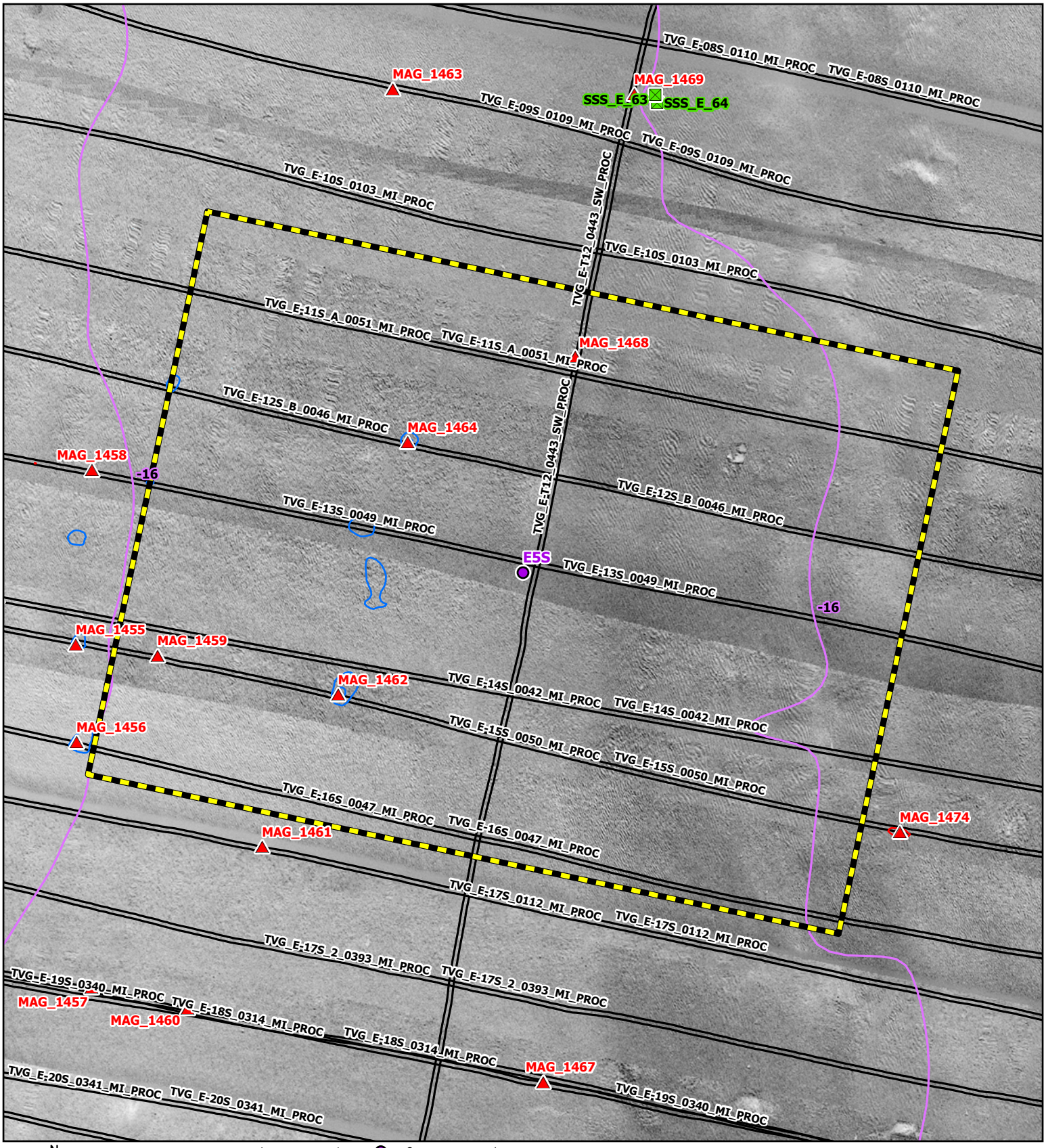


N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- Analytical Area
- Bathymetric Contour (1m interval)
- Trackline

Magnetic Contour (5 nT)

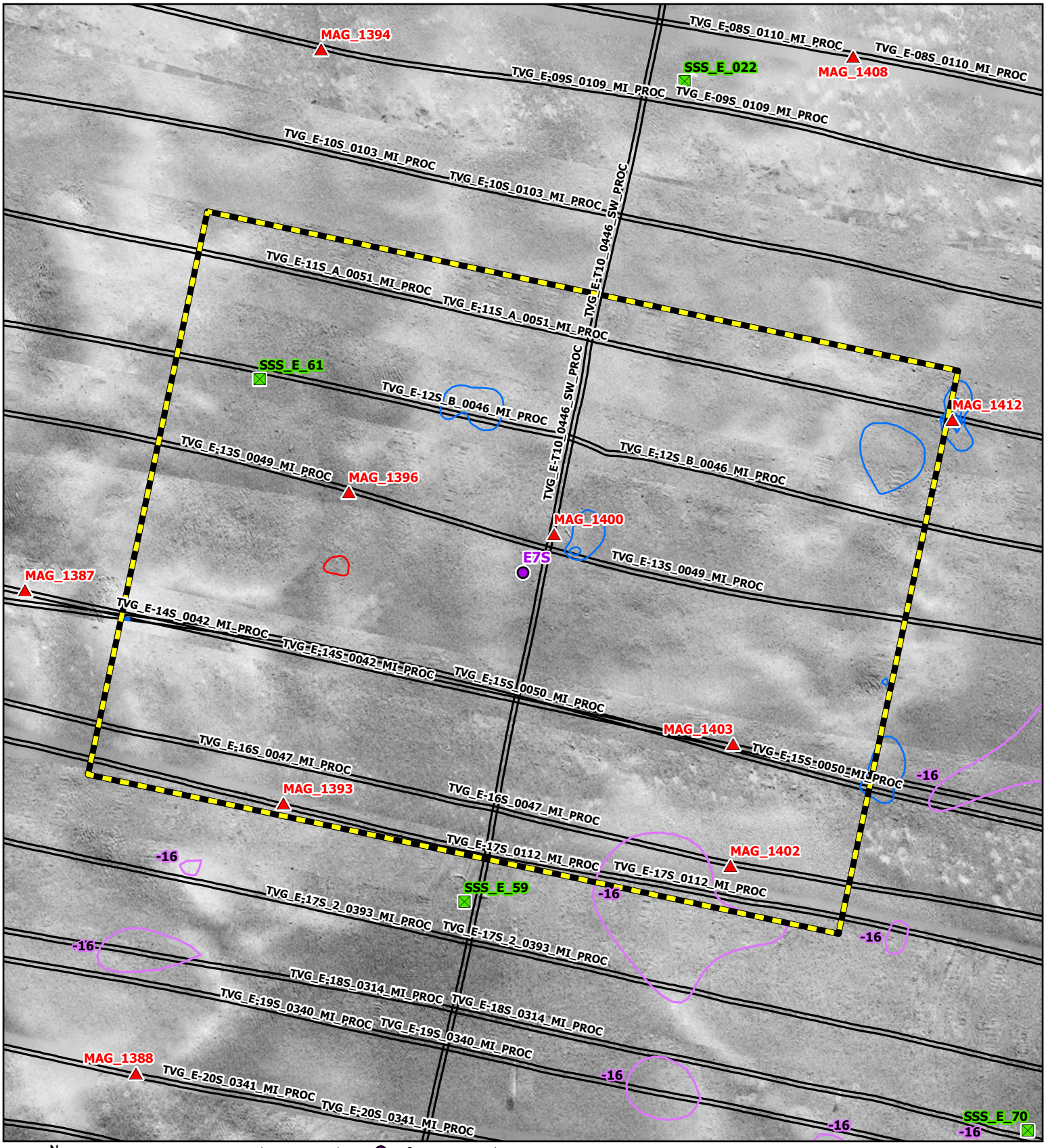
- Negative
- Positive

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block E

Map: 15

E5S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.12.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

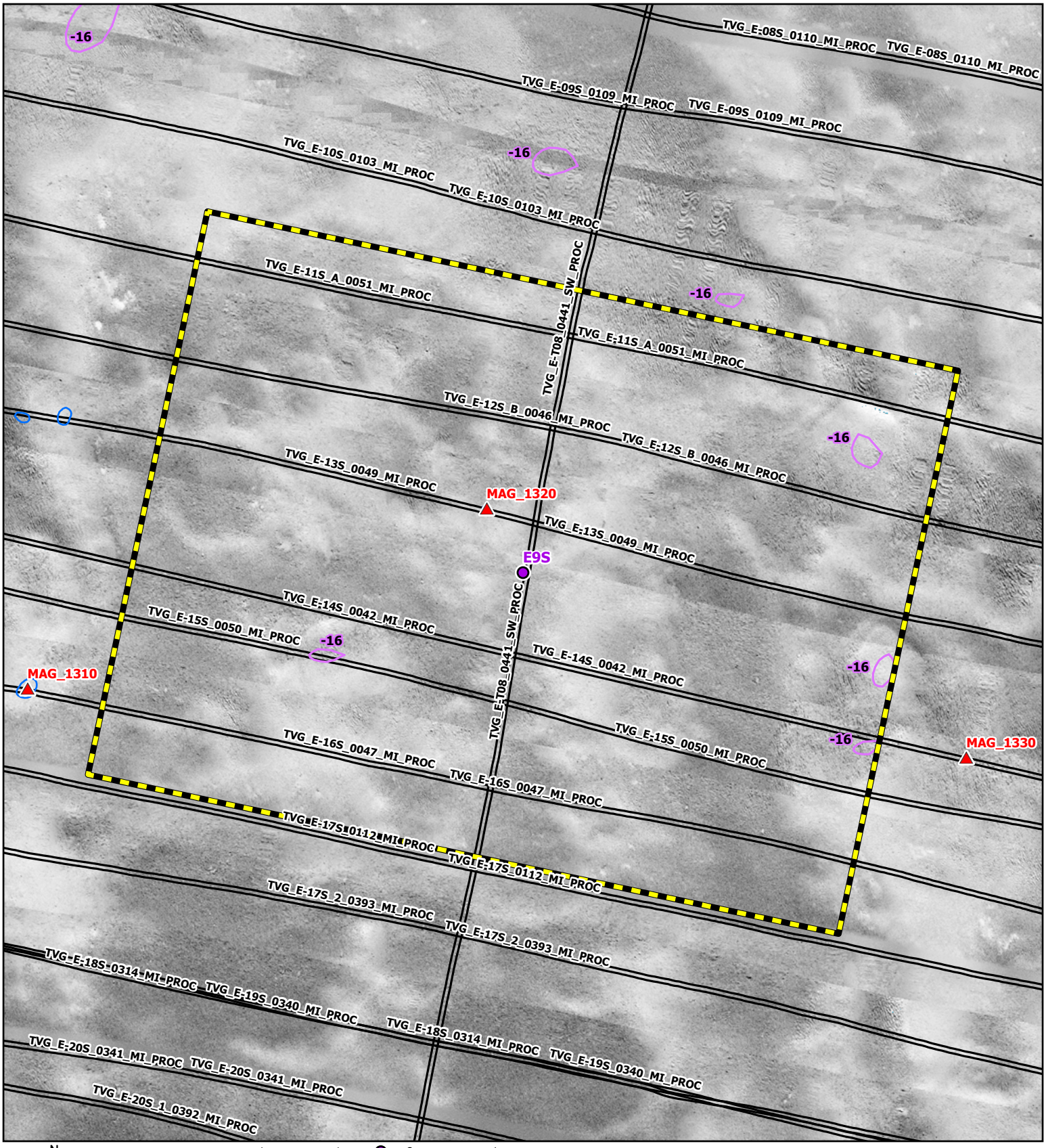
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Analytical Area
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block E

Map: 16

E7S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.12.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

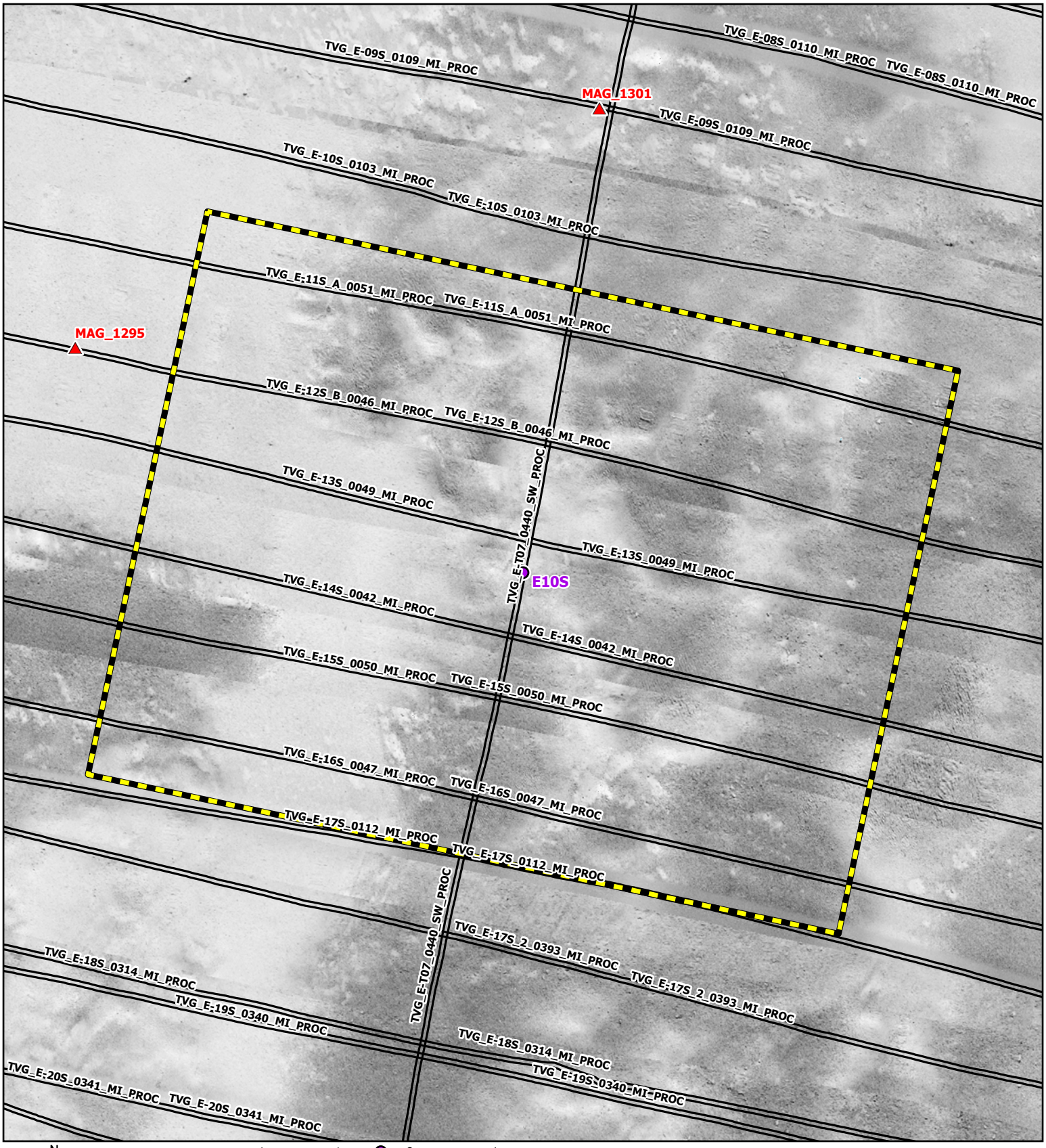
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Analytical Area
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block E

Map: 17

E9S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.12.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- Analytical Area
- Bathymetric Contour (1m interval)
- Trackline

Magnetic Contour (5 nT)

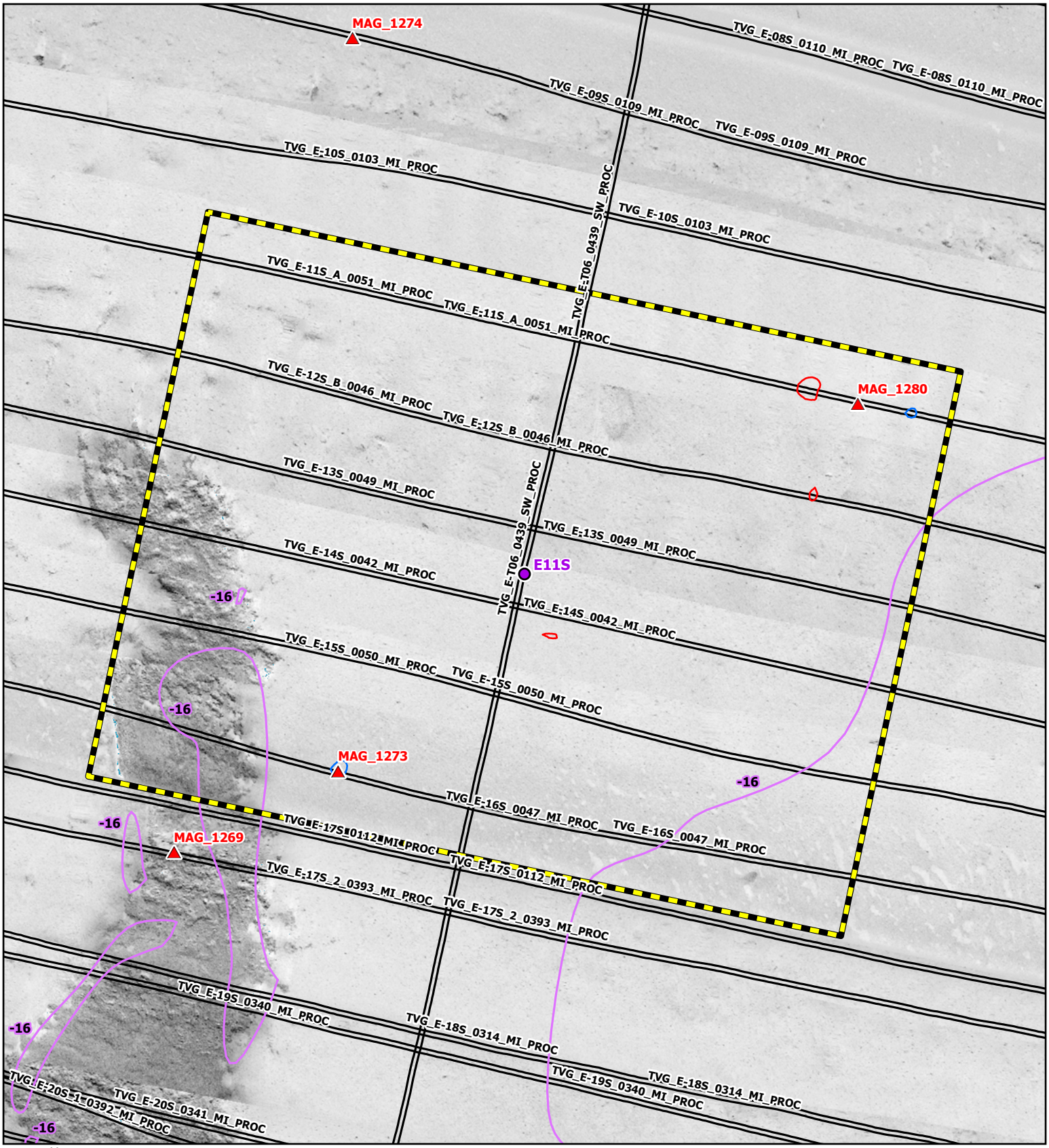
- Negative
- Positive

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block E

Map: 18

E10S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.12.2021



N
W E
S
Grid North

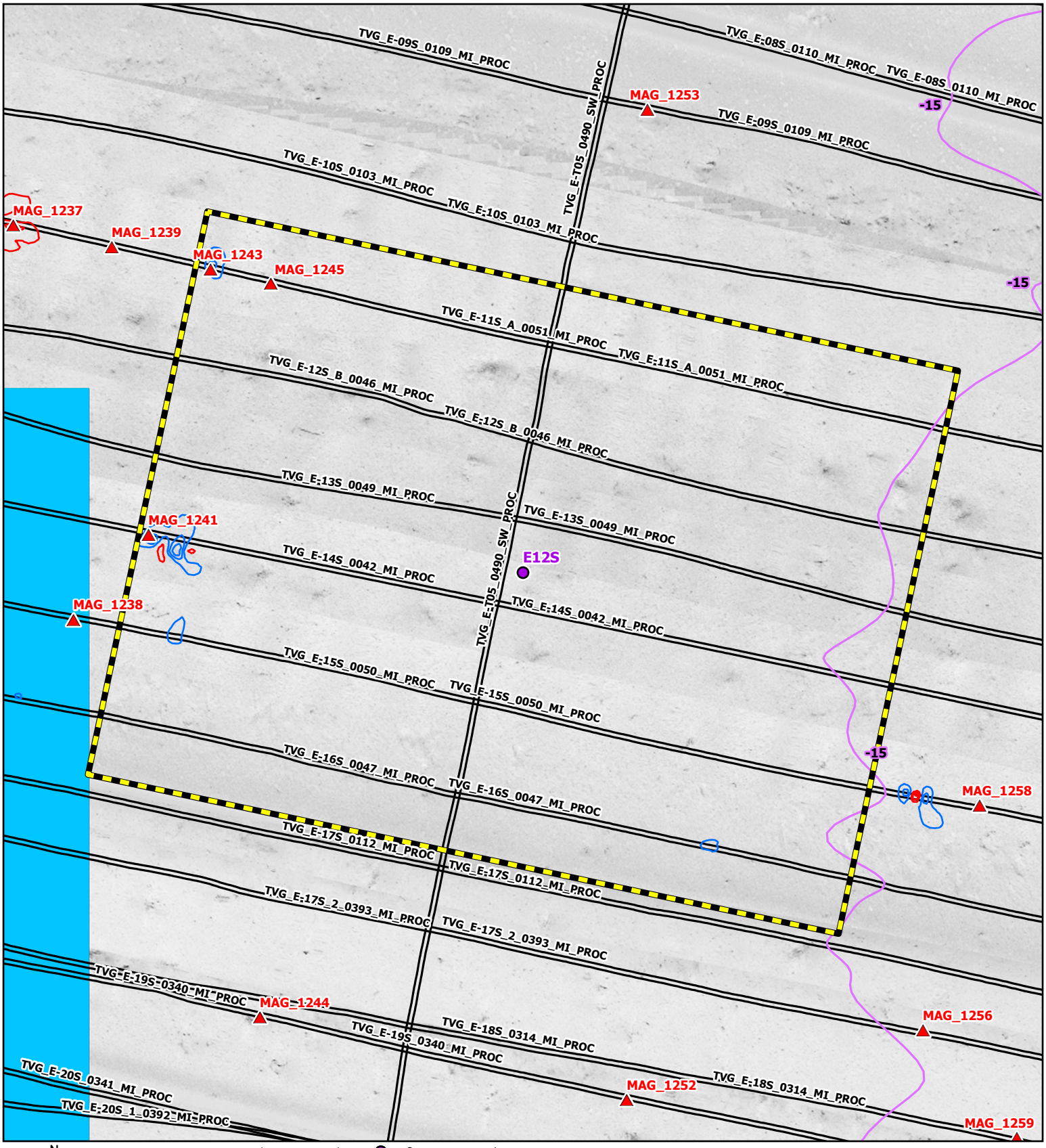
Side Scan Sonar Mosaic (2020, 0.25 m)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM Zone 18N Meter
0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Analytical Area
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block E

Map: 19
E11S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.12.2021



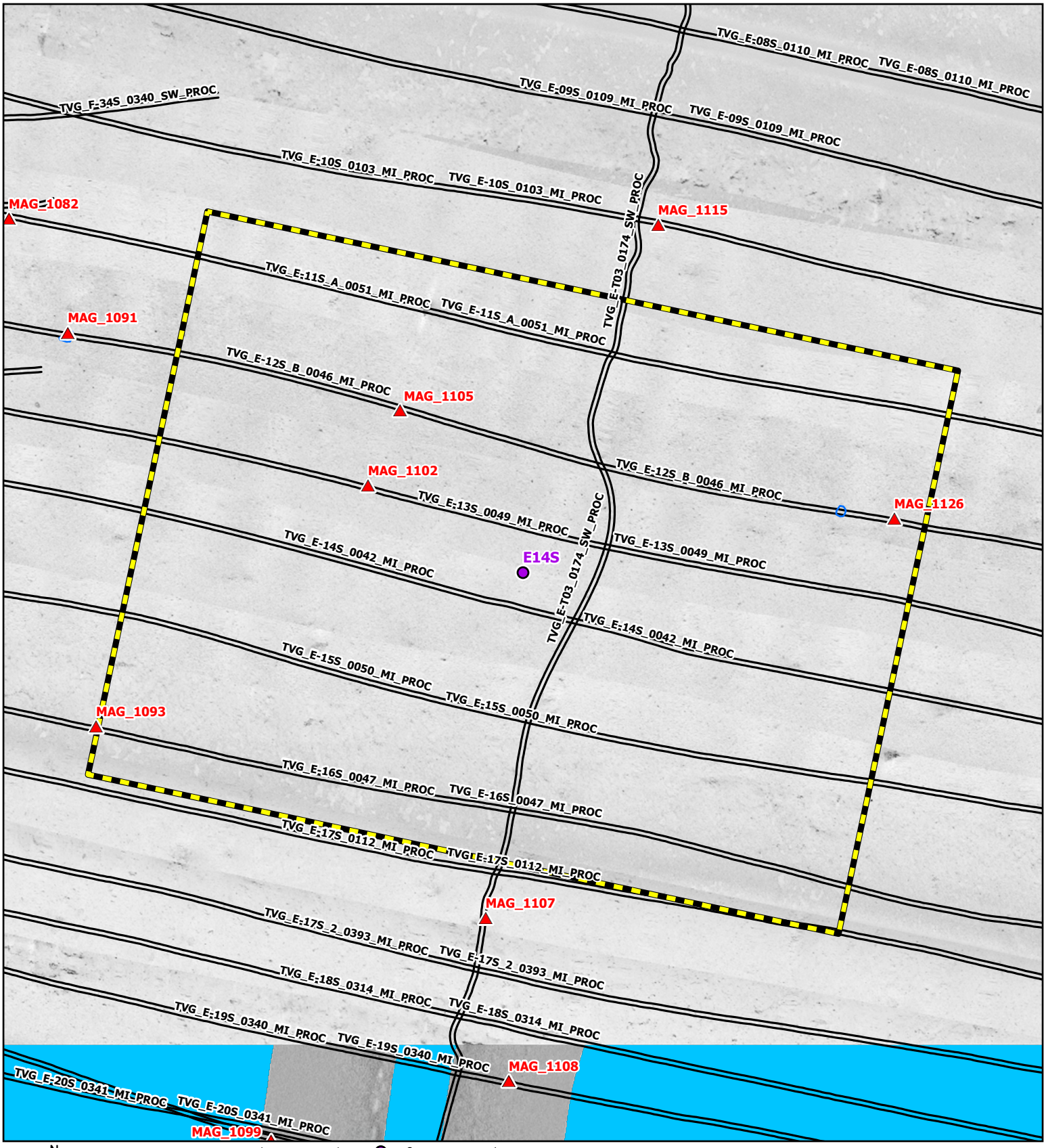
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block E

Map: 20

E12S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

WWW.RCGOODWIN.COM | KMAY, 2.12.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- Analytical Area
- Bathymetric Contour (1m interval)
- Trackline

Magnetic Contour (5 nT)

- Negative
- Positive

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)

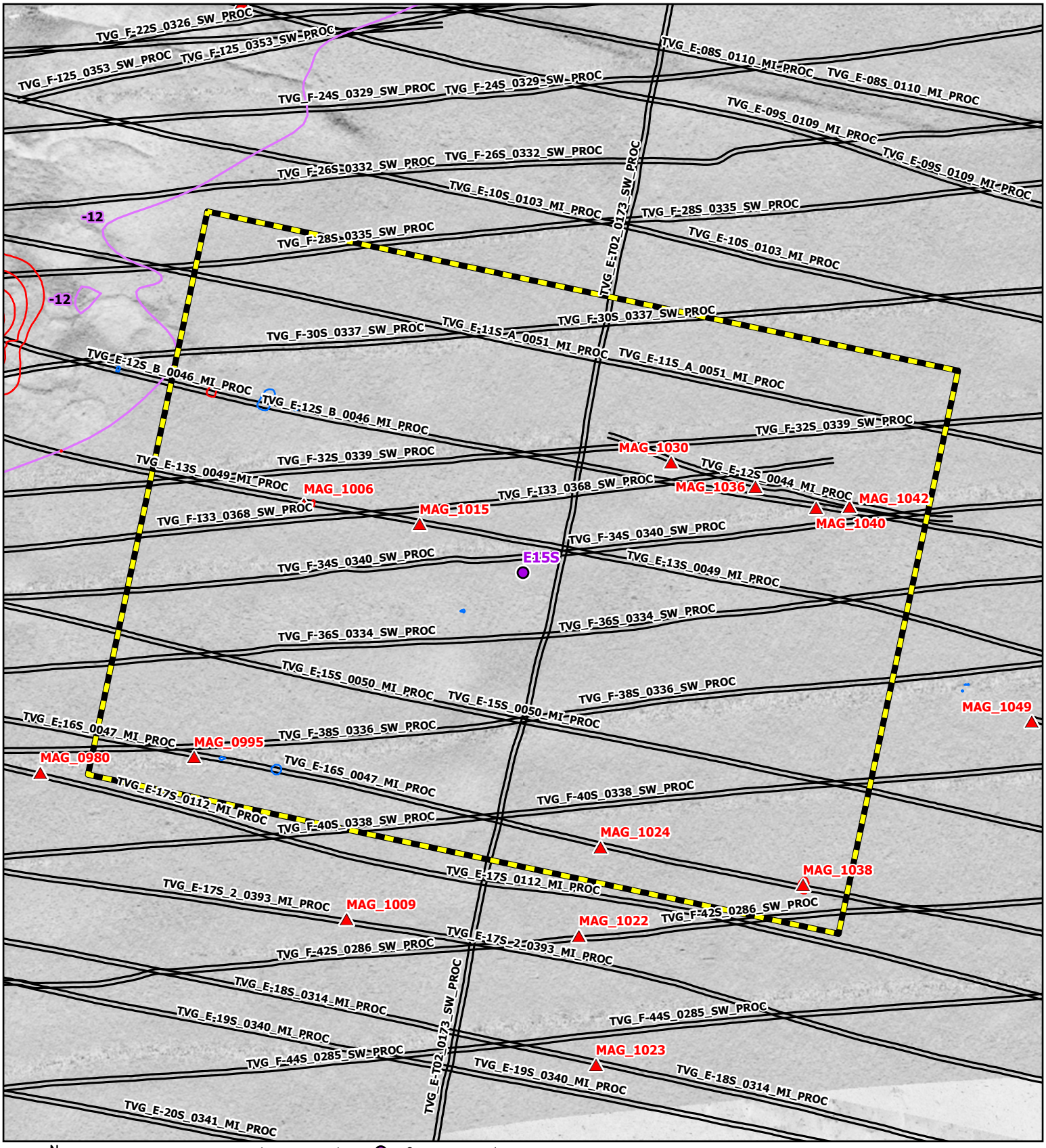
Geotechnical Clearance: Block E

Map: 21

E14S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.12.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

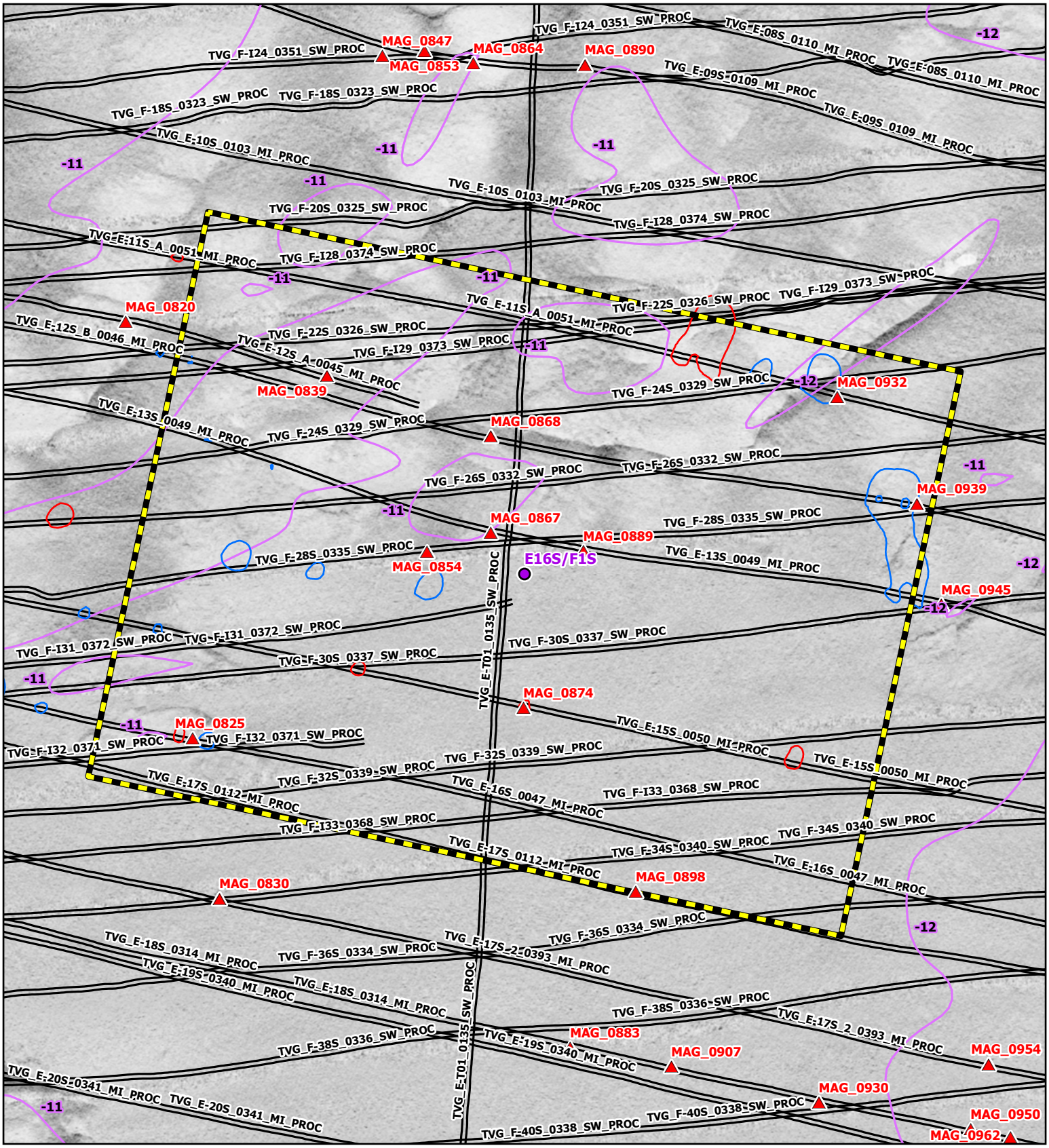
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Analytical Area
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block E

Map: 22
E15S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.12.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM Zone 18N Meter
0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Analytical Area
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block E

Map: 23
E16S/F1S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.12.2021

APPENDIX 2
SEISMIC PROFILES FOR BLOCK E WING CORRIDORS

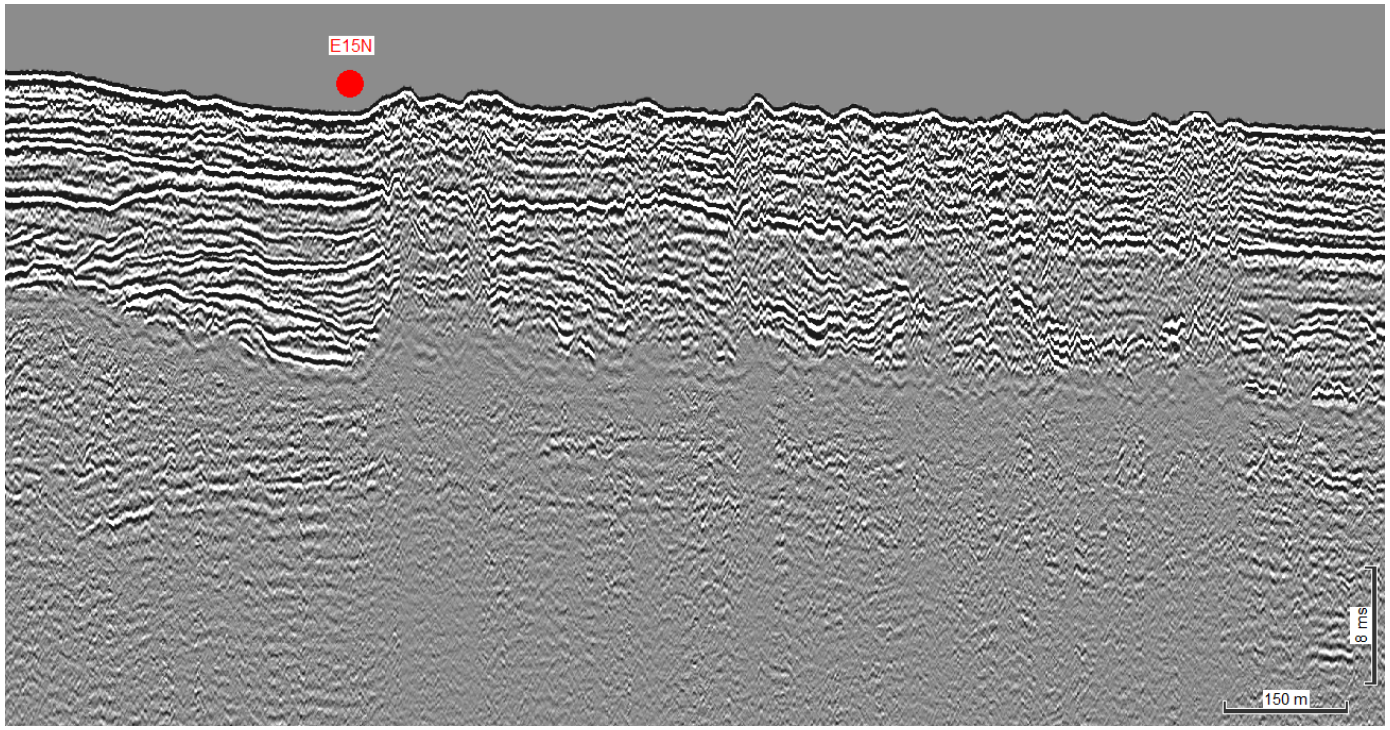


Figure 1: Proposed geotechnical location E15N in ECR Corridor E Wing North along seismic line UHRS_E-13N_SW_431_Proc_MLLW

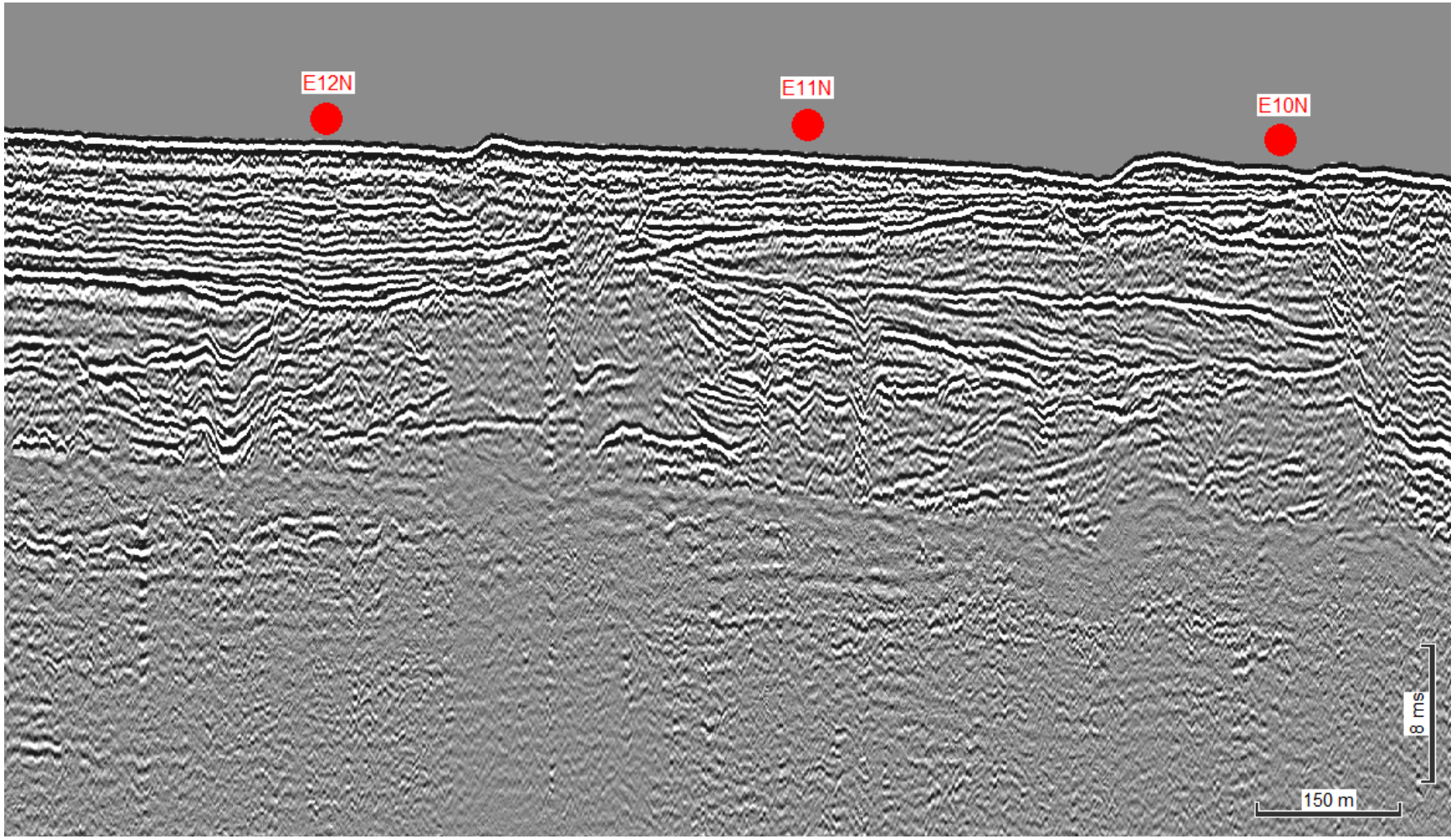


Figure 2: Proposed geotechnical locations E12N, E11N, and E10N in ECR Corridor E Wing North along seismic line UHRS_E-13N_SW_431_Proc_MLLW

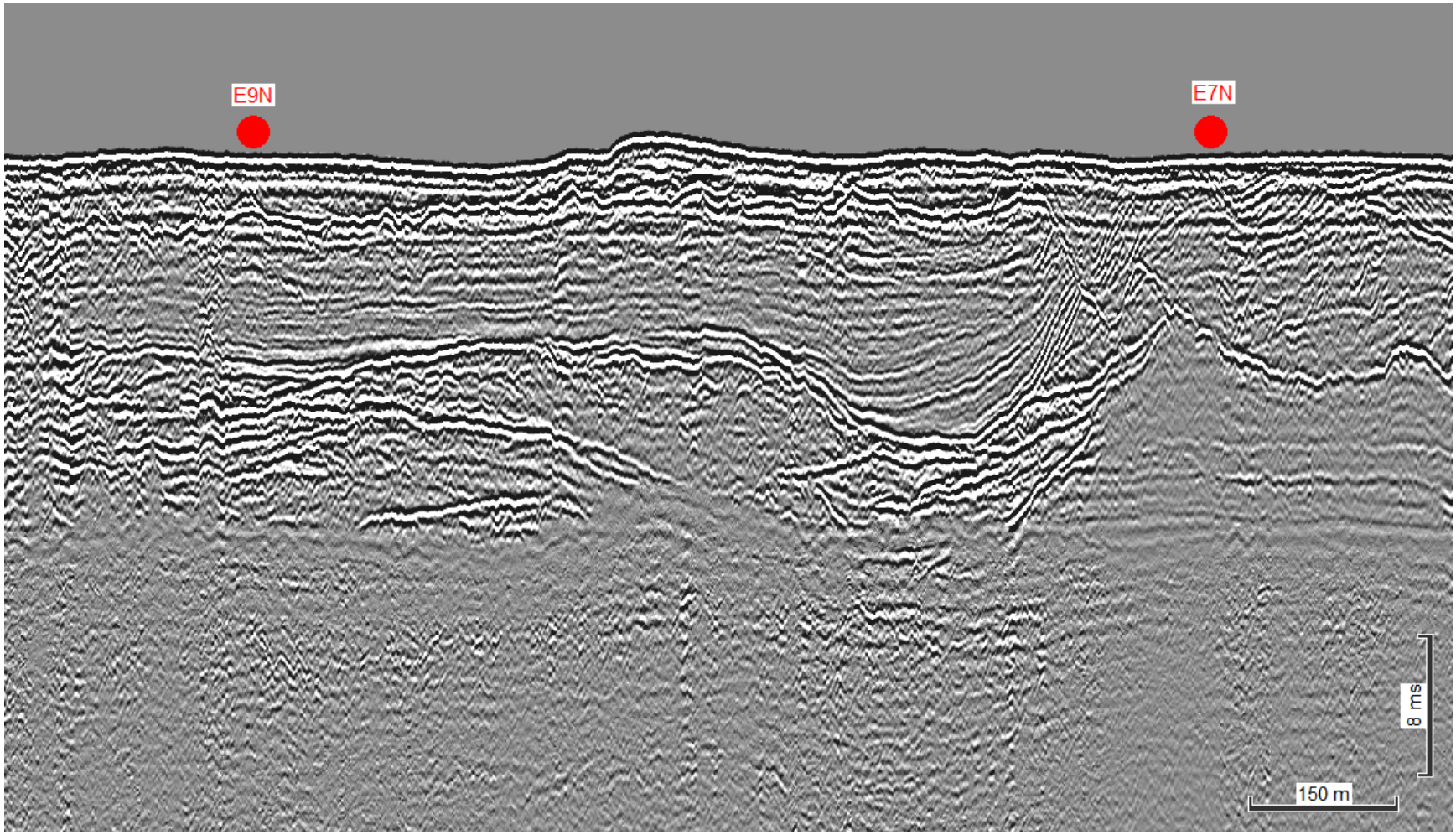


Figure 3: Proposed geotechnical locations E9N and E7N in ECR Corridor E Wing North along seismic line UHRS_E-13N_SW_431_Proc_MLLW

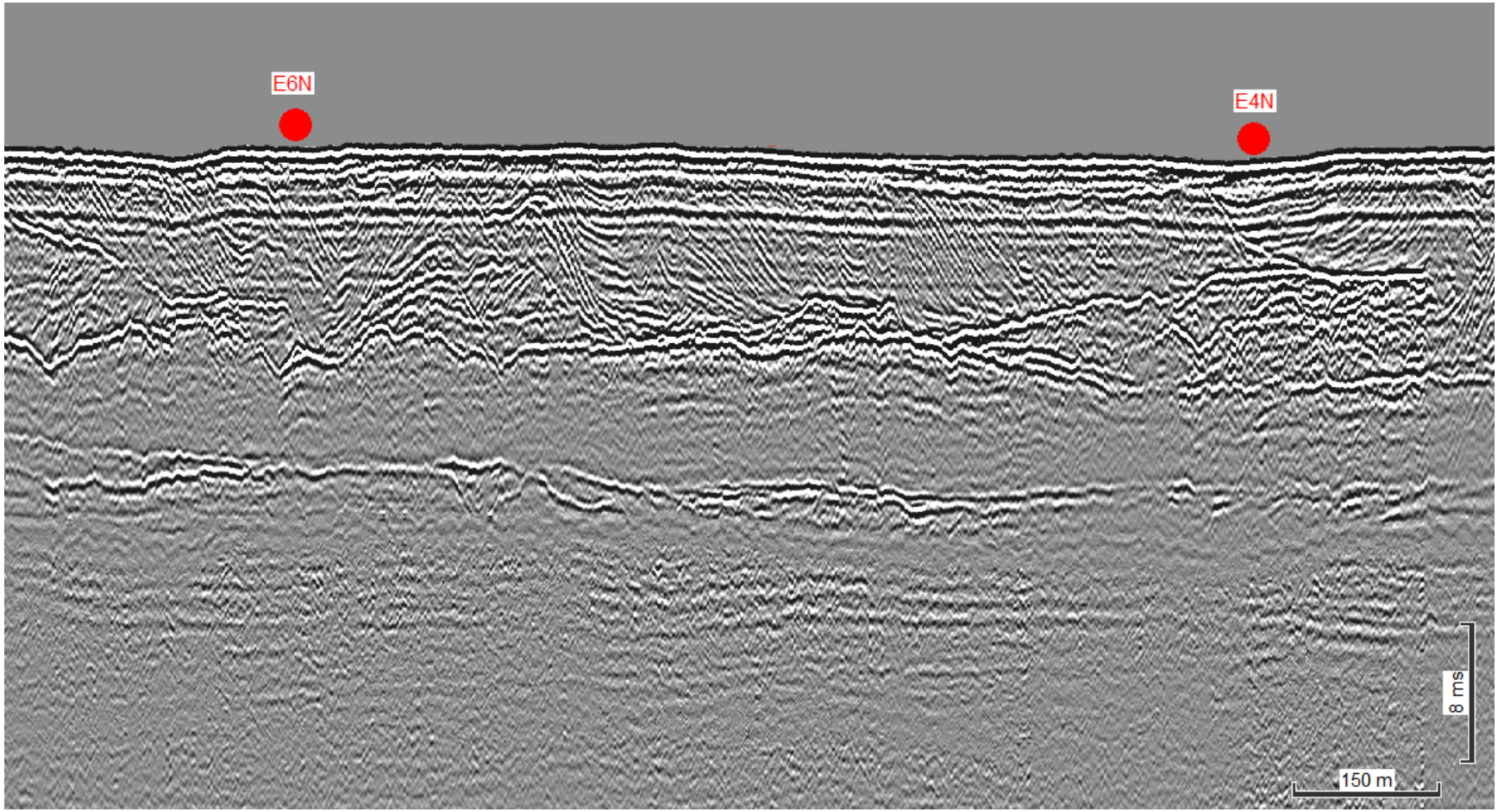


Figure 4: Proposed geotechnical locations E6N and E4N in ECR Corridor E Wing North along seismic line UHRS_E-13N_SW_431_Proc_MLLW

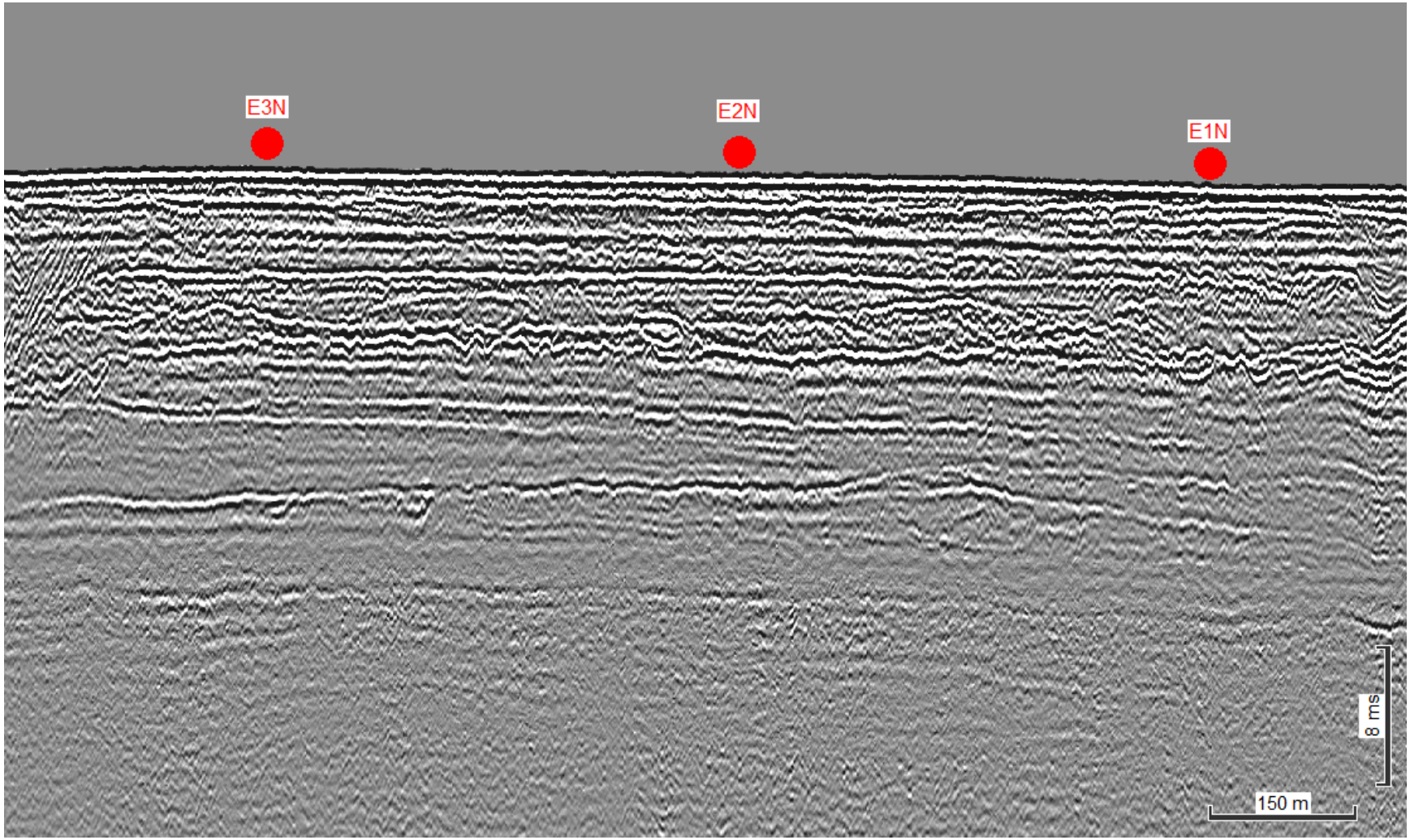


Figure 5: Proposed geotechnical locations E3N, E2N, and E1N in ECR Corridor E Wing North along seismic line UHRS_E-13N_SW_431_Proc_MLLW

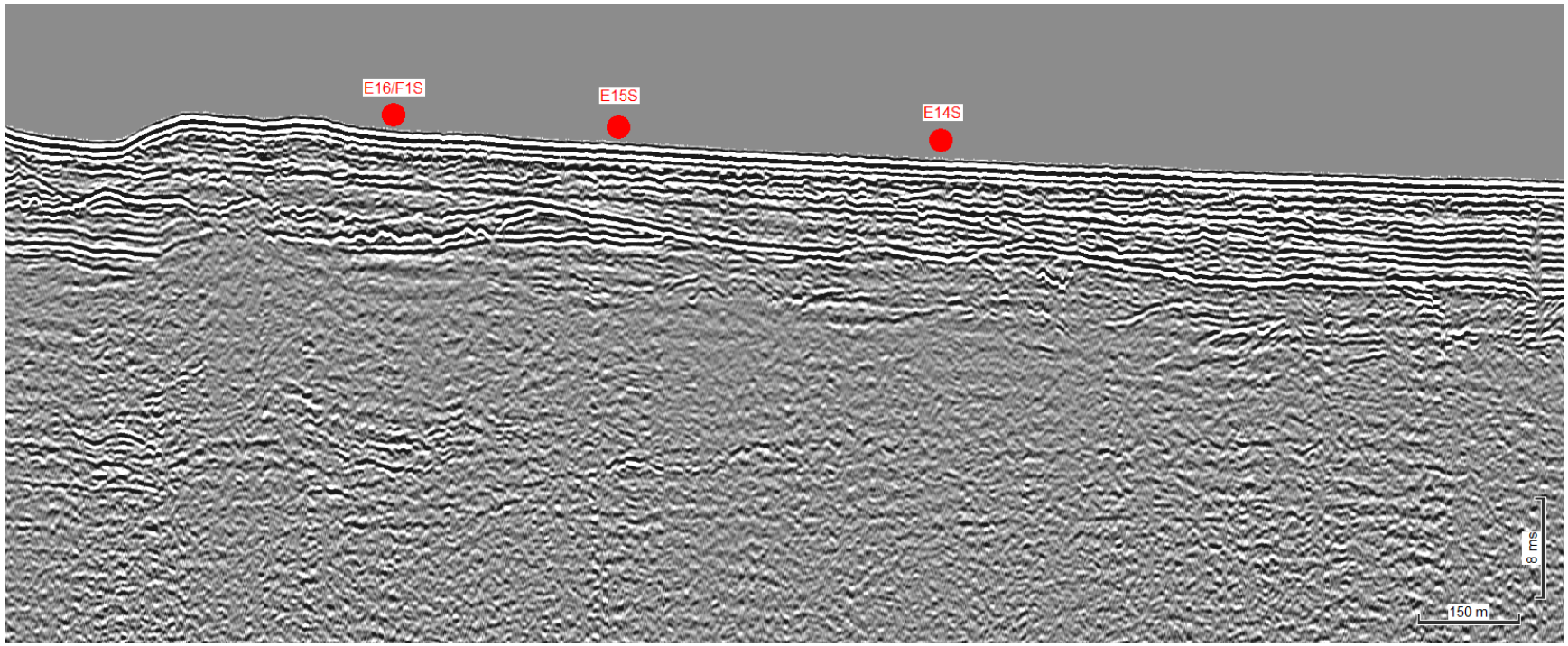


Figure 6: Proposed geotechnical locations E16/F1S, E15S, and E14S in ECR Corridor E Wing South along seismic line JD301_Seq0040_E-14S

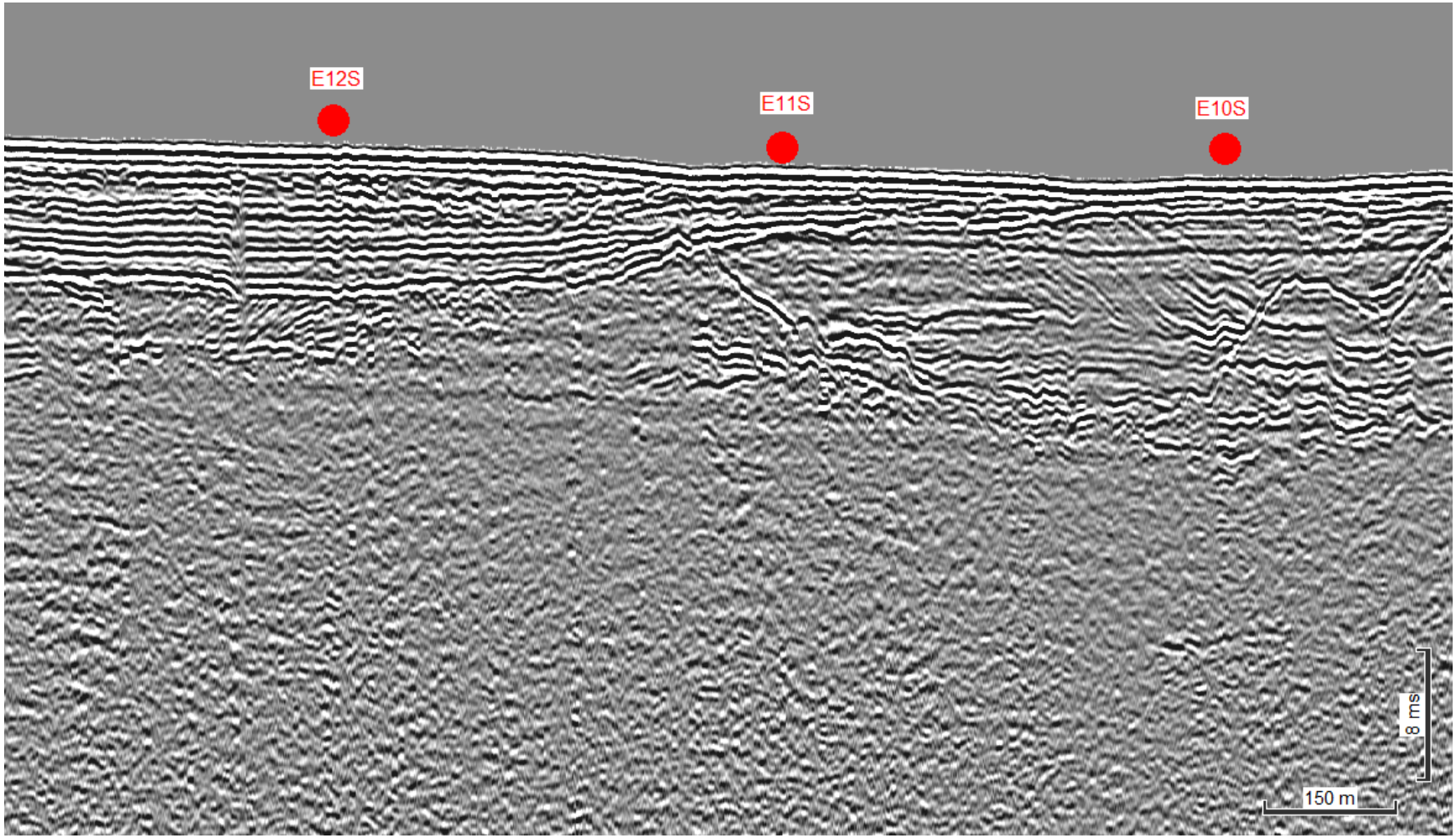


Figure 7: Proposed geotechnical locations E12S, E11S, and E10S in ECR Corridor E Wing South along seismic line JD301_Seq0040_E-14S

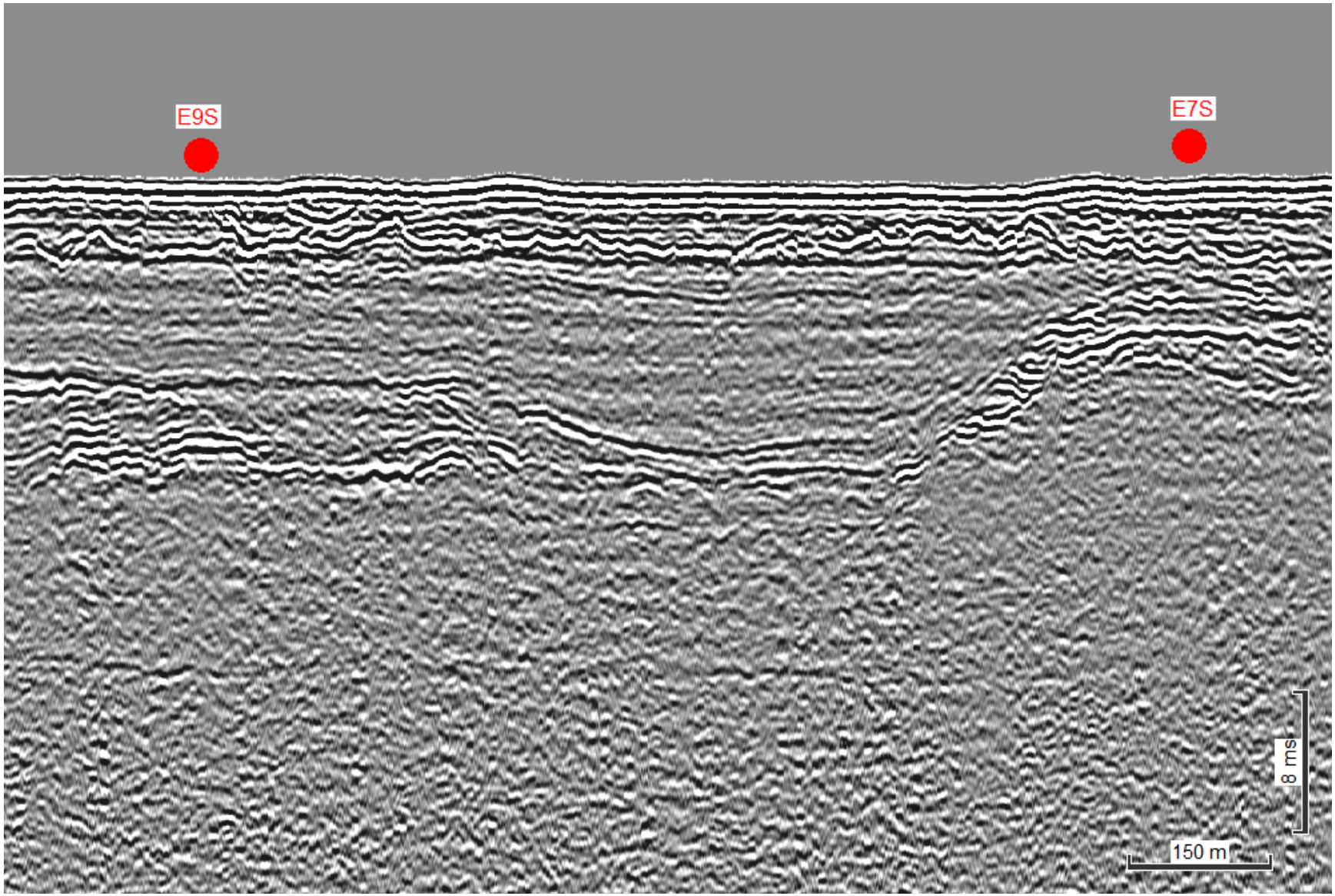


Figure 8: Proposed geotechnical locations E9S and E7S in ECR Corridor E Wing South along seismic line JD301_Seq0040_E-14S

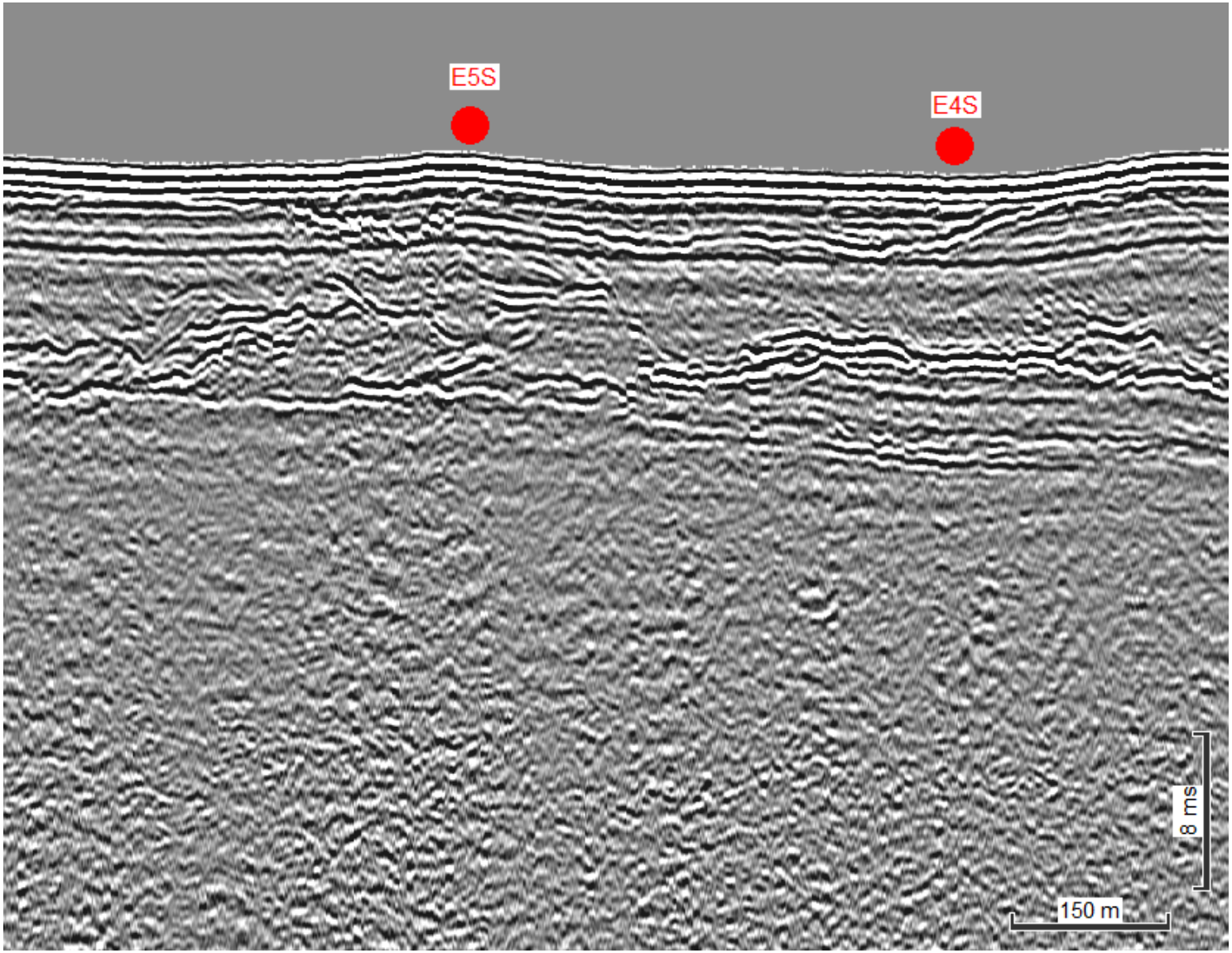


Figure 9: Proposed geotechnical locations E5S and E4S in ECR Corridor E Wing South along seismic line JD301_Seq0040_E-14S

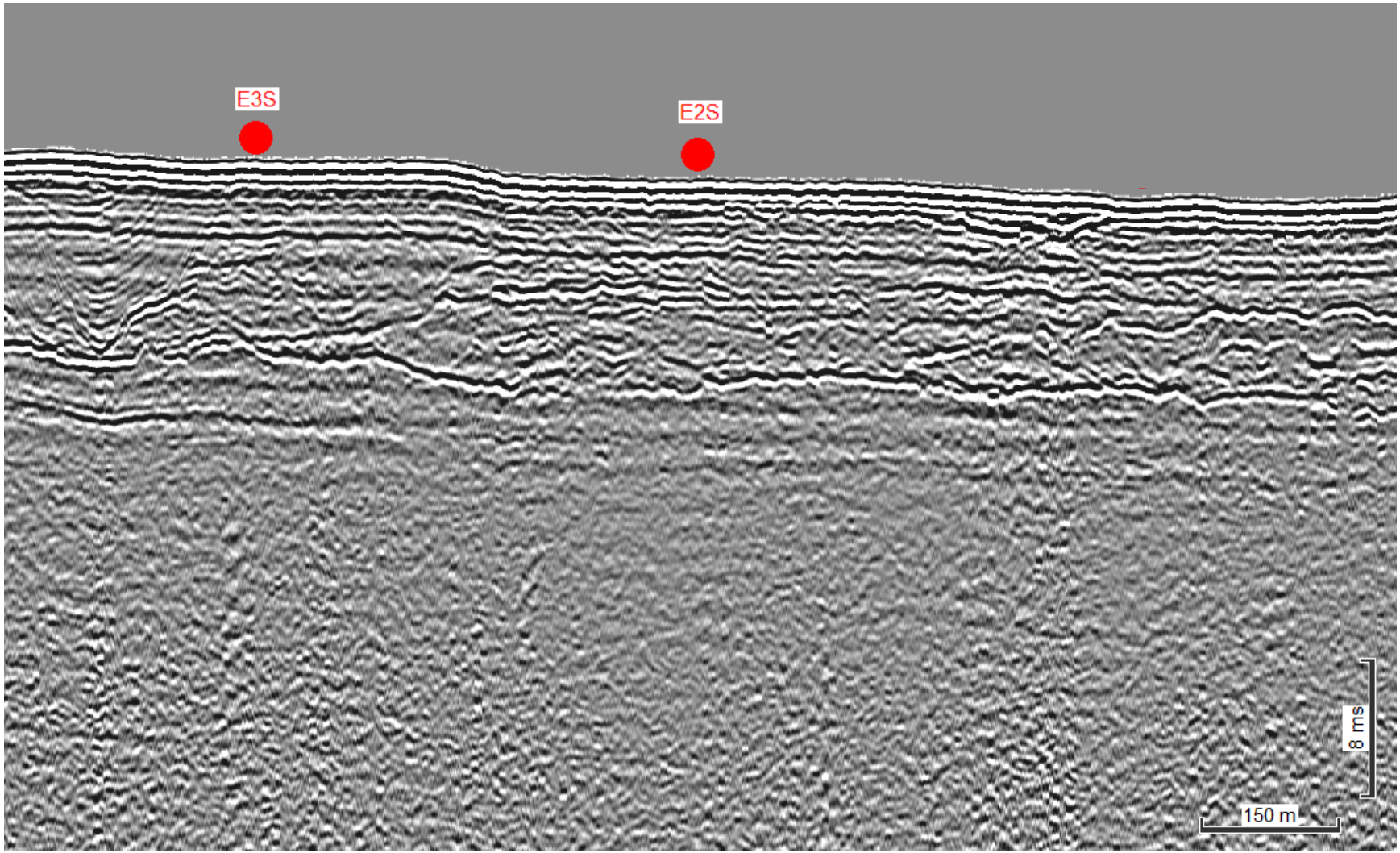


Figure 10: Proposed geotechnical locations E3S, E2S, and E1S in ECR Corridor E Wing South along seismic line JD301_Seq004

February 12, 2021

Mr. Lloyd Eley
Project Manager
Dominion Energy
5000 Dominion Boulevard
Glen Allen, MD 23060

RE: Coastal Virginia Offshore Wind Commercial Project – Cultural Resources Clearance for Geotechnical Investigations along the Block D Wing Corridors

Dear Mr. Eley:

This letter report provides the results of Phase I cultural resources analyses of high-resolution geophysical (HRG) survey data collected by Alpine Ocean Seismic Survey, Inc. to support geotechnical investigations for the Coastal Virginia Offshore Wind Commercial Project. The planned 2020 geotechnical campaign consists of shallow coring (piston or vibracores) and seabed Cone Penetrometer Tests; this memorandum reviews 26 of these locations for gathering geologic information (Tables 1 and 2). The geotechnical investigation will be conducted by Geoquip Marine aboard the vessels, *Geoquip Saentis*, *Dina Polaris*, and *Geoquip Speer*, or a similar type of vessel that is equipped with a dynamic positioning system. Activities at the geotechnical locations will not exceed a targeted depth of five (5) to seven (7) meters (m) below seabed.

The QMA reviewed the HRG survey data within a rectangular analytical area (180 m by 240 m) centered on each of the 26 proposed geotechnical locations located along the Export Cable Route (ECR), Block D Wing Corridors. The reviewed data included at minimum six (6) parallel lines of survey data that captured each of the proposed locations. This review focused on identification of any potential submerged cultural resources and buried, preserved landforms through geophysical investigations.

High-resolution side scan sonar imagery was recorded throughout the survey area and viewed as high-resolution mosaicked files (Appendix 1). No sonar contacts that represent significant cultural resources were identified within the analytical areas.

Two marine magnetometers configured into a transverse gradiometer array collected magnetic data along each survey line. Magnetic anomalies were interpreted using magnetic residual field grid data, magnetic contour mapping, and by observing their characteristics in terms of amplitude, duration, magnetic signature, and spatial distribution (Appendix 1). Eighty-three magnetic anomalies were detected withing the analytical areas (Table 3). The anomalies ranged in amplitude from -30.58 to 20.42 nT, with short (<20.4 m) to medium durations (<60.9 m); none of the anomalies exhibited complex signatures. The low TVG tow heights (2.7 - 4.82 m) aided the anomaly interpretations. The above factors, combined with low mass estimations (<1-37 kilograms) are indicative of miscellaneous ferrous debris. None of the anomalies corresponded to a side scan sonar or seismic anomaly which could represent a cultural resource. Therefore,

no magnetic anomalies that represent significant cultural resources were identified within the analytical areas.

Seismic data were collected and interpreted along each survey line associated with the geotechnical locations (Table 4 and Appendix 2). All seismic data were reviewed to their full vertical extent. The geotechnical locations were also reviewed with respect to the ground model and interpreted horizons. Analyses of the seismic data suggest that 26 proposed geotechnical samples will not impact any submerged and buried landforms that exhibit the potential to contain preserved archaeological resources.

The analyses considered all portions of the seafloor within the limits of bottom-disturbing activities as they pertain to 26 the proposed sampling locations (Tables 1 and 2; Appendices 1, and 2). Based on the current data, if the geotechnical sampling activities are contained within the established analytical areas, no potential archaeological resources will be affected by the proposed geotechnical activities. No historic properties, such as shipwrecks, were detected at the proposed sampling locations.

If you have questions, please do not hesitate to contact us.

Best regards,



Ashley Himmelstein, M.A.
Nautical Archaeologist

Table 1. Proposed geotechnical locations for ECR Block D, Northern Wing Corridor

Core ID	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
D16N	428031.73	4073524.34	-75.80678644	36.80482744
D15N	428529.46	4073492.33	-75.80120425	36.80457661
D14N	429026.52	4073457.51	-75.79562923	36.80430020
D12N	430025.43	4073391.04	-75.78442611	36.80377538
D11N	430521.79	4073358.41	-75.77885938	36.80351781
D10N	431021.91	4073325.14	-75.77325049	36.80325450
D9N	431521.92	4073292.55	-75.76764281	36.80299707
D8N	432019.27	4073259.26	-75.76206505	36.80273283
D7N	432519.97	4073226.34	-75.75644974	36.80247196
D5N	433517.00	4073160.54	-75.74526819	36.80194935
D4N	434018.22	4073126.23	-75.73964702	36.80167520
D3N	434509.82	4073093.28	-75.7341338	36.80141230
D2N	435013.75	4073062.43	-75.72848263	36.80116900

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

Table 2. Proposed geotechnical locations for ECR Block D, Southern Wing Corridor

Core ID	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
D16S	427976.70	4072722.26	-75.8073274	36.79759341
D15S	428474.28	4072688.03	-75.80174719	36.79732259
D13S	429472.12	4072622.07	-75.79055707	36.79680295
D12S	429971.66	4072586.30	-75.78495489	36.79651753
D11S	430470.82	4072558.15	-75.77935763	36.79630057
D10S	430966.97	4072521.60	-75.77379335	36.79600747
D9S	431468.67	4072505.11	-75.76816885	36.79589527
D8S	431964.39	4072453.31	-75.76260809	36.79546415
D7S	432463.51	4072420.64	-75.75701107	36.79520538
D5S	433460.58	4072354.12	-75.74583007	36.79467638
D4S	433962.01	4072339.81	-75.74020877	36.7945825
D3S	434459.71	4072308.29	-75.73462793	36.79433295
D2S	434961.37	4072252.83	-75.72900058	36.79386761

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

Table 3: Magnetic Anomalies within Analytical Areas for ECR Block D, North and South Wing Corridors

Mag ID	Associated Geotechnical Location	Sensor Altitude (m)	Amplitude (nT)	Duration (m)	Characteristics	Associated SSS Contact	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
MAG_1762	D16S	3.30	2.99	4.62	Dipole	-	4072726.42	4072726.42	-75.80787991	36.79762716
MAG_1765	D16N	2.71	12.78	2.04	Monopole (+)	-	4073579.83	4073579.83	-75.80733176	36.80532393
MAG_1768	D16N	4.82	5.20	2.34	Monopole (+)	-	4073598.06	4073598.06	-75.80719236	36.80548921
MAG_1773	D16N	2.70	7.70	2.66	Monopole (+)	-	4073520.97	4073520.97	-75.80679532	36.80479698
MAG_1781	D16N	4.06	-7.05	27.59	Monopole (-)	-	4073430.34	4073430.34	-75.8057165	36.80398731
MAG_1816	D15N	3.56	-2.85	2.22	Dipole	-	4073469.17	4073469.17	-75.80230203	36.80436043
MAG_1819	D15N	2.96	4.71	4.36	Monopole (+)	-	4073547.62	4073547.62	-75.80164166	36.80507206
MAG_1828	D15N	3.97	5.00	2.92	Monopole (+)	-	4073442.39	4073442.39	-75.80124013	36.80412618
MAG_1900	D14N	3.84	-8.76	12.19	Monopole (-)	-	4073541.56	4073541.56	-75.79597242	36.80505552
MAG_2011	D12S	4.17	6.50	2.18	Monopole (+)	-	4072529.8	4072529.8	-75.78602462	36.79600118
MAG_2015	D12S	3.56	1.49	3.58	Dipole	-	4072581.78	4072581.78	-75.78578261	36.79647135
MAG_2027	D12N	3.78	9.87	3.74	Monopole (+)	-	4073428.66	4073428.66	-75.7853081	36.80410868
MAG_2028	D12N	4.37	20.42	4.60	Monopole (+)	-	4073345.32	4073345.32	-75.78512231	36.80335864
MAG_2030	D12N	4.35	-5.39	38.69	Monopole (-)	-	4073478.13	4073478.13	-75.78489981	36.80455732
MAG_2031	D12S	3.55	1.06	3.71	Dipole	-	4072612.84	4072612.84	-75.78469502	36.79675852
MAG_2035	D12N	3.66	5.02	2.20	Monopole (+)	-	4073339.03	4073339.03	-75.78435895	36.80330698
MAG_2043	D12S	2.91	5.64	2.52	Monopole (+)	-	4072545.83	4072545.83	-75.78384064	36.7961601
MAG_2045	D12N	3.78	7.48	3.97	Monopole (+)	-	4073414.67	4073414.67	-75.78358776	36.80399392
MAG_2068	D11S	3.97	2.31	2.88	Dipole	-	4072485.56	4072485.56	-75.77975314	36.79564366
MAG_2079	D11N	3.11	1.52	3.86	Dipole	-	4073439.02	4073439.02	-75.77790388	36.80425073
MAG_2080	D11N	3.27	-10.63	44.44	Monopole (-)	-	4073437.06	4073437.06	-75.77764353	36.80423477
MAG_2109	D10S	4.60	4.98	4.34	Monopole (+)	-	4072490.48	4072490.48	-75.77450409	36.79572231
MAG_2111	D10N	3.01	-6.57	20.99	Monopole (-)	-	4073412.73	4073412.73	-75.77413473	36.80403834
MAG_2113	D10S	4.46	-7.10	25.38	Monopole (-)	-	4072607.54	4072607.54	-75.77401135	36.79678075
MAG_2117	D10S	4.19	-4.88	14.67	Monopole (-)	-	4072554.72	4072554.72	-75.77395377	36.79630498

Mag ID	Associated Geotechnical Location	Sensor Altitude (m)	Amplitude (nT)	Duration (m)	Characteristics	Associated SSS Contact	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
MAG_2121	D10N	3.90	5.04	2.44	Monopole (+)	-	4073276.78	4073276.78	-75.77335961	36.80281786
MAG_2124	D10S	4.22	-0.07	4.79	Dipole	-	4072507.05	4072507.05	-75.77289981	36.79588212
MAG_2167	D9S	3.32	4.82	2.67	Monopole (+)	-	4072524.79	4072524.79	-75.76920824	36.79606597
MAG_2168	D9S	3.07	16.71	3.02	Monopole (+)	-	4072548.49	4072548.49	-75.76917911	36.7962798
MAG_2171	D9S	3.47	5.84	4.03	Monopole (+)	-	4072426.22	4072426.22	-75.76906565	36.79517833
MAG_2179	D9S	3.24	7.34	4.21	Monopole (+)	-	4072482.47	4072482.47	-75.76874097	36.79568749
MAG_2182	D9S	3.61	7.30	4.70	Monopole (+)	-	4072456.15	4072456.15	-75.76866889	36.7954507
MAG_2205	D9N	4.62	-30.58	49.23	Monopole (-)	-	4073238.11	4073238.11	-75.7669905	36.80251052
MAG_2229	D8S	2.82	4.75	2.90	Monopole (+)	-	4072450.57	4072450.57	-75.76364652	36.79543275
MAG_2230	D8S	3.66	5.82	4.80	Monopole (+)	-	4072424.51	4072424.51	-75.76360765	36.79519808
MAG_2236	D8S	3.21	6.70	2.67	Monopole (+)	-	4072490.26	4072490.26	-75.76322406	36.79579325
MAG_2245	D8S	4.81	4.92	2.56	Monopole (+)	-	4072418.88	4072418.88	-75.76266445	36.79515338
MAG_2329	D7N	4.15	5.04	2.98	Monopole (+)	-	4073156.88	4073156.88	-75.75760533	36.80183842
MAG_2330	D7N	3.43	6.05	2.80	Monopole (+)	-	4073259.96	4073259.96	-75.75749152	36.80276836
MAG_2332	D7S	4.29	15.45	5.11	Monopole (+)	-	4072385.86	4072385.86	-75.75723741	36.7948904
MAG_2334	D7S	4.33	7.34	2.20	Monopole (+)	-	4072335.36	4072335.36	-75.75714192	36.79443577
MAG_2336	D7S	3.90	6.22	2.78	Monopole (+)	-	4072508.09	4072508.09	-75.75703642	36.79599352
MAG_2339	D7S	3.51	-7.11	13.69	Monopole (-)	-	4072458.02	4072458.02	-75.756958	36.79554266
MAG_2340	D7N	4.19	5.73	3.10	Monopole (+)	-	4073142.93	4073142.93	-75.7569644	36.80171675
MAG_2346	D7S	4.11	-4.89	51.93	Monopole (-)	-	4072410.58	4072410.58	-75.75657272	36.79511747
MAG_2354	D7S	3.62	17.15	2.47	Monopole (+)	-	4072472.22	4072472.22	-75.75574464	36.79567839
MAG_2457	D5N	3.01	3.81	5.45	Dipole	-	4073162.31	4073162.31	-75.74605415	36.8019604
MAG_2460	D5N	3.37	-10.49	26.12	Monopole (-)	-	4073135.22	4073135.22	-75.74558616	36.80171913
MAG_2462	D5N	3.99	5.10	2.76	Monopole (+)	-	4073230.66	4073230.66	-75.74528827	36.80258134
MAG_2465	D5N	4.65	-5.14	29.63	Monopole (+)	-	4073072.47	4073072.47	-75.74513983	36.80115626
MAG_2466	D5N	3.85	8.98	5.68	Monopole (+)	-	4073111.49	4073111.49	-75.74506467	36.80150848
MAG_2505	D4S	3.14	0.00	2.60	Dipole	-	4072362.59	4072362.59	-75.74131825	36.79478092

Mag ID	Associated Geotechnical Location	Sensor Altitude (m)	Amplitude (nT)	Duration (m)	Characteristics	Associated SSS Contact	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
MAG_2512	D4S	3.62	5.38	3.78	Monopole (+)	-	4072389.24	4072389.24	-75.74078	36.79502451
MAG_2518	D4S	3.85	6.85	2.47	Monopole (+)	-	4072363.61	4072363.61	-75.74026523	36.79479667
MAG_2523	D4S	3.46	-5.97	15.56	Monopole (-)	-	4072407.62	4072407.62	-75.73971414	36.79519683
MAG_2552	D3N	3.54	6.32	3.26	Monopole (+)	-	4073047.68	4073047.68	-75.73546933	36.80099299
MAG_2554	D3S	4.09	6.21	2.10	Monopole (+)	-	4072355.18	4072355.18	-75.73533175	36.79475128
MAG_2562	D3S	3.76	-13.58	40.24	Monopole (-)	-	4072318.21	4072318.21	-75.73410219	36.79442561
MAG_2565	D3N	4.04	5.89	4.22	Monopole (+)	-	4073017.54	4073017.54	-75.73372308	36.80073208
MAG_2568	D3N	3.48	5.01	3.91	Monopole (+)	-	4073060.42	4073060.42	-75.73350438	36.80111997
MAG_2601	D2N	3.61	-6.56	19.04	Monopole (-)	-	4072984.47	4072984.47	-75.7288899	36.80046369
MAG_2617	D2N	4.21	-9.78	17.06	Monopole (-)	-	4073142.45	4073142.45	-75.72790926	36.80189381
MAG_2622	D2N	4.16	7.52	3.94	Monopole (+)	-	4073105.54	4073105.54	-75.72742514	36.80156405
MAG_2624	D2N	2.91	6.22	2.19	Monopole (+)	-	4072974.98	4072974.98	-75.72730573	36.80038784

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

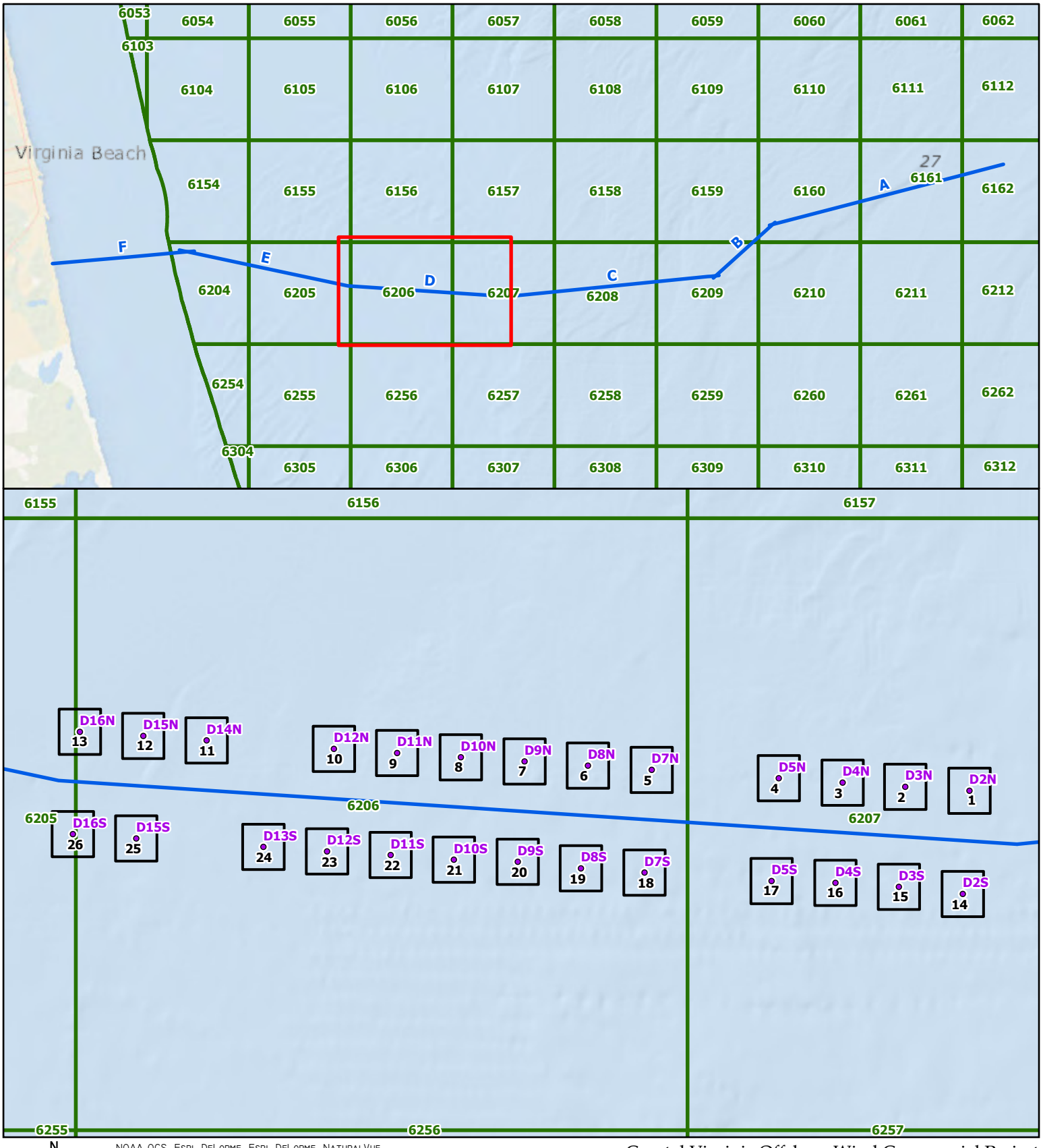
Table 4: Side Scan Sonar Contacts within Analytical Areas for ECR Block D, North and South Wing Corridors

SSS ID	Associated Geotechnical Location	Height (m)	Width (m)	Length (m)	Depth (m)	Associated Mag Anomaly	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
SSS_D_059	D8N	0.11	0.46	0.8	19.8	-	431983.73	4073265.41	-75.76246392	36.80278572
SSS_D_101	D14N	0.13	0.48	1.38	19.7	-	428983.82	4073530.14	-75.79611473	36.80495162
SSS_D_027	D4N	0.41	0.54	1.6	21.64	-	434095.91	4073195.16	-75.73878211	36.80230192
SSS_D_045	D5N	0.28	0.38	0.76	21.43	-	433530.38	4073149.94	-75.74511723	36.80185476
SSS_D_091	D12N	0.16	0.13	1.1	20.72	-	429924.84	4073416.94	-75.78555609	36.80400139
SSS_D_063	D10N	0.34	0.19	0.41	19.93	-	431102.8	4073232.77	-75.77233538	36.80242779
SSS_D_028	D4N	0.45	0.67	1.87	21.57	-	434095.27	4073032.23	-75.73877518	36.80083323
SSS_D_124	D16S	0.11	1.14	2.65	18.84	-	427971.58	4072811.87	-75.80739326	36.79840075
SSS_D_102	D14N	0.23	4.46	7.85	19.77	-	428968.31	4073386.79	-75.7962752	36.80365832
SSS_D_009	D2N	0.18	0.28	0.86	21.79	-	434971.83	4073133.02	-75.72895852	36.80180238
SSS_D_130	D2S	0.33	0.26	1.18	16.11	-	434885.67	4072269.98	-75.72985048	36.79401701
SSS_D_137	D2S	0.13	0.54	3.74	16.22	-	435080.52	4072261.4	-75.72766592	36.79395307
SSS_D_146	D2S	0.2	0.75	1.09	16.2	-	434838.11	4072174.65	-75.73037537	36.79315446
SSS_D_148	D2S	0.22	0.48	1.17	16.71	-	435034.27	4072253.1	-75.7281835	36.79387508
SSS_D_149	D5S	0.28	0.23	1.06	15.34	-	433477.12	4072414.05	-75.74564991	36.7952177
SSS_D_152	D15S	0.18	0.37	3.09	13.89	-	428438.96	4072769.97	-75.80215071	36.79805855
SSS_D_185	D15S	0.39	0.59	1.42	13.86	-	428513	4072612.66	-75.80130616	36.79664617
SSS_D_190	D2S	0.11	0.18	1.43	16.78	-	434864.92	4072187.37	-75.73007599	36.7932709
SSS_D_193	D2S	0.17	0.16	2.5	16.41	-	435066.27	4072181.87	-75.72781878	36.79323518
SSS_D_194	D2S	0.25	0.2	2.32	16.22	-	435037.12	4072172.2	-75.72814474	36.79314603
SSS_D_196	D2S	0.25	0.39	1.67	16.28	-	435068.97	4072169.54	-75.72778754	36.79312419
SSS_D_200	D2S	0.32	0.4	1.55	16.13	-	434852.31	4072289.59	-75.73022604	36.79419145
SSS_D_201	D2S	0.18	0.75	1.58	16.22	-	434881.83	4072282.16	-75.72989461	36.79412654
SSS_D_205	D3S	0.33	0.54	2.22	16.13	-	434519.24	4072310.21	-75.7339609	36.79435437
SSS_D_207	D4S	0.21	0.3	1.35	15.24	-	434078.73	4072402.87	-75.73890604	36.79515899
SSS_D_208	D4S	0.22	0.56	1.03	15.5	-	434084.01	4072407.45	-75.73884727	36.79520069

SSS ID	Associated Geotechnical Location	Height (m)	Width (m)	Length (m)	Depth (m)	Associated Mag Anomaly	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
SSS_D_209	D4S	0.37	0.36	1.17	15.35	-	434081.28	4072392.66	-75.73887656	36.79506717
SSS_D_211	D5S	0.26	1	3	16.53	-	433341.79	4072342.67	-75.74716043	36.79456476

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

APPENDIX 1
ARCHAEOLOGICAL RESOURCES MAPS FOR BLOCK D WING CORRIDORS



N
W E
S
GRID NORTH

NOAA OCS, ESRI, DELORME, ESRI, DELORME, NATURALVUE

MSR: 1:40,000
SRS: NAD 1983 2011 UTM ZONE 18N METER

0 0.25 0.5 0.75 1 MILES
0 0.25 0.5 0.75 1 KILOMETERS

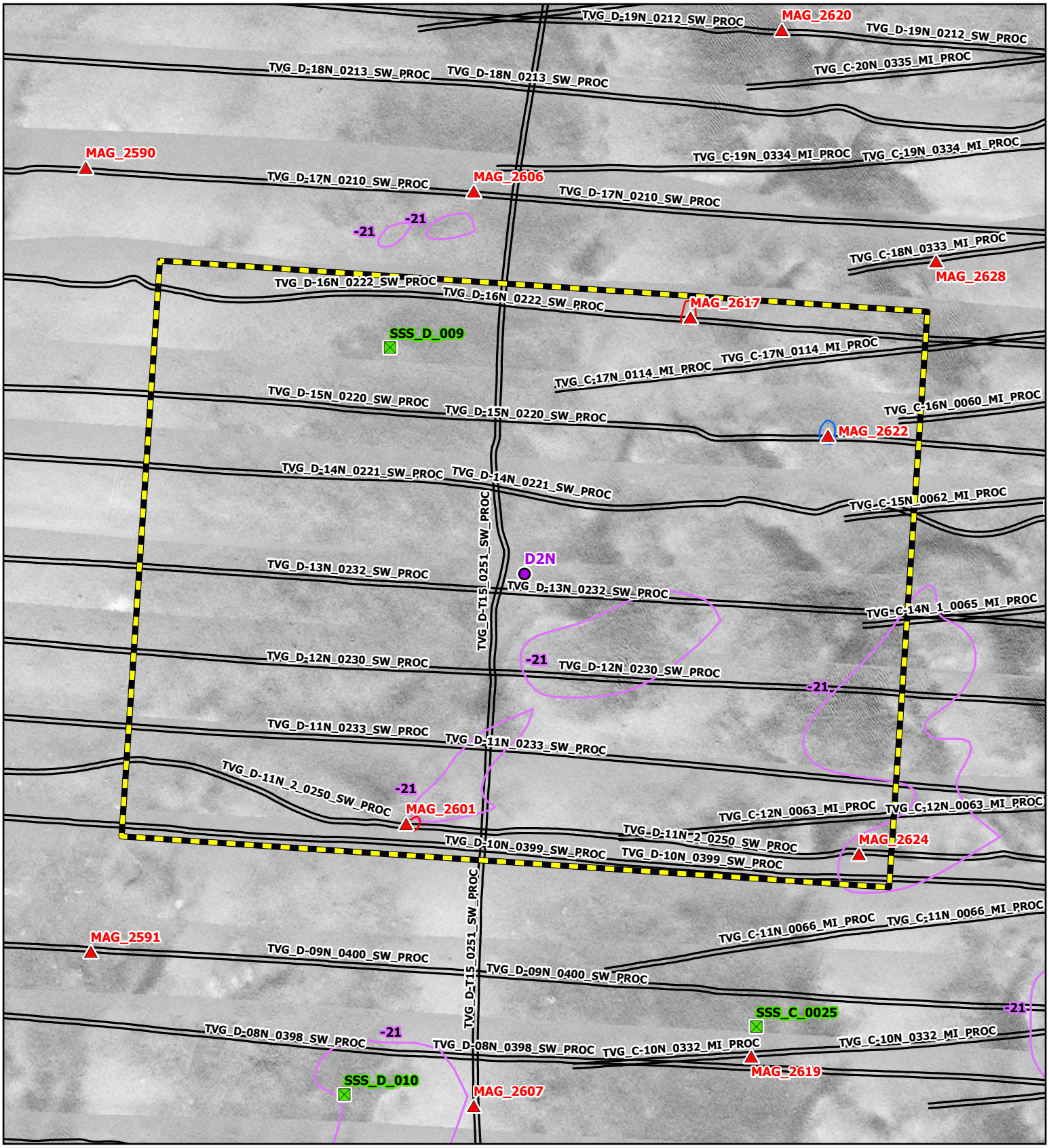
- GEOTECHNICAL LOCATION
- ECR CENTERLINE
- BOEM LEASE BLOCK
- MAP SHEET EXTENT

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Index Map

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

WWW.RCGOODWIN.COM | KMAY, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

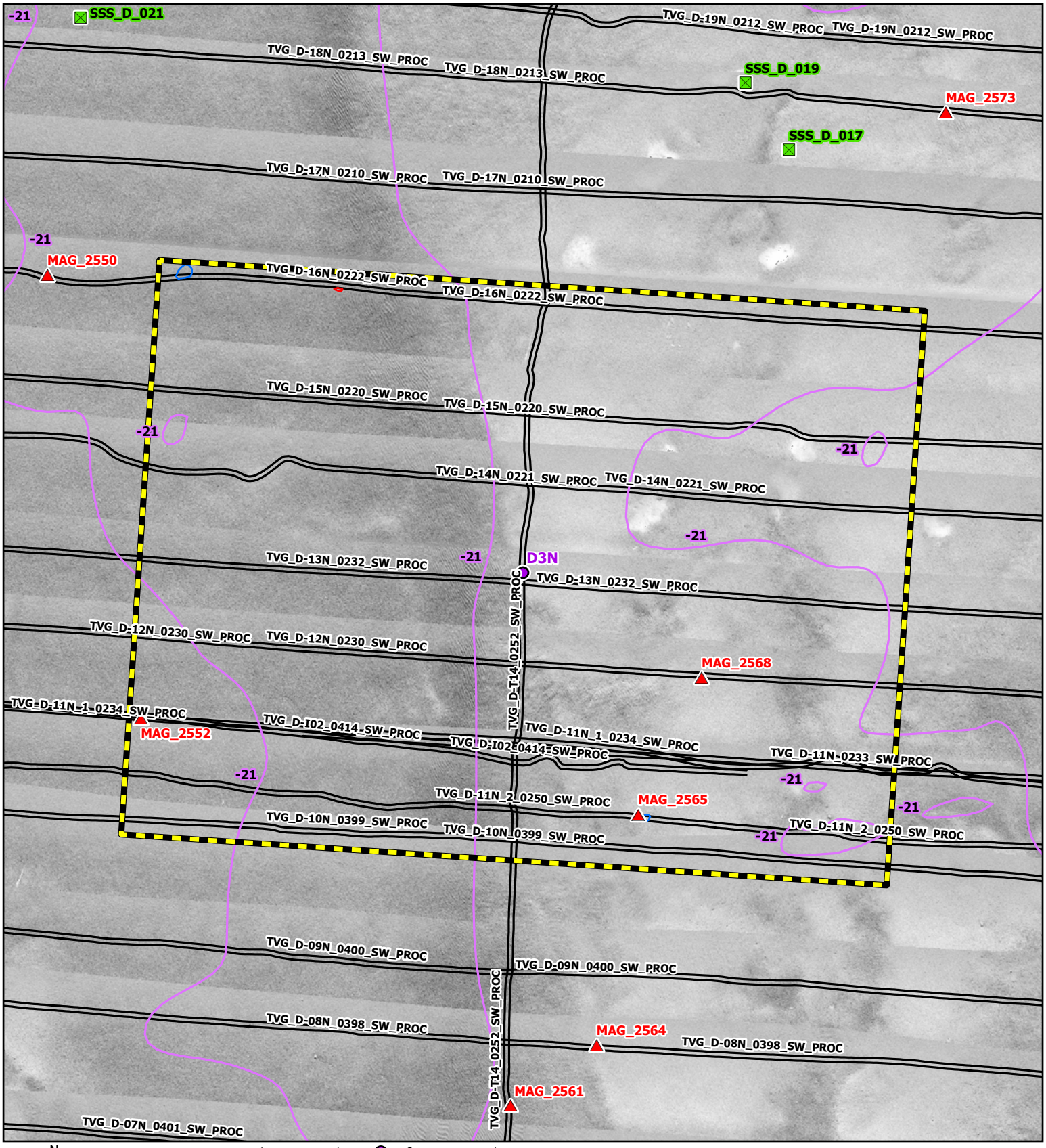
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 1

D2N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

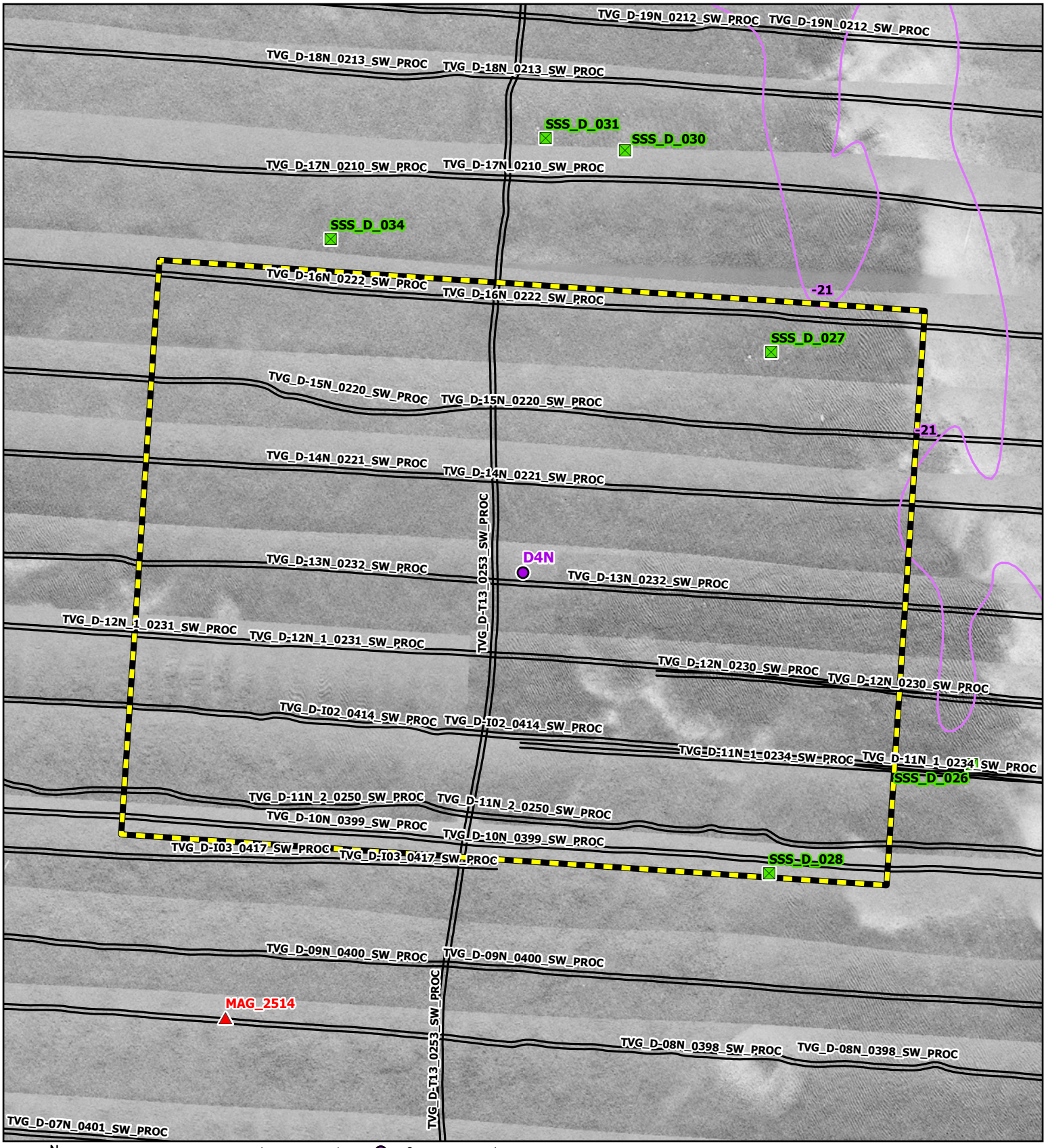
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 2

D3N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- Bathymetric Contour (1m interval)
- Trackline

Magnetic Contour (5 nT)

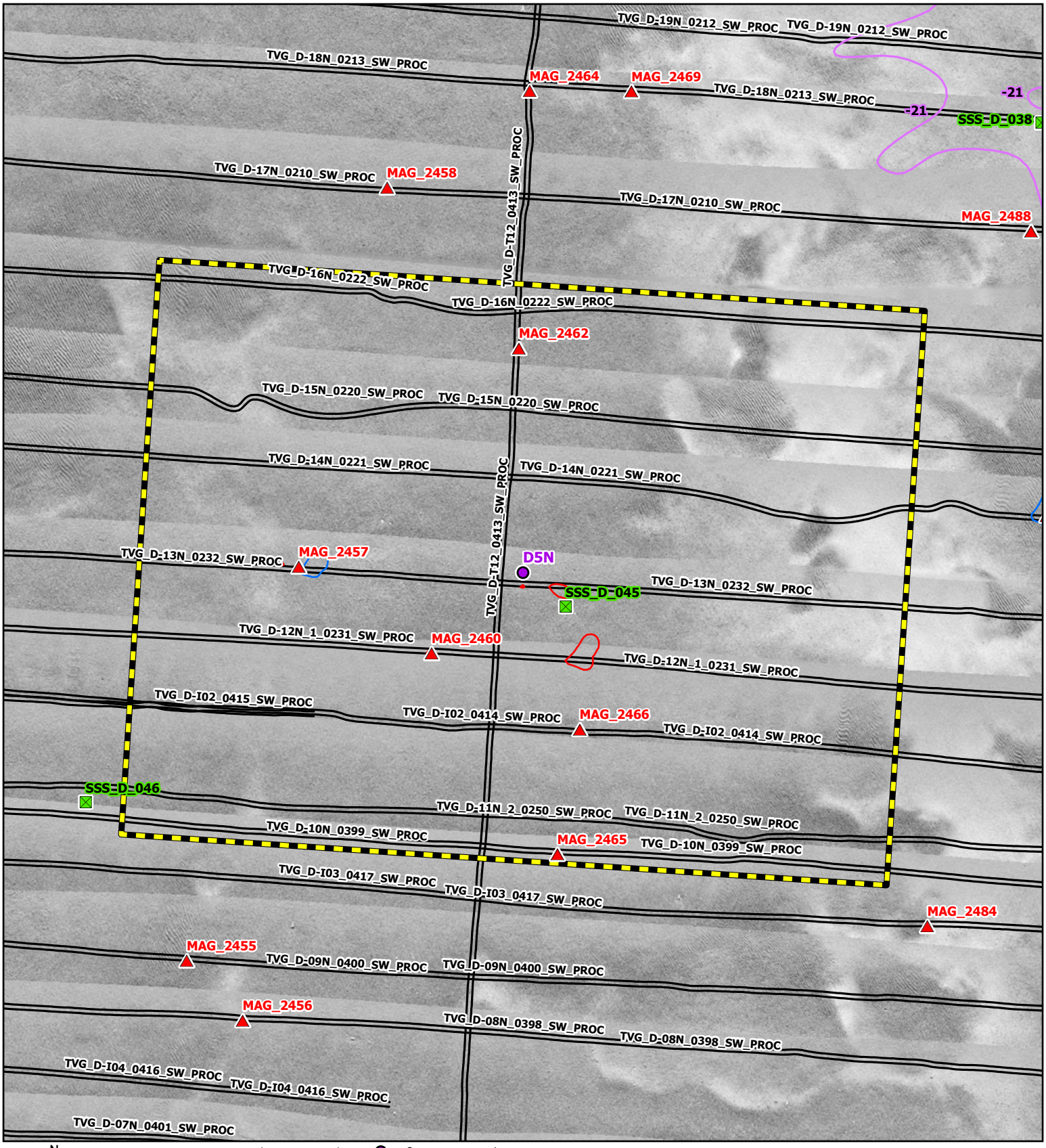
- Negative
- Positive
- Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 3

D4N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM Zone 18N Meter
0 25 50 75 100
Feet
0 10 20 30 40
Meters

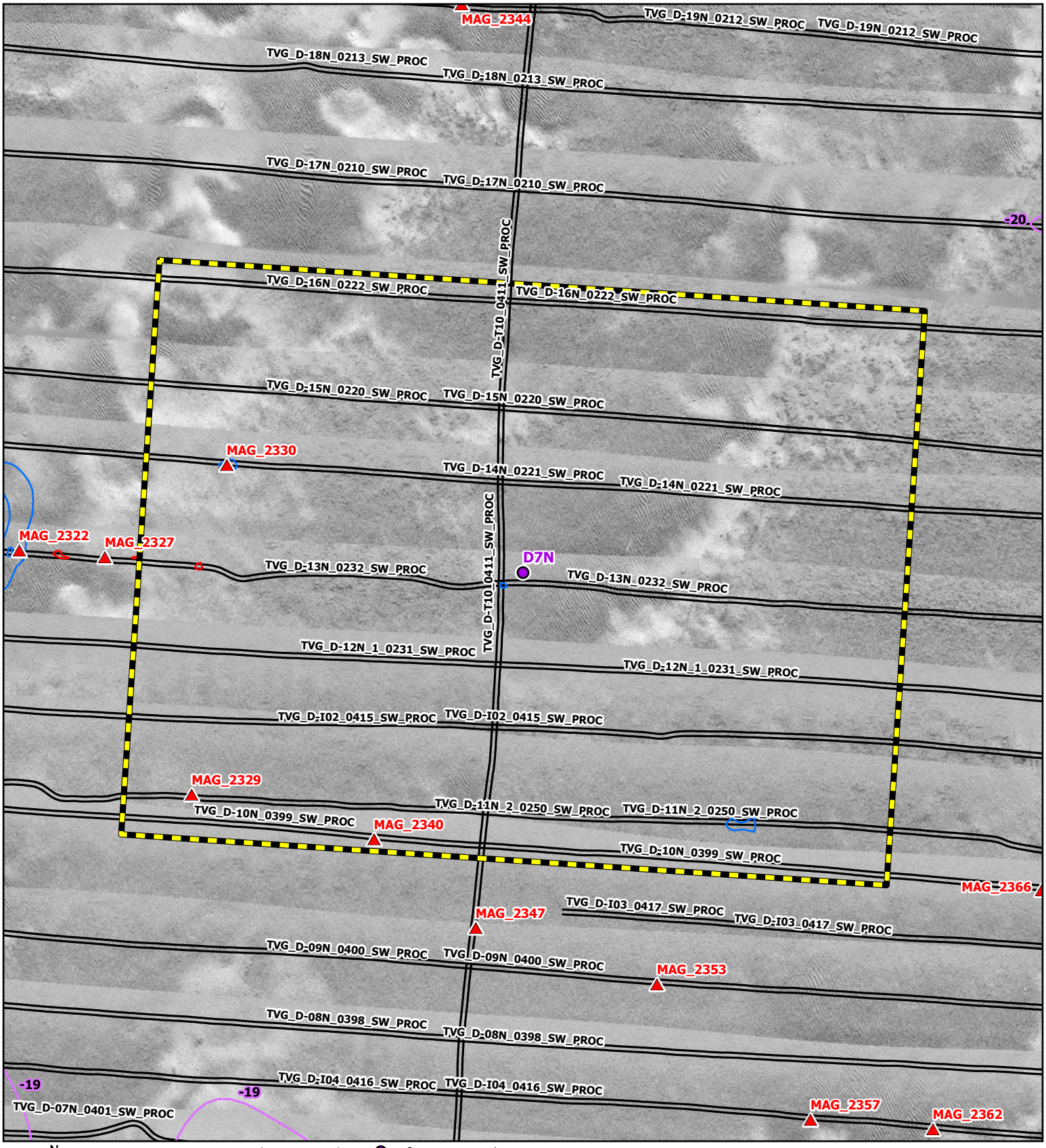
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 4
D5N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

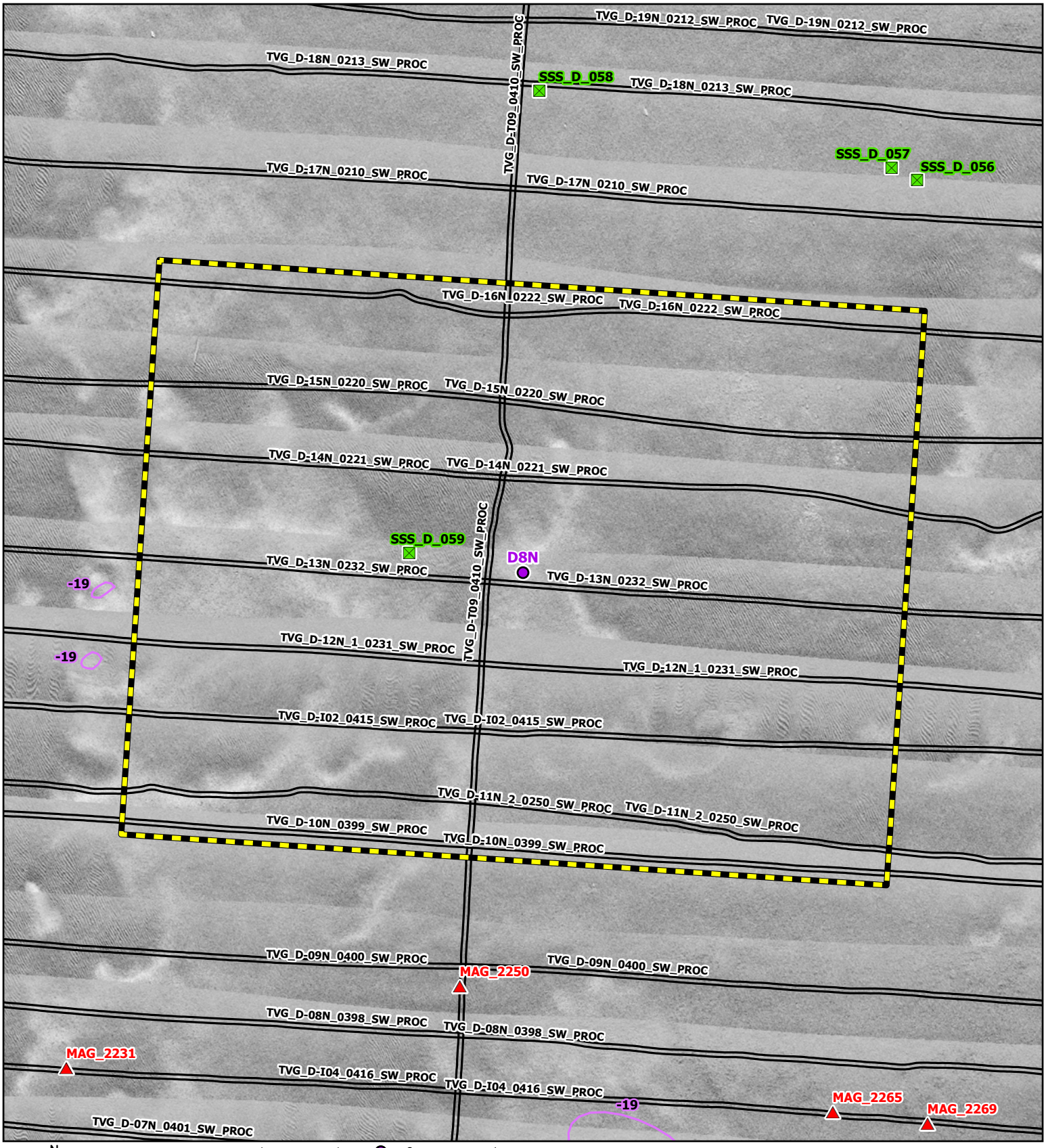
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 5

D7N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

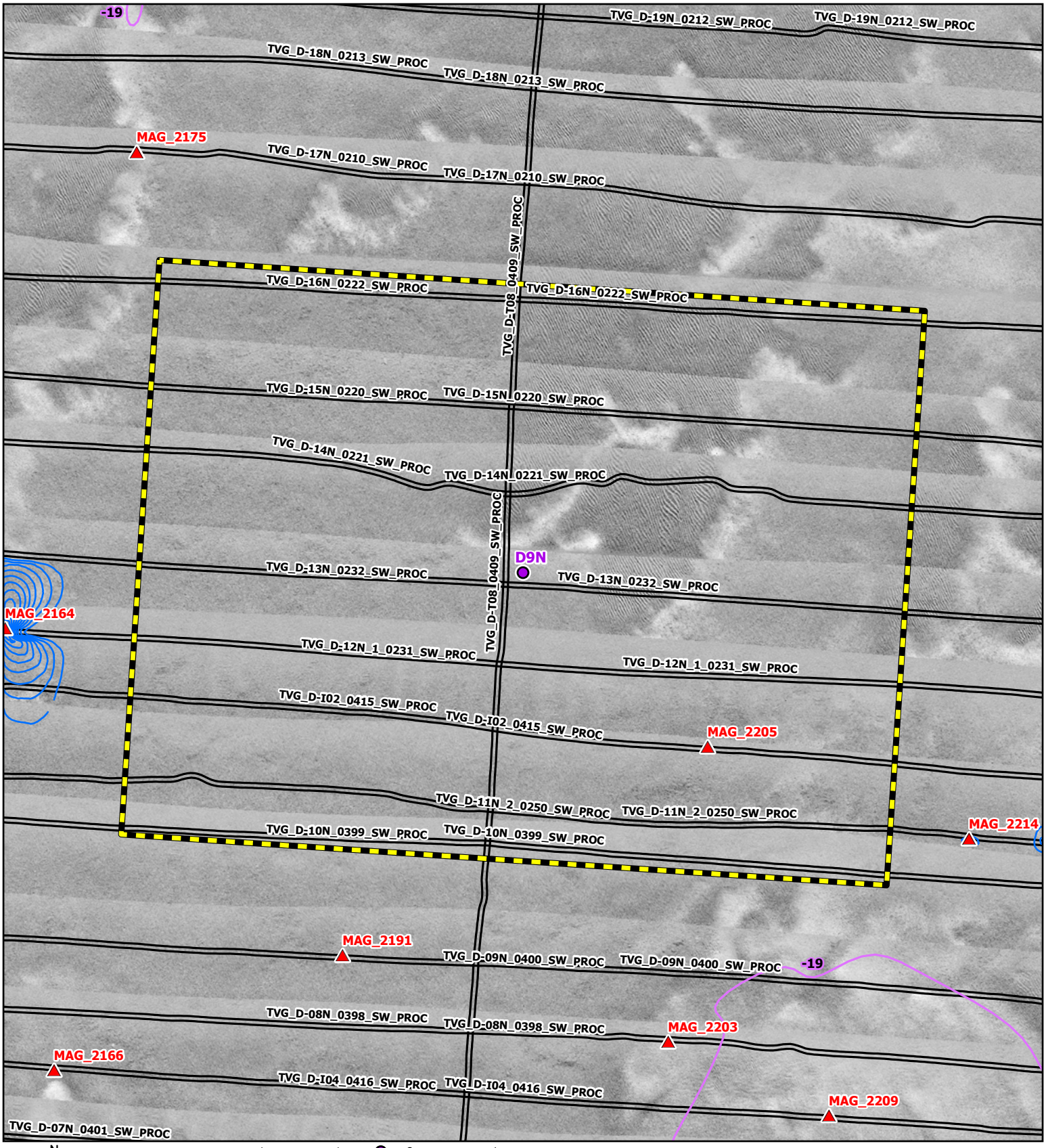
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 6

D8N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

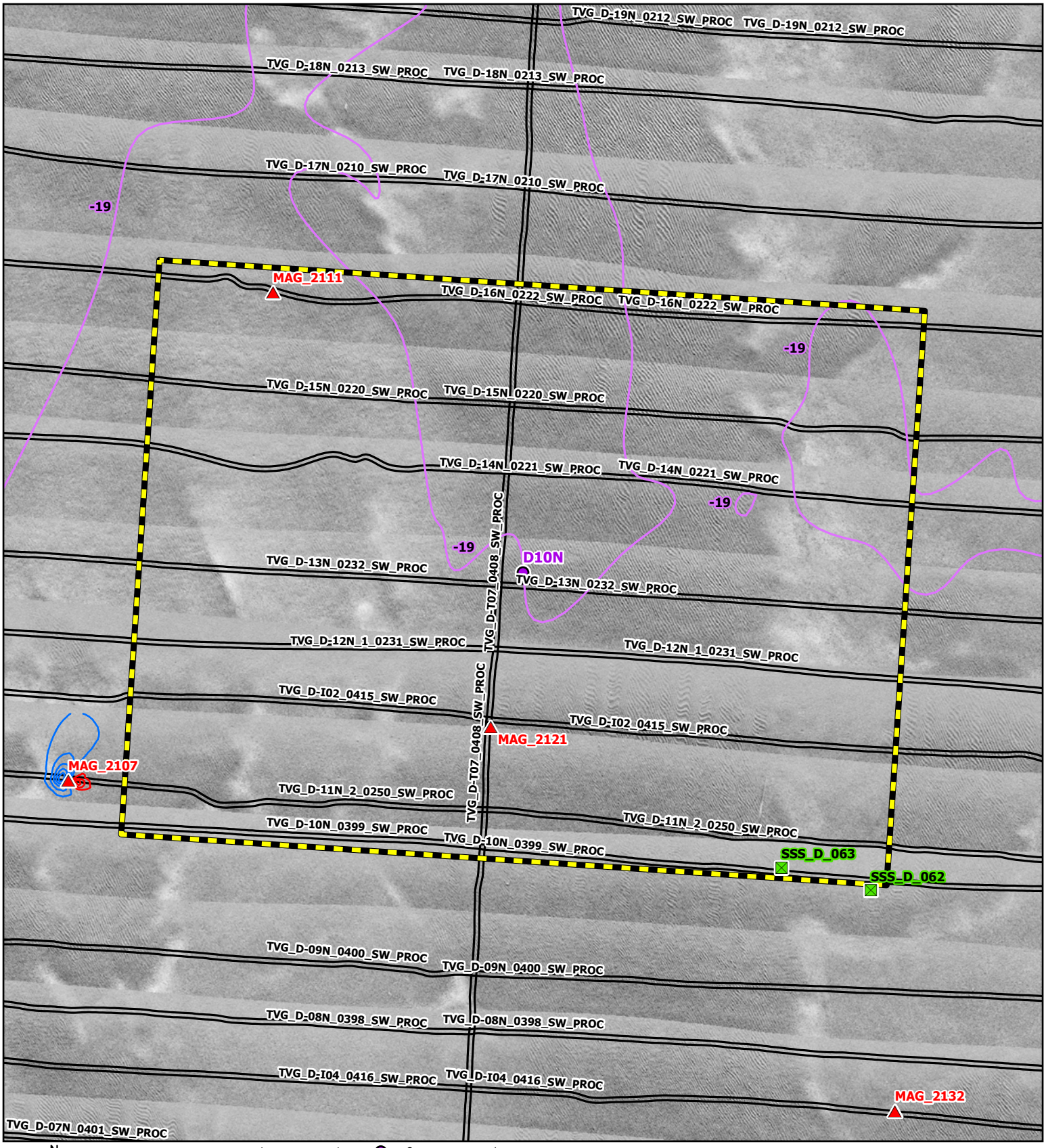
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 7

D9N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

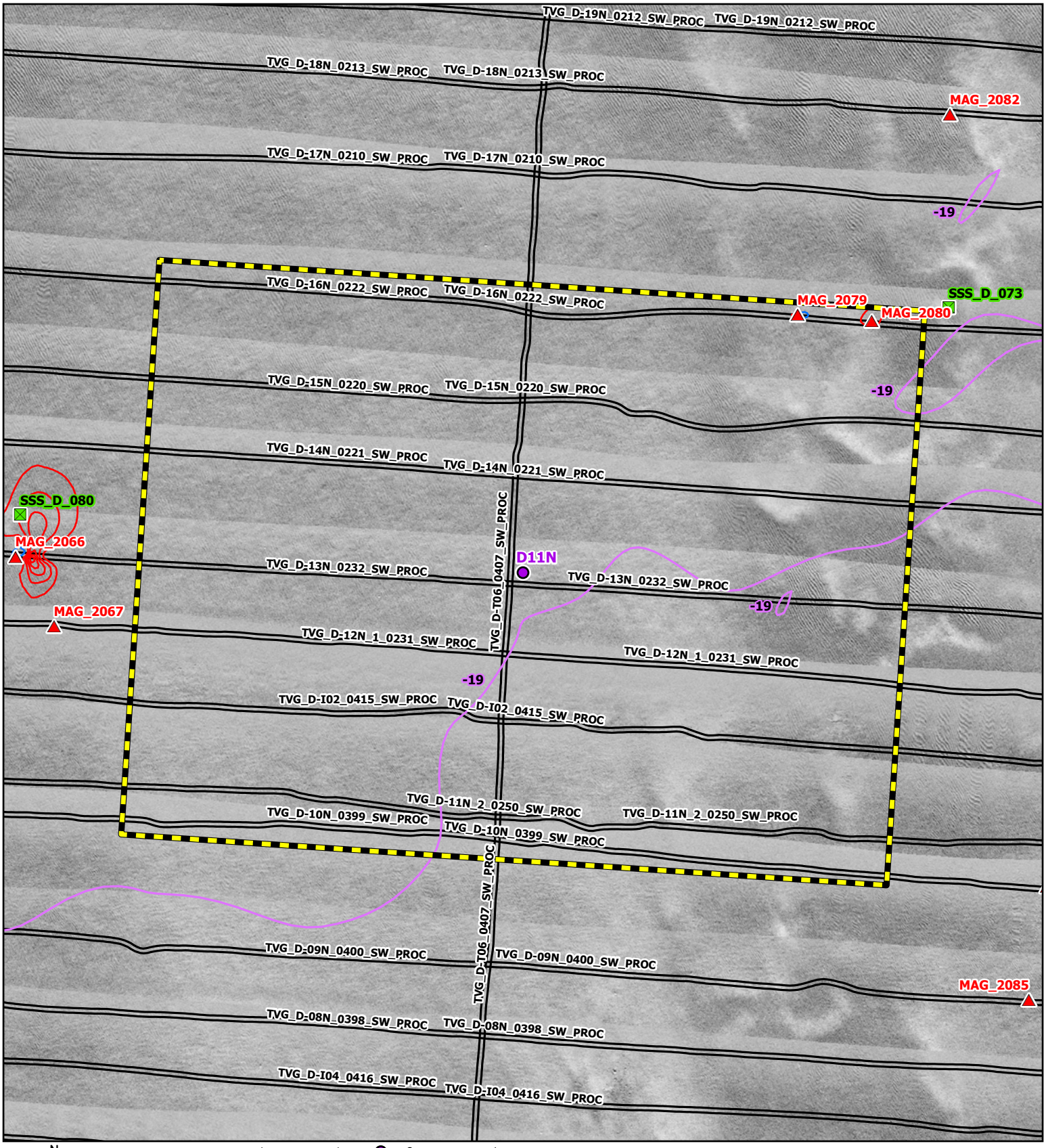
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 8

D10N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

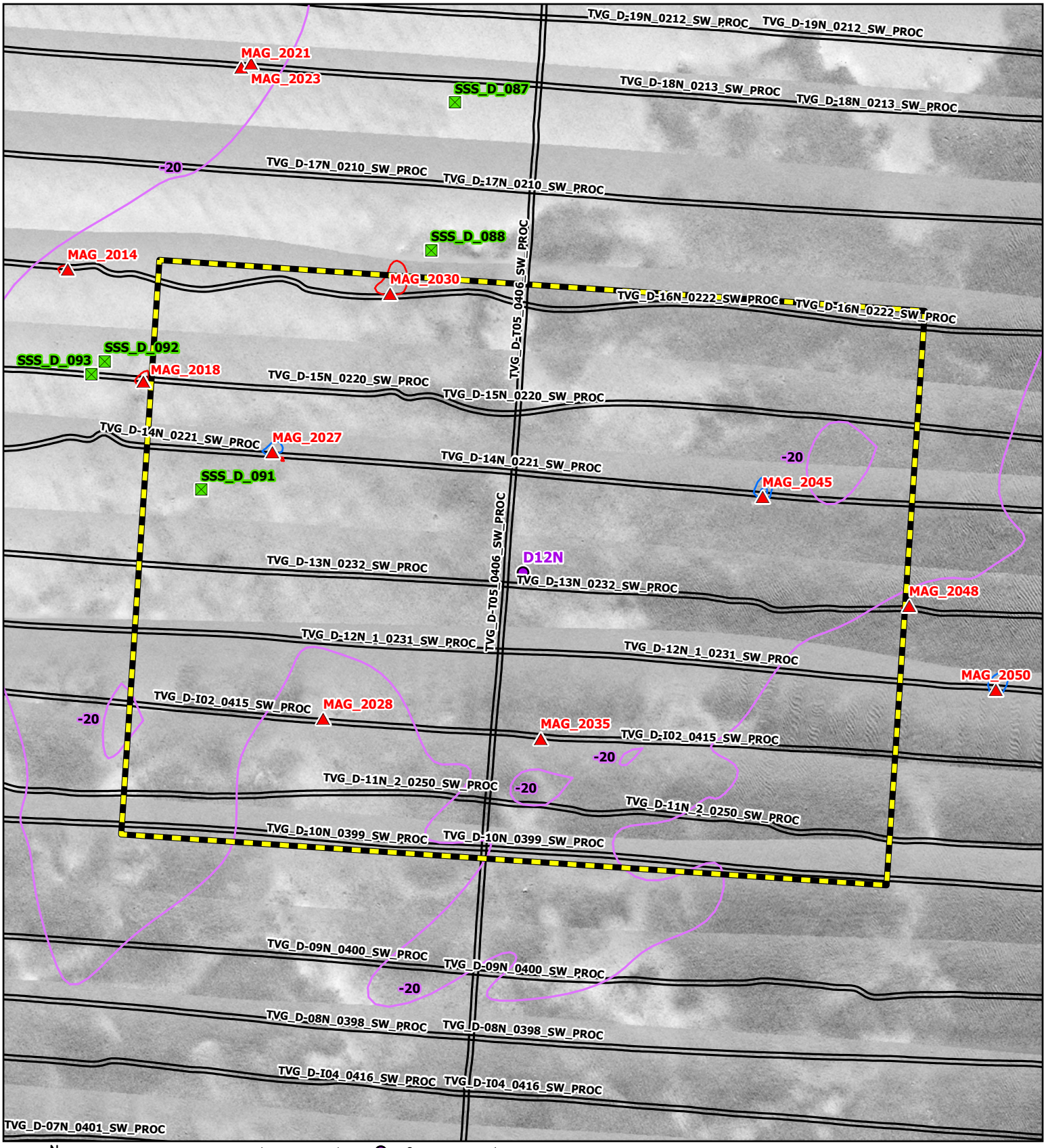
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 9

D11N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

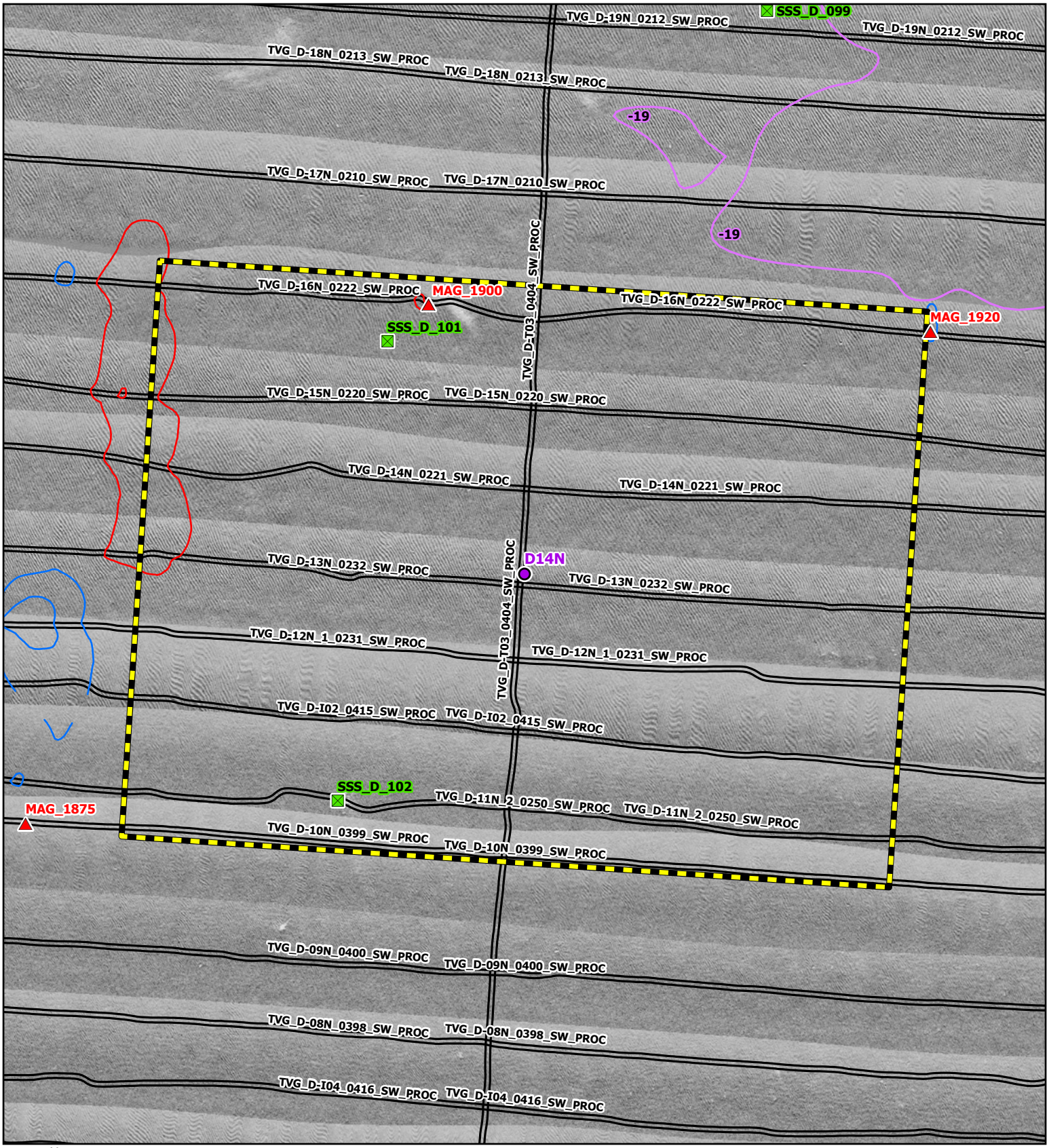
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 10

D12N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

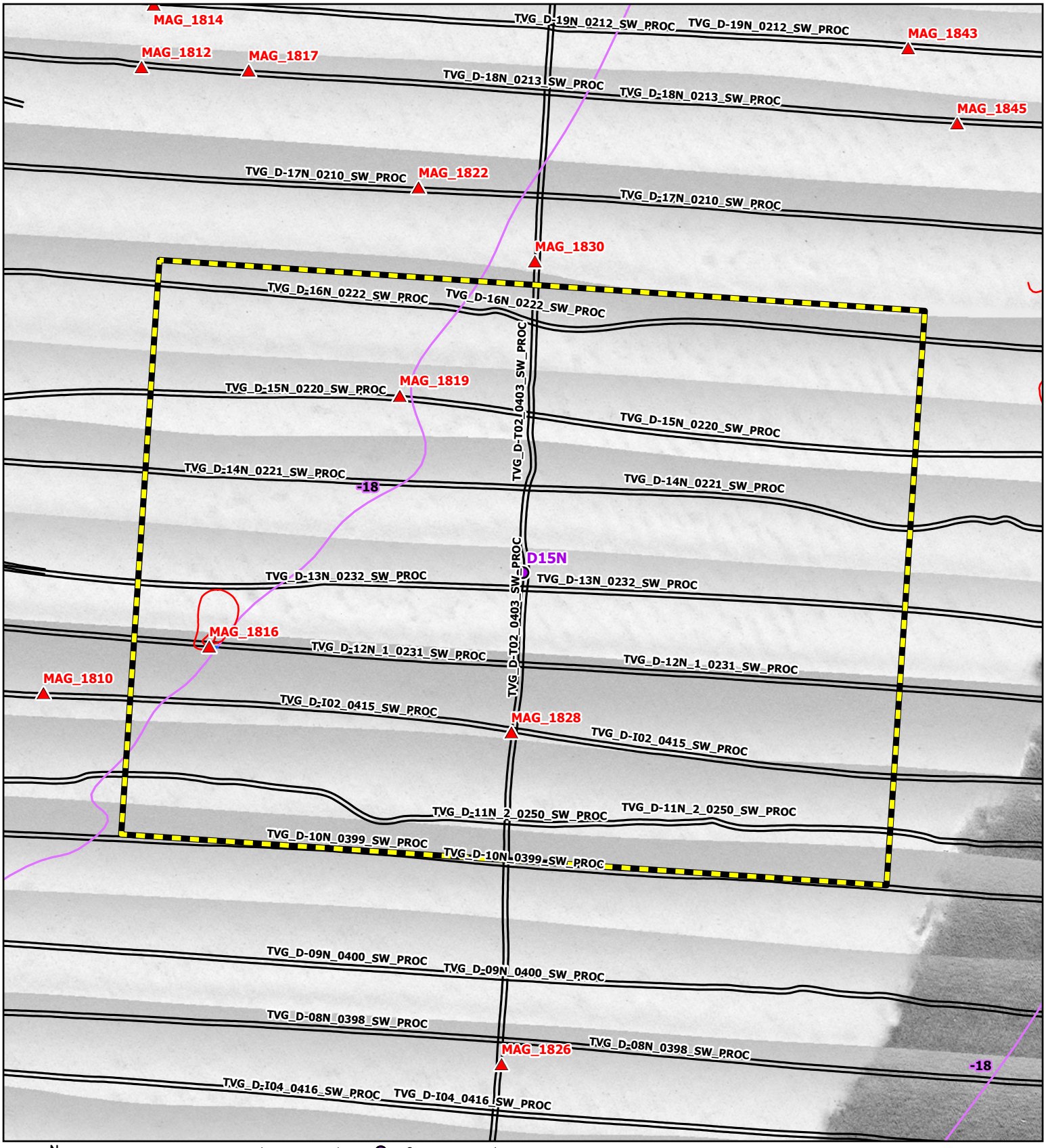
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 11

D14N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

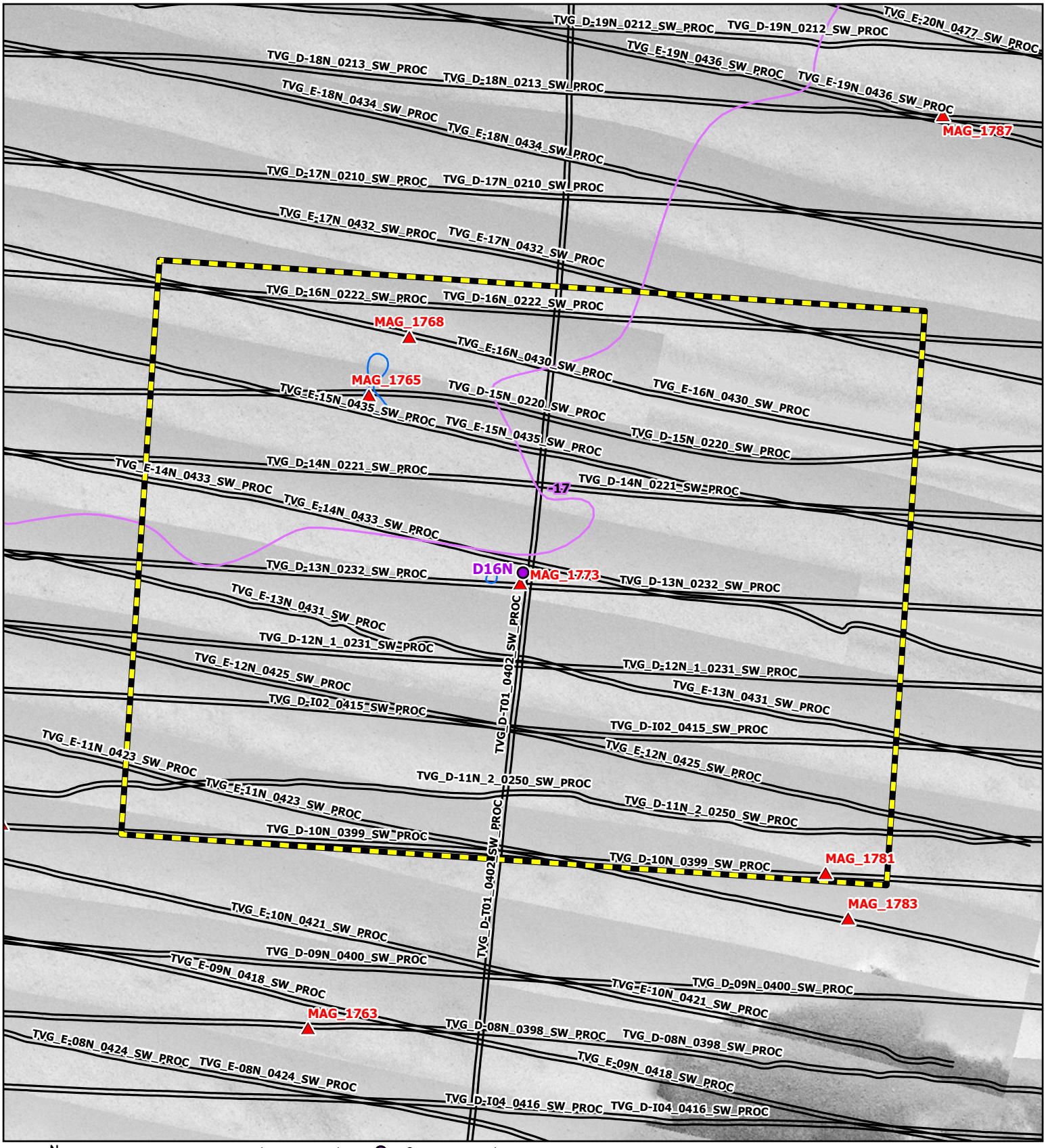
Side Scan Sonar Mosaic (2020, 0.25 m)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM Zone 18N Meter
0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 12
D15N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

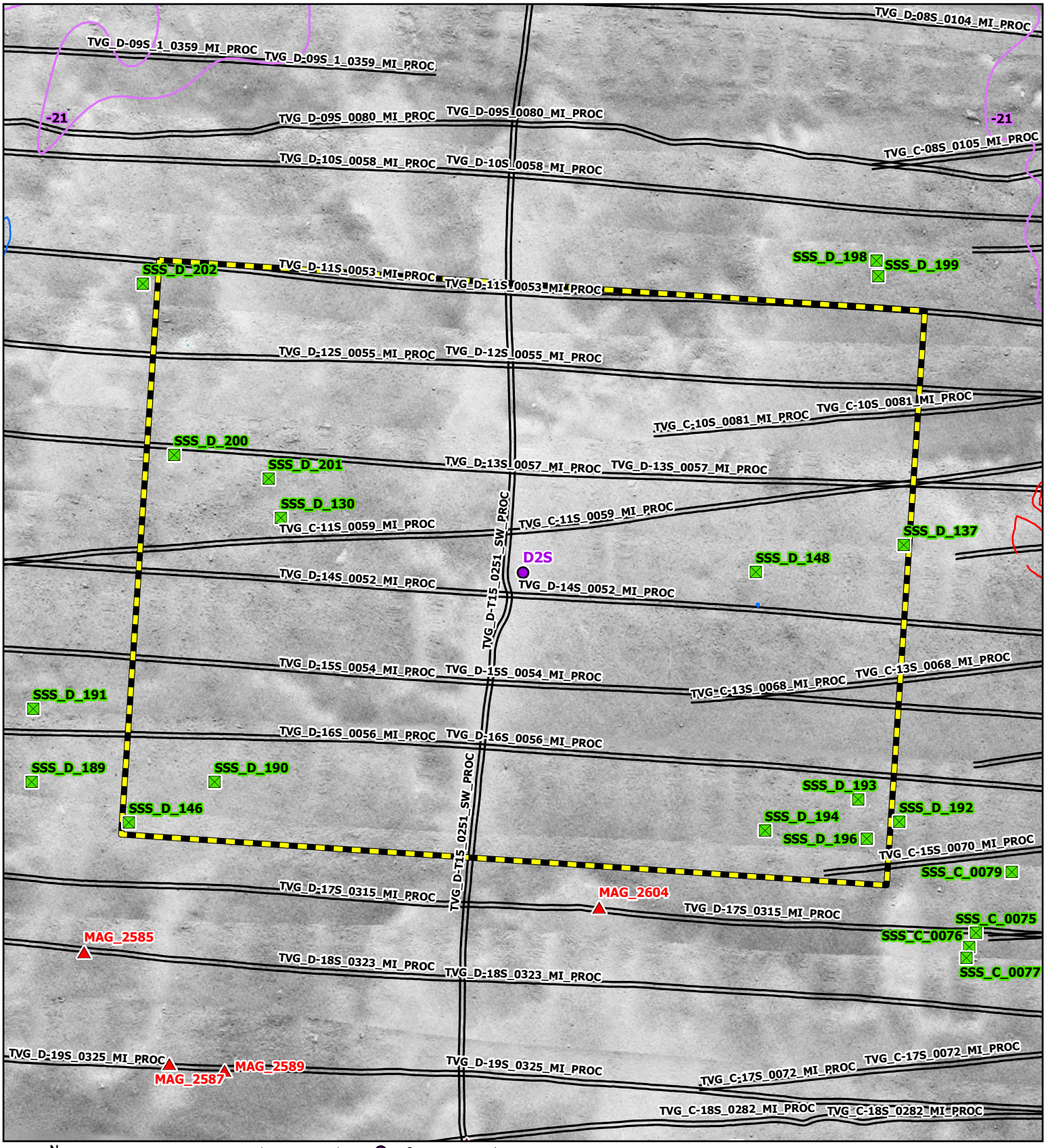
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 13

D16N

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

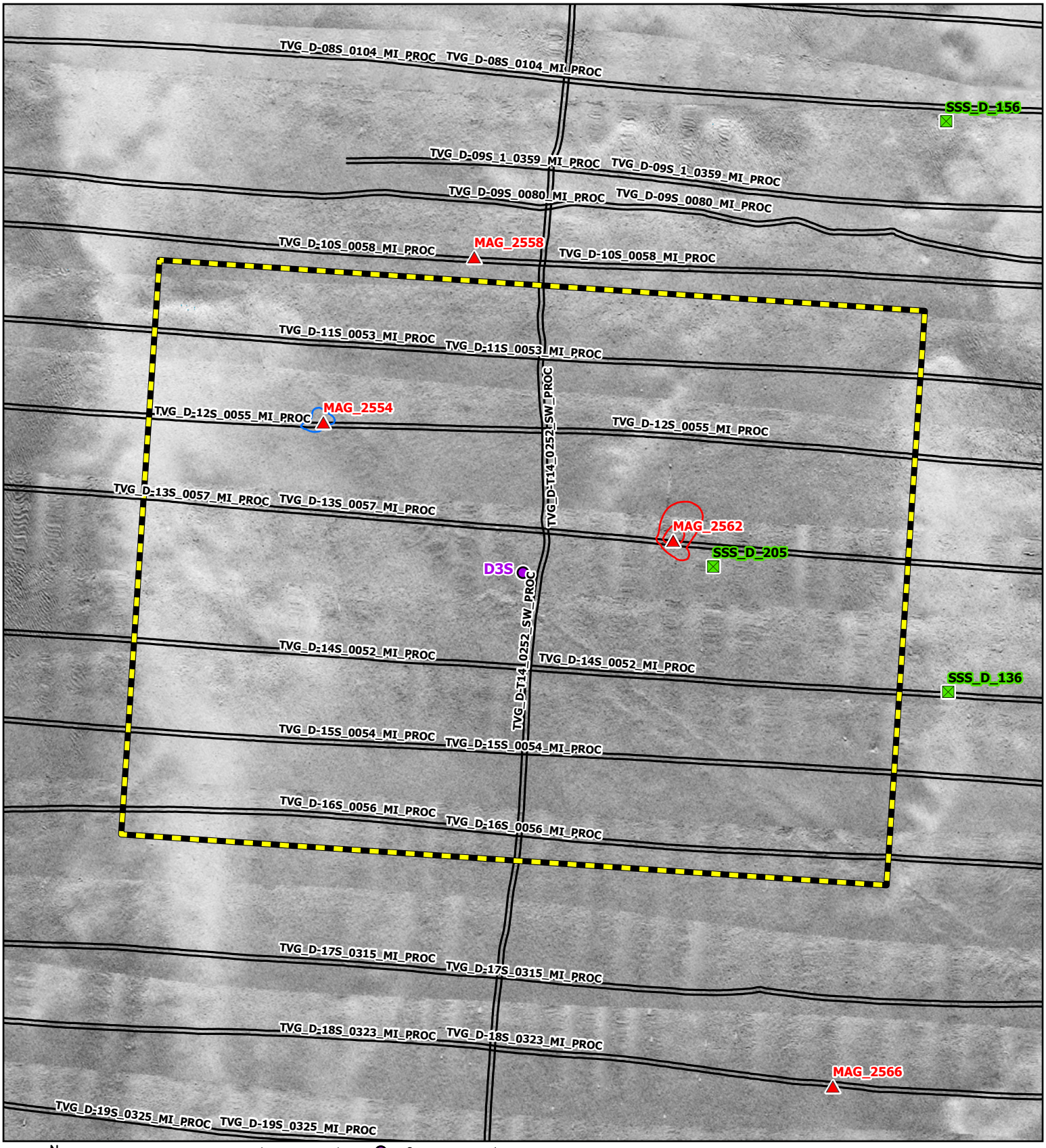
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 14

D2S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

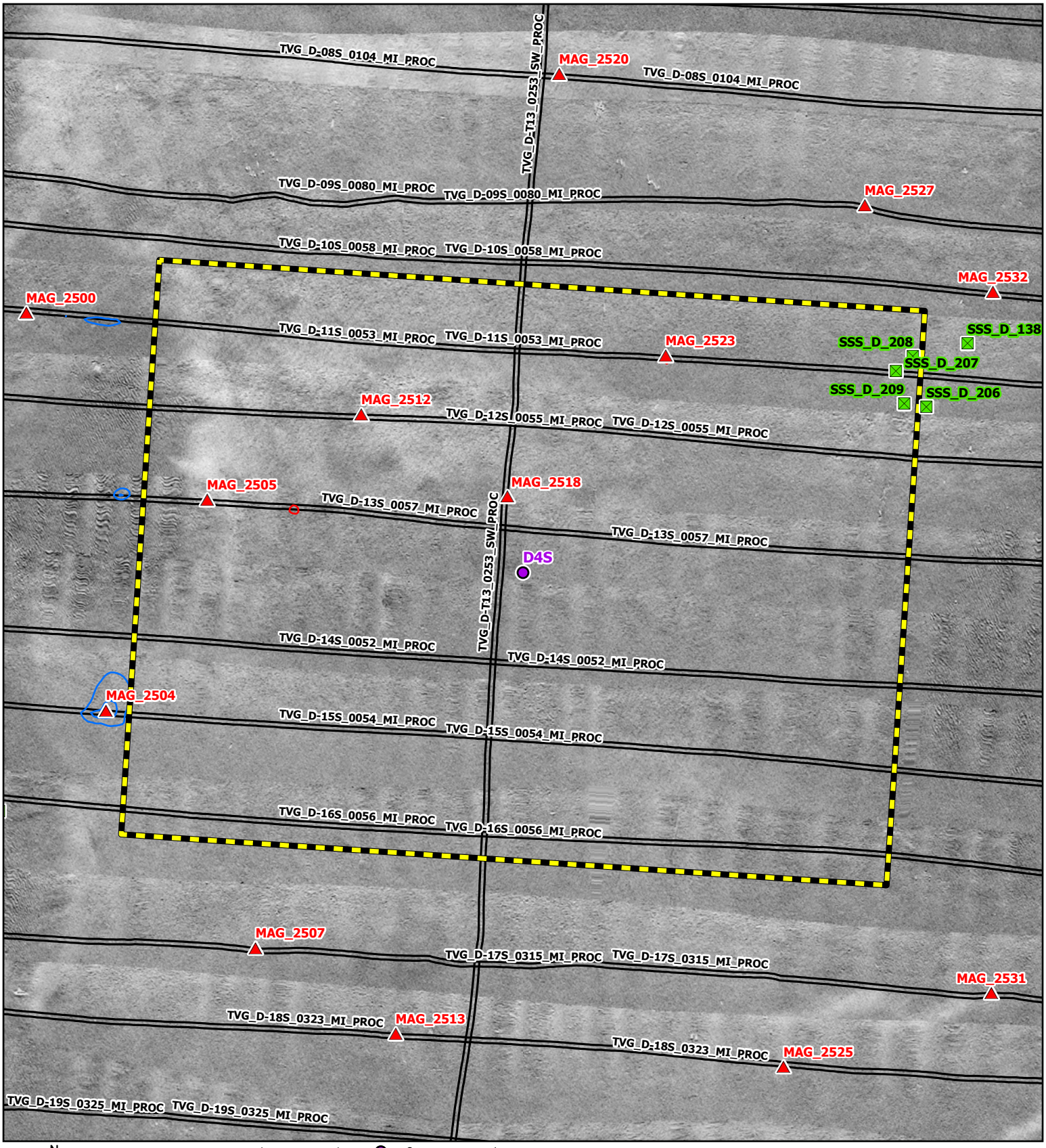
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 15

D3S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

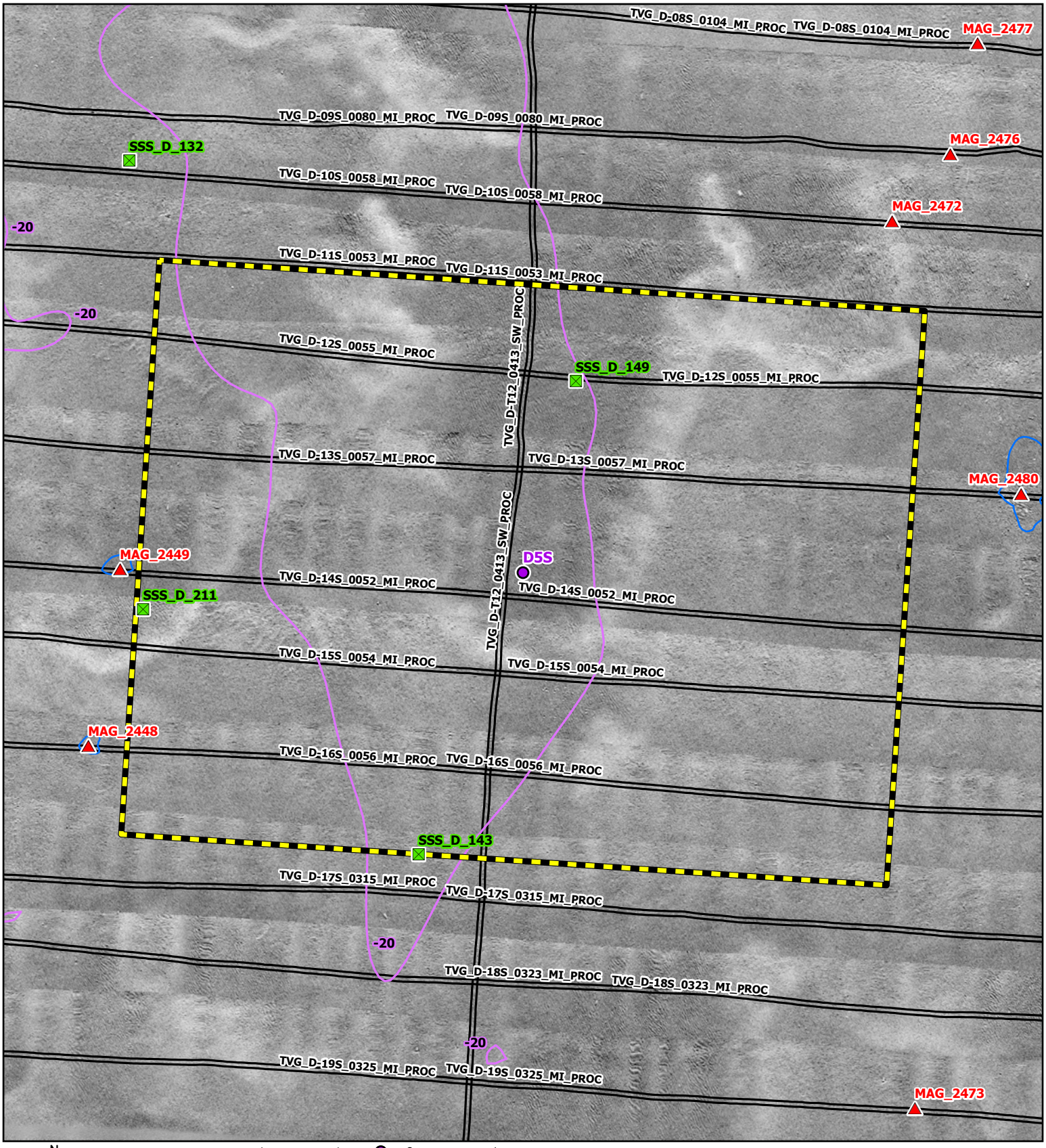
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 16

D4S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- Bathymetric Contour (1m interval)
- Trackline

Magnetic Contour (5 nT)

- Negative
- Positive
- Analytical Area

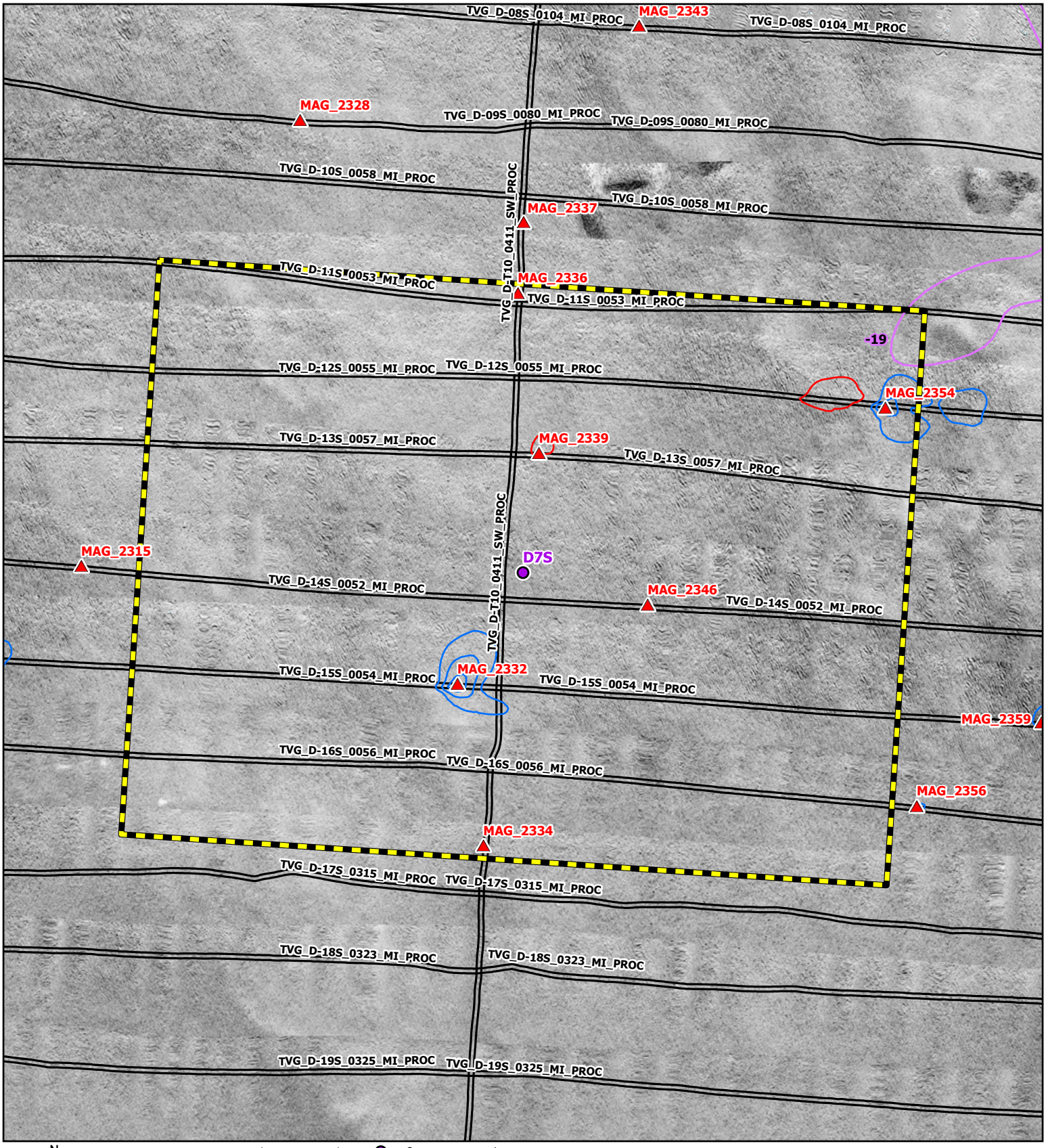
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 17

D5S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

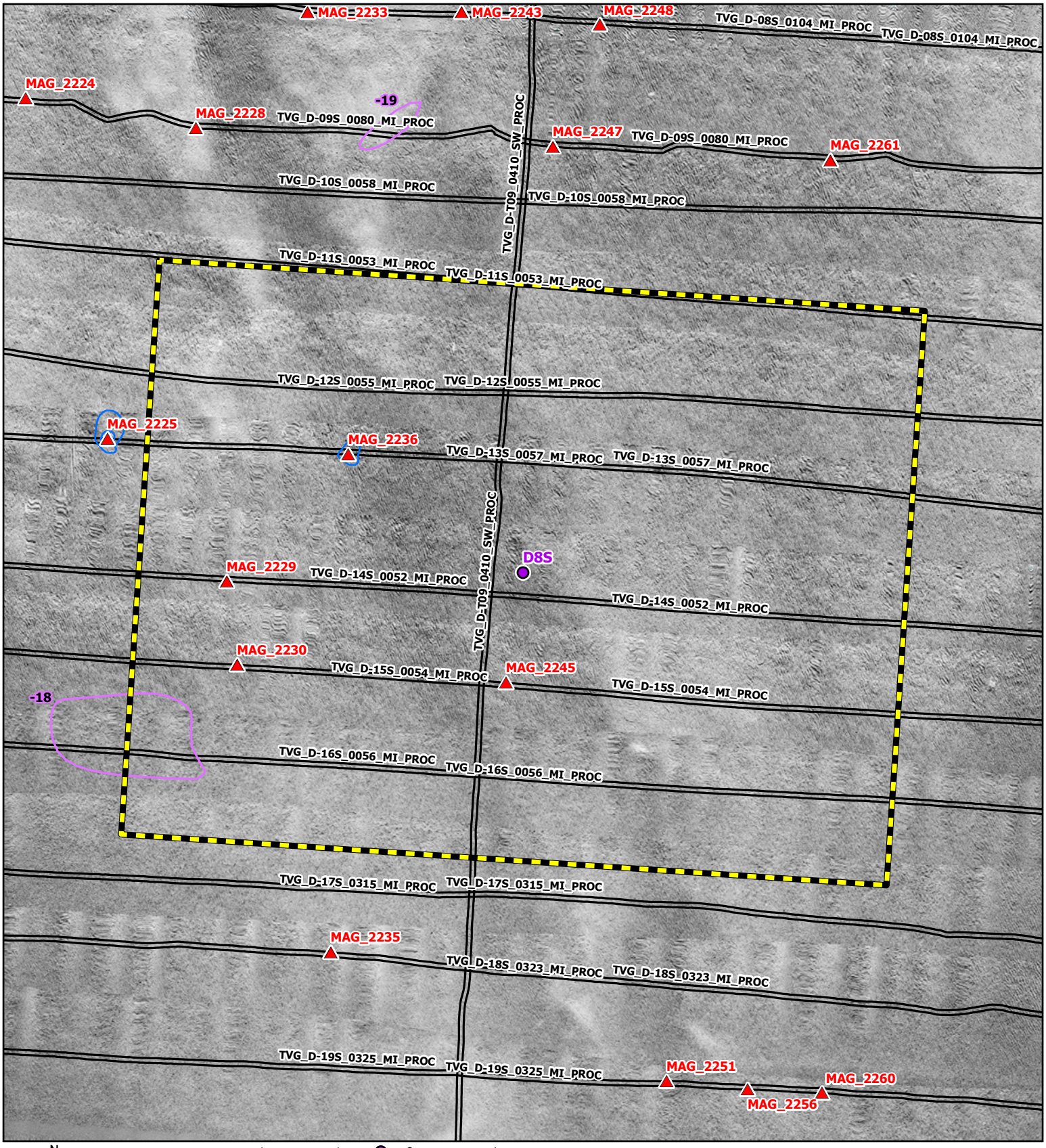
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 18

D7S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- Bathymetric Contour (1m interval)
- Trackline

Magnetic Contour (5 nT)

- Negative
- Positive
- Analytical Area

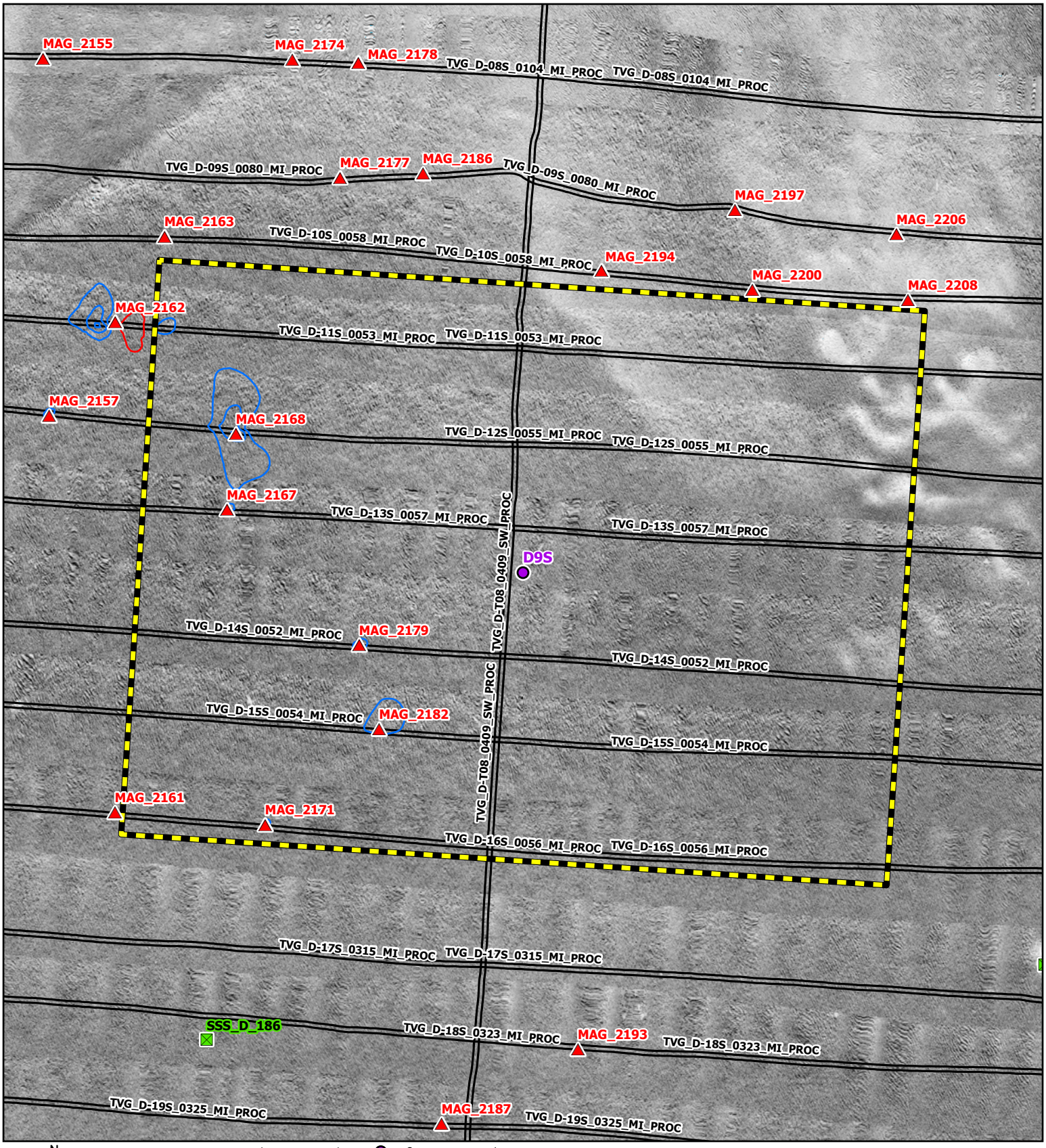
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 19

D8S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

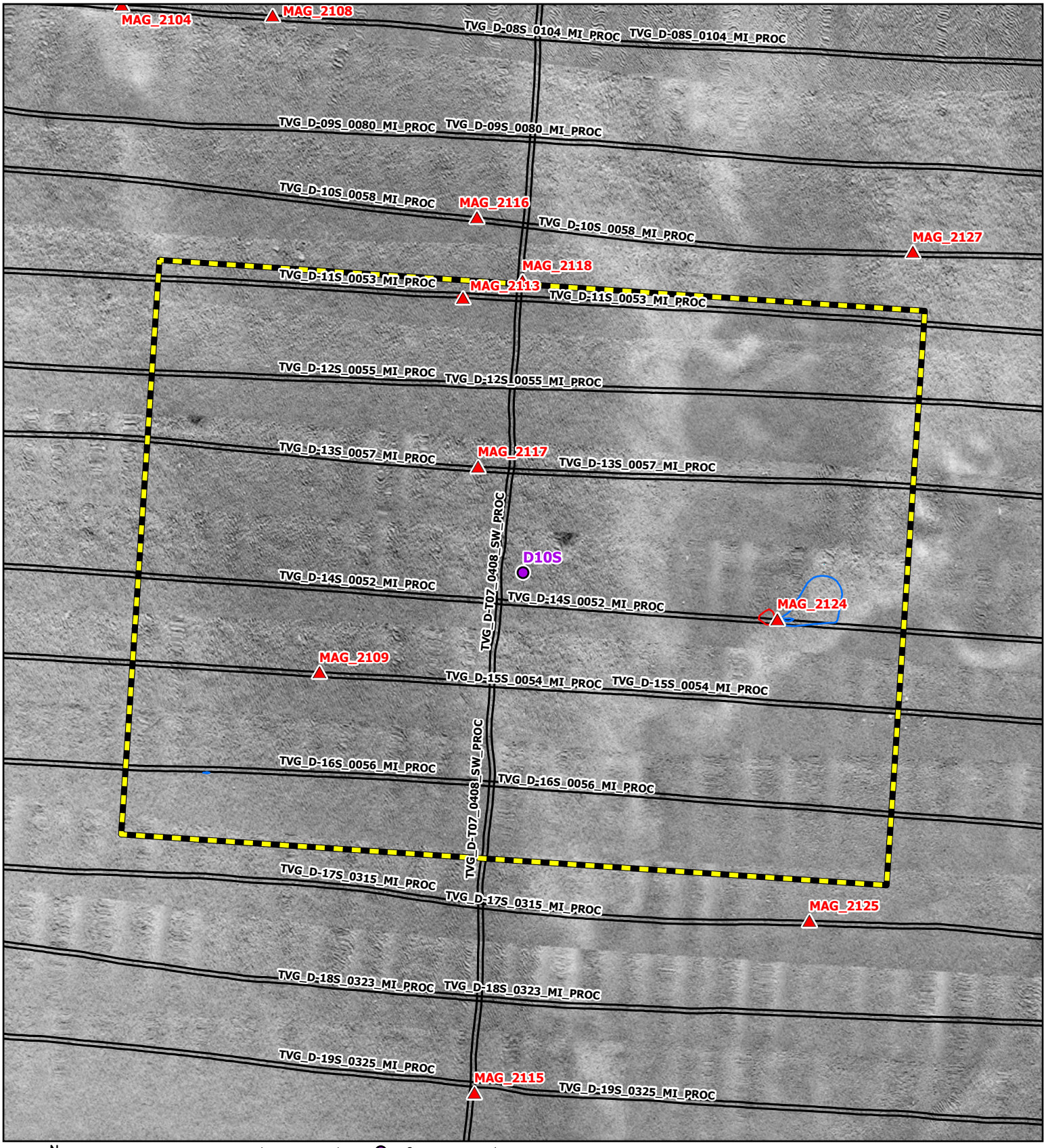
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 20

D9S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

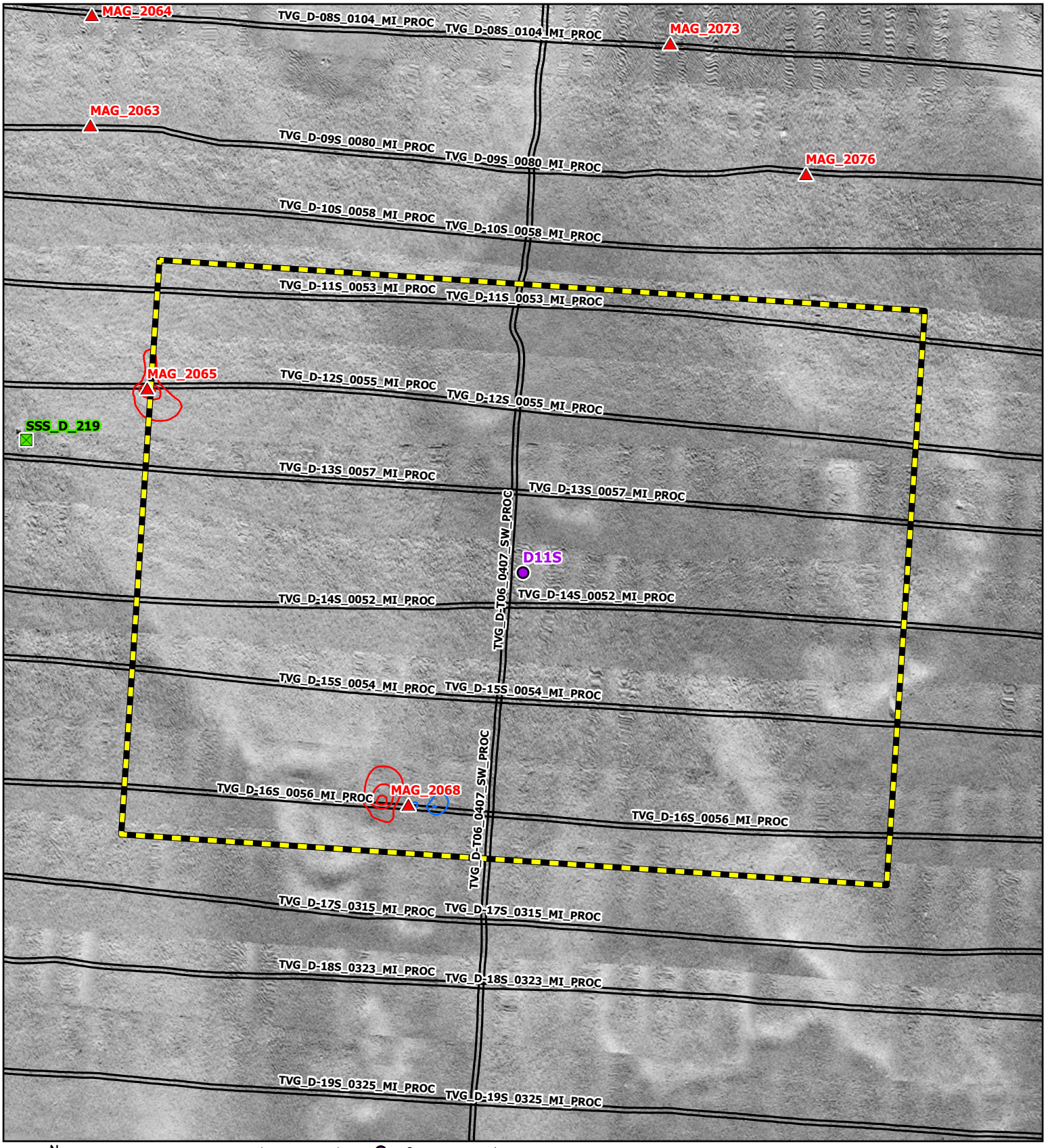
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 21

D10S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

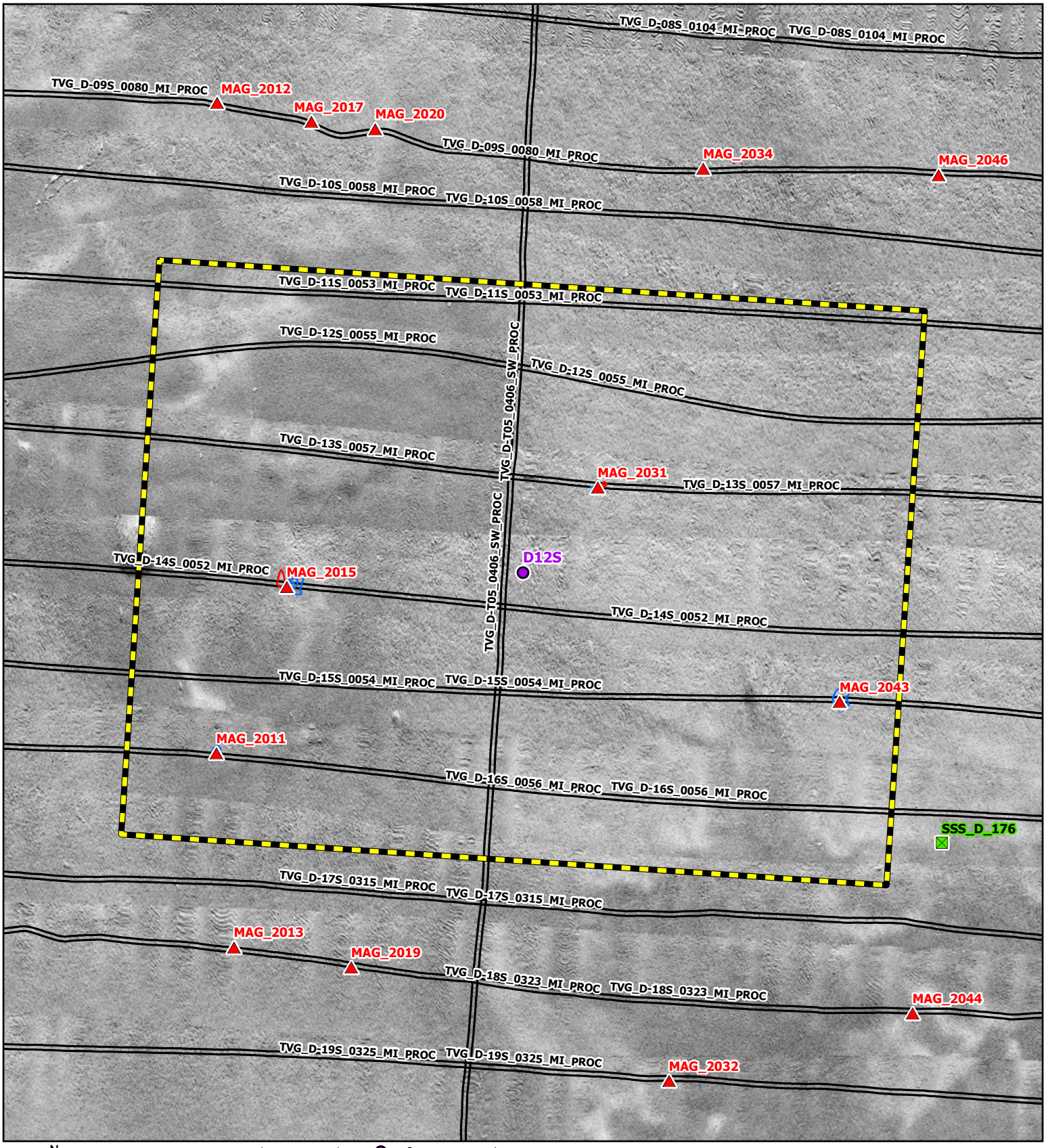
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 22

D11S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

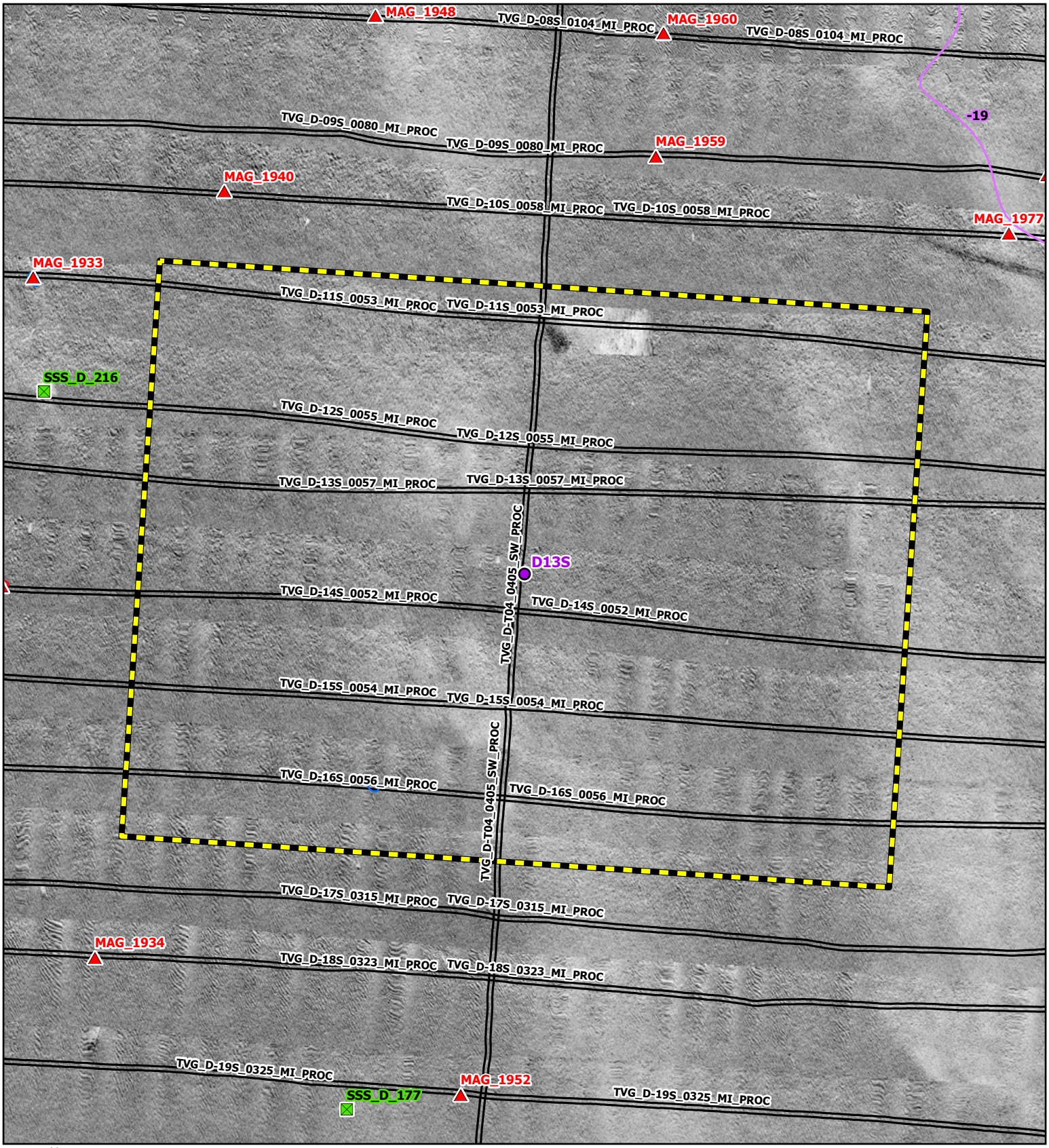
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 23

D12S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

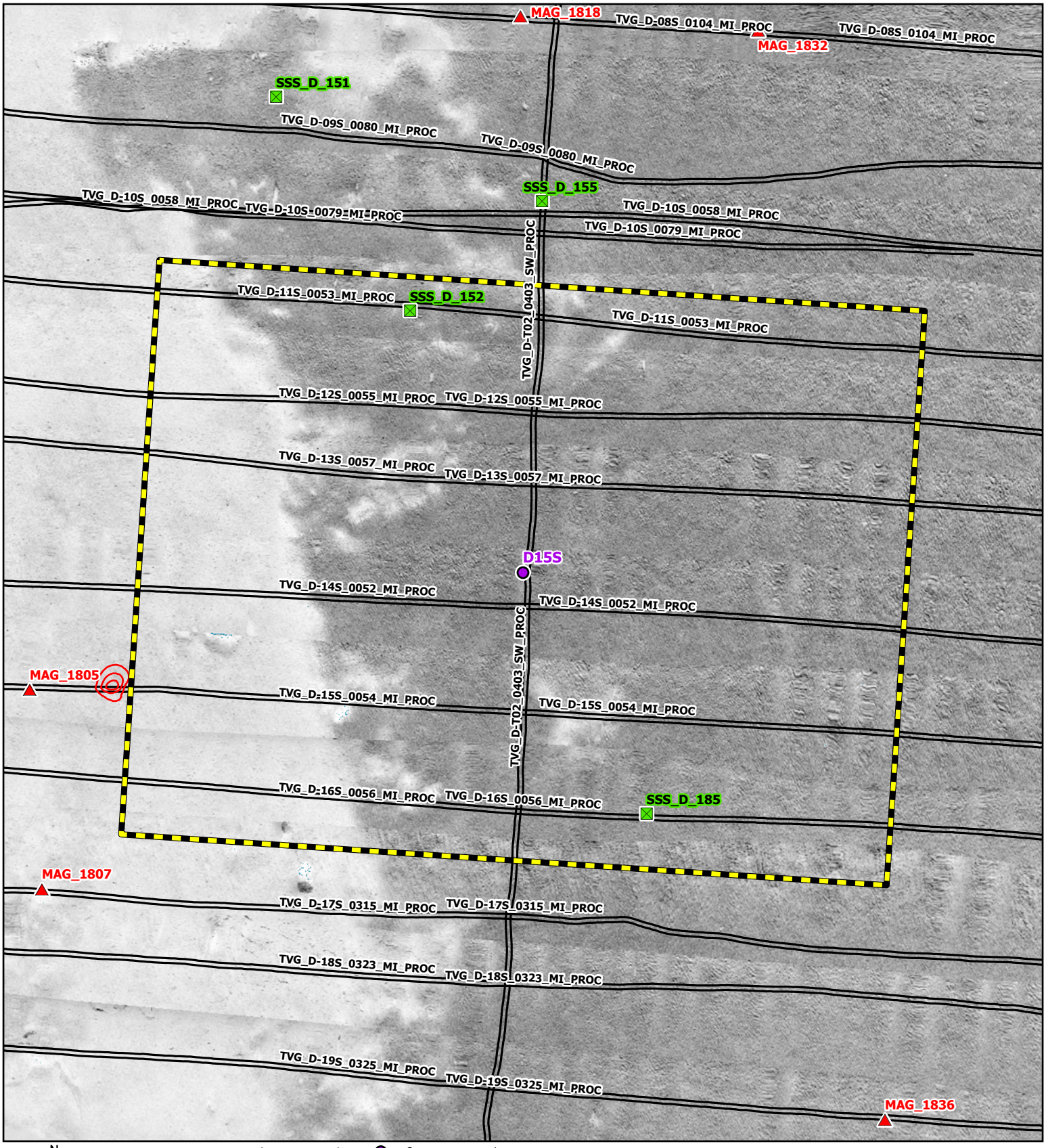
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 24

D13S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

Bathymetric Contour (1m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

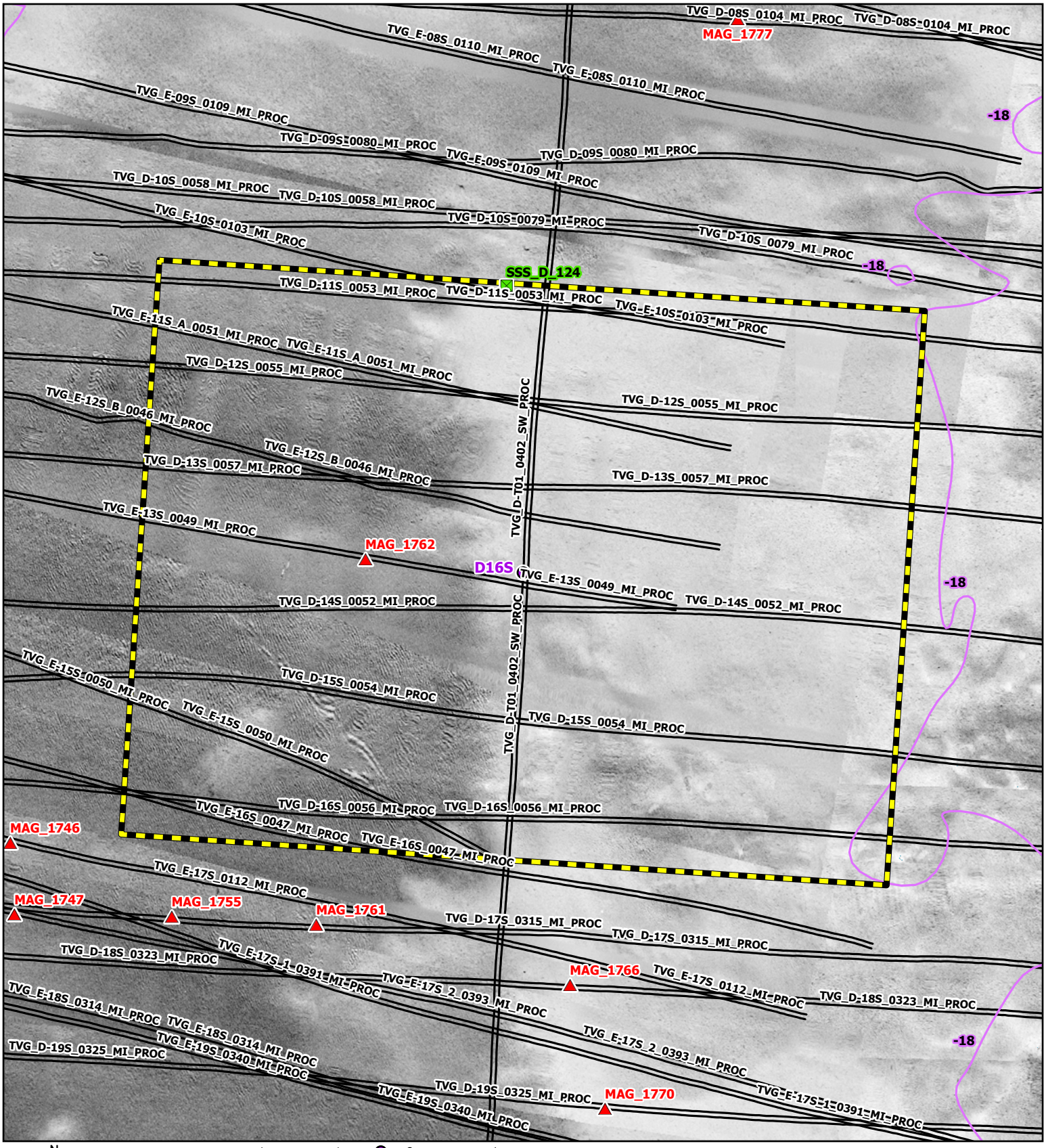
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 25

D15S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 2.11.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Bathymetric Contour (1m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block D

Map: 26

D16S

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 2.11.2021

APPENDIX 2
SEISMIC PROFILES FOR BLOCK D WING CORRIDORS

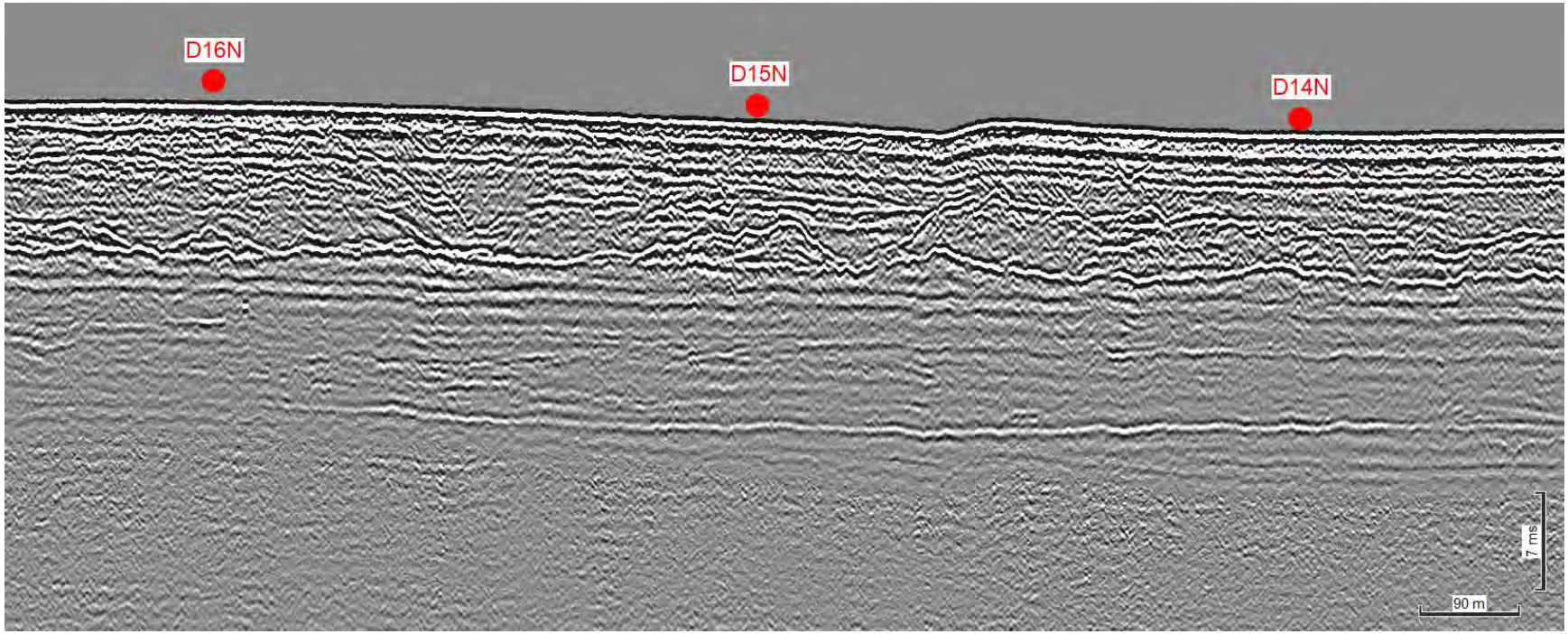


Figure 1: Proposed geotechnical D16N, D15N, and D14N in ECR Corridor D Wing North along seismic line UHRS_D-13M_SW_232_Proc_MLLW

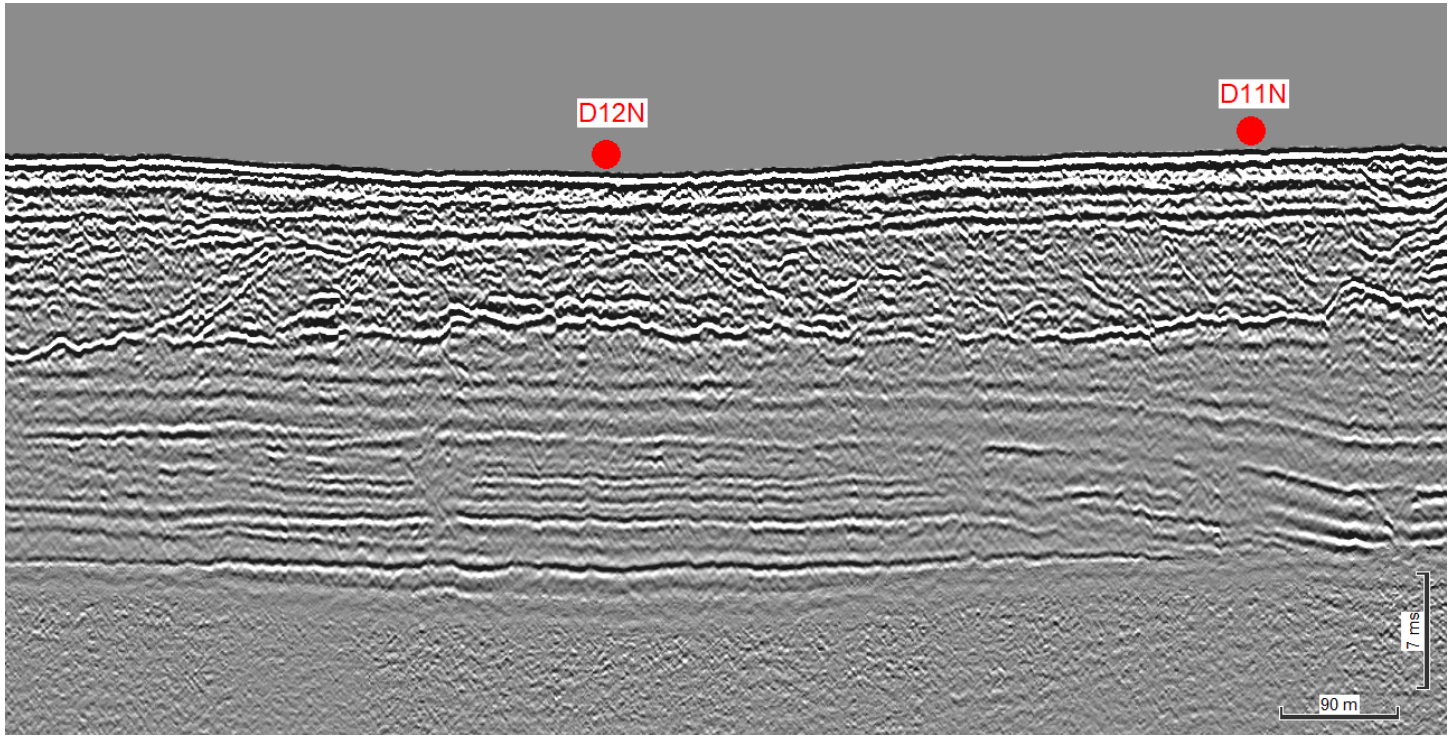


Figure 2: Proposed geotechnical D12N and D11N in ECR Corridor D Wing North along seismic line UHRS_D-13M_SW_232_Proc_MLLW

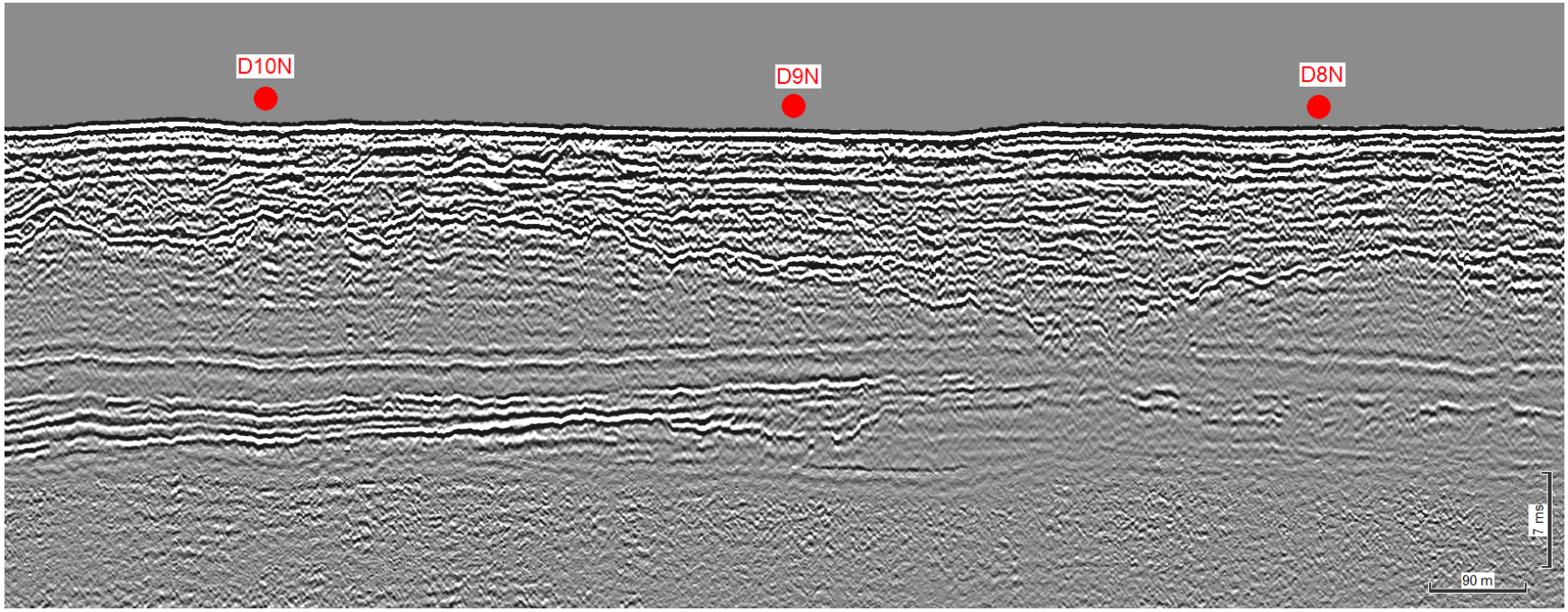


Figure 3: Proposed geotechnical D10N, D9N, and D8N in ECR Corridor D Wing North along seismic line UHRS_D-13M_SW_232_Proc_MLLW

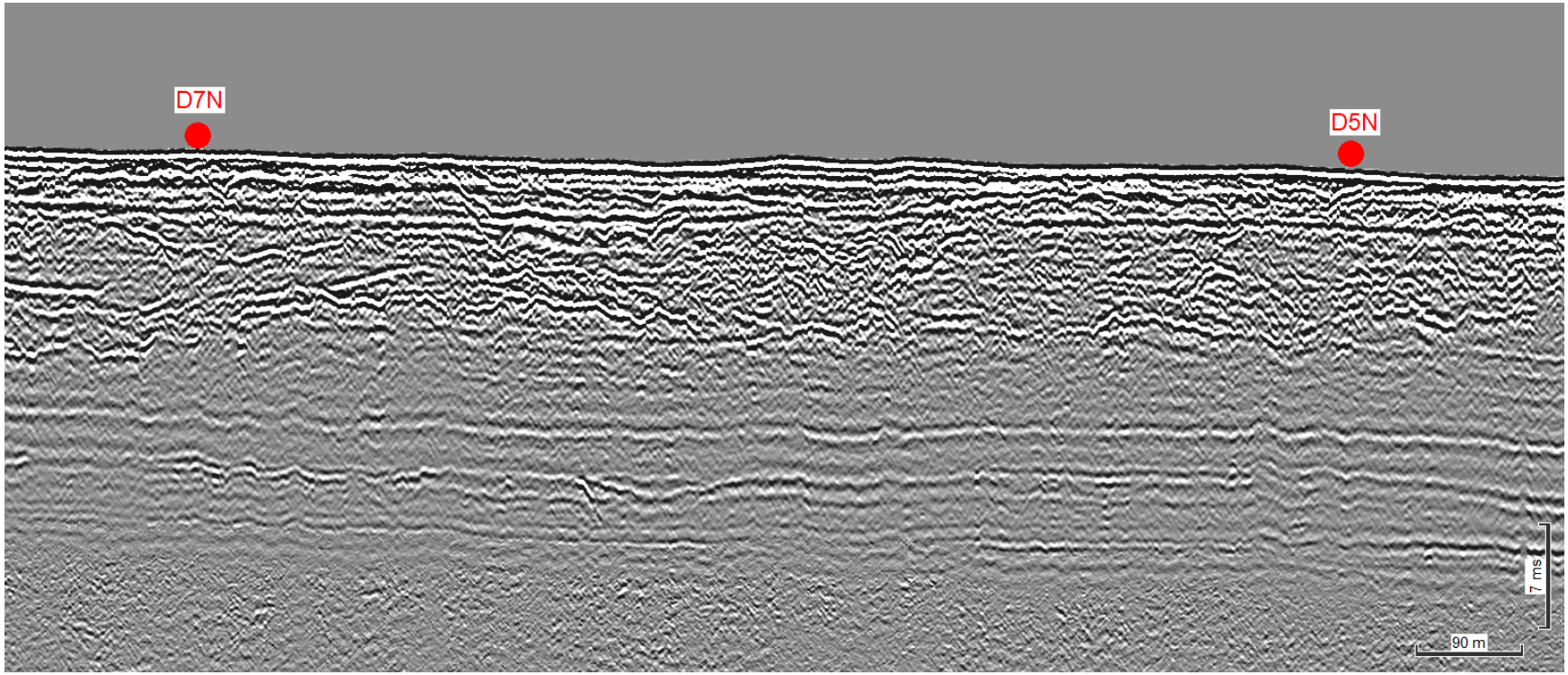


Figure 4: Proposed geotechnical D7N and D5N in ECR Corridor D Wing North along seismic line UHRS_D-13M_SW_232_Proc_MLLW

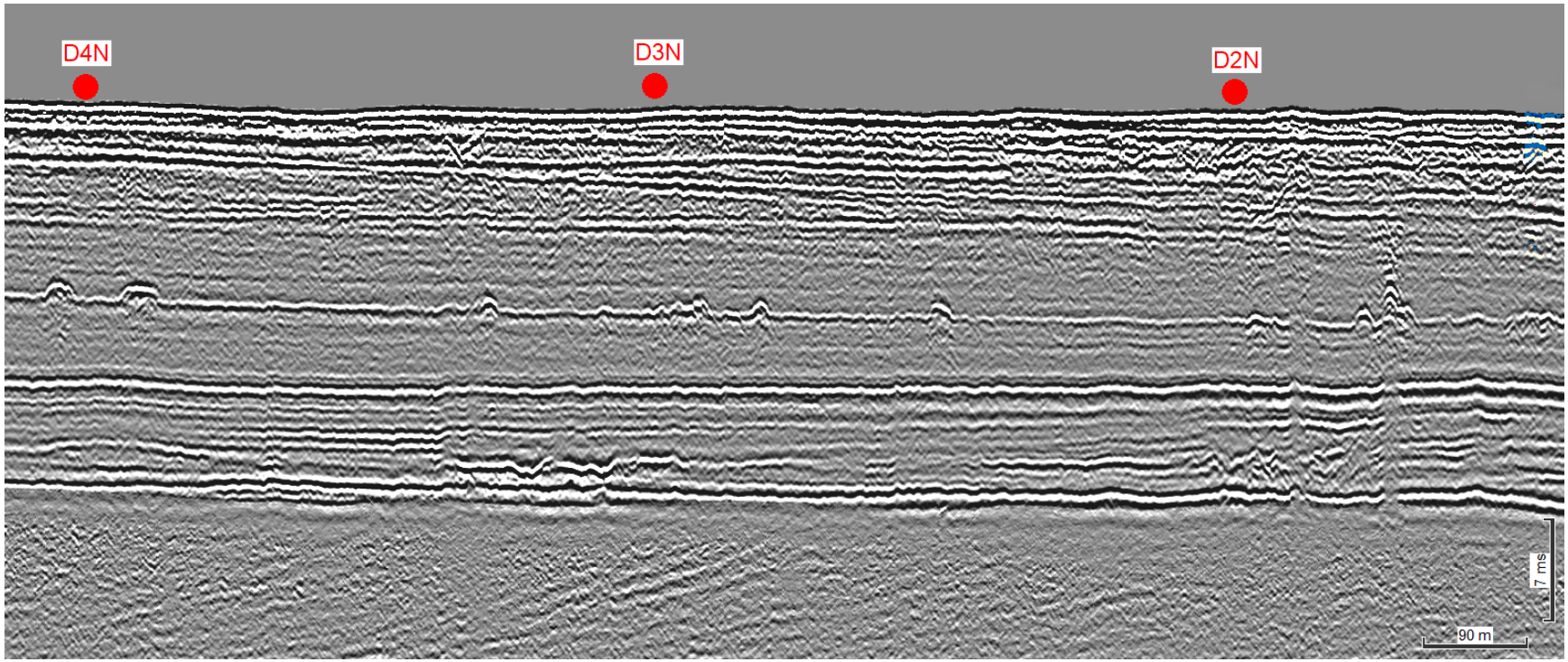


Figure 5: Proposed geotechnical D4N, D3N, and D2N in ECR Corridor D Wing North along seismic line UHRS_D-13M_SW_232_Proc_MLLW

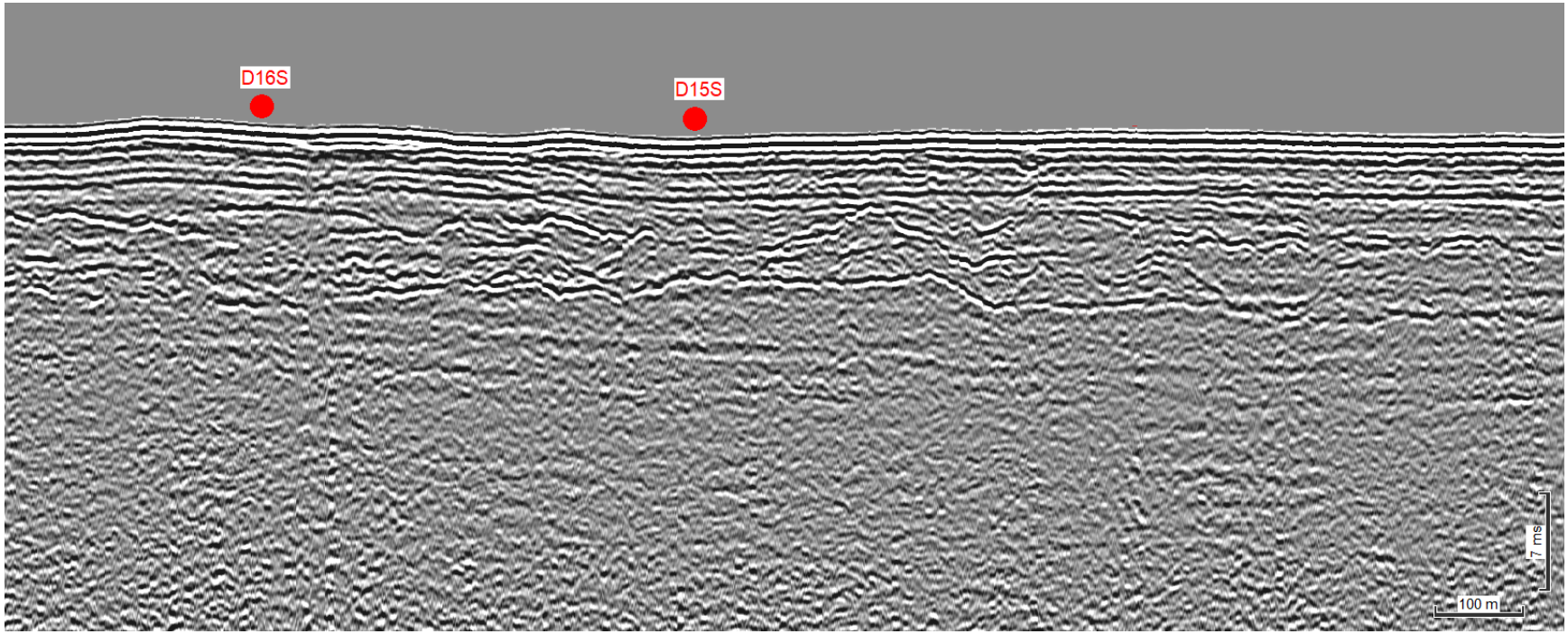


Figure 6: Proposed geotechnical locations D16S and D15S in the ECR Corridor D Wing Line South along seismic line JD302_Seq0052_D-14S

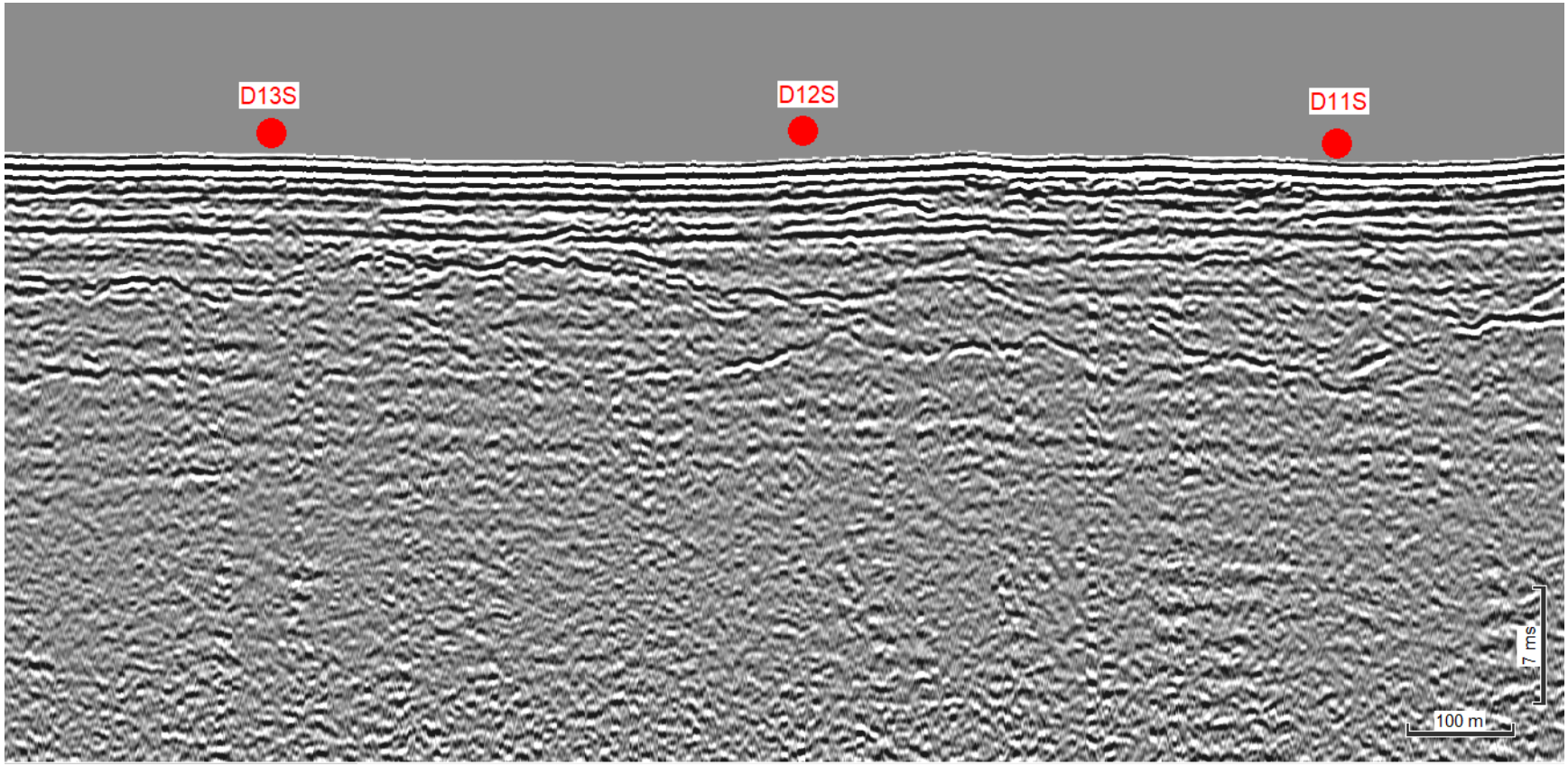


Figure 7: Proposed geotechnical locations D13S, D12S, and D11S in the ECR Corridor D Wing Line South along seismic line JD302_Seq0052_D-14S

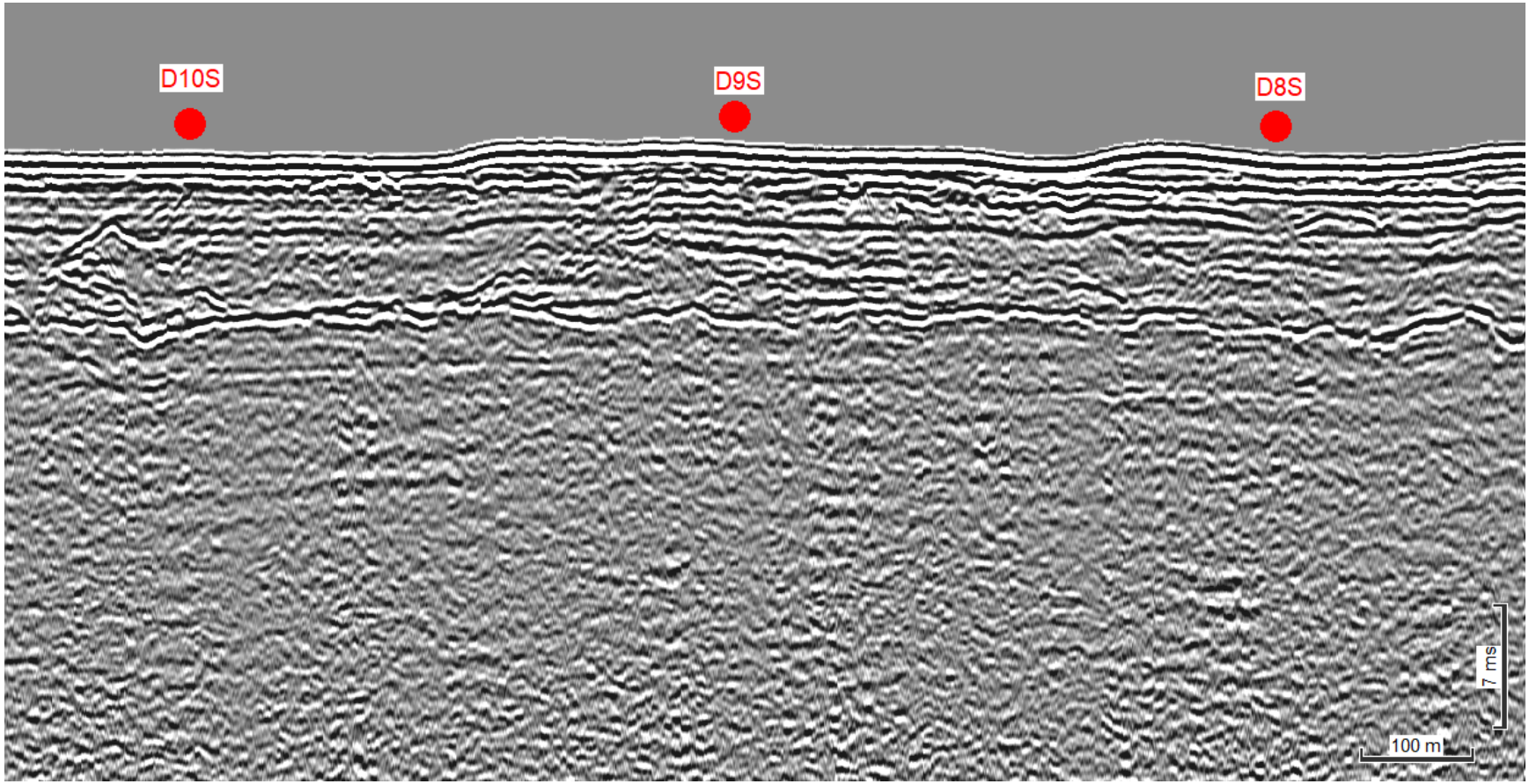


Figure 8: Proposed geotechnical locations D10S, D9S, and D8S in the ECR Corridor D Wing Line South along seismic line JD302_Seq0052_D-14S

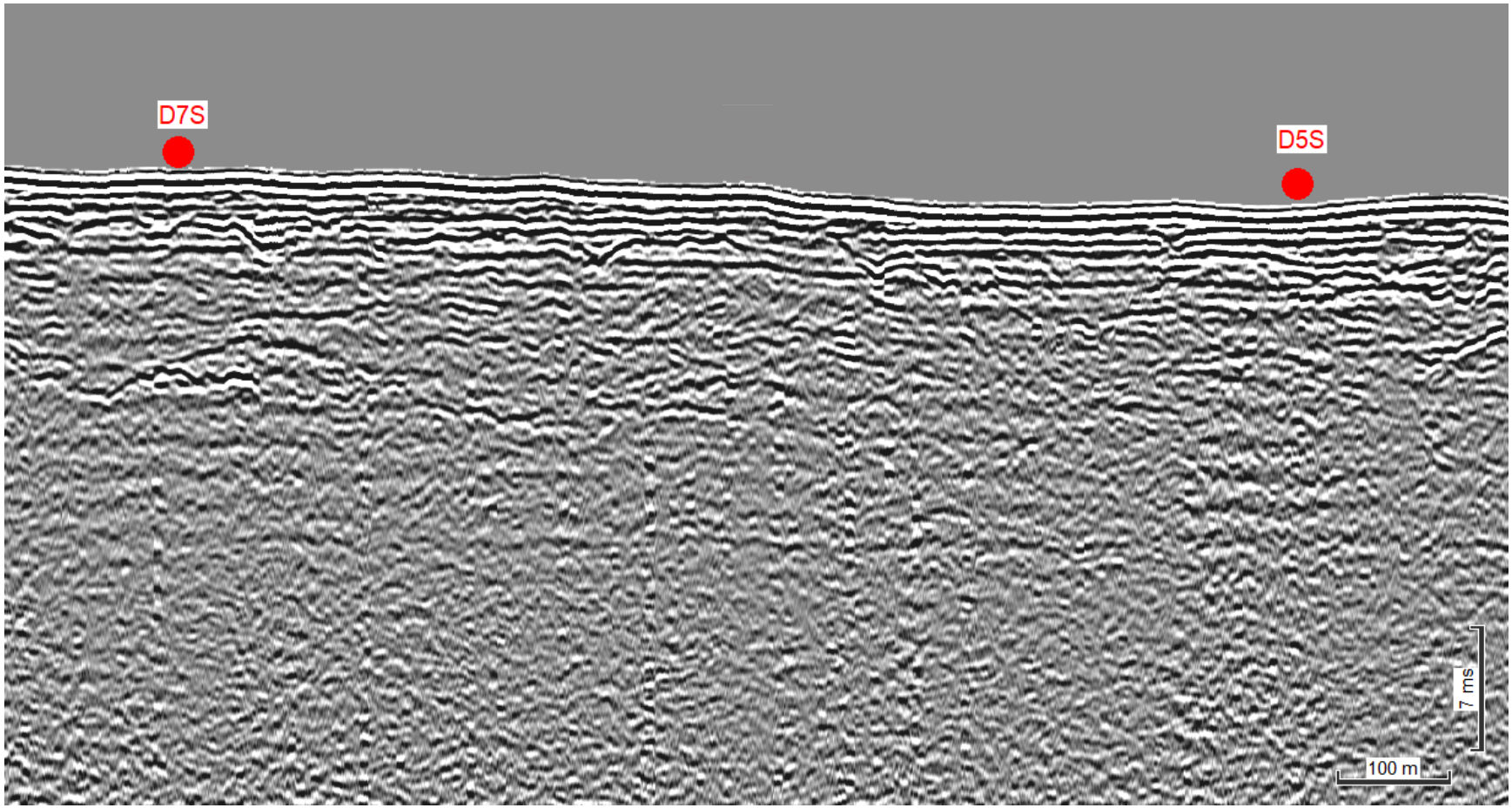


Figure 9: Proposed geotechnical locations D7S and D5S in the ECR Corridor D Wing Line South along seismic line JD302_Seq0052_D-14S

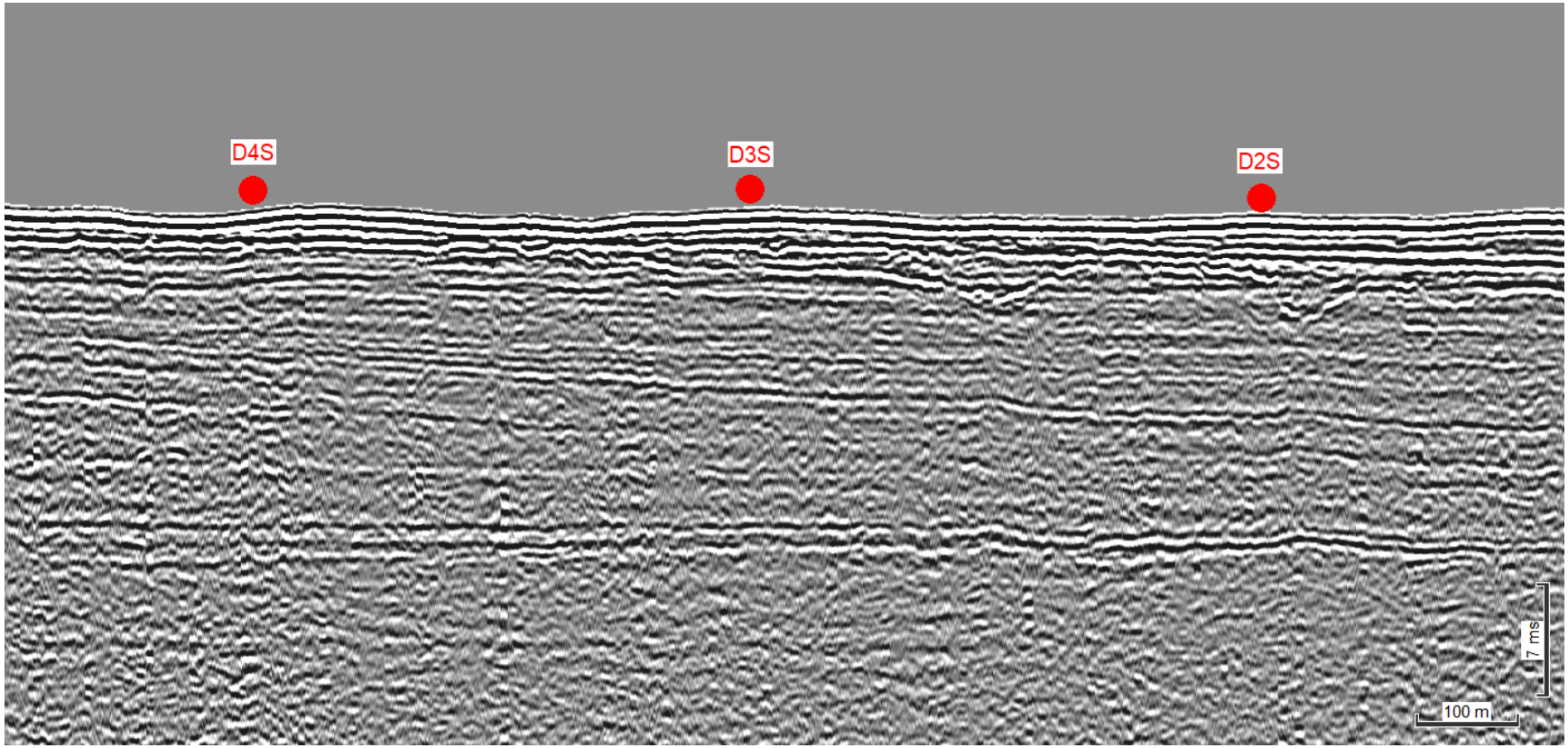


Figure 10: Proposed geotechnical locations D4S, D3S, and D2S in the ECR Corridor D Wing Line South along seismic line JD302_Se

Dominion Energy, Inc.
707 East Main Street
Richmond, VA 23219
dominionenergy.com

March 5, 2021

Mr. James Bennett, Chief
Bureau of Ocean Energy Management
Office of Renewable Energy Programs
45600 Woodland Road, VAM-OREP
Sterling, VA 20166

Dear Mr. Bennett:

RE: Coastal Virginia Offshore Wind Commercial Project - Cultural Resources Clearance for Geotechnical Investigations along the Export Cable Route Block B Corridor, Alternate Locations for WTG 11-2, and Gassy/Non-Gassy Sediment Exploration

Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy, the Applicant), is submitting the attached geotechnical clearance reports for three additional geotechnical locations within the Export Cable Route Block B Corridor, alternate locations for Wind Turbine Generator (WTG) 11-2, and eight geotechnical borehole locations proposed for gassy and non-gassy sediment exploration within the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS) Offshore Virginia (Lease No. OCS-A-0483) Condition 4.2.2 in support of the Coastal Virginia Offshore Wind Commercial (CVOW) Commercial Project.

This letter and attached report provide the results of Phase I cultural resources analyses of high-resolution geophysical (HRG) survey data collected by Alpine Ocean Seismic Survey, Inc. to support geotechnical investigations. In summary:

- No sonar contacts that represent significant cultural resources were identified within the analytical areas.
- No magnetic anomalies that represent significant cultural resources were identified within the analytical areas.
- Analyses of the seismic data suggest that geotechnical samples will not impact any submerged and buried landforms that exhibit the potential to contain preserved archaeological resources.
- No historic properties, such as shipwrecks, were detected at the proposed sampling locations.

Please contact Scott Lawton at scott.lawton@dominionenergy.com or (804) 273-2600 if you have any questions or require additional information.

Sincerely,

Joshua J. Bennett
Vice President – Offshore Wind

Enclosure(s)

Cc: Dominion Env. - Jason Ericson, Darrell Shier, Scott Lawton, Mitchell Jabs
Dominion Offshore Wind – GT Hollett, Will Kinnan, Ed Buchanan
BOEM - Casey Reeves, Algene Byrum, Jen Draher, Willie Hoffman
Tetra Tech - Janelle Lavallee, Alex Cross
McNeilan and Assoc. - Tom McNeilan

March 2, 2021

Mr. Lloyd Eley
Project Manager
Dominion Energy
5000 Dominion Boulevard
Glen Allen, MD 23060

RE: Coastal Virginia Offshore Wind Commercial Project – Cultural Resources Clearance for Geotechnical Investigations along the Block B Corridor

Dear Mr. Eley:

This letter report provides the results of Phase I cultural resources analyses of high-resolution geophysical (HRG) survey data collected by Alpine Ocean Seismic Survey, Inc. to support geotechnical investigations for the Coastal Virginia Offshore Wind Commercial Project. The planned geotechnical campaign consists of shallow coring (piston or vibracores) and seabed Cone Penetrometer Tests; this memorandum reviews three (3) of these locations for gathering geologic information (Table 1). The geotechnical investigation will be conducted by Geoquip Marine aboard the vessels, *Geoquip Saentis*, *Dina Polaris*, and *Geoquip Speer*, or a similar type of vessel that is equipped with a dynamic positioning system. Activities at the geotechnical locations will not exceed a targeted depth of five (5) to seven (7) meters (m) below seabed.

The QMA reviewed the HRG survey data within a rectangular analytical area (180 m by 240 m) centered on each of the three (3) proposed geotechnical locations located along the Export Cable Route (ECR), Block B. The reviewed data included at minimum six (6) parallel lines of survey data that captured each of the proposed locations. This review focused on identification of any potential submerged cultural resources and buried, preserved landforms through geophysical investigations.

High-resolution side scan sonar imagery was recorded throughout the survey area and viewed as high-resolution mosaicked files (Appendix 1, Table 2). No sonar contacts that represent significant cultural resources were identified within the analytical areas.

Two marine magnetometers configured into a transverse gradiometer array collected magnetic data along each survey line. Magnetic anomalies were interpreted using magnetic residual field grid data, magnetic contour mapping, and by observing their characteristics in terms of amplitude, duration, magnetic signature, and spatial distribution (Appendix 1, Table 3). All of the recorded anomalies expressed characteristics atypical of shipwreck signatures (i.e., a low amplitude [<50 nT] and short duration [<20.4 m]). No magnetic anomalies that represent significant cultural resources were identified within the analytical area.

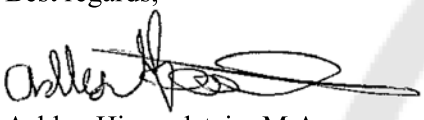
Seismic data were collected and interpreted along each survey line associated with the geotechnical locations (Appendix 2). All seismic data were reviewed to their full vertical extent. The geotechnical locations were also reviewed with respect to the ground model and interpreted horizons. Analyses of the

seismic data suggest that none of the proposed geotechnical samples will not impact any submerged and buried landforms that exhibit the potential to contain preserved archaeological resources.

The analyses considered all portions of the seafloor within the limits of bottom-disturbing activities as they pertain to the proposed sampling locations (Table 1; Appendices 1 and 2). Based on the current data, if the geotechnical sampling activities are contained within the established analytical areas (Table 1), no potential archaeological resources will be affected by the proposed geotechnical activities. No historic properties, such as shipwrecks, were detected at the proposed sampling locations.

If you have questions, please do not hesitate to contact us.

Best regards,



Ashley Himmelstein, M.A.
Nautical Archaeologist

Table 1. Proposed geotechnical locations for ECR Block B

Core ID	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
B_New--003	446230.48	4074554.56	-75.60285635	36.81531559
B_New--002	447043.20	4075287.68	-75.59379571	36.8219699
B_New--001	447737.10	4075913.60	-75.58605858	36.82765074

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

Table 2: Side Scan Sonar Contacts within Analytical Areas

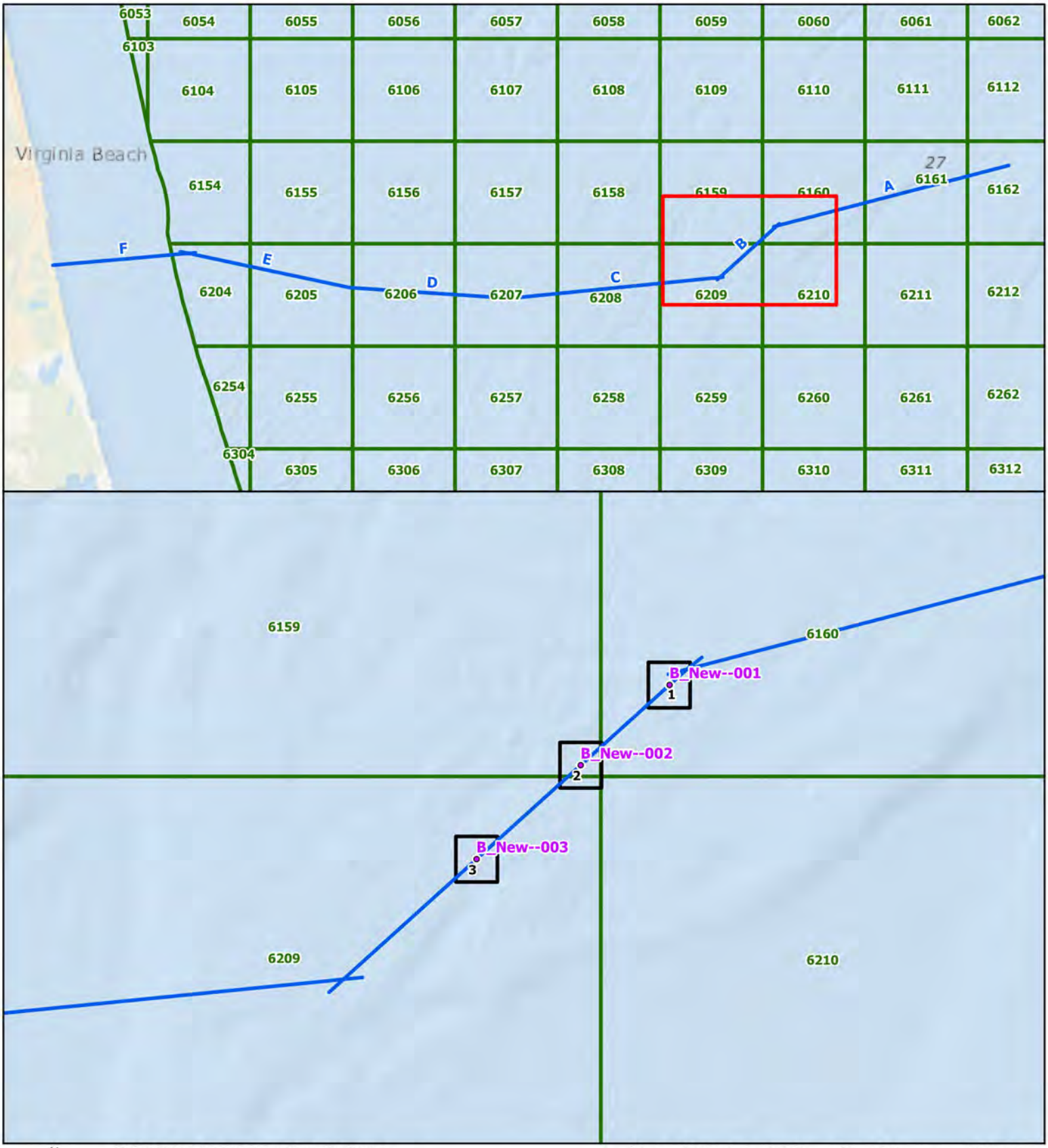
SSS ID	Associated Geotechnical Location	Height (m)	Width (m)	Length (m)	Associated Mag Anomaly	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
SSS_B_002	B New--002	0.17	0.36	2.47	-	447107.17	4075381.46	-75.5930867	36.82282631

Table 3: Magnetic Anomalies within Analytical Areas

Mag ID	Associated Geotechnical Location	Sensor Altitude (m)	Amplitude (nT)	Duration (m)	Depth (m)	Characteristics	Associated SSS Contact	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
MAG_3707	B New--003	4.19	8.22	3.35	3.95	+ Monopole	-	4074463.29	4074463.29	-75.60350598	36.81449698
MAG_3749	B New--003	3.53	-5.39	8.25	4.65	- Monopole	-	4074553.00	4074553.00	-75.60172671	36.81531469
MAG_3936	B New--002	3.75	-5.11	18.37	5.66	- Monopole	-	4075389.53	4075389.53	-75.59399312	36.82289453
MAG_3950	B New--002	3.70	-16.91	37.67	5.55	- Monopole	-	4075323.20	4075323.20	-75.59326306	36.82230024
MAG_4084	B New--001	3.53	10.80	2.04	2.88	+ Monopole	-	4075970.92	4075970.92	-75.58683419	36.82817105
MAG_4093	B New--001	3.28	-9.17	20.38	4.75	- Monopole	-	4075924.35	4075924.35	-75.58632595	36.82775375
MAG_4104	B New--001	3.20	6.35	2.12	2.05	+ Monopole	-	4075916.04	4075916.04	-75.58595826	36.82768065
MAG_4124	B New--001	3.57	-20.32	3.76	4.22	Dipole	-	4075942.65	4075942.65	-75.58469378	36.82792676

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

APPENDIX 1
ARCHAEOLOGICAL RESOURCES MAPS



N
W E
S
GRID NORTH

NOAA OCS, ESRI, DELORME, ESRI, DELORME, NATURALVUE

MSR: 1:40,000

SRS: NAD 1983 2011 UTM ZONE 18N METER

0 0.25 0.5 0.75 1 MILES

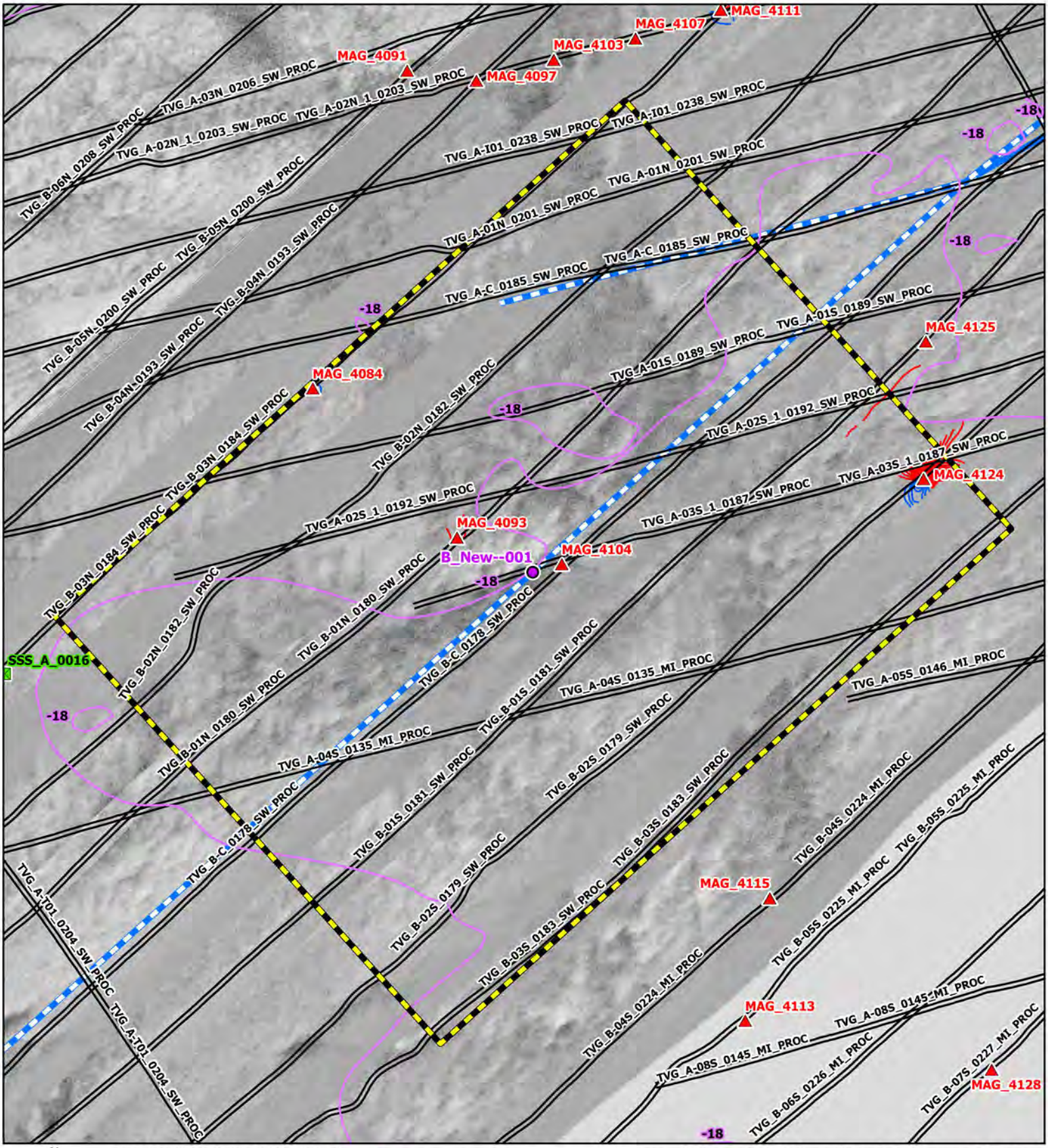
0 0.25 0.5 0.75 1 KILOMETERS

- GEOTECHNICAL LOCATION
- ECR CENTERLINE
- BOEM LEASE BLOCK
- MAP SHEET EXTENT

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block B

Index Map

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100
FEET
0 10 20 30 40
METERS

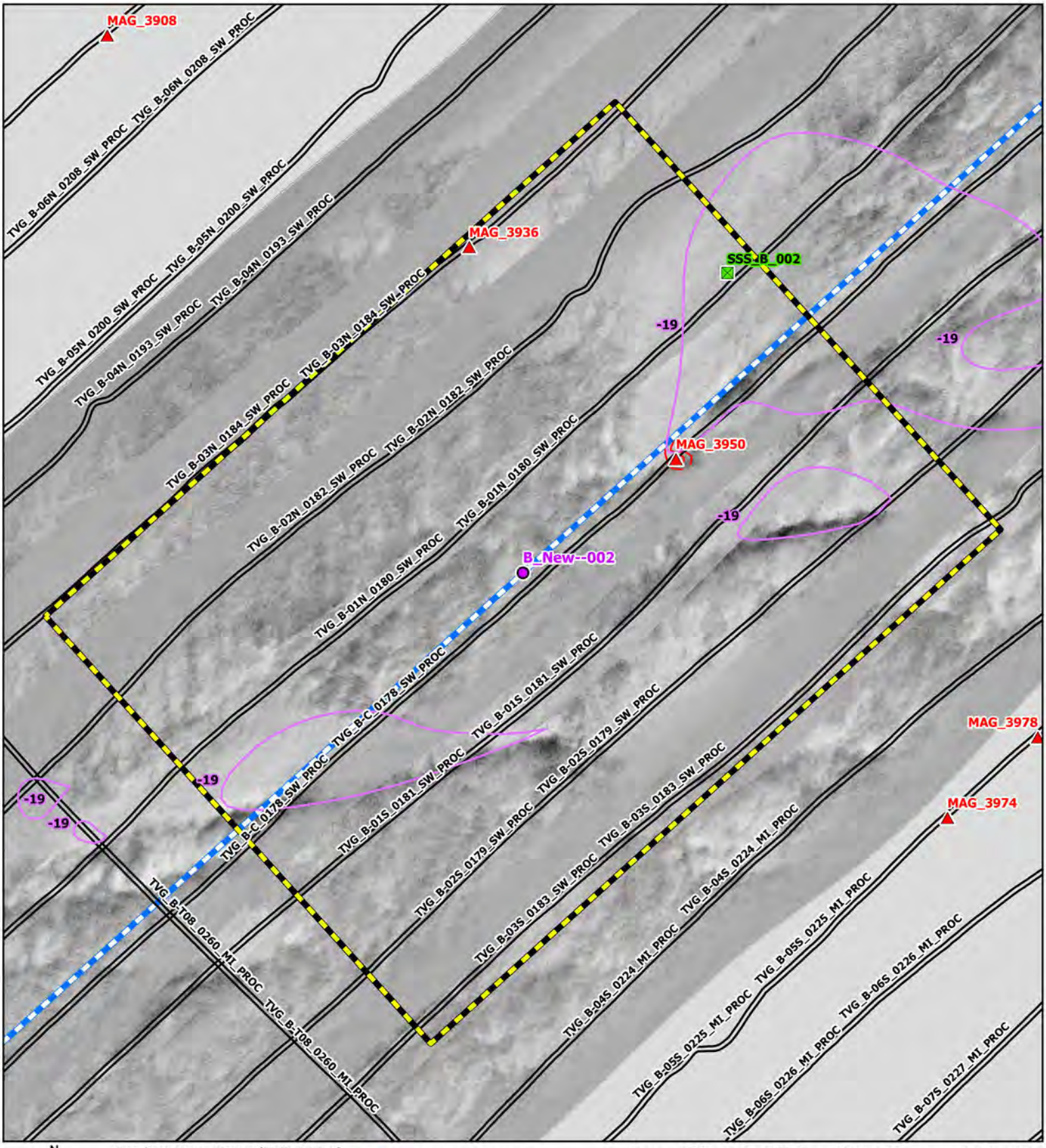
GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
ECR CENTERLINE
TRACKLINE
BATHYMETRIC CONTOUR (1M INTERVAL)
MAGNETIC CONTOURS (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block B

Map: 1

B_New--001

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100
FEET
0 10 20 30 40
METERS

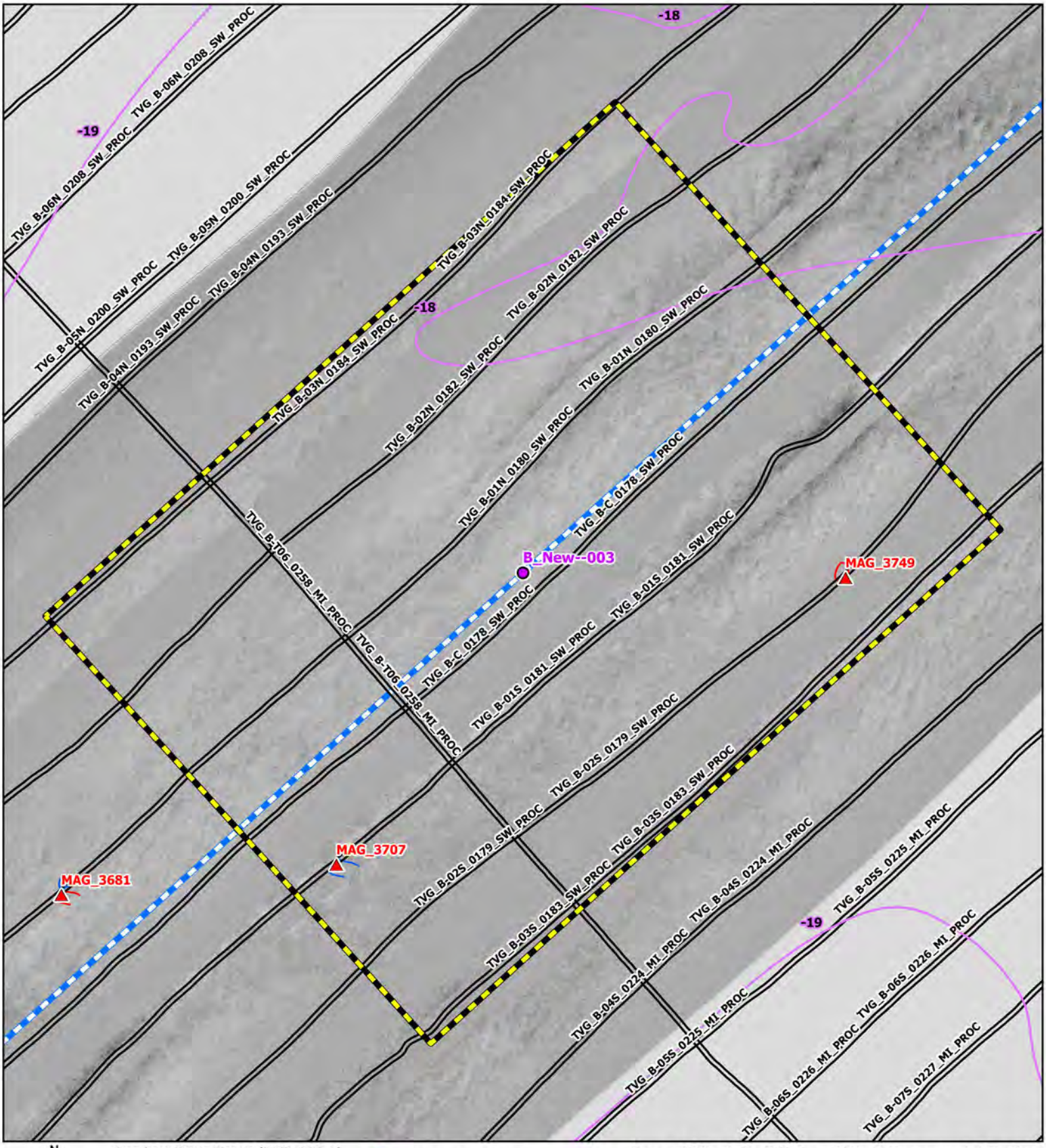
GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
ECR CENTERLINE
TRACKLINE
BATHYMETRIC CONTOUR (1M INTERVAL)
MAGNETIC CONTOURS (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block B

Map: 2

B_New--002

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100
FEET
0 10 20 30 40
METERS

GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
ECR CENTERLINE
TRACKLINE
BATHYMETRIC CONTOUR (1M INTERVAL)
MAGNETIC CONTOURS (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Block B
Map: 3
B_New--003

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

WWW.RCGOODWIN.COM | KMAY, 3.2.2021

APPENDIX 2
SUB-BOTTOM PROFILE IMAGES

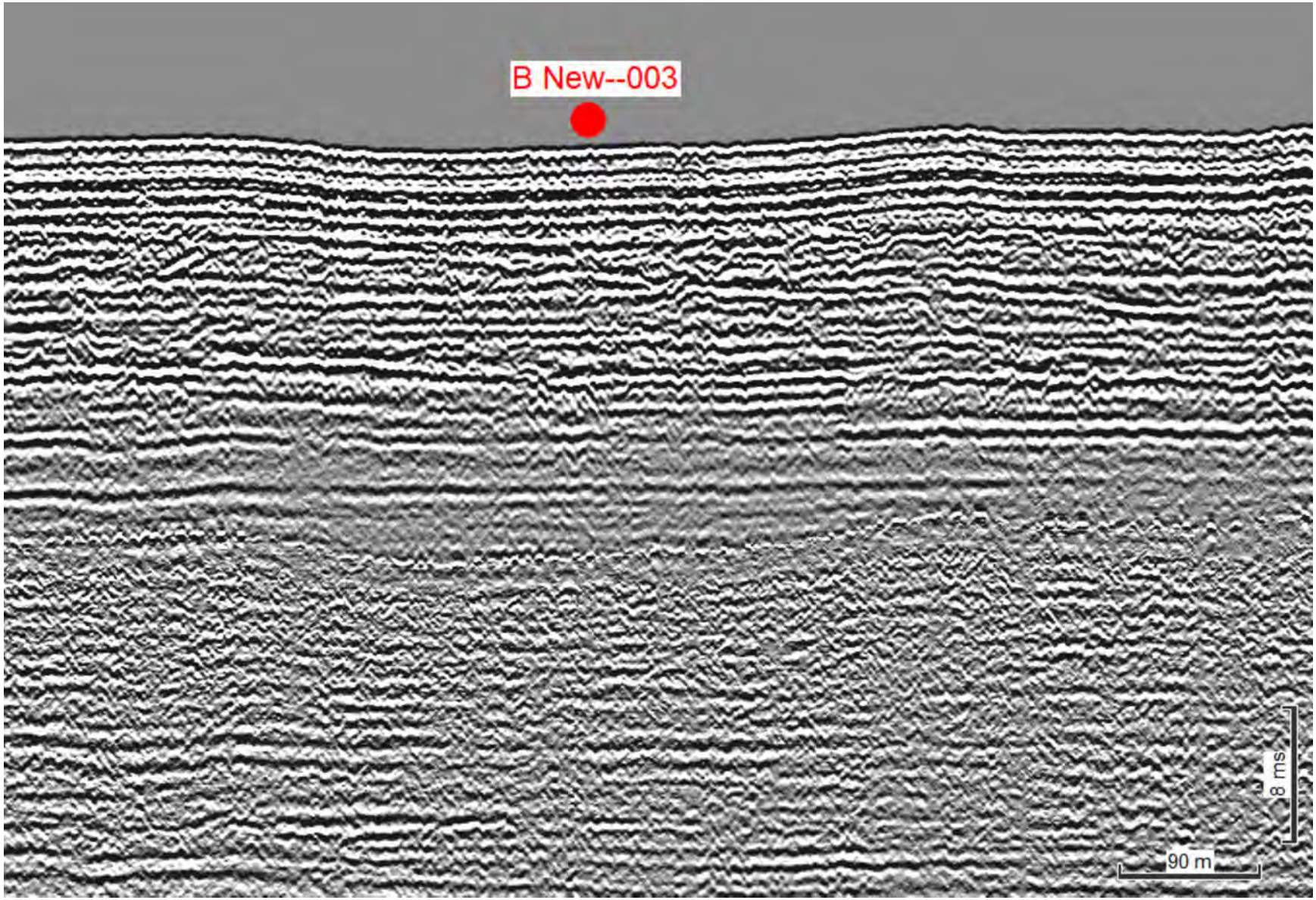


Figure 1: Proposed geotechnical location B New--003 in ECR Corridor B along seismic line UHRS_178_B-C_Proc

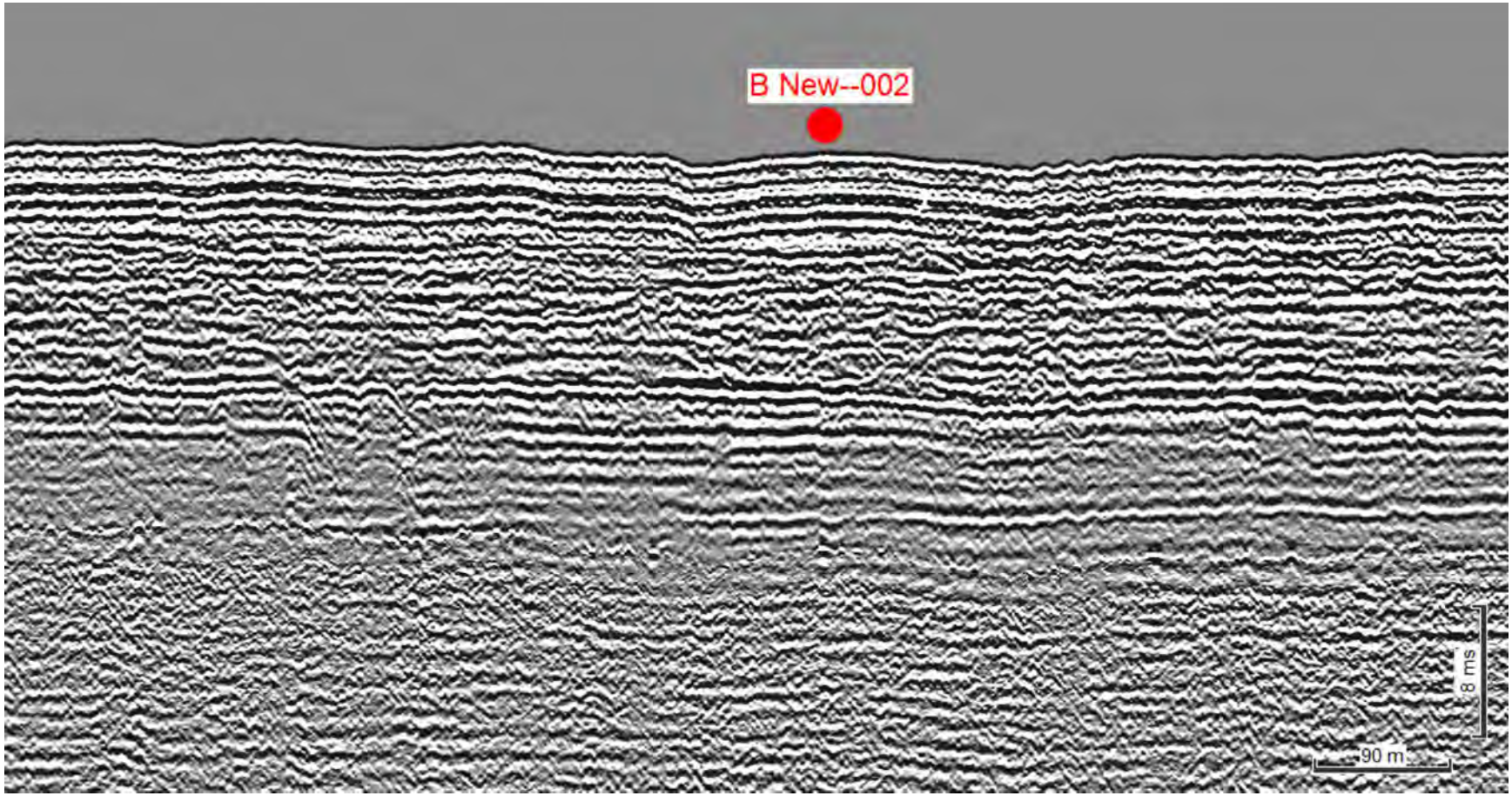


Figure 2:Proposed geotechnical location B New--002 in ECR Corridor B along seismic line UHRS_178_B-C_Proc

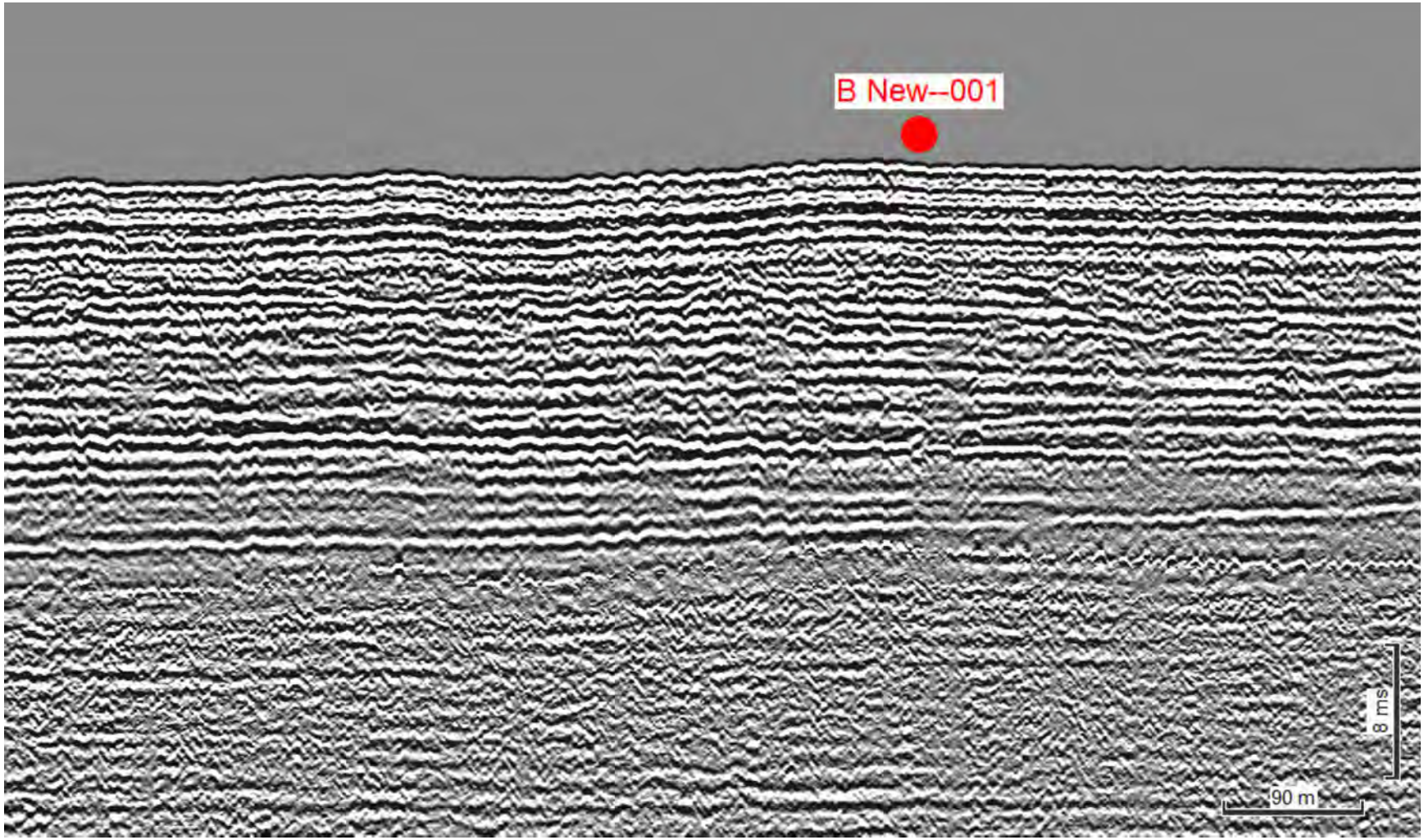


Figure 3: Proposed geotechnical location B New--001 in ECR Corridor B along seismic line UHRS_178_B-C_Proc

March 4, 2021

Mr. Lloyd Eley
Project Manager
Dominion Energy
5000 Dominion Boulevard
Glen Allen, MD 23060

RE: Coastal Virginia Offshore Wind Commercial Project – Cultural Resources Clearance for Alternate Geotechnical Locations for 11-2

Dear Mr. Eley:

This letter report provides the results of Phase I cultural resources analyses of high-resolution geophysical (HRG) survey data collected by Alpine Ocean Seismic Survey, Inc. to support geotechnical investigations for the Coastal Virginia Offshore Wind Commercial Project. This memorandum reviews two (2) geotechnical borehole location for gathering geologic information (Table 1). The geotechnical investigation will be conducted by Geoquip Marine aboard the vessels, *Geoquip Saentis*, *Dina Polaris*, and *Geoquip Speer*, or a similar type of vessel that is equipped with a dynamic positioning system. Activities at the geotechnical locations will not exceed a targeted depth of 328.1 ft (100 m) meters (m) below seabed.

The QMA reviewed the HRG survey data within a rectangular analytical area (700 m by 700 m) that contains both proposed geotechnical locations within the CVOW Lease Area. As these locations are subject to change, the entire analytical area has been cleared to the full depth and breadth of impacts associated with the geotechnical activity and any changes will include a letter detailing the "as cored" location(s). This review focused on identification of any potential submerged cultural resources and buried, preserved landscapes through geophysical investigations.

High-resolution side scan sonar imagery was recorded throughout the survey area and viewed as high-resolution mosaicked files (Appendix 1). No sonar contacts that represent significant cultural resources were identified within the analytical area.

Two marine magnetometers configured into a transverse gradiometer array collected magnetic data along each survey line. Magnetic anomalies were interpreted using magnetic residual field grid data, magnetic contour mapping, and by observing their characteristics in terms of amplitude, duration, magnetic signature, and spatial distribution (Table 2). Based on the observed characteristics, a typical of shipwreck sites, no magnetic anomalies that could represent significant cultural resources were identified within the analytical area.

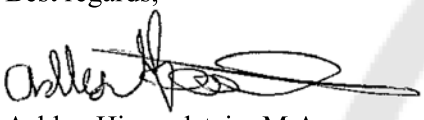
Seismic data were collected and interpreted along each survey line located within the analytical area (Appendix 2). All seismic data were reviewed to their full vertical extent. The geotechnical location was also reviewed with respect to the ground model and interpreted horizons. Analyses of the seismic data

suggest that the proposed geotechnical sampling will not impact any submerged and buried landforms that exhibit the potential to contain preserved archaeological resources.

The analyses considered all portions of the seafloor within the limits of bottom-disturbing activities as they pertain to the proposed geotechnical investigations (Table 1; Appendices 1 and 2). Based on the current data, if the geotechnical sampling activities are contained within the established analytical area, no potential archaeological resources will be affected by the proposed geotechnical activities. No historic properties, such as shipwrecks, were detected at the proposed sampling locations.

If you have questions, please do not hesitate to contact us.

Best regards,



Ashley Himmelstein, M.A.
Nautical Archaeologist

Table 1: Proposed geotechnical locations

Core ID	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
Alternate_WTG-11-2_West	459439.00	4092460.30	-75.45572953	36.97738934
Alternate_WTG-11-2_South-West	459479.00	4092361.10	-75.45527479	36.97649686

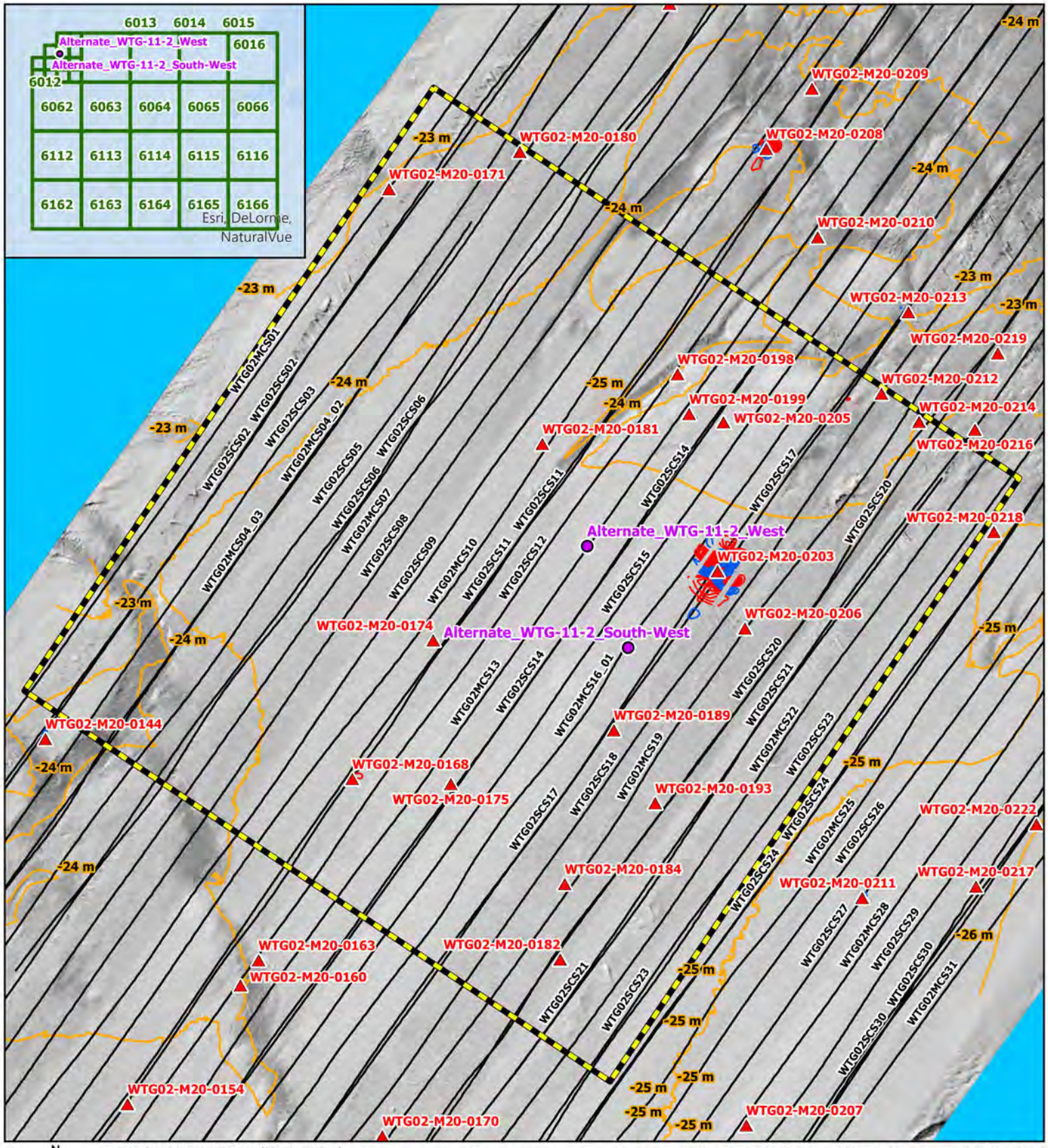
[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

Table 2: Magnetic Anomalies within Analytical Areas

Mag ID	Associated Geotechnical Location	Sensor Altitude (m)	Amplitude (nT)	Duration (m)	Depth (m)	Characteristics	Associated SSS Contact	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
WTG02-M20-0168	11-2	3.06	27.04	3.88	-30.91	Dipole	-	459209.27	4092232.64	-75.458297	36.97532
WTG02-M20-0171	11-2	3.56	16.58	4.04	-30.48	+ Monopole	-	459245.18	4092808.91	-75.457924	36.980516
WTG02-M20-0174	11-2	3.34	7.79	3.22	-29.31	Dipole	-	459288.44	4092368.07	-75.457414	36.976544
WTG02-M20-0175	11-2	2.49	9.19	3.22	-32.48	+ Monopole	-	459305.66	4092227.69	-75.457213	36.975279
WTG02-M20-0180	11-2	3.61	12.48	5.4	-32.50	Dipole	-	459373.16	4092845.48	-75.456488	36.980851
WTG02-M20-0181	11-2	3.56	11.32	3.48	-28.92	- Monopole	-	459395.19	4092560.00	-75.456225	36.978279
WTG02-M20-0182	11-2	2.88	5.97	7.03	-28.90	- Monopole	-	459412.64	4092056.29	-75.456002	36.973739
WTG02-M20-0184	11-2	3.66	15.32	3.55	-28.82	Dipole	-	459417.04	4092130.05	-75.455957	36.974404
WTG02-M20-0189	11-2	3.63	14.34	3.62	-30.93	- Monopole	-	459464.98	4092280.14	-75.455426	36.975759
WTG02-M20-0193	11-2	2.92	7.14	4.64	-34.80	Dipole	-	459505.43	4092208.95	-75.454968	36.975119
WTG02-M20-0198	11-2	2.86	16.38	3.67	-30.91	+ Monopole	-	459527.30	4092628.20	-75.454745	36.978899
WTG02-M20-0199	11-2	3.24	10.94	4.89	-30.48	Dipole	-	459538.70	4092589.26	-75.454615	36.978549
WTG02-M20-0203	11-2	3.58	852.98	4.62	-29.31	+ Monopole	-	459566.42	4092435.71	-75.454295	36.977166
WTG02-M20-0205	11-2	2.89	16.51	2.78	-32.48	Dipole	-	459572.21	4092581.40	-75.454238	36.978479
WTG02-M20-0206	11-2	3.76	13.33	3.75	-32.50	- Monopole	-	459593.27	4092379.63	-75.45399	36.976661
WTG02-M20-0212	11-2	3.29	15.62	4.98	-28.92	- Monopole	-	459726.73	4092609.16	-75.452503	36.978736
WTG02-M20-0214	11-2	2.49	18.02	4.3	-28.90	Dipole	-	459763.49	4092581.58	-75.452089	36.978489

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

APPENDIX 1
ARCHAEOLOGICAL RESOURCES MAPS



N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:5,000
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 100 200 300 400 FEET
0 25 50 75 100 METERS

GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
TRACKLINE
BATHYMETRIC CONTOUR (1 M INTERVAL)
MAGNETIC CONTOUR (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project

Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)

Geotechnical Clearance: Corridor 02

Expanded Archaeological Clearance Area

WTG-11-2

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.4.2021

APPENDIX 2
SUB-BOTTOM PROFILE IMAGES

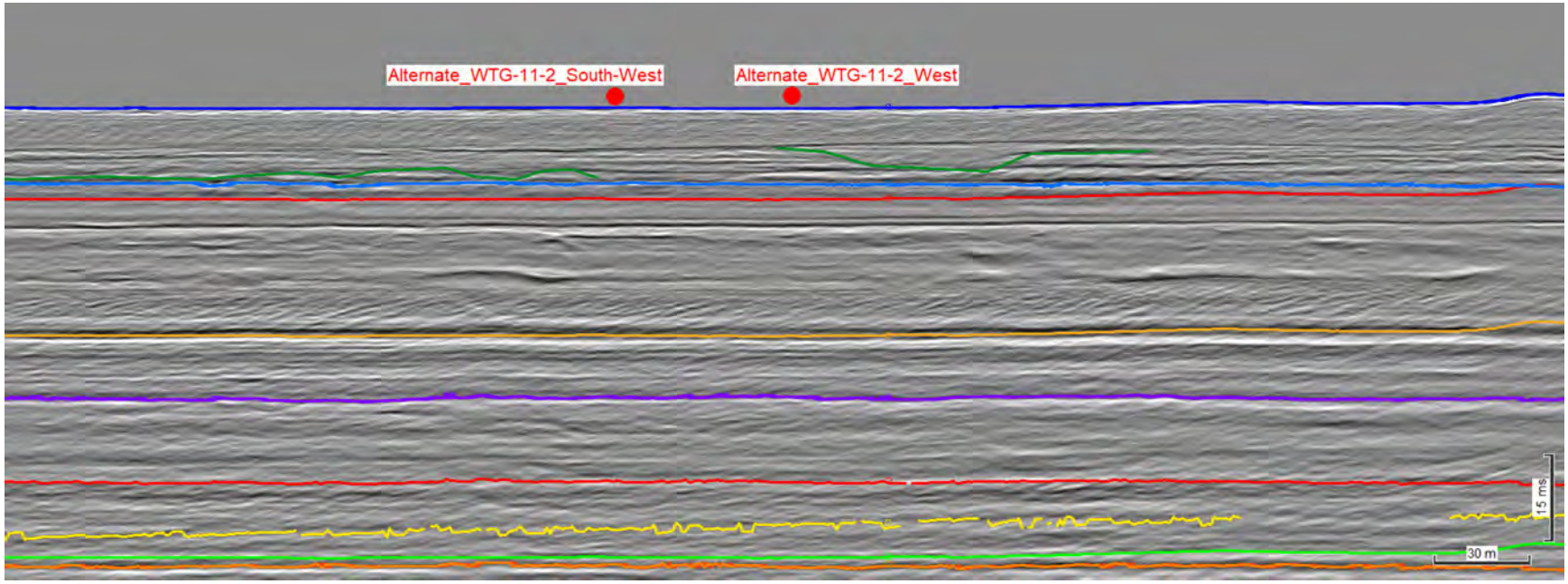


Figure 1: Proposed geotechnical locations Alternate_WTG-11-2_South-West and Alternate_WTG-11-2_West in the CVOW Lease Area along seismic line WTG02MCS16_01_FAST_MIG

March 2, 2021

Mr. Lloyd Eley
Project Manager
Dominion Energy
5000 Dominion Boulevard
Glen Allen, MD 23060

RE: Coastal Virginia Offshore Wind Commercial Project – Cultural Resources Clearance for Gassy/Non-Gassy Sediment Exploration in the Northeast Portion of the Lease Area

Dear Mr. Eley:

This letter report provides the results of Phase I cultural resources analyses of high-resolution geophysical (HRG) survey data collected by Alpine Ocean Seismic Survey, Inc. to support geotechnical investigations for the Coastal Virginia Offshore Wind Commercial Project. This memorandum reviews eight (08) planned geotechnical borehole, locations for gathering geologic information (Table 1). The geotechnical investigation will be conducted by Geoquip Marine aboard the vessels, *Geoquip Saentis*, *Dina Polaris*, and *Geoquip Speer*, or a similar type of vessel that is equipped with a dynamic positioning system. Activities at the geotechnical locations will not exceed a targeted depth of 328.1 ft (100 m) meters (m) below seabed.

The QMA reviewed the HRG survey data within a rectangular analytical area (100 m by 200 m) centered on each of the 8 proposed geotechnical locations located within the CVOW Lease Area. The reviewed data included at minimum three (3) parallel lines of survey data that captured each of the proposed locations. This review focused on identification of any potential submerged cultural resources and buried, preserved landscapes through geophysical investigations.

High-resolution side scan sonar imagery was recorded throughout the survey area and viewed as high-resolution mosaicked files (Appendix 1). No sonar contacts that represent significant cultural resources were identified within the analytical areas.

Two marine magnetometers configured into a transverse gradiometer array collected magnetic data along each survey line. Magnetic anomalies were interpreted using magnetic residual field grid data, magnetic contour mapping, and by observing their characteristics in terms of amplitude, duration, magnetic signature, and spatial distribution (Appendix 1). Within the analytical areas for C-G-1 and C-NG-1 there are numerous magnetic contours representing geology and not represent anthropogenic sources. No magnetic anomalies that represent significant cultural resources were identified within the analytical area.

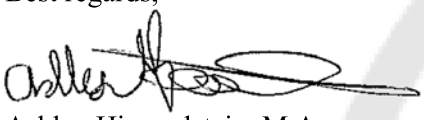
Seismic data were collected and interpreted along each survey line associated with the geotechnical locations (Appendix 2). All seismic data were reviewed to their full vertical extent. The geotechnical locations were also reviewed with respect to the ground model and interpreted horizons. Analyses of the

seismic data suggest that none of the proposed geotechnical samples will not impact any submerged and buried landforms that exhibit the potential to contain preserved archaeological resources.

The analyses considered all portions of the seafloor within the limits of bottom-disturbing activities as they pertain to the proposed sampling locations (Table 1; Appendices 1 and 2). Based on the current data, if the geotechnical sampling activities are contained within the established analytical areas (Table 1), no potential archaeological resources will be affected by the proposed geotechnical activities. No historic properties, such as shipwrecks, were detected at the proposed sampling locations.

If you have questions, please do not hesitate to contact us.

Best regards,



Ashley Himmelstein, M.A.
Nautical Archaeologist

Table 1. Proposed geotechnical locations for Gassy/Non-Gassy Sediment Exploration in the Northeast Portion of the Lease Area

Core ID	Easting (X)[2]	Northing (Y)[2]	Longitude[3]	Latitude[3]
A-G-1	474063.00	4091722.00	-75.29139692	36.97125106
A-NG-1	474284.00	4092040.00	-75.28892491	36.97412369
A-NG-2	474350.00	4091400.00	-75.28816165	36.9683563
A-NG-3	474650.00	4091050.00	-75.28477964	36.9652094
B-G-1	476809.00	4093250.00	-75.2605936	36.98509672
B-NG-1	476109.00	4094021.00	-75.26848369	36.99202926
C-G-1	478437.00	4094408.00	-75.2423334	36.99557411
C-NG-1	478900.00	4094590.00	-75.23713519	36.99722523

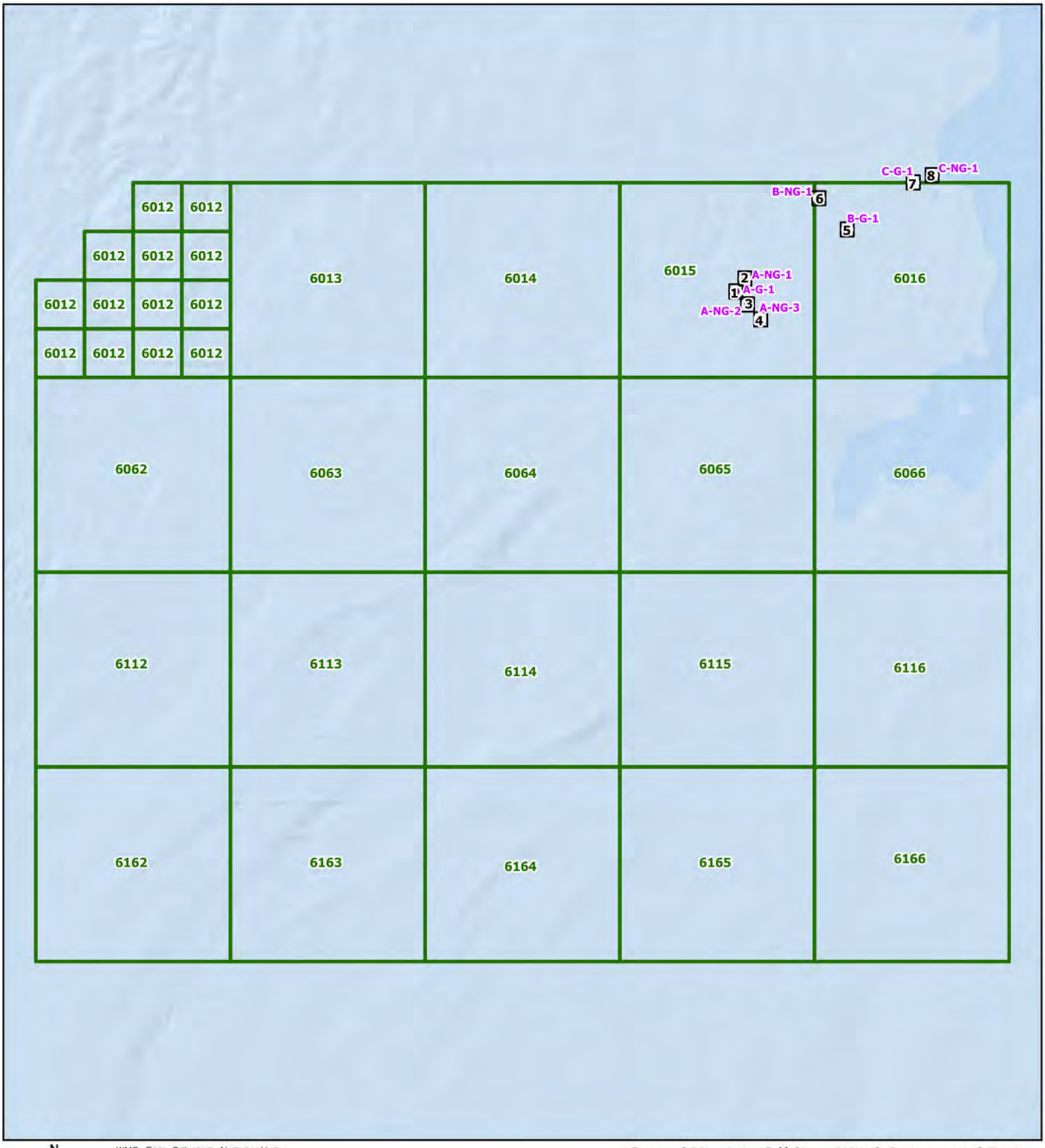
[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

Table 2: Magnetic Anomalies within Analytical Areas

Mag ID	Associated Geotechnical Location	Sensor Altitude (m)	Amplitude (nT)	Duration (m)	Depth (m)	Characteristics	Associated SSS Contact	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
TLB-M20-1091	B-G-1	2.06	12.26	2.47	-30.91	Dipole	-	476739.54	4093202.24	-75.26137263	36.98466448
WTG13-M20-1040	A-NG-1	3.05	7.46	1.61	-30.48	+Monopole	-	474293.50	4092183.52	-75.28882306	36.97541769
WTG13-M20-1045	A-NG-2	2.51	18.61	2.52	-29.31	Dipole	-	474369.76	4091287.81	-75.28793585	36.96734552
WTG13-M20-1140	B-NG-1	2.69	20.79	2.70	-32.48	+Monopole	-	476138.32	4093945.38	-75.26815181	36.99134834
WTG13-M20-1142	B-NG-1	2.85	28.07	2.08	-32.50	Dipole	-	476156.94	4093973.65	-75.26794346	36.99160365
WTG14-M20-0917	A-NG-3	3.43	41.81	2.53	-28.92	- Monopole	-	474590.32	4090994.06	-75.28544818	36.96470353
WTG14-M20-0920	A-NG-3	3.13	8.27	2.55	-28.90	- Monopole	-	474626.12	4091046.17	-75.28504777	36.96517424
WTG14-M20-0923	A-NG-3	3.19	108.30	3.16	-28.62	Dipole	-	474743.26	4091038.30	-75.28373159	36.96510644
WTG14-M20-0924	A-NG-3	3.37	6.09	2.21	-28.82	Dipole	-	474747.98	4091136.26	-75.28368184	36.96598962
WTG14-M20-1012	B-G-1	3.39	22.58	2.77	-30.93	- Monopole	-	476785.50	4093147.89	-75.26085452	36.98417569
WTG15-M20-1295	C-NG-1	2.97	8.39	2.81	-34.80	- Monopole	-	478992.21	4094678.60	-75.23610136	36.99802597

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

APPENDIX 1
ARCHAEOLOGICAL RESOURCES MAPS



N
W E
S
GRID NORTH

WMS: ESRI, DELORME, NATURALVUE
MSR: 1:126,000
SRS: NAD 1983 2011 UTM ZONE 18N METER

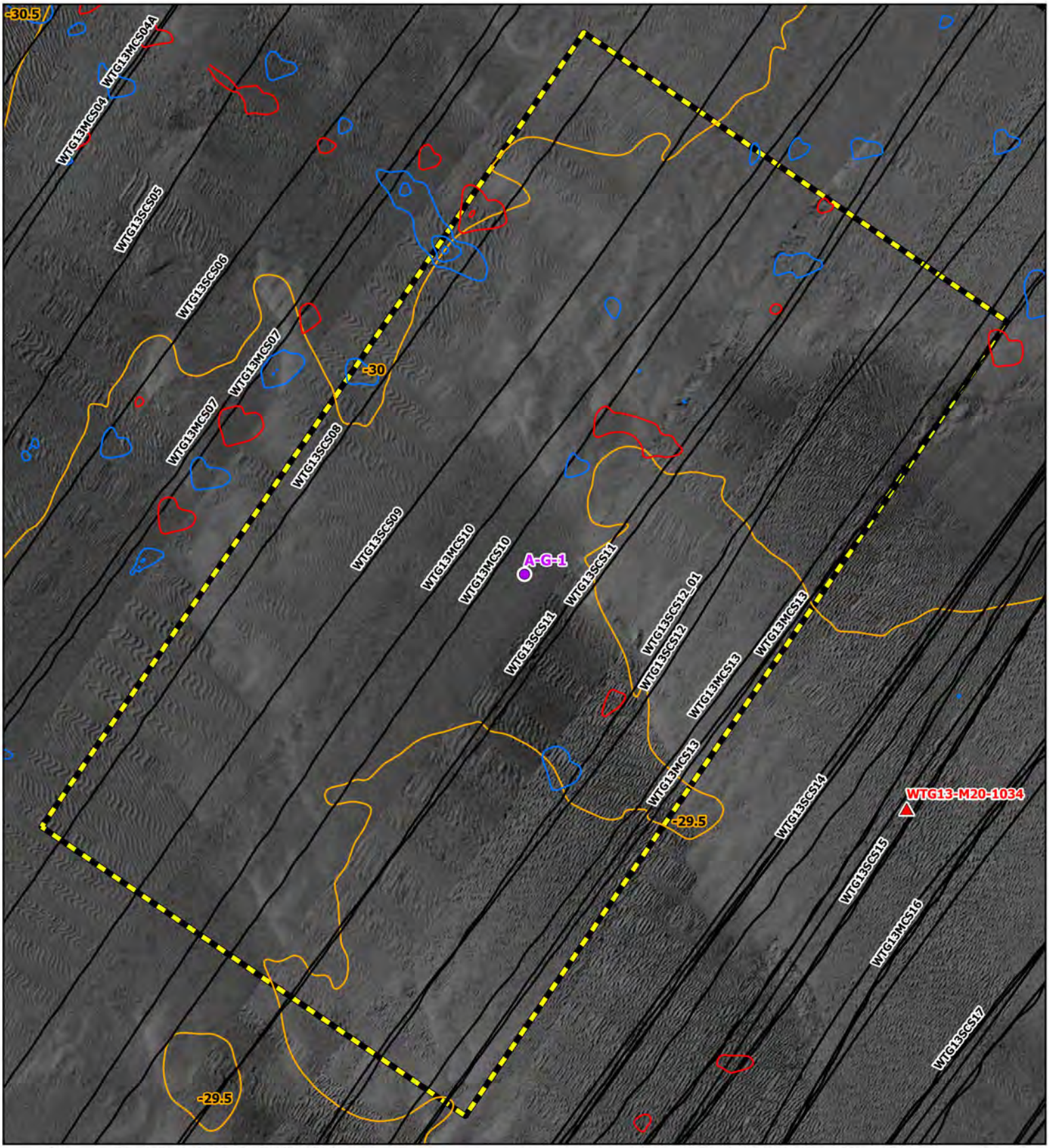
0 0.5 1 1.5 2 MILES
0 1 2 3 4 KILOMETERS

● GEOTECHNICAL LOCATION
MAP SHEET EXTENT
LEASE AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Gassy/Non-Gassy for Sediment Exploration

Index Map

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100
FEET
0 10 20 30 40
METERS

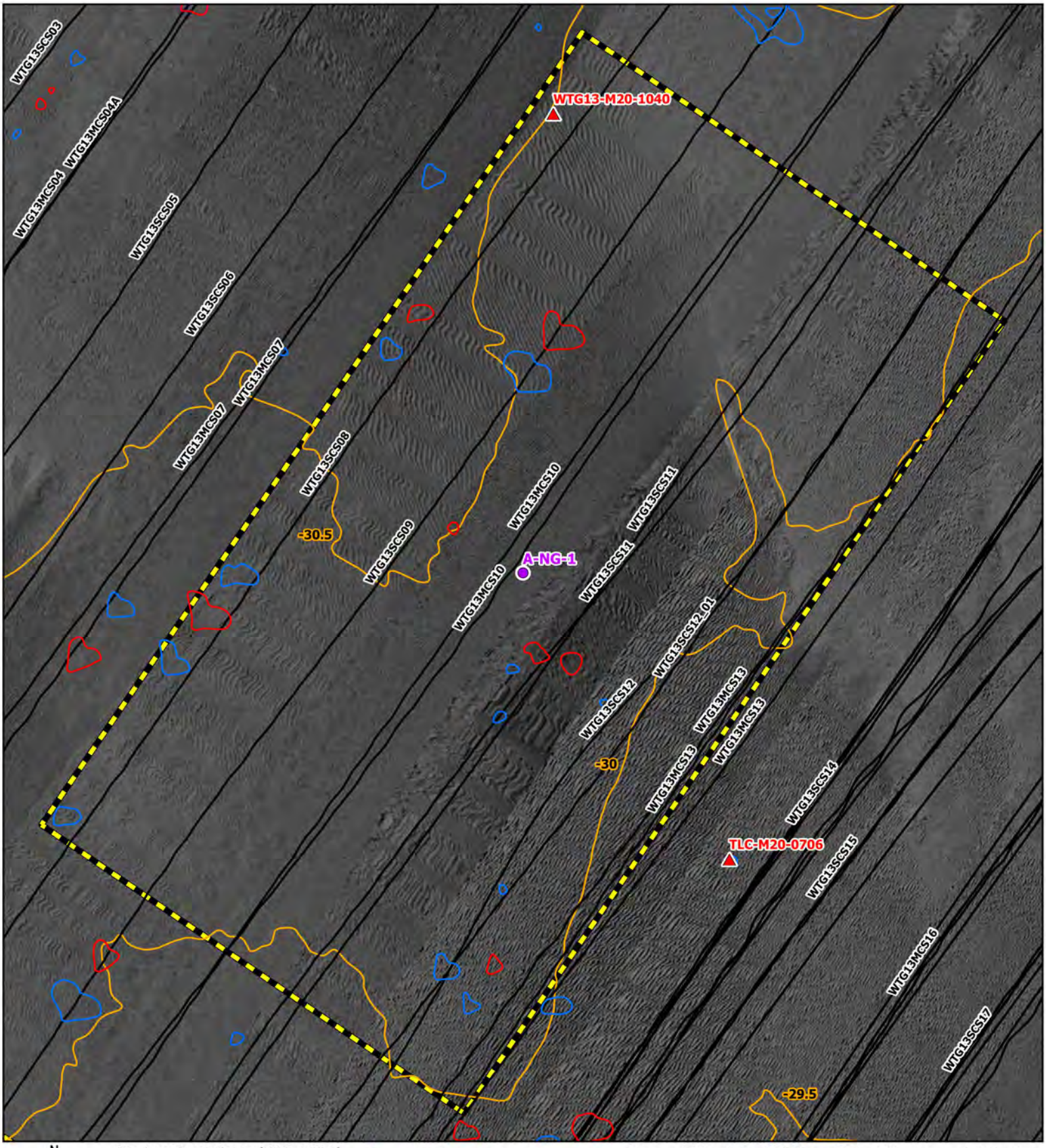
GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
TRACKLINE
BATHYMETRIC CONTOUR (0.5 M)
MAGNETIC CONTOUR (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)

Geotechnical Clearance: Gassy/Non-Gassy for Sediment Exploration

Map: 1
A-G-1

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100
FEET
0 10 20 30 40
METERS

GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
TRACKLINE
BATHYMETRIC CONTOUR (0.5 M)
MAGNETIC CONTOUR (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

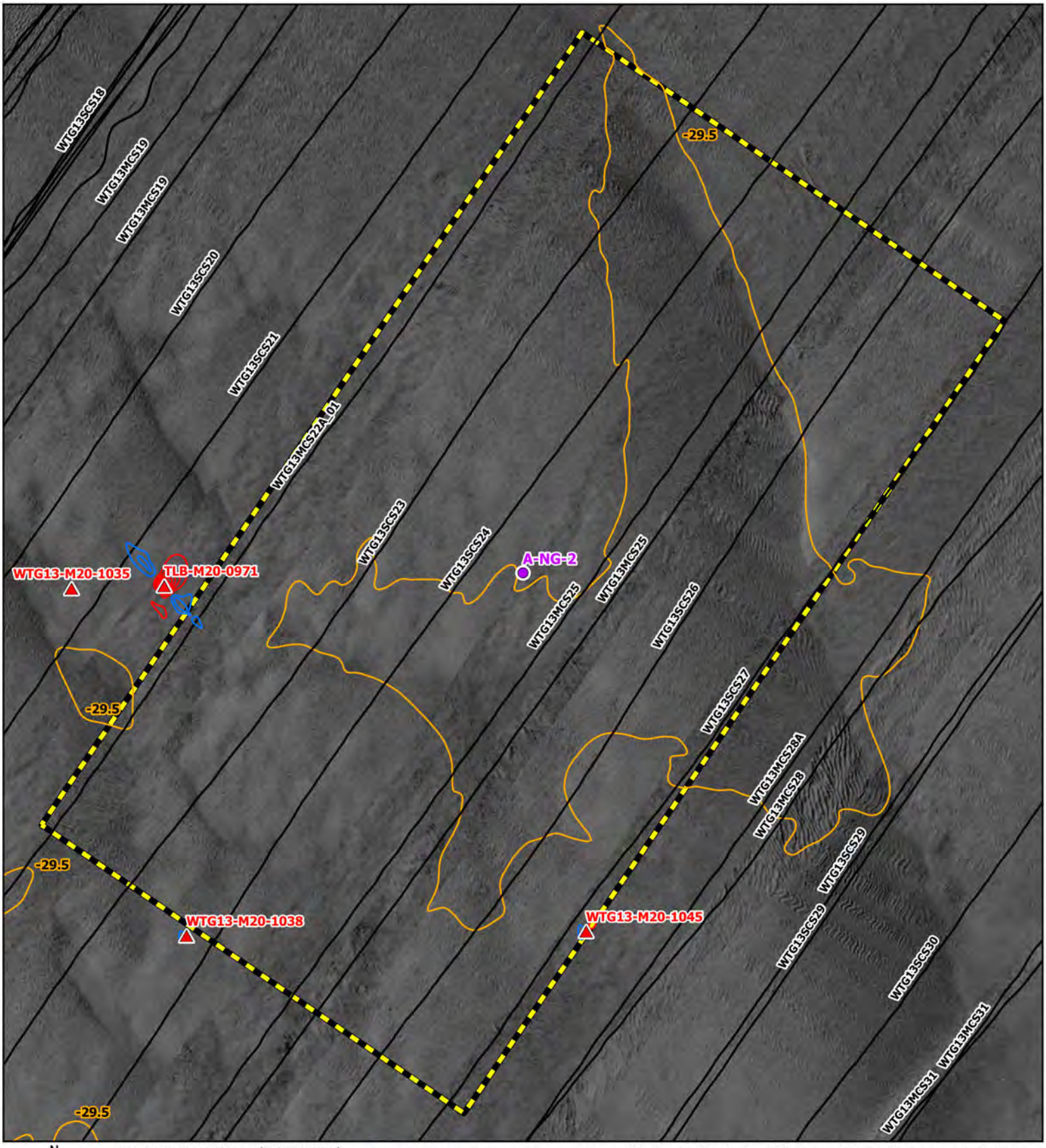
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)

Geotechnical Clearance: Gassy/Non-Gassy for Sediment Exploration

Map: 2
A-NG-1

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100
FEET
0 10 20 30 40
METERS

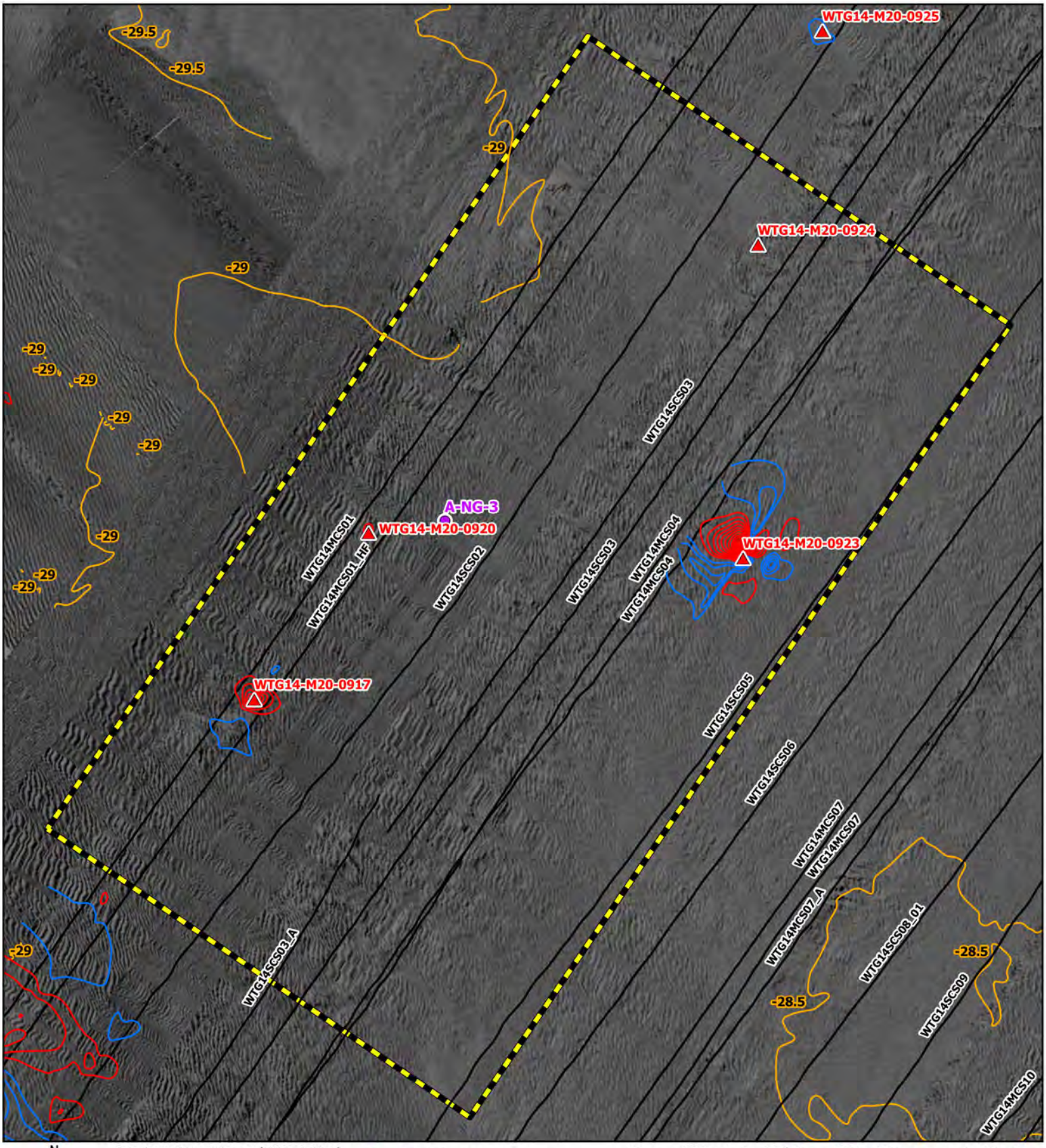
GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
TRACKLINE
BATHYMETRIC CONTOUR (0.5 M)
MAGNETIC CONTOUR (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)

Geotechnical Clearance: Gassy/Non-Gassy for Sediment Exploration

Map: 3
A-NG-2

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
GRID NORTH

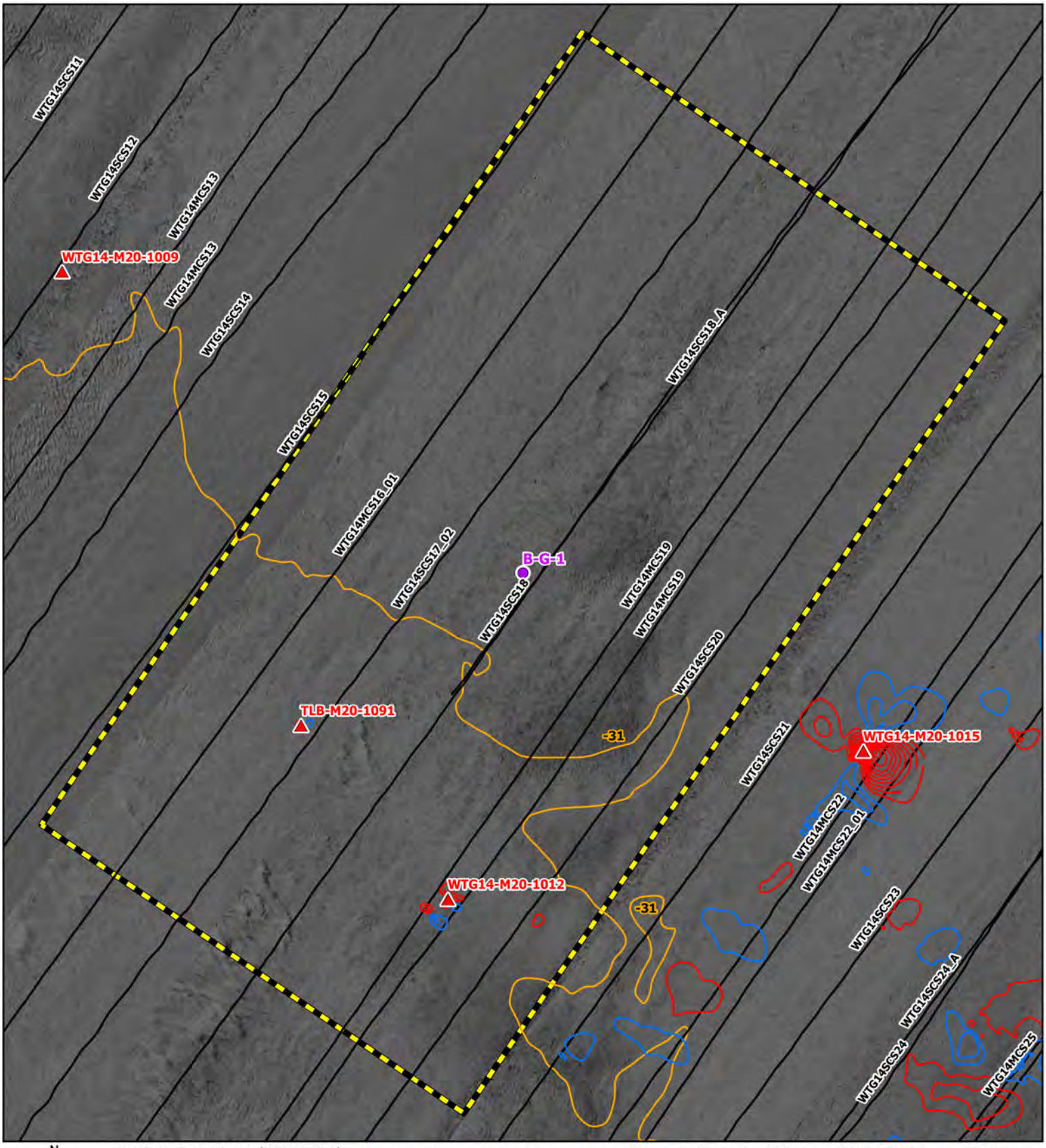
SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100
FEET
0 10 20 30 40
METERS

GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
TRACKLINE
BATHYMETRIC CONTOUR (0.5 M)
MAGNETIC CONTOUR (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Gassy/Non-Gassy for Sediment Exploration
Map: 4
A-NG-3

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

WWW.RCGOODWIN.COM | KMAY, 3.2.2021



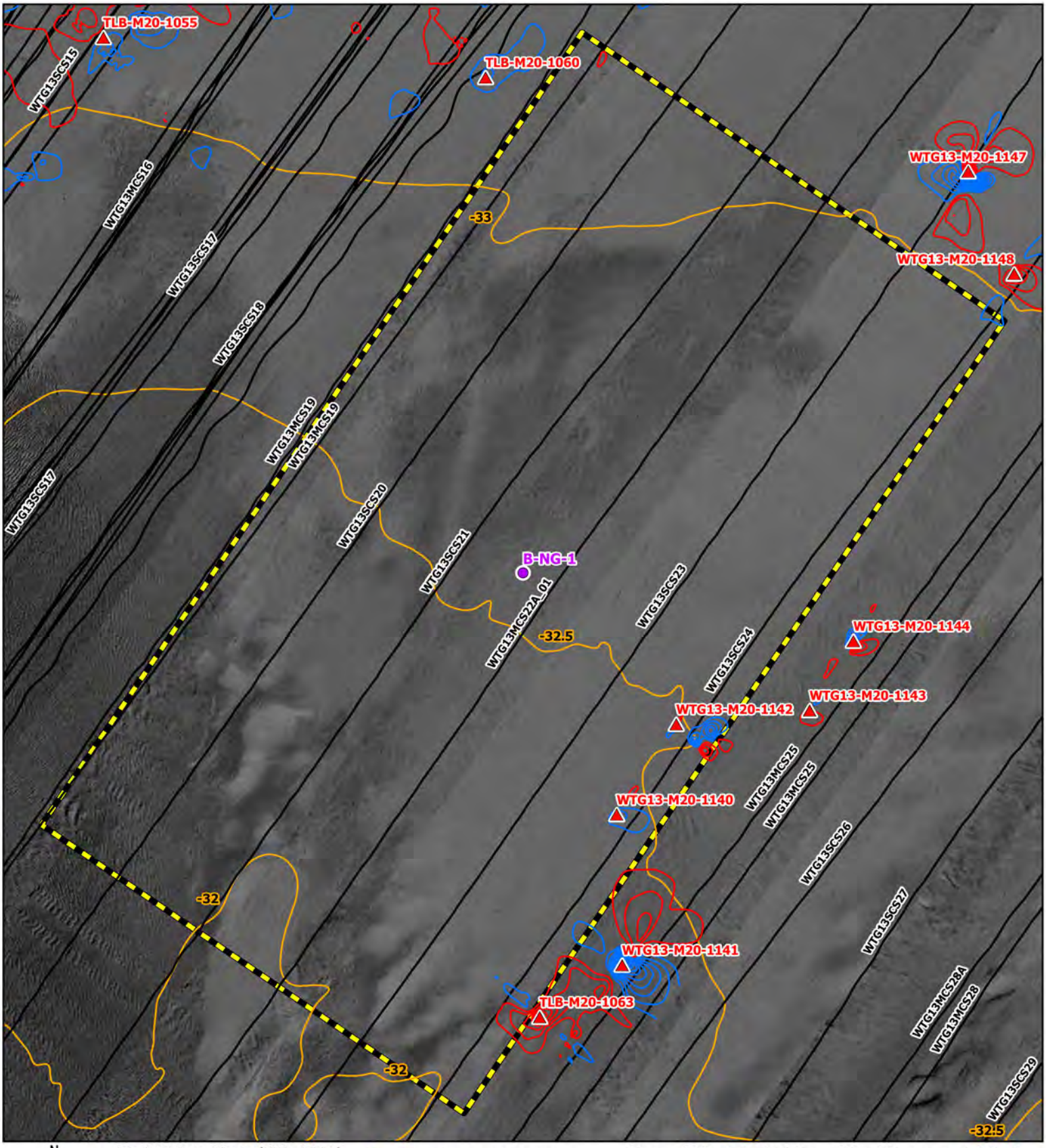
N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100 FEET
0 10 20 30 40 METERS

GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
TRACKLINE
BATHYMETRIC CONTOUR (0.5 M)
MAGNETIC CONTOUR (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Gassy/Non-Gassy for Sediment Exploration
Map: 5
B-G-1

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM Zone 18N Meter
0 25 50 75 100
Feet
0 10 20 30 40
Meters

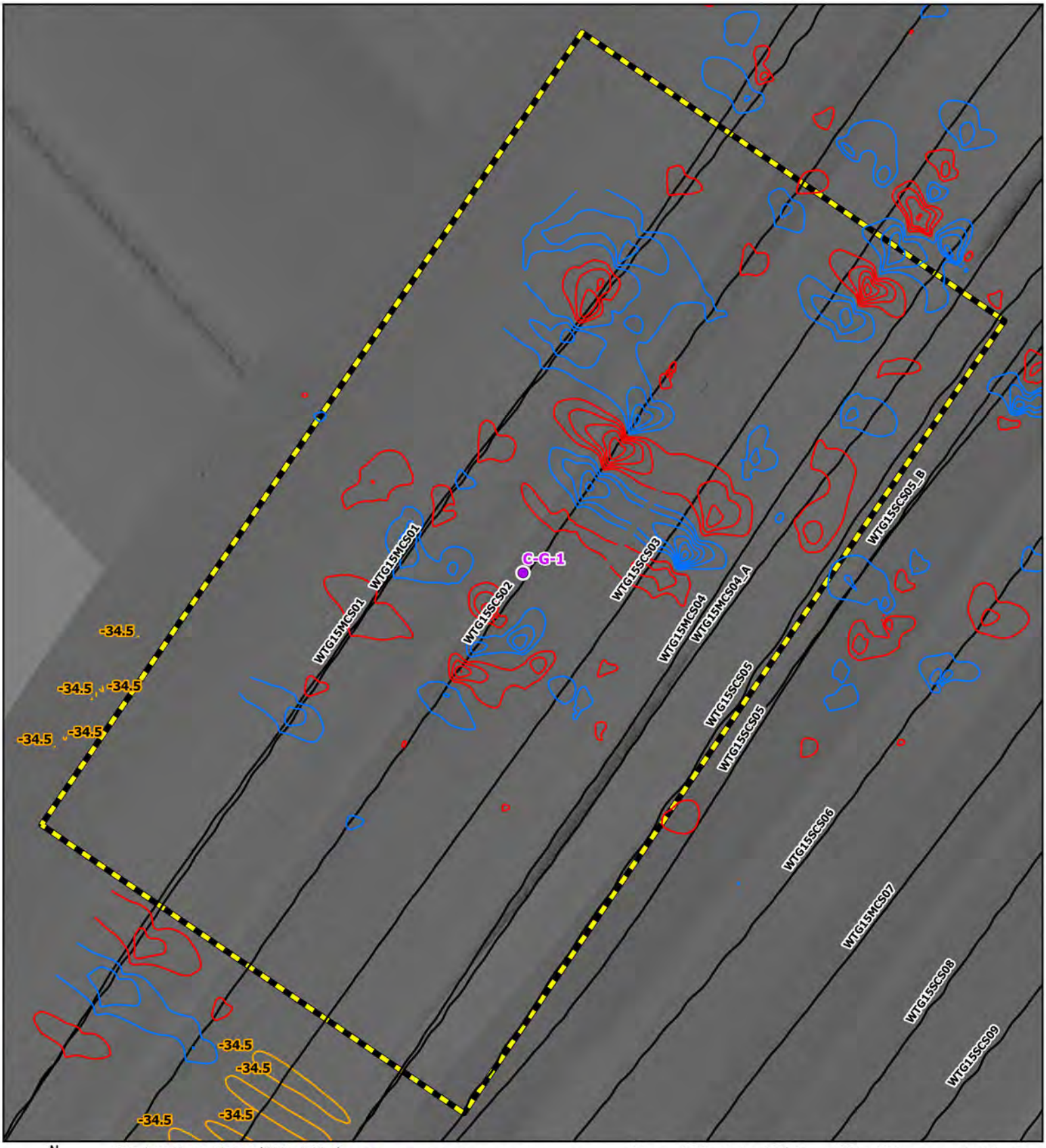
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
Trackline
Bathymetric Contour (0.5 m)
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)

Geotechnical Clearance: Gassy/Non-Gassy for Sediment Exploration

Map: 6
B-NG-1

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100
FEET
0 10 20 30 40
METERS

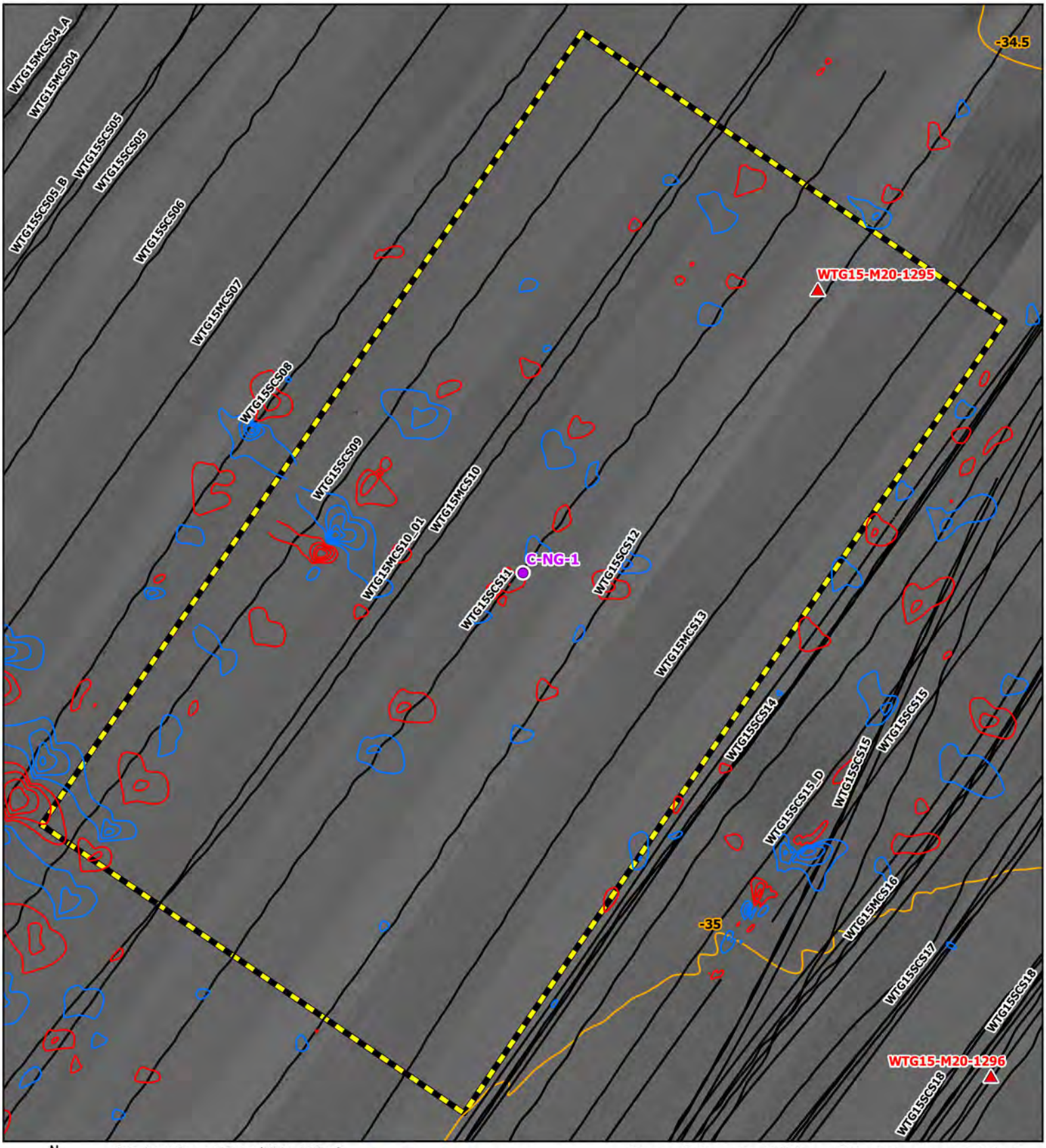
GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
TRACKLINE
BATHYMETRIC CONTOUR (0.5 M)
MAGNETIC CONTOUR (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)

Geotechnical Clearance: Gassy/Non-Gassy for Sediment Exploration

Map: 7
C-G-1

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021



N
W E
S
GRID NORTH

SIDE SCAN SONAR MOSAIC (2020, 0.25 M)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM ZONE 18N METER
0 25 50 75 100
FEET
0 10 20 30 40
METERS

GEOTECHNICAL LOCATION
MAGNETIC ANOMALY
SIDE SCAN SONAR CONTACT
TRACKLINE
BATHYMETRIC CONTOUR (0.5 M)
MAGNETIC CONTOUR (5 NT)
NEGATIVE
POSITIVE
ANALYTICAL AREA

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Gassy/Non-Gassy for Sediment Exploration
Map: 8
C-NG-1

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.2.2021

APPENDIX 2
SUB-BOTTOM PROFILE IMAGES

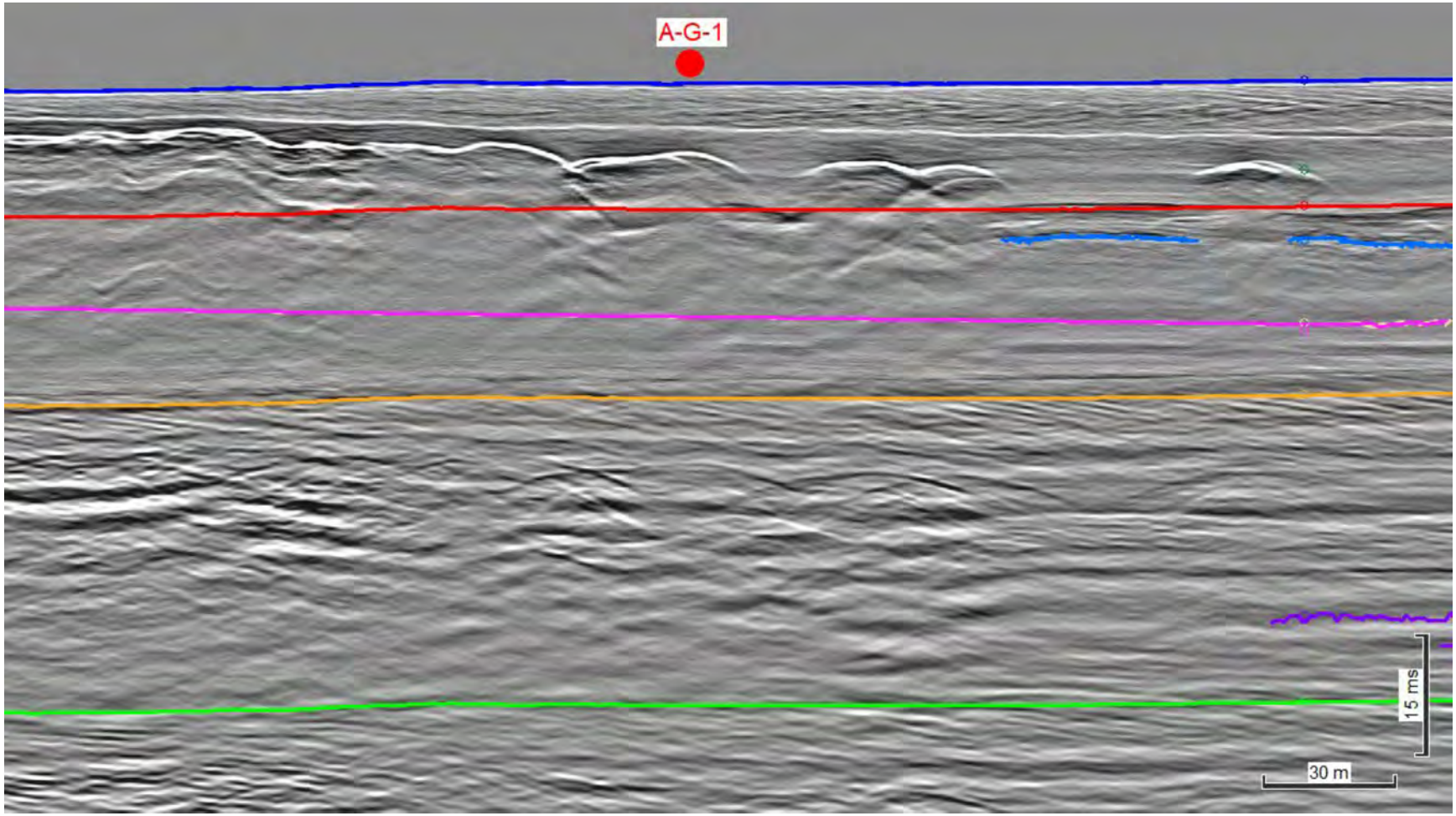


Figure 1: Proposed geotechnical location A-G-1 along seismic line TLB69_FAST_MIG

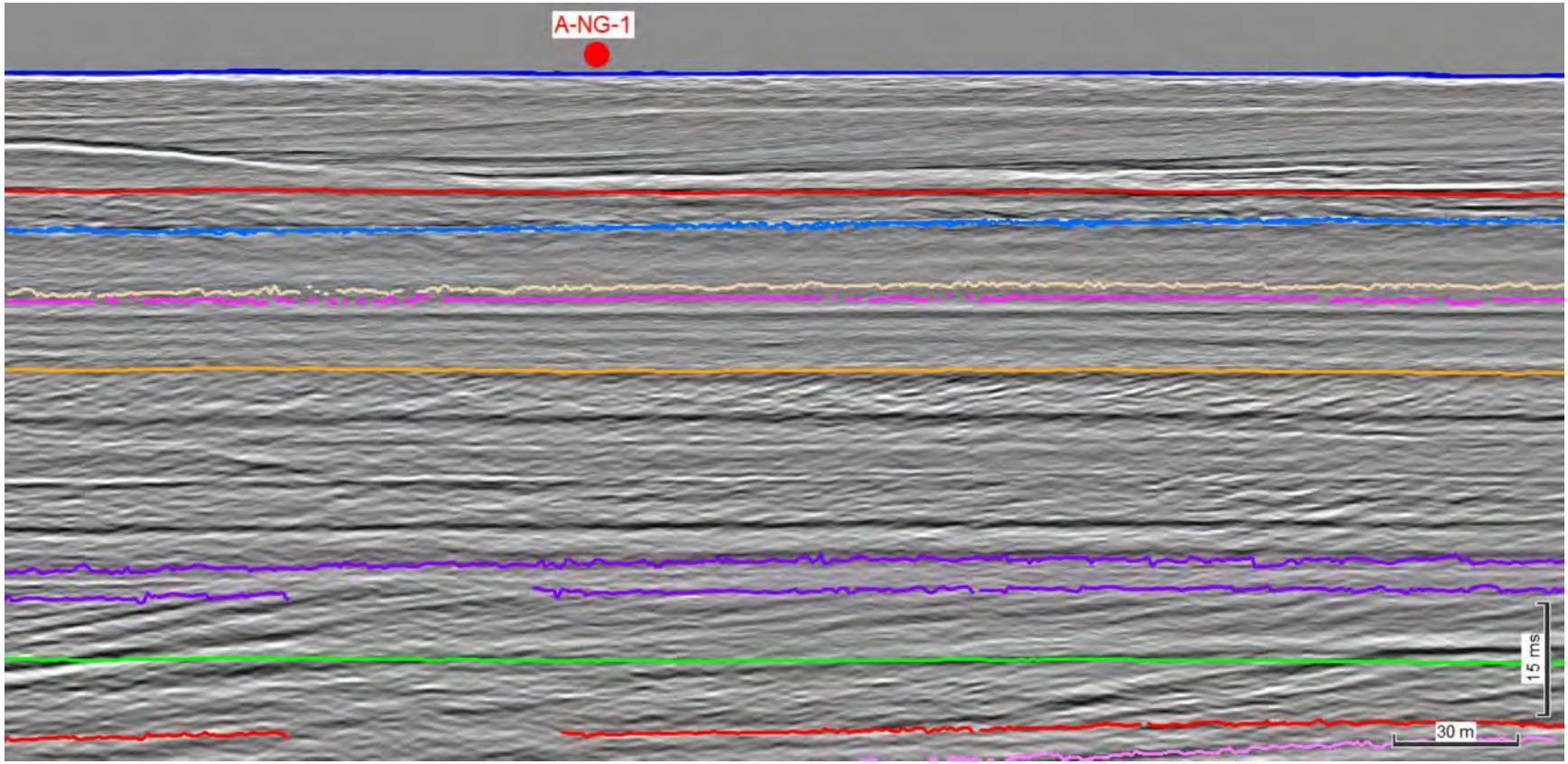


Figure 2:Proposed geotechnical location A-NG-1along seismic lineWTG13MCS16_FAST_MIG

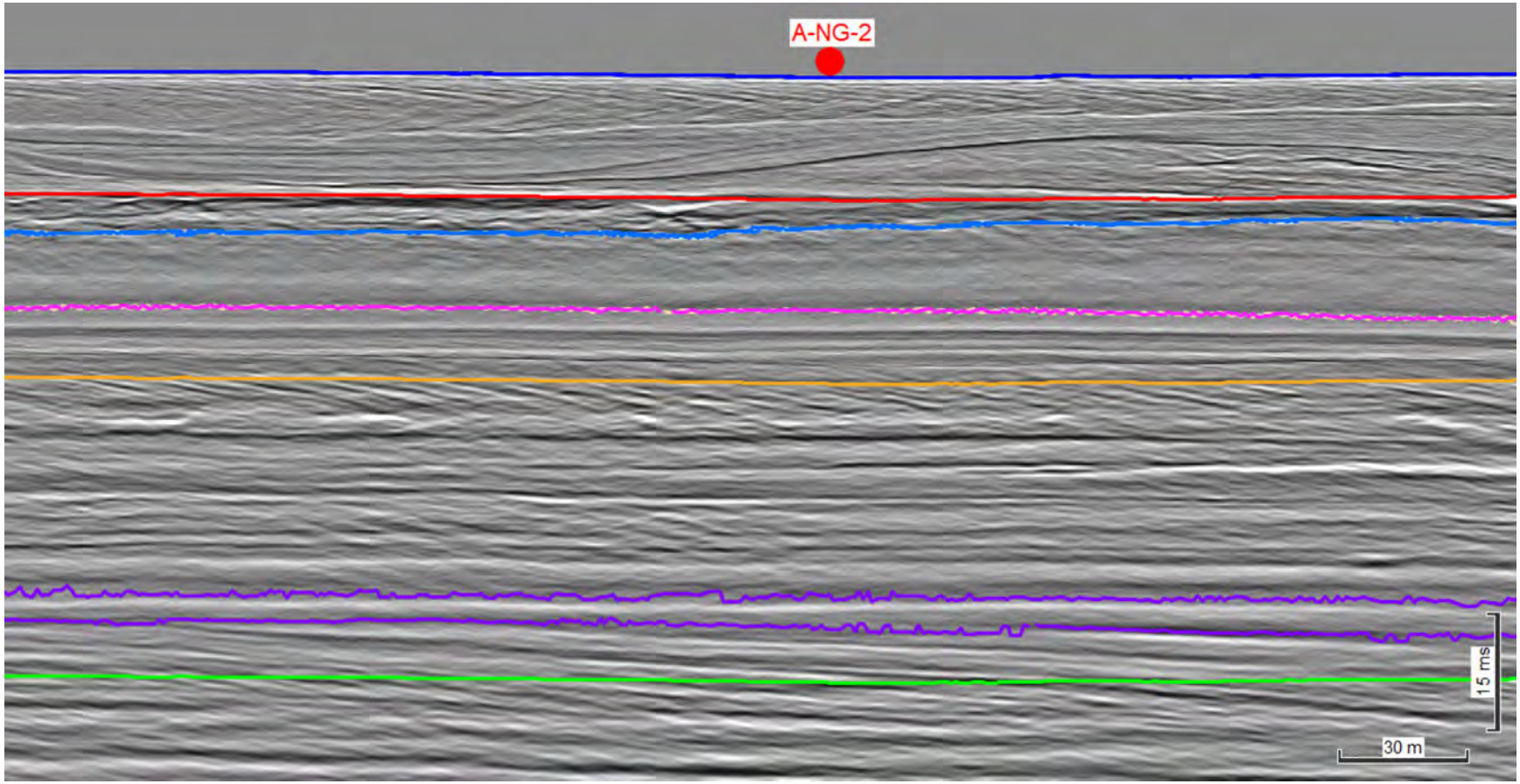


Figure 3: Proposed geotechnical location A-NG-2 along seismic line TLB69_FAST_MIG

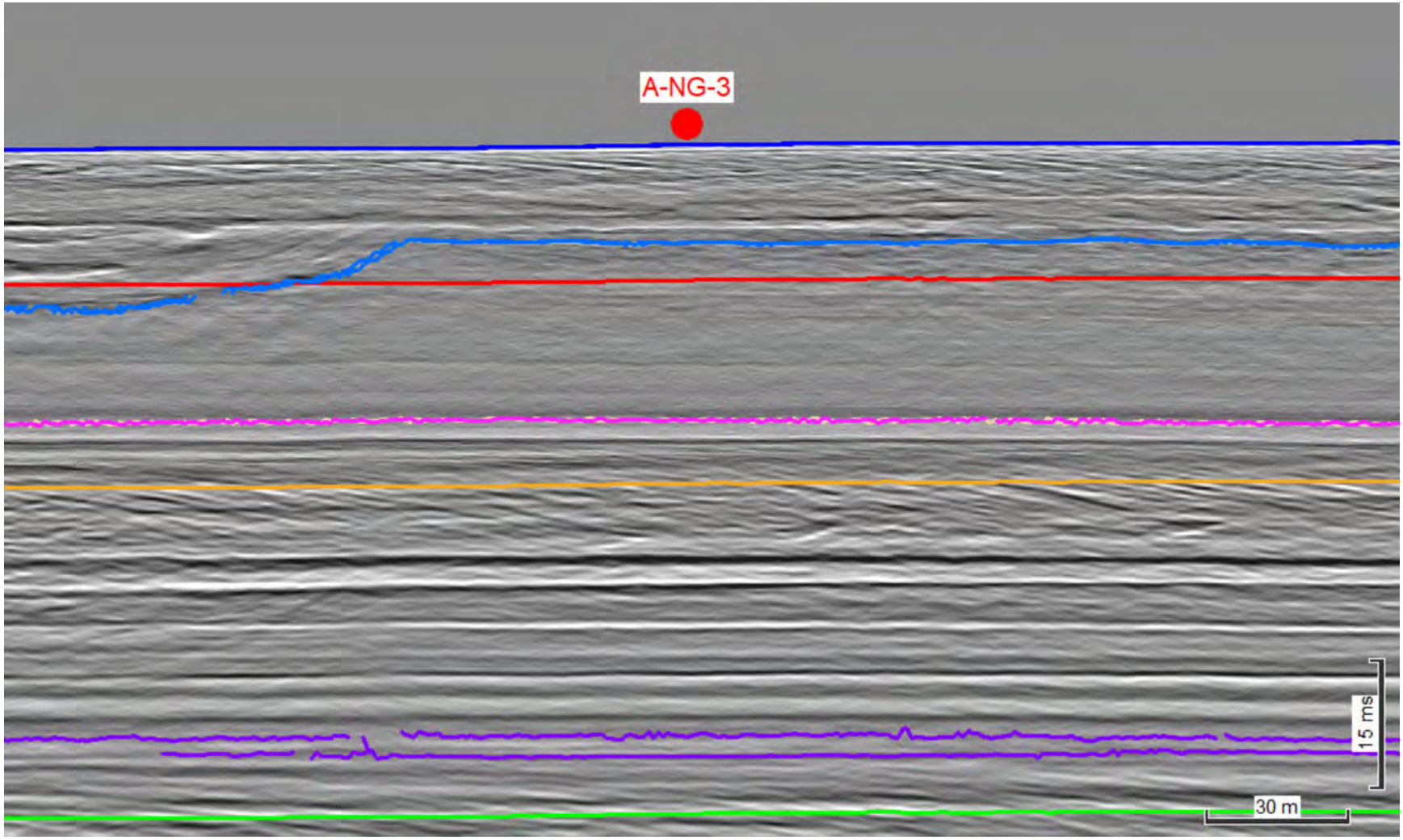


Figure 4: Proposed geotechnical location A-NG-3 along seismic line TLB69_FAST_MIG

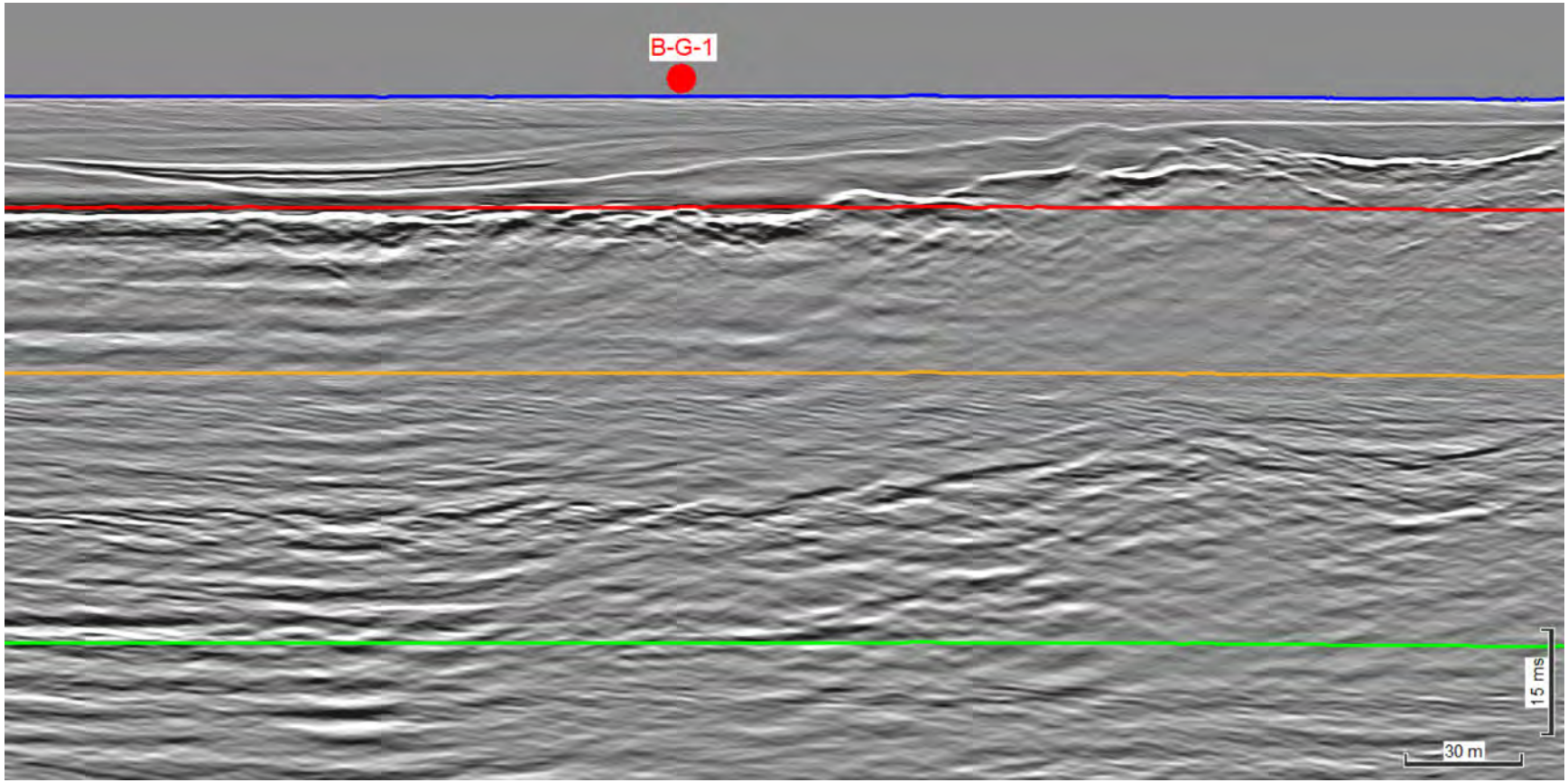


Figure 5: Proposed geotechnical location B-G-1 along seismic line TLB77B_FAST_MIG_PSDEMUL

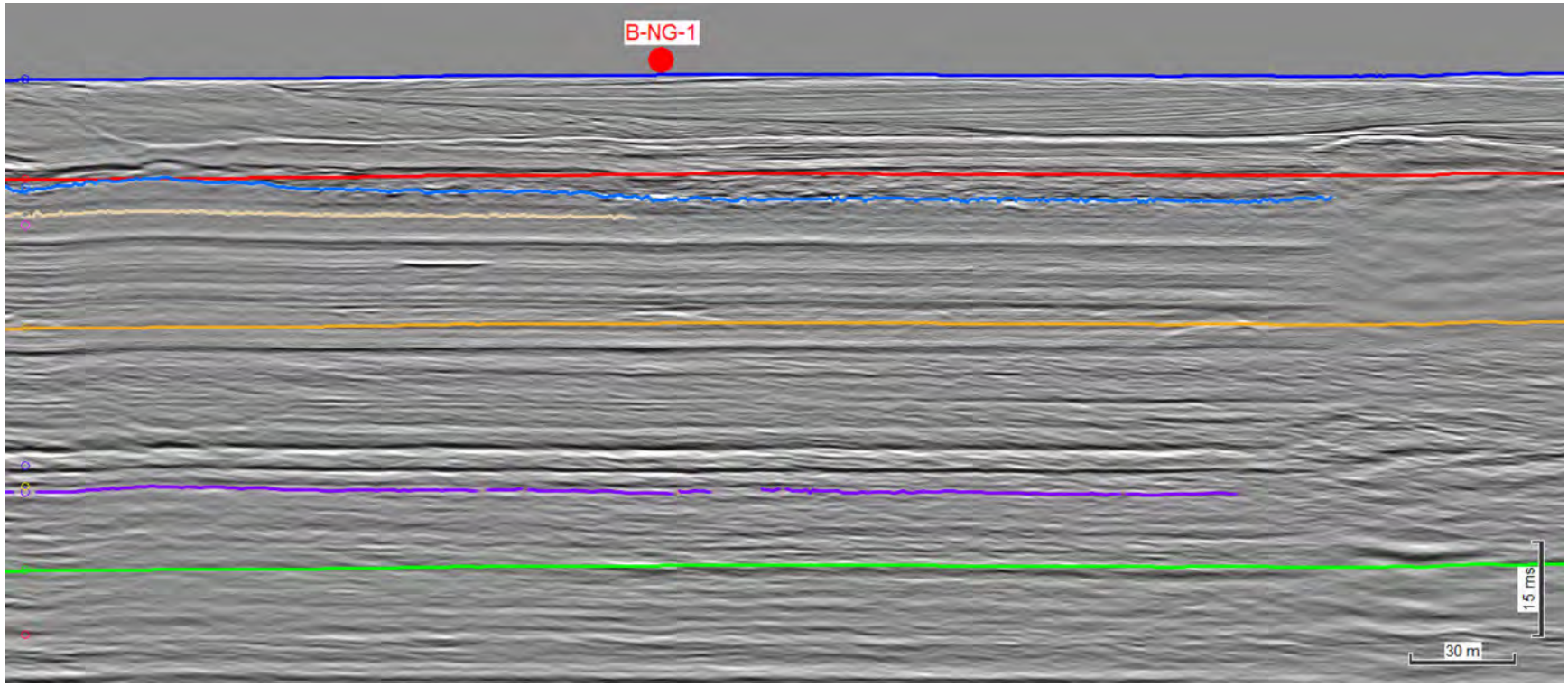


Figure 6: Proposed geotechnical location B-NG-1 along seismic line TLB77B_FAST_MIG_PSDEMUL

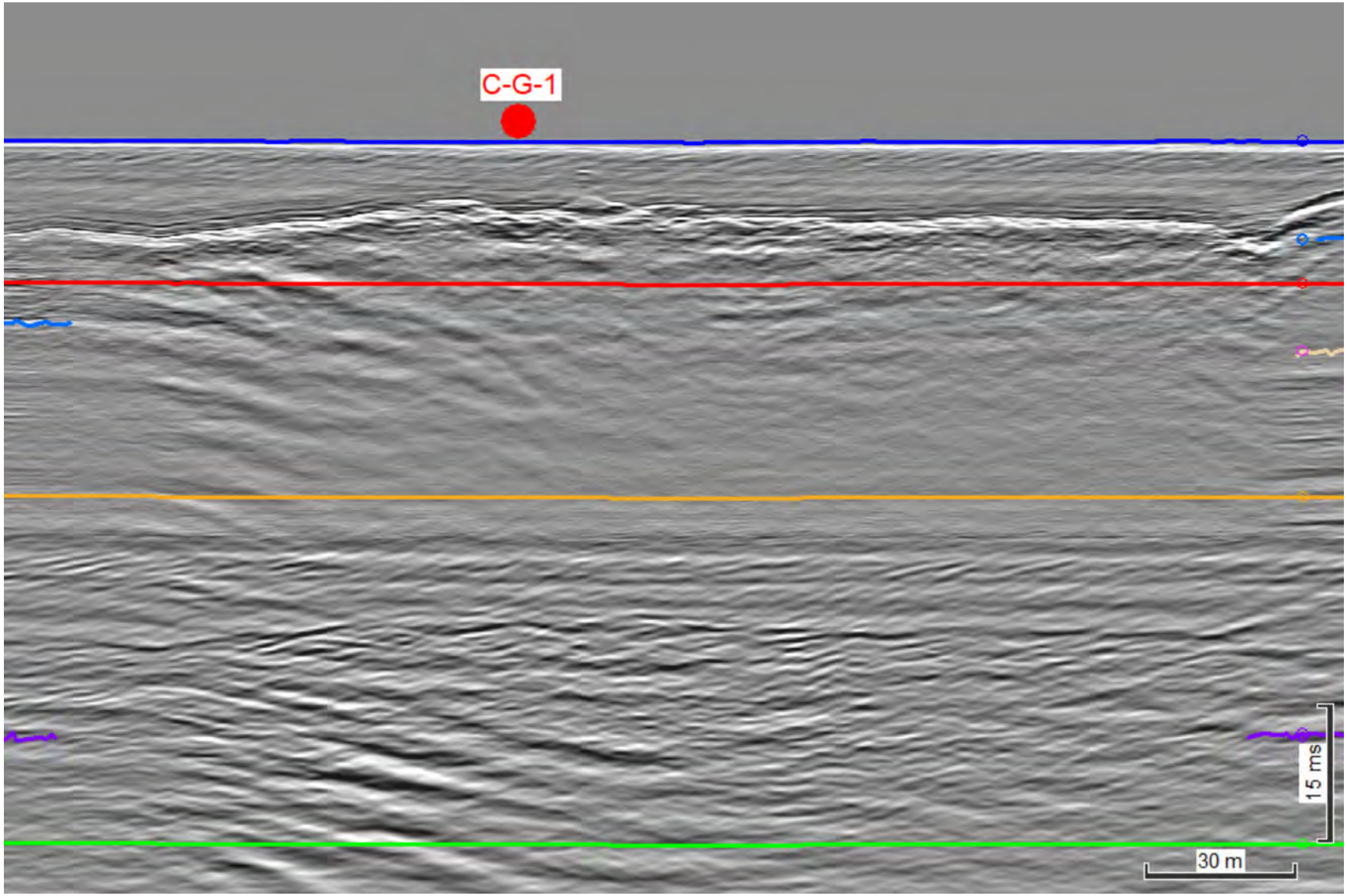


Figure 7: Proposed geotechnical location C-G-1 along seismic line TLB83A_01_FAST_MIG

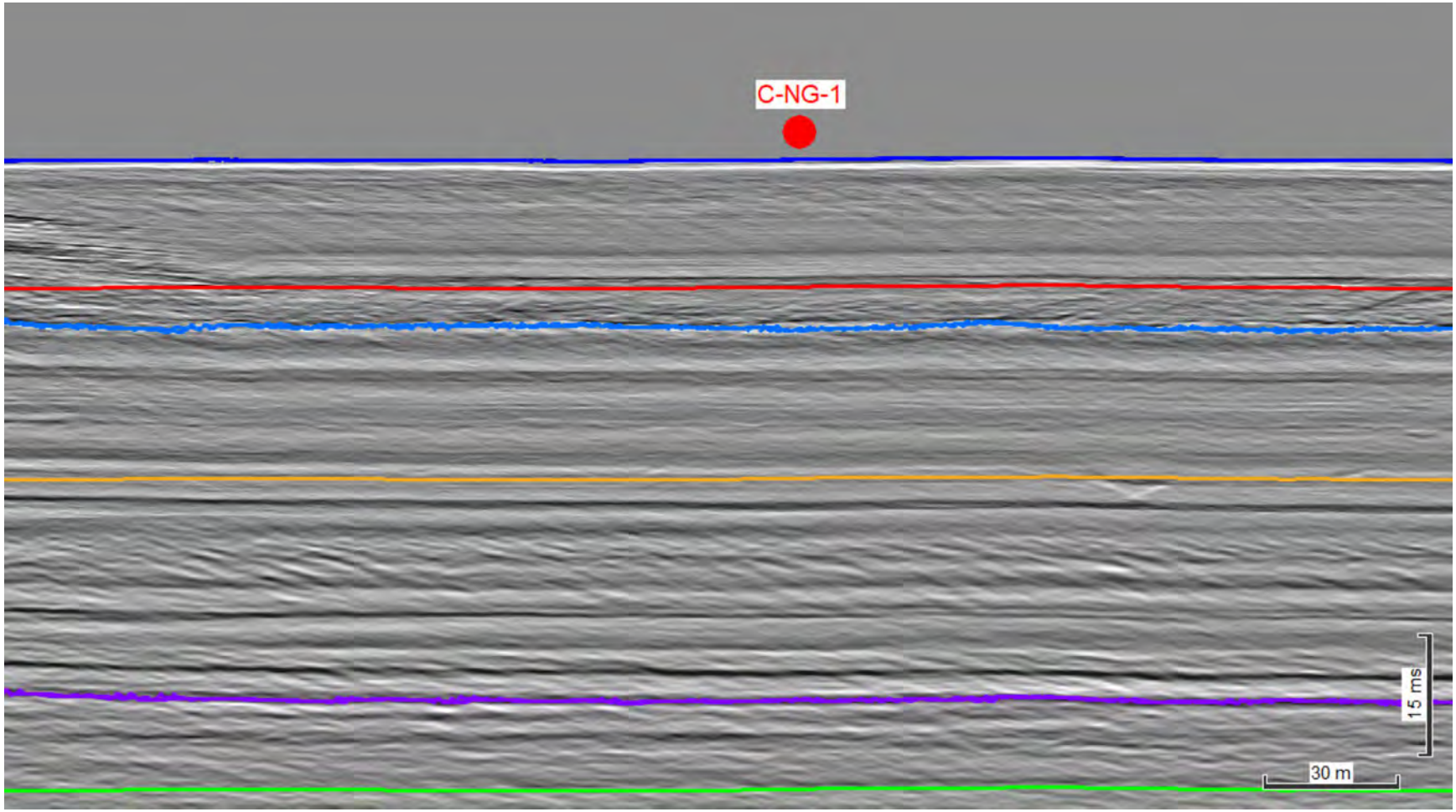


Figure 8: Proposed geotechnical location C-NG-1 along seismic line WTG15MCS10_FAST_MIG

Dominion Energy, Inc.
707 East Main Street
Richmond, VA 23219
dominionenergy.com

April 5, 2021

Mr. James Bennett, Chief
Bureau of Ocean Energy Management
Office of Renewable Energy Programs
45600 Woodland Road, VAM-OREP
Sterling, VA 20166

Dear Mr. Bennett:

RE: Coastal Virginia Offshore Wind Commercial Project - Cultural Resources Clearance for Geotechnical Investigations Along the Export Cable Route, Block E and Block F

Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy, the Applicant), is submitting the attached geotechnical clearance reports for 11 proposed geotechnical locations located along the Export Cable Route, Block E and Block F within the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS) Offshore Virginia (Lease No. OCS-A-0483) Condition 4.2.2 in support of the Coastal Virginia Offshore Wind Commercial (CVOW) Commercial Project.

This letter and attached report provide the results of Phase I cultural resources analyses of high-resolution geophysical (HRG) survey data collected by Alpine Ocean Seismic Survey, Inc. to support geotechnical investigations. In summary:

- No sonar contacts that represent significant cultural resources were identified within the analytical areas.
- No magnetic anomalies that represent significant cultural resources were identified within the analytical areas.
- Analyses of the seismic data suggest that geotechnical samples will not impact any submerged and buried landforms that exhibit the potential to contain preserved archaeological resources.
- No historic properties, such as shipwrecks, were detected at the proposed sampling locations.

Please contact Scott Lawton at scott.lawton@dominionenergy.com or (804) 273-2600 if you have any questions or require additional information.

Sincerely,

Joshua J. Bennett
Vice President – Offshore Wind

Enclosure(s)

Cc: Dominion Env. - Jason Ericson, Darrell Shier, Scott Lawton, Mitchell Jabs
Dominion Offshore Wind – GT Hollett, Will Kinnan, Ed Buchanan
BOEM - Casey Reeves, Algene Byrum, Jen Draher, Willie Hoffman
Tetra Tech - Janelle Lavallee, Alex Cross
McNeilan and Assoc. - Tom McNeilan

March 31, 2021

Mr. Lloyd Eley
Project Manager
Dominion Energy
5000 Dominion Boulevard
Glen Allen, MD 23060

RE: Coastal Virginia Offshore Wind Commercial Project – Cultural Resources Clearance for Geotechnical Investigations along the Blocks E and F

Dear Mr. Eley:

This letter report provides the results of Phase I cultural resources analyses of high-resolution geophysical (HRG) survey data collected by Alpine Ocean Seismic Survey, Inc. to support geotechnical investigations for the Coastal Virginia Offshore Wind Commercial Project. The planned geotechnical campaign consists of shallow coring (piston or vibracores) and seabed Cone Penetrometer Tests; this memorandum reviews 11 of these locations for gathering geologic information (Tables 1, 2, 3, 4, and 5). The geotechnical investigation will be conducted by a vessel that is equipped with a dynamic positioning system. Activities at the geotechnical locations will not exceed a targeted depth of five (5) to seven (7) meters (m) below seabed.

The QMA reviewed the HRG survey data within a rectangular analytical area (100 m by 200 m) centered on each of the 11 proposed geotechnical locations located along the Export Cable Route (ECR), within Blocks E and F. The reviewed data included at minimum six (6) parallel lines of survey data that captured each of the proposed locations. This review focused on identification of any potential submerged cultural resources and buried, preserved landforms through geophysical investigations.

There are eight (8) proposed geotechnical locations within the Dam Neck Ocean Disposal Site (DNODS). The DNODS was authorized by the Environmental Protection Agency for the placement of dredged materials from the Thimble Shoal Channel, Atlantic Ocean Channel and the Cape Henry Channel. The earliest use of the DNODS began in 1967, with the deepening of the Thimble Shoals Channel. Dredged materials been typically disposed of using either a hopper dredge or bottom pump scow. There are numerous magnetic anomalies and seabed contacts throughout the DNODS boundary, which are likely associated with dredged material placement activities.

High-resolution side scan sonar imagery was recorded throughout the survey area and viewed as high-resolution mosaicked files (Appendix 1, Table 6). No sonar contacts that represent significant cultural resources were identified within the analytical areas.

Two marine magnetometers configured into a transverse gradiometer array collected magnetic data along each survey line. Magnetic anomalies were interpreted using magnetic residual field grid data, magnetic

contour mapping, and by observing their characteristics in terms of amplitude, duration, magnetic signature, and spatial distribution (Appendix 1, Table 7). All of the recorded anomalies expressed characteristics atypical of shipwreck signatures (i.e., a low amplitude [<50 nT] and short to medium duration 1.8-55.2 m]). No magnetic anomalies that represent significant cultural resources were identified within the analytical areas.

Seismic data were collected and interpreted along each survey line associated with the geotechnical locations (Appendix 2). All seismic data were reviewed to their full vertical extent. The geotechnical locations were also reviewed with respect to the ground model and interpreted horizons. Analyses of the seismic data suggest that none of the proposed geotechnical samples will not impact any submerged and buried landforms that exhibit the potential to contain preserved archaeological resources.

The analyses considered all portions of the seafloor within the limits of bottom-disturbing activities as they pertain to the proposed sampling locations (Tables 1, 2, 3, 4, 5, 6, and 7; Appendices 1 and 2). Based on the current data, if the geotechnical sampling activities are contained within the established analytical areas (Tables 1, 2, 3, 4, and 5), no potential archaeological resources will be affected by the proposed geotechnical activities. No historic properties, such as shipwrecks, were detected at the proposed sampling locations.

If you have questions, please do not hesitate to contact us.

Best regards,

Ashley Himmelstein, M.A.
Nautical Archaeologist

Table 1. Proposed geotechnical locations for ECR Block E

Core ID[1]	Easting (X)[2]	Northing (Y)[2]	Longitude[3]	Latitude[3]
E-08	424178.20	4073924.80	-75.85002132	36.80813617
E-09	423689.10	4074028.50	-75.85551434	36.80903158
E-16/F01	420348.90	4074737.10	-75.89303109	36.81514337

[1] E-16/F01 are located within the DNODS.
[2]Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[3] Geographical coordinates are referenced to NAD83.

Table 2: Proposed geotechnical locations for ECR Block F

Core ID	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
F-04rev	418932.19	4074658.12	-75.90890467	36.81431111
F-09	416450.00	4074410.00	-75.93670355	36.81185876

[1]Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

Table 3: Proposed geotechnical locations for ECR X Locations, located within the DNODS

Core ID	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
X-03	419945.00	4074535.00	-75.89753775	36.81328762
X-04	421055.00	4075100.00	-75.88515299	36.8184736
X-05	421100.00	4074835.00	-75.88462101	36.81608874
X-06rev	421352.56	4074995.79	-75.88180626	36.81755907
X-07rev	421825.18	4074873.44	-75.87649517	36.81649543
X-08rev	421685.49	4074966.25	-75.87807076	36.81732043

[1]Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

Table 4: Proposed geotechnical locations for ECR Block F South

Core ID	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
Fs-08rev	416989.67	4073977.58	-75.93060674	36.80800864

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

Table 5: Proposed geotechnical locations for ECR Block E North

Core ID	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
En-13	421819.00	4074841.00	-75.8766	36.8162

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

Table 6: Side Scan Sonar Contacts within Analytical Areas

SSS ID	Associated Geotechnical Location	Height (m)	Width (m)	Length (m)	Associated Mag Anomaly	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
SSS_E_030	E-08	0.70	0.66	1.95	MAG_1362	424181.97	4073933.67	-75.84997994	36.80821643
SSS_E_045	X-06rev	0.44	0.68	1.18	-	421392.98	4074986.65	-75.88135217	36.81748005
SSS_F_007	E-16/F-01	0.33	0.36	0.63	-	420269.04	4074732.65	-75.8939259	36.81509653

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

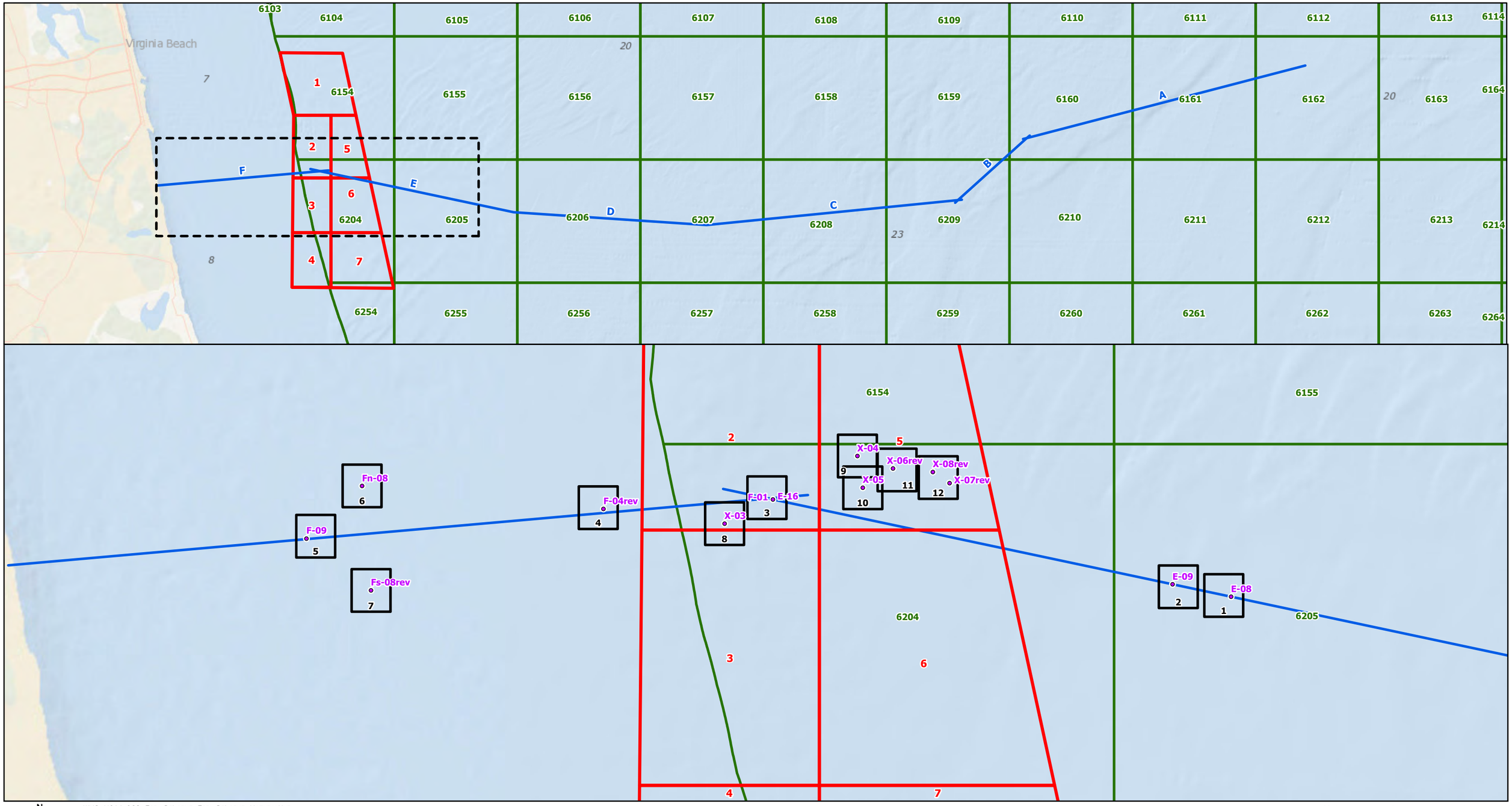
Table 7: Magnetic Anomalies within Analytical Areas

Mag ID	Associated Geotechnical Location	Sensor Altitude (m)	Amplitude (nT)	Duration (m)	Depth (m)	Signature Characteristics	Associated SSS Contact	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
MAG_0243	F-09	2.95	0.60	2.38	1.74	Dipole	-	416436.89	4074439.72	-75.93685377	36.81212548
MAG_0244	F-09	4.21	0.45	4.03	4.30	Dipole	-	416448.79	4074406.00	-75.93671667	36.81182259
MAG_0247	F-09	2.83	1.59	4.90	4.60	Dipole	-	416454.00	4074443.03	-75.93666233	36.81215683
MAG_0251	F-09	2.56	0.00	3.11	1.89	Dipole	-	416484.67	4074443.39	-75.93631856	36.81216278
MAG_0255	F-09	2.18	-21.02	10.38	2.95	Monopole	-	416502.40	4074391.15	-75.93611408	36.81169348
MAG_0257	F-09	2.65	-10.41	10.92	3.14	Monopole	-	416513.14	4074446.09	-75.93599971	36.81218963
MAG_0276	F-09	2.01	-10.85	6.90	2.05	Dipole	-	416595.49	4074399.13	-75.93507142	36.81177362
MAG_0282	F-09	2.07	0.01	2.84	1.70	Dipole	-	416626.59	4074403.78	-75.93472331	36.81181827
MAG_0583	F-04rev	4.22	1.46	3.62	3.24	Dipole	-	418956.25	4074692.57	-75.90863865	36.81462372
MAG_0770	X-03	3.85	-4.80	15.07	8.36	Monopole	-	419980.73	4074584.30	-75.8971424	36.81373502
MAG_0819	E-16/F-01	4.23	-6.03	21.38	6.02	Monopole	-	420195.29	4074788.68	-75.89475855	36.81559534
MAG_0822	E-16/F-01	4.30	-0.59	5.09	4.87	Dipole	-	420205.82	4074815.29	-75.8946433	36.81583608
MAG_0827	E-16/F-01	4.75	-25.54	22.59	4.79	Monopole	-	420221.46	4074713.89	-75.89445733	36.81492342
MAG_0837	E-16/F-01	4.23	0.00	2.38	1.21	Dipole	-	420245.62	4074720.04	-75.89418713	36.81498089
MAG_0843	E-16/F-01	4.03	-7.28	11.92	4.63	Monopole	-	420268.67	4074703.91	-75.89392704	36.81483745
MAG_0852	E-16/F-01	3.66	1.54	3.40	5.89	Complex	-	420287.35	4074711.96	-75.89371847	36.81491158
MAG_0863	E-16/F-01	3.57	0.01	3.35	1.23	Dipole	-	420305.24	4074709.73	-75.89351768	36.81489299

Mag ID	Associated Geotechnical Location	Sensor Altitude (m)	Amplitude (nT)	Duration (m)	Depth (m)	Signature Characteristics	Associated SSS Contact	Easting (X)[1]	Northing (Y)[1]	Longitude[2]	Latitude[2]
MAG_0875	E-16/F-01	3.76	6.32	2.28	2.58	Monopole	-	420324.12	4074791.28	-75.89331457	36.81562964
MAG_0877	E-16/F-01	3.22	-10.70	12.50	2.54	Monopole	-	420324.68	4074705.46	-75.8932993	36.81485614
MAG_0881	E-16/F-01	3.47	-8.42	22.41	4.16	Monopole	-	420329.39	4074784.12	-75.89325474	36.81556554
MAG_0895	E-16/F-01	3.98	0.43	1.87	3.98	Dipole	-	420349.37	4074772.29	-75.89302951	36.81546059
MAG_0900	E-16/F-01	3.45	0.01	4.55	2.24	Dipole	-	420357.31	4074785.85	-75.89294192	36.81558349
MAG_0917	E-16/F-01	3.71	-2.64	7.96	4.40	Dipole	-	420374.96	4074767.60	-75.89274214	36.81542047
MAG_1078	X-04	4.21	-12.63	55.29	17.05	Monopole	-	420967.95	4075118.04	-75.88613079	36.81862894
MAG_1088	X-05	4.18	0.00	3.05	-1.61	Dipole	-	421010.07	4074891.35	-75.88563504	36.81658915
MAG_1095	X-05	3.41	35.34	2.32	2.50	Monopole	-	421047.03	4074827.99	-75.88521411	36.81602114
MAG_1100	X-05	4.41	2.61	2.80	6.00	Dipole	-	421105.13	4074847.46	-75.88456479	36.81620148
MAG_1125	X-06rev	4.57	-5.80	25.73	4.99	Monopole	-	421266.59	4074998.40	-75.88277033	36.81757545
MAG_1128	X-06rev	3.65	3.27	2.03	3.68	Dipole	-	421282.31	4074994.84	-75.88259373	36.81754467
MAG_1133	X-06rev	4.54	4.90	2.43	3.68	Monopole	-	421308.89	4074958.94	-75.88229203	36.81722329
MAG_1154	X-06rev	4.04	11.99	2.74	3.53	Monopole	-	421429.53	4075018.32	-75.88094568	36.81776855
MAG_1181	X-08rev	4.27	-5.34	43.27	5.01	Monopole	-	421624.52	4074980.27	-75.87875574	36.81744175
MAG_1186	X-08rev	3.90	-6.32	12.10	4.88	Monopole	-	421659.65	4075005.14	-75.87836446	36.81766883
MAG_1188	X-08rev	3.66	10.52	2.25	3.00	Monopole	-	421672.08	4075001.50	-75.87822473	36.81763705
MAG_1192	X-07rev	4.07	-24.91	3.04	3.25	Dipole	-	421698.84	4074869.33	-75.87791112	36.81644793
MAG_1194	X-08rev	3.73	0.23	2.04	4.55	Dipole	-	421710.42	4074929.85	-75.87778753	36.8169944
MAG_1362	E-08	3.88	7.95	2.93	3.64	Dipole	SSS_E_030	424186.43	4073932.28	-75.84992981	36.80820425

[1] Projected coordinates are referenced to UTM Zone 18N, NAD83 (2011), meters.
[2] Geographical coordinates are referenced to NAD83.

APPENDIX 1
ARCHAEOLOGICAL RESOURCES MAPS FOR BLOCK E AND F CORRIDORS



N
W E
S
GRID NORTH

WMS: NOAA OCS, ESRI, DELORME, ESRI, DELORME, NATURALVUE

MSR: 1:30,000

SRS: NAD 1983 2011 UTM ZONE 18N METER

0 0.25 0.5 0.75 1 MILES

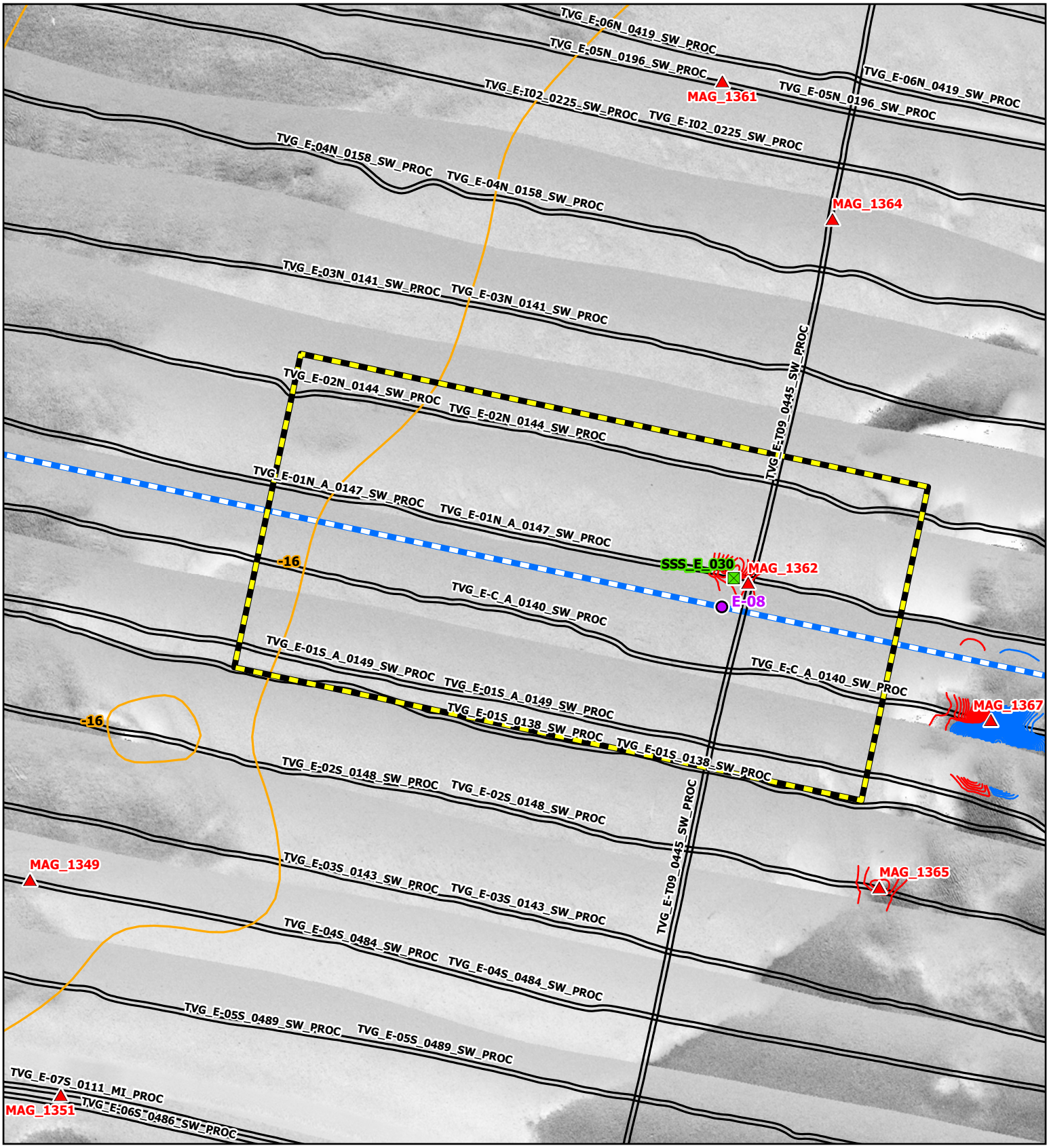
0 0.5 1 1.5 2 KILOMETERS

- GEOTECHNICAL LOCATION
- ECR CENTERLINE
- DAM NECK OCEAN DISPOSAL SITE
- BOEM LEASE BLOCK
- MAP SHEET EXTENT

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Index Map

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
WWW.RCGOODWIN.COM | KMAY, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

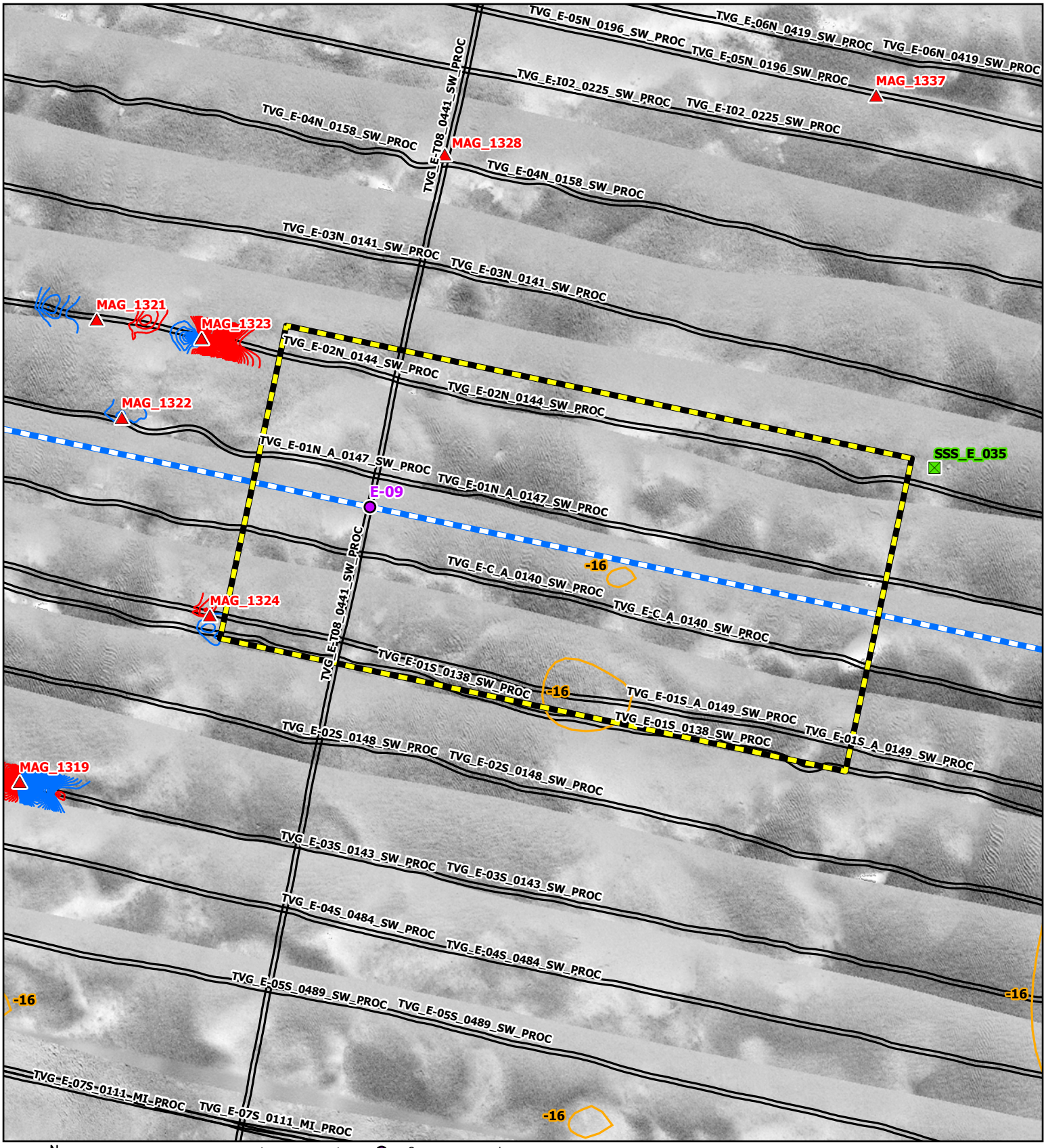
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
ECR Centerline
Bathymetric Contour (1 m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf,
Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 1

E-08

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- ECR Centerline
- Bathymetric Contour (1 m interval)
- Trackline

Magnetic Contour (5 nT)

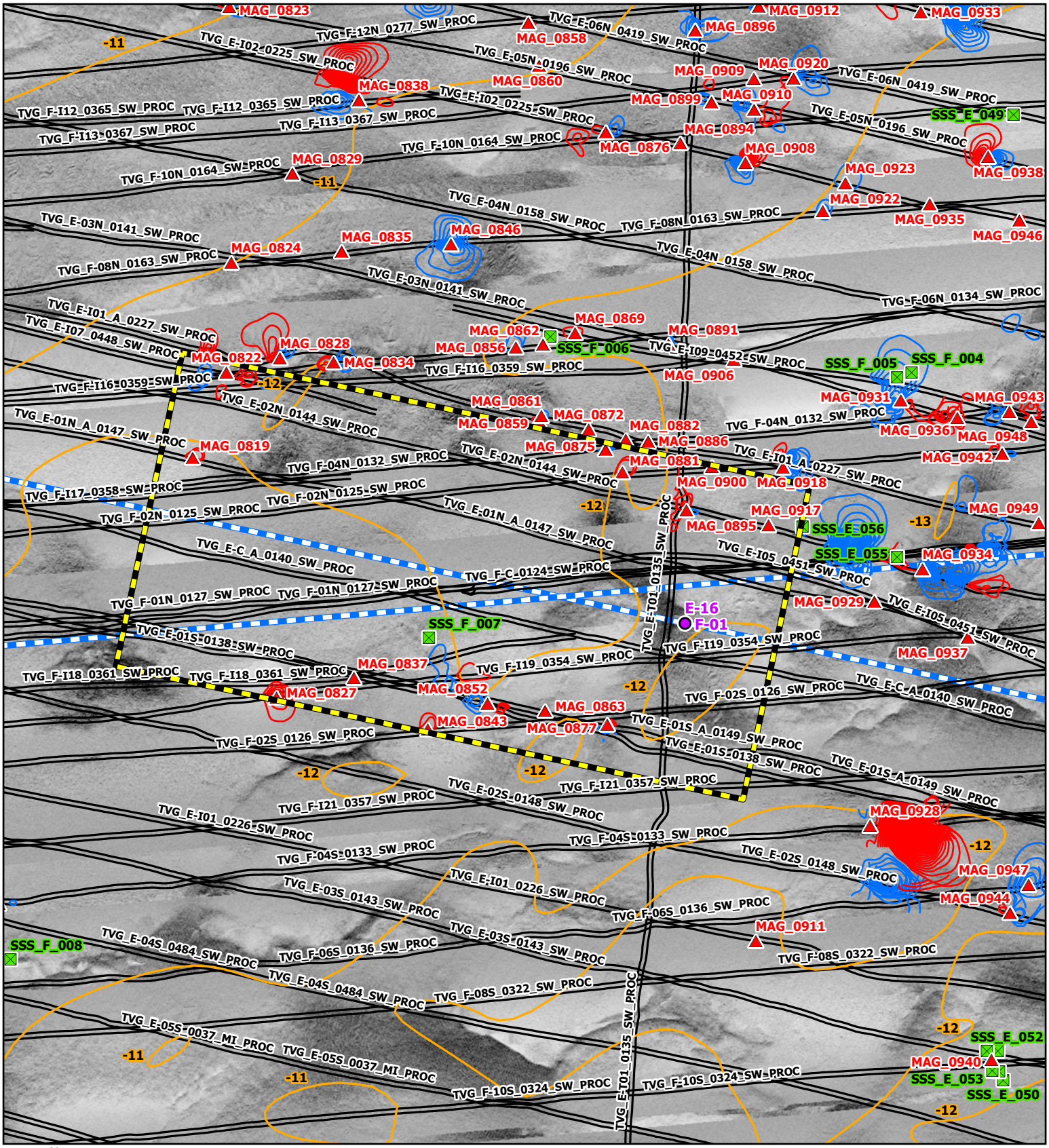
- Negative
- Positive
- Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 2

E-09

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

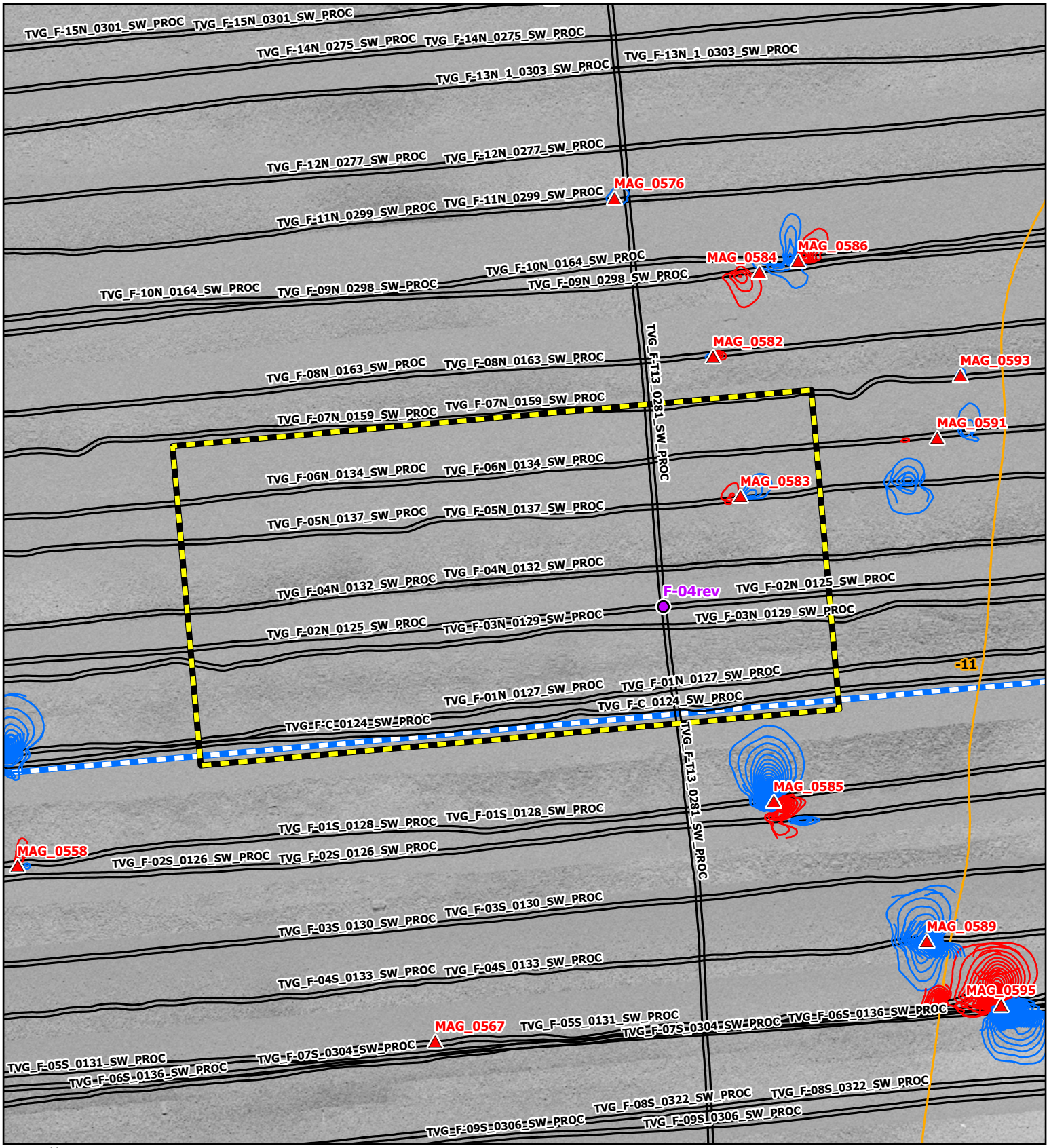
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
ECR Centerline
Bathymetric Contour (1 m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 3

E-16/F-01

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- ECR Centerline
- Bathymetric Contour (1 m interval)
- Trackline

Magnetic Contour (5 nT)

- Negative
- Positive
- Analytical Area

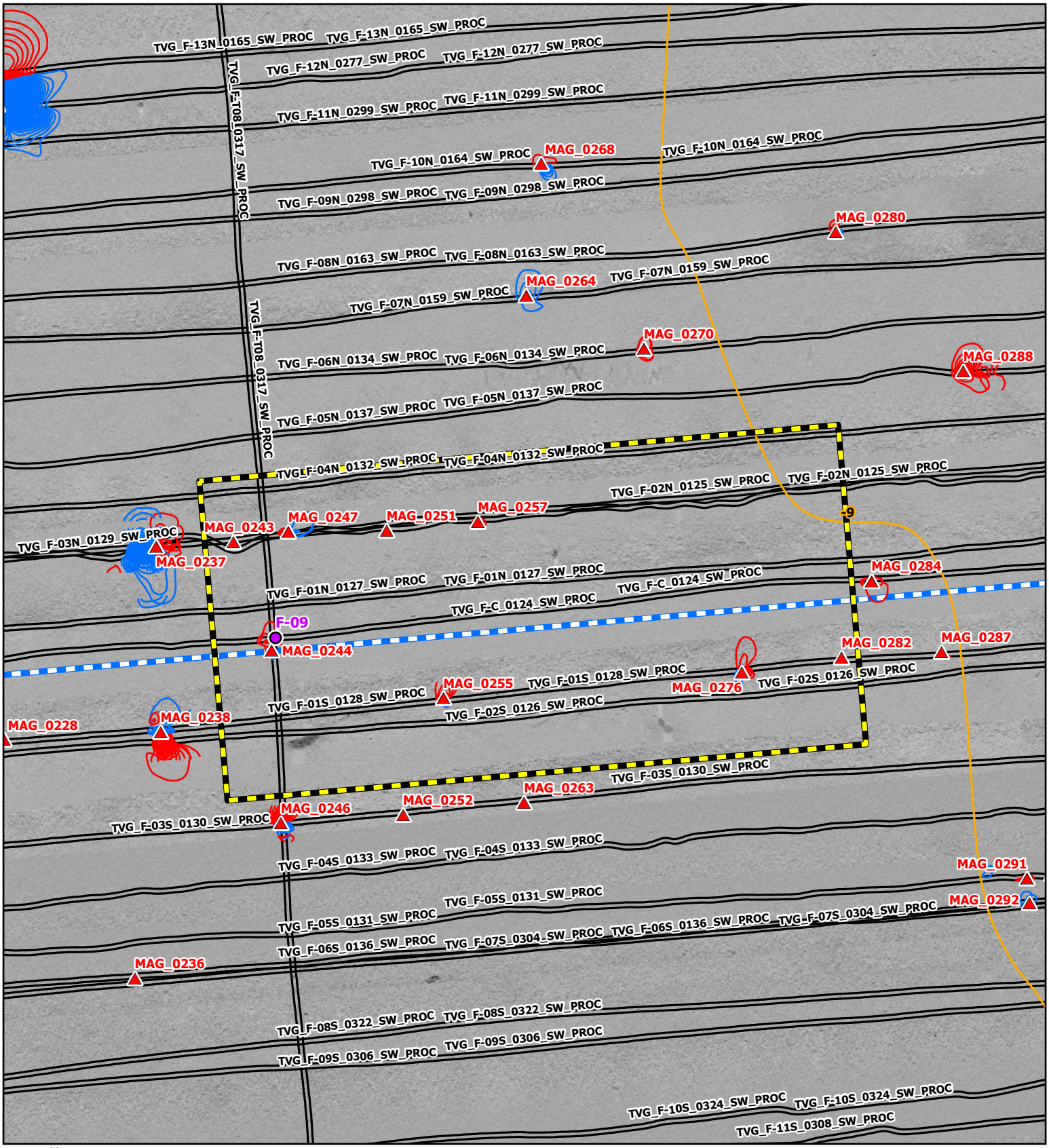
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 4

F-04rev

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN

www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- ECR Centerline
- Bathymetric Contour (1 m interval)
- Trackline

Magnetic Contour (5 nT)

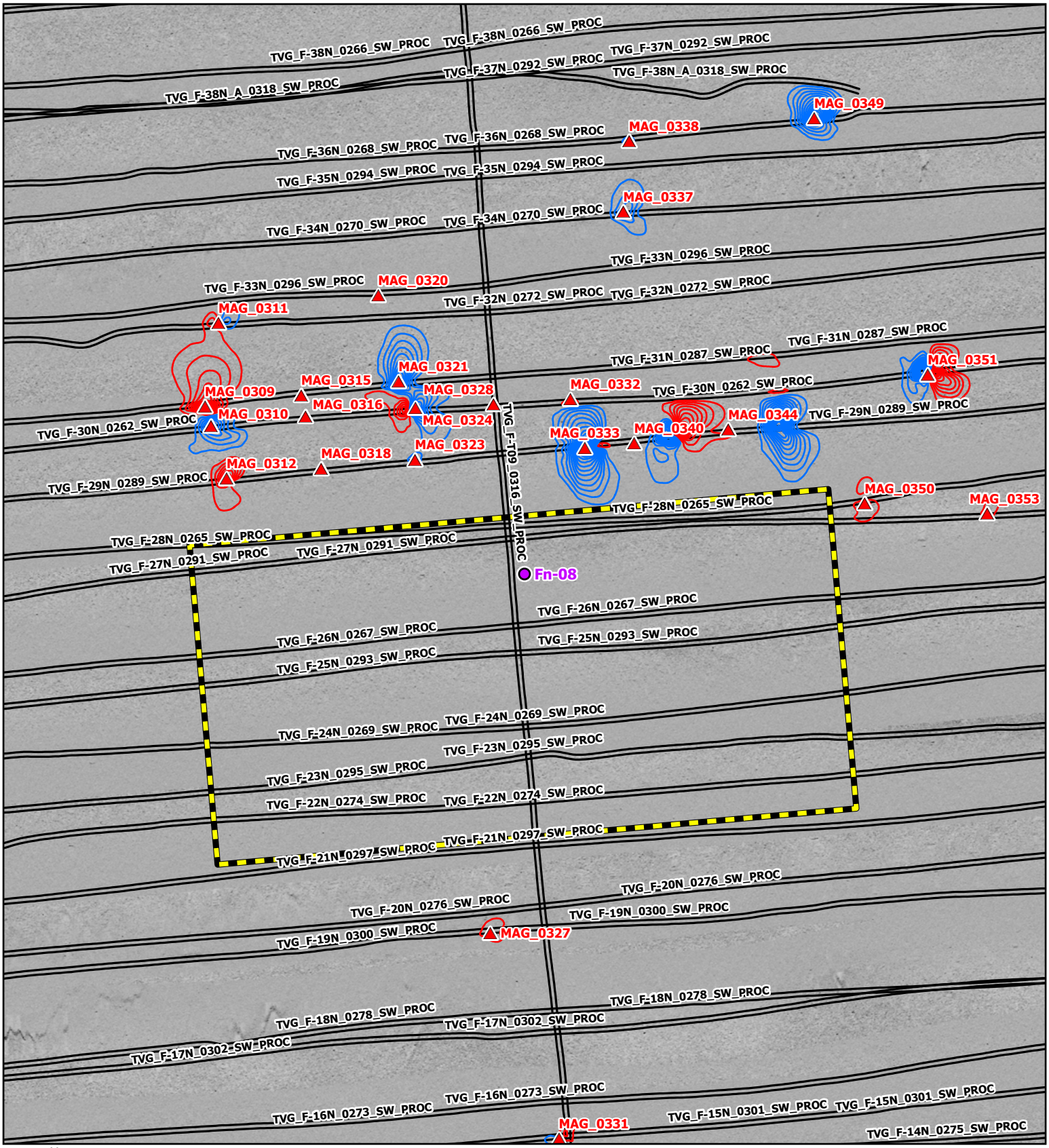
- Negative
- Positive
- Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 5

F-09

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- ECR Centerline
- Bathymetric Contour (1 m interval)
- Trackline

Magnetic Contour (5 nT)

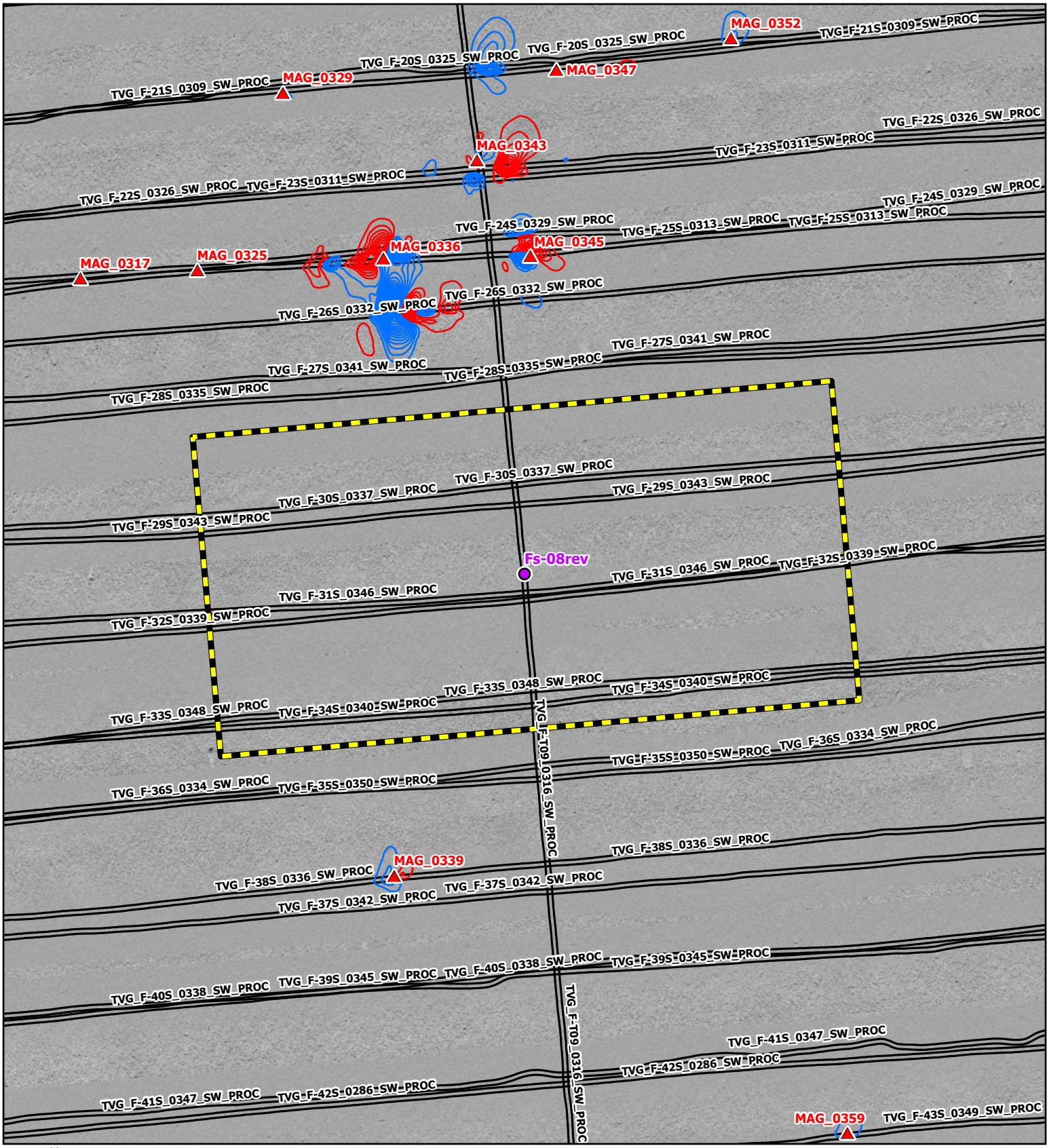
- Negative
- Positive
- Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 6

Fn-08

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- ECR Centerline
- Bathymetric Contour (1 m interval)
- Trackline

Magnetic Contour (5 nT)

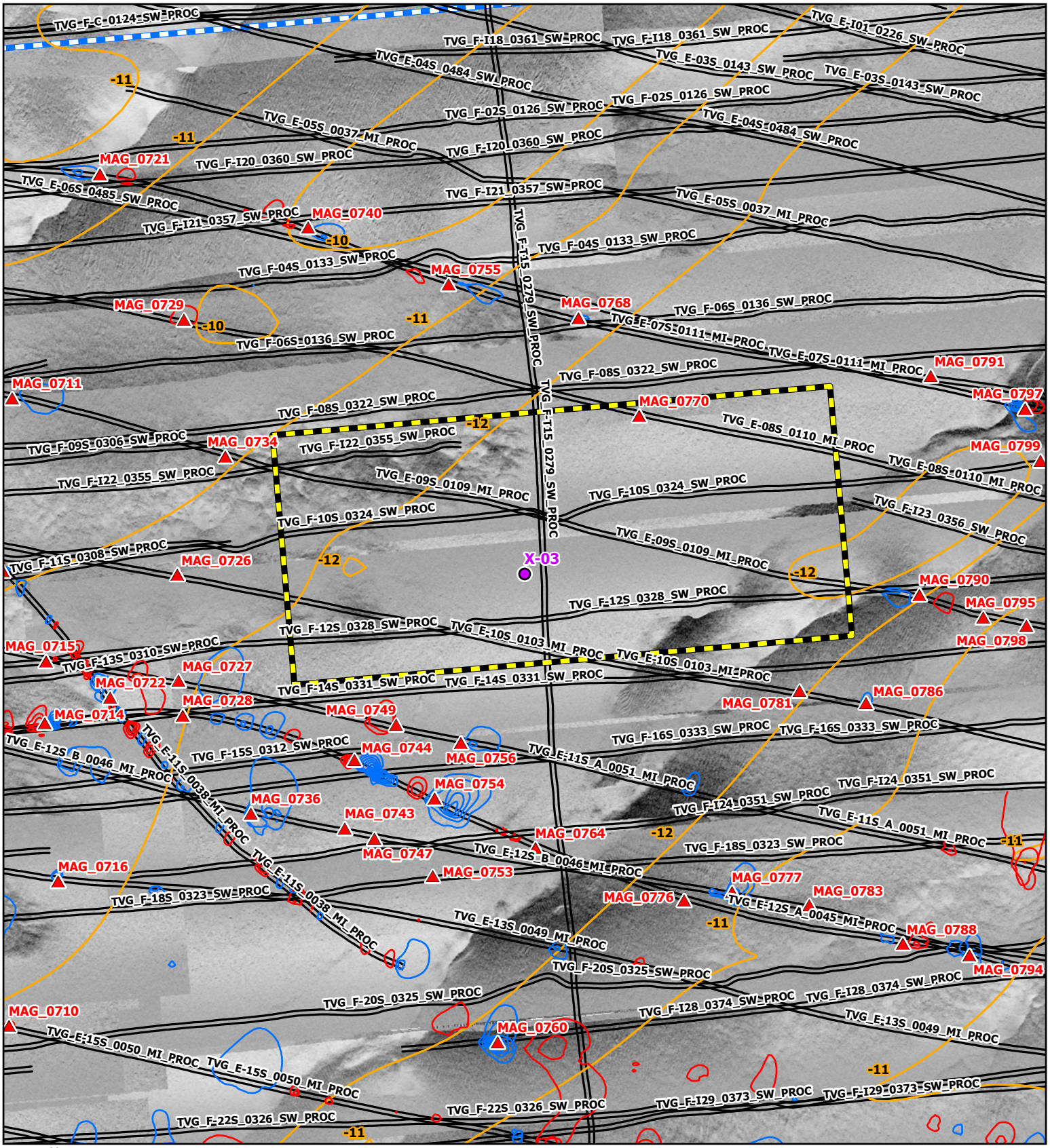
- Negative
- Positive
- Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 7

Fs-08rev

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

- Geotechnical Location
- Magnetic Anomaly
- Side Scan Sonar Contact
- ECR Centerline
- Bathymetric Contour (1 m interval)
- Trackline

Magnetic Contour (5 nT)

- Negative
- Positive
- Analytical Area

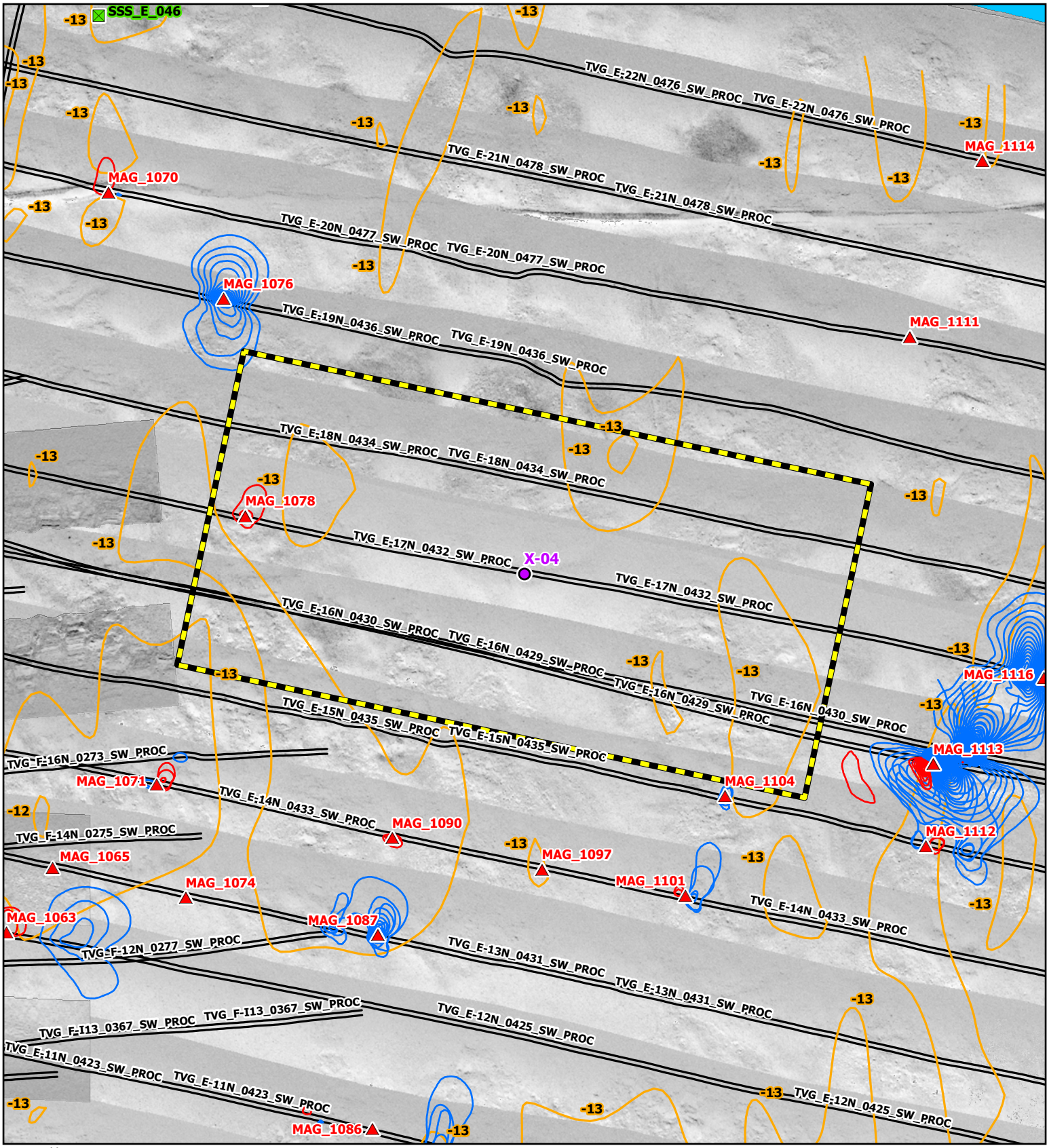
Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)

Geotechnical Clearance: Blocks E and F

Map: 8

X-03

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM Zone 18N Meter
0 25 50 75 100
Feet
0 10 20 30 40
Meters

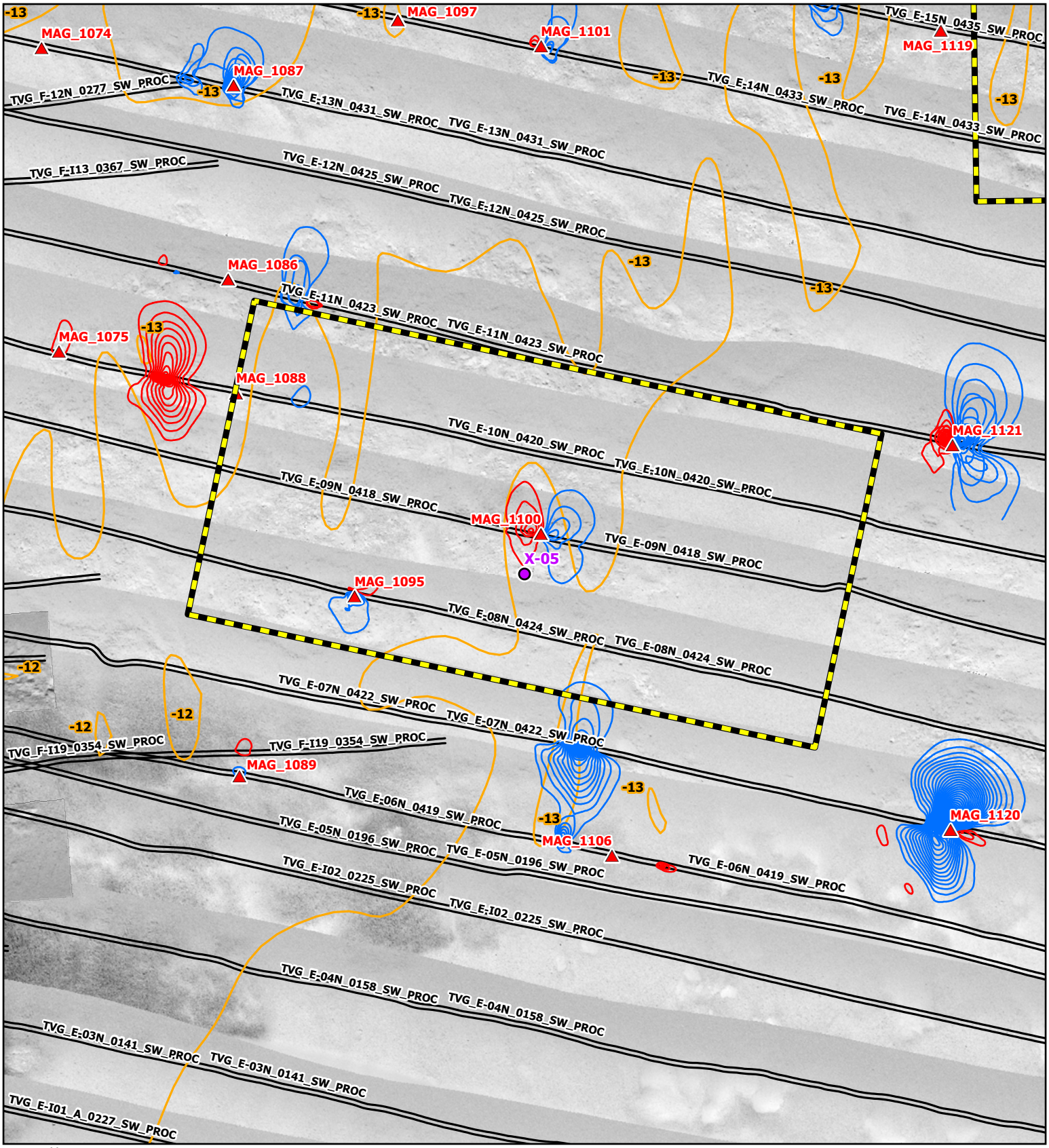
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
ECR Centerline
Bathymetric Contour (1 m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 9

X-04

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet
0 10 20 30 40
Meters

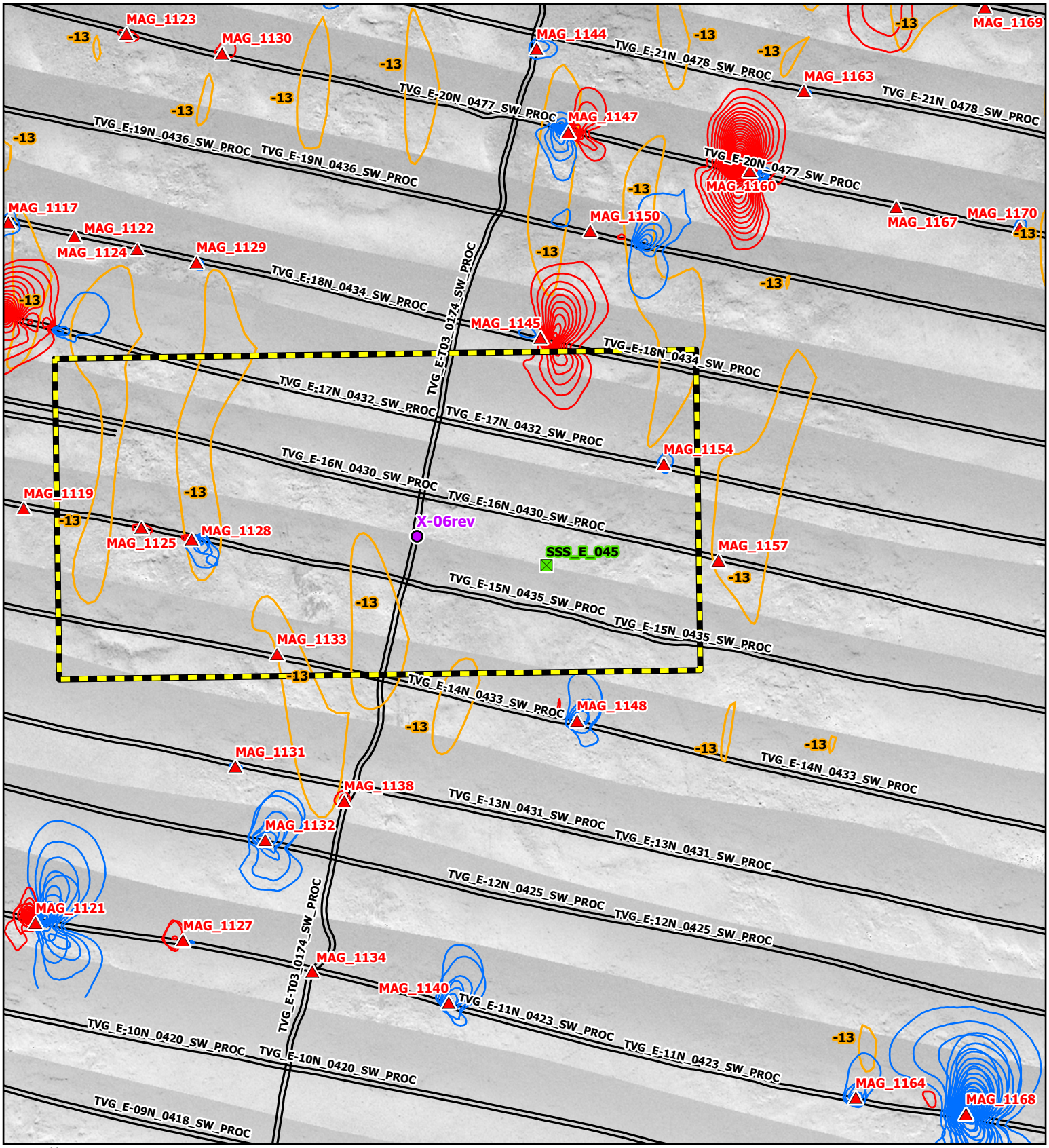
Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
ECR Centerline
Bathymetric Contour (1 m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 10

X-05

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)

MSR: 1:1,600

SRS: NAD 1983 2011 UTM Zone 18N Meter

0 25 50 75 100
Feet

0 10 20 30 40
Meters

Geotechnical Location

Magnetic Anomaly

Side Scan Sonar Contact

ECR Centerline

Bathymetric Contour (1 m interval)

Trackline

Magnetic Contour (5 nT)

Negative

Positive

Analytical Area

Coastal Virginia Offshore Wind Commercial Project

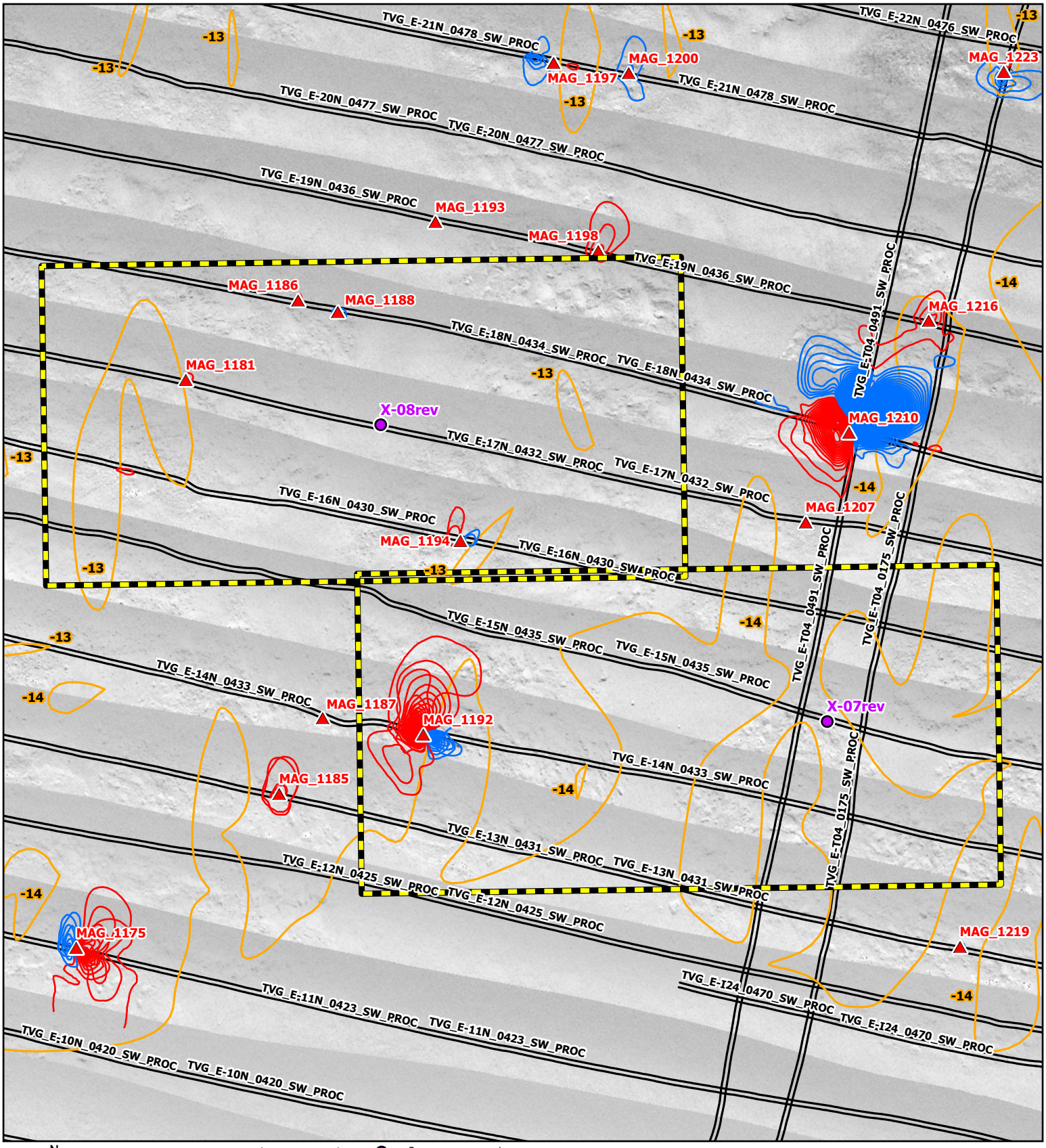
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)

Geotechnical Clearance: Blocks E and F

Map: 11

X-06rev

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021



N
W E
S
Grid North

Side Scan Sonar Mosaic (2020, 0.25 m)
MSR: 1:1,600
SRS: NAD 1983 2011 UTM Zone 18N Meter
0 25 50 75 100
Feet
0 10 20 30 40
Meters

Geotechnical Location
Magnetic Anomaly
Side Scan Sonar Contact
ECR Centerline
Bathymetric Contour (1 m interval)
Trackline
Magnetic Contour (5 nT)
Negative
Positive
Analytical Area

Coastal Virginia Offshore Wind Commercial Project
Outer Continental Shelf, Offshore Virginia (Lease No. OCS-A-0483)
Geotechnical Clearance: Blocks E and F

Map: 12

X-07rev, X-08rev

R. Christopher Goodwin & Associates, Inc.
NAUTICAL DIVISION
MARINE ARCHAEOLOGY FROM STEM TO STERN
www.rcgoodwin.com | kmay, 3.31.2021

APPENDIX 2
SEISMIC PROFILES

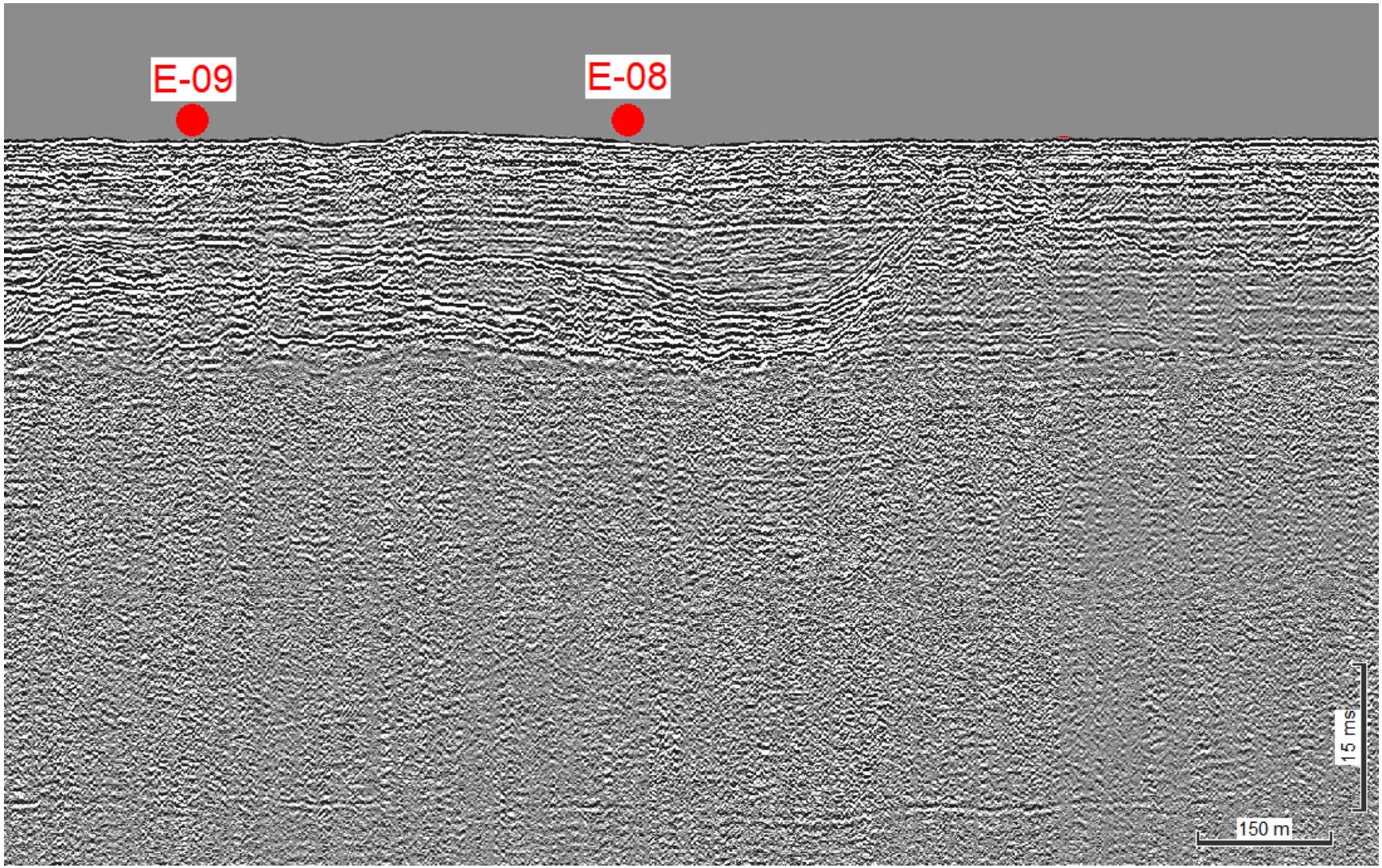


Figure 1: Proposed geotechnical locations E-09 and E-08 in ECR Corridor E along seismic line UHRS_140_E-C_A_Proc

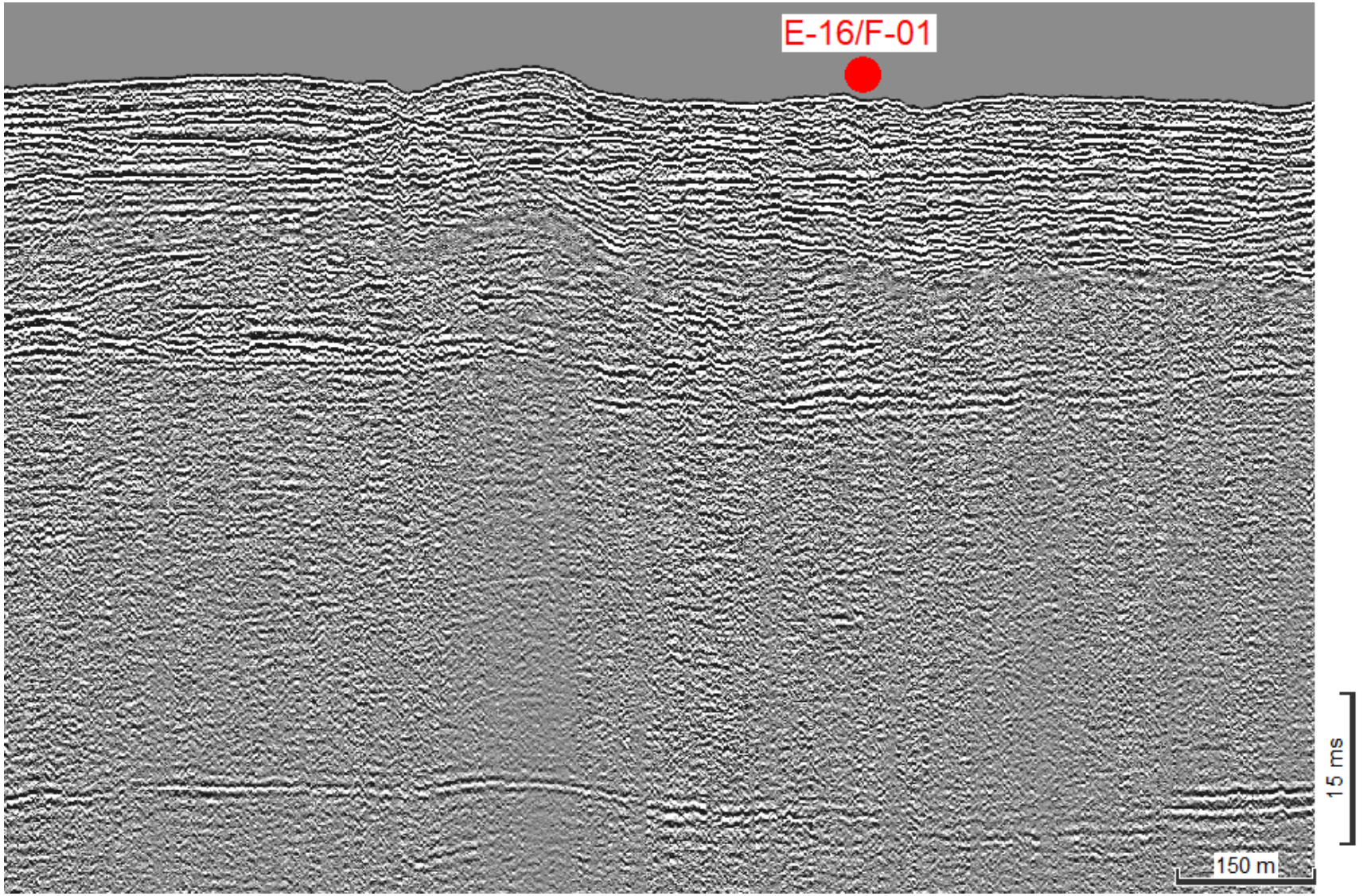


Figure 2: Proposed geotechnical locations E-16/F01 in ECR Corridor E along seismic line UHRS_124_F-C_Proc

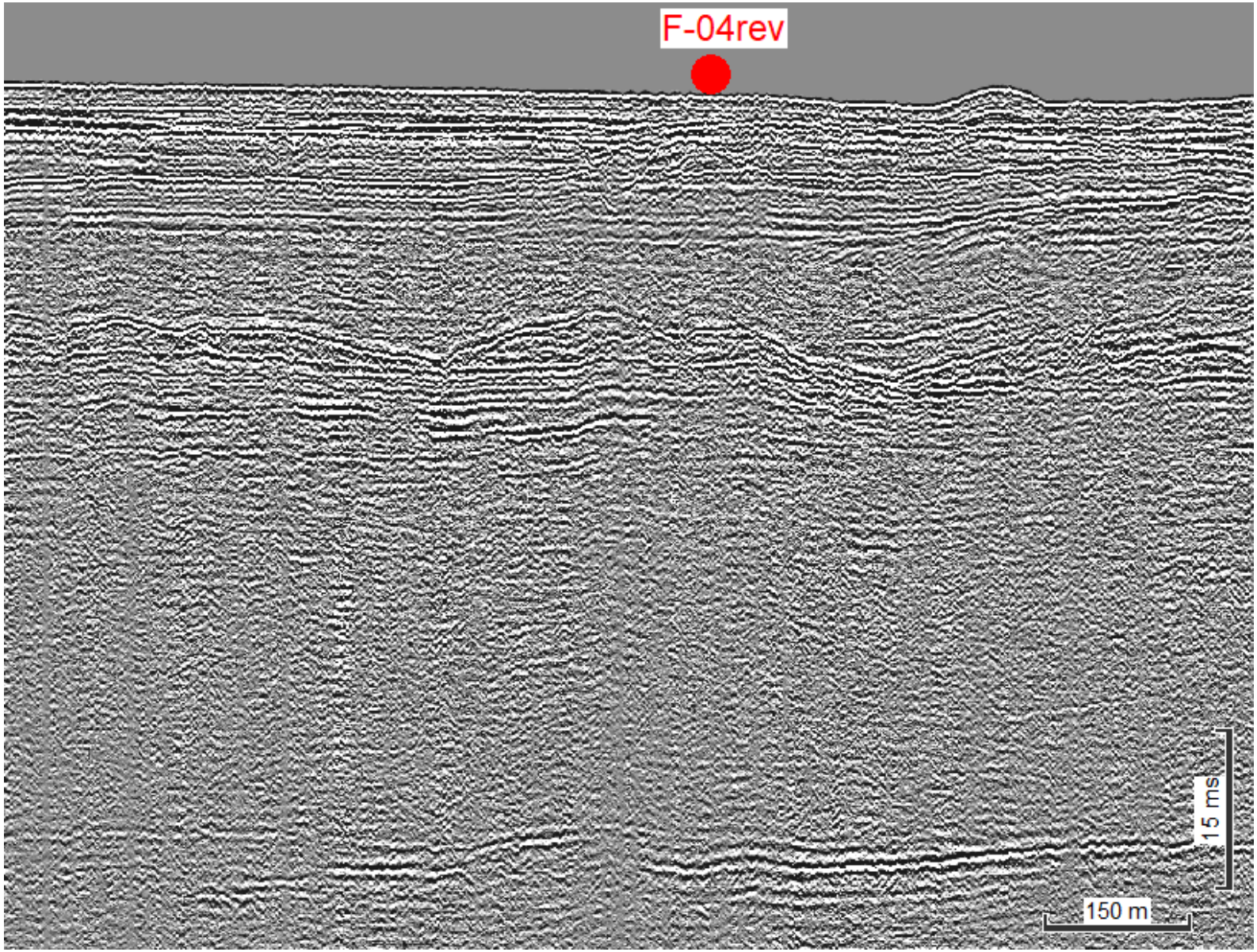


Figure 3:Proposed geotechnical locations F-04rev in ECR Corridor E along seismic line UHRS_124_F-C_Proc

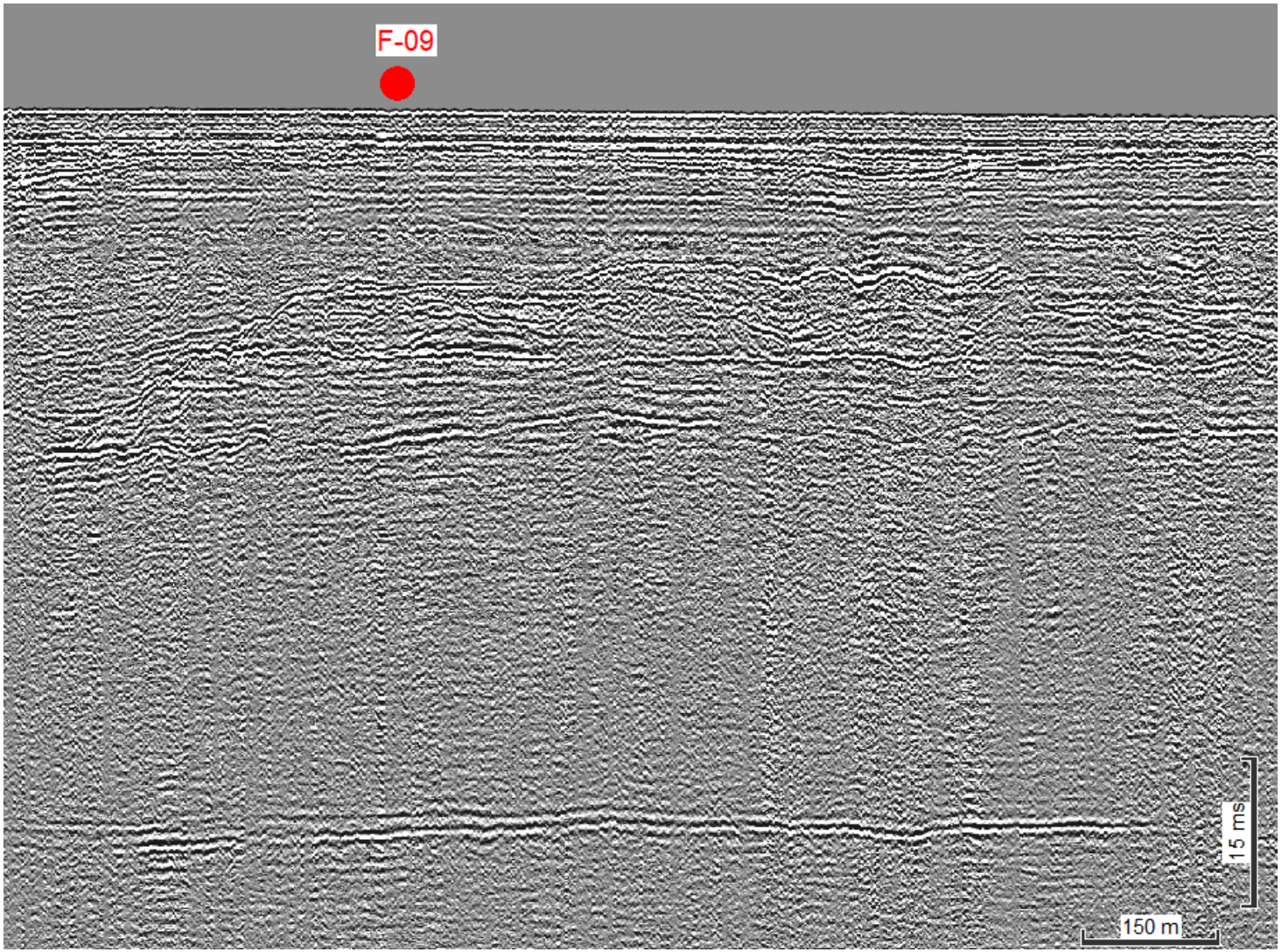


Figure 4: Proposed geotechnical locations F-09 in ECR Corridor E along seismic line UHRS_124_F-C_Proc

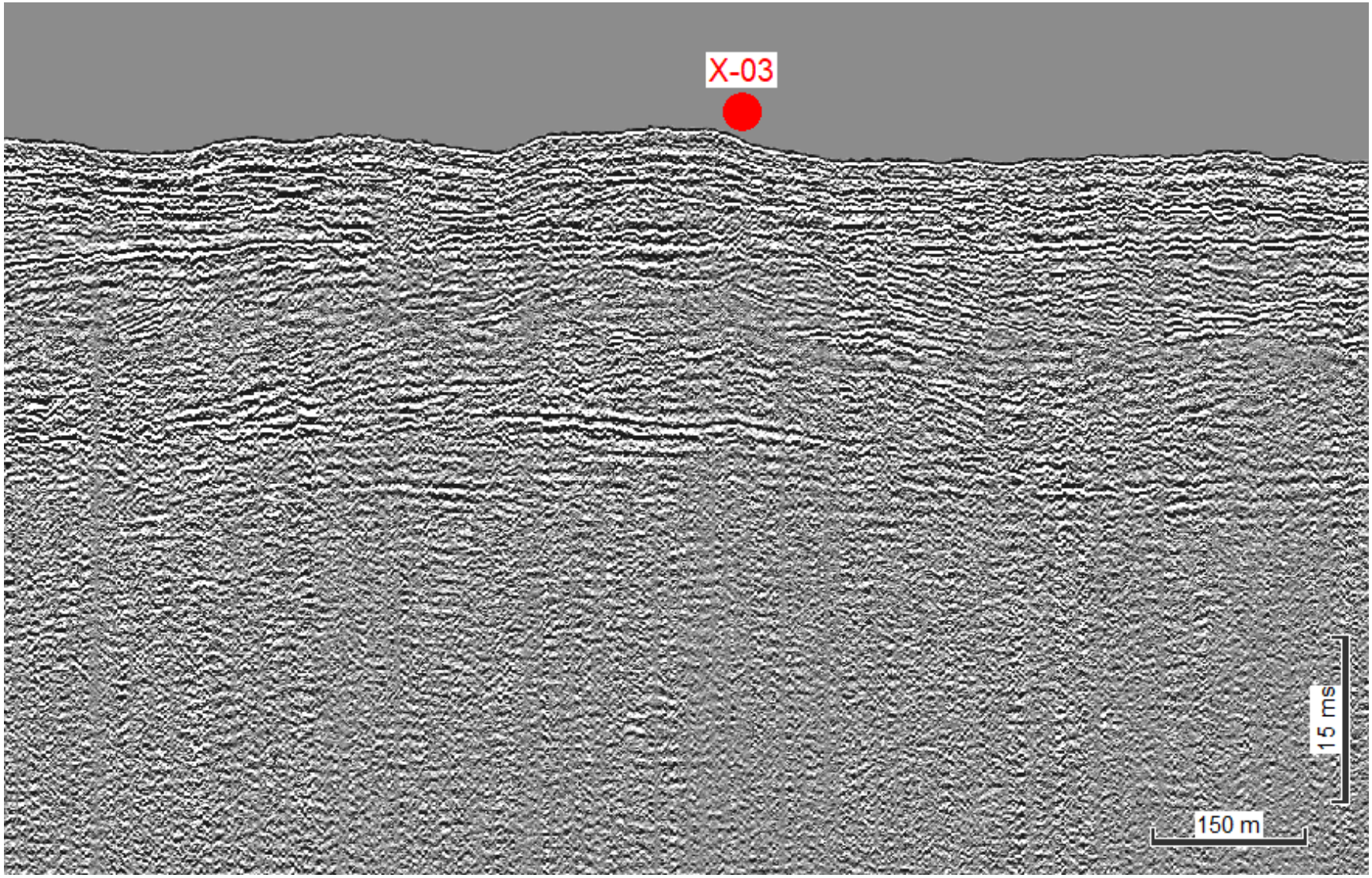


Figure 5: Proposed geotechnical locations X-03 in ECR Corridor E along seismic line UHRS_136_F-6S_Proc

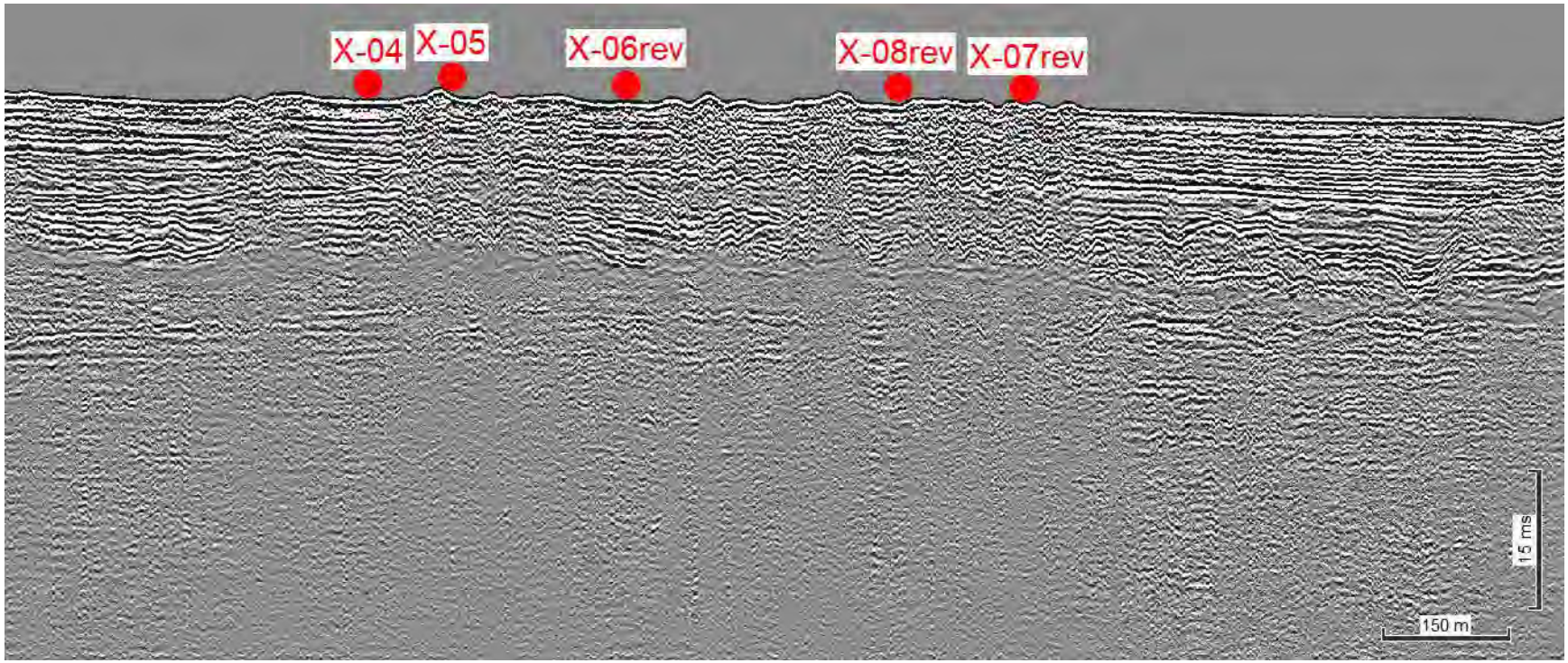


Figure 6: Proposed geotechnical locations X-04, X-05, X-06rev, X-07rev, and X-08rev in the ECR along seismic line UHRS_E-17N_SW_432_Proc_MLLW

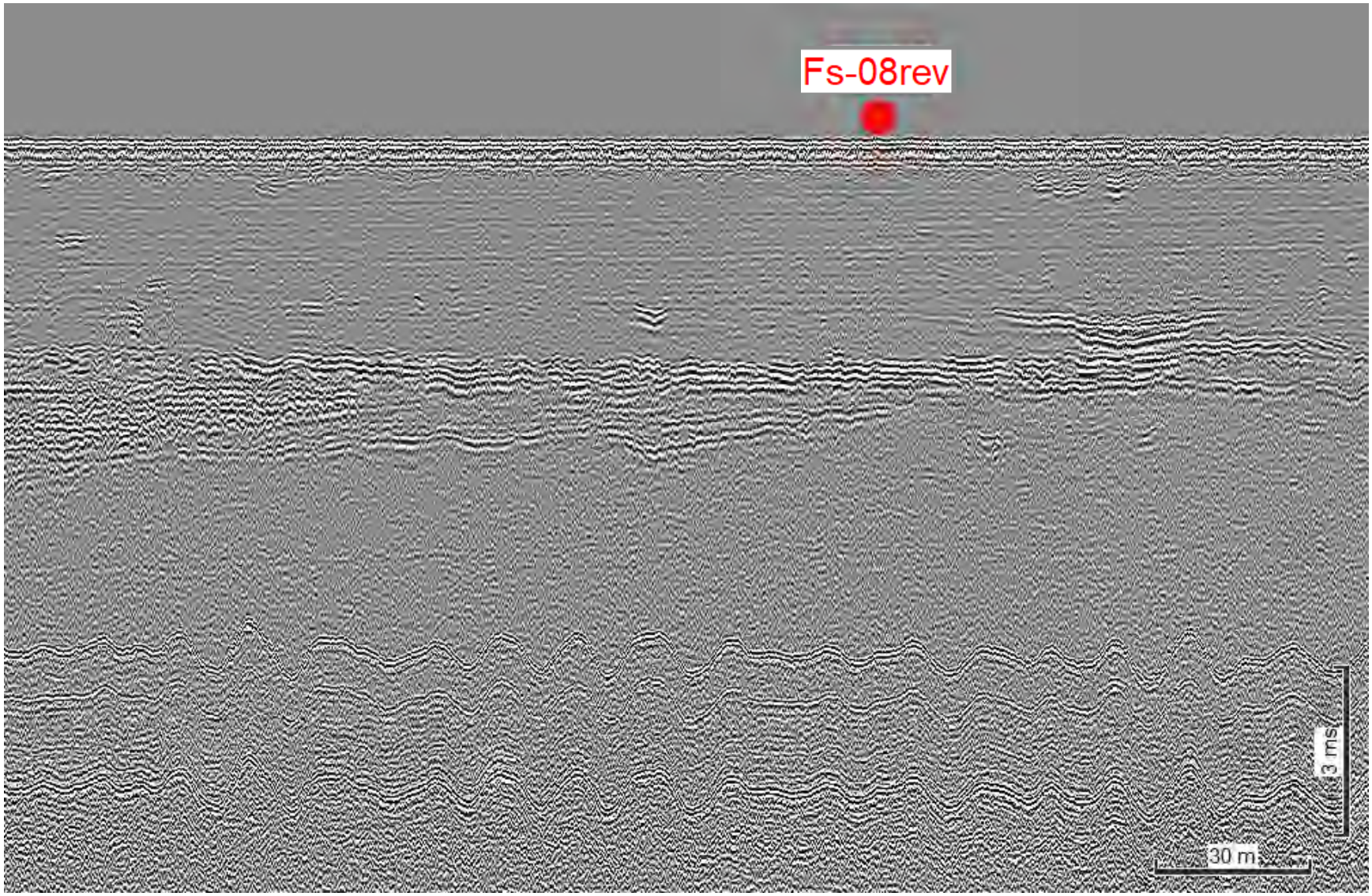


Figure 7: Proposed geotechnical location Fs-08rev in ECR Corridor E along seismic line SPB_F-27S_SW_341_PROC1_MLLW

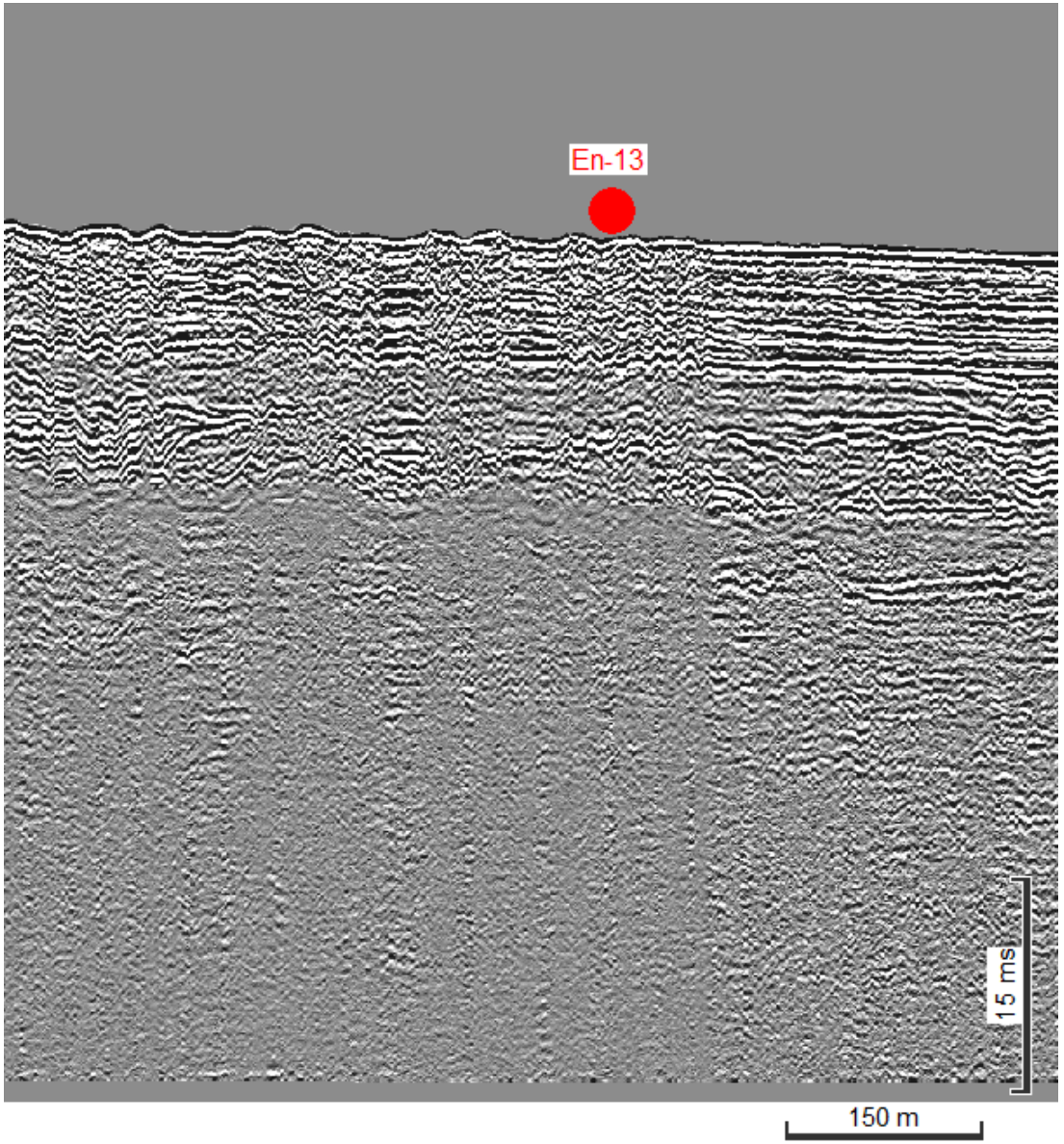


Figure 8: Proposed geotechnical location En13 in ECR Corridor E along seismic line UHRS_E-14N_SW_433_Proc_MLLW