

REAL ESTATE AND RIGHTS OF WAY

Project No.: BD3534
Property Name: Evergreen-Hines
120-kV Towerline

Date: October 30, 1985
To: Vicki Sullivan
Records Center
From: Sharon Selonke *SS*
Subject: Railroad Crossings Related to
Evergreen-Hines Towerline

Attached are papers related to the Evergreen-Hines 120-kv towerline agreement dated January 1, 1978.

The original drawings depicted the change from 120-kv to 230-kv. The new drawings attached show the line as it is today.

The property is located in various sections of Dearborn, Detroit, Redford Township, and Livonia, Michigan.

Please incorporate these papers into Records Center File No. 19077.

/ss

Attachment

Approved:

Barbara A. Mention-Fulton

Barbara A. Mention-Fulton
Supervisor-Real Estate Services

cc: C. Van Paris

RECORDED RIGHT OF WAY
19077 part 2

ENGINEERING DEPARTMENT

October 8, 1985
File: 131-2-Gen. LD
jww/bam-01/18



**Chessie
System
Railroads**

Operating Headquarters Building
P. O. Box 1800
Huntington, West Virginia 25718
304-522-5000

Ms. Barbara A. Mention
Supervisor, Real Estate Services
Detroit Edison
2000 Second Avenue
Detroit, Michigan 48226

Dear Ms. Mention:

This will acknowledge receipt of your November 15, 1984 letter and drawings covering the Evergreen-Hines 120-Kv tower line, agreement No. 19025 dated January 1, 1979.

Yours very truly,

for *Jan W Wallengren*
Richard K. Pullem
Chief Engineer

RECORDED RIGHT OF WAY

1985 10/8 part 2



**Detroit
Edison**

2000 Second Avenue
Detroit, Michigan 48226
(313) 237-8000

3D3534

November 15, 1984

Chesapeake and Ohio Railway Company
Ronald W. Drucker, Chief Engineer
P.O. Box 1800
Huntington, W. Virginia 25718

Re: Evergreen-Hines 120-kV Towerline

Dear Mr. Drucker:

Enclosed are current drawings covering the
above-mentioned line described in agreement dated
January 1, 1978, for your files.

This will reflect our present facilities in the
various locations.

If you have any questions, please contact
Barbara Mention on (313) 237-8319.

Sincerely,

Barbara A. Mention

Barbara A. Mention
Supervisor, Real Estate Services
448 G.O.

BAM:ss

Enc.

RECORDED RIGHT OF WAY

198477
Post 2

THIS AGREEMENT, made as of the 1st day of January

1978
1976, by and between

~~THE BALTIMORE AND OHIO RAILROAD COMPANY,~~

THE CHESAPEAKE AND OHIO RAILWAY COMPANY,

first party, hereinafter called "Licensor", and DETROIT EDISON COMPANY

second party, hereinafter called "Licensee";

WITNESSETH:

WHEREAS, Licensee has applied to Licensor for license and permission to construct, maintain and use ~~up to 230,000 KV~~ aerial transmission line occupying property of Licensor from its Station 442+50 opposite Licensee's Evergreen Station and extending westerly for a distance of approximately 8.46 miles to a point opposite Licensor's Station 907+00,

(all of which, including appurtenances and changes herein provided for, are hereinafter referred to as "facilities"), upon, over, under, across or along, as the case may be, the tracks, right-of-way and property owned, controlled or operated by Licensor at Detroit and Dearborn, Michigan, V.S. 1-C(1) and V.S. 2A(6,7,8,9,10,11 & 12), as indicated by tower reference on Licensee's plan(s) numbered ED-1599A⁸⁹⁵⁷ and dated ~~XXXXXX~~^{4/15/77}, attached hereto and made a part hereof by reference.

NOW, THEREFORE, in consideration of the premises, the promises and agreements herein contained and the sum of One Dollar (\$1.00) paid by each to the other, the receipt whereof is respectively acknowledged, the parties hereto agree as follows:

FIRST: Licensor, in so far as it has the power and authority so to do and subject to compliance with the terms and conditions hereinafter contained to be kept and performed by Licensee, hereby permits Licensee to construct, maintain and use said facilities across the tracks, right-of-way and property of Licensor at said location.

Licensee, at its expense, will furnish all materials and, at a time satisfactory to Licensor, construct, maintain, use, change and remove said facilities or any part thereof in accordance with the design and specifications shown on said plan(s) and as in this agreement provided, all in a prudent and workmanlike manner in conformity with any applicable statutes, orders, rules, regulations and specifications of any public body having jurisdiction thereof, and so as not to interfere with or endanger, in the judgment of Licensor, any property, traffic, operations, maintenance, employes or patrons of Licensor, or of others occupying or using its property at said location. *

SECOND: Licensee will give Licensor at least 5 days written notice before doing any work of any character hereunder at said location except that in cases of emergency demanding immediate examination or repairs Licensee may give shorter notice. If, at any time, said facilities, or any part thereof, in the judgment of Licensor, cause any interference or danger referred to in Section FIRST hereof that is emergent, Licensee, upon notice from Licensor, will promptly take remedial action in accordance with such notice, and upon failure so to do Licensor, at Licensee's expense, may take such action. In any non-emergency case of such interference or danger Licensee, within 30 days after receipt of notice from Licensor, will take remedial action in accordance with such notice, and upon failure so to do Licensor, at Licensee's expense, may take such action.

If Licensor deems it advisable during the progress of any work of construction, maintenance, repair, renewal, alteration, or removal of said facilities of Licensee to place watchmen, flagmen, inspectors or supervisors for the protection of the operations of Licensor or property of Licensor or others on Licensor's right-

applicable statutes, orders, rules, regulations and specifications of any public body having jurisdiction thereof, so as not to interfere with or endanger any property, real or personal or lives of any persons occupying or using said property.

RECORDED RIGHT OF WAY

1978 977 part 2

of-way and property, Licensor shall have the right so to do at the expense of Licensee, but Licensor shall not be liable for the failure so to do or the failure or neglect of such watchmen, flagmen, inspectors or supervisors.

THIS
TIES
TO 8

THIRD: During any work of any character hereunder at said location, Licensee, at its expense, will support the tracks and roadbed of Licensor in such manner as shall be necessary in the judgment of Licensor to prevent any interference or danger referred to in Section FIRST hereof, and upon the completion of said work will restore said tracks, roadbed and other property to their original condition, provided that Licensor, at its option and at the expense of Licensee, may do all the work of supporting its tracks and roadbed and of restoring the same.

FOURTH: If Licensor determines that all or any of said facilities, or the location hereof, should be changed or altered, ~~or that they should be entirely removed,~~ Licensee, at its expense and in a manner satisfactory to Licensor shall make such changes, alterations ~~or removal,~~ as the case may be, and restore the premises affected to their original condition within 30 days after, and in accordance with the requirements of written notice from Licensor so to do. If Licensee fails to make such changes, alterations, ~~or removal,~~ and restoration of premises as above provided, Licensor may do such work at the expense of Licensee.

If Licensee desires to revise, renew, relocate, or change in any manner whatsoever all or any of said facilities (including any change of voltage or operating pressure), or if Licensee is required to change or alter the same, plans therefor shall be submitted to and approved by Licensor before any such change is made, and the terms and conditions of this agreement shall apply thereto. In the event of termination of this license by Licensor, the rental shall be prorated to the date of said termination.

this

FIFTH: Upon cessation of the use as herein contemplated of said facilities, or any part thereof, Licensee will notify Licensor thereof and, unless the parties otherwise then agree, Licensee will remove the same and restore Licensor's affected premises in a manner satisfactory to Licensor. If Licensee fails so to remove and restore within 30 days after receipt of written notice from Licensor so to do, Licensor may do such work at the expense of Licensee.

SIXTH: Upon execution of this agreement Licensee will pay to Licensor ~~for the property at the~~ ~~agreed upon by the parties~~ ~~and also~~ the annual sum of ~~91,000~~ ~~91,000~~ ~~and also~~ ~~91,000~~ NINETY-NINE THOUSAND DOLLARS ----- and will pay a like annual sum on each anniversary of this agreement thereafter until terminated. Licensee will pay all taxes assessed upon said facilities, or on account of their existence, and shall indemnify Licensor against the payment thereof.

RECORDED RIGHT OF WAY

SEVENTH: If Licensee fails to make the payments provided for herein or shall fail to perform any of the other terms or conditions of this agreement, and shall fail to remedy any such breach in accordance with the requirements of written notice of Licensor so to do, then and in that event Licensor may at its option forthwith terminate the permission herein granted. Upon such termination Licensee, at its expense, will promptly remove such facilities and restore the premises to their original condition, and if Licensee fails so to do, Licensor may do such work at the expense of Licensee.

EIGHTH: Licensee hereby assumes, and releases and agrees to indemnify, protect and save Licensor harmless from and against, (i) all loss of and damage to any property whatsoever (including property of the parties hereto and of all other persons whomsoever and the loss of or interference with any use or service thereof), and (ii) all loss and damage on account of injury to or death of any person whomsoever (including employees and patrons of the parties hereto and all other persons whomsoever), and (iii) all claims and liability for such loss and damage and cost and expenses thereof, caused by or growing out of the operation of this agreement or the presence, construction, maintenance, use, repair, change or relocation and subsequent removal of said facilities, or any part thereof, ~~whenever~~ caused by the fault, failure or negligence of ~~Licensor~~ Licensee.

19277 part 2

NINTH: The term "Licensor" as used in Section EIGHTH hereof shall include any company whose tracks, right of way, or other property may be leased or operated by Licensor or any other company at the aforesaid location.

TENTH: Licensor's expense for any work performed by it at the expense of Licensee pursuant to the terms hereof will be paid by Licensee upon receipt of a bill therefor. Such expense shall include, but not be limited to cost of labor and materials, cost of supervision, traveling expenses, Federal Railroad Retirement and Unemployment Taxes, vacation allowances, and freight and handling charges on all material used.

* To accommodate rail construction

ELEVENTH: All notices and communications concerning this agreement shall be addressed to Licensee at 2000 Second Avenue, Detroit, Michigan 48226, and to Licensor's Division Superintendent at Saginaw, Michigan or at such other address as either party may designate in written notice to the other.

TWELFTH: Any approval given or supervision exercised by Licensor hereunder, or failure of Licensor to object to any work done, material used or method of construction or maintenance of said facilities, shall not be construed as an admission of responsibility by Licensor or as a waiver of any of the obligations of Licensee under this agreement.

THIRTEENTH: Any waiver by either party at any time of any of its rights as to anything herein contained shall not be deemed to be a waiver of any breach of covenant or other matter subsequently occurring.

FOURTEENTH: This agreement shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, representatives, successors or assigns, but no assignment thereof or of any rights or obligations thereunder shall be valid for any purpose without the written consent of Licensor.

FIFTEENTH: Licensee understands and agrees that Licensor/shall have the ^{upon written consent of} Licensee right to adjust the rental to be paid by the Licensee hereunder during calendar year ~~1980~~ and anytime thereafter during the continuance of this agreement. 1982

SIXTEENTH: Agreement between the parties dated August 20, 1957 covering wire line facilities at the same location is being cancelled as of the effective date hereof.*

SEVENTEENTH: Licensee will, at all times, at its own expense, adopt and maintain in its electrical system, of which the said facilities are a part, the general coordinative methods which are applicable to supply circuits and their equipment as specified in "Principles and Practices for Inductive Coordination of Electric Supply and Communications Systems" of the Association of American Railroads and Edison Electric Institute as now published and as from time to time hereafter amended. If such general coordinative methods are not sufficient in the judgment of Licensor to avoid inductive interference by Licensee, Licensor shall cooperate with Licensee to determine what specific coordinative methods providing the best engineering solutions are required. Such specific methods so determined shall be put into effect and Licensee shall bear the cost thereof, irrespective of whether they are to be applied to the supply, communication or signal circuits.

RECORDED RIGHT OF WAY 1907-1 part 2

* Except that sidetrack agreements that are a part of August 20, 1957 agreement shall continue to be in effect and are included in the present agreement by reference herein. SEC ATTACHED EXHIBIT (A)

IN WITNESS WHEREOF, the parties hereto have executed this agreement in duplicate as of the day and year first above written.

WITNESSES:

THE CHESAPEAKE AND OHIO RAILWAY COMPANY,
THE BALTIMORE AND OHIO RAILROAD COMPANY,

By _____
Assistant Vice President-General Manager

DETROIT EDISON COMPANY,
(Licensee)

ATTEST:

~~Robert R. Tewksbury~~
~~Project Administrator~~

By _____ (title)

3763A

~ KC # 19077

Evergreen Lines 120KV steel
tower line

Evergreen - Lines

- Call R.R. to let them know we're sending accurate dwgs. Ask whom we should send them to.
- Wait until all 20 dwgs. have been reviewed before we send.

Make reference to agreement of original submitted.

Attention: R.W. Drucker
Chief Engineer

25 crossings

RECORDED RIGHT OF WAY 19077 part 2

DATA SHEET TO ACCOMPANY DRAWING RX-2895B

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing NO. 1: Crossing of the Warren-Evergreen #1
120 KV transmission line over the Conrail Railroad.

Crossing NO. 2: Crossing of the Warren-Evergreen #1
120 KV transmission line over the C. & O. Railroad.

All in the City of Dearborn, Wayne County, Michigan,
T.2S-R.11E. Southwest 1/4 of Section 8.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line
with one groundwire.

Towers and Crossarms

Steel towers as shown on drawing ED1-7218 (TH), and
drawing T-2057 (B).

Conductors

Six-477 MCM ACSR 26/7 3 phase one circuit.

Insulators

120 KV suspension assembly. (8) Eight O.B. 32440 or
equivalent. 120 KV deadend assembly. (9) Nine
O.B. 47410 or equivalent.

Guy and Guy Attachments

None

Suspension and Deadend Details

See attached drawing ED1-802E

RECORDED RIGHT OF WAY 19077 part 2

ALL IN BRACKET WITHIN INCHES

THE CALCULATIONS FOR THIS TRIAL ARE FOR 10-25-34 CLARK VAN PAR
STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000

STARTING INDEX	COMPUTED RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL MAX T
1	308.0	3990.00	0.43560	25

INDEX	TEMP.	INITIAL		FINAL	
		SAG	TENSION	SAG	TENSION
1	0.	40.08	-3990.	40.08	3990.
2	0.	37.95	1429.	38.36	1414.
3	32.	40.29	3081.	40.64	3065.
4	10.	38.26	1418.	38.68	1403.
5	20.	38.58	1407.	39.01	1391.
6	30.	38.89	1396.	39.33	1380.
7	40.	39.19	1385.	39.65	1369.
8	50.	39.50	1374.	39.97	1359.
9	60.	39.81	1364.	40.28	1348.
10	70.	40.11	1354.	40.73	1338.
11	80.	40.54	1344.	41.05	1328.
12	90.	40.85	1335.	41.36	1319.
13	131.	42.07	1297.	42.46	1286.
14	257.	44.68	1224.	44.68	1224.
15	120.	41.74	1307.	42.26	1291.

RECORDED RIGHT OF WAY

19077 part 2

7.0000

7.0000

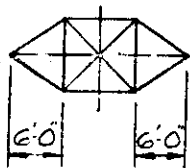
THE CALCULATIONS FOR THIS TRIAL ARE FOR SAG VALUES FOR SHORT SPAN-
 STRESS-STRAIN CURVES USED REPRESENT

~~266,888 CM TO 636,888~~
 477,000

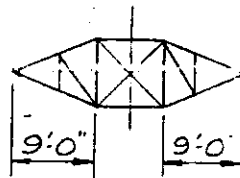
STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL MAX TE
1	200.0	3000.00	0.43560	30

INDEX	TEMP.	INITIAL		FINAL	
		SAG	TENSION	SAG	TENSION
1	0.	3.23	-3000.	3.23	3000.
2	0.	2.17	1519.	2.32	1418.
3	30.	2.81	1171.	3.01	1093.
4	60.	3.42	964.	3.63	907.
5	90.	3.97	830.	4.17	790.
6	120.	4.46	740.	4.46	740.

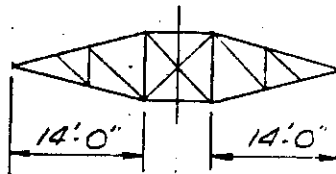
RECORDED RIGHT OF WAY
 190777
 part 2



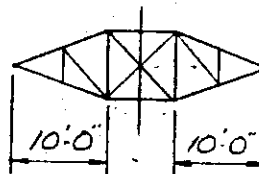
SECTION AA



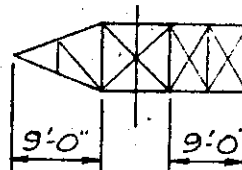
SECTION B-B



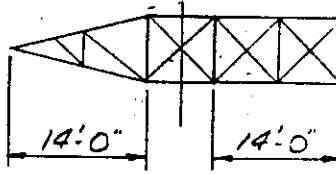
SECTION C-C



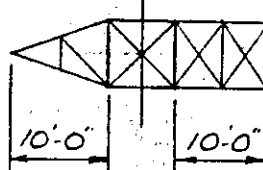
SECTION D-D



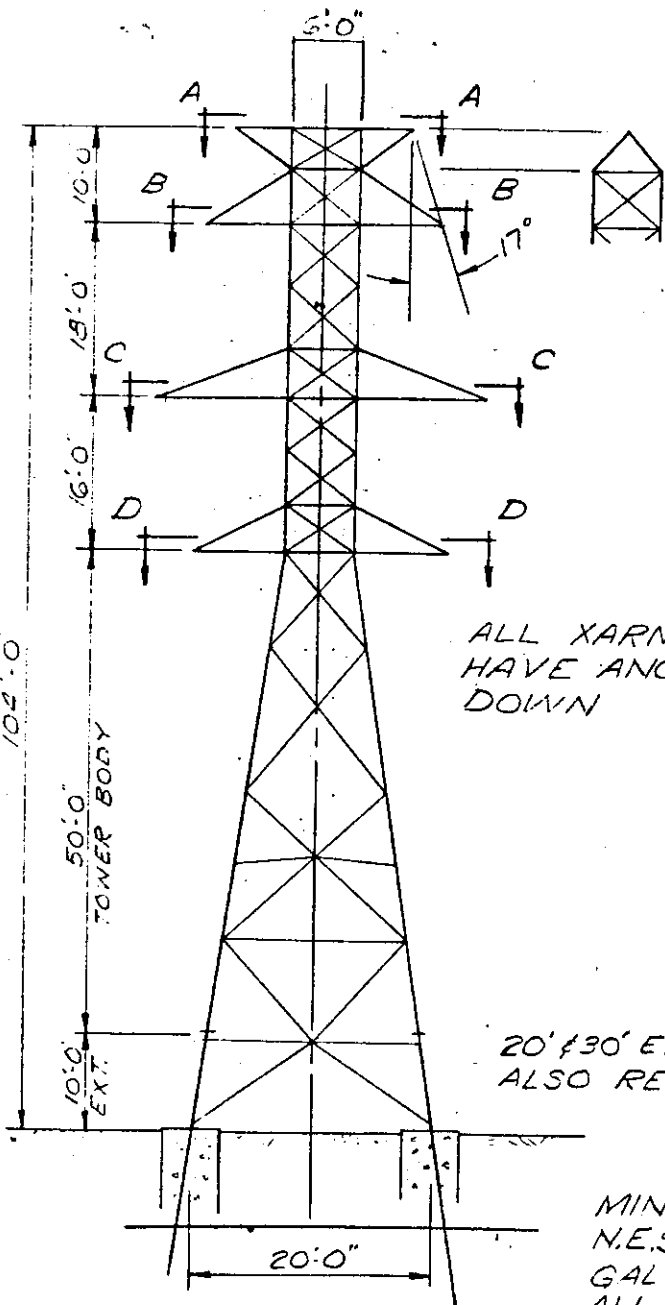
SECTION B-B



SECTION C-C



SECTION D-D



ALL XARMS MUST
HAVE ANGLES TOED
DOWN

20' & 30' EXTENSIONS
ALSO REQUIRED

MIN. STEEL THICKNESS ~ 3/16"
N.E.S.C. GRADE B (6TH. ED.)
GALV. PER ASTM SPEC. A123
ALL BOLTS SAME DIA. (ASTM - A 304)
BRACING SHOWN FOR
ILLUSTRATION ONLY

230 KV

230 KV DEADEND TOWERS
TYPE TM ~ 15° 30' ANGLE
TYPE TH ~ 30° 45' ANGLE

DETAILED DRAWING FOR SUBSTATION

DETAILED DRAWING FOR SUBSTATION

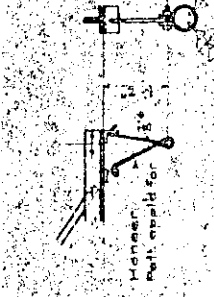
RECORDED RIGHT OF WAY 190774 PART 2

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY R.O.S.	DRAWN BY R.O.S.
	DATE 6/19/70	DRAWING NUMBER
	SCALE ~	ED-1-721E

- LOADS**
- (1) Vertical load at cable support of 1300' total 2100'
 - (2) A horizontal load normal to line of each cable support of 4200' total 4200'
 - (3) Horizontal load in the direction of the line of 95.0° at each cable support, total 24800' or 4700' at any one conductor support.
 - (4) Wind on tower of 30' per lin. foot of height of tower.

NOTE:
 For unit stresses and specifications for Conductors and span lengths See Drawing P-205C

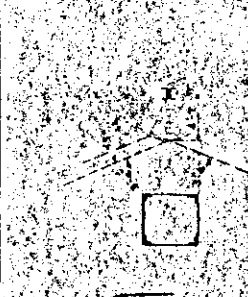
TYPICAL DETAIL AT END OF CROSS-ARM FOR COPPER CONDUCTORS



TYPICAL DETAIL AT END OF CROSS-ARM FOR ALUMINUM CONDUCTORS

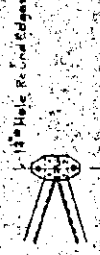
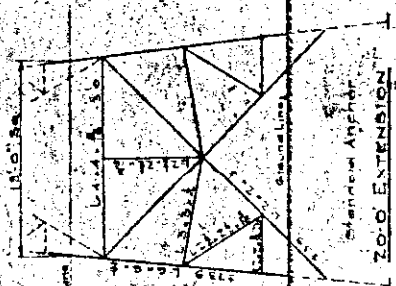
Punch holes in 35 so that P18 can be moved to suit each condition of angle in line

CROSS-ARM ARRANGEMENT FOR ANGLES IN LINE UP TO 45°



SECTION C-C

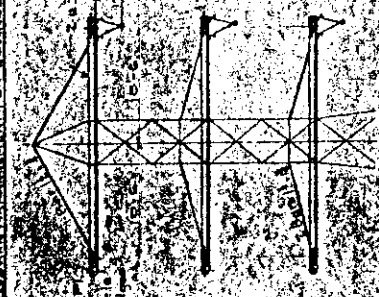
TOWER TOP WITH WIDE PEAK & X-ARM STRAY 50° ANGLE IN LINE



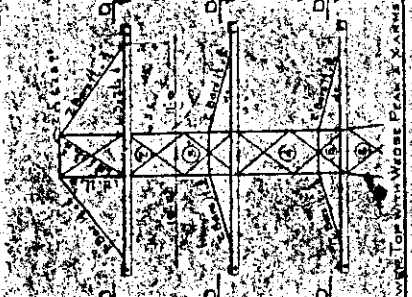
REINFORCED CONCRETE TOWER WITH WIDE PEAK



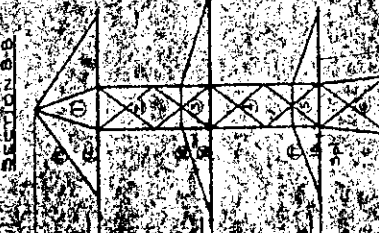
SECTION B-B



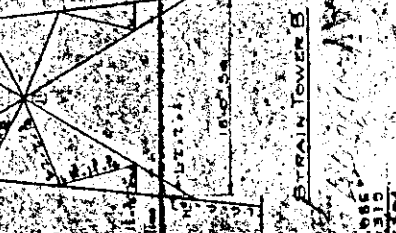
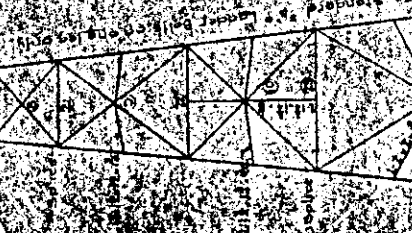
CROSS-ARM ARRANGEMENT FOR ANGLES IN LINE UP TO 20°



SECTION B-B



CROSS-ARM ARRANGEMENT FOR ANGLES IN LINE UP TO 20°



Member	Stress	Material
1	+16.7	235 + 23.5
2	+11.0	4 + 4.1
3	+10.0	5.5 + 5.8
4	+10.0	5.5 + 5.8
5	+10.0	5.5 + 5.8
6	+10.0	5.5 + 5.8
7	+10.0	5.5 + 5.8
8	+10.0	5.5 + 5.8
9	+10.0	5.5 + 5.8
10	+10.0	5.5 + 5.8
11	+10.0	5.5 + 5.8
12	+10.0	5.5 + 5.8
13	+10.0	5.5 + 5.8
14	+10.0	5.5 + 5.8
15	+10.0	5.5 + 5.8
16	+10.0	5.5 + 5.8
17	+10.0	5.5 + 5.8
18	+10.0	5.5 + 5.8
19	+10.0	5.5 + 5.8
20	+10.0	5.5 + 5.8
21	+10.0	5.5 + 5.8
22	+10.0	5.5 + 5.8
23	+10.0	5.5 + 5.8

TRANSMISSION TOWERS
 DETROIT EDISON CO.

STRAIN TOWER B

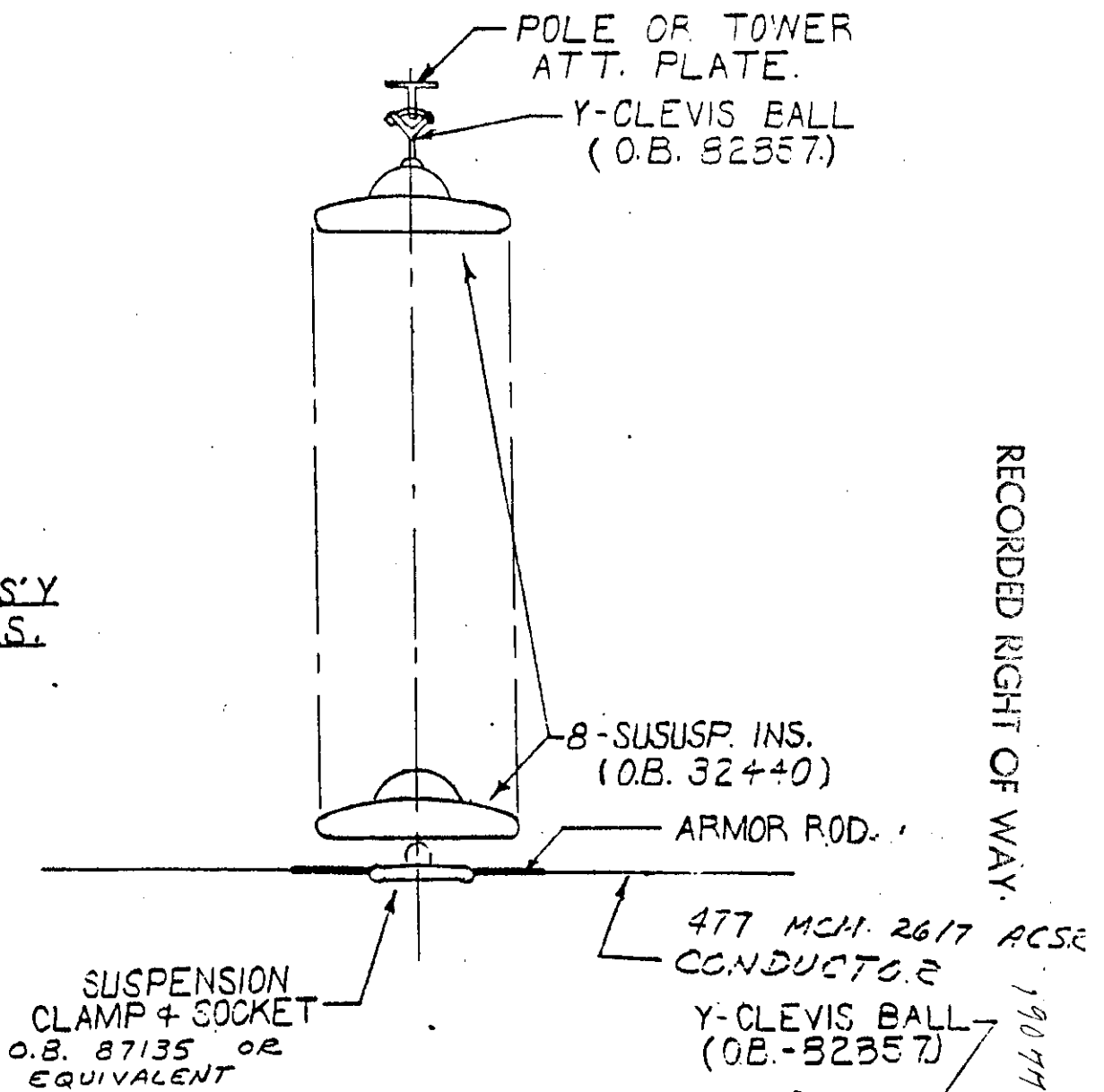
AMERICAN BRIDGE CO.
 PITTSBURGH, PA.

RECORDED RIGHT OF WAY

Anchor 2056
 Tower 2310
 Total 1780'

Copyright American Bridge Co. 1910

SUSP. ASS'Y
DETAILS.



477 MCM 2617 ACSE
CONDUCTOR.

DEADEND
CLAMP WITH SOCKET EYE
O.B. 86546 OR
EQUIVALENT

9-SUSP. INSULATORS
(O.B. 47410)

DEADEND PLATE.

DEADEND ASS'Y
DETAILS.

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY RDS.	DRAWN BY N.H.H.
	DATE 4-2-70.	EDI-8028
	SCALE	

DATA SHEET TO ACCOMPANY DRAWING RX-2897D

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Warren-Evergreen #1 line over the C&O Railroad Crossing No. 1: Approximately 1,700 feet north of Plymouth Road and 1,550 feet east of Evergreen Road. Crossing No. 2: Approximately 2,120 feet north of Plymouth Road and 1,350 feet east of Evergreen Road. Crossing No. 3: Approximately 2,820 feet north of Plymouth Road and 930 feet east of Evergreen Road. City of Detroit, Wayne County, Michigan. 4,080 feet of north of Mile Post Det 12.

Circuits

One 120,000 volt, 60 cycle, 6-wire, 3-phase transmission circuit with one ground wire.

Towers and Crossarms

See attached drawings T-10677 (LH), T-8413 (AC), T-8414 (AD).

Conductors

Crossing No. 1 & 2 = 6-477 MCM 26/7 ACSR with 1-3/8" steel ground wire. Crossing No. 3 = 3-954 MCM 54/7 ACSR with 1-3/8" steel groundwire.

Insulators

Suspension assembly: 8-5-3/4" x 10" O.B. 48008 or equivalent.
Deadend assembly: 9-5-3/4" x 10" O.B. 47410 or equivalent.

Guy and Guy Attachments

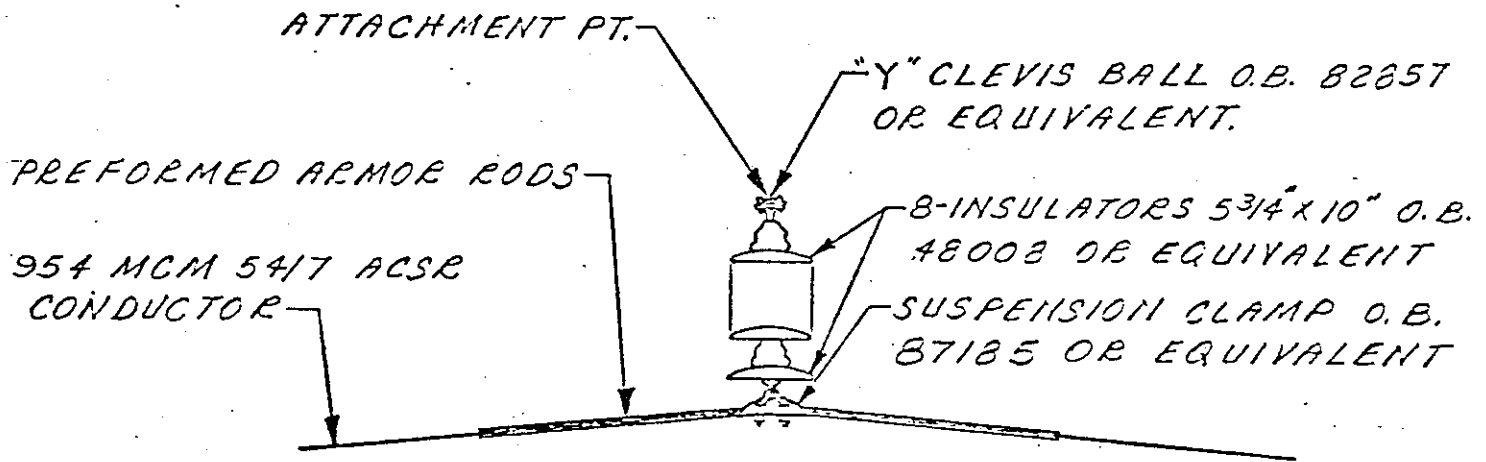
None

Suspension and Deadend Details

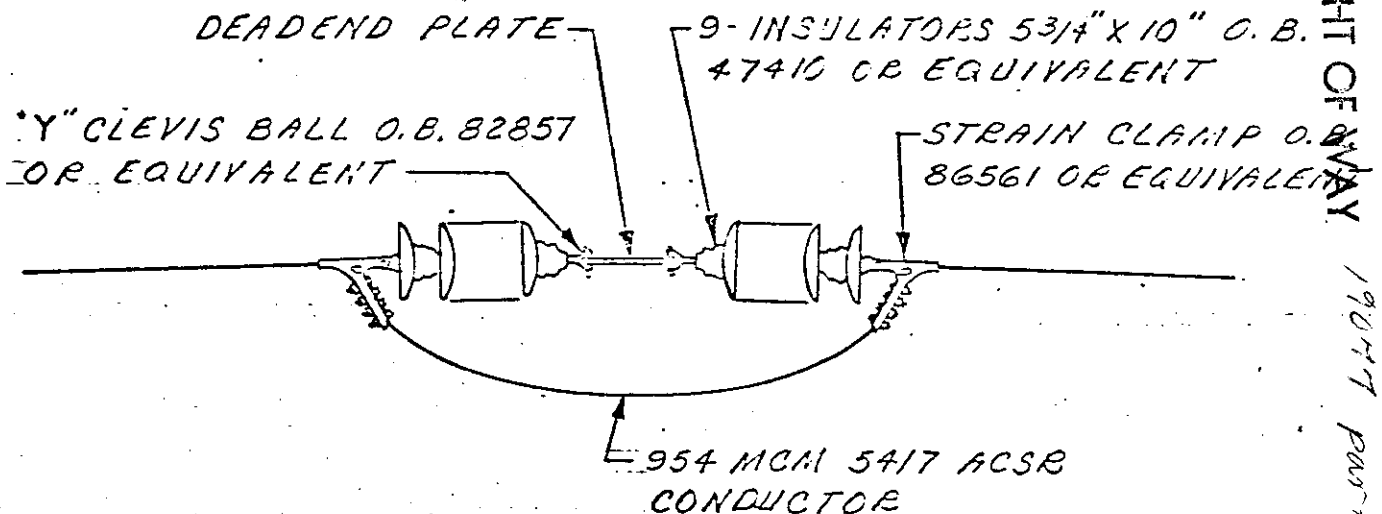
See drawing ED 1-7430 (954 MCM). See drawing ED1-8028 (477 MCM).

RECORDED RIGHT OF WAY 190774 part 2

SUSPENSION ASS'Y
DETAILS



DEADEND ASS'Y
DETAILS

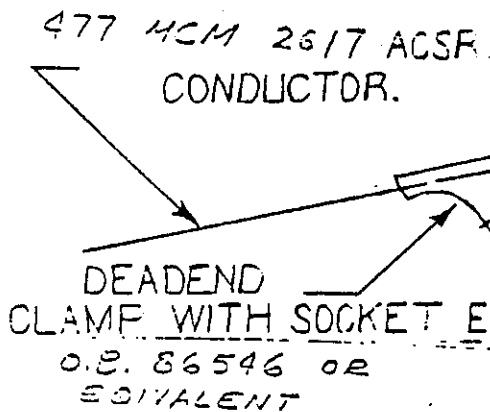
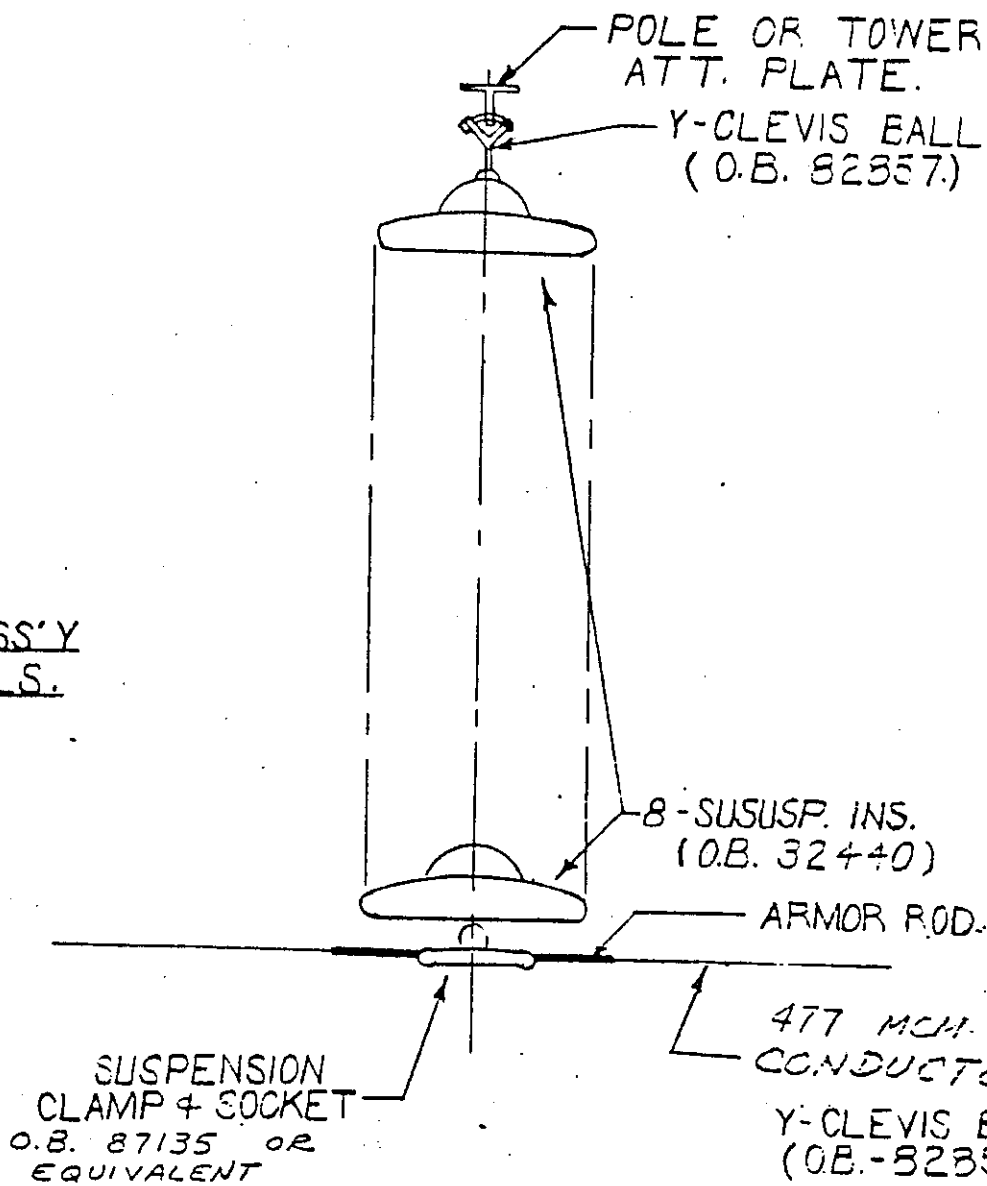


RECORDED RIGHT OF WAY 19047 part 2

120 KV SUSPENSION &
DEADEND ASS'Y DETAILS

APPROVED <i>JSH</i>	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>J. WRIGHT</i>	DRAWN BY <i>JEM</i>
	DATE <i>1-25-71</i>	DRAWING NUMBER
	SCALE	<i>ED1-7430</i>

SUSP. ASS'Y
DETAILS.



DEADEND ASS'Y
DETAILS.

RECORDED RIGHT OF WAY
190777
part 2

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED

THE DETROIT EDISON COMPANY
GENERAL ENGINEERING DEPARTMENT

LAYOUT BY RGS.

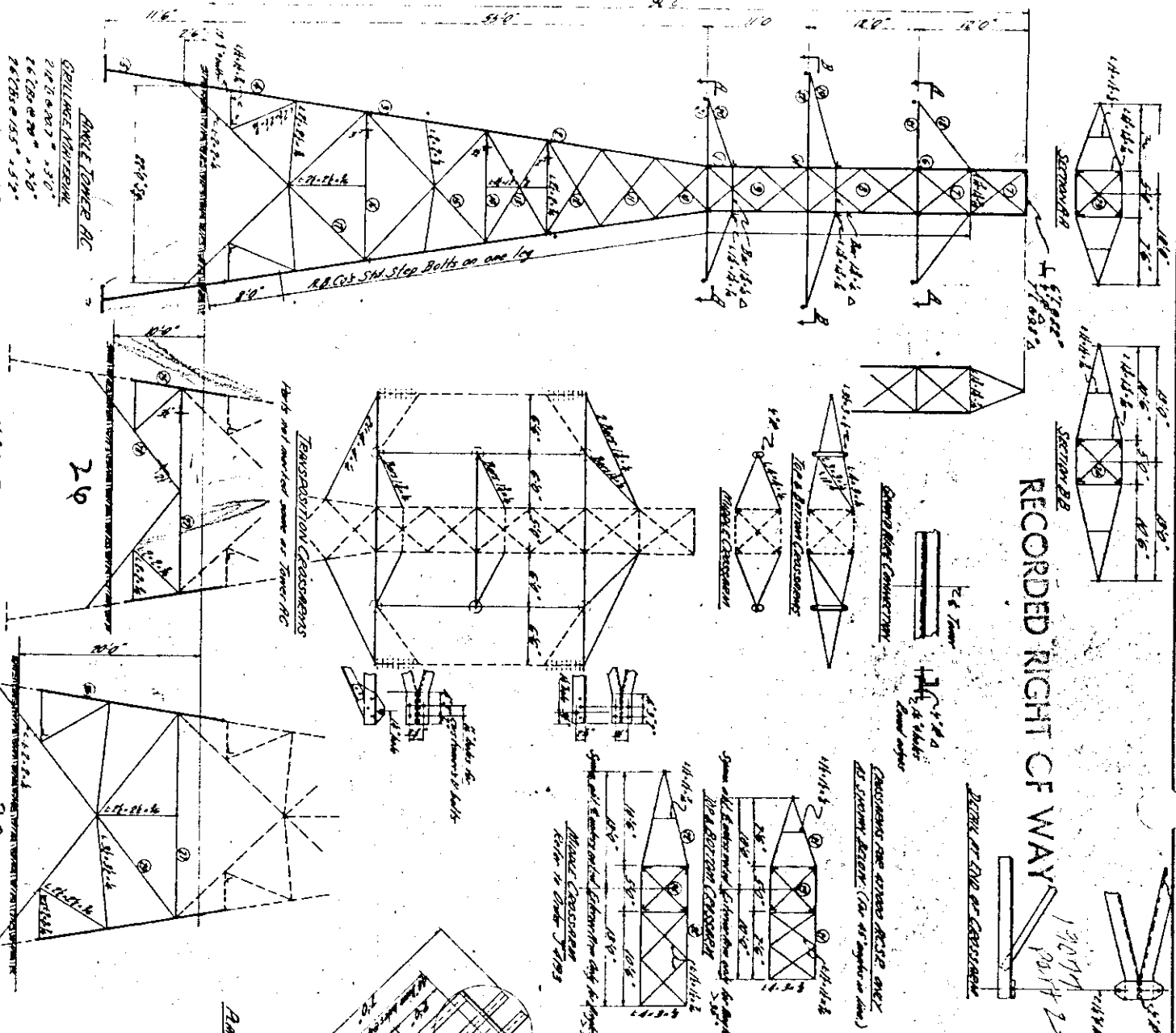
DRAWN BY N.H.H.

DATE 4-2-70.

ED1-8028

SCALE

RECORDED RIGHT OF WAY

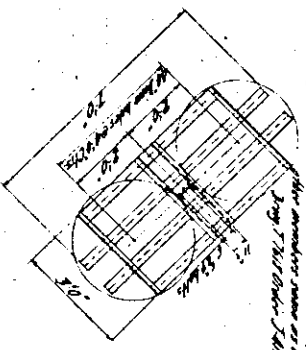


- ANGLE TOWER AC**
- 212.7° 00' 00" = 37°
 - 162.00° 00' 00" = 20°
 - 162.50° 00' 00" = 20°
 - 103.5° 00' 00" = 17°

Reference: Tower AC, Dwg. T-100, Order J-4093
 Details shown extend to number marked thereon

RAILS EXTENSION
 210
 30

Order	Section	Span
1	AC - 6.5	6.5
2	AD - 6.5	6.5
3	AE - 6.5	6.5
4	AF - 6.5	6.5
5	AG - 6.5	6.5
6	AH - 6.5	6.5
7	AI - 6.5	6.5
8	AJ - 6.5	6.5
9	AK - 6.5	6.5
10	AL - 6.5	6.5
11	AM - 6.5	6.5
12	AN - 6.5	6.5
13	AO - 6.5	6.5
14	AP - 6.5	6.5
15	AQ - 6.5	6.5
16	AR - 6.5	6.5
17	AS - 6.5	6.5
18	AT - 6.5	6.5
19	AU - 6.5	6.5
20	AV - 6.5	6.5
21	AW - 6.5	6.5
22	AX - 6.5	6.5
23	AY - 6.5	6.5
24	AZ - 6.5	6.5
25	BA - 6.5	6.5
26	BB - 6.5	6.5
27	BC - 6.5	6.5
28	BD - 6.5	6.5
29	BE - 6.5	6.5
30	BF - 6.5	6.5



1951

Tower

ANGLE TOWER D

The tower is designed to support 1 1/2 volt (Ground Wire) and 67,500 volt (5) wires (3 conductors) at a normal span of 1000 with 25' sag. The cables are to be so strung that the maximum sagging under a full ice & 15 mph wind will not exceed 6000 in the ground wire and 12000 in the conductors.

DETAILS

- (1) Tower height 6000' 000" 000"
- (2) Tower width 480' 000" 000"
- (3) Tower depth 480' 000" 000"
- (4) Tower height to top of line 5800' 000" 000"
- (5) Tower height to top of tower 5600' 000" 000"
- (6) Tower height to top of tower 5400' 000" 000"
- (7) Tower height to top of tower 5200' 000" 000"
- (8) Tower height to top of tower 5000' 000" 000"
- (9) Tower height to top of tower 4800' 000" 000"
- (10) Tower height to top of tower 4600' 000" 000"
- (11) Tower height to top of tower 4400' 000" 000"
- (12) Tower height to top of tower 4200' 000" 000"
- (13) Tower height to top of tower 4000' 000" 000"
- (14) Tower height to top of tower 3800' 000" 000"
- (15) Tower height to top of tower 3600' 000" 000"
- (16) Tower height to top of tower 3400' 000" 000"
- (17) Tower height to top of tower 3200' 000" 000"
- (18) Tower height to top of tower 3000' 000" 000"
- (19) Tower height to top of tower 2800' 000" 000"
- (20) Tower height to top of tower 2600' 000" 000"
- (21) Tower height to top of tower 2400' 000" 000"
- (22) Tower height to top of tower 2200' 000" 000"
- (23) Tower height to top of tower 2000' 000" 000"
- (24) Tower height to top of tower 1800' 000" 000"
- (25) Tower height to top of tower 1600' 000" 000"
- (26) Tower height to top of tower 1400' 000" 000"
- (27) Tower height to top of tower 1200' 000" 000"
- (28) Tower height to top of tower 1000' 000" 000"
- (29) Tower height to top of tower 800' 000" 000"
- (30) Tower height to top of tower 600' 000" 000"
- (31) Tower height to top of tower 400' 000" 000"
- (32) Tower height to top of tower 200' 000" 000"
- (33) Tower height to top of tower 0' 000" 000"

TRANSMISSION TOWERS

The DELBERT EDISON CO.

DELBERT EDISON CO.

AMERICAN BRIDGE CO.

PITTSBURGH, PA.

GROUP WIRE

REVISIONS

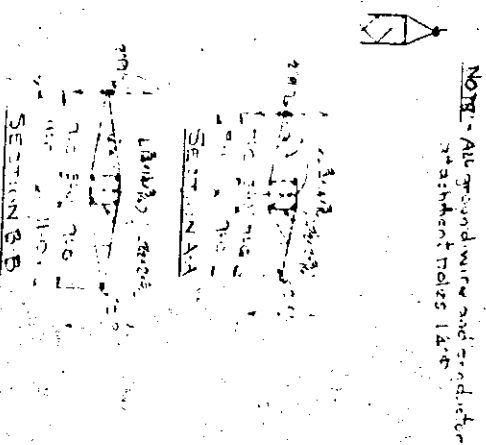
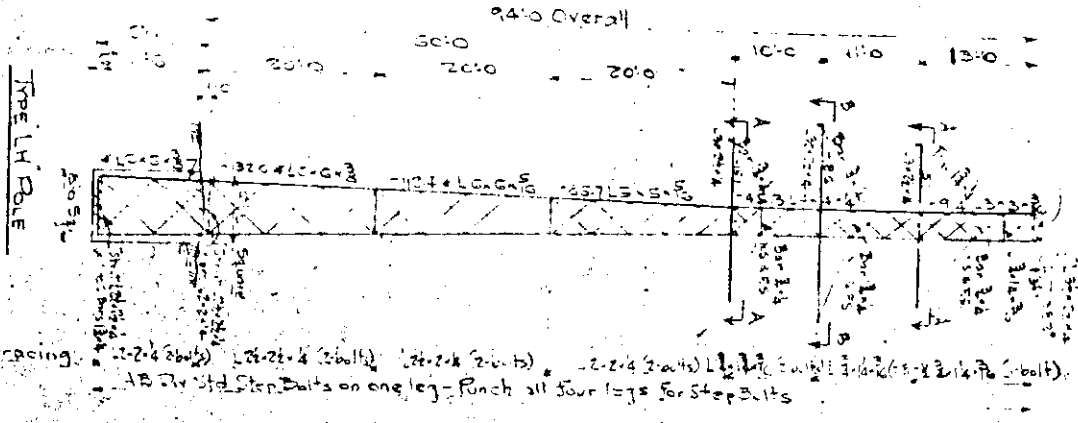
INQUIRY NO. 75447

ORDER NO. 28467

DRAWING T-1003

1951

Copyright American Bridge Co. 1929



NOTE - All ground wire and conductor attachment poles 14'ft

NOTE - Maximum wire - 14'ft
* USS Tension (Add)

MAX. LOAD 6,500 H.L.T.
600 FT. SPAN
477 ACSSR
10° TURN

DEAD END TOWER.

THE DETROIT TOWER COMPANY
TYPE LH POLE

AMERICAN BRIDGE

LOWER DEPARTMENT

DRAWING NO. T-10677
INQUIRY NO. T-0375
DATE: 10/15/1923

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TYPE LH POLE STRUCTURE
477' Span
600' Span
477' Span
10° TURN
MAX. LOAD 6,500 H.L.T.

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

Vertical Load 3000 lbs
Tension 1500 lbs
Compression 1500 lbs

THE CALCULATIONS FOR THIS TRIAL ARE FOR 10-5-74 954 5477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 754,000CM ACSR 5477

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL MAX TENS
1	200.0	1500.00	0.84340	17100

*****CREEP IS A

INDEX	TEMP.	INITIAL SAG	INITIAL TENSION	FINAL SAG	FINAL TENSION
1	0.	32.90	8500.	33.07	8356.
2	0.	29.03	4311.	30.54	4101.
3	32.	32.37	7087.	33.31	6894.
4	10.	29.51	4242.	31.03	4037.
5	20.	29.98	4126.	31.52	3975.
6	30.	30.45	4113.	31.90	3917.
7	40.	30.91	4053.	32.47	3860.
8	50.	31.37	3994.	32.93	3806.
9	60.	31.82	3938.	33.40	3754.
10	70.	32.27	3883.	33.85	3704.
11	80.	32.72	3831.	34.31	3656.
12	90.	33.16	3781.	34.76	3610.
13	122.	34.55	3631.	36.16	3472.
14	212.	33.25	3285.	32.37	3184.
15	120.	34.46	3640.	36.07	3430.

RECORDED RIGHT OF WAY - M1

19077 part 2

THE CALCULATIONS FOR THIS TRIAL ARE FOR
STRESS-STRAIN CURVES USED REPRESENT

477 STUDY
266-800 CM TO 636,000 (

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL MAX TEM
1	500.0	6000.00	0.43560	980

*****CREEP IS

INDEX	TEMP.	INITIAL		FINAL	
		SAG	TENSION	SAG	TENSION
1	0.	10.10	-6000.	10.10	5998.
2	0.	5.88	3498.	6.65	3092.
3	32.	9.85	4775.	10.27	4582.
4	10.	6.22	3303.	7.08	2903.
5	20.	6.59	3120.	7.52	2733.
6	30.	6.97	2951.	7.96	2583.
7	40.	7.35	2797.	8.40	2448.
8	50.	7.74	2657.	8.83	2329.
9	60.	8.13	2528.	9.26	2222.
10	70.	8.53	2412.	9.68	2126.
11	80.	8.92	2306.	10.09	2040.
12	90.	9.31	2209.	10.49	1962.
13	100.	9.70	2122.	10.88	1892.
14	110.	10.08	2041.	11.27	1827.
15	120.	10.46	1968.	11.64	1768.

RECORDED RIGHT OF WAY

190777 part 2

DATA SHEET TO ACCOMPANY DRAWING RX-2898C

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel-Evergreen and the Warren-Evergreen #1 120 KV transmission lines over the C. & O. Railroad approximately 1,900 feet south of Schoolcraft Road and approximately 400 feet east of Evergreen Road.

Crossing in the northwest 1/4 of Section 26, City of Detroit, Wayne County, Michigan.

Circuits

Two 120,000 volt, 60 cycle, 3 phase transmission lines with one ground wire.

Towers and Crossarms

As per attached drawings ED1-65 (EA), and T-8415 (D).

Conductors

Six 954 54/7 MCM ACSR and 1-3/8" 7 strand steel ground wire.

Insulators

120 KV: Suspension: 8 insulators O.B. 48008 or equivalent. Deadend: 9 insulators O.B. 47410 or equivalent.

Guy and Guy Attachments

None

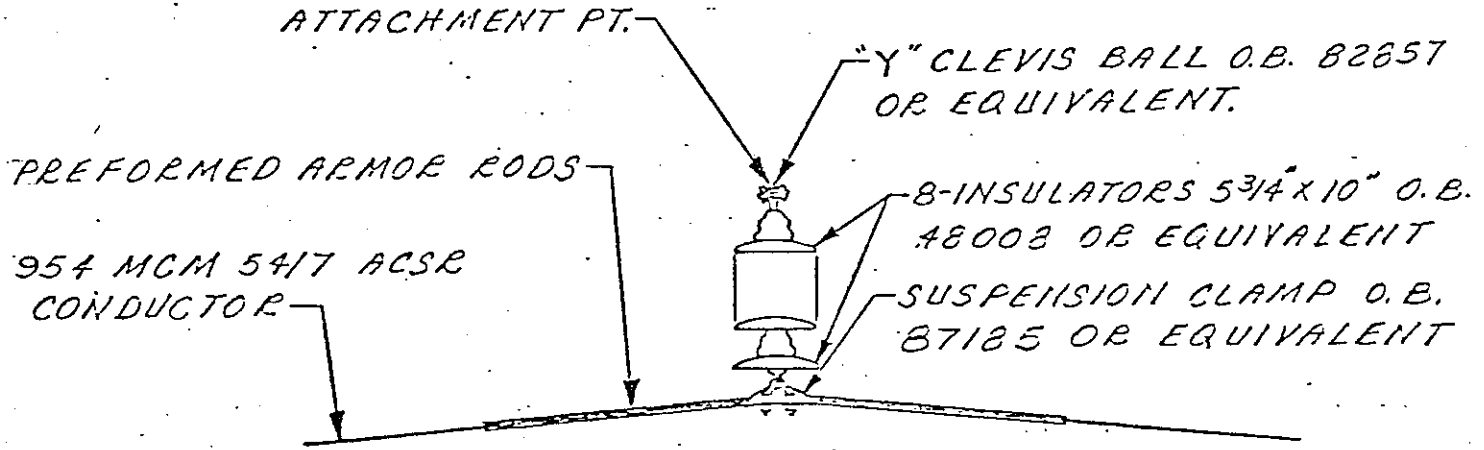
Suspension and Deadend Details

See attached drawing ED1-7430

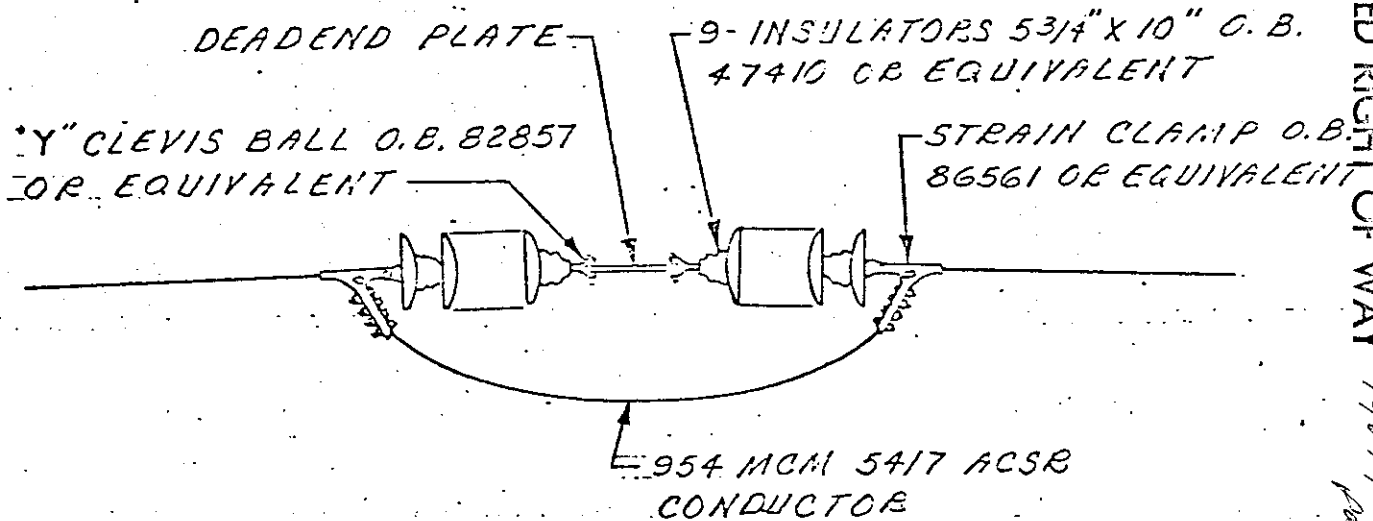
RECORDED RIGHT OF WAY

1967 part 2

SUSPENSION ASS'Y
DETAILS



DEADEND ASS'Y
DETAILS

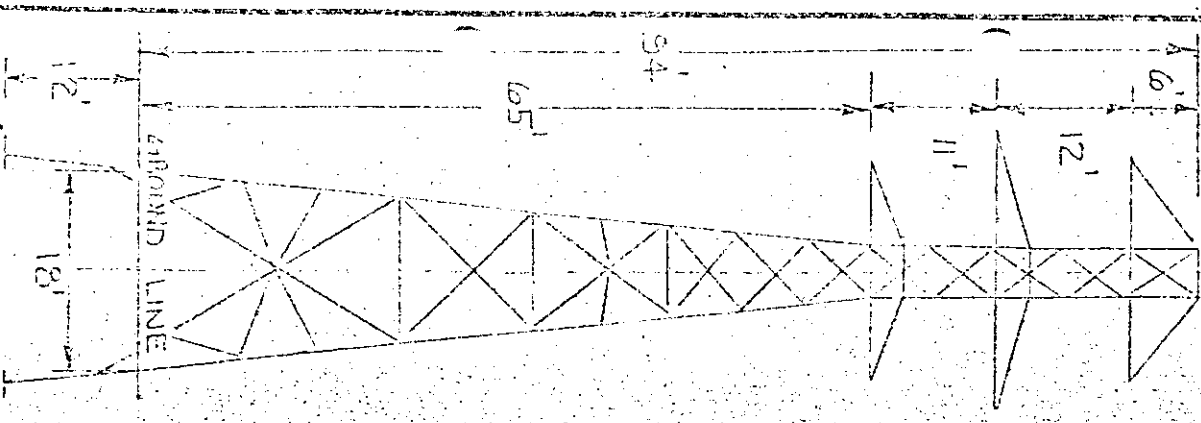
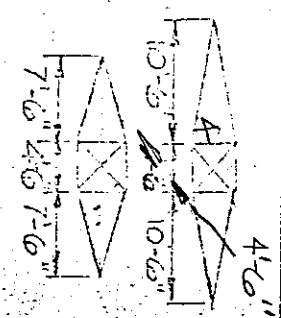


RECORDED RIGHT OF WAY 19077 Part 2

120 KV SUSPENSION &
DEADEND ASS'Y DETAILS

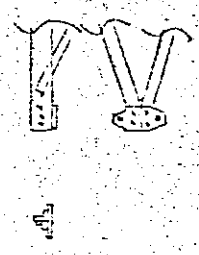
APPROVED <i>J. S. W.</i>	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>J. WRIGHT</i>	DRAWN BY <i>J. E. H.</i>
	DATE <i>1-25-71</i>	DRAWING NUMBER
	SCALE	<i>ED1-7430</i>

RECORDED RIGHT OF WAY 19097 part 22

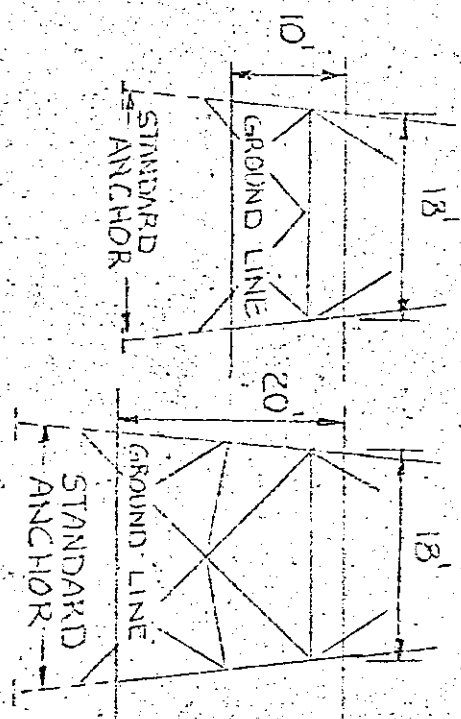


EA TOWER

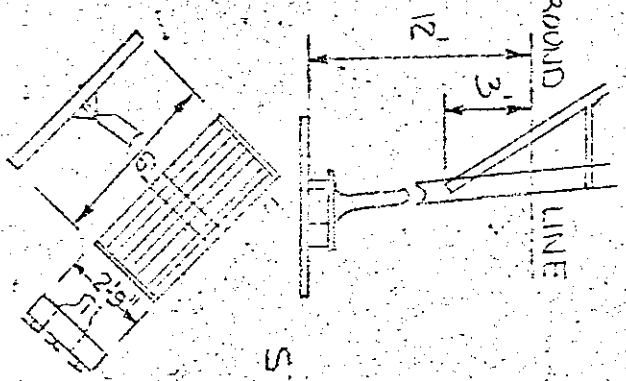
DETAIL AT END OF CROSS-ARM



10' EXTENSION 20' EXTENSION



STANDARD EARTH ANCHOR



DETROIT EDISON CO.
STRAIN TOWER "EA"

APPROVED

THE DETROIT EDISON COMPANY
GENERAL ENGINEERING DEPARTMENT

LAYOUT BY: DRAWN BY: C. VAN PATTEN

DATE: 6-3-71 DRAWING NUMBER: ED 1-765

65'0" Suspension Tower

Steel Channels 110 lbs. per foot
 No. 514 - 775,000 (44) 1/2" x 11 1/2" Channels
 Length of 75'0" on 1000 ft Tower
 1/2" Curved Channels

- LOADS
- 1 - Gross Wind @ 820' 820
 - 2 - Gross Wind @ 2500' 19000
 - 3 - Gross Wind @ 400' 460
 - 4 - Gross Wind @ 705' 5270
 - 5 - Gross Wind @ 4500' 40500

any 1 - Concrete @ 6000 (20% of 7500)
 4 - Wind on Tower of 6.5' per Sq Foot on 12 Times The Projected Area of One Face of The Tower.

5 - Dead Load of Tower
 Concrete
 12700, 25400, 25400, 12700
 on 1200, 2540, 1000, 2540, 12700

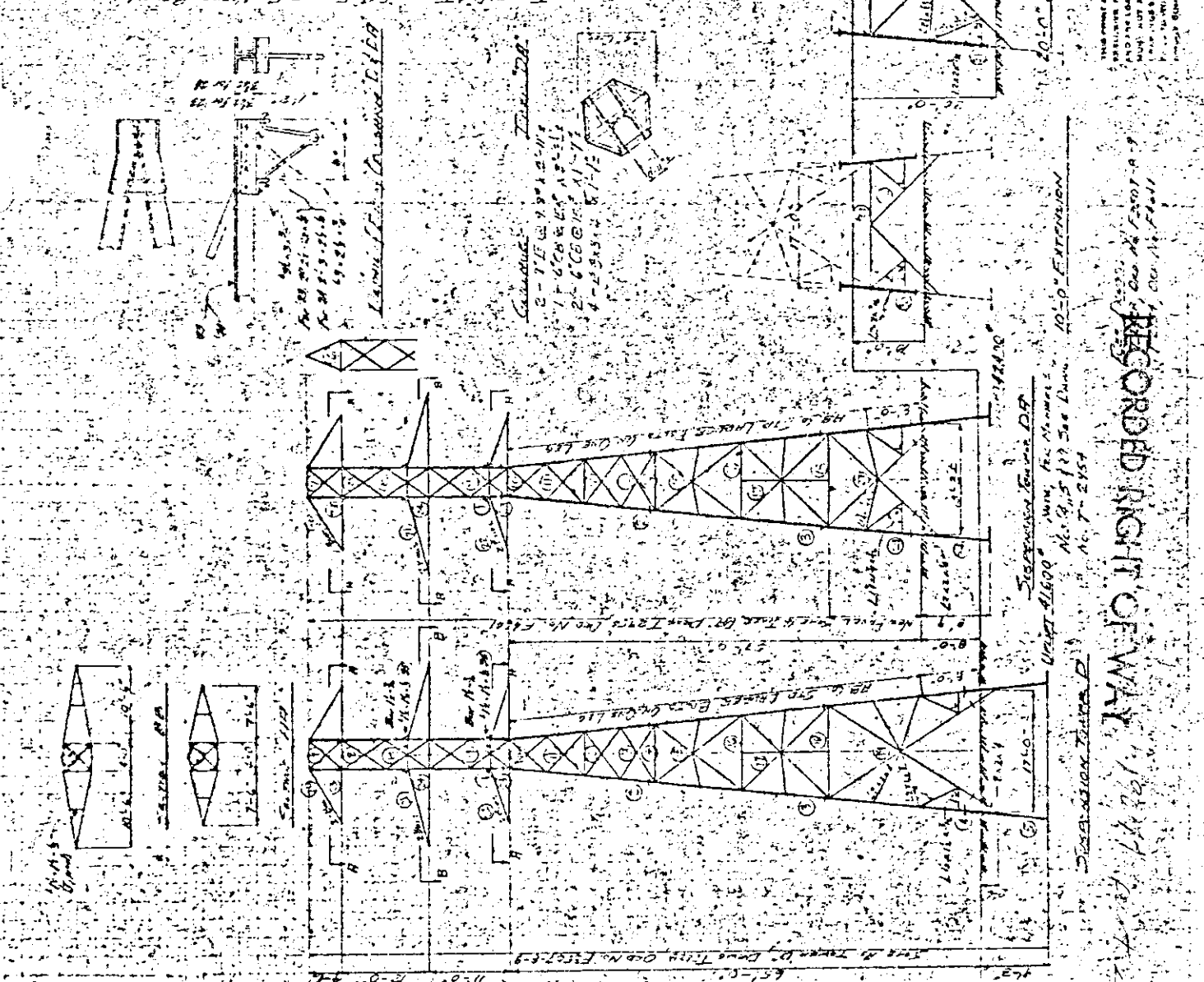
UNIT STRESS-ULTIMATE-M.E.S.C. STRESS
 TENSION ON NET SECTION 33000
 COMPRESSION ON GROSS SECTION 25000
 SHEAR ON BELT 50,000
 MOMENT ON BELT 60,000

MATERIALS OH Steel, A.S.T.M. Spec.
 Note: all dimensions in ft. unless otherwise stated.
CONCRETE All Materials Concrete
CONNECTIONS Bolted, 5/8" Bolts
SPECIFICATIONS A.R.C. Co. Sp. Spec. for Tower Section Towers

65'-0" Suspension Towers D.S.D.A.
57'-0" Suspension Towers D.S.D.A.
 The Detroit Edison Co.
 Detroit, Mich.

AMERICAN BRIDGE COMPANY
 1100 East 10th Street
 Detroit, Mich. 48207
 Drawing No. T-8415
 Date: 11/19/20
 Project No. 1100
 Contract No. R-245-XI

Section	Quantity	Weight
1-302 L 4x4 3/4	40	14400
2-205 L 4x4 3/4	40	14400
3-155 L 4x4 3/4	40	14400
4-105 L 4x4 3/4	40	14400
5-55 L 4x4 3/4	40	14400
6-5 L 4x4 3/4	40	14400
7-25 L 4x4 3/4	40	14400
8-15 L 4x4 3/4	40	14400
9-10 L 4x4 3/4	40	14400
10-5 L 4x4 3/4	40	14400
11-25 L 4x4 3/4	40	14400
12-15 L 4x4 3/4	40	14400
13-10 L 4x4 3/4	40	14400
14-5 L 4x4 3/4	40	14400
15-25 L 4x4 3/4	40	14400
16-15 L 4x4 3/4	40	14400
17-10 L 4x4 3/4	40	14400
18-5 L 4x4 3/4	40	14400
19-25 L 4x4 3/4	40	14400
20-15 L 4x4 3/4	40	14400
21-10 L 4x4 3/4	40	14400
22-5 L 4x4 3/4	40	14400
23-25 L 4x4 3/4	40	14400
24-15 L 4x4 3/4	40	14400
25-10 L 4x4 3/4	40	14400
26-5 L 4x4 3/4	40	14400
27-25 L 4x4 3/4	40	14400
28-15 L 4x4 3/4	40	14400
29-10 L 4x4 3/4	40	14400
30-5 L 4x4 3/4	40	14400
31-25 L 4x4 3/4	40	14400
32-15 L 4x4 3/4	40	14400
33-10 L 4x4 3/4	40	14400
34-5 L 4x4 3/4	40	14400
35-25 L 4x4 3/4	40	14400
36-15 L 4x4 3/4	40	14400
37-10 L 4x4 3/4	40	14400
38-5 L 4x4 3/4	40	14400



RECORDED RIGHT OF WAY
 11/19/20
 11/19/20

THE CALCULATIONS FOR THIS TRIAL ARE FOR STUDY
 STRESS-STRAIN CURVES USED REPRESENT

954.000 CM ACSR 54/7 7

STARTING INDEX	RULING SPAN	-----ACTUAL BEGIN	SPANS----- FINAL	INCREMENT	STARTING SAG OR TENSION
1	500.0	0.0	0.0	0.0	6500.00

*****CREEP IS A I

INDEX	TEMP.	INITIAL		FINAL		-----MIN
		SAG	TENSION	SAG	TENSION	
1	0.	13.08	-6500.	13.34	6372.	
2	0.	11.16	3454.	11.90	3239.	
3	32.	13.53	5300.	13.99	5126.	
4	10.	11.51	3347.	12.27	3142.	
5	20.	11.86	3249.	12.63	3053.	
6	30.	12.21	3157.	12.99	2970.	
7	40.	12.55	3071.	13.33	2893.	
8	50.	12.89	2991.	13.67	2821.	
9	60.	13.22	2917.	14.01	2754.	
10	70.	13.55	2847.	14.34	2692.	
11	80.	13.87	2782.	14.66	2633.	
12	90.	14.19	2720.	14.98	2578.	
13	100.	14.50	2662.	15.29	2525.	
14	110.	14.81	2607.	15.60	2476.	
15	120.	15.11	2556.	15.90	2430.	

RECORDED RIGHT OF WAY

19074 part 2

DATA SHEET TO ACCOMPANY DRAWING RX-2904C

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Warren-Evergreen #1 and the Diesel-Evergreen steel tower line over the C. & O. Railroad in Detroit, Michigan at the following locations:

Crossing No. 1: Located approximately 350' east of Evergreen and 1000 feet south of Schoolcraft.

Crossing No. 2: Located approximately 350' east of Evergreen and 1300 feet south of Schoolcraft.

Circuits

Two 120,000 volt, 60-cycle, 3-phase, 3-wire transmission circuits with one ground wire.

Towers and Crossarms

As per attached drawings ED1-65 (EA), and T-8415 (D).

Conductors

Six 954 54/7 ACSR and 1-3/8" 7 strand steel ground wire.

Insulators

120 KV: Suspension: 8 insulators O.B.-48008 or equivalent.
Deadend: 9 insulators O.B. 47410 or equivalent.

Guy and Guy Attachments

None

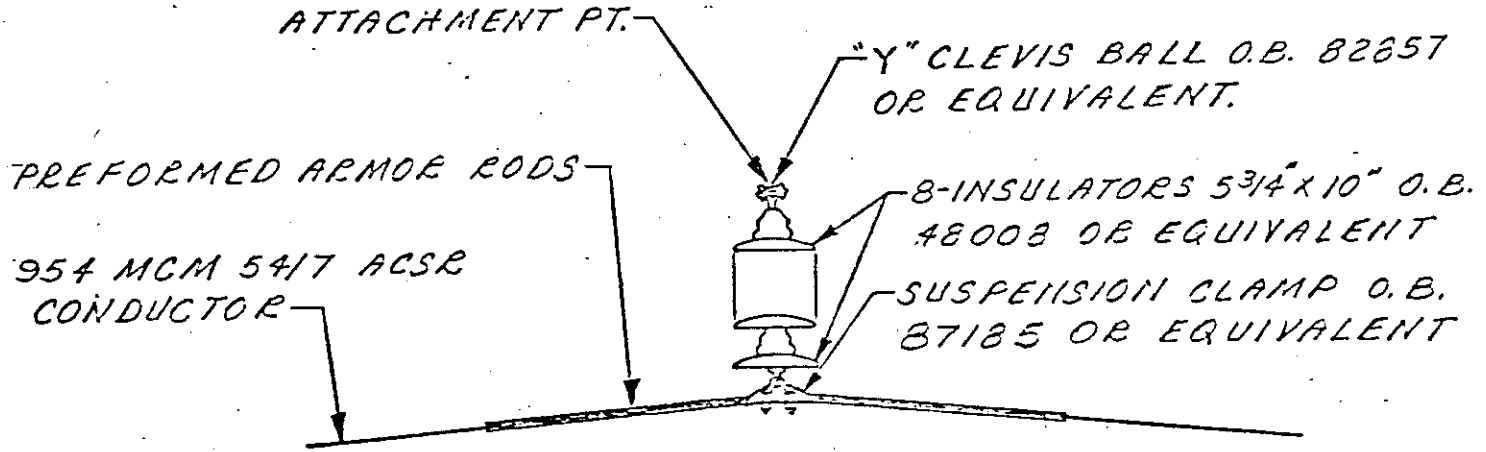
Suspension and Deadend Details

See attached drawing ED1-7430

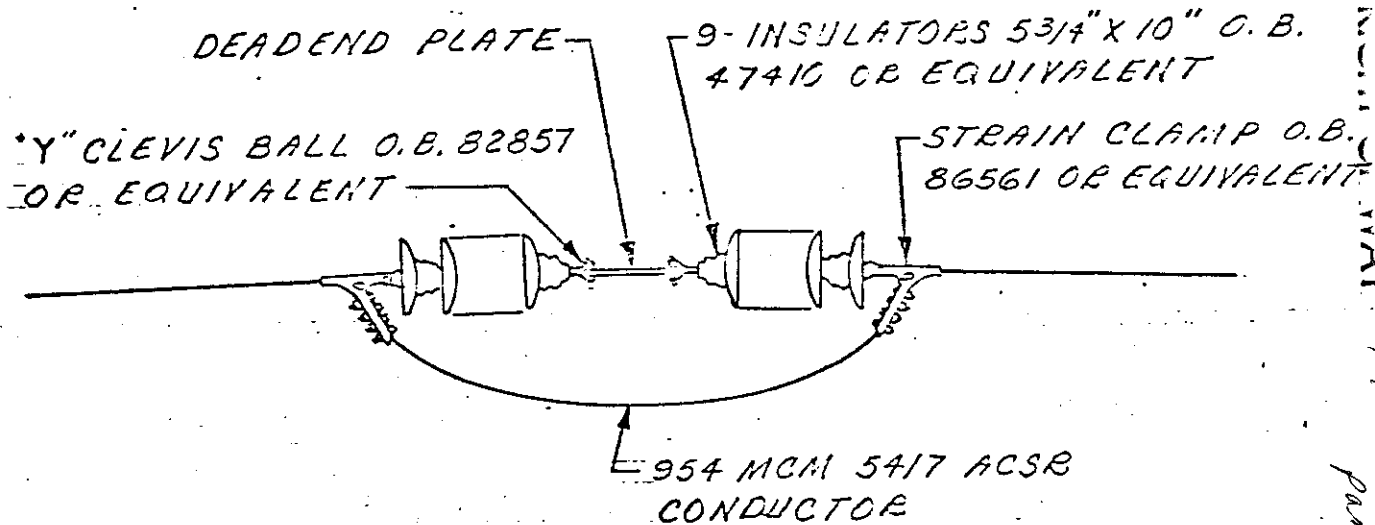
RECORDED RIGHT OF WAY

19077 part 2

SUSPENSION ASS'Y
DETAILS



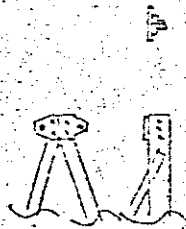
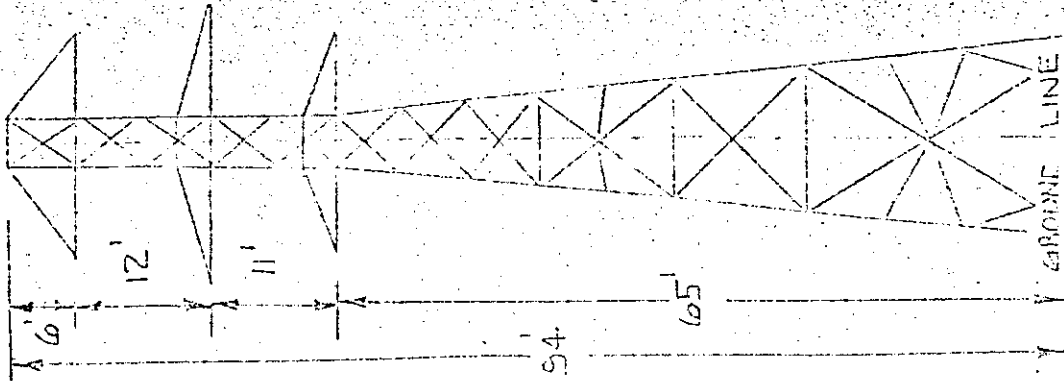
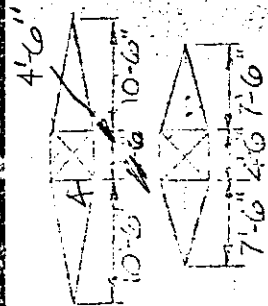
DEADEND ASS'Y
DETAILS



RECORDED NIGHT OF MAY 19 1971 part 2

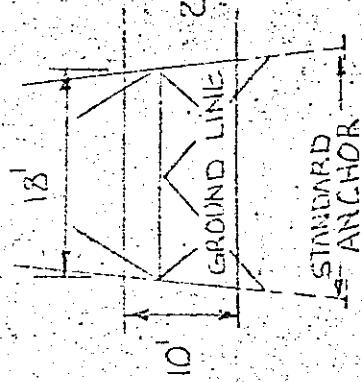
120 KV SUSPENSION &
DEADEND ASS'Y DETAILS

APPROVED <i>J. Wright</i>	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>J. WRIGHT</i>	DRAWN BY <i>JEN</i>
	DATE <i>1-25-71</i>	DRAWING NUMBER
	SCALE	<i>ED1-7430</i>

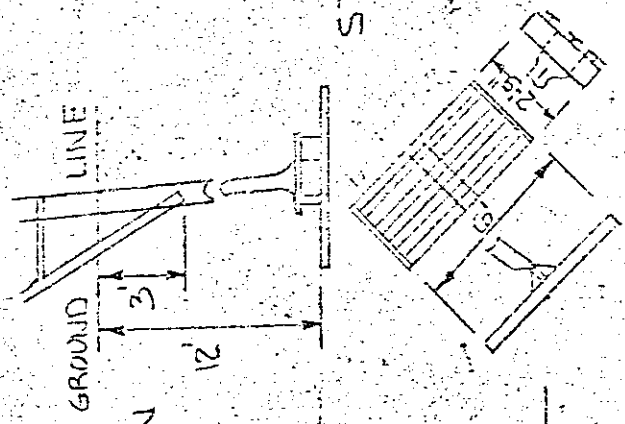
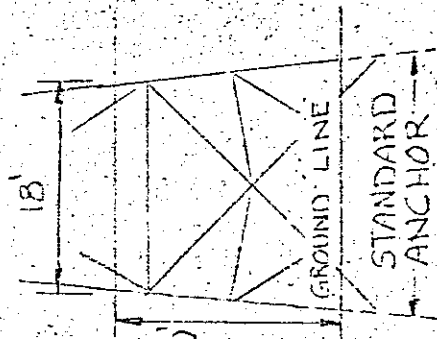


DETAIL AT END OF CROSS-ARM

10' EXTENSION



20' EXTENSION



STANDARD EARTH ANCHOR

THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT		LAYOUT BY: C. VAN PAPS
DATE: 5-3-11	DRAWING NUMBER: ED 1-765	SCALE: 1/2"
APPROVED:		

DETROIT EDISON CO.
RECORDED RIGHT OF WAY
STRAIN TOWER "EA"
1907/7

THE CALCULATIONS FOR THIS TRIAL ARE FOR SAG VALUES FOR SHORT SPAN
 STRESS-STRAIN CURVES USED REPRESENT 954,000CM ACSR 5"

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INIT MAY
1	300.0	3500.00	0.84640	

*****CREEP

INDEX	TEMP.	SAG	INITIAL TENSION	SAG	FINAL TENSION
1	0.	8.75	-3500.	8.79	3487.
2	0.	8.19	1696.	8.34	1666.
3	0.	8.60	3003.	8.66	2981.
4	30.	8.78	1583.	8.94	1555.
5	60.	9.34	1489.	9.51	1463.
6	90.	9.87	1410.	10.05	1385.
7	120.	10.38	1342.	10.50	1326.

RECORDED RIGHT OF WAY

19097 part 2

THE CALCULATIONS FOR THIS TRIAL ARE FOR STUDY
 STRESS-STRAIN CURVES USED REPRESENT

954,000 CM ACSR 54/7 7

STARTING INDEX	RULING SPAN	-----ACTUAL BEGIN	SPANS----- FINAL	INCREMENT	STARTING SAG OR TENSION
1	500.0	0.0	0.0	0.0	6500.00

*****CREEP IS A I

INDEX	TEMP.	INITIAL		FINAL		-----MIN
		SAG	TENSION	SAG	TENSION	
1	0.	13.08	-6500.	13.34	6372.	
2	0.	11.16	3454.	11.90	3239.	
3	32.	13.53	5300.	13.99	5126.	
4	10.	11.51	3347.	12.27	3142.	
5	20.	11.86	3249.	12.63	3053.	
6	30.	12.21	3157.	12.99	2970.	
7	40.	12.55	3071.	13.33	2893.	
8	50.	12.84	2991.	13.67	2821.	
9	60.	13.22	2917.	14.01	2754.	
10	70.	13.55	2847.	14.34	2692.	
11	80.	13.87	2782.	14.66	2633.	
12	90.	14.19	2720.	14.98	2578.	
13	100.	14.50	2662.	15.29	2525.	
14	110.	14.81	2607.	15.60	2476.	
15	120.	15.11	2556.	15.90	2430.	

RECORDED RIGHT OF WAY. 1904H part 2

DATA SHEET TO ACCOMPANY DRAWING RX-3156B

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel-Evergreen 120 KV steel tower line over the Chesapeake and Ohio Railroad spur track located approximately 725' west of Burt Road and approximately 2,640 feet north of Plymouth Road, at railroad stationing 483+00 in the northwest 1/4 of section 27, City of Detroit, Wayne County, Michigan T.15. - R. 10E.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one ground wire.

Towers and Crossarms

See attached drawings T-7811 (P).

Conductors

6-477 MCM 26/7 ACSR conductors and one 3/8" Bethanized "C" steel ground wire.

Insulators

120 KV suspension assembly, twelve O.B. 32440 or equivalent.

Guy and Guy Attachments

None

Suspension and Deadend Details

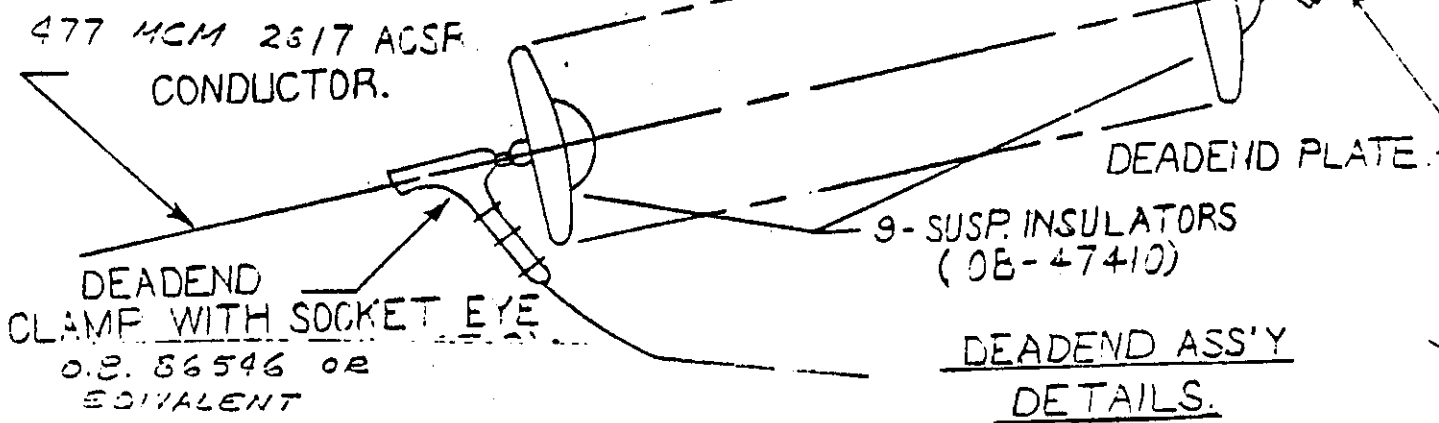
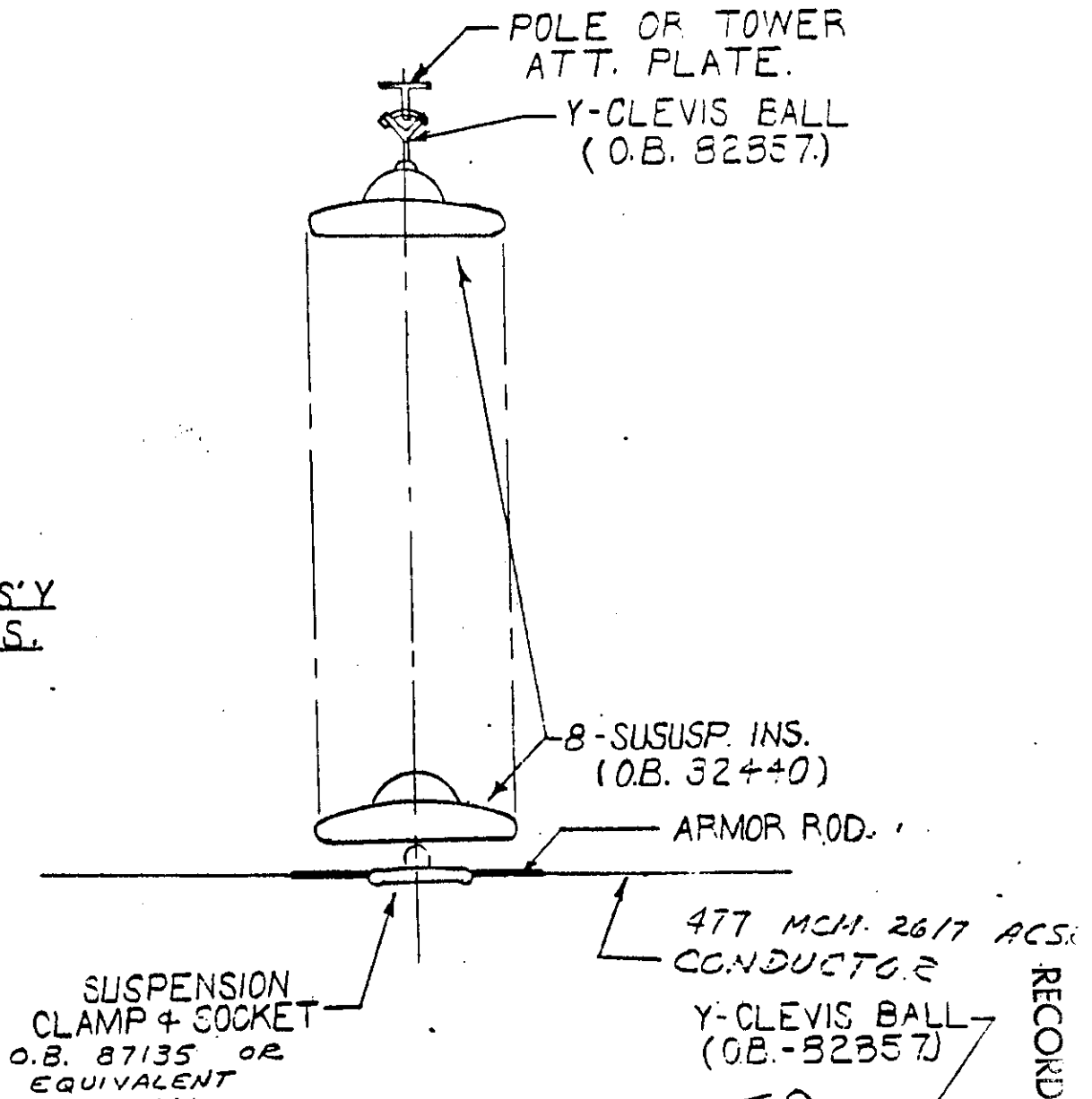
See attached drawing, ED1-8028

System Engineering Department
CVP/cb 10-3-84

RECORDED RIGHT OF WAY

19074 part 2

SUSP. ASS'Y
DETAILS.



RECORDED RIGHT OF WAY 190774 part 2

<p>120 KV SUSPENSION & DEADEND ASSEMBLY DETAILS</p>	APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
		LAYOUT BY R.C.S.	DRAWN BY N.H.H.
		DATE 4-2-70.	EDI-8028
		SCALE	

RECORDED RIGHT OF WAY

1967H part 2

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT

266,800 CM TO 636,000 CM ACSR 26/7

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL LIMIT MAX TENSION	INITIAL BARRIER LIMIT TENSION
1	600.0	7770.00	0.43560	9800.00	6500.00

*****CREEP IS A FACTOR*****

INDEX	TEMP.	SAG	INITIAL TENSION	SAG	FINAL TENSION	SAG IS IN FEET AND T
1	0.	11.23	-7770.	11.30	7723.	-----MINUS SIGN INDICATES CO
2	0.	5.38	5495.	6.33	4676.	
3	32.	10.47	6463.	11.18	6057.	
4	10.	5.64	5244.	6.76	4380.	
5	20.	5.92	4995.	7.21	4106.	
6	30.	6.23	4751.	7.68	3855.	
7	40.	6.56	4513.	8.16	3628.	
8	50.	6.90	4287.	8.65	3422.	
9	60.	7.27	4070.	9.14	3238.	
10	70.	7.66	3864.	9.64	3071.	
11	80.	8.06	3671.	10.14	2920.	
12	90.	8.49	3488.	10.63	2785.	
13	100.	8.91	3321.	11.12	2664.	
14	110.	9.35	3165.	11.60	2553.	
15	120.	9.80	3021.	12.08	2453.	

SUSPENSION TOWER "P"

The tower is designed to support 11 45 Crevice Shield Ground Wire and 6 #17000 ea. ACSR Conductors on a maximum span of 600' with 5' minimum angle in line.

The cables are to be so strung that the maximum tension under normal conditions of cables will not exceed 53000 in the Ground Wire and 7700 in the Con. A.C.S.R.

LOADS

- (1) Gal. wire @ 500' = 500'
- (2) Conductors @ 100' = 6000'
- (3) Wind on wires @ 80' = 280'
- (4) Conductors @ 975' = 2150'
- (5) 5' High in line hardware @ 460' = 1'
- (6) Conductors @ 600' = 1'

Total = 4460'

(7) Conductors @ 5300' = 1'

(8) Wind on tower @ 5' per sq. ft. = 1'

(9) Projected area of wire face = 1'

(10) Projected area of tower = 1'

UNIT STRESSES

Tension on net section 30000 per sq. in.
 Comp on gross section 30000 per sq. in.
 Shear on bolts 30000 per sq. in.
 Bearing on bolts 60000 per sq. in.

MATERIALS: A.C.S.R. - ASTA 97
 Hardware - A.S.T.M. A 197
 Connections - A.S.T.M. A 197
 Specifications for Transmission Towers.

COATING: All material galvanized
CONNECTIONS: Bolted 5" bolts
SPECIFICATIONS: A.S.T.M. A 197
 Specifications for Transmission Towers.

Alt	SECTION
1	6.7 71.74 = 4
2	43.1 43.94 = 4
3	40.8 41.4 = 4
4	44.4 44.4 = 4
5	64.5 64.5 = 4
6	64.8 64.8 = 4
7	42 42 = 4
8	18.7 21.1 = 4
9	15.3 21.2 = 4
10	9.5 11.1 = 4
11	7.0 7.0 = 4
12	6.2 6.2 = 4
13	4.8 4.8 = 4
14	3.8 4.8 = 4
15	11.4 11.4 = 4
16	5.4 5.4 = 4
17	7.9 7.9 = 4
18	7.7 7.7 = 4
19	9.9 9.9 = 4
20	7.1 7.1 = 4
21	14.8 14.8 = 4
22	18.9 18.9 = 4
23	19.7 19.7 = 4
24	11.0 11.0 = 4
25	22 22 = 4
26	20 20 = 4
27	51 51 = 4
28	55.8 55.8 = 4
29	65.9 65.9 = 4
30	67.4 67.4 = 4
31	63.1 63.1 = 4
32	63.2 63.2 = 4
33	8.0 8.0 = 4
34	9.0 9.0 = 4
35	11.4 11.4 = 4
36	4.0 4.0 = 4
37	4.3 4.3 = 4
38	4.8 4.8 = 4

Checkers writing height
 number

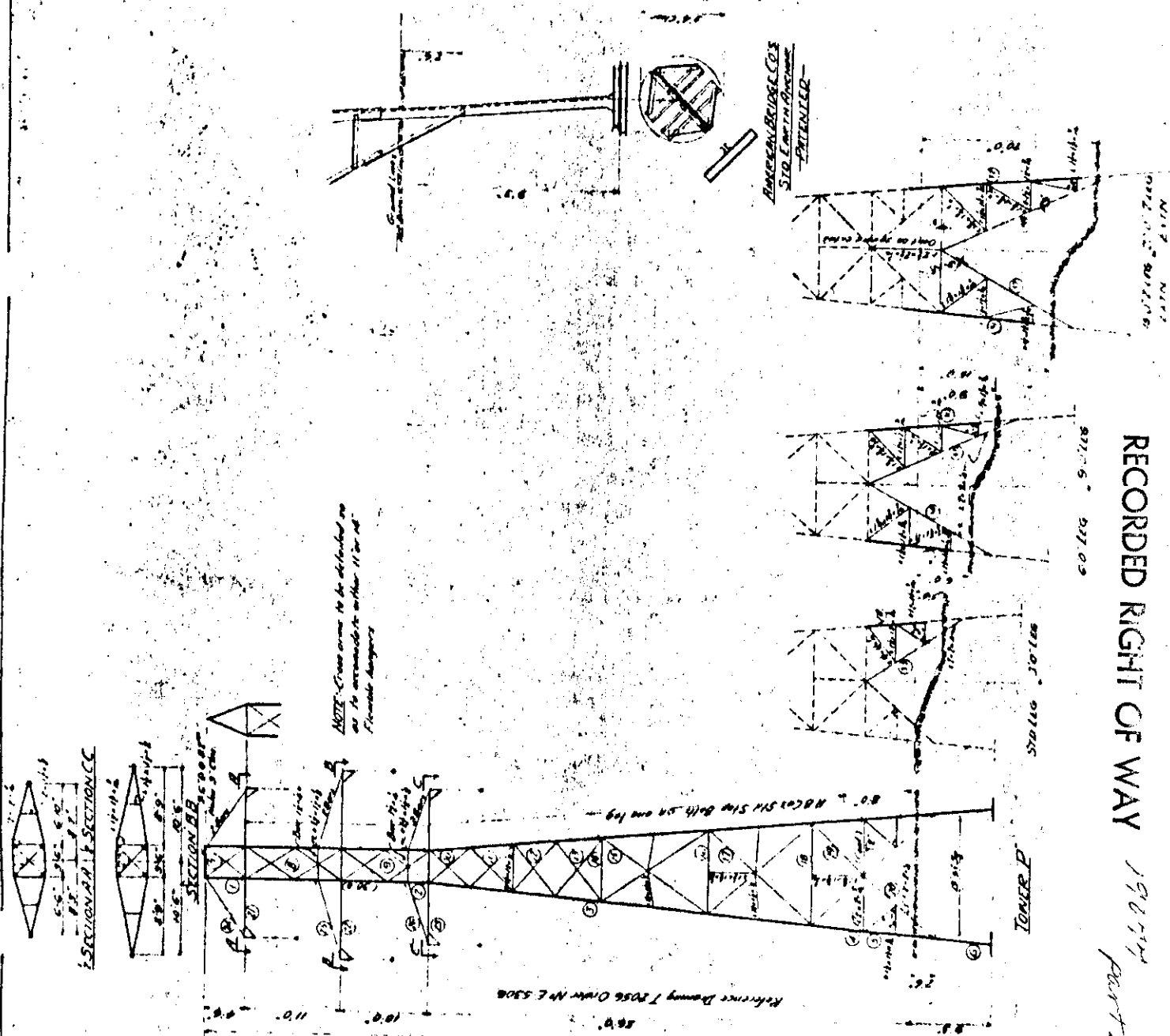
CONCRETE MATERIAL
 27.10 @ 98' = 2.65
 26.25 @ 159' = 4.18
 10.3 @ 24' = 2.47

"P" TWR.

TRANSMISSION TOWERS
 THE PITTSBURGH DIVISION
 SUSPENSION TOWER "P"
 LINCOLN COUNTY, MISSOURI

AMERICAN BRIDGE CO.
 PITTSBURGH PA.

ORDER NO. 10000
 DRAWING T-7571



NOTE: Cross arms to be detailed as to connections with 11 or 12 pinable hangers

AMERICAN BRIDGE CO.
 STEEL WORK DIVISION
 PITTSBURGH

RECORDED RIGHT OF WAY

1967
 PART 2

DATA SHEET TO ACCOMPANY DRAWING RX-3157B

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel-Yost 120 KV steel tower line over the Chesapeake and Ohio Railroad. Crossing No. 1: Approximately 2,640 feet north of Plymouth Road and approximately 2,380 feet west of Telegraph Road. Railroad stationing 577+50. Crossing No. 2: Approximately 2,640 feet north of Plymouth Road and approximately 2,920 feet west of Telegraph Road. Railroad stationing 585+80.

Redford Township, northwest 1/4 of Section 29, Wayne County, Michigan.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one ground wire.

Towers and Crossarms

See attached drawing T-7811 (P)

Conductors

6-477 MCM 26/7 ACSR conductors and one 3/8"-7 strand steel ground wire.

Insulators

120 KV suspension assembly, (8) eight O.B. 32440 or equivalent.

Guy and Guy Attachments

None.

Suspension and Deadend Details

See attached drawing ED1-8028

RECORDED RIGHT OF WAY
19077 part 2

RECORDED RIGHT OF WAY *190774 part 1-2*

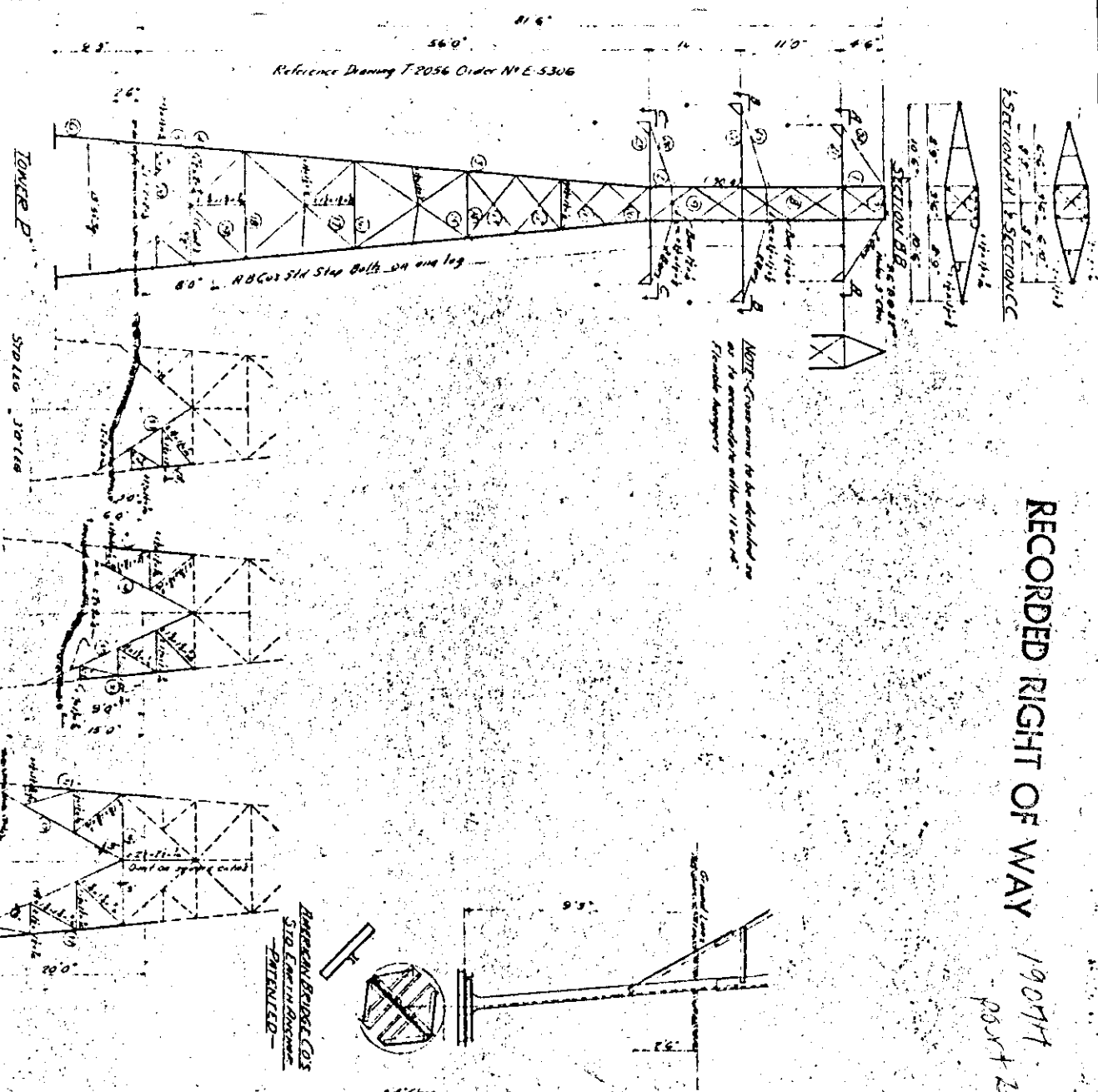
THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 CM ACSR 26/7

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL LIMIT MAX TENSION	INITIAL BAR LIMIT TENSION
1	600.0	7770.00	0.43560	9800.00	6500.00

*****CREEP IS A FACTOR*****

INDEX	TEMP.	INITIAL		FINAL		SAG IS IN FEET AND T
		SAG	TENSION	SAG	TENSION	
1	0.	11.23	-7770.	11.30	7723.	----MINUS SIGN INDICATES CO
2	0.	5.38	5495.	6.33	4676.	
3	32.	10.47	6463.	11.18	6057.	
4	10.	5.64	5244.	6.76	4380.	
5	20.	5.92	4995.	7.21	4106.	
6	30.	6.23	4751.	7.68	3855.	
7	40.	6.56	4513.	8.16	3628.	
8	50.	6.90	4287.	8.65	3422.	
9	60.	7.27	4070.	9.14	3238.	
10	70.	7.66	3864.	9.64	3071.	
11	80.	8.06	3671.	10.14	2920.	
12	90.	8.49	3488.	10.63	2785.	
13	100.	8.91	3321.	11.12	2664.	
14	110.	9.35	3165.	11.60	2553.	
15	120.	9.80	3021.	12.08	2453.	

RECORDED RIGHT OF WAY 1907H
P. 50 x 1 1/2



Member	SECTION
1	6-2 1/2" x 6" x 1/2"
2	4-1 1/2" x 4" x 1/2"
3	3-0" x 4" x 1/2"
4	4-4" x 4" x 1/2"
5	4-4" x 4" x 1/2"
6	4-4" x 4" x 1/2"
7	4-4" x 4" x 1/2"
8	4-4" x 4" x 1/2"
9	4-4" x 4" x 1/2"
10	4-4" x 4" x 1/2"
11	4-4" x 4" x 1/2"
12	4-4" x 4" x 1/2"
13	4-4" x 4" x 1/2"
14	4-4" x 4" x 1/2"
15	4-4" x 4" x 1/2"
16	4-4" x 4" x 1/2"
17	4-4" x 4" x 1/2"
18	4-4" x 4" x 1/2"
19	4-4" x 4" x 1/2"
20	4-4" x 4" x 1/2"
21	4-4" x 4" x 1/2"
22	4-4" x 4" x 1/2"
23	4-4" x 4" x 1/2"
24	4-4" x 4" x 1/2"
25	4-4" x 4" x 1/2"
26	4-4" x 4" x 1/2"
27	4-4" x 4" x 1/2"
28	4-4" x 4" x 1/2"
29	4-4" x 4" x 1/2"
30	4-4" x 4" x 1/2"
31	4-4" x 4" x 1/2"
32	4-4" x 4" x 1/2"
33	4-4" x 4" x 1/2"
34	4-4" x 4" x 1/2"
35	4-4" x 4" x 1/2"
36	4-4" x 4" x 1/2"
37	4-4" x 4" x 1/2"
38	4-4" x 4" x 1/2"

CHALLENGE MATERIAL
7' 7 1/2" x 9' 8" x 1/2"
25 CTS @ 155" x 1/2"
21.3 - 2.9 x 4 x 1/2"

SUSPENSION TOWER 'P'

The tower is designed to support 1.8" HSC-Grade Steel Ground Wire and 6" #77000 ea. ACSSR Conductors on a minimum span of 600' with 5" minimum angle in line.
The cables are to be so strong that the maximum tension under 4" wind on 5" ice coated cables will not exceed 5300' in the Ground Wire and 7700' in the Cables in accordance with 5th Ed. IAS NE-SC LOADS

1 Cond. Max @ 500' = 500' * 6000 = 300,000 lbs.
1 Cond. Max @ 280' = 280' * 6000 = 1,680,000 lbs.
1 Cond. Max @ 315' = 82,500 lbs.
1 Cond. Max @ 450' = 450' * 6000 = 2,700,000 lbs.
1 Cond. Max @ 420' = 1,680,000 lbs.

1 Cond. Max @ 210' (30% of 770')
(For Cond. based on max. of middle span)
(4) Max. on tower of 2.5' per sq. ft. area projected area of wire face
(5) Dead load of tower
Cond. Max @ 210' = 420,000 lbs.
Cond. Max @ 210' = 420,000 lbs.

WIND STRESSES
Tension on net section 35000 per sq ft in Camp on gross section 33000 * 304.9 * 1.50 = 14800 * 108 = 1598400

Shore on both: 30000 per sq ft in Bearing on both: 60000 per sq ft in
WATER: 0.4' Steel 1857M AT below
COATING: All material galvanized
CONNECTIONS: Bolted 5" bolts
SPECIFICATIONS: AISC Standard Specifications for Transmission Towers

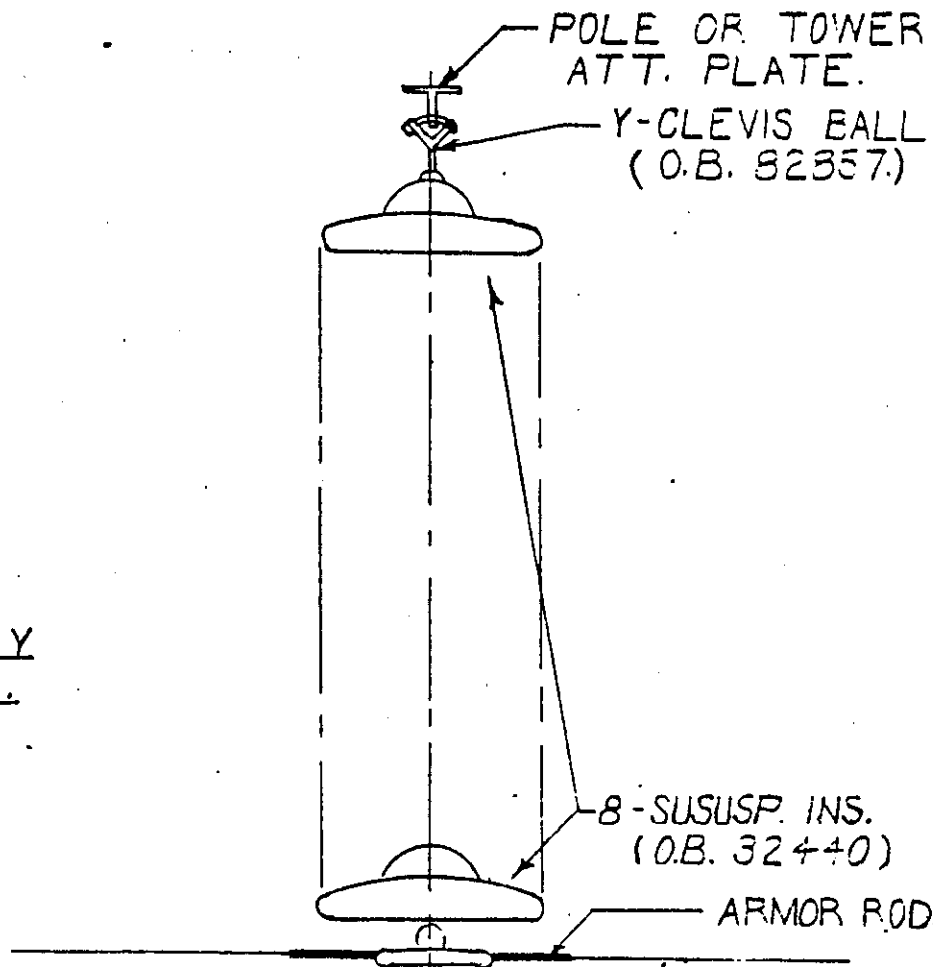
"P" TOWER

TRANSMISSION TOWERS
THE DETMOLD & DUNSON CO.
DETROIT, MICH.
SUSPENSION TOWER 'P'
LINCOLN PARK, ILLINOIS

AMERICAN BRIDGE CO.
PITTSBURGH, PA.

ENGINEER: JOHN H. ...
DRAWING: T-2056

SUSP. ASS'Y
DETAILS.



SUSPENSION
CLAMP & SOCKET
O.B. 87135 OR
EQUIVALENT

477 MCM-2617 ACS
CONDUCTOR

Y-CLEVIS BALL
(O.B.-82357)

477 MCM 2617 ACSF.
CONDUCTOR.

DEADEND
CLAMP WITH SOCKET EYE
O.B. 86546 OR
EQUIVALENT

9-SUSP. INSULATORS
(O.B.-47410)

DEADEND PLATE.

DEADEND ASS'Y
DETAILS.

RECORDED RIGHT OF WAY

190477 PART 2

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY RDS.	DRAWN BY N.H.H.
	DATE 4-2-70.	EDI-8028
	SCALE	

DATA SHEET TO ACCOMPANY DRAWING RX-3158B

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel-Yost 120 KV steel tower line over the Chesapeake and Ohio Railroad at approximately 1,350 feet east of Beech Daly and 2,640 feet north of Plymouth Road. At railroad stationing 595+00, in the northwest 1/4 of Section 29, Redford Township, Wayne County, Michigan. T.15. - R. 10E.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one ground wire.

Towers and Crossarms

See attached drawing T-7811, (P).

Conductors

Six-477 MCM ACSR 26/7 conductors per circuit. One 3/8 steel 7 strand ground wire.

Insulators

120 KV suspension assemblies. (8) eight O.B. 32440 or equivalent.

Guy and Guy Attachments

None.

Suspension and Deadend Details

See attached drawing ED1-8028

RECORDED RIGHT OF WAY
192077
part-2

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 CM ACSR 26/7

STARTING INDEX 1 RULING SPAN 600.0 STARTING SAG OR TENSION 7770.00 AREA OF CONDUCTOR 0.43560 INITIAL LIMIT MAX TENSION 9800.00 INITIAL BAR LIMIT TENSION 6500.00

*****CREEP IS A FACTOR*****

INDEX	TEMP.	INITIAL		FINAL		SAG IS IN FEET AND I
		SAG	TENSION	SAG	TENSION	
1	0	11.23	-7770.	11.30	7723.	----
2	0	5.9E	5495.	6.33	4676.	
3	32	10.47	6463.	11.18	6057.	
4	10	5.64	5244.	6.76	4380.	
5	20	5.52	4995.	7.21	4106.	
6	30	6.23	4751.	7.68	3855.	
7	40	6.56	4513.	8.16	3628.	
8	50	6.90	4287.	8.65	3422.	
9	60	7.27	4070.	9.14	3238.	
OT	70	9.97	388E	9.94	3071.	
TT	80	90.8	3671.	10.14	2920.	
TT	90	64.8	3488.	10.63	2785.	
TT	100	16.8	3321.	11.12	2664.	
TT	110	5E.6	319E	11.60	2553.	
TT	120	08.6	3021.	12.08	2453.	

RECORDED RIGHT OF WAY 19077 part 2

SUSPENSION TOWER 'P'

The tower is designed to support 1-8 MS-Cable-Steel Ground Wire and 6-477000 acb MSCR Conductors on a minimum span of 600' with 5' maximum angle on line.

The cables are to be so strung that the maximum tension under normal conditions of the ground wire and 5300' in the ground wire and 7770' in the conductors in accordance with 5th Edition N.E.S.C.

LOADS

- (1) Vertical 1 Cond Wire @ 500" = 500"
- 6 Conductors @ 1000" = 6000"
- Total = 6500"
- (2) Wind on wires / Galvnlc @ 280" = 280"
- 6 Conductors @ 375" = 2250"
- Total = 2530"
- (3) 5' High in line 1 Cond wire @ 400" = 400"
- 6 Conductors @ 270" = 1620"
- Total = 4480"
- (4) Longitudinal 1 Cond wire @ 1500" or 1 Cond wire @ 6750" (80% of 7770") (For Composite load assume at middle wire)
- (5) Wind on tower @ 5' per sq ft @ 20 ft. sum projected area of one face
- (6) Dead load of tower
- Combined 1710' 54.2' 4512' 101.2' 254.4' and 172.5'

UNIT STRESSES

- Tension on net section 33000' per sq in
- Comp on gross section 33000' 3000' 3000' 3000'
- Shear on both 30000' per sq in
- Bearing on bolts 60000' per sq in
- WELDER: O.H. Steel / ASTM A77 hot rolled

COATING: All material galvanized
CONNECTIONS: Bolted 5" bolts
SPECIFICATIONS: A.B.C.'s Standard specifications for Transmission Towers

"P" TOWER

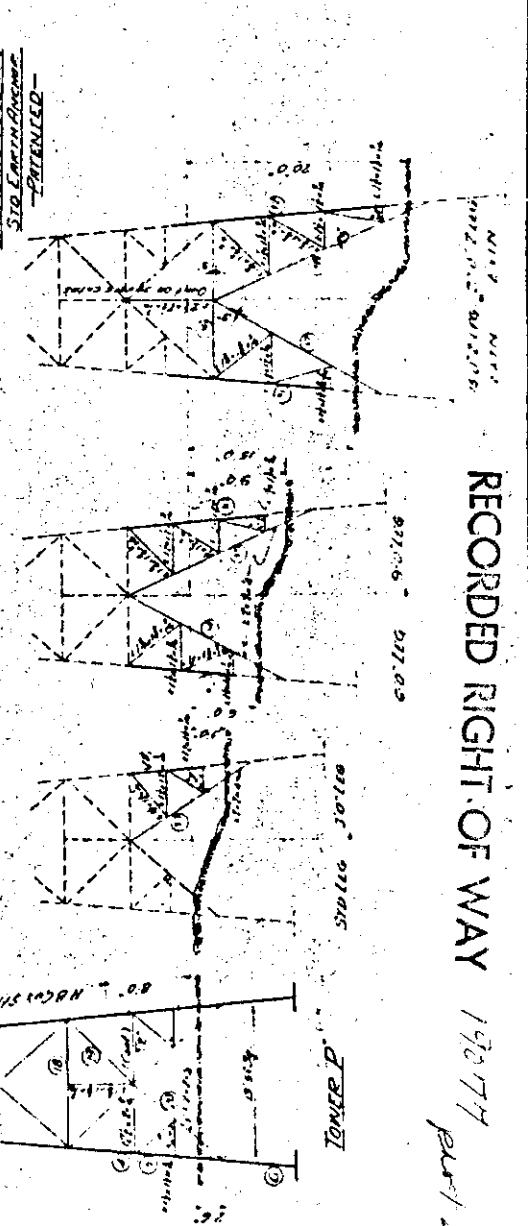
TRANSMISSION TOWERS
 THE DETMOLD DIVISION CO.
 DETMOLD DIVISION
 SUSPENSION TOWER 'P'
 LINCOLN BRIDGE CO. 1907
 AMERICAN BRIDGE CO. PITTSBURGH PA
 1907 No. 1000
 ORDER No. 1907 T-7911

OH	SECTION
1	1. 6.7 1.71. 21. = 4
2	2. 4.2.1 1.34. 24. = 4
3	3. 50.0 1.4. 4. = 4
4	4. 68.4 1.4. 4. = 4
5	5. 64.5 1.4. 4. = 4
6	6. 64.0 1.4. 4. = 4
7	7. 1.2 1.4. 14. = 4
8	8. 18.2 1.4. 14. = 4
9	9. 14.3 1.4. 14. = 4
10	10. 9.4 1.4. 14. = 4
11	11. 2.8 1.4. 14. = 4
12	12. 6.2 1.4. 14. = 4
13	13. 4.9 1.4. 14. = 4
14	14. 3.8 1.4. 14. = 4
15	15. 11.1 1.4. 14. = 4
16	16. 5.6 1.4. 14. = 4
17	17. 7.9 1.4. 14. = 4
18	18. 7.2 1.4. 14. = 4
19	19. 9.9 1.4. 14. = 4
20	20. 2.1 1.4. 14. = 4
21	21. 14.4 1.4. 14. = 4
22	22. 18.5 1.4. 14. = 4
23	23. 13.7 1.4. 14. = 4
24	24. 1.1 1.4. 14. = 4
25	25. 2.2 1.4. 14. = 4
26	26. 2.0 1.4. 14. = 4
27	27. 3.1 1.4. 14. = 4
28	28. 6.8 1.4. 14. = 4
29	29. 6.4 1.4. 14. = 4
30	30. 6.7 1.4. 14. = 4
31	31. 6.3 1.4. 14. = 4
32	32. 6.3 1.4. 14. = 4
33	33. 8.0 1.4. 14. = 4
34	34. 9.0 1.4. 14. = 4
35	35. 11.4 1.4. 14. = 4
36	36. 4.0 1.4. 14. = 4
37	37. 4.3 1.4. 14. = 4
38	38. 4.8 1.4. 14. = 4

GRAVITY MATERIAL
 27.10 @ 98" = 2.65
 2.65 @ 155" = 0.9
 21.3 @ 24" = 1.9

Check for safety against

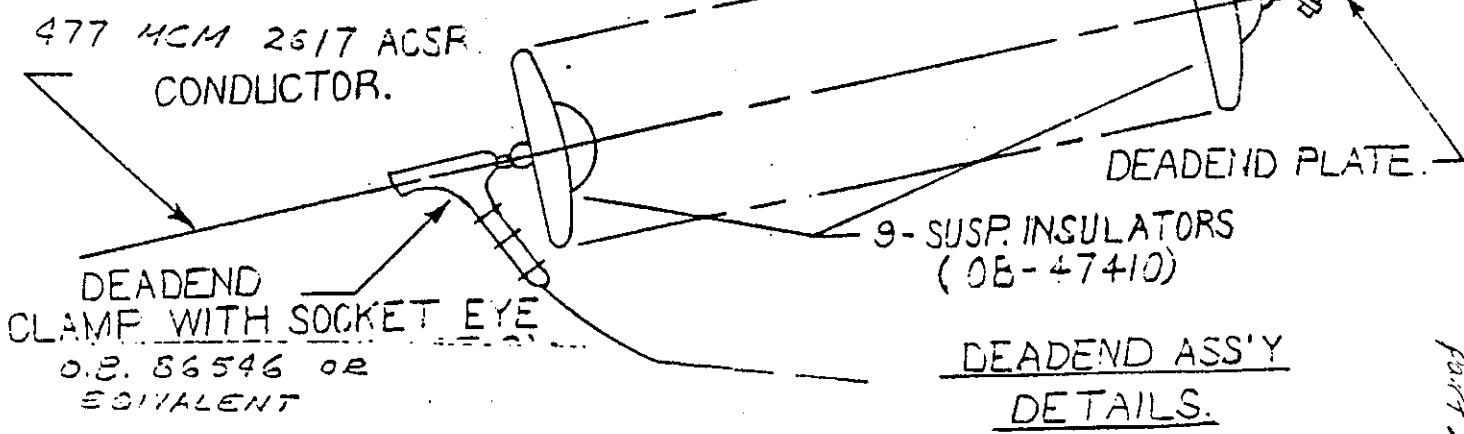
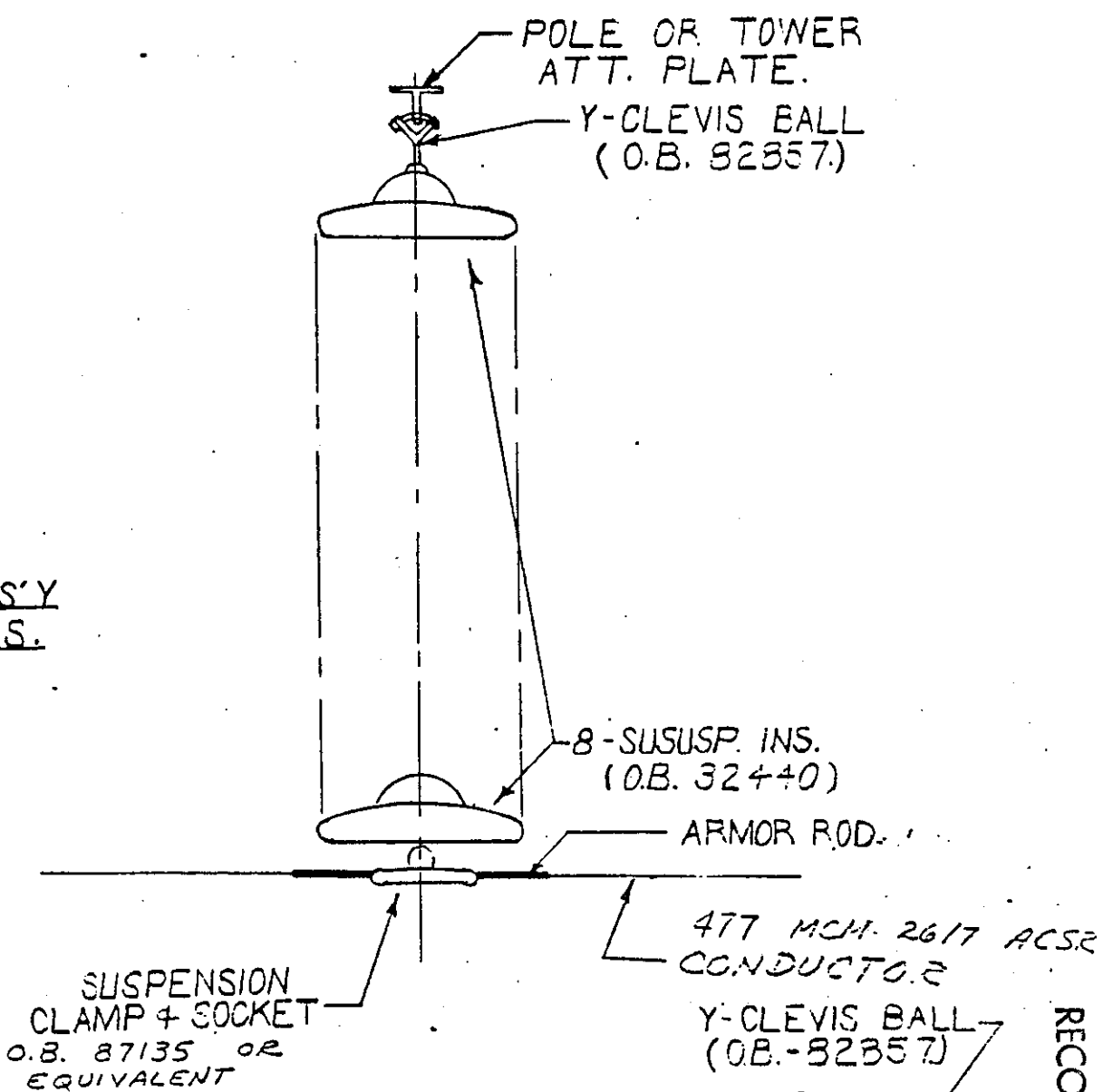
AMERICAN BRIDGE CO'S
 STD LATTICE DESIGN
 PATENTED



RECORDED RIGHT OF WAY

1970774
 part 2

SUSP. ASS'Y
DETAILS.



RECORDED RIGHT OF WAY
190777
Part 2

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY RGS.	DRAWN BY N.H.H.
	DATE 4-2-70.	ED1-8028
	SCALE	

DATA SHEET TO ACCOMPANY DRAWING RX-3160C

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel - Yost 120kV transmission line over the C. & O. Railroad at:

Crossing No. 1: Approximately 2,640 feet north of Plymouth Road and approximately 1,530 feet west of Inkster Road, Railroad Stationing 674+15.

Crossing No. 2: Approximately 2,640 feet north of Plymouth Road and approximately 2,145 feet west of Inkster Road, Railroad Stationing 680+75.

All in the City of Livonia, southeast 1/4 of Section 25, Wayne County, Michigan.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one ground wire.

Towers and Crossarms

See attached drawing T-7811(P).

Conductors

Six-477 MCM 26/7 ACSR and 3/8" steel ground wire.

Insulators

Eight suspension insulators (O.B. 32440) or equivalent.

Guy and Guy Attachments

None

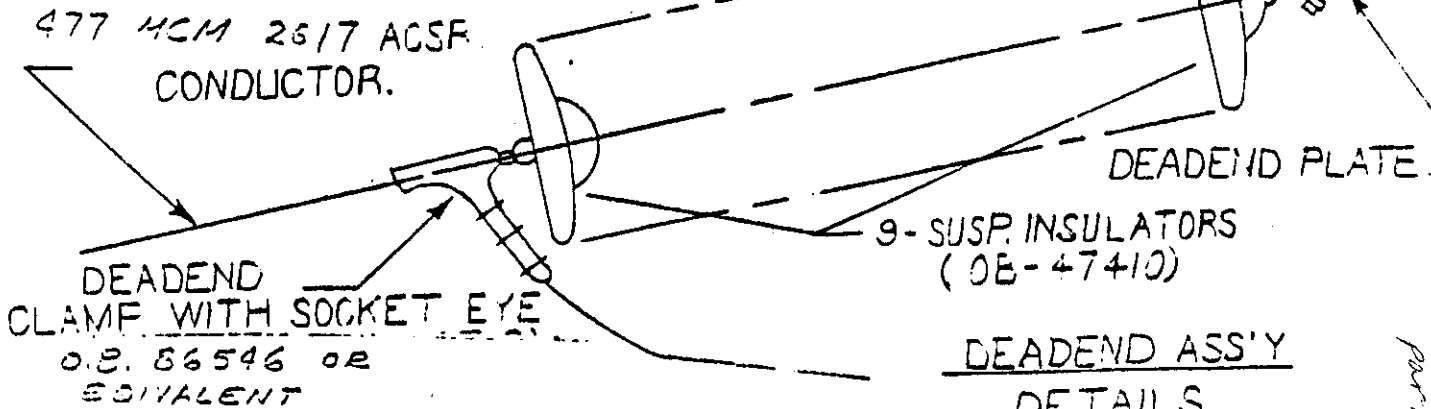
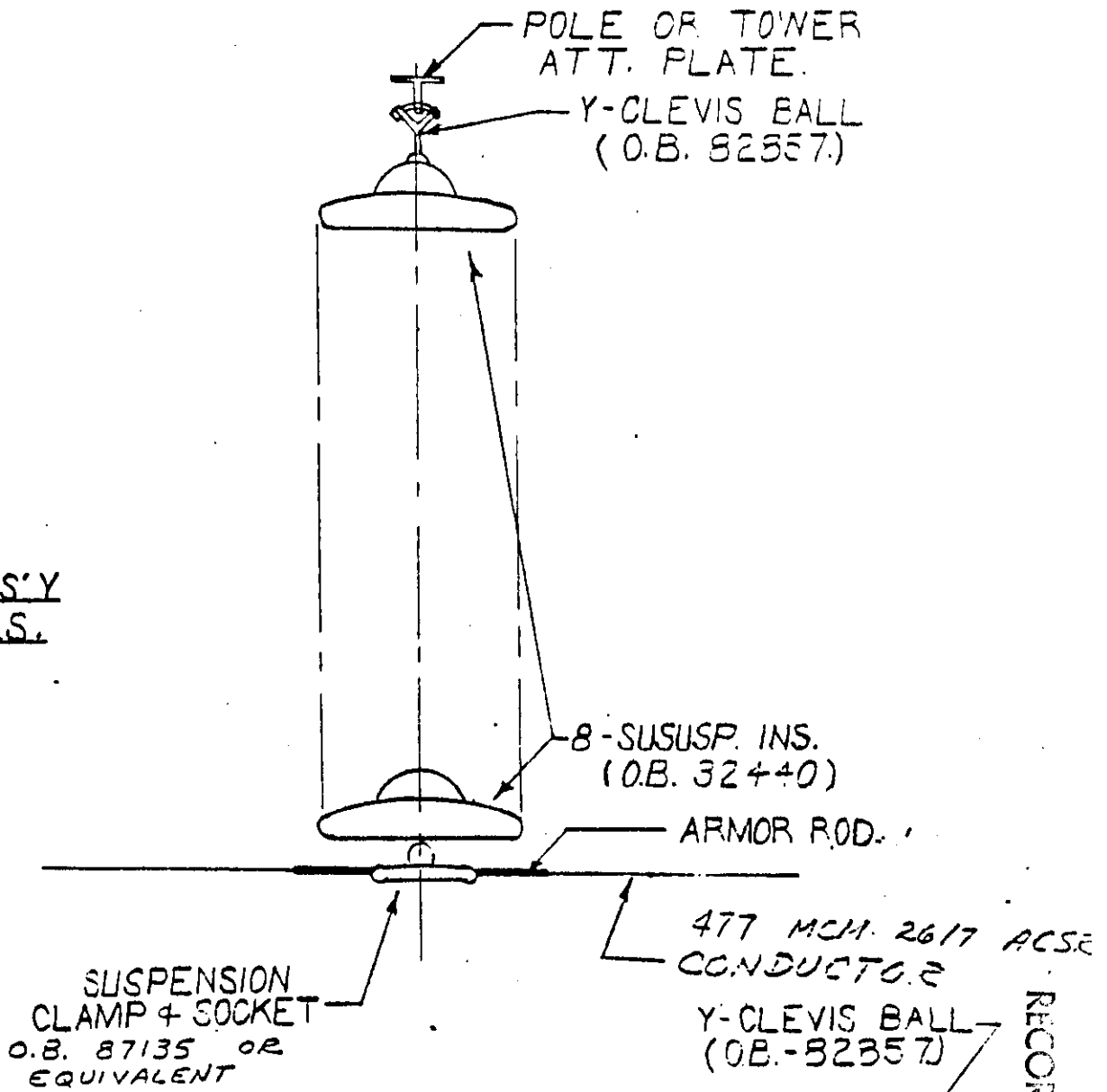
Suspension and Deadend Details

See attached drawing ED1-8028.

RECORDED RIGHT OF WAY

1989
part 2

SUSP. ASS'Y
DETAILS.



DEADEND ASS'Y
DETAILS.

RECORDED RIGHT OF WAY

19077
part 2

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>RCS.</i>	DRAWN BY <i>N.H.H.</i>
	DATE <i>4-2-70.</i>	ED1-8023
	SCALE	

SUSPENSION TOWER 'D'

The tower is designed to support 1 & 1/2 A.S.C. Standard Steel Ground Wire and 6 477000 cu A.C.S.R. Conductors on a maximum span of 600' with 5' maximum angle on line.

The cables are to be so strong that the maximum tension under any wind on 1/2 sec. corded cables will not exceed 5300' in the Ground Wire and 7700' in the Conductors in accordance with S.M. E. Code.

- LOADS**
- Windward 1/2 Gal. Wire @ 500' = 500'
 - 6 Conductors @ 100' = 600'
 - Total = 1100'
 - Windward on wires/Gal. Wire @ 180' = 280'
 - 6 Conductors @ 375' = 2250'
 - Total = 2530'
 - Windward on low 1/2 Gal. Wire @ 160' = 160'
 - 6 Conductors @ 375' = 2250'
 - Total = 2410'
 - Longitudinal 1/2 Gal. Wire @ 5300' = 5300'
 - Total = 5300'
- (For Conductors @ 6160' (20% at 7700')
 (4) Windward on tower @ 2.5' per sq ft @ 11' = 275'
 (5) Windward on tower @ 2.5' per sq ft @ 11' = 275'
 (6) Windward on tower @ 2.5' per sq ft @ 11' = 275'
 (7) Windward on tower @ 2.5' per sq ft @ 11' = 275'

UNIT STRESSES

Towers on wet section 25,000 per sq in
 Comp on gross section 23,000 (26,500) X 150
 34000' 700' X 150

Shore on bolts = 30000 per sq in
 Bearing on bolts = 60000 per sq in

PAINTING: All material galvanized

CONNECTIONS: Bolted 5/8" bolts

SPECIFICATIONS: A.C.S. Standard

Specifications for Transmission Towers

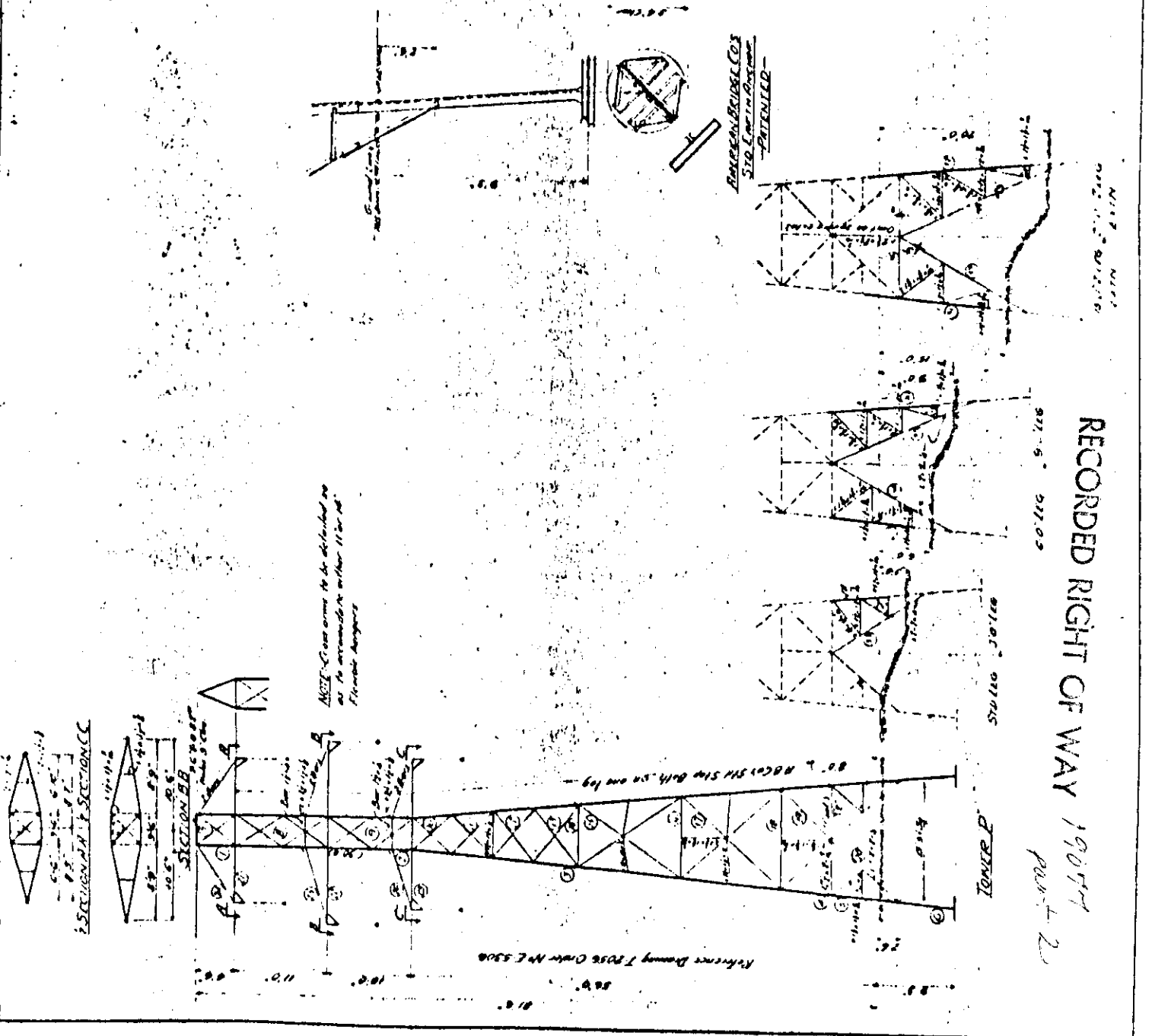
"P" TOWER

TRANSMISSION TOWERS
 THE DETROIT LANSING CO.
 DETROIT, MICH.
 SUSPENSION TOWER 'D'
 LANSING BRIDGE CO.

AMERICAN BRIDGE CO.
 PITTSBURGH PA.
 ORDER NO. 100000
 DRAWING T-7371

WT	SECTION
1	6.7 71.8 1.4
2	4.3 1.9 2.5 1.4
3	50.2 4.4 4.4 1.4
4	58.4 4.4 4.4 1.4
5	64.5 4.4 4.4 1.4
6	64.5 4.4 4.4 1.4
7	12 12 12 1.4
8	18.2 21.1 1.4 1.4
9	14.2 21.1 1.4 1.4
10	9.3 3.1 1.4 1.4
11	7.8 4.4 4.4 1.4
12	6.1 4.4 4.4 1.4
13	4.8 4.4 4.4 1.4
14	3.2 21.1 1.4 1.4
15	11.1 11.1 1.4 1.4
16	5.6 21.1 1.4 1.4
17	7.9 11.1 1.4 1.4
18	7.7 3.3 1.4 1.4
19	9.9 4.4 1.4 1.4
20	7.1 4.4 1.4 1.4
21	14.5 3.3 1.4 1.4
22	18.5 4.4 1.4 1.4
23	19.7 4.4 1.4 1.4
24	11.1 4.4 1.4 1.4
25	17.1 4.4 1.4 1.4
26	2.0 4.4 1.4 1.4
27	5.1 4.4 1.4 1.4
28	6.5 4.4 1.4 1.4
29	6.3 4.4 1.4 1.4
30	6.4 4.4 1.4 1.4
31	6.3 1.4 1.4 1.4
32	8.8 1.4 1.4 1.4
33	9.0 1.4 1.4 1.4
34	14.1 1.4 1.4 1.4
35	4.0 1.4 1.4 1.4
36	4.3 4.4 1.4 1.4
37	4.8 4.4 1.4 1.4

GENERAL MATERIAL
 17 30 0 58' 59"
 26 250 25' 59"
 40 3 3 3 4 1 1 9



THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 CM ACSR 267
 477 MCM

STARTING INDEX 1 RULING SPAN 500.0 STARTING SAG OR TENSION 7770.00 AREA OF CONDUCTOR 0.43560 INITIAL LIMIT MAX TENSION 9800.00

***FINAL BARE CONDUCTOR TENSION LIMIT OF 5000.0 LBS. IS EXCEEDED BY 444.6 L

****CREEP IS A FACTOR****

INDEX	TEMP.	SAG	INITIAL TENSION	SAG	FINAL TENSION	SAG	IS I
1	0.	8.00	7574.	8.12	7456.		
2	0.	3.52	5838.	4.11	-4999.	----	MINUS SIGN
3	32.	7.4	6326.	8.06	5832.		
4	10.	0.70	5560.	4.43	4640.		
5	20.	6.8	5288.	4.77	4308.		
9	30.	0.1	5016.	5.14	3997.		
2	40.	3.3	4745.	5.53	3715.		
8	50.	6.5	4482.	5.94	3458.		
6	60.	4.8	4230.	6.36	3230.		
10	70.	9.1	3985.	6.80	3024.		
11	80.	5.4	3754.	7.24	2840.		
21	90.	2.8	3534.	7.68	2678.		
13	100.	2.1	3300.	8.12	2533.		
14	110.	5.5	3139.	8.55	2405.		
15	120.	6.9	2966.	8.98	2290.		

RECORDED RIGHT OF WAY 190974 part 2

DATA SHEET TO ACCOMPANY DRAWING RX-3161B

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel-Yost 120 kV transmission circuit over the spur tracks of the C.&O. Railroad at approximately 2,640 feet north of Plymouth Road and approximately 384 FEET west of the centerline of Middlebelt Road. Railroad Stationing 719+00.

City of Livonia, Wayne County, southeast 1/4 Section 26, Michigan.

Circuits

One 120,000 volt, 6 wire, 60 cycle, 3 phase, transmission circuit with one ground wire.

Towers and Crossarms

See attached drawing T-7811 (P).

Conductors

Six-477 MCM 26/7 ACSR and one 3/8" steel ground wire.

Insulators

120 kV suspension assembly. Eight O.B. #32440 or equivalent.

Guy and Guy Attachments

None

Suspension and Deadend Details

See attached drawing ED1-8028.

System Engineering Department
CVP/cb 9/18/84

RECORDED RIGHT OF WAY

190771 part 2

SUSPENSION TOWER "P"

The tower is designed to support 1 & 6 HSC Galvanized Steel Ground Wire and 6 ATTORNS 600 ACSSR Conductors on a minimum span of 600' with 5' minimum angle in line.

The cables are to be so strong that the maximum tension under wind and ice coated cables will not exceed 5300' in the Ground Wire and 7700' in the Conductor in accordance with 5th Ed. Ho. N.E.S.C.

LOADS
 (1) Vertical
 1 Gal Wire @ 500' = 500'
 6 Conductors @ 2000' = 6000'
 Total = 6500'

(2) Wind on wires 1 Gal Wire @ 280' = 280'
 6 Conductors @ 375' = 2250'
 Total = 2530'

(3) 5' Angle in line 1 Gal Wire @ 460' = 46'
 6 Conductors @ 610' = 402'

(4) Longitudinal 1 Gal Wire @ 5300' or
 1 Conductor @ 5100' (80% of 7700')
 (For combined load assume of multiple arms)

(5) Wind on tower of 5' per sq ft projected area of wire 1000'

(6) Dead load of tower
 Complete tower 121,240 lbs. 121,240 / 2240 = 54,125

UNIT STRESSES
 Human on net section 35,000' per sq in
 Comp on gross section 33,000' 3000' x 150
 24,000' 70' x 150

Shear on bolts 30,000' per sq in
 Bearing on bolts 60,000' per sq in

MATERIAL: ON STEEL RSTM 47 in heat
 tension

COATING: All material galvanized

CONNECTIONS: Bolted 5/8" bolts

SPECIFICATIONS: AISC Standard

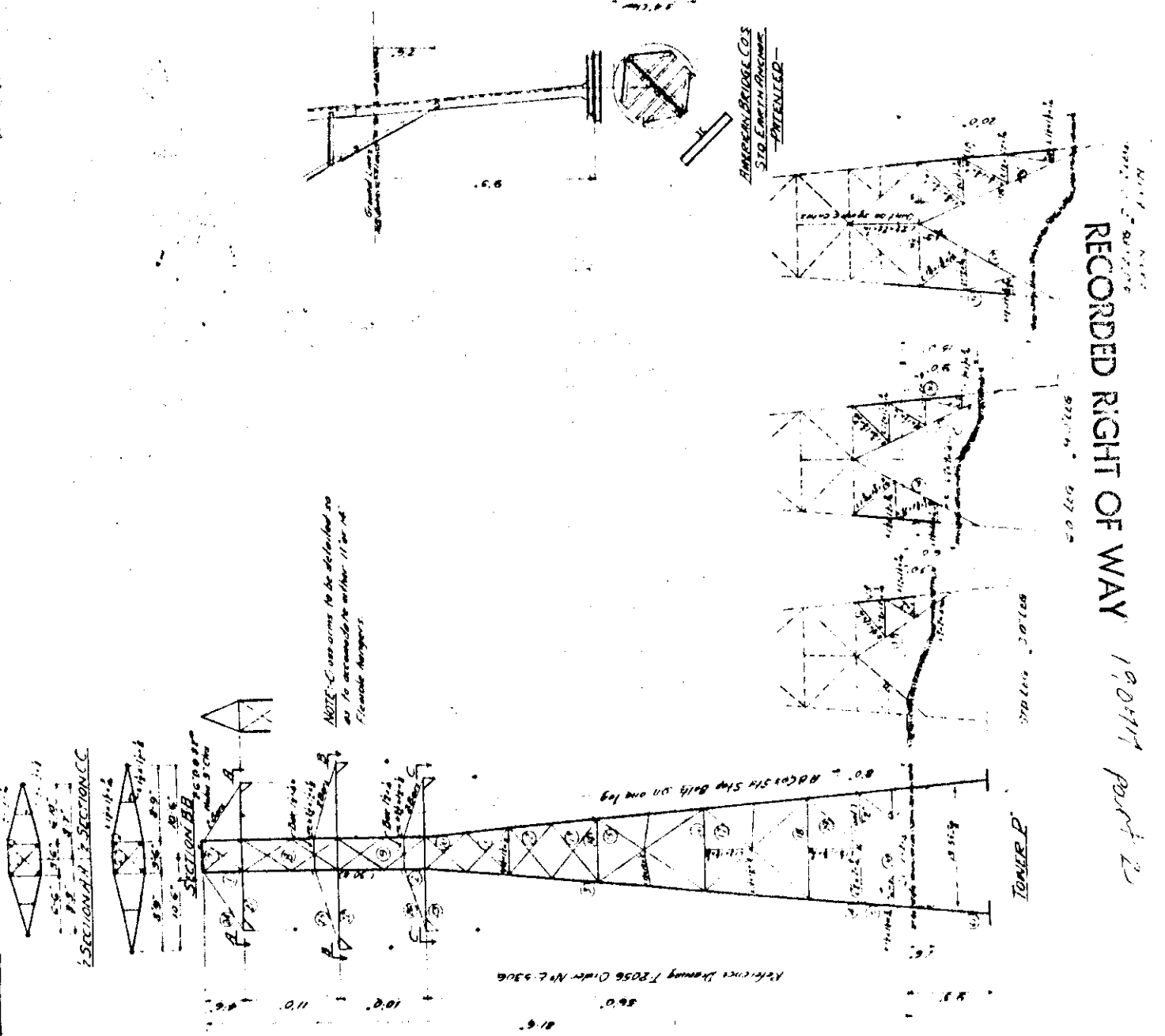
Specifications for Transmission Towers

"P" TOWER

TRANSMISSION TOWERS
 THE PITTSBURGH BRIDGE CO.
 PITTSBURGH, PA.
 COUNTY NO. 1557
 ORDER NO. 1557-130
 DRAWING T-157

UNIT	SECTION
1	5.7
2	49.7
3	80.8
4	68.4
5	64.5
6	64.0
7	12
8	107
9	143
10	95
11	70
12	62
13	49
14	35
15	111
16	56
17	79
18	77
19	9.9
20	71
21	145
22	189
23	157
24	11
25	22
26	20
27	51
28	68
29	65.9
30	67.6
31	63.1
32	63.2
33	8.8
34	9.0
35	14
36	4.0
37	4.5
38	4.8

GIRDLER MATERIAL
 17" 30 # 58' - 33'
 24" 30 # 155' - 130'
 24" 30 # 3' - 4' - 15'

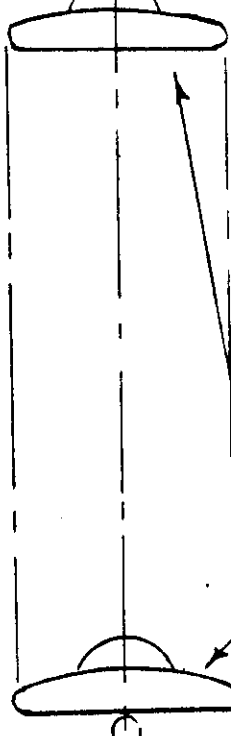


RECORDED RIGHT OF WAY 1909/17 part 2

Reference Drawing T-2056 Order No. 65306

SUSP. ASS'Y
DETAILS.

POLE OR TOWER
ATT. PLATE.
Y-CLEVIS BALL
(O.B. 82357)



8-SUSP. INS.
(O.B. 32440)

ARMOR ROD.

SUSPENSION
CLAMP & SOCKET
O.B. 87135 OR
EQUIVALENT

477 MCM 2617
CONDUCTOR

Y-CLEVIS BALL
(O.B. 82357)

RECORDED
RIGHT OF WAY

477 MCM 2617 ACSR
CONDUCTOR.

DEADEND
CLAMP WITH SOCKET EYE
O.B. 86546 OR
EQUIVALENT

DEADEND PLATE.

9-SUSP. INSULATORS
(O.B. 47410)

DEADEND ASS'Y
DETAILS.

190774 Part 2

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED

THE DETROIT EDISON COMPANY
GENERAL ENGINEERING DEPARTMENT

LAYOUT BY RGS

DRAWN BY N.H.H.

DATE 4-2-70

EDI-8028

SCALE

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 266,800 CM TO 636,000 CM ACSR 26/
 477 MCM
 STRESS-STRAIN CURVES USED REPRESENT

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL LIMIT MAX TENSION
1	500.0	7770.00	0.43560	9800.00

***FINAL BARE CONDUCTOR TENSION LIMIT OF 5000.0 LBS. IS EXCEEDED BY 444.6 L

*****CREEP IS A FACTOR****

INDEX	TEMP.	SAG	INITIAL TENSION	SAG	FINAL TENSION	SAG IS I
1	0.	8.00	7574.	8.12	7456.	
2	0.	3.52	5838.	4.11	-4999.	-----MINUS SIGN
3	32.	7.43	6326.	8.06	5832.	
4	10.	3.70	5560.	4.43	4640.	
5	20.	3.88	5288.	4.77	4308.	
6	30.	01.4	5100.	4.5	3997.	
7	40.	4.33	4745.	5.53	3715.	
8	50.	4.55	4482.	5.64	3458.	
9	60.	4.86	4230.	6.36	3230.	
10	70.	5.16	3985.	6.80	3024.	
11	80.	5.47	3754.	7.24	2840.	
12	90.	5.82	3534.	7.68	2678.	
13	100.	6.17	3330.	8.12	2533.	
14	110.	6.55	3139.	8.55	2405.	
15	120.	6.99	2966.	8.98	2290.	

RECORDED RIGHT OF WAY 19077 part 2

DATA SHEET TO ACCOMPANY DRAWING RX-3162B
Revision of Crossing Rx-3162A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Hines-Yost 120kV steel tower line over the
C. & O. R.R. AT.

Crossing No. 1: Approximately 1,650' east of Merriman Road and
approximately 2,640 feet north of Plymouth Road, railroad
stationing 748+00.

Crossing No. 2: Approximately 1,320' east of Merriman Road and
approximately 2,640 feet north of Plymouth Road, railroad
stationing 752+00. Both crossings are spur tracks in the City
of Livonia, Wayne County, Michigan.

Circuits

One 120,000 volt, 60 cycle, 6-wire, 3-phase transmission circuit
with one ground wire.

Towers and Crossarms

Steel towers and crossarms as per attached DWGS. T-8414 (AD), T-7811 (LX),
T-7811 (P)

Conductors

Existing 6-477 MCM 26/7 ACSR conductors with one 3/8" steel
ground wire.

Insulators

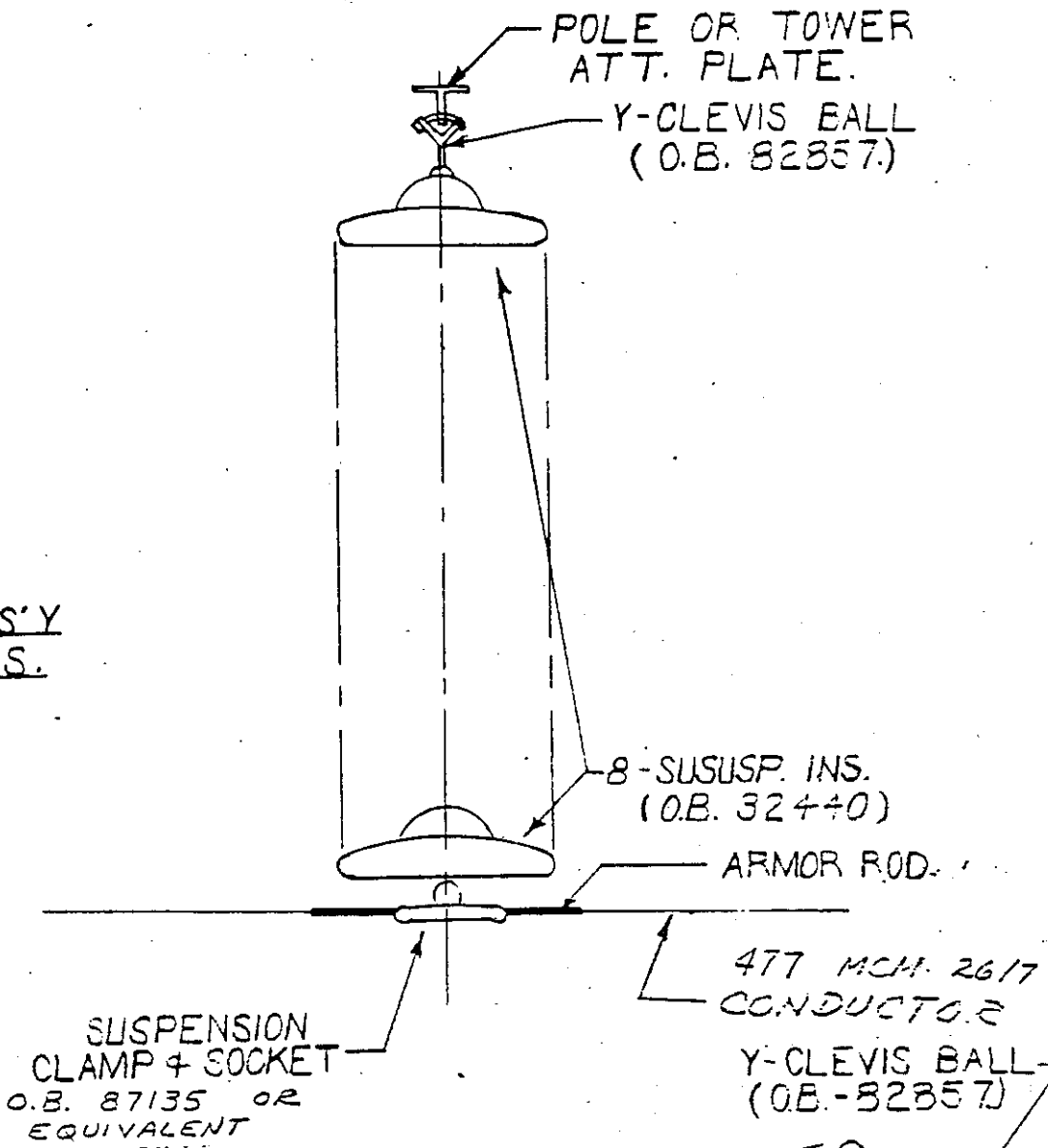
Suspension details as shown on Rx-3162B deadend detail on
ED1-8028.

Guy and Guy Attachments

None

RECORDED RIGHT OF WAY
19097
part 2

SUSP. ASS'Y
DETAILS.



477 MCM 2617 ACSR
CONDUCTOR.

DEADEND
CLAMP WITH SOCKET EYE
O.B. 86546 OR
EQUIVALENT

9-SUSP. INSULATORS
(O.B. 47410)

DEADEND ASS'Y
DETAILS.

RECORDED RIGHT OF WAY
1907th part 2

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>RCS.</i>	DRAWN BY <i>N.H.H.</i>
	DATE <i>4-2-70.</i>	ED1-8028
	SCALE	

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 CM ACSR 26/
 477 MCM

STARTING RULING STARTING AREA OF INITIAL LIMIT
 INDEX SPAN SAG OR TENSION CONDUCTOR MAX TENSION

1 500.0 7770.00 0.43560 9800.00

***FINAL BARE CONDUCTOR TENSION LIMIT OF 5000.0 LBS. IS EXCEEDED BY 444.6 L

*****CREEP IS A FACTOR****

INDEX	TEMP.	INITIAL		FINAL		SAG IS I
		SAG	TENSION	SAG	TENSION	
1	0.	8.00	7574.	8.12	7456.	
2	0.	3.52	5838.	4.11	-4999.	----MINUS SIGN
3	32.	7.43	6326.	8.06	5832.	
4	10.	3.70	5560.	4.43	4640.	
5	20.	3.89	5288.	4.77	4308.	
9	30.	4.10	5016.	5.14	3997.	
7	40.	4.33	4745.	5.53	3715.	
8	50.	4.59	4482.	5.94	3458.	
6	60.	4.86	4230.	6.36	3230.	
10	70.	5.16	3985.	6.80	3024.	
11	80.	5.47	3754.	7.24	2840.	
12	90.	5.82	3534.	7.68	2678.	
13	100.	6.17	3330.	8.12	2533.	
14	110.	6.55	3139.	8.55	2405.	
15	120.	6.93	2966.	8.98	2290.	

RECORDED RIGHT OF WAY

19044 part 2

ANGLE TOWER L.X.

The tower is design...
 Gracible Steel Braced Tower and 6' 4" x 10" x 10" A.C.S.
 Conductors on a maximum span of 340' with 5'
 angle in line.

The cables are to be so strong that the tower
 main tension under a wind of ice covered
 cables will not exceed 4100 in the ground line
 and 4800 in the conductors.

LOADS:
 1 Vertical 1 Cond. Wt. = 350' x 350' = 122,500'
 2 Cond. Wt. = 350' x 350' = 122,500'
 2a. Transverse wind on cable
 1 Cond. Wt. = 160' x 350' = 56,000'
 2 Cond. Wt. = 160' x 350' = 56,000'

2b. Transverse angle in line of 5'
 1 Cond. Wt. = 375' x 350' = 131,250'
 2 Cond. Wt. = 375' x 350' = 131,250'

3 Longitudinal Any one Cond. Wt. = 350' x 4800' = 1,680,000'
 (80% of 6000')

4 Wind on tower of 6.8' per sq ft on 1/4 times the
 projected area of one cable.

5. Dead load of tower.
 Combining 122,500' + 56,000' + 160' x 24' x 110' x 250' = 1,000,000'

UNIT STRESSES (Ultimate)
 Tension on steel per sq in. = 33,000' per sq in.
 Compression on steel per sq in. = 18,000' per sq in.

Shear on bolts = 3000' per sq in.
 Bending on bolts = 10000' per sq in.

MATERIAL: ON Steel A.S.T.M. Spec. A 36
WEARING: All material galvanized
CONNECTORS: Bolted & bolts
SPECIFICATIONS: A.S.T.M. Spec. S 100
 for Transmission Towers

MEMB.	ULT. STRESS	SECTION
1	473	2-2-1-1-1
2	813	4-5-2-1-1
3	991	4-6-1-1
4	1448	4-6-6-1
5	2106	4
6	30	2-2-2-1-1
7	108	2-2-2-1-1
8	1281	4
9	1400	2-2-2-1-1
10	1836	4
11	1836	4
12	1836	4
13	1836	4
14	1836	4
15	1836	4
16	1836	4
17	1836	4
18	1836	4
19	1836	4
20	1836	4
21	1836	4
22	1836	4
23	1836	4
24	1836	4
25	1836	4
26	1836	4
27	1836	4



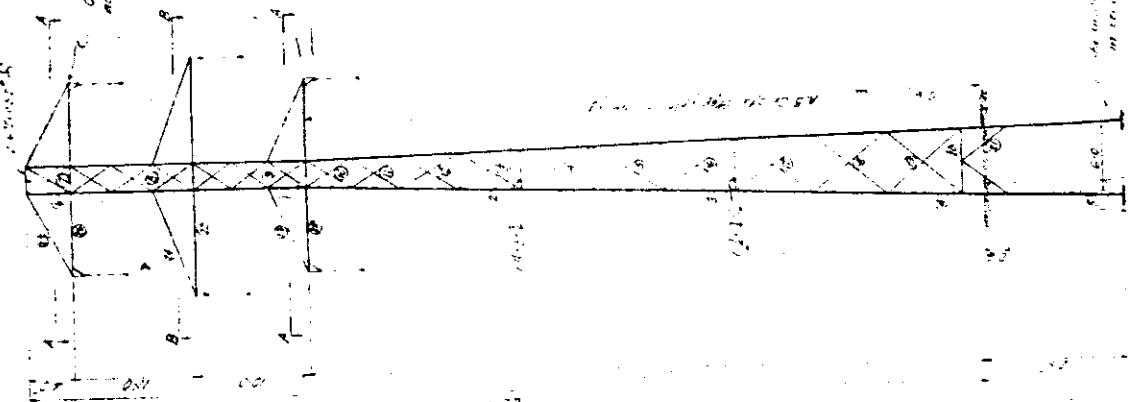
SECTION A-A

Dimensions to be defined as to
 accordance with 1 or 14' American Ampere

NOTE: Tower same as on Drawing T-370
 Order No. E-1233, with minor exceptions.



SECTION B-B



"LX" TWR.

THE DETROIT ELEGY COMPANY
 DETROIT, MICHIGAN
 ANGLE TOWER L.X.
 LINCOLN-BLOOMFIELD LINE

AMERICAN BRIDGE COMPANY
 DETROIT, MICHIGAN
 ANGLE TOWER L.X.

RECORDED RIGHT OF WAY

190711 part 2

XT TOWER 21047

Approved May 21, 1914. Checked by and drawn by
 J. H. MURPHY, J. H. MURPHY, J. H. MURPHY

Sheet No. 1
 Order No. T-7803
 Date of Order May 11, 1914
 Order No. 12
 Order No. 12
 Approved by American Bridge Company

SUSPENSION TOWER "P"

The tower is designed to support 1 # A.S. Crucible Steel Ground Wire and 6 # 471000 cc A.C.S.R. Conductors on a minimum span of 600' with 5' minimum angle in line.

The cables are to be so strong that the minimum tension under a wind on 1 cc coated cables will not exceed 5300 lbs. in the Ground Wire and 7700 lbs. in the Con. W.E.S.C.

LOADS
 (a) Vertical

1 Cond Wire @ 500' = 500' lbs
 6 Conductors @ 1000' = 6000' lbs
 Total = 6500' lbs
 (b) Wind on wires / Cond wire @ 280' = 280' lbs
 6 Conductors @ 375' = 2250' lbs
 Total = 2530' lbs
 (c) 5' angle in line / Cond wire @ 460' = 460' lbs
 6 Conductors @ 670' = 4020' lbs
 Total = 4480' lbs

(d) Longitudinal / Cond wire @ 5500' = 5500' lbs
 1 Cond wire @ 2100' (80% of 2700')
 (For Composite load assume of middle arm)
 (A) Wind on tower @ 6.5' per sq ft @ 12' height
 projected area of 100 sq ft
 (B) Dead load of tower
 12' x 12' x 12' x 150 lbs/cu ft = 25920' lbs

UNIT STRESSES
 Tension on net section 35000' per sq in
 Comp on gross section 33000' / 100% = 330
 24000' - 70% = 16800' per sq in
 Shear on bolts = 30000' per sq in
 Bearing on bolts = 60000' per sq in

MATERIAL: O.H. Steel ASTM A7 in last revision.
COATING: All material galvanized
CONNECTIONS: Bolted, 5" dia bolts
SPECIFICATIONS: A.C.S.R. Standard
 specifications for Transmission Towers

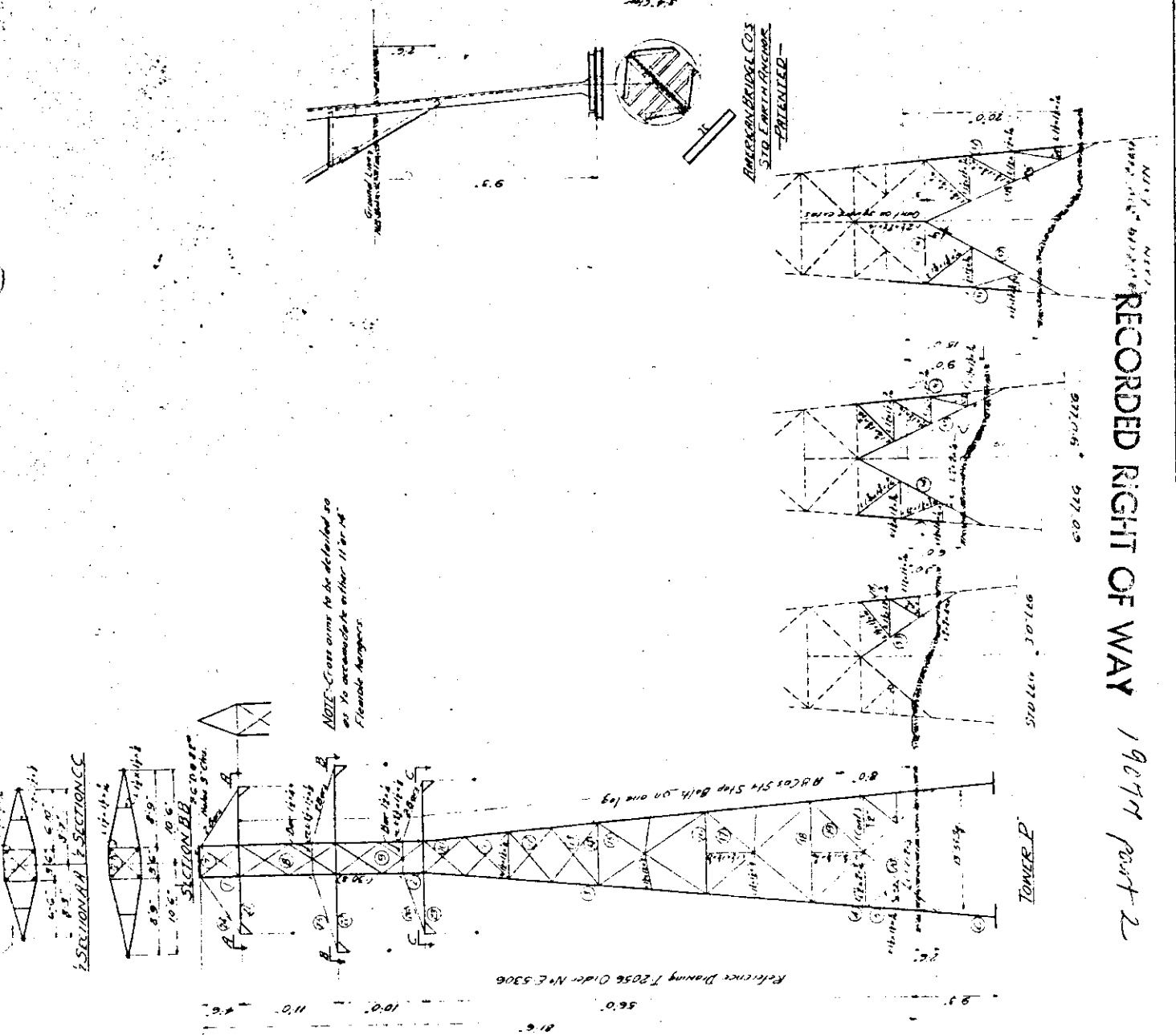
"P" TOWER

TRANSMISSION TOWERS
 THE PITTSBURGH BRIDGE CO.
 PITTSBURGH, PA.
 AMERICAN BRIDGE CO.
 PITTSBURGH, PA.
 INDUSTRY NO. 1-2425
 ORDER NO. 1-2425
 DRAWING T-7311
 DATE 3-24-25

Member	Stress	SECTION
1	6.7	1 1/2" x 8" x 1/2"
2	43.7	3/4" x 8" x 1/2"
3	50.8	1/2" x 8" x 1/2"
4	64.4	1/2" x 8" x 1/2"
5	64.5	1/2" x 8" x 1/2"
6	64.5	1/2" x 8" x 1/2"
7	17	1/2" x 8" x 1/2"
8	10.7	1/2" x 8" x 1/2"
9	14.3	1/2" x 8" x 1/2"
10	9.3	1/2" x 8" x 1/2"
11	7.0	1/2" x 8" x 1/2"
12	6.2	1/2" x 8" x 1/2"
13	4.8	1/2" x 8" x 1/2"
14	3.5	1/2" x 8" x 1/2"
15	11.1	1/2" x 8" x 1/2"
16	5.6	1/2" x 8" x 1/2"
17	7.9	1/2" x 8" x 1/2"
18	7.7	1/2" x 8" x 1/2"
19	9.9	1/2" x 8" x 1/2"
20	7.1	1/2" x 8" x 1/2"
21	14.5	1/2" x 8" x 1/2"
22	18.9	1/2" x 8" x 1/2"
23	15.7	1/2" x 8" x 1/2"
24	1.1	1/2" x 8" x 1/2"
25	7.7	1/2" x 8" x 1/2"
26	2.0	1/2" x 8" x 1/2"
27	5.1	1/2" x 8" x 1/2"
28	6.58	1/2" x 8" x 1/2"
29	6.5	1/2" x 8" x 1/2"
30	6.74	1/2" x 8" x 1/2"
31	6.31	1/2" x 8" x 1/2"
32	6.32	1/2" x 8" x 1/2"
33	8.8	1/2" x 8" x 1/2"
34	9.0	1/2" x 8" x 1/2"
35	11.4	1/2" x 8" x 1/2"
36	4.0	1/2" x 8" x 1/2"
37	4.3	1/2" x 8" x 1/2"
38	4.8	1/2" x 8" x 1/2"

* Diagonal bracing lengths in members

GRILLAGE MATERIAL
 27" x 16" @ 98' x 3' 3"
 26" x 26" @ 105' x 4' 3"
 40" x 3" @ 4' x 1' 3"



RECORDED RIGHT OF WAY 1927 part 2

DATA SHEET TO ACCOMPANY DRAWING RX-3163B
Revision of Crossing RX-3163A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Hines-Yost 120 kV transmission line over the C.&O.
Railroad spurs at:

Crossing No. 1: Approximately 2,640 feet north of Plymouth Road and
approximately 1,647 feet east of Farmington Road,
railroad stationing 810+00.

Crossing No. 2: Approximately 2,640 feet north of Plymouth Road and
approximately 2,420 feet east of Farmington Road,
railroad stationing 794+40.

Located in the City of Livonia, southwest $\frac{1}{4}$ of section 27, Wayne County,
Michigan.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawing T-7811 (P).

Conductors

6-conductors of 477 MCM ACSR 27/7 stranding.

Insulators

Eight (8) 5-3/4" x 10" O.B. #32440 or equivalent in suspension.

Guy and Guy Attachments

None.

Suspension and Deadend Details

See drawing RX-3163B

System Engineering Department
CVP/js 8-30-84

RECORDED RIGHT OF WAY

190H117 part 2

SUSPENSION TOWER "P"

The tower is designed to support 1 & 1/2 A.S.C. cables. Steel Ground Wire and 6 477000 cm A.C.S.R. Conductors on a 10' main span of 600' with 5' minimum angle in line.

The cables are to be 30 strong 1/4" in maximum tension under of wind on 1/2 in coated cables and not exceed 5300' in the Ground Wire and 7770' in the Conductor in accordance with 5th Edition N.E.S.C.

LOADS
 10' Vertical
 10' Wind @ 500' = 500'
 6 Conductors @ 280' = 620'
 Total = 6500'

(Based on wire 1/8" dia @ 280' = 280'
 6 Conductors @ 280' = 2250'
 75 lb. = 2530'

(26) 5' High @ 10' = 10' @ 440' = 440'
 75 lb. = 4400'

(8) Longitudinal 1/8" dia @ 5300' = 5300' or
 1 Conductor @ 5300' (20% of 7770')
 (5) Wind on tower @ 1/2" per sq ft projected area @ 11' = 11' x 11' x 11' = 1331'

UNIT STRESSES
 Tower on net section 35000 lbs per sq in
 Tower on gross section 33000 lbs per sq in
 Comp on gross section 30000 lbs per sq in
 24000 lbs per sq in

Shear on bolts = 30000 lbs per sq in
 Bearing on bolts = 60000 lbs per sq in

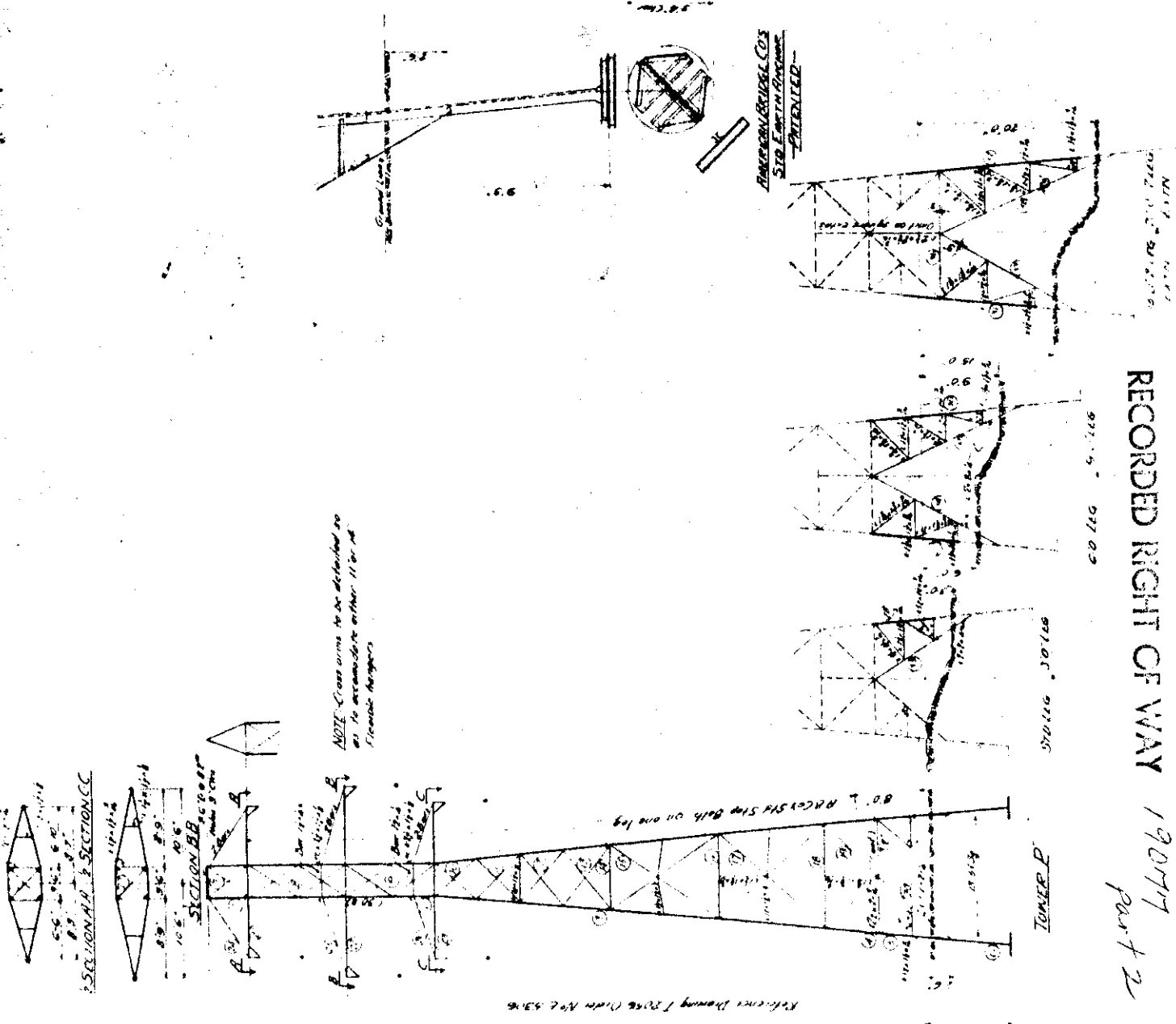
MATERIAL: A-36 Steel / A-572 Gr 50
 10' dia

COATING: All material galvanized
CONNECTIONS: Bolted 5/8" bolts
SPECIFICATIONS: A.I.C. Co's Standard
 Specifications for Transmission Towers

CHALLENGE MATERIAL
 P 7-10 @ 9.8" x 9.8"
 2-5 X 5 @ 15.5" x 9.8"
 4-3-3 @ 3.4" x 1.9"

NO	SECTION	SHAPE	SIZE	NO	SECTION	SHAPE	SIZE
1	57	17.5" x 17.5"	4	17	79	15.5" x 15.5"	2
2	49.1	13.5" x 13.5"	4	18	77	15.5" x 15.5"	2
3	50.4	4" x 4"	4	19	77	15.5" x 15.5"	2
4	54.5	4" x 4"	4	20	71	14" x 14"	2
5	54.5	4" x 4"	4	21	65	13" x 13"	4
6	54.5	4" x 4"	4	22	65	13" x 13"	4
7	17	17" x 17"	2	23	157	4" x 4"	4
8	10.7	10.7" x 10.7"	2	24	11.9	11" x 11"	4
9	13.9	13.9" x 13.9"	2	25	9.9	10" x 10"	2
10	9.9	10" x 10"	2	26	9.9	10" x 10"	2
11	7.0	7" x 7"	4	27	8.1	8" x 8"	2
12	6.8	6" x 6"	4	28	6.8	6" x 6"	2
13	4.8	4" x 4"	4	29	6.7	6" x 6"	4
14	3.5	3" x 3"	4	30	6.7	6" x 6"	4
15	11	11" x 11"	2	31	6.7	6" x 6"	4
16	5.6	5" x 5"	2	32	6.7	6" x 6"	4
17	7.9	8" x 8"	2	33	8.8	10" x 10"	2
18	7.7	8" x 8"	2	34	9.0	10" x 10"	2
19	9.9	10" x 10"	2	35	11.4	12" x 12"	2
20	7.1	7" x 7"	4	36	4.0	4" x 4"	4
21	6.5	6" x 6"	4	37	4.3	4" x 4"	4
22	6.5	6" x 6"	4	38	4.5	4" x 4"	4
23	157	4" x 4"	4				
24	11.9	11" x 11"	4				
25	9.9	10" x 10"	2				
26	9.9	10" x 10"	2				
27	8.1	8" x 8"	2				
28	6.8	6" x 6"	2				
29	6.7	6" x 6"	4				
30	6.7	6" x 6"	4				
31	6.7	6" x 6"	4				
32	6.7	6" x 6"	4				
33	8.8	10" x 10"	2				
34	9.0	10" x 10"	2				
35	11.4	12" x 12"	2				
36	4.0	4" x 4"	4				
37	4.3	4" x 4"	4				
38	4.5	4" x 4"	4				

Dimensions in inches unless otherwise specified



NOTE: Cross arms to be detailed as per to accommodate either 11' or 12' diameter hangers

AMERICAN BRIDGE CO'S
 STABLEMENT PROCESS
 PATENTED

RECORDED RIGHT OF WAY 190717
 Part 2

TRANSMISSION TOWERS
 THE DILLIENSON CO.
 ALL WORK WHICH
 SUSPENSION TOWER "P"
 LANGFORD BRIDGE CO. D.D. 101

AMERICAN BRIDGE CO.
 PITTSBURGH PA.
 INDUSTRY NO. 7-24-27
 ORDER NO. 11-11-11
 DRAWING T-7011

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 CM ACSR 26/
 477 MCM

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL LIMIT MAX TENSION
1	500.0	7770.00	0.43560	9800.00

*****FINAL BARE CONDUCTOR TENSION LIMIT OF 5000.0 LBS. IS EXCEEDED BY 444.6 L

*****CREEP IS A FACTOR*****

INDEX	TEMP.	SAG	INITIAL TENSION	SAG	FINAL TENSION	SAG IS I
1	0.0	8.00	7574.0	8.12	7456.0	
2	0.0	3.25	5838.0	4.11	4999.0	-----MINUS SIGN
3	32.0	7.43	6326.0	8.06	5832.0	
4	0.0	3.70	5560.0	4.43	4640.0	
5	20.0	3.88	5288.0	4.77	4308.0	
6	30.0	4.01	5016.0	5.14	3997.0	
7	40.0	4.33	4745.0	5.53	3715.0	
8	50.0	4.55	4482.0	5.94	3458.0	
9	60.0	4.86	4230.0	6.36	3230.0	
10	70.0	5.16	3985.0	6.80	3024.0	
11	80.0	5.47	3754.0	7.24	2840.0	
12	90.0	5.82	3534.0	7.68	2678.0	
13	100.0	6.17	3330.0	8.12	2533.0	
14	110.0	6.55	3139.0	8.55	2405.0	
15	120.0	6.99	2969.0	8.98	2290.0	

DATA SHEET TO ACCOMPANY DRAWING RX-3164C

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Hines-Yost 120 kV steel tower line over main line tracks of the Chesapeake and Ohio Railroad at a point approximately 2,640 feet north of Plymouth Road and approximately 2,900 feet east of Levan Road at Railroad Stationing 867+60.

Crossing in the southwest $\frac{1}{4}$ of Section 28, City of Livonia, Wayne County, Michigan.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawing T-7617 (AB), T-9164 (Q).

Conductors

3-477 MCM ACSR 26/7, South side
3-954 MCM ACSR 54/7, North side

Insulators

1-3/8 steel ground wire, eight (8) 5-3/4"x10" O.B. #32440 or equivalent in suspension.

Guy and Guy Attachments

None

Suspension and Deadend Details

For 954 MCM ACSR see attached drawing ED1-7430.
For 477 MCM ACSR see attached drawing ED1-8028.

System Engineering Department
CVP/js 9-26-84

RECORDED RIGHT OF WAY 19077 part 2

SAGS AND TENSIONS STUDY NO. 102
 ACSR CONDUCTOR - 954 MCM, 54/7 11000 - H.L.T.

	TEMP.	FINAL		INITIAL	
		SAG	TENSION	SAG	TENSION
SPAN LENGTH = 200. FEET					
CREEP IS A FACTOR					
1	0.	1.36	10017.	1.24	-11000.
2	0.	1.17	9767.	1.06	10855.
3	-20.	0.57	10932.	0.53	11613.
4	0.	0.67	9272.	0.59	10576.
5	32.	0.92	6722.	0.70	8848.
6	60.	1.30	4750.	0.85	7286.
7	90.	1.91	3220.	1.10	5607.
8	120.	2.52	2446.	1.51	4081.

954 54/7 ACSR
 11,000 H.L.T.

SPAN LENGTH = 300. FEET					
CREEP IS A FACTOR					
1	0.	3.01	10141.	2.78	-11000.
2	0.	2.66	9668.	2.41	10699.
3	-20.	1.37	10150.	1.25	11089.
4	0.	1.61	8592.	1.38	10069.
5	32.	2.18	6347.	1.65	8401.
6	60.	2.89	4787.	2.00	6942.
7	90.	3.80	3647.	2.52	5490.
8	120.	4.72	2935.	3.23	4286.

SPAN LENGTH = 400. FEET					
CREEP IS A FACTOR					
1	0.	5.29	10263.	4.93	-11000.
2	0.	4.78	9572.	4.35	10517.
3	-20.	2.68	9188.	2.37	10381.
4	0.	3.14	7831.	2.62	9394.
5	32.	4.11	5996.	3.14	7844.
6	60.	5.11	4821.	3.75	6570.
7	90.	6.24	3949.	4.58	5381.
8	120.	7.33	3360.	5.54	4445.

SPAN LENGTH = 500. FEET					
CREEP IS A FACTOR					
1	0.	8.17	10378.	7.71	-11000.
2	0.	7.53	9501.	6.92	10339.
3	-20.	4.67	8229.	4.03	9551.
4	0.	5.40	7130.	4.45	8647.
5	32.	6.71	5735.	5.28	7287.
6	60.	7.93	4853.	6.18	6228.
7	90.	9.23	4173.	7.27	5293.
8	120.	10.47	3680.	8.43	4565.

SPAN LENGTH = 600. FEET					
CREEP IS A FACTOR					
12	1	0.	11.67	10471.	11.11 -11000.
11	2	0.	10.91	9444.	10.13 10166.
10	3	-20.	7.48	7404.	6.36 8704.
9	4	0.	8.42	6577.	7.00 7912.
8	5	32.	10.00	5543.	8.17 6784.
7	6	60.	11.37	4876.	9.31 5952.
6	7	90.	12.79	4337.	10.60 5227.
5	8	120.	14.15	3923.	11.92 4653.

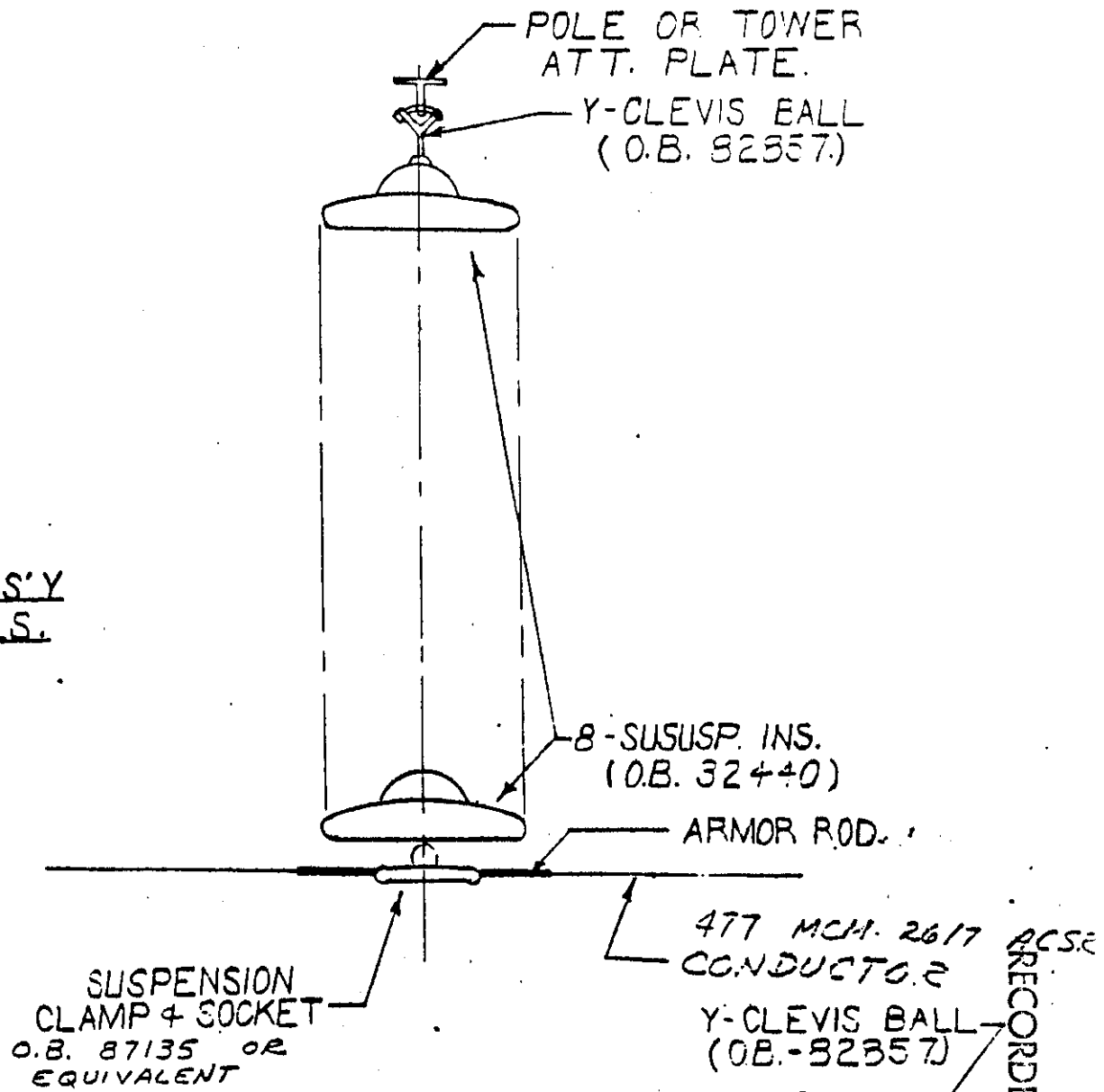
SPAN LENGTH = 700. FEET					
CREEP IS A FACTOR					

RECORDED RIGHT OF WAY 19077 part 22

FOR THE ENGINEER IN CHARGE, DIVISION OF SAFETY, PUBLIC SERVICE COMPANY OF NEW JERSEY

23928

SUSP. ASS'Y
DETAILS.



477 MCM 2617 ACSE
CONDUCTOR.

DEADEND
CLAMP WITH SOCKET EYE
O.B. 86546 OR
EQUIVALENT

9-SUSP. INSULATORS
(O.B. 47410)

DEADEND PLATE

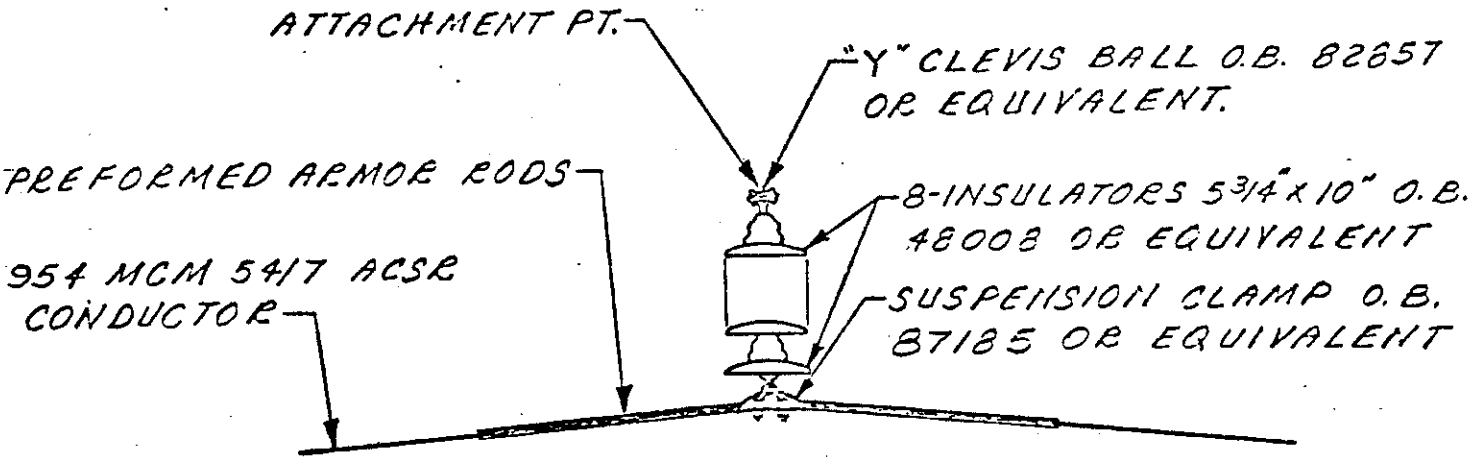
DEADEND ASS'Y
DETAILS.

RECORDED RIGHT OF WAY 19077
part 2

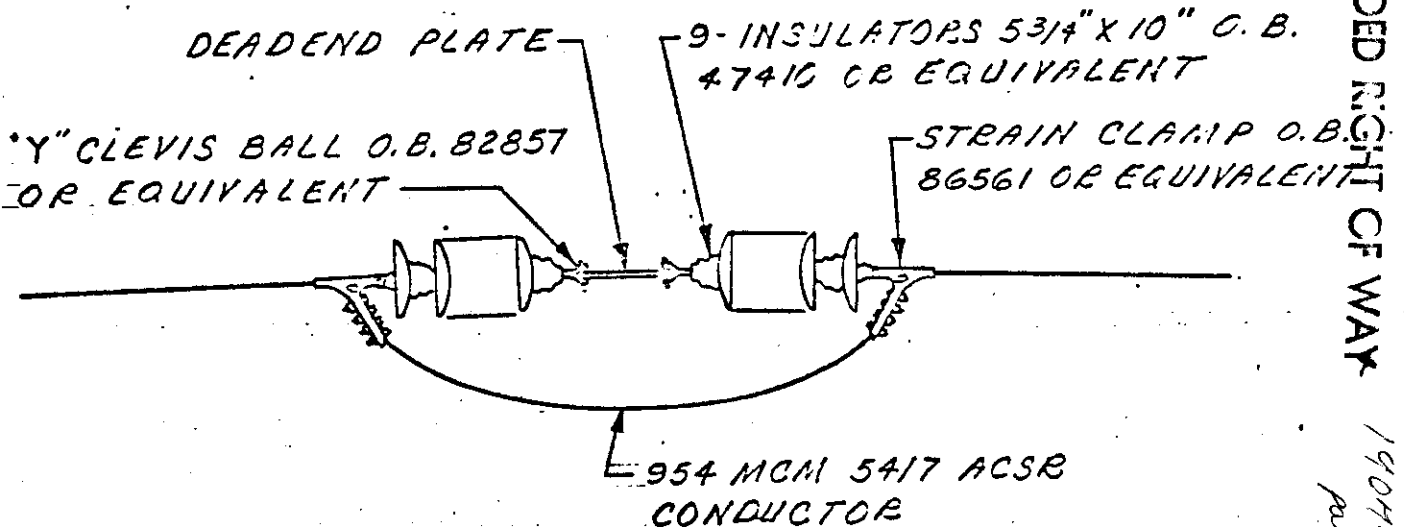
120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>RCS.</i>	DRAWN BY <i>N.H.H.</i>
	DATE <i>4-2-70.</i>	ED1-8028
	SCALE	

SL PENSION ASS'Y
DETAILS



DEADEND ASS'Y
DETAILS



RECORDED RIGHT OF WAY

190417
part 2

120 KV SUSPENSION &
DEADEND ASS'Y DETAILS

APPROVED <i>JSH</i>	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>J. HEIGHT</i>	DRAWN BY <i>JEM</i>
	DATE <i>1-25-71</i>	DRAWING NUMBER
	SCALE	<i>EDI-7430</i>

SUPERSTITION ISLAND

THE TOWER SHALL BE A
GALV STEEL TOWER WITH A
1905054 (2) JACOBS CONDUCTORS AND
SPAN OF 500' WITH AN ANGLE OF 15° IN
OF 15° ALL WITH A TENSILE TENSION OF
5000' IN THE GUARD WIRES AND 3000'
IN THE CONDUCTORS.
THE LOADS IS 2.4" WIND ON THE CROSS
WIRES.

LOADS

- (1) VERTICAL
 - 1- GRADWIRE @ 650' 200
 - 2- CONDUCTORS @ 500' 4000
- (2) TOWER DUE TO WIND ON WIRES
 - 1- GRADWIRE @ 310' 300
 - 2- CONDUCTORS @ 440' 2000
- (3) TOWER DUE TO WIND ON TOWER
 - 1- GRADWIRE @ 1700' 11000
 - 2- CONDUCTORS @ 250' 11000
- (4) LOADS TOWER DUE TO CONDUCTORS
BROKEN AT 650' OR ANY POINT
BETWEEN AT 750' (90% OF 800)
- (5) WIND ON TOWER AT 5' FROM FACE OF
FACE OF TOWER
- (6) DEAD LOAD OF TOWER

CONTINUED

START 100' FROM THE TOWER
END 100' FROM THE TOWER
2500' 1200

THIS CROSS SECTION IS FOR THE
AND HANGERS AND DOWN THE TOWER

WARRANTY UNIT

THIS SECTION IS FOR THE
CORP ON CROSS SECTION OF THE TOWER
SHEAR ON JOINT 30000 LBS
BREAKING ON JOINT 60000 LBS

MATERIALS

GRADWIRE - GALVANIZED STEEL
CONDUCTORS - ALUMINUM
TOWER - GALVANIZED STEEL
HANGERS - GALVANIZED STEEL
WIND BRACES - GALVANIZED STEEL

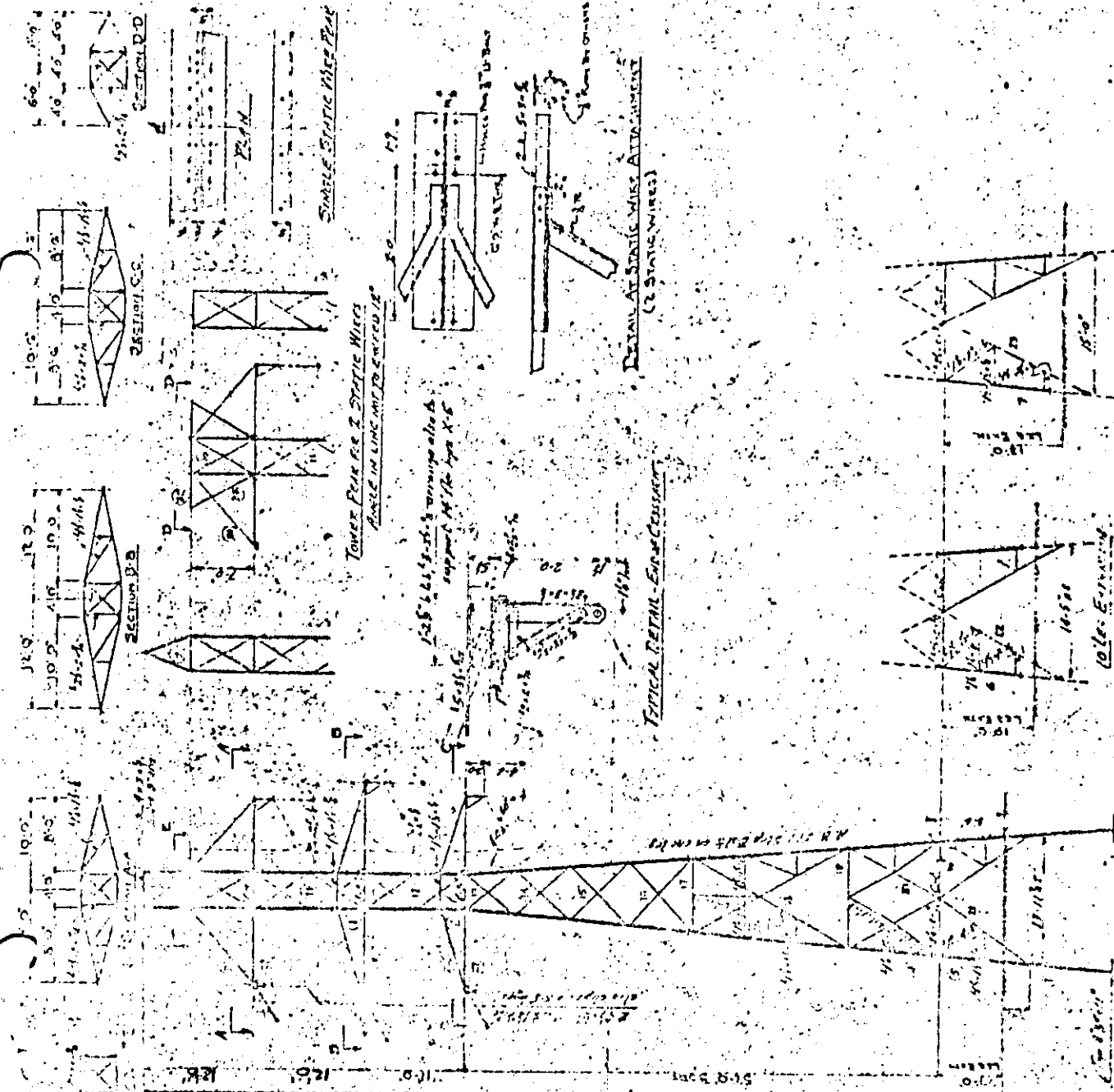
THE DESIGN OF THE TOWER IS THE PROPERTY OF
AMERICAN TOWER CO.

AMERICAN TOWER CO.

1917

NEW YORK, N.Y.

ULT	SECTION
1	1-1
2	2-2
3	3-3
4	4-4
5	5-5
6	6-6
7	7-7
8	8-8
9	9-9
10	10-10
11	11-11
12	12-12
13	13-13
14	14-14
15	15-15
16	16-16
17	17-17
18	18-18
19	19-19
20	20-20
21	21-21
22	22-22
23	23-23
24	24-24
25	25-25
26	26-26
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32	32-32
33	33-33
34	34-34
35	35-35
36	36-36
37	37-37
38	38-38
39	39-39
40	40-40
41	41-41
42	42-42
43	43-43
44	44-44
45	45-45
46	46-46
47	47-47
48	48-48
49	49-49
50	50-50



1917

RECORDED RIGHT OF WAY

1917

part 2

AMERICAN TOWER CO. NEW YORK, N.Y.

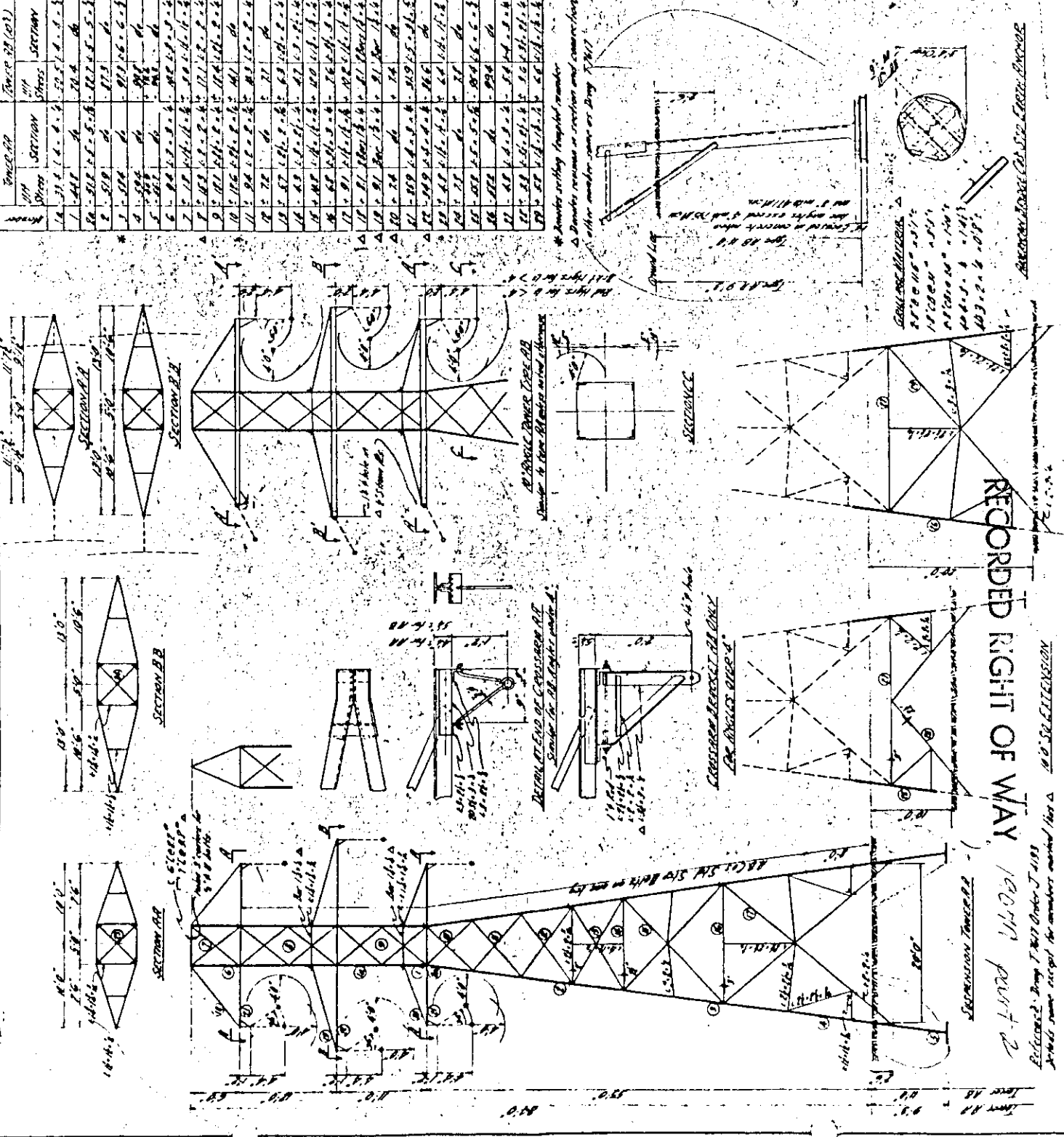
TRANSMISSION TOWERS
 THE DETROIT EDISON CO
 DETROIT, MICH
 TOWER NO. 13
 AMERICAN BRIDGE CO
 PITTSBURGH, PA
 ORDER NO. 75487
 DRAWING T. 8712

3:1 700 span

GENERAL DIRECTIONS:
 The tower is designed to support 2-1/2" x 10" cables and to conduct two of 200,000 (5) ACOR in a span of 700 ft. between towers with 10' angle in line for AB.
 The cables are to be 5/16" diameter flat the American Association of Engineers and Architects will not exceed 1820 in the ground and 1420 in the conductors in accordance with the Edison Electric Co. (E.E.C.)

01 Material 100' H.W. @ 1420" x 1820"
 1 Cable size @ 200,000 2-1/2" x 10"
 02 Transverse Wind forces
 150' H.W. @ 400" x 400"
 160' H.W. @ 510" x 510"
 03 Transverse 10' Spacing for Tower AB
 160' H.W. @ 400" x 400"
 170' H.W. @ 510" x 510"
 04 Length between the ground wire bridle on any one conductor for tower at 1800 ft. projected area of one leg of tower.
 05 Wind on tower at 45 per sq ft. as it bears projected area of one leg of tower.
 06 Dead load of tower
 07 Corrosion
 08 Tower AB
 09 Tower BC
 10 Tower CD
 11 Tower DE
 12 Tower EF
 13 Tower FG
 14 Tower GH
 15 Tower HI
 16 Tower IJ
 17 Tower JK
 18 Tower KL
 19 Tower LM
 20 Tower MN
 21 Tower NO
 22 Tower OP
 23 Tower PQ
 24 Tower QR
 25 Tower RS
 26 Tower ST
 27 Tower TU
 28 Tower UV
 29 Tower VW
 30 Tower WX
 31 Tower XY
 32 Tower YZ

NOTE: Structure designed for 1820' span
 designed for double vertical load.
 WIND LOADS: 100' H.W. @ 400" x 400"
 150' H.W. @ 510" x 510"
 160' H.W. @ 400" x 400"
 170' H.W. @ 510" x 510"
 180' H.W. @ 400" x 400"
 190' H.W. @ 510" x 510"
 200' H.W. @ 400" x 400"
 210' H.W. @ 510" x 510"
 220' H.W. @ 400" x 400"
 230' H.W. @ 510" x 510"
 240' H.W. @ 400" x 400"
 250' H.W. @ 510" x 510"
 260' H.W. @ 400" x 400"
 270' H.W. @ 510" x 510"
 280' H.W. @ 400" x 400"
 290' H.W. @ 510" x 510"
 300' H.W. @ 400" x 400"
 310' H.W. @ 510" x 510"
 320' H.W. @ 400" x 400"
 330' H.W. @ 510" x 510"
 340' H.W. @ 400" x 400"
 350' H.W. @ 510" x 510"
 360' H.W. @ 400" x 400"
 370' H.W. @ 510" x 510"
 380' H.W. @ 400" x 400"
 390' H.W. @ 510" x 510"
 400' H.W. @ 400" x 400"



RECORDED RIGHT OF WAY
 100 FT part 2
 100' SECTION
 100' SECTION
 100' SECTION

DATA SHEET TO ACCOMPANY DRAWING RX-3165C
Revision of Crossing Rx-3165B

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Hines-Yost 120 kV Transmission lines over the C.&.O. Railroad approximately 2,640 feet north of Plymouth Road and approximately 400 feet east of Levan Road. Railroad Stationing 893+00.

Crossing in the northwest $\frac{1}{4}$ of Section 29, City of Livonia, Wayne County, Michigan.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one ground wire.

Towers and Crossarms

See attached drawing T-2056(A).

Conductors - North side - 3-477 MCM ACSR 26/7 conductors
South side - 3-954 MCM ACSR 54/7 conductors
Ground Wire - 1-3/8" steel

Insulators

Eight (8) 5-3/4" x 10" O.B. #32440 or equivalent in suspension.

Guy and Guy Attachments

None

Suspension and Deadend Details

Shown on drawing RX-3165C

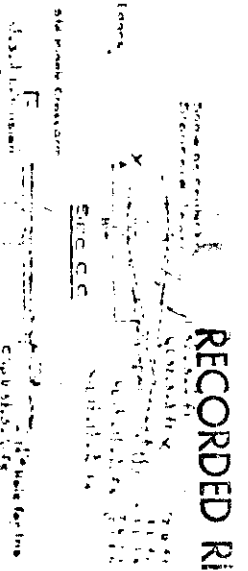
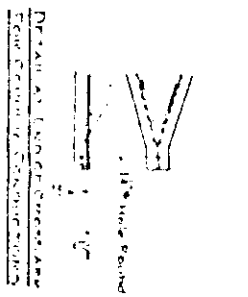
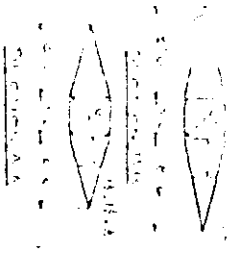
System Engineering Department
CVP/mak 8-27-84

RECORDED RIGHT OF WAY

1981/1/17 part 2

RECORDED RIGHT OF WAY

1907th Part 2

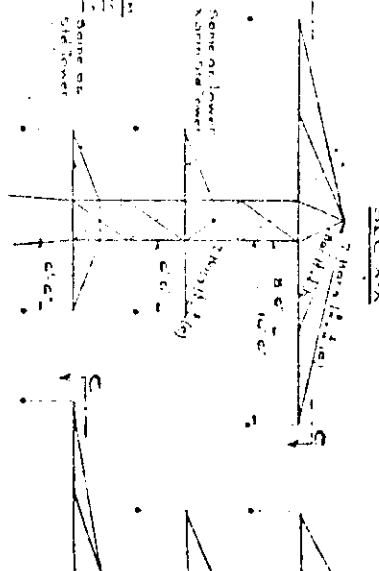
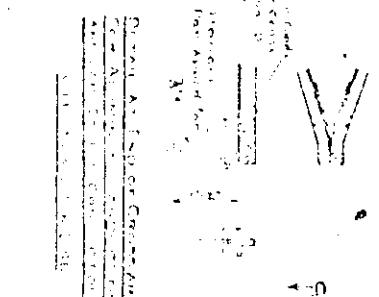
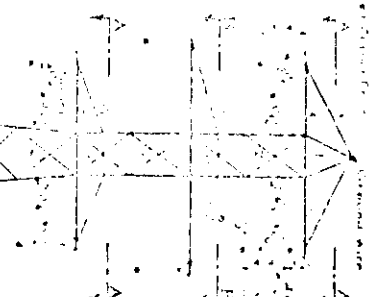


1. Vertical load at center of support of 15000 lbs. (10000 lbs. + 5000 lbs. weight of tower)

2. Horizontal load at center of support of 15000 lbs. (10000 lbs. + 5000 lbs. weight of tower)

3. Wind on tower of 50 lbs. per sq. ft. at height of tower

4. Road load of tower

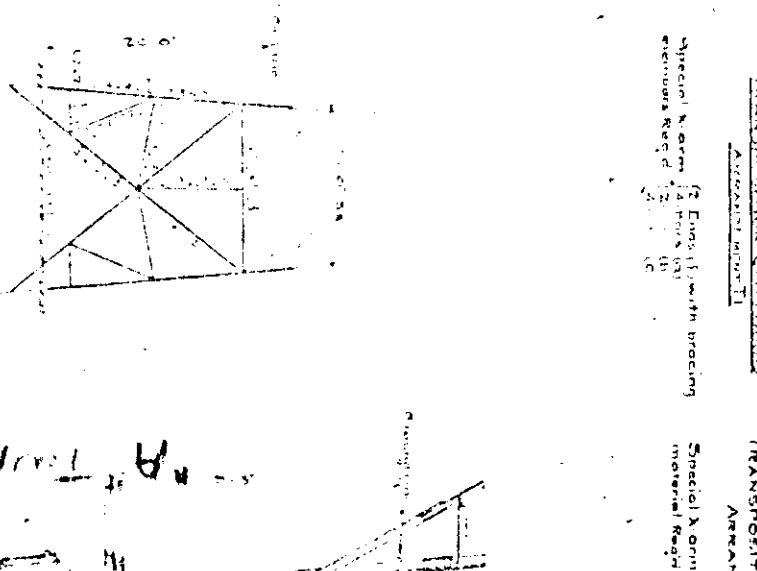
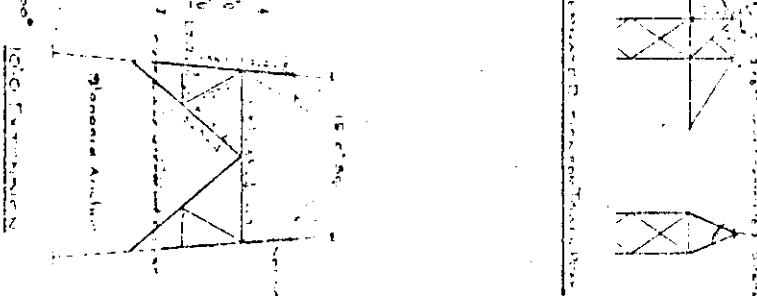
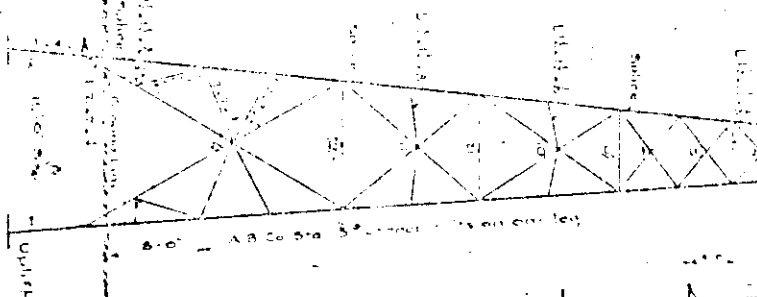


1. Vertical load at center of support of 15000 lbs. (10000 lbs. + 5000 lbs. weight of tower)

2. Horizontal load at center of support of 15000 lbs. (10000 lbs. + 5000 lbs. weight of tower)

3. Wind on tower of 50 lbs. per sq. ft. at height of tower

4. Road load of tower



1. Vertical load at center of support of 15000 lbs. (10000 lbs. + 5000 lbs. weight of tower)

2. Horizontal load at center of support of 15000 lbs. (10000 lbs. + 5000 lbs. weight of tower)

3. Wind on tower of 50 lbs. per sq. ft. at height of tower

4. Road load of tower

Member	Stress	Material
Legs	1. 10000	ASTM A36
	2. 10000	ASTM A36
	3. 10000	ASTM A36
	4. 10000	ASTM A36
	5. 10000	ASTM A36
	6. 10000	ASTM A36
	7. 10000	ASTM A36
	8. 10000	ASTM A36
	9. 10000	ASTM A36
	10. 10000	ASTM A36
	11. 10000	ASTM A36
	12. 10000	ASTM A36
	13. 10000	ASTM A36
	14. 10000	ASTM A36
	15. 10000	ASTM A36
	16. 10000	ASTM A36
	17. 10000	ASTM A36
	18. 10000	ASTM A36
	19. 10000	ASTM A36
	20. 10000	ASTM A36
	21. 10000	ASTM A36
	22. 10000	ASTM A36
	23. 10000	ASTM A36
	24. 10000	ASTM A36
	25. 10000	ASTM A36
	26. 10000	ASTM A36
	27. 10000	ASTM A36
	28. 10000	ASTM A36
	29. 10000	ASTM A36
	30. 10000	ASTM A36
	31. 10000	ASTM A36
	32. 10000	ASTM A36
	33. 10000	ASTM A36
	34. 10000	ASTM A36
	35. 10000	ASTM A36
	36. 10000	ASTM A36
	37. 10000	ASTM A36
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	88. 10000	ASTM A36
	89. 10000	ASTM A36
	90. 10000	ASTM A36
	91. 10000	ASTM A36
	92. 10000	ASTM A36
	93. 10000	ASTM A36
	94. 10000	ASTM A36
	95. 10000	ASTM A36
	96. 10000	ASTM A36
	97. 10000	ASTM A36
	98. 10000	ASTM A36
	99. 10000	ASTM A36
	100. 10000	ASTM A36

SUSPENSION TOWER A
TRANSMISSION TOWERS
DETROIT Edison CO.

1907th Part 2

SAGS AND TENSIONS STUDY NO. 102
 ACSR CONDUCTOR - 954 MCM, 54/7 11000 - H.L.T.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 200. FEET					
CREEP IS A FACTOR					
1	0.	1.36	10017.	1.24	-11000.
2	0.	1.17	9767.	1.06	10855.
3	-20.	0.57	10932.	0.53	11613.
4	0.	0.67	9272.	0.59	10576.
5	32.	0.92	6722.	0.70	8848.
6	60.	1.30	4750.	0.85	7286.
7	90.	1.91	3220.	1.10	5607.
8	120.	2.52	2446.	1.51	4081.

954 54/7 ACSR
 11,000 H.L.T.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 300. FEET					
CREEP IS A FACTOR					
1	0.	3.01	10141.	2.78	-11000.
2	0.	2.66	9668.	2.41	10699.
3	-20.	1.37	10150.	1.25	11089.
4	0.	1.61	8592.	1.38	10069.
5	32.	2.18	6347.	1.65	8401.
6	60.	2.89	4787.	2.00	6942.
7	90.	3.80	3647.	2.52	5490.
8	120.	4.72	2935.	3.23	4286.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 400. FEET					
CREEP IS A FACTOR					
1	0.	5.29	10263.	4.93	-11000.
2	0.	4.78	9572.	4.35	10517.
3	-20.	2.68	9188.	2.37	10381.
4	0.	3.14	7831.	2.62	9394.
5	32.	4.11	5996.	3.14	7844.
6	60.	5.11	4821.	3.75	6570.
7	90.	6.24	3949.	4.58	5381.
8	120.	7.33	3360.	5.54	4445.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 500. FEET					
CREEP IS A FACTOR					
1	0.	8.17	10378.	7.71	-11000.
2	0.	7.53	9501.	6.92	10339.
3	-20.	4.67	8229.	4.03	9551.
4	0.	5.40	7130.	4.45	8647.
5	32.	6.71	5735.	5.28	7287.
6	60.	7.93	4853.	6.18	6228.
7	90.	9.23	4173.	7.27	5293.
8	120.	10.47	3680.	8.43	4565.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 600. FEET					
CREEP IS A FACTOR					
1	0.	11.67	10471.	11.11	-11000.
2	0.	10.91	9444.	10.13	10166.
3	-20.	7.48	7404.	6.36	8704.
4	0.	8.42	6577.	7.00	7912.
5	32.	10.00	5543.	8.17	6784.
6	60.	11.37	4876.	9.31	5952.
7	90.	12.79	4337.	10.60	5227.
8	120.	14.15	3923.	11.92	4653.

TEMP.	FINAL		INITIAL	
	SAG	TENSION	SAG	TENSION
SPAN LENGTH = 700. FEET				
CREEP IS A FACTOR				

RECORDED RIGHT OF WAY 19077 part 2

DATA SHEET TO ACCOMPANY DRAWING RX-4308A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Warren-Evergreen #1 120 KV transmission line over the C. & O. railroad at approximately 900 feet north of Warren Avenue, and approximately 500 feet east of Barrie Street in the city of Dearborn, 1000 feet north of mile post 9.6. Wayne County, Michigan T.2S.-R.11E.

Circuits

One 120,000 volt, 60 cycle, 6 wire, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawing ED1-9067.

Conductors

Six-477 MCM 26/7 ACSR, with one 3/8" steel groundwire.

Insulators

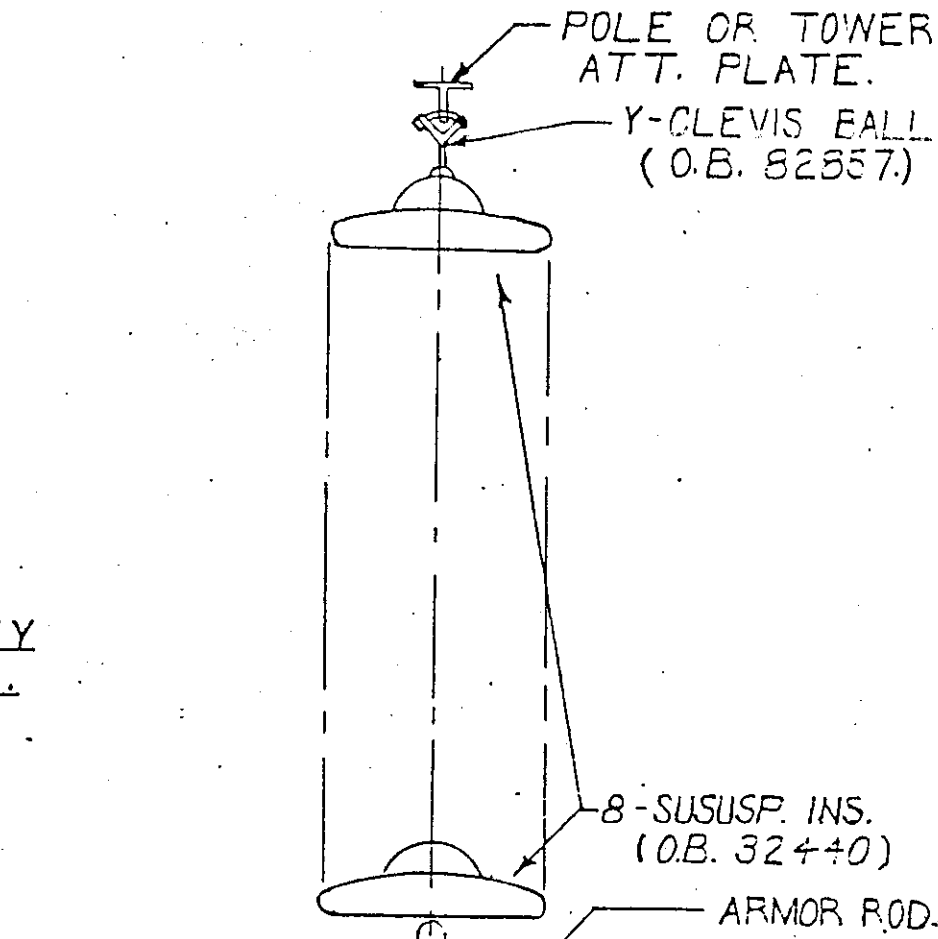
120 KV suspension assembly: Eight (O.B. #32440)

Guy and Guy Attachments

None

RECORDED RIGHT OF WAY 1907-1
part 2

SUSP. ASS'Y
DETAILS.



SUSPENSION
CLAMP & SOCKET
O.B. 87135 OR
EQUIVALENT

477 MCM 2617 ACSE
CONDUCTOR

Y-CLEVIS BALL
(O.B. 82357)

477 MCM 2617 ACSE
CONDUCTOR.

DEADEND
CLAMP WITH SOCKET EYE
O.B. 86546 OR
EQUIVALENT

9-SUSP. INSULATORS
(O.B. 47410)

DEADEND ASS'Y
DETAILS.

DEADEND PLATE

RECORDED RIGHT OF WAY 19277
PART 2

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY RGS.	DRAWN BY N.H.H.
	DATE 4-2-70.	ED1-8028
	SCALE	

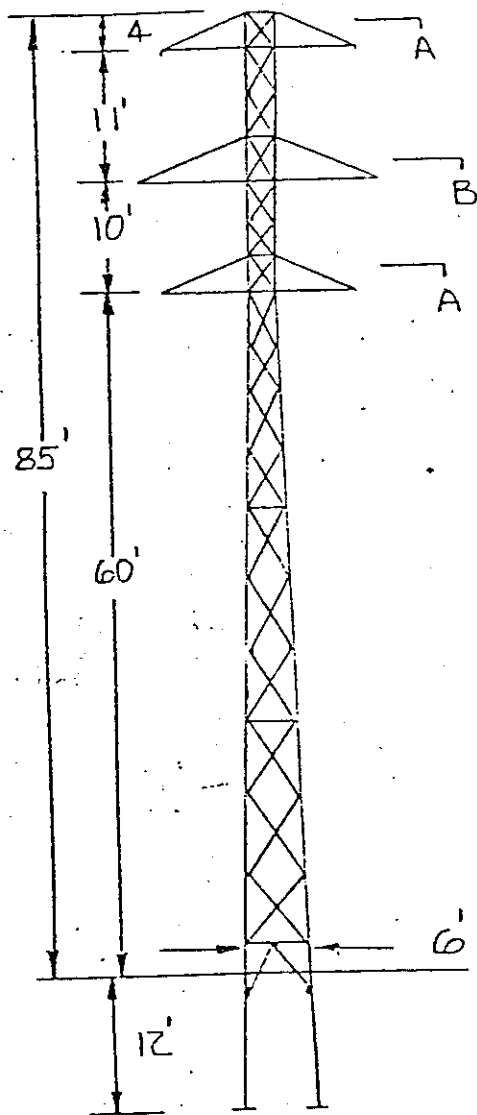
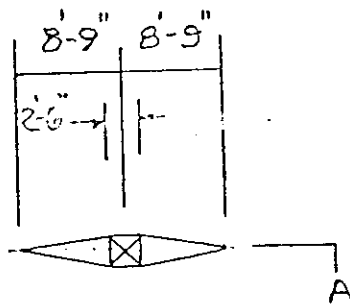
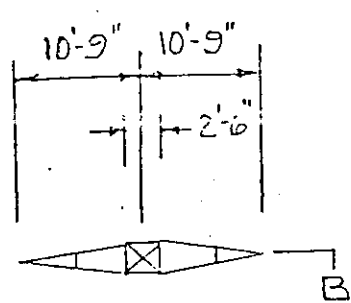
THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 (

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL MAX TEM
1	500.0	6000.00	0.43560	980

*****CREEP IS /

INDEX	TEMP.	INITIAL SAG	INITIAL TENSION	FINAL SAG	FINAL TENSION
1	0.	10.10	-6000.	10.10	5998.
2	0.	5.88	3498.	6.65	3092.
3	32.	9.85	4775.	10.27	4582.
4	10.	6.22	3303.	7.08	2903.
5	20.	6.59	3120.	7.52	2733.
6	30.	6.97	2951.	7.96	2583.
7	40.	7.35	2797.	8.40	2448.
8	50.	7.74	2657.	8.83	2329.
9	60.	8.13	2528.	9.26	2222.
10	70.	8.53	2412.	9.68	2126.
11	80.	8.92	2306.	10.09	2040.
12	90.	9.31	2209.	10.49	1962.
13	100.	9.70	2122.	10.88	1892.
14	110.	10.08	2041.	11.27	1827.
15	120.	10.46	1968.	11.64	1768.

RECORDED RIGHT OF WAY 19047 part 2



RECORDED RIGHT OF WAY 190717

part 2

OLD DRAWING T-7815

ANGLE TOWER
"LX"

APPROVED	THE DETROIT EDISON COMPANY SYSTEM ENGINEERING DEPARTMENT	
LAYOUT BY C. VAN PARIS	DRAWN BY	
DATE 1-13-73	DRAWING NUMBER	
SCALE NONE	ED 1-9067	

DATA SHEET TO ACCOMPANY DRAWING RX-4309A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Warren-Evergreen #1 120 KV transmission line over the C. & O. Railroad at approximately 10 feet south of E of Diversey road and approximately 500 feet west of Sussex Road. 960 feet south of mile post D-10. In the city of Dearborn, Wayne County, T2S-R11E, S.W. 1/4 of section 16.

Circuits

One 120,000 volt, 60 cycles, 6 wire, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawing ED1-9067

Conductors

Six-477 MCM 26/7 ACSR, six per circuit with one 3/8" steel groundwire.

Insulators

120 KV suspension assembly: Eight (O.B. #32440) or equivalent.

Guy and Guy Attachments

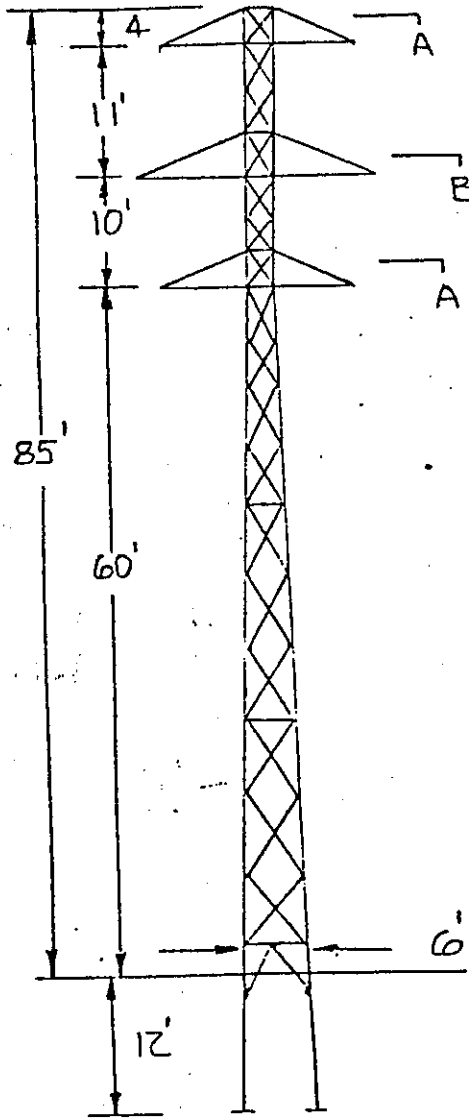
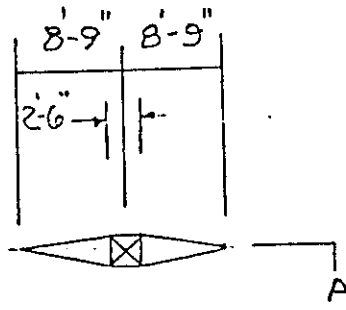
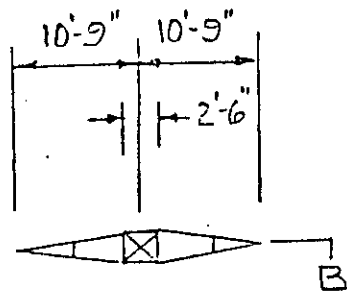
None

Suspension and Deadend Details

See attached drawing ED1-8028

RECORDED RIGHT OF WAY

1987
part 2



RECORDED RIGHT OF WAY

19067
part 1-2

OLD DRAWING T-7815

ANGLE TOWER
"LX"

APPROVED	THE DETROIT EDISON COMPANY SYSTEM ENGINEERING DEPARTMENT	
	LAYOUT BY C. VAN PARIJS	DRAWN BY
	DATE 1-13-78	DRAWING NUMBER
	SCALE NONE	ED 1-9067

THE CALCULATIONS FOR THIS TRIAL ARE FOR 177 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL MAX TENSION
1	500.0	6000.00	0.43560	980

*****CREEP IS 1

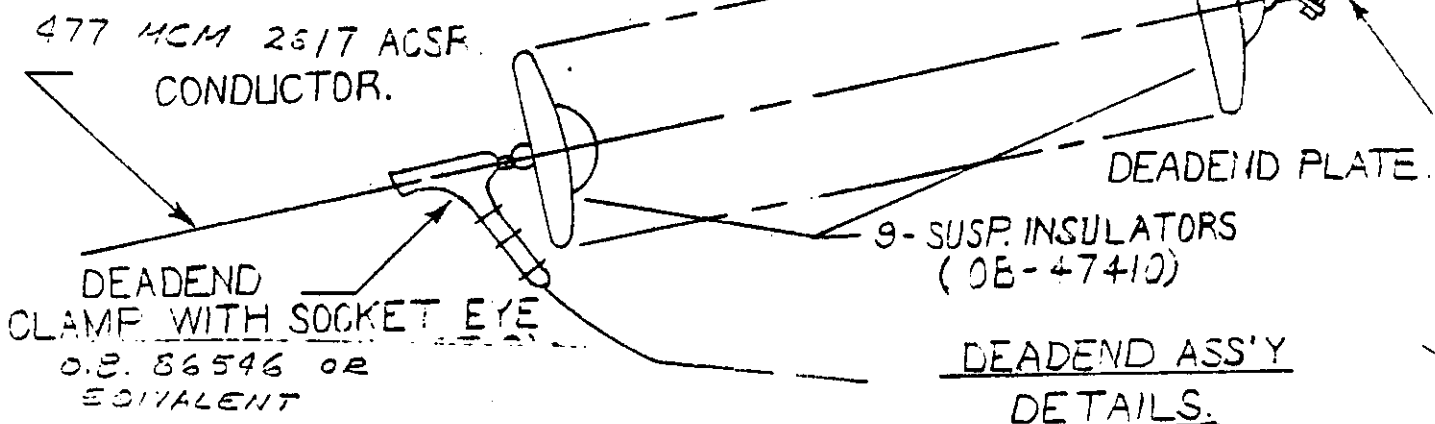
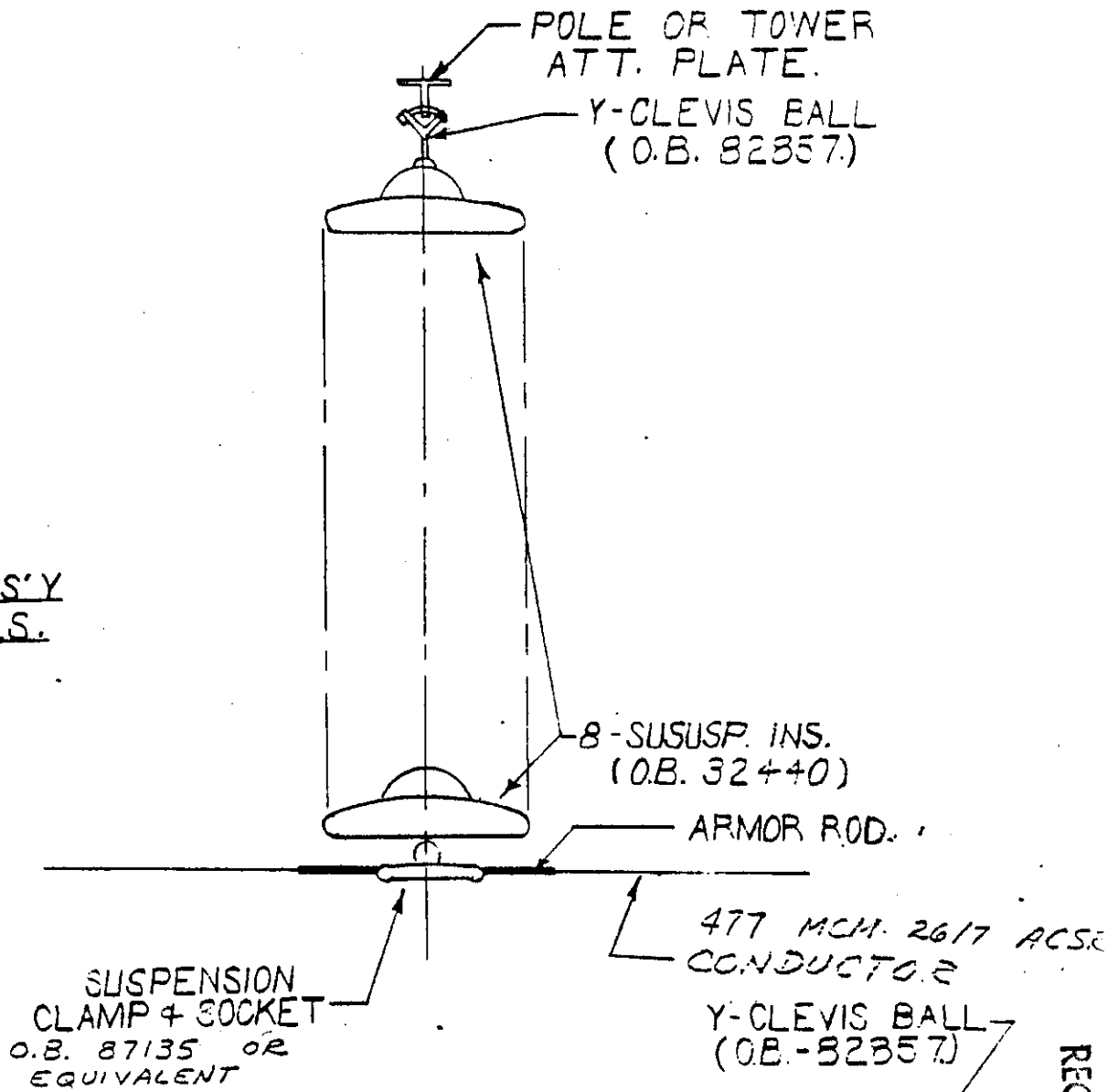
INDEX	TEMP.	INITIAL		FINAL	
		SAG	TENSION	SAG	TENSION
1	0.	10.10	-6000.	10.10	5998.
2	0.	5.88	3498.	6.65	3092.
3	32.	9.85	4775.	10.27	4582.
4	10.	6.22	3303.	7.08	2903.
5	20.	6.59	3120.	7.52	2733.
6	30.	6.97	2951.	7.96	2583.
7	40.	7.35	2797.	8.40	2448.
8	50.	7.74	2657.	8.83	2329.
9	60.	8.13	2528.	9.26	2222.
10	70.	8.53	2412.	9.68	2126.
11	80.	8.92	2306.	10.09	2040.
12	90.	9.31	2209.	10.49	1962.
13	100.	9.70	2122.	10.88	1892.
14	110.	10.08	2041.	11.27	1827.
15	120.	10.46	1968.	11.64	1768.

RECORDED RIGHT OF WAY

190717
 part 2

335 X

SUSP. ASS'Y
DETAILS.



DEADEND ASS'Y
DETAILS.

RECORDED RIGHT OF WAY 1987
part 2

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY RDS.	DRAWN BY N.H.H.
	DATE 4-2-70.	ED1-3028
	SCALE	

DATA SHEET TO ACCOMPANY DRAWING RX-4310 A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Warren-Evergreen #1 120KV transmission line over the C. & O. Railroad at approximately 730 feet east of Rutherford Road and approximately 890 feet north of Greenfield Road. In the City of Detroit, Wayne County, T-25-R10E, northeast 1/4 of Section 1.

Circuits

One 120,000 volt, 60 cycle, 6 wire, 3 phase transmission.

Towers and Crossarms

See attached drawing ED1-9067

Conductors

Six 477 MCM 26/7 ACSR, one circuit, one 3/8" steel groundwires.

Insulators

120KV suspension assembly: Eight insulators O.B. 32440 or equivalent.

Guy and Guy Attachments

None

Suspension and Deadend Details

See attached drawing ED1-8028

RECORDED
RIGHT OF WAY
1987
part 2

THE CALCULATIONS FOR THIS TRIAL ARE FOR STUDY 266,800 CM TO 636,000 (STRESS-STRAIN CURVES USED REPRESENT

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL MAX TEM
1	500.0	6000.00	0.43560	980

*****CREEP IS 7

INDEX	TEMP.	INITIAL		FINAL	
		SAG	TENSION	SAG	TENSION
1	0.	10.10	-6000.	10.10	5998.
2	0.	5.88	3498.	6.65	3092.
3	32.	9.85	4775.	10.27	4582.
4	10.	6.22	3303.	7.08	2903.
5	20.	6.59	3120.	7.52	2733.
6	30.	6.97	2951.	7.96	2583.
7	40.	7.35	2797.	8.40	2448.
8	50.	7.74	2657.	8.83	2329.
9	60.	8.13	2528.	9.26	2222.
10	70.	8.53	2412.	9.68	2126.
11	80.	8.92	2306.	10.09	2040.
12	90.	9.31	2209.	10.49	1962.
13	100.	9.70	2122.	10.88	1892.
14	110.	10.08	2041.	11.27	1827.
15	120.	10.46	1968.	11.64	1768.

RECORDED RIGHT OF WAY

19077
part 2

SUSP. ASS'Y
DETAILS.

SUSPENSION
CLAMP & SOCKET
O.B. 87135 OR
EQUIVALENT

477 MCM 2617 ACSF.
CONDUCTOR.

DEADEND
CLAMP WITH SOCKET EYE
O.B. 86546 OR
EQUIVALENT

POLE OR TOWER
ATT. PLATE.

Y-CLEVIS BALL
(O.B. 82357)

8-SUSP. INS.
(O.B. 32440)

ARMOR ROD.

477 MCM 2617 ACSF
CONDUCTOR

Y-CLEVIS BALL
(O.B. 82357)

DEADEND PLATE.

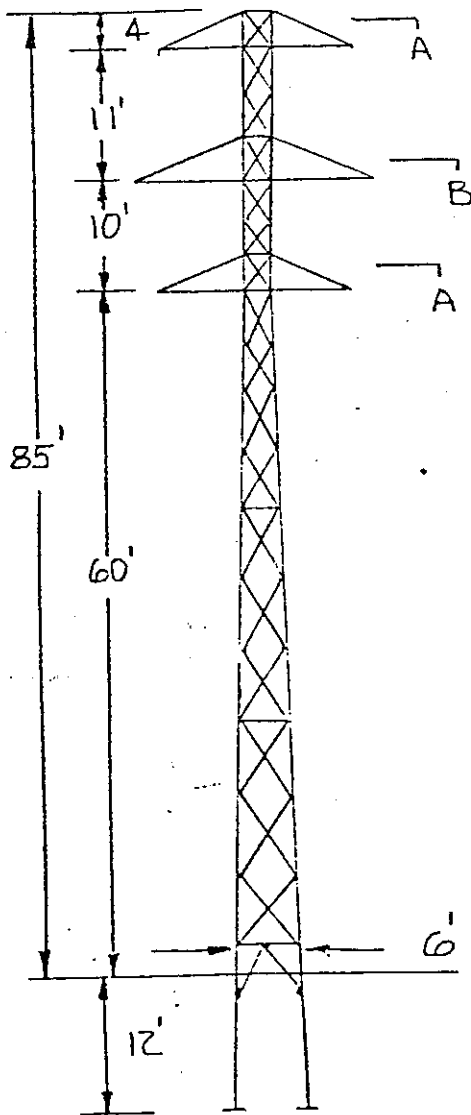
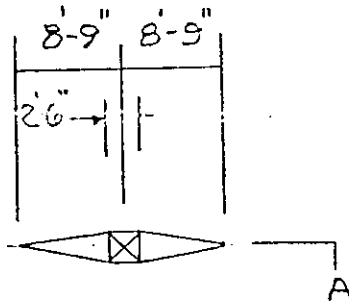
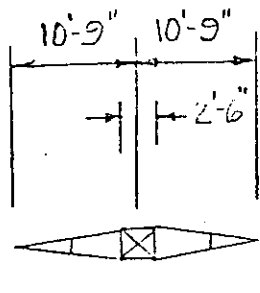
9-SUSP. INSULATORS
(O.B. 47410)

DEADEND ASS'Y
DETAILS.

RECORDED RIGHT OF WAY 190477
PART 2

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <u>RCS.</u>	DRAWN BY <u>N.H.H.</u>
	DATE <u>4-2-70.</u>	ED1-8023
	SCALE	



RECORDED RIGHT OF WAY

19077
part 2

OLD DRAWING T-7815

<p>ANGLE TOWER "LX"</p>	APPROVED	THE DETROIT EDISON COMPANY SYSTEM ENGINEERING DEPARTMENT	
		LAYOUT BY C. VAN PARIS	DRAWN BY
		DATE 1-13-73	DRAWING NUMBER
		SCALE NONE	ED 1-9067

DATA SHEET TO ACCOMPANY DRAWING RX-4311A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Warren-Evergreen #1 120 KV transmission line over the C. & O. Railroad at approximately 300 feet west of Mettetal Road and approximately 350 feet south of Joy Road in the City of Detroit, Wayne County, Michigan, northeast 1/4 of Section 1, T. 25-R. 10E.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line.

Towers and Crossarms

See attached drawing ED1-9067

Conductors

Six 477 MCM 26/7 ACSR, one circuit, one 3/8" steel groundwires.

Insulators

120 KV suspension assembly: Eight insulators O.B. 32440 or equivalent.

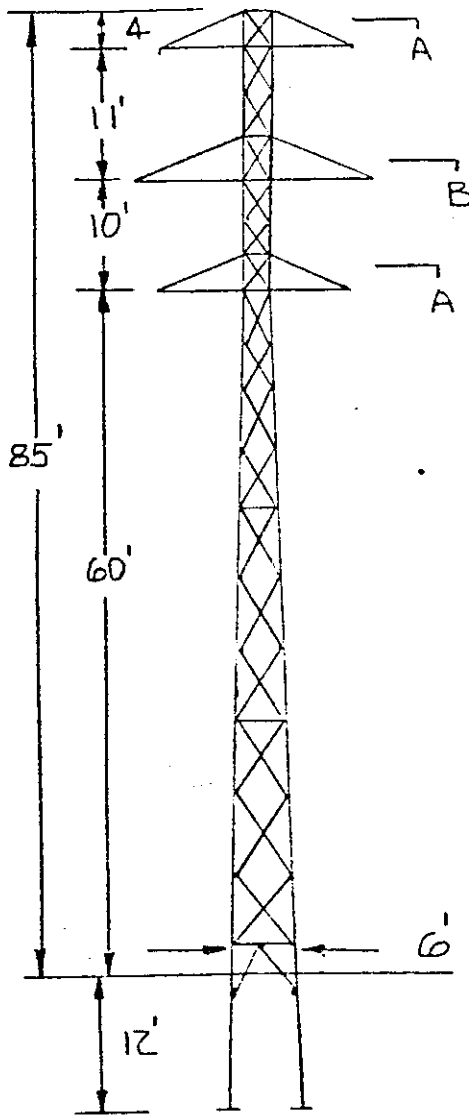
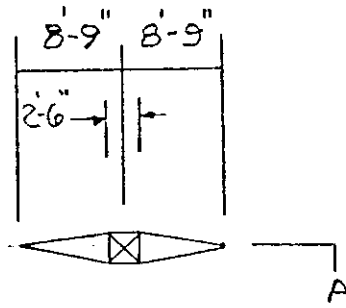
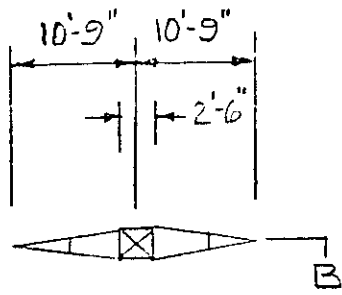
Guy and Guy Attachments

None

Suspension and Deadend Details

See attached drawing ED1-8028

RECORDED
MAY 19 1977
part 2



RECORDED RIGHT OF WAY 19077 part 2.

OLD DRAWING T-7815

ANGLE TOWER
"LX"

APPROVED	THE DETROIT EDISON COMPANY SYSTEM ENGINEERING DEPARTMENT	
	LAYOUT BY C. VAN PARS	DRAWN BY
	DATE 1-13-78	DRAWING NUMBER
	SCALE NONE	ED 1-9067

THE CALCULATIONS FOR THIS TRIAL ARE FOR
STRESS-STRAIN CURVES USED REPRESENT

7 STUDY
266,800 CM TO 636,000

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL MAX TEM
1	500.0	6000.00	0.43560	980

*****CREEP IS 1

INDEX	TEMP.	INITIAL SAG	INITIAL TENSION	FINAL SAG	FINAL TENSION
1	0.	10.10	-6000.	10.10	5998.
2	0.	5.88	3498.	6.65	3092.
3	32.	9.85	4775.	10.27	4582.
4	10.	6.22	3303.	7.08	2903.
5	20.	6.59	3120.	7.52	2733.
6	30.	6.97	2951.	7.96	2583.
7	40.	7.35	2797.	8.40	2448.
8	50.	7.74	2657.	8.83	2329.
9	60.	8.13	2528.	9.26	2222.
10	70.	8.53	2412.	9.68	2126.
11	80.	8.92	2306.	10.09	2040.
12	90.	9.31	2209.	10.49	1962.
13	100.	9.70	2122.	10.88	1892.
14	110.	10.08	2041.	11.27	1827.
15	120.	10.46	1968.	11.64	1768.

RECORDED RIGHT OF WAY

190777
part 2

DATA SHEET TO ACCOMPANY DRAWING RX-4317A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel-Evergreen 120 KV transmission line over the C. & O. Railroad at approximately 210 feet east of Fielding Road and 2,640 feet north of Plymouth Road at railroad stationing 460+53. In the northeast 1/4 of Section 27, City of Detroit, Wayne County, Michigan T. 15.-R.10E.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one ground wire.

Towers and Crossarms

See attached drawings T-7811 (P), T-9164 (Q).

Conductors

Six-477 MCM 26/7 ACSR, with one 3/8" steel ground wire.

Insulators

120 KV suspension assembly. Eight O.B. 32440 or equivalent.

Guy and Guy Attachments

None

Suspension and Deadend Details

See attached drawing ED1-8028

RECORDED RIGHT OF WAY

190747
page 2

SUBSTITUTION
 THE ONLY SUBSTITUTION ALLOWED IS
 GALV STEEL BRIDGE PLATES AND 1/4
 195000 OR 7/16 OR CONDUCTORS, WITH
 SPAN OF 200' WITH AN ANGLE OF 10%
 OF 15% ALLOWING MAXIMUM TENSION
 5000 IN THE CONDUCTORS AND 10000
 IN THE CONDUCTORS.
 THE LENGTH IS 134' 0" ON THE CENTER
 WIRES.

- LOADS**
1. GRAVITY W. 500' 200'
 2. CONDUCTOR W. 100' 100'
 3. CONDUCTOR W. 100' 100'
 4. CONDUCTOR W. 100' 100'
 5. CONDUCTOR W. 100' 100'
 6. CONDUCTOR W. 100' 100'
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 33. CONDUCTOR W. 100' 100'
 34. CONDUCTOR W. 100' 100'
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 85. CONDUCTOR W. 100' 100'
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 87. CONDUCTOR W. 100' 100'
 88. CONDUCTOR W. 100' 100'
 89. CONDUCTOR W. 100' 100'
 90. CONDUCTOR W. 100' 100'
 91. CONDUCTOR W. 100' 100'
 92. CONDUCTOR W. 100' 100'
 93. CONDUCTOR W. 100' 100'
 94. CONDUCTOR W. 100' 100'
 95. CONDUCTOR W. 100' 100'
 96. CONDUCTOR W. 100' 100'
 97. CONDUCTOR W. 100' 100'
 98. CONDUCTOR W. 100' 100'
 99. CONDUCTOR W. 100' 100'
 100. CONDUCTOR W. 100' 100'

CONTRACT
 CONTRACT NO. 12345
 CONTRACT VALUE \$1,000,000
 CONTRACT DATE 1/1/1910

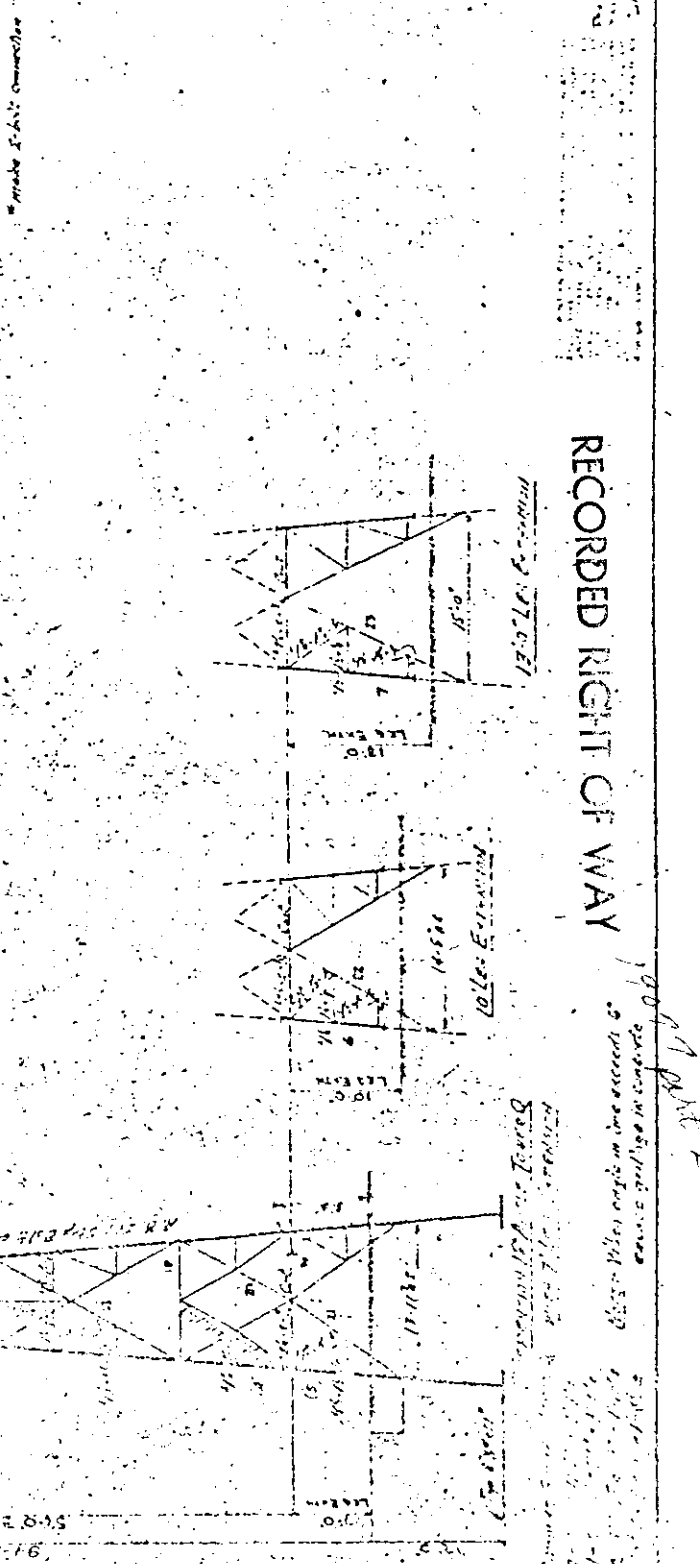
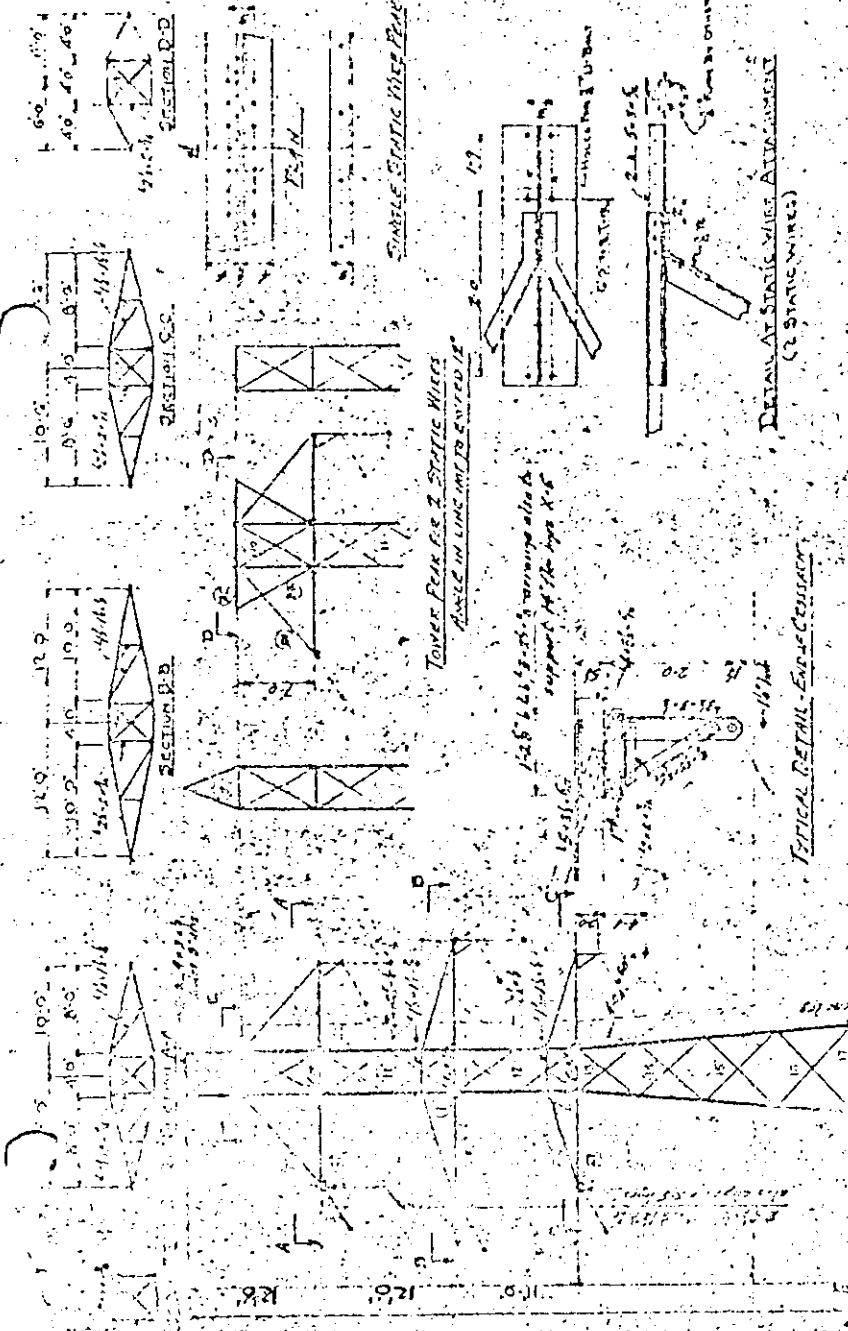
DESIGNER
 DESIGNER NAME
 DESIGNER ADDRESS
 DESIGNER CITY

CONTRACTOR
 CONTRACTOR NAME
 CONTRACTOR ADDRESS
 CONTRACTOR CITY

AMERICAN BRIDGE
 AMERICAN BRIDGE COMPANY
 AMERICAN BRIDGE ADDRESS
 AMERICAN BRIDGE CITY

RECORDED RIGHT OF WAY
 RECORDED RIGHT OF WAY ADDRESS
 RECORDED RIGHT OF WAY CITY

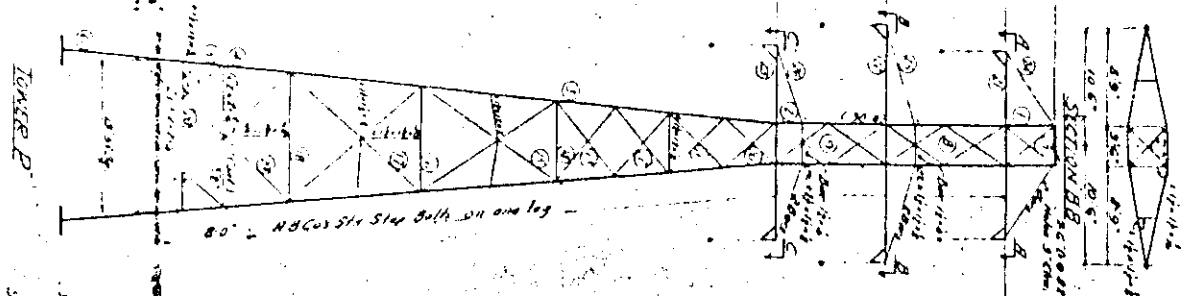
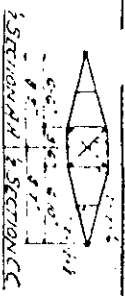
ULT	SECT	SECTION
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31
32	32	32
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34	34	34
35	35	35
36	36	36
37	37	37
38	38	38
39	39	39
40	40	40
41	41	41
42	42	42
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45	45	45
46	46	46
47	47	47
48	48	48
49	49	49
50	50	50



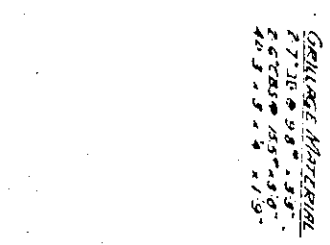
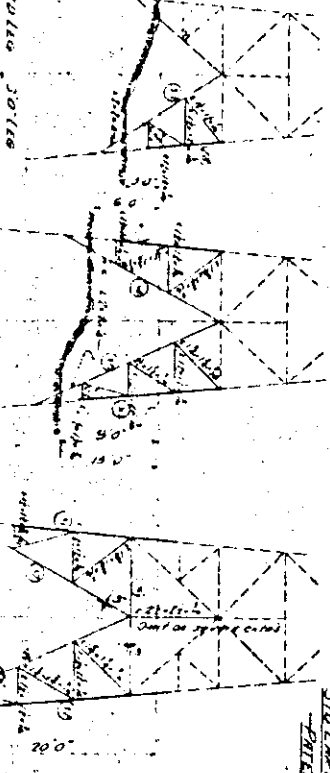
RECORDED RIGHT OF WAY

A. H. L.

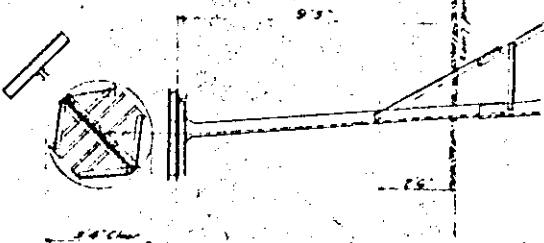
RECORDED RIGHT OF WAY



NOTE: Cross wires to be attached as in accordance with 11 or 14.



BARRETT BRIDGE CO.
STEEL ERECTORS
PITTSBURGH, PA.



Member	SECTION
1	6.2
2	4.2
3	8.0
4	6.4
5	6.4
6	6.4
7	1.7
8	10.2
9	1.3
10	9.5
11	1.0
12	6.8
13	4.8
14	3.8
15	5.6
16	7.9
17	2.7
18	9.2
19	2.1
20	14.5
21	2.8
22	1.8
23	1.1
24	2.2
25	2.0
26	5.1
27	5.8
28	6.6
29	6.7
30	6.3
31	9.0
32	11.4
33	4.0
34	4.3
35	4.8

* Dimensions varying throughout members

GALVANIZED MATERIAL
P. 7.16 @ 9.8" x 3.8"
P. 6.25 @ 15.5" x 3.0"
P. 4.3 @ 5.4" x 1.9"

SUSPENSION TOWER 'P'
The tower is designed to support 11.5 HSC cable steel ground wire and 6-477000 cm ACSR conductors on a maximum span of 600' with 5° maximum angle in line.
The cables are to be so strung that the maximum tension under 4° wind on 1/2" coated cables will not exceed 53000 in the ground wire and 7700 in the conductors at occurrence with 5th Ed. lbs.

LOADS
Vertical
1 cond wire @ 500' = 500'
6 conductors @ 1000' = 6000'
Total = 6500'

(Wind on wires) Galv wire @ 880' = 240'
6 conductors @ 375' = 2250'
Total = 2530'

(6.5) Weight in line 1 cond wire @ 460' = 460'
6 conductors @ 270' = 1620'
Total = 4480'

(2) Longitudinal 1-Cond wire @ 3500' or 1 conductor @ 6100' (30% of 7700')
(4) Wind on tower @ 2.5 tons per sq ft @ 2117 sq ft projected area of tower
(5) Dead load of tower
Total = 2117 x 2.5 + 2117 = 7417.5

UNIT STRESSES
Tension on net section 35000' per sq in
Compression on gross section 30000' per sq in
24000' per sq in @ 3150

Shear on bolts = 30000' per sq in
Bearing on bolts = 60000' per sq in
WATERING: ON STEEL RST-7197 in full tension

COATING: All material galvanized
CONNECTIONS: Bolted, 5" bolts
SPECIFICATIONS: AISC Standard specifications for Transmission towers

"P" TOWER

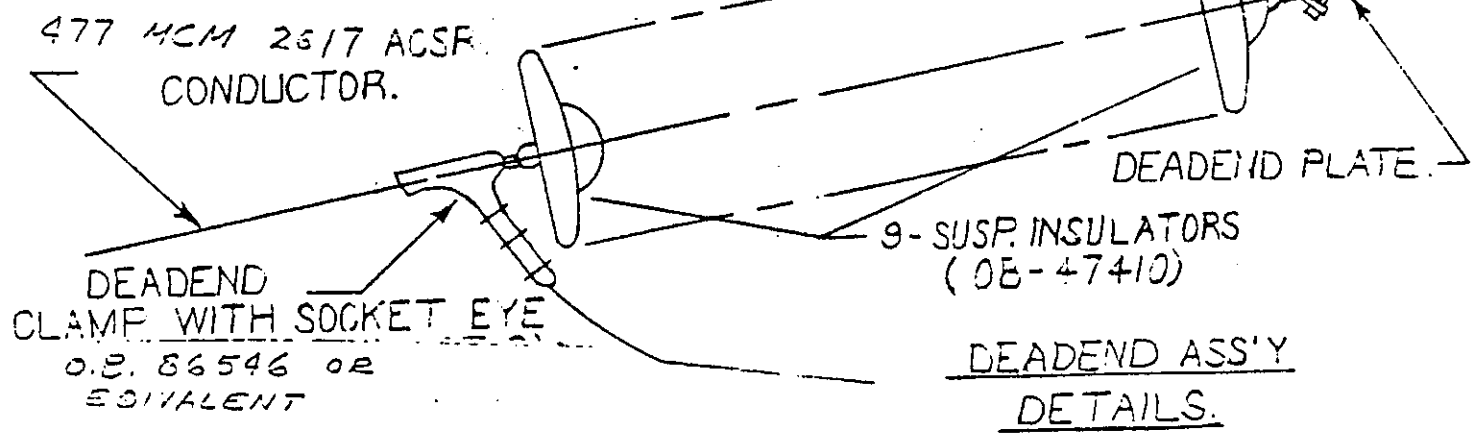
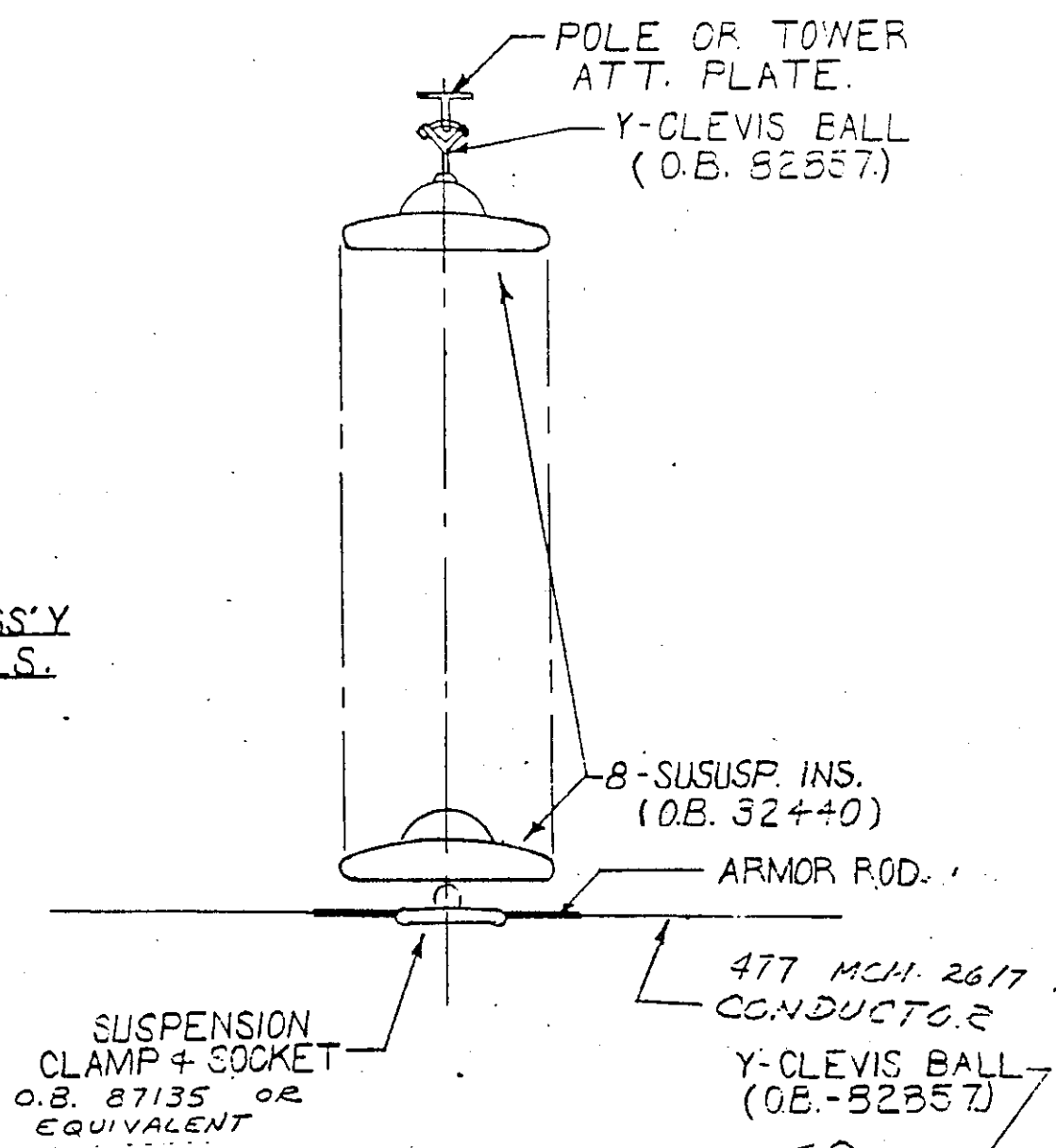
TRANSMISSION TOWERS
THE DETROIT BRIDGE CO.
217 FORT ST. BLDG.
SUSPENSION TOWER 'P'
LINCOLN ROAD W. 117.71

AMERICAN BRIDGE CO.
PITTSBURGH PA.
ORDER NO. 117.71
DRAWING T-2971

RECORDED RIGHT OF WAY

10071
part 2 CSR

SUSP. ASS'Y
DETAILS.



120 KV SUSPENSION & DEADEND ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY RDS.	DRAWN BY N.H.H.
	DATE 4-2-70.	EDI-8028
	SCALE	

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 CM ACSR 26/7

STARTING INDEX 1 RULING SPAN 600.0 STARTING SAG OR TENSION 7770.00 AREA OF CONDUCTOR 0.43560 INITIAL LIMIT MAX TENSION 9800.00 INITIAL BALANCE LIMIT TENSION 6500.00

*****CREEP IS A FACTOR*****

INDEX	TEMP.	SAG	INITIAL TENSION	SAG	FINAL TENSION	SAG	FINAL TENSION	SAG	IS IN FEET AND
1	0.	11.23	-7770.	11.30	7723.	11.30	7723.	---	MINUS SIGN INDICATES C
2	0.	5.38	5495.	6.33	4676.	6.33	4676.		
3	32.	10.47	6463.	11.18	6057.	11.18	6057.		
4	10.	5.94	5244.	6.76	4380.	6.76	4380.		
5	20.	5.92	4995.	7.21	4106.	7.21	4106.		
6	30.	6.23	4751.	7.98	3855.	7.98	3855.		
7	40.	6.56	4513.	8.16	3628.	8.16	3628.		
8	50.	6.90	4287.	8.5	3422.	8.5	3422.		
9	60.	7.27	4070.	9.14	3238.	9.14	3238.		
10	70.	9.94	3893.	9.9	3071.	9.9	3071.		
11	80.	9.08	3671.	10.1	2920.	10.1	2920.		
12	90.	8.48	3488.	9.9	2785.	9.9	2785.		
13	100.	7.91	3321.	9.2	2664.	9.2	2664.		
14	110.	5.36	3155.	8.9	2553.	8.9	2553.		
15	120.	0.8	3021.	8.0	2453.	8.0	2453.		

RECORDED RIGHT OF WAY 1989 part 2

DATA SHEET TO ACCOMPANY DRAWING RX-4318A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel-Yost 120 kV transmission line over the C.&.O. Railroad at approximately 2,640 feet north of Plymouth Road and the center line of Beech Daly at railroad stationing 608+30.

In the northwest $\frac{1}{4}$ of Section 29, Redford Township, Wayne County, Michigan T.1S. - R.10E.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawings. T-2955 (EA), T-9164 (Q).

Conductors

Six 477 MCM ACSR 26/7, Six per circuit, with one 3/8" steel ground wire.

Insulators

120 kV suspension assembly, (8) Eight O.B. 32440 or equivalent. 120 kV deadend assembly (9) nine O.B. 47410 or equivalent.

Guy and Guy Attachments

None.

Suspension and Deadend Details

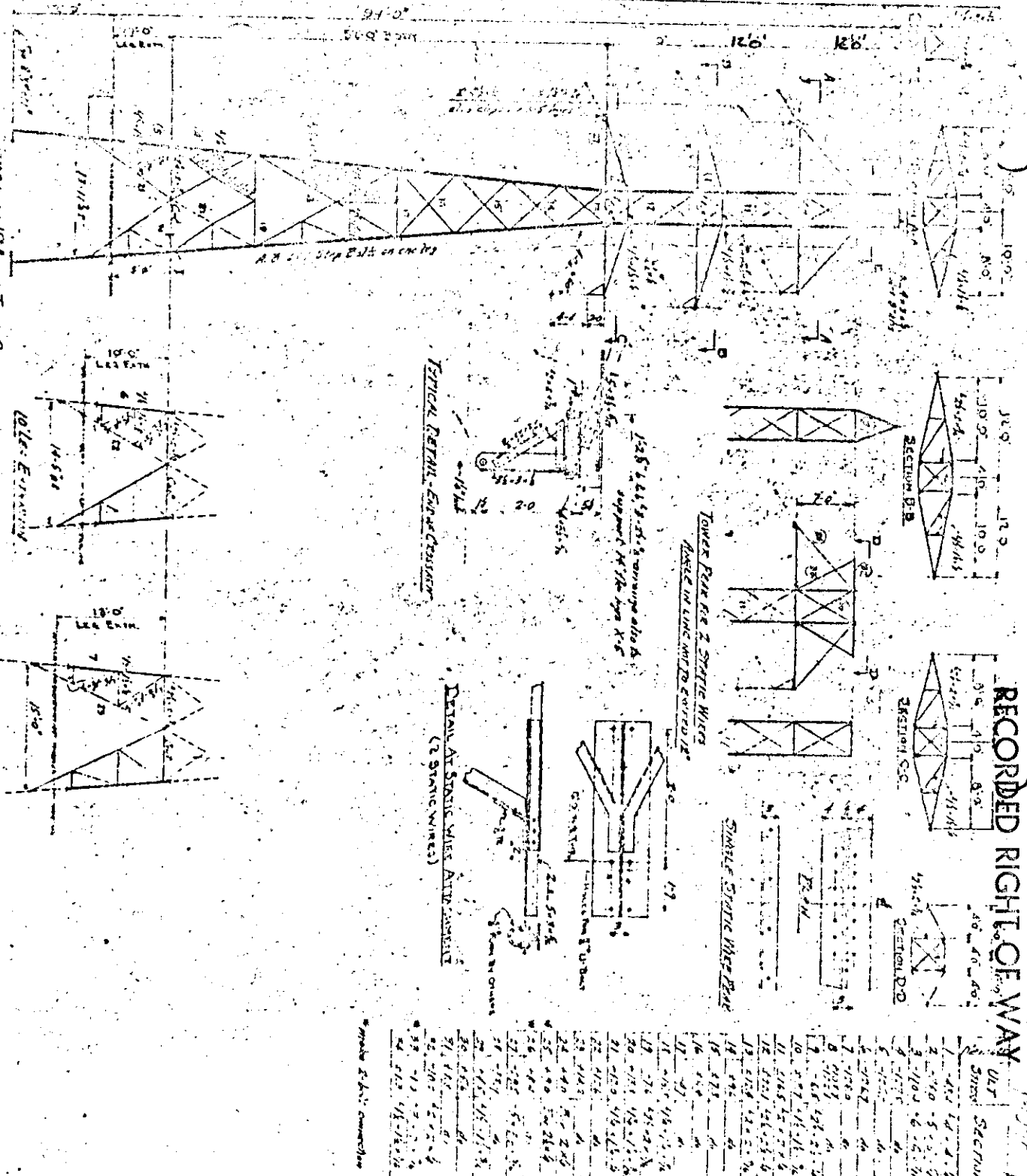
See attached drawing ED 1-8028.

System Engineering Department
CVP/js 9-24-84

RECORDED RIGHT OF WAY

190177
part 2

RECORDED RIGHT-OF-WAY



10'0" - 12'0" - 12'0"

SECTION A-D

SECTION B-B

SECTION C-C

SECTION D-D

TOWER PILE FOR 2 STATIC WIRES

BASED IN LUMBER PILES

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

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STATIC WIRE PILE

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STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

10'0" - 12'0" - 12'0"

SECTION A-D

SECTION B-B

SECTION C-C

SECTION D-D

TOWER PILE FOR 2 STATIC WIRES

BASED IN LUMBER PILES

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

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STATIC WIRE PILE

STATIC WIRE PILE

10'0" - 12'0" - 12'0"

SECTION A-D

SECTION B-B

SECTION C-C

SECTION D-D

TOWER PILE FOR 2 STATIC WIRES

BASED IN LUMBER PILES

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

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STATIC WIRE PILE

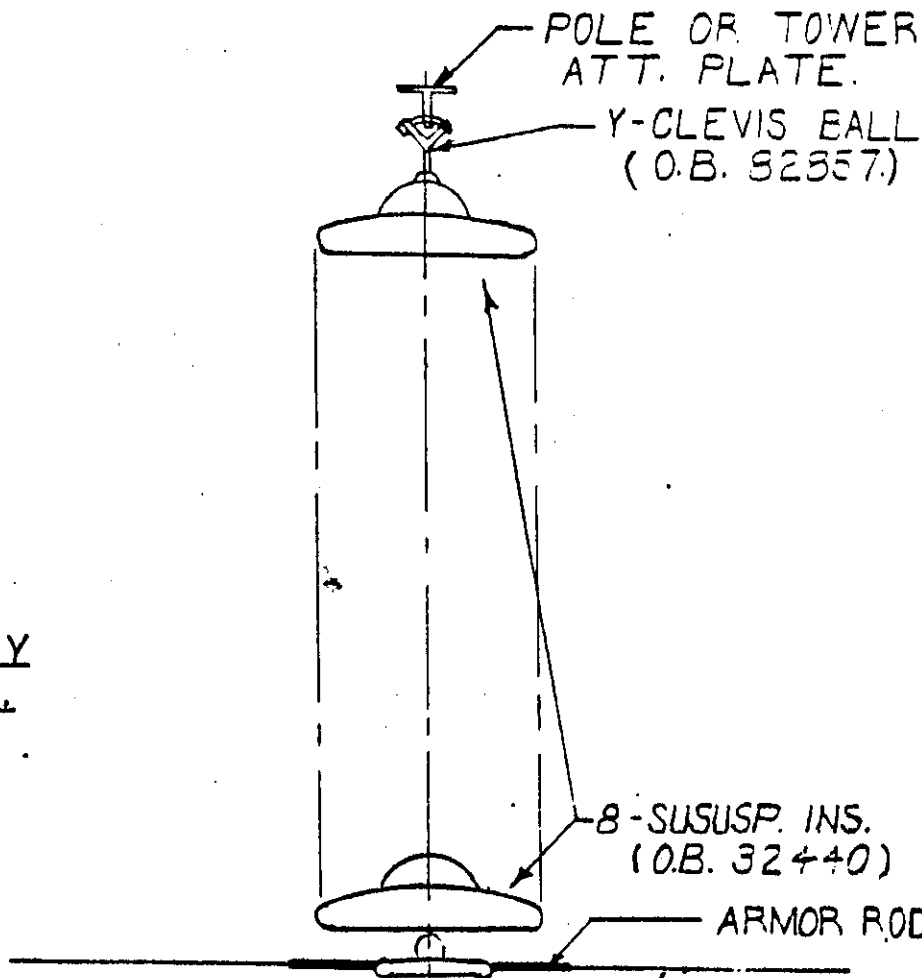
STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

STATIC WIRE PILE

SUSP. ASS'Y
DETAILS.



SUSPENSION
CLAMP & SOCKET
O.B. 87135 OR
EQUIVALENT

477 MCM 2617 ACSE
CONDUCTOR

Y-CLEVIS BALL
(O.B. 82357)

RECORDED RIGHT OF WAY 1969 part 2

477 MCM 2617 ACSR
CONDUCTOR.

DEADEND
CLAMP WITH SOCKET EYE
O.B. 86546 OR
EQUIVALENT

9-SUSP. INSULATORS
(O.B. 47410)

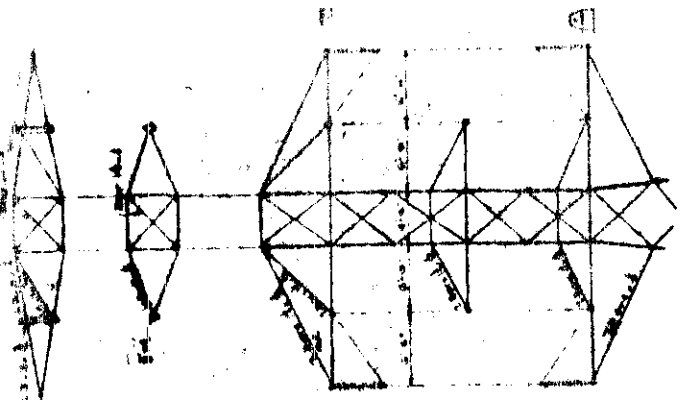
DEADEND PLATE.

DEADEND ASS'Y
DETAILS.

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <u>RCS.</u>	DRAWN BY <u>N.H.H.</u>
	DATE <u>4-2-70.</u>	ED1-8028
	SCALE	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
12.5	13.5	14.5	15.5	16.5	17.5	18.5	19.5	20.5	21.5	22.5	23.5	24.5	25.5	26.5	27.5	28.5	29.5	30.5	31.5
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20



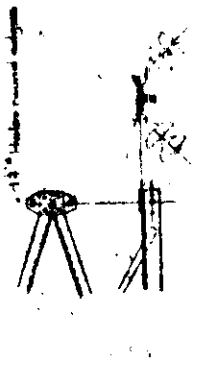
TRANSFORMATION CORNER
 PLATE WITH BENDING MOMENTS TO BE

LOADS

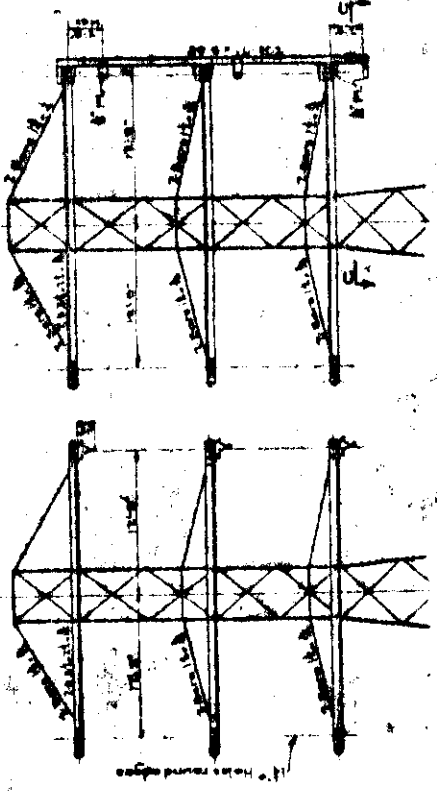
- 1. Total weight of tower
- 2. Horizontal load due to wind
- 3. Ice load on tower
- 4. Dead load of tower
- 5. Dead load of anchor
- 6. Ice load on anchor
- 7. Total weight of tower
- 8. Total weight of anchor

NOTE:
 For unit stresses and specifications for connections and dimensions for connections and specifications see drawing W205A.

TRANSMISSION TOWER
 DETROIT EDISON CO.
 STRAIN TOWER '21
 U.P. No. 7
 11/15/21



DETAIL AT END OF CHIMNEY

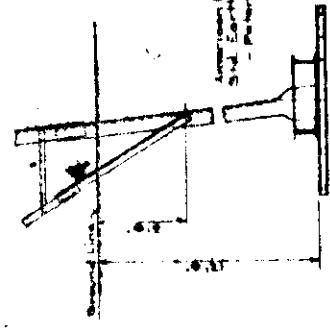


ANCHOR ARRANGEMENT FOR ANCHORS IN LINE WITH THE

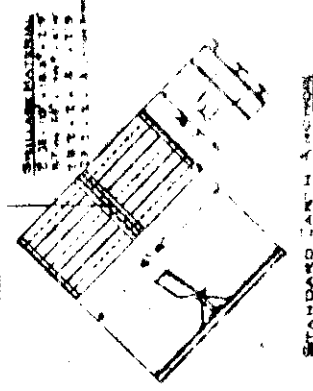
ANCHOR ARRANGEMENT FOR ANCHORS IN LINE WITH THE



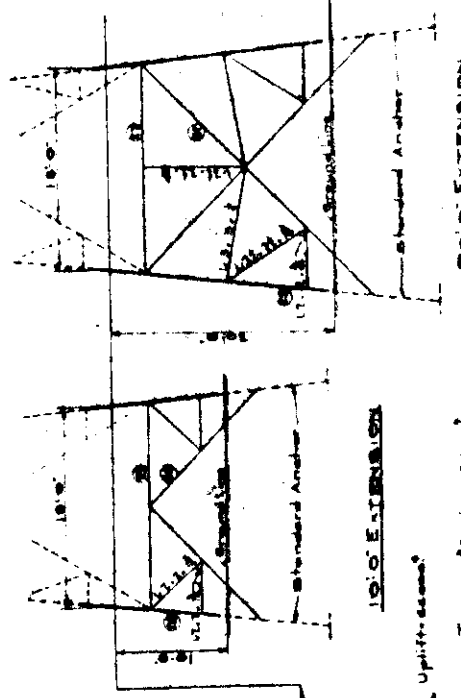
SECTION C-C



American Bridge Co.
 Standard Anchor
 - Patented



STANDARD ANCHOR SECTION



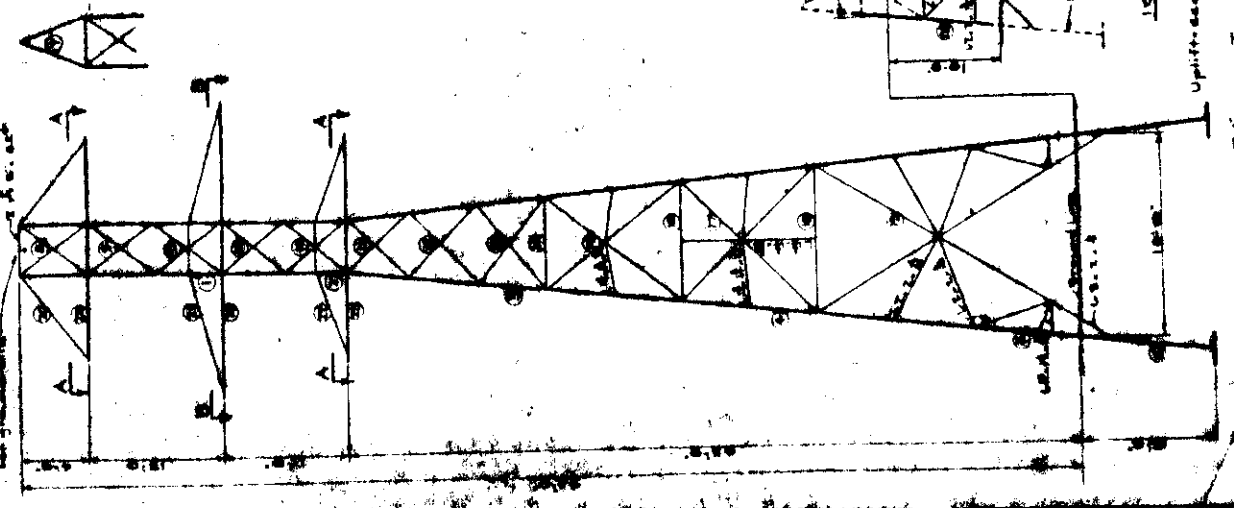
10' 0\"/>

10' 0\"/>

STRAIN TOWER E.A.

10' 0\"/>

10' 0\"/>



STRAIN TOWER E.A.

10' 0\"/>

10' 0\"/>

STRAIN TOWER E.A.

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 CM ACSR 26/7

STARTING INDEX 1 RULING SPAN 600.0 STARTING SAG OR TENSION 7770.00 AREA OF CONDUCTOR 0.43560 INITIAL TENSION 9800.00 INITIAL LIMIT MAX TENSION 9800.00 INITIAL BA LIMIT TENSIO 6570.00

*****CREEP IS A FACTOR*****

INDEX	TEMP.	INITIAL		SAG	STARTING SAG OR TENSION	AREA OF CONDUCTOR	FINAL		SAG IS IN FEET AND
		TENSION	TENSION				TENSION	TENSION	
1	0.	11.23	-7770.	11.30	7770.00	0.43560	7723.	11.30	7723.
2	0.	5.38	5495.	6.33	7770.00	0.43560	4676.	6.33	4676.
3	32.	10.47	6463.	11.18	7770.00	0.43560	6057.	11.18	6057.
4	10.	5.64	5244.	6.76	7770.00	0.43560	4380.	6.76	4380.
5	20.	5.92	4995.	7.21	7770.00	0.43560	4106.	7.21	4106.
6	30.	6.23	4751.	7.68	7770.00	0.43560	3855.	7.68	3855.
7	40.	6.56	4513.	8.16	7770.00	0.43560	3628.	8.16	3628.
8	50.	6.90	4267.	8.65	7770.00	0.43560	3422.	8.65	3422.
9	60.	7.27	4070.	9.14	7770.00	0.43560	3238.	9.14	3238.
10	70.	7.66	3864.	9.64	7770.00	0.43560	3071.	9.64	3071.
11	80.	8.06	3671.	10.14	7770.00	0.43560	2920.	10.14	2920.
12	90.	8.44	3488.	10.63	7770.00	0.43560	2785.	10.63	2785.
13	100.	8.91	3321.	11.12	7770.00	0.43560	2664.	11.12	2664.
14	110.	9.35	3155.	11.60	7770.00	0.43560	2553.	11.60	2553.
15	120.	9.80	3021.	12.08	7770.00	0.43560	2453.	12.08	2453.

DATA SHEET TO ACCOMPANY DRAWING RX-4319A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel-Yost 120 kV transmission line over the C. & O. Railroad at approximately 1,500 feet west of Beech Daly Road and approximately 2,640 feet north of Plymouth Road at railroad stationing 222+60. In the northeast 1/4 of Section 30, Redford Township, Wayne County, Michigan T.15-R10E.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawing T-7811 (P), and T-9164 (Q).

Conductors

Six-477 MCM ACSR 26/7, with one 3/8" steel groundwire.

Insulators

120 kV suspension assembly. Eight (8) O.B. 32440 or equivalent.

Guy and Guy Attachments

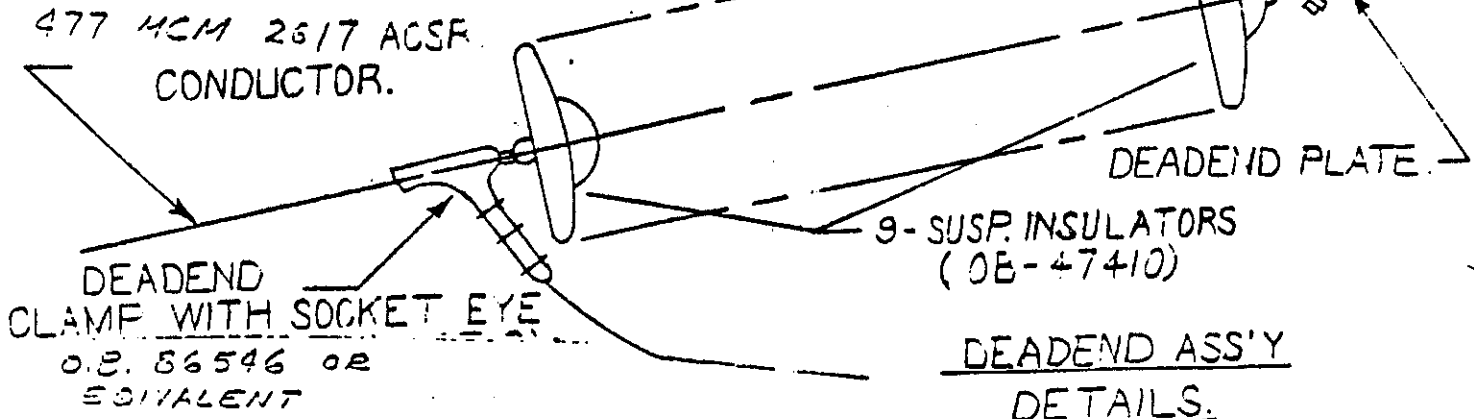
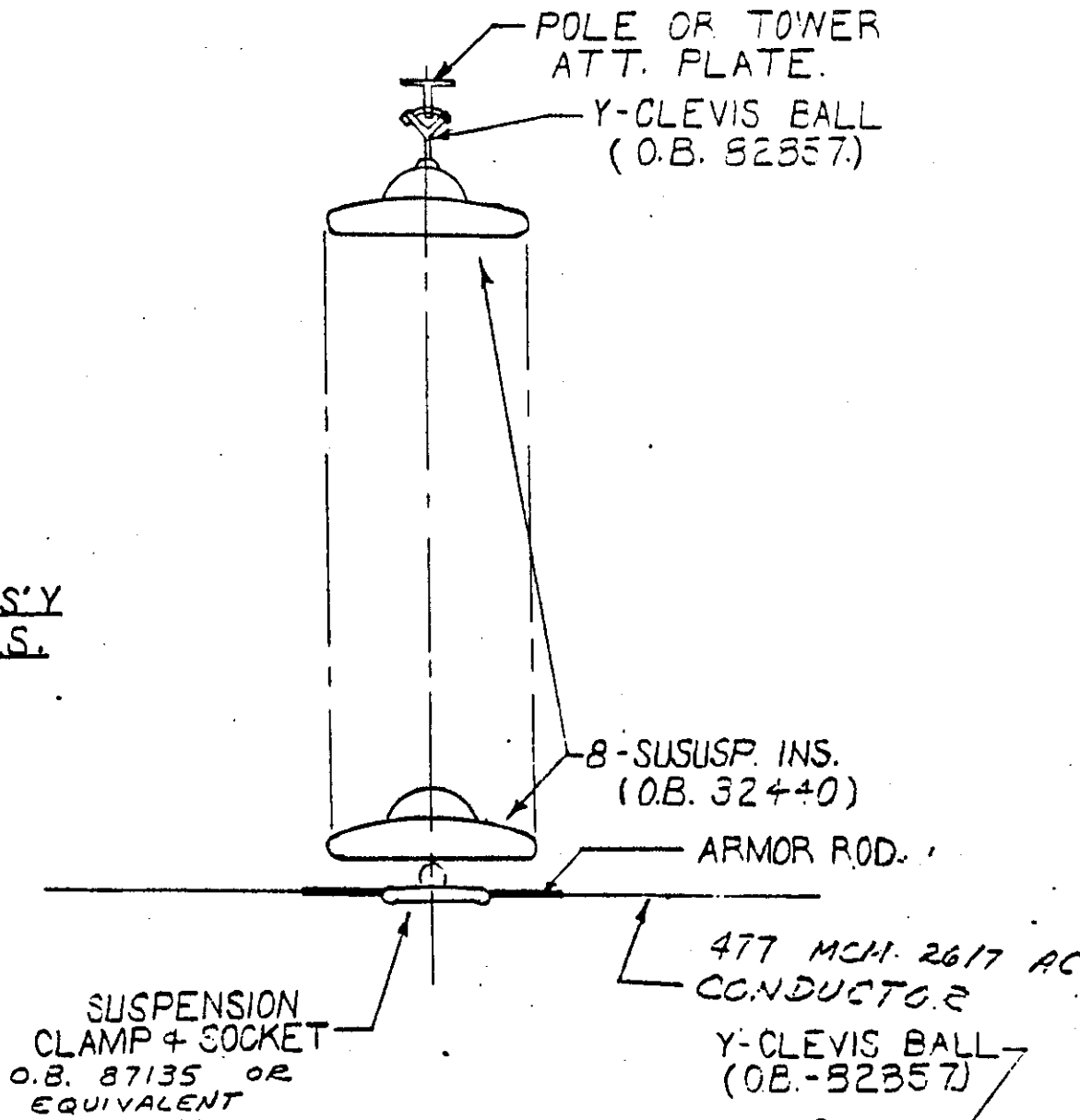
None

Suspension and Deadend Details

See attached drawing ED1-8028

RECORDED RIGHT OF WAY 1907M part 2

SUSP. ASS'Y
DETAILS.



DEADEND ASS'Y
DETAILS.

RECORDED RIGHT OF WAY 19077 part 2

120 KV SUSPENSION & DEADEND ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>RCS.</i>	DRAWN BY <i>N.H.H.</i>
	DATE <i>4-2-70.</i>	EDI-8028
	SCALE	

RECORDED RIGHT OF WAY

1987 part 2

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY 266.800 CM TO 636.000 CM ACCR 26/
 STRESS-STRAIN CURVES USED REPRESENT 477 MCM

STARTING RULING STARTING AREA OF INITIAL LIMIT
 INDEX SPAN SAG OR TENSION CONDUCTOR MAX TENSION

1 500.0 7770.00 0.43560 9800.00

***FINAL BARE CONDUCTOR TENSION LIMIT OF 5000.0 LBS. IS EXCEEDED BY 444.6 L

*****CREEP IS A FACTOR*****

INDEX	TEMP.	SAG	INITIAL TENSION	SAG	FINAL TENSION	SAG IS I
1	0.	8.00	7574.	8.12	7456.	
2	0.	3.52	5838.	4.11	-4999.	----MINUS SIGN
3	32.	7.43	6326.	8.06	5832.	
4	10.	3.70	5560.	4.43	4640.	
5	20.	3.89	5288.	4.77	4308.	
6	30.	4.10	5016.	5.14	3997.	
7	40.	4.33	4745.	5.53	3715.	
8	50.	4.59	4482.	5.94	3458.	
9	60.	4.86	4230.	6.36	3230.	
10	70.	5.16	3985.	6.80	3024.	
11	80.	5.47	3754.	7.24	2840.	
12	90.	5.82	3534.	7.68	2678.	
13	100.	6.17	3330.	8.12	2533.	
14	110.	6.55	3139.	8.55	2405.	
15	120.	6.93	2966.	8.98	2290.	

SUSPENSION TOWER 'P'

The tower is designed to support 1 # A.S. Crevice Steel Ground Wire and 6 #170000 cc A.C.S.R. Conductors on a maximum span of 500' with 5' maximum angle in line.
The cables are to be so strong that the maximum tension under 4' wind on 1" ice coated cables will not exceed 5300 lbs in the Ground Wire and 7700 lbs in the Conductor as measured with 5 lbs Eche N.C.S.C.

LOADS
Windward 1 Gal Wire @ 500' = 500'
6 Conductors @ 1000' = 6000'
Total = 6500'

(Ball and on wires / Conductors @ 280' = 280'
6 Conductors @ 275' = 2250'
Total = 2530'

(S) 5' High in line 1 Gal wire @ 460' = 460'
6 Conductors @ 470' = 4020'
Total = 4480'

(E) Long Arch 1 Gal Wire @ 5500' = 5500'
(For Conductor @ 5100' (26 X 1 7700')
(1) Wind on tower @ 25' per sq ft @ 11' wind
projected area of tower
(2) Wind load of tower
Cable @ 175' @ 25' = 4375' @ 1.25 = 5468.75'

UNIT STRESSES
Tension on net section 33000 lbs per sq in
Comp on gross section 33000 lbs @ 75050
Shear on bolts 30000 lbs per sq in
Bearing on bolts 60000 lbs per sq in
ANGLE: ON STEEL PLATE AT 10' IN LINE

COATING: All material galvanized
CONNECTIONS: Bolted 5/8" bolts
SPECIFICATIONS: A.B.C. Standard specifications for Transmission Towers.

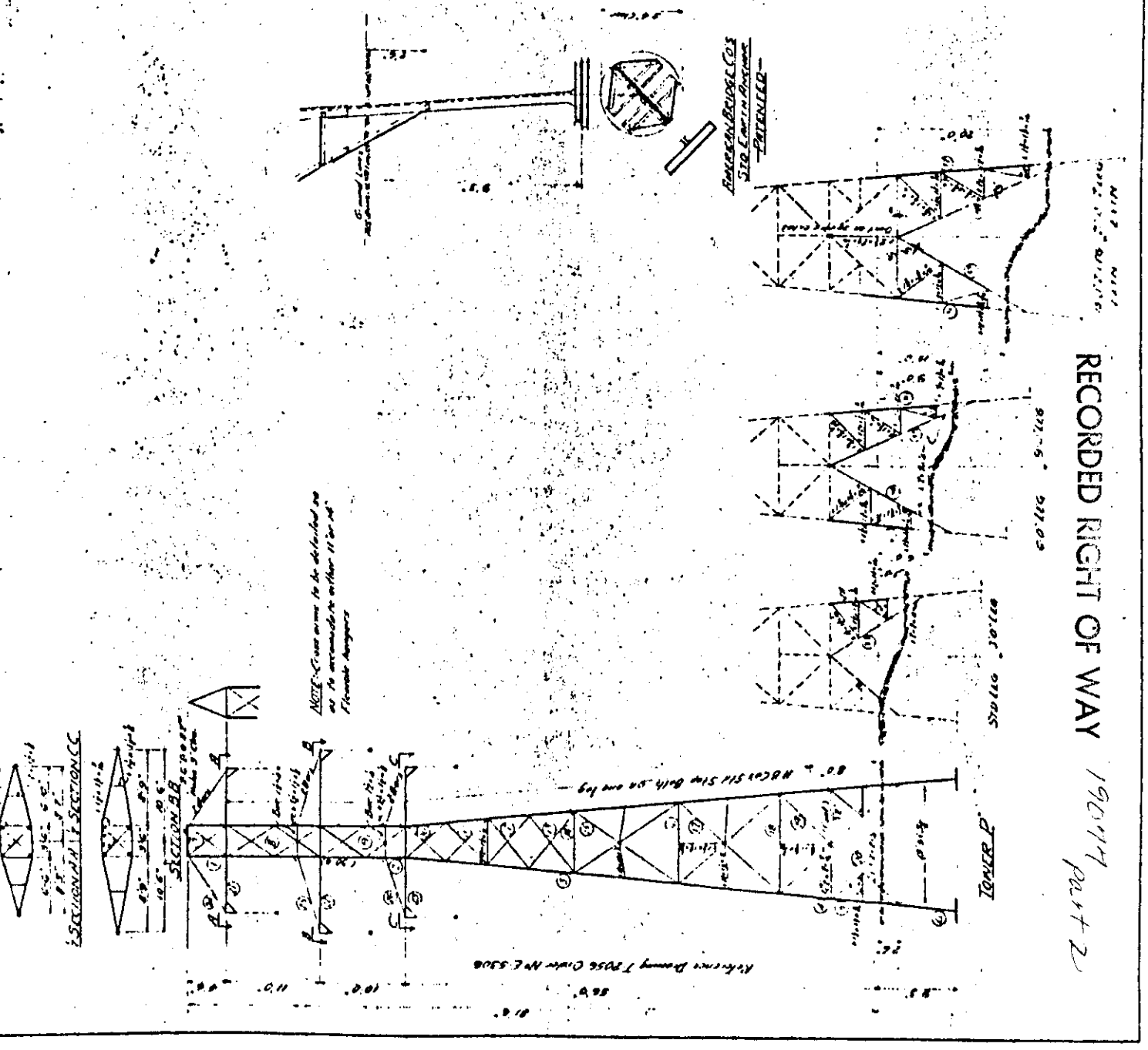
TRANSMISSION TOWERS
THE DETROIT LADSON CO.
DETROIT, MICH.
SUSPENSION TOWER 'P'
LADSON BLDG. 17-17-17

AMERICAN BRIDGE CO.
PITTSBURGH PA.
ORDER NO. 10000
DRAWING T-7571

OH	SECTION
1	6.7
2	4.2
3	5.0
4	5.4
5	5.4
6	5.4
7	10.7
8	10.7
9	10.7
10	9.5
11	7.8
12	5.3
13	4.8
14	7.8
15	11.1
16	5.6
17	7.9
18	7.7
19	9.9
20	7.1
21	14.5
22	18.5
23	15.7
24	11
25	12
26	20
27	51
28	5.8
29	5.2
30	57.8
31	43.1
32	53.7
33	8.8
34	9.0
35	14
36	4.8
37	4.3
38	4.8
39	4.8
40	4.8

CHANGE MATERIAL
27-30 @ 98' - 98'
25-25 @ 157' - 98'
40-3-3 @ 4-4 @ 119'

"P" TOWER



RECORDED RIGHT OF WAY

190977 part 2

SUSPENSION TOWER 'D'

The tower is designed to support 1 # 45 Canebrake Steel Ground Wire and 6 # 77000 or # 63500 Conductors on a main span of 600' with 5' maximum angle on line.

The cables are to be as strong as the minimum tension under full load on line. The cables will be spaced 5' apart on the Ground Wire and 7'70" in the Canebrake as accordance with 8th Edition N.E.S.C.

LOADS
Vertical

1 Cond Wire @ 500' - 500' lbs
6 Conductors @ 1000' - 6000' lbs
Total - 6500' lbs

(Applied on normal G. date @ 240' - 240' lbs
6 Conductors @ 975' - 5850' lbs
Total - 6090' lbs

(@ 15' High in line 1 Cond wire @ 460' - 460' lbs
6 Conductors @ 670' - 4020' lbs
Total - 4480' lbs

(@ Longitudinal 1 Cond Wire @ 500' - 500' lbs
1 Conductor @ 5160' (20% of 77000)
(@ Wind on tower @ 5' per sq ft @ 11.1 lbs
projected area of wire 1000' sq ft
(@ Wind load of tower
Component @ 54.2 @ 54.2 @ 161,554.1 and 172.5

UNIT STRESSES
Tension on net section 35,000 per sq in
Comp on gross section 93,000 (20% of 450,000) 70% @ 1,150

Shear on bolts - 30,000 per sq in
Bearing on bolts - 50,000 per sq in
MATERIAL: ON STEEL AS PER A77 latest revision.

COATING: All material galvanized
CONNECTIONS: Bolted, 5" bolts
SPECIFICATIONS: A.B.C.'s Standard specifications for Transmission Towers.

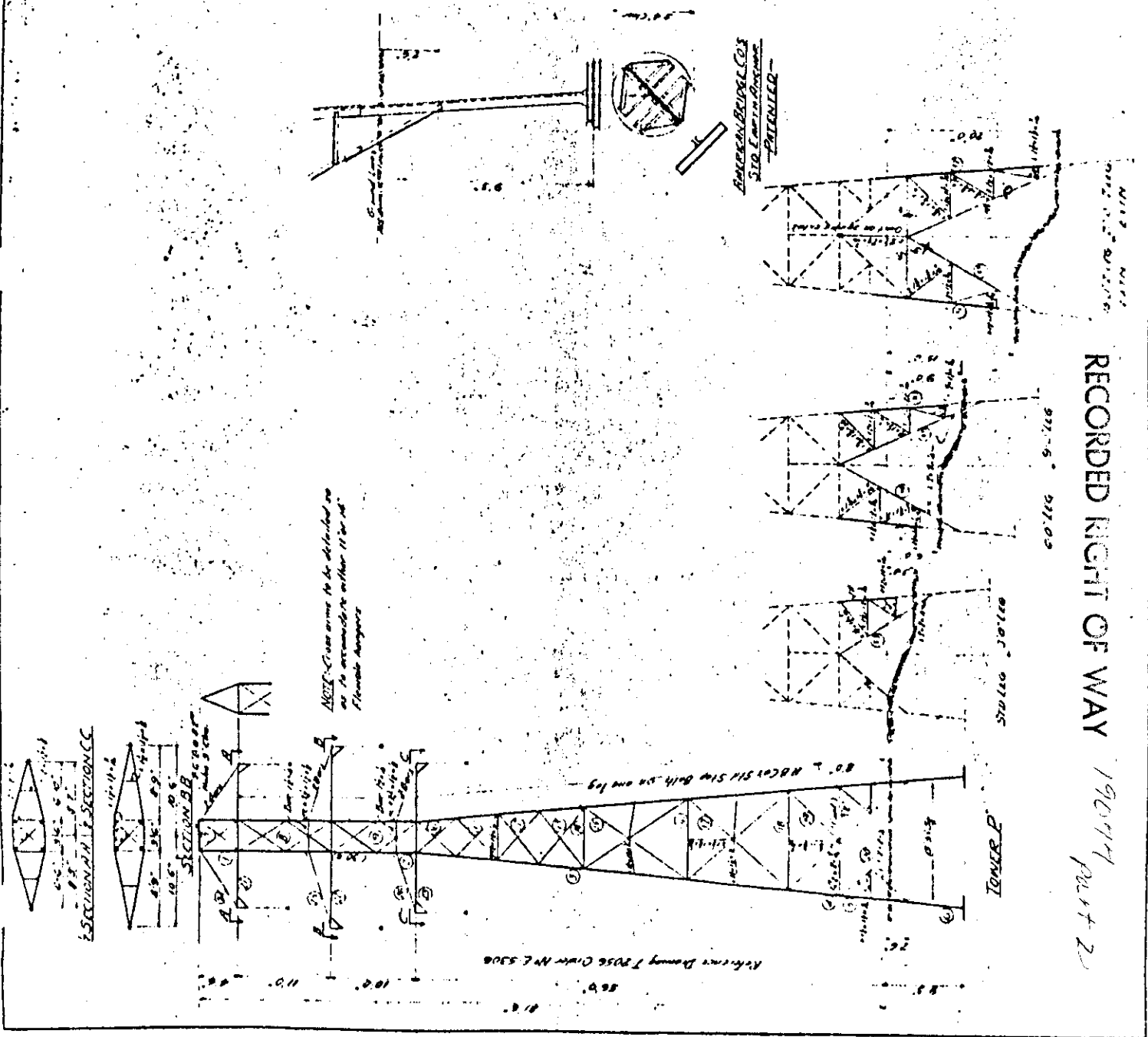
TRANSMISSION TOWERS
THE DETMOLD LAYSON CO
LITTLETON, COLO.
LACOLY BLDG. 11.27.11

AMERICAN BRIDGE CO
PITTSBURGH PA
COUNTY NO. 10000
ORDER NO. 9812 86
DRAWING T-7577

"P" TOWER

AW	SECTION
1	7.7 1.1 1.1 1.1 1.1
2	4.7 1.1 1.1 1.1 1.1
3	3.0 1.1 1.1 1.1 1.1
4	2.4 1.1 1.1 1.1 1.1
5	1.5 1.1 1.1 1.1 1.1
6	1.1 1.1 1.1 1.1 1.1
7	1.2 1.1 1.1 1.1 1.1
8	1.2 1.1 1.1 1.1 1.1
9	1.2 1.1 1.1 1.1 1.1
10	1.2 1.1 1.1 1.1 1.1
11	1.2 1.1 1.1 1.1 1.1
12	1.2 1.1 1.1 1.1 1.1
13	1.2 1.1 1.1 1.1 1.1
14	1.2 1.1 1.1 1.1 1.1
15	1.2 1.1 1.1 1.1 1.1
16	1.2 1.1 1.1 1.1 1.1
17	1.2 1.1 1.1 1.1 1.1
18	1.2 1.1 1.1 1.1 1.1
19	1.2 1.1 1.1 1.1 1.1
20	1.2 1.1 1.1 1.1 1.1
21	1.2 1.1 1.1 1.1 1.1
22	1.2 1.1 1.1 1.1 1.1
23	1.2 1.1 1.1 1.1 1.1
24	1.2 1.1 1.1 1.1 1.1
25	1.2 1.1 1.1 1.1 1.1
26	1.2 1.1 1.1 1.1 1.1
27	1.2 1.1 1.1 1.1 1.1
28	1.2 1.1 1.1 1.1 1.1
29	1.2 1.1 1.1 1.1 1.1
30	1.2 1.1 1.1 1.1 1.1
31	1.2 1.1 1.1 1.1 1.1
32	1.2 1.1 1.1 1.1 1.1
33	1.2 1.1 1.1 1.1 1.1
34	1.2 1.1 1.1 1.1 1.1
35	1.2 1.1 1.1 1.1 1.1
36	1.2 1.1 1.1 1.1 1.1
37	1.2 1.1 1.1 1.1 1.1
38	1.2 1.1 1.1 1.1 1.1
39	1.2 1.1 1.1 1.1 1.1
40	1.2 1.1 1.1 1.1 1.1

Check all angles
GRADE MATERIAL
27.30 @ 49' - 90'
2.5 @ 25' @ 155' - 14'
40.3 - 3 @ 4 @ 119'



RECORDED RIGHT OF WAY
1900/1911
Part 2

DATA SHEET TO ACCOMPANY DRAWING RX-4320A

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Diesel-Yost 120kV transmission line over the C. & O. Railroad at approximately 1,980 feet east of Middlebelt Road and approximately 2,640 feet north of Plymouth Road. Railroad Stationing 692+00.

City of Livonia, Section 25, Wayne County, Michigan.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawing T-7811 (P).

Conductors

Six 477 MCM ACSR 26/7, Six per circuit, with one 3/8" steel ground wire.

Insulators

120kV suspension assembly. (8)Eight O.B. 32440 or equivalent.

Guy and Guy Attachments

None

Suspension and Deadend Details

See attached drawing ED1-8028.

RECORDED RIGHT OF WAY 1997 part 2

RECORDED RIGHT OF WAY 1904 part 2

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 CM ACSR 26/
 A77 MCM

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL LIMIT MAX TENSION
1	500.0	7770.00	0.43560	9800.00

***FINAL BARE CONDUCTOR TENSION LIMIT OF 5000.0 LBS. IS EXCEEDED BY 444.6 L

****CREEP IS A FACTOR****

INDEX	TEMP.	SAG	INITIAL TENSION	SAG	FINAL TENSION	SAG IS I
1	0.	8.00	7574.	8.12	7456.	
2	0.	3.52	5838.	4.11	-4999.	----MINUS SIGN
3	32.	7.43	6326.	8.06	5832.	
4	10.	3.70	5560.	4.43	4640.	
5	20.	3.89	5288.	4.77	4308.	
6	30.	4.10	5016.	5.14	3997.	
7	40.	4.33	4745.	5.53	3715.	
8	50.	4.59	4482.	5.94	3458.	
9	60.	4.86	4230.	6.36	3230.	
10	70.	5.16	3985.	6.80	3024.	
11	80.	5.47	3754.	7.24	2840.	
12	90.	5.82	3534.	7.68	2678.	
13	100.	6.17	3330.	8.12	2533.	
14	110.	6.55	3139.	8.55	2405.	
15	120.	6.93	2966.	8.98	2290.	

SUSPENSION TOWER P

The tower is designed to support 1 # A572 Gr 50 Steel Ground Wire and 6 # 477000 cc ACSR Conductors on a minimum span of 600' with 5' minimum angle on line.

The cables are to be so strong that the maximum tension under normal conditions will not exceed 53000 lb in the Ground Wire and 7700 lb in the Conductor in accordance with SA Edition 11.5C.

LOADS

(1) Vertical

1-Gnd Wire @ 500" = 500"
 6-Conductors @ 100" = 600"
 Total = 6500"

(2) Wind on wires 1-Gnd wire @ 280" = 280"
 6-Conductors @ 225" = 1350"
 Total = 1630"

(3) Ice weight on wire 1-Gnd wire @ 460"
 6-Conductors @ 210" = 1260"
 Total = 1720"

(4) Longitudinal 1-Gnd wire @ 5200" or
 6-Conductors @ 5760" (80% of 7200")
 (For Conductor loads assume of double arm)

(5) Wind on tower at 25' per sq ft @ 12.5' in area projected area of wire 1000'
 Component 12.5' @ 45° = 8.84' @ 12.5' = 110.5'

UNIT STRESSES

Tension on net section 33000 per sq in
 Comp on gross section 33000 (80% of 41250)
 Shear on bolts 30000 per sq in
 Bearing on bolts 60000 per sq in

MATERIAL: OH Steel / ASTM A 572 Includ revision

COATING: All material galvanized

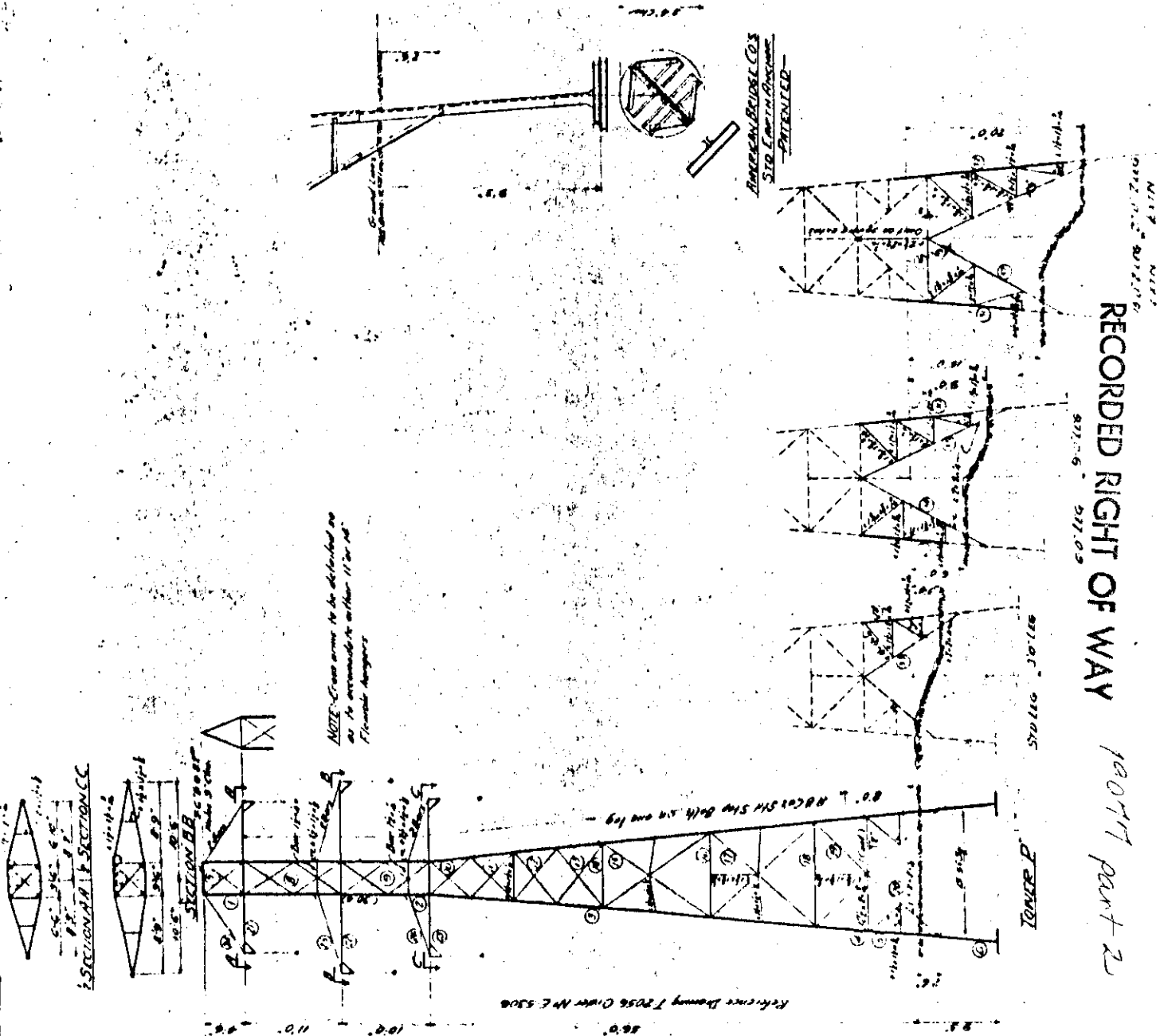
CONNECTIONS: Bolted 5/8 bolts

SPECIFICATIONS: A.B.C.'s Standard specifications for Transmission Towers

RAI	SECTION
1	6.7 71.8 2.4
2	4.3 14.3 4.4
3	8.0 24.4 4.4
4	5.8 17.4 4.4
5	5.4 16.5 4.4
6	5.4 16.5 4.4
7	1.7 17.4 4.4
8	1.8 17.4 4.4
9	1.8 17.4 4.4
10	9.4 17.4 4.4
11	7.0 4.4 4.4
12	5.2 4.4 4.4
13	4.8 4.4 4.4
14	3.8 21.8 4.4
15	11.4 11.4 4.4
16	5.4 21.8 4.4
17	7.9 17.4 4.4
18	7.7 17.4 4.4
19	9.9 4.4 4.4
20	7.1 4.4 4.4
21	4.4 3.4 4.4
22	18.4 4.4
23	15.7 4.4
24	11.4 4.4 4.4
25	22 4.4
26	20 4.4
27	8.1 4.4 4.4
28	5.8 4.4 4.4
29	6.5 4.4 4.4
30	6.7 4.4 4.4
31	6.7 4.4 4.4
32	6.7 4.4 4.4
33	8.8 4.4 4.4
34	9.0 4.4 4.4
35	11.4 13.4 4.4
36	4.0 4.4 4.4
37	4.3 4.4 4.4
38	4.3 4.4 4.4

Diagrams showing height and number

GERALD MATERIAL
 27.20 @ 9.8" = 267
 2.62 @ 155" = 407
 40.3 @ 3.4" = 137



"P" TWR.

TRANSMISSION TOWERS
 THE DETROIT DIVISION CO.
 DETROIT, MICH.
 SUSPENSION TOWER P.
 LINCOLN BROWN 11.5C.11.1

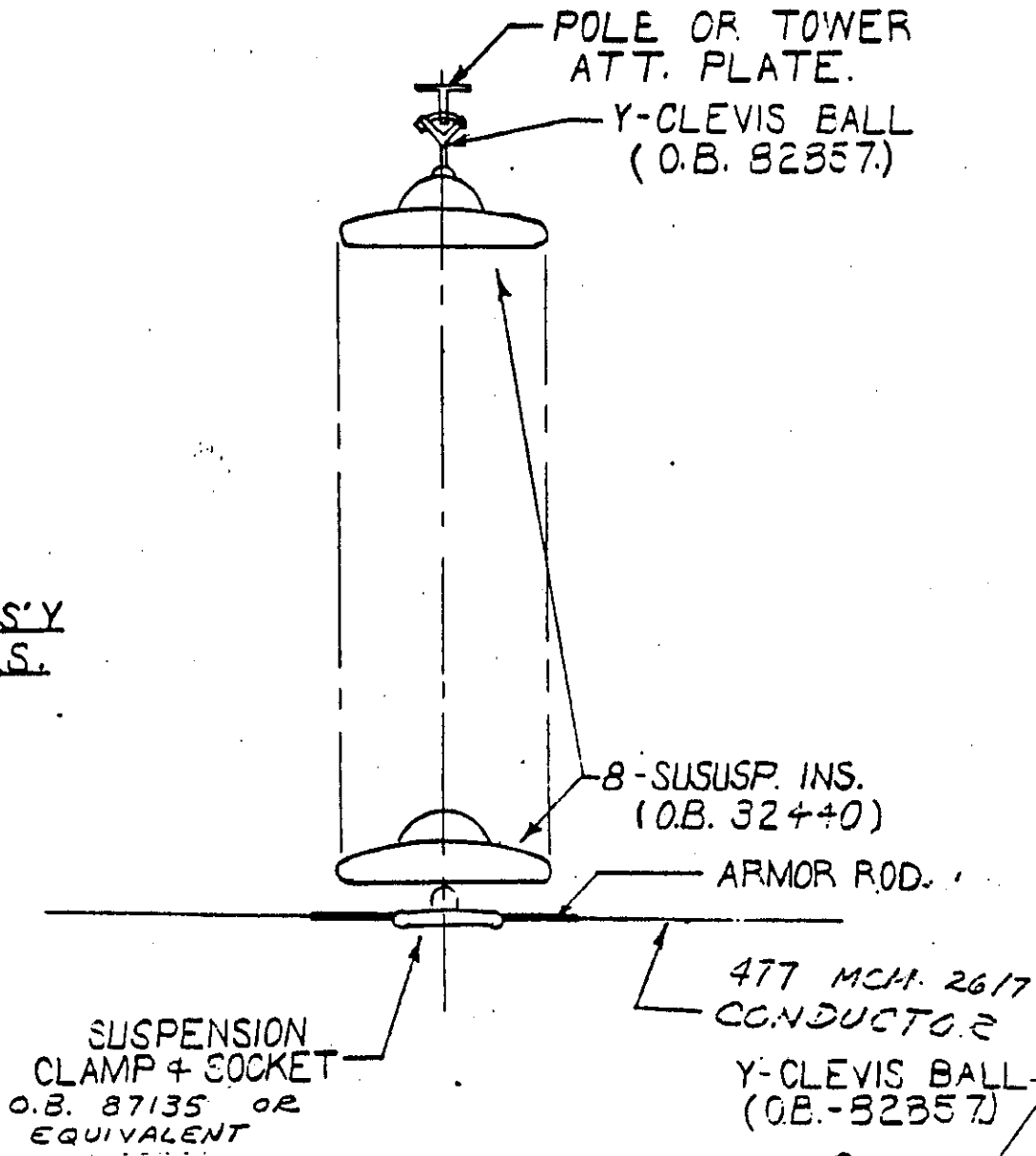
AMERICAN BRIDGE CO.
 PITTSBURGH PA.
 ORDER NO. 11.5C.11.1
 DRAWING T-7371

RECORDED RIGHT OF WAY

190717 part 2

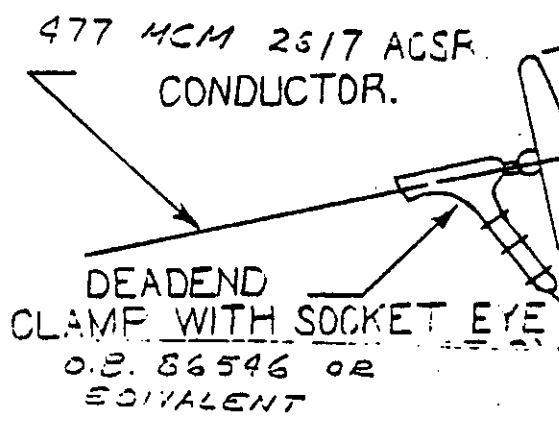
Reference Drawing T 2056 Order No E 5308

SUSP. ASS'Y
DETAILS.



RECORDED RIGHT OF WAY

1967 part 2



DEADEND ASS'Y
DETAILS.

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>RCS.</i>	DRAWN BY <i>N.H.H.</i>
	DATE <i>4-2-70.</i>	ED1-8023
	SCALE	

DATA SHEET TO ACCOMPANY DRAWING RX-4321A
Revision of Crossing Rx-4321

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Hines-Yost 120KV transmission line over the C. & O. Railroad at approximately 2,640 feet north of Plymouth Road and 255 ft. west of Merriman Road. Railroad stationing 766+80. In the City of Livonia, southeast 1/4 of Section 27, Wayne County, Michigan.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawing T-7811 (P).

Conductors

Six 477 MCM 26/7 ACSR, six per circuit.

Insulators

120 kV suspension assembly - 8 O.B. 32440.

Guy and Guy Attachments

None

Suspension and Deadend Details

See attached drawing ED1-8028

RECORDED RIGHT OF WAY

1907M
part 2

THE CALCULATIONS FOR THIS TRIAL ARE FOR 477 STUDY
 STRESS-STRAIN CURVES USED REPRESENT 266,800 CM TO 636,000 CM ACSR 26/
 477 MCM

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL LIMIT MAX TENSION
1	500.0	7770.00	0.43560	9800.00

***FINAL BARE CONDUCTOR TENSION LIMIT OF 5000.0 LBS. IS EXCEEDED BY 444.6 L

*****CREEP IS A FACTOR*****

INDEX	TEMP.	INITIAL TENSION		FINAL TENSION		SAG IS I
		SAG	TENSION	SAG	TENSION	
1	0	8.00	7574.	8.2	7456.	
2	0	5.5	8385.	4.1	-4999.	----
3	32	7.4	6326.	8.0	5832.	
4	10	3.7	5955.	4.4	4640.	
5	20	3.8	5828.	4.7	4308.	
6	30	4.1	5705.	5.1	3997.	
7	40	4.3	4745.	5.5	3715.	
8	50	4.5	4844.	5.5	3458.	
9	60	4.8	4224.	9.9	3230.	
10	70	5.1	3985.	6.8	3024.	
11	80	5.4	3524.	7.2	2840.	
12	90	5.8	3534.	9.2	2678.	
13	100	6.1	3330.	8.2	2533.	
14	110	6.9	4373.	5.8	2405.	
15	120	6.9	9962.	6.8	2290.	

RECORDED RIGHT OF WAY 1907H part 2

SUSPENSION TOWER P

The tower is designed to support 16 MS Crescent Steel strand wire and 6 477000 ccn ACSR conductors on a minimum span of 600' with 3' minimum angle on line

The cables are to be strung that the maximum tension under a wind will not exceed 5800 lbs. The ground wire and 770' in the center dia has an clearance with 5.45' below N.E.S.C

- 16 "C" Steel @ 500' = 500'
 - 6 Conductors @ 180' = 600'
 - Total = 6500'
- 16 @ 1.5' dia @ 180' = 2880'
 - 6 Conductors @ 180' = 1080'
 - Total = 2970'
- 60 @ 1.5' dia @ 180' = 10800'
 - 6 Conductors @ 180' = 1080'
 - Total = 11880'
- 1 Long Anchor 1 Gal Wire @ 5000' = 5000'
 - Total = 4442'
- 1 Conductor @ 6160' (80% of 7700')
 - 1 Conductor @ 6160' (80% of 7700')
 - (4) Wind on tower @ 15.5' per sq ft @ 2.5' dia
 - (5) Wind on tower @ 15.5' per sq ft @ 2.5' dia
 - (6) Wind on tower @ 15.5' per sq ft @ 2.5' dia

UNIT STRESSES

Tension on each section 39000 lbs per sq in

Comp on gross sec for 33000 lbs @ 24000 lbs per sq in

36000 lbs @ 30000 lbs per sq in

Shear on bolts 60000 lbs per sq in

Bearing on bolts 60000 lbs per sq in

MATERIALS: CRSTEEL A515M 197 in final revision

COATING: All material galvanized

CONNECTIONS: Bolted 5/8" bolts

SPECIFICATIONS: AISC Standard Specifications for Transmission Towers

WT	SECTION
1	71. 37 = 4
2	43. 1 39 = 5 = 4
3	53. 8 4 = 8 = 8
4	44. 4 4 = 4 = 4
5	44. 5 4 = 4 = 4
6	44. 5 4 = 4 = 4
7	17. 15. 16 = 4
8	107. 14. 16 = 4
9	143. 14. 16 = 4
10	95. 14. 13 = 4
11	76. 46 = 46
12	52. 46 = 46
13	48. 46 = 46
14	38. 14. 14 = 4
15	11. 14. 14 = 4
16	56. 14. 14 = 4
17	79. 14. 14 = 4
18	77. 3 = 3 = 3
19	99. 14. 14 = 4
20	71. 3 = 3 = 3
21	146. 3 = 3 = 3
22	185. 46 = 46
23	187. 46 = 46
24	11. 16 = 4 = 4
25	22. 46 = 46
26	20. 46 = 46
27	51. 4 = 4 = 4
28	658. 4 = 4 = 4
29	66. 3 = 3 = 3
30	67. 4 = 4 = 4
31	63. 1 = 1 = 1
32	63. 1 = 1 = 1
33	8. 14. 14 = 4
34	90. 46 = 46
35	114. 14. 13 = 4
36	40. 3 = 3 = 3
37	43. 46 = 46
38	40. 4 = 4 = 4
39	40. 4 = 4 = 4

GRILLAGE MATERIAL

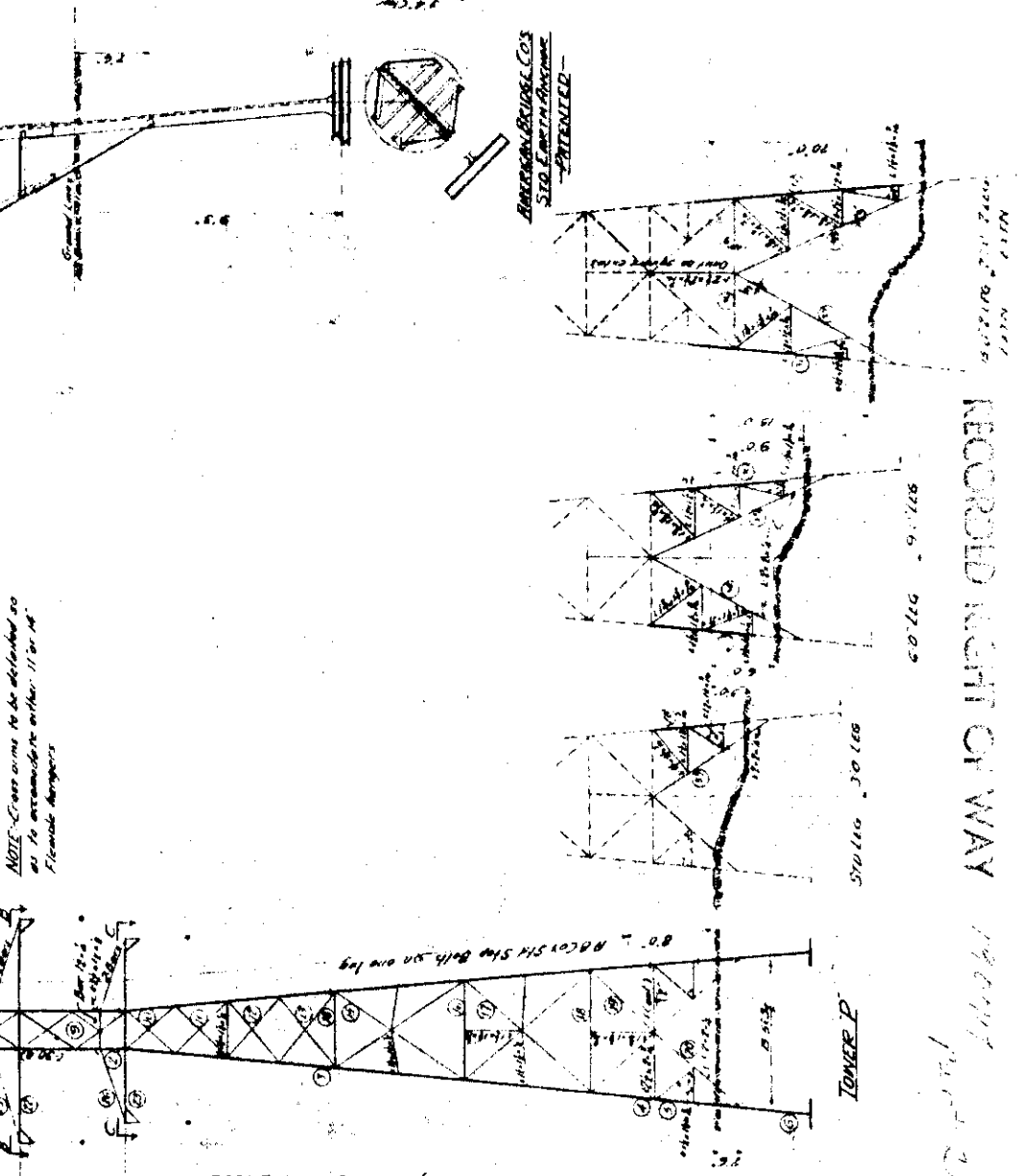
P 7-16 @ 98" x 98"

P 5-80 @ 105" x 98"

40.3 x 3 = 4 = 3 = 4

"P" TOWER

TRANSMISSION TOWERS	
THE PITTSBURGH BRIDGE CO.	
SUSPENSION TOWER P	
LINCOLN BRIDGE	
AMERICAN BRIDGE CO. PITTSBURGH PA	INQUIRY NO. 5282
ORDER NO.	DRAWING T-7011



NOTE: Cross arms to be deleted so as to accommodate other 11' or 14' flexible hangers

PATENTED

RECORDED RIGHT OF WAY

877.06 527.00

507.00 30.00

Reference Drawing T8058 Olden No. 5306

DATA SHEET TO ACCOMPANY DRAWING RX-4322A
Revision of Crossing Rx-4322

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Hines-Yost 120kV transmission line over a spur track of the C. & O. Railroad at approximately 1,130 feet west of Farmington Road and approximately 2,640 feet north of Plymouth Road.

In the City of Livonia, southeast 1/4 of Section 28, Wayne County, Michigan. Railroad stationing 830+00.

Circuits

One 120,000 volt 60 cycle, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawing T-7815 (LX), T-7811 (P).

Conductors

North circuit- 3-954 54/7 ACSR conductor. South circuit-3-477 27/7 ACSR conductor.

Insulators

Eight (8) 5-3/4" x 10" O.B. #32440 or equivalent in suspension.

Crossarms

Guy and Guy Attachments

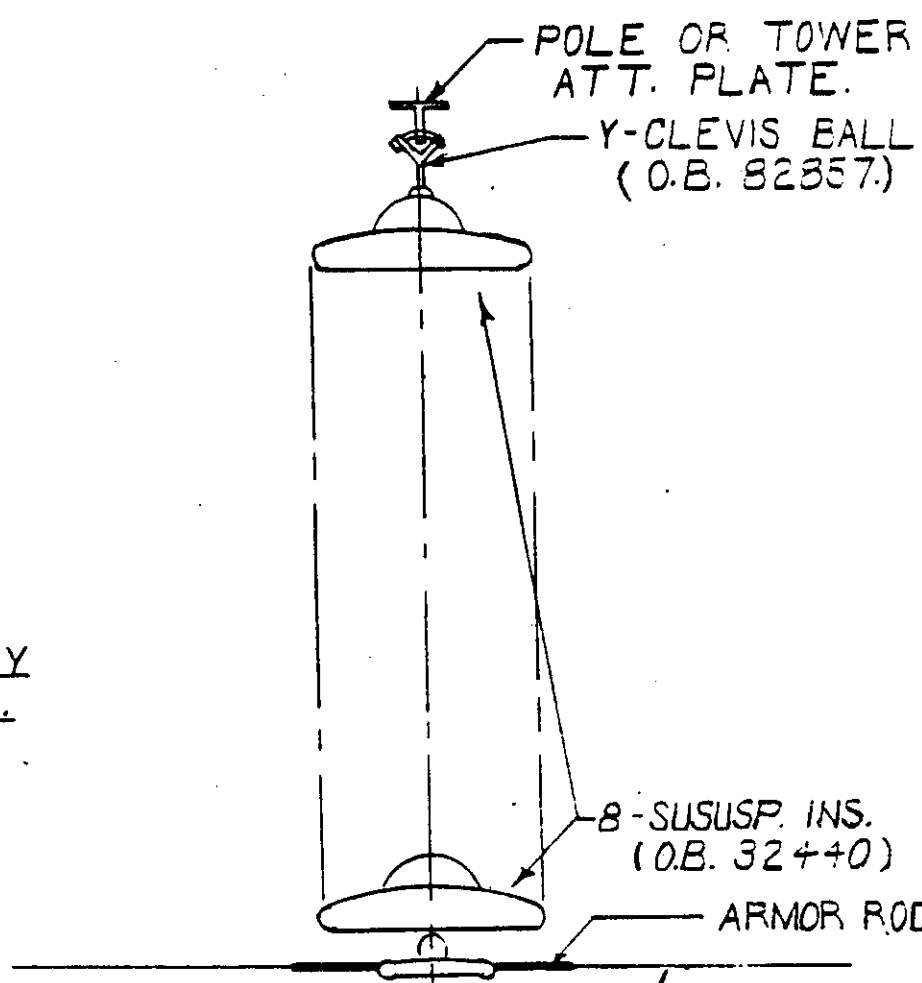
None

Suspension and Deadend Details

See attached drawings ED 1-8028 and ED1-7430.

RECORDED RIGHT OF WAY 19077 part-2

SUSP. ASS'Y
DETAILS.



RECORDED RIGHT OF WAY

SUSPENSION
CLAMP & SOCKET
O.B. 87135 OR
EQUIVALENT

477 MCM 2617 ACSR
CONDUCTOR

Y-CLEVIS BALL
(O.B.-82357)

477 MCM 2617 ACSR
CONDUCTOR.

DEADEND
CLAMP WITH SOCKET EYE
O.B. 86546 OR
EQUIVALENT

9-SUSP. INSULATORS
(O.B.-47410)

DEADEND PLATE.

DEADEND ASS'Y
DETAILS.

1909M part 27

120 KV SUSPENSION & DEADEND
ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>RCS.</i>	DRAWN BY <i>N.H.H.</i>
	DATE <i>4-2-70.</i>	ED1-3028
	SCALE	

SUSPENSION TOWER "P"

The tower is designed to support 1 & 2 A.S.Cable Steel Ground Wire and 6 AT1000 cc ACS-P Conductors on a main span of 600' with 5' minimum angle to line.
The cables are to be so strung that the maximum tension under normal conditions of the cables will not exceed 5000 lbs in the Ground Wire and 7770 lbs in the Conductors in accordance with E.H. Ethington N.E.S.C.

LOADS
W/Vertical
1 Gal Wire @ 500' = 500' lbs
6 Conductors @ 1000' = 6000' lbs
Total = 6500' lbs
Balanced on wires/Gal Wire @ 280' = 280' lbs
6 Conductors @ 275' = 2250' lbs
Total = 2530' lbs
@ 160' 5' High in Line 1 Gal Wire @ 460' = 460' lbs
6 Conductors @ 420' = 402' lbs
Total = 862' lbs
@ Longitudinal 1 Gal Wire @ 500' or 1 Conductor @ 510' (80% of 7770) (For Combined load assume of middle span)
@ Wind on tower @ 6.5' per sq ft @ 11.12 tons projected area of tower
@ 13' Diameter 1000 sq ft tower
@ 17' Diameter 1454 sq ft tower
@ 21' Diameter 1454 sq ft tower

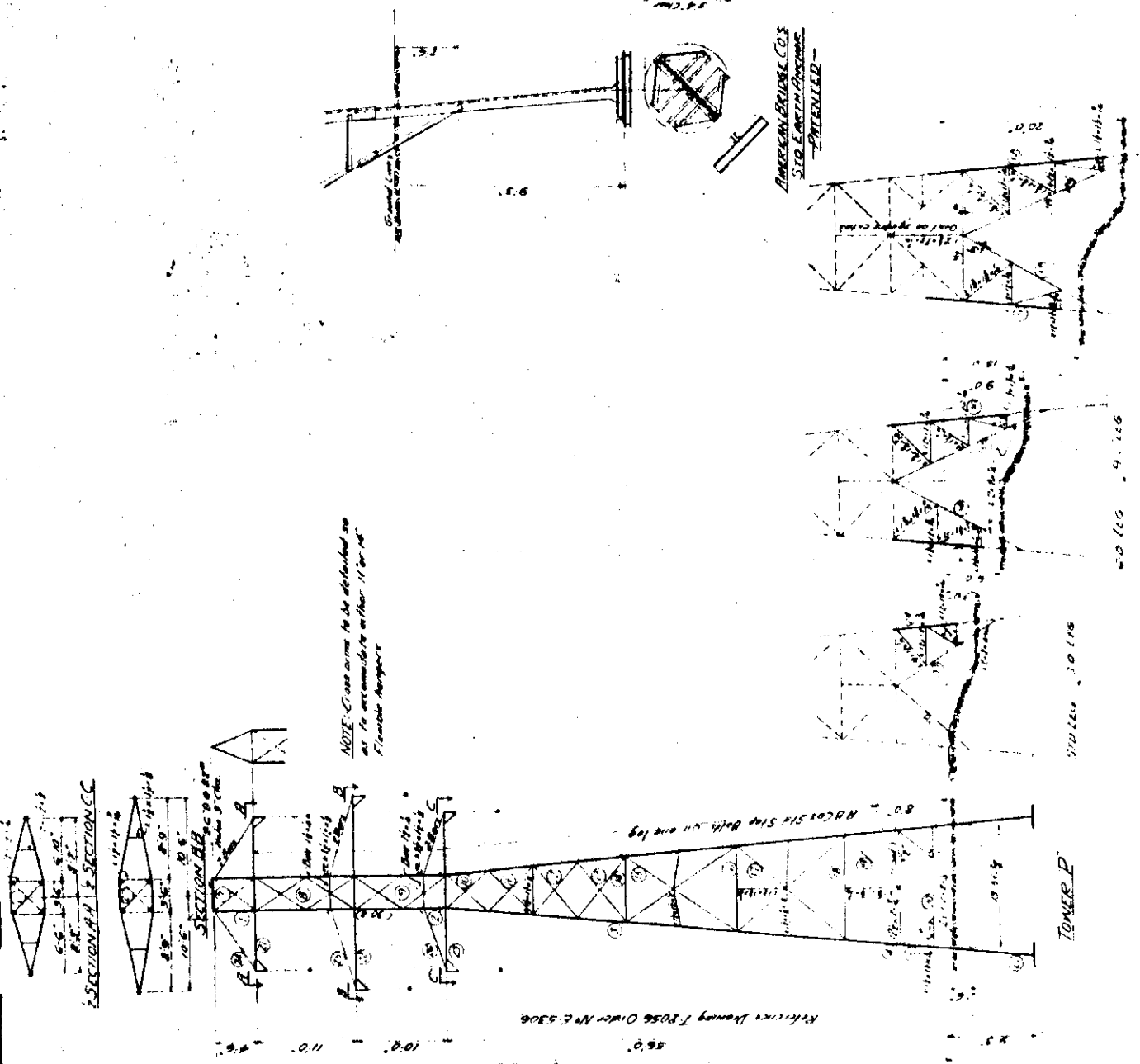
UNIT STRESSES
Towers on next section 33000 per sq ft in Camp on gross section 33000 (2000' x 150' 24000' 10' x 150')
Shower on both 30000 per sq ft in
Bearing on both 60000 per sq ft in
MATERIALS: O.H. Steel, ASTM A7 treated
CORROSION: All material galvanized
CONNECTIONS: Bolted, 5" bolts
SPECIFICATIONS: A & C as Standard
Specifications for Transmission Towers

"P" TOWER

TRANSMISSION TOWERS
THE PITTSBURGH DIVISION
PITTSBURGH, PA.
AMERICAN BRIDGE CO.
PITTSBURGH, PA.
ORDER NO. 1277
DRAWING T-751

UNIT	SECTION
1	6.7
2	4.3
3	5.0
4	6.4
5	6.4
6	6.4
7	12
8	10.7
9	13.3
10	9.5
11	7.0
12	6.2
13	4.8
14	3.5
15	11.1
16	5.6
17	7.9
18	7.7
19	9.9
20	7.1
21	14.5
22	18.9
23	15.7
24	11
25	7.2
26	2.0
27	3.1
28	6.8
29	6.9
30	6.7
31	6.3
32	6.3
33	8.8
34	9.0
35	11.4
36	4.0
37	4.3
38	4.8
39	4.4
40	3.4
41	3.4
42	3.4
43	3.4
44	3.4
45	3.4
46	3.4
47	3.4
48	3.4
49	3.4
50	3.4
51	3.4
52	3.4
53	3.4
54	3.4
55	3.4
56	3.4
57	3.4
58	3.4
59	3.4
60	3.4
61	3.4
62	3.4
63	3.4
64	3.4
65	3.4
66	3.4
67	3.4
68	3.4
69	3.4
70	3.4
71	3.4
72	3.4
73	3.4
74	3.4
75	3.4
76	3.4
77	3.4
78	3.4
79	3.4
80	3.4
81	3.4
82	3.4
83	3.4
84	3.4
85	3.4
86	3.4
87	3.4
88	3.4
89	3.4
90	3.4
91	3.4
92	3.4
93	3.4
94	3.4
95	3.4
96	3.4
97	3.4
98	3.4
99	3.4
100	3.4

CHALLENGE MATERIAL
7 7/16 @ 58' = 33'
2 5/8 @ 155' = 19'
4 3/8 @ 44' = 19'



NOTE: Cross arms to be attached as shown as to accommodate either 11 or 14' Flange Angles

RECORDED RIGHT OF WAY 19074 part 2

Copyright American Bridge Co. 1908

ANGLE TOWER L.X.

The tower is design number 1, 1913
 Concrete Steel Tower No. and is 175' high. All
 conductors on a maximum span of 365' with 5'
 angle in line.

The cables are to be as strong as the tower
 main. Heavy cables of steel or galvanized
 cables will not exceed 1176 lbs for 3 cables
 and 4810 lbs for the conductors.

- LOADS.
- 1 Vertical 1 Rod wire 350° - 315°
- 6 Conductors 250° - 180° - 135° - 90° - 45° - 0°
- 2a Transverse wind on cables
- 1 Rod wire 160° - 120° - 80° - 40° - 0° - 40° - 80° - 120° - 160°
- 6 Conductors 320° - 280° - 240° - 200° - 160° - 120°
- 2b Transverse angle on line of 5'
- 1 Rod wire 375° - 315° - 225° - 135° - 45° - 0° - 45° - 135° - 225° - 315° - 375°
- 6 Conductors 325° - 275° - 225° - 175° - 125° - 75° - 25° - 0° - 25° - 75° - 125° - 175° - 225° - 275° - 325°
- 3 Longitudinal any one Conductor 70° - 45° - 20°
- (105° at 6000')

- 4 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 5 Dead load of tower.
- 6 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 7 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 8 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 9 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 10 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 11 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 12 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 13 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 14 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 15 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 16 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 17 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 18 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 19 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 20 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 21 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 22 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 23 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 24 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 25 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 26 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 27 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 28 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 29 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 30 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 31 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 32 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 33 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 34 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 35 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 36 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 37 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 38 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 39 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.
- 40 Wind on tower of 65' per sq ft in 1 hour the
 projected area of tower.

Compression on 8 cables each 1000 lbs (1000' x 1000' x 1000')
 Tower on cables 3000' per sq ft.
 Bearing on cables 3000' per sq ft.
 MATERIAL: 9 x 9 Steel A.S.T.M. spec. A 36.
 WELTING: All material galvanized
 CONNECTIONS: Bolted, for both
 SPECIFICATIONS: A.S.T.M. Spec. for Steel
 For Transmissive Power

THE DETROIT EDISON COMPANY
 DETROIT, MICHIGAN
 ANGLE TOWER L.X.
 LINCOLN-BACKFIELD LINE

AMERICAN BRIDGE COMPANY
 TOWER LEX-1000
 Order No. 7785
 Date: Detroit, May 11, 1914
 Order No. 7785
 Date: Detroit, May 11, 1914

LOAD	SECTION
1	1-1-1
2	1-5-1
3	1-6-1
4	1-6-5
5	1-6-5
6	1-6-5
7	1-6-5
8	1-6-5
9	1-6-5
10	1-6-5
11	1-6-5
12	1-6-5
13	1-6-5
14	1-6-5
15	1-6-5
16	1-6-5
17	1-6-5
18	1-6-5
19	1-6-5
20	1-6-5
21	1-6-5
22	1-6-5
23	1-6-5
24	1-6-5
25	1-6-5
26	1-6-5
27	1-6-5
28	1-6-5
29	1-6-5
30	1-6-5
31	1-6-5
32	1-6-5
33	1-6-5
34	1-6-5
35	1-6-5
36	1-6-5
37	1-6-5
38	1-6-5
39	1-6-5
40	1-6-5

"LX" TWR.

RECORDED RIGHT OF WAY 19074 part 2



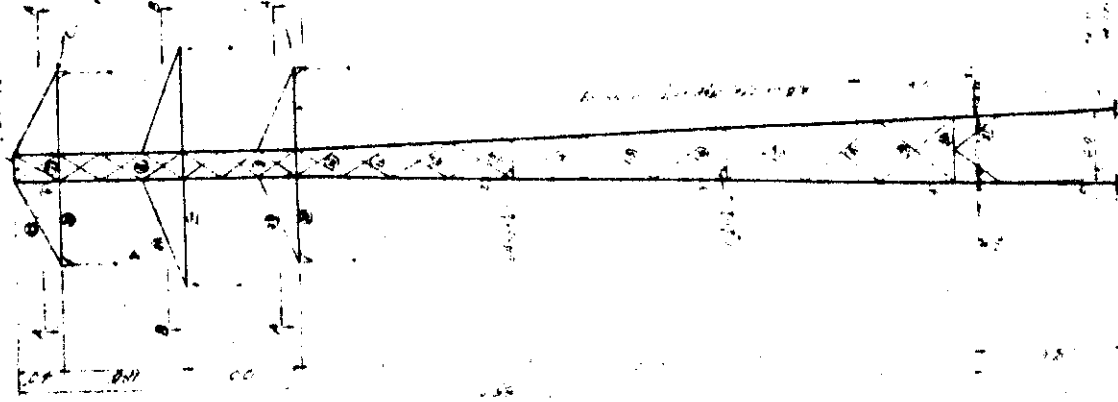
SECTION AA

Dimensions to be defined as in accordance with the drawings.

NOTE: Tower shown as in Drawing T-376
 There are 4 cables with minor exceptions.

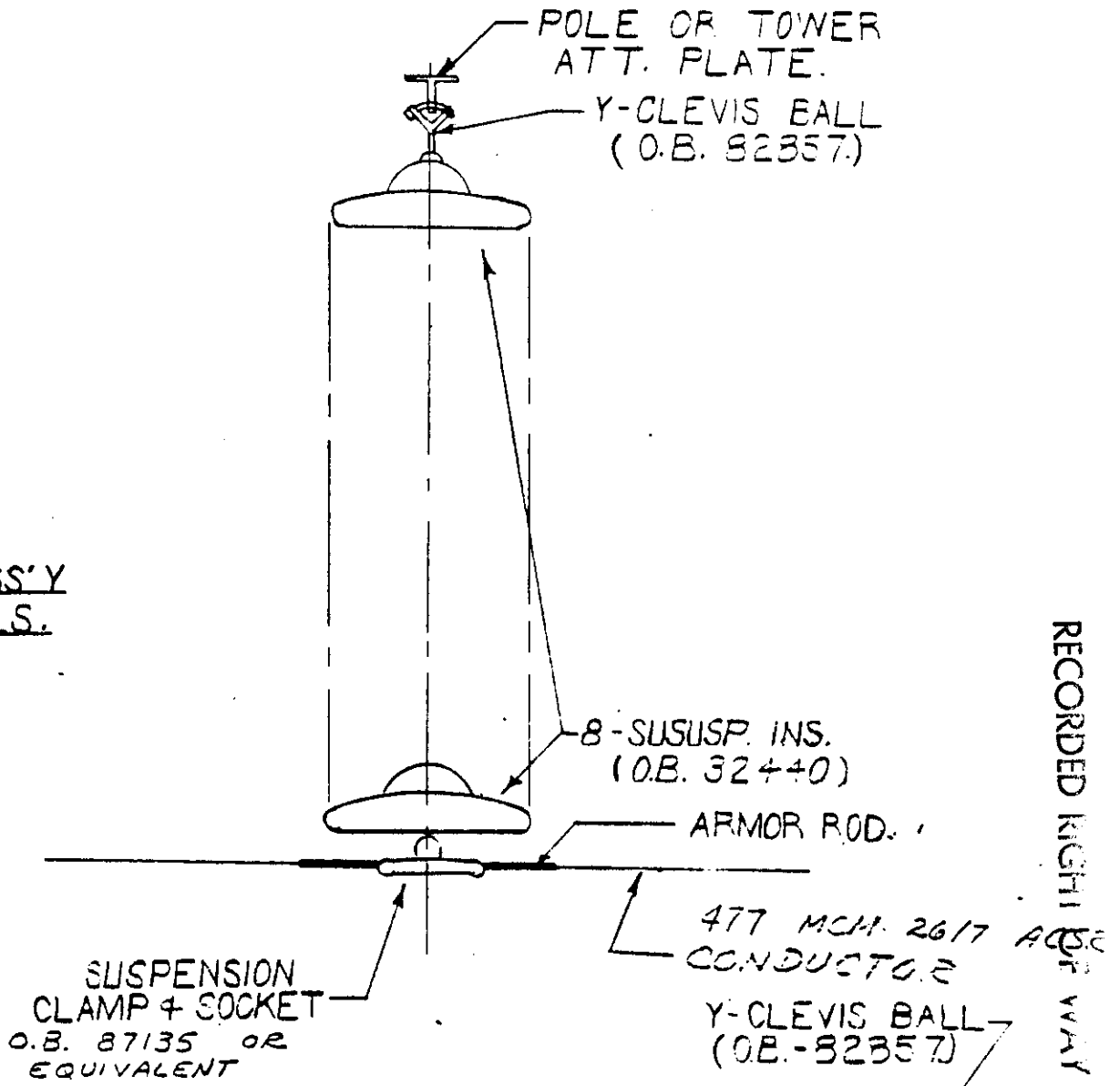


SECTION BB

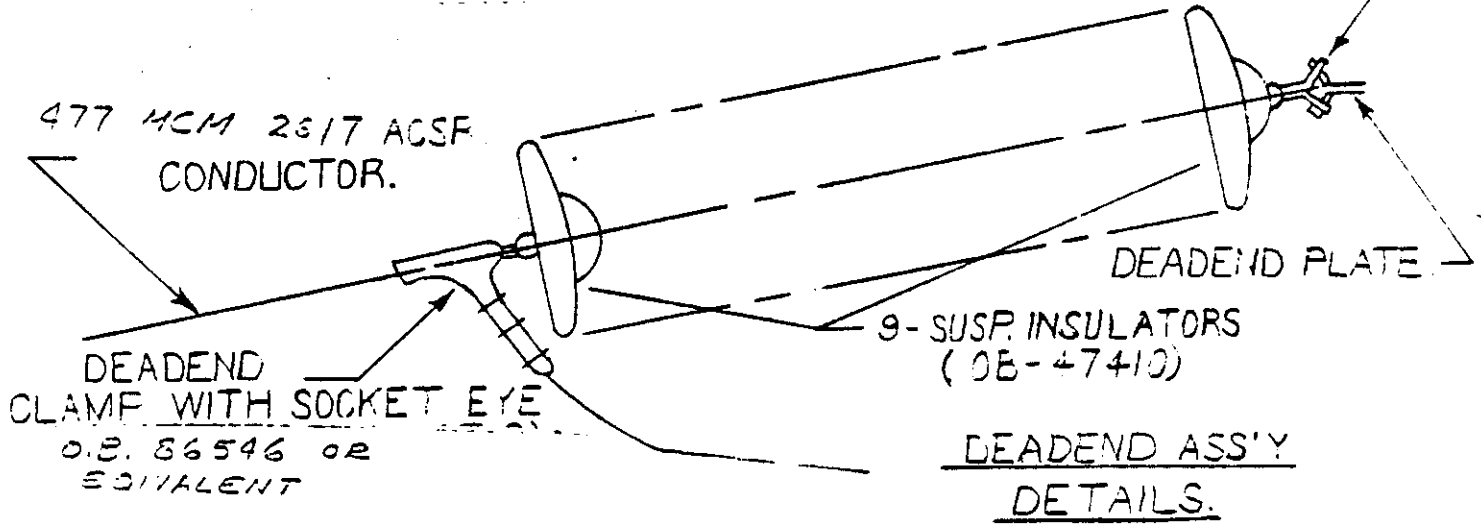


ANGLE TOWER L.X.

SUSP. ASS'Y
DETAILS.



RECORDED HIGH SPEED WAY 1907M part 2

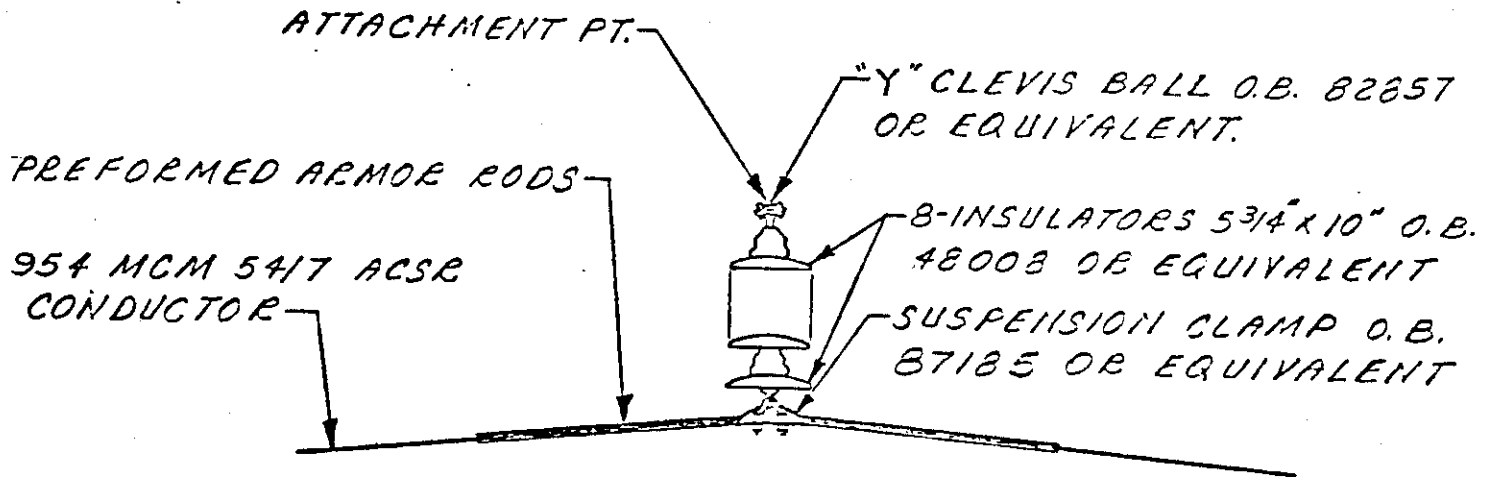


DEADEND ASS'Y
DETAILS.

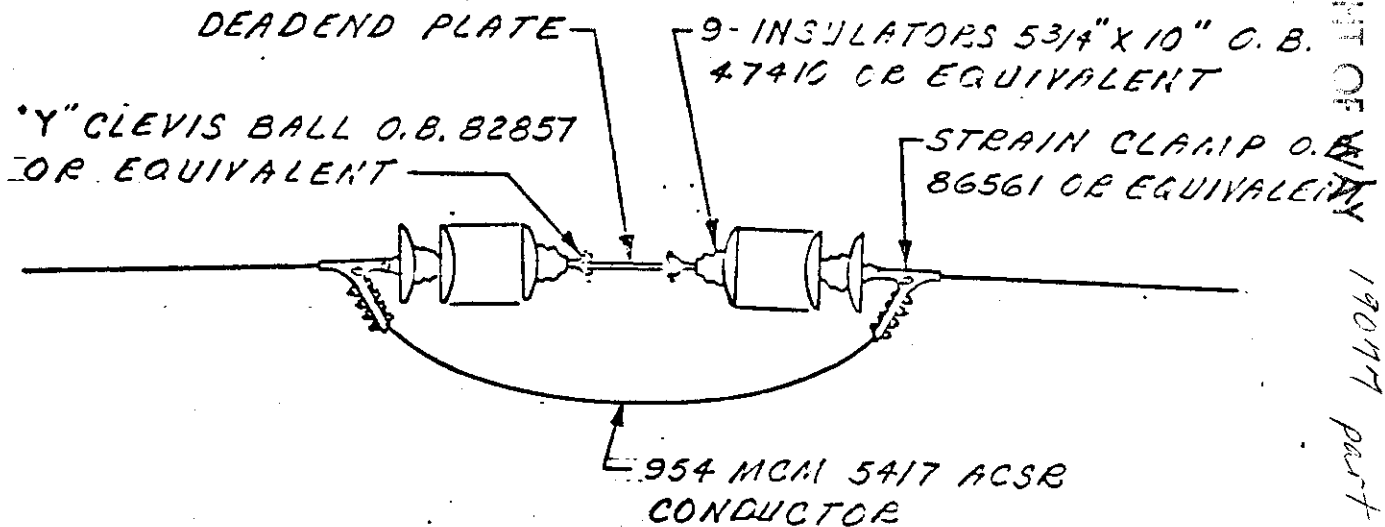
120 KV SUSPENSION & DEADEND ASSEMBLY DETAILS

APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>RCS.</i>	DRAWN BY <i>N.H.H.</i>
	DATE <i>4-2-70.</i>	EDI-3023
	SCALE	

SUSPENSION ASS'Y
DETAILS



DEADEND ASS'Y
DETAILS



RECORDED RIGHT OF 19077 part 2

120 KV SUSPENSION &
DEADEND ASS'Y DETAILS

APPROVED <i>JBN</i>	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
	LAYOUT BY <i>J. WRIGHT</i>	DRAWN BY <i>JEN</i>
	DATE <i>1-25-71</i>	DRAWING NUMBER
	SCALE	<i>ED1-7430</i>

SAGS AND TENSIONS STUDY NO. 102
 ACSR CONDUCTOR - 954 MCM, 54/7 11000 - H.L.T.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 200. FEET					
CREEP IS A FACTOR					
1	0.	1.36	10017.	1.24	-11000.
2	0.	1.17	9767.	1.06	10855.
3	-20.	0.57	10932.	0.53	11613.
4	0.	0.67	9272.	0.59	10576.
5	32.	0.92	6722.	0.70	8848.
6	60.	1.30	4750.	0.85	7286.
7	90.	1.91	3220.	1.10	5607.
8	120.	2.52	2446.	1.51	4081.

954 54/7 ACSR
 11,000 H.L.T.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 300. FEET					
CREEP IS A FACTOR					
1	0.	3.01	10141.	2.78	-11000.
2	0.	2.66	9668.	2.41	10699.
3	-20.	1.37	10150.	1.25	11089.
4	0.	1.61	8592.	1.38	10059.
5	32.	2.18	6347.	1.65	8401.
6	60.	2.89	4787.	2.00	6942.
7	90.	3.80	3647.	2.52	5490.
8	120.	4.72	2935.	3.23	4286.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 400. FEET					
CREEP IS A FACTOR					
1	0.	5.29	10263.	4.93	-11000.
2	0.	4.78	9572.	4.35	10517.
3	-20.	2.68	9188.	2.37	10381.
4	0.	3.14	7831.	2.62	9394.
5	32.	4.11	5996.	3.14	7844.
6	60.	5.11	4821.	3.75	6570.
7	90.	6.24	3949.	4.58	5381.
8	120.	7.33	3360.	5.54	4445.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 500. FEET					
CREEP IS A FACTOR					
1	0.	8.17	10378.	7.71	-11000.
2	0.	7.53	9501.	6.92	10339.
3	-20.	4.67	8229.	4.03	9551.
4	0.	5.40	7130.	4.45	8647.
5	32.	6.71	5735.	5.28	7287.
6	60.	7.93	4853.	6.18	6228.
7	90.	9.23	4173.	7.27	5293.
8	120.	10.47	3680.	8.43	4565.

TEMP.	FINAL		INITIAL		
	SAG	TENSION	SAG	TENSION	
SPAN LENGTH = 600. FEET					
CREEP IS A FACTOR					
1	0.	11.67	10471.	11.11	-11000.
2	0.	10.91	9444.	10.13	10166.
3	-20.	7.48	7404.	6.36	8704.
4	0.	8.42	6577.	7.00	7912.
5	32.	10.00	5543.	8.17	6784.
6	60.	11.37	4876.	9.31	5952.
7	90.	12.79	4337.	10.60	5227.
8	120.	14.15	3923.	11.92	4653.

TEMP.	FINAL		INITIAL	
	SAG	TENSION	SAG	TENSION
SPAN LENGTH = 700. FEET				

RECORDED RIGHT OF WAY 19077 part 2

025510

DATA SHEET TO ACCOMPANY DRAWING RX-4323A
Revision of Crossing Rx-4323

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing of the Hines Yost 120kV transmission line over the C. & O. Railroad at approximately 1,700 feet east of centerline of Levan Road, and approximately 2,640 feet north of Plymouth Road.

In the City of Livonia, southeast 1/4 of Section 29, Wayne County, Michigan. Railroad stationing 880+00.

Circuits

One 120,000 volt, 60 cycle, 3 phase transmission line with one groundwire.

Towers and Crossarms

See attached drawing T-8412 (AA&AB).

Conductors

North circuit-3-954 54/7 ACSR conductors. South circuit-3-477 27/7 ACSR conductors.

Insulators

Eight (8) 5-3/4" x 10" O.B. #32440 or equivalent in suspension.

Guy and Guy Attachments

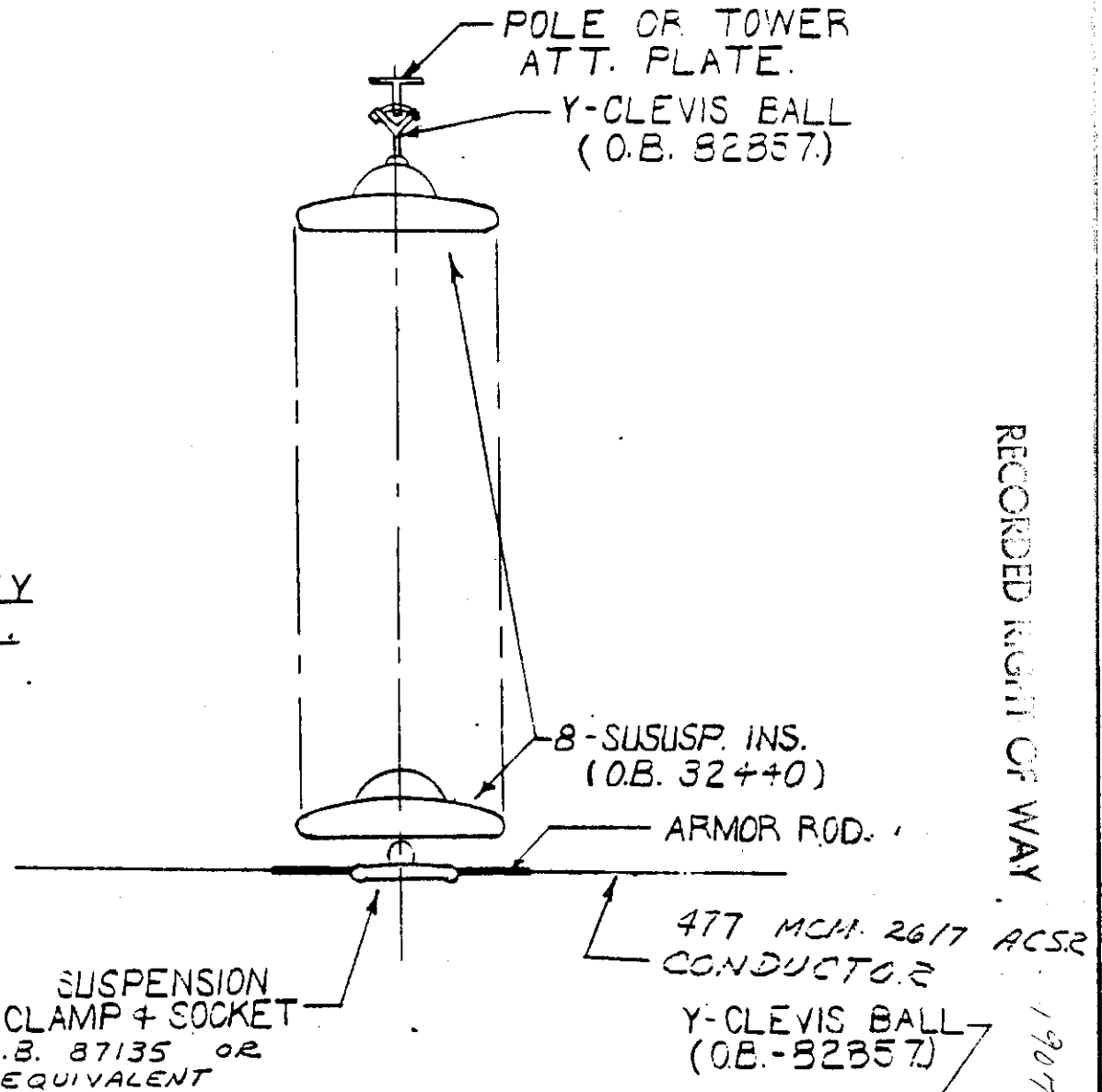
None

Suspension and Deadend Details

See attached drawings ED1-8028 and ED1-7430.

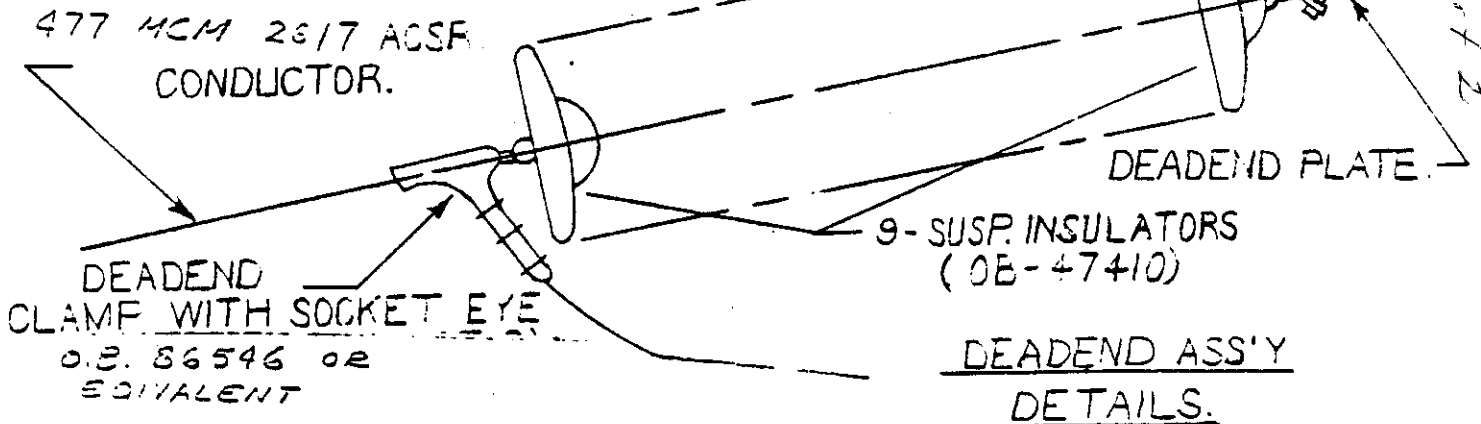
RECORDED RIGHT OF WAY
190117 part 2

SUSP. ASS'Y
DETAILS.



RECORDED RIGHT OF WAY

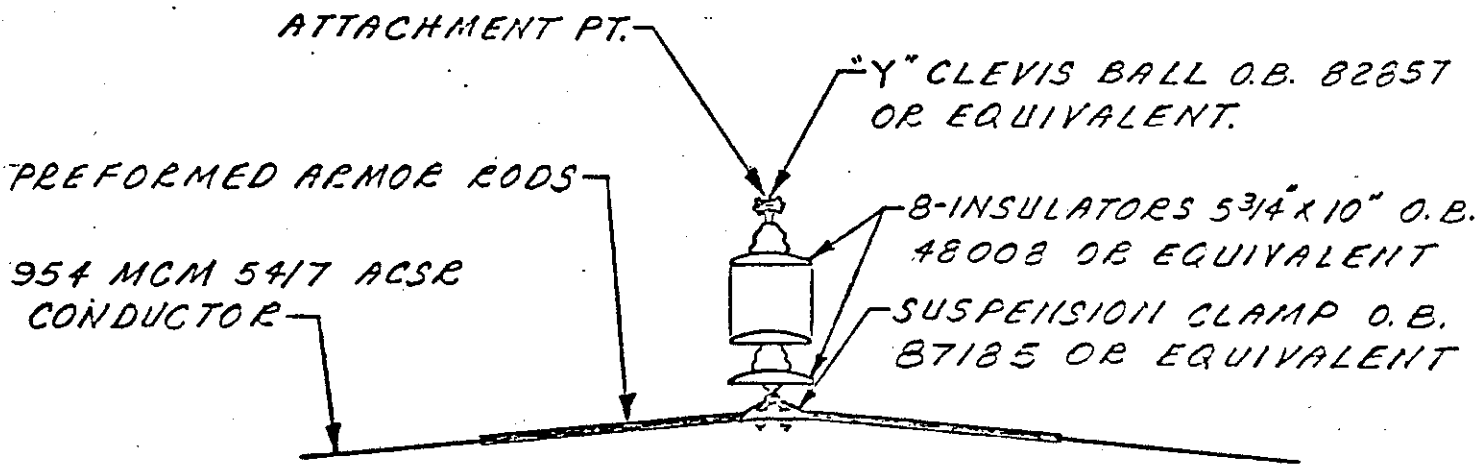
19074 part 2



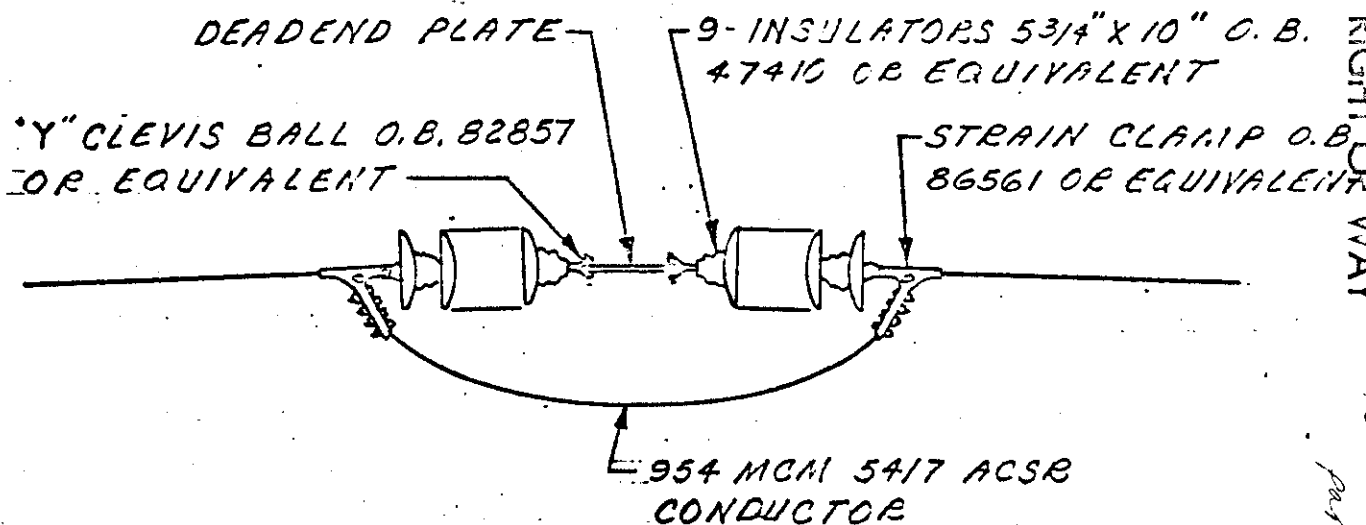
DEADEND ASS'Y
DETAILS.

120 KV SUSPENSION & DEADEND ASSEMBLY DETAILS	APPROVED	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
		LAYOUT BY <i>RCS.</i>	DRAWN BY <i>N.H.H.</i>
		DATE <i>4-2-70.</i>	ED1-8023
		SCALE	

120 KV SUSPENSION ASS'Y
DETAILS



DEADEND ASS'Y
DETAILS



RECORDED RIGHT OF WAY

190177
PART 2

120 KV SUSPENSION &
DEADEND ASS'Y DETAILS

APPROVED <i>J. S. W.</i>	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
LAYOUT BY <i>J. WEIGHT</i>	DRAWN BY <i>J. W.</i>	
DATE <i>1-25-71</i>	DRAWING NUMBER	
SCALE	<i>ED1-7430</i>	

SECTIONARY TYPE AA & B
 The towers are designed to support 100,000 lbs of 27,000 psi steel and 100,000 lbs of 195,000 (7) ACSR as a span of 200' diagonal braced and with 10' angle in line for AB.
 The cables are to be 20' above the maximum tension wire and 10' above the cables will not exceed 1000' in the ground and 1200' in the conductors in accordance with the Edison H.E.S.C.

- NOTES:**
- (1) Vertical 100' high x 100' x 100'
 - (2) Conductors x 1000' x 200' x 200'
 - (3) Transverse wind on tower
 - (4) 100' high x 100' x 100'
 - (5) Conductors x 100' x 200' x 200'
 - (6) Tower base 10' high for tower 20'
 - (7) 100' high x 100' x 100'
 - (8) Conductors x 100' x 200' x 200'
 - (9) Any one conductor broken at any one conductor broken at 1000'
 - (10) Wind on tower of 45 mph at 100' above projected area of one face of tower.
 - (11) Wind load of tower

CONCRETE
 Tower 100' high x 100' x 100'
 Tower 100' high x 100' x 100'
 Tower 100' high x 100' x 100'
 Tower 100' high x 100' x 100'

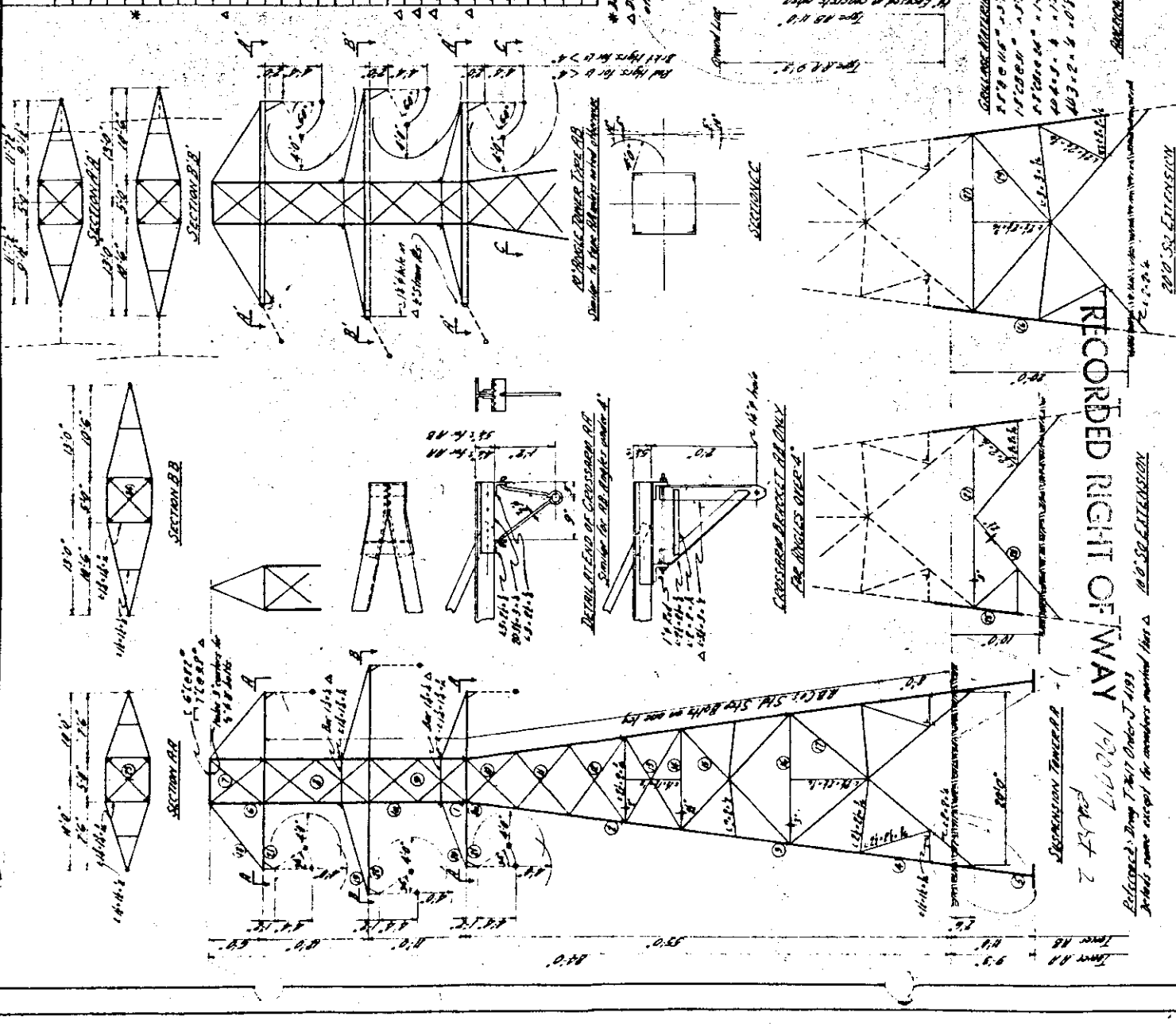
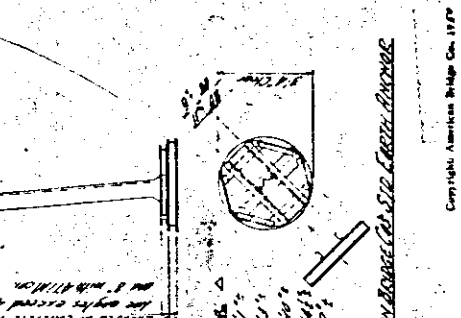
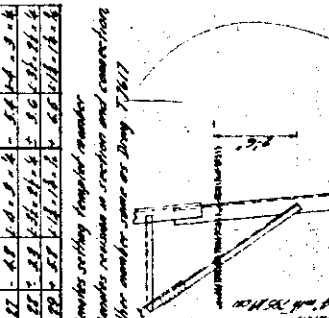
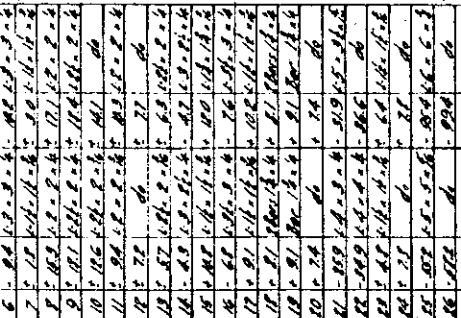
STEEL
 Tower 100' high x 100' x 100'
 Tower 100' high x 100' x 100'
 Tower 100' high x 100' x 100'

WIND
 Tower 100' high x 100' x 100'
 Tower 100' high x 100' x 100'

3:1
 700' span

TRANSMISSION TOWERS
 THE DETROIT EDISON CO.
 DETROIT, MICHIGAN
 AMERICAN BRIDGE CO.
 PITTSBURGH, PA.
 ORDER No. 75447
 DRAWING T-3412
 REVISED

Member	TOWER AA		TOWER BB (100')	
	WT	SECTION	WT	SECTION
1	10	10 x 10	10	10 x 10
2	10	10 x 10	10	10 x 10
3	10	10 x 10	10	10 x 10
4	10	10 x 10	10	10 x 10
5	10	10 x 10	10	10 x 10
6	10	10 x 10	10	10 x 10
7	10	10 x 10	10	10 x 10
8	10	10 x 10	10	10 x 10
9	10	10 x 10	10	10 x 10
10	10	10 x 10	10	10 x 10
11	10	10 x 10	10	10 x 10
12	10	10 x 10	10	10 x 10
13	10	10 x 10	10	10 x 10
14	10	10 x 10	10	10 x 10
15	10	10 x 10	10	10 x 10
16	10	10 x 10	10	10 x 10
17	10	10 x 10	10	10 x 10
18	10	10 x 10	10	10 x 10
19	10	10 x 10	10	10 x 10
20	10	10 x 10	10	10 x 10
21	10	10 x 10	10	10 x 10
22	10	10 x 10	10	10 x 10
23	10	10 x 10	10	10 x 10
24	10	10 x 10	10	10 x 10
25	10	10 x 10	10	10 x 10
26	10	10 x 10	10	10 x 10
27	10	10 x 10	10	10 x 10
28	10	10 x 10	10	10 x 10
29	10	10 x 10	10	10 x 10
30	10	10 x 10	10	10 x 10



SAGS AND TENSIONS STUDY NO. 102
 ACSR CONDUCTOR - 954 MCM, 54/7 11000 - H.L.T.

TEMP.	FINAL		INITIAL	
	SAG	TENSION	SAG	TENSION
SPAN LENGTH = 200. FEET				
CREEP IS A FACTOR				
1	0.	1.36	10017.	1.24 -11000.
2	0.	1.17	9767.	1.06 10855.
3	-20.	0.57	10932.	0.53 11613.
4	0.	0.67	9272.	0.59 10576.
5	32.	0.92	6722.	0.70 8848.
6	60.	1.30	4750.	0.85 7286.
7	90.	1.91	3220.	1.10 5607.
8	120.	2.52	2446.	1.51 4081.

954 54/7 ACSR
 11,000 H.L.T.

SPAN LENGTH = 300. FEET				
CREEP IS A FACTOR				
1	0.	3.01	10141.	2.78 -11000.
2	0.	2.66	9668.	2.41 10699.
3	-20.	1.37	10150.	1.25 11089.
4	0.	1.61	8592.	1.38 10069.
5	32.	2.18	6347.	1.65 8401.
6	60.	2.89	4787.	2.00 6942.
7	90.	3.80	3647.	2.52 5490.
8	120.	4.72	2935.	3.23 4286.

SPAN LENGTH = 400. FEET				
CREEP IS A FACTOR				
1	0.	5.29	10263.	4.93 -11000.
2	0.	4.78	9572.	4.35 10517.
3	-20.	2.68	9188.	2.37 10381.
4	0.	3.14	7831.	2.62 9394.
5	32.	4.11	5996.	3.14 7844.
6	60.	5.11	4821.	3.75 6570.
7	90.	6.24	3949.	4.58 5381.
8	120.	7.33	3360.	5.54 4445.

SPAN LENGTH = 500. FEET				
CREEP IS A FACTOR				
1	0.	8.17	10378.	7.71 -11000.
2	0.	7.53	9501.	6.92 10339.
3	-20.	4.67	8229.	4.03 9551.
4	0.	5.40	7130.	4.45 8647.
5	32.	6.71	5735.	5.28 7287.
6	60.	7.93	4853.	6.18 6228.
7	90.	9.23	4173.	7.27 5293.
8	120.	10.47	3680.	8.43 4565.

SPAN LENGTH = 600. FEET				
CREEP IS A FACTOR				
1	0.	11.67	10471.	11.11 -11000.
2	0.	10.91	9444.	10.13 10166.
3	-20.	7.48	7404.	6.36 8704.
4	0.	8.42	6577.	7.00 7912.
5	32.	10.00	5543.	8.17 6784.
6	60.	11.37	4876.	9.31 5952.
7	90.	12.79	4337.	10.60 5227.
8	120.	14.15	3923.	11.92 4653.

SPAN LENGTH = 700. FEET

RECORDED RIGHT OF WAY

19074
 10-7-42

23868

DATA SHEET TO ACCOMPANY DRAWING RX-4162B
Revision of Crossing Rx-4162 TEMP.
Covered Under Permit ME-680-RR-79 Dated 10-25-79

Name of Company

The Detroit Edison Company

Name and Location of Crossing

Crossing No. 1: Crossing of the Diesel-Yost 120kV tower line over the C. & O. Railroad, located approximately 2,640 feet north of Plymouth Road and approximately 2,360 feet east of Merriman Road, railroad stationing 740+00

Crossing No. 2: Crossing of the Hines-Yost 120kV tower line over the C. & O. Railroad, located approximately 2,640 feet north of Plymouth Road and approximately 2,150 feet east of Merriman Road, railroad stationing 742+00. City of Livonia, Wayne County, Michigan.

Circuits

Two (2) 120 kV, 60 HZ, 3-phase, 3-wire transmission circuits and one ground wire per crossing.

Towers and Crossarms

See attached drawing T-8414 (AD).

Poles

See attached drawing H.P.O. structure.

Conductors

Crossing No. 1-3-954 54/7 MCM ACSR.
Crossing No. 2-3-477 26/7 MCM ACSR.
Both crossings one 3/8 steel ground wire.

Guy and Guy Attachments

See drawing Rx-4162B and H.P.O. structure.

Suspension and Deadend Details

See attached drawings ED1-8028, ED1-7430.

RECORDED RIGHT OF WAY

1987
part 2

THE CALCULATIONS FOR THIS TRIAL ARE FOR SAG VALUES FOR SHORT SPAN LC
 STRESS-STRAIN CURVES USED REPRESENT 954,000CM ACSR 54/7 7

STARTING INDEX	RULING SPAN	STARTING SAG OR TENSION	AREA OF CONDUCTOR	INITIAL L MAX TENS
1	200.0	2500.00	0.84640	2500

INDEX	TEMP.	INITIAL		FINAL		
		SAG	TENSION	SAG	TENSION	
1	0.	5.44	-2500.	5.44	2500.	----MI
2	0.	5.13	1204.	5.21	1184.	
3	0.	5.37	2139.	5.38	2133.	
4	30.	5.58	1107.	5.64	1095.	
5	60.	5.98	1035.	6.05	1023.	
6	90.	6.35	974.	6.42	963.	
7	120.	6.67	928.	6.65	930.	

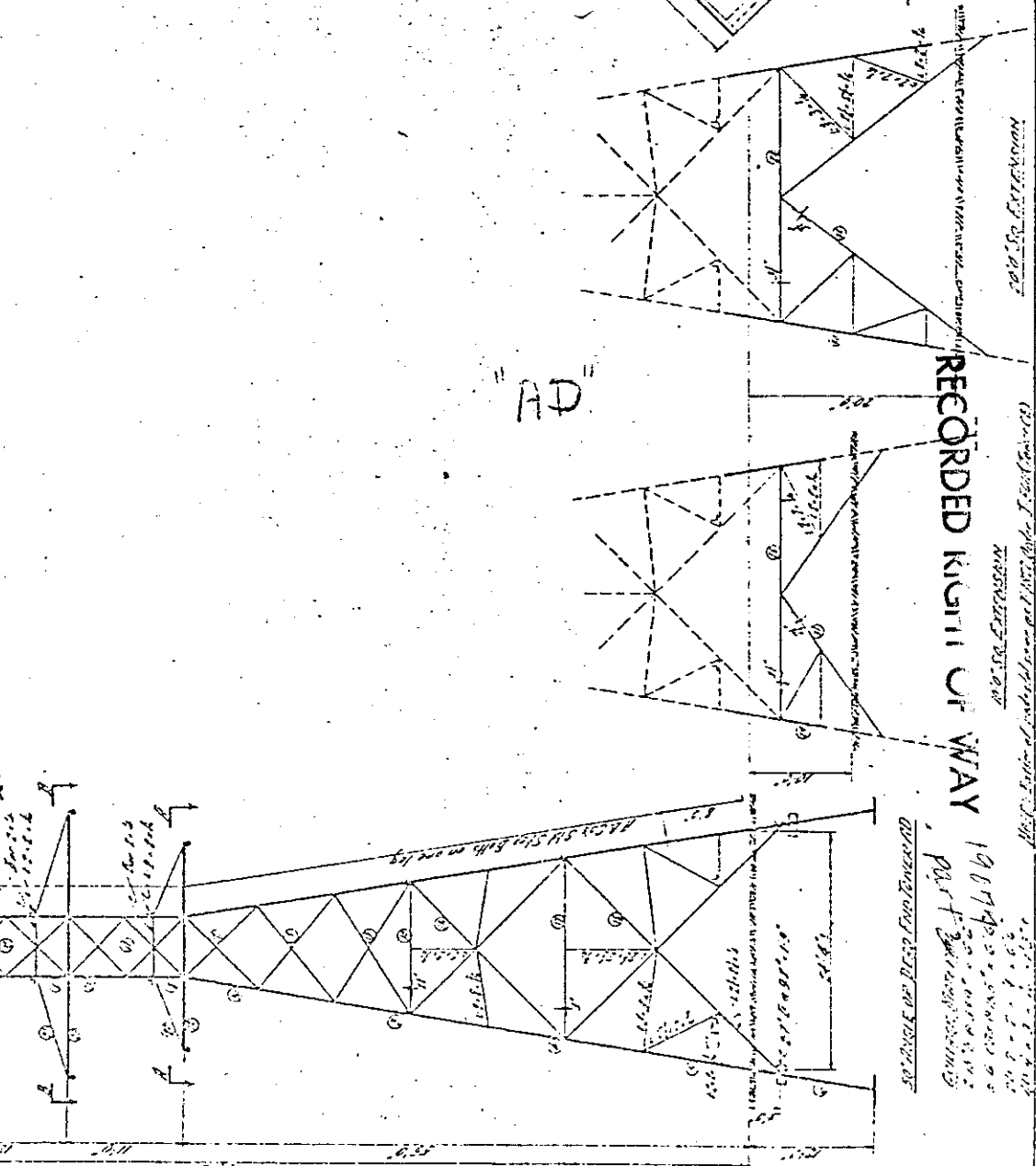
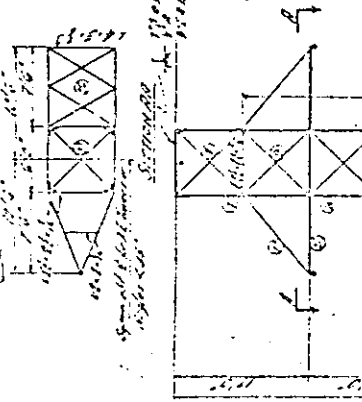
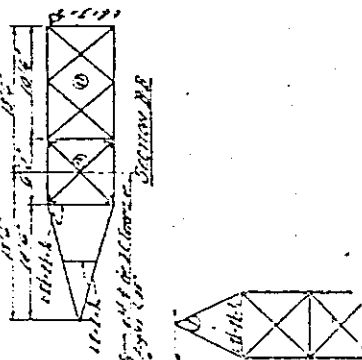
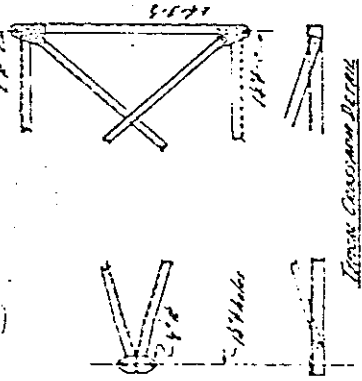
RECORDED RIGHT OF WAY

1961/4
part 2

Steel Co. of Pennsylvania, Inc. - Pittsburgh, Pa.
 Tower is designed to support 15' x 18' steel
 and wire and 250,000 lbs. weight. Consider
 as a normal span of 250' with 40' height in
 line on the high maximum cable load for the
 15' x 18' span of the same height.
 The cables are to be in a heavy steel 44
 minimum tensile strength of 100,000 lbs. in the
 normal cables and not exceed 8500' in the
 span wire and 1500' in the overhead.

- (1) Tower head 150' dia. @ 100' x 100' x 100'
- (2) Tower base 150' dia. @ 100' x 100' x 100'
- (3) Tower wire 40' dia. @ 100' x 100' x 100'
- (4) Tower base 40' dia. @ 100' x 100' x 100'
- (5) Tower wire 40' dia. @ 100' x 100' x 100'
- (6) Tower base 40' dia. @ 100' x 100' x 100'
- (7) Tower wire 40' dia. @ 100' x 100' x 100'
- (8) Tower base 40' dia. @ 100' x 100' x 100'
- (9) Tower wire 40' dia. @ 100' x 100' x 100'
- (10) Tower base 40' dia. @ 100' x 100' x 100'
- (11) Tower wire 40' dia. @ 100' x 100' x 100'
- (12) Tower base 40' dia. @ 100' x 100' x 100'
- (13) Tower wire 40' dia. @ 100' x 100' x 100'
- (14) Tower base 40' dia. @ 100' x 100' x 100'
- (15) Tower wire 40' dia. @ 100' x 100' x 100'
- (16) Tower base 40' dia. @ 100' x 100' x 100'
- (17) Tower wire 40' dia. @ 100' x 100' x 100'
- (18) Tower base 40' dia. @ 100' x 100' x 100'
- (19) Tower wire 40' dia. @ 100' x 100' x 100'
- (20) Tower base 40' dia. @ 100' x 100' x 100'

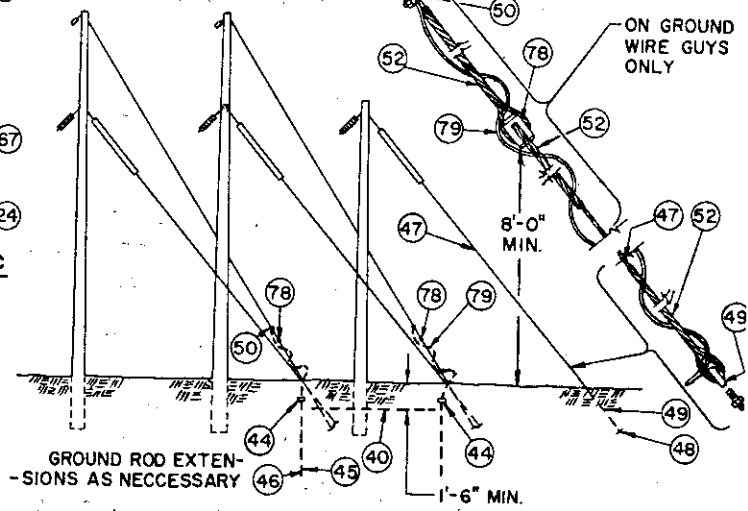
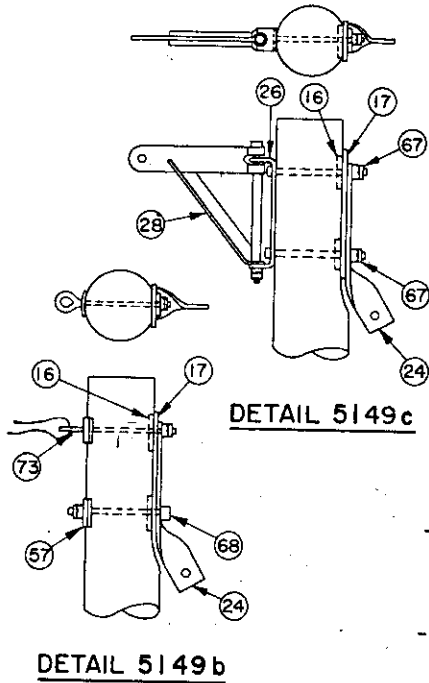
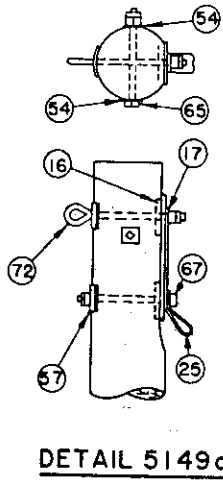
Item	Section
1	150' dia. @ 100' x 100' x 100'
2	150' dia. @ 100' x 100' x 100'
3	150' dia. @ 100' x 100' x 100'
4	150' dia. @ 100' x 100' x 100'
5	150' dia. @ 100' x 100' x 100'
6	150' dia. @ 100' x 100' x 100'
7	150' dia. @ 100' x 100' x 100'
8	150' dia. @ 100' x 100' x 100'
9	150' dia. @ 100' x 100' x 100'
10	150' dia. @ 100' x 100' x 100'
11	150' dia. @ 100' x 100' x 100'
12	150' dia. @ 100' x 100' x 100'
13	150' dia. @ 100' x 100' x 100'
14	150' dia. @ 100' x 100' x 100'
15	150' dia. @ 100' x 100' x 100'
16	150' dia. @ 100' x 100' x 100'
17	150' dia. @ 100' x 100' x 100'
18	150' dia. @ 100' x 100' x 100'
19	150' dia. @ 100' x 100' x 100'
20	150' dia. @ 100' x 100' x 100'



TRANSMISSION TOWERS
 The Pittsburgh Dispatch
 PITTSBURGH, PA.
 RECEIVED AT THE OFFICE OF THE CITY ENGINEER
 PITTSBURGH, PA.
 1917

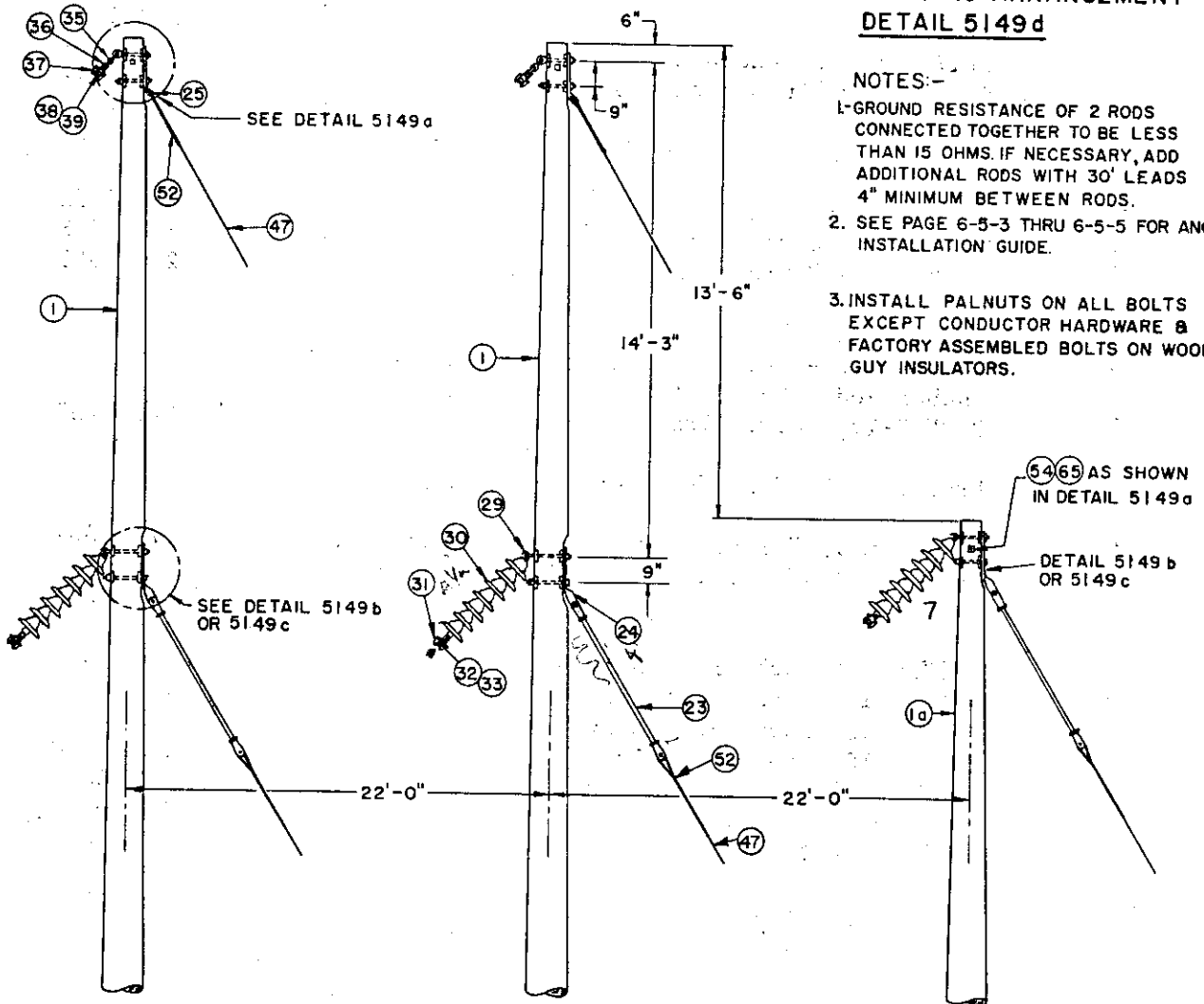
Copyright American Bridge Co. 1917
 RECORDED RIGHT OF WAY
 1917
 PART 1
 1917

DETROIT EDISON LINE CONSTRUCTION STANDARDS



NOTES:-

1. GROUND RESISTANCE OF 2 RODS CONNECTED TOGETHER TO BE LESS THAN 15 OHMS. IF NECESSARY, ADD ADDITIONAL RODS WITH 30' LEADS 4" MINIMUM BETWEEN RODS.
2. SEE PAGE 6-5-3 THRU 6-5-5 FOR ANCHOR INSTALLATION GUIDE.
3. INSTALL PALNUTS ON ALL BOLTS EXCEPT CONDUCTOR HARDWARE & FACTORY ASSEMBLED BOLTS ON WOOD GUY INSULATORS.

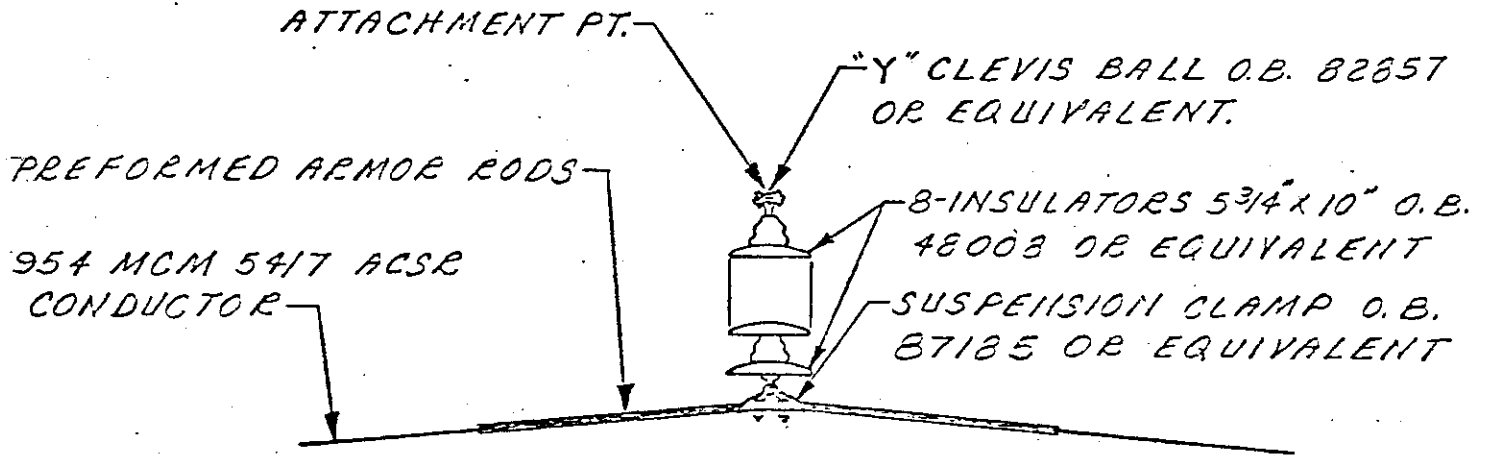


HORIZONTAL PULL-OFF STRUCTURE
DETAIL 5149

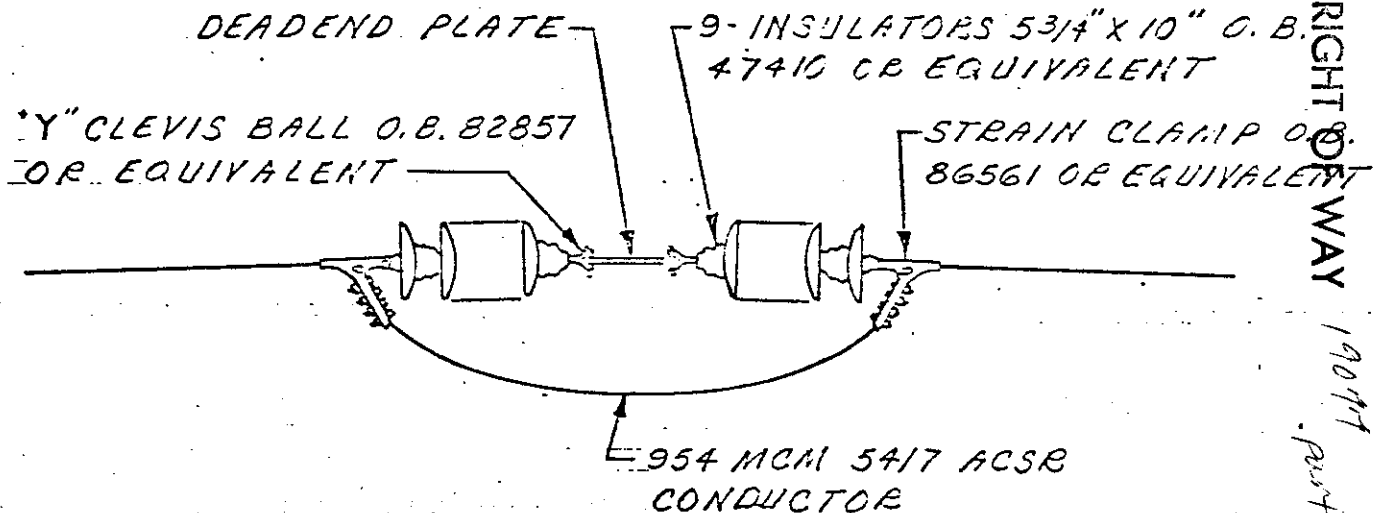
120 KV HPO STRUCTURE

RECORDED RIGHT OF WAY 190917 part 2

SUSPENSION ASS'Y
DETAILS



DEADEND ASS'Y
DETAILS

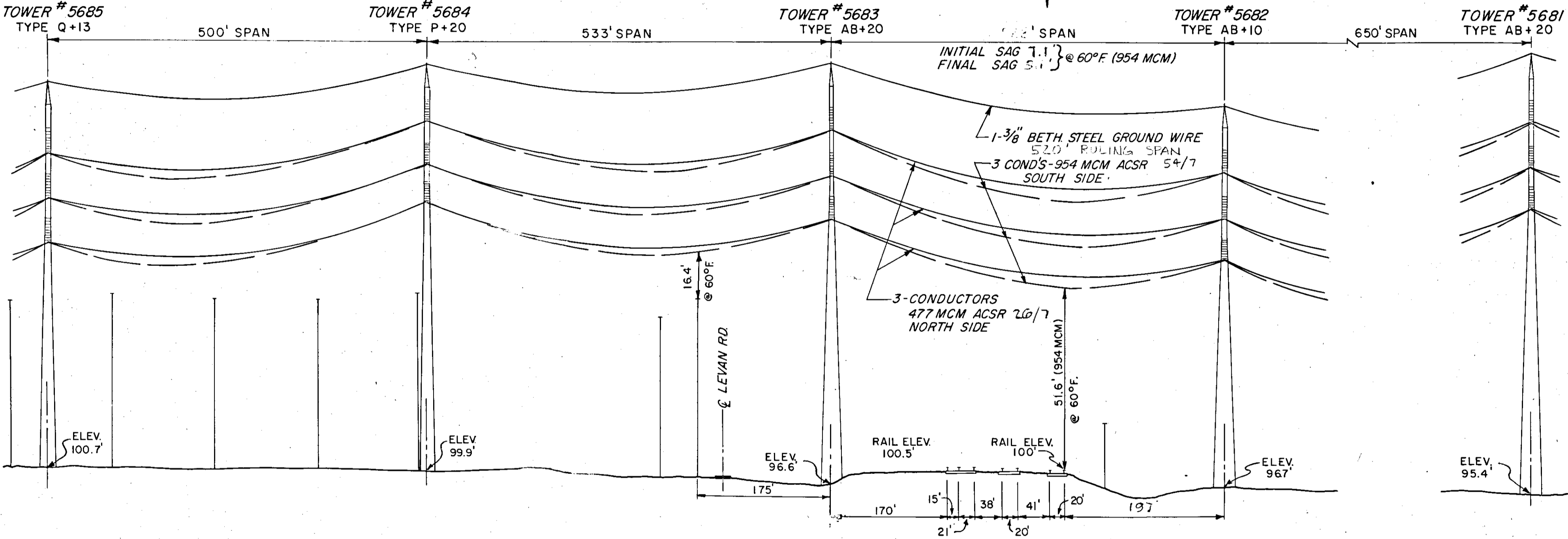
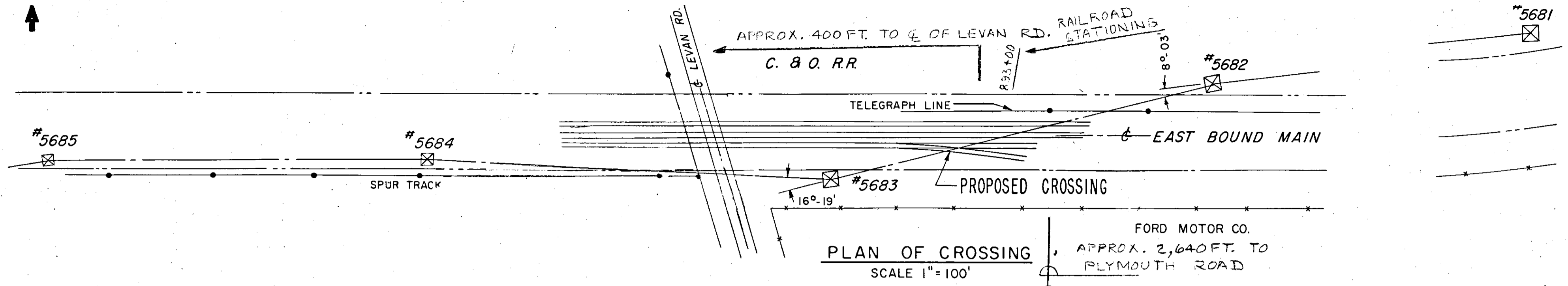


RECORDED RIGHT OF WAY 19077 part 2

120 KV SUSPENSION &
DEADEND ASS'Y DETAILS

APPROVED <i>J. Wright</i>	THE DETROIT EDISON COMPANY GENERAL ENGINEERING DEPARTMENT	
LAYOUT BY <i>J. WRIGHT</i>	DRAWN BY <i>JEM</i>	
DATE <i>1-25-71</i>	DRAWING NUMBER	
SCALE	<i>ED1-7430</i>	

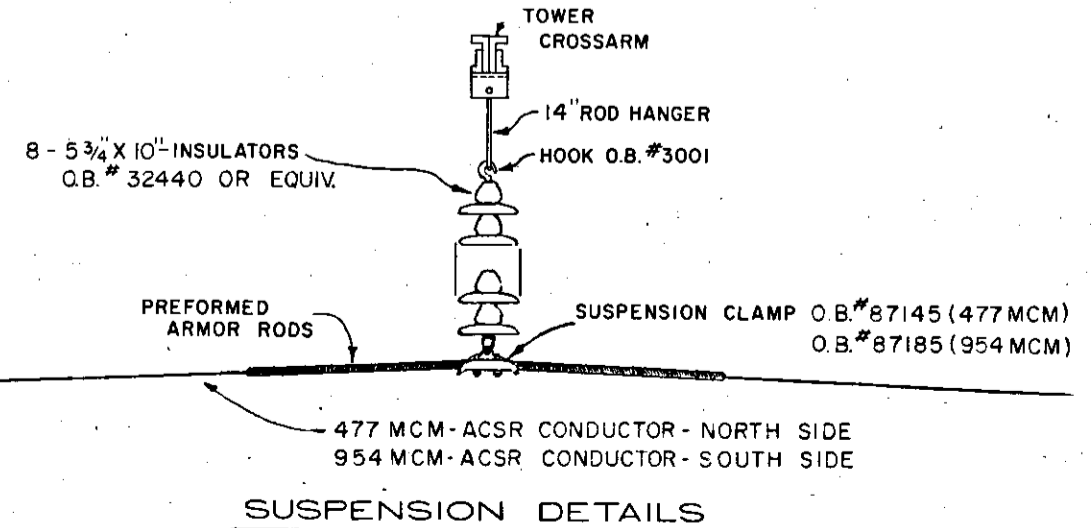
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ELEVATION OF CROSSING

SCALE HORIZONTAL 1"=100' VERTICAL 1"=20'

HINES-YOST 120KV STEEL TOWER LINE



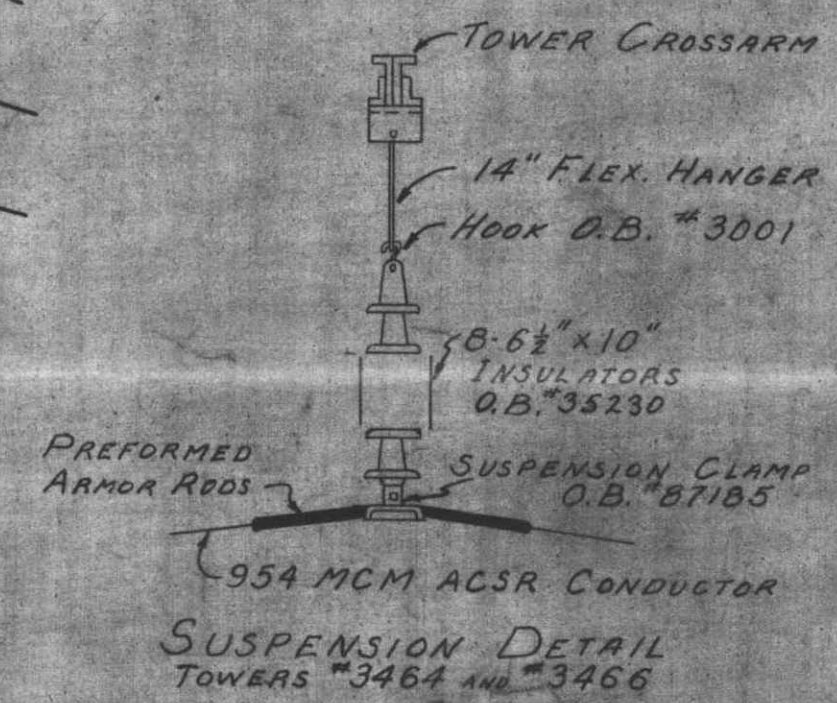
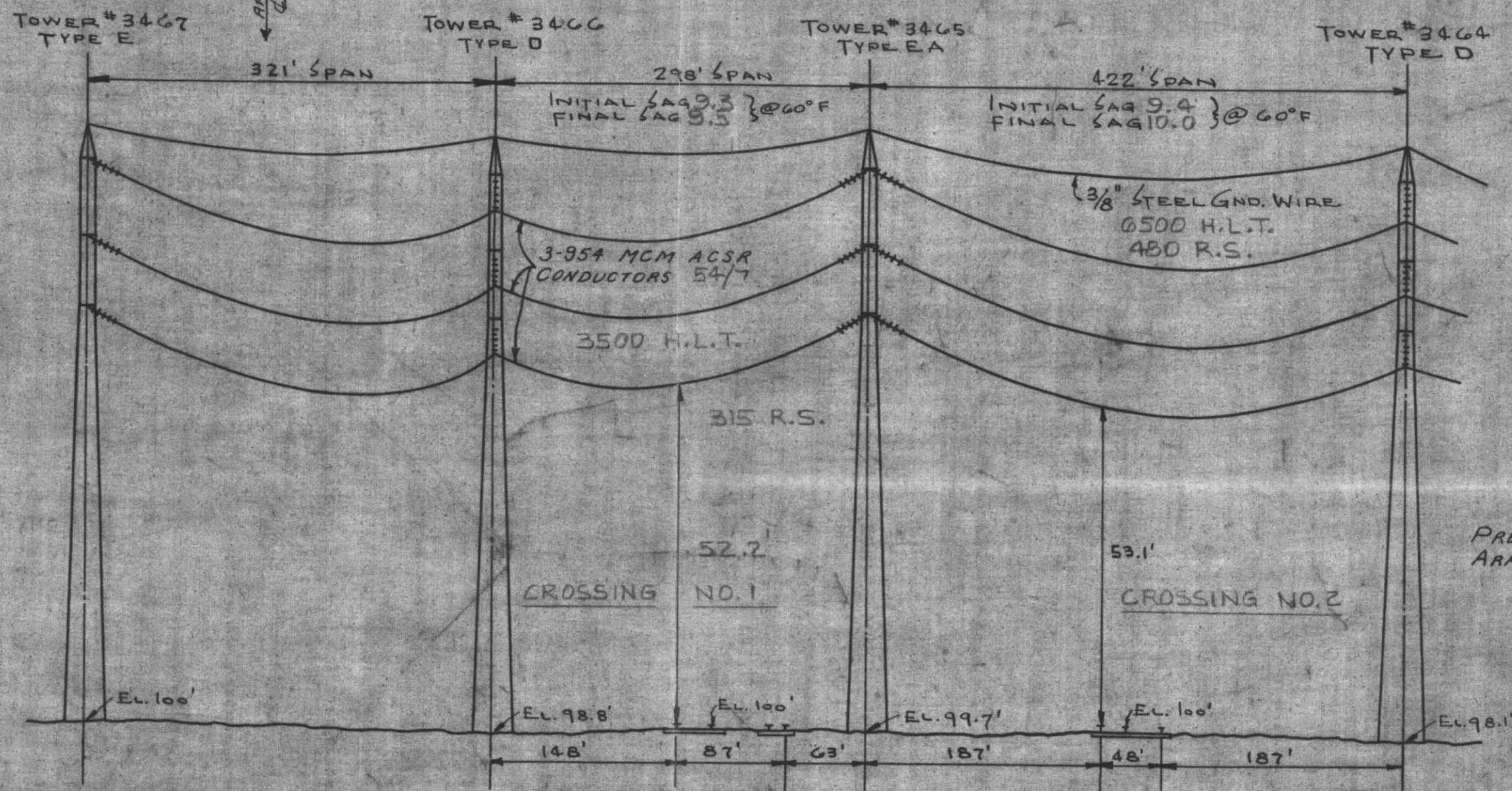
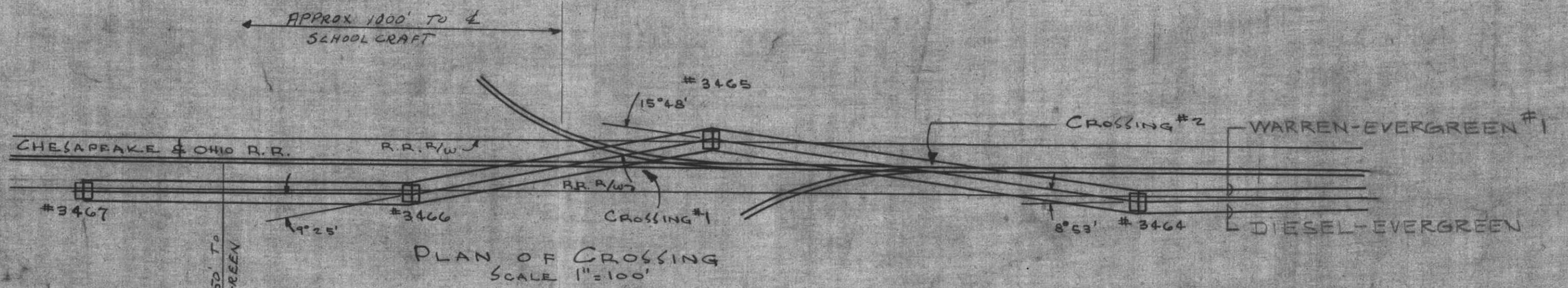
SUSPENSION DETAILS

CITY LIVONIA
 COUNTY WAYNE
 TOWNSHIP _____
 SECTION NO. N.W. 1/4 29

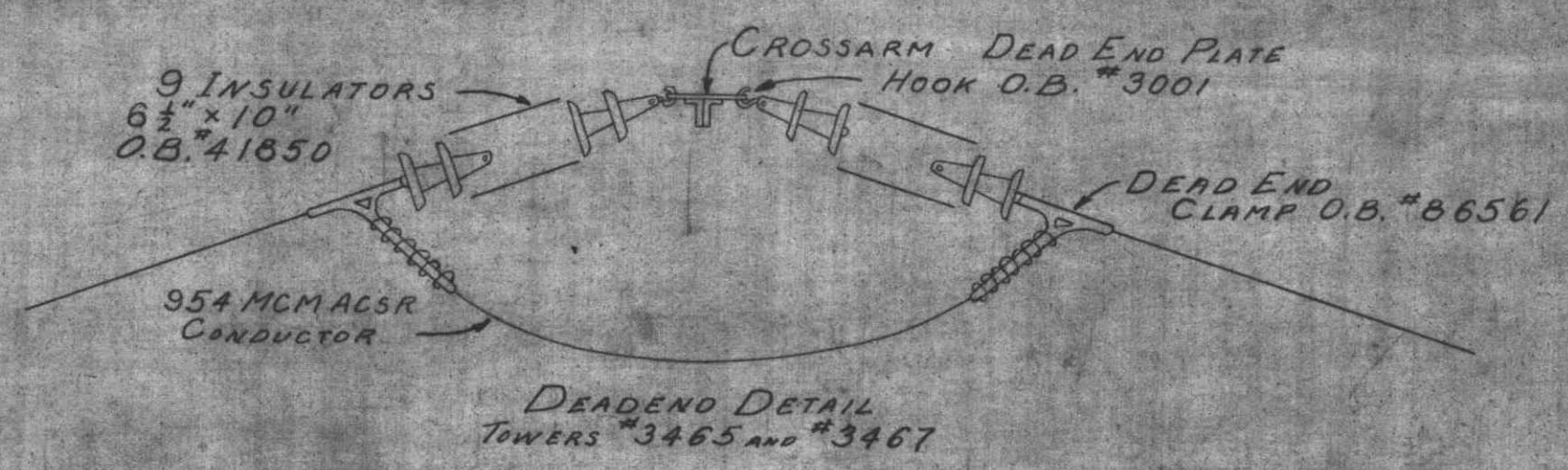
THE DETROIT EDISON COMPANY
 PLAN SUBMITTED TO
 MICHIGAN PUBLIC SERVICE COMMISSION
 FOR 120,000 VOLT CROSSING
 OVER THE CHESAPEAKE & OHIO R.R.
 DRAWN BY C. VAN PARIS DATE 2-22-84
 APPROVED BY M. J. Thacker DATE 8-22-84

PERMIT NO. ED	DRAWING NO. RX-3165 C
-------------------------	---------------------------------

RECORDED RIGHT OF WAY 19099 part 2



ELEVATION OF CROSSING
SCALE: HORIZ. 1"=100'
VERT. 1"=20'



CITY DETROIT
COUNTY WAYNE

RX-2904

PERMIT ED2-8-3122
DATED 11-20-52

THE DETROIT EDISON COMPANY
PLAN SUBMITTED TO MICHIGAN
PUBLIC SERVICE COMMISSION
FOR 120,000 VOLT CROSSING
OVER CHESAPEAKE & OHIO R.R.
DRAWN BY C. VAN PARISS DATE 10-22-54
CHECKED BY J. HOWE DATE 10-22-54

PERMIT NO. RX-2904 C

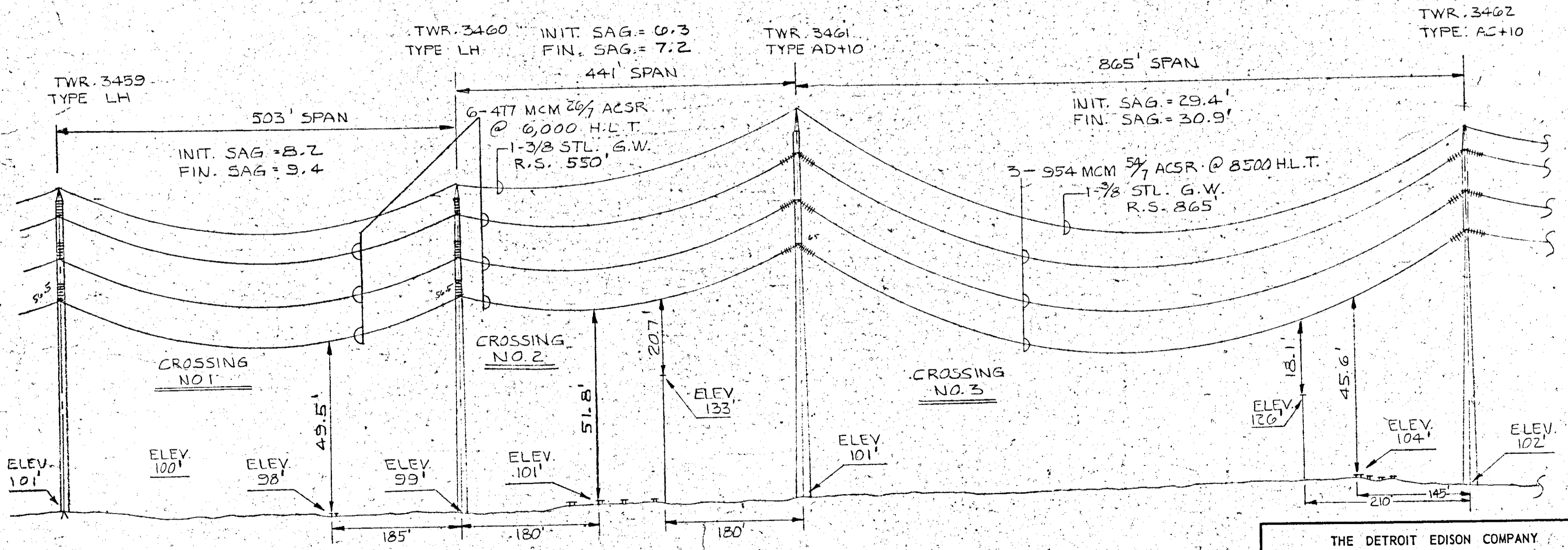
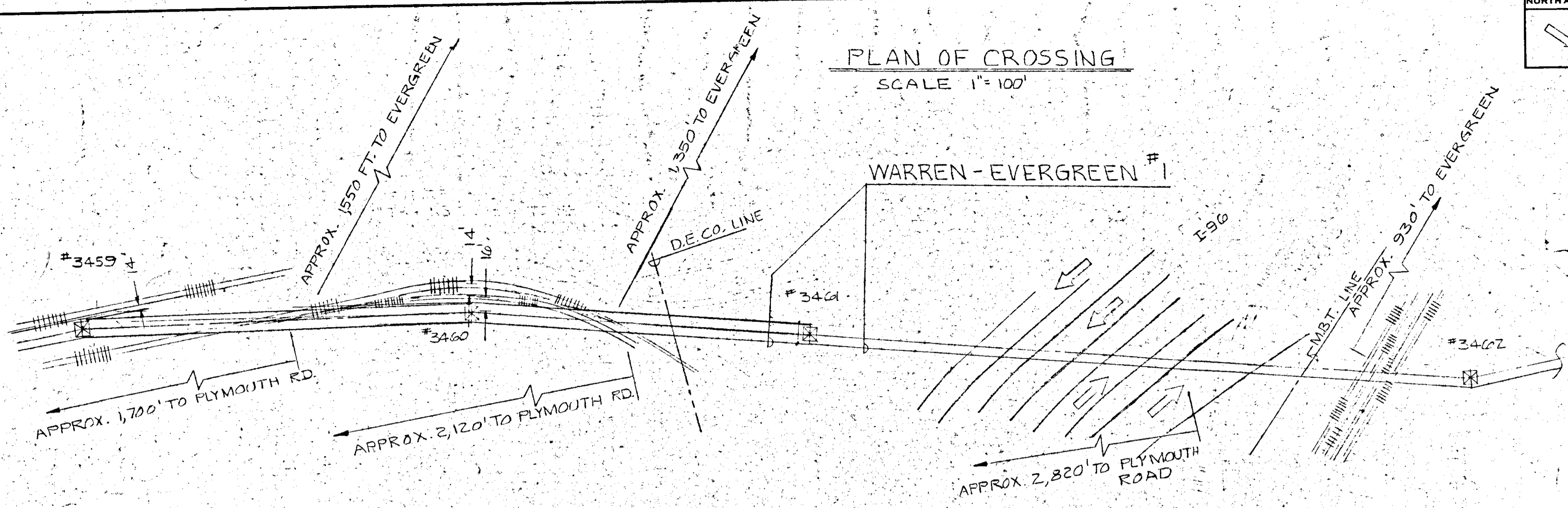
CROSSING NO. 1 ED2-8-6775 DATED 3-29-51
CROSSING NO. 2 ED2-8-6776 DATED 3-29-51

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1" = 100'



ELEVATION OF CROSSING

SCALE HOR. 1" = 100'
VER. 1" = 20'

ALL DIMENSIONS AT 60° FINAL

NOTE:

FOR 120 KV SUSPENSION AND DEADEND DETAILS SEE DWG EDI-7430 - 954 MCM
EDI-8028 - 477 MCM

CITY DETROIT

COUNTY WAYNE

TOWNSHIP _____

SECTION NO. _____

THE DETROIT EDISON COMPANY

PLAN SUBMITTED TO

MICHIGAN PUBLIC SERVICE COMMISSION

FOR 120,000 VOLT CROSSING OVER THE D.E. CO. RAILROAD

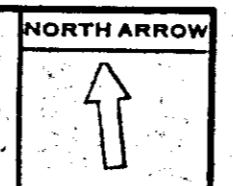
DRAWN BY C. VAN PARIS DATE 10-8-84

APPROVED BY *[Signature]* DATE 10-8-84

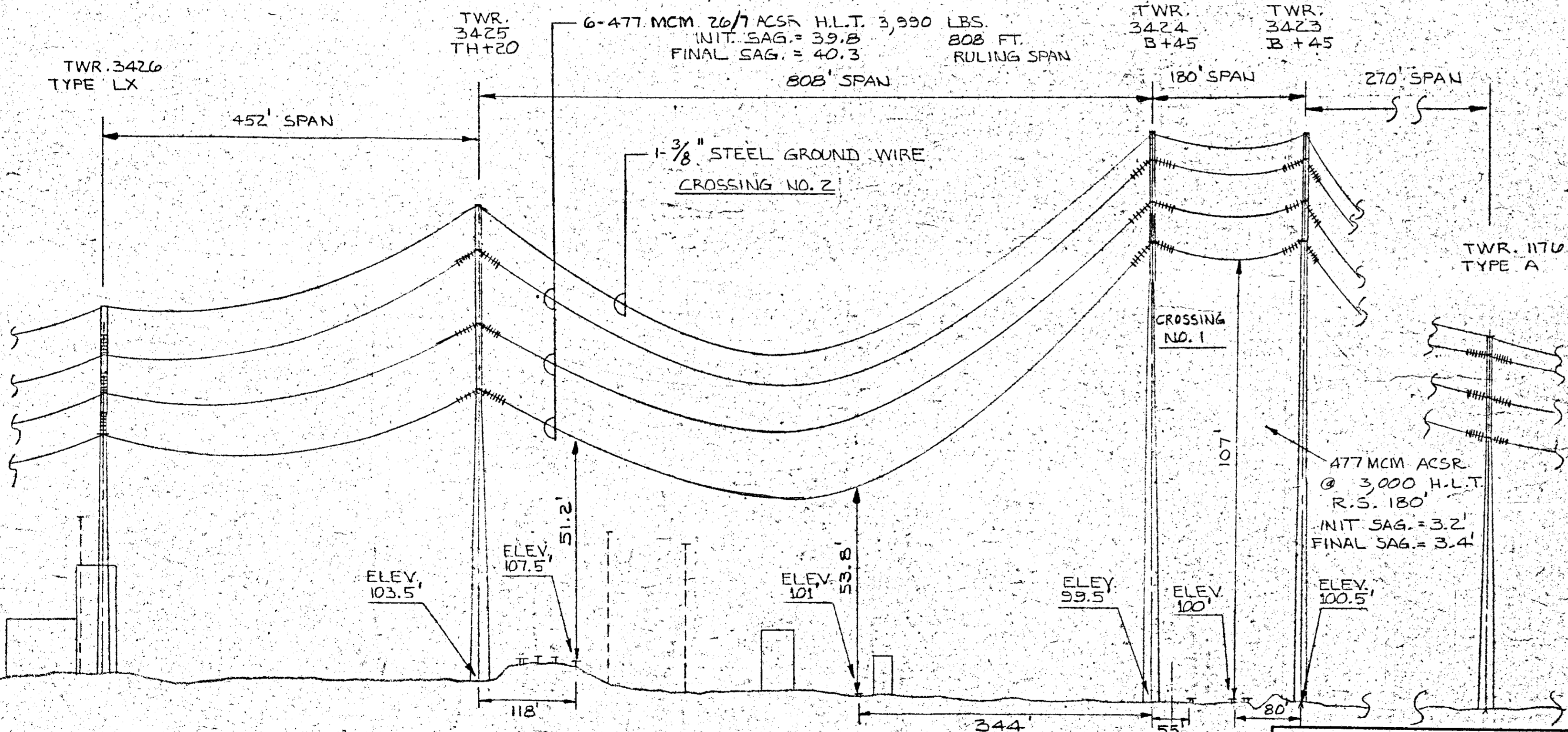
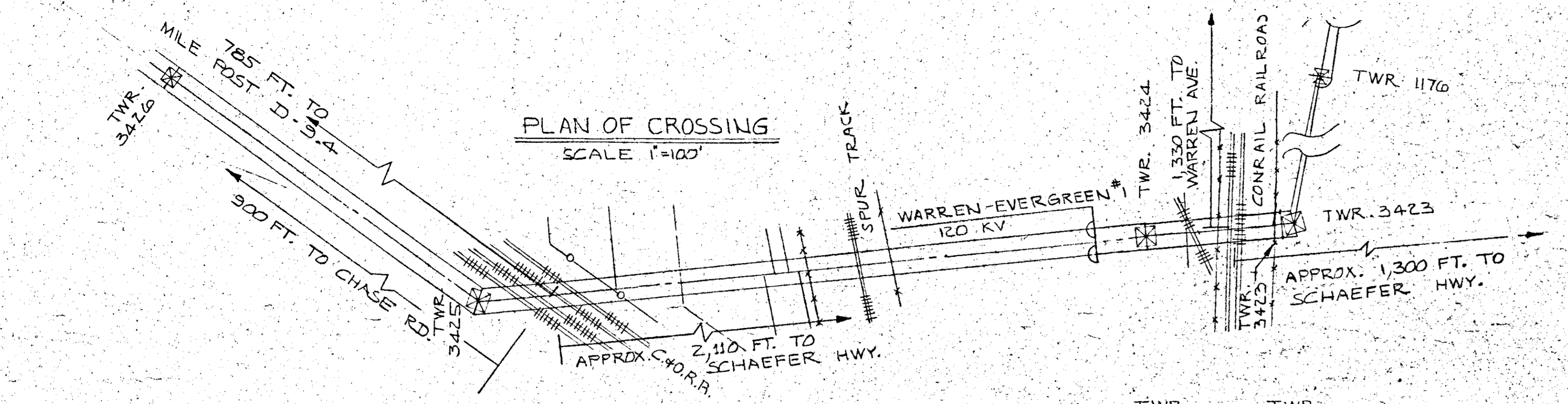
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 CR. NO. 2 ED 2-8-7108
 CR. NO. 3 ED 2-8-7109
 DATED 7-20-72

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING
SCALE 1"=100'



ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60°F FINAL

CITY DEARBORN
COUNTY WAYNE
TOWNSHIP T.25.-R.11E.

SECTION NO. S.W. 1/4 OF SEC. 8

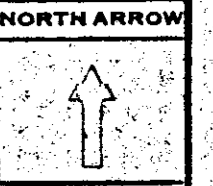
THE DETROIT EDISON COMPANY
PLAN SUBMITTED TO
MICHIGAN PUBLIC SERVICE COMMISSION
FOR ONE 120,000 VOLT CROSSING
OVER CONRAIL RAILROAD
DRAWN BY C. VAN PARIS DATE 10-19-84
APPROVED BY J. House DATE 10-19-84

PERMIT NO. ED	DRAWING NO. RX-2895B
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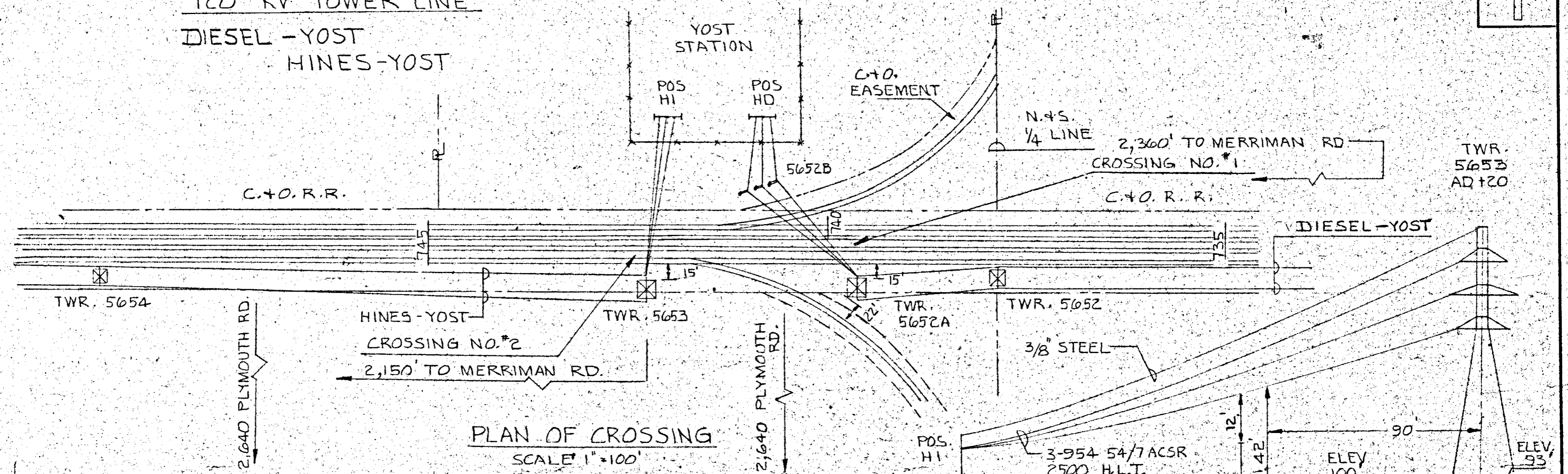
PENN CENTRAL PERMIT ME-755-RR-79
DATED 11-23-79

PENN CENTRAL
C-40 R.R. BLANKET PERMIT 24

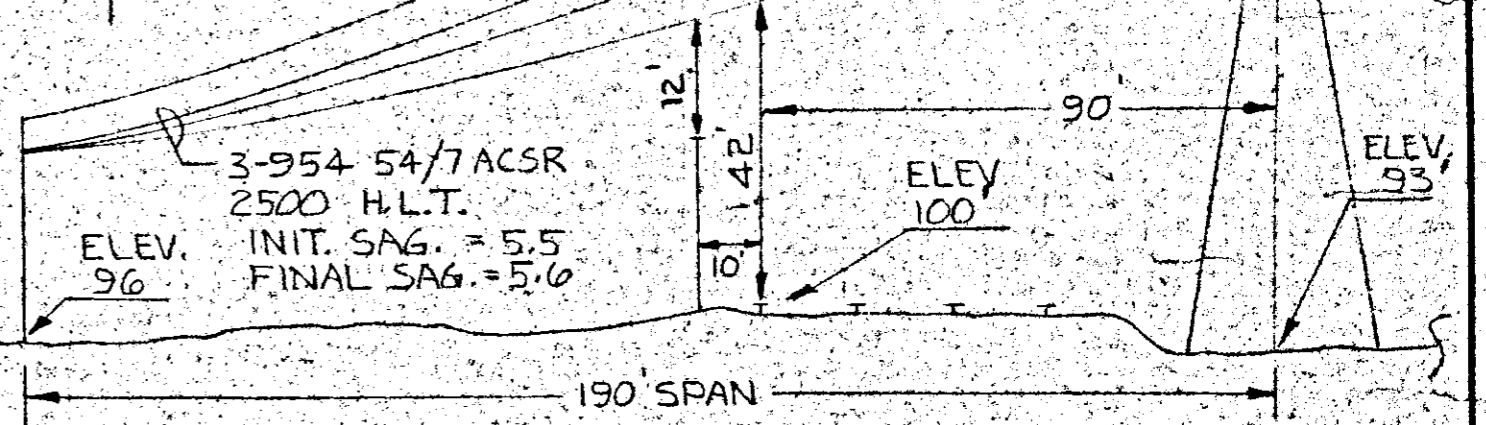
RECORDED RIGHT OF WAY 19099 part 2



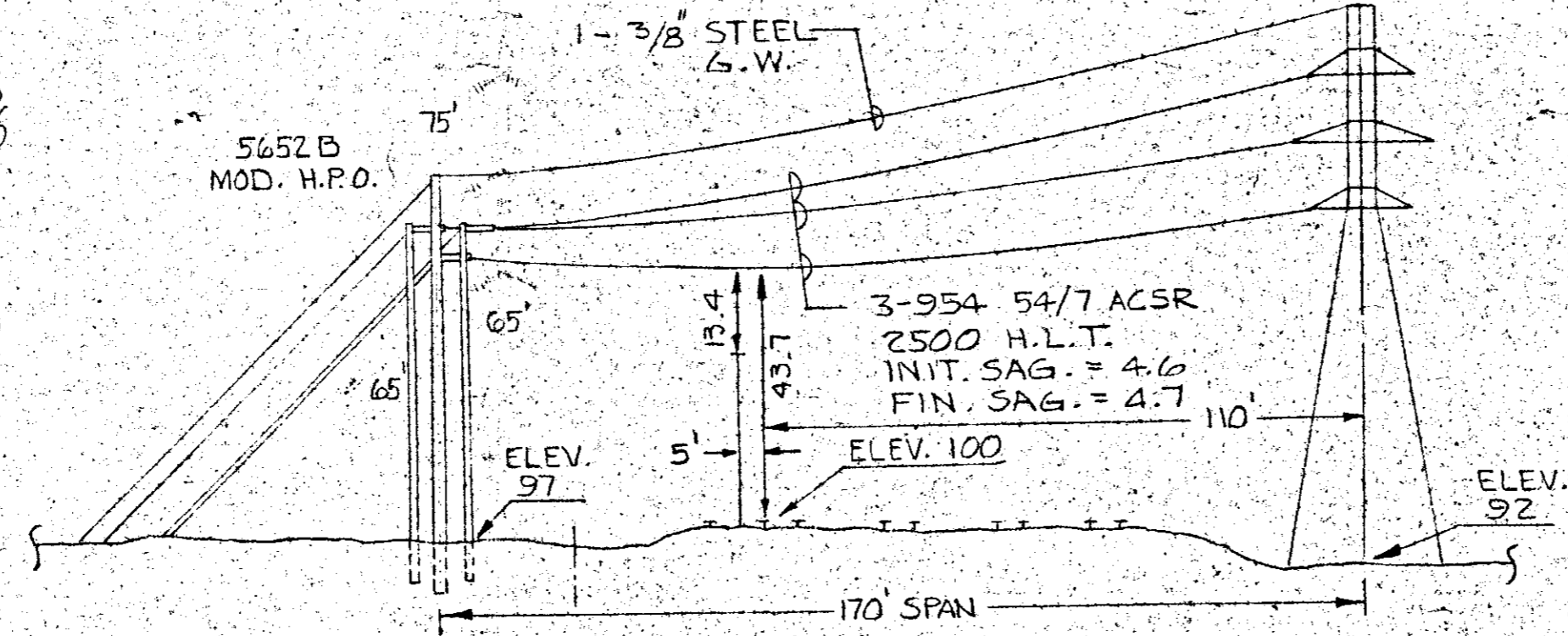
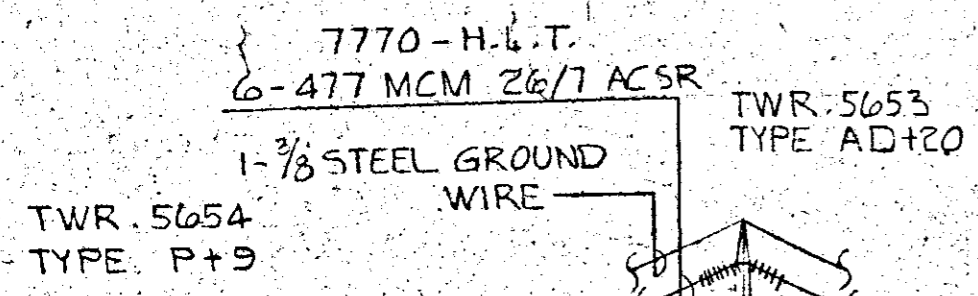
120 KV TOWER LINE
DIESEL - YOST
HINES - YOST



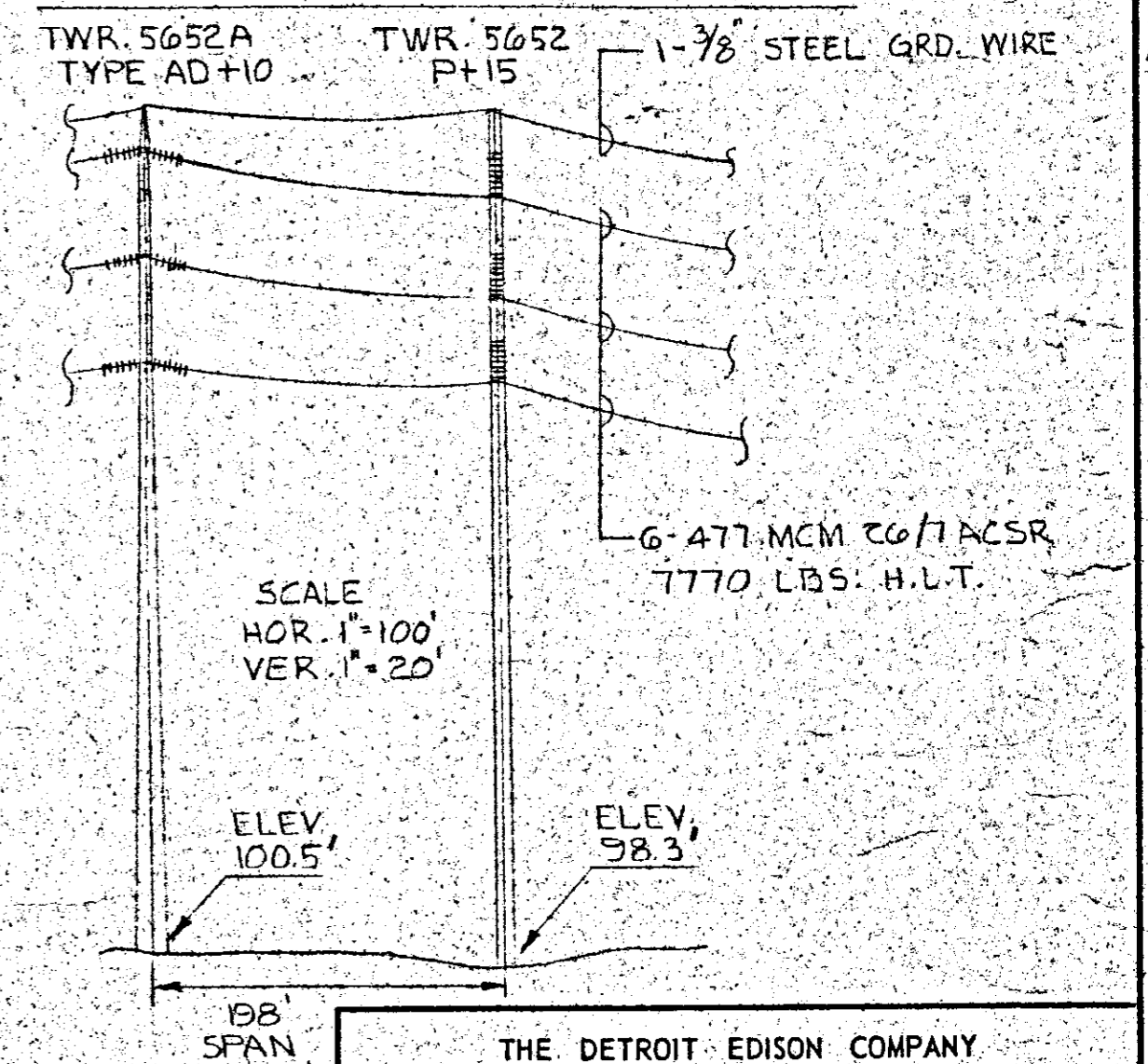
PLAN OF CROSSING
SCALE 1" = 100'



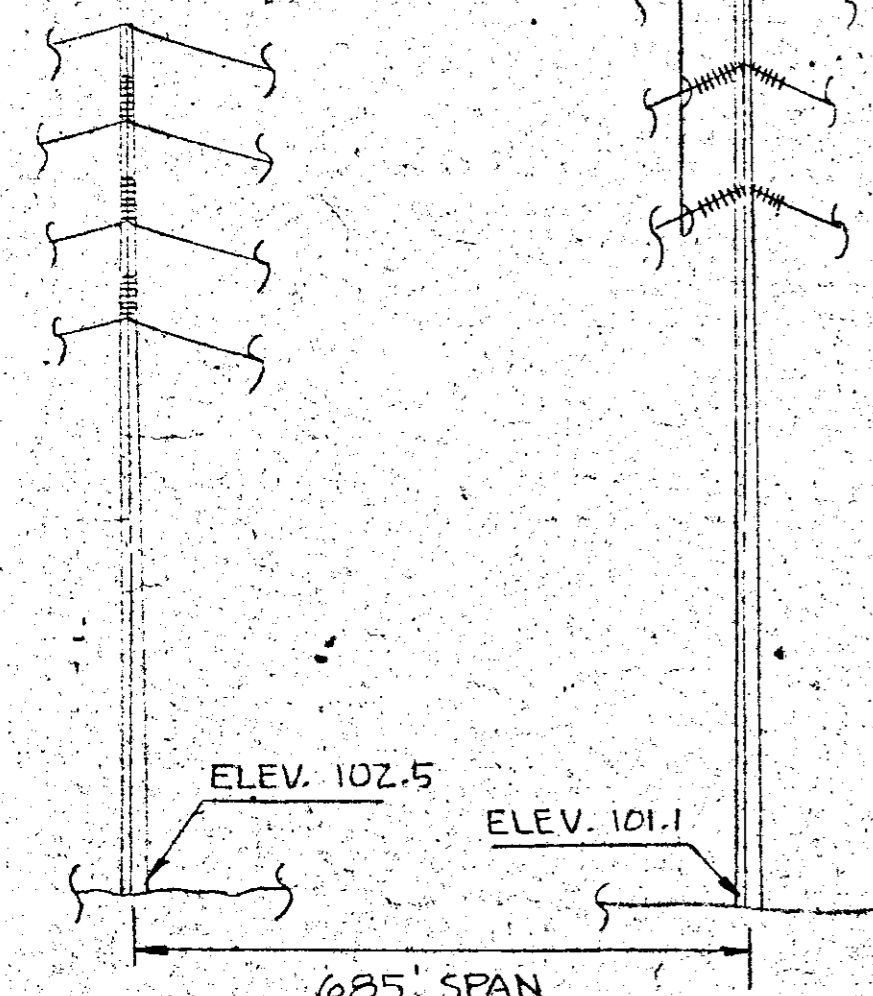
ELEVATION LOOKING EAST - SCALE 1" = 30'



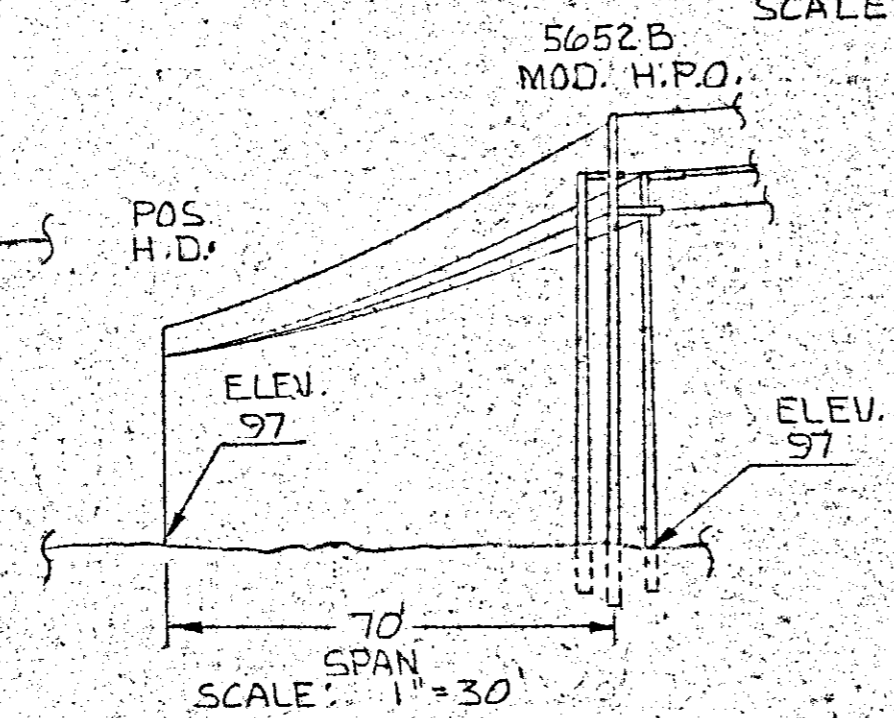
ELEVATION LOOKING NORTHEAST
SCALE 1" = 30'



SCALE
HOR. 1" = 100'
VER. 1" = 20'



SCALE
HOR. 1" = 100'
VER. 1" = 20'



SCALE 1" = 30'

ELEVATION OF CROSSING

ALL DIMENSIONS
AT 60° F FINAL

CITY: LIVONIA
COUNTY: WAYNE
TOWNSHIP: T.I.S. - R 9 E
SECTION NO.: 20

THE DETROIT EDISON COMPANY
PLAN SUBMITTED TO
MICHIGAN PUBLIC SERVICE COMMISSION
FOR 120,000 VOLT CROSSING
OVER C.O.R.R.
DRAWN BY: C. VAN PARIS DATE 9-7-84
APPROVED BY: J. Howe DATE 9-7-84

PERMIT NO. _____ DRAWING NO. **RX-4162B**

CR. NO. 1 EDZ-8-6860
CR. NO. 2 EDZ-8-6861

DATED 7-28-71

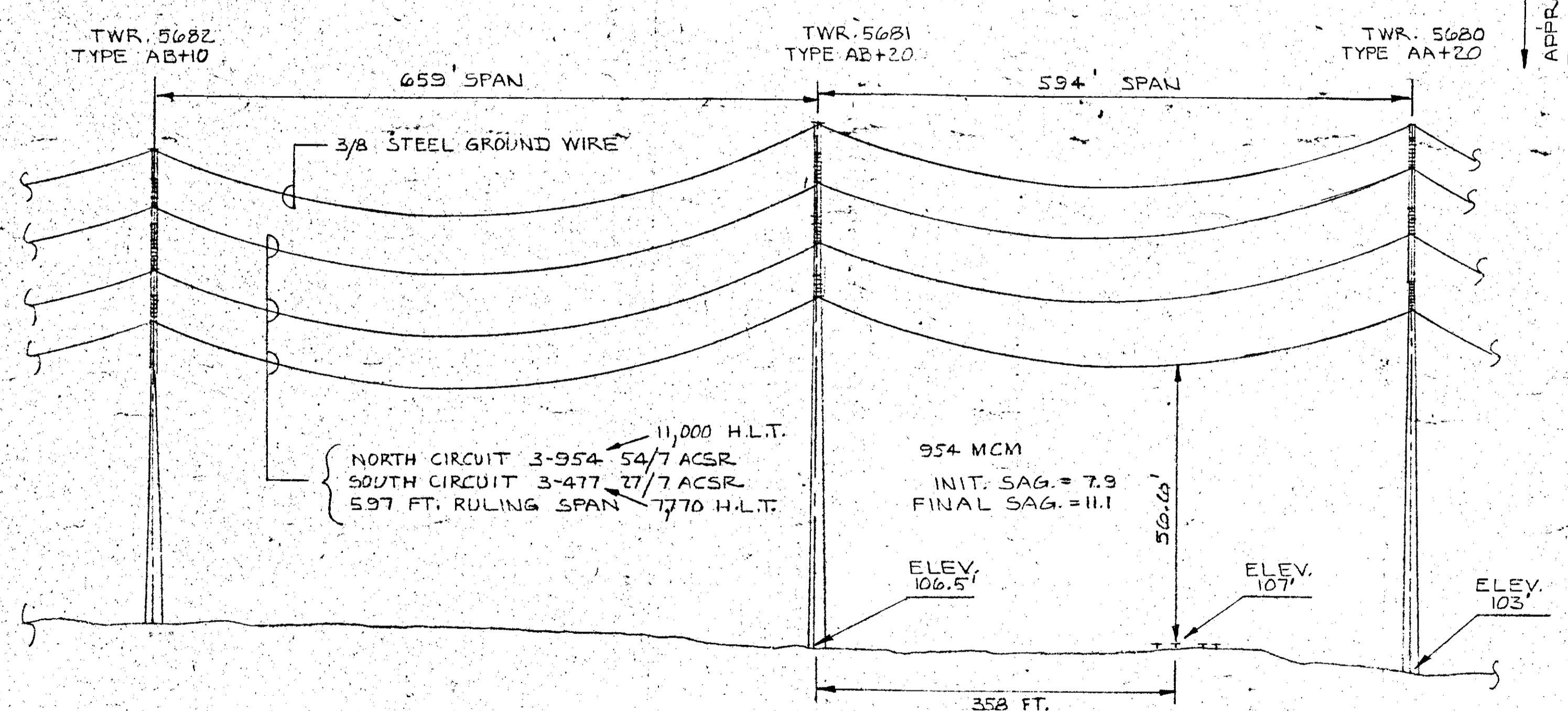
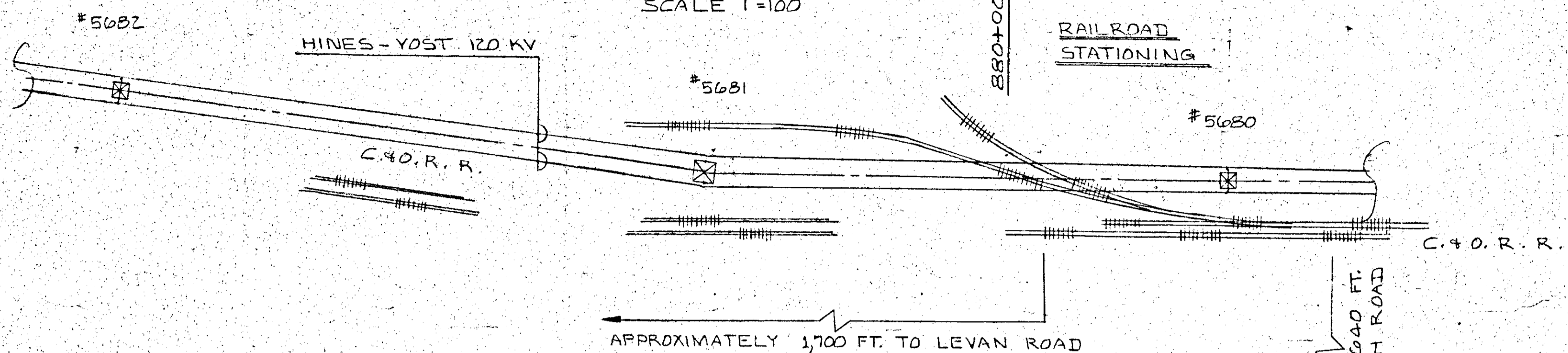
DE FORM SE 168 PFG. 12-70
(21)

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1"=100'



ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60°F FINAL

CITY LIVONIA

COUNTY WAYNE

TOWNSHIP _____

SECTION NO. S.E. 1/4 29

THE DETROIT EDISON COMPANY

PLAN SUBMITTED TO

MICHIGAN PUBLIC SERVICE COMMISSION

FOR 120 KV CROSSING

OVER C. & O. R. R.

DRAWN BY C. VAN PARIS DATE 8-23-84

APPROVED BY *f. Hux* DATE 8-27-84

PERMIT NO. **ED**

DRAWING NO. **RX-4323A**

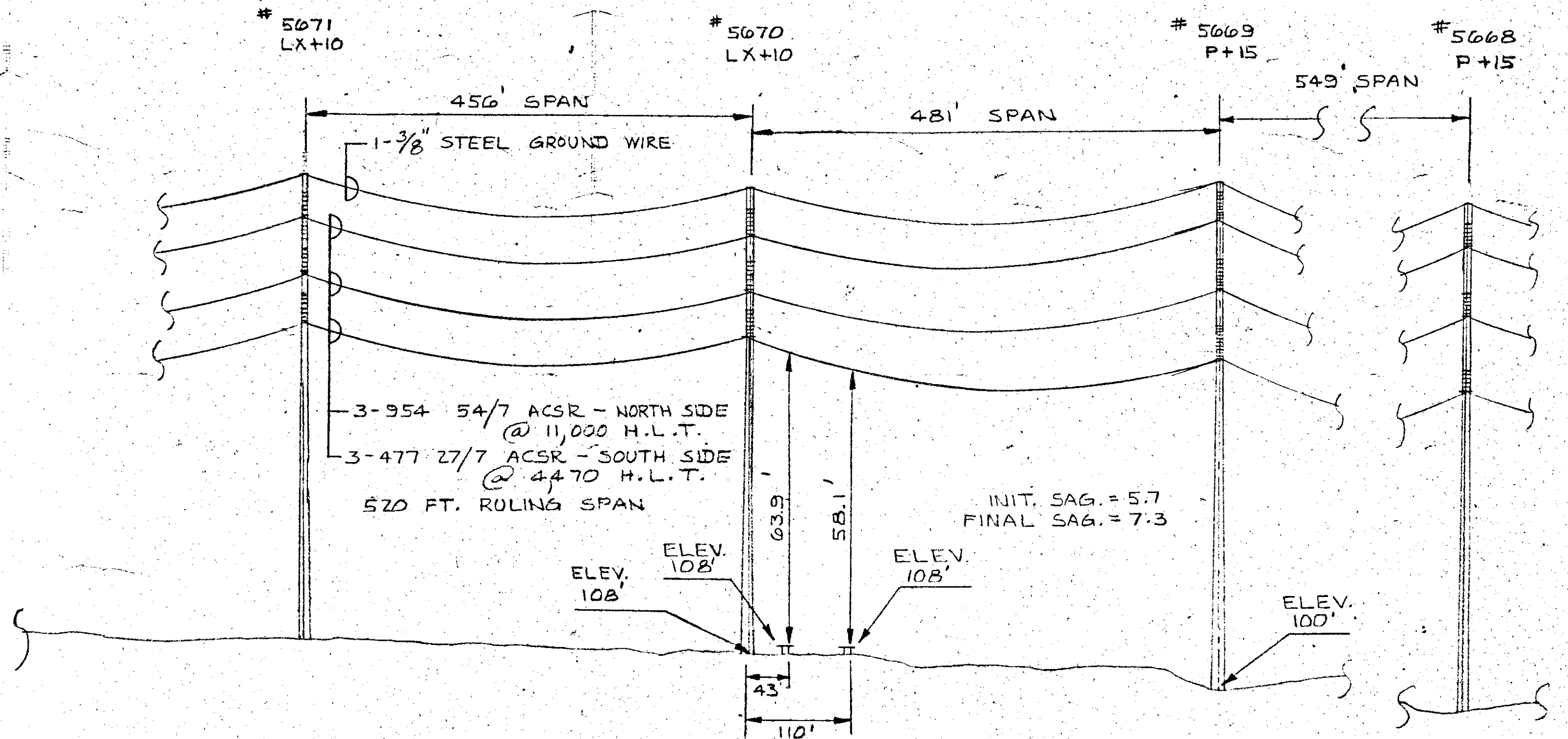
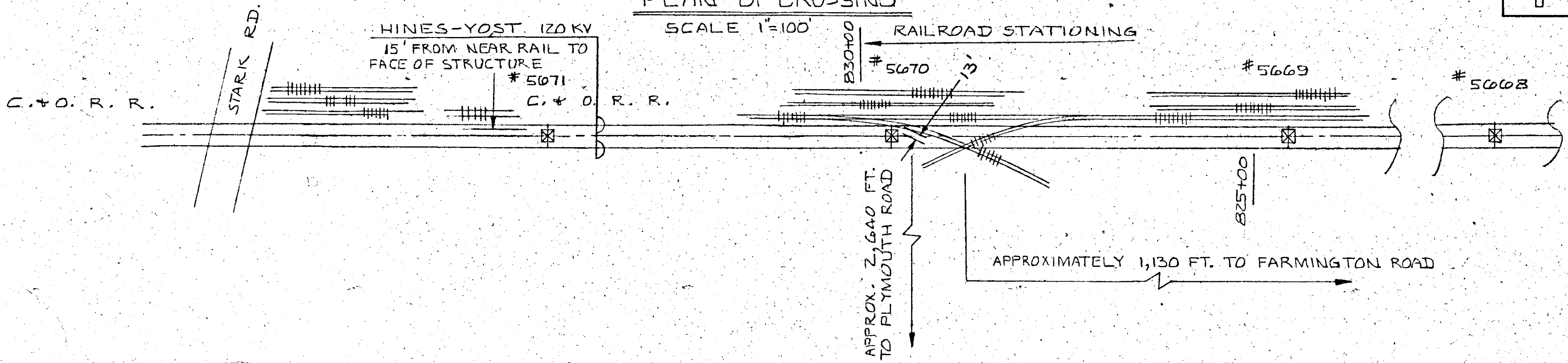
RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1"=100'

RAILROAD STATIONING



ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60°F FINAL

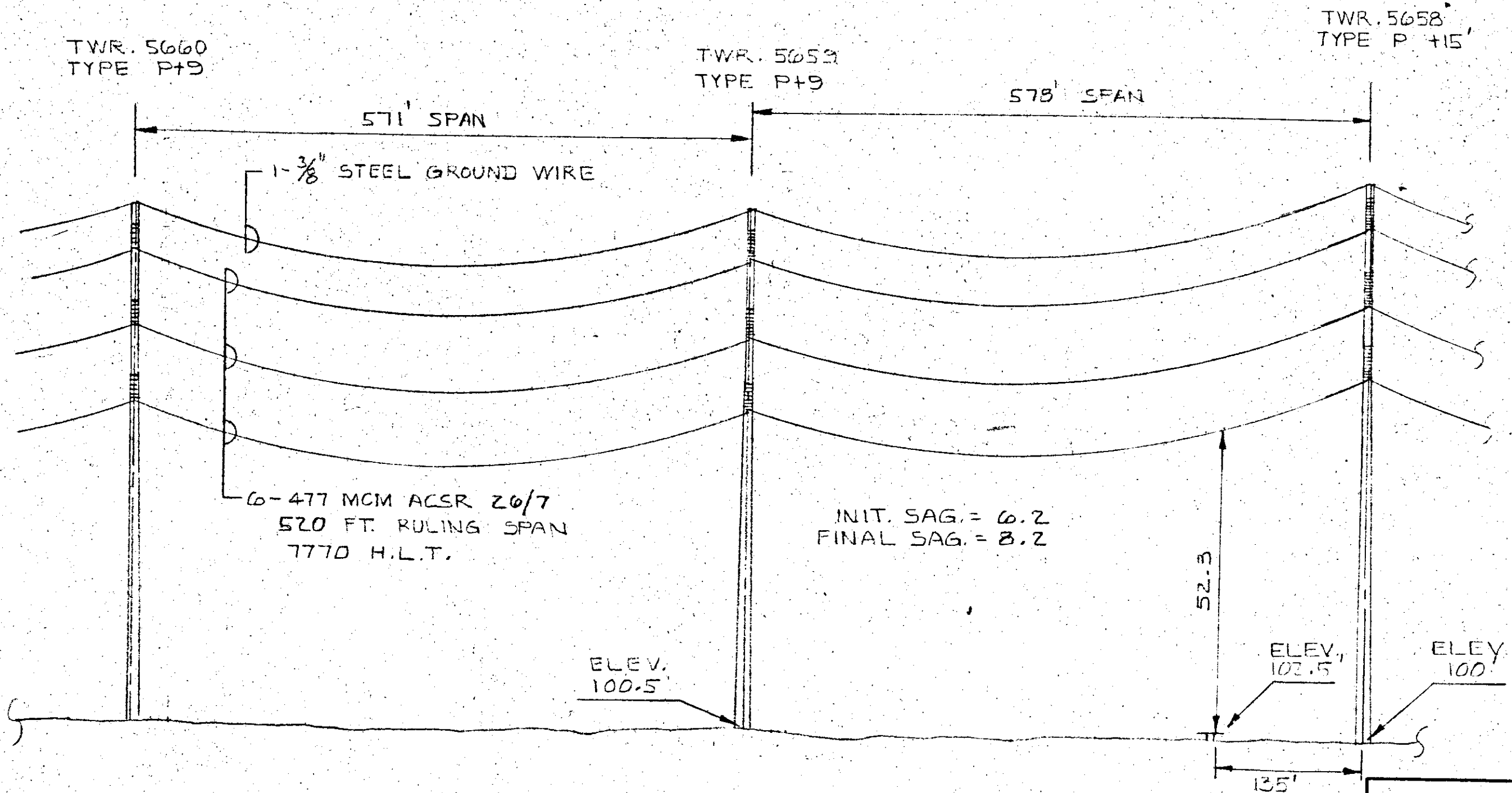
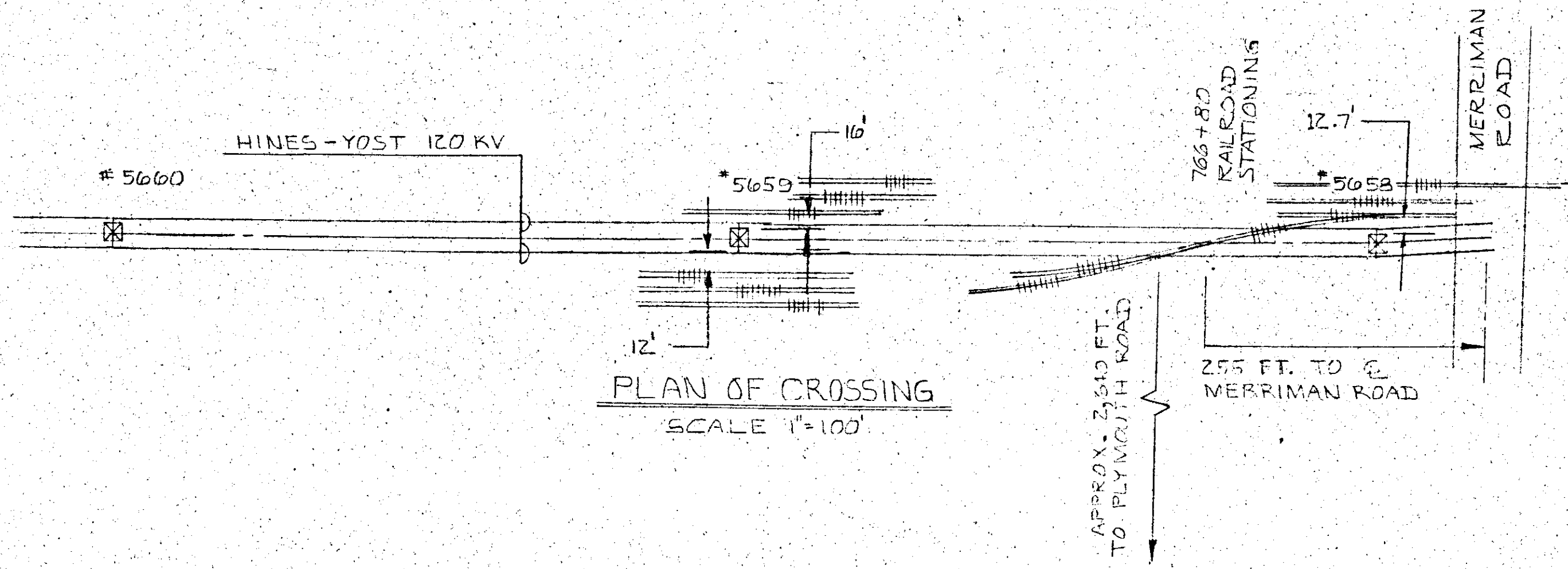
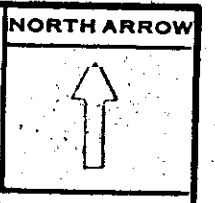
CITY LIVONIA
 COUNTY WAYNE
 TOWNSHIP _____
 SECTION NO. S.E. 1/4 28

THE DETROIT EDISON COMPANY
 PLAN SUBMITTED TO
 MICHIGAN PUBLIC SERVICE COMMISSION
 FOR ONE 120,000 VOLT CROSSING
 OVER C. & O. R. R.
 DRAWN BY C. VAN PARIS DATE 8-29-84
 APPROVED BY J. Howe DATE 8-29-84

PERMIT NO. _____
ED

DRAWING NO. _____
RX-4322A

RECORDED RIGHT OF WAY 19099 part 2



ELEVATION OF CROSSING.
SCALE: HOR. 1"=100'
VER. 1"=20'

ALL DIMENSIONS AT 60°F FINAL

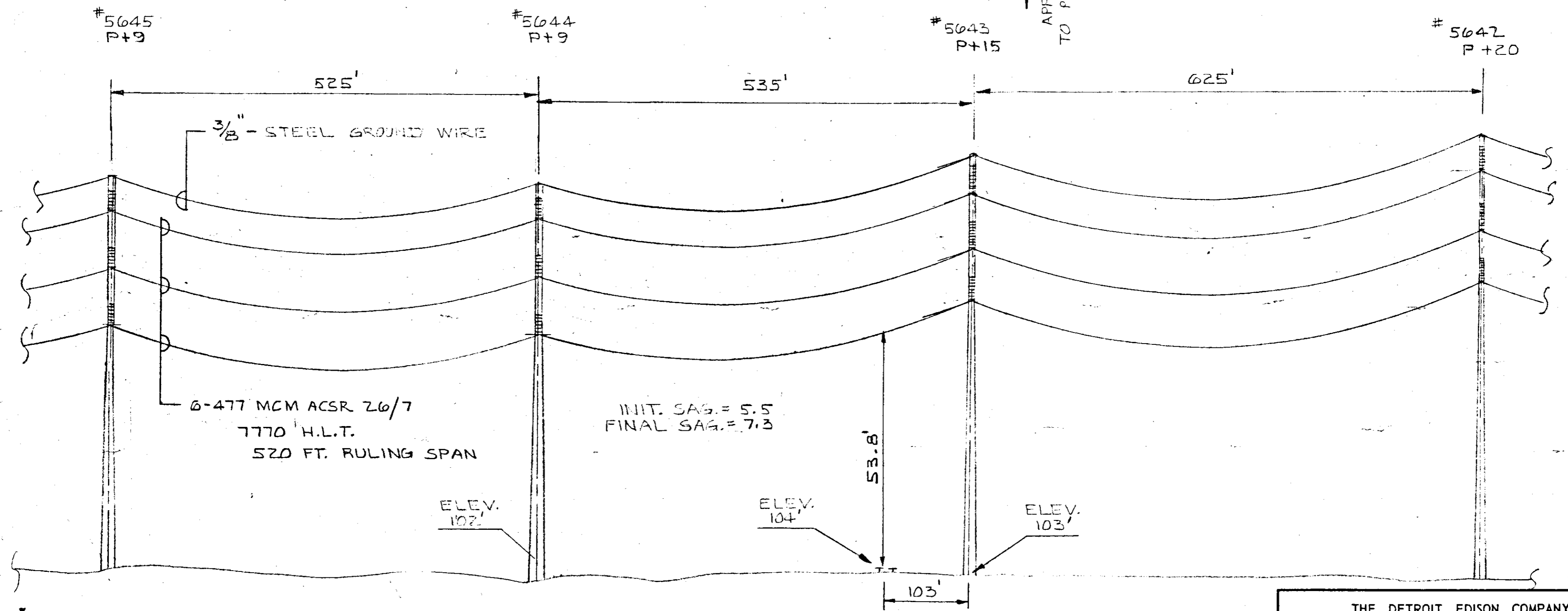
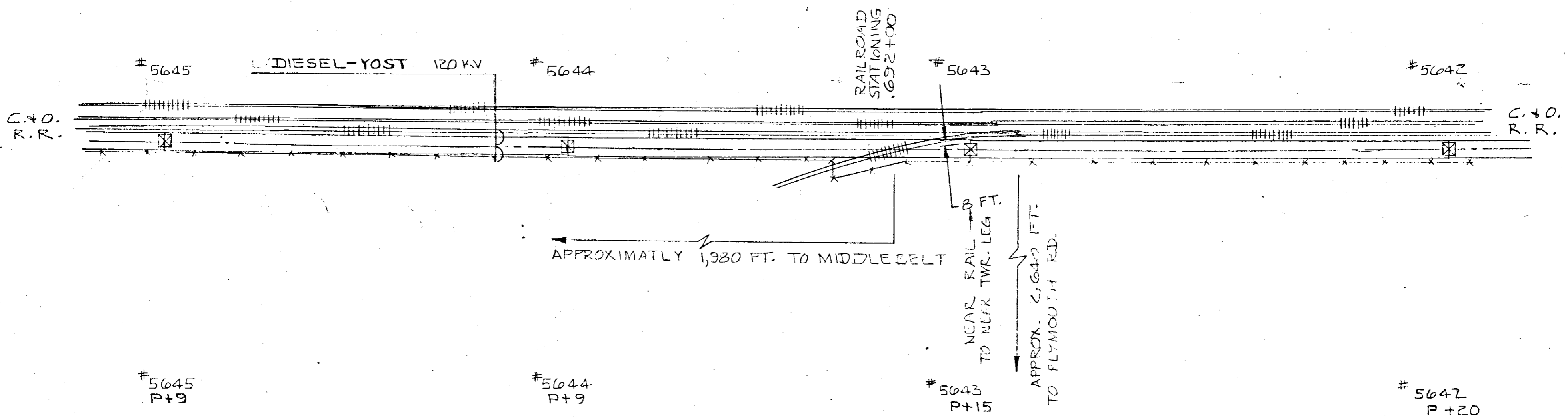
CITY LIVONIA
COUNTY WAYNE
TOWNSHIP _____
SECTION NO. S.E. 1/4 27

THE DETROIT EDISON COMPANY	
PLAN SUBMITTED TO	
MICHIGAN PUBLIC SERVICE COMMISSION	
FOR ONE-120,000 VOLT CROSSING	
OVER ONE-230,000 VOLT CROSSING	
OVER C. & O. R. R.	
DRAWN BY <u>C. VAN PARIS</u>	DATE <u>8-31-84</u>
APPROVED BY <u>[Signature]</u>	DATE <u>8-31-84</u>
PERMIT NO. <u>ED</u>	DRAWING NO. <u>RX-4321A</u>

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING
SCALE 1"=100'



ELEVATION OF CROSSING
SCALE: HOR. 1"=100'
VERT. 1"=20'

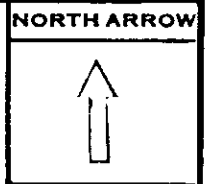
ALL DIMENSIONS AT 60°F FINAL

CITY LIVONIA
COUNTY WAYNE
TOWNSHIP _____
SECTION NO. 25

THE DETROIT EDISON COMPANY
 PLAN SUBMITTED TO
 MICHIGAN PUBLIC SERVICE COMMISSION
 FOR 120,000 VOLT CROSSING
 OVER C. & O. R.R.
 DRAWN BY C. VAN PARIS DATE 9-14-84
 APPROVED BY *J. Howe* DATE 9-14-84

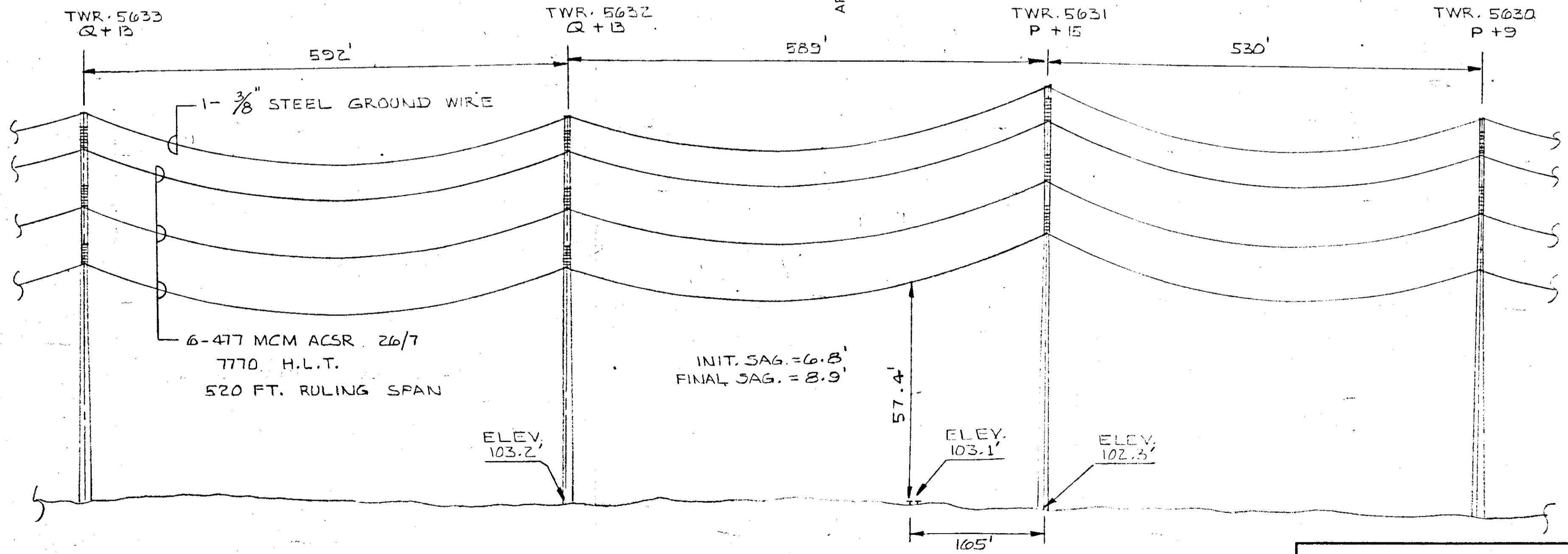
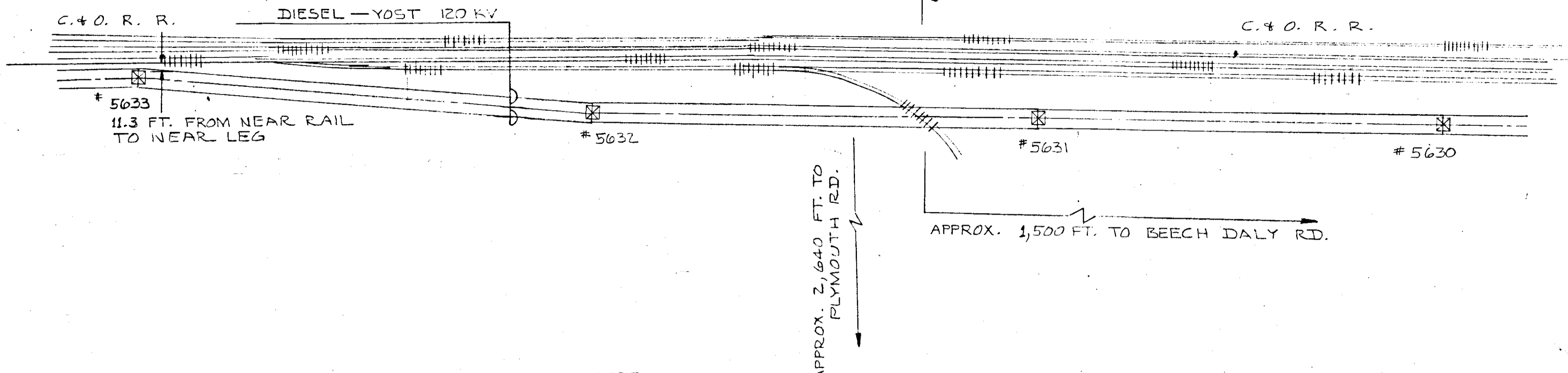
PERMIT NO. _____ DRAWING NO. RX 4320A
ED

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1"=100'



ELEVATION OF CROSSING

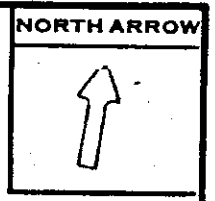
SCALE HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60°F FINAL

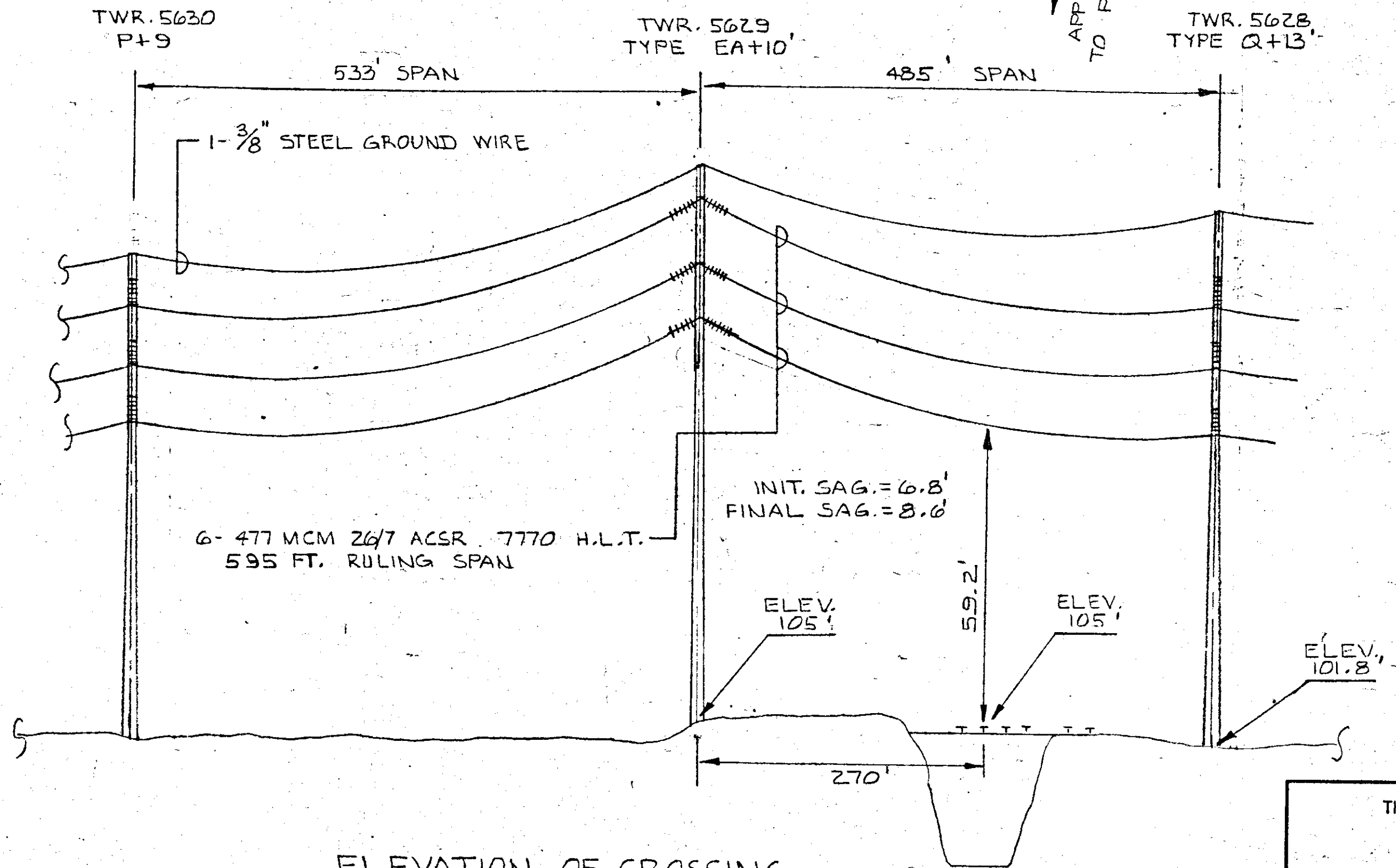
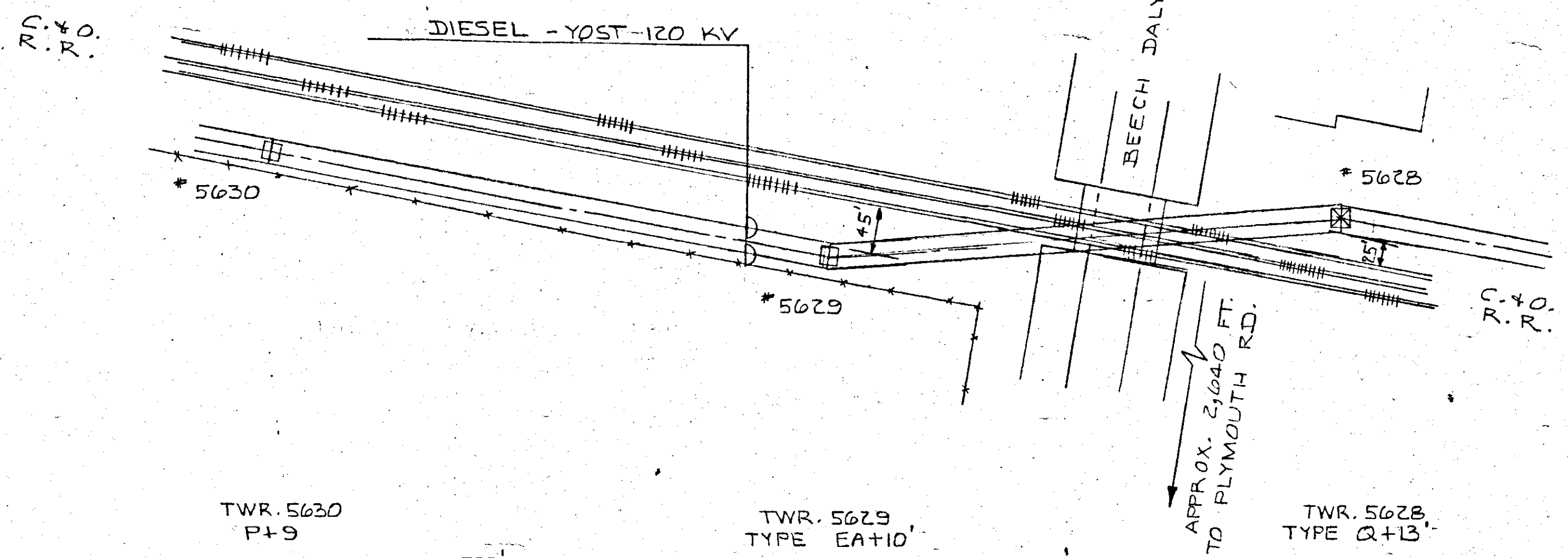
THE DETROIT EDISON COMPANY	
PLAN SUBMITTED TO	
MICHIGAN PUBLIC SERVICE COMMISSION	
FOR 120,000 VOLT CROSSING	
OVER C. & O. R. R.	
DRAWN BY C. VAN PARIS	DATE 9-20-84
APPROVED BY J. Howe	DATE 9-20-84
PERMIT NO. ED	DRAWING NO. RX-4319A

CITY _____
 COUNTY WAYNE
 TOWNSHIP REDFORD
 T. 15. R. 10 E.
 SECTION NO. N.E. 1/4 30

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING
SCALE 1"=100'



ELEVATION OF CROSSING

SCALE HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60°F FINAL

CITY _____
COUNTY WAYNE
TOWNSHIP REDFORD
T.I.S. - R.10E:
SECTION NO. N.W. ¼ 29

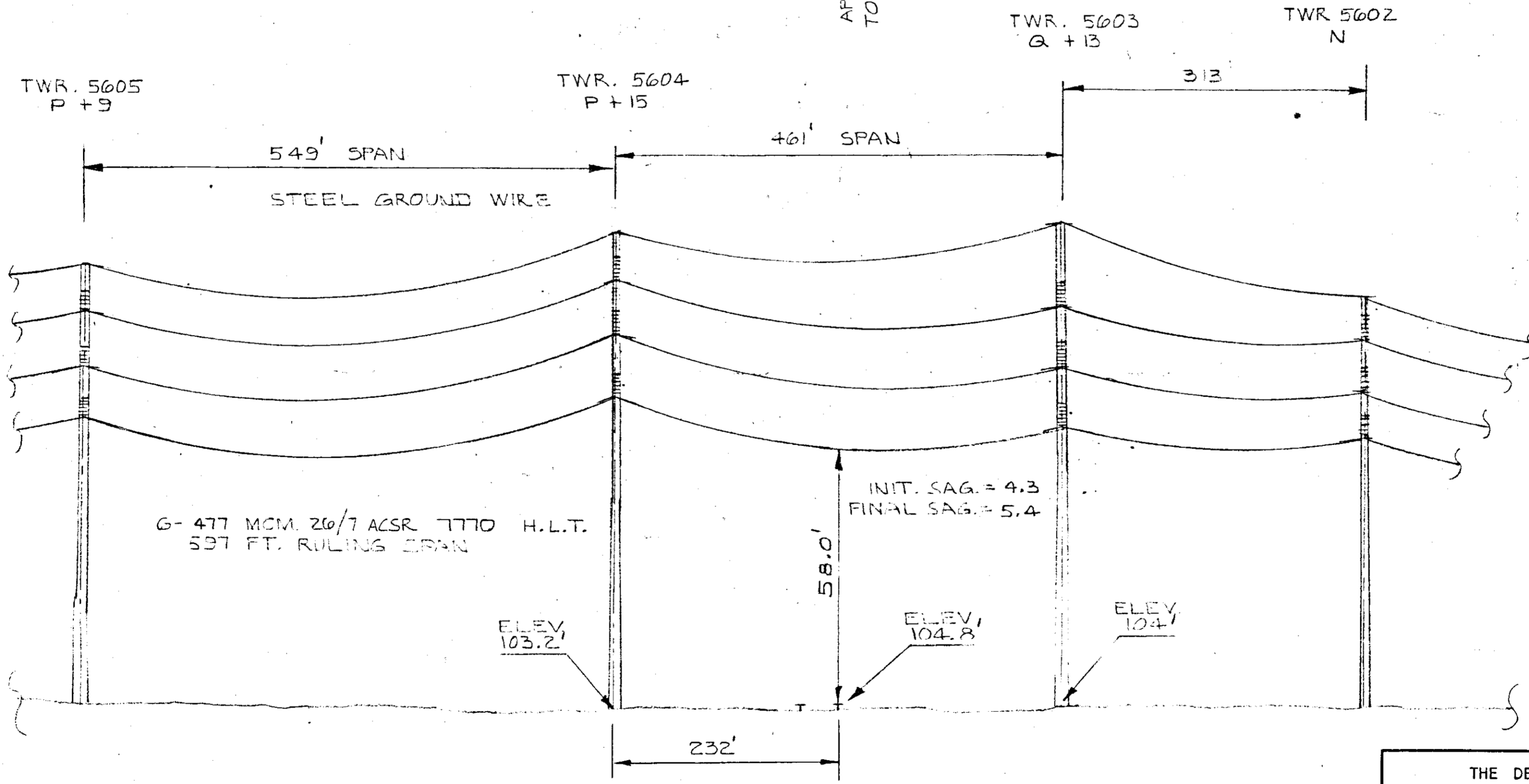
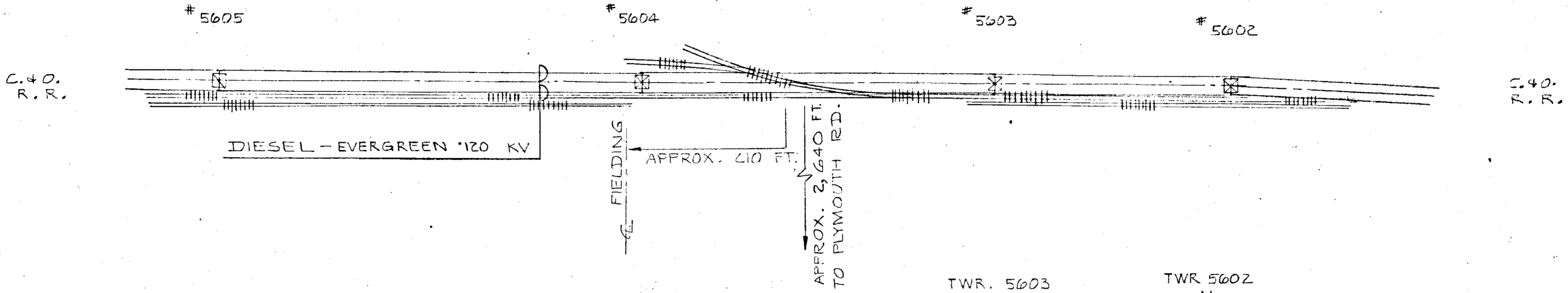
THE DETROIT EDISON COMPANY	
PLAN SUBMITTED TO	
MICHIGAN PUBLIC SERVICE COMMISSION	
FOR 120,000 VOLT CROSSING	
OVER C. & O. R. R.	
DRAWN BY C. VAN PARIS	DATE 9-21-84
APPROVED BY <i>J. Howe</i>	DATE 9-24-84
PERMIT NO. ED	DRAWING NO. RX-4318A

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1"=100'



ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

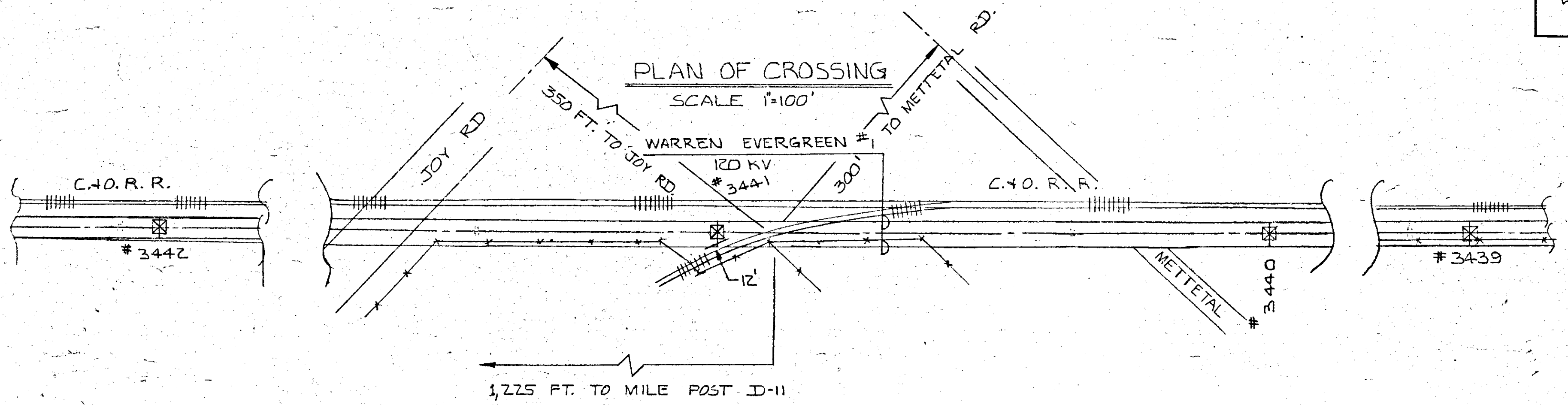
ALL DIMENSIONS AT 60°F FINAL

CITY DETROIT
 COUNTY WAYNE
 TOWNSHIP
T. 1 S. - R. 10 E.
 SECTION NO. N. E. 1/4, 27

THE DETROIT EDISON COMPANY
 PLAN SUBMITTED TO
 MICHIGAN PUBLIC SERVICE COMMISSION
 FOR 120,000 VOLT CROSSING
 OVER C. & O. R. R.
 DRAWN BY C. VAN PARIS DATE 10-2-84
 APPROVED BY J. House DATE 10-3-84

PERMIT NO. **ED** DRAWING NO. **RX-4317A**

RECORDED RIGHT OF WAY 19099 part 2

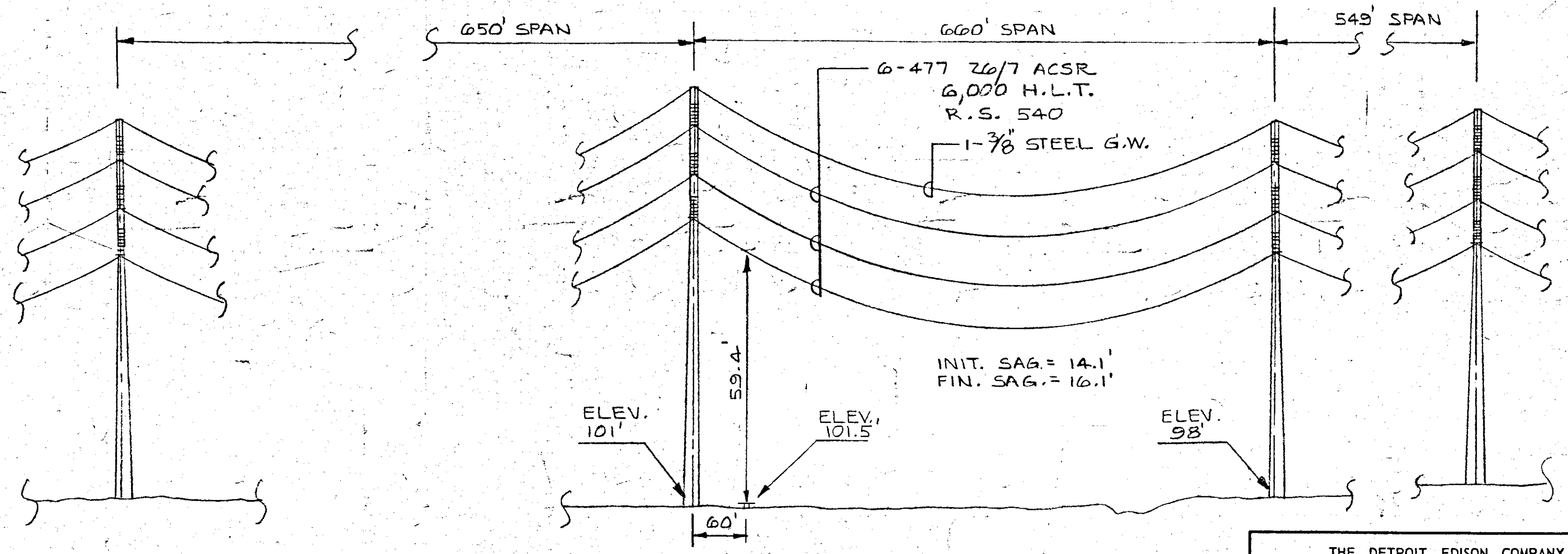


TWR. 3442
TYPE LX

TWR. 3441
TYPE LX

TWR. 3440
TYPE LX

TWR. 3439
TYPE LX



ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60° F FINAL

CITY DETROIT
COUNTY WAYNE
TOWNSHIP T.2S.-R.10E.
SECTION NO. N.E. 1/4 OF SEC. 1

THE DETROIT EDISON COMPANY PLAN SUBMITTED TO MICHIGAN PUBLIC SERVICE COMMISSION FOR 120,000 VOLT CROSSING OVER C. & O. RAILROAD DRAWN BY C. VAN PARIS DATE 10-10-84 APPROVED BY <i>[Signature]</i> DATE 10-11-84	
PERMIT NO. ED	DRAWING NO. RX-4311A

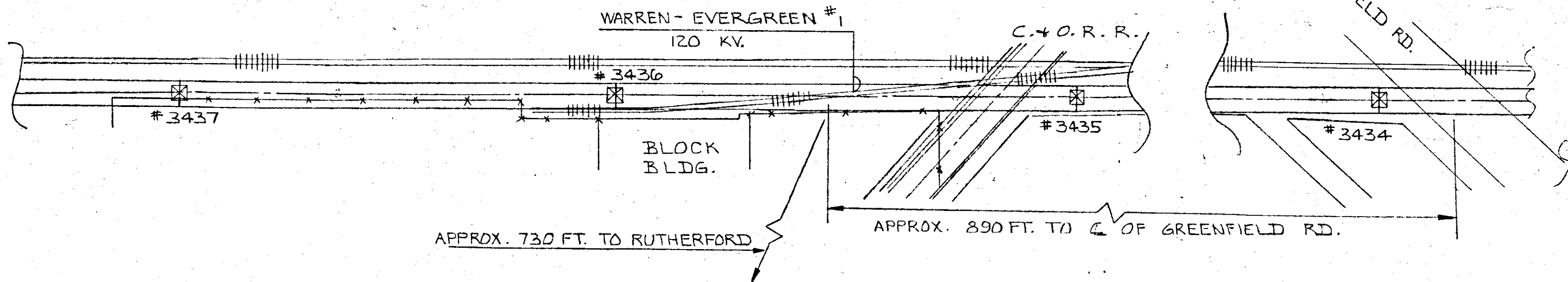
RECORDED RIGHT OF WAY 19099 part 2

NORTH ARROW



PLAN OF CROSSING

SCALE 1" = 100'

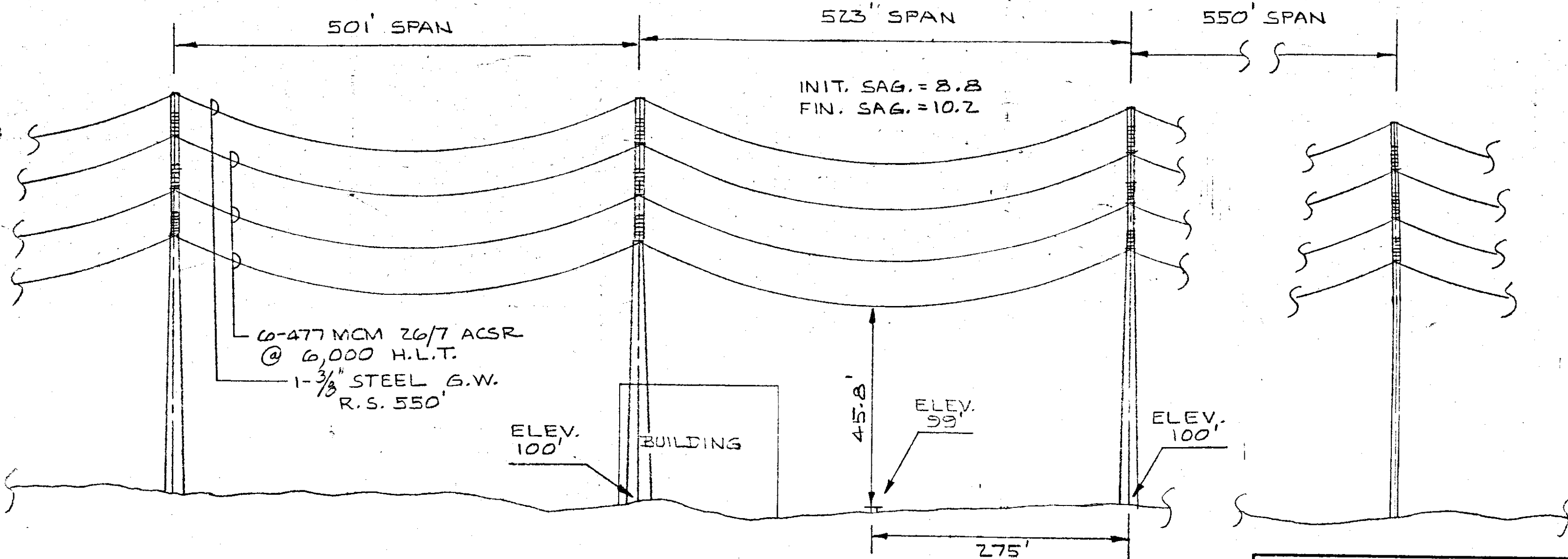


TWR. 3437
TYPE LX

TWR. 3436
TYPE LX

TWR. 3435
TYPE LX

TWR. 3434
TYPE LX



ELEVATION OF CROSSING

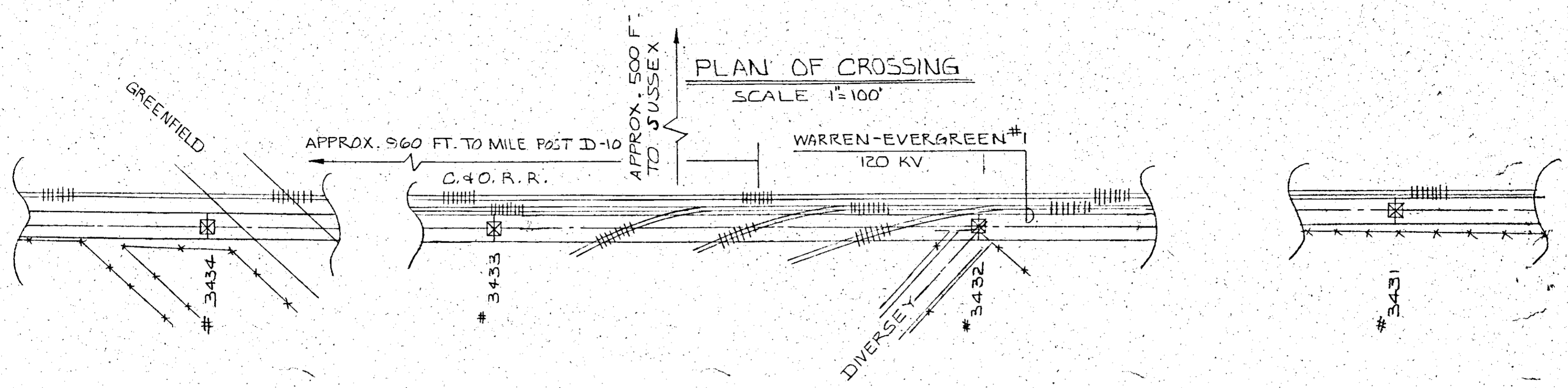
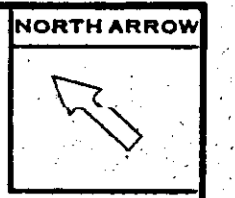
SCALE: HOR. 1" = 100'
VERT. 1" = 20'

ALL DIMENSIONS AT 60° F FINAL

CITY DETROIT
 COUNTY WAYNE
 TOWNSHIP T. 2 S. - R. 10 E.
 SECTION NO. N. E. 1/4 OF SEC. 1

THE DETROIT EDISON COMPANY	
PLAN SUBMITTED TO	
MICHIGAN PUBLIC SERVICE COMMISSION	
FOR ONE - 120,000 VOLT CROSSING	
OVER <u>C. & O. R. R.</u>	DATE <u>10-12-84</u>
DRAWN BY <u>C. VAN PARIS</u>	DATE <u>10-12-84</u>
APPROVED BY <u>J. Howe</u>	
PERMIT NO. ED	DRAWING NO. RX-4310A

RECORDED RIGHT OF WAY 19099 part 2



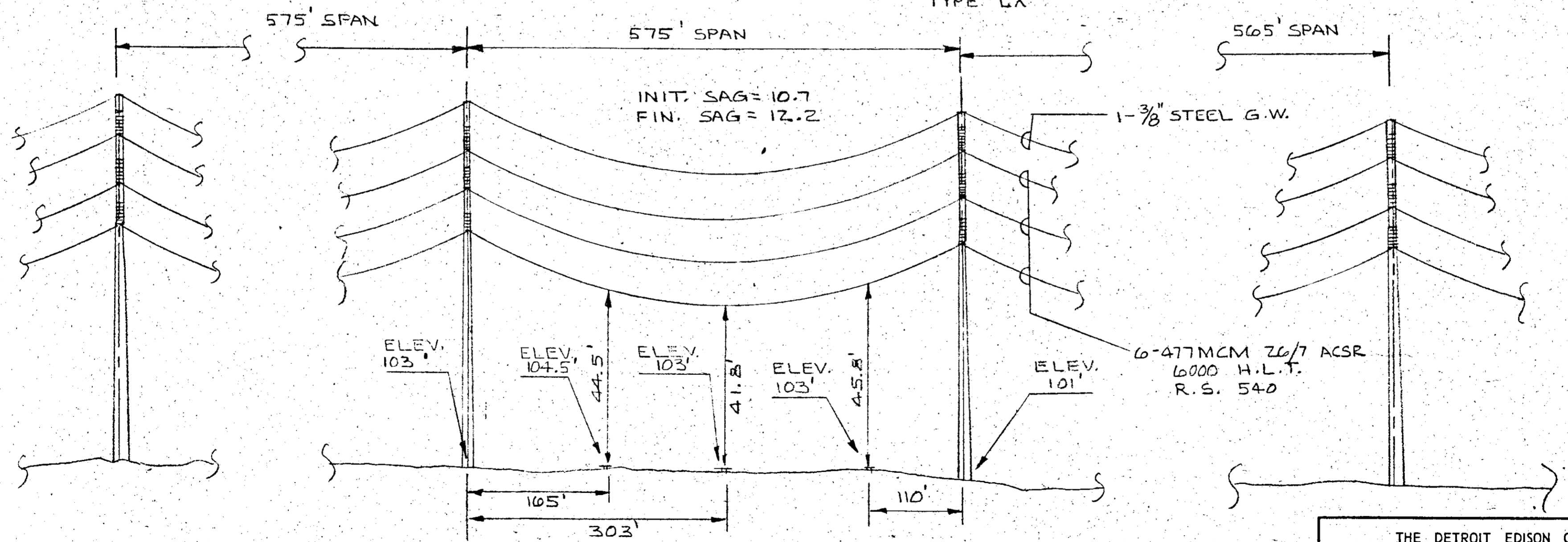
TWR. 3432
TYPE
3JN 120

TWR. 3434
TYPE LX

TWR. 3433
TYPE LX

TWR. 3432
TYPE LX

TWR. 3431
TYPE LX



ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60° F FINAL

CITY DEARBORN
COUNTY WAYNE
TOWNSHIP T.Z.S.-R.II.E.
SECTION NO. S.W. 1/4 OF SEC. 8

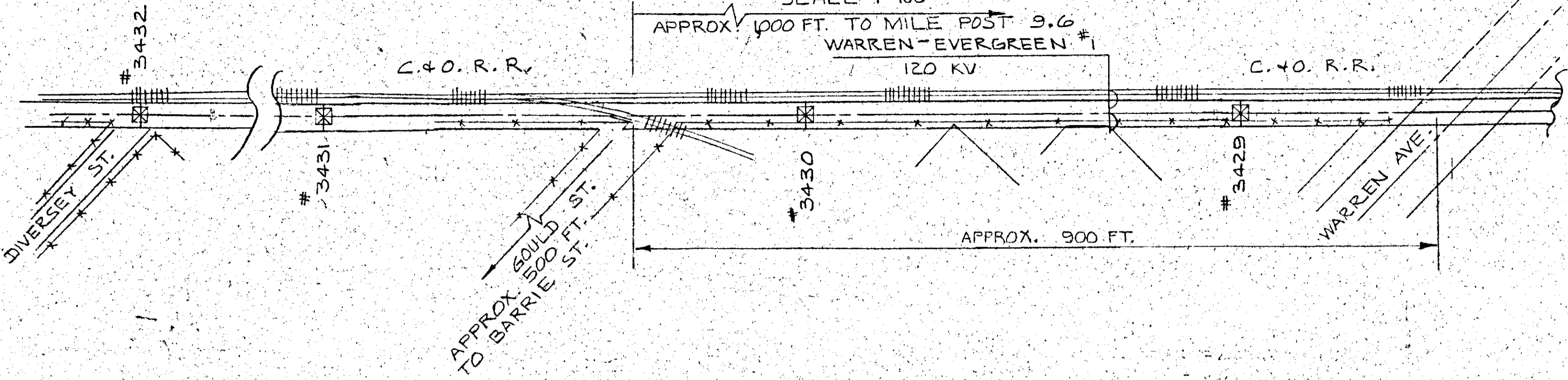
THE DETROIT EDISON COMPANY	
PLAN SUBMITTED TO	
MICHIGAN PUBLIC SERVICE COMMISSION	
FOR ONE - 120,000 VOLT CROSSINGS	
OVER <u>C. & O. R. R.</u>	DATE <u>10-15-84</u>
DRAWN BY <u>C. VAN PARIS</u>	APPROVED BY <u>J. House</u>
PERMIT NO. <u>ED</u>	DRAWING NO. <u>RX-4309A</u>

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1"=100'



TWR 3432 #
TYPE LX

TWR 3431 #
TYPE LX

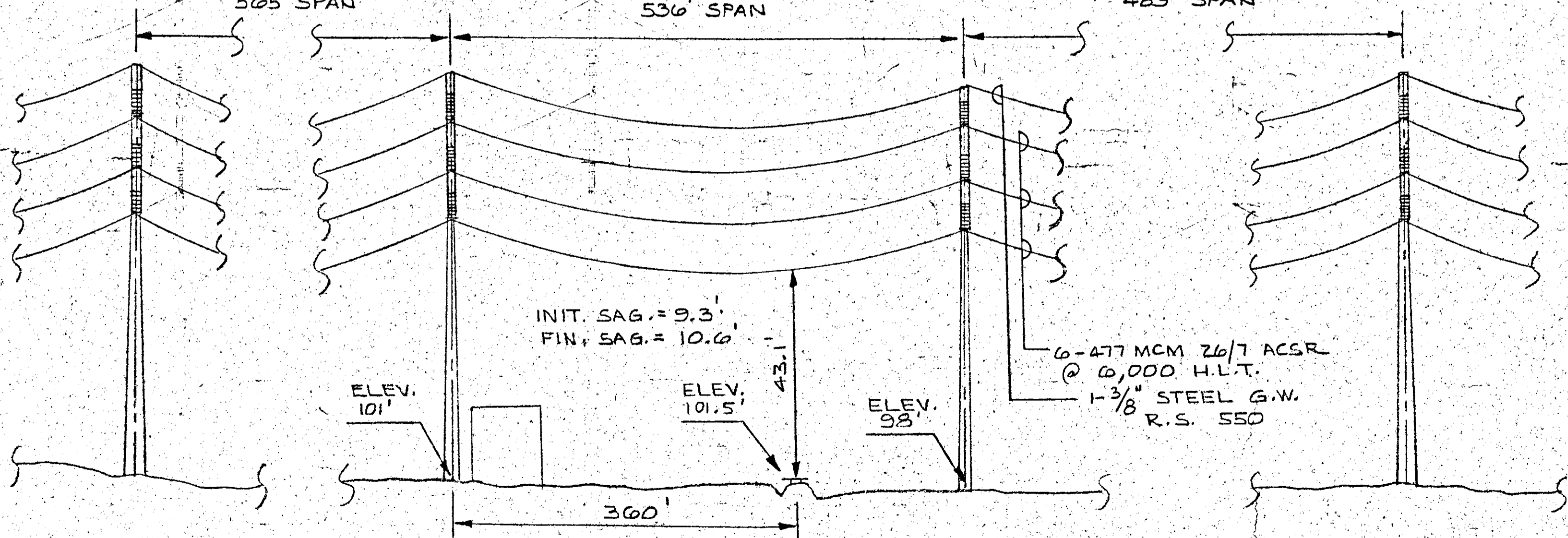
TWR 3430 #
TYPE LX

TWR 3429 #
TYPE "LX"

505' SPAN

536' SPAN

489' SPAN



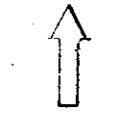
ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60°F. FINAL

CITY DEARBORN
COUNTY WAYNE
TOWNSHIP T.2.S.-R.11E
SECTION NO. S.W 1/4 OF SEC. 8

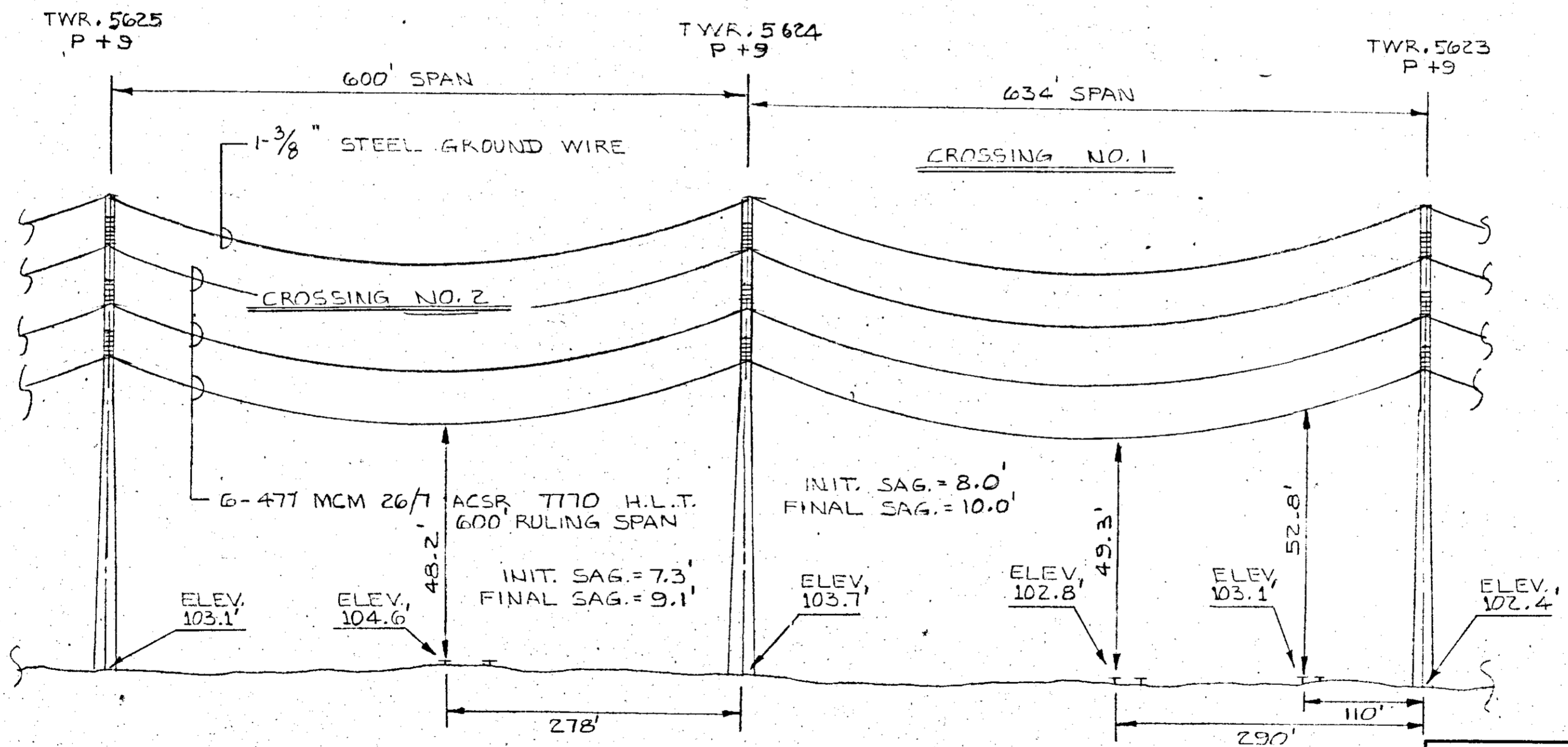
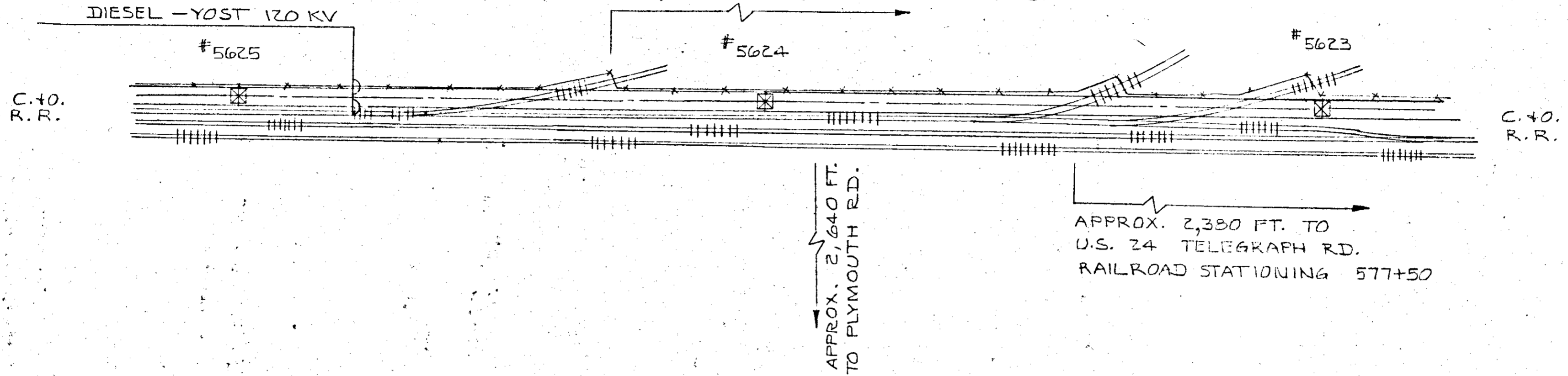
THE DETROIT EDISON COMPANY	
PLAN SUBMITTED TO	
MICHIGAN PUBLIC SERVICE COMMISSION	
FOR ONE-120,000 VOLT CROSSING	
OVER <u>C. & O. R.R.</u>	DATE <u>10-16-84</u>
DRAWN BY <u>C. VAN PARIS</u>	DATE <u>10-17-84</u>
APPROVED BY <u>J. House</u>	
PERMIT NO. <u>ED</u>	DRAWING NO. <u>RX-4308A</u>



PLAN OF CROSSING

SCALE 1"=100'

RAILROAD STATIONING 585+80
APPROX. 2,920 FT. TO U.S. 24 TELEGRAPH RD.



ELEVATION OF CROSSING

SCALE HOR. 1"=100'
VERT. 1"=20'

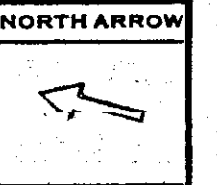
ALL DIMENSIONS AT 60° FINAL

CITY _____
 COUNTY WAYNE
 TOWNSHIP REDFORD
 T. 15. - R. 10 E.
 SECTION NO. N.W. 1/4 - SEC. 29

THE DETROIT EDISON COMPANY
 PLAN SUBMITTED TO
 MICHIGAN PUBLIC SERVICE COMMISSION
 FOR ONE 120,000 VOLT CROSSING
 OVER C. & O. R.R.
 DRAWN BY C. VAN PARIS DATE 9-28-84
 APPROVED BY *J. F. ...* DATE 9-28-84

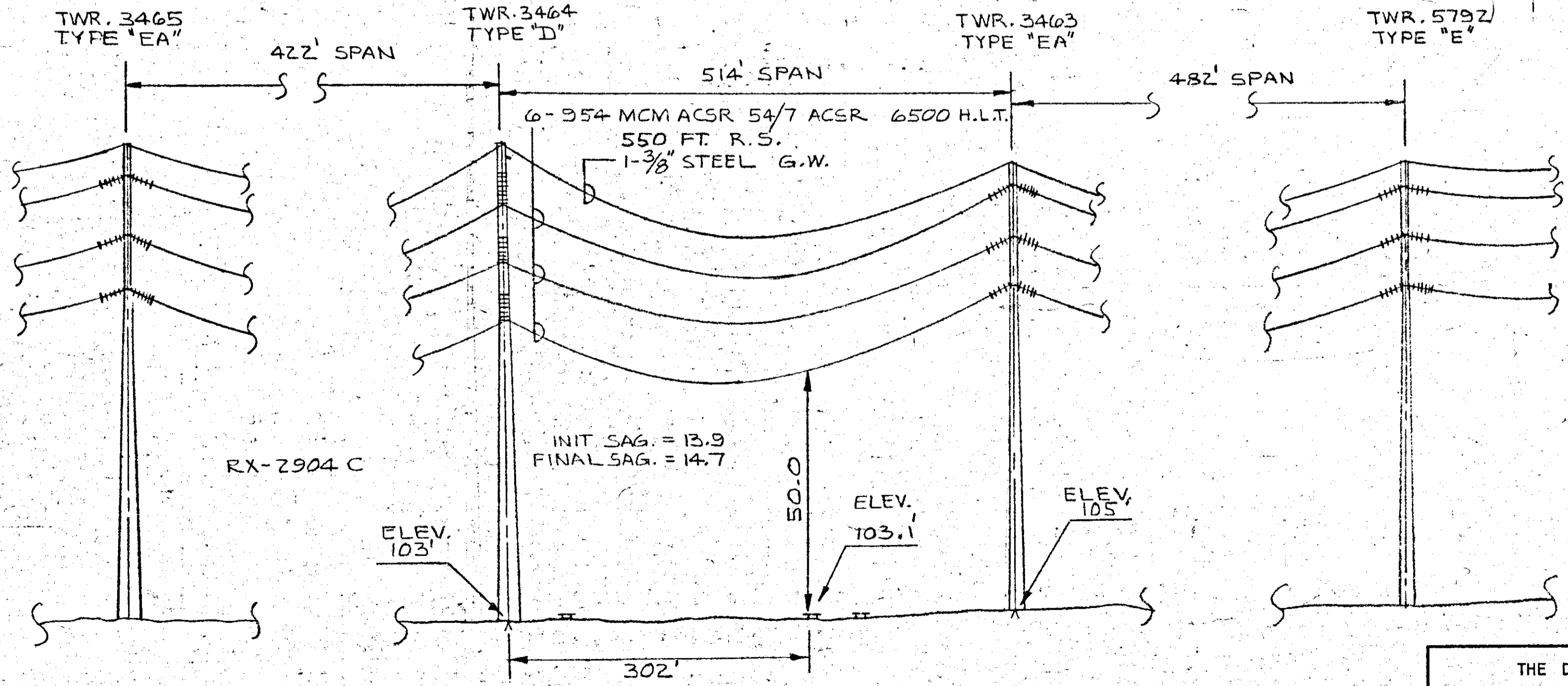
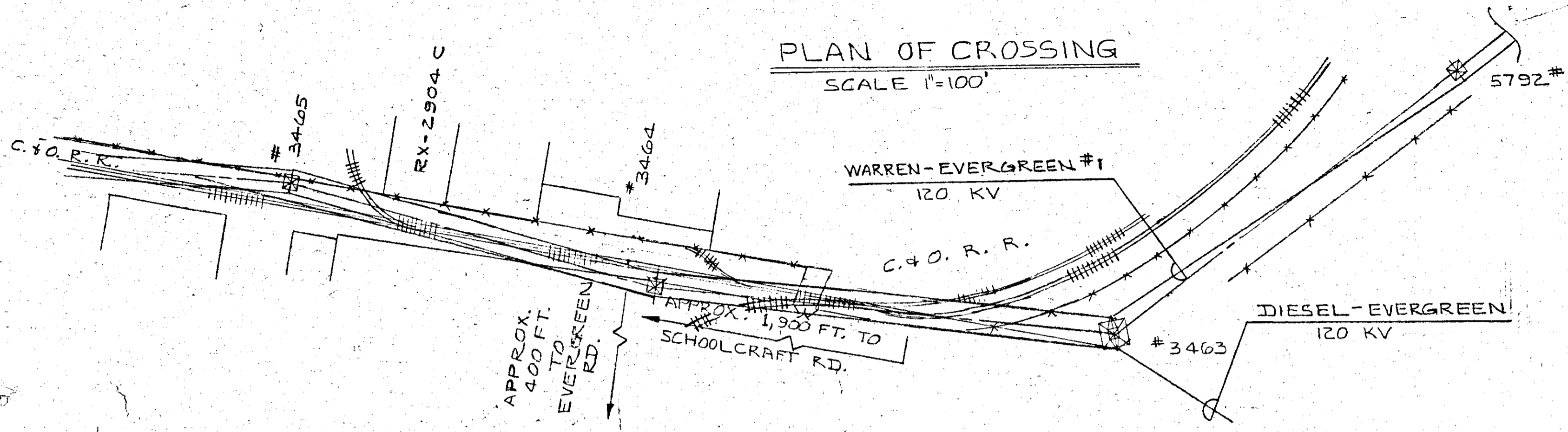
PERMIT NO. ED
 DRAWING NO. RX-3157B

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1"=100'



ELEVATION OF CROSSING

SCALE HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60° F FINAL

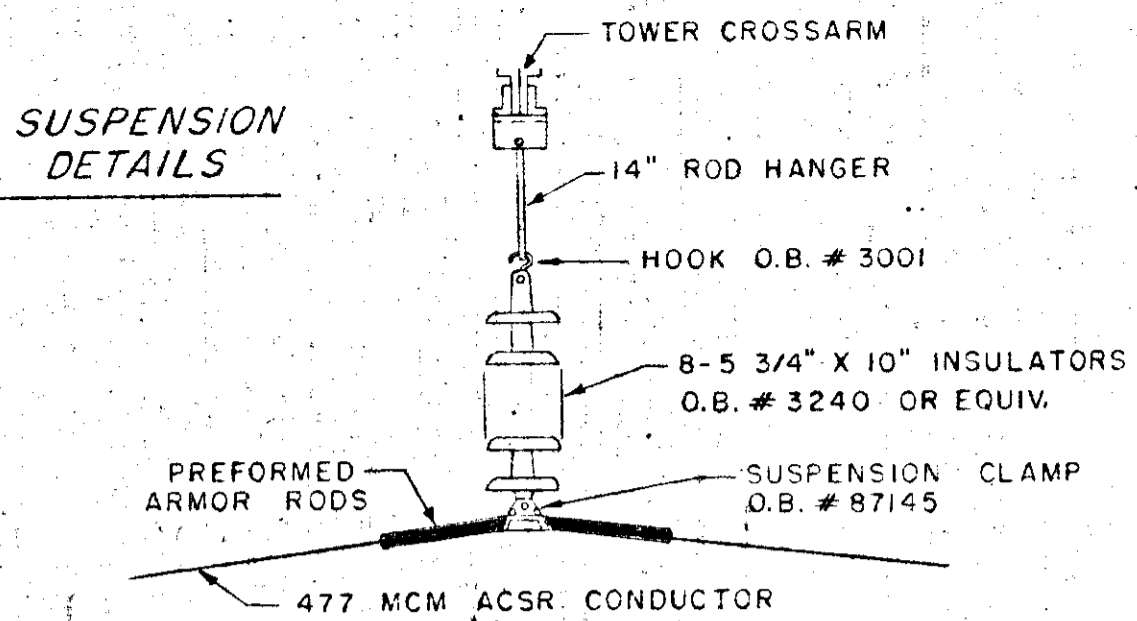
CITY DETROIT
COUNTY WAYNE
TOWNSHIP
SECTION NO. N.W. 1/4 SEC 26

THE DETROIT EDISON COMPANY	
PLAN SUBMITTED TO	
MICHIGAN PUBLIC SERVICE COMMISSION	
FOR 120,000 VOLT CROSSING	
OVER C. & O. R. R.	
DRAWN BY <u>C. VAN PARIS</u>	DATE <u>10-24-84</u>
APPROVED BY <u>M. J. Thresher</u>	DATE <u>10-24-84</u>
PERMIT NO. <u>ED</u>	DRAWING NO. <u>RX-2898C</u>

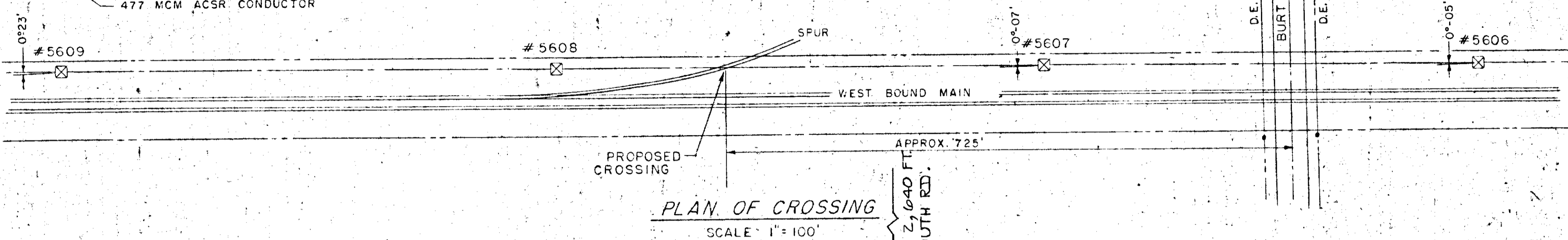
FD-1112

RECORDED RIGHT OF WAY 19099 part 2

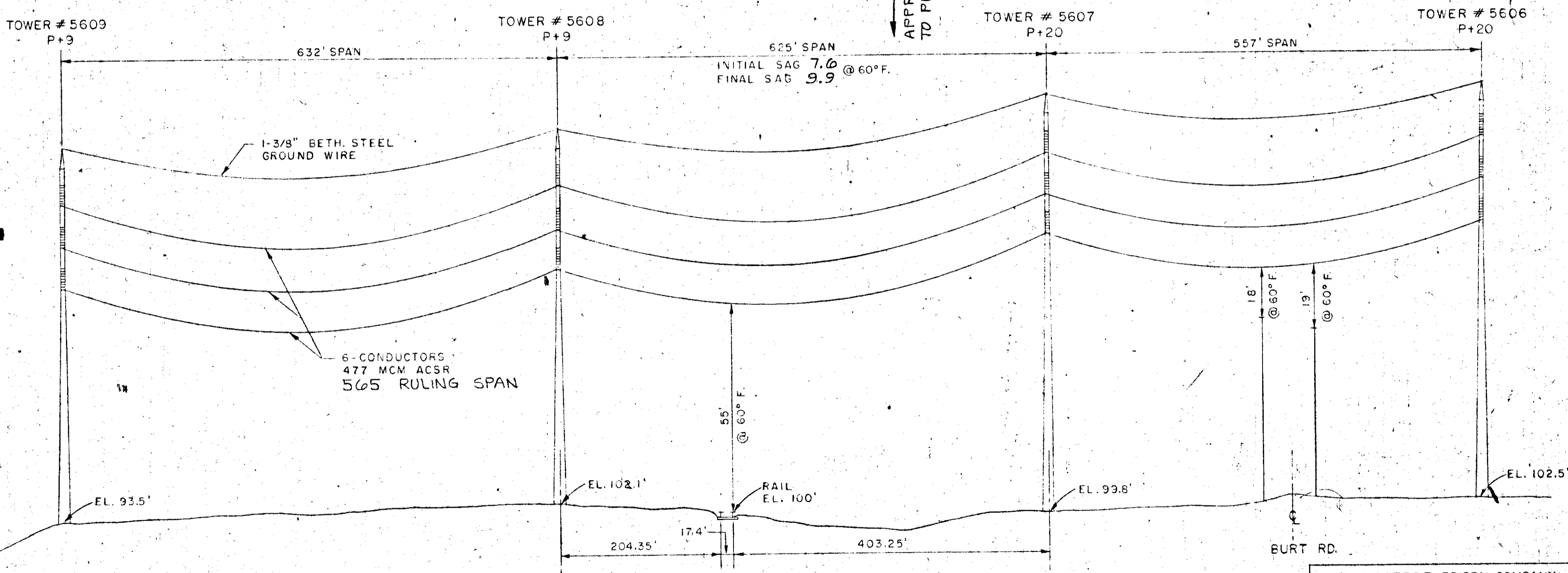
**SUSPENSION
DETAILS**



DIESEL-EVERGREEN 120KV STEEL TOWER LINE



PLAN OF CROSSING
SCALE 1" = 100'



ELEVATION OF CROSSING

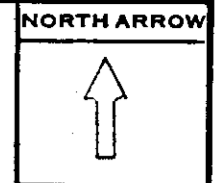
SCALE HORIZONTAL 1" = 100'
VERTICAL 1" = 20'

COUNTY WAYNE
CITY DETROIT

THE DETROIT EDISON COMPANY
PLAN SUBMITTED TO MICHIGAN
PUBLIC UTILITIES COMMISSION
FOR 120,000 VOLT CROSSING
OVER THE CHESAPEAKE & OHIO R.R.
DRAWN BY C. VAN PARIS DATE 10-1-84
CHECKED BY J. Howe DATE 10-1-84
PERMIT NO. **RX-3156B**

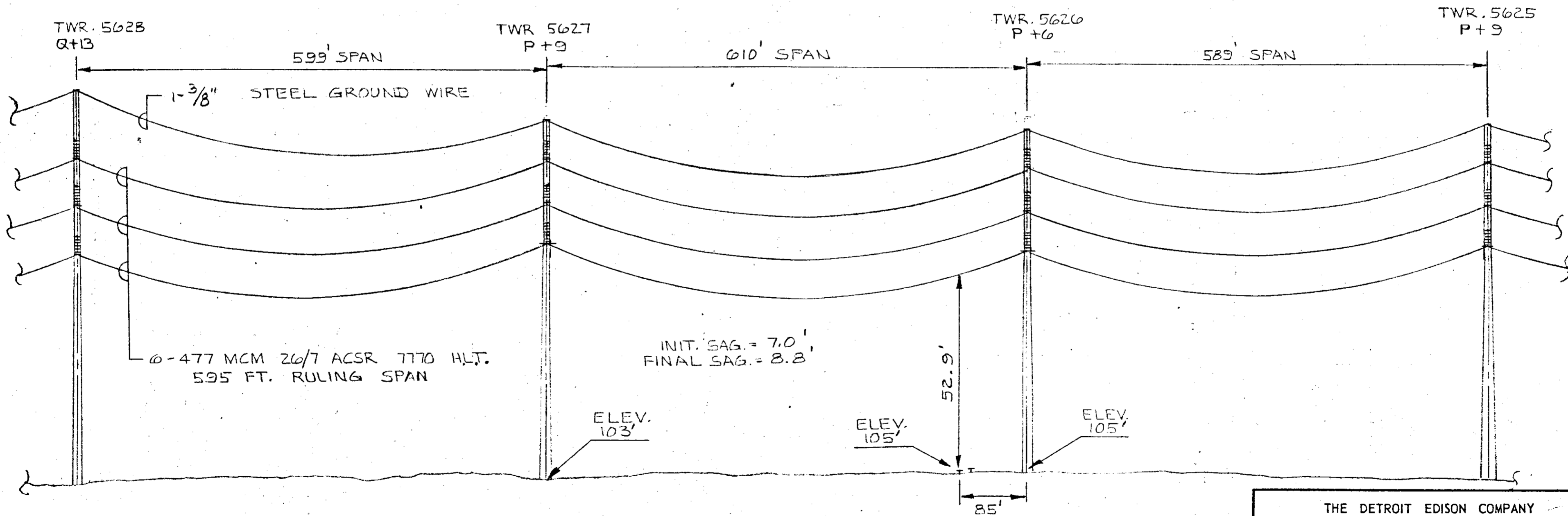
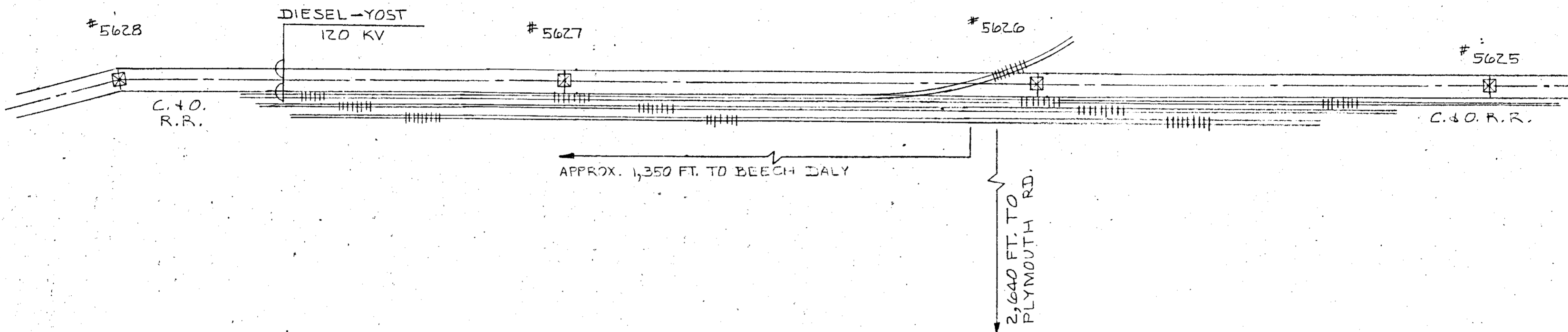
ED2-8-3941
5-24-56

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1"=100'



ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60°F FINAL

CITY _____
 COUNTY WAYNE
 TOWNSHIP REDFORD
 T. 15. - R. 10 E.
 SECTION NO. N.W. 1/4 29

THE DETROIT EDISON COMPANY

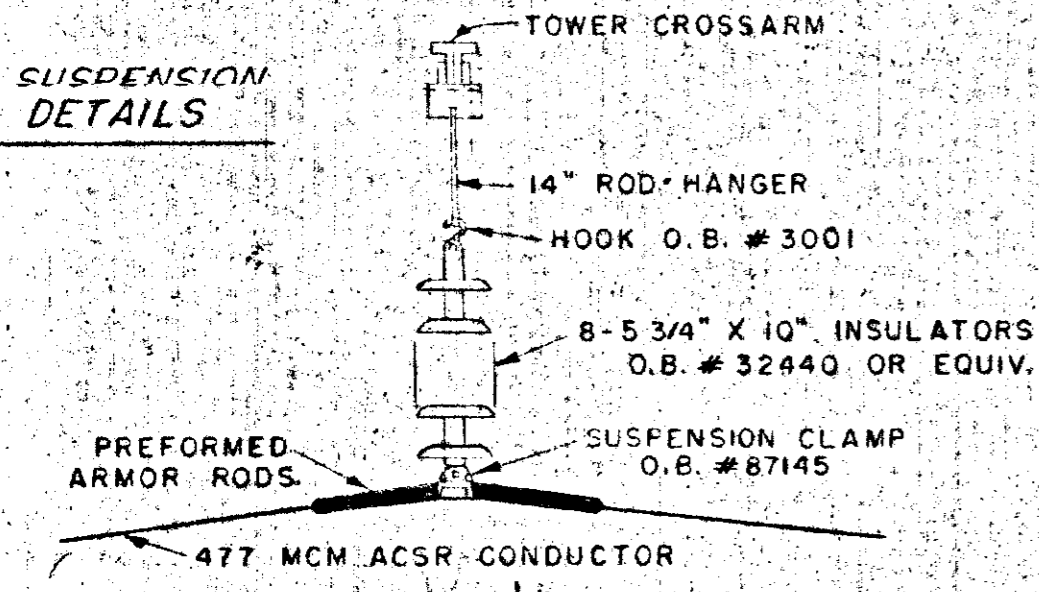
PLAN SUBMITTED TO
 MICHIGAN PUBLIC SERVICE COMMISSION

FOR 120,000 VOLT CROSSING
 OVER C. & O. R. R.

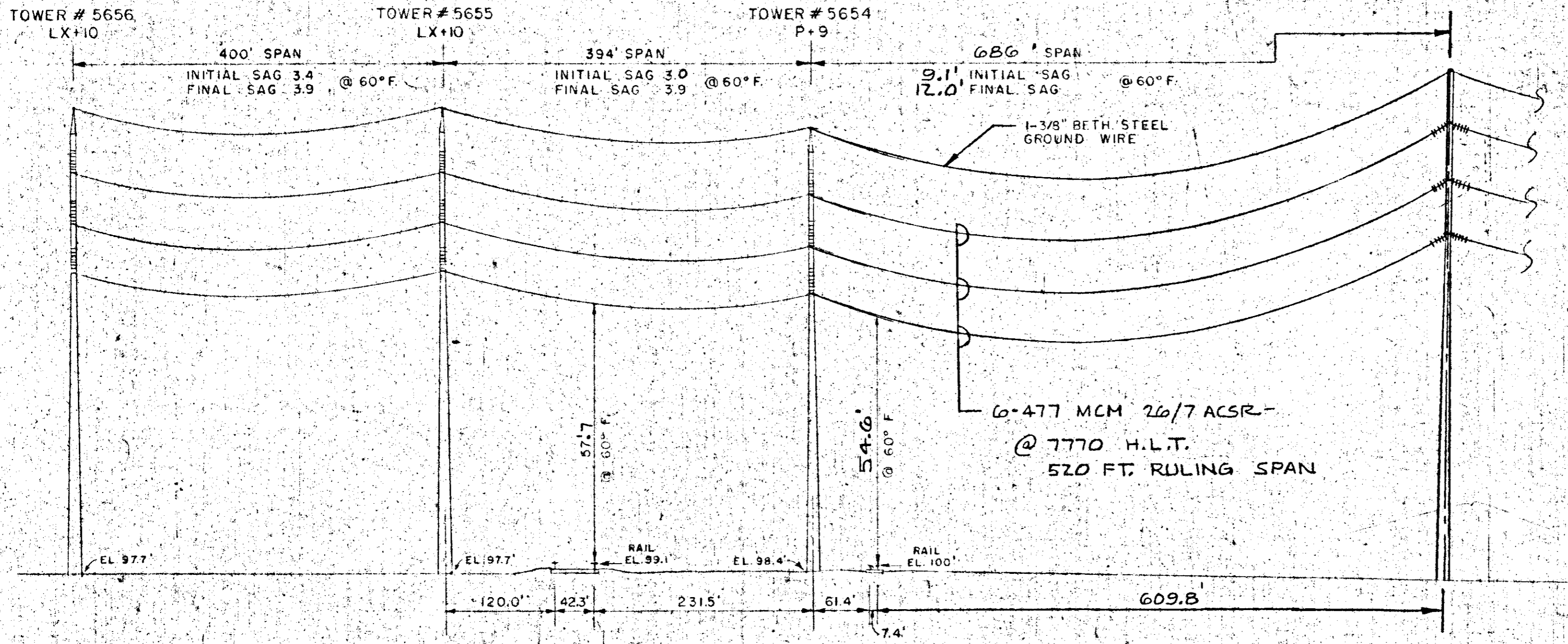
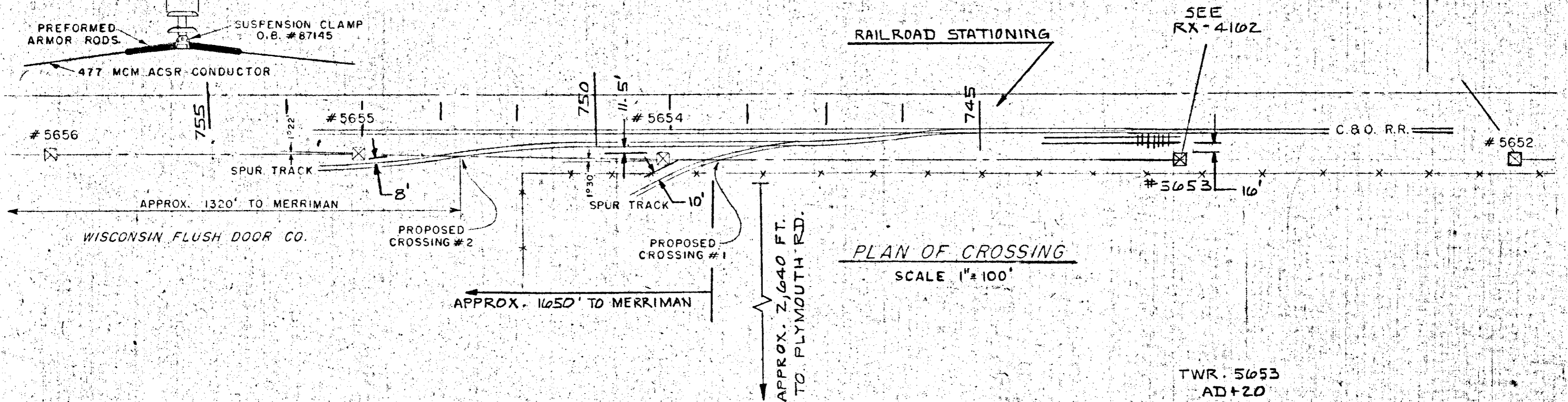
DRAWN BY C. VAN PARIS DATE 9-27-84
 APPROVED BY *J. Howe* DATE 9-27-84

PERMIT NO. ED	DRAWING NO. RX-3158B
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RECORDED RIGHT OF WAY 19099 part 2



MINES-YOST 120KV STEEL TOWER LINE

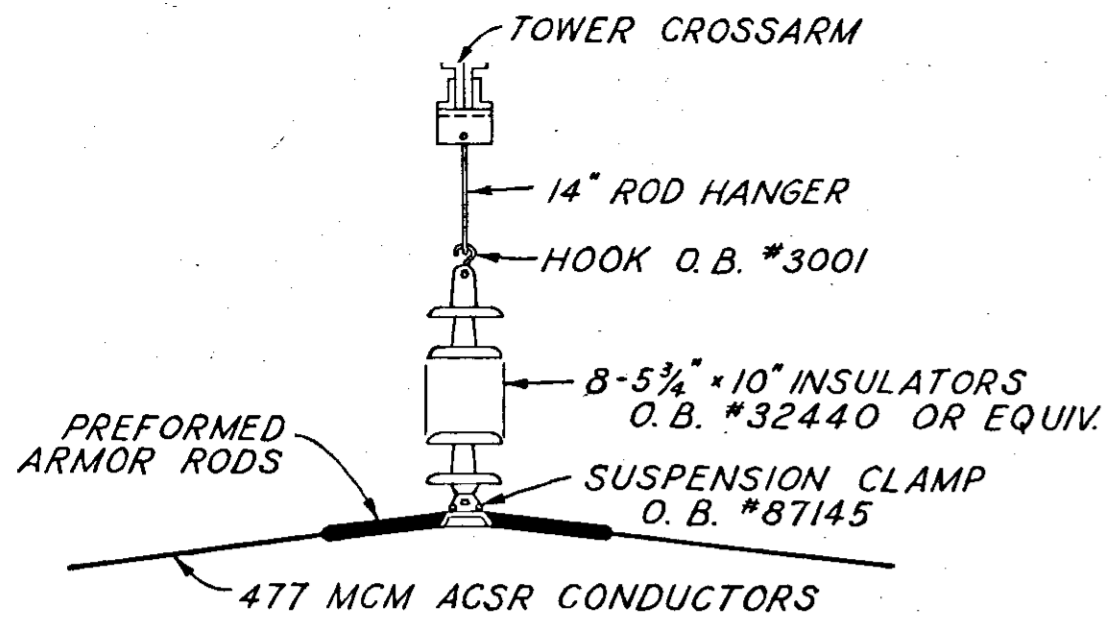


THE DETROIT EDISON COMPANY
 PLAN SUBMITTED TO MICHIGAN
 PUBLIC UTILITIES COMMISSION
 FOR 120,000 VOLT CROSSING
 OVER THE CHESAPEAKE & OHIO R.R.
 DRAWN BY C. VAN PARIS DATE 9-7-84
 CHECKED BY J. Howe DATE 9-7-84
 PERMIT NO. **RX-3162B**

COUNTY WAYNE
 CITY LIVONIA
 S.W. 1/4 SEC. 26

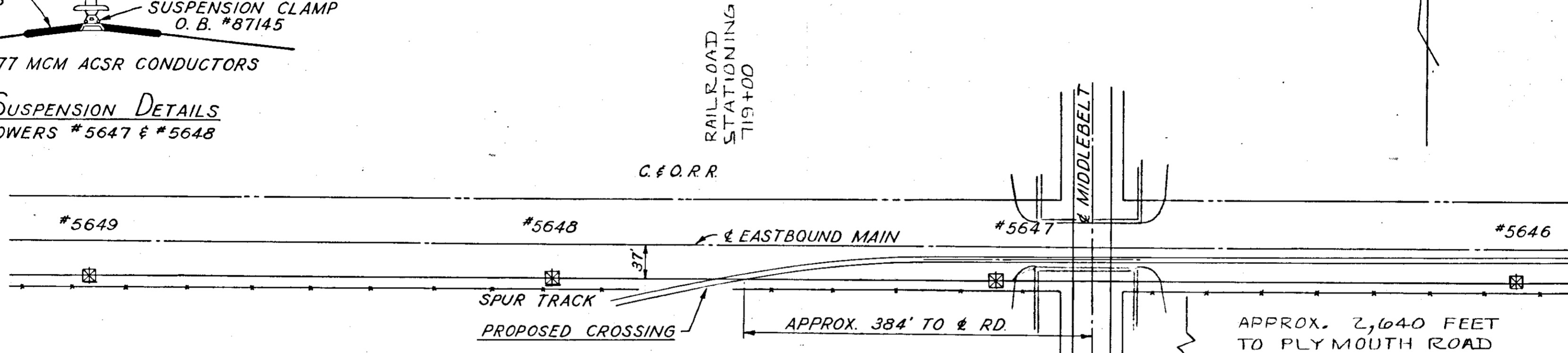
5-24-56 #1 ED2-8-3944
 #2 ED2-8-3945

RECORDED RIGHT OF WAY 19099 part 2

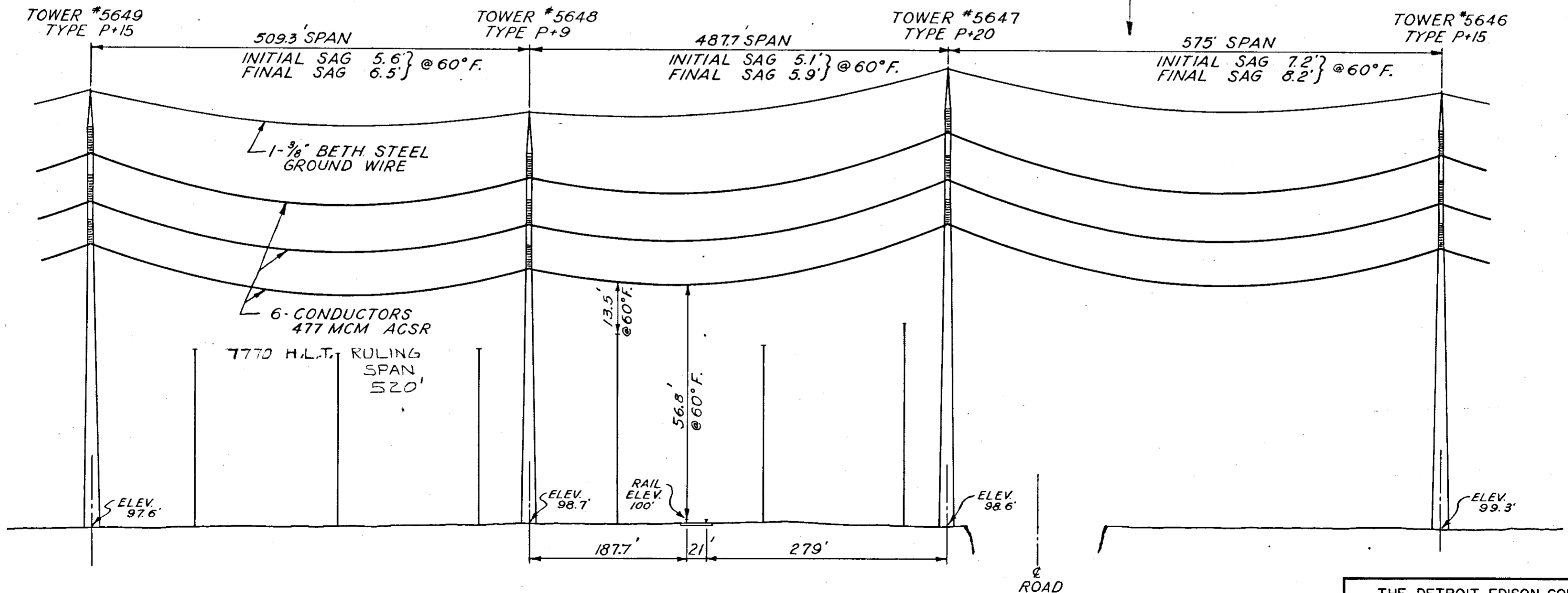


Suspension Details
TOWERS #5647 & #5648

DIESEL-YOST 120KV STEEL TOWER LINE



PLAN OF CROSSING
SCALE 1"=100'



ELEVATION OF CROSSING
SCALE HORIZONTAL 1"=100'
SCALE VERTICAL 1"=20'

COUNTY WAYNE
CITY LIVONIA
S.E. 1/4 26

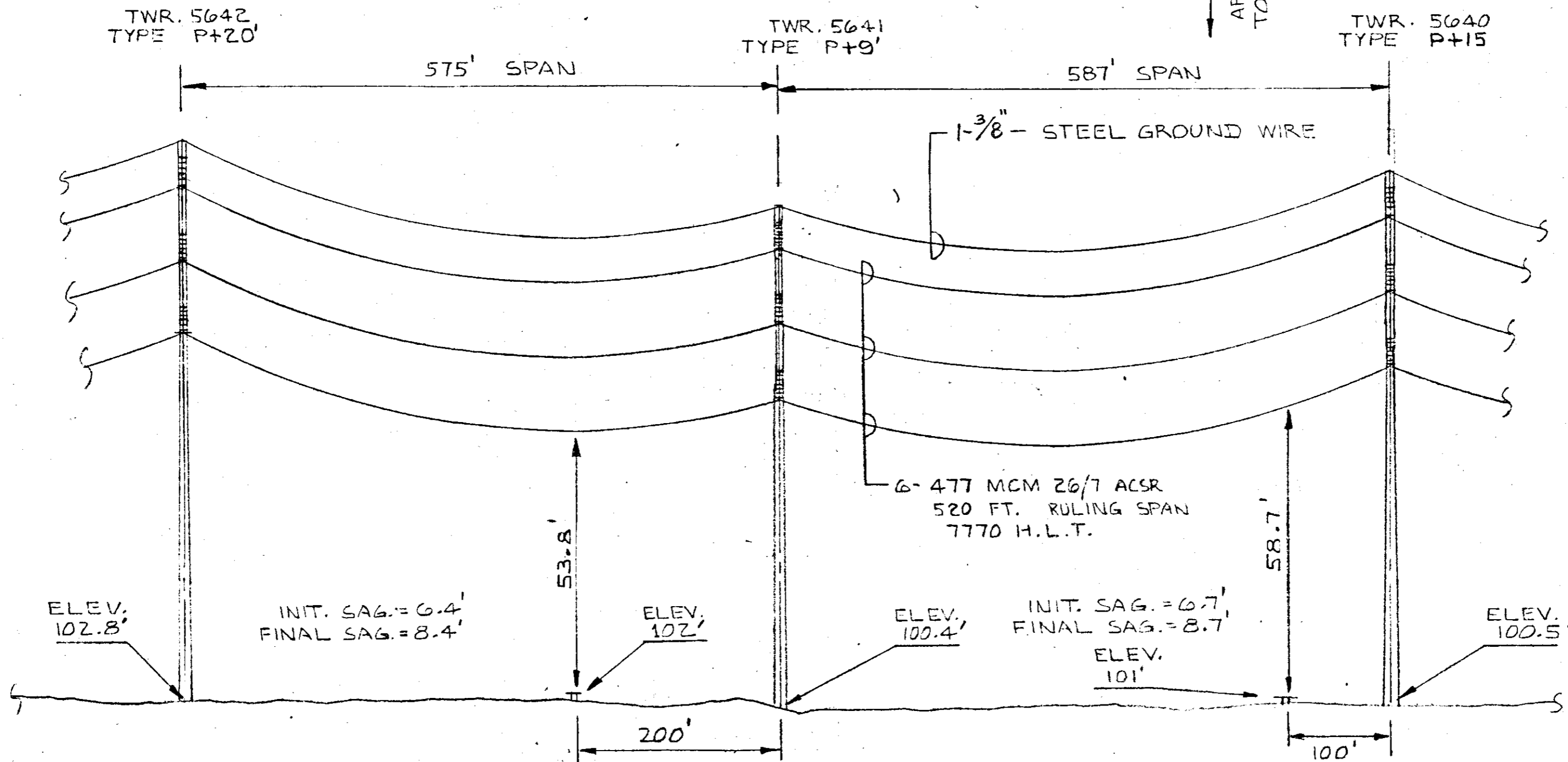
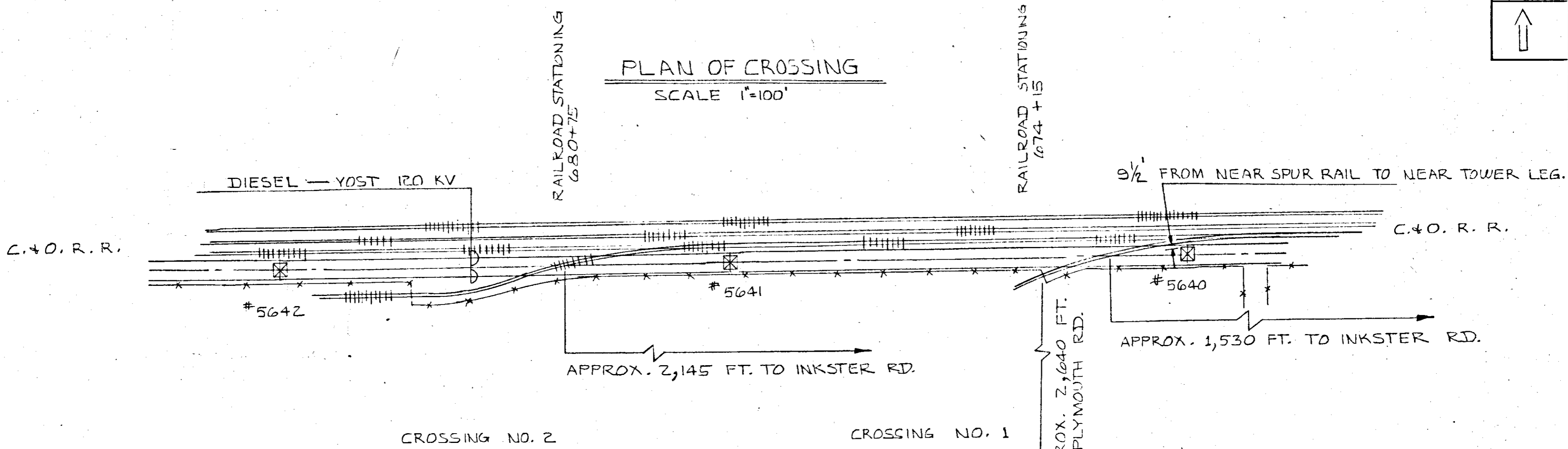
THE DETROIT EDISON COMPANY
PLAN SUBMITTED TO MICHIGAN
PUBLIC UTILITIES COMMISSION
FOR 120,000 VOLT CROSSING
OVER THE CHESAPEAKE OHIO R.R.
DRAWN BY C. VAN PARIS DATE 9-11-84
CHECKED BY [Signature] DATE 9-12-84
PERMIT NO. **RX-3161 B**

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1"=100'



ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60°F FINAL

CITY LIVONIA

COUNTY WAYNE

TOWNSHIP T.15.-R.9E

SECTION NO. S.E. 1/4, 25

THE DETROIT EDISON COMPANY

PLAN SUBMITTED TO

MICHIGAN PUBLIC SERVICE COMMISSION

FOR 120,000 VOLT CROSSING

OVER C.&O. R. R.

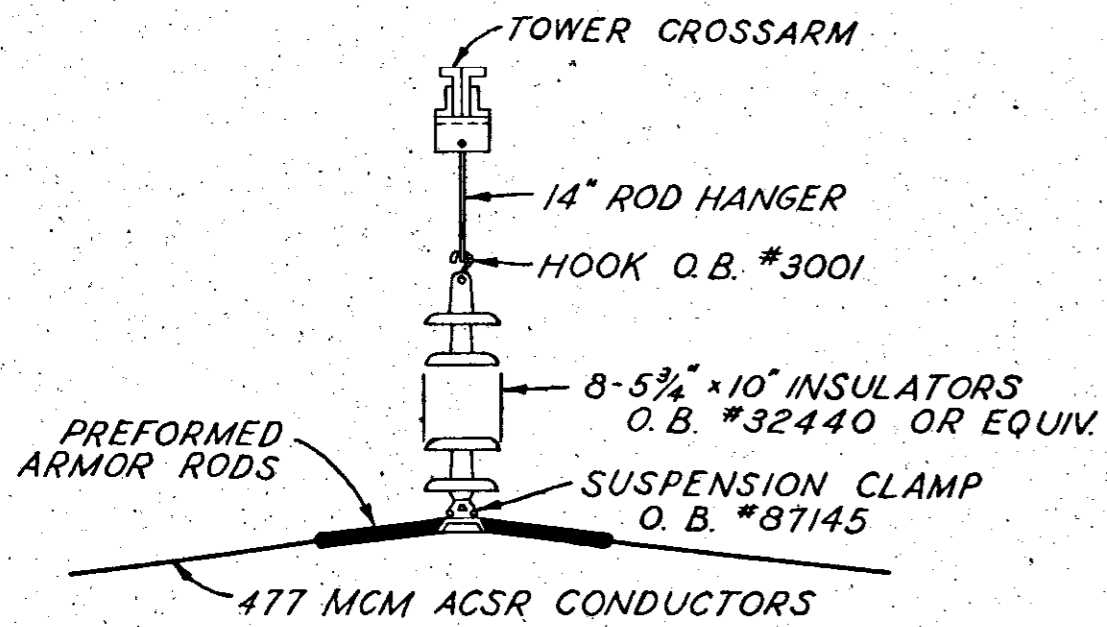
DRAWN BY C. VAN PARIS DATE 9-17-84

APPROVED BY J. Howe DATE 9-17-84

PERMIT NO. **ED**

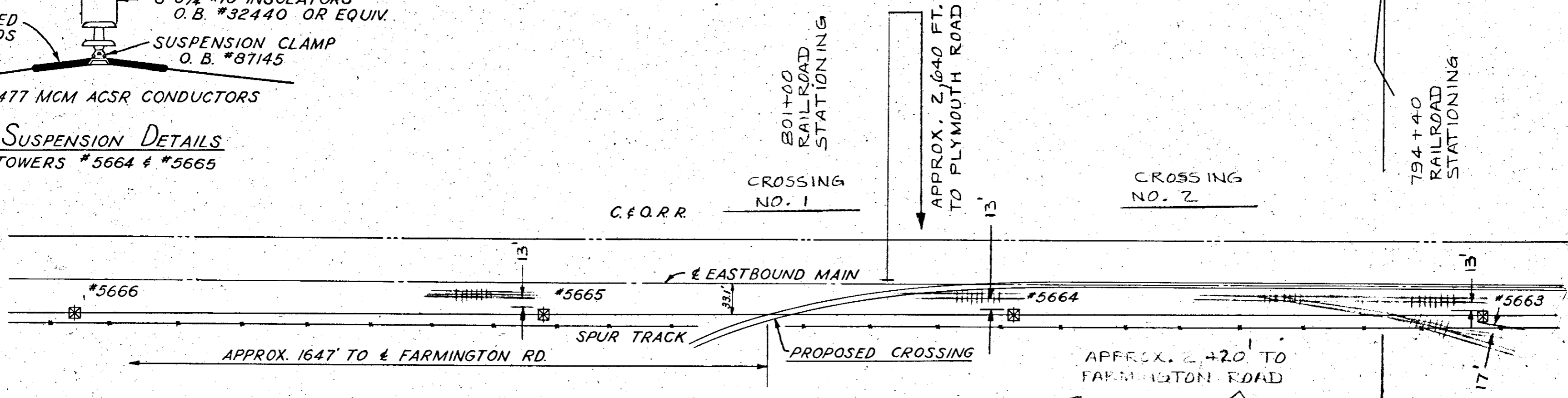
DRAWING NO. **RX-3160C**

RECORDED RIGHT OF WAY 19099 part 2

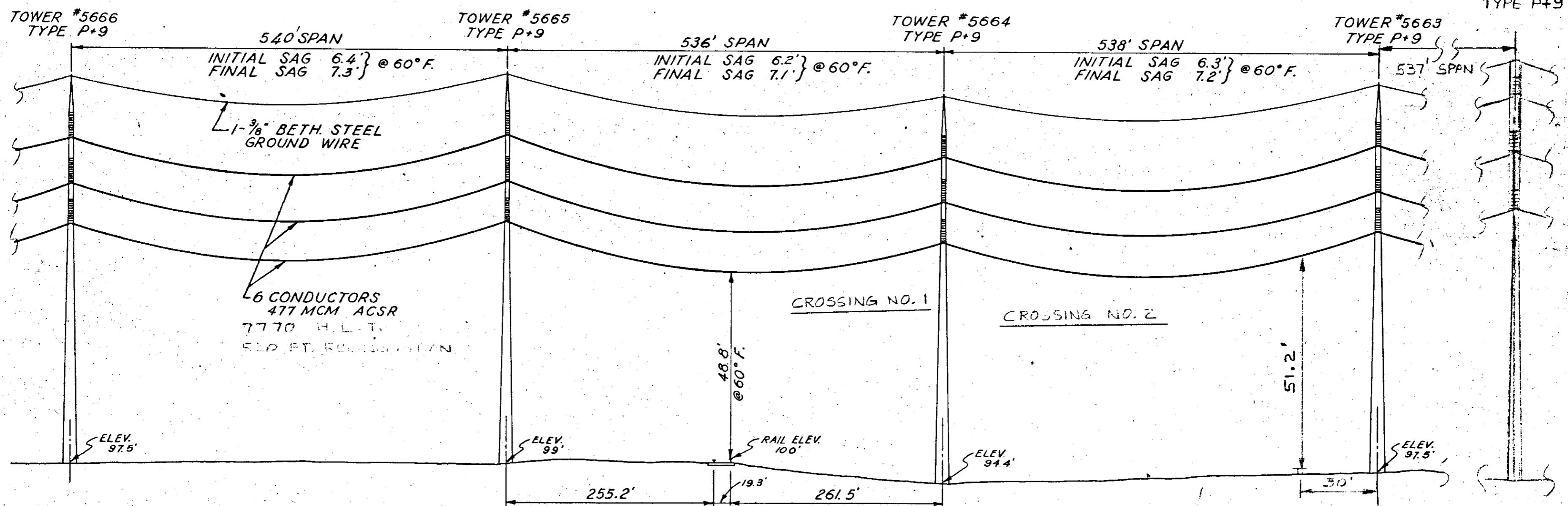


SUSPENSION DETAILS
TOWERS #5664 & #5665

HINES-YOST 120KV STEEL TOWER LINE



PLAN OF CROSSING
SCALE 1"=100'

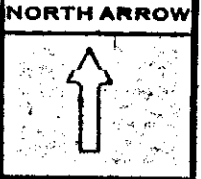


ELEVATION OF CROSSING
SCALE HORIZONTAL 1"=100'
SCALE VERTICAL 1"=20'

COUNTY WAYNE
CITY LIVONIA
S.W. 1/4 SEC. 27

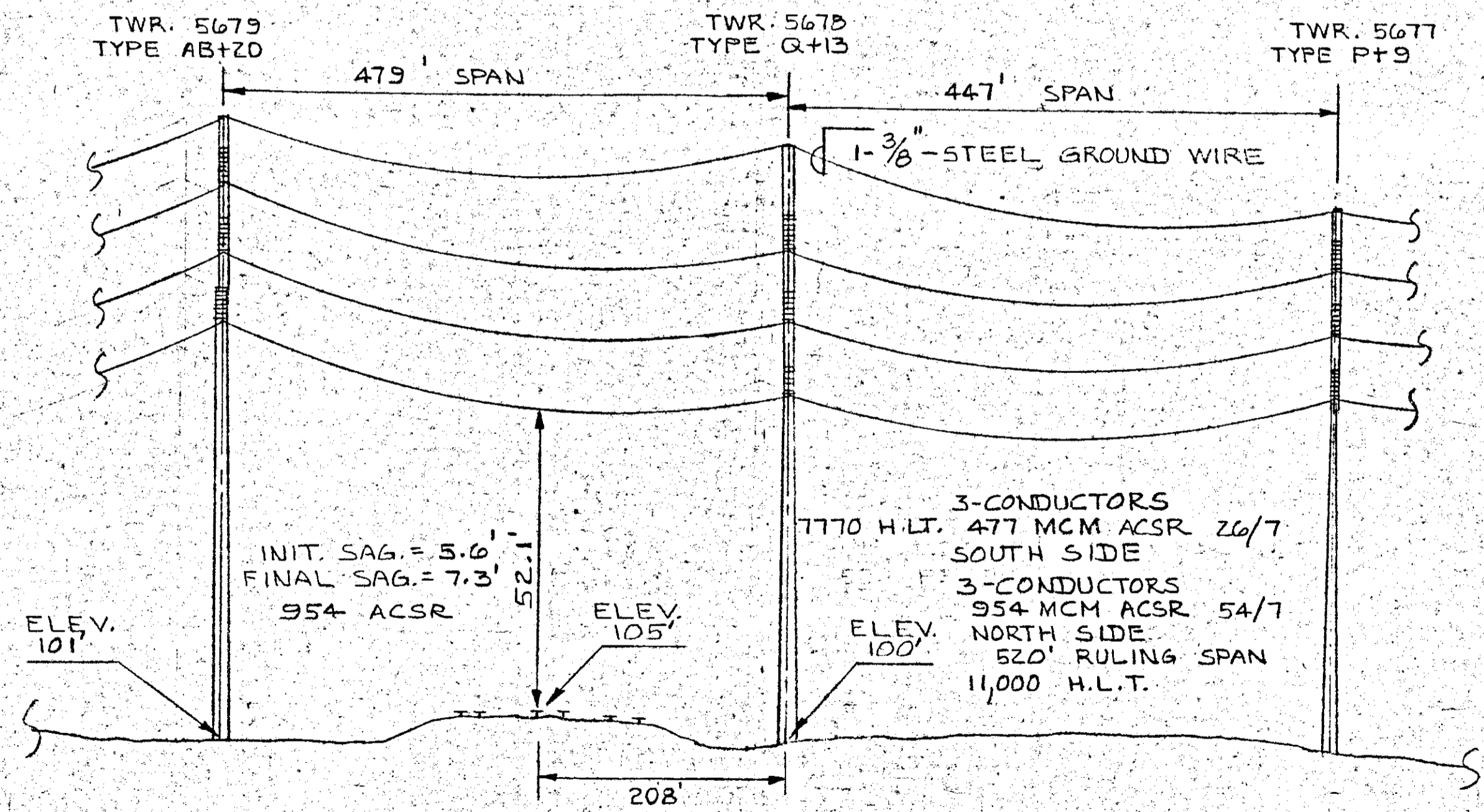
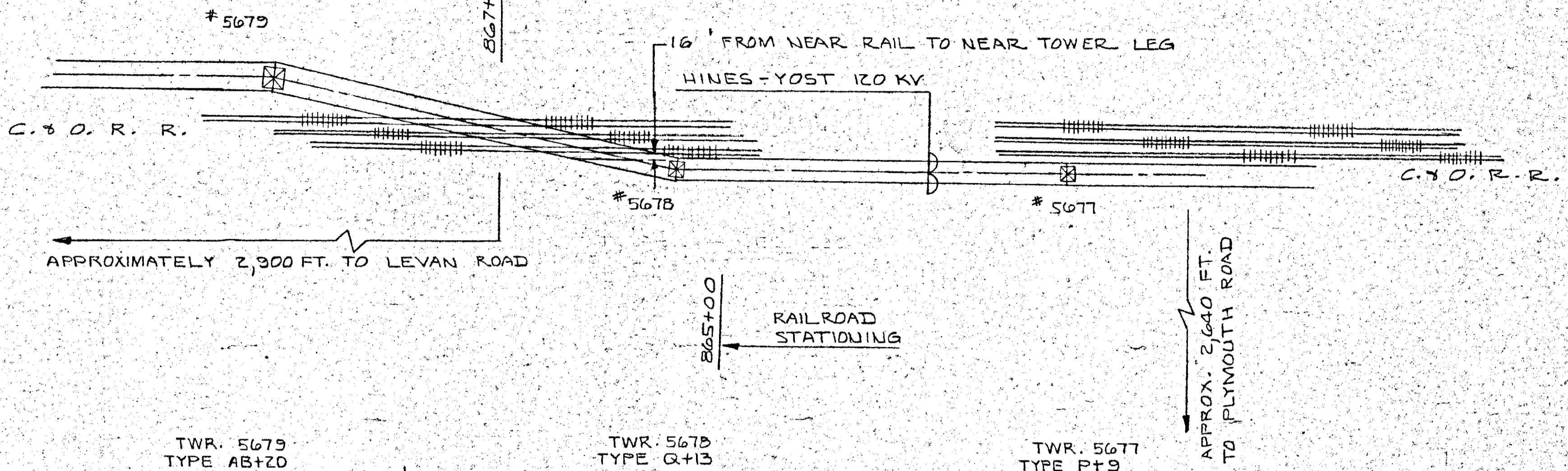
THE DETROIT EDISON COMPANY
PLAN SUBMITTED TO MICHIGAN
PUBLIC UTILITIES COMMISSION
FOR 120,000 VOLT CROSSING
OVER THE CHESAPEAKE OHIO R.R.
DRAWN BY C. VAN PAR (DATE 8-30-84)
CHECKED BY J. Howe (DATE 8-30-84)
PERMIT NO. RX-3163 B

RECORDED RIGHT OF WAY 19099 part 2



PLAN OF CROSSING

SCALE 1"=100'



ELEVATION OF CROSSING

SCALE: HOR. 1"=100'
VERT. 1"=20'

ALL DIMENSIONS AT 60°F FINAL

CITY LIVONIA
 COUNTY WAYNE
 TOWNSHIP _____
 SECTION NO. S.W. 1/4 28

THE DETROIT EDISON COMPANY
 PLAN SUBMITTED TO
 MICHIGAN PUBLIC SERVICE COMMISSION
 FOR 120KV CROSSING
 OVER C. & O. RAILROAD
 DRAWN BY C. VAN PARIS DATE 9-26-84
 APPROVED BY *M. J. Thacker* DATE _____

PERMIT NO. **ED** DRAWING NO. **RX-3164C**

RECORDED RIGHT OF WAY 19099 part 2

Replace

PF

07/27/2018