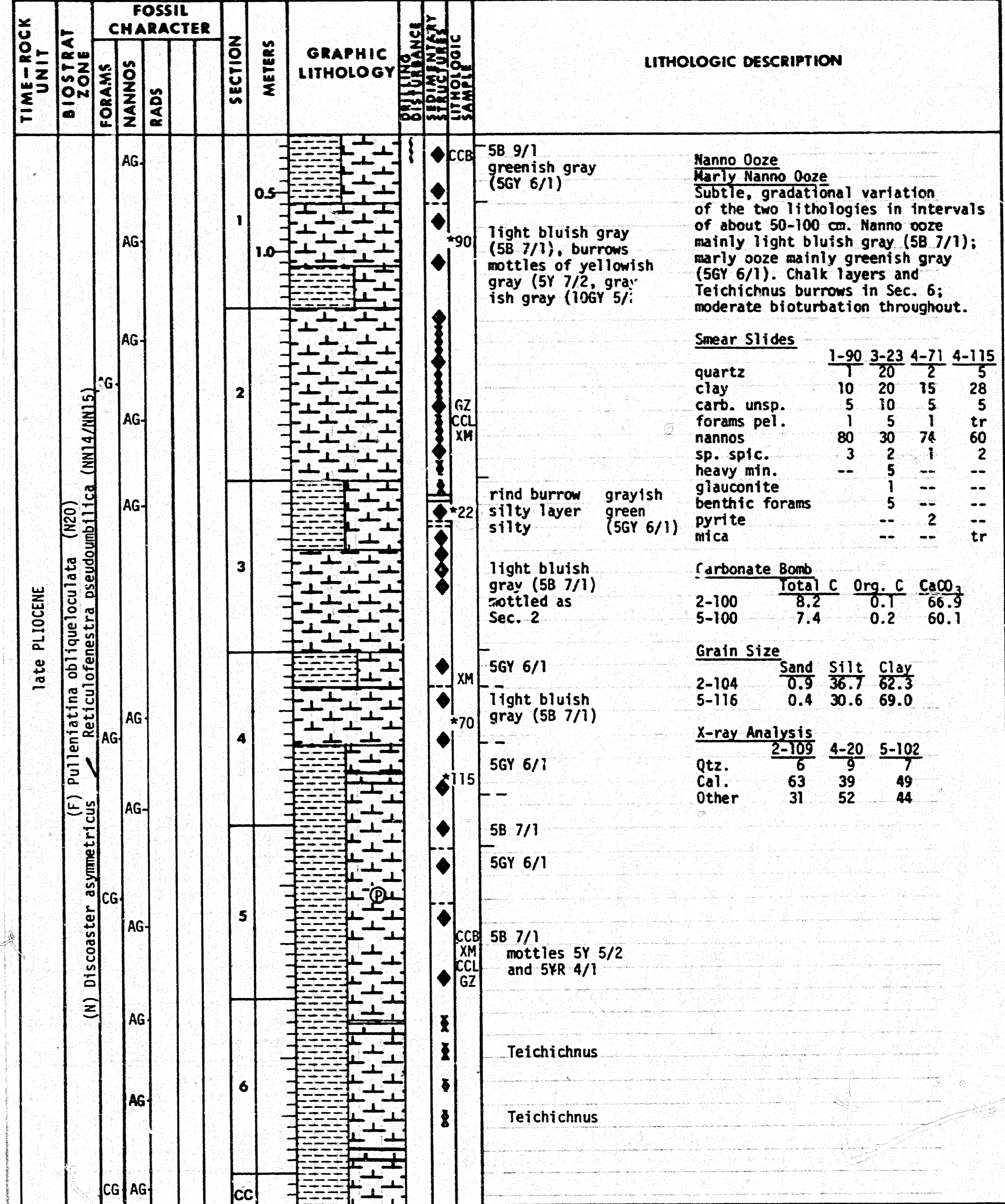
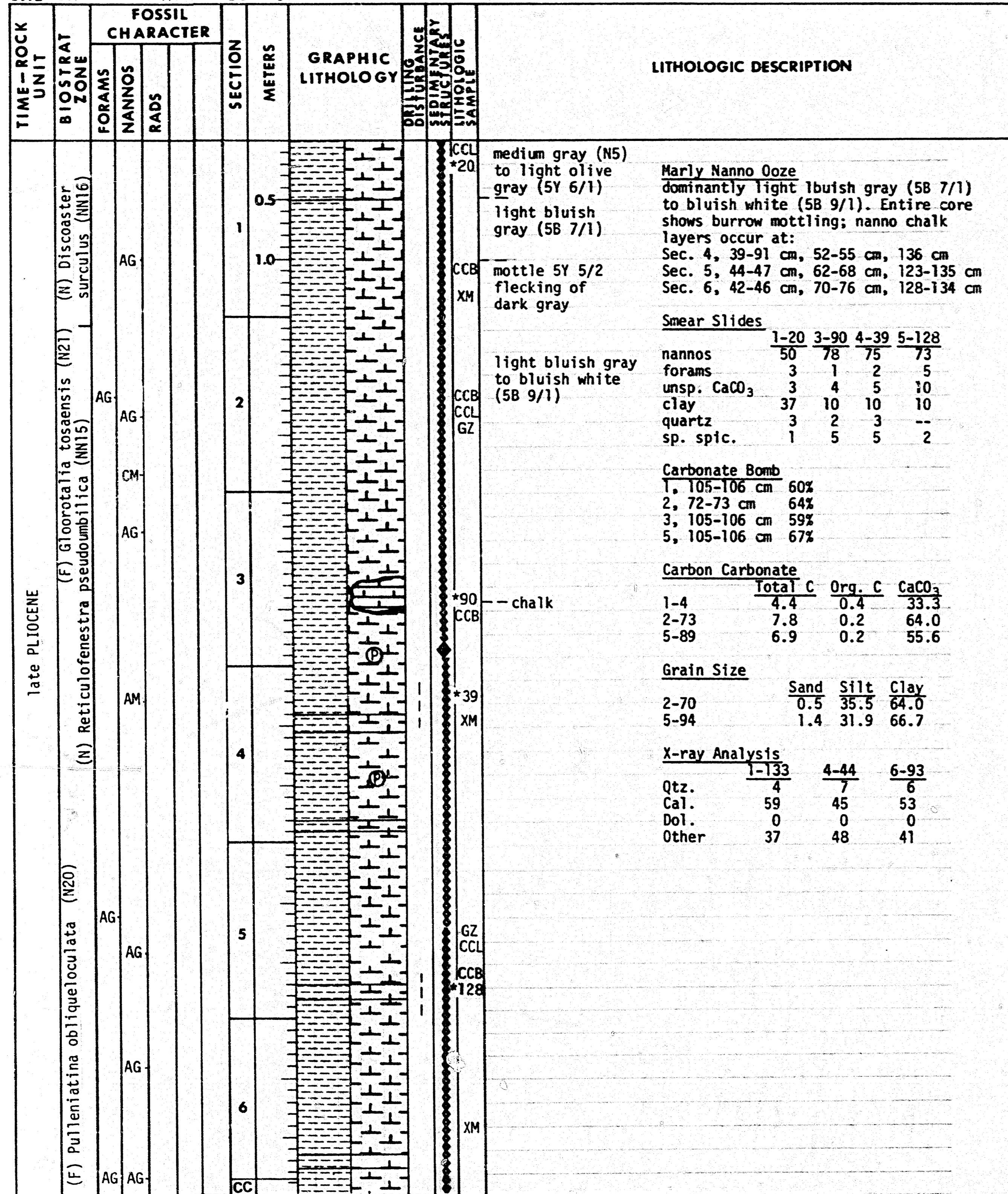


TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER		SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE SEDIMENTARY STRUCTURES LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS					
PLEISTOCENE HOLOCENE	(F) Globorotalia truncatulinoides (N22/23) (N) Emiliana huxleyi (NN21)	Ag		1	0.5		CCB 10YR 7/4-10YR 4/2 *7 5GY 6/1 CCL 10YR 4/2 GZ CCB 5GY 8/1 to XM 5GY 6/1 CCB *77	Nanno Ooze light greenish gray (5GY 6/1) to light greenish gray (5GY 8/1) with interbeds of Diatomaceous Nanno Ooze, dark yellowish brown (10YR 4/2).
		AG		1	1.0		CCB *77	Marly Calcareous Ooze
		CG		2			CCB *7	Calcareous Mud Marly Ooze mainly olive gray (5Y 4/1) with mottles of dark gray (N3) toward the bottom. Bioturbation evident along with Zoophycus burrows. Calcareous Mud is dark yellowish brown (10YR 4/2) with irregular laminae and mottles of dark gray (N3).
		FG		3			CCB *21	Marly Nanno Ooze Dominantly greenish gray (5GY 6/1) with color variations which suggest extensive burrowing through most of core. Color banding in Sec. 1 (20-30 cm); Sec. 2 (0-45 cm) reflects variations in CaCO3/clay ratio. Calcareous Mud at base of Sec. 2.
		FG		4			CCB *122	Smear Slides Major lithology nannos 15 10 -- unsp. CaCO3 24 50 40 clay 25 30 38 quartz 2 10 20 diatoms 25 -- sp. spic. 2 -- other: opaque rads pyrite
		FG		5			CCB *100 CCB GZ	Carbonate Bomb 1-10 61% 3-20 30% 1-40 64% 3-80 34% 1-70 56% 4-100 27% 1-125 42% 6-100 28%
CG	FG		6			CCB *7	Carbon Carbonate Total C Org. C CaCO3 1-14 7.1 0.3 55.8 4-80 2.6 0.6 16.6	
							Grain Size Sand Silt Clay 1-24 2.5 35.9 61.6 4-84 2.1 24.2 73.8	
							X-ray Analysis 1-59 Qtz. 8 Cal. 50 Dol. 0 Other 42	

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER		SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE SEDIMENTARY STRUCTURES LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS					
PLEISTOCENE	(F) Globorotalia truncatulinoides (N22/23) (N) Pseudoemiliania lacunosa (NN19)	AG	FG	1	0.5		*16	greenish gray (5GY 6/1) with interbedded dark yellowish brown (10YR 4/4) and brownish gray (5YR 4/1).
				1	1.0		*65 XM GZ	greenish gray (5GY 6/1) mottles of light olive gray (5Y 6/1)
								bands of 5YR 5/2
								Smear Slides 1-16 1-65 nannos 35 45 forams -- 5 unspec. CaCO3 4 5 clay 49 38 quartz 7 5 other: mica, pyrite dolomite
								Carbonate Bomb 1-80 53% 2-45 19%
								Carbon Carbonate Total C Org. C CaCO3 1-77 5.9 0.3 46.2 2, CC 3.2 0.5 22.2
								Grain Size 1-78 Sand Silt Clay 1.9 30.0 68.2
								X-ray Analysis 1-73 Qtz. 12 Cal. 42 Dol. 0 Other 46

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURE	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																					
		FORAMS	NANNOS	RADS																												
late PLEISTOCENE (?)	(F) Globorotalia tosaensis (N21/22) (N) Discoaster brouweri-Discoaster surculus (NN18-NN16)	AG	FM		1	0.5 1.0					Nanno Ooze Marly Nanno Ooze Two lithologies grad from one to the other and are complexly intermixed in places. Nanno Ooze mainly light bluish gray (5B 7/1), bluish gray (5B 9/1) or light greenish gray (5GY 8/1). Common mottles of olive gray (5Y 4/1) or medium gray (N4). Marly Ooze commonly light olive gray (5Y 6/1), olive gray (5Y 4/1), or greenish gray (5GY 6/1). Color mottling (bioturbation?) especially common in these intervals.																					
		AG	FM		2		CAVINGS		CCB	Cavings - fragments of bluish white nanno ooze, and brownish gray marly ooze in matrix of greenish gray marly nanno ooze.																						
		AG	FM		3			VOID			Smear Slides <table border="1"> <tr><td>nannos</td><td>4-50</td><td>4-82</td></tr> <tr><td>forams</td><td>30</td><td>60</td></tr> <tr><td>unspec. CaCO₃</td><td>--</td><td>3</td></tr> <tr><td>clay</td><td>10</td><td>5</td></tr> <tr><td>quartz</td><td>47</td><td>20</td></tr> <tr><td>sp. spic.</td><td>10</td><td>3</td></tr> <tr><td>diatoms</td><td>tr</td><td>5</td></tr> </table>	nannos	4-50	4-82	forams	30	60	unspec. CaCO ₃	--	3	clay	10	5	quartz	47	20	sp. spic.	10	3	diatoms	tr	5
		nannos	4-50	4-82																												
		forams	30	60																												
unspec. CaCO ₃	--	3																														
clay	10	5																														
quartz	47	20																														
sp. spic.	10	3																														
diatoms	tr	5																														
AG	AM		4					GZ CCL *50 CCB *82 CCB	mottled 5B 9/1, 5GY 6/1 5Y 6/1 5B 9/1 5Y 4/1 5GY 6/1	Carbon Carbonate <table border="1"> <tr><td>Total C</td><td>Org. C</td><td>CaCO₃</td></tr> <tr><td>4-33</td><td>55%</td><td></td></tr> <tr><td>4-50</td><td>31%</td><td></td></tr> <tr><td>4-80</td><td>56%</td><td></td></tr> </table>	Total C	Org. C	CaCO ₃	4-33	55%		4-50	31%		4-80	56%											
Total C	Org. C	CaCO ₃																														
4-33	55%																															
4-50	31%																															
4-80	56%																															
CG	Fm		5							5GY 8/1 N5 variegated 5GY 8/1 5Y 7/2																						

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURE	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																														
		FORAMS	NANNOS	RADS																																					
late PLEISTOCENE	(F) Globorotalia tosaensis (N21) (N) Discoaster surculus-Discoaster brouweri (NN16-NN18)	AM	RM		1	0.5 1.0					5B 9/1 5Y 4/1 mottled 5Y 6/1, 5GY 6/1 5B 7/1 sandy lamination																														
		AG	AM								*49 GZ *84 CCB *94 CCL XM	5Y 6/1 N5 5B 9/1 sandy 5GY 8/1 mottle N6																													
											Smear Slides <table border="1"> <tr><td>nannos</td><td>1-49</td><td>1-84</td><td>1-94</td><td>sandy lamination</td></tr> <tr><td>forams</td><td>5</td><td>65</td><td>10</td><td></td></tr> <tr><td>unspec. CaCO₃</td><td>--</td><td>3</td><td>20</td><td></td></tr> <tr><td>clay</td><td>5</td><td>5</td><td>10</td><td></td></tr> <tr><td>quartz</td><td>55</td><td>20</td><td>15</td><td></td></tr> <tr><td>others</td><td>31</td><td>5</td><td>40</td><td></td></tr> </table>	nannos	1-49	1-84	1-94	sandy lamination	forams	5	65	10		unspec. CaCO ₃	--	3	20		clay	5	5	10		quartz	55	20	15		others	31	5	40	
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others	31	5	40																																						
											Carbonate Bomb T-83 63%																														
											Carbon Carbonate <table border="1"> <tr><td>Total C</td><td>Org. C</td><td>CaCO₃</td></tr> <tr><td>1-100</td><td>6.7</td><td>0.2</td><td>54.3</td></tr> </table>	Total C	Org. C	CaCO ₃	1-100	6.7	0.2	54.3																							
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											X-ray Analysis <table border="1"> <tr><td>Qtz.</td><td>10</td></tr> <tr><td>Cal.</td><td>48</td></tr> <tr><td>Dol.</td><td>0</td></tr> <tr><td>Other</td><td>42</td></tr> </table>	Qtz.	10	Cal.	48	Dol.	0	Other	42																						
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TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
early PLIOCENE - (?) late PLIOCENE	(F) Pulleniatina obliquiloculata (N20) (N) Discoaster asymmetricus/Reticulofenestra pseudumbillica (NN14/15)	CG			1	0.5	VOID				greenish gray (5GY 6/1)
		AG			1	1.0					light olive gray (5Y 5/2) burrow
		AG			2						light bluish gray (5B 7/1)
		AG			2						silty layer
		AG			2						bluish gray to bluish white (5B 9/1)
		AG			2						5B 7/1 lense of 5GY 6/1
		AM			2						interbedded 5B 9/1, 5B 7/1
		AG			2						5B 7/1 lense of 5YR 4/1
		FM			2						
		CC			2						

Smear Slides			
quartz	3-50	2-87	silty layer
mica	1	--	
clay	18	5	
vol. glass	tr	--	
carb. unsp.	2	15	
dolomite rhomb	tr	--	
forams	5	4	
cal. nannos	70	25	
sp. spic.	1	4	
fish remains	tr	--	
glaucinite	--	2	
pyrite	--	25	

Carbonate Bomb			
2-95	51%		

Carbon Carbonate			
2-104	Total C	Org. C	CaCO ₃
	7.3	0.2	58.9

Grain Size			
2-101	Sand	Silt	Clay
	0.5	35.3	64.2

X-ray Analysis	
2-103	
Qtz.	6
Cal.	47
Other	47

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
early PLIOCENE	(F) Sphaeroidinella dehiscens (N19) (N) Discoaster asymmetricus/Reticulofenestra pseudumbillica (NN14/15)	AG			1	0.5				XM	mixed 5B 7/1, 5GY 6/1
		CM			1	1.0					
		AM			2					GZ	mottles of 5Y 6/1
		CG	AG		2						5B 7/1

Smear Slides			
nannos	2-29	80	
clay		17	
quartz		3	
other (trace)		mica, dolomite, sp. spic.	

Carbonate Bomb			
2-37	Total C	Org. C	CaCO ₃
	8.0	0.1	65.6

Grain Size			
2-26	Sand	Silt	Clay
	0.2	21.0	78.8

X-ray Analysis	
1-68	
Qtz.	8
Cal.	45
Other	47

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION	
		FORAMS	NANNOS	RADS								
early PLIOCENE	(F) <i>Sphaeroidinella dehisces</i> (N19) (N) <i>Discoaster asymmetricus/Reticulofenestra pseudumbilica</i> (NN14/15)	AG			1	0.5 1.0				XM	<p>Marly Nanno Ooze bluish white (5B 9/1) to light bluish gray (5B 7/1) with occasional fragments of light olive gray (5Y 6/1) and grayish olive green (5GY 3/2). Entire core except Sec. 7 - intensely disturbed drilling breccia.</p>	
		AG	AG		2		VOID			XM	<p>Smear Slides Major lith. Minor lith. 6-141 3-9 bluish white nannos 85 47 (5B 9/1), unsp. CaCO₃ 3 20 fragments of clay 10? 15 light olive gray quartz 1 15 (5Y 6/1), forams 1 grayish olive green pyrite tr (5GY 3/2) sp. spic. -- 2 glaucinite -- dolomite -- opaques -- 1</p>	
					3			VOID			CCL CCB XM	<p>Carbonate Bomb 3, 61 cm 60% 7, 21-22 cm 61%</p>
					4			VOID				<p>Carbon Carbonate Total C Org. C CaCO₃ 3-53 6.9 0.3 55.3 5-107 7.6 0.2 62.1</p>
					5							<p>Grain Size 6-122 Sand Silt Clay 1.2 31.6 67.2</p>
					6							<p>X-ray Analysis 1-104 2-105 3-85 6-105 Qtz. 5 38 7 7 Cal. 55 24 56 61 Other 40 38 37 32</p>
		AG	AM							CCB		
										XM GZ *141	<p>rind burrow Zoophycus light bluish gray (5B 7/1)</p>	
		CG	AG							CCB		
		CG	AG							CC	GEOCHEM	

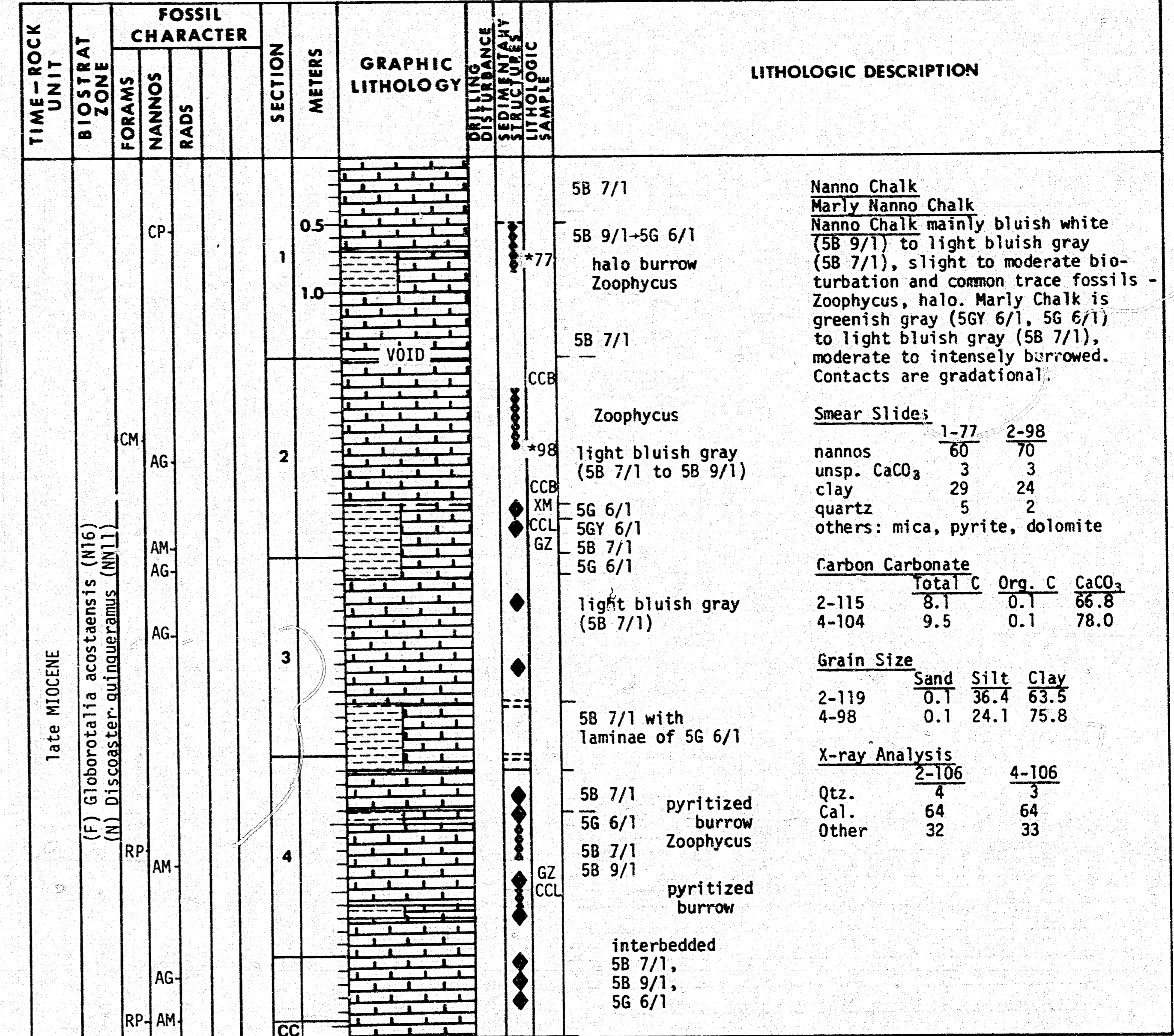
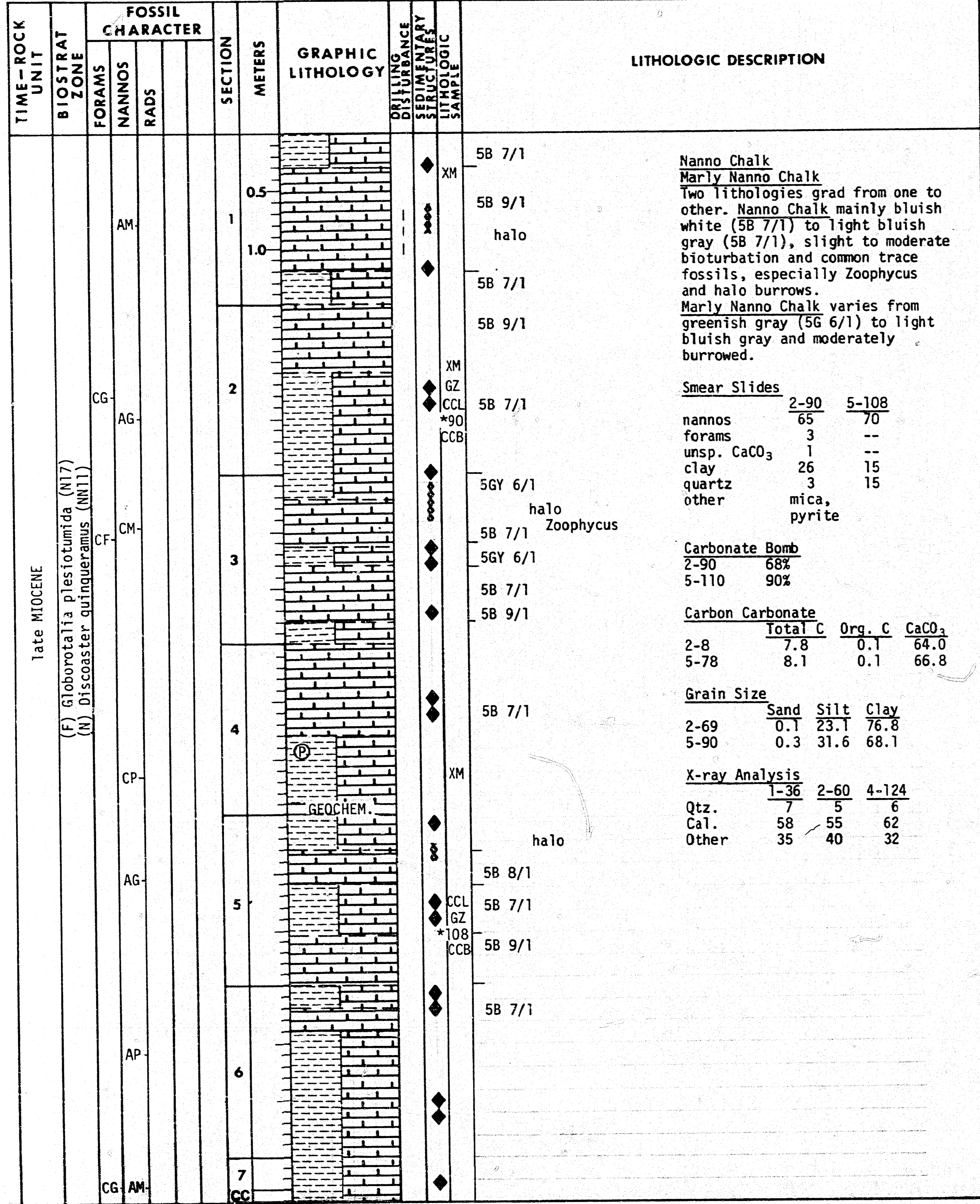
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION	
		FORAMS	NANNOS	RADS								
early PLIOCENE	(F) <i>Sphaeroidinella dehisces</i> (N19) (N) <i>Discoaster asymmetricus/Reticulofenestra pseudumbilica</i> (NN14/15)				1	0.5 1.0	VOID			XM CCL *111 GZ	<p>Marly Nanno Ooze Nanno Ooze Entire core except lower 20 cm is intensely disturbed drilling breccia composed mainly of light olive gray (5Y 6/1) to light bluish gray (5B 7/1) Marly Nanno Ooze with fragments of Nanno Ooze. Lowermost section is bluish white (5B 9/1) Nanno Ooze.</p>	
					2		VOID			XM	<p>Smear Slides 1-111 5-76 nannos 40 65 forams 3 5 unsp. CaCO₃ 2 -- clay 41 24 quartz 10 3 sp. spic. 1 3 pyrite 2 0</p>	
					3			VOID				<p>Carbonate Bomb 4-80 52% 4-81 65%</p>
					4						CCL	<p>Carbon Carbonate Total C Org. C CaCO₃ 1-94 7.8 0.2 63.7 4-5 7.2 0.2 58.9</p>
					5							<p>Grain Size 1-94 Sand Silt Clay 1.7 32.2 66.1 4-108 0.8 29.1 70.1</p>
										CCL CCB XM GZ	<p>X-ray Analysis 1-86 2-40 4-112 Qtz. 5 12 7 Cal. 51 35 52 Other 44 53 41</p>	
		CG	AG							*76	<p>bluish white (5B 9/1) to light bluish gray (5B 7/1)</p>	

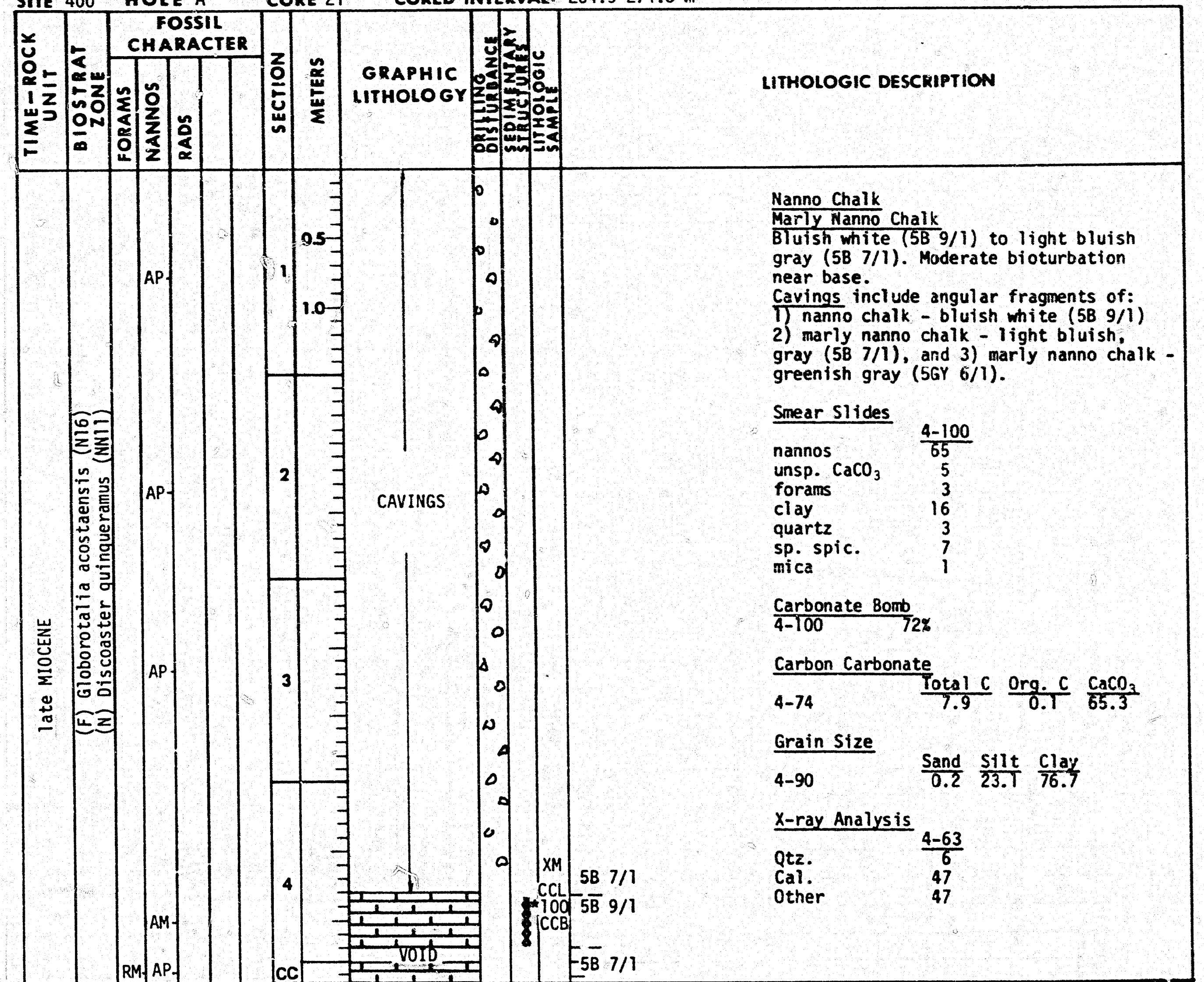
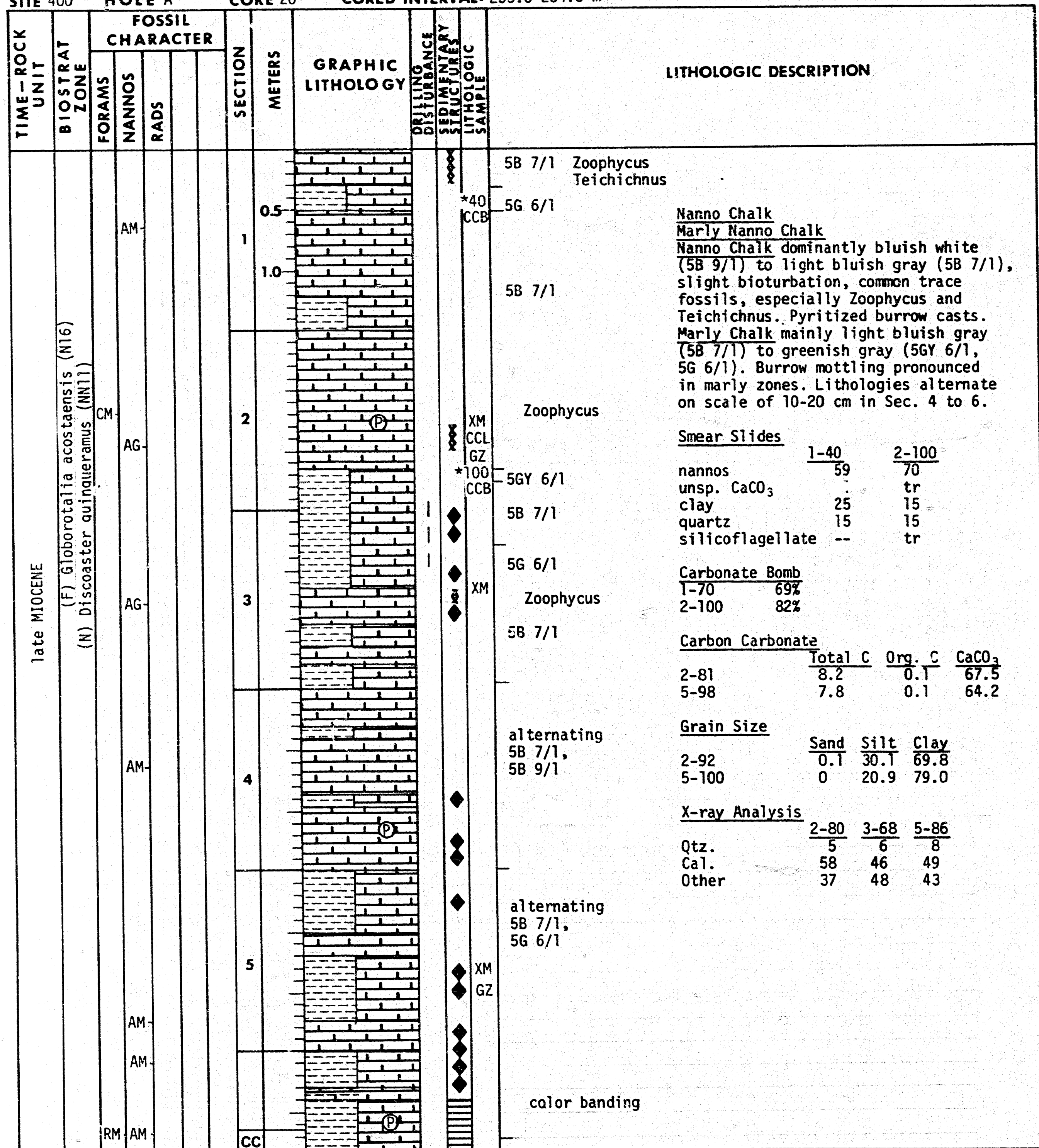
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
early PLIOCENE	(F) Globorotalia tumida (N18) (N) Ceratolithus tricorniculatus/Ceratolithus rugosus (NN12/13)	AM			1	0.5 1.0					Nanno Chalk light bluish gray (5B 7/1) with mottles of light olive gray (5Y 6/1), Marly Nanno Chalk. Moderate bioturbation throughout; common burrows of Zoophycus, Teichichnus.
		CM	AM				VOID			22	Teichichnus Smear Slides halo burrow large pyritized burrow
		AM			2					CCB GZ CCL XM	light bluish gray (5B 7/1) Carbonate Bomb 2-90 66%
		CG	AG		3						Teichichnus mottled light olive gray (5Y 6/1)
		CG	AG	CC							Carbon Carbonate Total C Org. C CaCO ₃ 2-128 8.7 0.1 71.6 Grain Size 2-124 Sand Silt Clay 1.4 33.3 65.4 X-ray Analysis 2-142 Qtz. 4 Cal. 64 Other 32

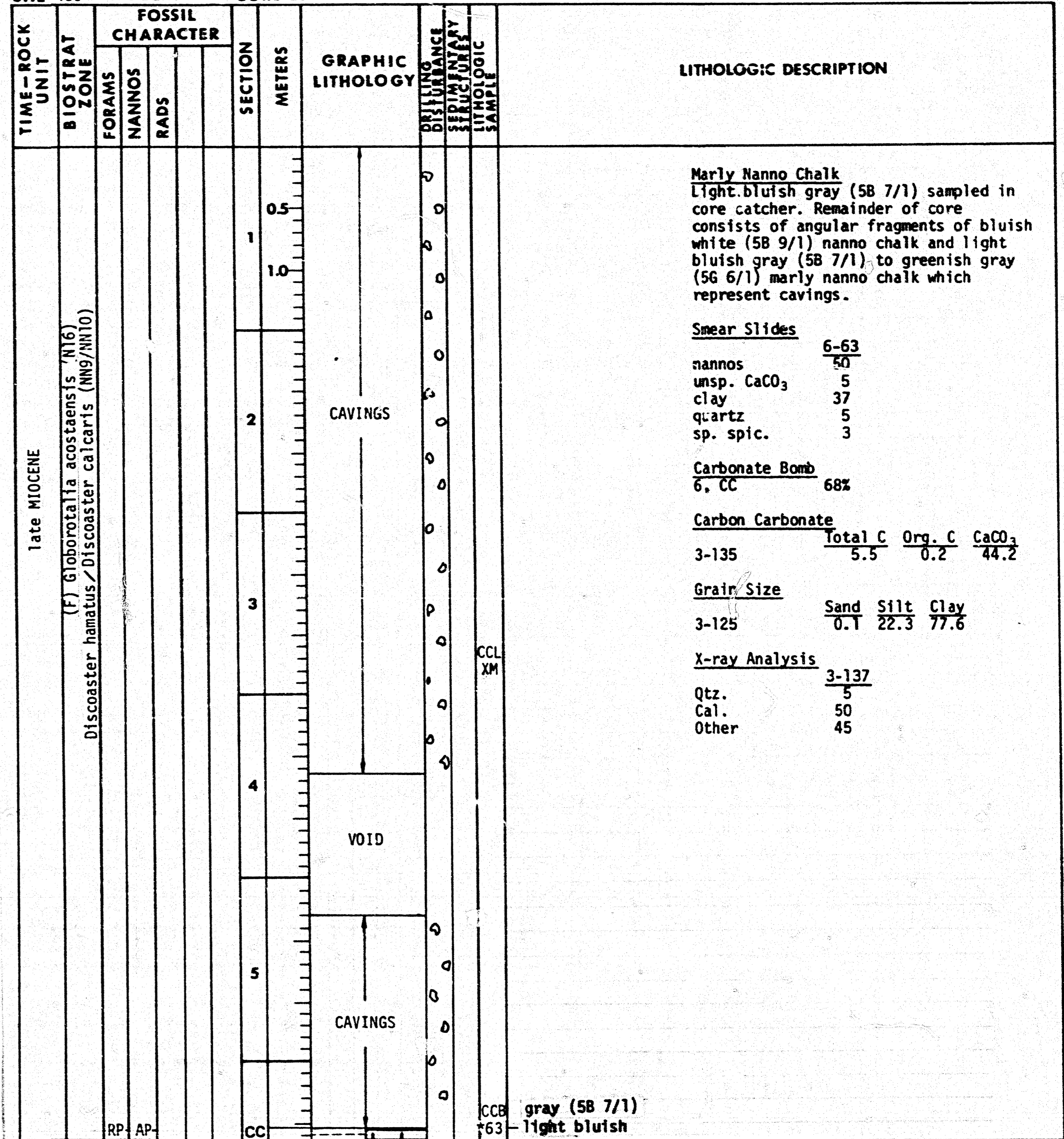
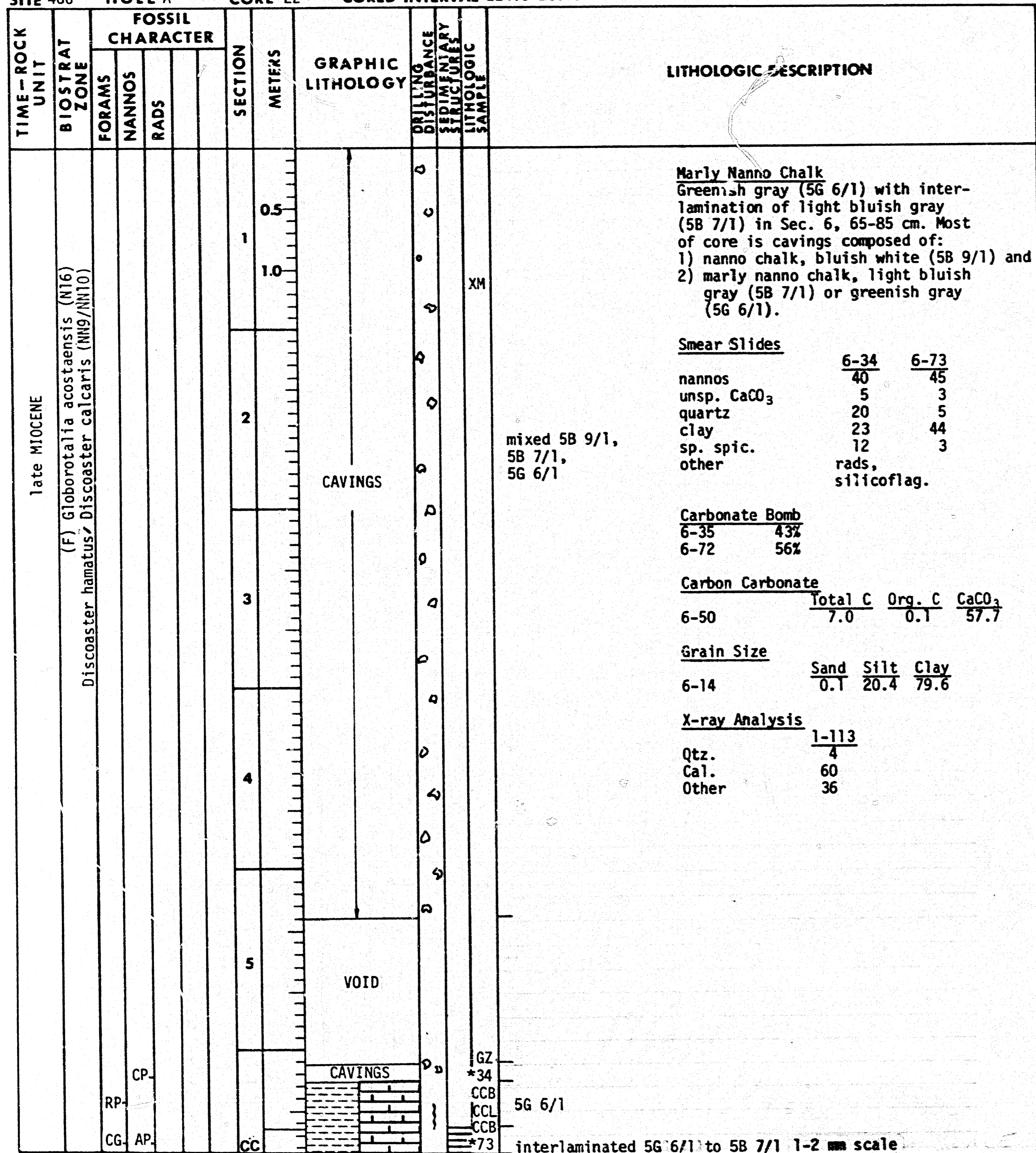
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
early PLIOCENE	(F) Globorotalia pleisotumida-Globorotalia tumida (N17/18) (N) Ceratolithus tricorniculatus/Ceratolithus rugosus (NN12/13)	AG			1	0.5 1.0	CAVINGS				Nanno Chalk light bluish gray (5B 7/1) with occasional light olive gray (5Y 6/1) Marly Nanno Ooze layers in Sec. 4 and 5. Moderate bioturbation throughout along with conspicuous composite, halo, Zoophycus and Teichichnus burrows.
		CM			2						light bluish gray (5B 7/1) Smear Slides 2-100 5-15 sand/silt/clay 0/25/75 5/55/40 nannos 60 72 unsp. CaCO ₃ 5 5 formas 5 -- clay 17 15 halo burrow sp. spic. 7 3 Zoophycus quartz 3 5 other: mica, heavy min, pyrite
		AG			3						composite burrow halo burrow Zoophycus Carbonate Bomb 4-100 68%
		AG			4						CCL XM GZ suggestion of laminae Grain Size 3-60 Total C Org. C CaCO ₃ 4-139 8.8 0.1 71.9 7.8 0.1 64.0 Teichichnus 3-107 Sand Silt Clay 0.1 37.3 62.6 4-136 0.4 31.0 68.7 Zoophycus composite halo burrow X-ray Analysis 3-106 4-128 Qtz. 5 5 Cal. 67 61 composite burrow Other 28 34
		CP									VOID CCB CCL XM GZ *15 dominantly 5B 7/1, interbedded 5Y 6/1

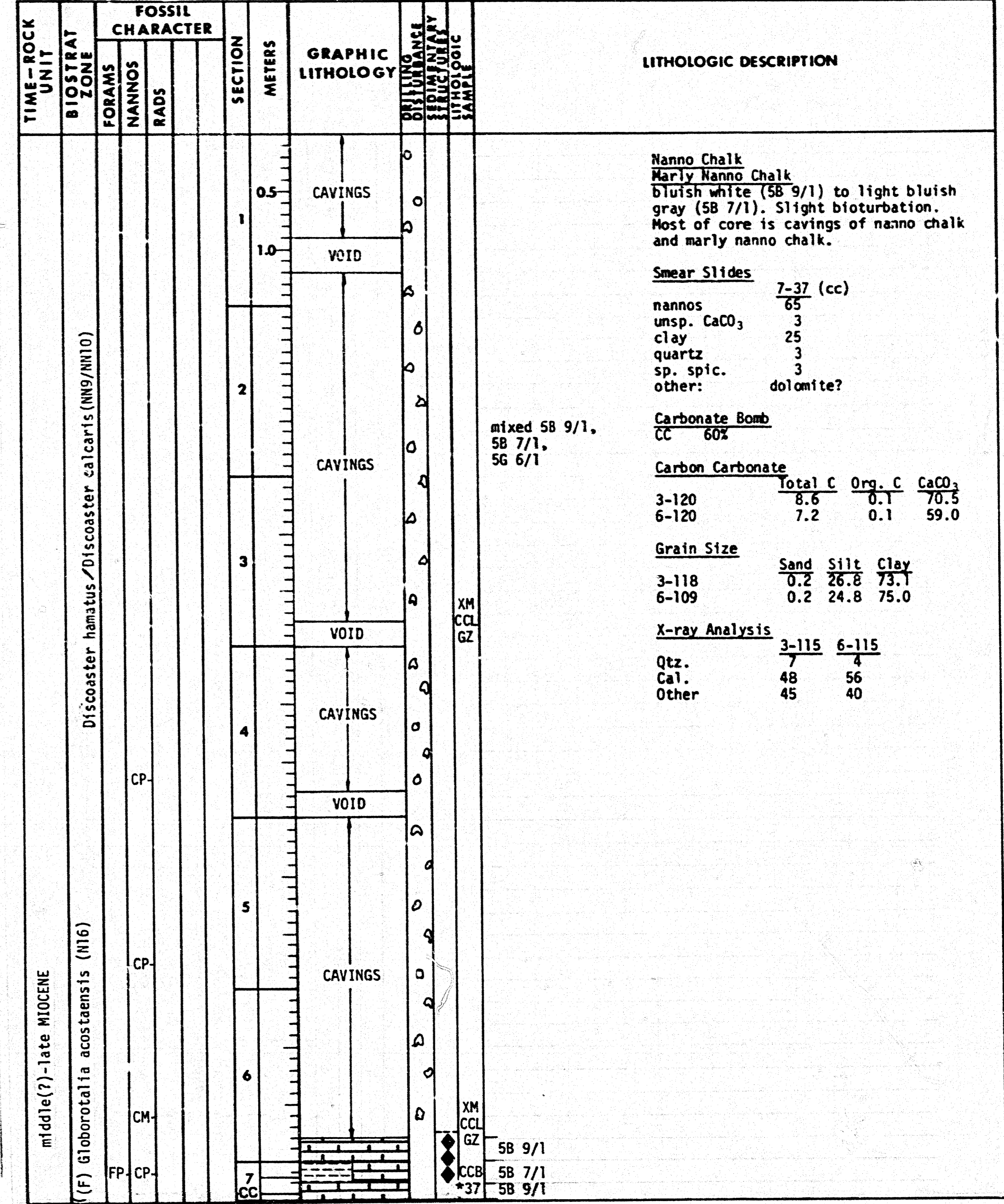
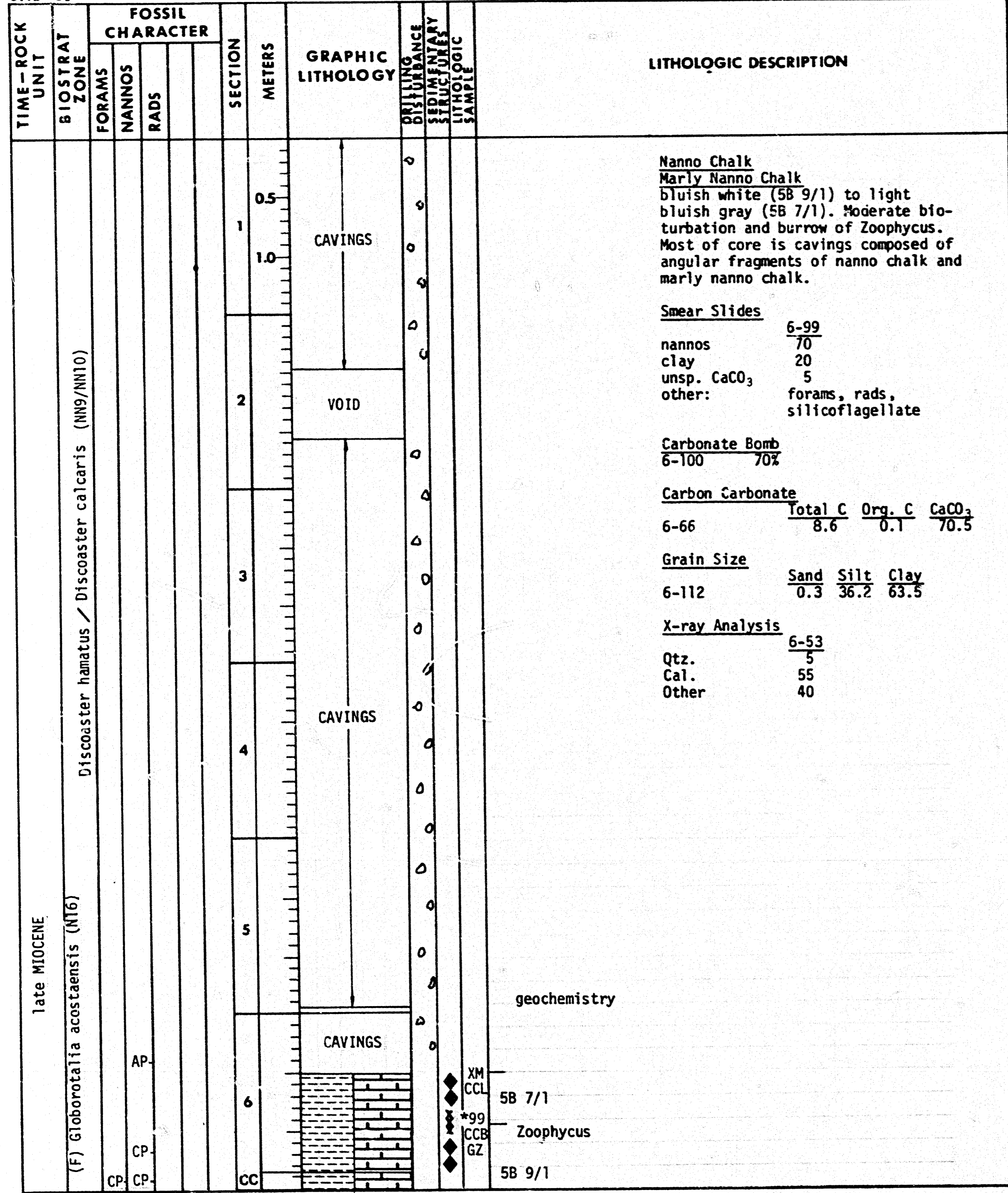
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION												
		FORAMS	NANNOS	RADS																			
late MIOCENE	(F) Globorotalia plesiotumida (N17) (N) Discoaster quinqueramus (NN11)	AM	AM		1	VOID CAVINGS VOID				XM CCB CCL	<p>Marly Nanno Chalk light bluish gray (5B 7/1); bioturbation. Cavings are Nanno Chalk and Marly Nanno Chalk.</p> <p>Carbonate Bomb 1-80 61%</p> <p>halo burrow light bluish gray (5B 7/1)</p> <p>Carbon Carbonate 1, CC</p> <table border="1"> <tr> <td>Total C</td> <td>7.4</td> <td>Org. C</td> <td>0.2</td> <td>CaCO₃</td> <td>60.0</td> </tr> </table> <p>X-ray Analysis</p> <table border="1"> <tr> <td>Qtz.</td> <td>1-45</td> </tr> <tr> <td>Cal.</td> <td>6</td> </tr> <tr> <td>Other</td> <td>47</td> </tr> </table>	Total C	7.4	Org. C	0.2	CaCO ₃	60.0	Qtz.	1-45	Cal.	6	Other	47
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TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																																		
		FORAMS	NANNOS	RADS																																																									
late MIOCENE	(F) Globorotalia plesiotumida (N17) (N) Discoaster quinqueramus (NN11)	CP			1	0.5 1.0					<p>Nanno Chalk Marly Nanno Chalk Nanno Chalk is light bluish gray (5B 7/1), shows moderate bioturbation throughout and contains conspicuous trace fossils including: Zoophycus, Teichichnus, halo and composite burrows. Occasional pyrite nodules. Sec. 3 to 5 contain interbeds of greenish gray (5GY 6/1, 5G 6/1) Marly Nanno Chalk; intense bioturbation associated with these intervals.</p> <p>Smear Slides</p> <table border="1"> <tr> <td>2-100</td> <td>2-100</td> </tr> <tr> <td>nannos</td> <td>65</td> </tr> <tr> <td>forams</td> <td>3</td> </tr> <tr> <td>unsp. CaCO₃</td> <td>3</td> </tr> <tr> <td>clay</td> <td>21</td> </tr> <tr> <td>quartz</td> <td>5</td> </tr> <tr> <td>other:</td> <td>mica, pyrite</td> </tr> </table> <p>Carbonate Bomb</p> <table border="1"> <tr> <td>2-100</td> <td>70%</td> </tr> <tr> <td>4-91</td> <td>48%</td> </tr> </table> <p>Carbon Carbonate</p> <table border="1"> <tr> <td>Total C</td> <td>Org. C</td> <td>CaCO₃</td> </tr> <tr> <td>2-45</td> <td>8.4</td> <td>0.1</td> </tr> <tr> <td>4-54</td> <td>7.9</td> <td>0.1</td> </tr> <tr> <td></td> <td>69.2</td> <td>65.0</td> </tr> </table> <p>Grain Size</p> <table border="1"> <tr> <td></td> <td>Sand</td> <td>Silt</td> <td>Clay</td> </tr> <tr> <td>2-42</td> <td>0.1</td> <td>26.8</td> <td>73.1</td> </tr> <tr> <td>4-44</td> <td>0.1</td> <td>32.6</td> <td>67.3</td> </tr> </table> <p>X-ray Analysis</p> <table border="1"> <tr> <td>2-57</td> <td>4-60</td> </tr> <tr> <td>Qtz.</td> <td>7</td> </tr> <tr> <td>Cal.</td> <td>64</td> </tr> <tr> <td>Other</td> <td>29</td> </tr> </table>	2-100	2-100	nannos	65	forams	3	unsp. CaCO ₃	3	clay	21	quartz	5	other:	mica, pyrite	2-100	70%	4-91	48%	Total C	Org. C	CaCO ₃	2-45	8.4	0.1	4-54	7.9	0.1		69.2	65.0		Sand	Silt	Clay	2-42	0.1	26.8	73.1	4-44	0.1	32.6	67.3	2-57	4-60	Qtz.	7	Cal.	64	Other	29
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TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																												
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middle MIOCENE (F) Globorotalia peripheronda to Globorotalia foshi zone (N10-12) (N) Discoaster kugleri (NN7)					1				5B 9/1 5B 7/1 *70 CCL *133 XM GZ 5G 6/1 5B 9/1 5B 7/1 CCB	bluish white (5B 9/1) Zoophycus Nanno Chalk bluish white (5B 9/1) with slightly more clay rich layers of light bluish gray (5B 7/1). 15 cm layer of greenish gray (5G 6/1) Marly Nanno Chalk near base. Slight to moderate bioturbation, especially in clay rich zones. Burrows of Zoophycus. Smear Slides <table border="1"> <tr><td></td><td>1-70</td><td>1-133</td></tr> <tr><td>nannos</td><td>63</td><td>50</td></tr> <tr><td>unsp. CaCO₃</td><td>3</td><td>3</td></tr> <tr><td>clay</td><td>26</td><td>34</td></tr> <tr><td>quartz</td><td>3</td><td>5</td></tr> <tr><td>sp. spic.</td><td>3</td><td>7</td></tr> <tr><td>other:</td><td></td><td>dolomite, glauconite</td></tr> </table> Carbonate Bomb 2, CC 77% Carbon Carbonate <table border="1"> <tr><td></td><td>Total C</td><td>Org. C</td><td>CaCO₃</td></tr> <tr><td>1-120</td><td>8.0</td><td>0.1</td><td>65.7</td></tr> </table> Grain Size <table border="1"> <tr><td></td><td>Sand</td><td>Silt</td><td>Clay</td></tr> <tr><td>i-132</td><td>0.1</td><td>18.9</td><td>81.0</td></tr> </table> X-ray Analysis <table border="1"> <tr><td></td><td>1-132</td></tr> <tr><td>Qtz.</td><td>5</td></tr> <tr><td>Cal.</td><td>48</td></tr> <tr><td>Other</td><td>47</td></tr> </table>		1-70	1-133	nannos	63	50	unsp. CaCO ₃	3	3	clay	26	34	quartz	3	5	sp. spic.	3	7	other:		dolomite, glauconite		Total C	Org. C	CaCO ₃	1-120	8.0	0.1	65.7		Sand	Silt	Clay	i-132	0.1	18.9	81.0		1-132	Qtz.	5	Cal.	48	Other	47
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middle MIOCENE (F) Globorotalia foshi (N12) (N) Discoaster kugleri (NN7)					1				*30 XM CCL GZ 5G 6/1 5B 9/1 laminated 5B 9/1, 5P 4/2 alternating 5B 9/1, 5B 7/1 laminated 5B 9/1, 10Y 4/2	Nanno Chalk bluish white (5B 9/1) alternating with light bluish gray (5B 7/1) at 10-20 cm intervals. Colors reflect variations in clay content, greenish gray (5G 6/1) layer of Marly Nanno Chalk at base of Sec. 1. Bioturbation slight to moderate in nanno chalk, intense in marly chalk. Color lamination (mm scale) of bluish white and grayish purple (5P 4/2) in Sec. 1 (5-15 cm), Sec. 2 (13-20 cm). Occasional laminae of concentrated faecal pellets. Smear Slides <table border="1"> <tr><td></td><td>1-30</td></tr> <tr><td>nannos</td><td>60</td></tr> <tr><td>unsp. CaCO₃</td><td>2</td></tr> <tr><td>clay</td><td>35</td></tr> <tr><td>sp. spic.</td><td>2</td></tr> <tr><td>quartz</td><td>1</td></tr> </table> Carbonate Bomb 1-50 73% Carbon Carbonate <table border="1"> <tr><td></td><td>Total C</td><td>Org. C</td><td>CaCO₃</td></tr> <tr><td>1-41</td><td>10.1</td><td>0.1</td><td>83.2</td></tr> </table> Grain Size <table border="1"> <tr><td></td><td>Sand</td><td>Silt</td><td>Clay</td></tr> <tr><td>1-38</td><td>0.4</td><td>36.6</td><td>62.9</td></tr> </table> X-ray Analysis <table border="1"> <tr><td></td><td>1-36</td></tr> <tr><td>Qtz.</td><td>2</td></tr> <tr><td>Cal.</td><td>75</td></tr> <tr><td>Other</td><td>23</td></tr> </table>		1-30	nannos	60	unsp. CaCO ₃	2	clay	35	sp. spic.	2	quartz	1		Total C	Org. C	CaCO ₃	1-41	10.1	0.1	83.2		Sand	Silt	Clay	1-38	0.4	36.6	62.9		1-36	Qtz.	2	Cal.	75	Other	23
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middle MIOCENE	(F) <i>Catapsydrax dissimilis</i> to <i>Globorotalia peripheronda</i> (N6-9) (N) <i>Sphenolithus heteromorphus</i> (NN5)				1	0.5			5G 4/1 5G 6/1	<p>Marly Nanno Chalk Nanno Chalk marly chalk is greenish gray (5G 4/1) to dark greenish gray (5G 6/1). Nanno chalk is bluish white (5B 7/1) to light bluish gray (5B 7/1). Slight to moderate bioturbation in both lithologies. Most of core is either cavings or drilling breccia composed of angular fragments of:</p> <ol style="list-style-type: none"> 1) nanno chalk - light bluish gray, 2) marly nanno chalk - greenish gray and 3) calcareous claystone - dark greenish gray (5G 6/1) 																																																
					2	1.0			mixed 5B 7/1, 5B 9/1, 5G 4/1, 5G 6/1																																																	
					3	1.5			VOID CAVINGS OR DRILLING BRECCIA VOID		<p>CCL *105 5GY 6/1 XM interlaminated CCB 5GY 6/1-10Y 4/2 GZ CCB 5B 7/1-5B 9/1</p>																																															
		FM	AM	CC					<p>Smear Slides</p> <table border="1"> <tr> <td></td> <td>1-63</td> <td>3-105</td> </tr> <tr> <td>nannos</td> <td>15</td> <td>40</td> </tr> <tr> <td>unsp. CaCO₃</td> <td>5</td> <td>10</td> </tr> <tr> <td>clay</td> <td>59</td> <td>30</td> </tr> <tr> <td>quartz</td> <td>20</td> <td>20</td> </tr> <tr> <td>other:</td> <td>pyrite,</td> <td></td> </tr> <tr> <td></td> <td>plant frag.</td> <td></td> </tr> </table> <p>Carbonate Bomb</p> <table border="1"> <tr> <td>3-106</td> <td>61%</td> </tr> <tr> <td>3-140 (cc)</td> <td>83%</td> </tr> </table> <p>Carbon Carbonate</p> <table border="1"> <tr> <td>1-98</td> <td>Total C</td> <td>Org. C</td> <td>CaCO₃</td> </tr> <tr> <td></td> <td>7.0</td> <td>0.1</td> <td>57.5</td> </tr> </table> <p>Grain Size</p> <table border="1"> <tr> <td>1-114</td> <td>Sand</td> <td>Silt</td> <td>Clay</td> </tr> <tr> <td></td> <td>0.1</td> <td>23.0</td> <td>76.9</td> </tr> </table> <p>X-ray Analysis</p> <table border="1"> <tr> <td>3-114</td> <td></td> </tr> <tr> <td>Qtz.</td> <td>6</td> </tr> <tr> <td>Cal.</td> <td>55</td> </tr> <tr> <td>Other</td> <td>39</td> </tr> </table>		1-63	3-105	nannos	15	40	unsp. CaCO ₃	5	10	clay	59	30	quartz	20	20	other:	pyrite,			plant frag.		3-106	61%	3-140 (cc)	83%	1-98	Total C	Org. C	CaCO ₃		7.0	0.1	57.5	1-114	Sand	Silt	Clay		0.1	23.0	76.9	3-114		Qtz.	6	Cal.	55	Other	39
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early MIOCENE	(F) <i>Catapsydrax dissimilis</i> (N6) (N) <i>Sphenolithus heteromorphus</i> (NN5)				1	0.5			<p>mottled 5B 9/1, 5GY 5/2 5B 9/1</p>	<p>Nanno Chalk Marly Nanno Chalk Nanno chalk mainly bluish white (5B 9/1) to light bluish gray (5B 7/1) where more clay rich. Marly nanno chalk typically variegated color including grayish olive green (5GY 8/2), dusky yellow green (5GY 5/2), light olive gray (5Y 5/2). These intervals include greenish gray (5GY 6/1) calcareous claystone. Bioturbation evident throughout but especially conspicuous in marly zones. Zoophycus burrows evident.</p>																																											
					2	1.0			<p>5B 7/1 5B 9/1 5GY 6/4 5B 8/1 5B 7/1 5B 9/1 mottled 5GY 6/1 5B 9/1</p>																																												
		CP	AM	CC					<p>Smear Slides</p> <table border="1"> <tr> <td></td> <td>1-110</td> <td>2-75</td> </tr> <tr> <td>nannos</td> <td>50</td> <td>20</td> </tr> <tr> <td>unsp. CaCO₃</td> <td>30</td> <td>20</td> </tr> <tr> <td>clay</td> <td>20</td> <td>60</td> </tr> </table> <p>Carbonate Bomb</p> <table border="1"> <tr> <td>1-100</td> <td>84%</td> </tr> <tr> <td>2-82</td> <td>52%</td> </tr> </table> <p>Carbon Carbonate</p> <table border="1"> <tr> <td></td> <td>Total C</td> <td>Org. C</td> <td>CaCO₃</td> </tr> <tr> <td>1-84</td> <td>9.1</td> <td>0.1</td> <td>75.3</td> </tr> <tr> <td>2-75</td> <td>4.9</td> <td>0.1</td> <td>39.5</td> </tr> </table> <p>Grain Size</p> <table border="1"> <tr> <td>1-85</td> <td>Sand</td> <td>Silt</td> <td>Clay</td> </tr> <tr> <td></td> <td>0.2</td> <td>43.2</td> <td>56.6</td> </tr> </table> <p>X-ray Analysis</p> <table border="1"> <tr> <td>1-90</td> <td></td> </tr> <tr> <td>Qtz.</td> <td>2</td> </tr> <tr> <td>Cal.</td> <td>76</td> </tr> <tr> <td>Other</td> <td>22</td> </tr> </table>		1-110	2-75	nannos	50	20	unsp. CaCO ₃	30	20	clay	20	60	1-100	84%	2-82	52%		Total C	Org. C	CaCO ₃	1-84	9.1	0.1	75.3	2-75	4.9	0.1	39.5	1-85	Sand	Silt	Clay		0.2	43.2	56.6	1-90		Qtz.	2	Cal.	76	Other	22
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early MIOCENE	(F) <i>Catapsydrax dissimilis</i> (N6) (N) <i>Helicosphaera ampliapertura</i> (NN4)? (N) <i>Discoaster druggii/Sphenolithus belemnos</i> (NN2/3)	CP	AP		1	0.5		CCB	5GY 7/2	Nanno Chalk																																												
											*35	5GY 5/2	Marly Nanno Chalk																																									
														5B 9/1	Nanno chalk mainly light bluish gray (5B 7/1) to bluish white (5B 9/1). Marly chalk includes greenish gray (5G 6/1), dusky yellow green (5GY 5/2) and grayish yellow green (5GY 7/2). Colors and lithologies gradational and intermixed by bioturbation. Main fluctuations on 10-20 cm scale which give core a banded appearance. Zoophycus and pyritized burrows present.																																							
																alternating 5G 6/1, 5GY 5/2, 5B 7/1, 5GY 7/2	CCL																																					
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																								5G 6/1	1-35 2-54 2-130	nannos 20 70 57	unsp. CaCO ₃ 11 -- 5	clay 51 24 25	quartz 10 1 --	sp. spic. 8 -- 7	forams -- -- 1																							
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											5G 6/1	Marly Nanno Chalk																															
													5G 7/1	Dominantly light bluish gray (5B 7/1) to bluish white (5B 9/1) nanno chalk with occasional 10 cm interbeds of greenish gray (5G 6/1) marly chalk. Bioturbation slight to moderate hence contacts are gradational. Zoophycus and composite burrows. 10 cm layer of dark greenish gray (5G 4/1) Calcareous Mudstone at base.																													
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TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																				
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early MIOCENE	(F) Globorotalia kugleri (N4) (N) Triquetrorhabdulus carinatus (NN1)?	RP			1	0.5	▲▲▲▲▲			CCL	5B 7/2	<p>Marly Nanno Chalk Nanno Chalk Siliceous Mud Chalks vary from bluish white (5B 9/1) to light bluish gray (5B 7/1) depending on clay content. Siliceous muds dominantly dark greenish gray (5G 4/1) and commonly mottled with greenish gray (5G 6/1). Bioturbation moderate throughout along with Zoophycus and composite burrows. Vague lamination evident in part; "gritty" layers with concentration of sponge spicules present in lower Sec. 2 and Sec. 3 (☺).</p> <p>Smear Slides</p> <table border="1"> <tr> <td></td> <td>1-130</td> <td>2-35</td> <td>3-51</td> <td>minor lith.</td> </tr> <tr> <td>nannos</td> <td>35</td> <td>9</td> <td>20</td> <td></td> </tr> <tr> <td>unsp. CaCO₃</td> <td>15</td> <td>20</td> <td>15</td> <td></td> </tr> <tr> <td>clay</td> <td>40</td> <td>34</td> <td>10</td> <td></td> </tr> <tr> <td>quartz</td> <td>5</td> <td>6</td> <td>5</td> <td></td> </tr> <tr> <td>sp. spic.</td> <td>5</td> <td>30</td> <td>40</td> <td></td> </tr> <tr> <td>other</td> <td></td> <td>pyrite, diatoms</td> <td>mica, glauconite, fish remains, diatoms</td> <td></td> </tr> </table>		1-130	2-35	3-51	minor lith.	nannos	35	9	20		unsp. CaCO ₃	15	20	15		clay	40	34	10		quartz	5	6	5		sp. spic.	5	30	40		other		pyrite, diatoms	mica, glauconite, fish remains, diatoms	
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											XM	5G 4/1																																			
												5B 7/2																																			
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						2	1.0	▲▲▲▲▲			*130	4G 4/1																																			
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										CCB	5B 7/1-5B 9/1																																				
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		RP	CP							CC																																					

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																									
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early MIOCENE?	(F) Globorotalia kugleri (N4) (N) Triquetrorhabdulus carinatus (NN1)?	RP			1	0.5	▲▲▲▲▲			XM	5B 7/1	<p>Siliceous Nanno Chalk Dominantly light bluish gray (5B 7/1) with occasional layer of bluish white (5B 9/1). 10 cm layer of dark greenish gray (5G 7/1) Siliceous Mud in Sec. 1. Slight to moderate bioturbation throughout, Zoophycus and composite burrows. "Gritty" lenses (☺) several mm thick with concentrations of sponge spicules and forams.</p> <p>Smear Slides</p> <table border="1"> <tr> <td></td> <td>2-56</td> <td>1-25</td> <td>2-137</td> <td>Minor lith.</td> </tr> <tr> <td>nannos</td> <td>50</td> <td>55</td> <td>30</td> <td></td> </tr> <tr> <td>unsp. CaCO₃</td> <td>--</td> <td>5</td> <td>--</td> <td></td> </tr> <tr> <td>forams</td> <td>--</td> <td>--</td> <td>10</td> <td></td> </tr> <tr> <td>sp. spic.</td> <td>35</td> <td>10</td> <td>40</td> <td></td> </tr> <tr> <td>clay</td> <td>10</td> <td>30</td> <td>8</td> <td></td> </tr> <tr> <td>quartz</td> <td>5</td> <td>--</td> <td>10</td> <td></td> </tr> <tr> <td>other</td> <td>--</td> <td>--</td> <td>--</td> <td>diatoms, rads</td> </tr> </table>		2-56	1-25	2-137	Minor lith.	nannos	50	55	30		unsp. CaCO ₃	--	5	--		forams	--	--	10		sp. spic.	35	10	40		clay	10	30	8		quartz	5	--	10		other	--	--	--	diatoms, rads
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		RP	CP							*137																																										

Carbonate Bomb

1-26	67%
2-56	50%

Carbon Carbonate

	Total C	Org. C	CaCO ₃
1-34	3.0	0.1	24.2
2-66	8.3	0.1	68.0

Grain Size

	Sand	Silt	Clay
1-43	0.3	39.8	59.9

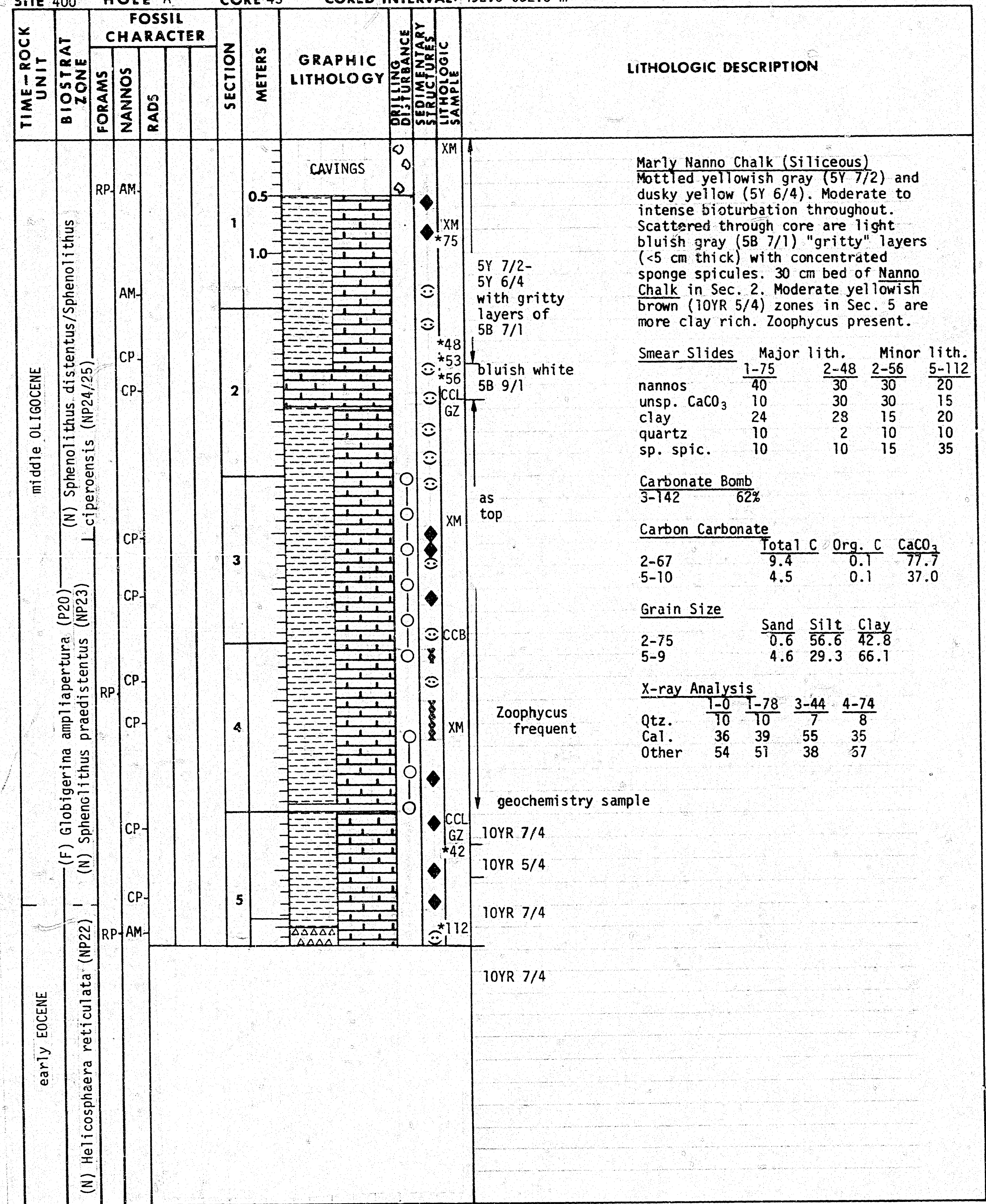
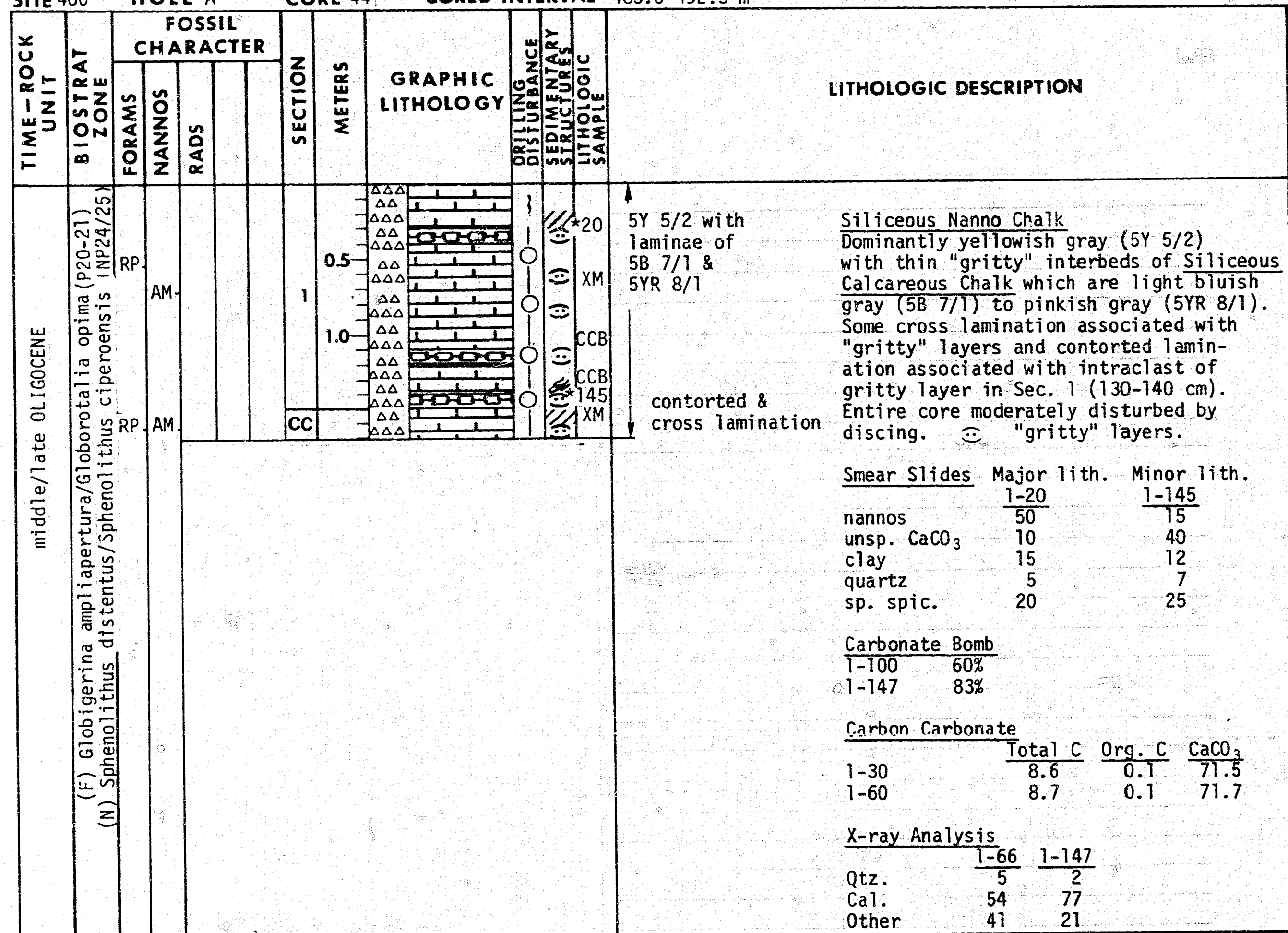
X-ray Analysis

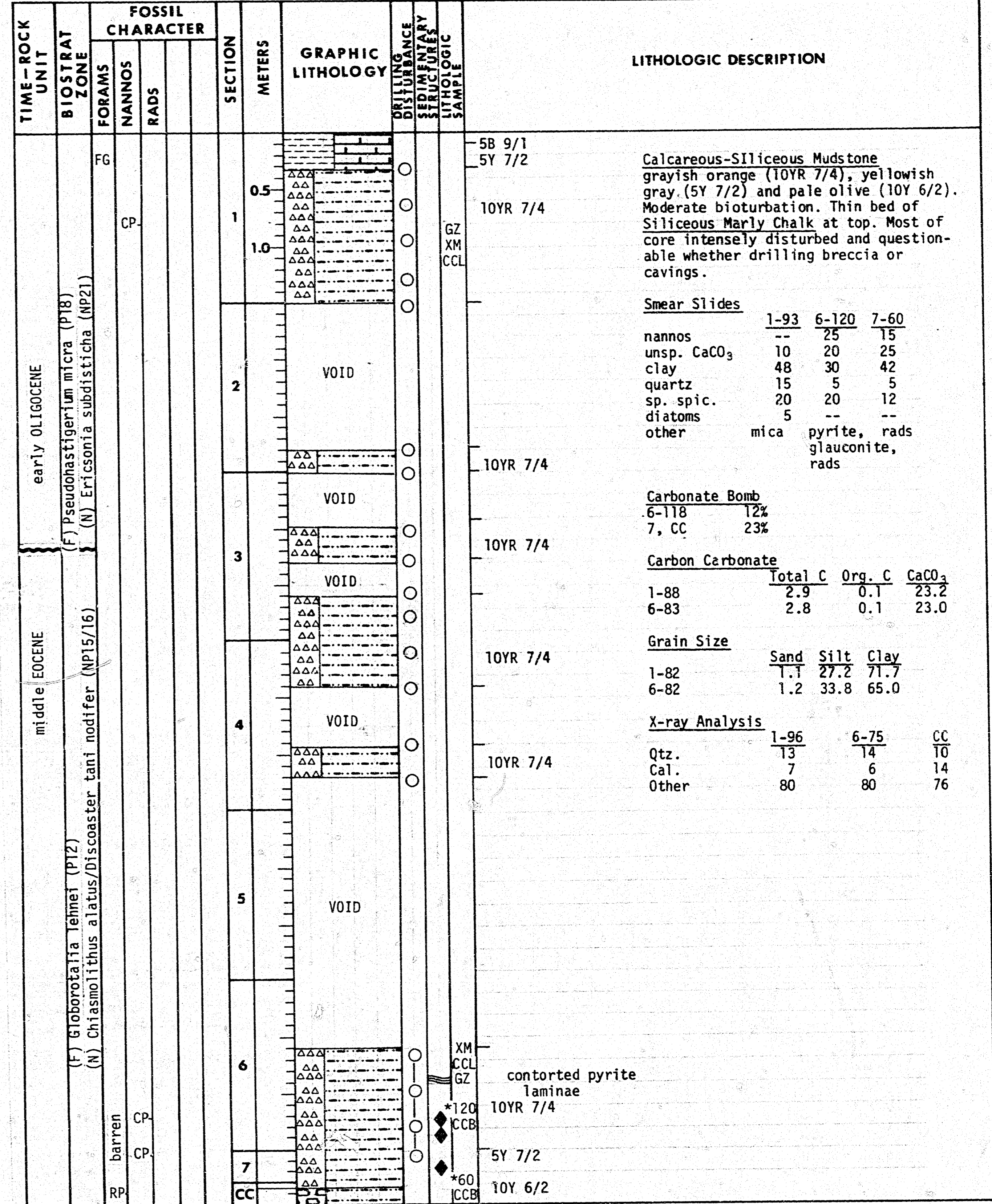
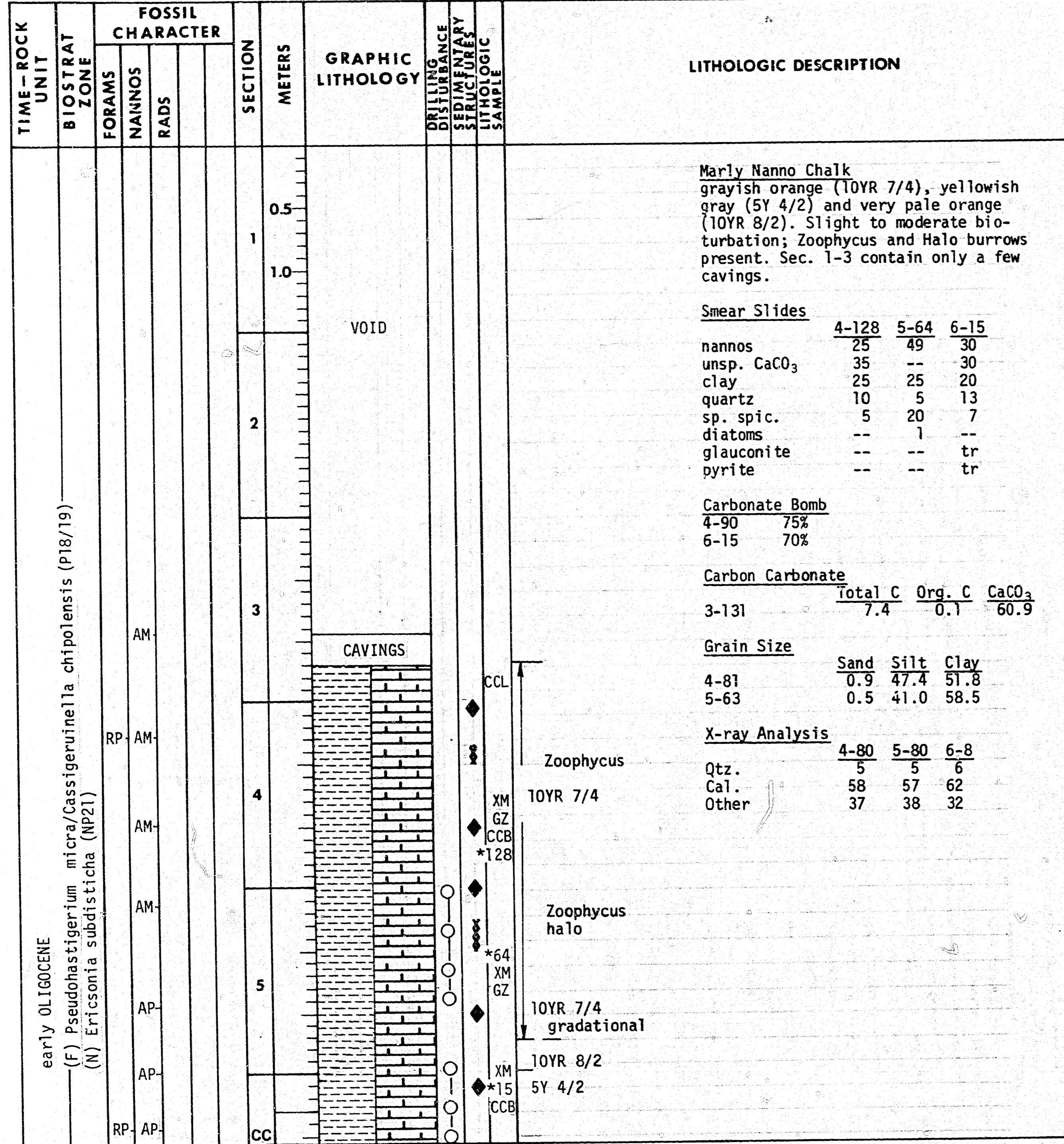
	1-16	2-81
Qtz.	4	4
Cal.	37	54
Other	39	42

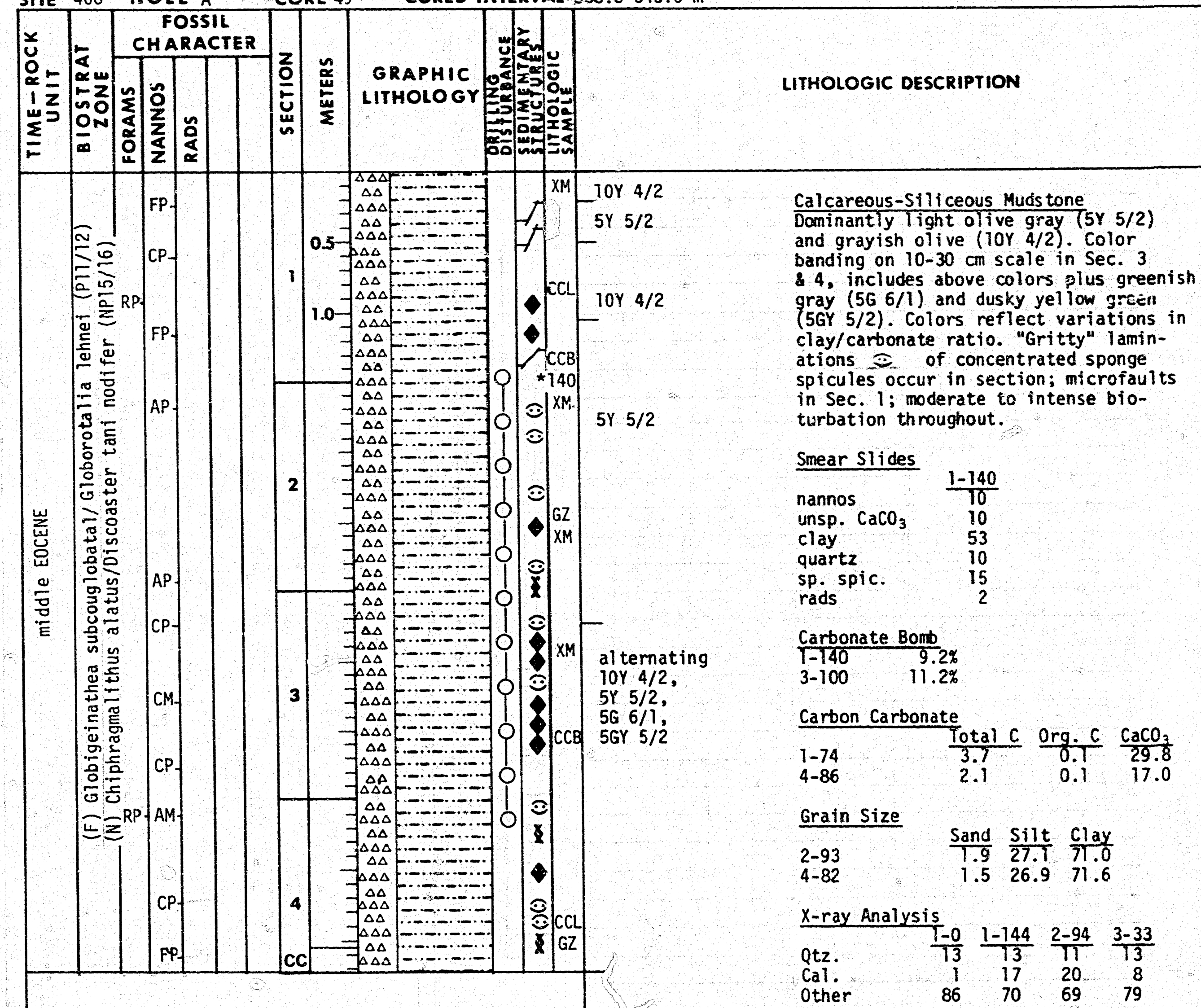
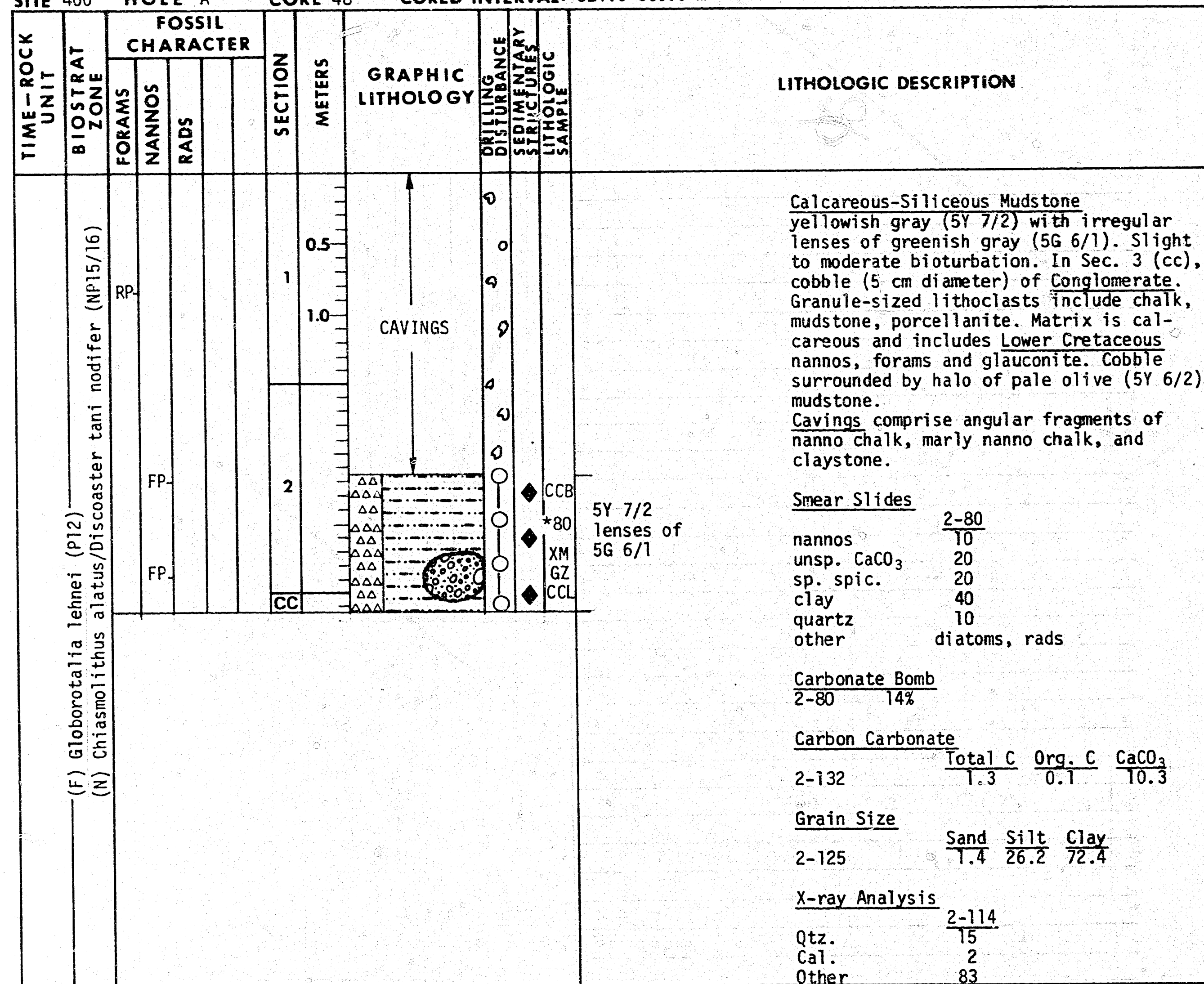
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																				
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early MIOCENE?	(N) <i>Triquetrorhabdulus carinatus</i> (NN1)?	AP			1	0.5	VOID			*19 5B 7/1 *20 CCL 5G 4/1 *21 XM GZ	<p>Siliceous Nanno Chalk Dominantly light bluish gray (5B 7/1) to greenish gray (5G 6/1). Mottles of dark greenish gray (5G 4/1) in top 40 cm. Moderate bioturbation. "Gritty layer" at 12 cm shows grading and contains reworked Eocene nannos.</p> <p>Smear Slides 1-19 (Major lith.)</p> <table border="0"> <tr><td>nannos</td><td>45</td></tr> <tr><td>sp. spic.</td><td>30</td></tr> <tr><td>diatoms</td><td>1</td></tr> <tr><td>clay</td><td>17</td></tr> <tr><td>quartz</td><td>5</td></tr> <tr><td>other</td><td>mica, glauconite</td></tr> </table> <p>Carbon Carbonate</p> <table border="0"> <tr><td></td><td>Total C</td><td>Org. C</td><td>CaCO₃</td></tr> <tr><td>1-27</td><td>7.9</td><td>0.1</td><td>65.4</td></tr> </table> <p>Grain Size</p> <table border="0"> <tr><td></td><td>Sand</td><td>Silt</td><td>Clay</td></tr> <tr><td>1-34</td><td>0.2</td><td>24.8</td><td>75.0</td></tr> </table> <p>X-ray Analysis</p> <table border="0"> <tr><td></td><td>1-34</td></tr> <tr><td>Qtz.</td><td>4</td></tr> <tr><td>Cal.</td><td>60</td></tr> <tr><td>Other</td><td>36</td></tr> </table>	nannos	45	sp. spic.	30	diatoms	1	clay	17	quartz	5	other	mica, glauconite		Total C	Org. C	CaCO ₃	1-27	7.9	0.1	65.4		Sand	Silt	Clay	1-34	0.2	24.8	75.0		1-34	Qtz.	4	Cal.	60	Other	36
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		FP	FP		CC	1.0				*22 5B 7/1																																					

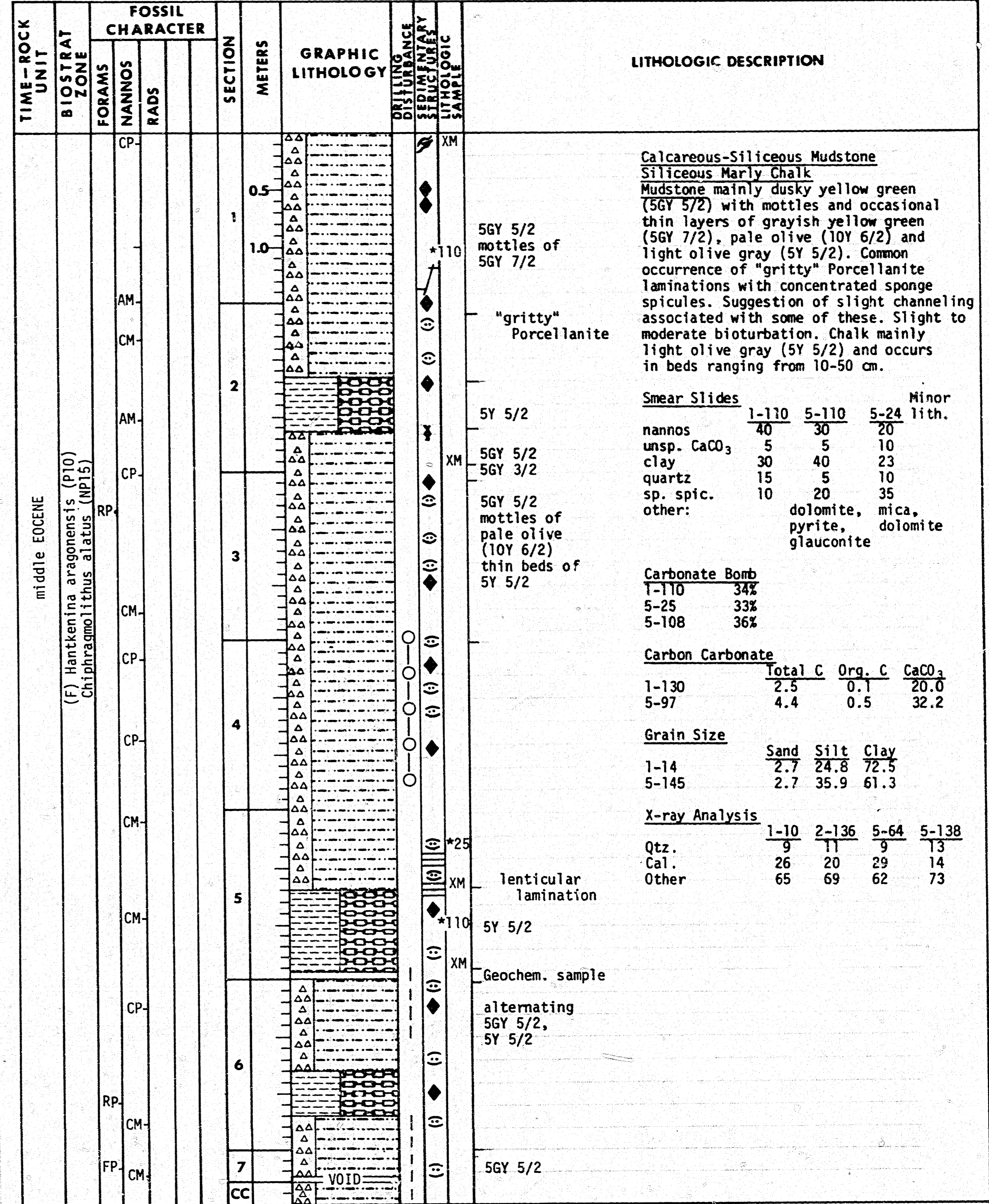
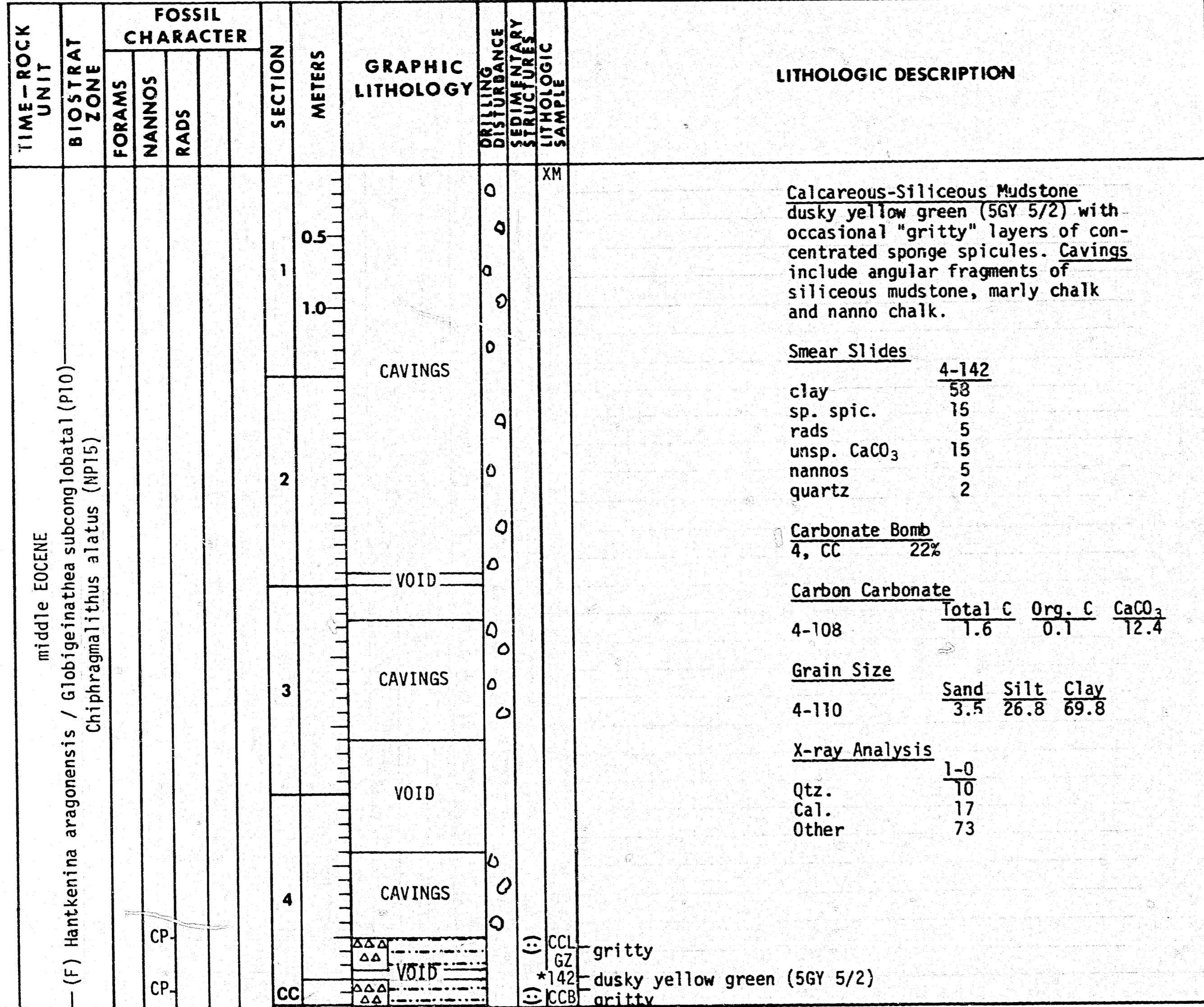
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION								
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early MIOCENE?	(N) <i>Triquetrorhabdulus carinatus</i> (NN1)	AP			CC	VOID				*17 5B 9/1	<p>Nanno Chalk Bluish white (5B 9/1). Top 10 cm is cavings. Catcher sample only.</p> <p>Smear Slides 1-17</p> <table border="0"> <tr><td>nannos</td><td>50</td></tr> <tr><td>unsp. CaCO₃</td><td>15</td></tr> <tr><td>clay</td><td>28</td></tr> <tr><td>sp spic.</td><td>7</td></tr> </table>	nannos	50	unsp. CaCO ₃	15	clay	28	sp spic.	7
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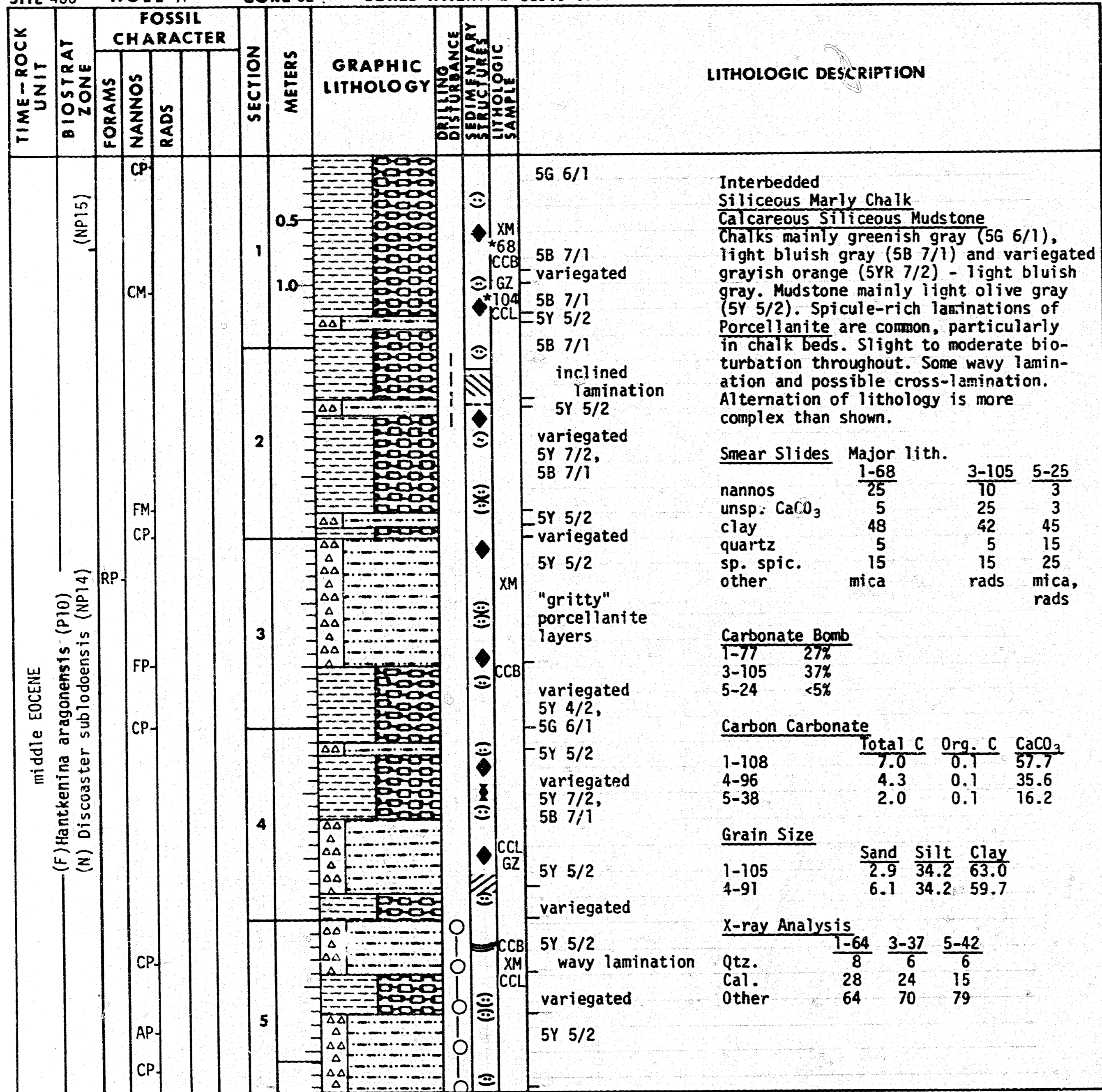
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																																																		
		FORAMS	NANNOS	RADS																																																																									
middle/late Oligocene	(F) <i>Globigerina ampliapertura</i> / <i>Globorotalia opima</i> (P20-21) (N) <i>Sphenolithus distentus</i> / <i>Sphenolithus cinereus</i> (NP24/NP25)	CP			CC	0.5	VOID			*17 5G 4/1 *18 CCL 5B 7/1 *19 GZ 5Y 7/2 *20 5B 7/1 *21 5Y 7/2 *22 5B 7/1-5YR 8/1 *23 5Y 7/2 *24 5B 7/1 *25 5Y 7/2 *26 CCB *27 5B 7/1 *28 CCB *29 XM 5Y 7/2 *30 5B 7/1 *31 5Y 7/2-5Y 4/2 *32 5B 7/1-5YR 8/1 *33 XM 5Y 7/2-5Y 4/2 *34 5B 7/1 *35 5B 7/1 *36 5B 7/1 *37 5B 7/1 *38 5B 7/1 *39 5B 7/1 *40 5B 7/1 *41 5B 7/1 *42 5B 7/1 *43 5B 7/1 *44 5B 7/1 *45 5B 7/1 *46 5B 7/1 *47 5B 7/1 *48 5B 7/1 *49 5B 7/1 *50 5B 7/1 *51 5B 7/1 *52 5B 7/1 *53 5B 7/1 *54 5B 7/1 *55 5B 7/1 *56 5B 7/1 *57 5B 7/1 *58 5B 7/1 *59 5B 7/1 *60 5B 7/1 *61 5B 7/1 *62 5B 7/1 *63 5B 7/1 *64 5B 7/1 *65 5B 7/1 *66 5B 7/1 *67 5B 7/1 *68 5B 7/1 *69 5B 7/1 *70 5B 7/1 *71 5B 7/1 *72 5B 7/1 *73 5B 7/1 *74 5B 7/1 *75 5B 7/1 *76 CCL 5B 7/1 *77 GZ 5Y 7/2 *78 5B 7/1	<p>Marly Nanno Chalk (Siliceous) Siliceous Calcareous Chalk Marly chalk principally yellowish gray (5Y 7/2) to light olive gray (5Y 4/2). Interspersed throughout are thin (<5 cm) layers of light bluish gray (5B 7/1) to pinkish gray (5YR 8/1) siliceous calcareous chalk. Typically these are "gritty" near the base due to concentrated sponge spicules and some grade upward through a laminated zone into the overlying marly chalk. A probable slump layer which includes fragments with Lower Cretaceous nannos occurs in Sec. 5 (15-50 cm). Contorted lamination suggestive of slumping in Sec. 1 (130-145 cm). ☺ gritty layers.</p> <p>Smear Slides</p> <table border="0"> <tr><td></td><td>Major lith.</td><td>Minor lith.</td></tr> <tr><td></td><td>2-28 5-76</td><td>1-17 2-82</td></tr> <tr><td>nannos</td><td>30 30</td><td>20 40</td></tr> <tr><td>unsp. CaCO₃</td><td>10 30</td><td>10 --</td></tr> <tr><td>forams</td><td>-- --</td><td>30 10</td></tr> <tr><td>clay</td><td>40 16</td><td>-- 10</td></tr> <tr><td>quartz</td><td>5 3</td><td>15 5</td></tr> <tr><td>sp. spic.</td><td>15 20</td><td>25 30</td></tr> <tr><td>diatoms</td><td>-- 1</td><td>-- 5</td></tr> <tr><td>other</td><td></td><td>glauconite, fish remains</td></tr> </table> <p>Carbonate Bomb 2-28 45% 2-82 63%</p> <p>Carbon Carbonate</p> <table border="0"> <tr><td></td><td>Total C</td><td>Org. C</td><td>CaCO₃</td></tr> <tr><td>1-27</td><td>5.7</td><td>0.1</td><td>47.1</td></tr> <tr><td>5-99</td><td>7.8</td><td>0.1</td><td>64.2</td></tr> </table> <p>Grain Size</p> <table border="0"> <tr><td></td><td>Sand</td><td>Silt</td><td>Clay</td></tr> <tr><td>1-31</td><td>0.3</td><td>40.1</td><td>59.7</td></tr> <tr><td>5-100</td><td>0.7</td><td>49.4</td><td>49.9</td></tr> </table> <p>X-ray Analysis</p> <table border="0"> <tr><td></td><td>2-100</td><td>3-88</td></tr> <tr><td>Qtz.</td><td>4</td><td>2</td></tr> <tr><td>Cal.</td><td>52</td><td>66</td></tr> <tr><td>Other</td><td>44</td><td>32</td></tr> </table>		Major lith.	Minor lith.		2-28 5-76	1-17 2-82	nannos	30 30	20 40	unsp. CaCO ₃	10 30	10 --	forams	-- --	30 10	clay	40 16	-- 10	quartz	5 3	15 5	sp. spic.	15 20	25 30	diatoms	-- 1	-- 5	other		glauconite, fish remains		Total C	Org. C	CaCO ₃	1-27	5.7	0.1	47.1	5-99	7.8	0.1	64.2		Sand	Silt	Clay	1-31	0.3	40.1	59.7	5-100	0.7	49.4	49.9		2-100	3-88	Qtz.	4	2	Cal.	52	66	Other	44	32
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		CP	CP		5					*76 5Y 7/2-5Y 5/2																																																																			











Smear Slides Major lith.

	1-68	3-105	5-25
nannos	25	10	3
unsp. CaCO ₃	5	25	3
clay	48	42	45
quartz	5	5	15
sp. spic.	15	15	25
other	mica	rads	mica, rads

Carbonate Bomb

	1-77	3-105	5-24
	27%	37%	<5%

Carbon Carbonate

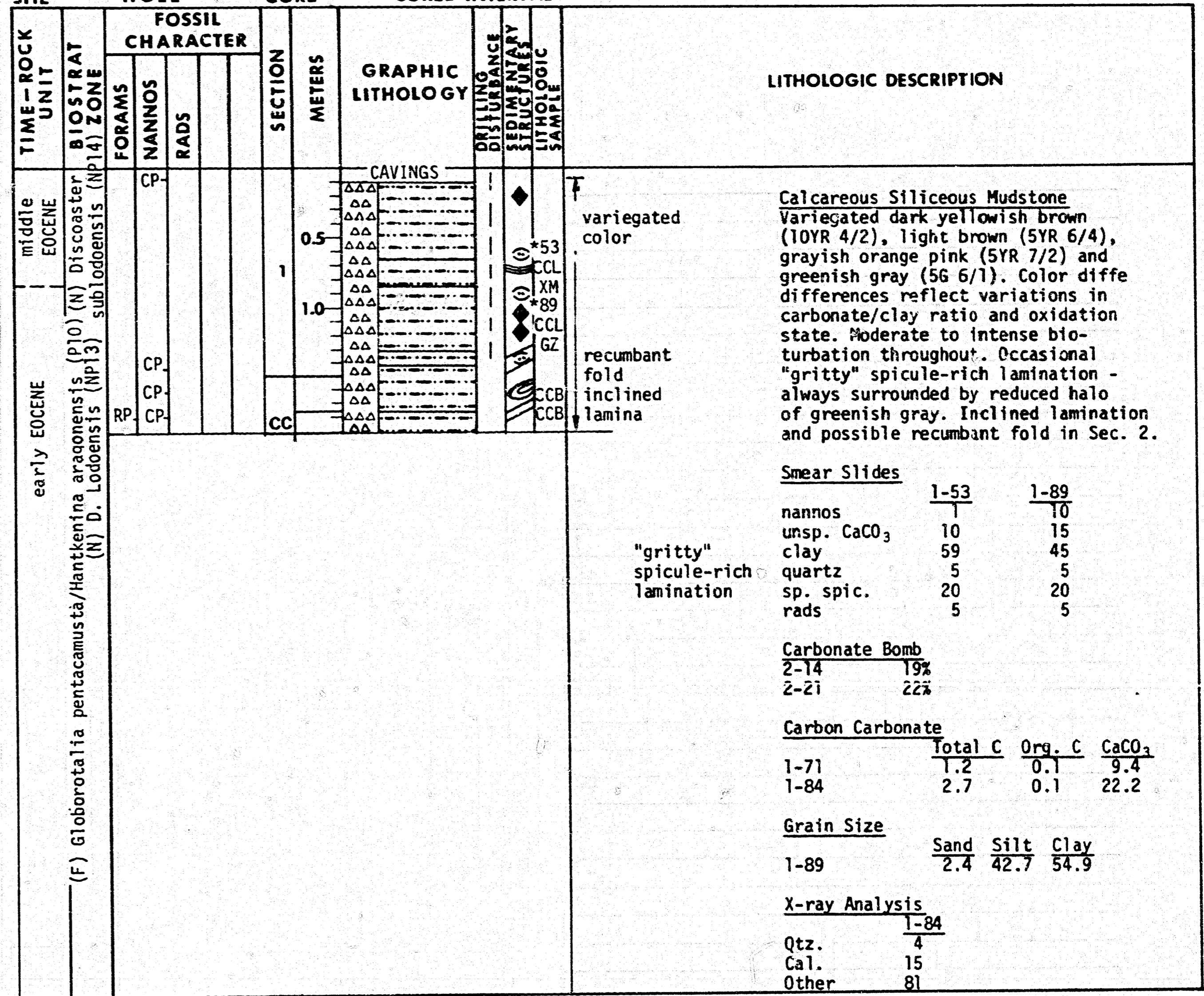
	Total C	Org. C	CaCO ₃
1-108	7.0	0.1	57.7
4-96	4.3	0.1	35.6
5-38	2.0	0.1	16.2

Grain Size

	Sand	Silt	Clay
1-105	2.9	34.2	63.0
4-91	6.1	34.2	59.7

X-ray Analysis

	1-64	3-37	5-42
Qtz.	8	6	6
Cal.	28	24	15
Other	64	70	79



Smear Slides

	1-53	1-89
nannos	1	10
unsp. CaCO ₃	10	15
clay	59	45
quartz	5	5
sp. spic.	20	20
rads	5	5

Carbonate Bomb

	1-71	1-84
	19%	22%

Carbon Carbonate

	Total C	Org. C	CaCO ₃
1-71	1.2	0.1	9.4
1-84	2.7	0.1	22.2

Grain Size

	Sand	Silt	Clay
1-89	2.4	42.7	54.9

X-ray Analysis

	1-84
Qtz.	4
Cal.	15
Other	81

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																																																																																																																																					
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early EOCENE	(F) Globorotalia velascoensis (P8) (N) Marthasterites tribrachiatus (NP12)				1	0.5	CAVINGS				Calcareous Mudstone Marly Calcareous Chalk Mudstone dominantly moderate brown (5YR 4/4) to light brown (5YR 6/6); chalk includes grayish orange (10YR 7/4), pinkish gray and light greenish gray (5GY 8/1). Greenish gray (5G 6/1) common as "halo" around "gritty" spiculiferous laminae.																																																																																																																																															
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SITE 400 HOLE A CORE 56 CORED INTERVAL: 597.0-606.5 m

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE SEDIMENTARY STRUCTURES LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																													
		FORAMS	NANNOS	RADS																																																		
early EOCENE	(F) Globorotalia subbotinae (P6b) (N) Discoaster binodosus (NP11) (N) Marthasterites tribrachiatus (NP12)	AM-CP			1	0.5 1.0	CAVINGS	<p>Marly Nanno Chalk Nanno Chalk Marly chalk is yellowish gray (5Y 7/2) to moderate yellowish brown (5YR 5/4). Nanno chalk is light greenish gray (5GY 8/1). Microfaulting evident. Slight bioturbation.</p> <p>Smear Slides</p> <table border="1"> <tr> <td></td> <td>1-135</td> <td>2-40</td> </tr> <tr> <td>nannos</td> <td>25</td> <td>25</td> </tr> <tr> <td>unsp. CaCO₃</td> <td>20</td> <td>35</td> </tr> <tr> <td>clay</td> <td>48</td> <td>39</td> </tr> <tr> <td>quartz</td> <td>3</td> <td>--</td> </tr> <tr> <td>rads</td> <td>3</td> <td>--</td> </tr> <tr> <td>other</td> <td colspan="2">dolomite zeolite</td> </tr> </table> <p>Carbon Carbonate</p> <table border="1"> <tr> <td></td> <td>Total C</td> <td>Org. C</td> <td>CaCO₃</td> </tr> <tr> <td>2-29</td> <td>9.2</td> <td>0.1</td> <td>75.8</td> </tr> </table> <p>Grain Size</p> <table border="1"> <tr> <td></td> <td>Sand</td> <td>Silt</td> <td>Clay</td> </tr> <tr> <td>2-67</td> <td>0.1</td> <td>32.0</td> <td>67.9</td> </tr> </table> <p>X-ray Analysis</p> <table border="1"> <tr> <td></td> <td>2-20</td> </tr> <tr> <td>Qtz.</td> <td>5</td> </tr> <tr> <td>Cal.</td> <td>33</td> </tr> <tr> <td>Other</td> <td>62</td> </tr> </table>		1-135	2-40	nannos	25	25	unsp. CaCO ₃	20	35	clay	48	39	quartz	3	--	rads	3	--	other	dolomite zeolite			Total C	Org. C	CaCO ₃	2-29	9.2	0.1	75.8		Sand	Silt	Clay	2-67	0.1	32.0	67.9		2-20	Qtz.	5	Cal.	33	Other	62	<p>35 XM 5Y 7/2 40 CCL 5GY 8/1 GZ 10YR 5/4</p>
	1-135	2-40																																																				
nannos	25	25																																																				
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Cal.	33																																																					
Other	62																																																					

SITE 400 HOLE A CORE 58 CORED INTERVAL: 616.0-624.5 m

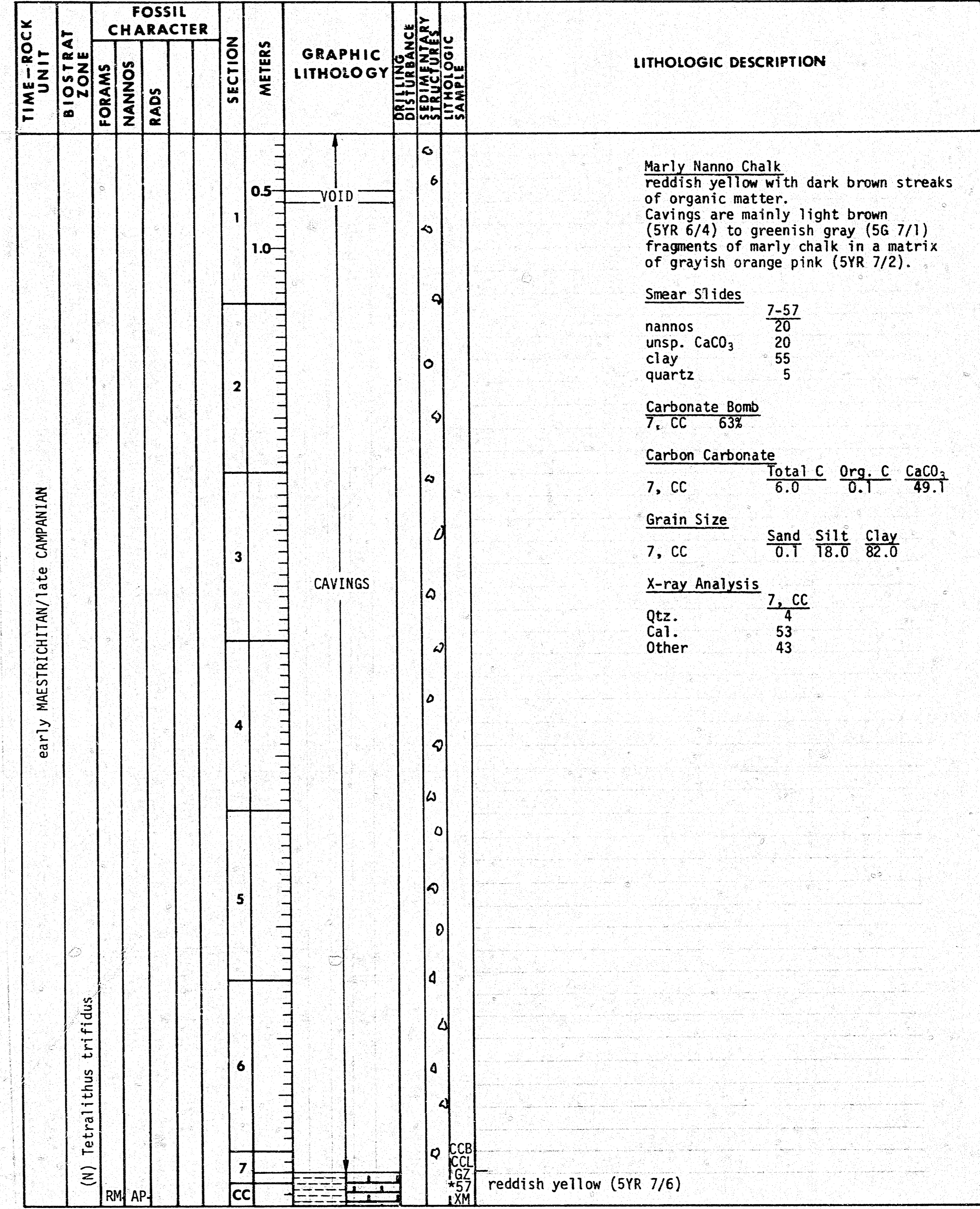
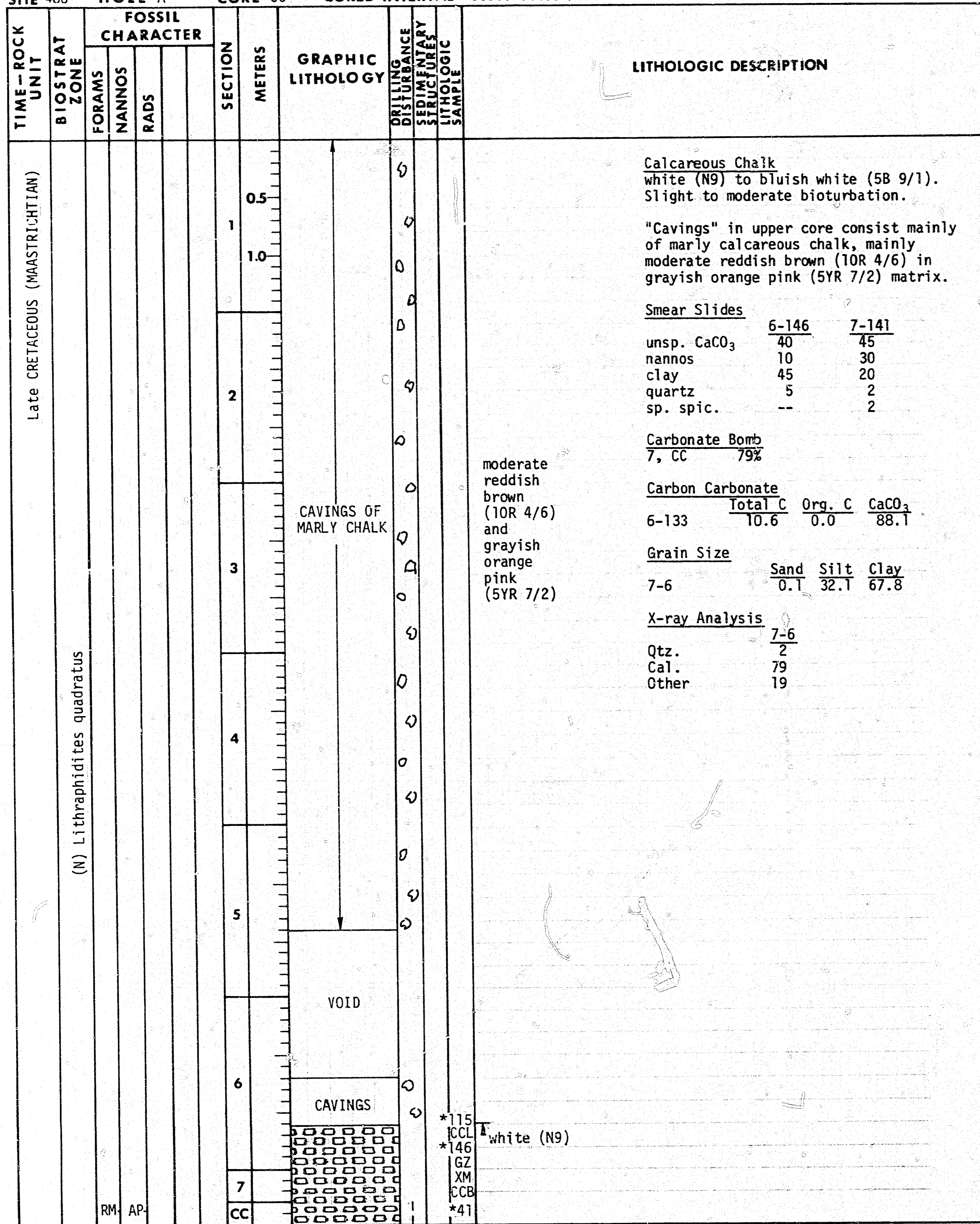
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE SEDIMENTARY STRUCTURES LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS					
late PALEOCENE	(F) Globorotalia velascoensis (P5/6b) (N) Discoaster multiradiatus (NP9)	CG-AG			CC			<p>5YR 4/4</p> <p>Marly Nanno Chalk Moderate brown (5YR 4/4). Catcher sample only.</p>	

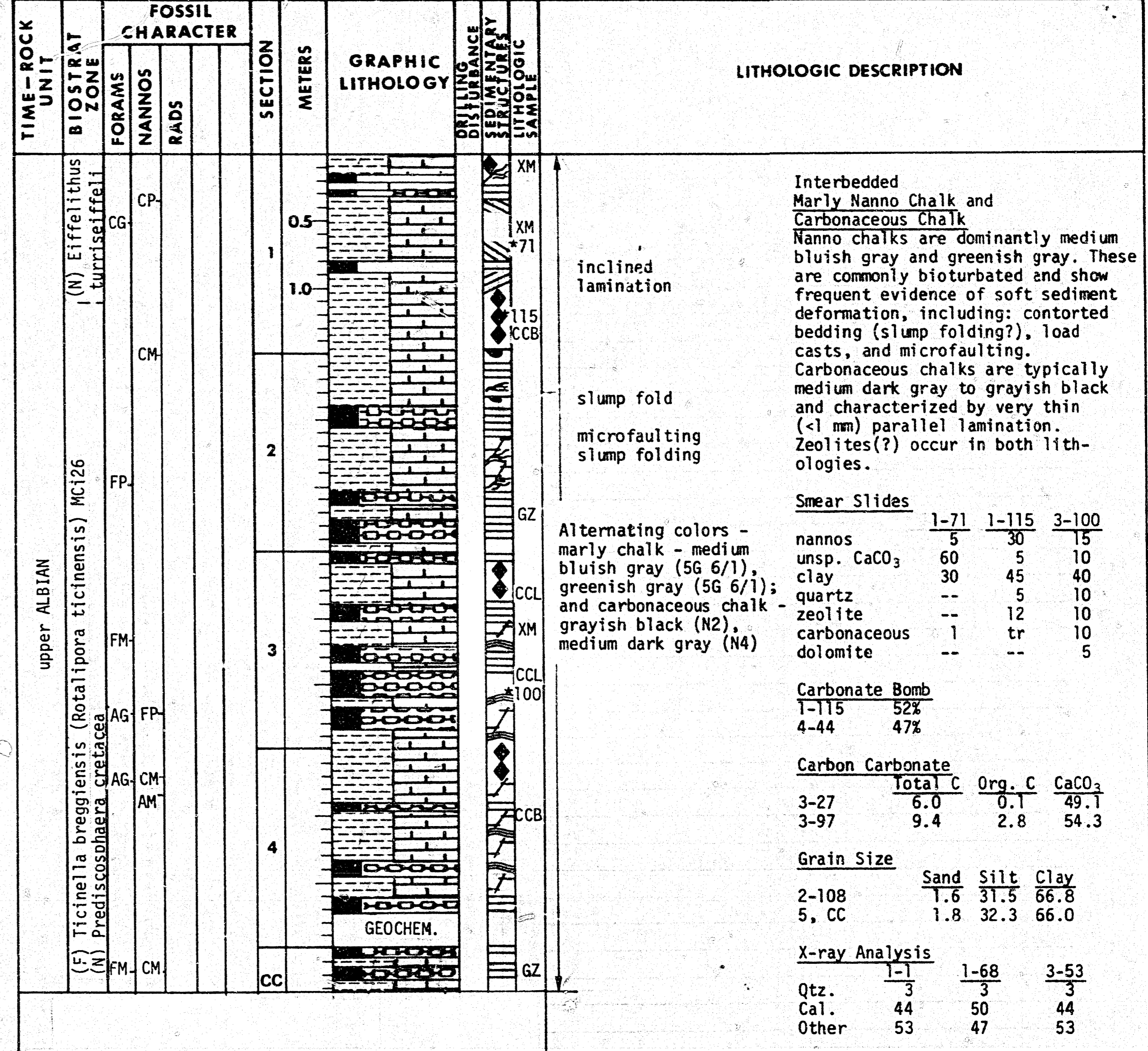
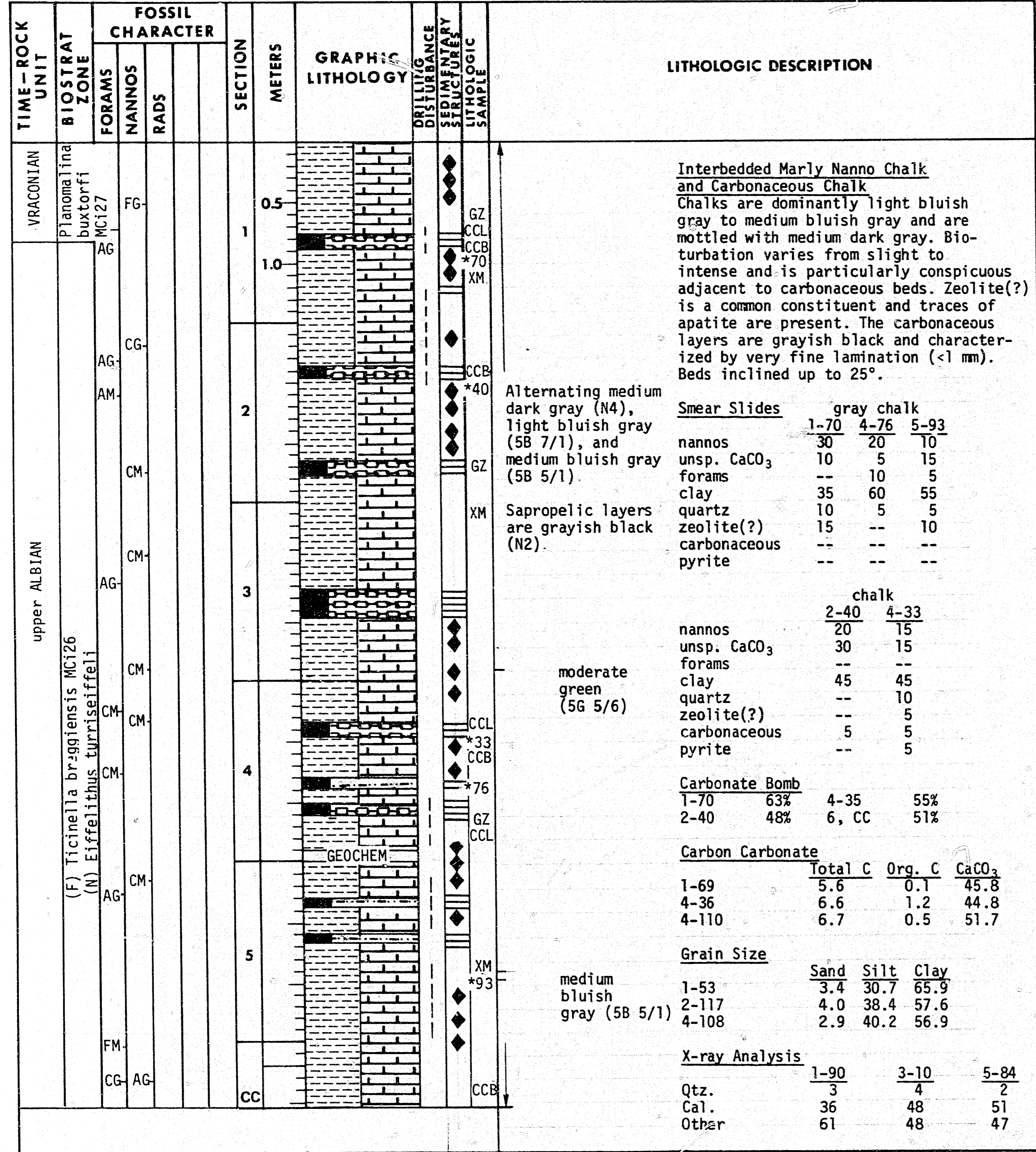
SITE 400 HOLE A CORE 59 CORED INTERVAL: 625.5-635.0 m

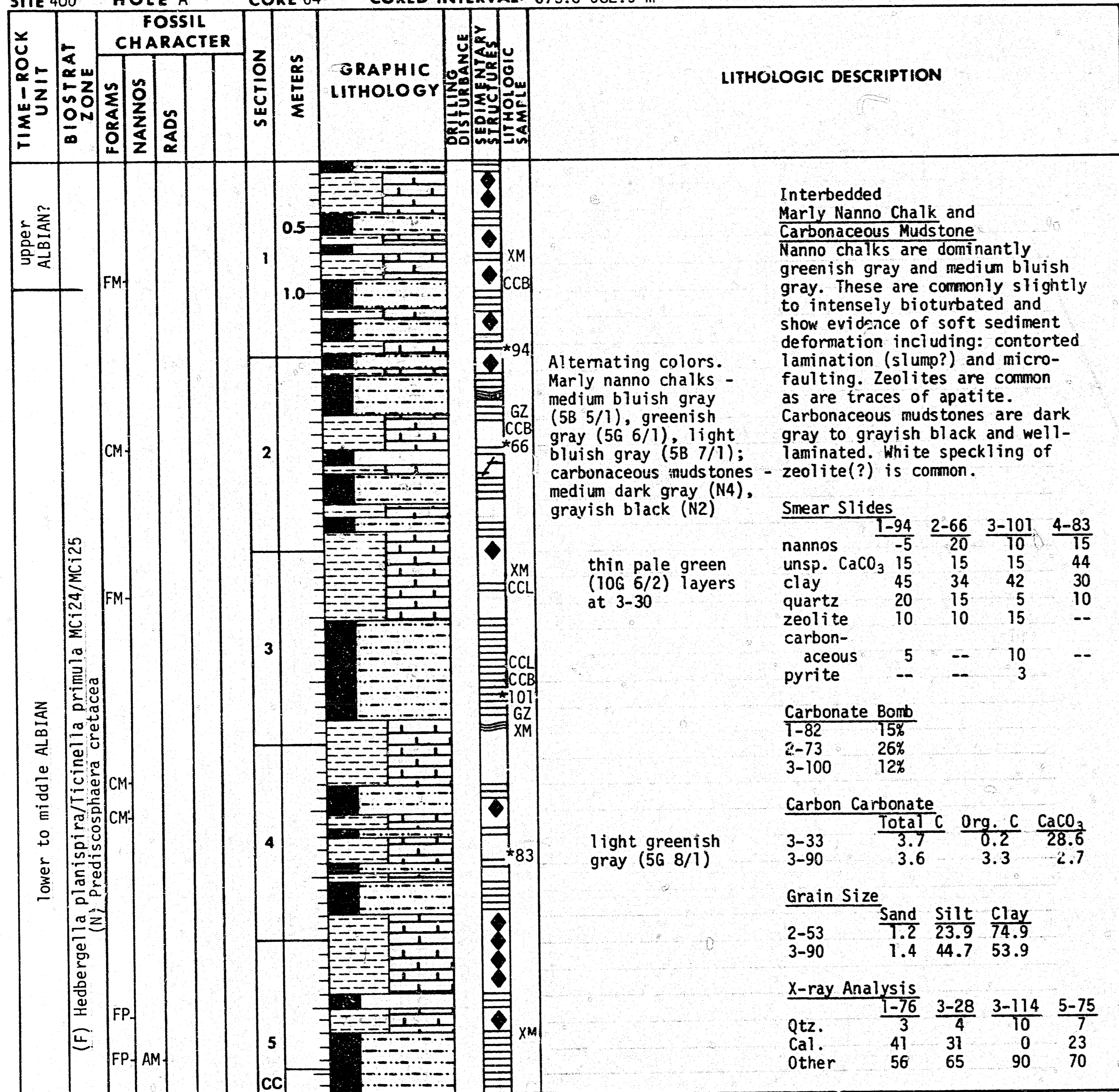
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE SEDIMENTARY STRUCTURES LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																																													
		FORAMS	NANNOS	RADS																																																																		
late PALEOCENE	(F) Globorotalia pseudonardii (P4) (N) Helolithus reideli (NP2)	CP-AM-AM-CG			CC	0.5 1.0		<p>5YR 4/4 10YR 4/2 variegated</p> <p>Marly Nanno Chalk Marly Calcareous Chalk moderate brown (5YR 4/4), dark yellowish brown (10YR 4/2), grayish orange pink (5YR 7/6) mottled with light brown (5YR 6/4) and very pale orange (10YR 8/2). Moderate bioturbation throughout.</p> <p>Smear Slides</p> <table border="1"> <tr> <td></td> <td>1-6</td> <td>1-30</td> </tr> <tr> <td>nannos</td> <td>30</td> <td>20</td> </tr> <tr> <td>unsp. CaCO₃</td> <td>20</td> <td>40</td> </tr> <tr> <td>clay</td> <td>40</td> <td>30</td> </tr> <tr> <td>quartz</td> <td>10</td> <td>3</td> </tr> <tr> <td>rads</td> <td>--</td> <td>5</td> </tr> <tr> <td>other</td> <td>--</td> <td>mica, glauconite</td> </tr> </table> <p>Carbonate Bomb</p> <table border="1"> <tr> <td></td> <td>Total C</td> <td>Org. C</td> <td>CaCO₃</td> </tr> <tr> <td>1-30</td> <td>65%</td> <td></td> <td></td> </tr> <tr> <td>1, CC</td> <td>61%</td> <td></td> <td></td> </tr> </table> <p>Carbon Carbonate</p> <table border="1"> <tr> <td></td> <td>Total C</td> <td>Org. C</td> <td>CaCO₃</td> </tr> <tr> <td>1-41</td> <td>7.9</td> <td>0.1</td> <td>65.7</td> </tr> </table> <p>Grain Size</p> <table border="1"> <tr> <td></td> <td>Sand</td> <td>Silt</td> <td>Clay</td> </tr> <tr> <td>1-94 (cc)</td> <td>1.6</td> <td>31.5</td> <td>66.8</td> </tr> </table> <p>X-ray Analysis</p> <table border="1"> <tr> <td></td> <td>1-4</td> <td>1-23</td> </tr> <tr> <td>Qtz.</td> <td>13</td> <td>2</td> </tr> <tr> <td>Cal.</td> <td>34</td> <td>61</td> </tr> <tr> <td>Other</td> <td>63</td> <td>37</td> </tr> </table>		1-6	1-30	nannos	30	20	unsp. CaCO ₃	20	40	clay	40	30	quartz	10	3	rads	--	5	other	--	mica, glauconite		Total C	Org. C	CaCO ₃	1-30	65%			1, CC	61%				Total C	Org. C	CaCO ₃	1-41	7.9	0.1	65.7		Sand	Silt	Clay	1-94 (cc)	1.6	31.5	66.8		1-4	1-23	Qtz.	13	2	Cal.	34	61	Other	63	37	<p>*6 XM 5YR 4/4 *30 XM 10YR 4/2 CCB CCL GZ CCB</p>
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	Total C	Org. C	CaCO ₃																																																																			
1-30	65%																																																																					
1, CC	61%																																																																					
	Total C	Org. C	CaCO ₃																																																																			
1-41	7.9	0.1	65.7																																																																			
	Sand	Silt	Clay																																																																			
1-94 (cc)	1.6	31.5	66.8																																																																			
	1-4	1-23																																																																				
Qtz.	13	2																																																																				
Cal.	34	61																																																																				
Other	63	37																																																																				

SITE 400 HOLE A CORE 57 CORED INTERVAL: 606.5-616.0 m

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE SEDIMENTARY STRUCTURES LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																												
		FORAMS	NANNOS	RADS																																																	
early EOCENE	(F) Globorotalia subbotinae (P6b) (N) Marthasterites contortus (NP10)	AG-CG			CC	0.5 1.0	CAVINGS	<p>Marly Nanno Chalk Moderate brown (5YR 4/4) white speckled with foraminifera.</p> <p>Smear Slides</p> <table border="1"> <tr> <td></td> <td>1-22</td> </tr> <tr> <td>nannos</td> <td>30</td> </tr> <tr> <td>forams</td> <td>5</td> </tr> <tr> <td>unsp. CaCO₃</td> <td>5</td> </tr> <tr> <td>clay</td> <td>50</td> </tr> <tr> <td>quartz</td> <td>10</td> </tr> </table> <p>Carbonate Bomb</p> <table border="1"> <tr> <td></td> <td>Total C</td> <td>Org. C</td> <td>CaCO₃</td> </tr> <tr> <td>2, CC</td> <td>36%</td> <td></td> <td></td> </tr> </table> <p>Carbon Carbonate</p> <table border="1"> <tr> <td></td> <td>Total C</td> <td>Org. C</td> <td>CaCO₃</td> </tr> <tr> <td>2-18</td> <td>2.9</td> <td>0.1</td> <td>23.0</td> </tr> </table> <p>Grain Size</p> <table border="1"> <tr> <td></td> <td>Sand</td> <td>Silt</td> <td>Clay</td> </tr> <tr> <td>2-14</td> <td>1.2</td> <td>30.4</td> <td>68.4</td> </tr> </table> <p>X-ray Analysis</p> <table border="1"> <tr> <td></td> <td>2, CC</td> </tr> <tr> <td>Qtz.</td> <td>15</td> </tr> <tr> <td>Cal.</td> <td>21</td> </tr> <tr> <td>Other</td> <td>64</td> </tr> </table>		1-22	nannos	30	forams	5	unsp. CaCO ₃	5	clay	50	quartz	10		Total C	Org. C	CaCO ₃	2, CC	36%				Total C	Org. C	CaCO ₃	2-18	2.9	0.1	23.0		Sand	Silt	Clay	2-14	1.2	30.4	68.4		2, CC	Qtz.	15	Cal.	21	Other	64	<p>GZ CCL 5YR 4/4 *22 XM CCB</p>
	1-22																																																				
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Interbedded Marly Nanno Chalk and Carbonaceous Mudstone. Nanno chalks are dominantly greenish gray and medium bluish gray. These are commonly slightly to intensely bioturbated and show evidence of soft sediment deformation including: contorted lamination (slump?) and micro-faulting. Zeolites are common as are traces of apatite. Carbonaceous mudstones are dark gray to grayish black and well-laminated. White speckling of zeolite(?) is common.

Alternating colors. Marly nanno chalks - medium bluish gray (5B 5/1), greenish gray (5G 6/1), light bluish gray (5B 7/1); carbonaceous mudstones - medium dark gray (N4), grayish black (N2)

thin pale green (10G 6/2) layers at 3-30

light greenish gray (5G 8/1)

Smear Slides

	1-94	2-66	3-101	4-83
nannos	5	20	10	15
unsp. CaCO ₃	15	15	15	44
clay	45	34	42	30
quartz	20	15	5	10
zeolite	10	10	15	--
carbonaceous	5	--	10	--
pyrite	--	--	3	--

Carbonate Bomb

	1-82	2-73	3-100
Total C	15%	26%	12%

Carbon Carbonate

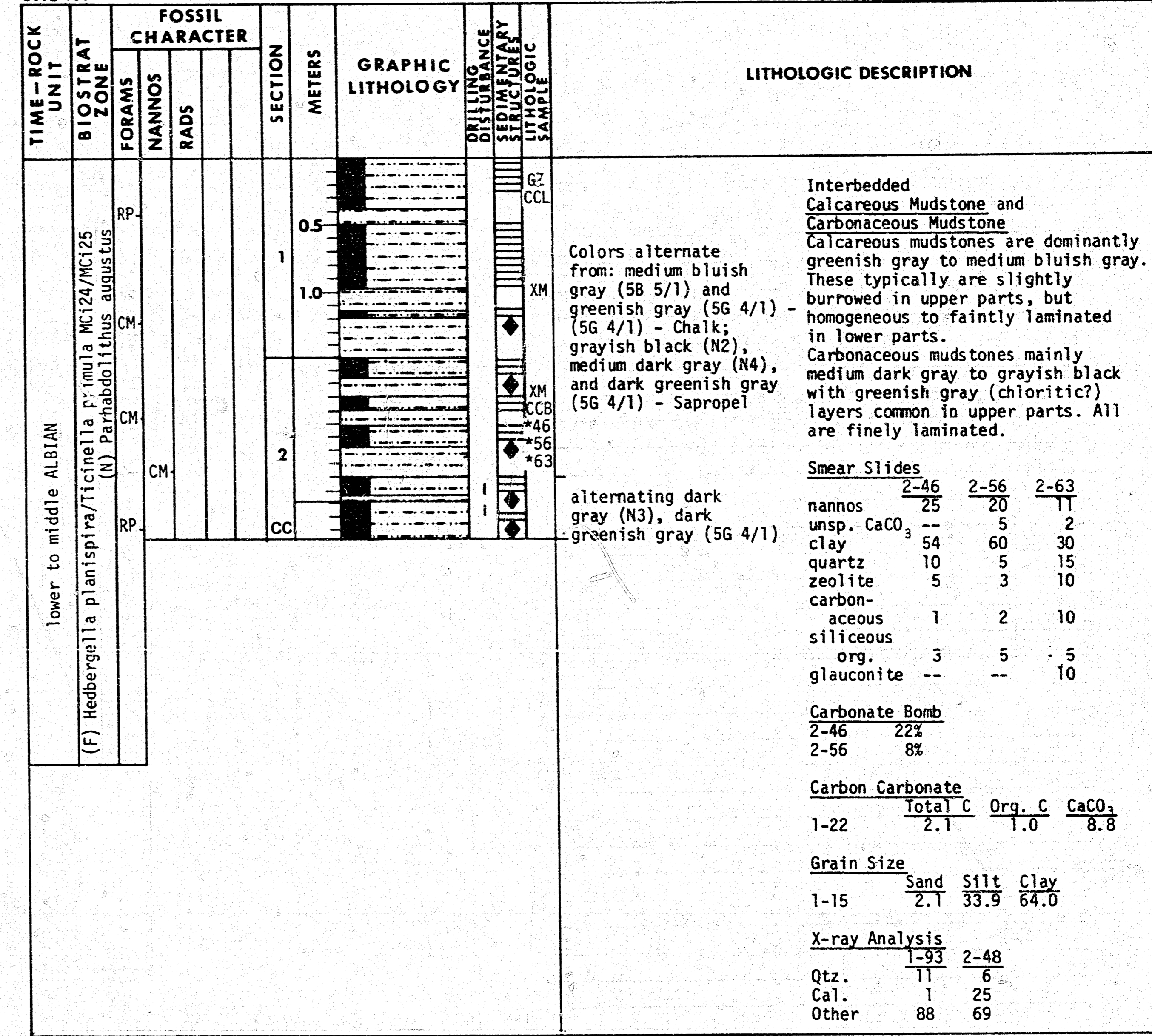
	Total C	Org. C	CaCO ₃
3-33	3.7	0.2	28.6
3-90	3.6	3.3	2.7

Grain Size

	Sand	Silt	Clay
2-53	1.2	23.9	74.9
3-90	1.4	44.7	53.9

X-ray Analysis

	1-76	3-28	3-114	5-75
Qtz.	3	4	10	7
Cal.	41	31	0	23
Other	56	65	90	70



Interbedded Calcareous Mudstone and Carbonaceous Mudstone. Calcareous mudstones are dominantly greenish gray to medium bluish gray. These typically are slightly burrowed in upper parts, but homogeneous to faintly laminated in lower parts. Carbonaceous mudstones mainly medium dark gray to grayish black with greenish gray (chloritic?) layers common in upper parts. All are finely laminated.

Smear Slides

	2-46	2-56	2-63
nannos	25	20	11
unsp. CaCO ₃	--	5	2
clay	54	60	30
quartz	10	5	15
zeolite	5	3	10
carbonaceous	1	2	10
siliceous org.	3	5	5
glauconite	--	--	10

Carbonate Bomb

2-46	22%
2-56	8%

Carbon Carbonate

	Total C	Org. C	CaCO ₃
1-22	2.1	1.0	8.8

Grain Size

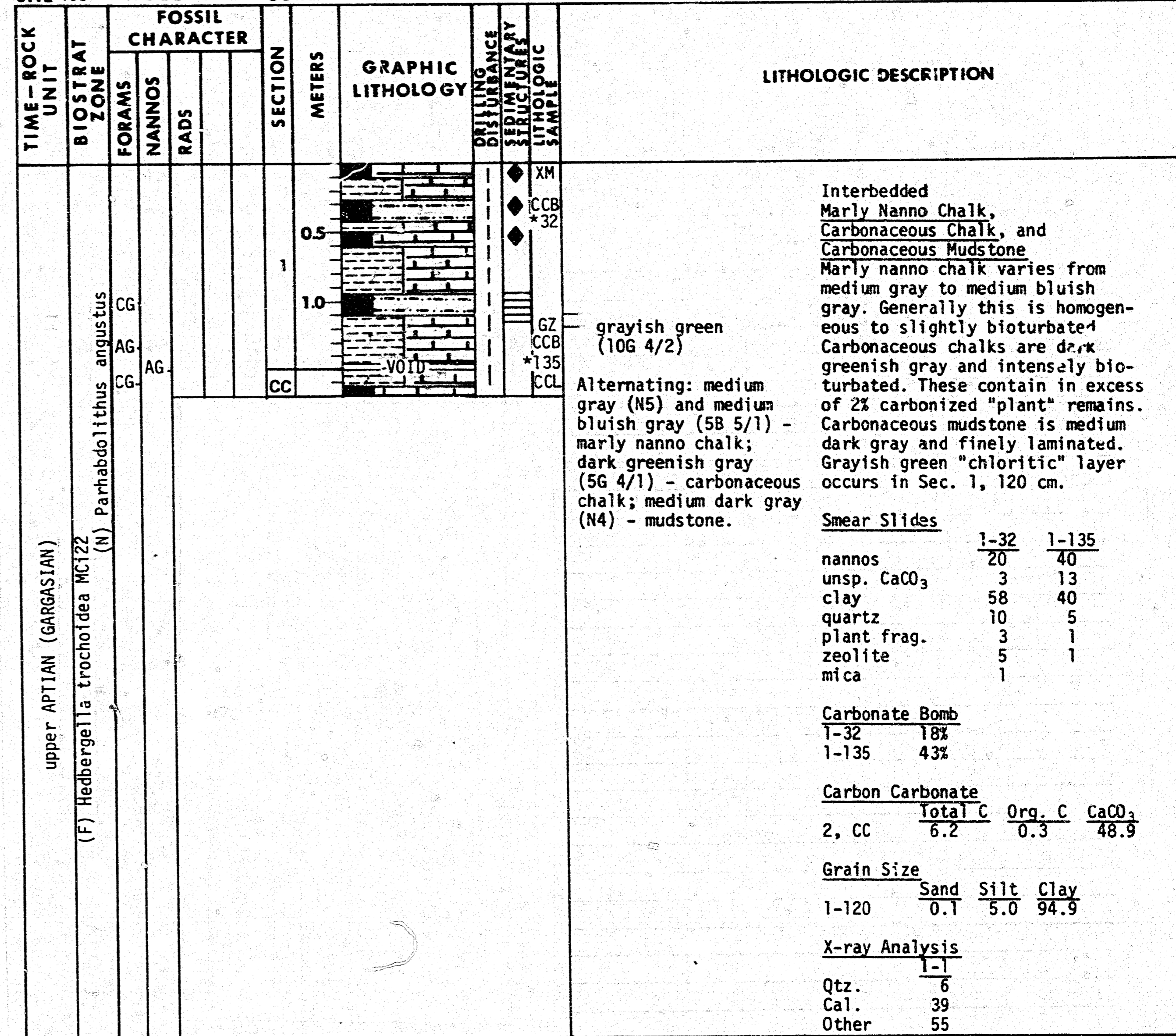
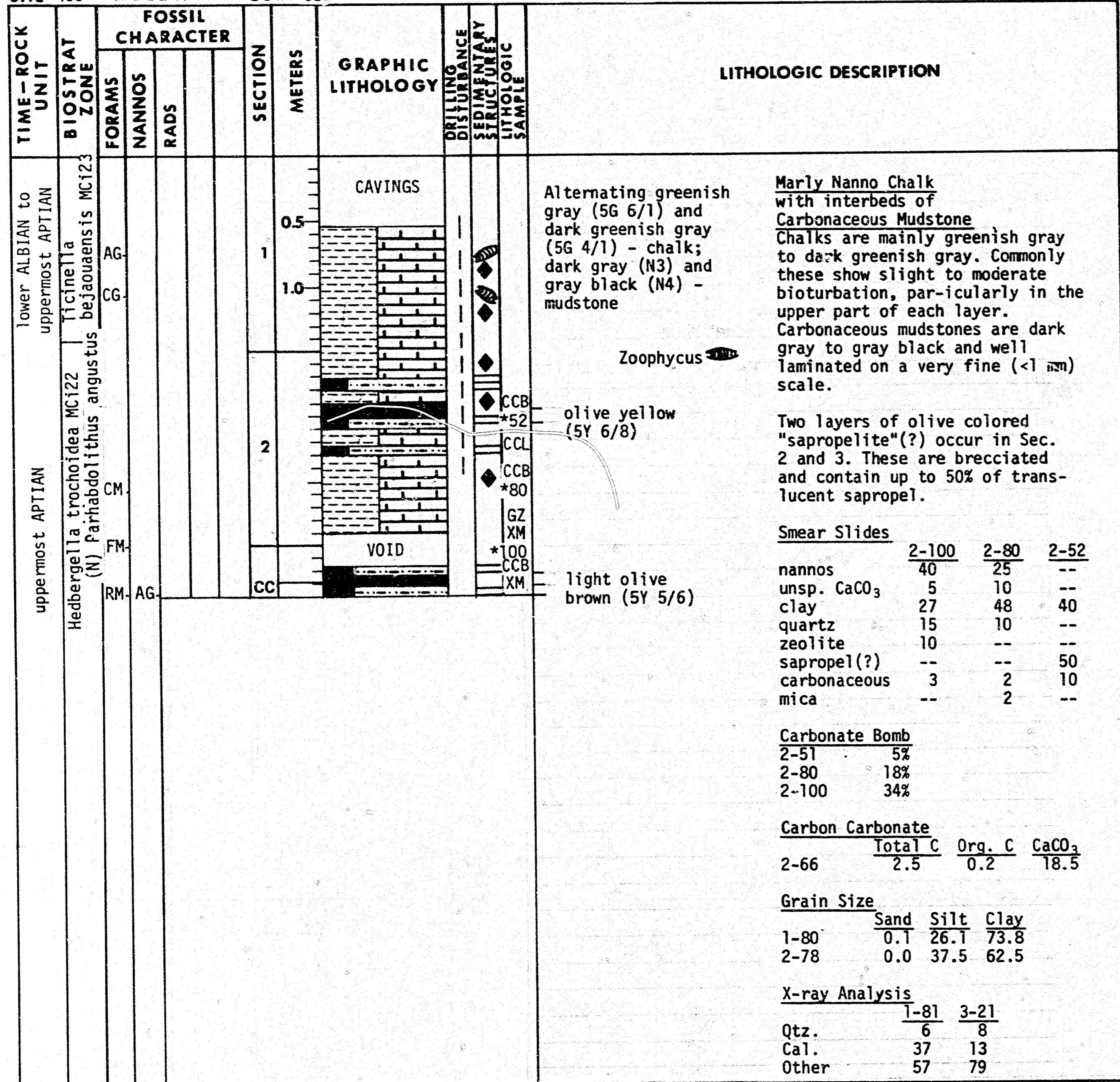
	Sand	Silt	Clay
1-15	2.1	33.9	64.0

X-ray Analysis

	1-93	2-48
Qtz.	11	6
Cal.	1	25
Other	88	69

TIME - ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION																																											
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Lower ALBIAN	Hedbergella planispina MC124 (F) Ticinella bejaouaensis MC123 (N) Parhabdololithus angustus	CM			1	0.5 - 1.0	CAVINGS dark grayish green (5GY 4/1)		GZ CCL CCB	Interbedded Calcareous Mudstone and Carbonaceous Mudstone Calcareous mudstone is mainly greenish gray to medium bluish gray. Typically slightly burrowed in upper parts and homogeneous to vaguely laminated in lower parts. Contorted lamination (flowage?) evident in Sec. 3 - 10 to 20 cm. Carbonaceous mudstone varies from medium dark gray to gray black and typically is laminated at scale of <1 mm. Thin layers of dark greenish gray calcareous mudstone commonly occur at top of carbonaceous layers.																																												
		FM			2		dark grayish green (5GY 4/1)		XM																																													
		AM			3		Alternating: medium bluish gray (5B 5/1) and medium dark gray (5G 6/1) - Chalk; medium dark gray (N4) and gray black (N2) - mudstone.		CCL CCL *120	<u>Smear Slides</u> <table border="1"> <tr><th></th><th>3-120</th><th>4-10</th><th>1-100</th></tr> <tr><td>nannos</td><td>30</td><td>15</td><td>20</td></tr> <tr><td>unsp. CaCO₃</td><td>5</td><td>10</td><td>--</td></tr> <tr><td>clay</td><td>52</td><td>40</td><td>49</td></tr> <tr><td>quartz</td><td>5</td><td>10</td><td>10</td></tr> <tr><td>zeolite</td><td>5</td><td>12</td><td>5</td></tr> <tr><td>carbonaceous</td><td>3</td><td>12</td><td>2</td></tr> <tr><td>dolomite</td><td>--</td><td>--</td><td>7</td></tr> </table>		3-120	4-10	1-100	nannos	30	15	20	unsp. CaCO ₃	5	10	--	clay	52	40	49	quartz	5	10	10	zeolite	5	12	5	carbonaceous	3	12	2	dolomite	--	--	7												
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carbonaceous	3	12	2																																																			
dolomite	--	--	7																																																			
FP			4				*10 CCL XM CCB GZ	<u>Carbonate Bomb</u> <table border="1"> <tr><td>1-80</td><td>22%</td></tr> <tr><td>3-60</td><td>17%</td></tr> <tr><td>4-59</td><td>8%</td></tr> </table>	1-80	22%	3-60	17%	4-59	8%																																								
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		FORAMS	NANNOS	RADS																														
Lower most ALBIAN	MC123? (N) Parhabdololithus angustus	RP	FP			0.5	CAVINGS		CCL GZ	grayish black (N2) Carbonaceous Mudstone grayish black, well laminated. <u>Carbon Carbonate</u> <table border="1"> <tr><th></th><th>Total C</th><th>Org. C</th><th>CaCO₃</th></tr> <tr><td>1, CC</td><td>2.4</td><td>1.8</td><td>5.4</td></tr> </table> <u>Grain Size</u> <table border="1"> <tr><th></th><th>Sand</th><th>Silt</th><th>Clay</th></tr> <tr><td>1, CC</td><td>2.0</td><td>37.6</td><td>60.4</td></tr> </table> <u>X-ray Analysis</u> <table border="1"> <tr><th></th><th>CC</th></tr> <tr><td>Qtz.</td><td>10</td></tr> <tr><td>Cal.</td><td>5</td></tr> <tr><td>Other</td><td>85</td></tr> </table>		Total C	Org. C	CaCO ₃	1, CC	2.4	1.8	5.4		Sand	Silt	Clay	1, CC	2.0	37.6	60.4		CC	Qtz.	10	Cal.	5	Other	85
	Total C	Org. C	CaCO ₃																															
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		FORAMS	NANNOS	RADS							
upper APTIAN (GARGASIAN) (F) Hedbergella trochoidea MCI22 (N) Parhabdololithus angustus	CM AM	AG			1	VOID				Carbonaceous Mudstone and Sapropelite(?) Mudstone is grayish black and well laminated. Sapropelite is 90% olive yellow sapropel; contains a limestone concretion. Smear Slides 1-127 Clay 10 Sapropel(?) 90 Carbonate Bomb 2-100 28% 2, CC <5% Carbon Carbonate 2, CC Total C Org. C CaCO ₂ 2.1 0.4 14.1 Grain Size 2, CC Sand Silt Clay 0.1 34.4 65.5 X-ray Analysis 2-92 Qtz. 5 Cal. 39 Other 56	
					2	CAVINGS					

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
upper APTIAN (GARGASIAN) (F) Globigerinelloides algerianus MCI21 (N) Parhabdololithus angustus	CG AG AM				1					XM *31 CCB CCL CCL *CC *CCB 5B 5/1 light olive gray (5Y 6/1) medium bluish gray (5B 5/1) dark gray (N3) 5B 5/1 light olive gray (5Y 6/1) 5B 5/1	Calcareous Mudstone Dominantly light olive gray to greenish gray. Zeolitic and contains up to 15% nannos. Generally characterized by moderate to intense bioturbation. Contains interbeds of much harder dolomitized limestone, light olive gray, and carbonaceous mudstone, dark gray. Smear Slides 1-31 2, CC nannos 15 5 unsp. CaCO ₃ 5 5 clay 62 35 quartz 5 5 zeolite(?) 10 -- dolomite -- 50 forams 1 -- plant frag. 1 -- Carbonate Bomb 1-34 24% 2, CC 45% Carbon Carbonate 1-35 Total C Org. C CaCO ₂ 3.8 0.3 29.5 1-89 4.2 0.3 31.9 Grain Size 1-54 Sand Silt Clay 0.6 35.2 64.2 2-34 0.4 22.3 77.3 X-ray Analysis 1-1 2-48 (cc) Qtz. 6 8 Cal. 24 28 Other 70 64
					CC						

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upper APTIAN (GARGASIAN)	(F) Globigerinelloides ferreolensis/Globigerinelloides algerianus MC120/MC121? (N) Parhabdolithus angustus				1	0.5 1.0					<p>Calcareous Mudstone Dominantly medium bluish gray with zones of greenish gray which are more clay rich. Slight to moderate bioturbation is characteristic. Two interbeds of dark gray to gray black carbonaceous mudstone occur in the section. Pyrite nodule Sec. 3, 80 cm.</p> <p>Smear Slides</p> <table border="1"> <tr><td></td><td>3-90</td><td>4-15</td></tr> <tr><td>nannos</td><td>15</td><td>30</td></tr> <tr><td>unsp. CaCO₃</td><td>10</td><td>3</td></tr> <tr><td>clay</td><td>50</td><td>57</td></tr> <tr><td>quartz</td><td>3</td><td>3</td></tr> <tr><td>rads</td><td>tr</td><td>3</td></tr> <tr><td>plant frag.</td><td>2</td><td>3</td></tr> <tr><td>siliceous biogenous</td><td>20</td><td>--</td></tr> <tr><td>mica</td><td>--</td><td>1</td></tr> </table> <p>Carbonate Bomb</p> <table border="1"> <tr><td>3-89</td><td>23%</td></tr> <tr><td>4-16</td><td>19%</td></tr> </table> <p>Carbon Carbonate</p> <table border="1"> <tr><td></td><td>Total C</td><td>Org. C</td><td>CaCO₃</td></tr> <tr><td>3-89</td><td>3.9</td><td>0.2</td><td>30.4</td></tr> <tr><td>4-65</td><td>1.1</td><td>0.7</td><td>4.0</td></tr> </table> <p>Grain Size</p> <table border="1"> <tr><td></td><td>Sand</td><td>Silt</td><td>Clay</td></tr> <tr><td>3-74</td><td>0.0</td><td>30.3</td><td>69.6</td></tr> <tr><td>4-46</td><td>0.0</td><td>34.4</td><td>65.6</td></tr> </table> <p>X-ray Analysis</p> <table border="1"> <tr><td></td><td>2-47</td><td>4-27</td></tr> <tr><td>Qtz.</td><td>7</td><td>6</td></tr> <tr><td>Cal.</td><td>23</td><td>26</td></tr> <tr><td>Other</td><td>70</td><td>68</td></tr> </table>		3-90	4-15	nannos	15	30	unsp. CaCO ₃	10	3	clay	50	57	quartz	3	3	rads	tr	3	plant frag.	2	3	siliceous biogenous	20	--	mica	--	1	3-89	23%	4-16	19%		Total C	Org. C	CaCO ₃	3-89	3.9	0.2	30.4	4-65	1.1	0.7	4.0		Sand	Silt	Clay	3-74	0.0	30.3	69.6	4-46	0.0	34.4	65.6		2-47	4-27	Qtz.	7	6	Cal.	23	26	Other	70	68
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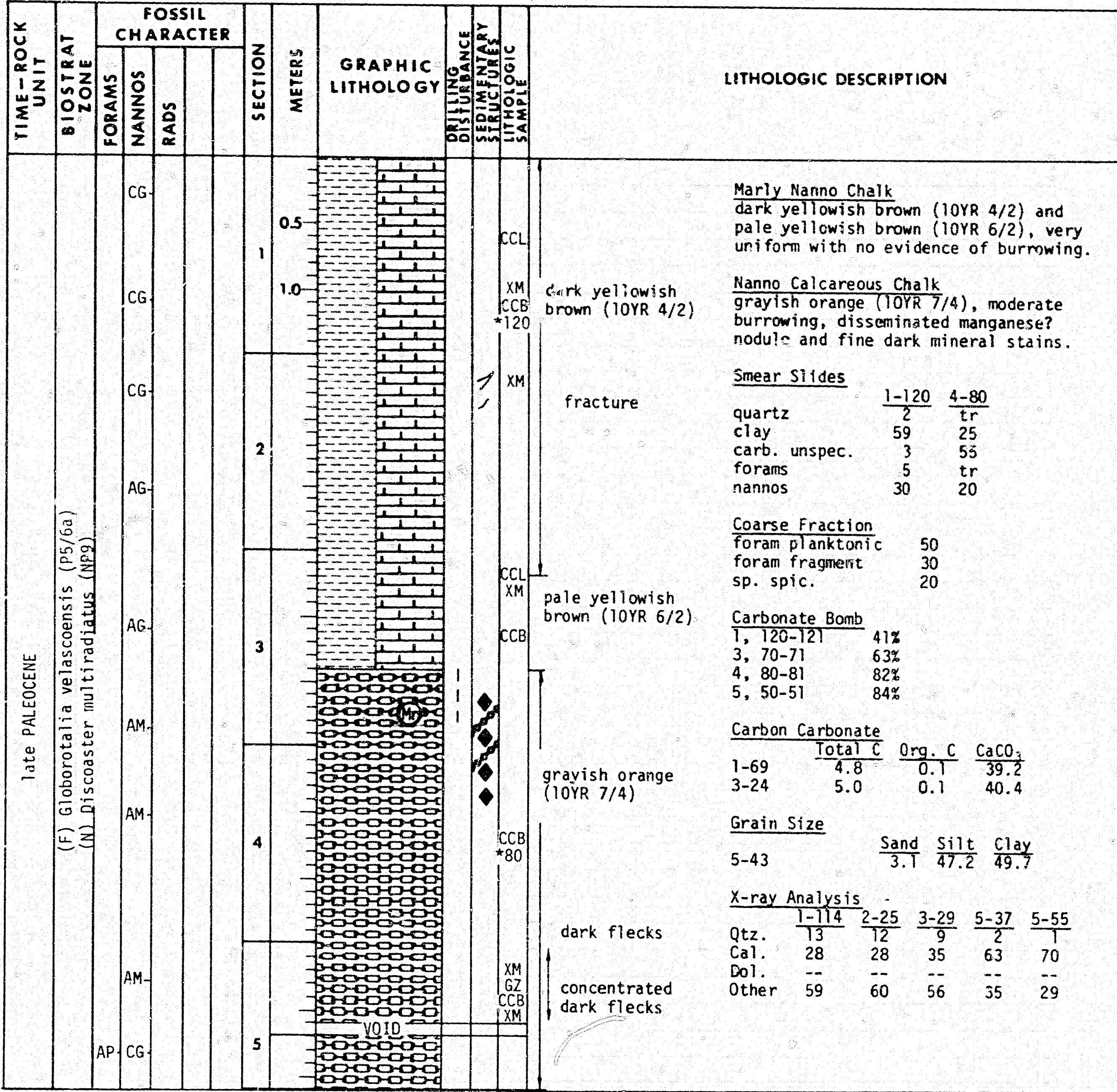
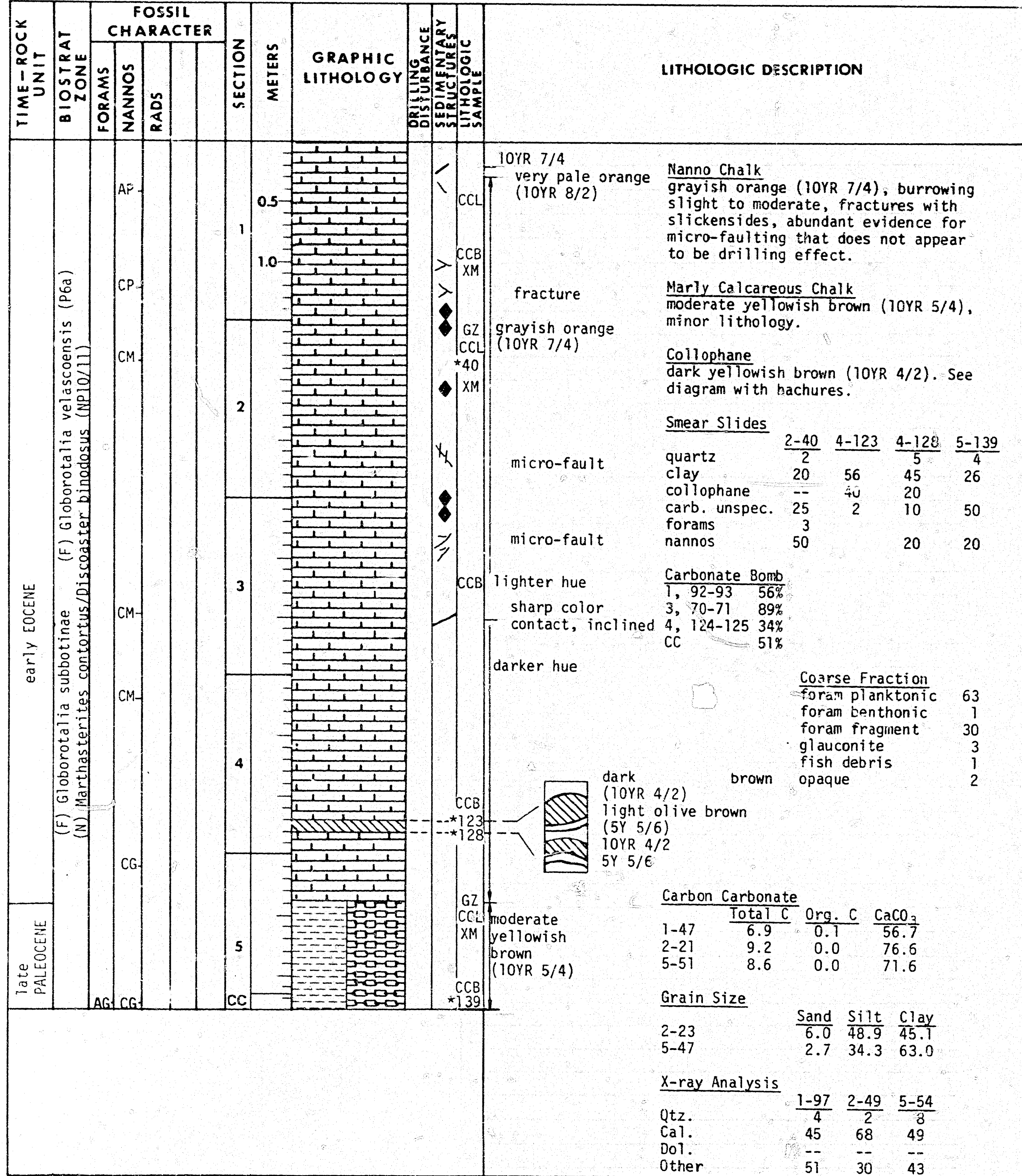
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upper APTIAN (GARGASIAN)	(F) Globigerinelloides ferroloides/Globigerinelloides algerianus MC120/MC121 (N) Parhabdolithus angustus	RP	AG				CAVINGS		*13	greenish black (5G 2/1)	<p><u>Carbonaceous Limestone and Calcareous Mudstone</u> Limestone is greenish black and finely laminated. Contorted lamination at base. Contains lamination of pyrite from 22-23 cm and dolomitic pyrite concretions at 27 and 29 cm. Mudstone is grayish black; contains pyrite vein at 40 cm and dolomite.</p> <p><u>Smear Slides</u></p> <table border="1"> <thead> <tr> <th></th> <th>1-13</th> <th>1-27</th> <th>1, CC</th> </tr> </thead> <tbody> <tr><td>nannos</td><td>--</td><td>--</td><td>5</td></tr> <tr><td>unsp. CaCO₃</td><td>75</td><td>--</td><td>10</td></tr> <tr><td>dolomite</td><td>--</td><td>25</td><td>5</td></tr> <tr><td>clay</td><td>15</td><td>--</td><td>47</td></tr> <tr><td>quartz</td><td>--</td><td>--</td><td>15</td></tr> <tr><td>rads</td><td>--</td><td>--</td><td>5</td></tr> <tr><td>plant frag.</td><td>10</td><td>--</td><td>5</td></tr> <tr><td>pyrite</td><td>--</td><td>75</td><td>3</td></tr> <tr><td>zeolite</td><td>--</td><td>--</td><td>5</td></tr> </tbody> </table> <p><u>Carbonate Bomb</u> 1, CC 6%</p> <p><u>Carbon Carbonate</u></p> <table border="1"> <thead> <tr> <th></th> <th>Total C</th> <th>Org. C</th> <th>CaCO₃</th> </tr> </thead> <tbody> <tr> <td>1, CC</td> <td>3.0</td> <td>3.0</td> <td>0.0</td> </tr> </tbody> </table> <p><u>Grain Size</u></p> <table border="1"> <thead> <tr> <th></th> <th>Sand</th> <th>Silt</th> <th>Clay</th> </tr> </thead> <tbody> <tr> <td>1, CC</td> <td>9.0</td> <td>39.0</td> <td>52.1</td> </tr> </tbody> </table> <p><u>X-ray Analysis</u></p> <table border="1"> <thead> <tr> <th></th> <th>1-10</th> </tr> </thead> <tbody> <tr><td>Qtz.</td><td>10</td></tr> <tr><td>Cal.</td><td>8</td></tr> <tr><td>Other</td><td>82</td></tr> </tbody> </table>		1-13	1-27	1, CC	nannos	--	--	5	unsp. CaCO ₃	75	--	10	dolomite	--	25	5	clay	15	--	47	quartz	--	--	15	rads	--	--	5	plant frag.	10	--	5	pyrite	--	75	3	zeolite	--	--	5		Total C	Org. C	CaCO ₃	1, CC	3.0	3.0	0.0		Sand	Silt	Clay	1, CC	9.0	39.0	52.1		1-10	Qtz.	10	Cal.	8	Other	82
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		FORAMS	NANNOS	RADS								
QUATERNARY	(F) Globorotalia truncatulinoides (NN23/24) (N) Emiliana huxleyi (NN21)	CG				0.5	VOID			CCL 167 *20 CCB XM	Pale yellow brown (10YR 6/2) Mud olive gray (5Y 3/2 to 5Y 5/2) very uniform, no character visible in color or texture, scattered patches of disseminated pyrite.	
		FG			1	1.0				CCB *80	olive gray (5Y 3/2) Marly calcareous ooze (10YR 4/2, 5Y 3/2, 10YR 6/2) Grading finer from the bottom upward, very coarse at the base. Top of Sec. 1 8% foram 94 cm of Sec. 2 15% foram	
					2						CCB	4 cm chert pebble Smear Slides quartz 1-20 20 30 40 25 clay 1-80 10 28 20 61 carb. unspec. 59 40 15 10
					3						*94 CCB	2 mm chert granule dark yellow brown (10YR 4/2) forams 8 -- 15 -- nannos 2 1 10 1 silica 1 -- -- -- dolomite -- -- -- 1
					4						GZ CCL XM *80 CCB	Carbonate Bomb 1, 20-21 64% 1, 80-81 39% 1, 140-141 35% 2, 100-101 40% 3, 81-82 27% 5, 80-81 24%
					5							CCB
			6							CC	VOID	Grain Size Sand Silt Clay 1-28 14.0 42.8 43.2 3-62 6.1 37.5 56.4 X-ray Analysis 1-35 3-67 Anhy. -- -- Qtz. 20 26 Cal. 32 9 Dol. -- 2 Other 48 62
		RG									5Y 3/2	
		RP	RG								VOID	

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		FORAMS	NANNOS	RADS							
Late Eocene	(F) Globorotalia cerroazulensis (P16/17) (N) Ericsonia subeliseha (NP 21)	CM								XM CCB *30 CCL GZ	light greenish gray (5GY 8/1) Nanno Ooze light greenish-gray (5GY 8/1), very uniform chalky texture, very irregular surface obscures details but this appears to be totally lacking in bedding, color variations, inclusions or any other sedimentary feature. Somewhat harder toward top.
		CP AM-AG					VOID				Smear Slide quartz 1-30 tr clay 6 carb. unspec. 30 nannos 62 sp. spic. 2 Carbonate Bomb 30-31 cm 79% Coarse Fraction quartz 3 foram pelagic 75 foram benthonic 17 sp. spic. 5 Carbon Carbonate Total C Org. C CaCO ₃ 1-37 9.5 0.1 78.4 1, CC-4 9.7 0.1 80.6 Grain Size Sand Silt Clay 1-33 0.9 41.2 57.9 X-ray Analysis 1-7 Anhy. -- Qtz. 3 Cal. 71 Dol. -- Other 26

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		FORAMS	NANNOS	RADS					
middle EOCENE	(N) Discoaster subloboensis (NP14)				1	0.5		GZ CCL XM	greenish gray (5G 6/1) Nanno Chalk Color changes from greenish gray (5G 6/1) at the top to light brown (5YR 6/4) at the bottom. Homogeneous except for the color changes. Generally slight burrowing.
					2	1.0		CCB *130	light greenish gray (5G 8/1) Marly Nanno Chalk Minor lithology, yellowish gray (5Y 7/2), sand size pullouts very common, burrowing slight to absent, very homogeneous.
					3			CCB *75 CCL XM	yellowish gray (5Y 8/1), mottled color 5G 8/1 Smear Slides Major 1-130 3-75 3-82 Minor 3 3 5 quartz 3 3 5 clay 20 12 10 carb. unspec. 5 20 50 forams 7 5 5 nannos 65 60 30
							CCB *82 CCL XM	pale yellowish brown (5Y 8/1 to 10YR 6/2) Major 3-130 4-132 Minor 2 2 quartz 2 2 clay 30 10 carb. unspec. 5 60 forams 7 5 nannos 56 23	
		early EOCENE	(F) Globorotalia pentacamerata (P9) (N) Discoaster lodoensis (NP13)				4		
					5			GZ CCB *132 XM	moderate yellowish brown (10YR 5/4) Carbon Carbonate Total C Org. C CaCO ₃ 1-40 7.2 0.1 59.3 3-7 7.7 0.0 63.4 3-80 4.5 0.1 36.7
									grayish orange (10YR 7/4) Grain Size Sand Silt Clay 1-29 8.6 39.3 52.1 5-52 6.6 40.4 53.0
									X-ray Analysis 1-42 3-9 3-91 5-70 Qtz. 8 4 6 4 Cal. 54 57 33 46 Dol. -- -- -- -- Other 38 39 61 50

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		FORAMS	NANNOS	RADS					
early EOCENE	(F) Globorotalia subbolinae (P6b) (N) Marthasterites tribrachiatus (NP12)				1	0.5		GZ CCL XM	moderate yellow brown (10YR 5/4) Marly Calcareous Chalk moderate yellowish brown (10YR 5/4) and
					2	1.0		CCB *90	Nanno Calcareous Chalk grayish orange (10YR 7/4). Uniform appearance except for small burrows. Not disked nor segmented to the degree of most previous cores.
					3				grayish orange (10YR 7/4) Smear Slides 1-90 5-50 quartz 2 5 clay 40 20 carb. unspec. 42 55 forams 1 0 nannos 15 20
									10YR 5/4 Carbonate Bomb 1, 90-91 67% 4, 80-81 78%
								Grain Size Sand Silt Clay 1-42 5.4 41.8 52.8 4-58 14.5 45.5 40.0	
								X-ray Analysis 1-49 3-111 4-28 Qtz. 5 4 2 Cal. 50 44 72 Dol. -- -- -- Other 45 51 26	
								fracture grayish orange (10YR 7/4)	
								slickensided fracture	



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		FORAMS	NANNOS	RADS				
late PALEOCENE	(F) Globorotalia pseudonardii (P4) (N) Discoaster multiradiatus (NP9)				1	0.5 1.0	ALL CAVINGS	<p><u>Caving and Drilling Breccia</u> A mixture of uphole lithology in clasts up to 5 cm in diameter. One large (7 cm long axis) black clast that may be basalt.</p> <p><u>Coarse Fraction</u> foram benthonic 44 foram planktonic 34 foram fragment 20 sp. spic. 1 glauconite 1</p>
		AM			2			

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		FORAMS	NANNOS	RADS					
late PALEOCENE	(F) Globorotalia pseudonardii (P4) (N) Helioolithus riedeli (NP8)				1	0.5 1.0	VOID	GZ CCL CCB *50 XM	<p>Nanno Calcareous Chalk grayish orange (10YR 7/4) and moderate yellowish brown (10YR 5/4). Burrows are sometimes filled with very pale orange (10YR 8/2). Considerable predrilling faults offset many of the burrows. Darker brown streaks and blebs are common and are uniformly distributed.</p> <p><u>Smear Slides</u> 1-50 quartz 1 clay 10 carb. unspec. 60 forams 2 nannos 19 rads 3 sp. spic. 5</p>
		CG			2				
early PALEOCENE	(F) Globorotalia pusilla (P3) (N) Chiasmolithus danicus (NP3)						VOID	XM	<p>grayish orange (10YR 7/4)</p> <p><u>Coarse Fraction</u> foram benthonic 55 foram planktonic 35 foram fragments 10 glauconite tr</p> <p>chert clast 4 cm diameter</p> <p><u>Carbonate Bomb</u> 1, 50-51 73%</p> <p><u>Carbon Carbonate</u> 1-19 Total C 9.2 Org. C 0.0 CaCO₃ 76.5 1-147 9.2 0.0 76.2</p> <p><u>Grain Size</u> 1-16 Sand 5.9 Silt 45.1 Clay 49.1</p> <p><u>X-ray Analysis</u> 1-77 1-144 3-31 Qtz. 1 1 1 Cal. 65 68 74 Dol. -- -- -- Other 34 31 25</p>
		AG	CG	CP					

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		FORAMS	NANNOS	RADS																						
early PALEOCENE	(F) Globorotalia tinidensis (NP3) (N) Chiasmolithus danicus (F) Globorotalia uncinata	CP			1	0.5				XM CCL *50	10YR 7/4 very pale orange (10YR 8/2) possible large slump structure															
					1	1.0					grayish orange (10YR 7/4)	<u>Nanno Chalk</u> grayish orange (10YR 7/4) burrowing slight. Slump structures were possibly formed when sediment was soft.														
	(F) Globorotalia tinidensis (N) Chiasmolithus danicus (F) Globorotalia uncinata	CM			2	1.0			XM CCB *80 CCL GZ	moderate yellowish brown (10YR 5/4)	<u>Foraminiferal Calcareous Chalk</u> moderate yellowish brown (10YR 5/4) slight burrowing. Laminations and bed at the bottom of Sec. 2.															
	(F) Globorotalia tinidensis (N) Chiasmolithus danicus (F) Globorotalia uncinata	CP			2	1.0				moderate yellowish brown (10YR 5/4)	<u>Smear Slides</u>															
	(F) Globorotalia tinidensis (N) Chiasmolithus danicus (F) Globorotalia uncinata	AG			CC						<u>Carbonate Bomb</u> 2, 80-81 95%															
	(F) Globorotalia tinidensis (N) Chiasmolithus danicus (F) Globorotalia uncinata										<u>Carbon Carbonate</u>															
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upper CAMPANIAN	(F) Globotruncana calcarata (MC ₈) (F) Globotruncana mayaroensis (MC ₁₁)	AM			1	0.5				CCL CCB *28 *35 GZ XM	grayish orange (10YR 7/4)																				
					1	1.0					grayish orange (10YR 7/4)	<u>Nanno Calcareous Chalk</u> grayish orange (10YR 7/4) except for color lamination of very pale orange (10YR 8/2), laminations are 1-5 mm, very few burrows.																			
	(F) Globotruncana calcarata (MC ₈) (F) Globotruncana mayaroensis (MC ₁₁)	AM			2	1.0			XM	moderate yellowish brown (10YR 5/4)	<u>Smear Slides</u>																				
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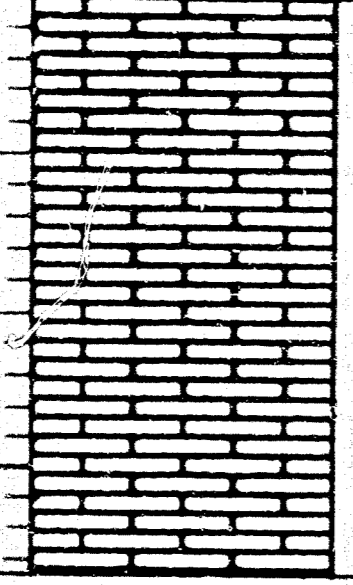
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Lower CRETACEOUS? (M) lower Cretaceous?	CAMPANIAN (F) Globotruncana elevata (MC57) Broinsonia perca	CM AG AM FP			1 3 5					<p>Clast of friable light brown soft clay as at 128 cm. Black to light brown manganese nodule. Sharp contact, *123 very pale orange (10YR 8/2) with streaks and mottles of light brown as below. *126 Sharp contact, light brown (5Y 5/6) soft clay. Chunks of well cemented limestone.</p> <p><u>Foraminiferal Calcareous Chalk</u> grayish orange (10YR 7/4), intense to moderate burrowing, laminated with streaks of brown color parallel to laminae, some laminae up to 5 mm, a fault develops from 40 to 75 cm.</p> <p><u>Limestone</u> pellet intraclast grainstone rudites, moderate orange pink (5YR 8/4).</p> <p><u>Smear Slides</u></p> <table border="1"> <tr> <td></td> <td>1-70</td> <td>1-123</td> <td>1-126</td> </tr> <tr> <td>clay</td> <td>20</td> <td>25</td> <td>51</td> </tr> <tr> <td>carb. unspec. (siderite?)</td> <td></td> <td>70</td> <td>35</td> </tr> <tr> <td>forams</td> <td>15</td> <td></td> <td>3</td> </tr> <tr> <td>nannos</td> <td>8</td> <td>5</td> <td>10</td> </tr> <tr> <td>carb. unspec.</td> <td>57</td> <td></td> <td></td> </tr> </table> <p><u>Thin Sections in limestone</u> 1, 141-144 pellet intraclast grainstones CC Fragments: corals, algae lithothamnium, pelecypods, ostracods Whole: pellets, forams</p> <p><u>Carbonate Bomb</u> 1, 70-71 90% 1, 110-111 93%</p> <p><u>Carbon Carbonate</u></p> <table border="1"> <tr> <td></td> <td>Total C</td> <td>Org. C</td> <td>CaCO₃</td> </tr> <tr> <td>1-55</td> <td>11.1</td> <td>0.0</td> <td>91.7</td> </tr> </table> <p><u>Grain Size</u></p> <table border="1"> <tr> <td></td> <td>Sand</td> <td>Silt</td> <td>Clay</td> </tr> <tr> <td>1-80</td> <td>0.6</td> <td>31.8</td> <td>67.6</td> </tr> </table> <p><u>X-ray Analysis</u></p> <table border="1"> <tr> <td></td> <td>1-55</td> </tr> <tr> <td>Qtz.</td> <td>1</td> </tr> <tr> <td>Cal.</td> <td>81</td> </tr> <tr> <td>Dol.</td> <td>--</td> </tr> <tr> <td>Other</td> <td>18</td> </tr> </table>		1-70	1-123	1-126	clay	20	25	51	carb. unspec. (siderite?)		70	35	forams	15		3	nannos	8	5	10	carb. unspec.	57				Total C	Org. C	CaCO ₃	1-55	11.1	0.0	91.7		Sand	Silt	Clay	1-80	0.6	31.8	67.6		1-55	Qtz.	1	Cal.	81	Dol.	--	Other	18
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TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
		Microfacies									
late JURASSIC to early CRETACEOUS	(M) late Tithonian to Berriasian									<p>very pale orange (10YR 8/2) to white (N9)</p> <p><u>Limestone</u> Three chunks of hard and dense limestone, very pale orange (10YR 8/2) to white (N9). Pelletoidal packstone - grainstone smell (<1 mm) brown flecks. Porosity 10%.</p> <p><u>Thin Section</u> Sec. 1, 10-12 - pellet grainstone. Fossils include crinoids, ostracods(?), coral, pelecypod fragments, forams.</p>	

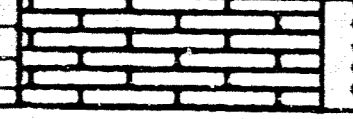
TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
		Microfacies									
late JURASSIC to early CRETACEOUS	(M) late Tithonian to Berriasian									<p>White (N9)</p> <p><u>Limestone</u> White (N9) with clean gray patches, six hard, and dense chunks, essentially same as above.</p> <p><u>Thin Section</u> 1-15 - pellet grainstone.</p>	

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
		Microfacies									
late JURASSIC	(M) Kimmeridgian to Portlandian									<p>white (N9)</p> <p><u>Limestone</u> pellet grainstone, white (N9), 5 chunks of porons, slightly friable, and hard limestone.</p> <p><u>Thin Section</u> Sec. 1, 20-21 - pellet grainstone. Fossils include crinoid, forams, pelecypods, and algae fragments. Porosity 25%.</p>	

SITE 401 HOLE CORE 23 CORED INTERVAL: 284.0-293.5 m

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
late JURASSIC	(M) Kimmeridgian to Portlandian				3 4 3 3 1 3 1	0.5 1.0				*TS *TS *TS *TS	<p>very pale orange (10YR 8/2)</p> <p><u>Limestone</u> very pale orange (10YR 8/2) chunks of hard limestone, porous in top 150 cm, more dense below, many visible fossils.</p> <p><u>Thin Section</u> Sec. 1, 40-42 cm: intraclast grainstone. Fossils include crinoids, brachiopod fragments, coral fragments. Porosity 30%.</p> <p>Sec. 1, 122-130 cm: intraclast grainstone, considerable micrite, porosity 15%. Fossils include crinoid, pelecypod and coral fragments. Some of the intraclasts appear to be algal oncolites.</p> <p>Sec. 2, 16-20 cm: intraclast pellet grainstone. Porosity less than 5%. Fossils include crinoid, pelecypod and foram fragments.</p> <p>Sec. 2, 32-33 cm: pellet grainstone. Porosity less than 1%. Fossils include crinoid, pelecypod and foram fragment. Pellets may be micritized grains.</p>

SITE 401 HOLE CORE 24 CORED INTERVAL: 293.5-303.0 m

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
late JURASSIC	(M) Kimmeridgian to Portlandian				3					*TS *TS	<p>very pale orange (10YR 8/2)</p> <p><u>Limestone</u> very pale orange (10YR 8/2), chunks of hard limestone and one 3 cm long piece of black clast.</p> <p><u>Thin Section</u> 10-14 cm: pellet intraclast grainstone. Porosity 30%, considerable solution porosity as well as intergranular porosity. Fossils scarce, crinoid and pelecypod fragments. 31-33 cm: pellet grainstone. Porosity 5% both solution and intergranular. Fossils are large with 5 mm coral head and algal mat, large forams.</p>

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION		
		FORAMS	NANNOS	RADS									
PLEISTOCENE	(F) Globorotalia truncatulinoides (N22/N23) (N) Emiliaxia huxleyi (N21)	AG			1	0.5				CCB 5Y 7/2 *33	Marly Foram-Nanno Ooze light olive gray (5Y 5/2) to olive gray (5Y 4/1). Colors have sharp transition. A few sandy layers 5-10 mm thick occur in top of Sec. 1. Two beds of calcareous mud occur at 80-90 cm Sec. 1 and at 80-120 cm Sec. 2.		
					2	1.0				CCL GZ 5Y 4/1 ice-rafted gravel	Smear Slides Major lith. Minor lith. 1-55 2-87 1-33		
				RG			3				CCB 5Y 5/2	quartz 15 20 20 feldspar -- -- 2 mica -- 2 -- heavy min. -- 1 -- clay 54 63 15 pyrite -- 1 tr dol. or sid. tr 1 tr forams tr -- 15 nannos 2 2 25 diatoms tr tr sp. spic. tr -- tr glaucinite tr fish remains -- tr	
				CG									
				FG									
				AG	FG							CCB 10Y 4/2	Carbonate Bomb 1, 5-6 cm 41% 1, 140 cm 35% 2, 21-22 cm 35% 2, 76-77 cm 35% 2, 81-88 cm 28% 3, 30-31 cm 33% 3, 129 cm 32%
												CCB	Carbon Carbonate 1-85 Total C Org. C CaCO ₃ 3.7 0.6 28.1
													Grain Size 1-87 Sand Silt Clay 20.1 66.1 33.8

TIME-ROCK UNIT	BIOSTRAT ZONE	FOSSIL CHARACTER			SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURBANCE	SEDIMENTARY STRUCTURES	LITHOLOGIC SAMPLE	LITHOLOGIC DESCRIPTION
		FORAMS	NANNOS	RADS							
PLEISTOCENE	(F) Globorotalia truncatulinoides (N22/N23) (N) Gephyrocapsa oceanica (N2)	B			1	0.5				CCL 5Y 3/2	Calcareous Mud olive gray (5Y 3/2). Deformed gritty layers grayish olive (10Y 4/2) occur at the bottom exhibiting graded sand and silt with transitional upper boundary.
				AG	CG		1.0				GZ CCB *76 5Y 2/1
											Carbonate Bomb 1, 63-66 cm 29%
											Carbon Carbonate 1-20 Total C Org. C CaCO ₃ 2.6 0.5 17.5
											Grain Size 1-56 Sand Silt Clay 16.5 43.2 40.2

