



**Veldrapport betreffende grondonderzoek
aan de Ophemertstraat
te Rotterdam**

Opdracht nummer AA17940-1

Datum rapport 24 juli 2019

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Opdracht nr.	AA17940-1
Datum rapport	24 juli 2019
Opdrachtgever	DHG BV Maasboulevard 3114 HB Schiedam

Bijlagen

- | | |
|------------------------------------|--|
| - sondeergrafieken met kleefmeting | 01 t/m 104 |
| - boringen | S02, S07 t/m S10, S12 t/m S20, S26 t/m S30,
S40, S50, S60, S67 t/m S70, S78 t/m S80, S102
t/m S104 |
| - coördinatenlijst | AA17940-2 |
| - situatietekening | T01a |

rapportcontrole: A.F. van der Burg

dd.

opgesteld door: I.A.W.M. van Kessel

WERKOMSCHRIJVING

Op 26 juni 2019 ontving Geosonda van DHG de opdracht voor het uitvoeren van een grondonderzoek betreffende de nieuwbouw aan de Ophemertstraat te Rotterdam. De resultaten van het grondonderzoek zijn in dit veldrapport opgenomen.

Uitgevoerd werden 73 diepsonderingen met meting van de plaatselijke mantelwrijving. Het resultaat van de sonderingen is gepresenteerd op de sondeergrafieken 01 t/m 104. Sondering 80 is meerdere keren gestaakt in verband met obstakels. In verband met de aanwezigheid van kabels en leidingen zijn enkele sonderingen voorgeboord. De aangetroffen bodemopbouw is beschreven op de handboorstaten S02, S07 t/m S10, S12 t/m S20, S26 t/m S30, S40, S50, S60, S67 t/m S70, S78 t/m S80 en S102 t/m S104. De diepte op de sondeergrafieken is gegeven in meters ten opzichte van NAP. De sondeerlocaties zijn uitgezet en ingemeten met dGPS-RTK en weergegeven in de bijgevoegde situatietekening T01.

De sonderingen zijn uitgevoerd met een elektrische conus met hellingmeter conform NEN-EN-ISO 22476-1. Met de elektrische conus vindt een directe en continue meting plaats van zowel de weerstand aan de conuspunt als van de wrijving langs de kleefmantel. De continue registratie van de ondervonden bodemweerstand verzekert een gedetailleerd beeld van de bodemopbouw. Dit geldt niet alleen voor de sterkte van de bodem, maar tevens met betrekking tot de aard van de aanwezige grondlagen.

De verhouding tussen wrijvingsweerstand en conusweerstand, het zogenaamde wrijvingsgetal, heeft namelijk voor iedere grondsoort een andere waarde. Als indicatie gelden voor de gladde elektrische conus bij normaal geconsolideerde gronden onder de grondwaterstand de navolgende relaties:

<u>wrijvingsgetal in %</u>	<u>grondsoort</u>
0,3 – 1,2	zand, grof tot fijn
1,5 – 2,0	silt
2,5 – 5,0	klei
> 5,0	veen

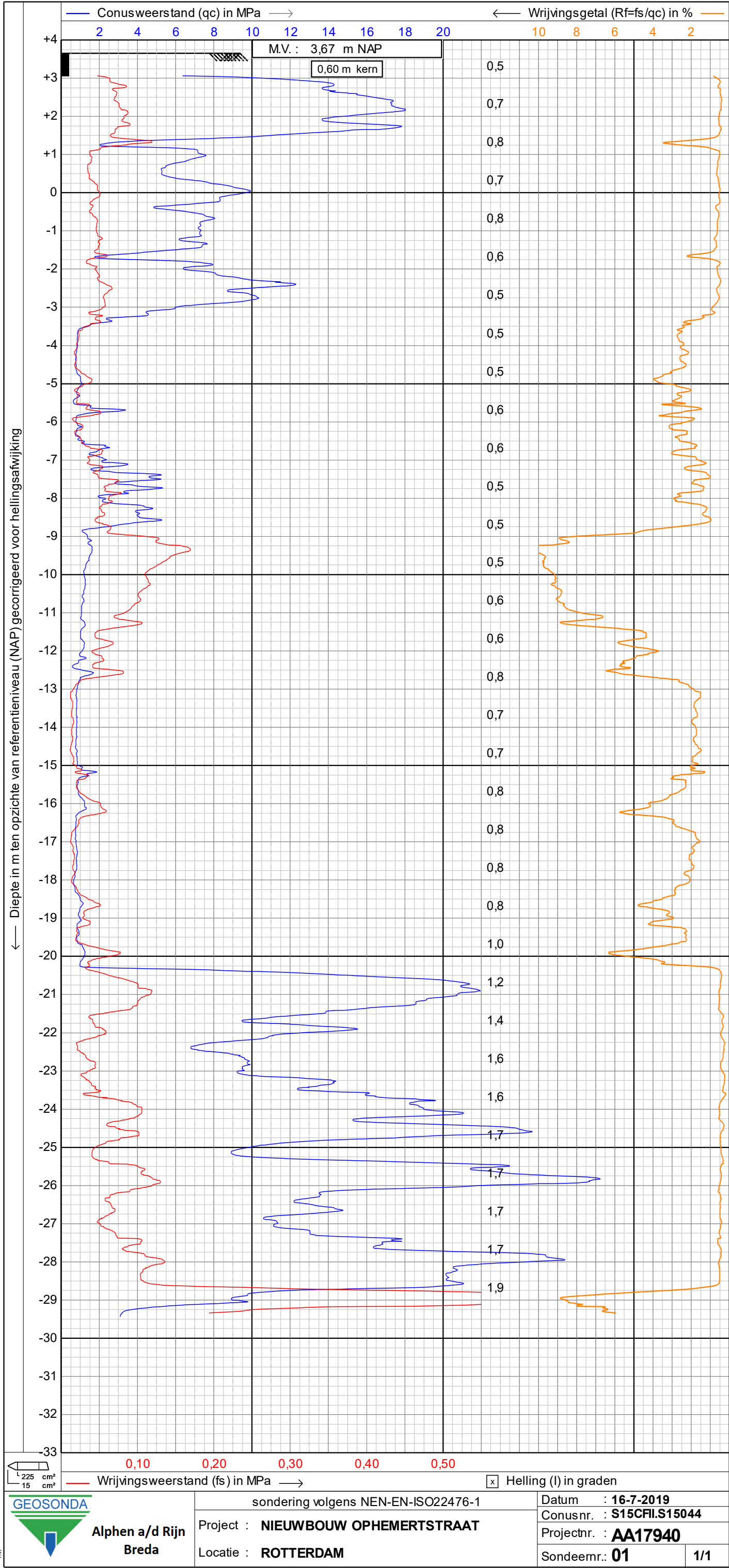
Tussen de verschillende grondsoorten komen overgangsvormen voor waardoor de aangegeven grenzen niet als hard zijn te beschouwen.

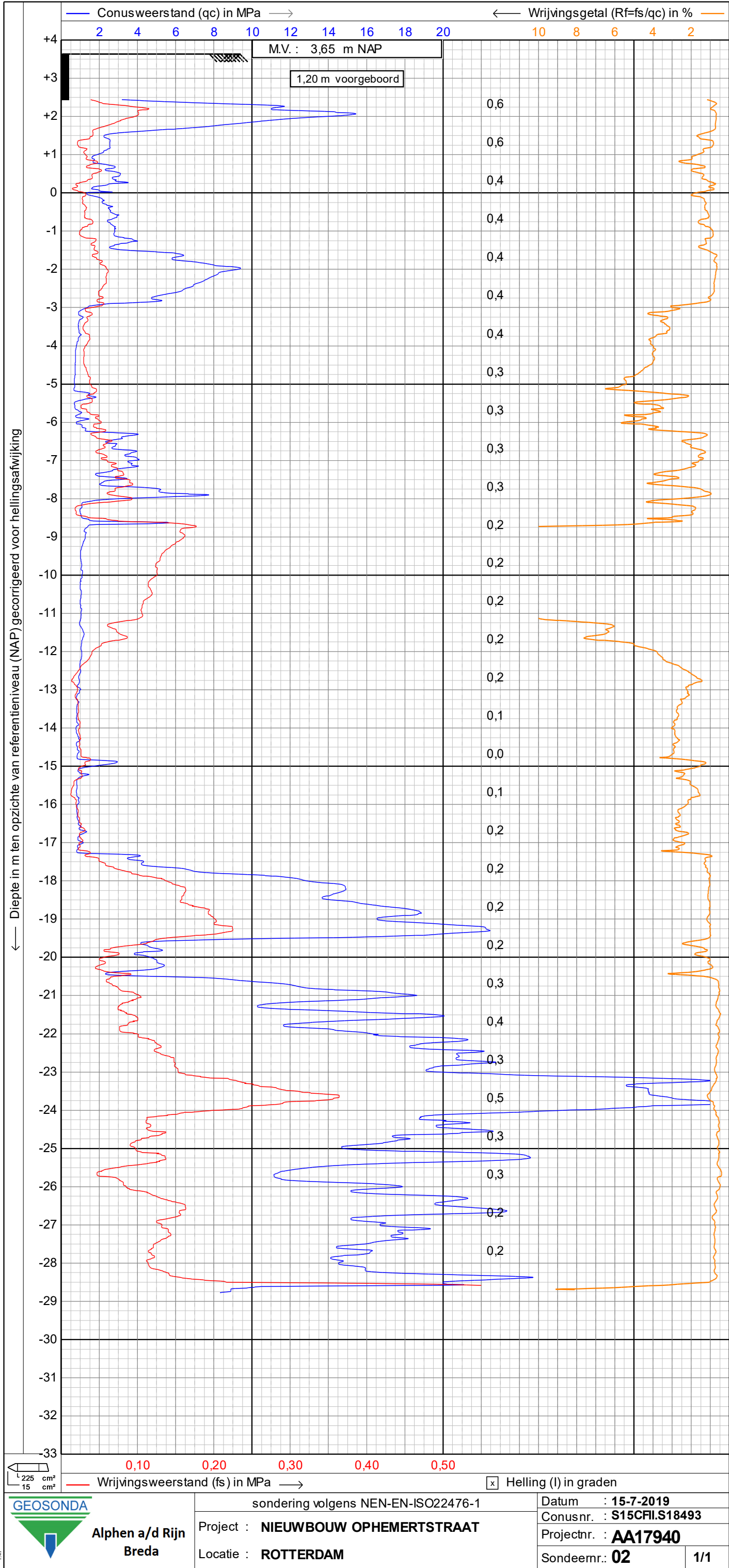
In de conus bevindt zich een hellingmeter waardoor een controle mogelijk is op een eventueel afwijken van de verticaal. De gemeten afwijkingen zijn gepresenteerd op de sondeergrafieken. Bijzondere afwijkingen zijn in het algemeen niet vastgesteld.

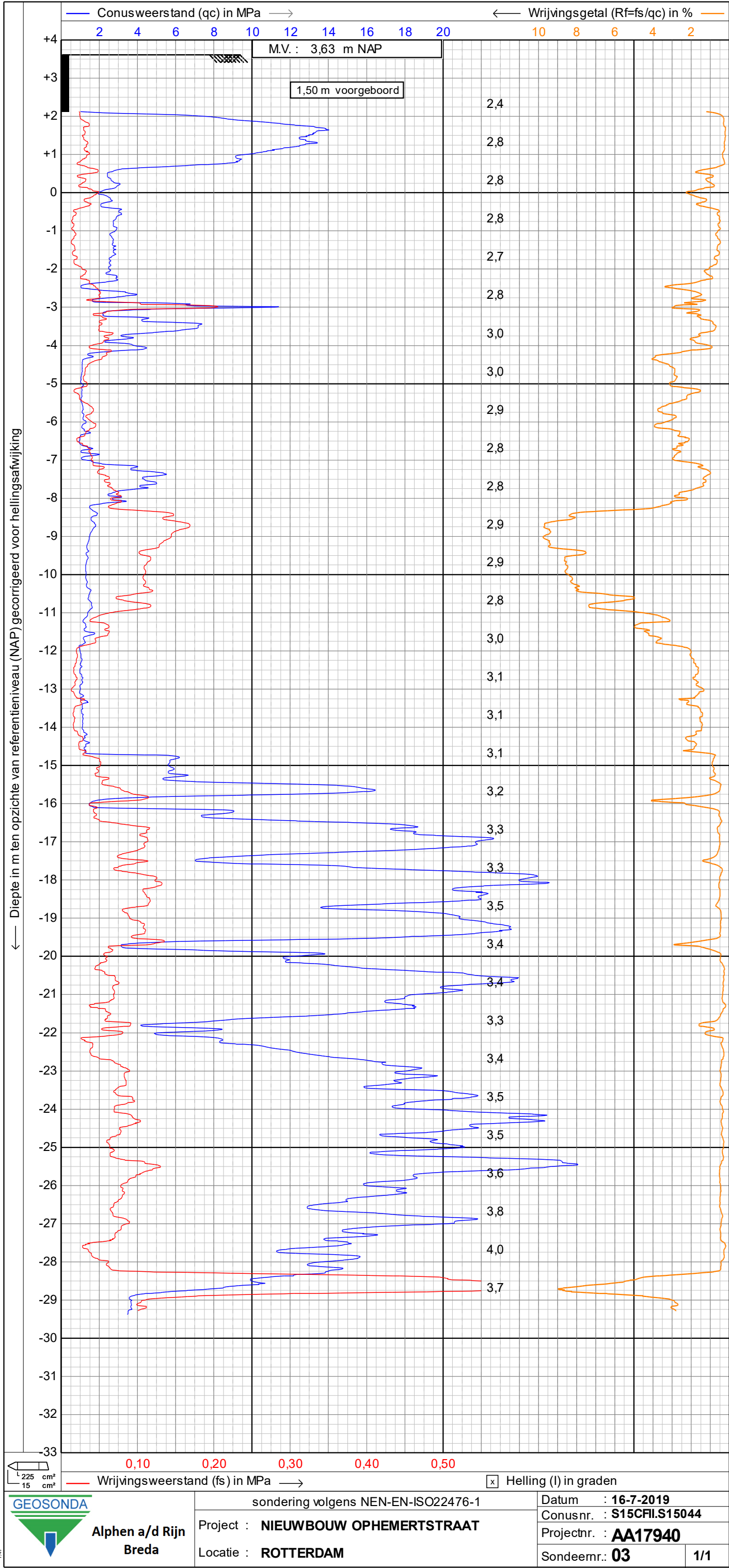
Alphen aan den Rijn, 24 juli 2019

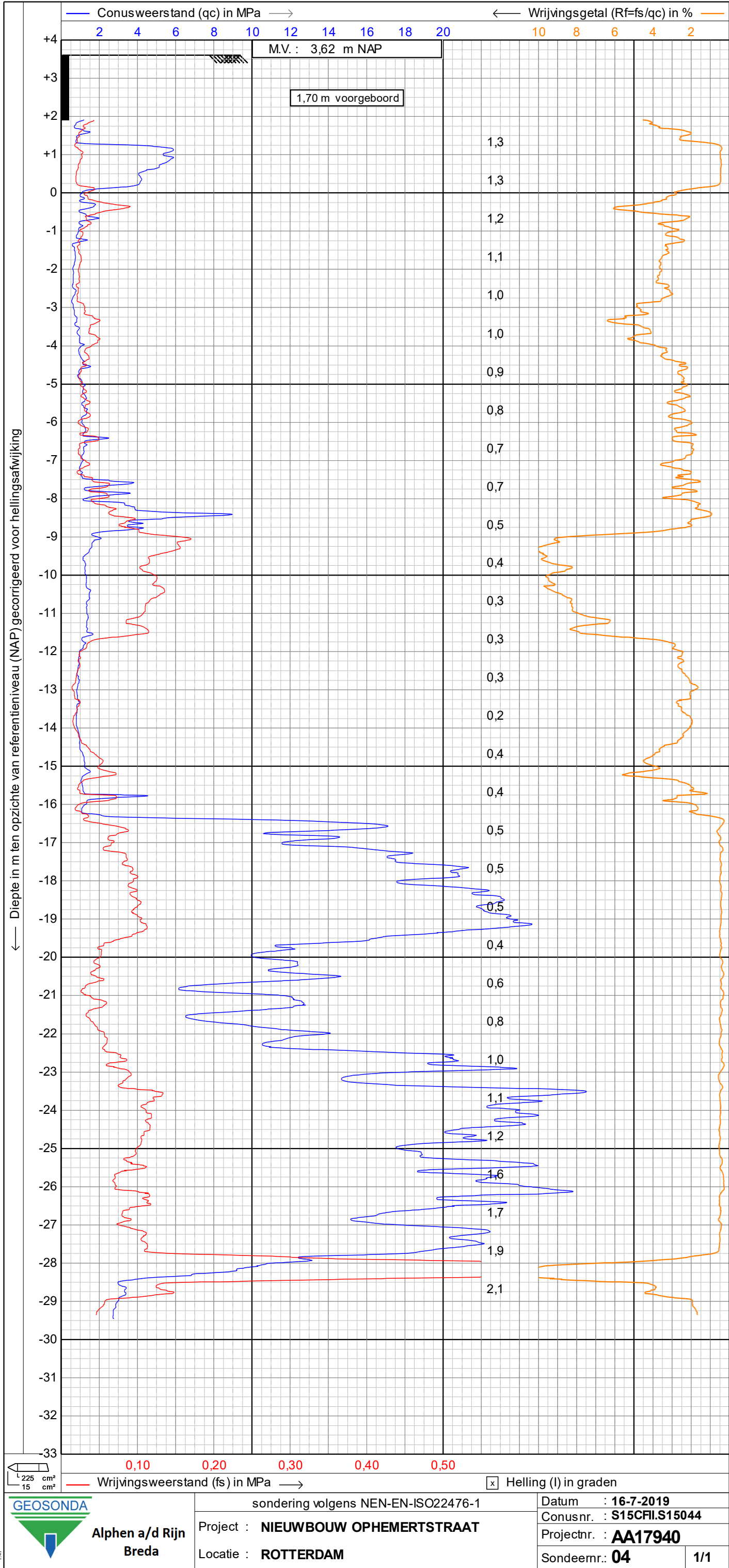
GEOSONDA B.V.

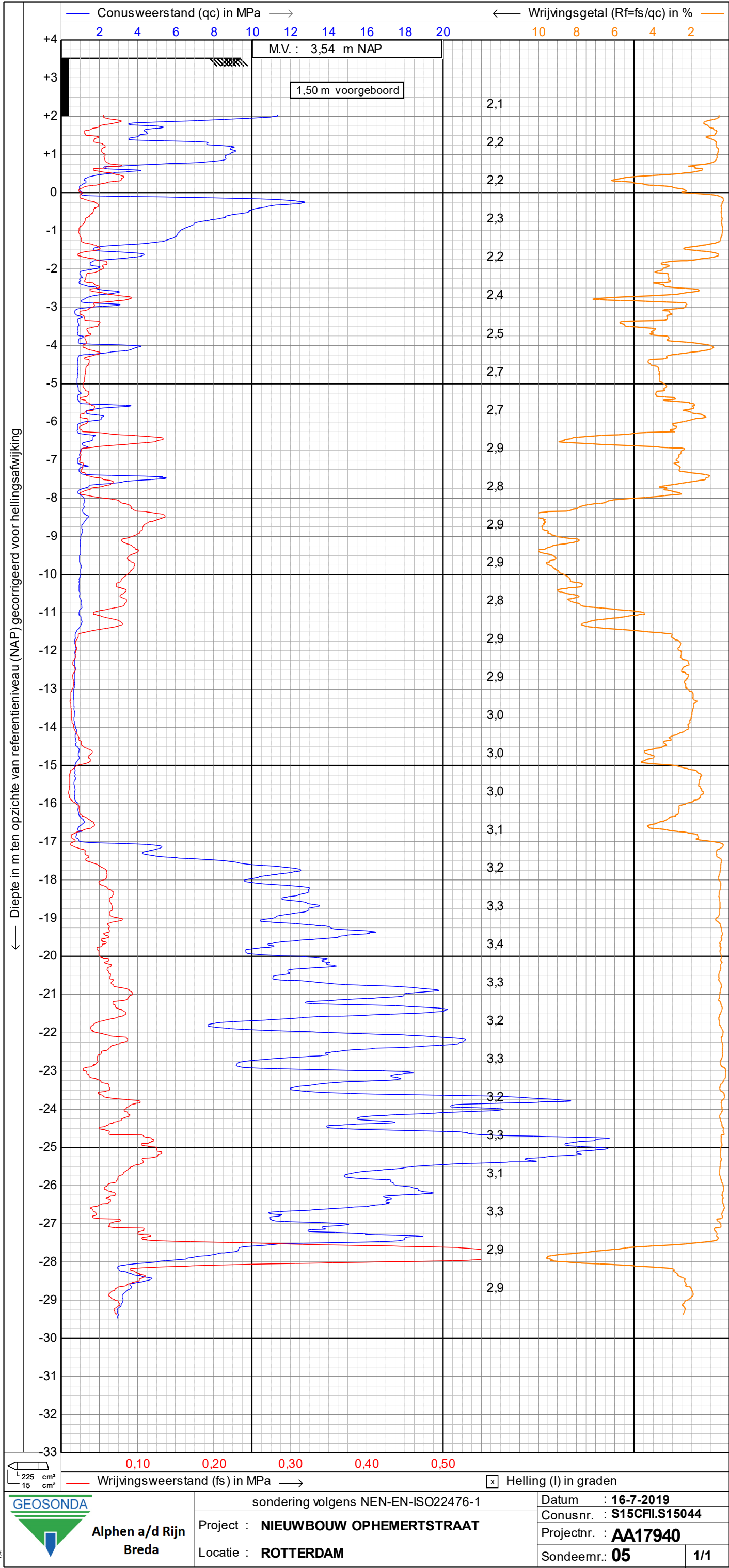

Directeur

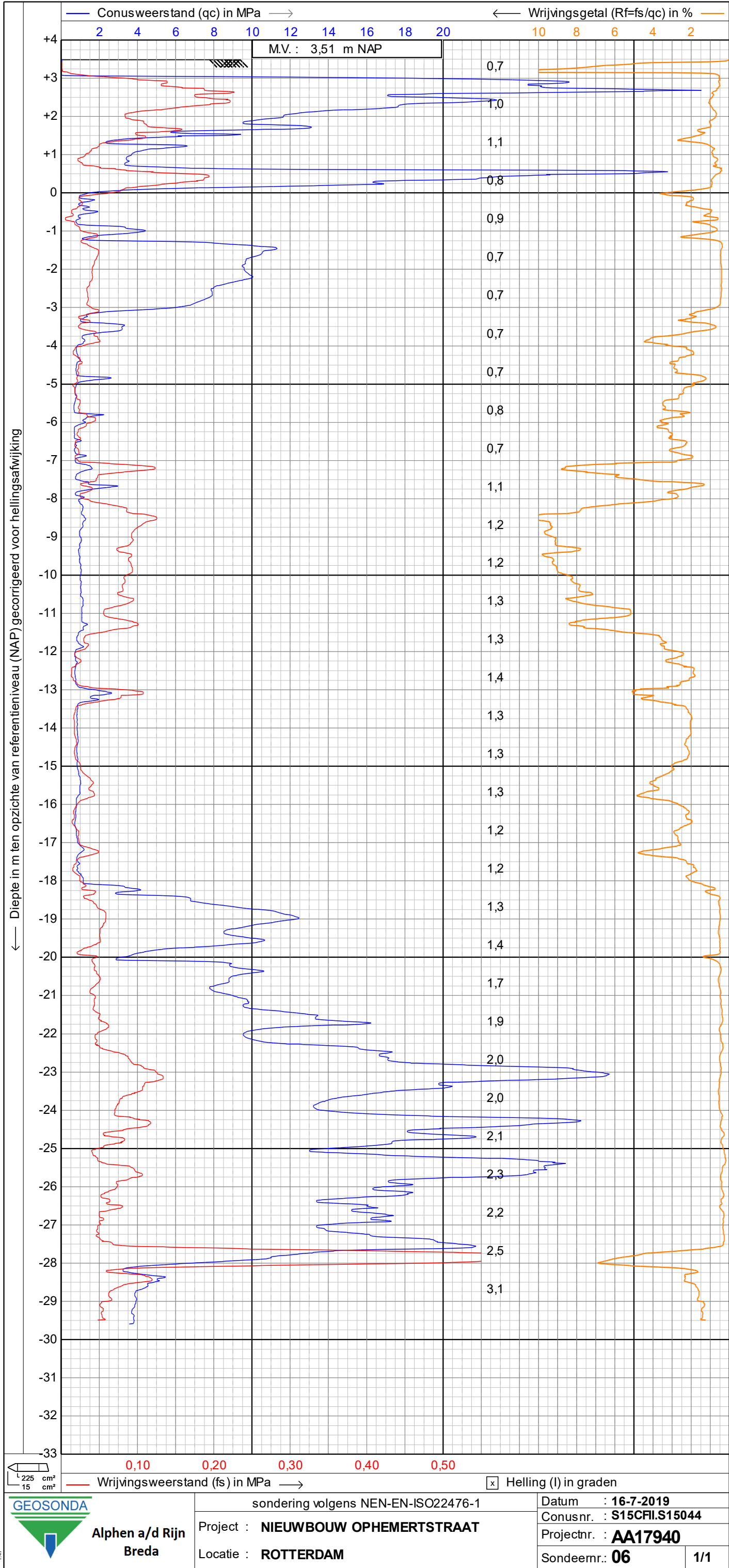


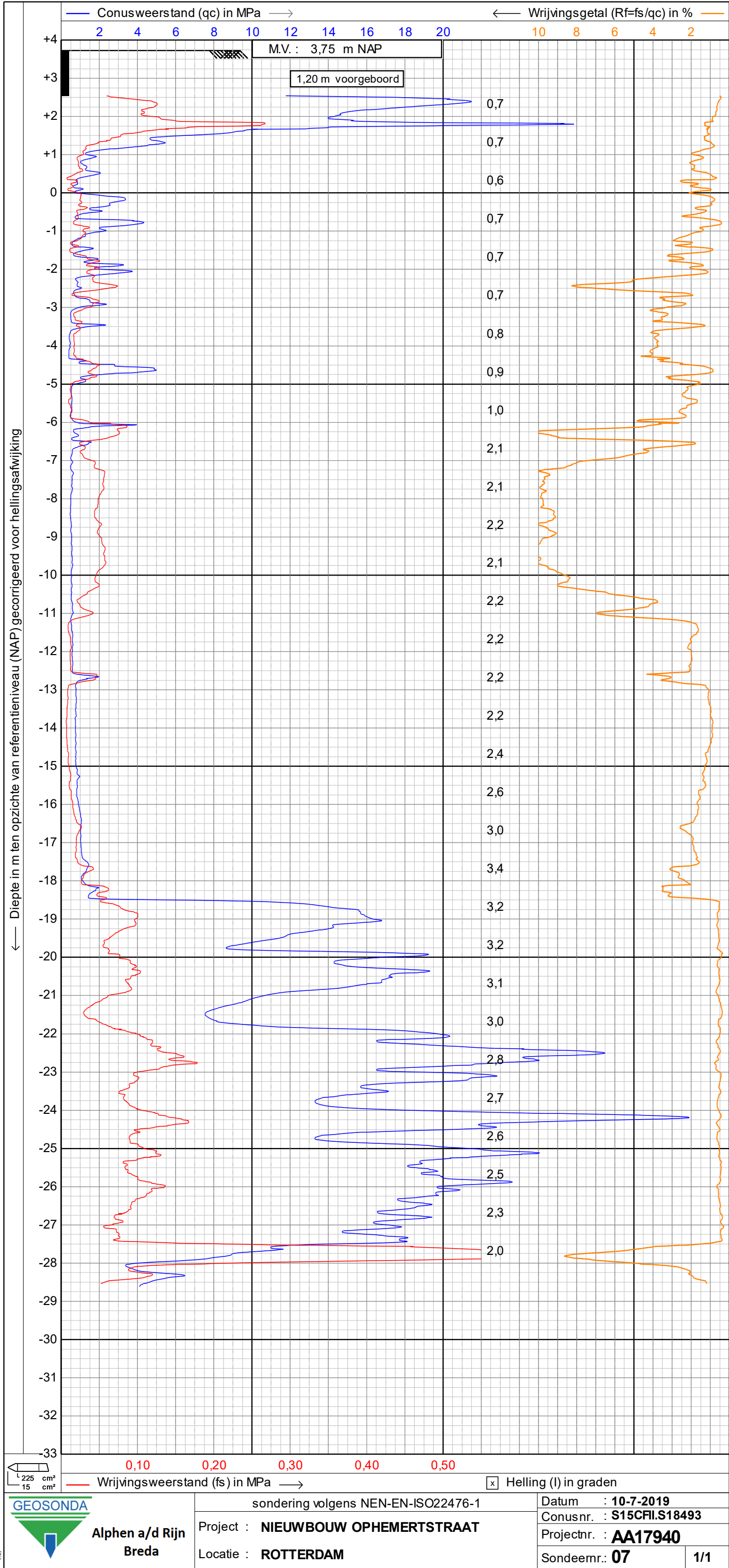


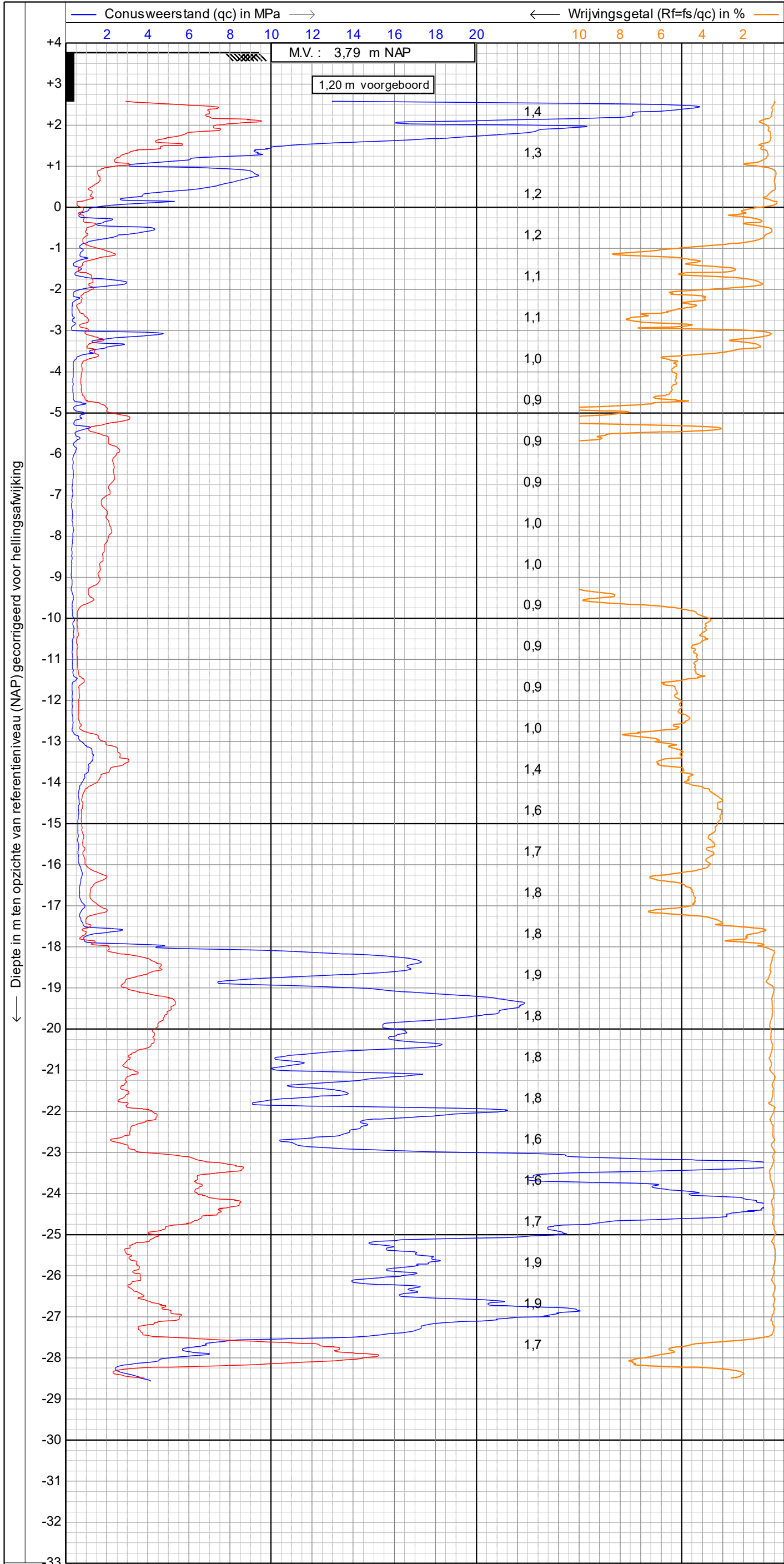


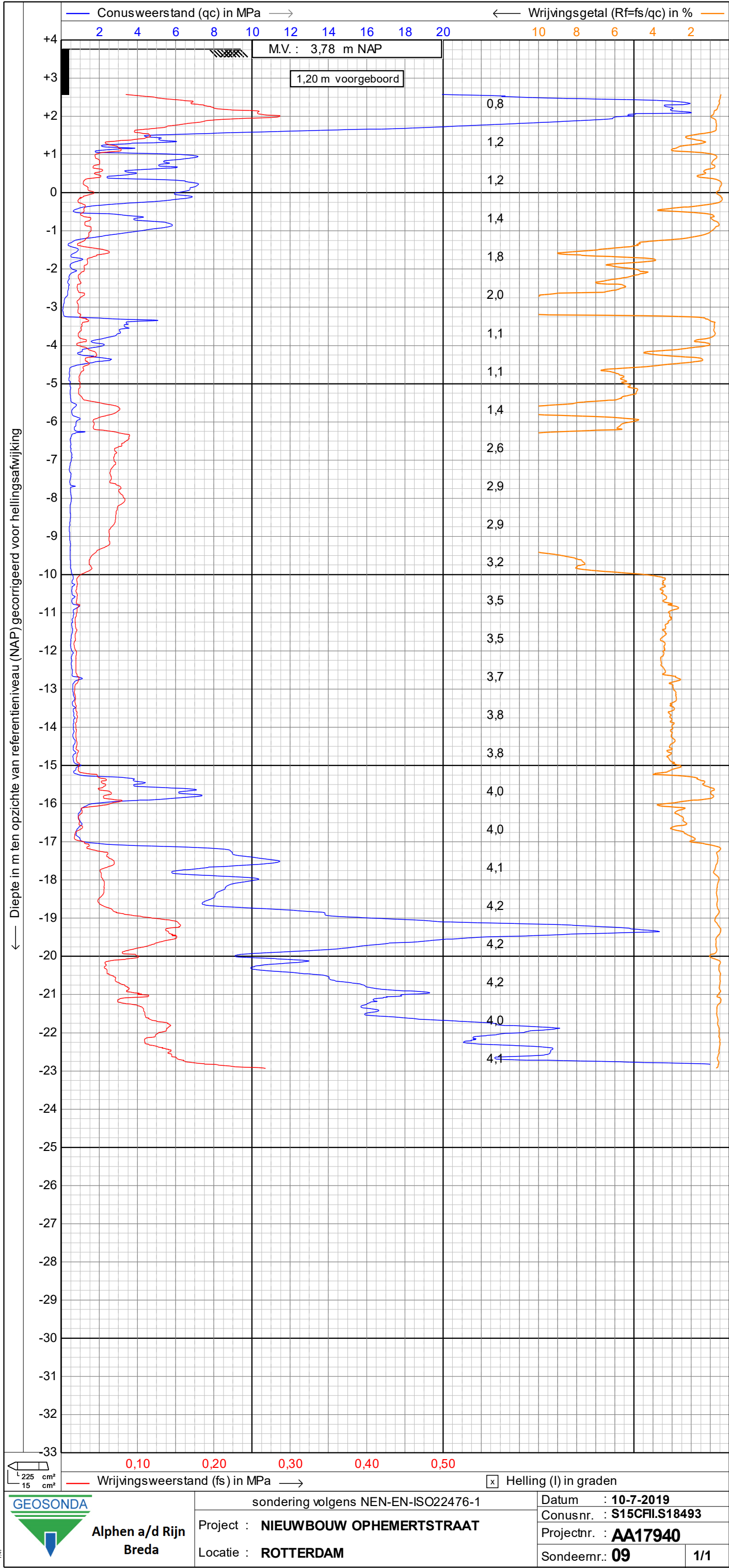


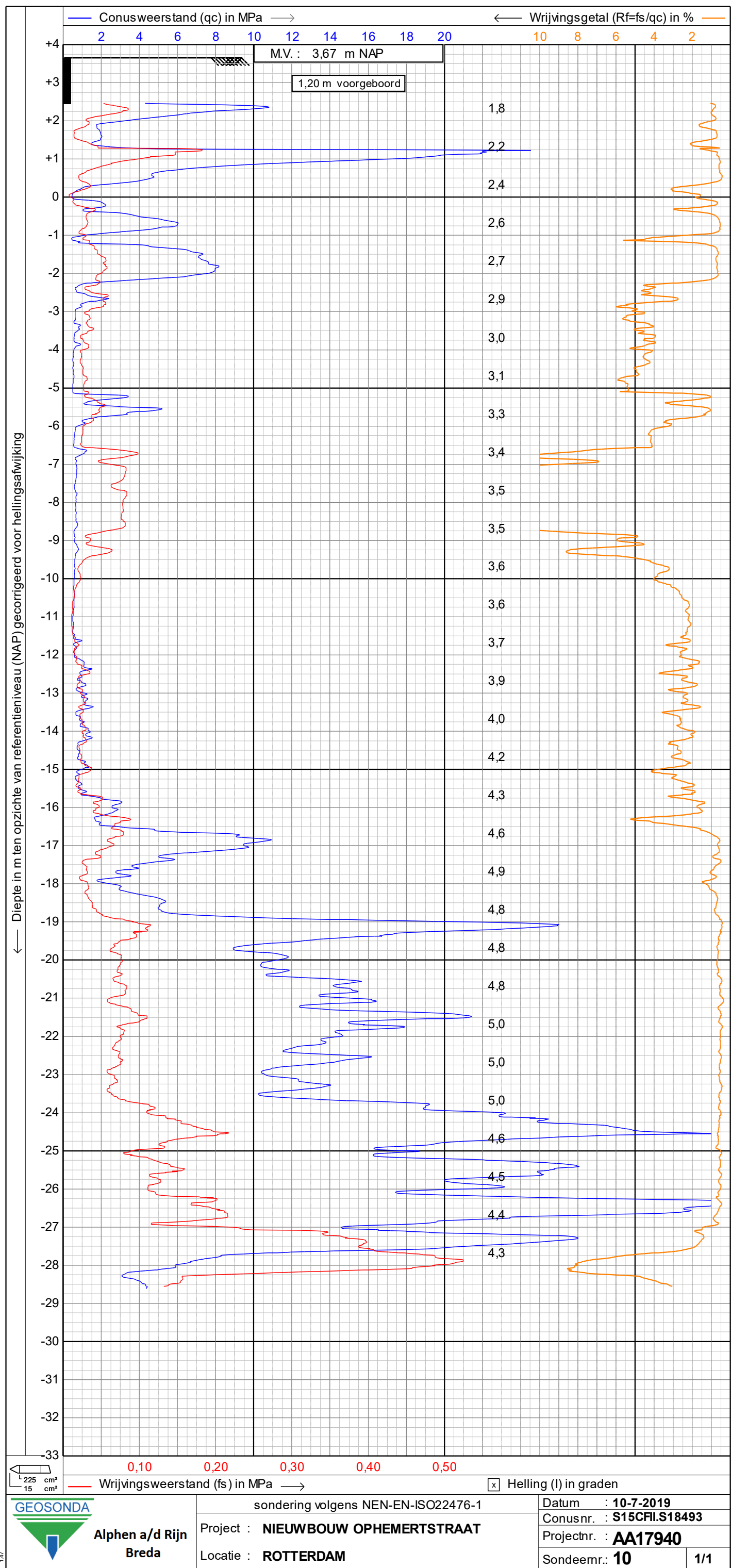


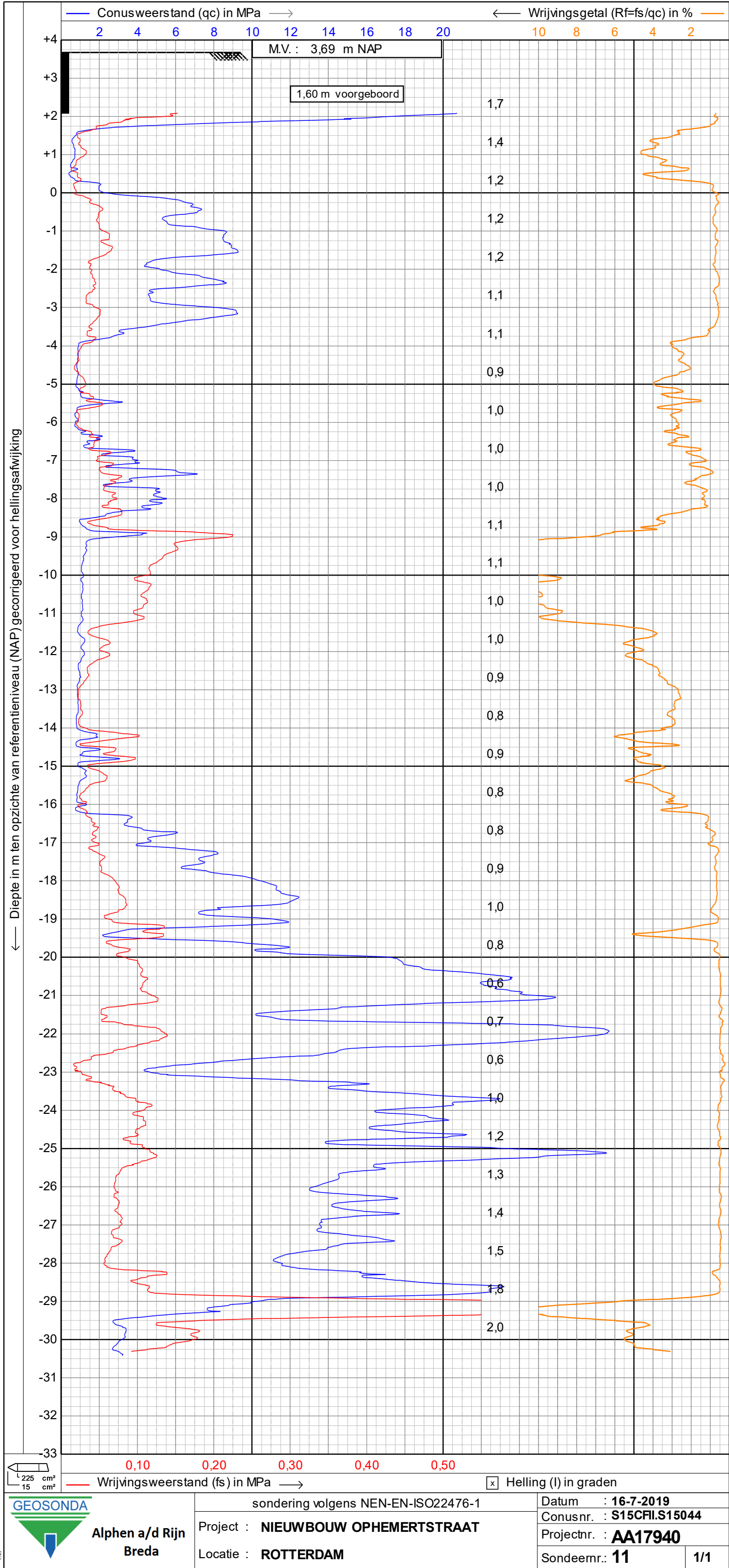


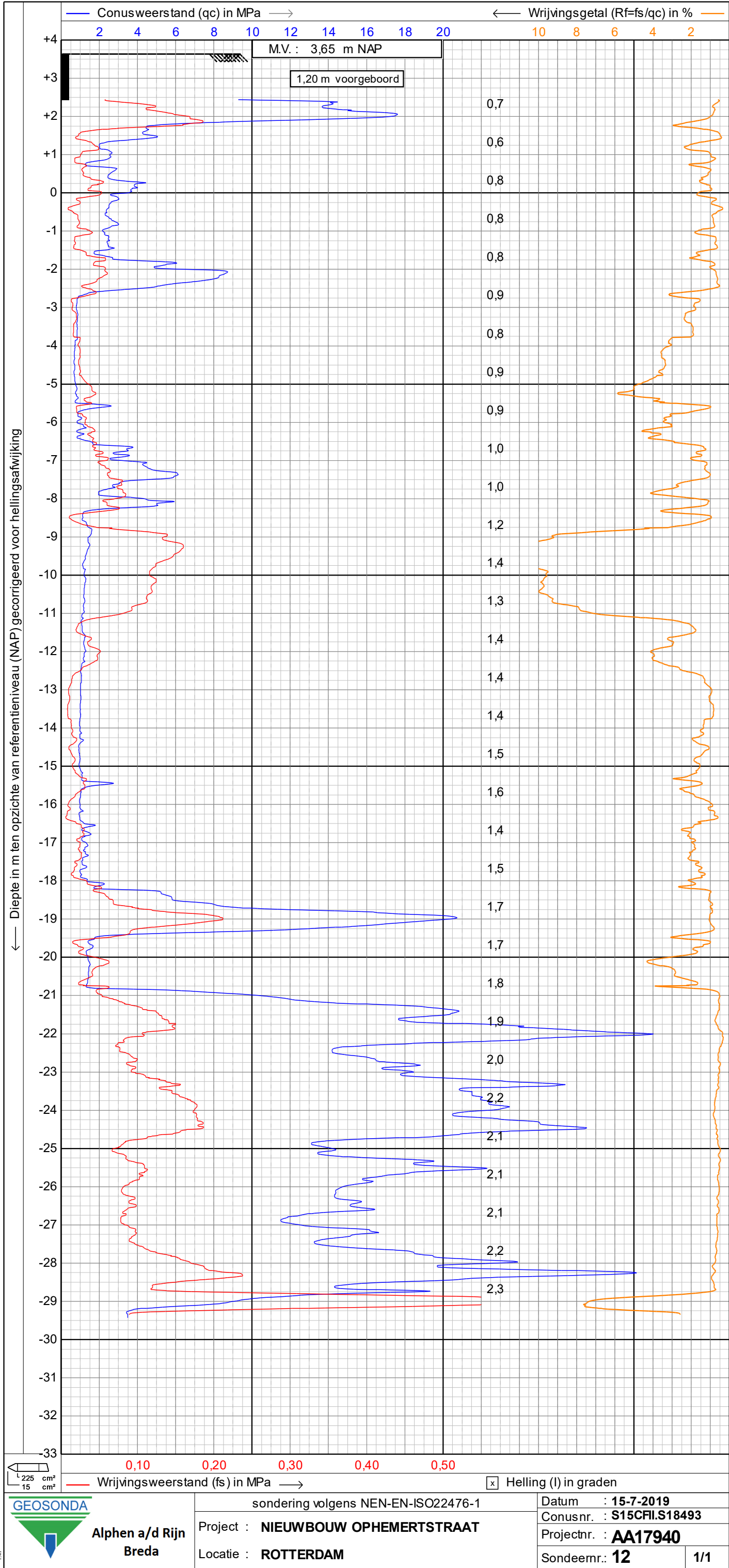


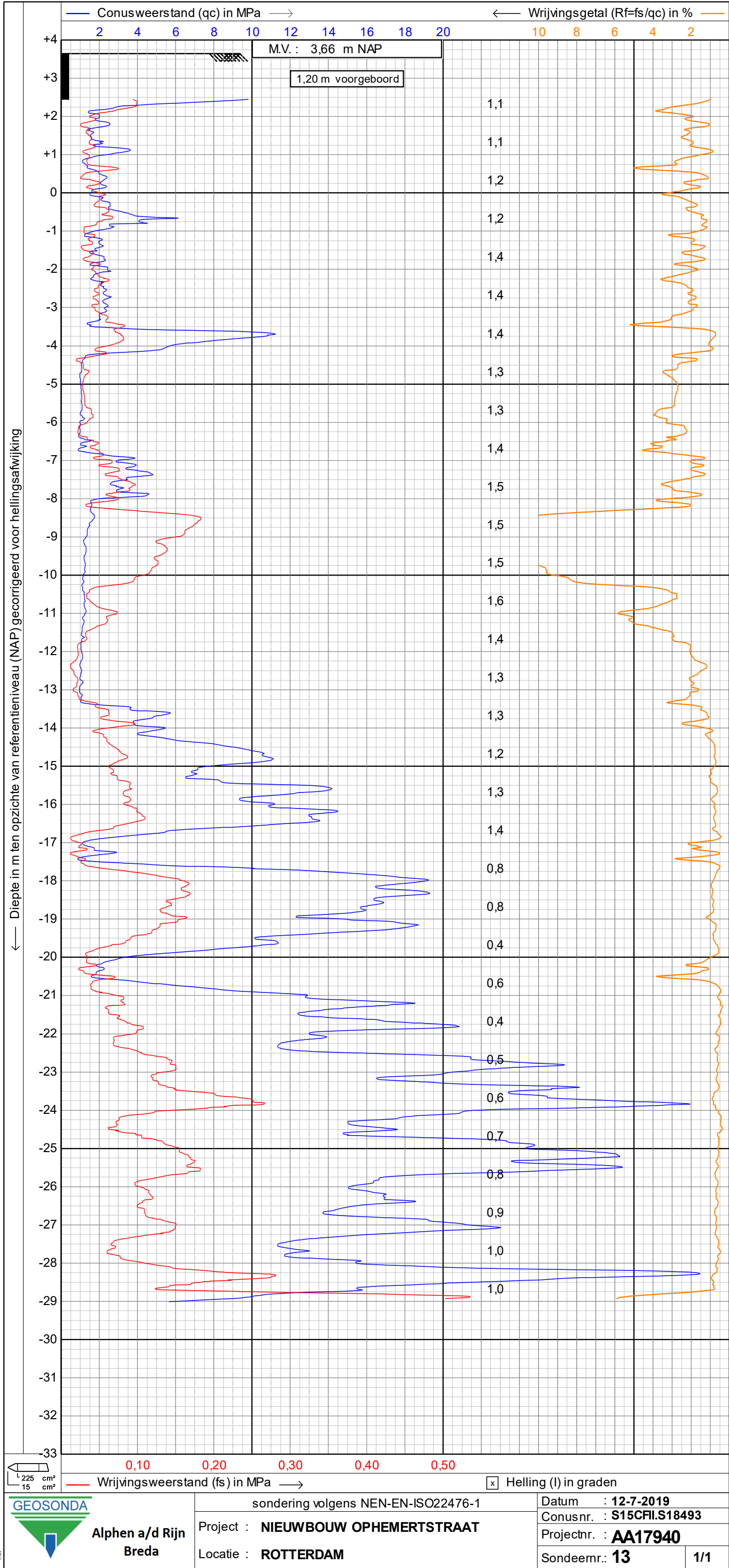


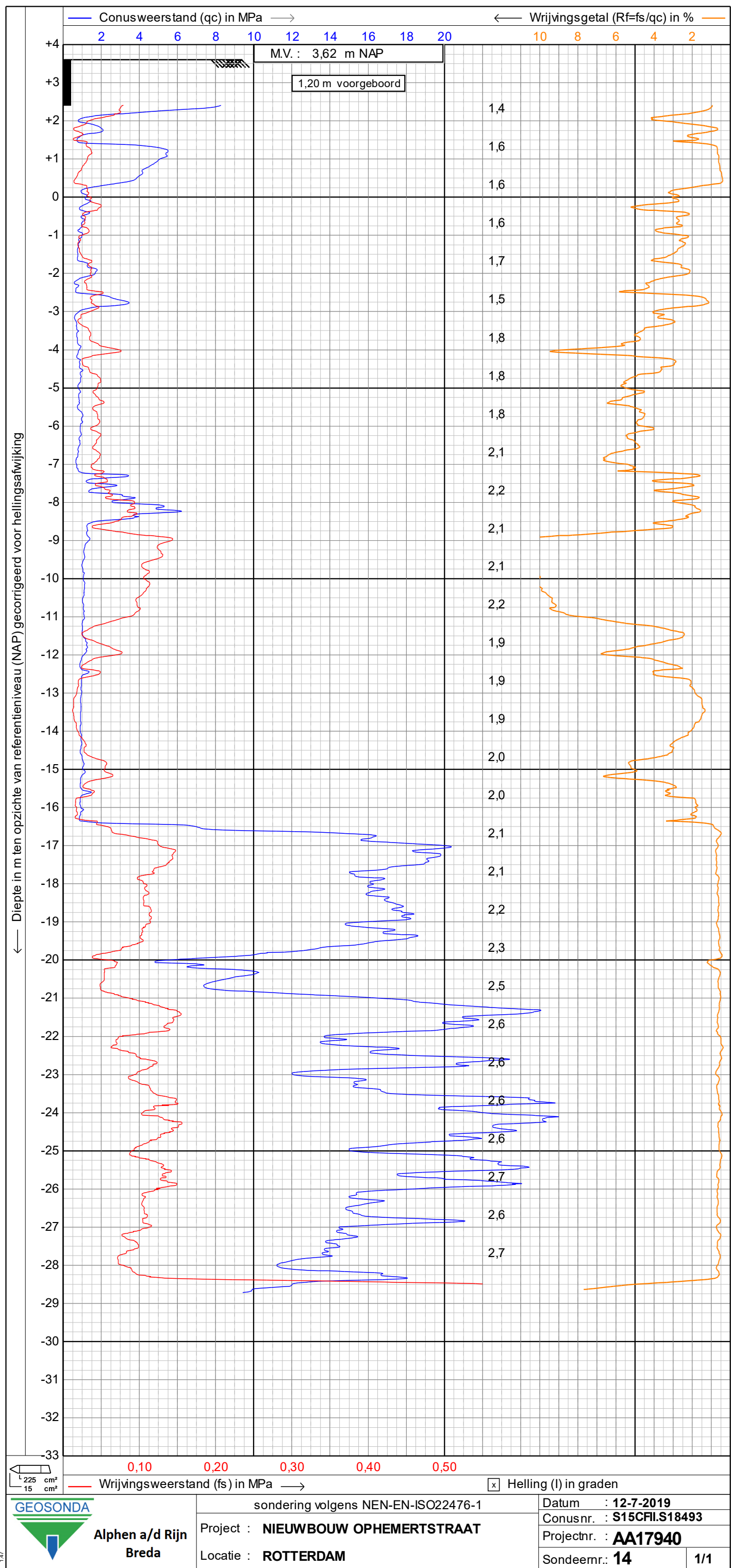


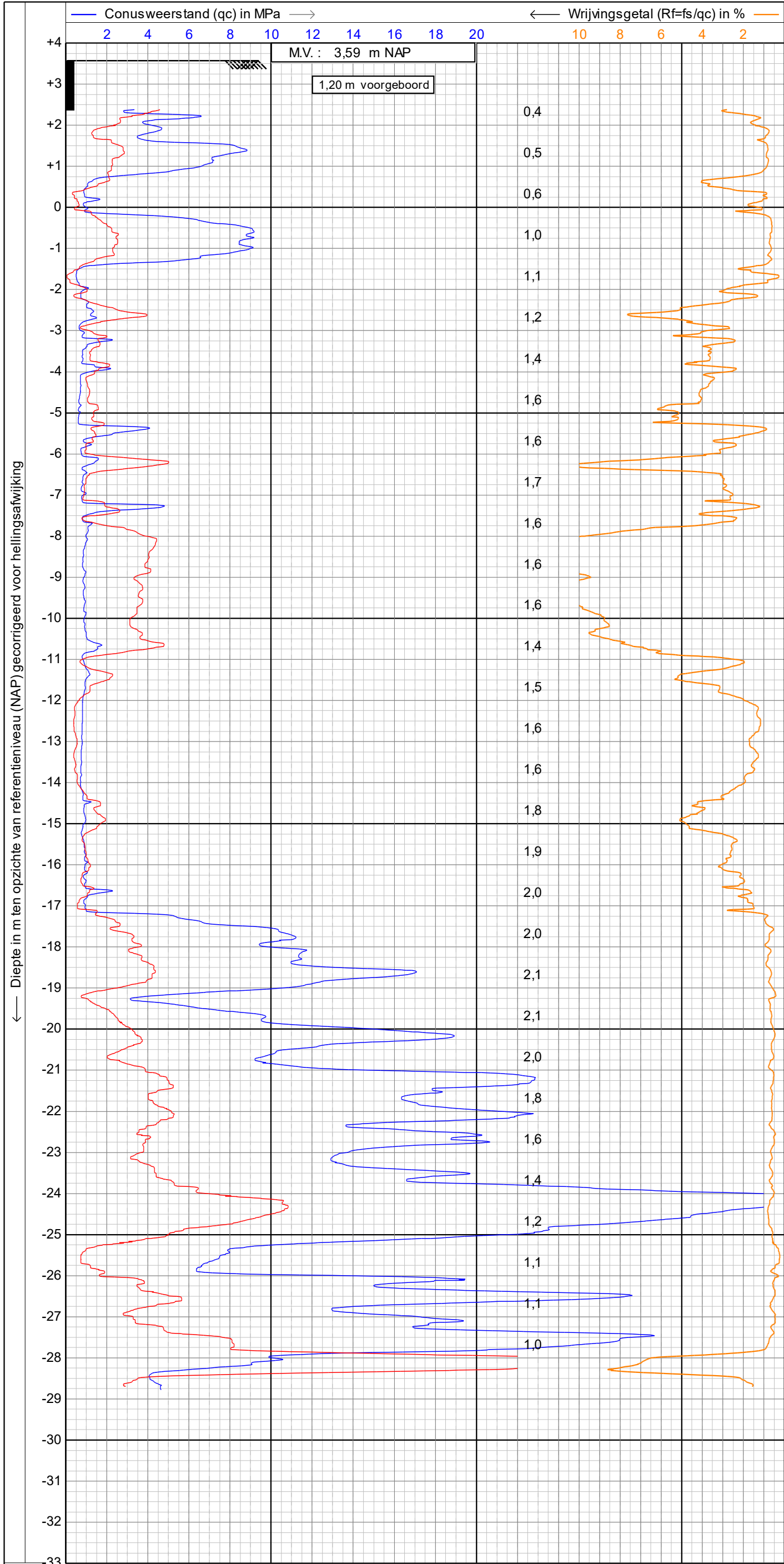


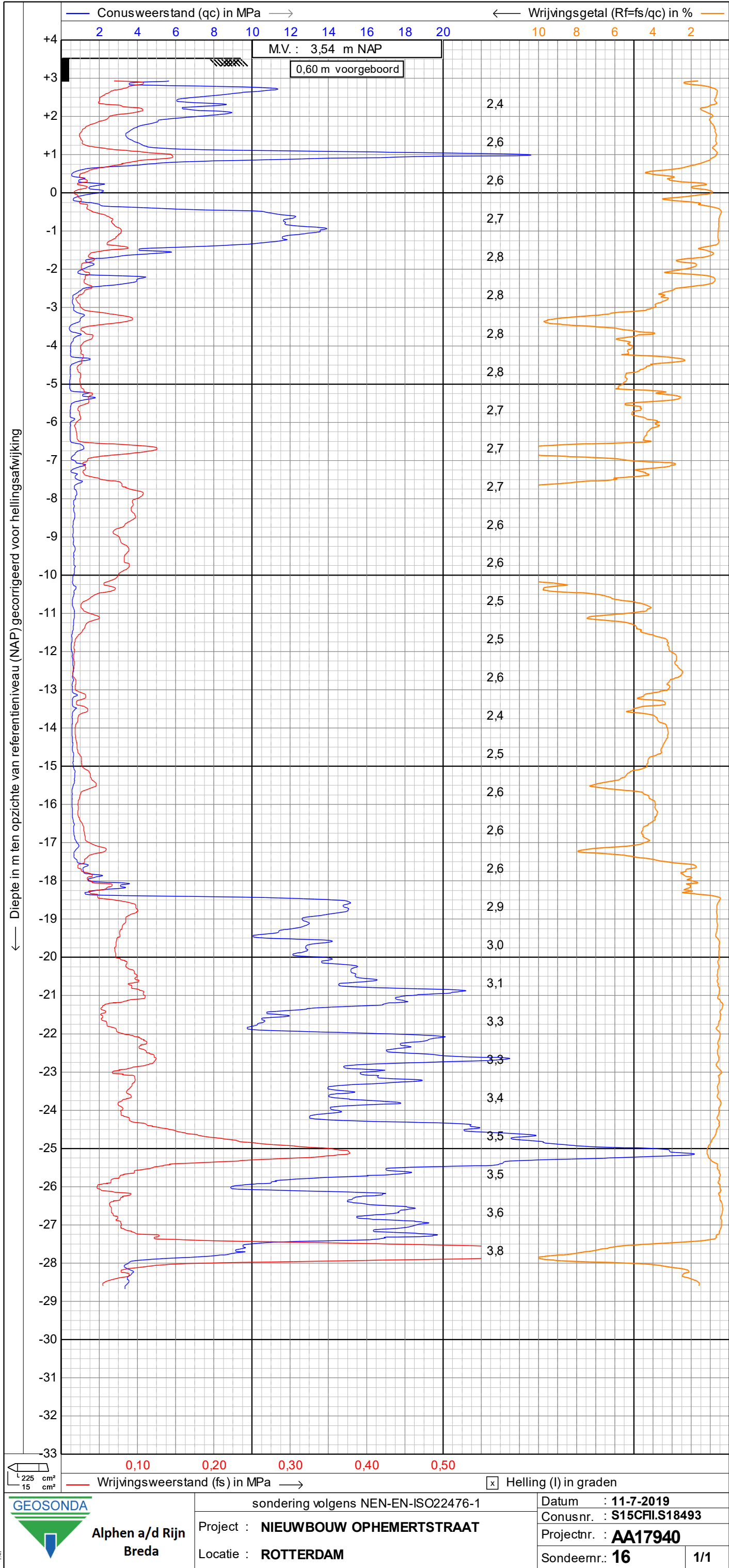


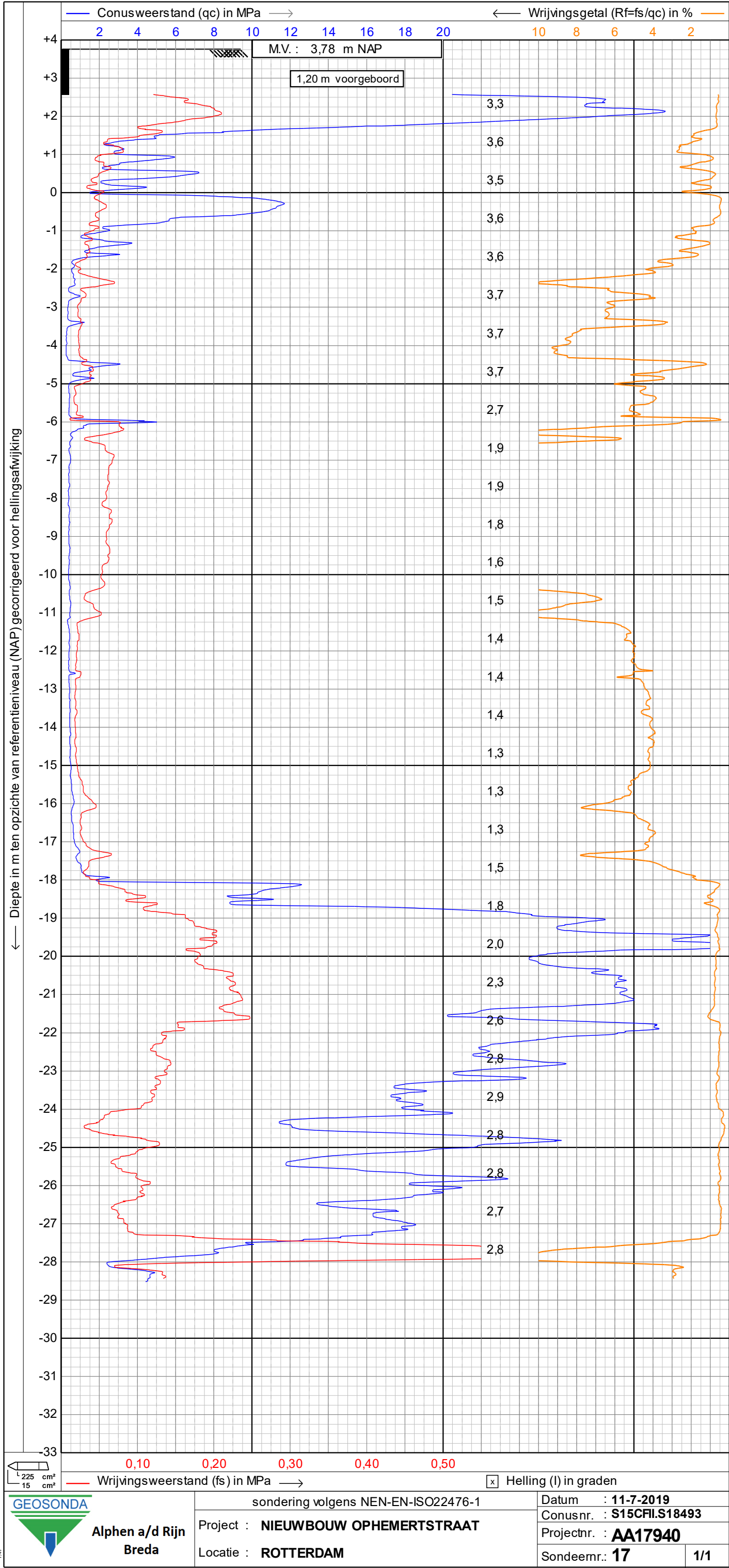


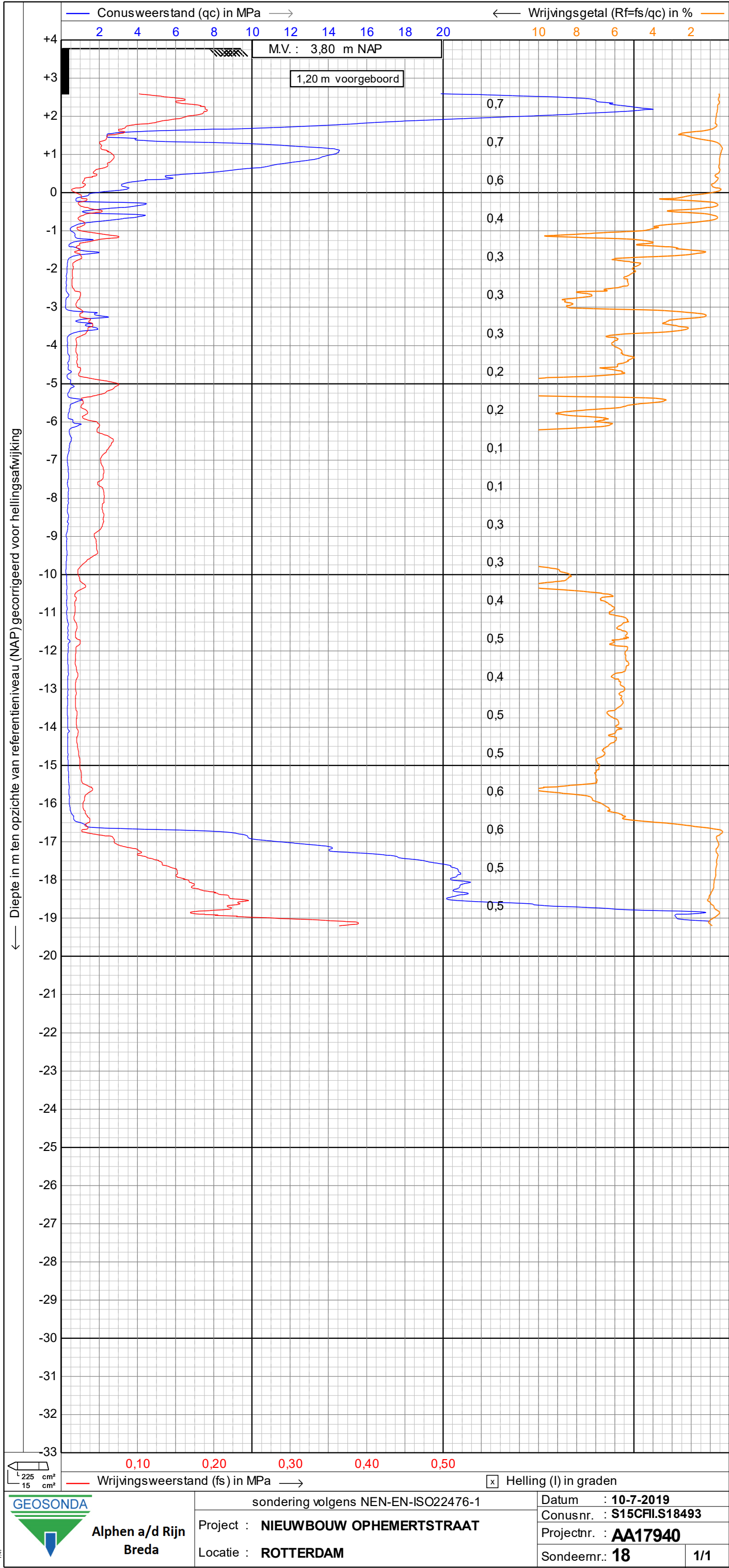


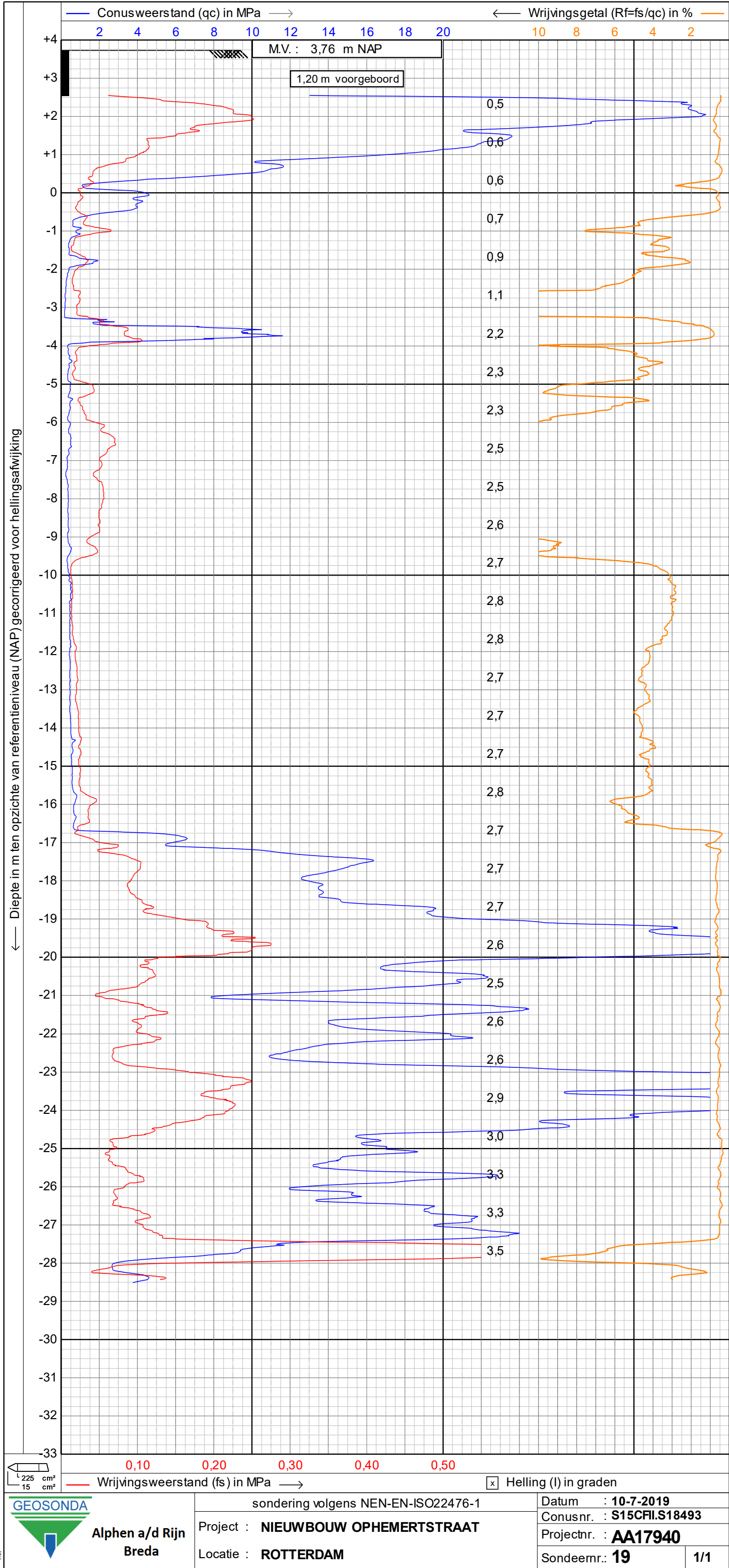


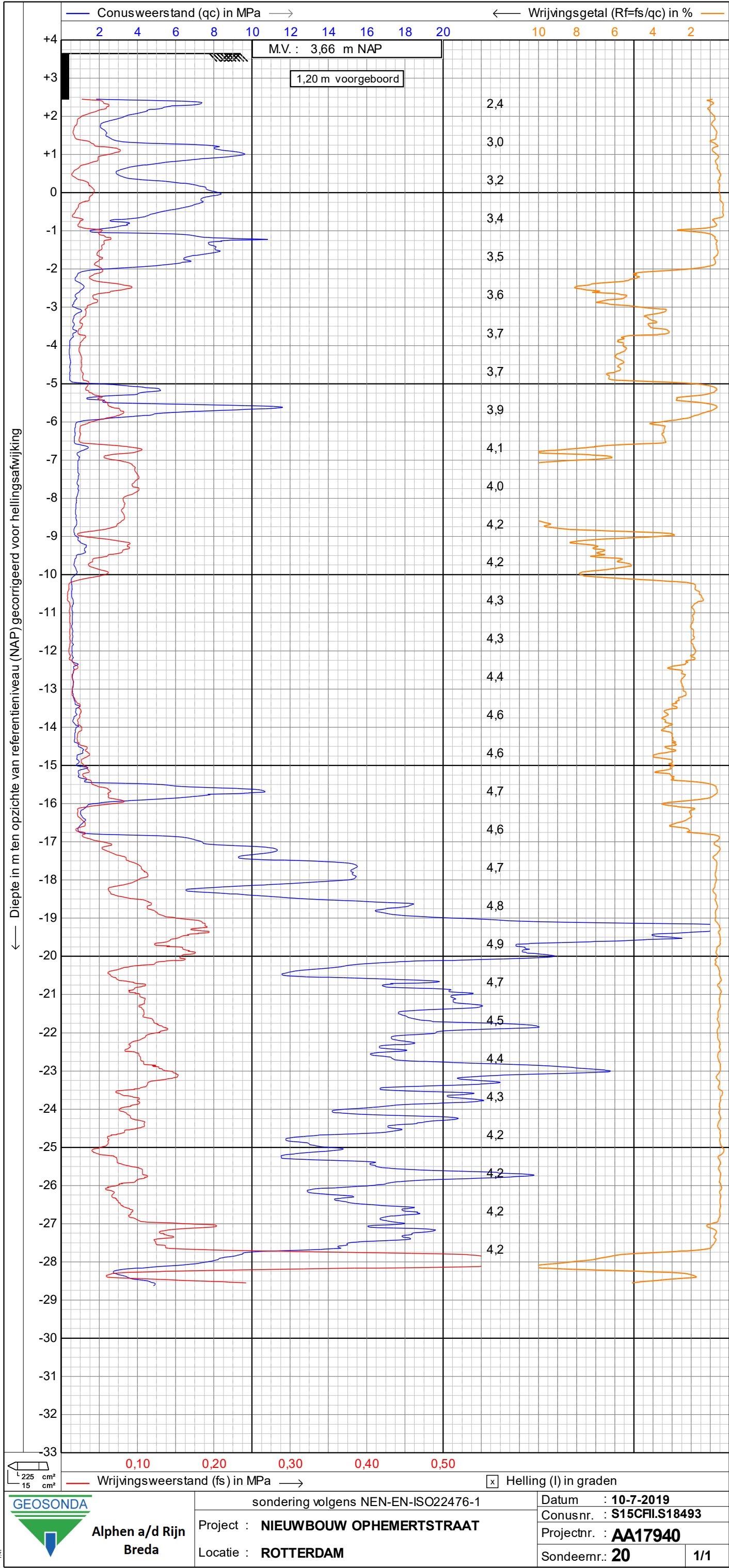


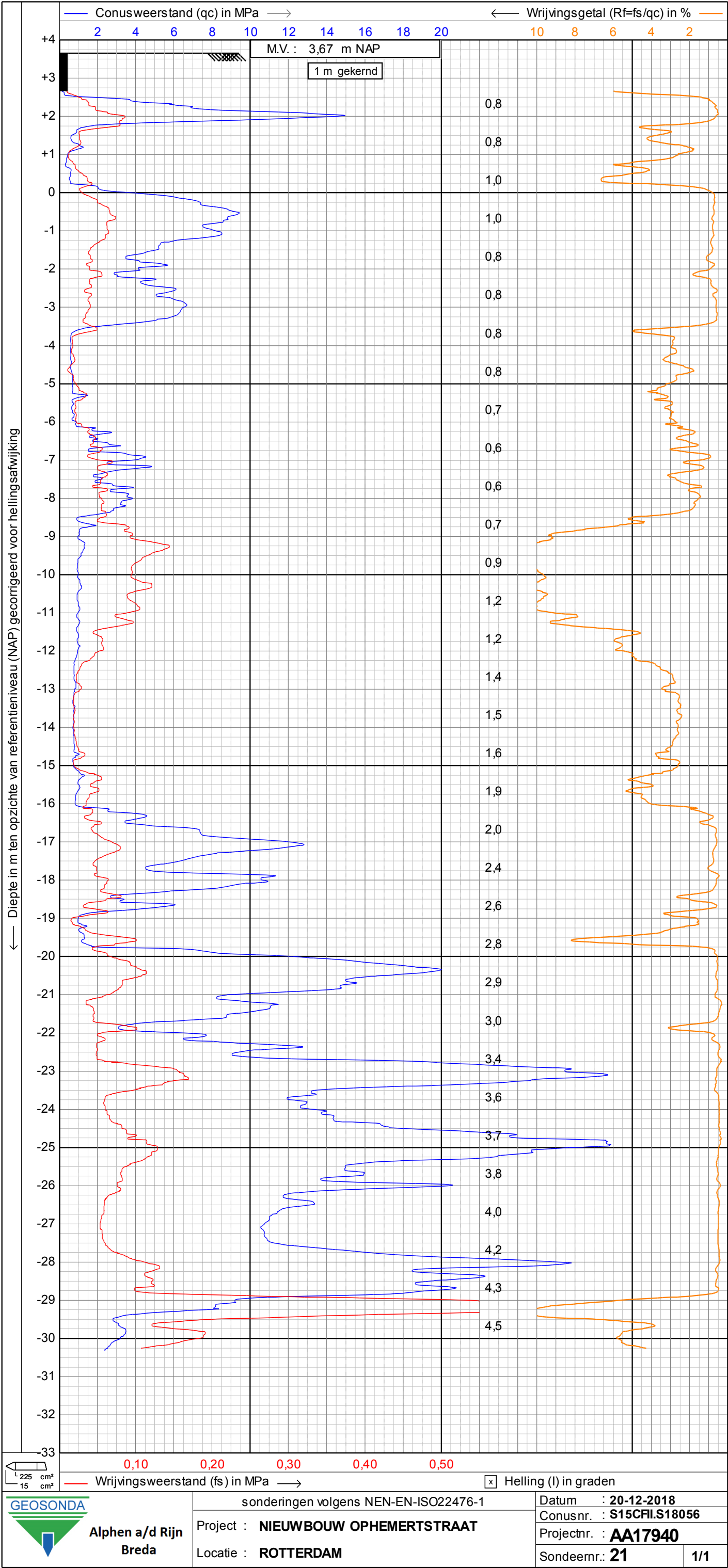


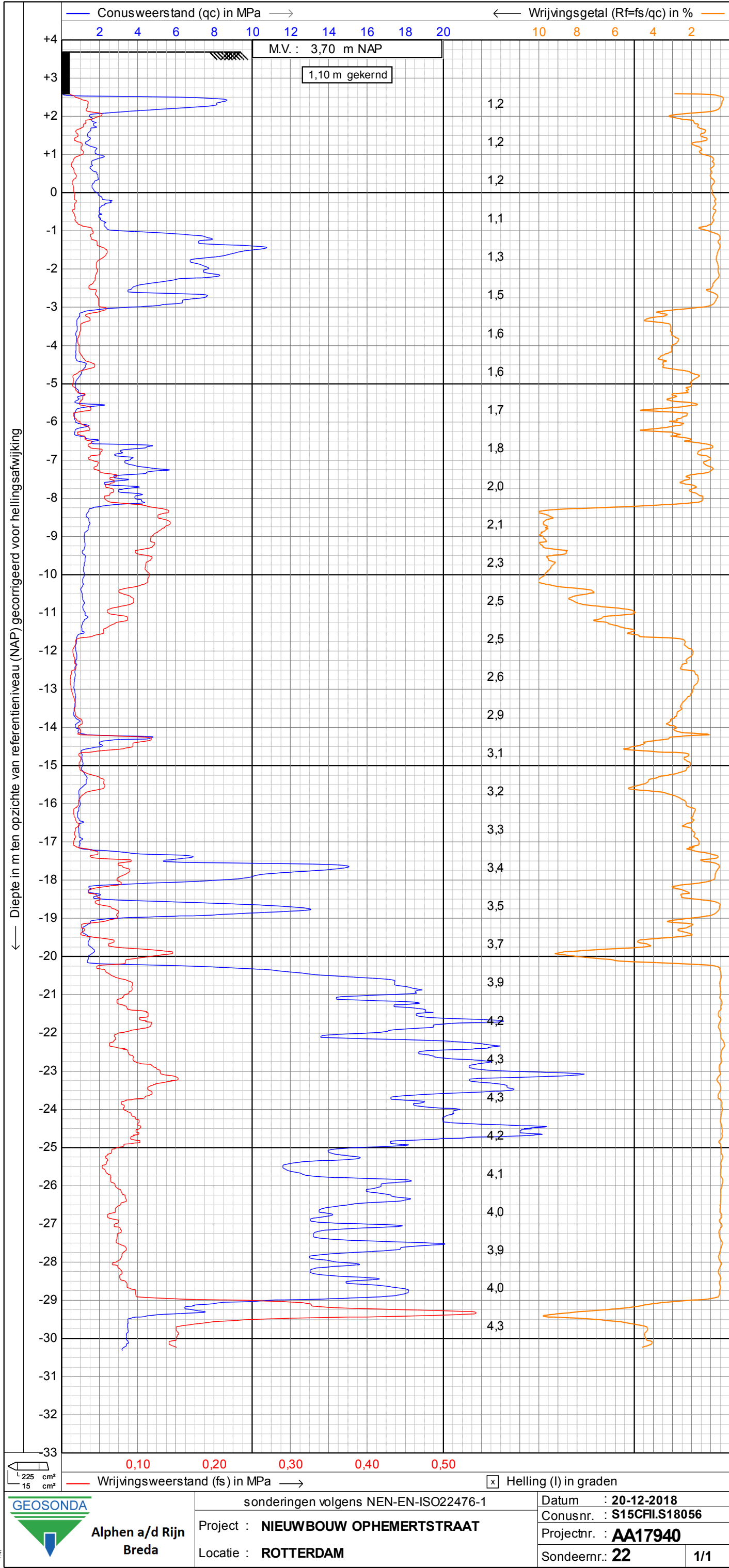


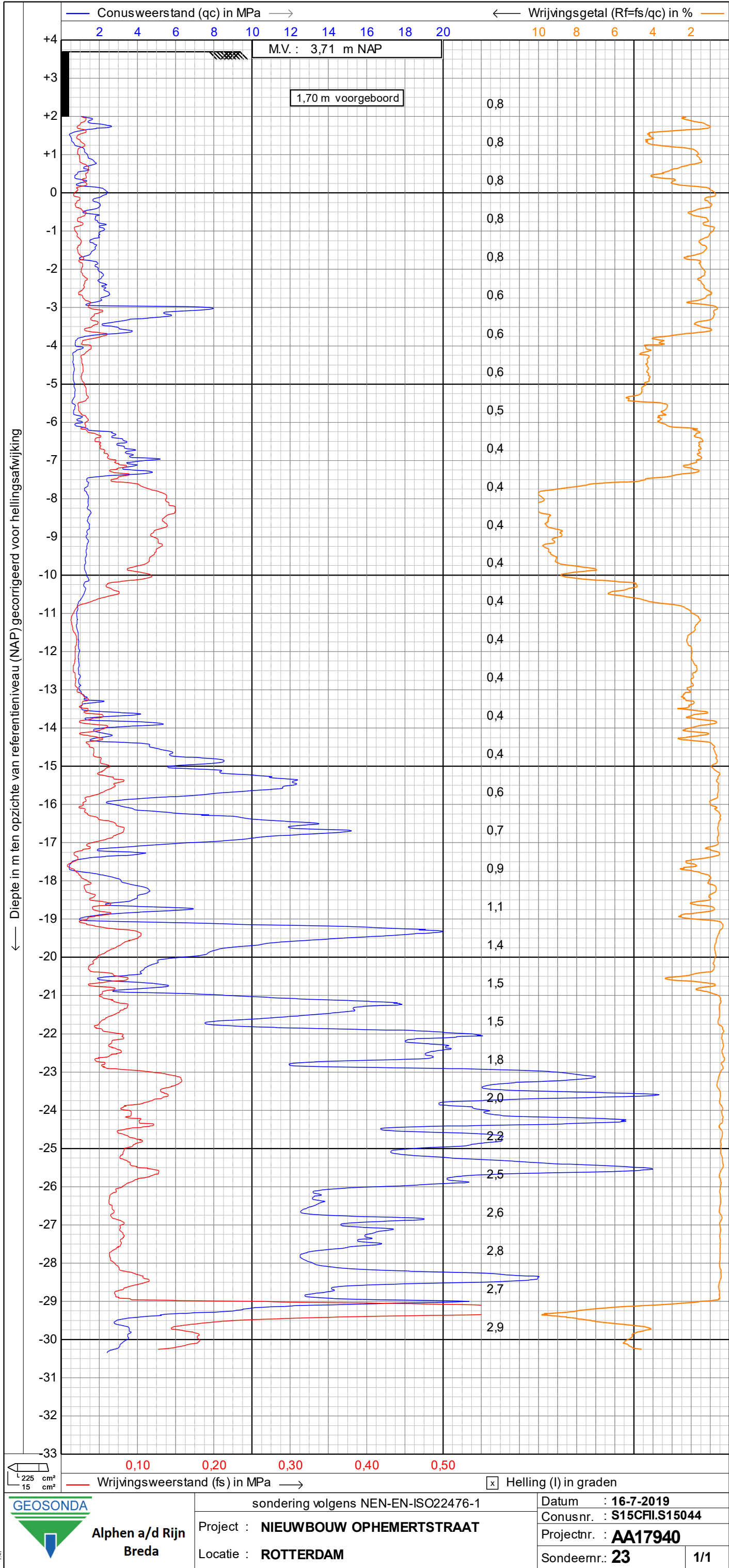


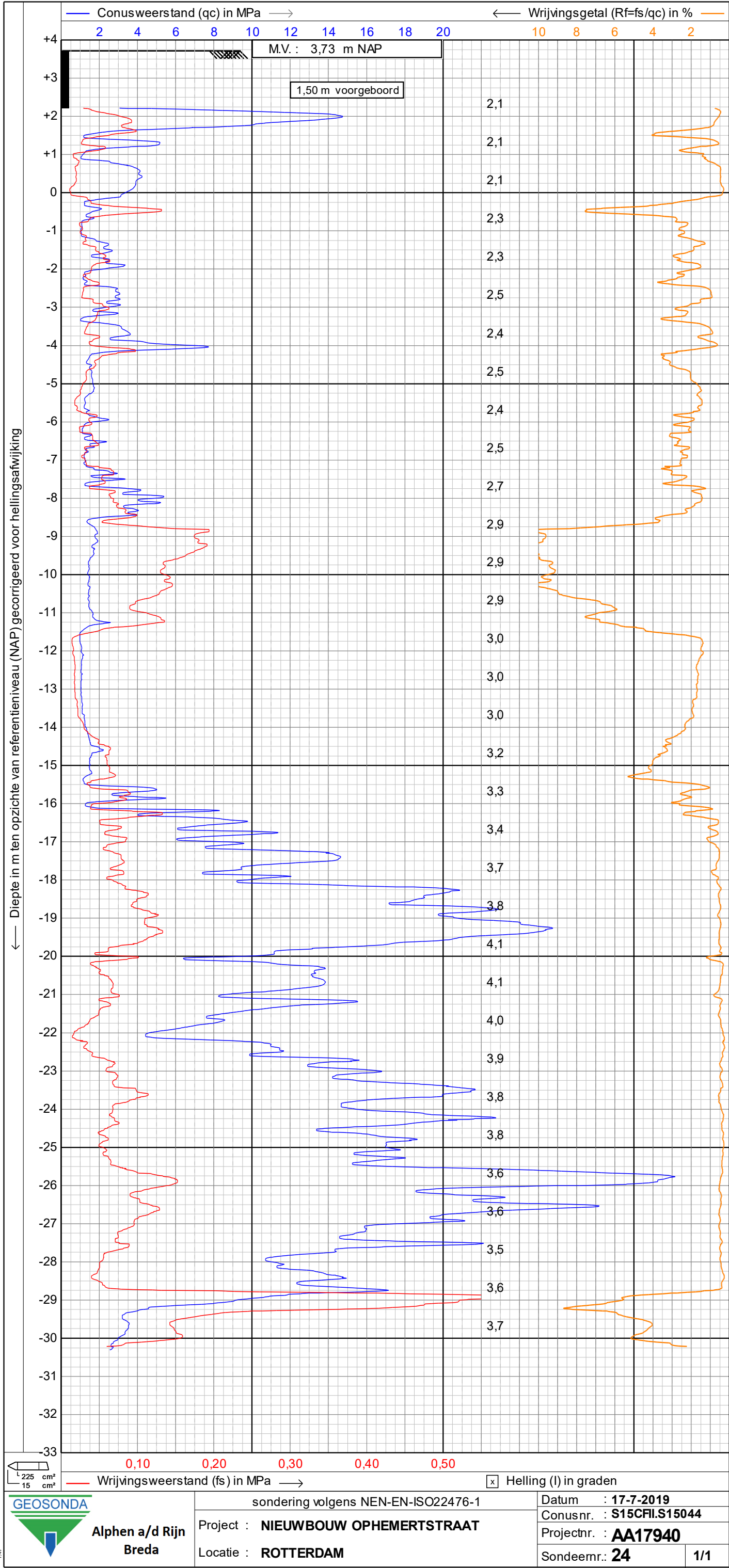


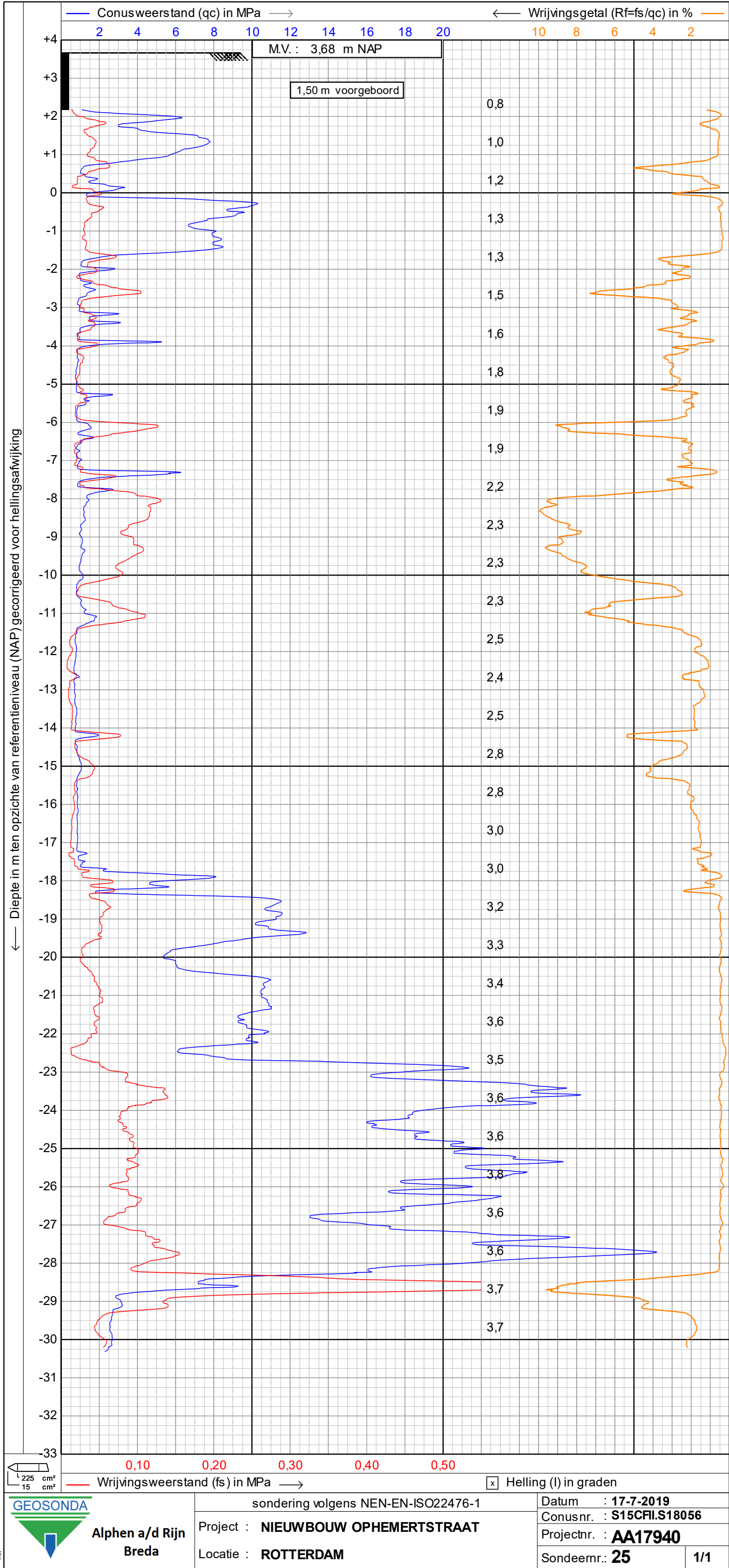


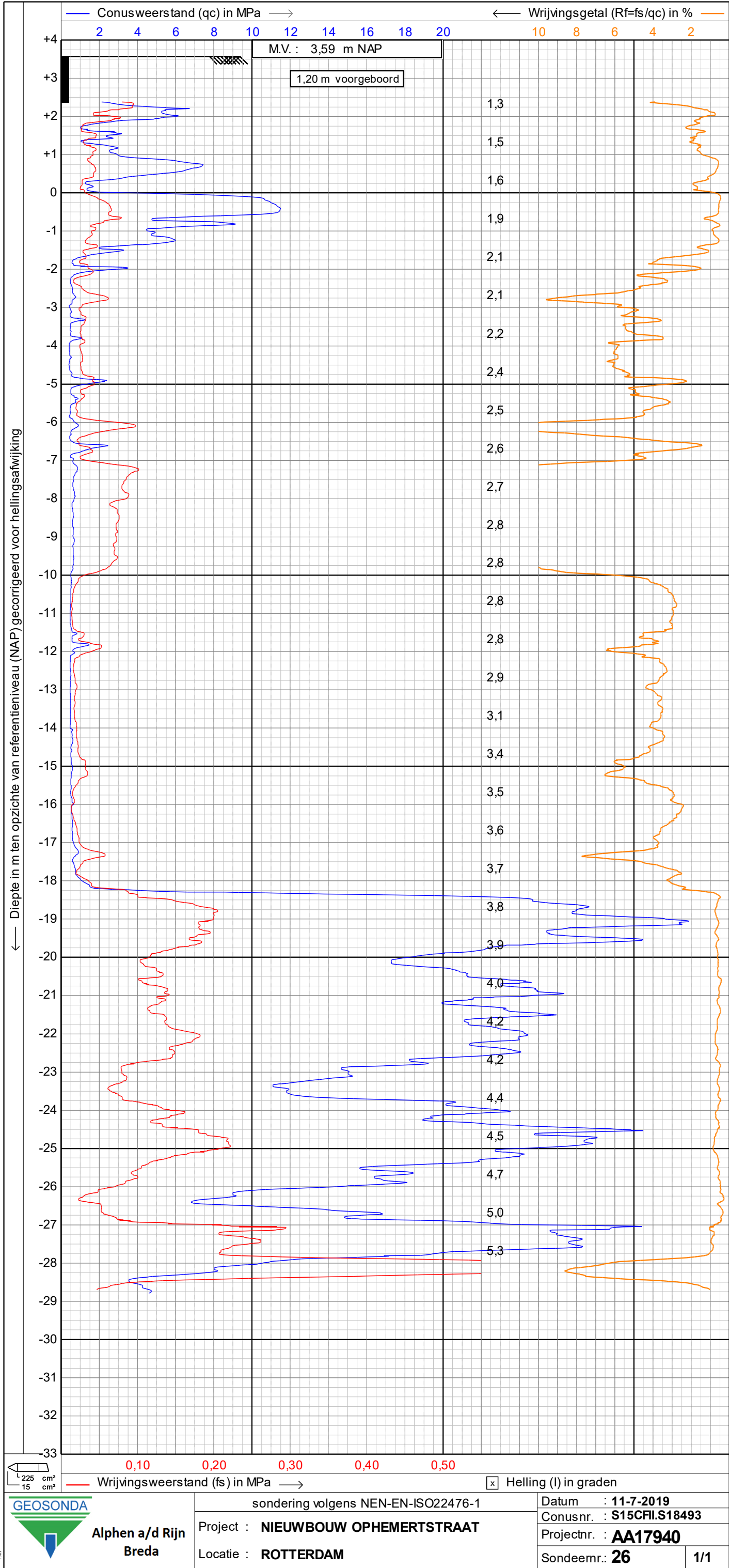




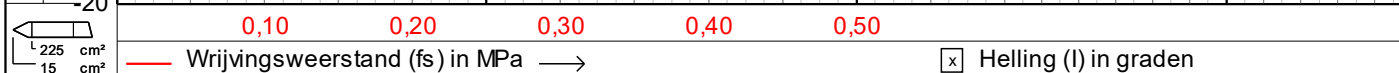
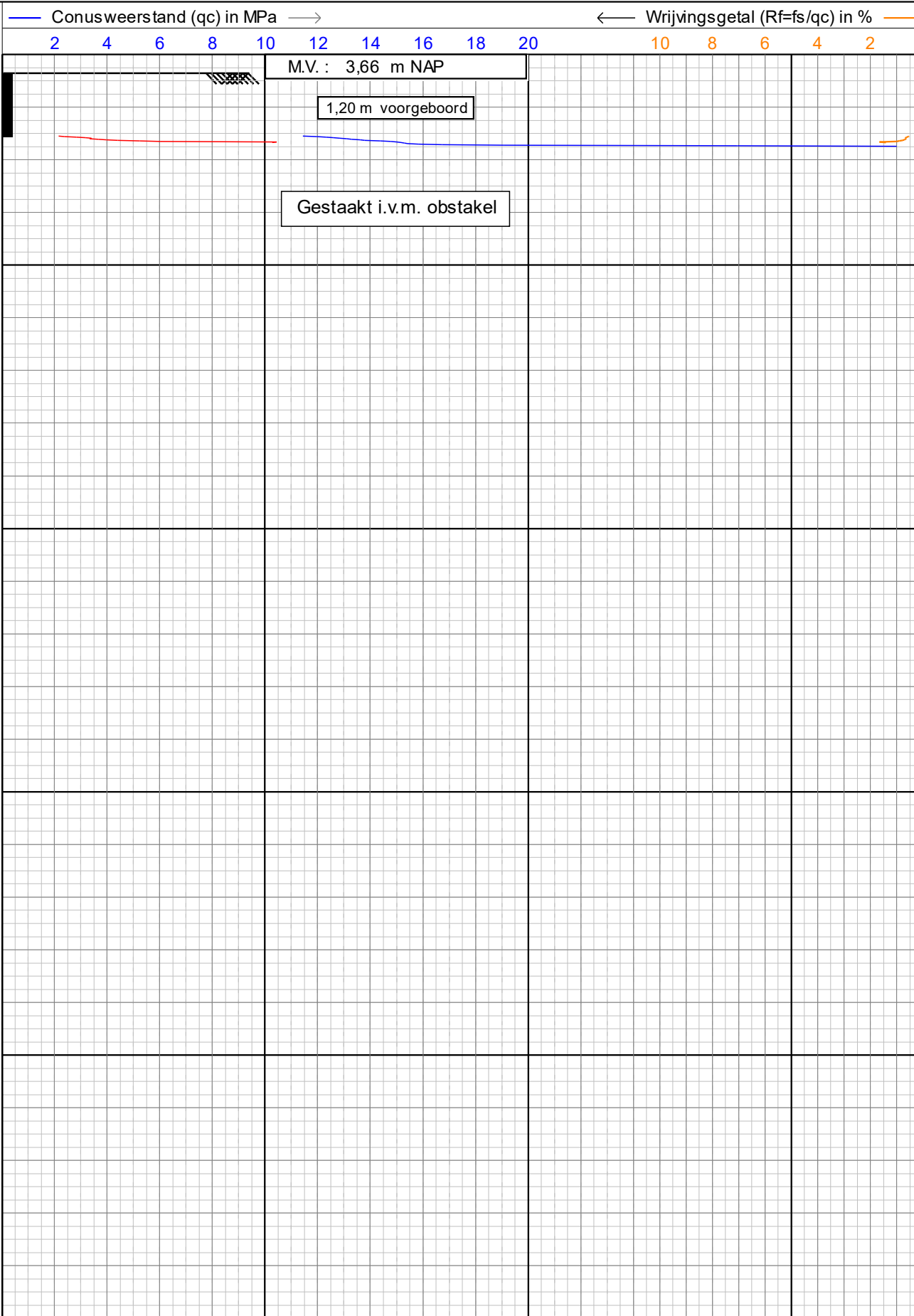








← Diepte in m ten opzichte van referentieniveau (NAP) gecorrigeerd voor hellingsafwijking



Alphen a/d Rijn
Breda

sondering volgens NEN-EN-ISO22476-1

Project : **NIEUWBOUW OPHEMERTSTRAAT**

Locatie : **ROTTERDAM**

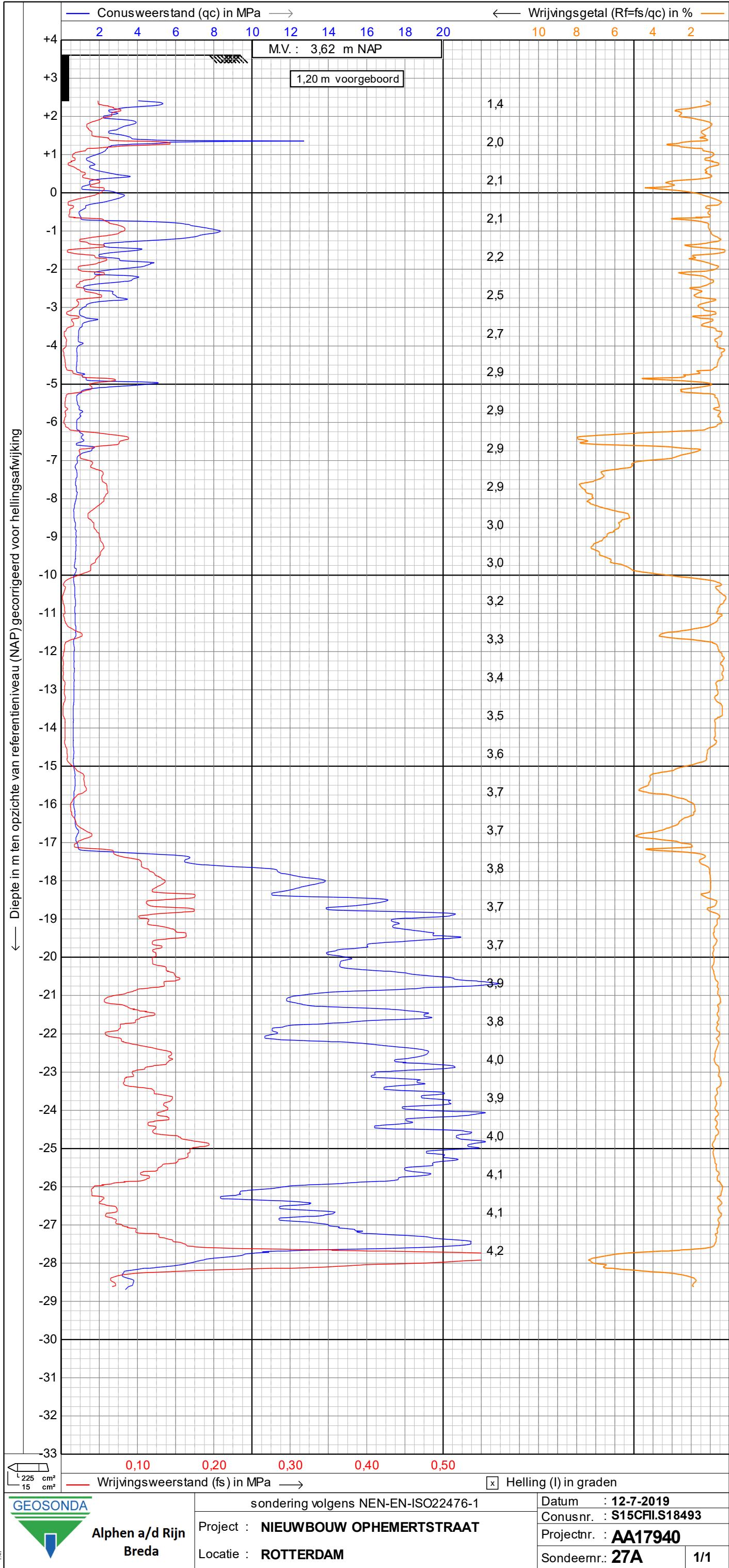
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Conusnr. : **S15CFIL.S18493**

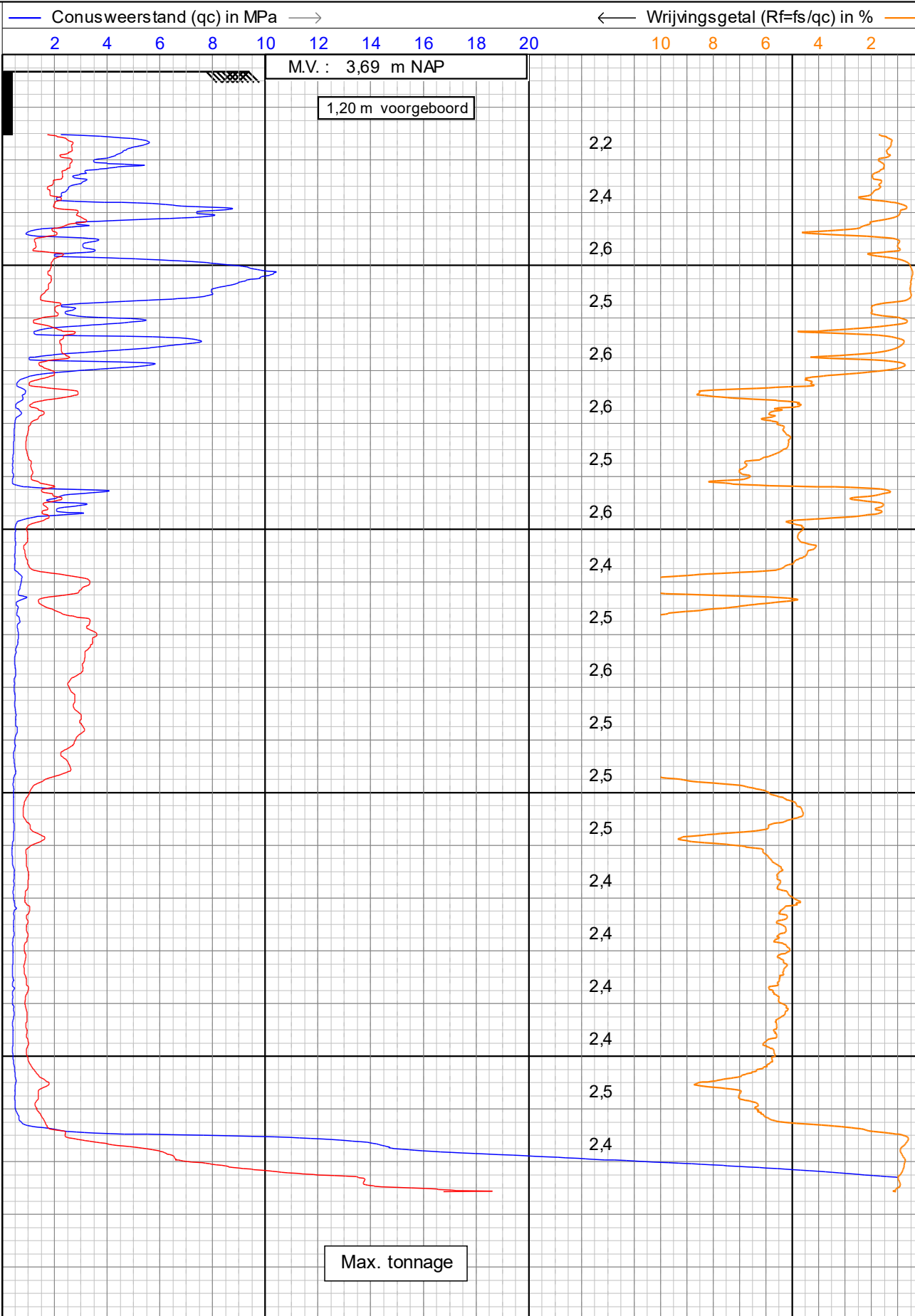
Projectnr. : **AA17940**

Sondeernr.: **27**

1/1



← Diepte in m ten opzichte van referentieniveau (NAP) gecorrigeerd voor hellingsafwijking



GEOSONDA

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Breda

sondering volgens NEN-EN-ISO22476-1

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Locatie : **ROTTERDAM**

Datum : **11-7-2019**

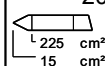
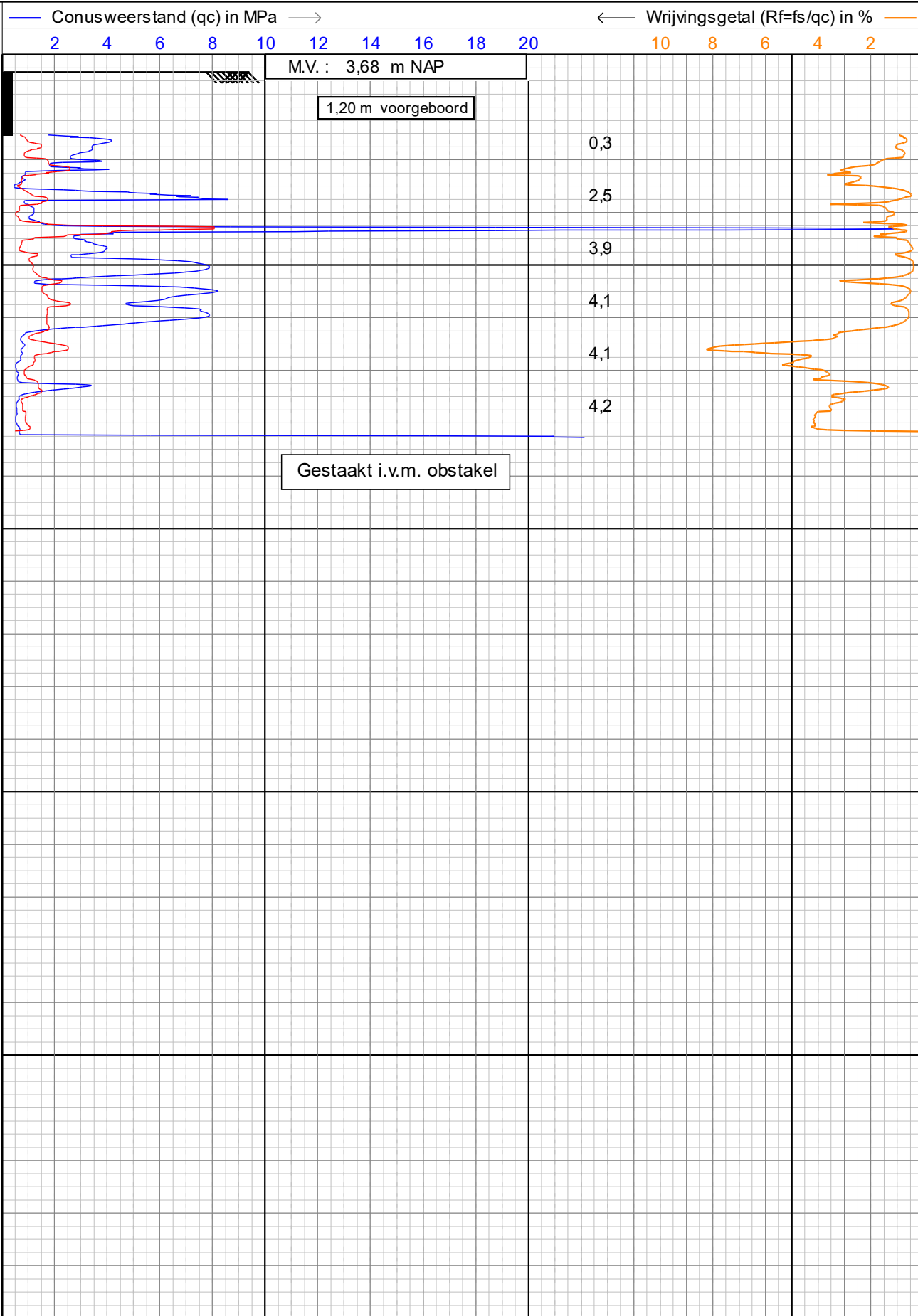
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Projectnr. : **AA17940**

Sondeernr. : **28**

1/1

← Diepte in m ten opzichte van referentieniveau (NAP) gecorrigeerd voor hellingsafwijking



0,10 0,20 0,30 0,40 0,50

— Wrijvingsweerstand (fs) in MPa —→

☒ Helling (I) in graden



Alphen a/d Rijn
Breda

sondering volgens NEN-EN-ISO22476-1

Project : **NIEUWBOUW OPHEMERTSTRAAT**

Locatie : **ROTTERDAM**

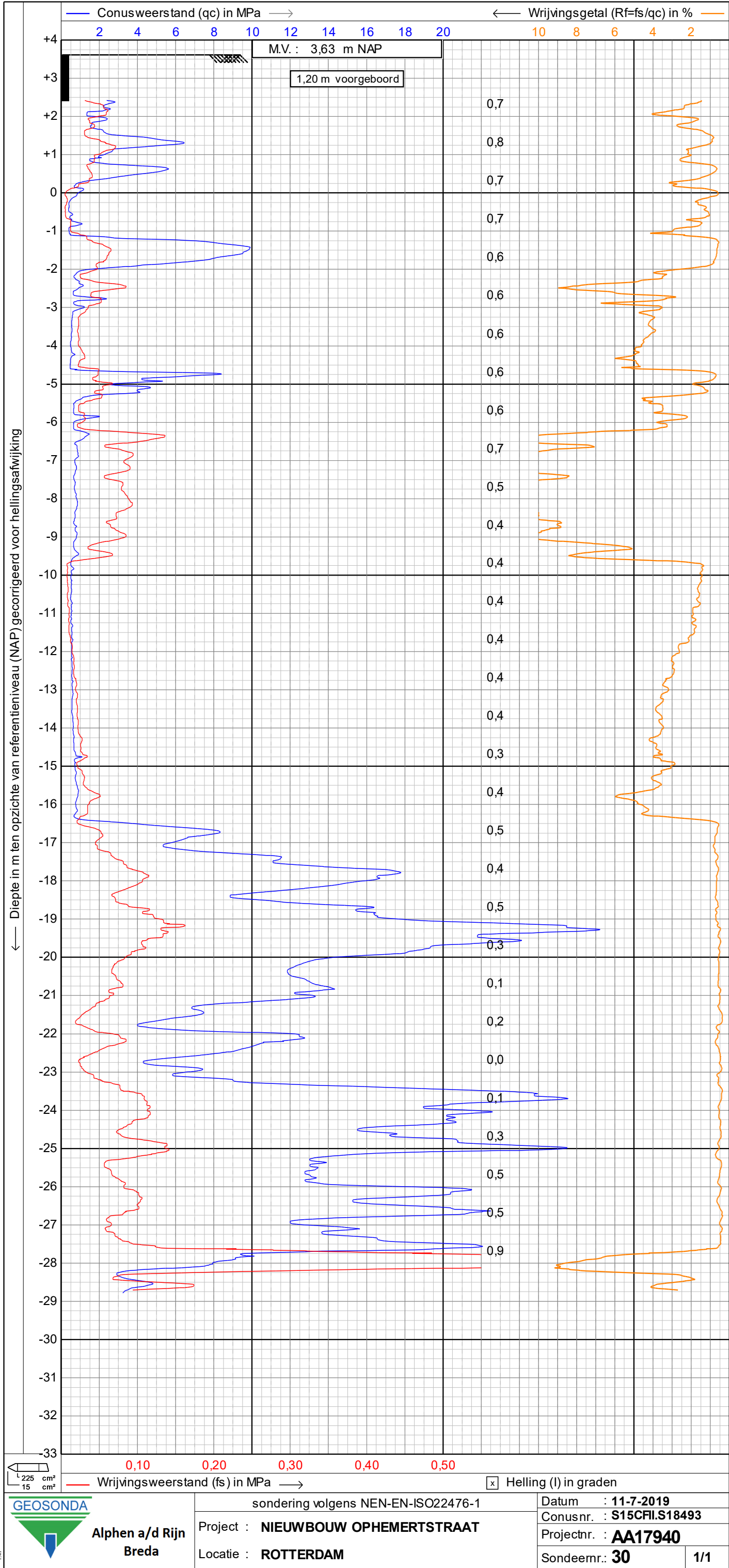
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Conusnr. : **S15CFIL.S18493**

Projectnr. : **AA17940**

Sondeernr.: **29**

1/1



← Diepte in m ten opzichte van referentieniveau (NAP) gecorrigeerd voor hellingsafwijking

— Conusweerstand (qc) in MPa →

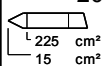
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

M.V. : 3,62 m NAP

0,45 m gekernd

0,7

gestaakt i.v.m. obstakel



☒ Helling (I) in graden



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Breda

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Project : **NIEUWBOUW OPHEMERTSTRAAT**

Locatie : **ROTTERDAM**

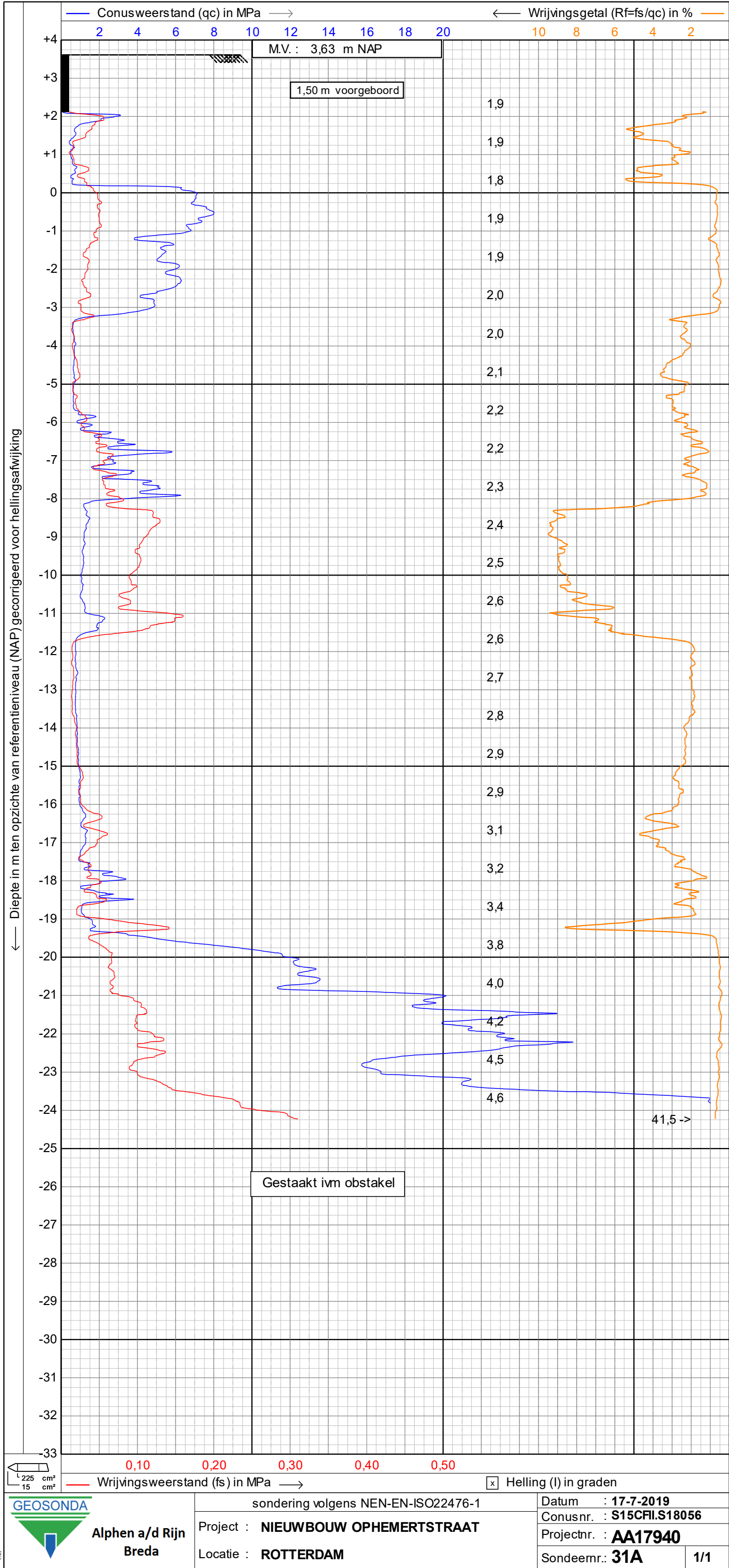
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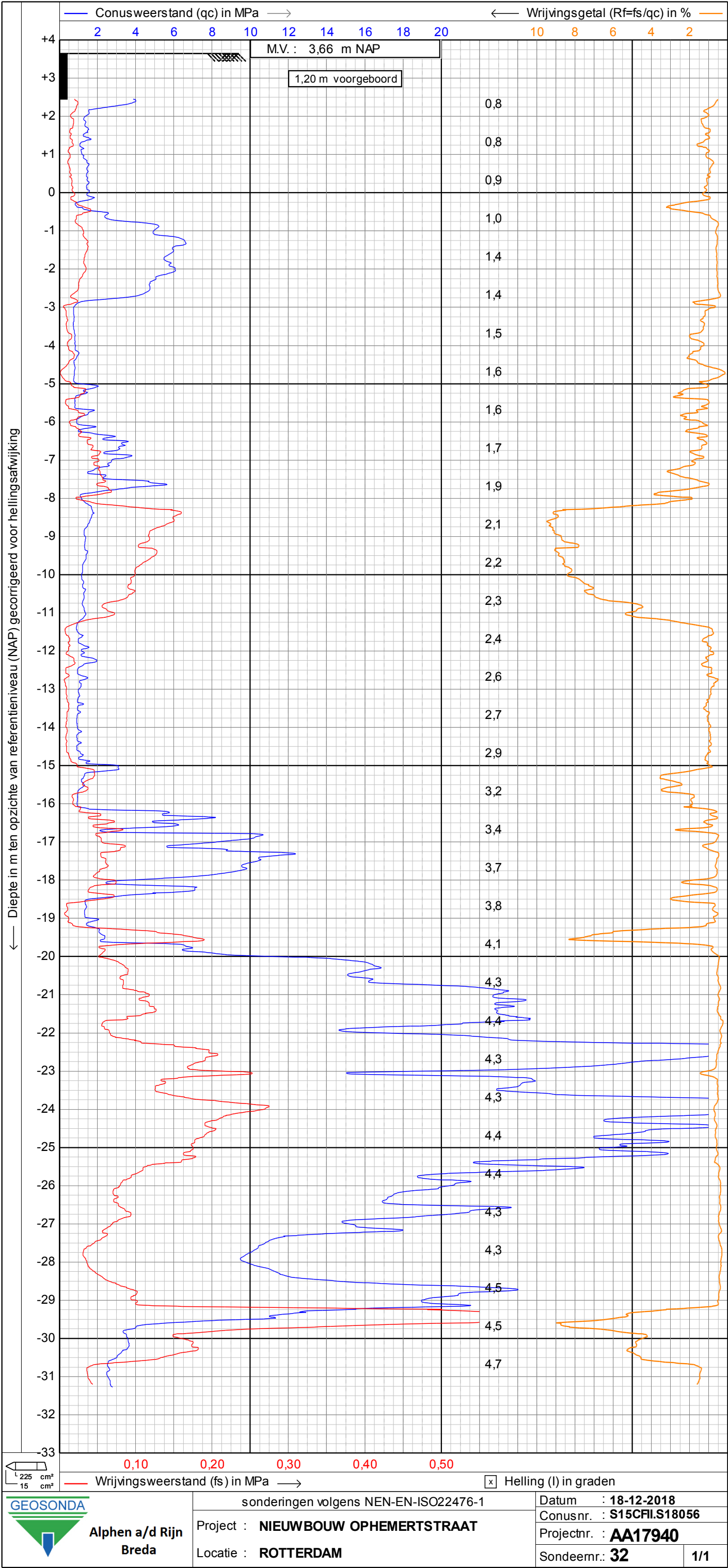
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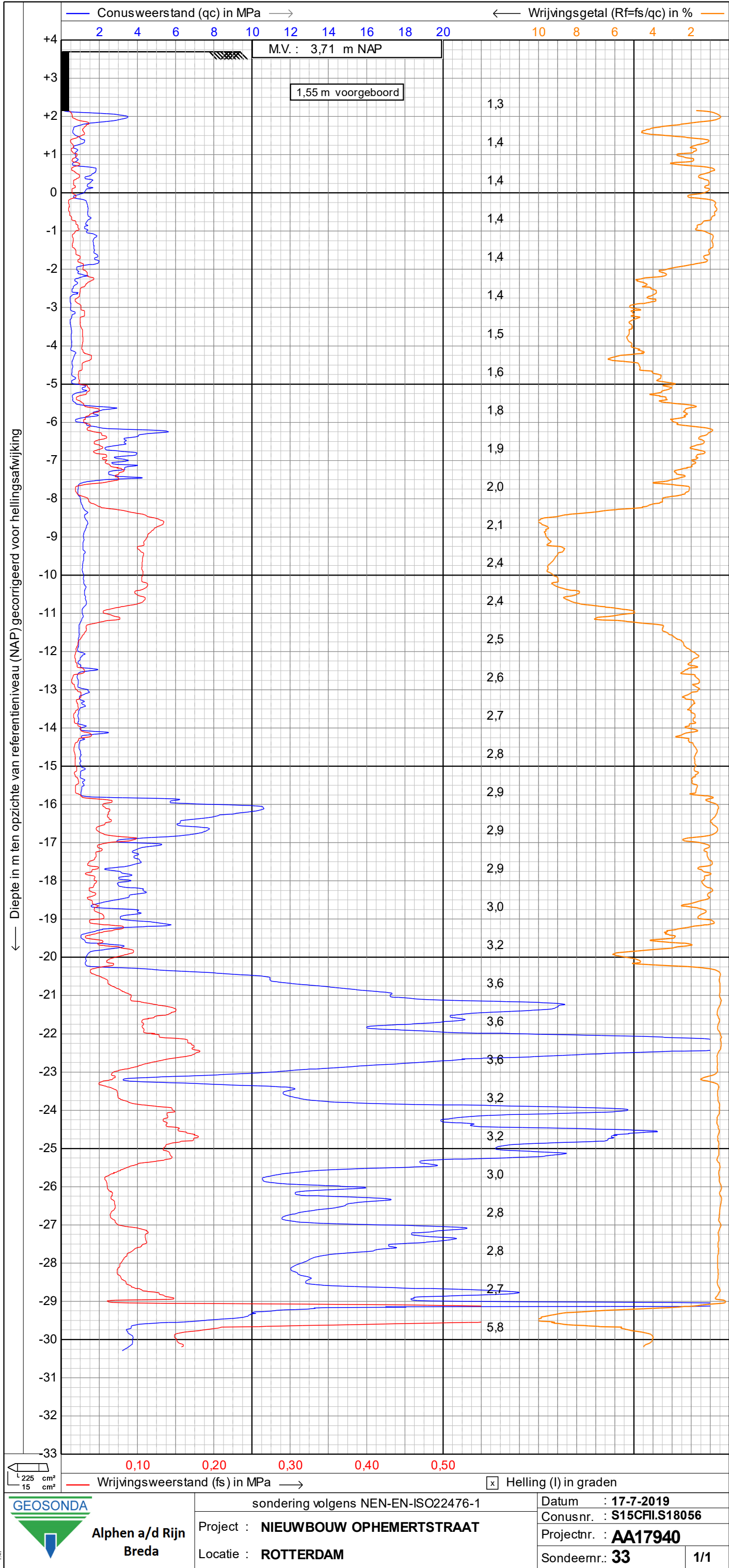
Projectnr. : **AA17940**

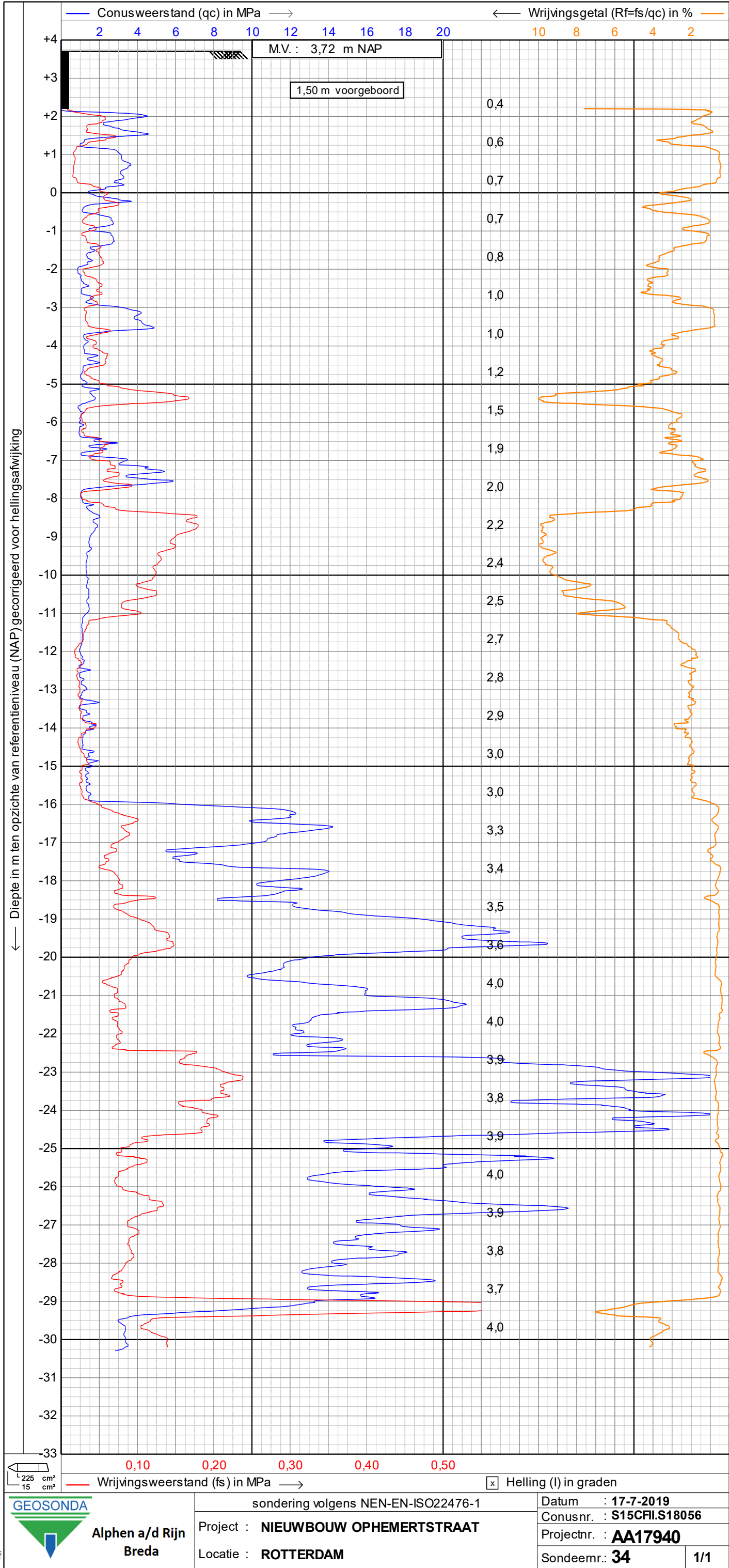
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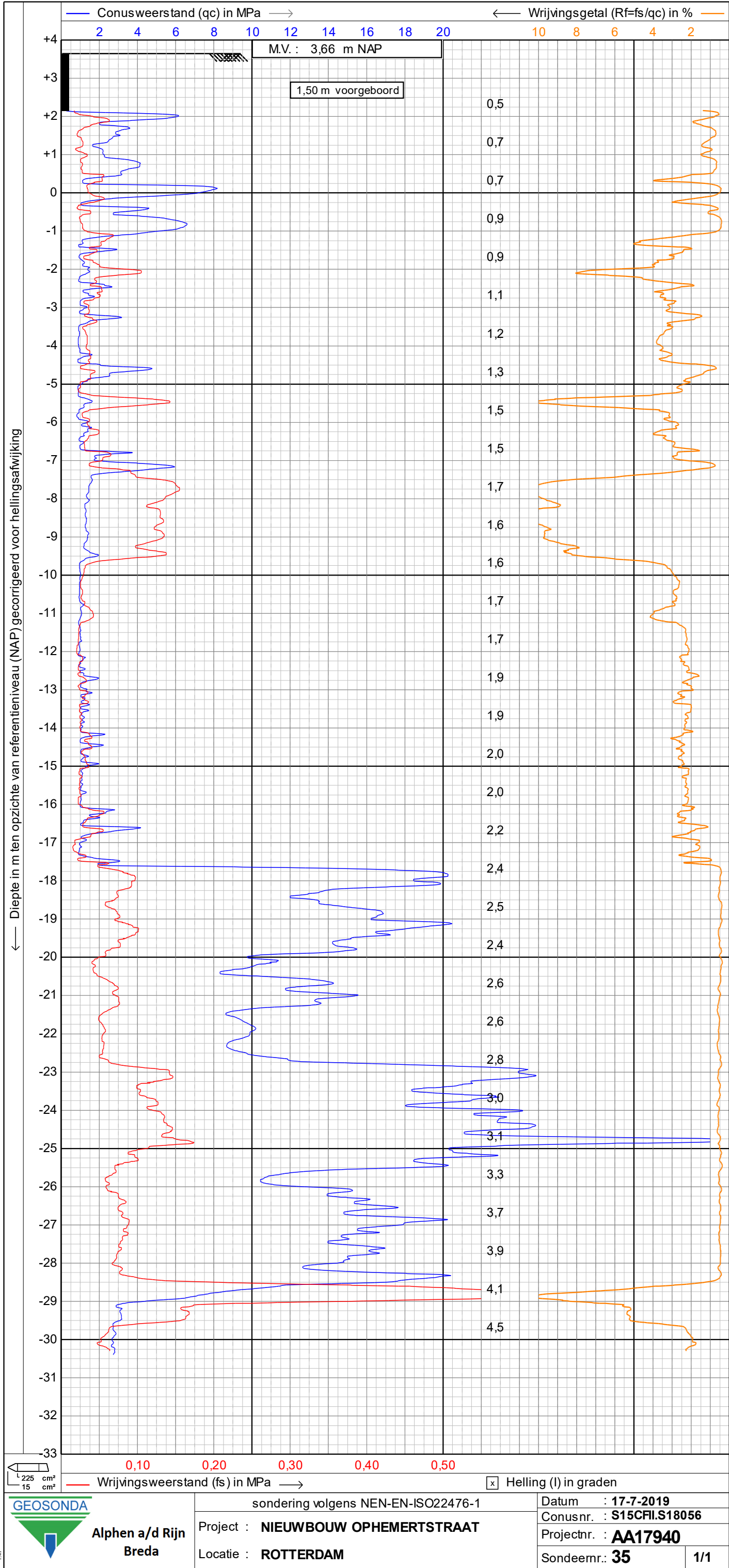
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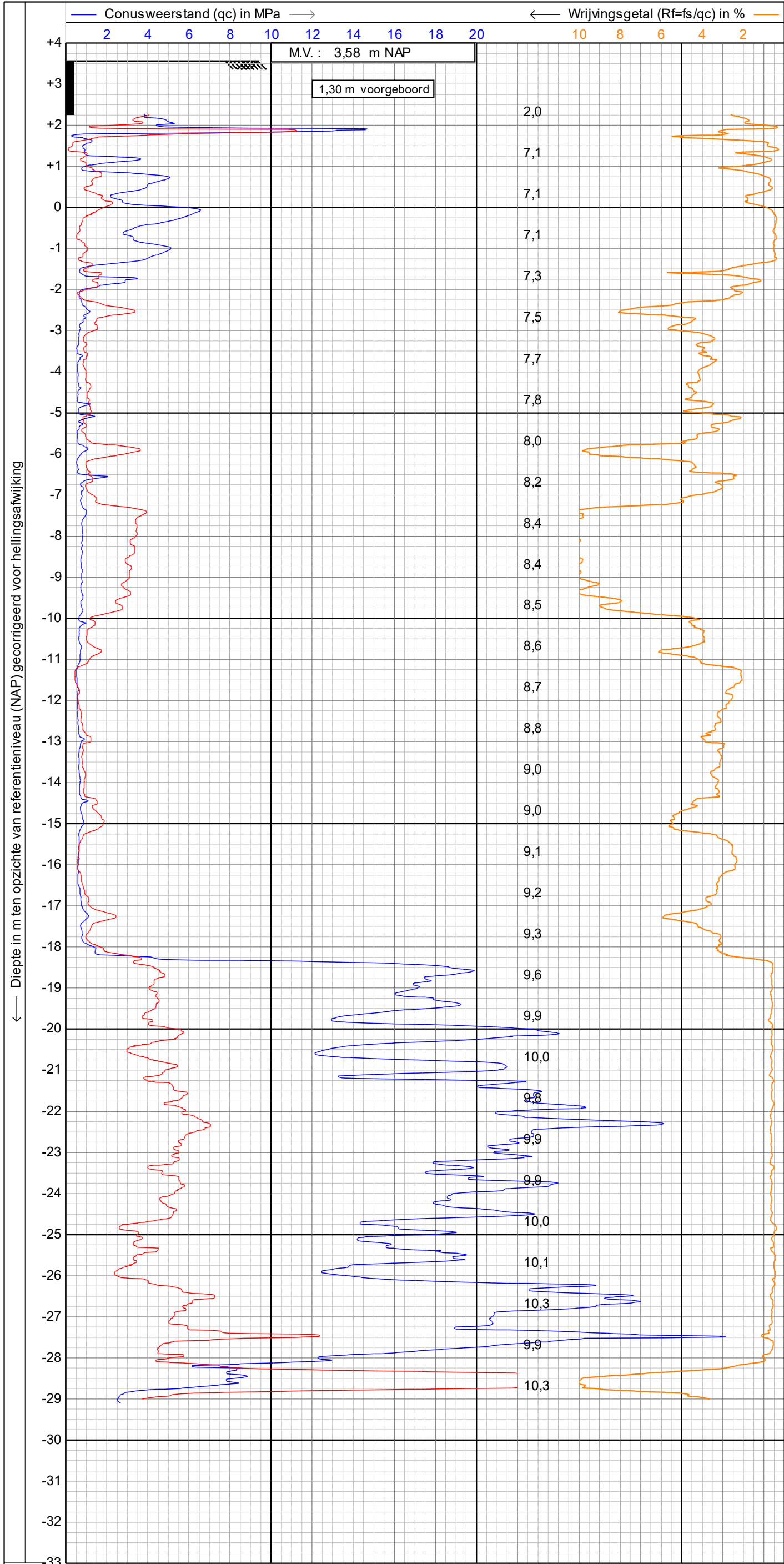


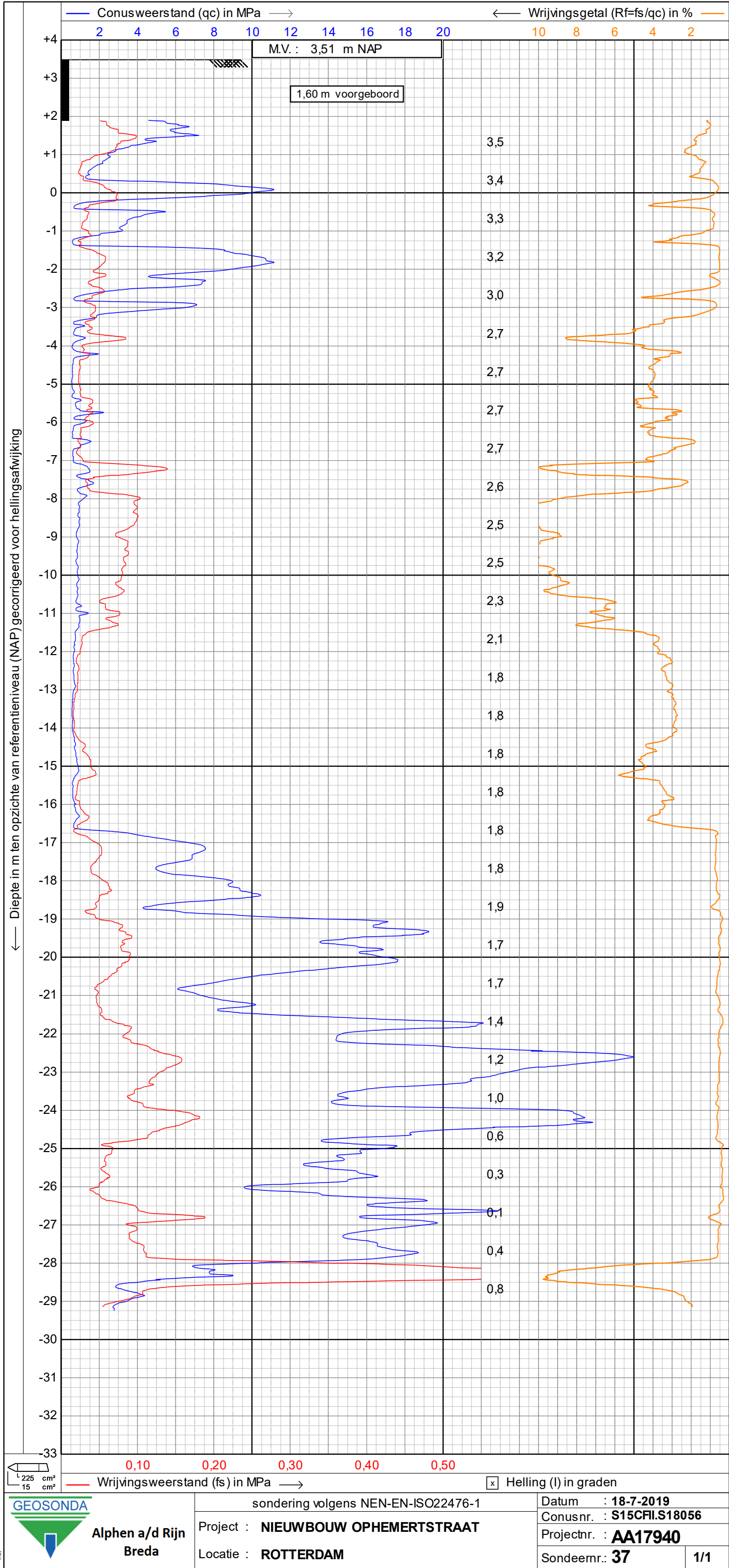


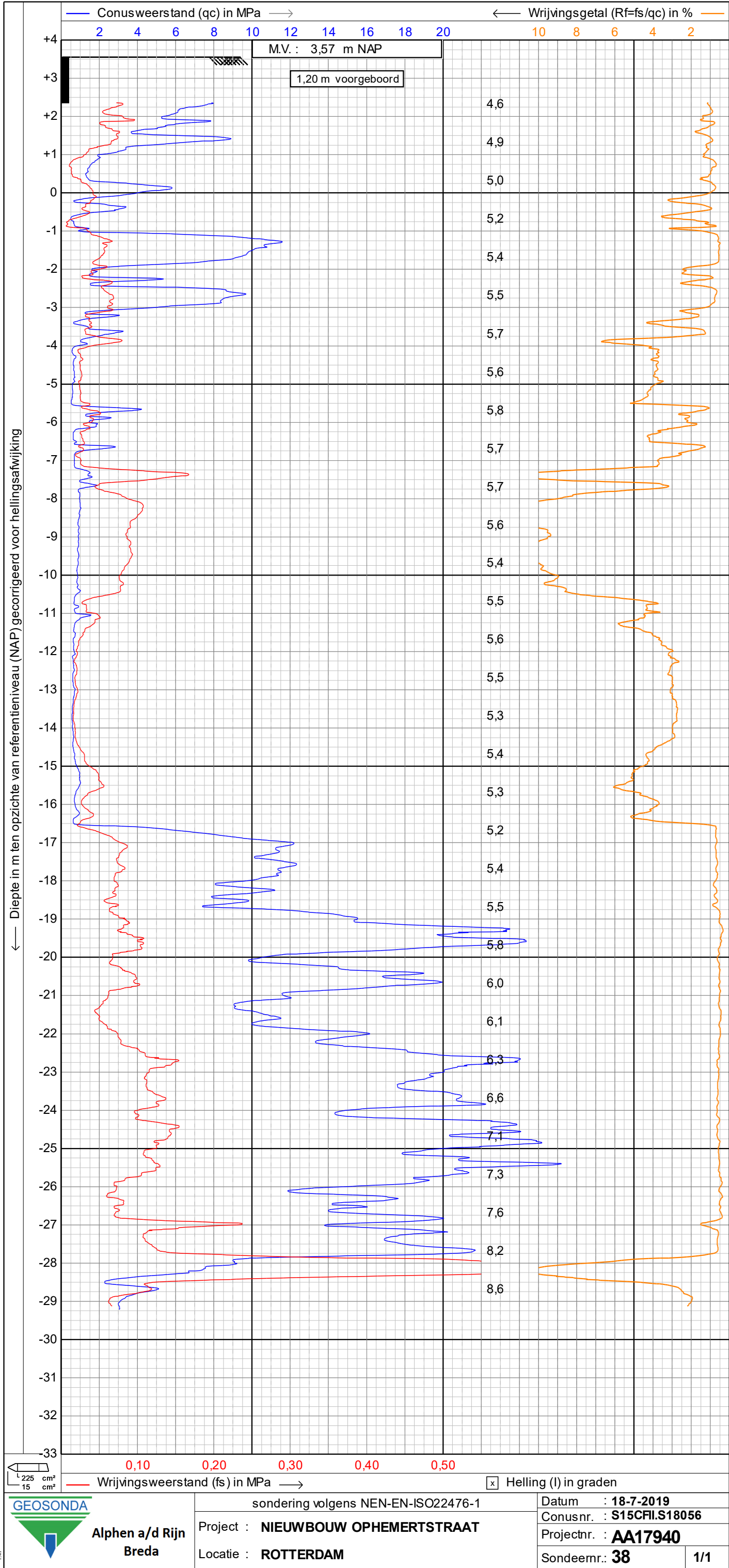


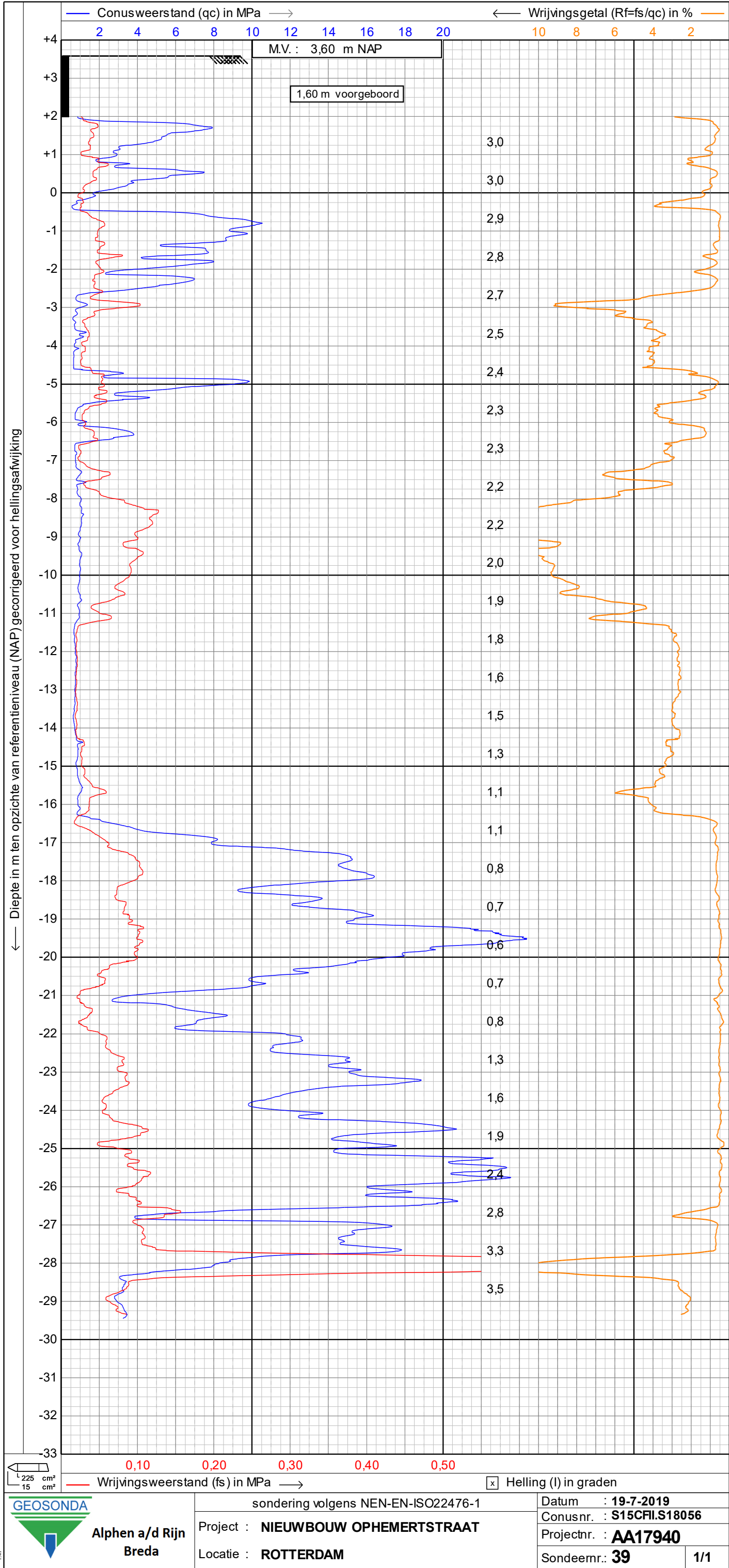


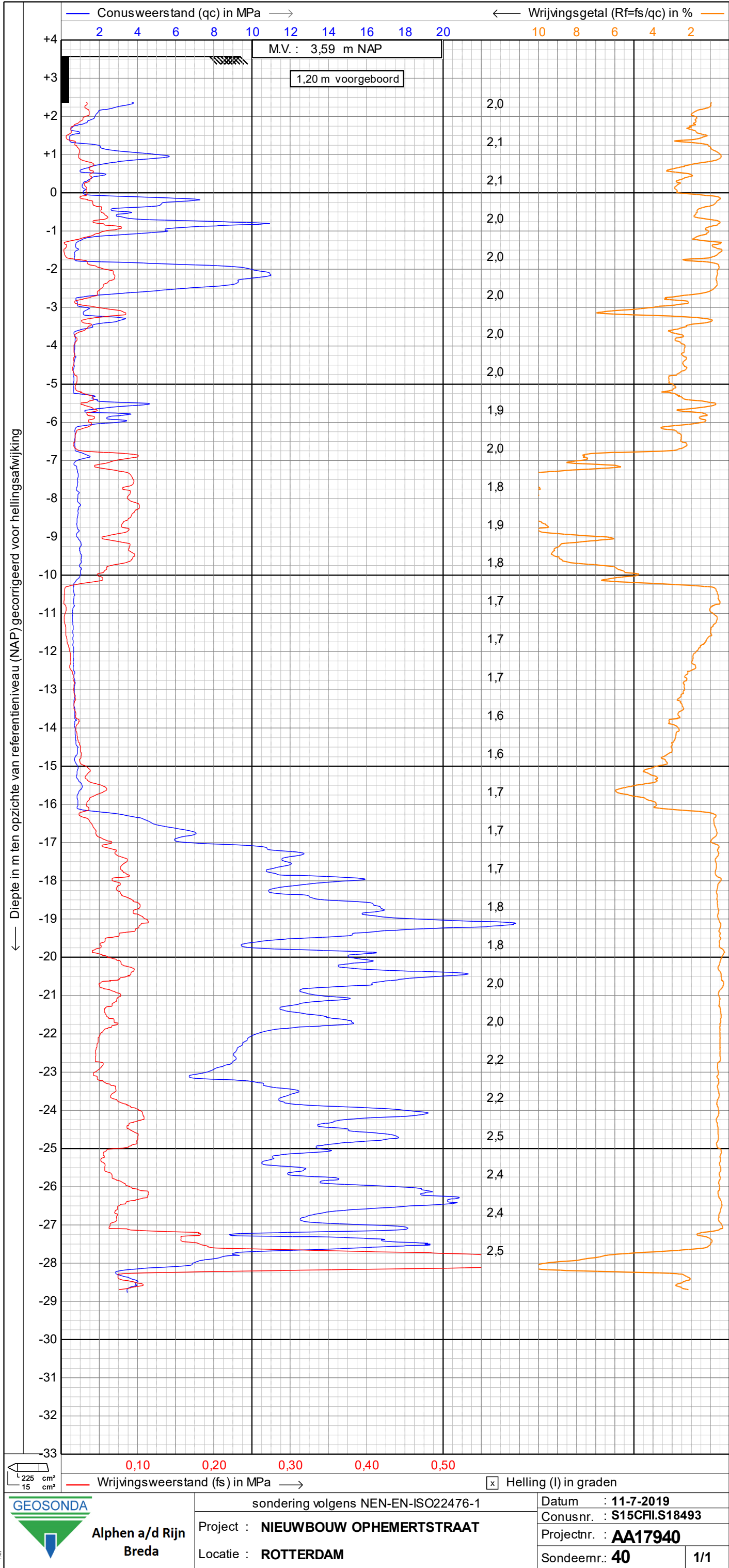


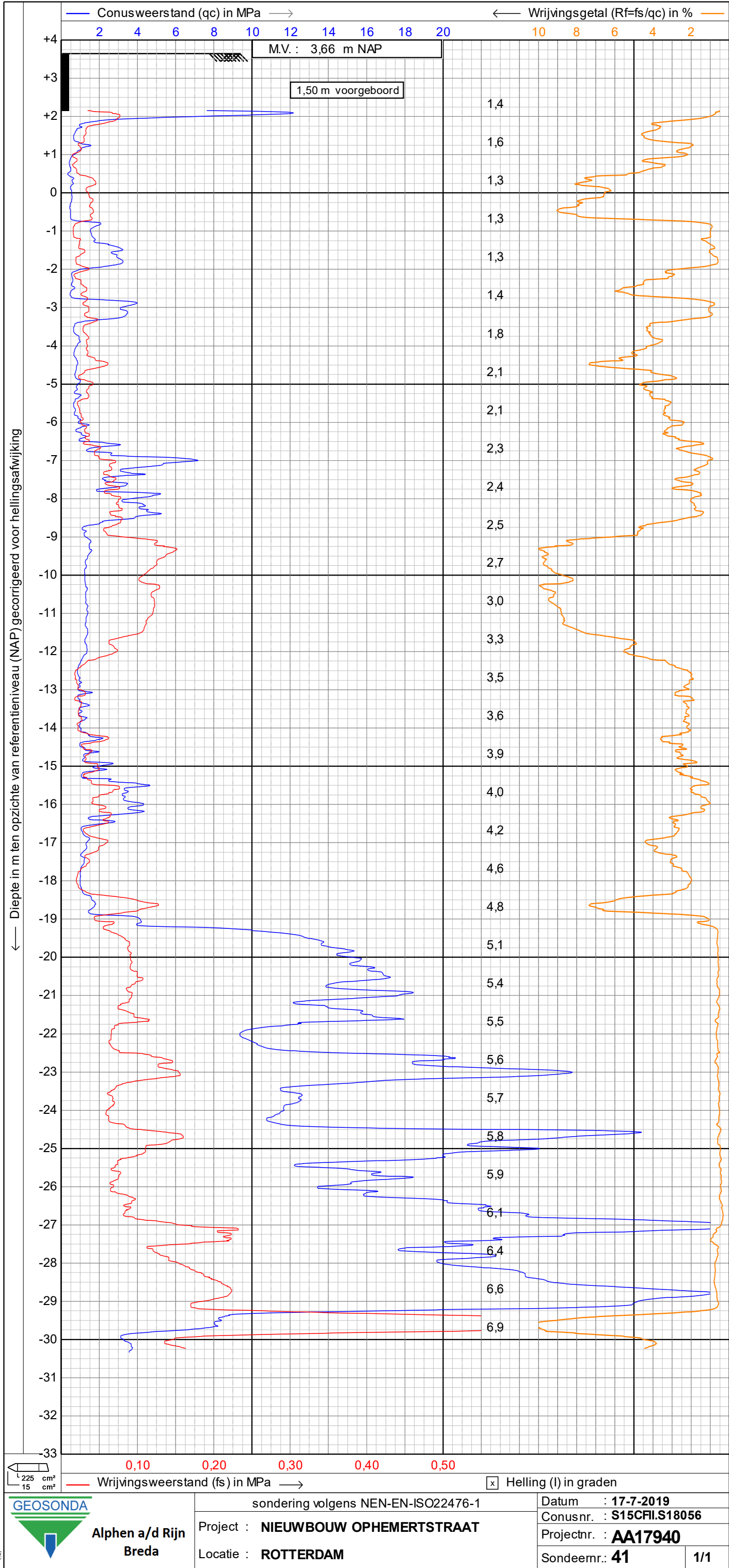


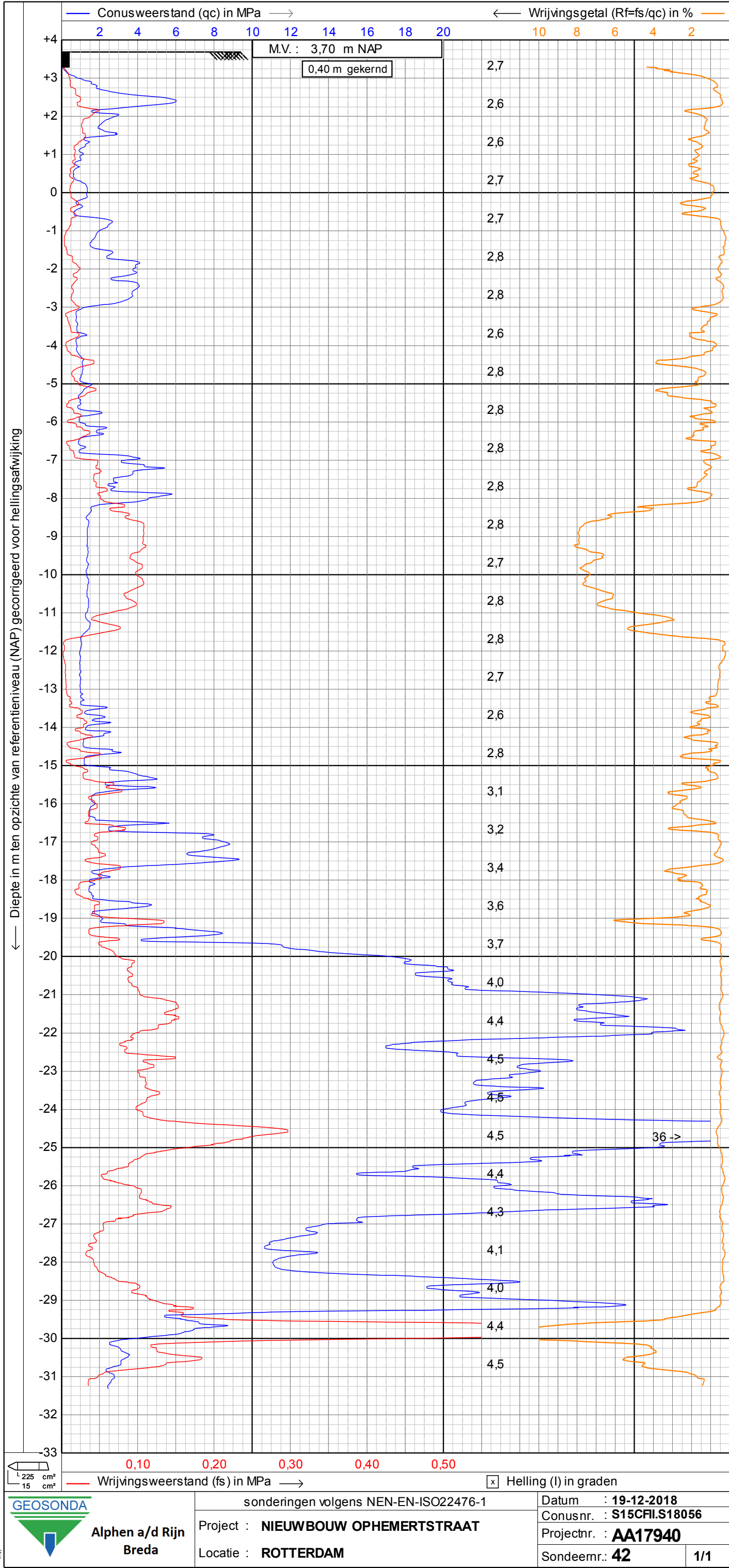


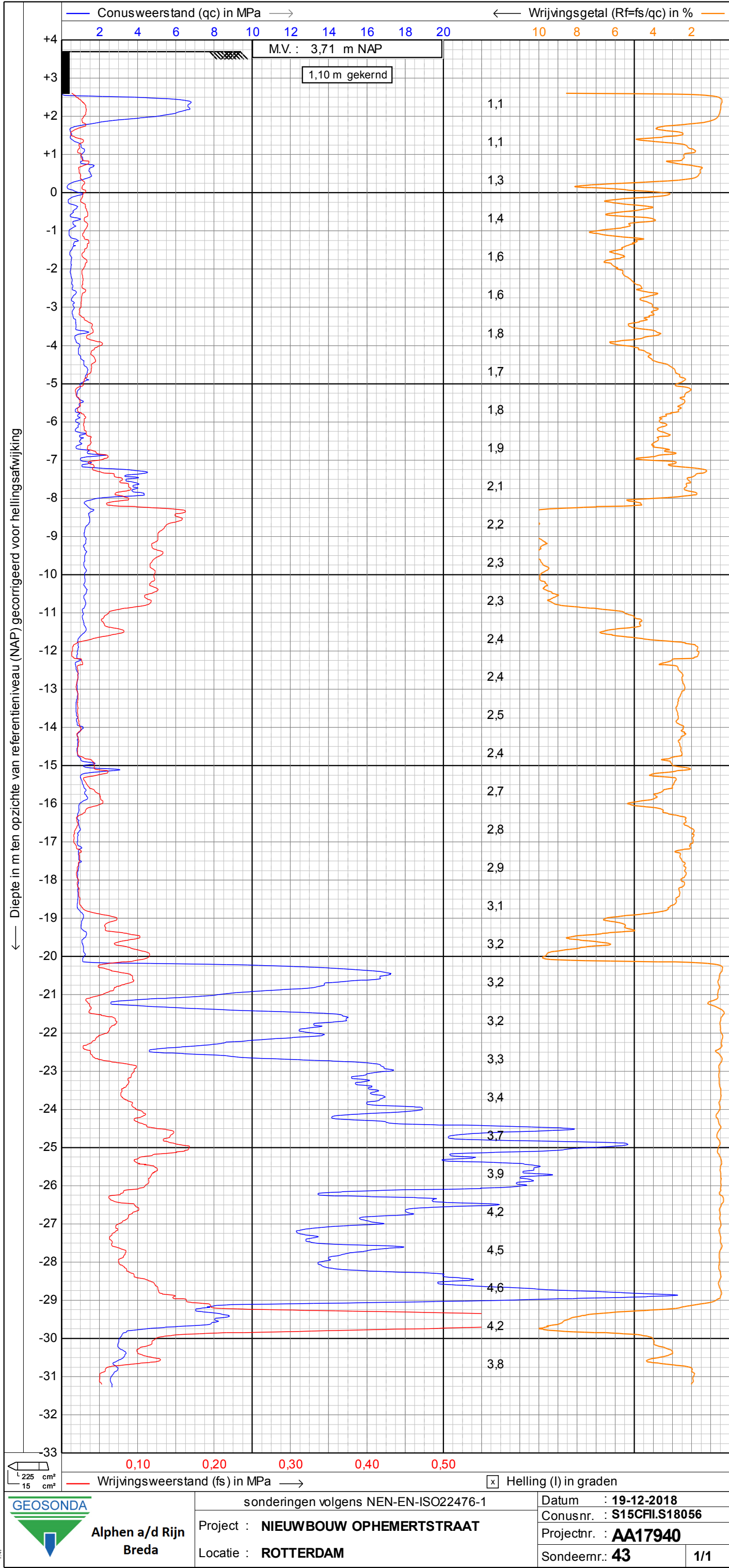


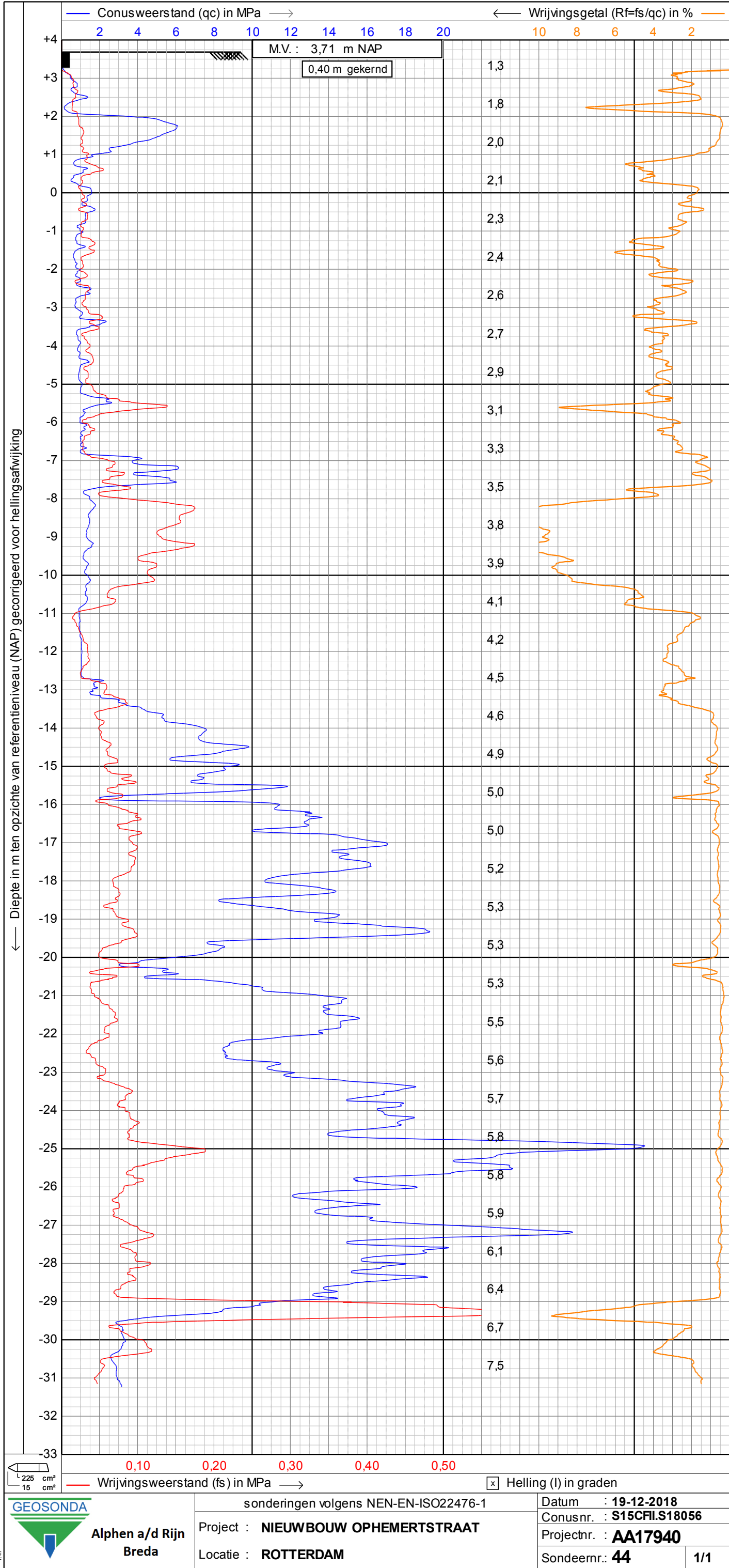


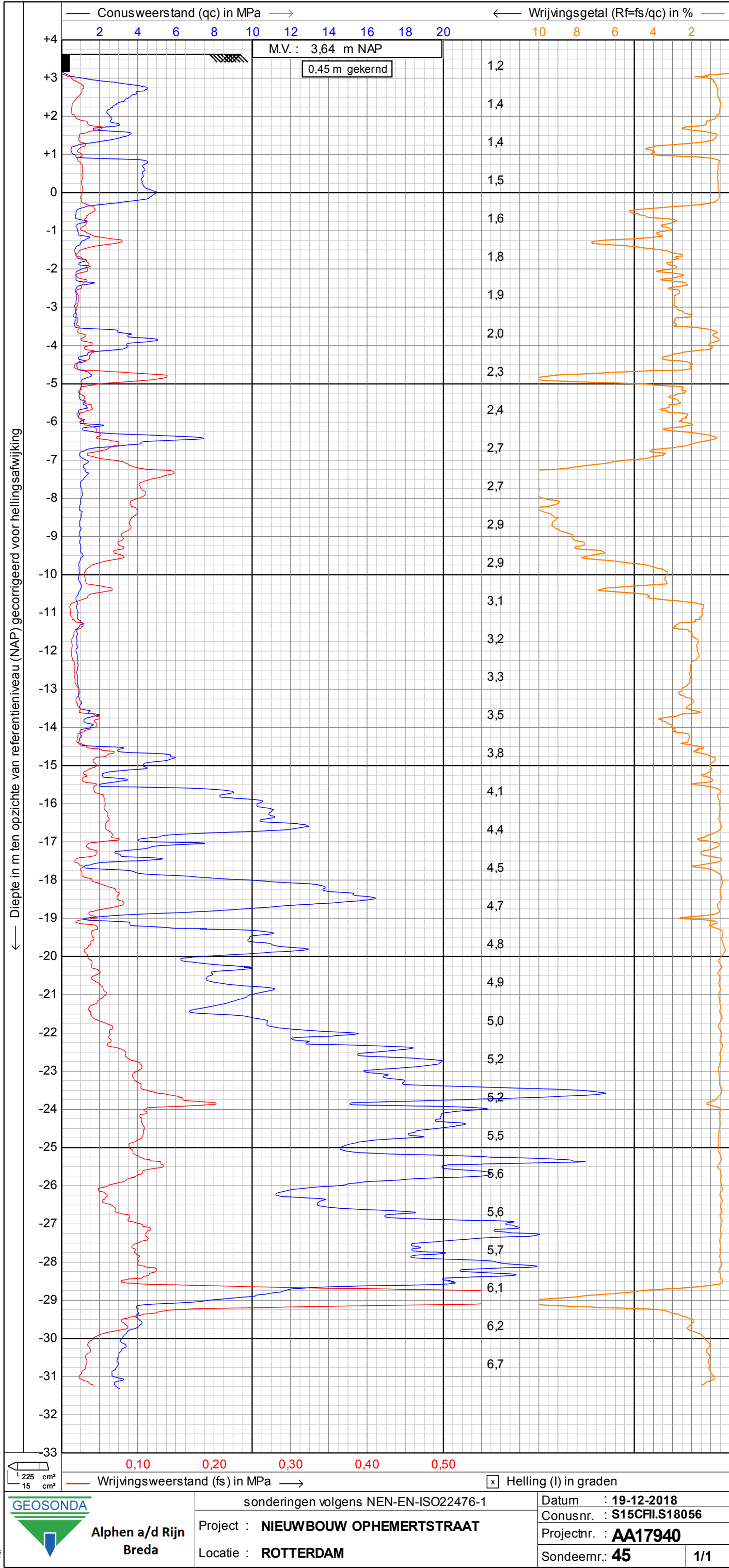


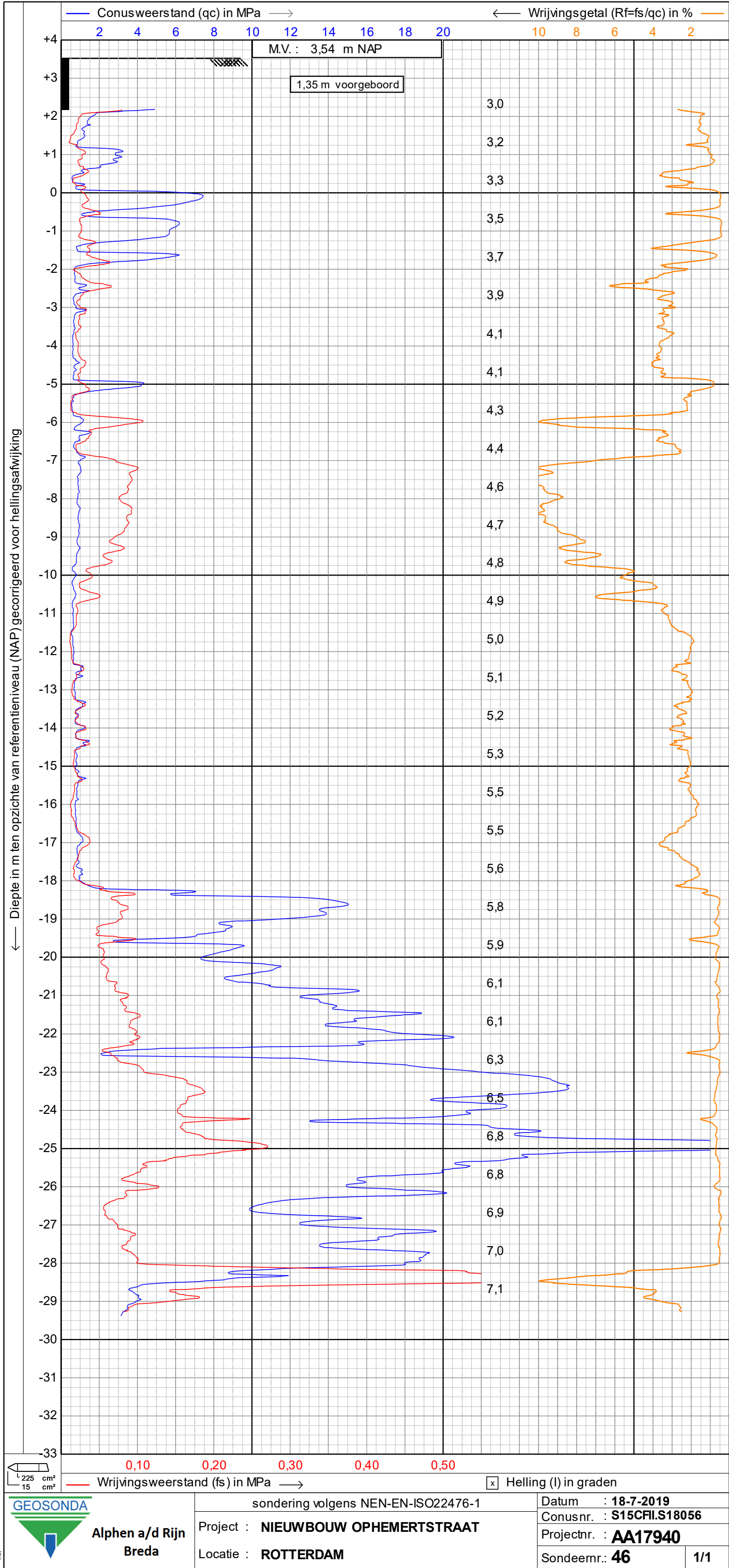


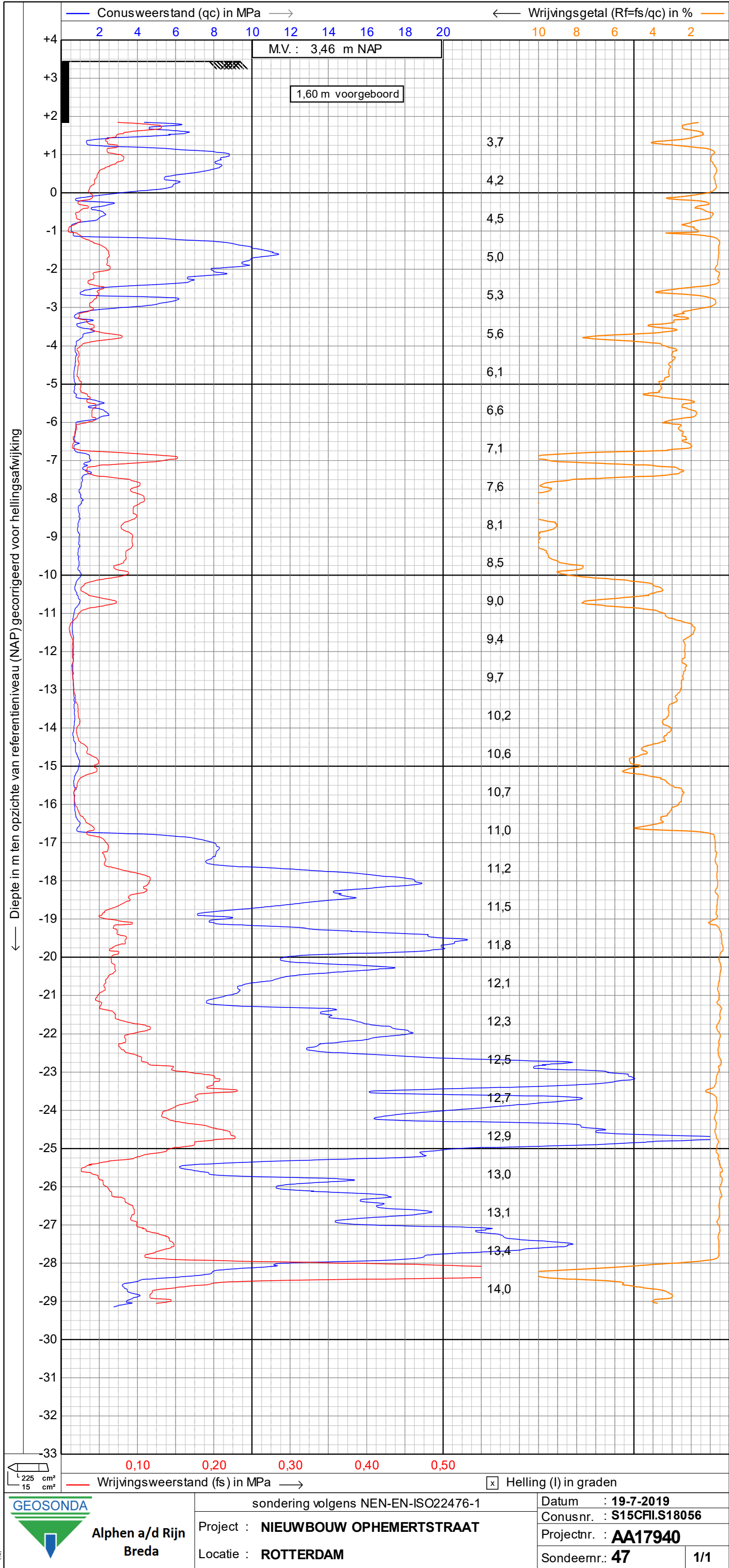


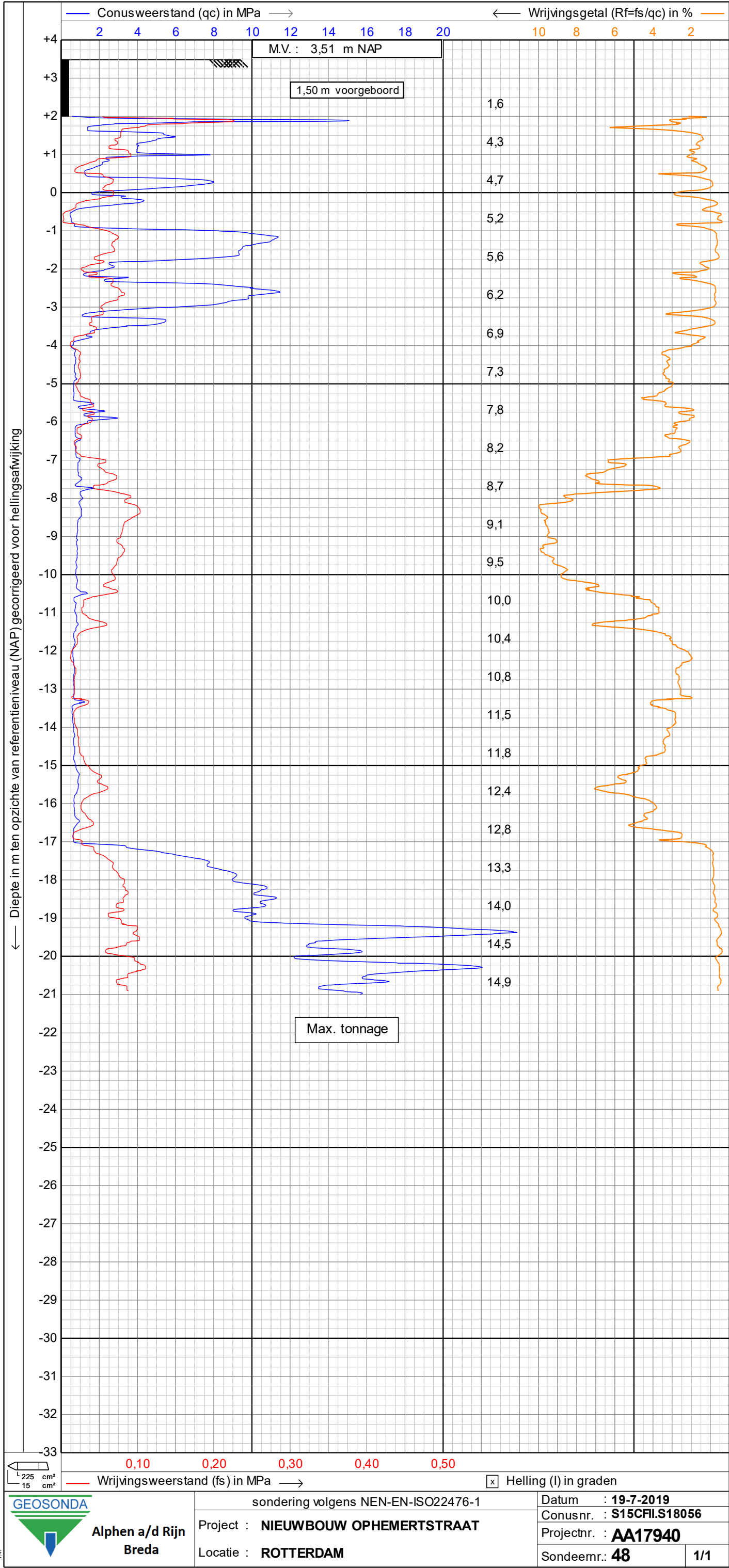












← Diepte in m ten opzichte van referentieniveau (NAP) gecorrigeerd voor hellingsafwijking

— Conusweerstand (qc) in MPa —→ ← Wrijvingsgetal (Rf=fs/qc) in % —

2 4 6 8 10 12 14 16 18 20

10 8 6 4 2

M.V. : 3,55 m NAP

1,50 m voorgeboord

0,3

7,9

8,8

9,5

10,1

10,7

11,3

11,8

12,3

12,9

13,0

13,4

13,9

14,3

14,3

14,5

Max. tonnage

0,10

0,20

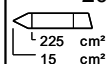
0,30

0,40

0,50

— Wrijvingsweerstand (fs) in MPa —→

☒ Helling (I) in graden



GEOSONDA

Alphen a/d Rijn
Breda

sondering volgens NEN-EN-ISO22476-1

Project : NIEUWBOUW OPHEMERTSTRAAT

Locatie : ROTTERDAM

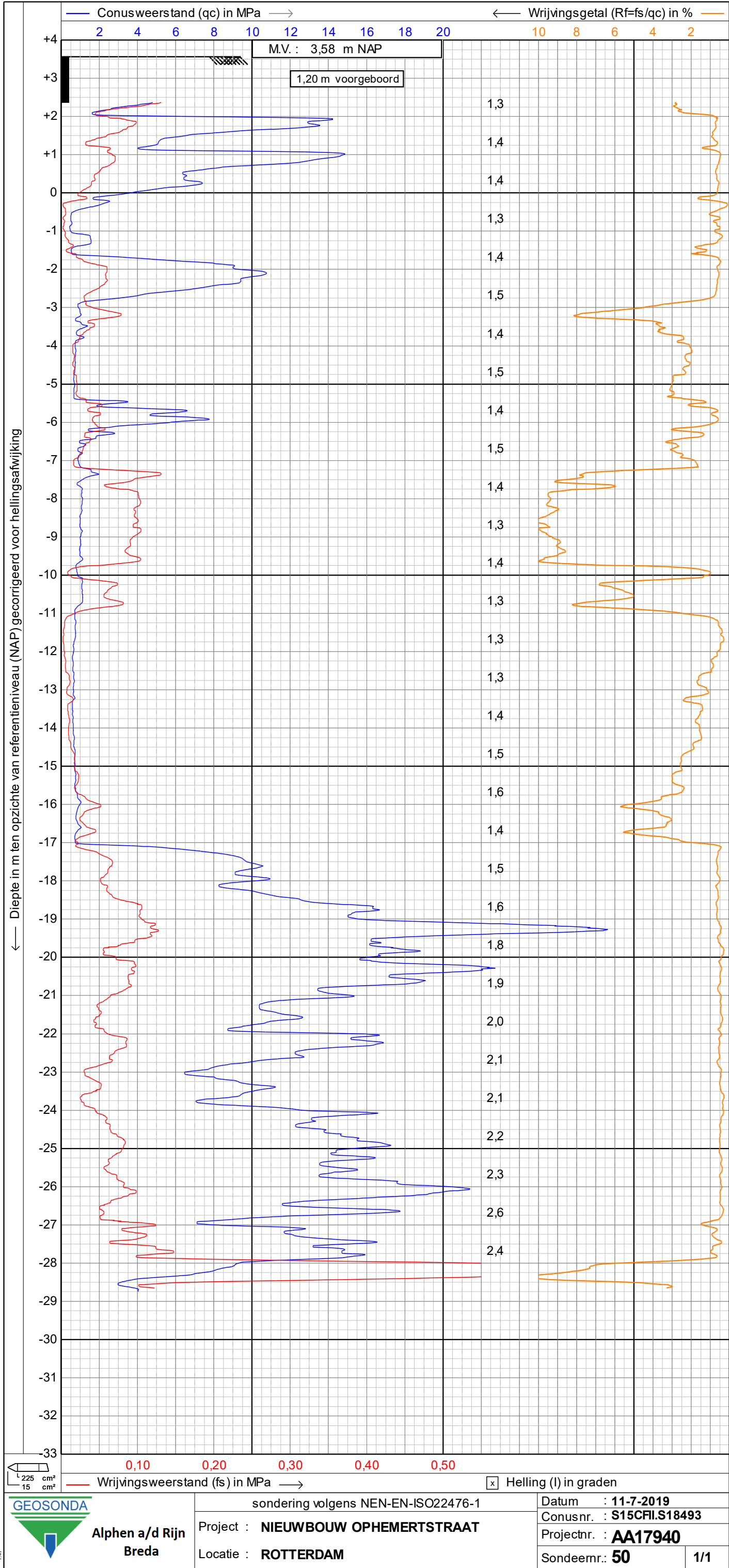
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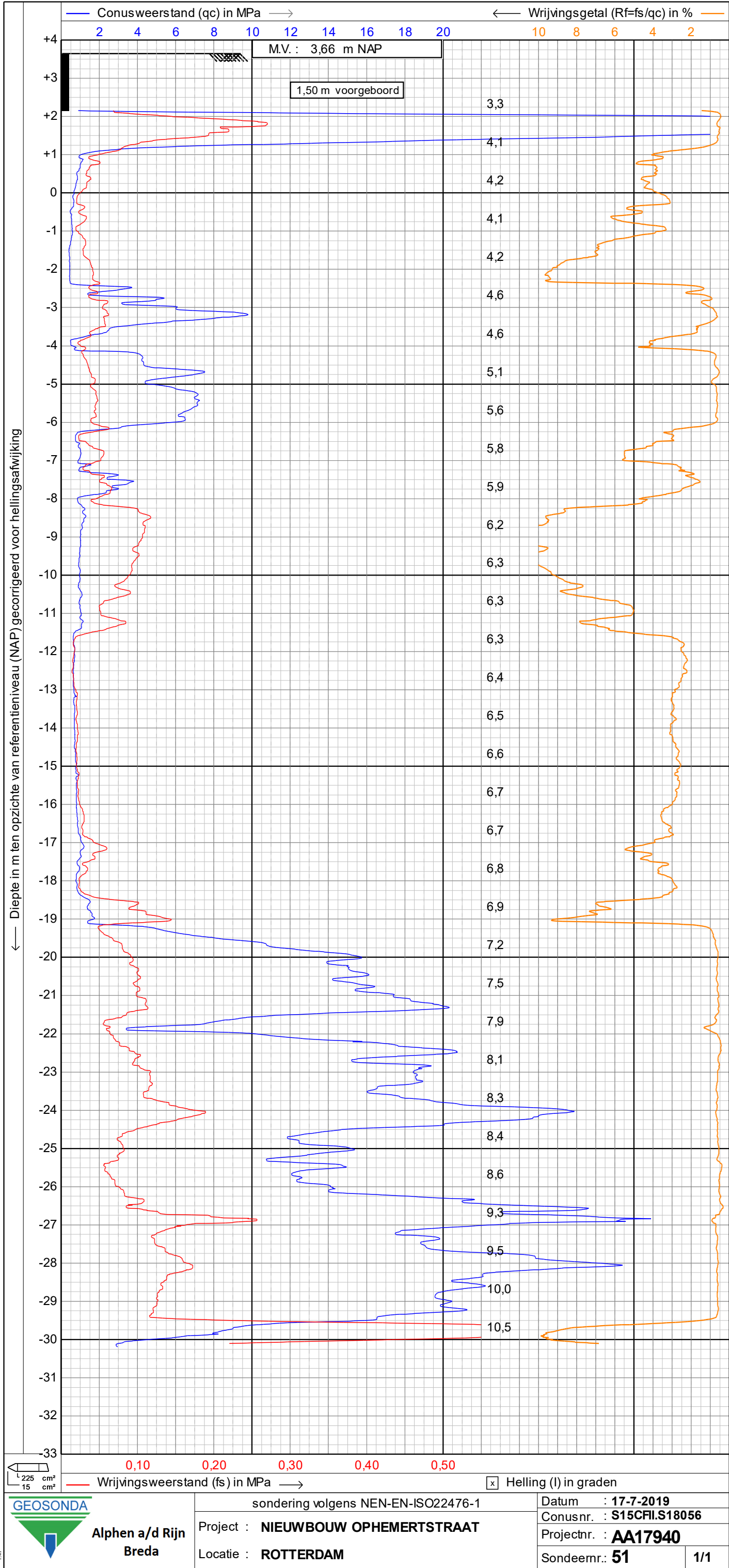
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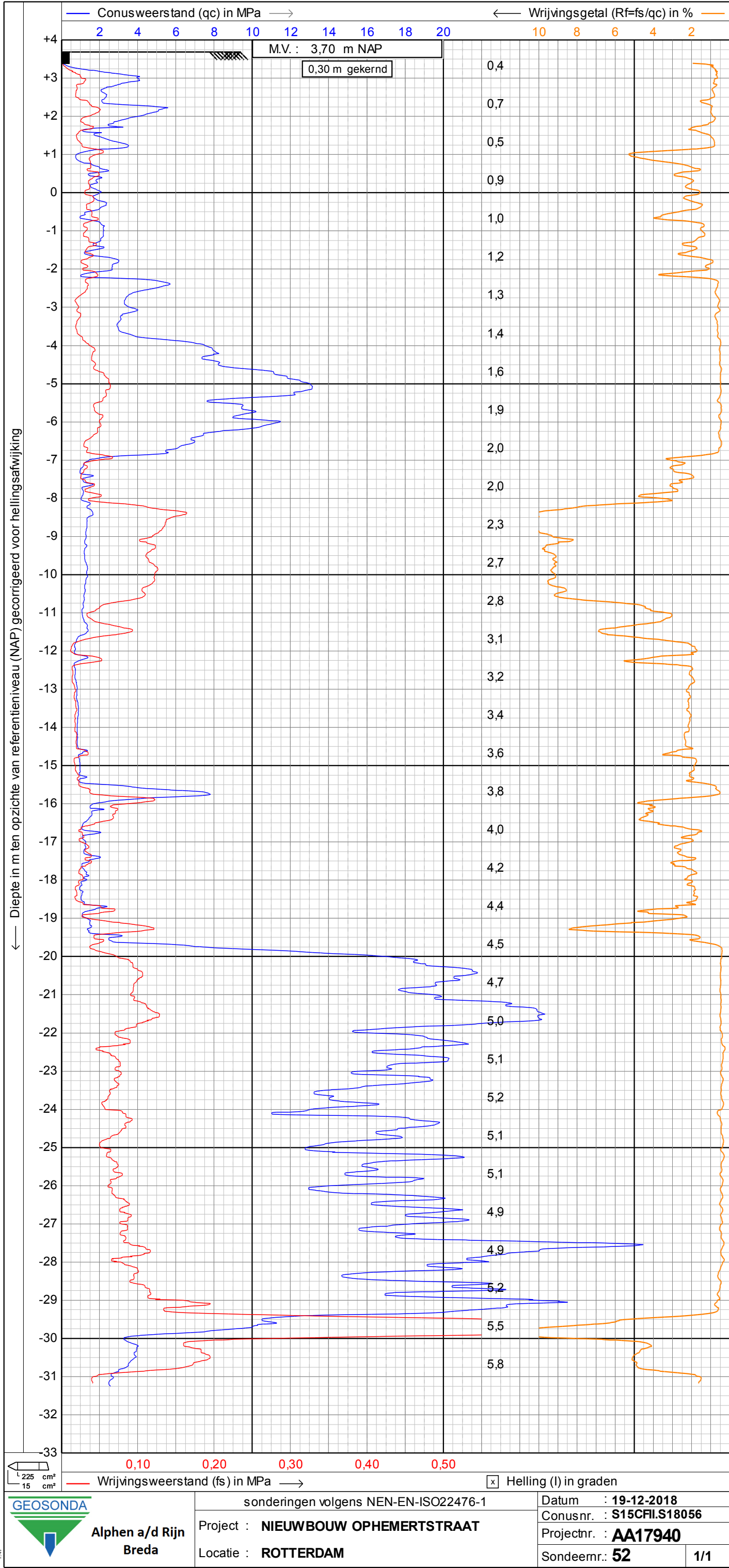
Projectnr. : AA17940

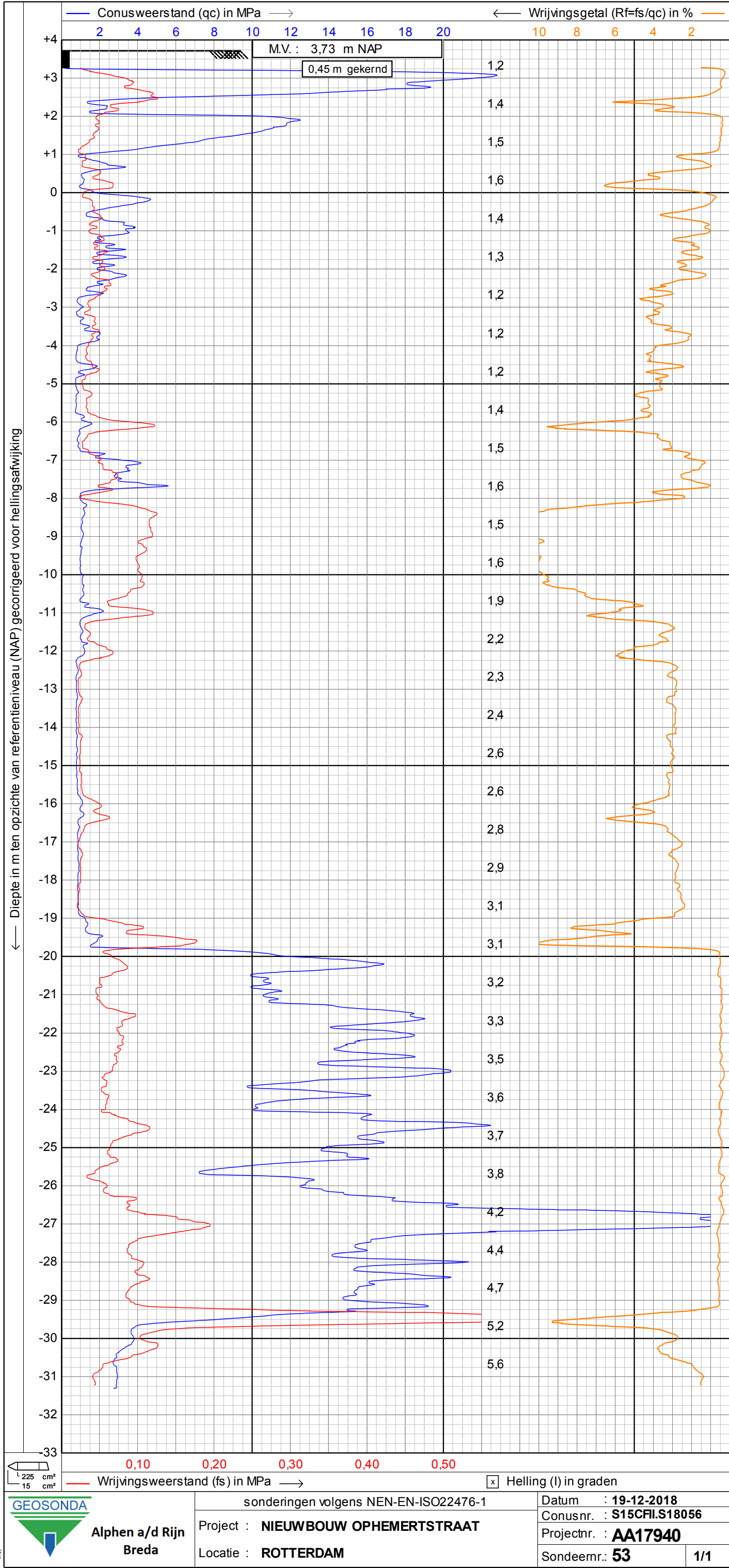
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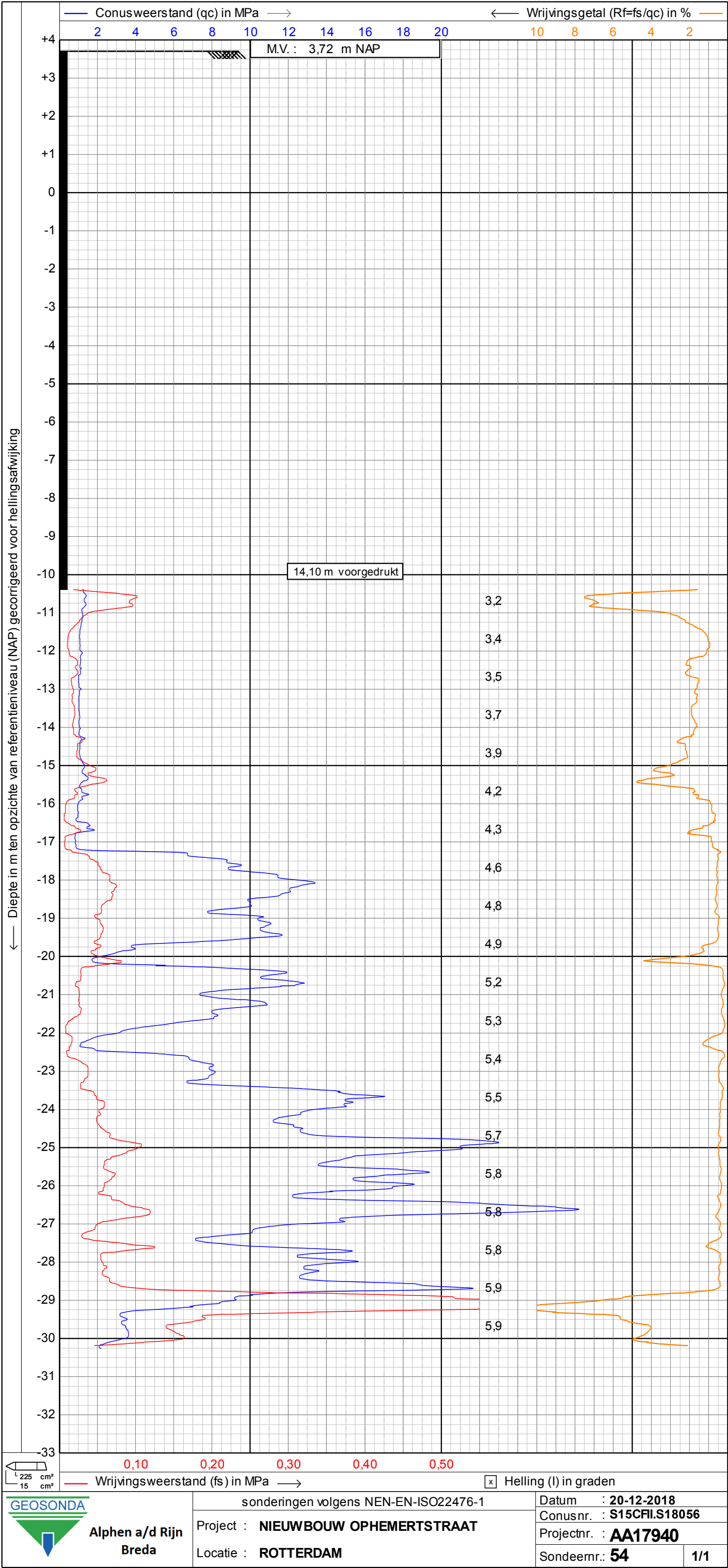
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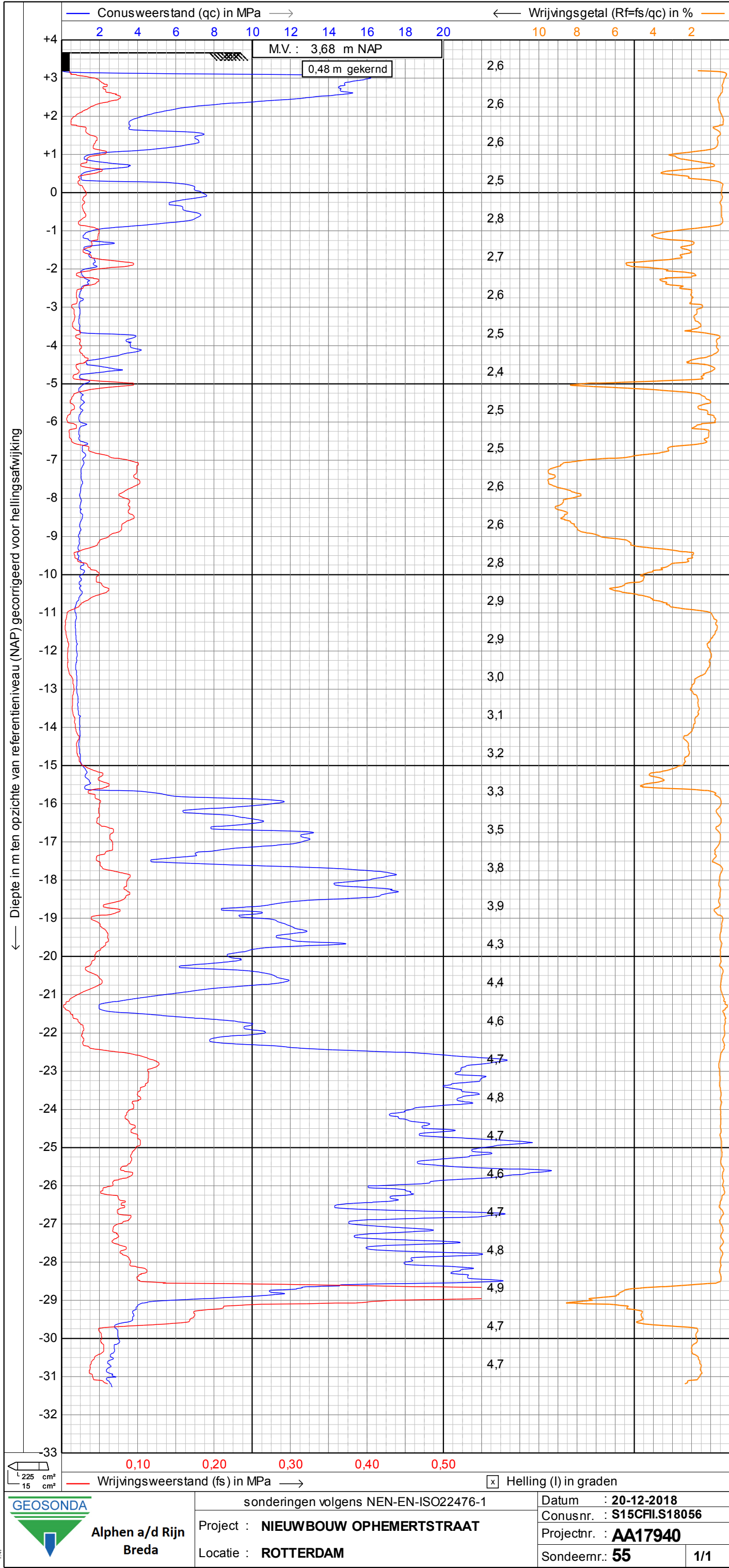


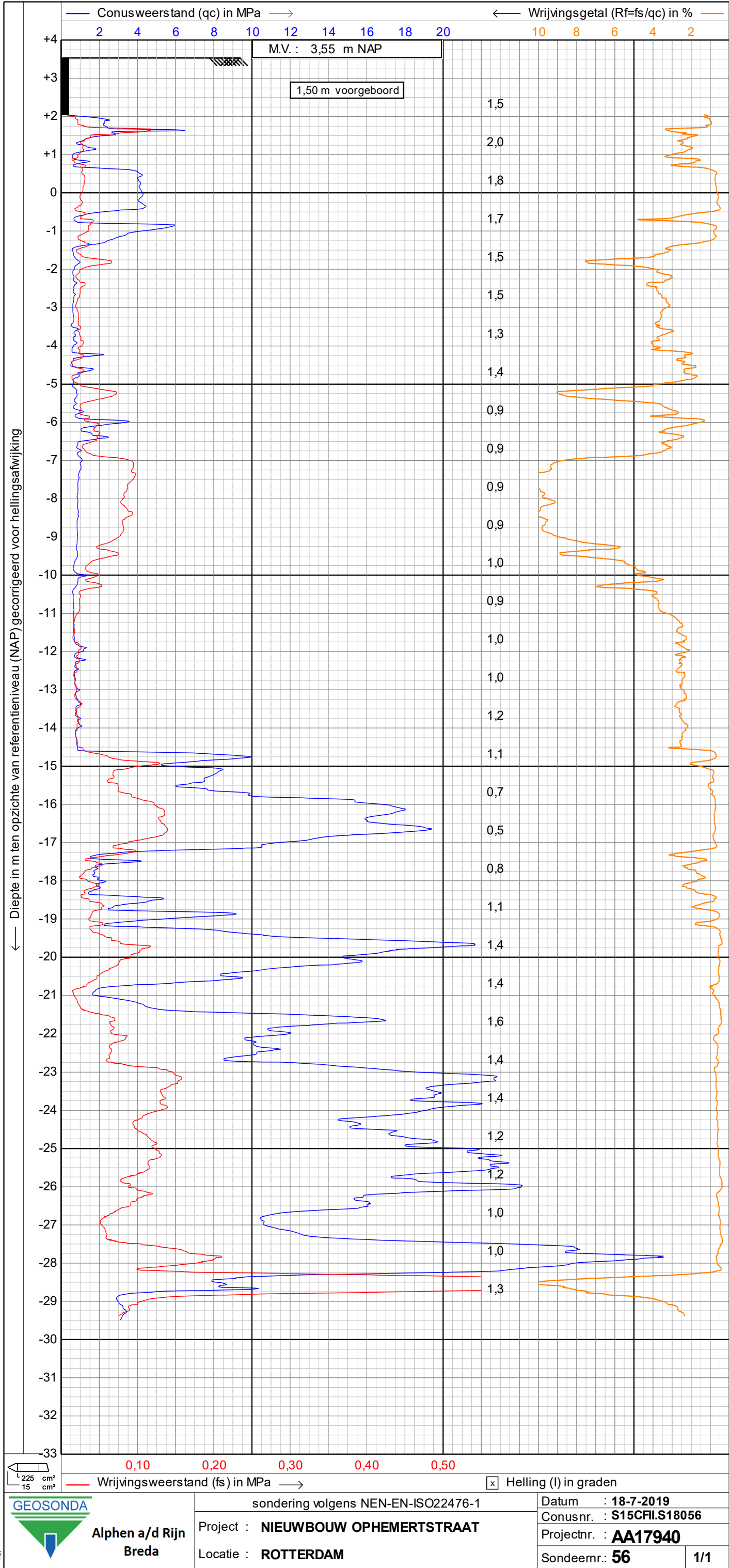


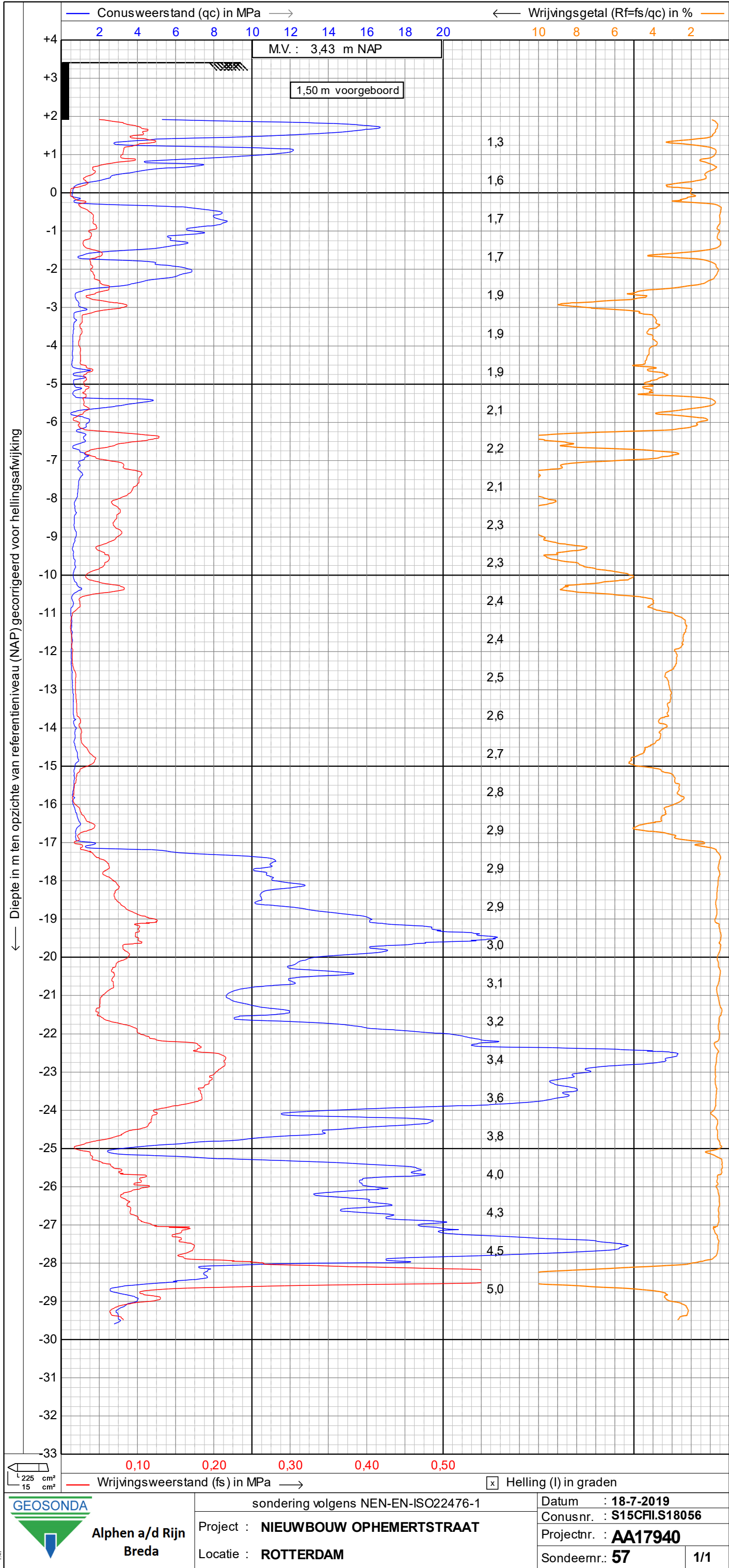


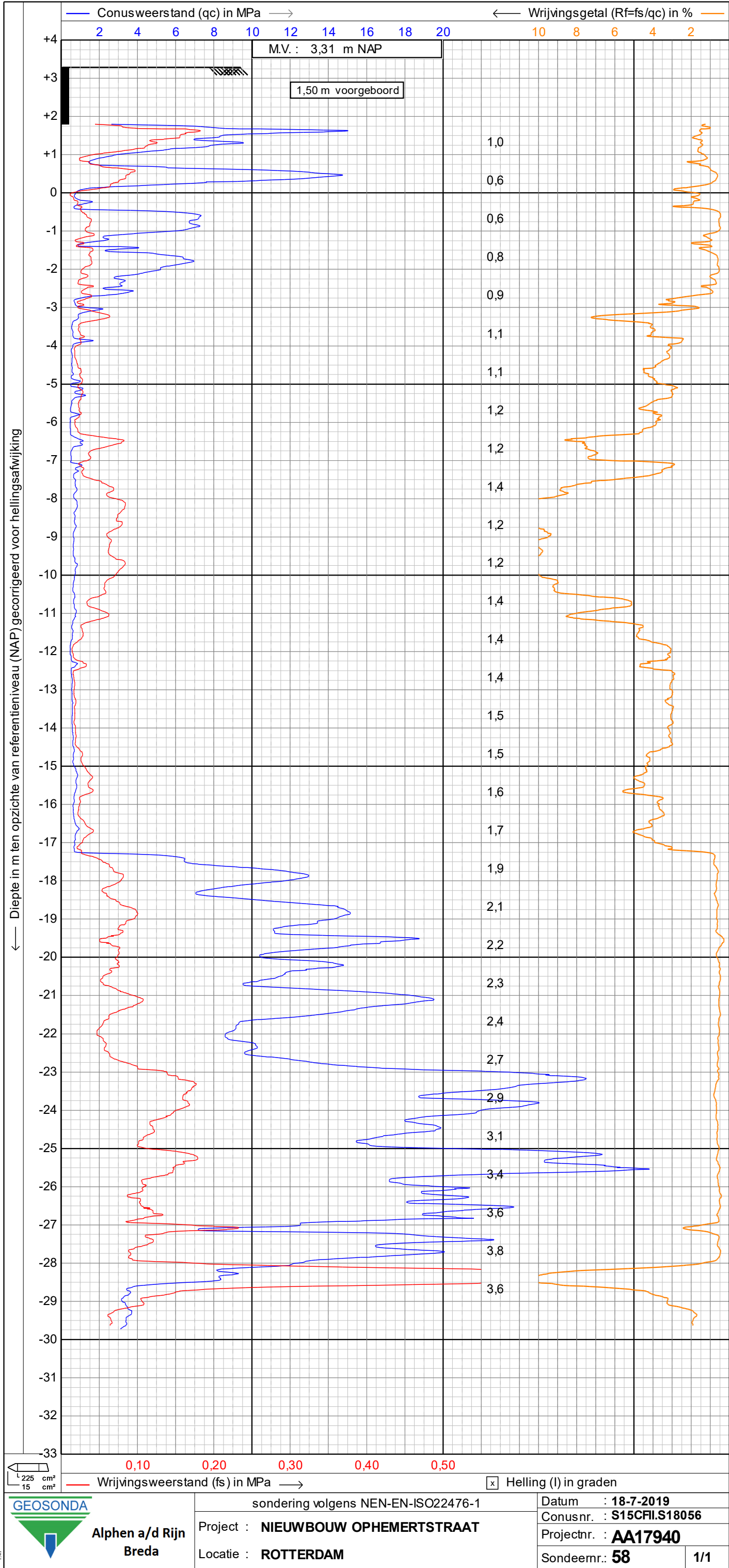


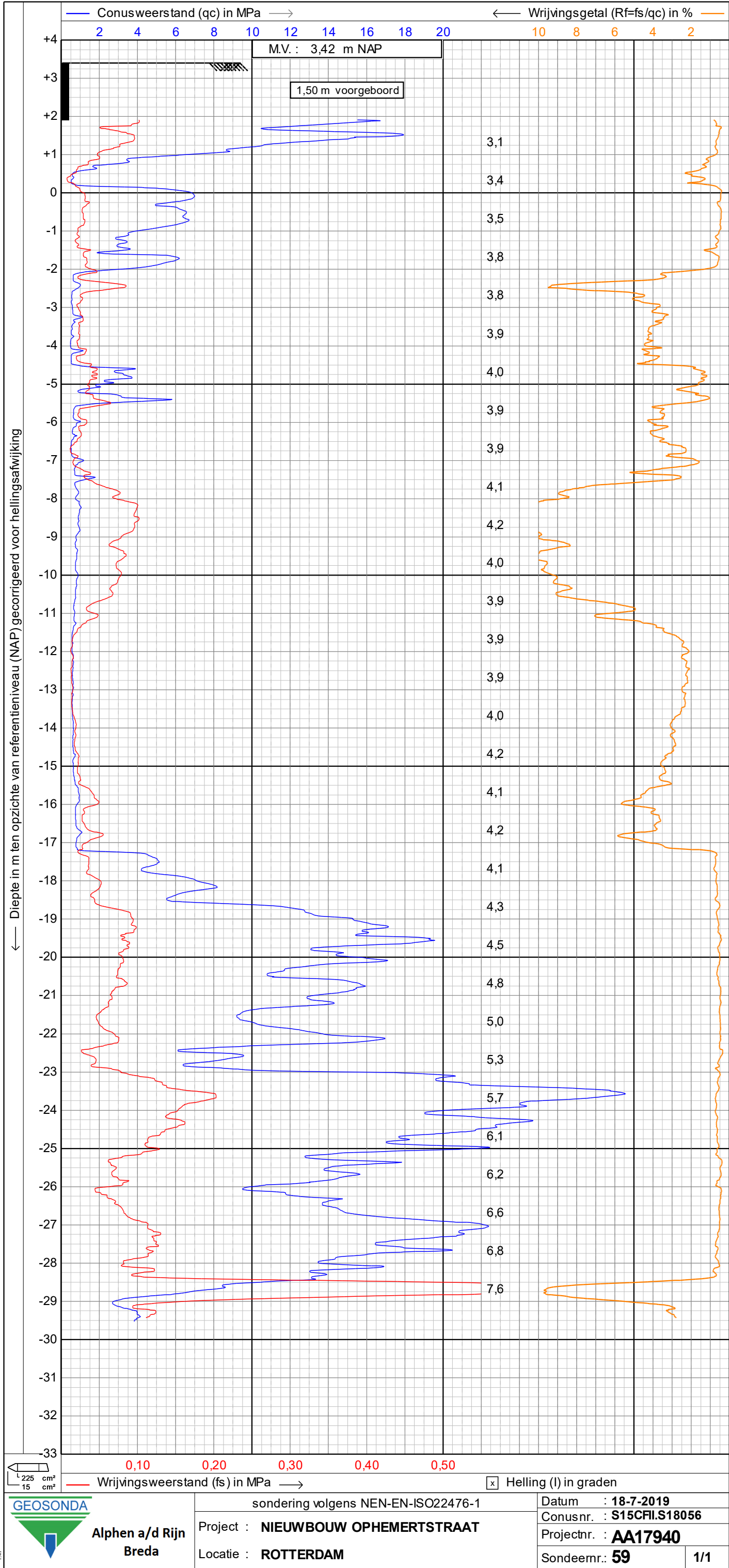


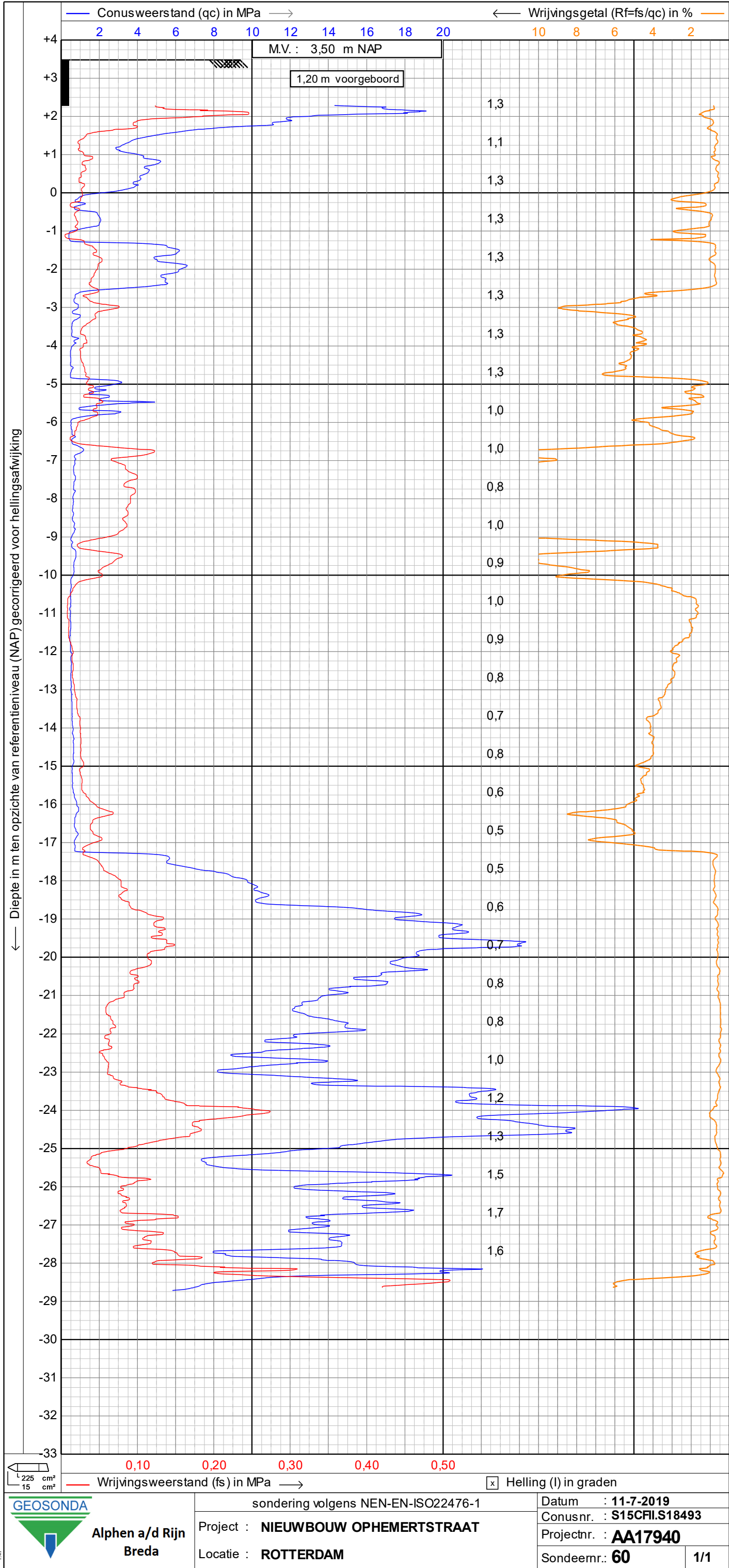


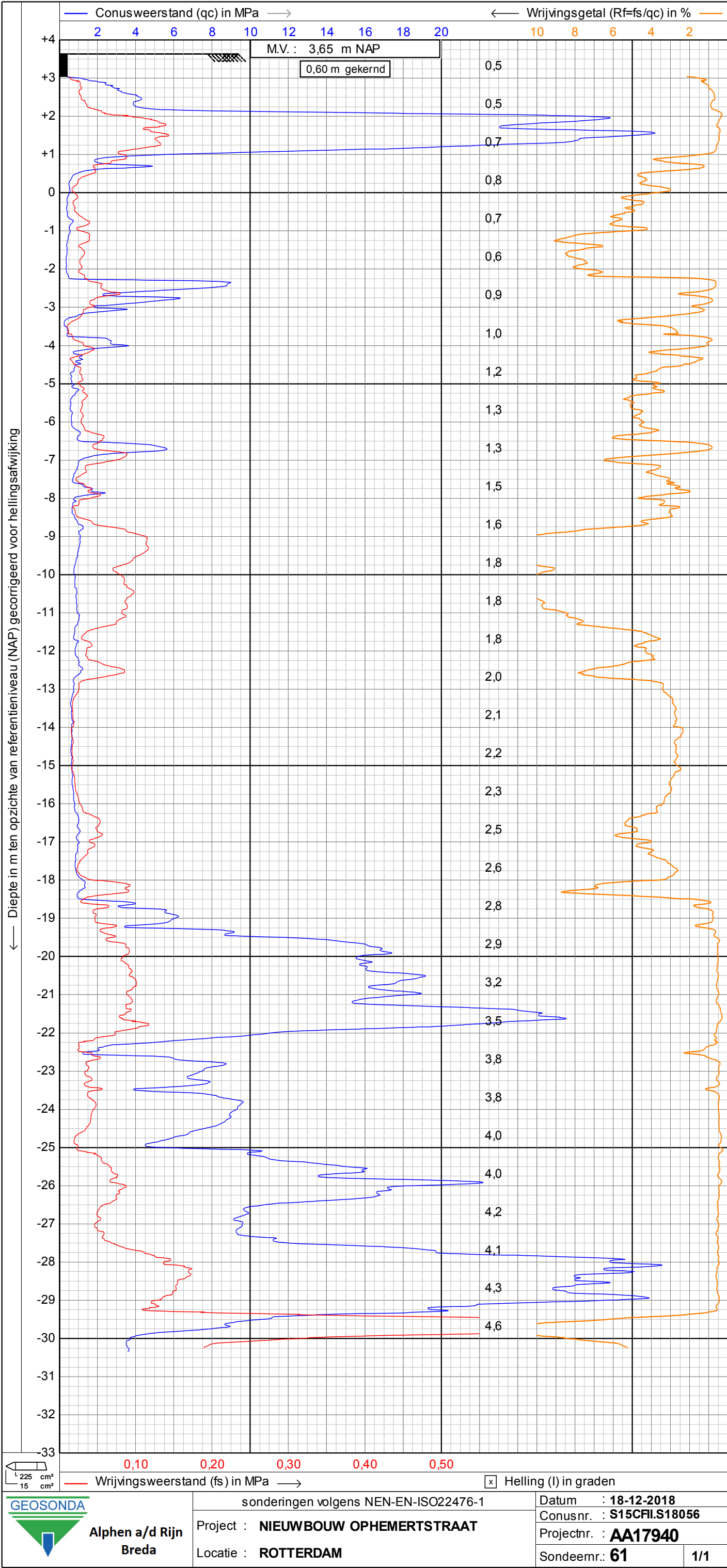


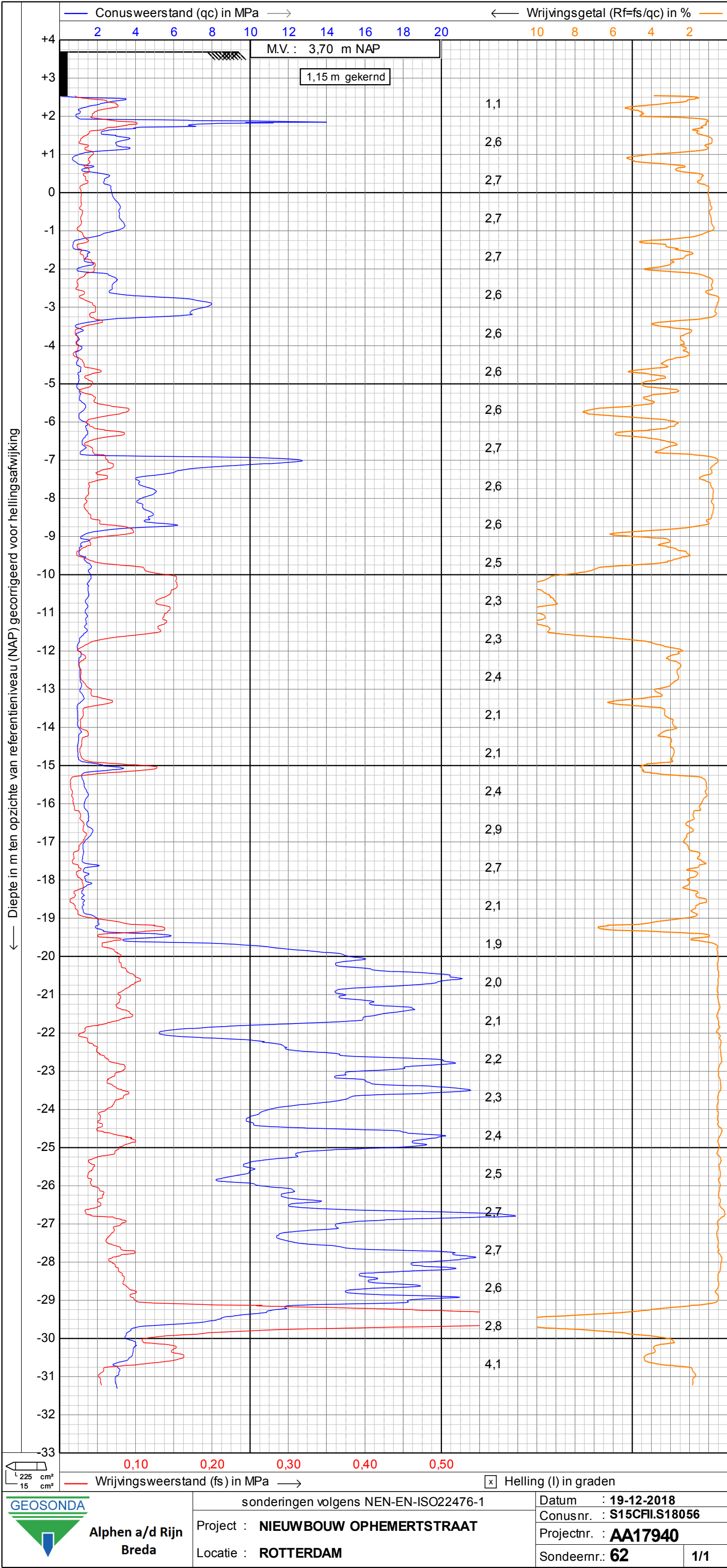


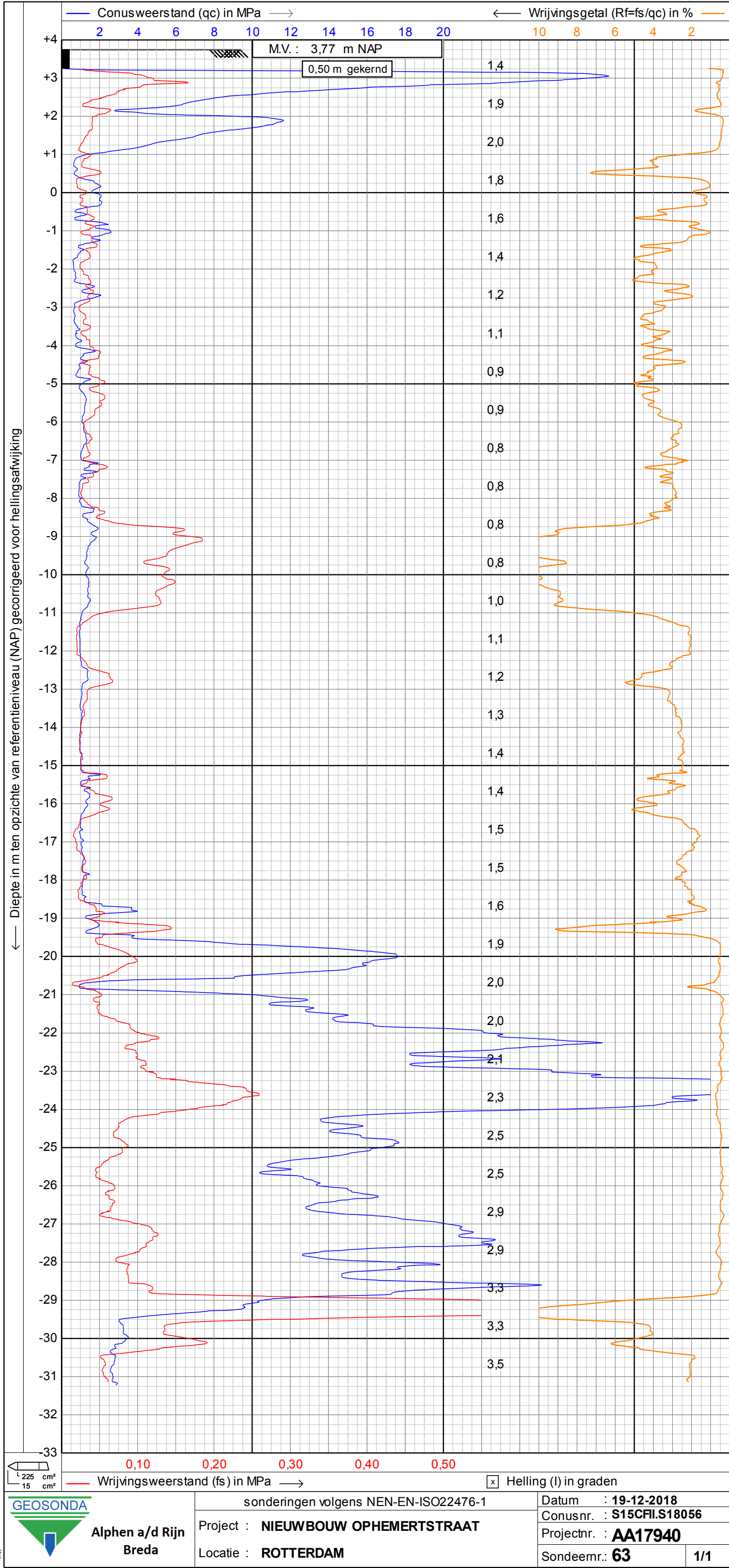


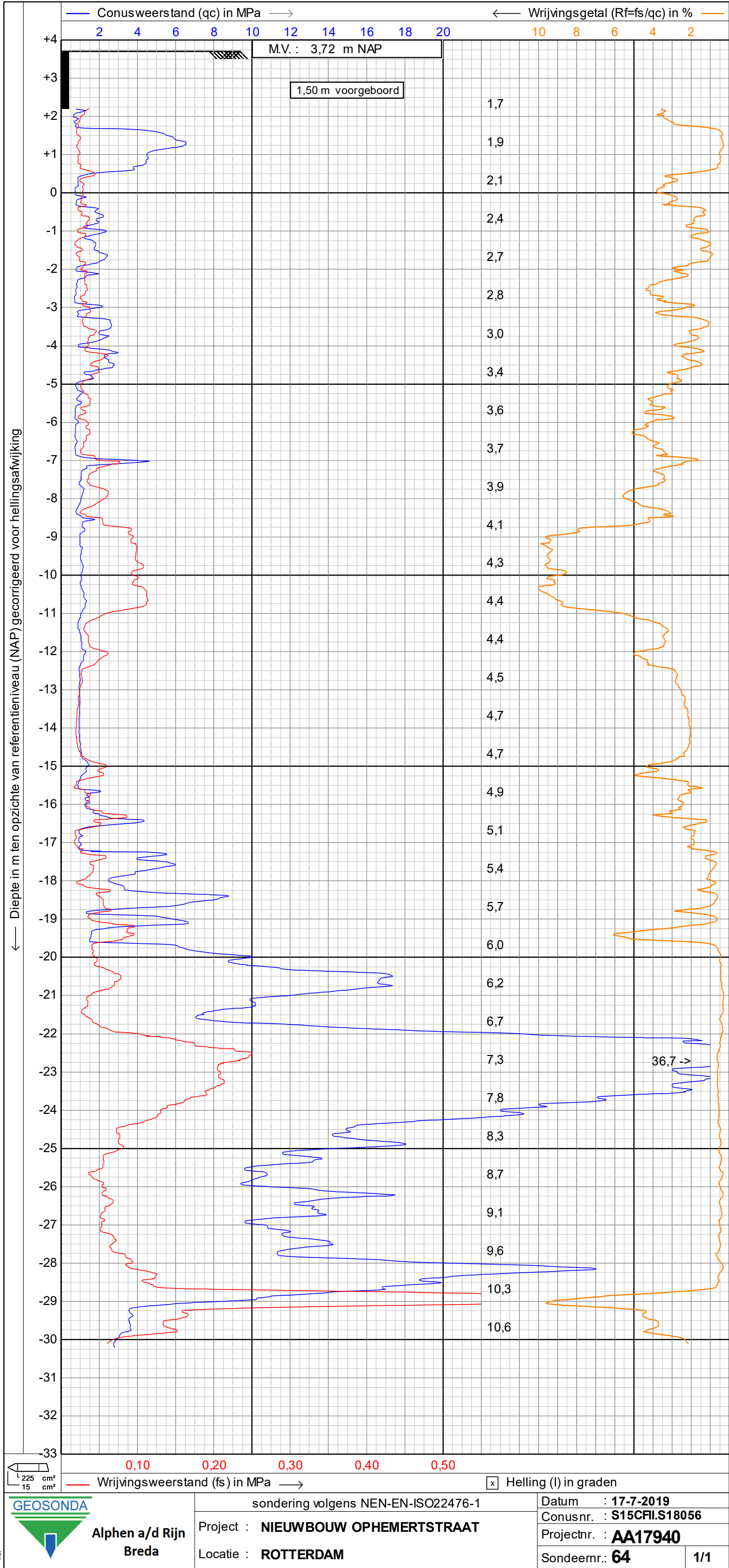


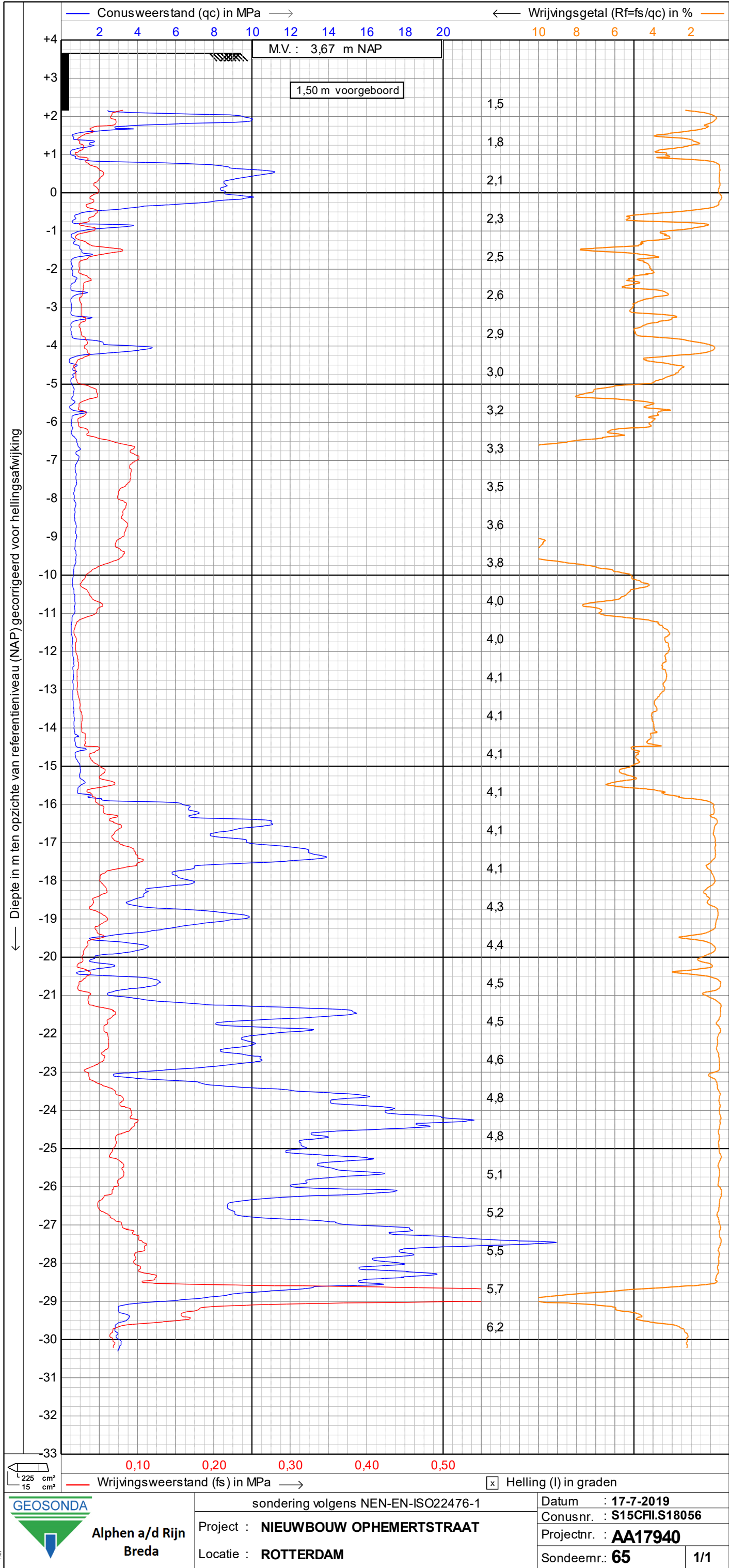


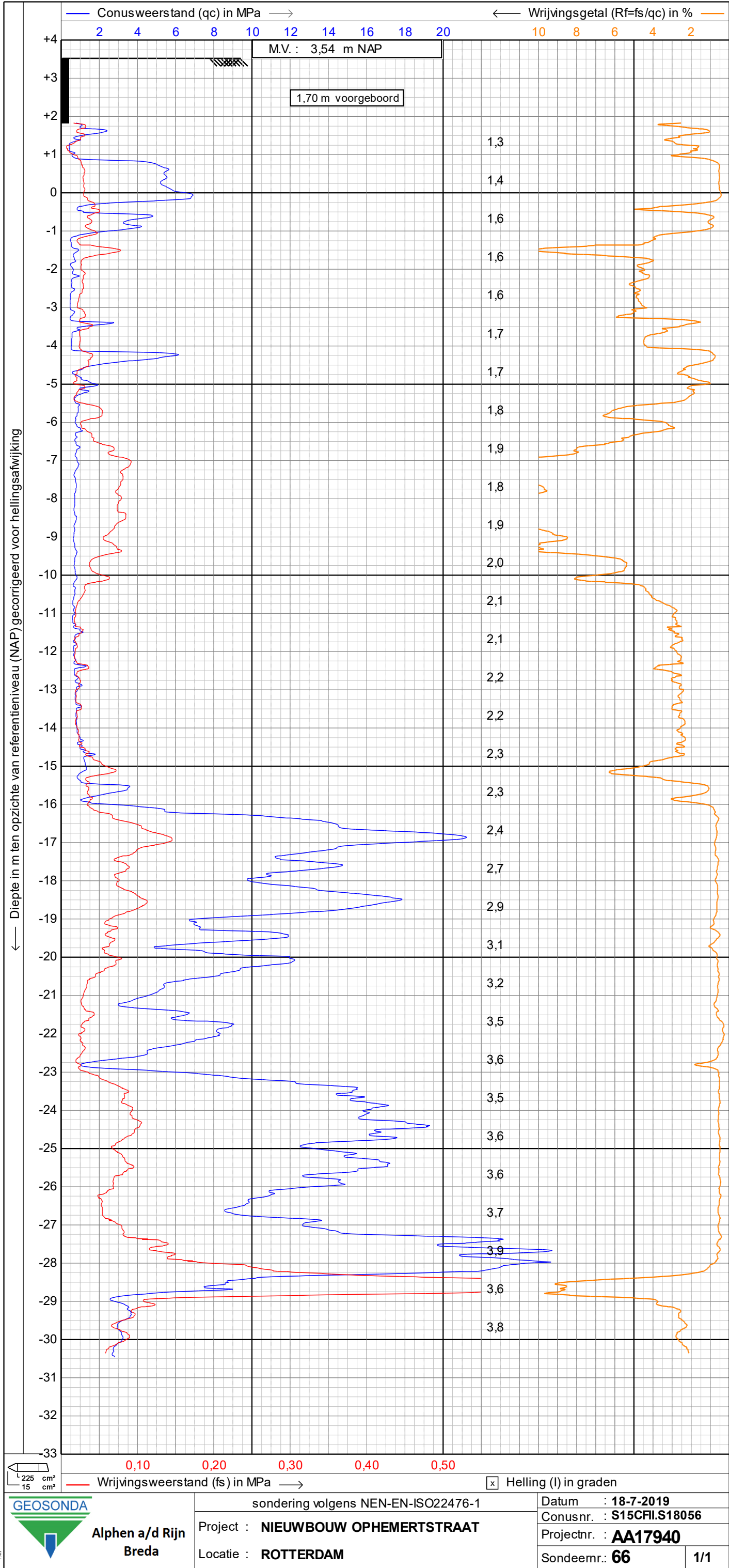


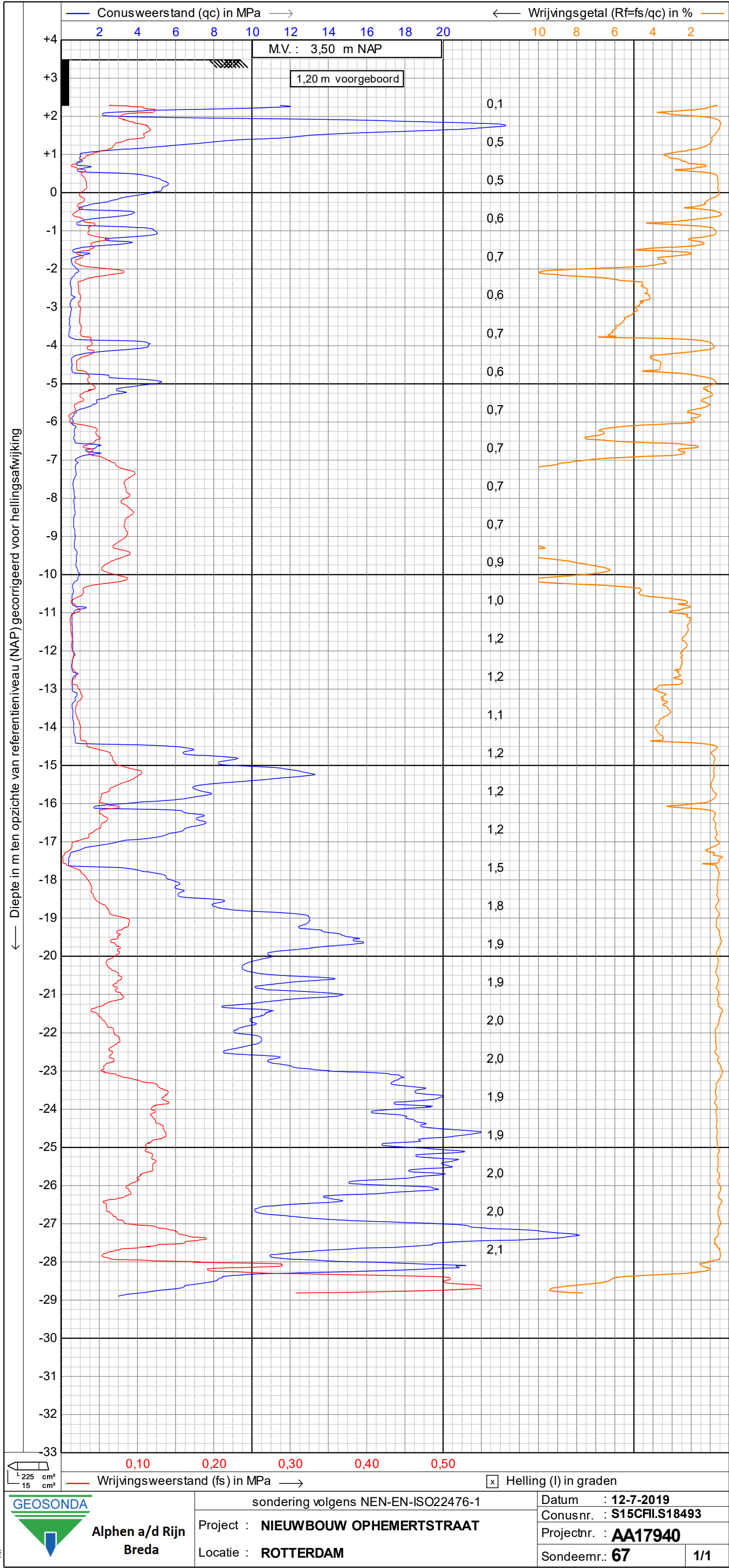


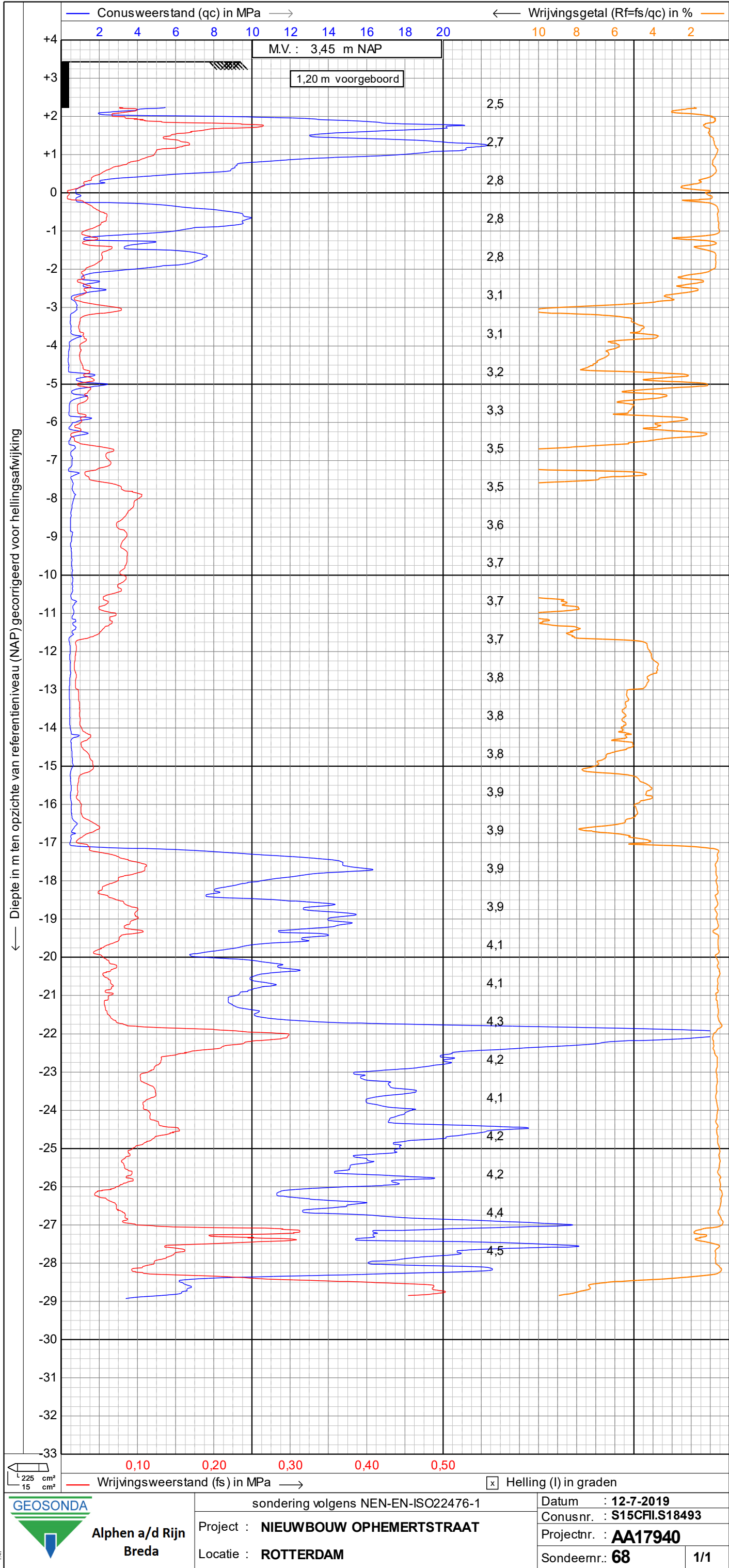


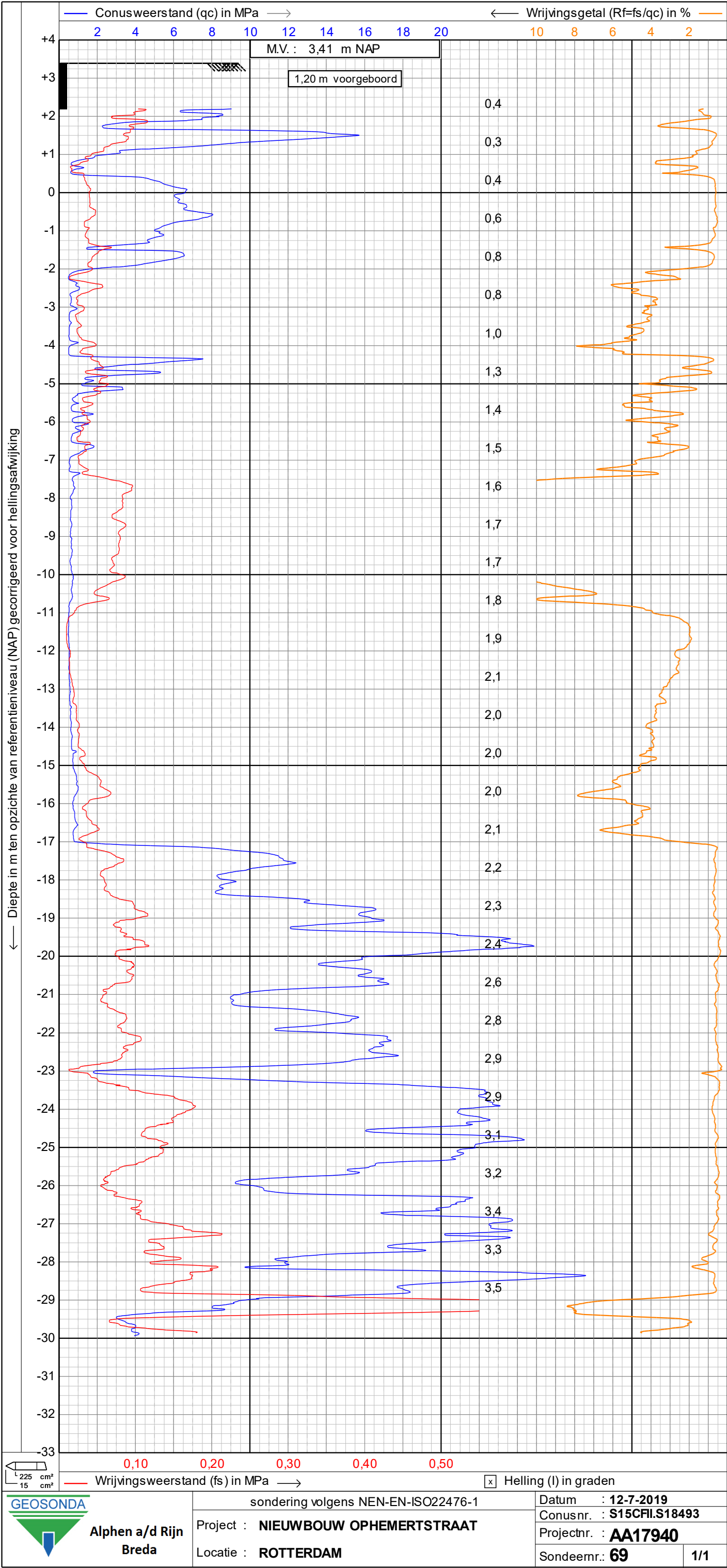


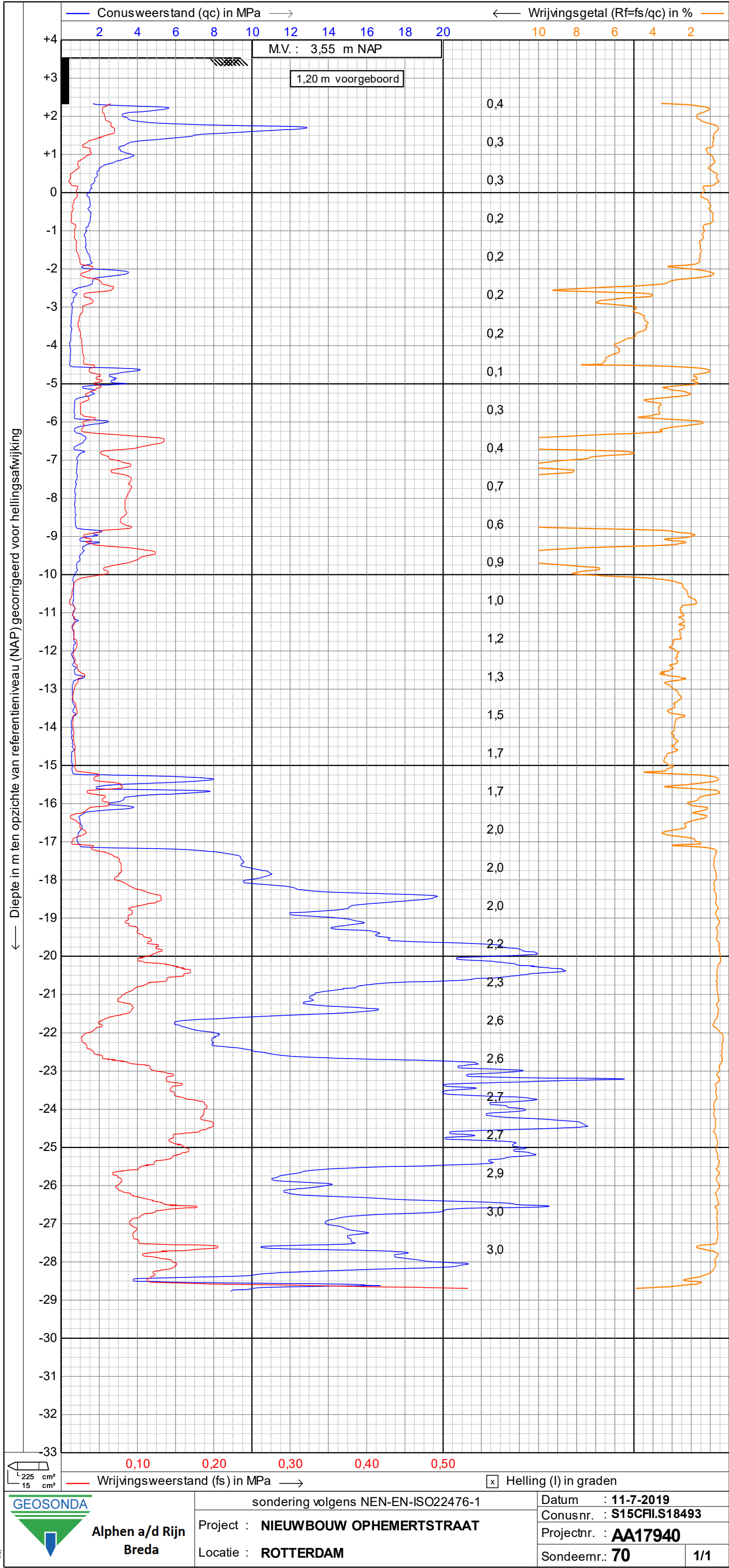


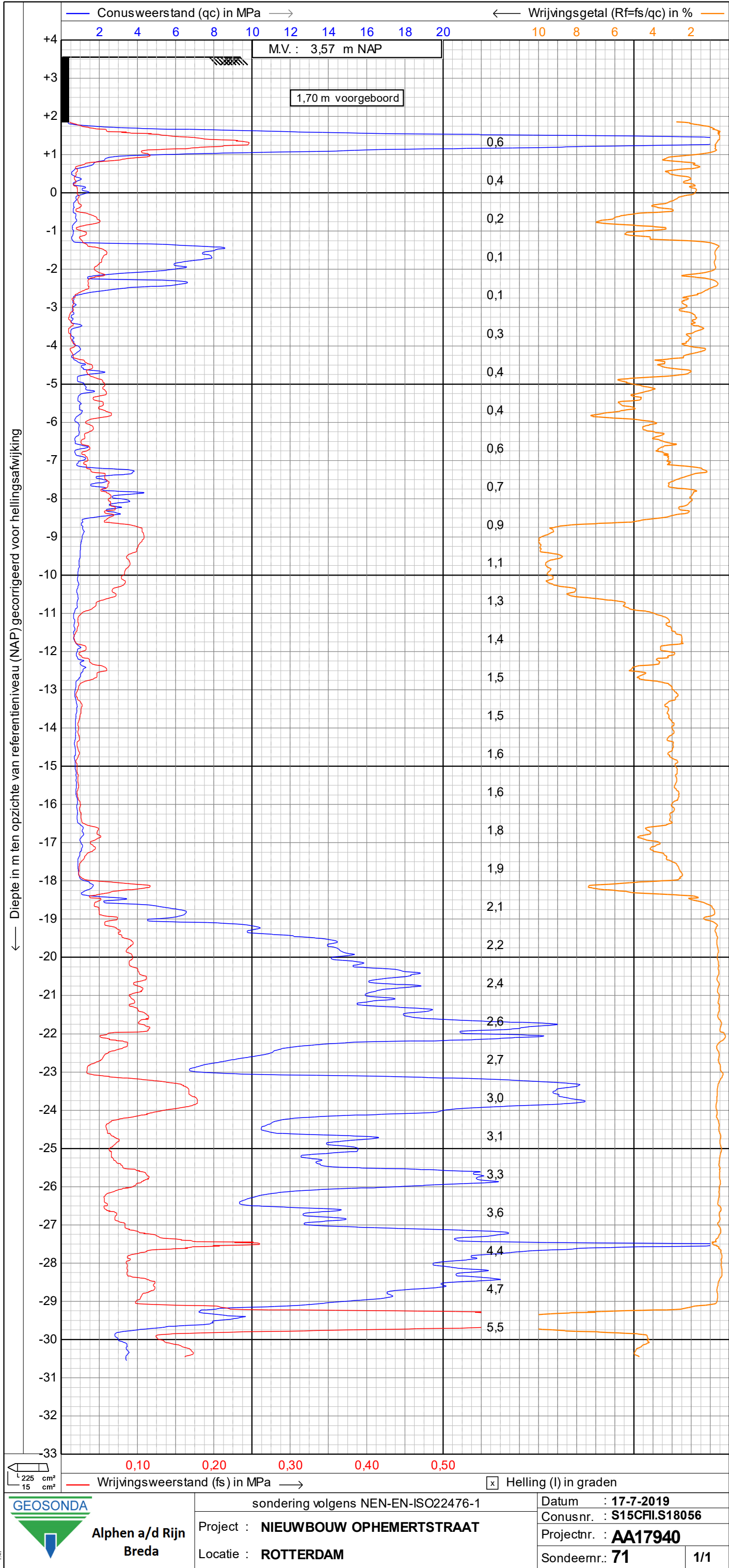


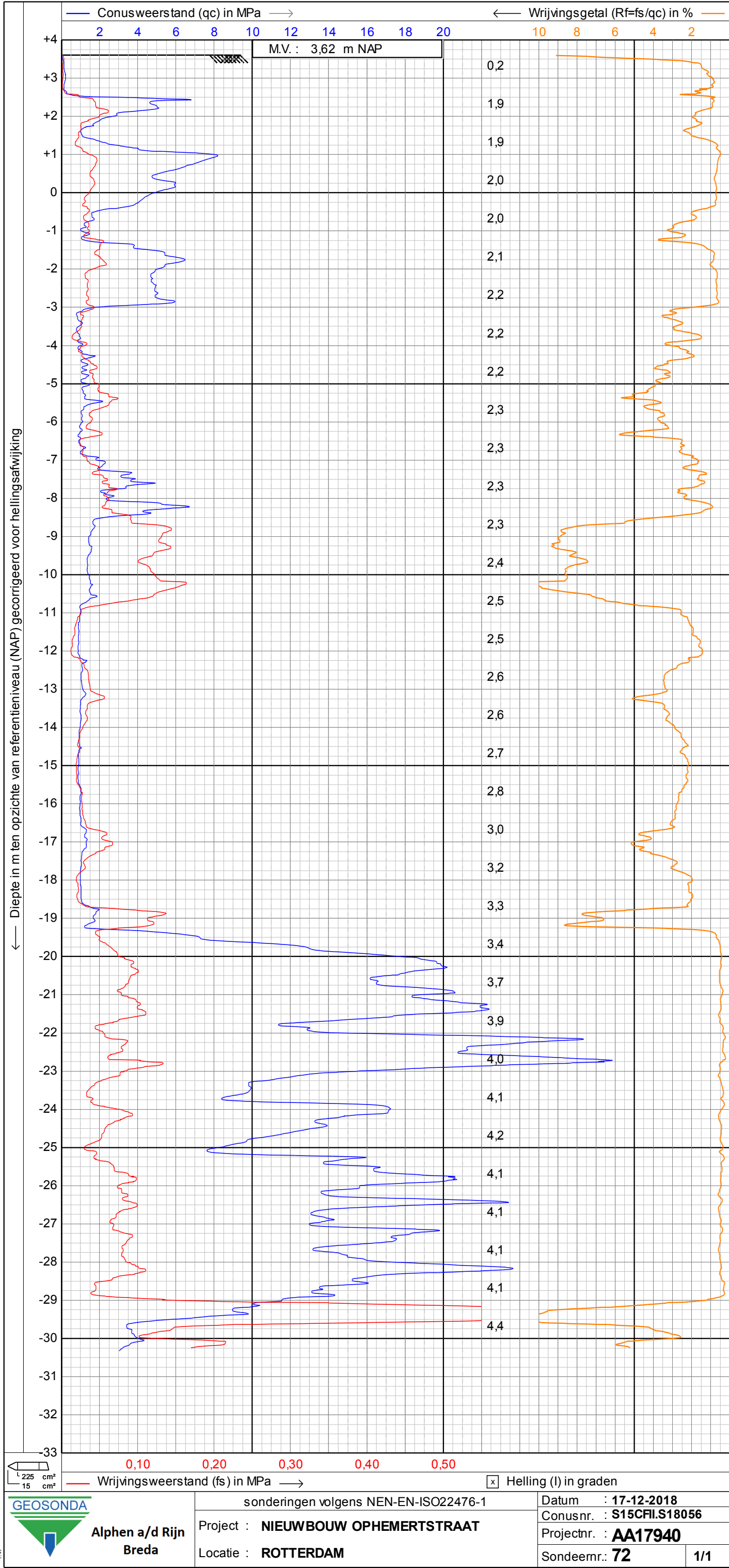


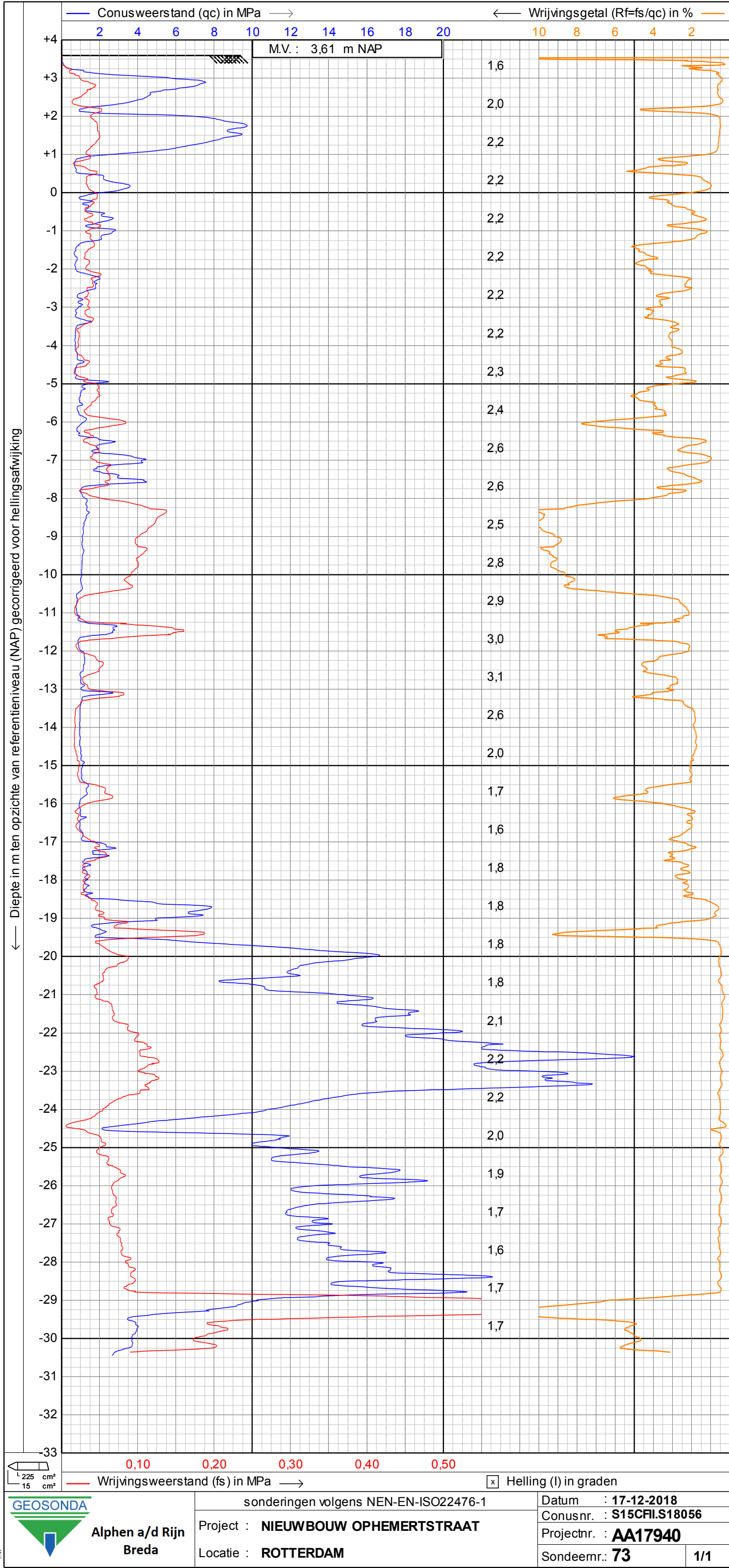


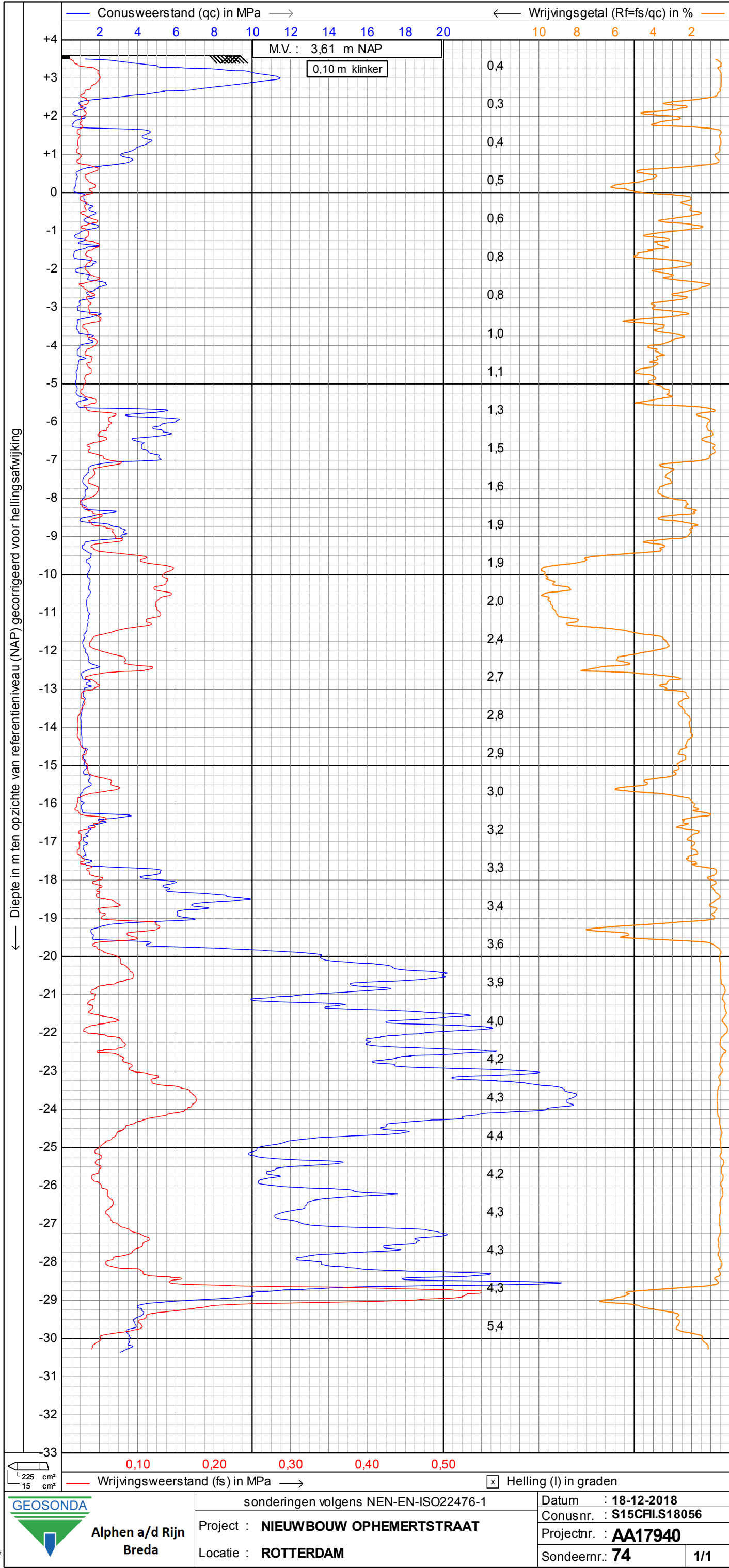


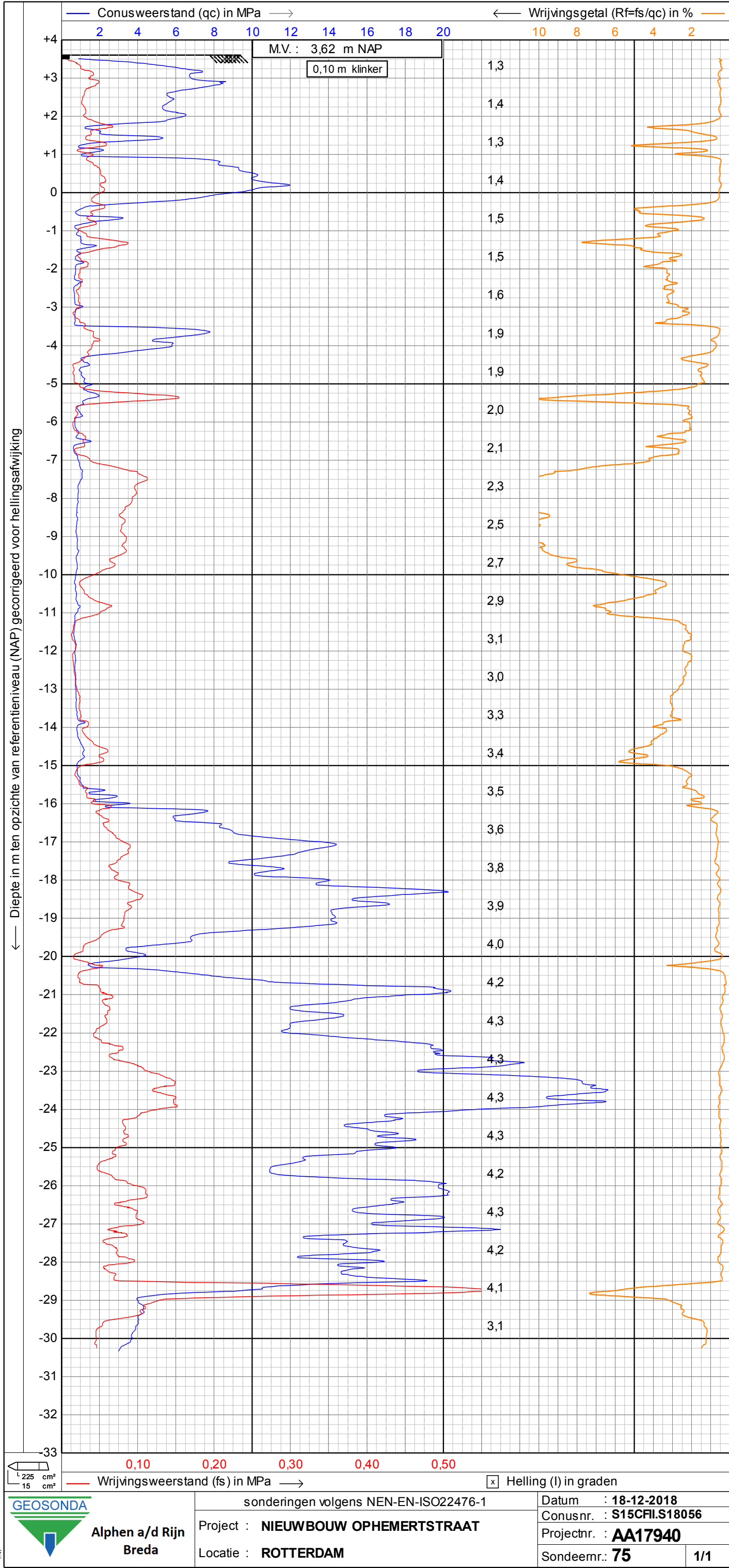


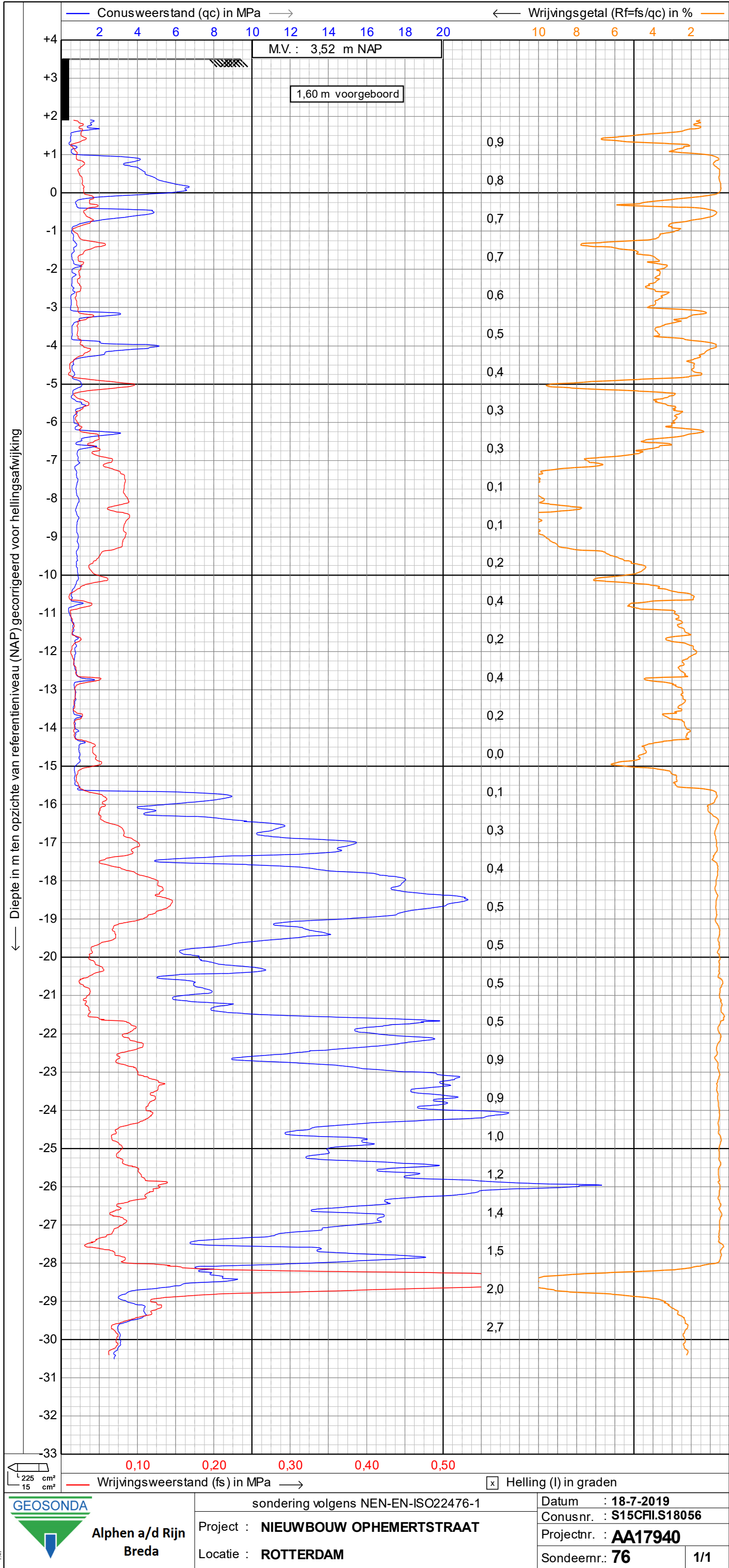


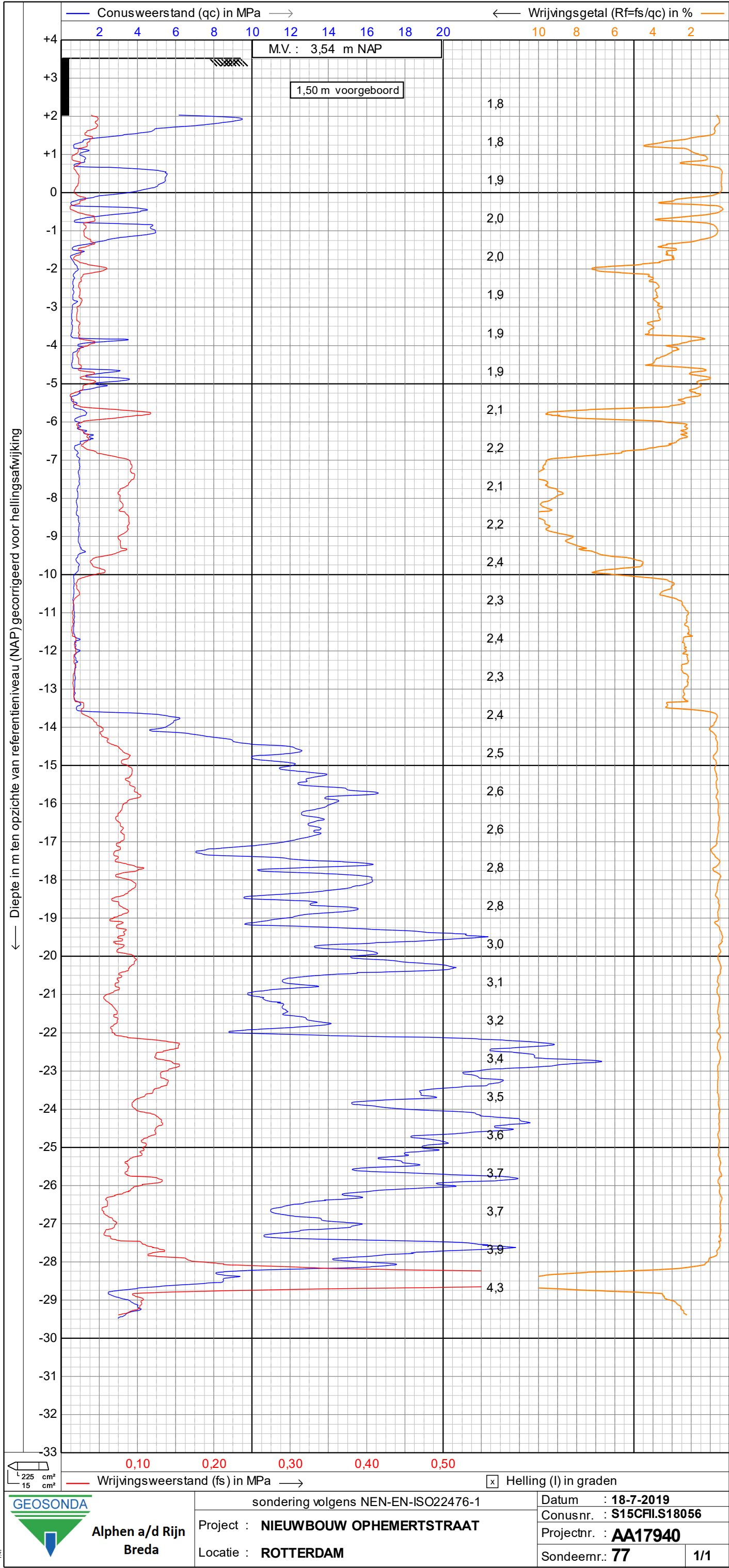


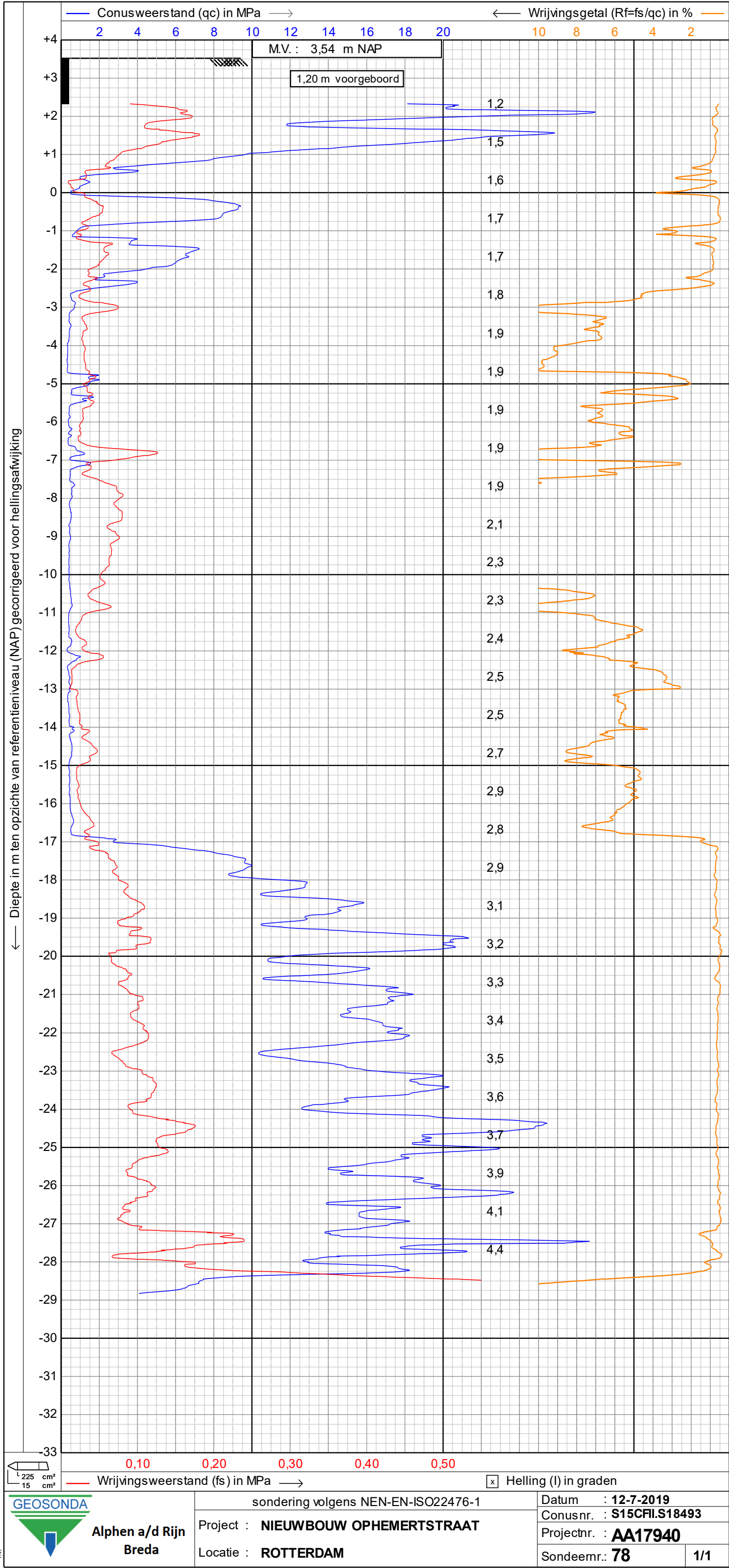


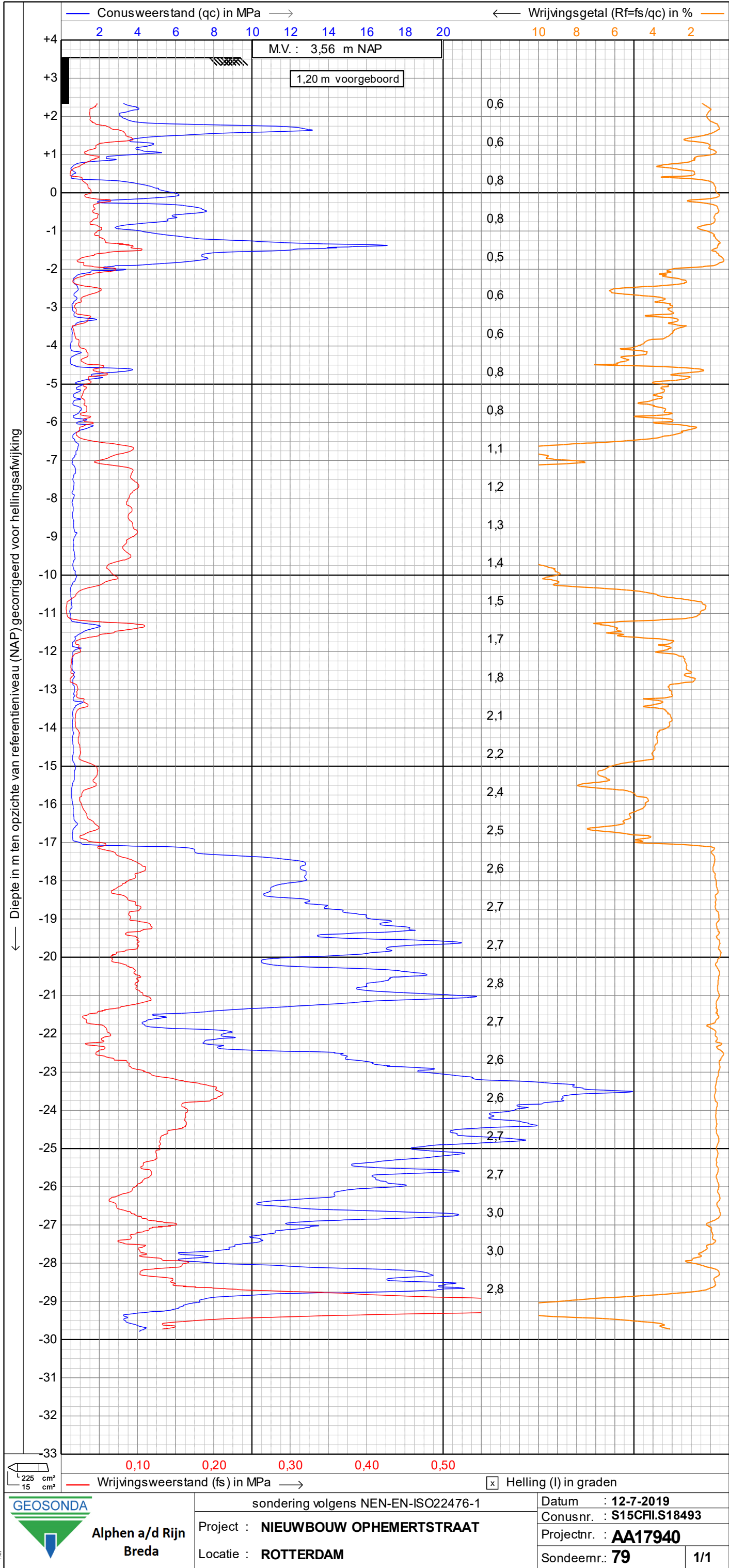




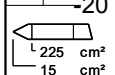
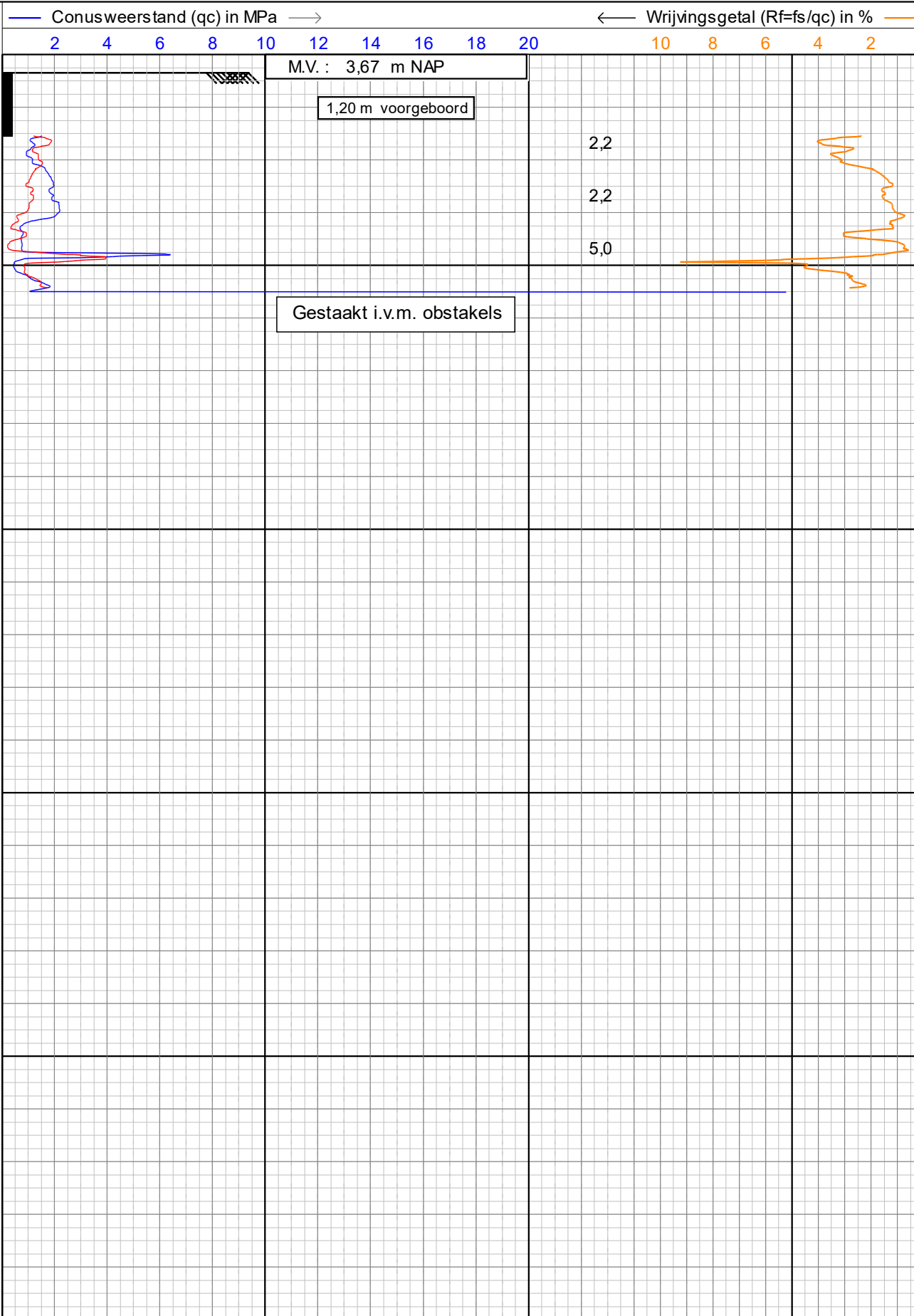








← Diepte in m ten opzichte van referentieniveau (NAP) gecorrigeerd voor hellingafwijking



GEOSONDA

Alphen a/d Rijn
Breda

sondering volgens NEN-EN-ISO22476-1

Project : **NIEUWBOUW OPHEMERTSTRAAT**

Locatie : **ROTTERDAM**

Datum : **12-7-2019**

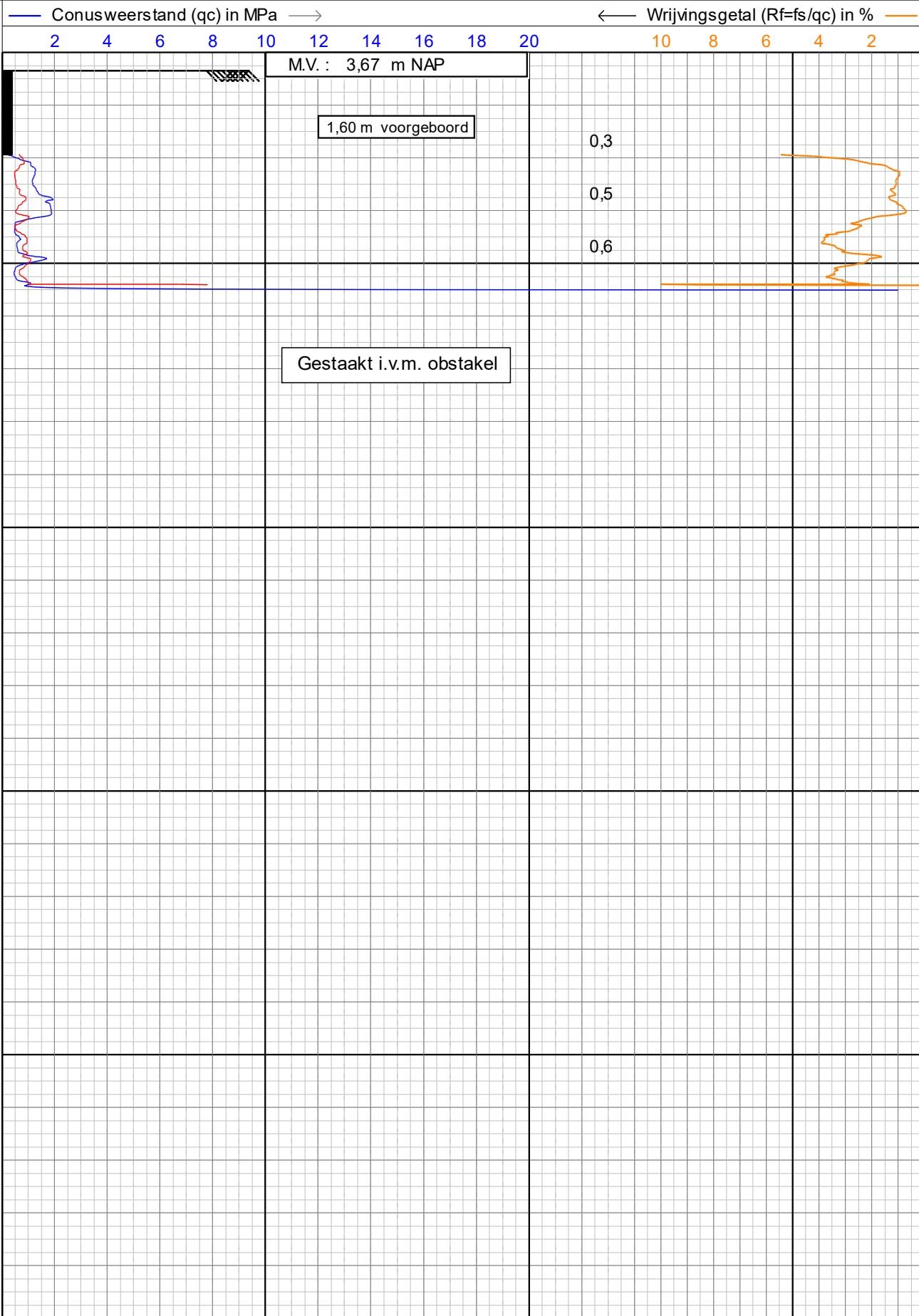
Conusnr. : **S15CFIL.S18493**

Projectnr. : **AA17940**

Sondeernr.: **80**

1/1

← Diepte in m ten opzichte van referentieniveau (NAP) gecorrigeerd voor hellingsafwijking



0,10 0,20 0,30 0,40 0,50

— Wrijvingsweerstand (fs) in MPa —→

☒ Helling (I) in graden



Alphen a/d Rijn
Breda

sondering volgens NEN-EN-ISO22476-1

Project : **NIEUWBOUW OPHEMERTSTRAAT**

Locatie : **ROTTERDAM**

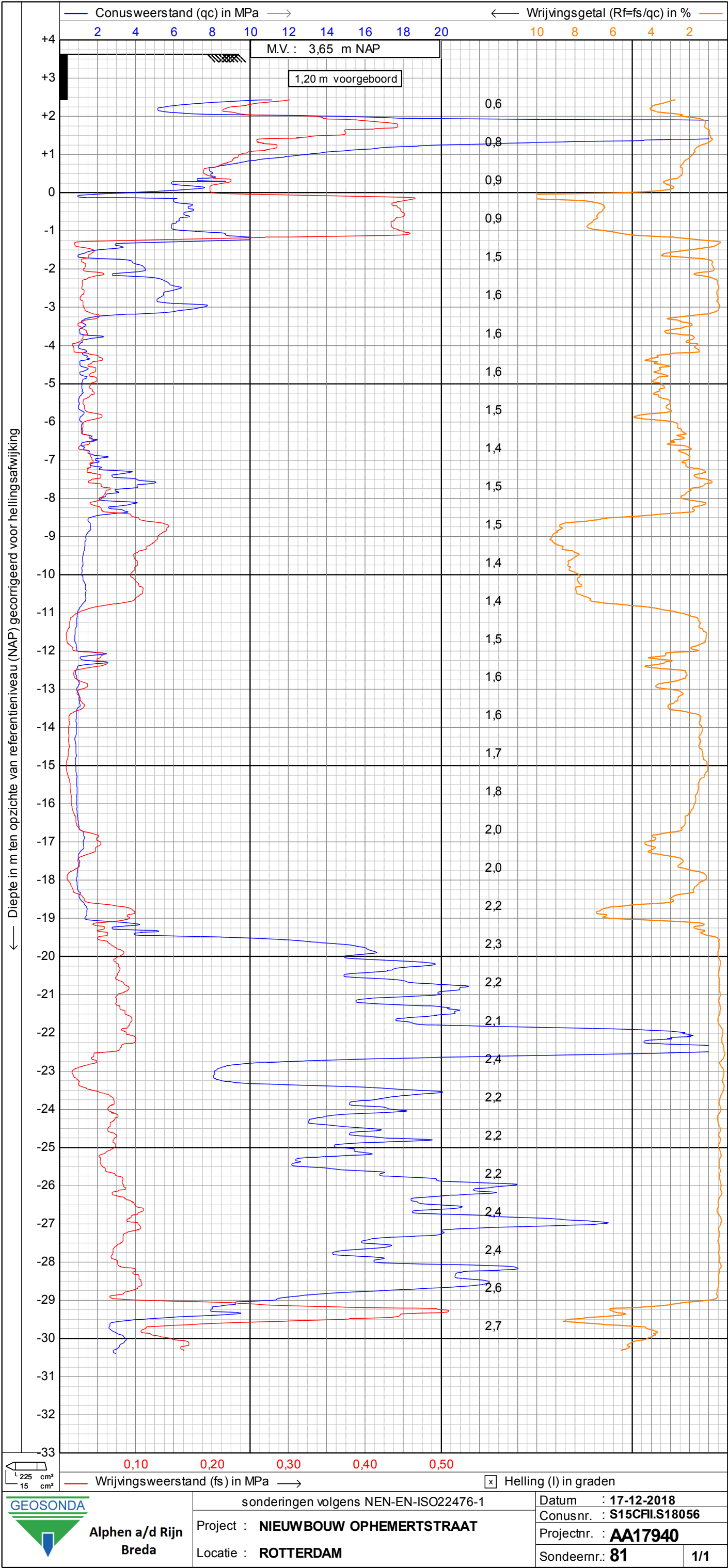
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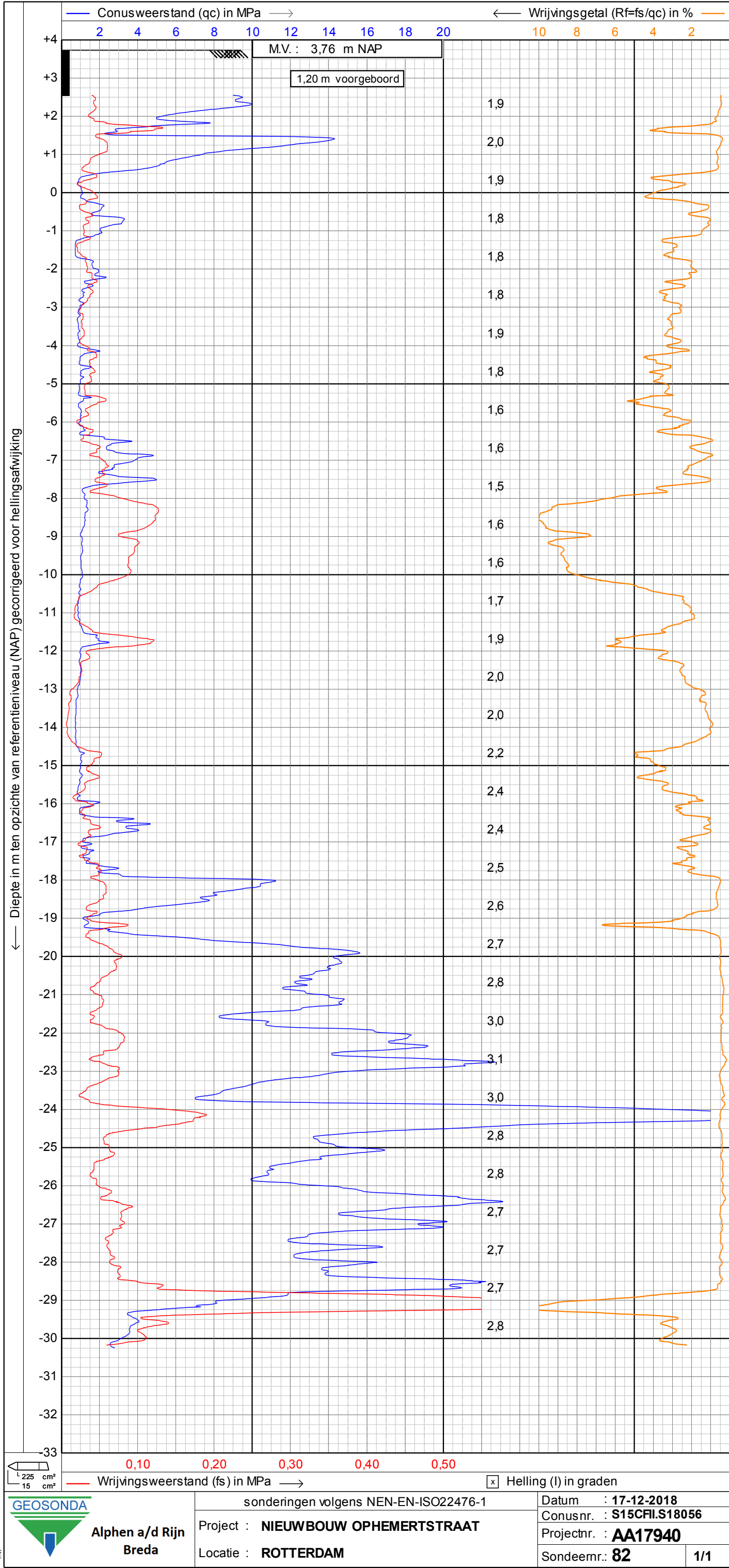
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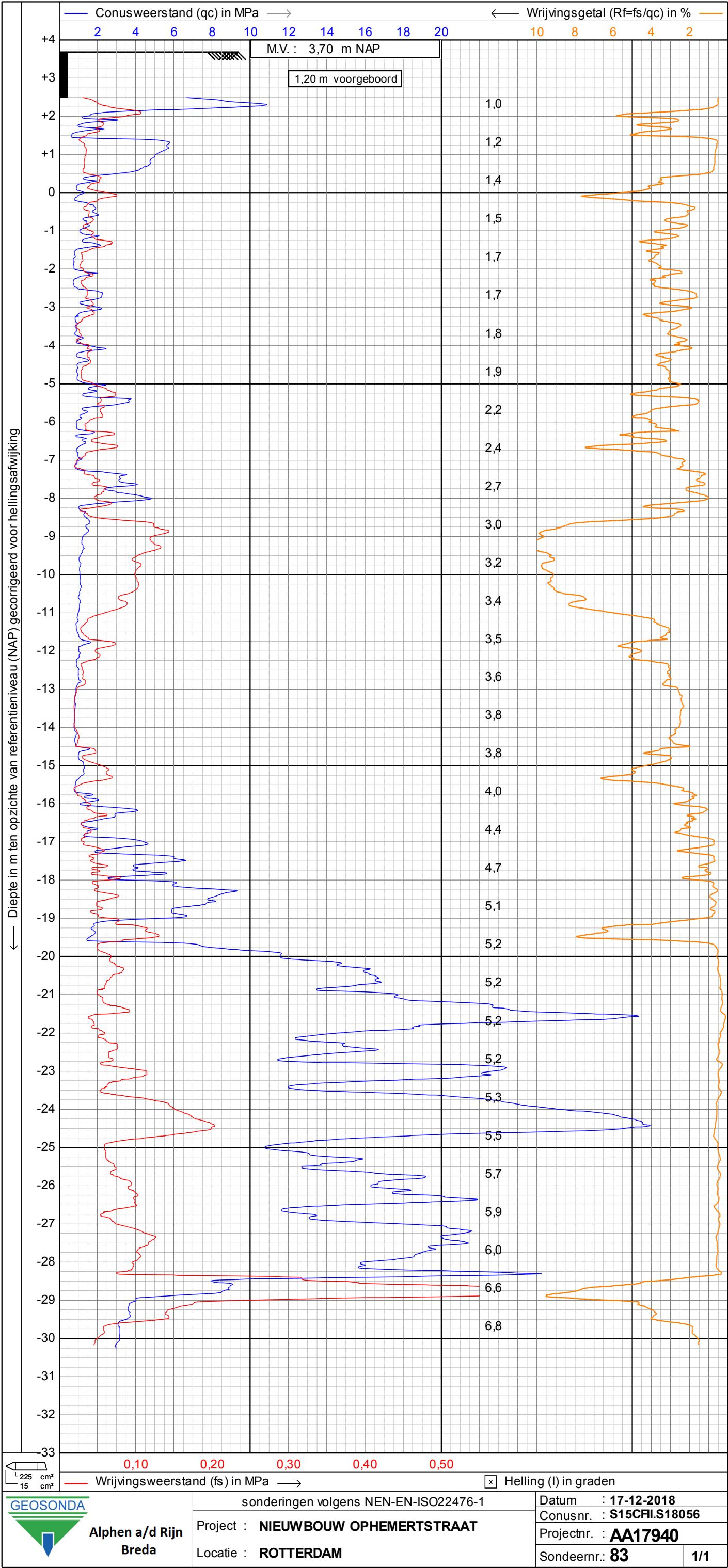
Projectnr. : **AA17940**

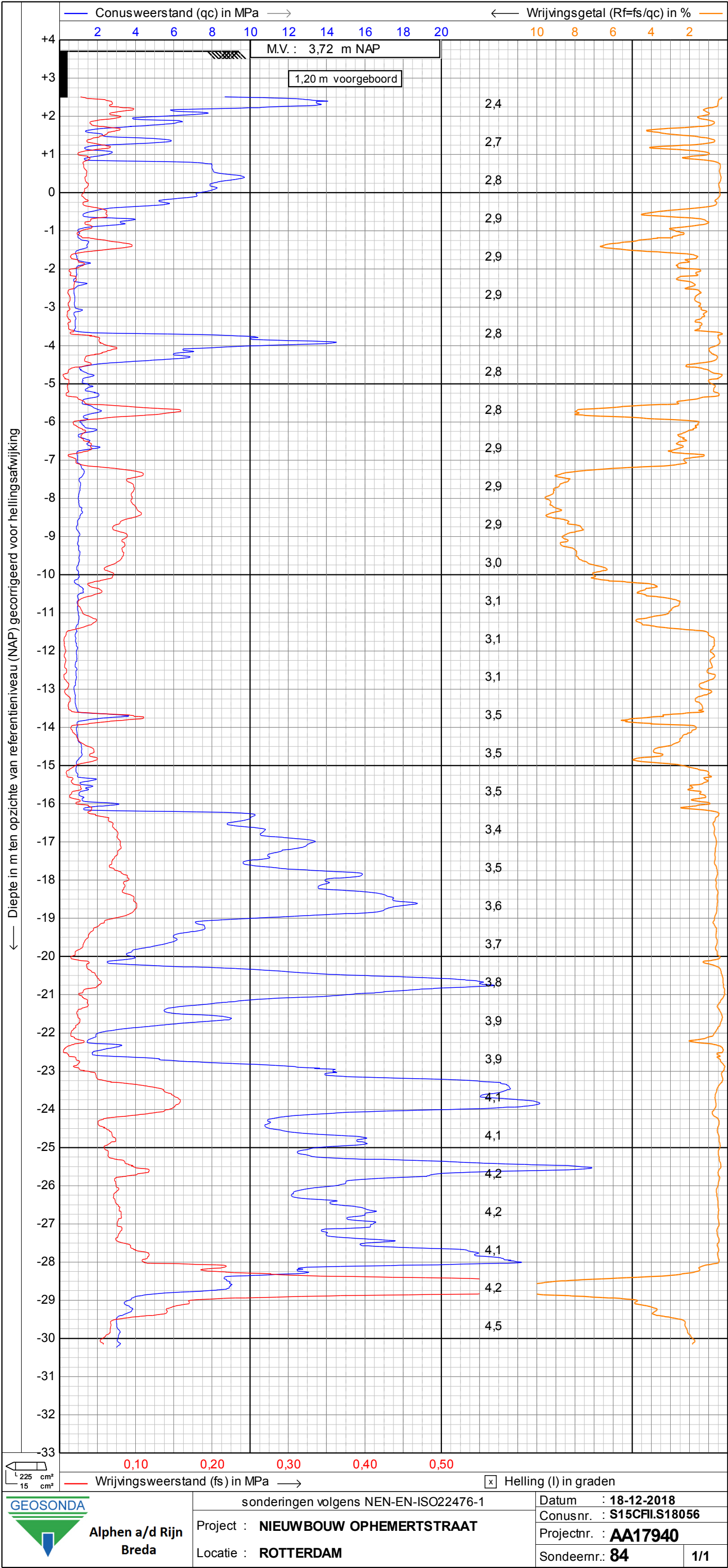
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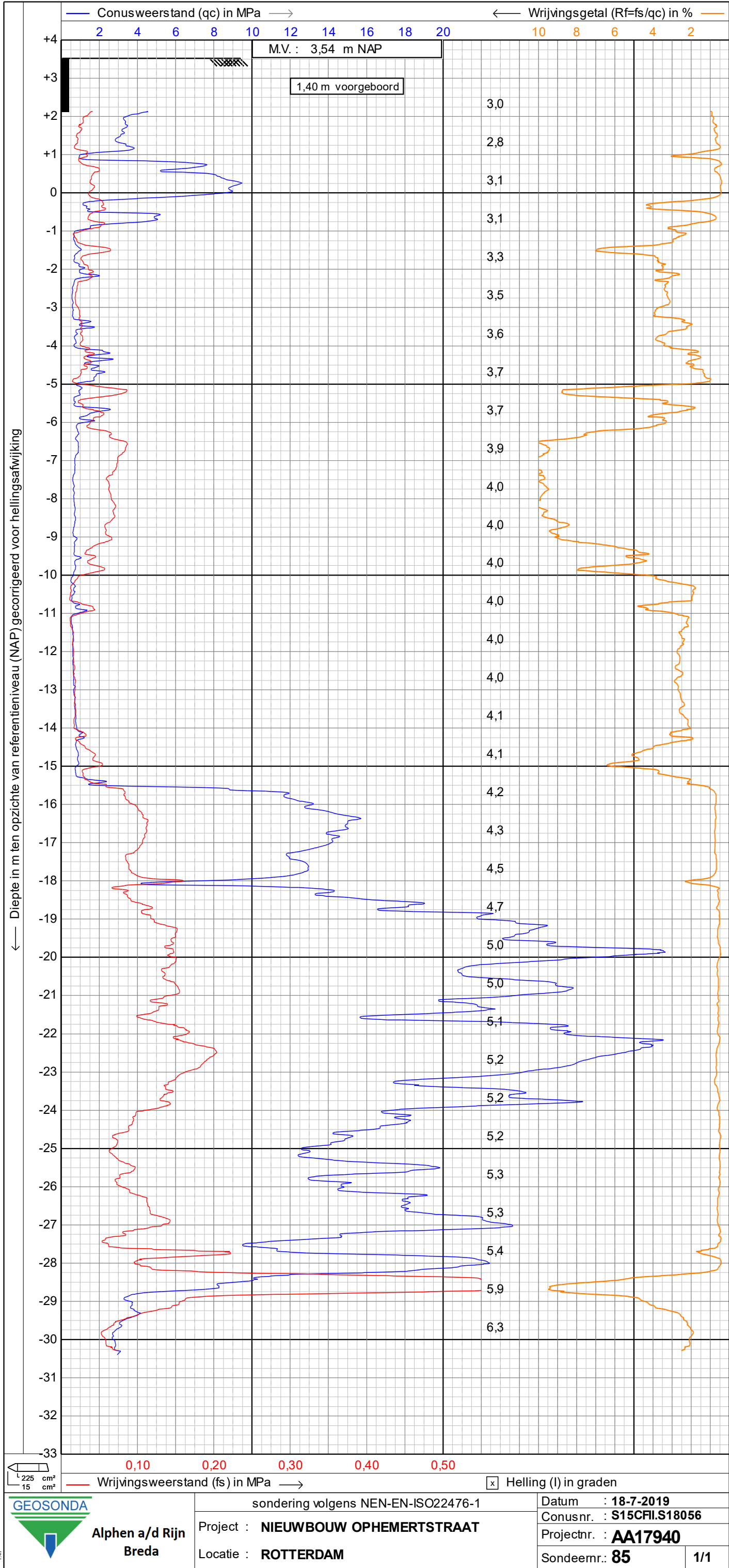
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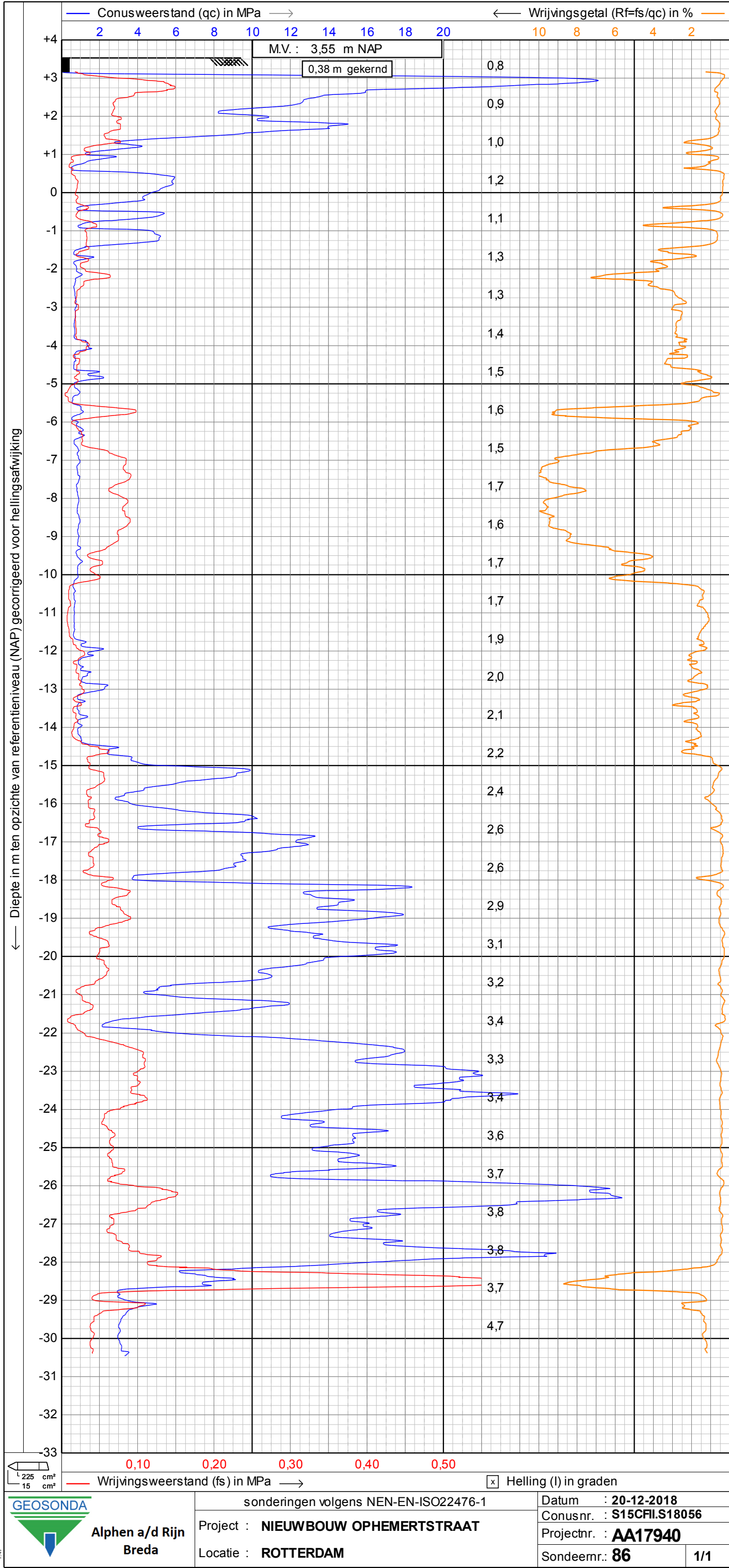


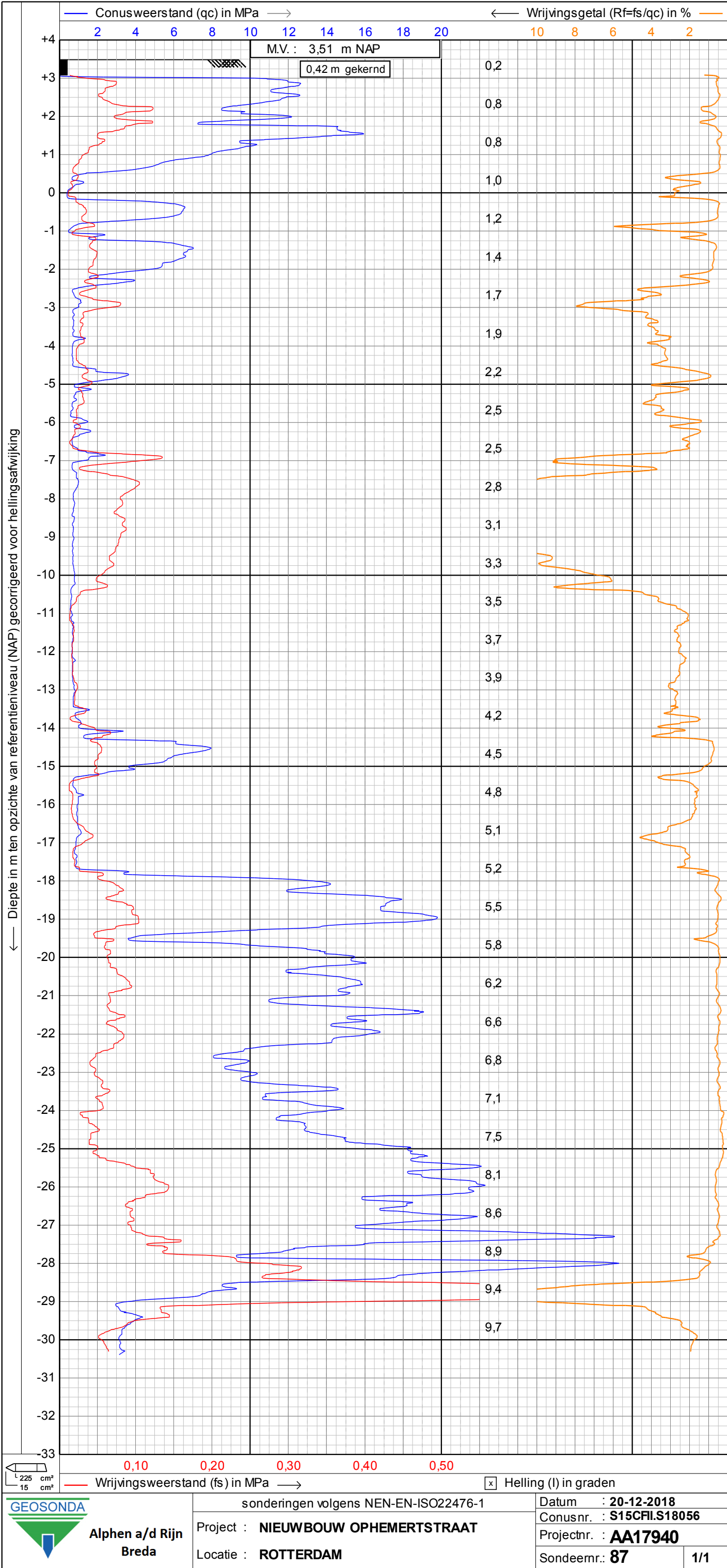


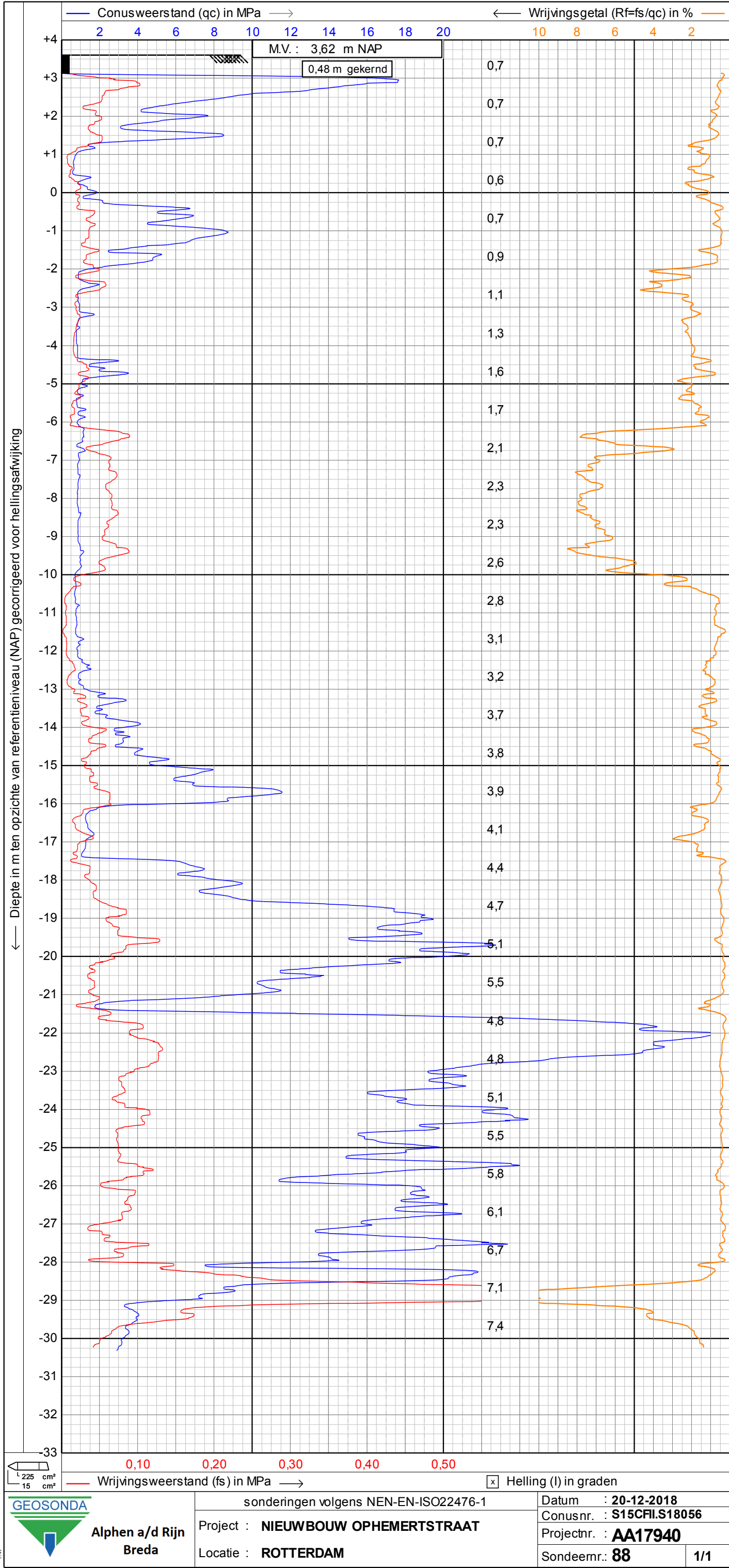


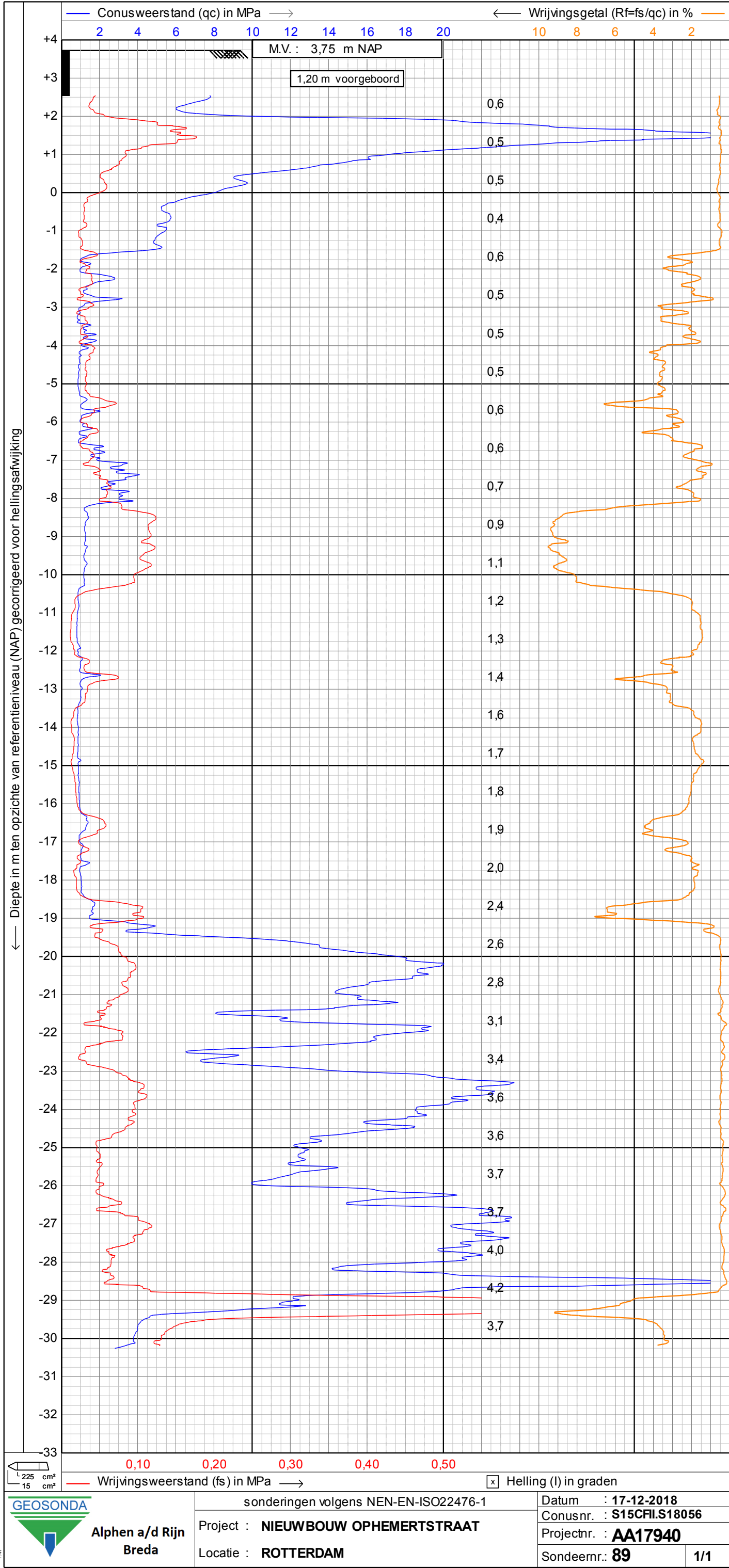


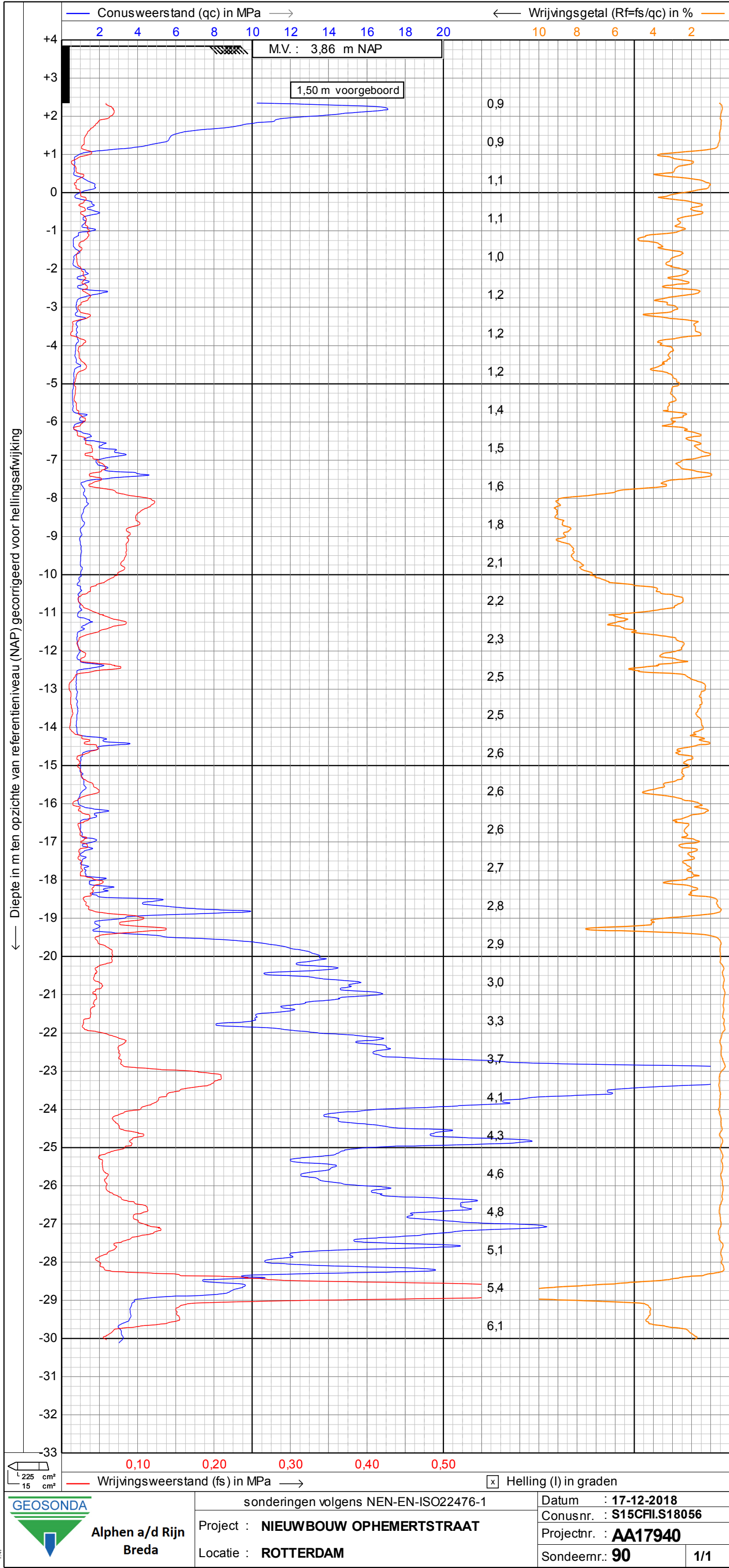


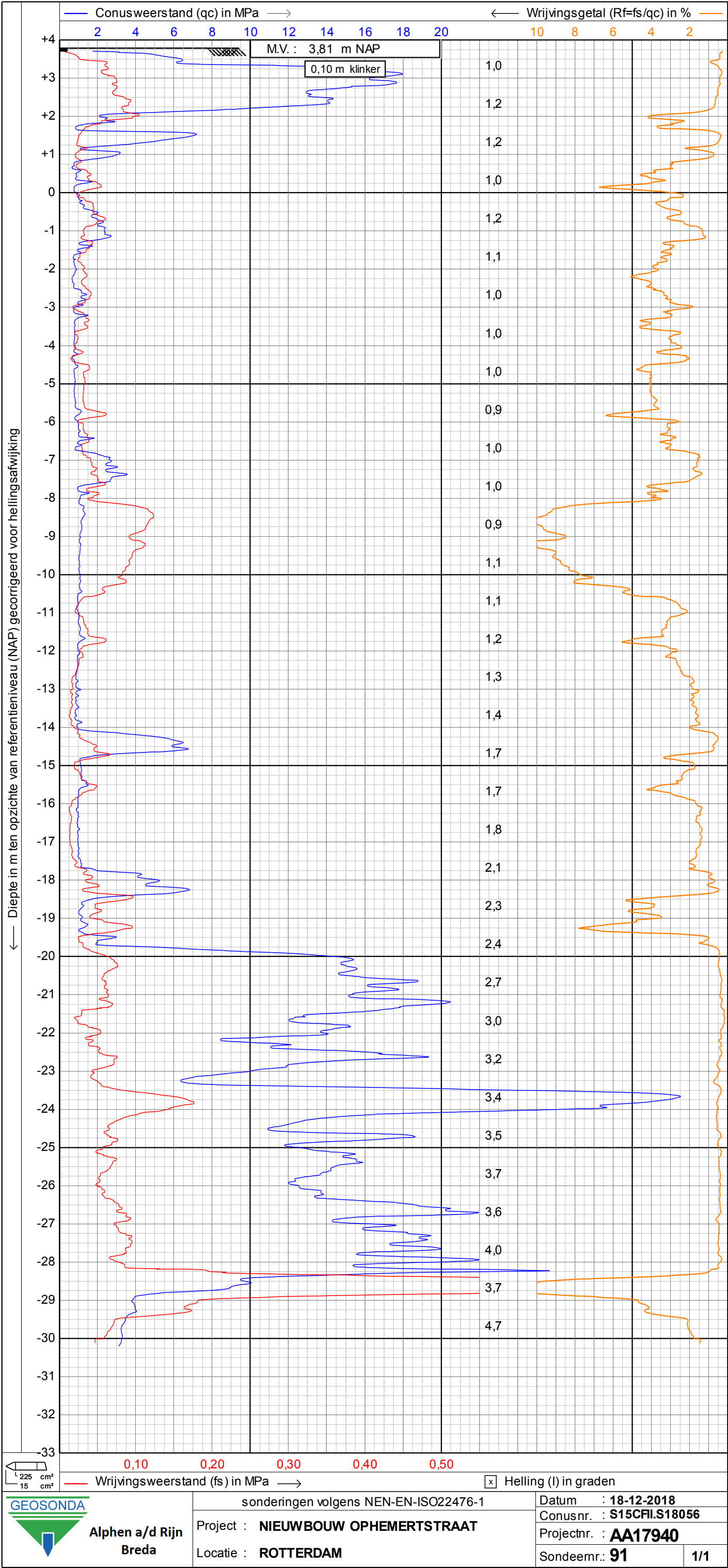


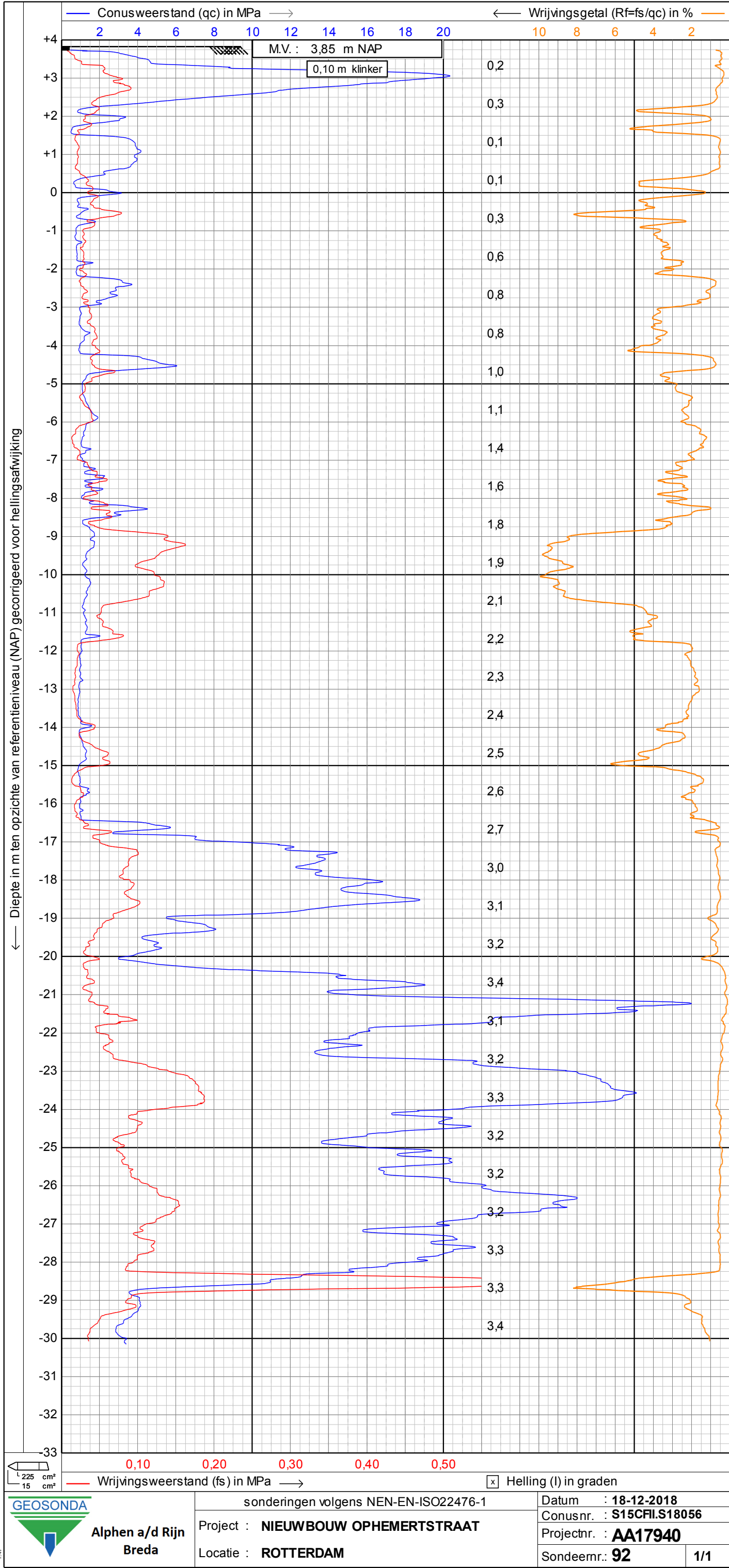


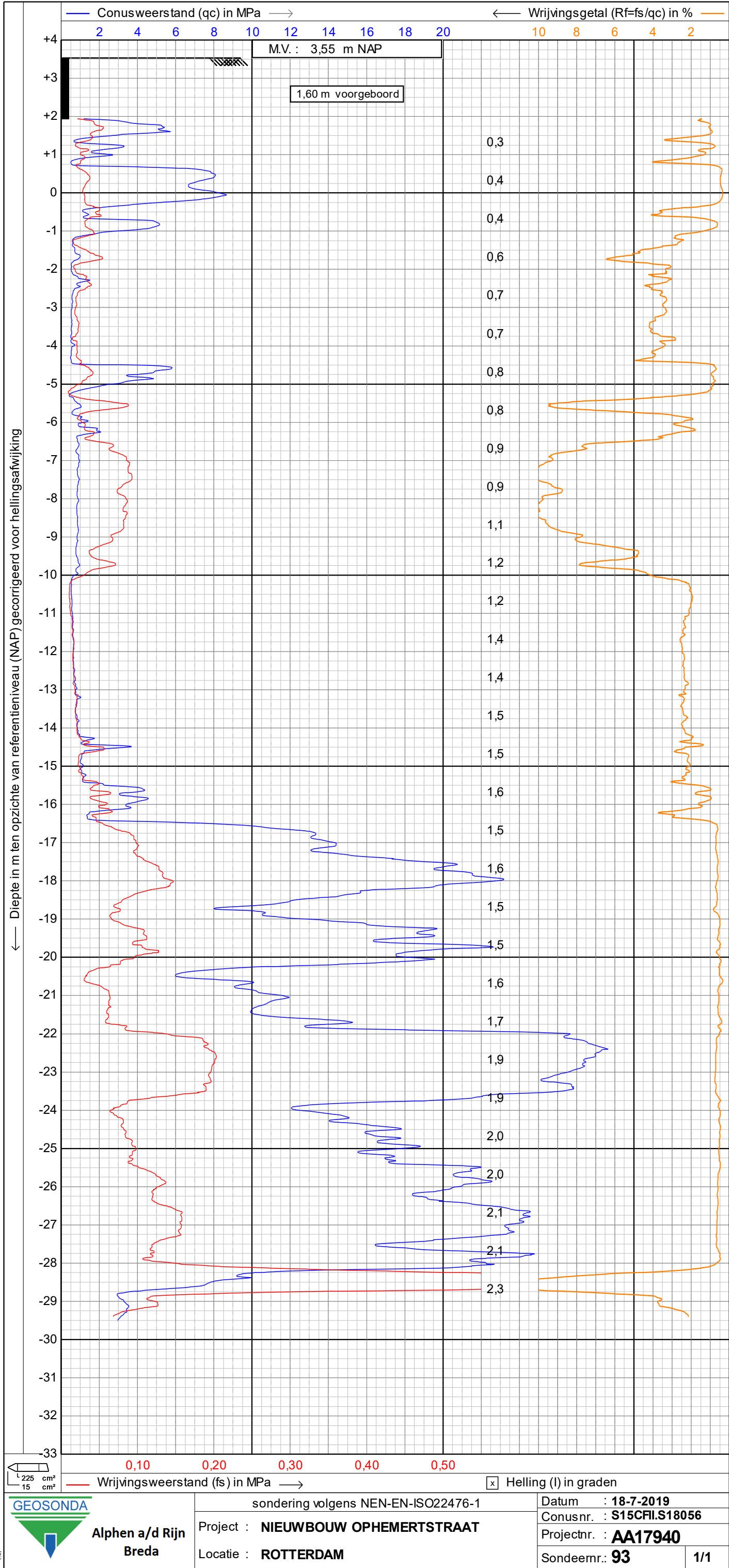


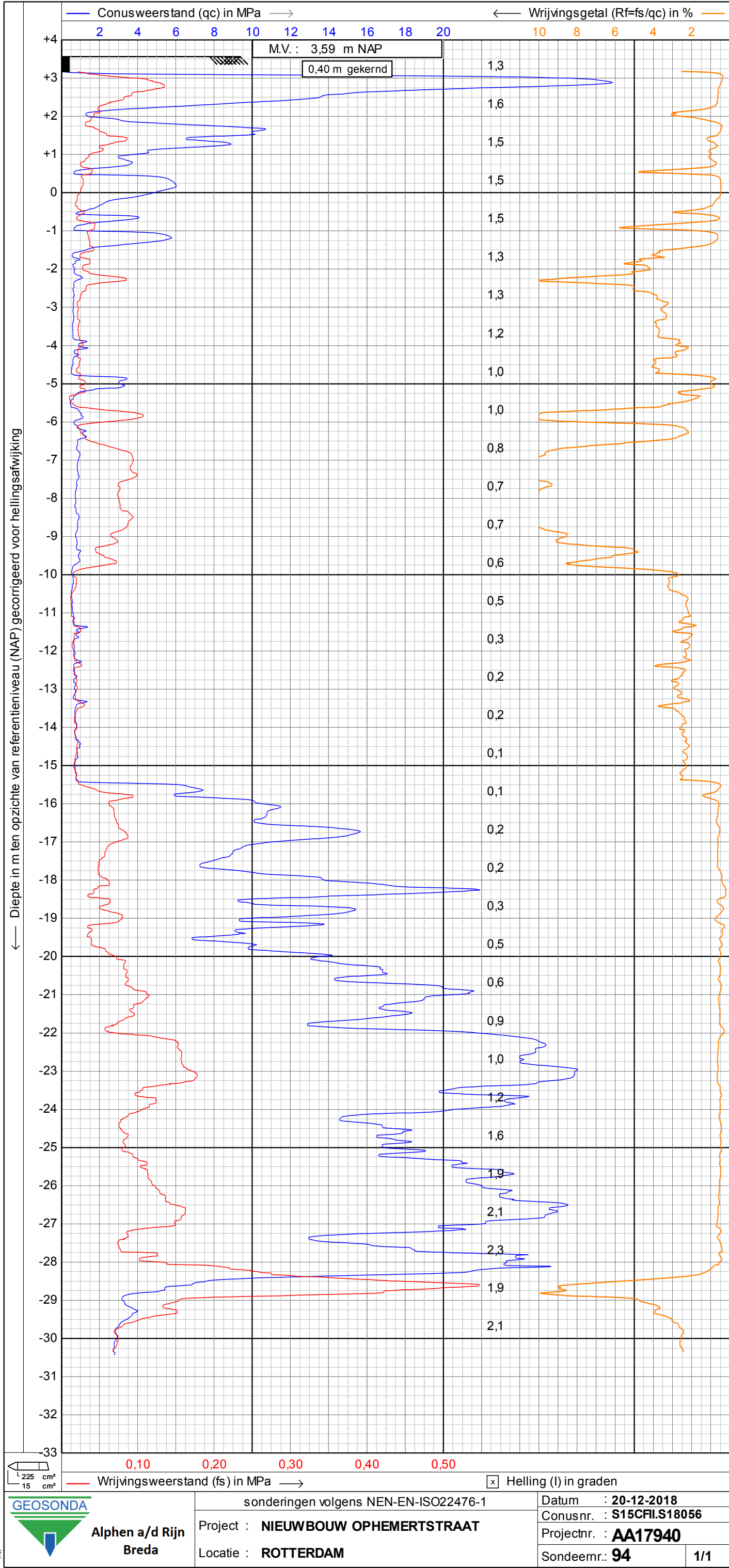


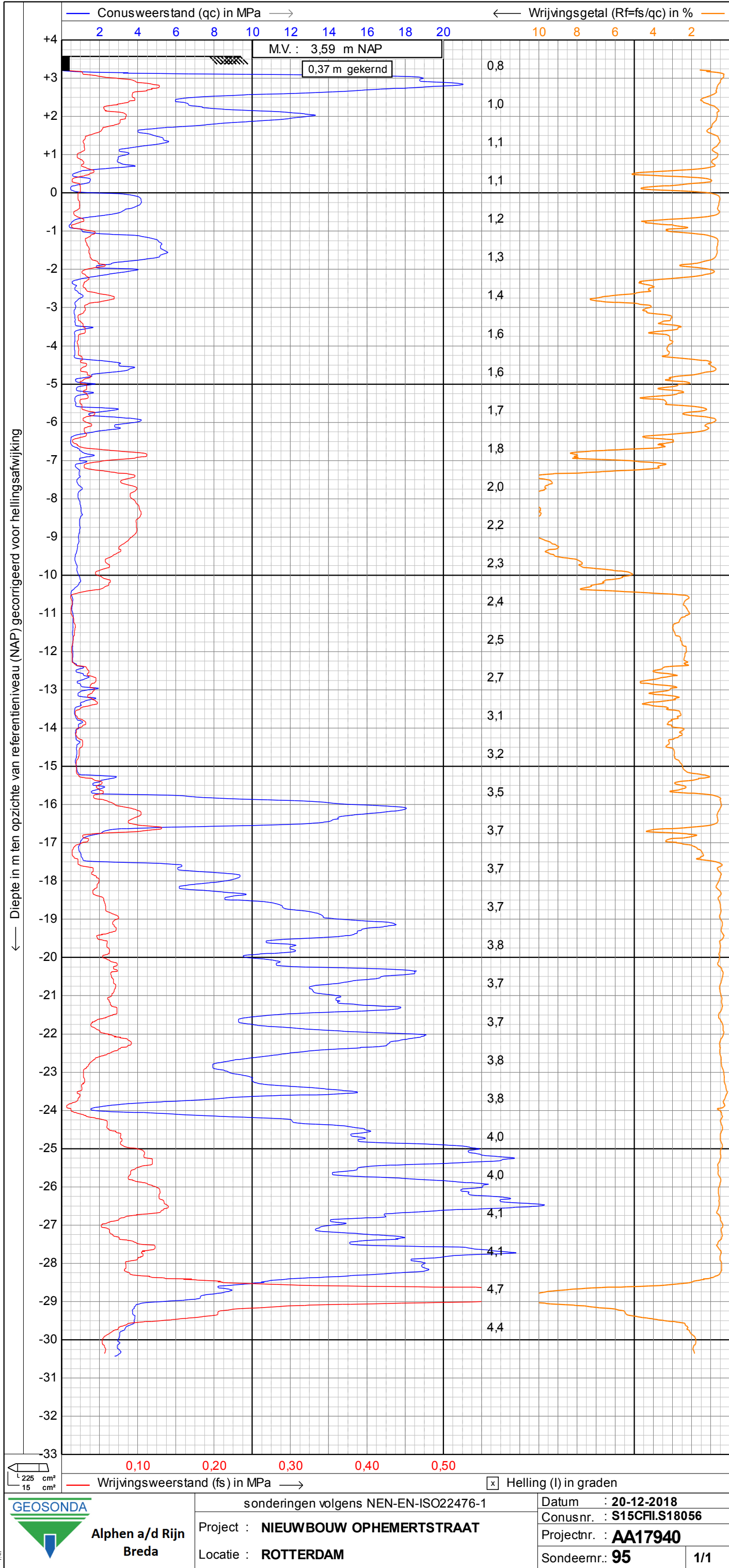












← Diepte in m ten opzichte van referentieniveau (NAP) gecorrigeerd voor hellingsafwijking

— Conusweerstand (qc) in MPa →

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

0

M.V. : 0,00 m NAP

-1

0,30 m gekernd

2,2

-2

-3

Gestaakt i.v.m. obstakel

-4

-5

-6

-7

-8

-9

-10

-11

-12

-13

-14

-15

-16

-17

-18

-19

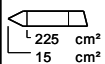
-20

-21

-22

-23

-24



☒ Helling (I) in graden



Alphen a/d Rijn
Breda

sonderingen volgens NEN-EN-ISO22476-1

Project : **NIEUWBOUW OPHEMERTSTRAAT**

Locatie : **ROTTERDAM**

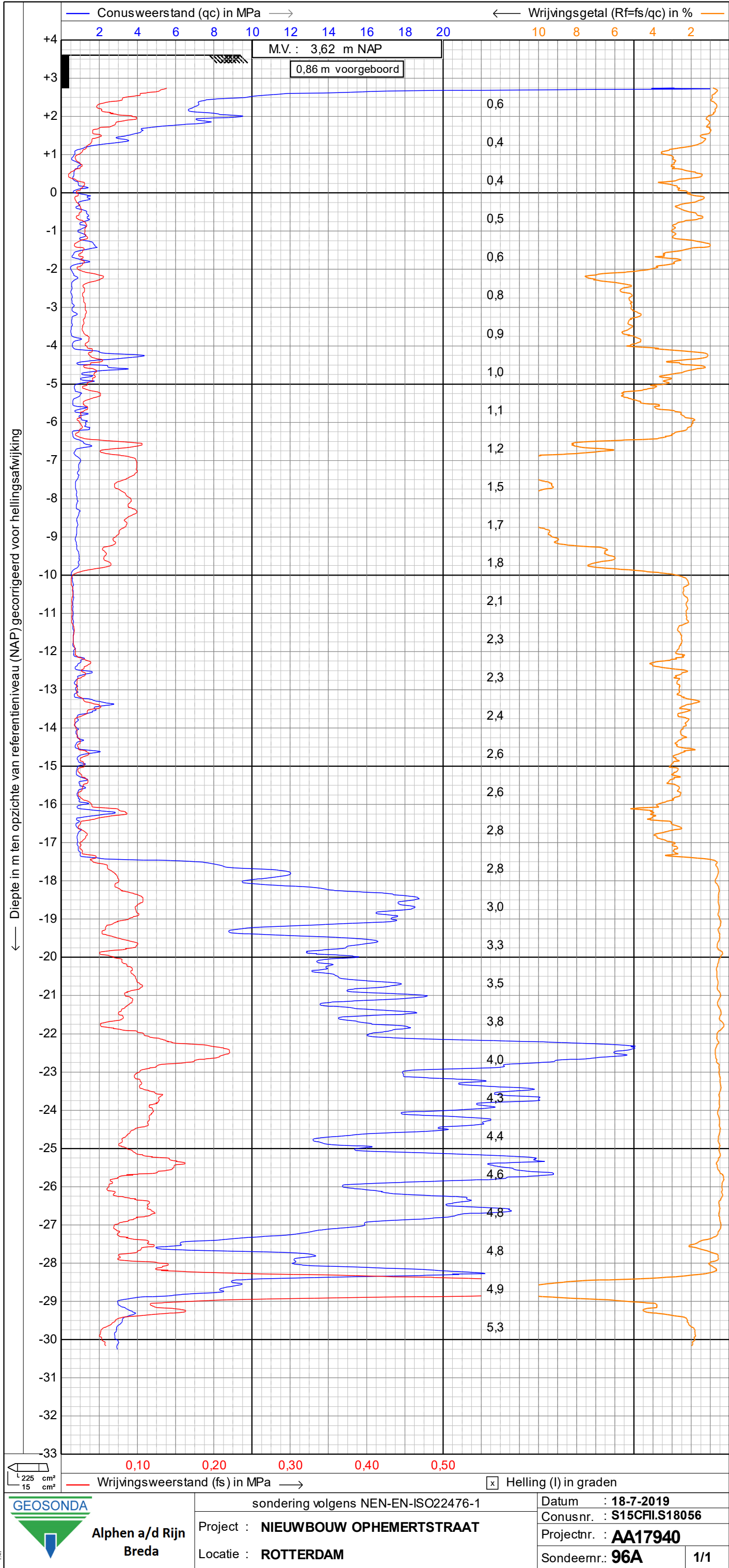
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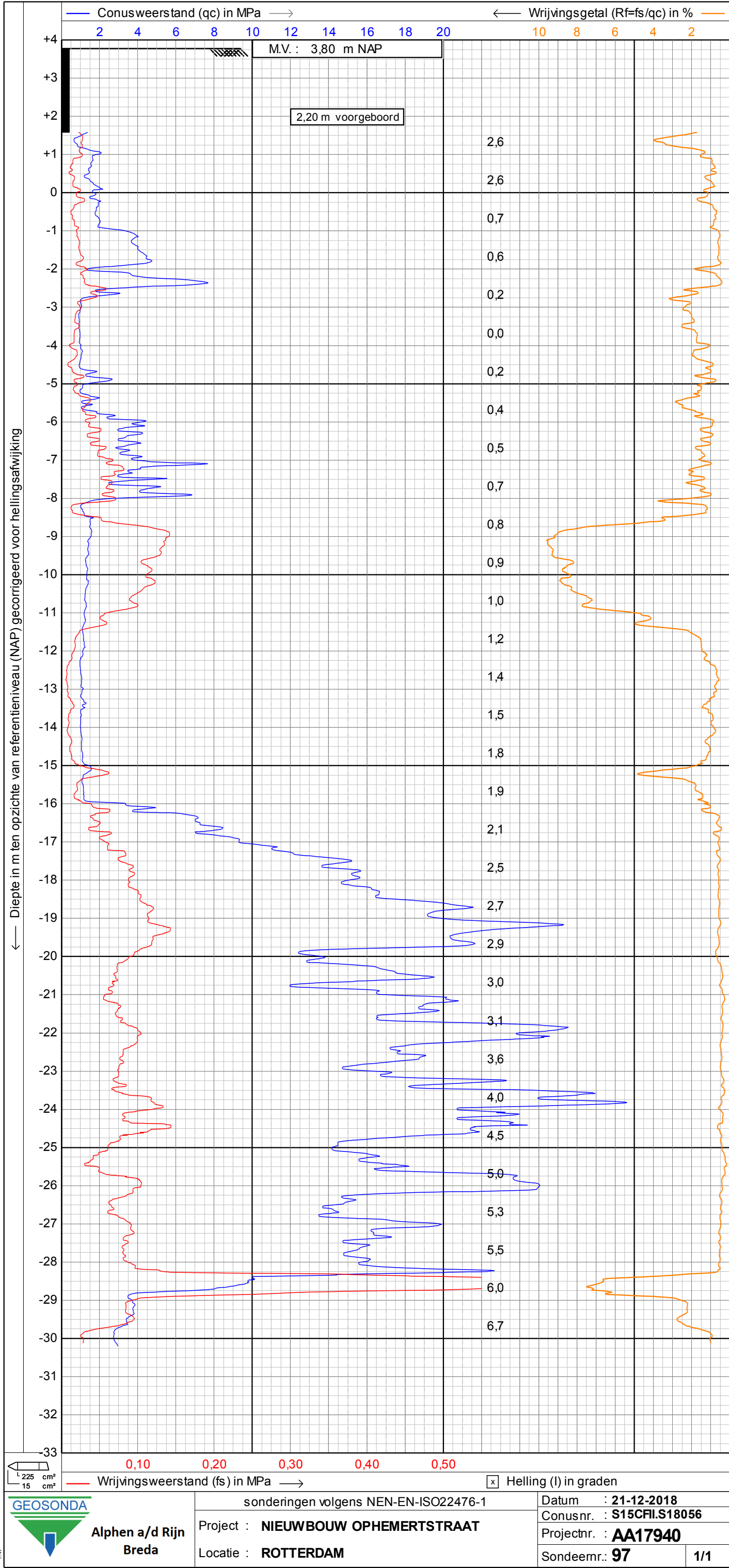
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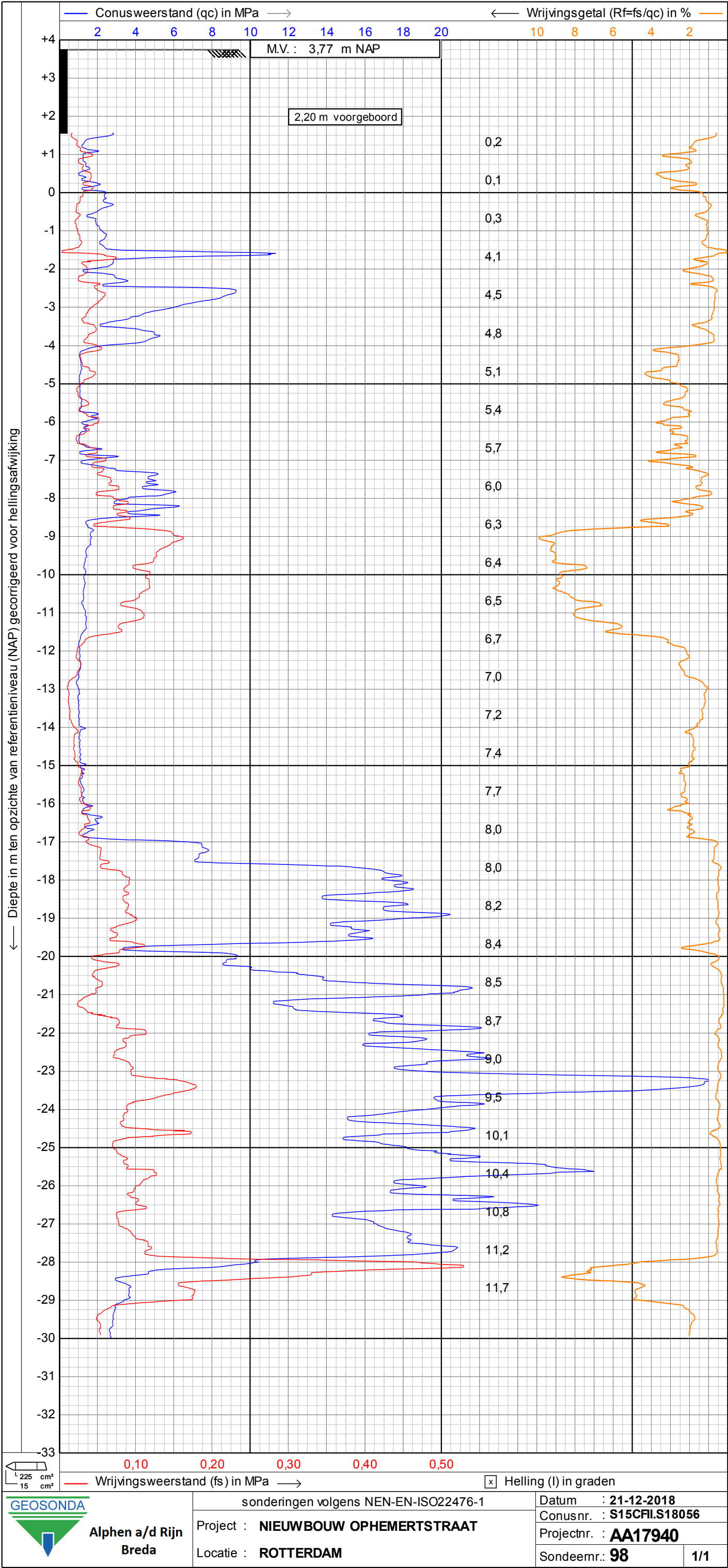
Projectnr. : **AA17940**

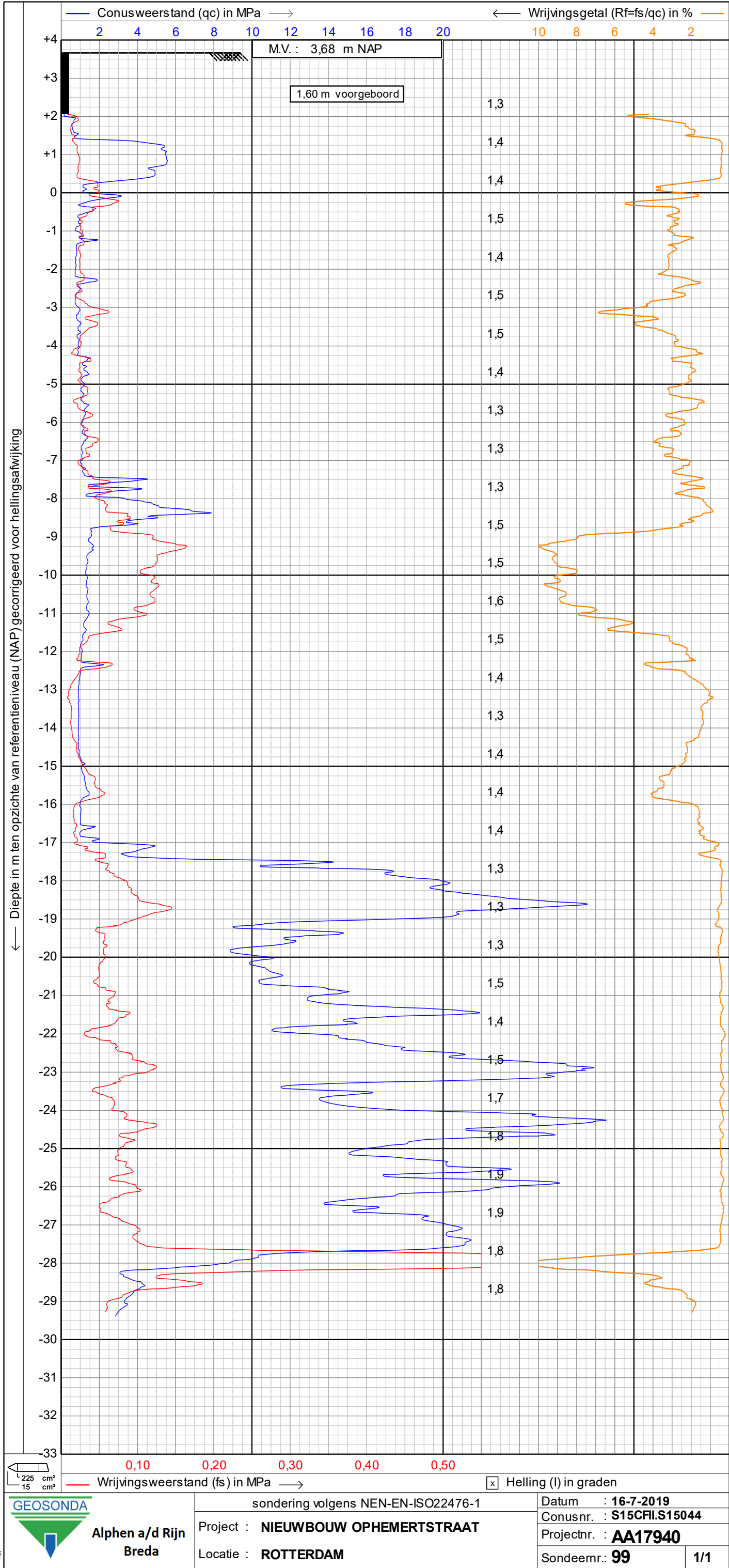
Sondeernr.: **96**

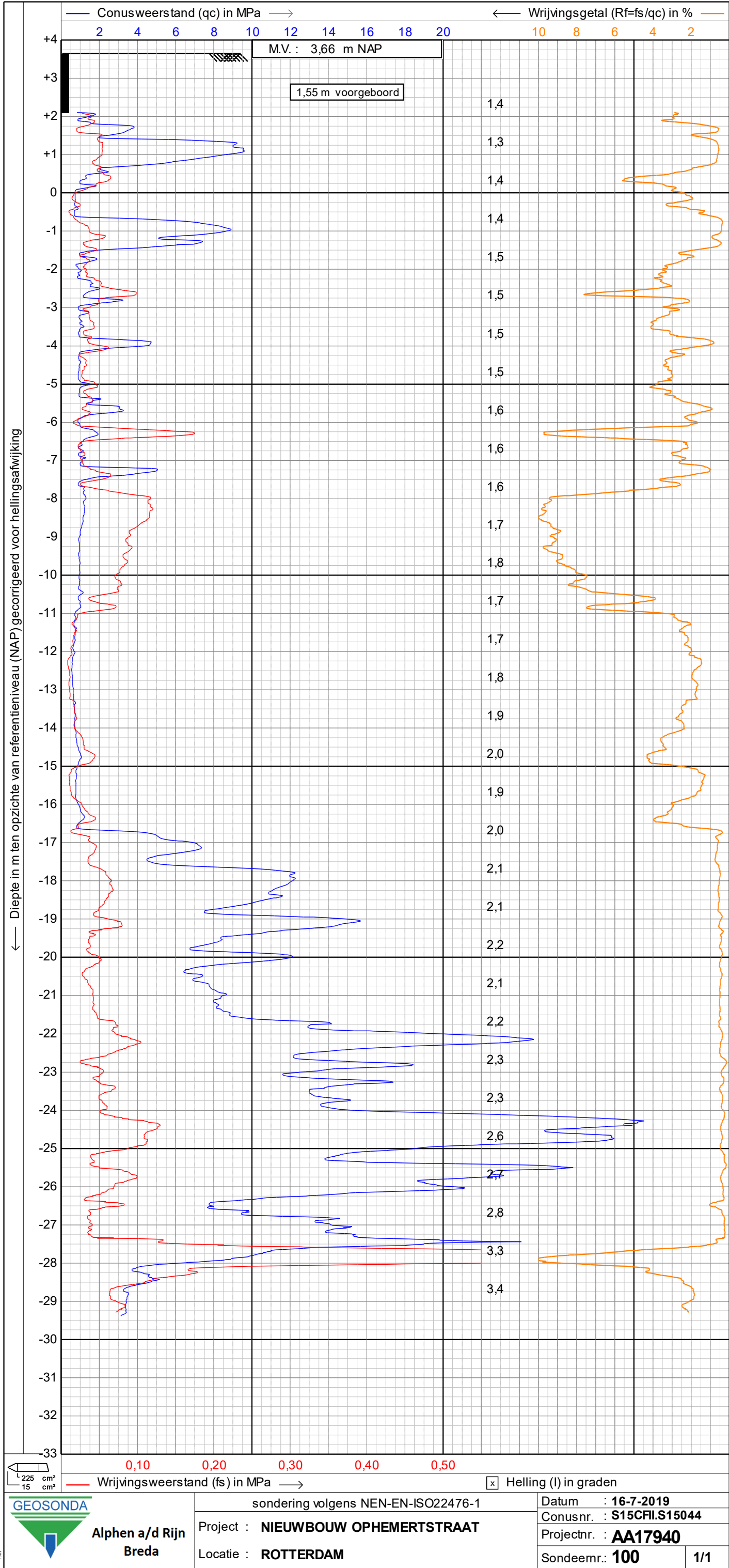
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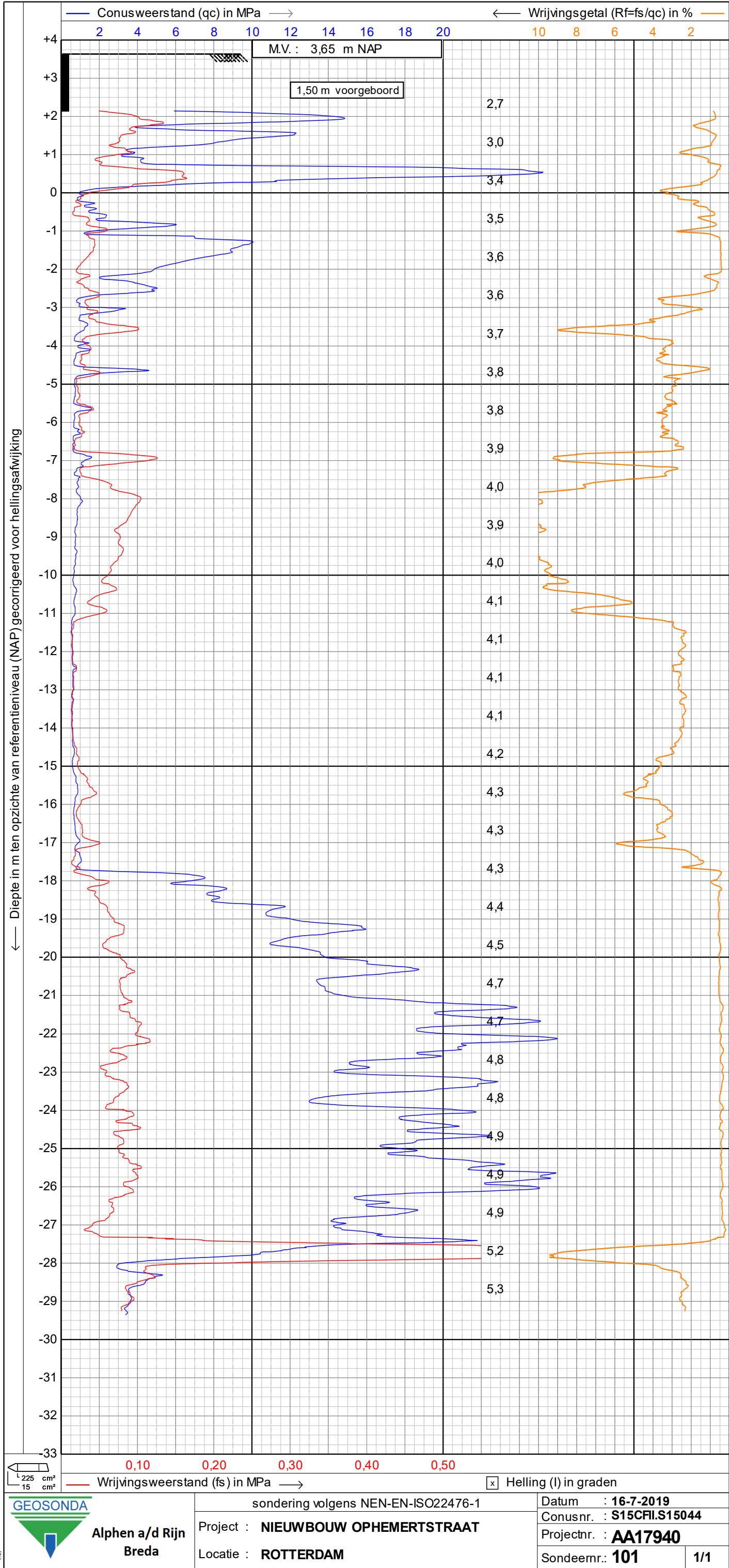


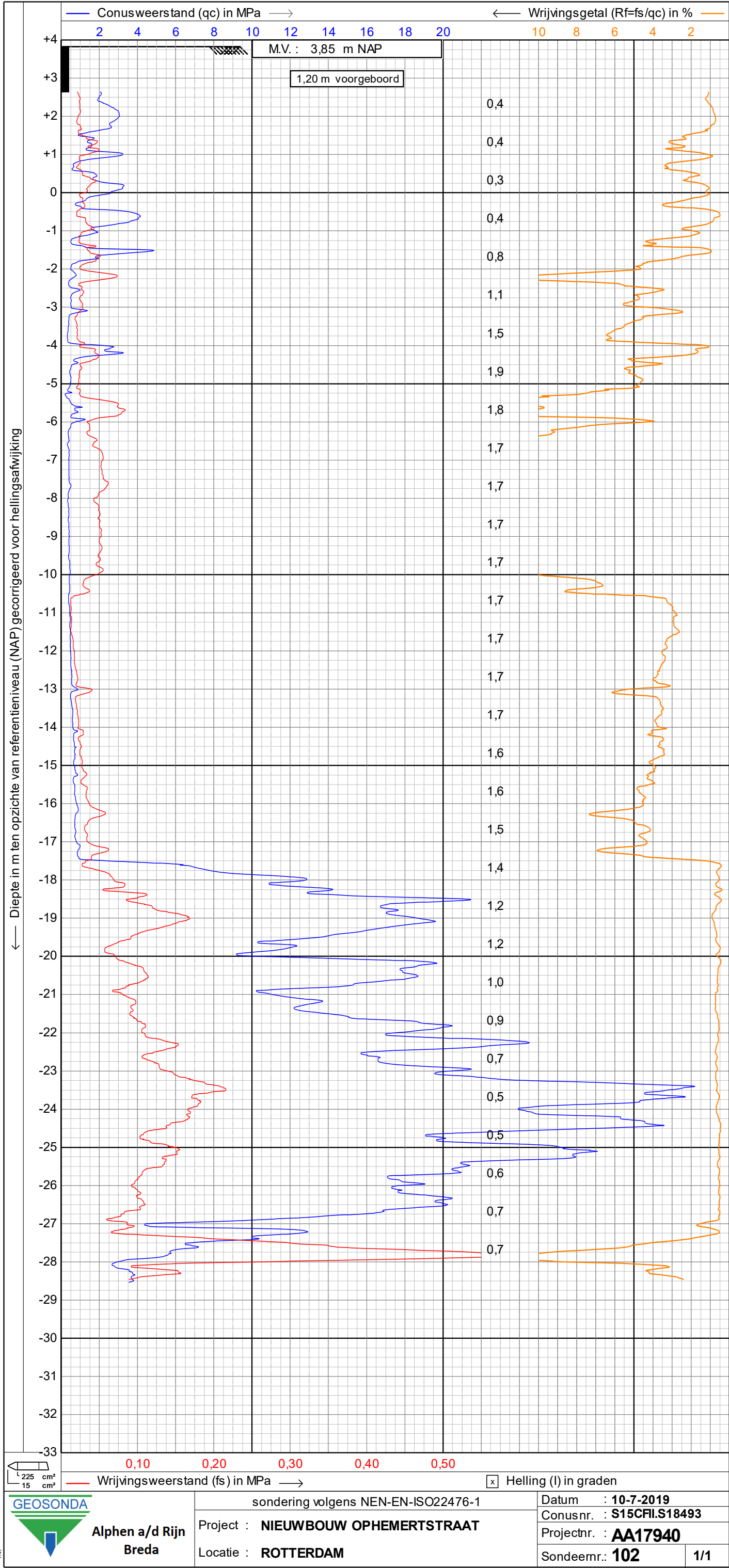


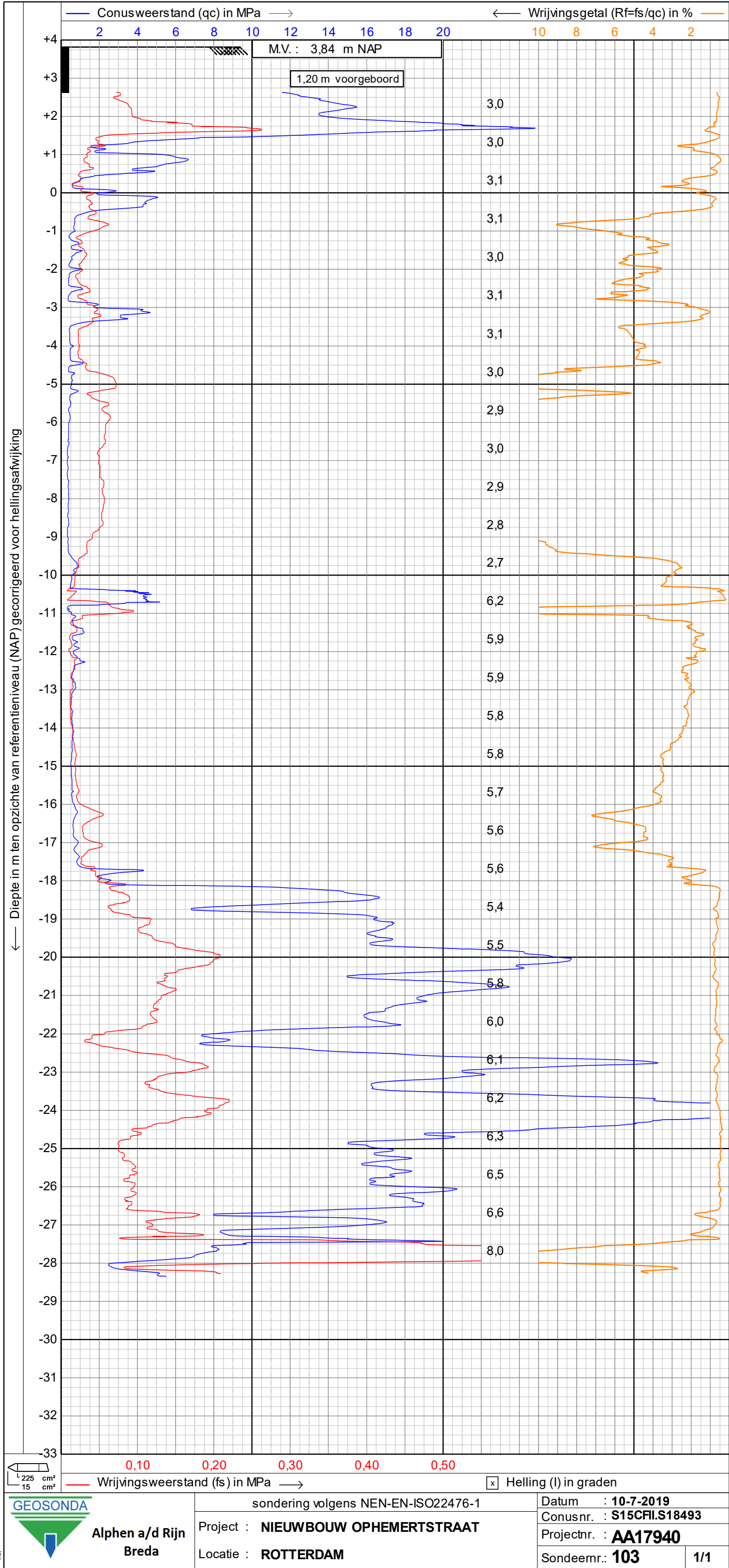


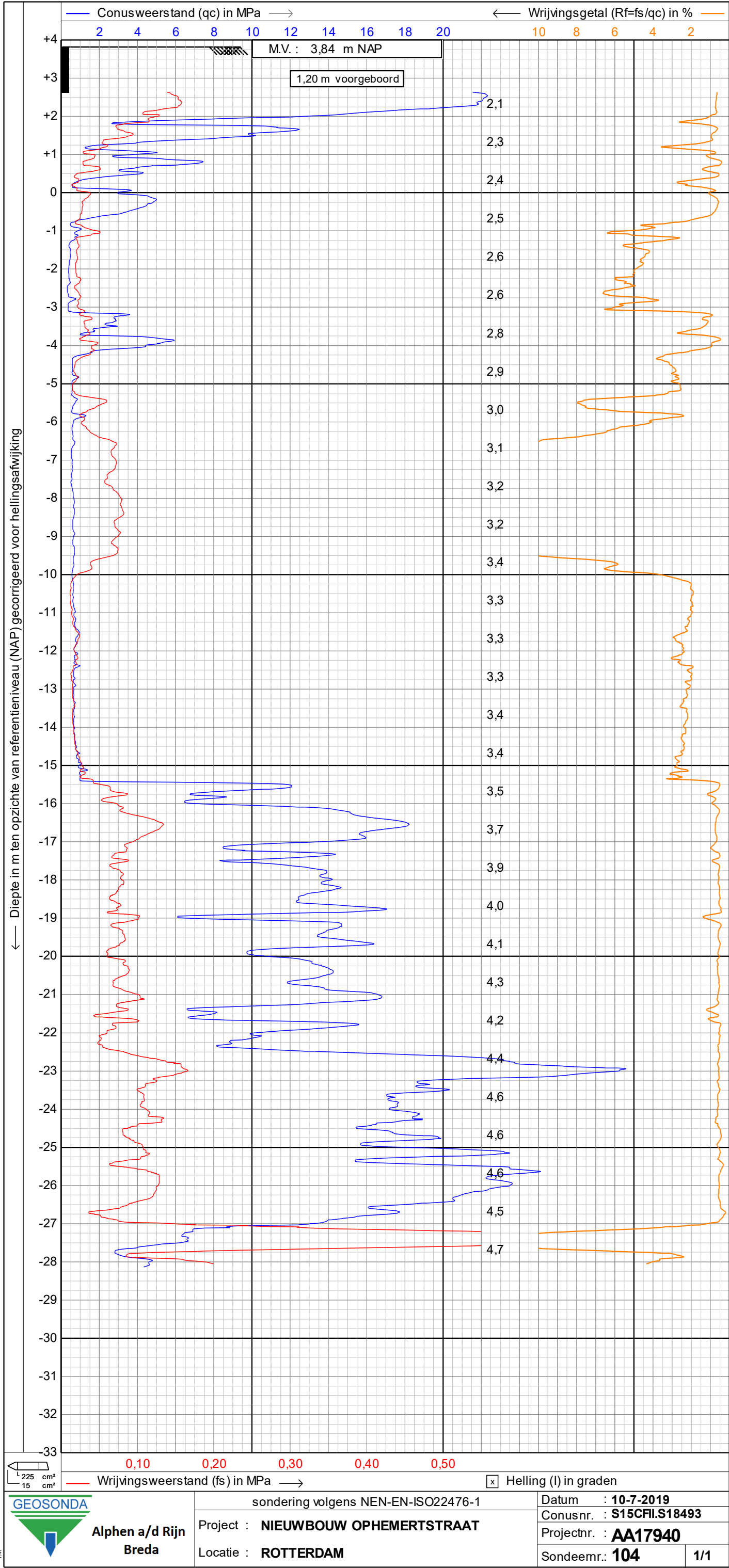


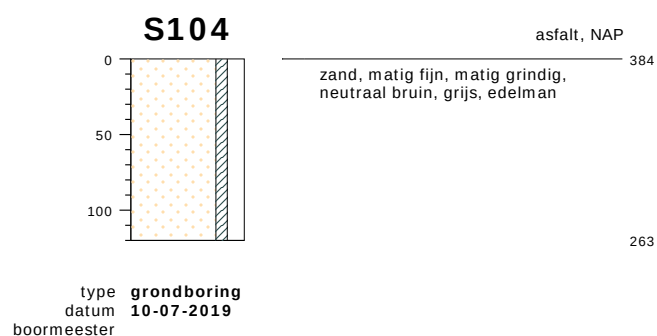
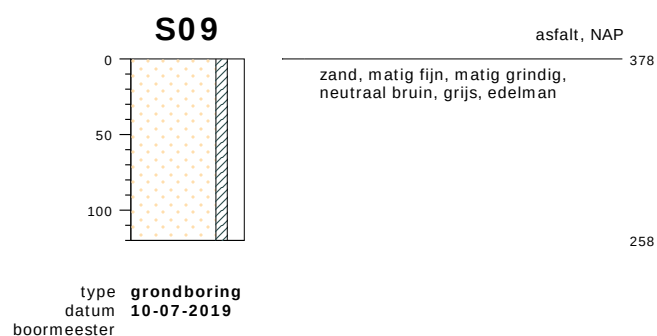
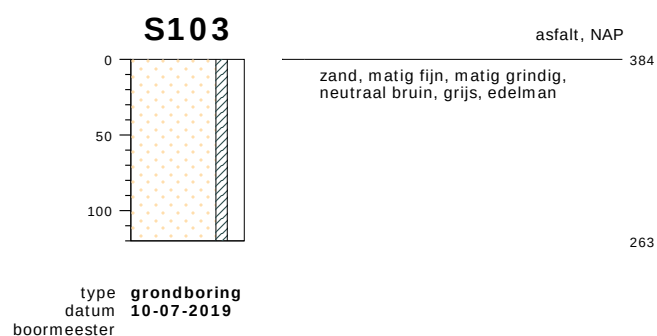
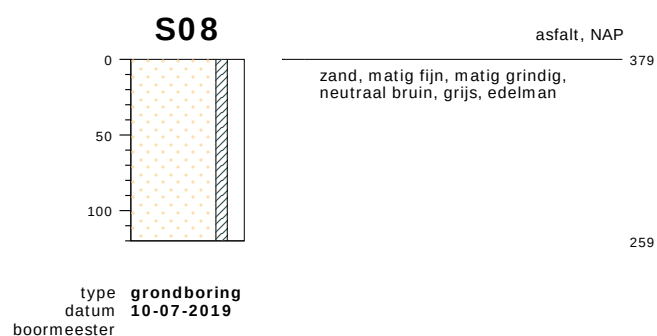
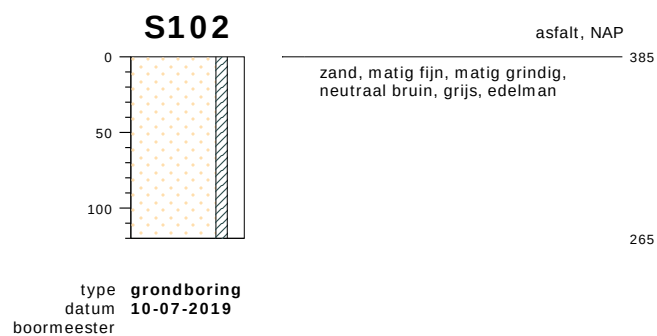
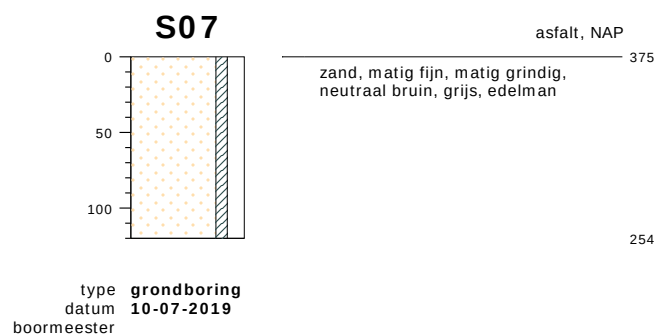
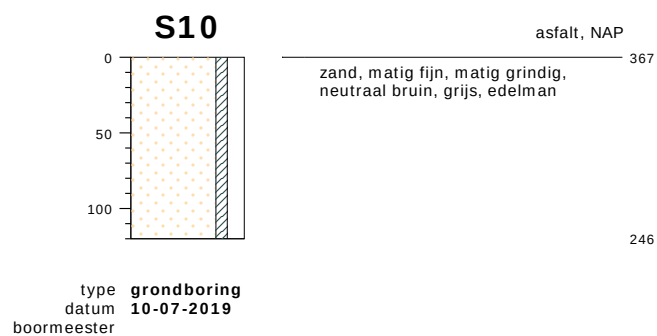
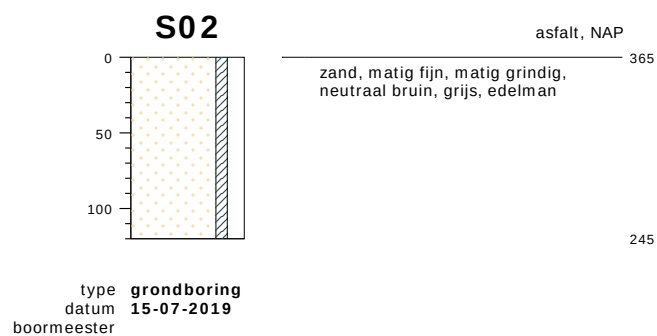








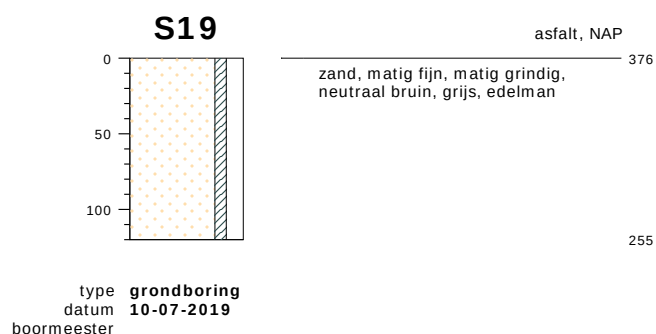
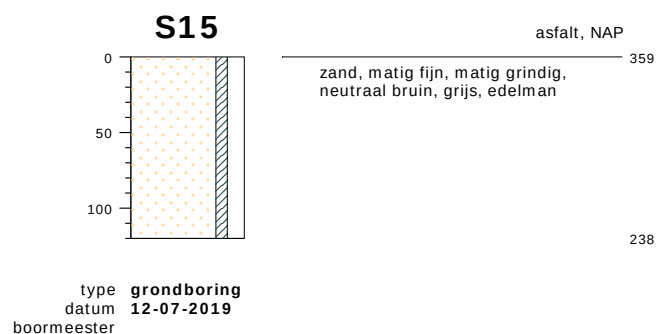
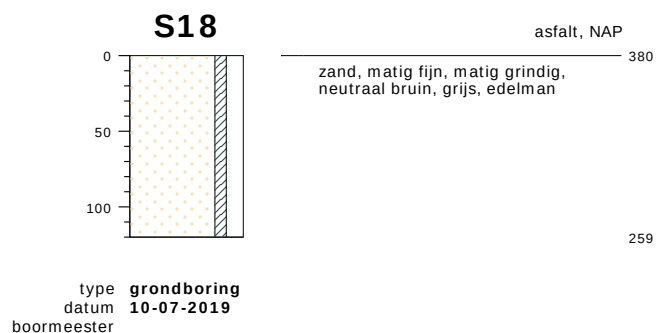
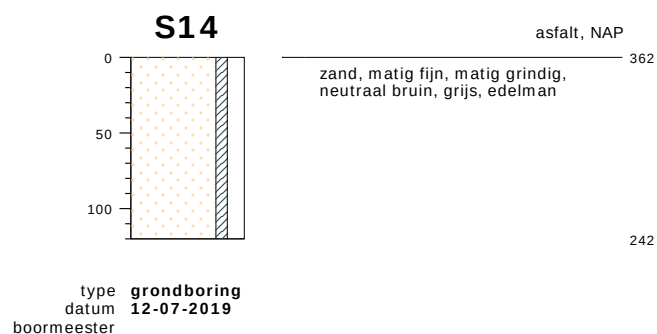
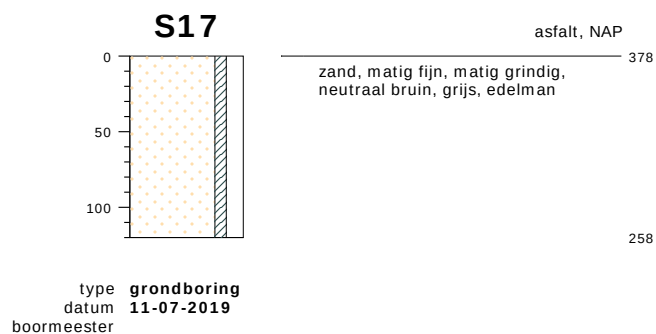
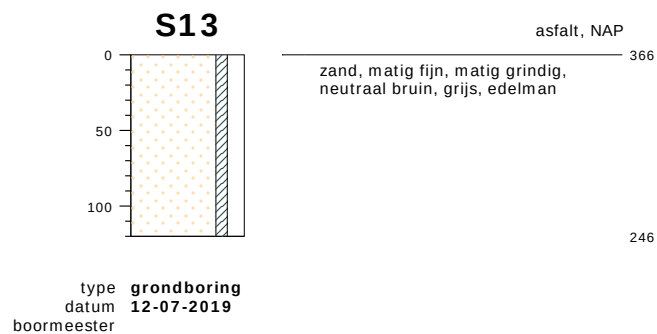
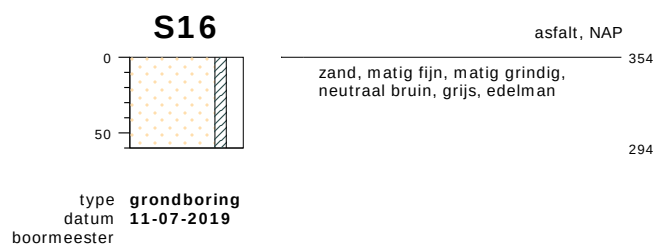
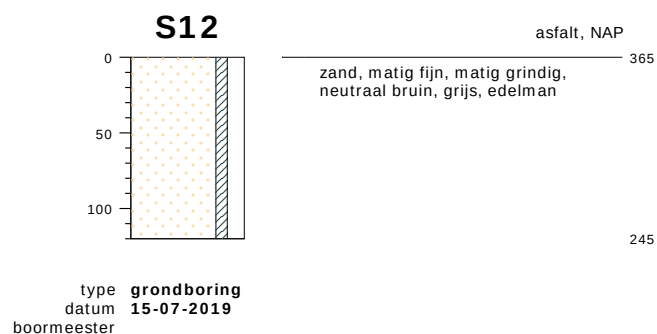




bodemprofielen

onderzoek **NIEUWBOUW OPHEMERTSTRAAT TE ROTTERDAM**
projectcode **AA17940**
datum **17-07-2019**
getekend conform **NEN 5104**
pagina **1 van 5**

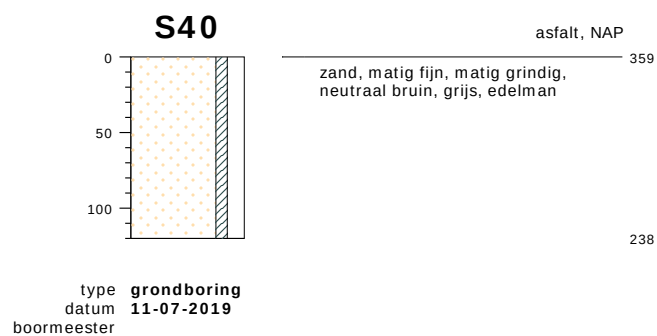
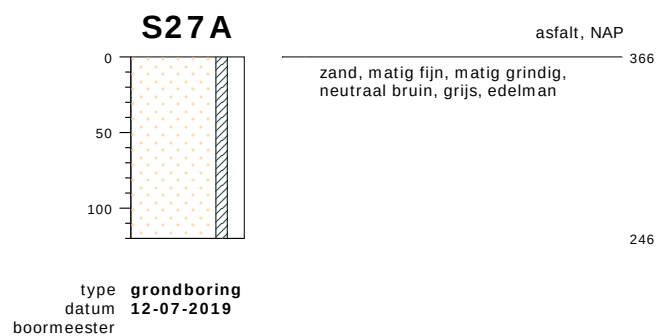
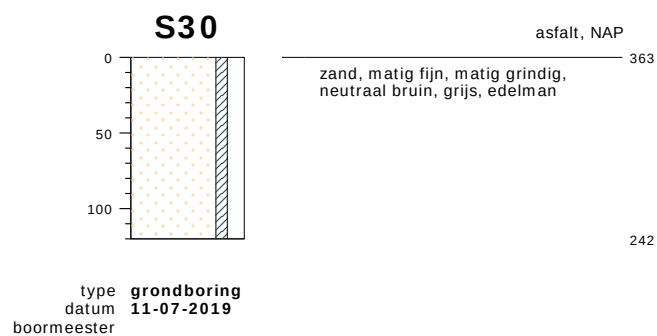
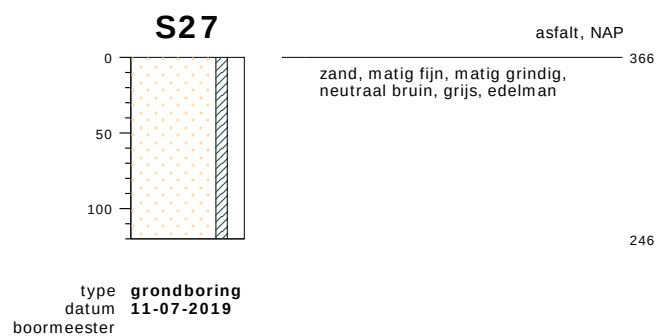
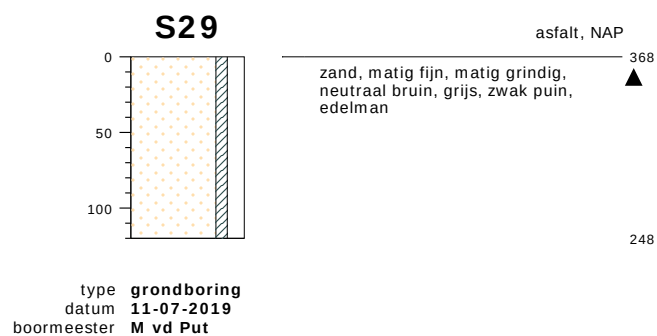
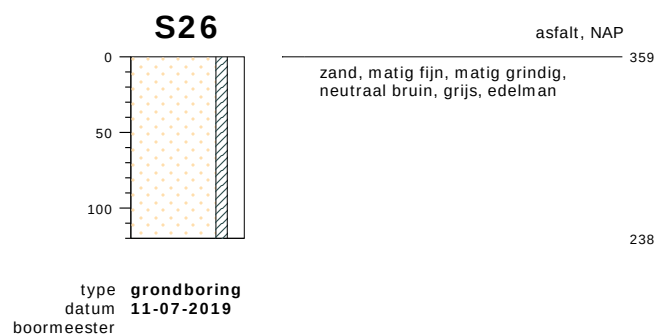
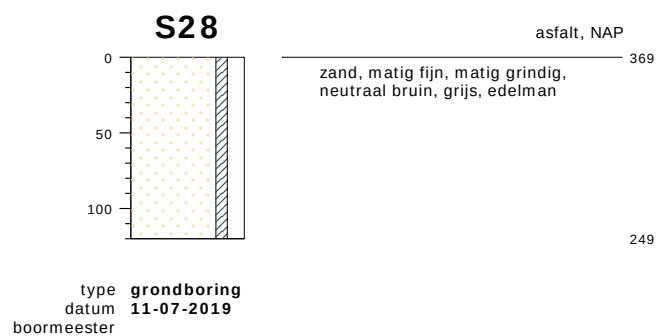
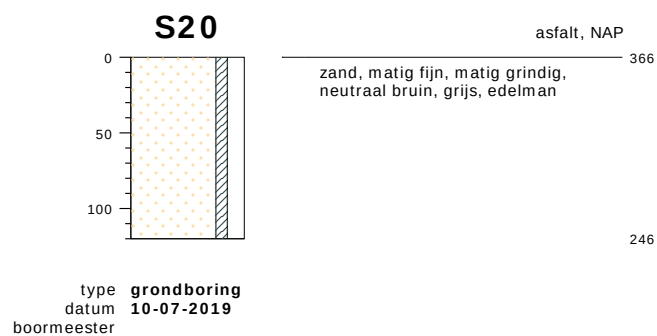




bodemprofielen

onderzoek **NIEUWBOUW OPHEMERTSTRAAT TE ROTTERDAM**
 projectcode **AA17940**
 datum **17-07-2019**
 getekend conform **NEN 5104**
 pagina **2 van 5**

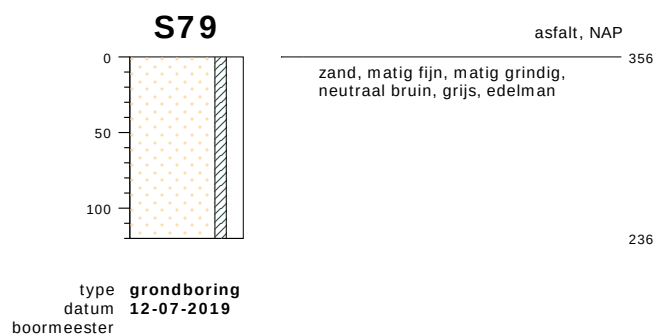
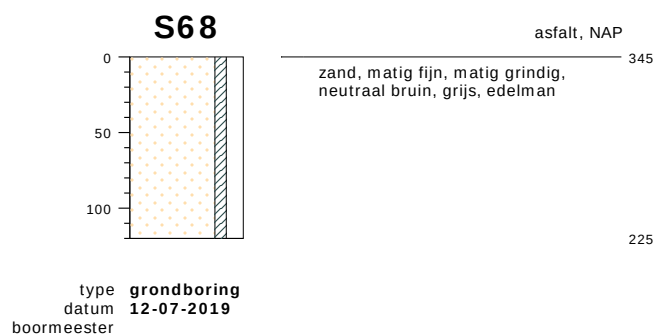
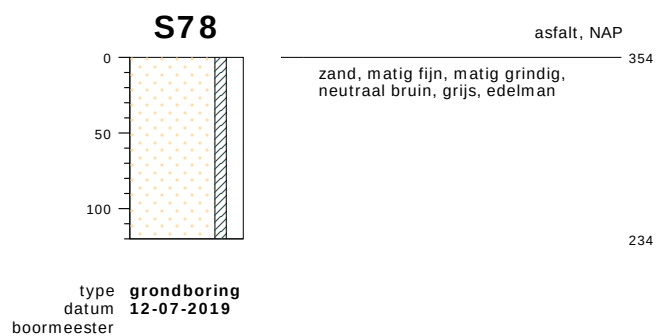
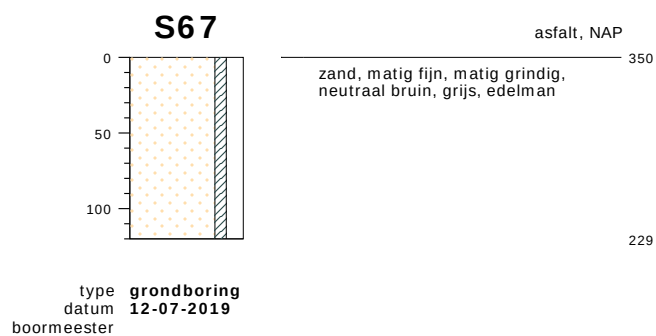
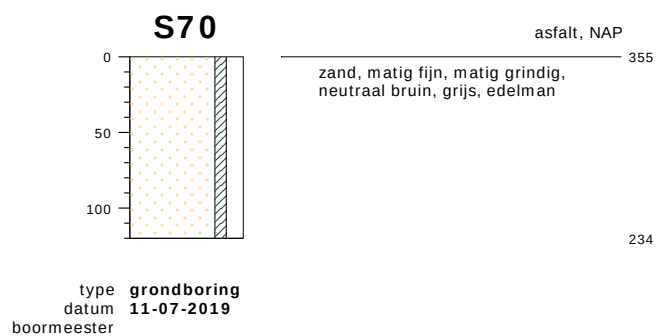
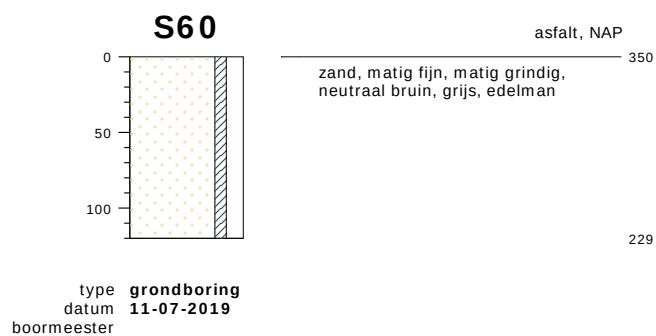
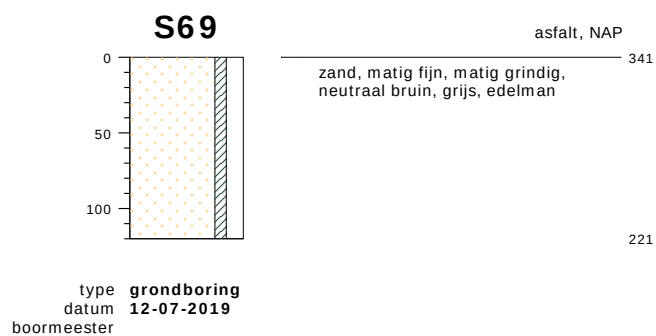
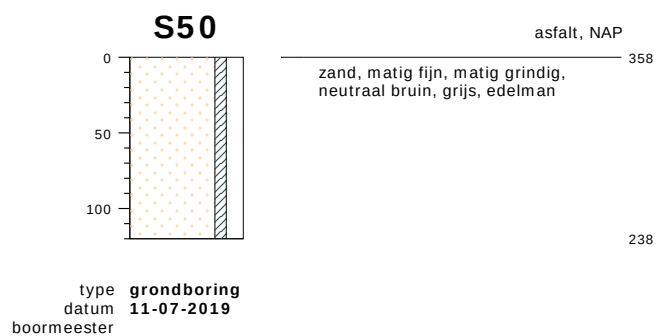




bodemprofielen

onderzoek **NIEUWBOUW OPHEMERTSTRAAT TE ROTTERDAM**
projectcode **AA17940**
datum **17-07-2019**
getekend conform **NEN 5104**
pagina **3 van 5**

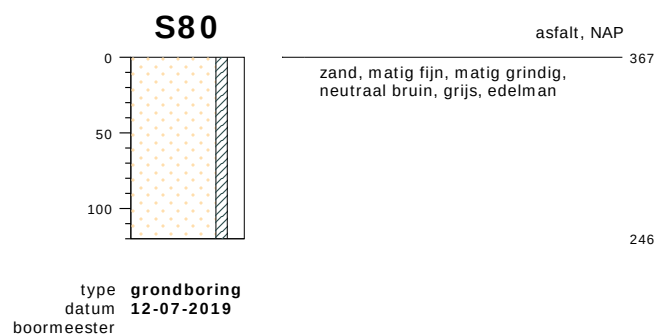




bodemprofielen

onderzoek **NIEUWBOUW OPHEMERTSTRAAT TE ROTTERDAM**
 projectcode **AA17940**
 datum **17-07-2019**
 getekend conform **NEN 5104**
 pagina **4 van 5**





bodemprofielen

onderzoek **NIEUWBOUW OPHEMERTSTRAAT TE ROTTERDAM**
projectcode **AA17940**
datum **17-07-2019**
getekend conform **NEN 5104**
pagina **5 van 5**





Alphen a/d Rijn
Breda

Project : NIEUWBOUW A/D OPHEMERTSTRAAT
Locatie : ROTTERDAM
Projectnr. : AA17940-2

COÖRDINATEN TABEL

Nummer	X-RD	Y-RD	Z-NAP
put 1	89105,90	433241,24	3,57
1	89236,41	433186,58	3,67
2	89222,07	433179,34	3,65
3	89206,16	433170,89	3,63
4	89190,59	433163,26	3,62
5	89174,74	433155,59	3,54
6	89159,50	433148,74	3,51
7	89143,36	433139,59	3,75
8	89128,26	433130,46	3,79
9	89112,67	433123,39	3,78
10	89096,00	433115,45	3,67
11	89231,18	433200,91	3,69
12	89215,23	433193,32	3,65
13	89199,50	433185,22	3,66
14	89183,70	433177,11	3,62
15	89168,03	433169,40	3,59
16	89152,12	433161,29	3,54
17	89137,91	433153,48	3,78
18	89120,76	433145,71	3,80
19	89104,37	433138,05	3,76
20	89088,76	433129,86	3,66
21	89224,03	433215,56	3,67
22	89208,61	433206,81	3,70
23	89192,13	433199,67	3,71
24	89176,33	433191,78	3,73
25	89160,06	433184,14	3,68
26	89144,77	433176,08	3,59
27A	89129,29	433169,17	3,62
28	89112,67	433162,67	3,69
29A	89096,44	433152,94	3,64
30	89084,54	433146,45	3,63
31A	89216,41	433230,09	3,63
32	89200,63	433222,16	3,66
33	89184,83	433214,10	3,71
34	89169,06	433206,34	3,72
35	89153,05	433197,93	3,66
36A	89137,59	433190,42	3,58
37	89121,76	433182,59	3,51
38	89105,75	433174,70	3,57
39	89090,04	433166,84	3,60
40	89077,43	433160,43	3,59
41	89209,25	433244,42	3,66
42	89193,55	433236,54	3,70



Alphen a/d Rijn
Breda

Project : NIEUWBOUW A/D OPHEMERTSTRAAT
Locatie : ROTTERDAM
Projectnr. : AA17940-2

COÖRDINATEN TABEL

Nummer	X-RD	Y-RD	Z-NAP
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44	89162,01	433220,77	3,71
45	89147,33	433213,82	3,64
46	89130,35	433204,80	3,54
47	89114,53	433197,37	3,46
48	89098,92	433189,12	3,51
49	89082,94	433181,30	3,55
50	89070,55	433173,06	3,58
51	89202,51	433259,02	3,66
52	89186,23	433250,85	3,70
53	89170,43	433242,69	3,73
54	89153,19	433233,78	3,72
55	89139,63	433228,70	3,68
56	89123,42	433220,19	3,55
57	89107,51	433211,21	3,43
58	89091,30	433203,03	3,31
59	89075,95	433195,51	3,42
60	89059,95	433187,56	3,50
61	89195,23	433274,01	3,65
62	89179,04	433265,36	3,70
63	89163,09	433257,40	3,77
64	89147,30	433249,46	3,72
65	89131,59	433241,54	3,67
66	89116,63	433233,87	3,54
67	89100,07	433225,73	3,50
68	89084,24	433217,87	3,45
69	89068,54	433210,00	3,41
70	89052,36	433201,86	3,55
71	89188,31	433282,21	3,57
72	89173,94	433275,68	3,62
73	89157,96	433267,52	3,61
74	89141,69	433259,39	3,61
75	89127,48	433252,00	3,62
76	89111,31	433243,54	3,52
77	89095,26	433235,42	3,54
78	89080,84	433226,14	3,54
79	89064,78	433218,21	3,56
80A	89046,34	433211,85	3,68
81	89170,02	433283,76	3,65
82	89153,92	433277,45	3,76
83	89137,59	433269,14	3,70
84	89121,78	433261,34	3,72
85	89105,95	433253,27	3,54

COÖRDINATEN TABEL

[illegible]

