Appendix A.2c

Geotechnical Investigation: Data Report –
Beaver Dam Mine, January 15, 2021as
Completed for the Updated 2021 Beaver Dam Mine EIS

REPORT

Geotechnical Investigation: Data Report

Beaver Dam Mine

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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) has prepared this factual report for Atlantic Mining NS Corp. (Atlantic), a wholly owned subsidiary of St. Barbara Ltd., encompassing the geotechnical investigation program undertaken in support of the design of building infrastructure, local roads, settling ponds, and stockpiles for the proposed Beaver Dam Mine Project (Beaver Dam) located in Marinette, Nova Scotia.

This report does not include the desktop review and planned investigation of pit slope stability, which is to be provided under separate cover.

1.1 General

The scope of work contracted to Golder includes geotechnical site investigation and geotechnical design recommendations. The completed geotechnical investigation includes the following:

- Excavating test pits and soil sampling
- Borehole drilling and soil and rock sampling
- Standard Penetration Testing
- Installation and development of standpipe piezometers
- Single well response testing
- Geophysical testing (carried out by others)
- Laboratory testing of select soil and rock samples

This Geotechnical Investigation Report presents the factual results from the field program. The results of laboratory testing, analysis and interpretation of the factual results, and geotechnical design recommendations will be provided separately in the Engineering Report.

The reader is referred to the "Important Information and Limitations of this Report" (Section 5.0), which forms an integral part of this document.

1.2 Coordinate and Unit System

All coordinates given in this report were provided to Golder by Atlantic, with NAD83 as the datum. All locations were staked in advance of the field work. It is assumed that an "as-built" location survey is not required.

This report is presented using the International System of Units (SI), where length is described in meters (m), force in Newtons (N), and pressure in Pascals (Pa). Kilonewtons (kN) are used to describe large quantities of force, whereas kilopascals (kPa), megapascals (MPa), and gigapascals (GPa) are used to describe large quantities pressure or stiffness. Centimetres (cm) and millimetres (mm) are used to describe small quantities of length, and kilometres (km) are used to describe large quantities of length, as appropriate.

1.3 Project Description

The Geotechnical investigation was performed to provide subsurface information for the following project components for the proposed Beaver Dam mine site:

1) Building Infrastructure – buildings for the mine site
2) Local Roads – roads within the facility footprint
3) Settling Ponds – settling ponds for water management
4) Stockpiles – waste rock storage areas (WRSAs) and other material stockpiles

Figure 1 presents the general site investigation plan. Figures 2A through 2C present the site investigation plans for the following proposed infrastructure:

- Figure 2A: Site Investigation Plan – NAG and Low Grade Ore Stockpiles
- Figure 2B: Site Investigation Plan – Open Pit, PAG, and Till Stockpiles and Plant Site
- Figure 2C: Site Investigation Plan – Organic Material Stockpile

1.4 Site Description

The worksite is accessed by Beaver Dam Road off Nova Scotia Highway 224. The project area was focused mainly along Beaver Dam Road, and two other public gravel roadways off Beaver Dam Road. These three public roadways were used throughout the investigation in order to access the investigation sites. The worksite is comprised of mainly heavily wooded areas requiring tree-clearing and access route development for drill rig and excavator access. Tree-clearing was completed by Atlantic prior to mobilization to site for the geotechnical investigation. The investigation sites were located within 700 m (maximum) from a pickup truck-accessible road. From there, the sites were mostly accessible by foot or tracked equipment only.

- The western portion of the site consisted mainly of wooded areas, where the planned infrastructure will consist of mainly non-acid generating material stockpiles. This portion of the site was accessed by existing public roadways off Beaver Dam Road.
- The northern portion of the site consisted of wooded areas and is known to contain abandoned mine openings (AMOs). This is the area planned for the open pit, mine haul roads, and settling ponds. This part of site is accessed by Beaver Dam Road.
- The eastern portion of the site consisted of brush and small trees, where the planned mine infrastructure will consist of till and organic material stockpiles. This part of the site was accessed by existing public roadway east of Beaver Dam Road. The existing public roadway led to the water extraction point (Killag River) used throughout the geotechnical drilling phase.

2.0 FIELD INVESTIGATION METHODOLOGY

2.1 General

The geotechnical field investigation consisted of two main phases: test pitting and borehole drilling. Test pitting required grab-sampling, bulk-sampling, and logging of subsurface conditions. The borehole drilling program included standard penetration testing using split-spoon samplers, California Modified sampling, in-situ testing of soil, bedrock coring, and logging of subsurface conditions. Installation of standpipe piezometers was also completed during the drilling phase. One investigation location was prepared for electrical resistivity testing and vertical seismic profiling. The following subsections describe the methodologies for the field investigation.

2.2 Test Pit Excavation and Sampling

Test pitting was carried out using a track-mounted excavator provided by NR Kenny Logging Limited of New Glasgow, Nova Scotia. NR Kenny Logging Limited was contracted by Atlantic and supervised during advancement by Golder staff. Test pits were advanced with either a John Deere LC210 or John Deere LC160 tracked excavator. Test pits were excavated to refusal on bedrock or to practical refusal (i.e., to the full digging reach of the machine or termination due to sidewall sloughing). Test pits were backfilled with the excavated soil and nominally compacted using the excavator bucket. Further details and results regarding test pitting are found in Section 4.2. The test pit logs, and photographs of the excavated pits are provided in Appendix B and D, respectively.

Grab sampling and bulk sampling were performed during test-pitting. Geotechnical logging of the soil conditions encountered was carried out by Golder field staff. The following descriptors were recorded during test pitting:

- Soil constituents and general characteristics, including the presence of organic matter and cobbles and/or boulders (as seen during excavation).
- Field moisture condition and inferred compactness (if applicable, based on excavation effort).
- Ground-water infiltration and inferred ground-water level during excavation.

The overburden soils encountered were classified based on the Unified Soil Classification System (USCS), as described in ASTM D2487. The soils were further described according to Golder's Soil Description System, which is designed to capture engineering attributes not included in the USCS classification. Further details of the method of soil classification and the symbols, abbreviations, and terms used on the Record of Test Pit sheets are provided in Appendix A.

2.3 Borehole Drilling and Sampling

2.3.1 Drilling Equipment and Procedures

Borehole drilling was performed by Logan Drilling Group International (Logan) of Stewiacke, Nova Scotia, using a CME-75 drill rig mounted on a tracked carrier. Logan was contracted by Atlantic and supervised during borehole drilling by Golder staff, who logged the soil and rock samples at the drill rig as they were recovered. Details and results of the boreholes are presented in Section 4.3. The borehole and drillhole logs are presented in Appendix C.

All boreholes were drilled at vertical inclination. Depending on the subsurface conditions encountered, boreholes through the overburden were advanced by rotary diamond coring in HQ3 or PQ3[1]-size. Casing (HWT or PWT[1]-size) was advanced at a majority of the boreholes based on the drillers judgement in assessing the risk of overburden sloughing. Drilling fluid consisted of water pumped from the Killag River and tracked into site by water totes mounted on a separate carrier.

Boreholes in bedrock were advanced by rotary diamond coring (HQ3 or PQ3[1]-size). Upon completion of drilling, boreholes were either grouted or filled with sand and bentonite (depending on installation requirements) to the surface.

2.3.2 Soil Sampling and Logging

Sampling in overburden soils consisted of split-spoon sampling (51-mm outer sampler diameter) with Standard Penetration Testing (SPT); thick-walled, ring-lined, split barrel, drive sampling (64-mm outer diameter) (i.e., Modified California sampling).

Split-spoon sampling was performed in accordance with ASTM D1586, generally at intervals of 0.75 m to a depth of 10 m below ground surface: increasing to intervals of 1.5 m below 10 m depth.

Where specified, Modified California sampling was performed in overburden soils in accordance with ASTM D3550M to collect relatively intact samples of granular and/or glacial deposits.

Geotechnical logging of the soil conditions encountered was carried out by Golder field staff. The following descriptors were recorded during drilling:

- Soil constituents and general characteristics, including the presence of organic matter and cobbles and/or boulders[2]
- Field moisture condition and compactness or consistency
- Sampler recovery
- Blow counts for split-spoon sampler penetration (see Section 2.4.1)

The overburden soils encountered were classified based on the USCS, as described in ASTM D2487. The soils were further described according to Golder's Soil Description System, which is designed to capture engineering attributes not included in the USCS classification. Further details of the method of soil classification and the symbols, abbreviations, and terms used on the Record of Borehole sheets are provided in Appendix A.

Split-spoon soil samples were photographed in the sampler and then placed in moisture-tight containers. California samples were sealed with caps and stored upright in designated tube sample boxes.

[1] PWT casing and PQ3 coring only performed in BH2020-03B for the purpose of geophysical testing.
[2] The presence of cobbles and/or boulders in boreholes was generally inferred from split-spoon refusal, washed sample recovery during soil coring, and/or drilling resistance. The actual proportions of cobbles and boulders within the subsurface strata are unknown.

2.3.3 Wash Samples

In some cases, wash samples were taken in the field. A wash sample is defined as a disturbed soil sample retrieved from the core barrel (e.g., clean, coarse gravel) as a result of flushing out the borehole during the drilling process. Wash samples were not numbered, but rather given the designation WS and labelled with their depth interval. Wash samples were collected in a clear plastic bag and then sealed with electrical tape or zip-ties.

2.3.4 Rock Sampling and Logging

In designated boreholes, sampling in bedrock was performed continuously using a triple tube core barrel (HQ3-size, 61-mm core diameter).

Geotechnical logging of the sampled rock core was carried out by Golder field staff. The following descriptors were recorded:

- Rock type and description
- Total Core Recovery (TCR)
- Solid Core Recovery (SCR)
- Rock Quality Designation (RQD)
- Fracture index per 0.25 m
- Field estimation of rock hardness
- Weathering classification

Additionally, detailed geotechnical data pertaining to each discontinuity observed in the core were recorded as follows:

- Discontinuity type, surface description, and infill description (if applicable)
- Dip with respect to the core axis (i.e., alpha angle)

Further details of the lithological and geotechnical rock description terminology, field estimation of rock hardness, and weathering classification are provided in Appendix A.

Rock samples were organized in core boxes and then photographed in wet and dry conditions (when possible).

2.3.5 Rock Core Lab Testing

Unconfined compressive strength (UCS) tests are planned on designated rock core samples. Suitable UCS core samples were recovered during the field program and later selected by the Project Manager (PM) for further testing. All UCS tests were carried out according to ASTM D7012 at Golder's laboratories in Mississauga, Ontario.

2.4 In-Situ Testing of Soil

2.4.1 Standard Penetration Testing

Standard Penetration Testing (SPT) was performed in the overburden soils as part of the split-spoon sampling process. SPT is used to assess the in-situ compactness or consistency of soil by measuring the resistance of the soil to penetration of a standard sampler. The test procedure is outlined in ASTM D1586, where the SPT resistance or "N" value is defined as the number of hammer blows required to drive a 51-mm outer diameter split-spoon sampler a distance of 300 mm, after having first penetrated 150 mm. Generally, split-spoon sampling with SPT was performed at intervals of 0.75 m to a depth of 10 m below ground surface, and then at intervals of 1.5 m below 10 m depth.

2.5 Standpipe Piezometers

2.5.1 Installation

Standpipe piezometers (monitoring wells) were installed at select borehole locations. Monitoring wells were generally installed within the existing borehole, except for one nested well (where a second borehole was drilled adjacent to the original borehole). The monitoring wells comprised 51-mm diameter PVC screens and risers. Prior to installation, the Golder PM was contacted and provided the desired screen interval based on subsurface conditions encountered while drilling. The annulus around the screened interval was backfilled with clean silica sand, and the annulus above the screen interval was sealed with bentonite. The monitoring wells were completed at surface with a protective steel monument casing.

2.5.2 Water Level Measurements and Well Development

After installation, the monitoring well locations were revisited, and groundwater level measurements were obtained using a water-level tape. Based on the presence of groundwater, the monitoring wells will be developed with ProActive Monsoon low-flow pump system by pumping at least 10 well volumes of water from the well, or until the well is pumped dry.

Following development, Golder will complete in situ hydraulic conductivity testing by means of rising-head Single Well Response Testing (SWRT) at select locations.

2.6 Geophysical Testing

2.6.1 Borehole Preparation

Geophysical testing was specified to occur in BH2020-03. This borehole was advanced and logged as a normal borehole with regular sized (HWT and HQ3 sized gear). Upon completion, the drilling contractor attempted to tremie grout the larger diameter (75-mm) PVC casing into position; however, due to the limited space available between the borehole sidewall and casing, grouting was conducted via gravity grouting from ground surface. To accommodate for the larger diameter well and confirm displacement of water during the grouting process, a second geophysical borehole (BH2020-03B) was advanced, offset near the original borehole, with PWT-sized casing and PQ3-sized coring equipment. The 75-mm PVC pipe was tremie grouted into position upon installation. The pipe was filled with water to ensure no movement was possible while the grout cured, then later pumped out

prior to testing. The grout was mixed with the following proportions, then pumped into the hole at low pressure using a tremie-line:

- 142 L of water
- 35 kg of Portland Cement
- 30 kg of Bentonite

The mixture was mixed thoroughly in these proportions to achieve a consistency of a heavy cream, which could be pumped as a fluid.

2.6.2 Vertical Seismic Profiling

Vertical seismic profiling (VSP) testing was carried out by CSR GeoSurveys Ltd (CSR) of Porters Lake, Nova Scotia. The work was supervised by a Golder on-site representative. While performing VSP, seismic energy was generated at the ground surface by an active seismic source and recorded by a geophone located in the hollow pipe at depth intervals of 0.5 m within overburden and 1.0 m within bedrock. The time required for energy to reach the geophone along a path of known distance, between the source and receiver, provides a measurement of average compressional seismic velocity of the medium between the source and receiver. Data obtained from different geophone depths is used to calculate a detailed seismic velocity profile of the subsurface in the immediate vicinity of the test borehole

A seismic source is used at the surface to generate the seismic wave train. For this program, a steel plate and beam were struck by a sledgehammer connected to the computer system, which triggered a data recording system that recorded the response of the downhole receiver.

2.6.3 Electrical Resistivity Test

Electrical resistivity testing (ERT) was carried out by CSR. The work was supervised by a Golder on-site representative. The Wenner four-electrode method was employed to assess soil electrical resistance. The resistivity soundings were conducted by CSR along two lines orthogonal to each other, one parallel and one perpendicular to the approximate alignment, as access allowed. The results will be presented as sounding curves, in apparent resistivity units of ohm-meters by CSR under separate over.

3.0 LABORATORY TESTING METHODOLOGY

3.1 General

A program of laboratory testing is planned for selected soil and water samples obtained during the geotechnical investigation, to assist with classification and assessment of the engineering characteristics of the materials. The laboratory tests to be performed are summarized below.

3.2 Laboratory Testing of Soil

3.2.1 Index Testing

Laboratory index testing was conducted on select soil samples recovered from the boreholes and included the following:

- Moisture content determination (as per ASTM D2216)
- Atterberg limits determination (as per ASTM D4318)
- Organic content determination (as per ASTM 2974)
- Grain size distribution (mechanical sieve and/or hydrometer, as per ASTM D6913 and ASTM D7928)
- Soil compaction density determination (Standard Proctor testing, as per ASTM D698)

Soil index testing was carried out by the Englobe Corp. laboratory in Dartmouth, Nova Scotia.

It should be noted that soil samples in boreholes were retrieved using samplers with inner diameters ranging from approximately 35 mm to 64 mm; therefore, recovered soil samples may not reflect the coarser fraction of the in-situ deposits (i.e., particle sizes greater than the sampler inner diameter).

Results of the laboratory index testing program are presented under separate cover within the geotechnical design report.

4.0 FIELD INVESTIGATION RESULTS

4.1 General

The factual results of the present geotechnical field investigation are provided in the report appendices, as noted in the following subsections. The Record of Test Pit sheets in Appendix B and Record of Borehole and Drillhole sheets in Appendix C both incorporate select in-situ soil characteristics and select geotechnical laboratory testing results.

4.2 Test Pit Excavation and Sampling

Test Pitting was carried out between October 5 and October 9, 2020, at 33 locations over the site. A summary of the completed test pit locations is provided in Table 1 with corresponding figure numbers presented. Photos of the completed excavations are found in Appendix C – Test Pit Photographs.

Table 1: Summary of Test Pit Locations

Test Pit No.	Figure No.	Project Infrastructure	UTM Coordinates (12T)		Excavation Depth[b] (m BGS)	Date Completed
			Easting[a] (m)	Northing[a] (m)		
OMS-TP20-01	1, 2C	Organic Material Stockpile	523332	4989395	4.9	October 8, 2020
OMS-TP20-02	1, 2C	Organic Material Stockpile	523223	4989153	2.9	October 8, 2020
OMS-TP20-03	1, 2C	Organic Material Stockpile	523529	4989047	1.0	October 8, 2020
OMS-TP20-04	1, 2C	Organic Material Stockpile	523536	4988715	3.2	October 8, 2020
OMS-TP20-05	1, 2C	Organic Material Stockpile	523810	4988594	3.2	October 8, 2020
TLS-TP20-01	1, 2B	Till Stockpile	522746	4989873	0.5	October 7, 2020
TLS-TP20-02	1, 2B	Till Stockpile	522957	4989996	3.8	October 7, 2020
TLS-TP20-03	1, 2B, 2C	Till Stockpile	522928	4989629	4.0	October 9, 2020
TLS-TP20-04	1, 2B, 2C	Till Stockpile	523213	4989626	4.0	October 9, 2020
TP2020-01	1, 2B, 2C	Plant Site	522725	4989489	3.8	October 7, 2020
TP2020-02	1, 2B, 2C	Plant Site	522795	4989395	3.1	October 8, 2020
TP2020-03	1, 2B, 2C	Plant Site	522890	4989387	2.8	October 7, 2020
TP2020-04	1, 2C	Plant Site	522721	4989187	1.8	October 8, 2020
PAG-TP20-01	1, 2B	PAG Stockpile	522282	4989989	2.0	October 7, 2020
PAG-TP20-02	1, 2B	PAG Stockpile	522595	4989799	4.0	October 7, 2020
RWY-TP20-01	1, 2A	Haul Road	521124	4990425	3.6	October 5, 2020
RWY-TP20-02	1, 2B	Haul Road	521449	4990514	3.8	October 5, 2020
RWY-TP20-03	1, 2B	Haul Road	521780	4990338	2.4	October 6, 2020
RWY-TP20-04	1, 2B	Haul Road	522048	4990132	3.3	October 7, 2020
RWY-TP20-05	1, 2B	Haul Road	523136	4989897	3.8	October 9, 2020
TSS-TP20-02	1, 2B	Topsoil Stockpile	522150	4990600	2.9	October 6, 2020
NAG-TP20-02	1, 2B	NAG Stockpile	520058	4990382	3.3	October 6, 2020
NAG-TP20-04	1, 2B	NAG Stockpile	520268	4990548	4.2	October 5, 2020
NAG-TP20-05	1, 2B	NAG Stockpile	520391	4990347	4.5	October 6, 2020
NAG-TP20-06	1, 2B	NAG Stockpile	520378	4990056	4.0	October 6, 2020
NAG-TP20-08	1, 2B	NAG Stockpile	520647	4990367	2.0	October 5, 2020
LGS-TP20-01	1, 2A	Low Grade Stockpile	520747	4990257	3.5	October 5, 2020
GHD-TP01	1, 2A	NAG Stockpile (Perimeter)	520496	4989856	4.0	October 6, 2020
GHD-TP04	1, 2A	NAG Stockpile (Perimeter)	520169	4990585	4.1	October 5, 2020
GHD-TP05	1, 2A	NAG Stockpile (Perimeter)	520623	4990516	2.2	October 5, 2020
GHD-TP06	1, 2A	NAG Stockpile (Perimeter)	520667	4990063	4.5	October 6, 2020
GHD-TP07	1, 2A	NAG Stockpile (Perimeter)	520606	4989925	4.1	October 6, 2020
GHD-TP08	1, 2A	Topsoil Stockpile	521036	4990440	2.9	October 5, 2020

[a] Reference datum: NAD83
[b] Excavations were carried out to refusal on bedrock or practical refusal (full digging reach of machine)
BGS = below ground surface

4.3 Borehole Drilling and Sampling

Borehole drilling was carried out between October 20 and November 13, 2020, at 25 locations across the site. A summary of the completed drilling locations is provided in Table 2 with corresponding figure numbers presented. SPT was performed during drilling in 23 out of 25 borehole locations. Details regarding the SPT N-values can be found in Appendix C – Record of Borehole and Drillhole sheets. When a second hole was advanced for nested well or geophysical purposes (PND-BH20-02B and BH2020-03B), in-situ testing and logging of soil and rock were not performed. Details of the methods of geotechnical classification and related terminology are provided in Appendix A. Appendix C and D provide the soil and rock sample photographs, respectively.

Table 2: Summary of Borehole Locations

Borehole No.	Figure No.	Project Infrastructure	UTM Coordinates (12T)		Drilling Depth[(b)] (m BGS)	Date Completed
			Easting[(a)] (m)	Northing[(a)] (m)		
TLS-BH20-01	1, 2B	Till Stockpile	522833	4990077	7.43	November 5, 2020
TLS-BH20-02	1, 2B	Till Stockpile	522859	4989910	6.69	November 5, 2020
TLS-BH20-03	1, 2B	Till Stockpile	522990	4989817	9.64	November 10, 2020
TLS-BH20-04	1, 2B, 2C	Till Stockpile	523063	4989642	6.55	November 10, 2020
TLS-BH20-05	1, 2B, 2C	Till Stockpile	523103	4989486	11.09	November 11, 2020
PAG-BH20-01	1, 2B	PAG Stockpile	522307	4989758	4.91	November 7, 2020
PAG-BH20-02	1, 2B	PAG Stockpile	522446	4989881	4.30	November 7, 2020
PAG-BH20-03	1, 2B	PAG Stockpile	522577	4990009	6.55	November 8, 2020
PND-BH20-01	1, 2B	Settling Pond	521742	4990525	7.55	November 9, 2020
PND-BH20-02	1, 2B	Settling Pond	522927	4990209	12.15	November 6, 2020
PND-BH20-02B	N/A	Settling Pond	522933	4990212	7.75	November 7, 2020
LGS-BH20-01	1, 2A	Low Grade Stockpile	520879	4990351	6.40	October 29, 2020
LGS-BH20-02	1, 2A	Low Grade Stockpile	520918	4990139	2.82	October 28, 2020
LGS-BH20-03	1, 2A	Low Grade Stockpile	520763	4990055	6.33	October 28, 2020
NAG-BH20-01	1, 2A	NAG Stockpile	519695	4990320	9.42	October 25, 2020
NAG-BH20-02	1, 2A	NAG Stockpile	519747	4990130	8.11	October 24, 2020
NAG-BH20-03	1, 2A	NAG Stockpile	519980	4990521	8.60	October 26, 2020
NAG-BH20-04	1, 2A	NAG Stockpile	520193	4990237	6.31	October 21, 2020
NAG-BH20-05	1, 2A	NAG Stockpile	520228	4989913	7.85	October 27, 2020
NAG-BH20-06	1, 2A	NAG Stockpile	520478	4990539	7.40	October 27, 2020
NAG-BH20-07	1, 2A	NAG Stockpile	520586	4990100	15.64	October 22, 2020
BH2020-01	1, 2B, 2C	Plant Site	522547	4989598	8.14	November 3, 2020
BH2020-02	1, 2B, 2C	Plant Site	522593	4989518	6.64	November 4, 2020
BH2020-03	1, 2B, 2C	Plant Site	522793	4989545	10.16	November 2, 2020
BH2020-03B	N/A	Plant Site	522792	4989540	9.43	November 13, 2020

[(a)] Reference datum: NAD83
[(b)] Boreholes drilled to desired depth achieved based on termination criteria or PM approval on early termination.
BGS = below ground surface

4.4 Standpipe Piezometers

A total of 10 standpipe piezometers were installed. Table 3 summarizes the well information along with screened interval depth. Visual representations of the wells are presented in Appendix C – Record of Borehole and Drillhole Logs.

Table 3: Monitoring Well Installation Details

Borehole No.	UTM Coordinates (12T)		Top of Screen[b] (m BGS)	Bottom of Screen[b] (m BGS)	Date Completed	Water Level After Installation[e] (m BGS)
	Easting[a] (m)	Northing[a] (m)				
TLS-BH20-02	522859	4989910	2.20	5.24	November 5, 2020	0.24
TLS-BH20-05	523103	4989486	5.77	8.81	November 12, 2020	1.89
BH2020-01	522547	4989598	1.78	4.82	November 4, 2020	1.27
PAG-BH20-02	522446	4989881	1.21	4.25	November 8, 2020	1.50
PND-BH20-01	521742	4990525	3.18	6.22	November 9, 2020	4.49
PND-BH20-02	522927	4990209	8.65	11.70	November 6, 2020	1.15
PND-BH20-02B[c]	522933	4990212	4.65	7.70	November 7, 2020	1.50
LGS-BH20-01[d]	520879	4990351	1.64	4.69	October 29, 2020	0.49
NAG-BH20-01	519695	4990320	6.37	9.42	October 25, 2020	1.25
NAG-BH20-04	520193	4990237	2.11	5.16	October 21, 2020	3.50

[a] Reference datum: NAD83.
[b] The screen interval was determined after drilling for each Standpipe Piezometer.
[c] A nested well was installed in a separate borehole at this location.
[d] Moved well installation from LGS-BH20-02 to LGS-BH20-01, as subsurface conditions were unfavourable at planned borehole.
[e] Wells were visited on November 11 and November 12 to determine whether groundwater was present in the wells.
BGS = below ground surface

5.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Standard of Care: Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty expressed or implied is made.

Basis and Use of the Report: This report has been prepared for the specific site, design objective, development, and purpose described to Golder by the Client: Atlantic Mining NS Corp. The factual data, interpretations, and recommendations pertain to a specific project, as described in this report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within 18 months of the date of the report may alter the validity of the report. Golder cannot be responsible for use of this report, or portions thereof, unless Golder is requested to review and, if necessary, revise the report.

The information, recommendations, and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then the client may authorize the use of this report for such purpose by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process, provided this report is not noted to be a draft or preliminary report, and is specifically relevant to the project for which the application is being made. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings, and other documents, as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration, and incompatibility and, therefore, the Client cannot rely upon the electronic media versions of Golder's report or other work products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Golder by the Client, communications between Golder and the Client, and to any other reports prepared by Golder for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations, and opinions expressed in this report, reference must be made to the whole of the report. Golder cannot be responsible for use of portions of the report without reference to the entire report.

Unless otherwise stated, the suggestions, recommendations, and opinions given in this report are intended only for the guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of test holes, necessary to determine all of the relevant conditions which may affect construction costs would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety, and equipment capabilities.

Soil, Rock and Groundwater Conditions: Classification and identification of soils, rocks, and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves

judgment, and boundaries between different soil, rock or geologic types or units may be transitional, rather than abrupt. Accordingly, Golder does not warrant or guarantee the exactness of the descriptions.

Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions and even a comprehensive investigation, sampling, and testing program may fail to detect all or certain subsurface conditions. The environmental, geologic, geotechnical, geochemical, and hydrogeologic conditions that Golder interprets to exist between and beyond sampling points may differ from those that actually exist. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. **The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report.** The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.

Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal, and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying, or frost. Unless otherwise indicated, the soil must be protected from these changes during construction.

Sample Disposal: Golder will dispose of all uncontaminated soil and/or rock samples 90 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills, or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.

Follow-Up and Construction Services: All details of the design were not known at the time of submission of Golder's report. Golder should be retained to review the final design, project plans, and documents, prior to construction, to confirm that they are consistent with the intent of Golder's report.

During construction, Golder should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Golder's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations, and opinions contained in Golder's report. Adequate field review, observation, and testing during construction are necessary for Golder to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, Golder's responsibility is limited to interpreting accurately, the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

Changed Conditions and Drainage: Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Golder be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires

experience and it is recommended that Golder be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Drainage of subsurface water is commonly required, either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. Golder takes no responsibility for the effects of drainage, unless specifically involved in the detailed design and construction monitoring of the system.

Signature Page

Golder Associates Ltd.

<Original signed by>

Craig Kelly, P.Eng.
Geotechnical Engineer

<Original signed by>

Jørn Landva, M.Sc.A., P.Eng.
Senior Geotechnical Engineer

JB/MA/CK/JA/sm

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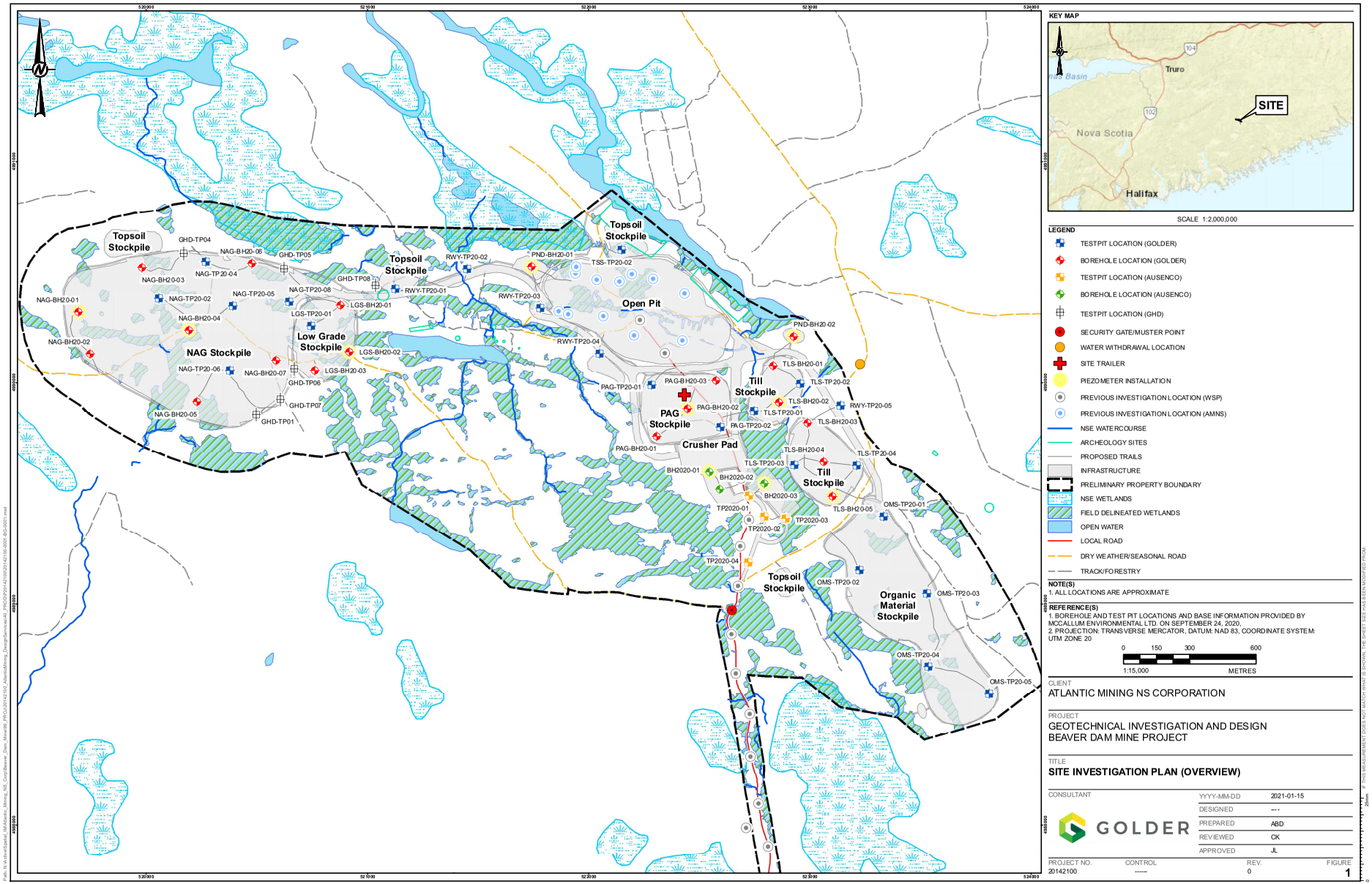
https://golderassociates.sharepoint.com/sites/125672/project files/6 deliverables/20142100-004-r-actual/rev 0/20142100-004-r-rev0-bd geotech investigation 15jan_2021.docx



KEY MAP

SCALE 1:2,000,000

LEGEND

- TESTPIT LOCATION (GOLDER)
- BOREHOLE LOCATION (GOLDER)
- TESTPIT LOCATION (AUSENCO)
- BOREHOLE LOCATION (AUSENCO)
- TESTPIT LOCATION (GHD)
- SECURITY GATE/MUSTER POINT
- WATER WITHDRAWAL LOCATION
- SITE TRAILER
- PIEZOMETER INSTALLATION
- PREVIOUS INVESTIGATION LOCATION (WSP)
- PREVIOUS INVESTIGATION LOCATION (AMNS)
- NSE WATERCOURSE
- ARCHEOLOGY SITES
- PROPOSED TRAILS
- INFRASTRUCTURE
- PRELIMINARY PROPERTY BOUNDARY
- NSE WETLANDS
- FIELD DELINEATED WETLANDS
- OPEN WATER
- LOCAL ROAD
- DRY WEATHER/SEASONAL ROAD
- TRACK/FORESTRY

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. BOREHOLE AND TEST PIT LOCATIONS AND BASE INFORMATION PROVIDED BY MCCALLUM ENVIRONMENTAL LTD. ON SEPTEMBER 24, 2020.
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 20

0 150 300 600

1:15,000 METRES

CLIENT

ATLANTIC MINING NS CORPORATION

PROJECT

GEOTECHNICAL INVESTIGATION AND DESIGN
BEAVER DAM MINE PROJECT

TITLE

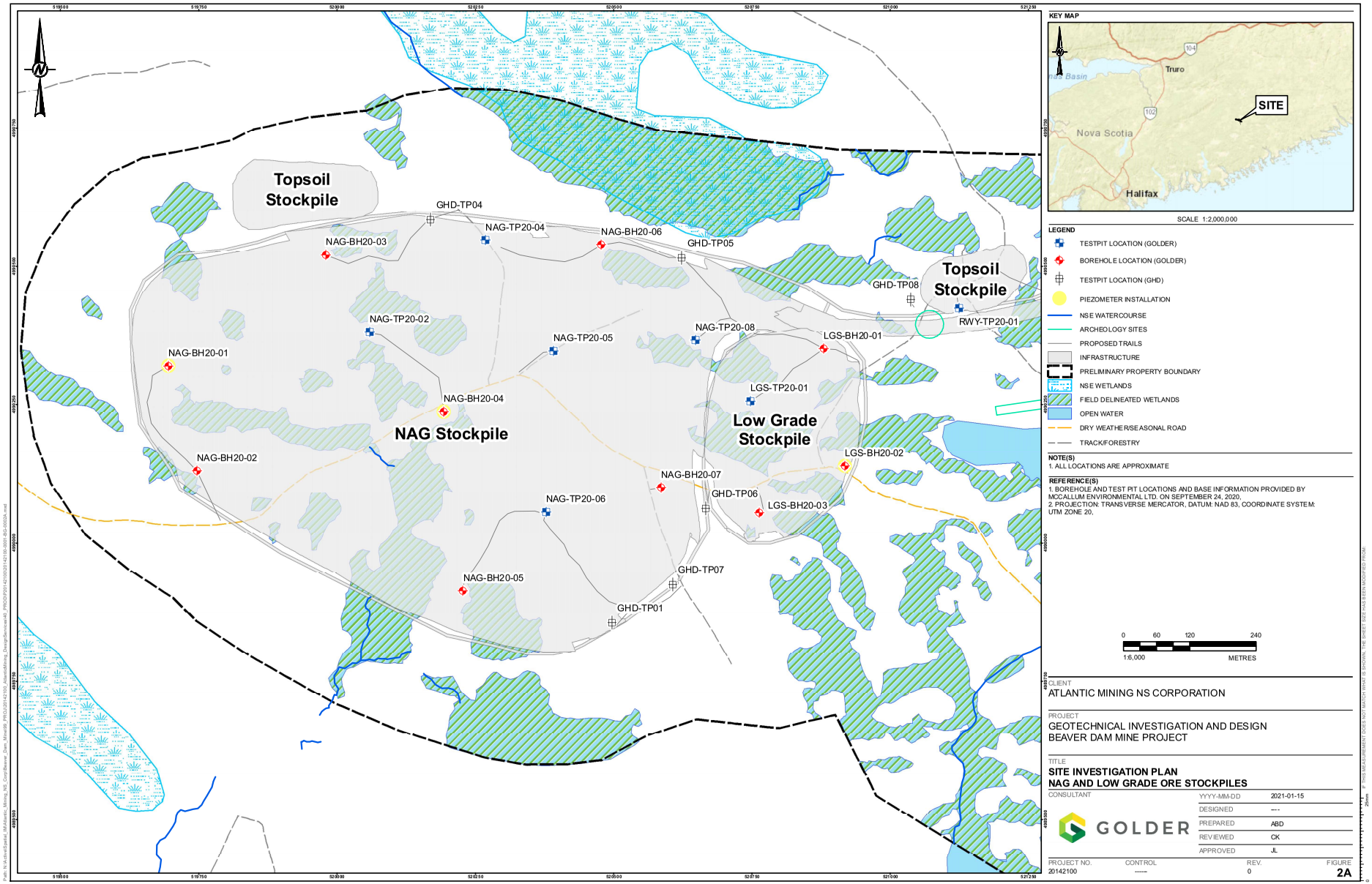
SITE INVESTIGATION PLAN (OVERVIEW)

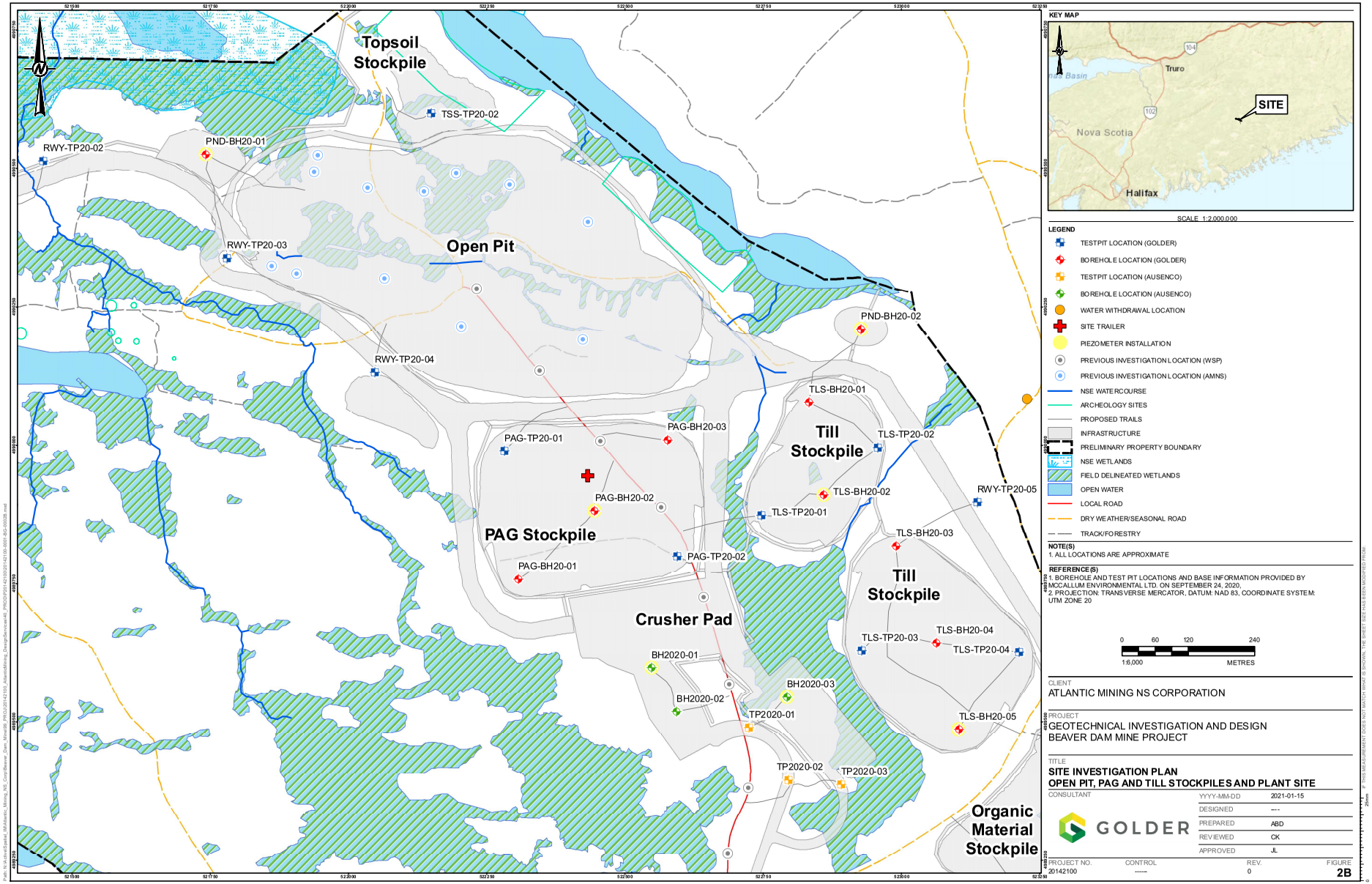
CONSULTANT

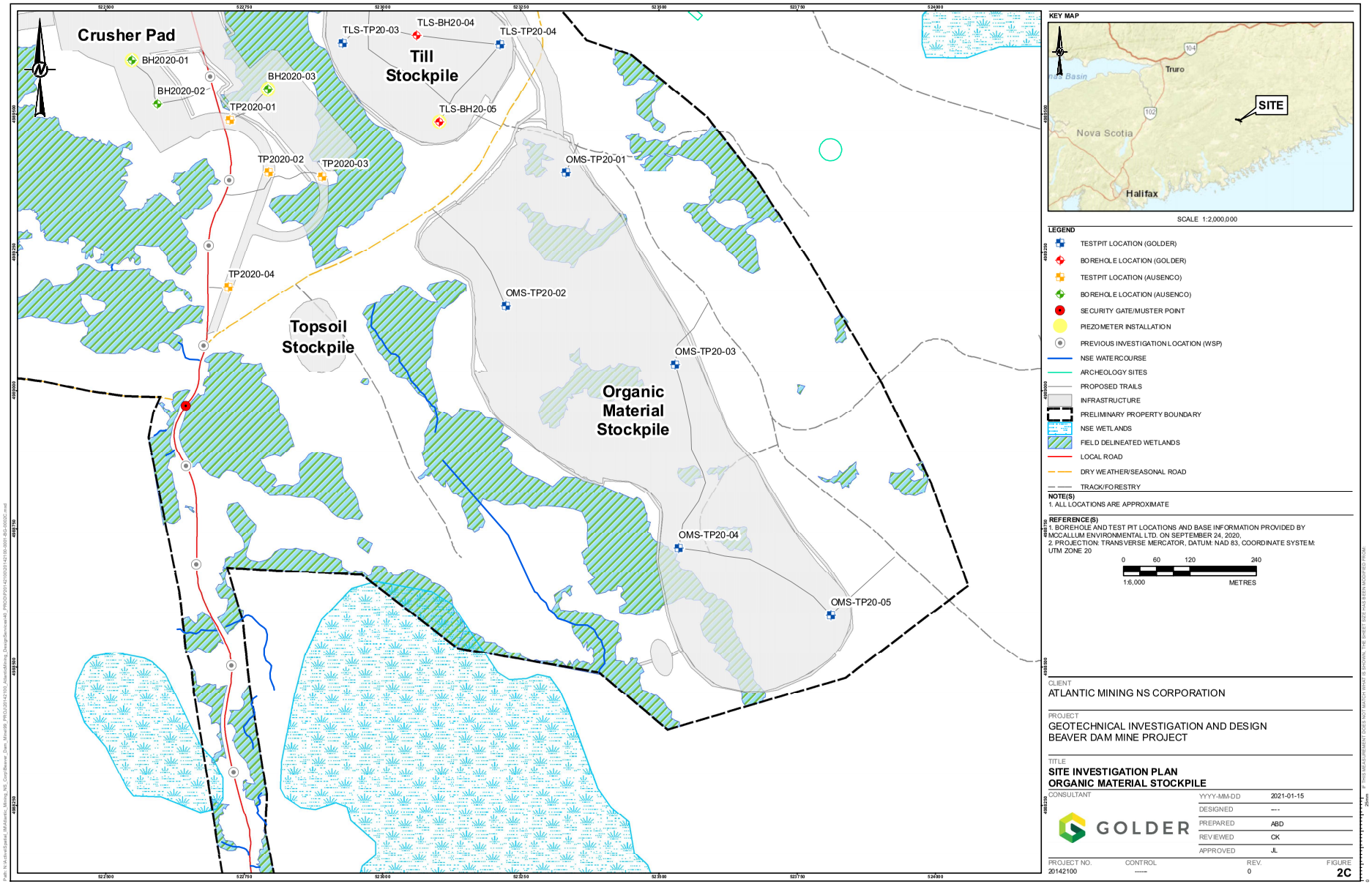
GOLDER

YYYY-MM-DD	2021-01-15
DESIGNED	---
PREPARED	ABD
REVIEWED	CK
APPROVED	JL

PROJECT NO.	CONTROL	REV.	FIGURE
20142100	-----	0	1


Topsoil Stockpile
GHD-TP04
NAG-TP20-04
NAG-BH20-06
NAG-BH20-03
GHD-TP05
Topsoil Stockpile
GHD-TP08
RWY-TP20-01
NAG-TP20-02
NAG-TP20-08
LGS-BH20-01
NAG-TP20-05
NAG-BH20-01
LGS-TP20-01
NAG-BH20-04
NAG Stockpile
Low Grade Stockpile
NAG-BH20-02
LGS-BH20-02
NAG-BH20-07
GHD-TP06
NAG-TP20-06
LGS-BH20-03
GHD-TP07
NAG-BH20-05
GHD-TP01
KEY MAP
Truro
SITE
Nova Scotia
Halifax
SCALE 1:2,000,000
LEGEND
TESTPIT LOCATION (GOLDER)
BOREHOLE LOCATION (GOLDER)
TESTPIT LOCATION (GHD)
PIEZOMETER INSTALLATION
NSE WATERCOURSE
ARCHEOLOGY SITES
PROPOSED TRAILS
INFRASTRUCTURE
PRELIMINARY PROPERTY BOUNDARY
NSE WETLANDS
FIELD DELINEATED WETLANDS
OPEN WATER
DRY WEATHER/SEASONAL ROAD
TRACK/FORESTRY
NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE
REFERENCE(S)
1. BOREHOLE AND TEST PIT LOCATIONS AND BASE INFORMATION PROVIDED BY MCCALLUM ENVIRONMENTAL LTD. ON SEPTEMBER 24, 2020,
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 20,
0 60 120 240
1:6,000
METRES
CLIENT
ATLANTIC MINING NS CORPORATION
PROJECT
GEOTECHNICAL INVESTIGATION AND DESIGN
BEAVER DAM MINE PROJECT
TITLE
SITE INVESTIGATION PLAN
NAG AND LOW GRADE ORE STOCKPILES
CONSULTANT
GOLDER
YYYY-MM-DD 2021-01-15
DESIGNED ---
PREPARED ABD
REVIEWED CK
APPROVED JL
PROJECT NO. 20142100
CONTROL -----
REV. 0
FIGURE 2A


Topsoil Stockpile
TSS-TP20-02
PND-BH20-01
RWY-TP20-02
RWY-TP20-03
Open Pit
PND-BH20-02
RWY-TP20-04
TLS-BH20-01
PAG-TP20-01
PAG-BH20-03
Till Stockpile
TLS-TP20-02
PAG-BH20-02
TLS-BH20-02
RWY-TP20-05
TLS-TP20-01
PAG Stockpile
TLS-BH20-03
PAG-TP20-02
PAG-BH20-01
Till Stockpile
Crusher Pad
TLS-TP20-03
TLS-BH20-04
TLS-TP20-04
BH2020-01
BH2020-03
BH2020-02
TP2020-01
TLS-BH20-05
TP2020-02
TP2020-03
Organic Material Stockpile
KEY MAP
Truro
SITE
Nova Scotia
Halifax
SCALE 1:2,000,000
LEGEND
TESTPIT LOCATION (GOLDER)
BOREHOLE LOCATION (GOLDER)
TESTPIT LOCATION (AUSENCO)
BOREHOLE LOCATION (AUSENCO)
WATER WITHDRAWAL LOCATION
SITE TRAILER
PIEZOMETER INSTALLATION
PREVIOUS INVESTIGATION LOCATION (WSP)
PREVIOUS INVESTIGATION LOCATION (AMNS)
NSE WATERCOURSE
ARCHEOLOGY SITES
PROPOSED TRAILS
INFRASTRUCTURE
PRELIMINARY PROPERTY BOUNDARY
NSE WETLANDS
FIELD DELINEATED WETLANDS
OPEN WATER
LOCAL ROAD
DRY WEATHER/SEASONAL ROAD
TRACK/FORESTRY
NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE
REFERENCE(S)
1. BOREHOLE AND TEST PIT LOCATIONS AND BASE INFORMATION PROVIDED BY MCCALLUM ENVIRONMENTAL LTD. ON SEPTEMBER 24, 2020.
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 20
0 60 120 240
1:6,000
METRES
CLIENT
ATLANTIC MINING NS CORPORATION
PROJECT
GEOTECHNICAL INVESTIGATION AND DESIGN
BEAVER DAM MINE PROJECT
TITLE
SITE INVESTIGATION PLAN
OPEN PIT, PAG AND TILL STOCKPILES AND PLANT SITE
CONSULTANT
GOLDER
YYYY-MM-DD 2021-01-15
DESIGNED ---
PREPARED ABD
REVIEWED CK
APPROVED JL
PROJECT NO. 20142100
CONTROL -----
REV. 0
FIGURE 2B



KEY MAP

SCALE 1:2,000,000

LEGEND

- TESTPIT LOCATION (GOLDER)
- BOREHOLE LOCATION (GOLDER)
- TESTPIT LOCATION (AUSENCO)
- BOREHOLE LOCATION (AUSENCO)
- SECURITY GATE/MUSTER POINT
- PIEZOMETER INSTALLATION
- PREVIOUS INVESTIGATION LOCATION (WSP)
- NSE WATERCOURSE
- ARCHEOLOGY SITES
- PROPOSED TRAILS
- INFRASTRUCTURE
- PRELIMINARY PROPERTY BOUNDARY
- NSE WETLANDS
- FIELD DELINEATED WETLANDS
- LOCAL ROAD
- DRY WEATHER/SEASONAL ROAD
- TRACK/FORESTRY

NOTE(S)
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REFERENCE(S)
1. BOREHOLE AND TEST PIT LOCATIONS AND BASE INFORMATION PROVIDED BY MCCALLUM ENVIRONMENTAL LTD. ON SEPTEMBER 24, 2020,
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 20

0 60 120 240
1:6,000 METRES

CLIENT
ATLANTIC MINING NS CORPORATION

PROJECT
GEOTECHNICAL INVESTIGATION AND DESIGN
BEAVER DAM MINE PROJECT

TITLE
SITE INVESTIGATION PLAN
ORGANIC MATERIAL STOCKPILE

CONSULTANT
GOLDER

YYYY-MM-DD	2021-01-15
DESIGNED	---
PREPARED	ABD
REVIEWED	CK
APPROVED	JL

PROJECT NO.	CONTROL	REV.	FIGURE
20142100	-----	0	2C

APPENDIX A

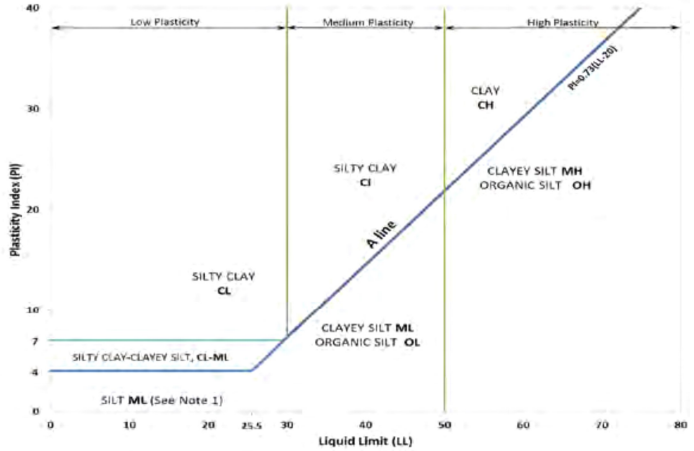
Abbreviations and Terminology for Soil and Rock Description

METHOD OF SOIL CLASSIFICATION

The Golder Associates Ltd. Soil Classification System is based on the Unified Soil Classification System (USCS)

Organic or Inorganic	Soil Group	Type of Soil		Gradation or Plasticity	$Cu = \frac{D_{60}}{D_{10}}$	$Cc = \frac{(D_{30})^2}{D_{10} x D_{60}}$	Organic Content	USCS Group Symbol	Group Name
INORGANIC (Organic Content ≤30% by mass)	COARSE-GRAINED SOILS (>50% by mass is larger than 0.075 mm)	GRAVELS (>50% by mass of coarse fraction is larger than 4.75 mm)	Gravels with ≤12% fines (by mass)	Poorly Graded	<4	≤1 or ≥3	≤30%	GP	GRAVEL
				Well Graded	≥4	1 to 3		GW	GRAVEL
			Gravels with >12% fines (by mass)	Below A Line	n/a			GM	SILTY GRAVEL
				Above A Line	n/a			GC	CLAYEY GRAVEL
		SANDS (≥50% by mass of coarse fraction is smaller than 4.75 mm)	Sands with ≤12% fines (by mass)	Poorly Graded	<6	≤1 or ≥3		SP	SAND
				Well Graded	≥6	1 to 3		SW	SAND
			Sands with >12% fines (by mass)	Below A Line	n/a			SM	SILTY SAND
				Above A Line	n/a			SC	CLAYEY SAND

Organic or Inorganic	Soil Group	Type of Soil	Laboratory Tests	Field Indicators					Organic Content	USCS Group Symbol	Primary Name
				Dilatancy	Dry Strength	Shine Test	Thread Diameter	Toughness (of 3 mm thread)			
INORGANIC (Organic Content ≤30% by mass)	FINE-GRAINED SOILS (≥50% by mass is smaller than 0.075 mm)	SILTS (Non-Plastic or PI and LL plot below A-Line on Plasticity Chart below)	Liquid Limit <50	Rapid	None	None	>6 mm	N/A (can't roll 3 mm thread)	<5%	ML	SILT
				Slow	None to Low	Dull	3mm to 6 mm	None to low	<5%	ML	CLAYEY SILT
				Slow to very slow	Low to medium	Dull to slight	3mm to 6 mm	Low	5% to 30%	OL	ORGANIC SILT
			Liquid Limit ≥50	Slow to very slow	Low to medium	Slight	3mm to 6 mm	Low to medium	<5%	MH	CLAYEY SILT
				None	Medium to high	Dull to slight	1 mm to 3 mm	Medium to high	5% to 30%	OH	ORGANIC SILT
		CLAYS (PI and LL plot above A-Line on Plasticity Chart below)	Liquid Limit <30	None	Low to medium	Slight to shiny	~ 3 mm	Low to medium	0% to 30% (see Note 2)	CL	SILTY CLAY
			Liquid Limit 30 to 50	None	Medium to high	Slight to shiny	1 mm to 3 mm	Medium		CI	SILTY CLAY
			Liquid Limit ≥50	None	High	Shiny	<1 mm	High		CH	CLAY
HIGHLY ORGANIC SOILS (Organic Content >30% by mass)		Peat and mineral soil mixtures							30% to 75%	PT	SILTY PEAT, SANDY PEAT
		Predominantly peat, may contain some mineral soil, fibrous or amorphous peat							75% to 100%		PEAT



Note 1 – Fine grained materials with PI and LL that plot in this area are named (ML) SILT with slight plasticity. Fine-grained materials which are non-plastic (i.e. a PL cannot be measured) are named SILT.
Note 2 – For soils with <5% organic content, include the descriptor "trace organics" for soils with between 5% and 30% organic content include the prefix "organic" before the Primary name.

Dual Symbol — A dual symbol is two symbols separated by a hyphen, for example, GP-GM, SW-SC and CL-ML.
For non-cohesive soils, the dual symbols must be used when the soil has between 5% and 12% fines (i.e. to identify transitional material between "clean" and "dirty" sand or gravel.
For cohesive soils, the dual symbol must be used when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart (see Plasticity Chart at left).

Borderline Symbol — A borderline symbol is two symbols separated by a slash, for example, CL/CI, GM/SM, CL/ML.
A borderline symbol should be used to indicate that the soil has been identified as having properties that are on the transition between similar materials. In addition, a borderline symbol may be used to indicate a range of similar soil types within a stratum.

ABBREVIATIONS AND TERMS USED ON RECORDS OF BOREHOLES AND TEST PITS

PARTICLE SIZES OF CONSTITUENTS

Soil Constituent	Particle Size Description	Millimetres	Inches (US Std. Sieve Size)
BOULDERS	Not Applicable	>300	>12
COBBLES	Not Applicable	75 to 300	3 to 12
GRAVEL	Coarse Fine	19 to 75 4.75 to 19	0.75 to 3 (4) to 0.75
SAND	Coarse Medium Fine	2.00 to 4.75 0.425 to 2.00 0.075 to 0.425	(10) to (4) (40) to (10) (200) to (40)
SILT/CLAY	Classified by plasticity	<0.075	< (200)

MODIFIERS FOR SECONDARY AND MINOR CONSTITUENTS

Percentage by Mass	Modifier
>35	Use 'and' to combine major constituents (*i.e.*, SAND and GRAVEL)
> 12 to 35	Primary soil name prefixed with "gravelly, sandy, SILTY, CLAYEY" as applicable
> 5 to 12	some
≤ 5	trace

PENETRATION RESISTANCE

Standard Penetration Resistance (SPT), N:

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) required to drive a 50 mm (2 in.) split-spoon sampler for a distance of 300 mm (12 in.). Values reported are as recorded in the field and are uncorrected.

Cone Penetration Test (CPT)

An electronic cone penetrometer with a 60° conical tip and a project end area of 10 cm² pushed through ground at a penetration rate of 2 cm/s. Measurements of tip resistance (q_t), porewater pressure (u) and sleeve frictions are recorded electronically at 25 mm penetration intervals.

Dynamic Cone Penetration Resistance (DCPT); N_d:

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) to drive uncased a 50 mm (2 in.) diameter, 60° cone attached to "A" size drill rods for a distance of 300 mm (12 in.).

PH: Sampler advanced by hydraulic pressure
PM: Sampler advanced by manual pressure
WH: Sampler advanced by static weight of hammer
WR: Sampler advanced by weight of sampler and rod

SAMPLES

AS	Auger sample
BS	Block sample
CS	Chunk sample
DD	Diamond Drilling
DO or DP	Seamless open ended, driven or pushed tube sampler – note size
DS	Denison type sample
GS	Grab Sample
MC	Modified California Samples
MS	Modified Shelby (for frozen soil)
RC	Rock core
SC	Soil core
SS	Split spoon sampler – note size
ST	Slotted tube
TO	Thin-walled, open – note size (Shelby tube)
TP	Thin-walled, piston – note size (Shelby tube)
WS	Wash sample

SOIL TESTS

w	water content
PL , w_p	plastic limit
LL , w_L	liquid limit
C	consolidation (oedometer) test
CHEM	chemical analysis (refer to text)
CID	consolidated isotropically drained triaxial test[1]
CIU	consolidated isotropically undrained triaxial test with porewater pressure measurement[1]
D_R	relative density (specific gravity, Gs)
DS	direct shear test
GS	specific gravity
M	sieve analysis for particle size
MH	combined sieve and hydrometer (H) analysis
MPC	Modified Proctor compaction test
SPC	Standard Proctor compaction test
OC	organic content test
SO_4	concentration of water-soluble sulphates
UC	unconfined compression test
UU	unconsolidated undrained triaxial test
V (FV)	field vane (LV-laboratory vane test)
γ	unit weight

1. Tests anisotropically consolidated prior to shear are shown as CAD, CAU.

NON-COHESIVE (COHESIONLESS) SOILS

Compactness[2]

Term	SPT 'N' (blows/0.3m)[1]
Very Loose	0 to 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	>50

1. SPT 'N' in accordance with ASTM D1586, uncorrected for the effects of overburden pressure.
2. Definition of compactness terms are based on SPT 'N' ranges as provided in Terzaghi, Peck and Mesri (1996). Many factors affect the recorded SPT 'N' value, including hammer efficiency (which may be greater than 60% in automatic trip hammers), overburden pressure, groundwater conditions, and grainsize. As such, the recorded SPT 'N' value(s) should be considered only an approximate guide to the soil compactness. These factors need to be considered when evaluating the results, and the stated compactness terms should not be relied upon for design or construction.

Field Moisture Condition

Term	Description
Dry	Soil flows freely through fingers.
Moist	Soils are darker than in the dry condition and may feel cool.
Wet	As moist, but with free water forming on hands when handled.

COHESIVE SOILS

Consistency

Term	Undrained Shear Strength (kPa)	SPT 'N'[1,2] (blows/0.3m)
Very Soft	<12	0 to 2
Soft	12 to 25	2 to 4
Firm	25 to 50	4 to 8
Stiff	50 to 100	8 to 15
Very Stiff	100 to 200	15 to 30
Hard	>200	>30

1. SPT 'N' in accordance with ASTM D1586, uncorrected for overburden pressure effects; approximate only.
2. SPT 'N' values should be considered ONLY an approximate guide to consistency; for sensitive clays (e.g., Champlain Sea clays), the N-value approximation for consistency terms does NOT apply. Rely on direct measurement of undrained shear strength or other manual observations.

Water Content

Term	Description
w < PL	Material is estimated to be drier than the Plastic Limit.
w ~ PL	Material is estimated to be close to the Plastic Limit.
w > PL	Material is estimated to be wetter than the Plastic Limit.

Unless otherwise stated, the symbols employed in the report are as follows:

I. GENERAL

π	3.1416
ln x	natural logarithm of x
$\log_{10}$	x or log x, logarithm of x to base 10
g	acceleration due to gravity
t	time

II. STRESS AND STRAIN

γ	shear strain
Δ	change in, e.g. in stress: $\Delta\sigma$
ε	linear strain
ε_v	volumetric strain
η	coefficient of viscosity
υ	Poisson's ratio
σ	total stress
σ'	effective stress ($\sigma' = \sigma - u$)
σ'_{vo}	initial effective overburden stress
$\sigma_1, \sigma_2, \sigma_3$	principal stress (major, intermediate, minor)
σ_{oct}	mean stress or octahedral stress $= (\sigma_1 + \sigma_2 + \sigma_3)/3$
τ	shear stress
u	porewater pressure
E	modulus of deformation
G	shear modulus of deformation
K	bulk modulus of compressibility

III. SOIL PROPERTIES

(a) Index Properties

$\rho(\gamma)$	bulk density (bulk unit weight)*
$\rho_d(\gamma_d)$	dry density (dry unit weight)
$\rho_w(\gamma_w)$	density (unit weight) of water
$\rho_s(\gamma_s)$	density (unit weight) of solid particles
γ'	unit weight of submerged soil ($\gamma' = \gamma - \gamma_w$)
D_R	relative density (specific gravity) of solid particles ($D_R = \rho_s / \rho_w$) (formerly G_s)
e	void ratio
n	porosity
S	degree of saturation

* Density symbol is ρ. Unit weight symbol is γ where $\gamma = \rho g$ (i.e. mass density multiplied by acceleration due to gravity)

(a) Index Properties (continued)

w	water content
w_l or LL	liquid limit
w_p or PL	plastic limit
I_p or PI	plasticity index = $(w_l - w_p)$
NP	non-plastic
w_s	shrinkage limit
I_L	liquidity index = $(w - w_p) / I_p$
I_C	consistency index = $(w_l - w) / I_p$
e_{max}	void ratio in loosest state
e_{min}	void ratio in densest state
I_D	density index = $(e_{max} - e) / (e_{max} - e_{min})$ (formerly relative density)

(b) Hydraulic Properties

h	hydraulic head or potential
q	rate of flow
v	velocity of flow
i	hydraulic gradient
k	hydraulic conductivity (coefficient of permeability)
j	seepage force per unit volume

(c) Consolidation (one-dimensional)

C_c	compression index (normally consolidated range)
C_r	recompression index (over-consolidated range)
C_s	swelling index
C_α	secondary compression index
m_v	coefficient of volume change
c_v	coefficient of consolidation (vertical direction)
c_h	coefficient of consolidation (horizontal direction)
T_v	time factor (vertical direction)
U	degree of consolidation
σ'_p	pre-consolidation stress
OCR	over-consolidation ratio = σ'_p / σ'_{vo}

(d) Shear Strength

τ_p, τ_r	peak and residual shear strength
ϕ'	effective angle of internal friction
δ	angle of interface friction
μ	coefficient of friction = tan δ
c'	effective cohesion
c_u, s_u	undrained shear strength ($\phi = 0$ analysis)
p	mean total stress $(\sigma_1 + \sigma_3)/2$
p'	mean effective stress $(\sigma'_1 + \sigma'_3)/2$
q	$(\sigma_1 - \sigma_3)/2$ or $(\sigma'_1 - \sigma'_3)/2$
q_u	compressive strength $(\sigma_1 - \sigma_3)$
S_t	sensitivity

Notes: 1 $\tau = c' + \sigma' \tan \phi'$

2 shear strength = (compressive strength)/2

LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

WEATHERING STATE

Fresh: no visible sign of weathering

Faintly weathered: weathering limited to the surface of major discontinuities.

Slightly weathered: penetrative weathering developed on open discontinuity surfaces but only slight weathering of rock material.

Moderately weathered: weathering extends throughout the rock mass but the rock material is not friable.

Highly weathered: weathering extends throughout rock mass and the rock material is partly friable.

Completely weathered: rock is wholly decomposed and in a friable condition but the rock and structure are preserved.

BEDDING THICKNESS

Description	Bedding Plane Spacing
Very thickly bedded	Greater than 2 m
Thickly bedded	0.6 m to 2 m
Medium bedded	0.2 m to 0.6 m
Thinly bedded	60 mm to 0.2 m
Very thinly bedded	20 mm to 60 mm
Laminated	6 mm to 20 mm
Thinly laminated	Less than 6 mm

JOINT OR FOLIATION SPACING

Description	Spacing
Very wide	Greater than 3 m
Wide	1 m to 3 m
Moderately close	0.3 m to 1 m
Close	50 mm to 300 mm
Very close	Less than 50 mm

GRAIN SIZE

Term	Size*
Very Coarse Grained	Greater than 60 mm
Coarse Grained	2 mm to 60 mm
Medium Grained	60 microns to 2 mm
Fine Grained	2 microns to 60 microns
Very Fine Grained	Less than 2 microns

Note: * Grains greater than 60 microns diameter are visible to the naked eye.

CORE CONDITION

Total Core Recovery (TCR)

The percentage of solid drill core recovered regardless of quality or length, measured relative to the length of the total core run.

Solid Core Recovery (SCR)

The percentage of solid drill core, regardless of length, recovered at full diameter, measured relative to the length of the total core run.

Rock Quality Designation (RQD)

The percentage of solid drill core, greater than 100 mm length, recovered at full diameter, measured relative to the length of the total core run. RQD varied from 0% for completely broken core to 100% for core in solid sticks.

DISCONTINUITY DATA

Fracture Index

A count of the number of discontinuities (physical separations) in the rock core, including both naturally occurring fractures and mechanically induced breaks caused by drilling.

Dip with Respect to Core Axis

The angle of the discontinuity relative to the axis (length) of the core. In a vertical borehole a discontinuity with a 90° angle is horizontal.

Description and Notes

An abbreviation description of the discontinuities, whether naturally occurring separations such as fractures, bedding planes and foliation planes or mechanically induced features caused by drilling such as ground or shattered core and mechanically separated bedding or foliation surfaces. Additional information concerning the nature of fracture surfaces and infillings are also noted.

Abbreviations

JN	Joint	K	Slickensided
FLT	Fault	PO	Polished
SH	Shear	SM	Smooth
VN	Vein	RO	Rough
FR	Fracture	VR	Very Rough
BD	Bedding	SO	Staining Only
FO	Foliation	SA	Slightly Altered
CO	Contact	PC	Partially Coated
PL	Planar	CC	Completely Coated
CU	Curved	IN	Infilled
UN	Undulating	Cl	Clay
IR	Irregular	Sa	Sand
		Si	Silt

FIELD ESTIMATION OF ROCK STRENGTH

GOLDER

Grade	Description	Field Identification	Approx. Range of UCS (MPa)
R0	Extremely Weak Rock	Indented by thumbnail	0.25 - 1
R1	Very Weak Rock	Material can be peeled or shaped with a knife. Crumbles under firm blows from geological hammer.	1 - 5
R2	Weak Rock	Knife cuts material but too hard to shape into triaxial specimens or material can be peeled with a knife with difficulty. Shallow (<5mm) indentations made by firm blows from pick of a geological hammer.	5 - 25
R3	Moderately Strong Rock	Cannot be peeled or scraped with a knife. Hand held specimens can be fractured with single firm blow of geological hammer.	25 - 50
R4	Strong Rock	Handheld specimen requires more than one blow of geological hammer to fracture.	50 - 100
R5	Very Strong Rock	Handheld specimen requires many blows of geological hammer to fracture.	100 - 250
R6	Extremely Strong Rock	Specimen can only be chipped under repeated hammer blows, rings when hit.	> 250

Notes:

1) Handheld specimens should have height approximately 2 times the diameter.

2) Materials having a uniaxial compressive strength of less than approximately 0.5 MPa and cohesionless materials should be classified using soil classification systems.

3) Rocks with a uniaxial compressive strength below 25 MPa (i.e. below R2) are likely to yield highly ambiguous results under point load testing.

Reference:

Brown, 1981. "Suggested Methods for Rock Characterization Testing and Monitoring", International Society for Rock Mechanics.

Hoek, E., Kaiser, P.K., Bawden, W.F., 1995. "Support of Underground Excavations in Hard Rock", Balkema, Rotterdam.

FIELD ESTIMATION OF ROCK WEATHERING

GOLDER

Term	Symbol	Description	Discoloration Extent	Fracture Condition	Surface Characteristics
Residual soil	W6	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.	Throughout	N/A	Resembles soil
Completely weathered	W5	100% of rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.	Throughout	Filled with alteration minerals	Resembles soil
Highly weathered	W4	More than 50% of the rock material is decomposed and/or disintegrated to a soil. Fresh or discoloured rock is present either as a discontinuous framework or as corestones.	Throughout	Filled with alteration minerals	Friable and possibly pitted
Moderately weathered	W3	Less than 50% of the rock material is decomposed and/or disintegrated to a soil. Fresh or discoloured rock is present either as a discontinuous framework or as corestones. Visible texture of the host rock still preserved. Surface planes are weathered (oxidized or carbonate filling) even when breaking the “intact rock”.	>20% of fracture spacing on both sides of fracture	Discoloured, may contain thick filling	Partial to complete discoloration, not friable except poorly cemented rocks
Slightly weathered	W2	Discoloration indicates weathering of rock material on discontinuity surfaces (usually oxidized). Less than 5% of rock mass altered.	<20% of fracture spacing on both sides of fracture	Discoloured, may contain thin filling	Partial discoloration
Fresh	W1	No visible sign of rock material weathering.	None	Closed or discoloured	Unchanged

Reference:

Brown, 1981. "Suggested Methods for Rock Characterization Testing and Monitoring", International Society for Rock Mechanics.

APPENDIX B

Record of Test Pit Sheets

RECORD OF TEST PIT: GHD TP 01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4989856.0 ;E 520496.0

DATE: October 6, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊢ ○ W ⊣ Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	(MH) gravelly sandy CLAYEY SILT; grey and brown, contains cobbles; cohesive, w<PL to w~PL		0.00						
1					1	BS				
2					2	GS				▽
3					3	GS				
4					4	GS				
		End of Test Pit Due to sloughing sidewalls		4.00						
5		Note(s): 1. Water level measured at a depth of 1.8 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: GHD TP 04

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4990585.0 ;E 520169.0

DATE: October 5, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp — W — Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL		0.00						
		(ML) SILT, trace sand; brown, contains cobbles and boulders; non-cohesive, dry		0.20	1	BS				
2		(ML) CLAYEY SILT, trace to some gravel; grey; cohesive, w~PL		1.80	2	GS				
3		- Sloughing at 3.00 m depth.			3	GS				▽
4		(GM) SILTY GRAVEL, sub-angular; brown, contains cobbles and boulders; non-cohesive, wet, dense		4.00	4	GS				
		End of Test Pit Due to practical reach of excavator		4.10						
5		Note(s): 1. Water level measured at a depth of 3.0 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: GHD TP 05

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4990516.0 ;E 520623.0

DATE: October 5, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT (Wp ⊢ W ⊣ Wl) 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL, contains cobbles and boulders		0.00						
		(ML) gravelly SILT, some sand; grey and brown, contains cobbles and boulders; non-cohesive, dry - Contains organic matter to 0.70 m depth.		0.30	1	BS				
1										
2		(SM/GM) SILTY SAND and GRAVEL; brown, contains cobbles and boulders; non-cohesive, dry, compact		1.90	2	GS				
		End of Test Pit Due to refusal (inferred bedrock or large boulders)		2.20						
3		Note(s): 1. Ground water not encountered during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
4										
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: GHD TP 06

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4990063.0 ;E 520667.0

DATE: October 6, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊢ ○ W ⊣ Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL and Organics		0.00						
		(ML) gravelly sandy CLAYEY SILT; brown to grey, contains cobbles; cohesive, w<PL		0.30	1	BS				
2		(ML/GM) sandy SILT and GRAVEL; grey, contains cobbles, cohesive, w<PL		2.00	2	GS				
3		(ML) gravelly sandy CLAYEY SILT; brown to grey, contains cobbles; cohesive, w<PL		3.10	3	GS				
4					4	GS				
		End of Test Pit Due to practical reach of excavator		4.50						
5		Note(s): 1. Ground water not encountered during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: GHD TP 07

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4989925.0 ;E 520606.0

DATE: October 6, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊢ W ⊣ Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL and Organics		0.00						
		(ML) gravelly sandy CLAYEY SILT; grey and brown, contains cobbles; cohesive, w<PL		0.20						
1					1	GS				
2					2	GS				
3					3	GS				
4					4	GS				
		End of Test Pit Due to practical refusal (inferred bedrock or large boulders) Note(s): 1. Ground water not encountered during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket		4.10						
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: GHD TP 08

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4990440.0 ;E 521036.0

DATE: October 5, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊖ W WI 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL, contains cobbles and boulders		0.00						
		(SM/GM) SILTY SAND and GRAVEL; brown, contains cobbles and boulders; non-cohesive, moist, compact		0.30	1	BS				
1										
2		(GM) sandy SILTY GRAVEL; brown, contains cobbles and boulders; non-cohesive, moist to wet, compact		1.70	2	GS				▽
					3	GS				
					4	GS				
3		End of Test Pit Due to practical refusal (inferred bedrock or large boulders)		2.90						
4		Note(s): 1. Water level measured at a depth of 2.3 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: LGS TP 20-01

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4990257.0 ;E 520747.0

DATE: October 5, 2020
CONTRACTOR: NR Kenney Logging Ltd.

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊢ W ⊣ Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL - Localized seepage at bottom of this layer		0.00						
1		(GM) sandy SILTY GRAVEL, sub-angular; grey, contains cobbles and boulders; non-cohesive, moist to wet, compact		0.70	1	GS				
2					2	BS				
3		- Sidewalls sloughing below 2.90 m depth.			3	GS				
4					4	GS				▽
5					5	GS				
		End of Test Pit Due to sloughing of sidewalls		3.50						
6		Note(s): 1. Water level measured at a depth of 2.9 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
7										
8										
9										
10										

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

RECORD OF TEST PIT: NAG TP 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4990382.0 ;E 520058.0

DATE: October 6, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕; Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT (Wp, W, Wl) 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL, contains cobbles, boulders and organic matter (rootlets)		0.00						
1		(GM) sandy SILTY GRAVEL; grey, contains cobbles and boulders; non-cohesive, dry to wet, compact		0.70	1	GS				
		- Thin silt layer from 0.70 m to 0.90 m depth								
2					2	GS				▽
					3	GS				
3		- Trace sand at 2.90 m depth. - Increased amount of boulders at 3.0 m depth.			4	GS				
		End of Test Pit Due to practical refusal (inferred bedrock or large boulders)		3.30						
4		Note(s): 1. Water level measured at a depth of 2.0 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: NAG TP 20-04

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4990548.0 ;E 520268.0

DATE: October 5, 2020

CONTRACTOR: NR Kenney Logging Ltd.

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕; Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT (Wp, W, Wl) 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL, contains organic matter (rootlets)		0.00						
		(ML) CLAYEY SILT, trace gravel to some gravel; brown; cohesive, w<PL		0.30						
1					1	GS				
		- Contains cobbles and boulders below 1.50 m depth.								
2					2	GS				
					3	GS				
3										
					4	GS				
					5	GS				
4					6	GS				
		End of Test Pit Due to practical reach of excavator		4.20						
5		Note(s): 1. Ground water not encountered duing excavation								
		2. Test pit backfilled with excavated material; nominally compacted using excavator bucket								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: NAG TP 20-05

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4990347.0 ;E 520391.0

DATE: October 6, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊢ W ○ ⊣ Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL, contains organic matter (rootlets)		0.00						
		(ML) gravelly CLAYEY SILT; grey; cohesive, w<PL to w~PL		0.30	1	BS				
1										
2		- w~PL at 1.90 m depth.			2	GS				
		- Cobbles and boulders at 2.50 m depth.								▽
3					3	GS				
					4	GS				
4					5	GS				
		End of Test Pit Due to practical reach of excavator		4.50						
5		Note(s): 1. Water level measured at a depth of 3.0 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: NAG TP 20-06

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4990056.0 ;E 520378.0

DATE: October 6, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊢ W ⊣ Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	(ML/SM) SILT and SAND, some gravel; brown, contains cobbles; non-cohesive, moist, dense		0.00	1	GS				▽
2		(ML) sandy gravelly CLAYEY SILT; grey and brown, contains cobbles; cohesive, w<PL to w~PL		2.10	2	GS				
3		- Sidewalls sloughing below 3.10 m depth.			3	GS				
4					4	GS				
		End of Test Pit Due to sloughing of sidewalls		4.00						
5		Note(s): 1. Water level measured at a depth of 1.20 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: NAG TP 20-08

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4990367.0 ;E 520647.0

DATE: October 5, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp W Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	▽
0		TOPSOIL		0.00						
	Excavator John Deere LC210	(GM) SILTY GRAVEL, sub-angular; grey, contains cobbles and boulders; non-cohesive, wet, compact		0.20						
1					1	GS				
					2	GS				
2		- Significant water accumulation at 1.90 m depth.								
		End of Test Pit Due to practical refusal (inferred bedrock or large boulders)		2.00						
3		Note(s): 1. Water level measured at surface of Test Pit during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained 4. Advanced second test pit 1.0 m South, refusal met at 2.0 m								
4										
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8										
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10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: OMS TP 20-01

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4989395.0 ;E 523332.0

DATE: October 8, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp, W, Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC160	TOPSOIL, cobbles and boulders at surface		0.00						
		(GM/SM) SILTY GRAVEL and SAND, sub-angular; grey and brown, contains cobbles and boulders; non-cohesive, dry, compact		0.20	1	GS				
1										
2		(ML) CLAYEY SILT; grey, contains cobbles and boulders; cohesive, w<PL		2.00	2	GS				
3		(ML) gravelly sandy CLAYEY SILT; grey, contains cobbles and boulders; cohesive, w<PL to w~PL		3.00	3	GS				▽
4					4	GS				
					5	GS				
5		End of Test Pit Due to practical reach of excavator		4.90						
6		Note(s): 1. Water level measured at a depth of 3.7 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: OMS TP 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4989153.0 ;E 523223.0

DATE: October 8, 2020

CONTRACTOR: NR Kenney Logging Ltd.

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE					GR SA SI CL	
0	Excavator John Deere LC160	TOPSOIL		0.00				
		(ML) gravelly SILT; grey, contains cobbles and boulders; cohesive, w<PL		0.40	1	BS		
1								
2		(GM) SILTY GRAVEL, angular; grey, contains cobbles and boulders; non-cohesive, wet, dense		1.50	2	GS		▽
		Inferred BEDROCK		2.50	3	GS		
3		End of Test Pit Due to inferred bedrock		2.90				
4		Note(s): 1. Water level measured at a depth of 2.2 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained						
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6								
7								
8								
9								
10								

SHEAR STRENGTH Cu, kPa — nat V. + rem V. ⊕ — Q - ● U - ○
20 40 60 80

WATER CONTENT PERCENT
Wp ⊢ W ⊣ Wl
20 40 60 80

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: OMS TP 20-03

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4989047.0 ;E 523529.0

DATE: October 8, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT (Wp, W, Wl) 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC160	TOPSOIL		0.00						
		(SM) SILTY SAND, some gravel; brown, contains cobbles; non-cohesive, moist, compact		0.10	1	GS				
1		End of Test Pit Due to inferred bedrock		1.00						
		Note(s): 1. Ground water not encountered during excavation 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained 4. Advanced second test pit 2.5 m West, refusal met at 1.0 m								
2										
3										
4										
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7										
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9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: OMS TP 20-04

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4988715.0 ;E 523536.0

DATE: October 8, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp W Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC160	TOPSOIL		0.00						
		(GM/SM) SILTY GRAVEL and SAND, sub-angular to angular; grey and brown, contains cobbles and boulders; non-cohesive, dry, compact		0.40	1	GS				
1										
2		(ML) gravelly CLAYEY SILT; grey, contains cobbles and boulders; cohesive, w<PL		1.70	2	GS				▽
3					3	GS				
		End of Test Pit Due to inferred bedrock		3.20						
4		Note(s): 1. Water level measured at a depth of 1.7 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained 4. Advanced second test pit 2.0 m North, refusal met at 3.20 m								
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6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: OMS TP 20-05

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4988594.0 ;E 523810.0

DATE: October 8, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp — W — Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	▽
0	Excavator John Deere LC160	Organics		0.00						
		(GM/ML) sandy GRAVEL and SILT; grey, contains cobbles; non-cohesive, wet		0.10	1	BS				
2		(ML) gravelly CLAYEY SILT; grey, contains cobbles and boulders; cohesive, w~PL - Sloughing at 2.5 m depth.		2.30	2	GS				
3					3	GS				
		End of Test Pit Due to sloughing and inferred bedrock		3.20						
		Note(s): 1. Water level measured at surface of Test Pit during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket								

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: PAG TP 20-01

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4989989.0 ;E 522282.0

DATE: October 7, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊢ W ○ ⊣ Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL; contains organic matter (rootlets)		0.00						
		(ML/GM) sandy SILT and GRAVEL, sub-angular; grey and brown, contains cobbles and boulders; non-cohesive, moist to wet, dense		0.30	1	BS				▽
1										
2					2	BS				
		End of Test Pit Due to practical refusal (inferred bedrock or large boulders)		2.00						
3		Note(s): 1. Water level measured at a depth of 0.7 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained 4. Advanced second test pit 1.0 m North, refusal met at 1.8 m								
4										
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9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: PAG TP 20-02

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4989799.0 ;E 522595.0

DATE: October 7, 2020
CONTRACTOR: NR Kenney Logging Ltd.

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT (Wp, W, Wl) 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE		0.00					GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL		0.00						
		(GM/SM) SILTY GRAVEL and SAND, sub-angular; grey, contains cobbles and boulders; non-cohesive, moist, dense		0.20						
1					1	GS				
2					2	GS				
3					3	GS				
4					4	GS				
		End of Test Pit Due to practical reach of excavator		4.00						
5		Note(s): 1. Ground water not encountered during excavation 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: RWY TP 20-01

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4990425.0 ;E 521124.0

DATE: October 5, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + rem V. ⊕; Q - ●; U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊢ W ⊖ ⊣ Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL, contains organic matter (rootlets)		0.00						
		(SM/GM) SILTY SAND and GRAVEL, sub-angular; brown, contains cobbles, boulders and organic matter (rootlets); non-cohesive, moist, compact		0.34	1	GS				
1										
					2	BS				
2										
					3	GS				
3										
		(GM) sandy SILTY GRAVEL, sub-rounded; grey and brown, contains cobbles and boulders; non-cohesive, wet, compact		3.10	4	GS				▽
					5	GS				
		- Sidewalls sloughing below 3.40 m depth.		3.60						
4		End of Test Pit Due to sloughing of sidewalls								
		Note(s): 1. Water level measured at a depth of 3.4 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
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6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: RWY TP 20-02

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4990514.0 ;E 521449.0

DATE: October 5, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp W Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL, contains cobbles and boulders		0.00						
		(GM/SM) SILTY GRAVEL and SAND, sub-rounded; grey; non-cohesive, moist to wet, compact		0.26	1	GS				▽
1		- Sloughing at 1.20 m depth.			2	GS				
2		- Significant amount of cobbles and boulders below 2.50 m depth.			3	GS				
3					4	GS				
					5	GS				
4		End of Test Pit Due to practical reach of excavator		3.80						
5		Note(s): 1. Water level measured at a depth of 1.2 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: RWY TP 20-03

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4990338.0 ;E 521780.0

DATE: October 6, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp W Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL		0.00						
		(ML/SM) gravelly SILT and SAND; brownish grey, contains cobbles and boulders; non-cohesive, dry, dense		0.50	1	BS				
2		(GM) SILTY GRAVEL, sub-angular; grey, contains cobbles and boulders; non-cohesive, moist, dense		1.90	2	GS				▽
		End of Test Pit Due to practical refusal (inferred bedrock or large boulders)		2.40						

Note(s):

1. Water level measured at a depth of 2.0 m during excavation.

2. Test pit backfilled with excavated material; nominally compacted using excavator bucket

3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: RWY TP 20-04

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4990132.0 ;E 522048.0

DATE: October 7, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp — W — Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL and organics		0.00						
		(GM/SM) SILTY GRAVEL and SAND, sub-angular; grey, contains cobbles and boulders; non-cohesive, moist, dense		0.30	1	GS				
1										
2					2	GS				▽
		(GM) sandy SILTY GRAVEL, sub-angular; grey, contains cobbles and boulders; non-cohesive, moist, dense		2.70	3	GS				
3		End of Test Pit Due to inferred bedrock		3.30						
4		Note(s): 1. Water level measured at a depth of 2.5 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained 4. Advanced second test pit 1.0 m South, refusal met at 3.3 m								
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: RWY TP 20-05

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4989897.0 ;E 523136.0

DATE: October 9, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp W Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC160	TOPSOIL		0.00						
		(GM/SM) SILTY GRAVEL and SAND, sub-angular; brown, contains cobbles and boulders; non-cohesive, moist, compact		0.10	1	BS				
1										
2		(ML) gravelly CLAYEY SILT; grey, contains cobbles and boulders; cohesive, w<PL - Sidewalls sloughing below 2.50 m depth.		1.70	2	GS				
3					3	GS				▽
4		End of Test Pit Due to sloughing of sidewalls Note(s): 1. Water level measured at a depth of 3.0 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained		3.80						
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: TLS TP 20-01

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4989873.0 ;E 522746.0

DATE: October 7, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp — W — Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL		0.00						
		(ML) gravelly sandy CLAYEY SILT; brown, contains cobbles; cohesive, w<PL		0.30	1	GS				
		End of Test Pit Due to inferred bedrock		0.50						
1		Note(s): 1. Ground water not encountered during excavation 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. Multiple attempts excavating in permitted area, each excavation met refusal at 0.5 m								
2										
3										
4										
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: TLS TP 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4989996.0 ;E 522957.0

DATE: October 7, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + rem V. ⊕; Q - ●; U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp W Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	ORGANICS		0.00						
		(GM) SILTY GRAVEL, some sand, sub-angular; grey and brown, contains cobbles; non-cohesive, moist to wet, dense		0.10	1	GS				
1										
2					2	GS				
					3	GS				
3		- Contains boulders at 2.90 m depth.								▽
					4	GS				
4		End of Test Pit Due to practical reach of excavator		3.80						
		Note(s): 1. Water level measured at a depth of 3.5 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained 4. Original excavation footprint extended 1.0 m Soutwest to avoid boulder at 2.9 m. Refusal met at 3.8 m								
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: TLS TP 20-03

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4989629.0 ;E 522928.0

DATE: October 9, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT (Wp, W, Wl) 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC160	(SM/GM) SILTY SAND and GRAVEL, sub-angular; brown; non-cohesive, moist, compact		0.00	1	BS				
1		(ML/GM) sandy SILT and GRAVEL, sub-angular; grey, contains cobbles; cohesive, w<PL		1.50	2	GS				
2		- Boulders at 2.50 m depth.								
3		(GM/ML) GRAVEL and SILT, sub-angular; grey, contains cobbles and boulders; non-cohesive, moist		2.70	3	GS				▽
		- Sidewalls sloughing below 3.50 m depth.								
4		(GM) SILTY GRAVEL, sub-angular; grey, contains cobbles and boulders; non-cohesive, moist		3.70	4	GS				
		End of Test Pit Due to sloughing of sidewalls		4.00						
5		Note(s): 1. Water level measured at a depth of 3.0 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: TLS TP 20-04

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design
CLIENT: Atlantic Mining NS Inc.
LOCATION: N 4989626.0 ;E 523213.0

DATE: October 9, 2020
CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1
DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp — W — Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC160	TOPSOIL		0.00						
		(ML/SM) gravelly SILT and SAND; brown, contains cobbles; non-cohesive, dry, compact		0.10	1	GS				
1										
2		(ML) gravelly CLAYEY SILT; grey, contains cobbles; cohesive, w<PL		1.30	2	GS				▽
3		(GM/ML) GRAVEL and SILT; grey, contains cobbles and boulders; non-cohesive, moist - Sidewalls sloughing below 3.50 m depth. - Sandy at 3.70 m depth.		3.10	3 4	GS GS				
4		End of Test Pit Due sloughing of sidewalls		4.00						
5		Note(s): 1. Water level measured at a depth of 2.7 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: TP 2020-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4989489.0 ;E 522725.0

DATE: October 7, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT (Wp, W, Wl) 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL		0.00						
		(ML) SILT, trace gravel; brown; cohesive, w<PL		0.10	1	GS				
1		(GM/ML) GRAVEL and SILT, sub-angular; brown, contains cobbles; non-cohesive, moist, compact		0.60	2	GS				▽
2		(GM) SILTY GRAVEL, sub-angular; grey, contains cobbles and boulders; non-cohesive, wet, dense		2.00	3	BS				
3		- Sidewalls sloughing below 3.30 m depth.			4	GS				
4		End of Test Pit Due to sloughing of sidewalls		3.80						
5		Note(s): 1. Water level measured at a depth of 1.8 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: TP 2020-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4989395.0 ;E 522795.0

DATE: October 8, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp W Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC160	TOPSOIL		0.00						
		(GM/ML) sandy GRAVEL and SILT; grey, contains cobbles; non-cohesive, dry, compact		0.20	1	GS				
1										
2		(GM) SILTY GRAVEL; grey, contains cobbles and boulders; non-cohesive, moist, dense		2.00	2	GS				
		inferred BEDROCK		2.70						
3		End of Test Pit Due to inferred bedrock		3.10						
4		Note(s): 1. Ground water not encountered during excavation 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained 4. Advanced second test pit 1.0 m Southwest, refusal met at 2.7 m								
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: TP 2020-03

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4989387.0 ;E 522890.0

DATE: October 7, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT (Wp, W, Wl) 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	▽
0	Excavator John Deere LC210	ORGANICS and TOPSOIL		0.00						
		(GM) SILTY GRAVEL, sub-angular; grey, contains cobbles and boulders; non-cohesive, wet, dense		0.20						
1					1	GS				
2		- Mostly boulders below 2.0 m depth			2	GS				
3		End of Test Pit Due to inferred bedrock		2.80						
4		Note(s): 1. Water level measured at surface of Test Pit during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained								
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF TEST PIT: TP 2020-04

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4989187.0 ;E 522721.0

DATE: October 8, 2020

CONTRACTOR: NR Kenney Logging Ltd.

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) 20 40 60 80	WATER CONTENT PERCENT (Wp, W, Wl) 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC160	TOPSOIL		0.00						
		(GM) sandy SILTY GRAVEL, sub-angular; grey, contains cobbles; non-cohesive, dry, compact		0.30	1	BS				
					2	GS				
2		End of Test Pit Due to inferred bedrock		1.80						
		Note(s): 1. Ground water not encountered during excavation 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained 4. Advanced second test pit 1.0 m South, refusal met at 1.8 m								

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

RECORD OF TEST PIT: TSS TP 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

CLIENT: Atlantic Mining NS Inc.

LOCATION: N 4990600.0 ;E 522150.0

DATE: October 6, 2020

CONTRACTOR: NR Kenney Logging Ltd.

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SHEAR STRENGTH Cu, kPa (nat V. + / rem V. ⊕; Q - ● / U - ○) 20 40 60 80	WATER CONTENT PERCENT Wp ⊢ ○ W ⊣ Wl 20 40 60 80	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	GROUNDWATER LEVEL
		GROUND SURFACE							GR SA SI CL	
0	Excavator John Deere LC210	TOPSOIL and Organics		0.00						
		(GM/SM) SILTY GRAVEL and SAND, sub-angular to angular; grey, contains cobbles; non-cohesive, dry, dense		0.50	1	GS				
1										
2		(GM) sandy SILTY GRAVEL, sub-angular; grey, contains cobbles; non-cohesive, moist, dense		1.90	2	GS				▽
		(GM) SILTY GRAVEL, sub-angular; grey, contains cobbles; non-cohesive, wet, dense		2.60	3	GS				
3		End of Test Pit Due to inferred bedrock		2.90						
4		Note(s): 1. Water level measured at a depth of 2.0 m during excavation. 2. Test pit backfilled with excavated material; nominally compacted using excavator bucket 3. The compactness condition has been inferred by subjective field identification methods only. SPT N-values not obtained 4. Advanced second test pit 2.0 m West, refusal met at 2.9 m.								
5										
6										
7										
8										
9										
10										

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-TPS-003 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

APPENDIX C

Record of Borehole and Drillhole Sheets

RECORD OF BOREHOLE: BH 2020-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989598.000 ;E 522547.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 3-5, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	(ML) gravelly SILT; brown, contains organic matter (rootlets); cohesive, w<PL, soft		0.00	1	SS	200/610	-	3	■			Silica Sand
1	HWT	(GM) sandy SILTY GRAVEL, angular; brown and grey; non-cohesive, moist, dense to very dense		0.61	2	SS	330/610	-	33	■			Bentonite Seal
2	HQ3				3	SS	320/590	-	79	■			Silica Sand
3	HQ3				4	SS	270/610	-	81	■			50 mm Diam. PVC # 10 Slot Screen
	HQ3				5	SS	0/500	-	>50	>50 ■			
		Borehole continued on RECORD OF DRILLHOLE BH 2020-01		3.30									
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: BH 2020-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989598.000 ;E 522547.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: November 3-5, 2020
DRILL RIG: CME 75
DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
4	Rotary Drill HQ3 Core	Moderately weathered, medium bedded, grey, faintly porous, medium grained, moderately strong to strong AGRILLITE		3.30	1						JN,IR,RO So JN,PL,SM CN	3 1	1 1	25 12		R3	W3		
5					2						JN,IR,SM CN JN,UN,RO CN	2 3	1 1	20 25		R3	W3		50 mm Diam. PVC # 10 Slot Screen
6					3											R4	W2		
7					4						JN,PL,SM So	1	1	12		R3	W2		
8					5											R4	W1		Silica Sand
					6						JN,UN,RO CN	3	1	25		R4	W2		
					7											R3	W3		
9		End of Drillhole Note(s): 1. Backfill details presented in Piezometer Installation		8.14															
10																			
11																			
12																			

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

FEATURES LEGEND

BROKEN CORE | FAULT | LOST CORE | CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: BH 2020-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989518.000 ;E 522593.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 4, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	TOPSOIL - (OL) ORGANIC SILT; brown, contains organic matter (rootlets); cohesive, w~PL, very stiff		0.00									
				0.20	1	SS	400 / 610	-	18				
1		(GM) sandy SILTY GRAVEL, angular; grey and brown; non-cohesive, moist, compact to very dense			2	SS	360 / 610	-	63				
2	HQ3				3	SS	170 / 270	-	>50	>50			
		Borehole continued on RECORD OF DRILLHOLE BH 2020-02		2.44									
3													
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: BH 2020-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989518.000 ;E 522593.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: November 4, 2020
DRILL RIG: CME 75
DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
3	Rotary Drill HQ3 Core	Slightly weathered to fresh, medium bedded, grey, medium grained, faintly porous, medium strong to strong GREYWACKE		2.44	1						JN,PL,SM So	1	1	12		R3	W2		
											JN,IR,RO So	3	1	25					
4					2						JN,UN,RO So	3	1	25		R4	W1		
5																			
6					3											R4	W1		
		End of Drillhole		6.64															
7		Note(s):																	
		1. After completion, borehole was backfilled with bentonite and sand to surface																	
8																			
9																			
10																			
11																			

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: BH 2020-03

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989545.000 ;E 522793.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: October 29 and November 2, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	(ML) gravelly sandy SILT; brown, contains organic matter (rootlets); cohesive, w<PL, firm		0.00	1	SS	420/610	-	7	■			
1	HWT	- Very stiff below 0.6 m depth.			2	SS	480/610	-	27	■			
2	HQ3	(GM) SILTY GRAVEL, sub-angular; brown and grey, contains cobbles and/or boulders; non-cohesive, moist, dense to very dense		1.52	3	SS	220/610	-	50	■			
3	HQ3				4	SS	300/610	-	30	■			Geophysical Well
	HQ3				5	SS	0/40	-	>50	>50 ■			
4	HQ3				6	SS	260/530	-	29	■			
5		Borehole continued on RECORD OF DRILLHOLE BH 2020-03		4.91									
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: BH 2020-03

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989545.000 ;E 522793.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: October 29 and November 2, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

DATUM: N/A

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA DIP w.r.t. CORE AXIS	DISCONTINUITY DATA TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
5	Rotary Drill HQ3 Core	Highly weathered, medium bedded, dark grey, medium grained, moderately porous, weak ARGILLITE		4.91	1											R2	W4		
6																			
7					2											R2	W4		
					3											R2	W3		Geophysical Well
8					4											R2	W3		
9		Slightly weathered, medium bedded, light grey, medium grained, moderately porous, strong to very strong GREYWACKE		8.77	5											R4	W2		
10					6					•	JN,PL,RO CN	1.5	1	20		R5	W2		
		End of Drillhole Note(s): 1. After completion, borehole was backfilled with 3" diameter PVC pipe for geophysical testing. 2. No water levels to be obtained 3. Backfill details presented in Piezometer Installation		10.16															
11																			
12																			
13																			

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: BH 2020-03B

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989540.000 ;E 522789.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 13, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0		For soil stratigraphy refer to RECORD OF BOREHOLE BH 2020-03		0.00									Geophysical Well
1													
2													
3													
4													
5													
6													
7													
8		Note(s): 1. After completion, borehole was backfilled with 3" diameter PVC pipe for geophysical testing. 2. No water levels to be obtained 3. Backfill details presented in Piezometer Installation											
9													
		End of Borehole		9.43									
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: LGS BH 20-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990351.000 ;E 520879.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: October 29, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HQ3	(GM) sandy SILTY GRAVEL, sub-angular; brown and grey, contains cobbles and boulders; non-cohesive, dry, very dense		0.00									Silica Sand
					1	CMS	410 / 610	-	-				
1					2	SS	300 / 420	-	>50	>50 ■			Bentonite Seal
													Silica Sand
2	HWT												
													50 mm Diam. PVC # 10 Slot Screen
3					3	SS	0 / 0	-	>50	>50 ■			
		Borehole continued on RECORD OF DRILLHOLE LGS BH 20-01		3.17									
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB

CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: LGS BH 20-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

SHEET 2 OF 2

LOCATION: N 4990351.000 ;E 520879.000

DRILLING DATE: October 29, 2020

DATUM: N/A

INCLINATION: -90° AZIMUTH: —

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
4	Rotary Drill HQ3 Core	Slightly weathered to fresh, medium bedded, grey, medium grained, faintly porous, moderately strong to strong GREYWACKE		3.17	1						JN,PL,RO IN,Cl 7 mm JN,UN,RO CN JN,UN,RO CN JN,UN,RO Sa JN,UN,RO CN JN,UN,RO CN	1 3 3 3 3 3	1.5 1 2 1 1 1	0 25 25 25 25 25		R3	W2		50 mm Diam. PVC # 10 Slot Screen
5					2						JN,UN,RO CN JN,UN,RO CN JN,PL,RO CN JN,UN,RO CN JN,PL,RO SO	3 3 1.5 3 1.5	1 1 1 1 1	25 20 25 25 20		R4	W1		
6					3						JN,PL,RO CN JN,PL,SM Sa JN,PL,SM CN	1.5 1.5 1.5	1 2 1	20 12 12		R4	W1		Silica Sand
7		End of Drillhole Note(s): 1. Backfill details presented in Piezometer Installation		6.40															
8																			
9																			
10																			
11																			
12																			

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

RECORD OF BOREHOLE: LGS BH 20-02

SHEET 1 OF 1

LOCATION: N 4989881.000 ;E 522446.000

BORING DATE: October 28, 2020

DATUM: N/A

DRILL RIG: CME 75

SAMPLER HAMMER, 64kg; DROP, 760mm

DRILLING CONTRACTOR: Logan Drilling

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HQ3	(GM) sandy SILTY GRAVEL, sub-angular; brown and grey, contains cobbles and/or boulders; non-cohesive, dry, very dense		0.00	1	SS	320 / 610	-	54	>50			
1					2	SS	220 / 270	-	>50	>50			
2					3	SS	0 / 50	-	>50	>50			
3					4	SS	0 / 0		>50	>50			
		End of Borehole		2.82									
		Note(s):											
		1. After completion, borehole was backfilled with bentonite and sand to surface											
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

RECORD OF BOREHOLE: LGS BH 20-03

SHEET 1 OF 2

LOCATION: N 4990055.000 ;E 520763.000

BORING DATE: October 28, 2020

DATUM: N/A

SAMPLER HAMMER, 64kg; DROP, 760mm

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	TOPSOIL (OL) ORGANIC SILT; black, contains organic matter (rootlets); cohesive, w<PL, firm		0.00	1	SS	300/610	-	8	■			
		(GM) sandy SILTY GRAVEL; grey and brown, contains cobbles and boulders; non-cohesive, moist, dense to very dense		0.43	2	SS	410/610	-	36	■			
1													
2	HQ3				3	SS	70/610	-	53	■			
					4	SS	230/610	-	34	■			
3		(SM) gravelly SILTY SAND; brown, contains cobbles and boulders; non-cohesive, moist, very dense		3.08	5	SS	90/180	-	>50	>50 ■			
		Borehole continued on RECORD OF DRILLHOLE LGS BH 20-03		3.33									
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: LGS BH 20-03

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990055.000 ;E 520763.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: October 28, 2020
DRILL RIG: CME 75
DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRE-NGTH INDEX	WEATH-ERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
4	Rotary Drill HQ3 core	Fresh to slightly weathered, medium bedded, grey, medium grained, faintly porous, strong GREYWACKE		3,33	1						JN,UN,RO CN	3	1	25		R4	W1		
											JN,PL,RO CN	1.5	1	20					
											JN,PL,SM IN,CL 2 mm	1	8	6					
5					2						JN,PL,RO So	1.5	1	20		R4	W2		
6											JN,PL,RO	1.5	1	20					
											JN,UN,RO So	3	1	25					
											JN,UN,RO	3	1	25					
		End of Drillhole Note(s): 1. After completion, borehole was backfilled with bentonite and sand to surface		6,33															
7																			
8																			
9																			
10																			
11																			
12																			

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: NAG BH 20-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990320.000 ;E 519695.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: October 24-25, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	TOPSOIL - (OL) ORGANIC SILT, some sand; black, contains cobbles and/or boulders; cohesive, w~PL, firm		0.00	1	SS	300/610	-	6				
		(SM) SILTY SAND, some gravel; brown, contains cobbles and/or boulders; non-cohesive, moist, loose		0.49									
1		(GM/SM) SILTY GRAVEL and SAND, angular; grey and brown, contains cobbles and/or boulders; non-cohesive, moist, dense to very dense		0.61	2	SS	400/590	-	40				
					3	SS	60/230	-	>50	>50			
2					4	SS	110/250	-	>50	>50			Silica Sand
3	HQ3				5	SS	210/610	-	61				
4					6	SS	200/610	-	49				
					7	SS	210/510	-	35				
5					8	SS	0/5	-	>50	>50			Bentonite Seal
		Borehole continued on RECORD OF DRILLHOLE NAG BH 20-01		5.37									
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: NAG BH 20-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

SHEET 2 OF 2

LOCATION: N 4990320.000 ;E 519695.000

DRILLING DATE: October 24-25, 2020

DATUM: N/A

INCLINATION: -90° AZIMUTH: —

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE													
6	Rotary Drill HQ3 Core	Moderately weathered, medium bedded, orange grey, moderately porous, very strong GRANITE	5.37	1						JN,PL,RO So JN,UN,RO CN JN,UN,RO PC,CI JN,UN,RO CN JN,PL,RO CN JN,PL,RO CN JN,UN,RO CN		R5	W3		Bentonite Seal Silica Sand
7				2						JN,PL,RO CN JN,UN,RO PC,CI JN,UN,RO So JN,IR,RO CN JN,UN,RO CN JN,UN,RO CN JN,UN,SM CN JN,UN,RO CN JN,UN,RO CN JN,UN,RO PC,CI JN,UN,RO VN,UN,RO PC,CI JN,UN,RO JN,UN,RO JN,UN,RO JN,PL,RO JN,UN,RO So		R5	W3		
8				3						JN,UN,RO JN,UN,RO		R5	W3		50 mm Diam. PVC # 10 Slot Screen
9															
10		End of Drillhole Note(s): 1. Backfill details presented in Piezometer Installation	9.42												
11															
12															
13															
14															

FEATURES LEGEND

BROKEN CORE | FAULT | LOST CORE | CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: NAG BH 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990130.000 ;E 519747.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: October 23-24, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0		TOPSOIL - (ML) CLAYEY SILT, some sand; grey and brown, contains organic matter (rootlets); cohesive, w~PL, hard		0.00	1	SS	230/610	-	54				
1	HWT	(SM) gravelly SILTY SAND; brown, contains cobbles and/or boulders; non-cohesive, dry, very dense		0.61	2	SS	150/270	-	>50	>50			
2	HQ3	(GM/SM) SILTY GRAVEL and SAND; grey and brown; contains cobbles and/or boulders; non-cohesive, moist; dense to very dense		1.55	3	SS	220/610	-	54				
					4	SS	230/610	-	46				
3					5	SS	0/70	-	>50	>50			
4					6	SS	70/230	-	>50	>50			
					7	SS	220/480	-	62				
5		(GM) SILTY GRAVEL, some sand; grey, contains cobbles and boulders; non-cohesive, moist, very dense		5.30	8	SS	100/150	-	>50	>50			
		Borehole continued on RECORD OF DRILLHOLE NAG BH 20-02		5.49									
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: NAG BH 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

SHEET 2 OF 2

LOCATION: N 4990130.000 ;E 519747.000

DRILLING DATE: October 23-24, 2020

DATUM: N/A

INCLINATION: -90° AZIMUTH: —

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRE-NGTH INDEX	WEATH-ERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
6	Rotary Drill HQ3 Core	Fresh, medium bedded, grey, medium grained, slightly porous, strong GREYWACKE		5.49	1						JN,UN,RO IN,Cl 1 mm JN,UN,RO JN,PL,RO So JN,IR,RO So					R4	W1		
7					2											R4	W1		
8					3						JN,UN,RO So JN,UN,RO So JN,UN,RO So JN,UN,RO JN,UN,RO					R4	W1		
											JN,UN,RO CN								
		End of Drillhole Note(s): 1. After completion, borehole was backfilled with bentonite and sand to surface		8.11															

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: NAG BH 20-03

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990521.000 ;E 519980.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: October 25-26, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp — W — Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE												GR SA SI CL	
0	HQ3	(ML) sandy SILT; brown, contains organic matter (rootlets); cohesive, w~PL, hard		0.00	1	SS	260 / 590	-	31	■					
		(SM/GM) SILTY SAND and GRAVEL; grey, contains cobbles and/or boulders; non-cohesive, dry to moist, dense to very dense		0.43											
1					2	SS	120 / 270	-	>50	>50 ■					
2		(GM) SILTY GRAVEL; grey, contains cobbles and boulders; non-cohesive, moist, dense		2.07	3	SS	270 / 610	-	39	■					
3		(ML) sandy SILT; grey, contains cobbles and boulders; non-cohesive, moist, very dense		3.01	4	SS	40 / 50	-	>50	>50 ■					
		(GM) SILTY GRAVEL; grey, contains cobbles and boulders; non-cohesive, moist, dense		3.60	5	SS	260 / 610	-	77	■					
4															
5					6	SS	380 / 580	-	89	■					
					7	SS	140 / 230	-	>50	>50 ■					
		Borehole continued on RECORD OF DRILLHOLE NAG BH 20-03		5.35											
6															
7															
8															
9															
10															

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: NAG BH 20-03

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design

LOCATION: N 4990521.000 ;E 519980.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: October 25-26, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

NOTE: For abbreviations, symbols and descriptions refer to LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA DIP w.r.t. CORE AXIS	DISCONTINUITY DATA TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
6	Rotary Drill HQ3 Core	Moderately to slightly weathered, medium bedded, grey, faintly porous, moderately strong GREYWACKE		5.35	1						JN,UN,RO	3	1	25		R3	W3		
											JN,UN,RO So	3	1	25					
											JN,PL,RO PC,Cl	1.5	4	20					
											JN,UN,RO So	3	1	25					
											JN,PL,RO So	1.5	1	20					
7					2						JN,PL,RO So	1.5	1	20		R3	W2		
											JN,PL,RO So	1.5	1	20					
											JN,PL,RO	1.5	1	20					
8					3											R3	W2		
		End of Drillhole		8.60															
9		Note(s):																	
		1. After completion, borehole was backfilled with bentonite and sand to surface																	
10																			
11																			
12																			
13																			
14																			

FEATURES LEGEND

BROKEN CORE | FAULT | LOST CORE | CLAY SEAM

DEPTH SCALE 1 : 50

GOLDER

LOGGED: JB

CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: NAG BH 20-04

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990237.000 ;E 520193.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: October 20, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	TOPSOIL - (ML) gravelly sandy SILT; brown, contains organic matter (rootlets); cohesive, w~PL, firm		0.00	1	SS	310/610	-	7				Silica Sand
1	HWT	(GM) sandy SILTY GRAVEL; grey to white, contains cobbles and/or boulders; non-cohesive, dry, very dense		0.61	2	SS	320/610	-	79				Bentonite Seal
2	HQ3				3	SS	0/80	-	>50	>50			Silica Sand
2	HQ3				4	SS	50/80	-	>50	>50			50 mm Diam. PVC # 10 Slot Screen
3	HQ3				5		0/0		>50	>50			
		Borehole continued on RECORD OF DRILLHOLE NAG BH 20-04		3.08									
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: NAG BH 20-04

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

SHEET 2 OF 2

LOCATION: N 4990237.000 ;E 520193.000

DRILLING DATE: October 20, 2020

DATUM: N/A

INCLINATION: -90° AZIMUTH: —

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																
4	Rotary Drill HQ3 Core	Moderately weathered, medium bedded, grey, medium grained, faintly porous, medium strong GREYWACKE	3.08	1						JN,UN,RO So	3	1	25		R3	W3		
5				2						JN,UN,RO So JN,UN,RO So JN,UN,RO So JN,PL,RO So JN,PL,RO So JN,UN,RO So JN,UN,RO So JN,PL,RO So JN,UN,RO So JN,UN,RO So JN,UN,RO So	3 3 3 1.5 3 3 3 3 3	1 1 1 1 1 1 1 1 1	25 25 25 20 20 25 25 25 25		R3	W3		50 mm Diam. PVC # 10 Slot Screen
6				3						JN,UN,RO JN,PL,RO SA JN,PL,RO	3 1.5 1.5	1 1 1	25 20 20		R3	W3		Silica Sand Slough
7		End of Drillhole Note(s): 1. Backfill details presented in Piezometer Installation	6.31															

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: NAG BH 20-05

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989913.000 ;E 520228.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: October 27, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HQ3	(ML) gravelly sandy SILT; brown, contains cobbles and/or boulders; cohesive, w<PL, hard		0.00	1	SS	300/580	-	36	■			
1					2	SS	0/120	-	>50	>50 ■			
2		(GP) sandy GRAVEL, sub-angular; white and grey, contains cobbles and boulders; non-cohesive, moist, very dense		1.93	3	SS	130/280	-	>50	>50 ■			
3					4	SS	0/10	-	>50	>50 ■			
					5	SS	150/250	-	>50	>50 ■			
4		Borehole continued on RECORD OF DRILLHOLE NAG BH 20-05		3.97									
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: NAG BH 20-05

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989913.000 ;E 520228.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: October 27, 2020
DRILL RIG: CME 75
DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
4	Rotary Drill HQ3 Core	Fresh, foliated, white, coarse grained, faintly porous, very strong GRANITE		3.97	1											R5	W1		
5					2						JN,IR,RO CN	3	1	25		R5	W1		
6											JN,UN,RO CN	3	1	25					
7					3						JN,PL,RO CN JN,UN,RO CN JN,UN,RO CN JN,UN,RO CN JN,PL,RO CN	1.5 3 3 3 1.5	1 1 1 1 1	20 25 25 25 20		R5	W1		
8		End of Drillhole Note(s): 1. After completion, borehole was backfilled with bentonite and sand to surface		7.85															
9																			
10																			
11																			
12																			

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: NAG BH 20-06

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990539.000 ;E 520478.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: October 26-27, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE		0.00										GR SA SI CL	
0	HQ3	TOPSOIL - (OL) ORGANIC SILT; black, contains organic matter (rootlets); cohesive, w~PL, firm		0.10	1	SS	250 / 610	-	7	■					
		(ML) sandy gravelly SILT; brown, contains cobbles and/or boulders; cohesive, w<PL, very dense			2	SS	90 / 200	-	>50	>50 ■					
1															
					3	SS	0 / 2								
2															
		Borehole continued on RECORD OF DRILLHOLE NAG BH 20-06		2.30											
3															
4															
5															
6															
7															
8															
9															
10															

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: NAG BH 20-06

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

SHEET 2 OF 2

LOCATION: N 4990539.000 ;E 520478.000

DRILLING DATE: October 26-27, 2020

DATUM: N/A

INCLINATION: -90° AZIMUTH: —

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRE-NGTH INDEX	WEATH-ERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
3	Rotary Drill HQ3 Core	Highly to moderately weathered, medium bedded, grey, medium grained, faintly porous, medium strong GREYWACKE		2,30	1											R2	W4		
4					2						JN,UN,RO IN,CI 7 mm	1	1.5	0		R3	W3		
5					3											R3	W4		
6					4						JN,IR,RO So	3	1	25					
											JN,UN,RO	3	1	25					
											JN,UN,RO	3	1	25		R3	W3		
7											JN,PL,RO	1.5	1	20					
											JN,PL,RO	1.5	1	20					
		End of Drillhole Note(s): 1. After completion, borehole was backfilled with bentonite and sand to surface		7,40															
8																			
9																			
10																			
11																			

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: NAG BH 20-07

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990100.000 ;E 520586.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: October 21-22, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 3

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	TOPSOIL - (CI) SILTY CLAY, some gravel, trace sand; brown, contains organic matter (rootlets); cohesive, w~PL, stiff		0.00	1	SS	200/610	-	13	■			
1	HWT	(CI) SILTY CLAY, some sand; grey-brown, contains cobbles and/or boulders and organic matter (rootlets); cohesive, w~PL, very stiff to hard		0.61	2	SS	150/610	-	32	■			
	HWT				3	CMS	230/230	-	-				
2	HWT				4	SS	0/610	-	25	■			
3	HQ3	(CI) gravelly SILTY CLAY, no sand to trace sand; grey, contains cobbles and/or boulders; cohesive, w<PL, hard		2.95	5	SS	280/610	-	44	■			
4	HQ3				6	CMS	480/610	-	-				
	HQ3				7	SS	0/120	-	>50	>50 ■			
5	HQ3				8	SS	40/610	-	57	■			
6	HQ3				9	SS	20/210	-	>50	>50 ■			
7	HQ3				10	SS	350/610	-	74	■			
	HQ3				11	SS	170/610	-	43	■			
8	HQ3				12	SS	220/580	-	70	■			
9	HQ3	(CI) SILTY CLAY, trace gravel, trace sand; grey; cohesive, w<PL, hard		8.89	13	SS	370/610	-	52	■			
	HQ3	(CI) gravelly SILTY CLAY, trace sand; grey; cohesive, w<PL, hard		9.64	14	SS	180/610	-	46	■			
10	HQ3	*CONTINUED NEXT PAGE*											

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB/MA
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

RECORD OF BOREHOLE: NAG BH 20-07

SHEET 2 OF 3

LOCATION: N 4990100.000 ;E 520586.000

BORING DATE: October 21-22, 2020

DATUM: N/A

SAMPLER HAMMER, 64kg; DROP, 760mm

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		--- *CONTINUED FROM PREVIOUS PAGE* ---										GR SA SI CL	
10	HQ3	(Cl) gravelly SILTY CLAY, trace sand; grey; cohesive, w<PL, hard			14	SS	180/610	-	46				
11					15	SS	530/610	-	33	■			
12													
13		(CH) CLAY; grey; cohesive, w<PL, hard		12.64	16	SS	530/610	-	33	■			
14		Borehole continued on RECORD OF DRILLHOLE NAG BH 20-07		13.31									
15													
16													
17													
18													
19													
20													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB/MA
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: NAG BH 20-07

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design

LOCATION: N 4990100.000 ;E 520586.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: October 21-22, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

DATUM: N/A

NOTE: For abbreviations, symbols and descriptions refer to LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA DIP w.r.t. CORE AXIS	DISCONTINUITY DATA TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRE-NGTH INDEX	WEATH-ERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
14	Rotary Drill HQ3 Core	Fresh, medium bedded, grey, medium grained, faintly porous, strong GREYWACKE		13.31	1						JN,UN,SM Pc,Cl JN,UN,SM Pc,Cl	3 3	4 4	12 12		R4	W1		
15					2						JN,UN,RO JN,UN,RO JN,PL,RO JN,PL,RO JN,PL,RO JN,UN,RO	3 3 1.5 1.5 1.5 3	1 1 1 1 1 1	25 25 20 20 20 25		R3	W1		
16		End of Drillhole Note(s): 1. After completion, borehole was backfilled with bentonite and sand to surface		15.64															
17																			
18																			
19																			
20																			
21																			
22																			

FEATURES LEGEND

BROKEN CORE | FAULT | LOST CORE | CLAY SEAM

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JB/MA

CHECKED: CK

RECORD OF BOREHOLE: PAG BH 20-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989758.000 ;E 522307.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 7, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	(Cl) gravelly sandy SILTY CLAY; brown, contains organic matter (rootlets); cohesive, w~PL, very stiff		0.00	1	SS	260 / 610	-	25	■			
1	HWT	(GM) sandy SILTY GRAVEL, sub-angular; grey and brown; non-cohesive, moist, very dense		0.61	2	SS	180 / 260	-	>50	>50 ■			
		Borehole continued on RECORD OF DRILLHOLE PAG BH 20-01		1.29									
2													
3													
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: PAG BH 20-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989758.000 ;E 522307.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: November 7, 2020
DRILL RIG: CME 75
DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRE-NGTH INDEX	WEATH-ERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
2	Rotary Drill HQ3 Core	Fresh, medium bedded, light grey, medium grained, faintly porous, very strong GREYWACKE		1.29	1						JN,UN,RO So	3	1	25		R4	W1		
											JN,UN,RO So	3	1	25					
											JN,UN,RO So	3	1	25					
					2						JN,IR,RO CN	3	1	25		R5	W1		
											JN,UN,RO CN	3	1	25					
											JN,UN,RO CN	3	1	25					
3											JN,UN,RO CN	3	1	25					
											JN,IR,SM CN	1	1	20					
											JN,UN,RO CN	3	1	25					
											JN,UN,RO CN	3	1	25					
4					3						JN,UN,RO CN	3	1	25		R5	W1		
											JN,PL,RO CN	1.5	1	20					
5		End of Drillhole Note(s): 1. After completion, borehole was backfilled with bentonite and sand to surface		4.91															
6																			
7																			
8																			
9																			
10																			

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: PAG BH 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989881.000 ;E 522446.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 7, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	(ML) gravelly sandy SILT; grey brown, contains organic matter (rootlets); cohesive, w<PL, stiff to hard		0.00	1	CMS	490 / 610	-	11	■			Silica Sand; Bentonite Seal
1					2	SS	270 / 580	-	87	■			Silica Sand; 50 mm Diam. PVC # 10 Slot Screen
		(GM/SM) SILTY GRAVEL and SAND, sub-angular; grey; non-cohesive, dry, very dense		1.10									
		Borehole continued on RECORD OF DRILLHOLE PAG BH 20-02		1.49									
2													
3													
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: PAG BH 20-02

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design

LOCATION: N 4989881.000 ;E 522446.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: November 7, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA DIP w.r.t. CORE AXIS	DISCONTINUITY DATA TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRE-NGTH INDEX	WEATH-ERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
2	Rotary Drill HQ3 Core	Moderately to slightly weathered, medium bedded, grey, medium grained, faintly porous, medium strong ARGILLITE/GREYWACKE		1.49	1						JN,IR,RO CN	3	1	25		R3	W3		
3					2						JN,PL,RO CN JN,UN,RO CN JN,OK,RO CN	1.5 3 1.5	1 1 1	20 25 20		R3	W2		50 mm Diam. PVC # 10 Slot Screen
											JN,IR,RO CN	3	1	25					
					3											R3	W2		
4					4											R3	W2		Slough
		End of Drillhole Note(s): 1. Backfill details presented in Piezometer Installation 2. SPT advanced from surface adjacent to CMS sample.		4.30															
5																			
6																			
7																			
8																			
9																			
10																			

FEATURES LEGEND

BROKEN CORE | FAULT | LOST CORE | CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: PAG BH 20-03

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990009.000 ;E 522577.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 8, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp W Wl) (20 40 60 80)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE												GR SA SI CL	
0	Auger	(OH) ORGANIC SILT; brown, contains organic matter (rootlets); cohesive, w~PL, soft		0.00	1	SS	440/610	-	3	■					
		(ML/SM) gravelly SILT and SAND; grey; non-cohesive, moist, very loose		0.41											
1		(SM/GM) SILTY SAND and GRAVEL; grey; non-cohesive, moist to wet, compact to very dense		0.61	2	SS	330/610	-	20	■					
2					3	SS	370/610	-	53	■					
	HWT														
					4	SS	0/10	-	>50	>50 ■					
		Borehole continued on RECORD OF DRILLHOLE PAG BH 20-03		2.45											
3															
4															
5															
6															
7															
8															
9															
10															

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: PAG BH 20-03

PROJECT: 20142100, Beaver Dam Geotechical Investigation and Design

LOCATION: N 4990009.000 ;E 522577.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: November 8, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA DIP w.r.t. CORE AXIS	DISCONTINUITY DATA TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
3	Rotary Drill HQ3 Core	Slightly weathered to fresh, medium bedded, light grey, medium grained, faintly porous, strong GREYWACKE		2.45	1						JN,UN,RO CN JN,UN,RO CN JN,IR,RO CN	3 3 1.5	1 1 1	25 25 20		R4	W2		
4					2						JN,IR,RO CN JN,IR,RO CN JN,IR,RO CN JN,IR,RO CN JN,UN,RO CN	1.5 3 1.5 3 3	1 1 1 1 1	20 25 20 20 25		R4	W1		
5											JN,UN,RO CN JN,UN,RO CN JN,UN,RO CN JN,PL,RO CN	3 3 3 1.5	1 1 1 1	25 25 25 20					
6					3											R4	W1		
7		End of Drillhole Note(s): 1. After completion, borehole was backfilled with bentonite and sand to surface		6.55															
8																			
9																			
10																			
11																			

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: PND BH 20-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990525.000 ;E 521742.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 9, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE								GR SA SI CL	
0	HWT	TOPSOIL - (OH) ORGANIC SILT; black, contains organic matter (rootlets); cohesive, w~PL, firm		0.00	1	SS	230/610	-	7		
1	HWT	(GM/SM) SILTY GRAVEL and SAND; grey; non-cohesive, dry, dense		0.46	2	SS	390/610	-	35		Silica Sand
2	HWT	- Cobbles and boulders from 1.22 m to 3.18 m									Bentonite Seal
3	HQ3	(GM) sandy SILTY GRAVEL; grey, contains cobbles and/or boulders; non-cohesive, moist, very dense		3.18	3	SS	290/610	-	58		Silica Sand
4	HQ3				4	SS	300/450	-	81		50 mm Diam. PVC # 10 Slot Screen
	HQ3				5	SS	0/120	-	>50		
5	HQ3	Borehole continued on RECORD OF DRILLHOLE PND BH 20-01		4.70							
6											
7											
8											
9											
10											

STANDARD PENETRATION RESISTANCE, N VALUE: 20 40 60 80

SHEAR STRENGTH Cu, kPa: 20 40 60 80 — nat V. + Q - ● — rem V. ⊕ U - ○

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp — W — Wl; 20 40 60 80

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: PND BH 20-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

SHEET 2 OF 2

LOCATION: N 4990525.000 ;E 521742.000

DRILLING DATE: November 9, 2020

DATUM: N/A

INCLINATION: -90° AZIMUTH: —

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
5	Rotary Drill HQ3 Core	Fresh, medium bedded, light grey, medium grained, faintly porous, strong GREYWACKE		4.70	1						JN,IR,RO PC,Cl	3	4	20		R4	W1		50 mm Diam. PVC # 10 Slot Screen
6											JN,IR,SM PC,Cl	2	4	12					
											JN,UN,RO PC,Cl	3	4	20					
											JN,ST,RO SO	3	1	25					
7					2						JN,UN,SM CN	2	1	20		R4	W1		Silica Sand
											JN,IR,SM CN	2	1	20					
		End of Drillhole		7.55															
8		Note(s):																	
		1. Backfill details presented in Piezometer Installation																	
9																			
10																			
11																			
12																			
13																			

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

RECORD OF BOREHOLE: PND BH 20-02

SHEET 1 OF 2

LOCATION: N 4990209.000 ;E 522927.000

BORING DATE: November 6, 2020

DATUM: N/A

SAMPLER HAMMER, 64kg; DROP, 760mm

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE								GR SA SI CL	
0	HWT	(ML) sandy CLAYEY SILT; grey and brown, contains organic matter (rootlets); cohesive, w~PL, stiff		0.00	1	SS	270/610	-	13		
1	HWT	(GM/ML) sandy GRAVEL and SILT, sub-angular; grey, contains cobbles and boulders; non-cohesive, dry, very dense		0.61	2	SS	70/100	-	>50		
2	HQ3	(GM/SM) SILTY GRAVEL and SAND, sub-angular; brown, contains cobbles and/or boulders; non-cohesive, moist, very dense		1.40	3	SS	250/610	-	63		
					4	SS	0/50	-	>50		
3	HQ3	(SM/GM) SILTY SAND and GRAVEL, sub-angular; grey and brown, contains cobbles and/or boulders; non-cohesive, moist, very dense		2.90	5	SS	450/580	-	90		
4	HQ3				6	SS	130/270	-	>50		Silica Sand
5	HQ3	(GM) sandy SILTY GRAVEL, sub-angular; grey, contains cobbles and/or boulders; non-cohesive, moist, very dense		4.40	7	SS	190/250	-	>50		
					8	SS	0/120	-	>50		
6	HQ3	(CI) gravelly SILTY CLAY; grey; cohesive, w<PL, hard		5.90	9	SS	330/610	-	37		
7	HQ3				10	SS	390/610	-	83		
					11	SS	200/230	-	>50		Bentonite Seal
8	HQ3	Borehole continued on RECORD OF DRILLHOLE PND BH 20-02		7.78							
9											
10											

STANDARD PENETRATION RESISTANCE, N VALUE: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● / rem V. ⊕ U - ○; 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp W Wl; 20 40 60 80

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: PND BH 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990209.000 ;E 522927.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: November 6, 2020
DRILL RIG: CME 75
DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRENGTH INDEX	WEATHERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
8	Rotary Drill HQ3 Core	Moderately weathered, medium bedded, light grey, medium grained, faintly porous, ARGILLITE/GREYWACKE		7.78	1											R3	W4		Bentonite Seal
																			Silica Sand
9					2						JN,UN,RO CN	3	1	20		R4	W2		
					3											R3	W3		
10																			50 mm Diam. PVC # 10 Slot Screen
					4											R3	W2		
11					5						JN,PL,SM CN JN,UN,RO CN JN,PL,SM CN	1 3 1	1 1 1	12 20 12		R3	W2		
12					6											R3	W2		Slough
		End of Drillhole Note(s): 1. Backfill details presented in Piezometer Installation		12.15															
13																			
14																			
15																			
16																			

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

FEATURES LEGEND

BROKEN CORE | FAULT | LOST CORE | CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

RECORD OF BOREHOLE: PND BH 20-02B

SHEET 1 OF 1

LOCATION: N 4990208.000 ;E 522926.000

BORING DATE: November 3, 2020

DATUM: N/A

SAMPLER HAMMER, 64kg; DROP, 760mm

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0		For soil stratigraphy refer to RECORD OF BOREHOLE PND BH 20-02		0.00									
1													
2													Silica Sand
3													
4													Bentonite Seal
5													Silica Sand
6													50 mm Diam. PVC # 10 Slot Screen
7													Silica Sand
8		End of Borehole Note(s): 1. Backfill presented in Piezometer Installation		7.75									Well Cap
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: TLS BH 20-01

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4990077.000 ;E 522833.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 5, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE		0.00								GR SA SI CL	
0	HQ3	(GM) sandy SILTY GRAVEL, sub-angular; brown; non-cohesive, moist, dense to very dense			1	CMS	460/610	-	-				
1					2	SS	200/380	-	>50	>50			
		- Contains cobbles and/or boulders from 1.19 m to 2.32 m			3	SS	0/40	-	>50	>50			
2					4	SS	130/610	-	31				
3													
		(CI) gravelly SILTY CLAY; grey, contains cobbles and/or boulders; cohesive, w<PL, very stiff to hard		3.24	5	SS	310/610	-	26				
4					6	SS	220/310	-	>50	>50			
					7	SS	370/610	-	37				
5					8	CMS	500/610	-	-				
6					9	SS	260/610	-	36				
7					10	SS	330/610	-	43				
		End of Borehole		7.43									
8		Note(s):											
		1. After completion, borehole was backfilled with bentonite and sand to surface											
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: TLS BH 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989910.000 ;E 522859.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 5, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 2

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	(GM) sandy SILTY GRAVEL; brown and grey; non-cohesive, wet to moist, compact to dense		0.00	1	SS	230/610	-	5	■			Silica Sand
1					2	SS	370/610	-	20	■			
													Bentonite Seal
2					3	SS	170/610	-	40	■			Silica Sand
					4	SS	330/610	-	33	■			
3	HQ3	(ML) gravelly SILT; grey, contains cobbles and/or boulders; cohesive, w<PL, hard		3.05	5	SS	450/520	-	51	■			50 mm Diam. PVC # 10 Slot Screen
		Borehole continued on RECORD OF DRILLHOLE TLS BH 20-02		3.72									
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: TLS BH 20-02

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989910.000 ;E 522859.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: November 5, 2020
DRILL RIG: CME 75
DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA DIP w.r.t. CORE AXIS	DISCONTINUITY DATA TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRE-NGTH INDEX	WEATH-ERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
4	Rotary Drill HQ3 Core	Fresh, medium bedded, grey, medium grained, faintly porous, strong GREYWACKE		3,72	1						JN,UN,SM SA JN,UN,RO CN	2 3	2 1	20 25		R4	W1		50 mm Diam. PVC # 10 Slot Screen
5					2						JN,UN,SM CN JN,UN,RO CN	2 3	1 1	20 25		R4	W1		
6					3						JN,PL,SM CN JN,UN,RO CN JN,UN,RO CN JN,UN,RO CN	1 3 3 3	1 1 1 1	12 25 25 25		R4	W1		Silica Sand
7		End of Drillhole Note(s): 1. Backfill details presented in Piezometer Installation		6,69															
8																			
9																			
10																			
11																			
12																			

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: TLS BH 20-03

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989817.000 ;E 522990.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 10, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	TOPSOIL - (OH) ORGANIC SILT; brown, contains organic matter (rootlets); cohesive, w~PL, stiff		0.00	1	SS	470/610	-	14	■			
		(ML) gravelly sandy SILT; grey brown; cohesive, w<PL, stiff		0.36									
1					2	SS	550/610	-	13	■			
					3	SS	160/610	-	12	■			
2													
		(CI) SILTY CLAY, no sand to some sand, some gravel, trace gravel; grey, contains cobbles and/or boulders; cohesive, w~PL to w<PL, hard to very stiff		2.32	4	SS	300/500	-	33	■			
3													
					5	SS	480/610	-	32	■			
4					6	SS	410/610	-	17	■			
					7	SS	0/40	-	>50	>50 ■			
5													
					8	SS	360/610	-	21	■			
6		(CI) gravelly SILTY CLAY; grey, contains cobbles and/or boulders; cohesive, w<PL, hard		6.05	9	SS	210/610	-	37	■			
		- Sandy at 6.82 m depth											
7					10	SS	220/610	-	52	■			
					11	SS	450/610	-	62	■			
8					12	SS	0/0	-	>50	>50 ■			
		Note(s): 1. After completion, borehole was backfilled with bentonite and sand to surface											
9													
		End of Borehole		9.64									
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF BOREHOLE: TLS BH 20-04

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989642.000 ;E 523063.000

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: November 10, 2020

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

SHEET 1 OF 1

DATUM: N/A

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	TOPSOIL - (ML) SILT; brown, contains organic matter (rootlets); cohesive, w~PL, stiff		0.00									
		(ML/SM) gravelly SILT and SAND; grey; non-cohesive, dry, compact		0.20	1	SS	430/610	-	11	■			
1		(ML) sandy gravelly SILT; grey; cohesive, w<PL, stiff		0.61	2	SS	400/610	-	11	■			
					3	CMS	300/610	-	-				
2													
	HQ3	(GM) SILTY GRAVEL; grey; non-cohesive, moist, dense		2.29	4	SS	190/610	-	38	■			
3					5	CMS	390/610	-	-				
4													
		(ML) sandy gravelly SILT; grey, contains cobbles and boulders; cohesive, w<PL, hard		4.42	6	SS	490/610	-	36	■			
5					7	CMS	500/610	-	-				
6					8	SS	370/610	-	64	■			
		End of Borehole		6.55									
7		Note(s):											
		1. After completion, borehole was backfilled with bentonite and sand to surface											
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

RECORD OF BOREHOLE: TLS BH 20-05

SHEET 1 OF 2

LOCATION: N 4989486.000 ;E 523103.000

BORING DATE: November 11, 2020

DATUM: N/A

SAMPLER HAMMER, 64kg; DROP, 760mm

DRILL RIG: CME 75

DRILLING CONTRACTOR: Logan Drilling

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC. LENGTH (mm) / SA. LENGTH (mm)	BLOWS/0.15m	N VALUE	STANDARD PENETRATION RESISTANCE, N VALUE (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl)	ADDITIONAL TESTING & GRAIN SIZE DISTRIBUTION (%)	PIEZOMETER INSTALLATION
		GROUND SURFACE										GR SA SI CL	
0	HWT	(SM/GM) SILTY SAND and GRAVEL, subangular; grey; non-cohesive, moist, compact		0.00	1	SS	290/610	-	13	■			
1	HWT	(ML) gravelly sandy CLAYEY SILT; grey; cohesive, w<PL, stiff		0.61	2	SS	450/610	-	13	■			
2	HWT				3	SS	190/610	-	14	■			
3	HWT				4	SS	0/100	-	>50	>50 ■			Silica Sand
4	HQ3	(ML/GM) sandy CLAYEY SILT and GRAVEL, sub-angular; grey, contains cobbles and/or boulders; cohesive, w<PL, hard		3.20	5	SS	550/590	-	62	■			
5	HQ3	(GM) SILTY GRAVEL, sub-angular; grey, contains cobbles and/or boulders; cohesive, w<PL, hard		4.55	6	SS	150/230	-	>50	>50 ■			Bentonite Seal
6	HQ3	(ML/GM) sandy CLAYEY SILT and GRAVEL, sub-angular; grey, contains cobbles and/or boulders; cohesive, w<PL, hard		5.32	7	SS	460/610	-	71	■			Silica Sand
7	HQ3				8	SS	540/610	-	52	■			50 mm Diam. PVC # 10 Slot Screen
	HQ3				9	SS	0/0	-	>50	>50 ■			
		Borehole continued on RECORD OF DRILLHOLE TLS BH 20-05		7.29									
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-BHS 015 20142100.GPJ GAL-MIS.GDT 1/12/21 ZS

RECORD OF DRILLHOLE: TLS BH 20-05

PROJECT: 20142100, Beaver Dam
Geotechical Investigation and Design

LOCATION: N 4989486.000 ;E 523103.000

INCLINATION: -90° AZIMUTH: —

DRILLING DATE: November 11, 2020
DRILL RIG: CME 75
DRILLING CONTRACTOR: Logan Drilling

SHEET 2 OF 2

DATUM: N/A

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER 0.25	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	HYDRAULIC CONDUCTIVITY K, cm/sec	ROCK STRE-NGTH INDEX	WEATH-ERING INDEX	FEATURES	PIEZOMETER INSTALLATION
		BEDROCK SURFACE																	
8	Rotary Drill HQ3 Core	Fresh, medium bedded, light grey, medium grained, faintly porous, strong GREYWACKE		7.29	1	80 60 40 20	80 60 40 20	80 60 40 20	5 10 15 20	0 30 60 90	JN,PL,RO CN	1.5	1	20	10^{-6} 10^{-5} 10^{-4} 10^{-3}	R4	W1		50 mm Diam. PVC # 10 Slot Screen
9					1						JN,PL,RO CN	1.5	1	20		R4	W1		
					2											R5	W1		
10					3						JN,UN,RO CN	3	1	25		R4	W1		Silica Sand
11		End of Drillhole		11.09															
12		Note(s):																	
		1. Backfill details presented in Piezometer Installation																	
		2. Run No. 2 rock core stuck in core barrel. Rock core manipulated during removal resulting in incomplete discontinuity information.																	
13																			
14																			
15																			
16																			

FEATURES LEGEND

BROKEN CORE FAULT LOST CORE CLAY SEAM

DEPTH SCALE
1 : 50

GOLDER

LOGGED: JB
CHECKED: CK

MIS-RCK 023 20142100.GPJ GAL-MISS.GDT 1/12/21 ZS

APPENDIX D

Test Pit Photographs

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit
RWY-TP20-01 Depth: 3.60m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D1

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit
RWY-TP20-02 Depth: 3.80m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D2

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit GHD-TP08
Depth: 2.90m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D3

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit LGS-TP20-01
Depth: 3.50m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D4

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit NAG-TP20-08
Depth: 2.0m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D5

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit GHD-TP05
Depth: 2.20m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D6

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit NAG-TP20-04
Depth: 4.20m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D7

Note: Before and After pictures shown as excavated picture not found

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test GHD-TP04
Depth: 4.10m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D8

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit NAG-TP20-02
Depth: 3.30m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D9

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit NAG-TP20-05
Depth: 4.50m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D10

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit NAG-TP20-06
Depth: 4.0m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D11

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit GHD-TP01
Depth: 4.0m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D12

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit GHD-TP07
Depth: 4.10m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D13

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit GHD-TP06
Depth: 4.50m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D14

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit TSS-TP20-02
Depth: 2.90m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D15

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit RWY-TP20-03
Depth: 2.40m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D16

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit RWY-TP20-04
Depth: 3.30m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D17

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit PAG-TP20-01
Depth: 2.0m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D18

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit TLS-TP20-02
Depth: 3.80m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D19

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit TLS-TP20-01
Depth: 0.50m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D20

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit PAG-TP20-02
Depth: 4.00m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D21

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit TP2020-01
Depth: 3.80m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D22

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit TP2020-03
Depth: 2.80m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D23

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit TP2020-02
Depth: 3.10m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D24

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit TP2020-04
Depth: 1.80m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D25

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit OMS-TP20-02
Depth: 2.90m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D26

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit OMS-TP20-01
Depth: 4.90m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D27

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit OMS-TP20-03
Depth: 1.00m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D28

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit OMS-TP20-04
Depth: 3.20m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D29

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit OMS-TP20-05
Depth: 3.20m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D30

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit RWY-TP20-05
Depth: 3.80m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D31

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit TLS-TP20-03
Depth: 4.00m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D32

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

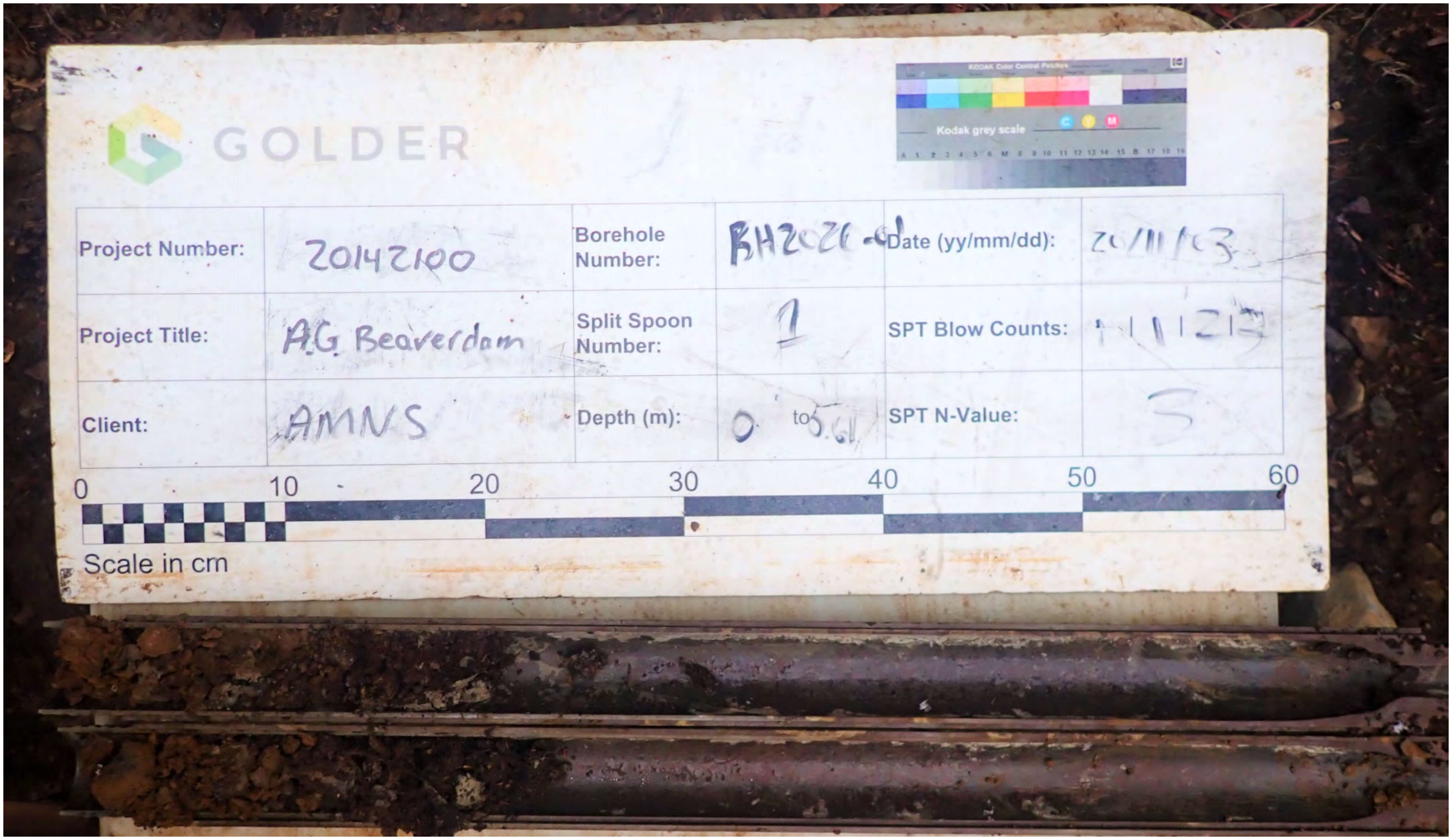
DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
Completed Test Pit TLS-TP20-04
Depth: 4.00m

Project No.	Control	Rev.	Figure No.
20142100	007	0	D33

APPENDIX E

Split-Spoon Sample Photographs



CLIENT
Atlantic Mining NS Inc

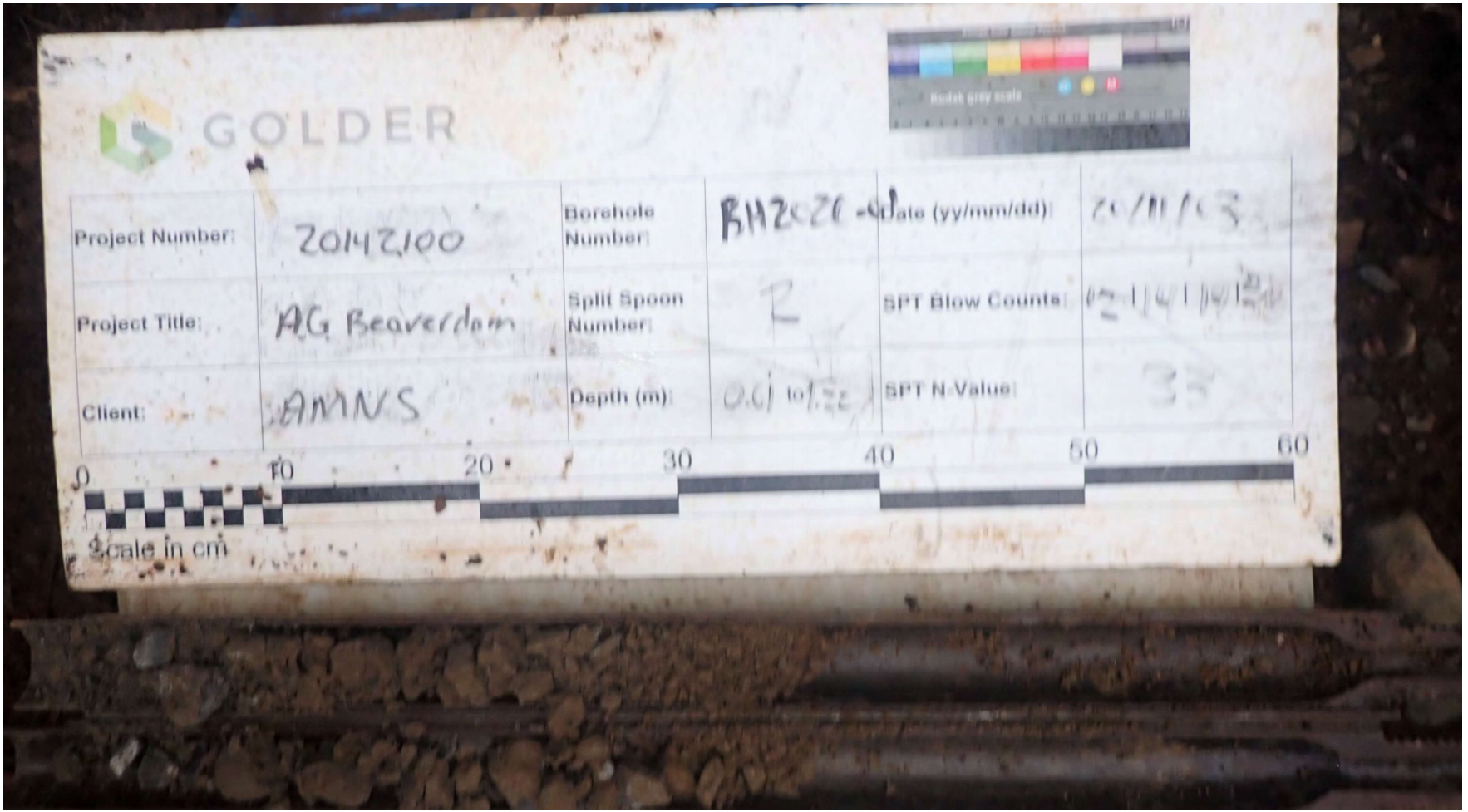
PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-16
PREPARED	JB
DESIGN	—
REVIEW	
APPROVED	

TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
BH2020-01 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E1**



CLIENT
Atlantic Mining NS Inc

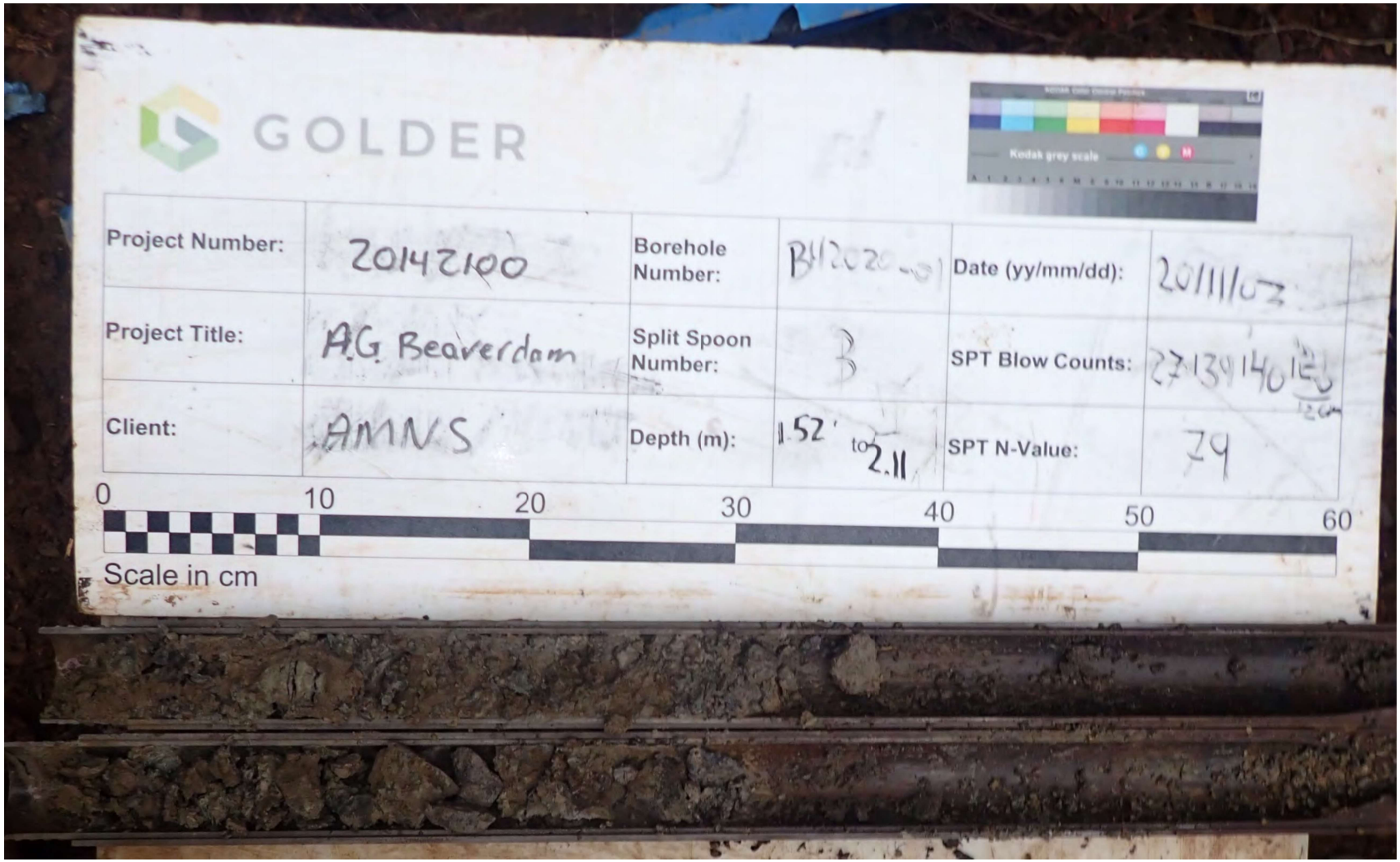
PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-16
PREPARED	JB
DESIGN	—
REVIEW	
APPROVED	

TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
BH2020-01 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E2**



CLIENT
Atlantic Mining NS Inc

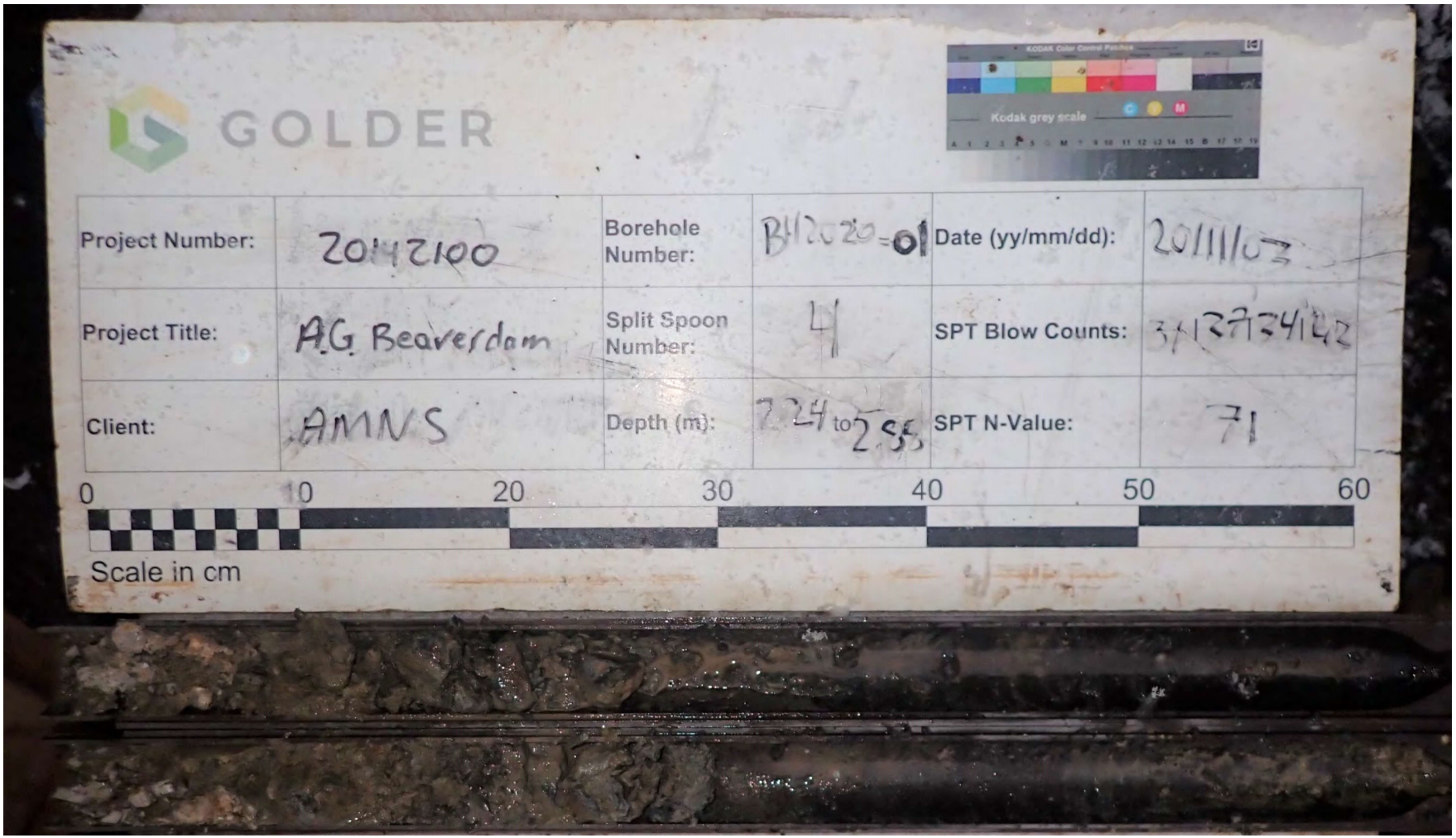
PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-16
PREPARED	JB
DESIGN	—
REVIEW	
APPROVED	

TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
BH2020-01 SS3

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E3**



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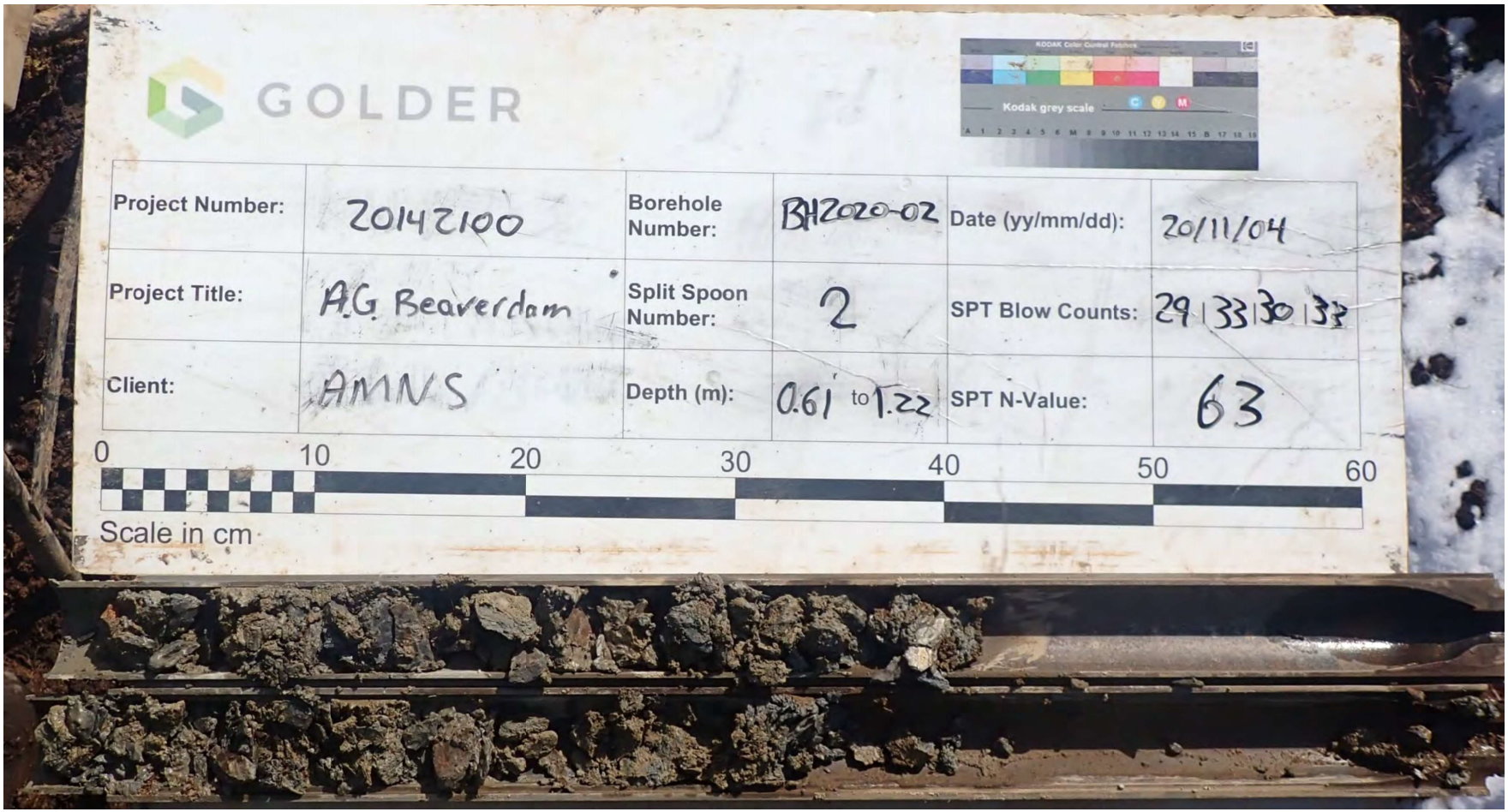
BH2020-02 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E5**



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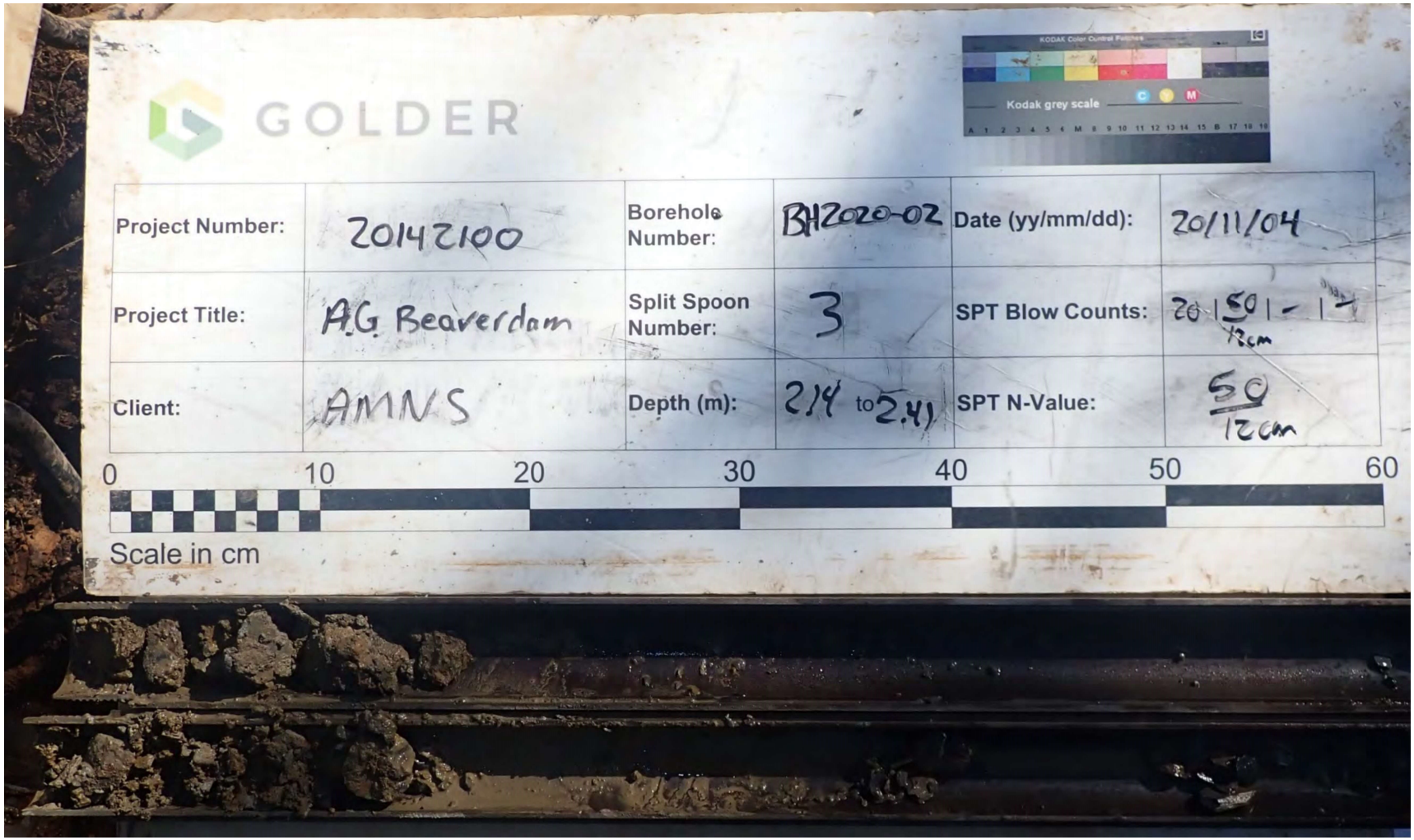
BH2020-02 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E6**



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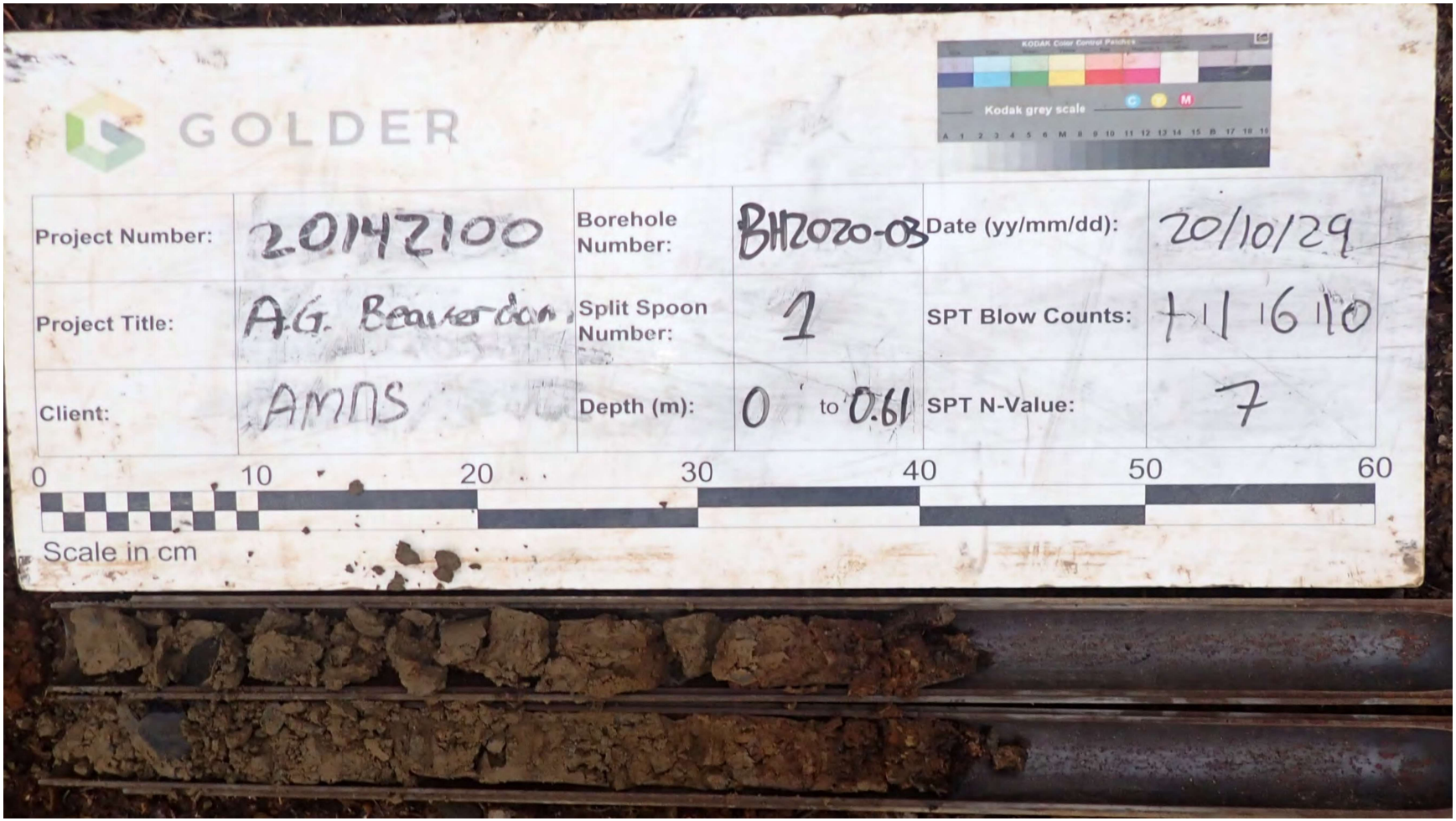
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E7**



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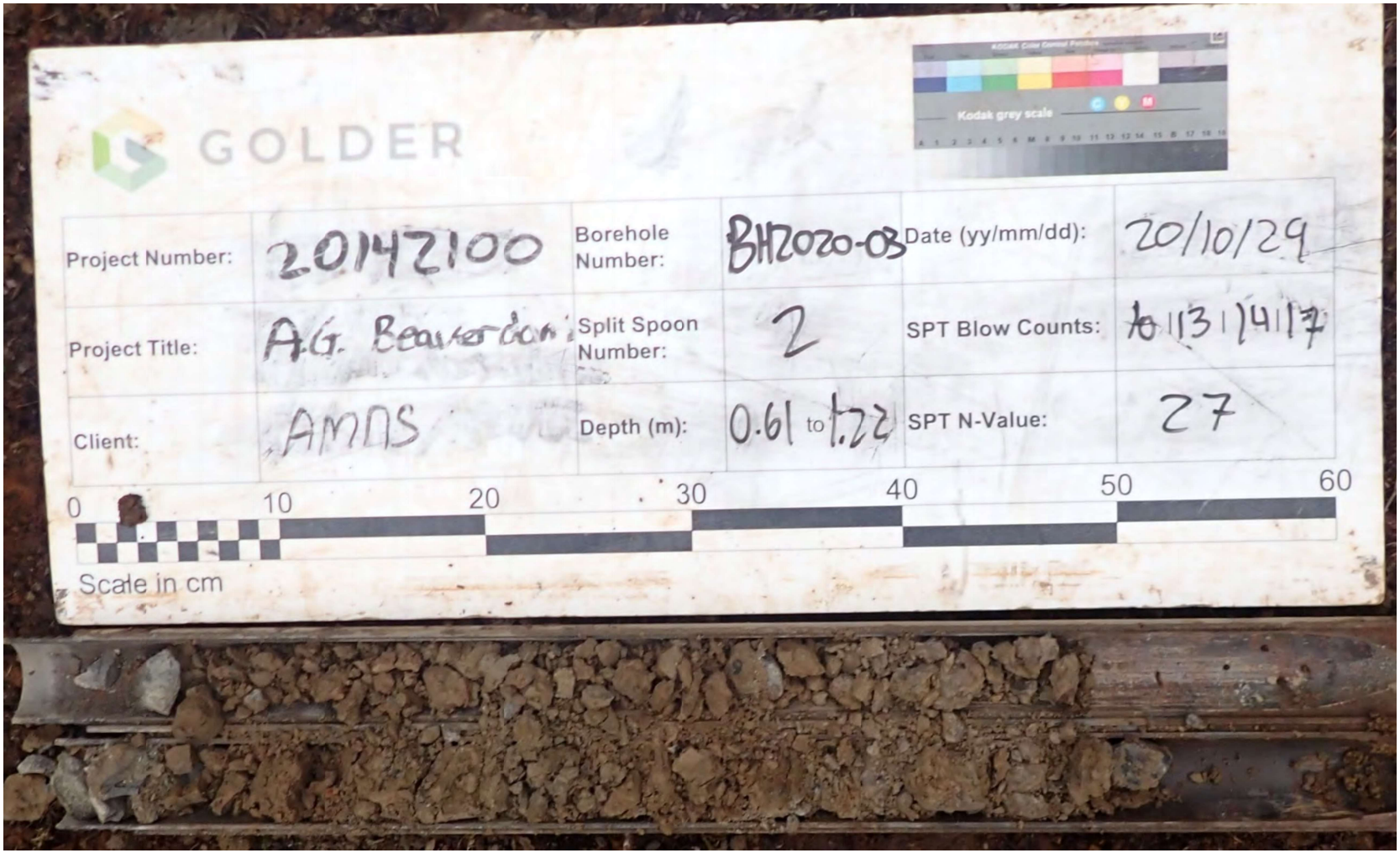
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E8**



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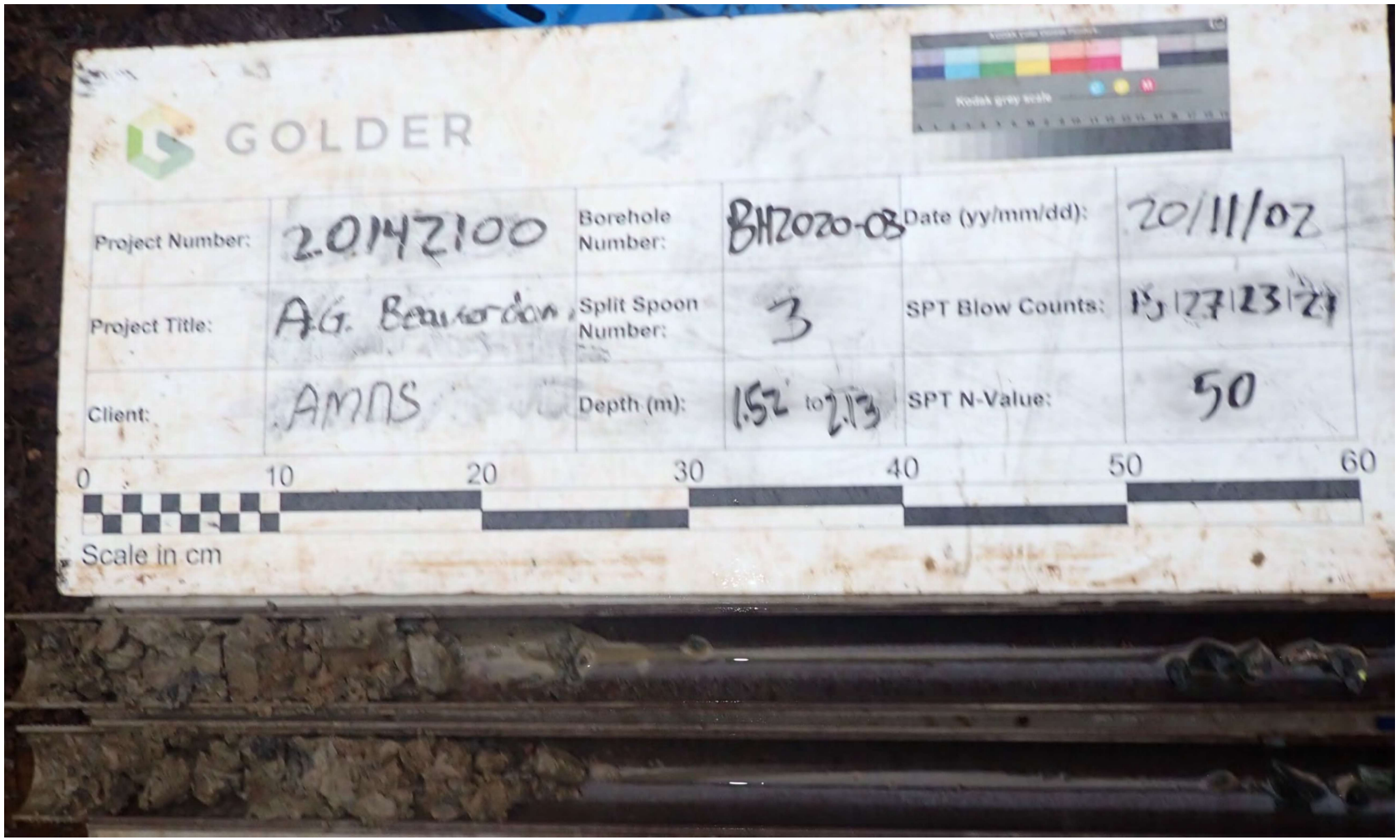
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E9**



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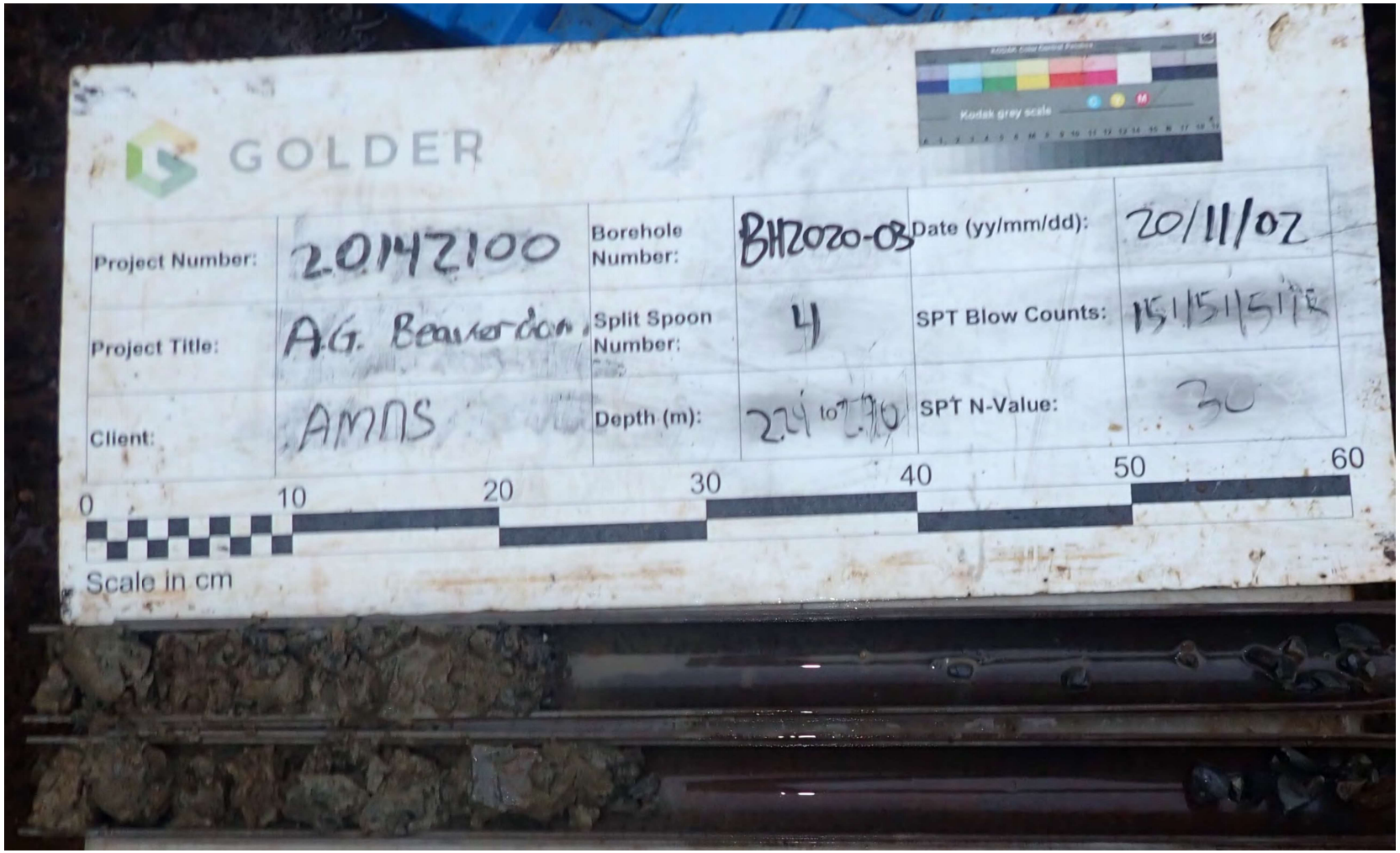
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E10**



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Project No.	Control	Rev.	Figure No.
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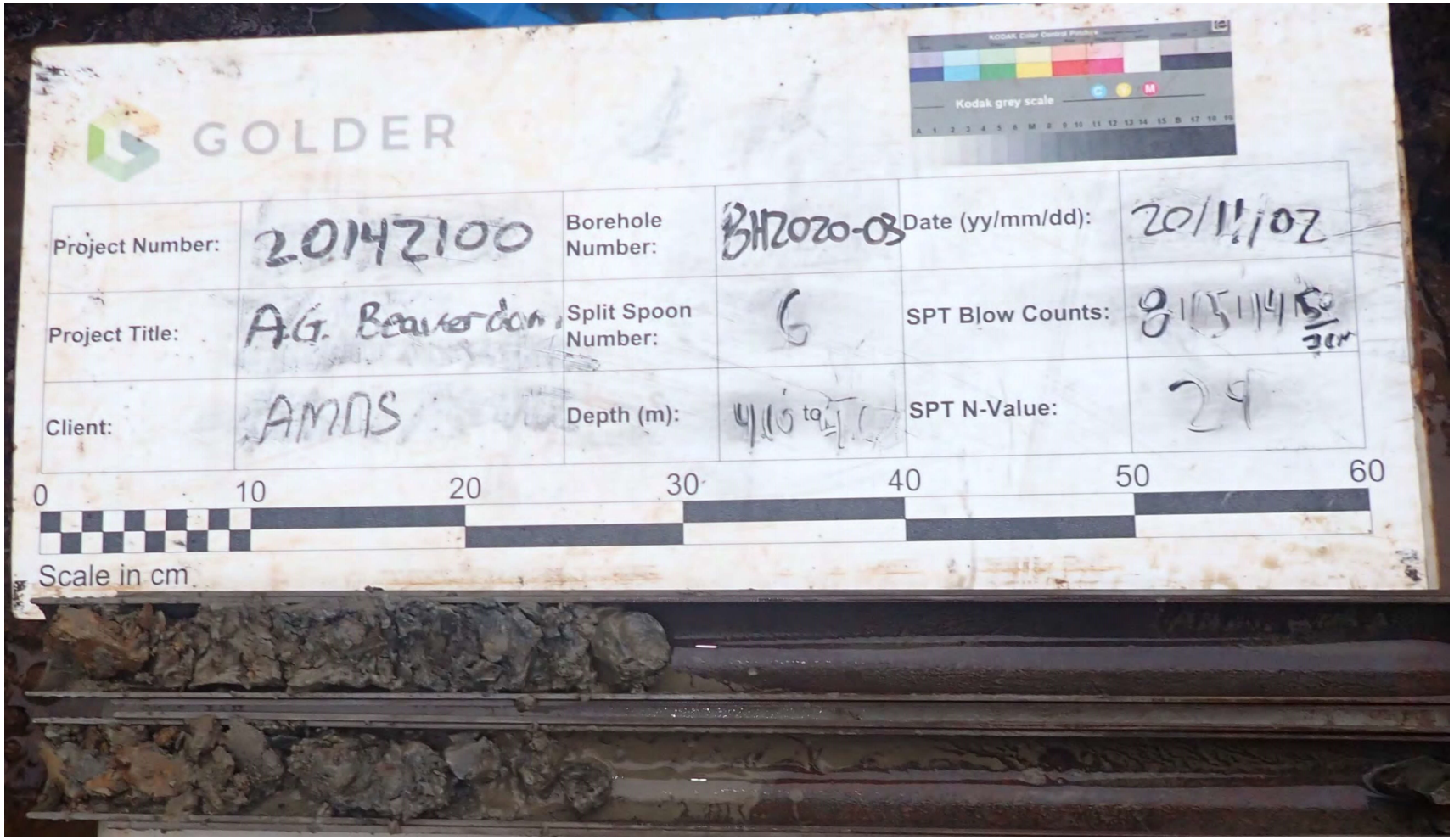

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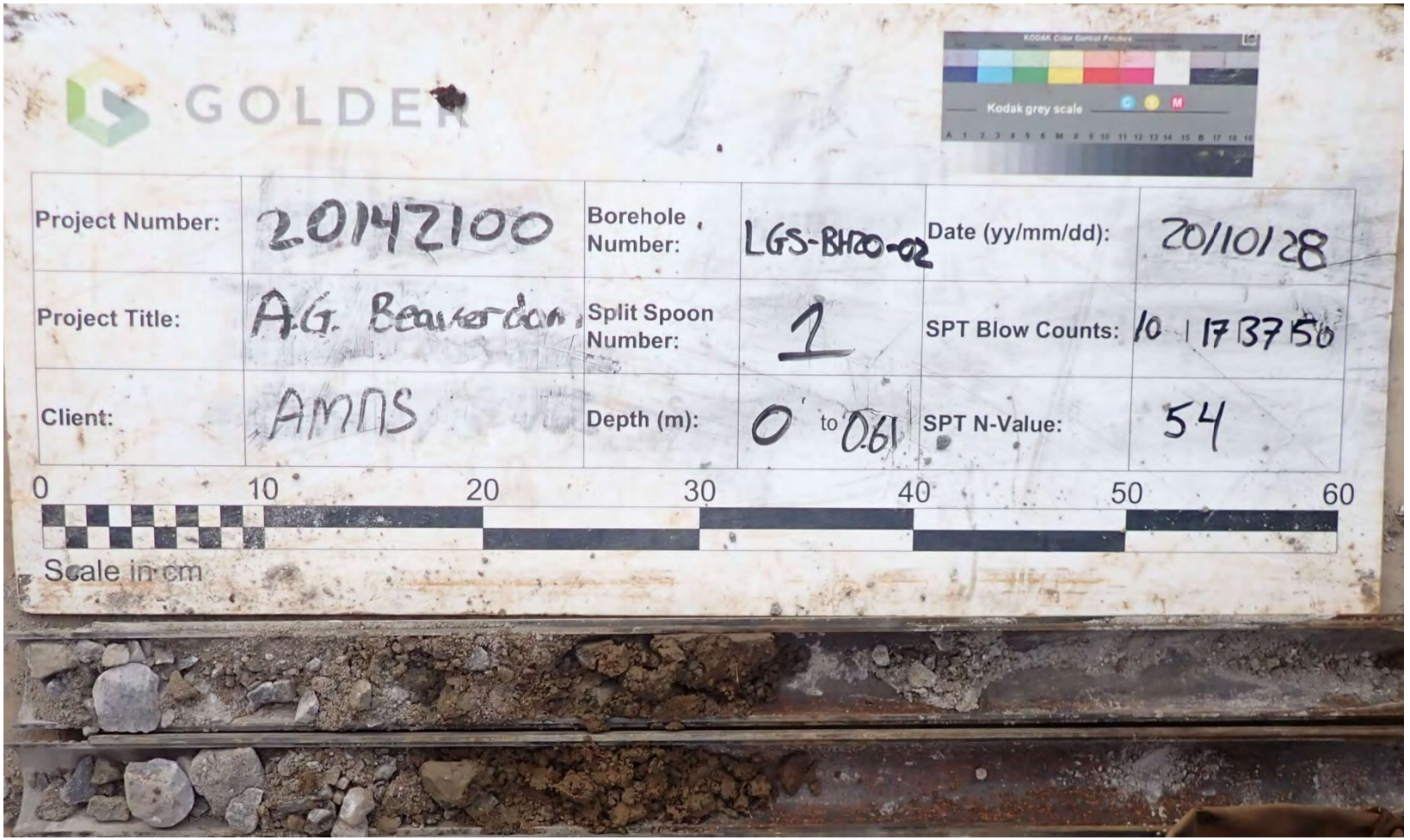
20142100	**007**	**0**	**E13**



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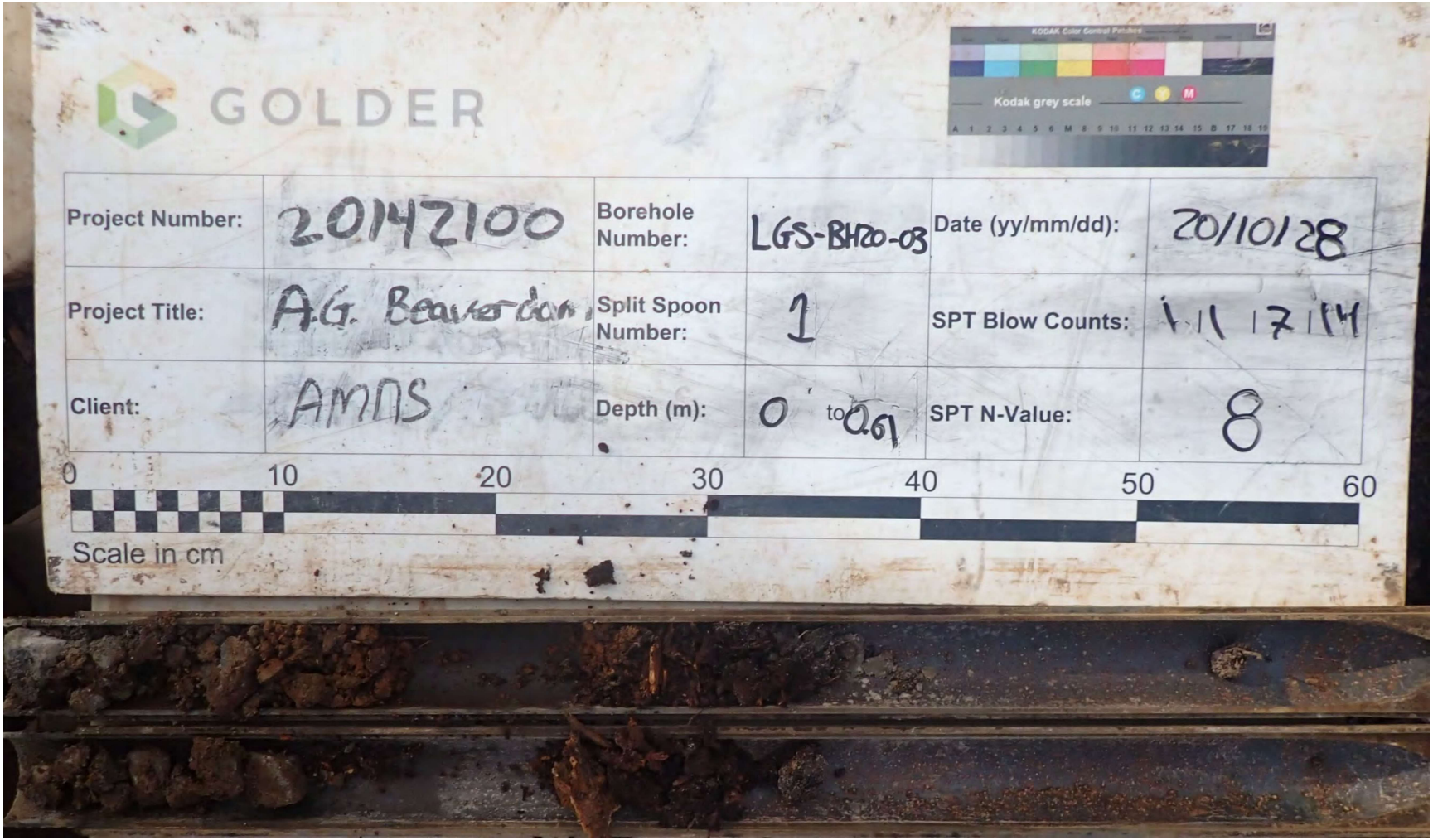
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E15**



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Project No.	Control	Rev.	Figure No.
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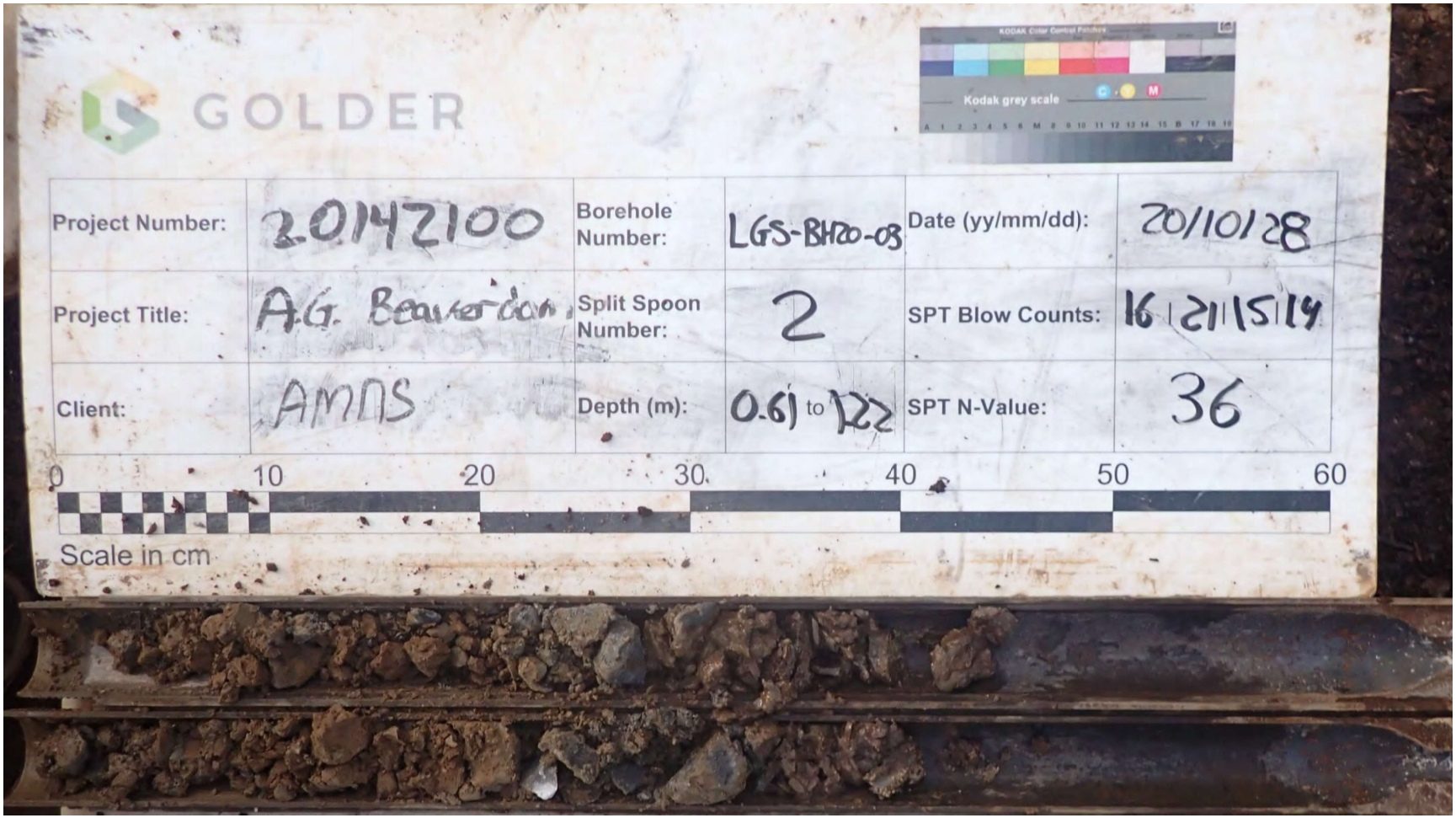

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Project No.	Control	Rev.	Figure No.
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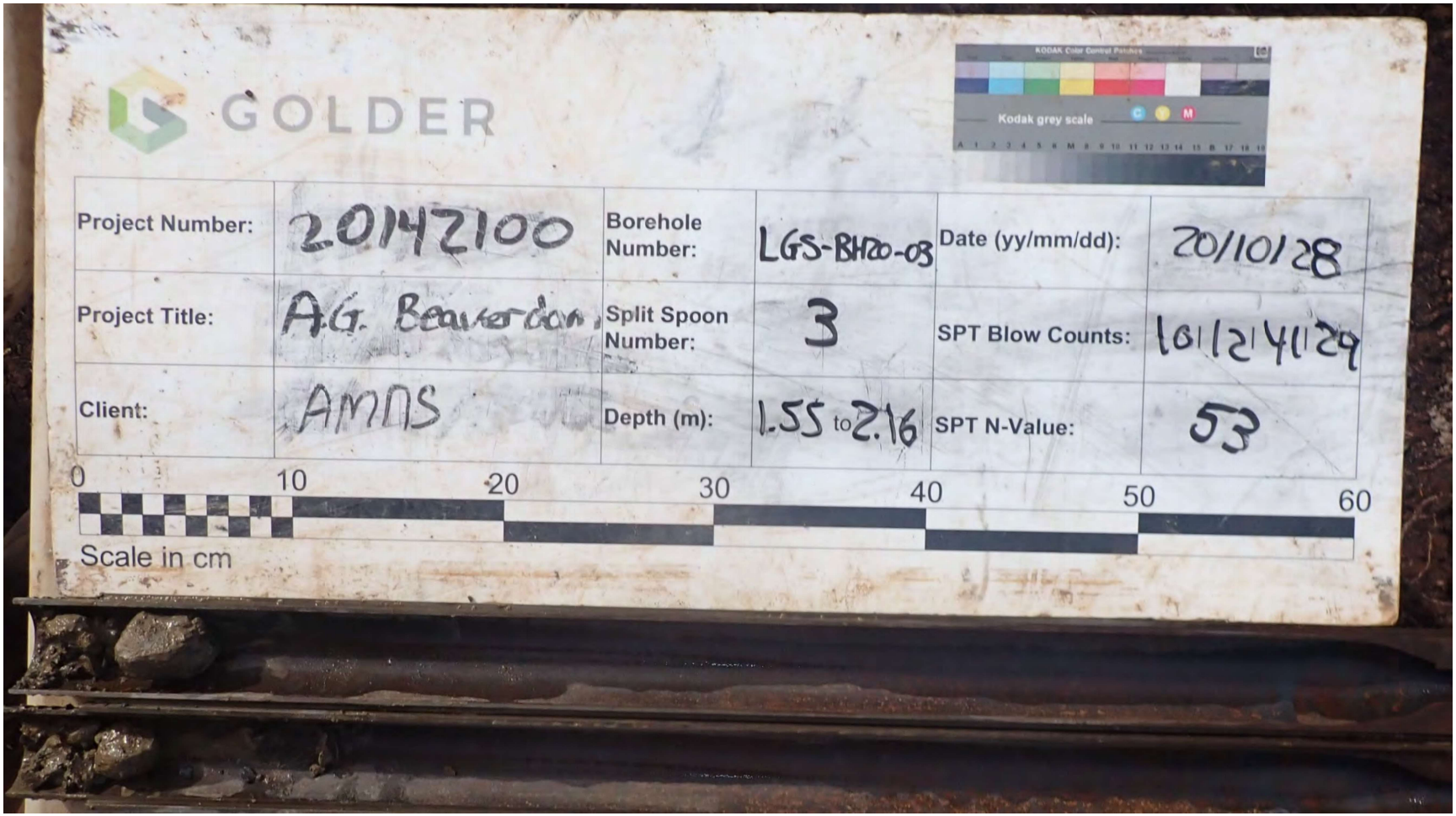

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Project No.	Control	Rev.	Figure No.
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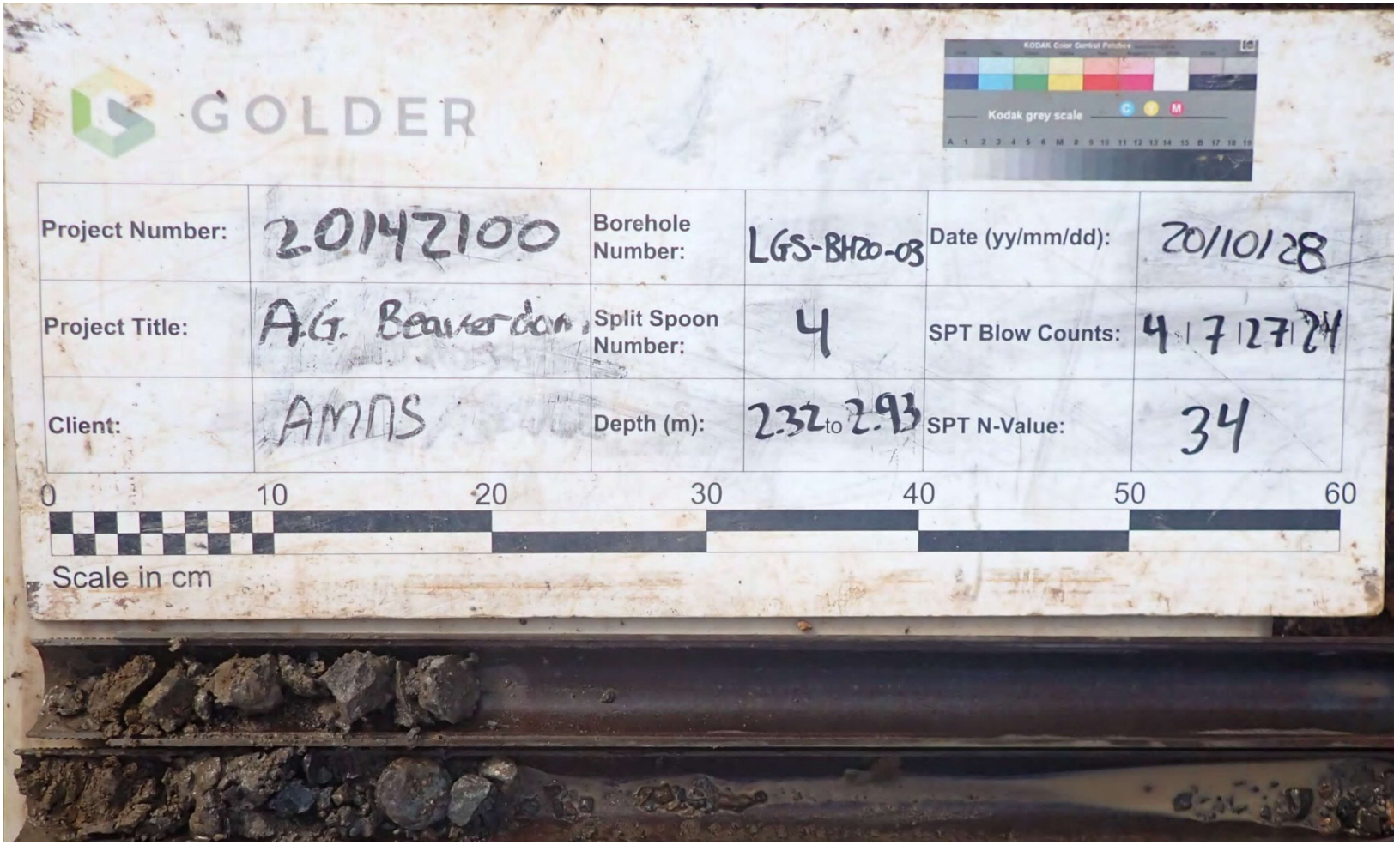

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Project No.	Control	Rev.	Figure No.
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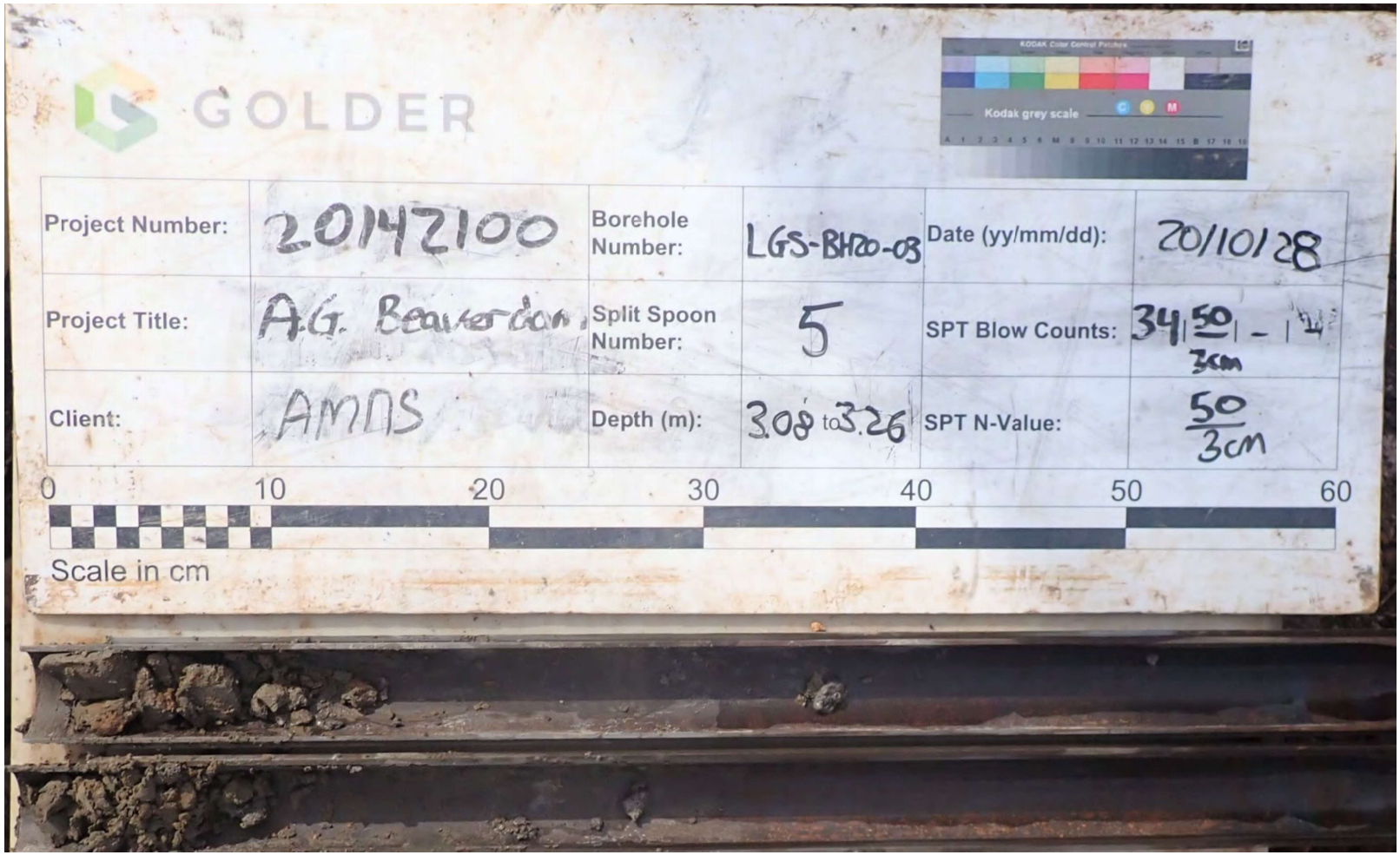

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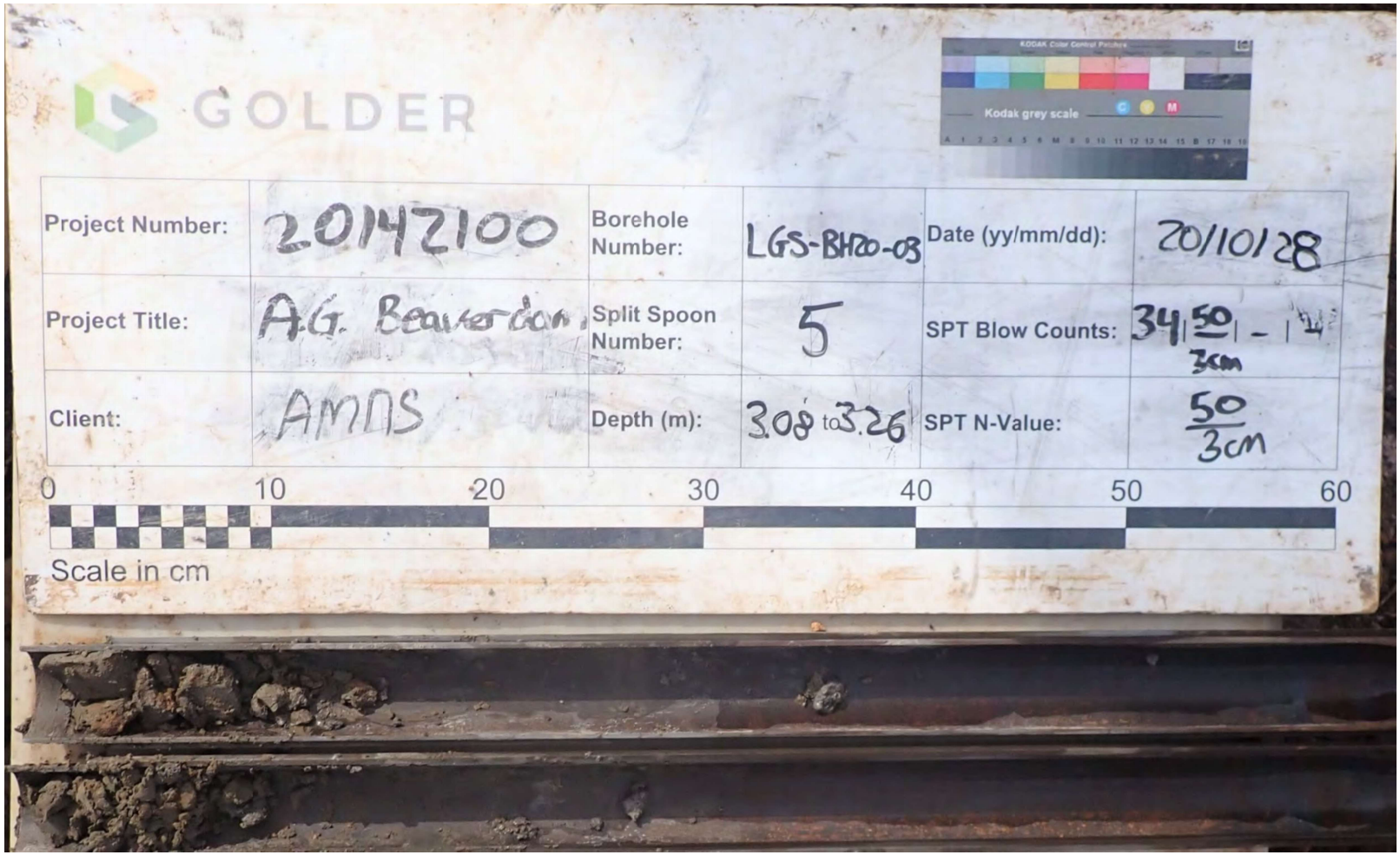
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E20**



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Project No.	Control	Rev.	Figure No.
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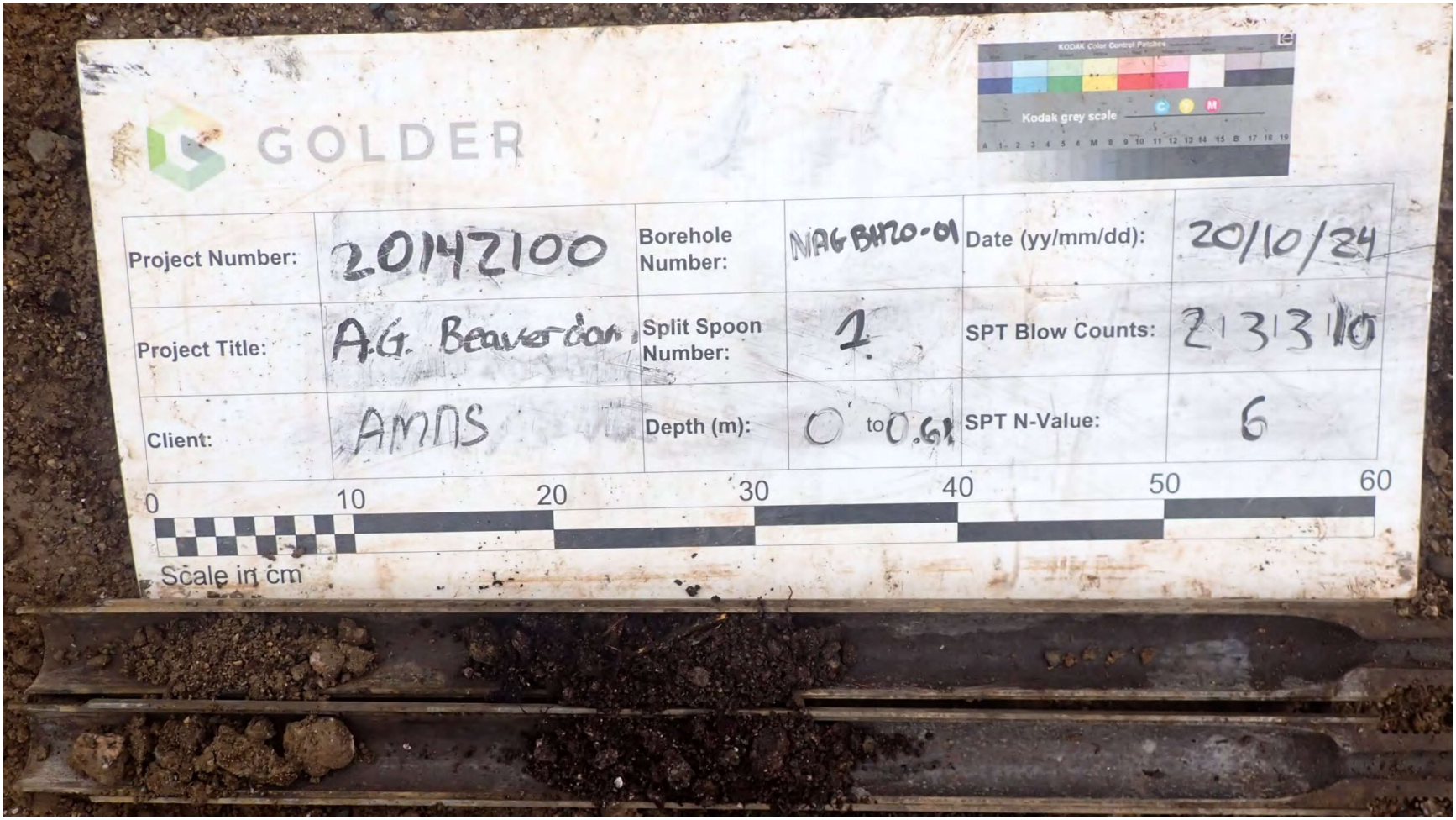

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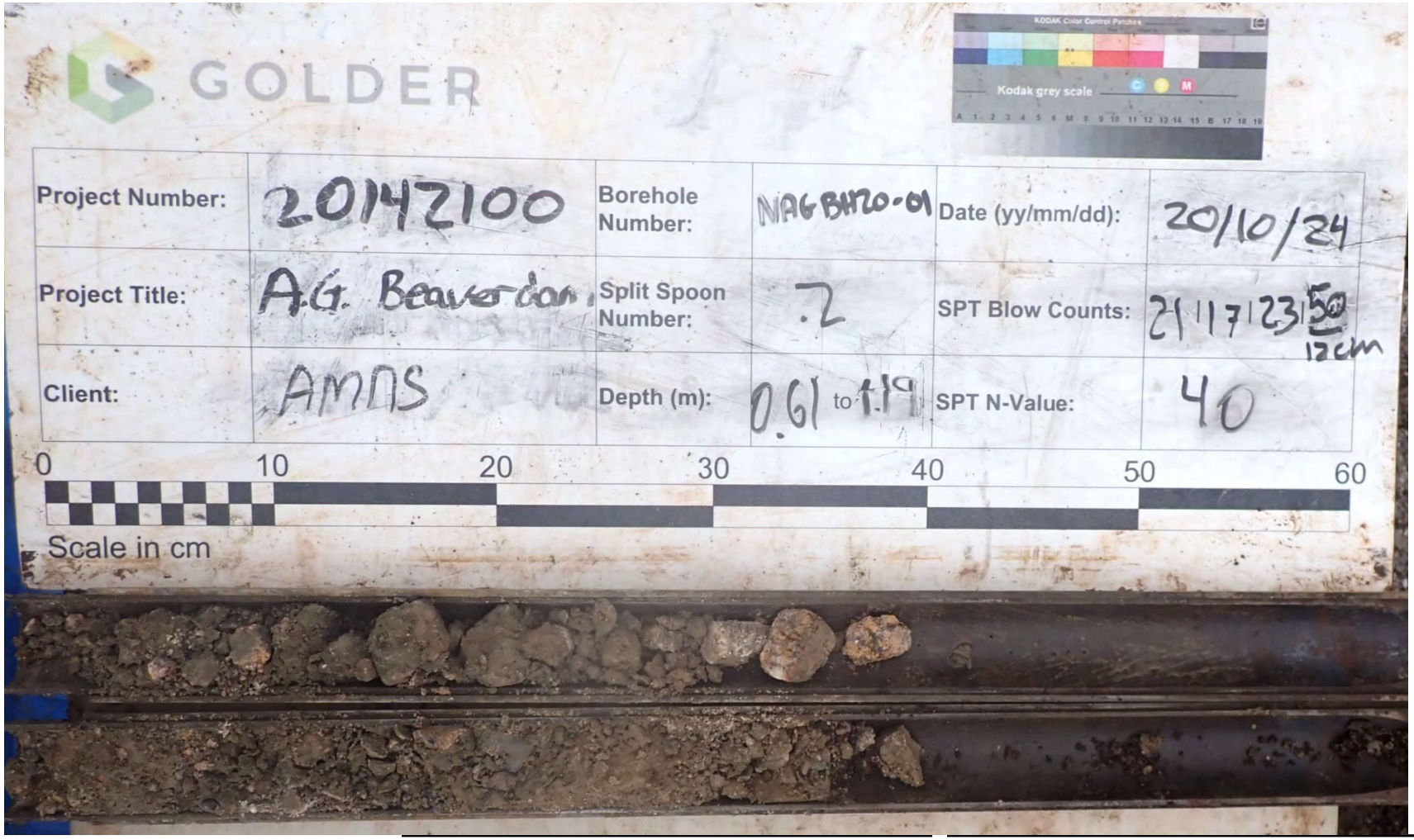

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Project No.	Control	Rev.	Figure No.
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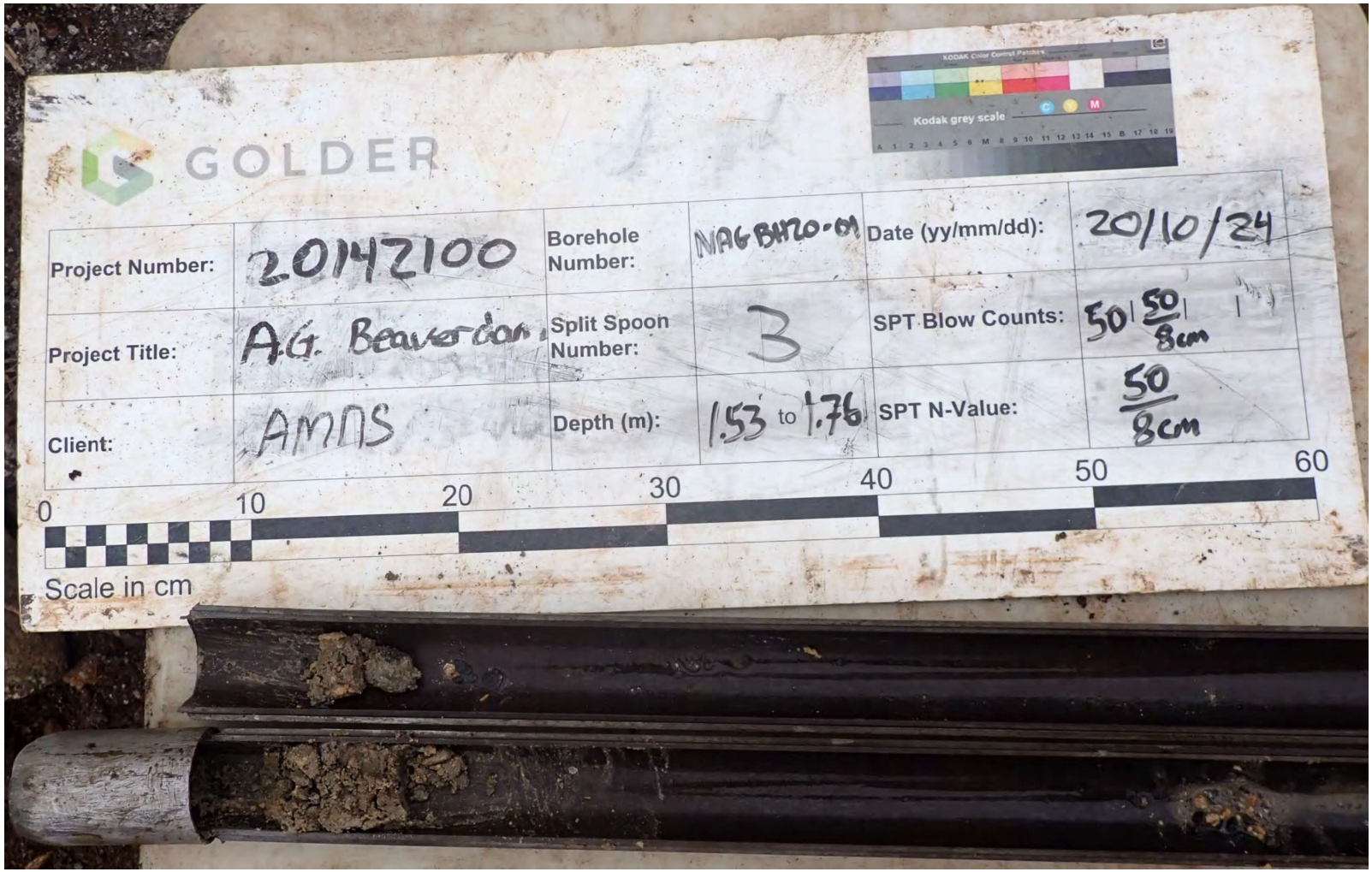

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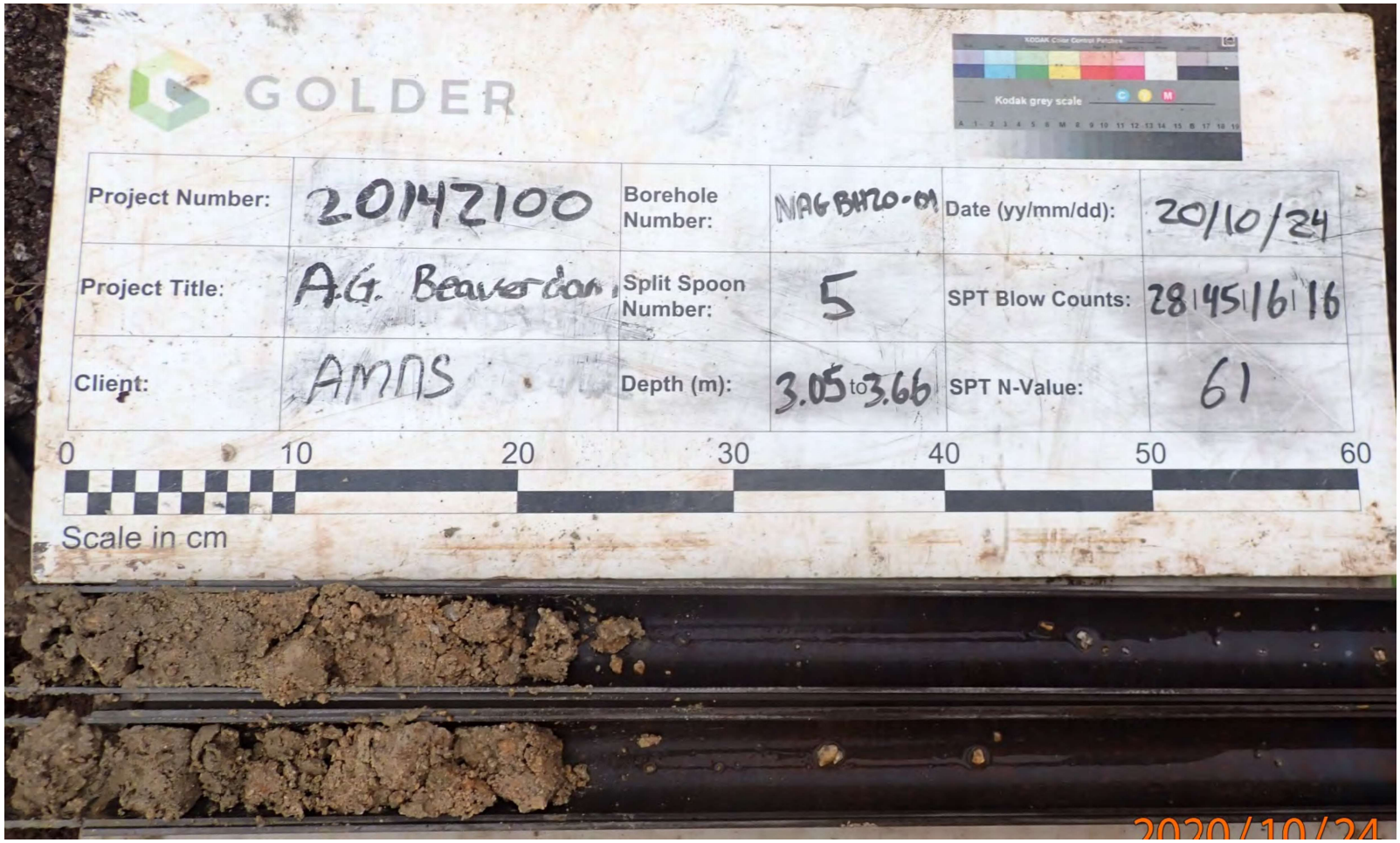

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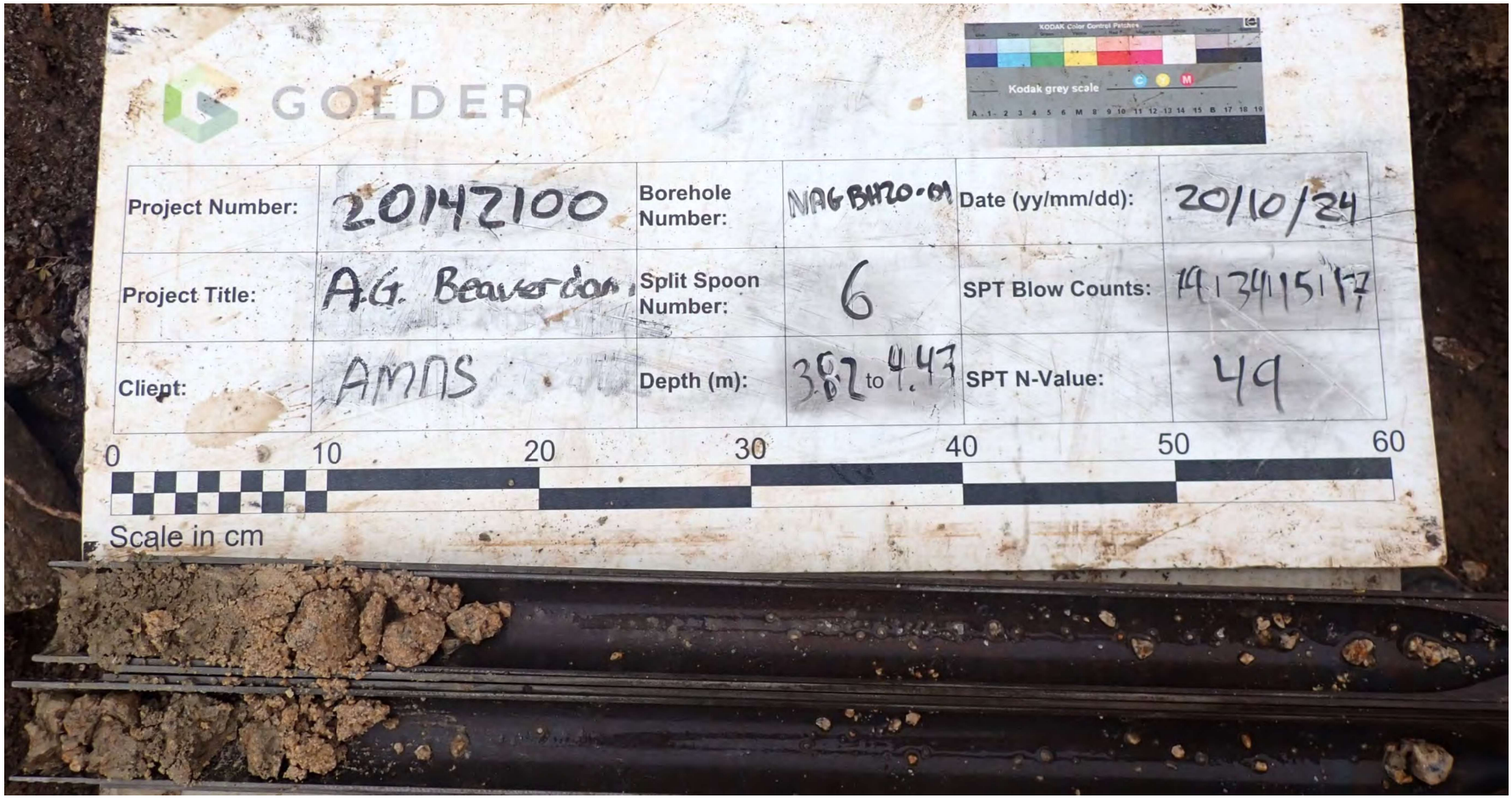
20142100	**007**	**0**	**E26**



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Project No.	Control	Rev.	Figure No.
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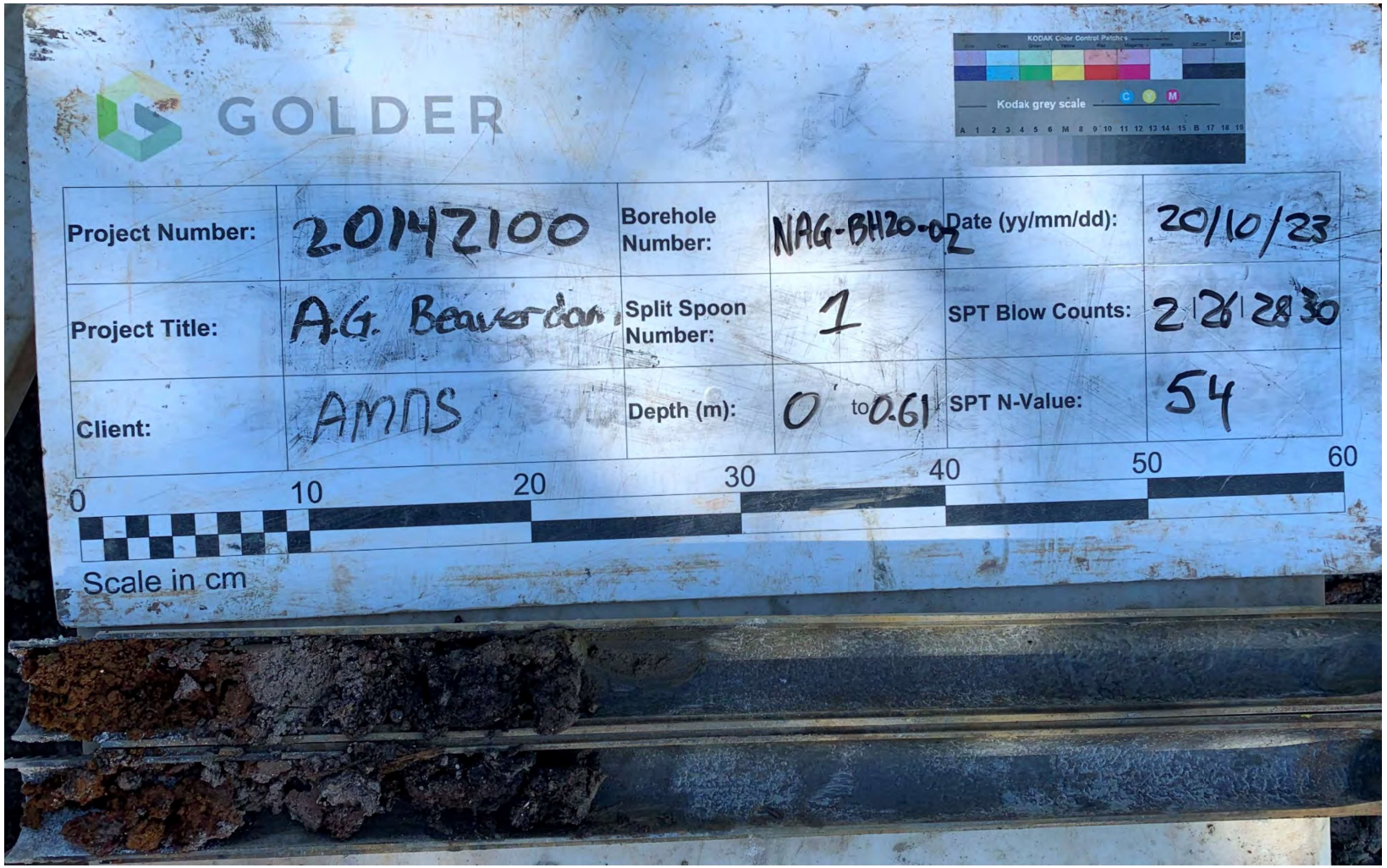

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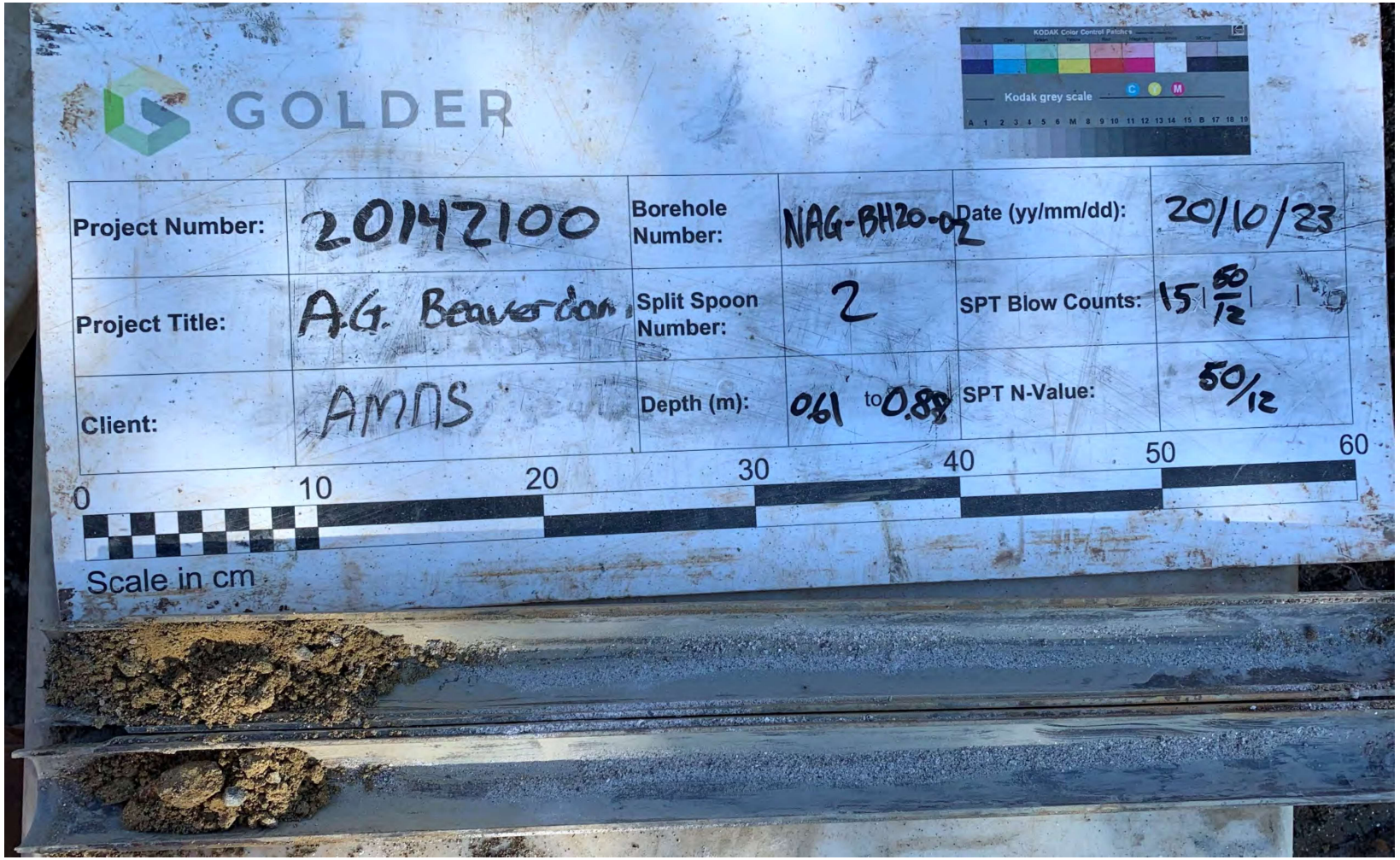

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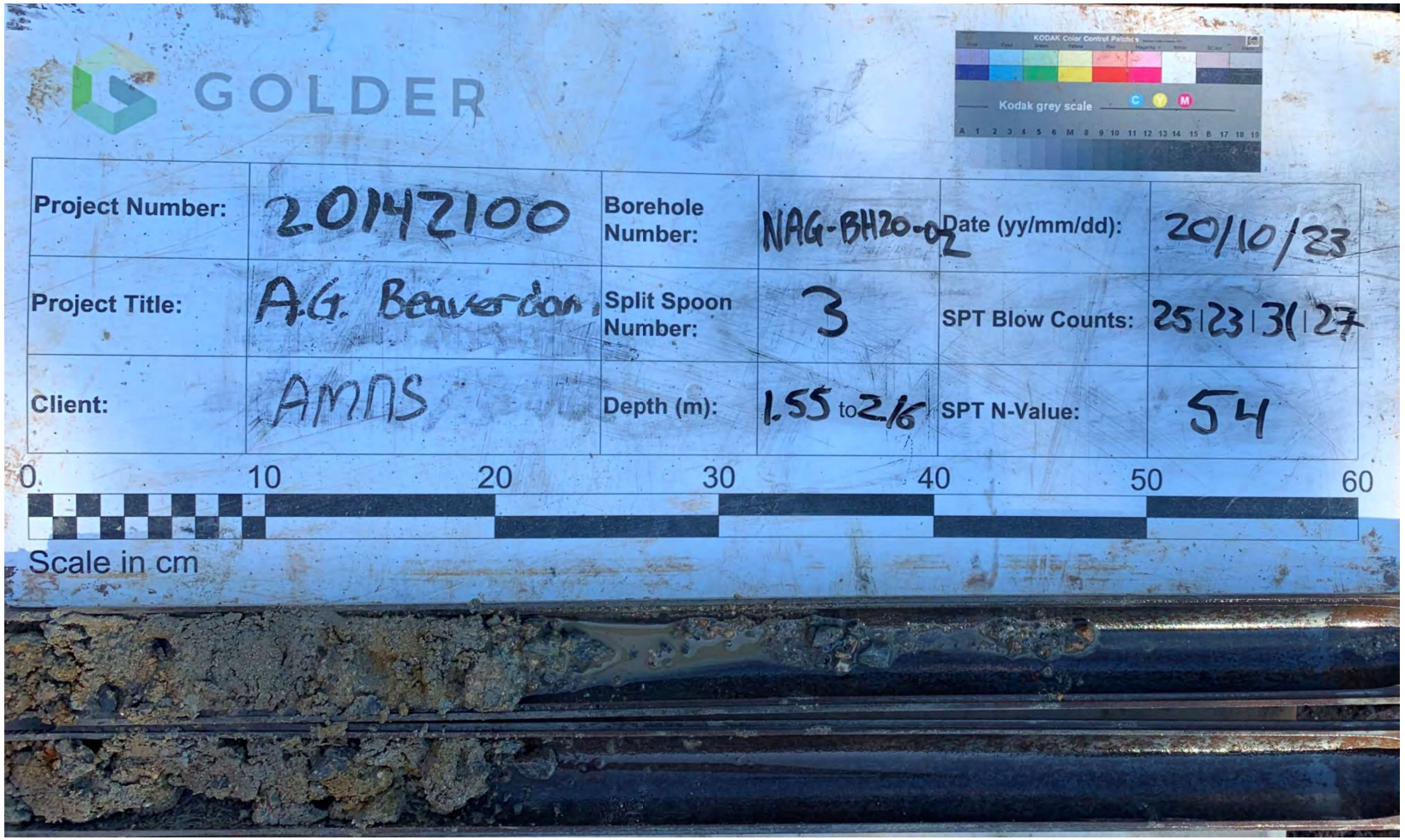

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Project No.	Control	Rev.	Figure No.
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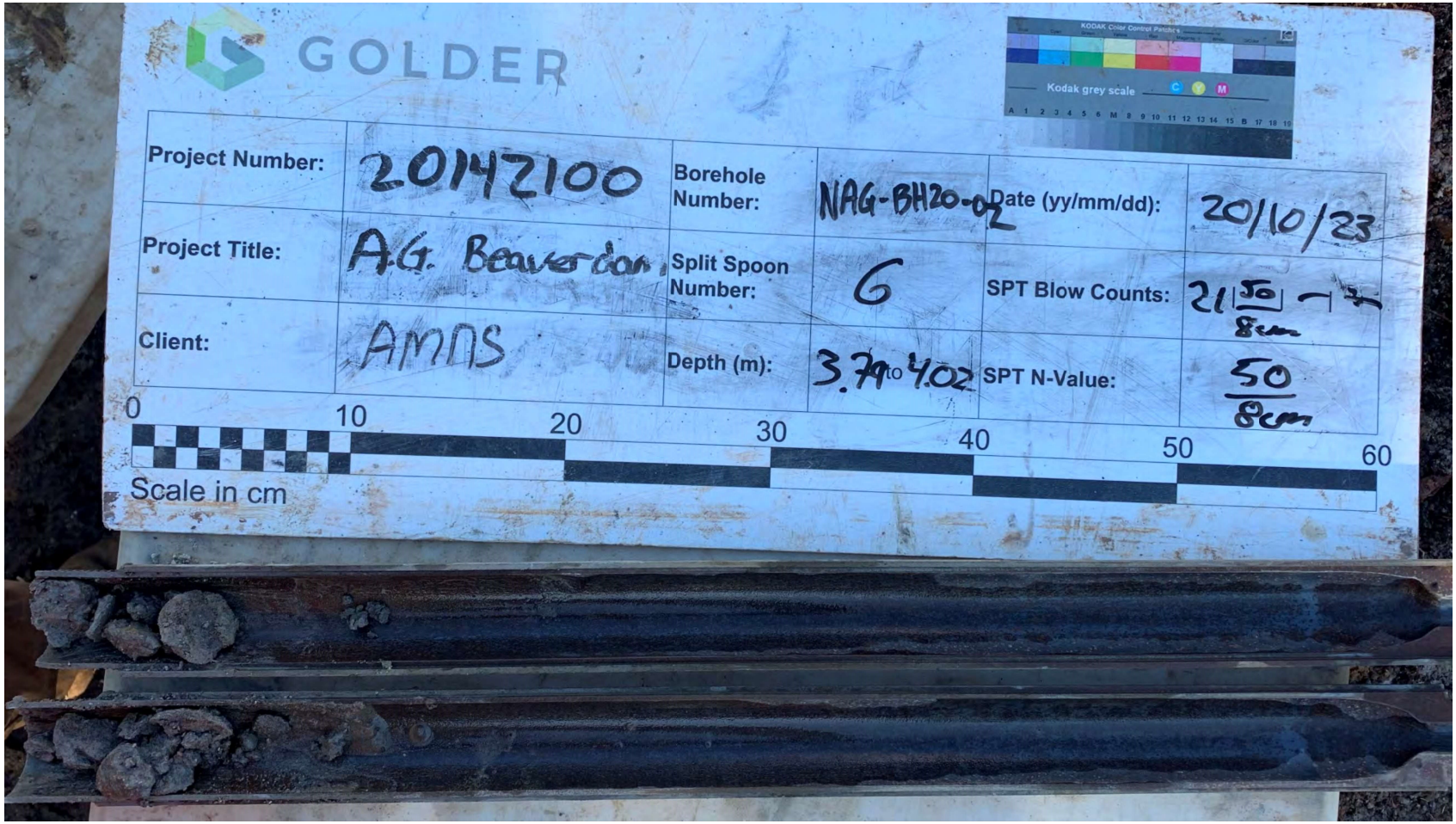

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NAG-BH20-02 SS7

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Project No.	Control	Rev.	Figure No.
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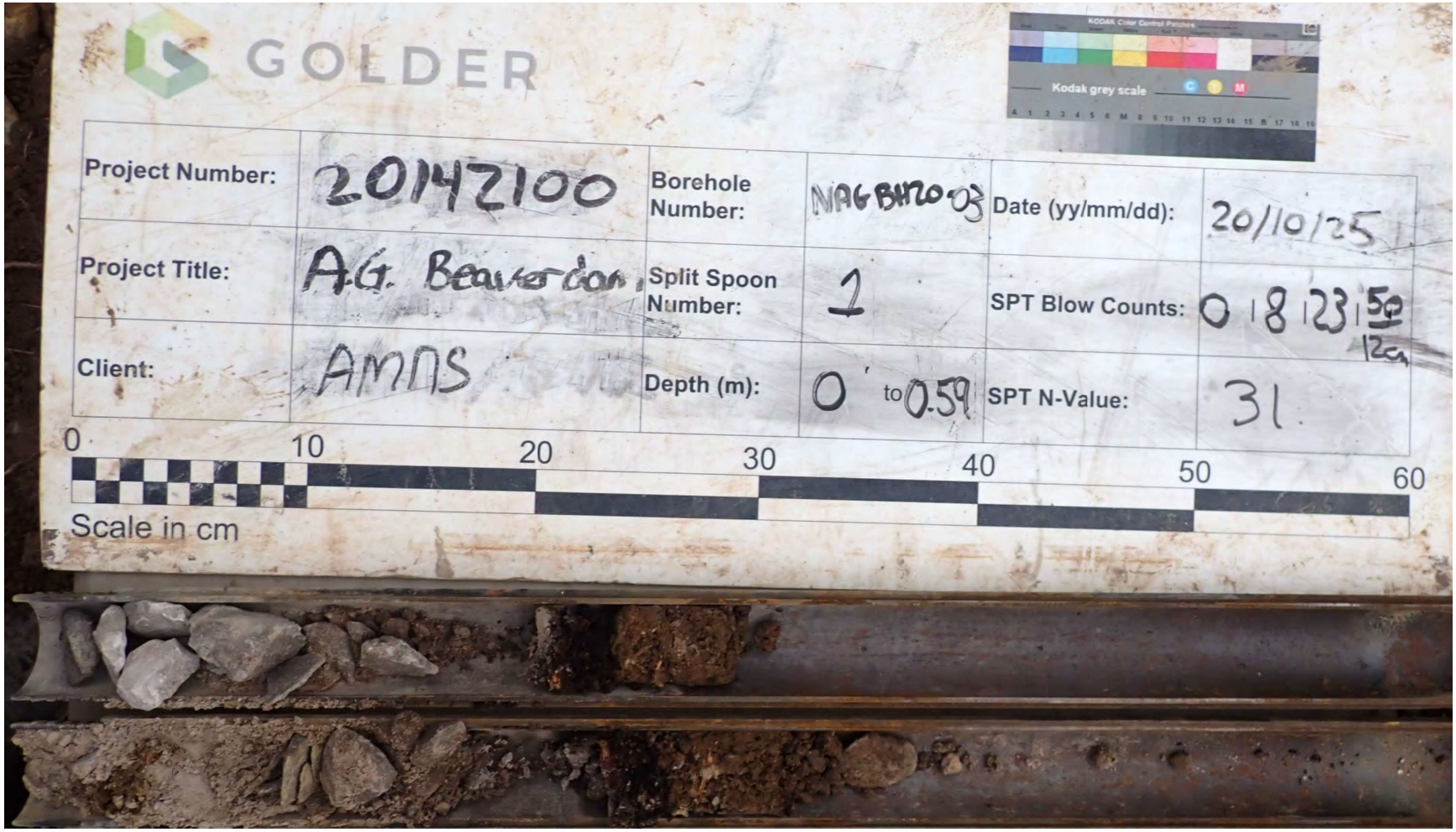

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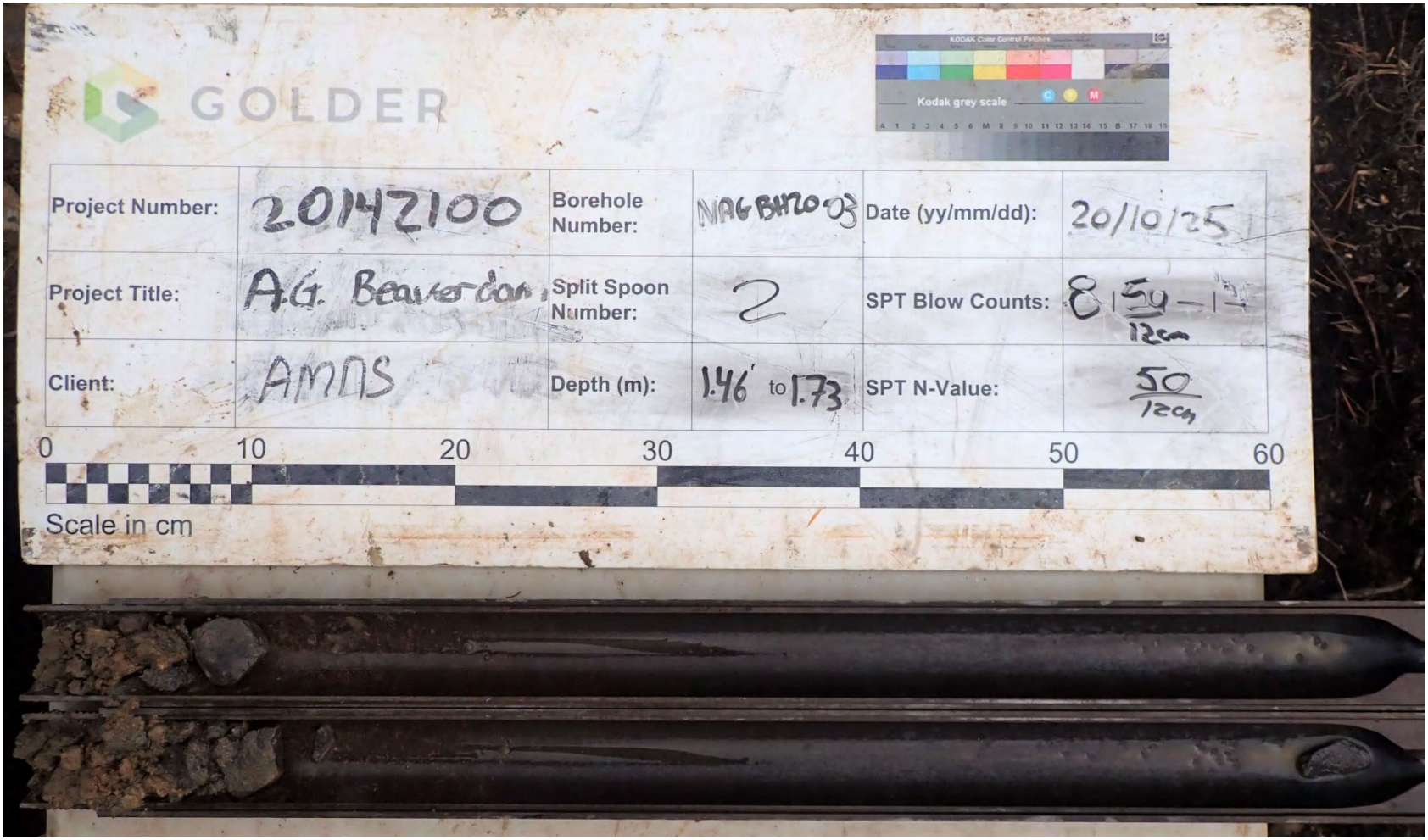
20142100	**007**	**0**	**E36**



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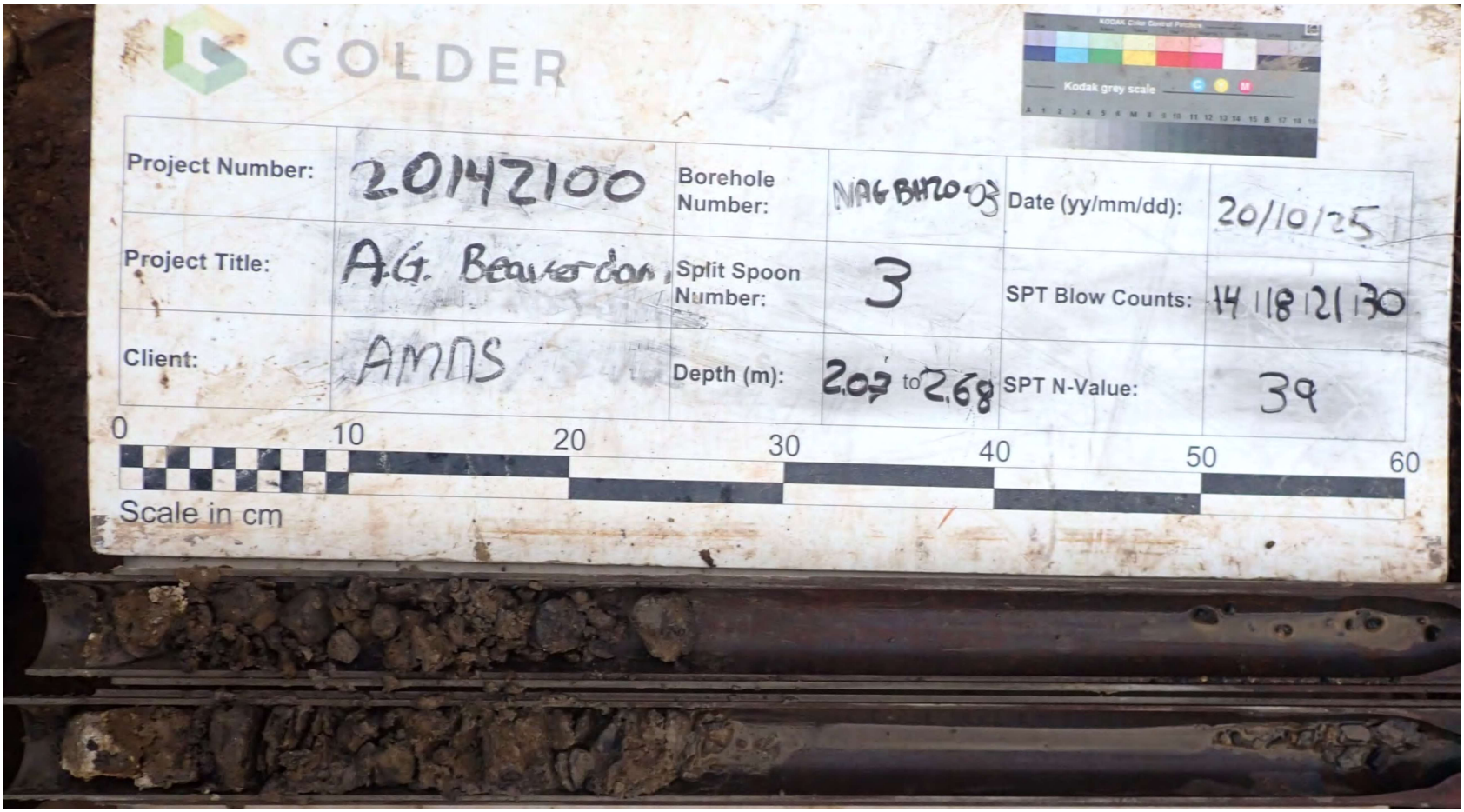
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E37**



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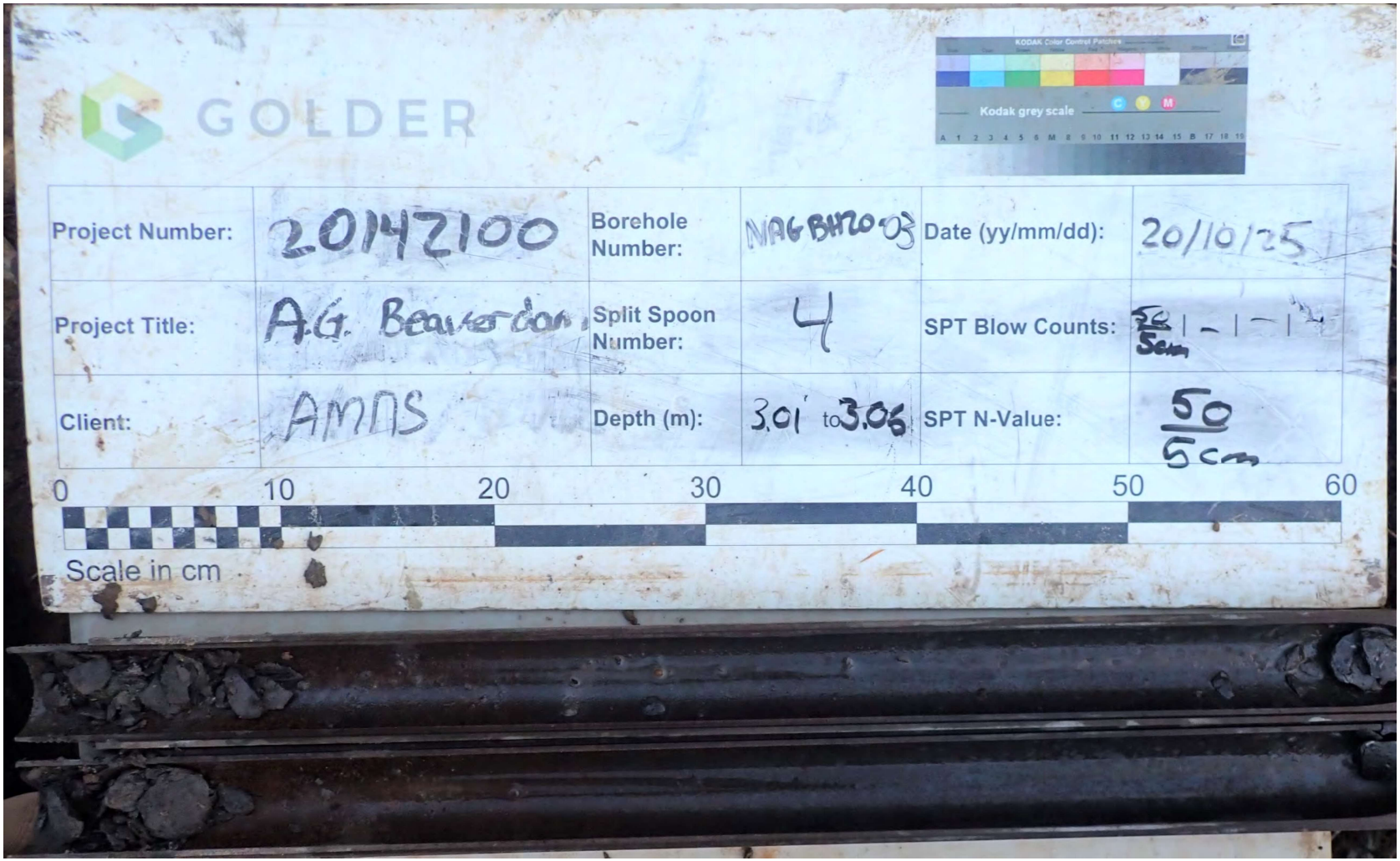
NAG-BH20-03 SS3

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E38**



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NAG-BH20-03 SS4

Project No.	Control	Rev.	Figure No.
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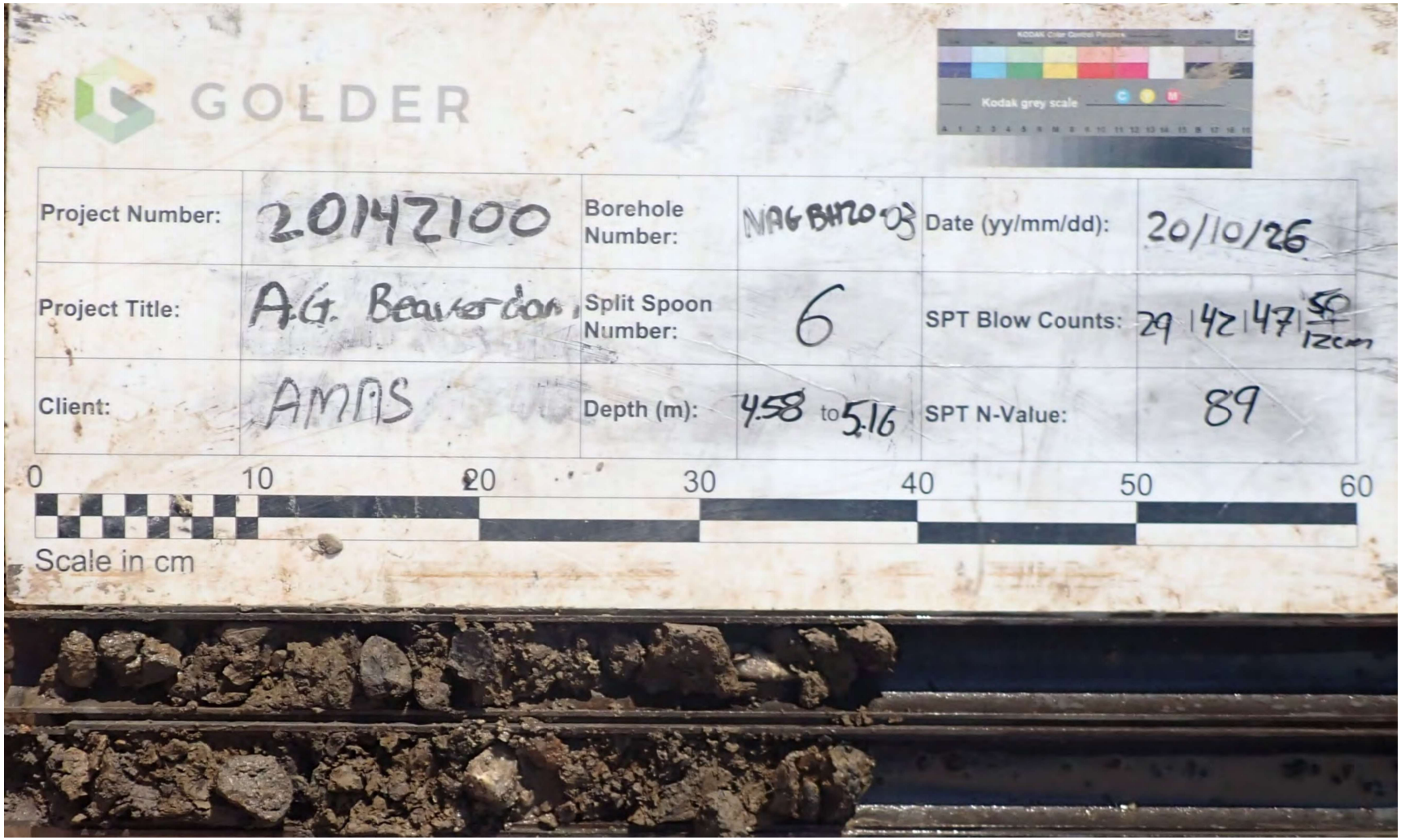
NAG-BH20-03 SS5

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E40**



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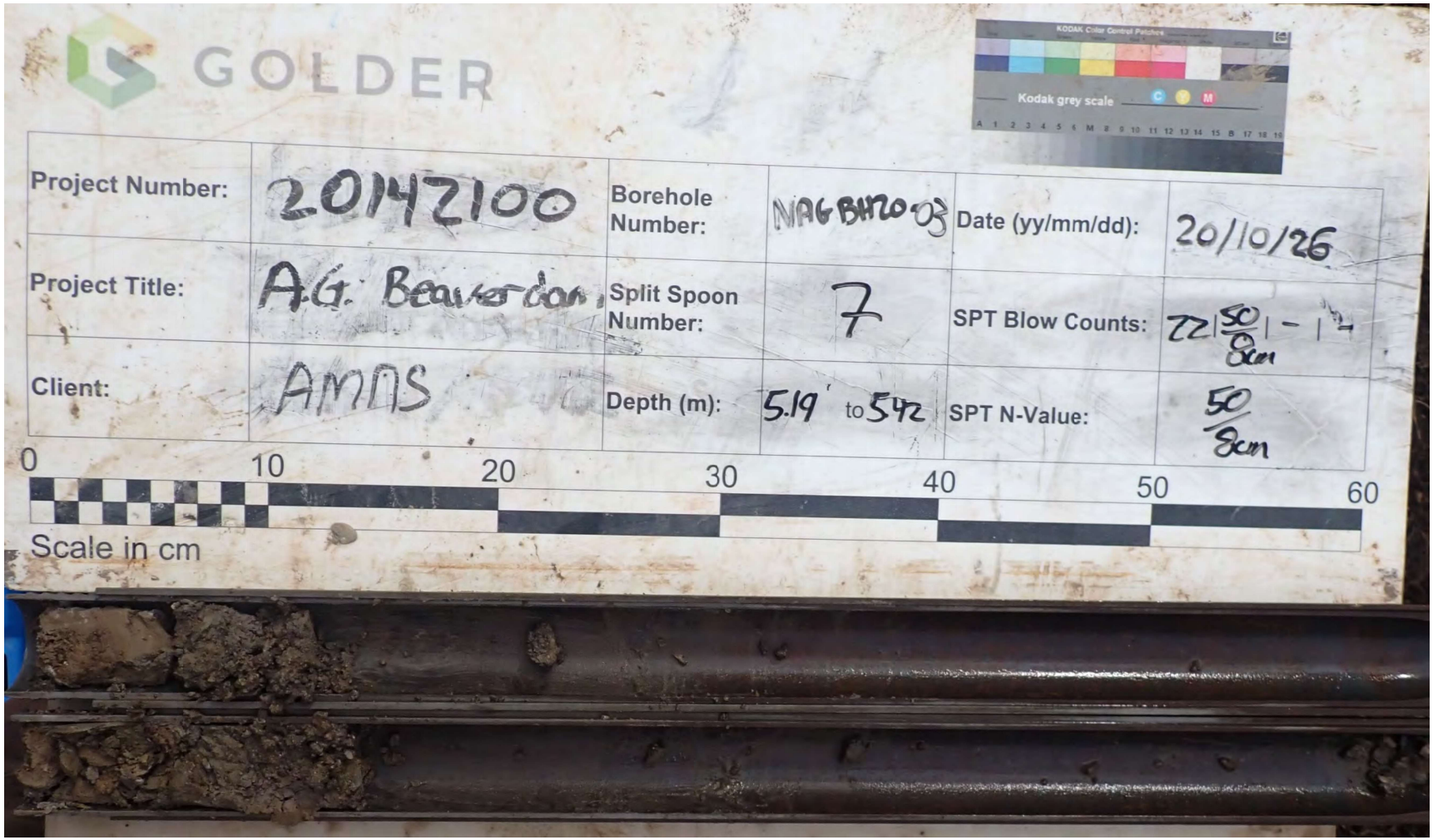
NAG-BH20-03 SS6

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E41**



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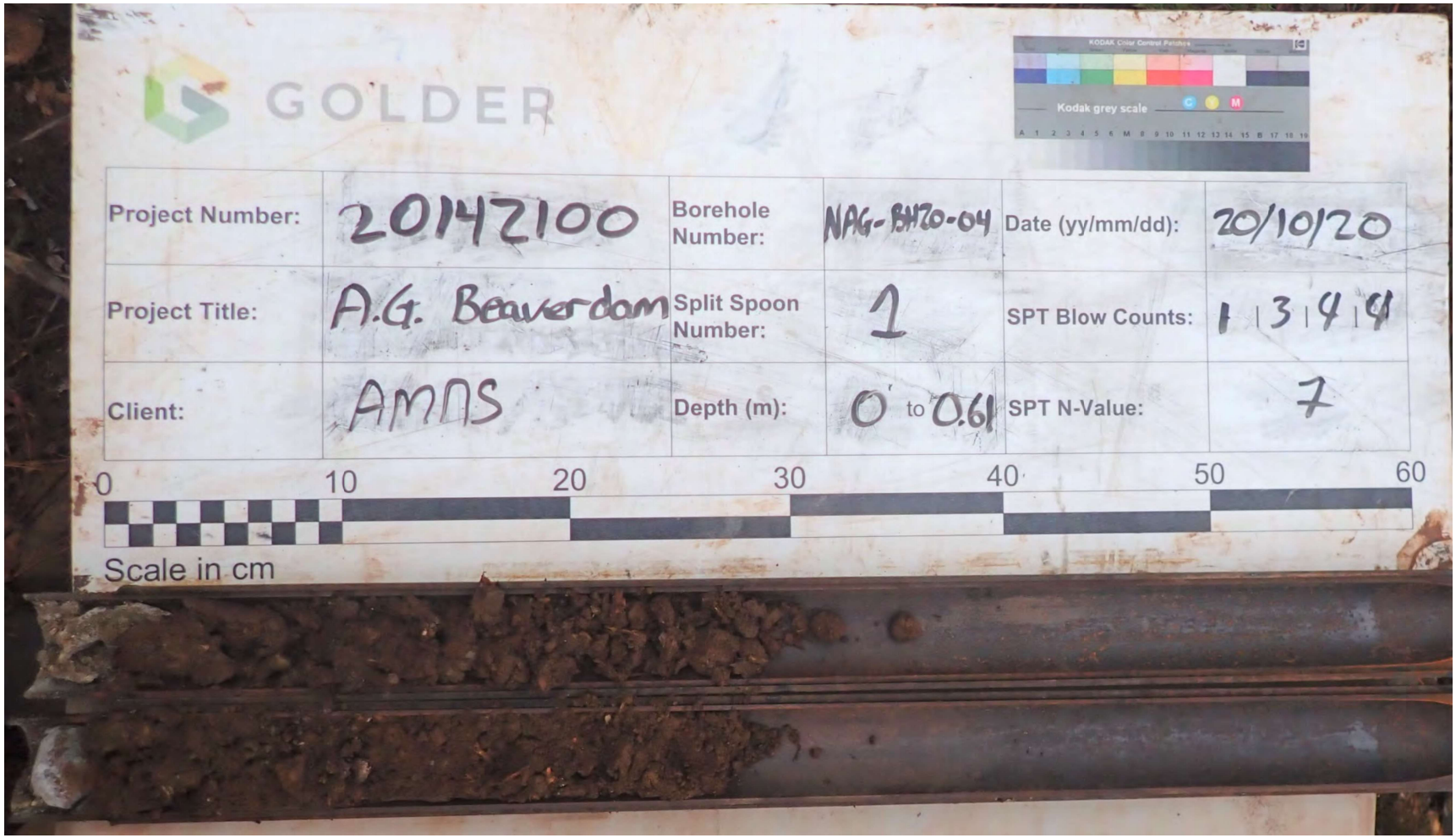
NAG-BH20-03 SS7

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E42**



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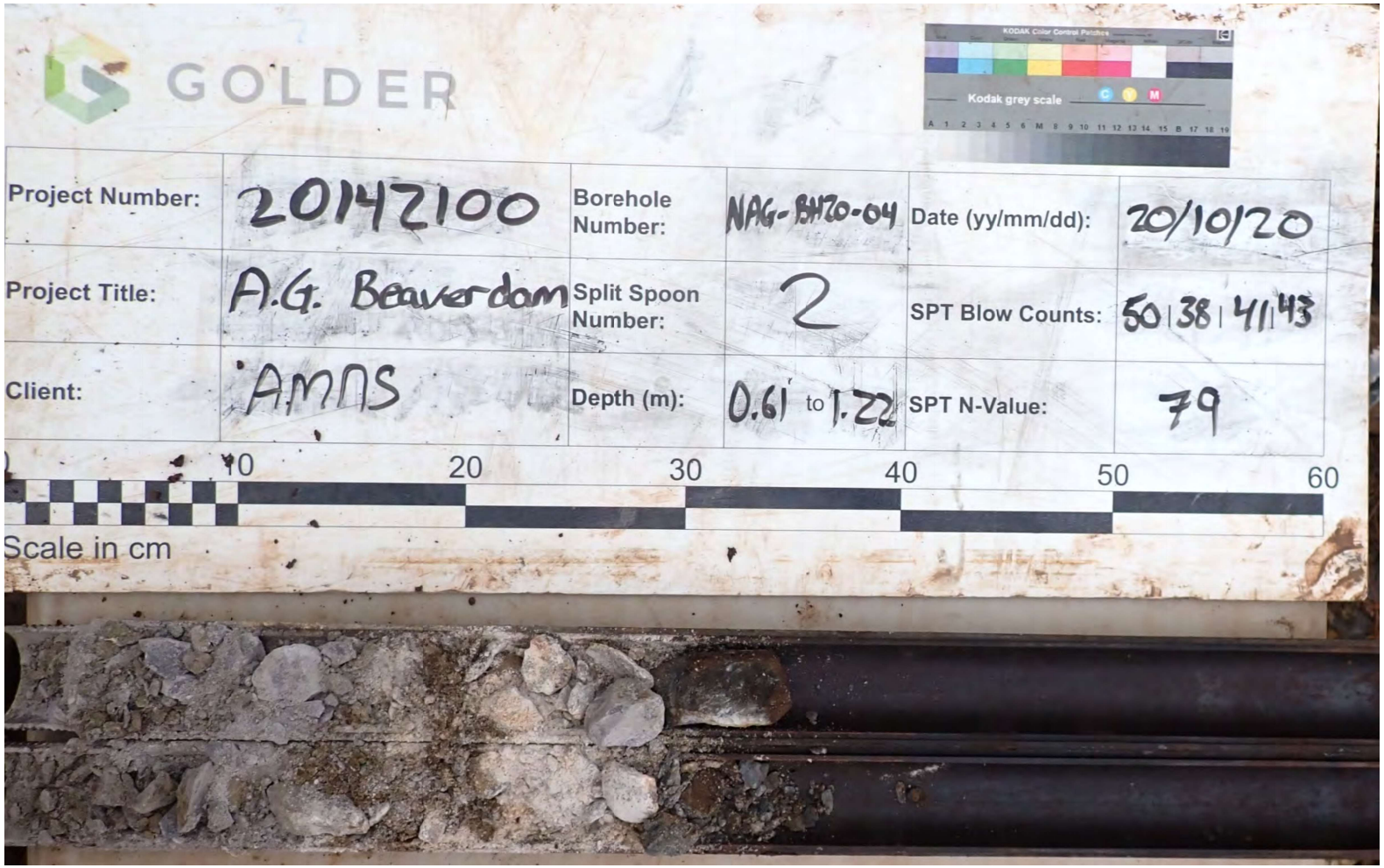
NAG-BH20-04 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E43**



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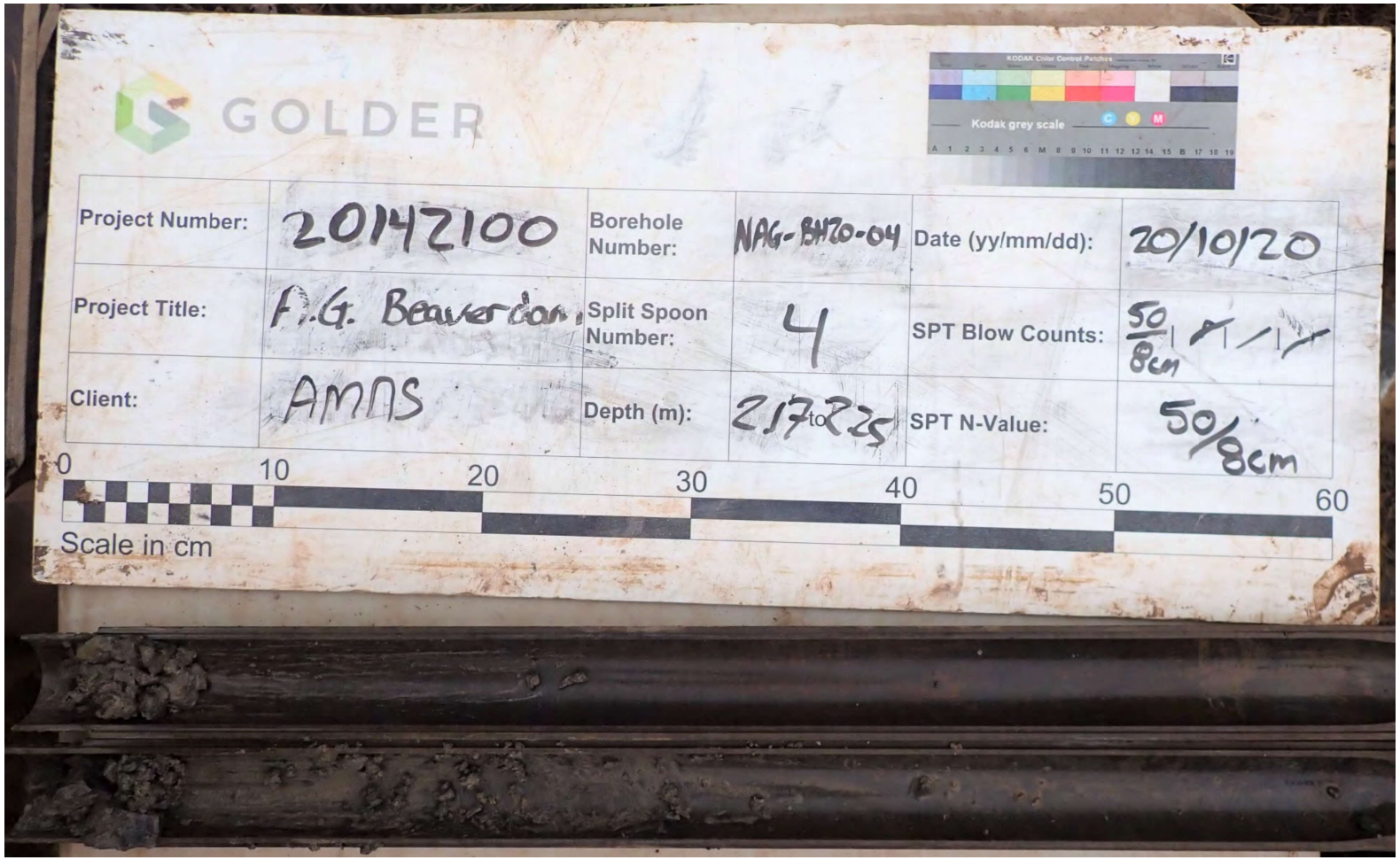
NAG-BH20-04 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E44**



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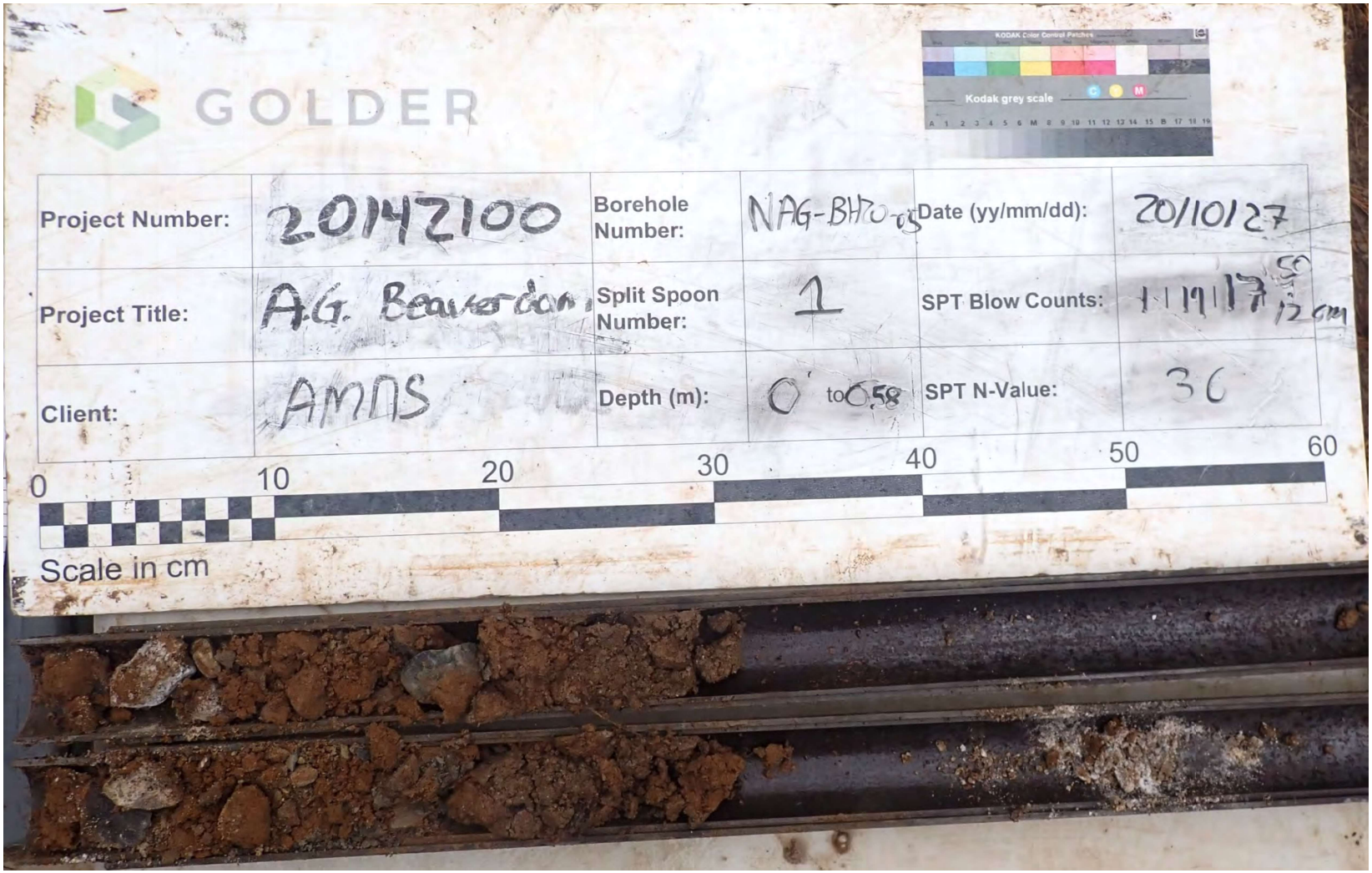
NAG-BH20-04 SS4

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E45**



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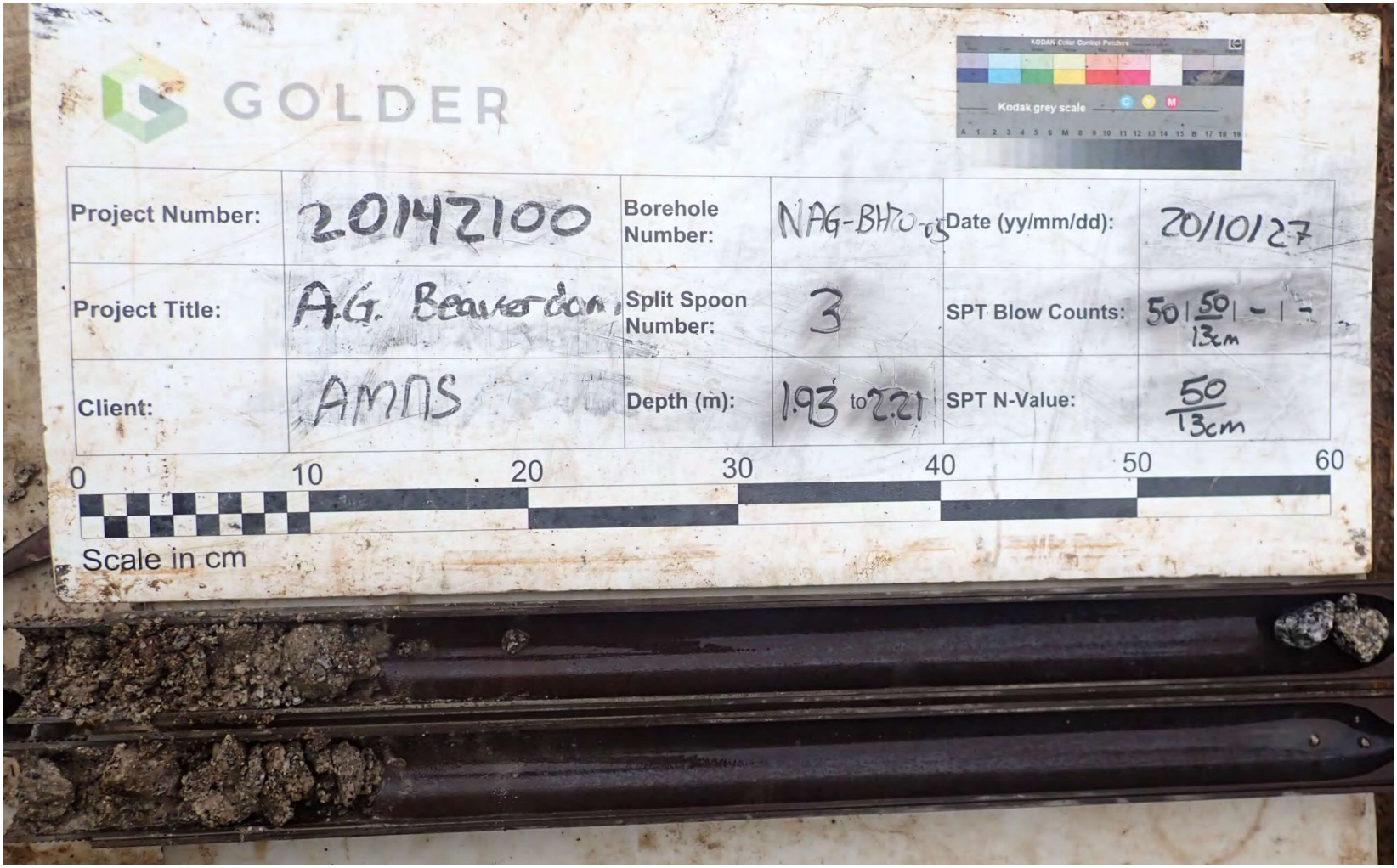
NAG-BH20-05 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E46**



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NAG-BH20-05 SS3

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E47**

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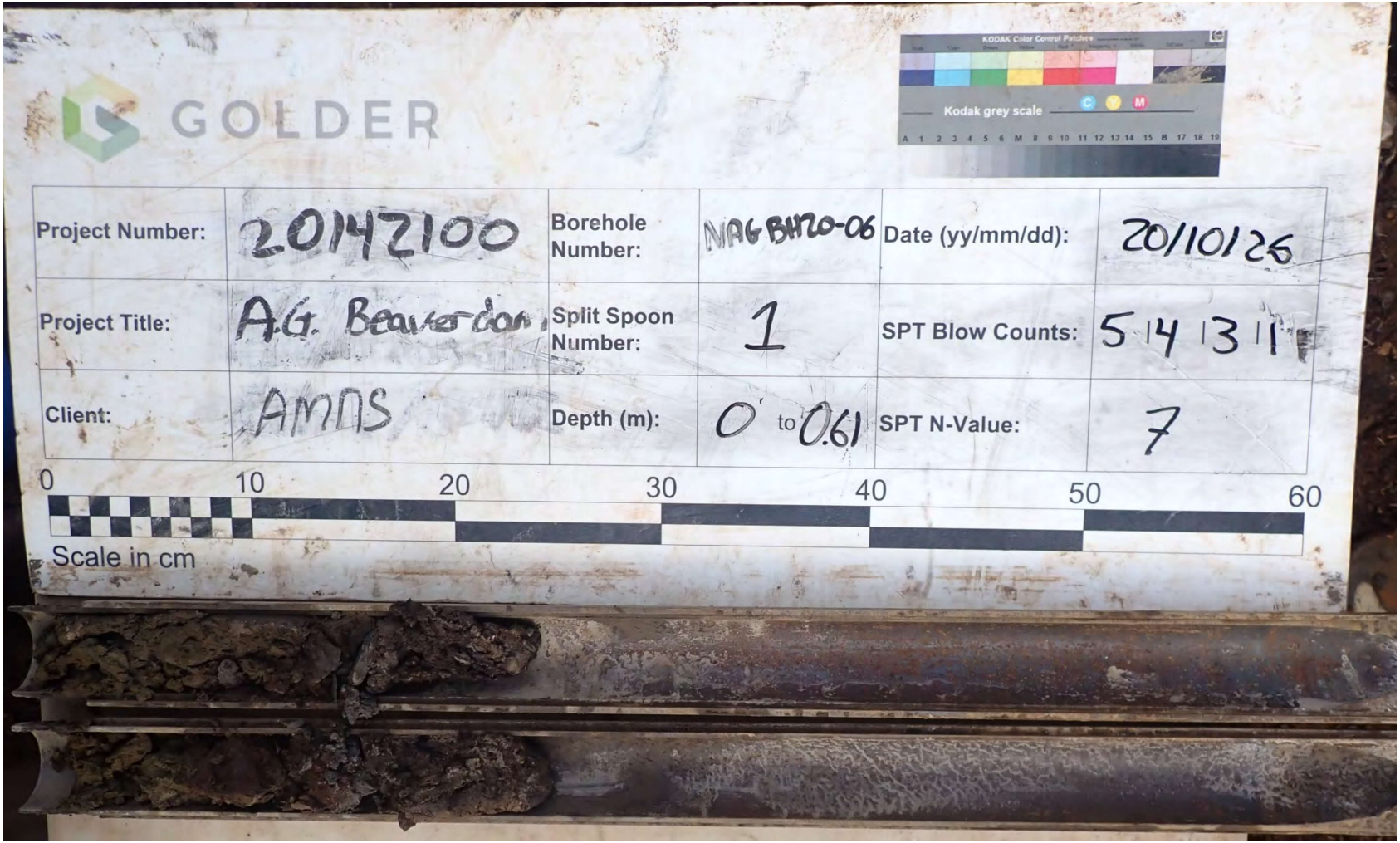
NAG-BH20-05 SS5

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E48**



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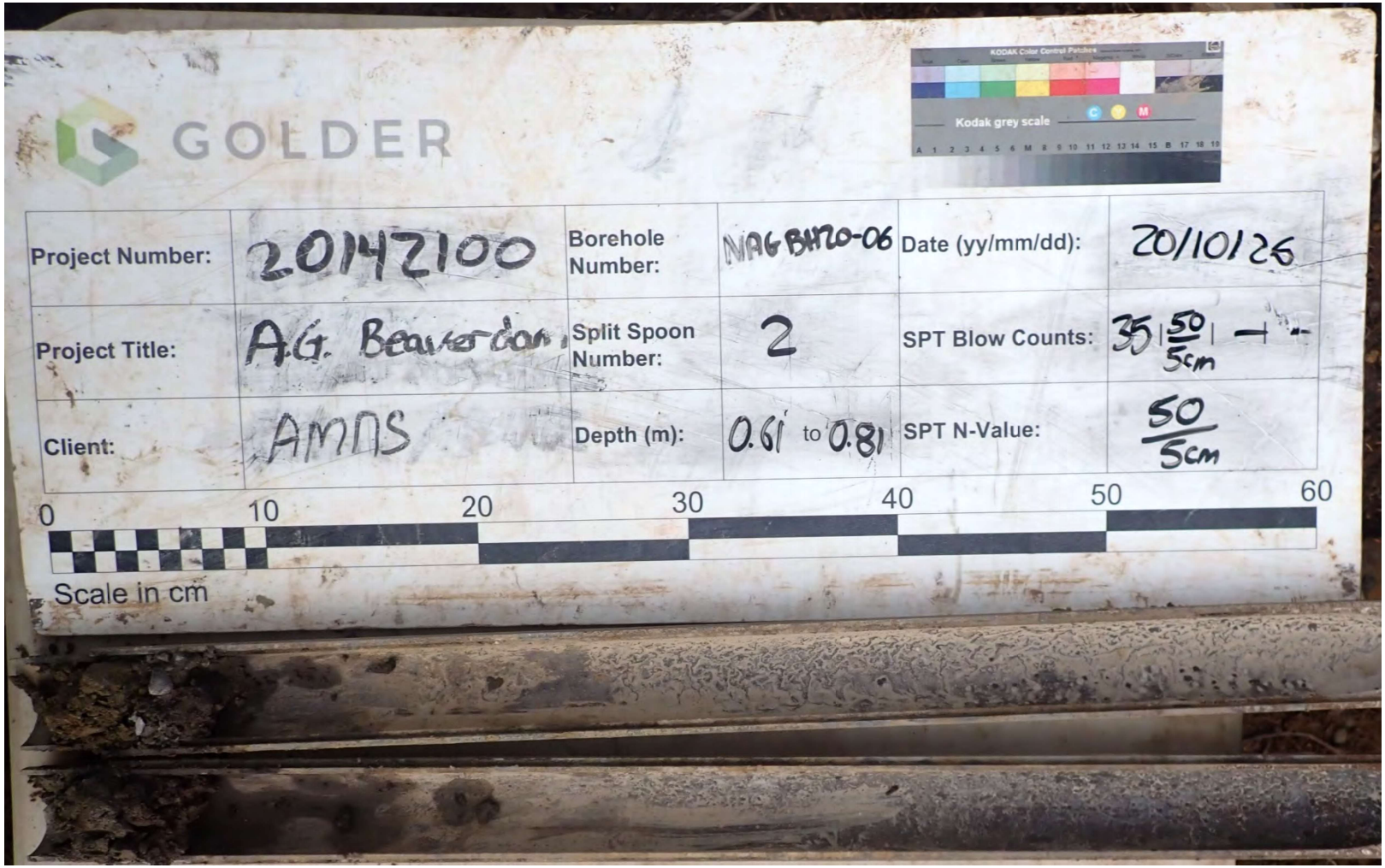
NAG-BH20-06 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E49**



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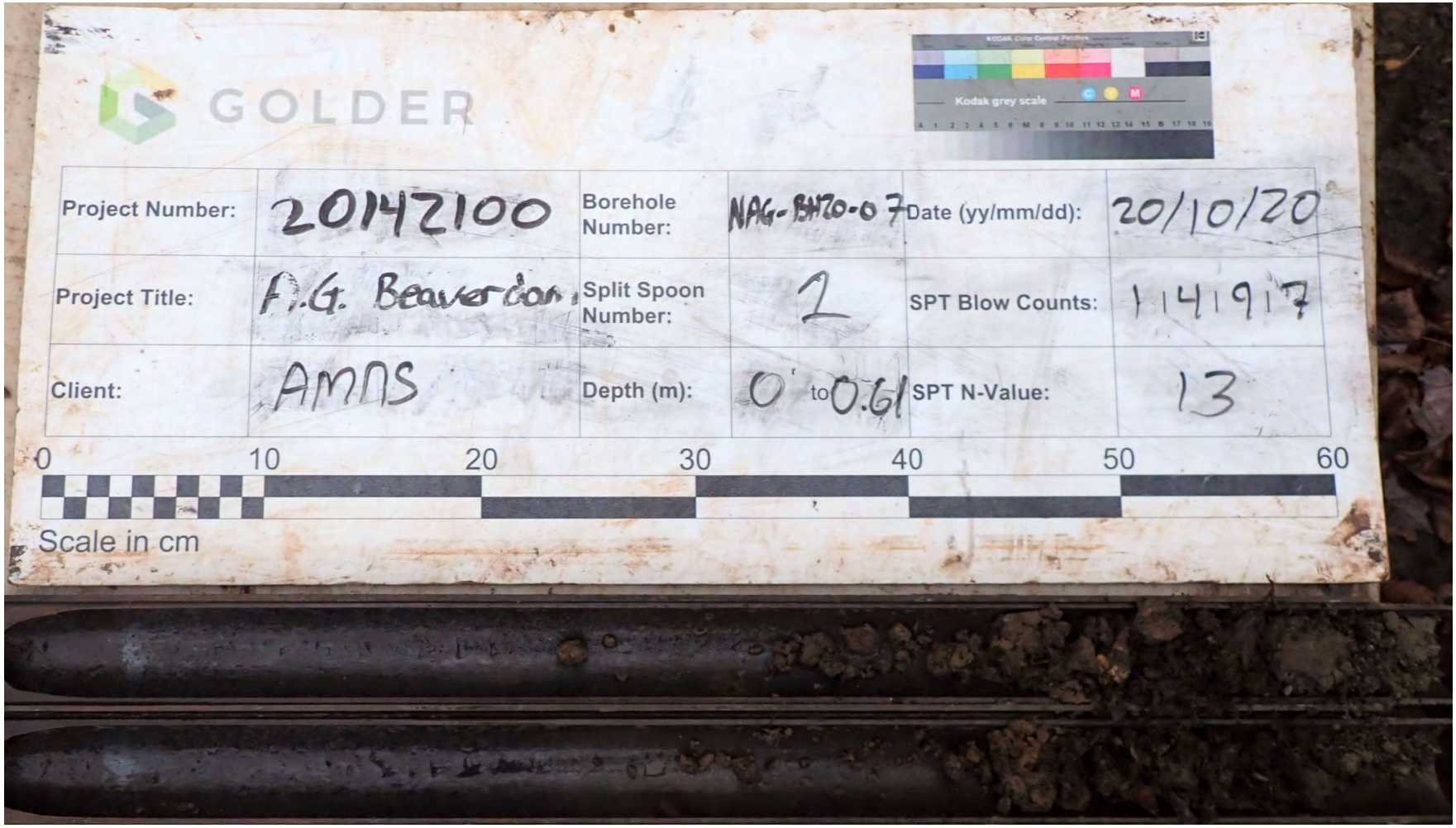
NAG-BH20-06 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E50**



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NAG-BH20-07 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E51**

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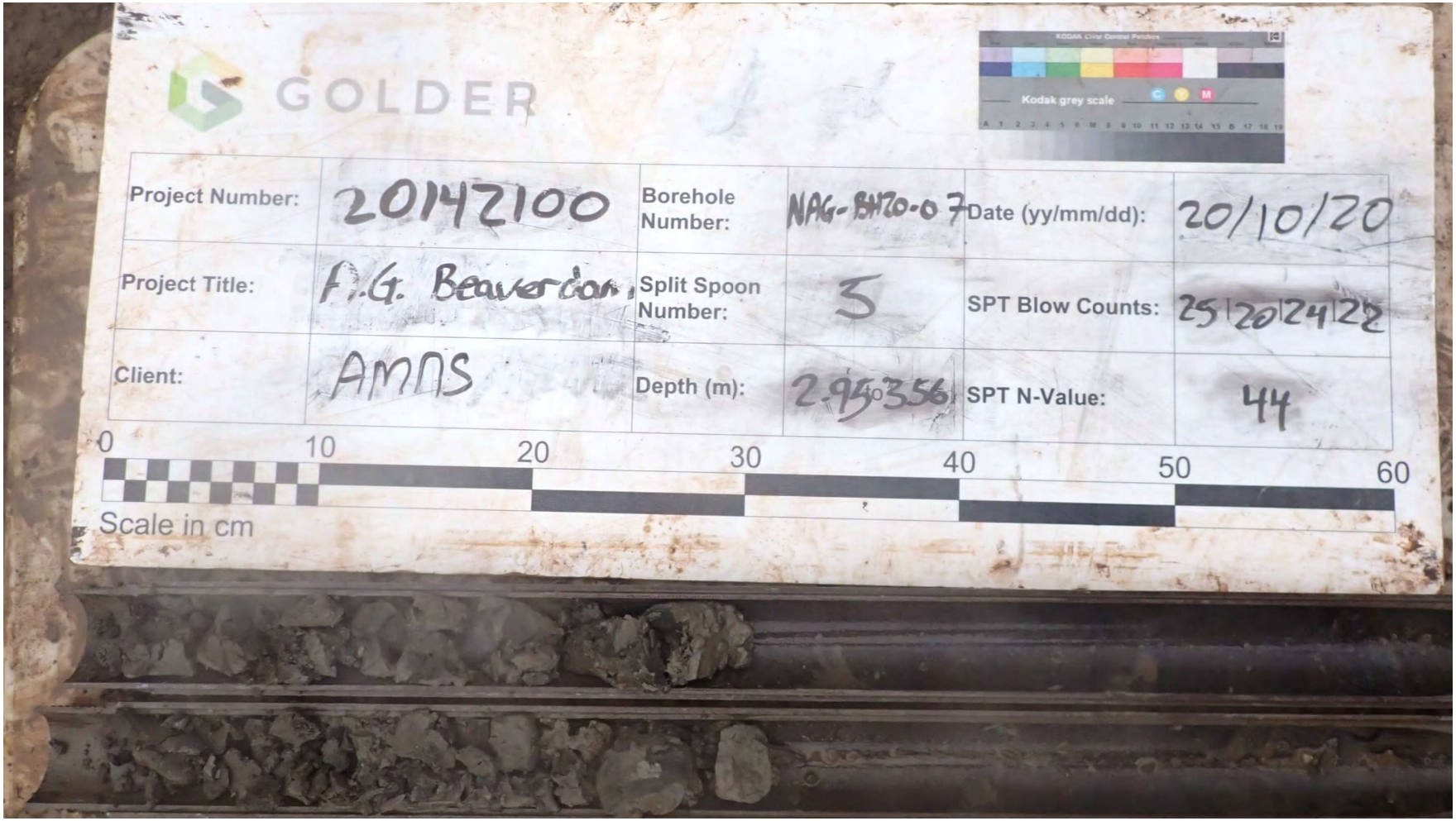
NAG-BH20-07 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E52**



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NAG-BH20-07 SS5

Project No.	Control	Rev.	Figure No.
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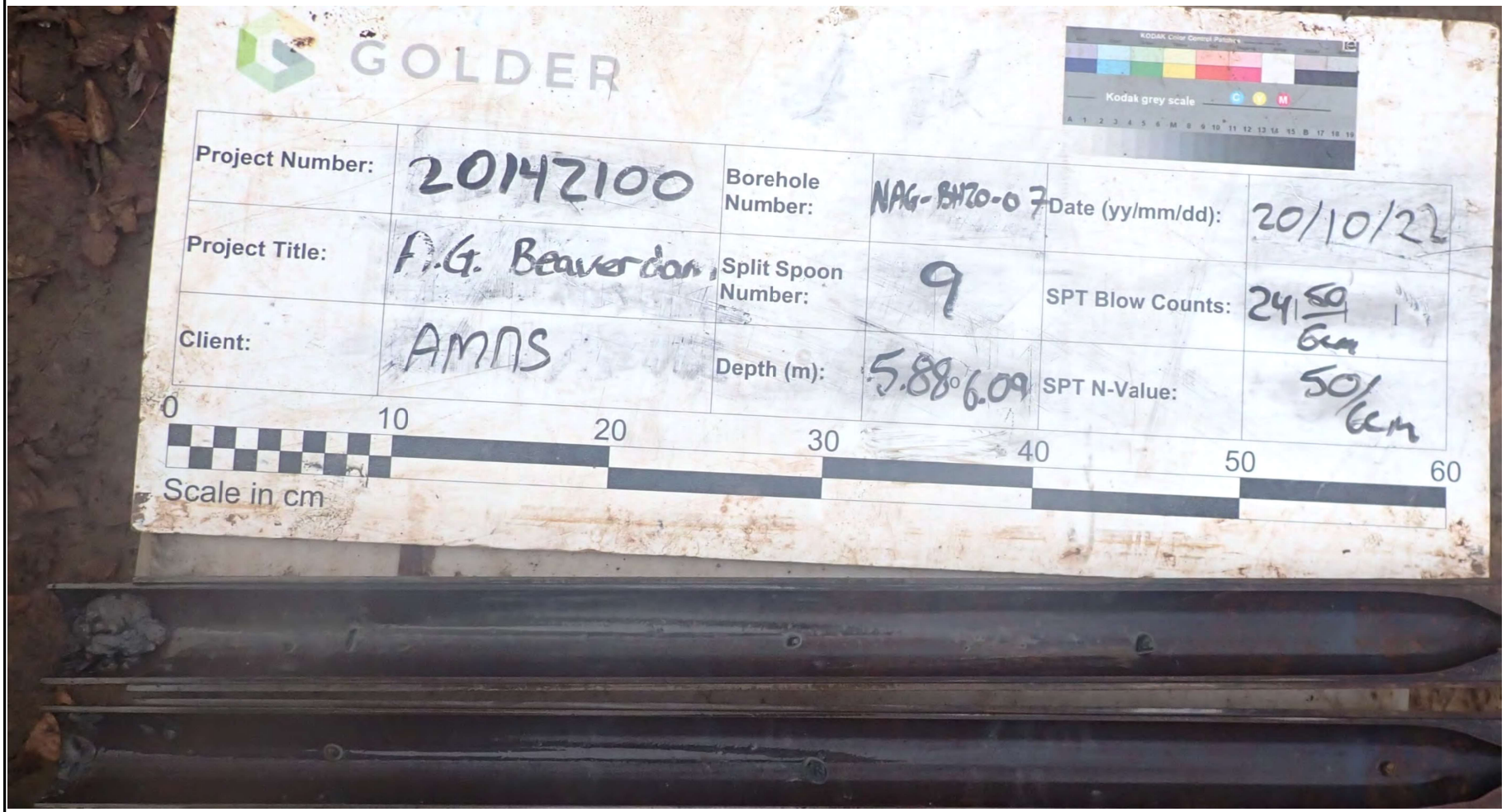
NAG-BH20-07 SS8

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E54**



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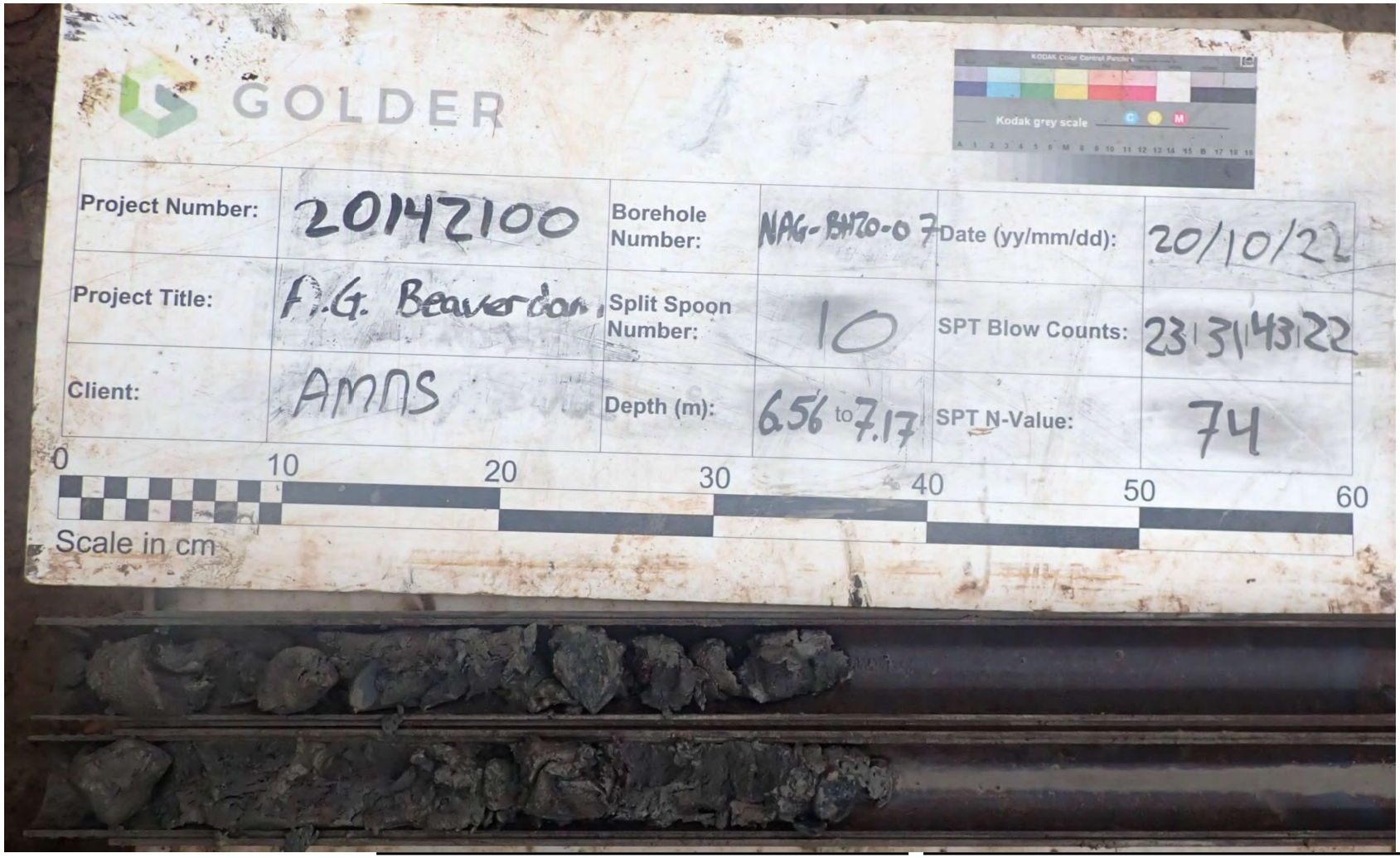
NAG-BH20-07 SS9

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E55**



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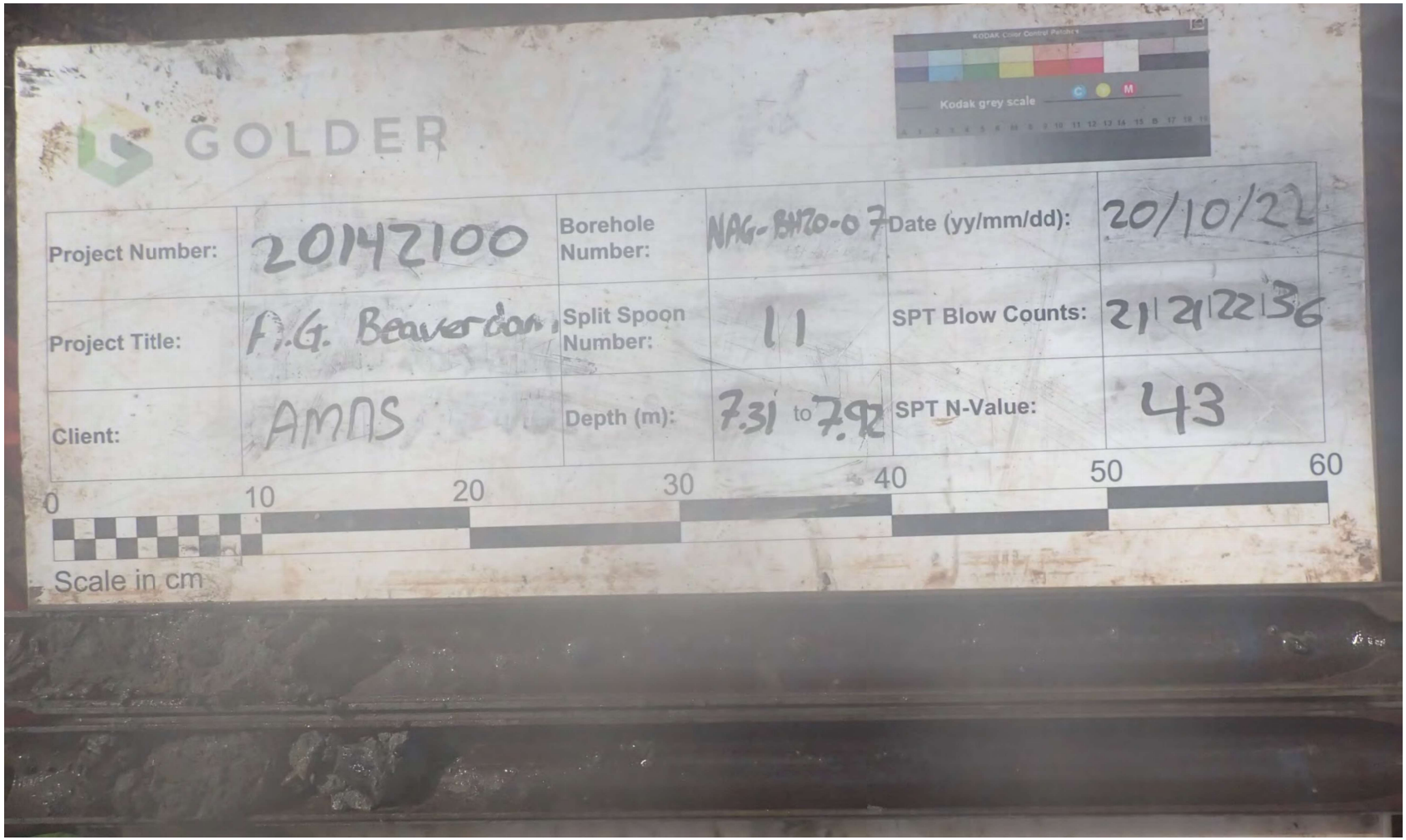
NAG-BH20-07 SS10

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E56**



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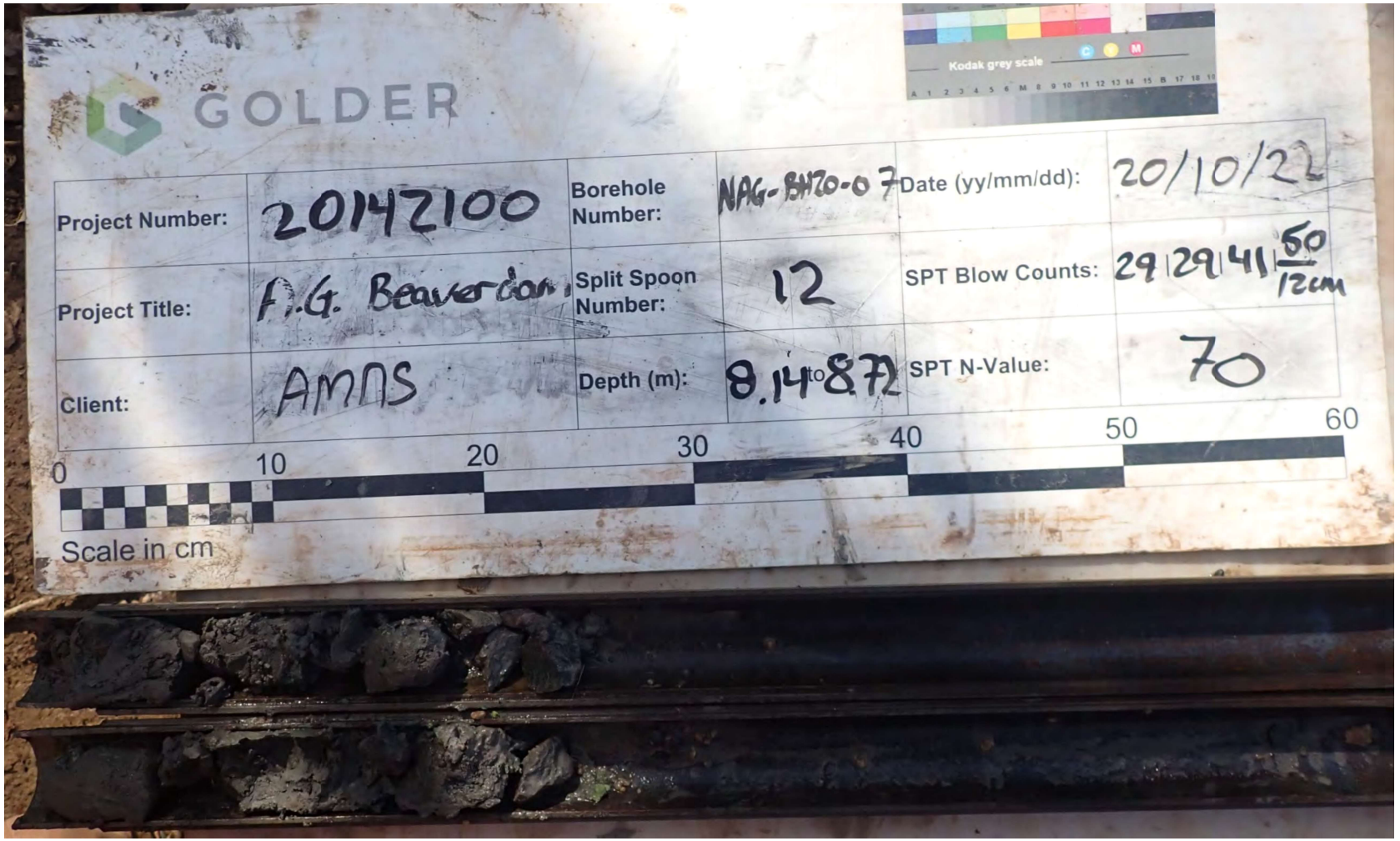
NAG-BH20-07 SS11

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E57**



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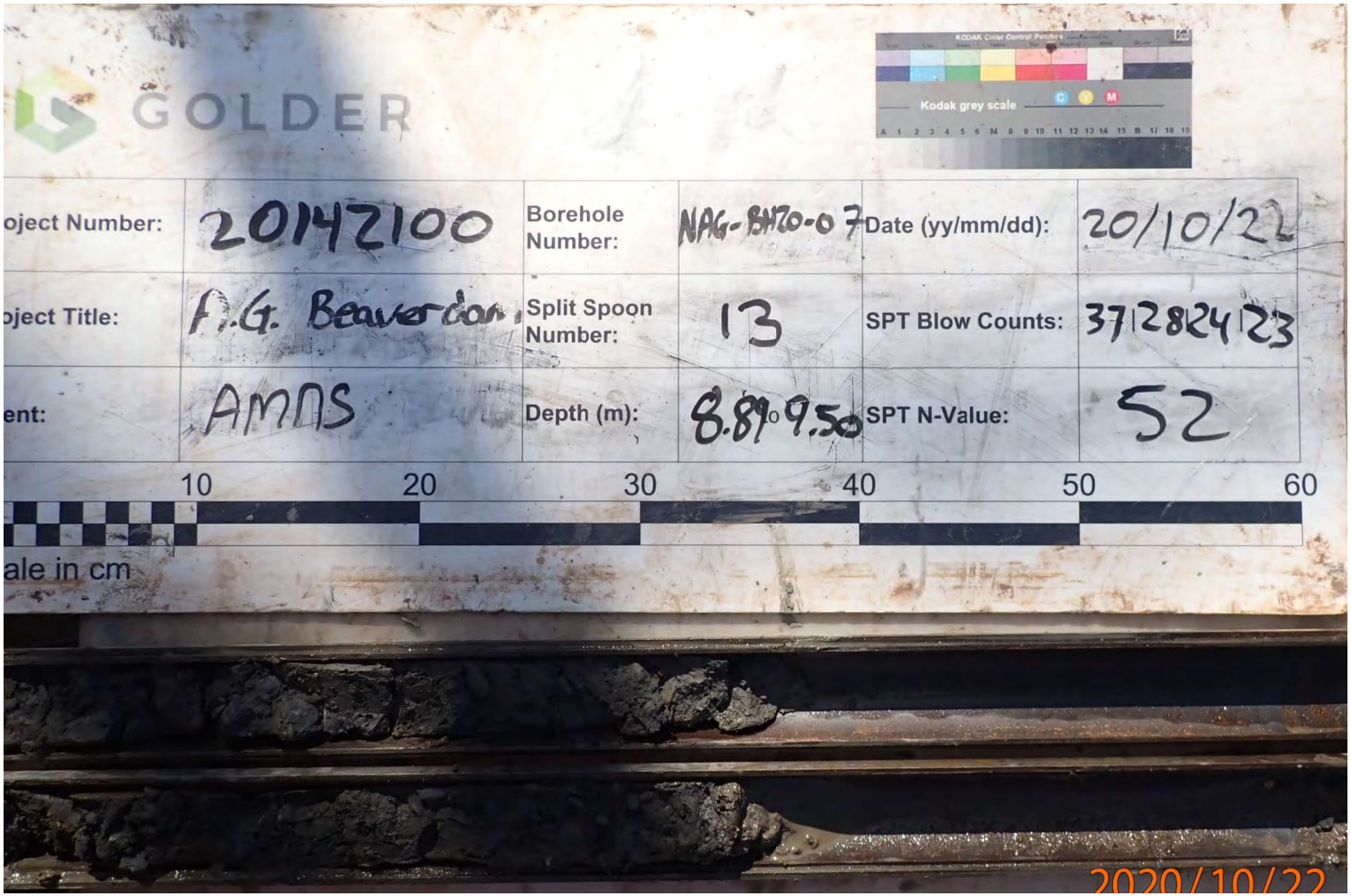
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E58**



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NAG-BH20-07 SS13

Project No.	Control	Rev.	Figure No.
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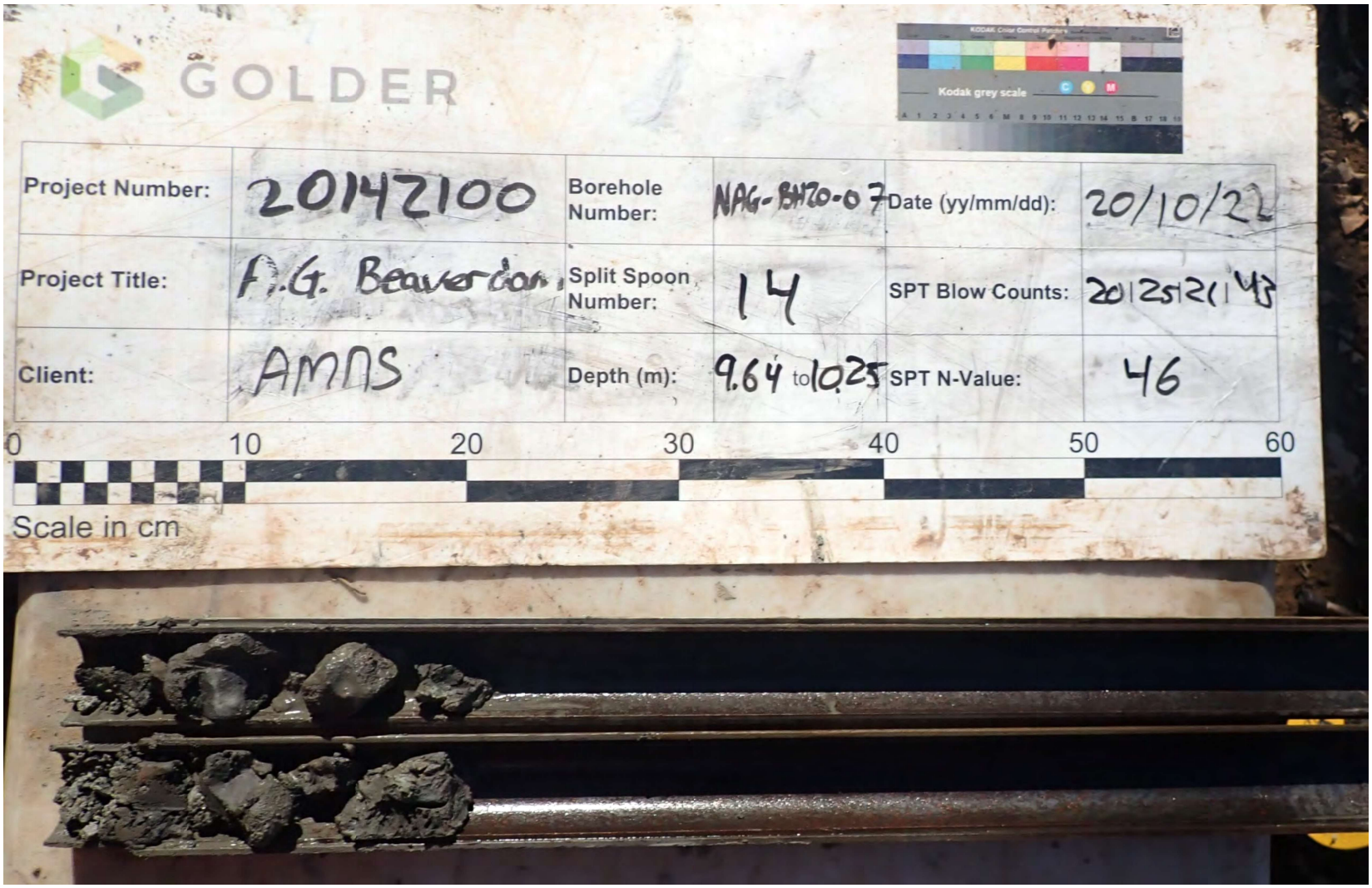

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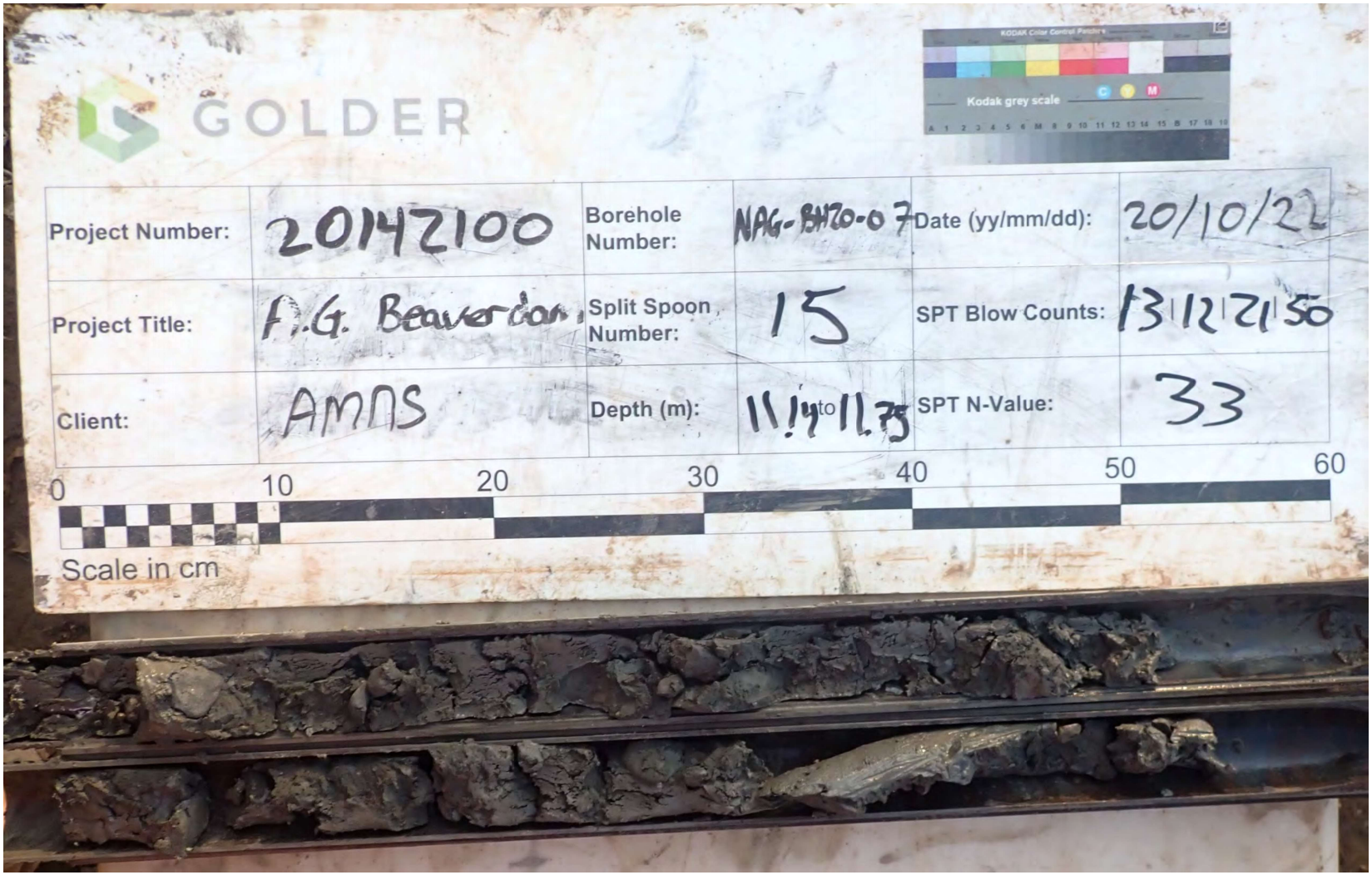
NAG-BH20-07 SS14

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E60**



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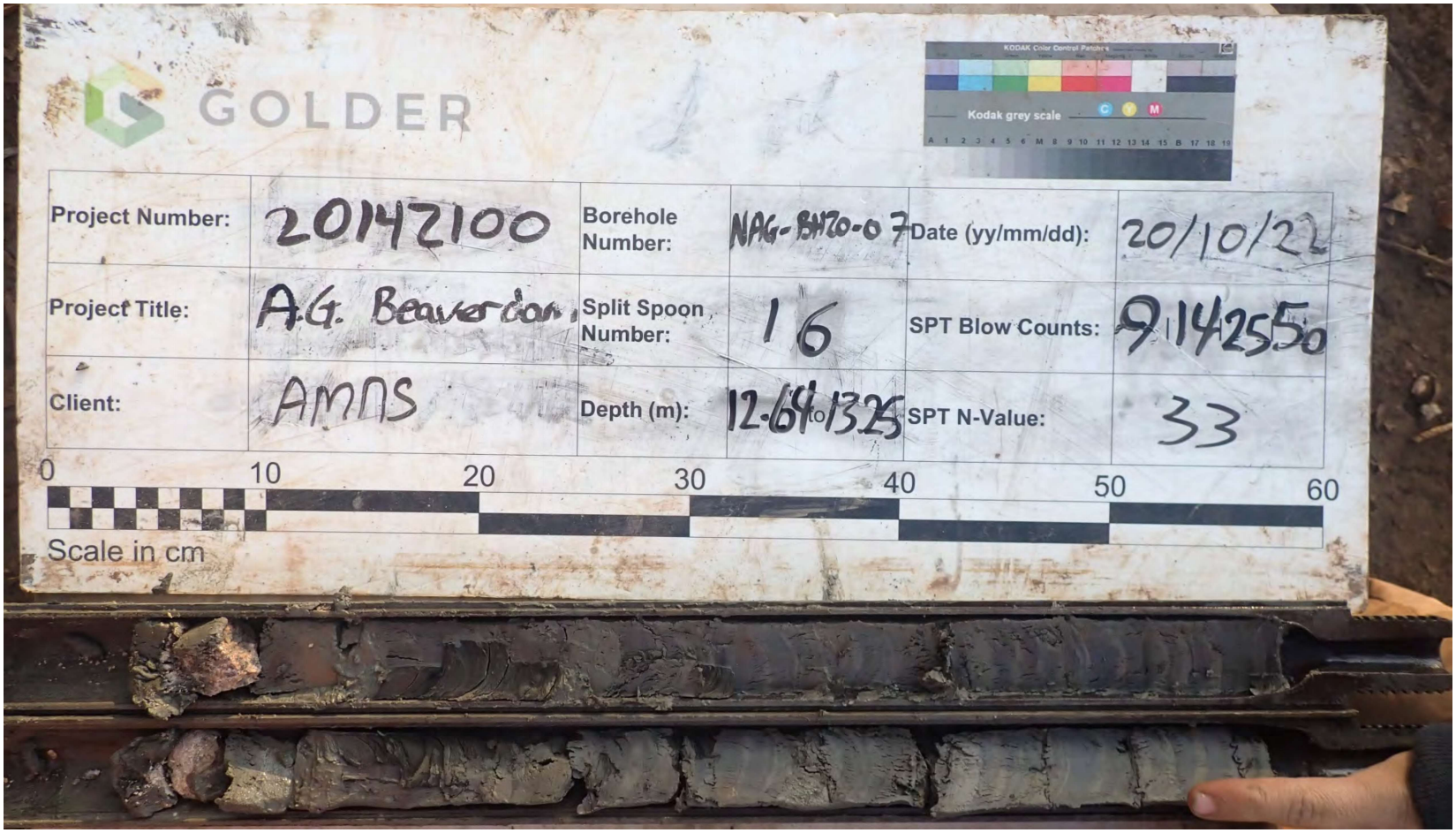
NAG-BH20-07 SS15

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E61**



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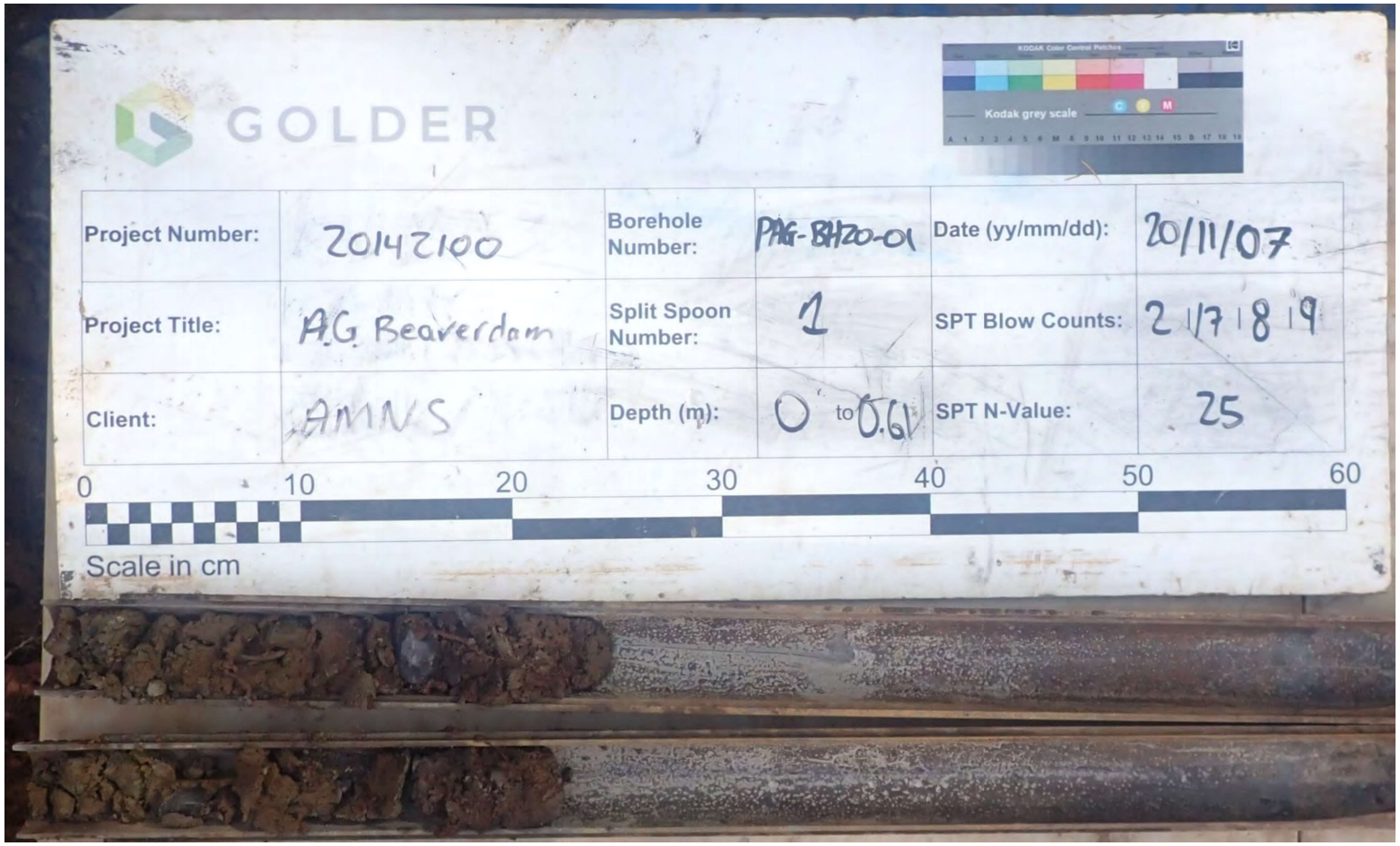
NAG-BH20-07 SS16

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E62**



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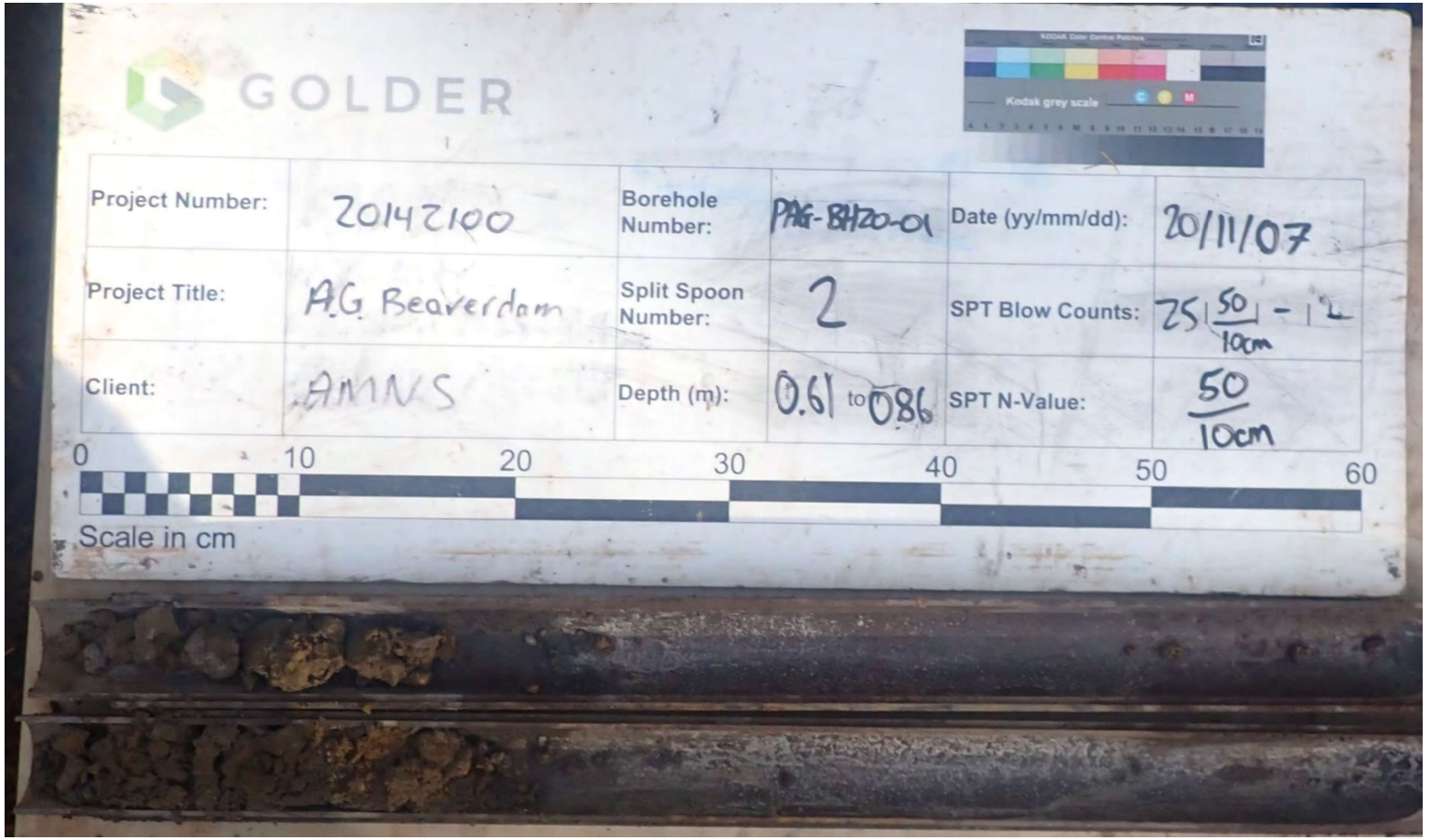
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E63**



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PAG-BH20-01 SS2

Project No.	Control	Rev.	Figure No.
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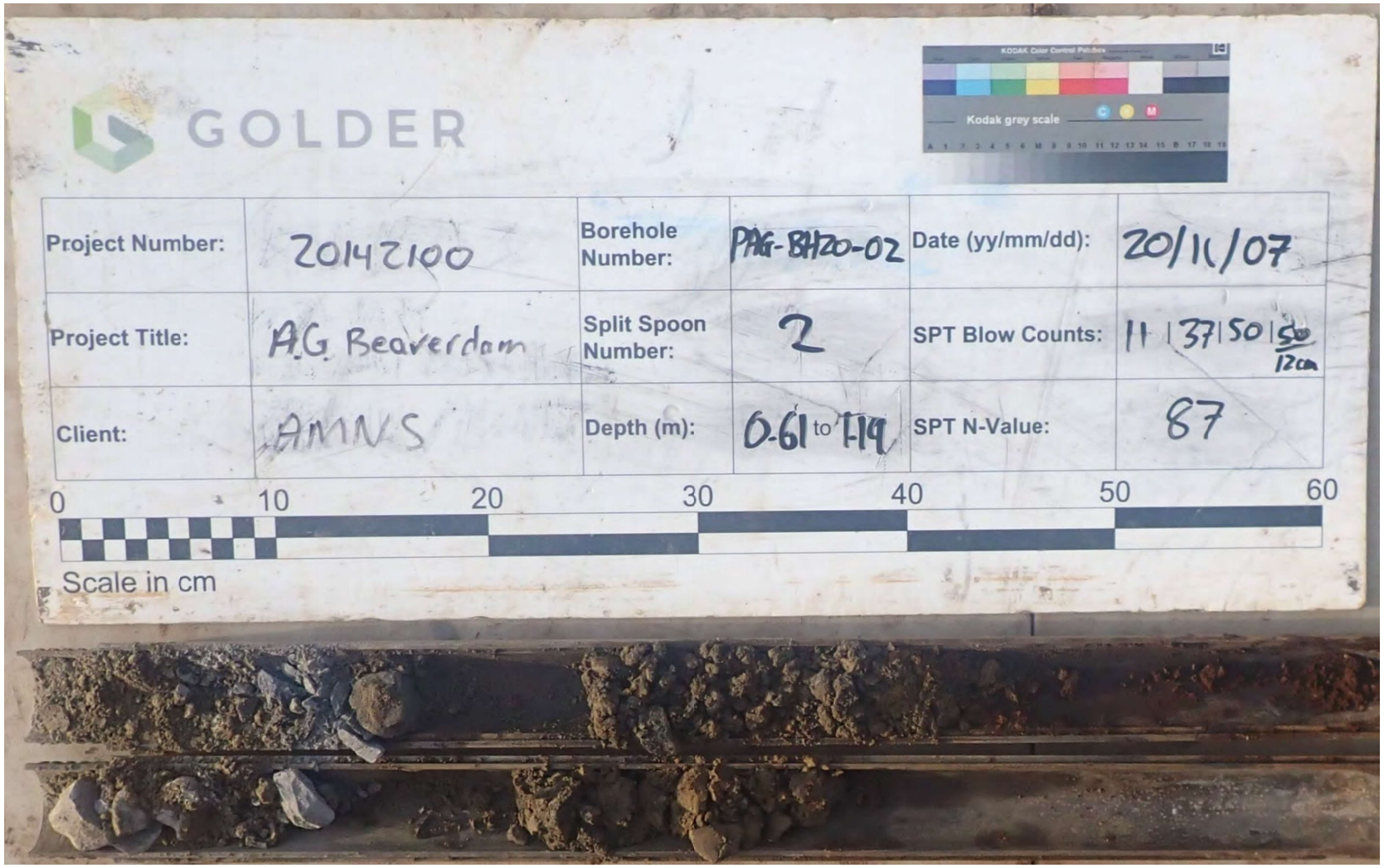

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PAG-BH20-02 SS2

Project No.	Control	Rev.	Figure No.
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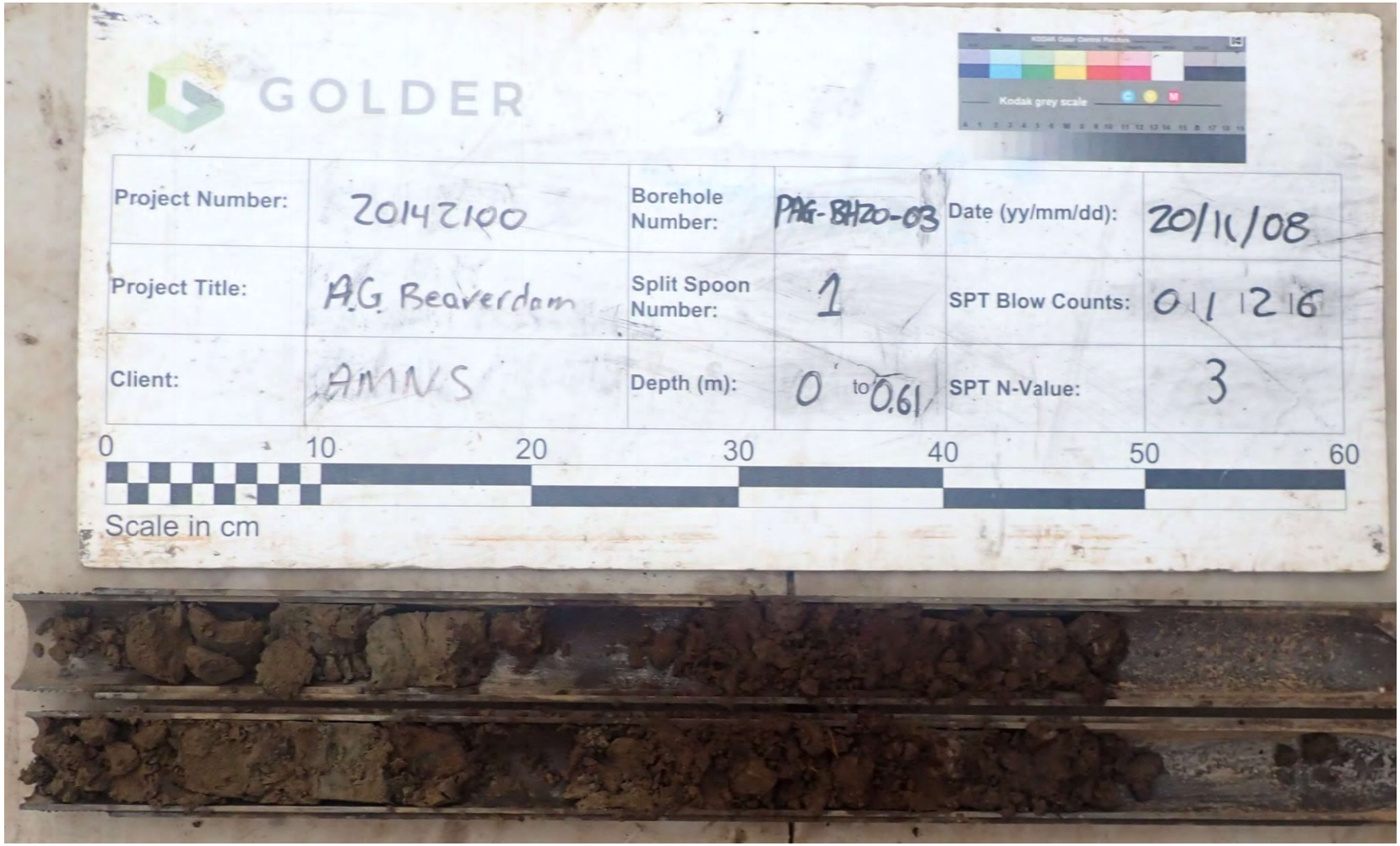

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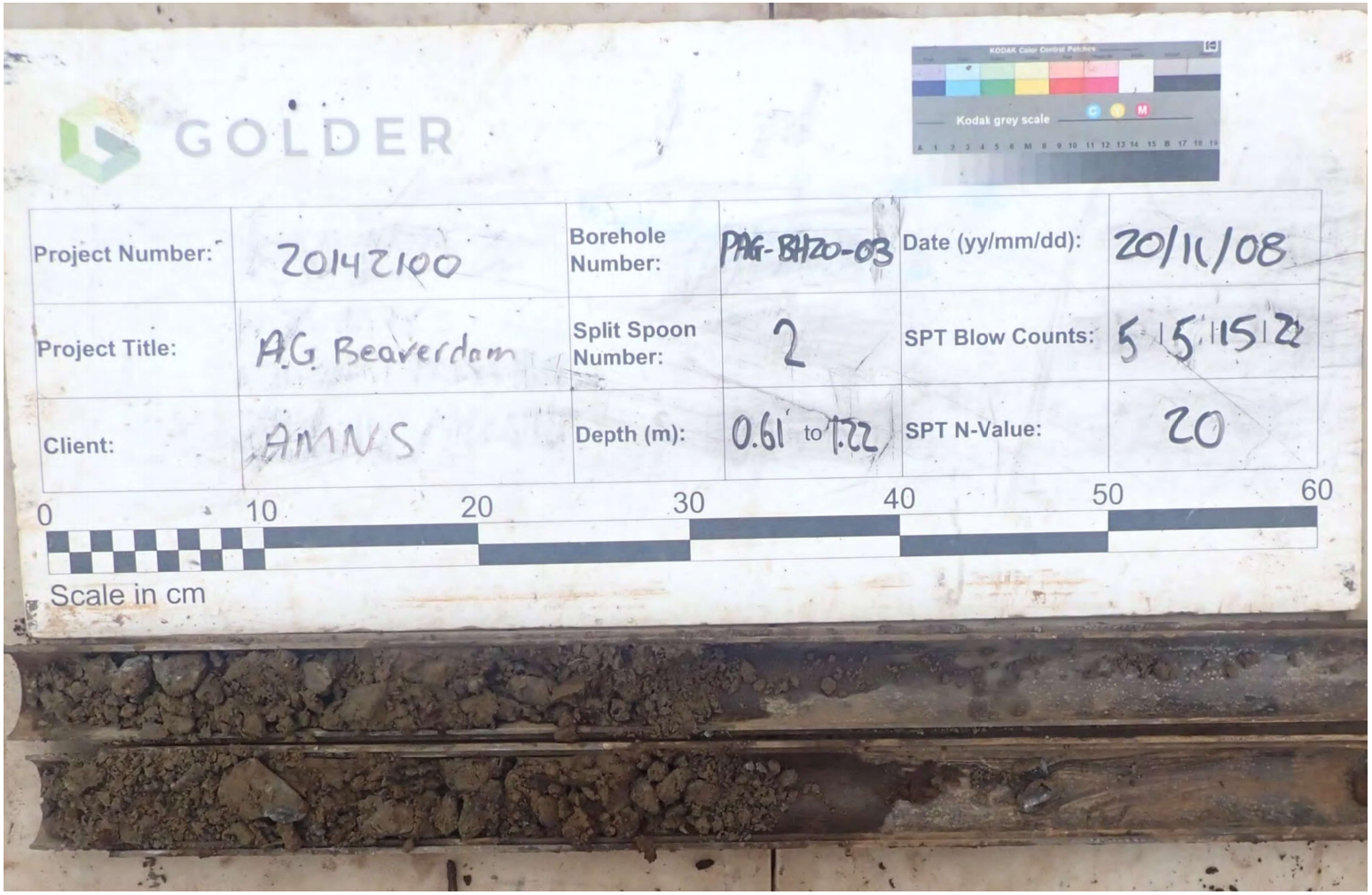
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E66**



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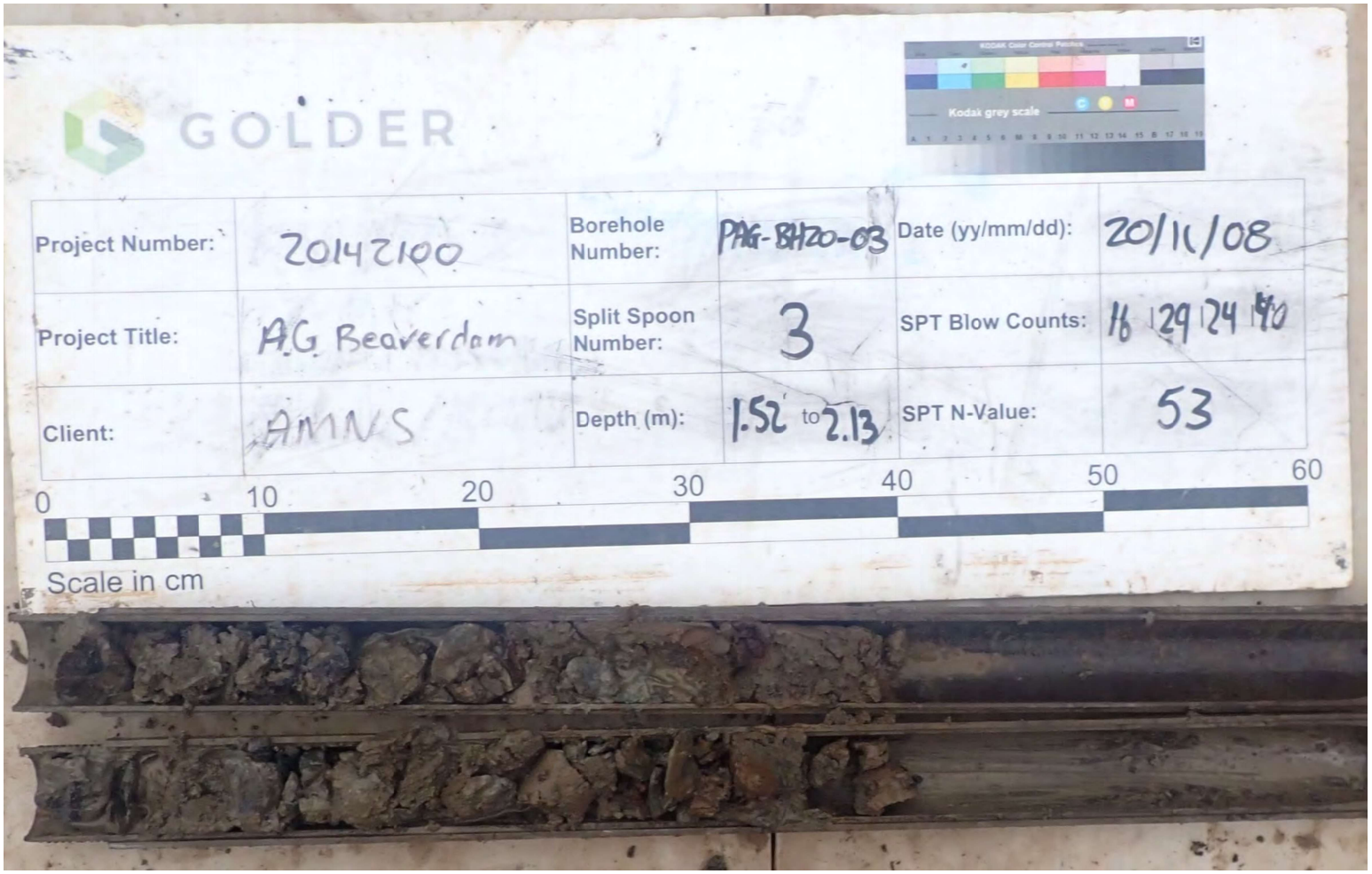
20142100	**007**	**0**	**E67**



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Project No.	Control	Rev.	Figure No.
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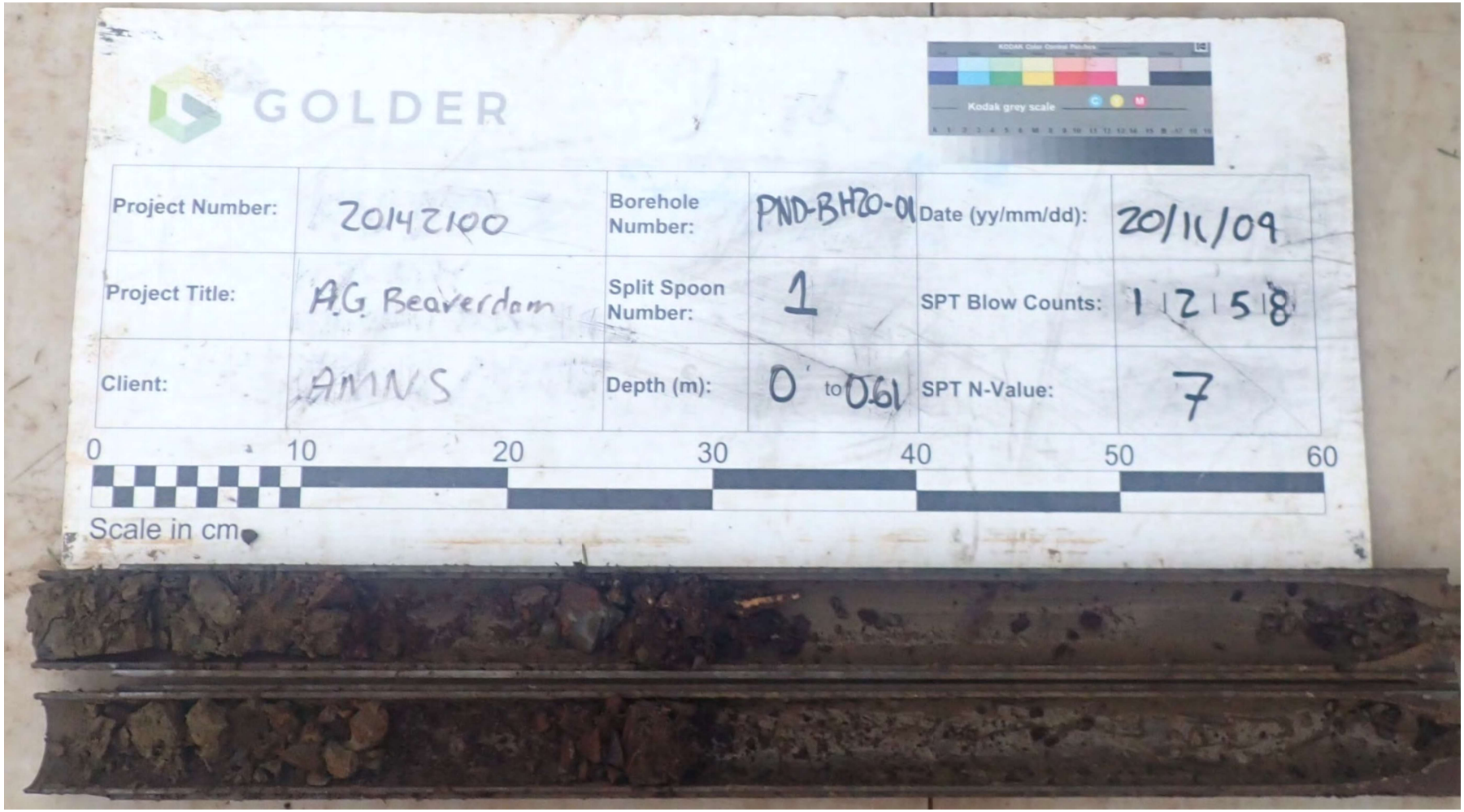

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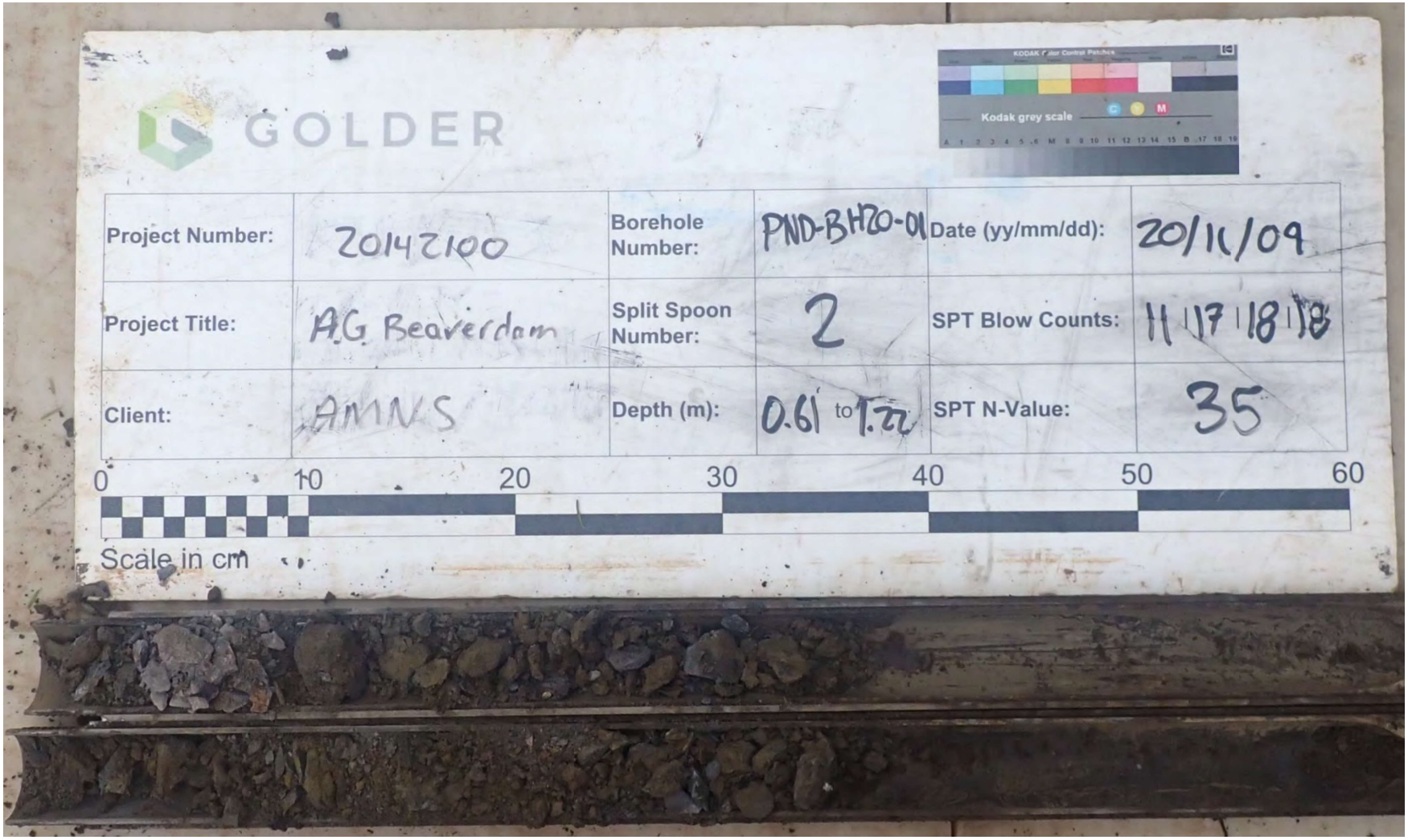
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E69**



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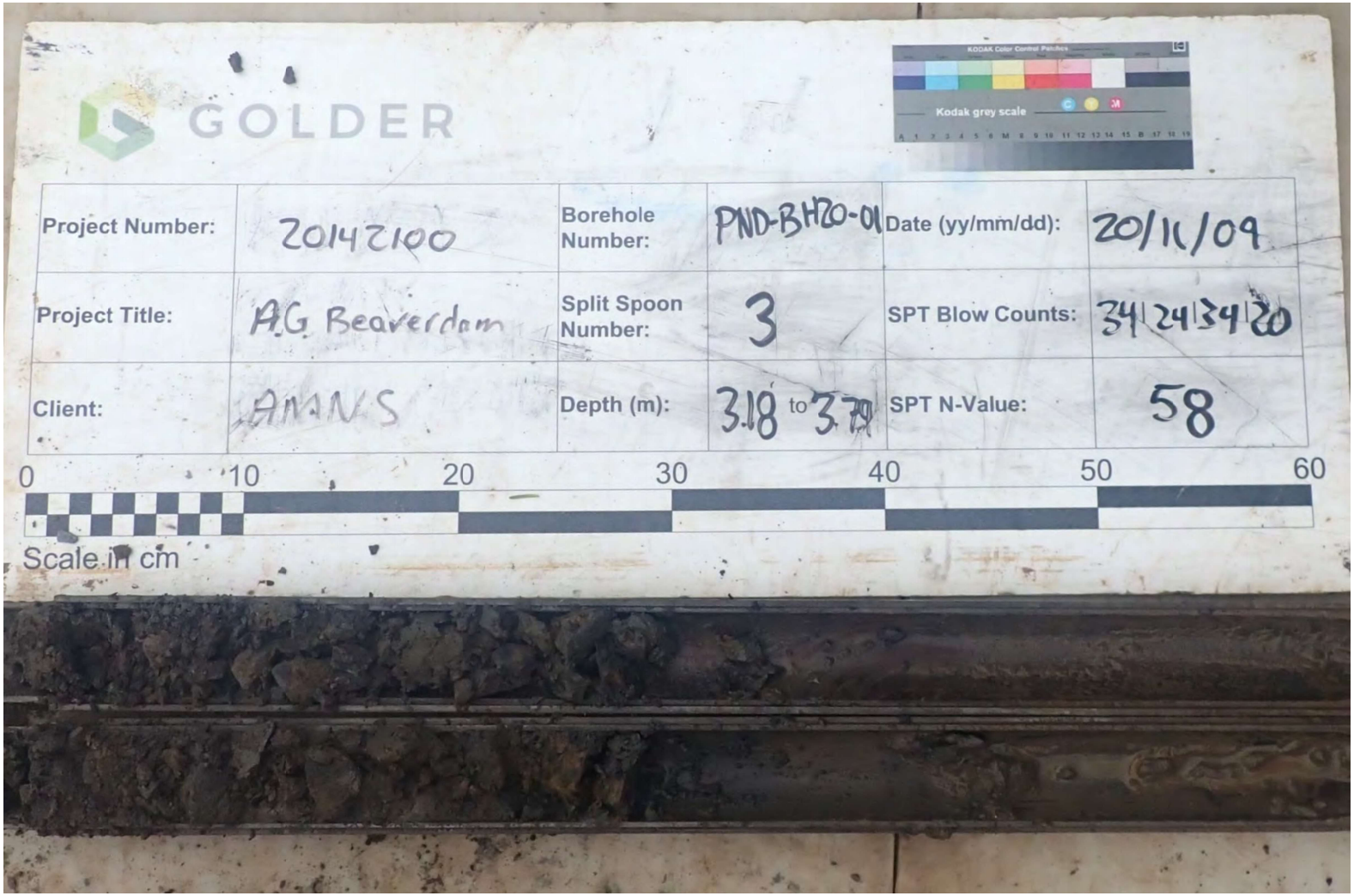
PND-BH20-01 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E70**



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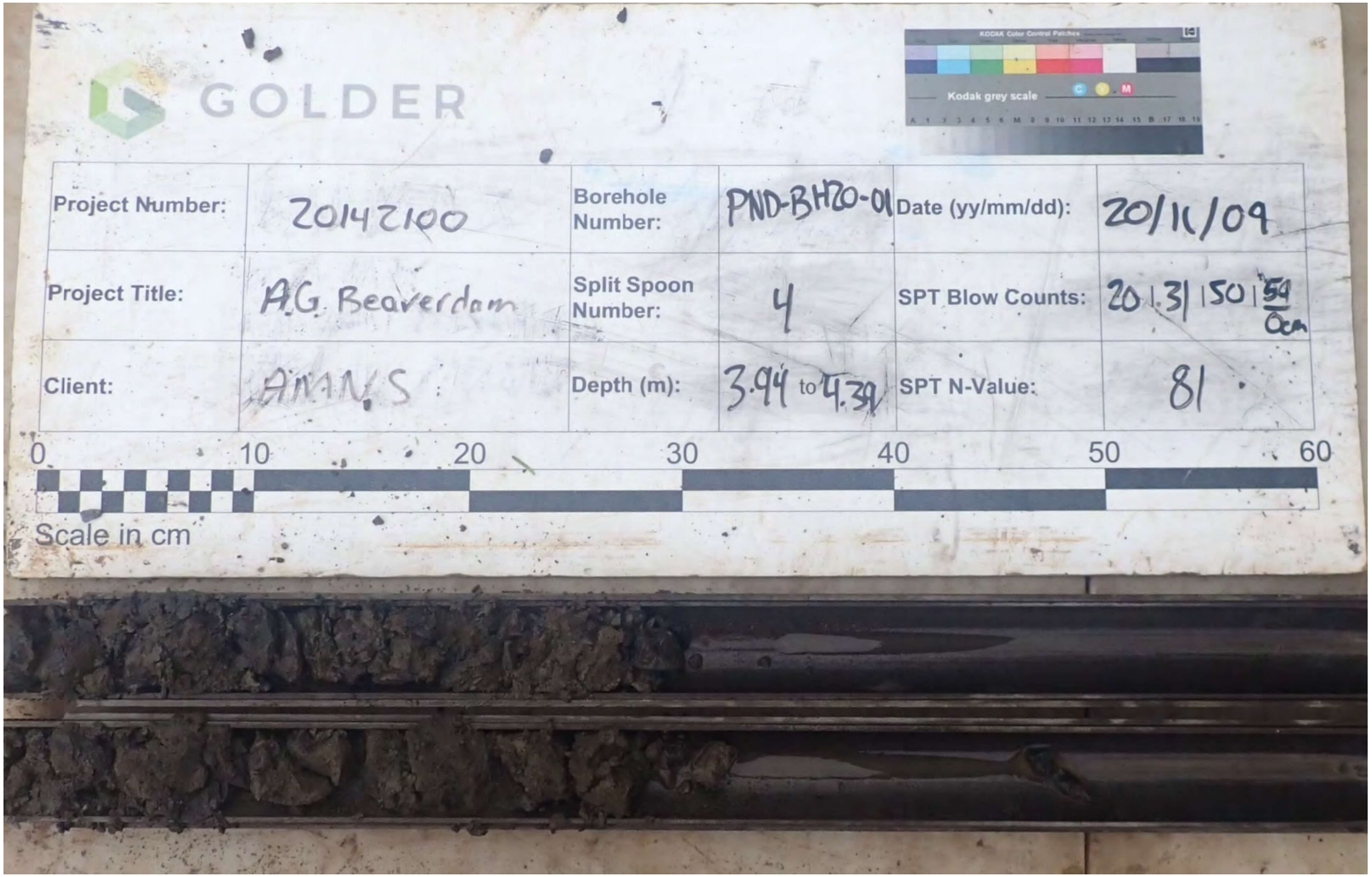
PND-BH20-01 SS3

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E71**



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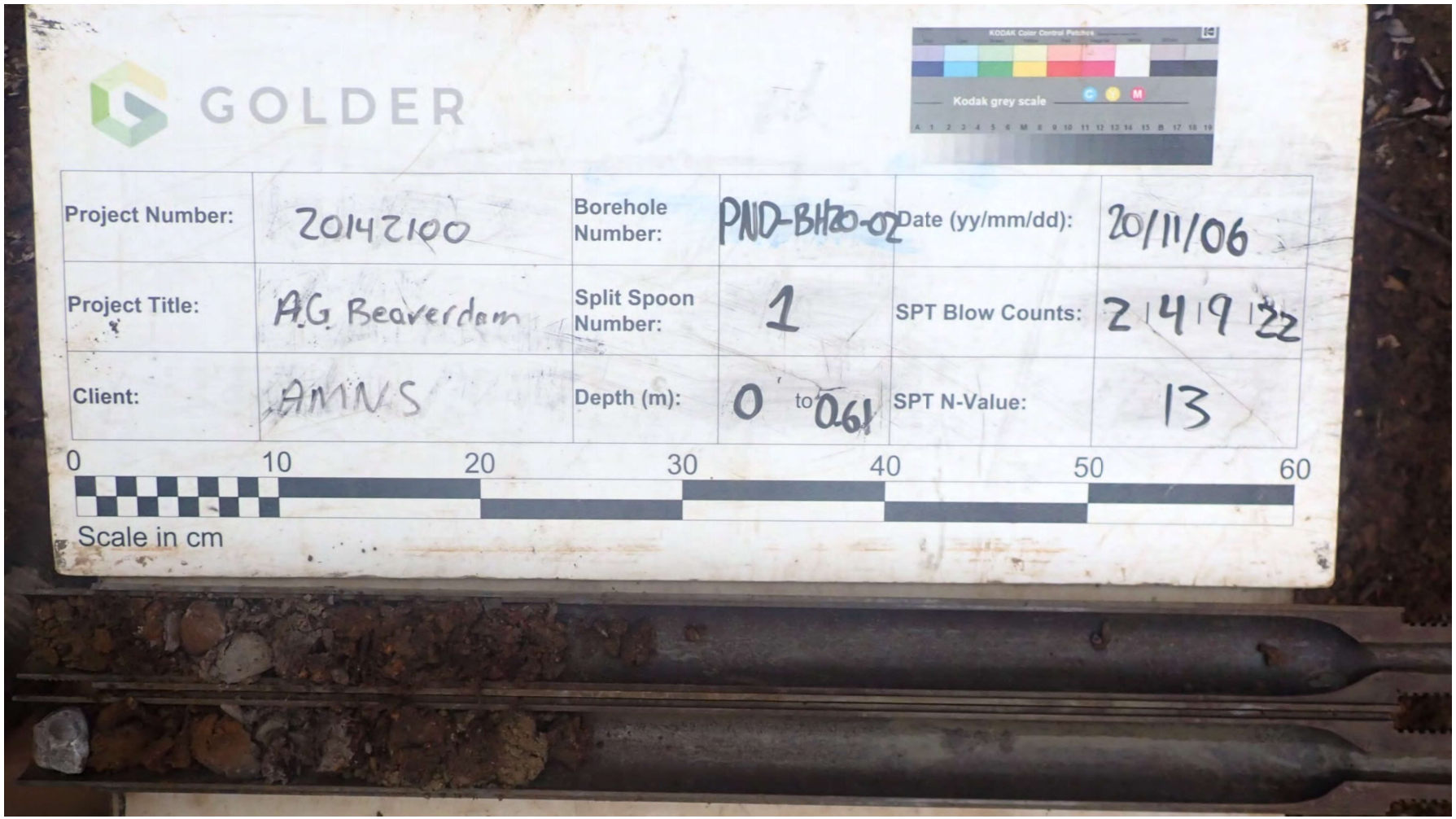
PND-BH20-01 SS4

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E72**



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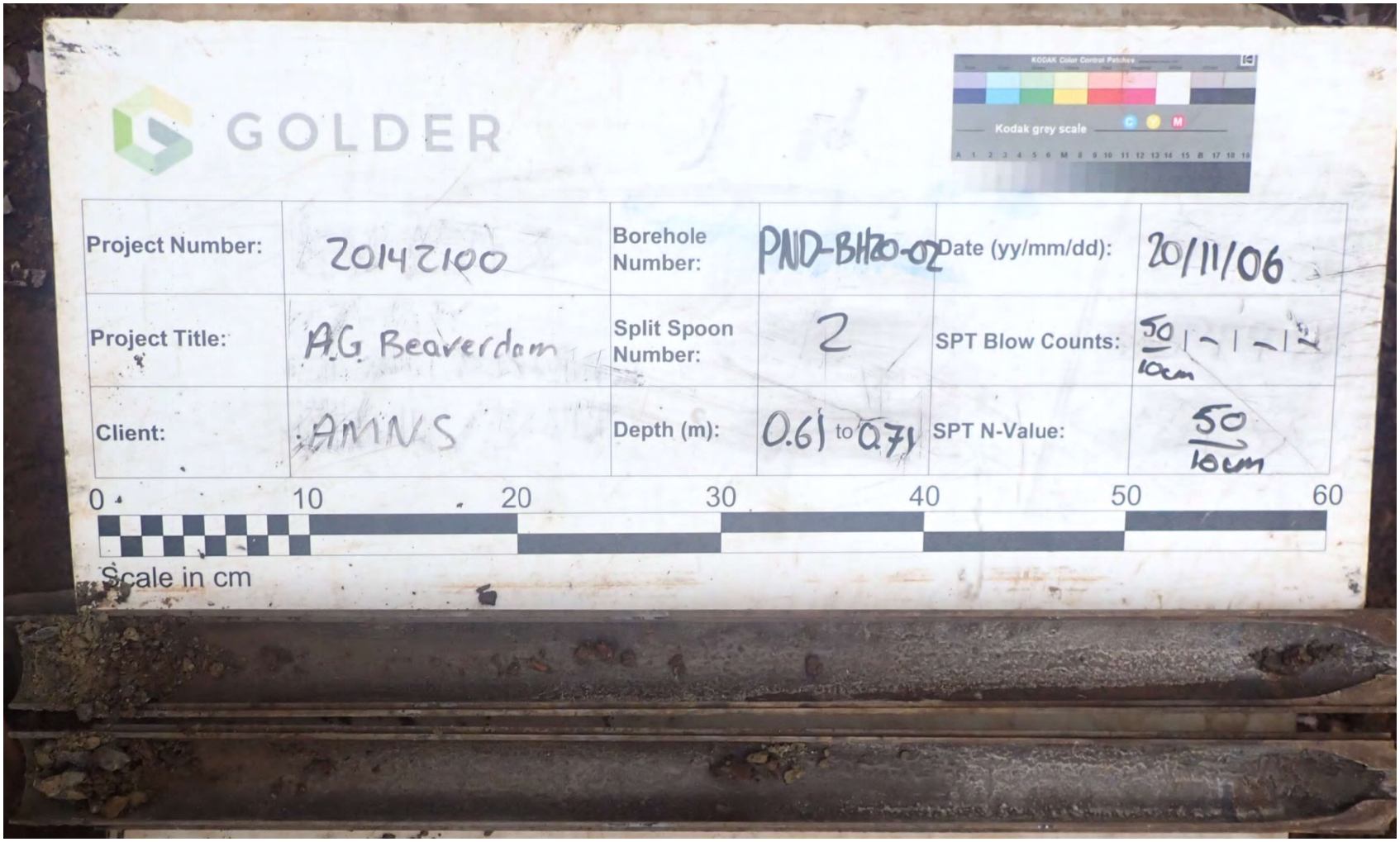
PND-BH20-02 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E73**



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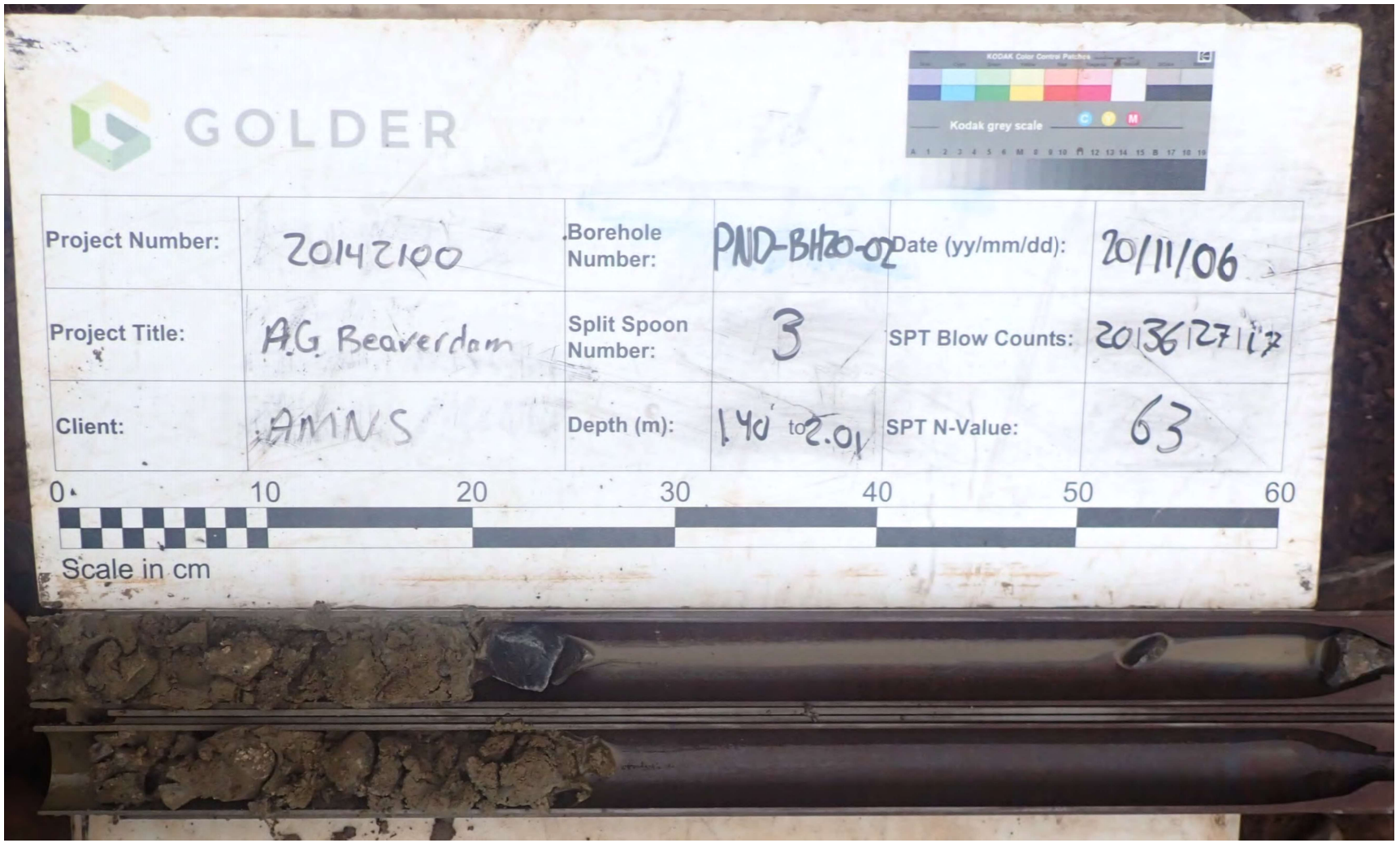
PND-BH20-02 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E74**



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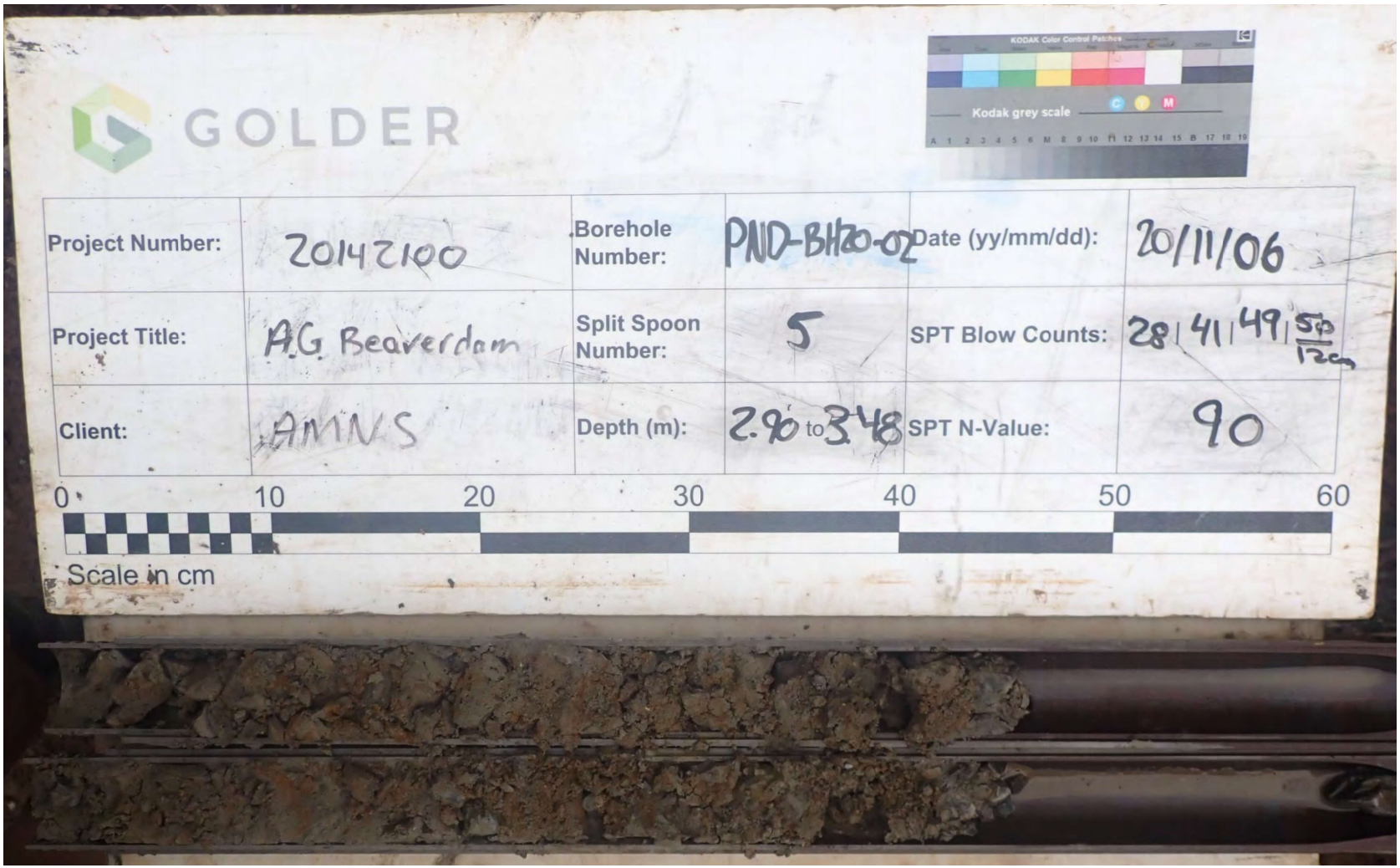
SPLIT SPOON SAMPLE PHOTOGRAPH
PND-BH20-02 SS3

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E75**



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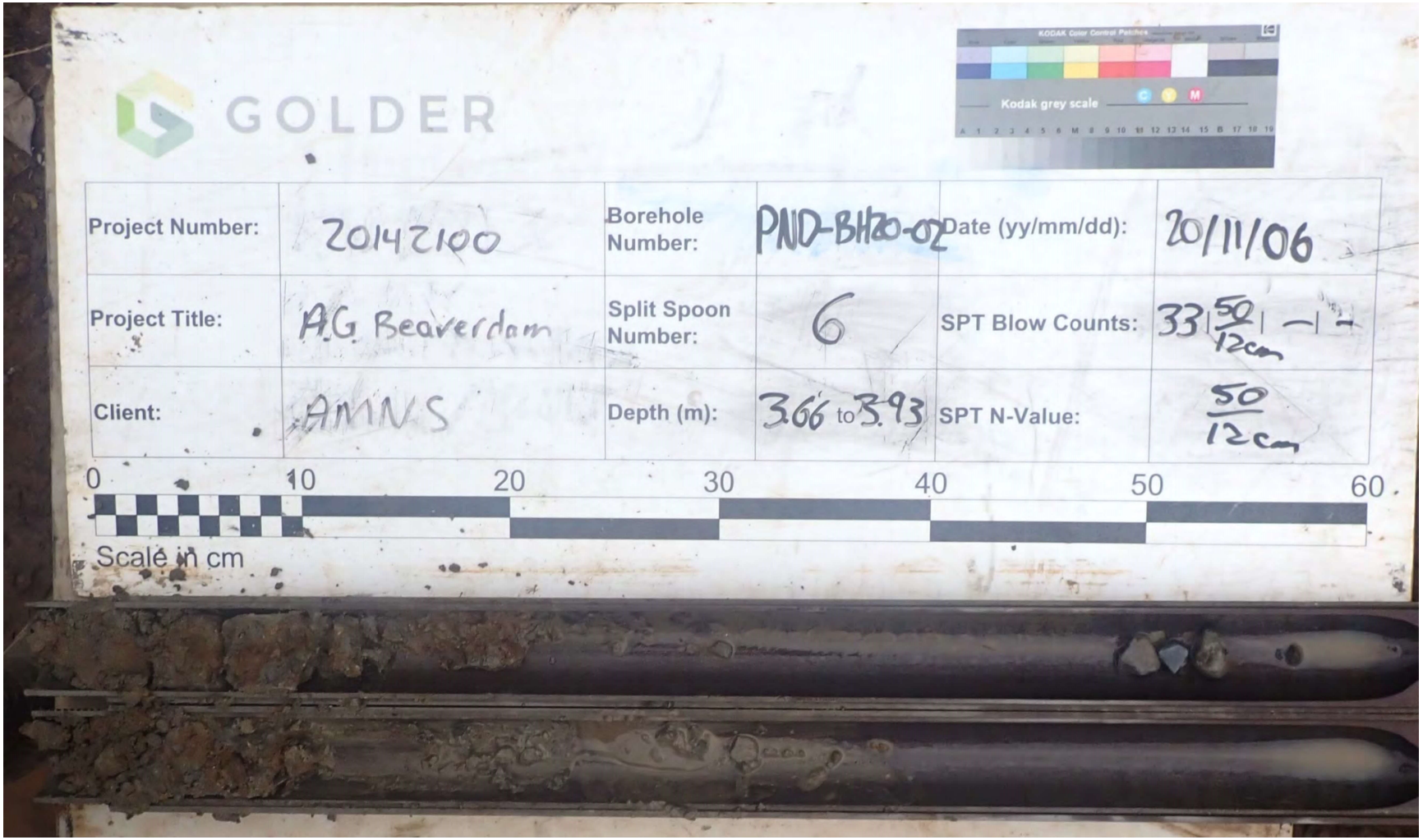
PND-BH20-02 SS5

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E76**



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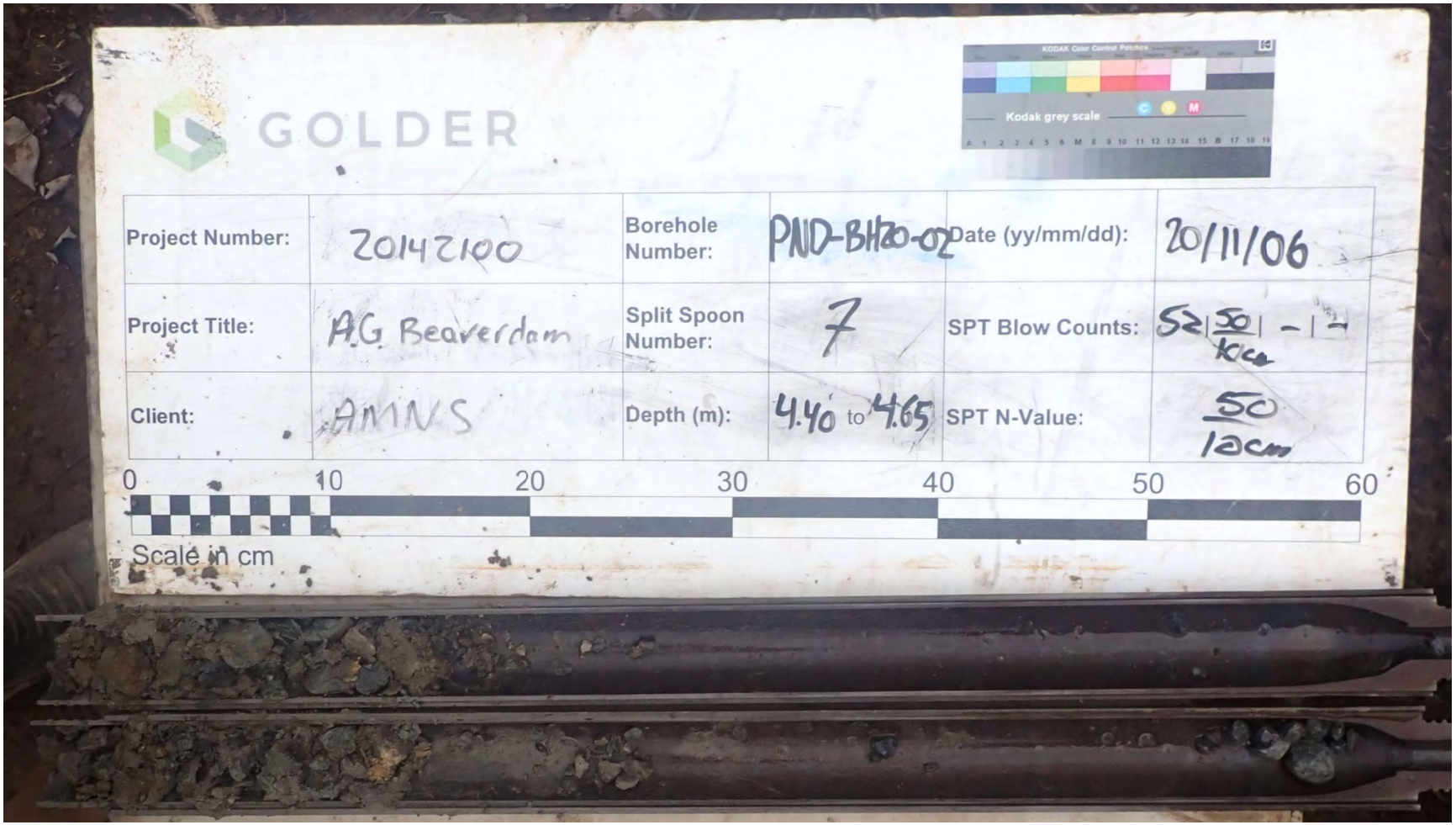
PND-BH20-02 SS6

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E77**



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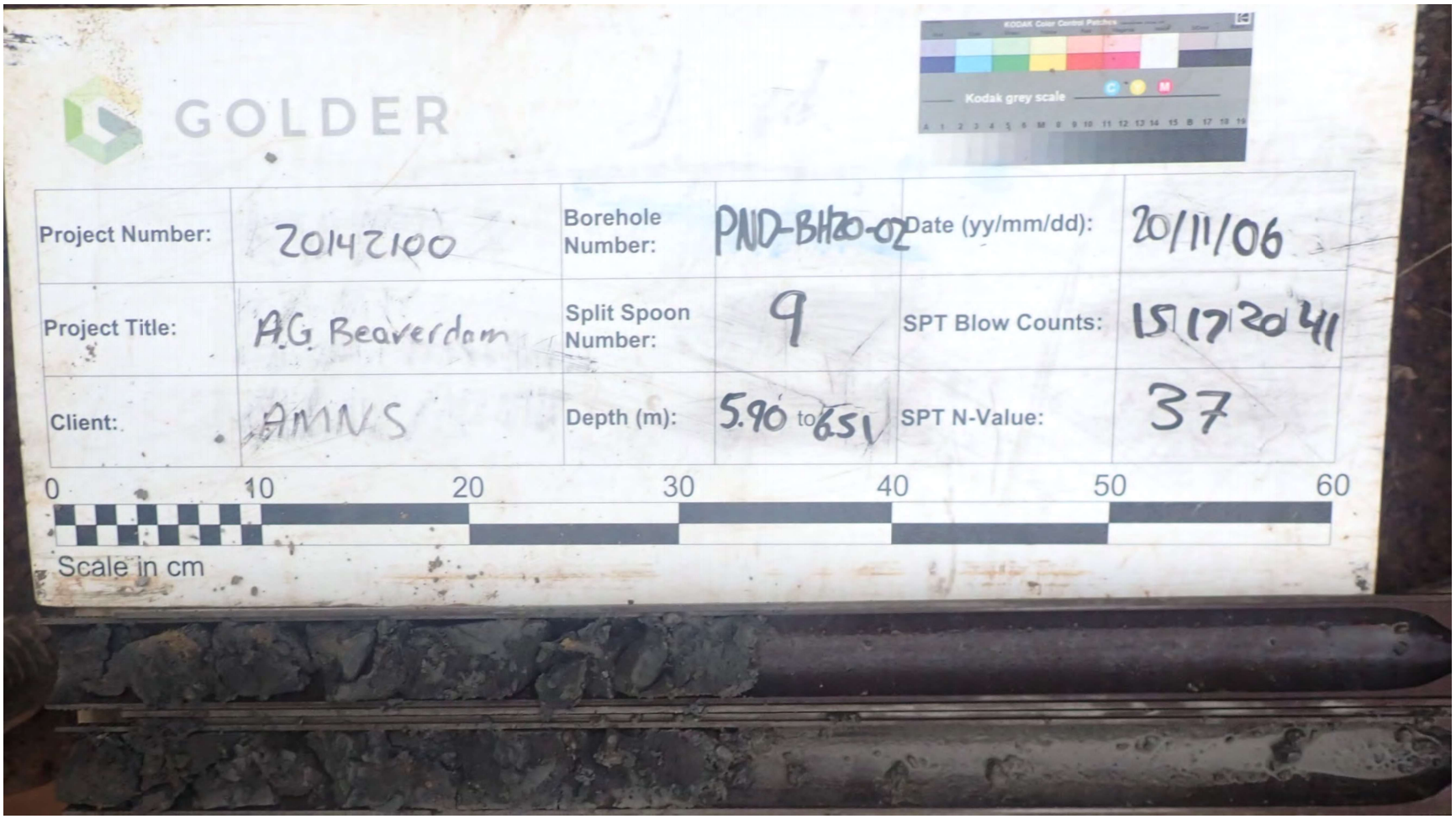
PND-BH20-02 SS7

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E78**



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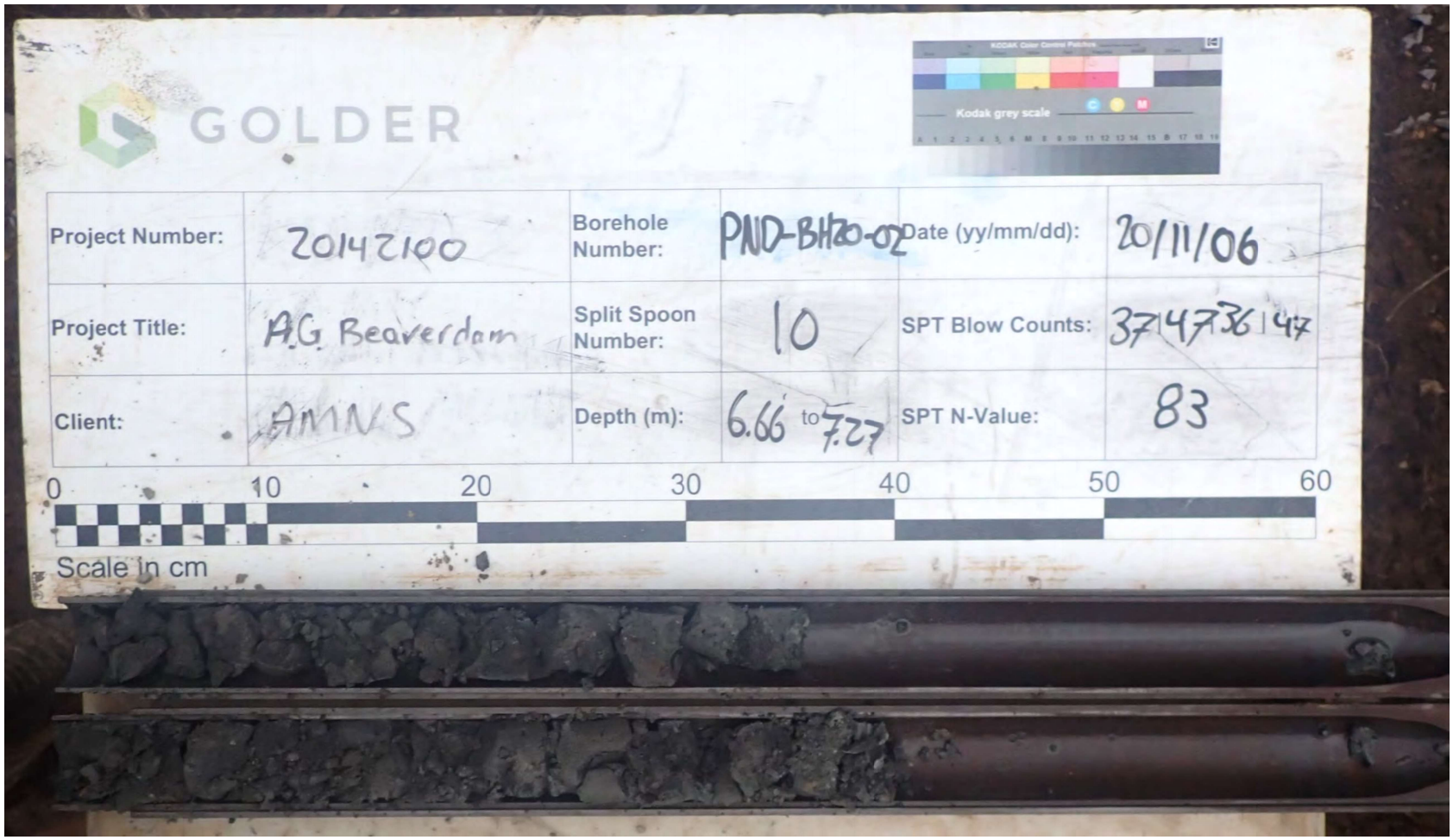
PND-BH20-02 SS9

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E79**



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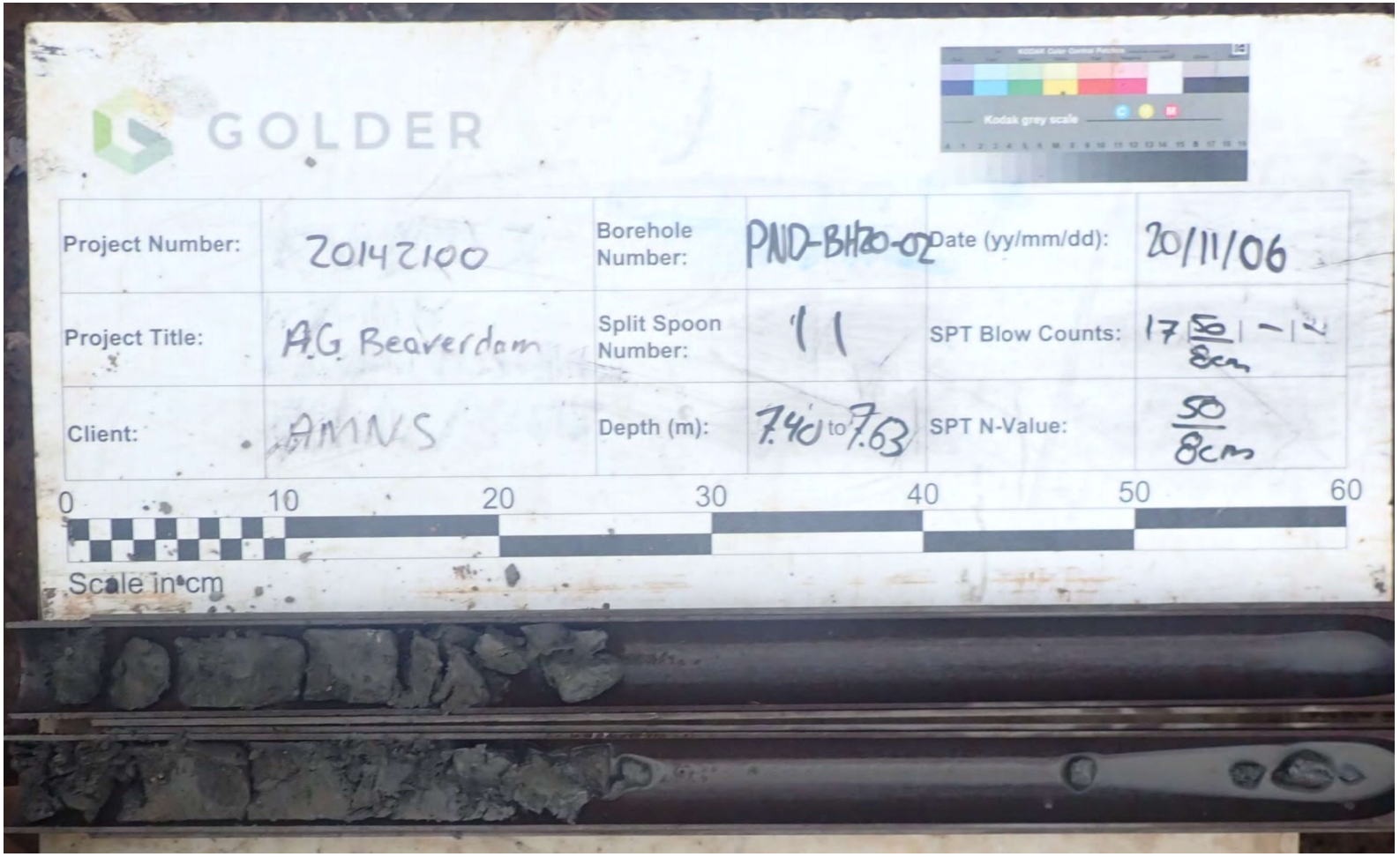
PND-BH20-02 SS10

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E80**



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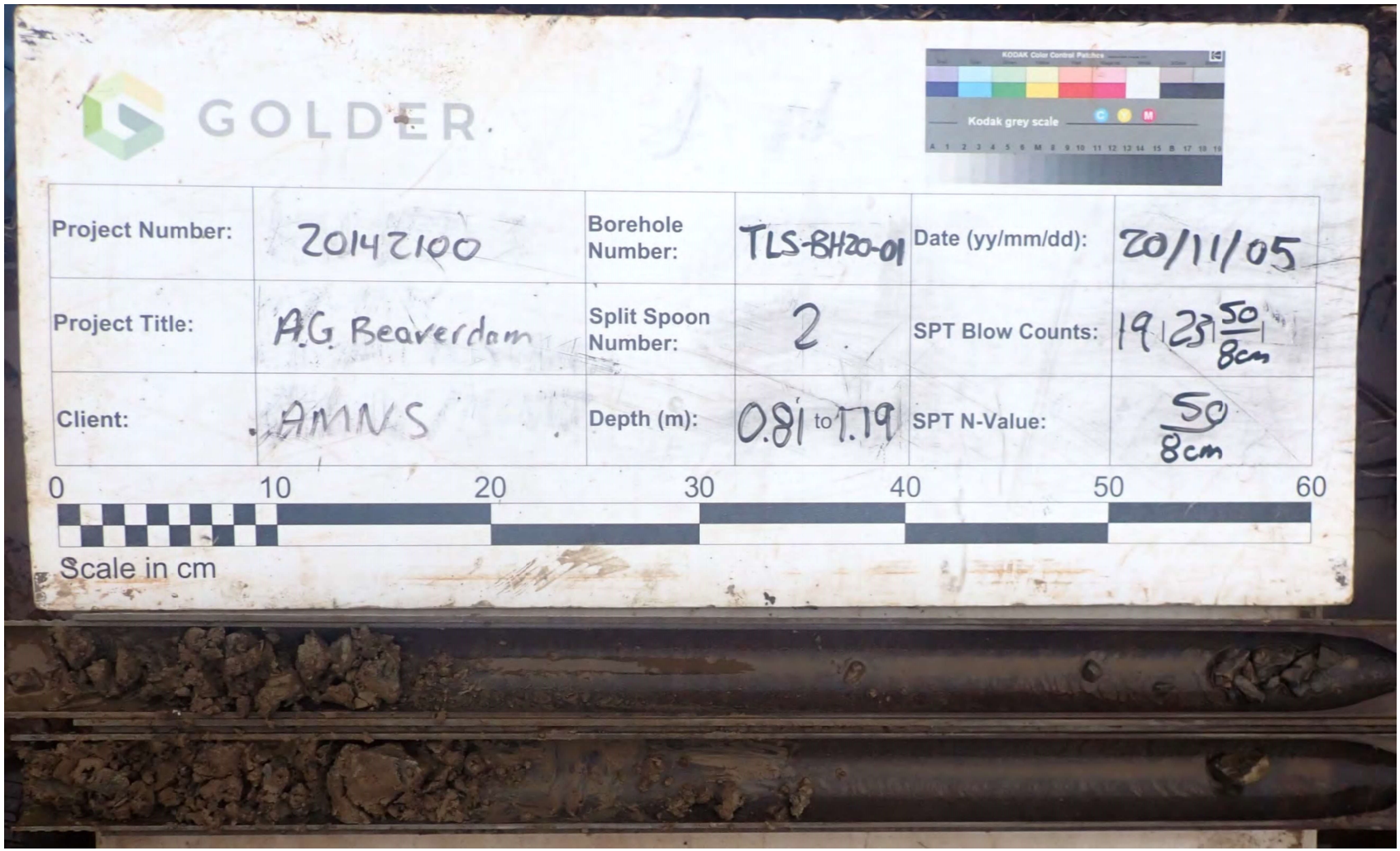
PND-BH20-02 SS11

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E81**



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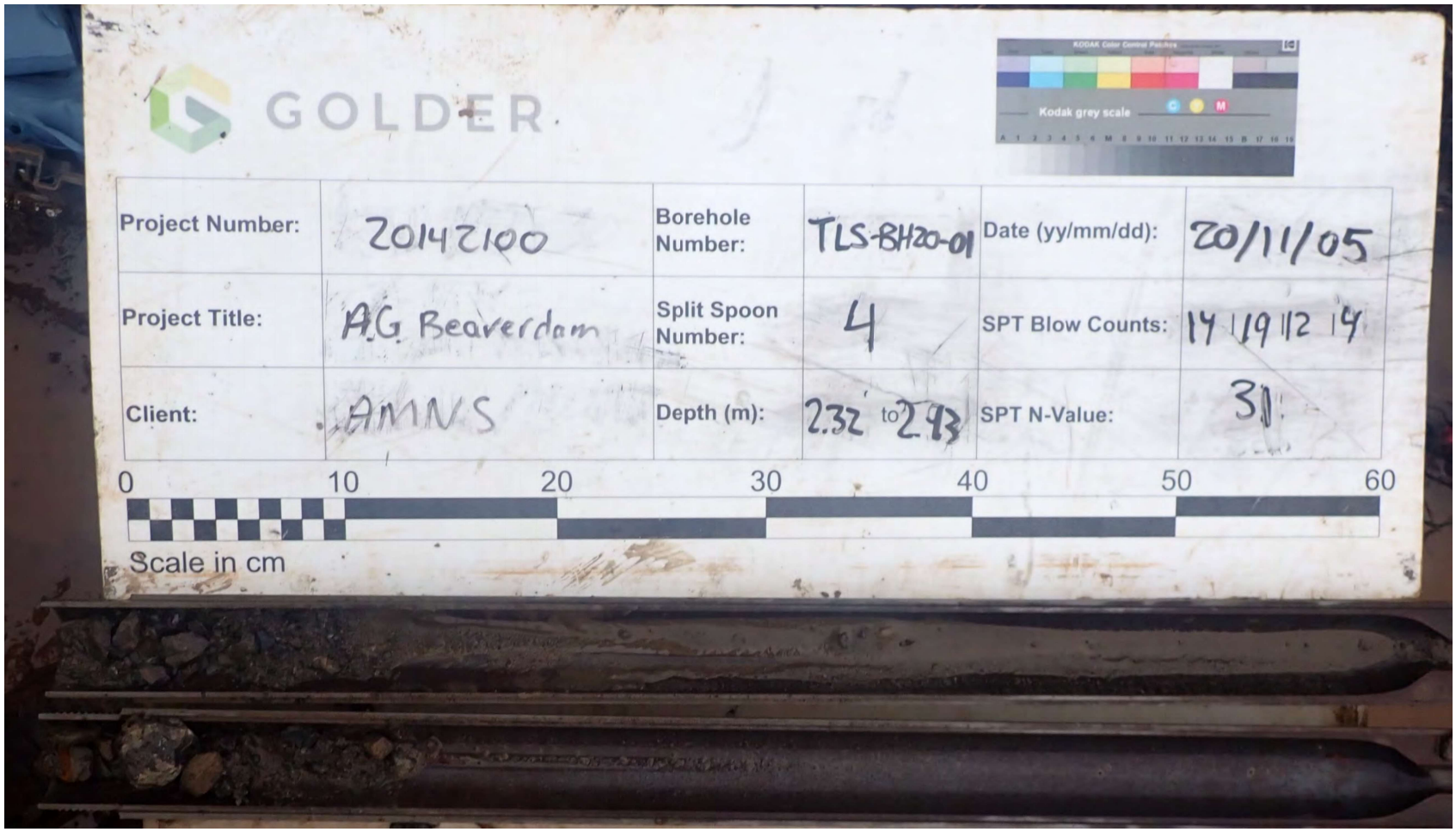
TLS-BH20-01 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E82**



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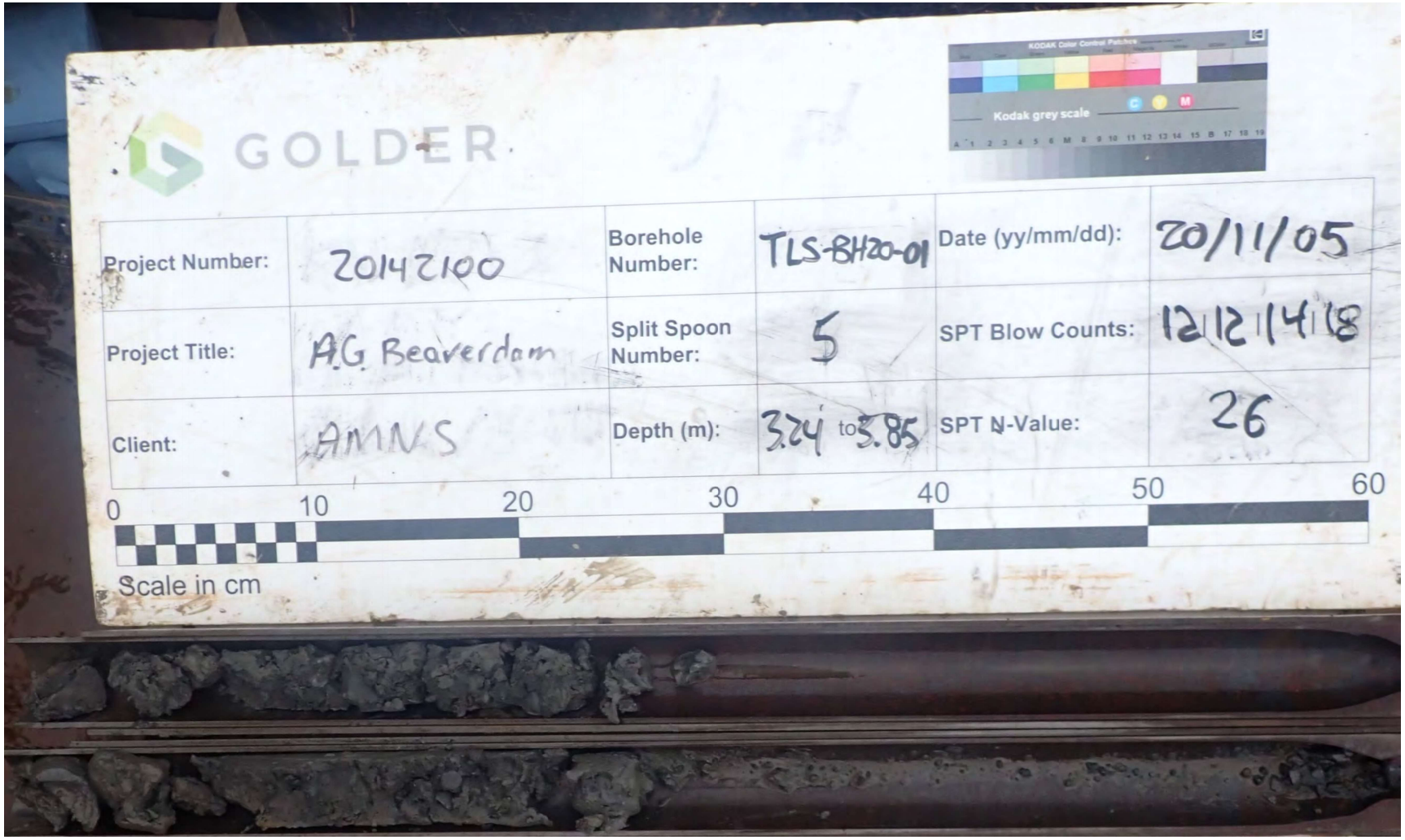
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E83**



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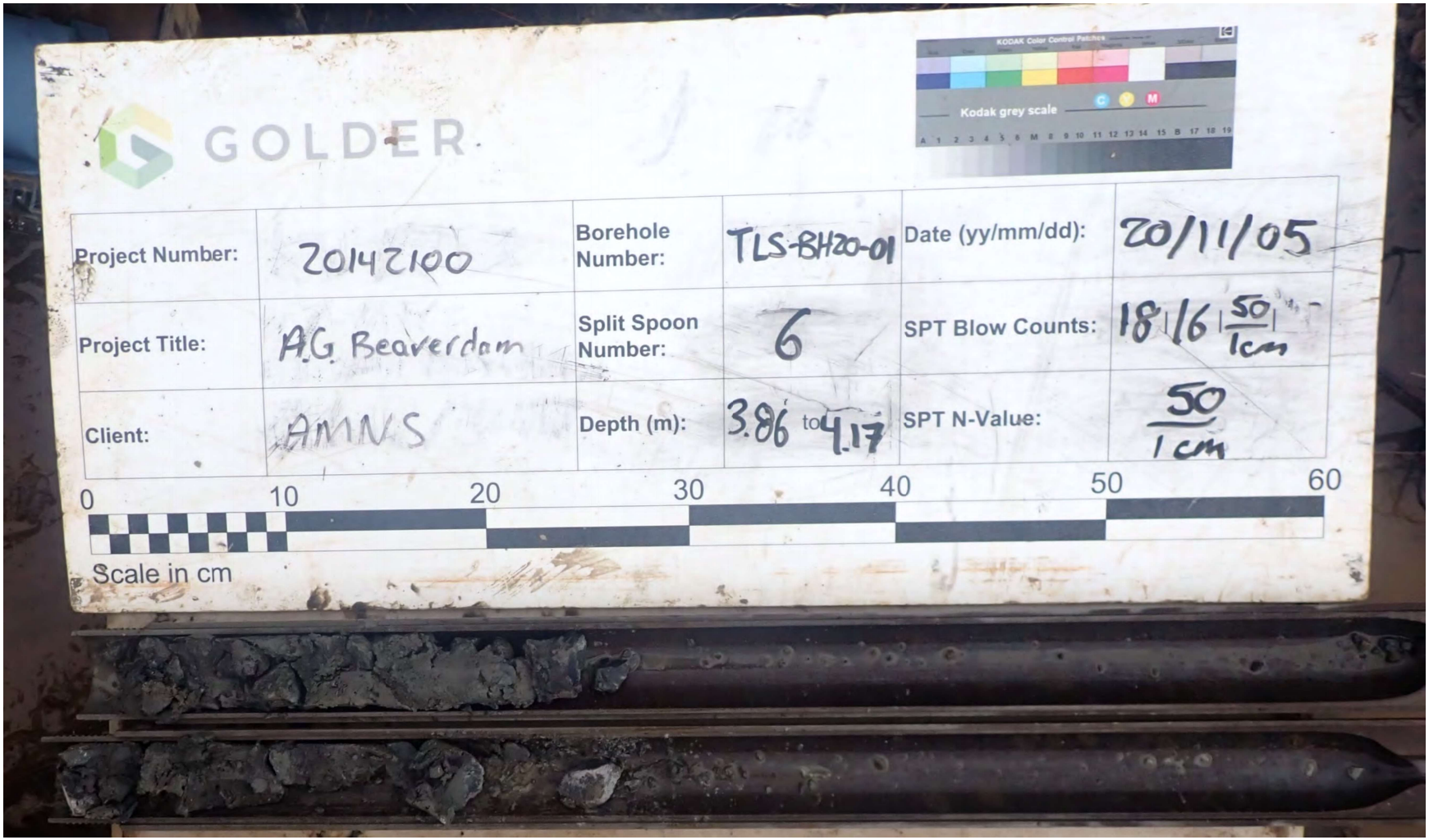
Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E84**



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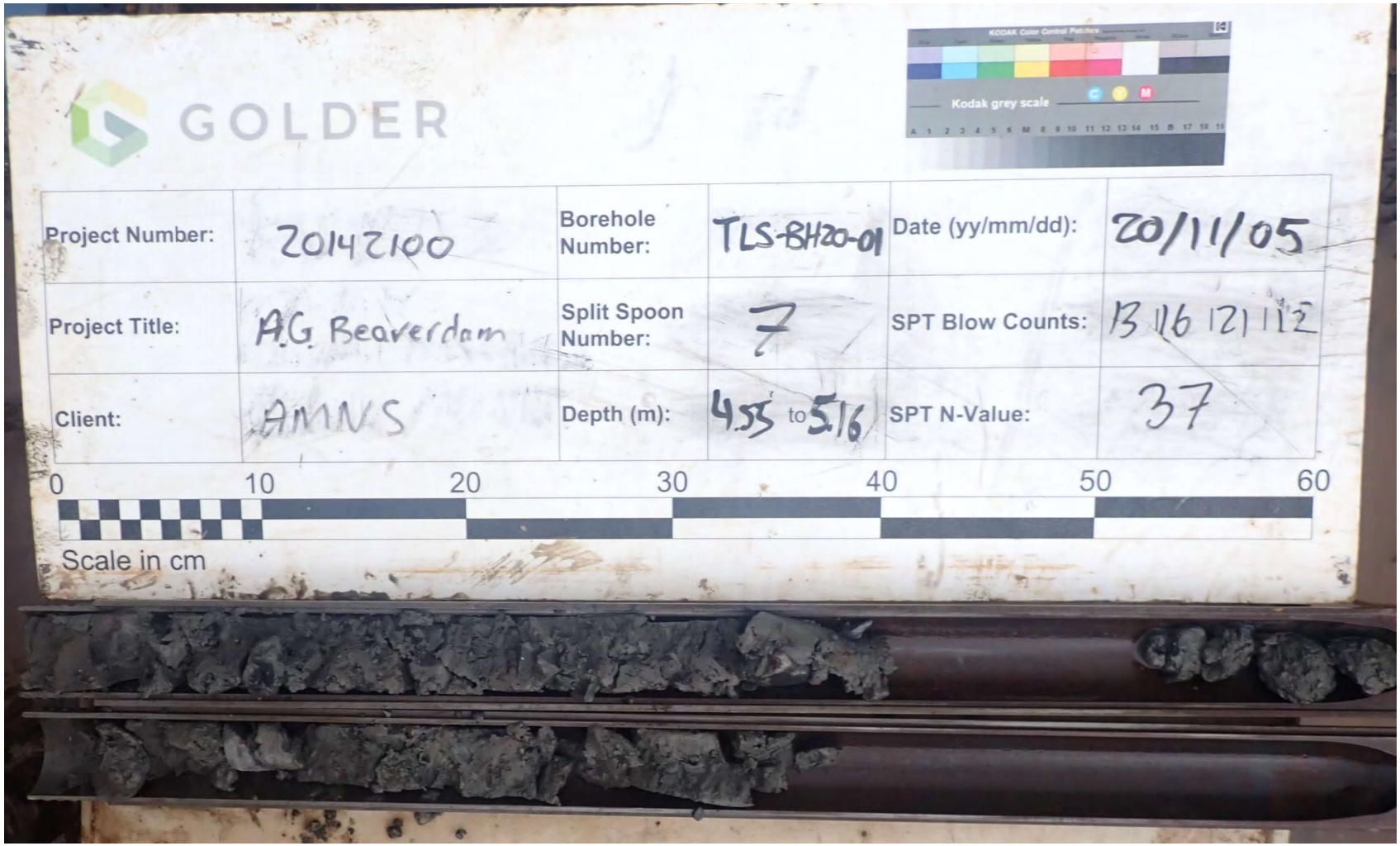
TLS-BH20-01 SS6

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E85**



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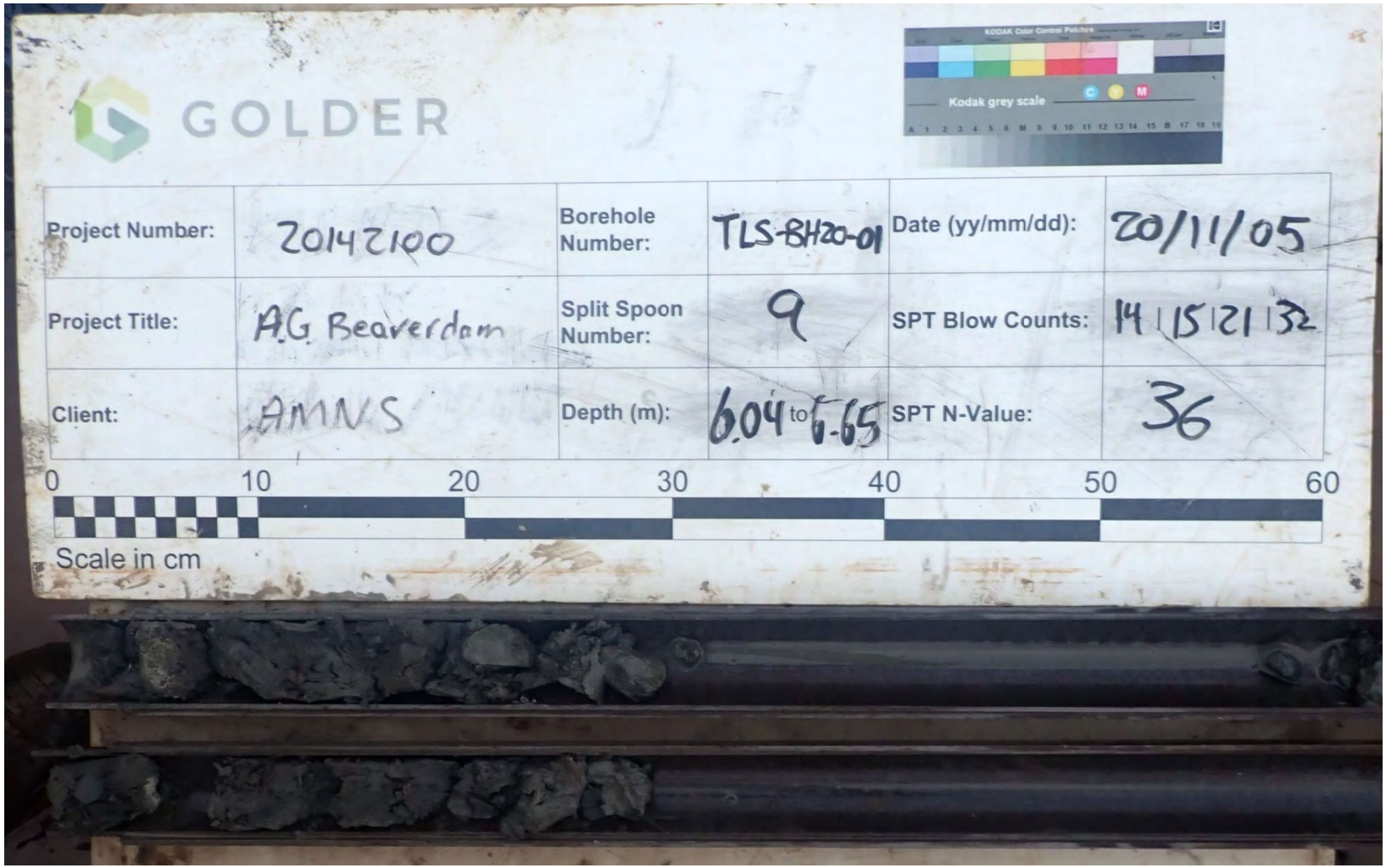
TLS-BH20-01 SS7

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E86**



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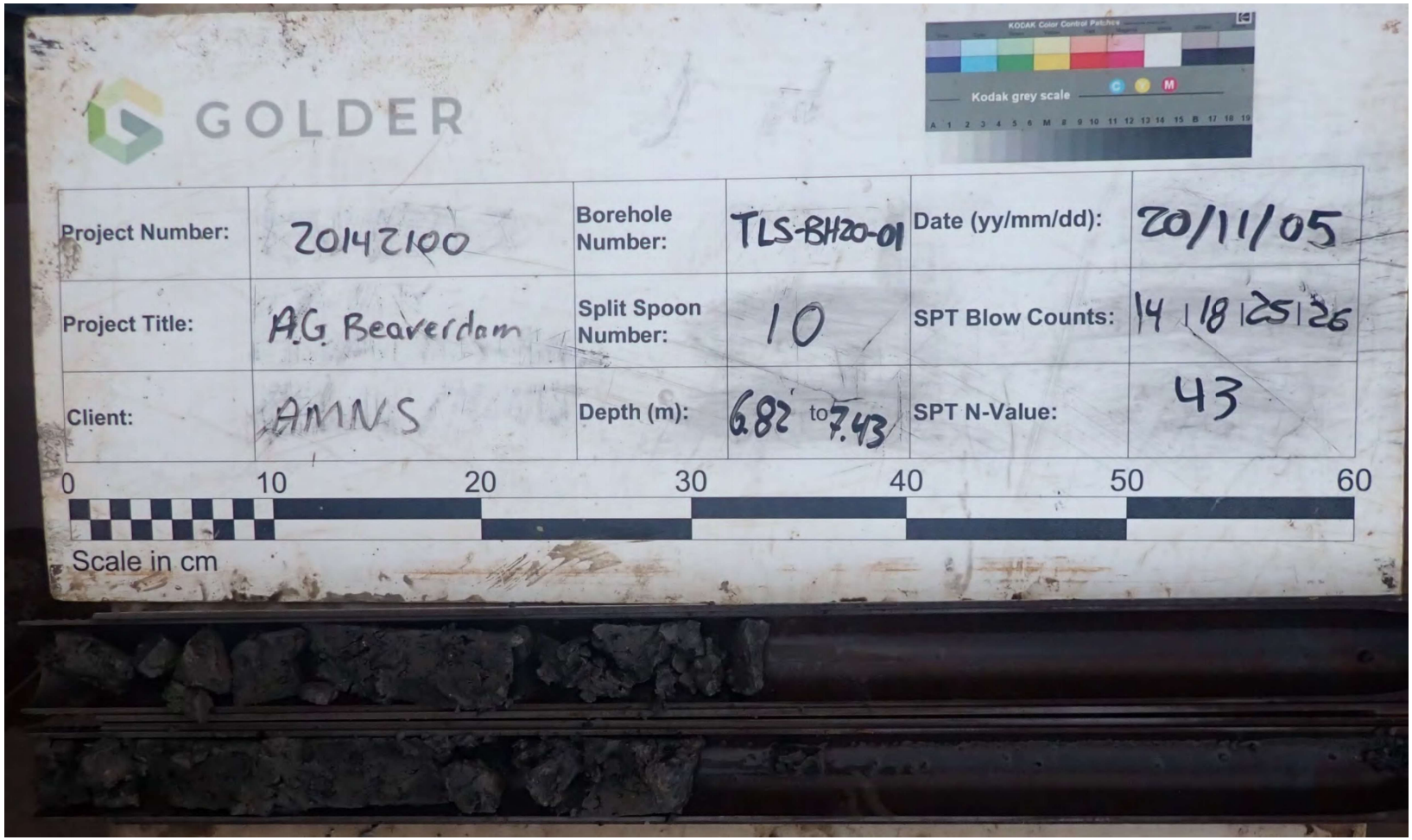
TLS-BH20-01 SS9

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E87**



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TLS-BH20-01 SS10

Project No.	Control	Rev.	Figure No.
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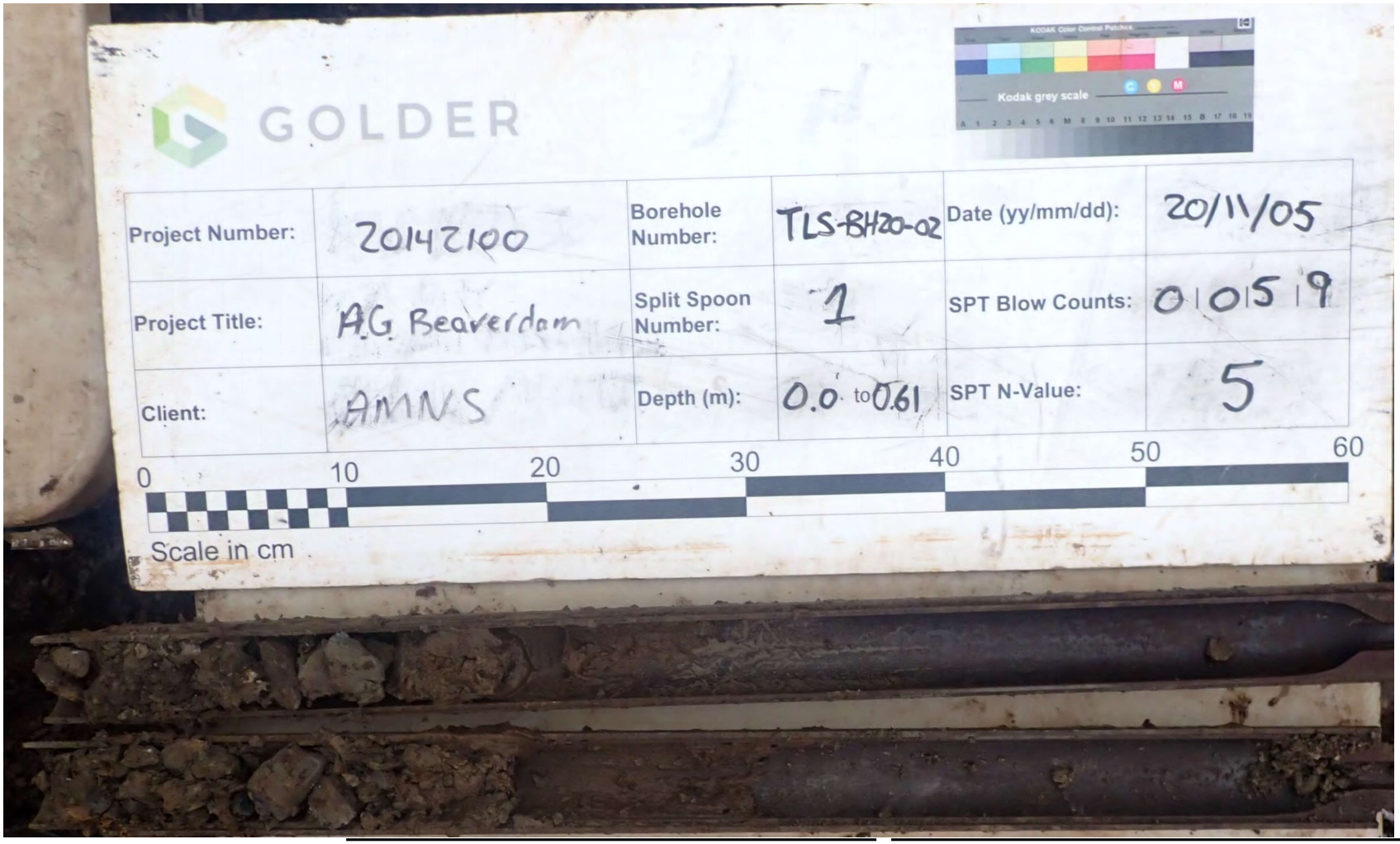

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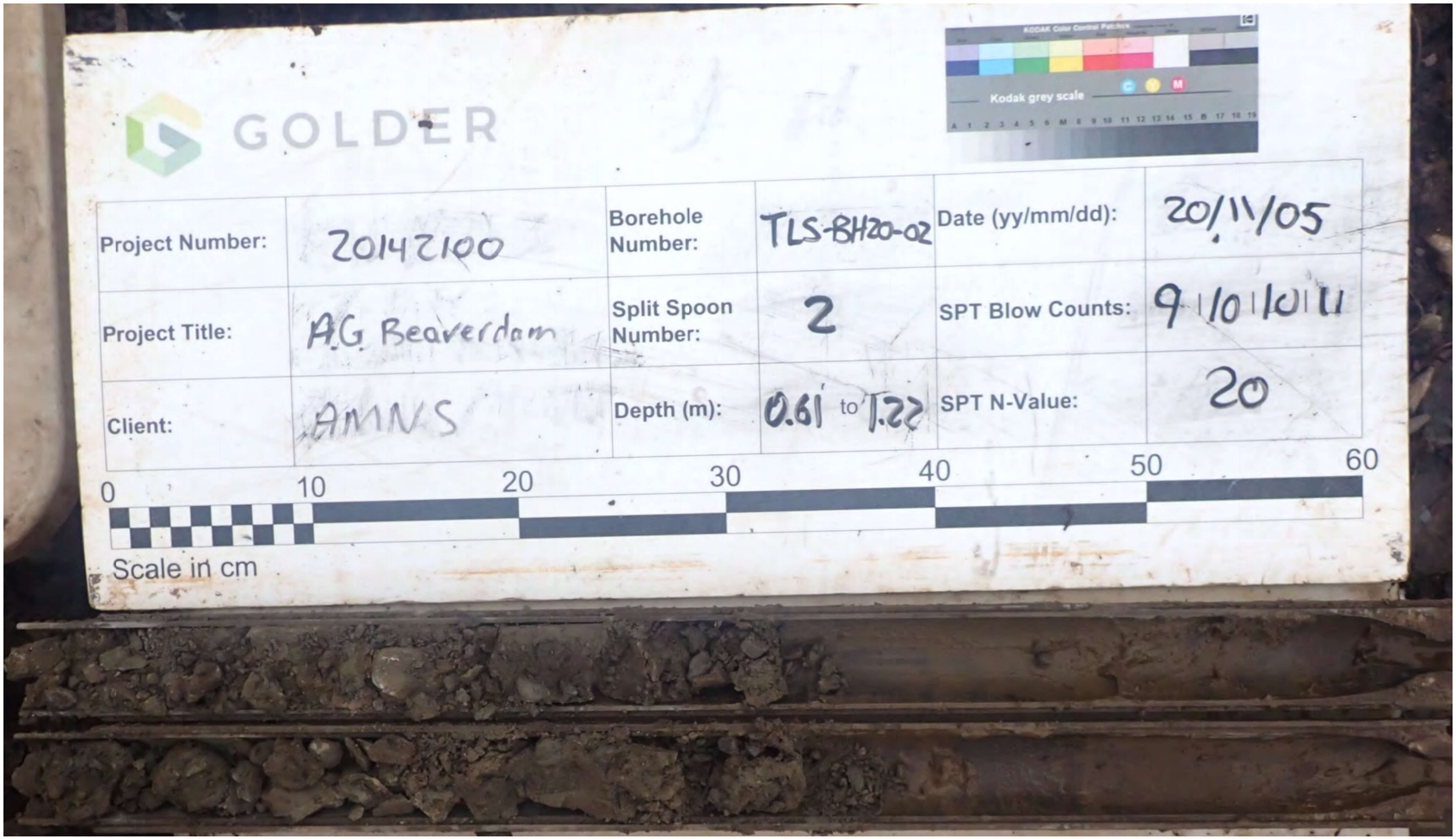
TLS-BH20-02 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E89**



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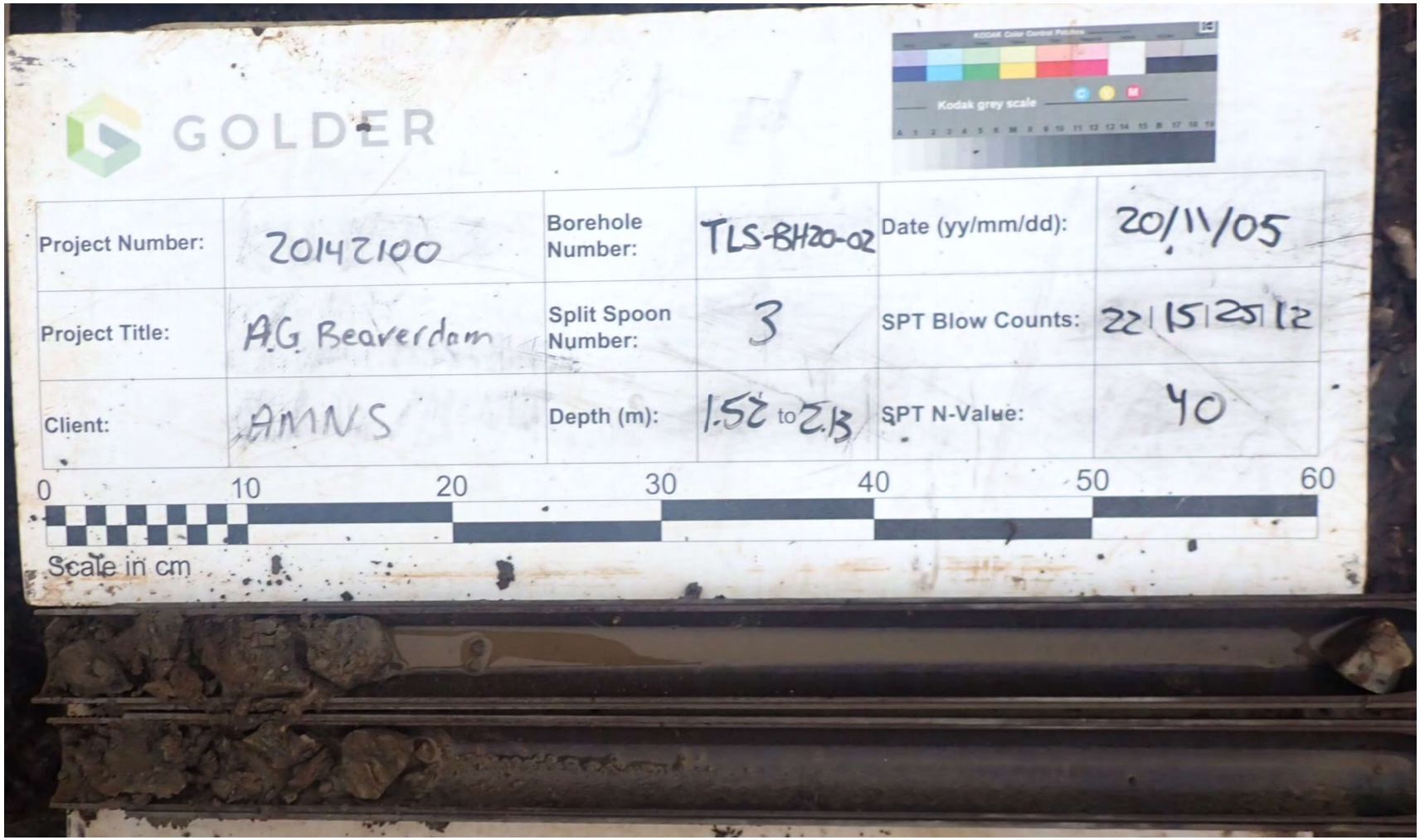
TLS-BH20-02 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E90**



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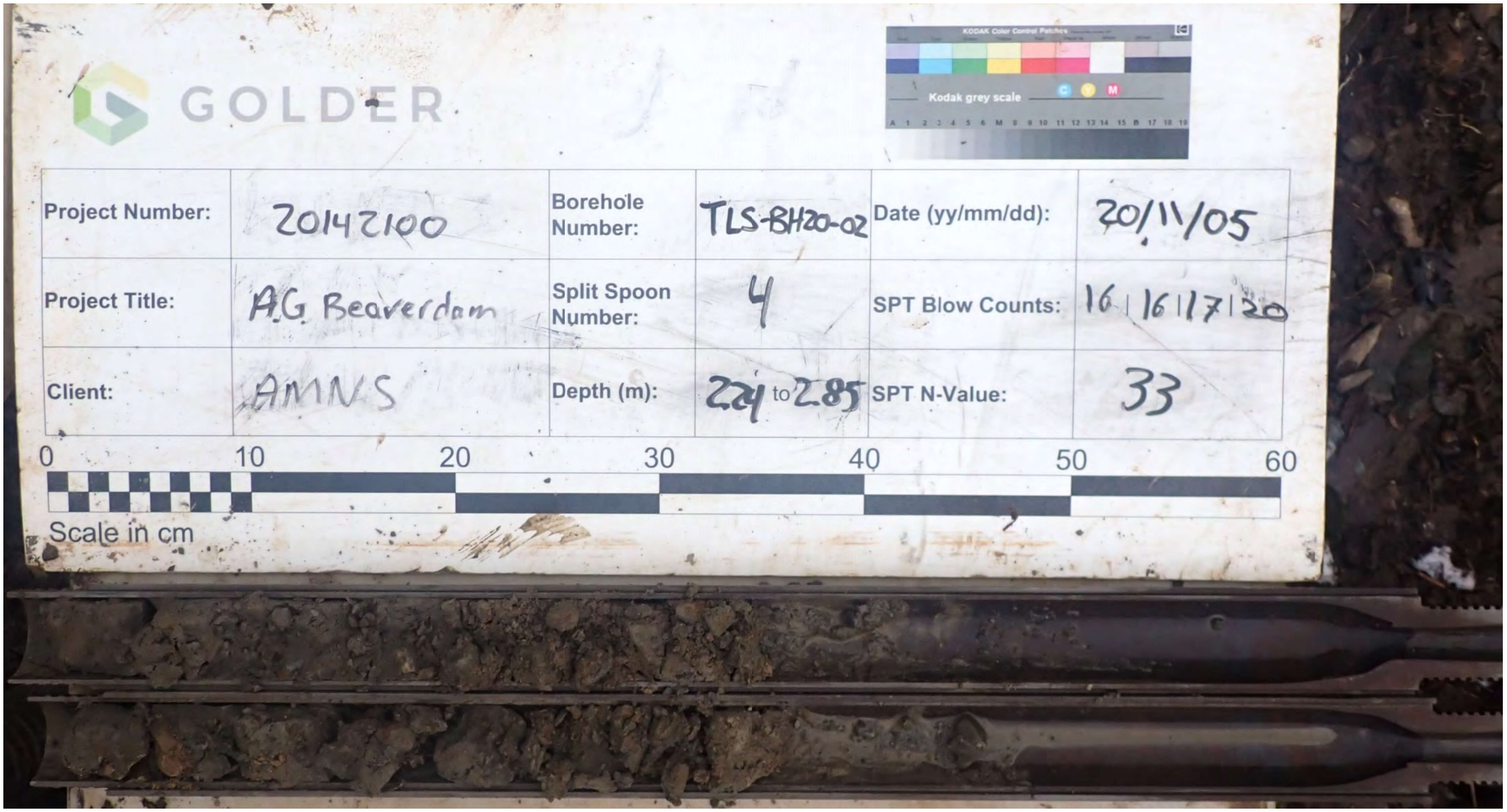
TLS-BH20-02 SS3

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E91**



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TLS-BH20-02 SS4

Project No.	Control	Rev.	Figure No.
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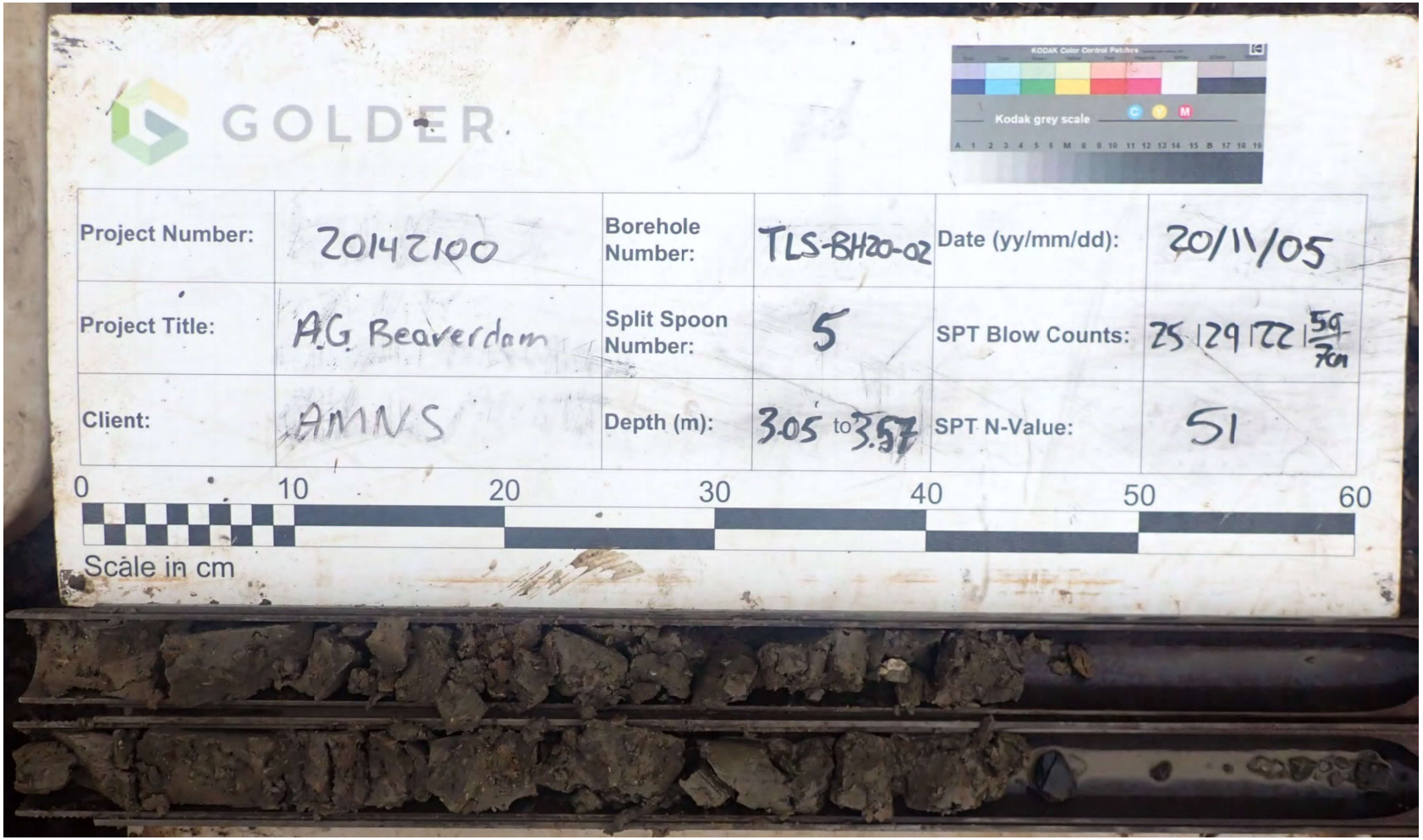

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TLS-BH20-02 SS5

Project No.	Control	Rev.	Figure No.
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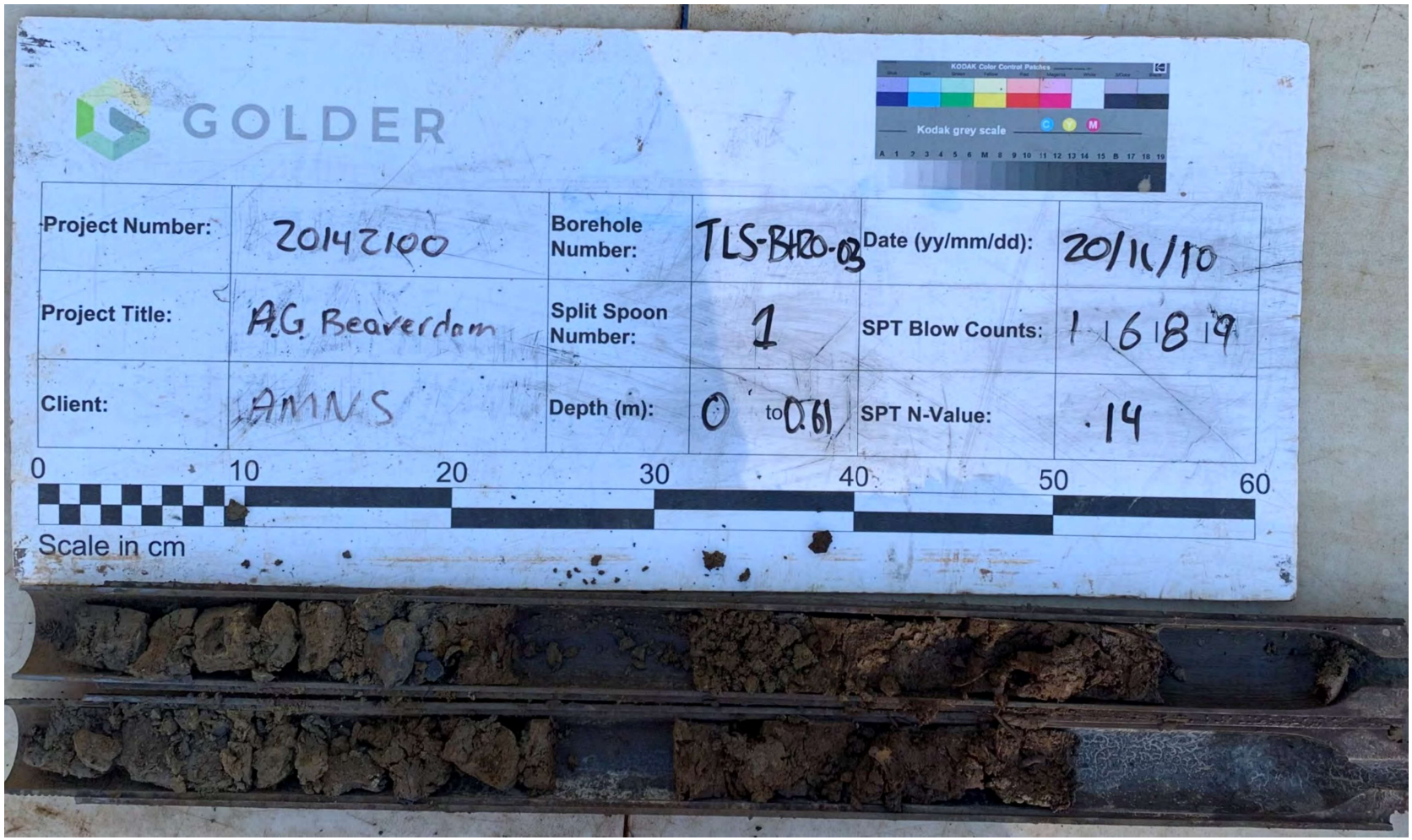

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TLS-BH20-03 SS1

Project No.	Control	Rev.	Figure No.
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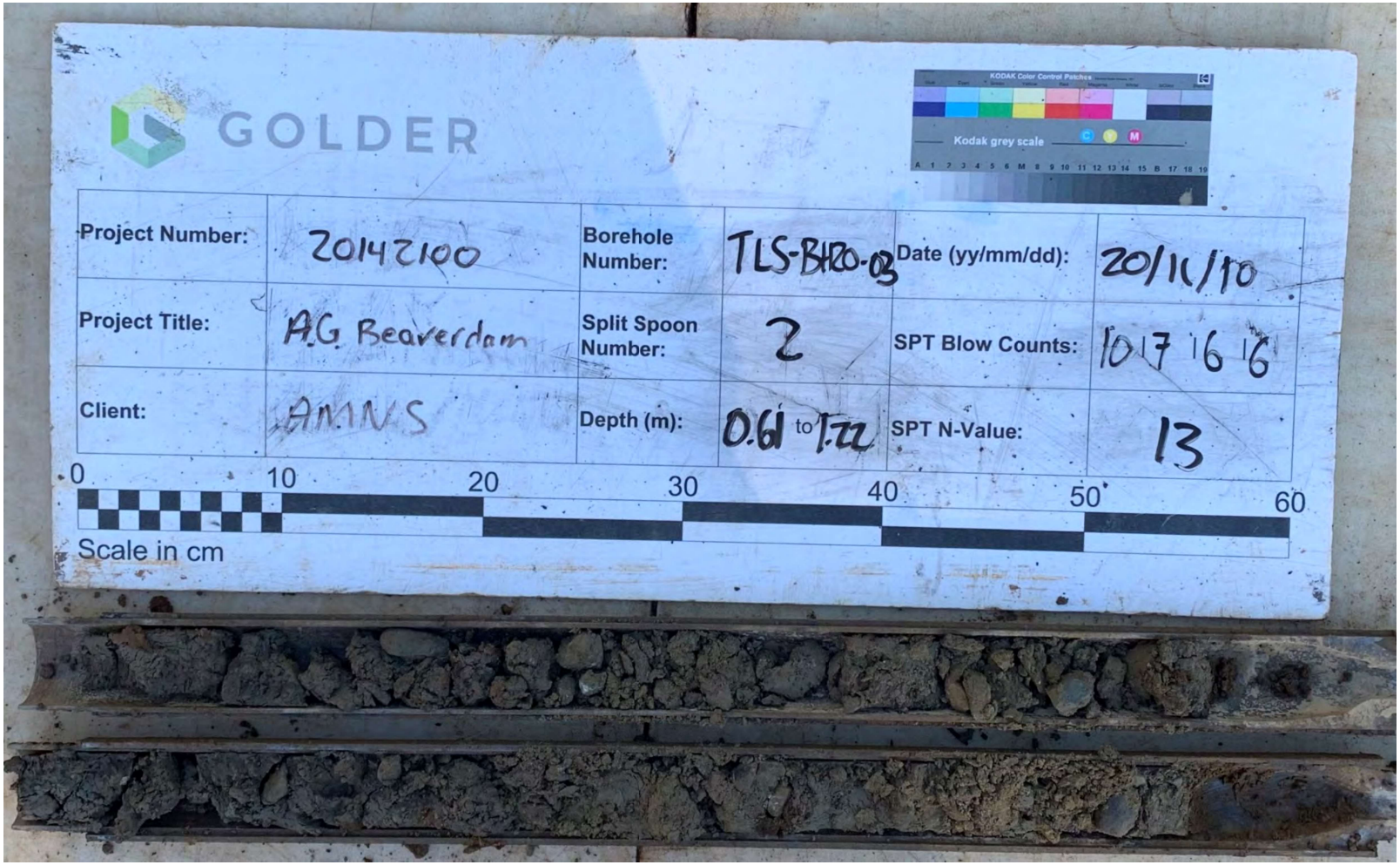

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TLS-BH20-03 SS2

Project No.	Control	Rev.	Figure No.
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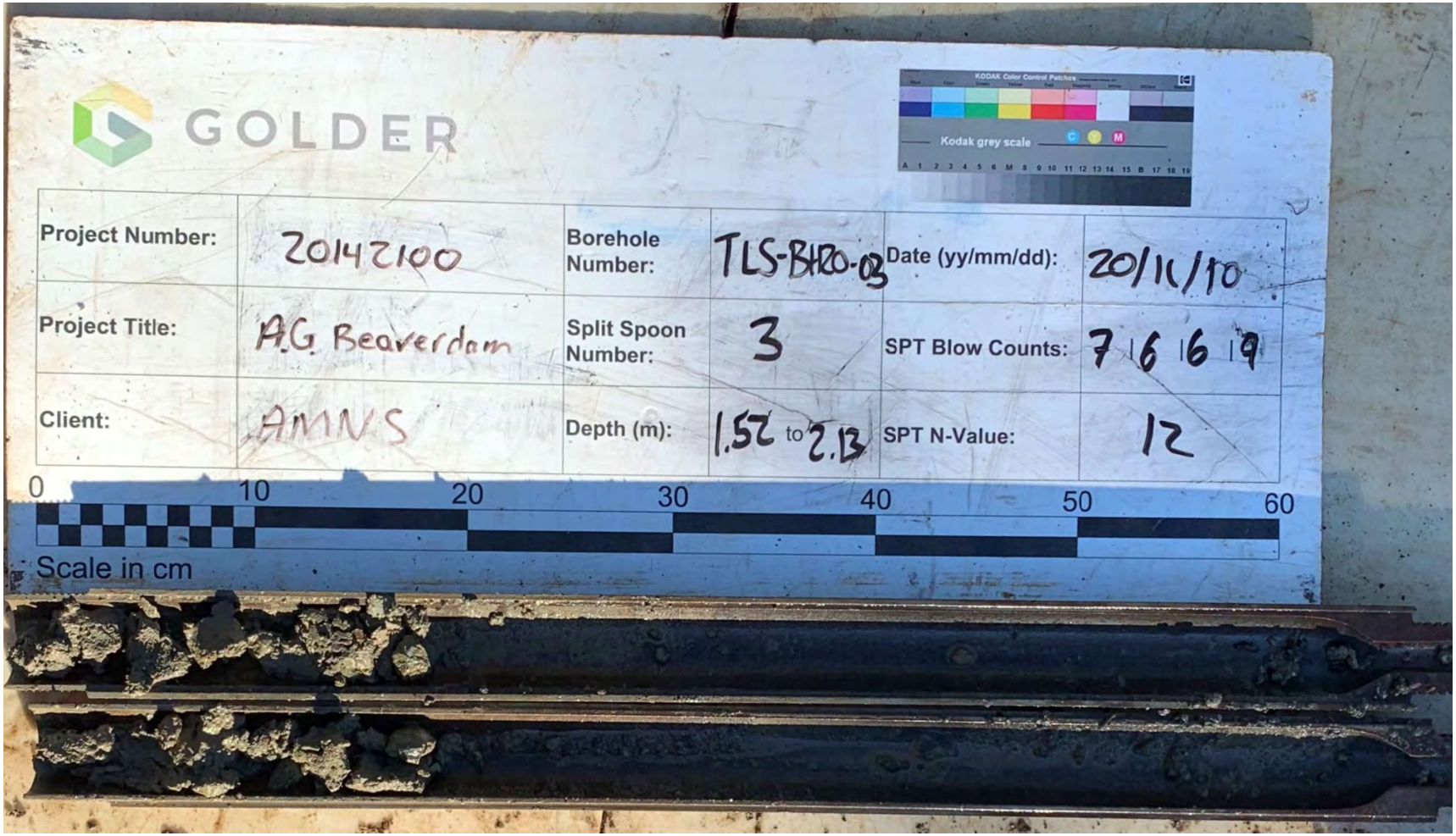

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SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-03 SS3

Project No.	Control	Rev.	Figure No.
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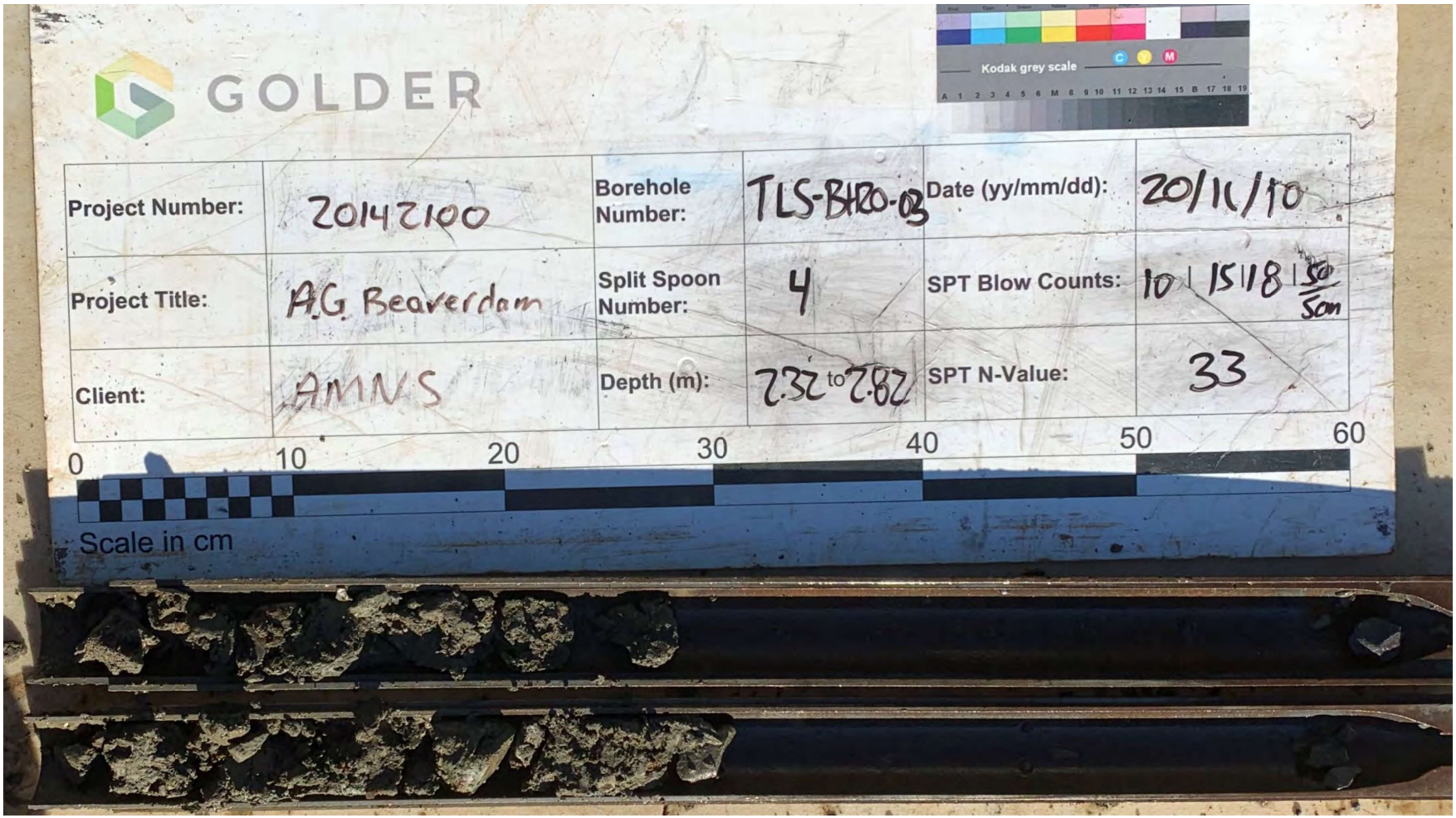

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TLS-BH20-03 SS4

Project No.	Control	Rev.	Figure No.
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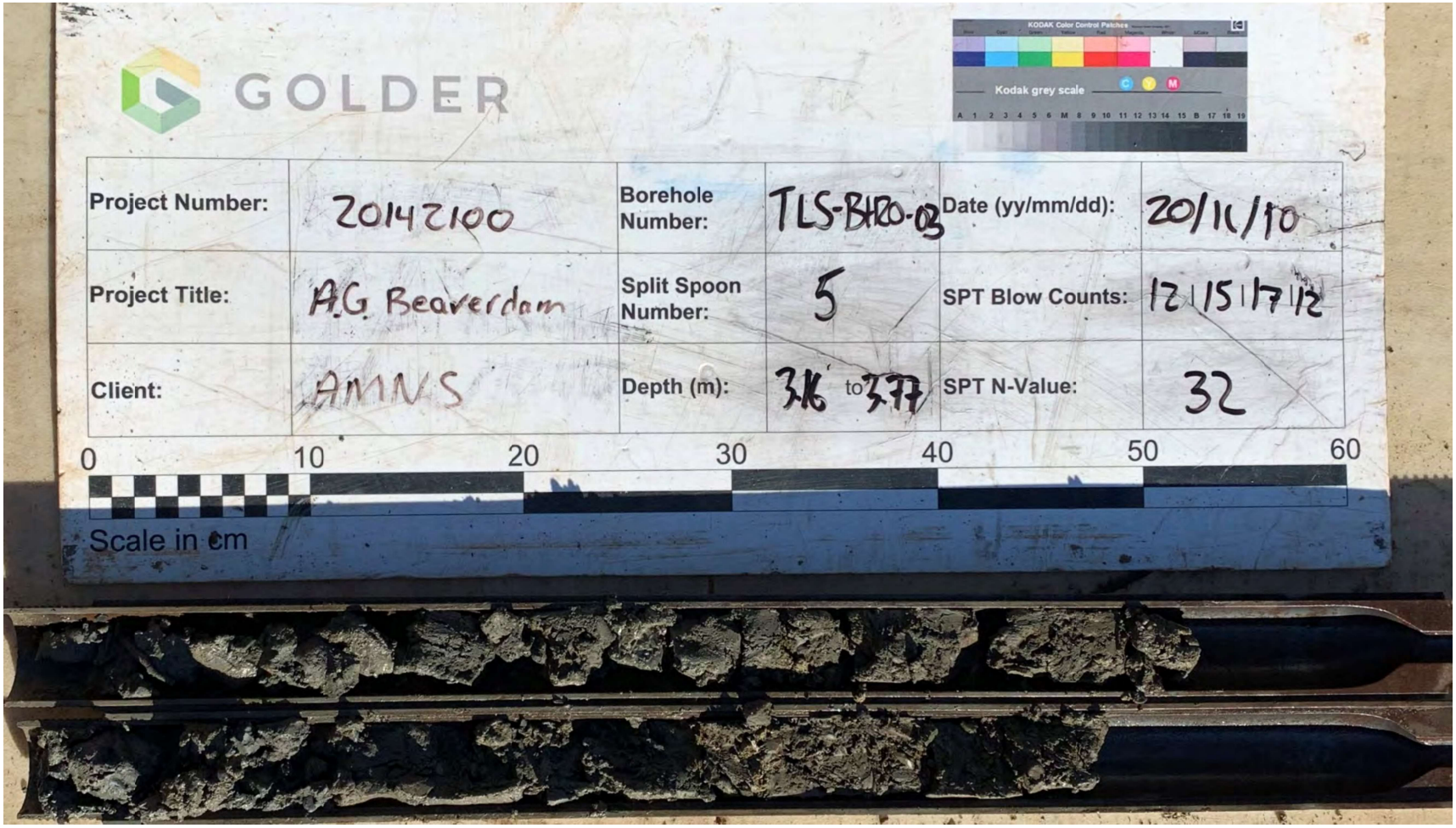

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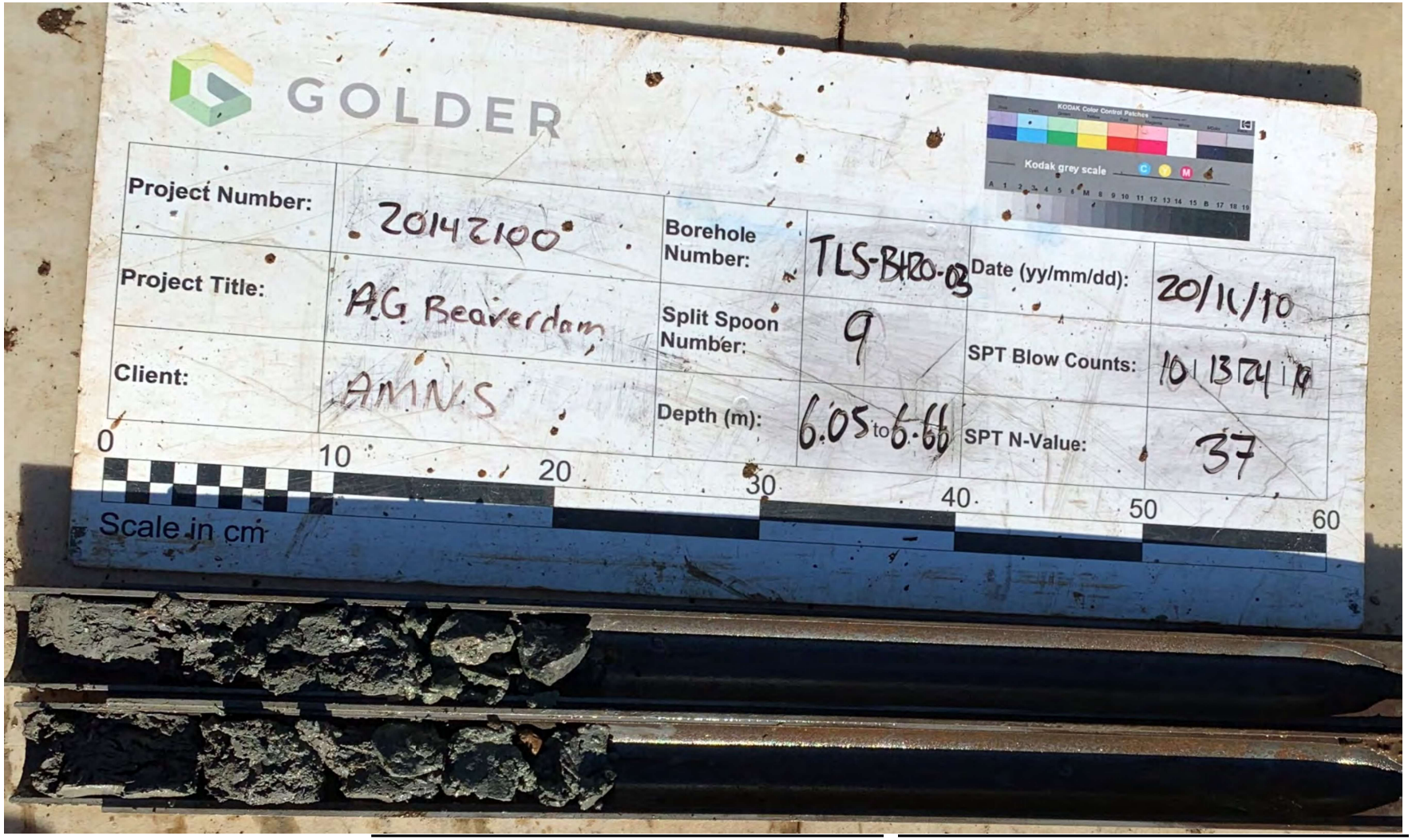
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-03 SS8

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E100**



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Beaver Dam Geotechnical Investigation

CONSULTANT
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DATE	2020-11-16
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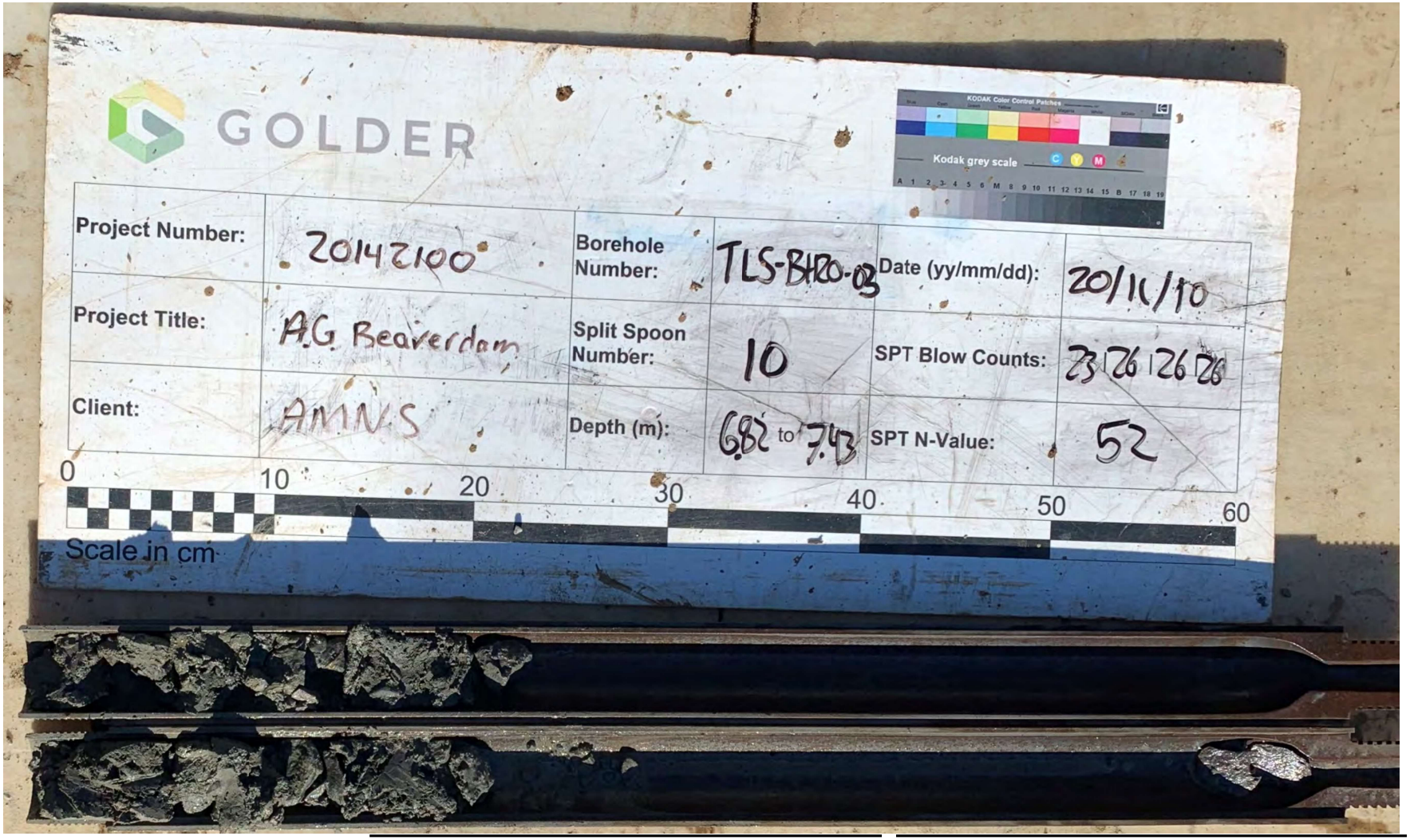
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-03 SS9

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E101**



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Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-16
PREPARED	JB
DESIGN	—
REVIEW	
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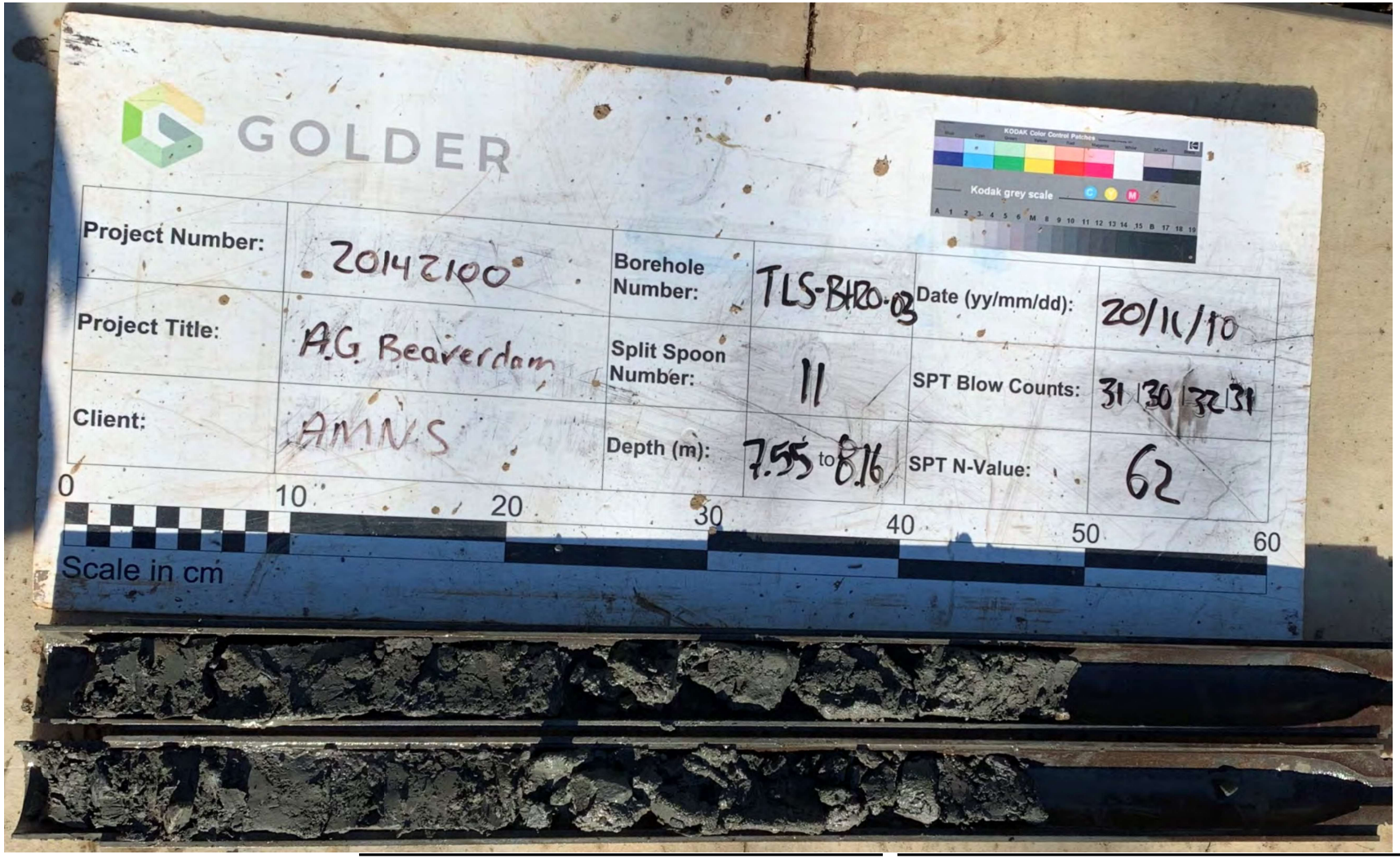
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-03 SS10

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E102**



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CONSULTANT
GOLDER

DATE	2020-11-16
PREPARED	JB
DESIGN	—
REVIEW	
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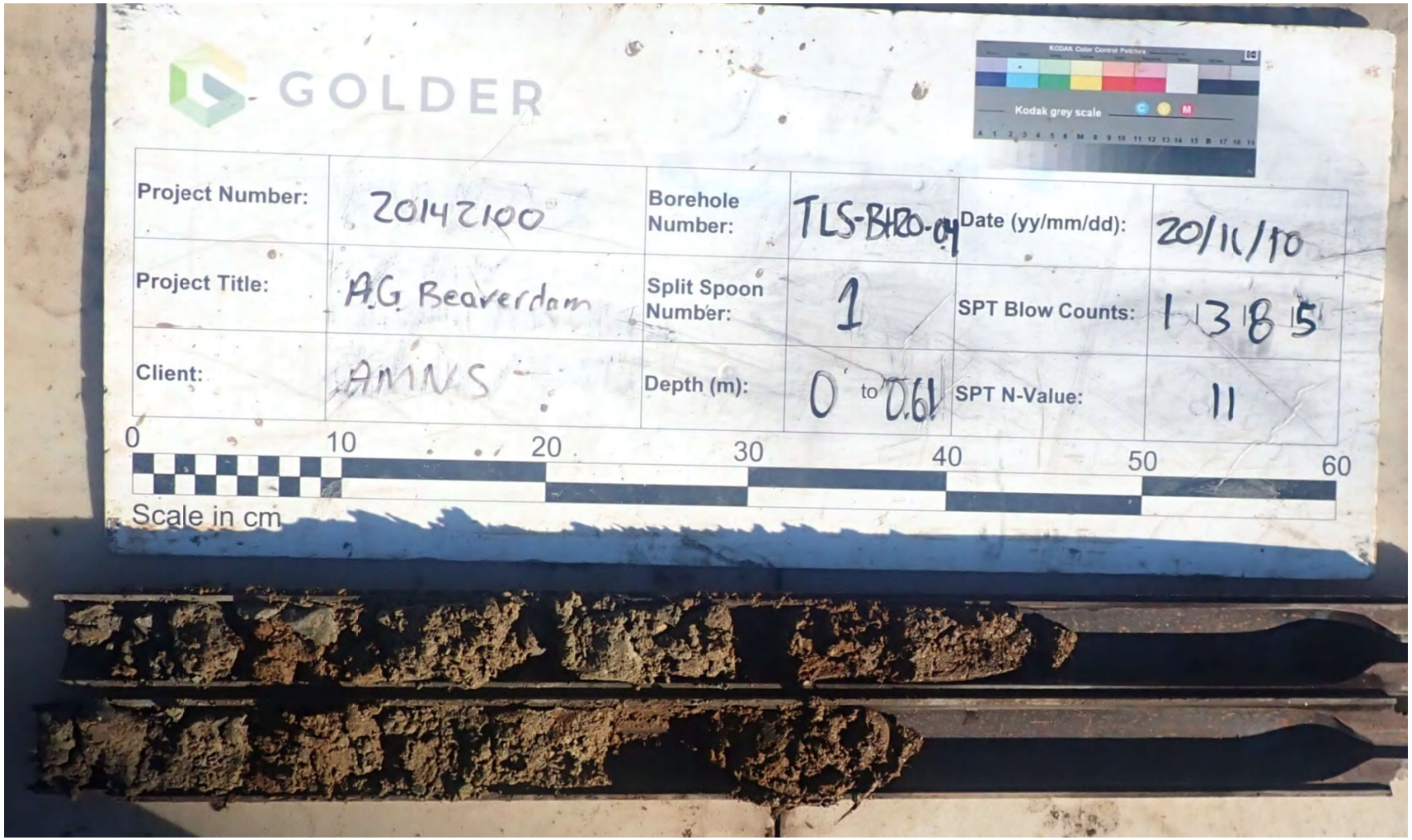
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-03 SS11

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E103**



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GOLDER

DATE	2020-11-16
PREPARED	JB
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REVIEW	
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TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-04 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E104**

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PREPARED	JB
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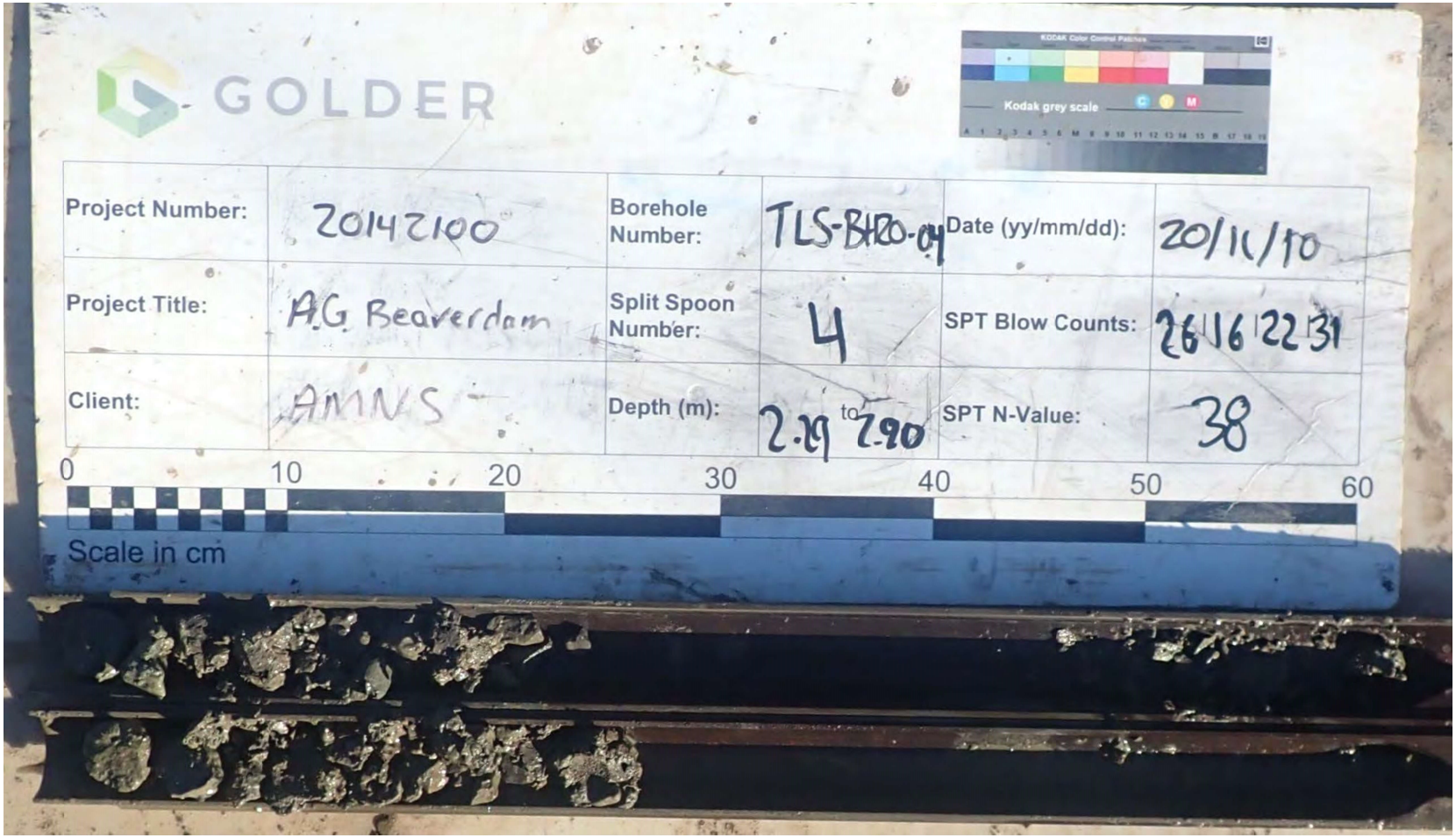
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-04 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E105**



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Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-16
PREPARED	JB
DESIGN	—
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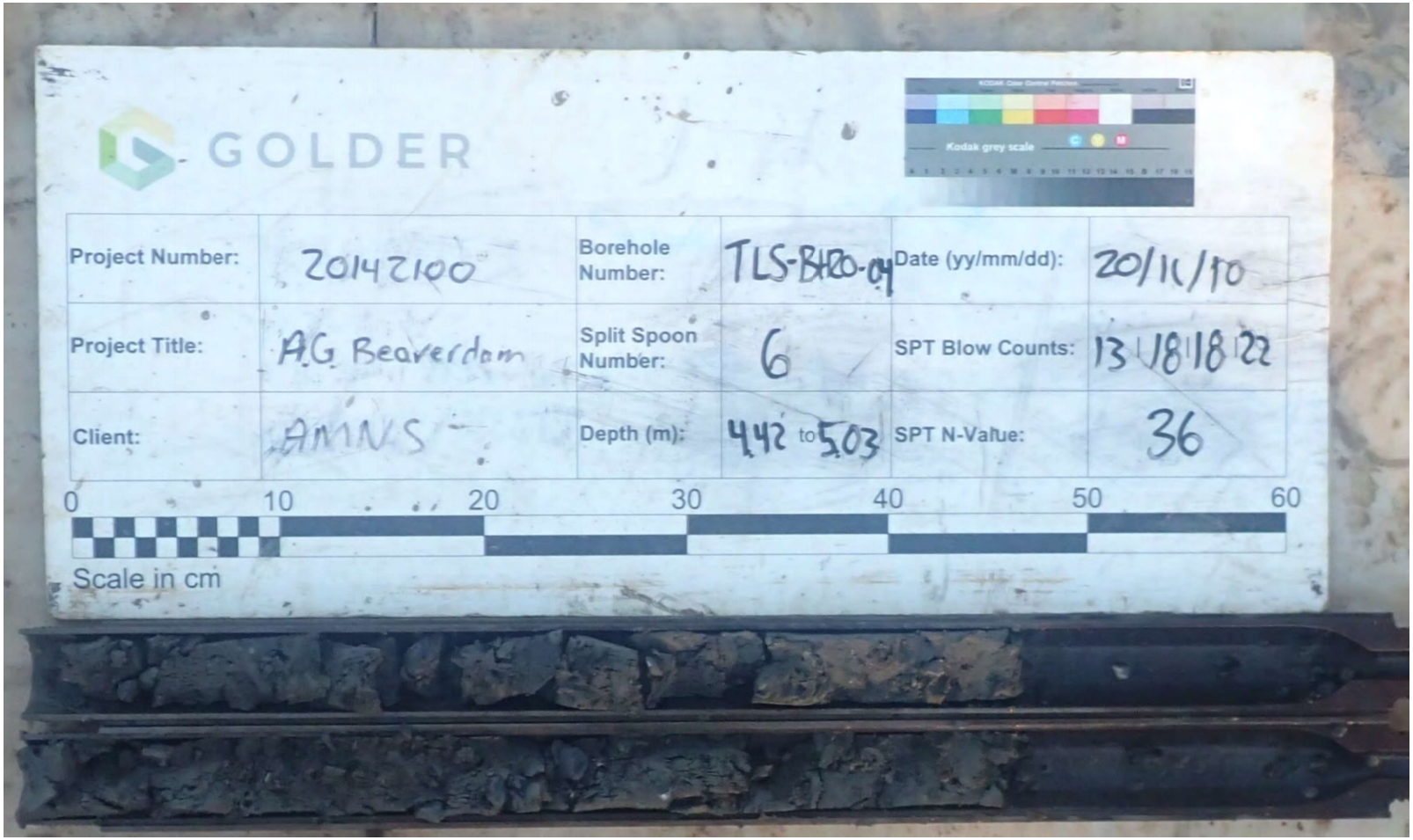
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-04 SS4

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E106**



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Beaver Dam Geotechnical Investigation

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DATE	2020-11-16
PREPARED	JB
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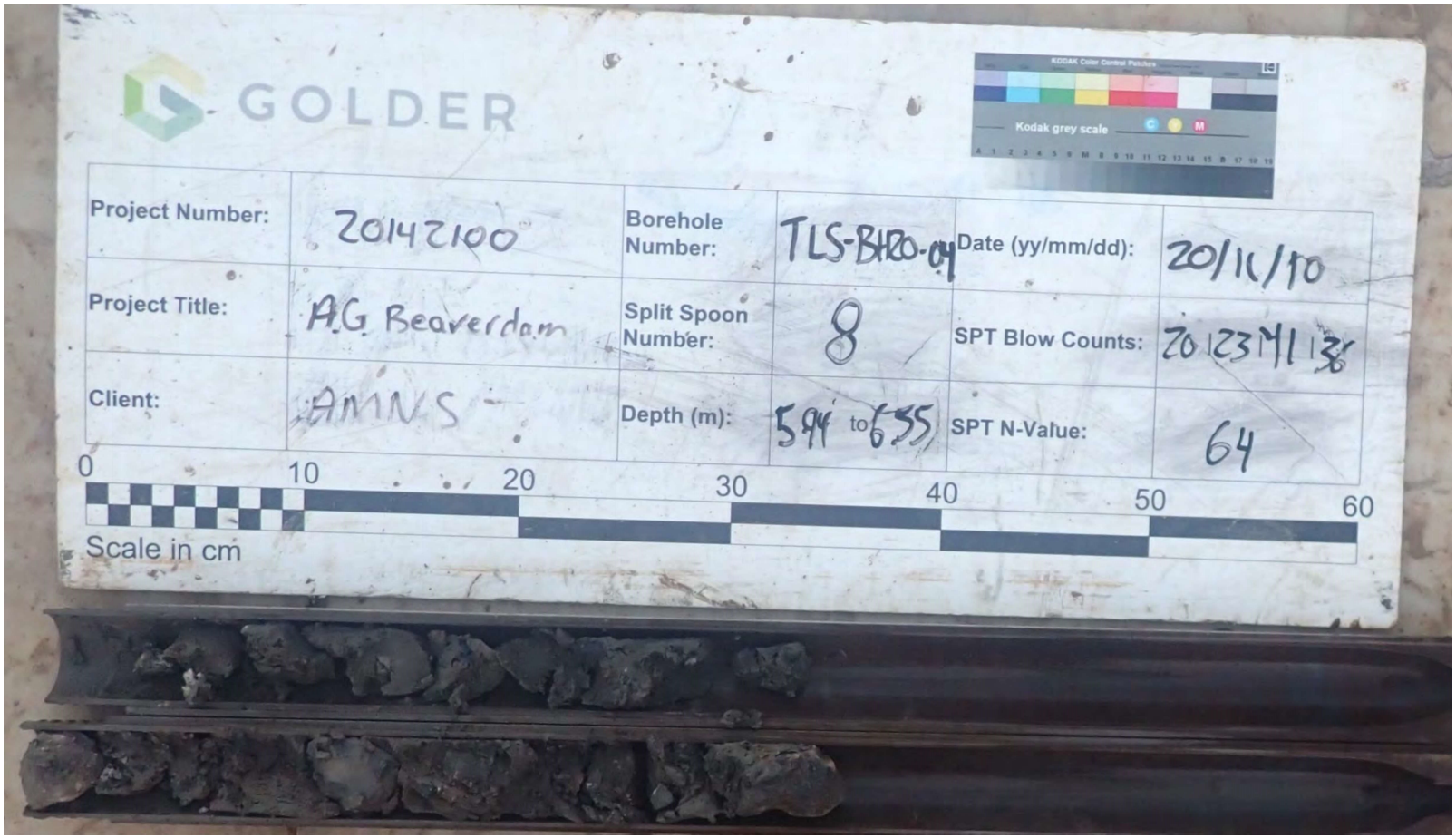
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-04 SS6

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E107**



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DATE	2020-11-16
PREPARED	JB
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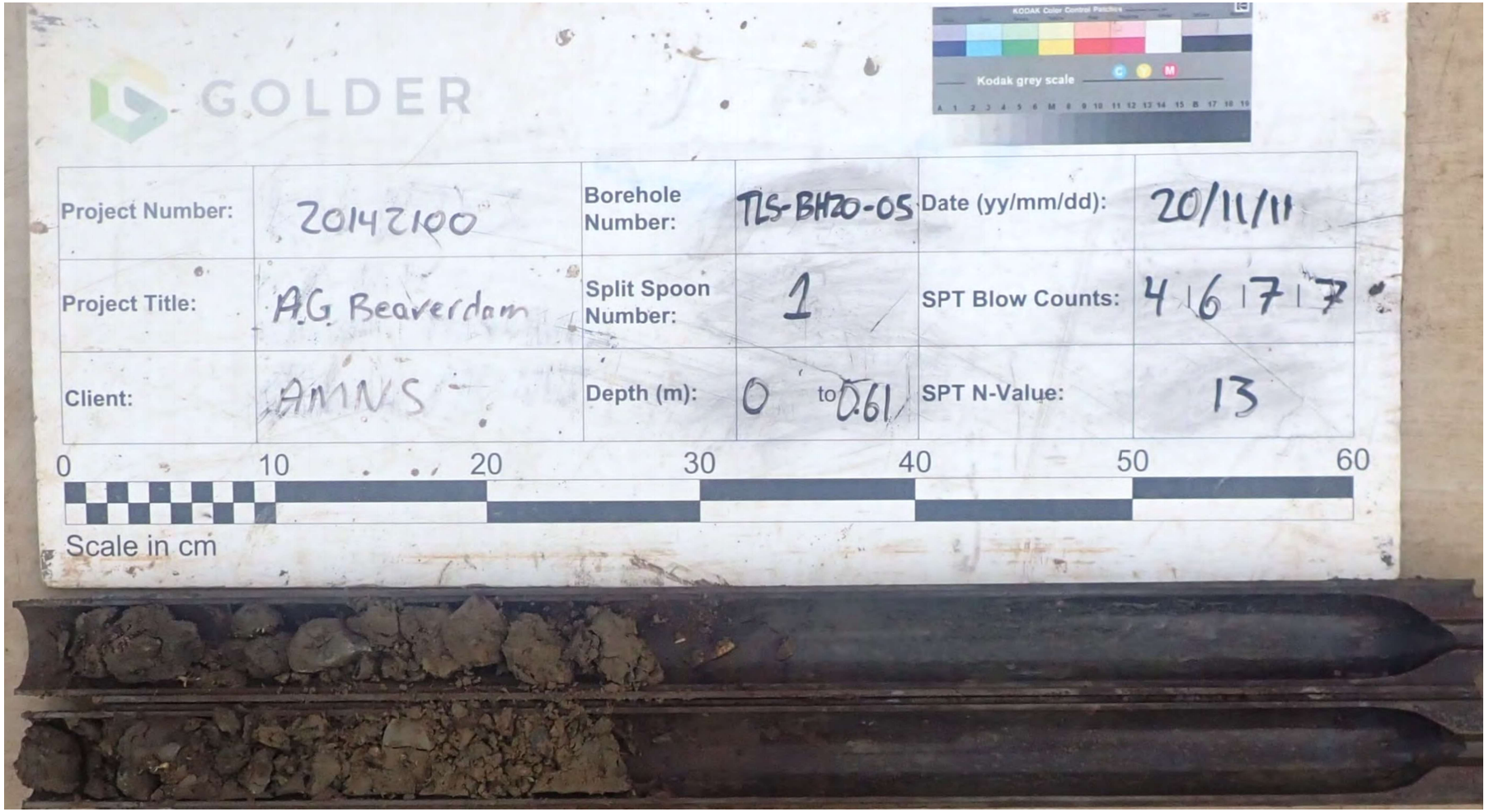
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-04 SS8

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E108**



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Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-16
PREPARED	JB
DESIGN	—
REVIEW	
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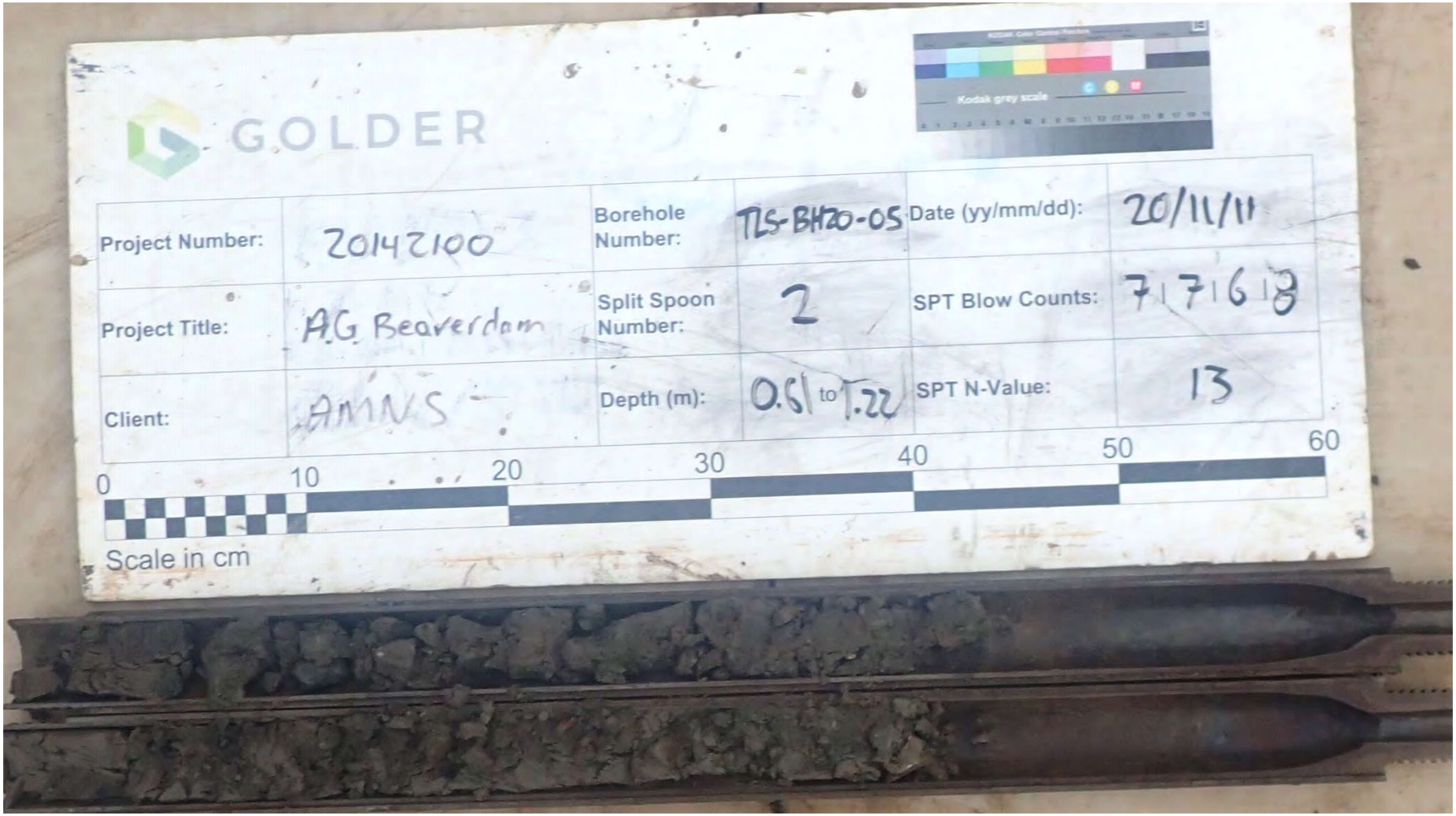
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-05 SS1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E109**



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Beaver Dam Geotechnical Investigation

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GOLDER

DATE	2020-11-16
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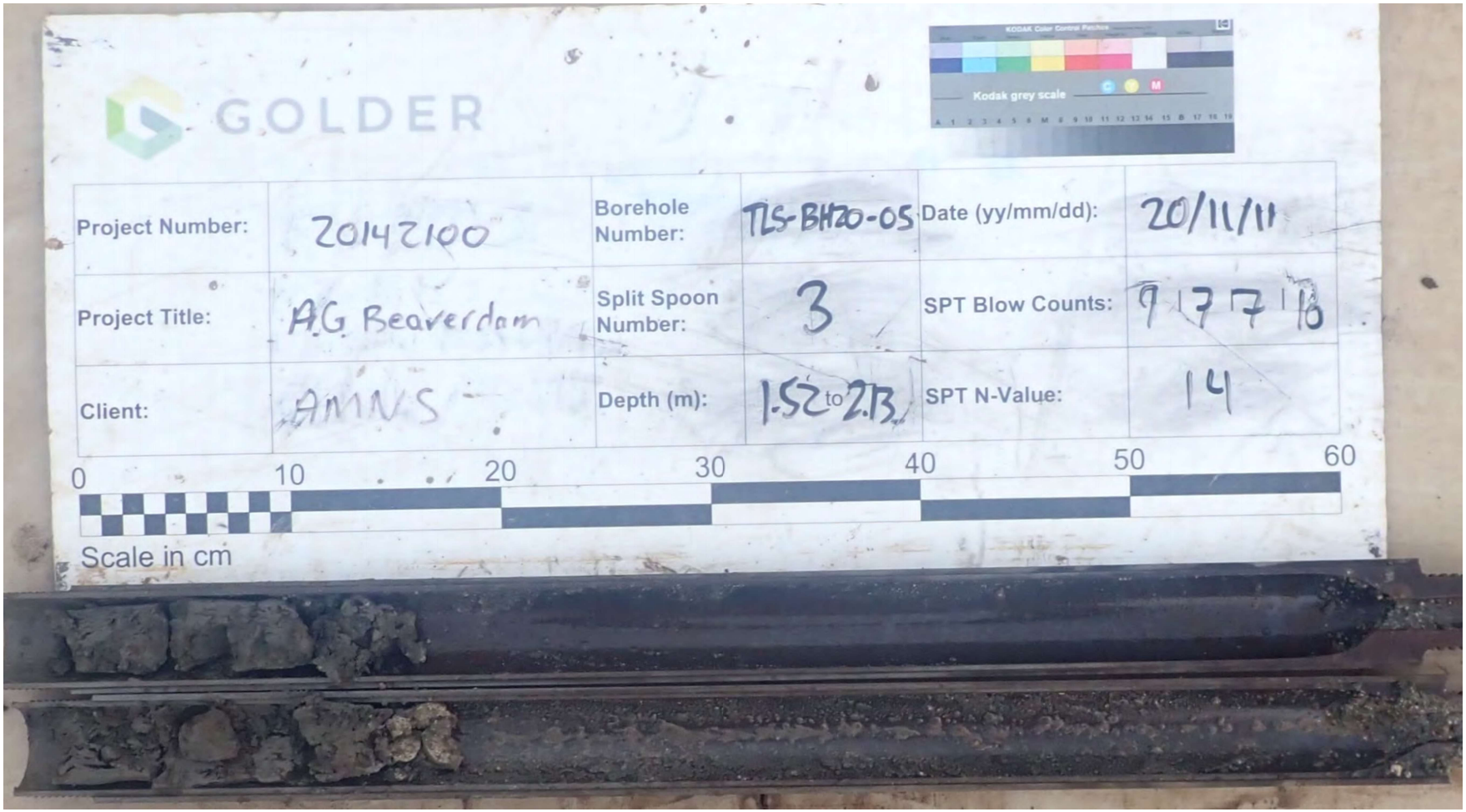
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-05 SS2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E110**



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Beaver Dam Geotechnical Investigation

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GOLDER

DATE	2020-11-16
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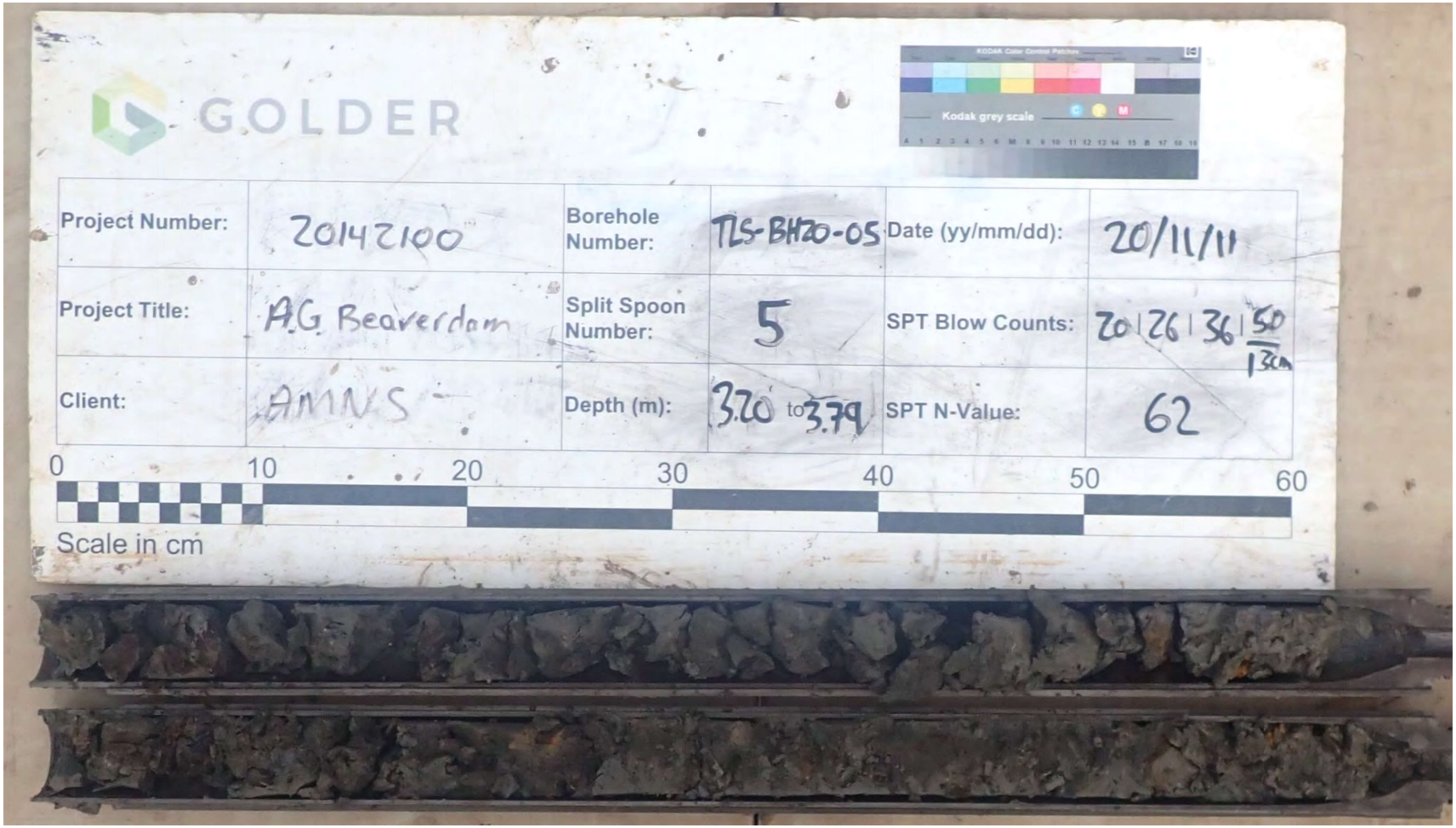
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-05 SS3

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E111**



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Beaver Dam Geotechnical Investigation

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GOLDER

DATE	2020-11-16
PREPARED	JB
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TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-05 SS5

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E112**

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DATE	2020-11-16
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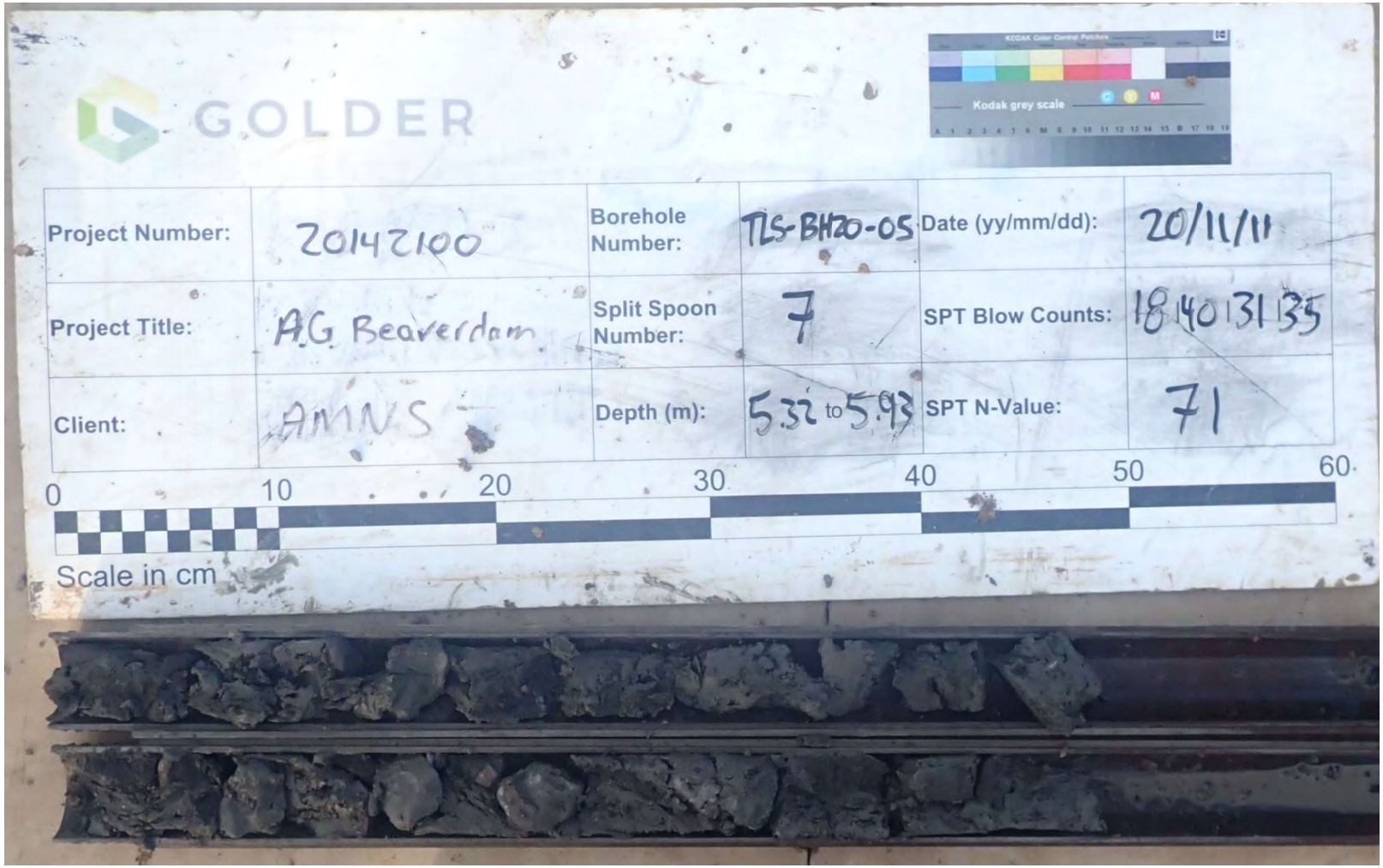
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-05 SS6

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E113**



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GOLDER

DATE	2020-11-16
PREPARED	JB
DESIGN	—
REVIEW	
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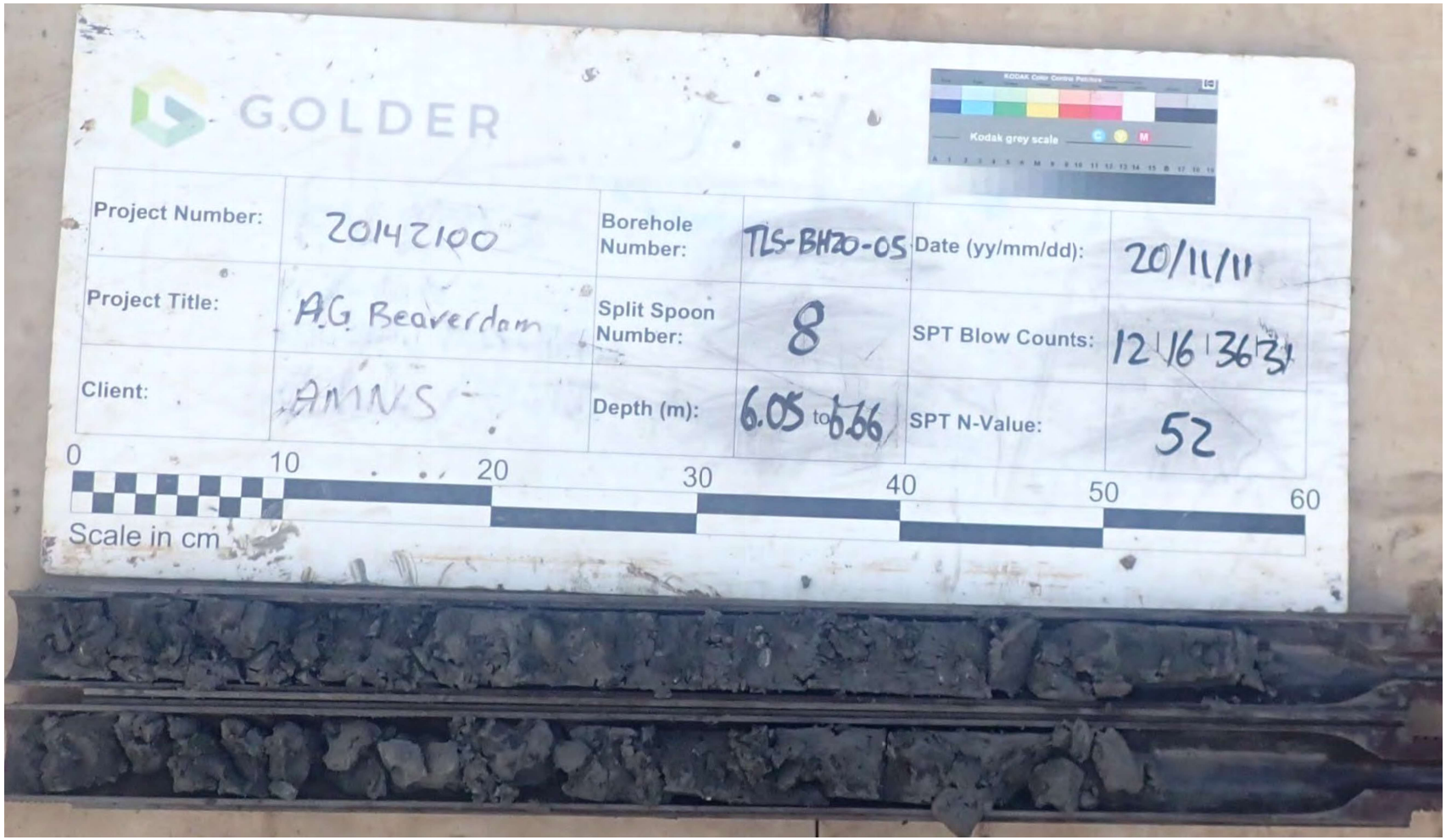
TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-05 SS7

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E114**



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Beaver Dam Geotechnical Investigation

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DATE	2020-11-16
PREPARED	JB
DESIGN	—
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TITLE
SPLIT SPOON SAMPLE PHOTOGRAPH
TLS-BH20-05 SS8

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**E115**

APPENDIX F

Rock Core Photographs

NOTE: Core may not have been fully dried before taking "dry" photo.

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CONSULTANT
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DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
BH2020-01, BOX 1 OF 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F1

NOTE: Core may not have been fully dried before taking "dry" photo.

CLIENT
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PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
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DATE	2020-11-18
PREPARED	JB
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TITLE
ROCK SAMPLE PHOTOGRAPHS
BH2020-01, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F2

NOTE: Core may not have been fully dried before taking "dry" photo.

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Atlantic Mining NS Inc

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Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
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REVIEW	
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TITLE
ROCK SAMPLE PHOTOGRAPHS
BH2020-02, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F3

NOTE: Core may not have been fully dried before taking "dry" photo.

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PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
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REVIEW	
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TITLE
ROCK SAMPLE PHOTOGRAPHS
BH2020-02, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F4

NOTE: Core may not have been fully dried before taking "dry" photo.

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Atlantic Mining NS Inc

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Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
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REVIEW	
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TITLE
ROCK SAMPLE PHOTOGRAPHS
BH2020-03, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F5

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
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TITLE
ROCK SAMPLE PHOTOGRAPHS
BH2020-03, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F6

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

CONSULTANT
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DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
LGS-BH20-01, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F7

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
LGS-BH20-01, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F8

NOTE: Core may not have been fully dried before taking "dry" photo.

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CONSULTANT
GOLDER

DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
LGS-BH20-03, BOX 1 of 1

Project No.	Control	Rev.	Figure No.
20142100	007	0	F9

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

CONSULTANT
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DATE	2020-11-18
PREPARED	JB
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-01, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F10

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

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GOLDER

DATE	2020-11-18
PREPARED	JB
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-01, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F11

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

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GOLDER

DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-02, BOX 1 of 1

Project No.	Control	Rev.	Figure No.
20142100	007	0	F12

NOTE: Core may not have been fully dried before taking "dry" photo.

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DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-03, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F13

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-03, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**F14**

NOTE: Dry photos could not be obtiained

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DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-04, BOX 1 and 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F15

NOTE: Core may not have been fully dried before taking "dry" photo.

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DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-05, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F16

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

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GOLDER

DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-05, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F17

NOTE: Core may not have been fully dried before taking "dry" photo.

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DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-06, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F18

NOTE: Core may not have been fully dried before taking "dry" photo.

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DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-06, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F19

NOTE: Core may not have been fully dried before taking "dry" photo.

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DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
NAG-BH20-07, BOX 1 of 1

Project No.	Control	Rev.	Figure No.
20142100	007	0	F20

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

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DATE	2020-11-18
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TITLE
ROCK SAMPLE PHOTOGRAPHS
PAG-BH20-01, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F21

NOTE: Core may not have been fully dried before taking "dry" photo.

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TITLE
ROCK SAMPLE PHOTOGRAPHS
PAG-BH20-01, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F22

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
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TITLE
ROCK SAMPLE PHOTOGRAPHS
PAG-BH20-02, BOX 1 of 1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**F23**

NOTE: Core may not have been fully dried before taking "dry" photo.

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TITLE
ROCK SAMPLE PHOTOGRAPHS
PAG-BH20-03, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F24

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

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TITLE
ROCK SAMPLE PHOTOGRAPHS
PAG-BH20-03, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F25

NOTE: Core may not have been fully dried before taking "dry" photo.

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GOLDER

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TITLE
ROCK SAMPLE PHOTOGRAPHS
PND-BH20-01, BOX 1 of 1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**F26**

NOTE: Core may not have been fully dried before taking "dry" photo.

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TITLE
ROCK SAMPLE PHOTOGRAPHS
PND-BH20-02, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F27

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

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TITLE
ROCK SAMPLE PHOTOGRAPHS
PND-BH20-02, BOX 2 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F28

NOTE: Core may not have been fully dried before taking "dry" photo.

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Beaver Dam Geotechnical Investigation

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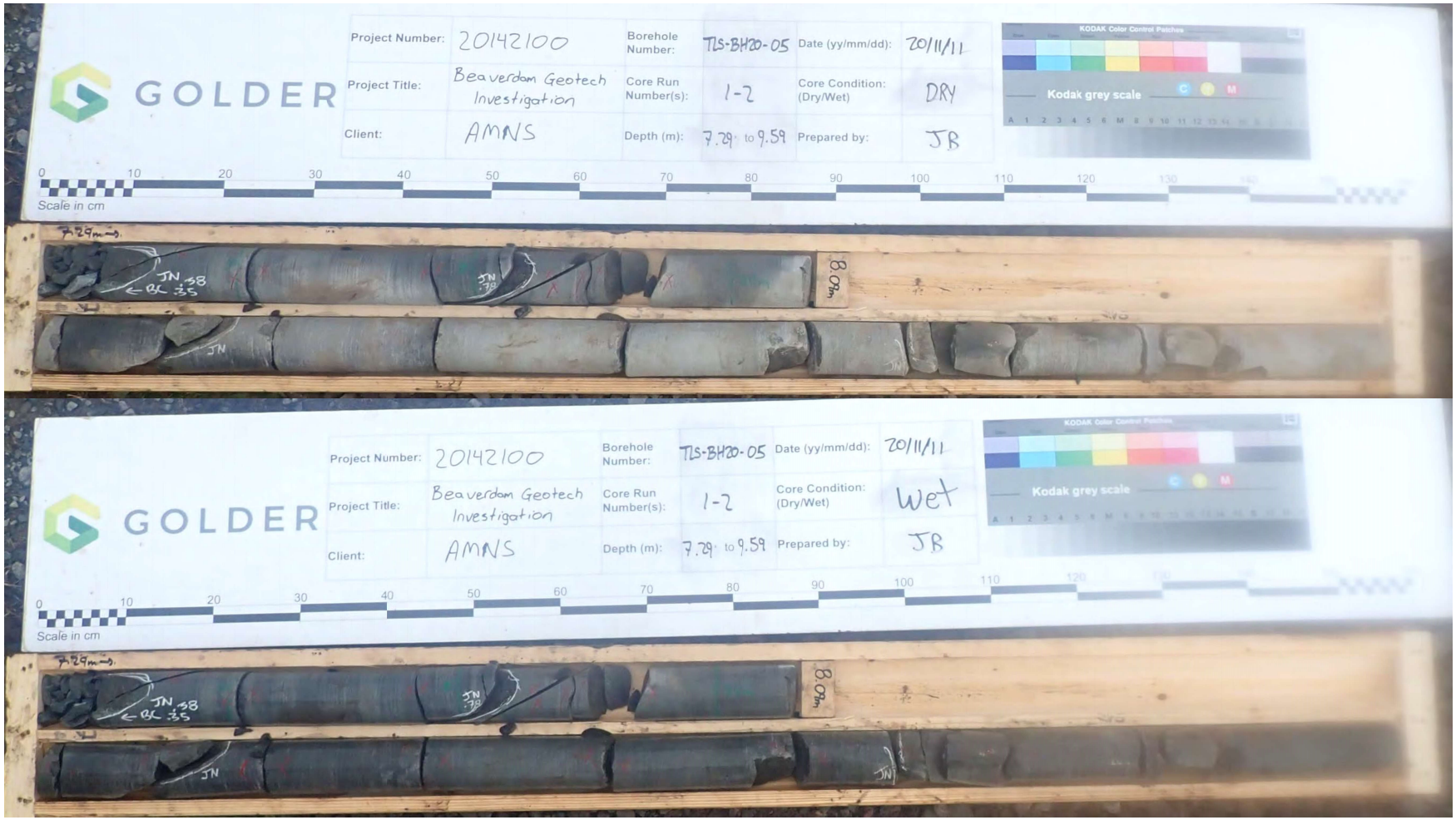
TITLE
ROCK SAMPLE PHOTOGRAPHS
TLS-BH20-02, BOX 1 of 1

Project No.	Control	Rev.	Figure No.
20142100	**007**	**0**	**F29**



NOTE: Core may not have been fully dried before taking "dry" photo.

CLIENT
Atlantic Mining NS Inc

PROJECT
Beaver Dam Geotechnical Investigation

CONSULTANT
GOLDER

DATE	2020-11-18
PREPARED	JB
DESIGN	---
REVIEW	
APPROVED	

TITLE
ROCK SAMPLE PHOTOGRAPHS
TLS-BH20-05, BOX 1 of 2

Project No.	Control	Rev.	Figure No.
20142100	007	0	F30

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Project No.	Control	Rev.	Figure No.
20142100	007	0	F31

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