HATCH

FEUILLE DE CALCUL
CALCULATION SHEET

FEUILLE NO. / SHEET NO. 1/3

DESCRIPTION	PROJ. NO.	FAIT PAR: MADE BY:	VERIF. PAR: CHKD. BY:	DATE
WATER INTAKE DESIGN ACCORDING TO DFO GUIDELINES	316996	JCP		18/11/03

1- FISH SWIMMING MODE: SUBCARANGIFORM

2- OPEN SCREEN AREA

AVERAGE FLOW : 50 m^3/hr = 14 L/s
MAX FLOW : 100 m^3/hr = 28 L/s

⇒ OPEN SCREEN AREA (50 m^3/hr) : 0,13 m^2
(100 m^3/hr) : 0,26 m^2

3- CHECK EFFECTIVE SCREEN AREA

-USE 8X8 STAINLESS STEEL MESH
⇒ % OPEN AREA = 60%

⇒ EFFECTIVE SCREEN AREA = $\frac{\text{OPEN SCREEN AREA}}{\left(\frac{\%\text{ OPEN AREA}}{100}\right)}$

FOR 50 m^3/hr = $\frac{0,13}{(0,6)}$ = 0,22 m^2

100 m^3/hr = $\frac{0,26}{0,6}$ = 0,433 m^2

4- CHECK INTAKE SCREEN DIMENSIONS

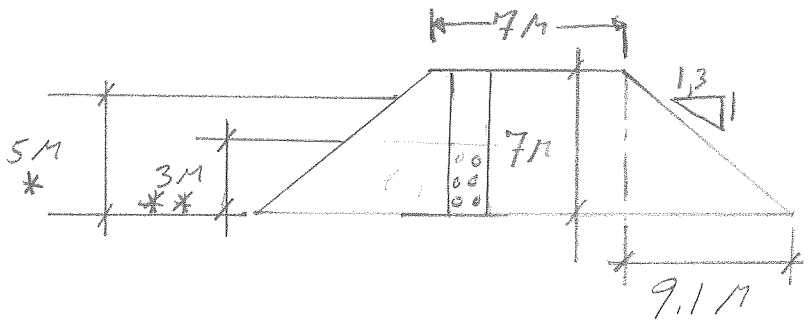
⇒ CIRCULAR PIPE, END-OF-PIPE SCREEN

AREA = $\frac{\pi d^2}{4}$ ⇒ $d = \sqrt{\frac{4(\text{AREA})}{\pi}}$

FOR 50 m^3/hr ⇒ d = 0,529 m FOR 100 m^3/hr ⇒ d = 0,742 m.
IF USING 36" STD PIPE ⇒ I.D. = 35,25" = 0,895 m ⇒ OK

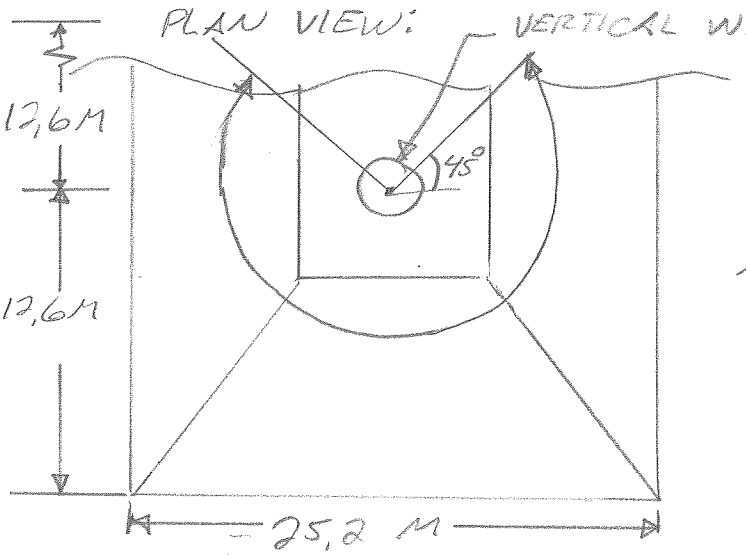
HATCH	FEUILLE DE CALCUL CALCULATION SHEET				FEUILLE NO. SHEET NO. 2/3
DESCRIPTION		PROJ. NO.	FAIT PAR: MADE BY:	VERIF. PAR: CHKD. BY:	DATE

ESTIMATED WATER VELOCITY AT EDGE OF CAUSEWAY FOR ALTERNATIVE 1:



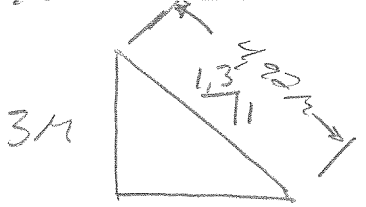
* WATER DEPTH IN SUMMER

** WATER DEPTH IN WINTER



ASSUMING WATER IS DRAWN FROM 270° AROUND THE WELL

SURFACE EXPOSED TO WATER DURING WINTER, ASSUMING A 270° EFFECTIVE ANGLE:



SURFACE: APPROX
$[2(12,6+12,6)+25,2]\times 4,92 =$
$371,9\ m^2$

ASSUMING 30% VOID: $0,3 \times 371,9\ m^3$
OPENING $\Rightarrow 111,5\ m^2$

HATCH	FEUILLE DE CALCUL CALCULATION SHEET				FEUILLE NO. SHEET NO. 3/3
DESCRIPTION		PROJ. NO.	FAIT PAR: MADE BY:	VERIF. PAR: CHKD. BY:	DATE

VELOCITY AT EDGE OF ROCKS:

$Q = VA$

@ $50 m^3/hr \Rightarrow V = \frac{Q}{A} = \frac{50 m^3/hr \div 3600 s}{} = 1,25 \times 10^{-4} m/s$

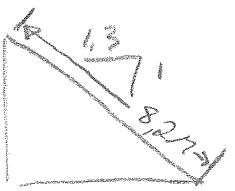
$= 0,000125 m/s$

@ $100 m^3/hr: \Rightarrow V = \frac{100}{50} \times 0,000125 m/s = 0,00025 m/s$

SUMMER CONDITIONS

SURFACE EXPOSED TO WATER:

5M



$\Rightarrow$ APPROX: $[2(12,6 + 12,6) + 25,2] \times 8,2$

$\Rightarrow 620 m^2$

$\Rightarrow$ @ 30% VOIDS $\Rightarrow 186 m^2$ OPENING.

@ $50 m^3/hr$ $V = \frac{Q}{A} = \frac{50 m^3/hr \div 3600 s}{186 m^2}$

$= 7,5 \times 10^{-5} m/s = 0,000075 m/s$

@ $100 m^3/hr \Rightarrow \frac{100}{50} \times 0,000075 = 0,00015 m/s$