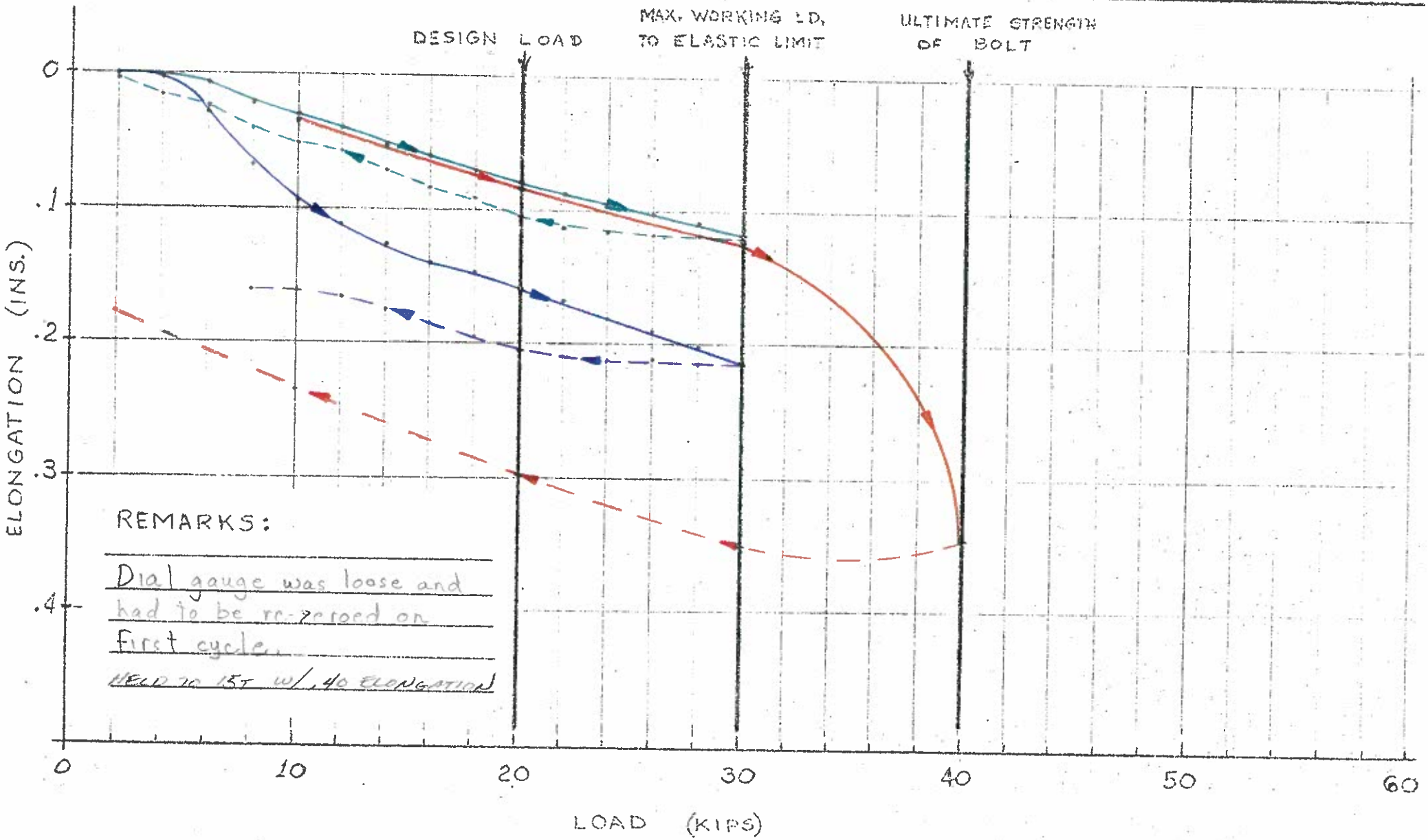
WEST PORTAL STA.

ROCK BOLT NO. 3a

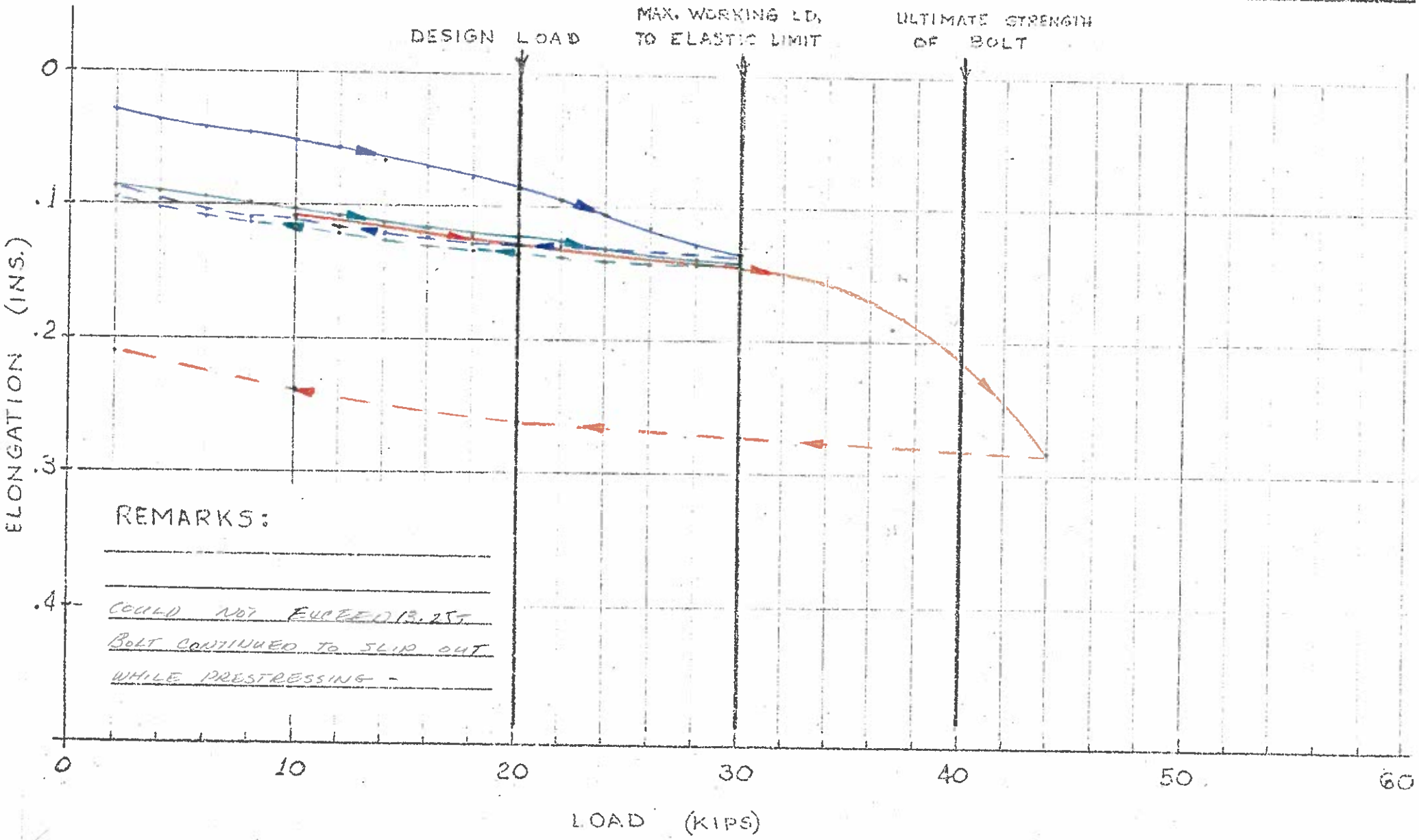
TORQUE ON BOLT TO EXPAND SHELL 250 FT.-LBS.



WEST PORTAL _____ STA. _____

ROCK BOLT NO. 1A

TORQUE ON BOLT TO EXPAND SHELL 250 FT.-LBS.



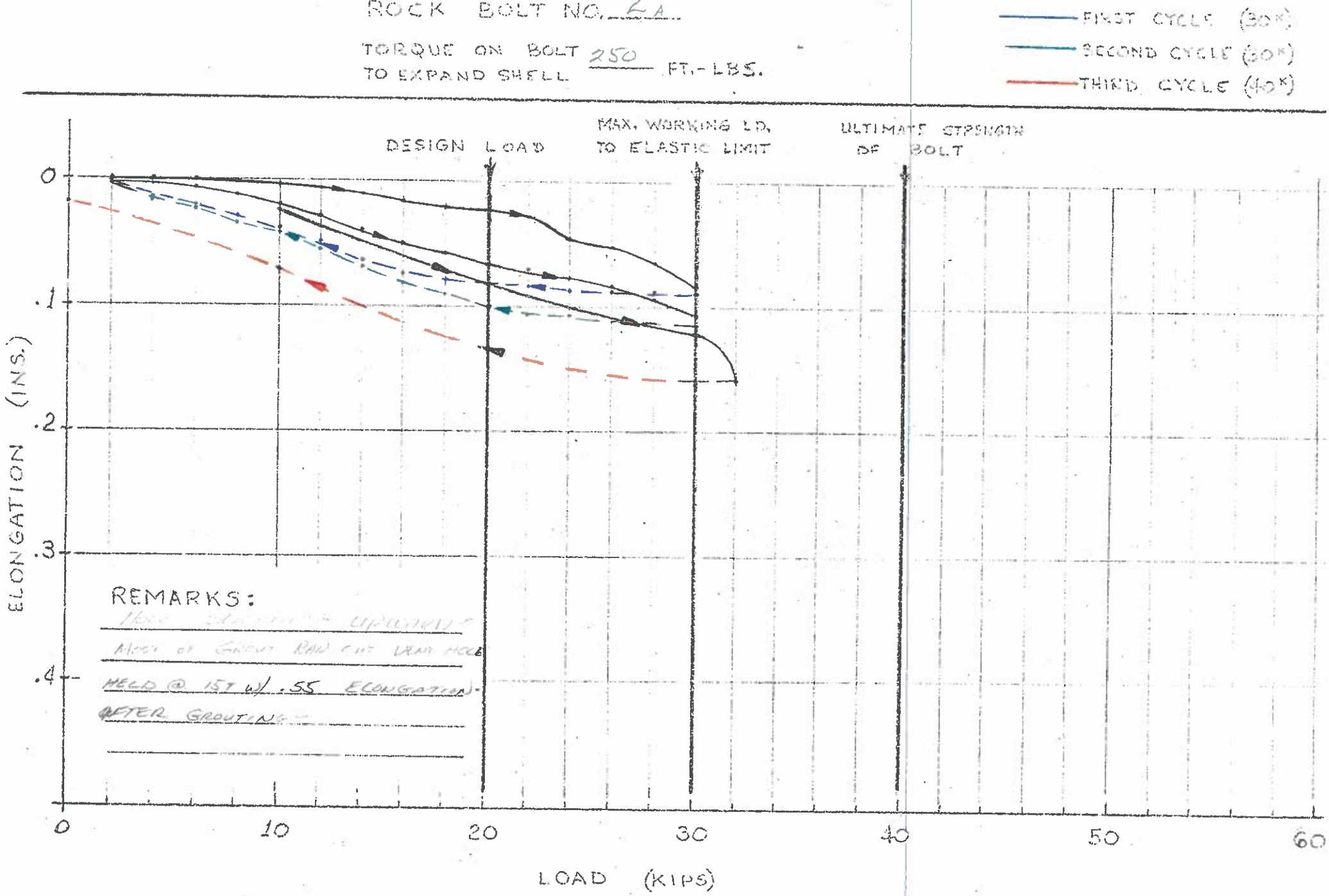
REMARKS:

COULD NOT EXCEED 13.25T.
BOLT CONTINUED TO SLIP OUT
WHILE PRESTRESSING -

A WEST PORTAL _____ STA. _____

ROCK BOLT NO. 2A

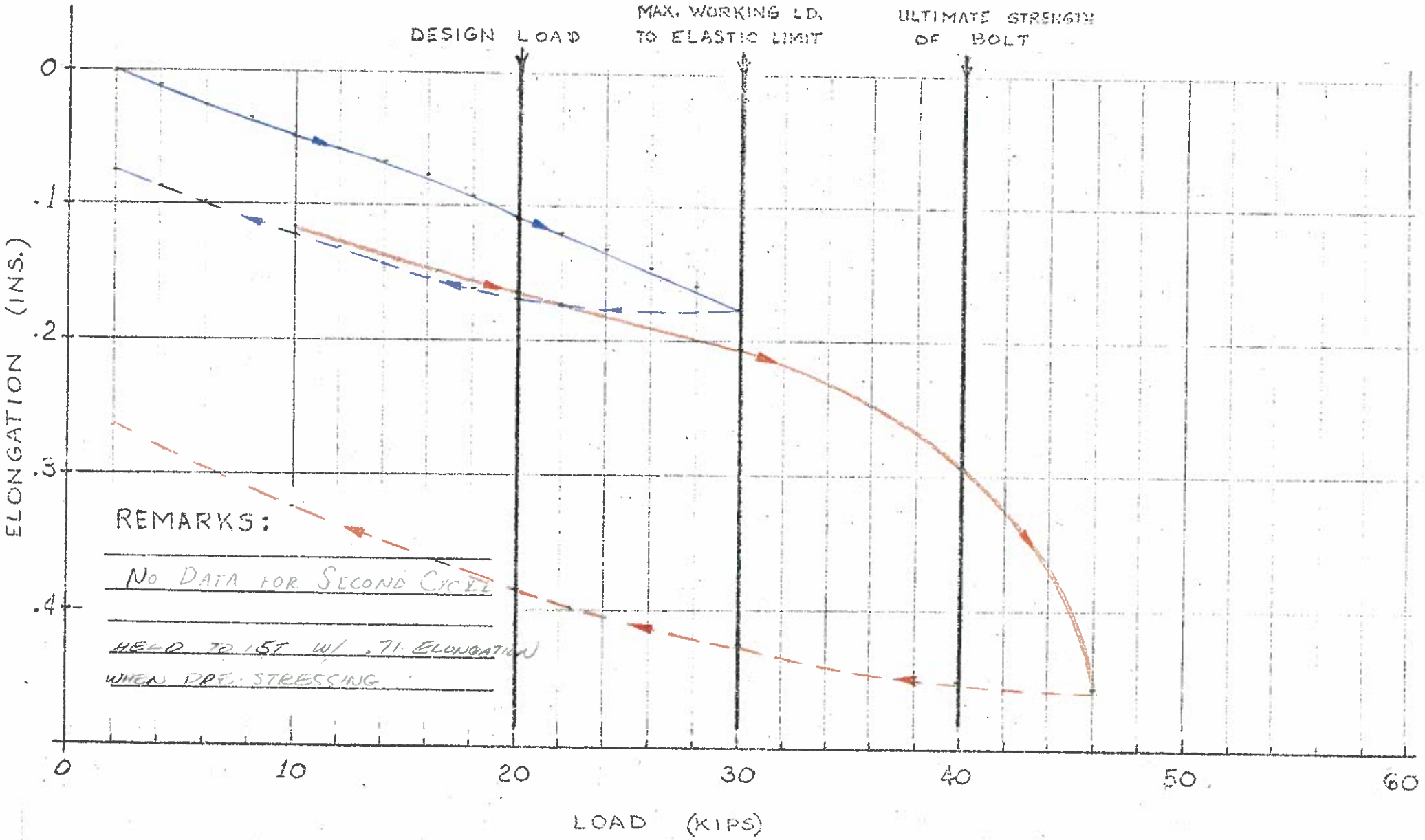
TORQUE ON BOLT 250 FT.-LBS.
TO EXPAND SHELL



WEST PORTAL STA.

ROCK BOLT NO. 4a

TORQUE ON BOLT TO EXPAND SHELL 250 FT.-LBS.



REMARKS:

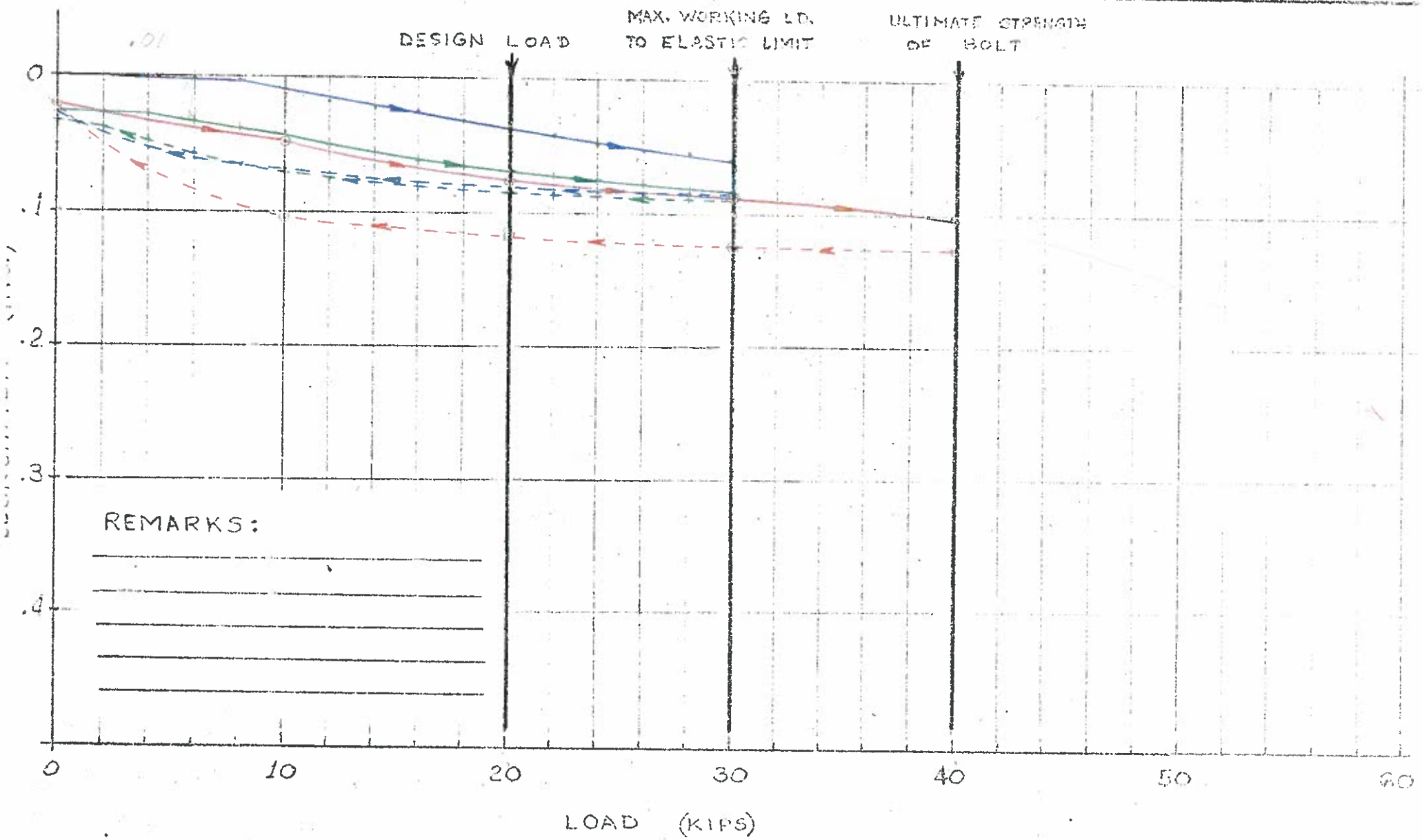
No DATA FOR SECOND CYCLE

HELD TO 1ST W/ .71 ELONGATION WHEN DRF. STRESSING

WEST PORTAL 12' LT STA. 1777+10±

ROCK BOLT NO. 1

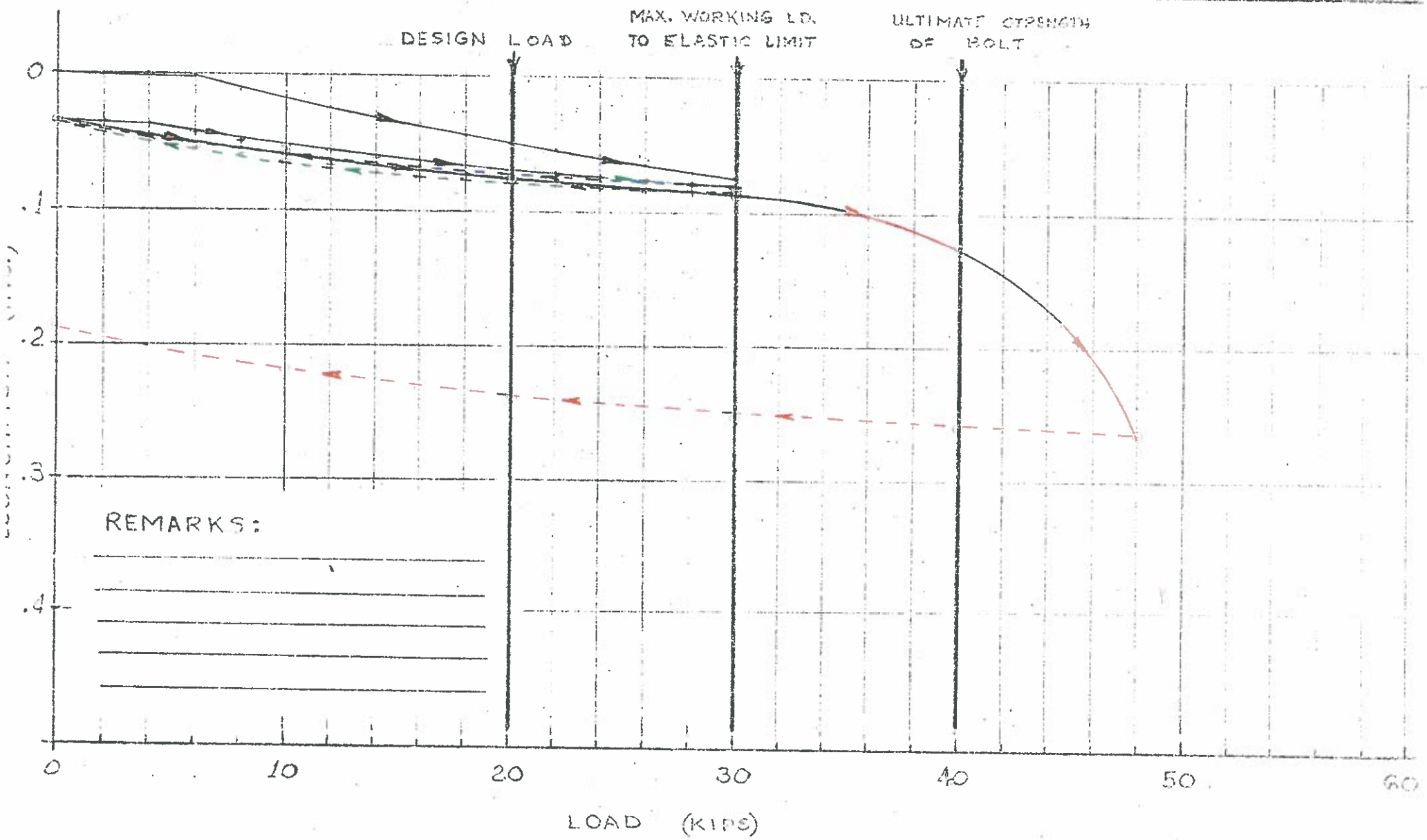
TORQUE ON BOLT TO EXPAND SHELL 140 FT.-LBS.



WEST PORTAL ℄ STA. [illegible]

ROCK BOLT NO. 2

TORQUE ON BOLT 210 FT.-LBS.
TO EXPAND SHELL

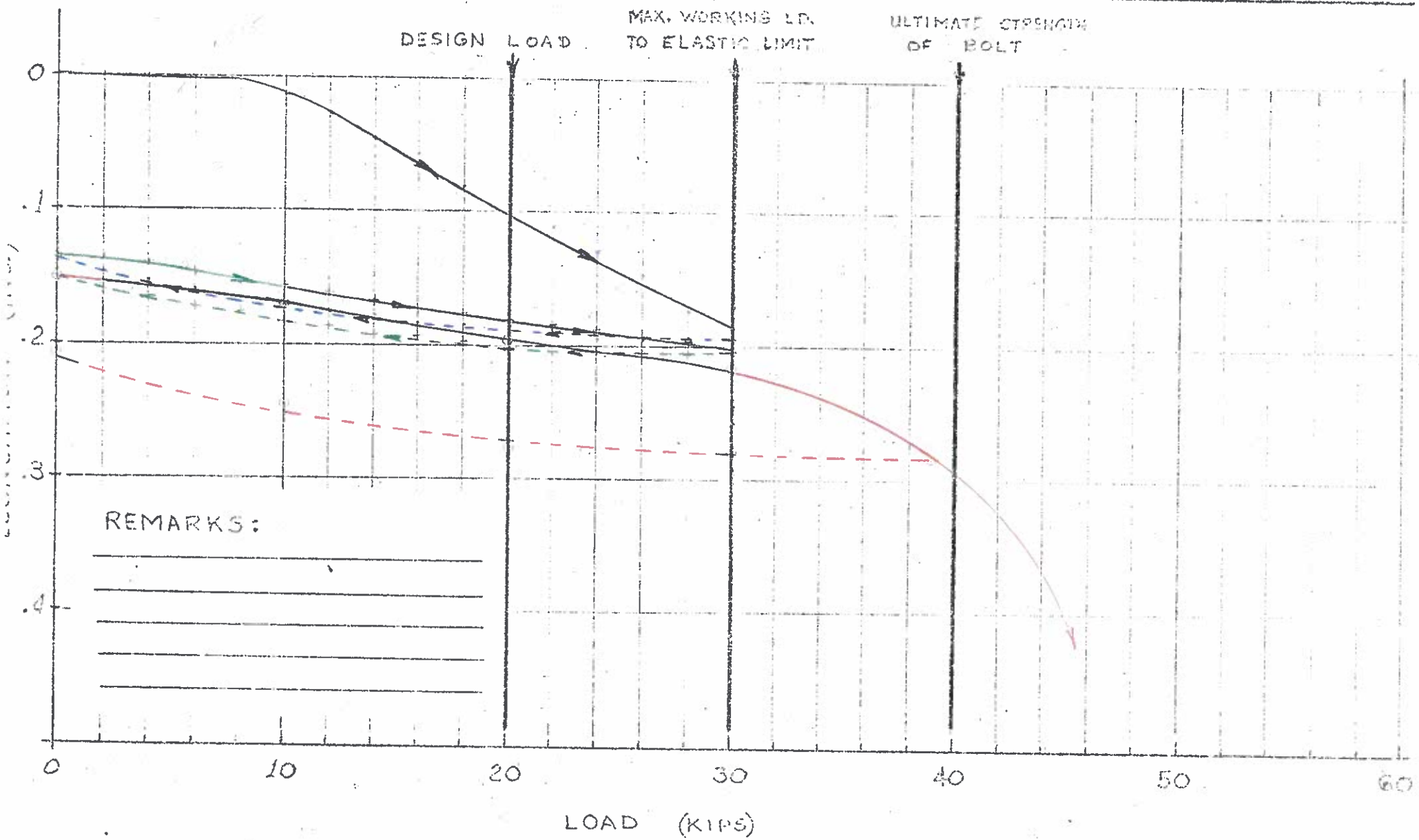


WEST PORTAL 15' RT STA. [illegible]

ROCK BOLT NO. 3

TORQUE ON BOLT TO EXPAND SHELL 240 FT.-LBS.

FIRST CYCLE (30K)
SECOND CYCLE (40K)
THIRD CYCLE (40K)

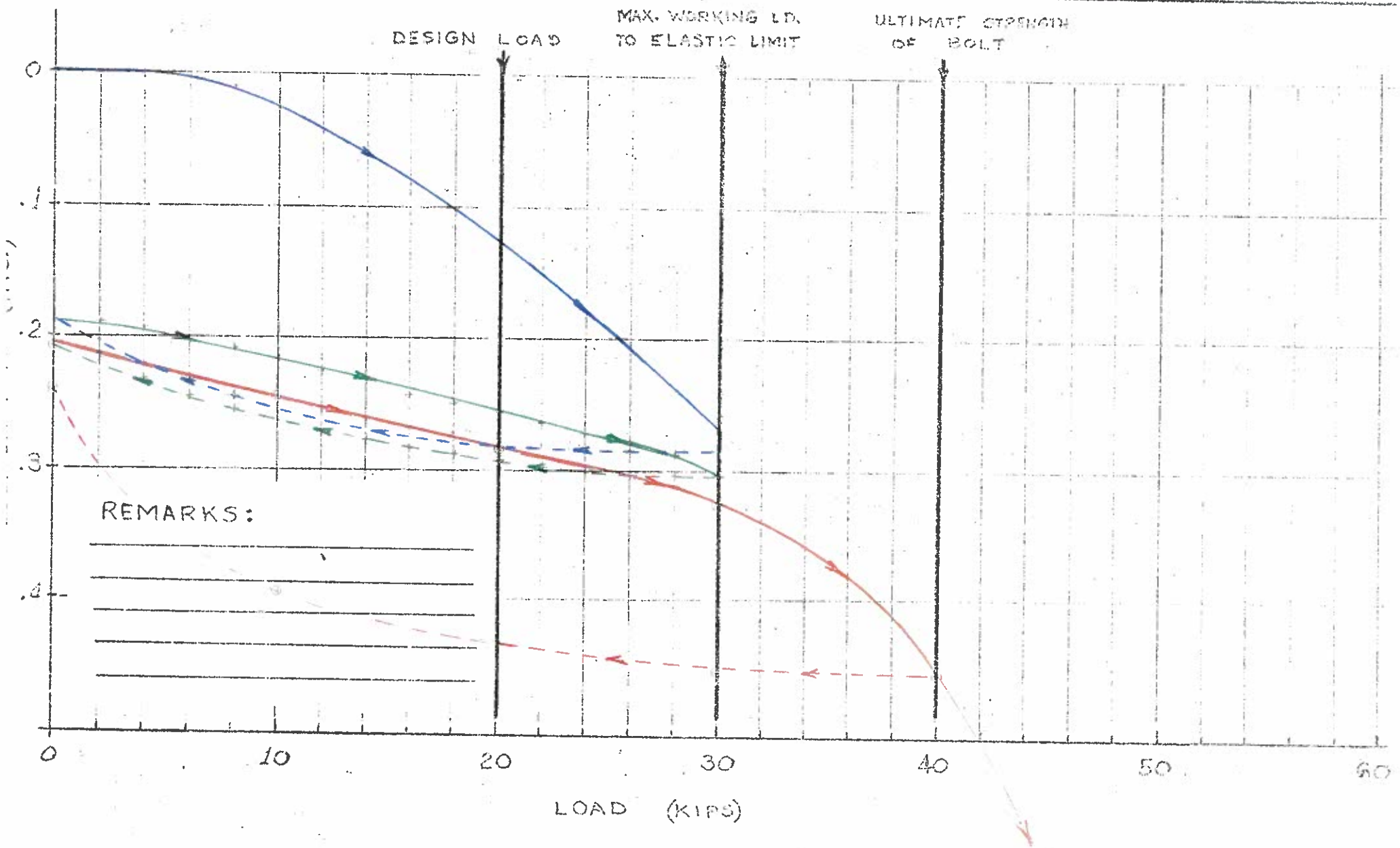


REMARKS:

WEST PORTAL 93' RT STA. _____

ROCK BOLT NO. 4

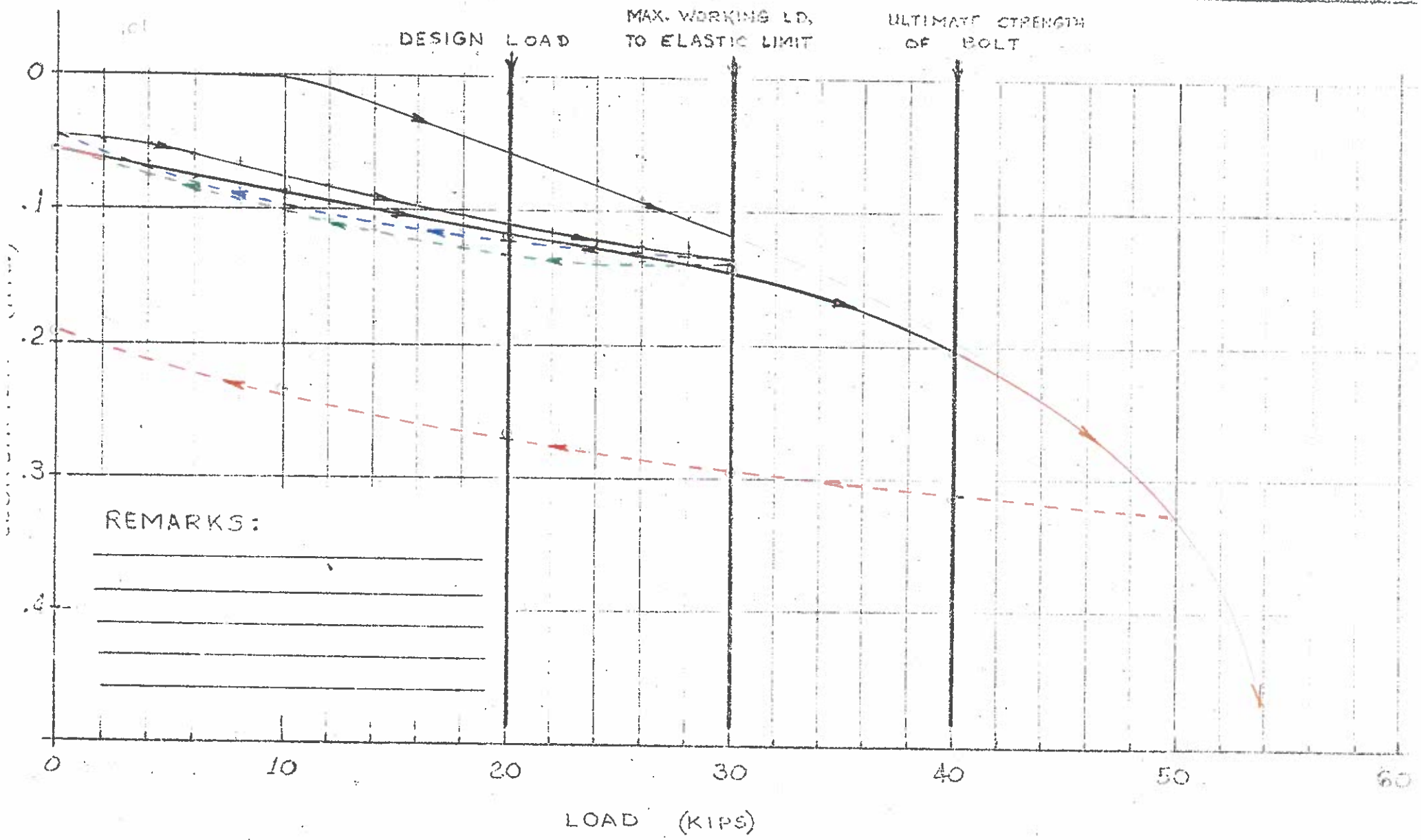
TORQUE ON BOLT TO EXPAND SHELL 240 FT.-LBS.



WEST PORTAL 122' RT STA. _____

ROCK BOLT NO. 5

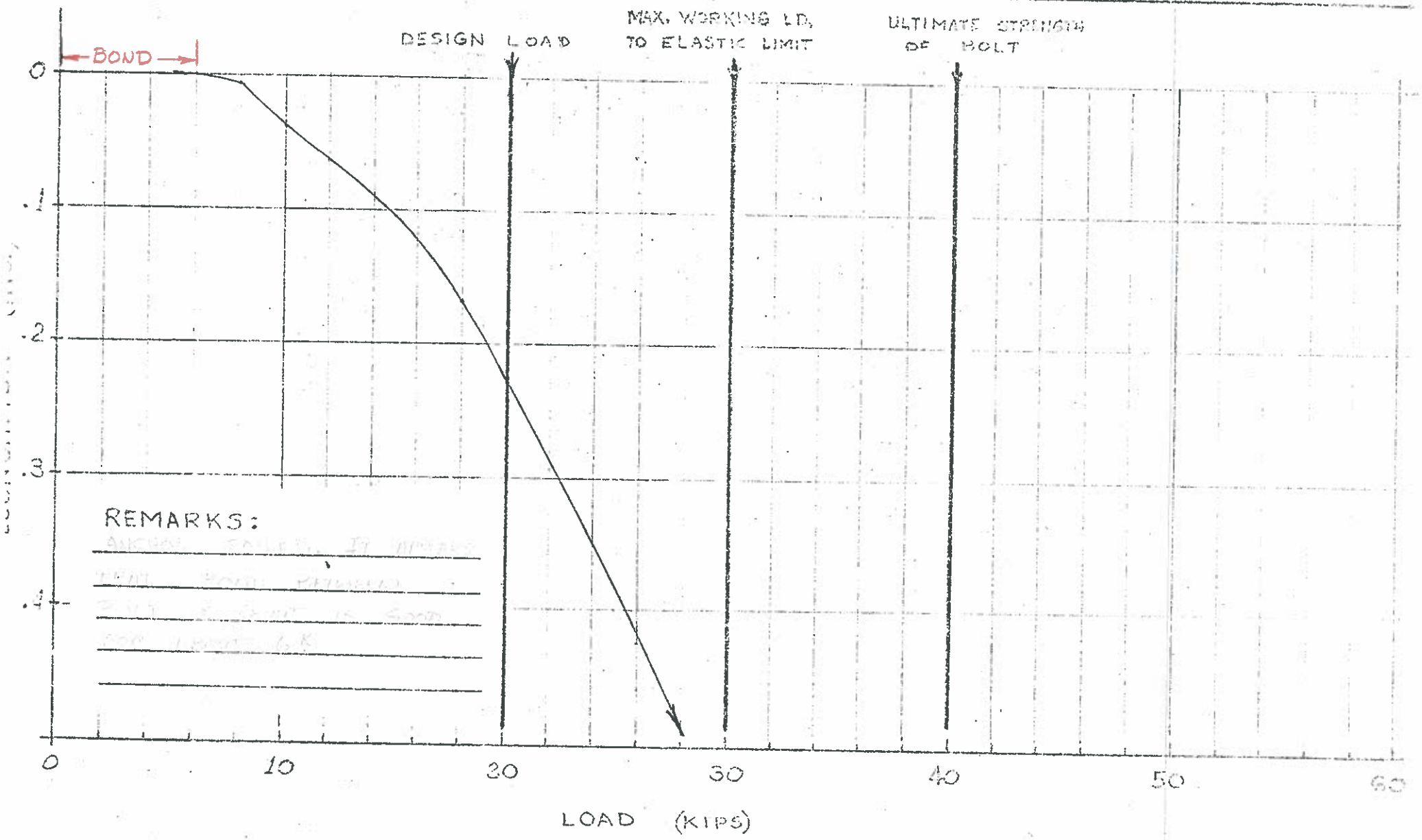
TORQUE ON BOLT TO EXPAND SHELL 260 FT.-LBS.



EAST PORTAL 91' RT STA. _____

ROCK BOLT NO. 2

TORQUE ON BOLT TO EXPAND SHELL 195 FT.-LBS.



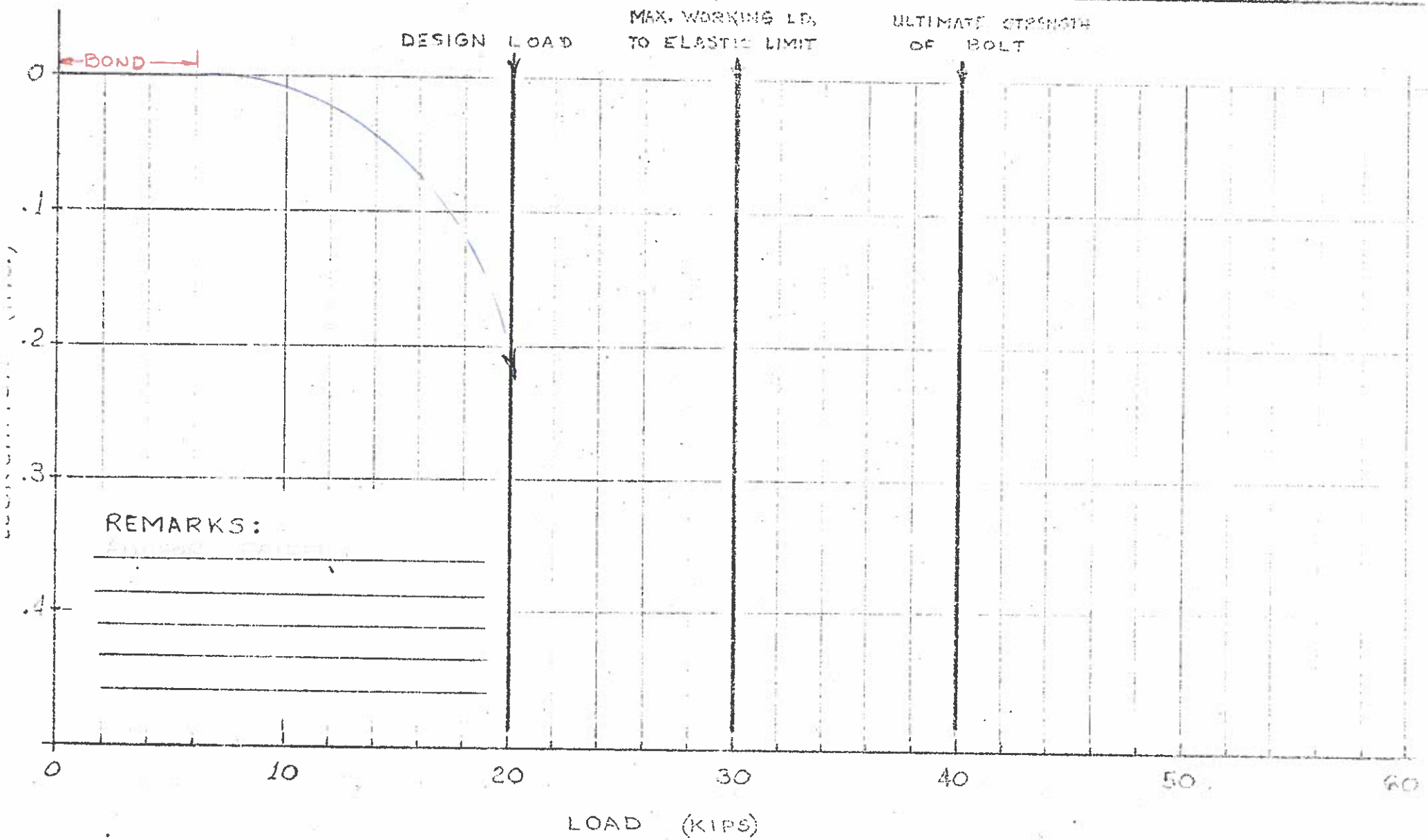
REMARKS:

LAST PORTAL 67' RT STA. _____

ROCK BOLT NO. 3

TORQUE ON BOLT TO EXPAND SHELL 260 FT.-LBS.

FIRST CYCLE (60K)
SECOND CYCLE (60K)
THIRD CYCLE (60K)

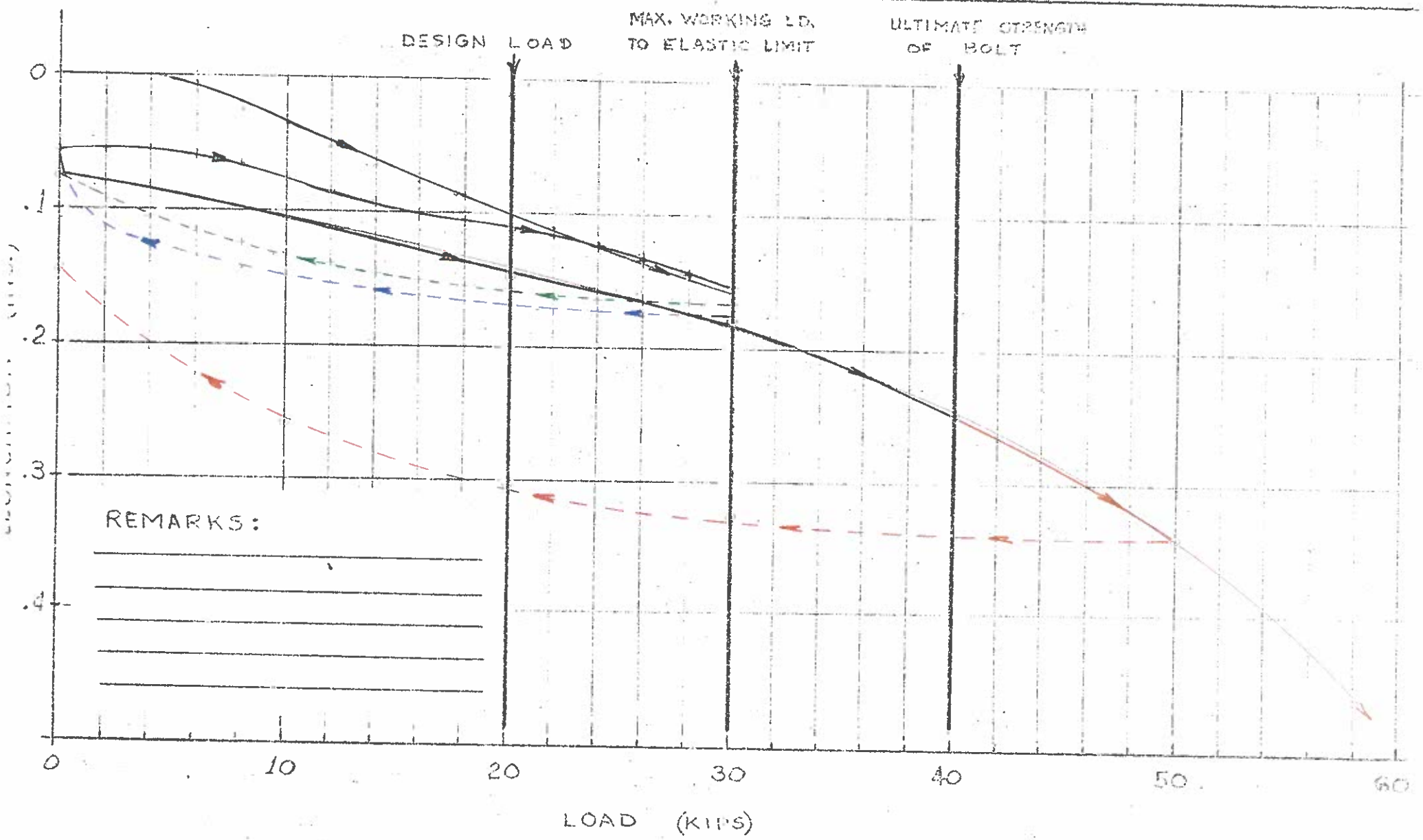


REMARKS:

EAST PORTAL 15' RT STA.

ROCK BOLT NO. 4

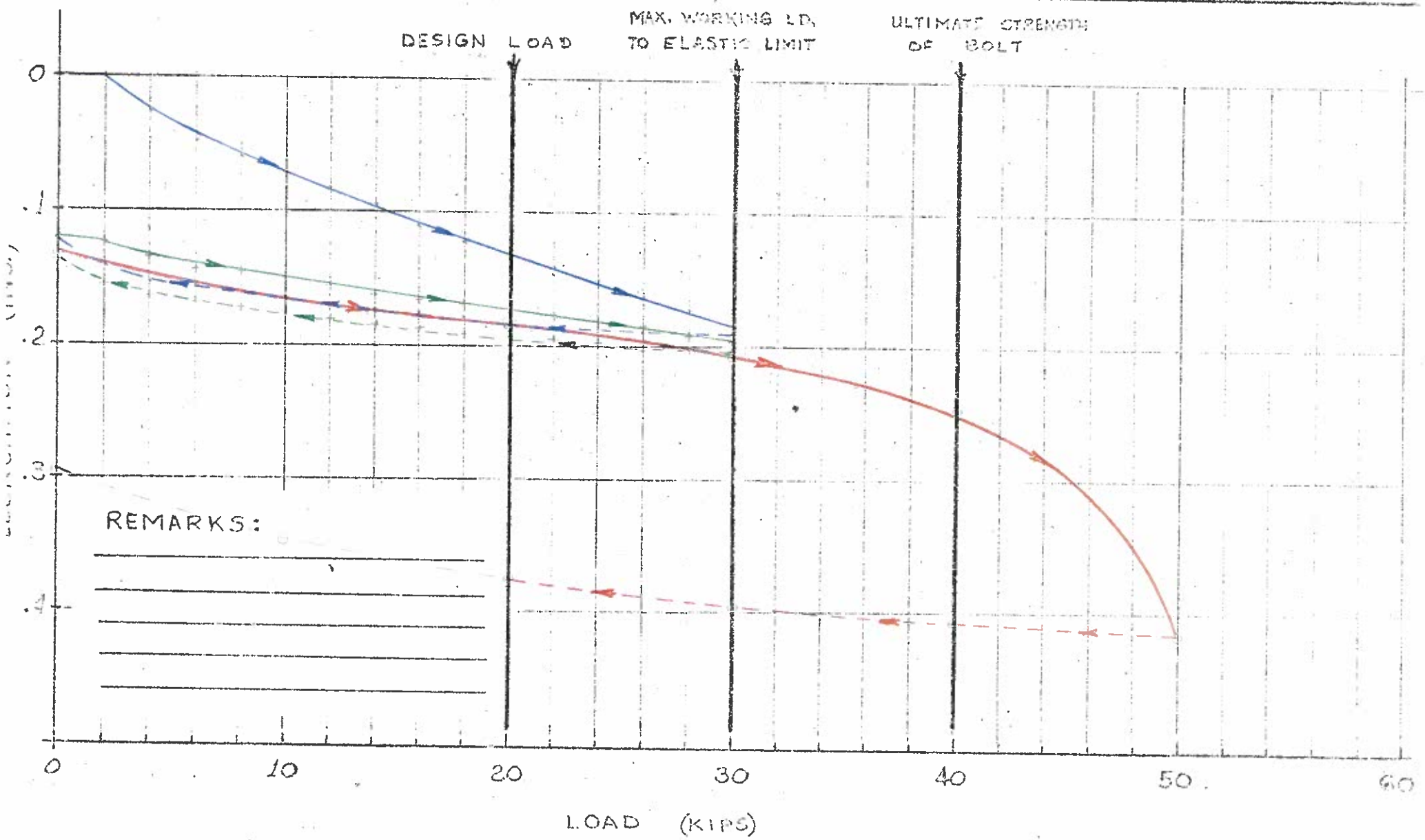
TORQUE ON BOLT TO EXPAND SHELL 240 FT.-LBS.



0 EAST PORTAL ℄ STA.

ROCK BOLT NO. 5

TORQUE ON BOLT TO EXPAND SHELL 240 FT.-LBS.

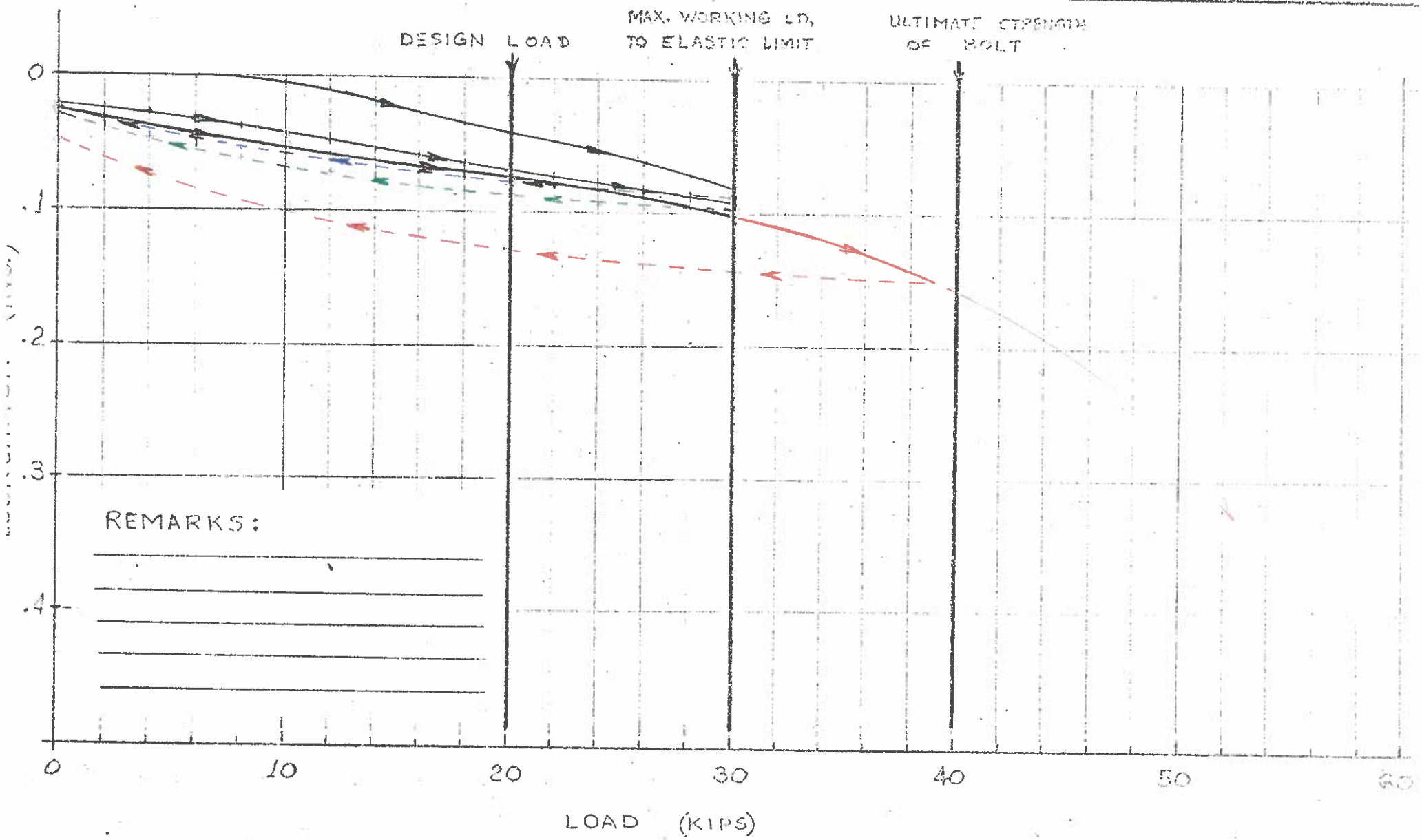


EAST PORTAL 15' AT STA.

ROCK BOLT NO. 6

TORQUE ON BOLT TO EXPAND SHELL 240 FT.-LBS.

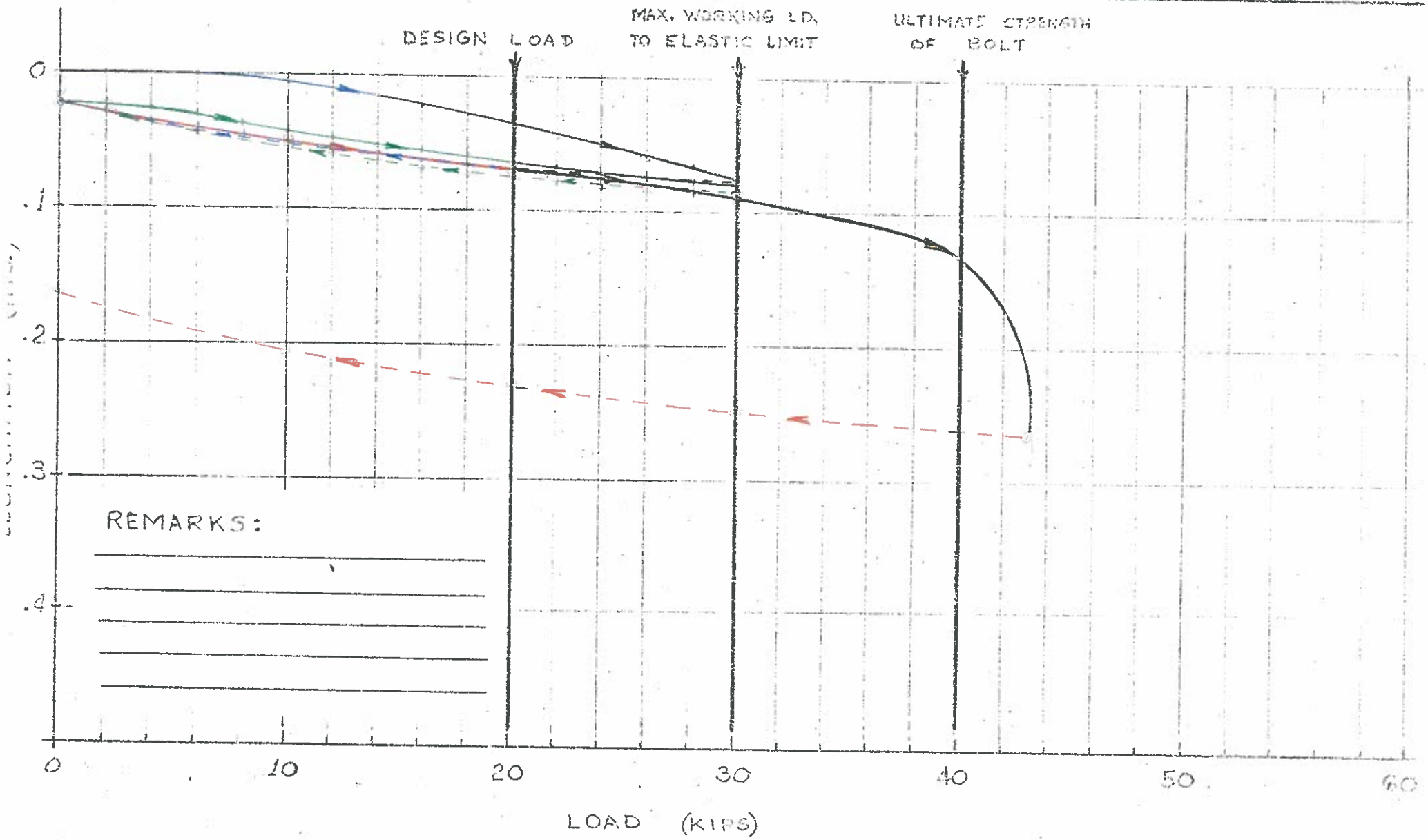
FIRST CYCLE (30K)
SECOND CYCLE (20K)
THIRD CYCLE (40K)



0 EAST PORTAL 67' 6T STA. _____

ROCK BOLT NO. 7

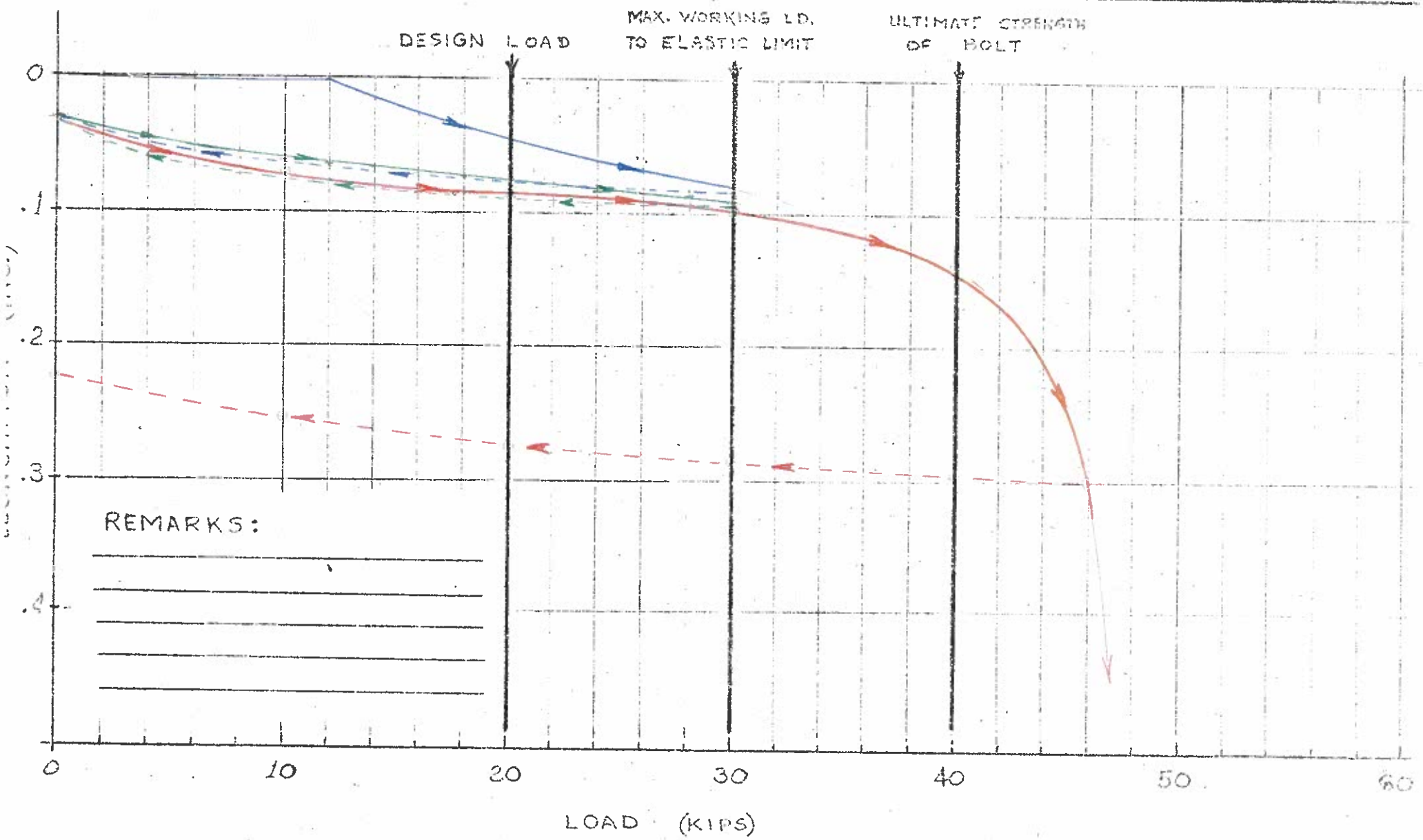
TORQUE ON BOLT TO EXPAND SHELL 240 FT.-LBS.



0 EAST PORTAL 21' WT STA.

ROCK BOLT NO. 8

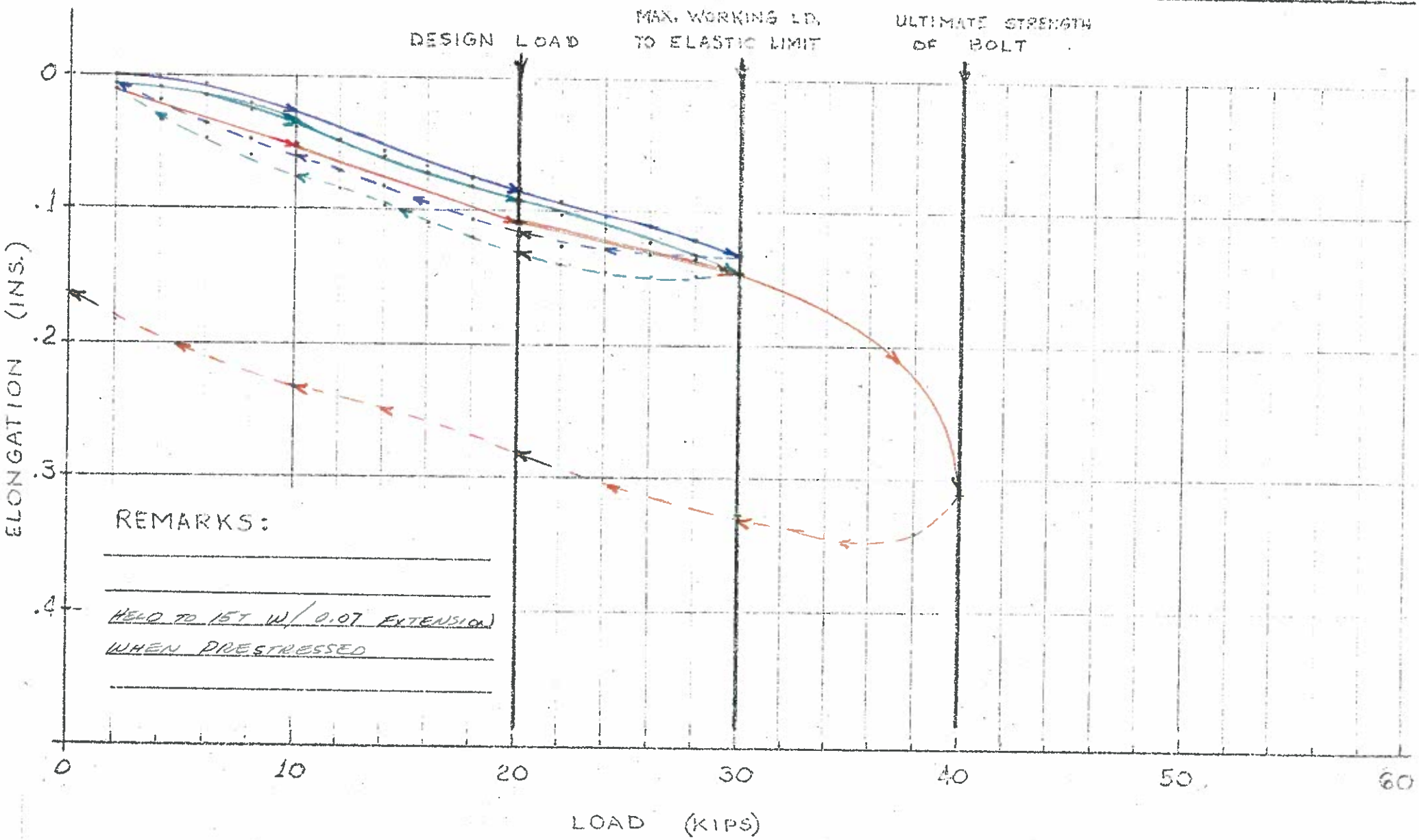
TORQUE ON BOLT TO EXPAND SHELL 260 FT.-LBS.



A EAST PORTAL _____ STA. _____

ROCK BOLT NO. #2A

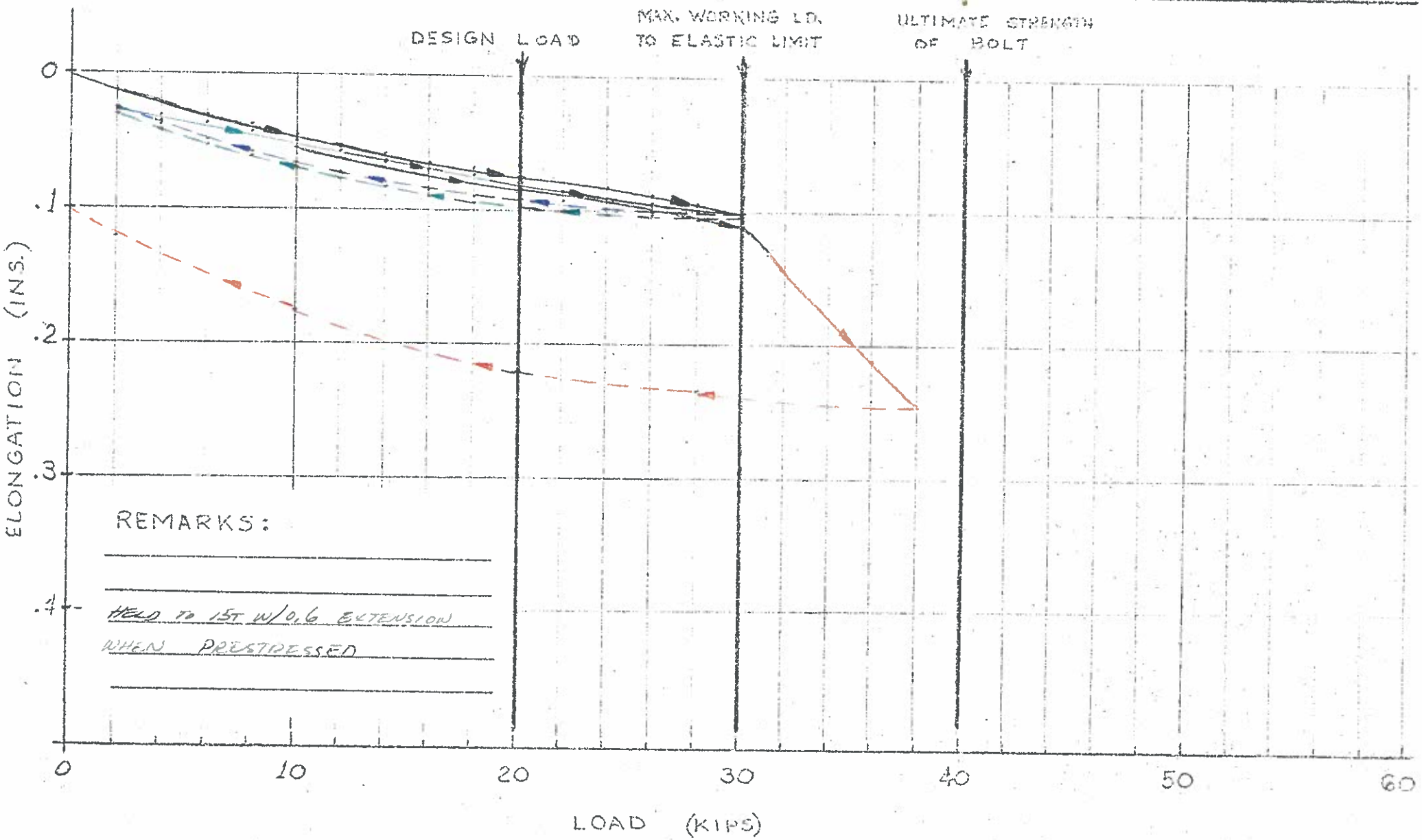
TORQUE ON BOLT TO EXPAND SHELL _____ FT.-LBS.



EAST PORTAL _____ STA. _____

ROCK BOLT NO. 4A

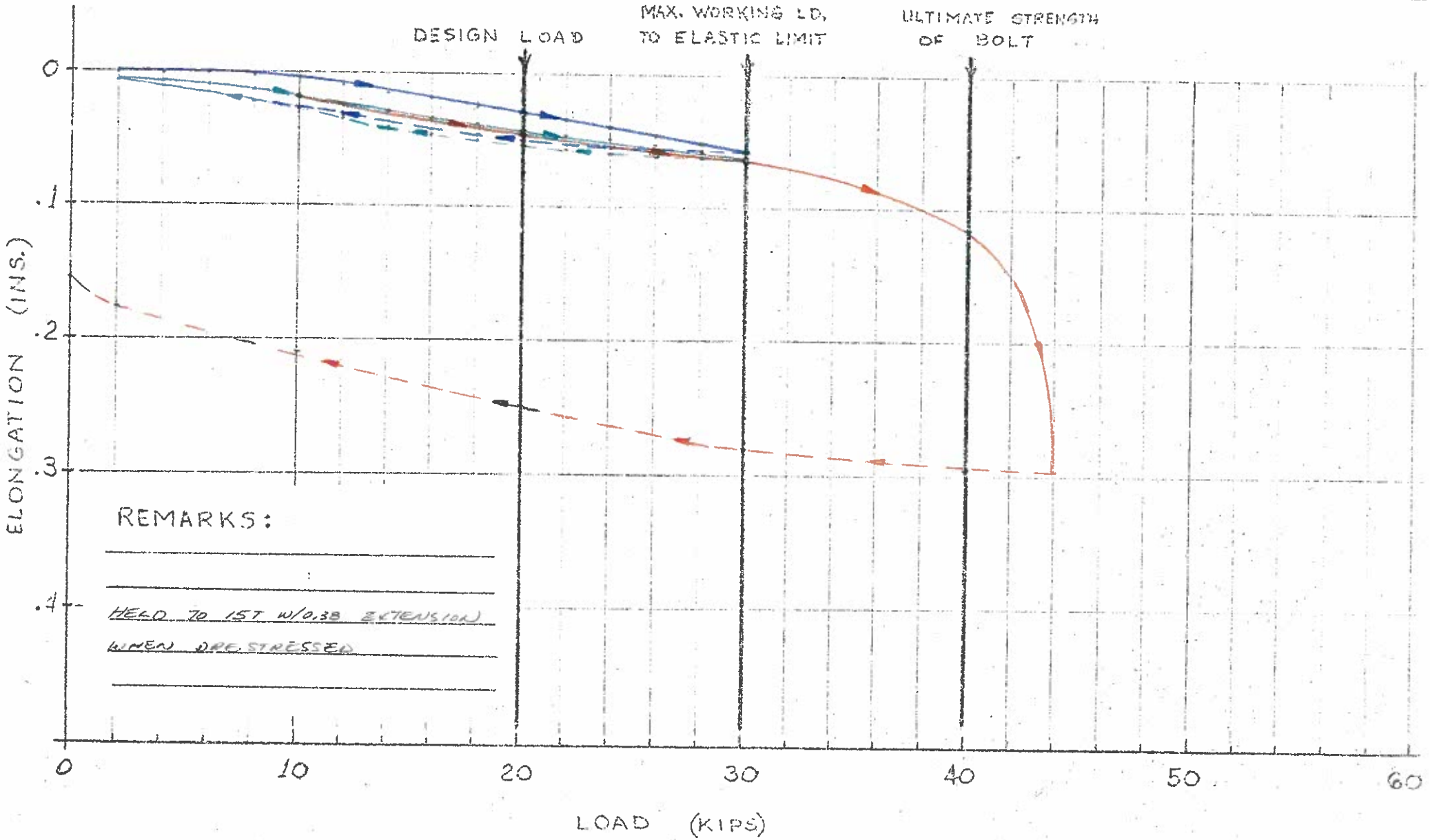
TORQUE ON BOLT TO EXPAND SHELL 250 FT.-LBS.



EAST PORTAL _____ STA. _____

ROCK BOLT NO. 5A

TORQUE ON BOLT
TO EXPAND SHELL _____ FT.-LBS.



REMARKS:

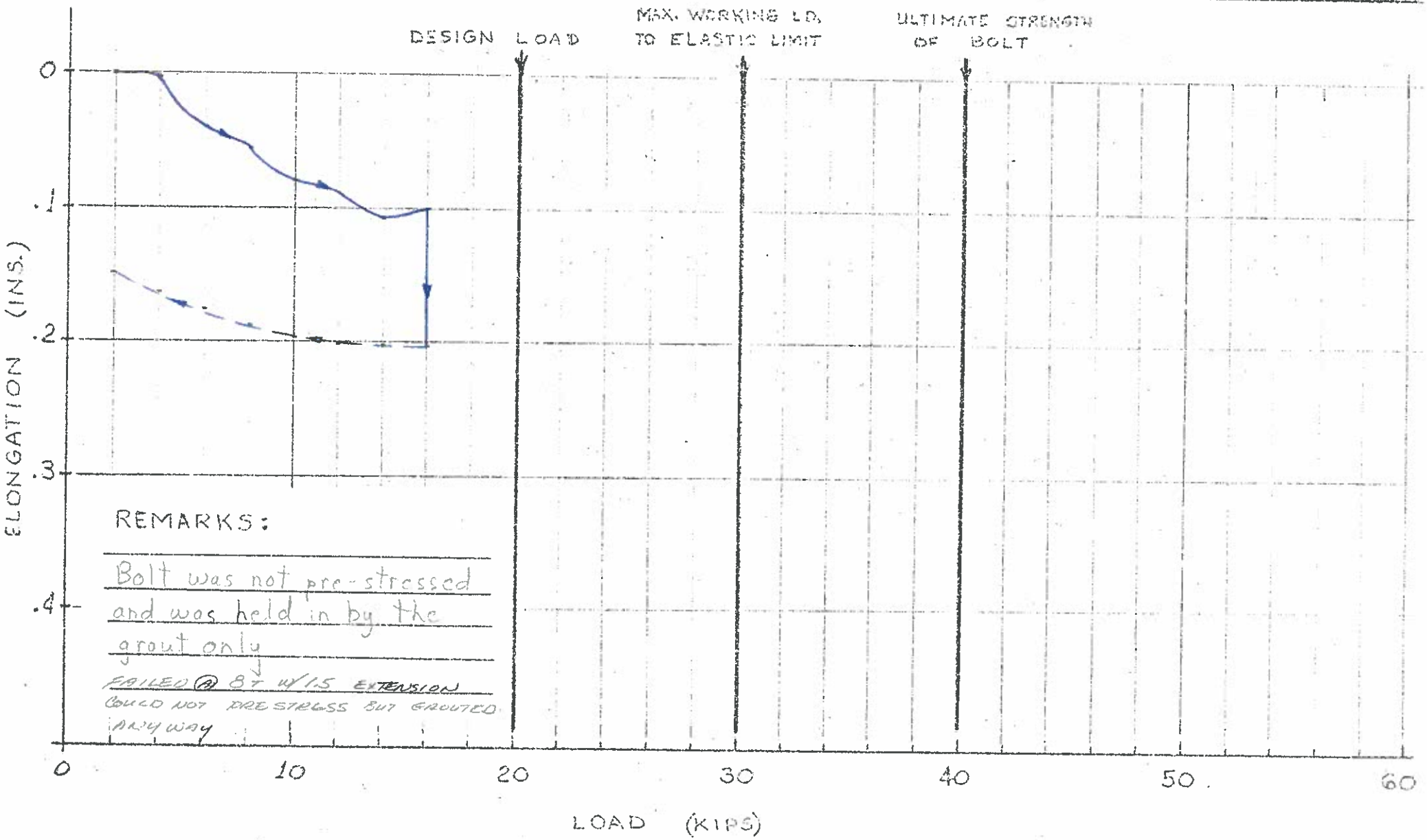
HELD TO 15T W/0.38 EXTENSION
WHEN DEC. STRESSED

EAST PORTAL STA.

ROCK BOLT NO. 6A

TORQUE ON BOLT TO EXPAND SHELL 0 FT.-LBS.

FIRST CYCLE (30K)
SECOND CYCLE (30K)
THIRD CYCLE (40K)



REMARKS:

Bolt was not pre-stressed and was held in by the grout only

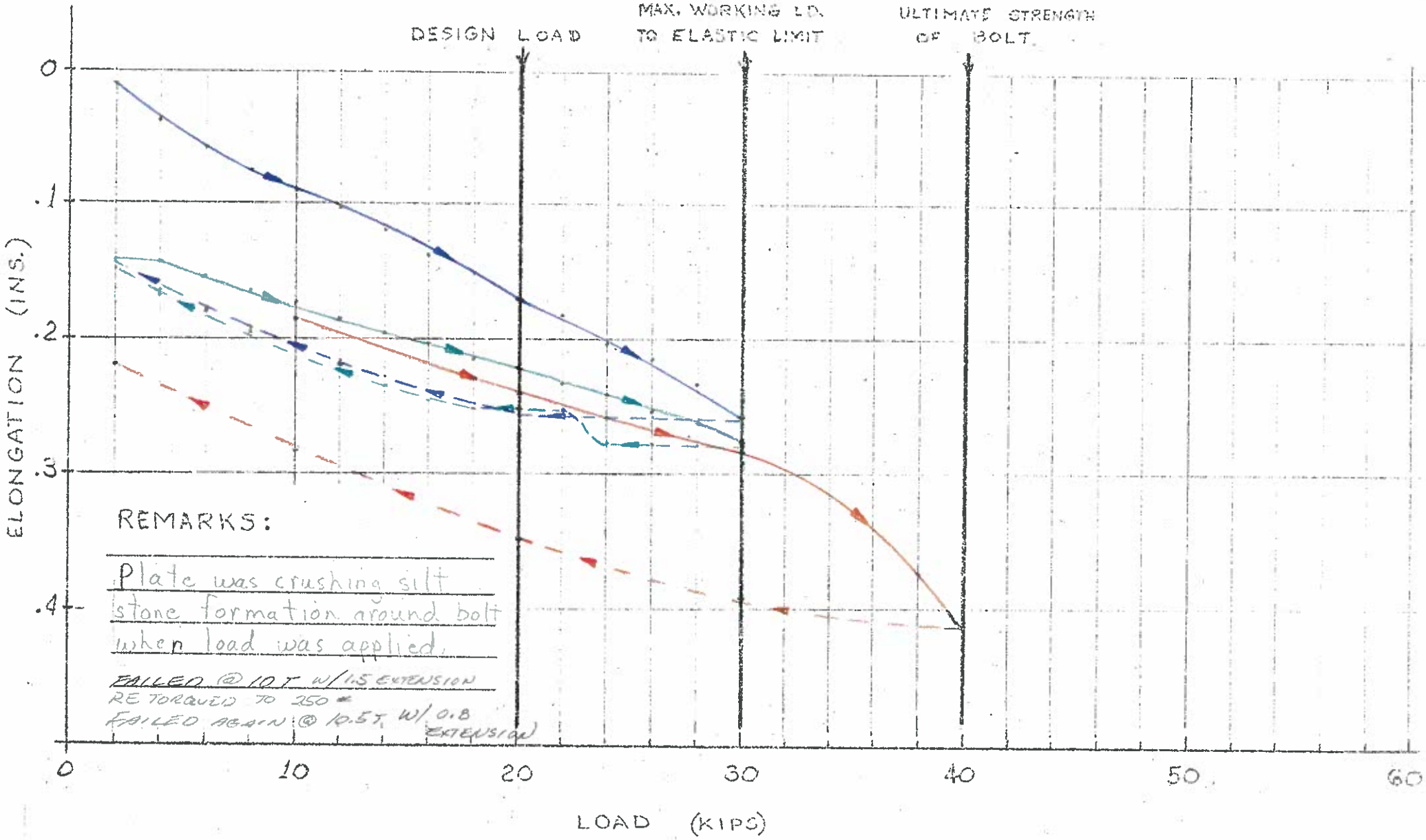
FAILED @ 8T W/1.5 EXTENSION

COULD NOT PRESTRESS BUT GROUTED ANYWAY

EAST PORTAL _____ STA. _____

ROCK BOLT NO. 7A

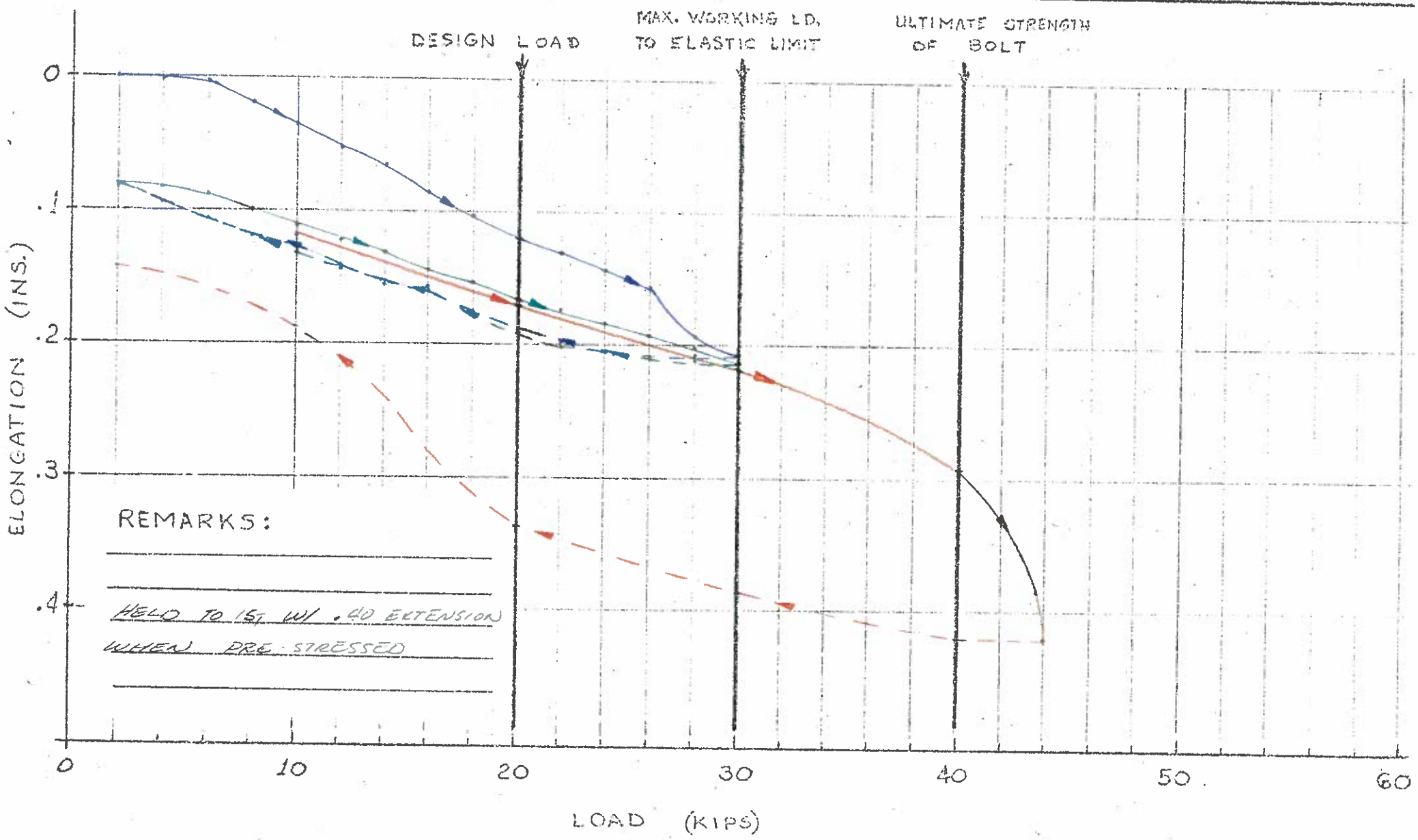
TORQUE ON BOLT TO EXPAND SHELL _____ FT.-LBS.



EAST PORTAL _____ STA. _____

ROCK BOLT NO. 8A ?

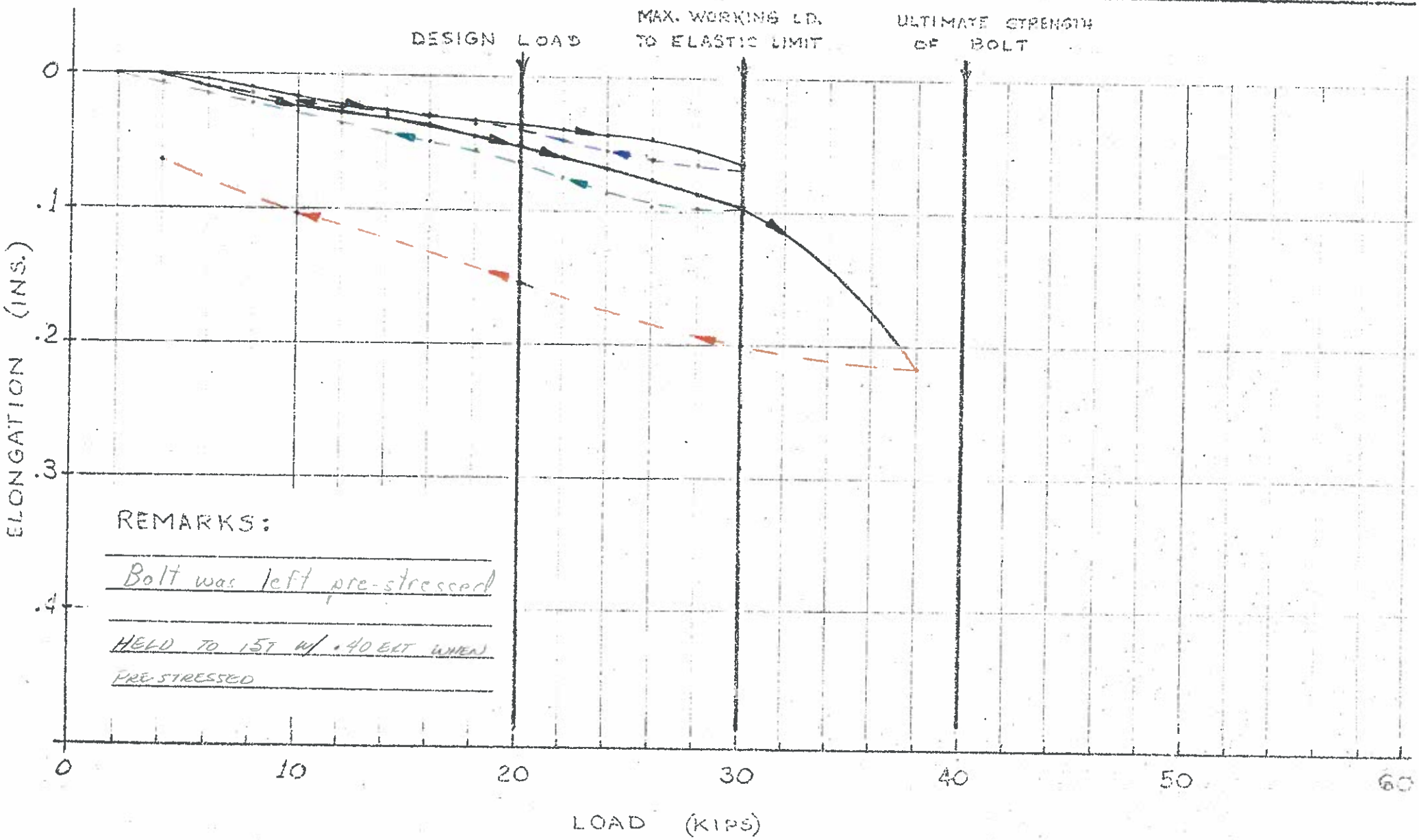
TORQUE ON BOLT TO EXPAND SHELL _____ FT.-LBS.



EAST PORTAL _____ STA. _____

ROCK BOLT NO. 9A

TORQUE ON BOLT TO EXPAND SHELL _____ FT.-LBS.



Rock Bolt Tests
Carlin Canyon

(Pre-Stressed Installation)

1. Holes shall be drilled accurately to 9', & shall be cleaned by an air jet of all drill cuttings & debris before the rock bolt is inserted.

2. The bolt shall be inserted & the anchorage set by applying 200 ft-lb torque on end of bolt.

3. The grout bearing pad shall be formed & set & the bearing plate positioned. Beveled washers shall be placed as required between the bearing plate & the nut to ensure a bearing surface normal to the bolt axis.

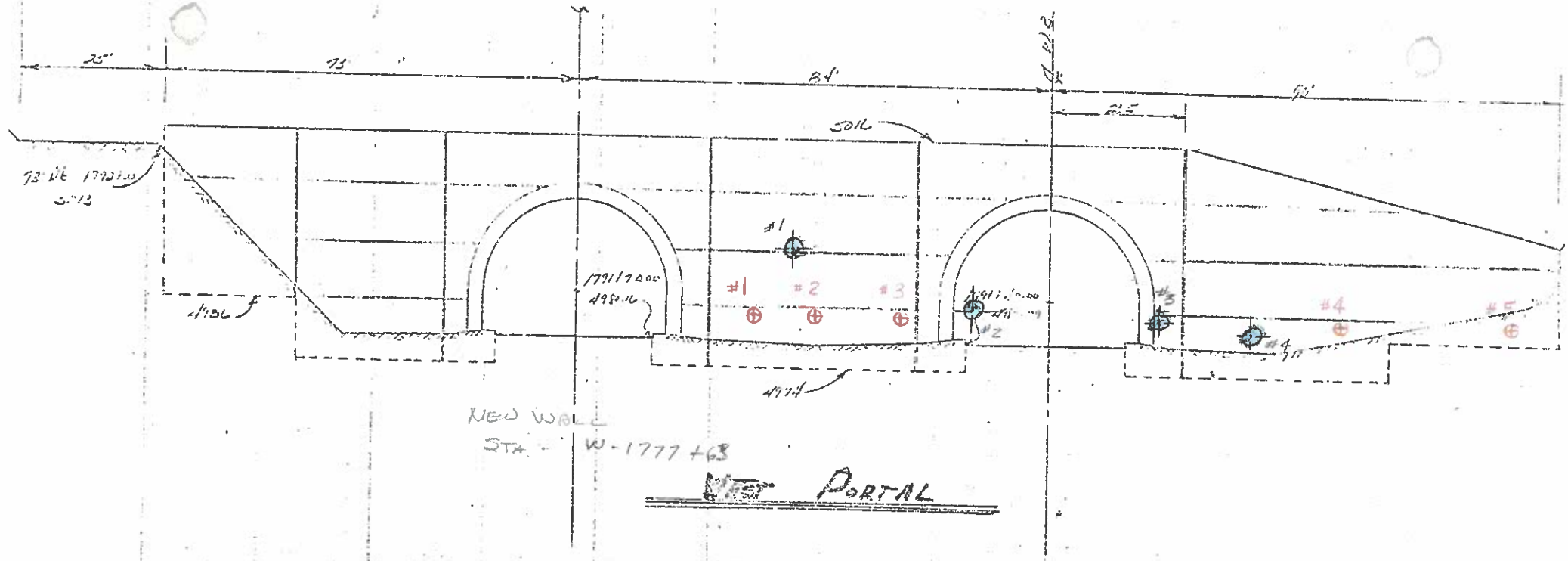
4. A steel washer shall immediately precede the nut, & a lubricant shall be used between the nut & washer. All threads shall be free of rust, burrs & foreign matter & shall be well lubricated before the nut is placed on the bolt. The nut shall be free running.

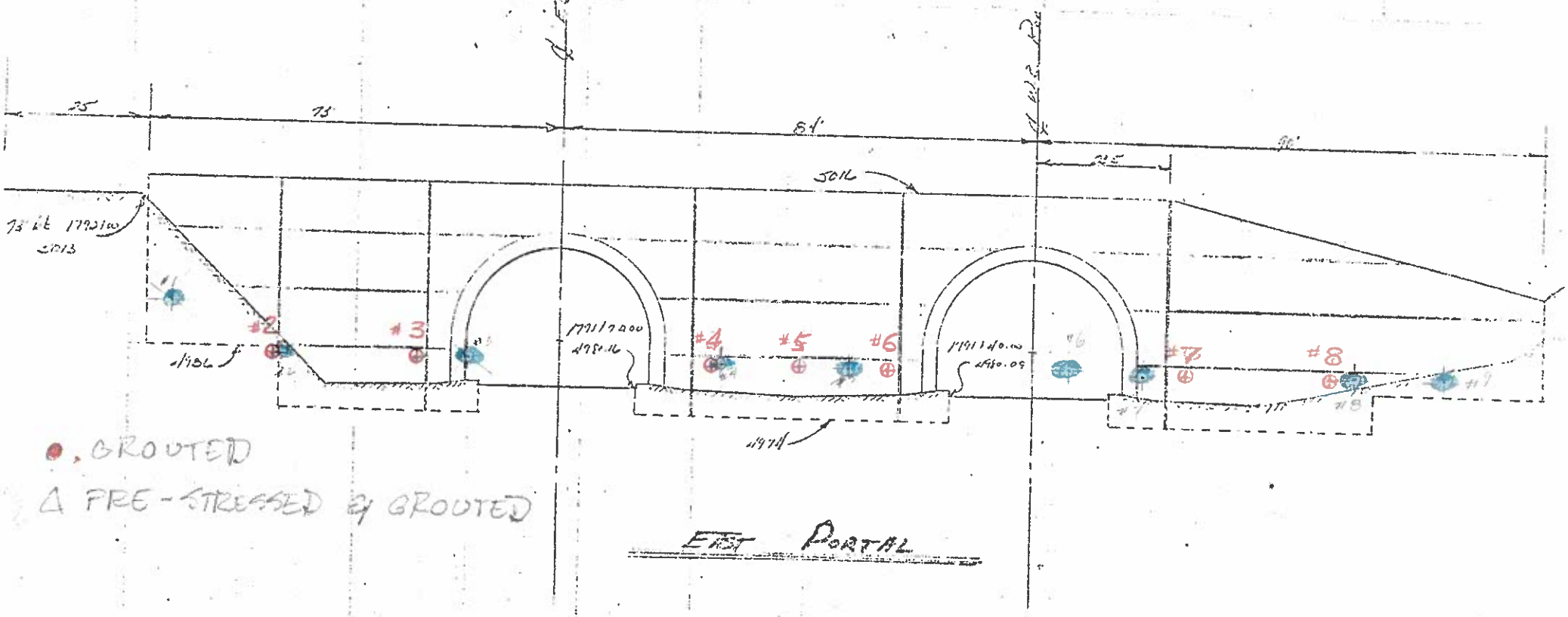
5. The bolt shall be loaded to 30^k by direct pull using a center hole jack. (this can be checked by torque & if acceptable other bolts may be tensioned by torque) Once a bolt has been tensioned without elongating more than 3/4 in, the tension shall not be relaxed.

6. Any bolt that will not take the required tension without exceeding a 3/4" anchorage slip & elongation shall be replaced.

7. A final check will be made & retightening shall be performed immediately before each bolt is grouted.

8. Bolts will be grouted as in the past.


25'
73'
84'
SOIL
#1
#2
#3
#4
#5
NEW WALL
STA. W-1777+63
WEST PORTAL


25'
73'
84'
SOIL
#2
#3
#4
#5
#6
#7
#8
● GROUTED
△ FRE-STRESSED & GROUTED
EAST PORTAL

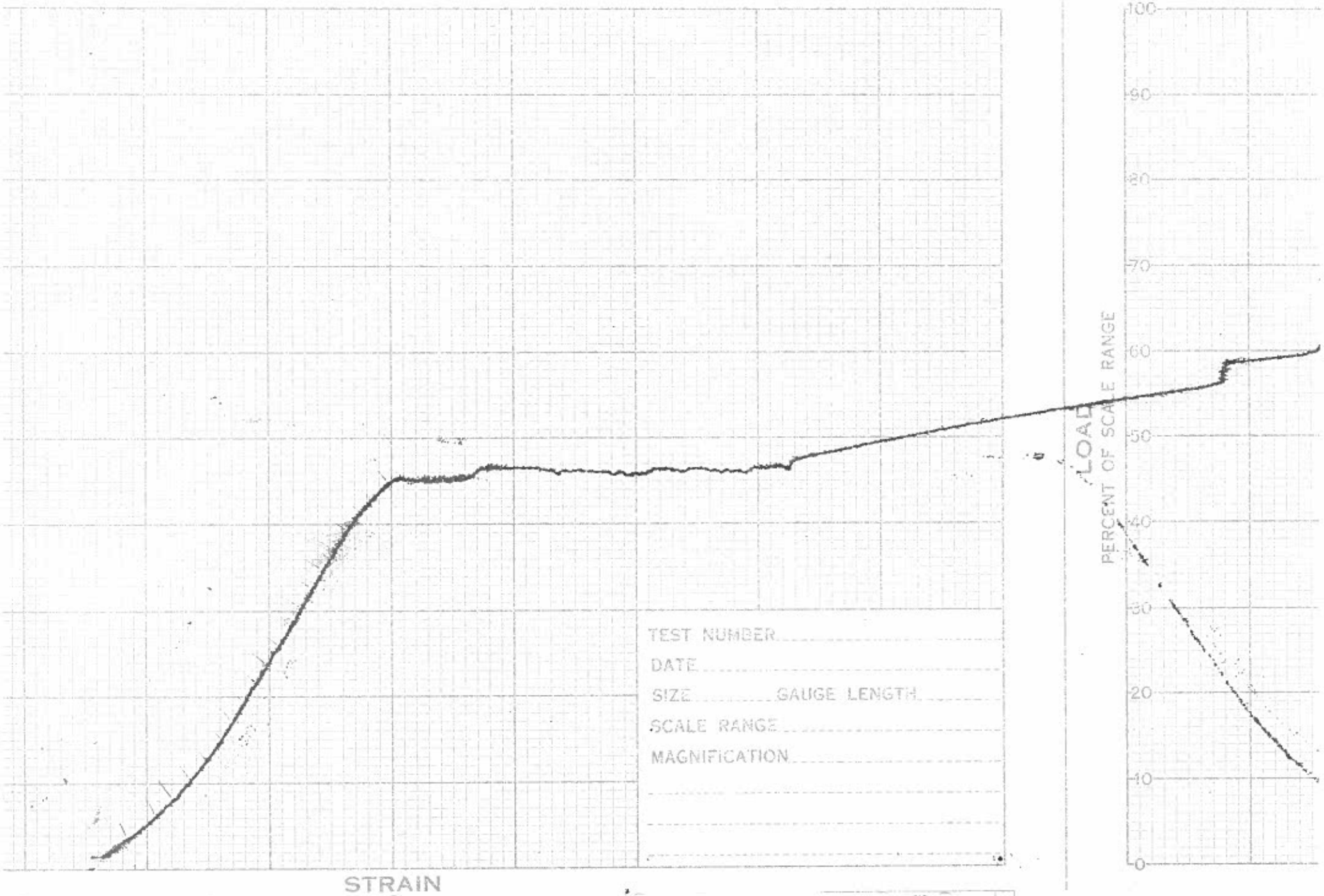
County

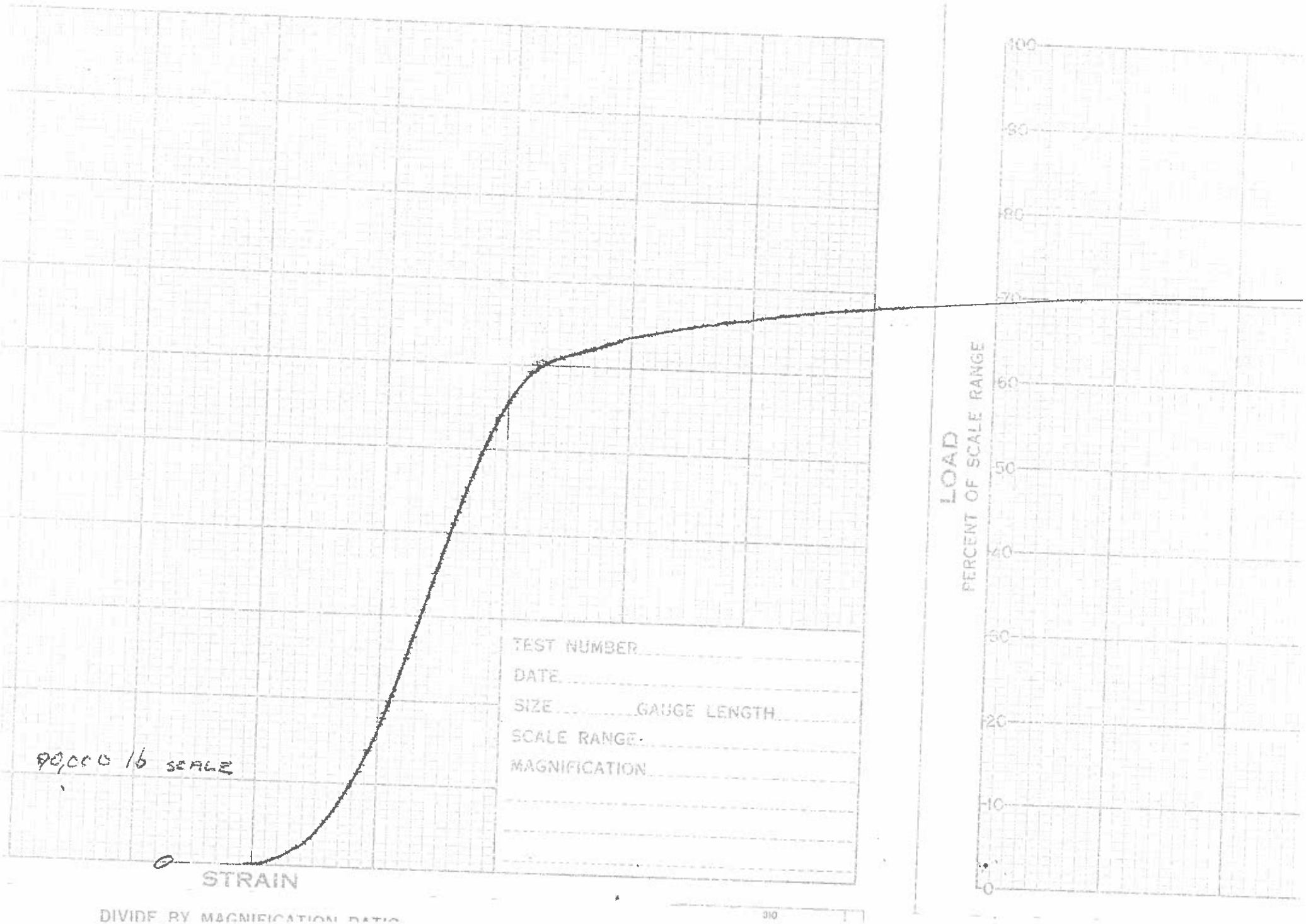
Subject

Load	Clong.	Initial 8"	60 7/16" 63 7/16
1000	0		
3000	.0009		
5000	.0017		
7000	.0025	Tension	
9000	.0035	Break in	
11000	.0041	Rock Bolt	
13000	.0050		
15000	.0058		
17000	.0065		
19000	.0074		
21000	.0082		
23000	[illegible]		
25000	[illegible]		
27000	.0108		
29000	[illegible]		
31000	[illegible]		
33000	.0133		
35000	[illegible]		
37000	[illegible]		
39000	[illegible]		
41000	[illegible]		
40500	[illegible]		
54700			

Date

Neg. No. Date


TEST NUMBER
DATE
SIZE
GAUGE LENGTH
SCALE RANGE
MAGNIFICATION
STRAIN
LOAD
PERCENT OF SCALE RANGE
100
90
80
70
60
50
40
30
20
10
0


LOAD
PERCENT OF SCALE RANGE
100
90
80
70
60
50
40
30
20
10
0
STRAIN
0
TEST NUMBER
DATE
SIZE
GAUGE LENGTH
SCALE RANGE
MAGNIFICATION
90,000 lb SCALE
DIVIDE BY MAGNIFICATION RATIO