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Spółka z o.o. w Sławnie.
76-100 Sławno, ul. Polanowska 43

ADRES INSTALACJI : **GWIAZDOWO**
Gmina Sławno

**AKTUALIZACJA
BILANSU MAS ZIEMNYCH
DO PROJEKTU ROZBUDOWY
RIPOK W GWIAZDOWIE
DZ. NR 370
SKŁADOWISKO ODPADÓW INNYCH
NIŻ NIEBEZPIECZNE I OBOJĘTNYCH
w Gwiazdowie
gm. SŁAWNO, pow. SŁAWNO**

OPRACOWANIE :

I.O.Ś. PRO.EKO Monika Rajewicz
Koszalin

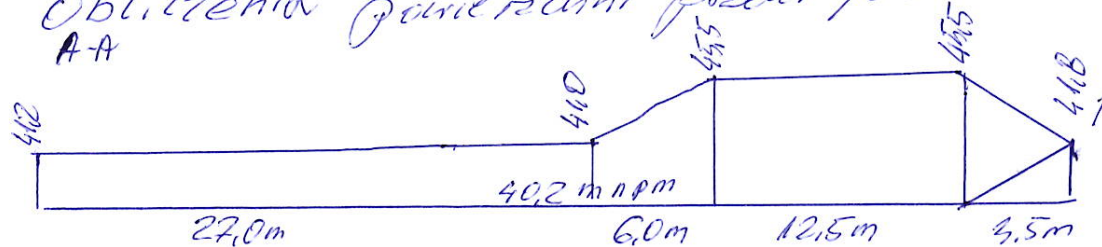
Koszalin, 09.2018 r.

DYREKTOR

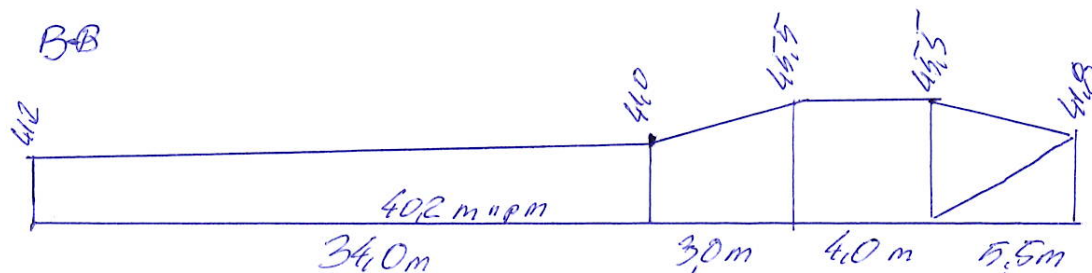
Krzysztof Rajewicz

INŻYNIERSKA OCHRONA ŚRODOWISKA
PRO.EKO Monika Rajewicz
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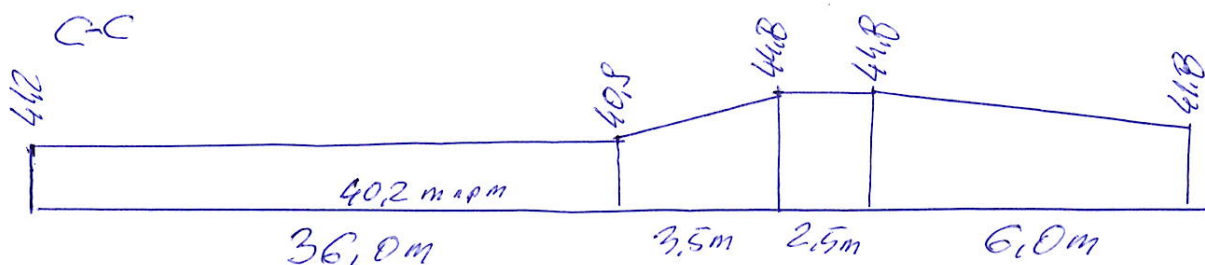
1. Obliczenia powierzchni przekrojów



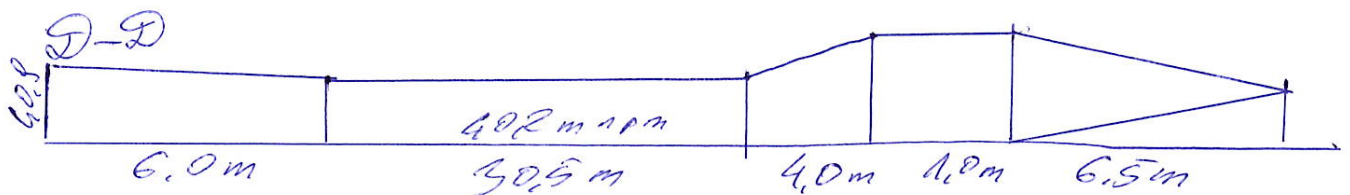
$$27.0 \times \left[\frac{41.2 + 41.0}{2} - 40.2 \right] + 6.0 \times \left(\frac{41.0 + 45.5}{2} - 40.2 \right) + 12.5 \times \left(\frac{45.5 - 40.2}{2} \right) + 3.5 \times \left(\frac{45.5 - 41.8}{2} - 40.2 \right) \times 0.7 = 30.6 + 9.15 + 21.20 + 8.40 = 69.40 \text{ m}^2$$



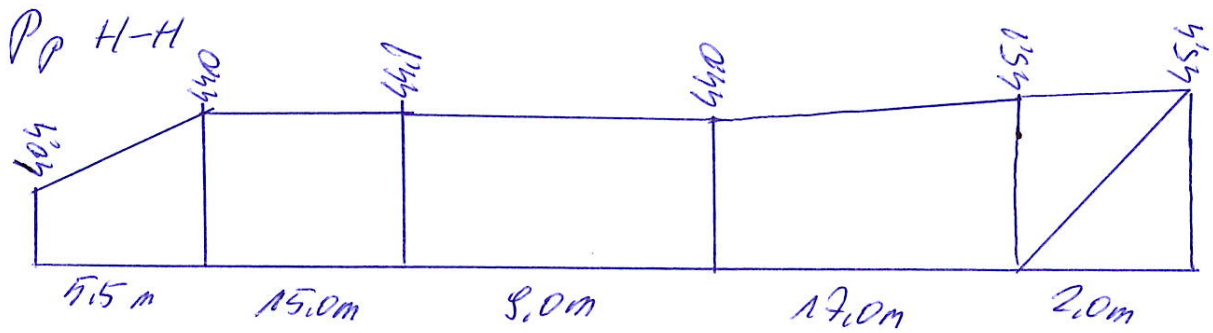
$$34 \times \left[\frac{41.2 + 41.0}{2} - 40.2 \right] + 3.0 \times \left(\frac{41.0 + 45.5}{2} - 40.2 \right) + 4.0 \times \left(\frac{45.5 - 40.2}{2} \right) + 5.5 \times \left(\frac{45.5 + 41.8}{2} - 40.2 \right) = 30.6 + 9.15 + 21.2 + 9.48 = 70.44 \text{ m}^2$$



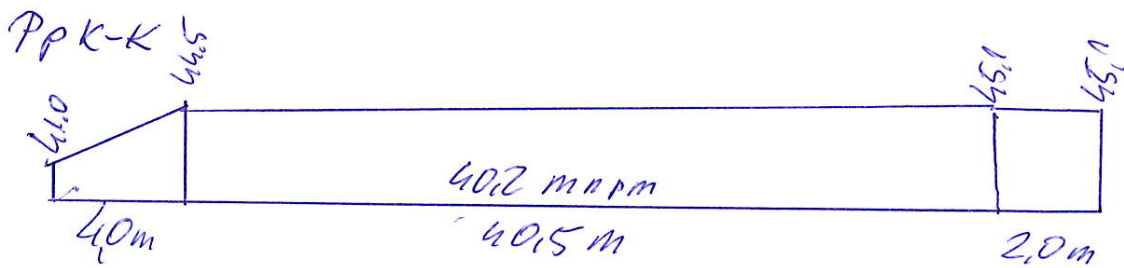
$$36.0 \times \left(\frac{41.2 + 40.8}{2} - 40.2 \right) + 3.5 \times \left(\frac{40.8 + 44.8}{2} - 40.2 \right) + 2.5 \times \left(\frac{44.8 - 40.2}{2} \right) + 6.0 \times \left(\frac{44.8 + 41.8}{2} - 40.2 \right) = 23.4 + 9.28 + 11.5 + 16.8 = 60.98 \text{ m}^2$$



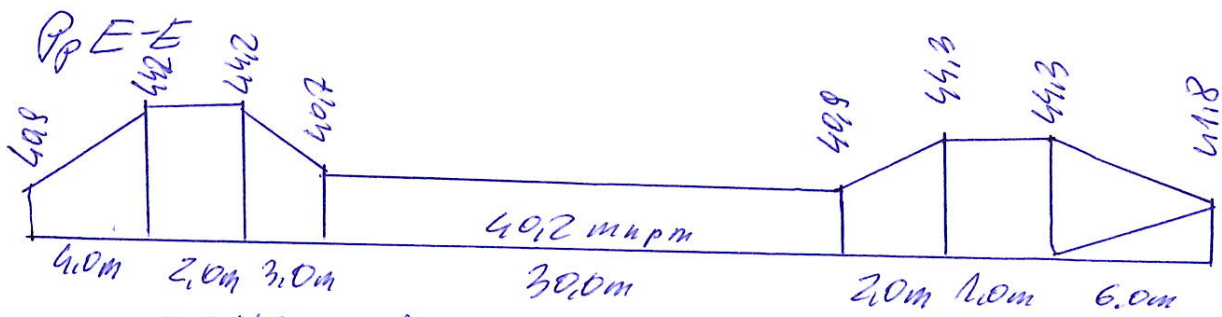
$$6.0 \times \left(\frac{43.7 + 41.2}{2} - 40.2 \right) + 30.5 \times \left(\frac{41.2 + 40.8}{2} - 40.2 \right) + 6.5 \times \left(\frac{44.3 + 44.8}{2} - 40.2 \right) = 13.50 + 25.93 + 9.60 + 4.10 + 9.26 = 62.39 \text{ m}^2$$



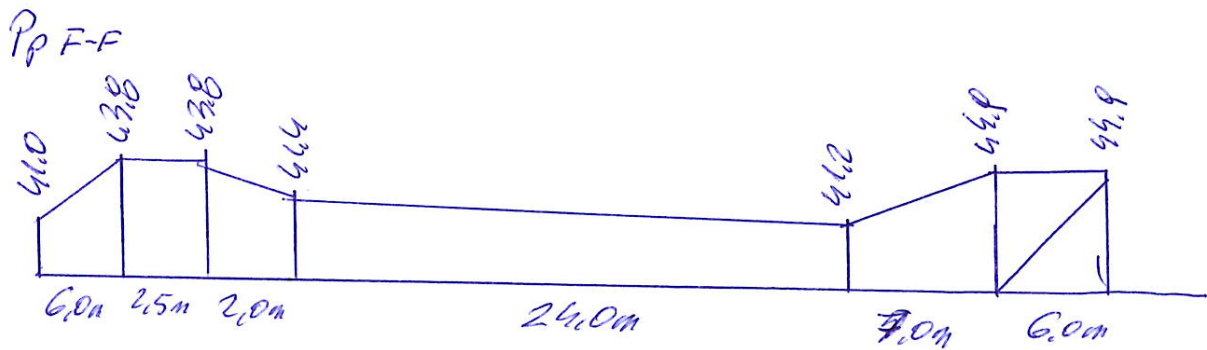
$$\begin{aligned}
 & 5.5 \times \left(\frac{40.4 + 44.4}{2} - 40.2 \right) + 15.0 \times \left(\frac{44.4 + 44.1}{2} - 40.2 \right) + 8.0 \times \left(\frac{44.1 + 44.0}{2} - 40.2 \right) + \\
 & + 17.0 \times \left(\frac{44.0 + 45.1}{2} - 40.2 \right) + 2.0 \times \left(\frac{45.1 + 45.4}{2} - 40.2 \right) \times 0.5 = \\
 & = 17.60 + 57.75 + 34.65 + 65.25 + 5.05 = 180.30 \text{ m}^2
 \end{aligned}$$



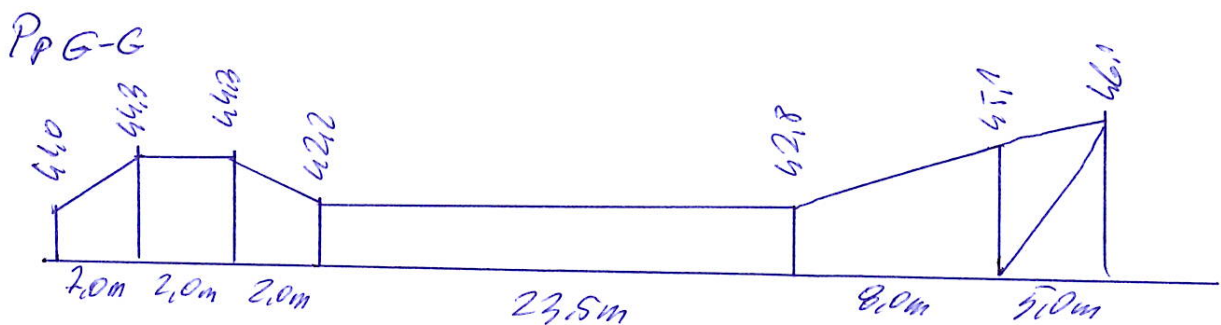
$$\begin{aligned}
 & 4.0 \times \left(\frac{44.0 + 44.5}{2} - 40.2 \right) + 40.5 \times \left(\frac{44.5 + 45.1}{2} - 40.2 \right) + 2.0 \times \left(\frac{45.1 + 45.4}{2} - 40.2 \right) \times 0.5 = \\
 & = 11.0 + 184.4 + 4.8 = 210.3 \text{ m}^2
 \end{aligned}$$



$$\begin{aligned}
 & 4.0 \times \left(\frac{40.8 + 44.2}{2} - 40.2 \right) + 2.0 \times (44.2 - 40.2) + 3.0 \times \left(\frac{44.2 + 40.7}{2} - 40.2 \right) + \\
 & 2.0 \times \left(\frac{40.8 + 44.3}{2} - 40.2 \right) + 1.0 \times (44.3 - 40.2) + \left(\frac{44.3 + 41.8}{2} \right) \times 6.0 \times 0.7 = \\
 & = 9.40 + 8.0 + 7.85 + 18.0 + 10.0 + 4.10 + 11.87 = 69.42 \text{ m}^2
 \end{aligned}$$



$$\begin{aligned}
 & 6.0 \times \left(\frac{41.0 + 43.8}{2} - 40.2 \right) + 2.5 \times (43.8 - 40.2) + 2.0 \times \left(\frac{43.8 + 41.4}{2} - 40.2 \right) + \\
 & + 24 \times \left(\frac{41.4 + 41.2}{2} - 40.2 \right) + 7.0 \times \left(\frac{41.2 + 44.8}{2} - 40.2 \right) + 6.0 \times (44.8 - 40.2) \times 0.5 = \\
 & = 14.10 + 9.0 + 4.8 + 26.40 + 16.45 + 14.10 = 84.85 \text{ m}^2
 \end{aligned}$$



$$\begin{aligned}
 & 7.0 \times \left(\frac{41.0 + 44.3}{2} - 40.2 \right) + 2.0 \times (44.3 - 40.2) + 2.0 \times \left(\frac{44.3 + 42.2}{2} - 40.2 \right) + \\
 & + 23.5 \times \left(\frac{42.2 + 42.8}{2} - 40.2 \right) + 8.0 \times \left(\frac{42.8 + 45.1}{2} - 40.2 \right) + 5.0 \times \left(\frac{45.1 + 46.1}{2} - 40.2 \right) \times 0.5 = \\
 & = 16.8 + 8.2 + 3.25 + 54.05 + 30.0 + 13.5 = 125.80 \text{ m}^2
 \end{aligned}$$

2. Obliczenie objętości wykopu

$$\frac{P_{A-A} + P_{B-B}}{2} \times 3,5 = 244,72 \text{ m}^3$$

$$\frac{P_{B-B} + P_{C-C}}{2} \times 5,5 = 361,41 \text{ m}^3$$

$$\frac{P_{C-C} + P_{D-D}}{2} \times 2,5 = 154,20 \text{ m}^3$$

$$\frac{P_{D-D} + P_{E-E}}{2} \times 7,5 = 484,28 \text{ m}^3$$

$$\frac{P_{E-E} + P_{F-F}}{2} \times 6,0 = 462,81 \text{ m}^3$$

$$\frac{P_{F-F} + P_{G-G}}{2} \times 5,0 = 526,63 \text{ m}^3$$

$$\frac{P_{G-G} + P_{H-H}}{2} \times 27,0 = 4132,35 \text{ m}^3$$

$$\frac{P_{H-H} - P_{K-K}}{2} \times 6,0 = 1171,80 \text{ m}^3$$

$$V_{K-L} = \left| \frac{445 + 451}{2} - 402 \right| \times 46,0 \times 0,5 \times 6,0 = 634,8 \text{ m}^3$$

Razem zostało do wykopania 8.183,00 m³

Bilans mas ziemnych

1. Masa wykopu w kosztorysie inwestorskim

- humus 2178,31 m³
- " - 2178,31 m³
- wykop 11820,99 m³


Razem 16.177,61 m³

2. Ilość masy (objętości) ziemi wywiezionej

16 177,61
- 8 183,00

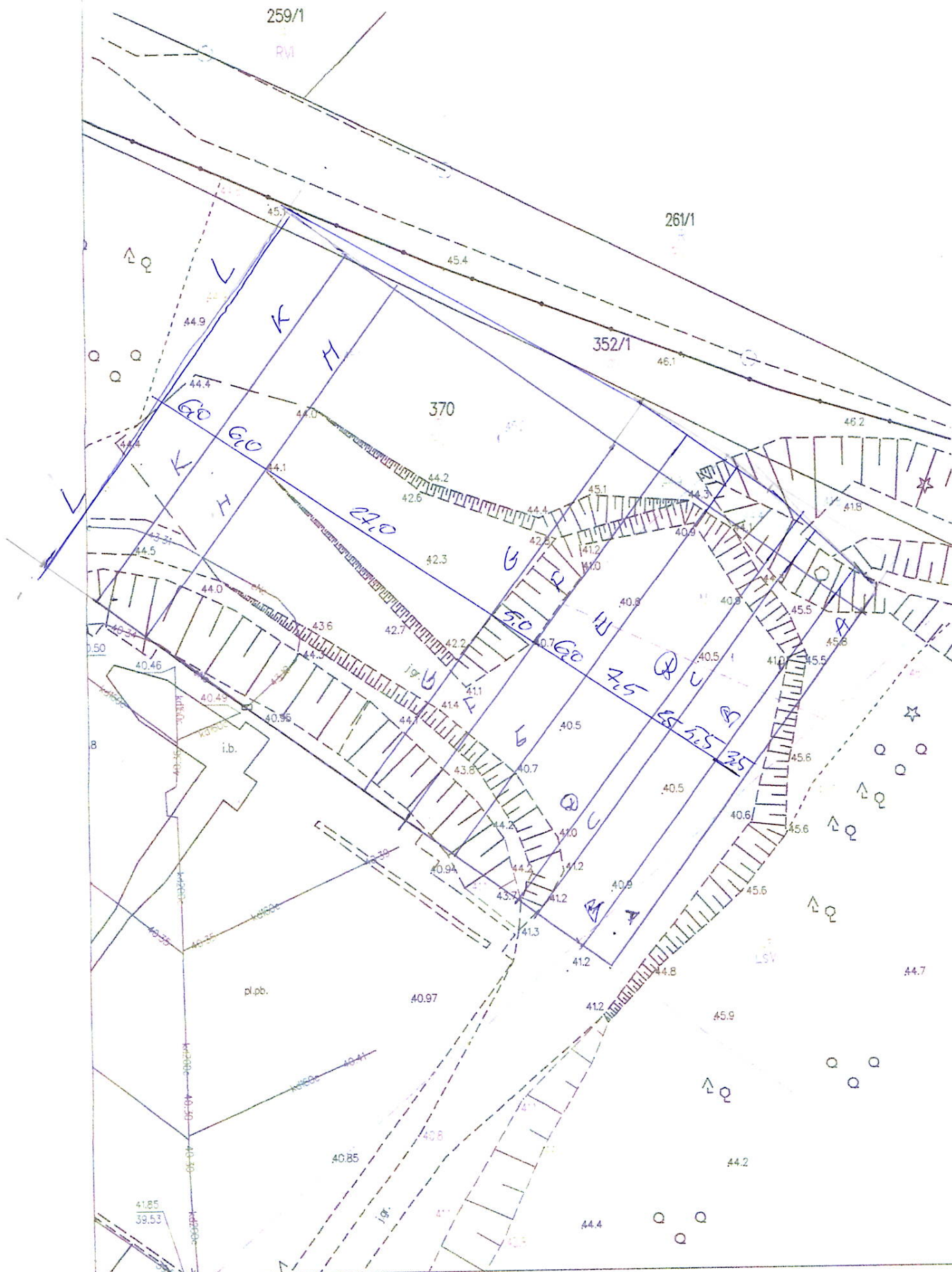
7 994,61 m³

SG omi dii



Bogusław Budzik
Inżynier Środowiska
1228/0300/115/83
Instalacje inżynierskiej
Instalacji sanitarnych
122 ust. 1 pkt 4 lit. b

SKALA 1:500



..... dn. 2018-09-12