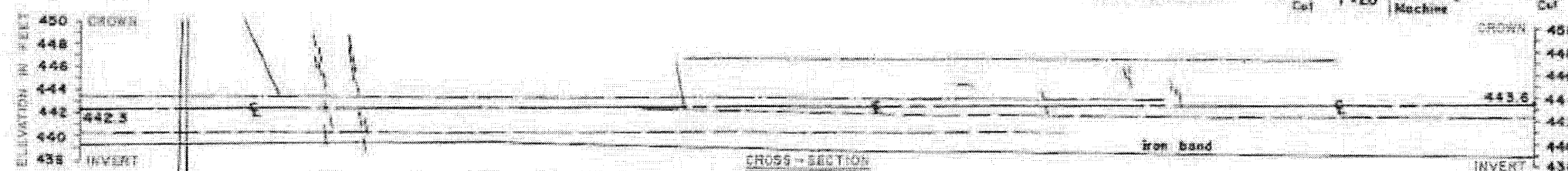
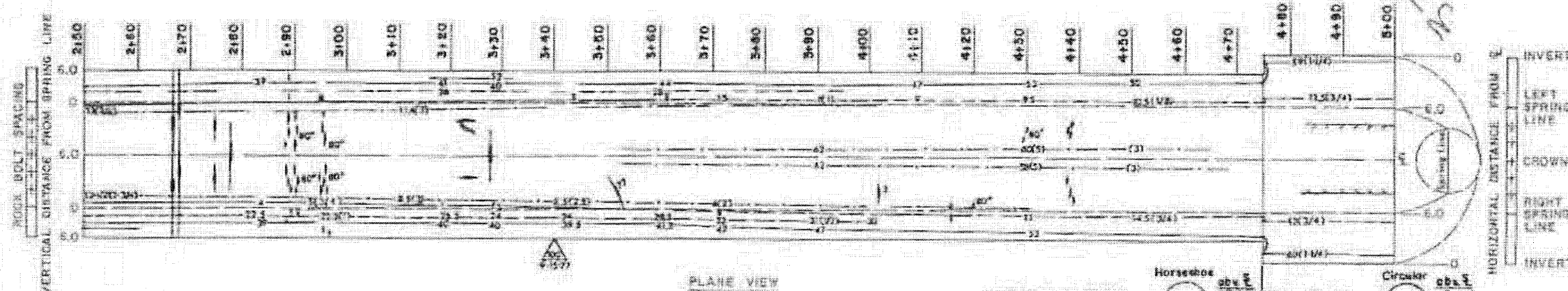


- SYMBOLS**
- 8(1/4)" HARD, TAN. BROWN, CHERTY, IRON BED OR LAMINAE
 - 12(9-2)" DISCONTINUOUS IRON BED
 - 12(1)" HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 - 10(1/2-2)" DISCONTINUOUS IRON BED WITHIN GREY BED
 - FRACTURE ZONE
 - FAULT
 - BEDDING PARTING
 - VERTICAL JOINT
 - INCLINED JOINT
 - BEDDING, STRIKE AND DIP

- MOISTURE ALONG BEDDING PARTING
 - SEEPAGE FROM FEATURE
 - OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 - METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE
- *Note: Number(s) in parentheses indicates bed thickness. Number preceding parenthesis indicates inches above or below spring line at station of measurement.



No. 4	No. 5	No. 4	No. 2	No. 4	No. 4-5	No. 4
1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"
1'-10"	1'-10"	1'-10"	1'-10"	1'-10"	1'-10"	1'-10"
2 Rock shells at two foot centers in ribs spaced 3-12 apart spanned by wire mesh						
Not pertinent						
No follow						
3'-0" water 120' above base (shale)						

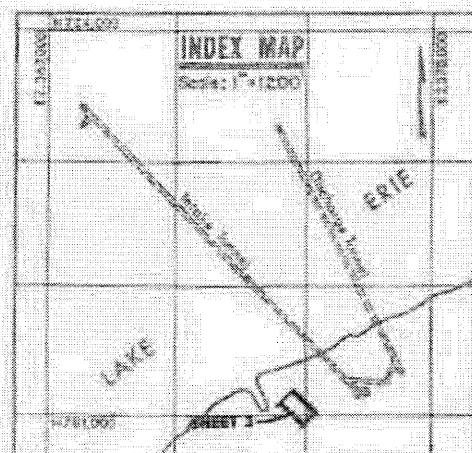
EXCAVATION PROGRESS
ESTIMATED ROCK CONDITION (TERZAGHI NO.)
TEMPORARY SUPPORT SYSTEM
BEDDING SPACING
FRACTURE SPACING
WATER CONDITION
DEPTH OF COVER



PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

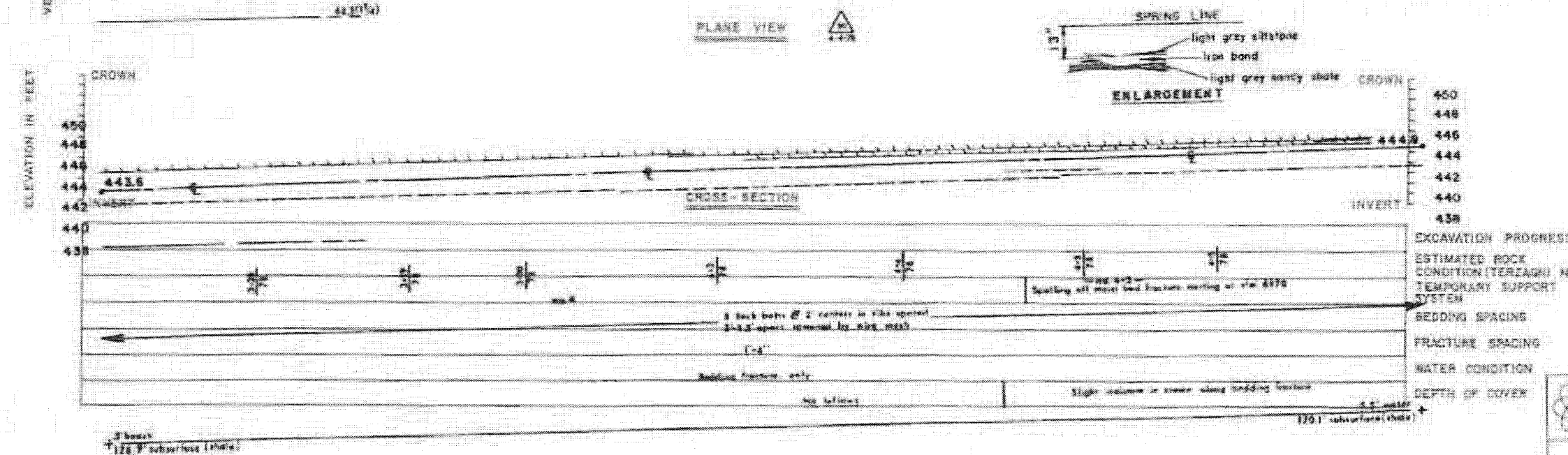
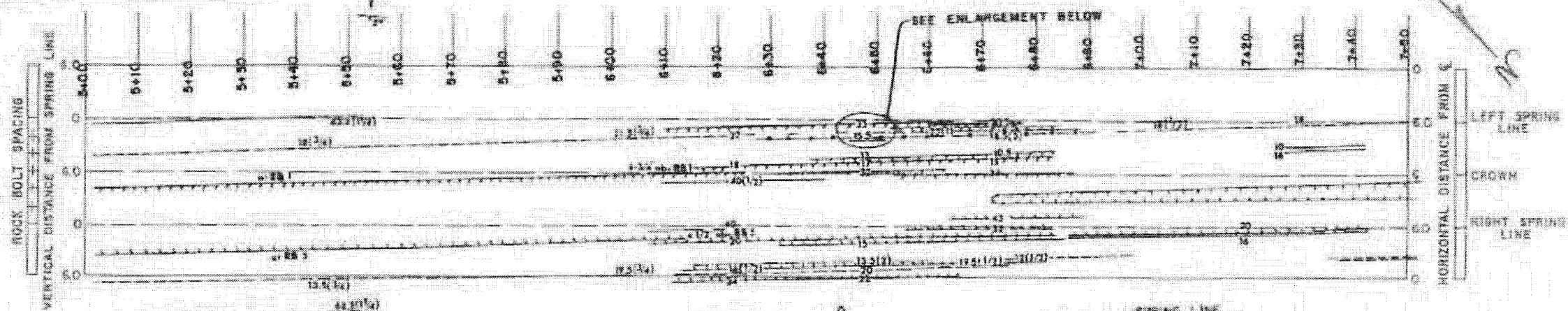
Figure 2.3-47 (Sheet 2 of 34)

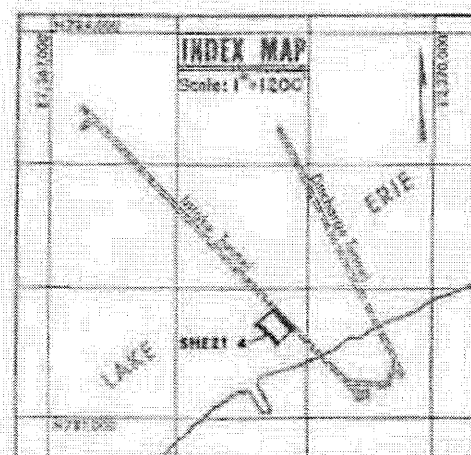


SYMBOLS

HARD, TAN, BROWN, CHESTY,
IRON BED OR LAMINAE
DISCONTINUOUS IRON BED
HARD, LIGHT GREY, SANDY
SHALE TO SILTSTONE BED
DISCONTINUOUS IRON BED
WITHIN GREY BED
FRACTURE
FAULT
BEDDING PARTING
VERTICAL JOINT
INCLINED JOINT
BEDDING, STRIKE AND DIP

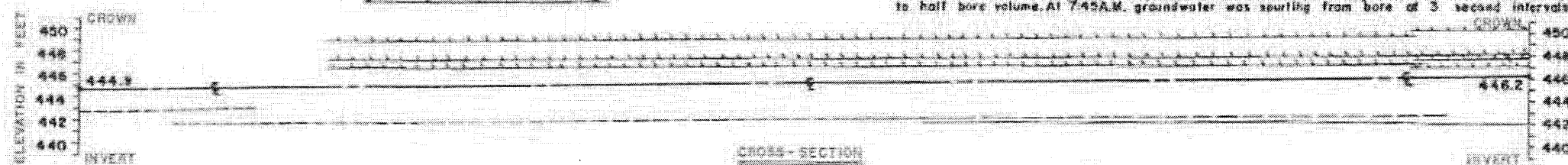
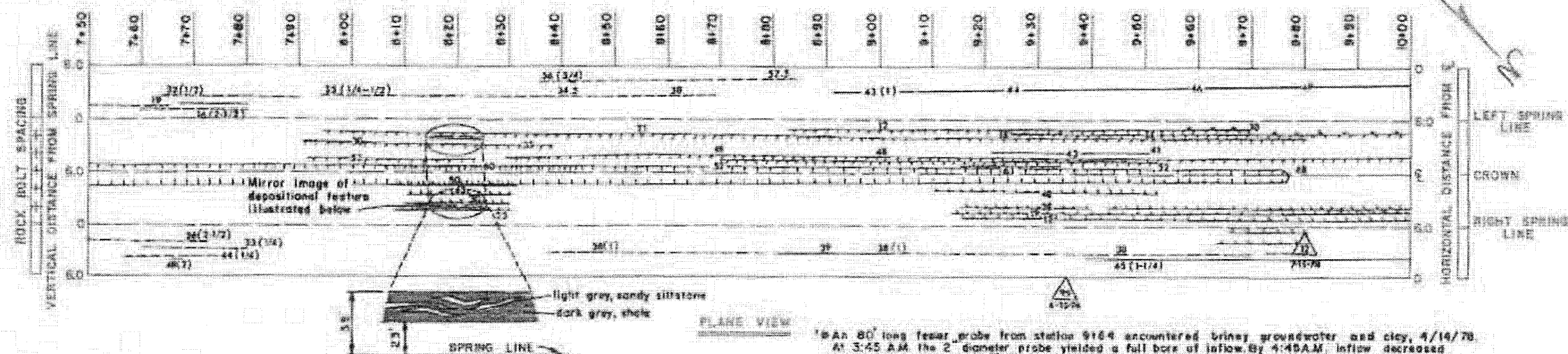
MOISTURE ALONG BEDDING
PARTING
SEEPAGE FROM FEATURE
OVEREXCAVATION OR
OVERBREAK ZONE, MAXIMUM
AMOUNT SHOWN
METHANE GAS, MAXIMUM
PERCENT L.E.L. WITH DATE
OF OCCURRENCE
Note: (1) in parentheses indicates bed thickness.
Number preceding parentheses indicates inches
above or below spring line at station of
measurement.





- SYMBOLS**
- $\bullet(X)$ HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 - $\text{---}1\frac{1}{2}\text{---}2\frac{1}{2}\text{---}$ DISCONTINUOUS IRON BED
 - $\text{---}1\frac{1}{2}\text{---}$ HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 - $\text{---}1\frac{1}{2}\text{---}2\frac{1}{2}\text{---}$ DISCONTINUOUS IRON BED WITHIN GREY BED
 - $\text{---}1\frac{1}{2}\text{---}$ FRACTURE
 - $\text{---}1\frac{1}{2}\text{---}$ FAULT
 - $\text{---}1\frac{1}{2}\text{---}$ BEDDING PARTING
 - $\text{---}1\frac{1}{2}\text{---}$ VERTICAL JOINT
 - $\text{---}1\frac{1}{2}\text{---}$ INCLINED JOINT
 - $\text{---}1\frac{1}{2}\text{---}$ BEDDING, STRIKE AND DIP

- $\text{---}1\frac{1}{2}\text{---}$ MOISTURE ALONG BEDDING PARTING
 - $\text{---}1\frac{1}{2}\text{---}$ SEEPAGE FROM FEATURE
 - $\text{---}1\frac{1}{2}\text{---}$ OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 - $\text{---}1\frac{1}{2}\text{---}$ METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE
- Note:**
Number(s) in parentheses indicates bed thickness.
Number preceding parenthesis indicates inches above or below spring line at station of measurement.



no. 4-5		no. 4-1	
Continued spalling along bedding fractures near crown		Continued spalling along bedding fractures near crown	
1 Rock bolts @ 2' centers in ribs spaced 3-5' apart, grouted by air cast		1 Rock bolts @ 2' centers in ribs spaced 3-5' apart, grouted by air cast	
1'-4"		2'-10"	
Moisture along bedding fractures near crown		Moisture along bedding fractures near crown	
Moisture along bedding fractures near crown		Moisture along bedding fractures near crown	
1.5' water		1.5' water	
1.5' water		1.5' water	

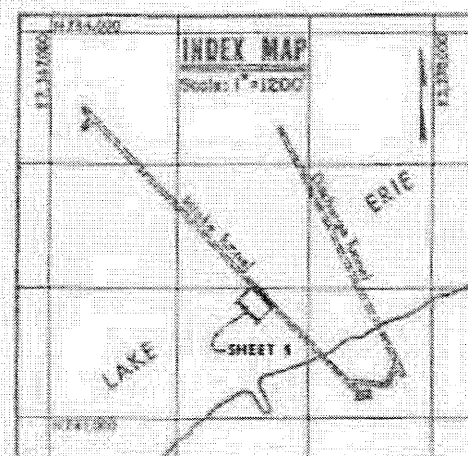
EXCAVATION PROGRESS
ESTIMATED ROCK CONDITION (TERZAGHI NO.)
TEMPORARY SUPPORT SYSTEM
BEDDING SPACING
FRACTURE SPACING
WATER CONDITION
DEPTH OF COVER

(Rev. 12 1/03)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

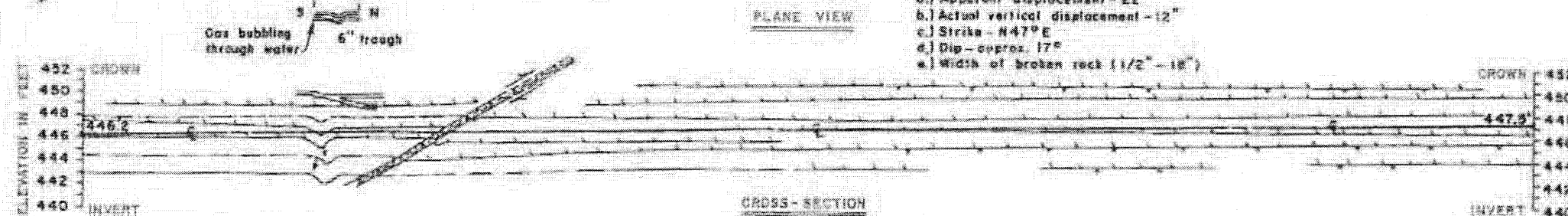
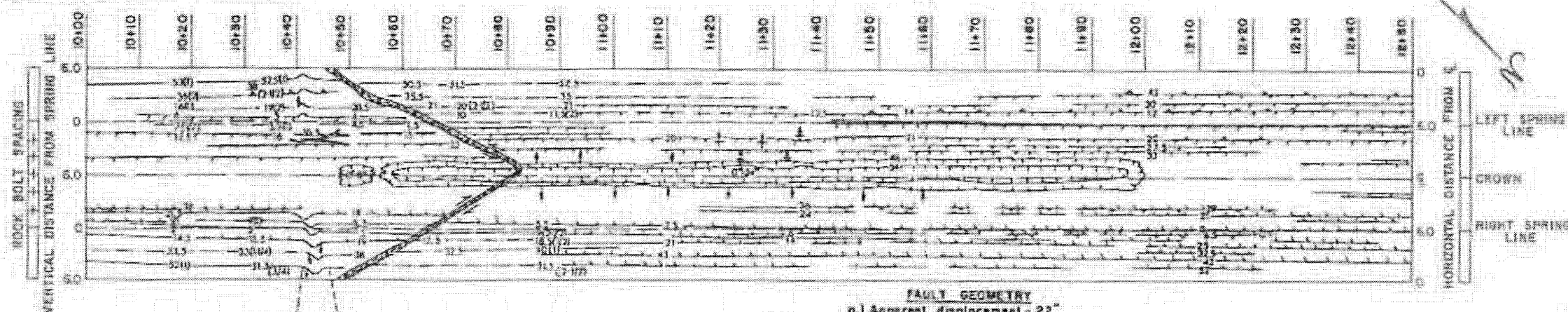
Figure 2.5-47 (Sheet 4 of 24)



SYMBOLS

(1/2)" HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 12(10-21)" DISCONTINUOUS IRON BED
 12(11)" HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 10(1/2) 31" DISCONTINUOUS IRON BED WITHIN GREY BED
 FRACTURE
 FAULT (with sense of motion)
 BEDDING PARTING
 VERTICAL JOINT
 INCLINED JOINT
 BEDDING, STRIKE AND DIP

MOISTURE ALONG BEDDING PARTING
 SEEPAGE FROM FEATURE
 OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 METHANE GAS, MAXIMUM PERCENT I.E.L. WITH DATE OF OCCURRENCE
 *Note: Number(s) in parentheses indicates bed thickness. Number preceding parenthesis indicates inches above or below spring line at station of measurement.



FAULT GEOMETRY

a.) Apparent displacement - 22"
 b.) Actual vertical displacement - 12"
 c.) Strike - N 47° E
 d.) Dip - approx. 17°
 e.) Width of broken rock (1 1/2" - 18")

no. 3-6		no. 3-6		no. 4-5	
3 rock bolts at 2' centers in steel ribs at 3'-3.5' centers		0-24' of overbreak between rock bolt no. 3-2		3 rock bolts at 2' centers in ribs at 3.5' centers, spanned by wire mesh	
2'-10"		2'-9"		Full shielding - Rock bolts in linear pattern completely shield upper 3/8 of tunnel	
12"		Bedding fractures & 1/2" to 1 1/8" thick, highly fractured fault zone w/gauge		Bedding fractures only, spaced as above	
No inflows		Slight seep from fold		Slight inflow from rock bolts	
7.3 water		Water dripping from shielding		Slight moisture along approx. 20% of bedding fractures and rock bolts	
111.7' subsurface (shale)		2' inflow at approx. 1 gal./min.		8.3 water	
				102.2' subsurface (shale)	

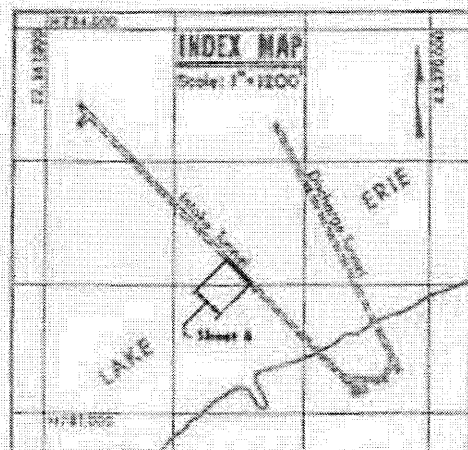
EXCAVATION PROGRESS
 ESTIMATED ROCK CONDITION (TERZAGHI NO.)
 TEMPORARY SUPPORT SYSTEM
 BEDDING SPACING
 FRACTURE SPACING
 WATER CONDITION
 DEPTH OF COVER

(Rev. 12 1/70)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

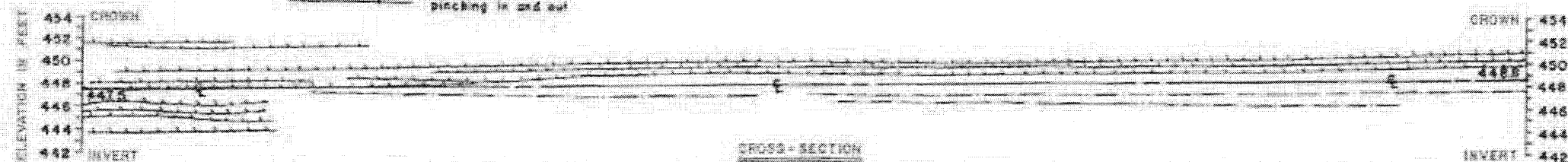
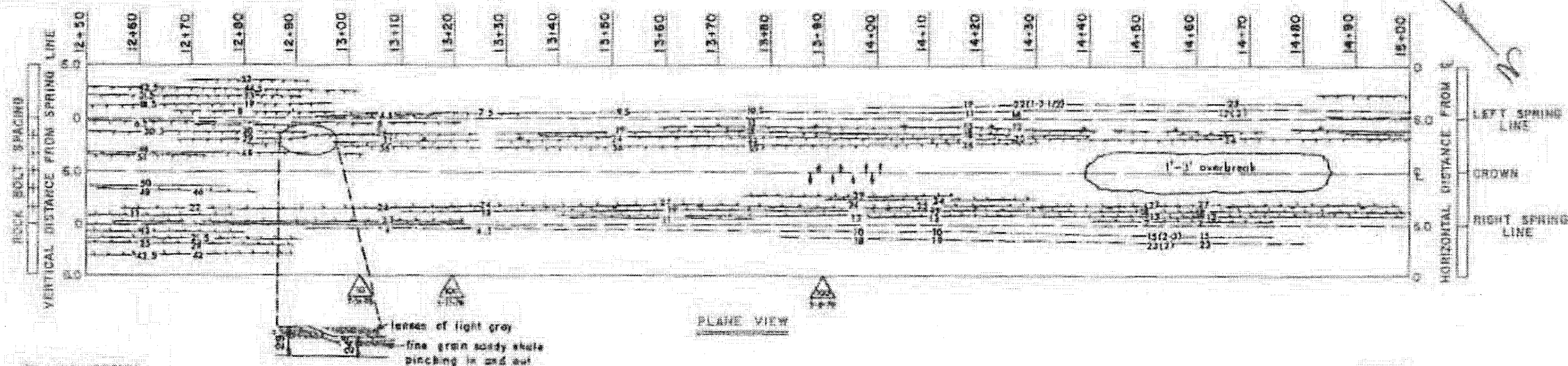
Figure 2.5-4 (Sheet 3 of 24)



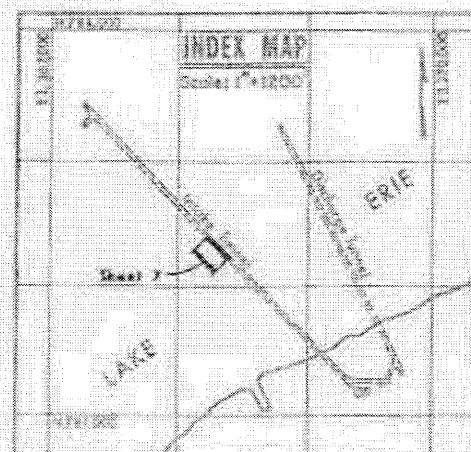
- SYMBOLS**
- 1 1/2" HARD, TAN, BROWN, CHERT, IRON BED OR LAMINAE
 - 12 (2-3)" DISCONTINUOUS IRON BED
 - 12 (1)" HARD, LIGHT GREY SANDY SHALE TO SILTSTONE BED
 - 10 (12, 1)" DISCONTINUOUS IRON BED WITHIN GREY BED
 - 1/4" FRACTURE
 - 1/4" FAULT
 - 1/4" BEDDING PARTING
 - 1/4" VERTICAL JOINT
 - 1/4" INCLINED JOINT
 - 1/4" BEDDING, STRIKE AND DIP

- MOISTURE ALONG BEDDING PARTING
- SEEPAGE FROM FEATURE
- OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
- METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE

Notes:
Number(s) in parentheses indicates bed thickness.
Number preceding parenthesis indicates inches above or below spring line at station of measurement.

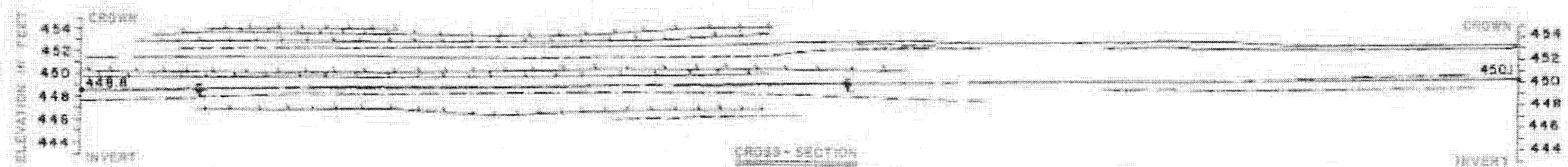
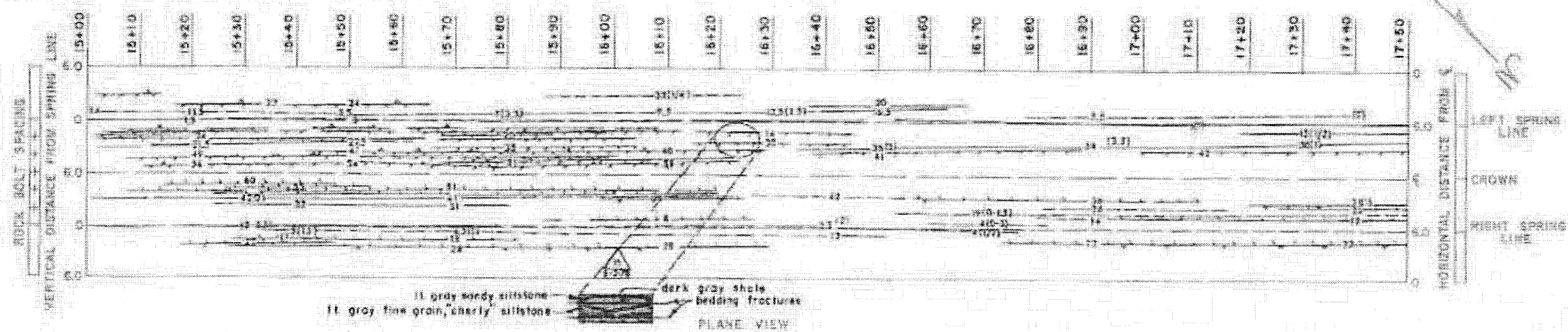


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- SYMBOLS**
- $\frac{1}{4}$ " HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 - $\frac{1}{2}$ " DISCONTINUOUS IRON BED
 - $\frac{1}{4}$ " HARD, LIGHT GRAY, SANDY SHALE TO SILTSTONE BEDS
 - $\frac{1}{2}$ " DISCONTINUOUS IRON BED WITHIN GRAY BED
 - $\frac{1}{4}$ " FRACTURE
 - $\frac{1}{4}$ " FAULT
 - $\frac{1}{4}$ " BEDDING PARTING
 - $\frac{1}{4}$ " VERTICAL JOINT
 - $\frac{1}{4}$ " INCLINED JOINT
 - $\frac{1}{4}$ " BEDDING, STAIR AND DIP

- MOISTURE ALONG BEDDING PARTING
 - SEEPAGE FROM FEATURE
 - OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 - METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE
- Note:**
Number(s) in parentheses indicates bed thickness.
Number preceding parenthesis indicates inches above or below spring line at station of measurement.



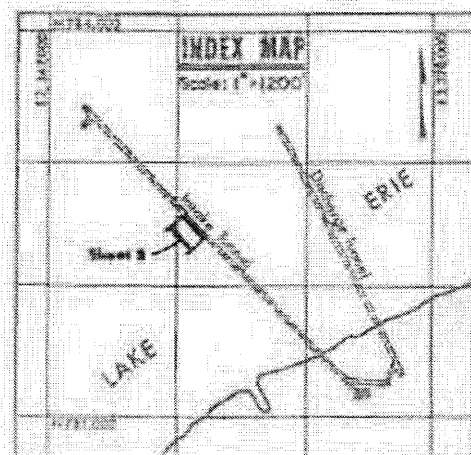
STATION	17+00	17+10	17+20	17+30	17+40	17+50
Excavation Progress	17+00	17+10	17+20	17+30	17+40	17+50
Estimated Rock Condition (Terzaghi No.)	4-5	4-5	4-5	4-5	4-5	4-5
Temporary Support System	Approx. 6" - 10"	3" - 5"	3" - 5"	3" - 5"	3" - 5"	3" - 5"
Bedding Spacing	Approx. 20' of bedding fractures show minimal moisture	Bedding fractures only	Bedding fractures only	Bedding fractures only	Bedding fractures only	Approx. 10' of bedding fractures show moisture
Fracture Spacing	14.5' - 16.5'	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'
Water Condition	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'
Depth of Cover	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'	10.5' - 12.5'

EXCAVATION PROGRESS
ESTIMATED ROCK CONDITION (TERZAGHI NO.)
TEMPORARY SUPPORT SYSTEM
BEDDING SPACING
FRACTURE SPACING
WATER CONDITION
DEPTH OF COVER

(Rev. 12 1/03)
PERRY NUCLEAR POWER PLANT

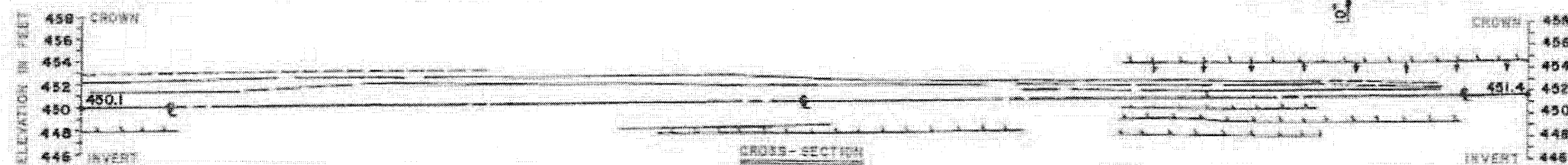
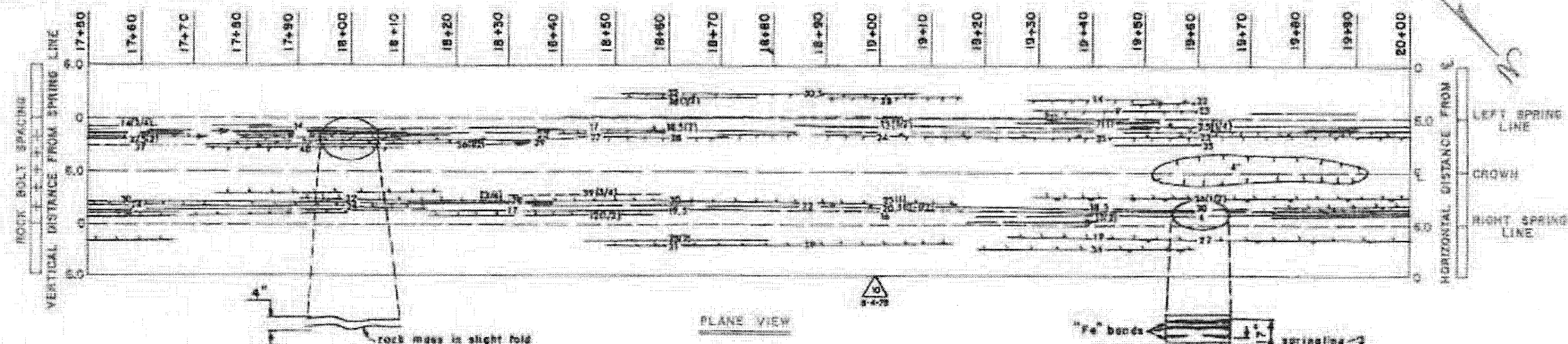
Geologic Map of Tunnel Excavations

Figure 2.3-47 (Sheet 7 of 24)



- SYMBOLS**
- (1/4)" HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 - 12 (0-1)" DISCONTINUOUS IRON BED
 - 13 (1)" HARD, LIGHT GREY, SANDY SHALE TO SILTYSTONE BED
 - 14 (0-1)" DISCONTINUOUS IRON BED WITHIN GREY BED
 - FRACTURE
 - FAULT
 - BEDDING PARTING
 - VERTICAL JOINT
 - INCLINED JOINT
 - BEDDING, STRIKE AND DIP

- MOISTURE ALONG BEDDING PARTING
 - SEEPAGE FROM FEATURE
 - OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 - METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE
- * Note: Number(s) in parentheses indicates bed thickness. Number preceding parentheses indicates inches above or below spring line at station of measurement.



no. 4	Slight scaling along crown for entire length (between rock bolt 2 & 4)	Slight scaling from roof (0'-2')	no. 4
5 rock bolts at 3.0' centers in steel ribs at 3.5' to 4.0' centers, spanned by wire mesh		Same, ribs at 4.0' centers	
Approx. 4'	Approx. 4' to 10'	5'-10-9"	
	Bedding fractures only		
	Traces of moisture along a couple bedding fractures	Slight moisture on approx. 50% of the excavation	
10.5% water	101.6% subsurface (shale)	17.5% water	101.3% subsurface (shale)

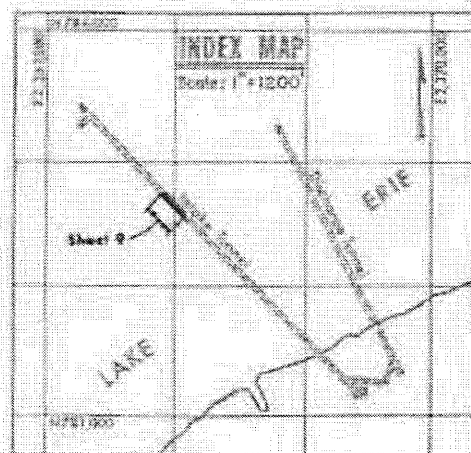
EXCAVATION PROGRESS
ESTIMATED ROCK
CONDITION (TERZAGHI NO.)
TEMPORARY SUPPORT
SYSTEM
BEDDING SPACING
FRACTURE SPACING
WATER CONDITION
DEPTH OF COVER

(REV. 12 1/03)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel
Excavations

Figure 2.3-47 (Sheet 8 of 24)

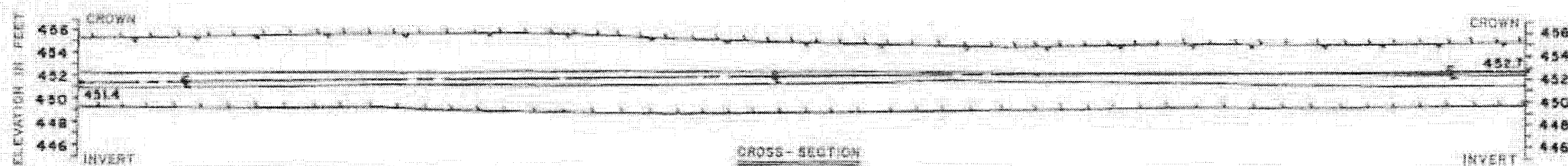
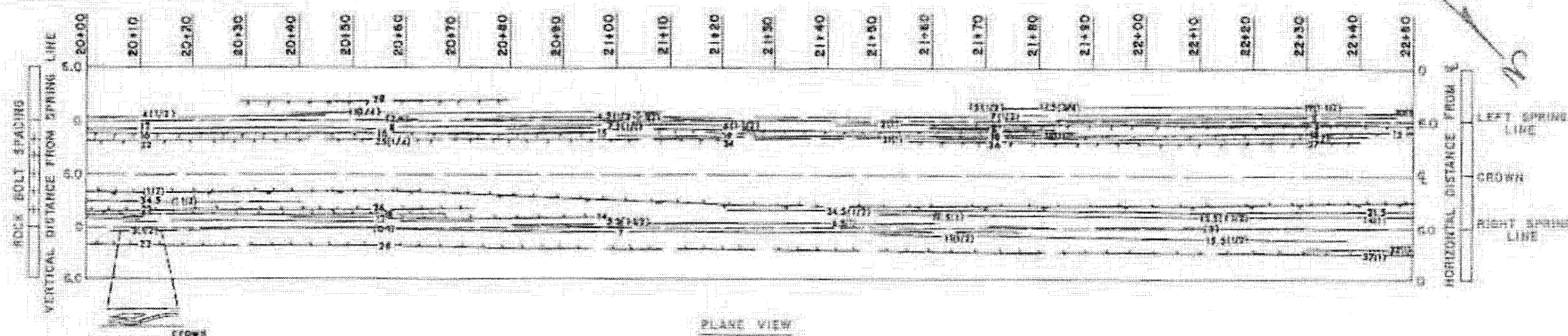


SYMBOLS

(X)* HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 (12)(0.2)* DISCONTINUOUS IRON BED
 (12)(b)* HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 (10)(12)(0.2)* DISCONTINUOUS IRON BED WITHIN GREY BED
 L FRACTURE
 FAULT
 BEDDING PARTING
 VERTICAL JOINT
 INCLINED JOINT
 BEDDING, STRIKE AND DIP

MOISTURE ALONG BEDDING PARTING
 SEEPAGE FROM FEATURE
 OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE

*Note: Number(s) in parentheses indicates bed thickness. Number preceding parentheses indicates inches above or below boring line at station of measurement.



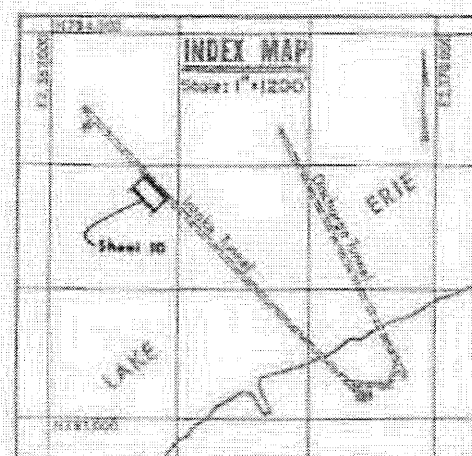
STATION	20+00	20+20	20+40	20+60	20+80	21+00	21+20	21+40	21+60	21+80	22+00	22+20	22+40	22+60	22+80
Excavation Progress															
Estimated Rock Condition (ITERZAGH) NO.															
Temporary Support System															
Bedding Spacing															
Fracture Spacing															
Water Condition															
Depth of Cover															

EXCAVATION PROGRESS
 ESTIMATED ROCK CONDITION (ITERZAGH) NO.
 TEMPORARY SUPPORT SYSTEM
 BEDDING SPACING
 FRACTURE SPACING
 WATER CONDITION
 DEPTH OF COVER

(Rev. 12 1/03)
PERRY NUCLEAR POWER PLANT

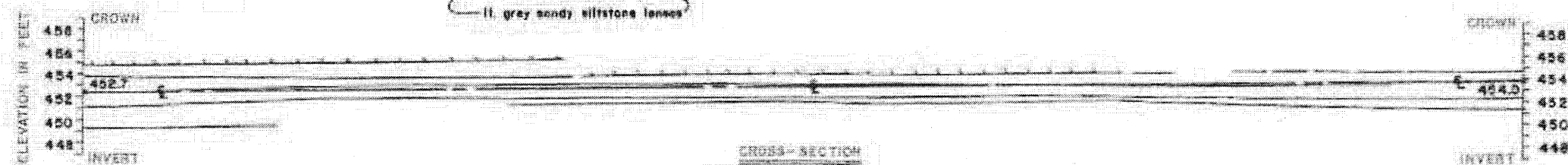
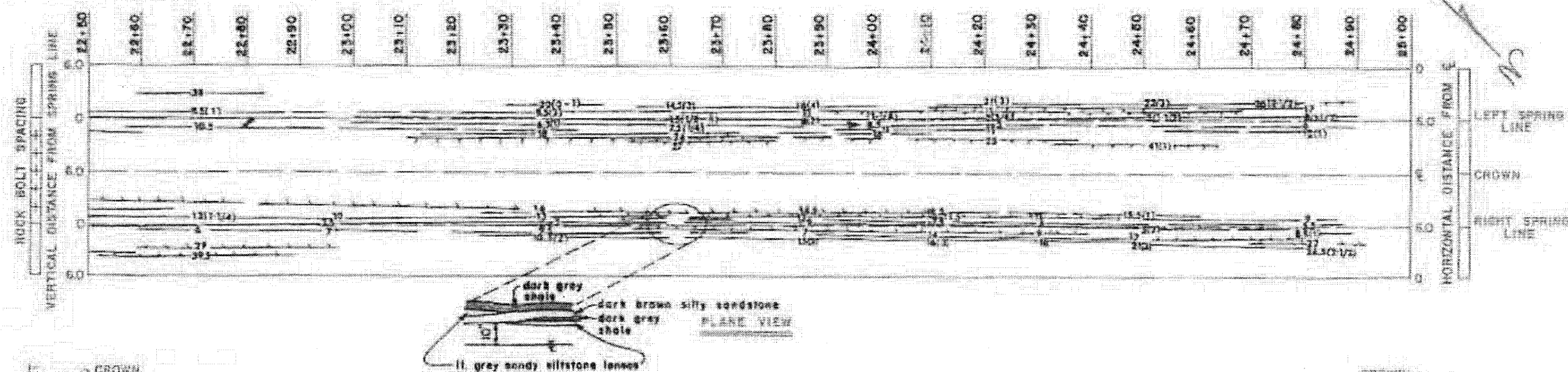
Geologic Map of Tunnel Excavations

Figure 2.5-17 (Sheet 9 of 24)



- SYMBOLS**
- 4 (1/2)" HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 - 12 (0-2)" DISCONTINUOUS IRON BED
 - 12 (1)" HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 - 12 (0-2)" DISCONTINUOUS IRON BED WITHIN GREY BED
 - 1/2" FRACTURE
 - FAULT
 - BEDDING PARTING
 - VERTICAL JOINT
 - INCLINED JOINT
 - BEDDING, STRIKE AND DIP

- MOISTURE ALONG BEDDING PARTING
 - SEEPAGE FROM FEATURE
 - OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 - METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE
- Note:*
Number(s) in parentheses indicate bed thickness.
Number preceding parenthesis indicates inches above or below spring line at station of measurement.



CROSS-SECTION	
no. 4	no. 4
Slight overbreak between rock bolt nos. 3 & 4, 0" - 6" deep (max) 2:1	Slight overbreak between rock bolt nos. 2 & 3, 0" - 6" deep (max) 2:1
3 rock bolts at 2' centers in steel ribs at 3' to 4' centers, spaced by wire mesh	
3' - 1"	2' - 9"
Bedding fractures only, spaced on above	
Moist bedding fractures, above springline along east wall	No seepage
12.5% water	18.5% water
100% saturation (shale)	98.5% saturation (shale)

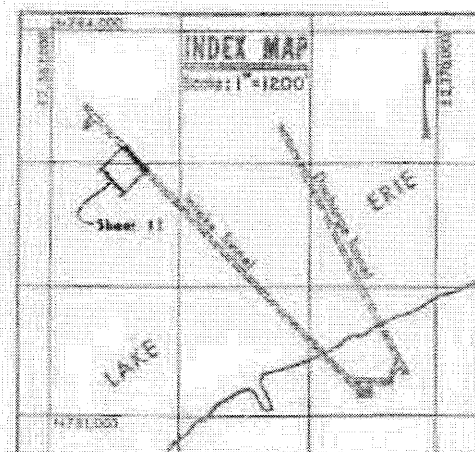
EXCAVATION PROGRESS
ESTIMATED ROCK
CONDITION (TERZAGHI NO.)
TEMPORARY SUPPORT
SYSTEM
BEDDING SPACING
FRACTURE SPACING
WATER CONDITION
DEPTH OF COVER

(Rev. 12 1/03)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel
Excavations

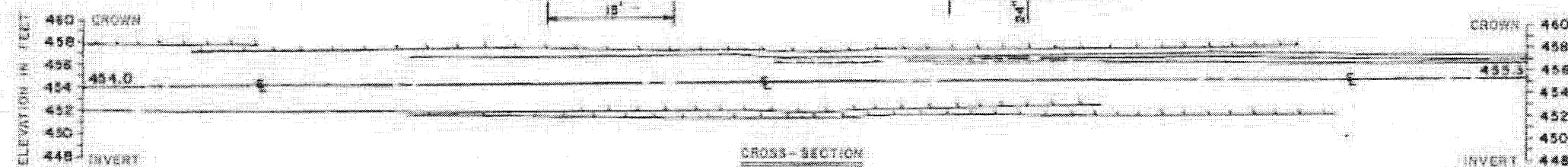
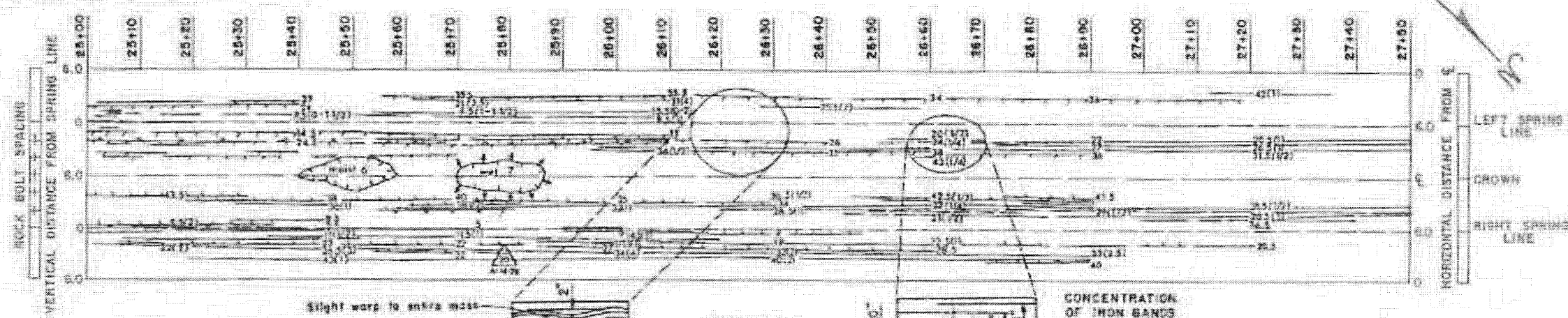
Figure 2.5-47 (Sheet 10 of 24)



- SYMBOLS**
- $\frac{1}{2}^{\circ}$ HARD, TAN, BROWN, CHERT, IRON BED OR LAMINAE
 - $11\frac{1}{2}-21^{\circ}$ DISCONTINUOUS IRON BED
 - 21° HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 - $20\frac{1}{2}-21^{\circ}$ DISCONTINUOUS IRON BED WITHIN GREY BED
 - $\frac{1}{2}$ FRACTURE
 - $\frac{1}{2}$ FAULT
 - $\frac{1}{2}$ BEDDING PARTING
 - $\frac{1}{2}$ VERTICAL JOINT
 - $\frac{1}{2}$ INCLINED JOINT
 - $\frac{1}{2}$ BEDDING, STRIKE AND DIP

- MOISTURE ALONG BEDDING PARTING
- SEEPAGE FROM FEATURE
- OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
- METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE

Note:
Number(s) in parentheses indicates bed thickness.
Number preceding parenthesis indicates inches above or below spring line of station of measurement.



Slight overbreak along center section 0'-6" deep most 2'		Slight overbreak along entire section 0'-6"	
16'-0" overbreak in crown most 2'		5 rock bolts at 2' centers in steel ribs at 4.0' centers, spanned by wire mesh	
3'-9"	5'-7"	Additional rock bolts and ribs added to prohibit additional overbreak	4'-10"
Bedding features only, spotted as above			
Slight dip from overbreak in crown		Slight moisture along bedding features	
18.5% lake water		No seepage	
24.0' water face (shown)		23.7' water + 24.7' methane (total)	

EXCAVATION PROGRESS
ESTIMATED ROCK CONDITION (TERZAGHI NO. 1)
TEMPORARY SUPPORT SYSTEM
BEDDING SPACING
FRACTURE SPACING
WATER CONDITION
DEPTH OF COVER

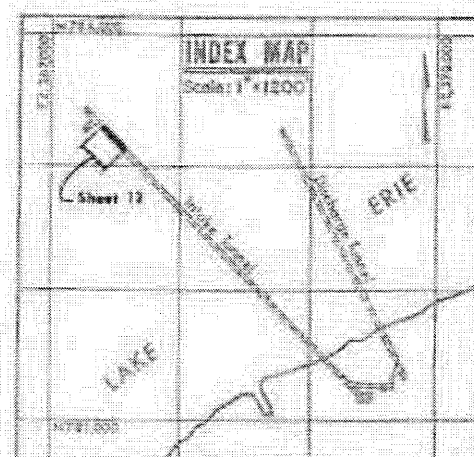
(REV. 12 1/83)



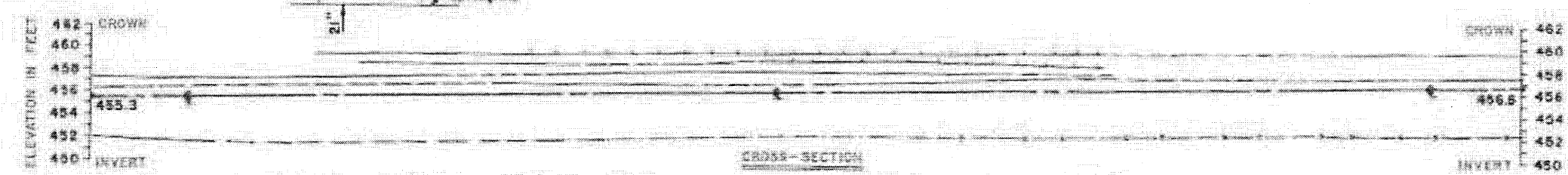
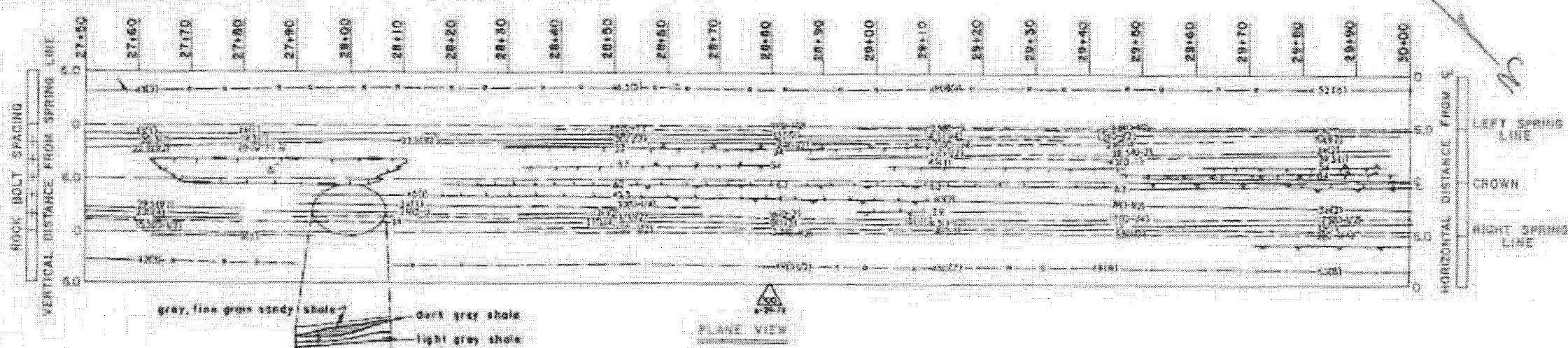
PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

Figure 2.5-47 (Sheet 11 of 24)



- SYMBOLS**
- HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAR
 - DISCONTINUOUS IRON BED
 - HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 - DISCONTINUOUS IRON BED WITHIN GREY BED
 - FRACTURE
 - FAULT
 - BEDDING PARTING
 - VERTICAL JOINT
 - INCLINED JOINT
 - BEDDING, STRIKE AND DIP
 - MOISTURE ALONG BEDDING PARTING
 - SEEPAGE FROM FEATURE
 - OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 - METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE
- NOTE:**
Number(s) in parentheses indicates bed thickness.
Number preceding parenthesis indicates inches above or below spring line of station of measurement.



Overbreak 5" deep limited by vertical joints, trending parallel to tunnel bearing		No. 4		Slight overbreak along entire section in crown	
5 rock bolts at 2' centers in steel ribs at 4' centers spanned by wire mesh		1 rock bolts at 4' centers in steel ribs at 4' centers spanned by wire mesh		5 rock bolts at 2' centers in steel ribs at 4' centers spanned by wire mesh	
Bedding fractures only, spaced as above		Slight moisture from all bedding fractures		Slight moisture from bed-4" to 6" distance in crown	
22.5% water		22.5% water		22.5% water	
22.5% water		22.5% water		22.5% water	

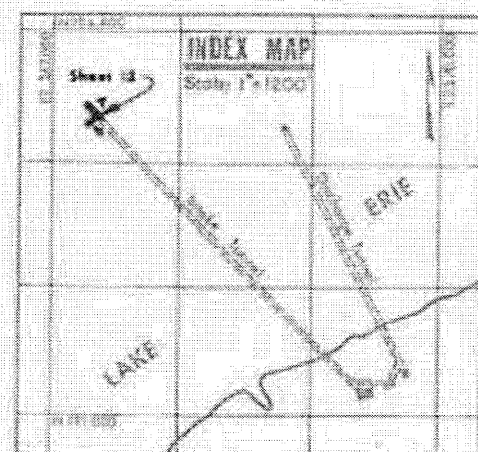
- EXCAVATION PROGRESS
- ESTIMATED ROCK CONDITION (TERZAGHI NO.)
- TEMPORARY SUPPORT SYSTEM
- BEDDING SPACING
- FRACTURE SPACING
- WATER CONDITION
- DEPTH OF COVER

(Rev. 12 1/03)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

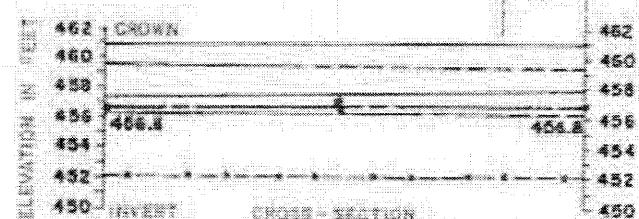
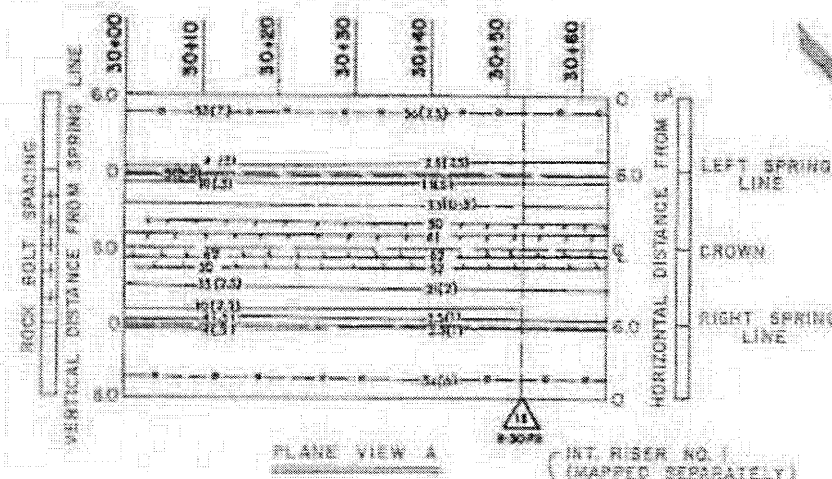
Figure 2.5-47 (Sheet 12 of 24)



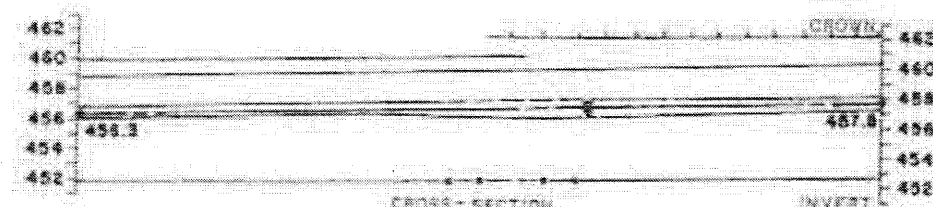
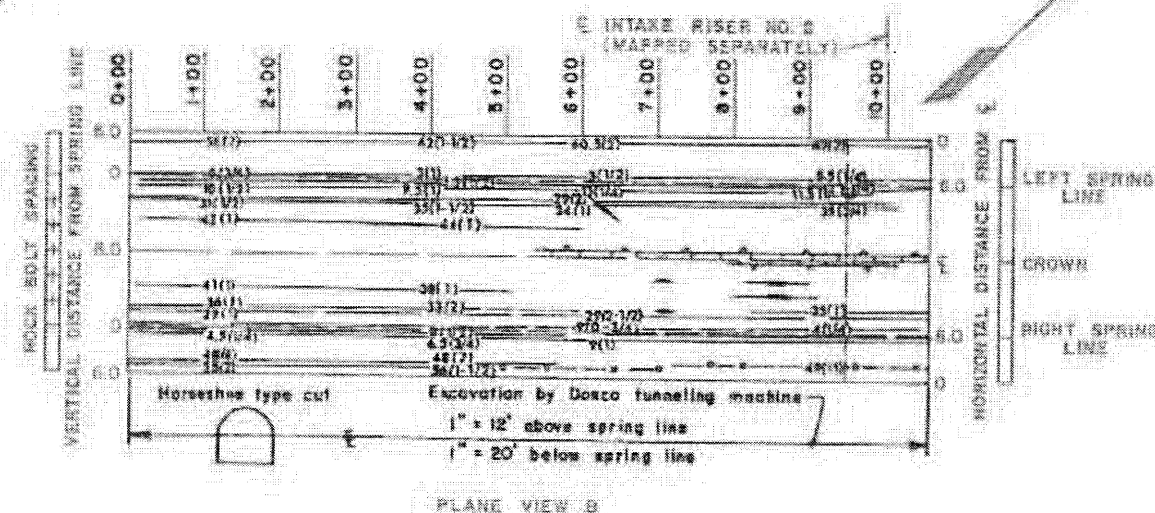
- SYMBOLS**
- $4\frac{1}{2}''$ HARD, TAN, BROWN, CHERT, IRON BED OR LAMINAE
 - $12(8-2)''$ DISCONTINUOUS IRON BED
 - $12(1)''$ HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 - $12(2)''$ DISCONTINUOUS IRON BED WITHIN GREY BED
 - --- FRACTURE
 - --- FAULT
 - --- BEDDING PARTING
 - --- VERTICAL JOINT
 - --- INCLINED JOINT
 - --- BEDDING, STRIKE AND DIP

- --- MOISTURE ALONG BEDDING PARTING
- --- SEEPAGE FROM FEATURE
- --- OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
- --- METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE

*Note: Numbers in parenthesis indicates bed thickness. Number preceding parenthesis indicates inches above or below spring line at station of measurement.

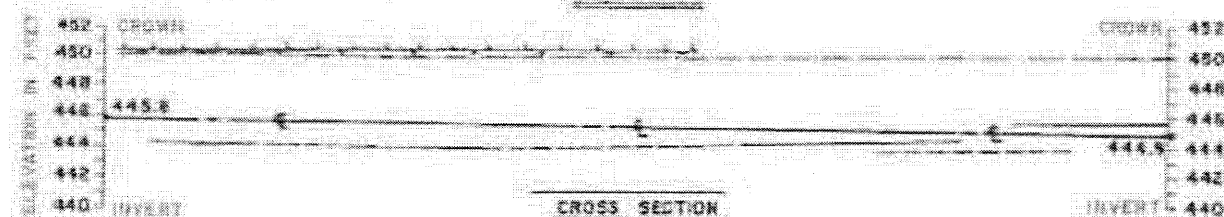
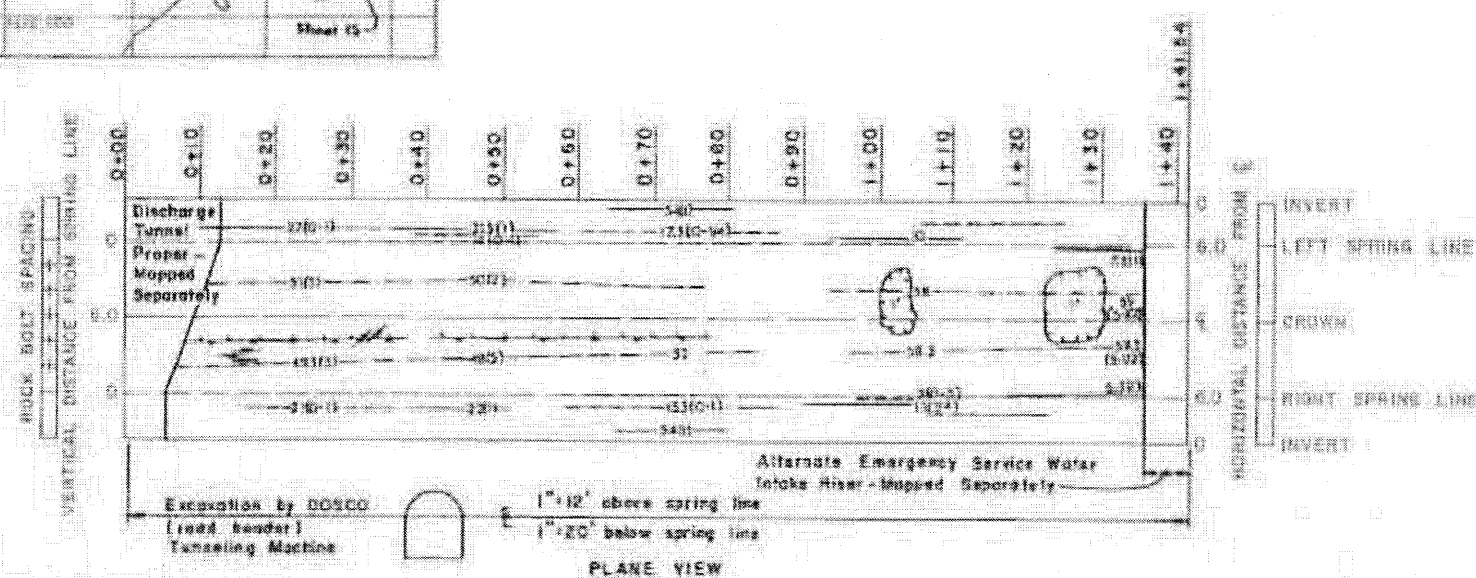
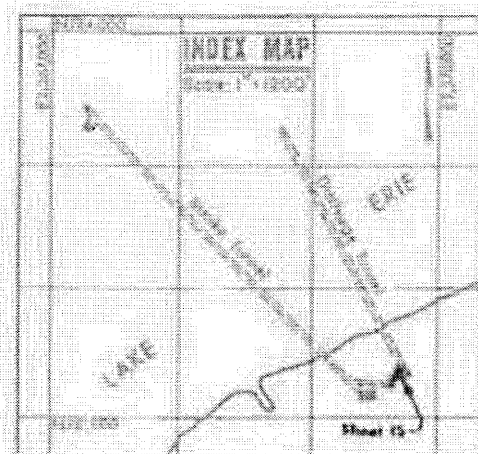


EXCAVATION PROGRESS	
ESTIMATED ROCK CONDITION (TERZAGHI NO.)	
TEMPORARY SUPPORT SYSTEM	
BEDDING SPACING	
FRACTURE SPACING	
WATER CONDITION	
DEPTH OF COVER	



EXCAVATION PROGRESS	
ESTIMATED ROCK CONDITION (TERZAGHI NO.)	
TEMPORARY SUPPORT SYSTEM	
BEDDING SPACING	
FRACTURE SPACING	
WATER CONDITION	
DEPTH OF COVER	





7'-0"	7'-0"	7'-0"	7'-0"
No. 4			
5 rock bolts at 7' centers in steel ribs at 3.0' x 15' centers, spanned by wire mesh			
1/2" x 2"	6" x 2"	1" x 8"	Approx. 1/2" x 1/2" perforated
1" x 1/2"	Bedding fractures only, spaced as above		
Slight seepage from bedding parting along west wall		No inflow	
Approx. 250' location 120' above fill		Approx. 250' location 120' above fill	
110' x 110'		110' x 110'	

EXCAVATION PROGRESS

ESTIMATED ROCK CONDITION (TERZAGHI NO. 1)

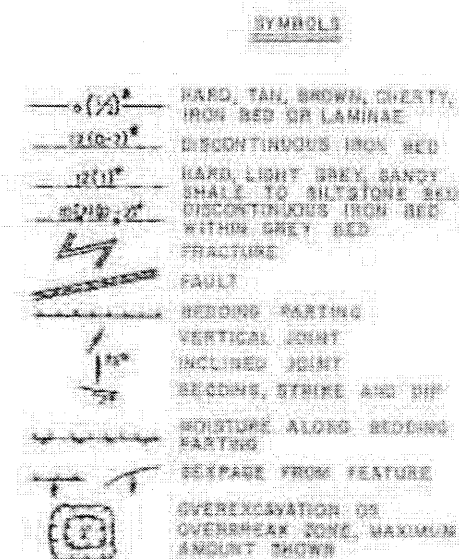
TEMPORARY SUPPORT SYSTEM

BEDDING SPACING

FRACTURE SPACING

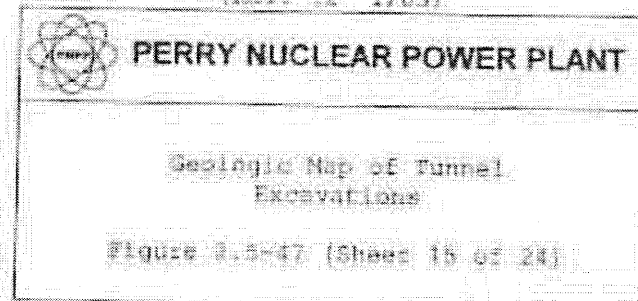
WATER CONDITION

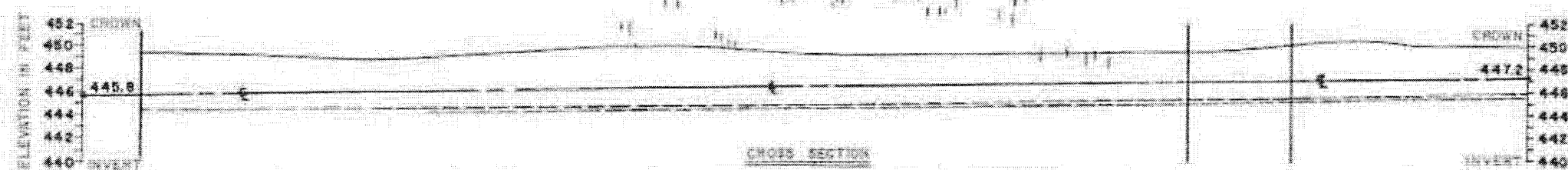
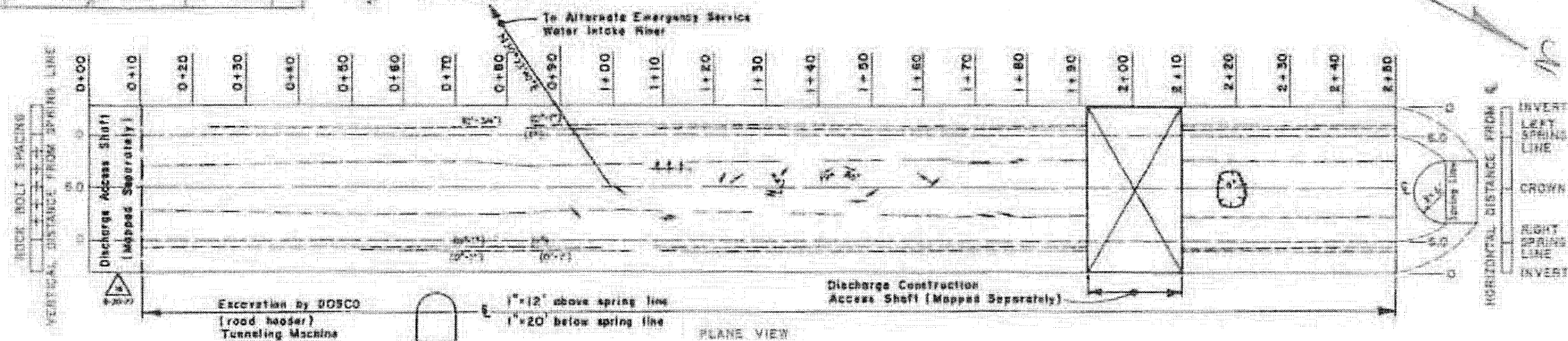
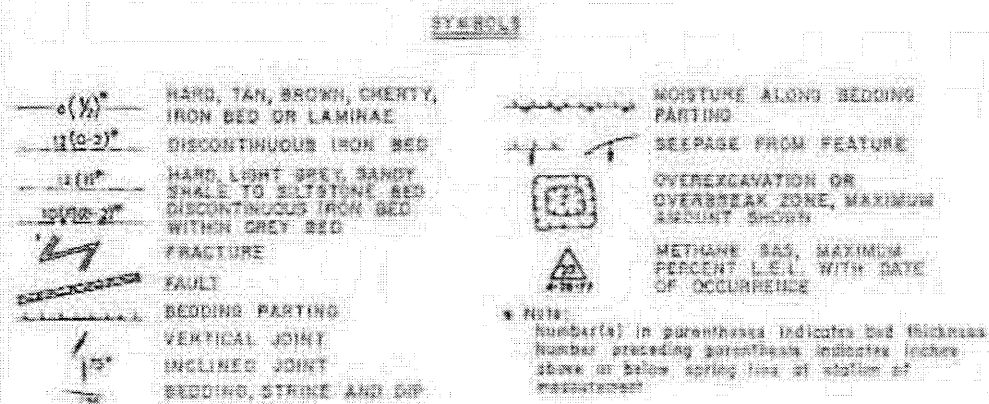
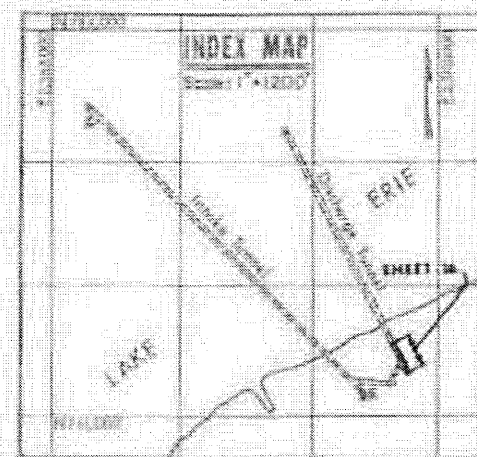
DEPTH OF COVER



*Note:
Numbers in parentheses indicates bed thickness.
Number preceding parenthesis indicates inches above or below spring line of station of measurement.

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no. 4										no. 4-5									
2 rock bolts at 2' centers in wall ribs at 12' centers, supported by wire mesh																			
2'-5"		1'-2"-0"		1'-2"-0"		2'-0"		1'-0"				1'-0"		1'-2"-0"					
No seepage										No seepage									
Approx. 11.1' maximum										Approx. 11.1' maximum									
27.5' steel till & 11.7' shale										27.5' steel till & 10.8' shale									

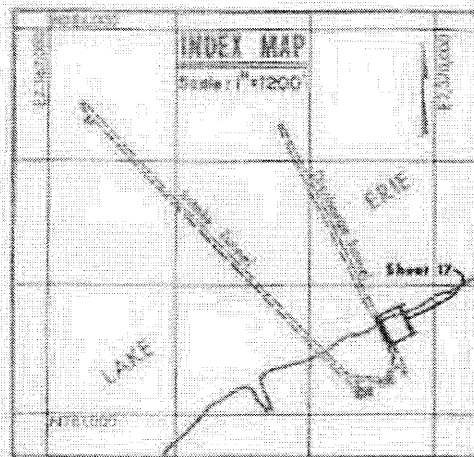
EXCAVATION PROGRESS
 ESTIMATED ROCK
 CONDITION (TERZAGHI NO.1)
 TEMPORARY SUPPORT
 SYSTEM
 BEDDING SPACING
 FRACTURE SPACING
 WATER CONDITION
 DEPTH OF COVER

(Rev. 12 1/83)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel
Excavations

Figure 2.5-47 (Sheet 15 of 24)

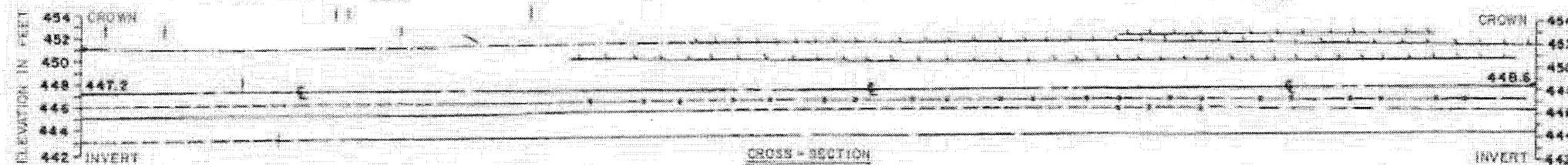
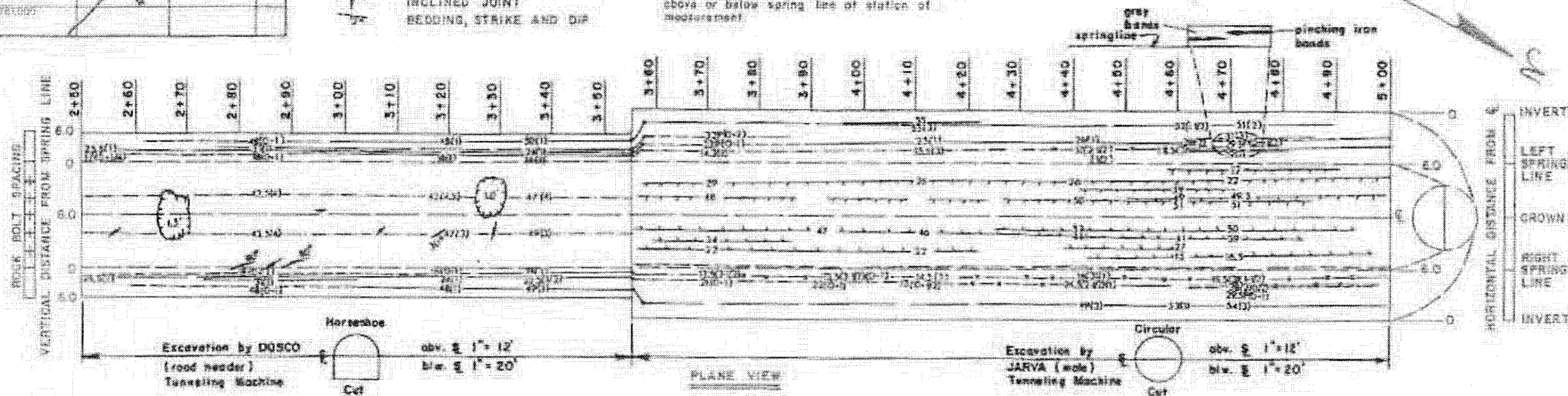


SYMBOLS

1210-25° HARD, TAN, BROWN, CHERTY IRON BED OR LAMINAE
 1210-25° DISCONTINUOUS IRON BED
 1210-25° HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 1010-25° DISCONTINUOUS IRON BED WITHIN GREY BED
 FRACTURE
 FAULT
 BEDDING PARTING
 VERTICAL JOINT
 INCLINED JOINT
 BEDDING, STRIKE AND DIP

MOISTURE ALONG BEDDING PARTING
 SEEPAGE FROM FEATURE
 OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN

* Note:
 Number(s) in parentheses indicates bed thickness
 Number preceding parenthesis indicates inches above or below spring line of station of measurement



1'-2"	1'-3"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2
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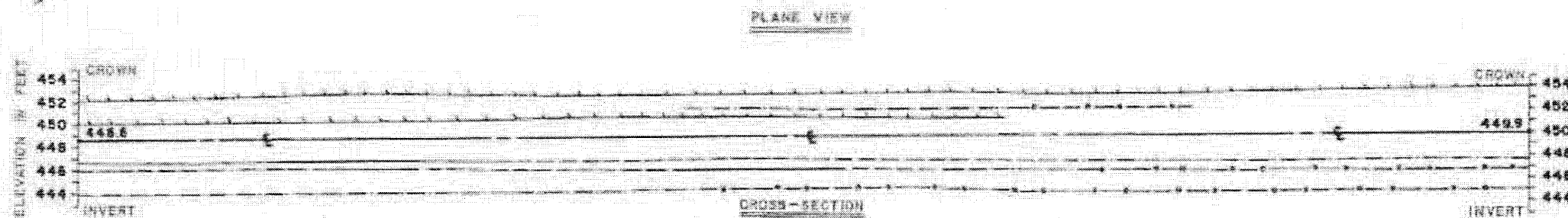
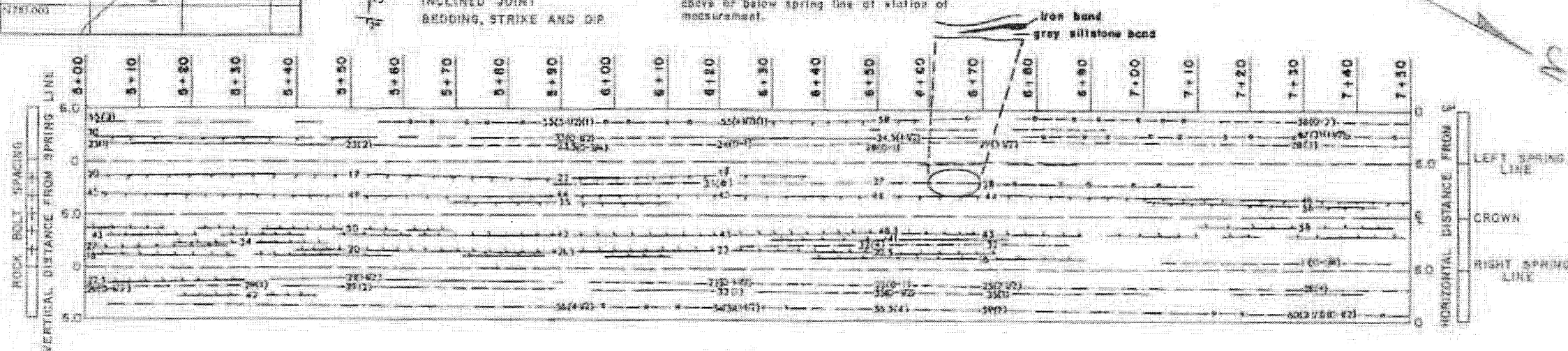
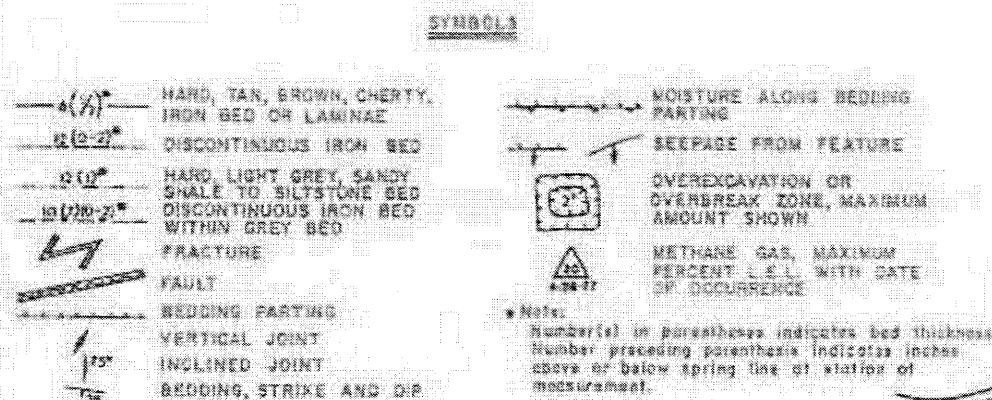
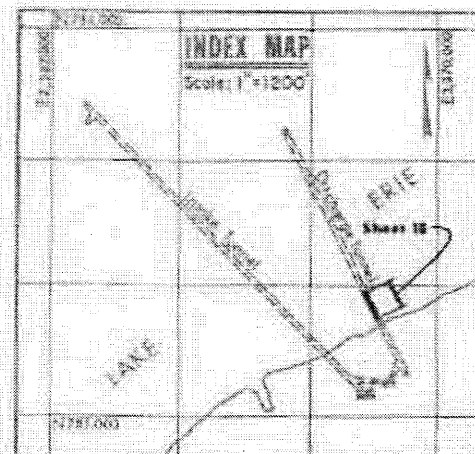
EXCAVATION PROGRESS
 ESTIMATED ROCK CONDITION (TERZAGHI NO.)
 TEMPORARY SUPPORT SYSTEM
 BEDDING SPACING
 FRACTURE SPACING
 WATER CONDITION
 DEPTH OF COVER

(REV. 12 1/03)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

Figure 2.5-47 (Sheet 17 of 24)



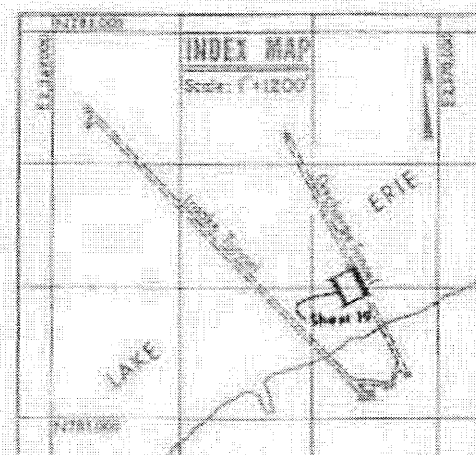
Excavation Progress	Excavation Progress
ESTIMATED ROCK CONDITION (TERMINAL NO.)	ESTIMATED ROCK CONDITION (TERMINAL NO.)
TEMPORARY SUPPORT SYSTEM	TEMPORARY SUPPORT SYSTEM
BEDDING SPACING	BEDDING SPACING
FRACTURE SPACING	FRACTURE SPACING
WATER CONDITION	WATER CONDITION
DEPTH OF COVER	DEPTH OF COVER

(Rev. 12 1/63)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

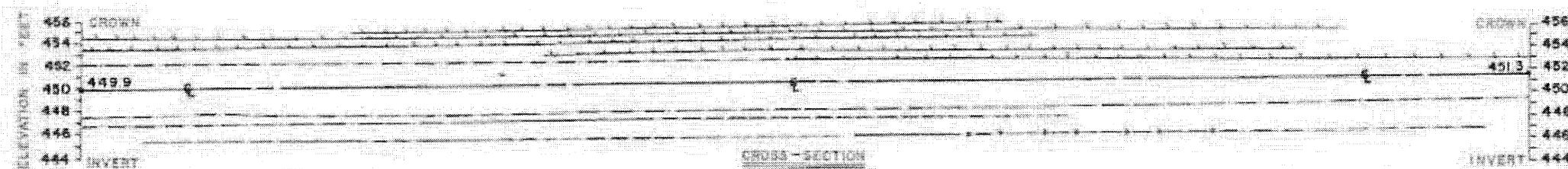
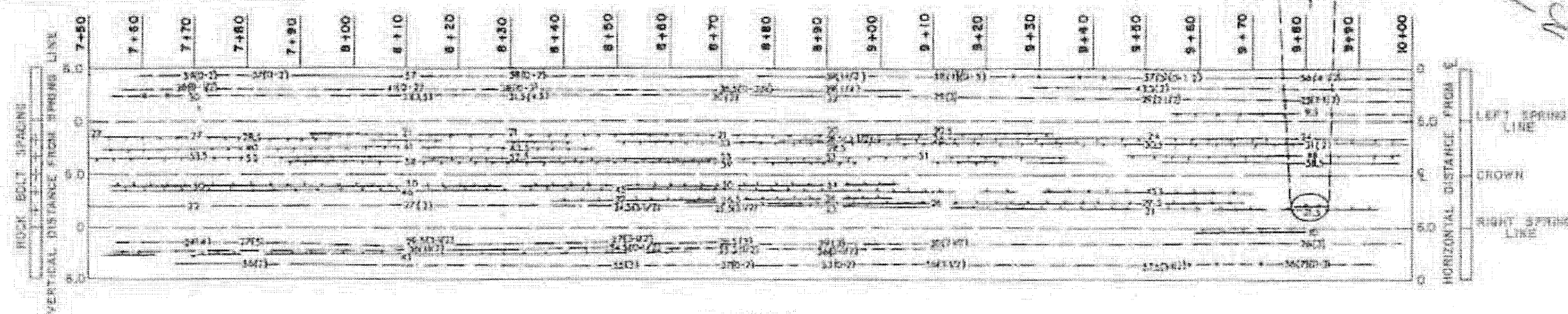
Figure 2.5-47 (Sheet 18 of 24)



0.1/100' HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 12(6-2)' DISCONTINUOUS IRON BED
 14(1)' HARD, LIGHT GREY, SANDY SHALE TO SILTYSTONE BED
 20(7-10)' DISCONTINUOUS IRON BED WITHIN GREY BED
 FRACTURE
 FAULT
 BEDDING PARTING
 VERTICAL JOINT
 INCLINED JOINT
 BEDDING, STRIKE AND DIP

SYMBOLS

MOISTURE ALONG BEDDING PARTING
 SEEPAGE FROM FEATURE
 OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE
 • Note:
 Numbers in parentheses indicates bed thickness.
 Number preceding parenthesis indicates lenses above or below spring line at station of measurement.



no. 4	EXCAVATION PROGRESS
rock bolts at 2' centers in steel ribs at 2'-4' centers, spaced by wire mesh	ESTIMATED ROCK CONDITION (VERZAGHI NO.)
8'-12'	TEMPORARY SUPPORT SYSTEM
bedding fractures only, spaced as above	BEDDING SPACING
No inflow	FRACTURE SPACING
2.5' top water	WATER CONDITION
116.1' subsurface (shale)	DEPTH OF COVER
7.5' top water	
111.7' subsurface (shale)	

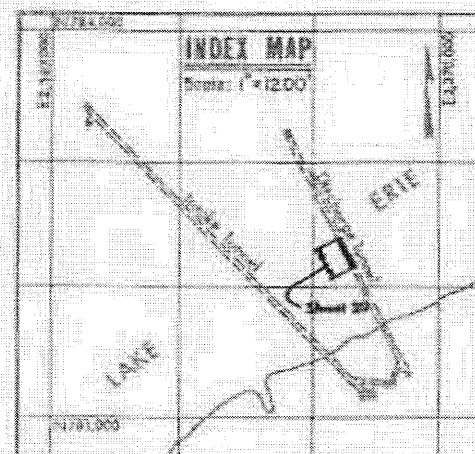
EXCAVATION PROGRESS
 ESTIMATED ROCK CONDITION (VERZAGHI NO.)
 TEMPORARY SUPPORT SYSTEM
 BEDDING SPACING
 FRACTURE SPACING
 WATER CONDITION
 DEPTH OF COVER



PERRY NUCLEAR POWER PLANT

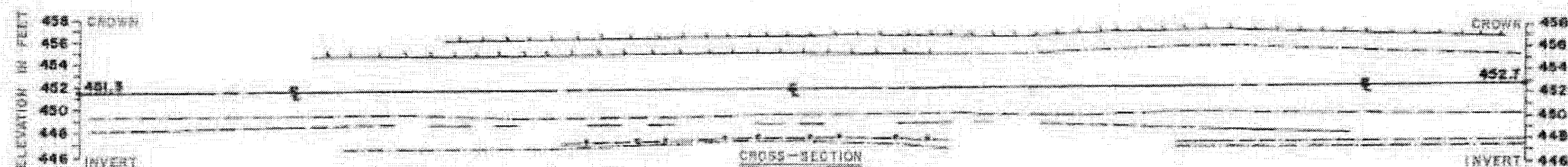
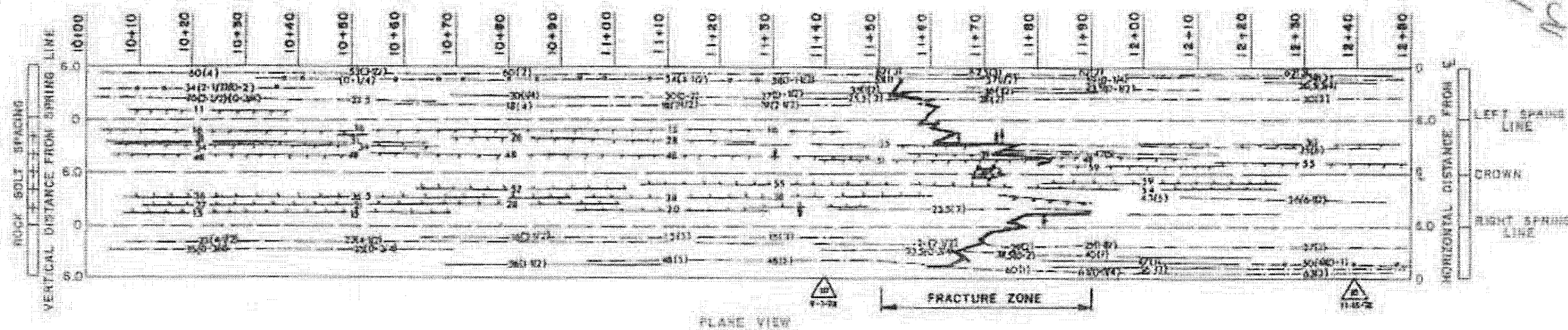
Geologic Map of Tunnel Excavations

Figure 2.5-47 (Sheet 19 of 24)



- SYMBOLS**
- $(1/2)^{\circ}$ HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 - $(2/3)^{\circ}$ DISCONTINUOUS IRON BED
 - $(1/1)^{\circ}$ HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 - $(1/10)^{\circ}$ DISCONTINUOUS IRON BED WITHIN GREY BED
 - \swarrow FRACTURE
 - --- FAULT
 - --- BEDDING PARTING
 - --- VERTICAL JOINT
 - --- INCLINED JOINT
 - --- BEDDING, STRIKE AND DIP

- --- MOISTURE ALONG BEDDING PARTING
 - --- STEEPSE FROM FEATURE
 - --- OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 - --- METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE
- Note:
Number(s) in parentheses indicates bed thickness.
Number preceding parenthesis indicates inches above or below spring line at station of measurement.



No. 8 6" x 8" of overbreak spalling from crown			
1 rock bolt at 2' centers in steel ribs at 4.0' x 4.3' centers, spaced by wire mesh			
3'-10"		3'-9"	
Bedding fractures only, spaced as above		Bedding fractures only, spaced as above	
No inflows		No inflows	
Seepage from rock bolts		Seepage from bedding partings in fractured zone	
7.5' water + 111.7' subsurface (shale)		8.5' water + 109.7' subsurface (shale) +	

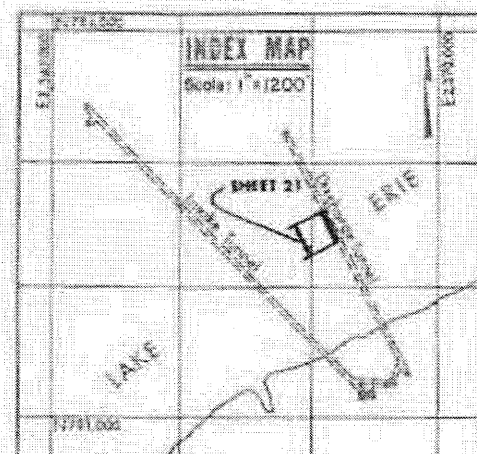
EXCAVATION PROGRESS
ESTIMATED ROCK CONDITION (TERZAGHI NO.)
TEMPORARY SUPPORT SYSTEM
BEDDING SPACING
FRACTURE SPACING
WATER CONDITION
DEPTH OF COVER

(Rev. 12 1/03)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

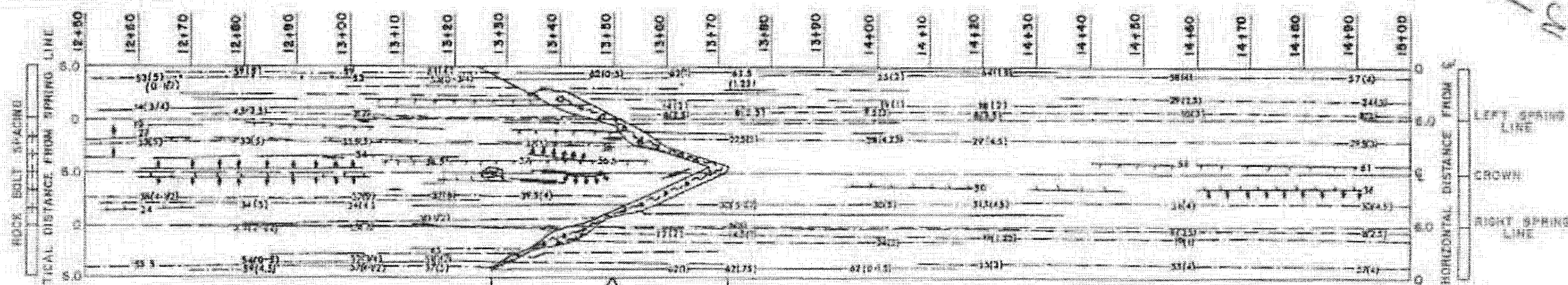
Figure 2.5-47 (Sheet 20 of 24)



- SYMBOLS**
- HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAR
 - DISCONTINUOUS IRON BED
 - HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 - DISCONTINUOUS IRON BED WITHIN GREY BED
 - FRACTURE
 - FAULT (with sense of motion)
 - BEDDING PARTING
 - VERTICAL JOINT
 - INCLINED JOINT
 - BEDDING, STRIKE AND DIP

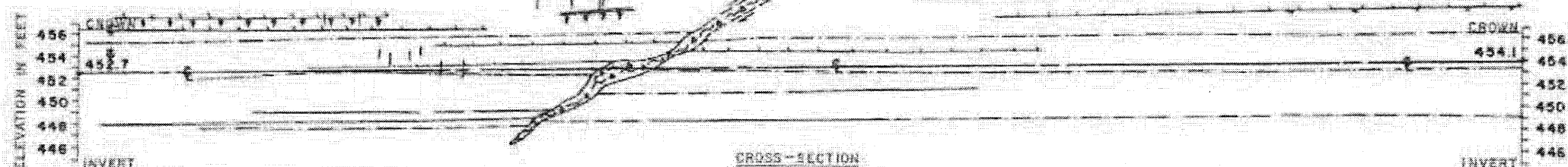
- MOISTURE ALONG BEDDING PARTING
- SEEPAGE FROM FEATURE
- OVEREXCAVATION ON OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
- METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE

Note:
 Number(s) in parentheses indicates bed thickness.
 Number preceding parenthesis indicates inches above or below spring line at station of measurement.



FAULT GEOMETRY

- a) Apparent displacement - 12" to 25"
- b) Actual vertical displacement - 8 1/2" to 11 1/2"
- c) Strike - N 66° E
- d) Dip approx. 16.5°
- e) Width of broken rock (1/2" to 24")



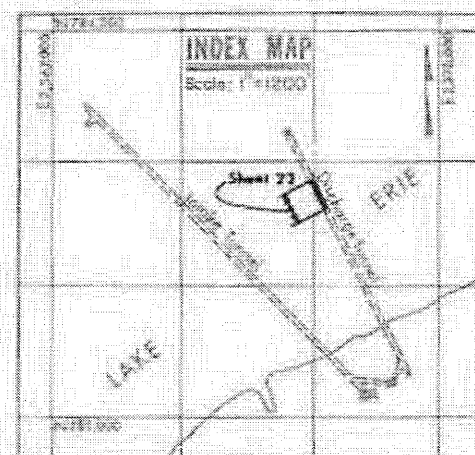
No. 4		No. 4-8		No. 8	
3 rock bolts at 2' centers in steel ribs at 3.5' - 4' centers, spanned by wire mesh		Full shimming employed		5 rock bolts at 7' centers in steel ribs at 3.5' - 4' centers spanned by wire mesh	
3' - 9"		Ribs at 2' centers		3' - 9"	
Bedding fractures spaced as above, joints widely spaced		Joint pairs shown at 2' - 15' apart otherwise bedding fractures at 3' - 9"		Bedding fractures only, spaced as above	
Main bedding fractures where indicated		Several minor joints in fractured areas		Several dipping joints along bedding	
8.5' water		101.2' subsurface (shale)		12.5' water	
				101.2' subsurface (shale)	

- EXCAVATION PROGRESS
- ESTIMATED ROCK CONDITION (TERZAGHI NO.)
- TEMPORARY SUPPORT SYSTEM
- BEDDING SPACING
- FRACTURE SPACING
- WATER CONDITION
- DEPTH OF COVER

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

Figure 2.5-47 (Sheet 21 of 24)

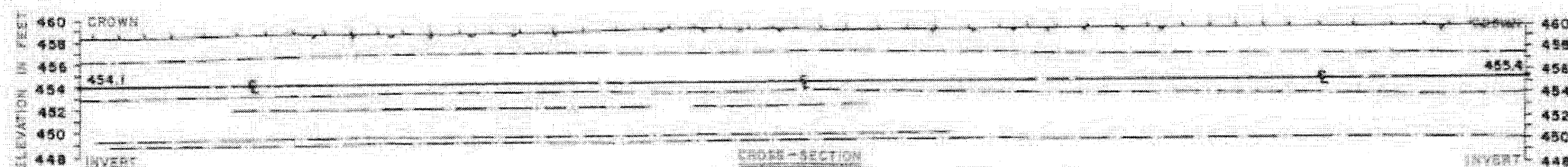
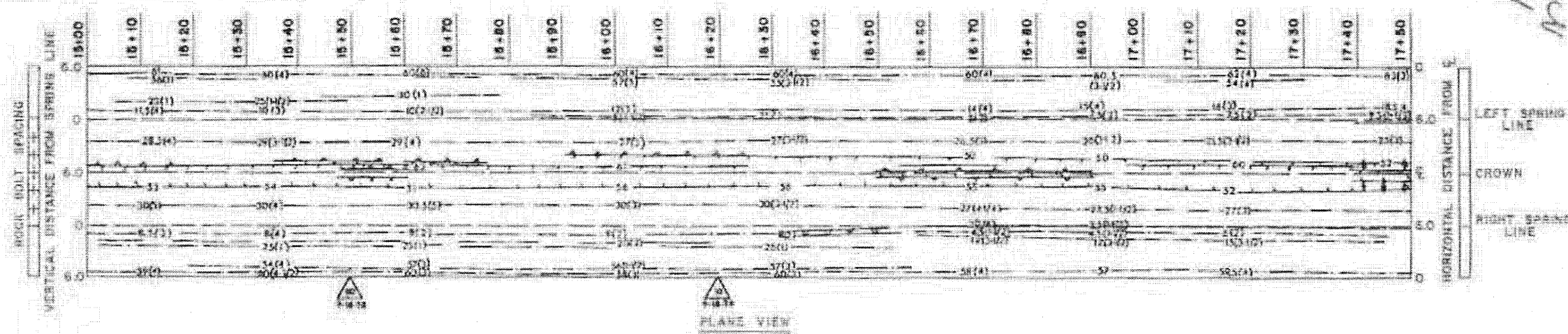


4(1/2)" HARD, TAN, BROWN, CHERTY IRON BED OR LAMINAE
 12(0-2)" DISCONTINUOUS IRON BED
 12(1/2)" HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 2(1/2)-3(1/2)" DISCONTINUOUS IRON BED WITHIN GREY BED
 FRACTURE
 FAULT (with sense of motion)
 BEDDING PARTING
 VERTICAL JOINT
 INCLINED JOINT
 BEDDING, STRIKE AND DIP

SYMBOLS

MOISTURE ALONG BEDDING PARTING
 SEEPAGE FROM FEATURE
 OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE

* Note:
 Numbers in parentheses indicates bed thickness
 Number preceding parentheses indicates inches above or below spring line at station of measurement.



3'-9"		4'-9"		3'-10"	
Slight overbreak along entire excavation (0'-6")					
5 rock bolts at 2' centers in steel ribs at 40'-45' centers spanned by wire mesh					
3'-9"		4'-9"		3'-10"	
Bedding fractures only, spaced as above					
Moisture from bedding parting		Moisture from bedding parting		Moisture from bedding parting	
+ 14.5' water		+ 13.5' water		+ 13.5' water	
20' subsurface (hole)		20' subsurface (hole)		20' subsurface (hole)	

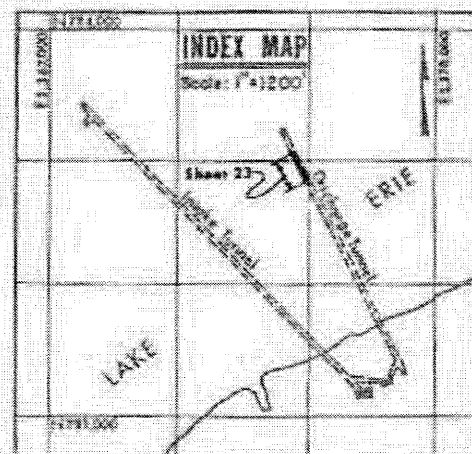
EXCAVATION PROGRESS
 ESTIMATED ROCK CONDITION (TERZAGHI NO.)
 TEMPORARY SUPPORT SYSTEM
 BEDDING SPACING
 FRACTURE SPACING
 WATER CONDITION
 DEPTH OF COVER

(Rev. 12 1/83)

PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

Figure 2.5-47 (Sheet 22 of 24)

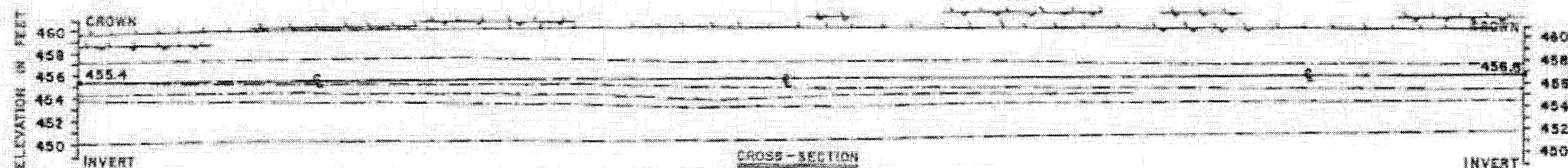
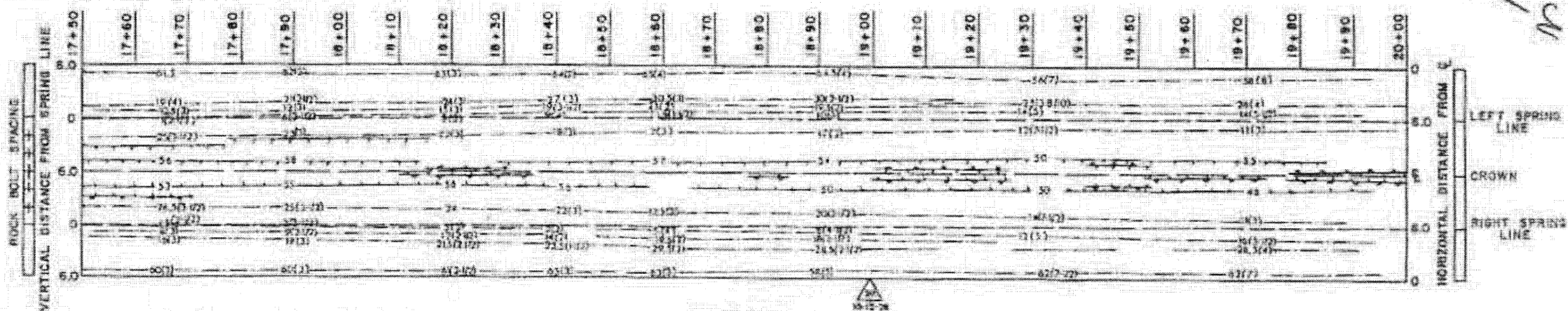


SYMBOLS

(1/2)" HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 (1/2)"-2" DISCONTINUOUS IRON BED
 (1/2)"-2" HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED DISCONTINUOUS IRON BED WITHIN GREY BED
 (1/2)"-2" FRACTURE
 (1/2)"-2" FAULT
 (1/2)"-2" BEDDING PARTING
 (1/2)"-2" VERTICAL JOINT
 (1/2)"-2" INCLINED JOINT
 (1/2)"-2" BEDDING, STRIKE AND DIP

(1/2)"-2" MOISTURE ALONG BEDDING PARTING
 (1/2)"-2" SEEPAGE FROM FEATURE
 (1/2)"-2" OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN
 (1/2)"-2" METHANE GAS, MAXIMUM PERCENT L.E.L. WITH DATE OF OCCURRENCE

Note:
 Number(s) in parentheses indicates bed thickness.
 Number preceding parentheses indicates inches above or below spring line at station of measurement.



EXCAVATION PROGRESS			
ESTIMATED ROCK CONDITION (TERZAGHI NO.)			
TEMPORARY SUPPORT SYSTEM			
BEDDING SPACING			
FRACTURE SPACING			
WATER CONDITION			
DEPTH OF COVER			

EXCAVATION PROGRESS
 ESTIMATED ROCK CONDITION (TERZAGHI NO.)
 TEMPORARY SUPPORT SYSTEM
 BEDDING SPACING
 FRACTURE SPACING
 WATER CONDITION
 DEPTH OF COVER

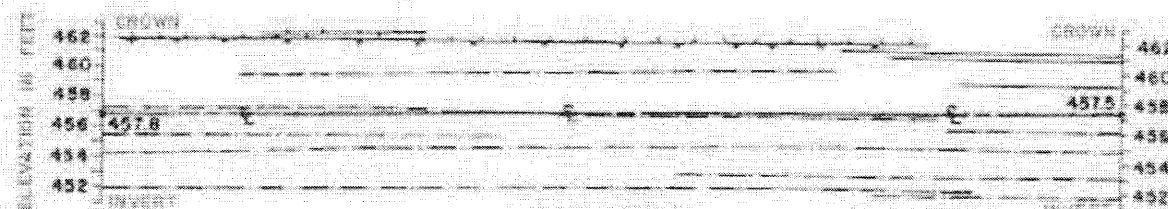
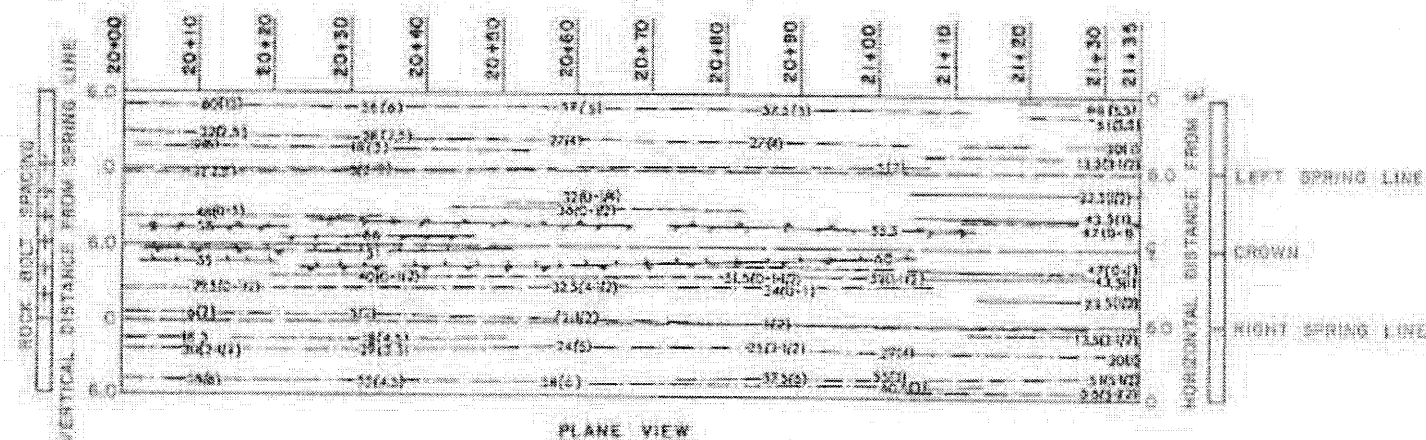
(Rev. 12 1/03)



PERRY NUCLEAR POWER PLANT

Geologic Map of Tunnel Excavations

Figure 2.5-47 (Sheet 23 of 24)



Excavation Address	Excavation Address
20+00	20+00
20+10	20+10
20+20	20+20
20+30	20+30
20+40	20+40
20+50	20+50
20+60	20+60
20+70	20+70
20+80	20+80
20+90	20+90
21+00	21+00
21+10	21+10
21+20	21+20
21+30	21+30
21+40	21+40

Excavation Address
ESTIMATED ROCK CONDITION (TERZAUGH NO.)
TEMPORARY SUPPORT SYSTEM
BEDDING SPACING
FRACTURE SPACING
WATER CONDITION
DEPTH OF COVER

- SYMBOLS**
- HARD, TAN, BROWN, CHERTY, IRON BED OR LAMINAE
 - DISCONTINUOUS IRON BED
 - HARD, LIGHT GREY, SANDY SHALE TO SILTSTONE BED
 - DISCONTINUOUS IRON BED WITHIN GREY BED
 - FRACTURE
 - FAULT
 - BEDDING PARTING
 - VERTICAL JOINT
 - INCLINED JOINT
 - BEDDING, STRIKE AND DIP
 - WHISTLE ALONG BEDDING PARTING
 - SEEPAGE FROM FEATURE
 - OVEREXCAVATION OR OVERBREAK ZONE, MAXIMUM AMOUNT SHOWN

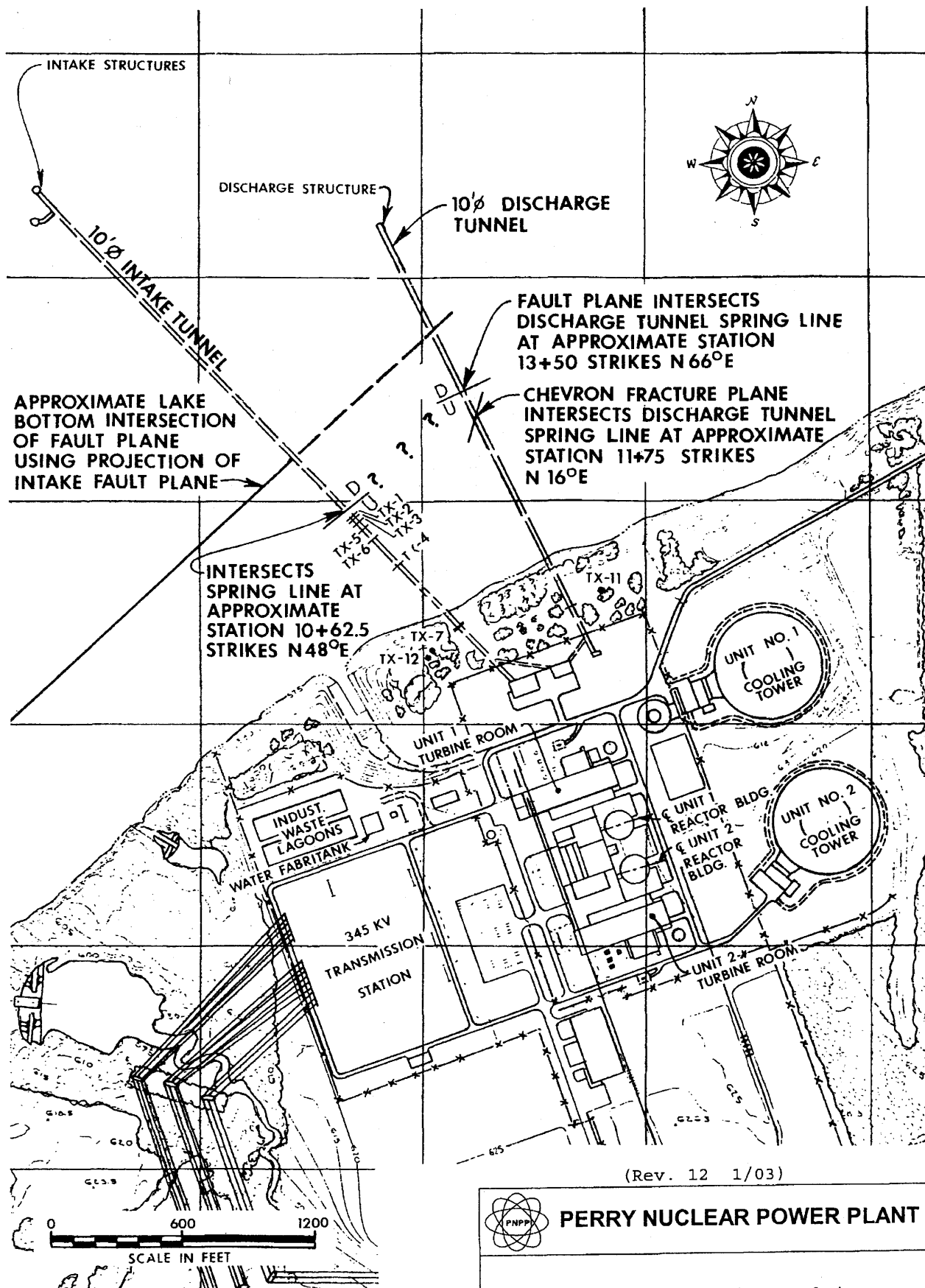
Note:
Number(s) in parentheses indicates bed thickness.
Number preceding parenthesis indicates inches above or below spring line of station of measurement.

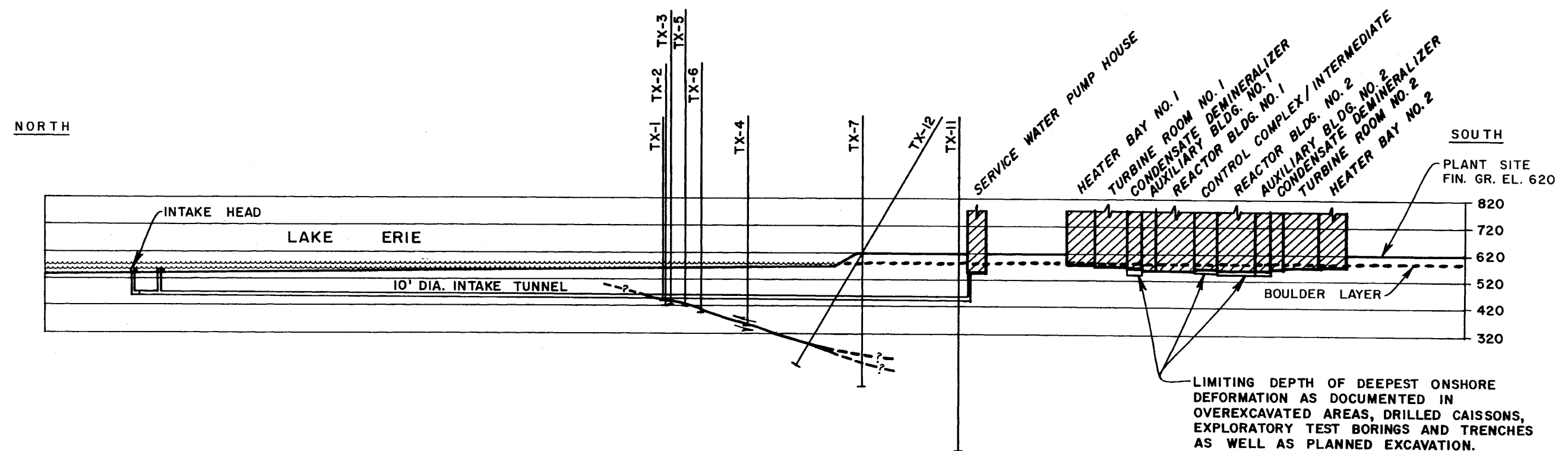
(Rev. 12 1/03)

PERRY NUCLEAR POWER PLANT


Geologic Map of Tunnel Excavations

Figure 2.5-47 (Sheet 24 of 24)





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 **PERRY NUCLEAR POWER PLANT**

Schematic Northwest -
Southeast Cross Section

Figure 2.5-49