Errata in 5th Edition of Adjustment Computations

Page	Changes to make
15	Table 2.3: 20.96 – 21.82 interval, change 3/60 to 3/50
44	Example 3.1: $\overline{D} = \frac{\sum D_i}{n} = \frac{3183.44}{15} = 212.223$
75	Table at top of page, two-tailed test rejection region: $\lvert t \rvert > t_{\alpha/2}$
84	Problem 5.12, 3rd line: variance
115	Remove *D* from Equation (7.23) to read $\varepsilon = f_d \mu \tan v$
125	Line 4 with "In this example…" change (10/1,000,000) to (3/1,000,000) = ±0.0014 ft
125	Equation $\sigma = \sqrt{(0.003)^2 + (0.01)^2 + (0.0098)^2 + (0.0014)^2}$ = ±0.020 ft
125	E_{95} = 1.96σ = ±0.028 ft
128	Problem 7.17 Change Course column as follows: *AB* 321.31; *BC* 276.57; *CD* 100.30; *DE* 306.83; *EA* 255.48
137	Equation (8.11) missing 1 zero, 0, in last row under σ_{EA}^2
161	Example 9.6, solution: "From Equation (7.38) and converting 5 mm to 0.0164 ft, the …
175	Table 10.3: *v*2 and *wv*2 should be v^2 and wv^2
206	Problem 11.14: Change angle 2 value to 69°02′34″
223	Problem 12.1: Change line 3 difference in elevation to −2.02
260	Problem 14.6: Change reference to Figure 14.4
282	Element (2,1) in inverse matrix should be negative, as –0.00200050
286	Inverse Matrix should be: 0.00700 -0.00497 0.00160 -0.01082 −0.00497 0.00762 0.00148 0.01138 0.00160 0.00148 0.00378 0.00073 −0.01082 0.01138 0.00073 0.02365
291	Problem 15.8: Change last angle observation to *B* *D* *C* 26°23′37″
310	Remove 19th row and column from *W* matrix and also row 20 from *K* matrix
318	Change coordinate values in Problem 16.3 to:

Station	X (ft)	Y (ft)
A	10,697.62	8727.73
B	10,968.62	11,204.40
C	13,166.76	11,226.99
D	13,618.44	8870.76

353	Change the coordinate values in Problem 17.3 to:		
	Station	X (m)	Y (m)	Z (m)
	A	−2,379,304.302	−3,799,073.896	4,522,085.786
	D	−2,372,889.920	−3,797,298.695	4,526,946.014
	Change ΔY for baseline *AB* to −3085.718		
357	Problem 17.7: Control coordinates are all incorrect. Should be		
	A	4,878,102.270	897,650.211	3,996,630.678
	B	4,875,763.948	913,094.800	3,995,964.696
	C	4,867,330.375	898,646.654	4,009,487.683
	D	4,869,257.373	894,796.629	4,008,001.400
357	Change Δ*Y* to −14,266.417		
361	Change baseline *CE*: to baseline *EC*:		
363	Change control station coordinates as follows		

Station	X(m)	Y(m)	Z(m)
A	1,659,858.133	4,412,163.817	4,282,198.830
C	1,659,393.372	4,411,659.134	4,282,897.823

476 Change equation (22.28) to

$$F: S\left[r_{11}(x+v_x)+r_{21}(y+v_y)+r_{31}(z+v_z)\right]+Tx-(X+V_X)=0$$
$$G: S\left[r_{12}(x+v_x)+r_{22}(y+v_y)+r_{32}(z+v_z)\right]+Ty-(Y+V_Y)=0$$
$$H: S\left[r_{13}(x+v_x)+r_{23}(y+v_y)+r_{33}(z+v_z)\right]+Tz-(Z+V_Z)=0$$

476 Change Equation (22.29) to

$$\begin{bmatrix} \frac{\partial F}{\partial x} & \frac{\partial F}{\partial y} & \frac{\partial F}{\partial z} & \frac{\partial F}{\partial X} & 0 & 0 \\ \frac{\partial G}{\partial x} & \frac{\partial G}{\partial y} & \frac{\partial G}{\partial z} & 0 & \frac{\partial G}{\partial Y} & 0 \\ \frac{\partial H}{\partial x} & \frac{\partial H}{\partial y} & \frac{\partial H}{\partial z} & 0 & 0 & \frac{\partial H}{\partial Z} \end{bmatrix} \begin{bmatrix} v_x \\ v_y \\ v_z \\ v_X \\ v_Y \\ v_Z \end{bmatrix}$$

where

$$\frac{\partial F}{\partial x}=Sr_{11} \quad \frac{\partial F}{\partial y}=Sr_{21} \quad \frac{\partial F}{\partial z}=Sr_{31} \quad \frac{\partial F}{\partial X}=-1$$
$$\frac{\partial G}{\partial x}=Sr_{12} \quad \frac{\partial G}{\partial y}=Sr_{22} \quad \frac{\partial G}{\partial z}=Sr_{32} \quad \frac{\partial G}{\partial X}=-1$$
$$\frac{\partial H}{\partial x}=Sr_{13} \quad \frac{\partial H}{\partial y}=Sr_{23} \quad \frac{\partial H}{\partial z}=Sr_{33} \quad \frac{\partial H}{\partial X}=-1$$

517 Last line on page, change "…with 25 unknowns…" to "…with 19 unknowns…"

523 Local coordinates should be

Local Coordinates			
Station	E (ft)	N (ft)	h (ft)
1	7405.583	6812.877	248.31
5	6641.129	7734.808	221.29
22	9342.342	7375.175	249.81
102	11,341.155	7944.178	312.56

Units for satellite ellipsoid height are listed in feet. In meters they are as shown below.

Satellite Coordinates			
Station	X (m)	Y (m)	h (m)
1	-335.415	-280.544	40.3742
5	-624.878	-58.153	31.9864
22	202.292	17.357	40.7997
102	757.950	321.418	59.9799