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Decline Drilling Program Support
Factual Summary Report of Geotechnical Logging, Packer Testing and Downhole Geophysical Surveys
Great Atlantic Salt Deposit
St. George's, NL

GEMTEC Project: 101556.003

GEMTEC
www.gemtec.ca

Submitted to:

Atlas Salt Inc.
333 Duckworth Street
St. John's, NL
A1C 1G9

Decline Drilling Program Support
Factual Summary Report of Geotechnical Logging, Packer Testing and Downhole Geophysical Surveys
Great Atlantic Salt Deposit
St. George's, NL

May 15, 2023
GEMTEC Project: 101556.003

experience • knowledge • integrity

GEMTEC Consulting Engineers and Scientists Limited
19 Dundee Avenue
Mount Pearl, NL, Canada
A1N 4R6

May 15, 2023

File: 101556.003– R00

Atlas Salt Inc.
333 Duckworth Street
St. John's, NL
A1C 1G9

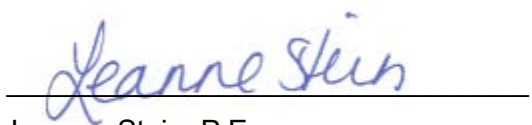
Attention: Mr. Patrick Laracy, LL.B., P.Geo, CEO & Director

Re: Decline Drilling Program Support, Factual Summary Report of Geotechnical Logging, Packer Testing and Downhole Geophysical Surveys, Great Atlantic Salt Deposit, St. George's, NL

Please find enclosed GEMTEC Consulting Engineers and Scientists Limited's Factual Summary Report submitted for the services carried out in support of Atlas Salt Inc.'s decline drilling program at the Great Atlantic Salt Deposit located in St. George's, NL. This report contains a description of the scope and methodology of the services carried out, as well as a factual summary of the results of the various tasks.

Please direct all comments and questions regarding the contents of this report to the undersigned.

Sincerely,



Leanne Stein, P.Eng.

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1.0 INTRODUCTION

Atlas Salt Inc. (Atlas) retained GEMTEC Consulting Engineers and Scientists Limited (GEMTEC), in collaboration with Terrane Geoscience Inc. (Terrane), to carry out downhole geophysics data acquisition, in-situ hydraulic conductivity testing (packer testing), and geotechnical core logging of one (1) hole in support of decline design (by others) at Atlas Salt's Great Atlantic Salt deposit located near St. George's, NL. This scope of work was performed in accordance with GEMTEC's proposal dated March 10, 2023, and was adapted in consultation with Atlas during the course of the drilling program.

This report presents a summary of the applied methods associated with this program, the results of the collected survey and packer test data and calculated hydraulic conductivity values. This report does not include any design recommendations for mine development based on the collected data.

2.0 SCOPE AND METHODS

Atlas coordinated a drilling program in March of 2023, with input from SLR Consulting (Canada) Ltd. (SLR), consisting of one (1) HQ diameter, vertical borehole drilled through the proposed decline alignment, identified as D-1. Drilling took place between March 19 and March 28, 2023 and was carried out by Atlas' drilling sub-contractor under direction from Atlas and SLR. The hole location was selected by Atlas.

The borehole extended through the overburden deposits and upper siliciclastic sedimentary rock sequence and was terminated at 159.5 m below ground surface. GEMTEC and Terrane carried out geotechnical logging of the core of the upper sedimentary rock sequence during the course of the drilling program and completed geophysical surveys and hydrogeological testing (packer testing) in the completed hole following the completion of the borehole drilling.

The geophysical survey was originally proposed to consist of optical borehole imagery, acoustic borehole imagery, and natural gamma. Due to poor visibility and downhole conditions cause by accumulated sediment in previous boreholes in the Site area, it was determined in consultation with Atlas that optical and gamma surveys would be removed from the program, and only an acoustic survey was conducted in borehole D-1. Details on the methodology of the geophysical survey are presented in Terrane's technical memorandum titled Downhole Acoustic Imagery Acquisition/ Interpretation And Geotechnical Logging – Portal Location, dated May 11, 2023 and provided in Appendix A.

Hydrogeological testing of the sedimentary rock sequence was carried out in borehole D-1. A total of six (6) constant head (Lugeon) packer injection tests were attempted, all using a double-bladder packer system to isolate a 1.5 to 1.65 m interval in the hole following completion of drilling. All packer tests were conducted using a pneumatic wireline system manufactured by QSP LLC,

provided by Atlas' drilling sub-contractor. Nitrogen gas was used to inflate the packer bladder for all tests.

The Lugeon packer tests were conducted as follows:

- After the borehole was drilled to the termination depth of 159.5 m, the hole was flushed with clean water through the drill rods until the return water was visibly clear. The water used for packer testing was obtained from nearby surface water sources and was pumped into an on-site water tank for use during testing.
- The drill rods were then withdrawn to the top of desired test depth, and a double-bladder packer assembly was lowered inside the drill rods to the top of the test interval with the wireline. The packer bladders were then inflated to isolate the test interval.
- Once the bladders were successfully sealed, water was pumped into the isolated test interval through the packer injection pipe until a constant differential head and inflow rate were established. A total of three ascending and two descending water pressure steps were applied for each interval, with regulated constant head achieved by controlling the injection flow rate using a bypass valve.
- For each test step, the water injection rate was observed until it had stabilized (generally up to 10 minutes). During this observation period, the pressure and injected quantity of water was recorded at one-minute intervals. The stabilized flow rate was used to calculate the bulk hydraulic conductivity of the rock mass over the tested interval. Pressure was measured using a 10 psi or 100 psi gauge, depending on the required test pressures, and the water injection rate was measured using a flow meter totalizer and stopwatch.

A total of six (6) packer tests (PT-1 to PT-6) were attempted in borehole D-1, and of these, four (4) tests were completed. Packer test PT-02 from 47.0 m to 48.5 m was terminated prematurely due to short circuiting and lost of water from the test interval likely due to poor packer seating and bedrock fracturing. Packer test PT-04 from 66.5 m to 68.15 m was considered a failed test due to extreme leaking from drill's water swivel cap that amounted to 100% of the total injection water volume.

Detailed geotechnical logging of the drilled core was completed for borehole D-1. Logging was carried out in accordance with directives provided by SLR in a document titled "Appendix A – Standard Operating Procedure Geotechnical Logging of Core" (SLR, 2022). Draft geotechnical and lithological logs were provided to Atlas. Details on the methodology of the geotechnical logging scope are presented in Terrane's technical memorandum, provided in Appendix A, along with the final geotechnical logs.

Borehole collar coordinates were provided by Atlas to GEMTEC and Terrane by the Client for inclusion on the logs.

3.0 RESULTS

The results of the geophysical surveys and a summary of the geotechnical logging and rock mass conditions are presented in Terrane's technical memorandum, May 11, 2023, provided in Appendix A, along with the final geophysical and geotechnical logs.

A summary of the packer test analysis results for PT-1, PT-3, PT-5, and PT-6 is presented in Table 3-1, and detailed packer test analysis reports are presented in Appendix B.

Hydraulic conductivity (K) values ranging from 1.71E-08 to 4.06E-07 m/s were calculated. The geometric mean for the packer tests was 9.30E-08 m/s. During all four packer tests, the drill's water swivel cap was observed to be leaking, with leak volumes ranging from 62% to 89% of the total injection volume. As a result, the calculated K values presented for the test intervals should be regarded with caution and the actual formational K values are expected to be less than that reported.

Calculated K values in the tested intervals are in general agreement with the range of values reported in GEMTEC (2023a and 2023b) for previous packer testing programs within similar lithologies in the Site's upper siliciclastic sedimentary bedrock sequence.

This report and its contents are subject to GEMTEC's Statement of Conditions and Limitations, of which a copy is provided in Appendix C.

Table 3-1 Summary of Packer Testing Completed on Borehole D-1

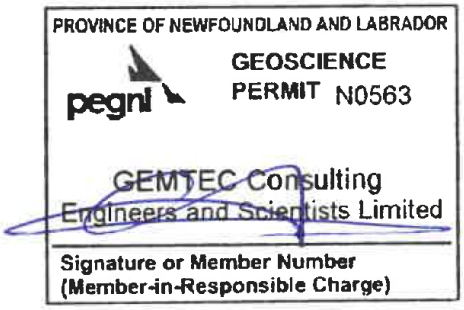
Packer Test ID	Test Interval (m)			Bedrock Lithology	Hydraulic Conductivity (K) (m/s)	Notes
	From	To	Length			
PT-2 (Failed Test)	47	48.5	1.5	Interbedded mudstone, sandstone, conglomerate	-	Unable to maintain pressure; experienced hydraulic short circuiting from the test interval to the open hole possibly due to poor packer seating or formational fracture network.
PT-3	63.5	65	1.5	Conglomerate	1.71E-08	Water swivel leakage observed during test; the amount lost represented on average 62% of the total injection volume. Calculated K value should be regarded with caution and formational K is expected to be less than that reported.
PT-4 (Failed Test)	66.5	68.15	1.65	Sandstone	-	Water swivel leakage observed during test equal to approximately 100% of total injection volume.
PT-5	117.5	119.15	1.65	Conglomerate	1.39E-07	Water swivel leakage observed during test; the amount lost represented on average 89% of the total injection volume. Calculated K value should be regarded with caution and formational K is expected to be less than that reported.
PT-6	120.5	122.15	1.65	Sandstone	4.06E-07	Water swivel leakage observed during test; the amount lost represented on average 82% of the total injection volume. Calculated K value should be regarded with caution and formational K is expected to be less than that reported.
PT-1	143	144.5	1.5	Mudstone	7.74E-08	Water swivel leakage observed during test; the amount lost represented on average 64% of the total injection volume. Calculated K value should be regarded with caution and formational K is expected to be less than that reported.

4.0 CLOSURE

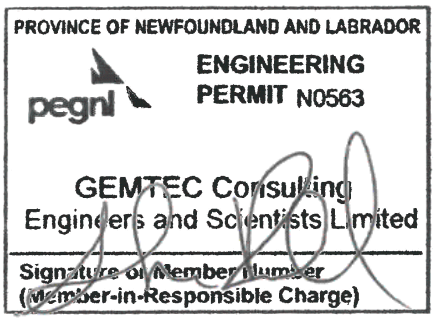
We trust the information provided herein suits your current needs. If you have any questions concerning this report, please do not hesitate to contact the undersigned.

Leanne Stein, P.Eng.
Geotechnical Engineer

Candice Williams, P.Eng.
Hydrogeology / Geological Engineer



Reviewed by,
Carolyn Anstey-Moore, M.Sc., M.A.Sc., P.Geo.
Hydrogeology / Senior Environmental Geologist



Reviewed by,
Shawn Russell, P.Eng.
Geotechnical / Senior Engineer

REFERENCES

GEMTEC, 2023a. Preliminary Baseline Hydrogeology Study, Great Atlantic Salt Deposit, St. George's, NL. Prepared for Atlas Salt Inc, dated March 10, 2023.

GEMTEC, 2023b. Factual Summary Report of Geotechnical Logging, Packer Testing and Downhole Geophysical Surveys, Salt Drilling Program, Great Atlantic Salt Deposit, St. George's, NL. Prepared for Atlas Salt Inc, dated March 10, 2023.

SLR, 2022. Appendix A – Standard Operating Procedure Geotechnical Logging of Core. January 13, 2022.

CONDITIONS AND LIMITATIONS OF THIS REPORT

1. **Standard of Care:** GEMTEC has prepared this report in a manner consistent with generally accepted engineering or environmental consulting practice in the jurisdiction in which the services are provided at the time of the report. No other warranty, expressed or implied is made.
2. **Copyright:** The contents of this report are subject to copyright owned by GEMTEC, save to the extent that copyright has been legally assigned by us to another party or is used by GEMTEC under license. To the extent that GEMTEC owns the copyright in this report, it may not be copied without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to the Client in confidence and must not be disclosed or copied to third parties without the prior written agreement of GEMTEC. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests.
3. **Complete Report:** This report is of a summary nature and is not intended to stand alone without reference to the instructions given to GEMTEC by the Client, communications between GEMTEC and the Client and to any other reports prepared by GEMTEC 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. GEMTEC cannot be responsible for use of portions of the report without reference to the entire report.
4. **Basis of Report:** This Report has been prepared for the specific site, development, design objectives and purposes that were described to GEMTEC by the Client. 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. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document, subject to the limitations provided herein, are only valid to the extent that this report expressly addresses the proposed development, design objectives and purposes. Any change of site conditions, purpose or development plans may alter the validity of the report and GEMTEC cannot be responsible for use of this report, or portions thereof, unless GEMTEC is requested to review any changes and, if necessary, revise the report.
5. **Time Dependence:** If the proposed project is not undertaken by the Client within 18 months following the issuance of this report, or within the timeframe understood by GEMTEC to be contemplated by the Client, the guidance and recommendations within the report should not be considered valid unless reviewed and amended or validated by GEMTEC in writing.
6. **Use of This 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 GEMTEC's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, GEMTEC may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process.

   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.
7. **No Legal Representations:** GEMTEC makes no representations whatsoever concerning the legal significance of its findings, or as to other legal matters touched on in this report, including but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.
8. **Decrease in Property Value:** GEMTEC shall not be responsible for any decrease, real or perceived, of the property or site's value or failure to complete a transaction, as a consequence of the information contained in this report.
9. **Reliance on Provided Information:** The evaluation and conclusions contained in this report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations. information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of misstatements, omissions,

misrepresentations. or fraudulent acts of the Client or other persons providing information relied on by us. We are entitled to rely on such representations, information and instructions and are not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.

10. **Investigation Limitations:** Site investigation programs are a professional estimate of the scope of investigation required to provide a general profile of subsurface conditions but even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions.

    The data derived from the site investigation program and subsequent laboratory testing are interpreted by trained personnel and extrapolated across the site to form an inferred geological representation and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Conditions between and beyond the borehole/test hole locations may differ from those encountered at the borehole/test hole locations and the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. Accordingly, GEMTEC does not warrant or guarantee the exactness of of the subsurface descriptions.

    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.

    In addition, 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.

11. **Sample Disposal:** GEMTEC will dispose of all uncontaminated soil and/or rock samples 60 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, fill materials 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.

12. **Follow-Up and Construction Services:** All details of the design were not known at the time of submission of GEMTEC's report. GEMTEC 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 GEMTEC's report.

    During construction, GEMTEC 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 GEMTEC's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in GEMTEC's report. Adequate field review, observation and testing during construction are necessary for GEMTEC 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, GEMTEC'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.

13. **Changed Conditions:** 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 GEMTEC 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 GEMTEC be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

14. **Drainage:** 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. GEMTEC takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

APPENDIX A

Terrane Geoscience Memorandum

TERRANE
GEOSCIENCE INC.

2089 Maitland Street
Halifax, NS, B3K 2Z8
terranegeoscience.com

TO: Leanne Stein, P.Eng. – Geotechnical and Mining Engineer

FROM: Michael Finlayson, M.Sc., EIT, GIT – Junior Rock Mechanics Engineer

REVIEW: Andrew Guest, B.Sc., P.Eng. – Intermediate Rock Mechanics Engineer

DATE: May 11, 2023

RE: DOWNHOLE ACOUSTIC IMAGERY ACQUISITION, INTERPRETATION AND GEOTECHNICAL LOGGING – PORTAL LOCATION, ATLAS SALT –TURF POINT, NEWFOUNDLAND AND LABRADOR.

1.0 INTRODUCTION

Terrane Geoscience Inc. (Terrane) has prepared this memorandum for Gemtec Consulting Engineers and Scientists (Gemtec) to summarize the results of the geotechnical investigation conducted for the Atlas Salt Great Atlantic Salt Deposit project near Turf Point, Newfoundland and Labrador (Figure 1).

2.0 SCOPE OF WORK

Terrane completed the following scope of work as part of this investigation:

- Geotechnical core logging,
- Televiewer data acquisition using an acoustic borehole imager (ABI),
- ABI data interpretation to measure and record select structures, and
- Geotechnical borehole log preparation and factual reporting.

3.0 FIELD DATA COLLECTION

Michaela Matthews, EIT of Terrane was on site from March 27th, 2023 to April 5th, 2023 with Daniel Robbins, EIT of Gemtec. During this period, geotechnical core logging, televiewer data acquisition, and in-situ hydraulic conductivity testing (packer testing) were completed.

For details on the packer testing refer to Gemtec report *101556.003 Decline Drilling Program Support – Factual Summary Report of Geotechnical Logging, Packer Testing and Downhole Geophysical Surveys – Great Atlantic Salt Deposit.*

3.1. Geotechnical Core Logging

All core was logged at the Atlas Salt core logging facility in Stephenville, NL. Core logging was completed in accordance with accepted geotechnical logging standards and following the SLR Consulting Ltd. (SLR) geotechnical logging manual. Geotechnical logging included the collection

ATLAS SALT

ATLAS SALT
GEOTECHNICAL
DATA AQUISITION

FIGURE 1 -
PROJECT LOCATION MAP

Scale: 1:3,000,000	Date: 02-2023
Drawn: PR	Checked: TLG
Approved: TLG	Figure #: 1

0 1,000 2,000 km

1:125,000,000

0 60 120 km

TERRANE
GEOSCIENCE INC.
www.terranegeoscience.com

Notes:
1) Dimensions in meters
2) NAD83 / UTM zone 21N
3) Provincial outlines from Positron

2089 Maitland Street
Halifax, NS, B3K 2Z8
terranegeoscience.com

of the parameters to calculate RMR_{76} (Bieniawski, 1974) and Q (Barton, 1974) for each run. Each core run was 3 m long using a standard core barrel. Data was collected on core recovery, RQD, discontinuity characteristics (e.g., alteration, weathering, and infill) and fracture counts.

Geotechnical logging consisted of 2 boreholes totaling 601 m. Collar locations, azimuth, dip and total length for each hole is summarized in Table 1. Detailed geotechnical borehole logs are provided in Appendix A.

Table 1 – Summary of Geotechnical Drillholes Logged

Borehole ID	Easting[1.]	Northing[1.]	Elevation (m)	Collar Azimuth (°)	Collar Dip (°)	Logged From Depth (m)	Logged To Depth (m)
CC-22-08[2.]	387770	5363177	55.0	0	90	263.00	491.60
D-1	389025	5363558	47.4	0	90	15.04	159.50

Notes:
1. NAD83 UTM Zone 21 North.
2. Salt interval from historical 2022 drilling, core size BQ.

3.2. Acoustic Televiewer Survey

Terrane completed an ABI downhole survey in one borehole. Water was encountered at 6.3 m with a survey depth of 43.8 meters. Table 2 summarizes the ABI data collected. Detailed televiewer logs displaying the raw imagery and structure picks are provided in Appendix B.

Table 2 - Acoustic Televiewer Survey Summary

Drill hole ID	Easting[1.]	Northing[1.]	Elevation (m)	Acoustic Surveyed (m)	No. of Structures Measured
D-1	389025	5363558	47.4	43.82	54

Notes: 1. NAD83 UTM Zone 21 North.

The total number of meters drilled differs from the amount of televiewer surveying completed on the project due to an obstruction (borehole caving) blocking the ABI.

TERRANE
GEOSCIENCE INC.

2089 Maitland Street
Halifax, NS, B3K 2Z8
terranegeoscience.com

4.0 CLOSING

We trust that this memorandum meets the needs of Gemtec. Should you have any questions please do not hesitate to contact us.

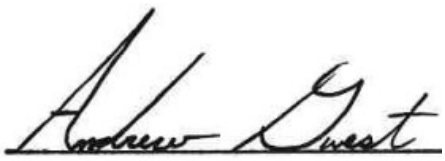
Yours sincerely,

Terrane Geoscience Inc.

Prepared By:

Michael Finlayson, M.Sc., EIT, GIT
Junior Rock Mechanics Engineer

Reviewed By:



Andrew Guest, P.Eng.
Intermediate Rock Mechanics Engineer

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
DATE COMPLETED: MAR 31, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

Legend of Major Structures: Gouge, Sheared, Jointed, Broken — Definitions

IRS: Estimated Intact Rock Strength
UCS: Unconfined Compressive Strength
PLT: Point Load Test
FF/m: Fracture Frequency per m
TCR: Total Core Recovery
RQD: Rock Quality Designation
RMR: Rock Mass Rating (1976)
JCR: Joint Condition Rating
PT: Packer Test

DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
260			LIMESTONE. Fined grained, white to pale grey.									
			POTASH/SALT/CARBONATE MUDSTONE. Very fine to fine grained, dark grey with red/orange.				2.0		2	12	44	
265	875						3.3		2	12	51	
270							1.7		2	20	60	
	900						3.0		2	12	51	
275							4.7		2	12	46	
							4.0		2	12	50	
280												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
280												
			SALT/HALITE. Very fine grained, light orange to grey.				4.0		2	12	50	
	925						1.3		2	20	64	
285							7.3		1	20	50	
							7.7		2	12	41	
	950		MUDSTONE WITH SALT INTERBEDS. Very fine to medium grained, brown to grey with orange.				6.0		2	12	39	
290							6.3		2	12	44	
							10.0		2	6	29	
295	975						11.3		2	12	40	
300												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
DATE COMPLETED: MAR 31, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

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IRS: Estimated Intact Rock Strength
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RMR: Rock Mass Rating (1976)
JCR: Joint Condition Rating
PT: Packer Test

DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
300			MUDSTONE WITH SALT INTERBEDS. Very fine to medium grained, brown to grey with orange. *(continued...)*				11.3		2	12	40	
							12.7		2	6	32	
305	1000						9.3		2	12	40	
							10.7		2	12	45	
310			SALT/HALITE. Very fine to fine grained, clear to pale grey with red.				6.0		2	20	54	
	1025						4.7		1	20	55	
315							8.3		1	20	52	
320												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
DATE COMPLETED: MAR 31, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

Legend of Major Structures: Gouge, Sheared, Jointed, Broken — Definitions

IRS: Estimated Intact Rock Strength
UCS: Unconfined Compressive Strength
PLT: Point Load Test
FF/m: Fracture Frequency per m
TCR: Total Core Recovery
RQD: Rock Quality Designation
RMR: Rock Mass Rating (1976)
JCR: Joint Condition Rating
PT: Packer Test

DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m (10–30) / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
320	1050		SALT/HALITE. Very fine to fine grained, clear to pale grey with red. *(continued...)*				10.0		2	12	42	
			MUDSTONE WITH SALT INTERBEDS. Very fine to medium grained, dark grey with red/orange.				12.3		2	12	37	
325			SALT/HALITE. Very fine to fine grained, clear to pale grey.				6.7		2	20	53	
	1075						4.7		1	20	54	
330							6.0		1	20	53	
335	1100						13.3		2	20	49	
340							10.7		2	20	48	

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
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INCLINATION: N/A°
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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
340			SALT/HALITE. Very fine to fine grained, clear to pale grey. *(continued...)*				10.7		2	20	48	
	1125						12.7		1	20	51	
345							10.7		1	20	52	
							8.3		1	20	50	
350	1150						9.3		1	20	49	
							6.7		1	20	45	
355							9.0		1	20	52	
	1175						6.0		1	20	54	
360												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
DATE COMPLETED: MAR 31, 2023
INCLINATION: N/A°
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PROJECT NO.: 23-019-H
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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
360			SALT/HALITE. Very fine to fine grained, clear to pale grey. *(continued...)*				6.0		1	20	54	
							3.0		1	20	55	
365	1200						3.3		1	20	53	
							2.3		1	20	59	
370							3.3		1	20	56	
	1225						4.0		1	20	56	
375							4.0		1	20	56	
380												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
380			SALT/HALITE. Very fine to fine grained, clear to pale grey. *(continued...)*				5.0		1	20	54	
	1250						3.7		1	20	54	
385							4.3		1	20	52	
	1275						7.7		1	20	55	
390			SALT/HALITE. Very fine to fine grained, black/grey.				9.3		1	20	44	
395							12.7		1	20	45	
	1300						14.0		1	20	49	
400												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
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INCLINATION: N/A°
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PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
400			SALT/HALITE. Very fine to fine grained, black/grey. *(continued...)*				14.0		1	20	49	
							10.3		2	12	38	
	1325											
405							12.3		2	12	39	
							10.0		1	20	51	
410												
	1350						6.0		1	20	44	
							7.3		1	20	51	
415												
							5.3		1	20	47	
	1375											
420							3.0		1	20	49	

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

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PROJECT NO.: 23-019-H
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PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
420			SALT/HALITE. Very fine to fine grained, black/grey. *(continued...)*				3.0		1	20	49	
							6.7		1	20	48	
425	1400						10.0		2	20	48	
							8.0		2	20	51	
430							4.0		2	20	43	
	1425						13.3		2	12	35	
435							6.7		2	12	40	
440												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
DATE COMPLETED: MAR 31, 2023
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AZIMUTH: 0°

PROJECT NO.: 23-019-H
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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
440			SALT/HALITE. Very fine to fine grained, black/grey. *(continued...)*									
	1450						4.3		2	20	42	
445							6.7		2	20	42	
							4.0		2	20	43	
	1475						5.0		2	12	35	
450							10.0		2	12	42	
455							15.0		1	20	42	
	1500						12.0		1	20	43	
460												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
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INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
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PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
460			SALT/HALITE. Very fine to fine grained, black/grey. *(continued...)*				12.0		1	20	43	
							14.0		1	20	45	
465	1525						10.7		1	20	46	
							10.0		1	12	35	
470							12.0		3	12	34	
	1550						16.7		3	12	32	
475							15.0		2	20	43	
							11.3		2	20	44	
480												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: CC-22-08

TOTAL DEPTH: 491.60 m
N: 5363177 **E:** 387770
ELEVATION: 55.00 m
UTM ZONE: 21N

DATE STARTED: MAR 30, 2023
DATE COMPLETED: MAR 31, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
480	1575		SALT/HALITE. Very fine to fine grained, black/grey. *(continued...)*				11.3		2	20	44	
							23.3		2	20	45	
			ANHYDRITE, very fine to fine, light grey.				0.6		1	20	62	
485							1.0		1	20	59	
	1600											
490							2.0		1	20	59	
							1.7		1	20	63	
495	1625		End of Drillhole at 491.6 m.									
500												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: D-1

TOTAL DEPTH: 159.50 m
N: 5363558 **E:** 389025
ELEVATION: 47.40 m
UTM ZONE: 21N

DATE STARTED: MAR 19, 2023
DATE COMPLETED: MAR 28, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

Legend of Major Structures: Gouge, Sheared, Jointed, Broken — Definitions

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UCS: Unconfined Compressive Strength
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PT: Packer Test

DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
0	0		OVERBURDEN									
15	50		MUDSTONE. Very fine to fine grained, red brown, hematite alteration.				50.0		3	6	24	
			SANDSTONE. Fine to medium, grey.				2.0		2	20	61	
							5.3		2	20	57	
			SANDSTONE. Fine to medium, grey with red brown, hematite alteration.				2.7		3	0	37	
20			MUDSTONE. Very fine to fine grained, red brown, hematite alteration.									

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: D-1

TOTAL DEPTH: 159.50 m
N: 5363558 **E:** 389025
ELEVATION: 47.40 m
UTM ZONE: 21N

DATE STARTED: MAR 19, 2023
DATE COMPLETED: MAR 28, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

Legend of Major Structures: Gouge, Sheared, Jointed, Broken — Definitions

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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
20			SANDSTONE. Fine to medium, red brown, hematite alteration. *(continued...)*				4.0		3	6	41	
			MUDSTONE. Very fine to fine grained, red brown, hematite alteration.				6.7		3	6	35	
	75		SANDSTONE. Fine to medium, red brown with grey, hematite alteration.				50.0		4	0	18	
25			MUDSTONE. Very fine to medium grained, red brown, hematite alteration.				50.0		3	0	18	
			SANDSTONE. Fine to coarse, grey with red brown, hematite alteration.				7.3		2	6	40	
			MUDSTONE. Very fine to medium grained, red brown, hematite alteration.				10.0		3	12	46	
30			SANDSTONE. Fine to coarse, grey.				50.0		3	6	24	
	100		SANDSTONE. Fine to medium, grey.				16.7		2	12	39	
			SANDSTONE WITH MUDSTONE INTERBEDS. Very fine to coarse, grey with brown, hematite alteration.				12.0		3	12	48	
							14.7		3	0	31	
35			MUDSTONE. Very fine to medium grained, red brown, hematite alteration.				13.3		3	0	33	
							11.3		3	0	30	
	125						14.0		2	0	34	
40							11.3		2	6	42	

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: D-1

TOTAL DEPTH: 159.50 m
N: 5363558 **E:** 389025
ELEVATION: 47.40 m
UTM ZONE: 21N

DATE STARTED: MAR 19, 2023
DATE COMPLETED: MAR 28, 2023
INCLINATION: N/A°
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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
40			MUDSTONE. Very fine to medium grained, red brown, hematite alteration. *(continued...)*				11.3		2	6	42	
			SANDSTONE. Fine to coarse, grey.				20.0		3	12	43	
45			MUDSTONE WITH SANDSTONE INTERBEDS. Very fine to coarse, red brown to grey, hematite alteration.				50.0		3	0	18	
	150						10.7		3	0	33	
							12.7		3	0	29	
							63.0		2	12	30	
50			CONGLOMERATE WITH SANDSTONE INTERBEDS. Medium to very coarse, red brown to grey, hematite alteration, clay gouge present.				3.2		3	12	53	
							4.7		2	0	37	
							6.0		2	12	51	
							10.0		2	6	40	
	175						4.7		2	12	49	
55							6.7		2	6	45	
							4.0		2	6	45	
							16.7		3	6	38	
60							8.7		2	0	35	

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: D-1

TOTAL DEPTH: 159.50 m
N: 5363558 **E:** 389025
ELEVATION: 47.40 m
UTM ZONE: 21N

DATE STARTED: MAR 19, 2023
DATE COMPLETED: MAR 28, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m (10–30) / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
60			CONGLOMERATE WITH SANDSTONE INTERBEDS. Medium to very coarse, red brown to grey, hematite alteration, clay gouge present. *(continued...)*				8.7		2	0	35	
	200						4.0		2	12	51	
							5.3		2	6	46	
							3.3		2	12	50	
65							6.0		2	12	51	
							3.3		2	12	50	
	225						5.3		2	0	36	
70							5.3		2	6	42	
			CONGLOMERATE WITH MUDSTONE INTERBEDS. Very fine to coarse, red brown to grey, hematite alteration.				10.0		3	0	29	
							10.7		2	12	40	
75					× ×		46.3		3	0	18	
							4.8		2	12	51	
	250						3.3		2	0	40	
							4.0		2	12	48	
80							10.0		2	6	36	

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: D-1

TOTAL DEPTH: 159.50 m
N: 5363558 **E:** 389025
ELEVATION: 47.40 m
UTM ZONE: 21N

DATE STARTED: MAR 19, 2023
DATE COMPLETED: MAR 28, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

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DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
80			CONGLOMERATE WITH MUDSTONE INTERBEDS. Very fine to coarse, red brown to grey, hematite alteration. *(continued...)*				13.3		3	0	29	
							5.3		2	6	42	
	275						6.7		2	6	42	
85							10.7		2	6	40	
							8.0		2	0	33	
			SANDSTONE WITH CONGLOMERATE INTERBEDS. Fine to coarse, red brown with grey, hematite alteration.				13.3		2	6	36	
90							9.3		2	12	43	
	300						14.7		2	6	37	
							6.0		2	0	41	
95							4.7		2	12	52	
							4.0		2	12	54	
			MUDSTONE. Very fine to coarse grained, red brown, hematite alteration, clacite clasts present.				4.7		2	12	48	
							8.9		2	6	40	
	325		SANDSTONE. Medium to coarse, red brown, hematite alteration.				3.3		2	12	51	
100							7.3		2	6	40	

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: D-1

TOTAL DEPTH: 159.50 m
N: 5363558 **E:** 389025
ELEVATION: 47.40 m
UTM ZONE: 21N

DATE STARTED: MAR 19, 2023
DATE COMPLETED: MAR 28, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

Legend of Major Structures: Gouge, Sheared, Jointed, Broken — Definitions

IRS: Estimated Intact Rock Strength
UCS: Unconfined Compressive Strength
PLT: Point Load Test
FF/m: Fracture Frequency per m
TCR: Total Core Recovery
RQD: Rock Quality Designation
RMR: Rock Mass Rating (1976)
JCR: Joint Condition Rating
PT: Packer Test

DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	FF/m / TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
100			SANDSTONE. Medium to coarse, red brown, hematite alteration. *(continued...)*				7.3		2	6	40	
							10.7		2	6	34	
			CONGLOMERATE. Medium to very coarse, red brown with grey occasional sandstone interbeds with mudstone lenses.				3.3		2	12	52	
105							4.0		2	12	52	
	350						3.3		2	12	54	
							6.7		2	12	50	
110							3.3		2	0	39	
							4.0		2	12	51	
							12.0		2	12	43	
	375						6.0		2	12	49	
115							4.0		2	12	52	
							5.3		2	12	51	
							5.3		2	12	52	
120			SANDSTONE. Medium to very coarse, red brown with grey, hematite alteration, conglomerate interbeds.				8.0		2		36	

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: D-1

TOTAL DEPTH: 159.50 m
N: 5363558 **E:** 389025
ELEVATION: 47.40 m
UTM ZONE: 21N

DATE STARTED: MAR 19, 2023
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INCLINATION: N/A°
AZIMUTH: 0°

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RQD: Rock Quality Designation
RMR: Rock Mass Rating (1976)
JCR: Joint Condition Rating
PT: Packer Test

DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
120			SANDSTONE. Medium to very coarse, red brown with grey, hematite alteration, conglomerate interbeds. *(continued...)*				8.0		2		36	
	400						10.0		2	12	45	
							6.0		2	12	50	
125							9.3		2	12	45	
							5.3		2	12	49	
							3.3		2	12	52	
							3.3		2	12	52	
	425						2.0		2	12	54	
130							1.3		2	12	57	
							1.3		2	12	57	
							2.7		2	12	53	
135							2.7		2	12	53	
	450						2.0		2	6	47	
							4.7		2	6	46	
140												

LOGGED: MM/DR

CHECKED: TLG

TERRANE GEOSCIENCE INC.

GEOTECHNICAL ROCK CORE LOG

BOREHOLE: D-1

TOTAL DEPTH: 159.50 m
N: 5363558 **E:** 389025
ELEVATION: 47.40 m
UTM ZONE: 21N

DATE STARTED: MAR 19, 2023
DATE COMPLETED: MAR 28, 2023
INCLINATION: N/A°
AZIMUTH: 0°

PROJECT NO.: 23-019-H
CLIENT: Atlas Salt
PROJECT NAME: Gemtec Atlas Salt Geotechnical Investigation

Legend of Major Structures: Gouge, Sheared, Jointed, Broken — Definitions

IRS: Estimated Intact Rock Strength
UCS: Unconfined Compressive Strength
PLT: Point Load Test
FF/m: Fracture Frequency per m
TCR: Total Core Recovery
RQD: Rock Quality Designation
RMR: Rock Mass Rating (1976)
JCR: Joint Condition Rating
PT: Packer Test

DEPTH (m)	DEPTH (ft)	STRATA PLOT	LITHOLOGICAL DESCRIPTION	ALPHA	STRUCTURE	IRS (est.) / UCS / PLT (est.) (MPa)	FF/m	TCR / RQD (%)	Weathering	JCR	RMR 1976	OTHER TESTS
140			MUDSTONE. Very fine to medium grained, red brown, hematite alteration. *(continued...)*				8.7		2	6	37	
							10.7		2	0	31	
							14.0		2	0	29	
145	475		CONGLOMERATE. Medium to very coarse, red brown with grey.				5.3		2	12	52	
							4.0		2	12	53	
			MUDSTONE. Very fine to medium grained, red brown, hematite alteration.				13.3		3	0	29	
150							50.0		3	0	18	
							50.0		3	0	18	
	500						17.3		2	0	25	
							10.0		2	0	35	
155							6.0		2	12	46	
							10.7		3	12	43	
							50.0		3	0	18	
160			End of Drillhole at 159.5 m.									

LOGGED: MM/DR

CHECKED: TLG

Client: ATLAS SALT

TERRANE GEOSCIENCE INC.

GEMTEC Consulting Engineers and Scientists

Project:

23-019-H

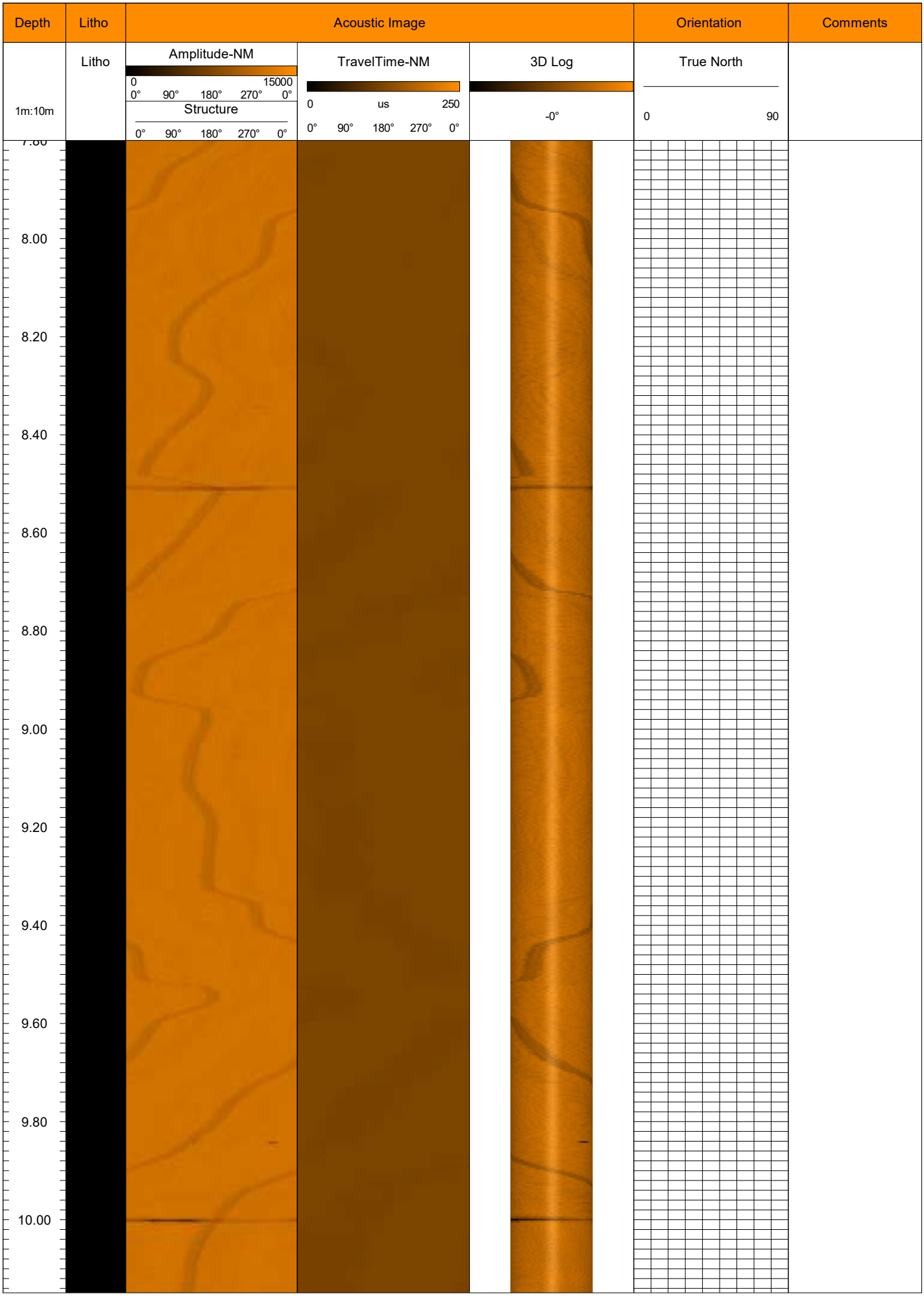
Atlas Salt Geotechnical Televiewer Interpretation

Hole ID:	Area:		
D-1	Flat Bay		
Location: N: 5363558 E: 389025 Z: 47.4		**Azimuth:** 0	**Dip:** 90
Hole Depth (m): 159.50	**Log Depth (m):** 43.83	**Logged By:** P.Ramlochund	**Logged Date:** 05/04/23

Structure: Minor Fault (<10 cm); Major Fault (>10 cm); Bedding; Wash Out; Joint

Lithology: Overburden; Mudstone; Sandstone; Mudstone w/ Sandstone Interbeds; Sandstone w/ Mudstone Interbeds; Conglomerate; Sandstone w/ Conglomerate Interbeds; Conglomerate w/ Sandstone Interbeds

Depth	Litho	Acoustic Image			Orientation	Comments
	Litho	Amplitude-NM 0 15000 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	TravelTime-NM 0 us 250 0° 90° 180° 270° 0°	3D Log -0°	True North 0 90	
1m:10m						
6.20						Unable to depth match due to ABI image only.
6.40						Water Level at 6.35 m.
6.60						
6.80						
7.00						
7.20						
7.40						
7.60						
7.80						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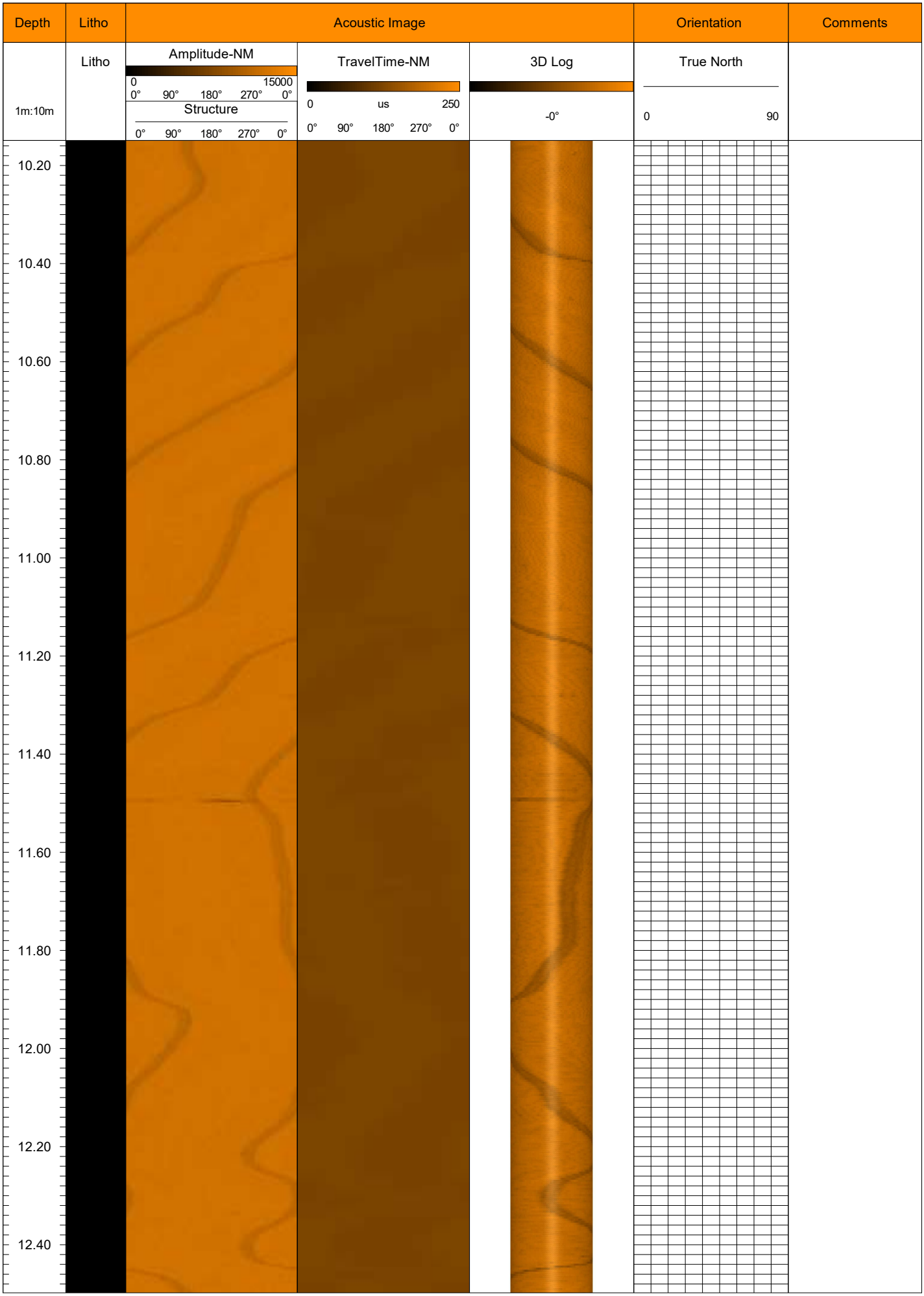
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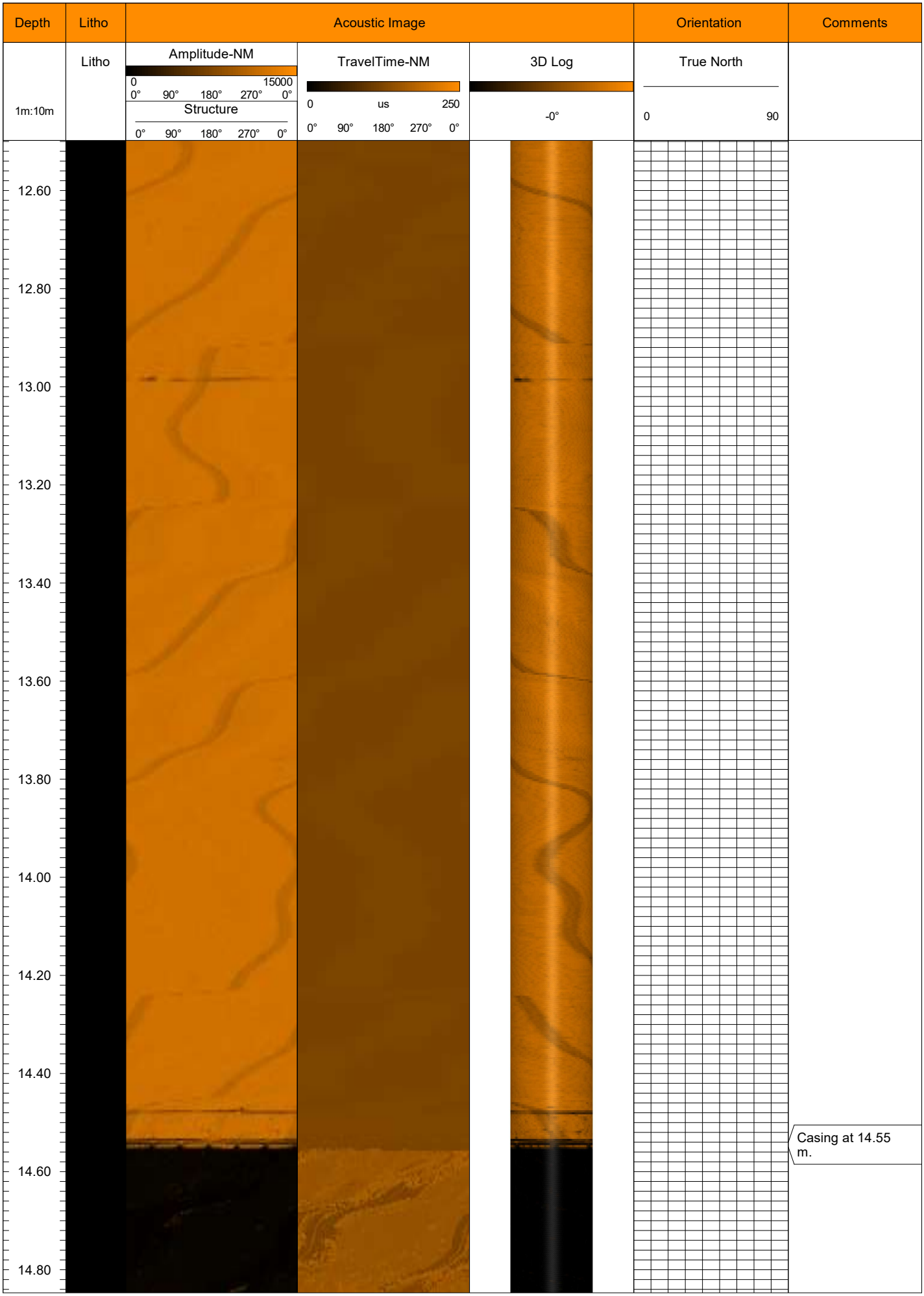
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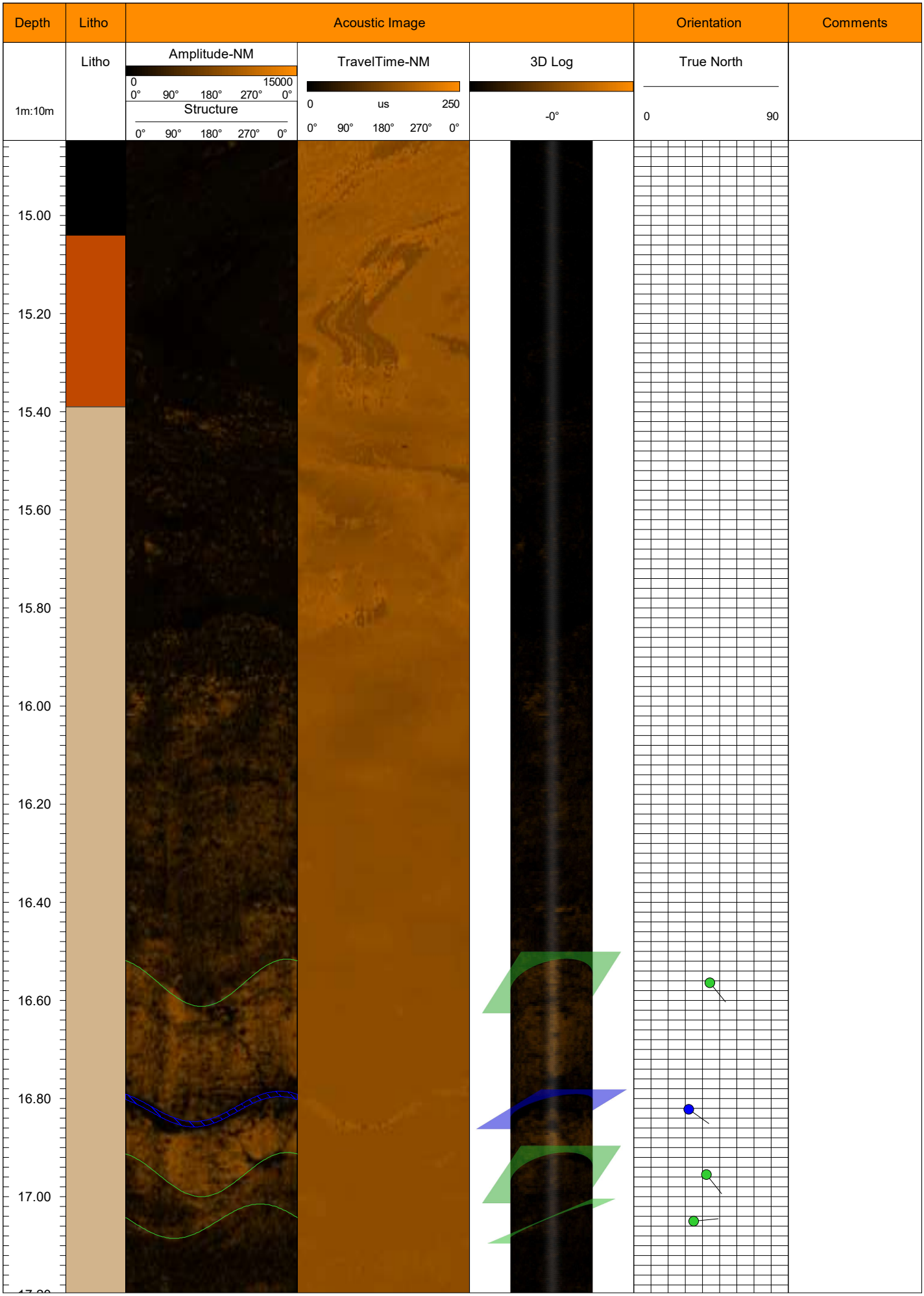
Casing at 14.55 m.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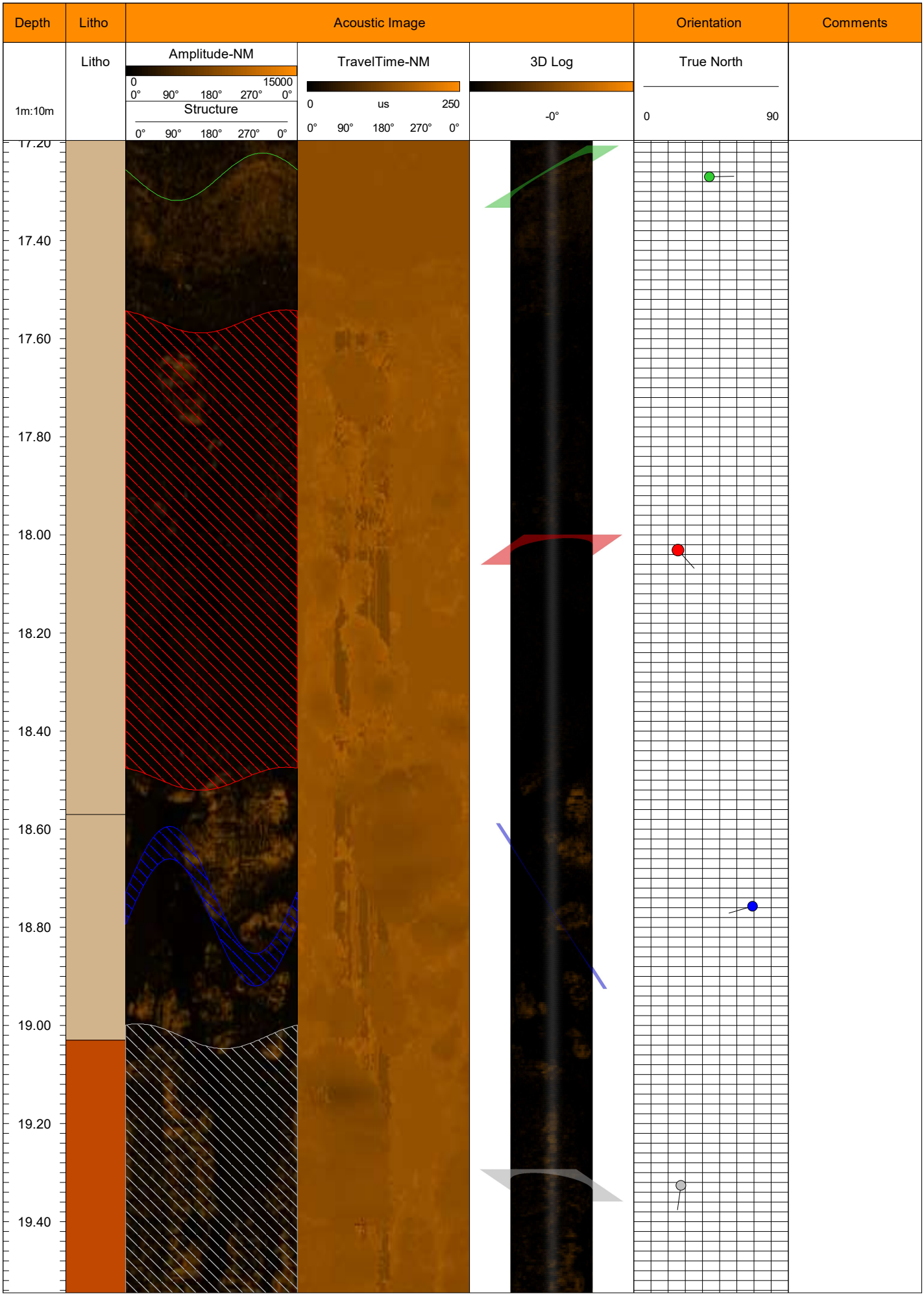
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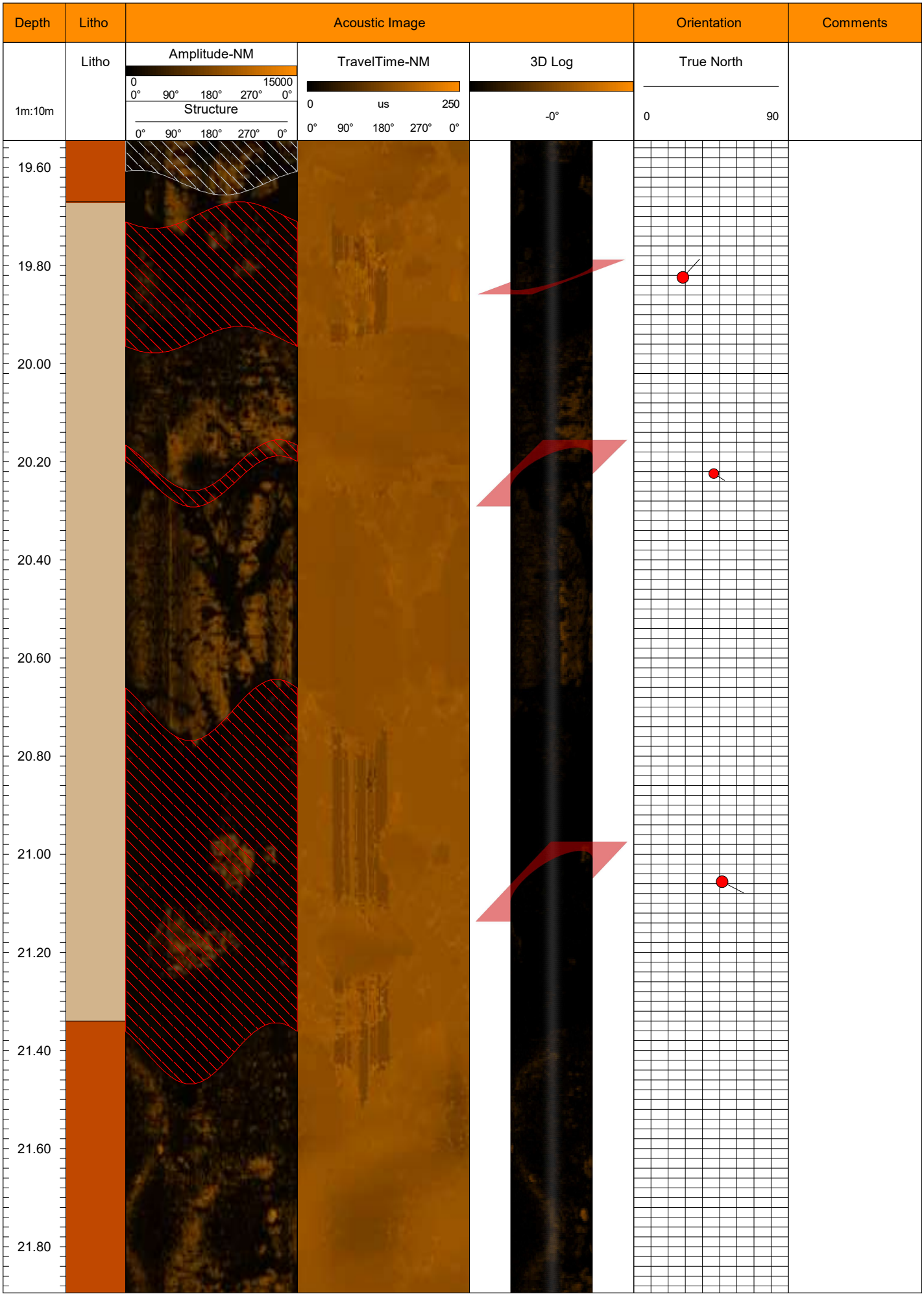
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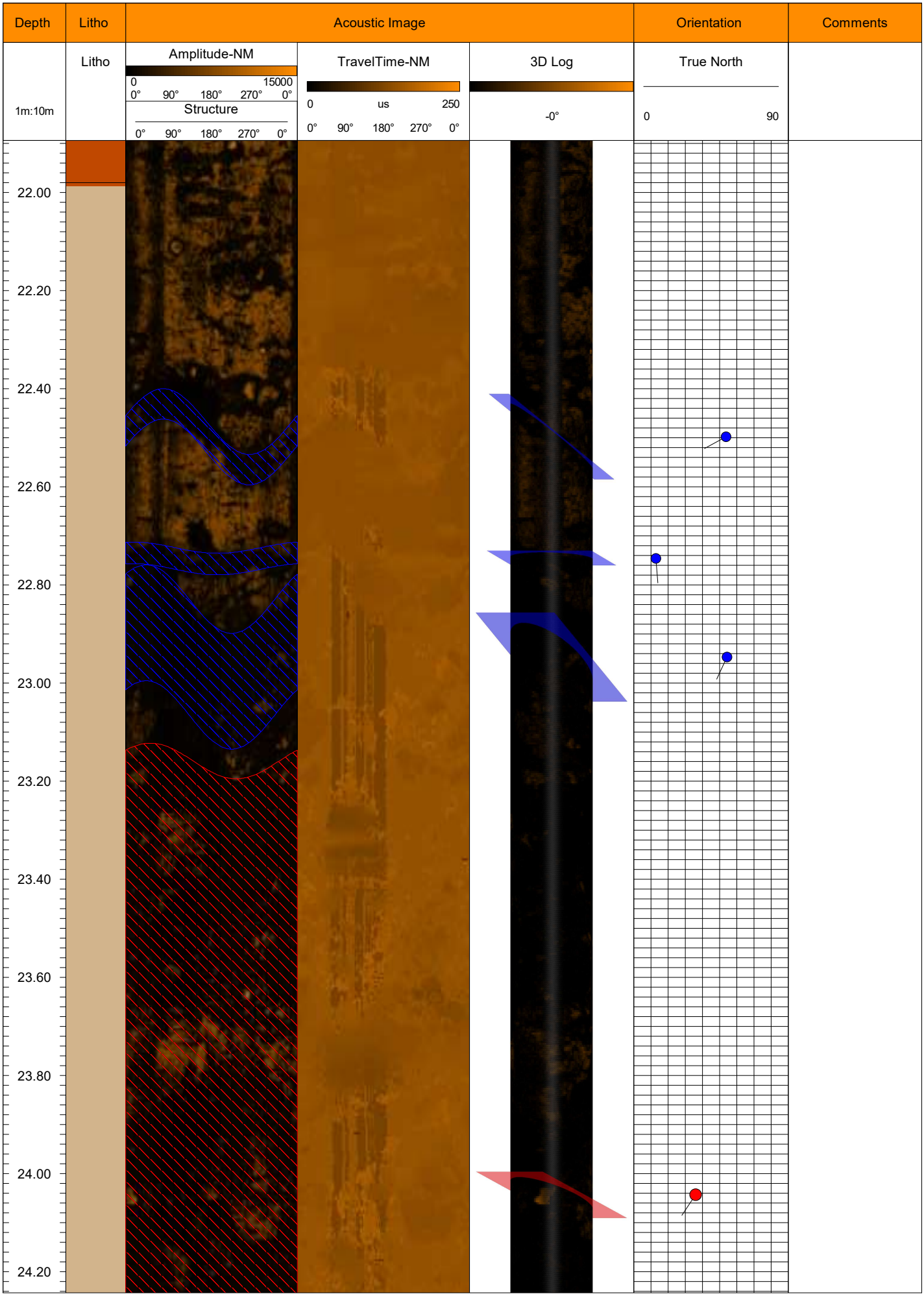
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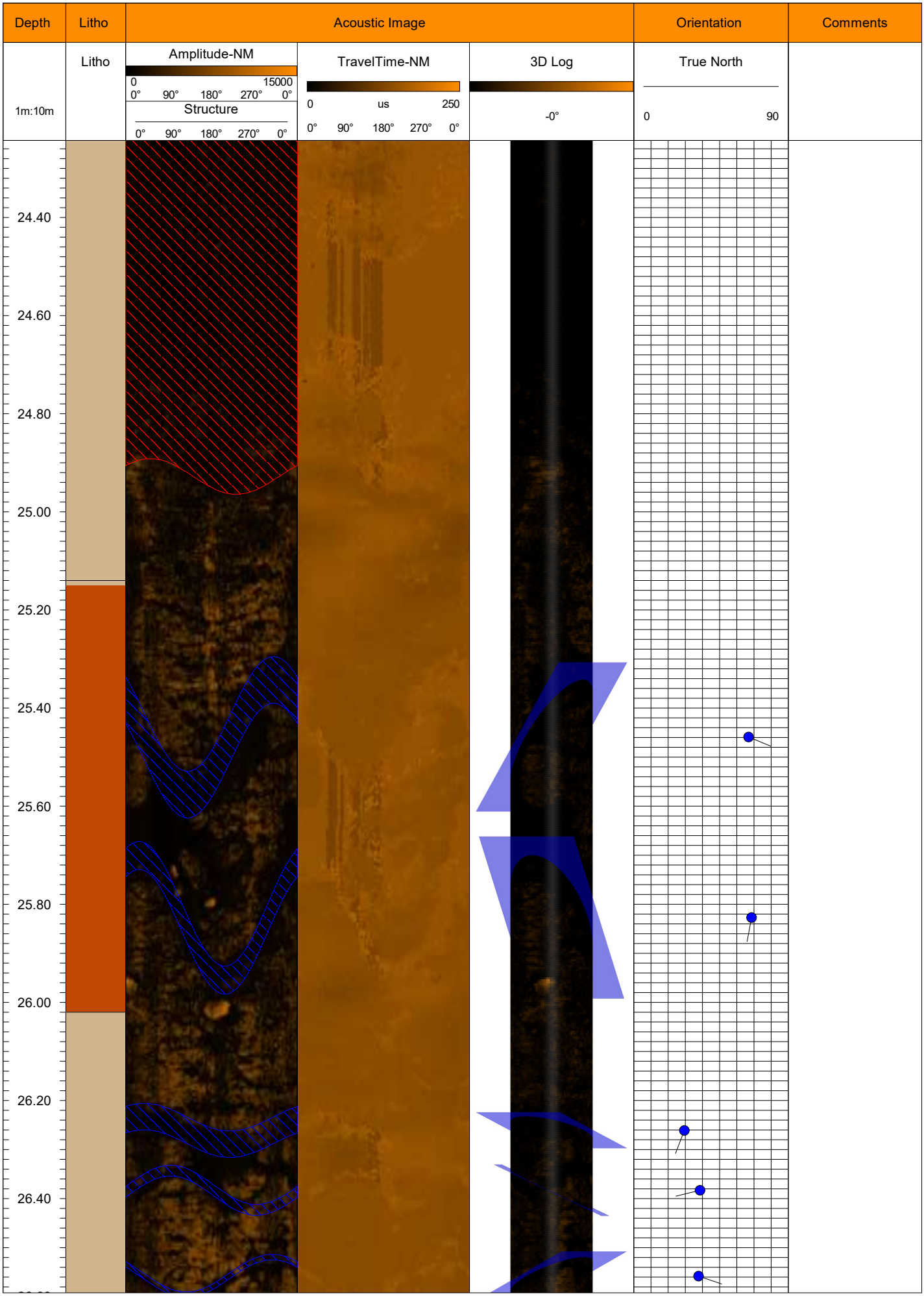
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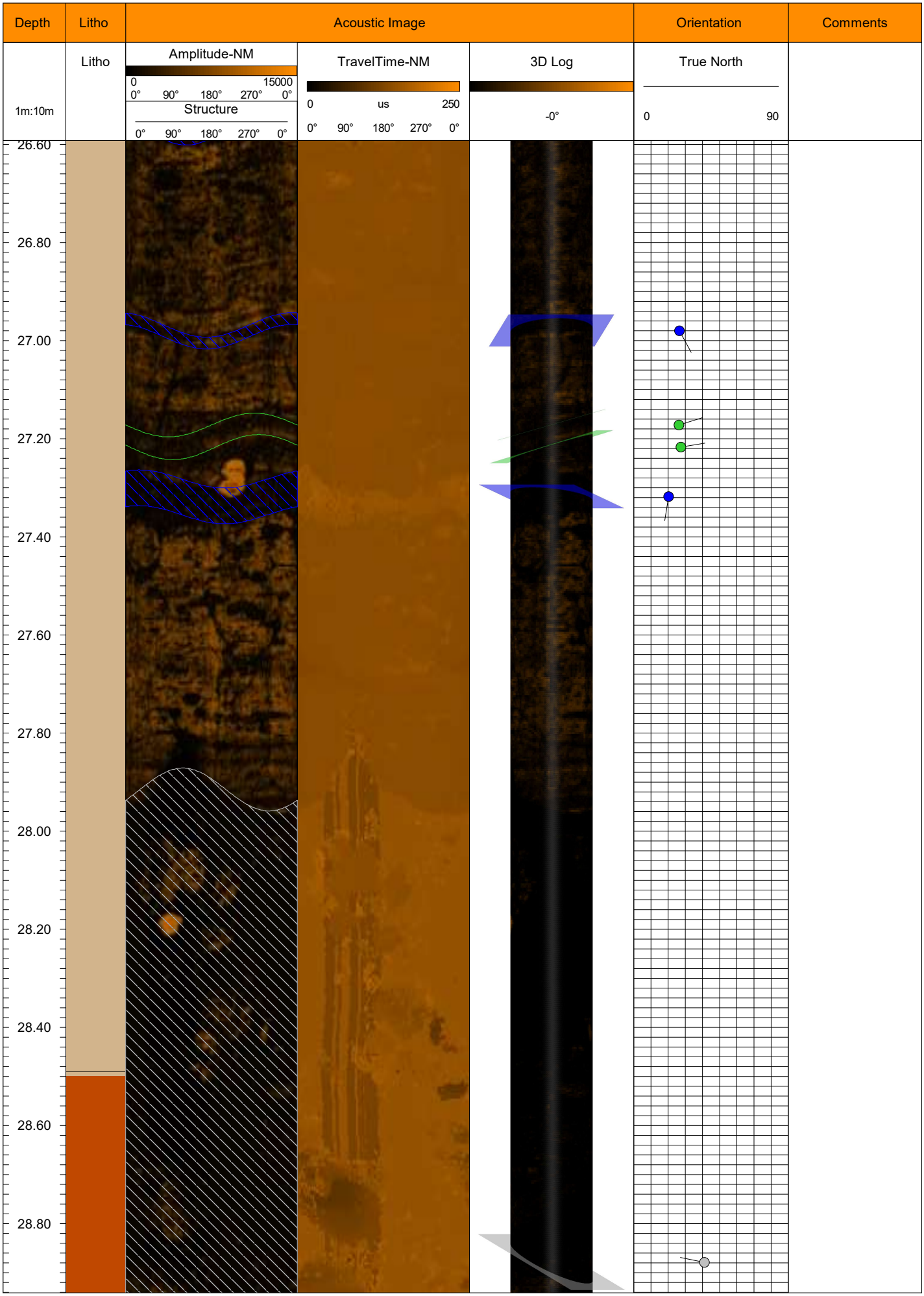
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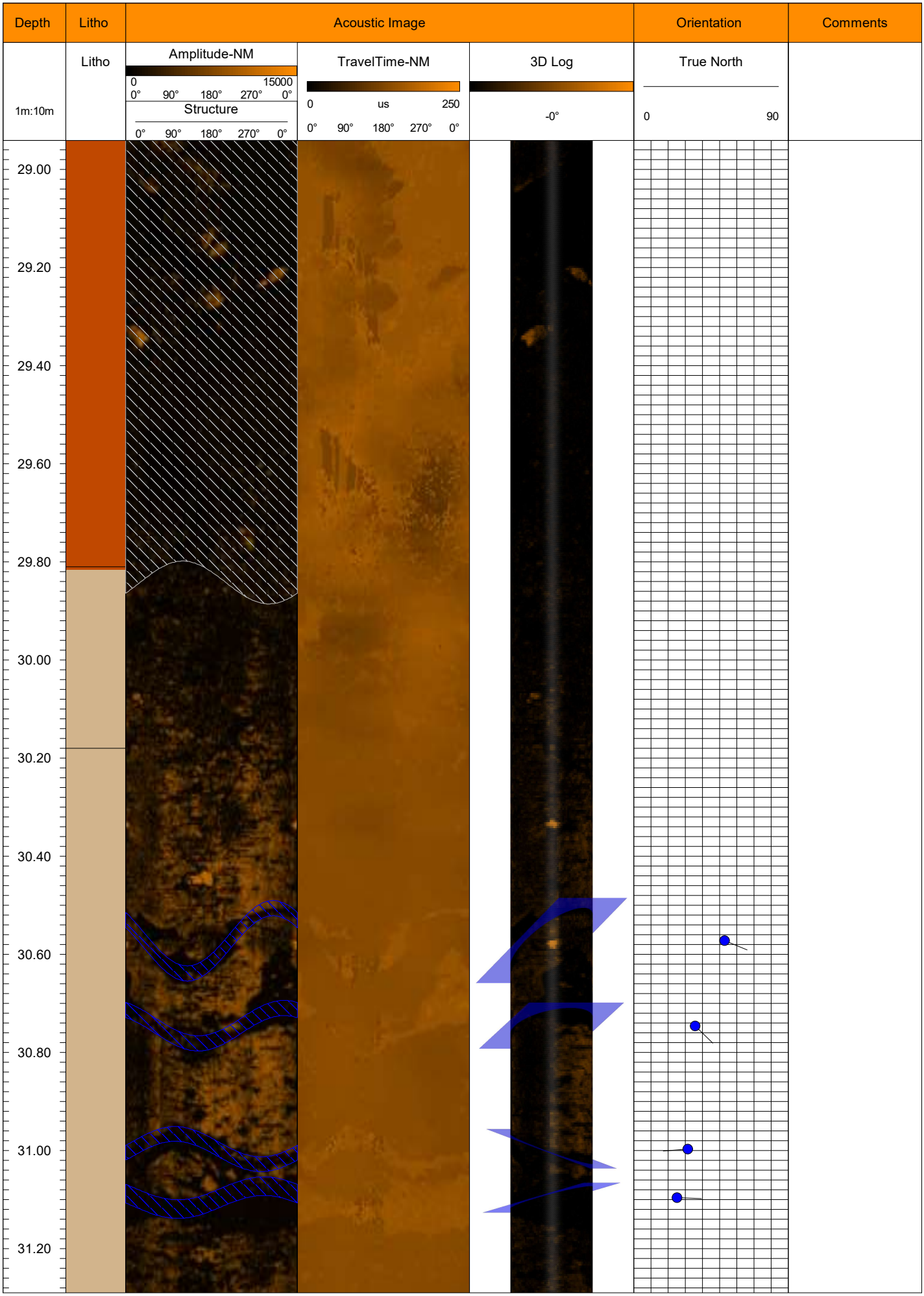
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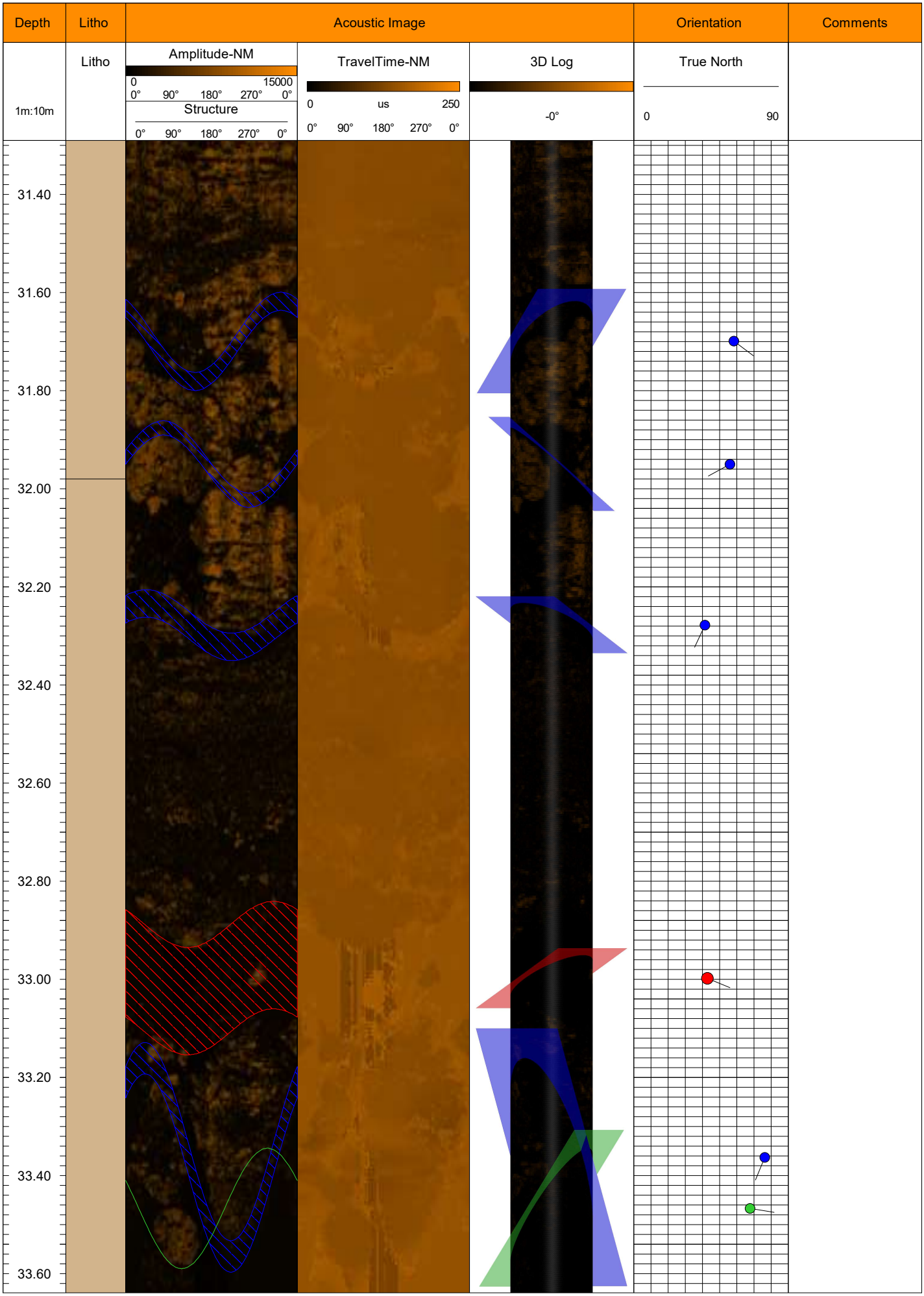
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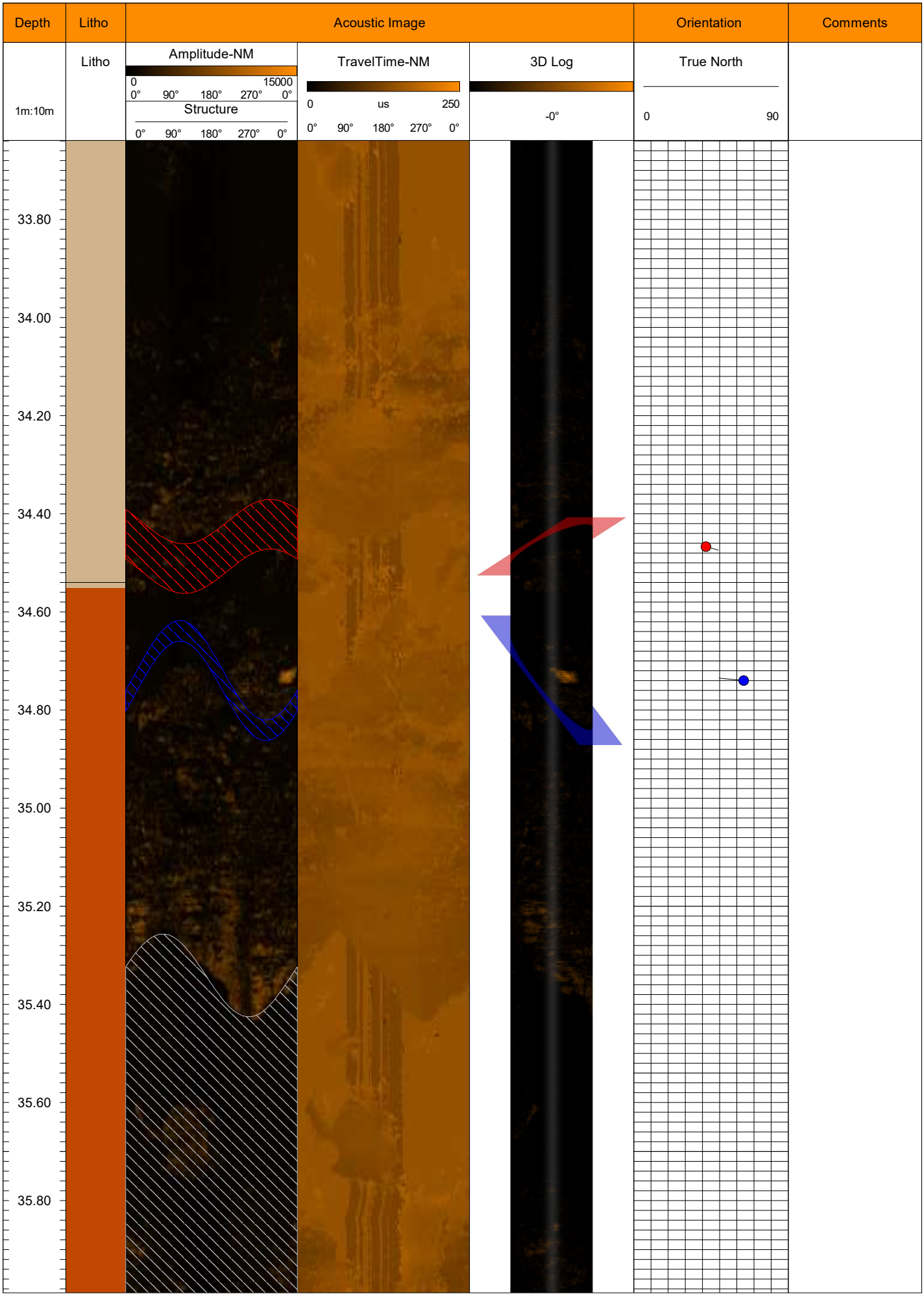
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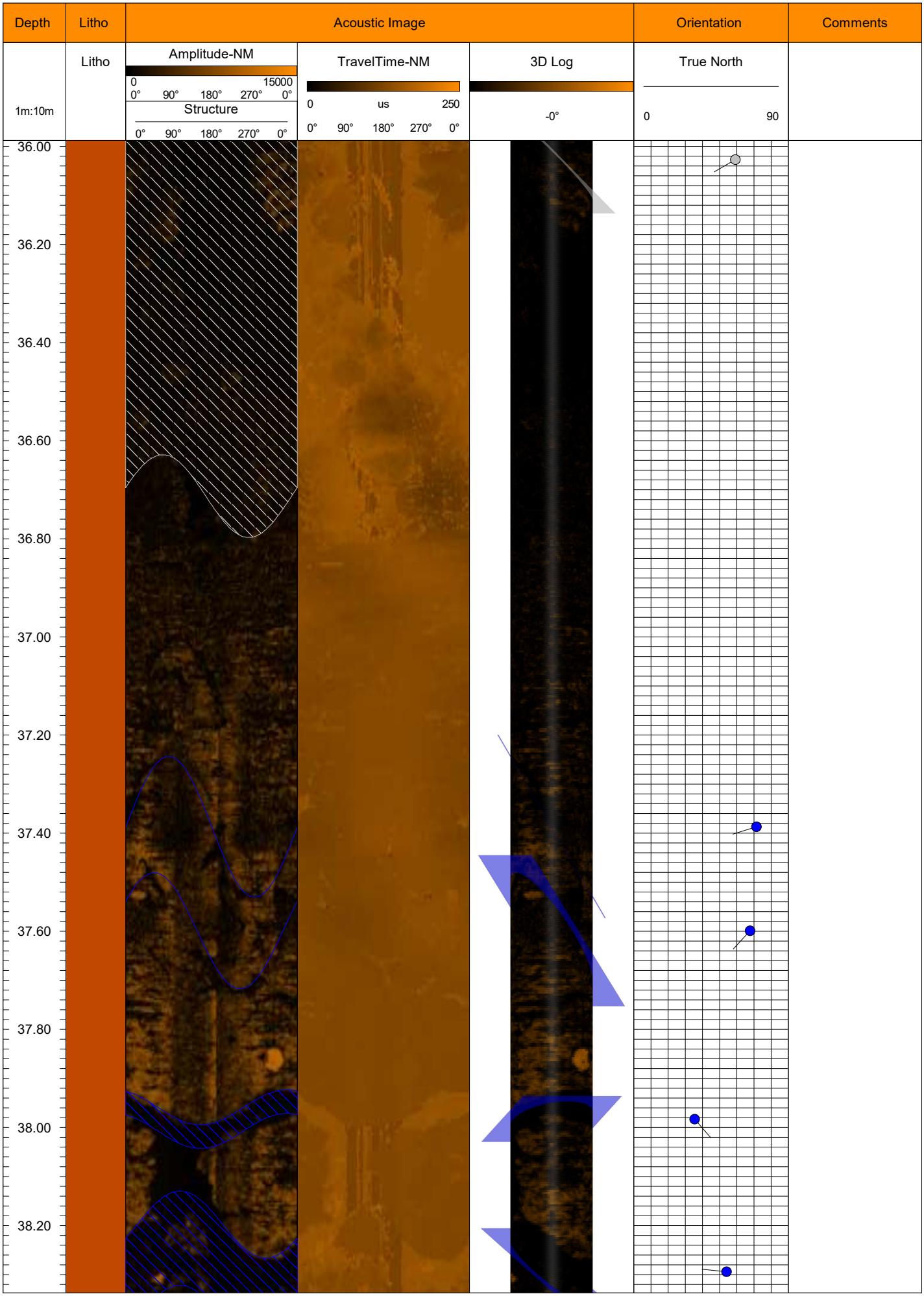
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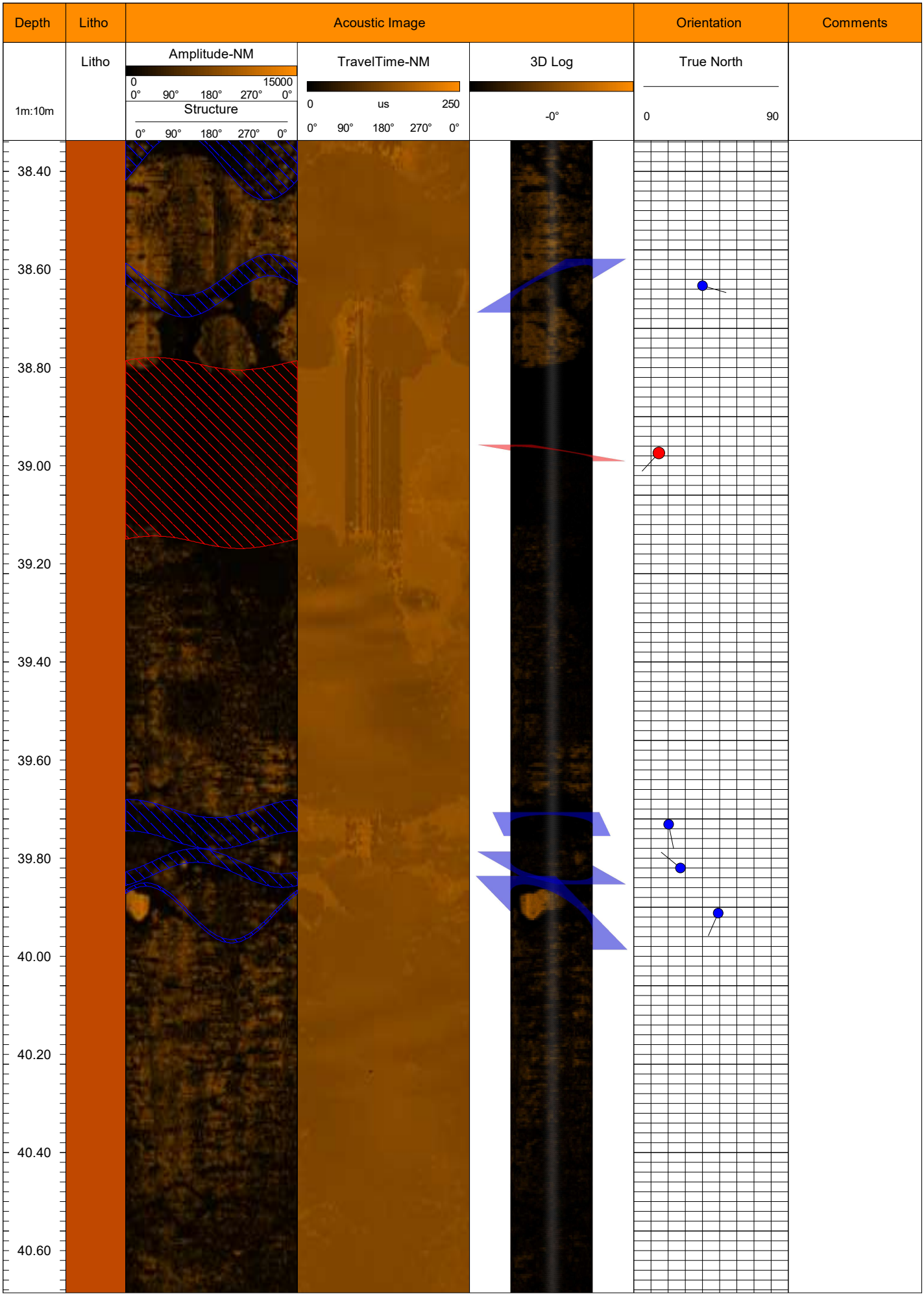
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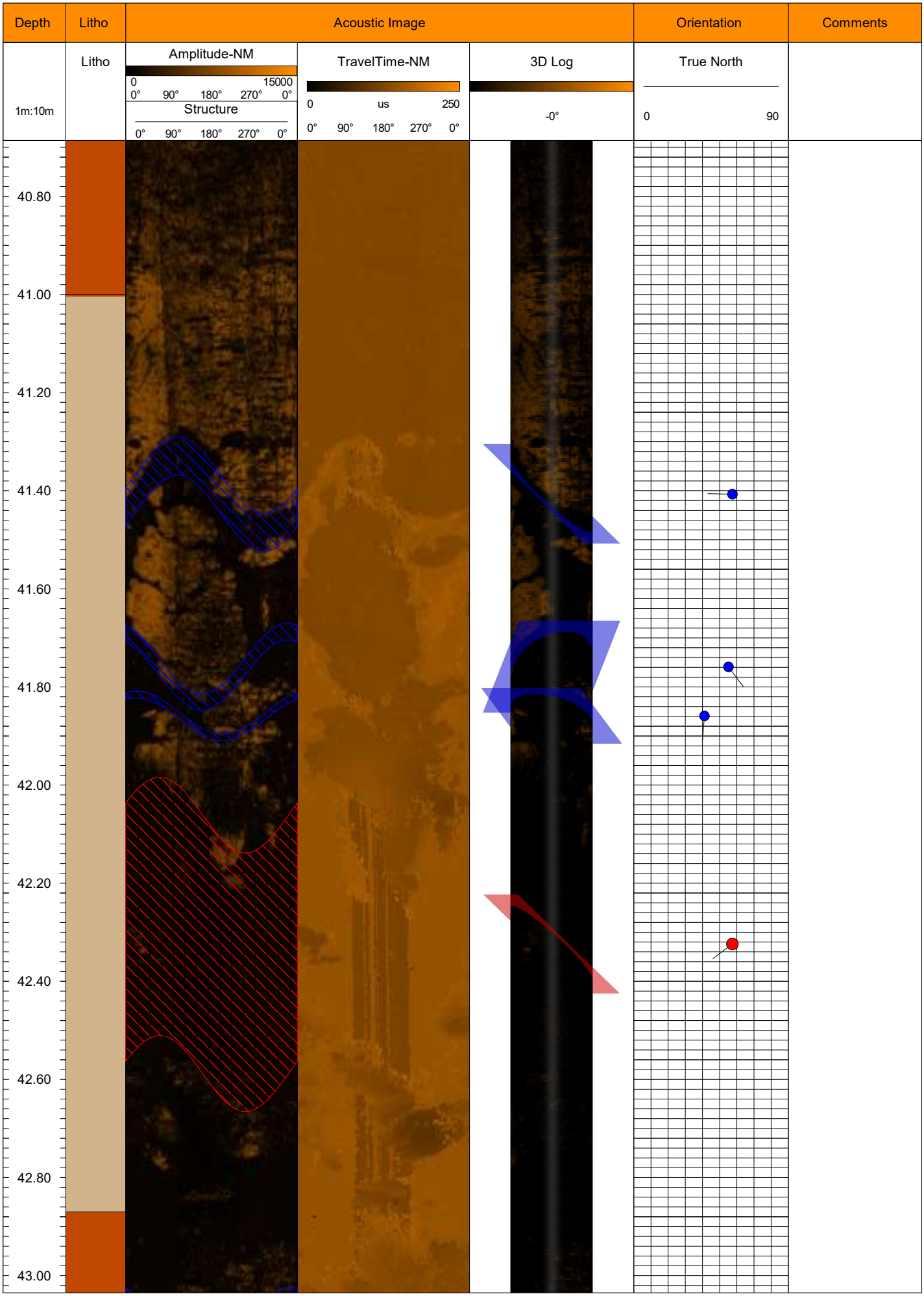
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42.80
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Depth	Litho	Acoustic Image			Orientation	Comments
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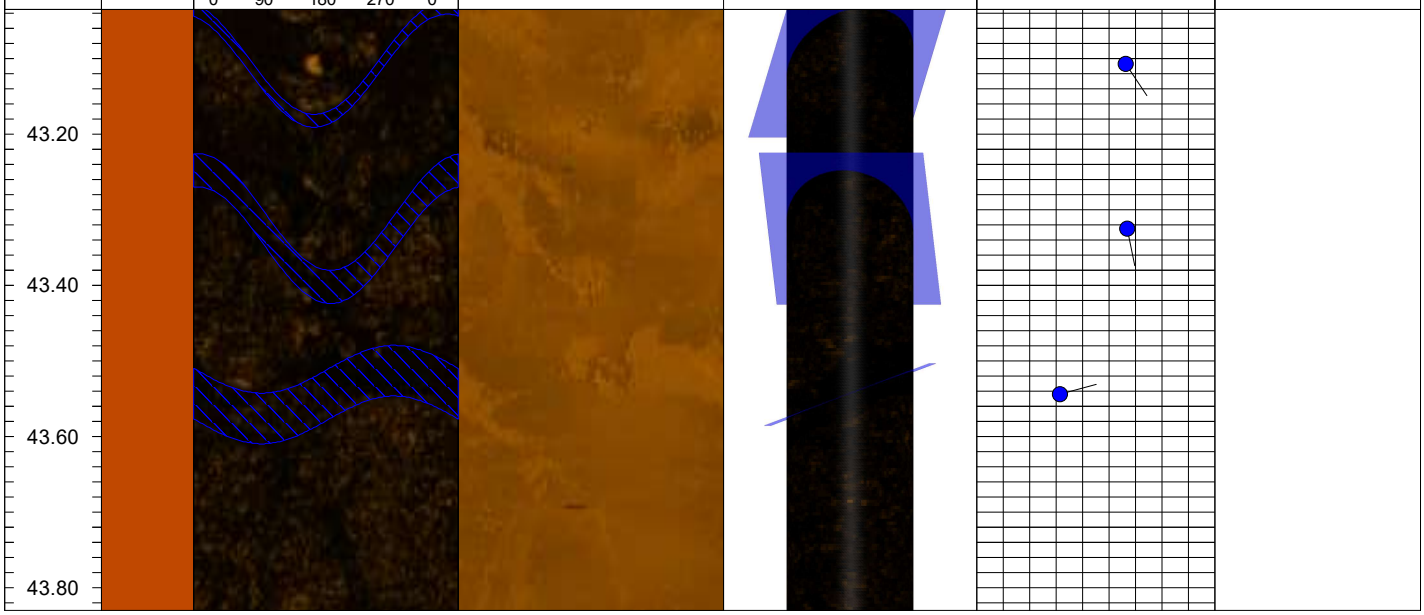


APPENDIX B

Packer Test Results

GEMTEC
Consulting Engineers and Scientists

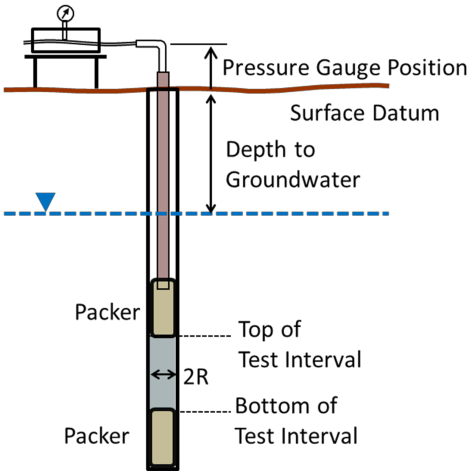
Lugeon Test Analysis Report

Project: Great Atlantic Salt Project

Number: 101556.003

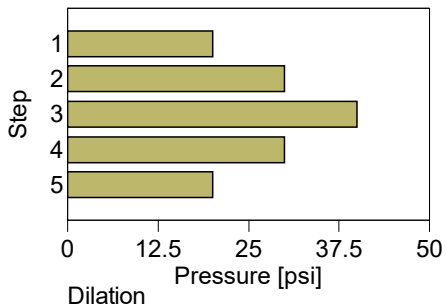
Client: Atlas Salt

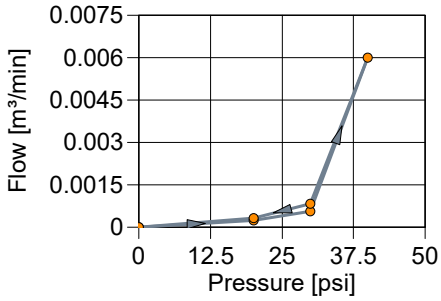
Location: St. George's, NL	Lugeon Test: PT-1	Tested bore: D-1
Test Conducted by: DR		Test Date: 4/2/2023
Analysis Performed by: CW		Analysis Date: 5/3/2023
Lithology: Mudstone		

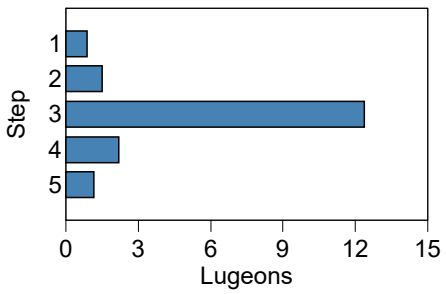


Top of Test Interval: 143.000 m
Bottom of Test Interval: 144.500 m
Length of Test Interval: 1.500 m
Gauge Position: 0.740 m
Depth to Groundwater: 4.080 m
Radius of Test Section: 0.050 m

Step	Pressure [psi]	Flow Meter Readings [m³]										Average Flow Rate [m³/min]	Hydraulic Conductivity		
		1	2	3	4	5	6	7	8	9	10		[m/s]	[m/d]	Lugeon
1	20	0.0880	0.0882	0.0885	0.0890	0.0891	0.0893	0.0895	0.0897			0.0002	7.74×10^{-8}	0.00668	0.874
2	30	0.0910	0.0915	0.0920	0.0930	0.0935	0.0940	0.0945	0.0950			0.0006	1.33×10^{-7}	0.01146	1.499
3	40	0.0250	0.0310	0.0370	0.0430	0.0490						0.0060	1.10×10^{-6}	0.09465	12.382
4	30	0.0510	0.0520	0.0530	0.0540	0.0550	0.0550	0.0560				0.0008	1.93×10^{-7}	0.01671	2.186
5	20	0.0565	0.0570	0.0572	0.0575	0.0579	0.0582	0.0585	0.0588	0.0591		0.0003	1.04×10^{-7}	0.00895	1.170
												Average	3.20×10^{-7}	0.02769	3.622







Dilation
Lugeon: 0.874
Hydraulic Conductivity: 7.74E-8 m/s
Hydraulic Conductivity: 0.00668 m/d

Performed using a double packer test assembly.
Swivel leaking water observed during test, the amount lost represents on average 64% of the total injection volume; K value should be regarded with caution as the formational K may be less than reported.
Hydraulic conductivity value for test interval derived based on flow classification: Dilation (Step 1).

GEMTEC
Consulting Engineers and Scientists

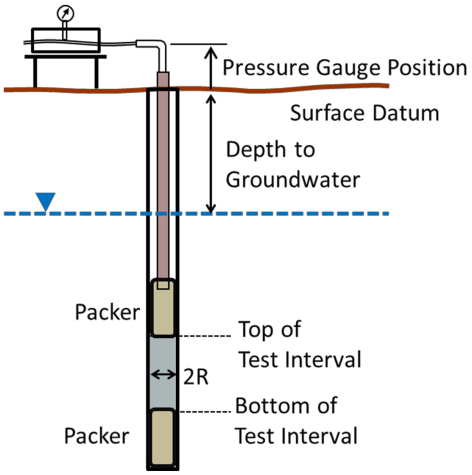
Lugeon Test Analysis Report

Project: Great Atlantic Salt Project

Number: 101556.003

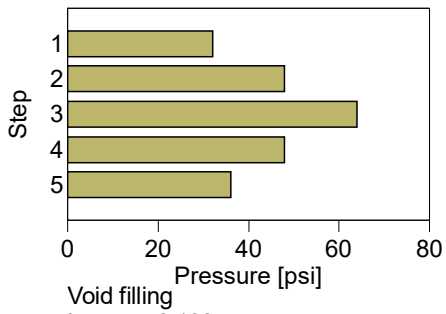
Client: Atlas Salt

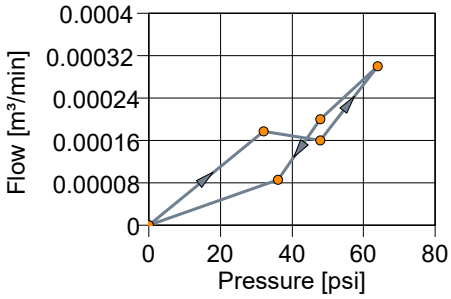
Location: St. George's, NL	Lugeon Test: PT-3	Tested bore: D-1
Test Conducted by: DR		Test Date: 4/2/2023
Analysis Performed by: CW		Analysis Date: 5/3/2023
Lithology: Conglomerate		

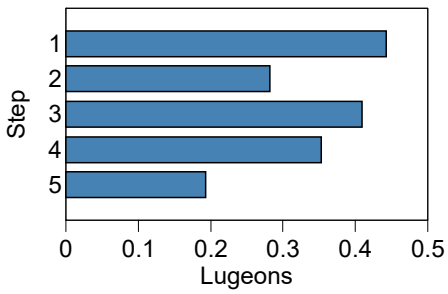


Top of Test Interval: 63.500 m
Bottom of Test Interval: 65.000 m
Length of Test Interval: 1.500 m
Gauge Position: 0.740 m
Depth to Groundwater: 4.080 m
Radius of Test Section: 0.050 m

Step	Pressure [psi]	Flow Meter Readings [m³]											Average Flow Rate [m³/min]	Hydraulic Conductivity		
		1	2	3	4	5	6	7	8	9	10	11		[m/s]	[m/d]	Lugeon
1	32	0.0970	0.0971	0.0972	0.0974	0.0976	0.0978	0.0980	0.0982	0.0984	0.0986		0.0002	3.91×10^{-8}	0.00338	0.442
2	48	0.0990	0.0990	0.0991	0.0993	0.0995	0.0998	0.1000	0.1002	0.1002	0.1004	0.1006	0.0002	2.50×10^{-8}	0.00216	0.282
3	64	0.1020	0.1022	0.1025	0.1029	0.1032	0.1035	0.1038	0.1041				0.0003	3.62×10^{-8}	0.00313	0.409
4	48	0.1052	0.1054	0.1056	0.1058	0.1060							0.0002	3.12×10^{-8}	0.00269	0.353
5	36	0.1062	0.1062	0.1063	0.1064	0.1065	0.1066	0.1067	0.1068				0.0001	1.71×10^{-8}	0.00148	0.193
													Average	2.97×10^{-8}	0.00257	0.336







Void filling
Lugeon: 0.193
Hydraulic Conductivity: 1.71E-8 m/s
Hydraulic Conductivity: 0.00148 m/d

Performed using a double packer test assembly.
Swivel leaking water observed during test, the amount lost represents on average 62% of the total injection volume; K value should be regarded with caution as the formational K may be less than reported.
Hydraulic conductivity value for test interval derived based on flow classification: Void Filling (Step 5).

GEMTEC
Consulting Engineers and Scientists

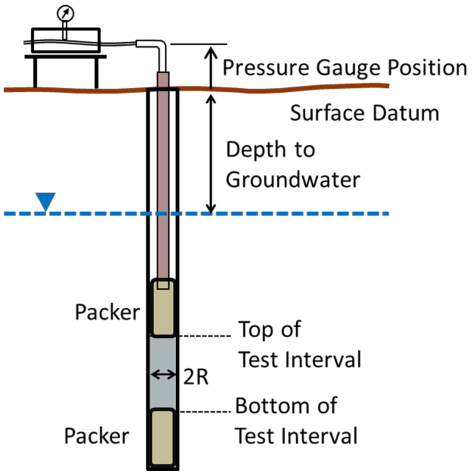
Lugeon Test Analysis Report

Project: Great Atlantic Salt Project

Number: 101556.003

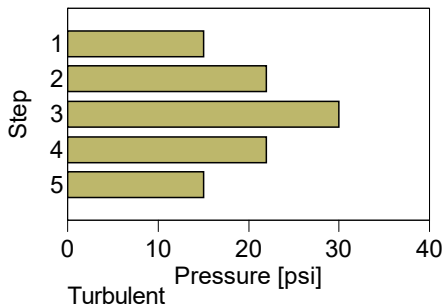
Client: Atlas Salt

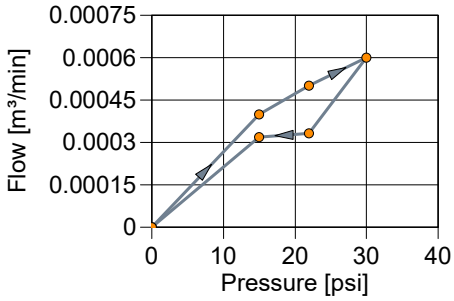
Location: St. George's, NL	Lugeon Test: PT-5	Tested bore: D-1
Test Conducted by: DR		Test Date: 4/4/2023
Analysis Performed by: CW		Analysis Date: 5/3/2023
Lithology: Conglomerate		

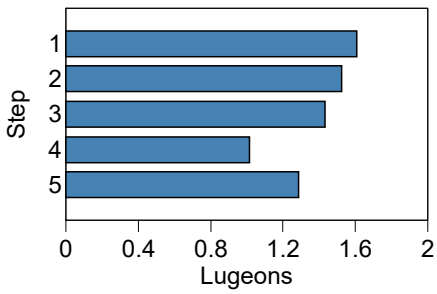


Top of Test Interval: 117.500 m
Bottom of Test Interval: 119.150 m
Length of Test Interval: 1.650 m
Gauge Position: 0.740 m
Depth to Groundwater: 4.080 m
Radius of Test Section: 0.050 m

Step	Pressure [psi]	Flow Meter Readings [m³]											Average Flow Rate [m³/min]	Hydraulic Conductivity		
		1	2	3	4	5	6	7	8	9	10	11		[m/s]	[m/d]	Lugeon
1	15	0.0380	0.0383	0.0388	0.0392	0.0396	0.0400	0.0404	0.0408				0.0004	1.46×10^{-7}	0.01264	1.609
2	22	0.0416	0.0420	0.0427	0.0432	0.0436	0.0441	0.0446	0.0451	0.0456			0.0005	1.39×10^{-7}	0.01197	1.523
3	30	0.0460	0.0469	0.0473	0.0480	0.0487	0.0495	0.0500	0.0505	0.0510	0.0515	0.0520	0.0006	1.30×10^{-7}	0.01125	1.431
4	22	0.0522	0.0525	0.0530	0.0533	0.0536	0.0540	0.0543	0.0546	0.0549	0.0552		0.0003	9.24×10^{-8}	0.00798	1.015
5	15	0.0555	0.0559	0.0560	0.0560	0.0566	0.0570	0.0575	0.0578	0.0581	0.0584	0.0587	0.0003	1.17×10^{-7}	0.01011	1.287
													Average	1.25×10^{-7}	0.01079	1.373







Turbulent
Lugeon: 1.523
Hydraulic Conductivity: 1.39E-7 m/s
Hydraulic Conductivity: 0.01197 m/d

Performed using a double packer test assembly.
Swivel leaking water observed during test, the amount lost represents on average 89% of the total injection volume; K value should be regarded with caution as the formational K may be less than reported.
Hydraulic conductivity value for test interval derived based on flow classification: Turbulent (Step 2).

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Consulting Engineers and Scientists

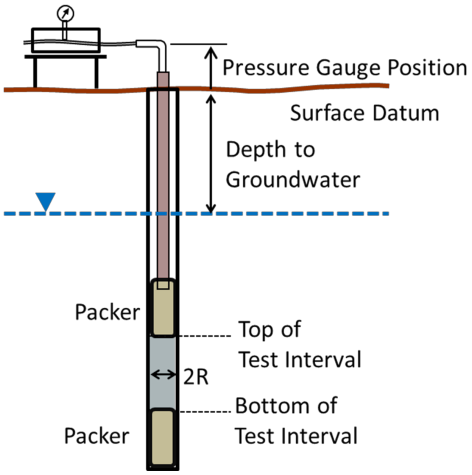
Lugeon Test Analysis Report

Project: Great Atlantic Salt Project

Number: 101556.003

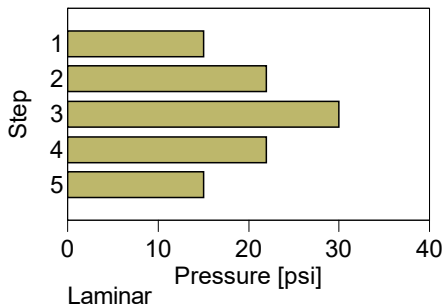
Client: Atlas Salt

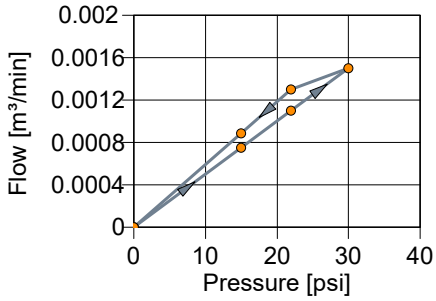
Location: St. George's, NL	Lugeon Test: PT-6	Tested bore: D-1
Test Conducted by: DR		Test Date: 4/4/2023
Analysis Performed by: CW		Analysis Date: 5/3/2023
Lithology: Sandstone		

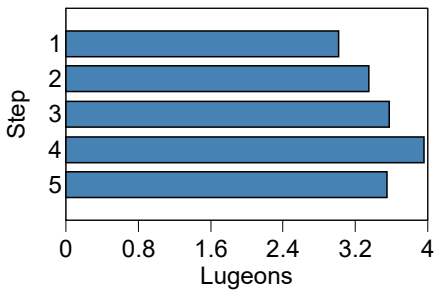


Top of Test Interval: 120.500 m
Bottom of Test Interval: 122.150 m
Length of Test Interval: 1.650 m
Gauge Position: 0.740 m
Depth to Groundwater: 4.080 m
Radius of Test Section: 0.050 m

Step	Pressure [psi]	Flow Meter Readings [m³]											Average Flow Rate [m³/min]	Hydraulic Conductivity		
		1	2	3	4	5	6	7	8	9	10	11		[m/s]	[m/d]	Lugeon
1	15	0.0670	0.0677	0.0683	0.0692	0.0700	0.0706	0.0715	0.0722	0.0729	0.0736	0.0745	0.0007	2.74×10^{-7}	0.02371	3.016
2	22	0.0765	0.0775	0.0785	0.0795	0.0805	0.0820	0.0830	0.0840	0.0850	0.0863	0.0875	0.0011	3.05×10^{-7}	0.02633	3.351
3	30	0.0900	0.0913	0.0930	0.0943	0.0960	0.0975	0.0990	0.1005	0.1020			0.0015	3.25×10^{-7}	0.02811	3.577
4	22	0.1035	0.1048	0.1060	0.1071	0.1083	0.1095	0.1108	0.1128	0.1140	0.1152	0.1165	0.0013	3.60×10^{-7}	0.03112	3.960
5	15	0.1185	0.1193	0.1202	0.1211	0.1220	0.1229	0.1238					0.0009	3.23×10^{-7}	0.02792	3.553
													Average	3.18×10^{-7}	0.02744	3.491







Laminar
Lugeon: 4.468
Hydraulic Conductivity: 4.06E-7 m/s
Hydraulic Conductivity: 0.03512 m/d

Performed using a double packer test assembly.
Swivel leaking water observed during test, the amount lost represents on average 79% of the total injection volume; K value should be regarded with caution as the formational K may be less than reported.
Hydraulic conductivity value for test interval derived based on flow classification: Laminar (average for all steps).