Appendix A

NOTATIONS

E, N	fixed or most likely value of coordinates
E', N'	approximate coordinates
$\Delta E, \Delta N$	small corrections to approximate coordinates $E = E' + \Delta E$ and $N = N' + \Delta N$
Z	most likely value of orientation
Z'	approximate orientation constant
ΔZ	small correction to approximate orientation constant $Z = Z' + \Delta Z$
c	number of constraints
f	numerical term of residual equation f = observed - computed
g	numerical term of constraint equation g = observed - computed
l	observed or measured distance
n	number of measurements
r	degree of freedom $r = n - u + c$
s	distance computed from coordinates E, N
s'	distance computed from approximate coordinates E', N'
u	number of unknowns or parameters
v	residual or small correction to observation
a, b	direction coefficients
c, d	distance coefficients
α	observed or measured direction $\alpha + v + Z = \phi$
ϕ	bearing computed from coordinates E, N
ϕ'	bearing computed from approximate coordinates E', N'
θ	angle
$\sigma, \sigma^2, \sigma_0^2$	standard deviation, variance and *variance factor*

$\Delta E, \Delta N$ and ΔZ are referred to as the "unknowns" or parameters of the adjustment and are the elements of the vector **x**

MATRICES

Bold letters are used to represent matrices and vectors.

In a general matrix $\mathbf{A}_{r,c}$ r is the number of rows and c is the number of columns in the matrix.

The transpose of a matrix is represented as $\mathbf{A}^T$

The inverse of a matrix is represented as $\mathbf{A}^{-1}$

$\mathbf{B}_{n,u}$	coefficients of unknowns in residual equations
$\mathbf{C}_{c,u}$	coefficients of unknowns in constraint equations
$\mathbf{N}_{u,u}$	coefficients of normal equations
$\mathbf{f}_{n,1}$	vector of numerical terms in residual equations
$\mathbf{g}_{c,1}$	vector of numerical terms in constraint equations
$\mathbf{t}_{u,1}$	vector of numerical terms in normal equations
$\mathbf{v}_{n,1}$	vector of residuals or corrections to observations
$\mathbf{Q}_{\mathrm{mm}}$	apriori estimate of variance matrix of observations of order n, n
$\mathbf{\Sigma}_{\mathrm{xx}}$	variance matrix of adjusted quantities of order u, u
$\mathbf{x}_{u,1}$	vector of unknowns or solution vector
$\boldsymbol{\phi}$	vector of bearings computed from adjusted coordinates
$\mathbf{s}$	vector of distances computed from adjusted coordinates