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APPENDIX

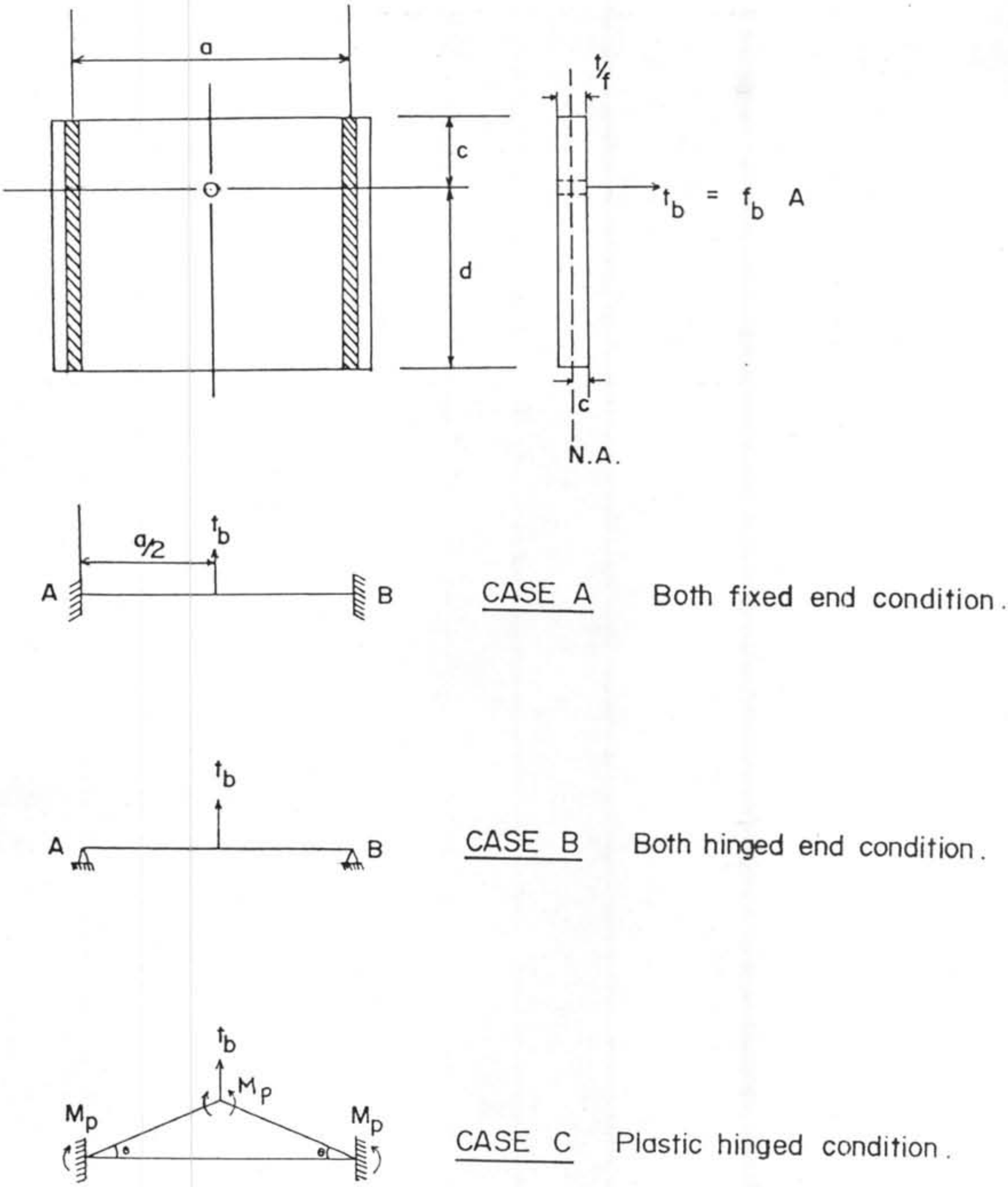


Fig. 73 Determining of segment joint flange plate coefficient.

From Fig. 73 (Case A)

Fixed end moment; M_A^-

Maximum positive moment; $M^+_{max.}$ $= \frac{t_b}{2} \times \frac{a}{2} - \frac{t_b \times a}{8}$

$$= \frac{t_b \times a}{8}$$

Yield stress of flange plate; $f_y = \frac{M}{Z}$

Section modulus; Z $\quad Z = \frac{I}{C}$

Moment of inertia; $\quad I = \frac{(b + c) t_f^2}{12}$

From fig. 73 $\quad C = \frac{t_f}{2}$

$$Z = \frac{(b + c) t_f^2}{6}$$

$$f_y = \frac{t_b \times a}{8} \times \frac{6}{(b + c) t_f^{\ 2}}$$

$$t_f = \sqrt{\frac{t_b}{t_y \times \frac{4}{3} (\frac{b + c}{2})}}$$

$$t_f = \sqrt{\frac{f_b . A}{f_y . \frac{4}{3} (\frac{b + c}{a})}}$$

C Coefficient; γ in eq. 2.78 $= \frac{4}{3} (\frac{b + c}{a})$

From Fig. 73 (Case B)

$$M^{+}_{max.} = \frac{t_b \times a}{4}$$

$$f_y = \frac{t_b \times a}{4} \times \frac{6}{(b + c)t_f^2}$$

$$t_f = \sqrt{\frac{f_b \cdot A}{f_y \cdot \frac{2}{3} (\frac{b + c}{a})}}$$

Coefficient; γ in eq. 2.73 $= \frac{2}{3} (\frac{b + c}{a})$

From Fig. 73 (Case C)

External virtual work = internal virtual work

$$t_b \times \frac{a}{2} \times \theta = M_p \cdot \theta - M_p, \theta + M_p \cdot \theta + M_p \cdot \theta$$

$$M_p = t_b \times \frac{a}{8}$$

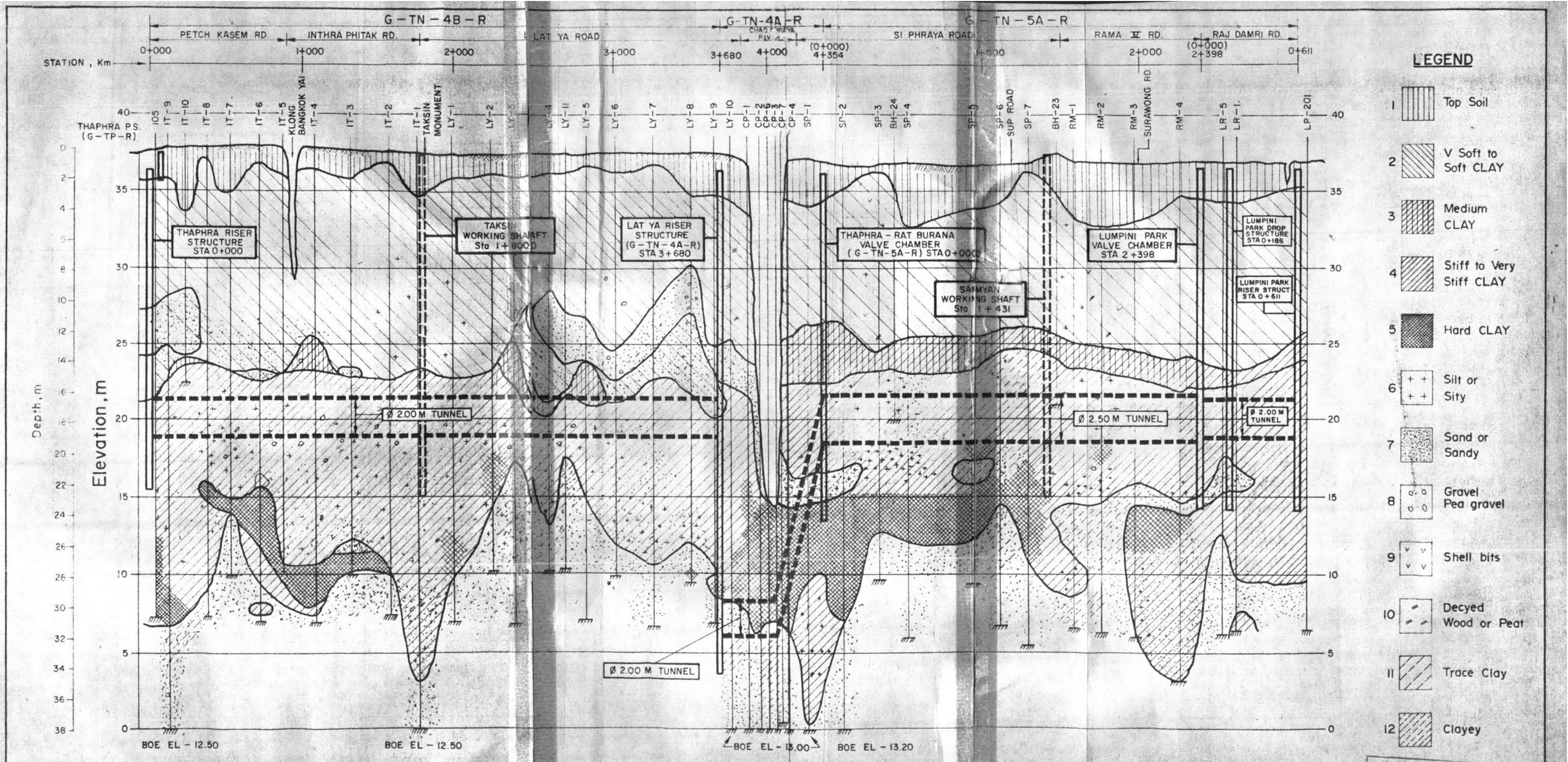
but $f_y = \frac{M_p}{S}$

Plastic section modulus; $S = \frac{(b + c) \times t_f^2}{4}$

$$f_y = t_b \times \frac{a}{8} \times \frac{4}{(b + c)t_f^2}$$

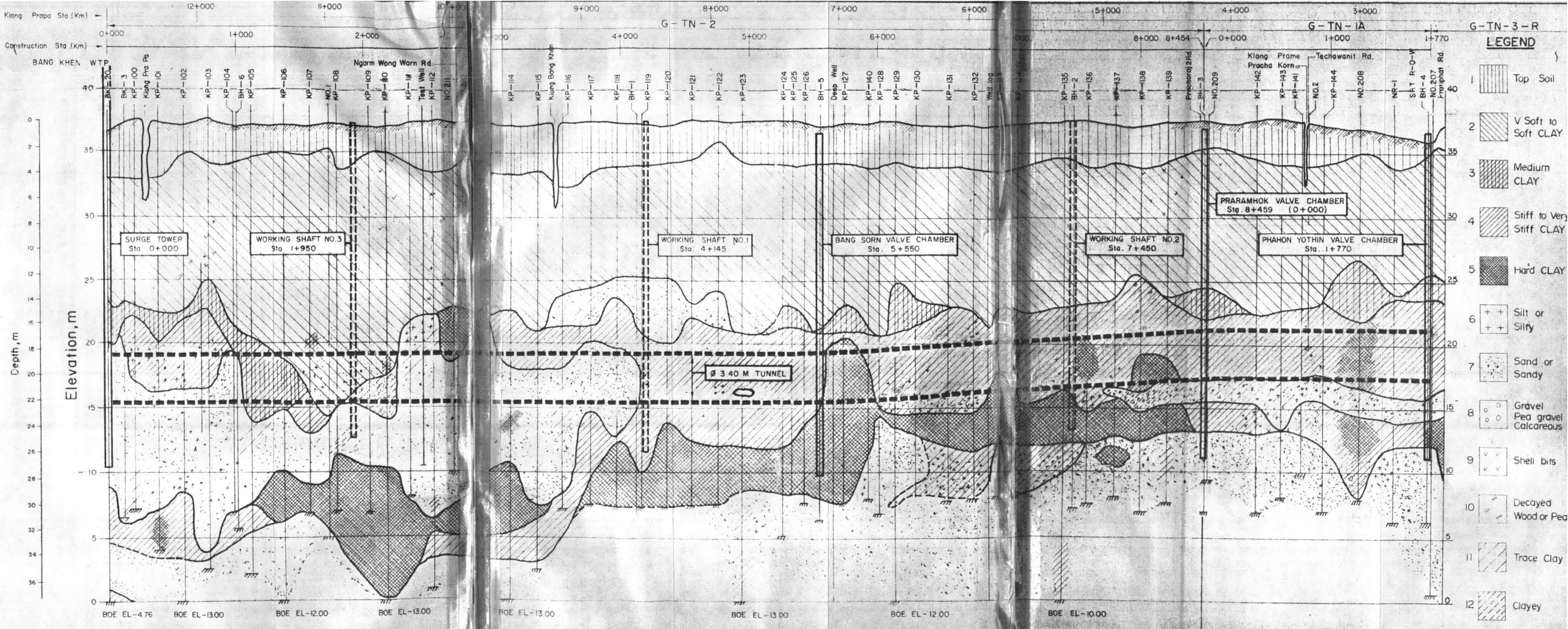
$$t_f = \sqrt{\frac{f_b \cdot A}{f_y \times 2 \frac{(b + c)}{a}}}$$

Coefficient; γ in eq. 2.73 $= 2 \frac{(b + c)}{a}$



SOIL PORFILE ALONG TUNNEL ALIGNMENT - CONTRACT G-TN-4B-R, G-TN-4A-R AND G-TN-5A-R

SCALE HORIZ 1 : 20,000
VERT 1 : 200



SOIL PROFILE ALONG TUNNEL ALIGNMENT – CONTRACT G-TN-1A

SCALE HORIZ 1:20,000
VERT 1:200

Dec. 76

VITA

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