

変更前 (朱書きは変更後を示す)

(6-1) 最終放流管の断面の検討

塩化ビニール管 $\phi 300$ (8割水深) $i = 5.00\%$ $n = 0.010$

$$\begin{aligned} V &= 1/n \times R^{2/3} \times i^{1/2} & A &= 0.0606 \\ &= 1/0.010 \times 0.0913^{2/3} \times 0.050^{1/2} & P &= 0.6643 \\ &= 4.5338 \text{ m/sec} & R &= 0.0913 \end{aligned}$$

$$\begin{aligned} Q &= A \times V \\ &= 0.0606 \times 4.5338 \\ &= 0.2747 \text{ m}^3/\text{sec} \end{aligned}$$

$0.2747 \text{ m}^3/\text{sec} > \text{設計洪水量 } \cancel{0.2613} \text{ m}^3/\text{sec} \dots \text{OK}$ 遠梨川へ放流
 0.2600

(6-2) 下流河川の断面検討

区域外流出量の算定

$$Q = 1/360 \times f \times A \times r \quad (\text{m}^3/\text{sec})$$

流域A $Q = 1/360 \times 0.7 \times 27 \times 34.00 = 1.7850 \text{ m}^3/\text{sec}$

流域B $Q = 1/360 \times 0.8 \times 27 \times 1.90 = 0.1140 \text{ m}^3/\text{sec}$

開発地 $Q = 1/360 \times 0.9 \times 27 \times 0.67 = 0.0452 \text{ m}^3/\text{sec}$

$Q =$ 計画雨水流出量	m^3/sec
$f =$ 流出係数	0.7(山地)
	0.8(市街地)
	0.9(開発地)
$r =$ 平均降雨強度	27 mm(1/1)
$A =$ 流域面積	ha

下流河川 (遠梨川)

3面張コンクリート水路 (8割水深) $W=1500$ $H=1250$
 $i=0.145\%$ $n=0.020$ (コンクリート人工水路)

$$\begin{aligned} V &= 1/n \times R^{2/3} \times i^{1/2} & A &= 1.7000 \\ &= 1/0.020 \times 0.4803^{2/3} \times 0.00145^{1/2} & P &= 3.5396 \\ &= 1.1677 \text{ m/sec} & R &= 0.4803 \end{aligned}$$

$$\begin{aligned} Q &= A \times V \\ &= 1.7000 \times 1.1677 \\ &= 1.9851 \text{ m}^3/\text{sec} \end{aligned}$$

$1.9851 \text{ m}^3/\text{sec} > \text{設計流出量 } 1.9442 \text{ m}^3/\text{sec} \dots \text{OK}$ 青野川へ放流



開発区域内排水施設の断面検討

開発区域内流出量の算定

$$Q = 1/360 \times f \times A \times r \quad (\text{m}^3/\text{sec}) \quad \text{降雨強度 } 100 \text{ mm/hr}$$

集水区域A $Q = 1/360 \times 0.9 \times 0.1889 \times 100 = 0.0472 \text{ m}^3/\text{sec}$

集水区域B $Q = 1/360 \times 0.9 \times \del{0.1436} \times 100 = \del{0.0359} \text{ m}^3/\text{sec}$
 $0.1377 \quad 0.0344$

集水区域C $Q = 1/360 \times 0.9 \times \del{0.3186} \times 100 = \del{0.0797} \text{ m}^3/\text{sec}$
 $0.3214 \quad 0.0804$

1号排水管 塩ビ管 φ150 (8割水深) $i = \del{5.97} \text{ \%}$ $n=0.010$

$$V = 1/n \times R^{2/3} \times i^{1/2} \quad A = 0.0152$$

$$= 1/0.010 \times 0.0456^{2/3} \times \del{0.0597}^{1/2} \quad P = 0.3321$$

$$= \del{3.1186} \text{ m/sec} \quad R = 0.0456$$

$$3.1265$$

$$Q = A \times V \quad 3.1265$$

$$= 0.0152 \times \del{3.1186}$$

$$= \del{0.0474} \text{ m}^3/\text{sec}$$

$$0.0475$$

$\del{0.0474} \text{ m}^3/\text{sec} > \text{設計流出量 } 0.0472 \text{ m}^3/\text{sec} \quad \dots \text{ OK } 3\text{号排水管へ}$
 $0.0475 \quad \text{集水区域A}$

2号排水管 塩ビ管 φ150 (8割水深) $i = \del{3.61} \text{ \%}$ $n=0.010$

$$V = 1/n \times R^{2/3} \times i^{1/2} \quad A = 0.0152$$

$$= 1/0.010 \times 0.0456^{2/3} \times \del{0.0361}^{1/2} \quad P = 0.3321$$

$$= \del{2.4251} \text{ m/sec} \quad R = 0.0456$$

$$2.6590$$

$$Q = A \times V \quad 2.6590$$

$$= 0.0152 \times \del{2.4251}$$

$$= \del{0.0369} \text{ m}^3/\text{sec}$$

$$0.0404$$

$\del{0.0369} \text{ m}^3/\text{sec} > \text{設計流出量 } \del{0.0359} \text{ m}^3/\text{sec} \quad \dots \text{ OK } 3\text{号排水管へ}$
 $0.0404 \quad 0.0344 \quad \text{集水区域B}$



変更前 (朱書きは変更後を示す)

3号排水管 塩ビ管φ200 (8割水深) $i = \frac{3.94}{4.12} \% \quad n = 0.010$

$$\begin{aligned} V &= 1/n \times R^{2/3} \times i^{1/2} & A &= 0.0269 \\ &= 1/0.010 \times 0.0608^{2/3} \times 0.0394^{1/2} & P &= 0.4429 \\ &= \frac{3.1385}{3.0691} \text{ m/sec} & R &= 0.0608 \end{aligned}$$

$$\begin{aligned} Q &= A \times V & & 3.0691 \\ &= 0.0269 \times \frac{3.1385}{3.0691} \\ &= \frac{0.0844}{0.0826} \text{ m}^3/\text{sec} \end{aligned}$$

$\frac{0.0844}{0.0826} \text{ m}^3/\text{sec} > \text{設計流出量 } 0.0472 + \frac{0.0344}{0.0359} = \frac{0.0816}{0.0831} \text{ m}^3/\text{sec} \dots \text{OK 4号排水管へ}$
集水区域A + 集水区域B

4号排水管 塩ビ管φ250 (8割水深) $i = \frac{1.29}{1.25} \% \quad n = 0.010$

$$\begin{aligned} V &= 1/n \times R^{2/3} \times i^{1/2} & A &= 0.0421 \\ &= 1/0.010 \times 0.0761^{2/3} \times 0.0129^{1/2} & P &= 0.5536 \\ &= \frac{2.0078}{2.0396} \text{ m/sec} & R &= 0.0761 \end{aligned}$$

$$\begin{aligned} Q &= A \times V & & 2.0396 \\ &= 0.0421 \times \frac{2.0078}{2.0396} \\ &= \frac{0.0845}{0.0859} \text{ m}^3/\text{sec} \end{aligned}$$

$\frac{0.0845}{0.0859} \text{ m}^3/\text{sec} > \text{設計流出量 } 0.0472 + \frac{0.0344}{0.0359} = \frac{0.0816}{0.0831} \text{ m}^3/\text{sec} \dots \text{OK 余水吐へ}$

5号排水管 塩ビ管φ200 (8割水深) $i = \frac{5.05}{4.63} \% \quad n = 0.010$

$$\begin{aligned} V &= 1/n \times R^{2/3} \times i^{1/2} & A &= 0.0269 \\ &= 1/0.010 \times 0.0608^{2/3} \times 0.0505^{1/2} & P &= 0.4429 \\ &= \frac{3.3271}{3.4747} \text{ m/sec} & R &= 0.0608 \end{aligned}$$

$$\begin{aligned} Q &= A \times V & & 3.4747 \\ &= 0.0269 \times \frac{3.3271}{3.4747} \\ &= \frac{0.0895}{0.0935} \text{ m}^3/\text{sec} \end{aligned}$$

$\frac{0.0895}{0.0935} \text{ m}^3/\text{sec} > \text{設計流出量 } \frac{0.0804}{0.0797} \text{ m}^3/\text{sec} \dots \text{OK 余水吐へ}$
集水区域C

