.

Map Unit A (Upper Terrace) is a deep moderately well drained high terrace soil developed in silty alluvium over gravel of the Gresham Formation at 275' to 350'. The SCS series name for Unit A is Bornstedt silt loam. The apparent texture and engineering class is silt loam ML, A4 over silty clay loam ML-CL, A6 fragipan that occurs at 32" to 38" below the soil surface. There is a seasonal perched groundwater table occurring above this restrictive layer. The land capability class of Unit A is IIw on slopes of zero percent to seven percent and IIIw on slopes of seven percent to 12 percent. The land capability class is based on seasonal wetness and the 32" to 38" limitation of root penetration caused by the fragipan.

Map Unit B (Terrace face between the upper level and the intermediate level) is a terrace escarpment developed on an outcrop of Gresham Formation gravel. The slope ranges between 15 percent and 35 percent. The land capability class is VI s or e and is based on slopes excessive for cultivation, erosion hazard and droughty moisture condition for pasture. The depth of range plant root penetration is limited to 15" to 24" by the gravel outcrop.

Map Unit C is an area of poorly drained soil developed in a concave drainageway and an outwash fan at the foot of a terrace escarpment. The texture and engineering class is silt loam ML, A4 over silty clay loam ML-CL, A6 over a heavy silty clay loam

to clay CL, A7. The depth to winter groundwater ranges between 6" and 12". The SCS series name is Cottrell silt loam and Dubay silt loam. The land capability classification is IV we based on wetness and erosion hazard.

Map Unit D (Intermediate Terrace) is a somewhat poorly drained terrace soil developed on the Estacada Formation at 250' and 275' elevation. The SCS series name is Clackamas loam. The apparent texture and engineering class is loam ML, A4 over silty clay loam ML-CL, A6 over a dense prominently mottled silty clay loam or clay CL, A7 over cemented gravel GC, A-2-7 at 48" to 60" depth. The depth to perched groundwater in Unit D ranges between 15" and 24". The land capability class is IV ws based on wetness and restricted root penetration at 24".

Map Unit E is in the 10-year flood plain of Clear Creek. The land capability class is IV we based on wetness and erosion hazard if not maintained under permanent soil cover.

FLOODPLAIN

The southwestern fringe of the site is within the ten-year floodplain of Clear Creek (See Figure 7).

SURFACE WATER

Clear Creek forms the western border of the site (See Figure 8).

GAS MIGRATION

Gas migration should pose no problem at this site. Horizontal movement is limited by the eroded slope on the Clear Creek side of the terrace and by the underlying Gresham Formation materials on the other.

SLOPE

The basic topography of the site is split in three distinct elevations. The higher property is the Gresham Formation which then abruptly drops to the Estacada Formation which is quite flat which then drops almost vertically down to the level of the creek. The slope face between the upper two levels has slopes of 35 percent in spots and is approximately 100 foot in height. The elevation difference between the intermediate level and the creek is approximately 35 feet with an almost verticle slope. All other topography on the site is relatively flat. See Figure 7.

COVER MATERIAL

The on-site material seems suitable for cover, provided a good mix of fines and gravel is used.

CAPACITY

Capacity of the site is 8,800,000 tons.

ACCESS

Access to the site is from Clackamas River Drive to Spring Water Road. The site is approximately seven miles from Rossman's Landfill in Oregon City.

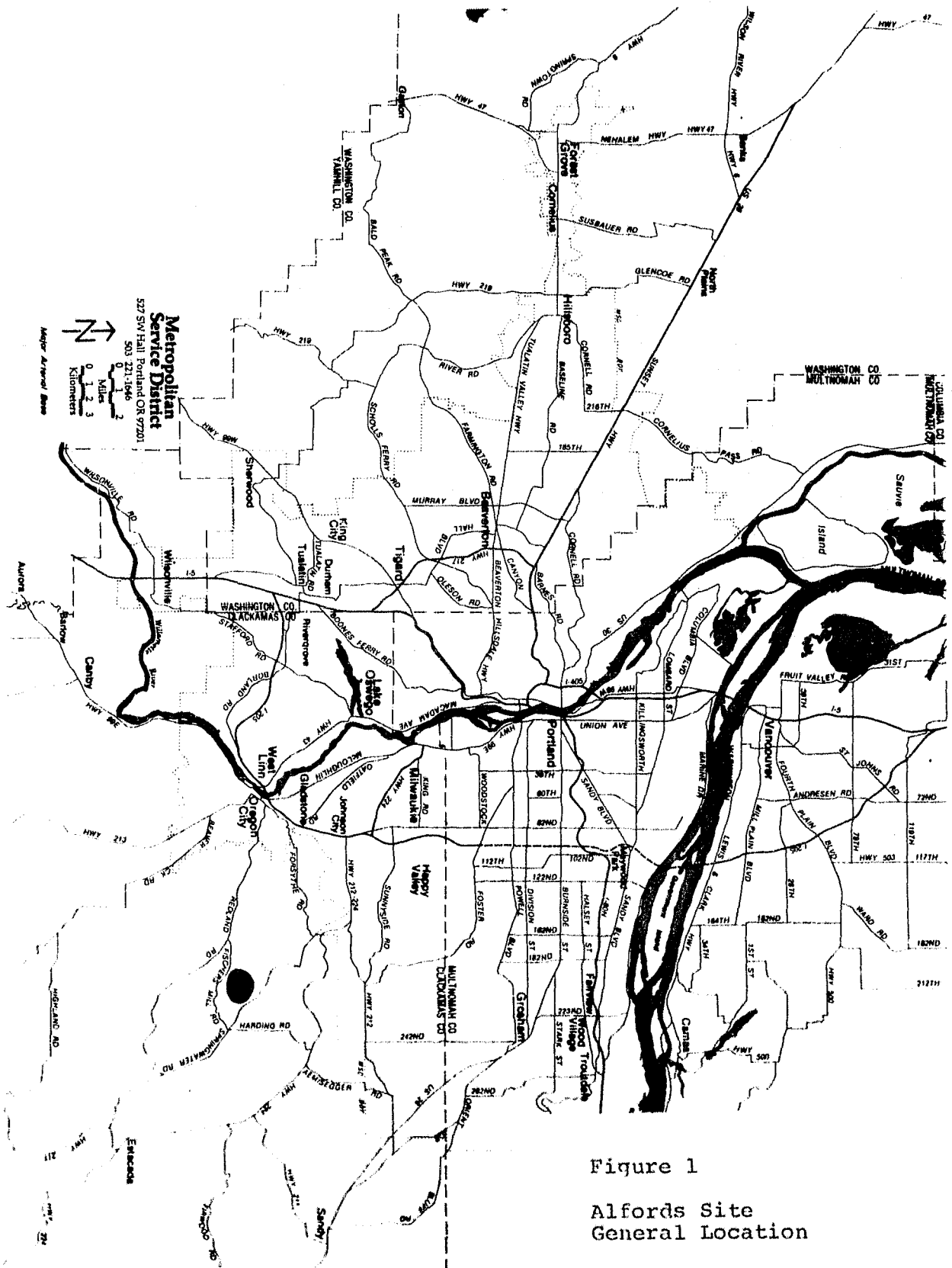
CLIMATE

Annual percipitation is 50 inches.

TA:ss

7242/103

Prepared by Metro Staff



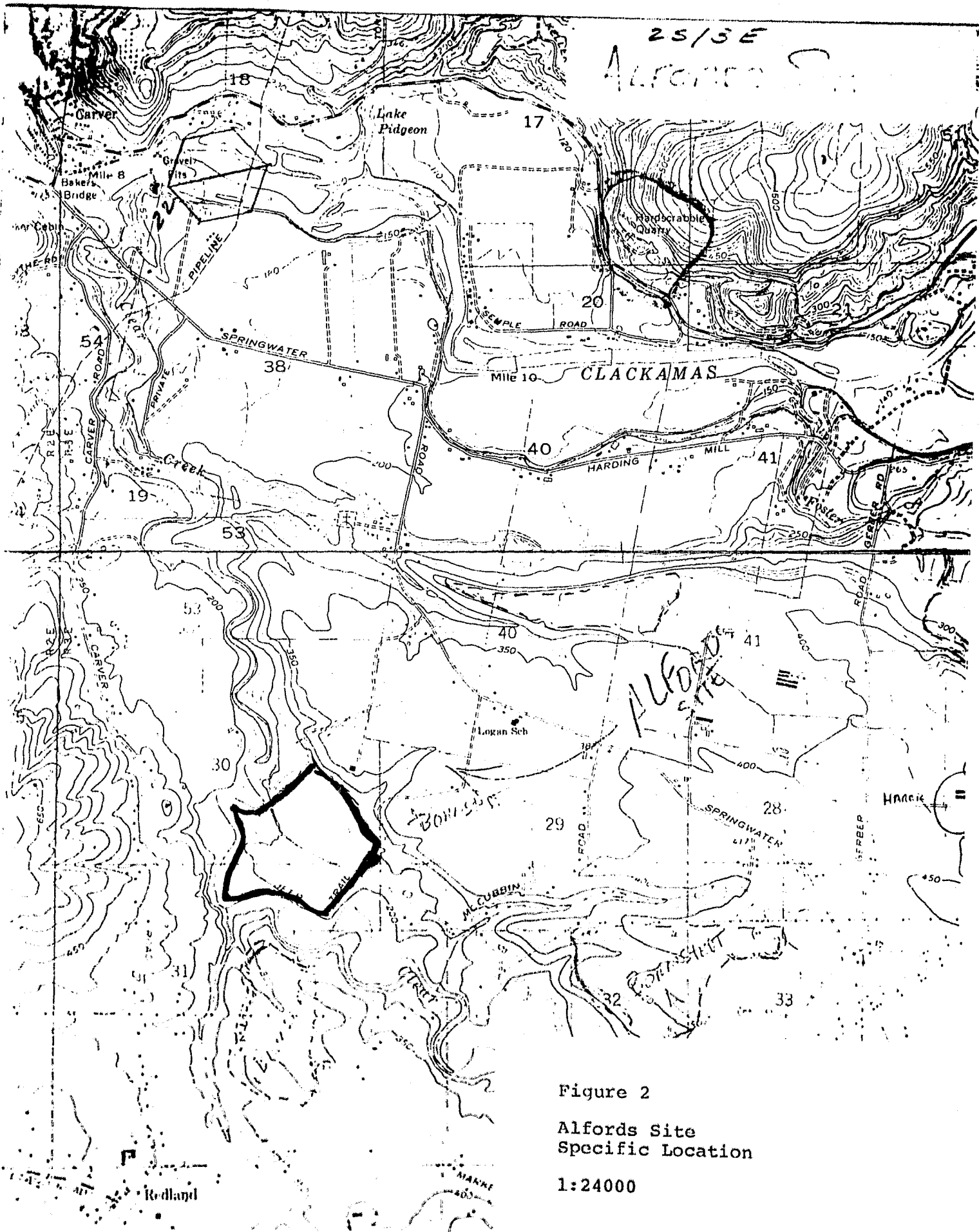
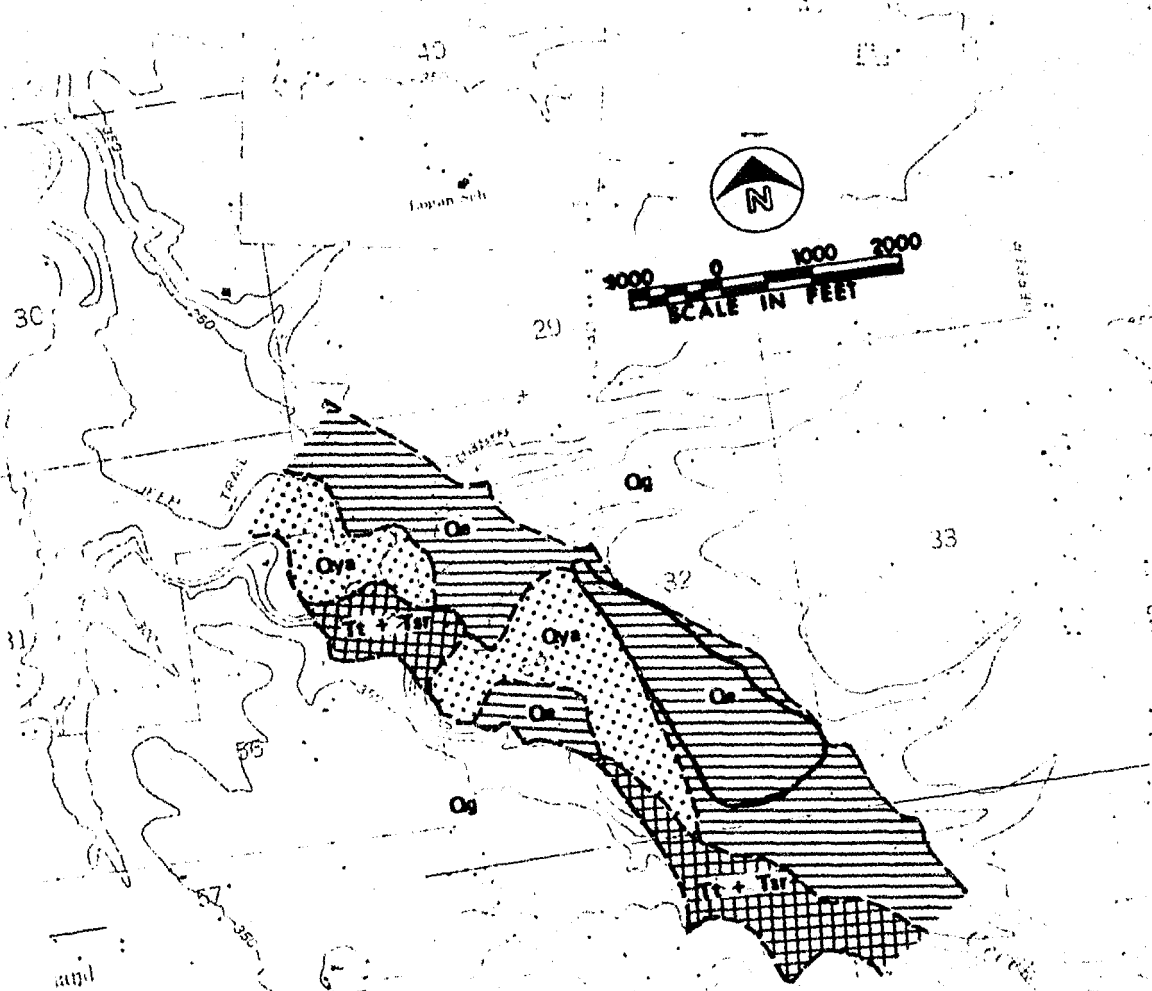


Figure 2

Alfords Site
Specific Location

1:24000

b3



LEGEND:

- Qya YOUNGER ALLUVIUM
- Qe ESTACADA FM
- Qg GRESHAM FM
- Tt + Tsr TROUTDALE FM + SANDY RIVER MUDSTONE

**METROPOLITAN SERVICE DISTRICT
SOLID WASTE MANAGEMENT ACTION PLAN
GREATER PORTLAND AREA
SURFICIAL (**

Figure 3

Alfords Site
Geology

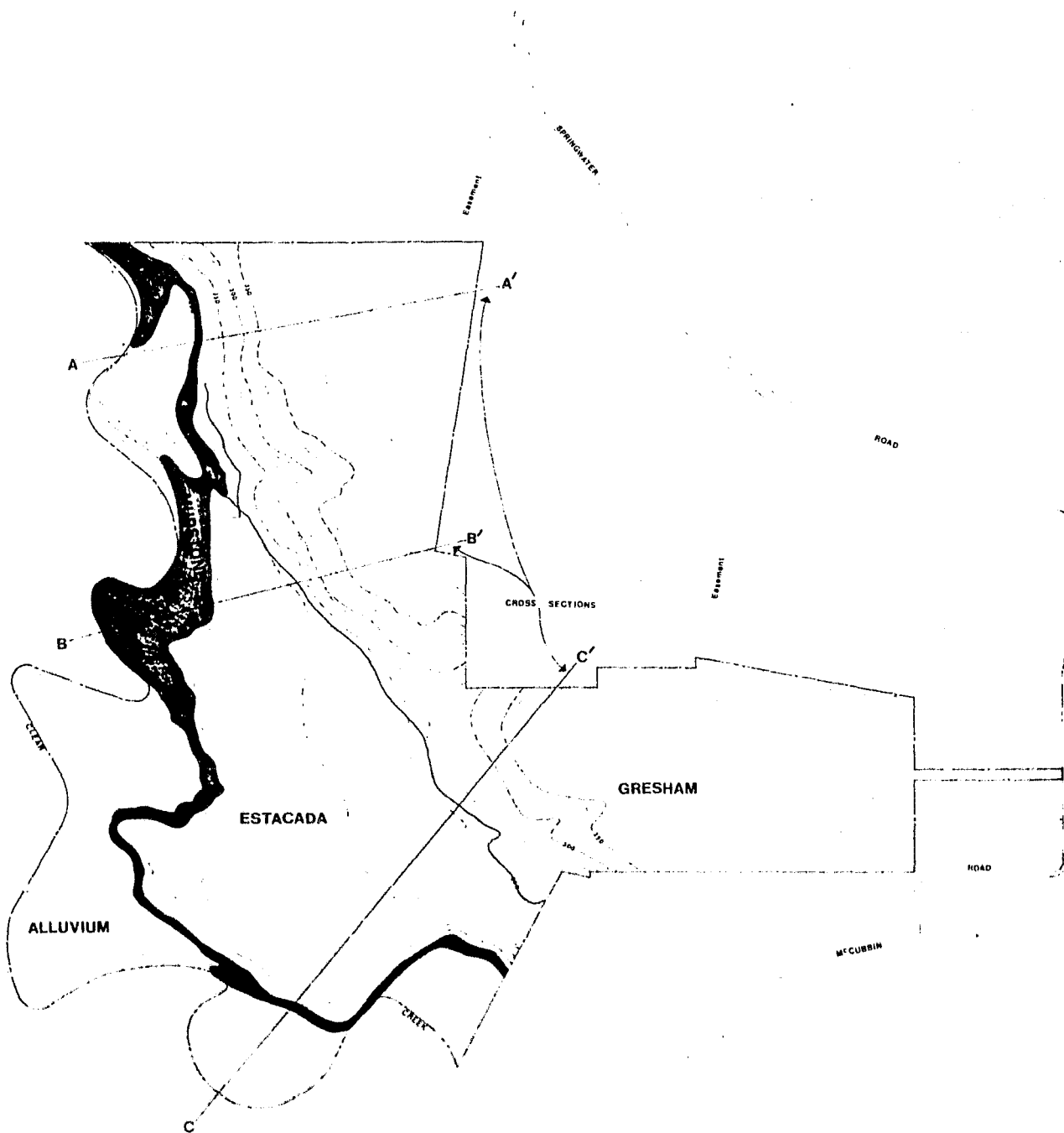


Figure 4

Alford's Site
Geologic Cross Sections

ALFORD / GOHEEN PROJECT

GEOLOGIC CROSS-SECTIONS

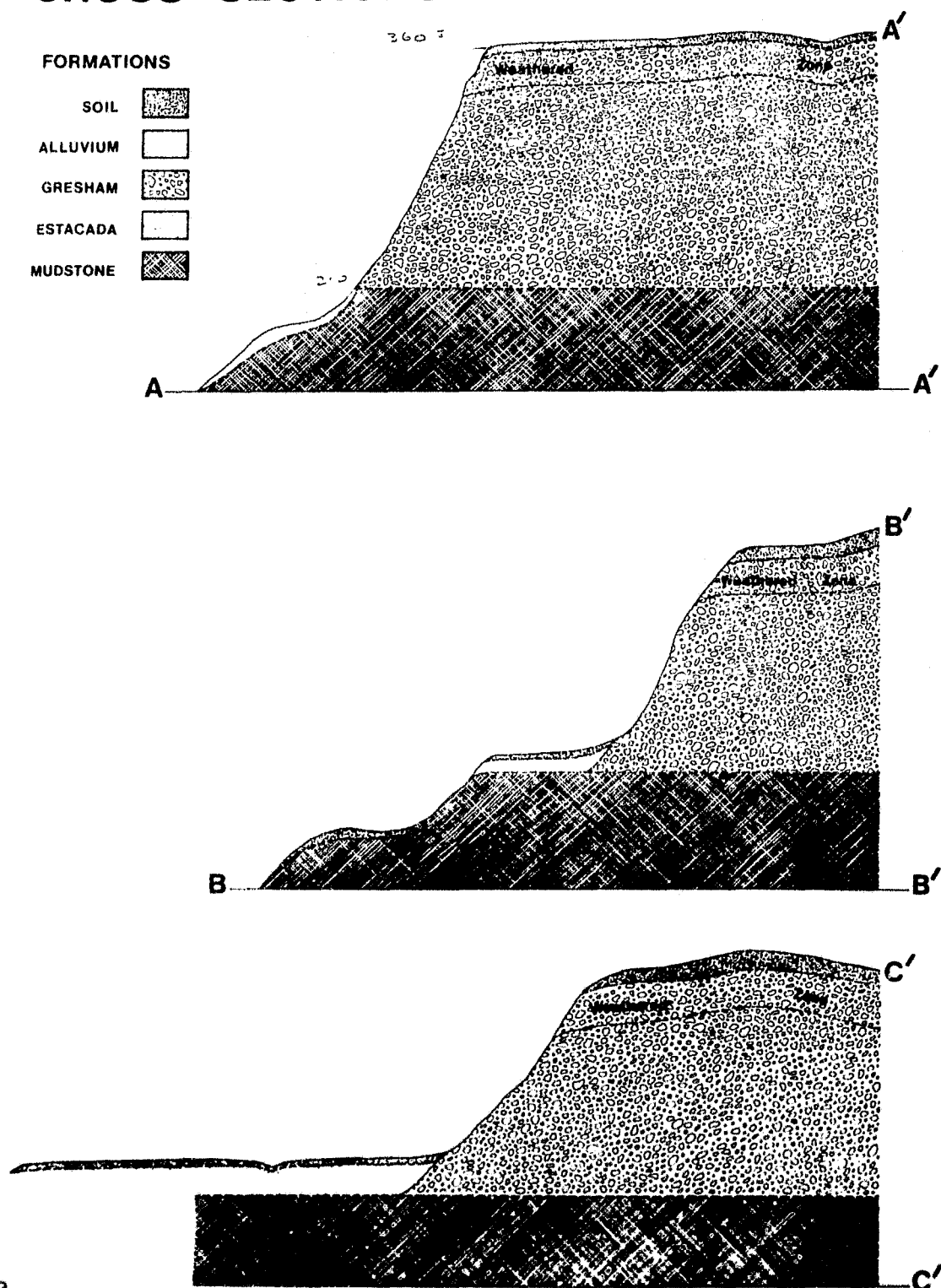


Figure 5

Alfords Site
Geologic Cross Sections

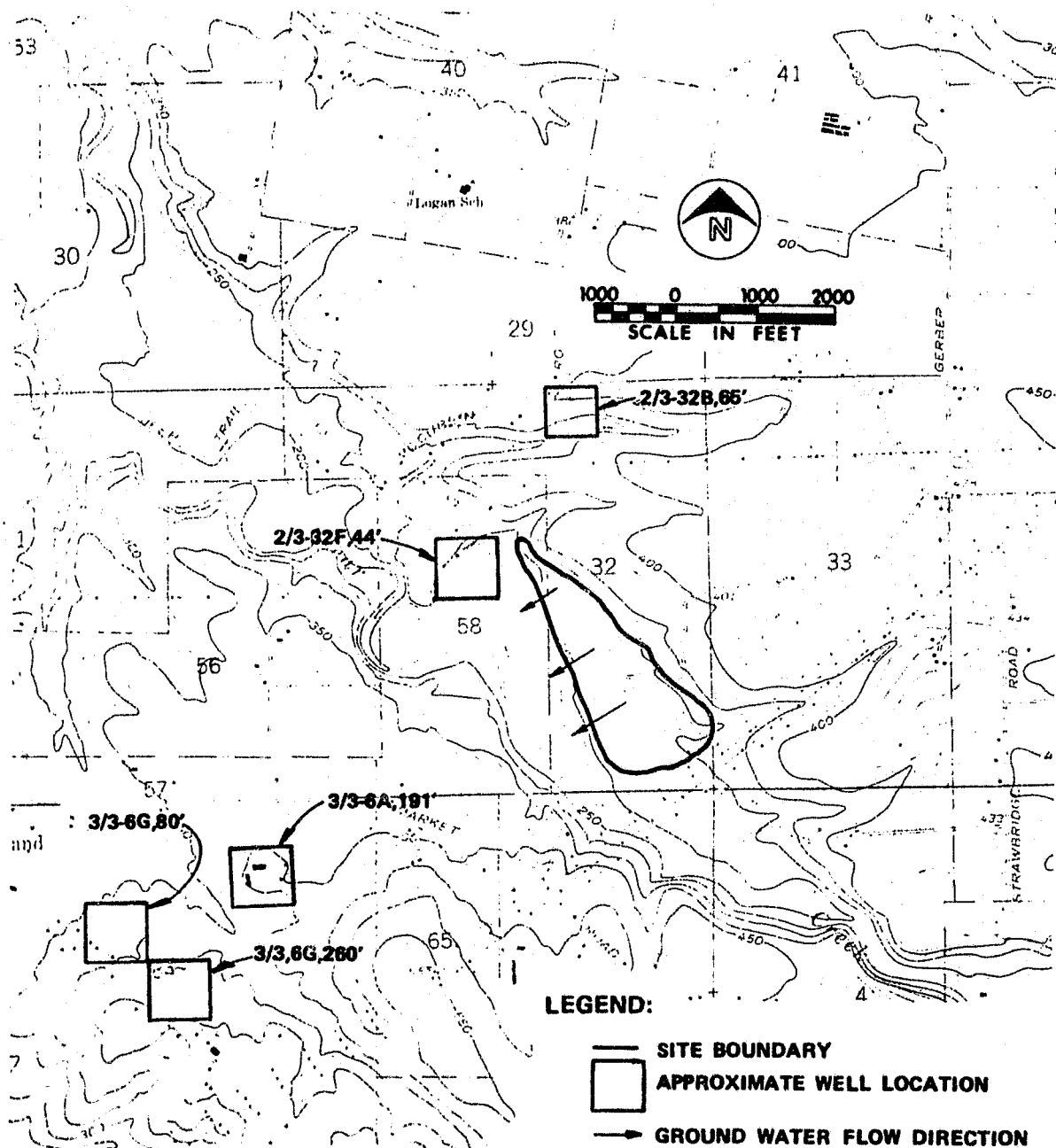


FIGURE
METROPOLITAN SERVICE DISTRICT
SOLID WASTE MANAGEMENT ACTION PLAN
GREATER PORTLAND AREA

ALFORD POTENTIAL

Figure 6

Alford's Site
 Ground Water Flow

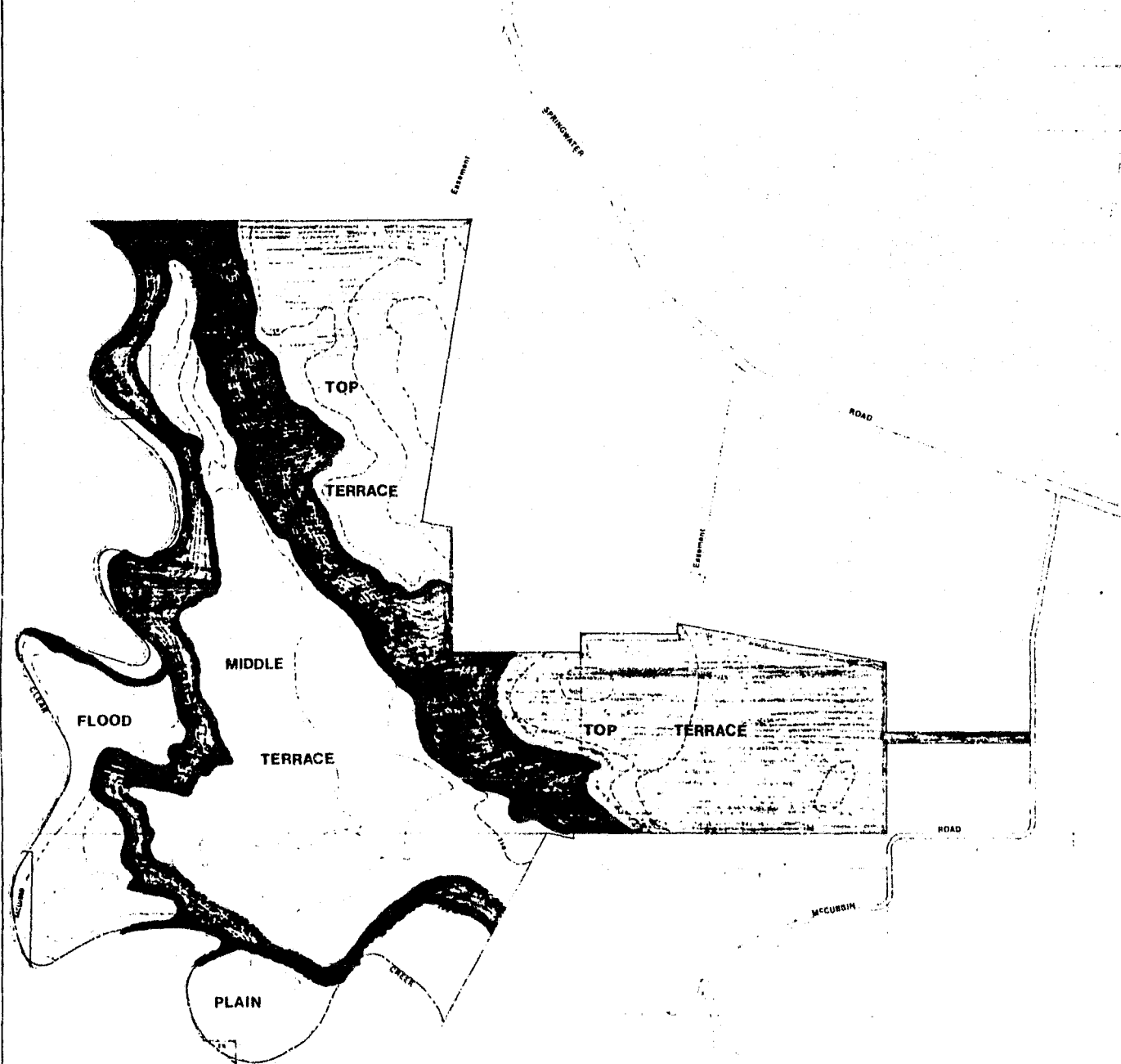


Figure 7

Alfords Site
Topography and Flood Plain

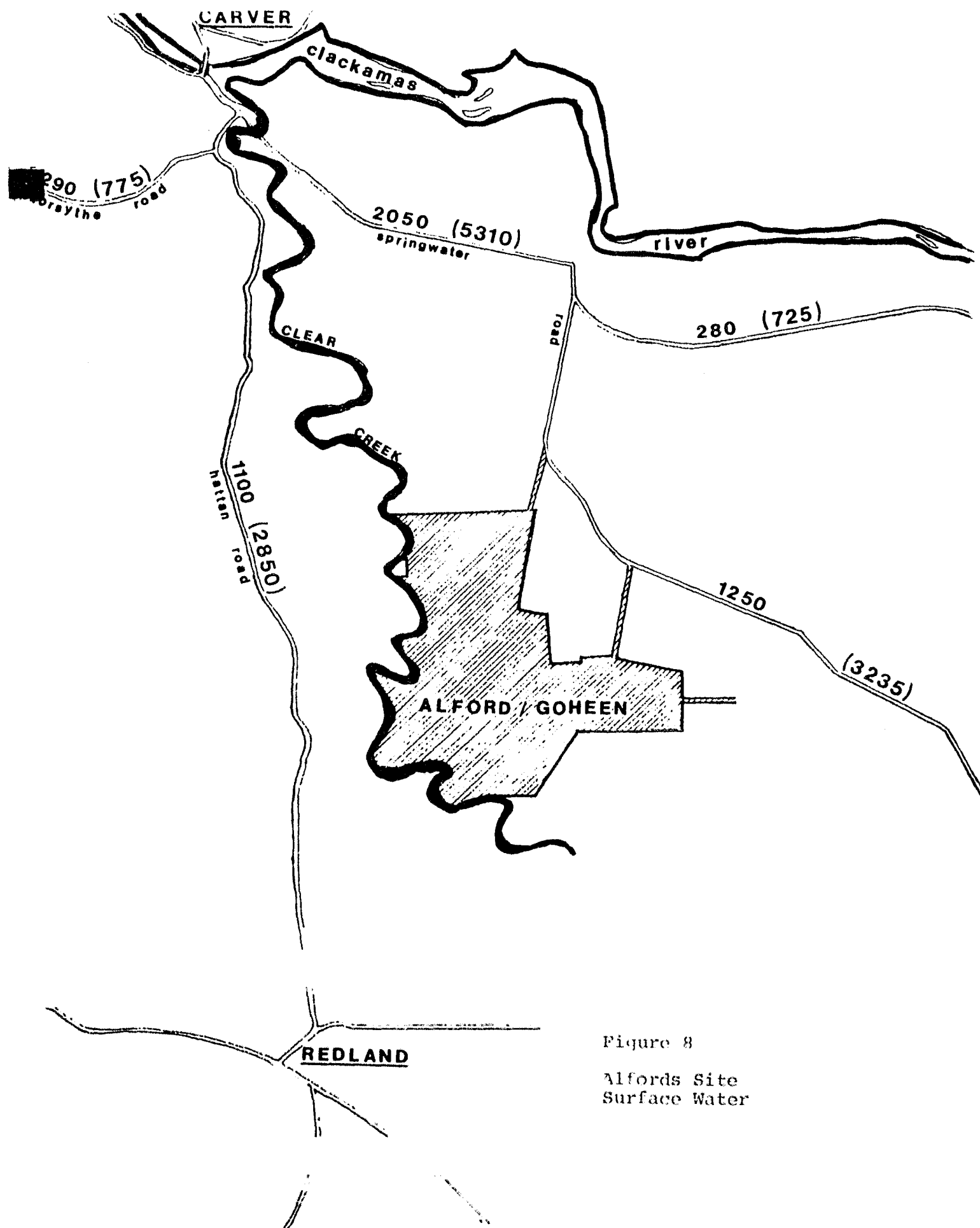


Figure 8
Alford's Site
Surface Water