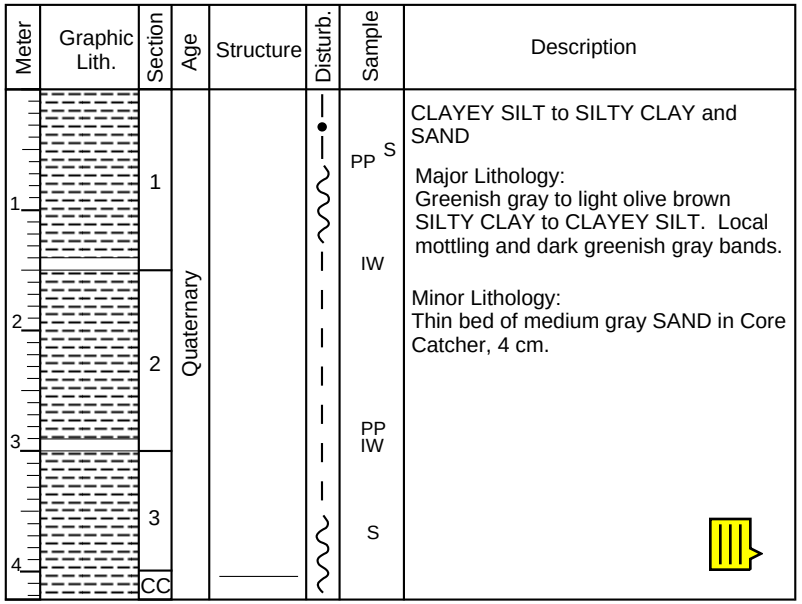
1027A-1H WASH CORE- missed mudline.

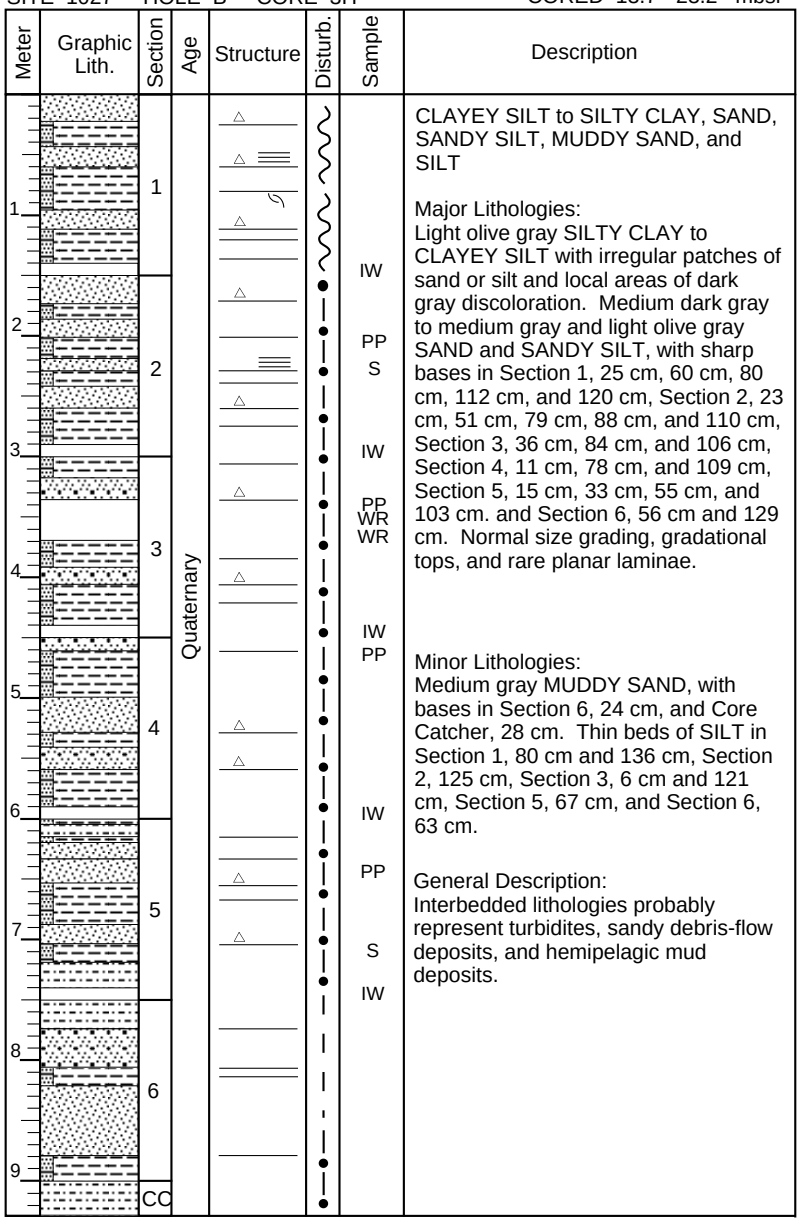
SITE 1027 HOLE B CORE 1H CORED 0.0 - 4.2 mbsf



1027B-2H NO RECOVERY

Previous Chapter Table of Contents Next Chapter

SITE 1027 HOLE B CORE 3H CORED 13.7 - 23.2 mbsf



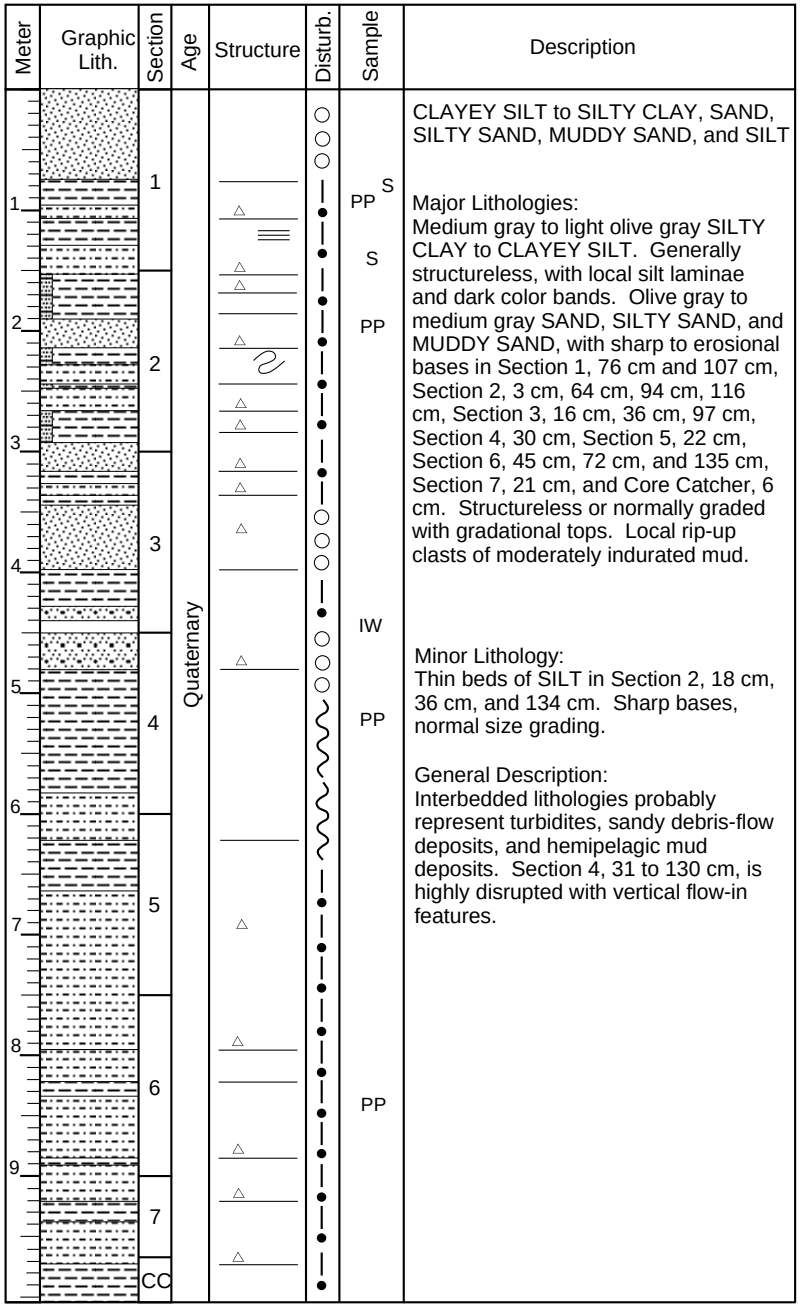
CLAYEY SILT to SILTY CLAY, SAND, SANDY SILT, MUDDY SAND, and SILT

Major Lithologies:
Light olive gray SILTY CLAY to CLAYEY SILT with irregular patches of sand or silt and local areas of dark gray discoloration. Medium dark gray to medium gray and light olive gray SAND and SANDY SILT, with sharp bases in Section 1, 25 cm, 60 cm, 80 cm, 112 cm, and 120 cm, Section 2, 23 cm, 51 cm, 79 cm, 88 cm, and 110 cm, Section 3, 36 cm, 84 cm, and 106 cm, Section 4, 11 cm, 78 cm, and 109 cm, Section 5, 15 cm, 33 cm, 55 cm, and 103 cm. and Section 6, 56 cm and 129 cm. Normal size grading, gradational tops, and rare planar laminae.

Minor Lithologies:
Medium gray MUDDY SAND, with bases in Section 6, 24 cm, and Core Catcher, 28 cm. Thin beds of SILT in Section 1, 80 cm and 136 cm, Section 2, 125 cm, Section 3, 6 cm and 121 cm, Section 5, 67 cm, and Section 6, 63 cm.

General Description:
Interbedded lithologies probably represent turbidites, sandy debris-flow deposits, and hemipelagic mud deposits.

SITE 1027 HOLE B CORE 4H CORED 23.2 - 32.7 mbsf



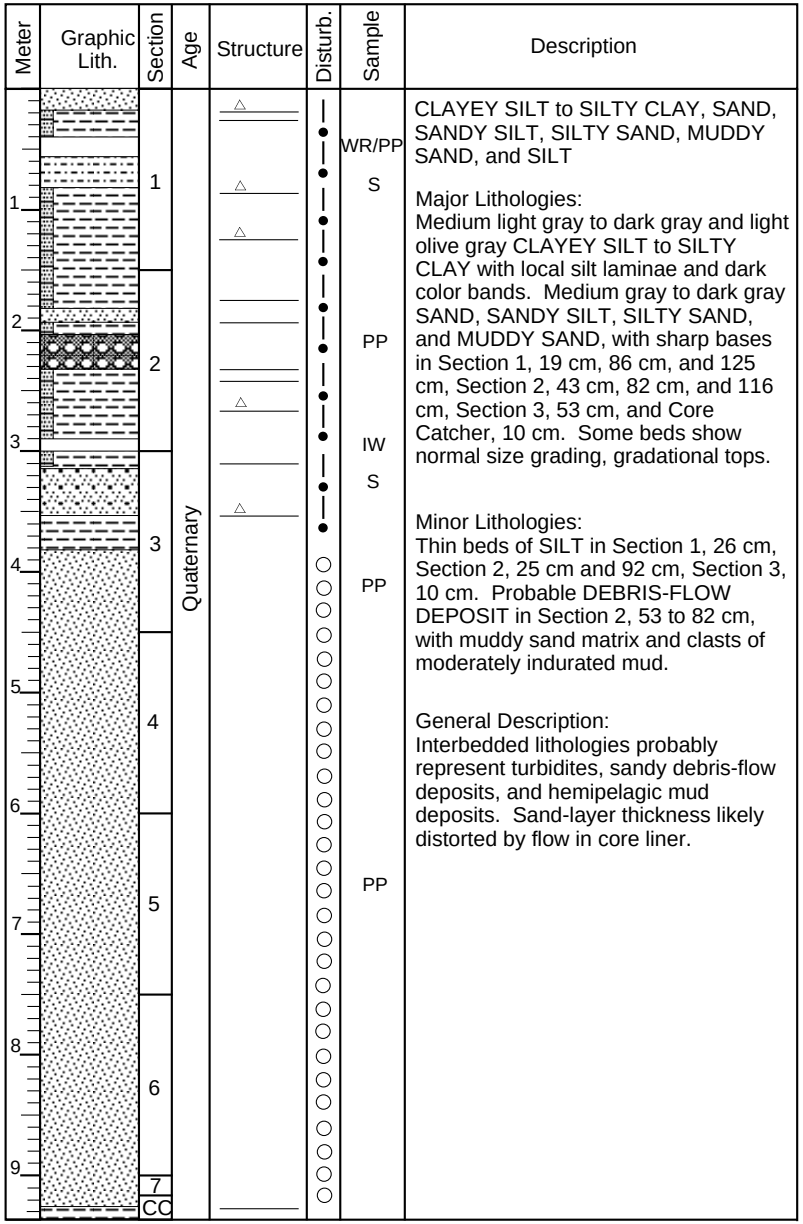
CLAYEY SILT to SILTY CLAY, SAND, SILTY SAND, MUDDY SAND, and SILT

Major Lithologies:
Medium gray to light olive gray SILTY CLAY to CLAYEY SILT. Generally structureless, with local silt laminae and dark color bands. Olive gray to medium gray SAND, SILTY SAND, and MUDDY SAND, with sharp to erosional bases in Section 1, 76 cm and 107 cm, Section 2, 3 cm, 64 cm, 94 cm, 116 cm, Section 3, 16 cm, 36 cm, 97 cm, Section 4, 30 cm, Section 5, 22 cm, Section 6, 45 cm, 72 cm, and 135 cm, Section 7, 21 cm, and Core Catcher, 6 cm. Structureless or normally graded with gradational tops. Local rip-up clasts of moderately indurated mud.

Minor Lithology:
Thin beds of SILT in Section 2, 18 cm, 36 cm, and 134 cm. Sharp bases, normal size grading.

General Description:
Interbedded lithologies probably represent turbidites, sandy debris-flow deposits, and hemipelagic mud deposits. Section 4, 31 to 130 cm, is highly disrupted with vertical flow-in features.

SITE 1027 HOLE B CORE 5H CORED 32.7 - 42.2 mbsf



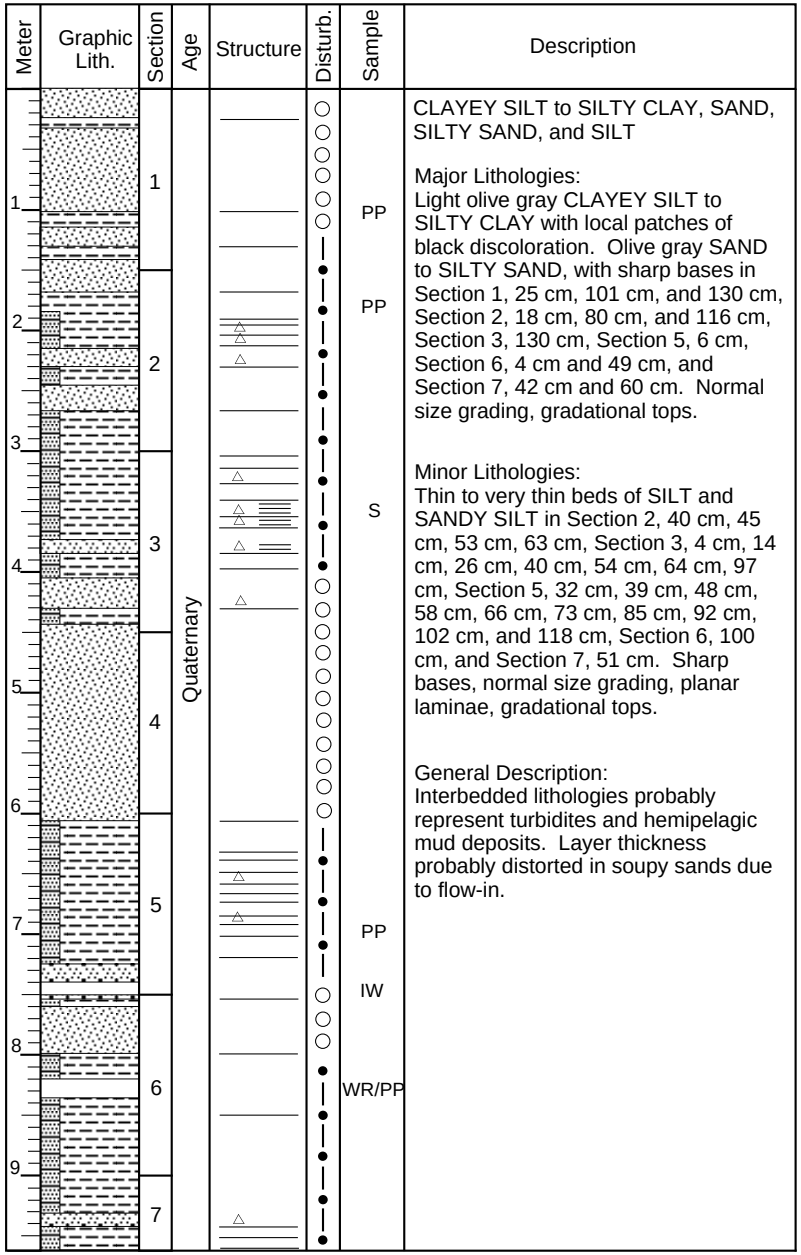
CLAYEY SILT to SILTY CLAY, SAND, SANDY SILT, SILTY SAND, MUDDY SAND, and SILT

Major Lithologies:
Medium light gray to dark gray and light olive gray CLAYEY SILT to SILTY CLAY with local silt laminae and dark color bands. Medium gray to dark gray SAND, SANDY SILT, SILTY SAND, and MUDDY SAND, with sharp bases in Section 1, 19 cm, 86 cm, and 125 cm, Section 2, 43 cm, 82 cm, and 116 cm, Section 3, 53 cm, and Core Catcher, 10 cm. Some beds show normal size grading, gradational tops.

Minor Lithologies:
Thin beds of SILT in Section 1, 26 cm, Section 2, 25 cm and 92 cm, Section 3, 10 cm. Probable DEBRIS-FLOW DEPOSIT in Section 2, 53 to 82 cm, with muddy sand matrix and clasts of moderately indurated mud.

General Description:
Interbedded lithologies probably represent turbidites, sandy debris-flow deposits, and hemipelagic mud deposits. Sand-layer thickness likely distorted by flow in core liner.

SITE 1027 HOLE B CORE 6H CORED 42.2 - 51.7 mbsf



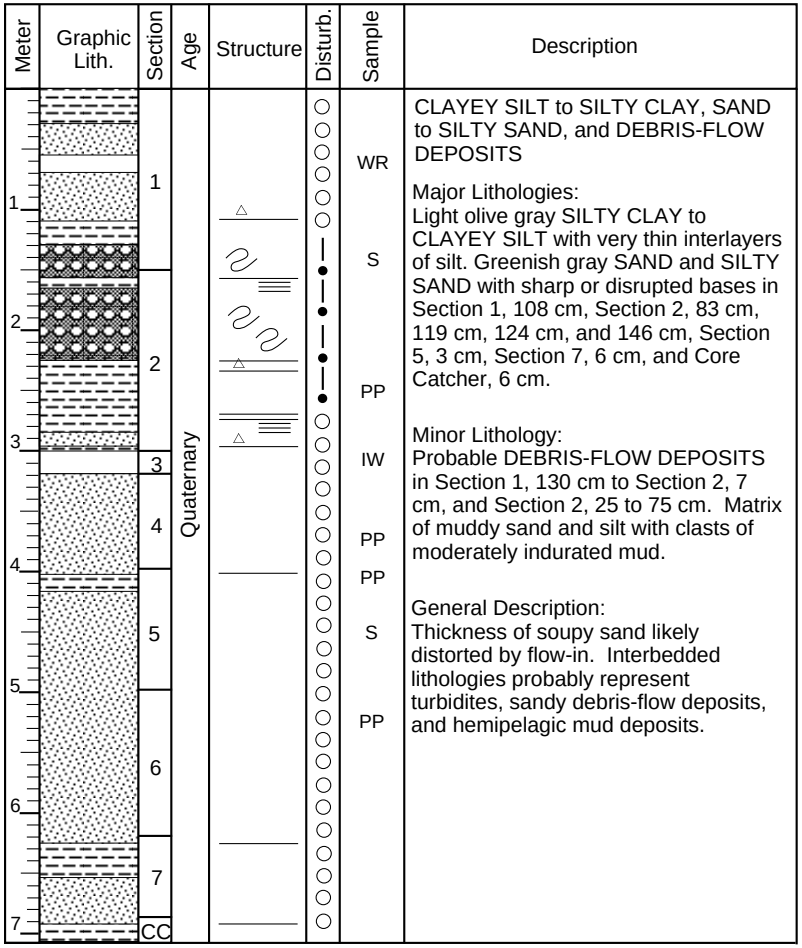
CLAYEY SILT to SILTY CLAY, SAND, SILTY SAND, and SILT

Major Lithologies:
Light olive gray CLAYEY SILT to SILTY CLAY with local patches of black discoloration. Olive gray SAND to SILTY SAND, with sharp bases in Section 1, 25 cm, 101 cm, and 130 cm, Section 2, 18 cm, 80 cm, and 116 cm, Section 3, 130 cm, Section 5, 6 cm, Section 6, 4 cm and 49 cm, and Section 7, 42 cm and 60 cm. Normal size grading, gradational tops.

Minor Lithologies:
Thin to very thin beds of SILT and SANDY SILT in Section 2, 40 cm, 45 cm, 53 cm, 63 cm, Section 3, 4 cm, 14 cm, 26 cm, 40 cm, 54 cm, 64 cm, 97 cm, Section 5, 32 cm, 39 cm, 48 cm, 58 cm, 66 cm, 73 cm, 85 cm, 92 cm, 102 cm, and 118 cm, Section 6, 100 cm, and Section 7, 51 cm. Sharp bases, normal size grading, planar laminae, gradational tops.

General Description:
Interbedded lithologies probably represent turbidites and hemipelagic mud deposits. Layer thickness probably distorted in soupy sands due to flow-in.

SITE 1027 HOLE B CORE 7H CORED 51.7 - 61.2 mbsf



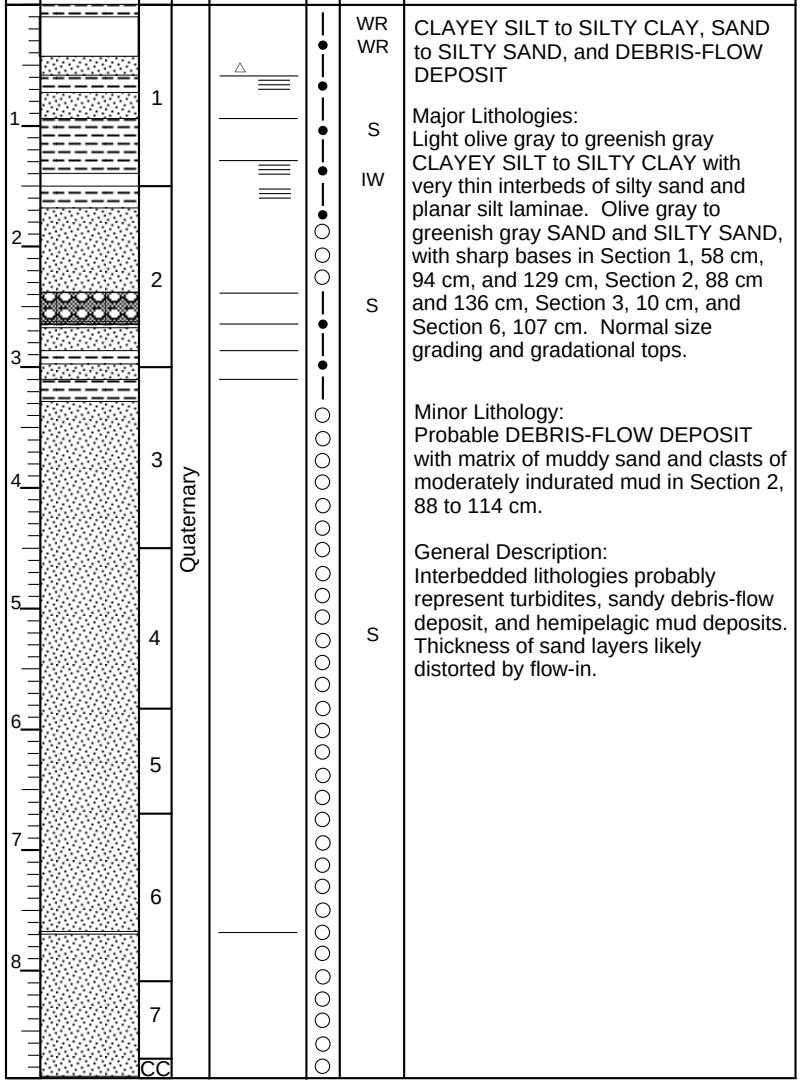
CLAYEY SILT to SILTY CLAY, SAND to SILTY SAND, and DEBRIS-FLOW DEPOSITS

Major Lithologies:
Light olive gray SILTY CLAY to CLAYEY SILT with very thin interlayers of silt. Greenish gray SAND and SILTY SAND with sharp or disrupted bases in Section 1, 108 cm, Section 2, 83 cm, 119 cm, 124 cm, and 146 cm, Section 5, 3 cm, Section 7, 6 cm, and Core Catcher, 6 cm.

Minor Lithology:
Probable DEBRIS-FLOW DEPOSITS in Section 1, 130 cm to Section 2, 7 cm, and Section 2, 25 to 75 cm. Matrix of muddy sand and silt with clasts of moderately indurated mud.

General Description:
Thickness of soupy sand likely distorted by flow-in. Interbedded lithologies probably represent turbidites, sandy debris-flow deposits, and hemipelagic mud deposits.

SITE 1027 HOLE B CORE 8H CORED 61.2 - 70.7 mbsf



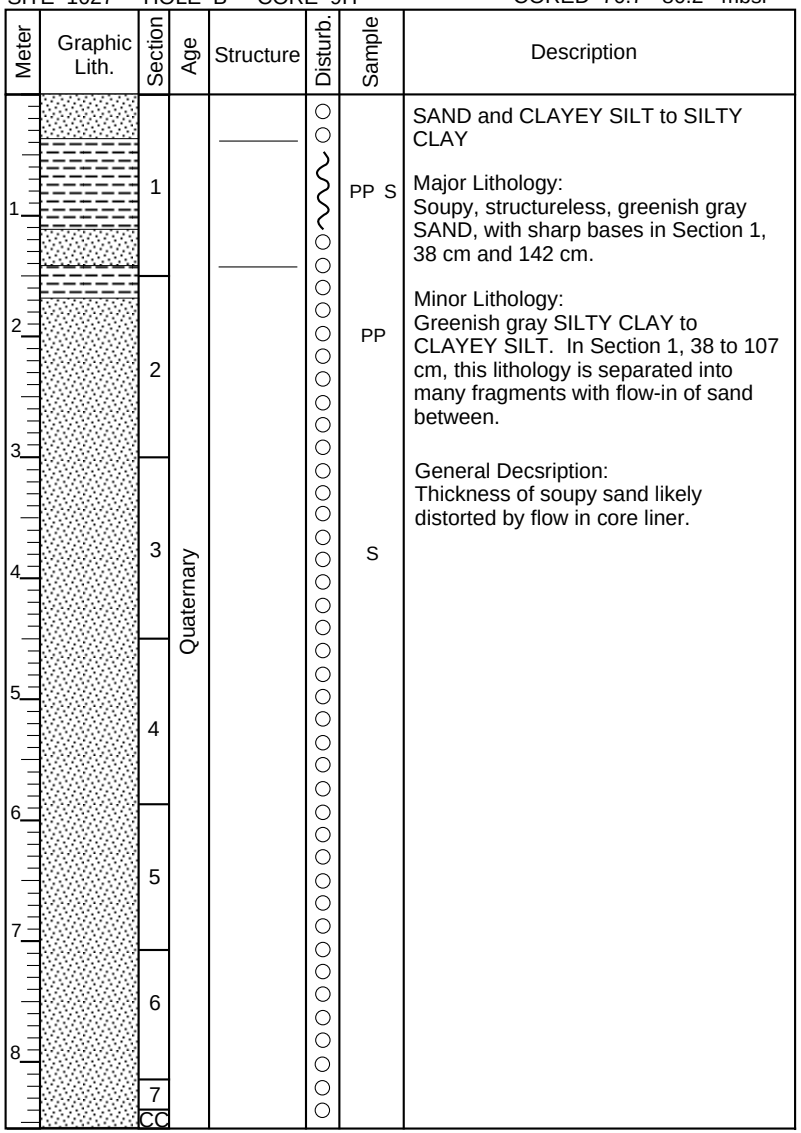
CLAYEY SILT to SILTY CLAY, SAND to SILTY SAND, and DEBRIS-FLOW DEPOSIT

Major Lithologies:
Light olive gray to greenish gray CLAYEY SILT to SILTY CLAY with very thin interbeds of silty sand and planar silt laminae. Olive gray to greenish gray SAND and SILTY SAND, with sharp bases in Section 1, 58 cm, 94 cm, and 129 cm, Section 2, 88 cm and 136 cm, Section 3, 10 cm, and Section 6, 107 cm. Normal size grading and gradational tops.

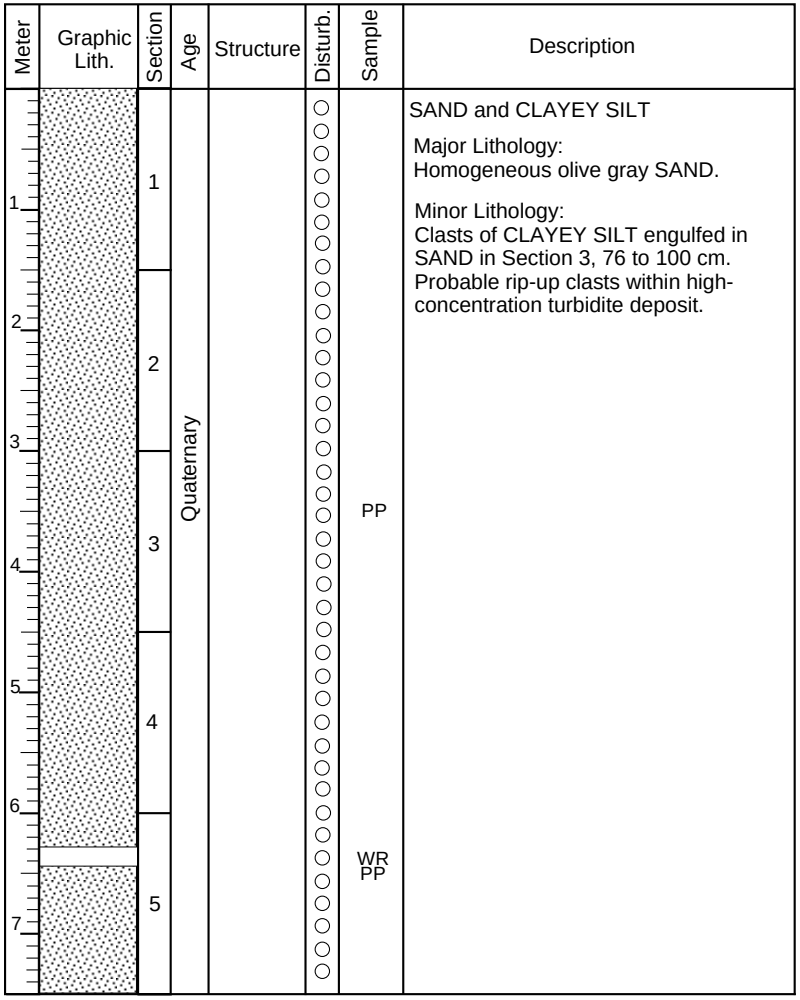
Minor Lithology:
Probable DEBRIS-FLOW DEPOSIT with matrix of muddy sand and clasts of moderately indurated mud in Section 2, 88 to 114 cm.

General Description:
Interbedded lithologies probably represent turbidites, sandy debris-flow deposit, and hemipelagic mud deposits. Thickness of sand layers likely distorted by flow-in.

SITE 1027 HOLE B CORE 9H CORED 70.7 - 80.2 mbsf



SITE 1027 HOLE B CORE 10H CORED 80.2 - 87.7 mbsf



SITE 1027 HOLE B CORE 11X CORED 87.7 - 97.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb.	Sample	Description
		CC	Quaternary				CLAYEY SILT Major Lithology: Greenish gray CLAYEY SILT.

1027B-12X NO RECOVERY

SITE 1027 HOLE B CORE 13X CORED 107.1 - 116.7 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb.	Sample	Description
		CC	Quaternary				CLAYEY SILT, SILT, and SAND General Description: Core Catcher contains greenish gray SAND and interbeds of SILT and CLAYEY SILT.

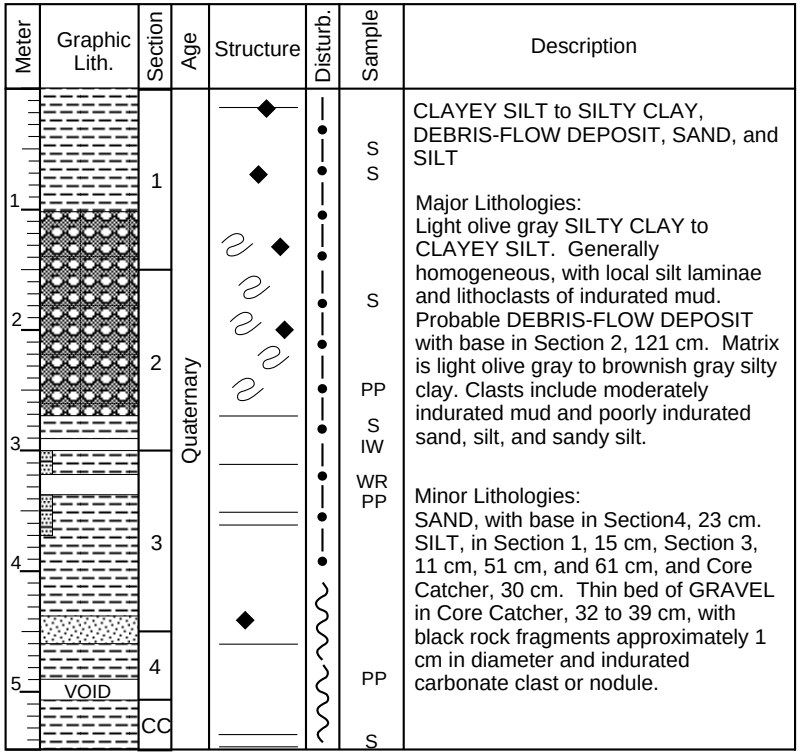
SITE 1027 HOLE B CORE 14X CORED 116.7 - 126.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb.	Sample	Description
		CC	Quaternary				CLAYEY SILT Major Lithology: Greenish gray CLAYEY SILT. Very disturbed.

1027B-15X NO RECOVERY

1027B-16X NO RECOVERY

SITE 1027 HOLE B CORE 17X CORED 145.5 - 155.1 mbsf

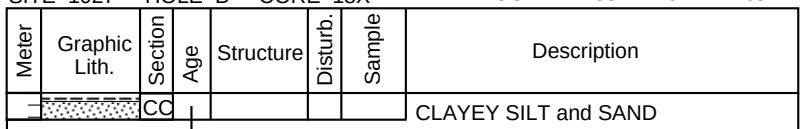


CLAYEY SILT to SILTY CLAY, DEBRIS-FLOW DEPOSIT, SAND, and SILT

Major Lithologies:
Light olive gray SILTY CLAY to CLAYEY SILT. Generally homogeneous, with local silt laminae and lithoclasts of indurated mud. Probable DEBRIS-FLOW DEPOSIT with base in Section 2, 121 cm. Matrix is light olive gray to brownish gray silty clay. Clasts include moderately indurated mud and poorly indurated sand, silt, and sandy silt.

Minor Lithologies:
SAND, with base in Section4, 23 cm. SILT, in Section 1, 15 cm, Section 3, 11 cm, 51 cm, and 61 cm, and Core Catcher, 30 cm. Thin bed of GRAVEL in Core Catcher, 32 to 39 cm, with black rock fragments approximately 1 cm in diameter and indurated carbonate clast or nodule.

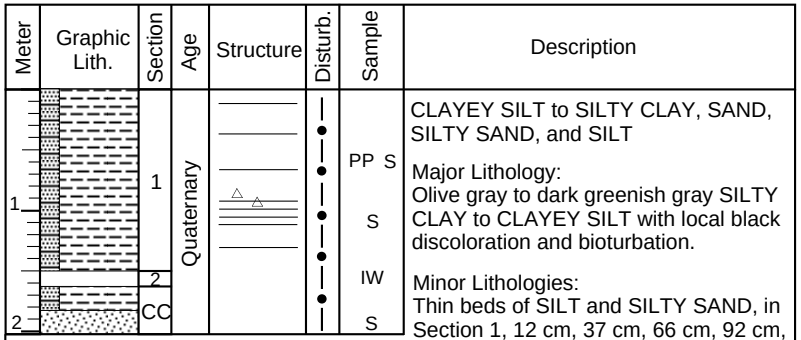
SITE 1027 HOLE B CORE 18X CORED 155.1 - 164.7 mbsf



CLAYEY SILT and SAND

General Description:
Core Catcher contains light olive gray CLAYEY SILT and SAND.

SITE 1027 HOLE B CORE 19X CORED 164.7 - 174.3 mbsf

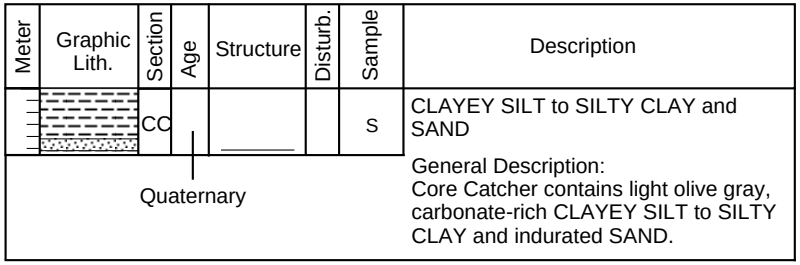


CLAYEY SILT to SILTY CLAY, SAND, SILTY SAND, and SILT

Major Lithology:
Olive gray to dark greenish gray SILTY CLAY to CLAYEY SILT with local black discoloration and bioturbation.

Minor Lithologies:
Thin beds of SILT and SILTY SAND, in Section 1, 12 cm, 37 cm, 66 cm, 92 cm, 98 cm, 105 cm, 111 cm, and 130 cm. Sharp bases, normal size grading, gradational tops. Brownish gray SAND in Core Catcher, 18 to 38 cm.

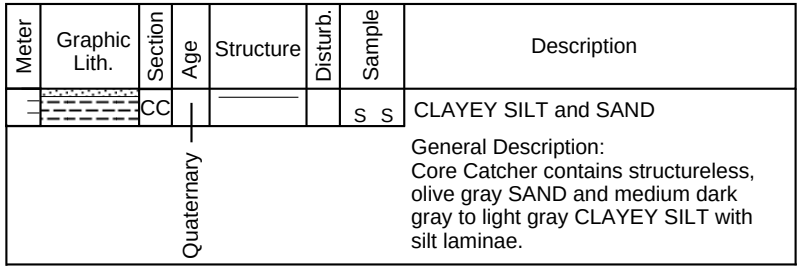
SITE 1027 HOLE B CORE 20X CORED 174.3 - 183.9 mbsf



CLAYEY SILT to SILTY CLAY and SAND

General Description:
Core Catcher contains light olive gray, carbonate-rich CLAYEY SILT to SILTY CLAY and indurated SAND.

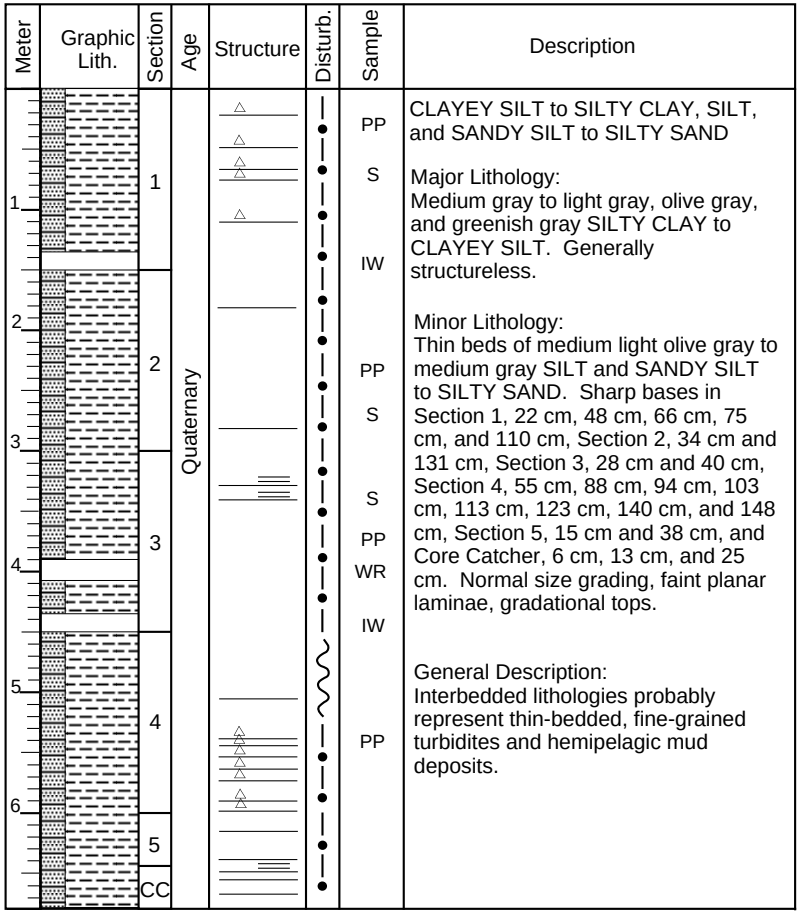
SITE 1027 HOLE B CORE 21X CORED 183.9 - 193.5 mbsf



CLAYEY SILT and SAND

General Description:
Core Catcher contains structureless, olive gray SAND and medium dark gray to light gray CLAYEY SILT with silt laminae.

SITE 1027 HOLE B CORE 22X CORED 193.5 - 203.2 mbsf



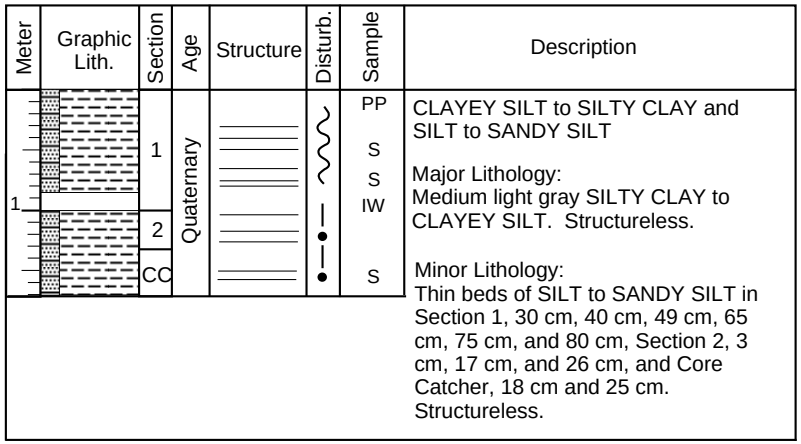
CLAYEY SILT to SILTY CLAY, SILT, and SANDY SILT to SILTY SAND

Major Lithology:
Medium gray to light gray, olive gray, and greenish gray SILTY CLAY to CLAYEY SILT. Generally structureless.

Minor Lithology:
Thin beds of medium light olive gray to medium gray SILT and SANDY SILT to SILTY SAND. Sharp bases in Section 1, 22 cm, 48 cm, 66 cm, 75 cm, and 110 cm, Section 2, 34 cm and 131 cm, Section 3, 28 cm and 40 cm, Section 4, 55 cm, 88 cm, 94 cm, 103 cm, 113 cm, 123 cm, 140 cm, and 148 cm, Section 5, 15 cm and 38 cm, and Core Catcher, 6 cm, 13 cm, and 25 cm. Normal size grading, faint planar laminae, gradational tops.

General Description:
Interbedded lithologies probably represent thin-bedded, fine-grained turbidites and hemipelagic mud deposits.

SITE 1027 HOLE B CORE 23X CORED 203.2 - 212.8 mbsf

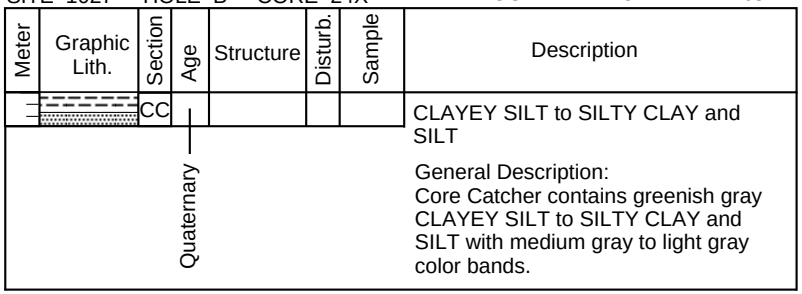


CLAYEY SILT to SILTY CLAY and SILT to SANDY SILT

Major Lithology:
Medium light gray SILTY CLAY to CLAYEY SILT. Structureless.

Minor Lithology:
Thin beds of SILT to SANDY SILT in Section 1, 30 cm, 40 cm, 49 cm, 65 cm, 75 cm, and 80 cm, Section 2, 3 cm, 17 cm, and 26 cm, and Core Catcher, 18 cm and 25 cm. Structureless.

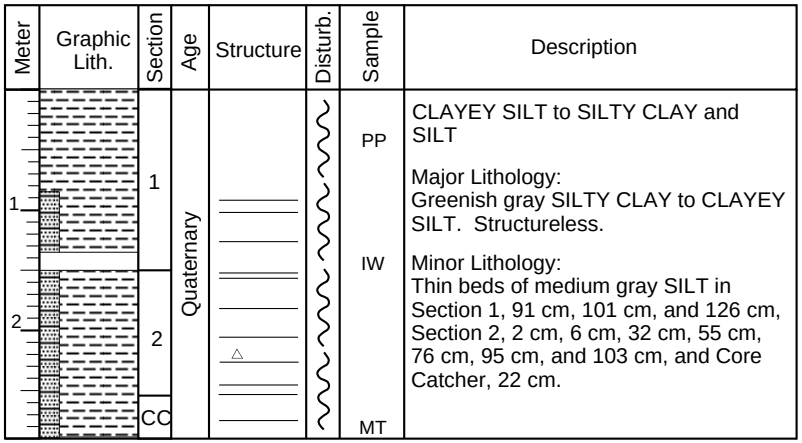
SITE 1027 HOLE B CORE 24X CORED 212.8 - 222.4 mbsf



CLAYEY SILT to SILTY CLAY and SILT

General Description:
Core Catcher contains greenish gray CLAYEY SILT to SILTY CLAY and SILT with medium gray to light gray color bands.

SITE 1027 HOLE B CORE 25X CORED 222.4 - 232.0 mbsf

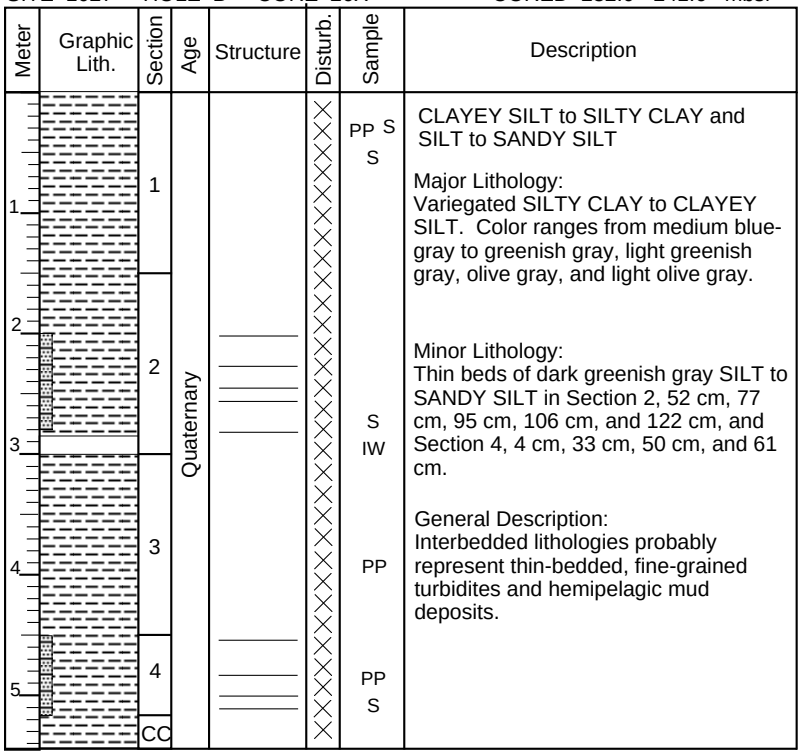


CLAYEY SILT to SILTY CLAY and SILT

Major Lithology:
Greenish gray SILTY CLAY to CLAYEY SILT. Structureless.

Minor Lithology:
Thin beds of medium gray SILT in Section 1, 91 cm, 101 cm, and 126 cm, Section 2, 2 cm, 6 cm, 32 cm, 55 cm, 76 cm, 95 cm, and 103 cm, and Core Catcher, 22 cm.

SITE 1027 HOLE B CORE 26X CORED 232.0 - 241.6 mbsf



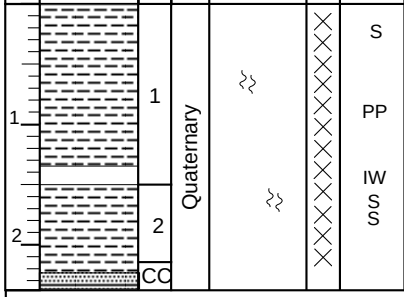
CLAYEY SILT to SILTY CLAY and SILT to SANDY SILT

Major Lithology:
Variegated SILTY CLAY to CLAYEY SILT. Color ranges from medium blue-gray to greenish gray, light greenish gray, olive gray, and light olive gray.

Minor Lithology:
Thin beds of dark greenish gray SILT to SANDY SILT in Section 2, 52 cm, 77 cm, 95 cm, 106 cm, and 122 cm, and Section 4, 4 cm, 33 cm, 50 cm, and 61 cm.

General Description:
Interbedded lithologies probably represent thin-bedded, fine-grained turbidites and hemipelagic mud deposits.

SITE 1027 HOLE B CORE 27X CORED 241.6 - 251.3 mbsf



CLAYEY SILT to SILTY CLAY and SILT

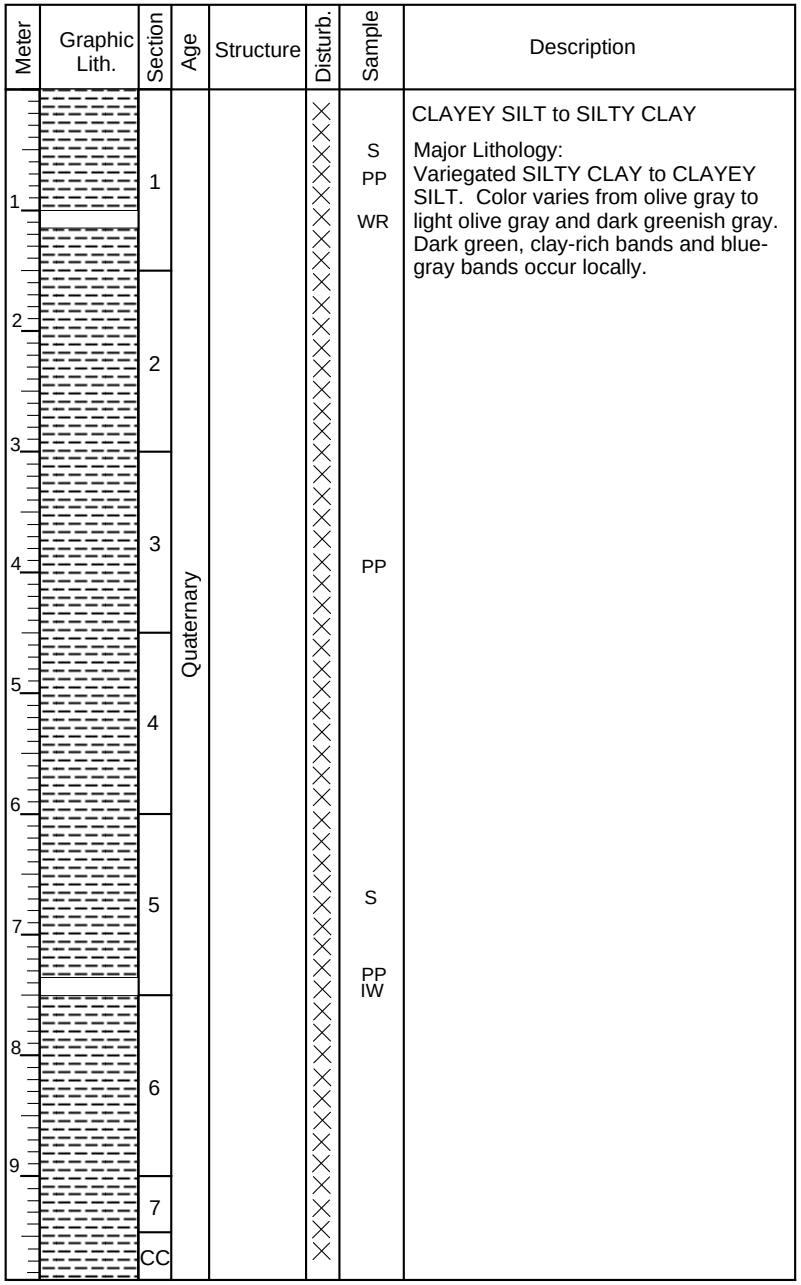
Major Lithology:
Light greenish gray to dark greenish gray, olive gray, and dusky yellow green. Dark green clay-rich color bands, local bioturbation, and local increases in nannofossil content.

Minor Lithology:
Dark greenish gray SILT in Core Catcher, 9 cm to 23 cm.

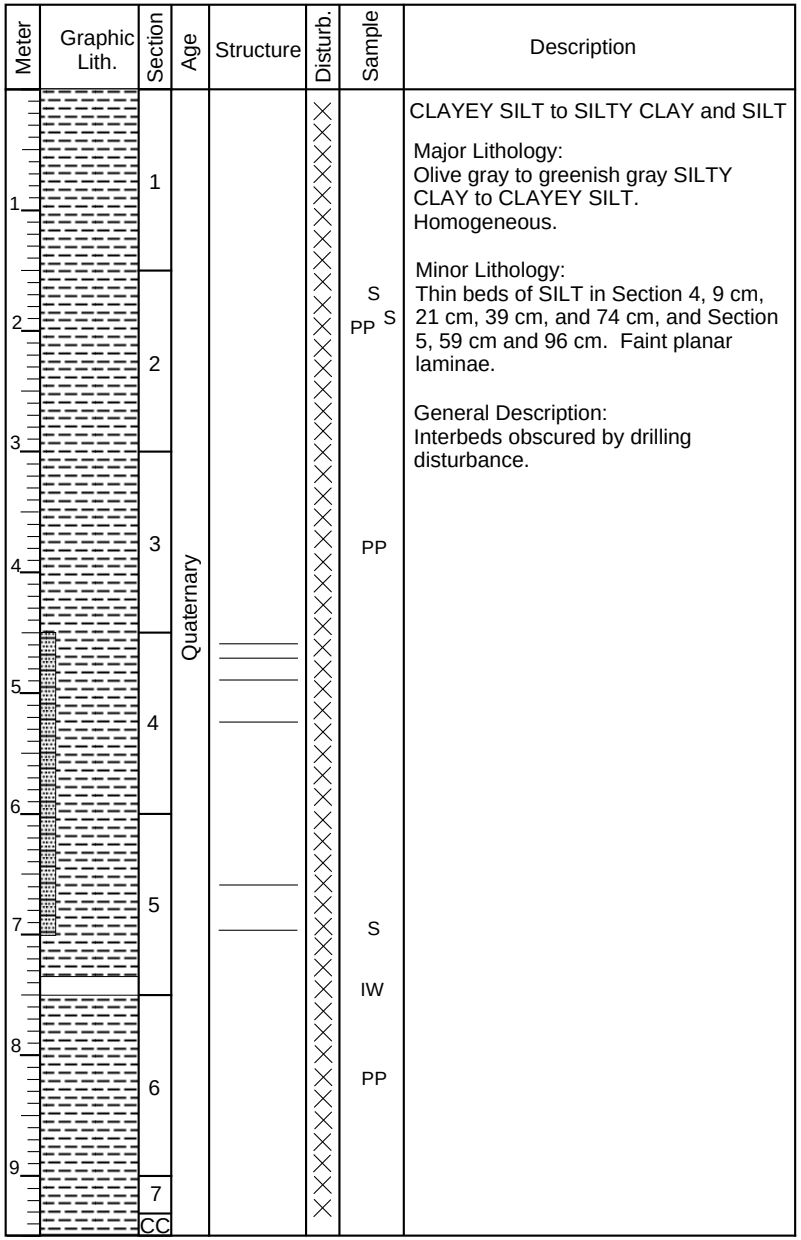
SITE 1027 HOLE B CORE 28X CORED 251.3 - 260.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb.	Sample	Description
1–8		1, 2, 3, 4, 5, 6, CC	Quaternary			S, S, PP, PP, IW, PP	CLAYEY SILT to SILTY CLAY and SILT to SANDY SILT Major Lithology: Greenish gray to dark greenish gray, light olive gray, olive gray, medium blue-gray, and brownish gray SILTY CLAY to CLAYEY SILT with local dark green clay-rich color bands. Variable content of calcium carbonate. Minor Lithology: Very thin bed of SILT to SANDY SILT in Section 2, 61 cm.

SITE 1027 HOLE B CORE 29X CORED 260.9 - 270.5 mbsf



SITE 1027 HOLE B CORE 30X CORED 270.5 - 280.1 mbsf



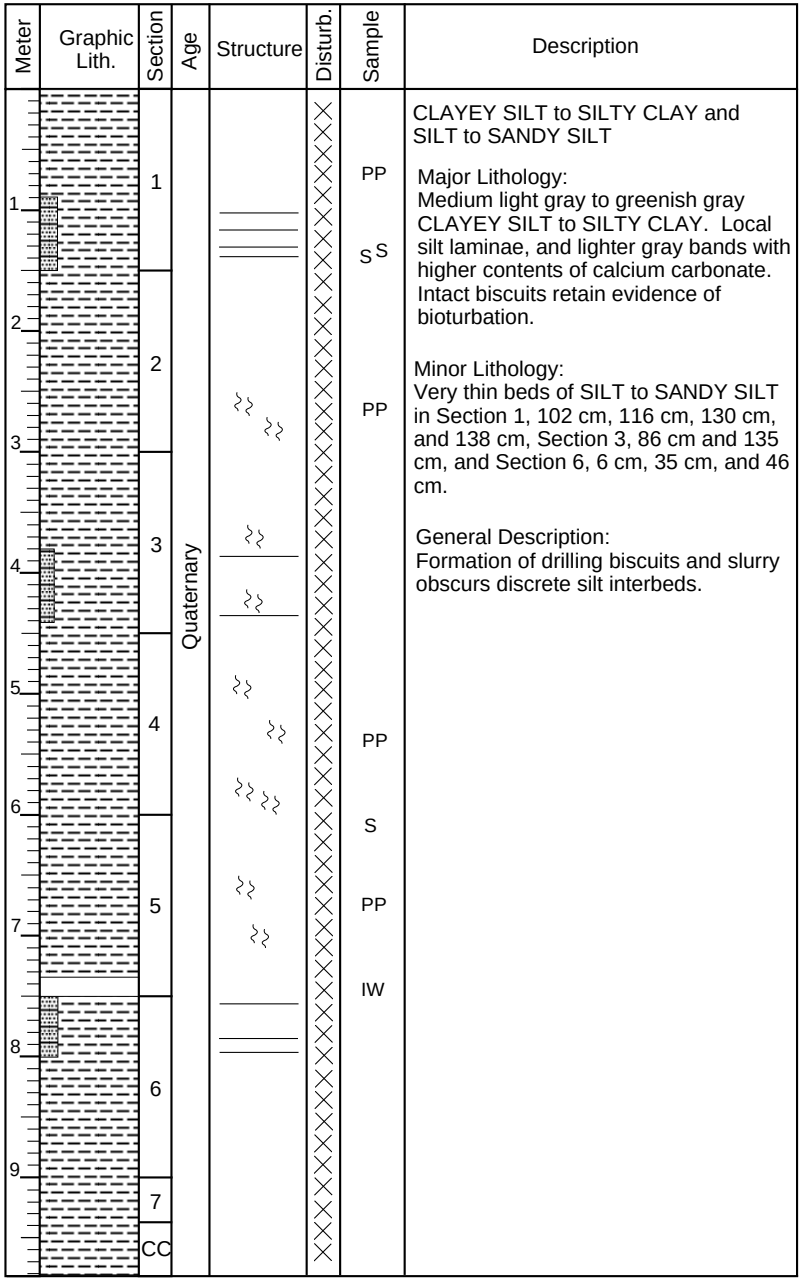
CLAYEY SILT to SILTY CLAY and SILT

Major Lithology:
Olive gray to greenish gray SILTY CLAY to CLAYEY SILT.
Homogeneous.

Minor Lithology:
Thin beds of SILT in Section 4, 9 cm, 21 cm, 39 cm, and 74 cm, and Section 5, 59 cm and 96 cm. Faint planar laminae.

General Description:
Interbeds obscured by drilling disturbance.

SITE 1027 HOLE B CORE 31X CORED 280.1 - 289.8 mbsf



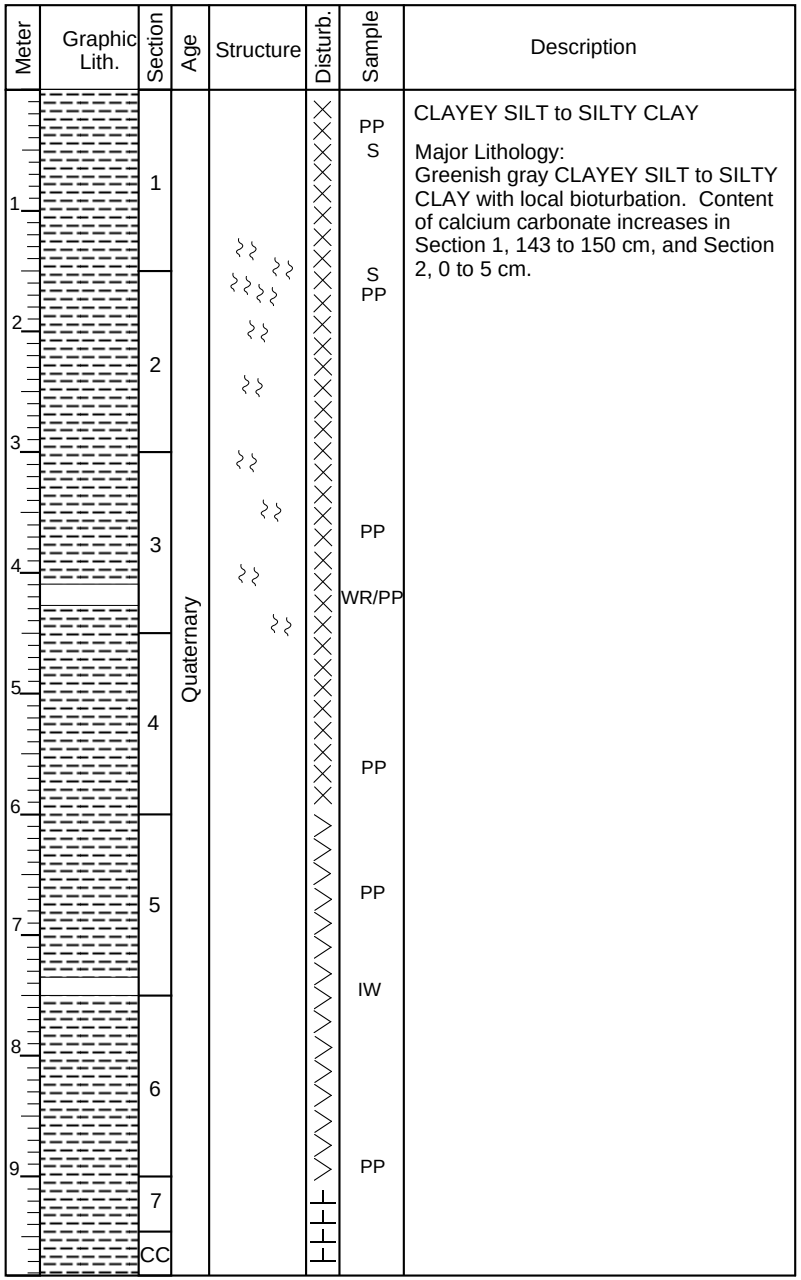
CLAYEY SILT to SILTY CLAY and SILT to SANDY SILT

Major Lithology:
Medium light gray to greenish gray CLAYEY SILT to SILTY CLAY. Local silt laminae, and lighter gray bands with higher contents of calcium carbonate. Intact biscuits retain evidence of bioturbation.

Minor Lithology:
Very thin beds of SILT to SANDY SILT in Section 1, 102 cm, 116 cm, 130 cm, and 138 cm, Section 3, 86 cm and 135 cm, and Section 6, 6 cm, 35 cm, and 46 cm.

General Description:
Formation of drilling biscuits and slurry obscurs discrete silt interbeds.

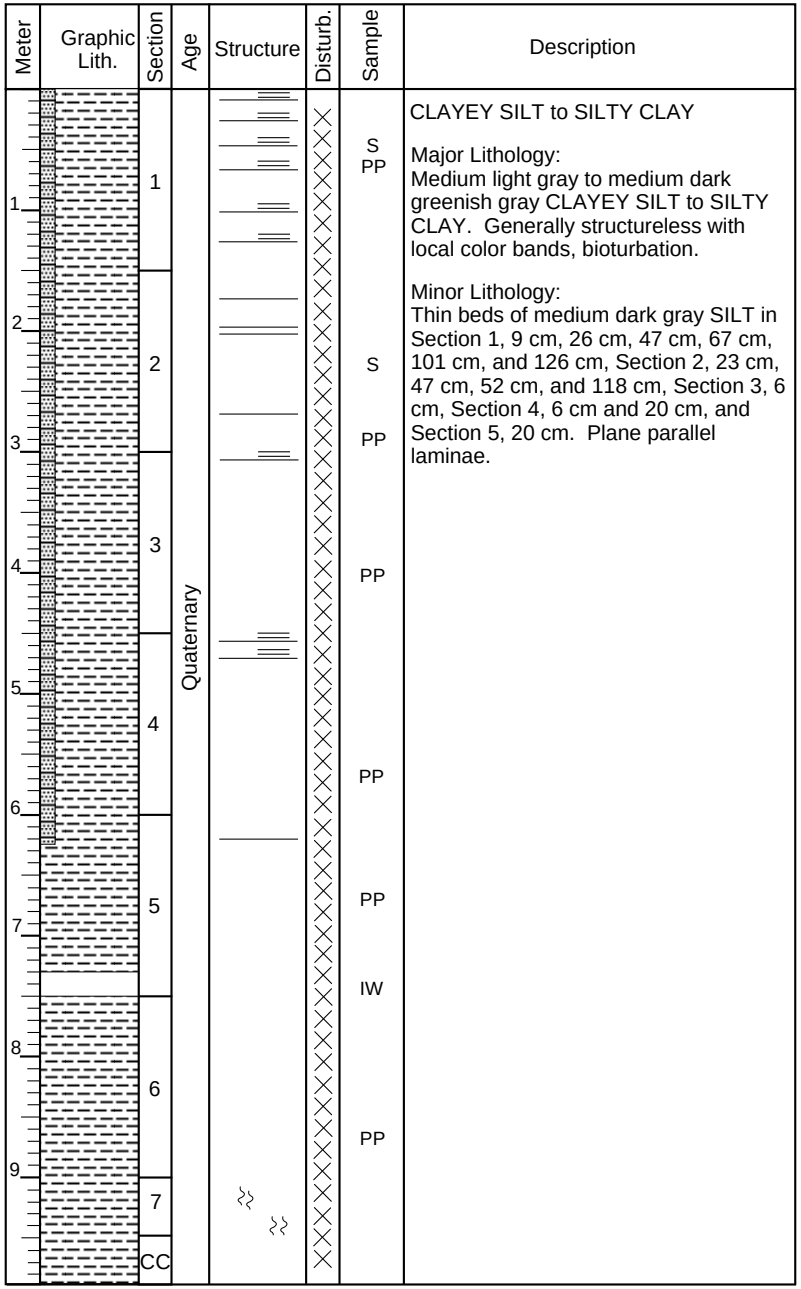
SITE 1027 HOLE B CORE 32X CORED 289.8 - 299.4 mbsf



CLAYEY SILT to SILTY CLAY

Major Lithology:
Greenish gray CLAYEY SILT to SILTY CLAY with local bioturbation. Content of calcium carbonate increases in Section 1, 143 to 150 cm, and Section 2, 0 to 5 cm.

SITE 1027 HOLE B CORE 33X CORED 299.4 - 309.1 mbsf

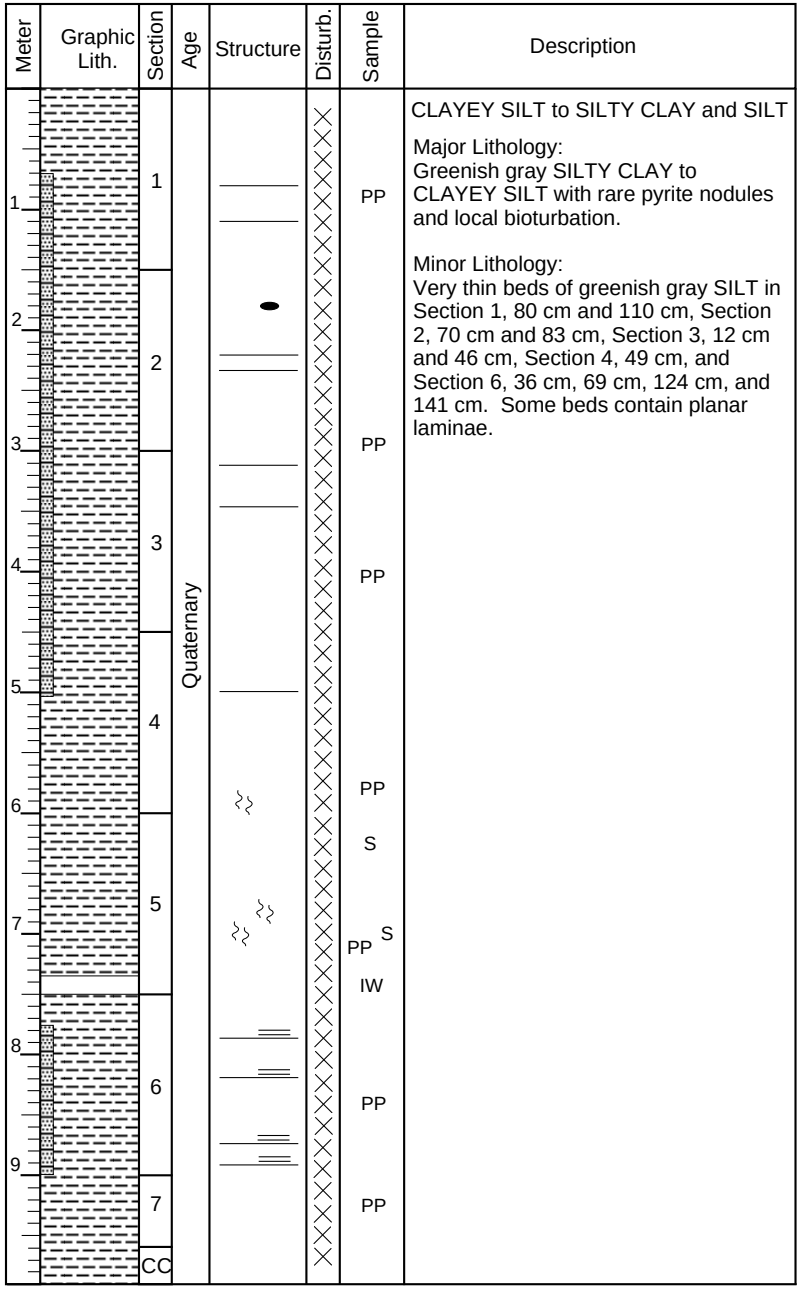


CLAYEY SILT to SILTY CLAY

Major Lithology:
Medium light gray to medium dark greenish gray CLAYEY SILT to SILTY CLAY. Generally structureless with local color bands, bioturbation.

Minor Lithology:
Thin beds of medium dark gray SILT in Section 1, 9 cm, 26 cm, 47 cm, 67 cm, 101 cm, and 126 cm, Section 2, 23 cm, 47 cm, 52 cm, and 118 cm, Section 3, 6 cm, Section 4, 6 cm and 20 cm, and Section 5, 20 cm. Plane parallel laminae.

SITE 1027 HOLE B CORE 34X CORED 309.1 - 318.7 mbsf

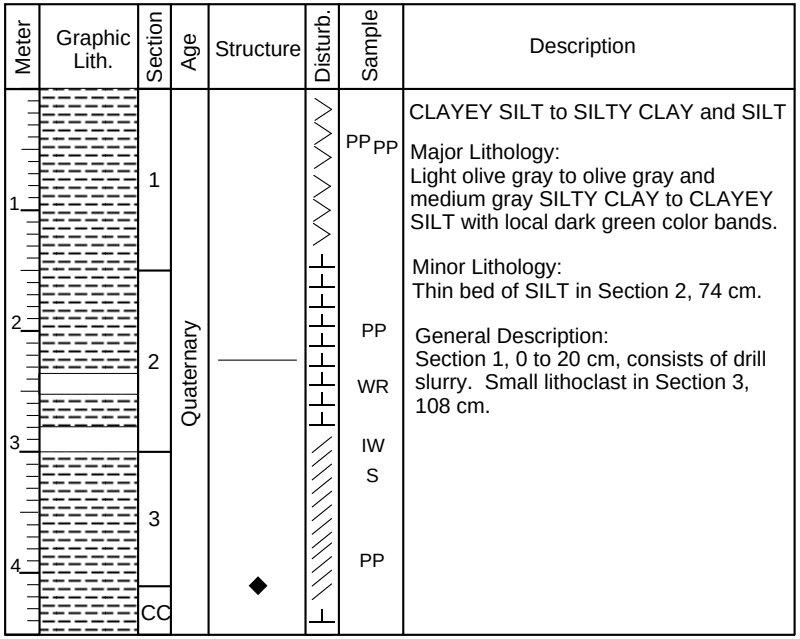


CLAYEY SILT to SILTY CLAY and SILT

Major Lithology:
Greenish gray SILTY CLAY to CLAYEY SILT with rare pyrite nodules and local bioturbation.

Minor Lithology:
Very thin beds of greenish gray SILT in Section 1, 80 cm and 110 cm, Section 2, 70 cm and 83 cm, Section 3, 12 cm and 46 cm, Section 4, 49 cm, and Section 6, 36 cm, 69 cm, 124 cm, and 141 cm. Some beds contain planar laminae.

SITE 1027 HOLE B CORE 35X CORED 318.7 - 328.4 mbsf



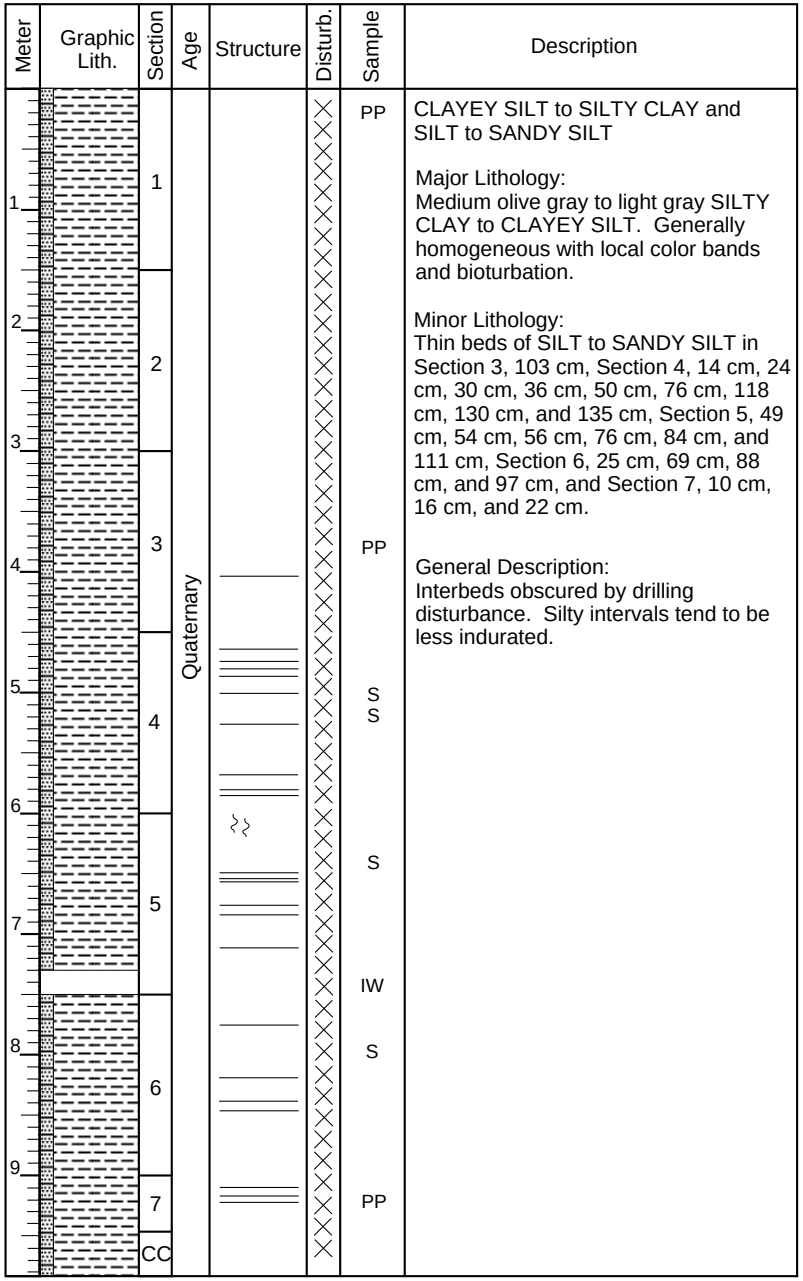
CLAYEY SILT to SILTY CLAY and SILT

Major Lithology:
Light olive gray to olive gray and medium gray SILTY CLAY to CLAYEY SILT with local dark green color bands.

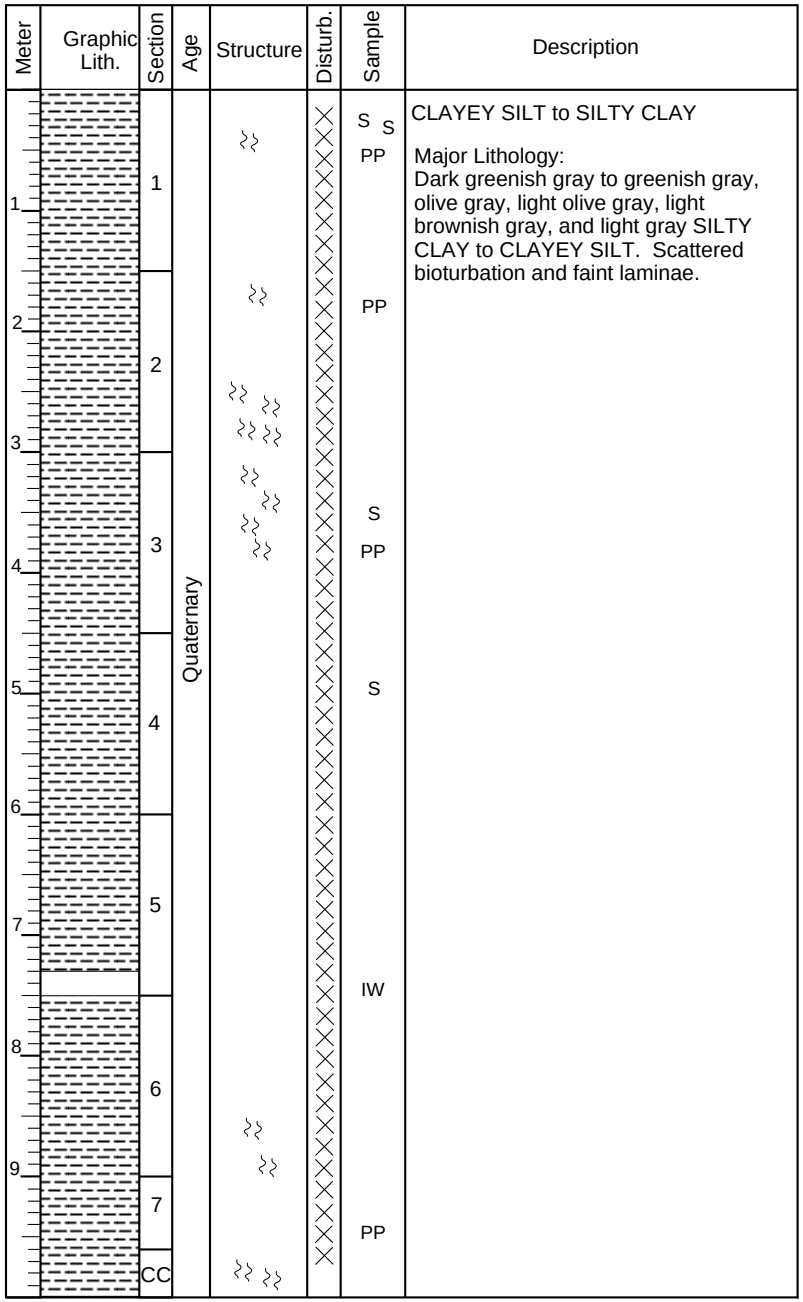
Minor Lithology:
Thin bed of SILT in Section 2, 74 cm.

General Description:
Section 1, 0 to 20 cm, consists of drill slurry. Small lithoclast in Section 3, 108 cm.

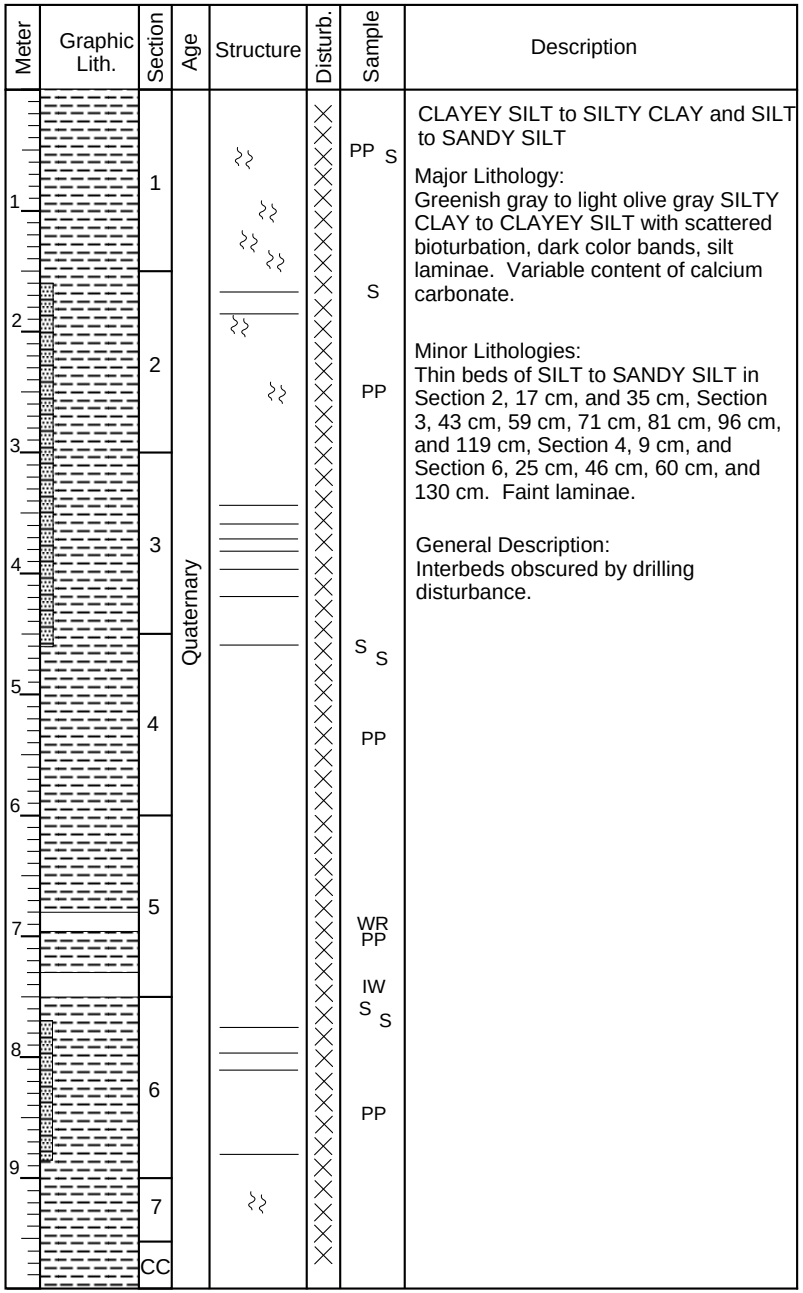
SITE 1027 HOLE B CORE 36X CORED 328.4 - 338.0 mbsf



SITE 1027 HOLE B CORE 37X CORED 338.0 - 347.7 mbsf



SITE 1027 HOLE B CORE 38X CORED 347.7 - 357.3 mbsf



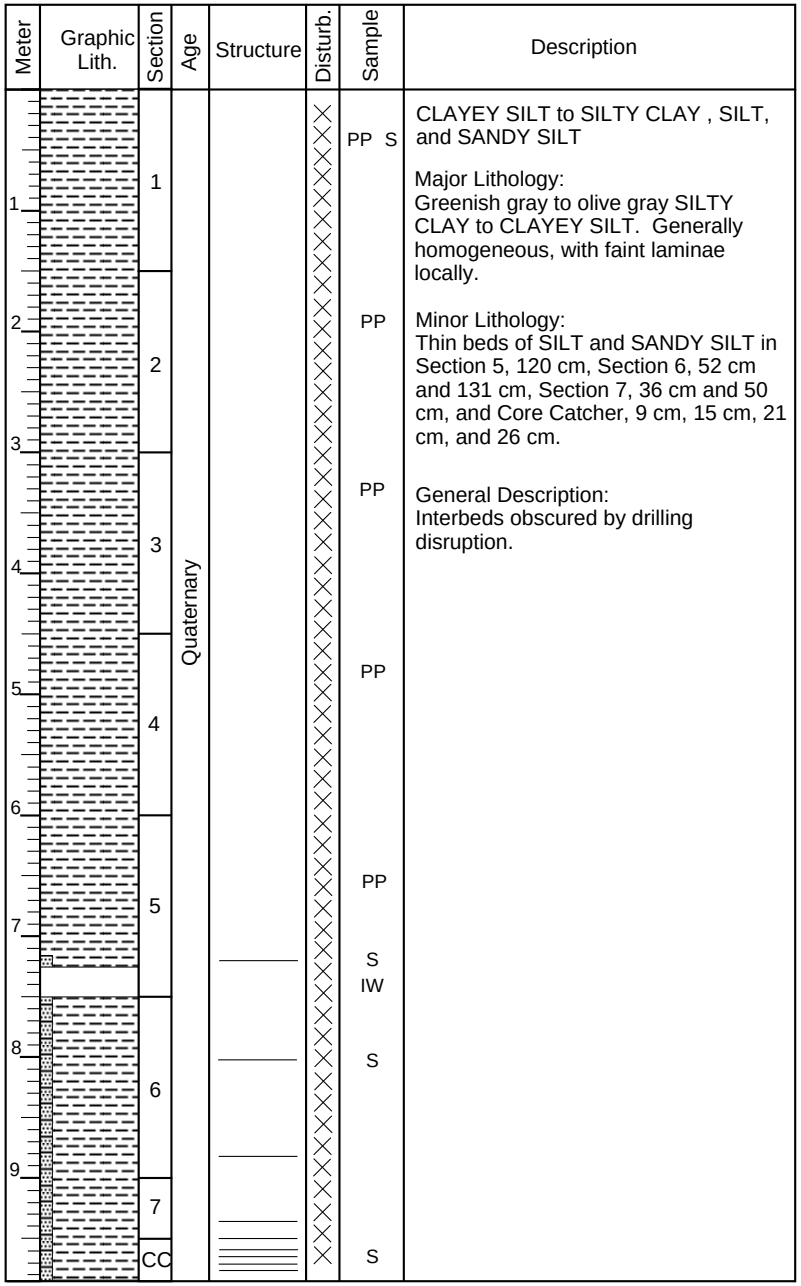
CLAYEY SILT to SILTY CLAY and SILT to SANDY SILT

Major Lithology:
Greenish gray to light olive gray SILTY CLAY to CLAYEY SILT with scattered bioturbation, dark color bands, silt laminae. Variable content of calcium carbonate.

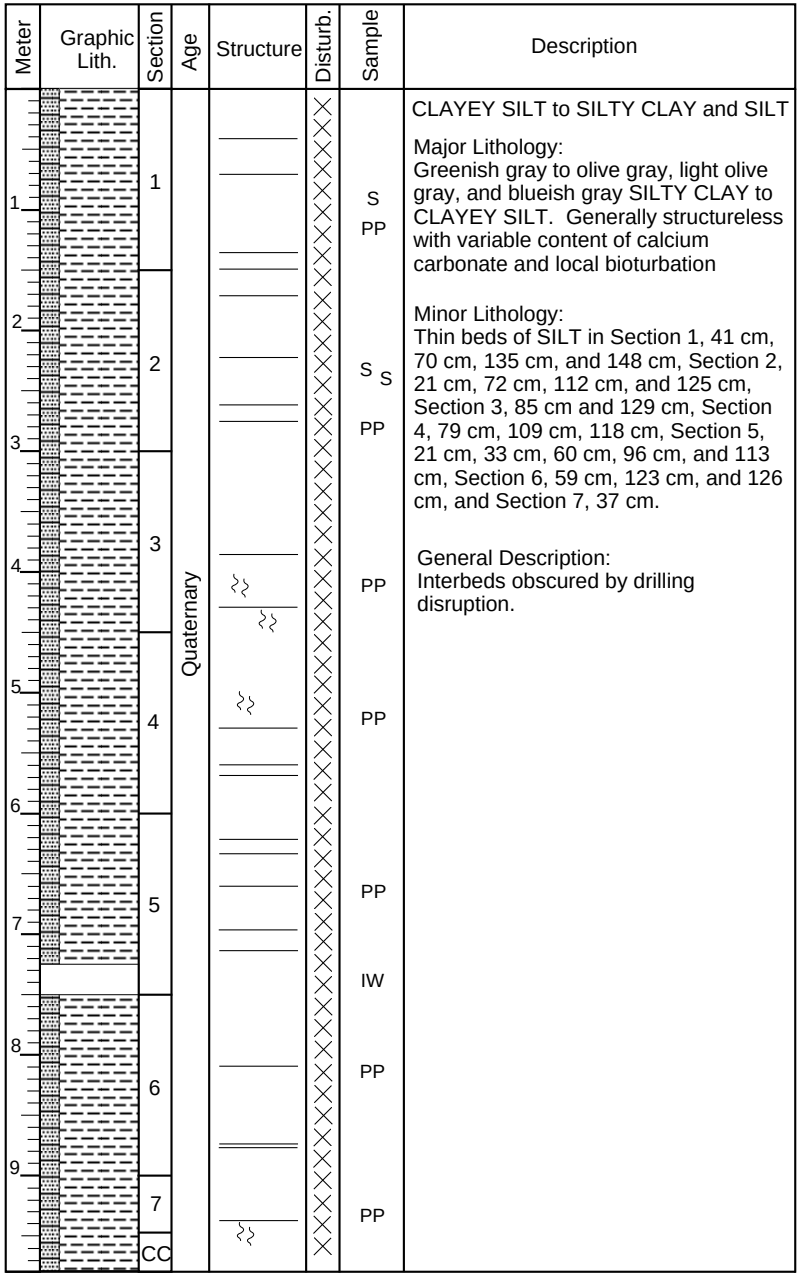
Minor Lithologies:
Thin beds of SILT to SANDY SILT in Section 2, 17 cm, and 35 cm, Section 3, 43 cm, 59 cm, 71 cm, 81 cm, 96 cm, and 119 cm, Section 4, 9 cm, and Section 6, 25 cm, 46 cm, 60 cm, and 130 cm. Faint laminae.

General Description:
Interbeds obscured by drilling disturbance.

SITE 1027 HOLE B CORE 39X CORED 357.3 - 367.0 mbsf



SITE 1027 HOLE B CORE 40X CORED 367.0 - 376.6 mbsf



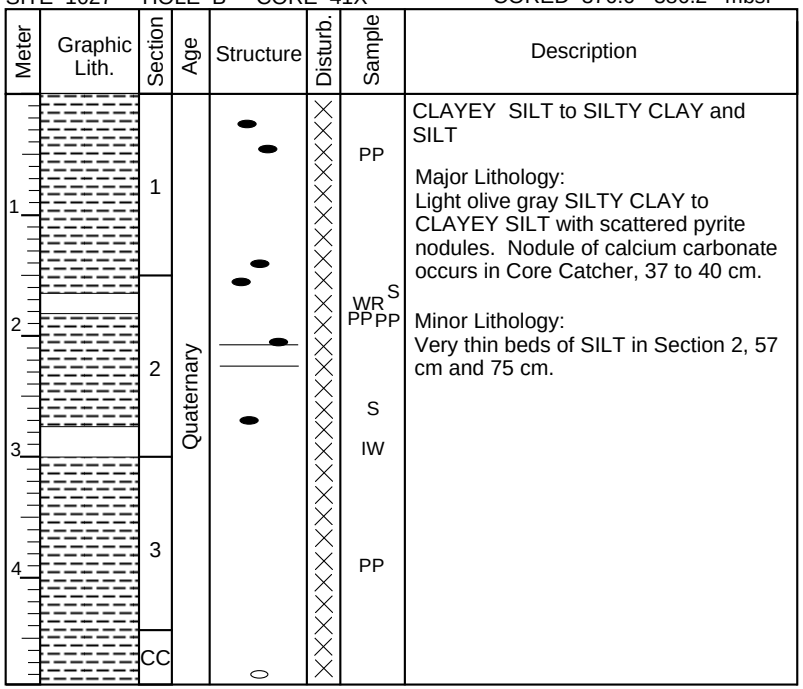
CLAYEY SILT to SILTY CLAY and SILT

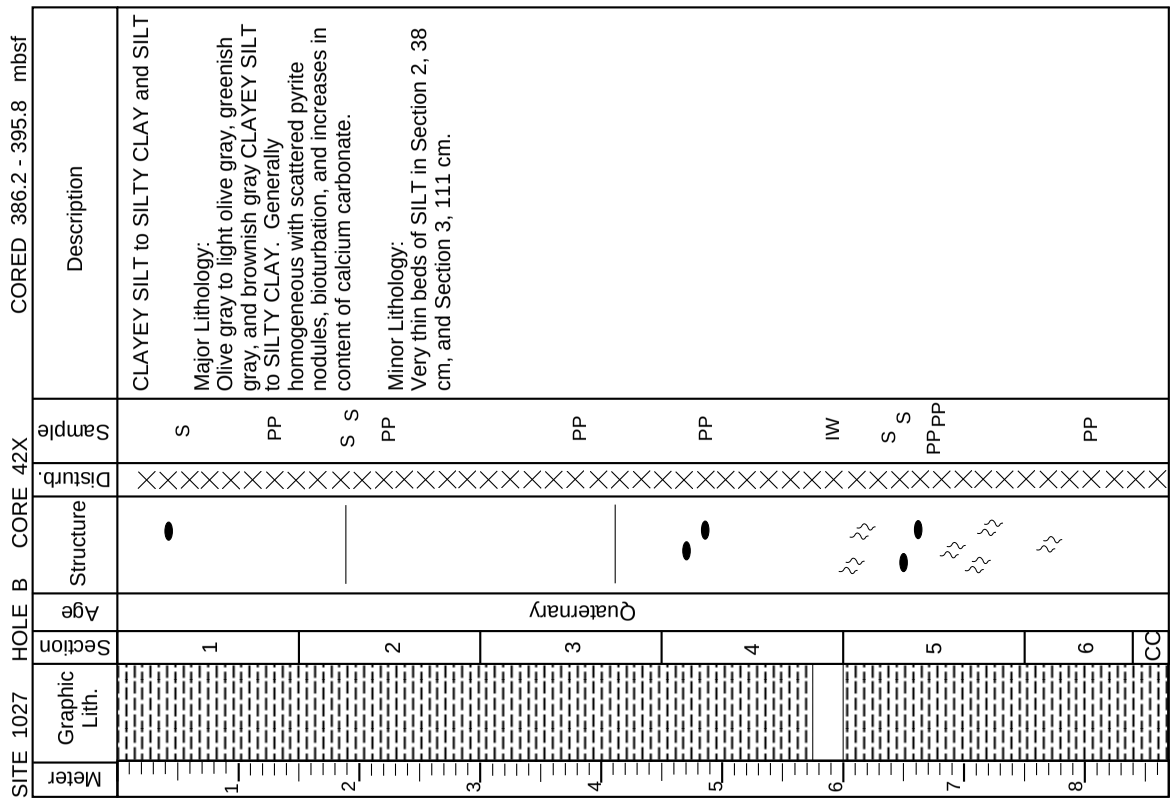
Major Lithology:
Greenish gray to olive gray, light olive gray, and blueish gray SILTY CLAY to CLAYEY SILT. Generally structureless with variable content of calcium carbonate and local bioturbation

Minor Lithology:
Thin beds of SILT in Section 1, 41 cm, 70 cm, 135 cm, and 148 cm, Section 2, 21 cm, 72 cm, 112 cm, and 125 cm, Section 3, 85 cm and 129 cm, Section 4, 79 cm, 109 cm, 118 cm, Section 5, 21 cm, 33 cm, 60 cm, 96 cm, and 113 cm, Section 6, 59 cm, 123 cm, and 126 cm, and Section 7, 37 cm.

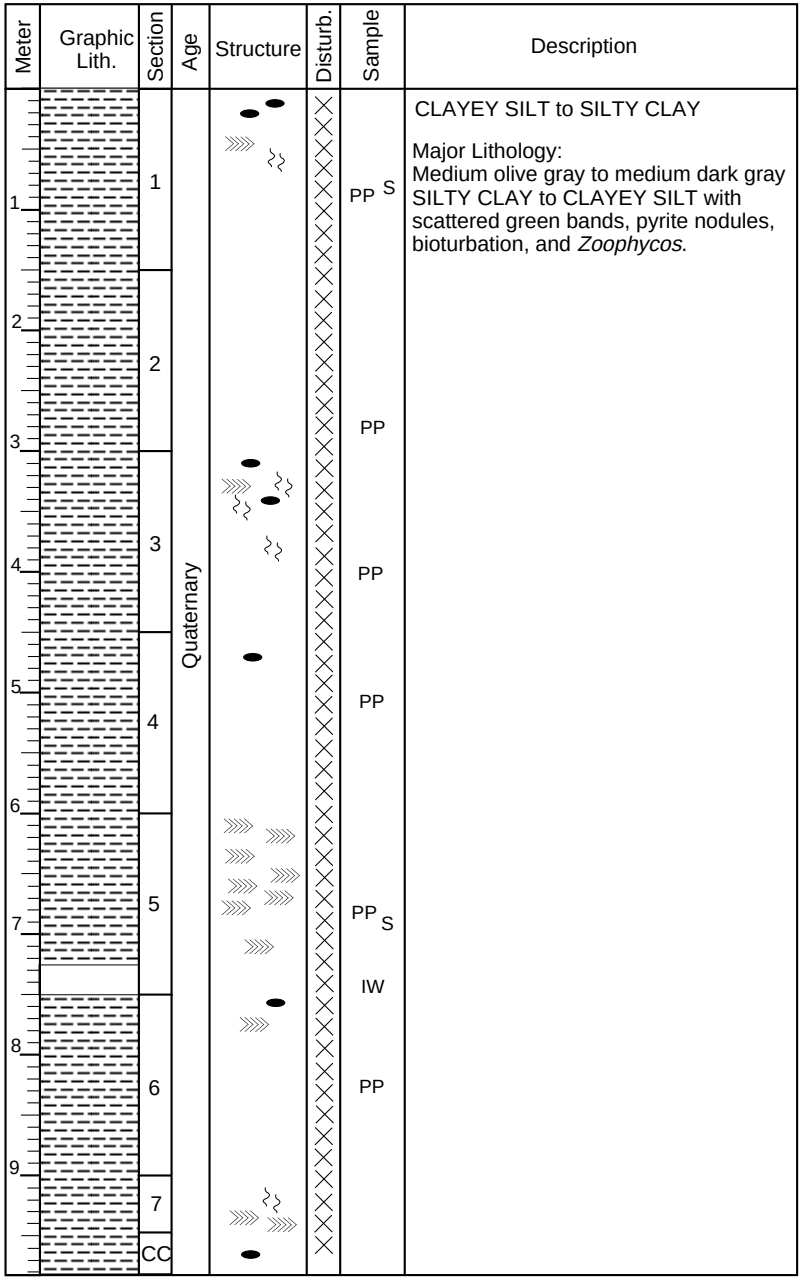
General Description:
Interbeds obscured by drilling disruption.

SITE 1027 HOLE B CORE 41X CORED 376.6 - 386.2 mbsf

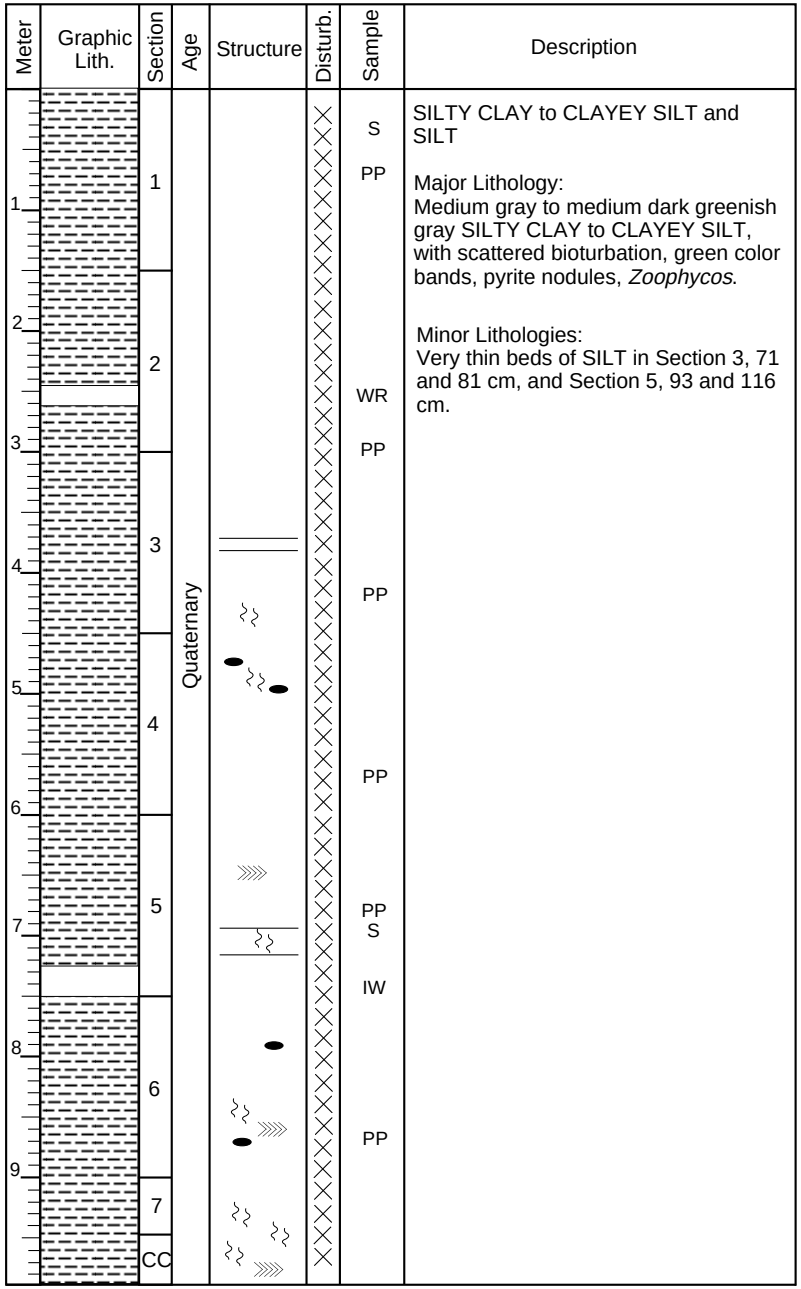



SITE 1027 HOLE B CORE 42X CORED 386.2 - 395.8 mbsf
Meter
Graphic Lith.
Section
Age
Structure
Disturb.
Sample
Description
1
2
3
4
5
6
CC
Quaternary
CLAYEY SILT to SILTY CLAY and SILT
Major Lithology:
Olive gray to light olive gray, greenish gray, and brownish gray CLAYEY SILT to SILTY CLAY. Generally homogeneous with scattered pyrite nodules, bioturbation, and increases in content of calcium carbonate.
Minor Lithology:
Very thin beds of SILT in Section 2, 38 cm, and Section 3, 111 cm.

SITE 1027 HOLE B CORE 43X CORED 395.8 - 405.4 mbsf



SITE 1027 HOLE B CORE 44X CORED 405.4 - 415.0 mbsf



SILTY CLAY to CLAYEY SILT and SILT

Major Lithology:
Medium gray to medium dark greenish gray SILTY CLAY to CLAYEY SILT, with scattered bioturbation, green color bands, pyrite nodules, *Zoophycos*.

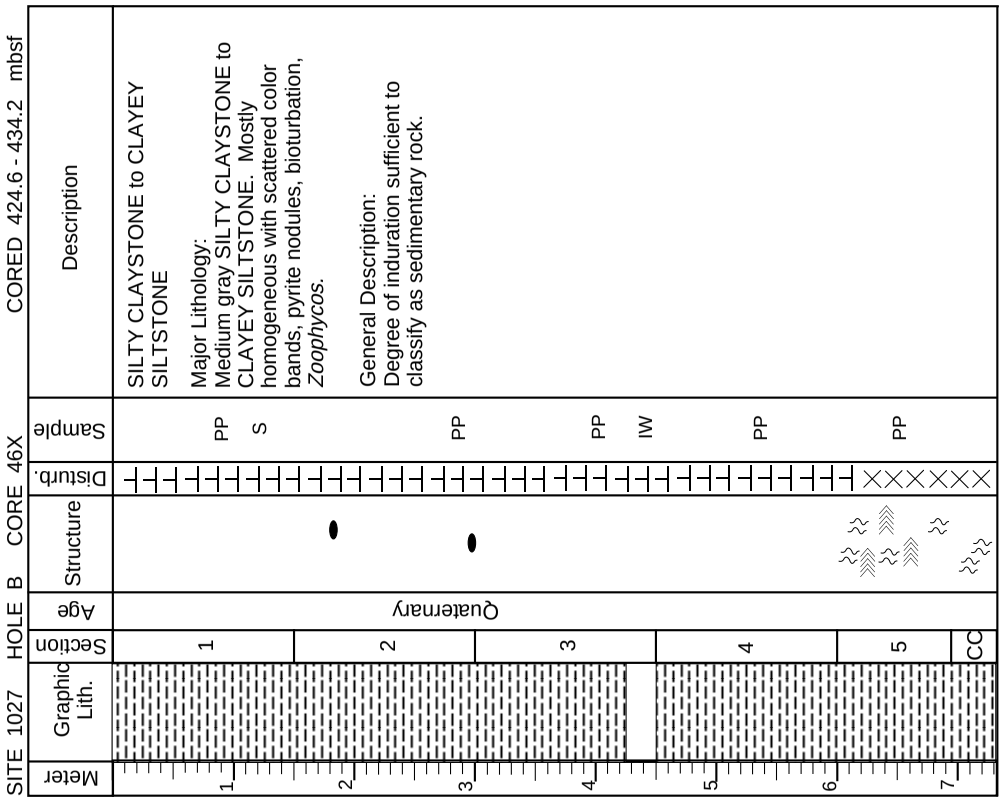
Minor Lithologies:
Very thin beds of SILT in Section 3, 71 and 81 cm, and Section 5, 93 and 116 cm.

SITE 1027 HOLE B CORE 45X CORED 415.0 - 424.6 mbsf

CLAYEY SILT to SILTY CLAY, SILT, and MIXED SEDIMENT

Major Lithology:
Medium light gray to greenish gray CLAYEY SILT to SILTY CLAY with scattered bioturbation, *Zoophycos*, and color bands.

Minor Lithologies:
Very thin beds of SILT in Section 2, 41 cm, 73 cm, and 127 cm, Section 3, 100 cm, Section 4, 106 cm, 123 cm, and 146 cm, Section 5, 50 cm, 79 cm, and 82 cm. Light gray MIXED SEDIMENT with abundant clay and calcareous nannofossils in Section 3, 10 to 30 cm. Diffuse top and base due to intense bioturbation.


SITE 1027 HOLE B CORE 46X CORED 424.6 - 434.2 mbsf
Meter
Graphic Lith.
Section
Age
Structure
Distrb.
Sample
Description
1
2
3
4
5
6
7
CC
Quaternary
PP
S
PP
PP
IW
PP
PP
SILTY CLAYSTONE to CLAYEY SILTSTONE
Major Lithology:
Medium gray SILTY CLAYSTONE to CLAYEY SILTSTONE. Mostly homogeneous with scattered color bands, pyrite nodules, bioturbation, Zoophycos.
General Description:
Degree of induration sufficient to classify as sedimentary rock.

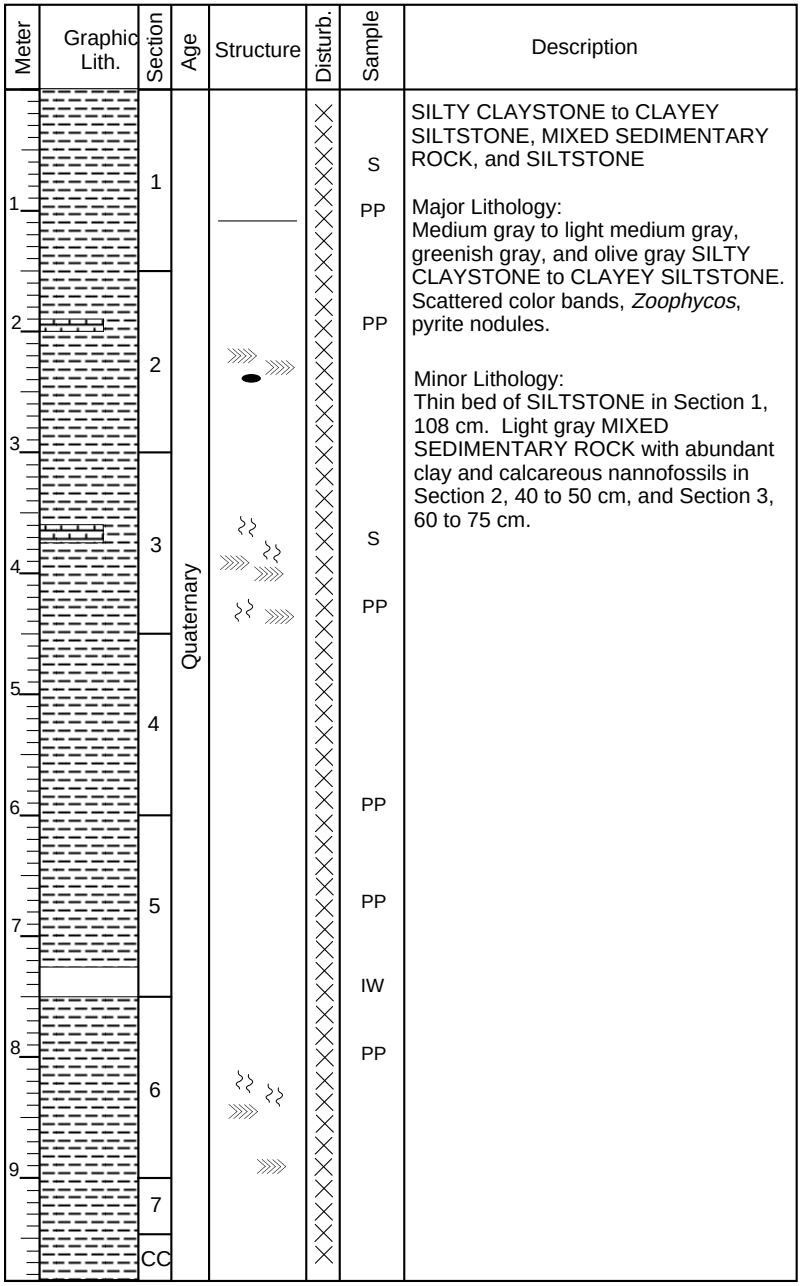
SITE 1027 HOLE B CORE 47X CORED 434.2 - 443.9 mbsf

SILTY CLAYSTONE to CLAYEY SILTSTONE and SILTSTONE

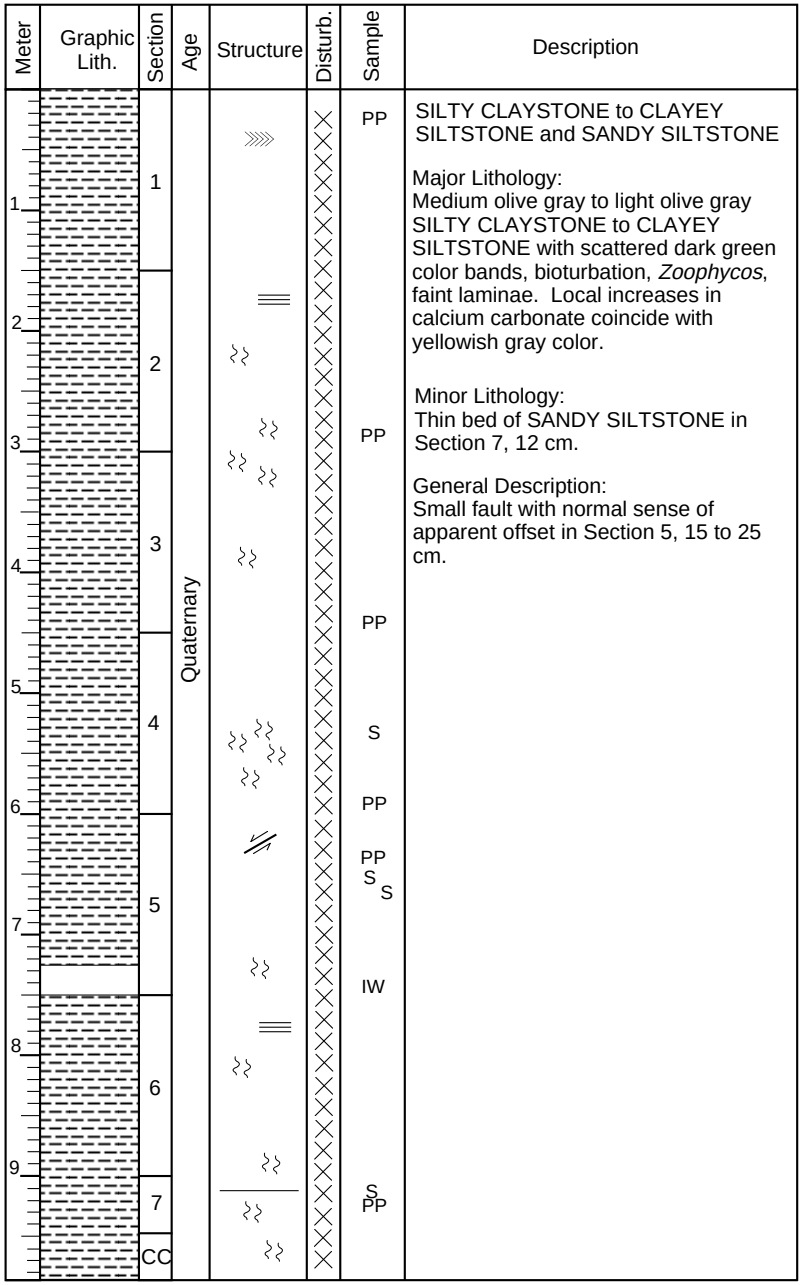
Major Lithology:
Medium gray to medium olive gray SILTY CLAYSTONE to CLAYEY SILTSTONE. Scattered bioturbation, *Zoophycos*, green, dark gray, and purple color bands, pyrite nodules.

Minor Lithology:
Thin bed of SILTSTONE in Section 2, 13 cm.

SITE 1027 HOLE B CORE 48X CORED 443.9 - 453.5 mbsf



SITE 1027 HOLE B CORE 49X CORED 453.5 - 463.0 mbsf



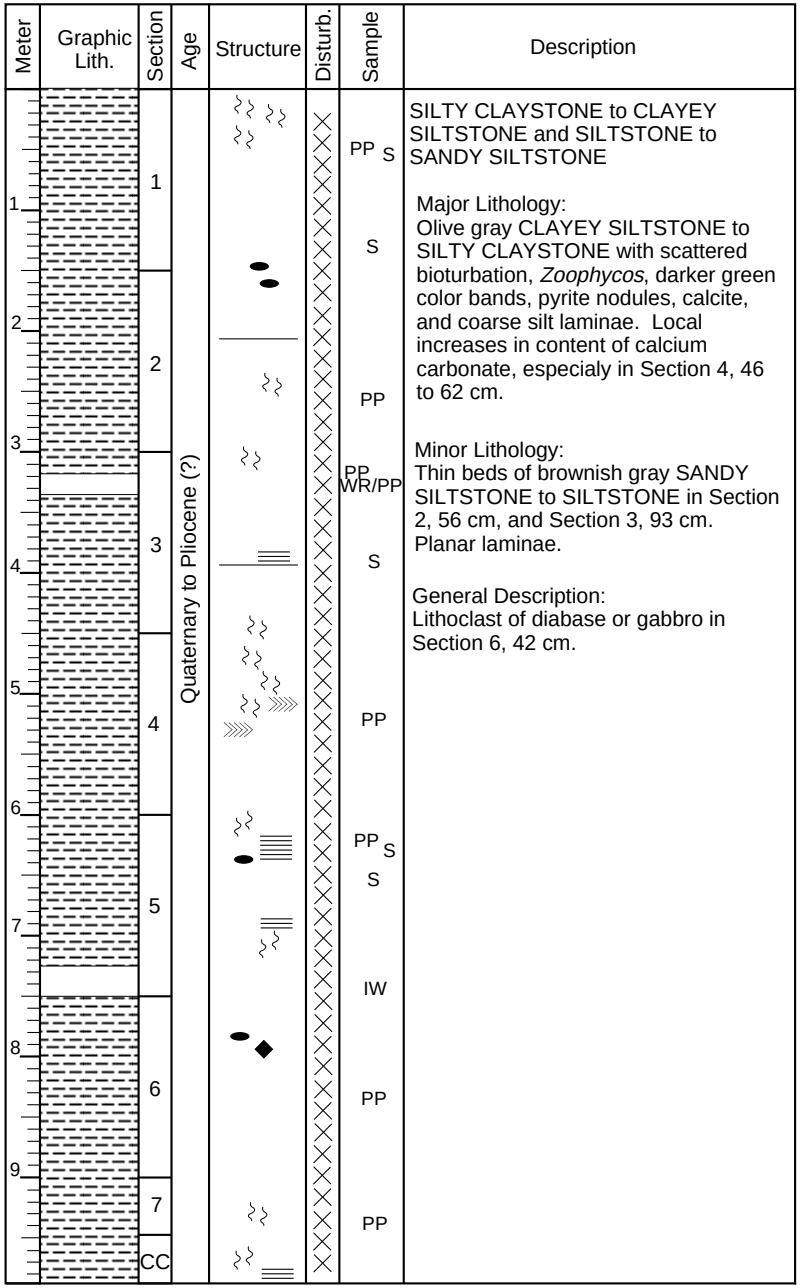
SILTY CLAYSTONE to CLAYEY SILTSTONE and SANDY SILTSTONE

Major Lithology:
Medium olive gray to light olive gray SILTY CLAYSTONE to CLAYEY SILTSTONE with scattered dark green color bands, bioturbation, *Zoophycos*, faint laminae. Local increases in calcium carbonate coincide with yellowish gray color.

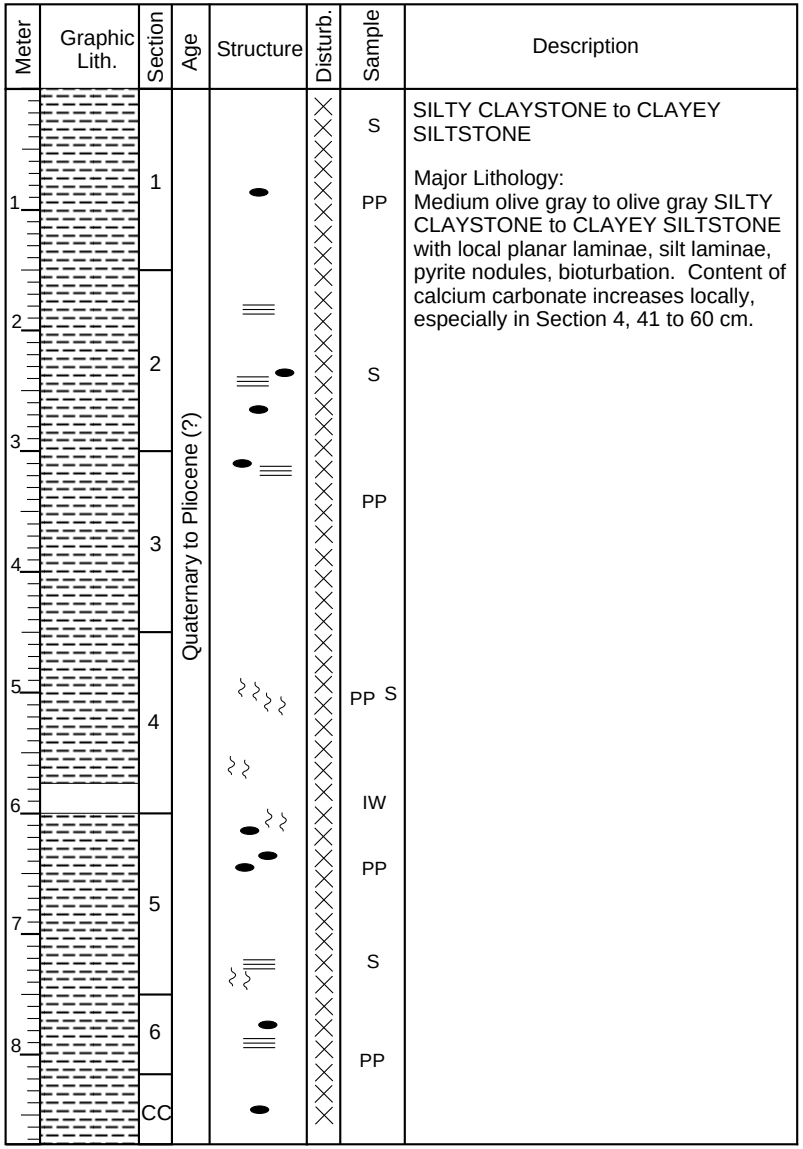
Minor Lithology:
Thin bed of SANDY SILTSTONE in Section 7, 12 cm.

General Description:
Small fault with normal sense of apparent offset in Section 5, 15 to 25 cm.

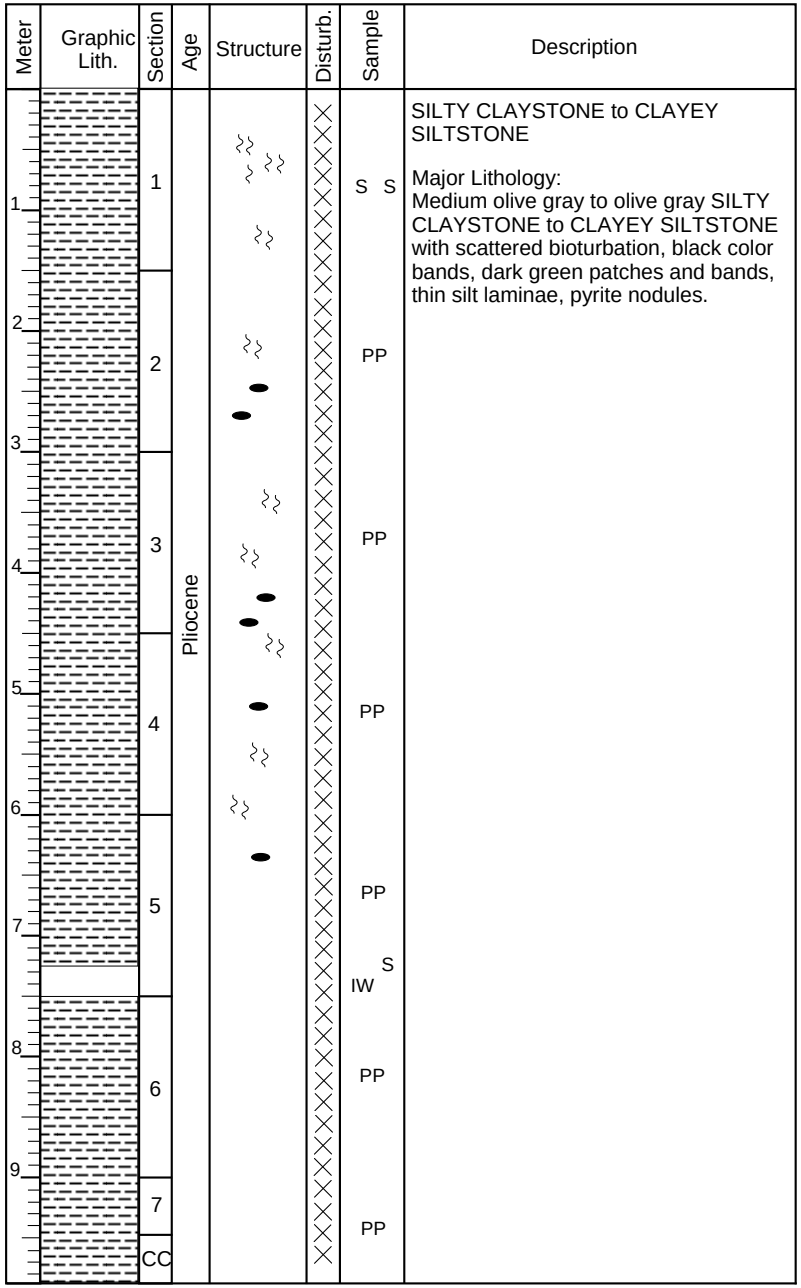
SITE 1027 HOLE B CORE 50X CORED 463.0 - 472.6 mbsf



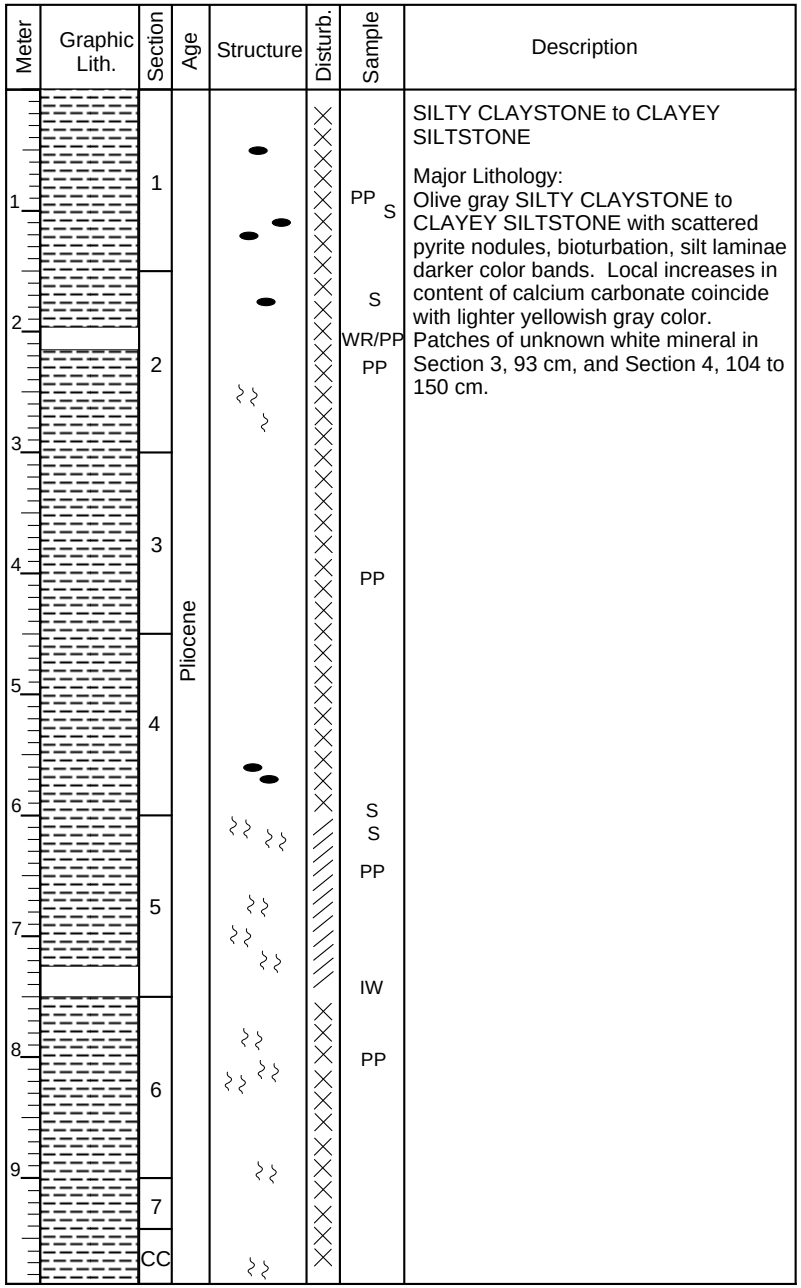
SITE 1027 HOLE B CORE 51X CORED 472.6 - 482.2 mbsf



SITE 1027 HOLE B CORE 52X CORED 482.2 - 491.7 mbsf



SITE 1027 HOLE B CORE 53X CORED 491.7 - 501.3 mbsf



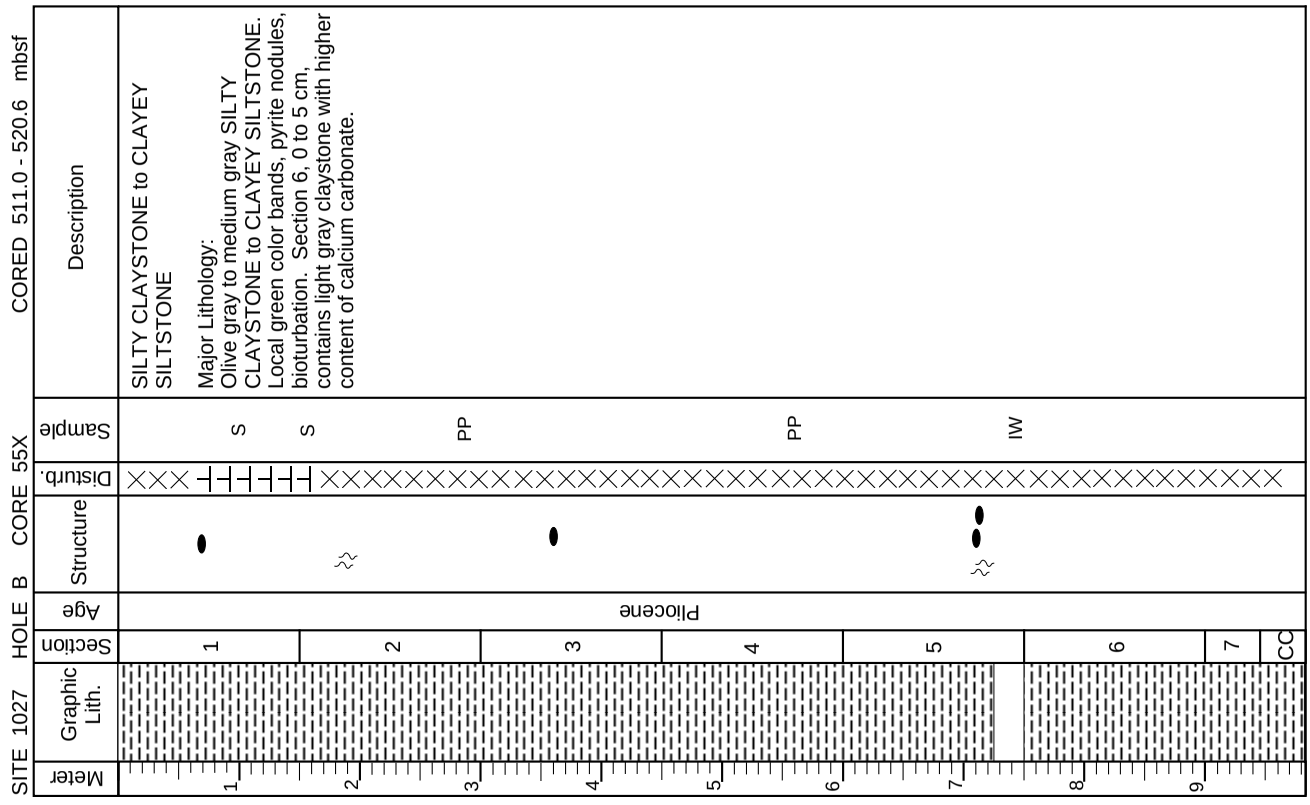
Description

SILTY CLAYSTONE to CLAYEY SILTSTONE

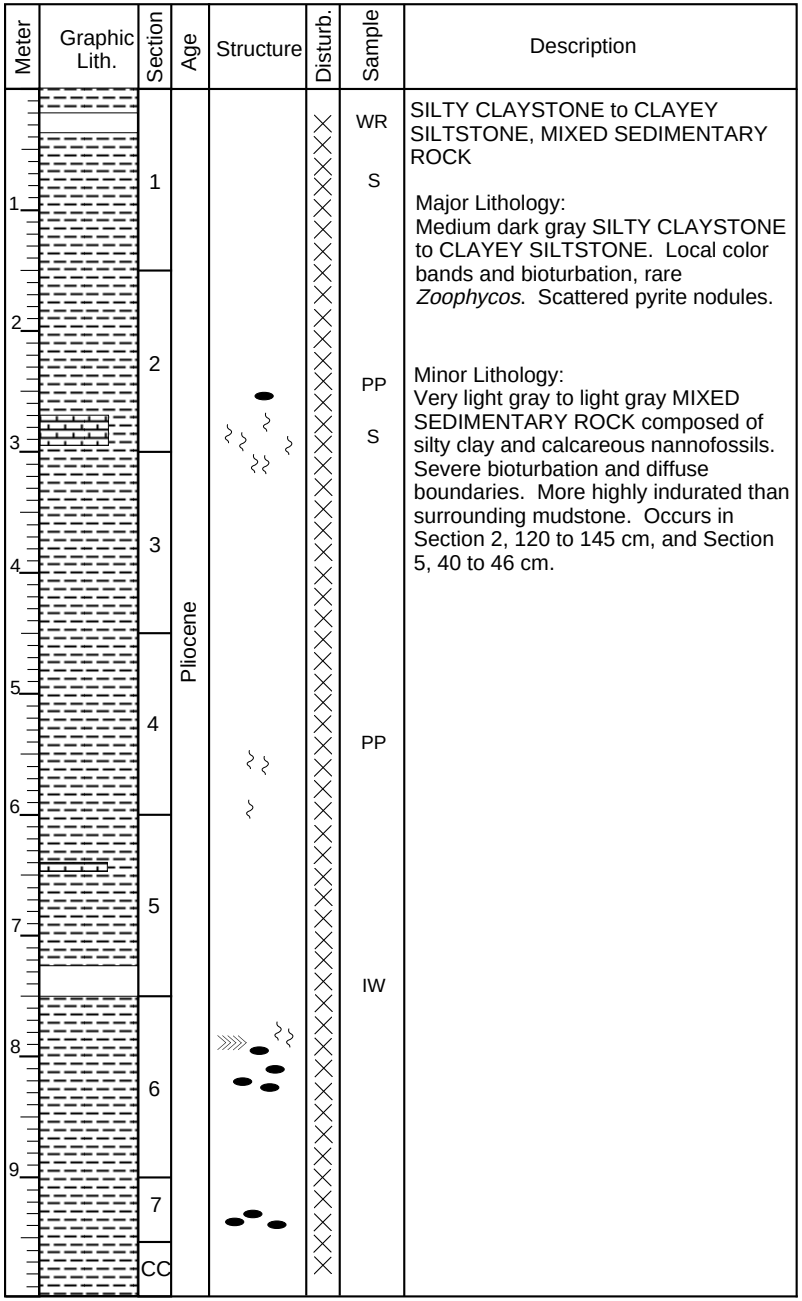
Major Lithology:
Olive gray SILTY CLAYSTONE to CLAYEY SILTSTONE with scattered pyrite nodules, bioturbation, silt laminae darker color bands. Local increases in content of calcium carbonate coincide with lighter yellowish gray color. Patches of unknown white mineral in Section 3, 93 cm, and Section 4, 104 to 150 cm.

SITE 1027 HOLE B CORE 54X CORED 501.3 - 511.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb.	Sample	Description
1–9		1–7, CC	Pliocene			S, S, S, PP, PP, S, S, S, IW, S, S	SILTY CLAYSTONE to CLAYEY SILTSTONE Major Lithology: Olive gray, light olive gray, and medium olive gray SILTY CLAYSTONE to CLAYEY SILTSTONE. Scattered pyrite nodules, bioturbation, silt laminae, green color bands. Local increases in carbonate content.


SITE 1027
HOLE B
CORE 55X
CORED 511.0 - 520.6 mbsf
Meter
Graphic Lith.
Section
Age
Structure
Disturb.
Sample
Description
1
2
3
4
5
6
7
CC
Pliocene
S
S
PP
PP
IW
SILTY CLAYSTONE to CLAYEY SILTSTONE
Major Lithology:
Olive gray to medium gray SILTY CLAYSTONE to CLAYEY SILTSTONE. Local green color bands, pyrite nodules, bioturbation. Section 6, 0 to 5 cm, contains light gray claystone with higher content of calcium carbonate.

SITE 1027 HOLE B CORE 56X CORED 520.6 - 530.3 mbsf

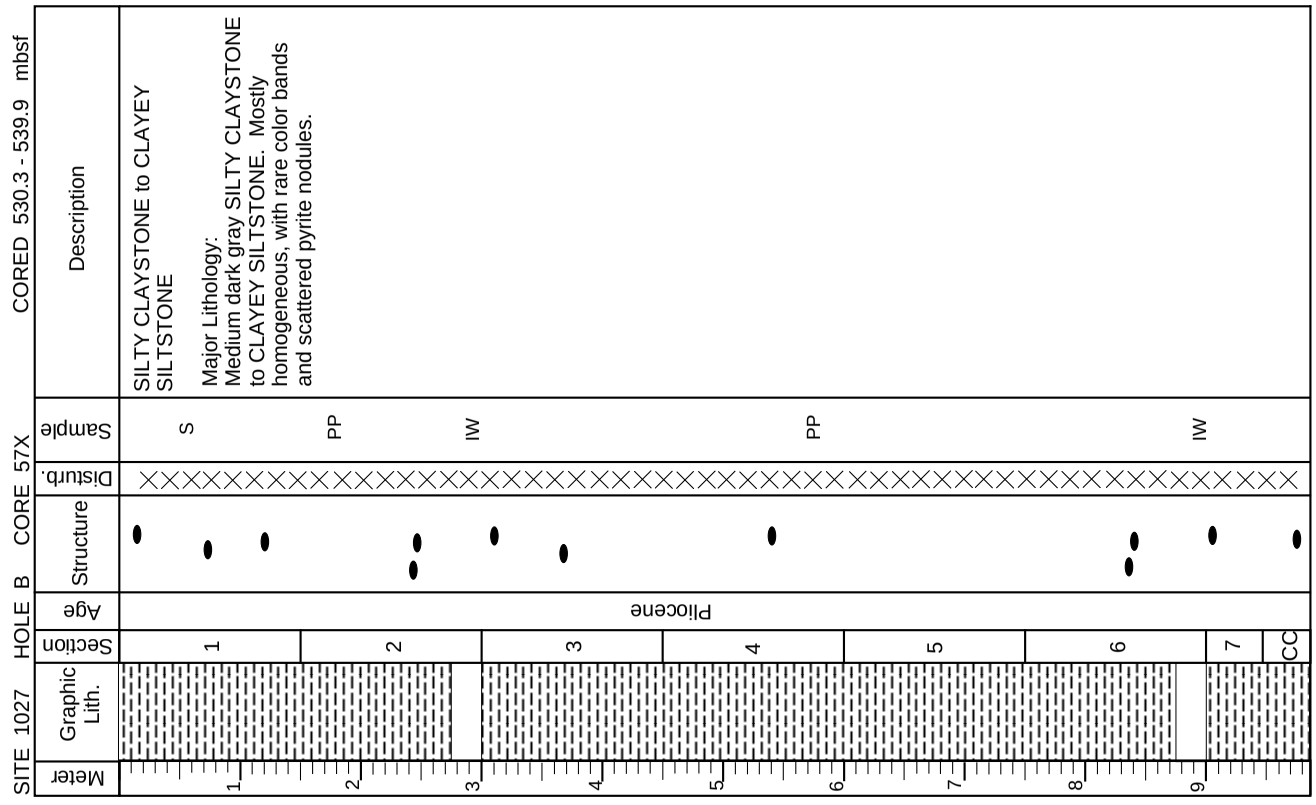


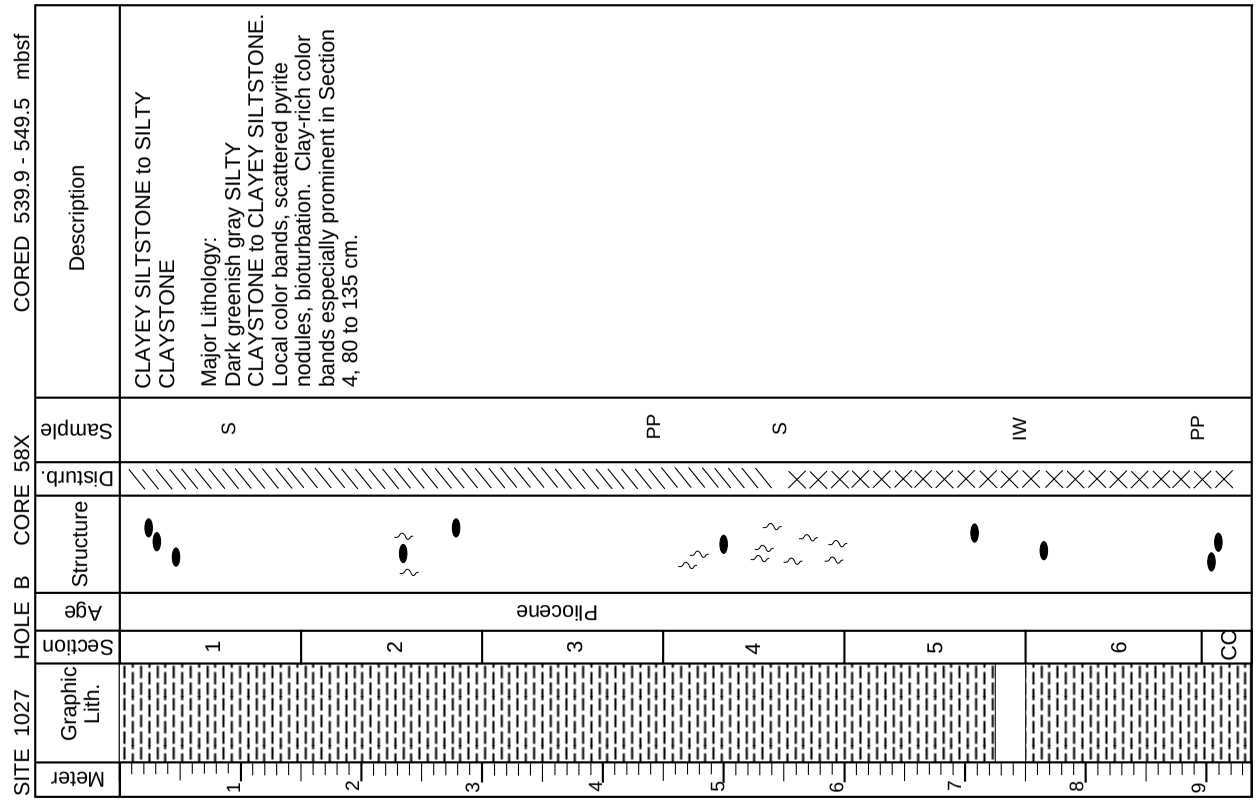
Description

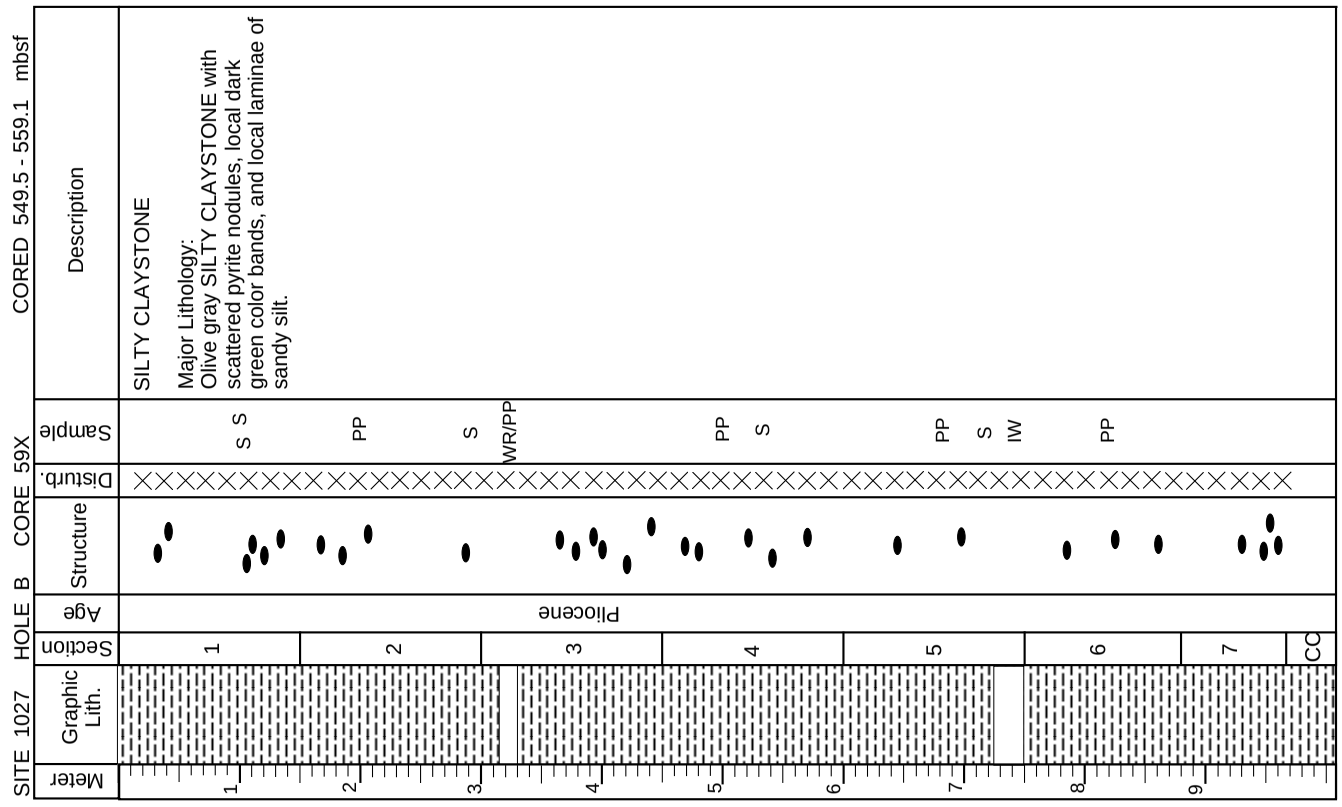
SILTY CLAYSTONE to CLAYEY SILTSTONE, MIXED SEDIMENTARY ROCK

Major Lithology:
Medium dark gray SILTY CLAYSTONE to CLAYEY SILTSTONE. Local color bands and bioturbation, rare *Zoophycos*. Scattered pyrite nodules.

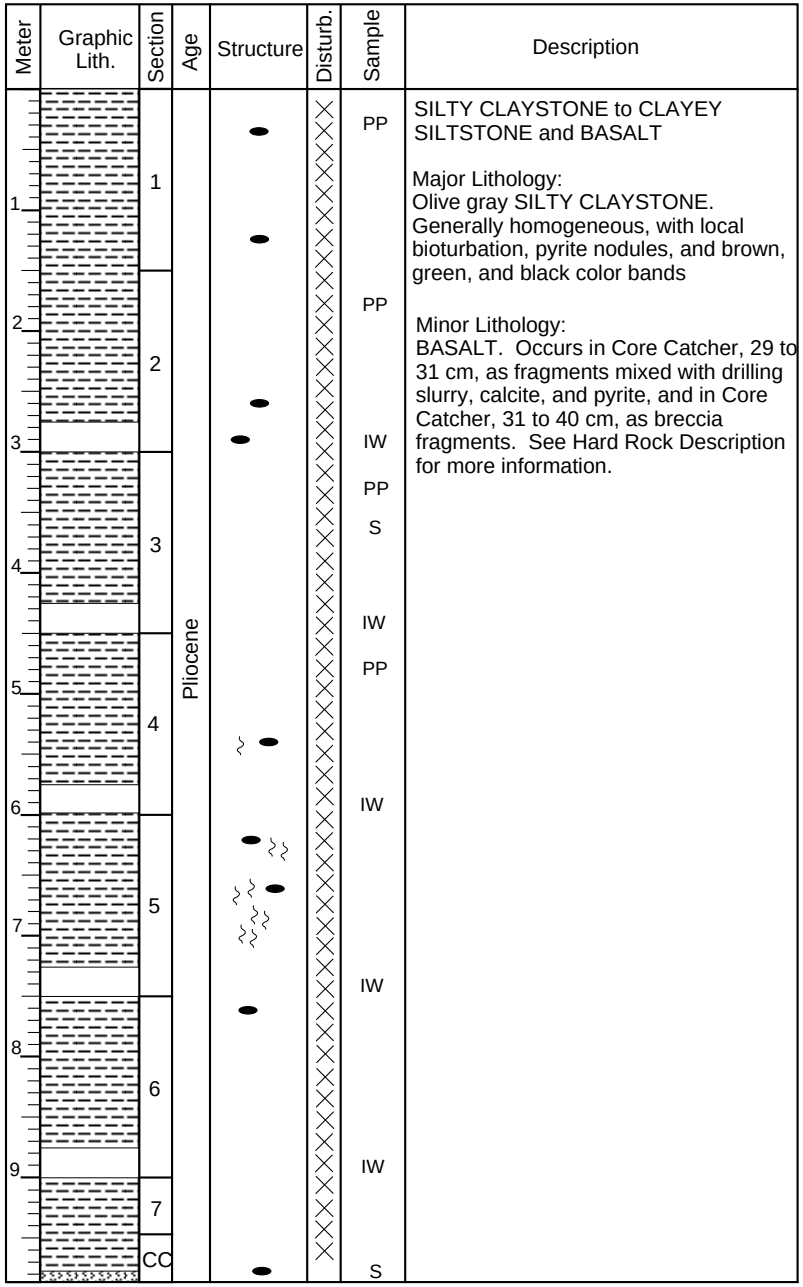
Minor Lithology:
Very light gray to light gray MIXED SEDIMENTARY ROCK composed of silty clay and calcareous nannofossils. Severe bioturbation and diffuse boundaries. More highly indurated than surrounding mudstone. Occurs in Section 2, 120 to 145 cm, and Section 5, 40 to 46 cm.


SITE 1027 HOLE B CORE 57X CORED 530.3 - 539.9 mbsf
Meter
Graphic Lith.
Section
Age
Structure
Disturb.
Sample
Description
1
2
3
4
5
6
7
CC
Pliocene
S
PP
IW
PP
IW
SILTY CLAYSTONE to CLAYEY SILTSTONE
Major Lithology:
Medium dark gray SILTY CLAYSTONE to CLAYEY SILTSTONE. Mostly homogeneous, with rare color bands and scattered pyrite nodules.


SITE 1027 HOLE B CORE 58X CORED 539.9 - 549.5 mbsf
Meter
Graphic Lith.
Section
Age
Structure
Disturb.
Sample
Description
1
2
3
4
5
6
7
8
9
CC
Pliocene
S
PP
S
IW
PP
CLAYEY SILTSTONE to SILTY CLAYSTONE
Major Lithology:
Dark greenish gray SILTY CLAYSTONE to CLAYEY SILTSTONE.
Local color bands, scattered pyrite nodules, bioturbation. Clay-rich color bands especially prominent in Section 4, 80 to 135 cm.


SITE 1027 HOLE B CORE 59X CORED 549.5 - 559.1 mbsf
Meter
Graphic Lith.
Section
Age
Structure
Disturb.
Sample
Description
1
2
3
4
5
6
7
CC
Pliocene
S S
PP
S
WR/PP
PP
S
PP
S
IW
PP
SILTY CLAYSTONE
Major Lithology:
Olive gray SILTY CLAYSTONE with scattered pyrite nodules, local dark green color bands, and local laminae of sandy silt.

SITE 1027 HOLE B CORE 60X CORED 559.1 - 568.3 mbsf



Description

SILTY CLAYSTONE to CLAYEY SILTSTONE and BASALT

Major Lithology:
Olive gray SILTY CLAYSTONE. Generally homogeneous, with local bioturbation, pyrite nodules, and brown, green, and black color bands

Minor Lithology:
BASALT. Occurs in Core Catcher, 29 to 31 cm, as fragments mixed with drilling slurry, calcite, and pyrite, and in Core Catcher, 31 to 40 cm, as breccia fragments. See Hard Rock Description for more information.

SITE 1027 HOLE B CORE 61X CORED 568.3 - 572.8 mbsf

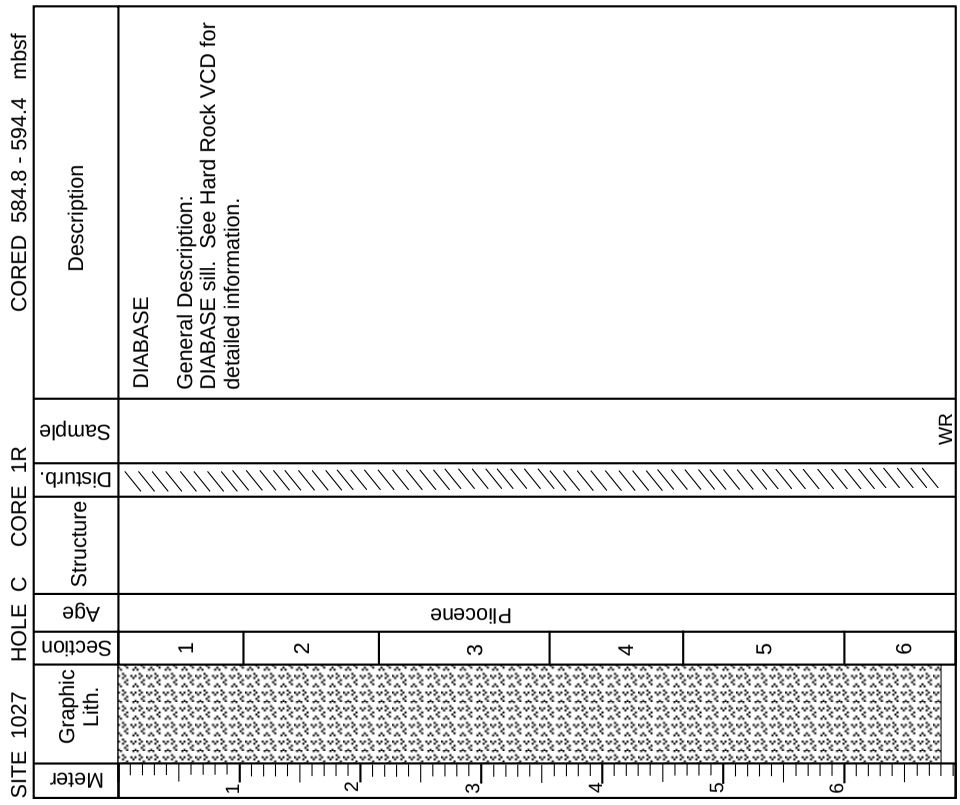
Meter	Graphic Lith.	Section	Age	Structure	Disturb.	Sample	Description
		CC	Pliocene			S	CLAYEY SILTSTONE to SILTY CLAYSTONE and BASALT

General Description:
Core Catcher, 0 to 8 cm, contains fragments of olive gray CLAYEY SILTSTONE. Core Catcher, 9 to 50 cm, contains fragments of BASALT in drilling slurry. See Hard Rock Description for additional information.

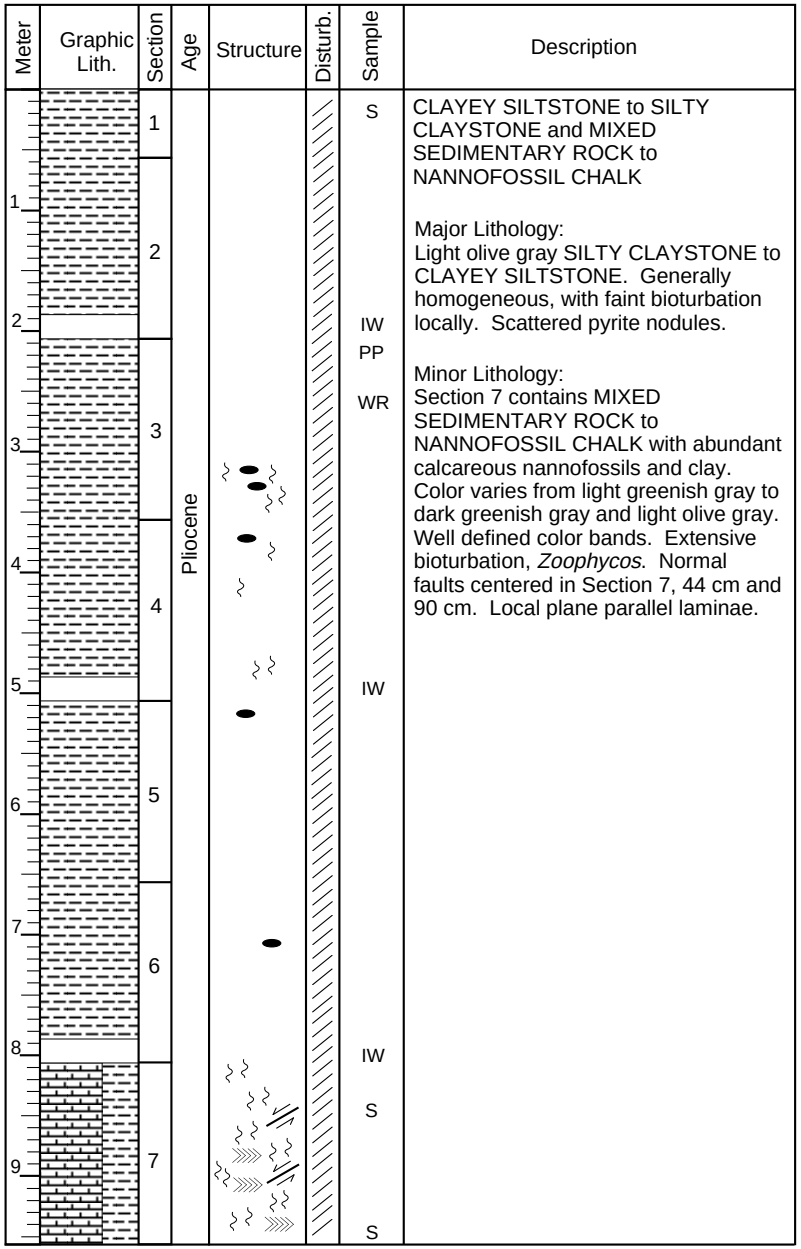
SITE 1027 HOLE B CORE 62X CORED 572.8 - 577.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb.	Sample	Description
		CC	Pliocene			S S S S	SILTY CLAYSTONE, MIXED SEDIMENTARY ROCK, and BASALT

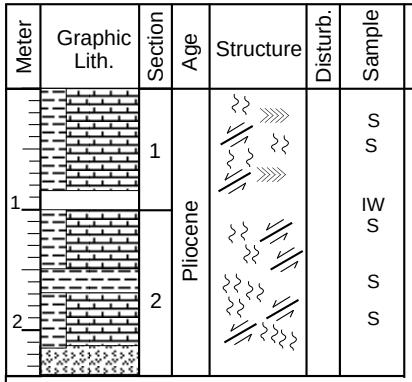
General Description:
Core Catcher, 0 to 10 cm and 39 to 42 cm, contains fragments of BASALT in drilling slurry. See Hard Rock Description for additional information.
Core Catcher, 10 to 21 cm and 26 to 36 cm, contains fragments of SILTY CLAYSTONE in drilling slurry.
Core Catcher, 21 to 26 cm and 36 to 39 cm, contains MIXED SEDIMENTARY ROCK with abundant clay and nannofossils.


SITE 1027 HOLE C CORE 1R CORED 584.8 - 594.4 mbsf
Meter
Graphic Lith.
Section
Age
Structure
Disturb.
Sample
Description
1
2
3
4
5
6
Pliocene
DIABASE
General Description:
DIABASE sill. See Hard Rock VCD for detailed information.
WR

SITE 1027 HOLE C CORE 2R CORED 594.4 - 604.1 mbsf



SITE 1027 HOLE C CORE 3R CORED 604.1 - 613.7 mbsf



MIXED SEDIMENTARY ROCK, CLAYEY SILTSTONE to SILTY CLAYSTONE, and BASALT

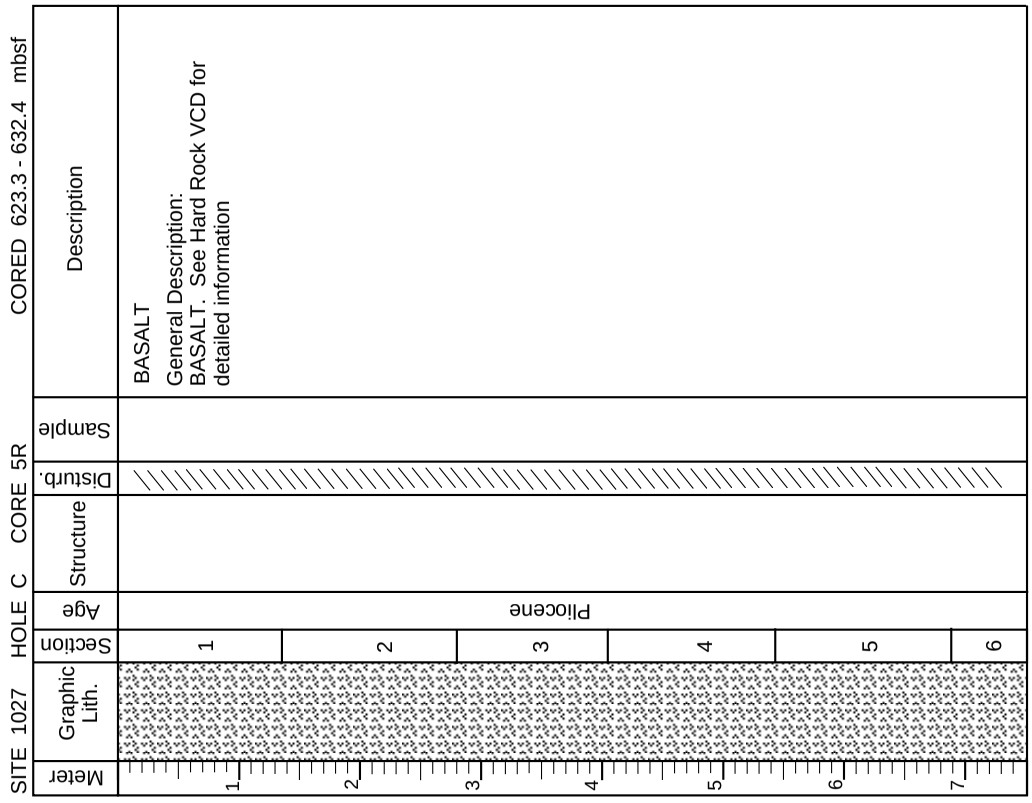
Major Lithology:
Variegated MIXED SEDIMENTARY ROCK, with high content of calcareous nannofossils. Strong bioturbation and *Zoophycos* with recrystallized calcite. Vivid color banding. Color varies from very light gray to light greenish gray, greenish gray, dark yellowish orange, pale yellowish brown, dark yellowish brown, and grayish orange.

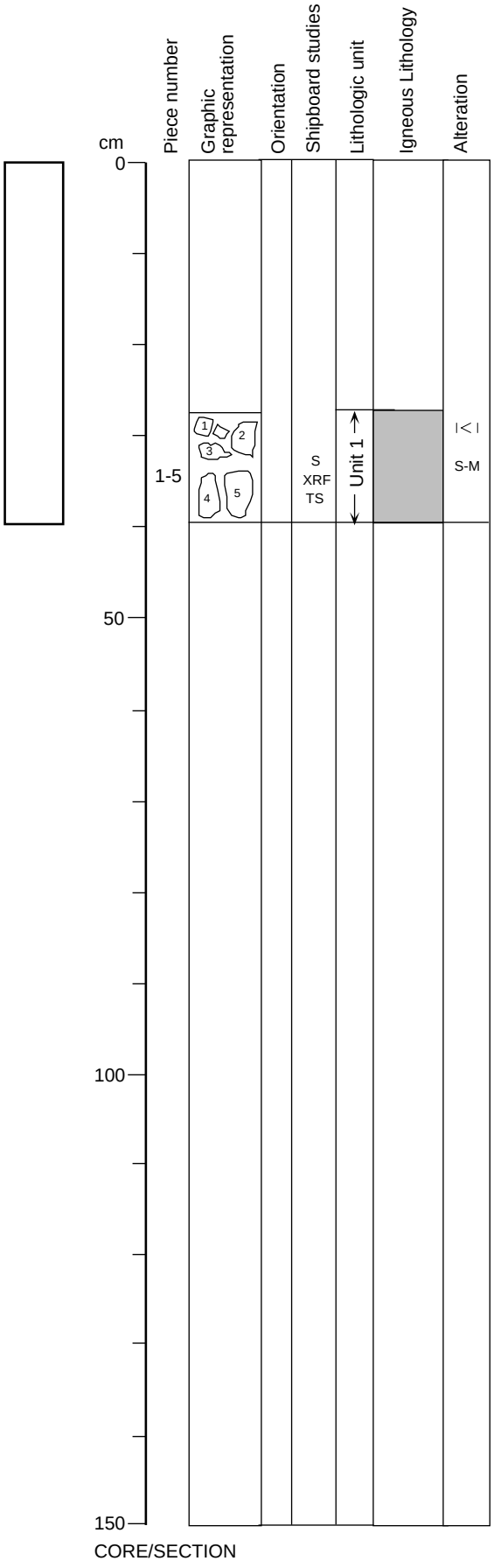
Minor Lithologies:
Grayish blue-green CLAYEY SILTSTONE to SILTY CLAYSTONE with vivid color bands of brown and grayish orange, in Section 2, 50 to 70 cm. BASALT rubble in Section 2, 115 to 140 cm. See Hard Rock Description for additional information.

General Description:
Hydrothermal alteration likely. Normal faults in Section 1, 38 cm and 80 cm, and Section 2, 20 cm, 40 cm, 75 cm, and 90 cm, with offset of burrows.

SITE 1027 HOLE C CORE 4R CORED 613.7 - 623.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb.	Sample	Description
1 2 3 4		1 2 3	Pliocene				BASALT and SILTY CLAYSTONE Major Lithology: BASALT. Minor Lithology: Dark yellowish brown SILTY CLAYSTONE in Section 1, 0 to 10 cm. Strongly bioturbated. General Description: See Hard Rock VCD for detailed information.


SITE 1027 HOLE C CORE 5R CORED 623.3 - 632.4 mbsf
Meter
Graphic Lith.
Section
Age
Structure
Disturb.
Sample
Description
1
2
3
4
5
6
7
Pliocene
BASALT
General Description:
BASALT. See Hard Rock VCD for detailed information



168-1027B-60X-CC

UNIT II: Hemipelagic mud (see sedimentary VCD)

UNIT 1: APHYRIC BASALT

PIECES 1-5

CONTACTS: Upper contact with hemipelagic sediments above 28 cm. Contact is sharp.

PHENOCRYSTS: Traces of plagioclase (≤1mm; clear fresh to white), pyroxene (≤0.5mm; fresh green) ± olivine (≤1mm; black sub- to euhedral pseudomorph).

GROUNDMASS: Cryptocrystalline to microcrystalline.

VESICLES: ≤1%, <1 mm diameter; partially lined to completely filled by clay (variably blue-gray or green) or calcite.

COLOR: Pieces 1 & 2 are tan to light gray (altered basalt fragments). Pieces 3-5 are slightly to moderately altered, medium gray basalt fragments.

STRUCTURE: Subangular fragments of basalt.

ALTERATION: Slight to moderate; olivine pseudomorphed by clay; palagonitized glass; clay lined or filled vesicles; secondary pyrite.

VEINS/FRACTURES: Fine pyrite trails (contained within the sediment; origin unknown) are located at the sediment/basalt contact. Piece 1 contains a pyrite-carbonate veinlet.

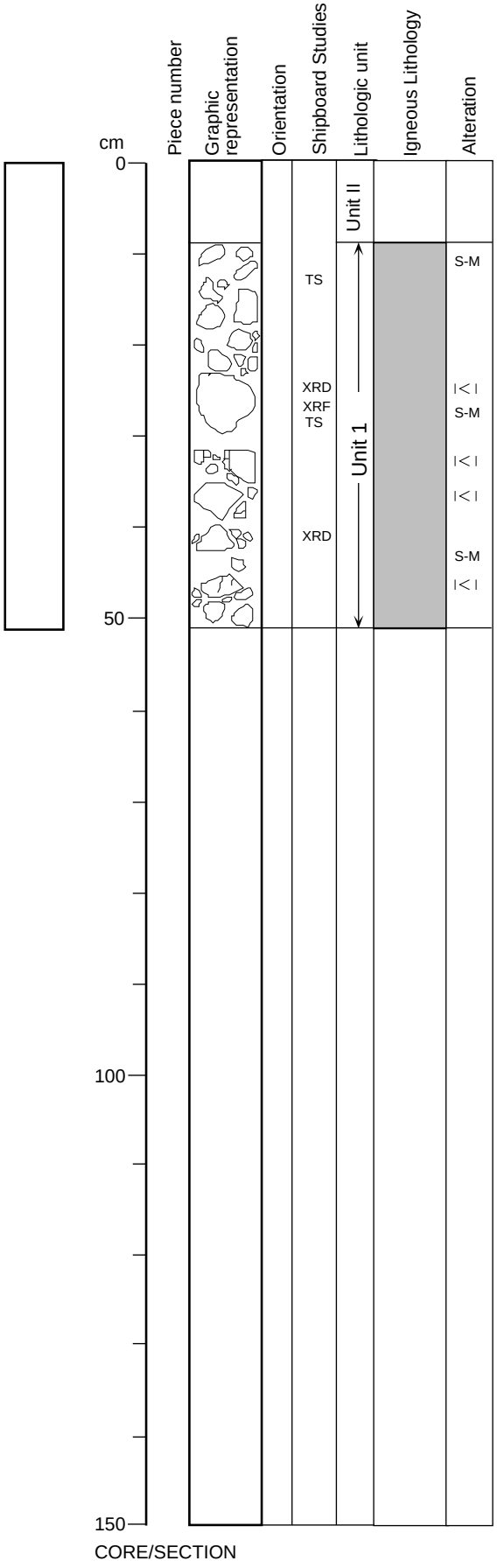
ADDITIONAL COMMENTS: The basalt fragments are surrounded by a matrix of carbonate-bearing mud (+ plagioclase fragments) and clay.

Pieces 1 & 2: Trace amounts of fresh plagioclase + pyroxene phenocrysts (≤1-0.5mm) ± altered olivine pseudomorphs (≤1mm).

Piece 2 has a variolitic to subvariolitic groundmass with pale creamy green palagonitized glass, clay lined vesicles, and secondary pyrite.

Piece 3 contains small white to green veinlets.

Pieces 4 & 5: Slight alteration of basalt. Trace amount of plagioclase phenocrysts. Many vesicles are completely filled or partially lined by clay (variably green to light blue-gray in color).



168-1027B-61X-CC

UNIT II: Hemipelagic mud (see Sedimentary VCD).

UNIT 1: APHYRIC BASALT

CONTACTS: Upper contact with hemipelagic sediments above 8cm. Contact is sharp.

PHENOCRYSTS: Trace amounts of plagioclase (<1-2mm; clear fresh to white), pyroxene (≤0.5mm; fresh green) ± olivine (≤1mm; black sub- to euhedral pseudomorphs).

GROUNDMASS: Microcrystalline, microlitic.

VESICLES: 2-5%; <1mm diameter.

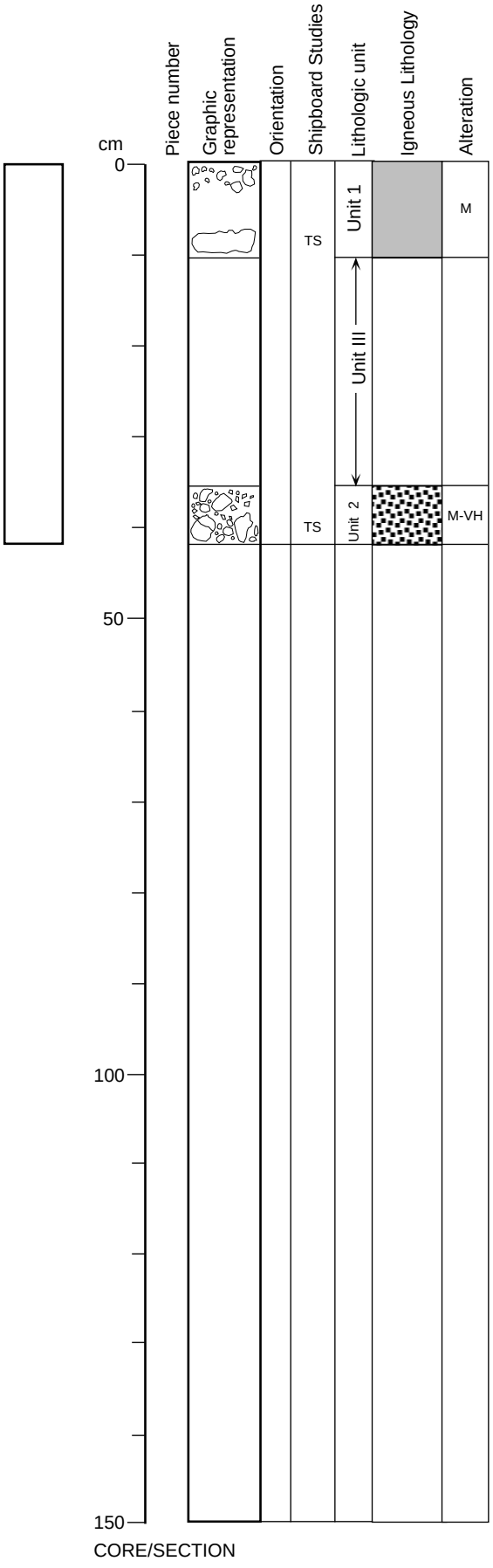
COLOR: 9-42 cm: medium to dark greenish gray, 4.7Y 1.6/0.1 to 0.9GY 2.5/0.1; 42-50cm: medium to dark blue-gray 1.2PB 2.6/0.2 to 4.6PB 5.5/0.1

STRUCTURE: Subangular basalt fragments, supported in a silty-muddy matrix.

ALTERATION: Slight to moderate; vesicles lined or filled by clay or carbonate; clay pseudomorphs of groundmass crystals; alteration halo (see below).

VEINS/FRACTURES: Veinlets («1mm) filled with carbonate or a green clay mineral are present in some basalt clasts at: 13-16cm; 24-30cm; 32cm; and 36-42cm. Several smaller microfractures cross cut other clasts.

ADDITIONAL COMMENTS: Many vesicles are lined or filled by either clay minerals (variably black, dark green, yellow-green or gray) or carbonate (in some cases with well developed euhedral habit). The yellow-green clay also forms apparent pseudomorphs (0.5-0.75mm) within the groundmass. One piece (19-20 cm) has a glassy margin with an alteration halo and is surrounded by small glassy fragments (1-2mm) in the matrix. At 48-49cm, the clay matrix is streaked with a creamy white carbonate-rich mud.



168-1027B-62X-CC

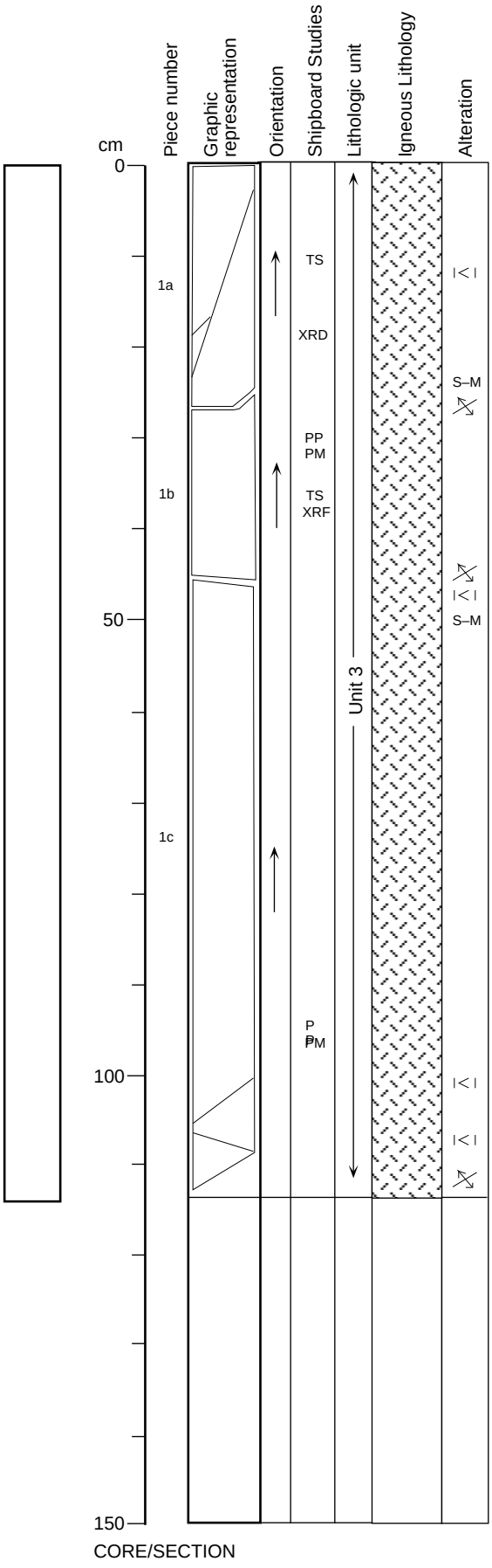
UNIT III: Hemipelagic and carbonate-bearing mud (see Sedimentary VCD.) Carbonate rich mud from 10-25cm; hemipelagic mud from 25-33cm; carbonate mud from 33-35cm.

UNIT 1: APHYRIC BASALT

CONTACTS: Lower contact with hemipelagic and carbonate muds. Contact is sharp.
PHENOCRYSTS: Traces of plagioclase (≤1mm; clear fresh to white), pyroxene (≤0.5mm; fresh green) ± olivine (≤1mm; black sub- to euhedral pseudomorphs).
GROUNDMASS: Microcrystalline.
VESICLES: ≤1%; <1mm diameter.
COLOR: variable; medium to dark blue-gray, 9.8B 2.6/0.1 to 8.3B 2.3/0.3.
STRUCTURE: Subangular basalt fragments.
ALTERATION: Moderate; alteration patches; vesicles lined or filled by carbonate.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: Many vesicles are lined or filled by carbonate. Hemipelagic and carbonate muds with basalt pebbles from 0-7cm. All basalt fragments appear to be variably altered. Single basaltic fragment from 7-10cm. Irregular alteration patches within the basalt fragment at 7-10cm can be correlated with zones of intense carbonate vesicle infill.

UNIT 2: BASALT BRECCIA

CONTACTS: Upper contact with hemipelagic and carbonate muds. Contact is sharp.
PHENOCRYSTS: None.
GROUNDMASS: Microcrystalline, microlitic.
VESICLES: 1%; ≤1mm diameter.
COLOR: Strong variations in color from light gray, dark blue-gray, to brownish gray between and within individual clasts. The matrix is medium to dark gray mud.
STRUCTURE: Subangular to angular basalt clasts.
ALTERATION: Moderate to very high; vesicles lined or filled by clay and carbonate.
VEINS/FRACTURES: one microfracture cuts across one piece.
ADDITIONAL COMMENTS: Many vesicles are partially lined to completely filled by white carbonate and/or minor amounts of a dark green mineral. Different varieties of basalt clasts can be recognised. One clast has a sub-variolitic texture along a quenched margin. Trace oxidation haloes occur in the sedimentary matrix around some of the clasts.

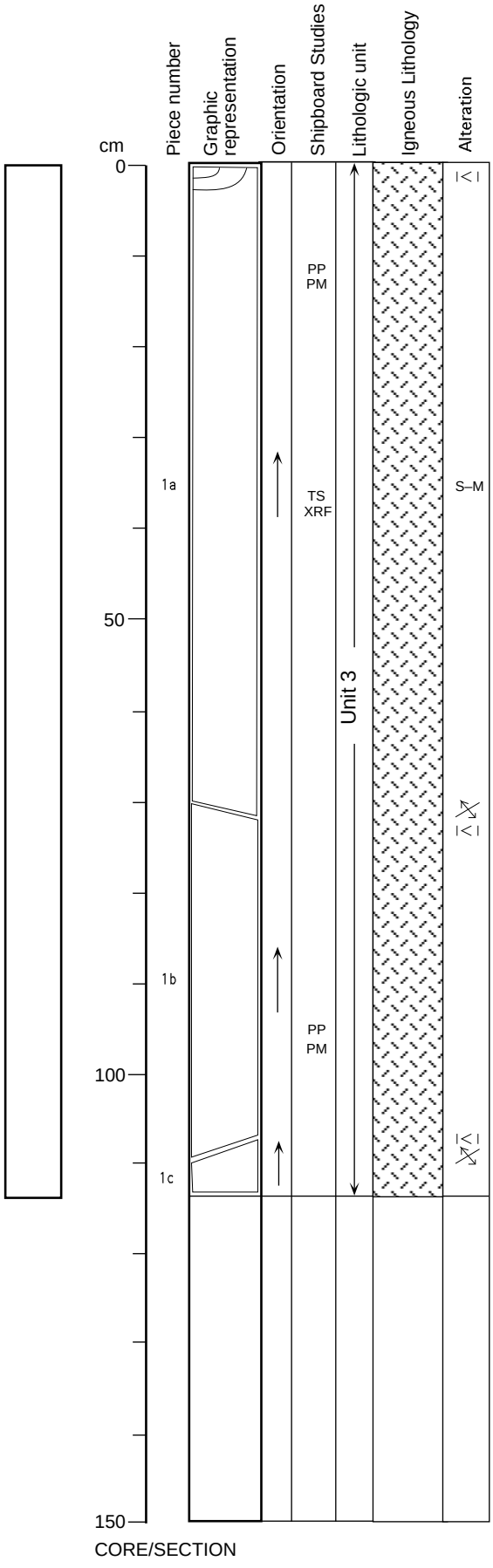


168-1027C-01R-01

UNIT 3: DIABASE

PIECE 1

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Phaneritic, fine grained; diabasic texture.
VESICLES: <1%; diameters ≤1.5 mm.
COLOR: 9.4B 1.8/0.1 @ 36cm; 8.8B 1.6/0.1 @ 90cm
STRUCTURE: Massive.
ALTERATION: Slight to moderate; green clay partially lines some vesicles, which may further be filled with carbonate. Millimeter-scale zones flanking veins contain tiny spots of red material, probably iddingsite or FeO(OH). A local area of moderate alteration occurs from 22 to 32cm, represented by patches of light green-turquoise clay plus carbonate.
VEINS/FRACTURES: White and greenish-white veins with carbonate and clays; fine fractures with clay (<<1 mm wide) distributed throughout the unit with approximately decimeter spacing.
ADDITIONAL COMMENTS: A gradual grain size variation exists between sections 1–5; sections 1, 2 and 5 are fine grained whilst sections 3 and 4 are medium grained. In addition, section 6 represents the lower aphanitic chilled margin of this diabase unit.

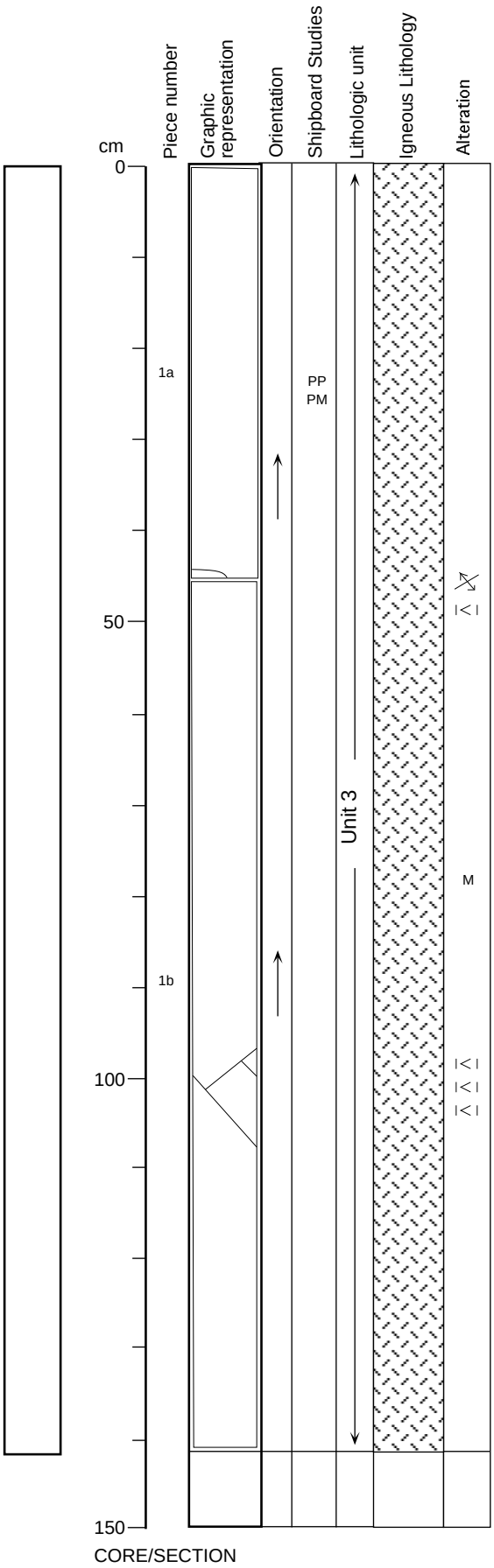


168-1027C-01R-02

UNIT 3: DIABASE

PIECE 1

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Phaneritic, fine grained; diabasic texture.
VESICLES: <1%; diameters ≤1.5 mm.
COLOR: 9.3GY 2.2/0.1 @ 40cm; 9.4BG 1.8/0.1 @ 90cm
STRUCTURE: Massive.
ALTERATION: Slight to moderate; green clay partially lines some vesicles, which may further be filled with carbonate. Millimeter-scale zones flanking veins contain tiny spots of red material, probably iddingsite or FeO(OH).
VEINS/FRACTURES: White and greenish-white veins with carbonate and clays; fine fractures with clay (<<1 mm wide) distributed throughout the unit with approximately decimeter spacing.
ADDITIONAL COMMENTS: See additional comments for section 1.

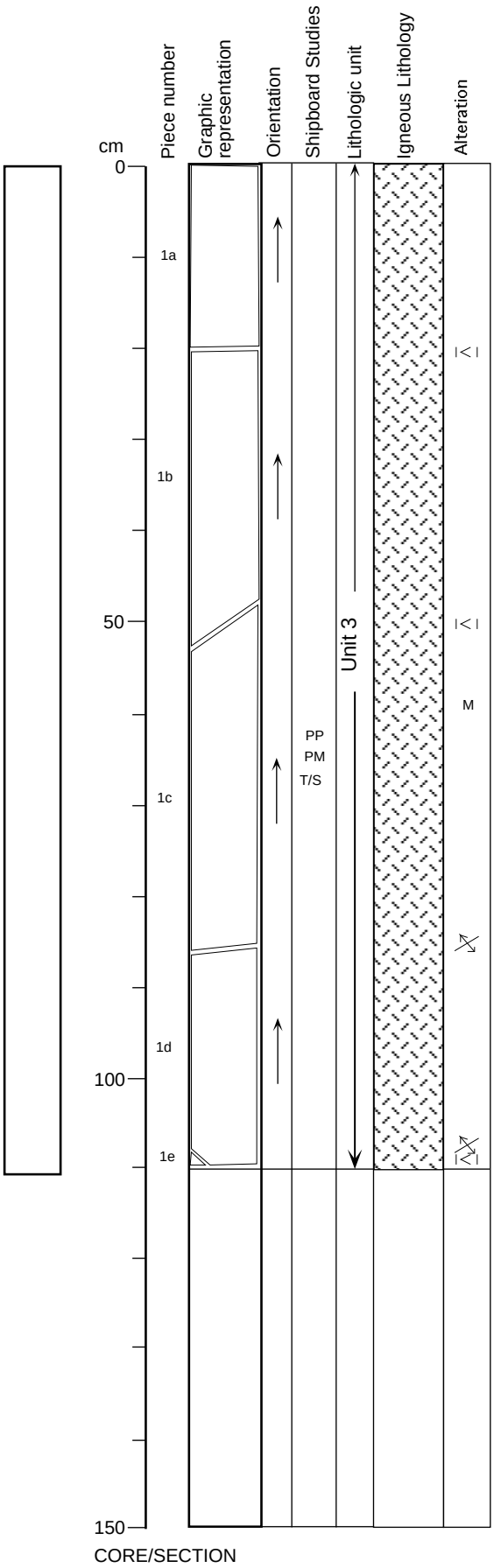


168-1027C-01R-03

UNIT 3: DIABASE

PIECE 1

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Phaneritic, fine grained; diabasic texture.
VESICLES: <1%; diameters ≤1.5 mm
COLOR: 9.7B 1.6/0.2 @ 40cm; 9.6B 2.0/0.2 @ 90cm
STRUCTURE: Massive.
ALTERATION: Moderate; green clay partially lines some vesicles, which may further be filled with carbonate. Millimeter-scale zones flanking veins contain tiny spots of red material, probably iddingsite or FeO(OH).
VEINS/FRACTURES: white and greenish-white veins with carbonate and clays; fine fractures with clay (<<1 mm wide) distributed throughout the unit with approximately decimeter spacing.
ADDITIONAL COMMENTS: See comments for section 1.

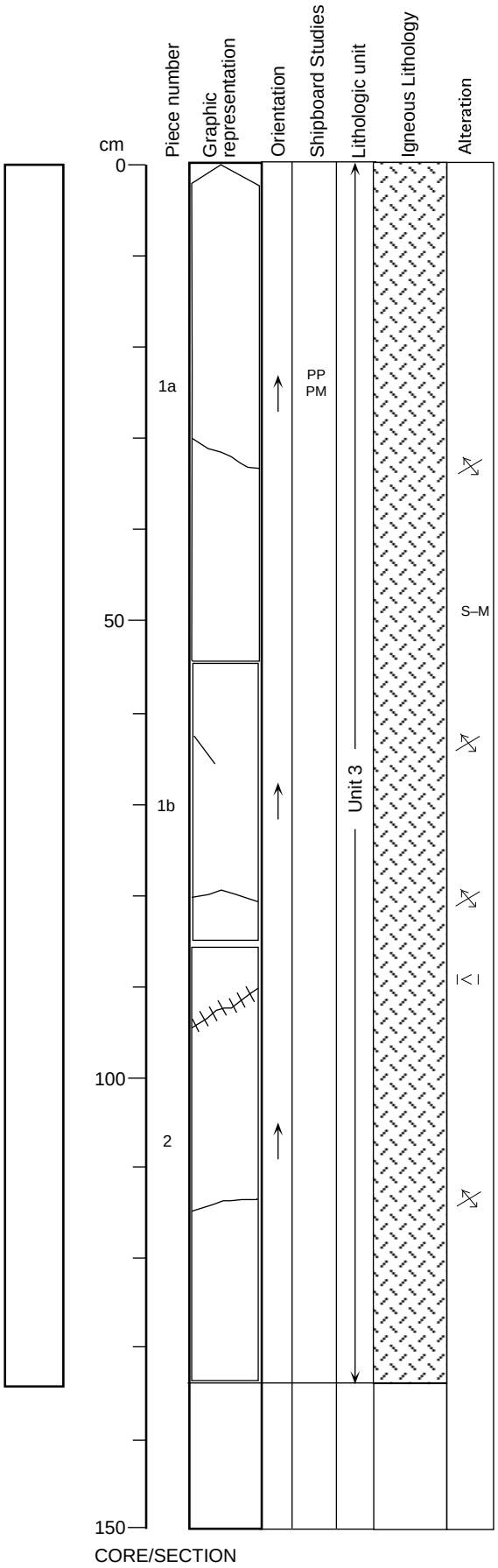


168-1027C-01R-04

UNIT 3: DIABASE

PIECE 1

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Phaneritic, fine to medium grained; diabasic texture.
VESICLES: <1%; diameters ≤1.5 mm.
COLOR: 2.2PB 1.8/0.1 @ 40cm; 9.1B 1.8/0.1 @ 95cm
STRUCTURE: Massive.
ALTERATION: Moderate; green clay partially lines some vesicles, which may further be filled with carbonate. Millimeter-scale zones flanking veins contain tiny spots of red material, probably iddingsite or FeO(OH).
VEINS/FRACTURES: white and greenish-white veins with carbonate and clays; fine fractures with clay (<<1 mm wide), distributed throughout the unit with approximately decimeter spacing.
ADDITIONAL COMMENTS: See comments for section 1.

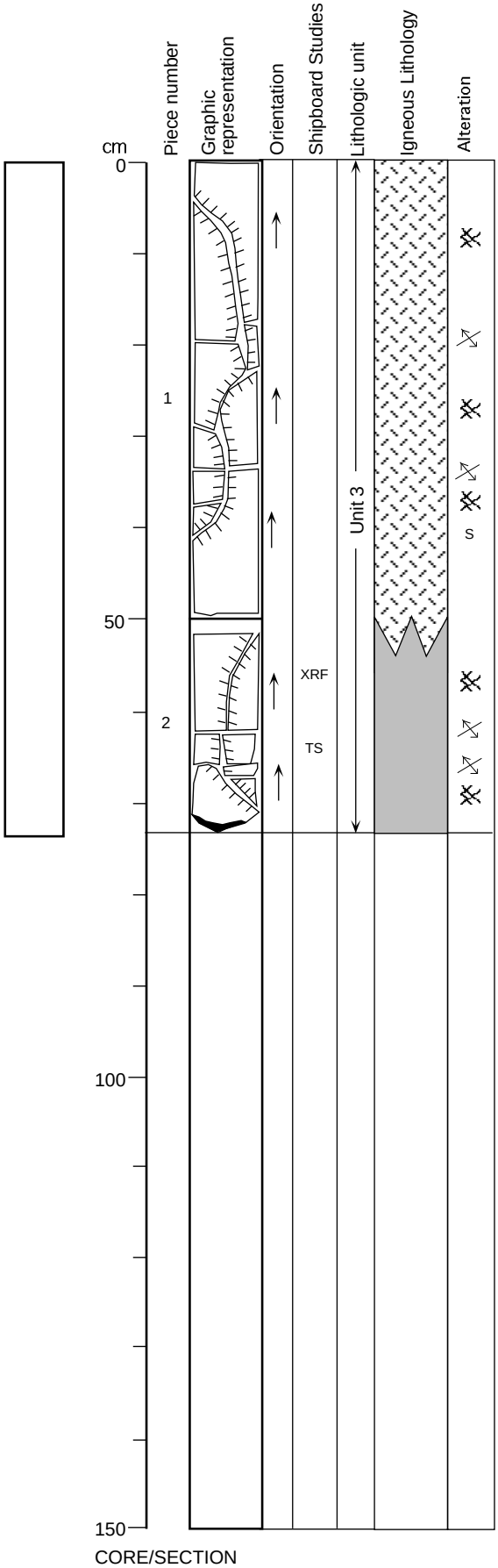


168-1027C-01R-05

UNIT 3: DIABASE

PIECES 1-2

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Phaneritic, fine to medium grained; diabasic texture. Contains euhedral plagioclase + dark green pyroxene ± minor brown pyroxene ± olivine (≤0.75mm).
VESICLES: Sparse; subspherical to spherical (≤0.4mm). The majority of vesicles are unfilled.
COLOR: Medium blue-gray; 8.8GY 2.5/0.2 (40cm) — 3.9BG 2.3/0.1 (90cm).
STRUCTURE: Massive.
ALTERATION: Limited to veins; slight to moderate.
VEINS/FRACTURES: Pieces 1 & 2 are cross cut by numerous fine fractures. At 93-94cm in piece 2, there is a ≤1.25mm wide carbonate + clay vein. There are no alteration haloes associated with the vein or fractures.
ADDITIONAL COMMENTS: Pieces 1a and 1b have split along a fracture. The fracture within piece 1a has a dip of 15°, whilst within piece 1b, the lower fracture has a c.0° dip. A faint lining of green clay is present along broken fractures. The vein in piece 2 is lined by fine fibrous green clay, and infilled by granular white carbonate.



168-1027C-01R-06

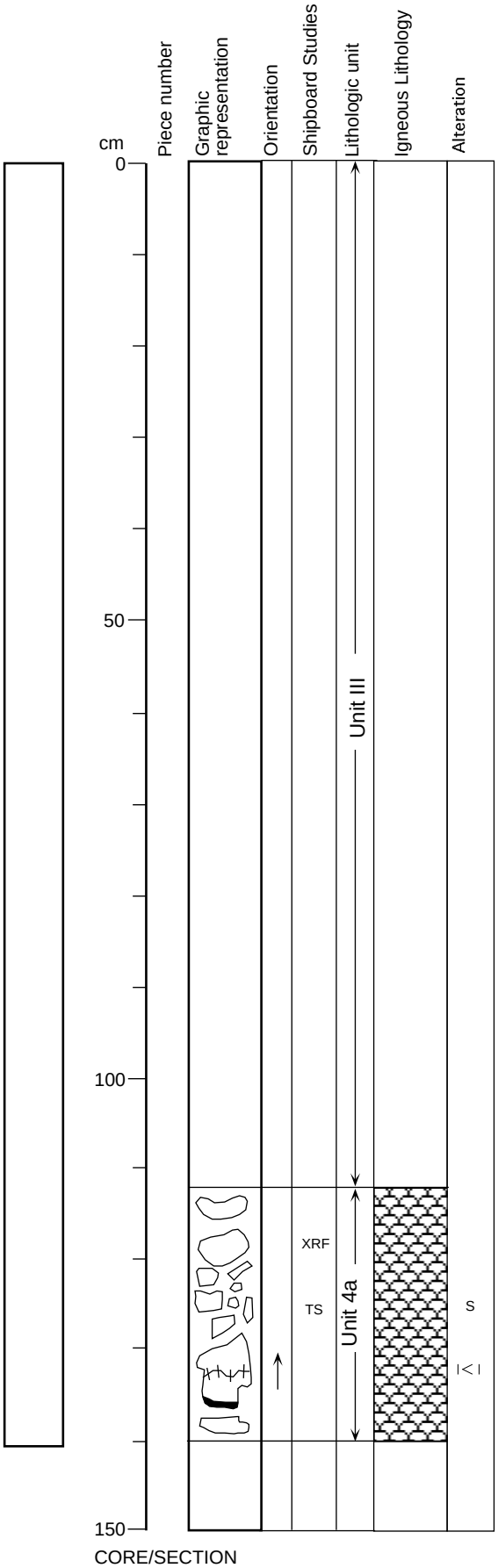
UNIT 3: APHYRIC BASALTIC MARGIN OF DIABASE

PIECE 1

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Homogeneous, microlitic; euhedral plagioclase + dark green olivine ± pyroxene.
VESICLES: Sparse; ≤0.4mm.
COLOR: Dark gray-blue; 6.3B 1.8/0.2
STRUCTURE: Massive.
ALTERATION: Appears to be limited to the veins; slight.
VEINS/FRACTURES: Piece 1 is cross-cut by an anastomosing network of veins and fractures. Veins are ≤5mm wide, with an average width of ≤2-1mm. Veins are lined by a very fine layer of green clay and are infilled by white granular to fibrous carbonate. Vein within piece 1 has an apparent dip of 60-80°. The vein network is cross-cut by a series of near horizontal fractures.
ADDITIONAL COMMENTS: Piece 1 has an overall diabasic texture, similar to sections 1-5. There are no apparent alteration haloes associated with the fractures or veins.

PIECE 2

CONTACTS: Chilled margin at base of unit. (The top of Core 2R contains carbonate-rich sediment.)
PHENOCRYSTS: Trace amounts of plagioclase + dark green olivine ± pyroxene microphenocrysts.
GROUNDMASS: Aphanitic; variolitic to microcrystalline moving away from the chilled margin.
VESICLES: Vesicularity increases towards chilled margin (still <1%); vesicles are spherical to subspherical (≤0.6mm) and infilled by white carbonate ± clay.
COLOR: Dark gray-blue; 6.0BG 1.7/0.1
STRUCTURE: Massive chilled margin of diabase.
ALTERATION: Basalt is fresh in appearance, with alteration limited to the veins, infilled vesicles and proximal to the chilled margin.
VEINS/FRACTURES: Piece 2 is cut by an anastomosing network of veins and fractures. Veins are ≤5mm wide, with an average width of ≤2-1mm. Veins are lined by a very fine layer of green clay and are infilled by white fibrous ± granular carbonate. Veins dip from 60-80° to vertical down piece 2, with these cross-cut by near horizontal fractures.
ADDITIONAL COMMENTS: The chilled margin and adjacent variolitic basalt contains altered glass and palagonitized plagioclase phenocrysts.

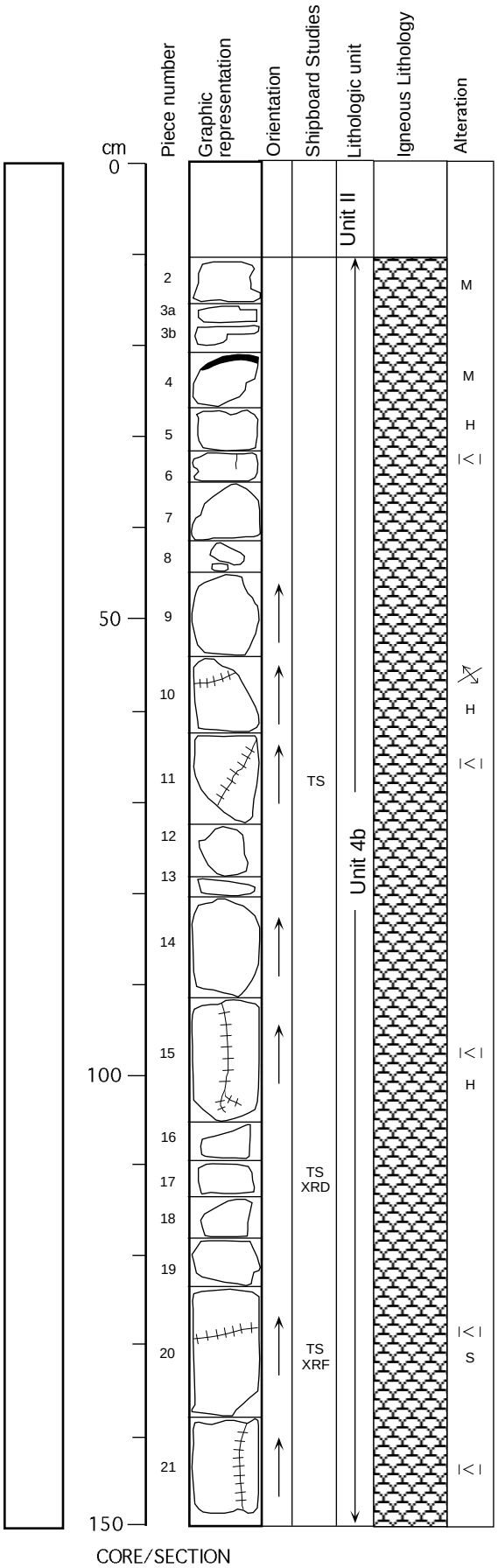


168-1027C-03R-02

UNIT III: Carbonate-rich sediment (see Sedimentary VCD).

UNIT 4a: PLAGIOCLASE-OLIVINE–PYROXENE PHYRIC BASALT

CONTACTS: Upper contact with sedimentary unit; glassy chilled margin on orientated piece at base of unit IIId.
PHENOCRYSTS: Fresh euhedral plagioclase (≤1mm) + euhedral pyroxene (≤0.5mm) + altered olivine (≤0.5mm); moderately phyric.
GROUNDMASS: Hypocrystalline; porphyritic; microcrystalline; vesicular. Oriented fragment has an altered variolitic texture next to the chilled margin.
VESICLES: ≤2%; round (≤0.5%). Vesicles are either empty or lined by brown or dark green clay (iddingsite/saponite?) with a pale blue to blue-green clay (saponite) fibrous infill.
COLOR: Medium gray-blue; 7.6GY 2.2/0.1
STRUCTURE: Pillow basalt with chilled margin.
ALTERATION: Variable; slight to moderate limited to along fractures, infilling vesicles and outer surfaces. Glass in chilled margin has been altered whilst the plagioclase is palagonitized.
VEINS/FRACTURES: Several pieces have fine (≤0.1mm) fractures which are either empty or lined by dark green ± brown clay (saponite ± iddingsite). Large orientated piece has a well developed bifurcating vein ≤1.5mm wide, partially infilled by iddingsite + saponite.
ADDITIONAL COMMENTS:



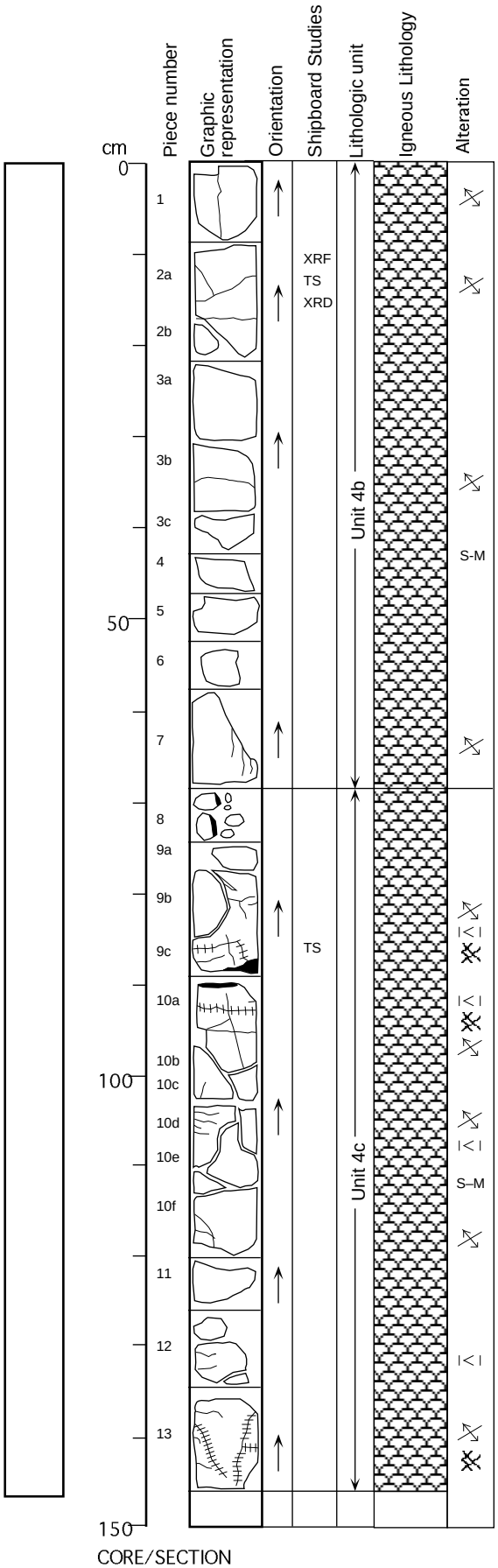
168-1027C-04R-01

UNIT II: Hydrothermally altered sediment (see Sedimentary VCD).

UNIT 4b: MODERATELY PHYRIC PLAGIOCLASE-OLIVINE-PYROXENE BASALT

PIECES 2-21

CONTACTS: None.
PHENOCRYSTS: 2-6% plagioclase (euhedral and lath shape: 0.5-3mm); minor amount of glomerocrysts (2-5mm) of plagioclase ± pyroxene; 1-3% black pseudomorphs of olivine (euhedral to subhedral, 0.1-1mm); 1-3% pyroxene (0.6-2mm).
GROUNDMASS: Cryptocrystalline to microcrystalline.
VESICLES: 2-3%, ≤0.5mm, partly filled by black to grayish blue clays and white carbonate.
COLOR: Medium gray to light gray; 2.3PB 2.2/0.3 top; 7.8Y 3.2/0.2 piece with alteration haloes; 8.0G 2.1/0.2 brown alteration; 9.6B 1.6/0.1 bottom.
STRUCTURE: Pillow basalt.
ALTERATION: Light colored cores and dark gray to green centimetric halos in pieces 2-19. In addition, orange alteration patches in pieces 12-19. Pyrite grains in <1mm-large cavities or on external coating of broken veins in pieces 15, 19, and 21.
VEINS/FRACTURES: Sub-millimetric dark green veins in pieces 3b, 6, 10, 11, 15, 20, and 21. Some veins have alteration haloes in the wallrock.
ADDITIONAL COMMENTS: Glassy margin in piece 4.



168-1027C-04R-02

UNIT 4b: MODERATELY PHYRIC PLAGIOCLASE-OLIVINE-PYROXENE BASALT

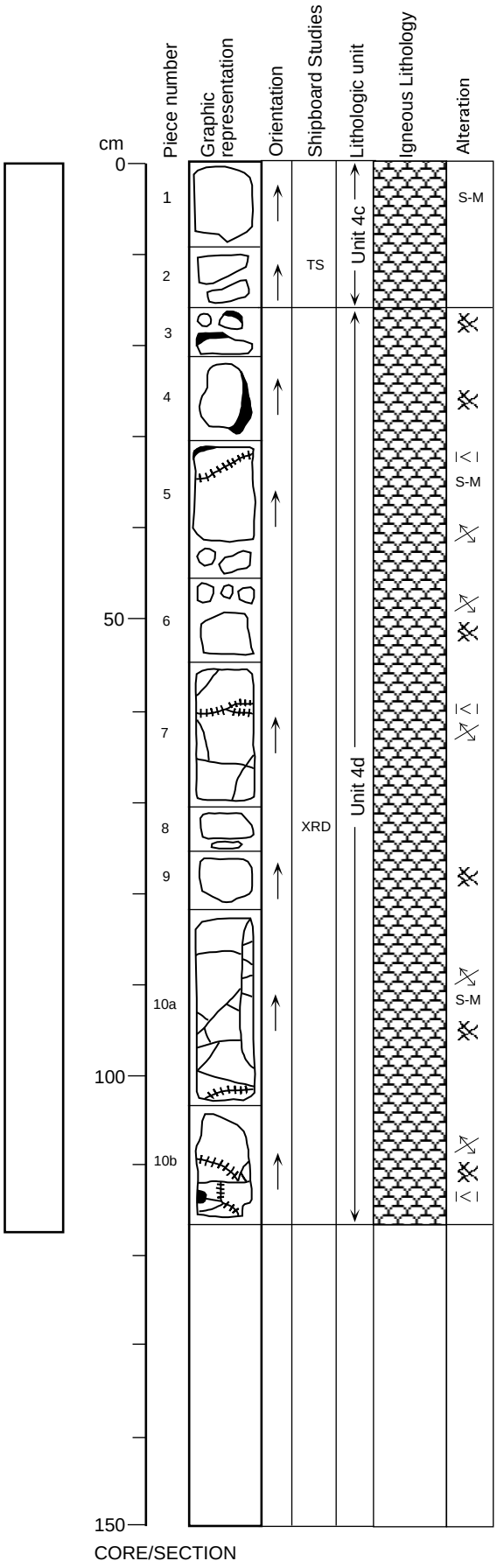
PIECES 1-7

CONTACTS: None.
PHENOCRYSTS: Euhedral to subhedral olivine phenocrysts (≤3mm) completely replaced by green to dark green clays ± carbonate; abundance ≤2%. Fresh euhedral to subhedral plagioclase (≤3 mm); abundance ≤ 3%. Euhedral fresh pyroxene (≤2 mm); abundance 2%.
GROUNDMASS: Microcrystalline.
VESICLES: ≤1mm; ≤2%, spherical, concentrically infilled by dark to light green clay, pale light blue clay and carbonate.
COLOR: Gray; 2.2PB 1.9/0.3 to 4.4PB 2.7/0.2
STRUCTURE: Pillow basalt.
ALTERATION: Slight to moderate. Clay minerals (light to dark green, pale light blue, yellowish) occur in association with fractures and as a coating on outer surfaces; pyrite patches on outer surfaces and in fractures.
VEINS/FRACTURES: Fractures in pieces 1, 3 and 7; pyrite veinlet (<<1mm) in piece 1.

UNIT 4c: APHYRIC TO MODERATELY PHYRIC PLAGIOCLASE-OLIVINE BASALT

PIECES 8-13

CONTACTS: Subunits defined by presence of glassy chilled margins on pieces 8, 9 and 10.
PHENOCRYSTS: Euhedral to subhedral olivine phenocrysts and sparse glomerocrysts (≤3mm) completely replaced by green to dark green clays ± carbonate; abundance ≤1%. Fresh euhedral to subhedral plagioclase (≤3 mm); abundance ≤ 2%.
GROUNDMASS: Cryptocrystalline to microcrystalline.
VESICLES: <1mm, <1%, spherical, infilled by concentric dark green clay and carbonate.
COLOR: Light to medium gray; 0.9GY 2.1/0.1 to 1.8PB 1.7/0.2
STRUCTURE: Pillow basalt.
ALTERATION: Slight to moderate close to the vein network. Oxidation patches (Fe-oxyhydroxides) occur in the groundmass around veins and fractures in piece 13.
VEINS/FRACTURES: Veins in pieces 9 and 10 are filled with green, dark green and light blue clay minerals and/or fibrous carbonate. The vein network in piece 13 is filled with greenish to dark green clays and/or fibrous carbonate. Alteration patches occurs around the major vein.
ADDITIONAL COMMENTS: Glassy margins in pieces 8, 9c, 10a. The quenched margins in pieces 9 and 10 exhibit a sequential transition from a glassy zone to variolitic, subvariolitic, spherulitic and microlitic zones.



168-1027C-04R-03

UNIT 4c-d: SPARSELY PHYRIC OLIVINE-PLAGIOCLASE BASALT

PIECES 1-10

CONTACTS: Subunits defined by presence of glassy chilled margins in pieces 3, 4.

PHENOCRYSTS: 1-2% olivine phenocrysts, euhedral (0.5-3mm), black to green pseudomorphs replaced by clays; 1-2% fresh plagioclase phenocrysts, subhedral to euhedral (0.5-2mm); 2% glomeroporhyritic clusters of plagioclase + olivine ± pyroxene (≤0.7mm), subhedral to euhedral.

GROUNDMASS: Cryptocrystalline to microcrystalline, interstitial.

VESICLES: <1%; <<1mm, round and partly filled with dark gray clay.

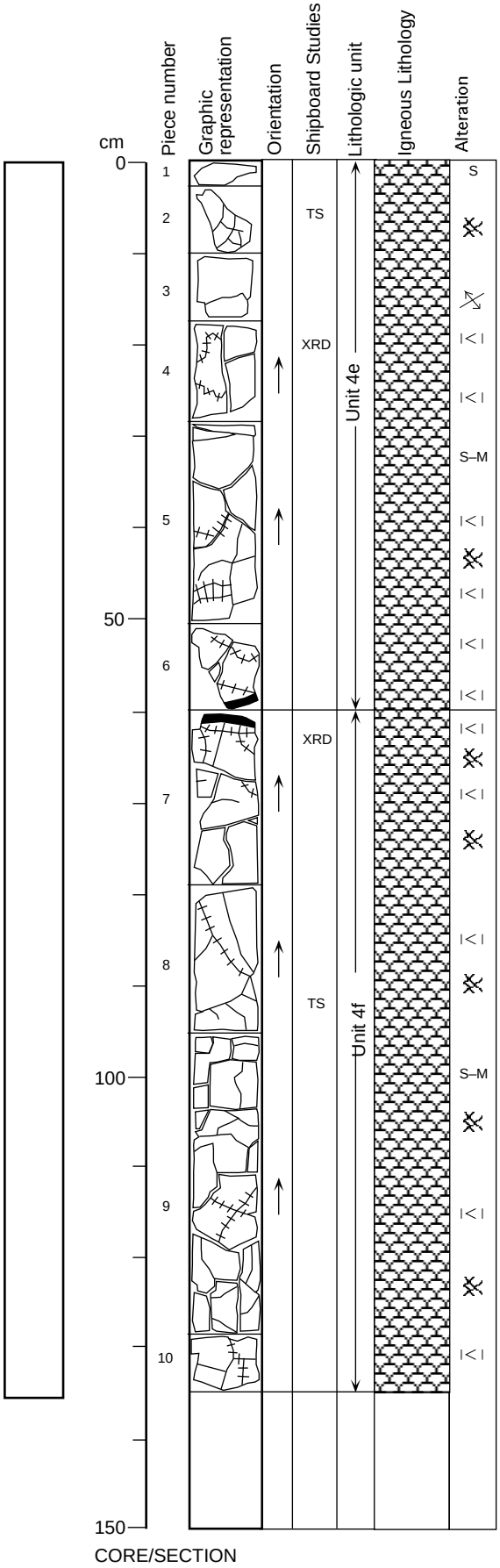
COLOR: Medium gray; 0.8PB 2.5/0.2 base unit IIIf; 7.8 PB 3.5/0.1 top unit IIIg (chilled zone); 5.5PB 2.6/0.2 Middle unit IIIg; 5.9PB 3.2/0.2 base unit IIIg.

STRUCTURE: Pillow basalt.

ALTERATION: Fe-oxyhydroxide spots and patches on outer surfaces and fractures in pieces 1 and 2. Green-brownish, waxy green, light blue, yellow and gray clays and carbonate coating external surfaces and fractures. Pyrite lines a fracture in piece 5.

VEINS/FRACTURES: Veins (≤1mm) filled with fibrous carbonate and/or green clay in pieces 4, 5, 7, 10a and 10b.

ADDITIONAL COMMENTS: Glassy margins in pieces 3, 4, 5 and 10b. The pillow margin in piece 4 exhibits a sequential transition from a glassy zone to variolitic, subvariolitic, spherulitic and microlitic zones.



168-1027C-05R-01

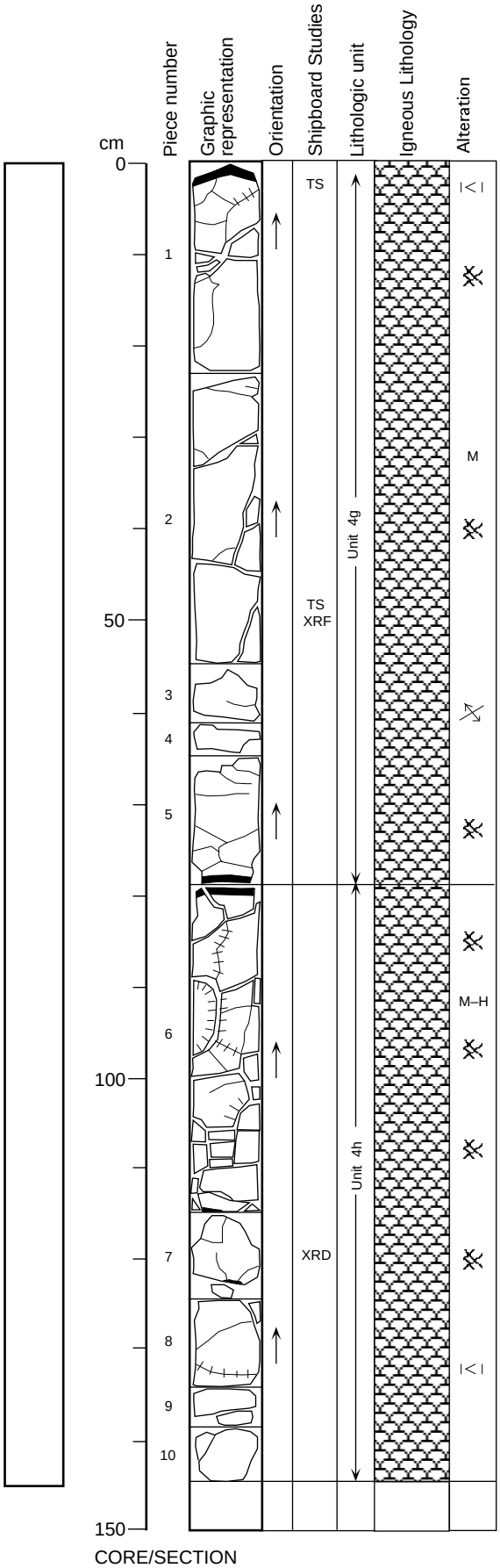
UNIT 4e: MODERATELY PHYRIC PLAGIOCLASE-OLIVINE BASALT
UNIT 4f: SPARSELY PHYRIC PLAGIOCLASE-OLIVINE BASALT

PIECES 2-10

CONTACTS: Subunits defined by presence of glassy chilled margins on base of piece 6 and top of piece 7.
PHENOCRYSTS: Euhedral olivine ≤2mm, completely replaced by brown-orange iddingsite (rims) -white calcite (core) ± green clay (saponite; core); abundance ≤3%; fresh euhedral laths of plagioclase laths (≤1mm) and pyroxene (≤0.5mm); abundance ≤15%.
GROUNDMASS: Hypocrystalline, sparsely porphyritic to microcrystalline; chilled margins are glassy to subvariolitic.
VESICLES: ≤0.3mm, ≤1% spherical, infilled by pale green, dark green and yellow clay or orange brown iddingsite.
COLOR: IIIh = 9.5G 2.2/0.1; IIIi = 7.0B 2.1/0.3.
STRUCTURE: Moderately to highly fractured pillow basalt.
ALTERATION: Slight to moderate in localized patches; alteration occurs in association with fractures and veins as well as pervasively through the rock.
VEINS/FRACTURES: Fractures throughout both subunits are common and may be lined by dark green to yellow-green clay. Piece 4: anastomosing 4-7mm wide white carbonate intermixed with dark green clay vein. Piece 5: 7-8mm wide dark green clay + carbonate-filled vein. Piece 6: 1mm wide fibrous white carbonate vein + 2mm granular carbonate vein covered by pale green clay on outer surface. Piece 7: 0.5mm wide carbonate vein. Pieces 8-10 have 1-2mm wide dark green clay veins.
ADDITIONAL COMMENTS: Chilled margins are 5mm thick. Piece 3 had dendritic salt deposits crystallizing out of rock as it dried. These crystals form on the inner edge of the alteration halo. On other pieces, different clay minerals (along fractures and within vesicles ± olivine) also expanded out of rock as it dried.

PIECE 1

CONTACTS: None.
PHENOCRYSTS: Fresh euhedral plagioclase and pyroxene + altered euhedral olivine (replaced by dark green clay ± iddingsite).
GROUNDMASS: Holocrystalline, microcrystalline; plagioclase + pyroxene ± olivine.
VESICLES: Spherical, infilled with yellow or dark green clay (saponite) ± orange-brown iddingsite at the rock margin. Within the rock, the vesicles are empty or lined by gray-black clay.
COLOR: Medium gray-blue.
STRUCTURE: Fractured pillow basalts.
ALTERATION: Slight; limited to vesicle infill and alteration of olivine.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: May be out of sequence; caught in drill bit from elsewhere.



168-1027C-05R-02

UNIT 4g-h: MODERATELY PHYRIC PLAGIOCLASE-OLIVINE ± PYROXENE BASALT

PIECES 1-10

CONTACTS: Subunits defined by presence of glassy chilled margins on top of pieces 1 and 6, and on the base of piece 5.

PHENOCRYSTS: Olivine ≤2mm, ≤1%; forms euhedral phenocrysts, now completely replaced by light yellow-green clay (saponite; core). Plagioclase (≤1mm; 2-3%) and pyroxene (≤1mm; trace) form fresh euhedral crystals.

GROUNDMASS: Sparsely to moderately porphyritic to cryptocrystalline; vesicular; chilled margins are glassy-variolitic to subvariolitic.

VESICLES: Most are ≤0.5mm, with some ≤0.75mm; ≤1% spherical, infilled by very pale blue-green clay.

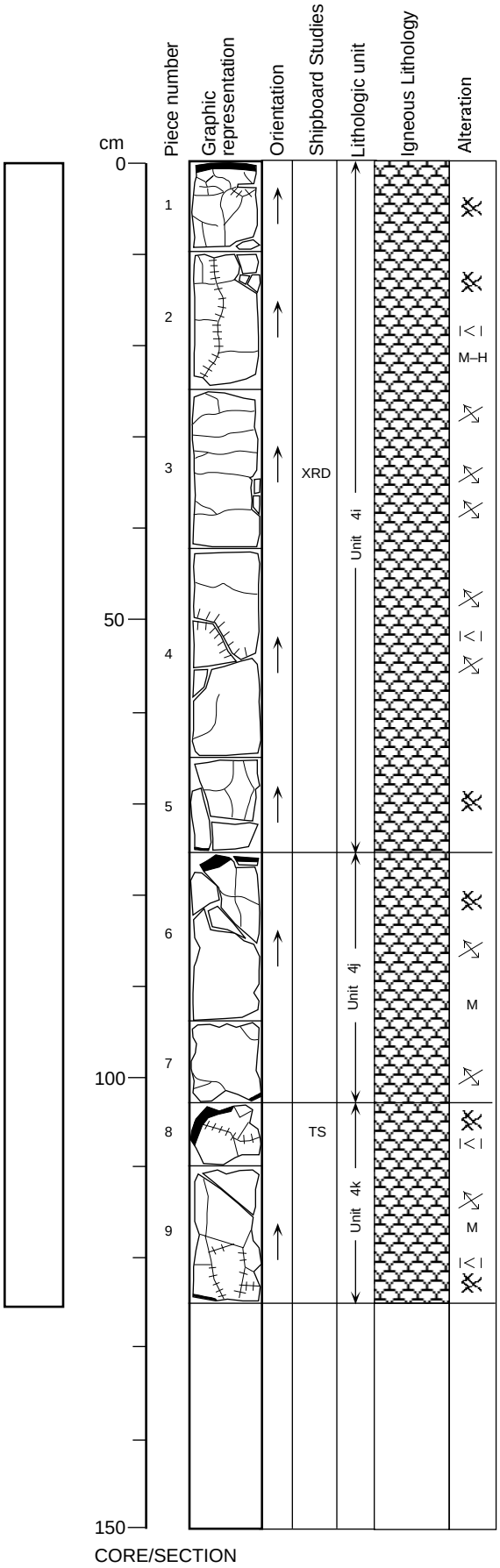
COLOR: IIIj = 10.0B 2.3/0.2; IIIk = 6.9B 2.1/0.1

STRUCTURE: Moderately to highly fractured pillow basalts.

ALTERATION: Moderate to high in localized patches; alteration occurs in association with fractures and veins as well as pervasively through the rock.

VEINS/FRACTURES: Fractures (hairline to open fracture) throughout both subunits are common and may be lined by a yellow-green clay. White carbonate veins in piece 1 (4-7cm), piece 2 (44-47cm), piece 6 (81-90cm; 98-107cm), piece 7 (116-120cm; 121-122cm). Pieces 5 and 6 have ≤1mm green clay lined veins (72-74cm; 94-98cm). Many fractures and veins have black alteration haloes (4-15mm wide) associated with them.

ADDITIONAL COMMENTS: Chilled margins are 8-10mm thick, except bottom of pieces 6 and 7 (<5mm-thick). Pieces 1, 2, 5, 6 and 8 had dendritic salt deposits crystallizing out of rock as it dried. These crystals form on the inner edge of the alteration halo. On other pieces, different clay minerals (along fractures and within vesicles ± olivine) also expanded out of rock as it dried.



168-1027C-05R-03

UNIT 4i-k: SPARSELY–MODERATELY PHYRIC PLAGIOCLASE ± OLIVINE ± PYROXENE BASALT

PIECES 1-9

CONTACTS: Subunits defined by presence of glassy chilled margins on top of pieces 1, 6 and 8 and on the base of piece 5, 7 and 9.

PHENOCRYSTS: Olivine ≤2mm, trace to 3%; forms euhedral phenocrysts, now replaced by a very fine rim of iddingsite, with the interior completely replaced by light yellow-green clay (saponite). Plagioclase (mostly ≤1mm laths) and pyroxene (≤0.5mm) form fresh euhedral crystals.

GROUNDMASS: Porphyritic; vesicular; chilled margins are glassy-variolitic to subvariolitic.

VESICLES: Most are ≤0.5mm, with some ≤0.75mm; ≤1%, spherical, infilled by very pale blue-green clay.

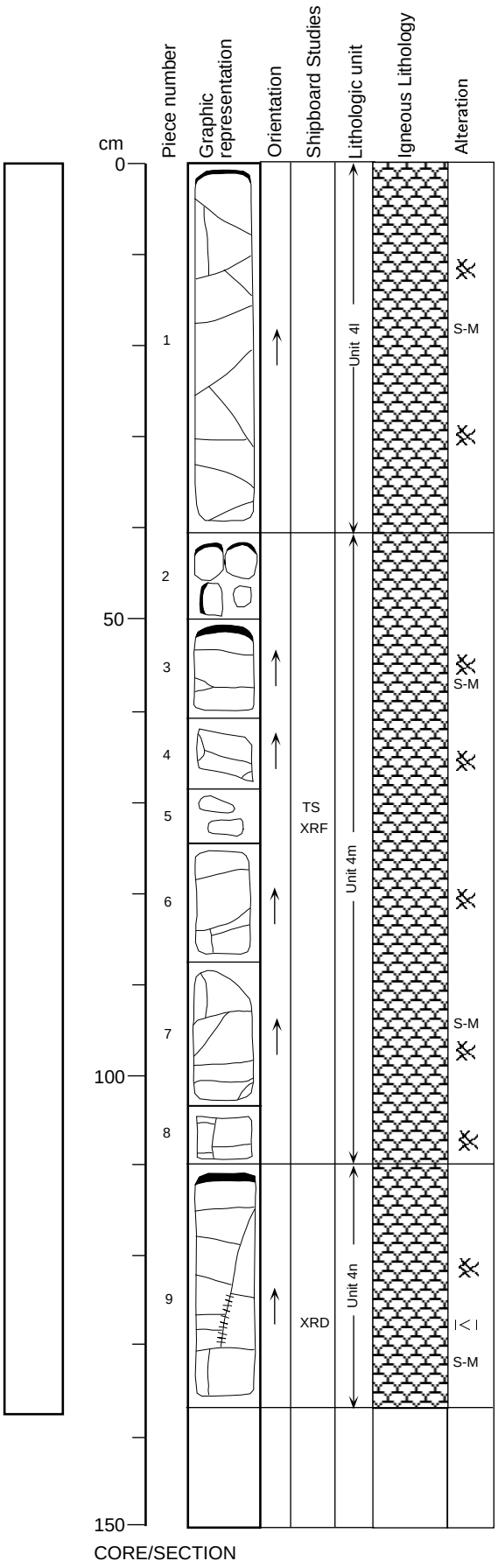
COLOR: IIIl = 3.1BG 2.1/0.1 to 7.5B 1.9/0.1; IIIm = 5.3G 2.2/0.1 to 5.9GY 2.0/0.1; IIIn = 7.5GY 2.0/0.2.

STRUCTURE: Moderately to highly fractured pillow basalts.

ALTERATION: Moderate to high in localized patches; alteration occurs in association with fractures and veins, as well as pervasively through the rock. Alteration haloes occur in pieces 2-3 and 5-7.

VEINS/FRACTURES: Most pieces are highly fractured perpendicular and parallel to the length of the core. Fractures (hairline to open fracture) are finely lined by a yellow-green flakey clay. White carbonate veins in piece 1 (4-7cm), and piece 9 . Green-yellow clay veins in piece 2 (3 mm wide, 15-21cm), piece 3 (≤0.5mm, 37-40cm), piece 5 (≤0.1mm, 71-73 cm), and piece 8 (≤1mm, 109-113cm). Many fractures and veins have black alteration haloes associated with them.

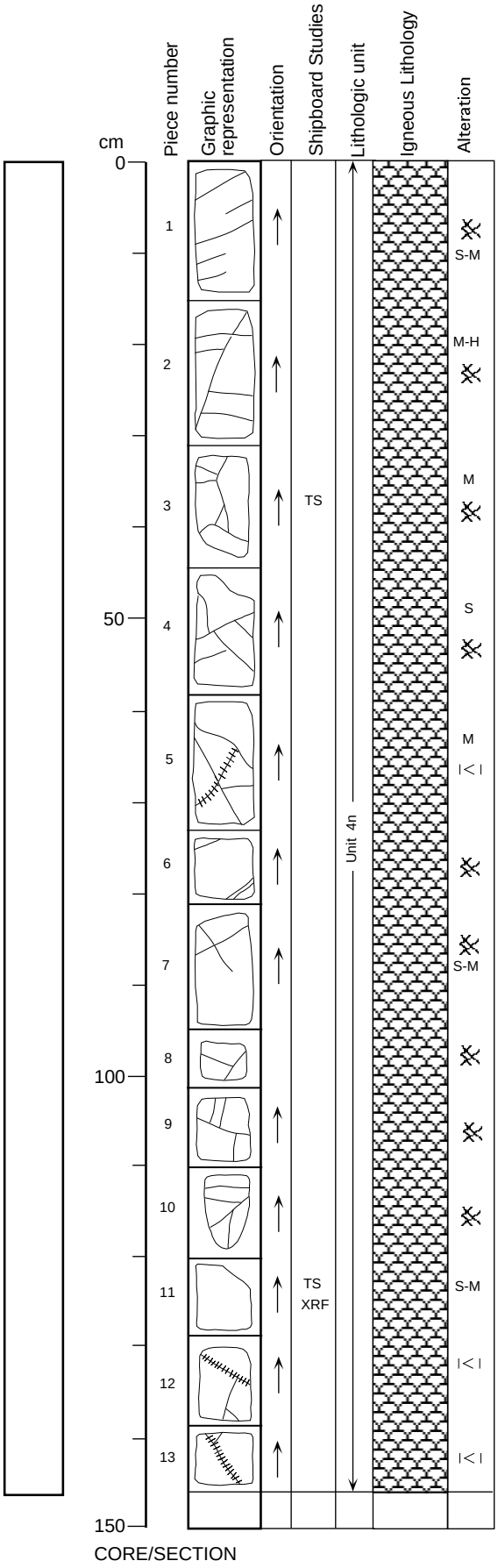
ADDITIONAL COMMENTS: Chilled margins are 8-10mm thick except bottom of pieces 5, 7, 9 (<5mm-thick). Pieces 2, 3, 5, 6 and 7 had dendritic salt deposits crystallizing out of rock as it dried. These crystals form on the inner edge of the alteration halo. On other pieces, different clay minerals (along fractures and within vesicles ± olivine) also expanded out of rock as it dried.



168-1027C-05R-04

UNIT 4l-n: SPARSELY PHYRIC OLIVINE–PLAGIOCLASE ± PYROXENE BASALT

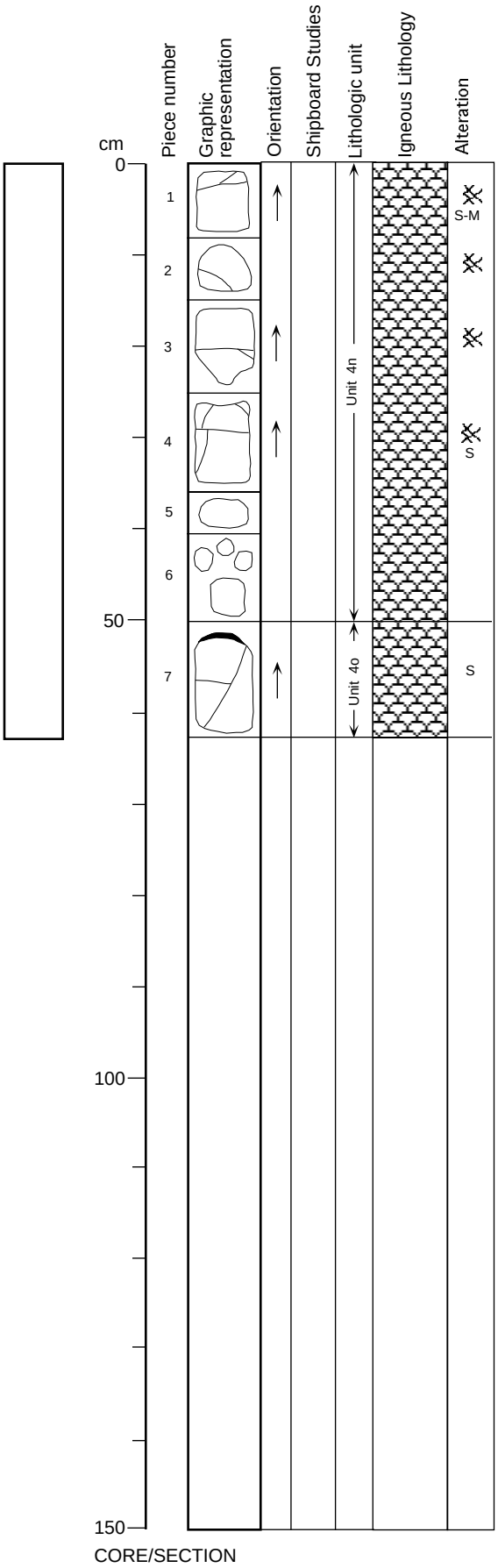
CONTACTS: Chilled margins mark contacts between cooling units.
PHENOCRYSTS: Fresh, euhedral plagioclase, 1% (0.5-4mm); euhedral olivine, ≤2% (1-3mm) pseudomorphed by dark green to bright green clay ± carbonate; trace amounts of fresh, bright green euhedral to subhedral pyroxene (0.5-3mm).
GROUNDMASS: Cryptocrystalline to microcrystalline. Microlitic texture: cream-tan to light gray groundmass with individual plagioclase microlites and black mafic crystals (<<0.5mm).
VESICLES: Filled by dark green, bright green or yellow clay ± carbonate; ≤1%, ≤0.5mm.
COLOR: 7.8PB 2.5/0.1 (pillow margin); 4.1PB 2.5/0.1 (pillow core); 9.5B 2.2/0.1 orange halo.
STRUCTURE: Pillow basalts.
ALTERATION: Slight to moderate close to veins, fractures and oxidation haloes. Most outer surfaces and fractures are coated by green and/or pale bluish-green clay ± carbonate. Concentric orange oxidation halo in piece 9 (≤ 1.3 cm) and around fracture in piece 4 (≤ 1 cm). Fe-oxyhydroxide spots and patches in glassy margin of piece 1, as well as fractures and external surfaces of pieces 4, 6, 7 and 9.
VEINS/FRACTURES: Fibrous carbonate ± dark green clay veins (≤ 1mm) in pieces 1, 3 and 9. Fracture (≤ 1.2mm) partially filled by greenish clay in piece 8. Fracture partially filled by bright yellow-green clay in piece 4.
ADDITIONAL COMMENTS: Glassy margins on pieces 2, 3 and 9.



168-1027C-05R-05

UNIT 4n: SPARSELY–MODERATELY PHYRIC PLAGIOCLASE-OLIVINE BASALT

CONTACTS: Chilled margins mark contacts between cooling units.
PHENOCRYSTS: 2% fresh euhedral plagioclase (0.5-4mm); 1% euhedral olivine (1-3mm), pseudomorphed by dark green clay ± carbonate and locally orange-brown oxyhydroxide (and/or iddingsite); trace amount of fresh, bright green euhedral to subhedral pyroxene (0.5-3mm).
GROUNDMASS: Cryptocrystalline to microcrystalline. Microlitic texture: cream-tan to light gray groundmass with individual plagioclase microlites and black mafic crystals (<<0.5mm).
VESICLES: Filled with dark green, waxy green, bright green and yellow clay, orange-brown oxyhydroxides (in and around the oxidaton haloes); ≈1%; ≤0.75mm.
COLOR: 0.7PB 1.7/01 to 6.3PB 2.9/01; 3.3Y 2.0/1.0 in orange band.
STRUCTURE: Pillow basalts
ALTERATION: Slight to moderate. Orange oxidation haloes (≤1.2cm) in piece 1 (top and bottom), 2-4 (around fractures and veins). Reddish-brown oxidation haloes (2-3 mm) around some fractures in pieces 5 and 9. Orange oxidation band (2 cm wide) crosses piece 12.
VEINS/FRACTURES: Fibrous carbonate veins (≤ 1mm) in pieces 1, 6 and 10; clay (dark green) ± carbonate ± oxyhydroxide veins (≤1mm) in pieces 2, 3 and 9; greenish to pale green clay ± carbonate veins (≤ 2 mm) in pieces 5, 12 and 13.
ADDITIONAL COMMENTS:



168-1027C-05R-06

UNIT 4n-o: SPARSELY TO MODERATELY PHYRIC PLAGIOCLASE-OLIVINE ± PYROXENE BASALT

CONTACTS: Chilled margins mark contacts between cooling units.
PHENOCRYSTS: 2% fresh, euhedral plagioclase (0.5-4mm); 1% euhedral olivine (1-3mm), pseudomorphed by dark green clay ± carbonate and locally orange-brown oxyhydroxide (and/or iddingsite); trace amounts of fresh, bright green euhedral to subhedral pyroxene (0.5-3mm).
GROUNDMASS: Cryptocrystalline to microcrystalline. Microlitic texture: cream-tan to light gray groundmass with individual plagioclase microlites and black mafic crystals (<<0.5mm).
VESICLES: Mostly filled by waxy green ± dark green ± yellow clay; <1%; ≤0.05mm.
COLOR: 0.7PB 3.0/0.1 to 9.7B 2.1/0.1
STRUCTURE: Pillow basalts.
ALTERATION: Slight to moderate close to fractures and vein network. Orange oxidation rim (<1mm) around vein network in piece 1. Carbonate patches and oxidation spots on external surfaces of piece 6.
VEINS/FRACTURES: Green clay and minor carbonate veins (≤ 1mm) in pieces 1, 4 and 5. Millimetric vein filled by whitish-pale green clay mineral in piece 2. Millimetric fracture coated by green clay in piece 3.
ADDITIONAL COMMENTS: Glassy margin in piece 7.

Previous Chapter Table of Contents Next Chapter