PART VI

CHARTS

1. SOIL PRESSURE CURVES.

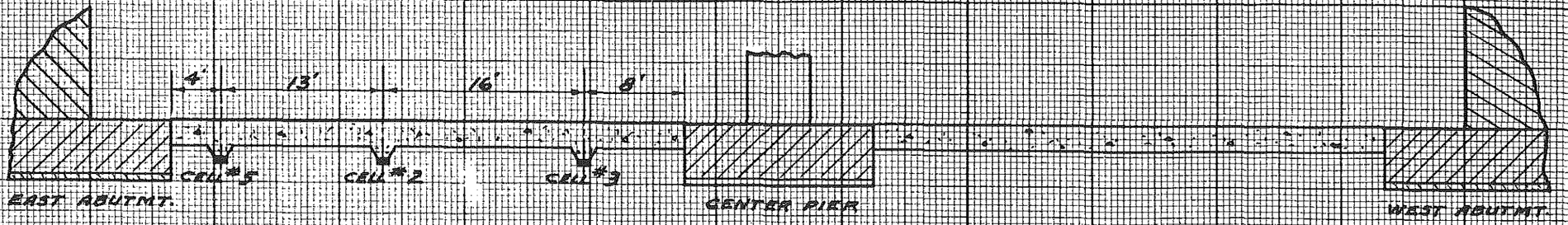
2. STRESS CURVES OF REINFORCING STEEL BARS.

3. MISCELLANEOUS DRAWINGS.

N.Y.C. R.R. (MAINE LINE) - D.I.E. BRIDGE

PROJECT X 4 of 32-22-10

GOLDBECK SOIL PRESSURE CELLS AND CURVES



NORTH ELEVATION

3200
2800
2400
2000
1600
1200
800
400
0

BACKFILL PARTLY IN PLACE

STEEL ON SOUTH HALF OF BRIDGE

SUBDRAIN, DRAINAGE OPENER, STEEL SLICERS IN PLACE.

N.Y.S. DECK, BALLAST & TRACKS COMPLETED.

BACKFILL COMPLETED. TEMP. 70° F.

WEST MAIN TRACK CUT IN.

ALL TRACKS IN SERVICE TEMP. 10° F.

NO READINGS ON CELLS No. 2 & No. 5; INACCESSIBLE. TEMP. 10° F.

UNABLE TO READ No. 3, NO ACTION TEMP. 30° F.

EXPRESSWAY TRAFFIC TEMP. 65° F.

#2
#3
#5
#5
#3

7-17-44
8-1-44
8-16-44
9-27-44
10-30-44
11-21-44
12-19-44
1-30-45
2-28-45
3-22-45

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

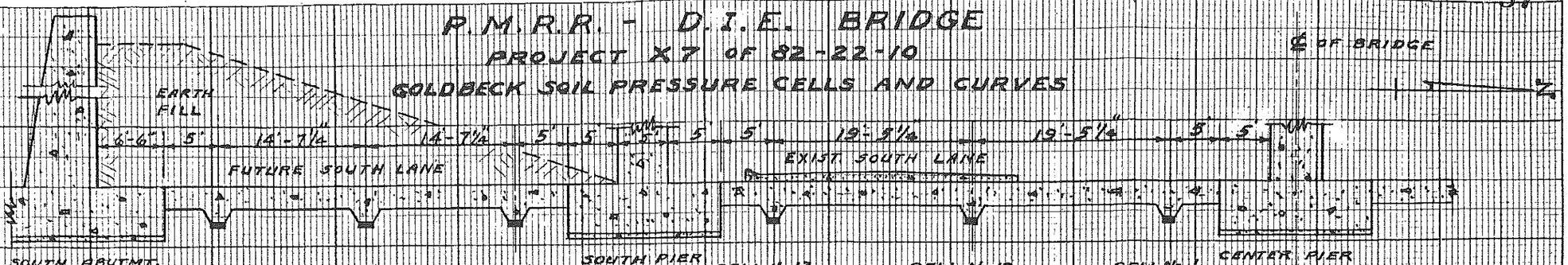
TIME

EUGENE DIETZGEN CO., CHICAGO NEW-YORK NO. 346 G

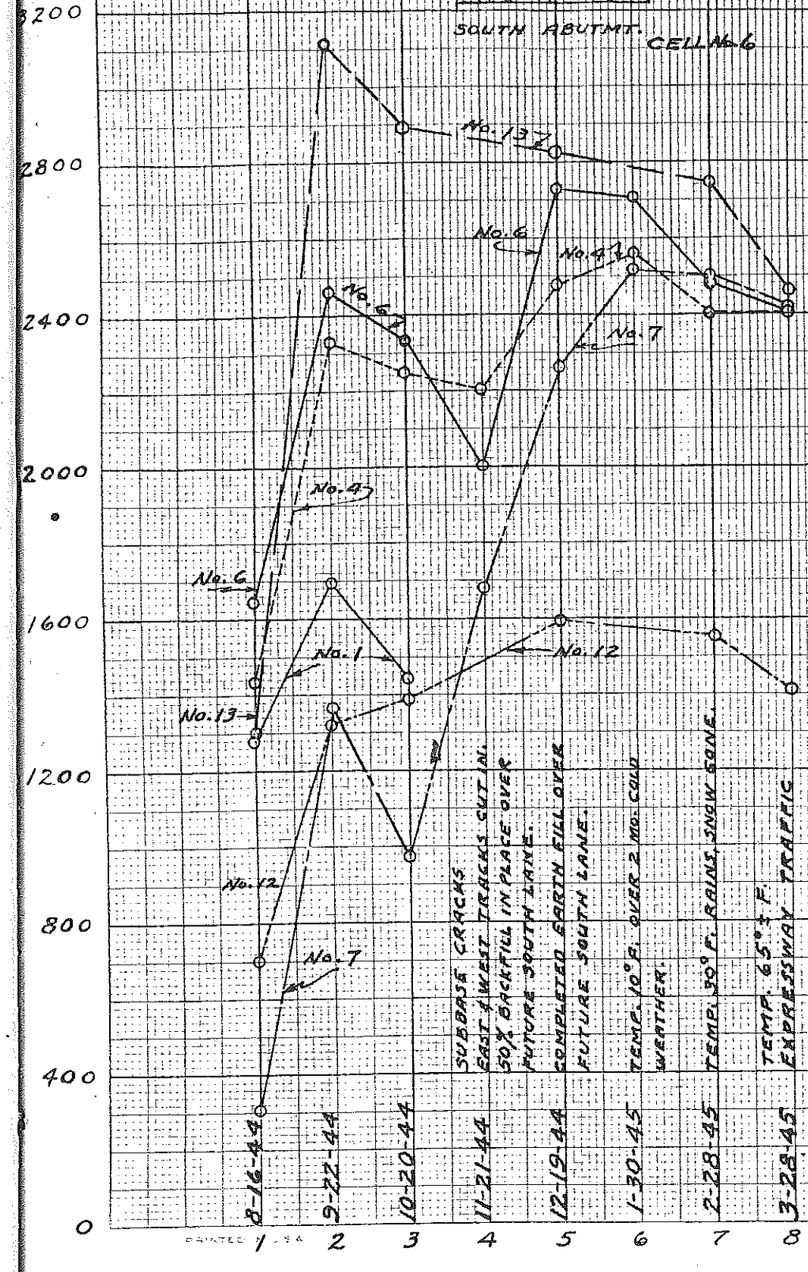
P.M.R.R. - D.I.E. BRIDGE

PROJECT X7 of 82-22-10

GOLDBECK SOIL PRESSURE CELLS AND CURVES



CROSS SECTION OF SOUTH HALF OF BRIDGE



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EUGENE DIETZGEN CO. NO. 346 D

MICHIGAN AVE. – D.I.E. INTERCHANGE

PROJECT 813 OF 82-22-10

GOLDBECK SOIL PRESSURE CURVES AND CELLS

9-22-44 NO BACKFILL
10-20-44 DECK COMPLETED, BACKFILL IN PLACE
11-21-44 TRAFFIC OVER BRIDGE
12-5-44 " "
1-30-45 " "
2-28-45 " "
3-23-45 EXPRESSWAY TRAFFIC

#8
#15
#11
#18

SOIL PRESSURE IN POUNDS PER SQ. FT.

3200
2800
2400
2000
1600
1200
800
400
0

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

TIME

PRINTED IN U.S.A. EUGENE DITZGEN CHICAGO NEW-YORK NO. 3

SHEET No. 2 OF 2

PAVEMENT PANEL PERIODS

PERIMETER X-S OF 32 CELLS

STRESS CURVES OF REINFORCING BARS IN SUBBASE

CELL #2

CONVERSION IN % OF FULL SCALE APPLIES TO CELL #2 ONLY

USE SCALE ON RIGHT

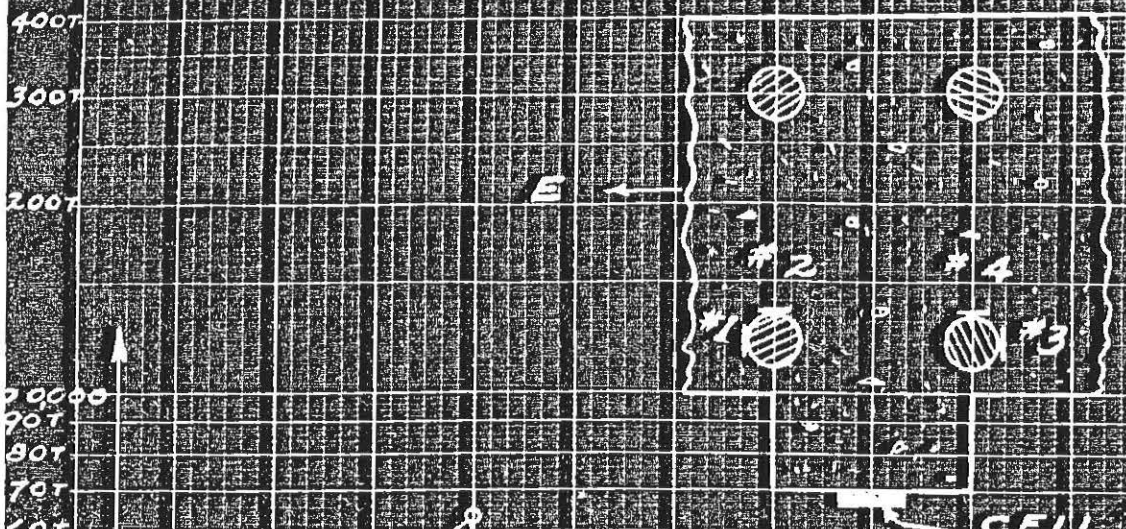
EXPLANATION OF TRAFFIC

TIME

N.Y.C. R.R. - D.L.E. BRIDGE

PROJECT X4 OF 82-22-10

STRESS CURVES OF REINFORCING BARS IN SUBBASE



TENSION - #/□"

100,000 90T 80T 70T 60T 50T 40T 30T 20T

10000 9000 8000 7000 6000 5000 4000 3000 2000 1000

COMPRESSION IN #/□"

2000 3000 4000 5000 6000 7000 8000 9000 10,000 20T

USE SCALE ON RIGHT

CELL #2 IN #/□FT.

#4 IN COMPRESSION

RIGHT SCALE APPLIES TO CELL #2

COMPRESSION IN #/□FT.

600 700 800 900 1000 1500 2000

30T 40T 50T 60T 70T 80T 90T 100T 200,000 300T 400T 500T 600T 700T 800T 900T 1,000,000

#2 #3 #1

SUBBASE NOT DRAINED INCOMPLETE
TIME SAME
SUBBASE DRAINED
TIME SAME
STEEL GIRDERS IN PLACE
RAILS & BALLAST #4
BRKWTR COMPLETED
SUBBASE BRATTRAFFIC
TIME SAME
TIME SAME
TIME SAME
TEMP. 65° F.
GIRDERS ERECTED WAY TRAFFIC

1 2 3 4 5 6 7 8 9 10 11 12 13 14

TIME

PROJECT X7 OF 82-22-10

STRESS CURVES OF REINFORCING BARS IN SUBBASE

SOUTH LANE LOCATION

TENSION-#/0"

COMPRESSION-#/0"

#1 #2 IN COMPRESSION

EXPRESSWAY TRAFFIC

PRESSURE CELLS

#17
#12
#13
#5
#6
#7

PRESSURE IN LBS./SQ.FT. APPLIES TO PRESSURE CELLS

THIS SCALE APPLIES

TIME

1 2 3 4 5 6 7 8 9 10 11 12 13 14

200,000 100,000 90T 80T 70T 60T 50T 40T 30T 20T 10,000 9T 8T 7T 6T 5T 4T 3T 2T 1000 2T 3000 4T 5T 6T 7T 8T 9T 10,000 20,000 30 40 50 60 70 80 90 100,000 200 300 400 500,000

100 200 300 400 500 600 700 800 900 1000 1500 2000 3000

SUBBASE COMPLETED 8-3-44

CONSTR. EQUIPMENT ON SLAB

CONSTR. EQUIPMENT ON SLAB

HEAVY CRANES ON SLAB

CONSTR. EQUIPMENT ON SLAB

SUBBASE COMPLETED

BRIDGE COMPLETED

PAVEMENT COMPLETED

TEMP. 10° F.

TEMP. 30° F.

TEMP. 45° F.

MICHIGAN AVE. - D.I.E. INTERCHANGE

PROJECT 813 OF 82-22-10

STRESS CURVES OF REINFORCING BARS IN SUBBASE SLAB

(SOUTH LOCATION)

TENSION IN #10" ↓

COMPRESSION IN #10" ↑

#5 & #6 IN TENSION

#7

#4

#3

#2

#8

#1

CELL #11 IN LBS./SQ.FT.
USE SCALE ON RIGHT

CELL #11 PRESSURE IN LBS./SQ.FT.

100,000 90 80 70 60 50 40 30 20 10,000 9000 8000 7000 6000 5000 4000 3000 2000 1000 2000 3000 4000 5000 6000 7000 8000 9000 10,000 20 30 40 50,000 60 70 80 90 100,000

300 400 500 600 700 800

9-22-44 SUBBASE IN PLACE 9-12-44

10-12-44 SLAB AND DECK COMPLETED

11-15-44 STREET CAR & AUTO TRAFFIC ON MICH. AVE.

12-15-44 SYSTEM A 63 FT. ↑

1-15-45 EXPRESSWAY TRAFFIC

2-15-45 SYSTEM B 30° E.

3-15-45 SYSTEM A 63 FT. ↓

4-15-45 SYSTEM B 30° E.

5-15-45 SYSTEM A 63 FT. ↑

6-15-45 SYSTEM B 30° E.

1 2 3 4 5 6 7 8 9 10 11 12 13 14

TIME

PLAN

Typical Cross Section

Section A A

Section B B

Section Along Line of Crown - North Lane

Section Along Line of Crown - South Lane

Section C C

Note:- Elevs of Top of Pavt in the South Lane determined by the grading of the North Lane

Steel Sheet Piling left in place Type B

Steel Sheet Piling left in place Type C

Strain gages, 2 top & 2 bottom, placed on adjacent transverse reinforcing bars.

Reinforcing similar to that in North Lane

Ref. Point "A"

Ref. Point "B"

℄ Bearing West Abut.

℄ Bearing East Abut.

℄ Pier

Pour "A"

Pour "B"

Pour "C"

Pour "D"

Const. North Lane

Const. South Lane

Line of Crown

Top of Subbase Parallel to and 0.71' below crown of Pavt.

North Lane Top of Pavt.

Transverse bars in bottom 1'-0" at 12" ctrs. and 3" above bottom of subbase

Transverse bars in top 1'-0" at 12" ctrs. and 3" below top of subbase

Transverse bars in Bell 1'-0" at 12" ctrs. and 3" above bell of subbase

Pavt. Seat 4" wide 8" deep

Cells

Structure

4" Soil Pipe

Place ends of 1"ø Transverse (in top) 1'-3" above bottom of slab

Place ends of 1"ø Transverse (in bottom) 1'-3" above bottom of slab

Bolt 1" ø 5'-0" Incidental to Steel Sheet Piling

Edge of Subbase

Horiz. Sect.

3/4" x 8" Key

Reinf. bars not shown

Quantities

Grade B (GA) concrete

Pour "A"	296
Pour "B"	284
Pour "C"	337
Pour "D"	349
Total	1266 Cu Yds.

Steel Sheet Piling 1310 Sq. Ft. (Min. 32 #/a') left in place (Type B)

Note:- Steel Sheet Piling Left in Place shall be of the continuous interlock type, either new or used in good condition, weighing not less than (Type A 32) (Type B 32) pounds per square foot of wall, with a minimum section modulus (Type A 5.4) (Type B 19.3) inches cubed per foot of wall.

Footing, Subfooting, and Subbase concrete quantities are computed on the basis of an outline (Type A 3/4") (Type B 6") outside of the footing outline where the concrete is poured against the steel sheet piling. No additional allowance in concrete quantities will be made regardless of the section of steel sheet piling used.

REVISIONS

No	DESCRIPTION	DATE	BY
E	New subbase details vacated by grading misc		

MICHIGAN STATE HIGHWAY DEPARTMENT
CHARLES M. ZIEGLER
STATE HIGHWAY COMMISSIONER

PROPOSED LOCATION OF PRESSURE CELLS

SUBBASE DETAILS

N.Y.C.R.R. MAIN LINE CROSSING D.I.E.

Squad Boss			
Drawn By			
Checked By	Zaagard	1-17-4	
Sheet 26 of 37			

APPROVED _____ CHIEF BRIDGE DRAFTSMAN

APPROVED A. A. Zaagard ASST. BRIDGE ENGR.

X4 OF 82-22-10