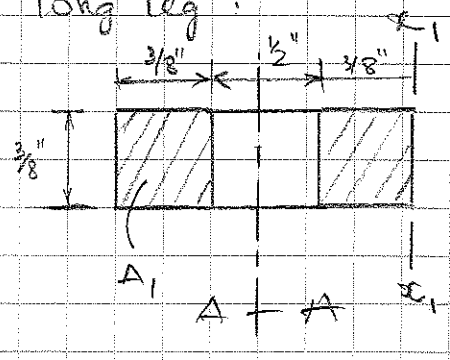
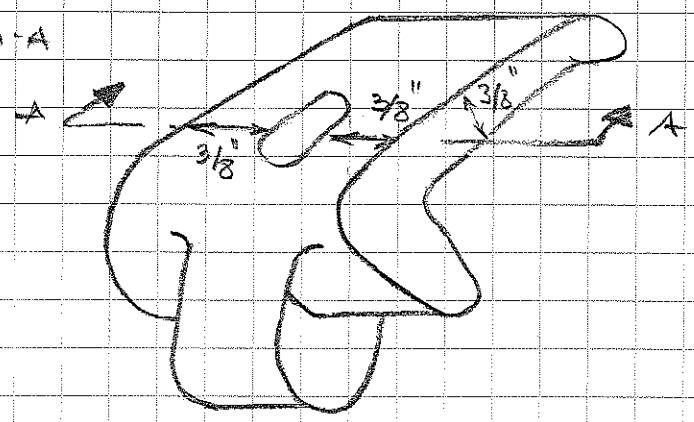
DATE PREPARED	PREPARED BY BKC	State of Connecticut Department of Transportation Bureau of Engineering & Highway Operations DES-003 REV 1-93 (302-06-0225) COMPUTATION SHEET	ORGANIZATION UNIT NO.	WORK ORDER NO.
DATE CHECKED	CHECKED BY			SHEET NO. 1

SUBJECT:

ALUMINUM POST CLIP - analysis

Cross-section of clip at A-A long leg:



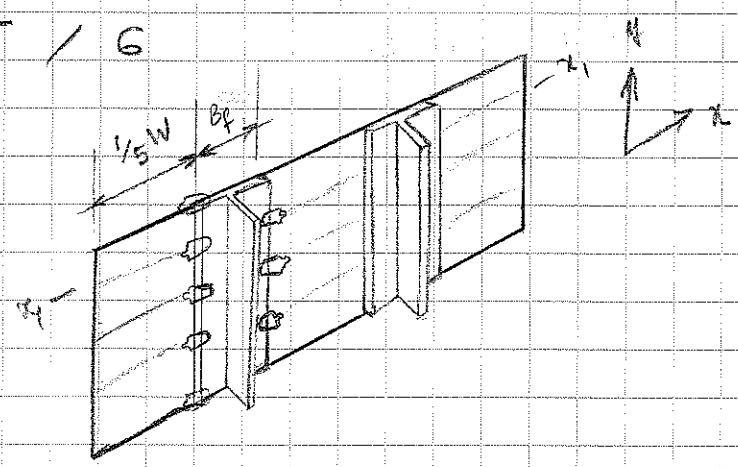


Section Modulus of shaded areas:

$$S_g = 2 \times \frac{bt^2}{6}$$

$$= 2 \times (3/8'')(3/8'')^2 / 6$$

$$= 0.018 \text{ in}^3$$



Allowable bending stress of casting alloy 356-T6:

σ_b = 6.72 ksi (table 6-9, AASHTO)
(sand casting, nonwelded)

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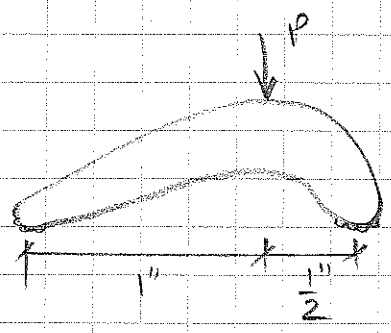
DATE CHECKED	CHECKED BY			SHEET NO. 2

SUBJECT:

ALUMINUM POST CLIP - analysis



The clip is considered as a simply supported beam

Max Moment : at point of loading

$$M_{max} = \frac{Pab}{l} = \frac{P \times 1 \times \frac{1}{2}}{1\frac{1}{2}}$$

$$= \frac{P}{3}$$

From section properties :

$$M_{max} \leq S \times \sigma_b \quad \therefore \quad \frac{P}{3} \leq 0.018\ in^3 \times 6.72\ ksi$$

$$\therefore \quad P \leq 0.363\ kips$$

Therefore, maximum bolt tension is :

$$P_{max} = 363\ lbs$$

Max torque allowed for $\phi \frac{3}{8}''$ bolt .

$$T = 0.21 \times \frac{3}{8} \times 363 = 28.6\ in\text{-}lb$$

$$= 2.4\ ft\text{-}lb$$