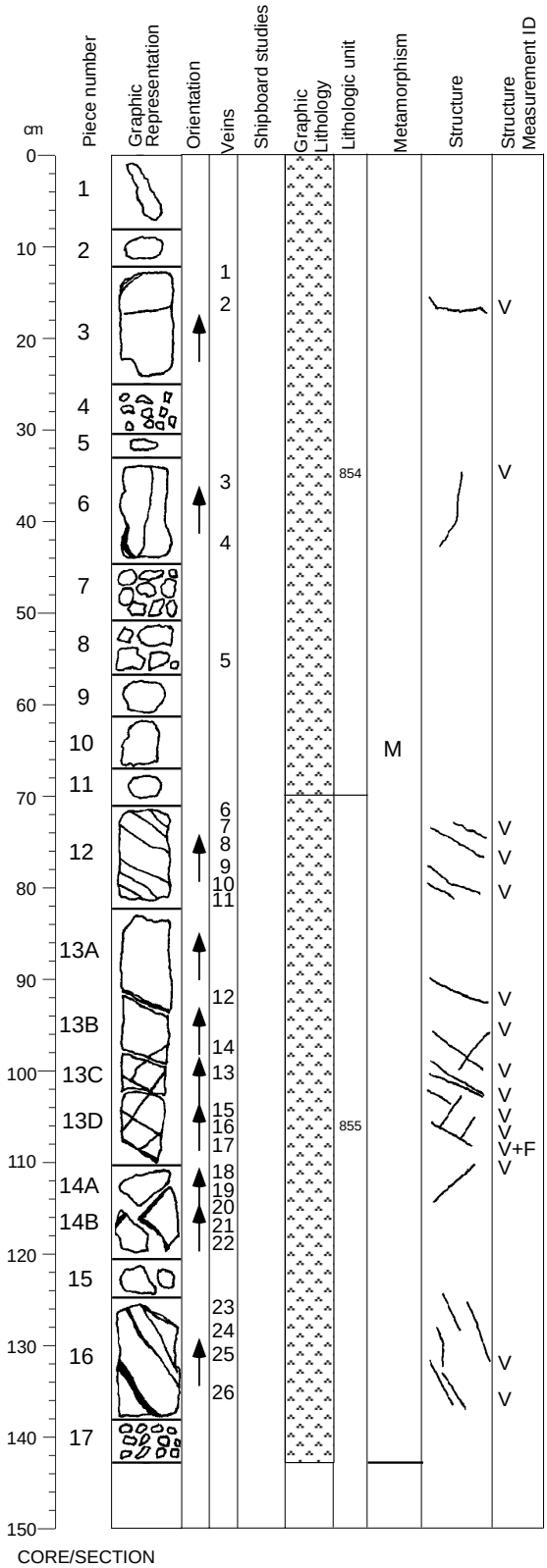
Core Image



176-735B-181R-1

Interval 854: OLIVINE GABBRO
(see Section 176-735B-180R-5)
Interval 855: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	181	1	70	11	1240.90
Lower contact:	181	2	25	2	1241.88

Thickness (m): 0.98

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	20	5	coarse	tabular/ subhedral
Clinopyroxene	20	20	5	coarse	equant/ anhedral
Olivine	5	8	1	medium	amoeboidal/ anhedral
Opaques	0.3				amoeboidal aggregates/ disseminated
Total	90.3*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Texture: Type: granular; Distribution: N/A

Comments: Locally porphyroclastic.

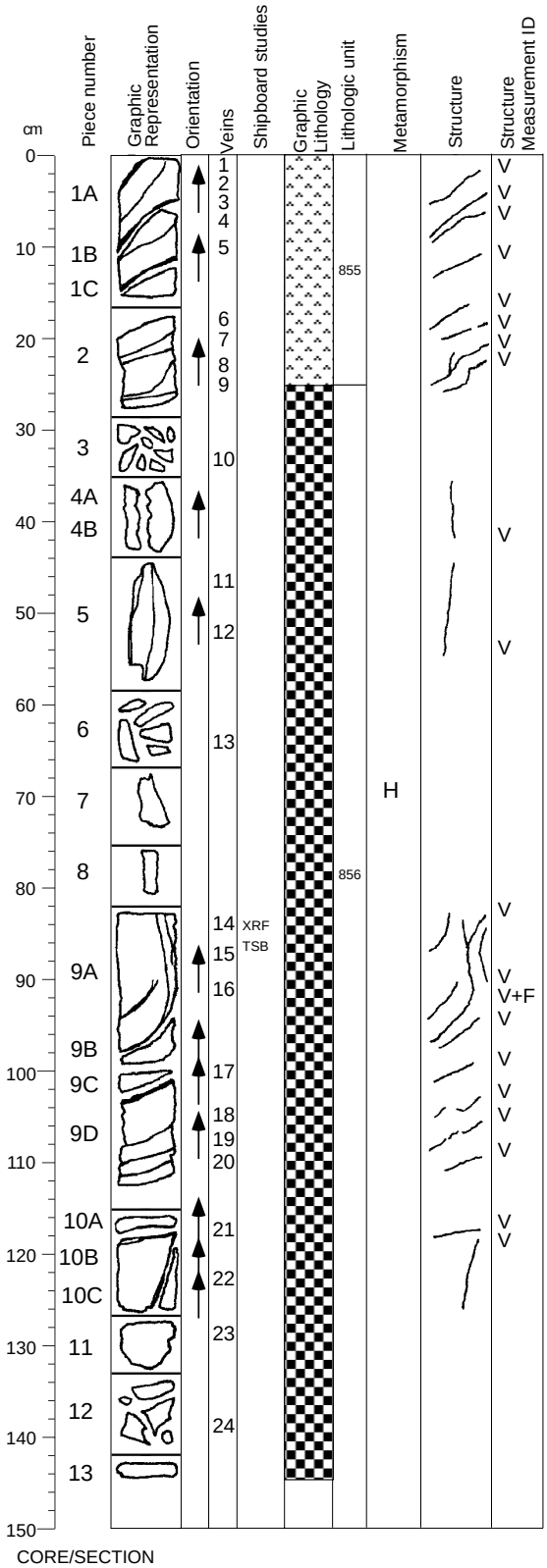
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <20
Mode of occurrence: 15% dark green smectite after olivine, and 5% pale green smectite.
Comments: Around smectite veins.

Background Alteration:
Degree of alteration: moderate (22%). Olivine is highly altered to amphibole and smectite (50%). Clinopyroxene and plagioclase are slightly recrystallized and altered to smectite near veins (8 to 10%).

Vein/Fracture Filling:
0.2-1 mm smectite veins in Pieces 3, 6-14, and 16; smectite vein net in Pieces 7-11.

Structures:
Mf>V>F
The entire section displays a coarse-grained igneous texture with no magmatic foliation, cut by an extensive network of veins and faults.

Core Image



176-735B-181R-2

Interval 855: OLIVINE GABBRO
(see previous section)
Interval 856: LEUCOCRATIC OXIDE GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	181	2	25	2	1241.88
Lower contact:	181	3	77	10	1243.90
Thickness (m): 2.02					

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	70	30	8	coarse	tabular/ subhedral anhedral
Clinopyroxene	20	20	5	coarse	equant/ anhedral
Olivine	1	2	1	medium	amoeboidal/ anhedral interstitial
Opaques	2				lenses/ disseminated
Total	93*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): FeTi Oxide Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Clinopyroxene mode variable (5-25%). Oxide present, locally abundant.

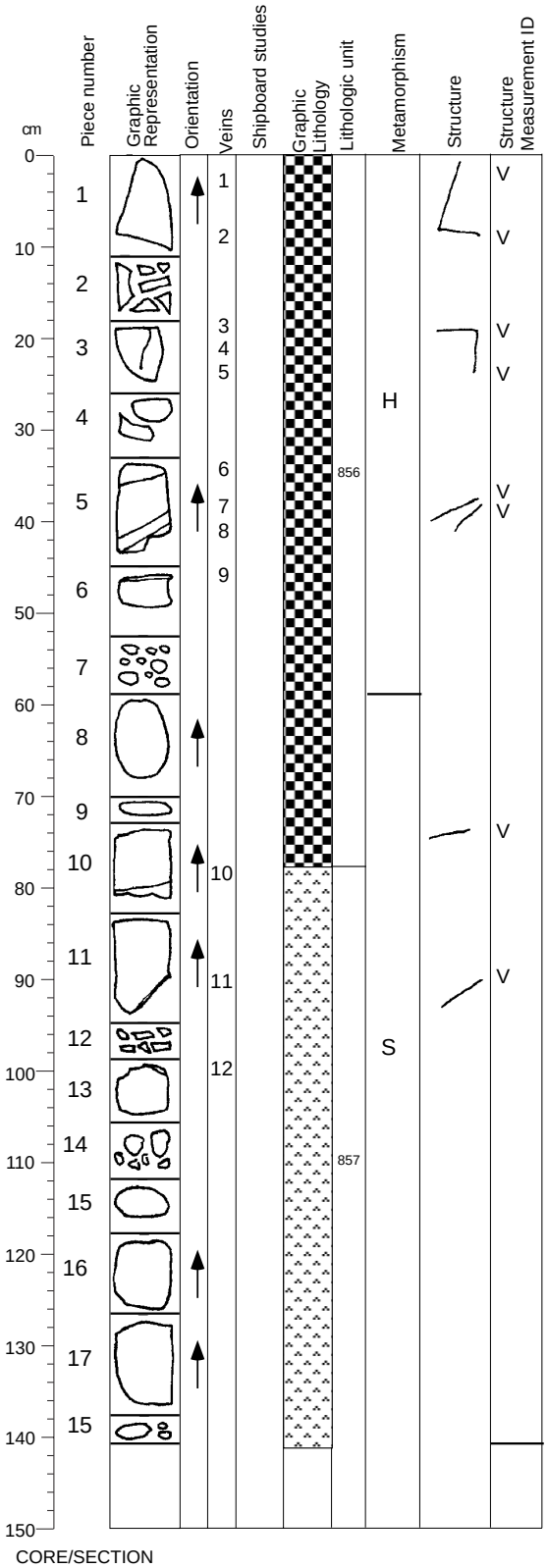
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: <2
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: <3
Mode of occurrence: As patches, associated with albite.
Smectite:
Total Percent: 50
Mode of occurrence: 30 % dark green smectite after olivine and some pyroxene, and 20 % pale green smectite after plagioclase and some brown amphibole.
Albite:
Total Percent: 20
Mode of occurrence: Associated with green amphibole.
Sulfide:
Total Percent: <1
Mode of occurrence: Associated with dark smectite in olivine and pyroxene pseudomorphs.

Background Alteration:
Degree of alteration: high (75%). Olivine is completely altered to amphibole, smectite and sulfide. Clinopyroxene is heavily altered to smectite and rare sulfide (60%). The backs of many pieces show colloform smectite filling vugs. The cores of some clinopyroxene grains are replaced by actinolite and chlorite. Plagioclase is largely replaced by a milky sodic plagioclase (70%).

Vein/Fracture Filling:
0.5-2 mm smectite veins in Pieces 1 to 13; smectite vein net in Pieces 12 and 13.

Structures:
Mf>V>F
The entire section displays a coarse-grained igneous texture with no magmatic foliation, cut by an extensive network of veins and faults.

Core Image



176-735B-181R-3

Interval 856: LEUCOCRATIC OXIDE GABBRO
(see previous section)
Interval 857: OLIVINE GABBRO

	Core	Section	Depth in Section	Piece	Depth mbsf
Interval Location:					
Upper contact:	181	3	77	10	1243.90
Lower contact:	181	4	134	12	1245.89
Thickness (m): 1.99					

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	20	5	coarse	tabular/ subhedral
Clinopyroxene	25	20	4	coarse	equant/ anhedral
Olivine	6	8	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	96.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Mode and grain size variable from pegmatitic, to coarse-, and to medium-grained. Mostly granular, locally subophitic. Clinopyroxene mode variable (0-305).

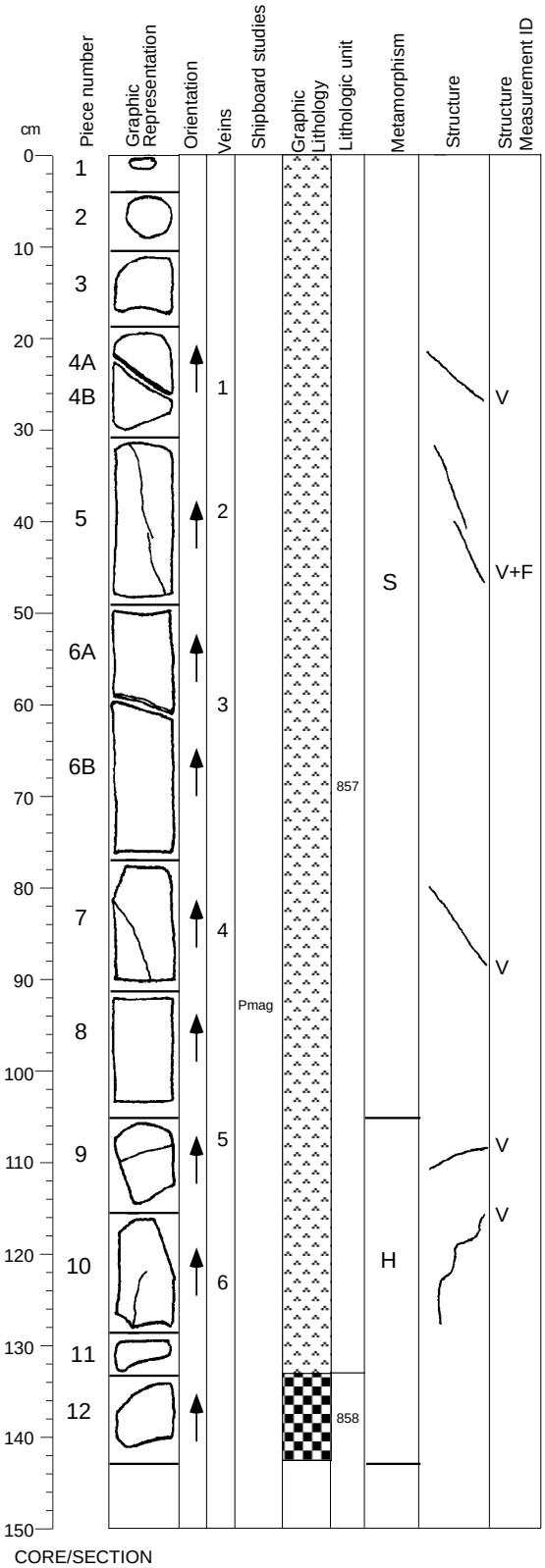
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: <1
Mode of occurrence: As patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: <5
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: 20
Mode of occurrence: 15% dark green smectite after olivine and pyroxene, and 5% pale green after plagioclase and brown amphibole.
Albite:
Total Percent: 10
Mode of occurrence: Associated with green amphibole and chlorite.
Silica:
Total Percent: trace
Mode of occurrence: amorphous silica in vugs.
Sulfide:
Total Percent: <1
Mode of occurrence: Associated with dark green smectite.

Background Alteration:
Degree of alteration: slight to high (8 to 75%). Pieces 1 to 7: Same as previous section. Pieces 7 to 18: Olivine is only moderately altered to smectite (15%). Plagioclase and clinopyroxene are weakly altered (3%).

Vein/Fracture Filling:
0.2-0.4 mm smectite veins in Pieces 1, 3, 5, 6, 10, 11, and 13; zeolite vein in Piece 6.

Structures:
Mf>V>F
The entire section displays a coarse-grained igneous texture with no magmatic foliation, cut by an extensive network of veins and faults (mainly small unoriented pieces).

Core Image



176-735B-181R-4

Interval 857: OLIVINE GABBRO
(see previous section)
Interval 858: LEUCOCRATIC OXIDE GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	181	4	134	12	1245.89
Lower contact:	181	4	141	12	1245.96
Thickness (m): 0.07					

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	70	35	8	coarse	tabular/ subhedral anhedral
Clinopyroxene	20	25	10	coarse	equant/ anhedral
Olivine	N/A	N/A	N/A	N/A	N/A
Opaques	6				interstitial lenses/ interstitial network
Total	96*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): FeTi Oxide Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Felsic vein pocket with dark-green amphibole.

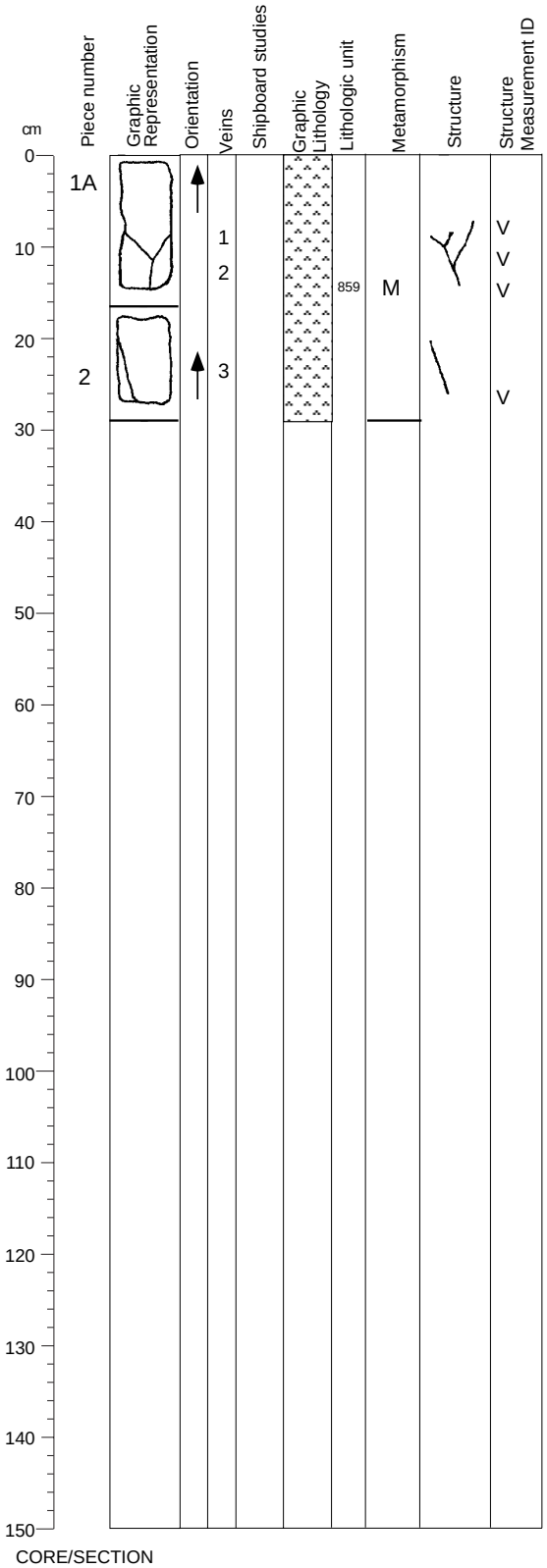
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: 10
Mode of occurrence: 7% dark green smectite after olivine and pyroxene, and 3% pale green after plagioclase and brown amphibole.
Albite:
Total Percent: 5
Mode of occurrence: Associated with green amphibole and chlorite.
Sulfide:
Total Percent: trace
Mode of occurrence: Associated with dark green smectite.

Background Alteration:
Degree of alteration: slight to high (6 to 50%). Pieces 1 to 9: Olivine is only moderately altered to smectite (15%). Plagioclase and clinopyroxene are weakly altered (3%). Piece 10 to 12: Olivine is heavily altered to smectite and sulfide (80%). Clinopyroxene is also highly altered and shows abundant replacement by sulfide (50%). Plagioclase is substantially altered to milky, probably sodic plagioclase and rare smectite (40%).

Vein/Fracture Filling:
0.2-0.6 mm smectite veins in Pieces 4, 5, 6, 7, 9, and 10.

Structures:
Mf>V>F
The entire section displays a coarse-grained igneous texture with no or a weak magmatic foliation, cut by a series of veins; the veins in Pieces 4A to 5 grade into faults.

Core Image



176-735B-181R-5

Interval 859: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	181	4	141	12	1245.96
Lower contact:	182	2	80	5	1252.12

Thickness (m): 6.16

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	25	5	coarse	tabular/ subhedral
Clinopyroxene	30	35	3	coarse	tabular/ oikocrystic anhedral
Olivine	8	15	1	medium	amoeboidal/ anhedral
Opaques	0.6				amoeboidal aggregates/ disseminated
Total	103.6*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Mode and grain size variable. Oxide present.

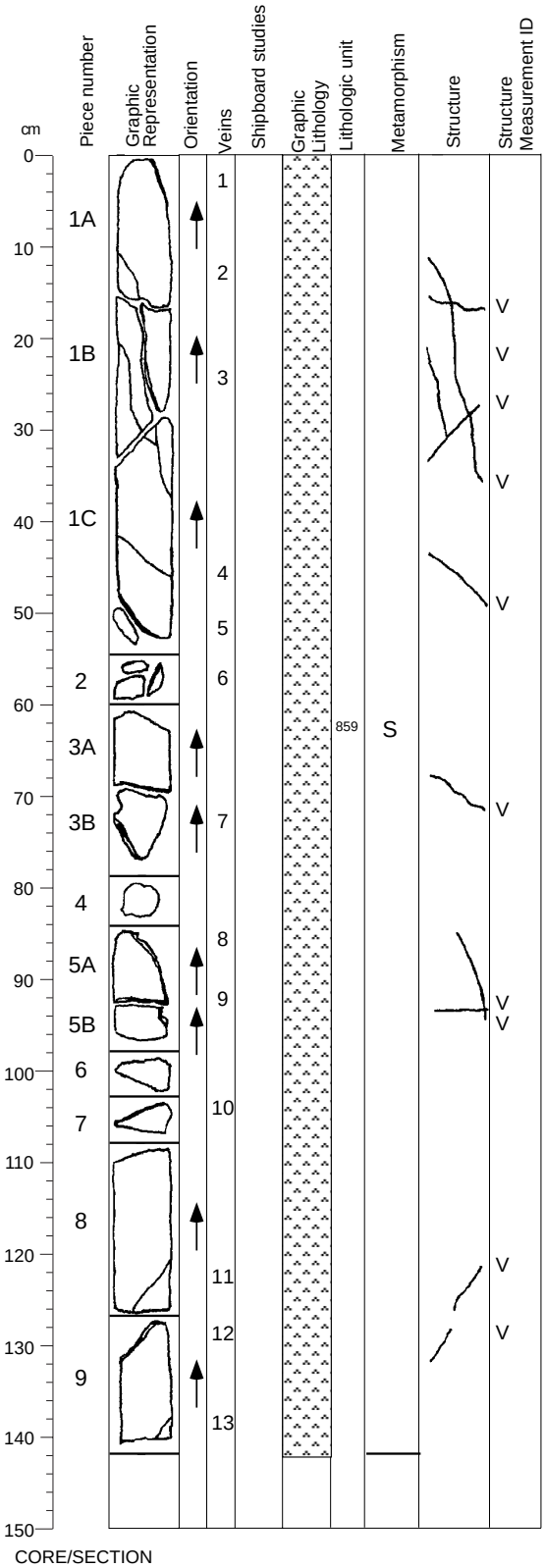
Alteration:
Dark green amphibole:
Total Percent: <2
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: <1
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <10
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: moderate (16%). Olivine is highly altered to amphibole and smectite (60%). 6% of the clinopyroxne is replaced by amphibole and rare smectite. 20% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.3-1 mm smectite veins in Pieces 1 and 2.

Structures:
Mf>V
This short section displays a coarse-grained igneous texture with no magmatic foliation, cut by veins.

Core Image



176-735B-182R-1

Interval 859: OLIVINE GABBRO
(see previous section)

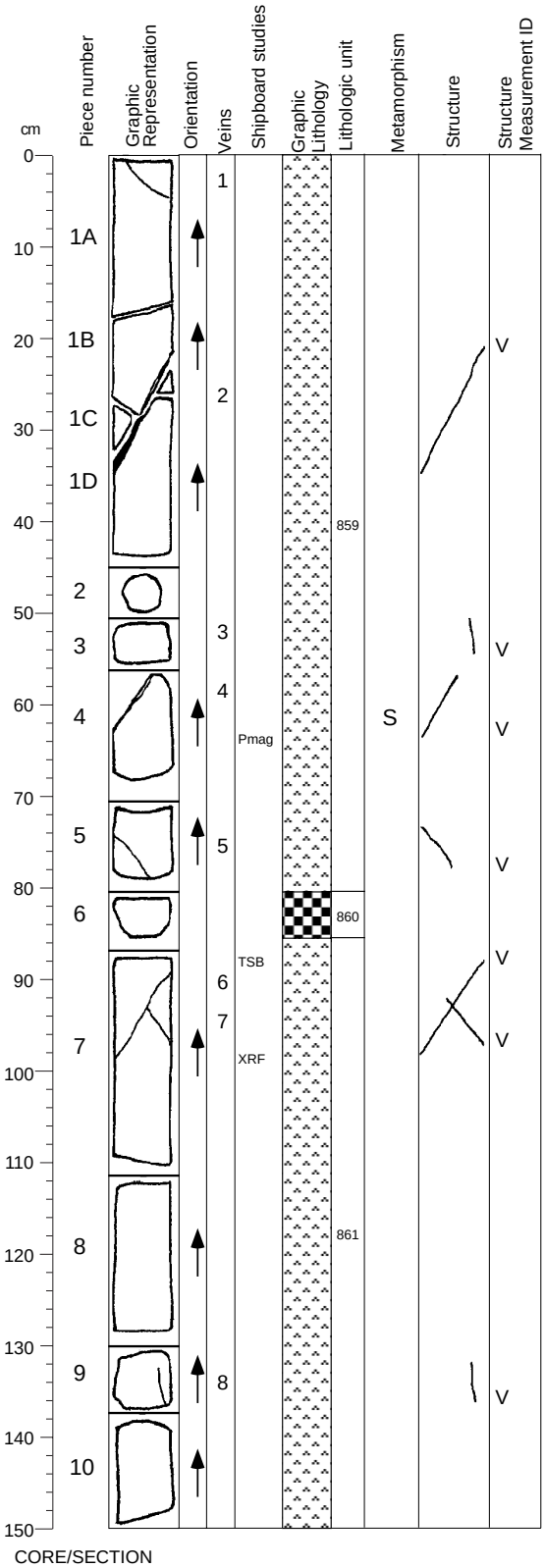
Alteration:
Dark green amphibole:
Total Percent: <2
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <4
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <5
Mode of occurrence: 3% dark green smectite after olivine, and 2% pale green smectite after plagioclase.

Background Alteration:
Degree of alteration: slight (10%). 40% of the olivine is altered to amphibole and smectite. 4% of the clinopyroxene and 8% of the plagioclase are recrystallized.

Vein/Fracture Filling:
0.3-1 mm smectite veins in Pieces 1, 2, 3, 5, 7, 8, and 9.

Structures:
Mf>V
This section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a series of veins.

Core Image



176-735B-182R-2

Interval 859: OLIVINE GABBRO
(see Section 176-735B-181R-5)
Interval 860: OXIDE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	182	2	80	5	1252.12
Lower contact:	182	2	86	6	1252.18

Thickness (m): 0.06

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	40	10	coarse	tabular/ subhedral anhedral	
Clinopyroxene		30	10	coarse	tabular/ anhedral
Olivine			N/A	N/A	N/A
Opaques	4				interstitial lenses/ interstitial network
Total	74*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Not Calculated

	Type	Distribution
Texture:	granular	N/A

Comments: Too few grains for reliable modal estimation.

Interval 861: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	182	2	86	6	1252.18
Lower contact:	182	3	127	12	1254.09

Thickness (m): 1.91

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	30	8	coarse	tabular/ subhedral
Clinopyroxene	25	50	10	coarse	tabular/ oikocrystic anhedral
Olivine	8	15	2	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	98.5*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Locally medium-grained patches present. Olivine very coarse-grained and abundant. Sulfide present.

Continued next page

Core Image

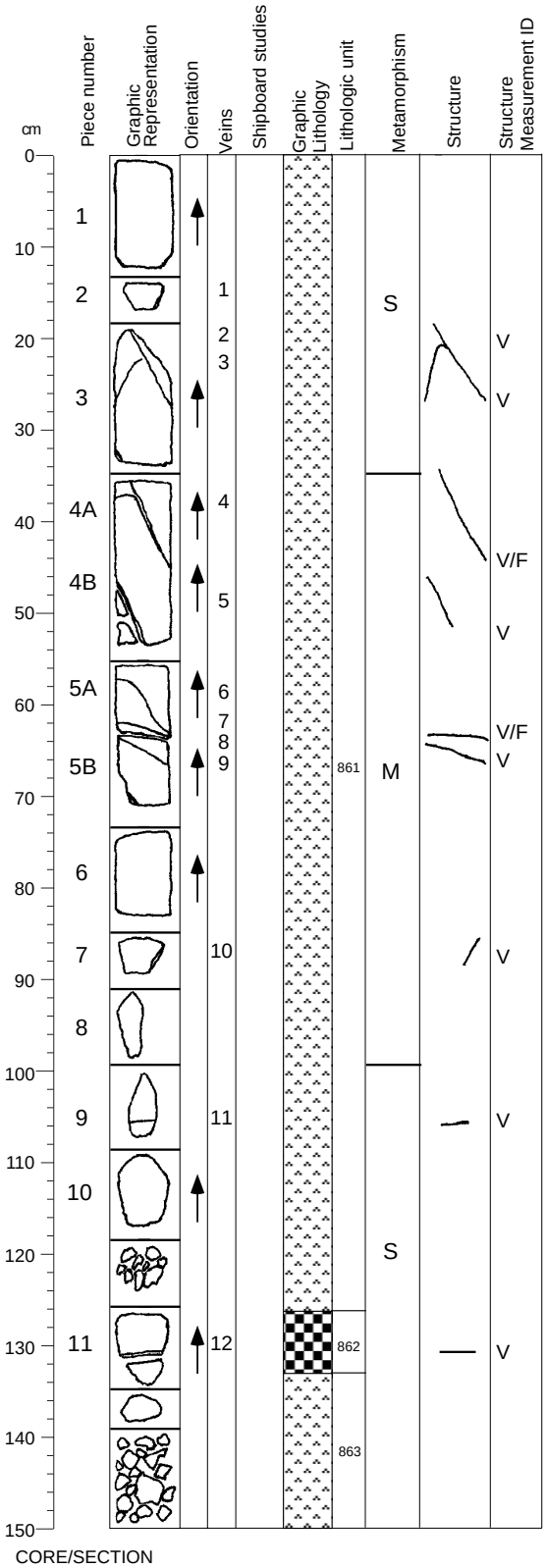
176-735B-182R-2 (cont'd)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: As patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green smectite after olivine.
Background Alteration:
Degree of alteration: slight (6%). Olivine is moderately altered to amphibole and smectite. Clinopyroxene is mildly altered to amphibole and rare smectite. 4% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.2-1 mm smectite veins in Pieces 1, 5, 7, and 9; 2 mm altered plagioclase veins in Pieces 3 and 4; 1 mm amphibole vein in Piece 7.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a series of veins.

Core Image



176-735B-182R-3

Interval 861: OLIVINE GABBRO
(see previous section)
Interval 862: OXIDE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	182	3	127	12	1254.09
Lower contact:	182	3	133	12	1254.15

Thickness (m): 0.06

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	25	8	coarse	tabular/ subhedral	
Clinopyroxene		55	10	pegmatitic	tabular/ subhedral
Olivine			N/A	N/A	N/A
Opaques	3				interstitial lenses/ interstitial network
Total	83*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Not Calculated
Type Distribution
Texture: granular N/A
Comments: Coarse-grained. Oxide-rich. Too few grains for reliable modal estimation.

Interval 863: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	182	3	133	12	1254.15
Lower contact:	183	2	8	1A	1261.09

Thickness (m): 6.94

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	30	6	coarse	tabular/ subhedral
Clinopyroxene	20	25	2	coarse	equant/ anhedral oikocrystic
Olivine	10	8	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A
Comments: Mostly coarse-grained, locally fine/medium patches present at 100-112 cm in 183R-1.

Continued on next page

Core Image

176-735B-182R-3 (cont'd)

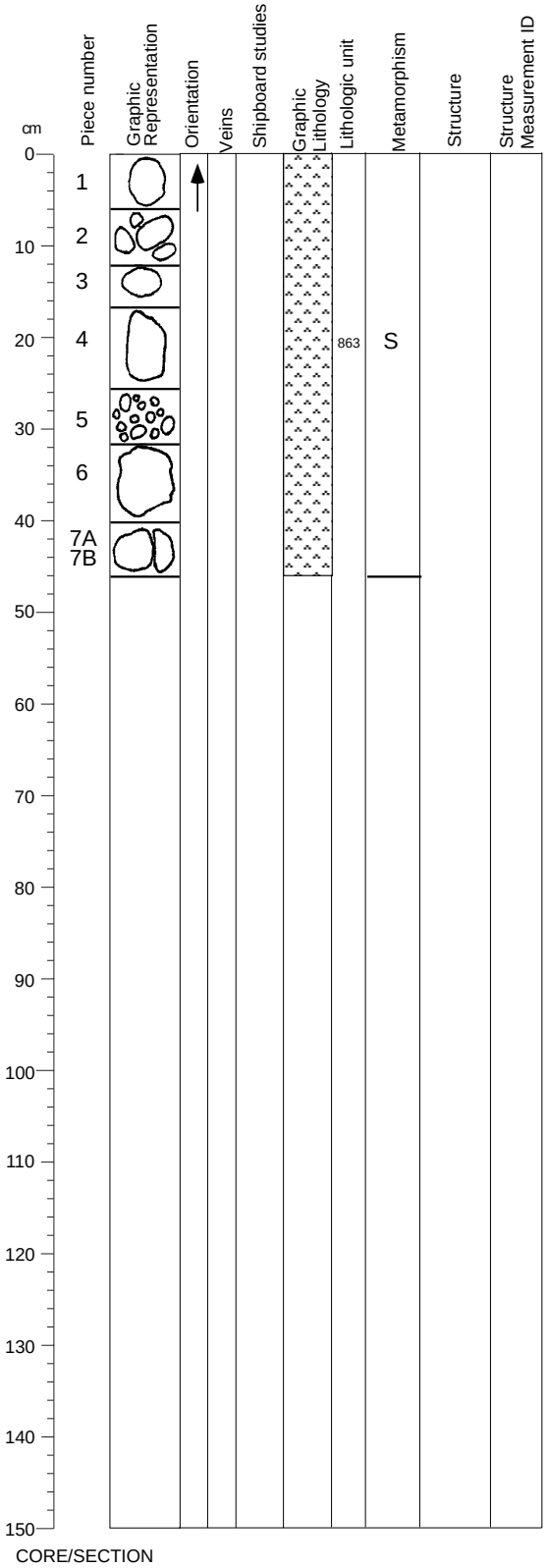
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <6
Mode of occurrence: 5% dark green smectite after olivine, and 1% pale green smectite after plagioclase.

Background Alteration:
Degree of alteration: slight to moderate (4 to 25%). Pieces 1 to 3 and 9 to 14: 10% of the olivine is replaced by amphibole and smectite. 3% of the clinopyroxene and 2% of the plagioclase are recrystallized. Pieces 4 to 8: 50% of the olivine is altered to amphibole and smectite. Clinopyroxene is partly replaced by amphibole and smectite. 8% of the plagioclase is altered to secondary plagioclase and replaced by smectite along veins.

Vein/Fracture Filling:
2 mm altered plagioclase veins in Pieces 2 and 5; 0.3-1 mm smectite veins in Pieces 3, 4, 5, 7, 9, and 12.

Structures:
Mf>V>F
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a series of veins; two veins grade into faults.

Core Image



176-735B-182R-4

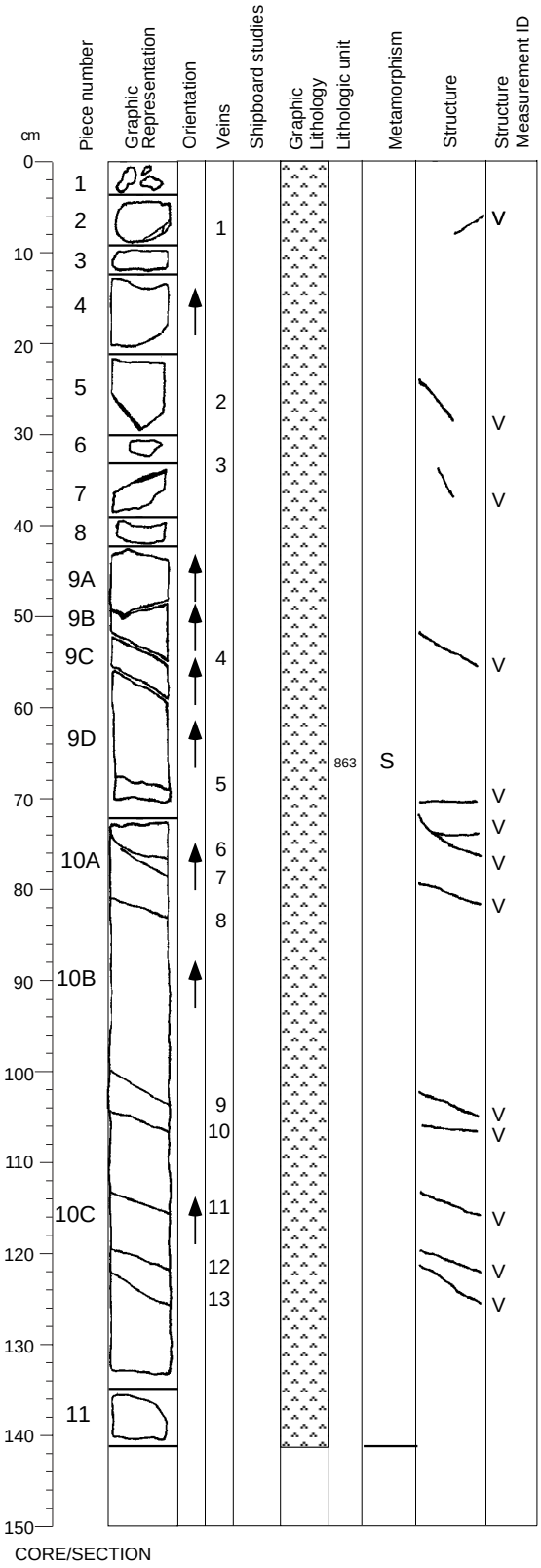
Interval 863: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: slight (3%). Olivine is largely fresh (5% altered to amphibole and smectite). Clinopyroxene is mildly altered (3%) and 2% of the plagioclase is recrystallized.

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-183R-1

Interval 863: OLIVINE GABBRO
(see Section 176-735B-182R-3)

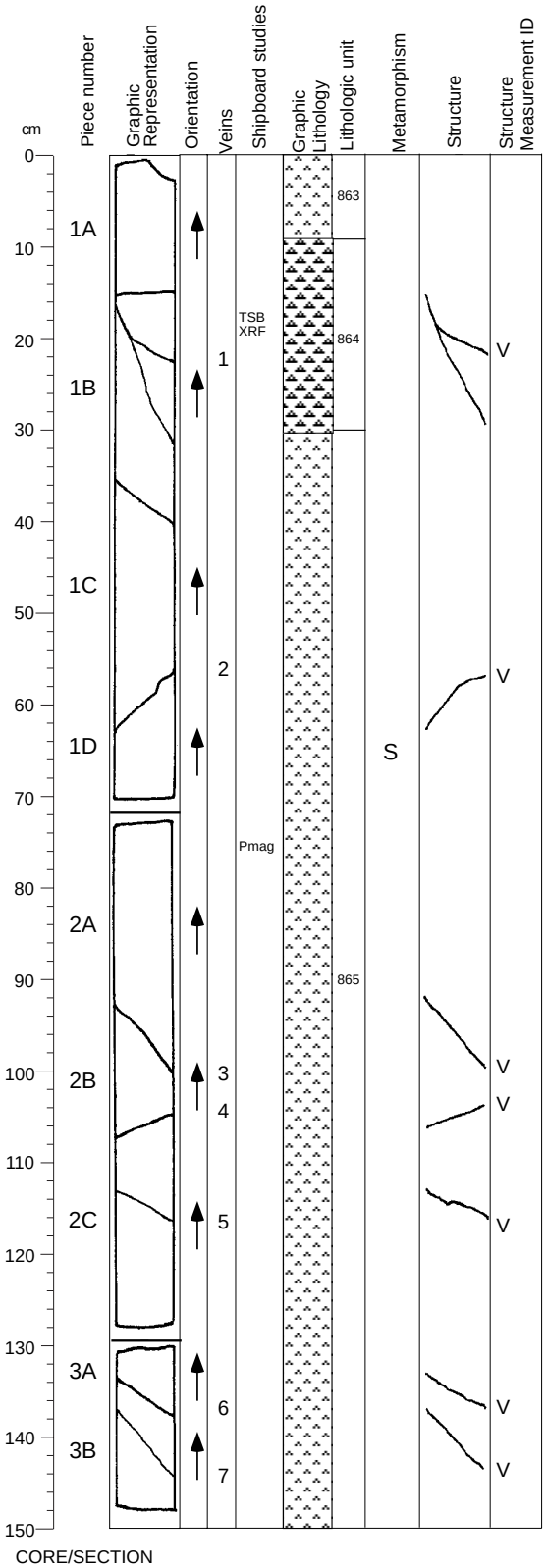
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: As patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: slight (6%). Olivine is partly replaced by amphibole and smectite (12%). 3% of the clinopyroxene and 5% of the plagioclase are recrystallized.

Vein/Fracture Filling:
0.2-0.8 mm smectite veins in Pieces 5, 7, 9, and 10; 1-3 mm altered plagioclase veins in Pieces 2 and 7.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a series of veins.

Core Image



176-735B-183R-2

Interval 863: OLIVINE GABBRO
(see Section 176-735B-182R-3)

Interval 864: OLIVINE MICROGABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	183	2	8	1A	1261.09
Lower contact:	183	2	30	1C	1261.31

Thickness (m): 0.22

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	3	N/A	fine	tabular/ subhedral anhedral
Clinopyroxene	30	2	0.2	fine	equant/ anhedral
Olivine	12	1	1	fine	equant/ anhedral subhedral
Opaques	0.4				amoeboidal aggregates/ disseminated
Total	97.4*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine
Modal IUGS Name (calculated): Olivine Gabbro
Texture: granular (Type) N/A (Distribution)

Interval 865: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	183	2	30	1C	1261.31
Lower contact:	183	4	7	1B	1263.89

Thickness (m): 2.58

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	15	4	coarse	tabular/ subhedral
Clinopyroxene	20	15	1	coarse	equant/ anhedral oikocrystic
Olivine	5	4	1	medium	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregate disseminated
Total	90.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro
Texture: granular (Type) N/A (Distribution)

Comments: Gradational grain size variation defining "layering": Top to 68 cm in 183R-2 (coarse/medium), to 110 cm in 183R-2 (fine/medium), to 78 cm in 183R-3 (coarse/medium), and to base (fine/medium).

Continued on next page

Core Image

176-735B-183R-2 (cont'd)

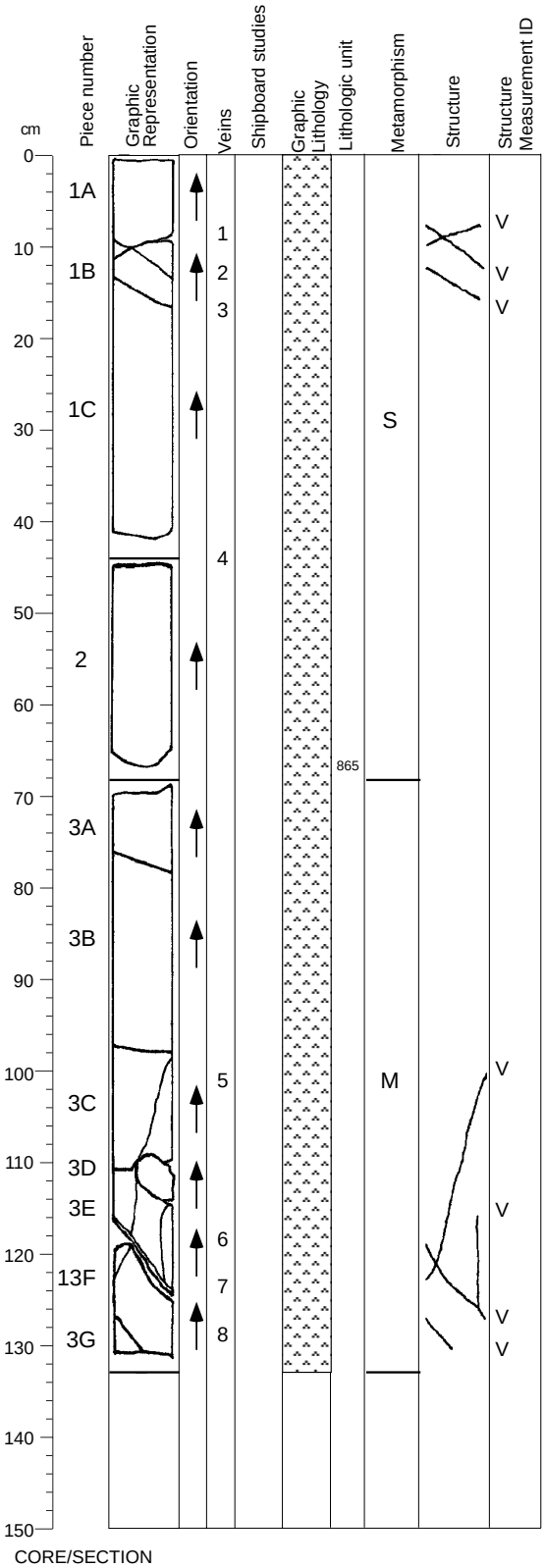
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: slight (5%). 10% of the olivine is altered to amphibole and smectite. 4% of the plagioclase and clinopyroxene are altered.

Vein/Fracture Filling:
0.3-0.8 mm smectite veins in Pieces 1-3.

Structures:
Mf>V
The section displays a fine- to coarse-grained igneous texture with no magmatic foliation, cut by a series of veins.

Core Image



176-735B-183R-3

Interval 865: OLIVINE GABBRO
(see previous section)

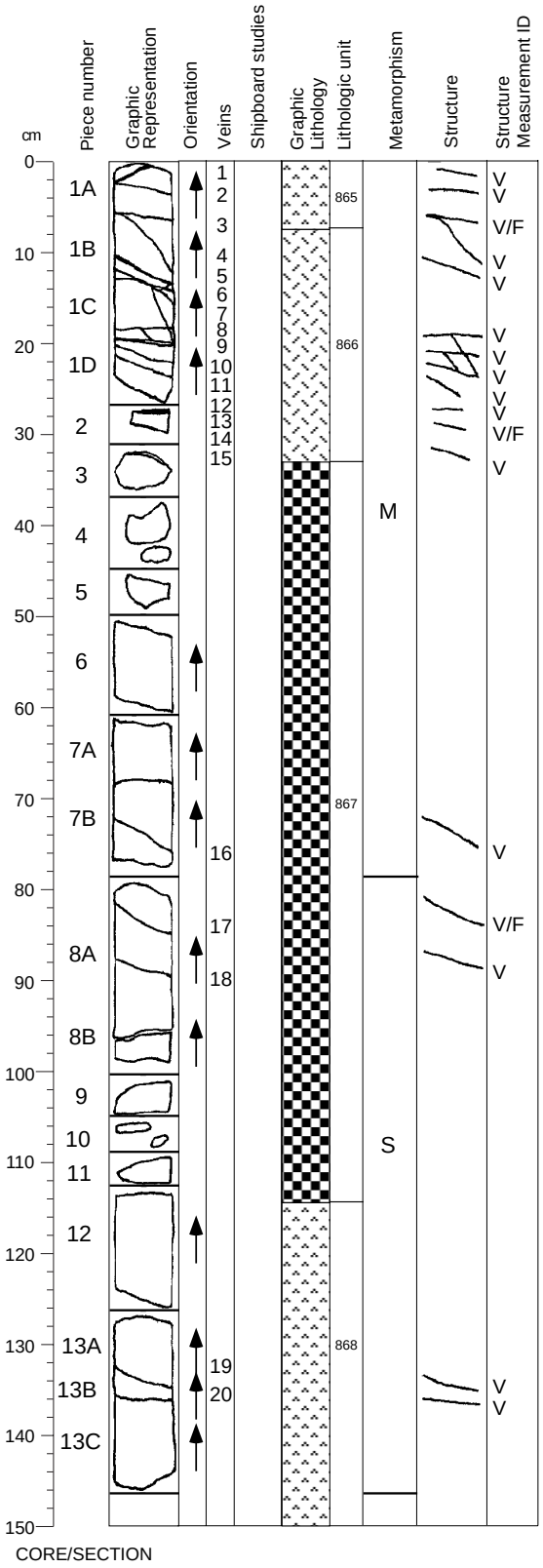
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: As patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: <8
Mode of occurrence: 5% dark green smectite after olivine and 3% pale green smectite after plagioclase.

Background Alteration:
Degree of alteration: slight to moderate (6 to 20%). Pieces 1 to 2: 20% of the olivine is altered to amphibole and smectite. 3% of the clinopyroxene is replaced by amphibole. 3% of the plagioclase is recrystallized. Piece 3: 40% of the olivine is replaced by amphibole and smectite. 6% of the clinopyroxene is replaced by amphibole and smectite. 15% of the plagioclase is altered to secondary plagioclase and smectite. Replacement of plagioclase by smectite is confined to vein halos.

Vein/Fracture Filling:
0.1-2 mm smectite veins in Pieces 1 to 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture, with no magmatic foliation, cut by veins at the top and the bottom of the section.

Core Image



176-735B-183R-4

Interval 865: OLIVINE GABBRO
(see Section 176-735B-183R-2)
Interval 866: LEUCOCRATIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	183	4	7	1B	1263.89
Lower contact:	183	4	33	3	1264.15

Thickness (m): 0.26

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	70	2	0.5	medium	tabular/ subhedral anhedral
Clinopyroxene	20	2	0.2	fine	equant/ anhedral
Olivine	3	2	1	fine	equant/ anhedral subhedral
Opaques	0.4				amoeboidal aggregates/ disseminated
Total	93.4*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine
Modal IUGS Name (calculated): Gabbro
Texture: granular — Type; Distribution: N/A

Interval 867: LEUCOCRATIC OXIDE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	183	4	33	3	1264.15
Lower contact:	183	4	114	12	1264.96

Thickness (m): 0.81

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	70	25	5	coarse	tabular/ subhedral anhedral
Clinopyroxene	25	35	3	coarse	equant/ anhedral
Olivine	2	2	1	fine	amoeboidal/ anhedral
Opaques	3				interstitial lenses/ disseminated
Total	100*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): FeTi Oxide Gabbro
Texture: granular — Type; Distribution: N/A

Continued next page

Core Image

176-735B-183R-4 (cont'd)

Interval 868: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	183	4	114	12	1264.96
Lower contact:	184	2	8	1	1270.78

Thickness (m): 5.82

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase		65	20	5	coarse tabular/ subhedral anhedral
Clinopyroxene	25	45	2	coarse	equant/ anhedral
Olivine	6	10	1	medium	elongate/ subhedral anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	96.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Mode variable. Felsic patches abundant at 40-50 cm in 183R-5. Oxide present locally.

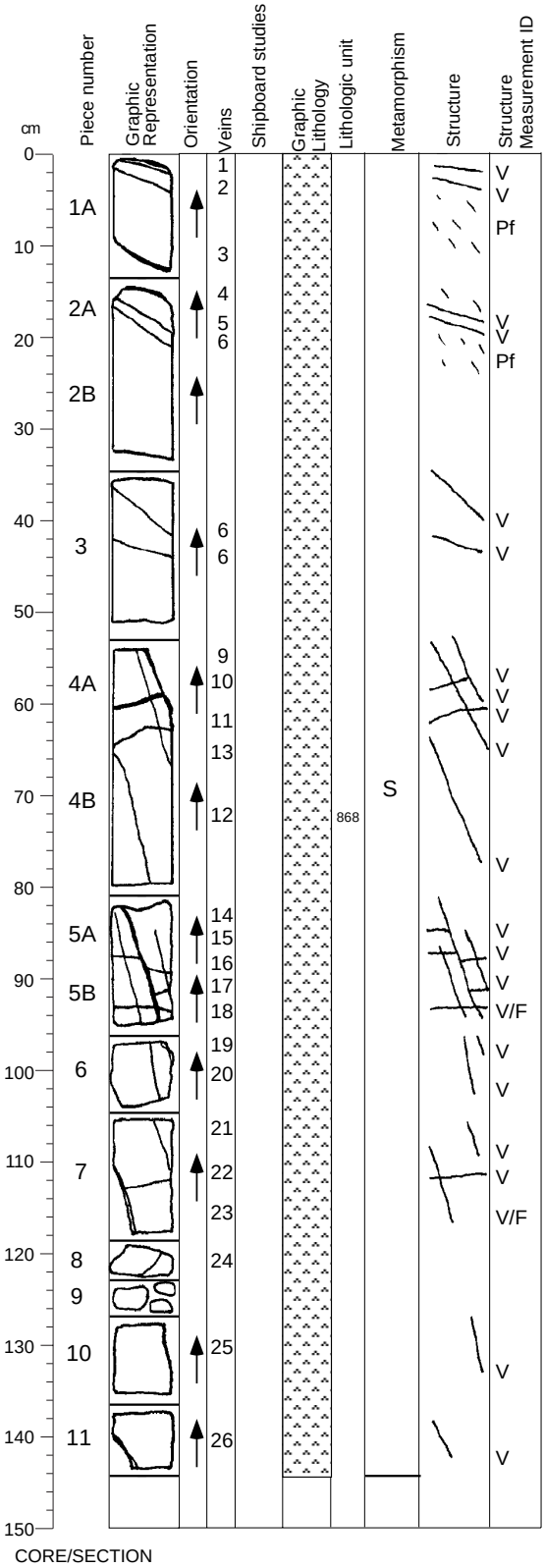
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: As patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: <5
Mode of occurrence: Dark green smectite after olivine.
Zeolite:
Total Percent: trace
Mode of occurrence: Patches related to green amphibole and chlorite.

Background Alteration:
Degree of alteration: slight to moderate (5 to 12%). Pieces 1 to 7: 25% of the olivine is replaced by amphibole and smectite. 3% of the clinopyroxene is recrystallized. Plagioclase is recrystallized to secondary plagioclase and significantly replaced by zeolites (10%). The zeolites are white in color and form beautiful rosettes of fibrous crystals. Pieces 8 to 13: 10% of the olivine is altered to amphibole and smectite. Between 2 and 3% of plagioclase and clinopyroxene is altered.

Vein/Fracture Filling:
0.1-2 mm smectite veins in Pieces 1, 3, 7, 8, and 13; 2 mm amorphous silica vein in Piece 2; 0.5 mm plagioclase vein in Piece 2.

Structures:
Mf>V>F
The section displays a fine- to coarse-grained igneous texture with no magmatic foliation, cut by a series of veins; some veins grade into faults.

Core Image



176-735B-183R-5

Interval 868: OLIVINE GABBRO
(see previous section)

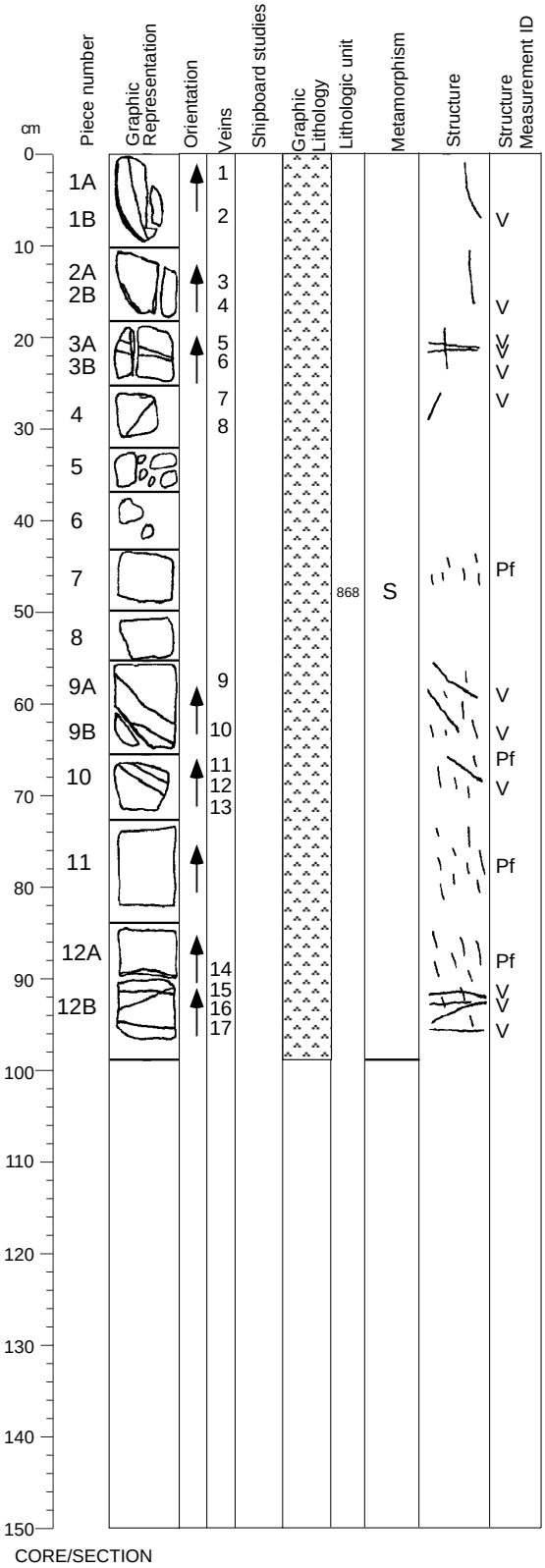
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <4
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <5
Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: slight. Olivine is partly replaced by amphibole and smectite (30%). While clinopyroxene is negligibly altered (2%), 8% of the plagioclase are recrystallized.

Vein/Fracture Filling:
0.3-1 mm smectite veins in Pieces 1 to 8, 10, and 11.

Structures:
Mf>Pf>V; Mf>V
Most of the section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by an extensive series of veins; two veins grade into faults in Pieces 5A to 5B and 7. A very weak crystal-plastic foliation overprints the magmatic texture from 0 to 23 cm (dips around 55°).

Core Image



176-735B-183R-6

Interval 868: OLIVINE GABBRO
(see Section 176-735B-183R-4)

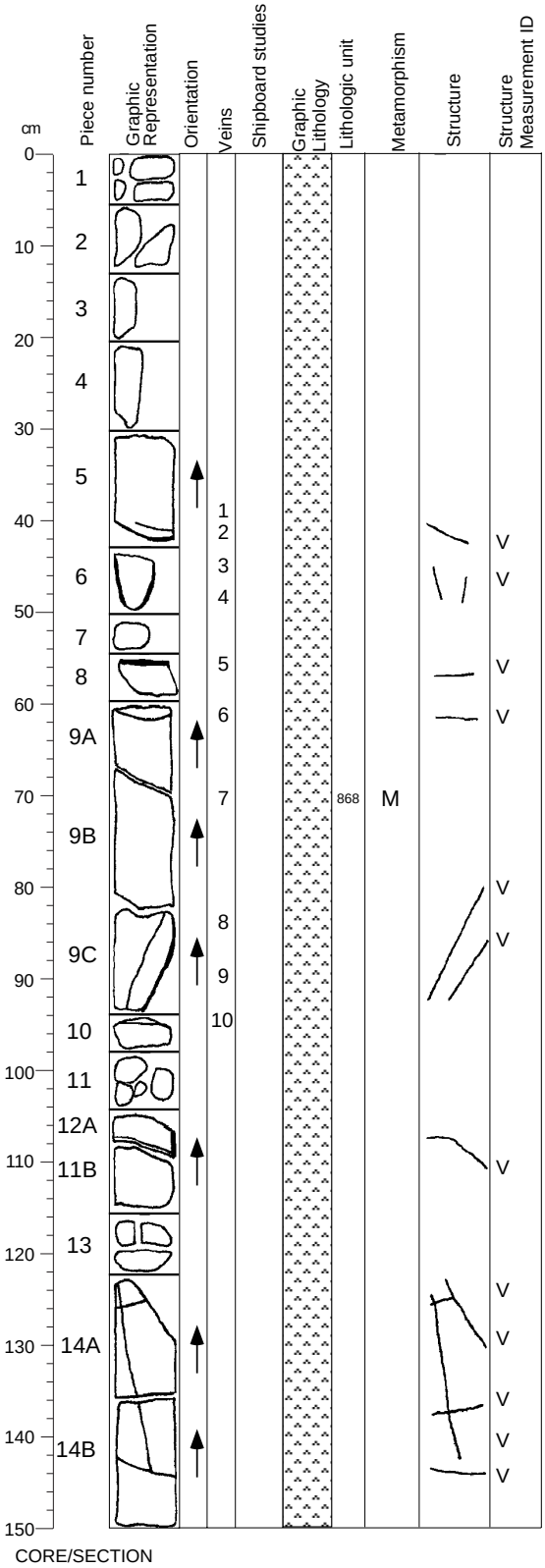
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <5
Mode of occurrence: Dark green smectite after olivine, near veins.

Background Alteration:
Degree of alteration: Same as previous section but only 6% of the plagioclase are recrystallized.

Vein/Fracture Filling:
0.2-2 mm smectite veins in Pieces 1 to 4, 9, 10, and 12; 1 mm plagioclase vein in Piece 10.

Structures:
Mf>V; Mf>Pf>V
From 0 to 41 cm, the section displays a coarse-grained igneous texture with nomagmatic foliation, cut by veins. From 41 cm to the bottom of the section, a weak to moderate, steep crystal-plastic foliation is present in most pieces. The plastic foliation is cut by a series of veins.

Core Image



176-735B-184R-1

Interval 868: OLIVINE GABBRO
(see Section 176-735B-183R-4)

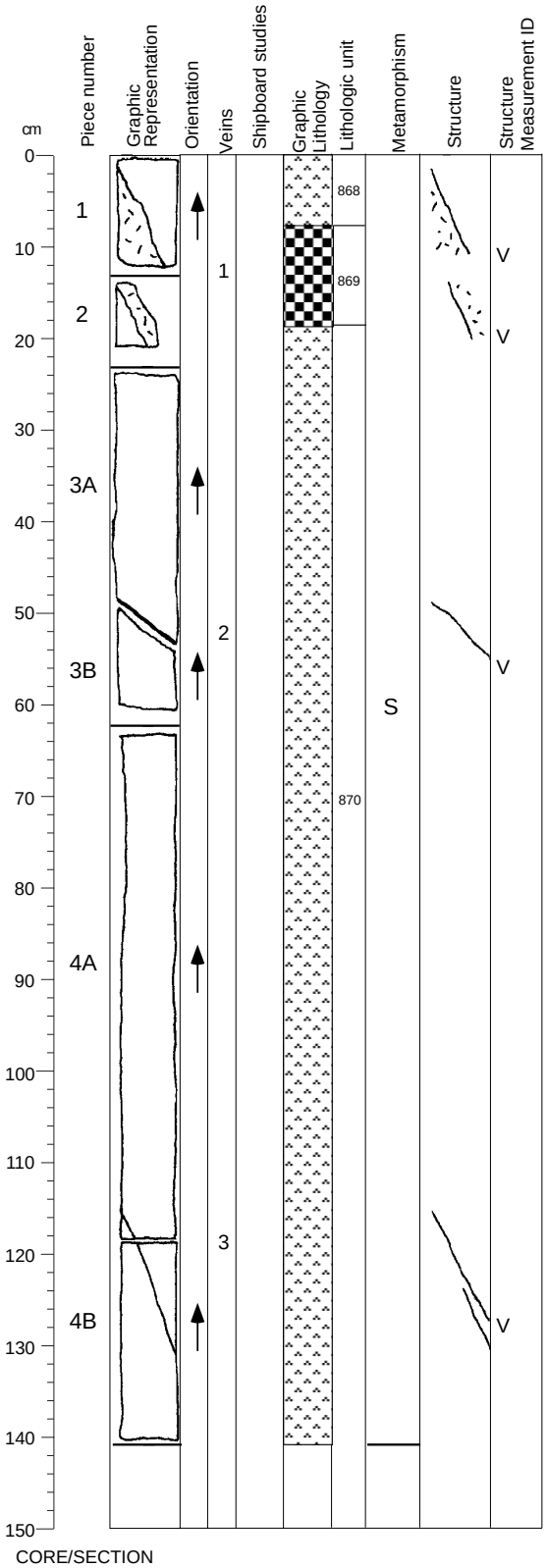
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <10
Mode of occurrence: 6% dark green smectite after olivine and some pyroxene, and 4% pale green smectite after plagioclase.

Background Alteration:
Degree of alteration: moderate (15%). Olivine is heavily altered to amphibole and smectite (80%). Plagioclase and clinopyroxene are slightly altered (5 to 6%) and both minerals are occasionally replaced by smectite along smectite veins.

Vein/Fracture Filling:
0.2-2 mm smectite veins in Pieces 5, 6, 8, 9, 10, 12, and 14; 0.5 mm amorphous silica vein in Piece 12; 1 mm zeolite vein in Piece 6; 1 mm plagioclase vein in Piece 5.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a series of veins.

Core Image



176-735B-184R-2

Interval 868: OLIVINE GABBRO
(see Section 176-735B-183R-4)
Interval 869: LEUCOCRATIC OXIDE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	184	2	8	1	1270.78
Lower contact:	184	2	19	2	1270.89

Thickness (m): 0.11

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	80	15	8	coarse	tabular/ subhedral anhedral
Clinopyroxene	5	15	3	coarse	tabular/ anhedral oikocrystic
Olivine				N/A	N/A
Opaques	10				interstitial lenses/ interstitial network
Total	95*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Medium
Modal IUGS Name (calculated): Not Calculated
Type Distribution
Texture: granular N/A
Comments: Dark-green amphibole. Oxide abundant.

Interval 870: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	184	2	19	2	1270.89
Lower contact:	185	3	90	1	1281.96

Thickness (m): 11.07

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	20	3	coarse	tabular/ subhedral euhedral
Clinopyroxene	30	40	5	coarse	equant/ subhedral
Olivine	12	15	1	medium	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	107.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A
Comments: Mostly medium/coarse-grained, locally fine patches present from 117 cm in 184R-4 to 17 cm in 184R-5, and at 5-23 cm in 185R-2. Very locally clinopyroxene is coarse-grained at 94 cm in 184R-6, 81 cm in 185R-2, 76 cm in 185R-3. Oxide locally present.

Continued next page

Core Image

176-735B-184R-2 (cont'd)

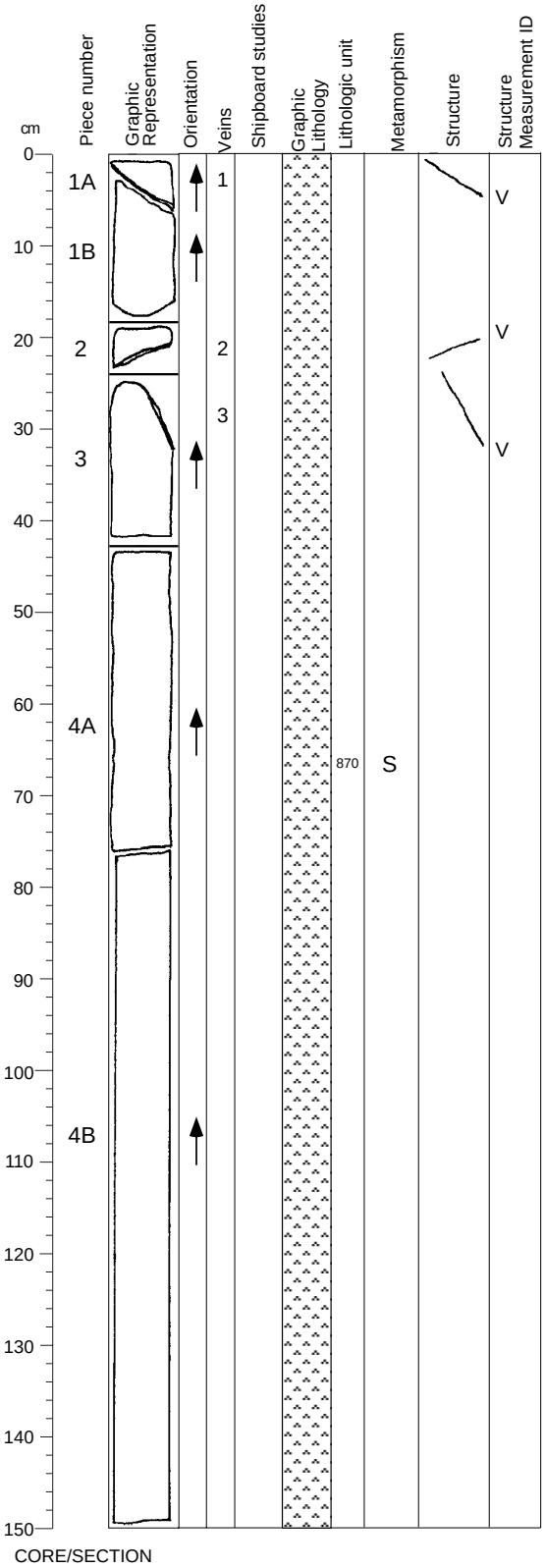
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Comments: More abundant near felsic veins
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed, more abundant near felsic zones.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase and brown amphibole in and near felsic veins.
Sulfide:
Total Percent: trace
Mode of occurrence: In altered brown amphiboles.

Background Alteration:
Degree of alteration: slight (6%). Along a cm wide felsic vein in Piece 2, sulfides are very abundant and replace olivine and smectite. In the vein, plagioclase-sulfide symplectites have been observed. Olivine is on average 20% altered. Plagioclase and clinopyroxene are largely fresh, except for replacement of clinopyroxene by sulfides ± smectite in Piece 2.

Vein/Fracture Filling:
0.5-0.8 mm smectite veins in Pieces 3 and 4.

Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins.

Core Image



176-735B-184R-3

Interval 870: OLIVINE GABBRO
(see previous section)

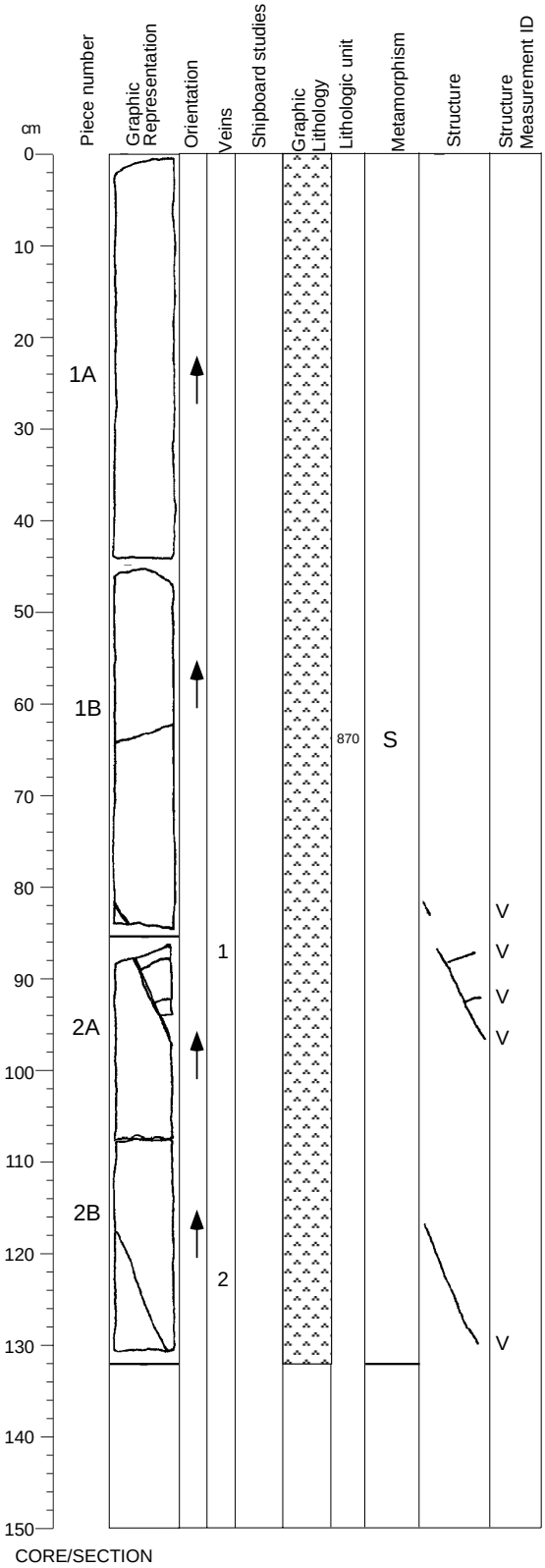
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: slight (3%). Olivine is slightly altered to amphibole and smectite (5%). Clinopyroxene and plagioclase are negligibly altered (1 to 2%).

Vein/Fracture Filling:
0.5-1 mm smectite veins in Pieces 1 to 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins.

Core Image



176-735B-184R-4

Interval 870: OLIVINE GABBRO
(see Section 176-735B-184R-2)

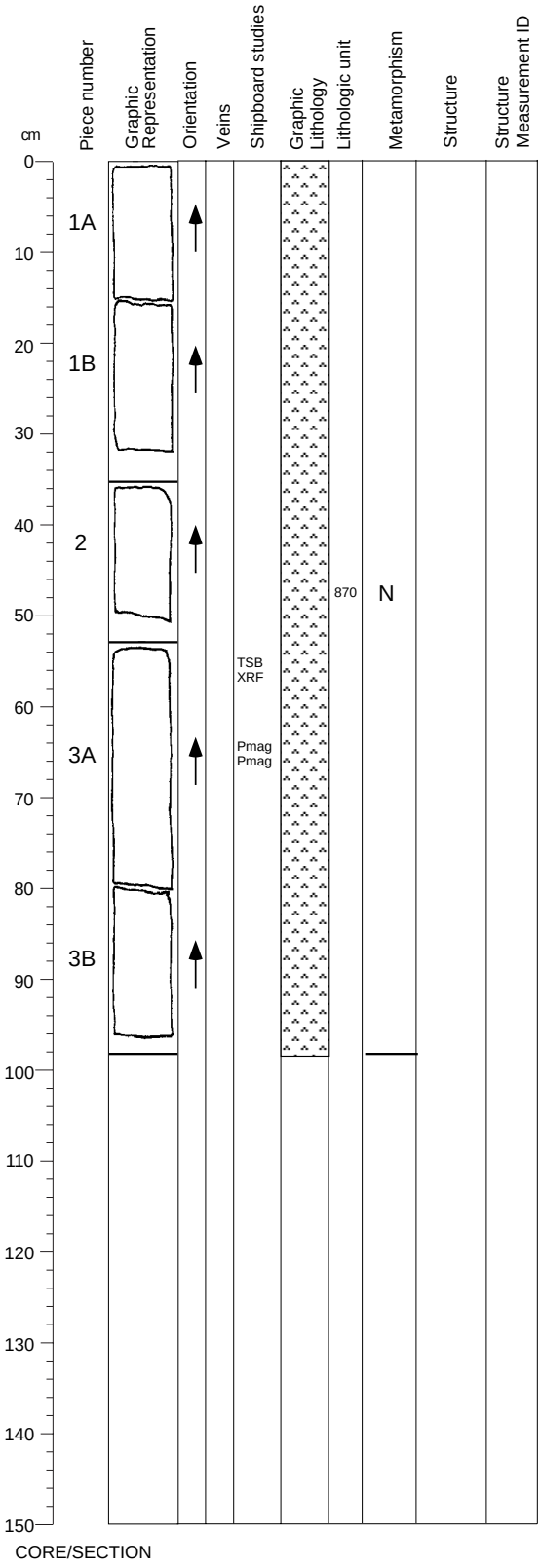
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section but olivine alteration is slightly higher (8%).

Vein/Fracture Filling:
0.5-1 mm smectite veins in Pieces 2 to 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins in Pieces 2B to 3C.

Core Image



176-735B-184R-5

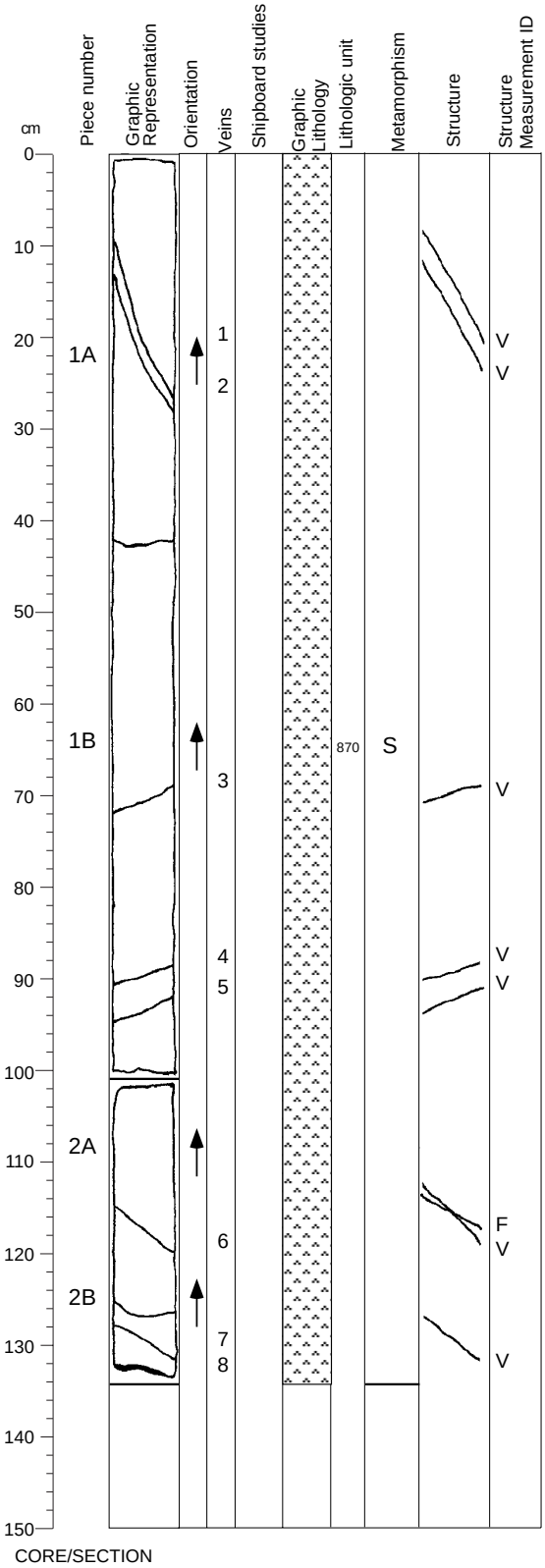
Interval 870: OLIVINE GABBRO
(see Section 176-735B-184R-2)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine near smectite veins.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture, with no magmatic foliation.

Core Image



176-735B-184R-6

Interval 870: OLIVINE GABBRO
(see Section 176-735B-184R-2)

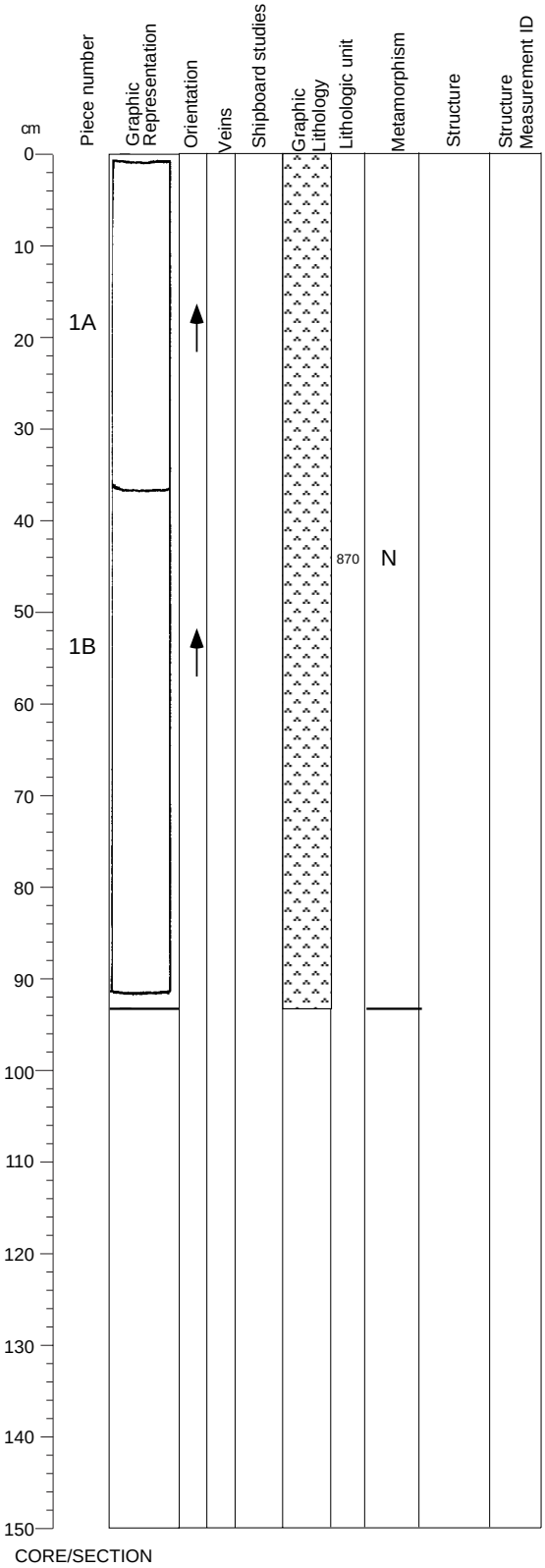
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine and pale green after plagioclase, near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Olivine is slightly altered to amphibole and smectite (8%). Clinopyroxene and plagioclase are negligibly altered (1 to 2%).

Vein/Fracture Filling:
0.1-2.5 mm smectite veins in Pieces 1 and 2.

Structures:
Mf>V; Mf>F>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a few veins. In Piece 2A, a fault is cut by a vein.

Core Image



176-735B-185R-1

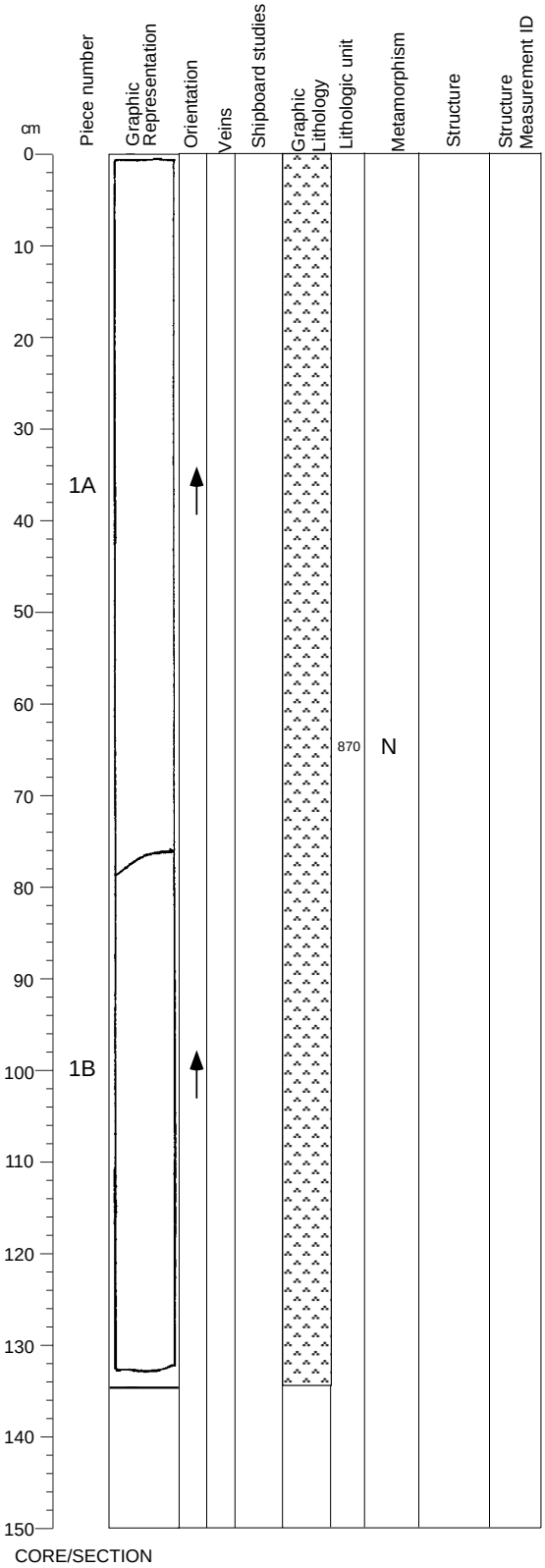
Interval 870: OLIVINE GABBRO
(see Section 176-735B-184R-2)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-185R-2

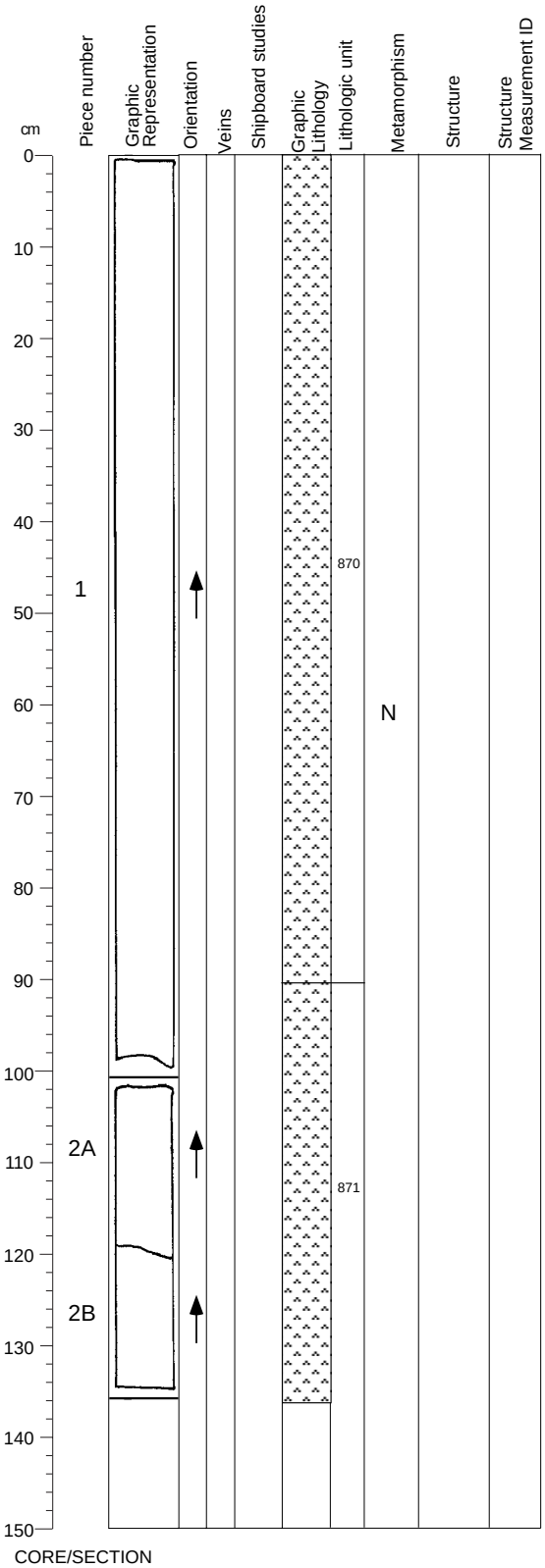
Interval 870: OLIVINE GABBRO
(see Section 176-735B-184R-2)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-185R-3

Interval 870: OLIVINE GABBRO
(see Section 176-735B-184R-2)
Interval 871: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	185	3	90	1	1281.96
Lower contact:	185	3	135	2B	1282.41

Thickness (m): 0.45

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	60	8	pegmatitic	tabular/ subhedral
Clinopyroxene	30	50	5	pegmatitic	equant/ anhedral
Olivine	8	30	5	coarse	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	103.5*		(see explanatory notes)		

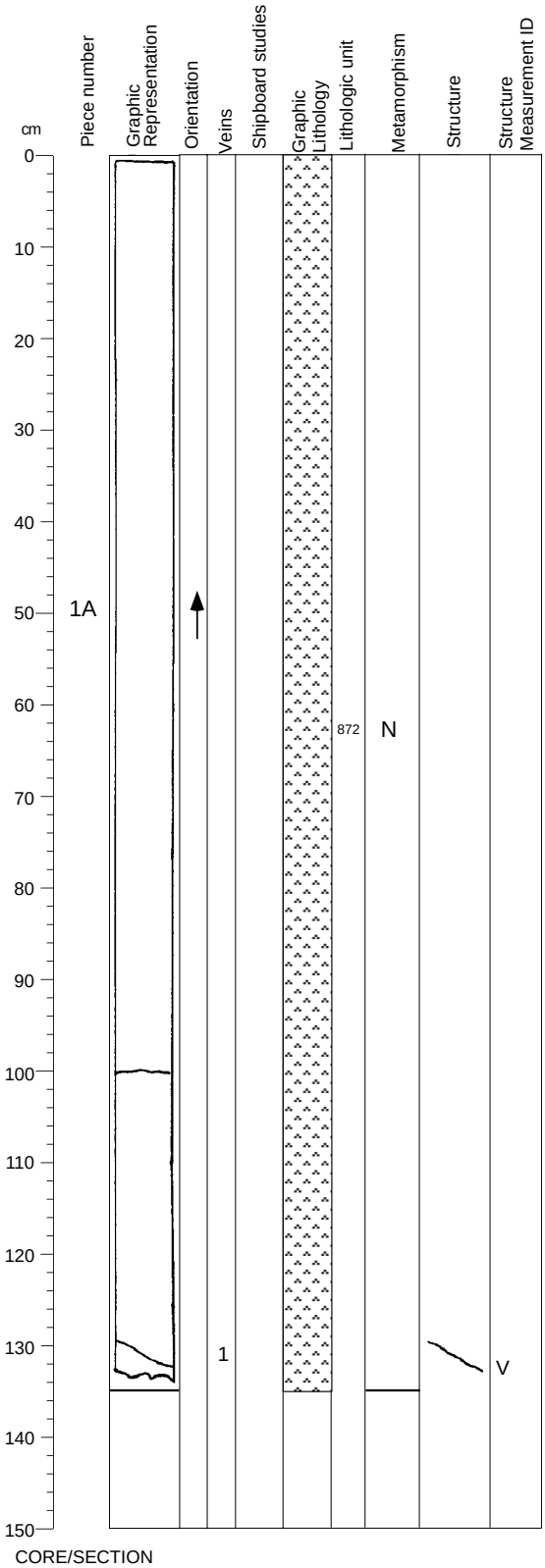
*Major phases estimated to ± 5%
Grain Size: Pegmatitic
Modal IUGS Name (calculated): Olivine Gabbro
Texture: Type: granular; Distribution: N/A

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-185R-4

Interval 872: OLIVINE GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	185	3	135	2B	1282.41
Lower contact:	186	3	99	1B	1292.16

Thickness (m): 9.75

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	20	4	coarse	tabular/ subhedral
Clinopyroxene	30	35	4	coarse	equant/ anhedral
Olivine	15	15	2	medium	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Locally intergranular/subophitic. Locally pegmatitic at 0-20 cm in 185R-4, 50-70 cm in 185R-6, 105 cm in 185R-7, and 96 cm in 186R-1. Oxide abundant at 91-92 cm in 185R-5, 127-128 cm in 185R-7, and 26-29 cm in 186R-3.

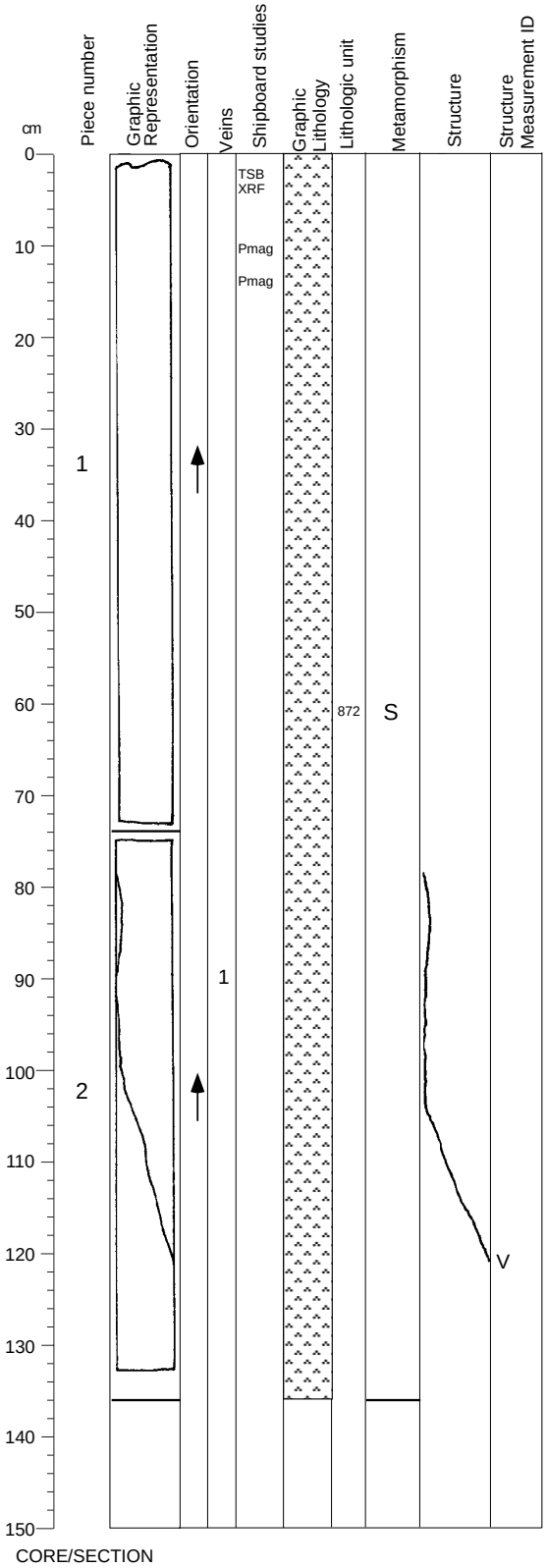
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green smectite after olivine and pale green after plagioclase, near smectite veins.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.3 mm smectite vein in Piece 1B.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a vein at the bottom of Piece 1B.

Core Image



176-735B-185R-5

Interval 872: OLIVINE GABBRO
(see previous section)

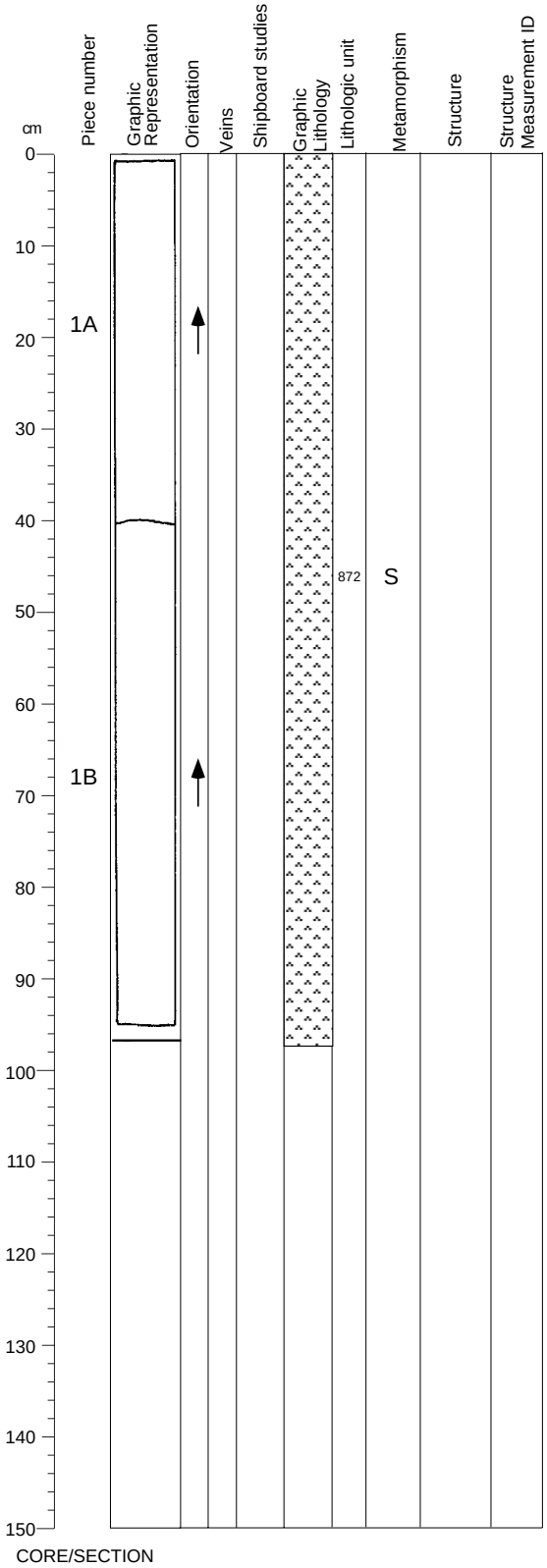
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine, near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Olivine is slightly altered to amphibole and smectite (5%). Clinopyroxene and plagioclase are negligibly altered (1 to 2%).

Vein/Fracture Filling:
0.6 mm smectite vein in Piece 2.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a vein in Piece 2.

Core Image



176-735B-185R-6

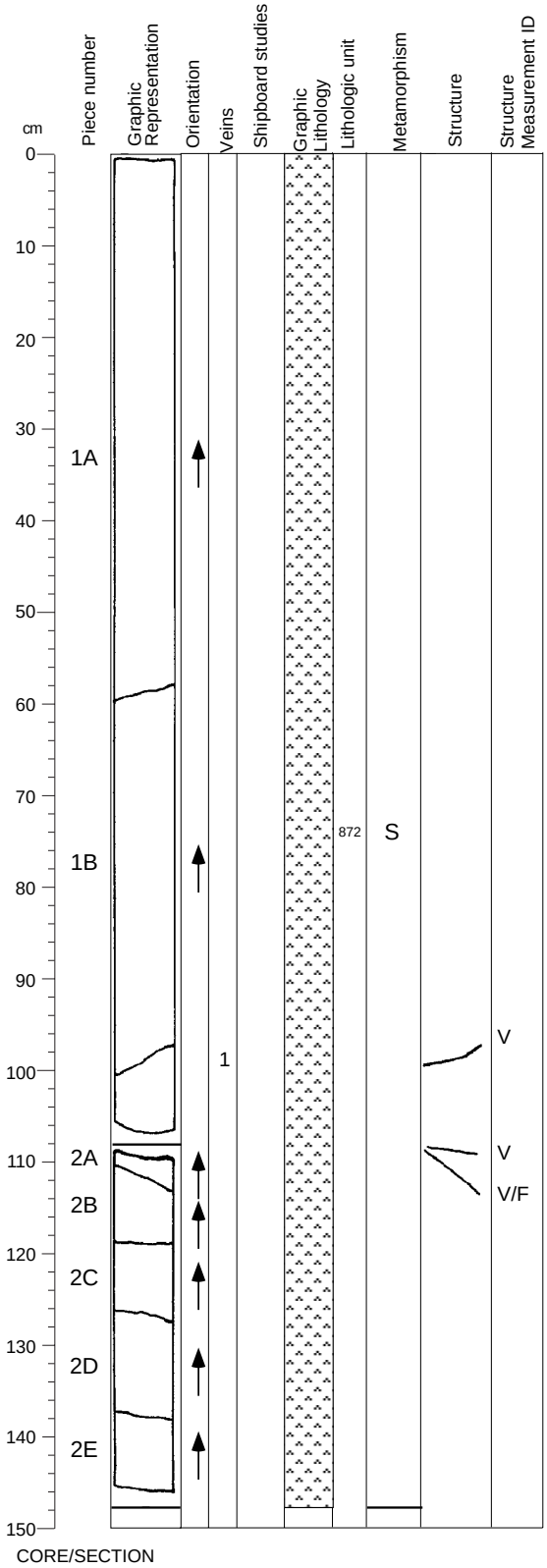
Interval 872: OLIVINE GABBRO
(see Section 176-735B-185R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: As patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green smectite after olivine and pale green after plagioclase, near smectite veins.
Albite(?):
Total Percent: trace
Mode of occurrence: Patches related to green amphibole and chlorite.

Background Alteration:
Degree of alteration: slight (3%). Olivine is slightly altered to amphibole and smectite (5%). Clinopyroxene and plagioclase are negligibly altered (2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-185R-7

Interval 872: OLIVINE GABBRO
(see Section 176-735B-185R-4)

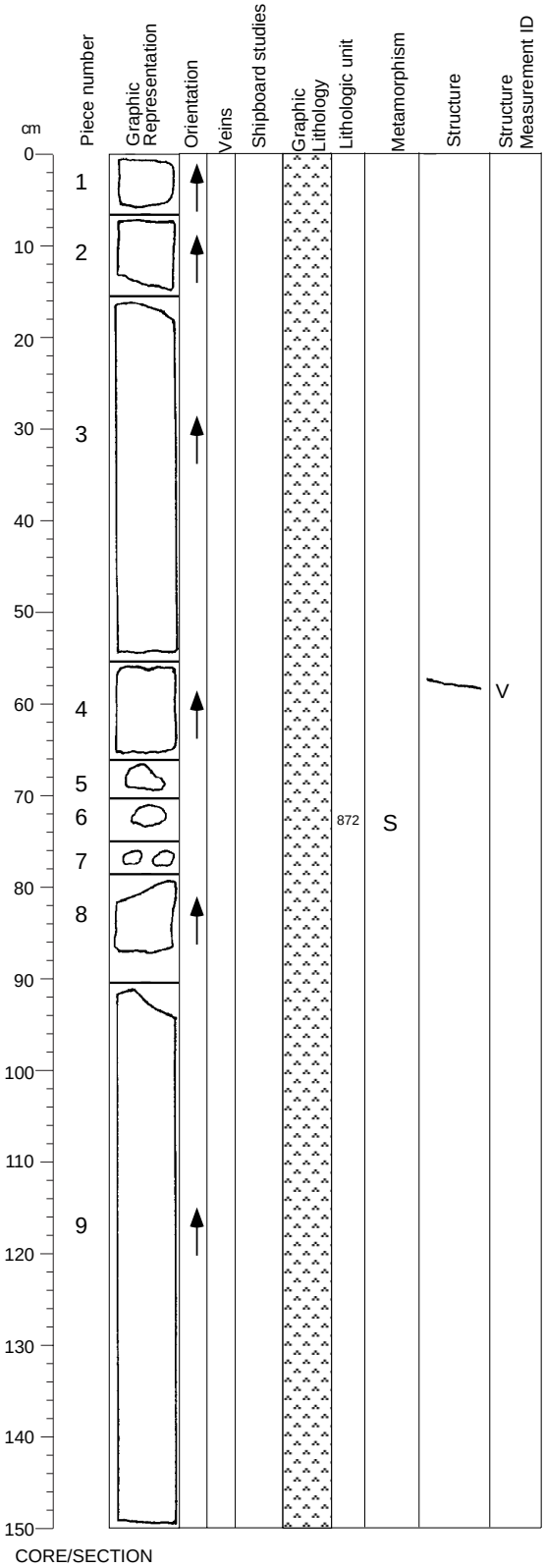
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: As patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine and pale green after plagioclase.
Comments: Near a smectite vein.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Vein/Fracture Filling:
Veins in Piece 1B

Structures
Mf>V>F
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins in Pieces 1B and 2A; one vein in Piece 2A grades into a fault.

Core Image



176-735B-186R-1

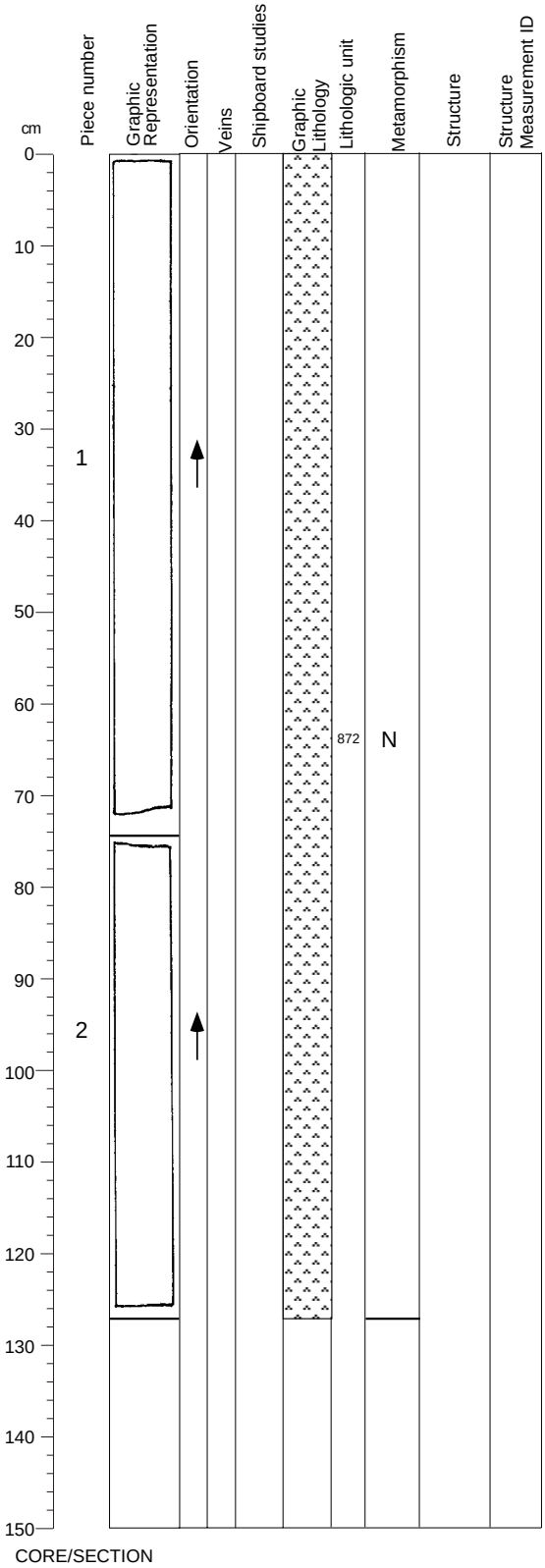
Interval 872: OLIVINE GABBRO
(see Section 176-735B-185R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine and pale green after plagioclase, near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf>V
The section displays a medium to coarse-grained igneous texture with no magmatic foliation, cut by a vein at the top of Piece 4.

Core Image



176-735B-186R-2

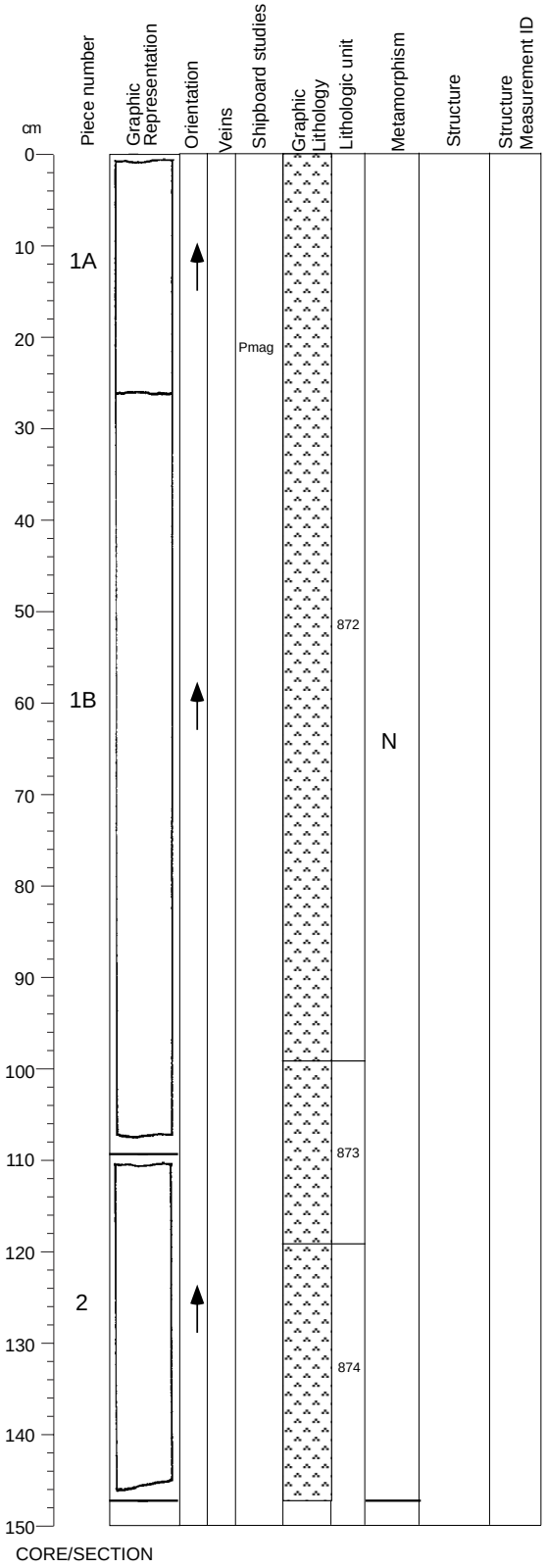
Interval 872: OLIVINE GABBRO
(see Section 176-735B-185R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-186R-3

Interval 872: OLIVINE GABBRO
(see Section 176-735B-185R-4)
Interval 873: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	186	3	99	1B	1292.16
Lower contact:	186	3	119	2	1292.36

Thickness (m): 0.20

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	50	30	5	coarse	tabular/ subhedral anhedral
Clinopyroxene	35	50	10	pegmatitic	equant/ anhedral
Olivine	6	20	5	coarse	elongate/ anhedral
Opaques	0.8				interstitial lenses/ disseminated
Total	91.8*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Pegmatitic

	Type	Distribution
Texture:	granular	N/A

Comments: Local medium patches. Sulfide present.

Interval 874: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	186	3	119	2	1292.36
Lower contact:	186	5	37	1	1294.49

Thickness (m): 2.13

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	20	2	coarse	tabular/ subhedral euhedral
Clinopyroxene	20	15	3	coarse	equant/ anhedral
Olivine	15	8	1	medium	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

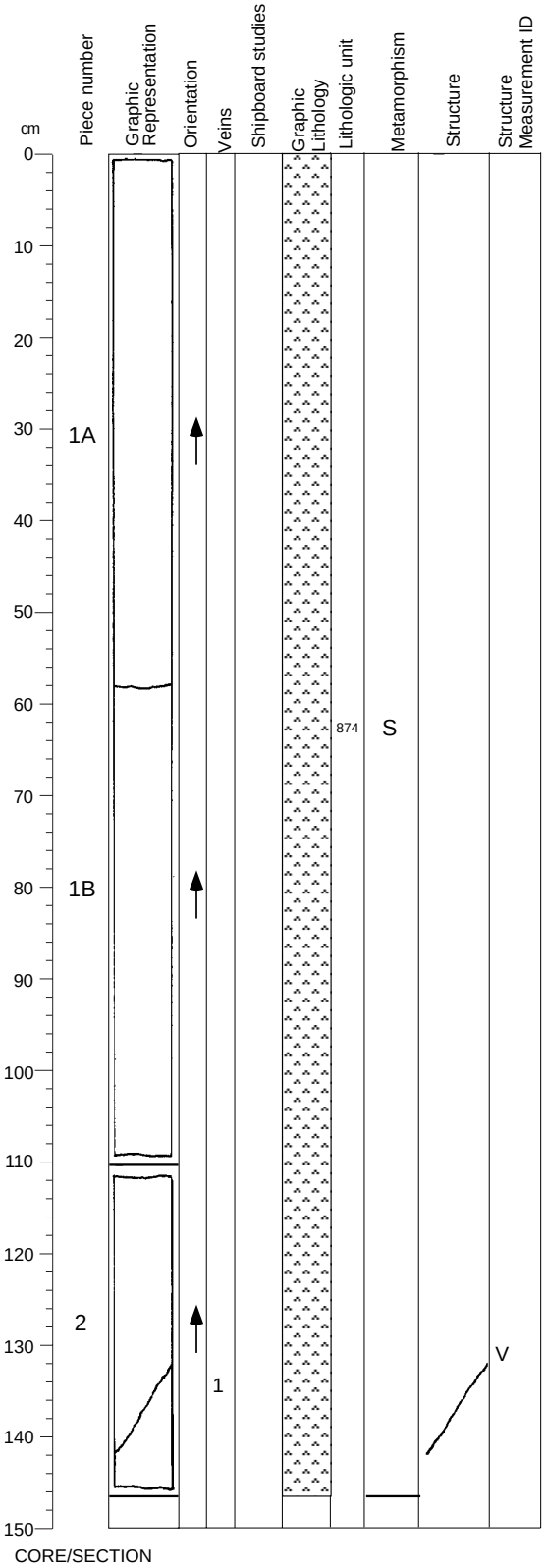
Comments: Gradational grain size variation defining "layering": top to 0 cm in 186R-4 (coarse), to 38 cm in 186R-4 (fine/medium), to 42 cm in 186R-4 (very coarse), to 62 cm in 186R04 (fine), to 100 cm in 186R-4 (fine/medium), to 132 cm in coarse), to base (medium).

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-186R-4

Interval 874: OLIVINE GABBRO
(see previous section)

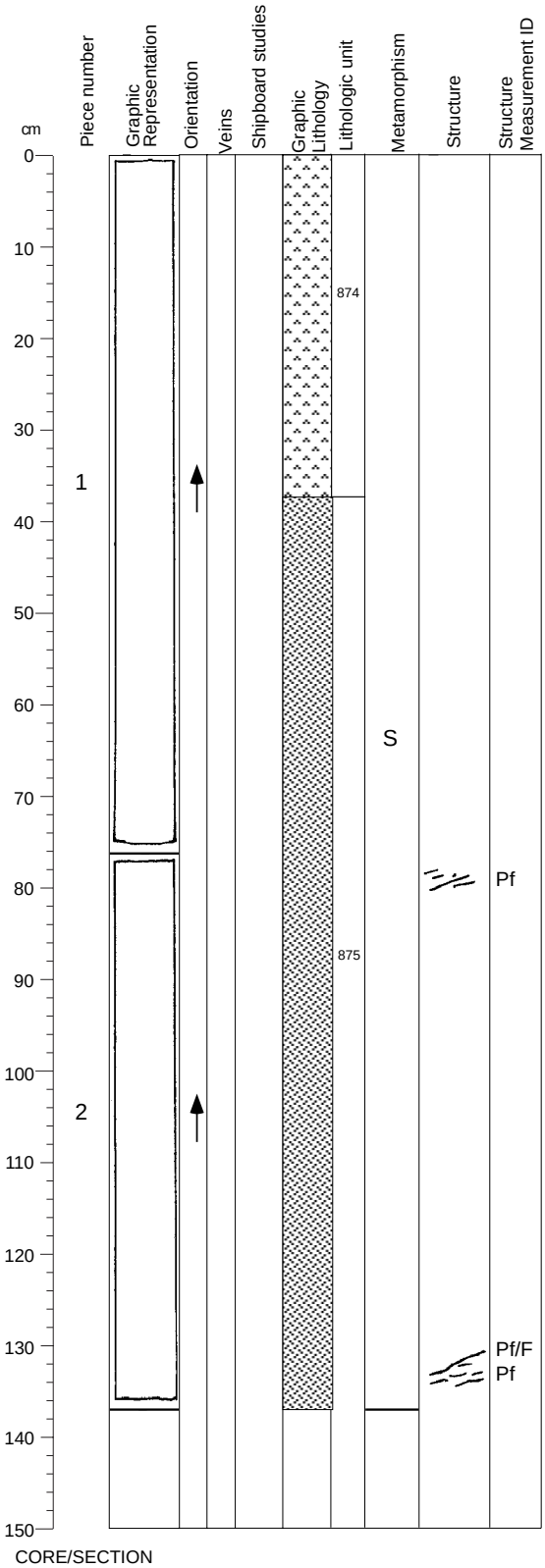
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: slight (3%). Olivine is weakly replaced by amphibole (3%). 2% of the clinopyroxene are altered. 3% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.1 mm smectite veins in Piece 2.

Structures:
Mf
The section displays a medium to coarse-grained igneous texture with no magmatic foliation, cut by a vein at the bottom of Piece 2.

Core Image



176-735B-186R-5

Interval 874: OLIVINE GABBRO
(see Section 176-735B-186R-3)
Interval 875: DISSEMINATED OXIDE OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	186	5	37	1	1294.49
Lower contact:	186	6	5	1	1295.54

Thickness (m): 1.05

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	30	3	coarse	tabular/ subhedral anhedral
Clinopyroxene	30	35	3	coarse	equant/ anhedral
Olivine	5	10	1	coarse	amoeboidal/ anhedral
Opaques	1.5				interstitial lenses/ interstitial network
Total	96.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Gradational grain size variation defining "layering": 37 to 50 cm in 186R-5 (fine/medium), to 86 cm in 186R-5 (very coarse/pegmatitic with fine patches), to 107 cm in ??? (coarse/medium), to 127 cm in ??? (very coarse/pegmatitic), and to base (medium/coarse with strong foliation). Oxide throughout, locally abundant.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: As patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green smectite after olivine.
Albite(?):
Total Percent: trace
Mode of occurrence: Patches related to green amphibole and chlorite.
Sulfide:
Total Percent: trace
Mode of occurrence: In chlorite patches.

Continued next page

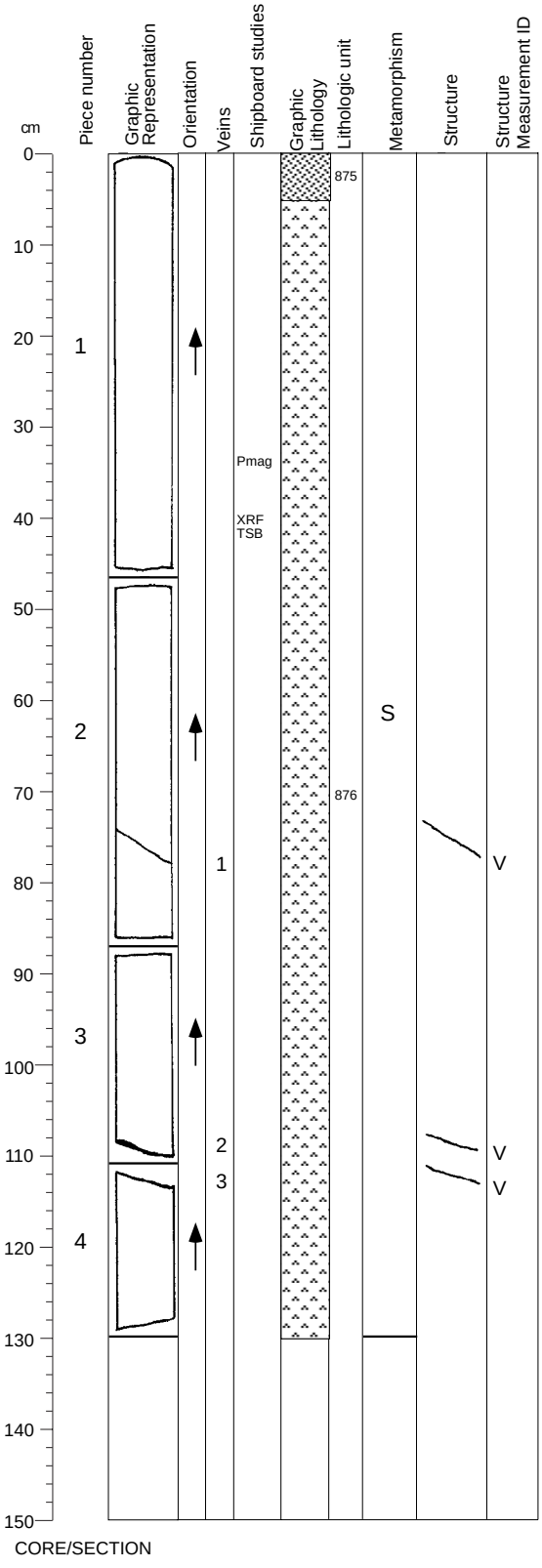
Core Image

176-735B-186-R-5 (cont'd)

Background Alteration:
Degree of alteration: slight (4%). 5% of the olivine is replaced by talc and amphibole. 4% of the clinopyroxene is altered to amphibole and chlorite. 3% of the plagioclase is recrystallized.

Structures:
Mf>Pf>Pf/F
Most of the section displays a fine- to coarse-grained igneous texture with no magmatic foliation, except for two narrow zones of strong crystal-plastic foliation at the top and the bottom of Piece 2 (77 to 79 cm, 132 to 135 cm). The lower zone of plastic foliation is bounded by a thin semi-brittle fault, associated with oxides.

Core Image



176-735B-186R-6

Interval 875: DISSEMINATED OXIDE OLIVINE GABBRO

(see previous section)

Interval 876: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	186	6	5	1	1295.54
Lower contact:	187	4	8	1	1301.32

Thickness (m): 5.78

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	20	4	coarse	tabular/ subhedral
Clinopyroxene	30	25	3	coarse	equant/ anhedral
Olivine	7	10	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	97.5*		(see explanatory notes)		

*Major phases estimated to ± 5%

Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Gradational grain size variation defining "layering": top to 37 cm in 187R-1 (coarse), to 51 cm in 187R-1 (fine), to 34 cm in 187R-2 (coarse), to 61 cm in 187R-2 (medium/coarse), to 90 cm in 187R-2 (medium), to 115 cm in 187R-2 (coarse), to 140 cm in 187R-2 (very coarse/pegmatitic; locally altered with smectite along joints/fractures), to 12 cm in 187R-3 (coarse), to base (medium). Oxide present in laces at 91-92 cm in 185R6, 127-128 cm in 185R-7. Sulfide present at 10 cm in 187R-4.

Alteration:

Dark green amphibole:
- Total Percent: <1
- Mode of occurrence: After pyroxene and olivine.
- Comments: As alteration rims.

Brown amphibole:
- Total Percent: trace
- Mode of occurrence: Along pyroxene cleavages, as rims.
- Comments: More abundant in felsic zones.

Green amphibole:
- Total Percent: trace
- Mode of occurrence: As patches.

Secondary plagioclase:
- Total Percent: <2
- Mode of occurrence: Replacing primary plagioclase.
- Comments: Irregularly distributed.

Talc and oxides:
- Total Percent: trace
- Mode of occurrence: After olivine in crystal cracks.

Chlorite:
- Total Percent: trace
- Mode of occurrence: Associated with green amphibole.

Smectite:
- Total Percent: trace
- Mode of occurrence: Dark green smectite after olivine and pale green after plagioclase.

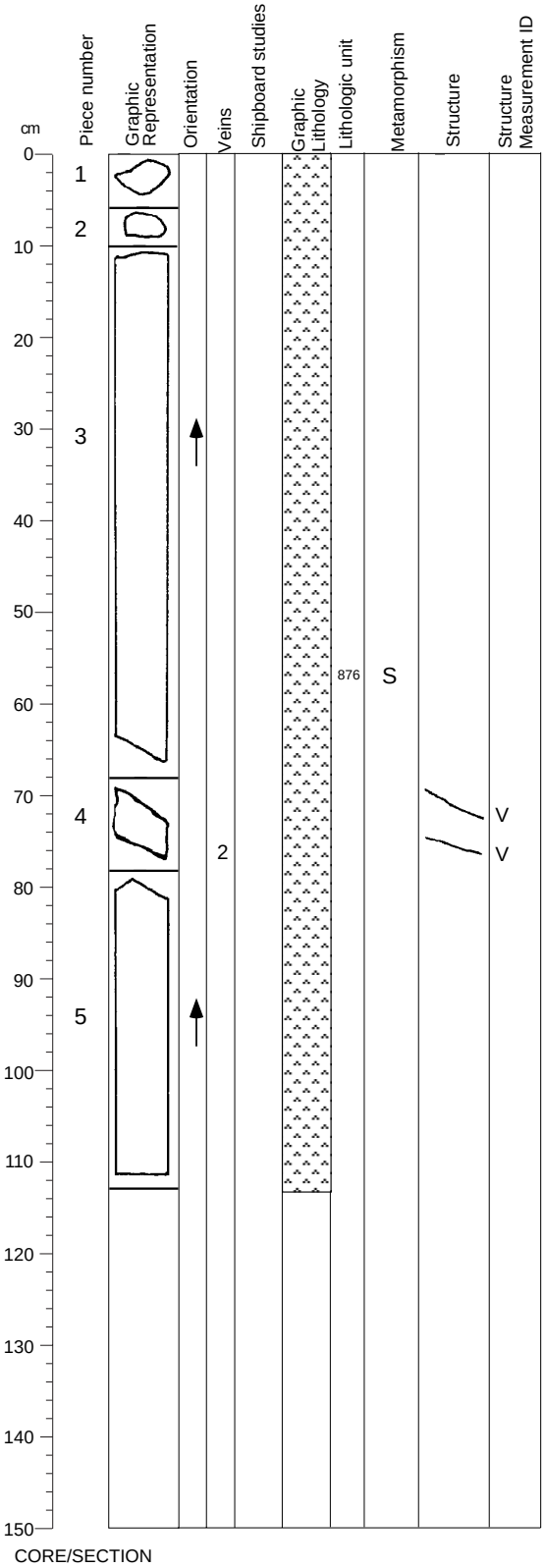
Albite (?):
- Total Percent: trace
- Mode of occurrence: Patches related to green amphibole and chlorite.

Background Alteration:
Degree of alteration: slight (4%). Same as previous section.

Vein/Fracture Filling:
0.1-0.5 mm smectite veins in Pieces 2, 3, and 4.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by two veins, in Piece 2 and at the boundary between Pieces 2 and 3.

Core Image



176-735B-187R-1

Interval 876: OLIVINE GABBRO
(see previous section)

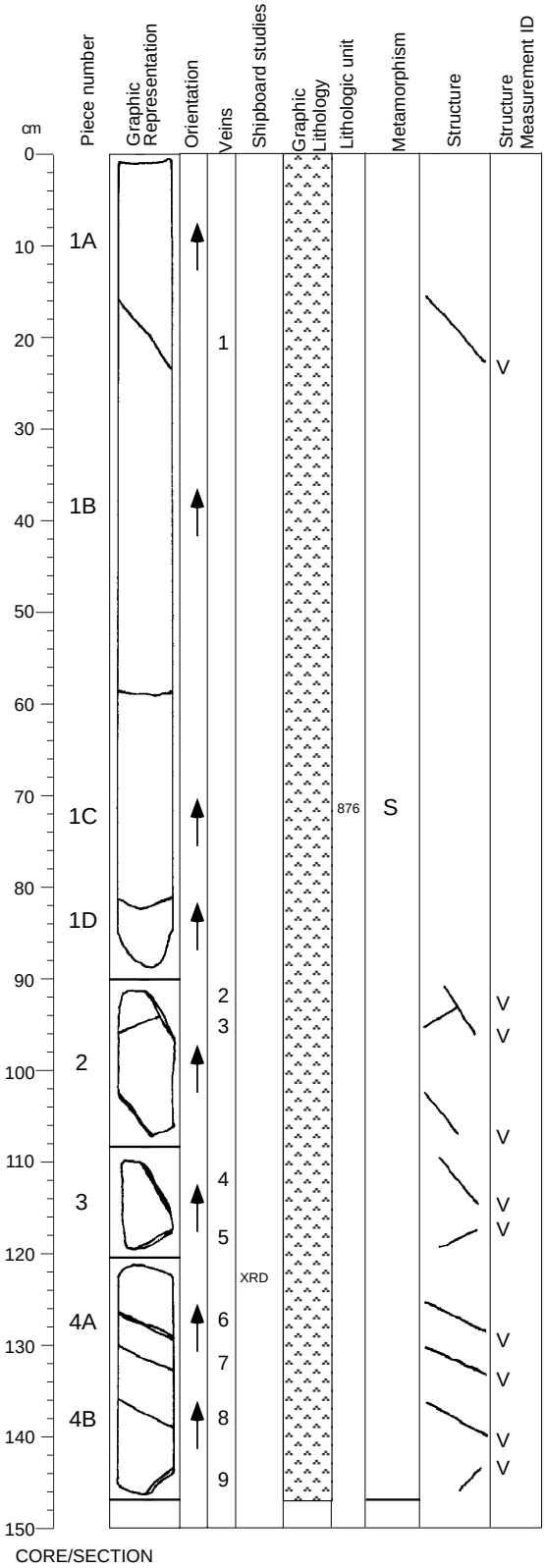
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green smectite after olivine and pale green after plagioclase, near smectite veins.

Background Alteration:
Degree of alteration: slight (3%): Olivine is slightly altered to amphibole and smectite (5%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.2 mm smectite veins in Piece 2.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by two veins in Piece 4. Piece 3 contains a layer of medium-grained gabbro (from 38 to 46 cm); both the lower and the upper contacts with the surrounding coarse-grained gabbro are relatively sharp (dipping 35°).

Core Image



176-735B-187R-2

Interval 876: OLIVINE GABBRO
(see Section 176-735B-186R-6)

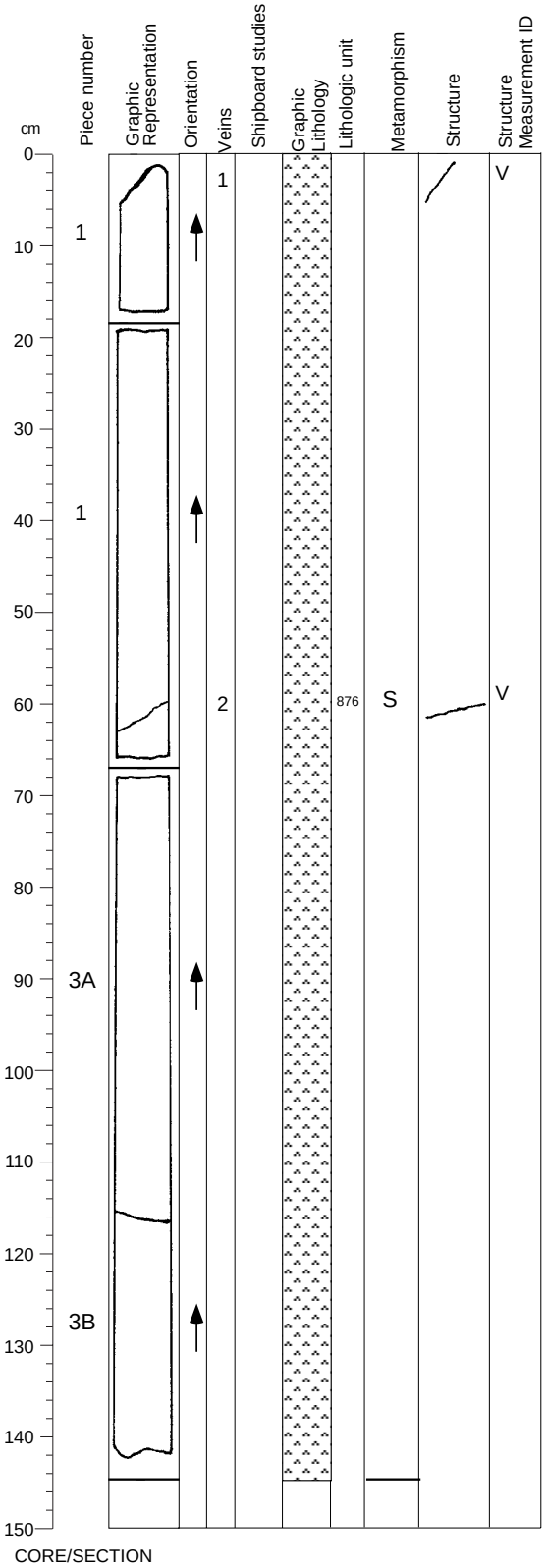
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green smectite after olivine and pale green after plagioclase and brown amphibole.

Background Alteration:
Degree of alteration: slight (5%): Olivine is partly altered to amphibole and smectite (12%). Clinopyroxene and plagioclase are weakly altered to amphibole and smectite (2%). Plagioclase is slightly recrystallized and replaced by smectite (4%).

Vein/Fracture Filling:
0.1-2 mm smectite veins in Pieces 1, 2, 3, and 4; 1-1.5 mm plagioclase veins in Pieces 2 and 4; 0.8 mm zeolite vein in Pieces 2 and 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins.

Core Image



176-735B-187R-3

Interval 876: OLIVINE GABBRO
(see Section 176-735B-186R-6)

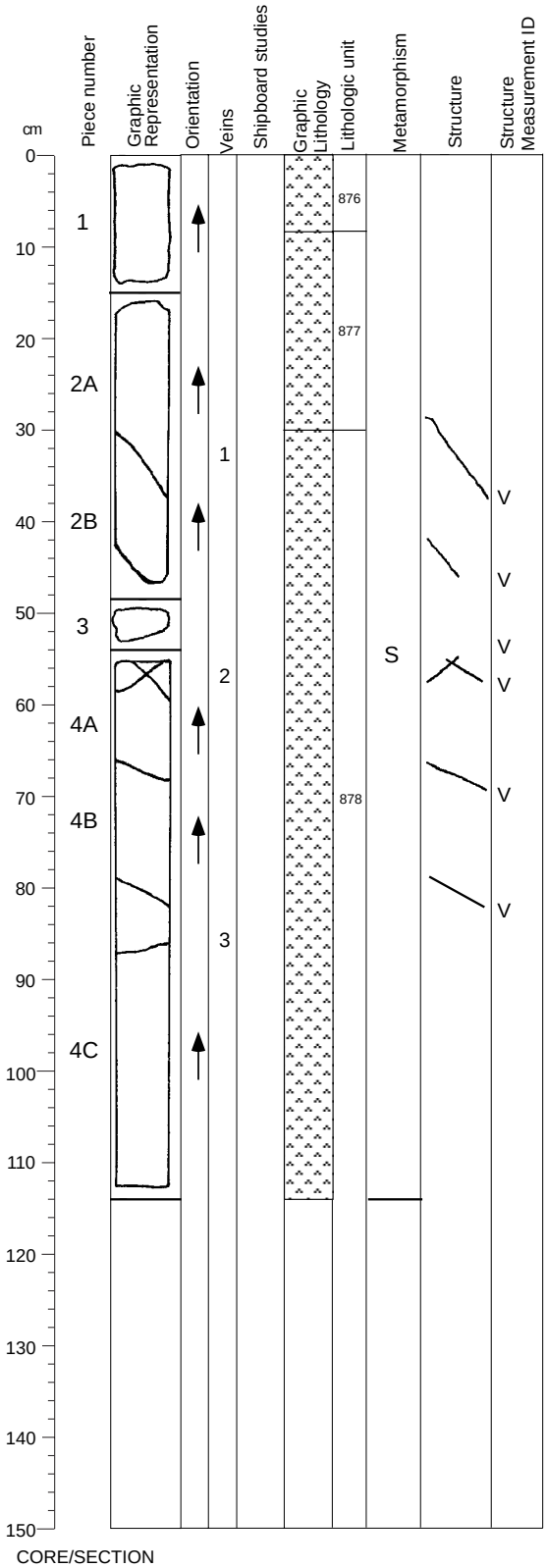
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green smectite after olivine near smectite veins.

Background Alteration:
Degree of alteration: slight (3%): Olivine is slightly altered to amphibole and smectite (5%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.2 mm smectite veins in Piece 1; 0.5 mm altered plagioclase vein in Piece 1.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by two veins in Pieces 1 and 2.

Core Image



176-735B-187R-4

Interval 876: OLIVINE GABBRO
(see Section 176-735B-186R-6)
Interval 877: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	187	4	8	1	1301.32
Lower contact:	187	4	30	2A	1301.54

Thickness (m): 0.22

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	30	8	coarse	tabular/ subhedral
Clinopyroxene	30	50	10	pegmatitic	tabular/ subhedral anhedral
Olivine	5	15	2	medium	elongate/ anhedral, subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	100.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse

	Type	Distribution
Texture:	granular	N/A

Interval 878: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	187	4	30	2A	1301.54
Lower contact:	188	3	63	1A	1310.47

Thickness (m): 8.93

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	30	3	coarse	tabular/ subhedral
Clinopyroxene	30	35	2	coarse	equant/ anhedral subhedral
Olivine	12	30	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	102.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Gradational grain size variation defining "layering": top to 101 cm in 187R-4 (fine/medium), 0 cm in 187R-5 (coartse/medium), 10 cm in 187R-5 (fine/medium), to 110 cm in 188R-1 (coarse with irregular fine patches), to 130 cm in 188R-1 (fine/medium), to 47 cm in 188R-2 (coarse/medium). Mostly granular, locally intergranular.

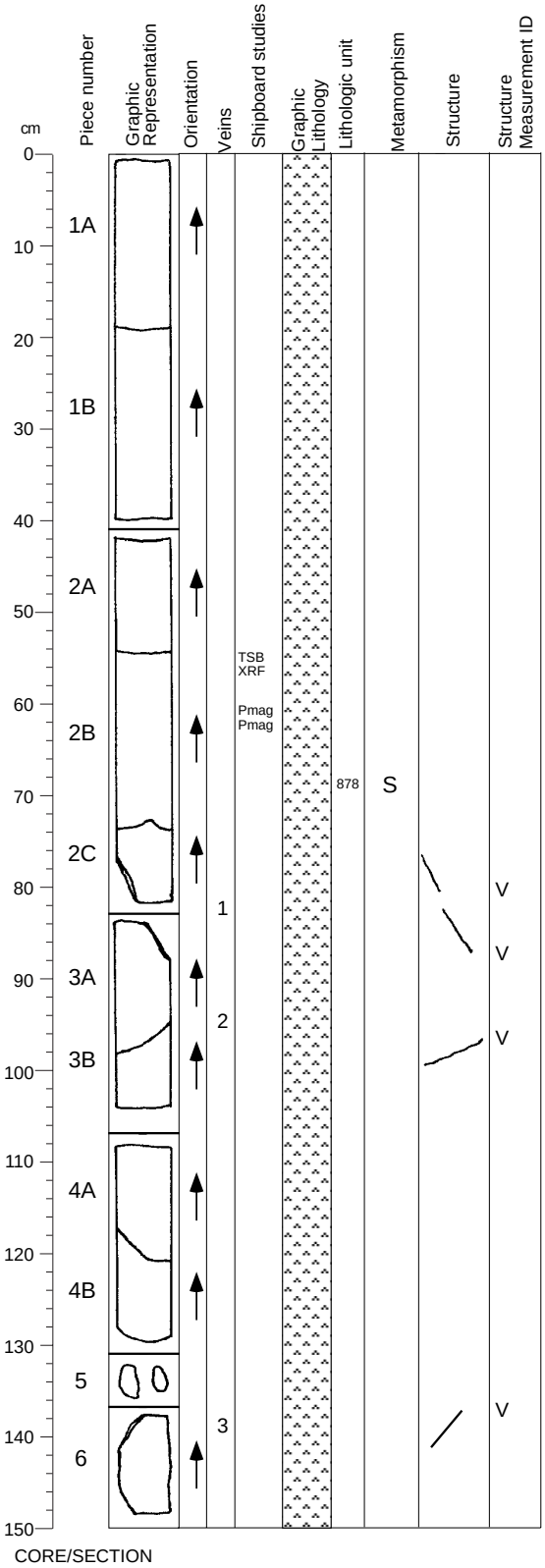
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine, near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Vein/Fracture Filling:
0.2-0.6 mm smectite veins in Pieces 1 and 4.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a series of veins.

Core Image



176-735B-187R-5

Interval 878: OLIVINE GABBRO
(see previous section)

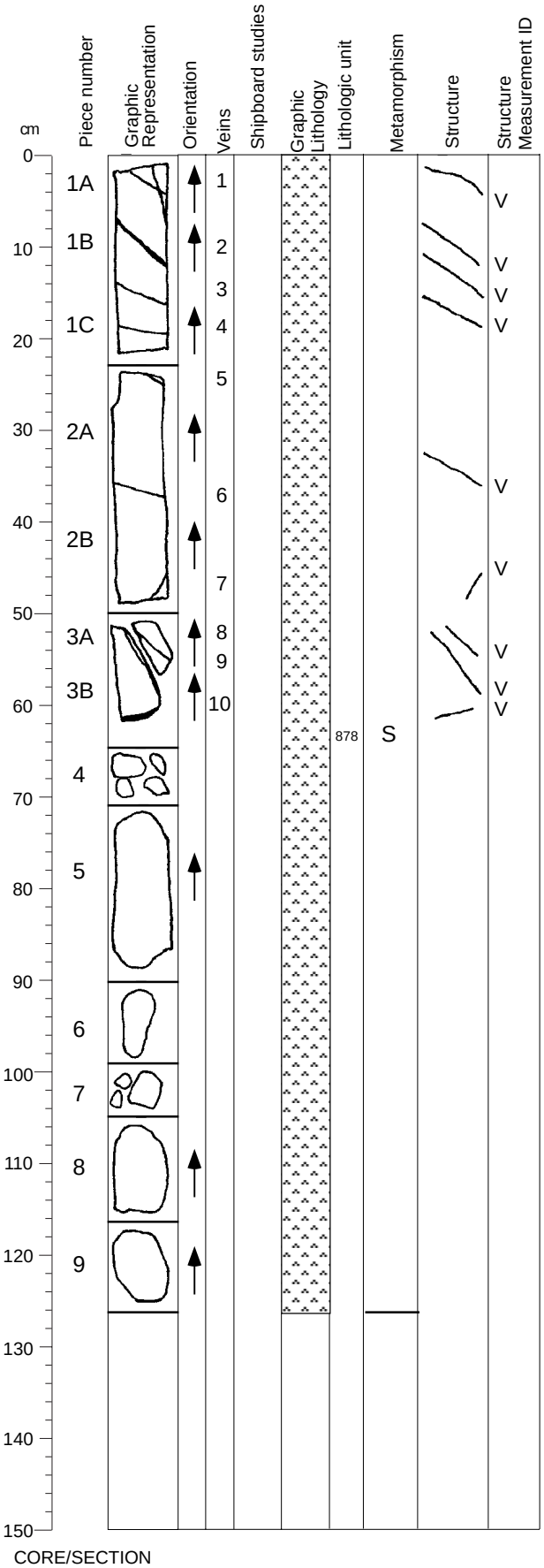
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine, near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Vein/Fracture Filling:
0.5-1 mm smectite veins in Pieces 3 and 6; 1 mm zeolite vein in Pieces 2-3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins in Pieces 2C to 6.

Core Image



176-735B-187R-6

Interval 878: OLIVINE GABBRO
(see Section 176-735B-187R-4)

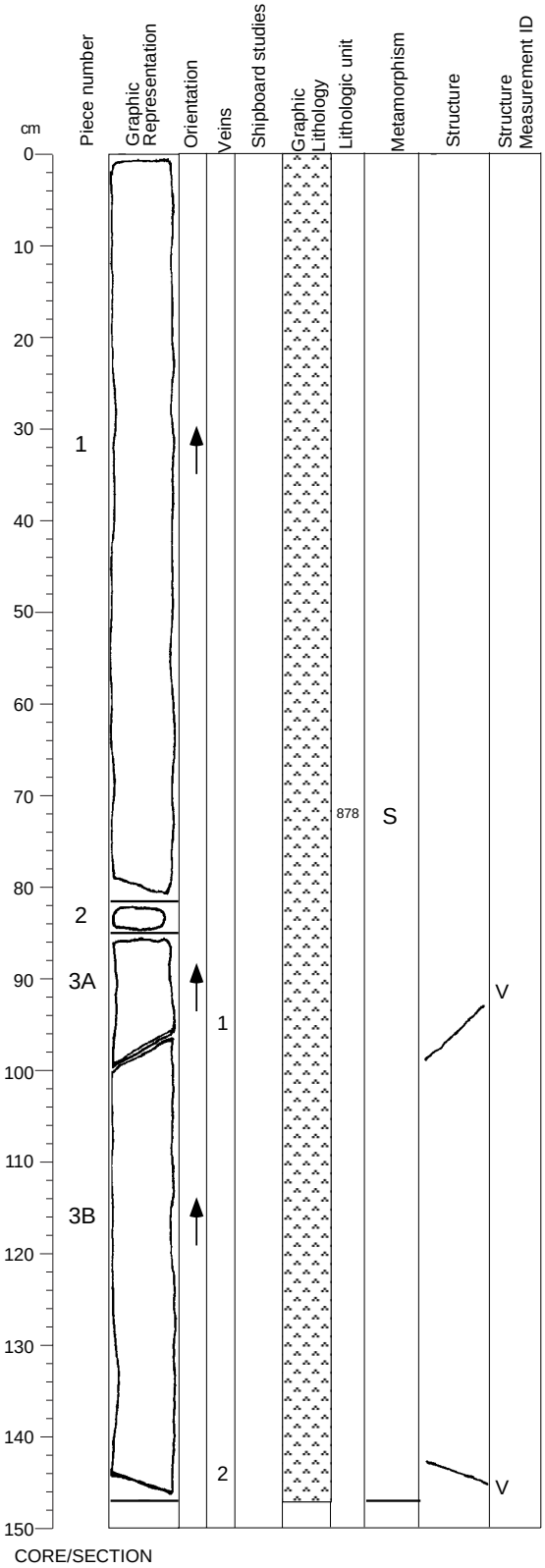
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <3
Mode of occurrence: 1% dark green smectite after olivine and 2% pale green smectite after plagioclase.

Background Alteration:
Degree of alteration: slight (5%): Olivine is partly altered to amphibole and smectite (12%). Clinopyroxene and plagioclase are weakly altered to amphibole and smectite (2%). Plagioclase is slightly recrystallized and replaced by smectite (4%).

Vein/Fracture Filling:
0.5-2 mm smectite veins in Pieces 1, 2, and 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a series of veins in Pieces 1A to 3B.

Core Image



176-735B-188R-1

Interval 878: OLIVINE GABBRO
(see Section 176-735B-187R-4)

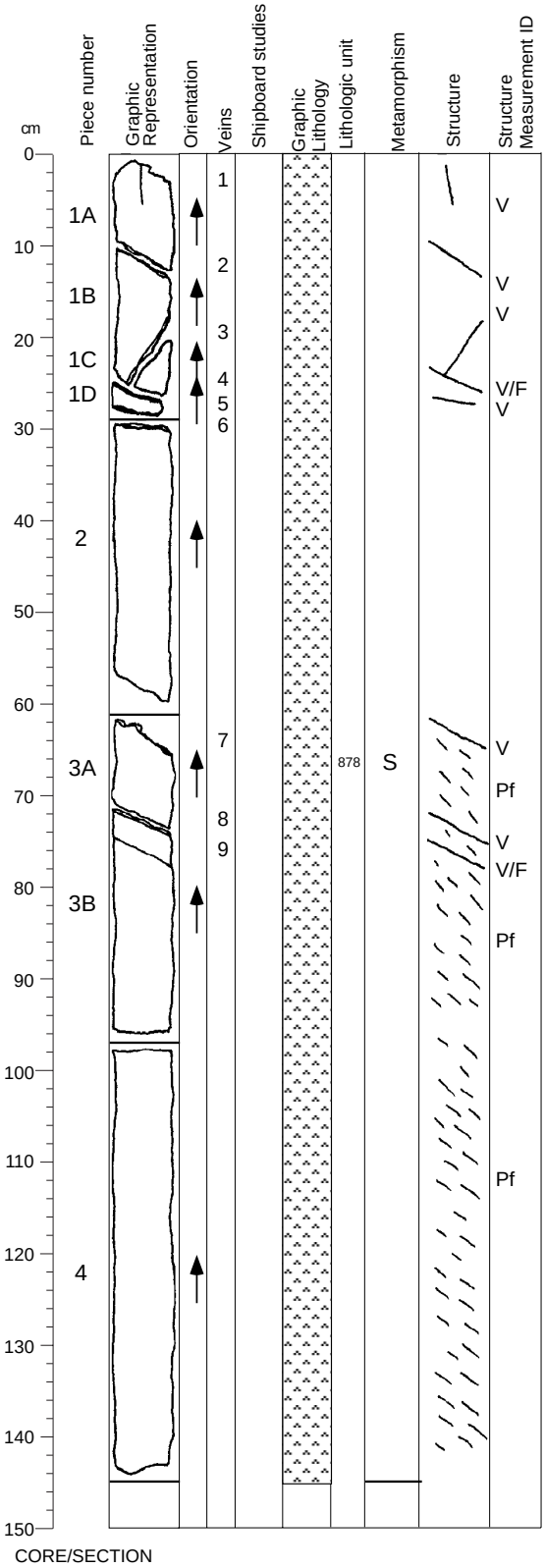
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.

Background Alteration:
Degree of alteration: slight (3%). Olivine is slightly altered to amphibole and smectite (5%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.3-0.5 mm smectite veins in Piece 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture, with no magmatic foliation, cut by two veins in Pieces 3A and 3B.

Core Image



176-735B-188R-2

Interval 878: OLIVINE GABBRO
(see Section 176-735B-187R-4)

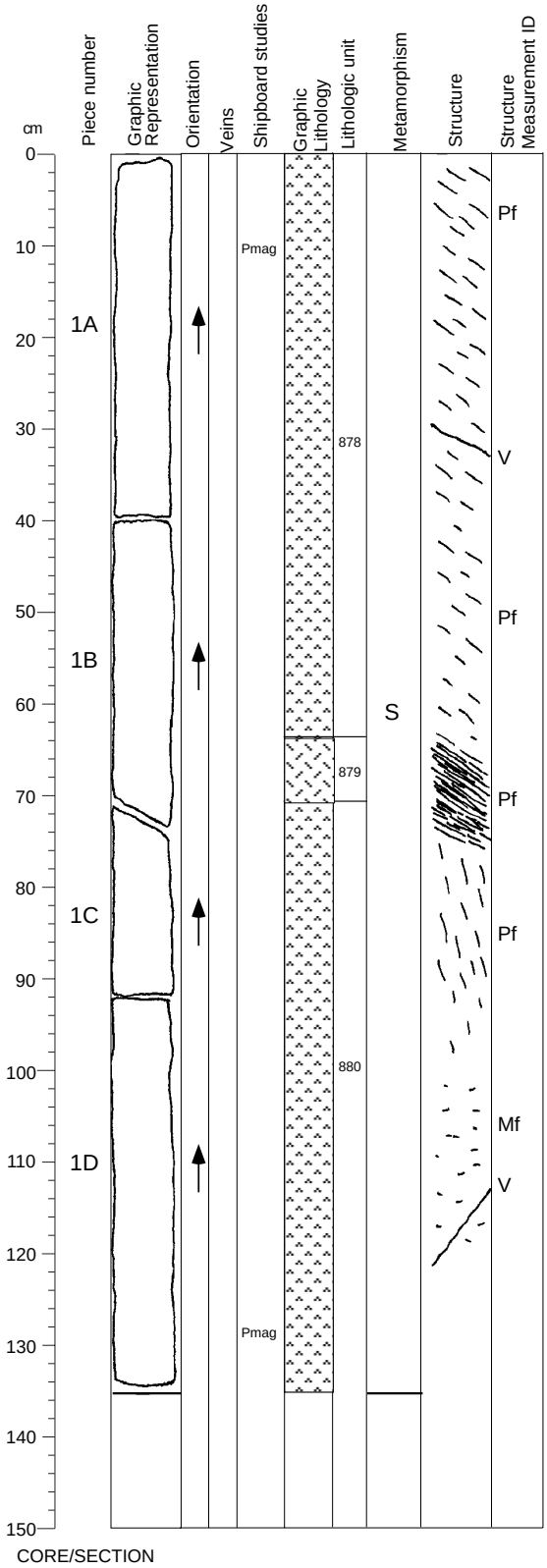
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Olivine is partly altered to amphibole and smectite (30%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.5-2 mm smectite veins in Pieces 1, 2, and 3; 2 mm altered plagioclase vein in Piece 3.

Structures:
Mf>V; Mf>Pf>V
From 0 to 60 cm, the section displays a coarse-grained igneous texture, with no magmatic foliation. A weak crystal-plastic foliation is present from 62 cm to the bottom of the section (dips at 35-40°), overprinting a weak magmatic foliation. A few veins cut the previous fabrics, some of them grade into faults.

Core Image



176-735B-188R-3

Interval 878: OLIVINE GABBRO
(see Section 176-735B-187R-4)
Interval 879: MYLONITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	188	3	63	1A	1310.47
Lower contact:	188	3	70	1B	1310.54

Thickness (m): 0.07

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	N/A	N/A	fine	tabular/ anhedral deformed
Clinopyroxene	1	0.5	N/A	fine	equant/ anhedral
Olivine				N/A	N/A
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	66.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine

	Type	Distribution
Texture:	granular	N/A

Comments: Too fine grained for mode estimation.

Interval 880: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	188	3	70	1B	1310.54
Lower contact:	188	6	14	1	1314.12

Thickness (m): 3.58

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	4	0.5	medium	tabular/ subhedral anhedral
Clinopyroxene	25	2	0.1	fine	equant/ anhedral
Olivine	15	2	1	fine	equant/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	100.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Fine- to medium grained gabbro in intimate interpenetrative contact with a coarse unit, contacts subvertical. Modes estimated for fine- and coarse-grained portions separately: Coarse unit has 60% subhedral tabular plagioclase, 30% equant anhedral augite and 8% elongate anhedral olivine.

Continued next page

Core Image

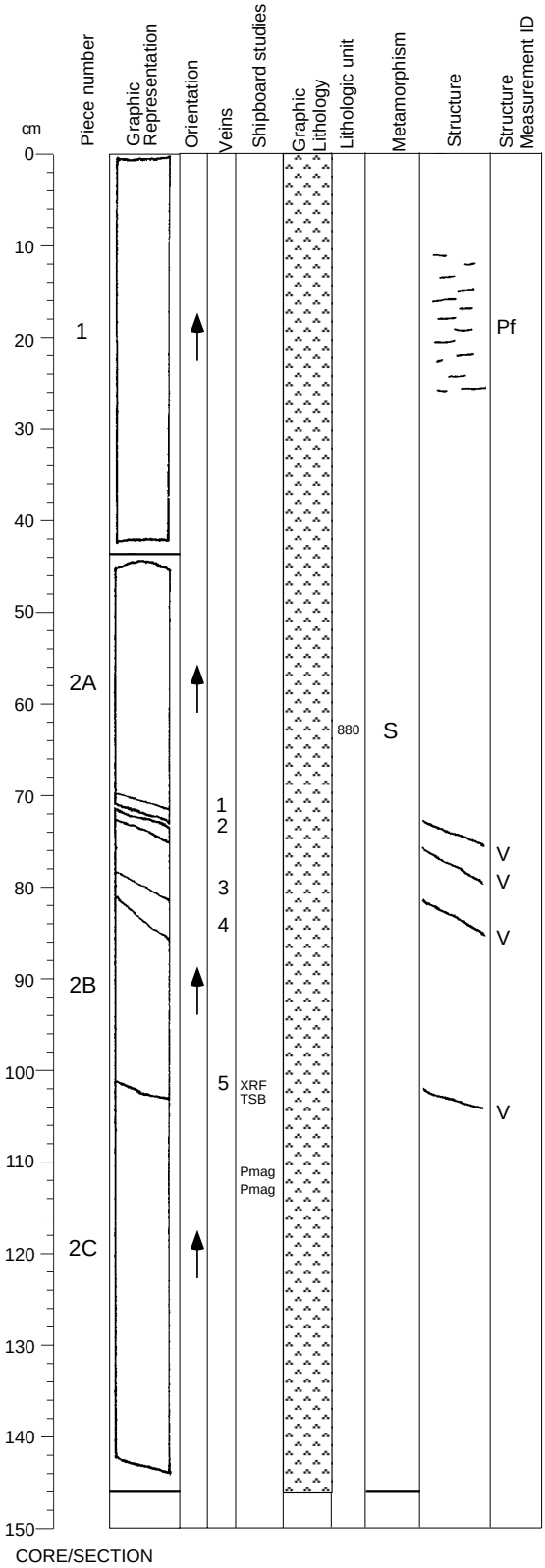
176-735B-188R-3 (cont'd)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <4
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: slight (5%): Olivine is slightly to amphibole and smectite (5%). Clinopyroxene is slightly altered to amphibole (3%). 10% of the plagioclase is recrystallized. Recrystallization is very high in a mylonitic zone in Piece 1B.

Structures:
Pf>V; Pf>Pf; Mf>Pf; Mf>V
From 0 to 64 cm, the section displays a weak crystal-plastic foliation (dips 35°). From 64 to 71 cm, a mylonitic to ultramylonitic foliation is present, dipping 30°, it overprints a weak, steeper (65°) crystal-plastic foliation, visible from 71 to 110 cm. The rest of the section displays a fine- to medium-grained igneous texture with no or a moderate magmatic foliation. Two veins cut the previous fabrics in Pieces 1A and 1D.

Core Image



176-735B-188R-4

Interval 880: OLIVINE GABBRO
(see previous section)

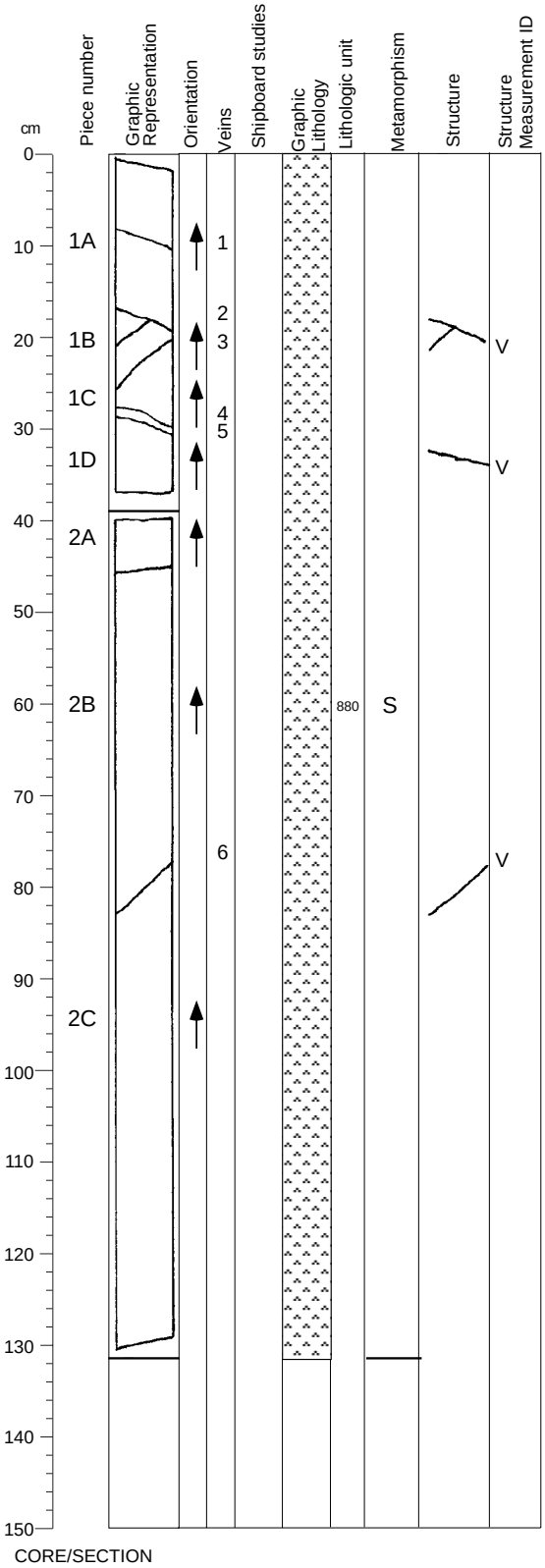
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (4%): Olivine is slightly altered to amphibole and smectite (10%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.5-1 mm smectite veins in Piece 2; 1 mm altered plagioclase vein in Piece 2.

Structures:
Mf>Pf; Mf>V
Most of the section displays a medium- to coarse-grained igneous texture with no or a weak magmatic foliation, cut by a few veins in Pieces 2A and 2B. A weak crystal-plastic foliation locally overprints the igneous texture in Piece 1 (from 10 to 26 cm).

Core Image



176-735B-188R-5

Interval 880: OLIVINE GABBRO
(see Section 176-735B-188R-3)

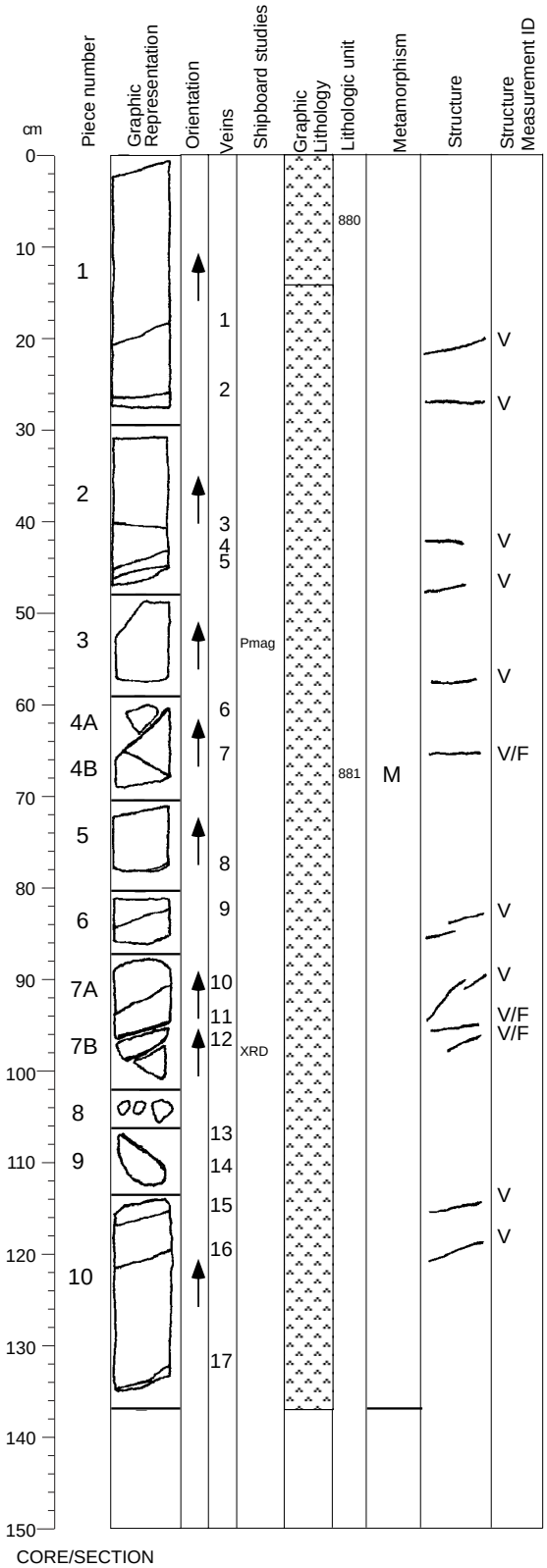
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (3%): Olivine is slightly altered to amphibole and smectite (8%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.2-0.5 mm smectite veins in Pieces 1 and 2; 2 mm plagioclase vein in Piece 1.

Structures:
Mf>V
The section displays a fine- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins.

Core Image



176-735B-188R-6

Interval 880: OLIVINE GABBRO
(see Section 176-735B-188R-3)

Interval 881: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	188	6	14	1	1314.12
Lower contact:	189	3	30	1B	1319.53

Thickness (m): 5.41

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	30	5	coarse	tabular/ subhedral
Clinopyroxene	30	30	3	coarse	tabular/ subhedral anhedral
Olivine	8	8	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	103.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Grain size variable. From fine-, to fine/medium-, to coarse/medium-, and to coarse-grained; all very patchy. From top to 53 cm in 189R-1 (medium with fine patches, locally highly fragmented/altered, and locally pegmatitic), to 65 cm in 189R-1 (coarse), to 80 cm in 189R-1 (fine with coarse patches), 145 cm in 189R-1 (coarse/medium), 6 cm in 189R-2 (fine/medium), and to base (coarse with locally fine patches).

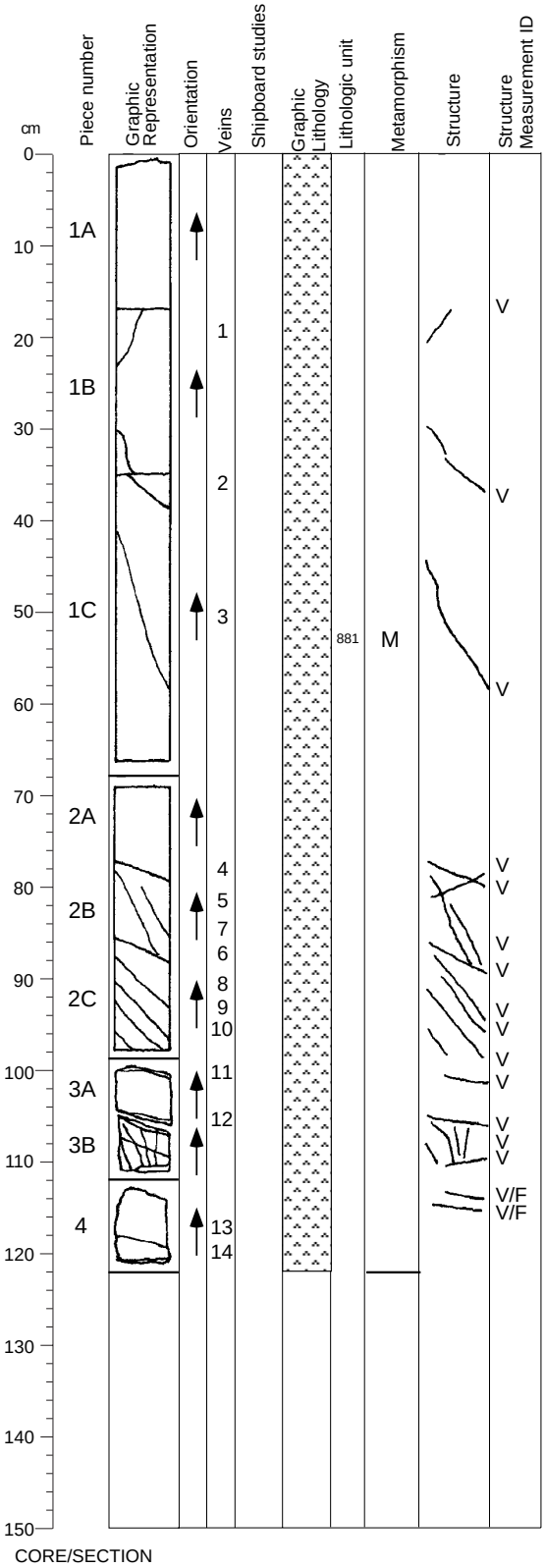
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <4
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <20
Mode of occurrence: 10% dark green smectite after olivine and some pyroxenes, and 10% pale green smectite after plagioclase and brown amphibole.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: moderate (25%): Olivine is altered to amphibole and smectite (40%). Clinopyroxene is partly replaced by amphibole and smectite (20%). In some spots clinopyroxene is highly altered to a light greenish-gray mix of phyllosilicates (possibly talc and chlorite). Plagioclase is slightly recrystallized and altered to smectite along veins (8%).

Vein/Fracture Filling:
0.2-1 mm smectite veins in Pieces 1, 2, 4, 7, 9 and 10.

Structures:
Mf>V>F
The section displays a fine- to coarse-grained igneous texture, with no magmatic foliation. The igneous texture is cut by veins over the entire section; a few veins grade into faults.

Core Image



176-735B-188R-7

Interval 881: OLIVINE GABBRO
(see previous section)

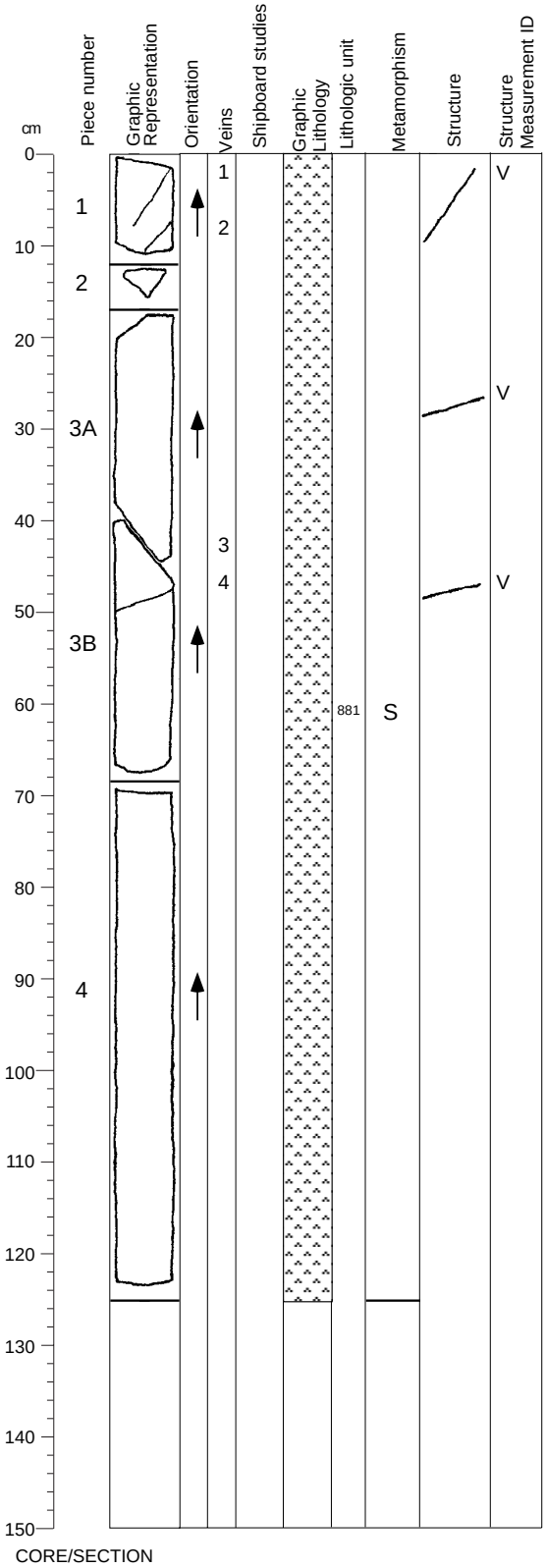
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <10
Mode of occurrence: 5% dark green smectite after olivine and 5 % pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: moderate (13%). Olivine is altered to amphibole and smectite (30%). Clinopyroxene is partly replaced by amphibole and smectite (10%). In Piece 3B clinopyroxene is almost completely altered to a light greenish-gray mix of phyllosilicates (possibly talc and chlorite). Plagioclase is slightly recrystallized and altered to smectite along veins (5%).

Vein/Fracture Filling:
0.3-1 mm smectite veins in Pieces 1, 2, 3, and 4.

Structures:
Mf>V>F
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. The igneous texture is cut by veins over the entire section; a vein grades into a fault in Piece 4.

Core Image



176-735B-189R-1

Interval 881: OLIVINE GABBRO
(see Section 176-735B-188R-6)

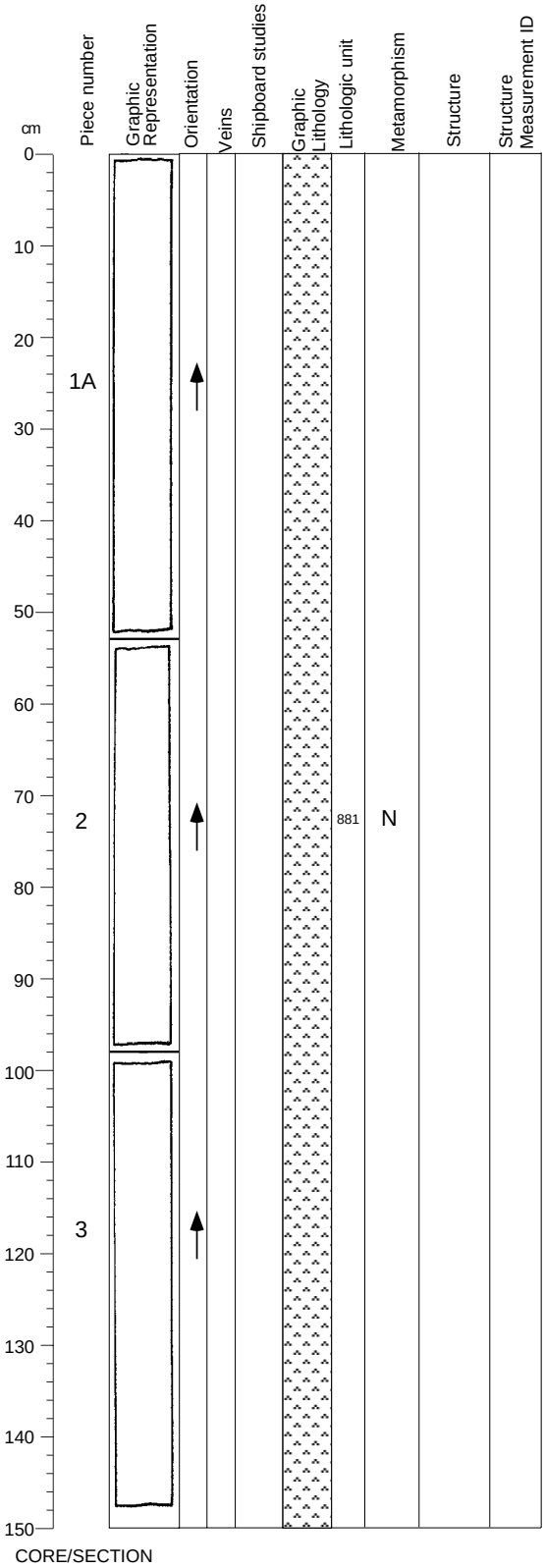
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: <1
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: slight (4%). Olivine is slightly altered to amphibole and smectite (10%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.2 mm zeolite veins in Pieces 1 and 2; 0.2 mm smectite vein in Piece 3.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a few veins in Pieces 1 to 3B.

Core Image



176-735B-189R-2

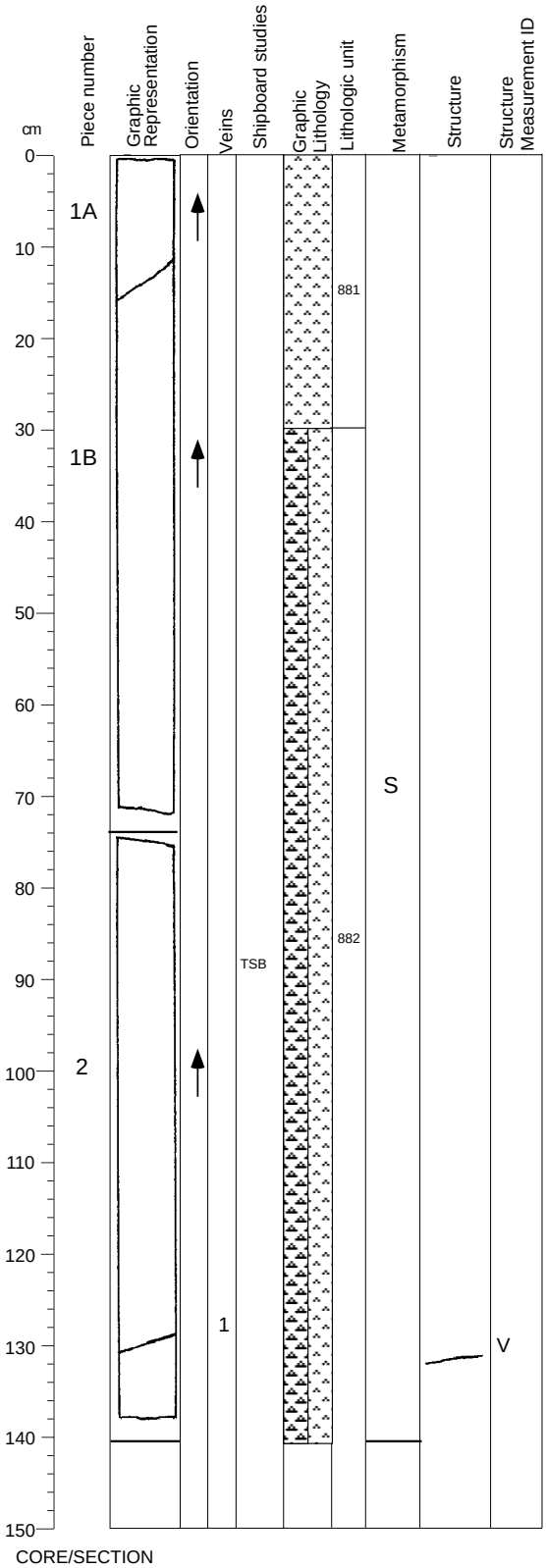
Interval 881: OLIVINE GABBRO
(see Section 176-735B-188R-6)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: <1
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-189R-3

Interval 881: OLIVINE GABBRO
(see Section 176-735B-188R-6)
Interval 882: TROCTOLITIC MICROGABBRO / OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	189	3	30	1B	1319.53
Lower contact:	189	4	16	1B	1320.80

Thickness (m): 1.27

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	2	0.5	fine	tabular/ subhedral anhedral
Clinopyroxene	15	1	0.1	fine	tabular/ subhedral anhedral
Olivine	30	2	1	fine	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Fine-grained gabbro in interpenetrative contact with a coarser unit with subvertical contacts. Mode for coarse unit: 60% tabular plagioclase, 30% equant augite and 10% olivine. Coarse unit present (2-5 cm thick) from 63 cm in 189R-3 to 16 cm in 189R-4.

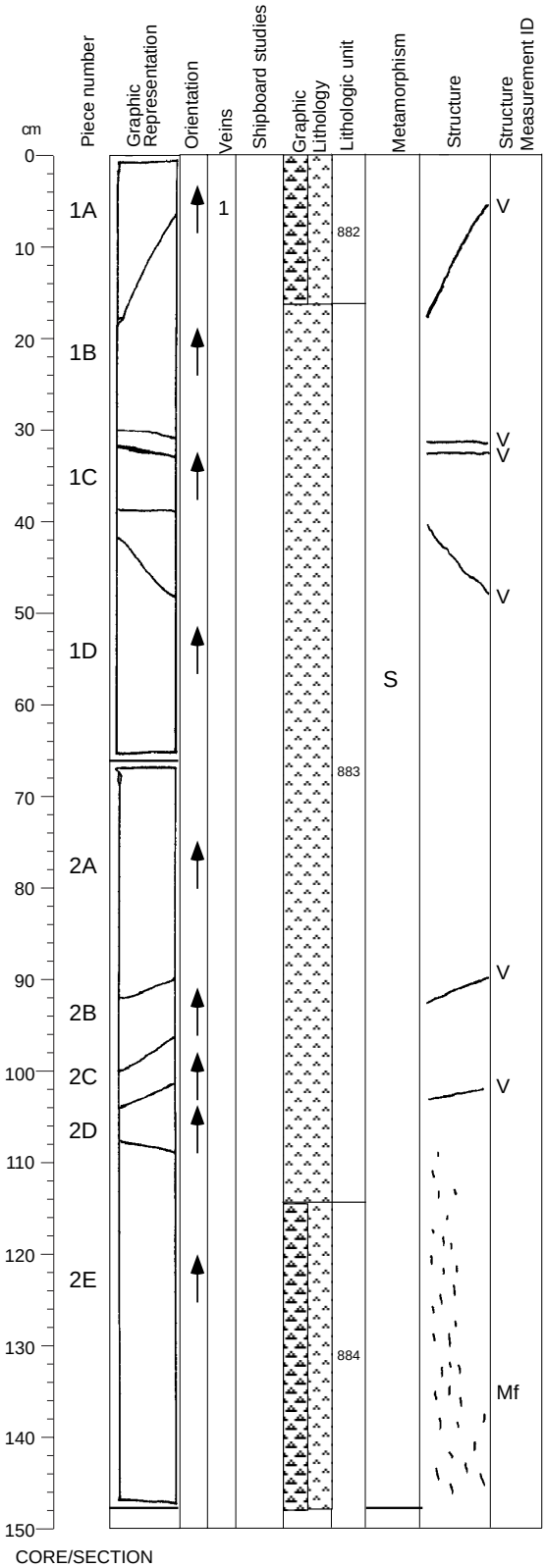
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green smectite after olivine.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Olivine is slightly altered to amphibole and smectite (5%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
1 mm smectite vein in Piece 2.

Structures:
Mf>V
The section displays a fine- to coarse-grained igneous texture with no or a weak magmatic foliation. Piece 2 contains subvertical, sinuous layers of very fine-grained gabbro (1 to a few cm thick), apparently intruding the coarse-grained gabbro. A weak to moderate magmatic foliation is present in the fine-grained gabbro and follows the contacts with the coarse-grained gabbro, and the fine-grained gabbro appears to incorporate schlieren of the coarser-grained material.

Core Image



176-735B-189R-4

Interval 882: TROCTOLITIC MICROGABBRO and OLIVINE GABBRO (see previous section)
Interval 883: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	189	4	16	1B	1320.80
Lower contact:	189	4	114	2E	1321.78

Thickness (m): 0.98

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	15	6	coarse	tabular/ subhedral
Clinopyroxene	30	20	5	coarse	equant/ anhedral
Olivine	12	15	3	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	102.5*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Coarse

	Type	Distribution
Texture:	granular	N/A

Interval 884: OLIVINE MICROGABBRO and OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	189	4	114	2E	1321.78
Lower contact:	189	6	10	1	1323.42

Thickness (m): 1.64

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	1	0.5	fine	tabular/ subhedral
Clinopyroxene	25	2	0.1	fine	equant/ anhedral
Olivine	15	2	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Fine grained gabbro in interpenetrative contact with a coarser unit with subvertical contacts. Mode for coarse unit: 60% tabular plagioclase, 38% equant augite and 8% ameboidal olivine. Oxide more abundant at 1-2 cm in 189R-6.

Continued next page

Core Image

176-735B-189R-4 (cont'd)

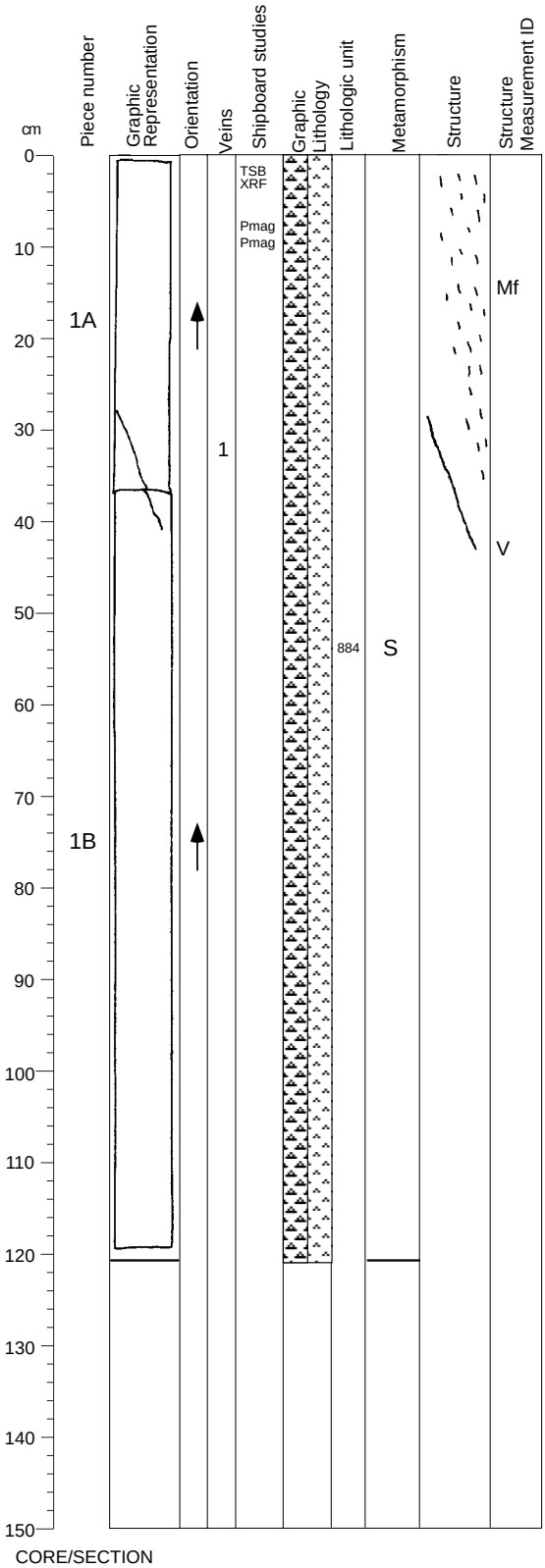
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (5%). Olivine is slightly altered to amphibole and smectite (12%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.5-2.5 mm smectite veins in Pieces 1 to 4.

Structures:
Mf>V
The section displays a fine- to coarse-grained igneous texture with no or a moderate magmatic foliation, cut by a few veins. The top of Piece 1 displays fine-grained material, continuous with the subvertical, sinuous layers observed in the previous section (189R-3). In Piece 2E, from 108 cm to the bottom of the section, a layer of fine- to medium-grained gabbro is present; its contact with the adjacent coarse-grained gabbro is steep (around 70°), and it contains a moderate, subvertical magmatic foliation, parallel to the contact. The relationships with the coarse-grained gabbro (diffuse contact, no foliation in the coarse-grained gabbro) are similar to the one described in the previous section for the fine-grained intrusive layers.

Core Image



176-735B-189R-5

Interval 884: OLIVINE MICROGABBRO and OLIVINE GABBRO (see previous section)

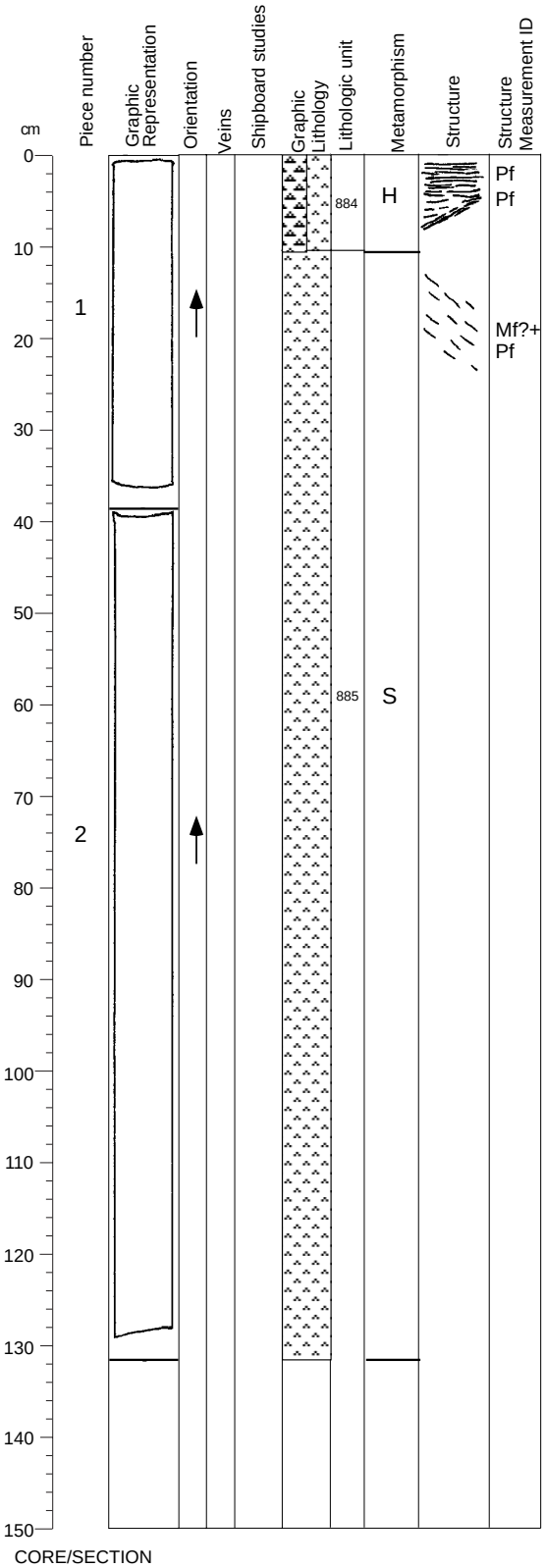
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Olivine is slightly altered to amphibole and smectite (8%). Clinopyroxene and plagioclase are negligibly altered (1%).

Vein/Fracture Filling:
1 mm smectite vein in Piece 1.

Structures:
Mf>V
The top of the section (Piece 1A) displays the bottom of the fine- to medium-grained subvertical layer observed in the previous section (189R-4); the fine-grained gabbro has a weak to moderate magmatic fabric, parallel to the contact with the coarser grained gabbro.The rest of the section displays a coarse-grained igneous texture, with no magmatic foliation.

Core Image



176-735B-189R-6

Interval 884: OLIVINE MICROGABBRO and OLIVINE GABBRO (see Section 176-735B-189R-4)
Interval 885: OLIVINE GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	189	6	10	1	1323.42
Lower contact:	189	7	14	1A	1324.77

Thickness (m): 1.35

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	30	4	coarse	tabular/ subhedral
Clinopyroxene	35	30	1	coarse	equant/ anhedral
Olivine	10	12	2	coarse	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse

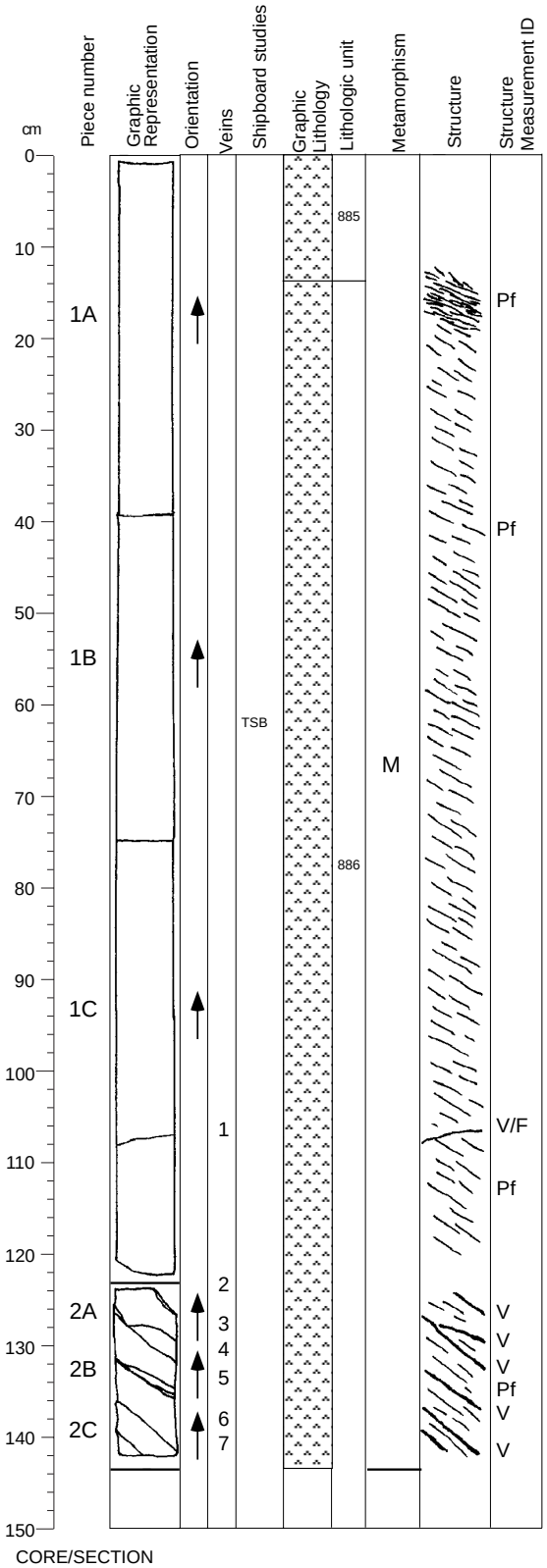
	Type	Distribution
Texture:	granular	N/A

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: <1
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight to high (5 to 80%). Piece 1: Highly recrystallized mylonite (80%). Pieces 1 to 2: Olivine is slightly altered to amphibole and smectite (8%). Clinopyroxene is negligibly altered (2%). 5% of the plagioclase is recrystallized.

Structures:
Mf>Pf; Mf>Pf>Pf
Most of the section displays a coarse-grained igneous texture with no magmatic foliation. A short interval (15 to 23 cm) in Piece 1 displays a weak, high-temperature crystal-plastic foliation, possibly overprinting a weak to moderate magmatic foliation. The top of Piece 1 has a zone of mylonitic foliation, nearly horizontal, gently dipping (5°), except for a narrow (< 1 cm), steeper (dips at 30° in the other direction on the cut face) mylonitic band at the bottom of this zone. The sense of shear is dextral (normal) on the horizontal foliation, and sinistral (normal) on the steeper mylonitic shear zone; the narrow, steeper mylonitic foliation appears to cross-cut the horizontal foliation.

Core Image



176-735B-189R-7

Interval 885: OLIVINE GABBRO
(see previous section)
Interval 886: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	189	7	14	1A	1324.77
Lower contact:	190	2	31	1B	1327.54

Thickness (m): 2.77

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	15	1	coarse	tabular/ subhedral anhedral
Clinopyroxene	20	15	0.3	coarse	equant/ anhedral
Olivine	6	3	1	medium	amoeboidal
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	91.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

Texture:	Type	Distribution
	granular	N/A

Comments: Grain size variable from fine-, to fine/medium-, to coarse/medium-, and to coarse-grained. Mode variable.

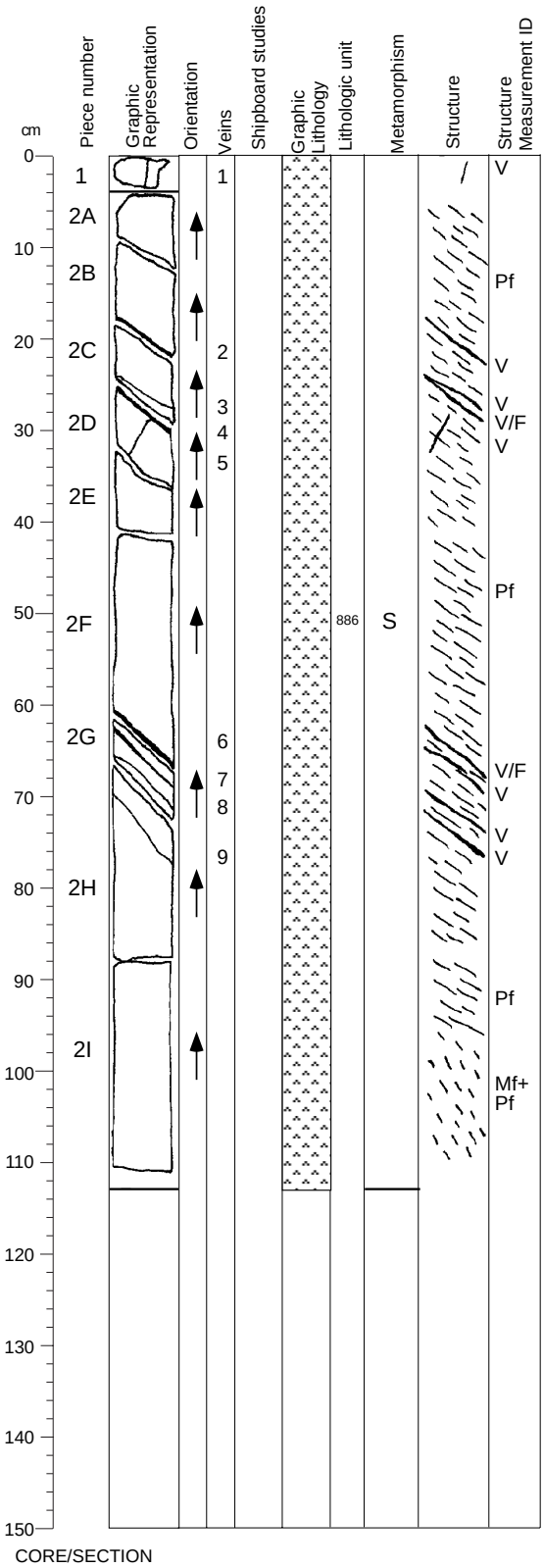
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <15
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: moderate (15%). Olivine is partly altered to amphibole and smectite (20%). Clinopyroxene is weakly altered to amphibole (5%). 30% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.3-1 mm smectite veins in Pieces 1 and 2; 1 mm zeolite veins in Piece 2; 1 mm quartz vein in Piece 2.

Structures:
Mf>Pf>V>F
From 0 to 13.5 cm, the section displays a coarse-grained igneous texture with no magmatic foliation. The rest of the section displays a crystal-plastic foliation, mylonitic from 13.5 to 20 cm (dips at 20°, reverse shear zone), and strong from 20 cm to the bottom (dips at 30°). A series of veins cut the crystal-plastic foliation in Pieces 2A to 2C; a vein in Piece 1C grades into a fault.

Core Image



176-735B-190R-1

Interval 886: OLIVINE GABBRO
(see previous section)

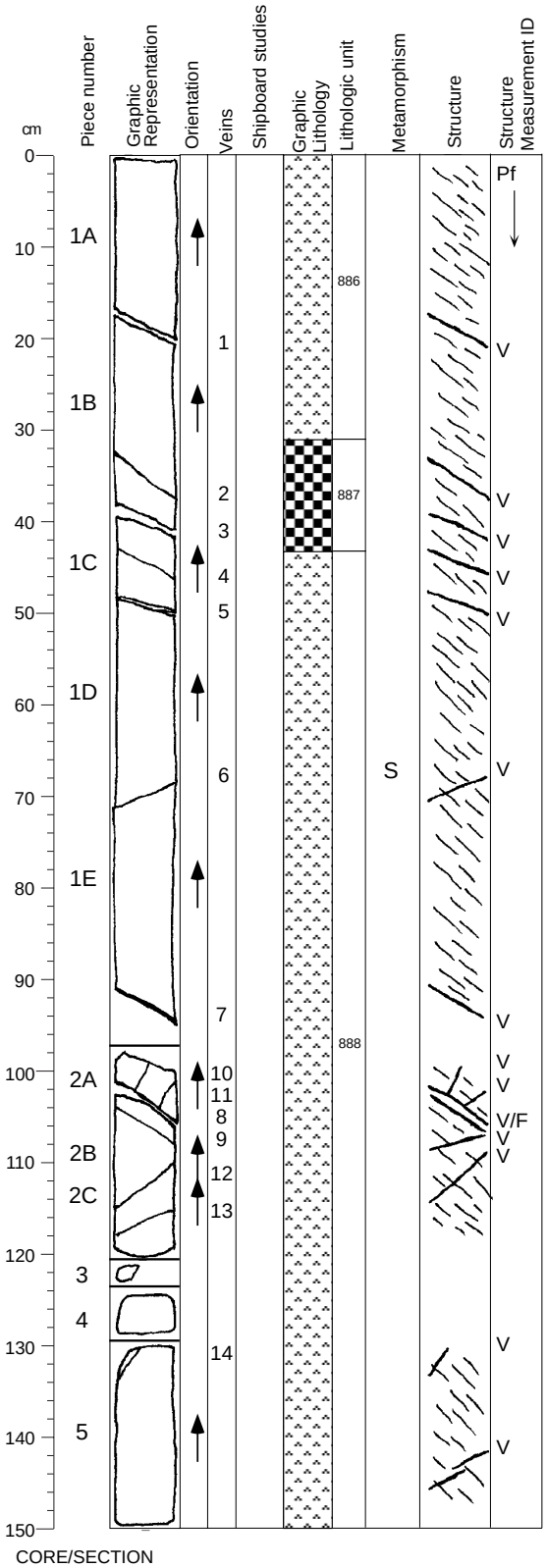
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <6
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (10%). Olivine is partly altered to amphibole and smectite (30%). Clinopyroxene is weakly altered to amphibole (3%). 8% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.1-2 mm smectite veins in Pieces 1 and 2.

Structures:
Mf>Pf>V>F
Most of the section displays a strong crystal-plastic foliation, regularly dipping 35°, and overprinting a weak magmatic foliation. The previous fabrics are cut by subparallel veins; two veins grade into faults. The magmatic foliation is stronger and steeper (50°) from 108 to 113 cm; the crystal-plastic overprint appears to be weaker in this interval, richer in plagioclase.

Core Image



176-735B-190R-2

Interval 886: OLIVINE GABBRO
(see previous section)
Interval 887: OXIDE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	190	2	31	1B	1327.54
Lower contact:	190	2	43	1C	1327.66

Thickness (m): 0.12

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	15	2	coarse	tabular/ subhedral
Clinopyroxene	25	7	1	medium	equant/ anhedral
Olivine	2	3	1	medium	elongate/ anhedral
Opaques	4.5				amoeboidal aggregates/ disseminated
Total	96.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse

	Type	Distribution
Texture:	granular	

Interval 888: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	190	2	43	1C	1327.66
Lower contact:	190	3	61	5A	1329.34

Thickness (m): 1.68

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	15	3	coarse	tabular/ subhedral
Clinopyroxene	20	15	0.5	coarse	equant/ anhedral
Olivine	6	4	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	91.5*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Medium

	Type	Distribution
Texture:	granular	N/A

Comments: Similar to 886.

Continued next page

Core Image

176-735B-190R-2 (cont'd)

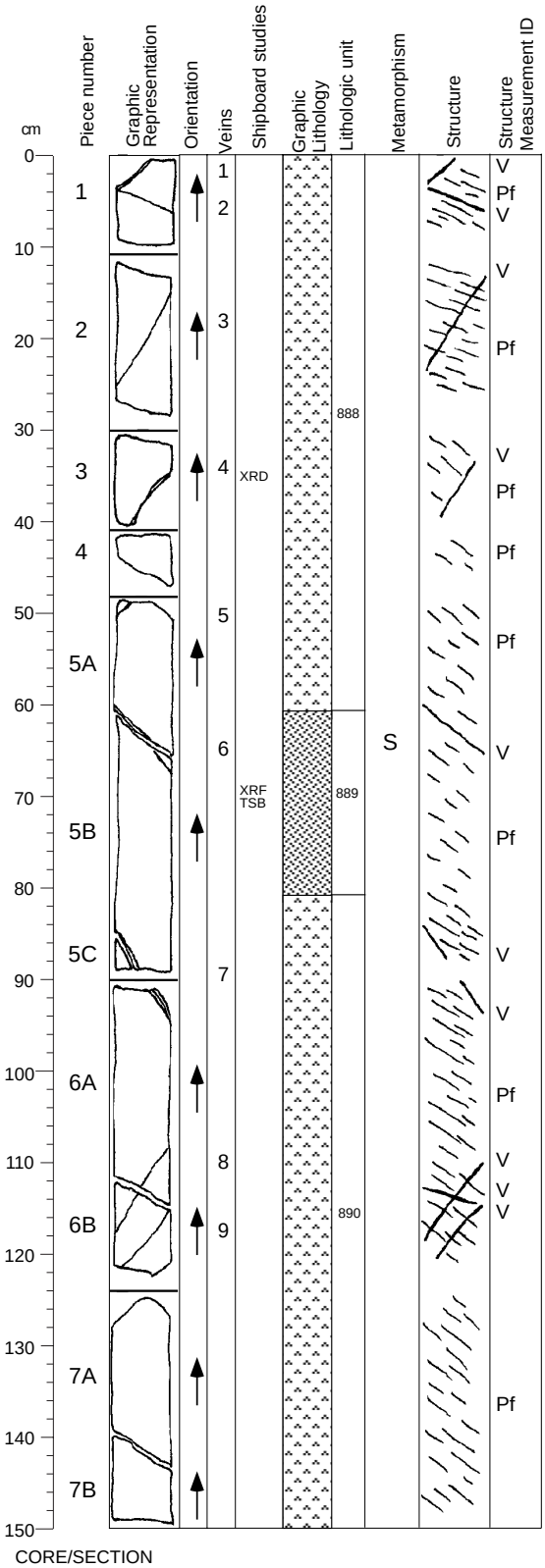
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (6%). Olivine is partly altered to amphibole and smectite (1%). Clinopyroxene and plagioclase are negligibly recrystallized (1 to 2%).

Vein/Fracture Filling:
0.2-1 mm smectite veins in Piece 1 and 2.

Structures:
MF>Pf>V>F
The entire section displays a strong crystal-plastic foliation, dipping around 45°, and overprinting a weak to moderate magmatic foliation. The previous fabrics are cut by a series of veins. One vein grades into a fault, at the boundary between Pieces 2A and 2B.

Core Image



176-735B-190R-3

Interval 888: OLIVINE GABBRO
(see previous section)

Interval 889: OXIDE OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	190	3	61	5A	1329.34
Lower contact:	190	3	81	5B	1329.54

Thickness (m): 0.20

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	15	4	coarse	tabular/ anhedral
Clinopyroxene	25	15	1	coarse	equant/ anhedral
Olivine	15	2	1	medium	equant/ anhedral
Opaques	5.5				interstitial lenses/ interstitial network
Total	100.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse

	Type	Distribution
Texture:	granular	N/A

Interval 890: TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	190	3	81	5B	1329.54
Lower contact:	190	6	63	6	1333.86

Thickness (m): 4.32

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	20	3	coarse	tabular/ subhedral
Clinopyroxene	15	12	0.2	coarse	equant/ anhedral
Olivine	12	3	1	medium	elongate/ anhedral deformed
Opaques	0.7				amoeboidal aggregates/ disseminated
Total	92.7*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Mostly coarse-grainedFine/medium patches present locally. Pegmatitic at 125 cm in 190R-5.

Continued next page

Core Image

176-735B-190R-3 (cont'd)

Alteration:
Dark green amphibole:
- Total Percent: <1
- Mode of occurrence: After pyroxene and olivine.
- Comments: As alteration rims.

Brown amphibole:
- Total Percent: trace
- Mode of occurrence: Along pyroxene cleavages, as rims.

Secondary plagioclase:
- Total Percent: <2
- Mode of occurrence: Replacing primary plagioclase.
- Comments: Irregularly distributed.

Talc and oxides:
- Total Percent: trace
- Mode of occurrence: After olivine in crystal cracks.

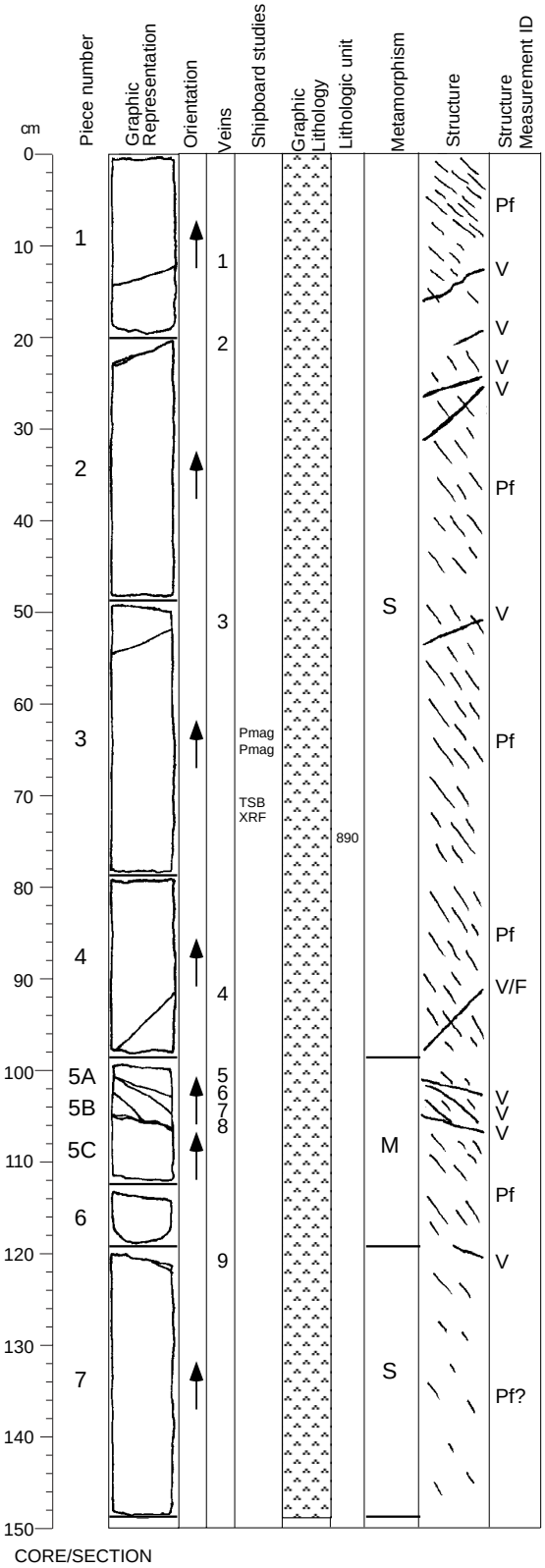
Smectite:
- Total Percent: <1
- Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: slight (6%). Olivine is partly altered to amphibole and smectite (15%). Clinopyroxene is negligibly altered to amphibole (1%). 6% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.1-0.5 mm smectite veins in Pieces 1, 2, 3, and 5; 1 mm zeolite veins in Pieces 3 and 5; 0.5 mm altered plagioclase (?) veins in Piece 6.

Structures:
Mf>Pf>V
The entire section displays a crystal-plastic foliation. The foliation is strong from 0 to 29 cm and dips at 15°; from 31 cm to the bottom, it is weak to strong, and dips regularly around 30°. The crystal-plastic foliation overprints a weak magmatic foliation, from 0 to 48 cm and from 79 cm to the bottom. A series of veins cut the previous fabrics over the entire section.

Core Image



176-735B-190R-4

Interval 890: TROCTOLITIC GABBRO
(see previous section)

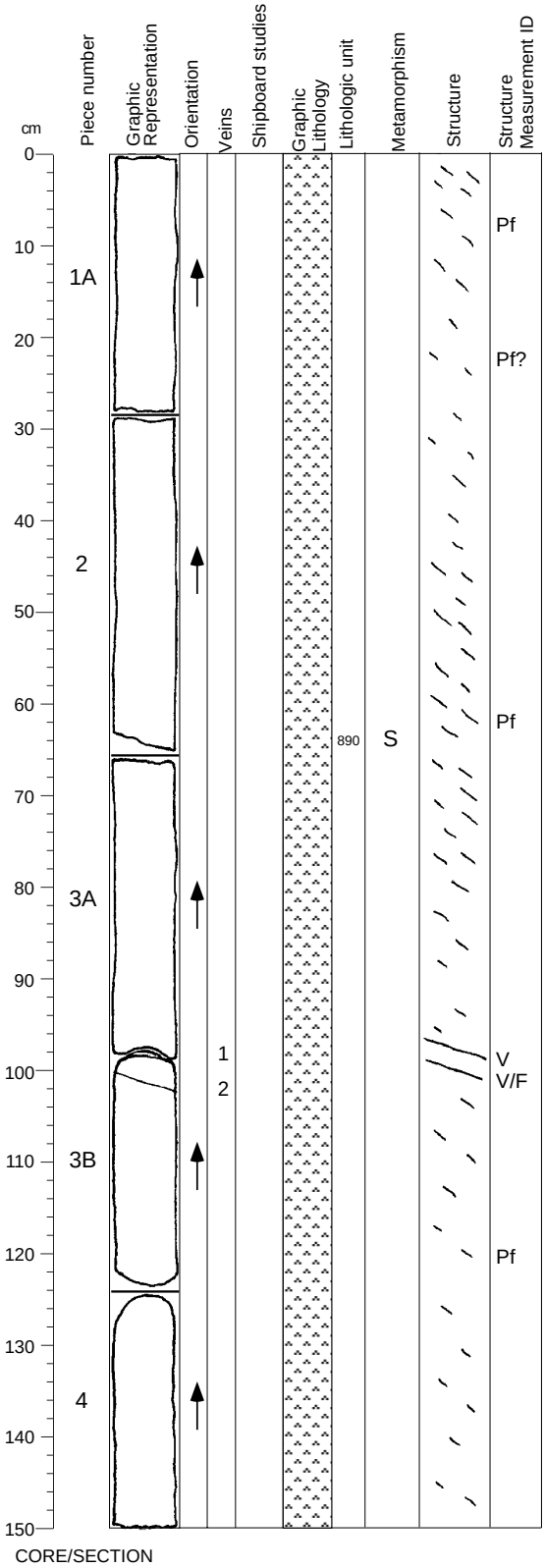
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight to moderate (5 to 25%). Pieces 1 to 4 and 7: Olivine is partly altered to amphibole and smectite (10%). Clinopyroxene is negligibly altered to amphibole (2%). 5% of the plagioclase is recrystallized. Pieces 5 to 6: Olivine is highly altered to amphibole and smectite (50%). Clinopyroxene is weakly altered to amphibole and smectite (4%). 10% of the plagioclase is recrystallized and altered to smectite.

Vein/Fracture Filling:
0.1-0.5 mm smectite veins in Pieces 1, 3, 4, 5; and 7; 0.5 mm zeolite vein in Piece 2.

Structures:
Mf>PF>V>F
The entire section displays a crystal-plastic foliation, overprinting a weak to moderate magmatic foliation. The foliation is strong from 0 to 9 cm and dips at 45°; from 9 cm to the bottom of the section, it is weak to very weak (in Piece 7), and dips regularly 50°. A series of veins cut the plastic foliation over the entire section; the vein in Piece 4 grades into a fault.

Core Image



176-735B-190R-5

Interval 890: TROCTOLITIC GABBRO
(see Section 176-735B-190R-3)

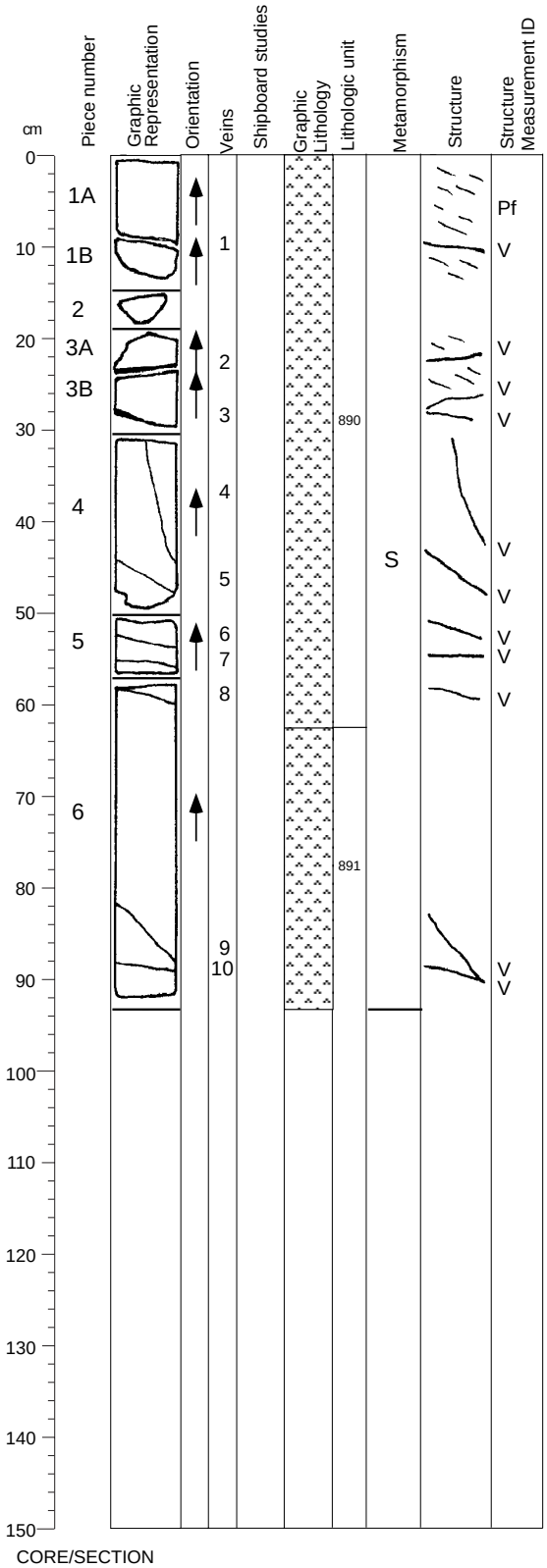
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: slight (5%). Olivine is partly altered to amphibole and smectite (10%). Clinopyroxene is negligibly altered to amphibole (2%). 5% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.5-1 mm smectite veins in Piece 3.

Structures:
Mf>Pf>V>F
The entire section displays a weak to very weak crystal-plastic foliation. Two veins cut the plastic foliation in Piece 3B; one vein grades into a fault. The crystal-plastic foliation overprints a weak magmatic foliation almost everywhere in the section. The magmatic foliation has variable orientations (dip from 15° to 45°), locally correlated with variable grain size (patches of medium to coarse-grained gabbro embedded in fine-grained gabbro has locally weaker and/or steeper foliation).

Core Image



176-735B-190R-6

Interval 890: TROCTOLITIC GABBRO
(see Section 176-735B-190R-3)
Interval 891: TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	190	6	63	6	1333.86
Lower contact:	190	7	22	1C	1334.37

Thickness (m): 0.51

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	12	1	medium	tabular/ subhedral
Clinopyroxene	15	8	N/A	medium	equant/ anhedral
Olivine	15	3	1	fine	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

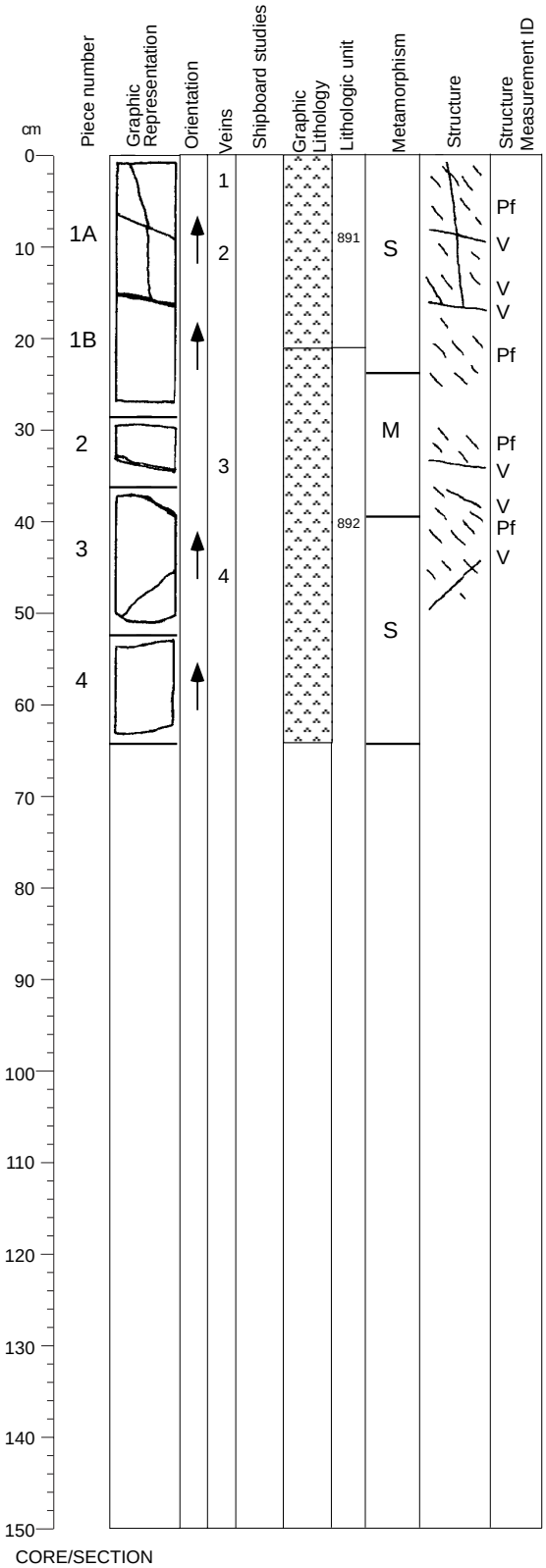
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (6%). Olivine is altered to amphibole and smectite (25%). Clinopyroxene is slightly altered to amphibole and some smectite (3%). 4% of the plagioclase is recrystallized and altered to smectite.

Vein/Fracture Filling:
0.4-1.5 mm smectite veins in Pieces 1, 3, 4, 5, and 6.

Structures:
Mf>Pf>V; Mf>V
From 0 to 28 cm, the section displays a weak crystal-plastic foliation. From 28 cm to the bottom of the section, the texture is medium-grained igneous with no or a weak magmatic foliation. A series of veins cut the previous fabrics; two of them grade into faults.

Core Image



176-735B-190R-7

Interval 891: TROCTOLITIC GABBRO
(see previous section)

Interval 892: OLIVINE GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	190	7	22	1C	1334.37
Lower contact:	191	1	29	4A	1335.99
Thickness (m): 1.62					

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	15	1	coarse	tabular/ subhedral
Clinopyroxene	25	10	1	coarse	equant anhedral
Olivine	12	3	1	medium	elongate/ anhedral
Opaque	0.5				amoeboidal aggregates/ disseminated
Total	97.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse

	Type	Distribution
Texture:	granular	N/A

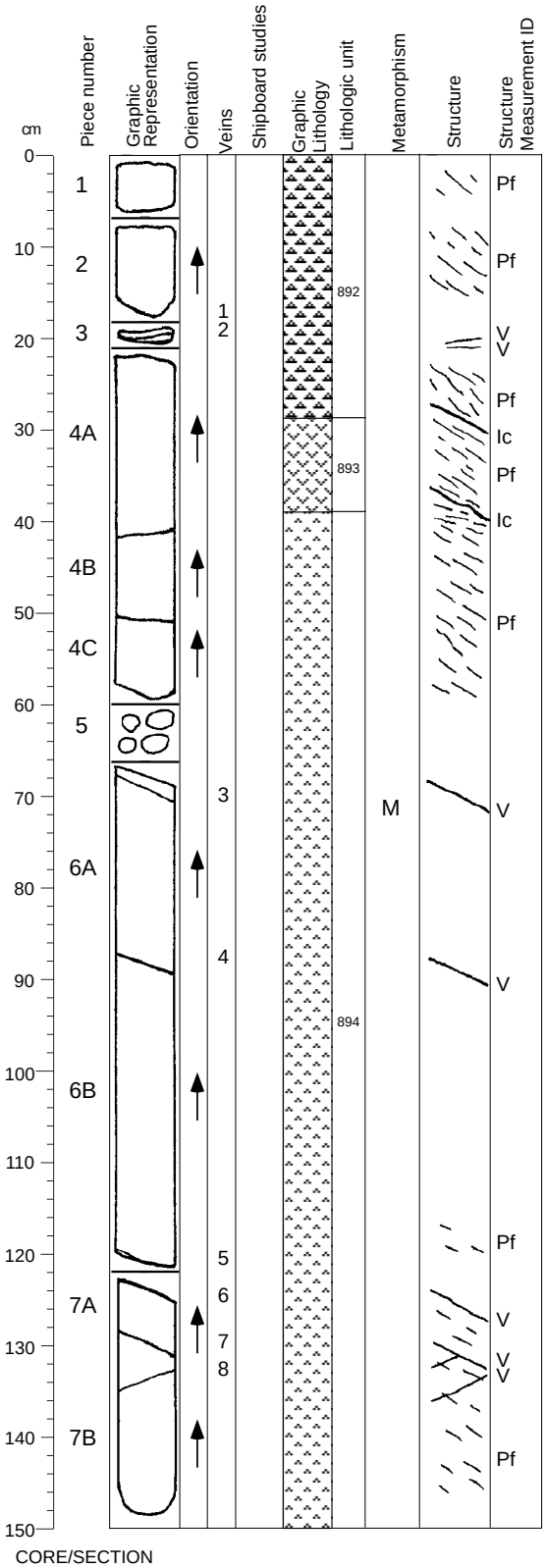
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green smectite after olivine.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight to moderate (3 to 30%). Pieces 1A to 1B and 3 to 4: 5% of the olivine is altered to amphibole and smectite. Clinopyroxene and plagioclase are negligibly altered (1 to 2%). Pieces 1B to 3: 50% of the olivine is altered to amphibole and smectite. 5% of the clinopyroxene is replaced by amphibole and smectite. 35% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.3-0.5 mm smectite veins in Pieces 1 to 3.

Structures:
Pf>V
From 0 to 51 cm, the section displays a weak crystal-plastic foliation, dipping 45°, and cut by a few veins. From 53 cm to the bottom (Piece 4), the texture is medium-grained igneous with no or a weak magmatic foliation.

Core Image



176-735B-191R-1

Interval 892: OLIVINE GABBRO
(see previous section)

Interval 893: LEUCOCRATIC DISSEMINATED OXIDE MICROTROCTOLITE

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	191	1	29	4A	1335.99
Lower contact:	191	1	39	4A	1336.09

Thickness (m): 0.10

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	75	1	N/A	fine	tabular/ subhedral deformed
Clinopyroxene	2	2	N/A	fine	equant/ anhedral
Olivine	15	2	1	fine	equant/ anhedral
Opaques	1				amoeboidal aggregates/ concordant seams
Total	93*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine

	Type	Distribution
Texture:	granular	N/A

Interval 894: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	191	1	39	4A	1336.09
Lower contact:	191	3	38	2B	1338.95

Thickness (m): 2.86

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	20	5	coarse	tabular/ subhedral
Clinopyroxene	25	25	5	coarse	equant/ anhedral
Olivine	8	10	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	93.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Grain size and mode variable. From top to 100 cm 191R-1 (coarse), to 110 cm 191R-1 (fine/medium), to 120 cm in 191R-1 (very coarse), to 20 cm in 191R-2 (coarse), to 74 cm in 191R-2 (coarse), and to base (medium). Sulfide present at 3 cm in 191R-2.

Continued next page

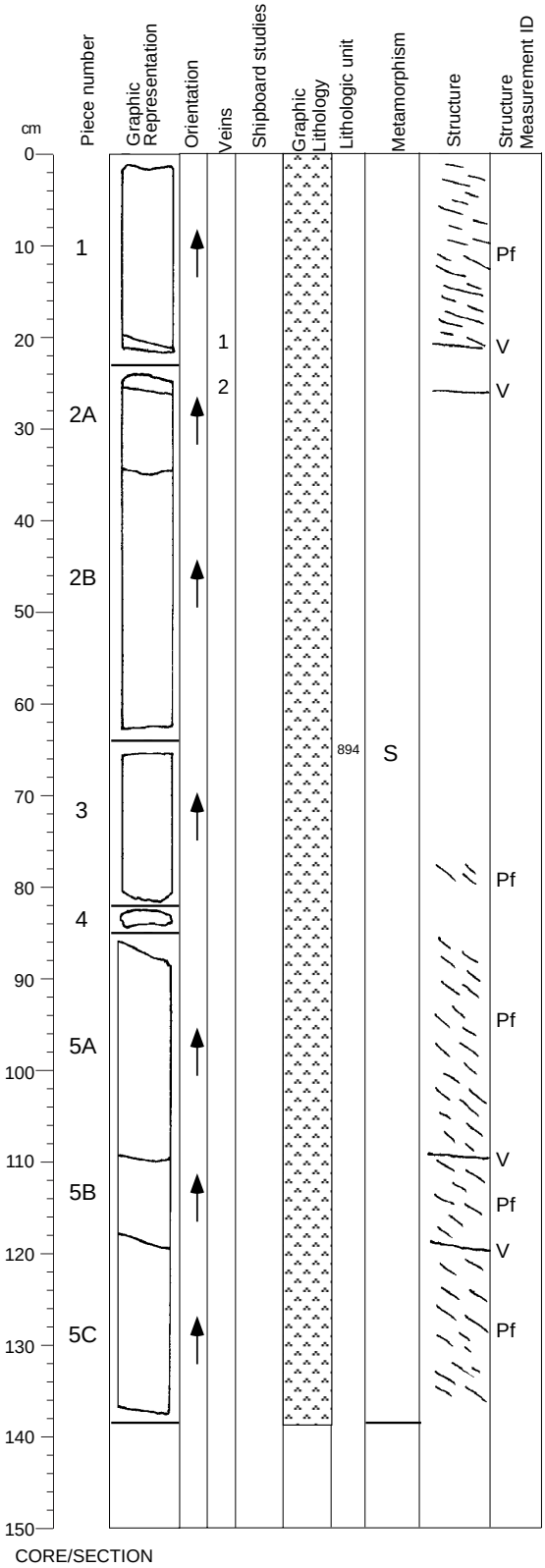
Core Image

176-735B-191R-1 (cont'd)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <5
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <5
Mode of occurrence: Dark green smectite after olivine.
Background Alteration:
Degree of alteration: moderate (11%). Olivine is partly altered to amphibole and smectite (10%). Clinopyroxene is weakly altered to amphibole (4%). 20% of the plagioclase is recrystallized.
Vein/Fracture Filling:
0.5-2 mm smectite veins in Pieces 3, 6, and 7.

Structures:
Mf?=Ic>Pf>V; Mf>V; Mf>Pf>V
From 0 to 78 cm, the section displays a crystal-plastic foliation; it is weak from 0 to 26 cm and from 41 to 78 cm, and strong from 26 to 41 cm. In the interval between 26 and 41 cm, the crystal-plastic foliation overprints an intrusive fine-grained gabbro layer; the contacts are subparallel to the foliation (dipping around 30°). From 78 cm to the bottom, the section displays a coarse-grained igneous texture, with no magmatic foliation, overprinted from 115 cm to the bottom by a very weak, poorly defined crystal-plastic foliation. A few veins cut the previous fabrics.

Core Image



176-735B-191R-2

Interval 894: OLIVINE GABBRO
(see previous section)

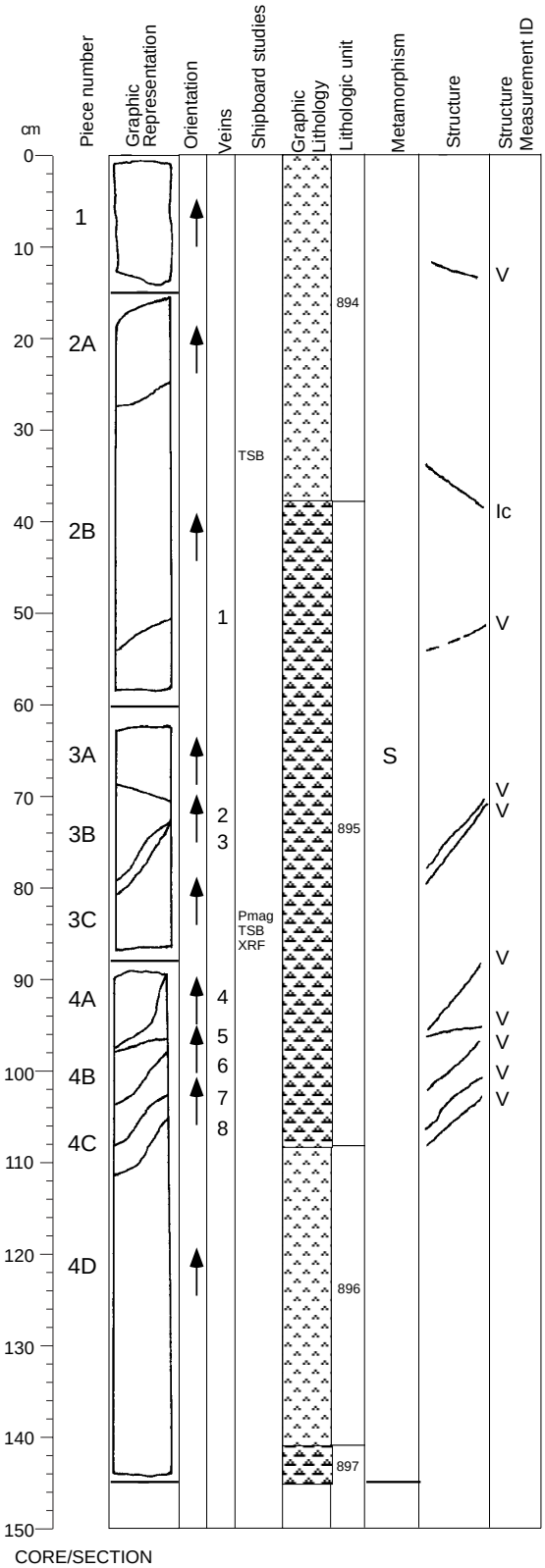
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green smectite after olivine and pale green smectite after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (5%). Olivine is weakly altered to amphibole and smectite (5%). Clinopyroxene is slightly altered to amphibole (3%). 8% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.3-0.5 mm smectite veins in Pieces 1 and 2.

Structures:
Mf>Pf>V; Mf>V
Piece 1 (0 to 21 cm) has a strong, gently dipping (20°) crystal-plastic foliation. From 23 to 77 cm, the texture is coarse-grained igneous with no magmatic foliation. From 77 cm to the bottom, the section displays a weak crystal-plastic foliation, overprinting a weak magmatic foliation below 93 cm. A few veins cut the previous fabrics.

Core Image



176-735B-191R-3

Interval 894: OLIVINE GABBRO
(see Section 176-735B-191R-1)
Interval 895: TROCTOLITIC MICROGABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	191	3	38	2B	1338.95
Lower contact:	191	3	108	4C	1339.65

Thickness (m): 0.70

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	2	N/A	fine	tabular/ subhedral anhedral
Clinopyroxene	15	2	N/A	fine	equant/ anhedral
Olivine	20	2	1	fine	equant/ anhedral
Opaques	0.2				amoeboidal aggregates/ disseminated
Total	100.2*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Fine

	Type	Distribution
Texture:	equigranular	uniform

Comments: From top to 53 cm in 191R-3 (very fine-grained), and to base (slightly coarser fine-grained).

Interval 896: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	191	3	108	4C	1339.65
Lower contact:	191	3	141	4D	1339.98

Thickness (m): 0.33

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	10	2	medium	tabular/ subhedral
Clinopyroxene	25	6	1	medium	equant/ anhedral
Olivine	8	3	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	93.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Medium

	Type	Distribution
Texture:	granular	N/A

Continued next page

Core Image

176-735B-191R-3 (cont'd)

Interval 897: TROCTOLITIC MICROGABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	191	3	141	4D	1339.98
Lower contact:	191	4	18	1B	1340.28

Thickness (m): 0.30

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	2	n/a	fine	tabular/ subhedral, anhedral
Clinopyroxene	5	2	n/a	fine	equant/ anhedral
Olivine	20	3	1	fine	equant/ anhedral
Opaques	0.2				amoeboidal aggregates/ disseminated
Total	90.2*		(see explanatory notes)		

*Major phases estimated to ± 5%)

Grain Size: Fine

	Type	Distribution
Texture:	granular	N/A

Comments: Very fine-grained microgabbro with a coarser "vein" parallel to foliation at 5-10 cm in 191R-4

Alteration:
Dark green amphibole:
- Total Percent: <1
- Mode of occurrence: After pyroxene and olivine.
- Comments: As alteration rims.

Brown amphibole:
- Total Percent: trace
- Mode of occurrence: Along pyroxene cleavages, as rims.

Green amphibole:
- Total Percent: trace
- Mode of occurrence: Small patches.

Secondary plagioclase:
- Total Percent: <2
- Mode of occurrence: Replacing primary plagioclase.
- Comments: Irregularly distributed.

Talc and oxides:
- Total Percent: trace
- Mode of occurrence: After olivine in crystal cracks.

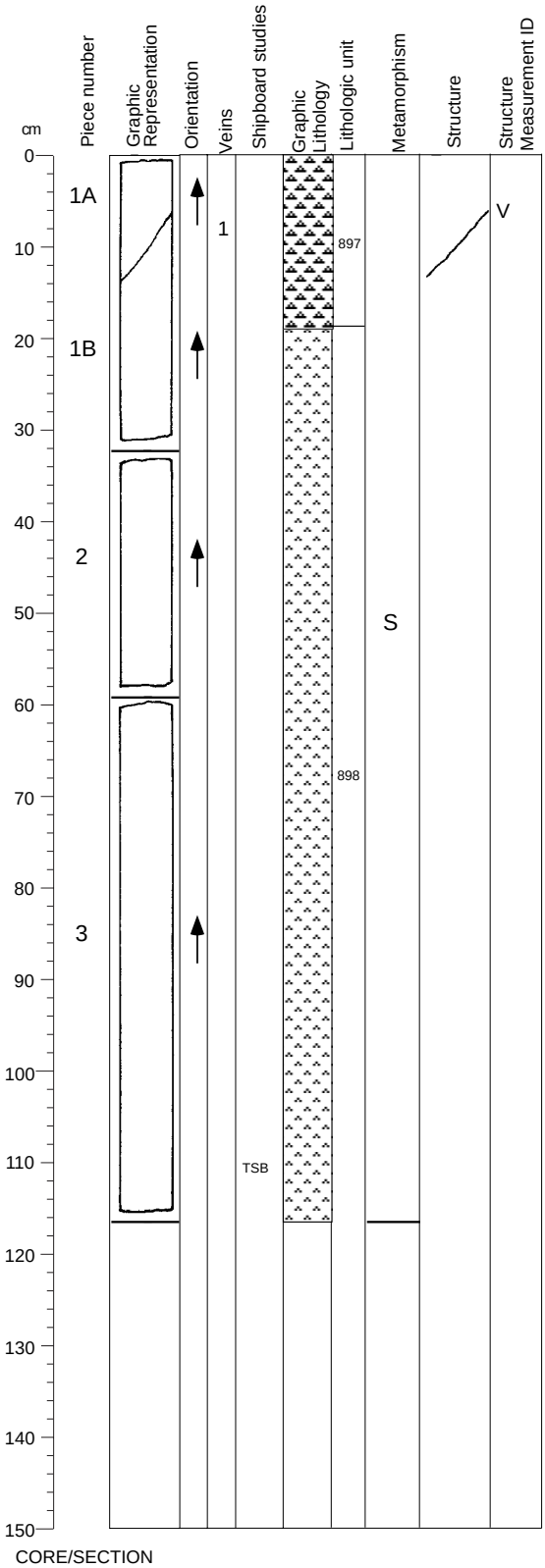
Smectite:
- Total Percent: <2
- Mode of occurrence: Dark green smectite after olivine.

Background Alteration:
Degree of alteration: slight (5%). Same as previous section

Vein/Fracture Filling:
0.2-1 mm smectite veins in Pieces 2, 3, and 4.

Structures:
Mf>Ic=Mf; Mf>V
The section displays a fine- to coarse-grained igneous texture with no or a weak magmatic foliation. A series of veins cut the igneous texture over the entire section. A fine-grained material is present from 38 to 52 cm and from 54 to 106 cm. A weak magmatic foliation is present below the upper contact, subparallel to it (around 45°). A weak magmatic foliation is present in the adjacent coarse-grained gabbro, dipping 45° in the other direction; the fine-grained material clearly cross-cuts the previous magmatic fabric at a high angle. The contact at 106 cm is not associated to any magmatic foliation and is more diffuse.

Core Image



176-735B-191R-4

Interval 897: TROCTOLITIC MICROGABBRO
(see previous section)
Interval 898: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	191	4	18	1B	1340.28
Lower contact:	192	2	101	3	1347.81

Thickness (m): 7.53

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	30	5	coarse	tabular/ subhedral anhedral
Clinopyroxene	25	20	2	coarse	equant/ anhedral
Olivine	12	20	2	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	97.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro

Texture:	Type	Distribution
	granular	N/A

Comments: Grain size, mode and texture variable From top to 111 cm in 191R-4 (fine- to medium-grained; granular to equigranular texture), to 0 cm in 191R-5 (coarse-grained), to 6 cm in 191R-5 (fine-grained), to 20 cm in 191R-5 (coarse-grained), to 31 cm in 191R-5 (fine-grained), 92 cm in 191R-6 (coarse- to very coarse-grained), to 102 cm in 191R-6 (fine- to medium-grained), to 5 cm in 191R-7 (coarse-grained), to 20 cm in 192R-1 (medium- to coarse-grained; locally pegmatitic), to 29 cm in 192R-2 (coarse-grained), and to base (coarse- to medium-grained) Oxide present at 103-105 cm in 191R-7.

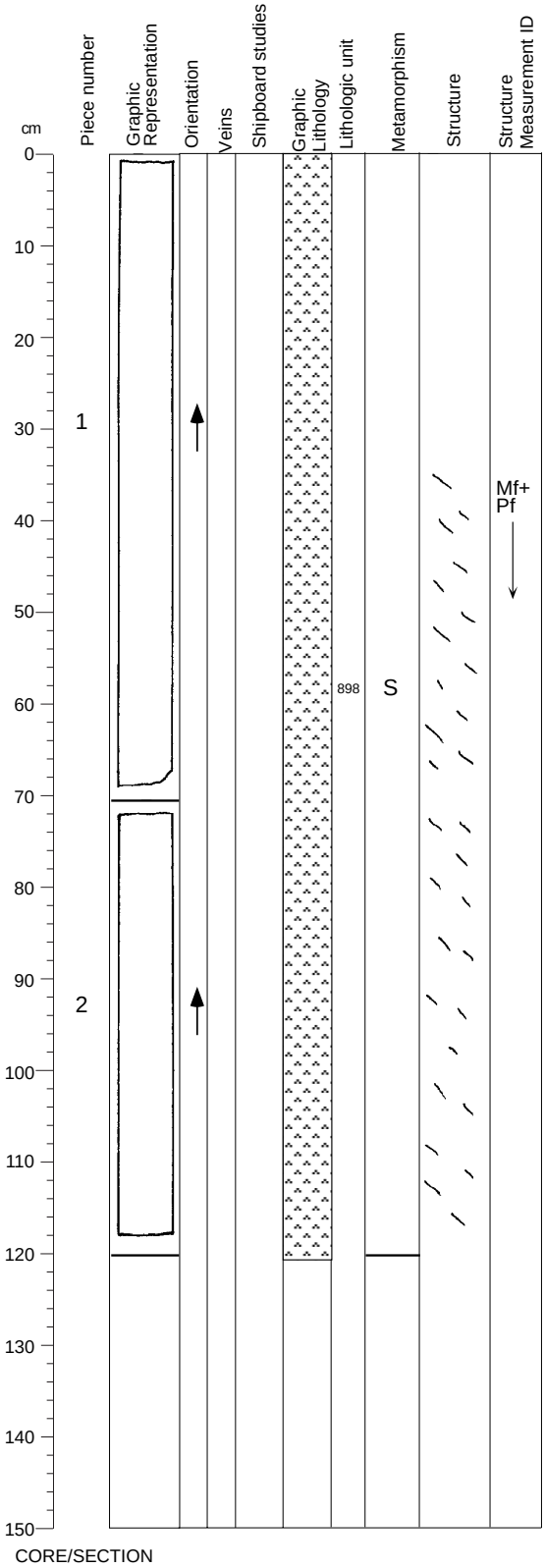
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: slight (4%). Olivine is weakly altered to amphibole and smectite (5%). Clinopyroxene is slightly altered to amphibole (3%). 4% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.1 mm smectite vein in Piece 1.

Structures:
Mf>V
The section displays a fine- to coarse-grained igneous texture with a weak magmatic foliation (dipping 35°). Fine-grained intervals are present in Pieces 1A and 1B, and at the bottom of Piece 3. A vein cuts the igneous texture at the boundary between Pieces 1A and 1B.

Core Image



176-735B-191R-5

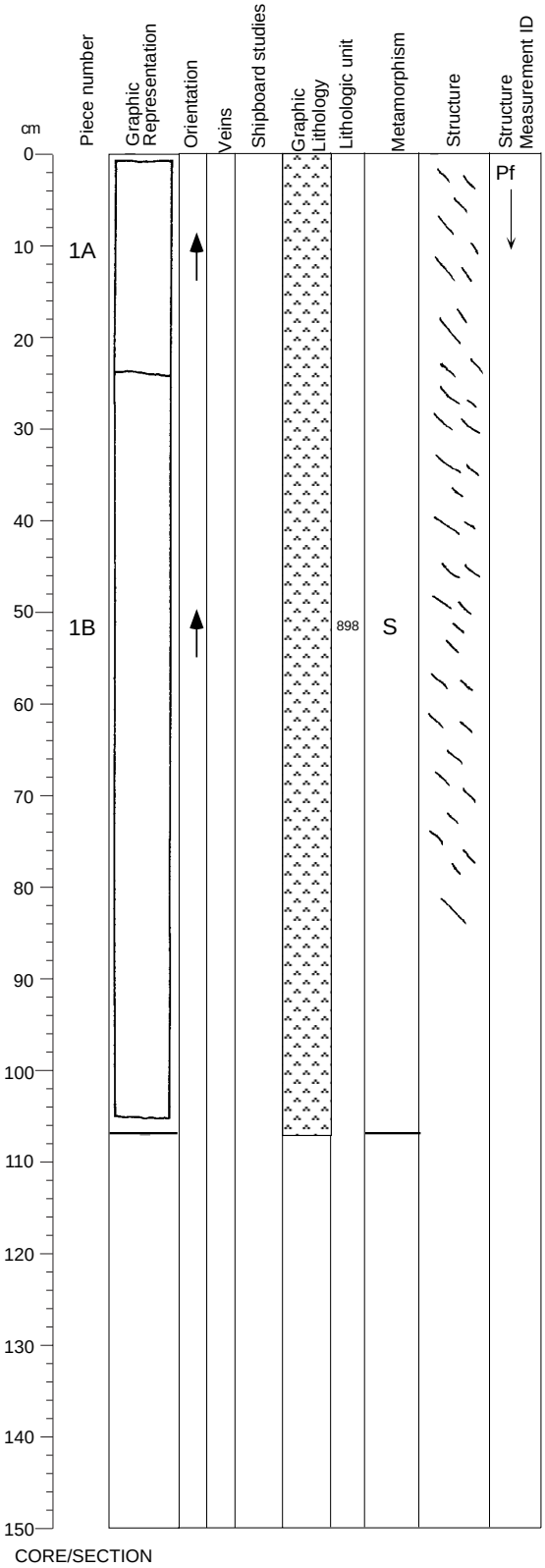
Interval 898: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Hydroxyoxides and smectites:
Total Percent: trace
Mode of occurrence: Orange-red mixtures after olivine.

Background Alteration:
Degree of alteration: slight (4%). Same as previous section

Structures:
Mf>V
The entire section displays a fine- to coarse-grained igneous texture with no or a very weak magmatic foliation, parallel to a few narrow fine-grained layers, overprinted by a weak crystal-plastic foliation below 35 cm.

Core Image



176-735B-191R-6

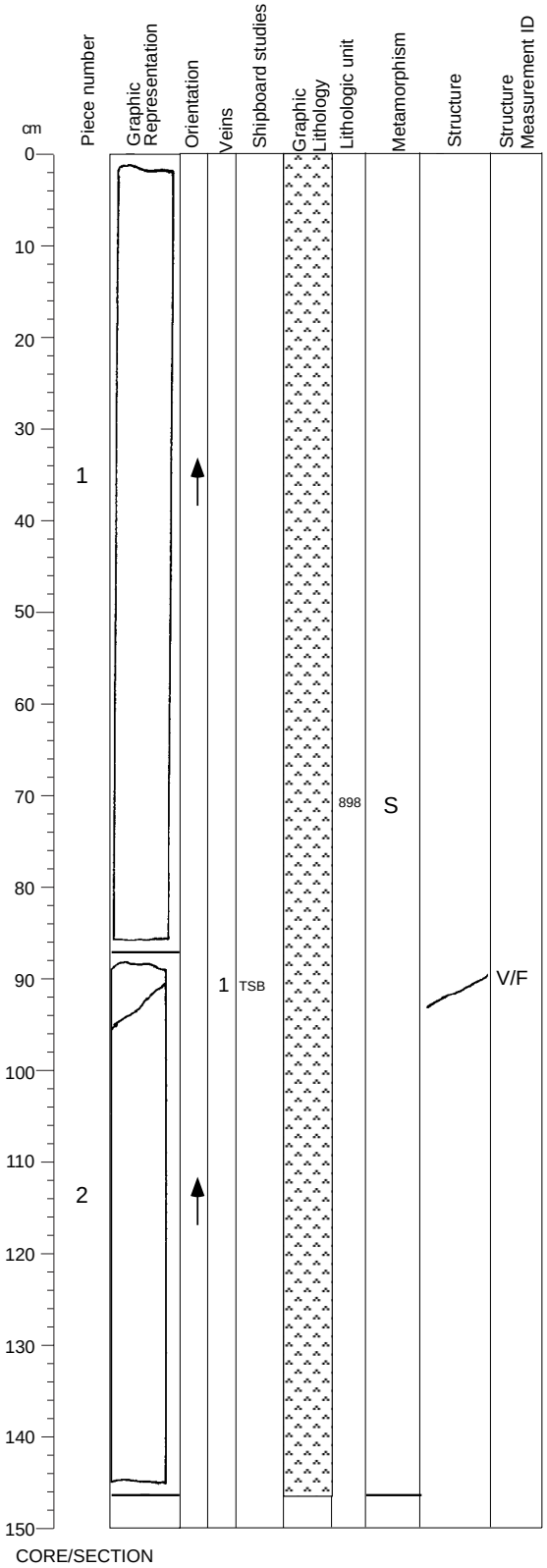
Interval 898: OLIVINE GABBRO
(see Section 176-735B-191R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). Olivine is weakly altered to amphibole and smectite (3%). Clinopyroxene is slightly altered to amphibole (2%). 3% of the plagioclase is recrystallized.

Structures:
Mf>Pf
Most of the section (from 0 to 86 cm) displays a weak crystal-plastic foliation, dipping around 40°. The rest of the section displays a coarse-grained igneous texture, with no magmatic foliation.

Core Image



176-735B-191R-7

Interval 898: OLIVINE GABBRO
(see Section 176-735B-191R-4)

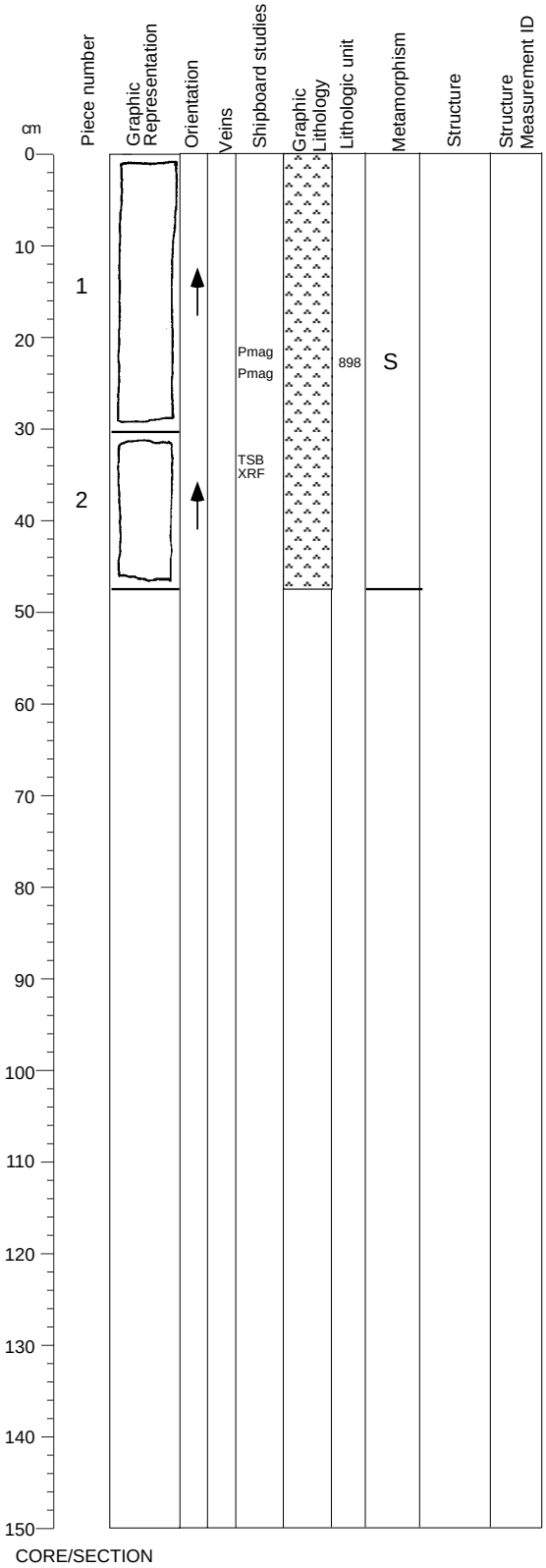
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Hydroxyoxides and smectites:
Total Percent: trace
Mode of occurrence: Orange-red mixtures after olivine.

Background alteration:
Degree of alteration: slight (3%). Same as previous section.

Vein/Fracture Filling:
0.3 mm zeolite vein in Piece 2.

Structures:
Mf>V>F
The section displays a medium- to coarse-grained igneous texture with no or a weak magmatic foliation. When present (from 86 to 144 cm, Piece 2), the magmatic foliation dips at 40°; it is cut by a vein at the top of Piece 2, which grades into a fault.

Core Image



176-735B-191R-8

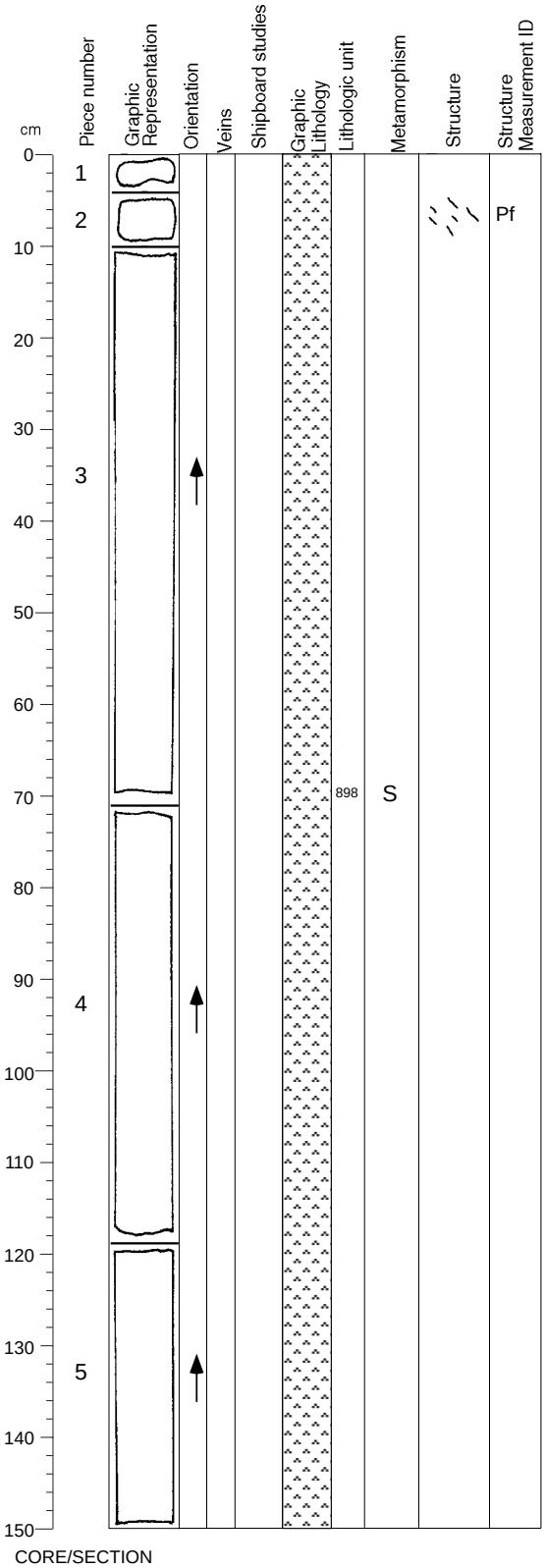
Interval 898: OLIVINE GABBRO
(see Section 176-735B-191R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf
The section displays a coarse-grained igneous texture with no or a weak magmatic foliation. Where present (from 30 to 45 cm, Piece 2), the magmatic foliation dips at 20-25°.

Core Image



176-735B-192R-1

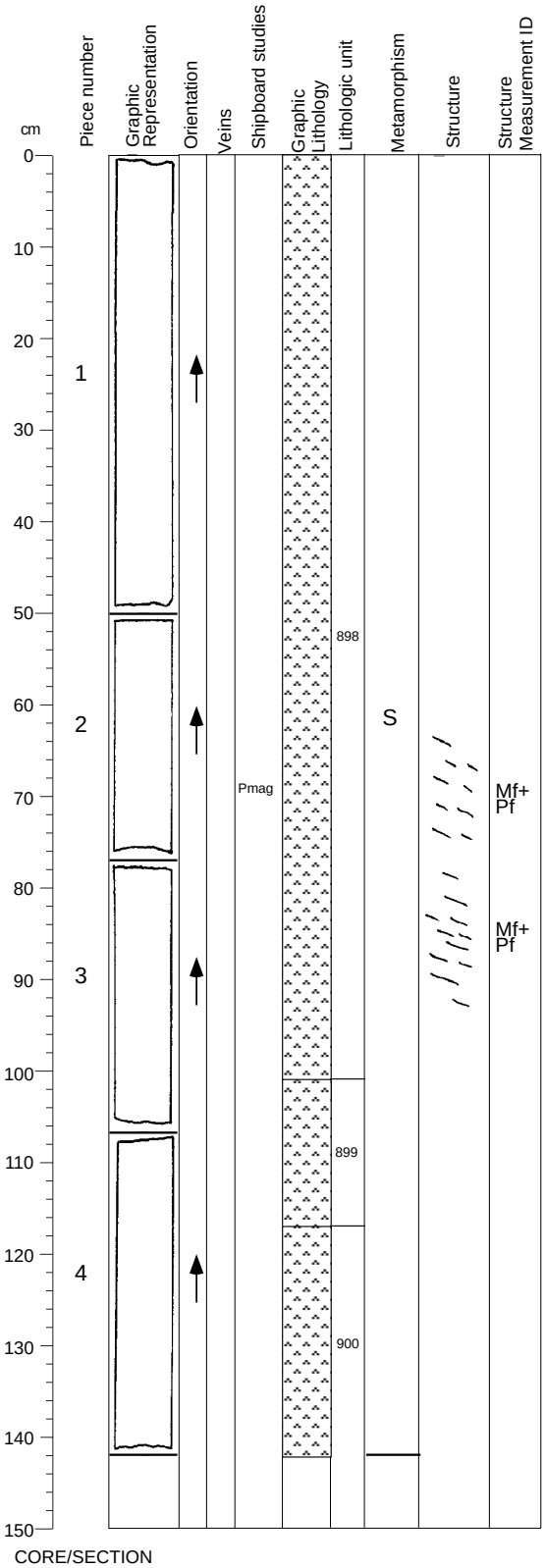
Interval 898: OLIVINE GABBRO
(see Section 176-735B-191R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf>Pf
Most of the section displays a coarse-grained igneous texture with a weak magmatic foliation from 0 to 118 cm (dips at 20°), except for Pieces 1 and 2, which have a weak crystal-plastic foliation (non-oriented samples).

Core Image



176-735B-192R-2

Interval 898: OLIVINE GABBRO
(see Section 176-735B-191R-4)
Interval 899: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	192	2	101	3	1347.81
Lower contact:	192	2	117	4	1347.97

Thickness (m): 0.16

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	4	0.5	medium	tabular/ subhedral
Clinopyroxene	30	4	0.3	medium	equant/ anhedral
Olivine	20	2	1	fine	elongate/ anhedral subhedral
Opaques	0.2				amoeboidal aggregates/ disseminated
Total	105.2*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine

	Type	Distribution
Texture:	granular	N/A

Interval 900: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	192	2	117	4	1347.97
Lower contact:	192	4	70	1	1350.11

Thickness (m): 2.14

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	13	3	coarse	tabular/ subhedral
Clinopyroxene	30	15	3	coarse	equant/ anhedral
Olivine	15	10	2	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

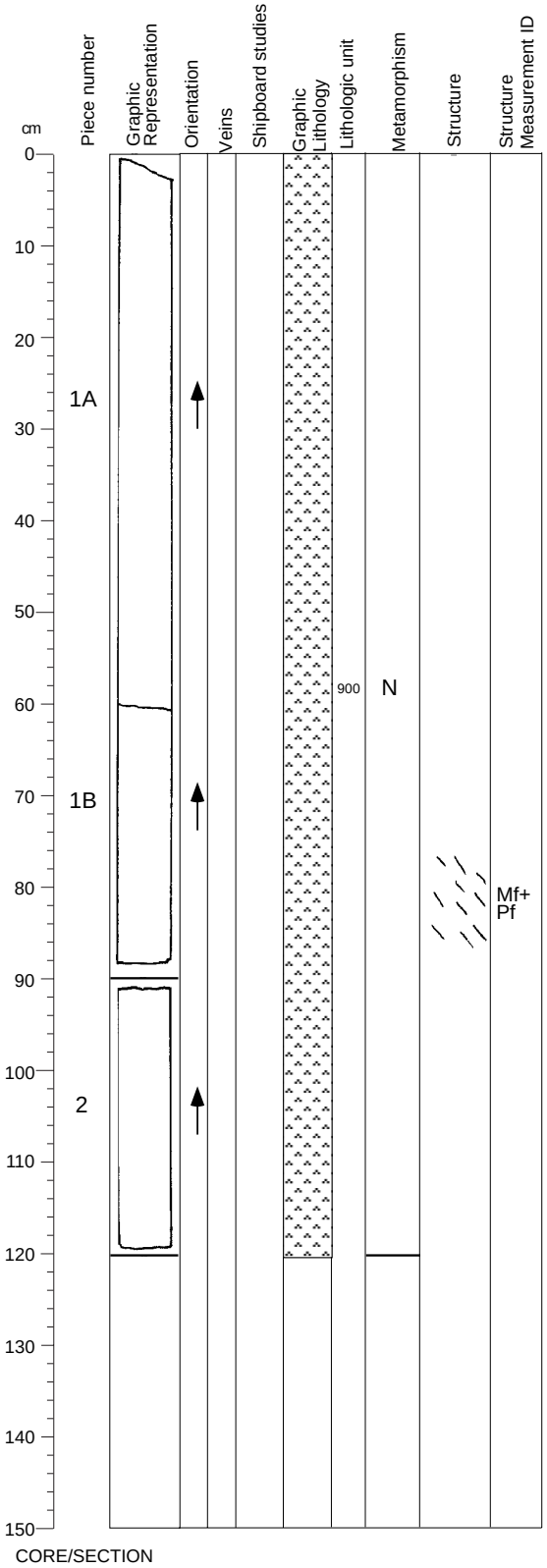
Comments: Locally coarser patches present at 130-134 cm and 70-76 cm in 192R-2; 117-123 cm in 192R-6. Locally finer at 0-19 cm in 192R-5.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf>Pf
Most of the section displays a coarse-grained igneous texture with no or a weak magmatic foliation. The interval between 102 to 115 cm contains a fine-grained material, with a weak magmatic foliation, subparallel to the one in the surrounding coarse-grained gabbro and to the contacts. From 63 to 86 cm, the magmatic foliation is overprinted by a weak crystal-plastic foliation (dips around 30°).

Core Image



176-735B-192R-3

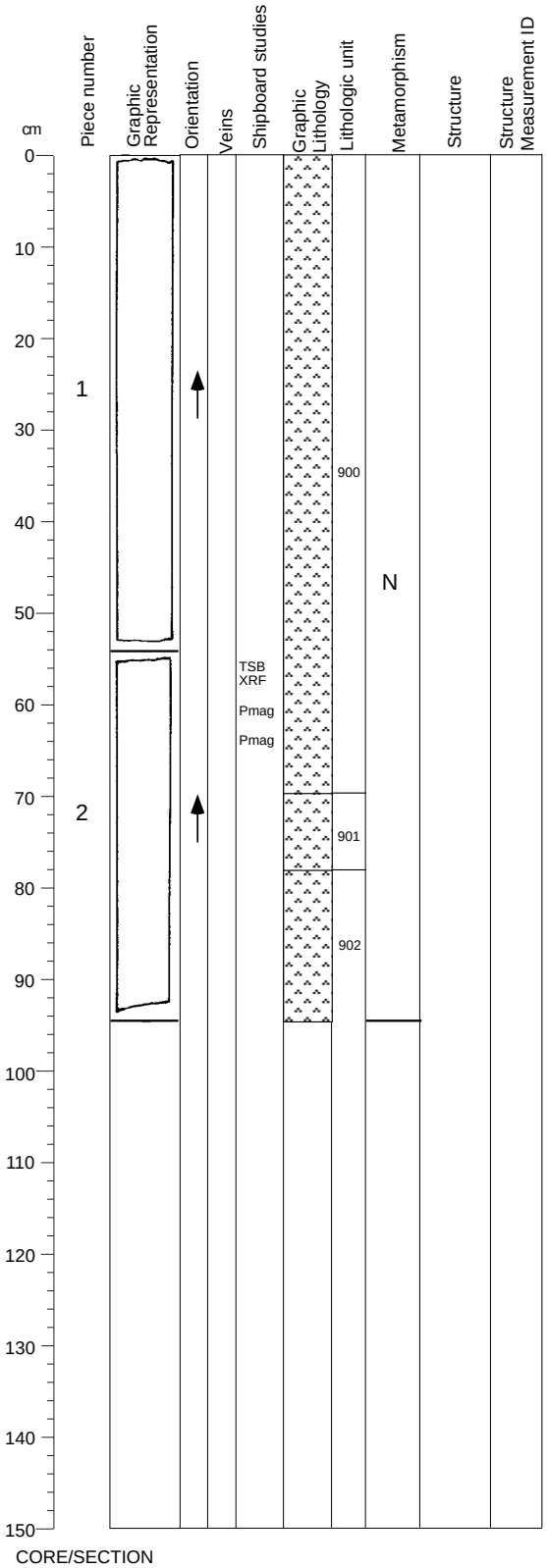
Interval 900: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf>Pf
Most of the section displays a medium- to coarse-grained igneous texture with a weak magmatic foliation, dipping from 30 to 55°. A weak crystal-plastic foliation overprints the magmatic foliation between 79 and 86 cm.

Core Image



176-735B-192R-4

Interval 900: OLIVINE GABBRO
(see previous section)
Interval 901: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	192	4	70	1	1350.11
Lower contact:	192	4	78	1	1350.19

Thickness (m): 0.08

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	6	0.5	medium	tabular/ subhedral
Clinopyroxene	25	1	0.3	fine	equant/ anhedral
Olivine	20	2	1	fine	elongate/ anhedral, subhedral
Opaques	0.2				amoeboidal aggregates/ disseminated
Total	105.2 *		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Medium

	Type	Distribution
Texture:	granular	N/A

Interval 902: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	192	4	78	1	1350.19
Lower contact:	194	3	12	1	1363.25

Thickness (m): 13.06

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	20	4	coarse	tabular/ subhedral
Clinopyroxene	30	15	3	coarse	equant/ anhedral
Olivine	15	8	1	medium	amoeboidal/ anhedral
Opaque	0.5				amoeboidal aggregates/ disseminated
Total	100.5	(see explanatory notes)			

Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

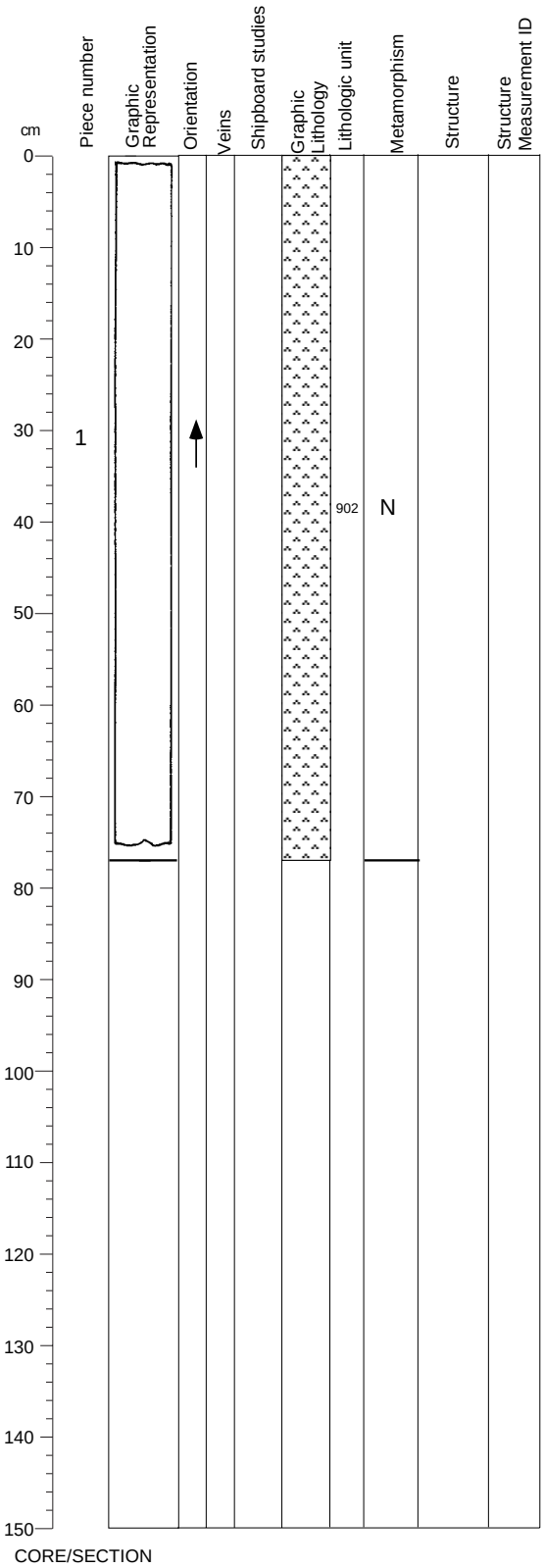
Comments: Grain size and mode variable From top to 5 cm in 192R-8 (coarse/mediun-grained), to 11 cm in 192R-8 (coarse-grained), to 50 cm in 192R-8 (medium-grained) to 9 cm in 193R-1 (fine/medium-grained), to 44 cm in 193R-1 (fine/medium-grained; sheared/foliated with felsic rich patches), to 69 cm in 193R-1 (coarse/medium-grained), to 137 cm in 193R-1 (fine/medium-grained), to 12 cm in 194R-1 (coarse/ medium-grained), 128 cm in 194R-1 (fine/medium-grained), to 83 cm in 194R-2 (coarse/medium)-grained), to 107 cm in 194R-2 (fine-grained), and to base (fine.medium-grained with very coarse clinopyroxene at very base).

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained texture with a weak, gently dipping magmatic foliation.

Core Image



176-735B-192R-5

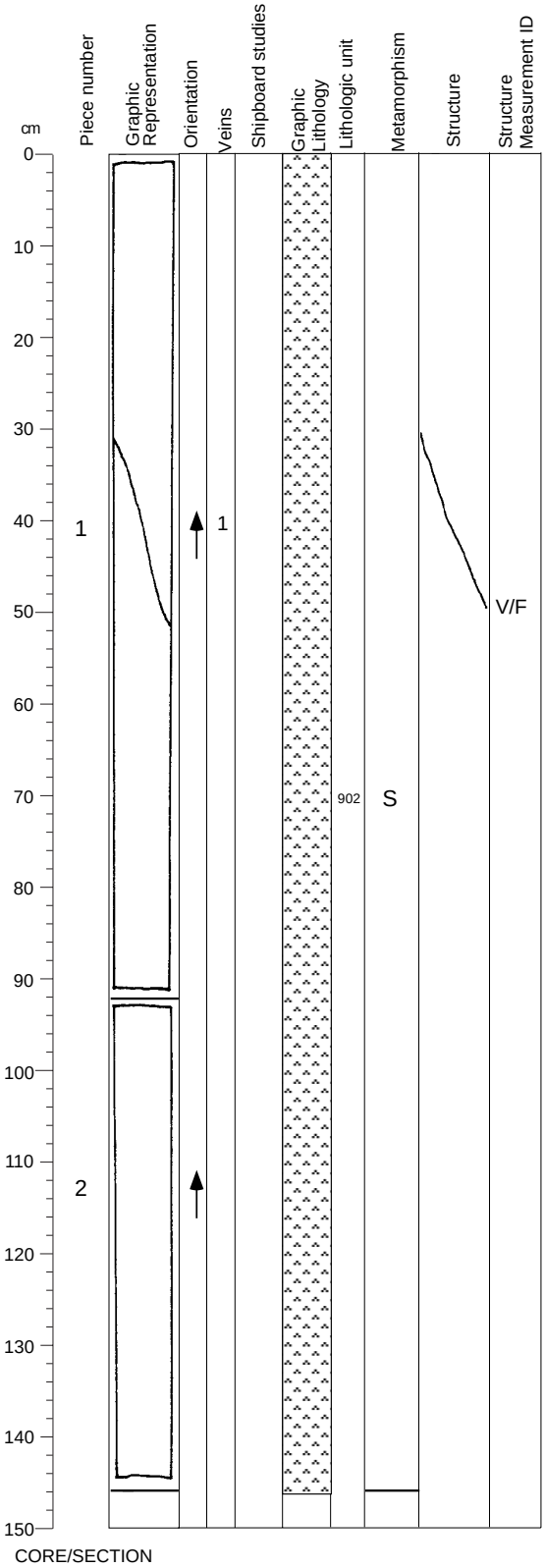
Interval 902: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained texture, with a weak, gently dipping magmatic foliation.

Core Image



176-735B-192R-6

Interval 902: OLIVINE GABBRO
(see Section 176-735B-192R-4)

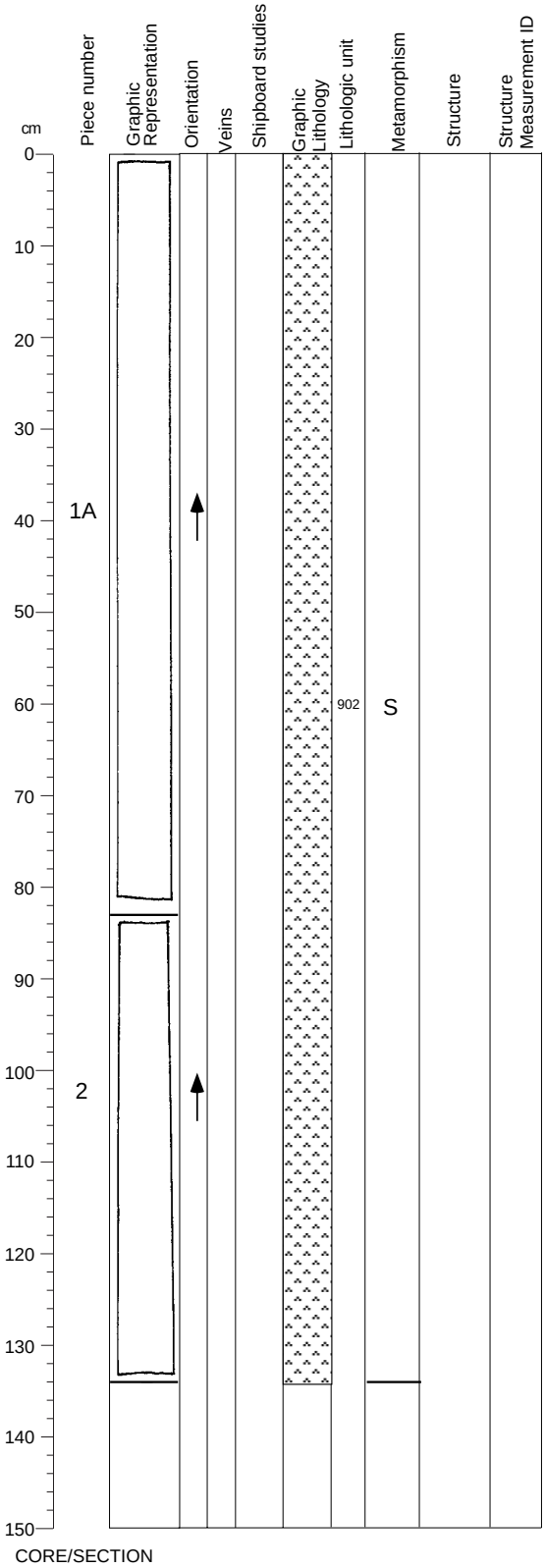
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: slight (4%). 6% of the olivine is replaced by amphibole and smectite. Clinopyroxene is slightly altered to amphibole (3%). 3% of the plagioclase is recrystallized.

Vein/Fracture Filling:
1 mm amphibole vein in Piece 1.

Structures:
Mf>V
The section displays a medium- to coarse-grained texture with a weak, gently dipping magmatic foliation in Piece 1 (from 0 to 89 cm), and no magmatic foliation in Piece 2. A vein, grading into a fault, cuts the igneous texture in Piece 1.

Core Image



176-735B-192R-7

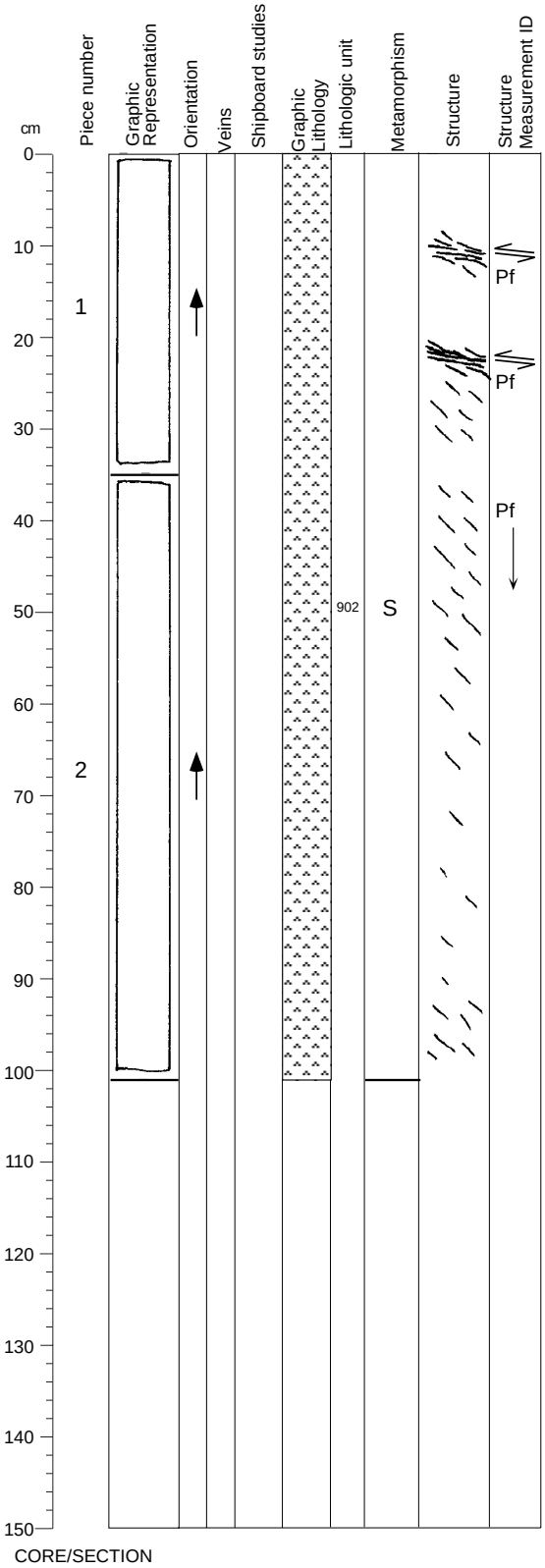
Interval 902: OLIVINE GABBRO
(see Section 176-735B-192R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). 5% of the olivine is replaced by amphibole and smectite. Clinopyroxene is slightly altered to amphibole (2%). 4% of the plagioclase is recrystallized.

Structures:
Mf
The section displays a medium to coarse-grained texture with no or a weak magmatic foliation.

Core Image



176-735B-192R-8

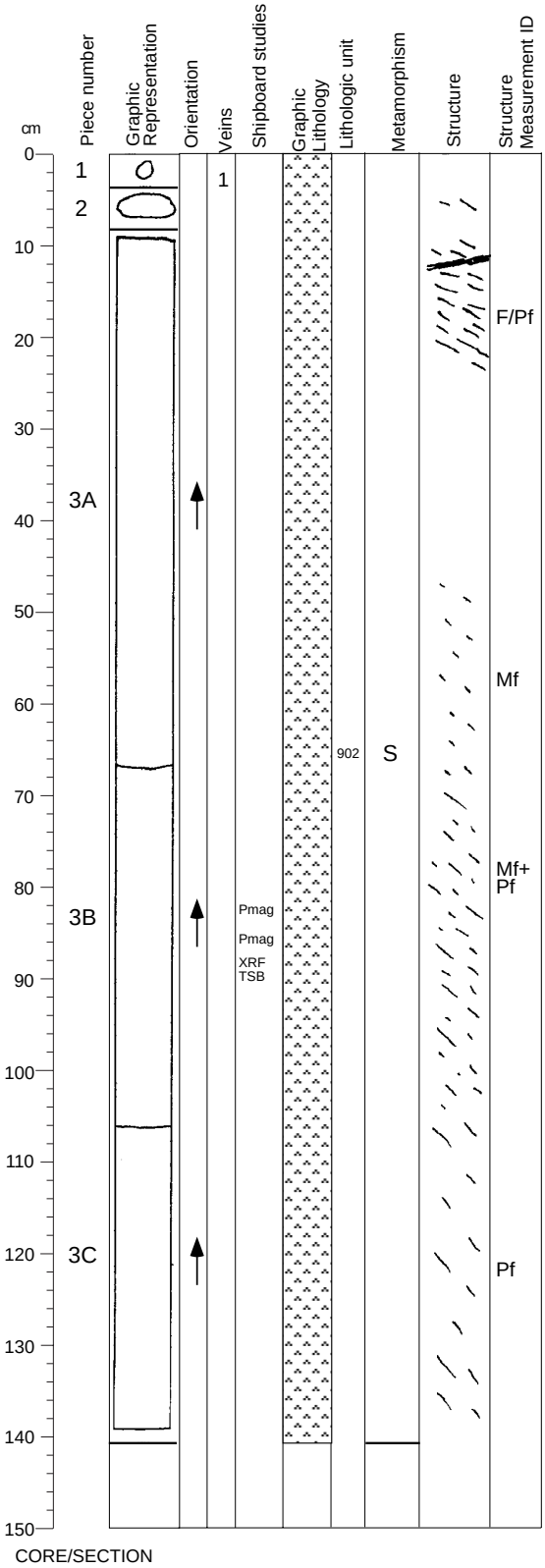
Interval 902: OLIVINE GABBRO
(see Section 176-735B-192R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Hydroxyoxides and smectites:
Total Percent: trace
Mode of occurrence: Orange-red mixtures after olivine.

Background Alteration:
Degree of alteration: slight (4%). 5% of the olivine is replaced by amphibole and smectite. Clinopyroxene is slightly altered to amphibole (2%). 6% of the plagioclase is recrystallized.

Structures:
Mf>Pf
Most of the section displays a medium- to coarse-grained igneous texture with a weak magmatic foliation, overprinted by a weak crystal-plastic foliation from 23 cm to the bottom. Two narrow, reverse, crystal-plastic shear-zones overprint the igneous texture in Piece 1 (8-11 cm, and 21-23 cm).

Core Image



176-735B-193R-1

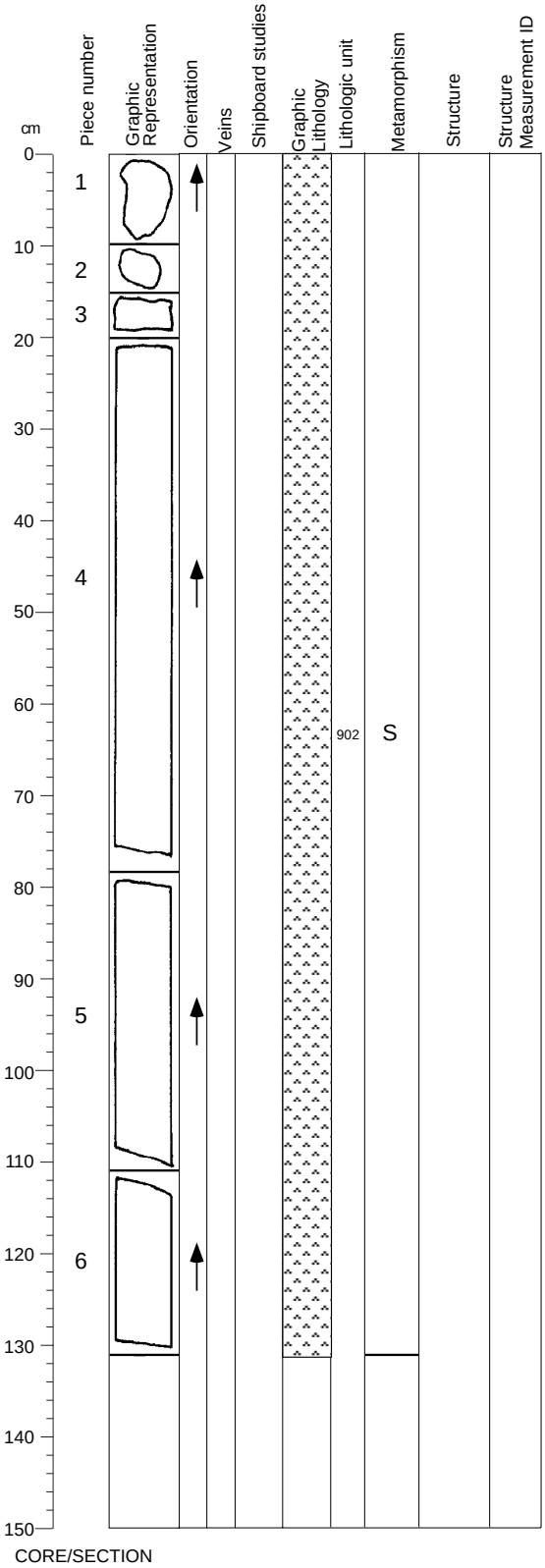
Interval 902: OLIVINE GABBRO
(see Section 176-735B-192R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: slight (3%). 3% of the olivine are replaced by amphibole and rare smectite. Clinopyroxene is slightly altered to amphibole (3%). 3% of the plagioclase is recrystallized.

Structures:
Mf>Pf>F/Pf; Mf>Pf
From 0 to 22 cm, the section displays a weak crystal-plastic foliation, dipping 30°, overprinted by a narrow, cataclastic zone (strong foliation) between 11 and 12 cm dipping 10° in the opposite direction. From 22 to 71 cm, the section displays a coarse-grained igneous texture with a weak to moderate magmatic foliation. Below 71 cm, a weak crystal-plastic foliation is present, although poorly defined, overprinting a moderate to weak magmatic foliation.

Core Image



176-735B-194R-1

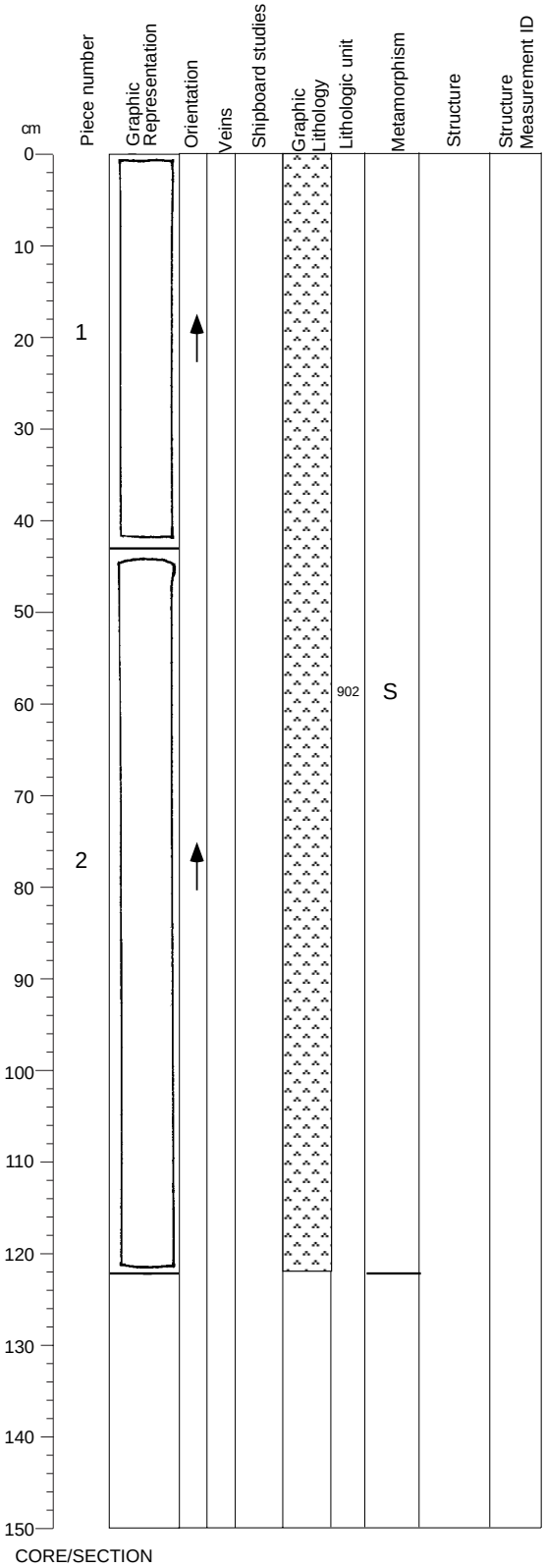
Interval 902: OLIVINE GABBRO
(see Section 176-735B-192R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: slight (3%). 3% of the olivine is altered to amphibole. Clinopyroxene is negligibly altered to amphibole (2%). 3% of the plagioclase are recrystallized.

Structures:
Mf
The section displays a medium-grained igneous texture with no magmatic foliation.

Core Image



176-735B-194R-2

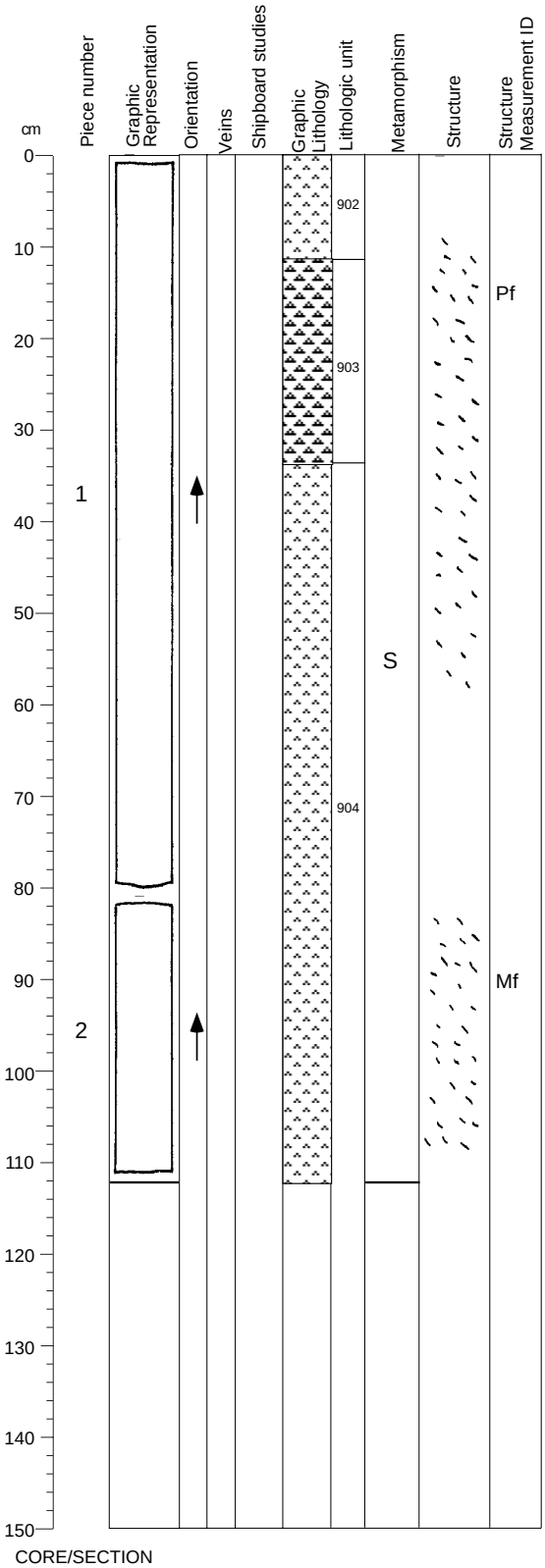
Interval 902: OLIVINE GABBRO
(see Section 176-735B-192R-4)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf
The section displays a fine- to coarse-grained igneous texture with no or a weak to moderate magmatic foliation. Where present (56 cm to the bottom), the magmatic foliation dips at 20°.

Core Image



176-735B-194R-3

Interval 902: OLIVINE GABBRO
(see Section 176-735B-192R-4)
Interval 903: TROCTOLITIC MICROGABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	194	3	12	1	1363.25
Lower contact:	194	3	34	1	1363.47

Thickness (m): 0.22

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	5	0.5	medium	tabular/ subhedral
Clinopyroxene	10	2	n/a		equant/ anhedral
Olivine	20	2	1	fine	elongate/ anhedral, subhedral
Opaques	0.3				amoeboidal aggregates/ disseminated
Total	90.3*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine

	Type	Distribution
Texture:	granular	N/A

Comments: Fine-grained microgabbro with slight grain size variation.

Interval 904: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	194	3	34	1	1363.47
Lower contact:	195	4	42	2	1368.67

Thickness (m): 5.20

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	20	4	coarse	tabular/ subhedral
Clinopyroxene	20	30	3	coarse	equant/ anhedral
Olivine	8	8	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	93.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

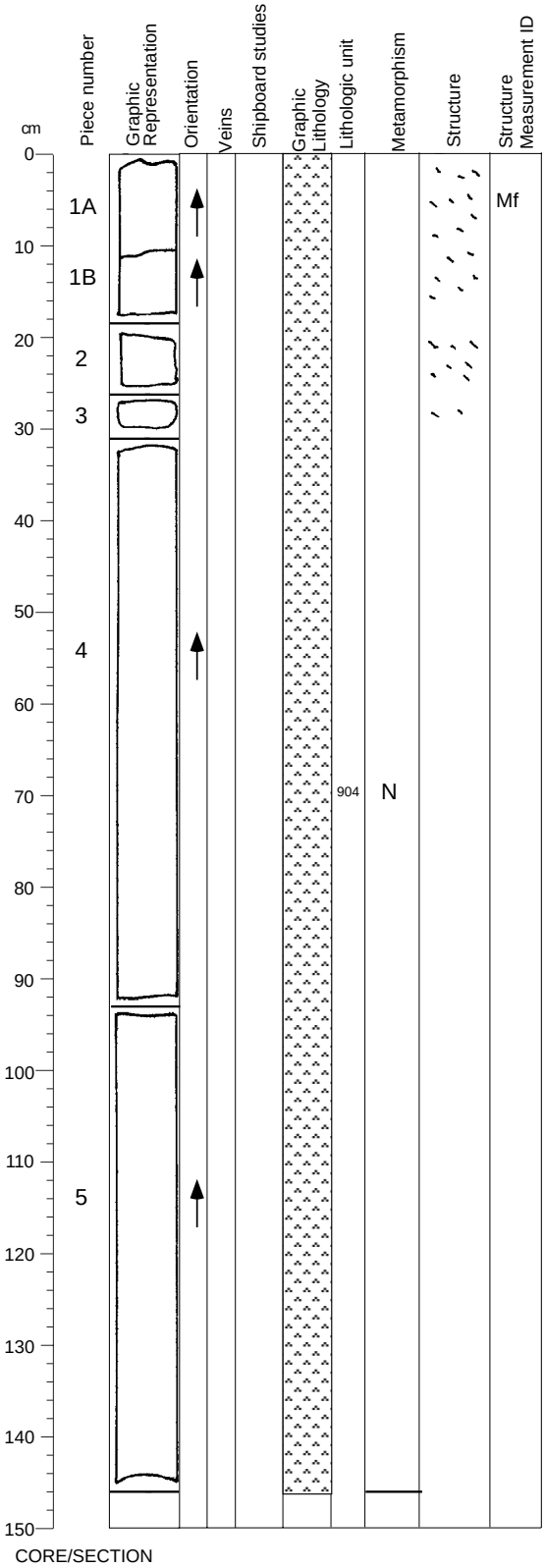
Comments: Grain size and mode variableFrom top to 40 cm in 194R-3 (coarse-grained), to 61 cm in 194R-3, to 92 cm in 194R-3 (coarse-grained; locally finer patches), to 127 cm in 195R-1 (fine/medium-grained), 137 cm in 195R-1 (coarse-grained), to 6 cm in 195R-3 (coarse/medium-grained), to 30 cm in 195R-3 (coarse-grained), and to base (medium/coarse-grained; locally very coarse at 20-35 cm in 195R-4). Troctolitic at 8-20 cm in 195R-4. Oxide present at 76-77 cm in 194R-3.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf
Most of the section displays a fine- to coarse-grained igneous texture with a moderate to strong magmatic foliation, dipping regularly around 40° (from 9 to 59 cm, and from 81 cm to the bottom). The rest of the section has no or a weak magmatic foliation.

Core Image



176-735B-195R-1

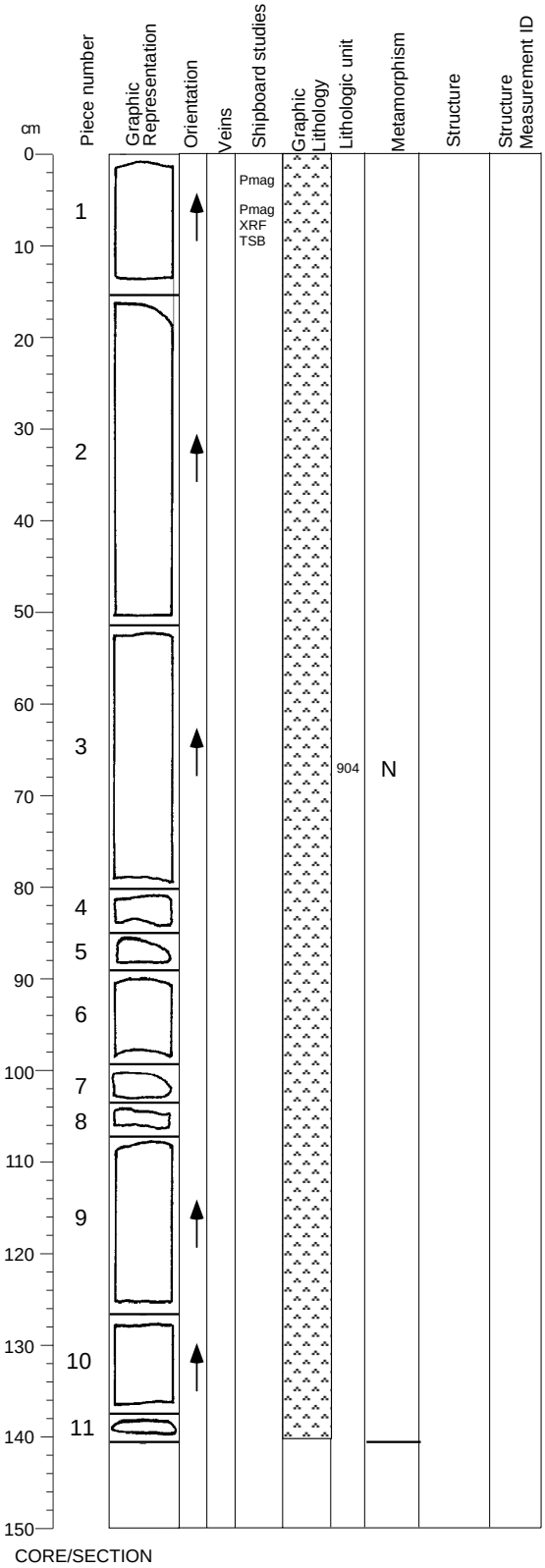
Interval 904: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (2%).

Structures:
Mf
The section displays a fine- to coarse-grained igneous texture. Pieces 1A to 3(0 to 30 cm) have a moderate magmatic foliation, dipping around 40°. The rest of the section has no or a weak magmatic foliation.

Core Image



176-735B-195R-2

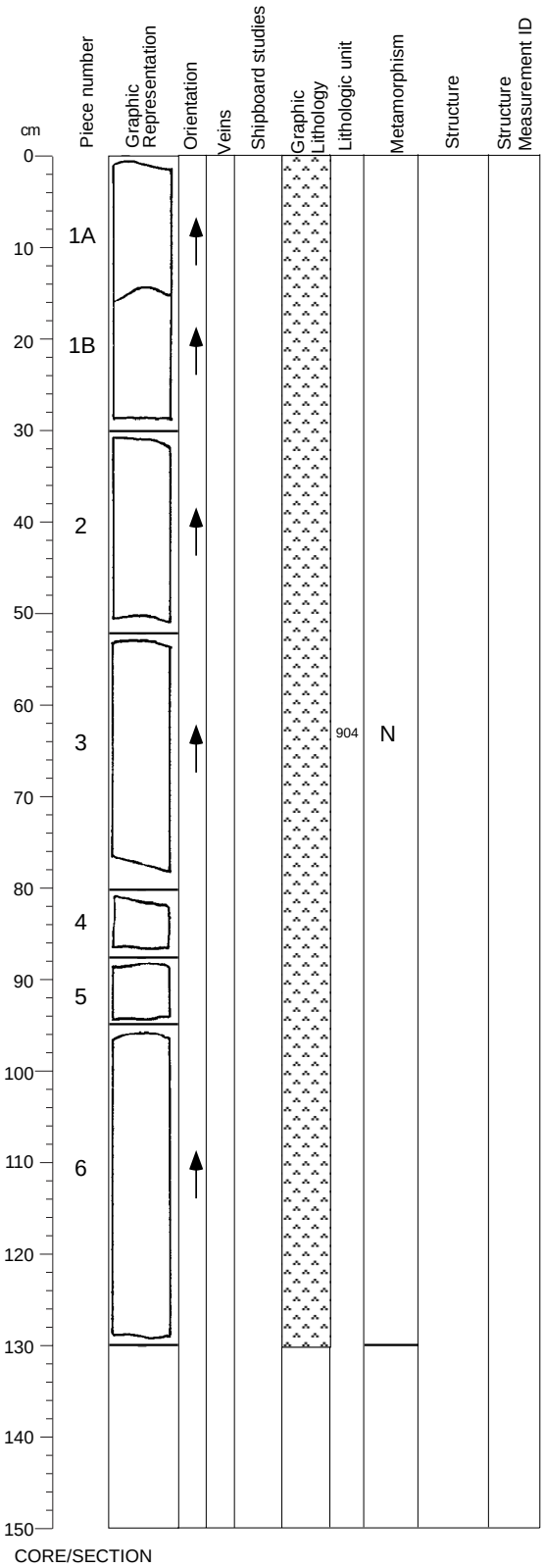
Interval 904: OLIVINE GABBRO
(see Section 176-735B-194R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with a weak to moderate magmatic foliation, dipping regularly 30°.

Core Image



176-735B-195R-3

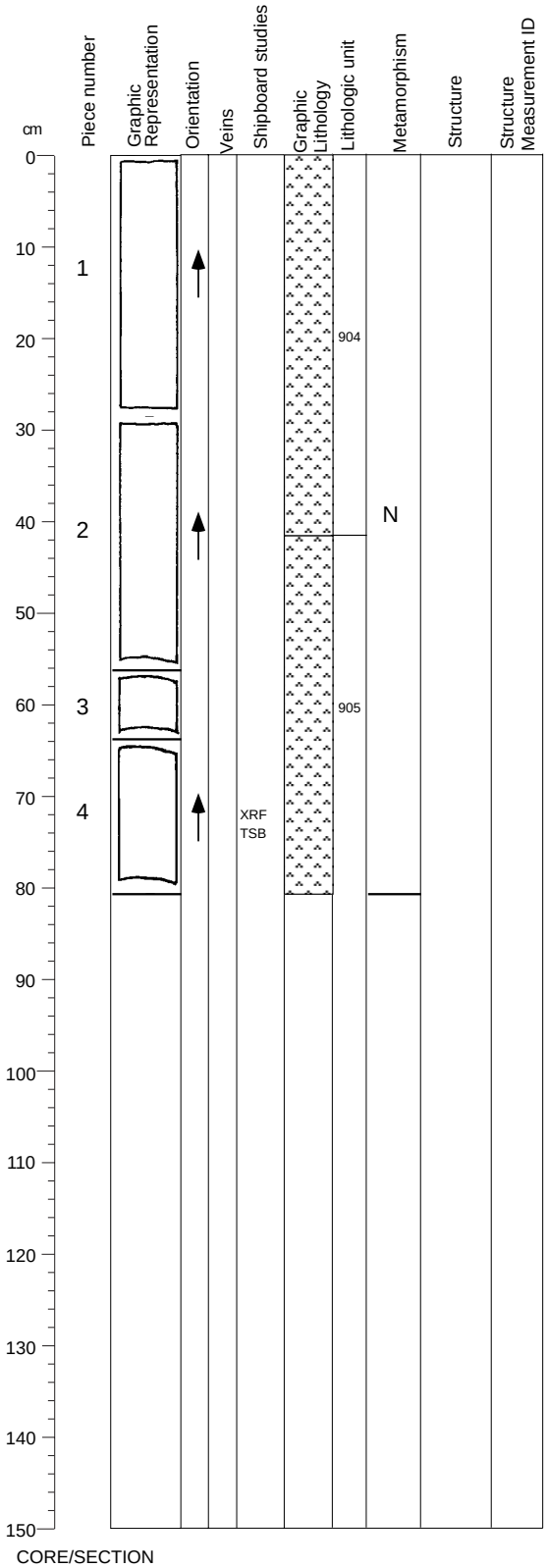
Interval 904: OLIVINE GABBRO
(see Section 176-735B-194R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no or a weak magmatic foliation. Where present (64 to 86 cm), the magmatic foliation dips at 30°.

Core Image



176-735B-195R-4

Interval 904: OLIVINE GABBRO
(see Section 176-735B-194R-3)
Interval 905: LEUCOCRATIC TROCTOLITIC GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	195	4	42	2	1368.67
Lower contact:	195	5	36	1	1369.41

Thickness (m): 0.74

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	80	10	3	coarse	tabular/ subhedral
Clinopyroxene	12	20	3	coarse	equant/ anhedral
Olivine	12	8	2	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	104.5*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Coarse

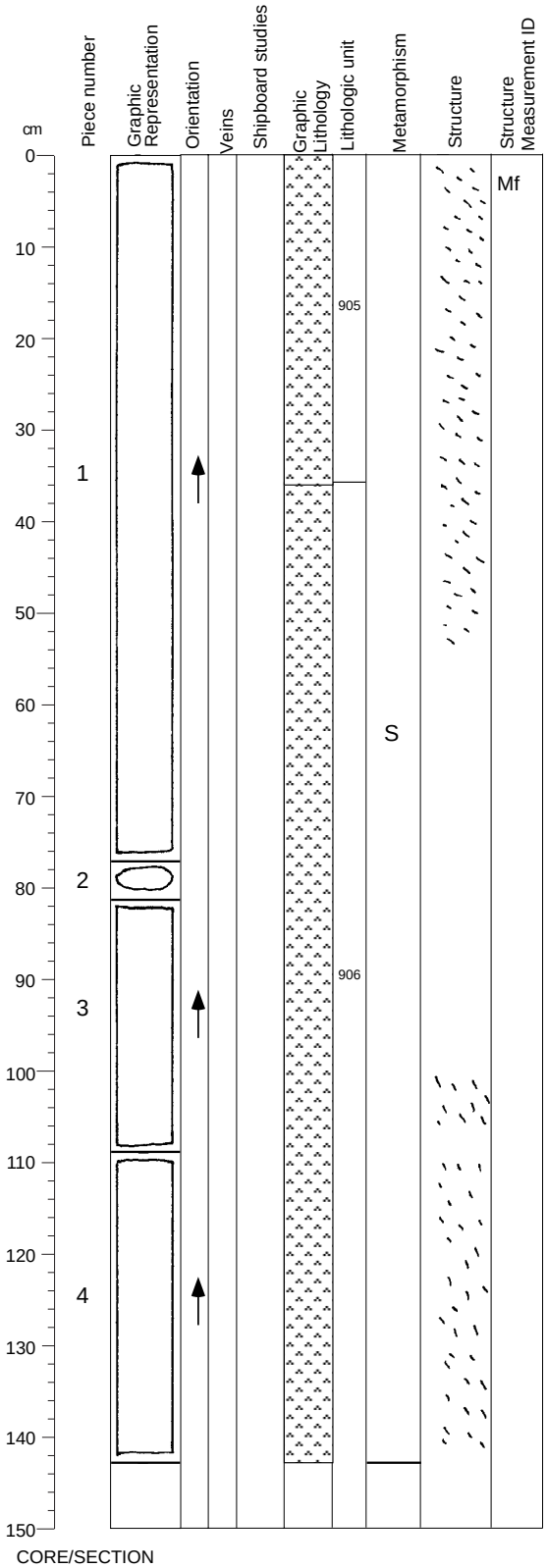
	Type	Distribution
Texture:	granular	N/A

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: <1
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no or a weak magmatic foliation. A weak, steep (around 60°) magmatic foliation is present below 64 cm.

Core Image



176-735B-195R-5

Interval 905: LEUCOCRATIC TROCTOLITIC GABBRO (see previous section)

Interval 906: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	195	5	36	1	1369.41
Lower contact:	196	3	7	1	1375.78

Thickness (m): 6.37

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	20	3	coarse	tabular/ subhedral
Clinopyroxene	20	25	1	coarse	equant/ anhedral oikocrystic
Olivine	10	20	2	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	90.5*		(see explanatory notes)		

*Major phases estimated to ± 5%

Grain Size: Coarse

	Type	Distribution
Texture:	granular	N/A

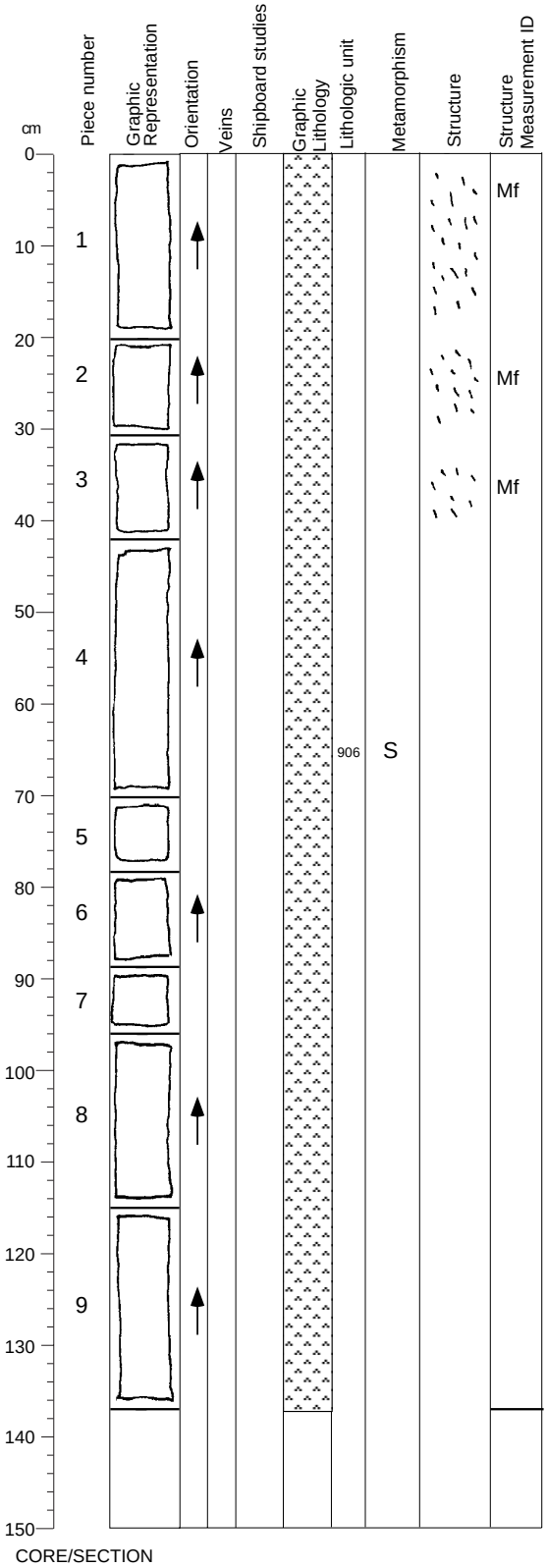
Comments: Grain size variable. From top to 60 cm in 195R-5 (fine/medium-grained), to 106 cm in 195R-5 (coarse-grained), to 7 cm in 195R-7 (coarse/medium-grained), to 87 cm in 195R-7 (coarse-grained), to 98 cm in 195R-7 (medium-grained), 108 cm in 195R-7 (very coarse-grained), to 12 cm in 195R-8 (medium-grained, locally finer-grained), to 25 cm in 195R-8 (coarse-grained), to 38 cm in 195R-8 (medium-grained), to 39 cm in 196R-1 (coarse/medium-grained; locally coarser), to 0 cm in 196R-2 (coarse-grained; locally medium-grained), to 37 cm in 196R-2 (medium-grained), to 49 cm in 196R-2 (coarse-grained), to 86 cm in 196R-2 (fine-medium-grained; locally coarser-grained), and to base (coarse-grained)Locally troctolitic, locally leucocratic at 6-13 cm.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: <1
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). 3% of the olivine is replaced by amphibole and rare smectite. Clinopyroxene is negligibly altered to amphibole. 4% of the plagioclase is recrystallized.

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with a weak to strong magmatic foliation, dipping around 30° from 0 to 102 cm, and around 50° below 102 cm.

Core Image



176-735B-195R-6

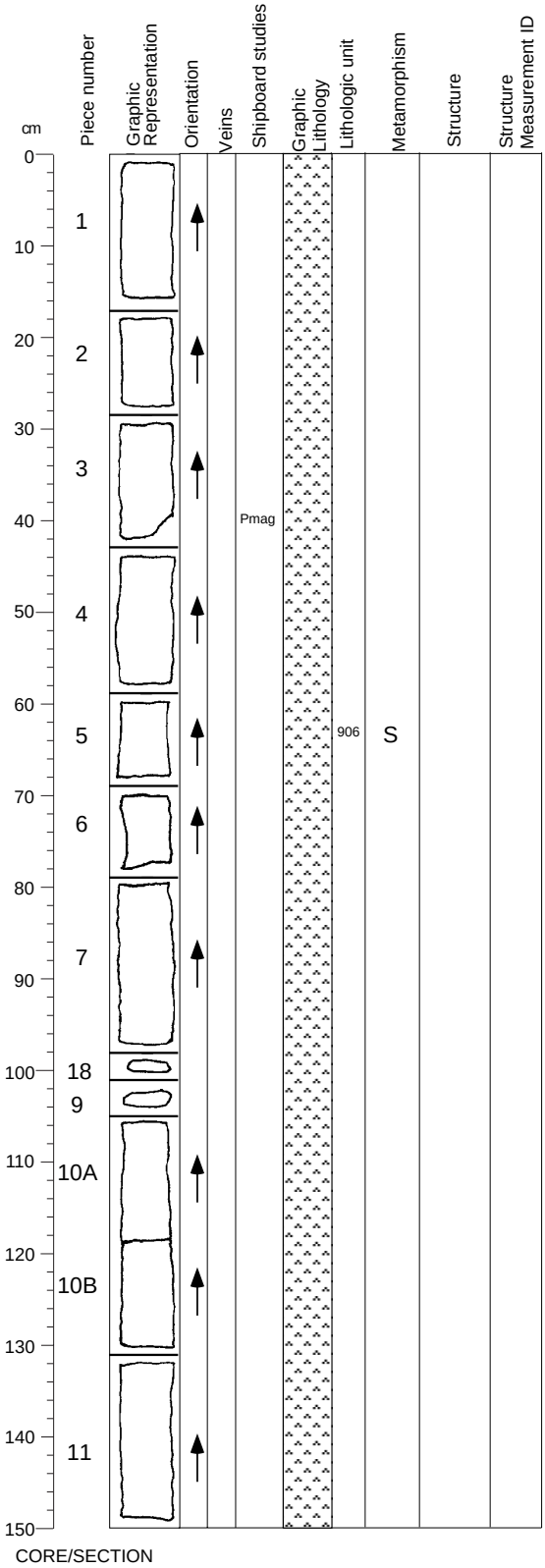
Interval 906: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: <1
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). 3% of the olivine is replaced by amphibole and rare smectite. Clinopyroxene is negligibly altered to amphibole. 3% of the plagioclase is recrystallized.

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no or a weak to moderate magmatic foliation. Where present (0 to 42 cm, 54 to 46 cm), the magmatic foliation dips from 40° to 60°.

Core Image



176-735B-195R-7

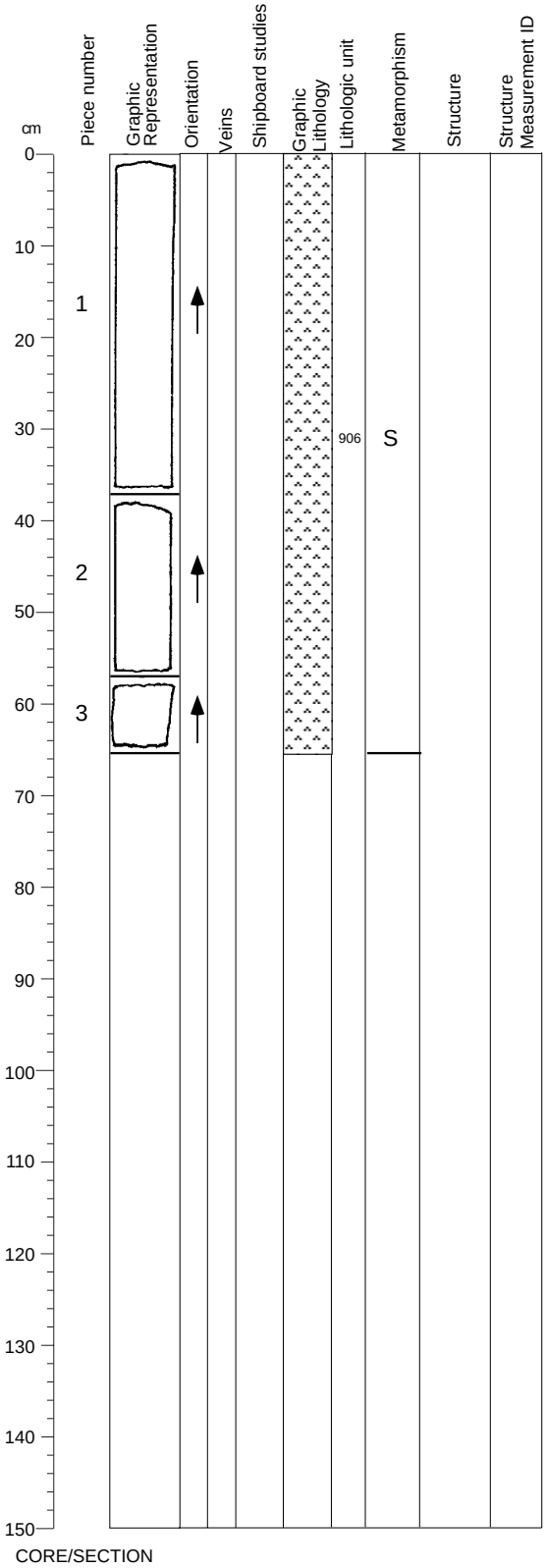
Interval 906: OLIVINE GABBRO
(see Section 176-735B-195R-5)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: <1
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with a weak magmatic foliation, regularly dipping 40°.

Core Image



176-735B-195R-8

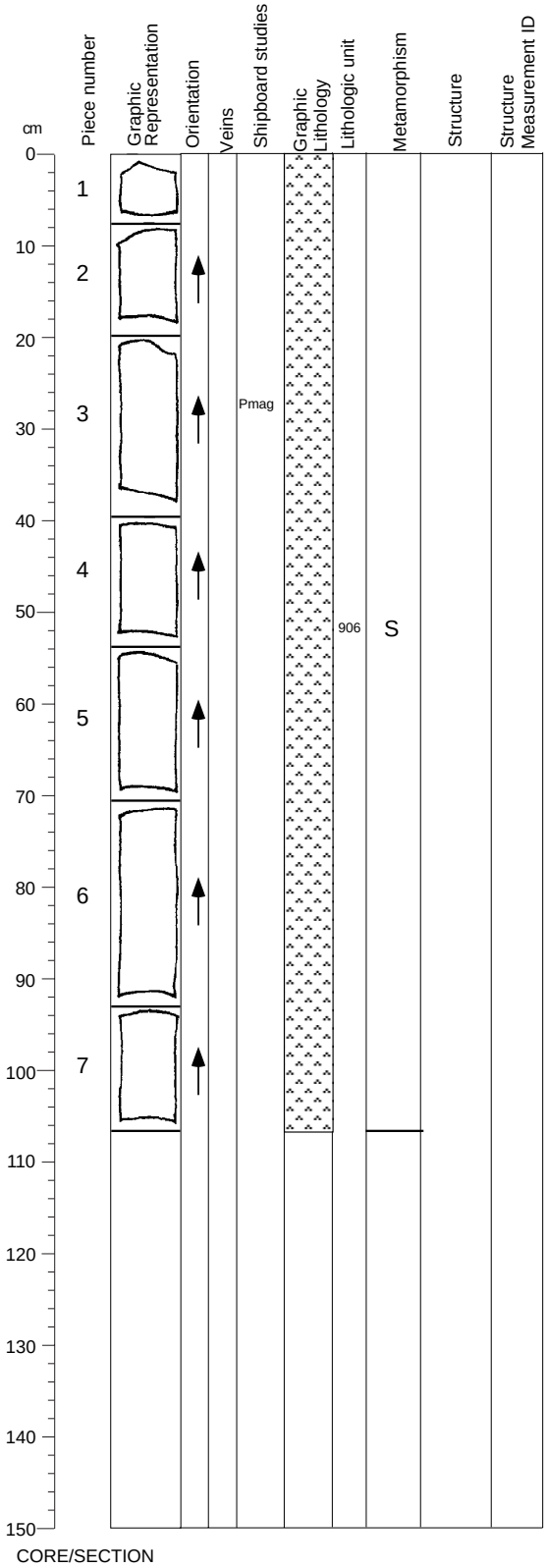
Interval 906: OLIVINE GABBRO
(see Section 176-735B-195R-5)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: <1
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no or a weak magmatic foliation. Where present, the magmatic foliation dips around 50°.

Core Image



176-735B-196R-1

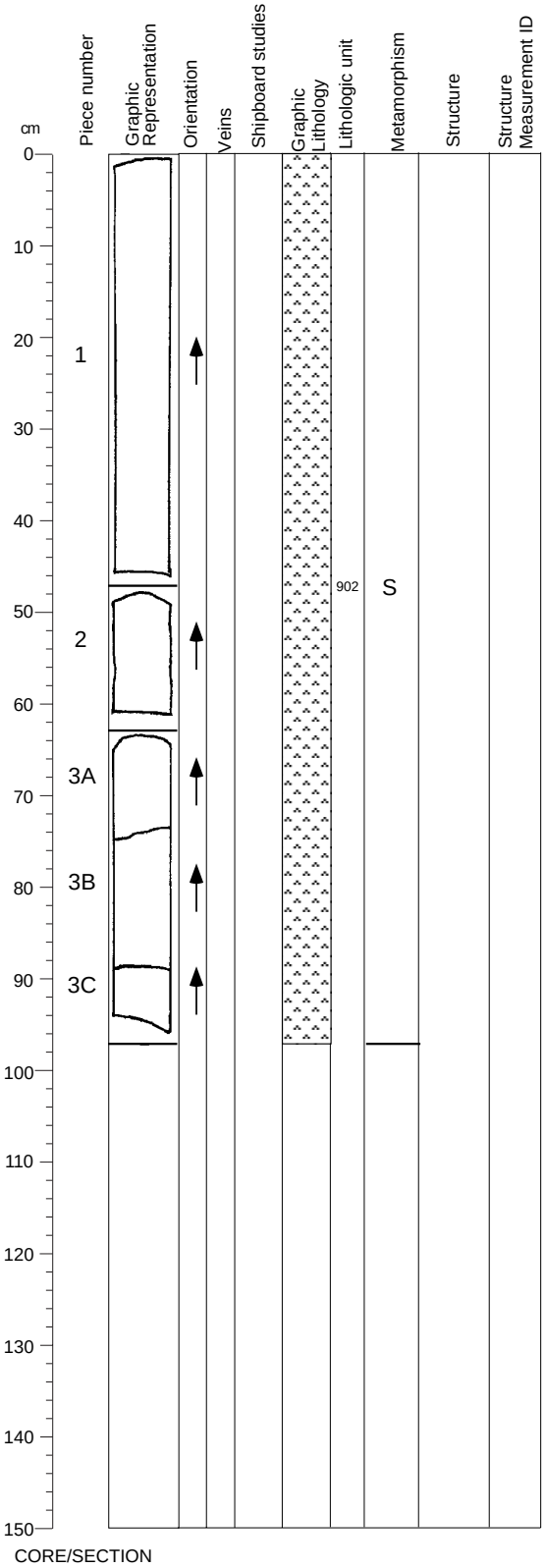
Interval 906: OLIVINE GABBRO
(see Section 176-735B-195R-5)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no or a weak magmatic foliation. Where present (7 cm to the bottom), the magmatic foliation dips around 50°.

Core Image



176-735B-196R-2

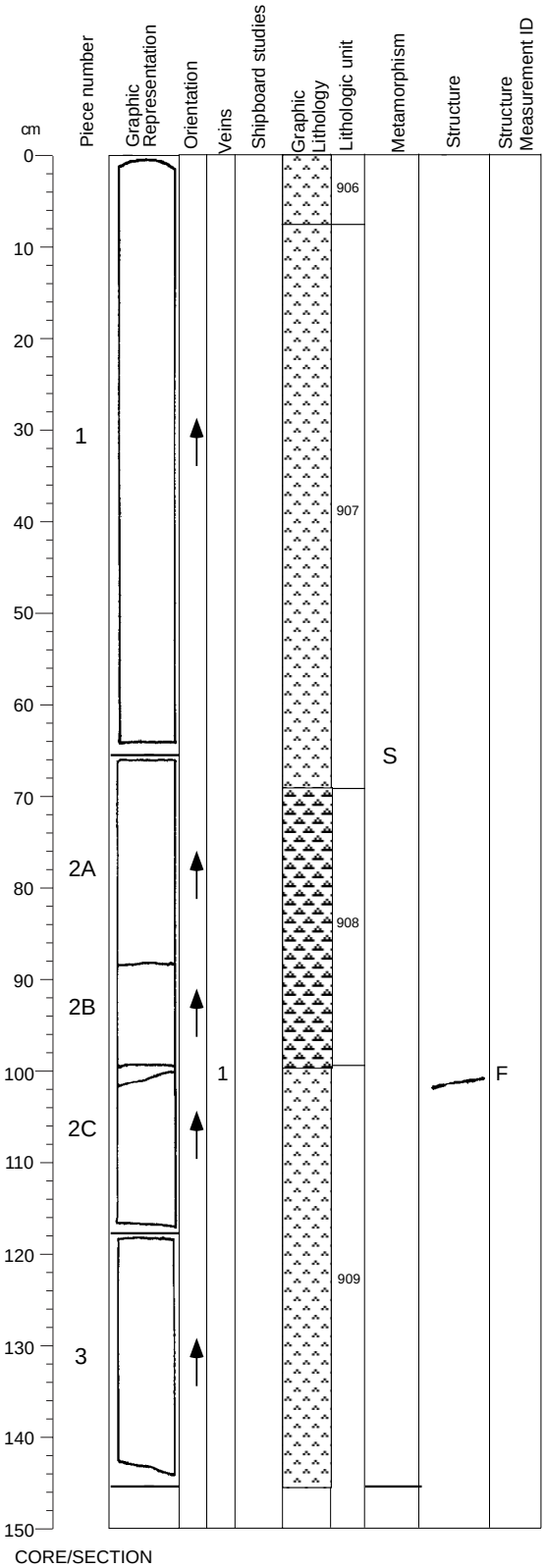
Interval 906: OLIVINE GABBRO
(see Section 176-735B-195R-5)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no or a weak magmatic foliation. Where present (0 to 16 cm), the magmatic foliation dips around 40°.

Core Image



176-735B-196R-3

Interval 906: OLIVINE GABBRO
(see Section 176-735B-195R-5)
Interval 907: TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	196	3	7	1	1375.78
Lower contact:	196	3	69	2A	1376.40

Thickness (m): 0.62

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	15	2	medium	tabular/ subhedral
Clinopyroxene	15	15	2	coarse	equant/ anhedral
Olivine	15	4	1	fine	elongate/ anhedral, subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Fine- to medium-grained olivine gabbro.

Interval 908: TROCTOLITIC MICROGABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	196	3	69	2A	1376.40
Lower contact:	196	3	99	2B	1376.70

Thickness (m): 0.30

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	45	2	0.5	fine	tabular/ anhedral subhedral
Clinopyroxene	10	1	n/a	coarse	equant/ anhedral
Olivine	35	3	1	fine	amoeboidal/ anhedral fractured
Opaques	0.3				amoeboidal aggregates/ disseminated
Total	90.3*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine

	Type	Distribution
Texture:	granular	N/A

Continued next page

Core Image

176-735B-196R-3 (cont'd)

Interval 909: TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	196	3	99	2B	1376.70
Lower contact:	197	1	5	2	1383.35

Thickness (m): 6.65

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	20	4	coarse	tabular/ subhedral
Clinopyroxene	10	15	3	coarse	equant/ anhedral
Olivine	15	20	2	coarse	elongate/ anhedral, subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	90.5*		(see explanatory notes)		

*Major phases estimated to ± 5%

Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Grain size variable from top to 44 cm in 196R-5 (coarse/medium-grained), 51 cm in 196R-5 (fine-grained), to 82 cm in 196R-5 (medium-grained), 89 cm in 196R-5 (fine-grained), to 115 cm in 196R-6 (coarse/medium-grained), to 136 cm in 196R-6 (coarse- grained), and to base (coarse/medium-grained). Locally intergranular texture. Leucocratic patches from 108 cm in 196R-3 to 35 cm in 196R-5. Locally clinopyroxene rich (up to 30%).

Alteration:
Dark green amphibole:
- Total Percent: <1
- Mode of occurrence: After pyroxene and olivine.
- Comments: As alteration rims.

Brown amphibole:
- Total Percent: trace
- Mode of occurrence: Along pyroxene cleavages, as rims.

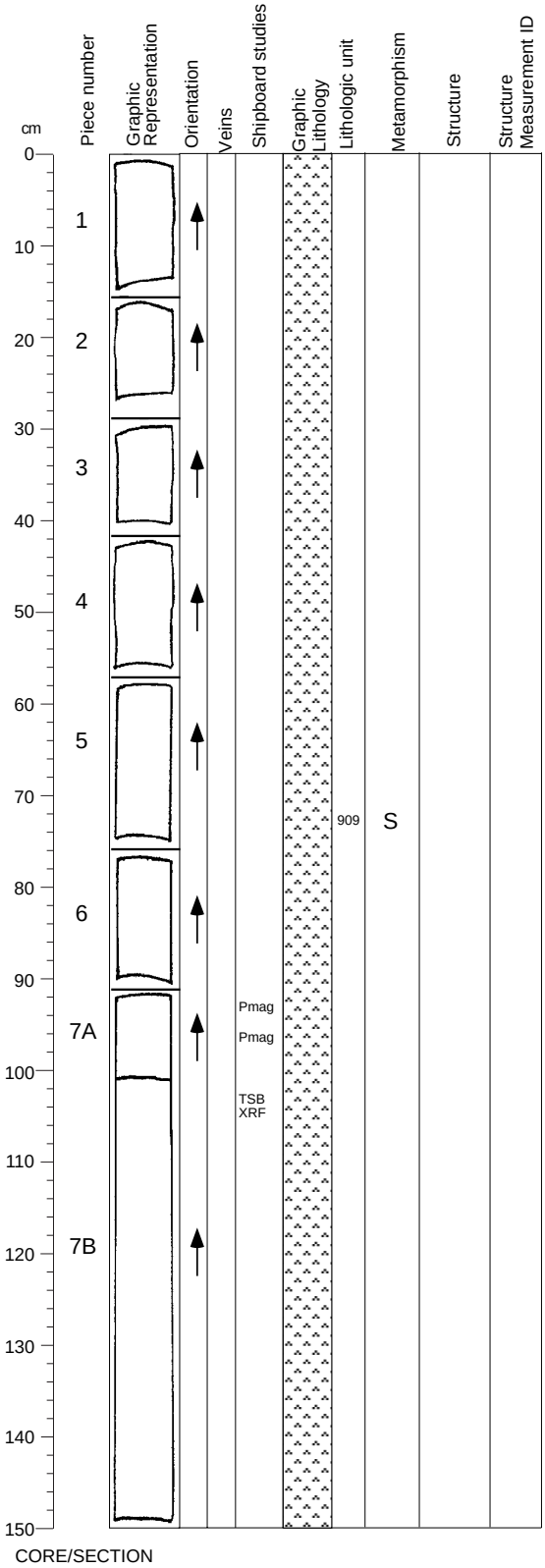
Secondary plagioclase:
- Total Percent: <2
- Mode of occurrence: Replacing primary plagioclase.
- Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Vein/Fracture Filling:
0.2 mm amphibole vein in Piece 2.

Structures:
Mf>F
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a fault at the top of Piece 2C.

Core Image



176-735B-196R-4

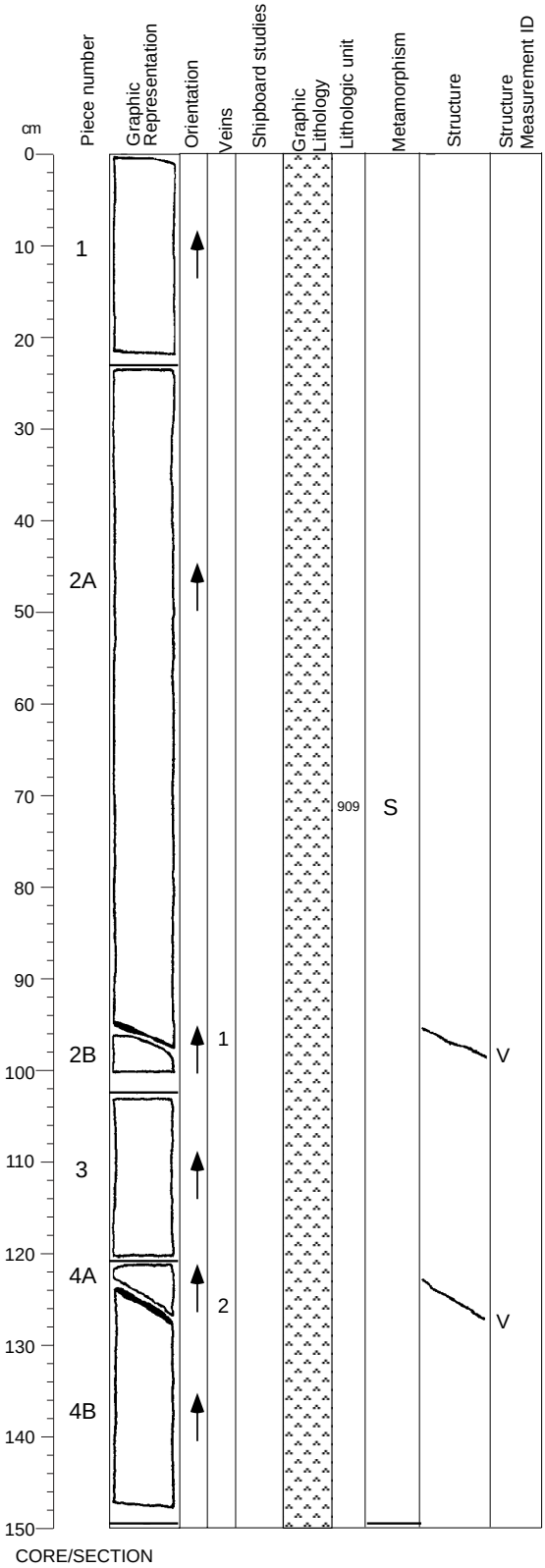
Interval 909: TROCTOLITIC GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: <1
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-196R-5

Interval 909: TROCTOLITIC GABBRO
(see Section 176-735B-196R-3)

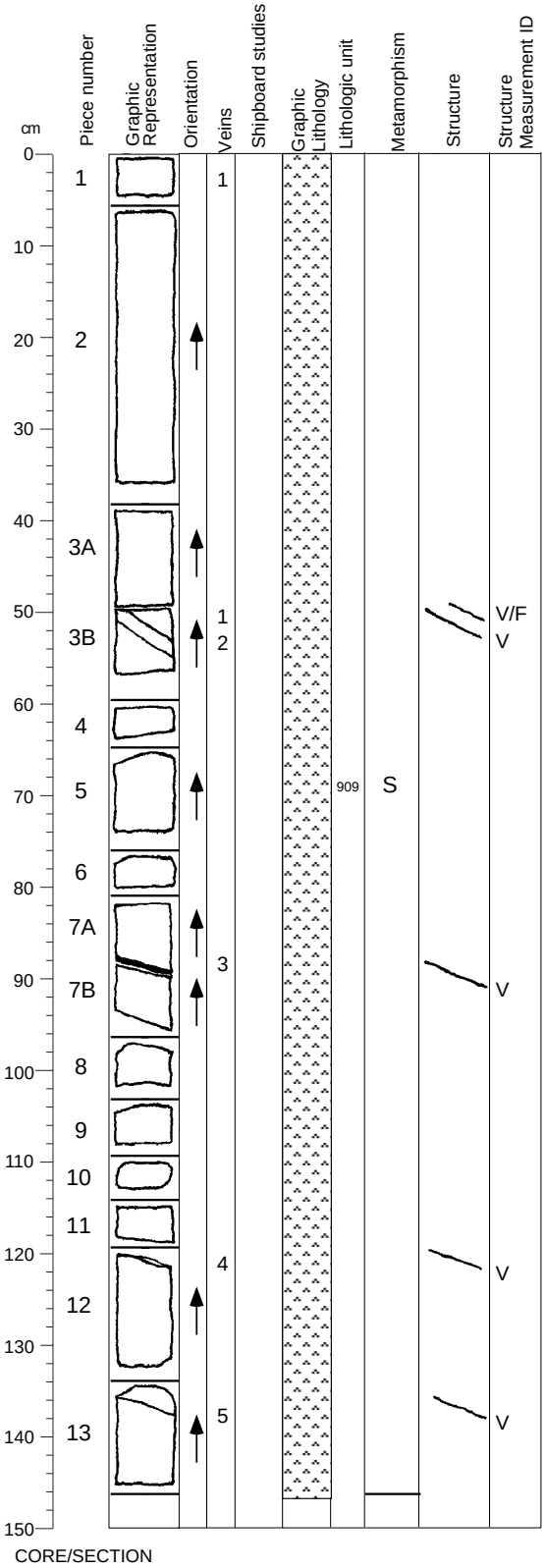
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (3%). 5% of the olivine is replaced by amphibole and rare smectite. Clinopyroxene is negligibly altered to amphibole. 3% of the plagioclase is recrystallized.

Vein/Fracture Filling:
1 mm smectite vein in Piece 2; 2 mm plagioclase vein in Piece 4.

Structures:
Mf>V
The section displays a fine- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins.

Core Image



176-735B-196R-6

Interval 909: TROCTOLITIC GABBRO
(see Section 176-735B-196R-3)

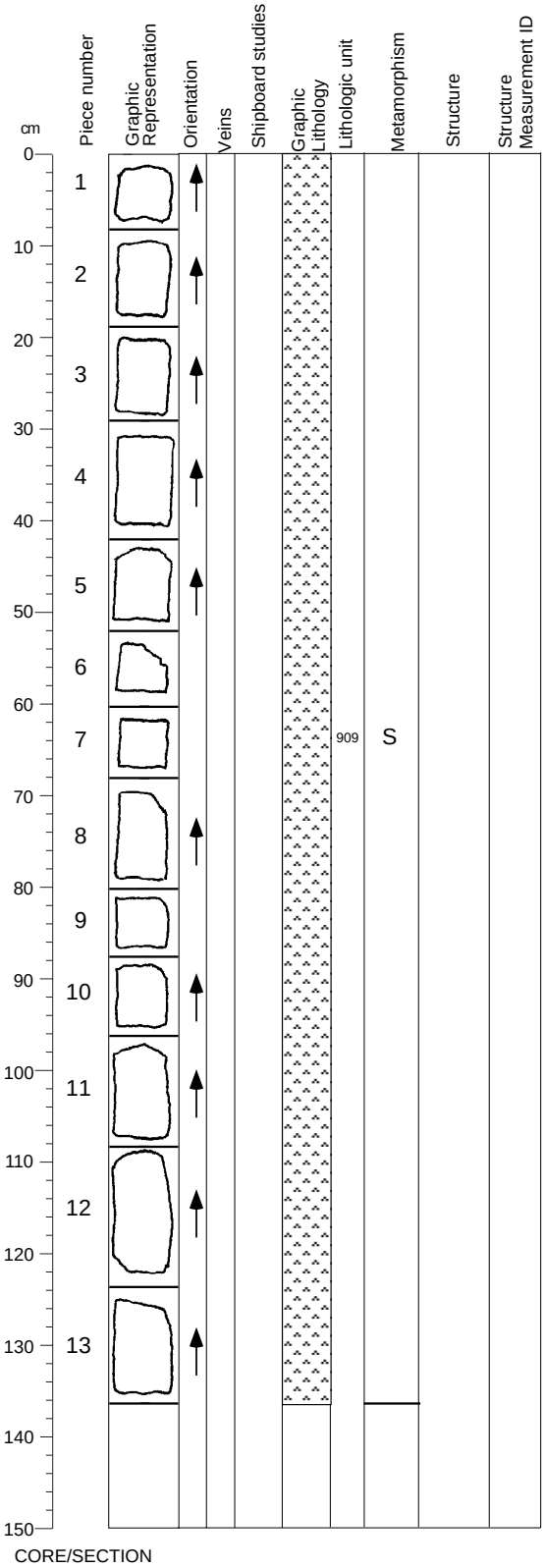
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (5%). 10% of the olivine is replaced by amphibole and smectite. Clinopyroxene is negligibly altered to amphibole. 3% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.3-1 mm smectite veins in Pieces 3, 12, and 13; 2 mm plagioclase veins in Pieces 2 and 7.

Structures:
Mf>V>F
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins. A vein in Piece 3B grades into a fault.

Core Image



176-735B-196R-7

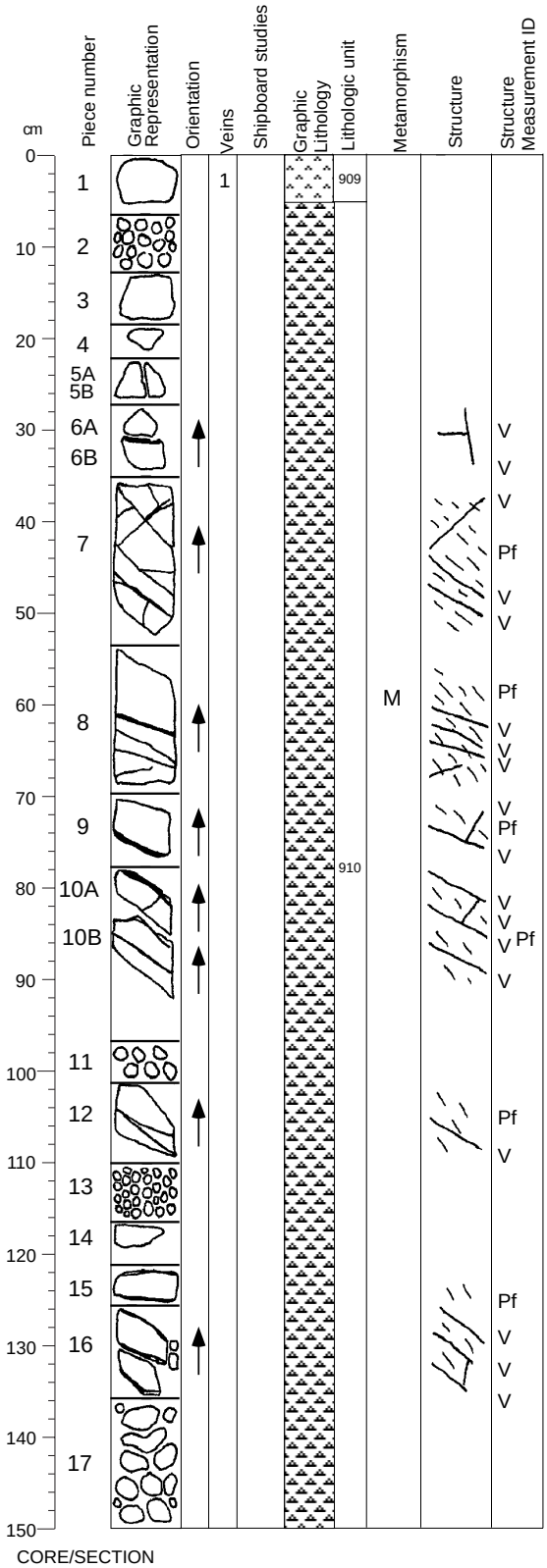
Interval 909: TROCTOLITIC GABBRO
(see Section 176-735B-196R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: <1
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <3
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (4%). 8% of the olivine is replaced by amphibole and rare smectite. Clinopyroxene is negligibly altered to amphibole. 3% of the plagioclase is recrystallized.

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-197R-1

Interval 909: TROCTOLITIC GABBRO
(see Section 176-735B-196R-3)
Interval 910: OXIDE OLIVINE MICROGABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	197	1	5	2	1383.35
Lower contact:	197	3	91	5A	1387.21

Thickness (m): 3.86

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	2	0.5	fine	tabular/ subhedral, anhedral
Clinopyroxene	25	10	1	medium	equant/ anhedral
Olivine	20	3	1	fine	amoeboidal/ anhedral
Opaques	3				amoeboidal aggregates/ disseminated
Total	108*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine

	Type	Distribution
Texture:	granular	N/A

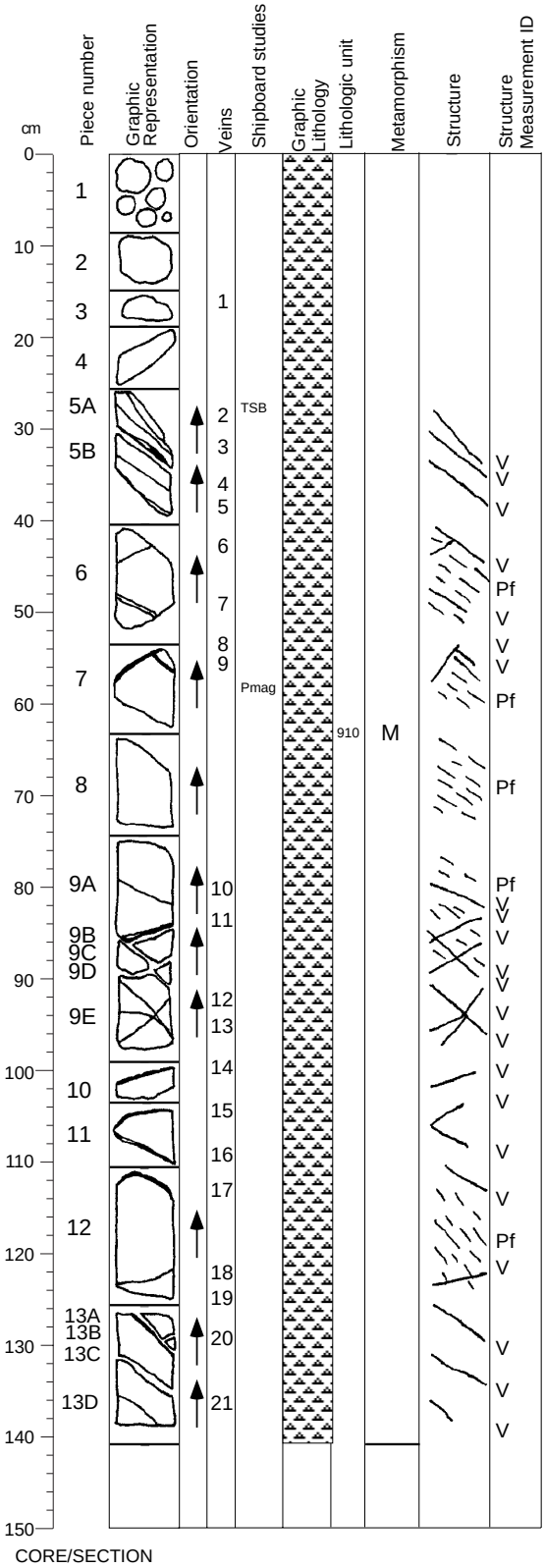
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <12
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <8
Mode of occurrence: Dark green after olivine and some pyroxene, and pale green after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: moderate (20%). 20% of the olivine is replaced by amphibole and smectite. Clinopyroxene is significantly altered to amphibole and smectite along veins (10%). 30% of the plagioclase is recrystallized.

Vein/Fracture Filling:
Smectite vein net in Pieces 1-13, comprised of 5% smectite.

Structures:
Mf>V; Mf>Pf>V
Most of the section displays a crystal-plastic foliation, strong from 35 to 68 cm, and weak from 70 cm to the bottom of the section. The plastic foliation overprints a weak to moderate magmatic foliation from 35 to 107 cm. An extensive network of veins cuts the previous fabrics.

Core Image



176-735B-197R-2

Interval 910: OXIDE OLIVINE MICROGABBRO
(see previous section)

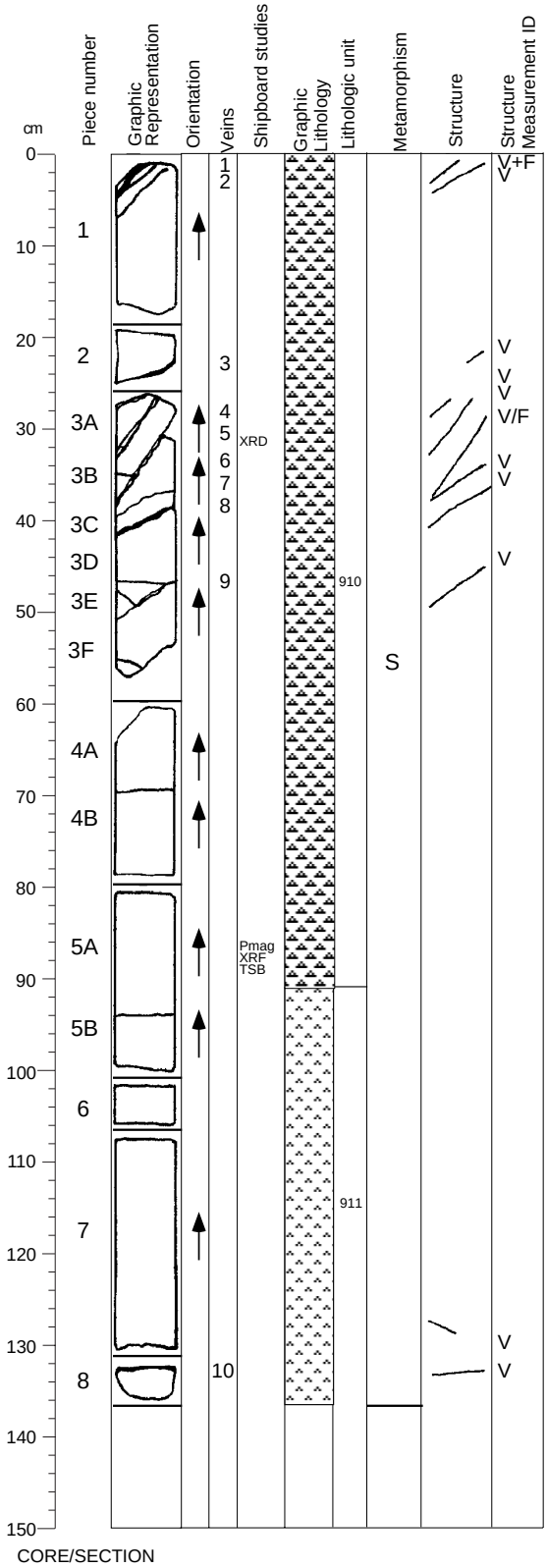
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <7
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <6
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: moderate (12%). 18% of the olivine is replaced by amphibole and smectite. Clinopyroxene is weakly altered to amphibole and smectite along veins (10%). 30% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.2-1 mm smectite veins in Pieces 3, 5 to 7, 9, and 11 to 13; 0.2-1 mm plagioclase veins in Pieces 6, 7, 9, and 10.

Structures:
Mf>Pf>V>F
Most of the section displays a crystal-plastic foliation overprinting no or a weak magmatic foliation and cut by an extensive network of veins and faults (visible in non-oriented samples). The plastic foliation ranges from weak (74-88 cm, 110-114 cm, 121-124 cm) to strong (40-72 cm, 114-121 cm).

Core Image



176-735B-197R-3

Interval 910: OXIDE OLIVINE MICROGABBRO
(see Section 176-735B-197R-1)
Interval 911: TROCTOLITIC GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	197	3	91	5A	?
Lower contact:	198	1	8	2	1386.50

Thickness (m): ?

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	10	2	medium	tabular/ subhedral
Clinopyroxene	15	20	1	coarse	equant/ anhedral
Olivine	15	4	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

*Major phases estimated to ± 5%

Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

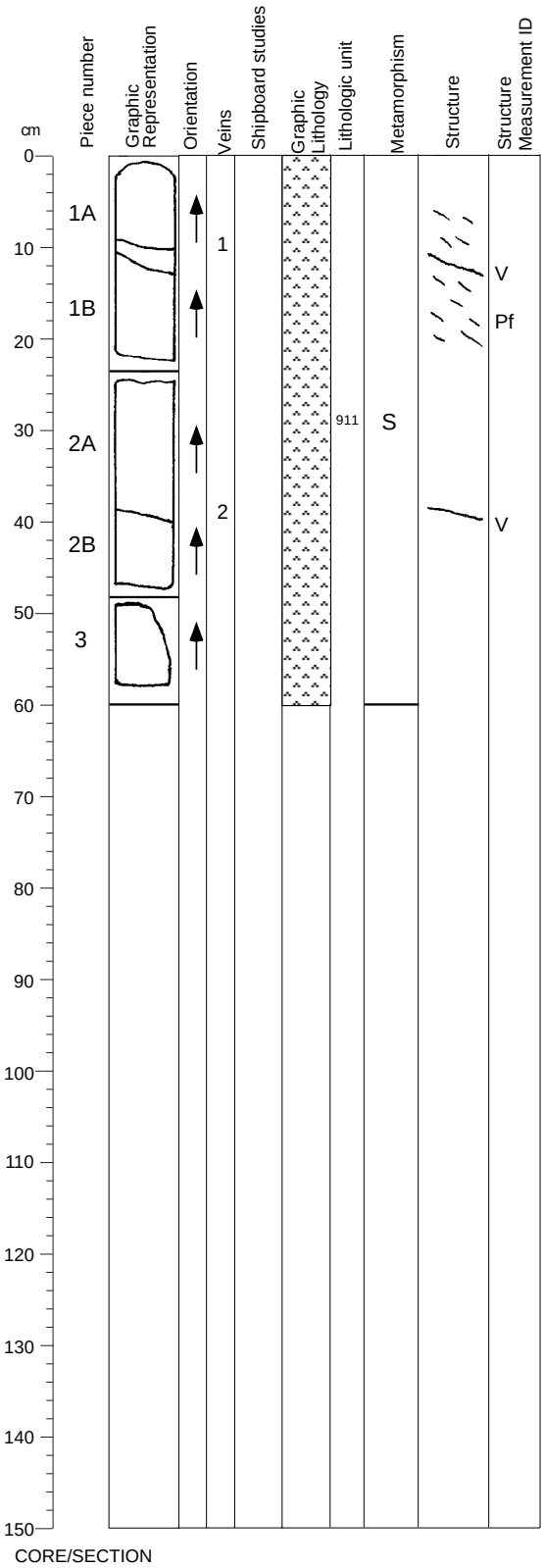
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <4
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (8%). 10% of the olivine is replaced by amphibole and smectite. Clinopyroxene is weakly altered to amphibole (5%). 10% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.2-1 mm smectite veins in Pieces 1 and 3; 0.5-2 mm zeolite veins in Pieces 1, 2, 3, and 8.

Structures:
Mf>V>F
The section, except for Piece 8, displays a fine- to medium-grained texture with a moderate magmatic foliation, regularly dipping 40° (the foliation is weaker below 106 cm). The magmatic foliation is cut by numerous veins in Pieces 1A to 3F; some veins grade into faults. The fault in Piece 3A to 3B is reverse. In Pieces 1A and 1B, the magmatic foliation is oblique to a weak layering (1 to a few cm thick, dipping 25-30°).

Core Image



176-735B-197R-4

Interval 911: TROCTOLITIC GABBRO
(see previous section)

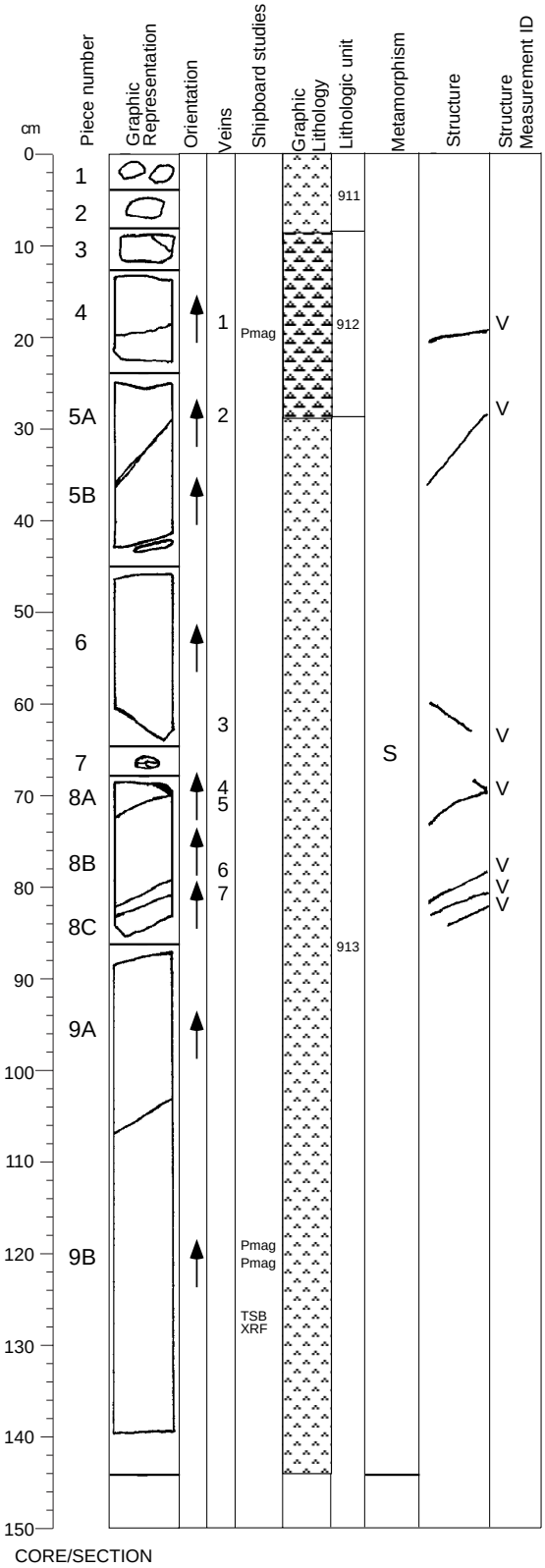
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (4%). 5% of the olivine is replaced by amphibole and smectite. Clinopyroxene is weakly altered to amphibole (4%). 4% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.2-0.5 mm smectite veins in Pieces 1 to 2.

Structures:
Mf>Pf>V; Mf>V
The entire section displays a medium-grained igneous texture with a weak magmatic foliation dipping 35°. From 5 to 20 cm, the magmatic fabric is overprinted by a weak, parallel crystal-plastic foliation. A few veins cut the previous fabrics.

Core Image



176-735B-198R-1

Interval 911: TROCTOLITIC GABBRO
(see Section 176-735B-197R-3)
Interval 912: MICROTROCTOLITE

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	198	1	8	2	1386.48
Lower contact:	198	1	29	5A	1386.69

Thickness (m):0.21

	Grain Size (mm): Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	2	N/A	fine	tabular/ subhedral anhedral
Clinopyroxene	2	1	N/A	fine	equant/ anhedral
Olivine	30	2	1	fine	elongate/ anhedral subhedral
Opaque	0.2				amoeboidal aggregates/ disseminated

Total 97.2* (see explanatory notes)
*Major phases estimated to ± 5%)
Grain Size: Fine

	Type	Distribution
Texture:	granular	N/A

Comments: Felsic veinlets containing oxides present.

Interval 913: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	198	1	29	5A	1386.69
Lower contact:	198	2	2	1	1387.85

Thickness (m): 1.16

	Grain Size (mm): Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	20	3	coarse	tabular/ subhedral
Clinopyroxene	25	15	1	coarse	equant/ anhedral
Olivine	12	3	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated

Total 92.5* (see explanatory notes)
*Major phases estimated to ± 5%
Grain Size: Medium

	Type	Distribution
Texture:	granular	N/A

Comments: Locally finer-grained with apparent "layering" at 72-78 cm in 198R-1.

Continued next page

Core Image

176-735B-198R-1 (cont'd)

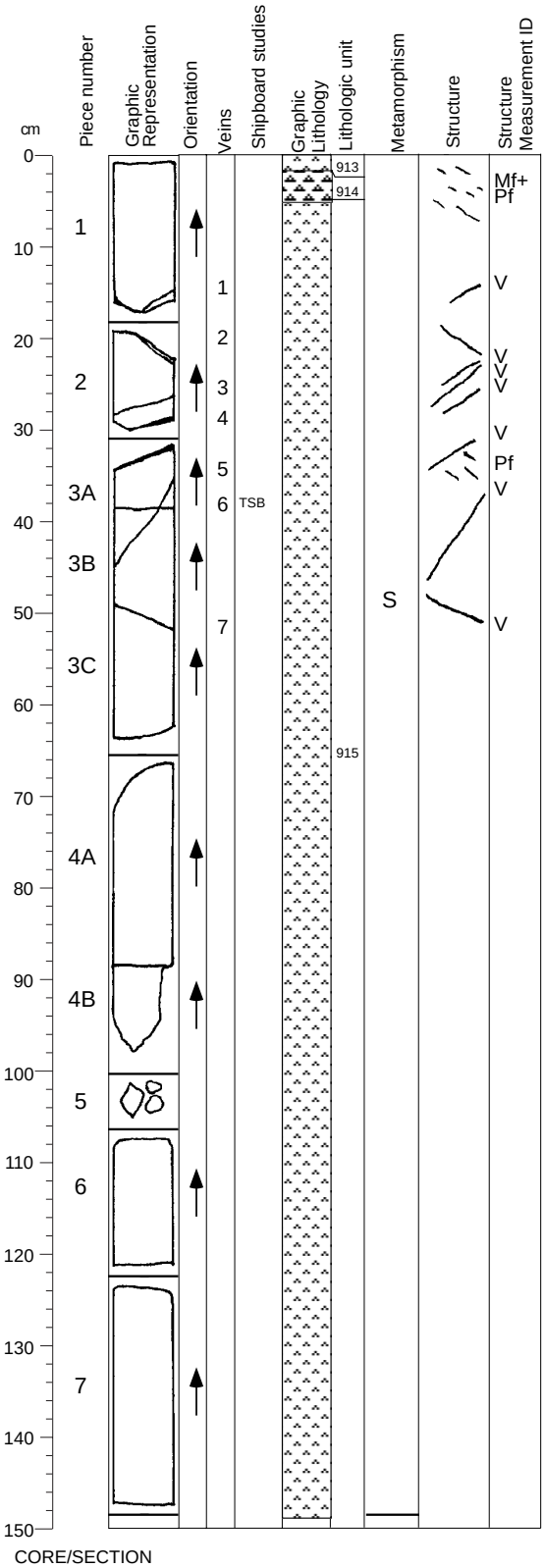
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (4%). 10% of the olivine is replaced by amphibole and smectite. Clinopyroxene is negligibly altered to amphibole (1%). 4% of the plagioclase is recrystallized and replaced by smectite along veins (particularly in Piece 7).

Vein/Fracture Filling:
0.3 mm smectite vein in Piece 6; 0.5 mm plagioclase vein in Piece 4; 0.5-1.5 mm zeolite veins in Pieces 5, 7, and 8.

Structures:
MF>V; Mf>Pf
Most of the section displays a fine- to medium-grained igneous texture with no or a weak magmatic foliation, cut by a few veins in Pieces 4 to 8C. Where present (30 to 82 cm, 106 cm to the bottom of the section), the magmatic foliation dips around 35-40°. A fine-grained interval is present at the top of the section (Pieces 3, 4 and 5A, above 30 cm); with locally a weak magmatic foliation, which is difficult to measure. A weak crystal-plastic foliation overprints the magmatic foliation in Piece 9B, from 110 cm to the bottom.

Core Image



176-735B-198R-2

Interval 913: OLIVINE GABBRO
(see previous section)

Interval 914: TROCTOLITIC MICROGABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	198	2	2	1	1387.85
Lower contact:	198	2	5	1	1387.88

Thickness (m): 0.03

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	3	N/A	fine	tabular/ subhedral, anhedral
Clinopyroxene	10	1	N/A	fine	equant/ anhedral
Olivine	25	2	1	fine	amoeboidal/ anhedral
Opaques	0.3				amoeboidal aggregates/ disseminated
Total	100.3*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine

	Type	Distribution
Texture:	granular	N/A

Interval 915: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	198	2	5	1	1387.88
Lower contact:	199	6	22	2	1399.85

Thickness (m): 11.97

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	35	8	coarse	tabular/ subhedral
Clinopyroxene	35	25	1	coarse	equant/ anhedral
Olivine	15	20	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Grain size variable: from top to 0 cm in 198R-3 (medium-grained with a finer band associaed with a shear zone), to 10 cm in 198R-3 (coarse-grained), to 23 cm in 198R-3 (medium-grained), to 56 cm in 198R-3 (coarse/medium-grained), to 78 cm in 198R-3 (medium-grained), to 102 cm in 198R-3 (coarse-grained), to 123 cm in 198R-3 (medium-grained), 9 cm in 198R-4 (coarse-grained), 43 cm in 198R-4 (medium-grained), 71 cm in 198R-4 (fine/medium-grained), 86 cm in 198R-4 (coarse-grained), 55 cm in 198R-5 (medium-grained), to 13 cm in 199R-1 (coarse-grained), 43 cm in 199R-1 (medium/coarse-grained), 54 cm in 199R-1 (coarse-grained), 64 cm in 199R-1 (medium/coarse-grained), 92 cm in 199R-1 very coarse-grained), 13 cm in 199R-2 (medium-grained).

Continued next page

Core Image

176-735B-198R-2 (cont'd)

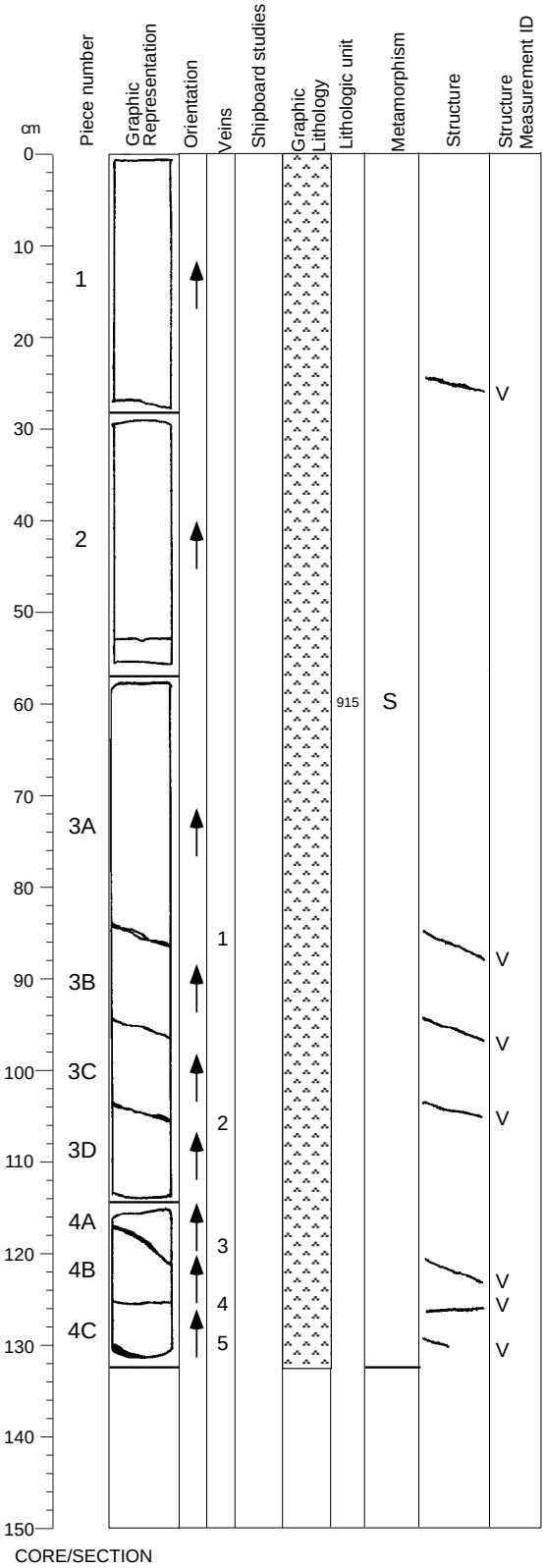
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). 8% of the olivine is replaced by amphibole and smectite. Clinopyroxene is negligibly altered to amphibole (1%). 2% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.5-1 mm smectite veins in Pieces 1-3; 0.6-1 mm zeolite veins in Pieces 2 and 3.

Structures:
MF>V; Mf>Pf
Most of the section displays a fine- to medium-grained igneous texture with no or a weak magmatic foliation, cut by veins in Pieces 1 to 3B. At the top of the section (Piece 1), a small interval of fine-grained gabbro is present and has a weak to moderate magmatic foliation (dips around 15°), overprinted by a weak crystal-plastic foliation. A weak magmatic foliation is also present from 34 to 50 cm, in both the medium- and the fine-grained gabbros; the bottom contact between the fine- and the medium-grained materials here is more diffuse than in Piece 1. A weak crystal-plastic foliation overprints the magmatic foliation between 34 and 38 cm.

Core Image



176-735B-198R-3

Interval 915: OLIVINE GABBRO
(see previous section)

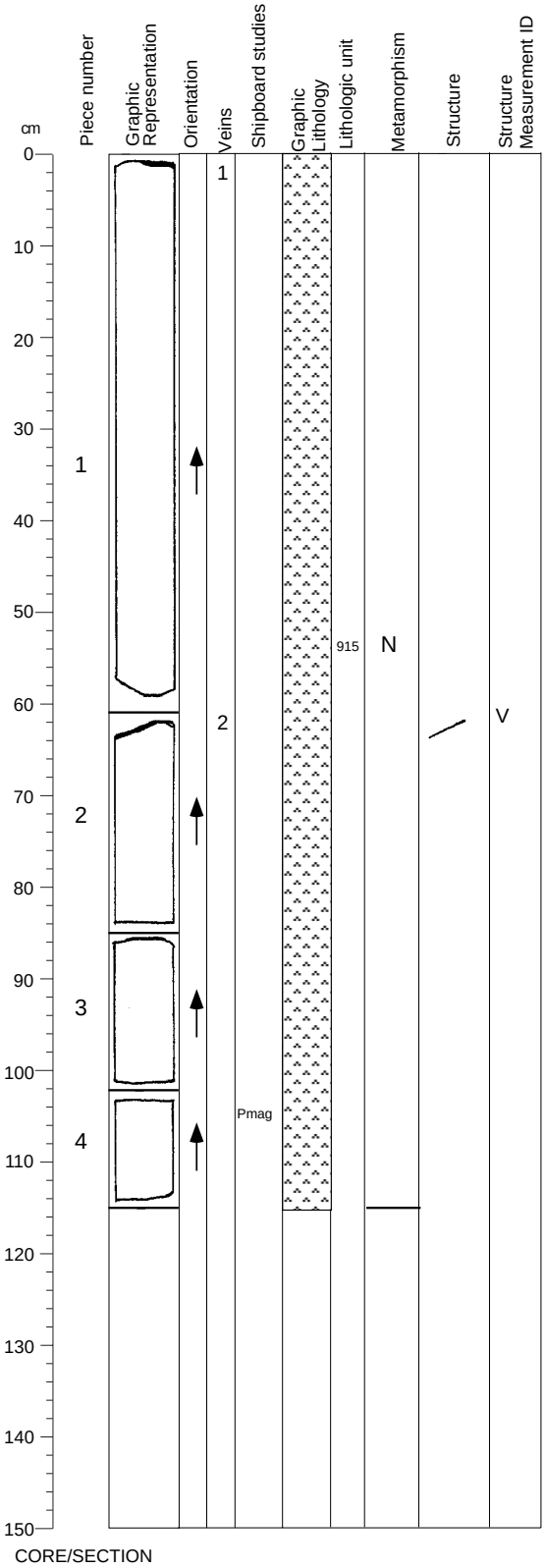
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Vein/Fracture Filling:
0.3-0.5 mm smectite veins in Pieces 3 and 4; 0.5 mm zeolite veins in Piece 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A few veins cut the igneous texture over the entire section.

Core Image



176-735B-198R-4

Interval 915: OLIVINE GABBRO
(see Section 176-735B-198R-2)

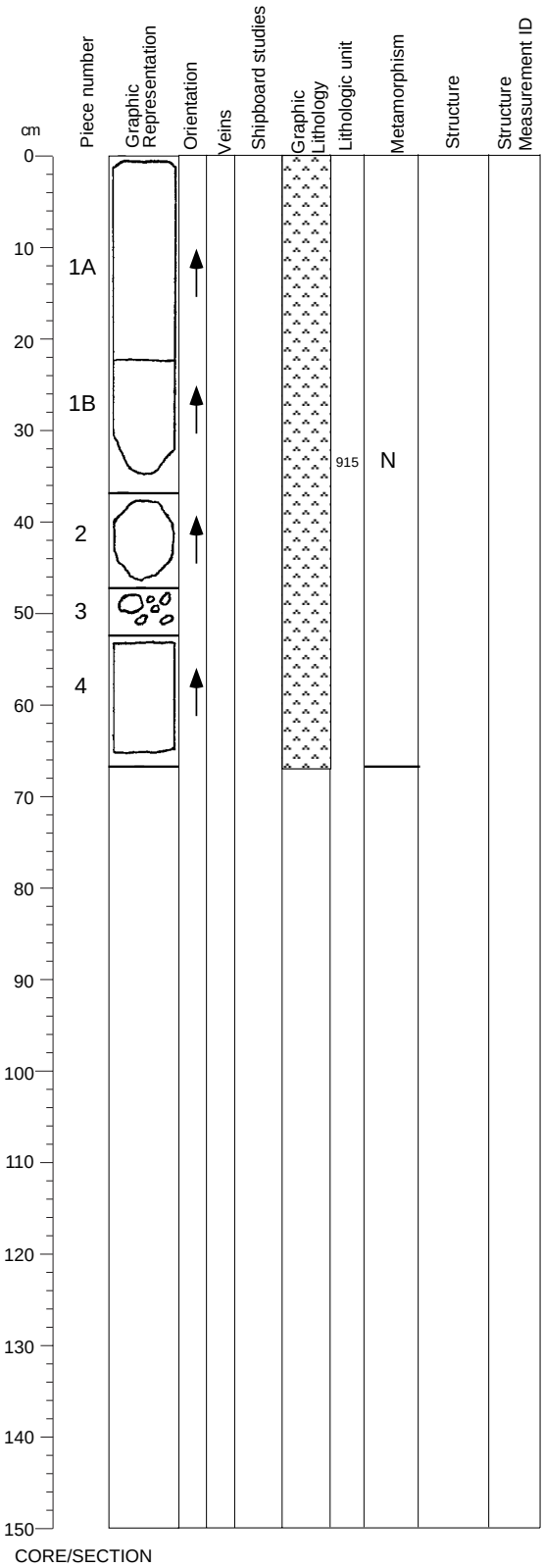
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.8-1 mm zeolite veins in Pieces 1 and 2.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a vein at the top of Piece 2.

Core Image



176-735B-198R-5

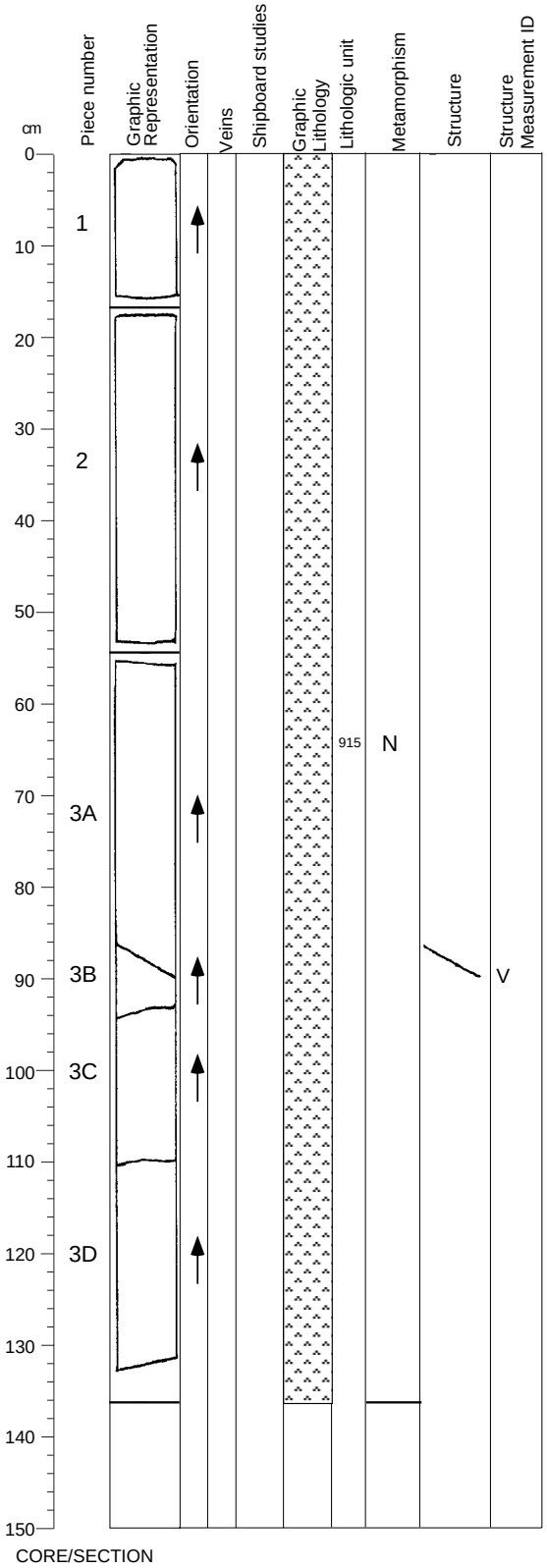
Interval 915: OLIVINE GABBRO
(see Section 176-735B-198R-2)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-199R-1

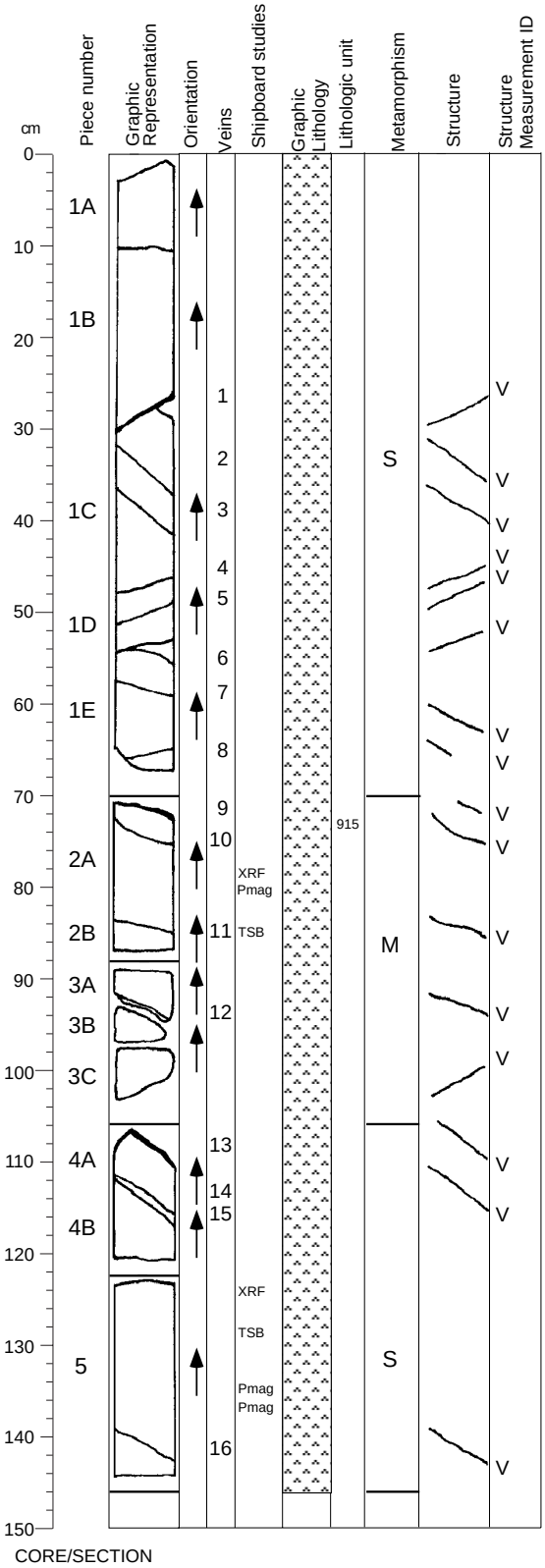
Interval 915: OLIVINE GABBRO
(see Section 176-735B-198R-2)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a vein at the boundary between Pieces 3A and 3B.

Core Image



176-735B-199R-2

Interval 915: OLIVINE GABBRO
(see Section 176-735B-198R-2)

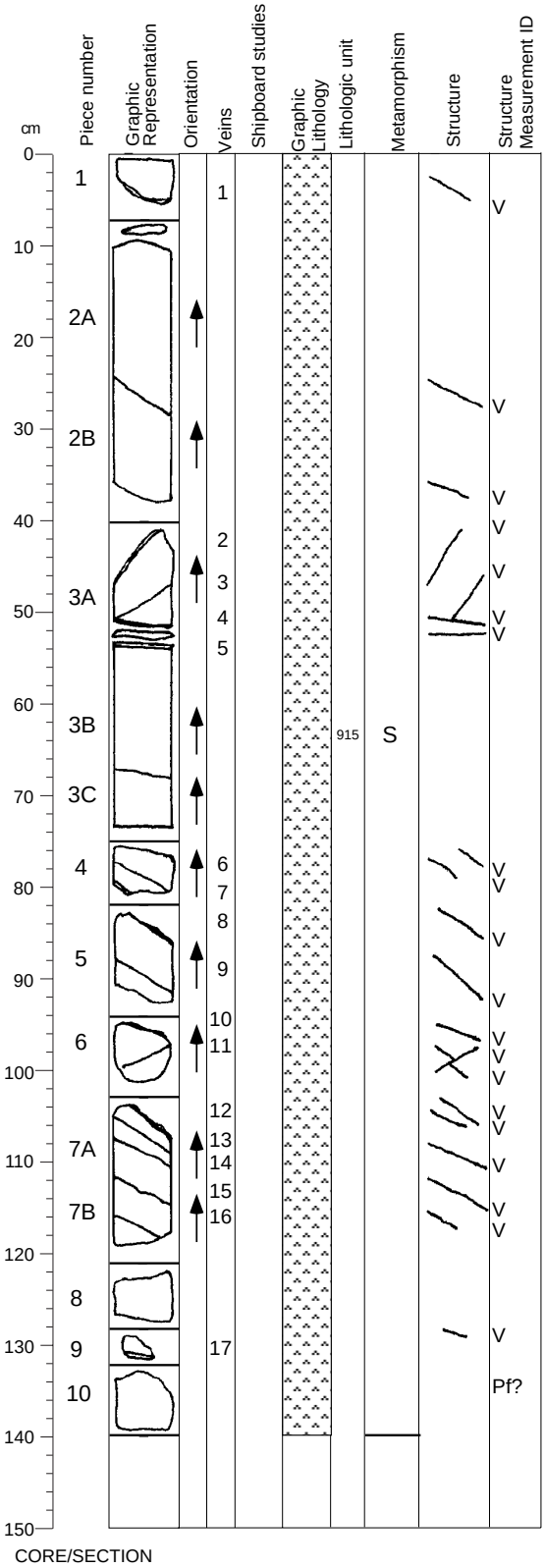
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <8
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight to moderate (3 to 20%). Pieces 1 and 4 to 5: 8% of the olivine is replaced by amphibole and smectite. Clinopyroxene and plagioclase are negligibly altered (1%). Pieces 2 to 3: 50% of the olivine is altered to smectite and amphibole. Some clinopyroxene is also altered to smectite (3%). Plagioclase is significantly replaced by smectite (18%).

Vein/Fracture Filling:
0.2-1 mm smectite veins in Pieces 1 to 5; 1.5 mm smectite+zeolite vein in Piece 3.

Structures:
Mf>V>F
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A series of veins cut the igneous texture over the entire section. The vein at the boundary between Pieces 3A and 3B grades into a fault.

Core Image



176-735B-199R-3

Interval 915: OLIVINE GABBRO
(see Section 176-735B-198R-2)

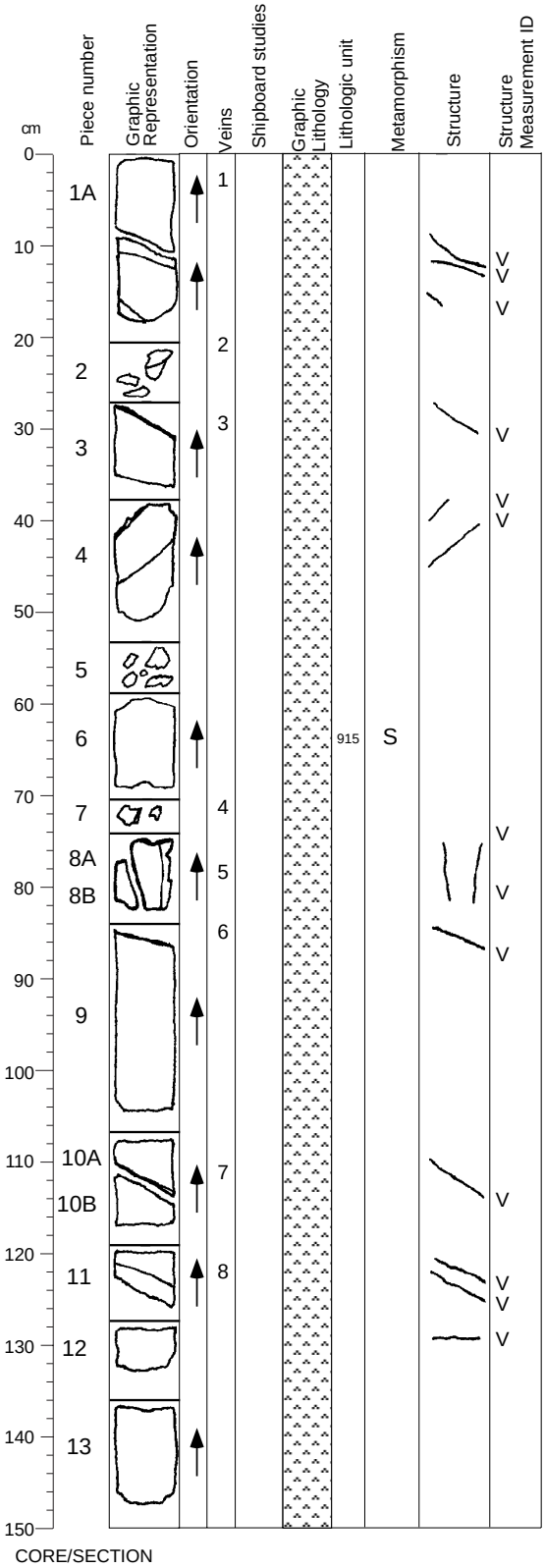
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Scattered spots.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (4%). 10% of the olivine is replaced by smectite and amphibole. Clinopyroxene is negligibly altered (1%). 4% of the plagioclase is recrystallized and altered to smectite.

Vein/Fracture Filling:
0.4-1 mm smectite veins in Pieces 1, 3 to 7, and 9.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A series of veins cut the igneous texture over the entire section. A weak, poorly defined, crystal-plastic foliation possibly overprints the igneous texture in Piece 10, at the bottom of the section.

Core Image



176-735B-199R-4

Interval 915: OLIVINE GABBRO
(see Section 176-735B-198R-2)

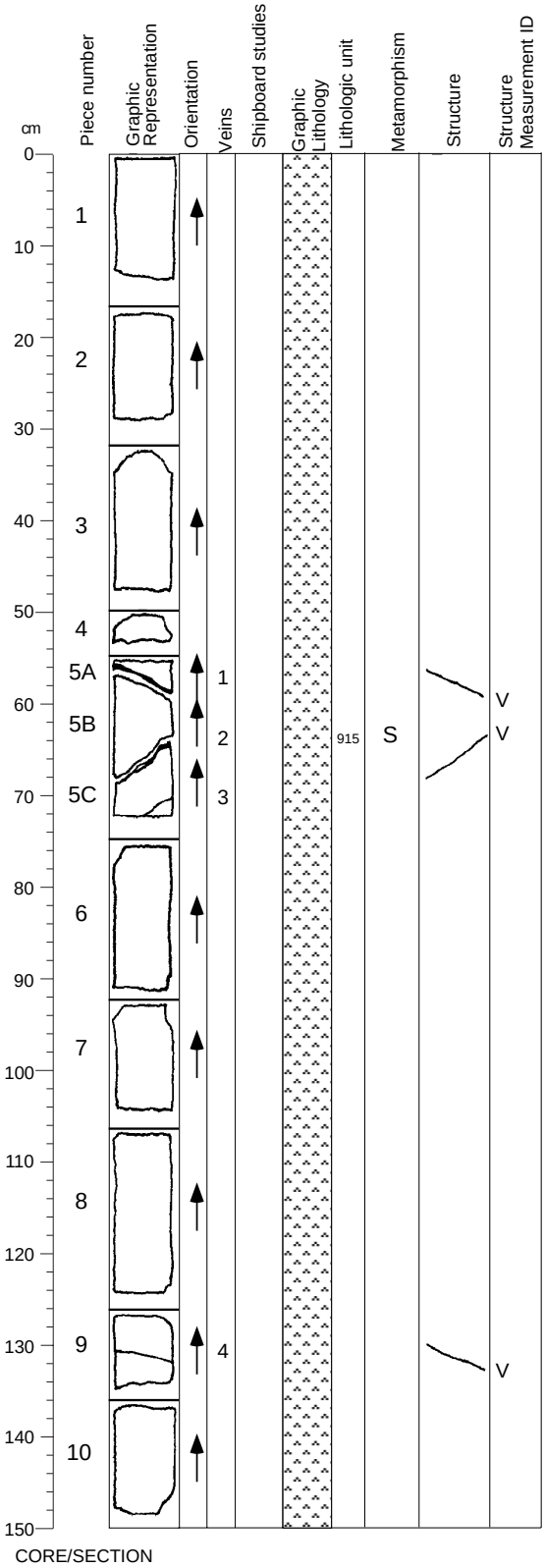
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Dispersed spots.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (5%). 15% of the olivine is replaced by smectite and amphibole. Clinopyroxene is negligibly altered (1%). 3% of the plagioclase is recrystallized and altered to smectite.

Vein/Fracture Filling:
0.2-0.5 mm zeolite veins in Pieces 1 and 3; 0.3-1 mm smectite veins in Pieces 2, 4, and 7 to 11.

Structures:
Mf>V; Mf>Pf?>V
The sections displays a medium- to coarse-grained igneous texture with no or a weak magmatic foliation. Where present (0 to 36 cm), the magmatic foliation is difficult to measure, dipping between 35 and 50°. A weak crystal-plastic foliation possibly overprints the magmatic foliation between 28 and 32 cm. A series of veins cut the previous fabrics over the entire section.

Core Image



176-735B-199R-5

Interval 915: OLIVINE GABBRO
(see Section 176-735B-198R-2)

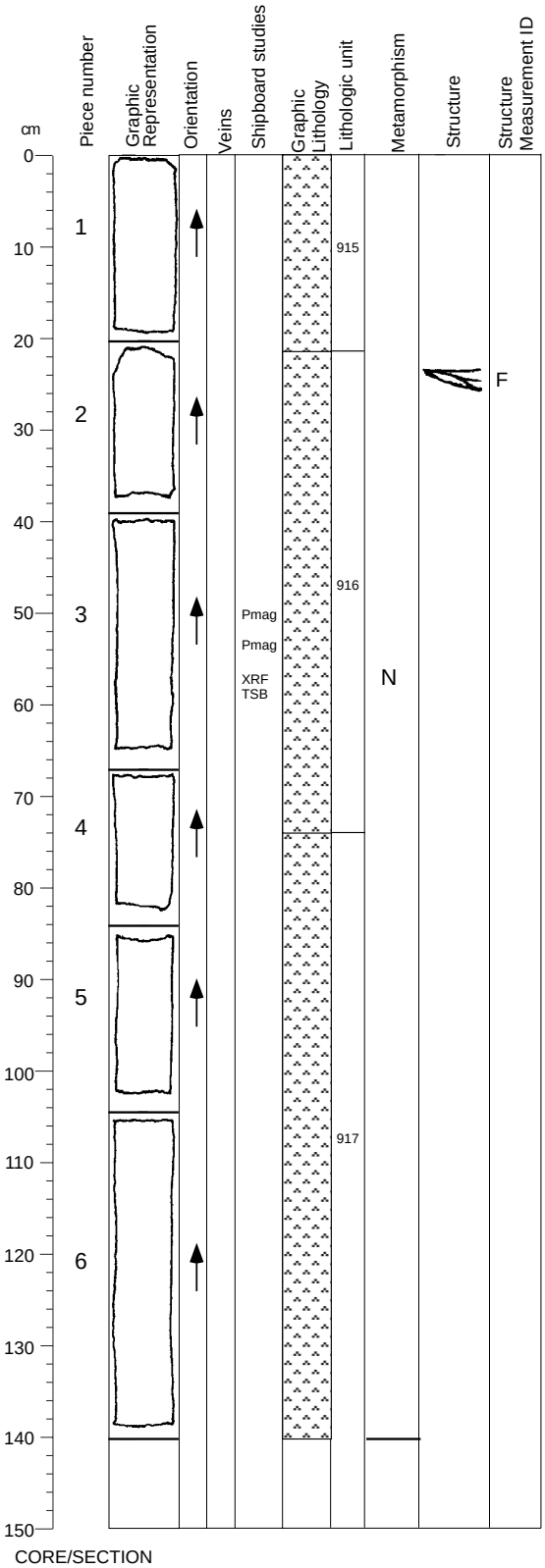
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Dispersed spots.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green after olivine.
Comments: Near smectite veins.

Background Alteration:
Degree of alteration: slight (3%). 10% of the olivine is replaced by smectite and amphibole. Clinopyroxene and plagioclase are negligibly altered (1%).

Vein/Fracture Filling:
0.2-1 mm smectite veins in Pieces 5 and 9.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins in Pieces 5A, 5B, 5C, and 9.

Core Image



176-735B-199R-6

Interval 915: OLIVINE GABBRO
(see Section 176-735B-198R-2)
Interval 916: TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	199	6	22	2	1399.85
Lower contact:	199	6	74	4	1400.37

Thickness (m): 0.52

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	10	3	coarse	tabular/ subhedral anhedral
Clinopyroxene	10	10	3	coarse	equant/ anhedral
Olivine	30	4	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse

	Type	Distribution
Texture:	granular	N/A

Interval 917: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	199	6	74	4	1400.37
Lower contact:	200	1	11	2	1402.11

Thickness (m): 1.74

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	25	5	coarse	tabular/ subhedral
Clinopyroxene	35	25	2	coarse	equant/ anhedral
Olivine	15	20	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

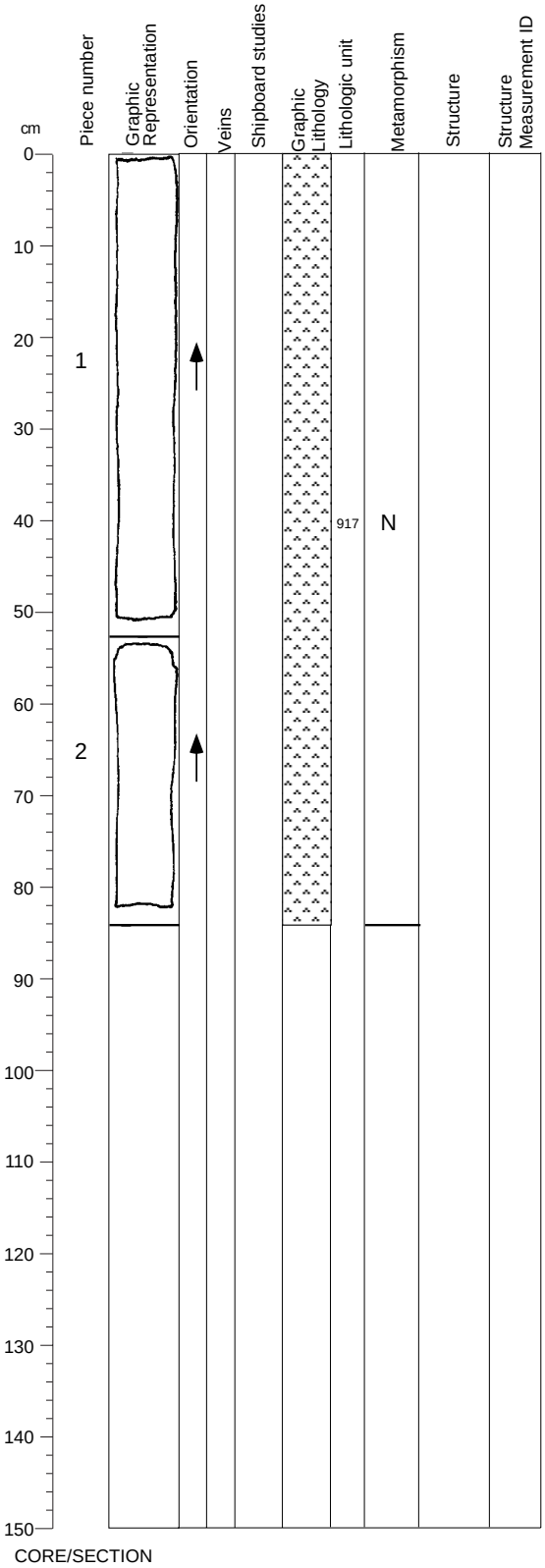
Comments: From top to 95 cm in 199R-6 (very coarse/pegmatitic grained), to 124 cm in 199R-6 (coarse-grained; finer at 96 cm), to 24 cm in 199R-7 (fine/medium-grained), to base (medium/coarse-grained). Oxide locally present at 54-678 cm in 199R-7. Sulfide abundant in upper part of the interval.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf>F
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, overprinted by a narrow network of faults at the top of Piece 2 (22-23 cm).

Core Image



176-735B-199R-7

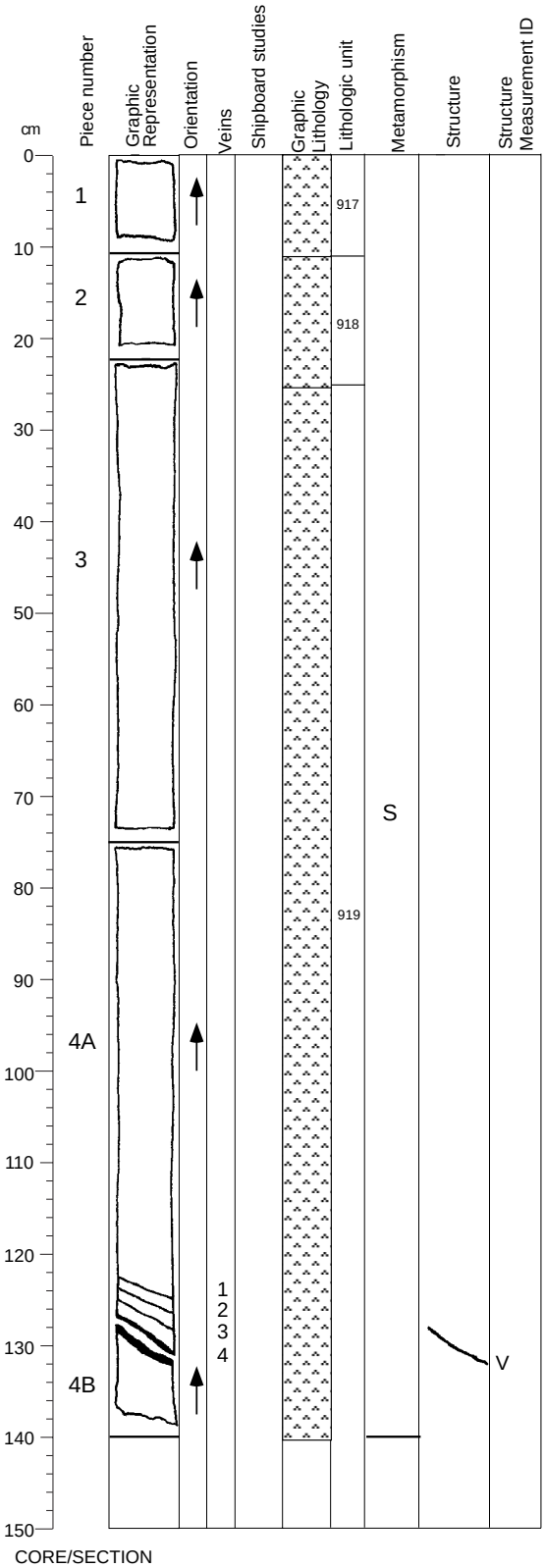
Interval 917: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent:trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-200R-1

Interval 917: OLIVINE GABBRO
(see previous section)

Interval 918: TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	200	1	11	2	1402.11
Lower contact:	200	1	25	3	1402.25

Thickness (m): 0.14

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	10	3	coarse	tabular/ subhedral
Clinopyroxene	10	12	5	coarse	equant/ anhedral
Olivine	30	8	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse

	Type	Distribution
Texture:	granular	N/A

Interval 919: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	200	1	25	3	1402.25
Lower contact:	202	7	80	1E	1430.11

Thickness (m): 27.86

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	40	4	coarse	tabular/ subhedral
Clinopyroxene	30	25	3	coarse	equant/ anhedral
Olivine	15	20	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	100.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable

	Type	Distribution
Texture:	granular	N/A

Comments: Grain size variable: from top to 50 cm in 200R-2 (equigranular texture; medium-grained, locally coarser), 0 cm in 200R-5 (coarse-grained), 33 cm in 200R-2 (very coarse-grained), 100 cm in 200R-5 (coarse-grained), to 0 cm in 200R-6 (very coarse-grained), to 40 cm in 200R-7 (fine/medium-grained), to 62 cm in 200R-8 (very coarse-grained), to 28 cm in 201R-1 (fine/medium-grained, locally coarser), to 43 cm in 201R-1 (very coarse-grained), to 105 cm in 201R-1 (medium/coarse-grained), to 115 cm in 201R-1 (fine-grained), to 34 cm in 201R-3 (coarse/medium-grained), to 42 cm in 201R-3 (fine-grained), to 19 cm in 201R-4 (coarse/medium-grained), to 48 cm in plagioclase recrystallized), to 0 cm in 202R-7 (medium-grained), and to base (medium/coarse-grained). Oxide locally present at 100-102 cm in 201R-7. Sulfide present at 41 cm and 105 cm in 200R-5; 99cm in 201R-7.

Continued next page

Core Image

176-735B-200R-1 (cont'd)

Alteration:
Dark green amphibole:
- Total Percent: <1
- Mode of occurrence: After pyroxene and olivine.
- Comments: As alteration rims.

Brown amphibole:
- Total Percent: trace
- Mode of occurrence: Along pyroxene cleavages, as rims.

Secondary plagioclase:
- Total Percent: <1
- Mode of occurrence: Replacing primary plagioclase.
- Comments: Irregularly distributed.

Talc and oxides:
- Total Percent: trace
- Mode of occurrence: After olivine in crystal cracks.

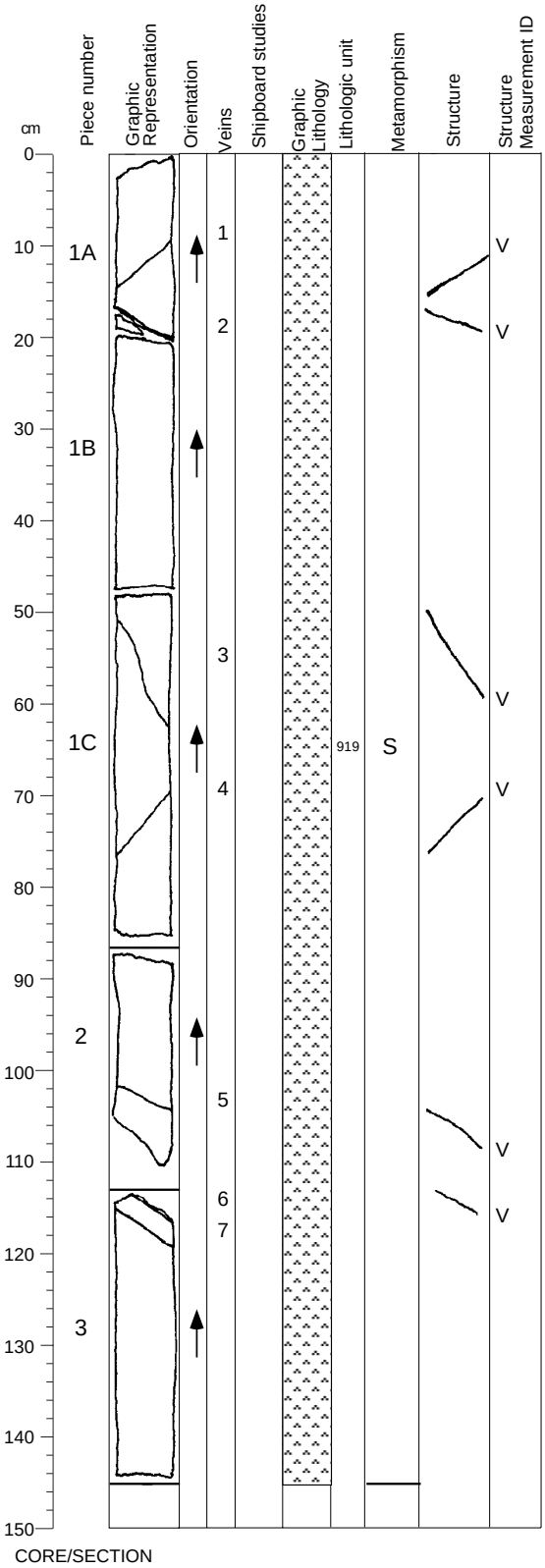
Smectite:
- Total Percent: <1
- Mode of occurrence: Dark green after olivine and pale green after plagioclase.
- Comments: Near veins.

Background Alteration:
Degree of alteration: slight (3%). 10% of the olivine is replaced by smectite and amphibole. Clinopyroxene and plagioclase are negligibly altered (1%). Olivine alteration is highest near the base of Piece 4.

Vein/Fracture Filling:
0.1-5 mm smectite veins in Piece 4.

Structures:
Mf>V>F
The section displays a medium- to coarse-grained igneous texture with no or a very weak magmatic foliation, cut by a vein (boundary between Pieces 4A and 4B) which grades into a reverse fault. Where present (34 to 93 cm), the magmatic foliation dips around 40°.

Core Image



176-735B-200R-2

Interval 919: OLIVINE GABBRO
(see previous section)

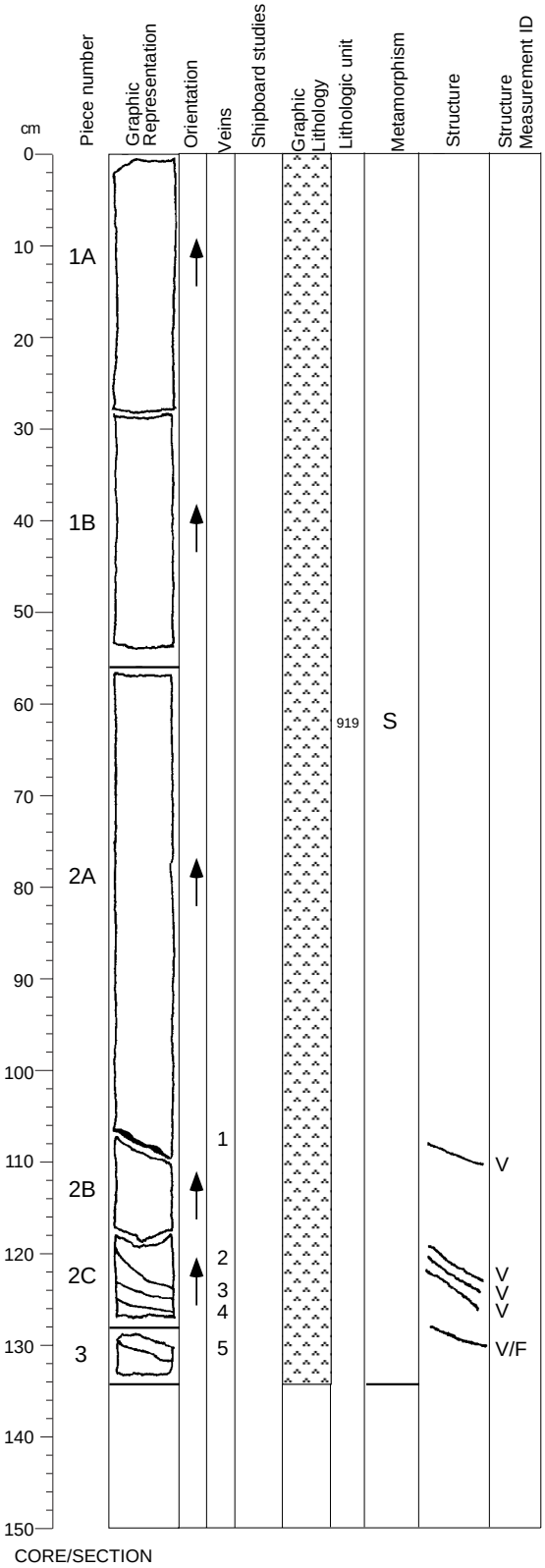
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (5%). 15% of the olivine is replaced by smectite and amphibole. Clinopyroxene is negligibly altered to amphibole and smectite (2%). 3% of the plagioclase is recrystallized and altered to smectite.

Vein/Fracture Filling:
0.2-0.4 mm smectite veins in Pieces 1 and 2; 0.2 mm chlorite vein in Piece 1; 0.1-1 mm zeolite veins in Pieces 1, 2, and 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A few veins cut the igneous texture over the entire section.

Core Image



176-735B-200R-3

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

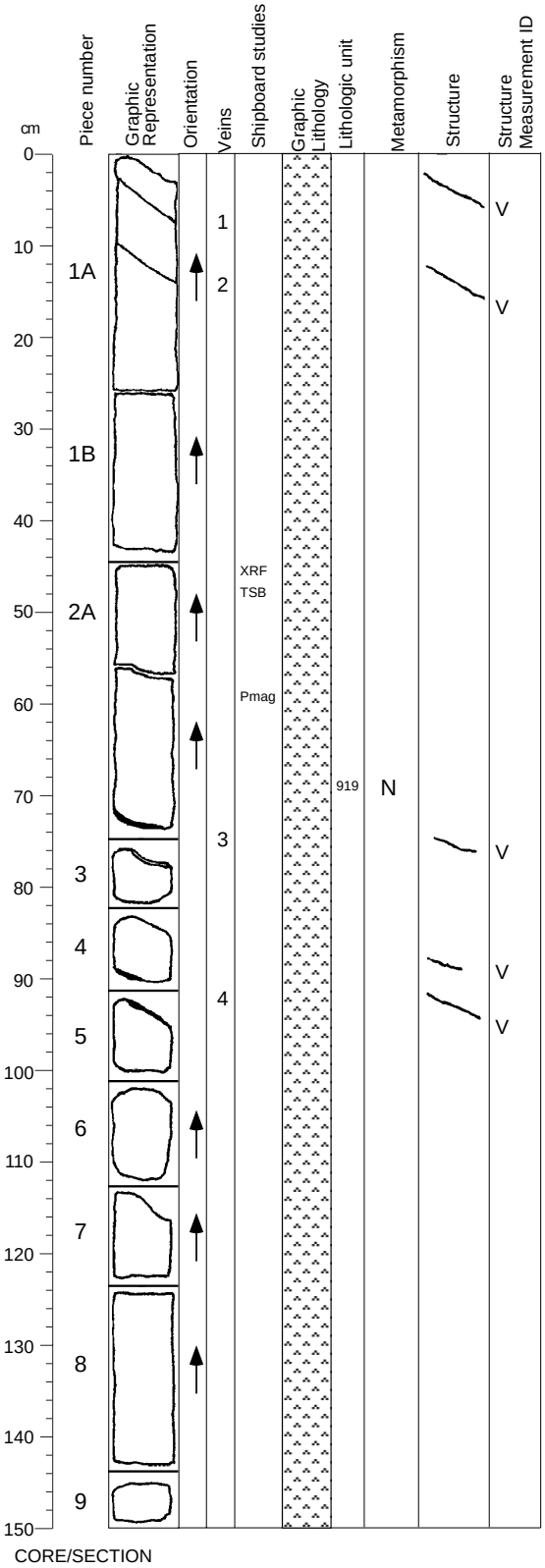
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (3%). 8% of the olivine is replaced by smectite and amphibole. Clinopyroxene is negligibly altered (1%). Plagioclase is fresh, except for halos of quartz-smectite veins, where it is replaced by a white mineral, possibly albite (2% total alteration).

Vein/Fracture Filling:
0.1-0.4 mm smectite veins in Piece 2; 1.5 mm quartz vein in Piece 3.

Structures:
Mf>V>F
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A few veins cut the igneous texture at the bottom of the section; the vein in Piece 3 grades into a reverse fault.

Core Image



176-735B-200R-4

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

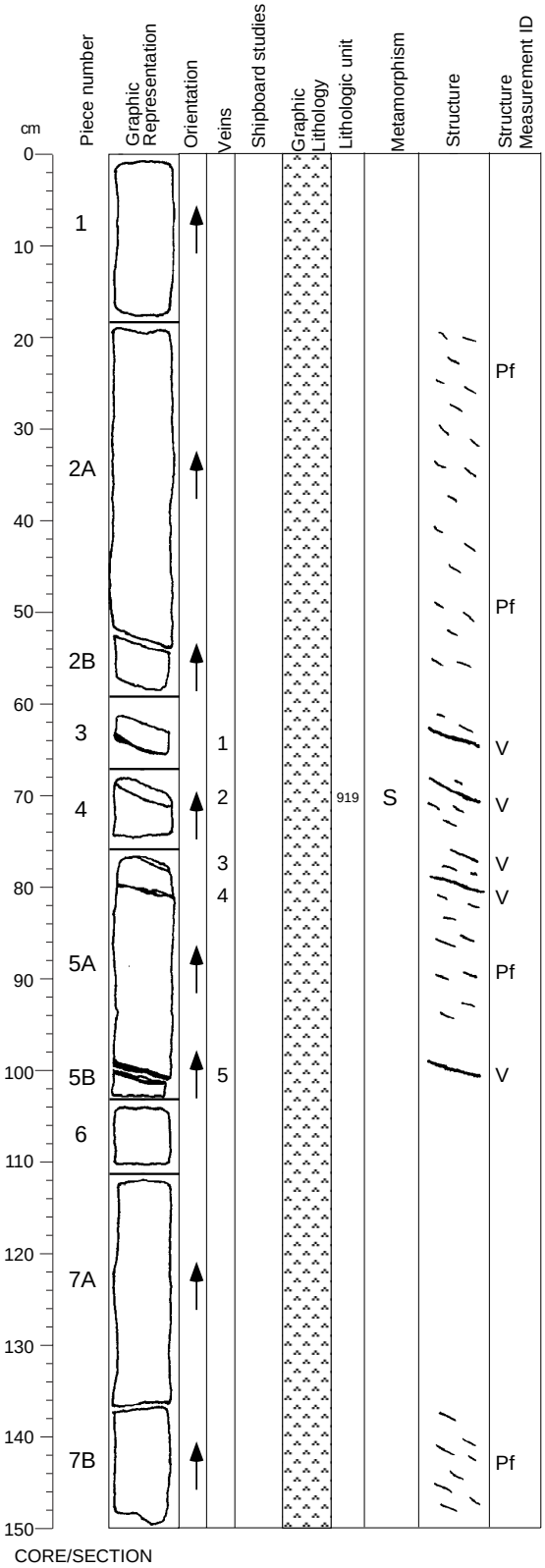
Alteration:
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.5 mm smectite veins in Pieces 1-5.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a few veins.

Core Image



176-735B-200R-5

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

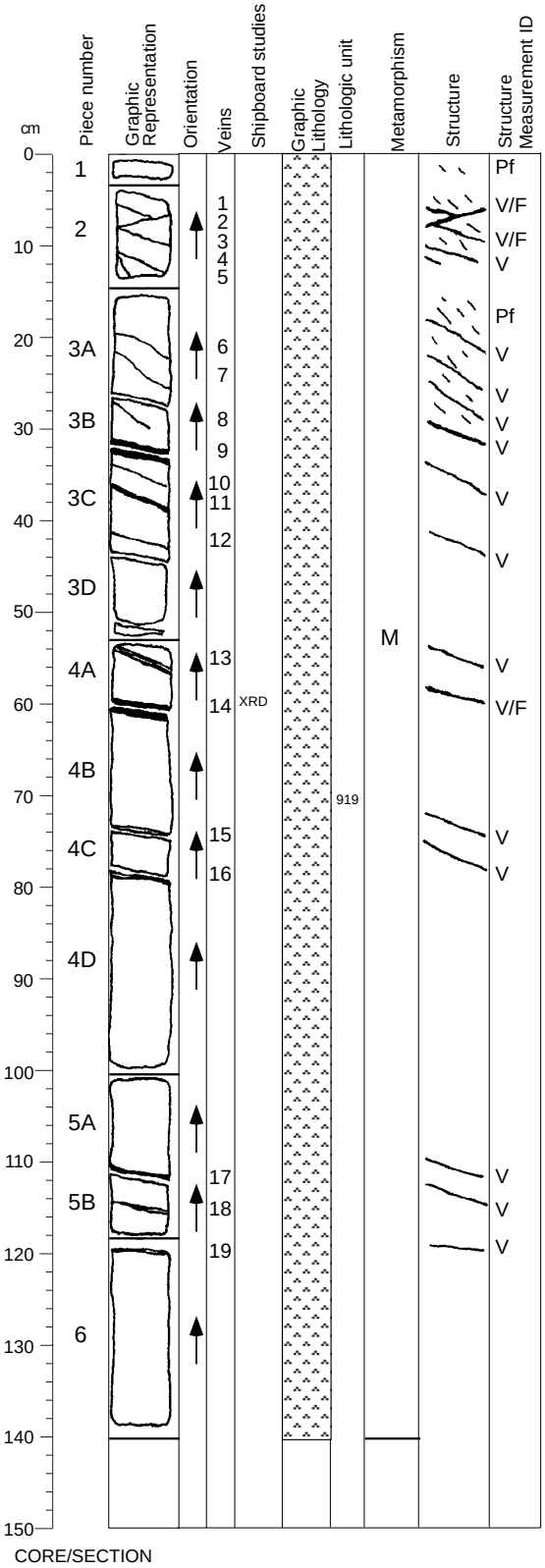
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (3%). 8% of the olivine is altered to amphibole and smectite. Clinopyroxene and plagioclase are negligiby altered (2%).

Vein/Fracture Filling:
0.4-1 mm smectite+zeolite veins in Pieces 3 to 5.

Structures:
Mf>Pf>V>F; Mf>V>F
From 0 to 20 cm and from 96 to 137 cm, the section displays a medium-grained igneous texture with no magmatic foliation. From 20 to 96 cm and from 137 cm to the bottom of the section, a weak crystal-plastic foliation is present, dipping at 30-40°. A few veins cut the previous fabrics in Pieces 3, 4, 5A, 5B and 7B; two veins grade into faults.

Core Image



176-735B-200R-6

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

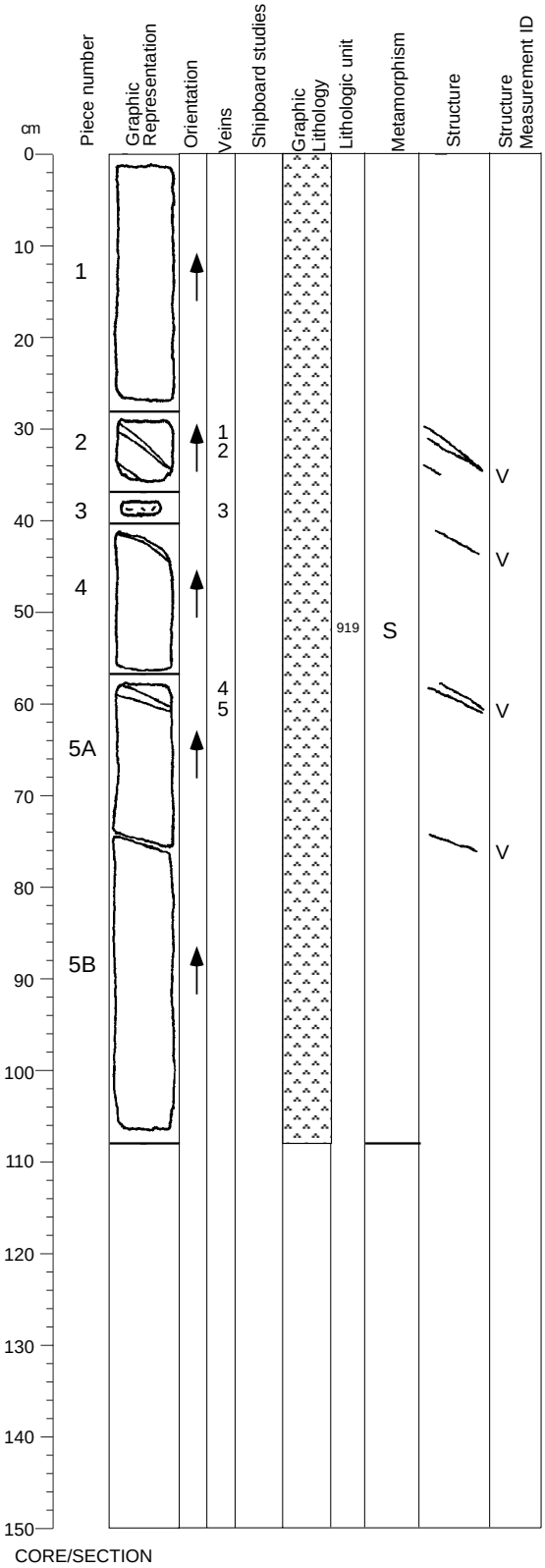
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <8
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: moderate (12%). 20% of the olivine is replaced by amphibole and smectite. Clinopyroxene is partly altered to amphibole and smectite (5%). 8% of the plagioclase is replaced by secondary plagioclase and smectite. Alteration of plagioclase is most intense in Pieces 2 and 4A.

Vein/Fracture Filling:
1.5-4 mm zeolite veins in Pieces 2 and 4; 0.1-1.5 mm smectite+zeolite veins in Pieces 2 to 6.

Structures:
Mf>Pf>V>F; Mf>V>F
Most of the section displays a medium-grained igneous texture with no magmatic foliation. A weak, poorly defined, crystal-plastic foliation overprints the igneous texture from 0 to 30 cm. A series of veins cut the igneous texture over the entire section. Two veins in Piece 2 and the vein at the boundary between Pieces 4A and 4B grade into faults.

Core Image



176-735B-200R-7

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

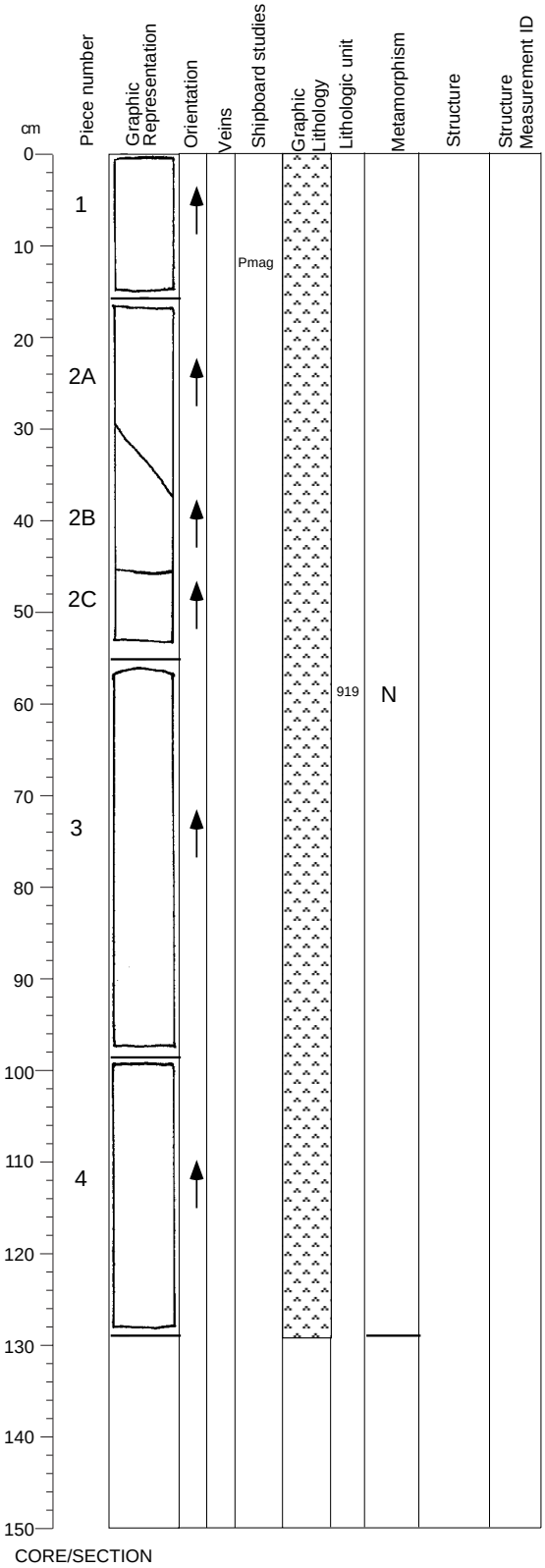
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green after olivine and some pyroxene, and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (5%). 8% of the olivine is altered to amphibole and smectite. Clinopyroxene is weakly altered (3%). Plagioclase is slightly altered to secondary plagioclase and smectite.

Vein/Fracture Filling:
0.5-1 mm smectite veins in Piece 2, 4, and 5.

Structures:
Mf>V>F
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins in Pieces 2 to 5B.

Core Image



176-735B-201R-1

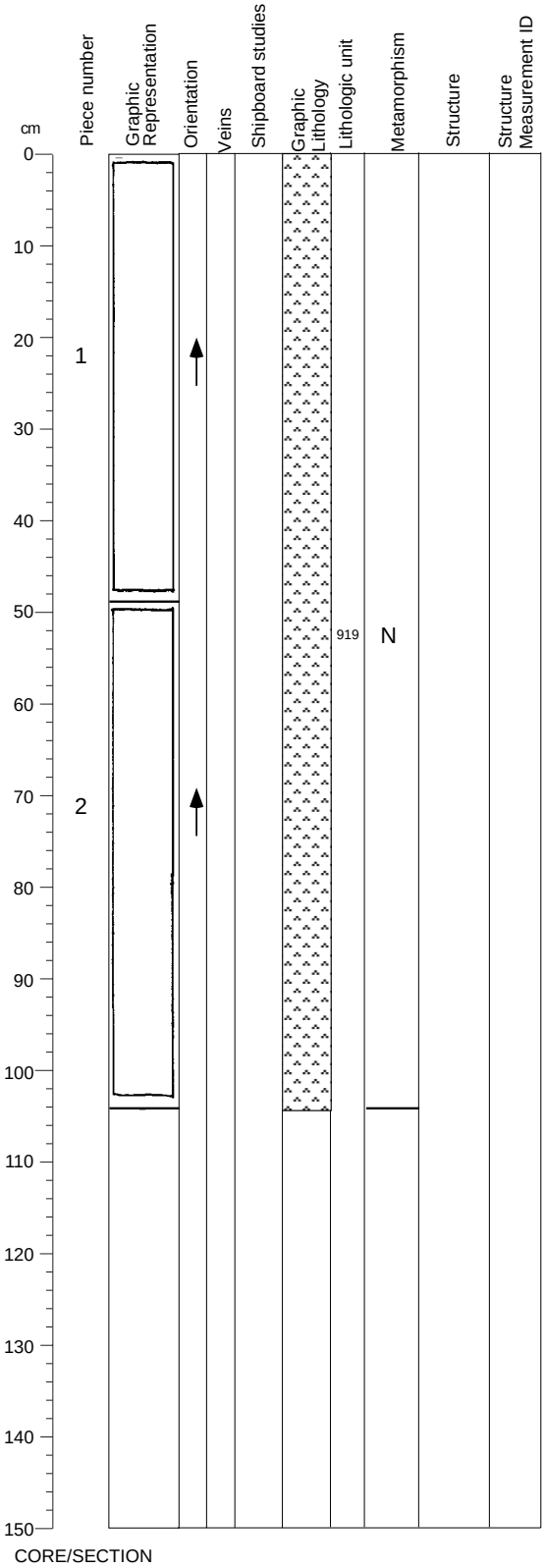
Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no or a very weak magmatic foliation.

Core Image



176-735B-201R-2

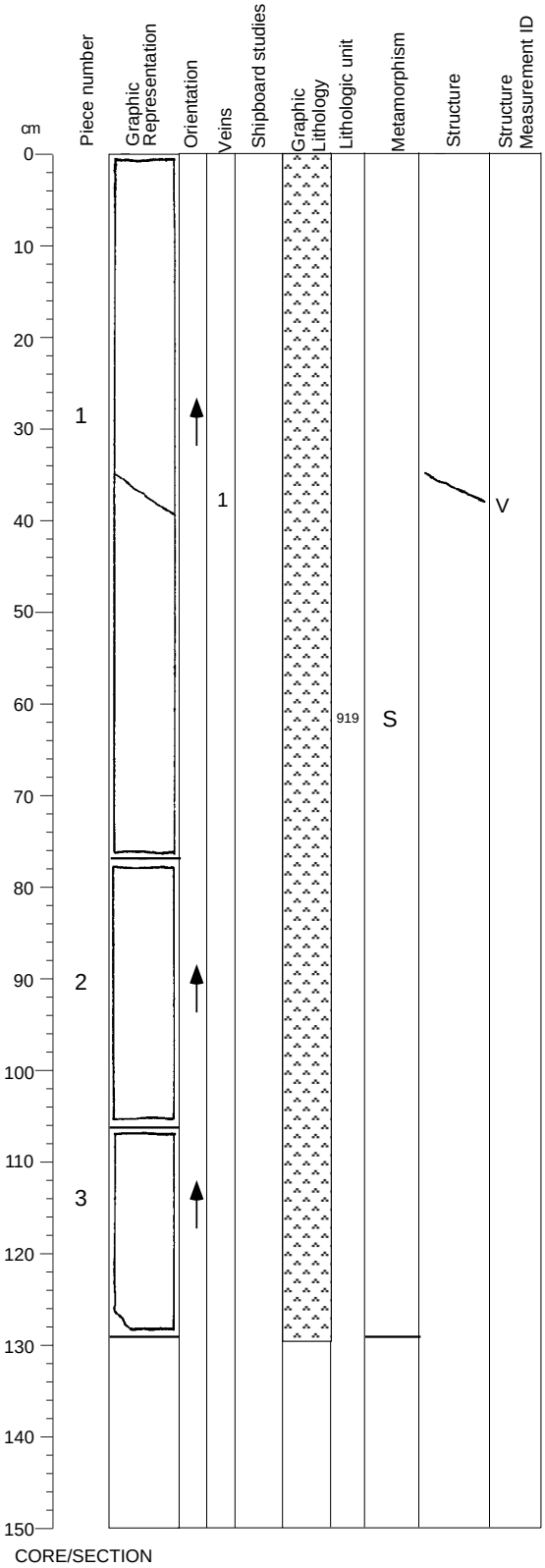
Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-201R-3

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

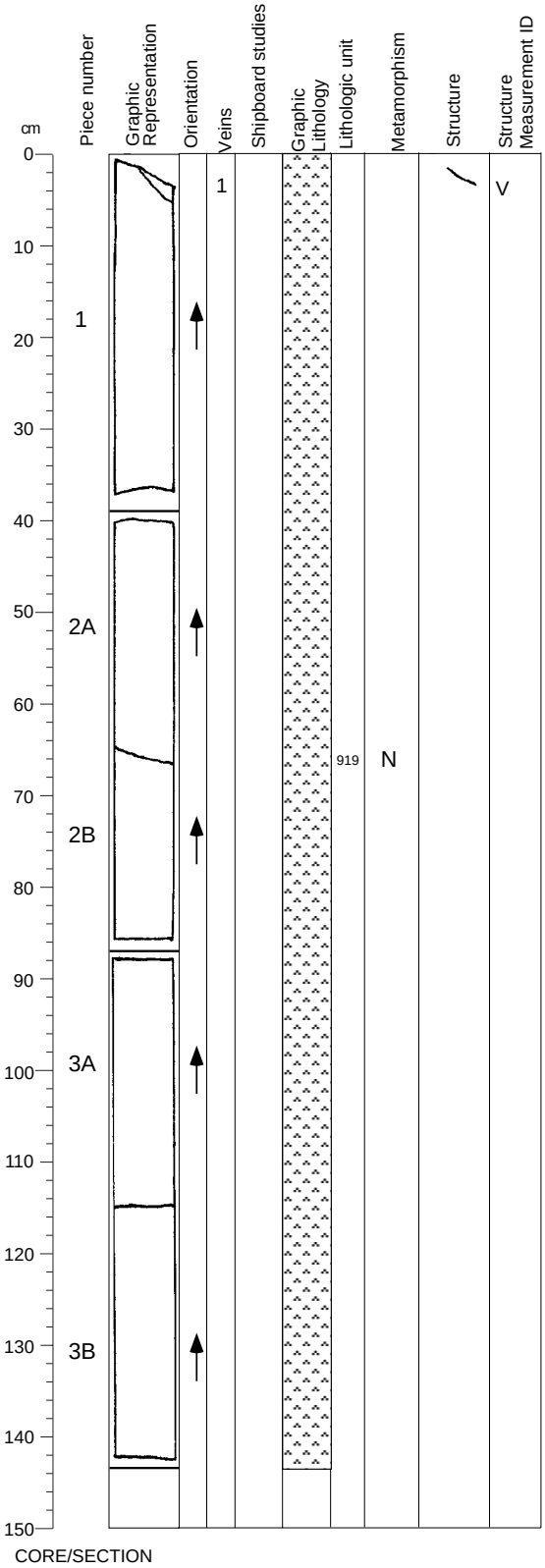
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: slight (3%). 5% of the olivine is altered to amphibole and smectite. Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.3 mm smectite vein in Piece 1.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a vein in Piece 1.

Core Image



176-735B-201R-4

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

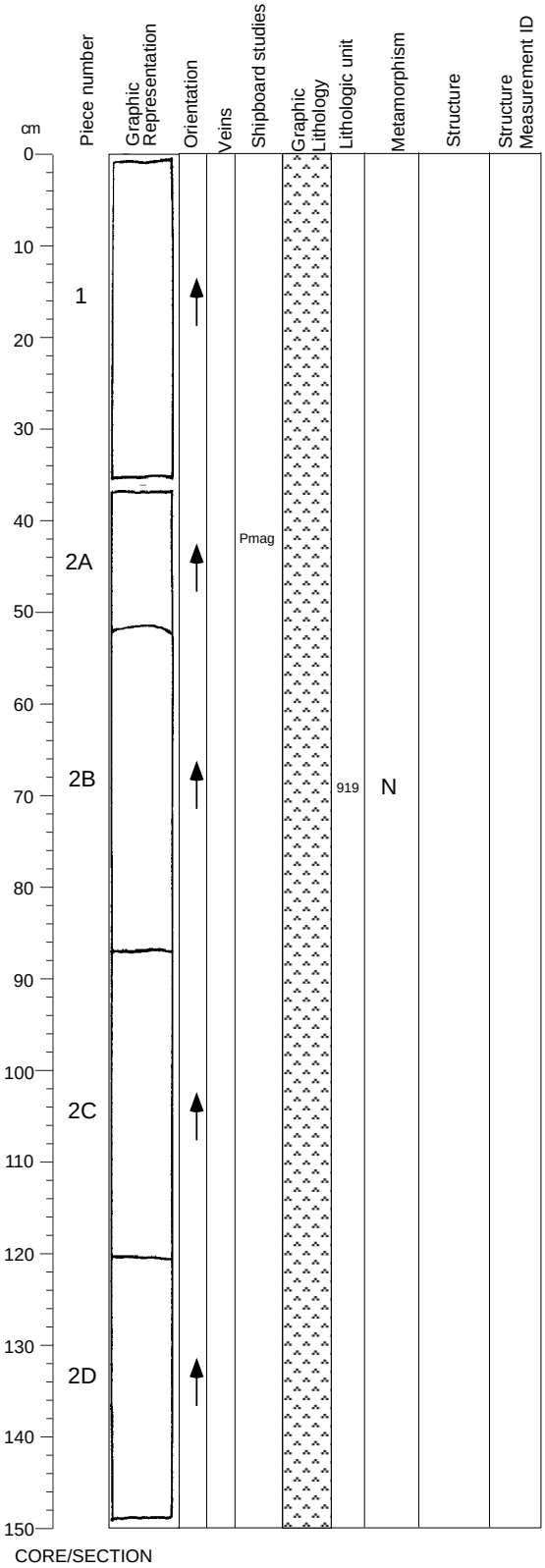
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.5 mm smectite vein in Piece 1.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a vein at the top of Piece 1.

Core Image



176-735B-201R-5

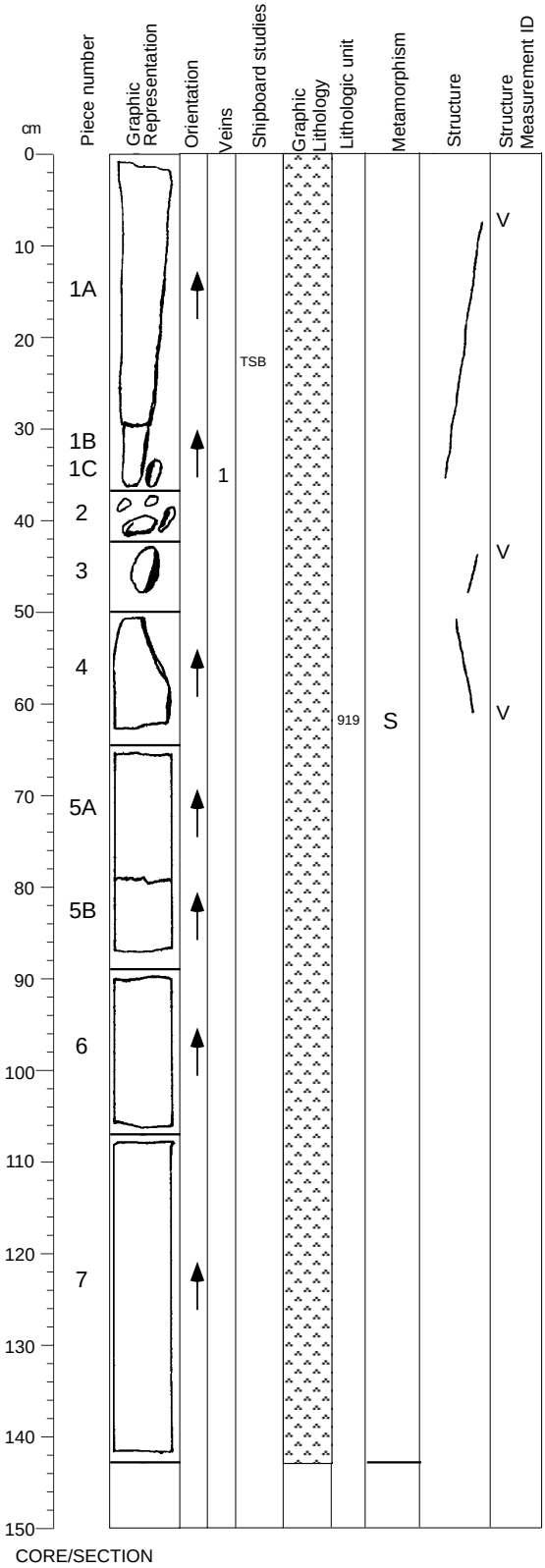
Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-201R-6

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

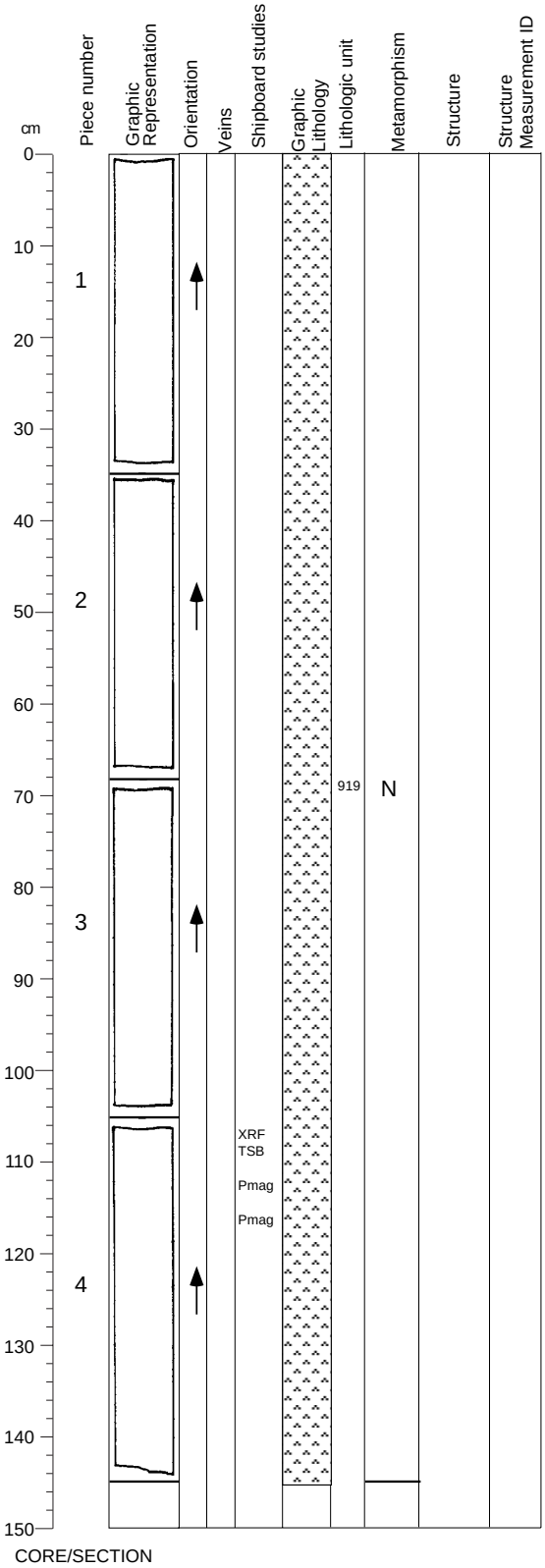
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (5%). 12% of the olivine is altered to amphibole and smectite. Clinopyroxene is negligibly altered to amphibole and smectite (2%). Plagioclase is slightly altered to secondary plagioclase and smectite (3%).

Vein/Fracture Filling:
5 mm smectite+zeolite vein in Pieces 1 to 4.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a few veins in Pieces 1A to 4.

Core Image



176-735B-201R-7

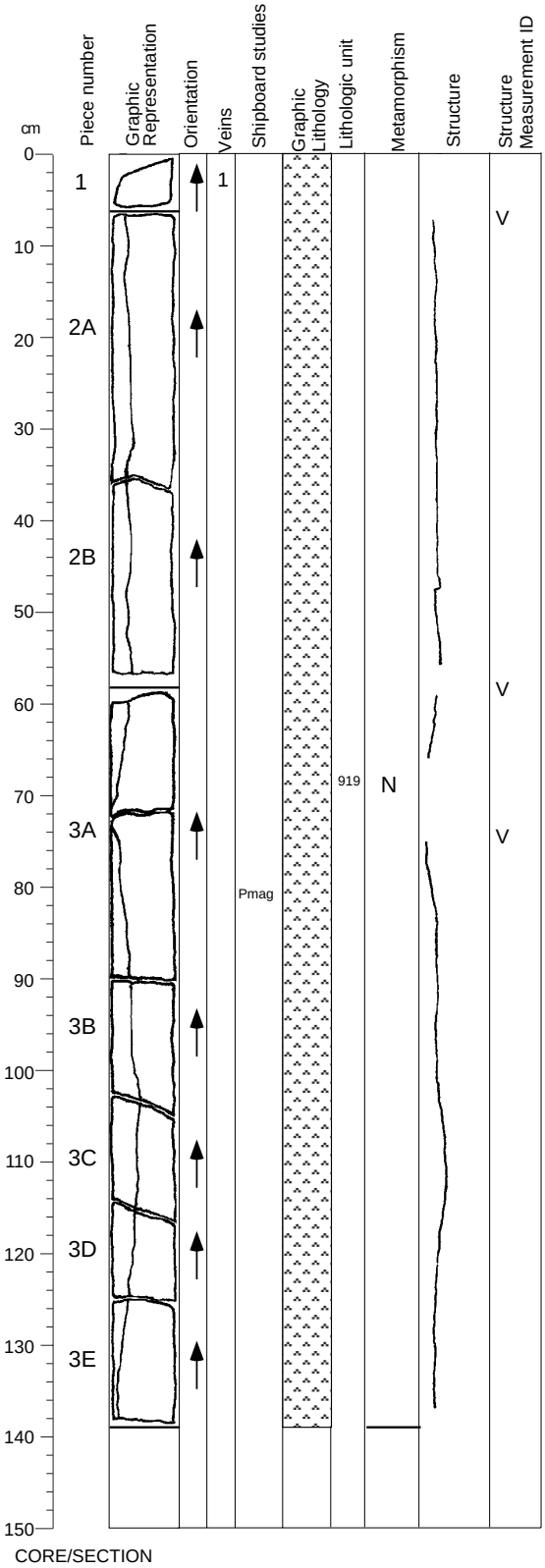
Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-202R-1

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

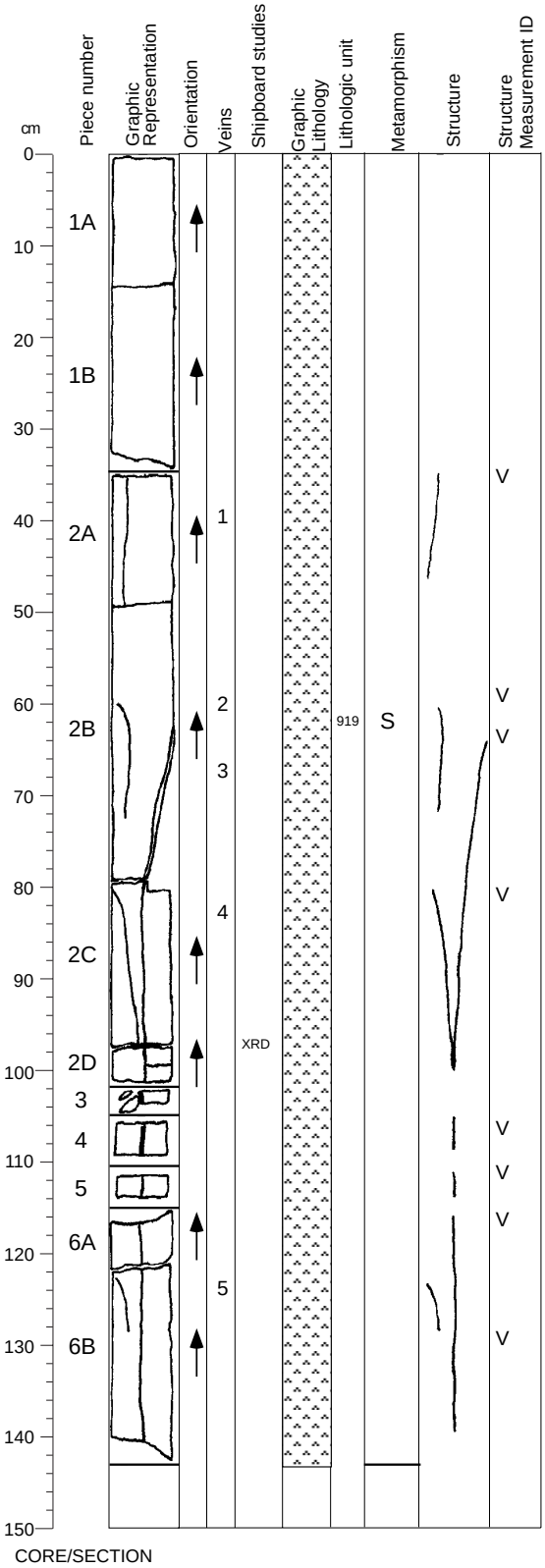
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.3 mm smectite vein in Pieces 2 to 3.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation. A subvertical vein cuts the igneous texture over the entire section.

Core Image



176-735B-202R-2

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

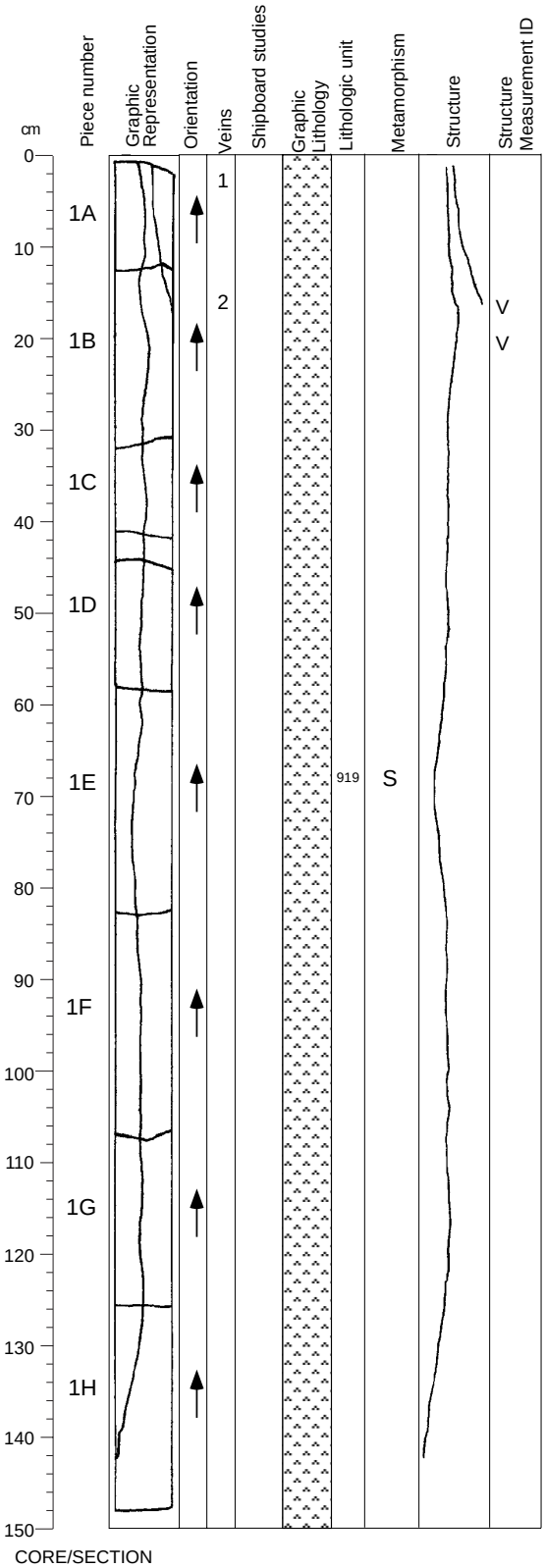
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: slight (3%). 5% of the olivine is altered to amphibole and smectite. Clinopyroxene and plagioclase are negligibly to weakly altered (2 to 3%).

Vein/Fracture Filling:
0.5-1.5 mm smectite+zeolite veins in Pieces 2 to 6.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a series of subvertical veins.

Core Image



176-735B-202R-3

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

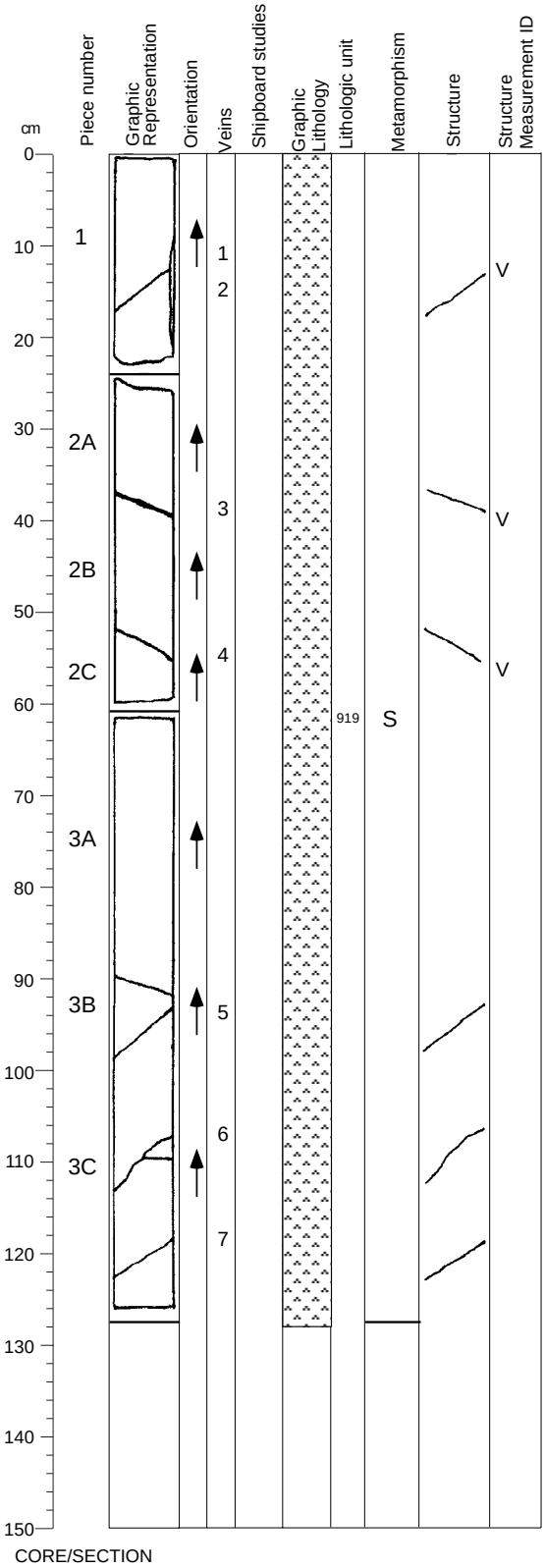
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Vein/Fracture Filling:
0.1-0.5 mm smectite+zeolite veins in Piece 1.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by two subvertical veins.

Core Image



176-735B-202R-4

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

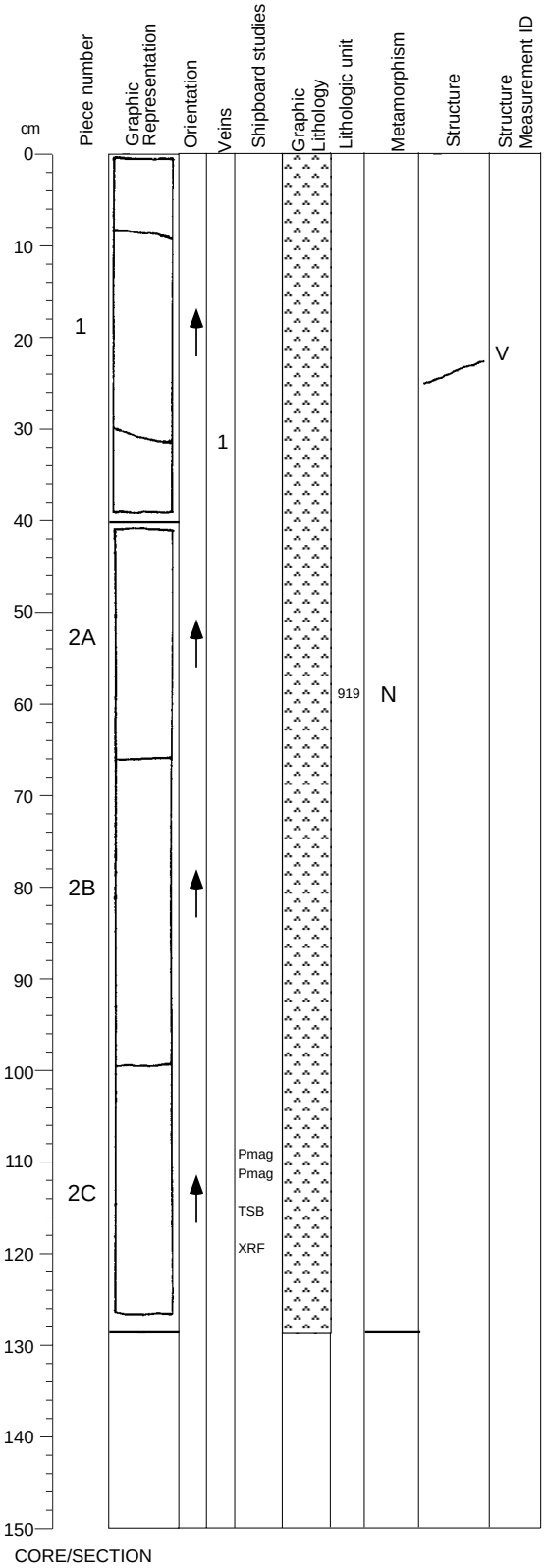
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Vein/Fracture Filling:
0.1-0.5 mm smectite veins in Pieces 1-3; 0.3-1 mm zeolite veins in Pieces 1 to 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A few veins cut the igneous texture over the entire section.

Core Image



176-735B-202R-5

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

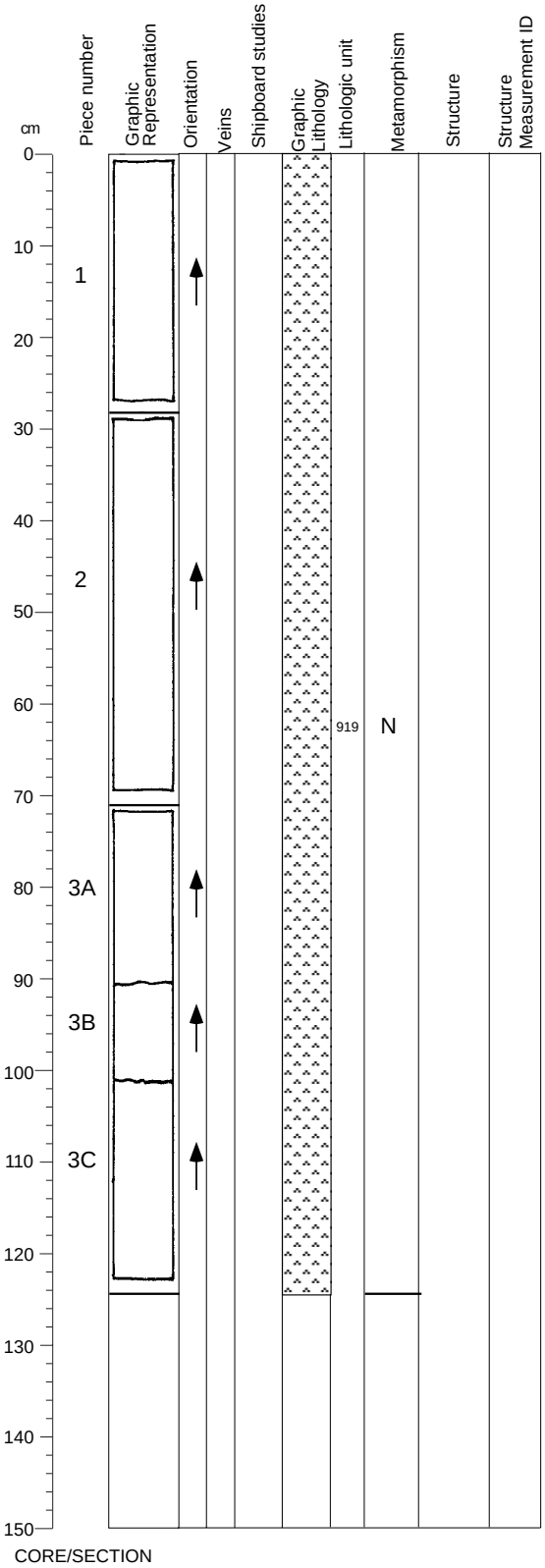
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine and pale green after plagioclase.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.1 mm smectite vein in Piece 1.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a vein in Piece 1.

Core Image



176-735B-202R-6

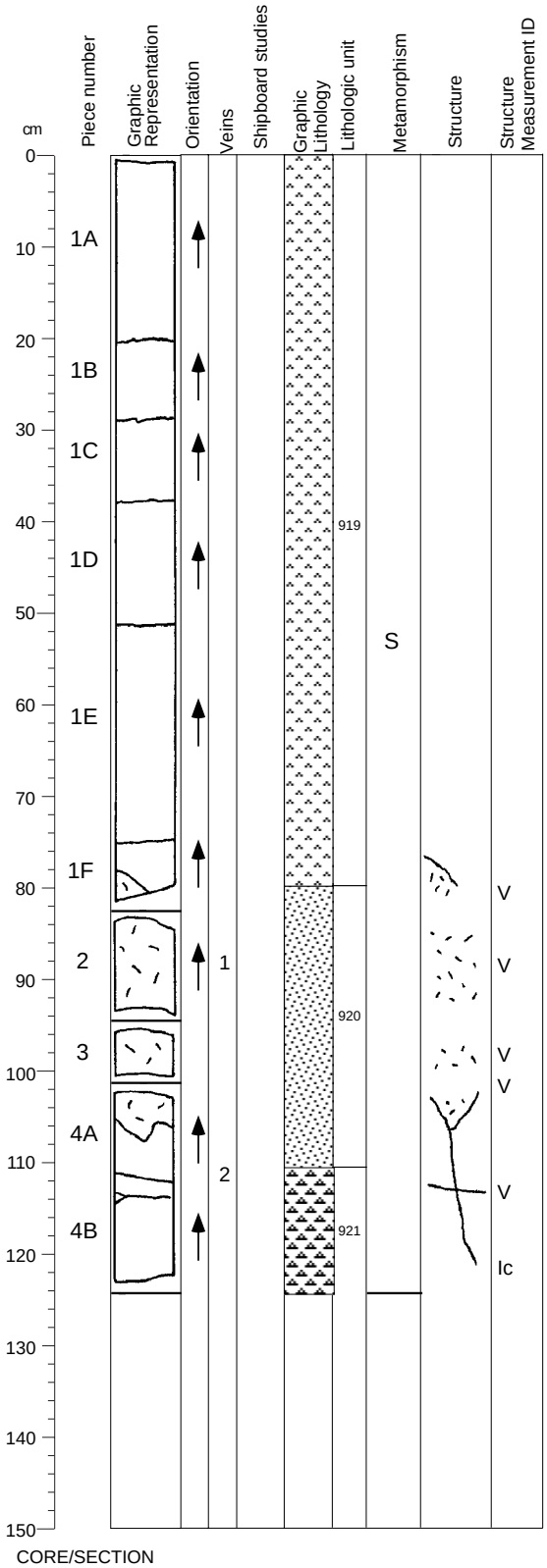
Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine and pale green after plagioclase.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-202R-7

Interval 919: OLIVINE GABBRO
(see Section 176-735B-200R-1)
Interval 920: OXIDE DIORITE

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	202	7	80	1F	1430.11
Lower contact:	202	7	111	4A	1430.42

Thickness (m): 0.31

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	20	5	coarse	tabular/ subhedral
Clinopyroxene	20	20	5	coarse	equant/ subhedral anhedral
Opaques	3				angular aggregates/ euhedral
Total	78*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Medium
Modal IUGS Name (calculated): Not Calculated
Type Distribution
Texture: granular N/A
Comments: Felsic vein with penetrative relationships with the hosting gabbro. Apparently igneous origin with subsequent high- and low-temperature alteration. Green amphibole replacing clinopyroxene; coarse-grained sphene present; oxide abundant; sulfide present. Alteration and fine grain size precludes a precise modal estimation.

Interval 921: TROCTOLITIC MICROGABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	202	7	111	4A	1430.42
Lower contact:	203	1	5	1	1430.85

Thickness (m): 0.43

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	2	N/A	fine	tabular/ subhedral anhedral
Clinopyroxene	10	1	N/A	fine	equant/ anhedral
Olivine	30	1	1	fine	elongate/ anhedral, subhedral
Opaques	0.3				amoeboidal aggregates/ disseminated
Total	105.3*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine
Modal IUGS Name (calculated): Troctolitic Gabbro
Type Distribution
Texture: granular N/A

Continued next page

Core Image

176-735B-202R-7 (cont'd)

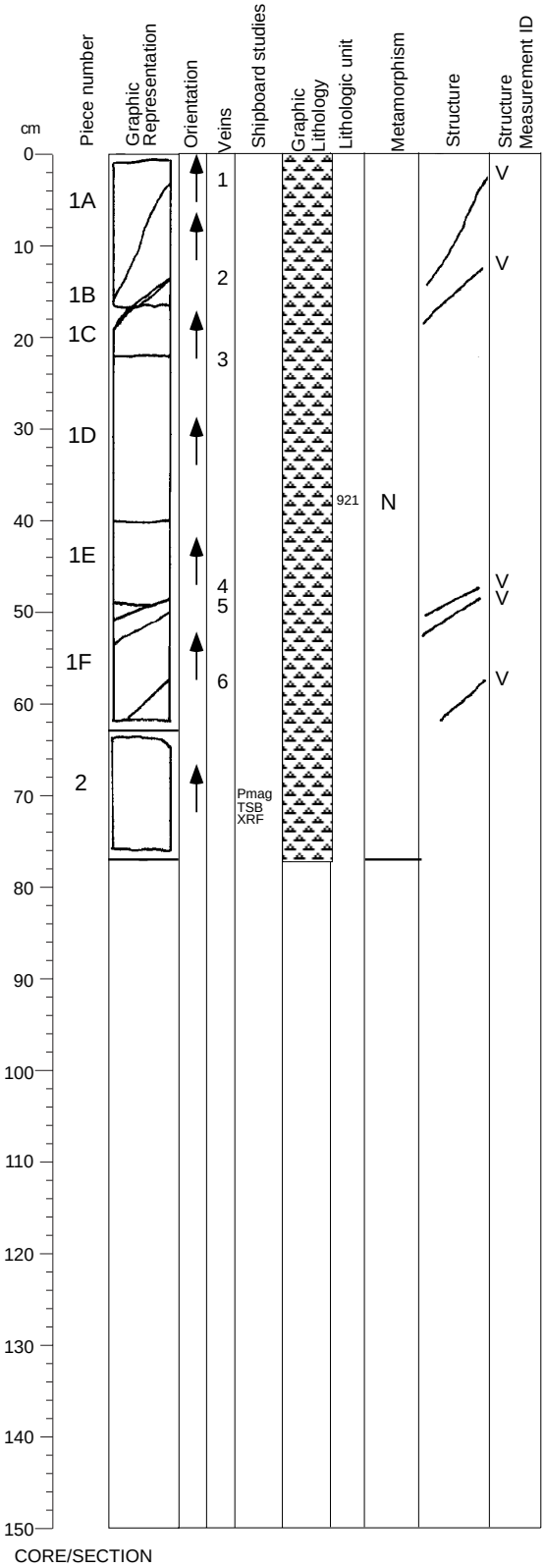
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: <1
Mode of occurrence: Small patches in felsic areas.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: <1
Mode of occurrence: Associated with green amphibole.
Quartz:
Total Percent: <1
Mode of occurrence: Associated with chlorite and green amphibole.
Titanite:
Total Percent: trace
Mode of occurrence: Associated with chlorite and green amphibole.

Background Alteration:
Degree of alteration: slight (4%). 5% of the olivine is altered to amphibole and smectite. Clinopyroxene is weakly altered to amphibole and smectite (3%). 5% of the plagioclase is recrystallized and altered to smectite. Felsic vein in Pieces 1E to 4A is altered to quartz, chlorite, and actinolite in center.

Vein/Fracture Filling:
6 cm felsic vein in Pieces 1-4; 0.1 mm smectite vein in Piece 4.

Structures:
Mf=Ic>V
The section displays a fine- to coarse-grained igneous texture with no magmatic foliation, cut by a thick felsic vein in Pieces 1F to 4A. The bottom boundary of the vein overprints a subvertical igneous contact between fine-grained and coarse-grained gabbros. This igneous contact is also cut by a late vein in Piece 4A.

Core Image



176-735B-202R-8

Interval 921: TROCTOLITIC MICROGABBRO
(see previous section)

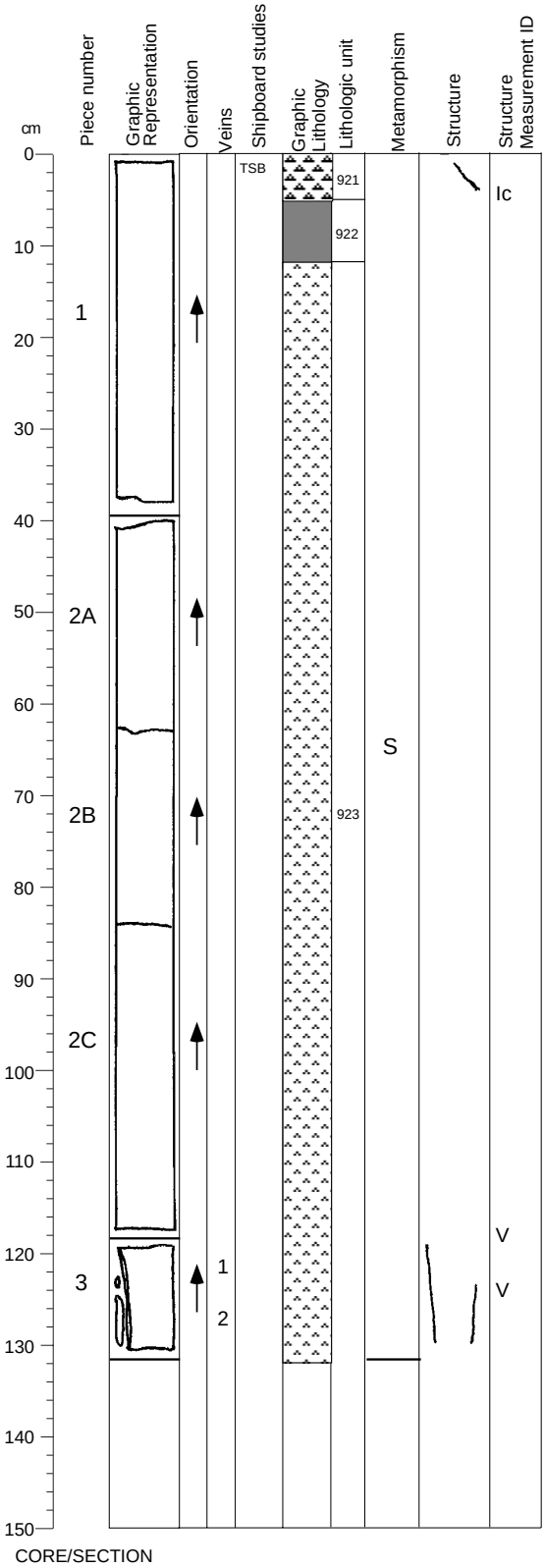
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches in coarse grained areas.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.1 mm chlorite vein in Piece 1; 0.2-0.4 mm smectite veins in Piece 1; 0.8 mm zeolite vein in Piece 1.

Structures:
Mf>V
The section displays a fine-grained igneous texture with no magmatic foliation. This fine-grained interval is probably continuous with the one at the bottom of the previous section (202R-7). The igneous texture is cut by a series of late veins.

Core Image



176-735B-203R-1

Interval 921: TROCTOLITIC MICROGABBRO
(see Section 176-735B-202R-7)

Interval 922: DISSEMINATED OXIDE CLINOPYROXENITE

	Core	Section	Depth in Section	Piece	Depth mbsf
Interval Location:					
Upper contact:	203	1	5	1	1430.85
Lower contact:	203	1	12	1	1430.92

Thickness (m): 0.07

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	5	5	2	medium	tabular/ anhedral subhedral
Clinopyroxene	90	30	10	coarse	equant/ subhedral anhedral
Opaques	1				angular aggregates/ subhedral
Total	96*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Disseminated FeTi Oxide Clinopyroxenite
Type Distribution
Texture: granular N/A
Comments: Sulfide abundant.

Interval 923: OLIVINE GABBRO

	Core	Section	Depth in Section	Piece	Depth mbsf
Interval Location:					
Upper contact:	203	1	12	1	1430.92
Lower contact:	203	3	19	1	1433.32

Thickness (m): 2.40

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	25	6	coarse	tabular/ subhedral anhedral
Clinopyroxene	20	10	3	coarse	equant/ anhedral
Olivine	10	8	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	90.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A
Comments: Clinopyroxene rich at 0-22 cm in 203R-2.

Continued next page

Core Image

176-735B-203R-1 (cont'd)

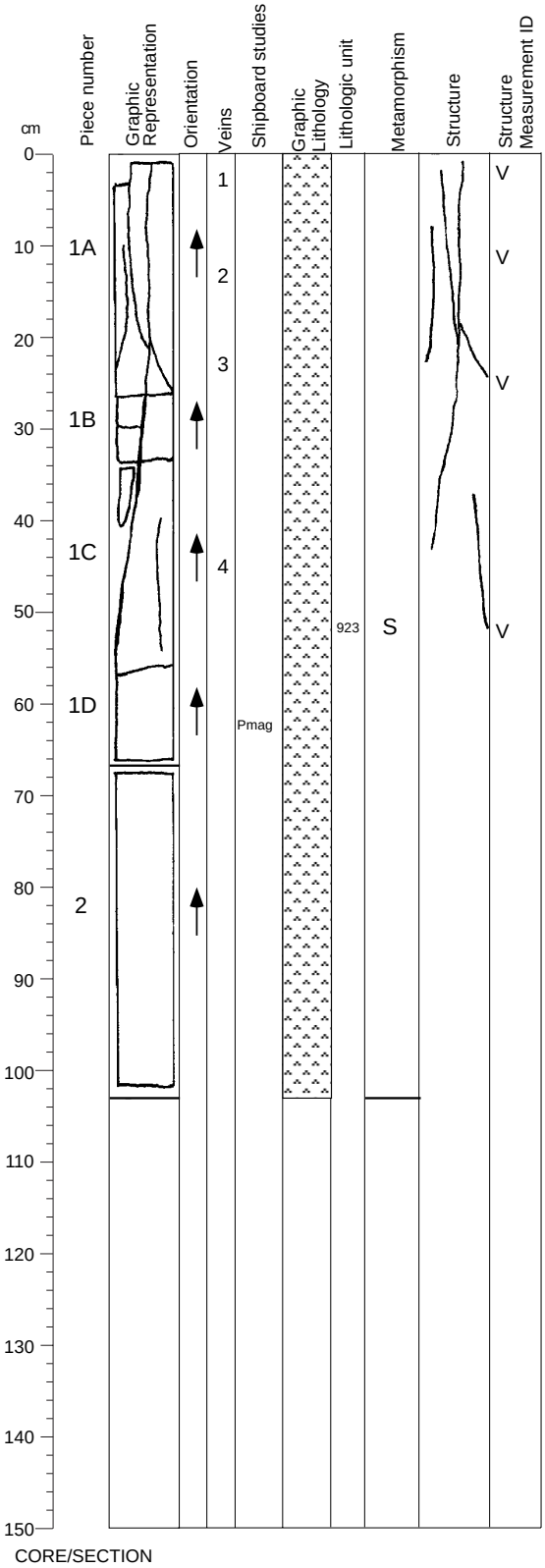
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: slight (3%). 8% of the olivine is altered to amphibole and smectite. Clinopyroxene is negligibly altered (1%). 3% of the plagioclase is recrystallized and altered to smectite.

Vein/Fracture Filling:
0.3-0.4 mm smectite+zeolite veins in Piece 3.

Structures:
Mf=Ic; Mf>V
The section displays a fine- to coarse-grained igneous texture with no magmatic foliation. A small fine-grained interval is present at the top of the section; its contact with the underlying rock dips at 55°. The next interval is a 5 cm-thick layer rich in pyroxene; a very narrow band rich in pyroxene is present in the fine-grained material (schlieren?), next to and parallel to the contact. The coarse-grained igneous texture is cut by two veins in Piece 3.

Core Image



176-735B-203R-2

Interval 923: OLIVINE GABBRO
(see previous section)

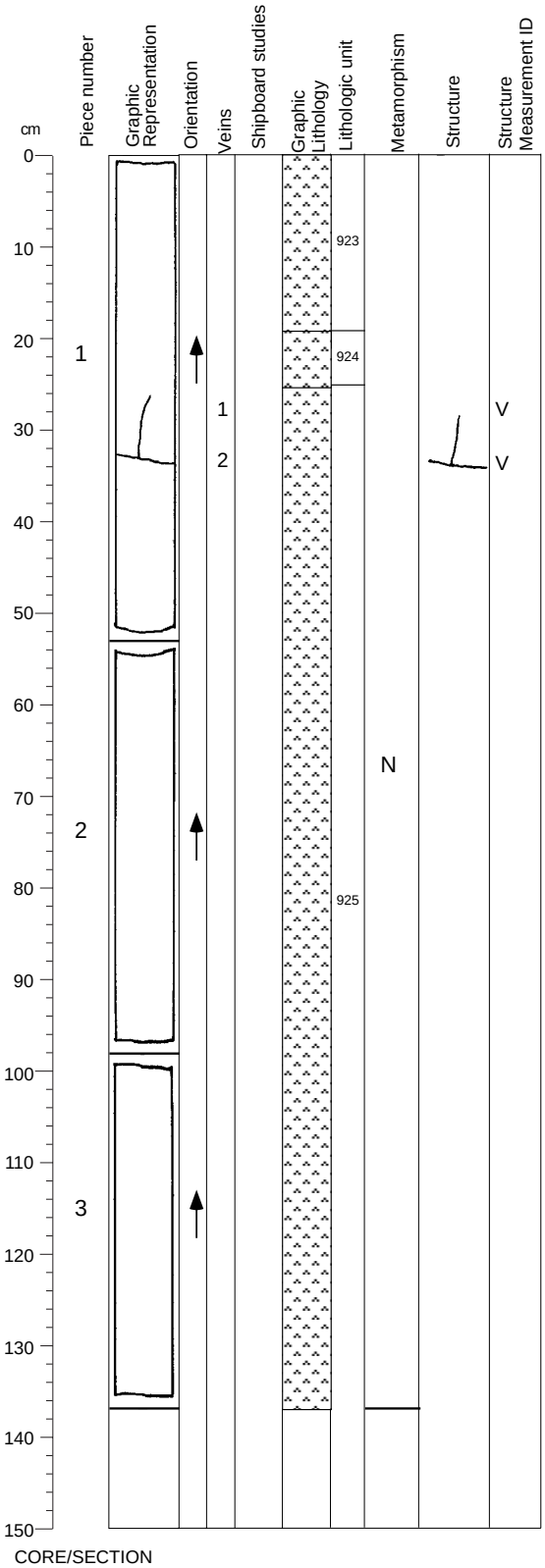
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: slight (3%). Same as previous section.

Vein/Fracture Filling:
0.1-1 mm smectite + zeolite veins in Piece 1.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A series of veins, mostly subvertical, continuous with the veins at the bottom of the previous section (203R-1), cut the igneous texture in Pieces 1A to 1C.

Core Image



176-735B-203R-3

Interval 923: OLIVINE GABBRO
(see Section 176-735B-203R-1)
Interval 924: TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	203	3	19	1	1433.32
Lower contact:	203	3	25	1	1433.38

Thickness (m): 0.06

	Grain Size (mm): Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	15	6	coarse	tabular/ subhedral anhedral
Clinopyroxene	10	15	7	coarse	equant/ anhedral
Olivine	35	8	2	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Troctolitic Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Mode variable, locally olivine rich/clinopyroxene poor. Locally very coarse-grained at 25 cm in 203R-4, 27-61 cm and 102 cm in 203R-7.

Interval 925: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	203	3	25	1	1433.38
Lower contact:	204	1	10	2	1440.60

Thickness (m): 7.22

	Grain Size (mm): Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	30	7	coarse	tabular/ subhedral anhedral
Clinopyroxene	25	15	5	coarse	equant/ anhedral
Olivine	20	15	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	100.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Mode variable, locally olivine rich/clinopyroxene poor. Locally very coarse-grained at 25 cm in 203R-4, 27-61 cm and 102 cm in 203R-7.

Continued next page

Core Image

176-735B-203R-3 (cont'd)

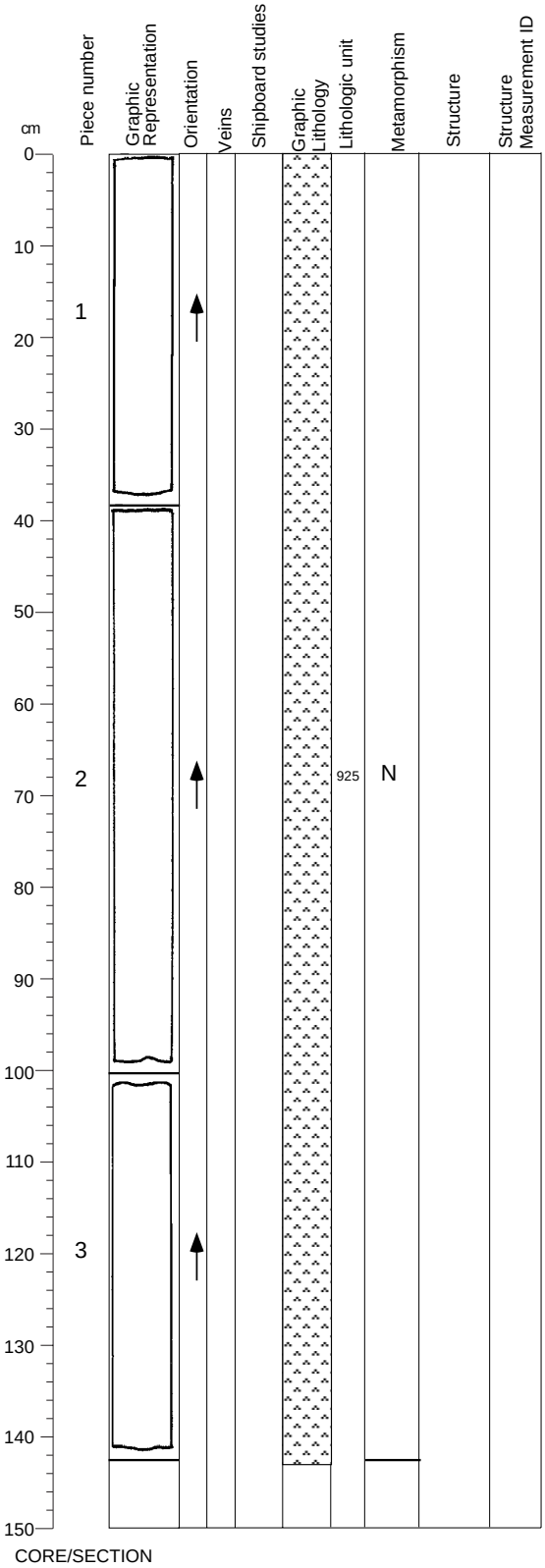
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.1 mm smectite veins in Piece 1.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by two late veins in Piece 1.

Core Image



176-735B-203R-4

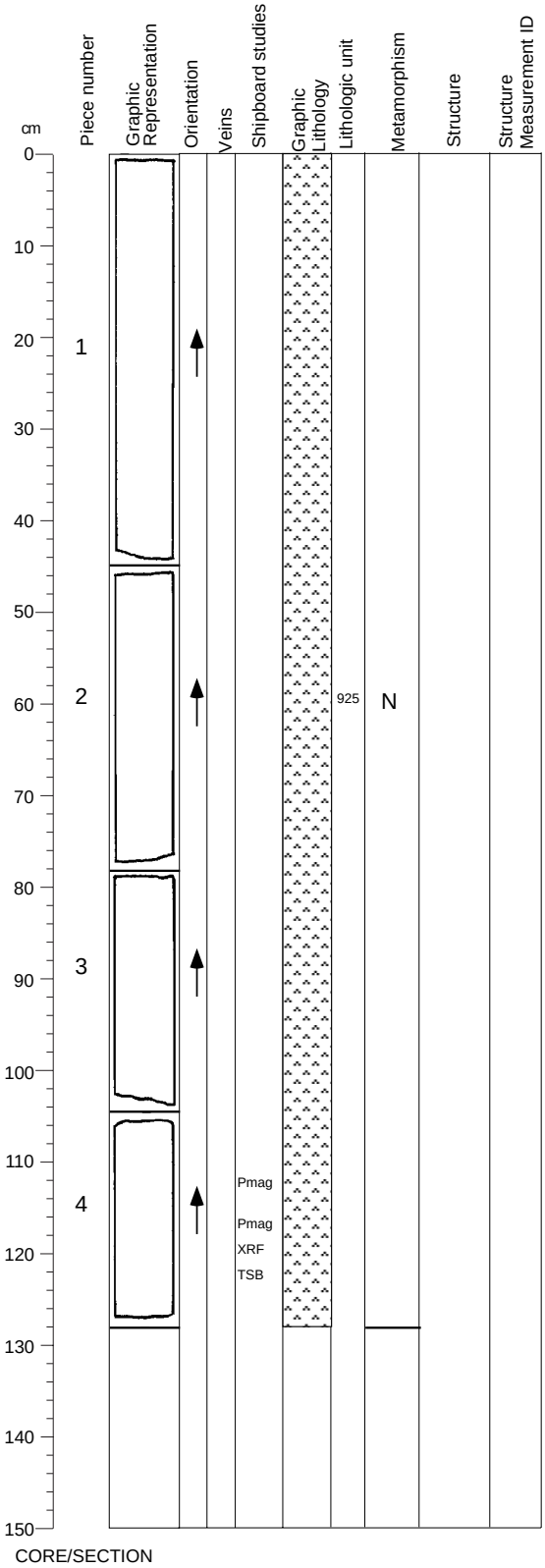
Interval 925: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-203R-5

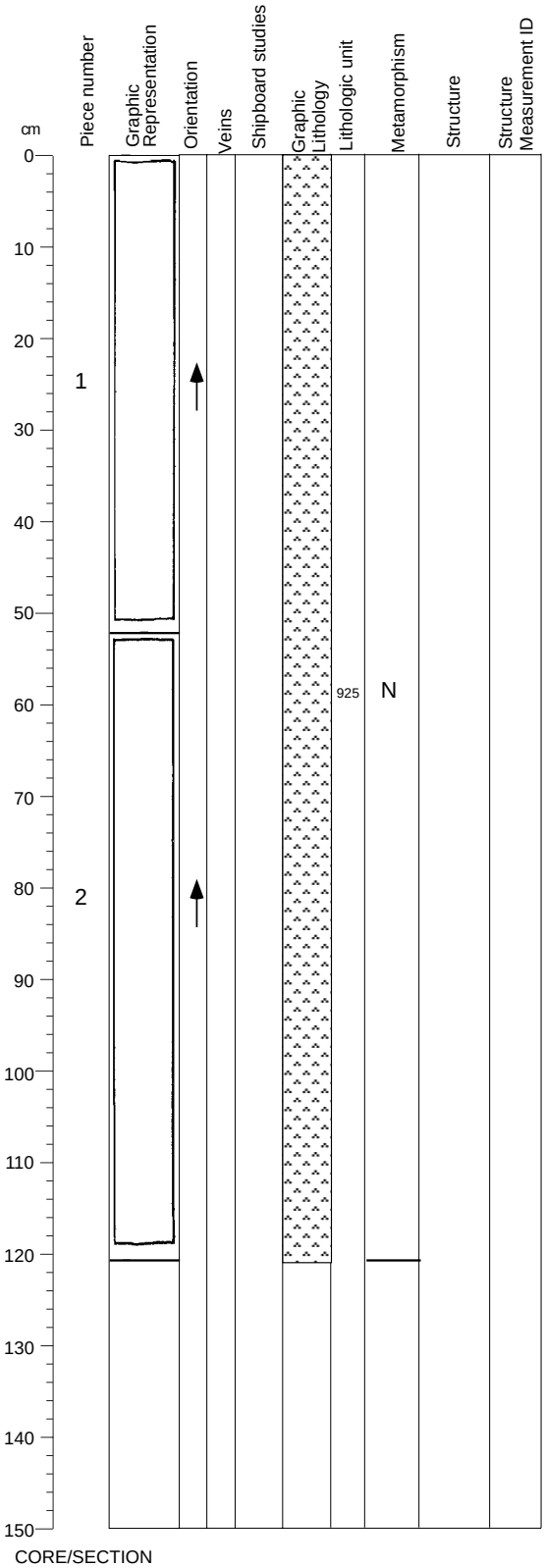
Interval 925: OLIVINE GABBRO
(see Section 176-735B-203R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-203R-6

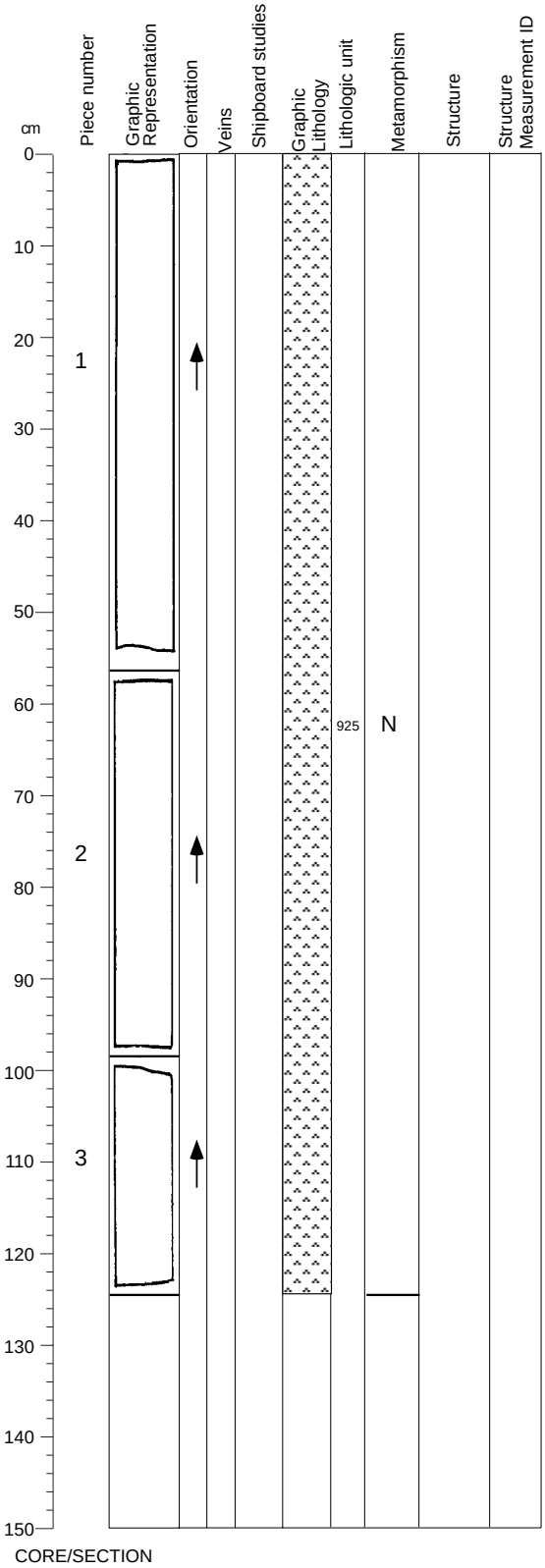
Interval 925: OLIVINE GABBRO
(see Section 176-735B-203R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-203R-7

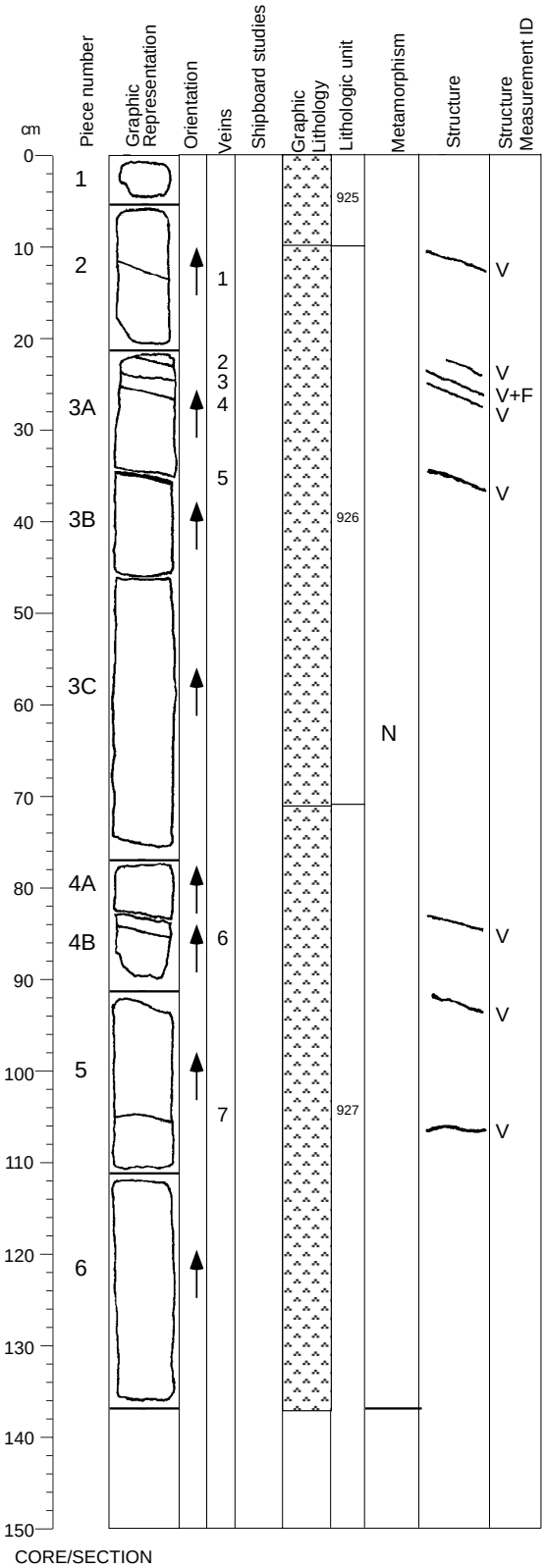
Interval 925: OLIVINE GABBRO
(see Section 176-735B-203R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small spots.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-204R-1

Interval 925: OLIVINE GABBRO
(see Section 176-735B-203R-3)

Interval 926: LEUCOCRATIC TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	204	1	10	2	1440.60
Lower contact:	204	1	71	2B	1441.21

Thickness (m): 0.61

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	70	25	5	coarse	tabular/ subhedral
Clinopyroxene	12	15	5	coarse	equant/ anhedral
Olivine	15	8	1	medium	amoeboidal/ anhedral
Opaque	0.5				amoeboidal aggregates/ disseminated
Total	97.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Troctolitic Gabbro
Type Distribution
Texture: granular N/A
Comments: Grain sise and mode variable. Locally leucocratic at 28-34 cm in 204R-1.

Interval 927: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	204	1	71	2B	1441.21
Lower contact:	205	1	28	1C	1450.48

Thickness (m): 9.27

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	25	5	coarse	tabular/ subhedral
Clinopyroxene	30	25	3	coarse	equant/ anhedral oikocrystic
Olivine	12	10	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	97.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A
Comments: Mostly granular, locally subophitic/ophitic and intergranular. Mostly coarse-grained, locally medium-grained at 94-123 cm in 204R-1. Plagioclase-rich patches present in places (leucocratic) at 94-123 cm in 204R-1, 58-70 cm in 204R-5, 54-68 cm in 204R-6. Troctolitic at 39-55 cm in 204R-3.

Continued next page

Core Image

176-735B-204R-1 (cont'd)

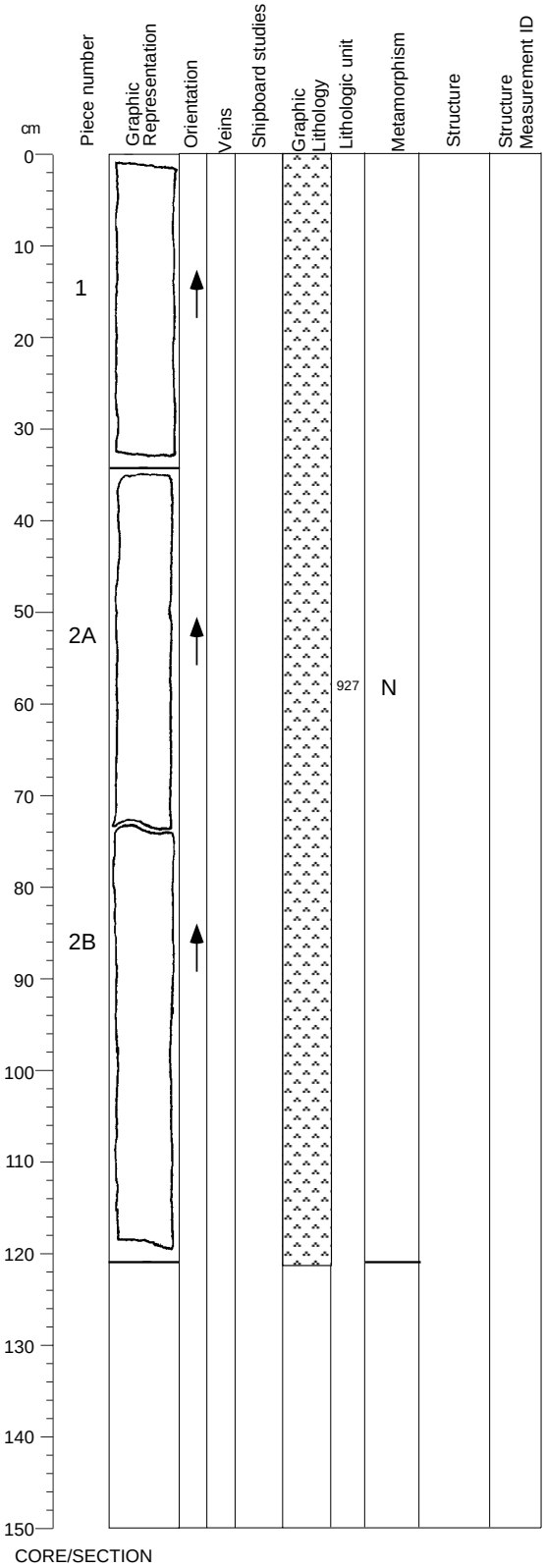
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.1-2 mm smectite+zeolite veins in Pieces 2-5.

Structures:
Mf>V>F
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A few veins cut the igneous texture over the entire section; one vein grades into a fault.

Core Image



176-735B-204R-2

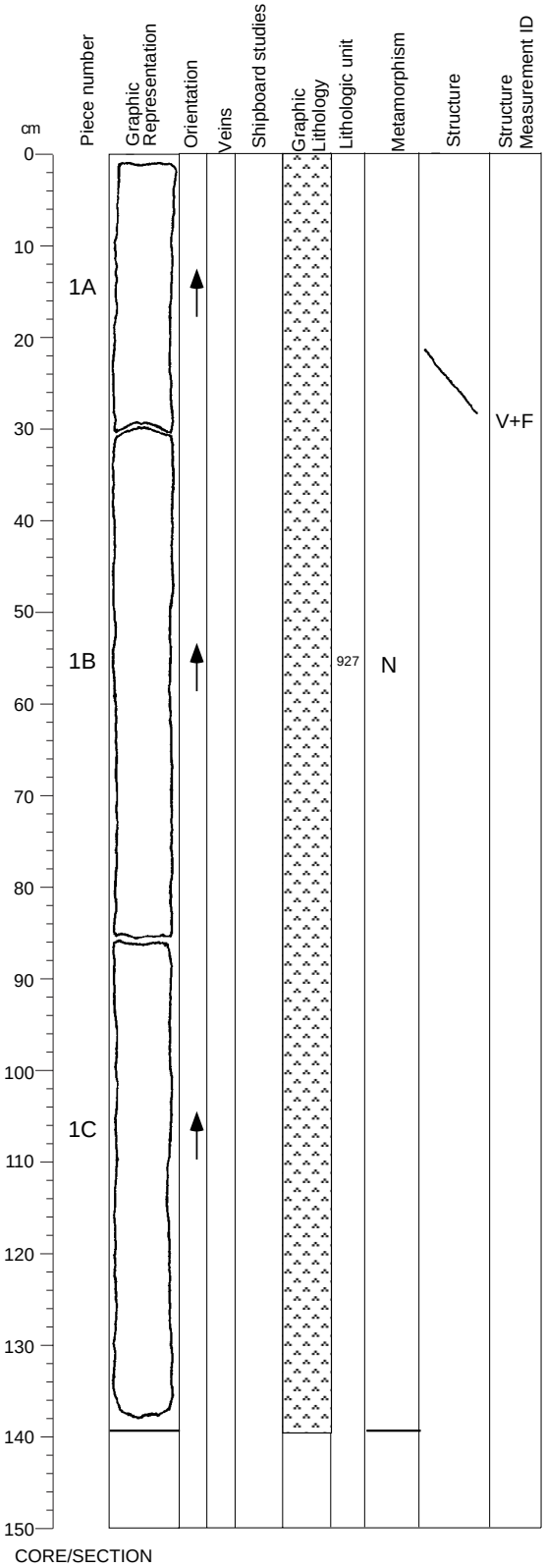
Interval 927: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-204R-3

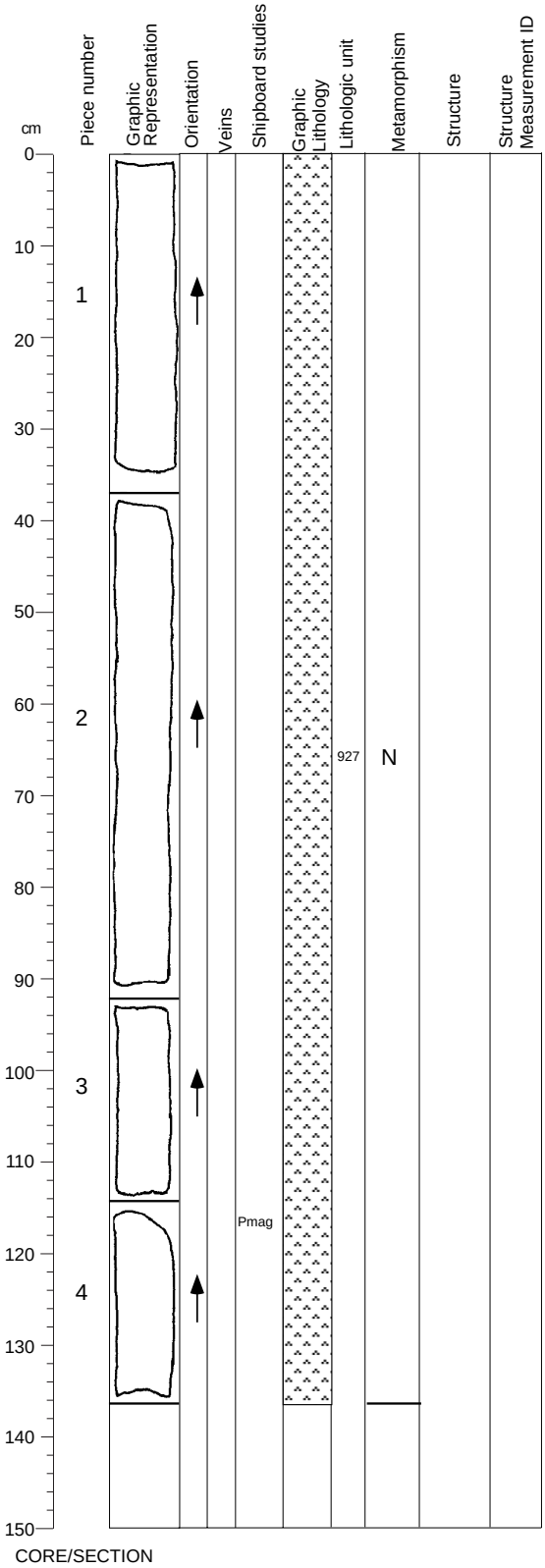
Interval 927: OLIVINE GABBRO
(see Section 176-735B-204R-1)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf>V>F
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a vein in Piece 1A, which grades into a fault.

Core Image



176-735B-204R-4

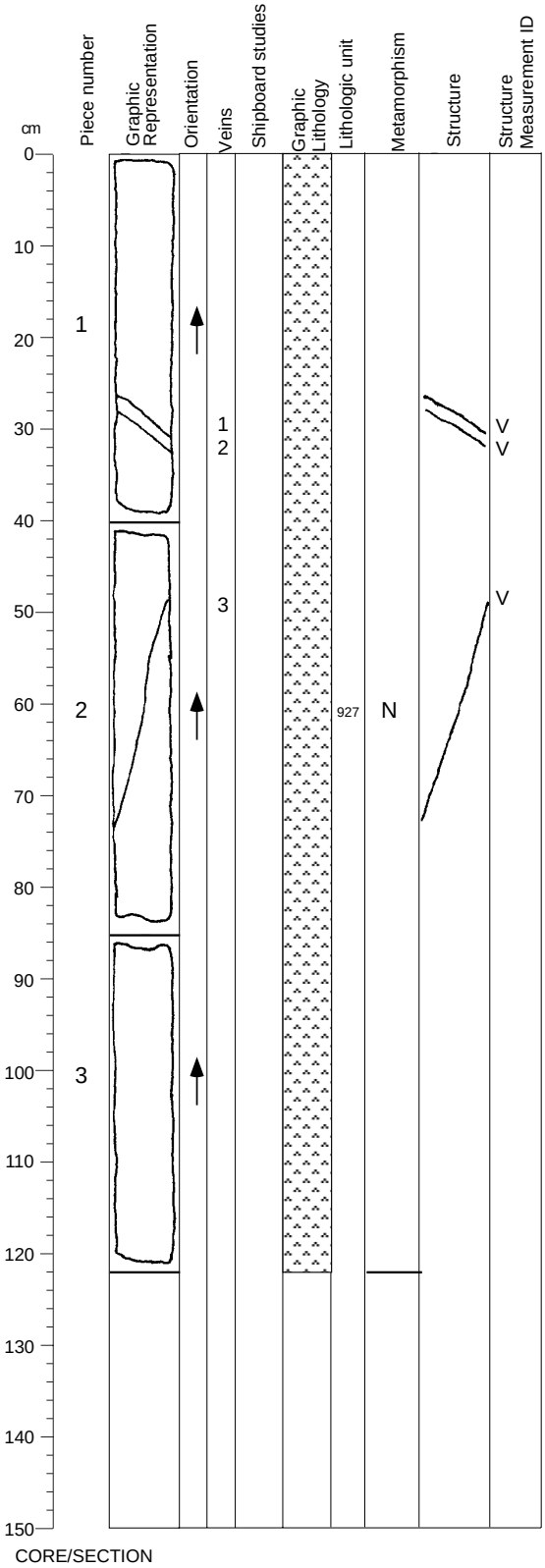
Interval 927: OLIVINE GABBRO
(see Section 176-735B-204R-1)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-204R-5

Interval 927: OLIVINE GABBRO
(see Section 176-735B-204R-1)

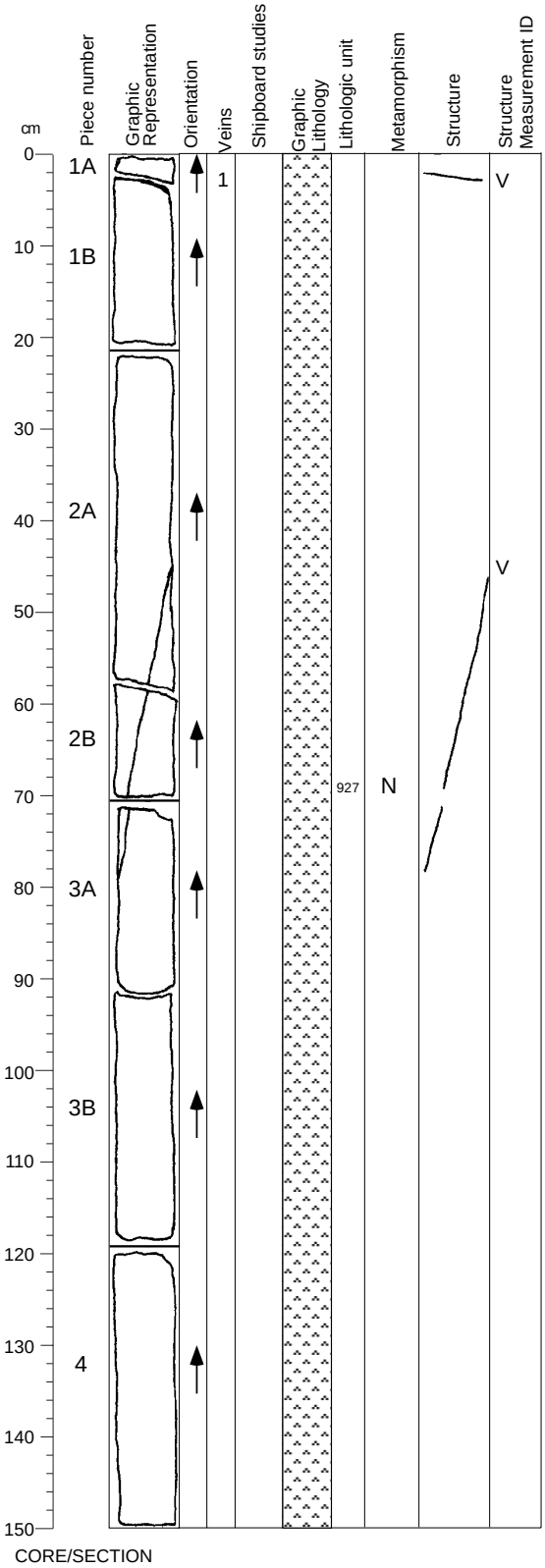
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.1 mm smectite veins in Piece 1; 0.2 mm chlorite vein in Piece 2.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a few veins in Pieces 1 and 2.

Core Image



176-735B-204R-6

Interval 927: OLIVINE GABBRO
(see Section 176-735B-204R-1)

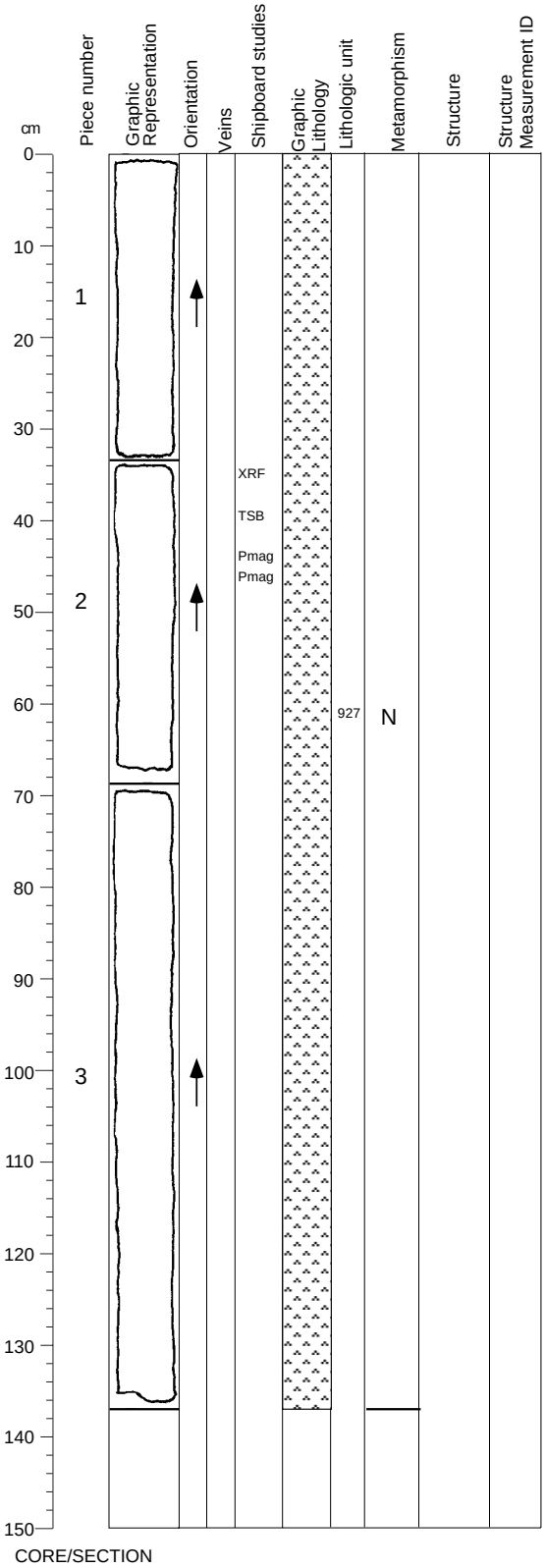
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
1 mm plagioclase vein in Piece 1; 0.2 mm chlorite vein in Pieces 2 to 3.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a vein in Pieces 2A to 3A.

Core Image



176-735B-204R-7

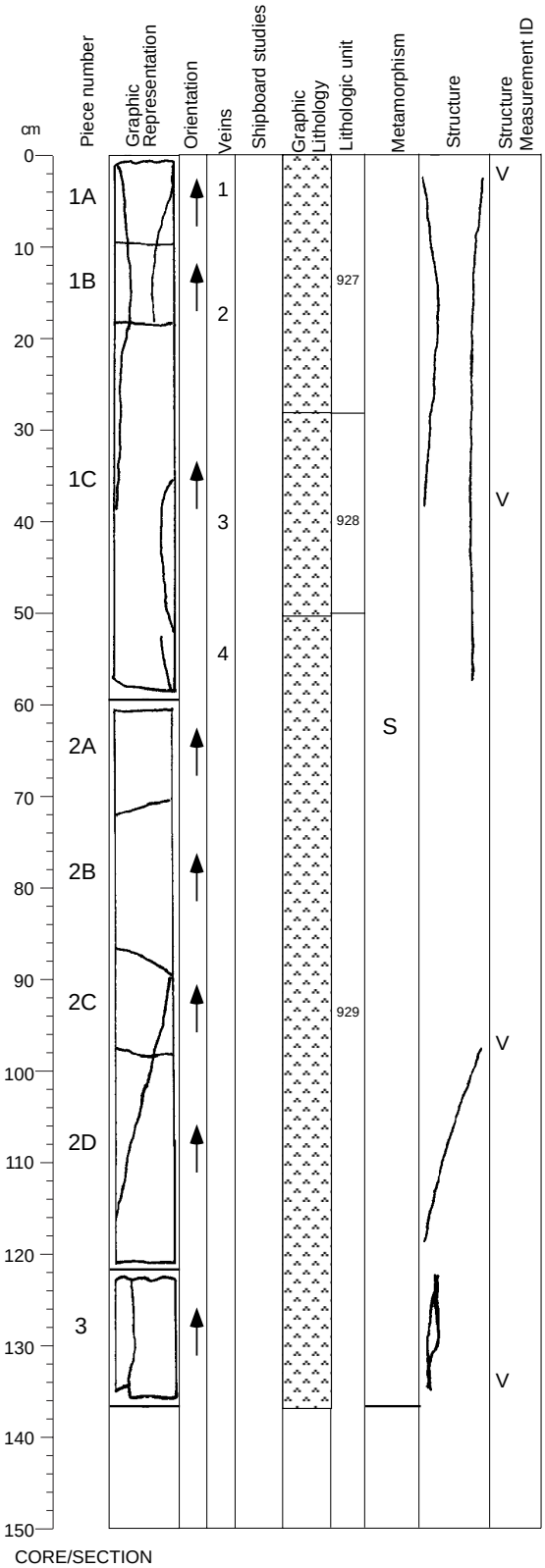
Interval 927: OLIVINE GABBRO
(see Section 176-735B-204R-1)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-205R-1

Interval 927: OLIVINE GABBRO
(see Section 176-735B-204R-1)
Interval 928: TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	205	1	28	1C	1450.48
Lower contact:	205	1	50	1C	1450.70

Thickness (m): 0.22

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	15	4	coarse	tabular/ subhedral
Clinopyroxene	15	7	2	medium	equant/ anhedral
Olivine	20	3	1	medium	equant/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Texture: granular (Type) N/A (Distribution)

Interval 929: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	205	1	50	1C	1450.70
Lower contact:	205	2	10	1A	1451.67

Thickness (m): 0.97

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	50	12	3	coarse	tabular/ subhedral
Clinopyroxene	35	40	5	pegmatitic	equant/ oikocrystic anhedral
Olivine	8	8	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	93.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Texture: granular (Type) N/A (Distribution)

Continued next page

Core Image

176-735B-205R-1 (cont'd)

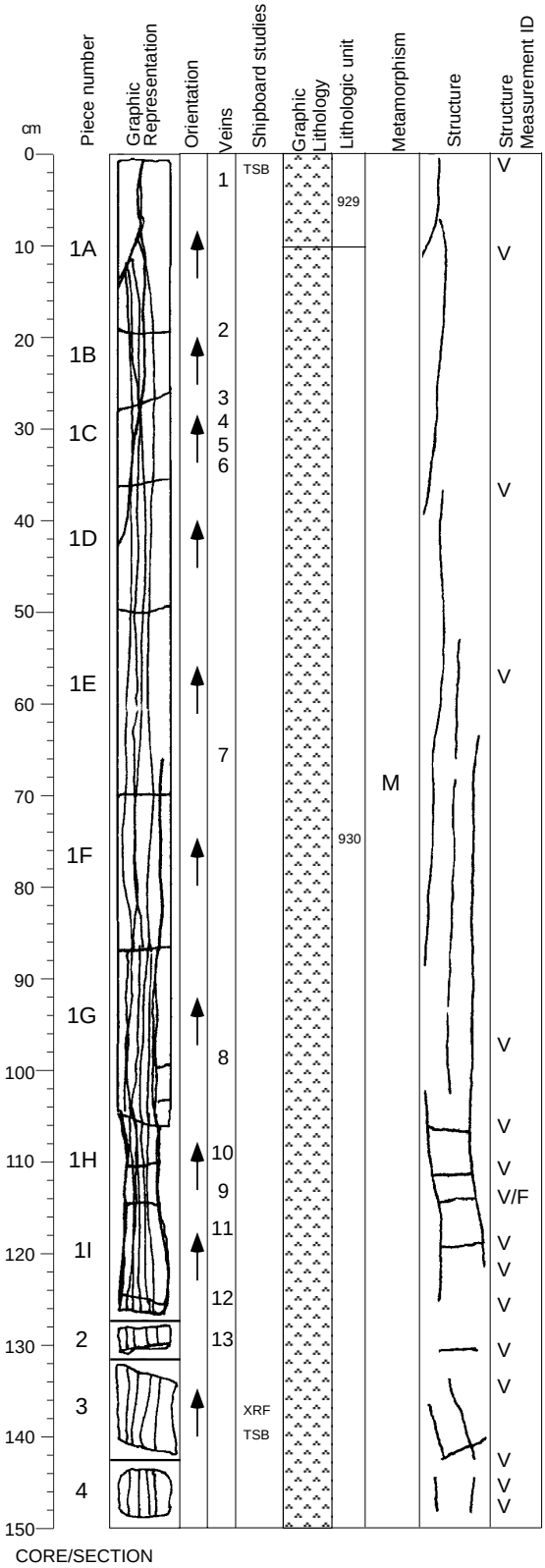
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Patches with chlorite.
Comments: In halos of chlorite veins.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Comments: In halos of chlorite veins.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (5%). 15% of the olivine is replaced by amphibole and smectite. 2% of the clinopyroxene is replaced by amphibole. 3% of the plagioclase is recrystallized.

Vein/Fracture Filling:
0.4 mm smectite vein in Piece1; 1.5 mm smectite+zeolite vein in Piece 3; 0.2 mm chlorite veins in Pieces 1 and 2.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A few veins cut the igneous texture over the entire section.

Core Image



176-735B-205R-2

Interval 929: OLIVINE GABBRO
(see previous section)
Interval 930: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	205	2	10	1A	1451.67
Lower contact:	205	4	43	2C	1454.98

Thickness (m): 3.31

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	65	20	4	coarse	tabular/ subhedral
Clinopyroxene	25	50	3	coarse	equant/ oikocrystic anhedral
Olivine	10	10	2	medium	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	100.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	variable texture	N/A

Comments: Mostly medium-grained, locally variable from fine-, to medium-, and to relatively coarse-grained composite interval consisting of two lithologies. Granular texture dominant; subophitic/ophitic and intergranular common. Clinopyroxene mode highly variable (10-35%). Oxide present at 16-17 cm in 205R-4.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: <3
Mode of occurrence: Patches with chlorite.
Comments: In halos of chlorite-amphibole veins.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: <3
Mode of occurrence: Associated with green amphibole.
Comments: In halos of chlorite-amphibole veins.
Smectite:
Total Percent: <5
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.
Quartz:
Total Percent: trace
Mode of occurrence: Associated with smectite and with chlorite.

Continued next page

Core Image

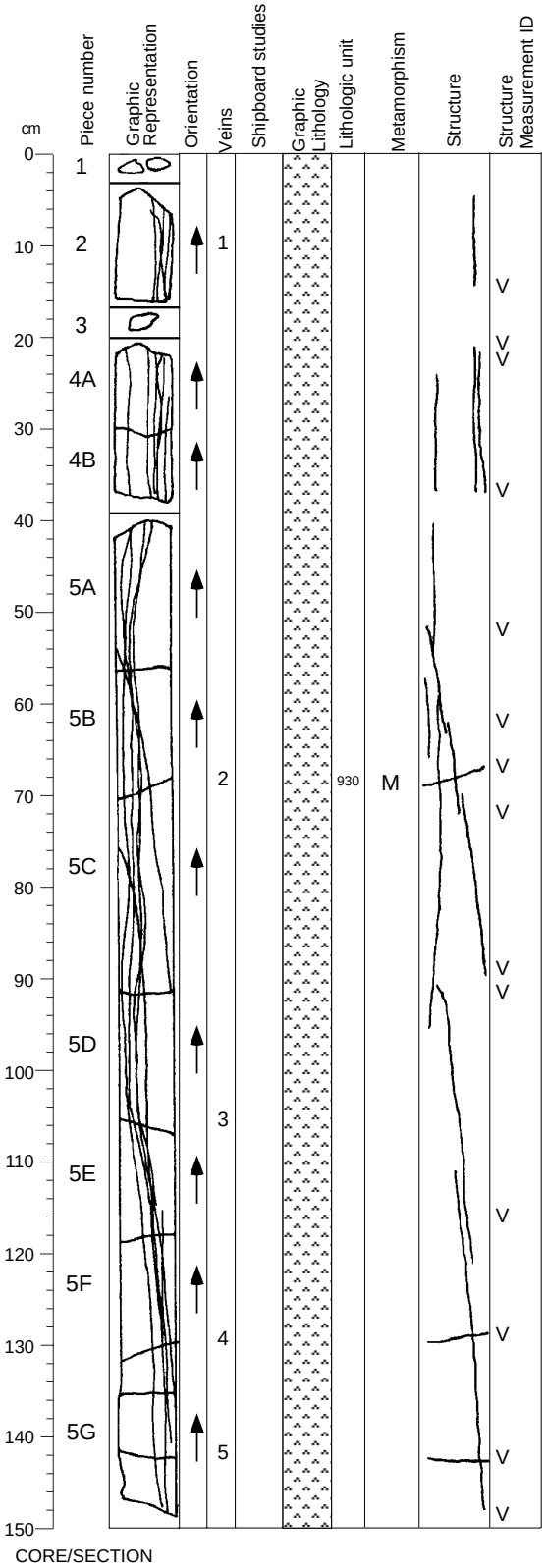
176-735B-205R-2 (cont'd)

Background Alteration:
Degree of alteration: moderate (13%). Olivine is partly altered into smectite and sulfide in the center and talc, amphibole, and oxide in the outer part (25%). 5% of the clinopyroxene is altered to amphibole and smectite/chlorite. 10% of the plagioclase is altered to smectite and albite or zeolite along smectite and zeolite veins and to smectite/chlorite and actinolite along the chlorite + actinolite veins.

Vein/Fracture Filling:
0.3 mm chlorite+amphibole veins in Pieces 1 to 4, vein net in Pieces 1 to 4; 0.2-0.4 mm smectite veins in Pieces 1 to 4; 0.4-2 mm zeolite veins in Pieces 1 to 4.

Structures:
Mf>V>F
The section displays a coarse-grained igneous texture with no magmatic foliation. An extensive network of subvertical veins cuts the igneous texture over the entire section, associated with, or cut by, a few subhorizontal veins. Smectite veins cross-cut the amphibole-chlorite veins. One of the subhorizontal veins grades into a fault.

Core Image



176-735B-205R-3

Interval 930: OLIVINE GABBRO
(see previous section)

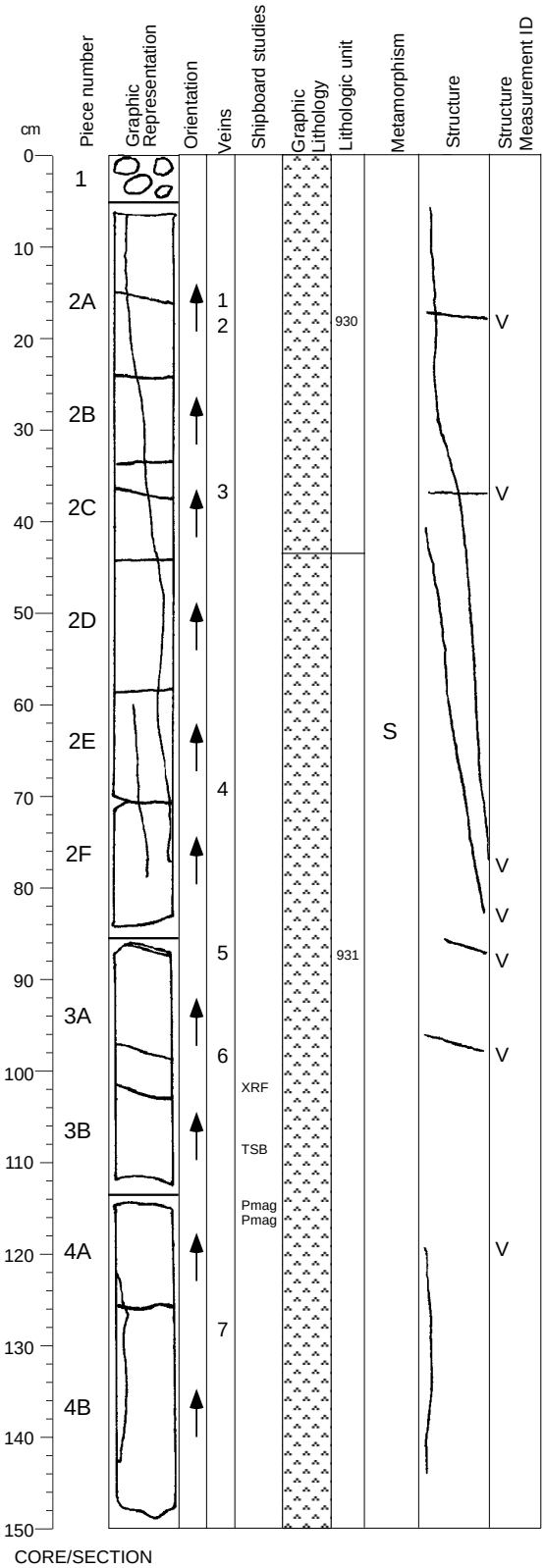
Alteration:
Dark green amphibole:
Total Percent: <3
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: <5
Mode of occurrence: Patches with chlorite.
Comments: In halos of chlorite-amphibole veins.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: <1
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: <5
Mode of occurrence: Associated with green amphibole.
Comments: In halos of chlorite-amphibole veins.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.
Quartz:
Total Percent: <2
Mode of occurrence: Associated with chlorite and smectite.
Sulfide:
Total Percent: trace
Mode of occurrence: Associated with smectite.

Background Alteration:
Degree of alteration: moderate (18%). Olivine is partly altered to smectite and sulfide in the center and talc, amphibole, and oxide in the outer part (40%). 12% of the clinopyroxene is altered to amphibole and smectite/chlorite. 10% of the plagioclase is altered to smectite and albite or zeolite along smectite and zeolite veins and to smectite/chlorite and actinolite along the chlorite+actinolite veins.

Vein/Fracture Filling:
Chlorite+amphibole vein net in Pieces 1-5; 0.2-1 mm smectite veins in Piece 5; 0.8 mm zeolite veins in Piece 5.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. An extensive network of subvertical veins cuts the igneous texture over the entire section, associated with, or cut by, a few subhorizontal veins. Smectite veins cross-cut the amphibole-chlorite veins.

Core Image



176-735B-205R-4

Interval 930: OLIVINE GABBRO
(see Section 176-735B-205R-2)
Interval 931: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	205	4	43	2C	1454.98
Lower contact:	205	6	30	1B	1457.82

Thickness (m): 2.84

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	23	5	coarse	tabular/ subhedral
Clinopyroxene	35	45	5	pegmatitic	equant/ oikocrystic anhedral
Olivine	15	20	2	medium	elongate/ anhedral subhedral
Opaques	0.8				amoeboidal aggregates/ disseminated
Total	105.8*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Mostly granular, localy subophitic. Locally pegmatitic at 68-80 cm, 94-104 cm in 205R-5, and 15-28 cm in 205R-6. Oxide locally abundant at 47-48 cm in 205R-4, 11-12 cm in 205R-5, and 16-17 cm in 205R-6.

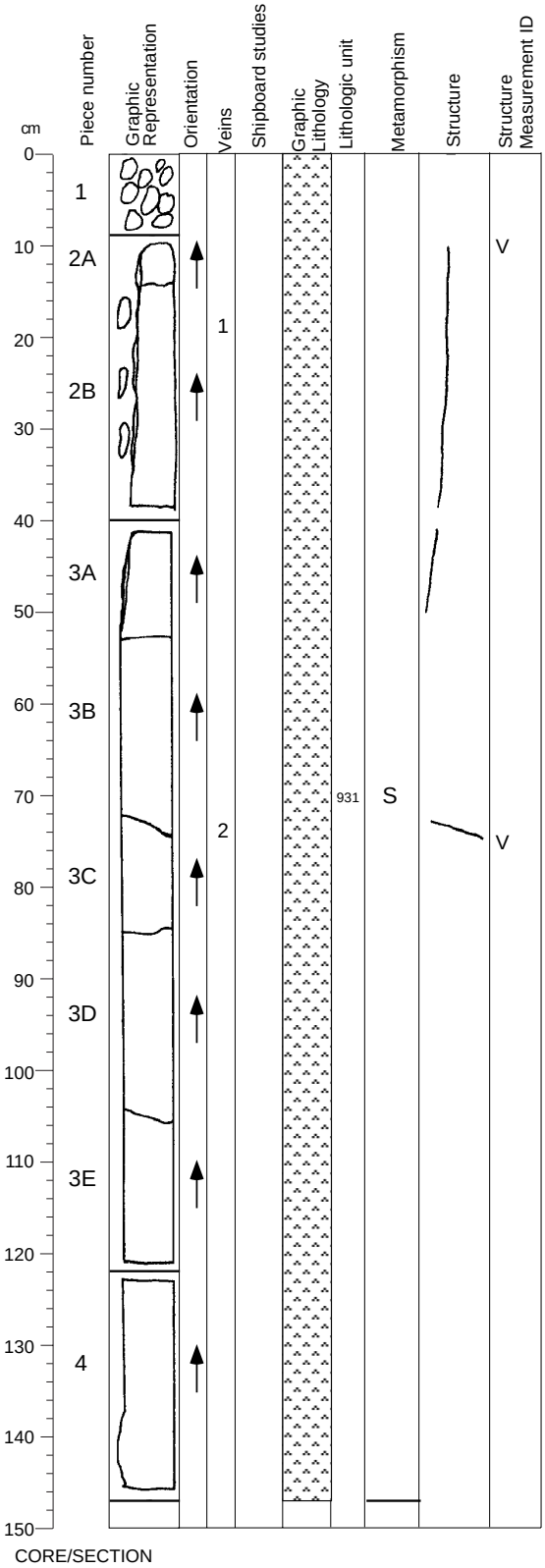
Alteration:
Dark green amphibole:
Total Percent: <2
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: <2
Mode of occurrence: Patches with chlorite.
Comments: In halos of chlorite-amphibole veins.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: <2
Mode of occurrence: Associated with green amphibole.
Comments: In halos of chlorite-amphibole veins.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.
Quartz:
Total Percent: trace
Mode of occurrence: Associated with chlorite and smectite.
Sulfide:
Total Percent: trace
Mode of occurrence: Associated with smectite.

Background Alteration:
Degree of alteration: slight (10%). Olivine is partly replaced by smectite, amphibole, and sulfide (25%). 3% of the clinopyroxene is altered to amphibole and rare smectite. 8% of the plagioclase is altered to albite and smectite.

Vein/Fracture Filling:
0.5 mm chlorite vein in Piece 2; 0.2-0.5 mm smectite veins in Pieces 2-4.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation. A series of subvertical and subhorizontal veins cuts the igneous texture over the entire section.

Core Image



176-735B-205R-5

Interval 931: OLIVINE GABBRO
(see previous section)

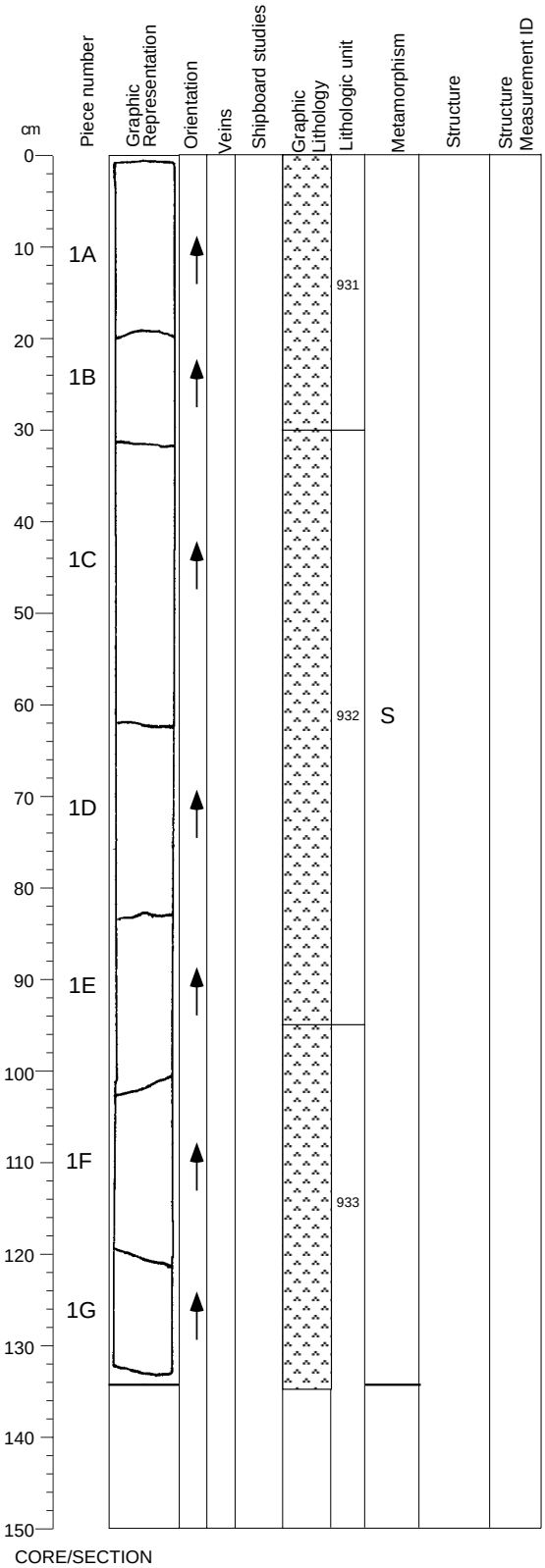
Dark green amphibole:
Total Percent: <2
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace.
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Patches with chlorite.
Comments: In halos of chlorite-amphibole veins.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Comments: In halos of chlorite-amphibole veins.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: slight (6%). Olivine is partly replaced by smectite, amphibole, and sulfide (18%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.8 mm smectite+zeolite vein in Pieces 2 and 3; 0.5 mm smectite vein in Piece 3.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a few veins in Pieces 2A to 2C.

Core Image



176-735B-205R-6

Interval 931: OLIVINE GABBRO
(see Section 176-735B-205R-4)
Interval 932: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	205	6	30	1B	1457.82
Lower contact:	205	6	95	1E	1458.47

Thickness (m): 0.65

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	10	3	medium	tabular/ subhedral
Clinopyroxene	20	8	2	medium	equant/ anhedral
Olivine	12	4	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	92.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Medium
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A
Comments: Olivine rich in upper 1/2 (troctolitic).

Interval 933: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	205	6	95	1E	1458.47
Lower contact:	206	1	1	1	1459.91

Thickness (m): 1.44

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	25	3	coarse	tabular/ subhedral
Clinopyroxene	35	30	5	coarse	equant/ oikocrystic anhedral
Olivine	8	6	1	medium	equant/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	98.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A
Comments: Grain size and mode variable; locally finer at 83-89 cm in 205R-6, 73-100 cm in 205R-8 apparently associated with recrystallization.

Continued next page

Core Image

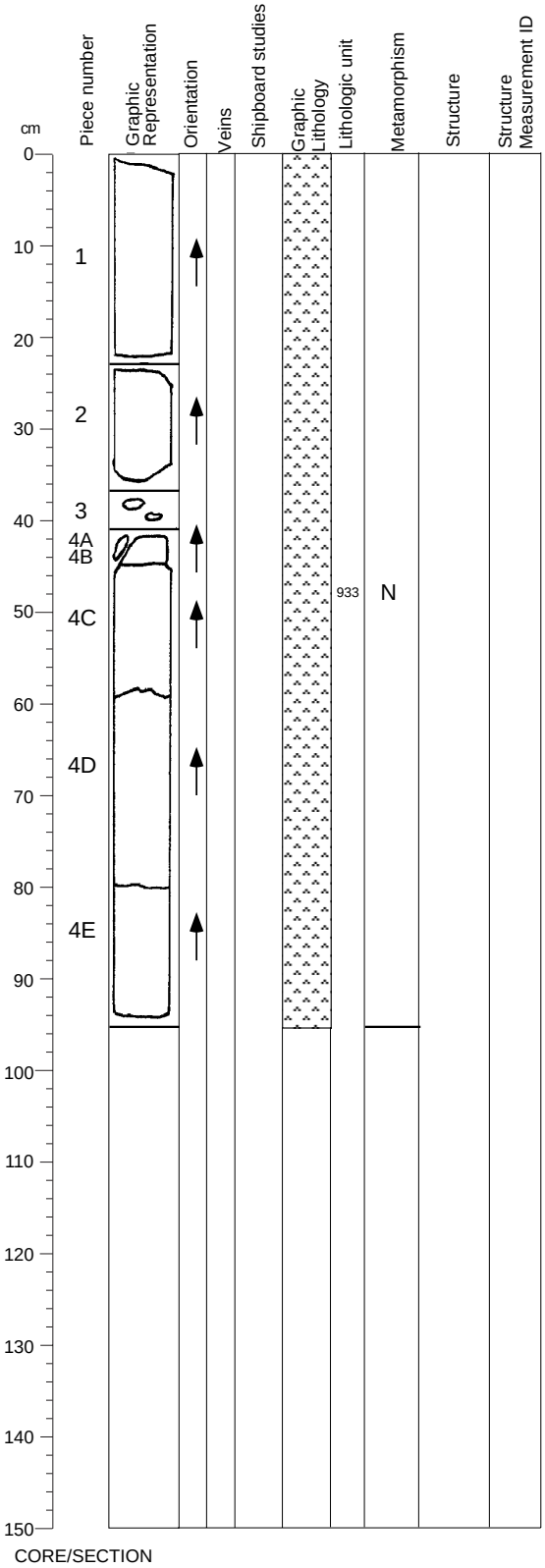
176-735B-205R-6 (cont'd)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: slight (3%). Olivine is weakly altered to smectite, amphibole, and little sulfide (8%). Clinopyroxene and plagioclase are negligibly altered (1%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-205R-7

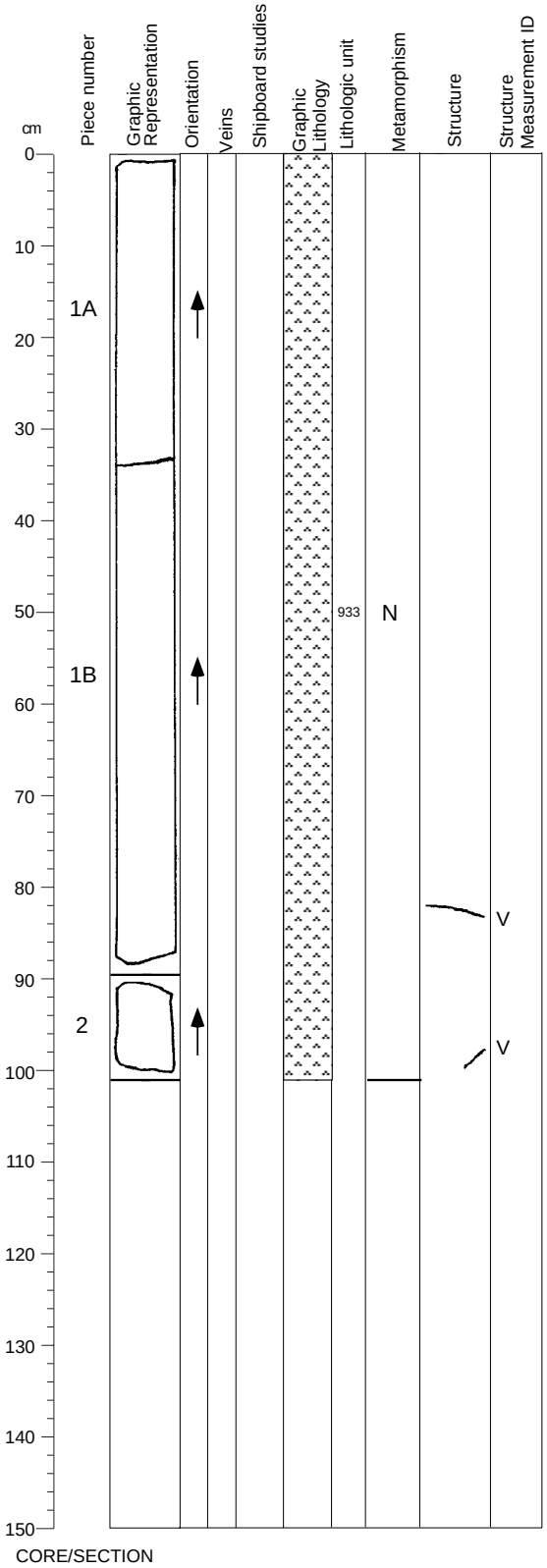
Interval 933: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-205R-8

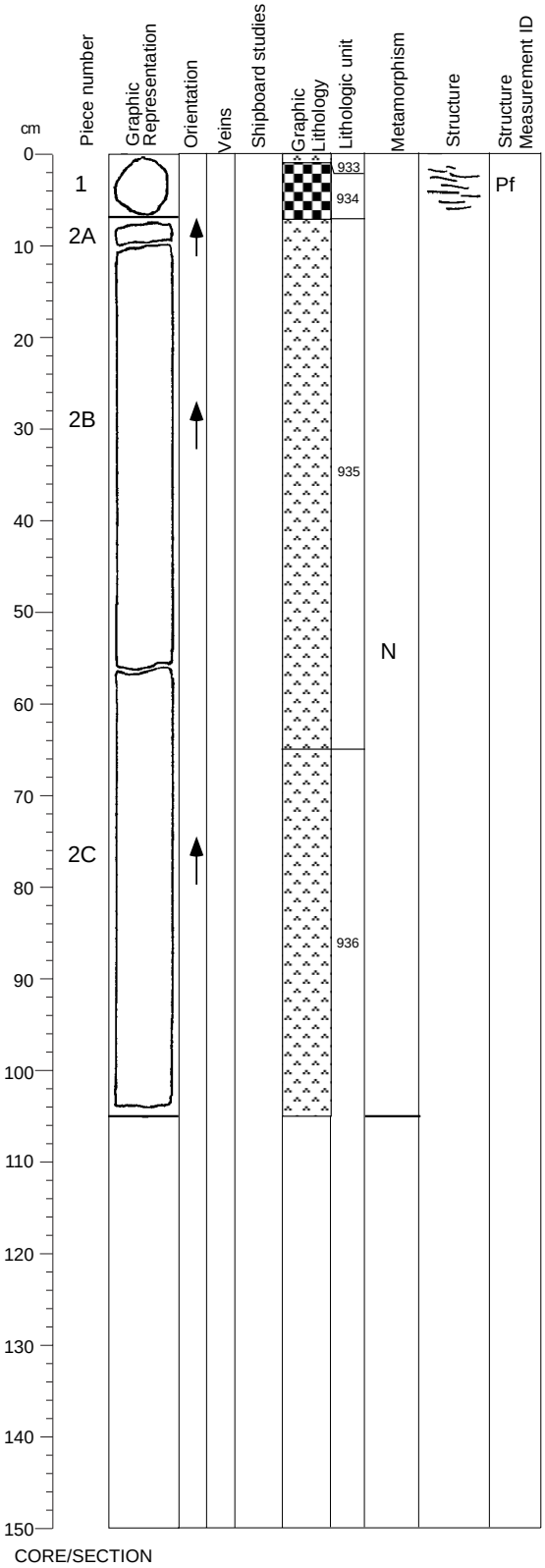
Interval 933: OLIVINE GABBRO
(see Section 176-735B-205R-6)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by two veins in Pieces 1B and 2. The texture is finer grained at the bottom of Piece 1B and in Piece 2; the contact with the overlying coarse-grained texture is steep (around 70°) and diffuse.

Core Image



176-735B-206R-1

Interval 933: OLIVINE GABBRO
(see Section 176-735B-205R-6)
Interval 934: OXIDE GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	206	1	1	1	1459.91
Lower contact:	206	1	7	1	1459.97

Thickness (m): 0.06

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	9	2	medium	tabular/ anhedral deformed
Clinopyroxene	30	40	2	coarse	equant/ anhedral chadacrystic
Olivine	3	1	1	fine	equant/ anhedral interstitial
Opaques	10				lenses/ disseminated
Total	103*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Medium
Modal IUGS Name (calculated): FeTi Oxide Gabbro
Type Distribution
Texture: granular N/A
Comments: Orthopyroxene possibly present.

Interval 935: OLIVINE GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	206	1	7	1	1459.97
Lower contact:	206	1	64	2C	1460.54

Thickness (m): 0.57

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	15	4	coarse	tabular/ subhedral
Clinopyroxene	30	20	5	coarse	equant/ anhedral oikocrystic
Olivine	20	7	1	medium	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A
Comments: Locally fine-grained plagioclase-rich patches present.

Continued next page

Core Image

176-735B-206R-1 (cont'd)

Interval 936: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	206	1	64	2C	1460.54
Lower contact:	206	6	127	2B	1467.65

Thickness (m): 7.11

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	20	6	coarse	tabular/ subhedral
Clinopyroxene	25	25	3	coarse	equant/ anhedral oikocrystic
Olivine	15	10	1	medium	elongate/ anhedral subhedral
Opaques	0.6				amoeboidal aggregates/ disseminated
Total	95.6*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

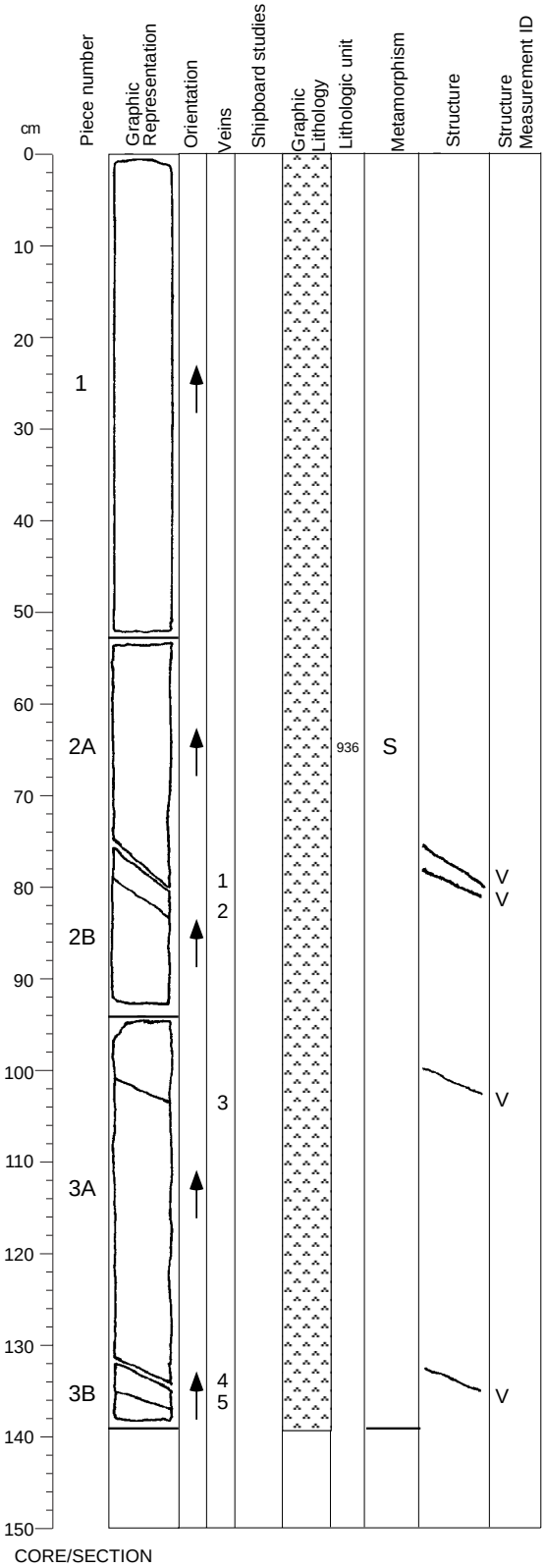
Comments: Grain size and mode variable. From top to 70 cm in 206R-2 (fine-grained; troctolitic), to 60 cm in 206R-3 (medium-grained), to 15 cm in 206R-4 (coarse-grained, locally leucocratic at 102-109 cm in 206R-2 and 55-60 cm in 206R-3), to 50 cm in 206R-4 (fine/medium-grained), to 101 cm in 206R-4 (coarse-grained), to 130 cm in 206R-4 (medium-grained; locally leucocratic), to 40 cm in 206R-5 (fine-grained; locally coarse at 136 cm in 206R-4), to 110 cm in 206R-5 (medium-grained), and to base (coarse-grained).

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf>Pf; Mf
Most of The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, except for Piece 1 (unoriented sample) which has a strong crystal-plastic foliation.

Core Image



176-735B-206R-2

Interval 936: OLIVINE GABBRO
(see previous section)

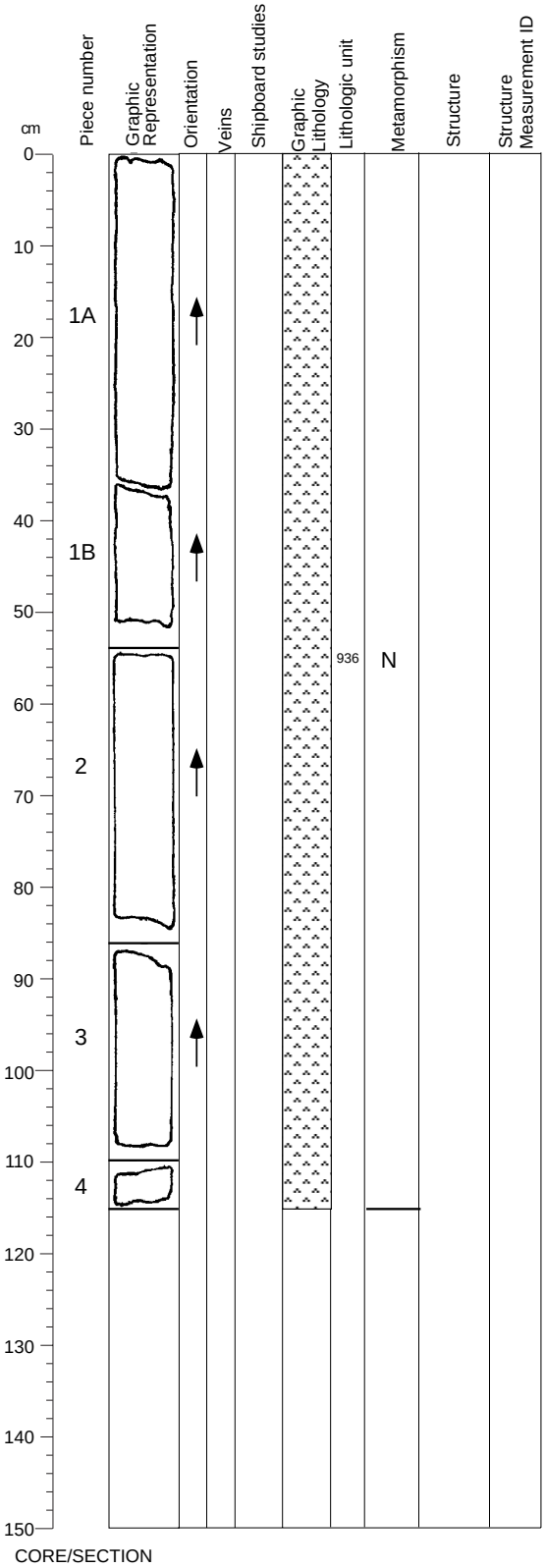
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green after olivine.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (3%). Olivine is weakly altered to smectite, amphibole, and little sulfide (5%). Clinopyroxene and plagioclase are negligibly altered (1%).

Vein/Fracture Filling:
0.1-0.8 mm smectite veins in Pieces 2 and 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins.

Core Image



176-735B-206R-3

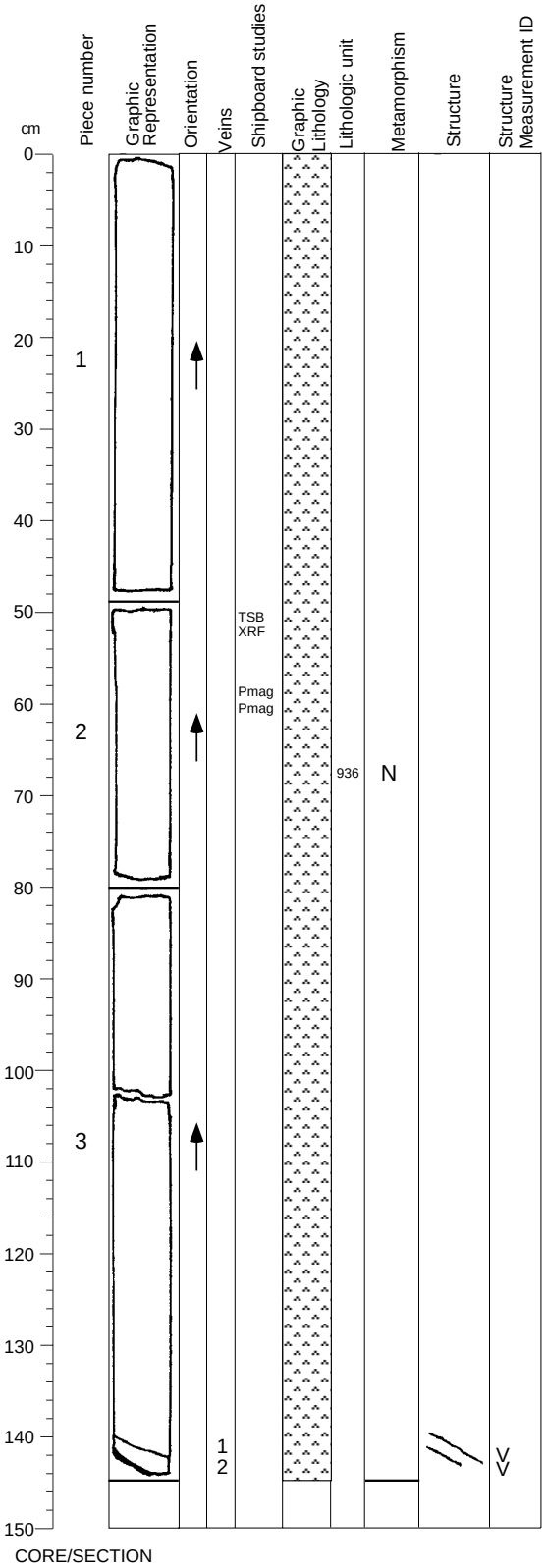
Interval 936: OLIVINE GABBRO
(see Section 176-735B-206R-1)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a vein at the top of Piece 1A.

Core Image



176-735B-206R-4

Interval 936: OLIVINE GABBRO
(see Section 176-735B-206R-1)

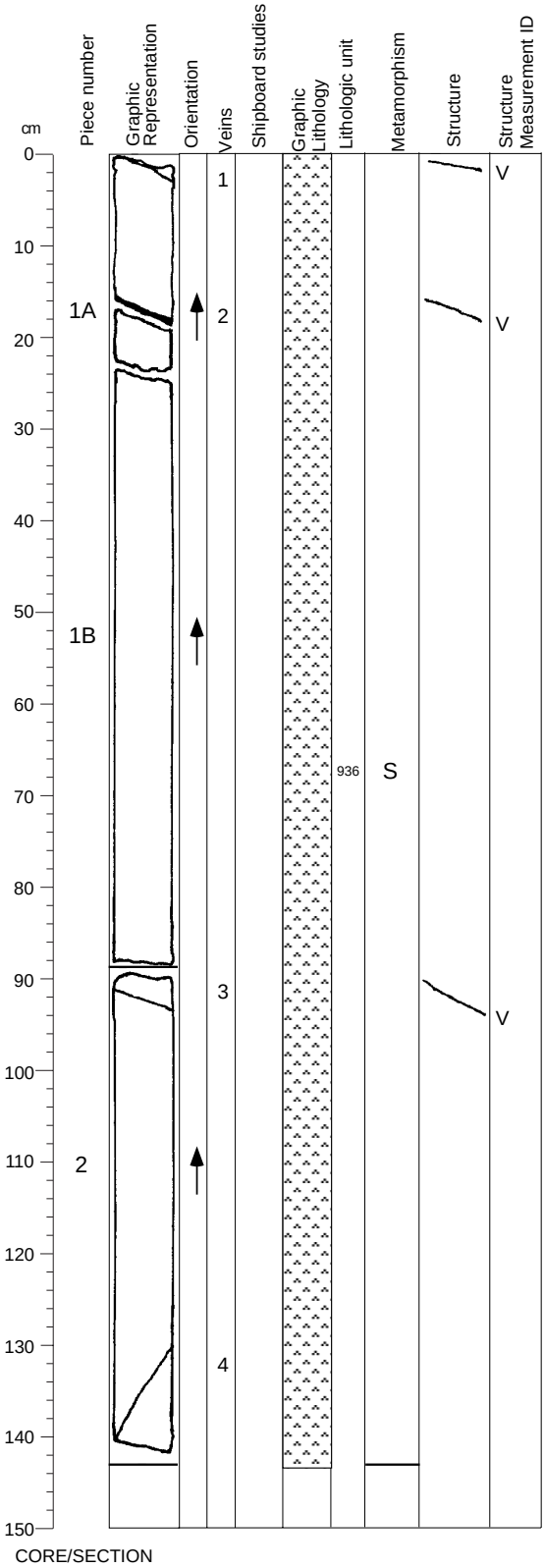
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.2 mm smectite veins in Piece 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by two veins at the bottom of Piece 3.

Core Image



176-735B-206R-5

Interval 936: OLIVINE GABBRO
(see Section 176-735B-206R-1)

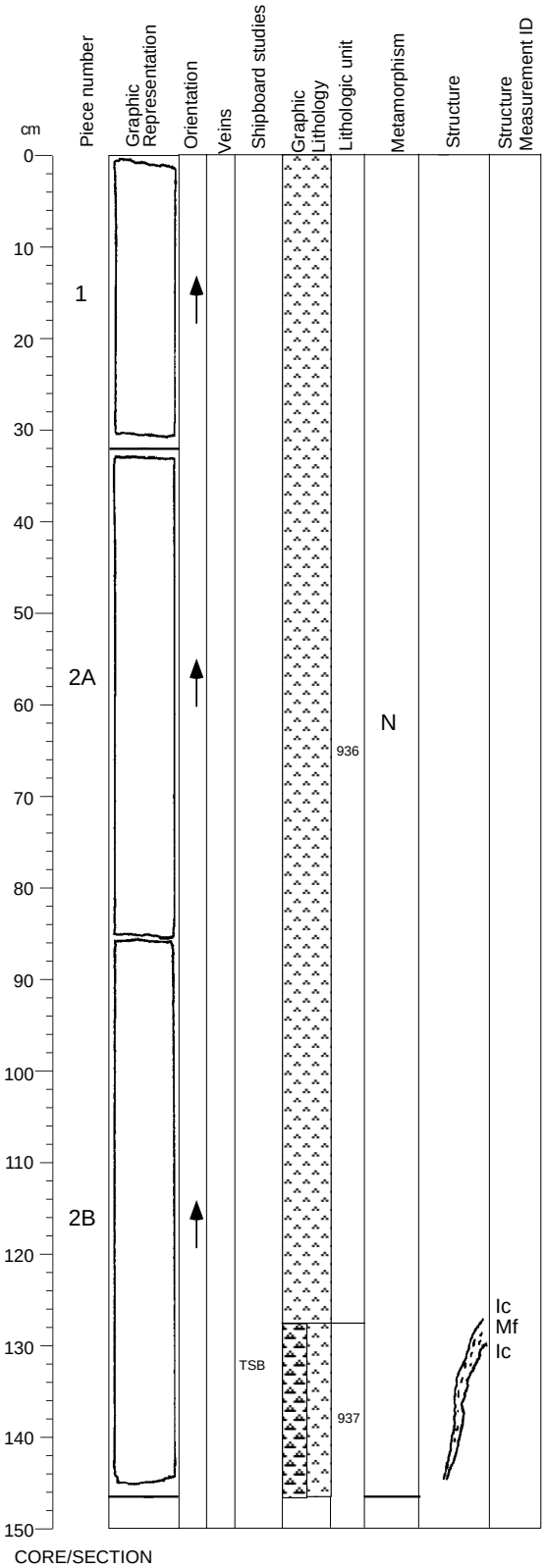
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine.
Sulfide:
Total Percent: trace
Mode of occurrence: Associated with smectite.

Background Alteration:
Degree of alteration: slight (3%). Olivine is weakly altered to smectite, amphibole, and little sulfide (5%). Clinopyroxene and plagioclase are negligibly altered (1%).

Vein/Fracture Filling:
0.2-0.5 mm smectite veins in Pieces 1 and 2; 0.2 mm amphibole vein in Piece 2.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins.

Core Image



176-735B-206R-6

Interval 936: OLIVINE GABBRO
(see Section 176-735B-206R-1)
Interval 937: OLIVINE MICROGABBRO/OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	206	6	127	2B	1467.65
Lower contact:	207	1	35	3	1469.85

Thickness (m): 2.20

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	2	N/A	fine	tabular/ subhedral
Clinopyroxene	30	1	N/A	fine	equant/ anhedral
Olivine	20	1	1	fine	equant/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

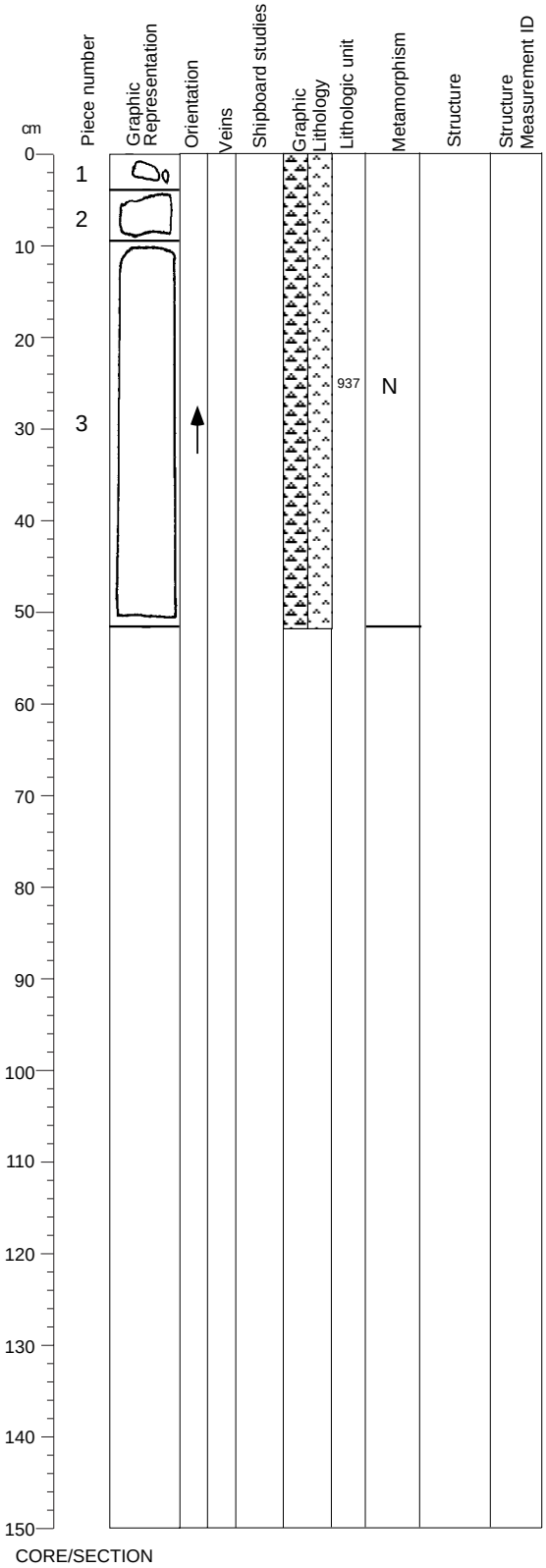
Comments: Composite of very fine-grained olivine microgabbro and pegmatitic olivine gabbro with subvertical contacts. Sulfide locally abundant in bottom 30 cm of the interval.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf=Ic
Most of the section displays a coarse-grained igneous texture with no magmatic foliation. The bottom of Piece 2B displays a narrow (1-2 cm thick), steeply dipping interval of fine-grained material, with sharp contacts marked by the presence of olivine. The overlying material is coarse-grained; the underlying material is very coarse-grained (several cm). A weak magmatic foliation appears to follow the contacts within the fine-grained material.

Core Image



176-735B-206R-7

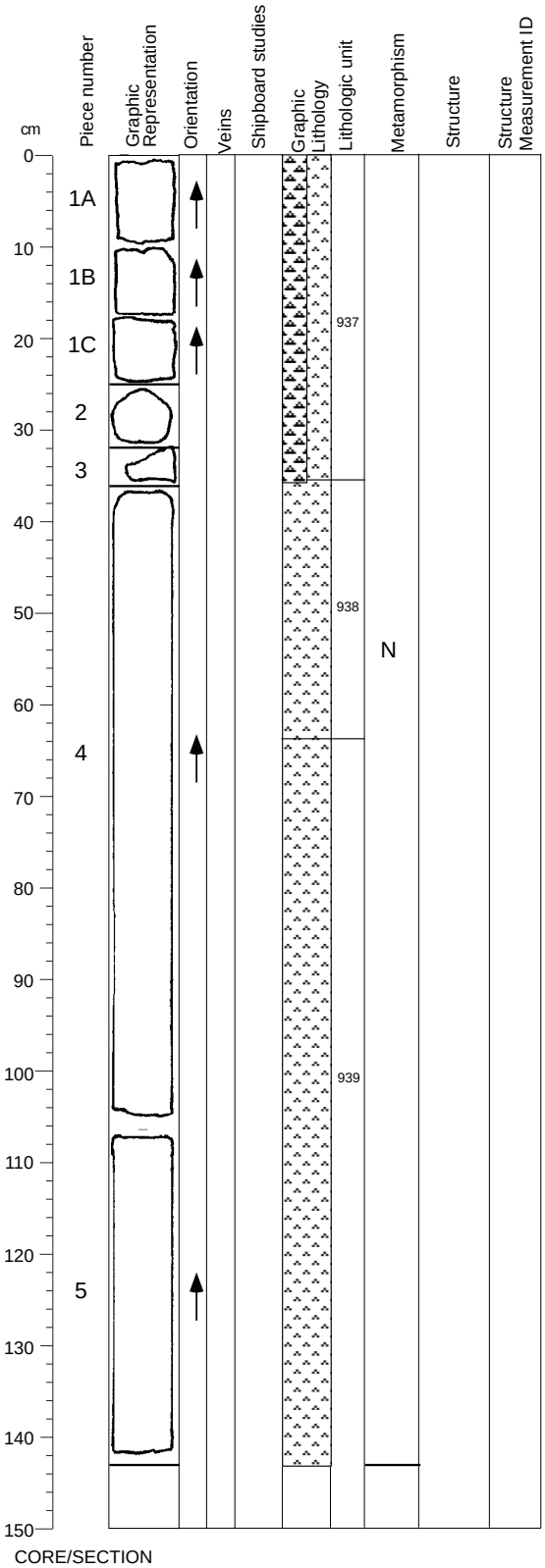
Interval 937: OLIVINE MICROGABBRO / OLIVINE GABBRO (see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a fine to coarse-grained igneous texture with no magmatic foliation. A subvertical, fine-grained layer (1 to a few cm thick) is present over the entire Piece 3; it is similar to the one in the previous section (206R-6), although it has more diffuse contacts and no clearly visible foliation. A very thin (1 to a few mm), 8 cm long, aggregate of olivine is present in the center of the fine-grained layer, parallel to the contacts with the coarse-grained gabbro (visible on the back side of the rock).

Core Image



176-735B-207R-1

Interval 937: OLIVINE MICROGABBRO / OLIVINE GABBRO (see Section 176-735B206R-6)

Interval 938: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	207	1	35	3	1469.85
Lower contact:	207	1	63	4	1470.13

Thickness (m): 0.28

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	50	20	8	coarse	tabular/ subhedral
Clinopyroxene	35	30	5	coarse	tabular/ anhedral
Olivine	12	10	1	medium	subhedral amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	97.5*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Type: granular
Distribution: N/A
Texture: granular

Interval 939: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	207	1	63	4	1470.13
Lower contact:	207	3	82	1	1472.59

Thickness (m): 2.46

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	15	5	coarse	tabular/ subhedral
Clinopyroxene	35	35	3	coarse	equant/ anhedral
Olivine	12	15	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	107.5*		(see explanatory notes)		

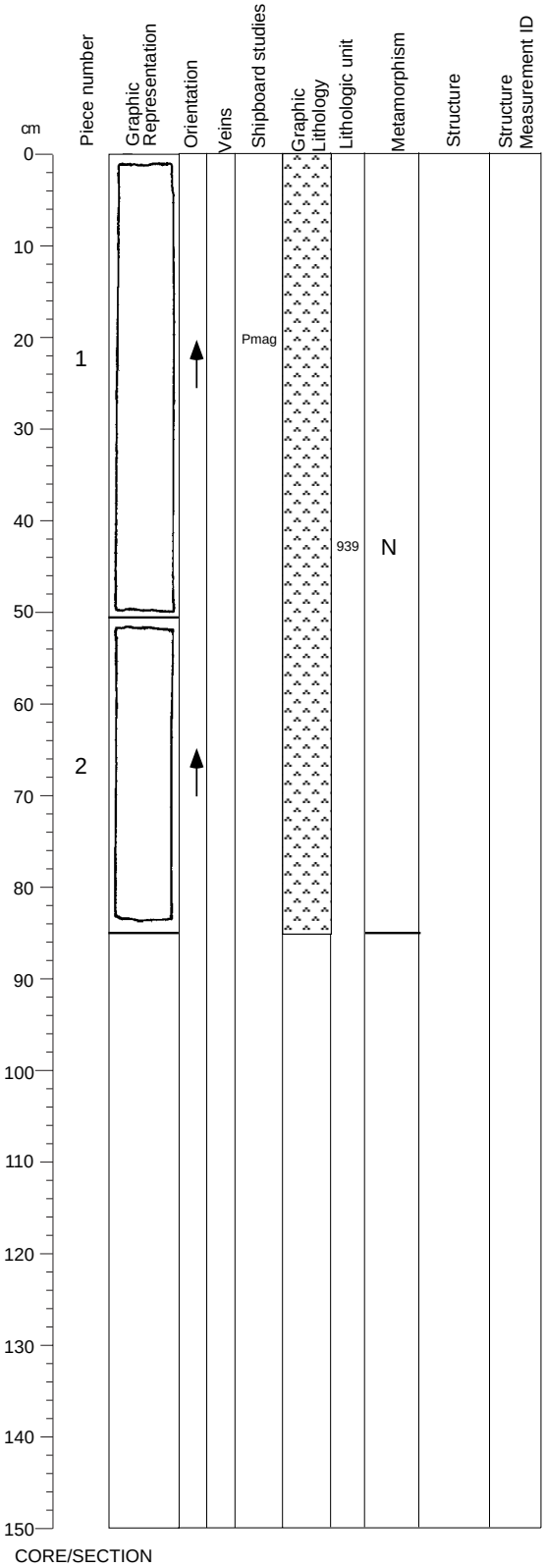
*Major phases estimated to ± 5%)
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro
Type: granular
Distribution: N/A
Comments: Grain size and mode variable. From top to 81 cm in 207R-1 (fine-grained), to 96 cm in 207R-1 (coarse-grained), to 30 cm in 207R-2 (medium/coarse-grained), to 65 cm in 207R-2 (fine-grained), and to base (medium/coarse-grained).

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-207R-2

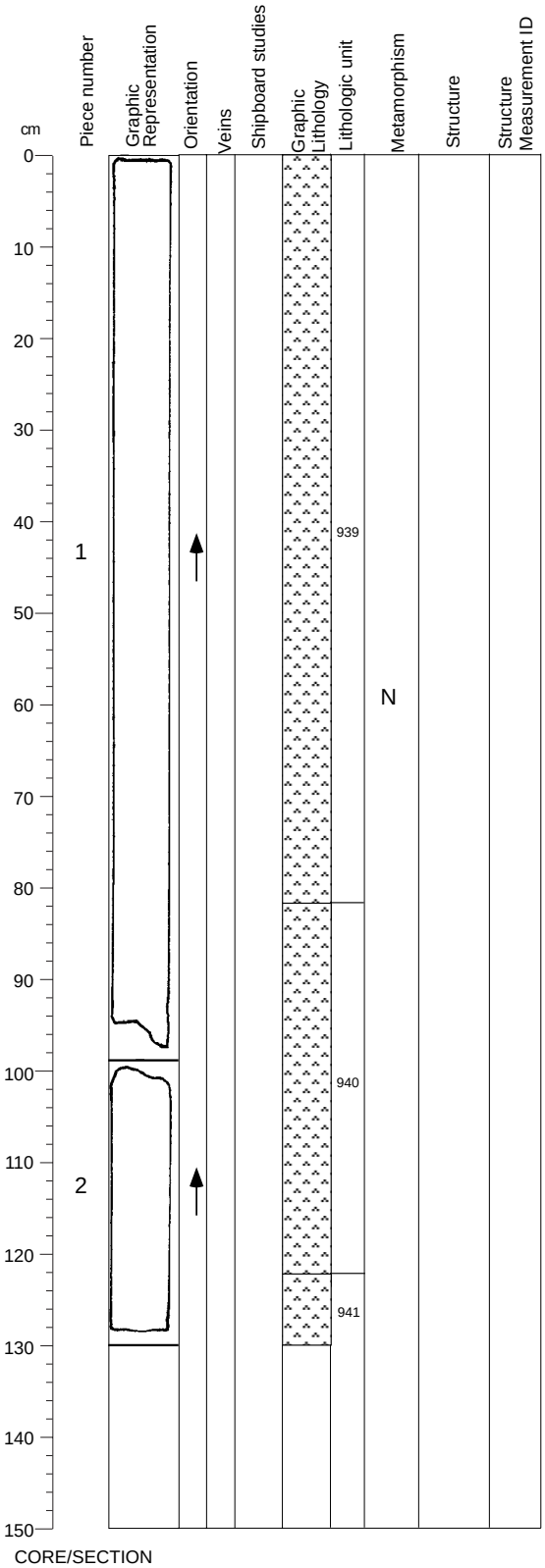
Interval 939: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-207R-3

Interval 939: OLIVINE GABBRO
(see Section 176-735B-207R-1)
Interval 940: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	207	3	82	1	1472.59
Lower contact:	207	3	123	2	1473.00

Thickness (m): 0.41

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	40	25	5	coarse	tabular/ subhedral
Clinopyroxene	40	40	8	coarse	equant/ anhedral
Olivine	20	25	5	coarse	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	100.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Type: Distribution
Texture: granular N/A
Comments: Has melanocratic portions, large clusters of olivine crystals.

Interval 941: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	207	3	123	2	1473.00
Lower contact:	207	4	43	1A	1473.50

Thickness (m): 0.50

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	15	5	coarse	tabular/ subhedral
Clinopyroxene	25	25	4	coarse	equant/ anhedral
Olivine	15	10	2	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

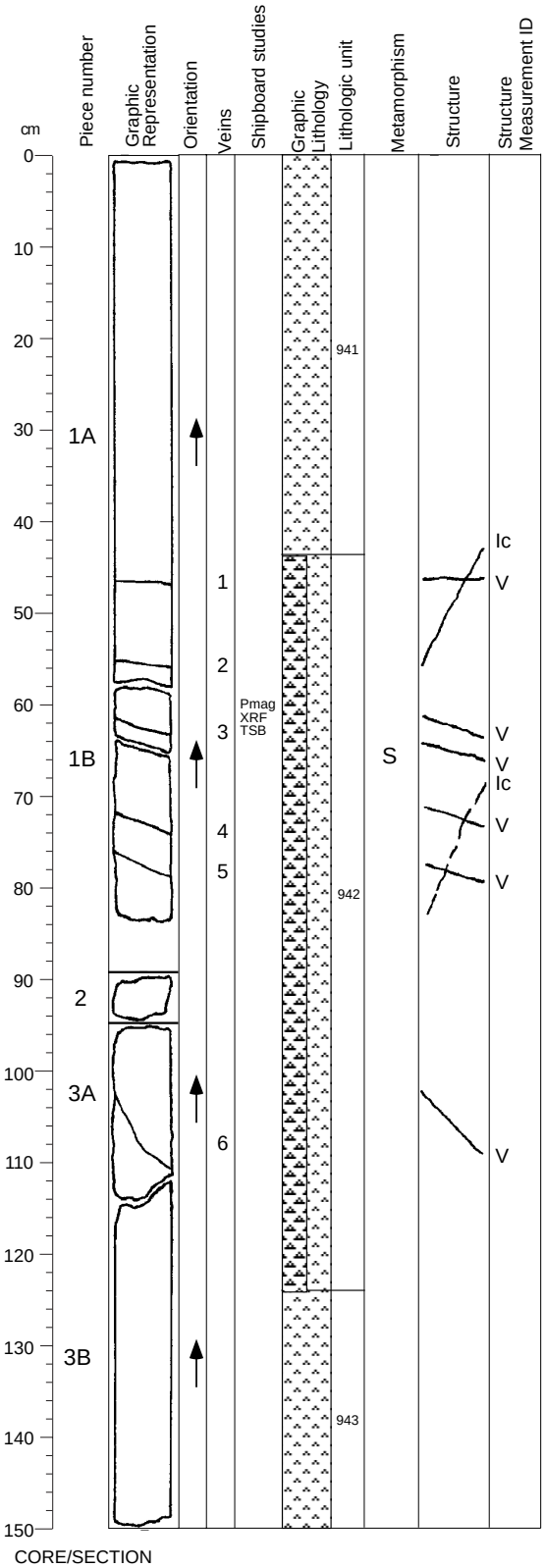
*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro
Type: Distribution
Texture: granular N/A
Comments: Locally very coarse at base.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-207R-4

Interval 941: OLIVINE GABBRO
(see previous section)

Interval 942: OLIVINE MICROGABBRO / OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	207	4	43	1A	1473.50
Lower contact:	207	4	124	3B	1474.31

Thickness (m): 0.81

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	2	0.5	fine	tabular/ subhedral
Clinopyroxene	25	2	N/A	fine	equant/ anhedral
Olivine	20	1	1	fine	equant/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A
Comments: A composite interval of microgabbro and pegmatitic gabbro (Similar to 937). Oxide locally abundant at 72-73 cm in 207R-4.

Interval 943: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	207	4	124	3B	1474.31
Lower contact:	207	5	75	7	1475.32

Thickness (m): 1.01

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	35	10	coarse	tabular/ subhedral
Clinopyroxene	30	50	5	pegmatitic	tabular/ subhedral anhedral
Olivine	10	30	5	coarse	elongate/ anhedral
Opaques	0.6				amoeboidal aggregates/ disseminated
Total	95.6*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Pegmatitic
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A
Comments: Clinopyroxene locally oikocrystic. Felsic vein present at 33-38 cm in 207R-5. Locally finer-grained at 50-74 cm in 207R-5.

Continued next page

Core Image

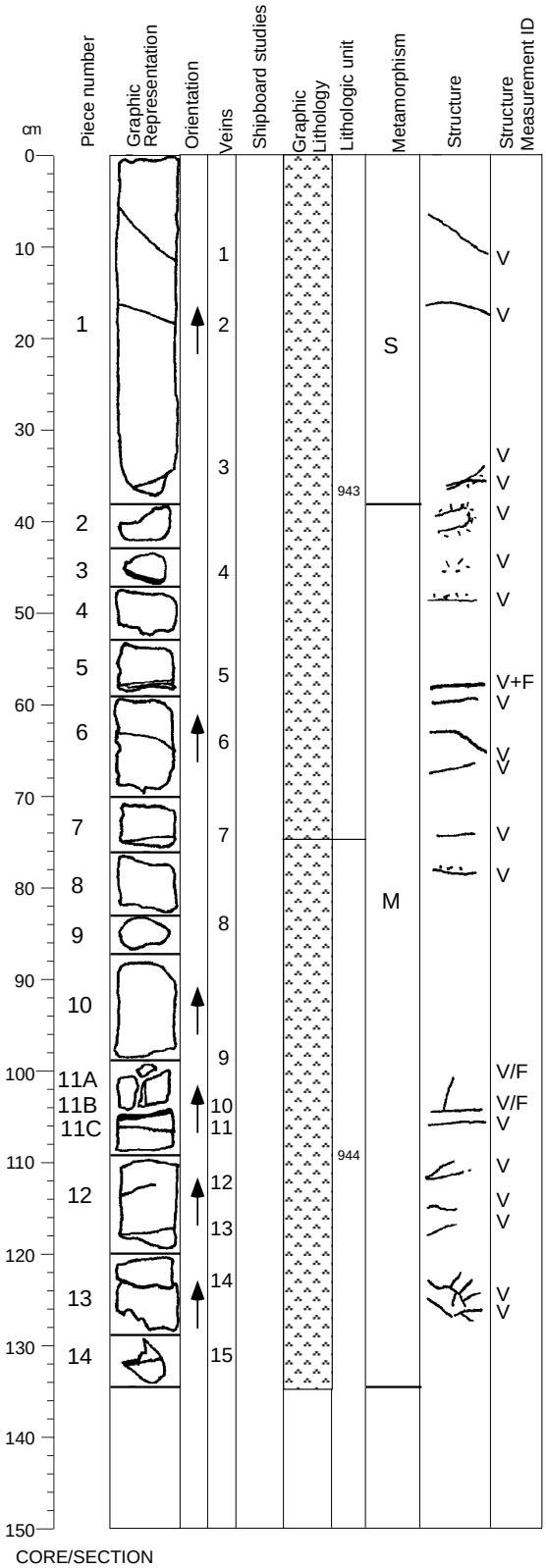
176-735B-207R-4 (cont'd)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green after olivine.
Comments: Near veins.
Background Alteration:
Degree of alteration: slight (3%). Olivine is weakly altered to smectite and amphibole (8%). Clinopyroxene and plagioclase are negligibly altered (1 to 2%).

Vein/Fracture Filling:
0.1 mm smectite veins in Piece 1; 1 mm zeolite+smectite veins in pieces 1 and 3.

Structures:
Mf>Pf?; Mf=Ic>V
The section displays a fine- to coarse-grained igneous texture,with no or a weak magmatic foliation, cut by a few veins in Pieces 1A to 3A. An interval of fine-grained material is present in Pieces 1A and 1B, below 43 cm; its contacts with the surrounding coarse-grained gabbro are steeply dipping (around 70°), and it has weak magmatic foliation that is difficult to measure (steep) or absent. The lower contact (at 77 cm) is more diffuse than the upper one (46 cm). Another zone of fine-grained material is present from 110 to 121 cm, on the back side of the section; it has diffuse contacts with the coarse-grained gabbro. A very weak crystal-plastic foliation is possibly present between 10 and 30 cm.

Core Image



176-735B-207R-5

Interval 943: OLIVINE GABBRO
(see previous section)
Interval 944: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	207	5	75	7	1475.32
Lower contact:	207	7	96	2A	1478.28

Thickness (m): 2.96

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	50	25	5	coarse	tabular/ subhedral
Clinopyroxene	30	40	3	coarse	equant/ oikocrystic anhedral
Olivine	15	10	1	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	95.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Coarse-grained olivine gabbro; locally finer-grained at 42-50 cm in 207R-6, and in one half of the core at 60-95 cm in 207R-7.

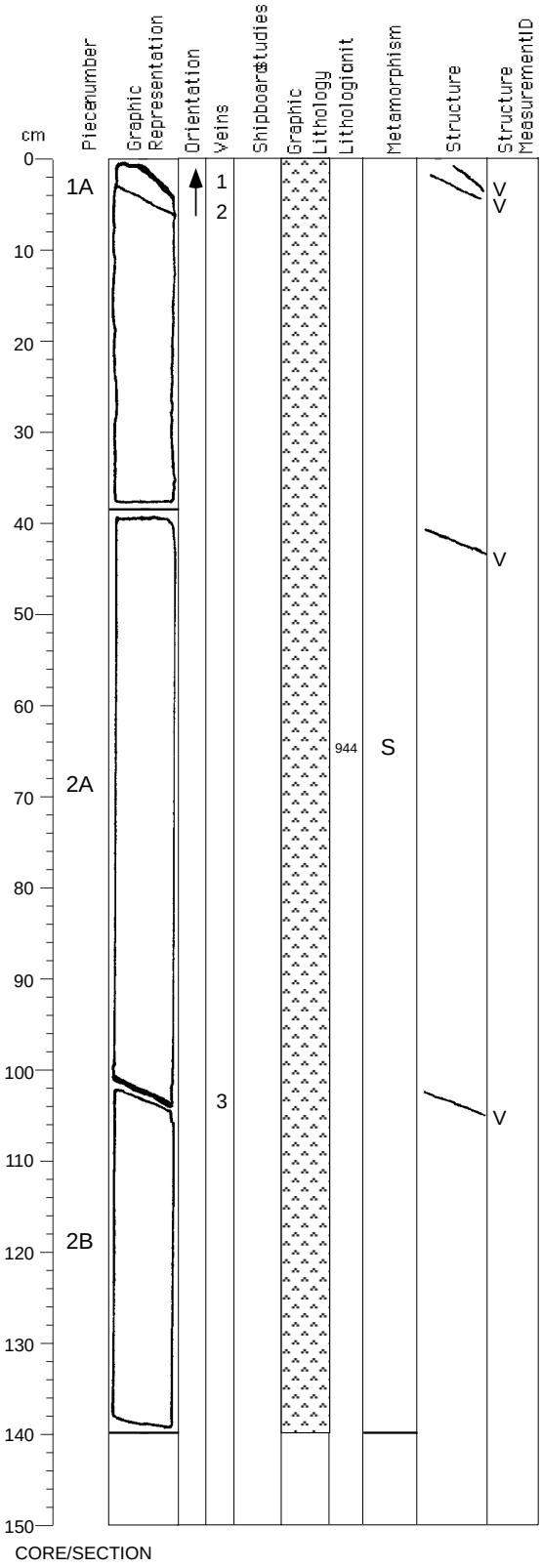
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: tr.
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <25
Mode of occurrence: Dark green after olivine.
Comments: Near veins.
Sulfide:
Total Percent: <5
Mode of occurrence: Associated with smectite in olivine.

Background Alteration:
Degree of alteration: slight to moderate (5 to 35%). Piece 1: Olivine is weakly altered to smectite, amphibole, and sulfide (15%). Clinopyroxene and plagioclase are negligibly altered (1%). Pieces 2 to 14: Olivine is completely replaced by smectite, amphibole, and sulfide. 5% of clinopyroxene is altered to amphibole and smectite. 4% of the plagioclase is replaced by secondary plagioclase and smectite.

Vein/Fracture Filling:
0.2-4 mm smectite veins in Pieces 1, 3, 5, 6, 7, 9, 11, 12, 13, and 14.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A series of felsic, amphibole, and smectite veins cut the igneous texture over the entire section. An amphibole vein cross-cuts the felsic vein at the bottom of Piece 1. A few smectite veins grade into faults in Pieces 5 and 11A to 11C. Piece 13 displays a network of irregular cracks.

Core Image



176-735B-207R-6

Interval 944: OLIVINE GABBRO
(see previous section)

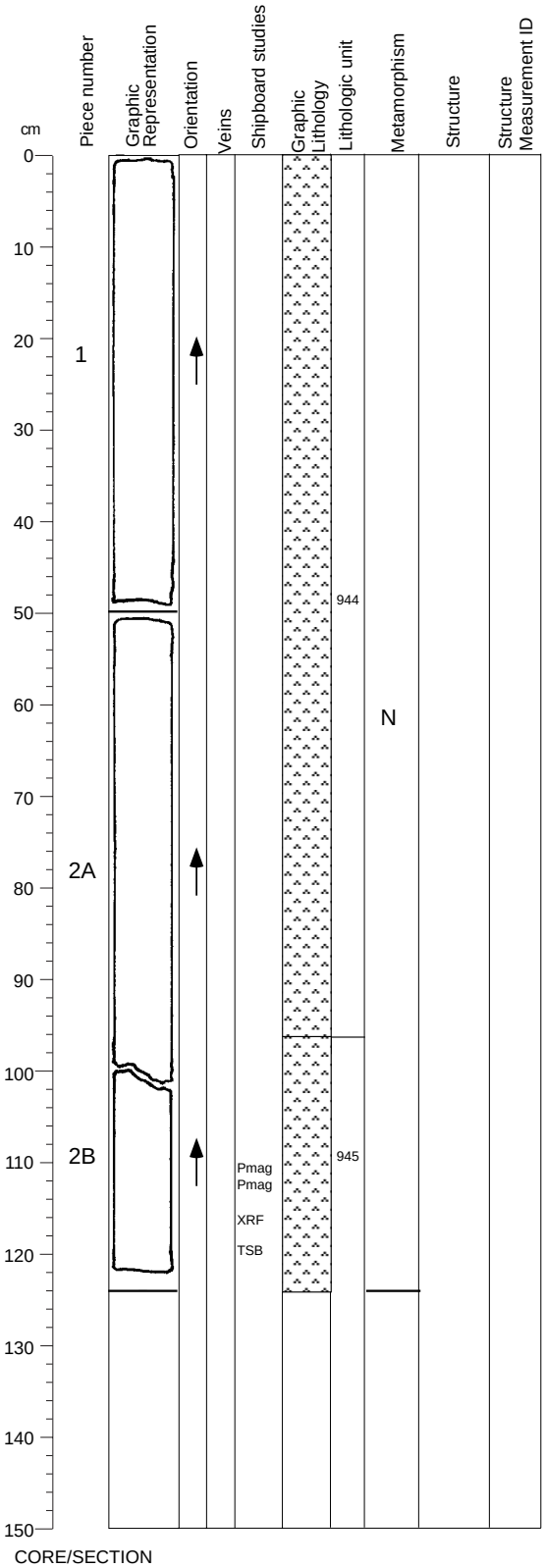
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Smectite:
Total Percent: <2
Mode of occurrence: Dark green after olivine.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (3%). Olivine is weakly altered to smectite and amphibole (5%). Clinopyroxene and plagioclase are negligibly altered (2%).

Vein/Fracture Filling:
0.2-0.4 mm smectite veins in Pieces 1 and 2.

Structures:
Mf>V
The section displays a coarse-grained igneous texture with no magmatic foliation, cut by a few veins.

Core Image



176-735B-207R-7

Interval 944: OLIVINE GABBRO
(see Section 176-735B-207R-5)
Interval 945: LEUCOCRATIC OLIVINE GABBRO

			Depth in		Depth
Interval Location:	Core	Section	Section	Piece	mbsf
Upper contact:	207	7	96	2A	1478.28
Lower contact:	208	1	64	4	1479.74
Thickness (m): 1.46					

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	70	15	5	coarse	tabular/ subhedral
Clinopyroxene	20	25	2	coarse	equant/ oikocrystic anhedral
Olivine	15	10	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

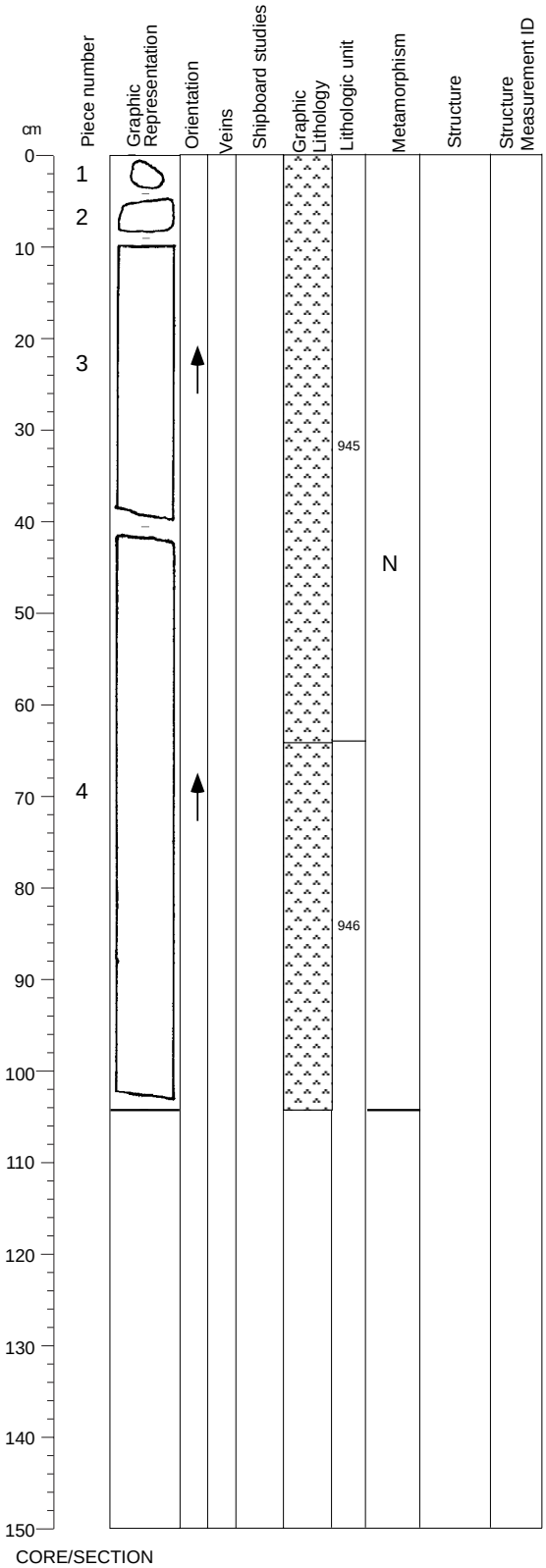
Comments: Medium-grained, clinopyroxene-poor leucocratic olivine gabbro.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-208R-1

Interval 945: LEUCOCRATIC OLIVINE GABBRO
(see previous section)
Interval 946: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	208	1	64	4	1479.74
Lower contact:	208	5	44	1	1484.58

Thickness (m): 4.84

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	22	5	coarse	tabular/ subhedral
Clinopyroxene	25	20	3	coarse	equant/ oikocrystic anhedral
Olivine	10	8	2	medium	amoeboidal/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	90.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	variable texture	N/A

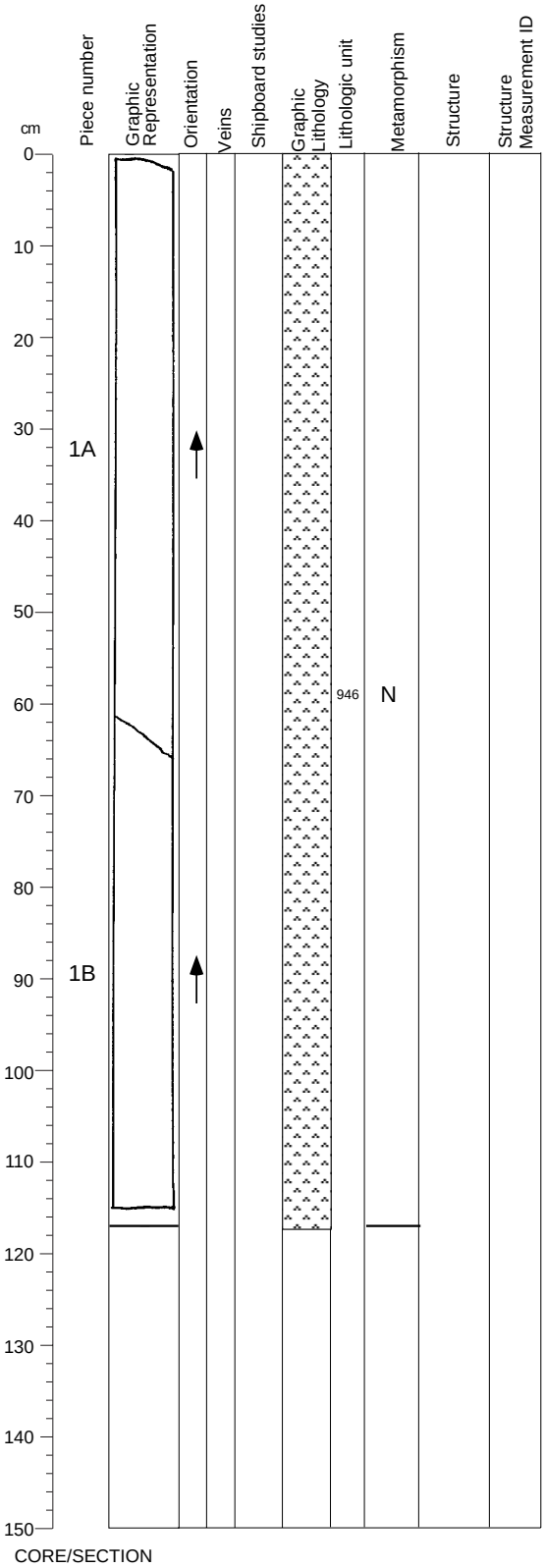
Comments: Mostly granular, locally subophitic/ophitic and intergranular. Grain size variable from top to 17 cm in 208R-3 (medium-grained), to 40 cm in 208R-3 (coarse/medium-grained), to 51 cm in 208R-3 (coarse-grained), to 62 cm in 208R-3 (fine-grained), to 20 cm in 208R-4 (medium/coarse-grained), to 72 cm i n 208R-4 (medium/coarse-grained), to 118 cm in 208R-4 (medium/fine-grained), to 39 cm in 208R-5 (coarse-grained), and to base (fine-grained).

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-208R-2

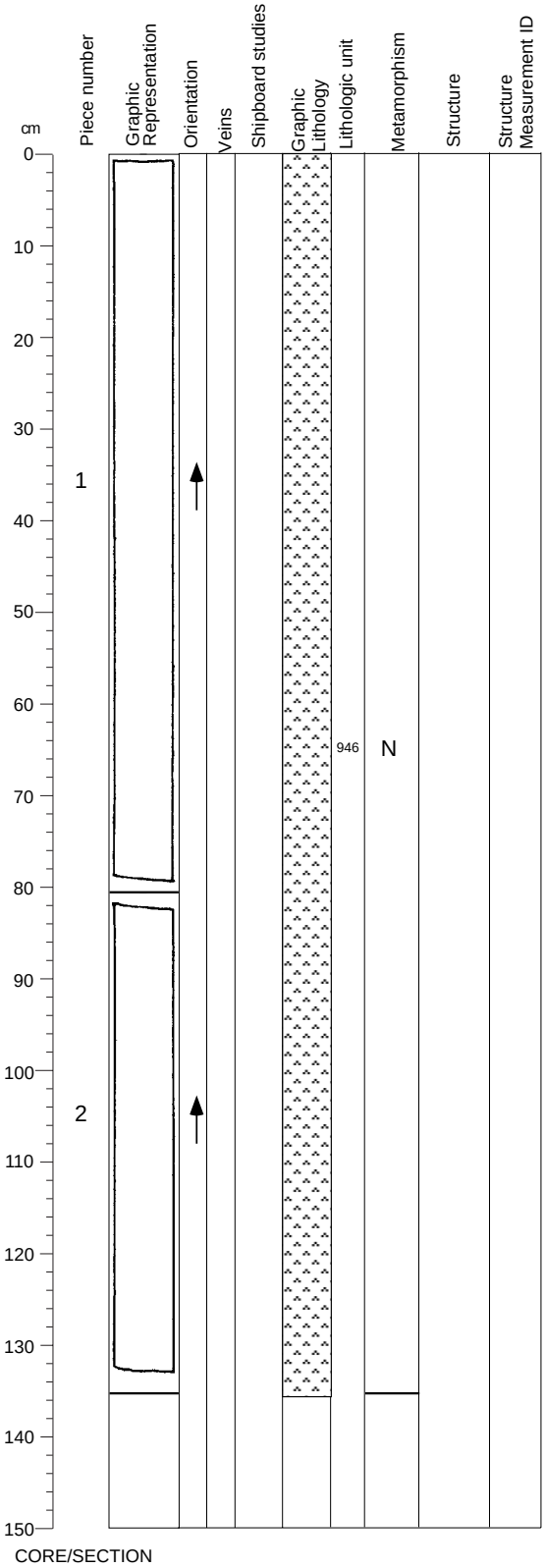
Interval 946: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-208R-3

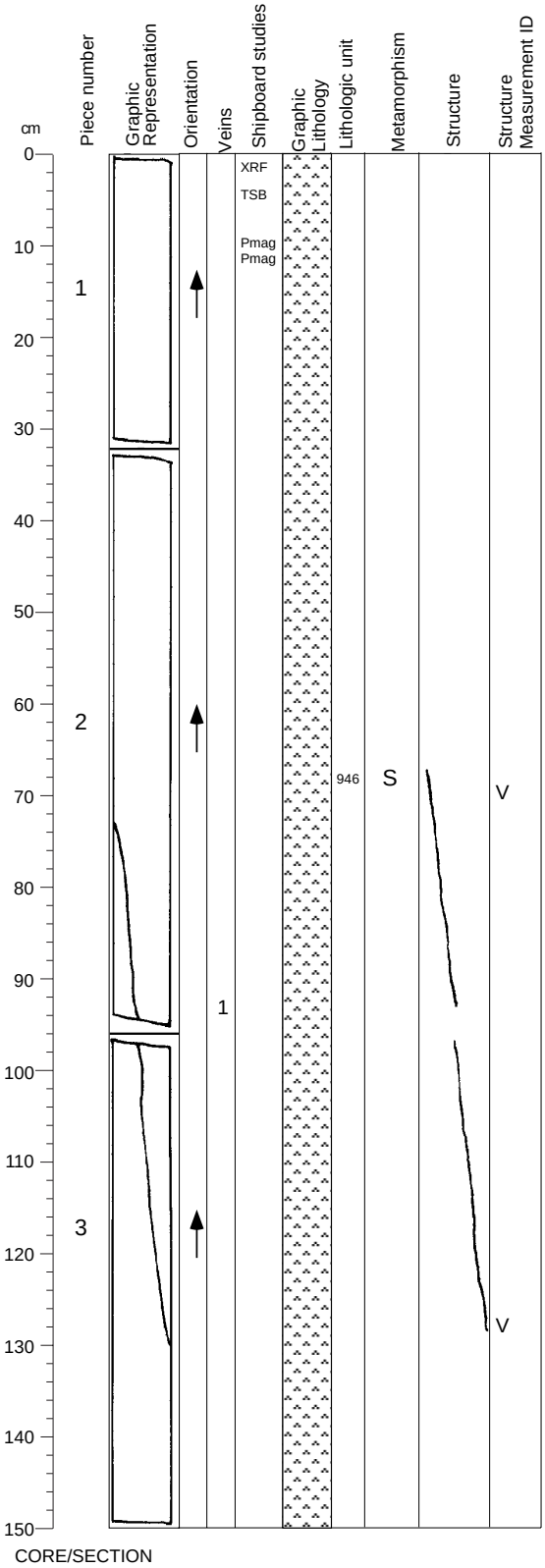
Interval 946: OLIVINE GABBRO
(see Section 176-735B-208R-1)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-208R-4

Interval 946: OLIVINE GABBRO
(see Section 176-735B-208R-1)

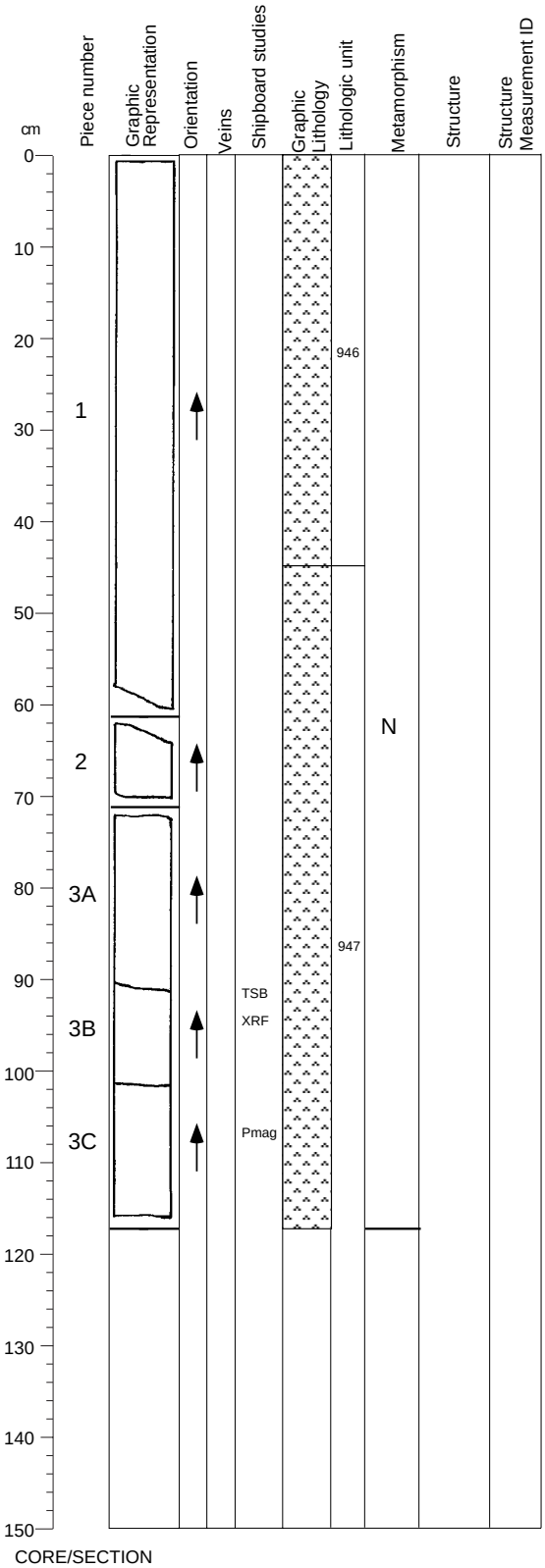
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: In vein halos.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Comments: In vein halos.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.2 mm chlorite vein in Pieces 2 and 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a steeply dipping vein in Pieces 2 and 3.

Core Image



176-735B-208R-5

Interval 946: OLIVINE GABBRO
(see Section 176-735B-208R-1)
Interval 947: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	208	5	44	1	1484.58
Lower contact:	208	6	95	4A	1486.26

Thickness (m): 1.68

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	50	40	15	pegmatitic	tabular/ subhedral anhedral
Clinopyroxene	35	50	5	coarse	tabular/ subhedral anhedral
Olivine	8	40	5	coarse	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	93.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Pegmatitic
Modal IUGS Name (calculated): Olivine Gabbro
Type Distribution
Texture: granular N/A

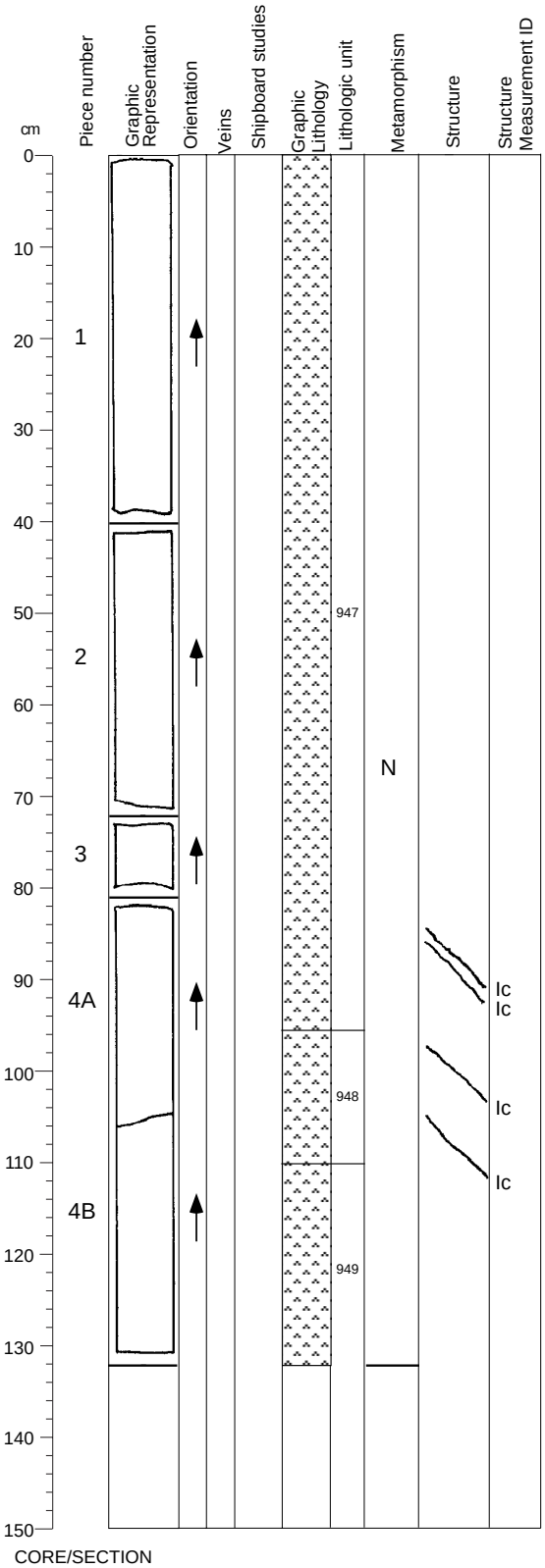
Comments: Leucocratic at 50-90 cm in 208R-6.

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a fine- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-208R-6

Interval 947: OLIVINE GABBRO
(see previous section)

Interval 948: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	208	6	95	4A	1486.26
Lower contact:	208	6	110	4B	1486.41

Thickness (m): 0.15

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	2	0.5	medium	tabular/ subhedral
Clinopyroxene	20	2	n/a	fine	equant/ oikocrystic anhedral
Olivine	30	2	1	fine	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Fine
Modal IUGS Name (calculated): Olivine Gabbro
Type granular Distribution N/A
Texture: granular N/A

Interval 949: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	208	6	110	4B	1486.41
Lower contact:	209	1	1	1	1488.71

Thickness (m): 2.30

	Mode	Grain Size (mm): Max	Min	Avg. Size	Shape/Habit
Plagioclase	55	15	3	coarse	tabular/ subhedral
Clinopyroxene	25	20	5	coarse	equant/ oikocrystic
Olivine	12	10	1	medium	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	92.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro
Type granular Distribution N/A
Texture: granular N/A

Comments: From top to 125 cm in 208R-6 (medium-grained; equigranular), to 7 cm in 208R-8 (coarse-grained with fine patches), to 14 cm in 208R-8 (coarse-grained), and to base (fine/medium-grained). Clinopyroxene mode locally decreases to < 5%.

Continued next page

Core Image

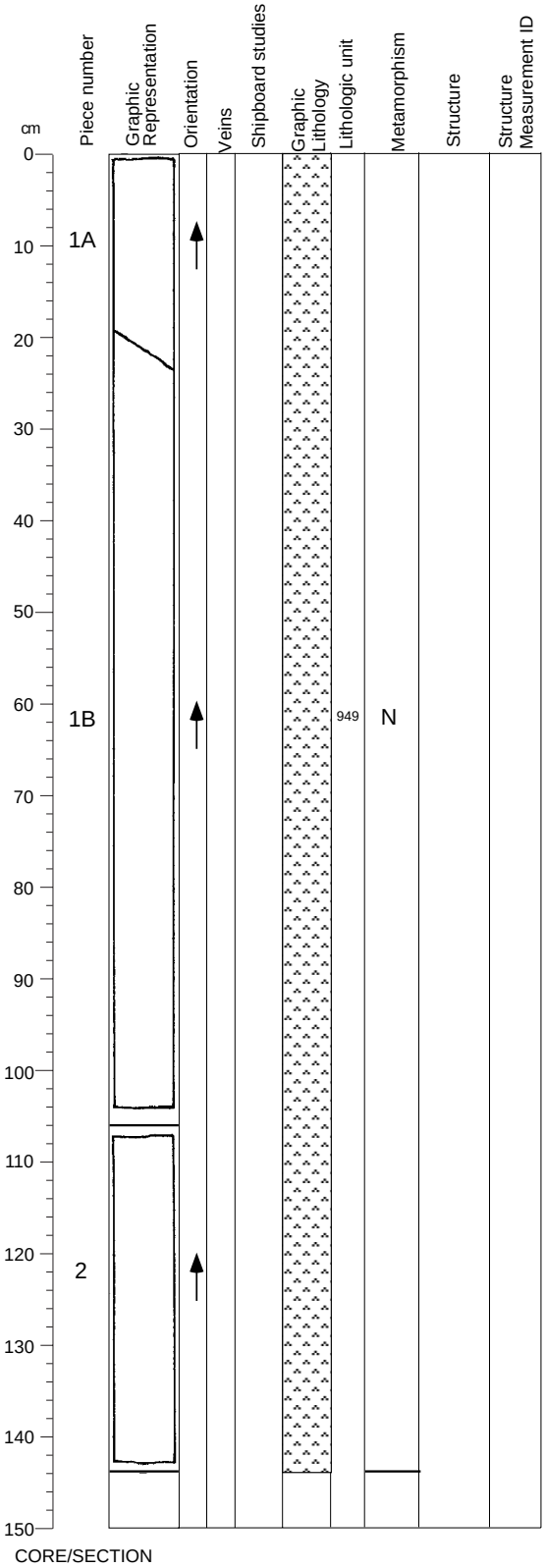
176-735B-208R-6 (cont'd)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf=Ic
Most of the section displays a coarse-grained igneous texture with no magmatic foliation. Piece 4 displays two fine-grained intervals (1 cm thick and 8 cm thick); their contacts with the surrounding coarse-grained gabbro are sharp, dipping around 55-60°. A weak magmatic foliation appears to follow the contacts in the upper, thinner fine-grained interval; the thicker fine-grained interval may have a very weak magmatic foliation.

Core Image



176-735B-208R-7

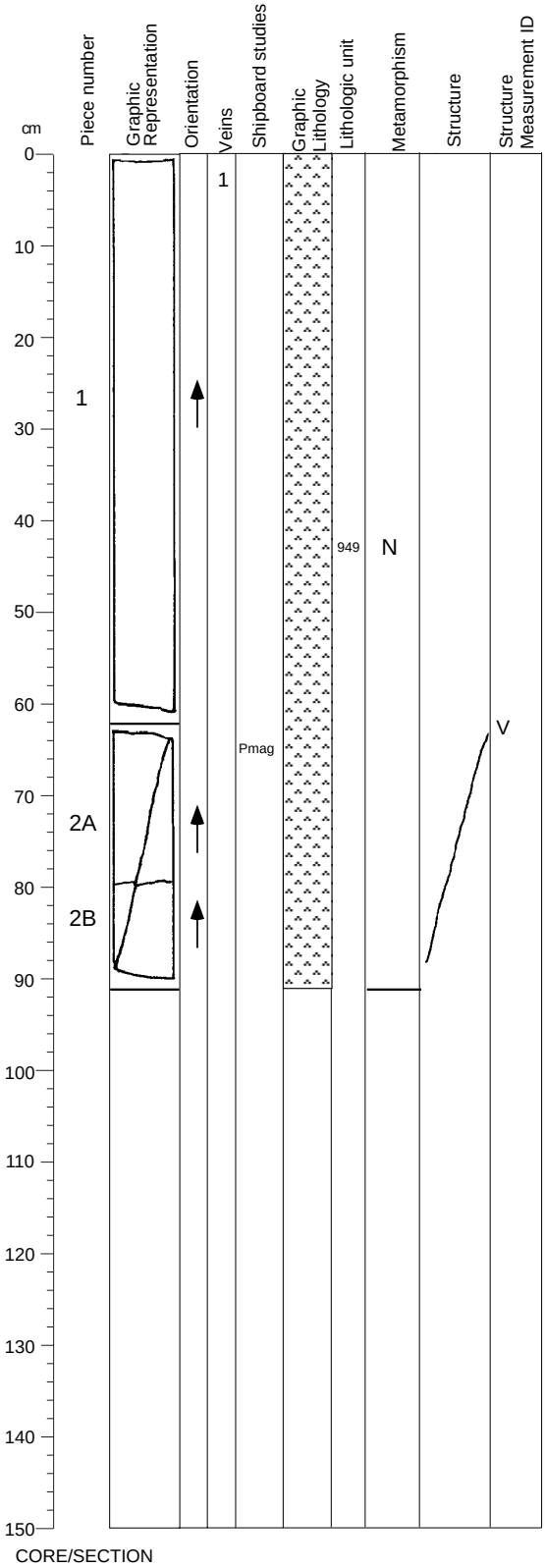
Interval 949: OLIVINE GABBRO
(see previous section)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
Most of the section displays a medium- to coarse-grained igneous texture with no magmatic foliation. Piece 2 contains a subvertical, narrow layer of fine-grained material (visible on the back side of the section), which has diffuse contacts with the surrounding coarse-grained gabbro.

Core Image



176-735B-208R-8

Interval 949: OLIVINE GABBRO
(see Section 176-735B-208R-6)

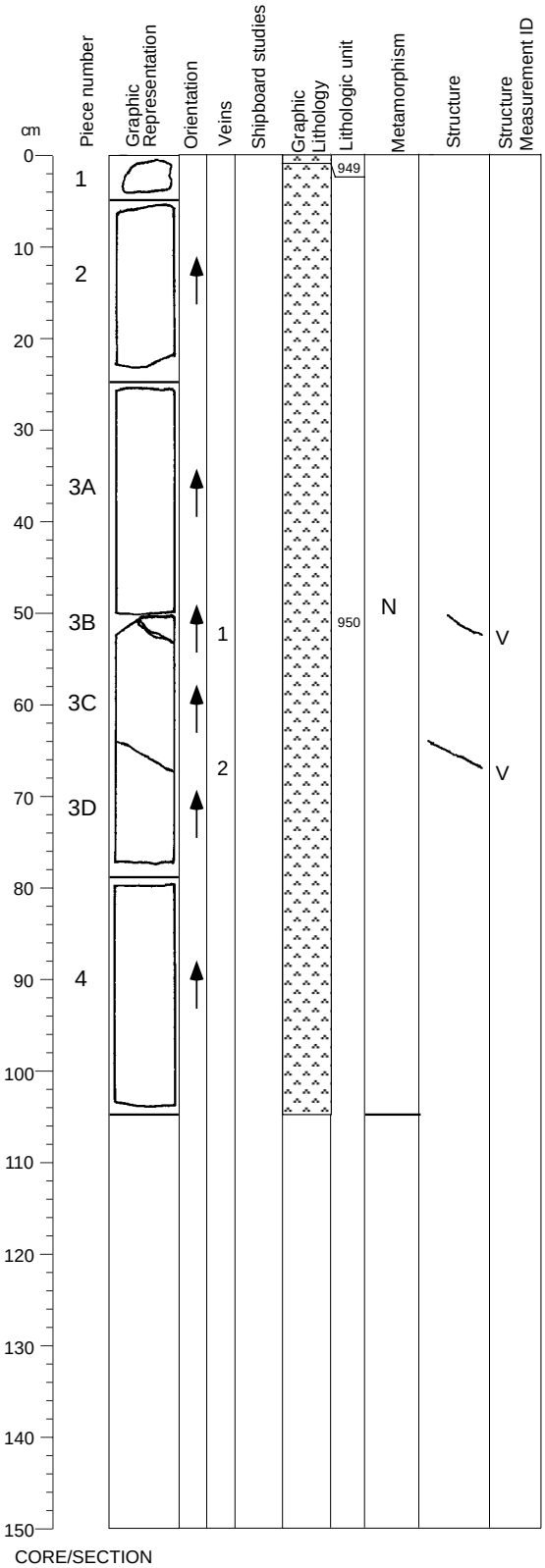
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: In vein halos.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Comments: In vein halos.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.2 mm chlorite vein in Piece 2

Structures:
Mf>V
Most of the section displays a medium- to coarse-grained igneous texture with no magmatic foliation. The top 20 cm of Piece 1 contains a subvertical, narrow (1-2 cm thick) layer of fine-grained material, which has diffuse contacts with the surrounding coarse-grained gabbro, probably continuous with the one observed at the bottom of the previous section (208R-7). The coarse-grained igneous texture is cut by a steeply dipping vein in Pieces 2A and 2B.

Core Image



176-735B-209R-1

Interval 949: OLIVINE GABBRO
(see Section 176-735B-208R-6)
Interval 950: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	209	1	1	1	1488.71
Lower contact:	209	2	106	2	1490.80

Thickness (m): 2.09

		Grain Size (mm):			
	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	3	0.5	medium	tabular/ subhedral
Clinopyroxene	25	1	N/A	fine	equant/ oikocrystic anhedral
Olivine	20	1	1	fine	elongate/ anhedral subhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	105.5*		(see explanatory notes)		

*Major phases estimated to ± 5%)
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro

	Type	Distribution
Texture:	granular	N/A

Comments: Composite of very fine-grained microgabbro and very coarse-grained/ pegmatitic gabbro. From top to 40 cm in 209R-1 (coarse/very coarse-grained), to 53 cm in 209R-2 (microgabbro "veined"/sandwiched in very coarse-grained/ pegmatitic olivine gabbro), and to 53 cm in 209R-2 (microgabbro). Coarse ophitic clinopyroxene enclosed in microgabbro.

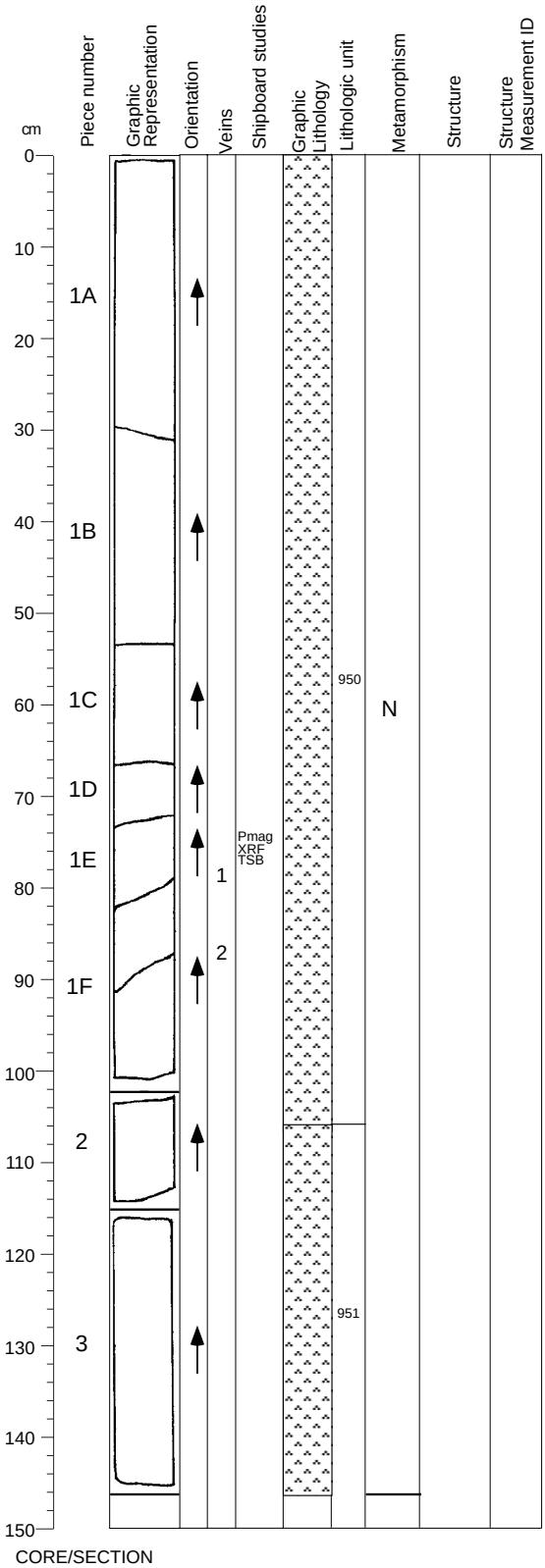
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.5 mm zeolite veins in Piece 3.

Structures:
Mf
Most of the section displays a coarse-grained igneous texture with no magmatic foliation. From the bottom of Piece 3D, a narrow (a few cm thick), subvertical interval of fine-grained material is present (seen only on the back side of the section in Piece 3D); it is bounded on one side by a coarse-grained material, rich in pyroxene. The contacts between fine-grained and coarse-grained intervals are irregular and diffuse.

Core Image



176-735B-209R-2

Interval 950: OLIVINE GABBRO
(see previous section)
Interval 951: TROCTOLITIC GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	209	2	106	2	1490.80
Lower contact:	209	3	44	2	1491.64

Thickness (m): 0.84

	Mode	Max	Grain Size (mm): Min	Avg. Size	Shape/Habit
Plagioclase	60	30	5	coarse	tabular/ subhedral anhedral
Clinopyroxene	15	50	5	coarse	equant/ oikocrystic anhedral
Olivine	15	40	3	coarse	elongate/ anhedral
Opaques	0.5				amoeboidal aggregates/ disseminated
Total	90.5*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Coarse

	Type	Distribution
Texture:	granular	N/A

Comments: Small microgabbroic patches at 132-143 cm in 209R-2 and 30-33 cm in 209R-3. Subvertical olivine crystals and olivine chains apparent.

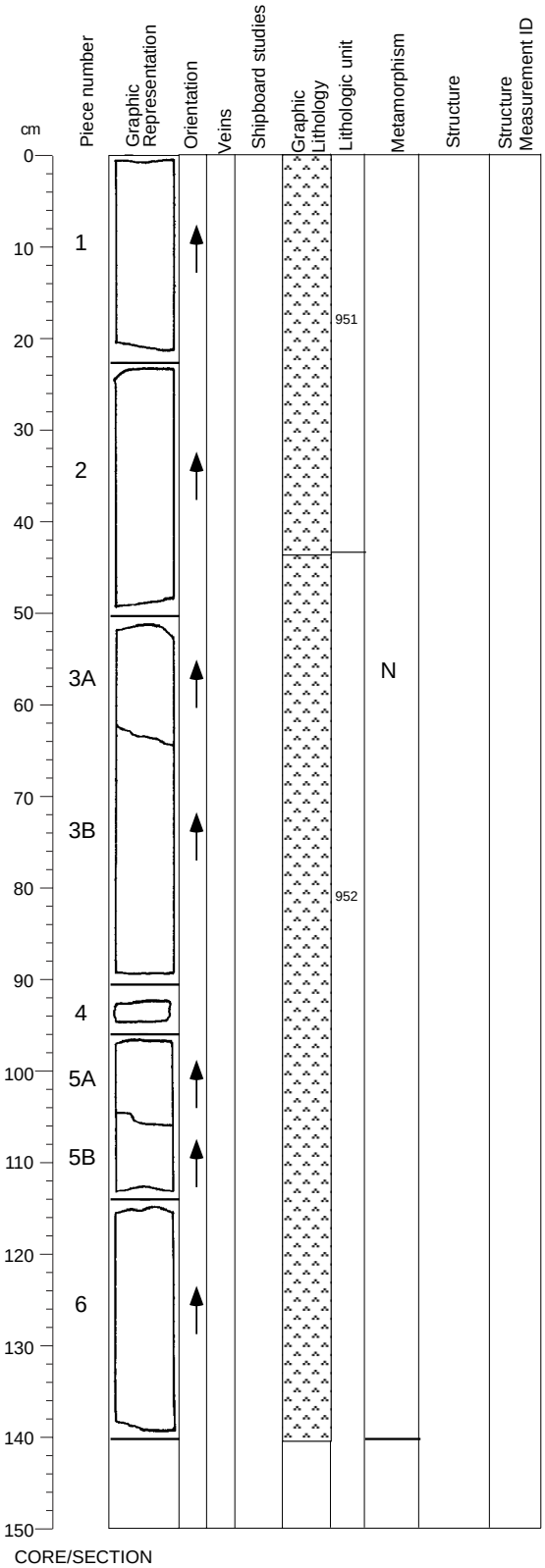
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.2 mm smectite veins in Piece 1.

Structures:
Mf
This section is continuous with the bottom of the previous one (209R-1). Pieces 1A to 2 contain two or three subvertical intervals of fine-grained material, with more or less diffuse contacts with the surrounding coarse-grained gabbro; they are slightly oblique to the core axis. The upper interval, which is continuous with the one in the previous section is a few cm thick. The second one (from 35-40 cm to the bottom of Piece 1F) is thicker on average, occupying most of the core in Pieces 1E to 1F. The contact in Piece 1F seems to be very irregular, with very coarse-grained gabbro (several cm). A magmatic foliation is locally present, very weak, following the contacts. The fine-grained interval in Piece 2 is either continuous with the one in the overlying pieces or a new one. Piece 3 mostly displays a coarse-grained igneous texture, with no magmatic foliation.

Core Image



176-735B-209R-3

Interval 951: TROCTOLITIC GABBRO
(see previous section)
Interval 952: OLIVINE GABBRO

Interval Location:	Core	Section	Depth in Section	Piece	Depth mbsf
Upper contact:	209	3	44	2	1491.64

Grain Size (mm):

	Mode	Max	Min	Avg. Size	Shape/Habit
Plagioclase	60	25	5	coarse	tabular/ subhedral
Clinopyroxene	30	30	5	coarse	equant/ anhedral
Olivine	10	8	1	medium	oikocrystic amoeboidal/ anhedral
Opaques	Ir				subhedral amoeboidal aggregates/ disseminated
Total	100*		(see explanatory notes)		

*Major phases estimated to ± 5%
Grain Size: Variable
Modal IUGS Name (calculated): Olivine Gabbro

Texture:	Type	Distribution
	granular	N/A

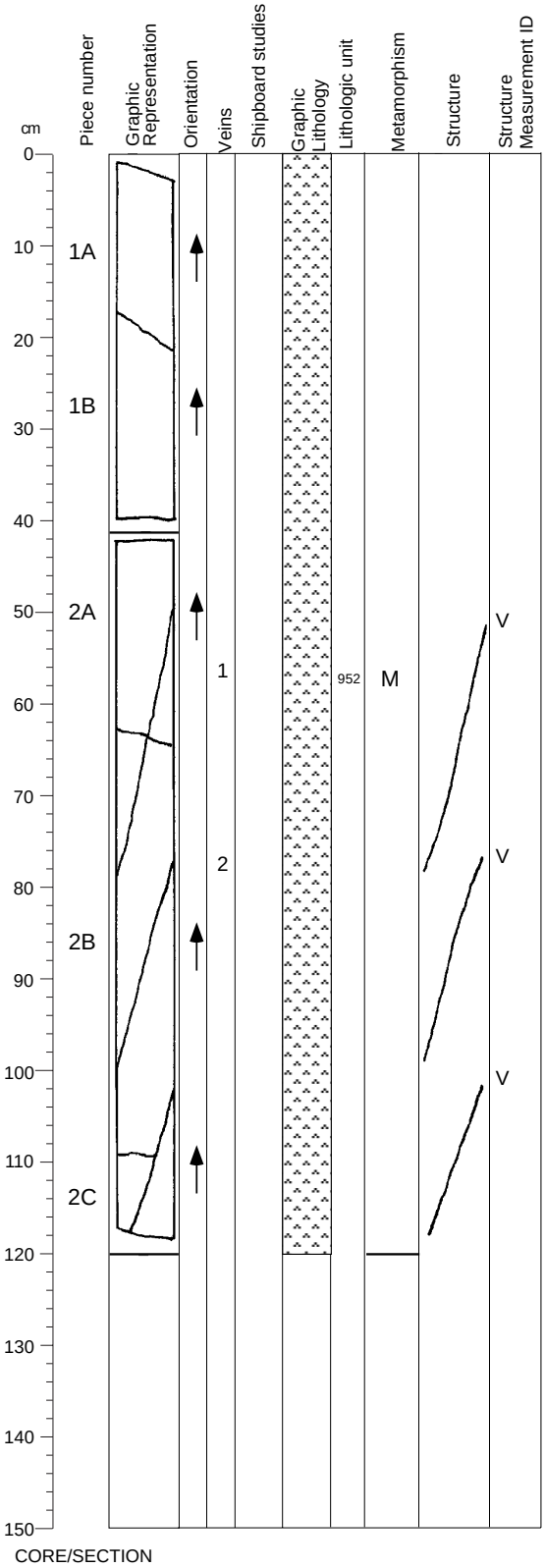
Comments: From top to 63 cm in 209R-4 (coarse-grained olivine gabbro), to 66 cm in 209R-5 (medium-grained), to 103 cm in 209R-5 (medium-grained). From 60 cm in 210R-1 (coarse-grained with microgabbroic patches at 117-127 cm in 209R-5, 51-56 cm in 209R-6), to 112 cm in 210R-3 (coarse-grained with plagioclase-rich patches-leucocratic), to 41 cm in 210R-4 (fine-grained gabbro), to 93 cm in 210R-4 (medium/coarse-grained), to 13 cm in 210R-5 .

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: Small patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-209R-4

Interval 952: OLIVINE GABBRO
(see previous section)

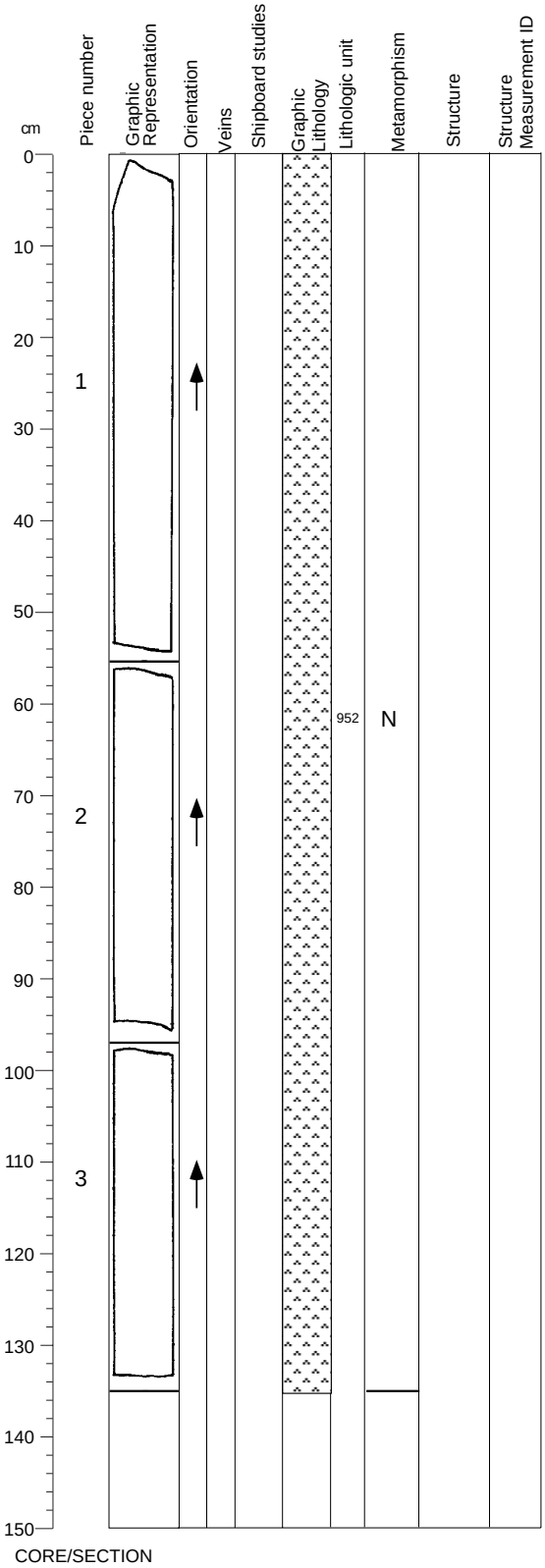
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: <5
Mode of occurrence: In vein halos with chlorite.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: <5
Mode of occurrence: Associated with green amphibole in vein halos.
Smectite:
Total Percent: trace
Mode of occurrence: Dark green after olivine.

Background Alteration:
Degree of alteration: moderate (12%). 60% of the olivine is replaced by smectite/chlorite in the center and talc, amphibole, and oxides in the outer parts. 5% of the clinopyroxene is replaced by amphibole and chlorite/smectite. Little smectite/chlorite replaces plagioclase (3%).

Vein/Fracture Filling:
0.1 mm chlorite veins and 1.5 mm chlorite+zeolite vein in Piece 2.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few steeply dipping veins in Pieces 2A to 2C.

Core Image



176-735B-209R-5

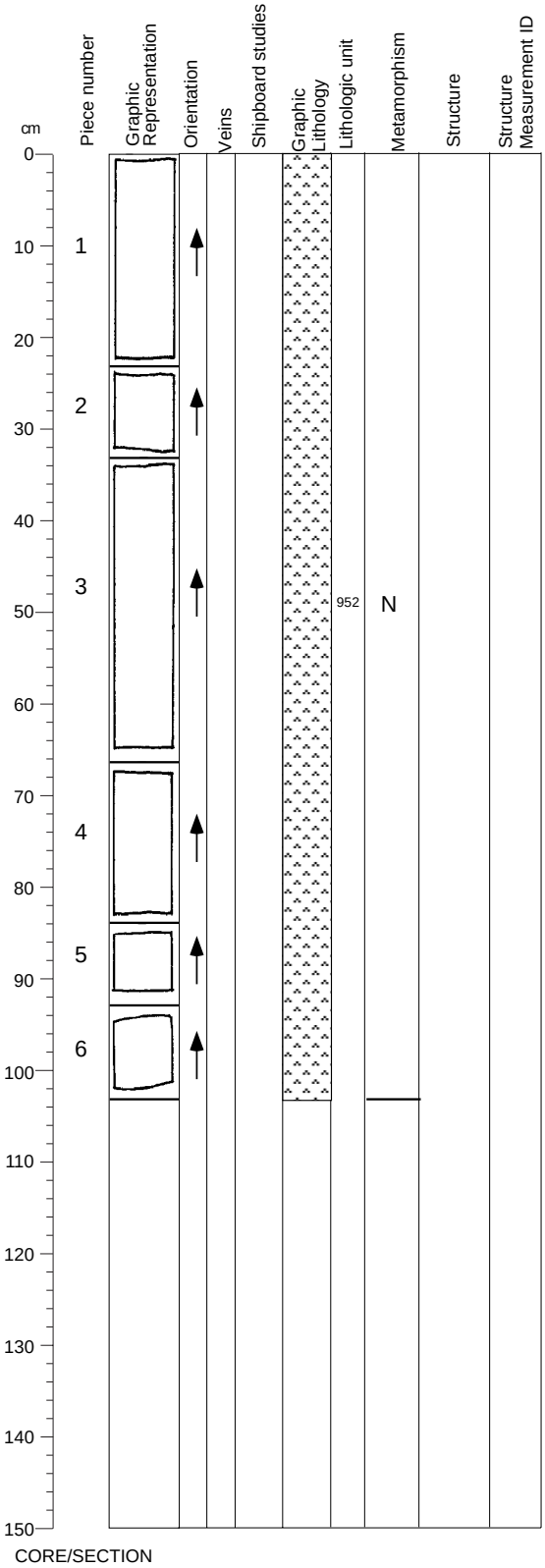
Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: <1
Mode of occurrence: In patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: <1
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-209R-6

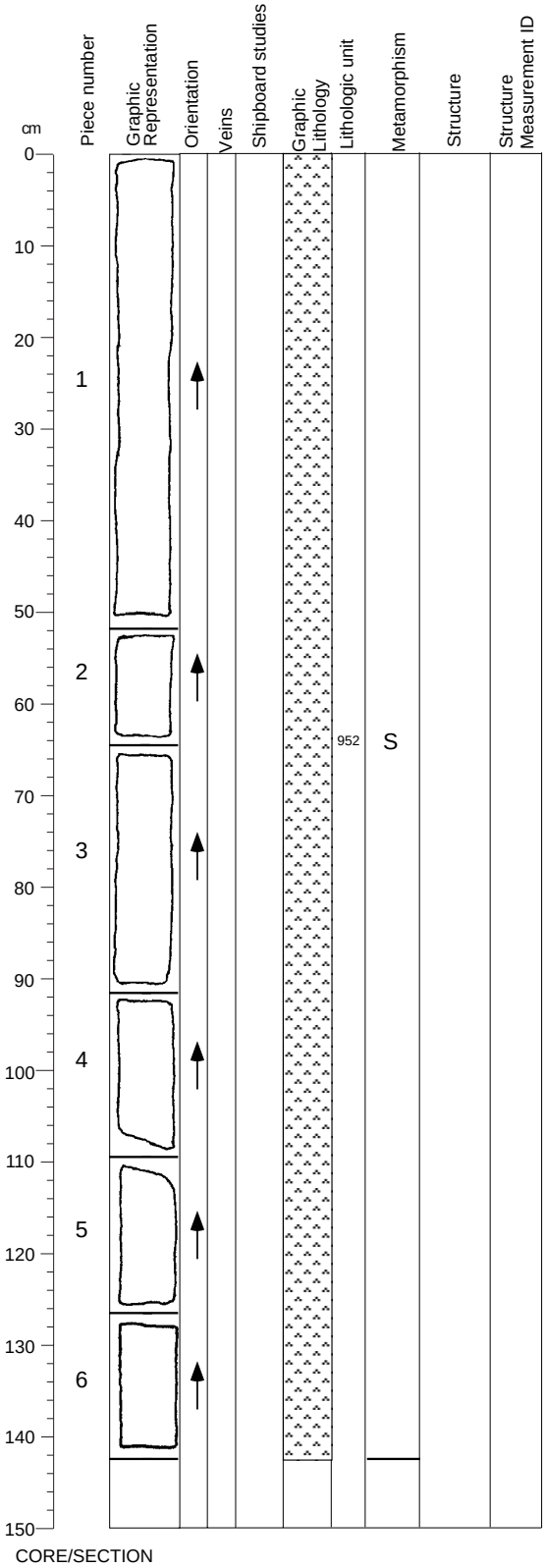
Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-209R-7

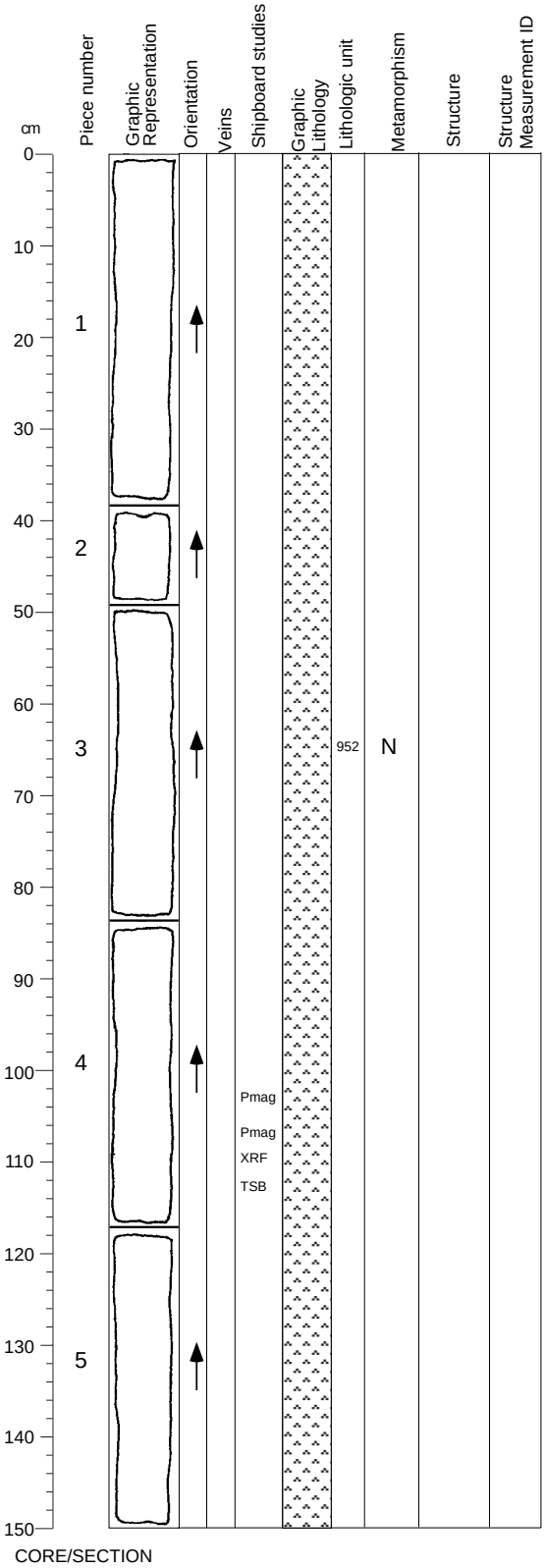
Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <2
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: slight (3%). Olivine is weakly altered to smectite and amphibole (5%). Clinopyroxene and plagioclase are negligibly altered (2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-209R-8

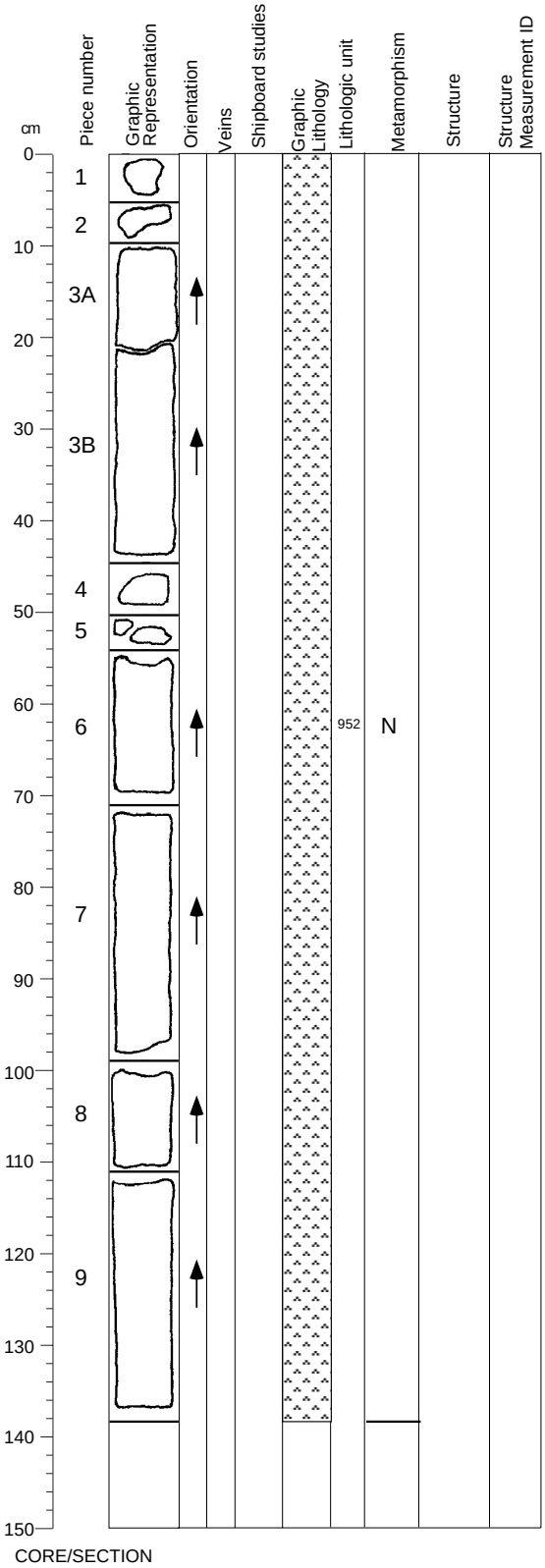
Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-210R-1

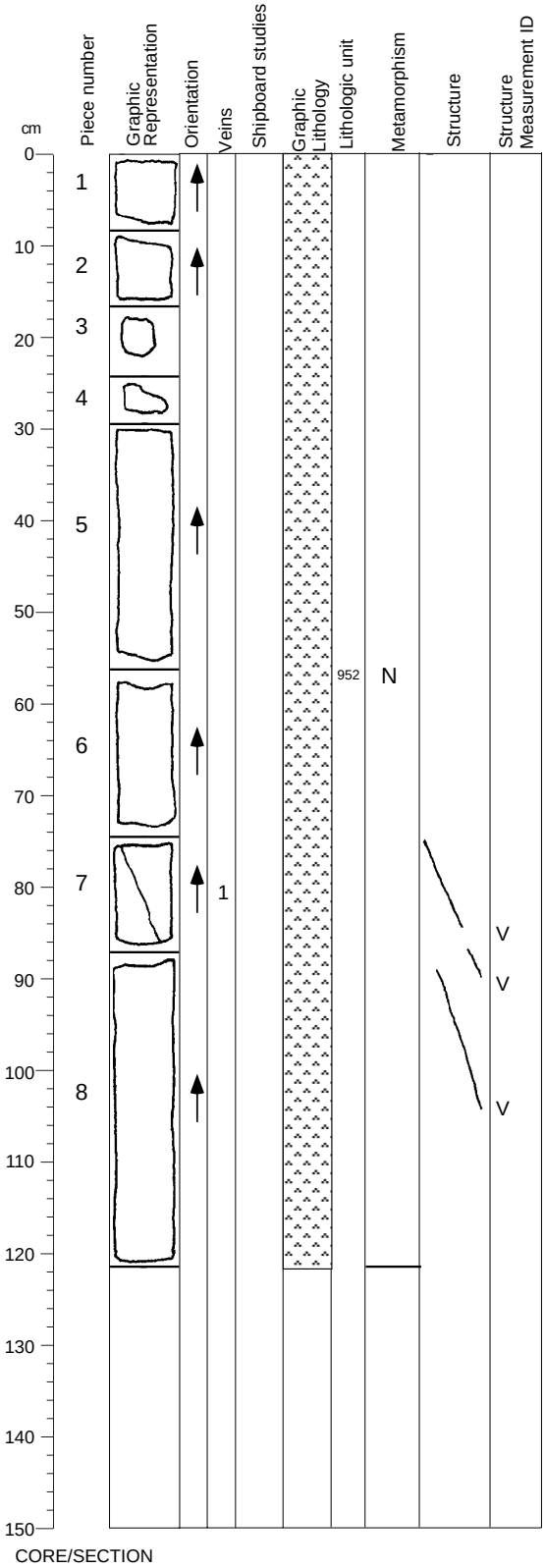
Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: In patches or halos.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-210R-2

Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

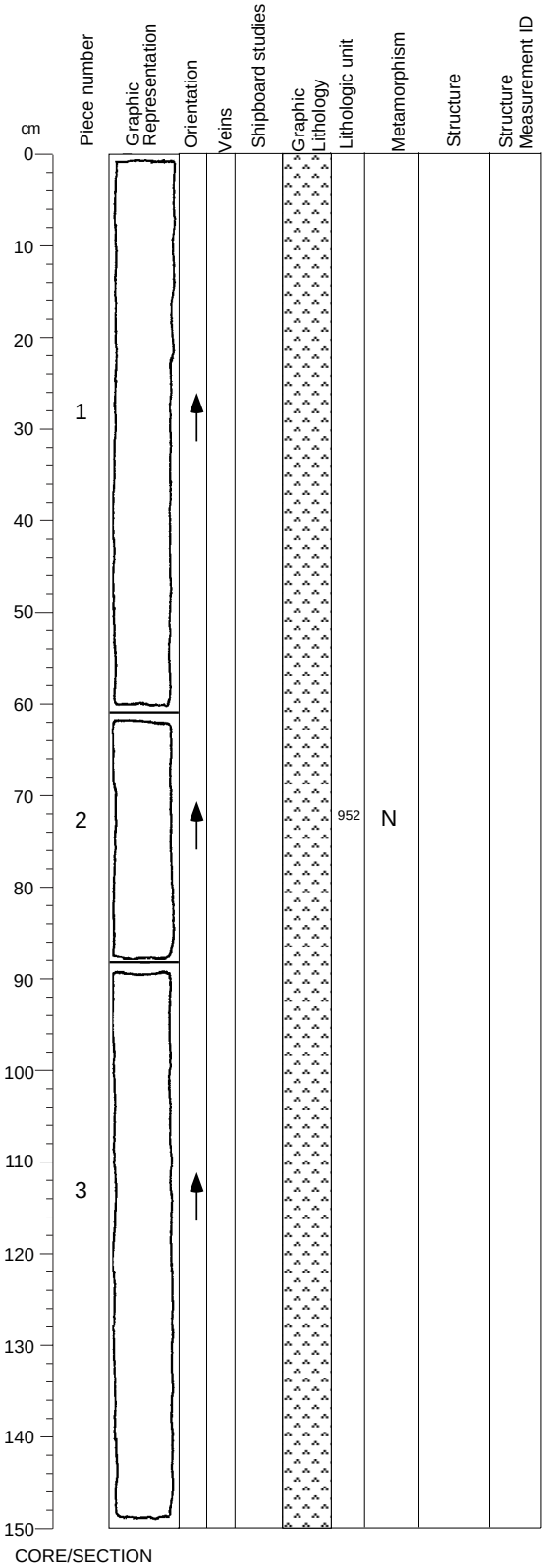
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: In vein halo with chlorite.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole in the vein halo.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.8 mm amphibole vein in Pieces 7 and 8.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by two veins in Pieces 7 and 8.

Core Image



176-735B-210R-3

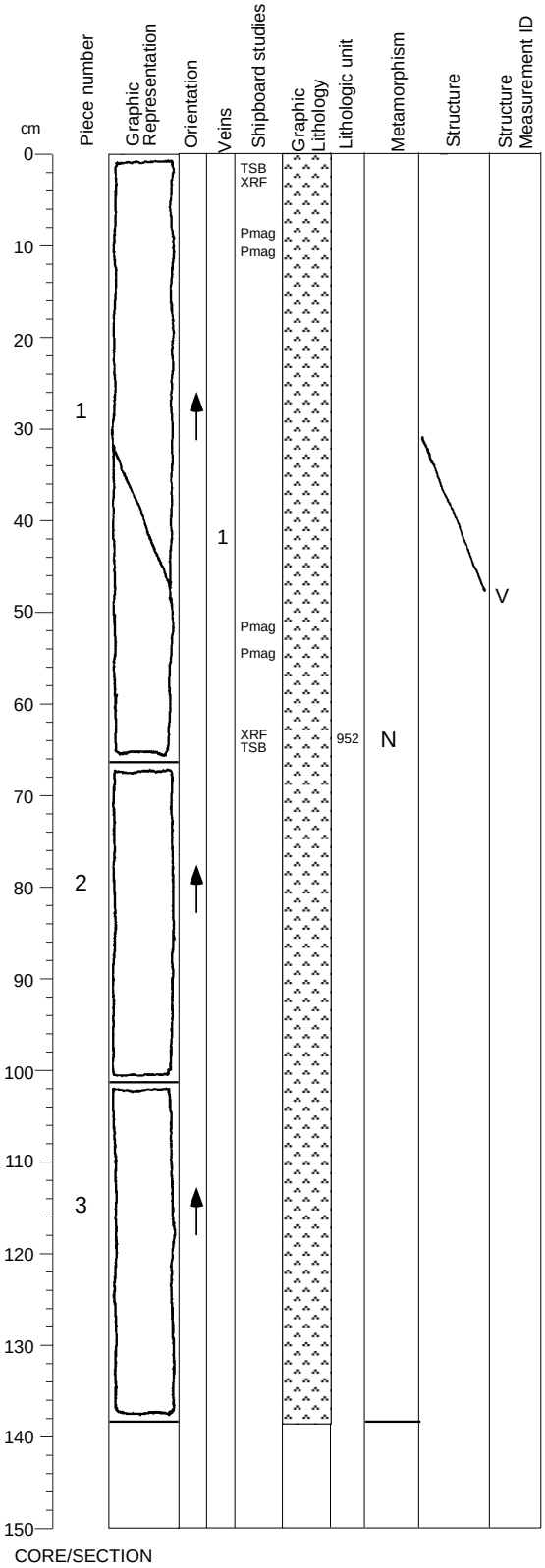
Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Structures:
Mf
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation.

Core Image



176-735B-210R-4

Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

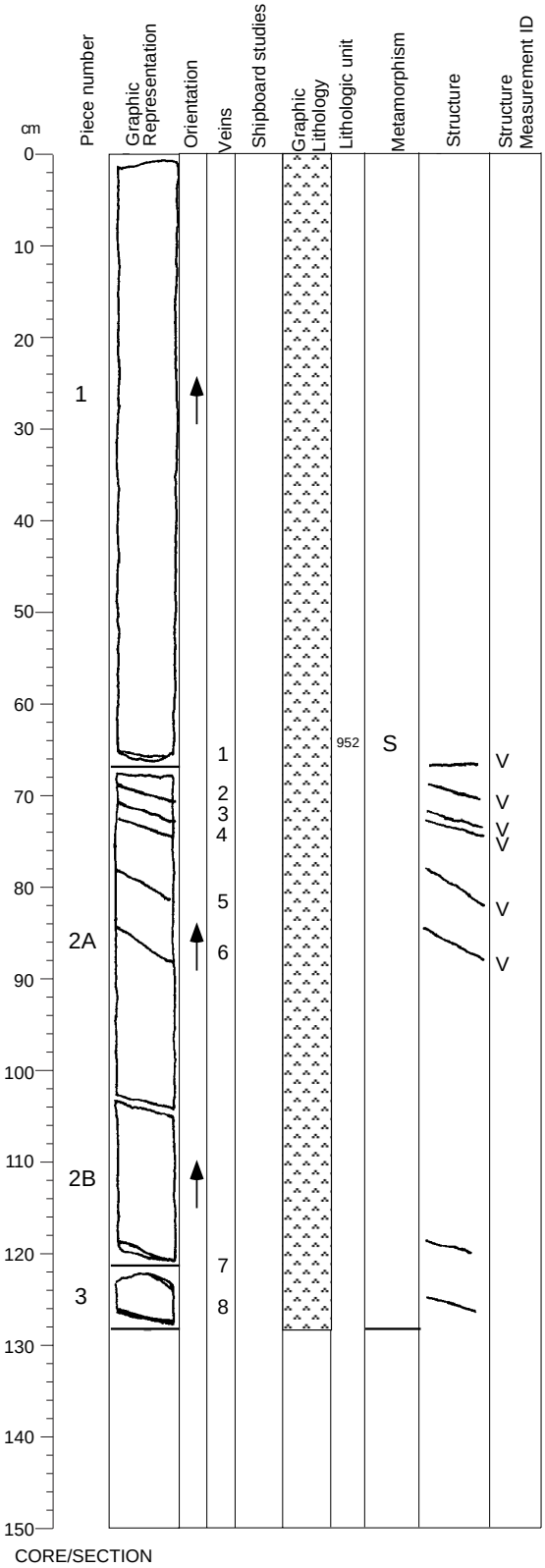
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: In vein halo with chlorite.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole in the vein halo.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.5 mm amphibole vein in Piece 1.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a vein in Piece 1.

Core Image



176-735B-210R-5

Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

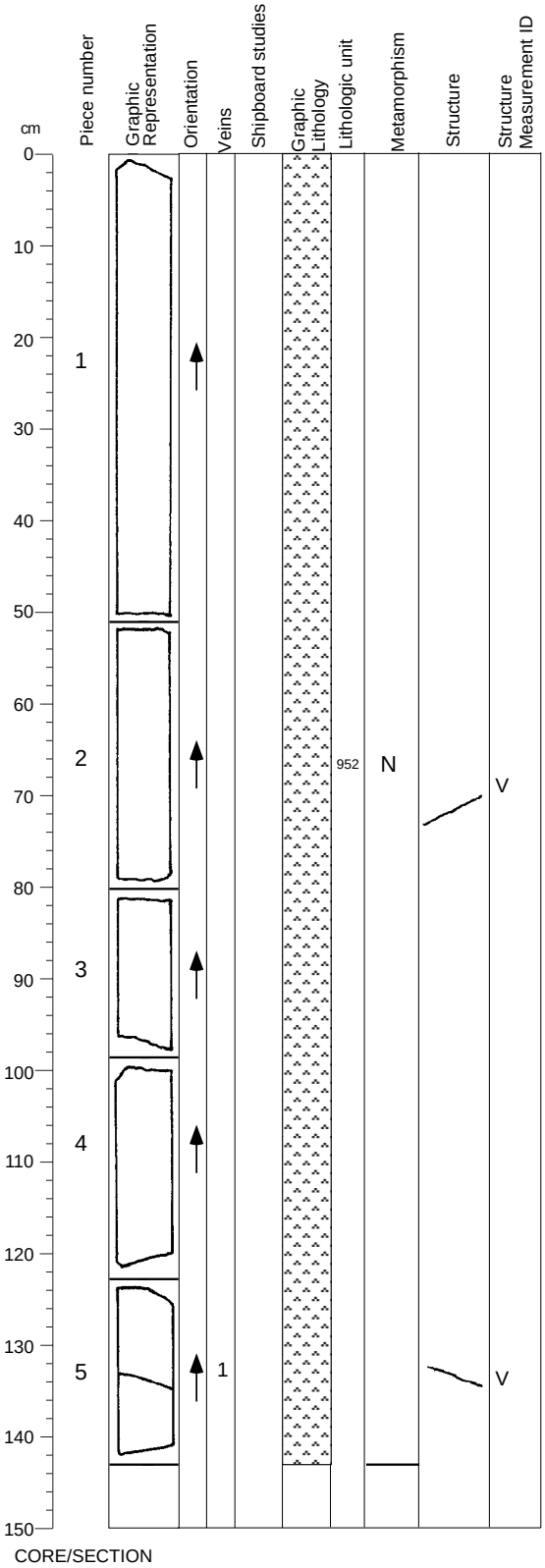
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Smectite:
Total Percent: <3
Mode of occurrence: Dark green after olivine and pyroxene, and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: slight (5%). 15% of the olivine is replaced by smectite and amphibole. Clinopyroxene and plagioclase are weakly altered (3 to 4%).

Vein/Fracture Filling:
0.1-1 mm smectite veins in Pieces 1-3; 0.5 mm quartz vein in Pieces 2 and 3.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by a few veins from the bottom of Piece 1 to the bottom of Piece 3.

Core Image



176-735B-210R-6

Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

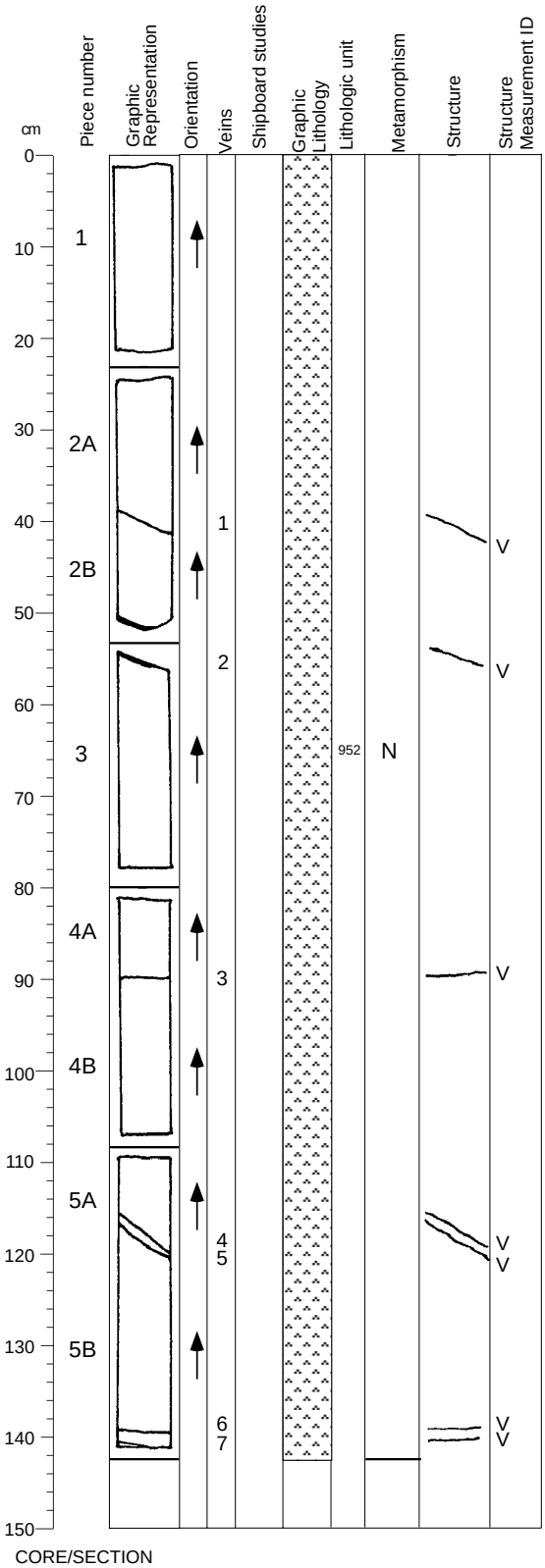
Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.5 mm smectite vein in Piece 5.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation, cut by two veins in Pieces 2 and 5.

Core Image



176-735B-210R-7

Interval 952: OLIVINE GABBRO
(see Section 176-735B-209R-3)

Alteration:
Dark green amphibole:
Total Percent: <1
Mode of occurrence: After pyroxene and olivine.
Comments: As alteration rims.
Brown amphibole:
Total Percent: trace
Mode of occurrence: Along pyroxene cleavages, as rims.
Green amphibole:
Total Percent: trace
Mode of occurrence: As patches.
Secondary plagioclase:
Total Percent: <1
Mode of occurrence: Replacing primary plagioclase.
Comments: Irregularly distributed.
Talc and oxides:
Total Percent: trace
Mode of occurrence: After olivine in crystal cracks.
Chlorite:
Total Percent: trace
Mode of occurrence: Associated with green amphibole.
Smectite:
Total Percent: <1
Mode of occurrence: Dark green after olivine and pale green after plagioclase.
Comments: Near veins.

Background Alteration:
Degree of alteration: negligible (<2%).

Vein/Fracture Filling:
0.1-0.6 mm smectite veins in Pieces 2-5.

Structures:
Mf>V
The section displays a medium- to coarse-grained igneous texture with no magmatic foliation. A few veins cut the igneous texture over the entire section.