

| REVISIONS | |
|-----------|------|
| NO. | DATE |
| | |
| | |
| | |
| | |
| | |
| | |

designed by *M.L.*
 drawn by *D.L.W.*
 checked by *J.K.*
 approved: *[Signature]*
 STRUCTURAL ENGINEER

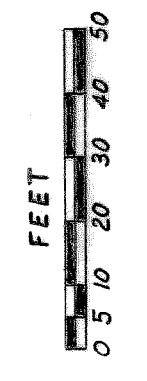
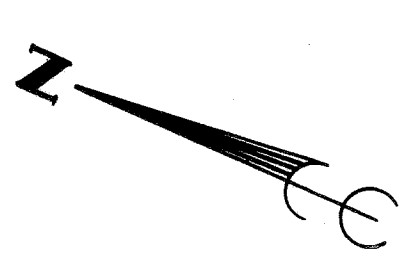
CITY OF DETROIT
 city engineering department
 for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION
 RIVERSIDE AVENUE OVER FOX CREEK
 BW-246

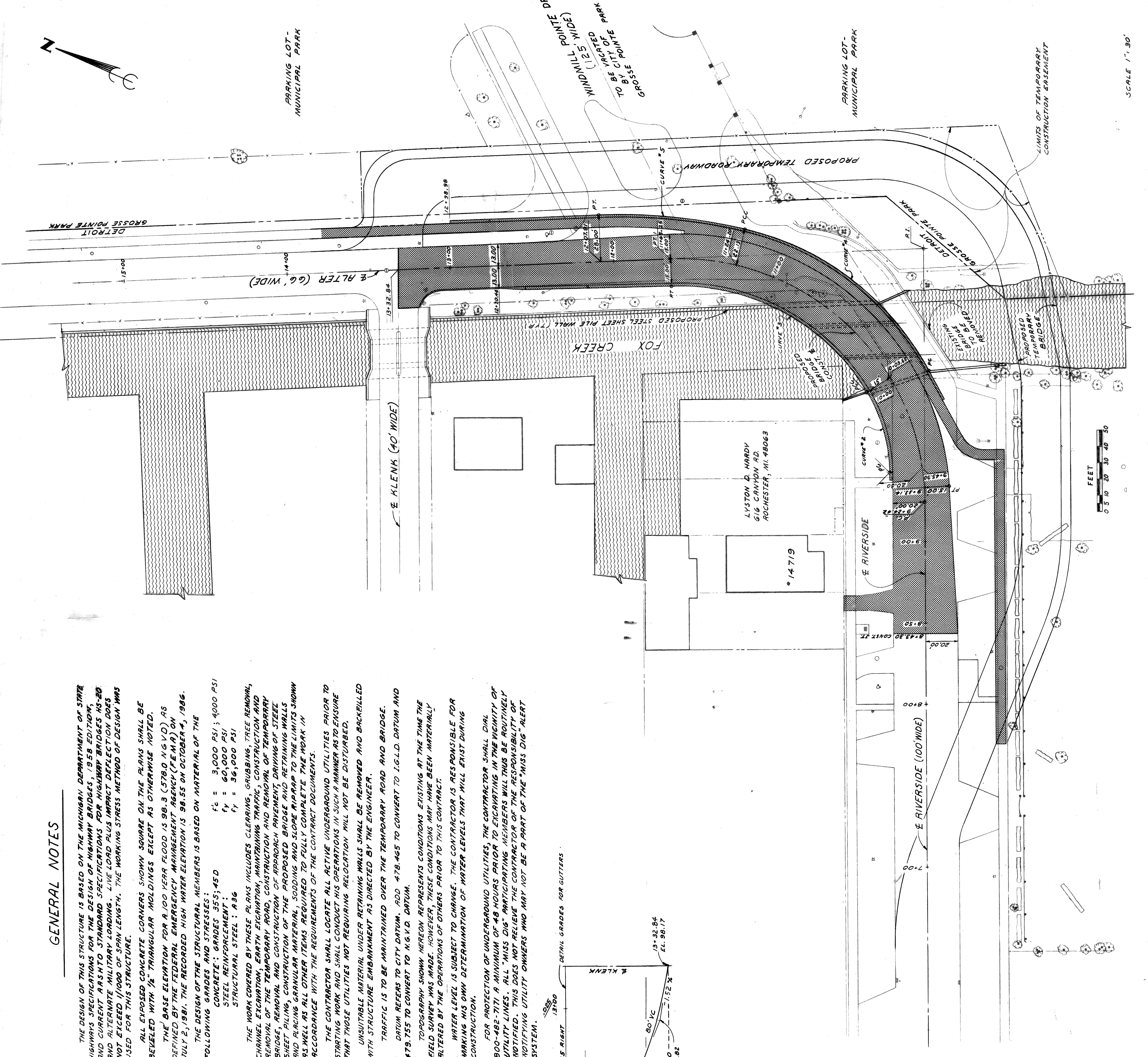
GENERAL PLAN OF SITE

a.o. 87-22-12 contract no.
 sheet of drawing no. S-1
 date NOV. 89

JOB NO. 30288A



SCALE 1" = 30'



GENERAL NOTES

THE DESIGN OF THIS STRUCTURE IS BASED ON THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS SPECIFICATIONS FOR THE DESIGN OF HIGHWAY BRIDGES, 1959 EDITION, AND CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES AS-20 AND ALTERNATE MILITARY LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH. THE WORKING STRESS METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BELIEVED WITH 1/2" TRIANGULAR HOLDINGS EXCEPT AS OTHERWISE NOTED.

THE BASE ELEVATION FOR A 100 YEAR FLOOD IS 98.3 (STB D N.G.V.D.) AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) ON JULY 2, 1981. THE RECORDED HIGH WATER ELEVATION IS 98.55 ON OCTOBER 4, 1986.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:
 CONCRETE: GRADES: 353; 45D $f_c = 3,000 \text{ PSI}; 4000 \text{ PSI}$
 STEEL REINFORCEMENT: $f_y = 60,000 \text{ PSI}$
 STRUCTURAL STEEL: A36 $f_y = 36,000 \text{ PSI}$

THE WORK COVERED BY THESE PLANS INCLUDES CLEARING, GRUBBING, TREE REMOVAL, CHANNEL EXCAVATION, EARTH EXCAVATION, MAINTAINING TRAFFIC, CONSTRUCTION AND REMOVAL OF THE TEMPORARY ROAD, CONSTRUCTION AND REMOVAL OF TEMPORARY BRIDGES, REMOVAL AND CONSTRUCTION OF APPROACH PAVEMENT, DRIVING OF STEEL SHEET PILING, CONSTRUCTION OF THE PROPOSED BRIDGE AND RETAINING WALLS AND PLACING GRANULAR MATERIAL, SOILING AND SLOPE RIPRAP TO THE LIMITS SHOWN AS WELL AS ALL OTHER ITEMS REQUIRED TO FULLY COMPLETE THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED. UNSUITABLE MATERIAL UNDER RETAINING WALLS SHALL BE REMOVED AND BACKFILLED WITH STRUCTURE EMBANKMENT AS DIRECTED BY THE ENGINEER. TRAFFIC IS TO BE MAINTAINED OVER THE TEMPORARY ROAD AND BRIDGE. DATUM REFERS TO CITY DATUM. ADD 478.465 TO CONVERT TO I.G.L.D. DATUM AND 479.755 TO CONVERT TO N.G.V.D. DATUM.

TOPOGRAPHY SHOWN HEREON REPRESENTS CONDITIONS EXISTING AT THE TIME THE FIELD SURVEY WAS MADE. HOWEVER, THESE CONDITIONS MAY HAVE BEEN MATERIALLY ALTERED BY THE OPERATIONS OF OTHERS PRIOR TO THIS CONTRACT. WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION OF WATER LEVELS THAT WILL EXIST DURING CONSTRUCTION.

FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL DIAL 800-482-7171 A MINIMUM OF 48 HOURS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

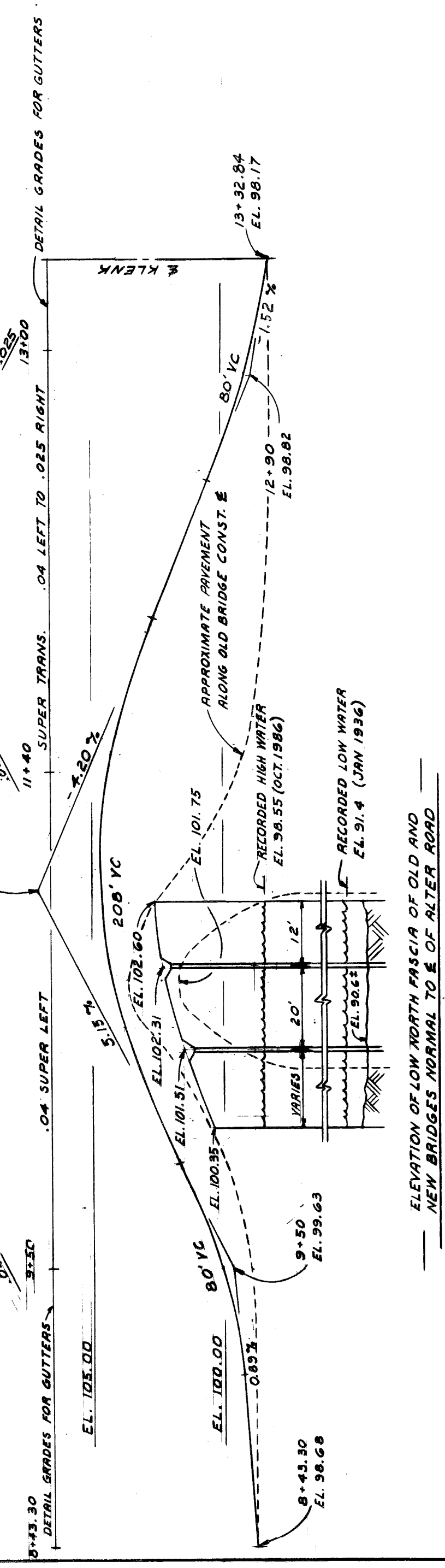
CURVE DATA

| CURVE #1 | CURVE #2 | CURVE #3 |
|--------------------------------|--------------------------------|--------------------------------|
| $\Delta = 91^{\circ} 59' 24''$ | $\Delta = 30^{\circ} 13' 39''$ | $\Delta = 60^{\circ} 41' 11''$ |
| $D = 39^{\circ} 11' 50''$ | $D = 59^{\circ} 18' 45''$ | $D = 42^{\circ} 57' 30''$ |
| $R = 150.00'$ | $R = 96.60'$ | $R = 133.38'$ |
| $T = 155.30'$ | $T = 26.09'$ | $T = 78.07'$ |
| $L = 240.83'$ | $L = 50.96'$ | $L = 141.27'$ |
| $E = 65.91'$ | $E = 3.46'$ | $E = 21.17'$ |
| $PC = 9+24.42$ | $PC = 9+45.90 (-20.30)$ | $PC = 10+03.55 (-16.63)$ |
| $PT = 11+65.25$ | $PT = 10+03.55 (-16.63)$ | $PT = 11+62.43 (-16.63)$ |

| CURVE #4 | CURVE #5 |
|--------------------------------|--------------------------------|
| $\Delta = 49^{\circ} 49' 58''$ | $\Delta = 15^{\circ} 40' 42''$ |
| $D = 33^{\circ} 17' 14''$ | $D = 17^{\circ} 21' 44''$ |
| $R = 172.13'$ | $R = 330.0'$ |
| $T = 78.14'$ | $T = 45.44'$ |
| $L = 146.70'$ | $L = 90.31'$ |
| $E = 16.91'$ | $E = 3.11'$ |
| $PC = 9+96.35 (22.13)$ | $PC = 11+24.20 (22.13)$ |
| $PCC = 11+24.20 (22.13)$ | $PT = 12+07.91 (28.00)$ |

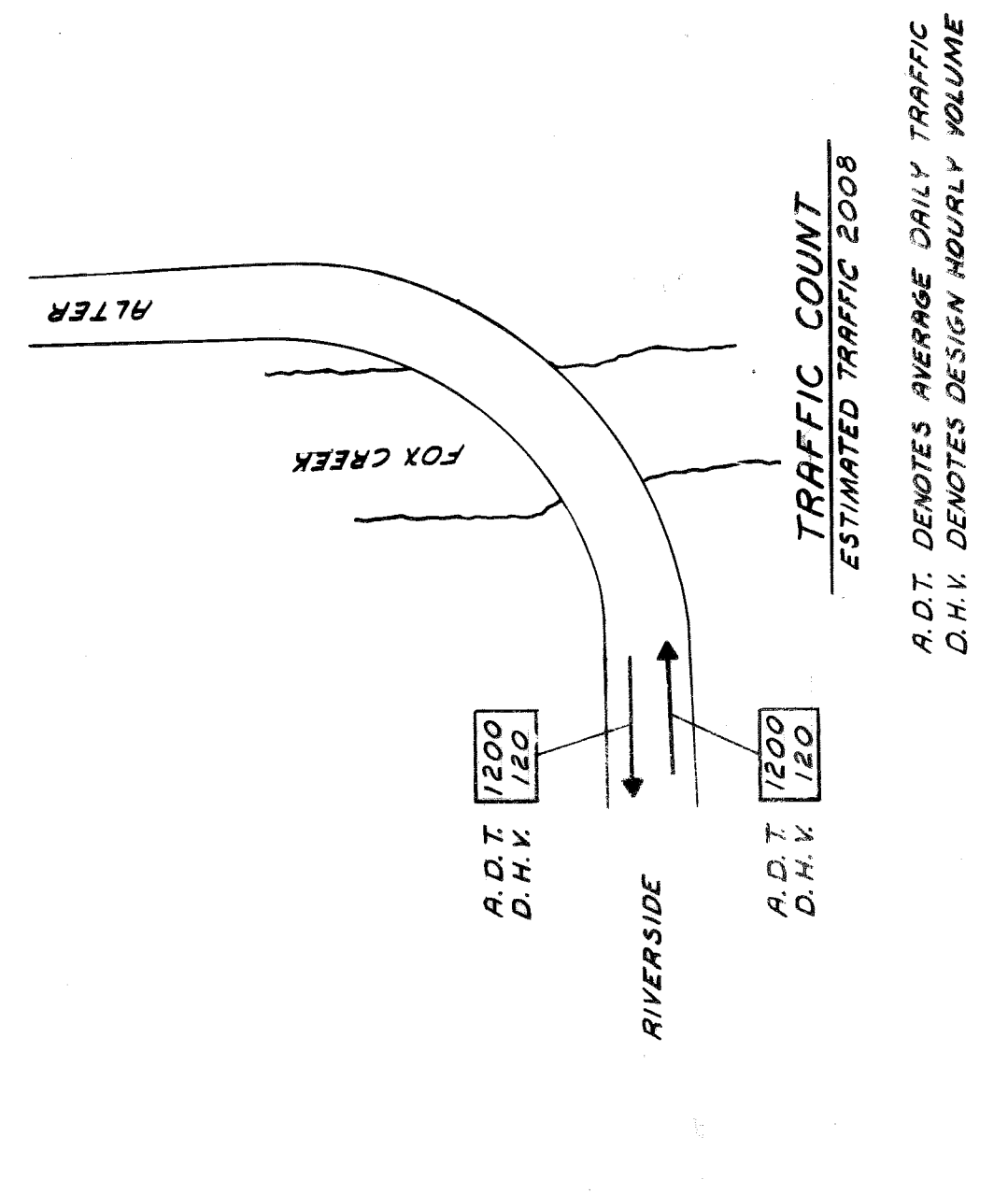
BENCH MARKS

- C.B.M. ARROW ON HYDRANT N.E. COR. WINDMILL POINTE & ALTER ROAD EL. 101.09
- C.B.M. ARROW ON HYDRANT AT TOMMY'S MARINA EL. 101.69
- P.B.M. MONUMENT AT LIGHTHOUSE EL. 100.84
- P.B.M. TOP OF CONC. BRIDGE RAILING N.E. COR. FRONT OF TOMMY'S MARINA EL. 104.187
- D-2 EL. 104.187
- C.B.M. ARROW ON HYDRANT N. SIDE OF RIVERSIDE EL. 101.46
- STB. 0+12.E. EL. 101.46
- P.B.M. DENOTES PERMANENT BENCH MARK
- C.B.M. DENOTES CONSTRUCTION BENCH MARK



PROFILE ALONG BRIDGE CONSTR E

SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'



TRAFFIC COUNT

ESTIMATED TRAFFIC 2008
 A.D.T. DENOTES AVERAGE DAILY TRAFFIC
 D.H.V. DENOTES DESIGN HOURLY VOLUME

LOG OF SOIL BORINGS

TEST HOLE NO. 1

TEST HOLE NO. 2

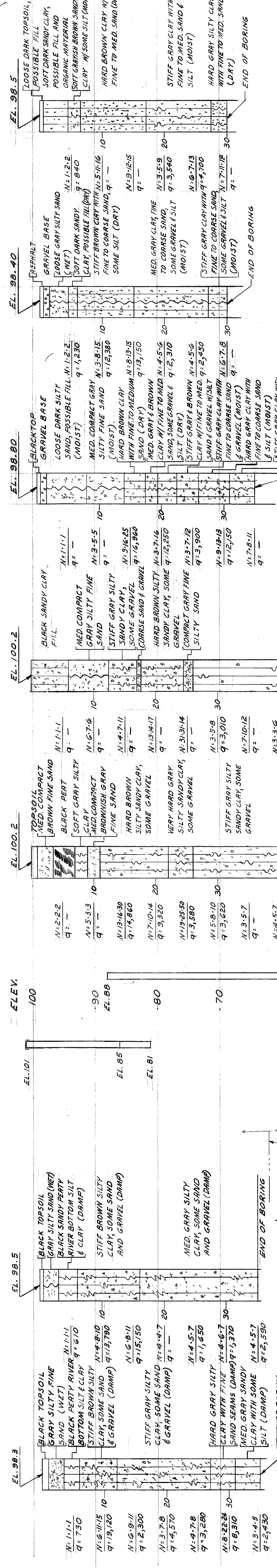
TEST HOLE NO. 3

TEST HOLE NO. 4

TEST HOLE NO. 5

TEST HOLE NO. 6

TEST HOLE NO. 7



DESIGNED BY A.L.C.
 DRAWN BY D.L.M.
 CHECKED BY J.K.
 APPROVED BY [Signature]
 STRUCTURAL ENGINEER

CITY OF DETROIT
 city engineering department
 for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION
 RIVERSIDE AVENUE OVER FOX CREEK BW-246
 UTILITY DRAWING AND SOIL BORINGS

a.o. 87-22-12 contract no.
 sheet of drawing no. S-2
 date NOV. 89

NOTES:
 THE SOIL BORING LOGS REPRESENT POINT INFORMATION. REPRESENTATION OF THE SOIL BORING LOGS IN ANY MANNER IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.
 N-1 INDICATES THE NUMBER OF BLOWS REQUIRED TO DRIVE THE 2" SAMPLER 6" (OR AS NOTED) USING A 140 L.B. HAMMER FALLING 30".
 9: UNCONFINED COMPRESSIVE STRENGTH

SYMBOL LEGEND

| SYMBOL | DESCRIPTION |
|--------|---------------------------|
| ○ | SEWER MANHOLE |
| ⊙ | WATER MANHOLE |
| ⊕ | UTILITY POLE |
| ⊗ | GAS - SHUT OFF OR MANHOLE |
| ⊘ | FIRE DEPT. HYDRANT |
| ⊚ | CATCH BASIN |
| ⊛ | SIGN ON POLE |
| ⊜ | P.L.D. LIGHT ON POLE |
| ⊝ | TREE |
| ⊞ | TEST BORING |
| ⊟ | FENCE |
| ⊠ | PROPOSED WATER GASE |

UTILITY PLAN
 SCALE 1" = 40'

UTILITY LEGEND

| UTILITY | EXISTING | TO BE ABANDONED | PROPOSED | TEMP. OBTAINED |
|-------------------------------|----------|-----------------|----------|----------------|
| MICHIGAN CONSOLIDATED GAS CO. | G | --- | --- | --- |
| MICHIGAN BELL TELEPHONE CO. | T | --- | --- | --- |
| DETROIT EDISON CO. | E | --- | --- | --- |
| PUBLIC LIGHTING DEPARTMENT | L | --- | --- | --- |
| WATER DEPARTMENT | W | --- | --- | --- |
| SEWERS | S | --- | --- | --- |
| M.D.T. UNDERGROUND CABLE | --- | --- | --- | --- |

| REVISED | DATE | BY | REVISIONS |
|---------|------|----|-----------|
| | | | |
| | | | |
| | | | |
| | | | |

designed by M.C.
 drawn by D.L.M.
 checked by J.K.
 approved: [Signature]
 STRUCTURAL ENGINEER

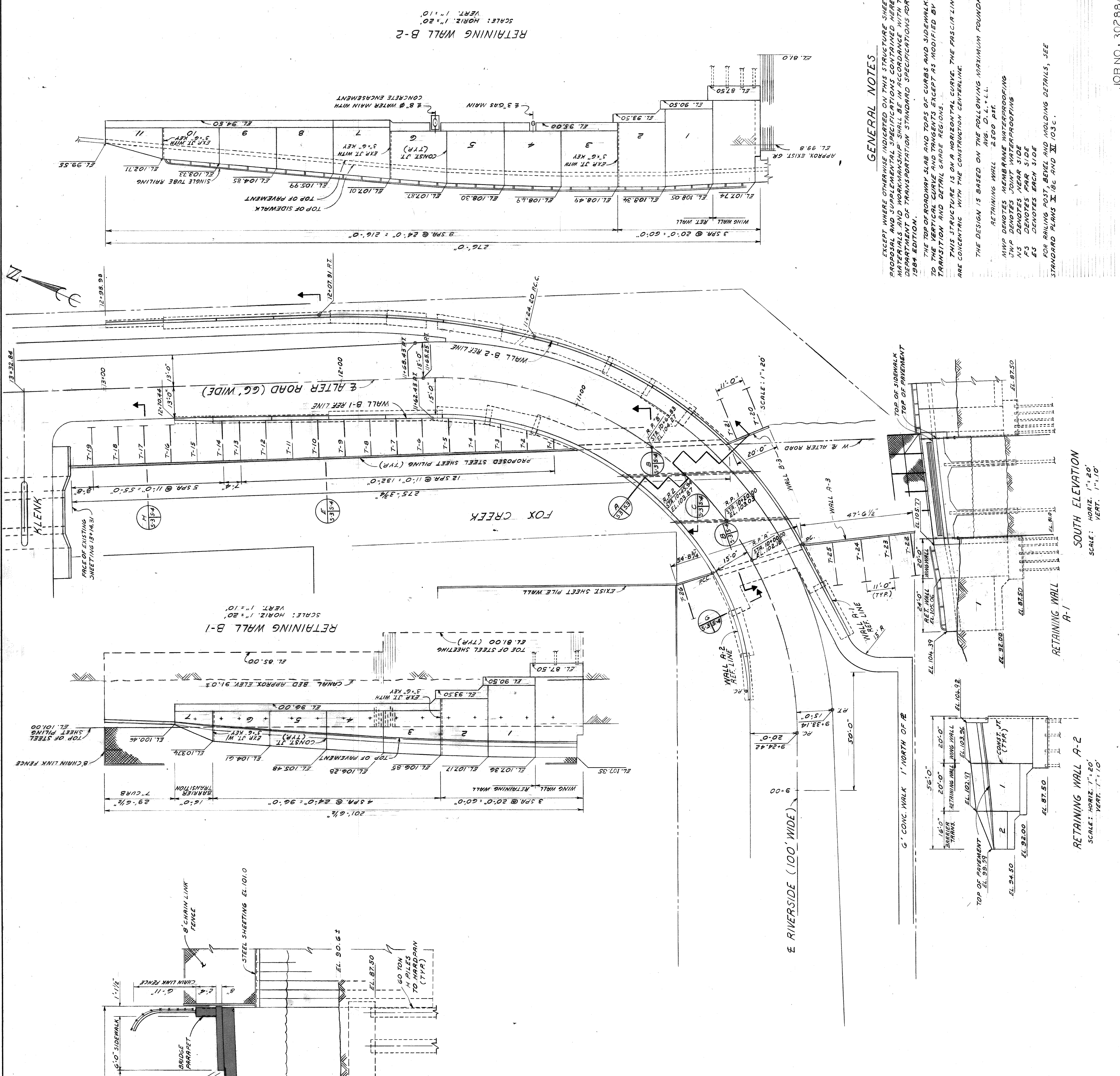
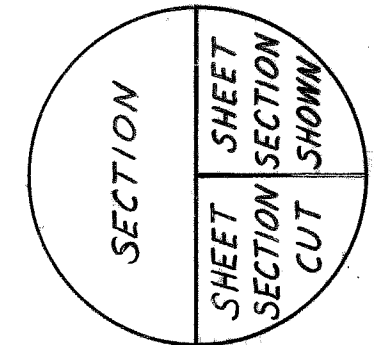
CITY OF DETROIT
 city engineering department
 for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION

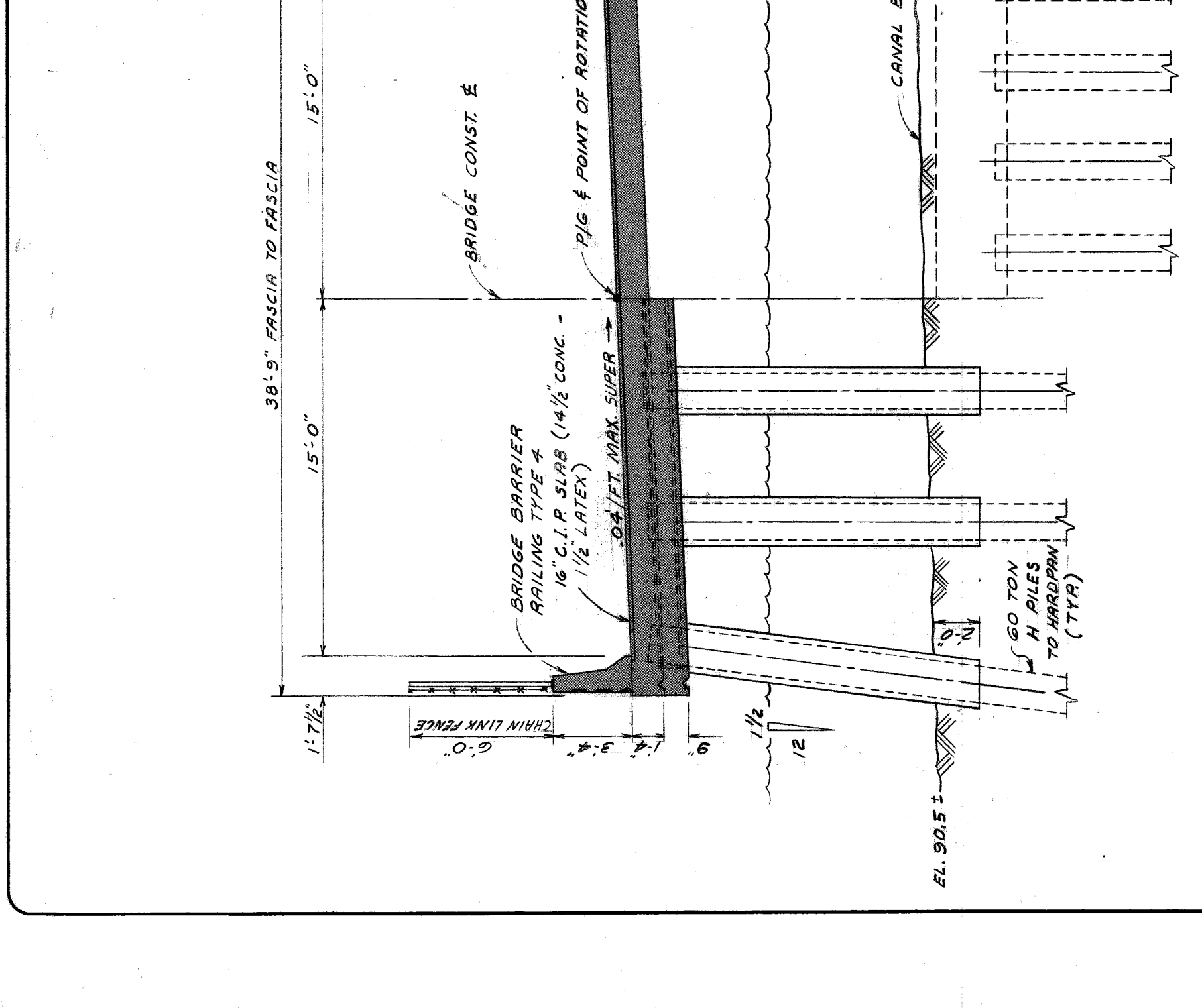
RIVERSIDE AVENUE OVER FOX CREEK BW-246

GENERAL PLAN OF STRUCTURE

a.o. 87-22-12 contract no.
 sheet of drawing no. S-3
 date NOV. 89



GENERAL NOTES
 EXCEPT WHERE OTHERWISE INDICATED ON THIS STRUCTURE SHEET OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 1984 EDITION.
 THE TOP OF ROADWAY SLAB AND TOPS OF CURBS AND SIDEWALKS ARE PARALLEL TO THE VERTICAL CURVE AND TANGENTS EXCEPT AS MODIFIED BY SUPERELEVATION TRANSITION AND DETAIL GAUGE REGIONS.
 THIS STRUCTURE IS ON A HORIZONTAL CURVE. THE FASCIA LINES AND CURB LINES ARE CONCENTRIC WITH THE CONSTRUCTION CENTERLINE.
 THE DESIGN IS BASED ON THE FOLLOWING MAXIMUM FOUNDATION PRESSURES:
 RETAINING WALL 2500 P.S.F.
 HWP DEMOTES MEMBRANE WATERPROOFING
 AS DEMOTES WATERPROOFING
 F3 DEMOTES FAS SIDE
 F3 DEMOTES EACH SIDE
 FOR RAILING POST, BEVEL AND HOLDING DETAILS, SEE STANDARD PLANS I, II, III AND XI 103c.

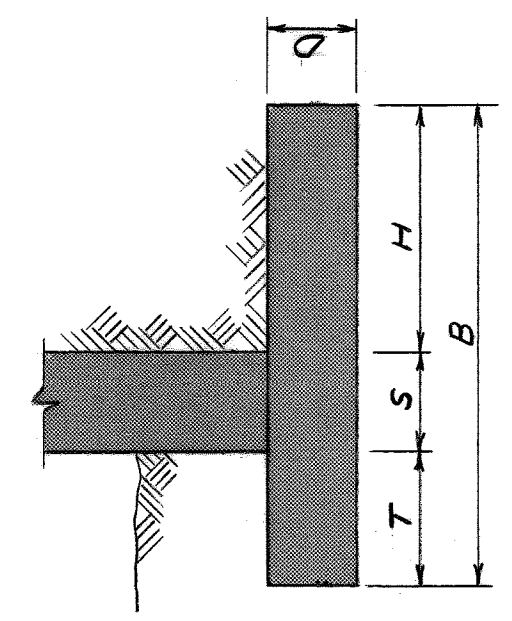


SECTION A-A
 SCALE 3/8" = 1'-0"

RETAINING WALL DIMENSIONS

| | B | T | S | H | D |
|-----|-------|-------|-----------|------------|-------|
| R-1 | 7'-6" | 1'-8" | 1'-1 1/2" | 4'-8 1/2" | 1'-6" |
| R-2 | 5'-6" | 1'-6" | 1'-7 1/2" | 2'-4 1/2" | 1'-6" |
| B-1 | 8'-0" | 2'-0" | 1'-7 1/2" | 4'-4 1/2" | 1'-6" |
| B-2 | 7'-6" | 1'-6" | 1'-7 1/2" | 2'-10 1/2" | 1'-6" |
| | 3'-4" | 1'-0" | 1'-7 1/2" | 1'-10 1/2" | 1'-6" |
| | 5'-6" | 8" | 1'-7 1/2" | 8'-1/2" | 1'-6" |
| | 9'-0" | 2'-9" | 1'-1 1/2" | 5'-10 1/2" | 1'-6" |
| | 7'-6" | 1'-8" | 1'-1 1/2" | 3'-0" | 1'-6" |
| | 5'-6" | 1'-6" | 1'-7 1/2" | 2'-2 1/2" | 1'-6" |
| | 8'-0" | 1'-6" | 1'-7 1/2" | 2'-10 1/2" | 1'-6" |
| | 5'-0" | 1'-3" | 1'-1 1/2" | 2'-10 1/2" | 1'-6" |
| | 8'-0" | 1'-6" | 1'-7 1/2" | 2'-10 1/2" | 1'-6" |
| | 3'-0" | 9" | 1'-1 1/2" | 1'-1 1/2" | 1'-6" |

* NOTE: RETAINING WALLS A-1, A-2 & B-1, B-2 DIMENSIONS T & S VARIES, SEE DETAIL SHEET



SOUTH ELEVATION
 SCALE: HORIZ. 1" = 20'
 VERT. 1" = 10'

RETAINING WALL A-2
 SCALE: HORIZ. 1" = 20'
 VERT. 1" = 10'

RETAINING WALL A-1
 SCALE: HORIZ. 1" = 20'
 VERT. 1" = 10'

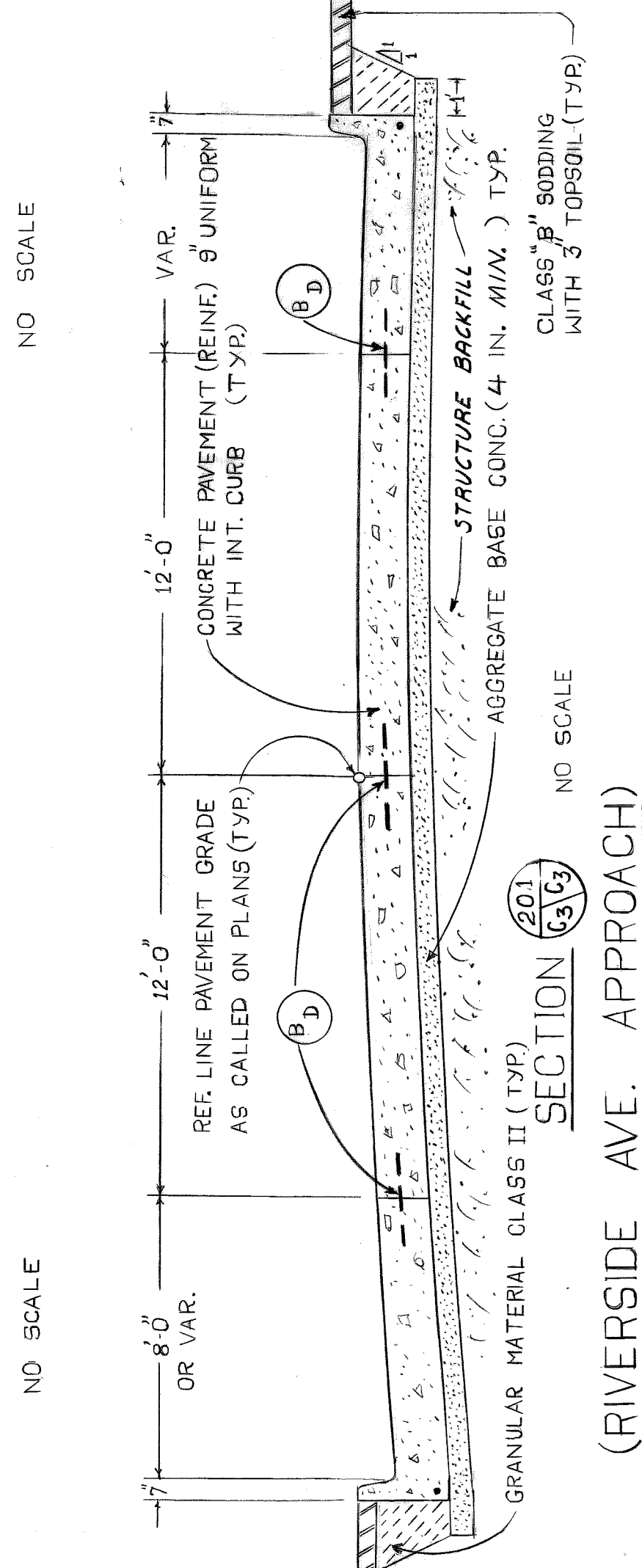
JOB NO. 30288A

DETOUR ROADWAY CURVE DATA

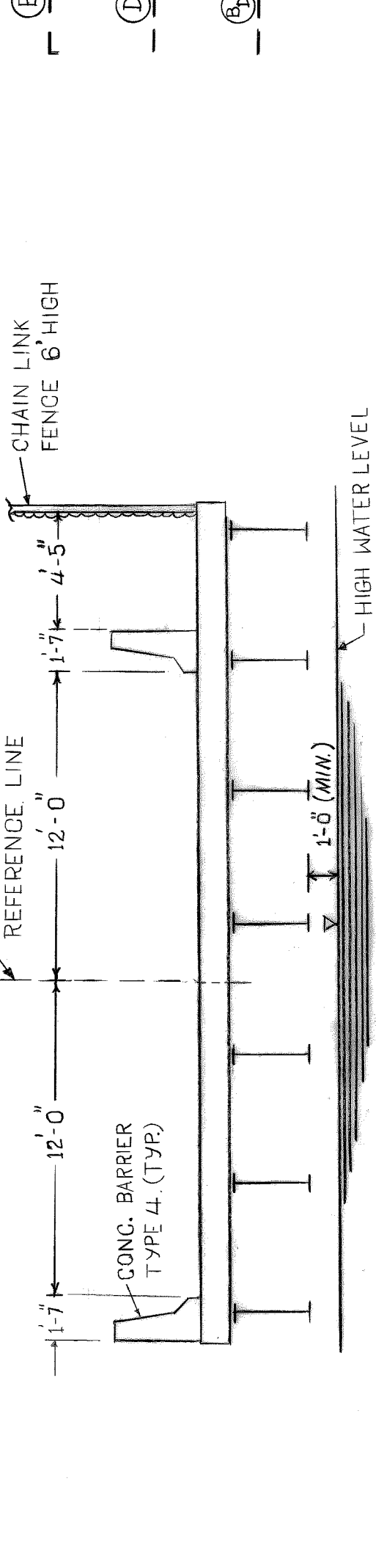
| CURVE # 1a | | CURVE # 2a | | CURVE # 3a | |
|------------|---------------|------------|---------------|------------|----------------|
| Δ | = 21°-59'-26" | Δ | = 11°-20'-40" | Δ | = 11°-20'-40" |
| D | = 30°-48'-52" | D | = 30°-48'-52" | D | = 121°-54'-53" |
| R | = 186°-00' | R | = 186°-00' | R | = 47°-00' |
| T | = 36°-14' | T | = 4°-67' | T | = 4°-67' |
| L | = 71°-39' | L | = 9°-31' | L | = 9°-31' |
| E | = 3°-48' | E | = 0°-23' | E | = 0°-23' |
| PC | = 16+60.86' | PC | = 18+52.25' | PC | = 19+97.54' |
| PT | = 17+32.25' | PT | = 19+23.64' | PT | = 20+06.85' |

| CURVE # 4a | | CURVE # 5a | |
|------------|---------------|------------|----------------|
| Δ | = 80°-38'-44" | Δ | = 88°-00'-36" |
| D | = 63°-40'-00" | D | = 249°-06'-44" |
| R | = 90°-00' | R | = 23°-00' |
| T | = 76°-39' | T | = 22°-21' |
| L | = 126°-68' | L | = 35°-33' |
| E | = 28°-05' | E | = 8°-37' |
| PC | = 20+73.93' | PC | = 24+67.79' |
| PT | = 22+00.61' | PT | = 25+03.12' |

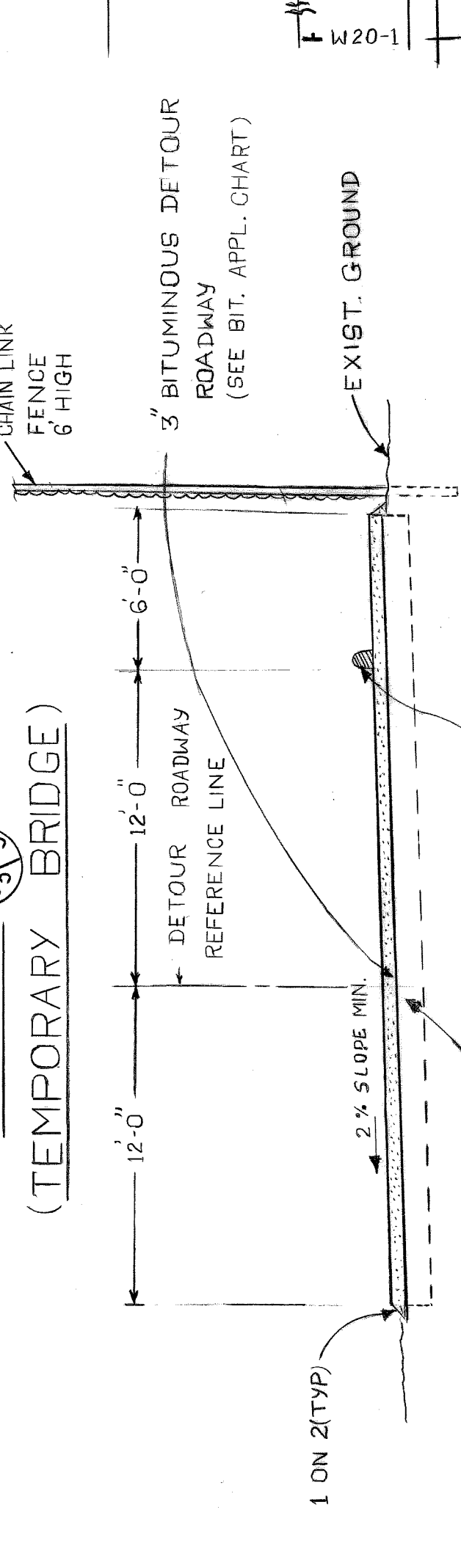
BITUMINOUS CONC. CURB DETAIL



SECTION (RIVERSIDE AVE. APPROACH)



SECTION (TEMPORARY BRIDGE)



NOTES:
 1. PLACE THE LEVELING AND WEARING COURSE DIRECTLY ON TOP OF THE EXISTING GROUND WHERE DIRECTED BY THE ENGINEER.
 2. IN AREAS OF POOR EXISTING BASE, EXCAVATE TO A DEPTH OF 6" AND BACKFILL WITH AGGREGATE BASE-BITUMINOUS AND BE INCIDENTAL TO UNCLASSIFIED FOUNDATION EXCAVATION.
 3. FOR UTILITY PLAN SEE DRG. NO. 5-2.
 4. FOR PAVEMENT REINF. SEE MDT STD DRG. II-45 F1

BITUMINOUS APPLICATION CHART

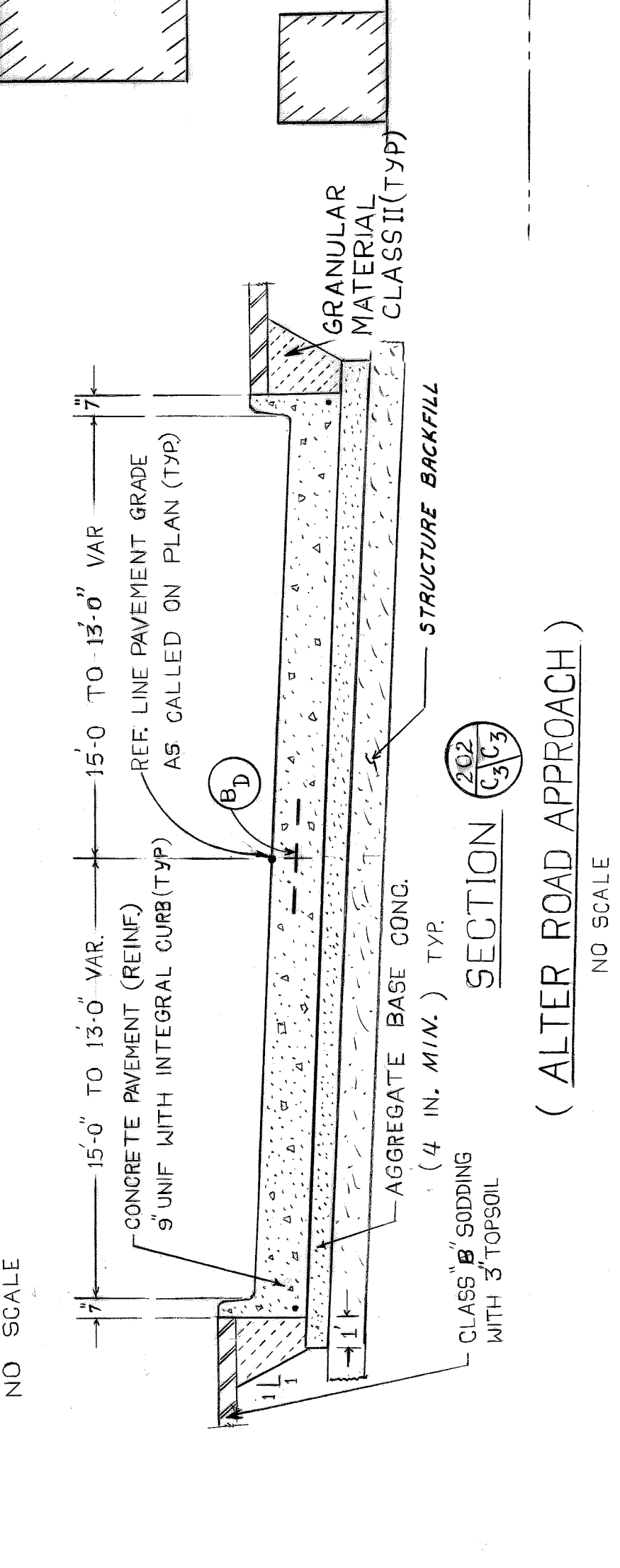
| ITEM | RATE OF APPLICATION | ESTIMATED THICKNESS | ASPHALT PENETRATION | REMARKS / LOCATION |
|--------------------------------------|---------------------|---------------------|---------------------|-------------------------------------|
| BITUMINOUS MIX. COARSE AGG. CALC | 170 LBS / S.YD. | 1 1/2 INCHES | 120-150 | FOR DETOUR ROADWAY |
| BITUMINOUS MIX. COARSE AGG. CATC | 170 LBS / S.YD. | 1 1/2 INCHES | 120-150 | FOR DETOUR ROADWAY |
| *BITUMINOUS MIX. NO. 1500 L. (20AAA) | 160 LBS / S.YD. | 1 1/2 INCHES | 85-100 | FROM STA. 13+10.00 TO STA. 13+33.45 |
| *BITUMINOUS MIX. NO. 1500 T. (20AAA) | 160 LBS / S.YD. | 1 1/2 INCHES | 85-100 | STA. 13+33.45 |

BITUMINOUS BOND COAT 0-0.10 GAL / S.YD. TO RIGID BASES AND 0-0.05 GAL / S.YD. TACK COAT BETWEEN LAYERS.
 USE BITUMINOUS MIX NO. 1500L (20AAA) FOR WEARING REQUIRED BETWEEN STA. 13+10.00 AND STA. 13+33.45
 * PAYMENT FOR AS CONSTRUCTED QUANTITIES OF BITUMINOUS MIX 1500 L & T WILL BE AT UNIT PRICES FOR BITUMINOUS MIX COARSE AGG. CALC & CATC RESPECTIVELY.

CONSTRUCTION SIGNING LEGEND

- W20-1 = CONSTRUCTION AHEAD
- W20-2 = DETOUR AHEAD
- M4-10 = BARRICADE TYPE III (LIGHTED)
- R11-2 = DETOUR-LEFT OR RIGHT ARROW
- W1-2 = ROAD CLOSED
- W1-4 = WARNING ARROW
- W1-6 = WARNING ARROW (TARGET)
- R11-4 = BARRICADE TYPE II (LIGHTED)
- N13-1 = ROAD CLOSED TO THRU TRAFFIC
- N13-1 = SPEED LIMIT 10 M.P.H.

CONCRETE CURB, DETAIL CD



SECTION (ALTER ROAD APPROACH)



JOINT LEGEND

- (B) LONGITUDINAL BULKHEAD JOINT, ACCORDING TO M.D.O.T. STD. DRG. II-41 E
- (D) LONGITUDINAL LANE TIE JOINT WITH TIE BAR, ACCORDING TO M.D.O.T. STD. DRG. II-41 E
- (B) OPTIONAL, B OR D.

SECTION (TEMPORARY DETOUR ROADWAY)



NOTES:
 1. PLACE THE LEVELING AND WEARING COURSE DIRECTLY ON TOP OF THE EXISTING GROUND WHERE DIRECTED BY THE ENGINEER.
 2. IN AREAS OF POOR EXISTING BASE, EXCAVATE TO A DEPTH OF 6" AND BACKFILL WITH AGGREGATE BASE-BITUMINOUS AND BE INCIDENTAL TO UNCLASSIFIED FOUNDATION EXCAVATION.
 3. FOR UTILITY PLAN SEE DRG. NO. 5-2.
 4. FOR PAVEMENT REINF. SEE MDT STD DRG. II-45 F1

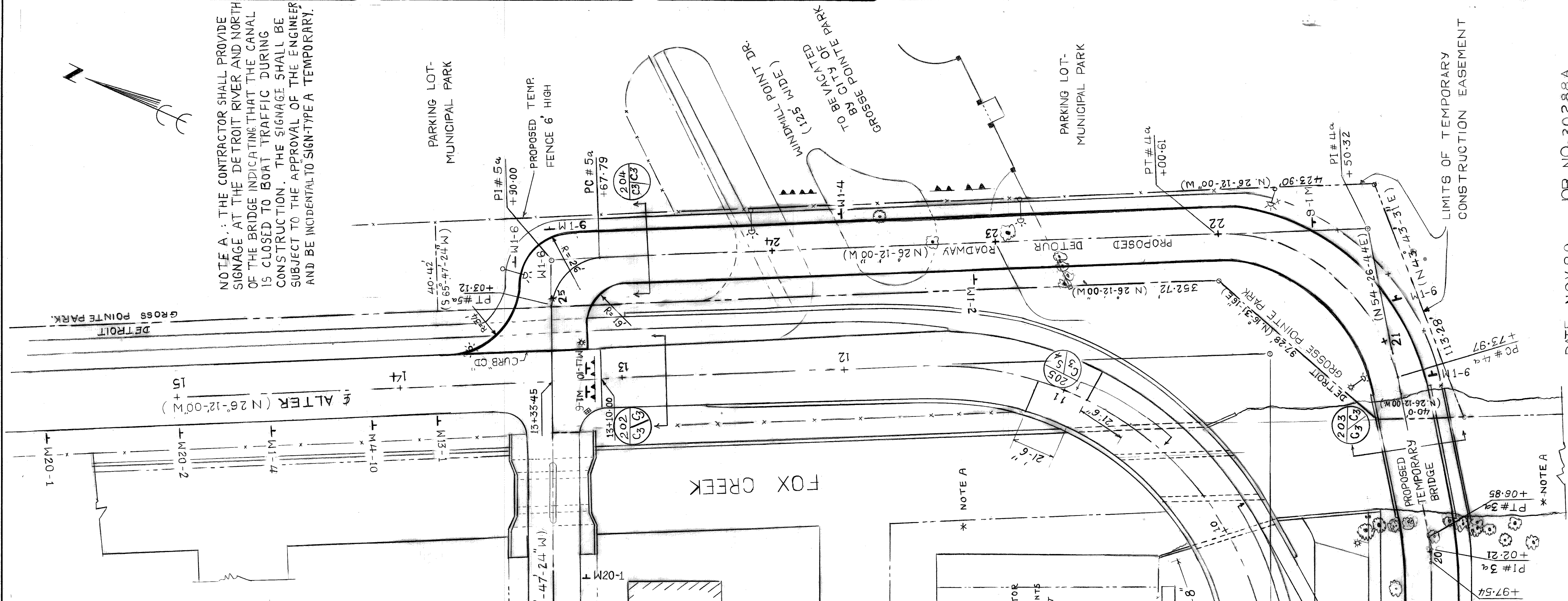
| REVISED | DATE | BY | REVISIONS |
|---------|------|----|-----------|
| | | | |
| | | | |
| | | | |
| | | | |

DESIGNED BY: S. PATEL
 DRAWN BY: [blank]
 CHECKED BY: [blank]
 APPROVED: [blank]

CITY OF DETROIT
 city engineering department
 for

BRIDGE RECONSTRUCTION
 RIVERSIDE AVENUE OVER FOX CREEK
 BW-246
 DETOUR ROADWAY

a.o. 87-22-12
 contract no.
 sheet of
 drawing no. C-3
 date NOV. 89



NOTE A: THE CONTRACTOR SHALL PROVIDE SIGNAGE AT THE DETROIT RIVER AND NORTH OF THE BRIDGE INDICATING THAT THE CANAL IS CLOSED TO BOAT TRAFFIC DURING CONSTRUCTION. THE SIGNAGE SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER AND BE INCIDENTAL TO SIGN-TYPE A TEMPORARY.

NOTE: THE CONTRACTOR WILL MAINTAIN LOCAL ACCESS FOR THE RESIDENTS OF 14719 RIVERSIDE AT ALL TIMES.

DETOUR ROADWAY PLAN

| REVISED | DATE | BY | REVISIONS |
|---------|------|----|-----------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

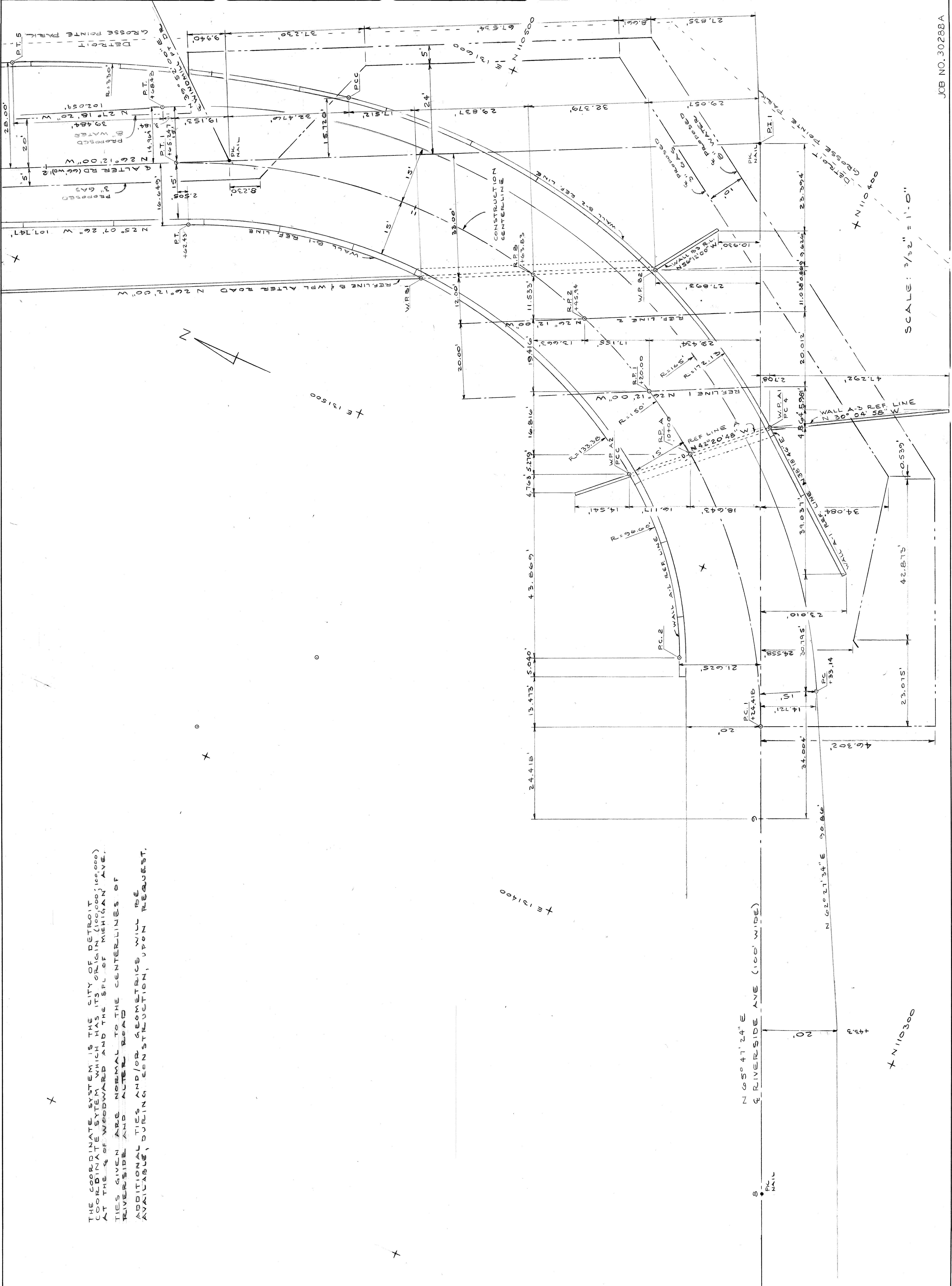
designed by **RAC**
 drawn by **RAC**
 checked by
 approved by

CITY OF DETROIT
 city engineering department
 for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION
 RIVERSIDE AVENUE OVER FOX CREEK
 BW - 246

ALIGNMENT AND STAKE OUT

a.o. contract no.
 sheet of
 drawing no. C-4
 date NOV.89



THE COORDINATE SYSTEM IS THE CITY OF DETROIT COORDINATE SYSTEM WHICH HAS ITS ORIGIN (100,000,100,000) AT THE CORNER OF WOODWARD AND THE S.W. CORNER OF MICHIGAN AVE. TIES GIVEN ARE NORMAL TO THE CENTERLINES OF RIVERSIDE AND AUTEUR ROAD. ADDITIONAL TIES AND/OR GEOMETRICS WILL BE AVAILABLE, DURING CONSTRUCTION, UPON REQUEST.

JOB NO. 30288A

SCALE: 3/32" = 1'-0"

E 131400

E 131500