

Appendix D – Tapered Inlet Design Form

Metric Version

<p>PROJECT: _____</p>	<p>STATION: _____</p> <p>SHEET _____ OF _____</p>	<p>TAPERED INLET DESIGN FORM</p> <p>DESIGNER/DATE: _____ / _____</p> <p>REVIEWER/DATE: _____ / _____</p>	<p>COMMENTS</p>																																																																																																																																																																																							
<p>DESIGN DATA:</p> <p>Q = _____ (m³/s); EL_{hi} = _____ (m)</p> <p>EL. THROAT INVERT = _____ (m)</p> <p>EL. STREAM BED AT FACE = _____ (m)</p> <p>FALL = _____ (m) TAPER : 1 (4H:1V TO 6H:1V)</p> <p>STREAM SLOPE, S_o = _____ (m/m)</p> <p>SLOPE OF BARREL, S = _____ (m/m)</p> <p>Sr = _____ : 1 (2H:1V TO 3H:1V)</p> <p>BARREL SHAPE AND MATERIAL : _____</p> <p>N = _____, B = _____, D = _____</p> <p>INLET EDGE DESCRIPTION _____</p>		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>SIDE-TAPERED</p> </div> <div style="text-align: center;"> <p>SLOPE-TAPERED</p> </div> </div>																																																																																																																																																																																								
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Q (m³/s)</th> <th rowspan="2">EL_{hi}</th> <th rowspan="2">THROAT INVERT</th> <th rowspan="2">EL. FACE INVERT (1)</th> <th rowspan="2">HW_f E (2)</th> <th rowspan="2">HW_f E (3)</th> <th rowspan="2">Q B_f (4)</th> <th rowspan="2">MIN. B_f (5)</th> <th colspan="3">SLOPE-TAPERED ONLY</th> <th colspan="3">SIDE-TAPERED W/FALL</th> </tr> <tr> <th>SELECTED B_f</th> <th>MIN. L₃ (6)</th> <th>CHECK L₂ (7)</th> <th>ADJ. L₃ (9)</th> <th>ADJ. TAPER (10)</th> <th>L₁ (11)</th> <th>EL. CREST INV.</th> <th>HW_c (12)</th> <th>MIN. W (13)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Q (m ³ /s)	EL _{hi}	THROAT INVERT	EL. FACE INVERT (1)	HW _f E (2)	HW _f E (3)	Q B _f (4)	MIN. B _f (5)	SLOPE-TAPERED ONLY			SIDE-TAPERED W/FALL			SELECTED B _f	MIN. L ₃ (6)	CHECK L ₂ (7)	ADJ. L ₃ (9)	ADJ. TAPER (10)	L ₁ (11)	EL. CREST INV.	HW _c (12)	MIN. W (13)																																																																																																																																																																	<p>SELECTED DESIGN</p> <p>B_f _____</p> <p>L₁ _____</p> <p>L₂ _____</p> <p>L₃ _____</p> <p>BEVELS ANGLE _____ °</p> <p>b = _____ mm, d = _____ mm</p> <p>TAPER _____ : 1V</p> <p>S_f = _____ : 1V</p>	
Q (m ³ /s)	EL _{hi}									THROAT INVERT	EL. FACE INVERT (1)	HW _f E (2)	HW _f E (3)	Q B _f (4)	MIN. B _f (5)	SLOPE-TAPERED ONLY			SIDE-TAPERED W/FALL																																																																																																																																																																							
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<p>(1) SIDE-TAPERED : EL. FACE INVERT = EL. THROAT INVERT + 0.3 m (APPROX.)</p> <p>SLOPE-TAPERED : EL. FACE INVERT = EL. STREAM BED AT FACE</p> <p>(2) HW_f = EL_{hi} - EL. FACE INVERT</p> <p>(3) 1.1 D ≥ E ≥ D</p> <p>(4) FROM DESIGN CHARTS</p> <p>(5) MIN. B_f = Q/(Q/B_f)</p> <p>(6) MIN. L₃ = 0.5 NB</p> <p>(7) L₂ = (EL. FACE INVERT - EL. THROAT INVERT) S_r</p> <p>(8) CHECK L₂ = ((B_f - NB)/2) * TAPER - L₃</p> <p>(9) IF (8) > (7), ADJ. L₃ = ((B_f - NB)/2) * TAPER - L₂</p> <p>(10) IF (7) > (8), ADJ. TAPER = (L₂ + L₃) / ((B_f - NB)/2)</p> <p>(11) SIDE-TAPERED : L = ((B_f - NB)/2) * TAPER</p> <p>SLOPE-TAPERED : L₁ = L₂ + L₃</p> <p>(12) HW_c = EL_{hi} - EL. CREST INVERT</p> <p>(13) MIN. W = 0.634 Q/HW_c^{1.5}</p>		<p>COMMENTS</p>																																																																																																																																																																																								

Tapered Inlet Design Form (English Version)

PROJECT : _____ STATION : _____ OF _____ SHEET _____ OF _____		TAPERED INLET DESIGN FORM DESIGNER / DATE: _____ / _____ REVIEWER / DATE: _____ / _____		COMMENTS _____ _____ _____	
DESIGN DATA: Q = _____ cfs ; EL _{h1} = _____ ft EL. THROAT INVERT = _____ ft EL. STREAM BED AT FACE = _____ ft FALL = _____ ft TAPER : 1 (4:1 TO 6:1) STREAM SLOPE, S _o = _____ ft/ft SLOPE OF BARREL, S = _____ ft/ft S _f = 1 (2:1 TO 3:1) BARREL SHAPE AND MATERIAL : _____ N = _____, B = _____, D = _____ INLET EDGE DESCRIPTION _____				SIDE-TAPERED MIN. B _f (5) Q/B _f (4) HW _f /E (3) HW _f (2) EL. FACE INVERT (1)	
EL. THROAT INVERT (1) EL. FACE INVERT (2) EL. THROAT INVERT - EL. THROAT INVERT) S _f (7) EL. FACE INVERT - EL. FACE INVERT) S _f (8)		SIDE-TAPERED ONLY MIN. L ₃ (6) CHECK L ₂ (7) L ₂ (8) ADJ. L ₃ (9) ADJ. TAPER (10)		SLOPE-TAPERED W/FALL EL. CREST INV. (11) HW _c (12) MIN. W (13)	
(1) SIDE - TAPERED : EL. FACE INVERT = EL. THROAT INVERT + 1 ft (APPROX.) SLOPE-TAPERED : EL. FACE INVERT = EL. STREAM BED AT FACE (2) HW _f = EL _{h1} - EL. FACE INVERT (3) 1.1 D ≥ E ≥ D (4) FROM DESIGN CHARTS (5) MIN. B _f = Q/(Q/B _f) (6) MIN. L ₃ = 0.5 NB (7) L ₂ = (EL. FACE INVERT - EL. THROAT INVERT) S _f (8) CHECK L ₂ = [B _f - NB] / 2 · TAPER - L ₃		(9) IF (8) > (7), ADJ. L ₃ = [B _f - NB] / 2 · TAPER - L ₂ (10) IF (7) > (8), ADJ. TAPER = (L ₂ + L ₃) / [B _f - NB]		SELECTED DESIGN B _f _____ L ₁ _____ L ₂ _____ L ₃ _____ BEVELS ANGLE _____° b = _____ in; θ = _____ in TAPER _____ : 1 S _f = _____ : 1	