

RAPPORT

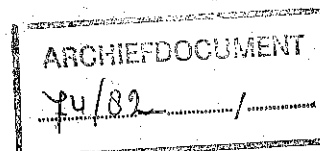
nauwkeurigheidswaterpassing
concessie 'Veendam'

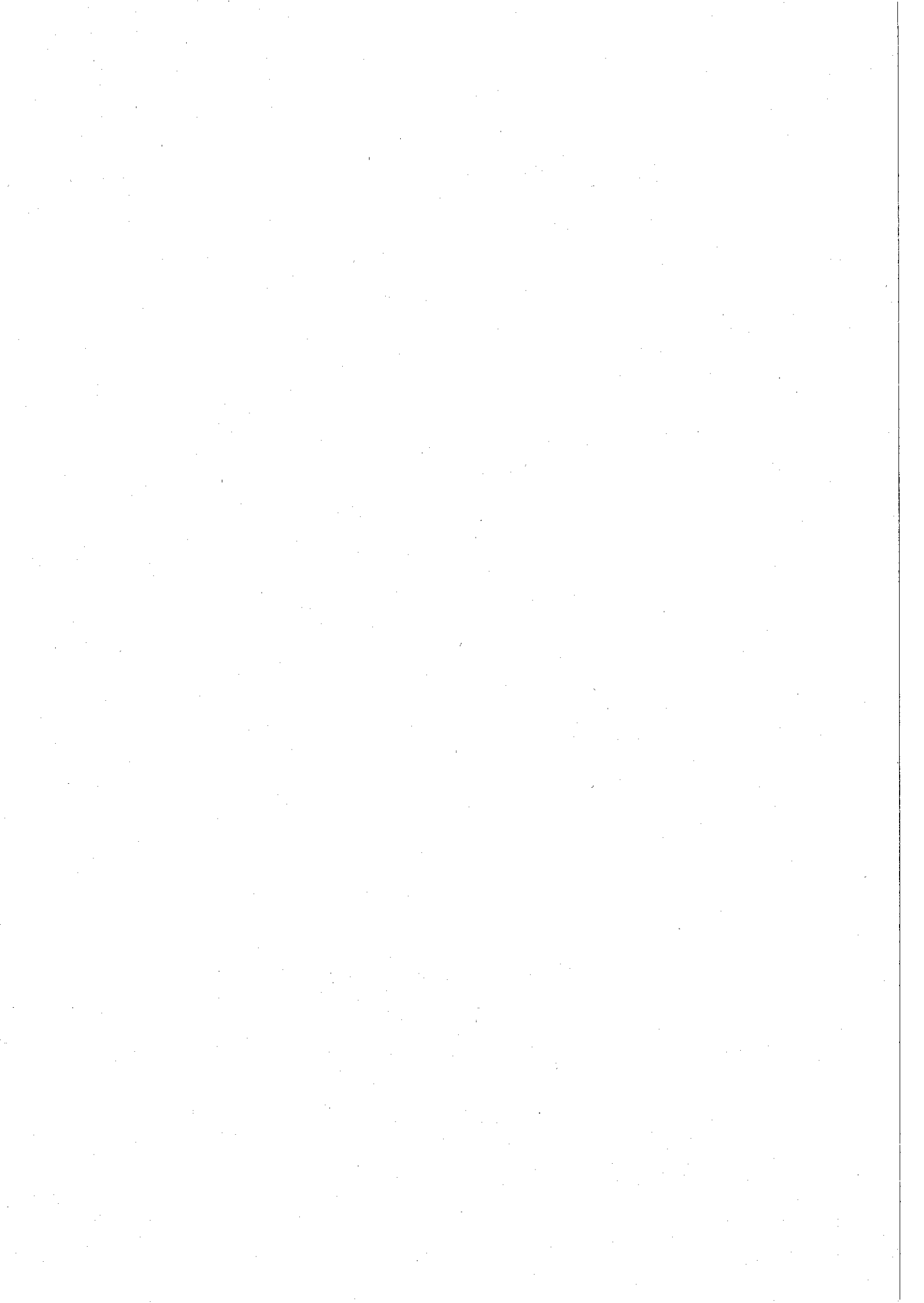
Projectnr.: 15.159.0

Heerenveen, december 1981

OPDRACHTGEVER:

Noordelijke Zoutwinning B.V.
Billiton Delfstoffen





I N H O U D:

- Verslag
- Overzichtskaart
- Resumptiestaten
- Kringsluitfouten
- Differentiestaat

Verslag hoogtemeting Billiton concessie Veendam, december 1981

Gemeten is het volledige hoogtenet bestaande uit 35 punten, te weten 31 ondergrondse merken en 4 bouten, geplaatst in huizen (de metingen zijn op 15, 16 en 17 december uitgevoerd). Al deze merken zijn opgenomen in 5 kringen.

Het net is aangesloten aan de bouten 12 E 119 en 12 F 105 van het N.A.P. met hoogtes bepaald in de 'Groningse waterpassing 1981'.

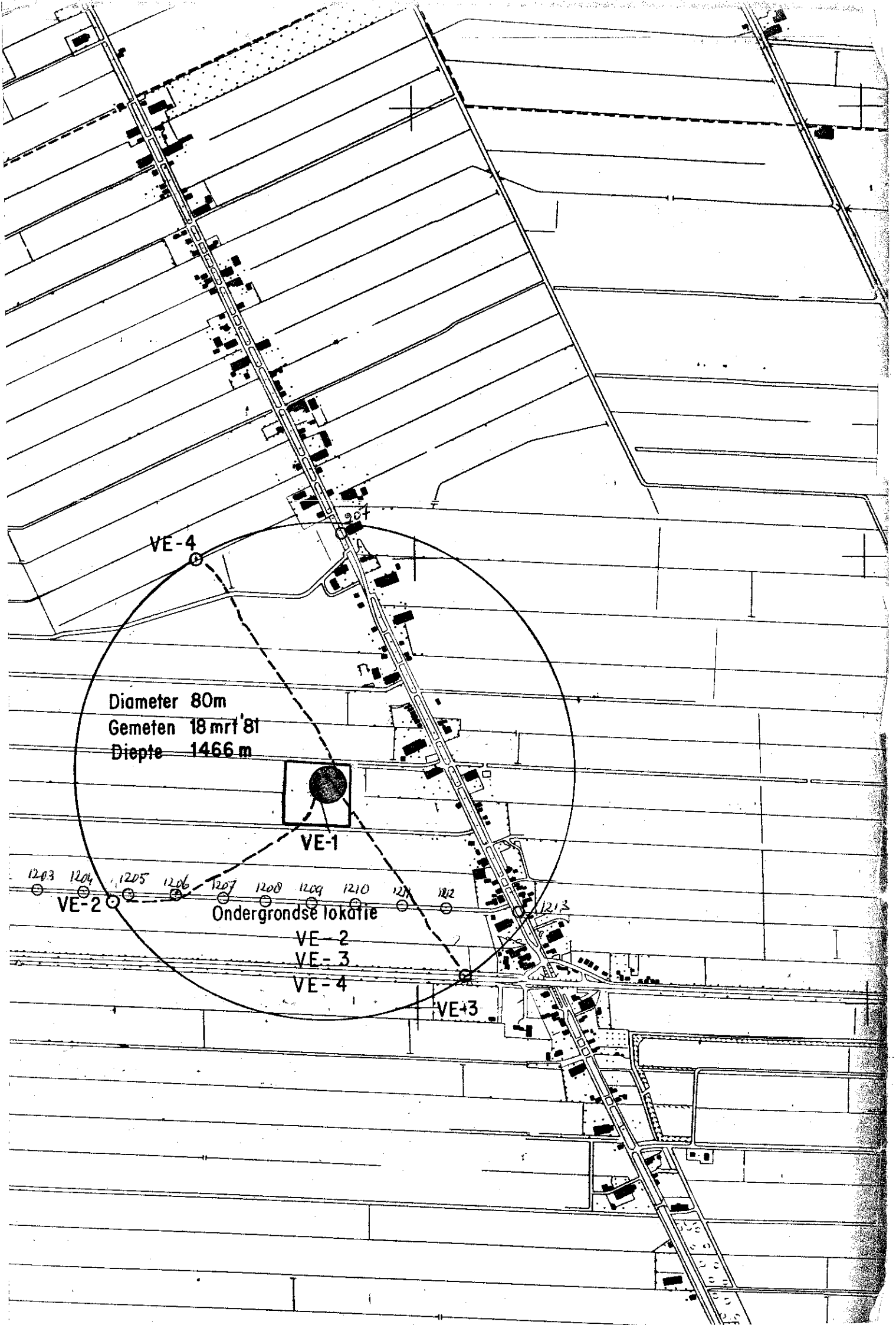
De metingen zijn uitgevoerd met een Zeiss JenA Ni 002 waterpasinstrument en twee invarbaken met halve centimeterverdeling.

Als tolerans in de secties zowel als in de kringen is $2\frac{1}{2} \sqrt{L}$ gehanteerd.

De berekende zakkingen zijn opgenomen in een differentiestaat en zijn terug te voeren op de zakking van de aansluitpunten (12 E 119: -4.3 mm en 12 F 105: -5.1 mm) , veroorzaakt door de gaswinning in het Slochterenveld; de resterende zakking is niet significant.

Ingenieursbureau 'Oranjewoud' B.V.
Heerenveen, 23 december 1981.

*uitgangshoogten in resumebeltoek
opgenomen !!!*



Diameter 80m
Gemeten 18 mrt '81
Diepte 1466 m



VE-1

1203 1204 1205 1206 1207 1208 1209 1210 1211 1212 1213

VE-2

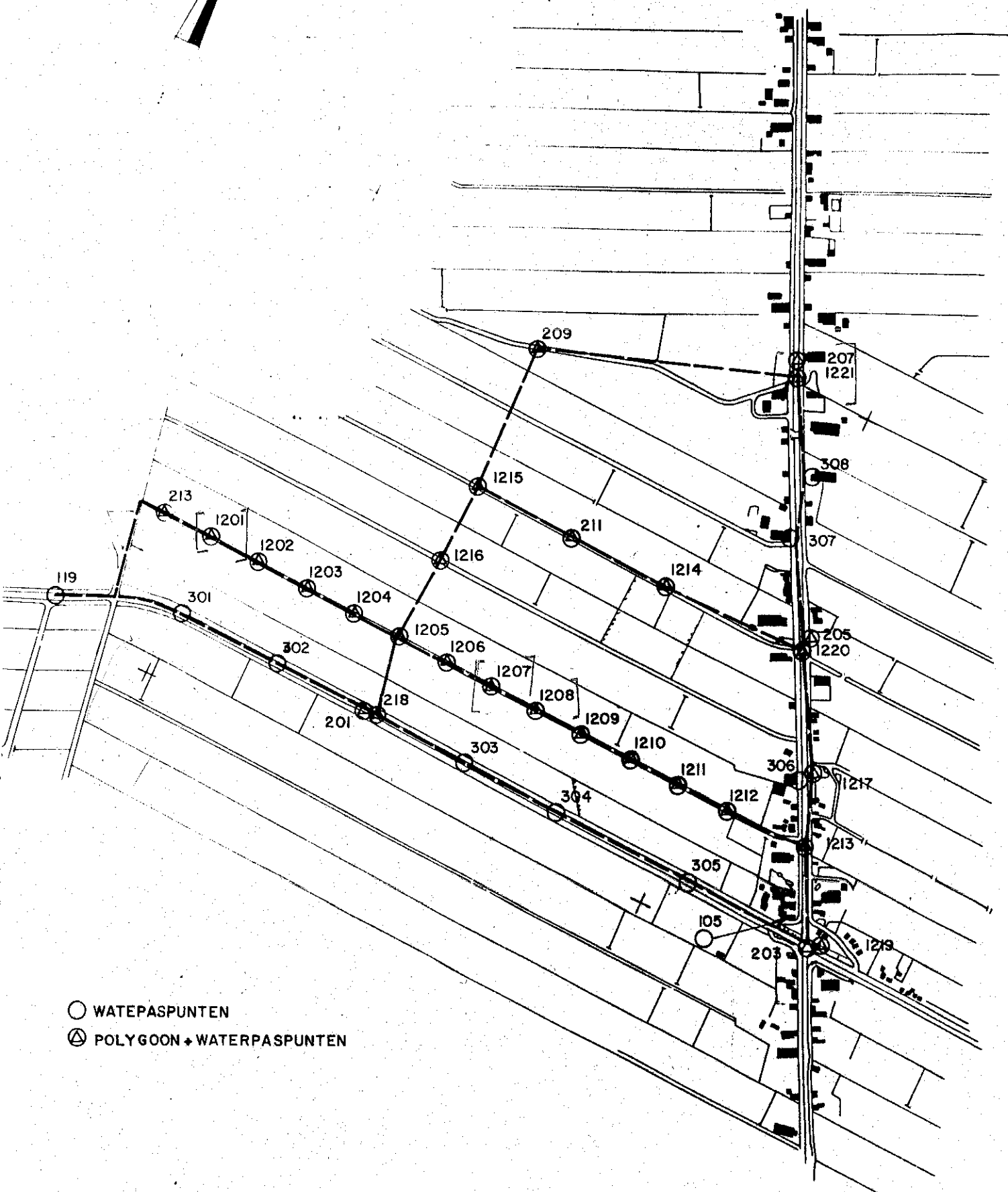
Ondergrondse lokatie

VE-2

VE-3

VE-4

VE-3



- WATEPASPUNTEN
- ⊗ POLYGOON + WATEPASPUNTEN

RESUMPTIE DOORGAANDE WATERPASSING

GEBIED CONCESSIE 'VEENDAM'

IN 3 BLADEN. BLAD 1

| PEILMERK | | LENGTE L IN M | GEMETEN HOOGTEVERSCHIL | | | CORR. | HOOGTE T.O.V. N.A.P. | V = H - T IN MM | TOL. 2 1/2 √L | OPM. | |
|--------------|------|------------------|------------------------|------------|-----------------|----------|----------------------------|-----------------------|------------------|------|--|
| TOP- BLAD | NR. | | HEEN H | TERUG T | GEMIDDEL- DE | | | | | | |
| 12 E | 119 | 206 | +0.7607 | -0.7606 | +0.76065 | 0 | 00.8017 | +0.1 | 1.1 | | |
| | 301 | 194 | -0.2400 | +0.2396 | -0.23980 | 0 | 01.5624 | -0.4 | 1.1 | | |
| | 302 | 192 | +0.3492 | -0.3487 | +0.34895 | -0.05 | 01.3226 | +0.5 | 1.1 | | |
| | 1218 | 208 | +0.2286 | -0.2278 | +0.22820 | 0 | 01.6714 | +0.8 | 1.1 | | |
| | 303 | 198 | +0.3304 | -0.3305 | +0.33045 | -0.05 | 01.8996 | -0.1 | 1.1 | | |
| | 304 | 296 | -0.1950 | +0.1943 | -0.19465 | 0 | 02.2300 | -0.7 | 1.4 | | |
| | 305 | 239 | +1.7858 | -1.7862 | +1.78600 | -0.05 | 02.0354 | -0.4 | 1.2 | | |
| | 1219 | 48 | -1.4276 | +1.4273 | -1.42745 | 0 | 03.8214 | -0.3 | 0.5 | | |
| | 12 F | 105 | 1581 | +1.5921 | -1.5926 | +1.59235 | -0.15 | 02.3939 | -0.5 | | |
| | | 119 | 290 | +0.7068 | -0.7068 | +0.70680 | +0.10 | 00.8017 | 0 | 1.4 | |
| 12 E | 213 | 92 | -0.2963 | +0.2964 | -0.29635 | +0.05 | 01.5086 | +0.1 | 0.8 | | |
| | 1201 | 100 | +0.0752 | -0.0750 | +0.07510 | +0.05 | 01.2123 | +0.2 | 0.8 | | |
| | 1202 | 100 | +0.2747 | -0.2746 | +0.27465 | +0.05 | 01.2874 | +0.1 | 0.8 | | |
| | 1203 | 100 | -0.1872 | +0.1872 | -0.18720 | +0.05 | 01.5622 | 0 | 0.8 | | |
| | 1204 | 100 | +0.1028 | -0.1035 | +0.10315 | +0.05 | 01.3750 | -0.7 | 0.8 | | |
| | 1205 | 782 | +0.6760 | -0.6763 | +0.67615 | +0.35 | 01.4782 | -0.3 | | | |
| | 1205 | 138 | +0.1933 | -0.1935 | +0.1934 | -0.2 | 01.4782 | -0.2 | 0.9 | | |
| | 1218 | | | | | | 01.6714 | | | | |

RESUMPTIE DOORGAANDE WATERPASSING

GEBIED CONCESSIE 'VEENDAM'

IN 3 BLADEN. BLAD 2

| PEILMERK | | LENGTE L IN M. | GEMETEN HOOGTEVERSCHIL | | | CORR. | HOOGTE T.O.V. N.A.P. | V = H - T IN MM | TOL. 2 1/2 | OPM. | |
|--------------|------|-------------------|------------------------|-----------|------------|----------|----------------------------|-----------------------|---------------|------|-----------------|
| TOP- BLAD | NR. | | SECTIE | HEEN H | TERUG T | | | | | | GEMIDDEL- DE |
| 12 F | 1205 | 100 | +0.1308 | -0.1310 | +0.13090 | 0.15 | 01.4782 | -0.2 | 0.8 | | |
| | 1206 | 110 | +0.1112 | -0.1113 | +0.11125 | 0.20 | 01.6092 | -0.1 | 0.8 | | |
| | 1207 | 90 | +0.1165 | -0.1167 | +0.11660 | 0.15 | 01.7207 | -0.2 | 0.7 | | |
| | 1208 | 100 | -0.1266 | +0.1263 | -0.12645 | 0.15 | 01.8374 | -0.3 | 0.8 | | |
| | 1209 | 100 | -0.1174 | +0.1175 | -0.11745 | 0.15 | 01.7112 | +0.1 | 0.8 | | |
| | 1210 | 100 | +0.2293 | -0.2295 | +0.22940 | 0.15 | 01.5938 | -0.2 | 0.8 | | |
| | 1211 | 100 | -0.7139 | +0.7143 | -0.71410 | 0.15 | 01.8234 | +0.4 | 0.8 | | |
| | 1212 | 174 | +0.8531 | -0.8538 | +0.85345 | 0.25 | 01.1094 | -0.7 | 1.0 | | |
| | 1213 | 138 | +0.4305 | -0.4306 | +0.43055 | 0.20 | 01.9632 | -0.1 | 0.9 | | |
| | 105 | | | | | | 02.3939 | | | | |
| | | | 1012 | +0.9135 | -0.9148 | +0.91415 | +1.55 | | -1.3 | | |
| | 1213 | | | | | | 01.9632 | | | | |
| | 306 | 124 | +0.7210 | -0.7208 | +0.72090 | -0.15 | 02.6840 | +0.2 | 0.9 | | |
| | 1217 | 12 | -0.3218 | +0.3217 | -0.32175 | 0 | 02.3622 | -0.1 | 0.3 | | |
| | 1220 | 208 | -0.1440 | +0.1431 | -0.14355 | -0.30 | 02.2184 | -0.9 | 1.1 | | |
| | 1214 | 233 | +0.0578 | -0.0574 | +0.05760 | -0.30 | 02.2756 | +0.4 | 1.2 | | |
| | 211 | 246 | -0.3801 | +0.3796 | -0.37985 | -0.35 | 01.8954 | -0.5 | 1.2 | | |
| | 1215 | 200 | -0.1342 | +0.1331 | -0.13365 | -0.30 | 01.7615 | -1.1 | 1.1 | | |
| | 1216 | 170 | +0.0728 | -0.0728 | +0.07280 | -0.25 | 01.8340 | 0 | 1.1 | | |
| | 1205 | 160 | -0.3556 | +0.3557 | -0.35565 | -0.20 | 01.4782 | +0.1 | 1.0 | | |
| | | | 1353 | -0.4841 | +0.4822 | -0.48315 | -1.85 | | -1.9 | | |

RESUMPTIE DOORGAANDE WATERPASSING

GEBIED CONCESSIE 'VEENDAM'

IN 3 BLADEN. BLAD 3

| PEILMERK | | LENGTE L IN M. | GEMETEN HOOGTEVERSCHIL | | | CORR. | HOOGTE T.O.V. N.A.P. | V = H - T IN MM | TOL. 2 1/2 √L | OPM. |
|--------------|------|-------------------|------------------------|------------|-----------------|-------|----------------------------|-----------------------|------------------|------|
| TOP- BLAD | NR. | | HEEN H | TERUG T | GEMIDDEL- DE | | | | | |
| | 1220 | 234 | +0.4602 | -0.4597 | +0.45995 | -0.10 | 02.2184 | +0.5 | 1.2 | |
| | 307 | 116 | +0.6181 | -0.6181 | +0.61810 | -0.05 | 02.6782 | 0 | 0.9 | |
| | 308 | 202 | -1.6358 | +1.6353 | -1.63555 | -0.05 | 03.2963 | -0.5 | 1.1 | |
| | 1221 | 450 | -0.0847 | +0.0850 | -0.08485 | -0.15 | 01.6607 | +0.3 | 1.7 | |
| | 209 | 308 | +0.1862 | -0.1856 | +0.18590 | -0.10 | 01.5757 | +0.6 | 1.4 | |
| | 1215 | | | | | | 01.7615 | | | |
| | | 1310 | -0.4560 | +0.4569 | -0.45645 | -0.45 | | +0.9 | | |

| Puntnr. | Hoogte t.o.v. N.A.P. | | Hoogte t.o.v. N.A.P. | | Δ mm | Δ | Δ | Δ | Δ | Δ | Δ |
|---------|----------------------|---|----------------------|-------|------|---|---|---|---|---|---|
| | 1980 | Δ | 1981 | Δ | | | | | | | |
| 209 | 01.5814 | | 01.5757 | - 5.7 | | | | | | | |
| 211 | 01.9004 | | 01.8954 | - 5.0 | | | | | | | |
| 213 | 01.5135 | | 01.5086 | - 4.9 | | | | | | | |
| 301 | 01.5662 | | 01.5624 | - 3.8 | | | | | | | |
| 302 | 01.3293 | | 01.3226 | - 6.7 | | | | | | | |
| 303 | 01.9037 | | 01.8996 | - 4.1 | | | | | | | |
| 304 | 02.2340 | | 02.2300 | - 4.0 | | | | | | | |
| 305 | 02.0403 | | 02.0354 | - 4.9 | | | | | | | |
| 306 | 02.6877 | | 02.6840 | - 3.7 | | | | | | | |
| 307 | 02.6826 | | 02.6782 | - 4.4 | | | | | | | |
| 308 | 03.3007 | | 03.2963 | - 4.4 | | | | | | | |
| 1201 | 01.2202 | | 01.2123 | - 7.9 | | | | | | | |
| 1202 | 01.2924 | | 01.2874 | - 5.0 | | | | | | | |
| 1203 | 01.5674 | | 01.5622 | - 5.2 | | | | | | | |
| 1204 | 01.3800 | | 01.3750 | - 5.0 | | | | | | | |
| 1205 | 01.4831 | | 01.4782 | - 4.9 | | | | | | | |
| 1206 | 01.6146 | | 01.6092 | - 5.4 | | | | | | | |
| 1207 | 01.7271 | | 01.7207 | - 6.4 | | | | | | | |
| 1208 | 01.8466 | | 01.8374 | - 9.2 | | | | | | | |
| 1209 | 01.7170 | | 01.7112 | - 5.8 | | | | | | | |
| 1210 | 01.5998 | | 01.5938 | - 6.0 | | | | | | | |
| 1211 | 01.8285 | | 01.8234 | - 5.1 | | | | | | | |

| Puntnr. | Hoogte t.o.v. N.A.P. | | Hoogte t.o.v. N.A.P. | Hoogte t.o.v. N.A.P. | Δ mm | Δ | Δ | Δ | Δ | Δ | Δ | Δ |
|---------|-------------------------|---------|-------------------------|-------------------------|-------|---|---|---|---|---|---|---|
| | 1980 | 1981 | | | | | | | | | | |
| 1212 | 01.1138 | 01.1094 | | | - 4.4 | | | | | | | |
| 1213 | 01.9667 | 01.9632 | | | - 3.5 | | | | | | | |
| 1214 | 02.2796 | 02.2756 | | | - 4.0 | | | | | | | |
| 1215 | 01.7674 | 01.7615 | | | - 5.9 | | | | | | | |
| 1216 | 01.8387 | 01.8340 | | | - 4.7 | | | | | | | |
| 1217 | 02.3669 | 02.3622 | | | - 4.7 | | | | | | | |
| 1218 | 01.6764 | 01.6714 | | | - 5.0 | | | | | | | |
| 1219 | 03.8251 | 03.8214 | | | - 3.7 | | | | | | | |
| 1220 | 02.2224 | 02.2184 | | | - 4.0 | | | | | | | |
| 1221 | 01.6695 | 01.6607 | | | - 8.8 | | | | | | | |