APPENDIX 'C'

REFERENCE DRAWINGS

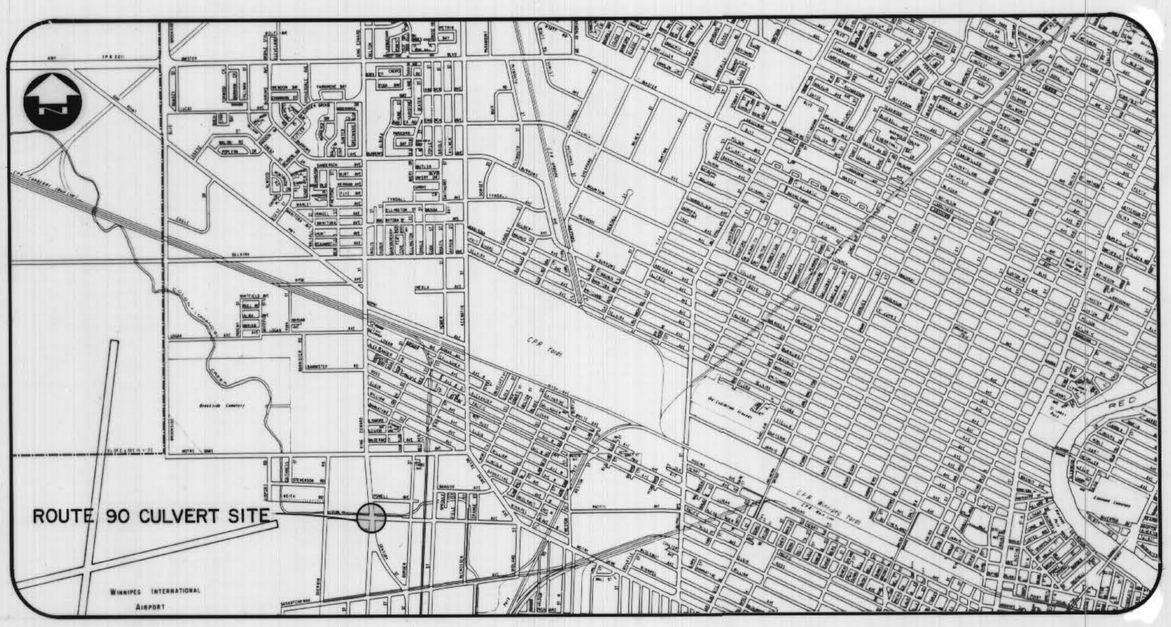
CITY OF WINNIPEG

WORKS AND OPERATIONS DIVISION

STREETS AND TRANSPORTATION DEPARTMENT

ROUTE 90 CULVERT AT OMAND'S CREEK
TOP SLAB REHABILITATION, STRUCTURAL STRENGTHENING AND RELATED WORKS

P.D. NO. 85-104



LOCATION PLAN

DESIGN DATA

DESIGN SPECIFICATIONS	-	AASHTO 1983
LIVE LOADING	-	HSS 25-44 TRUCK LOADING HS 25-44 LANE LOADING
STRUCTURAL CONCRETE	-	f'_c = 30 MPa
REINFORCING STEEL	-	CSA G30.12-M77 GRADE 400
STRUCTURAL STEEL	-	CSA CAN 3 - G40.21-M81 GRADE 300W
ALUMINUM	-	ASTM B221
HIGH DENSITY CONCRETE	-	100mm CONCRETE TOPING ON CULVERT TOP SLAB
CLEAR COVER TO REINFORCING STEEL	-	60mm ± 10mm

DRAWING LIST

C315-85-01	COVER SHEET
C315-85-02	GENERAL ARRANGEMENT & LOCATION OF PROPOSED WORKS
C315-85-03	TRAFFIC ROUTING & CONSTRUCTION SEQUENCE
C315-85-04	DETAILS OF TOP SLAB MODIFICATIONS AND APPROACH SLABS
C315-85-05	ASPHALT OVERLAY - LAYOUT & GRADES
C315-85-06	LAYOUT & DETAILS OF ALUMINUM PEDESTRIAN HANDRAIL
C315-85-07	LAYOUT OF BALANCED ALUMINUM SHOULDER BARRIER, HEADWALL CHAINLINK FENCE & RIPRAP
C315-85-08	BALANCED ALUMINUM SHOULDER BARRIER STANDARD DETAILS
C315-85-09	DETAILS OF ALUMINUM BRIDGE RAIL POSTS

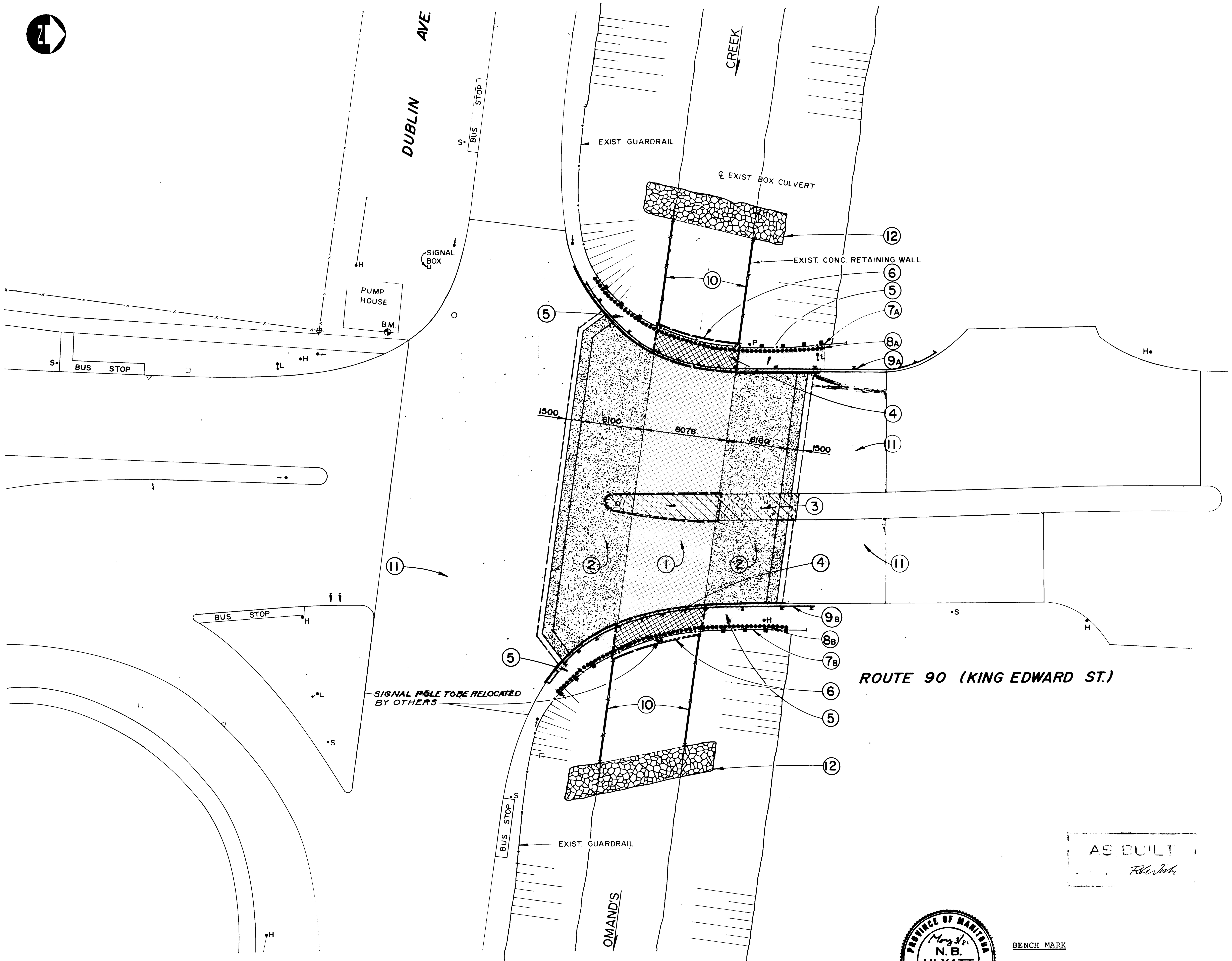
DILLON
Consulting Engineers & Planners

RELEASED FOR CONSTRUCTION
85 05 03
MANAGER OF STREETS AND TRAFFIC

AS BUILT
APPROVED BY:

DWG. NO. C315-85-01

B-5530-1



AS BUILT

PLAN

PROPOSED WORKS		REFERENCE DRAWING NUMBER
1	REMOVE EXISTING CONCRETE FROM MEDIAN SLAB, CULVERT WALLS, 25 - 50mm FROM CULVERT TOP SLAB. CONSTRUCT NEW APPROACH SLAB SEATS. PLACE ADDITIONAL REINFORCING STEEL, SAND BLAST EXISTING REINFORCING STEEL AND PLACE MIN. 100mm THICK HIGH DENSITY CONCRETE TOPPING	C315-85-04
2	REMOVE EXISTING APPROACH SLABS, CURBS, AND APPROACH SIDEWALK SLABS. CONSTRUCT NEW APPROACH SLABS	C315-85-04
3	CONSTRUCT NEW MONOLITHIC CONCRETE APPROACH MEDIAN SLAB	C315-85-04
4	CONSTRUCT CULVERT SIDEWALK MODIFICATIONS C/W MONOLITHIC PARAPET	C315-85-04
5	CONSTRUCTION OF NEW APPROACH STRUCTURAL SIDEWALK SLABS C/W MONOLITHIC PARAPET AND CAISSONS	C315-85-02,04
6	APPLY SURFACE MEMBRANE ON CULVERT SIDEWALKS	C315-85-04
7	REMOVE EXISTING FLEX-BEAM TRAFFIC/ PEDESTRIAN BARRIER A - LENGTH = 54M B - LENGTH = 54M	C315-85-02
8	INSTALL NEW ALUMINUM PEDESTRIAN HANDRAIL A - LENGTH = 23.5M B - LENGTH = 23.5M	C315-05-06
9	INSTALL NEW BALANCED ALUMINUM SHOULDER BARRIER A - LENGTH = 37M B - LENGTH = 27M	C315-85-07,08,09
10	INSTALL NEW GALVANIZED CHAINLINK FENCING ON HEADWALLS	C315-85-07
11	ASPHALT OVERLAY AND RELATED WORK	C315-85-05
12	INSTALL GROUTED FIELDSTONE RIPRAP	C315-85-07

NOTE: THE EXECUTION OF PROPOSED WORKS ABOVE SHALL BE IN ACCORDANCE WITH THE TRAFFIC ROUTING AND CONSTRUCTION SEQUENCE SHOWN ON DRAWING C315-85-03.

GENERAL NOTES

1. STRUCTURAL CONCRETE:

		28-Day STRENGTH (MPa)	AGGR. (mm)	SLUMP (mm)	CEMENT TYPE	ENTRAINED AIR %
A)	APPROACH SLABS	30	40	60	10	4 - 7
B)	APPROACH SLAB SEATS AND ALL OTHER CONCRETE	30	20	80±25	50	5 - 8
C)	SIDEWALKS	30	20	80±25	10	5 - 8
D)	CAISSONS	30	40	100±25	50	3 - 6

REFER TO SPECS FOR ADDITIONAL PROPERTIES OF STRUCTURAL CONCRETE.

2. REINFORCING STEEL SHALL BE NEW DEFORMED BILLET BARS TO CSA G30.12-M77 STIRRUPS AND TIES GRADE 300 ALL OTHER BARS GRADE 400
3. ALL NEW TOP BARS AND ALL BARS MARKED THUS * SHALL BE FACTORY EPOXY COATED.
4. ALL EXPOSED EXISTING REINFORCING STEEL SHALL BE SANDBLASTED UNLESS OTHERWISE SPECIFIED FOR REPLACEMENT WITH NEW EPOXY COATED BARS.
5. MINIMUM LAP SPLICE LENGTHS SHALL BE 40 BAR DIAMETERS UNLESS OTHERWISE NOTED.
6. CONCRETE CLEAR COVER TO REINFORCING STEEL SHALL BE 60mm UNLESS OTHERWISE NOTED.
7. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 13mm UNLESS OTHERWISE SHOWN.
8. CONSTRUCTION JOINTS THAT ARE REQUIRED BUT NOT SHOWN ARE TO HAVE FORMED KEY AND MUST BE APPROVED BY THE ENGINEER.

PROVINCE OF MANITOBA — N. B. ULYATT — REGISTERED ENGINEER (May 3/85)

BENCH MARK

B.M. #23022 S.W. CORNER KING EDWARD STREET @ DUBLIN AVE. TBLT. IN EAST FOUNDATION OF PUMPING STATION 4 m. NORTH EAST. 1 m. BELOW TOP OF PLATFORM ELEVATION 234.879

B-5530-2
METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

ITEM	
POLES - HYDRO(H) M.T.S.(T)	
SIGNAL POLE	
LIGHT STANDARD	
SURVEY BAR	
FIRE HYDRANT	
WATER VALVE	

ITEM	EXISTING	PROPOSED
EDGE OF PAV'T NO CURB		
EDGE OF PAV'T CURBED		
EDGE PAV'T CURB & GUTTER		
PARAPLEGIC RAMP		
ELEVATIONS	40265	(40265)
ASPHALT OVERLAY		
PROPERTY LINE		
MANHOLE	○	●
CATCH BASIN	□	■
CATCH BASIN INLET	▽	▼

WARNING

IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST
1) NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION
2) TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS
SEE PROVINCIAL REGULATION 210/72 FOR DETAILS

LOCATION APPROVED UNDERGROUND STRUCTURES

DATE SUPERVISOR

LOCATIONS OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

NO	REVISIONS	DATE	APP

PROVINCE OF MANITOBA — S. S. RIHAL — REGISTERED ENGINEER (May 3/85)

ENGINEER'S SEAL

DILLON
Consulting Engineers & Planners

DESIGNED BY S.S.R.	DRAWN BY C.R.B.
CHECKED BY N.B.U.	DATE MAY/85
APPROVED BY NB Ulyatt	DATE May 3/85

THE CITY OF WINNIPEG
WORKS & OPERATIONS DIVISION
STREETS & TRANSPORTATION DEPARTMENT

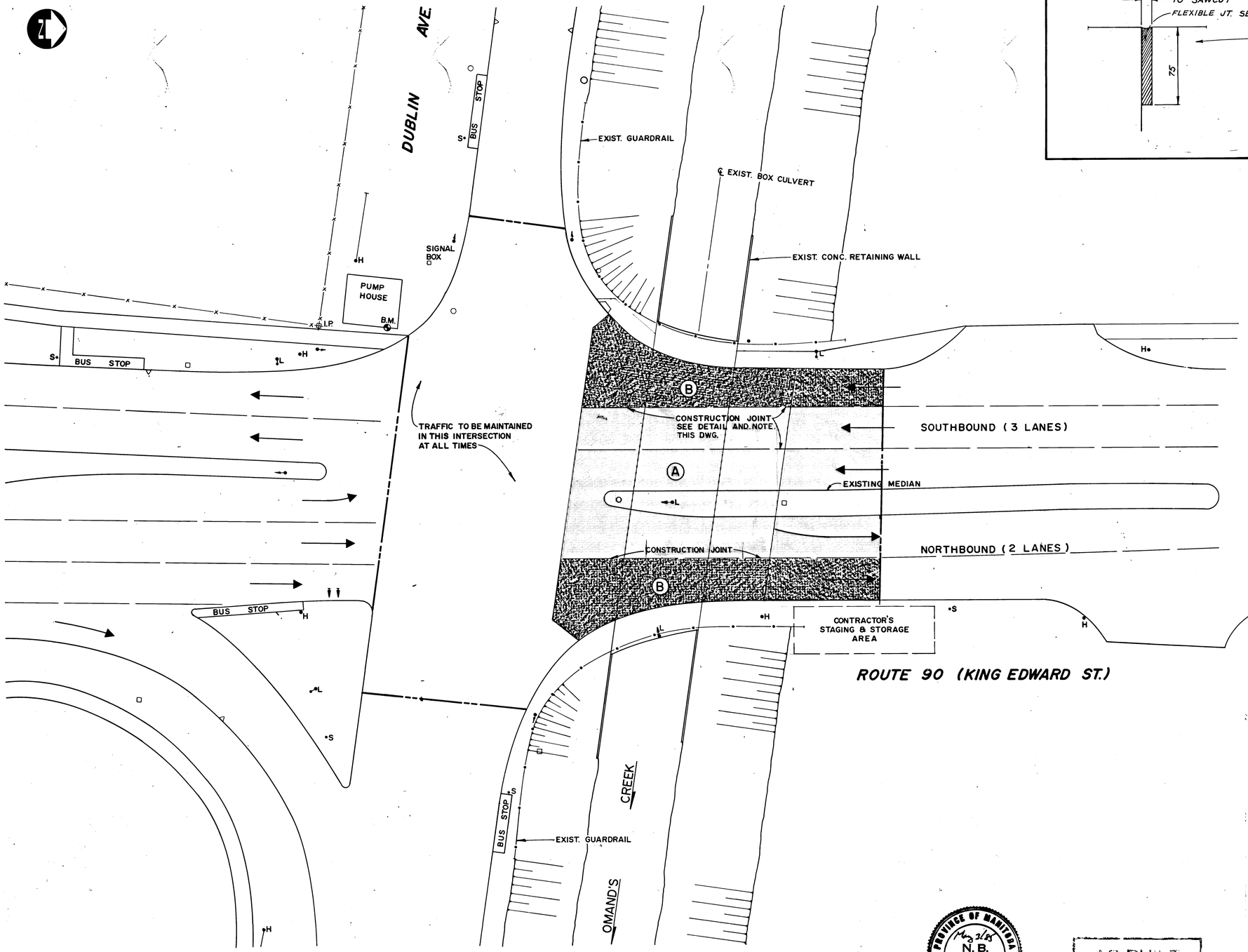
ROUTE 90 CULVERT AT OMAND'S CREEK
TOP SLAB REHABILITATION, STRUCTURAL STRENGTHENING AND RELATED WORKS

GENERAL ARRANGEMENT AND LOCATION OF PROPOSED WORKS

AUTHORIZED BY: ___, P.Eng. STREETS & BRIDGES ENGINEER — DATE 1985-05-03
ACCEPTED BY: ___, P.Eng. BRIDGE ENGINEER — DATE 1986 05 03

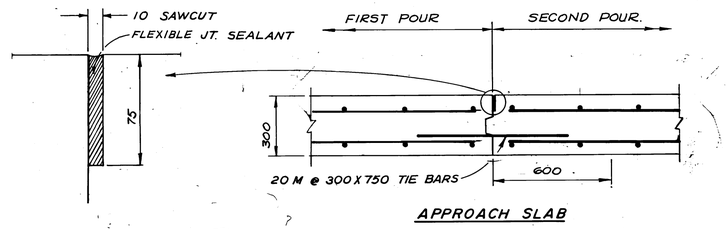
SCALE 1:200 — DRAWING NO C315-85-02

M.M.D. 9439-01
FIELD BOOK NO. B-43-1

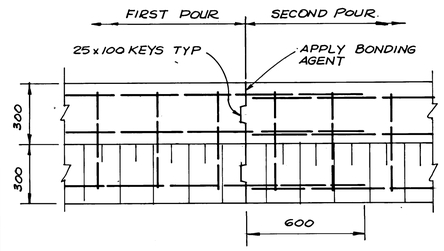


PLAN

ROUTE 90 (KING EDWARD ST.)



APPROACH SLAB



APPROACH SLAB SEAT

CONSTRUCTION JOINTS

1 : 15

NOTES

1. CONCRETE SHEAR KEY IS NOT REQ'D. FOR CONST. JT. ℄ R/W KING EDWARD.
2. BOTTOM LAYER OF REINFORCING STL. SHALL BE CONTINOUS @ CONST. JT. ℄ R/W KING EDWARD.

CONSTRUCTION SEQUENCE

1. AT LEAST ONE LANE OF TRAFFIC IS TO BE MAINTAINED IN THE NORTHBOUND AND SOUTHBOUND DIRECTIONS AT ALL TIMES.
2. THE WORKS SHALL BE UNDERTAKEN IN STAGES. CLOSURES BY THE CONTRACTOR WILL BE PERMITTED SEPARATELY IN AREAS "A" AND "B" IN THE SEQUENCE INDICATED BELOW. PARTIAL CLOSURES BY THE CONTRACTOR WILL BE ALLOWED FOR ASPHALT RESURFACING AND ALL OTHER RELATED WORKS WHILE MAINTAINING TRAFFIC IN THE INTERSECTION.
   A) STAGE I: CONSTRUCT APPLICABLE PORTIONS OF CONCRETE WORKS (1), (2), (4), (5), (6), AND (11) (SEE DRAWING C315-85-02) BY CLOSING AREA "A" BUT KEEPING AREA "B" OPEN TO TRAFFIC.
   B) STAGE II: CONSTRUCT APPLICABLE PORTIONS OF CONCRETE WORKS (1), (2), (3), and (6) IN AREA "B" WHILE KEEPING AREA "A" OPEN TO TRAFFIC.
   C) STAGE III: CARRY OUT ASPHALT RESURFACING IN ONE LANE AT A TIME AFTER COMPLETION OF STAGE I AND II.
3. ANY REQUEST FOR DEVIATION FROM THE ABOVE IDENTIFIED CONSTRUCTION SEQUENCE MUST BE SUBMITTED TO THE ENGINEER IN WRITING WITH AT LEAST SEVEN (7) DAYS NOTICE.
4. AT LEAST ONE OF THE TWO EXISTING TRAFFIC SIGNAL LIGHTS FOR NORTHBOUND TRAFFIC LOCATED ON THE STRUCTURE IS TO REMAIN IN SERVICE AT ALL TIMES DURING STAGE I AND STAGE II WORKS.
5. INSTALLATION OF TEMPORARY OVERHEAD POWER LINES AS WELL AS REMOVAL AND REINSTALLATION OF THE SIGNAL POLES WILL BE CARRIED OUT BY OTHERS.

PROVINCE OF MANITOBA — May 3/85 — N.B. ULYATT — REGISTERED ENGINEER

AS BUILT — APPROVED BY: RMcVicker

B-5530-3

ITEM	
POLES - HYDRO(H) M.T.S.(T)	
SIGNAL POLE	
LIGHT STANDARD	
SURVEY BAR	
FIRE HYDRANT	
WATER VALVE	

ITEM	EXISTING	PROPOSED
EDGE OF PAVT. NO CURB		
EDGE OF PAVT. CURBED		
EDGE PAVT. CURB & GUTTER		
PARAPLEGIC RAMP		
ELEVATIONS	40.265	(40.265)
ASPHALT OVERLAY		
PROPERTY LINE		
MANHOLE	○	●
CATCH BASIN	□	■
CATCH BASIN INLET	▽	▼

WARNING

IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST:
1) NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION.
2) TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS.
SEE PROVINCIAL REGULATION 210/72 FOR DETAILS

LOCATION APPROVED UNDERGROUND STRUCTURES

DATE _____ SUPERVISOR _____

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NO	REVISIONS	DATE	APP.

PROVINCE OF MANITOBA — May 3/85 — S.S. RIHAL — REGISTERED ENGINEER — ENGINEER'S SEAL

DILLON Consulting Engineers & Planners

DESIGNED BY: S.S.R.	DRAWN BY: C.R.B.
CHECKED BY: N.B.U.	DATE: MAY/85
APPROVED BY:	DATE: May 3/85

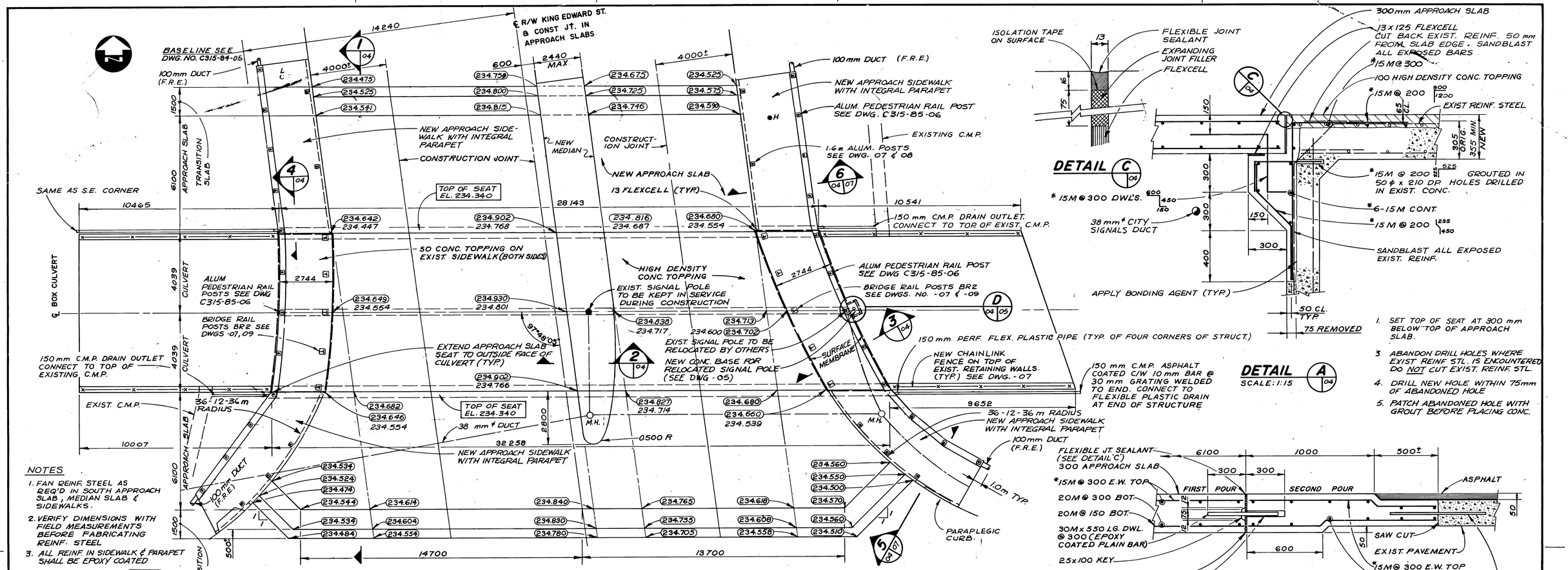
THE CITY OF WINNIPEG
WORKS & OPERATIONS DIVISION
STREETS & TRANSPORTATION DEPARTMENT

ROUTE 90 CULVERT AT OMAND'S CREEK
TOP SLAB REHABILITATION, STRUCTURAL STRENGTHENING AND RELATED WORKS

TRAFFIC ROUTING AND CONSTRUCTION SEQUENCE

AUTHORIZED BY: STREETS & BRIDGES ENGINEER	DATE: 1985-05-03
ACCEPTED BY: BRIDGE ENGINEER	DATE: 1985 05 03
SCALE: 1:200	DRAWING NO: C315-85-03

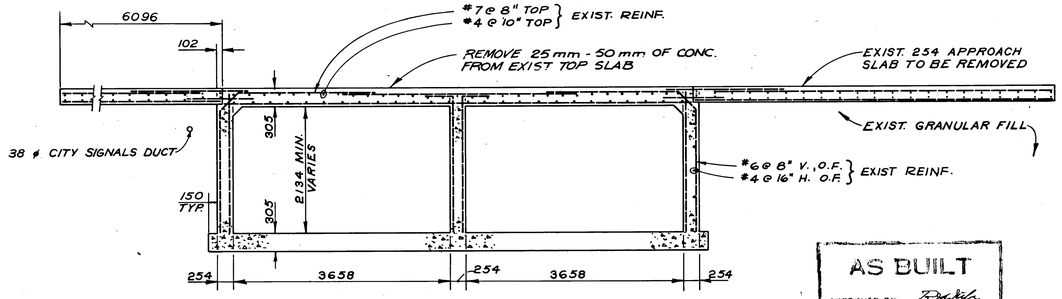
M.M.D. 9439-01
FIELD BOOK NO. B-43-1



NOTES

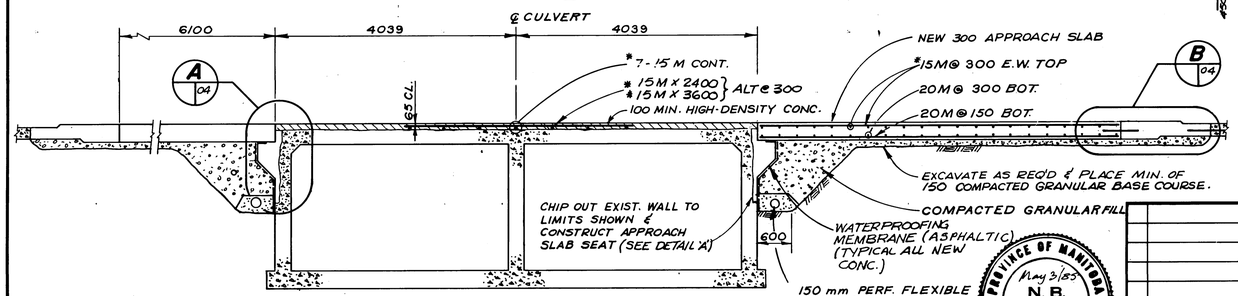
1. FAN REINF. STEEL AS REQ'D IN SOUTH APPROACH SLAB, MEDIAN SLAB & SIDEWALKS.
2. VERIFY DIMENSIONS WITH FIELD MEASUREMENTS BEFORE FABRICATING REINF. STEEL
3. ALL REINF. IN SIDEWALK & PARAPET SHALL BE EPOXY COATED
4. PROPOSED ELEV. (234.646)
5. AS BUILT ELEV. OF BOTTOM OF HIGH DENSITY CONCRETE 234.806

PLAN
SCALE: 1:100



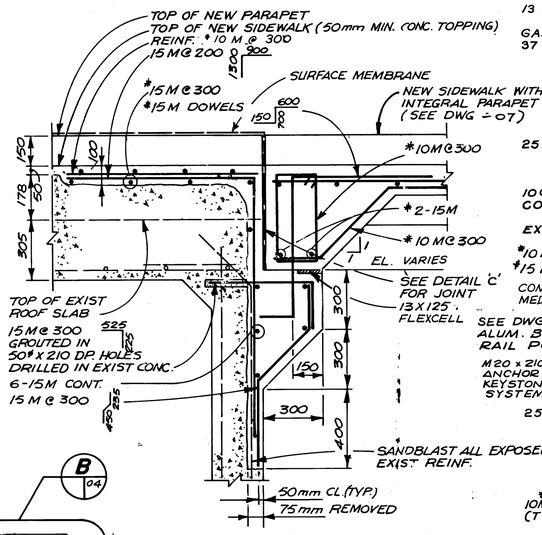
AS BUILT
APPROVED BY: [signature]

SECTION 1 SCALE: 1:50



SHOWING NEW WORK

SECTION 1 SCALE: 1:50

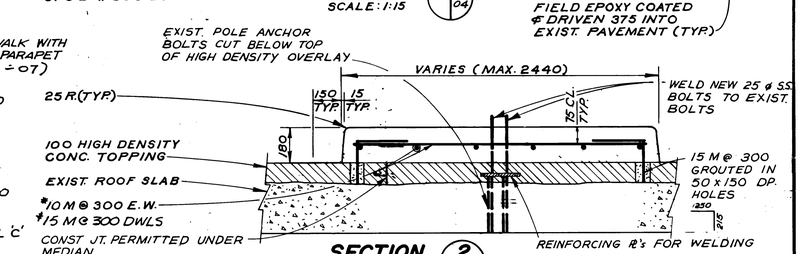


SECTION 4 SCALE 1:15

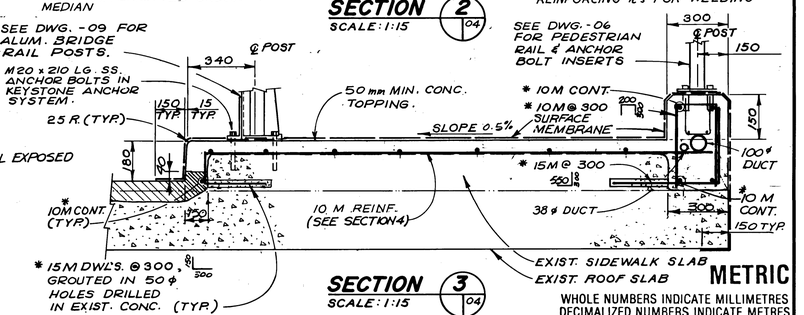
1. SET TOP OF SEAT AT 300 mm BELOW TOP OF APPROACH SLAB.
3. ABANDON DRILL HOLES WHERE EXIST REINF STL. IS ENCOUNTERED DO NOT CUT EXIST. REINF. STL.
4. DRILL NEW HOLE WITHIN 75mm OF ABANDONED HOLE
5. PATCH ABANDONED HOLE WITH GROUT BEFORE PLACING CONC.

DETAIL A SCALE: 1:15

DETAIL B SCALE: 1:15



SECTION 2 SCALE: 1:15



SECTION 3 SCALE: 1:15

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

NO.	REVISIONS	DATE	APP.

PROVINCE OF MANITOBA — May 3/85 — N. B. ULYATT — REGISTERED ENGINEER

PROVINCE OF MANITOBA — May 3/85 — S. S. RIHAL — REGISTERED ENGINEER
ENGINEER'S SEAL

DILLON
Consulting Engineers & Planners

DESIGNED BY: S.S.R.	DRAWN BY: C.R.B.
CHECKED BY: N.B.U.	DATE: MAY 85
APPROVED BY: [signature]	DATE: May 3/85

THE CITY OF WINNIPEG
WORKS & OPERATIONS DIVISION
STREETS & TRANSPORTATION DEPARTMENT

ROUTE 90 CULVERT AT OMAND'S CREEK
TOP SLAB REHABILITATION, STRUCTURAL STRENGTHENING AND RELATED WORKS

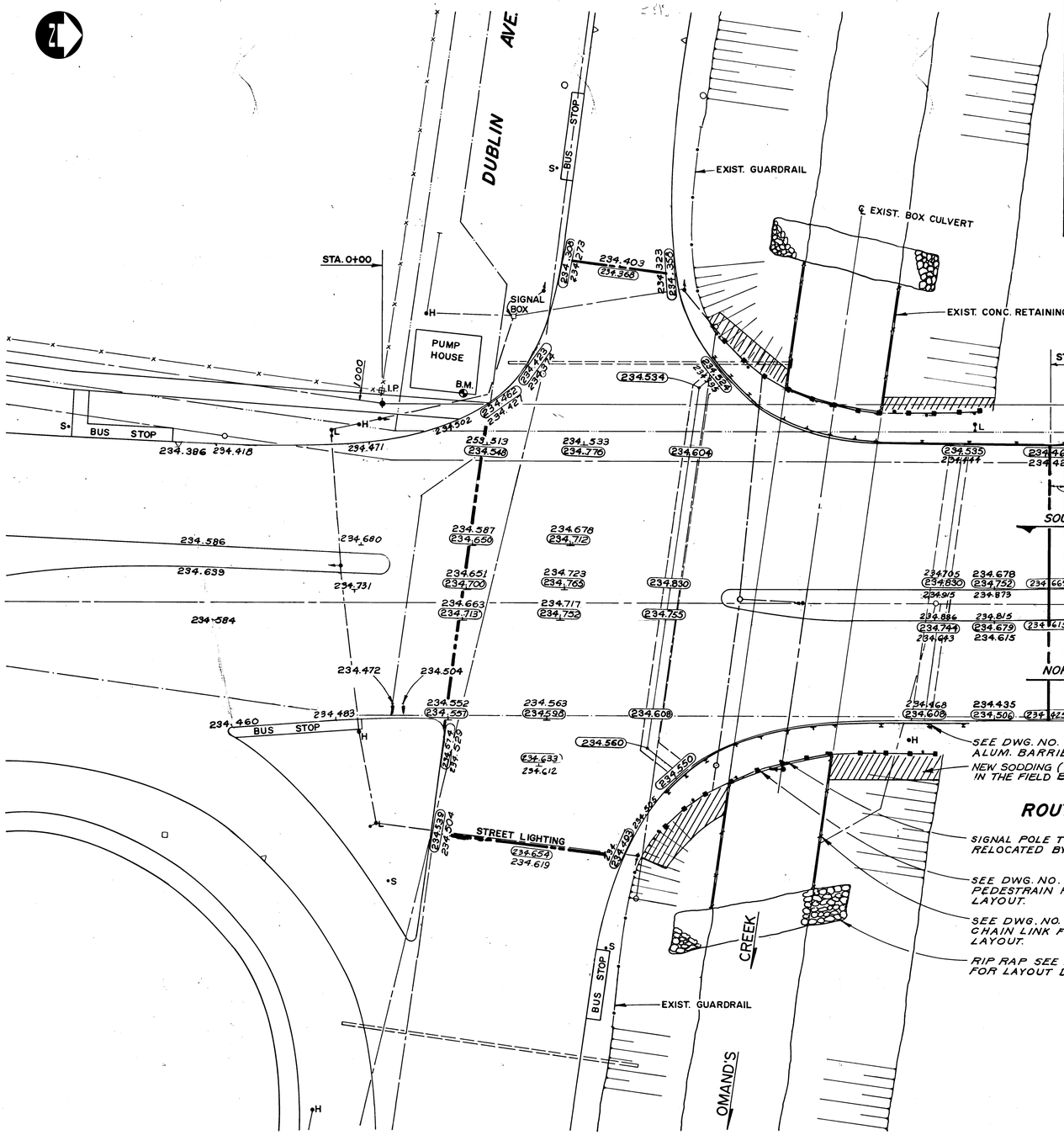
DETAILS OF TOP SLAB MODIFICATIONS AND APPROACH SLABS

AUTHORIZED BY: [signature] P.Eng. 1985-05-03 — STREETS & BRIDGES ENGINEER — DATE
ACCEPTED BY: [signature] P.Eng. 1985 05 03 — BRIDGE ENGINEER — DATE

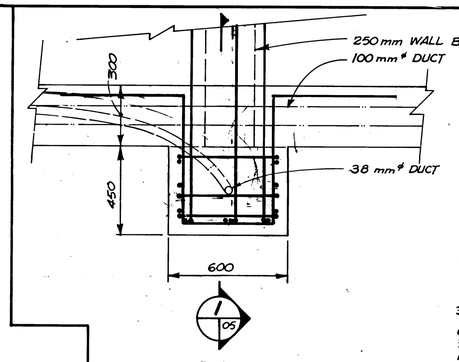
SCALE: AS NOTED | DRAWING NO. C 315-85-04

M.M.D. 9439-01
FIELD BOOK NO. B-43-1

B-5530-4

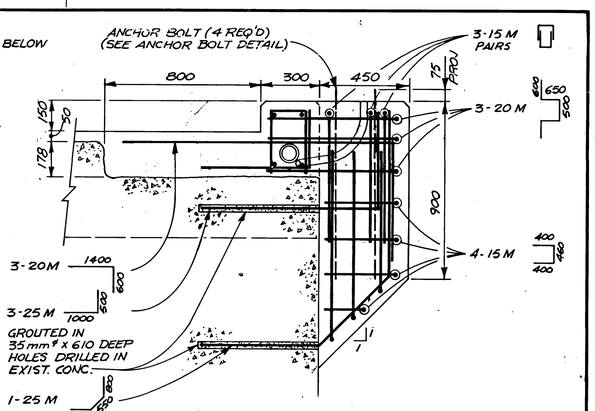


PLAN

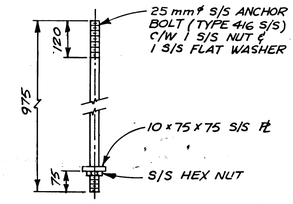


PLAN

DETAIL D (05 | 04)
SCALE 1:15



SECTION I (05)
SCALE 1:15



ANCHOR BOLT DETAIL
SCALE 1:10 (4 REQ'D)

NOTES

1. PLACE ASPHALT TOPPING IN SHADED AREAS TO NEW GRADES.
2. SEE DWG. NO. 04 FOR DESIGN ELEV. ON STRUCTURE AND APPROACH SLABS.
3. SEE DWG. NO. 04 FOR APPROACH SIDEWALK

PROVINCE OF MANITOBA — May 3/85 — N.B. ULYATT — REGISTERED ENGINEER

AS BUILT — APPROVED BY

B-5530-5

METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

ITEM	ITEM	EXISTING	PROPOSED
POLES - HYDRO(H) M.T.S.(T)	EDGE OF PAV'T. NO CURB		
SIGNAL POLE	EDGE OF PAV'T. CURBED		
LIGHT STANDARD	EDGE PAV'T. CURB & GUTTER		
SURVEY BAR	PARAPLEGIC RAMP		
FIRE HYDRANT	ELEVATIONS	40.265	(40.265)
WATER VALVE	ASPHALT OVERLAY		
	PROPERTY LINE		
	MANHOLE	○	●
	CATCH BASIN	□	■
	CATCH BASIN INLET	▽	▼
	CULVERT		

WARNING

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1) NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION.
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LOCATION APPROVED UNDERGROUND STRUCTURES

DATE _____ SUPERVISOR _____

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NO	REVISIONS	DATE	APP.
1	ASPHALT GRADES & AREA	29-5-85	

PROVINCE OF MANITOBA — May 3/85 — S.S. RIHAL — REGISTERED ENGINEER
ENGINEER'S SEAL

DILLON Consulting Engineers & Planners

DESIGNED BY: S.S.R.	DRAWN BY: C.R.B.
CHECKED BY: N.B.U.	DATE: MAY 85
APPROVED BY:	DATE: May 3/85

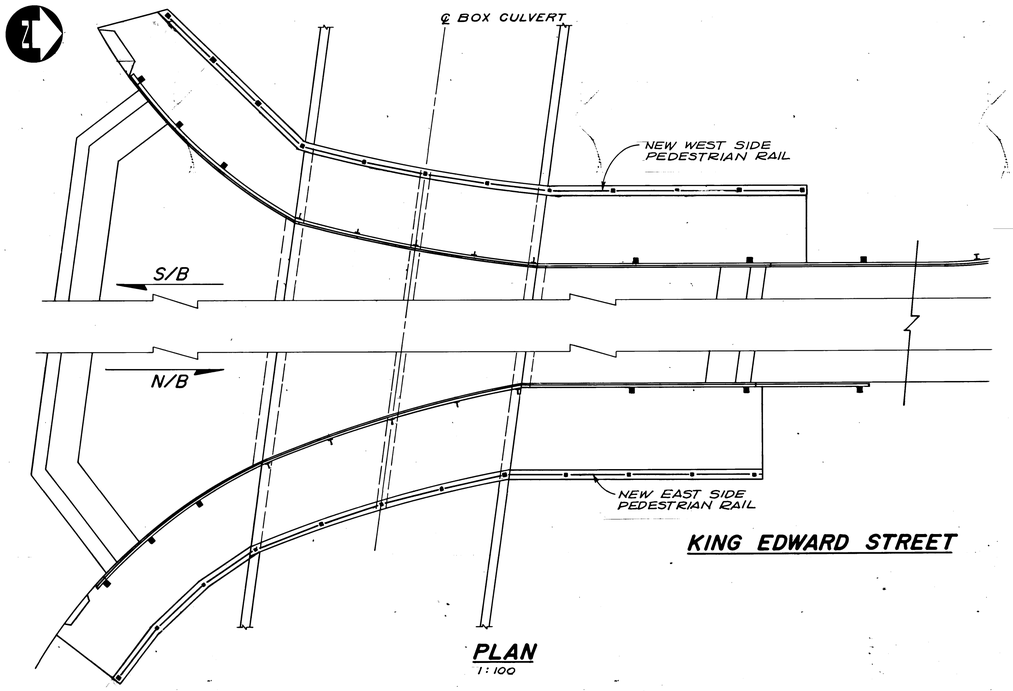
THE CITY OF WINNIPEG
WORKS & OPERATIONS DIVISION
STREETS & TRANSPORTATION DEPARTMENT

ROUTE 90 CULVERT AT OMAND'S CREEK
TOP SLAB REHABILITATION, STRUCTURAL STRENGTHENING AND RELATED WORKS

ASPHALT OVERLAY LAYOUT AND GRADES

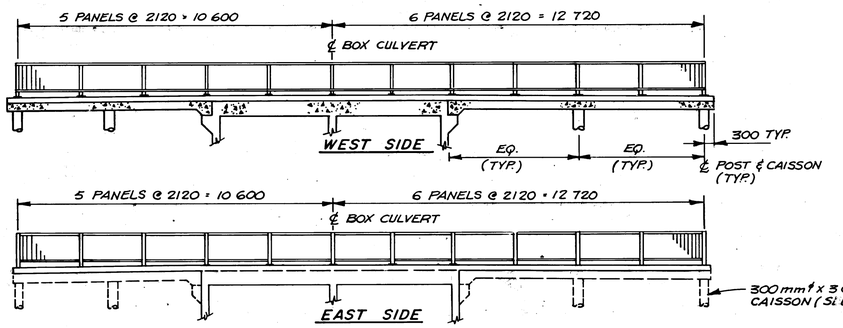
AUTHORIZED BY: _____ STREETS & BRIDGES ENGINEER — DATE 1985-05-03
ACCEPTED BY _____ BRIDGE ENGINEER — DATE 1985 05 03
SCALE 1:200 — DRAWING NO. C315-85-05

M.M.D. 9439-01
FIELD BOOK NO. B-43-1

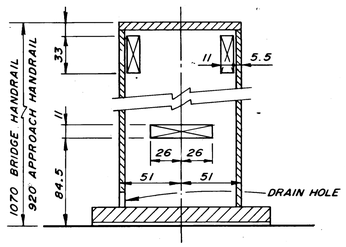


KING EDWARD STREET

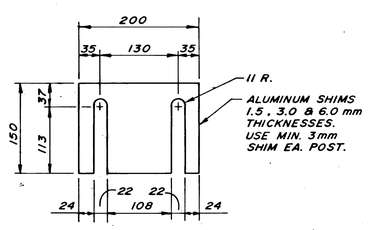
PLAN
1:100



ELEVATIONS OF PEDESTRIAN RAILS (LOOKING WEST)



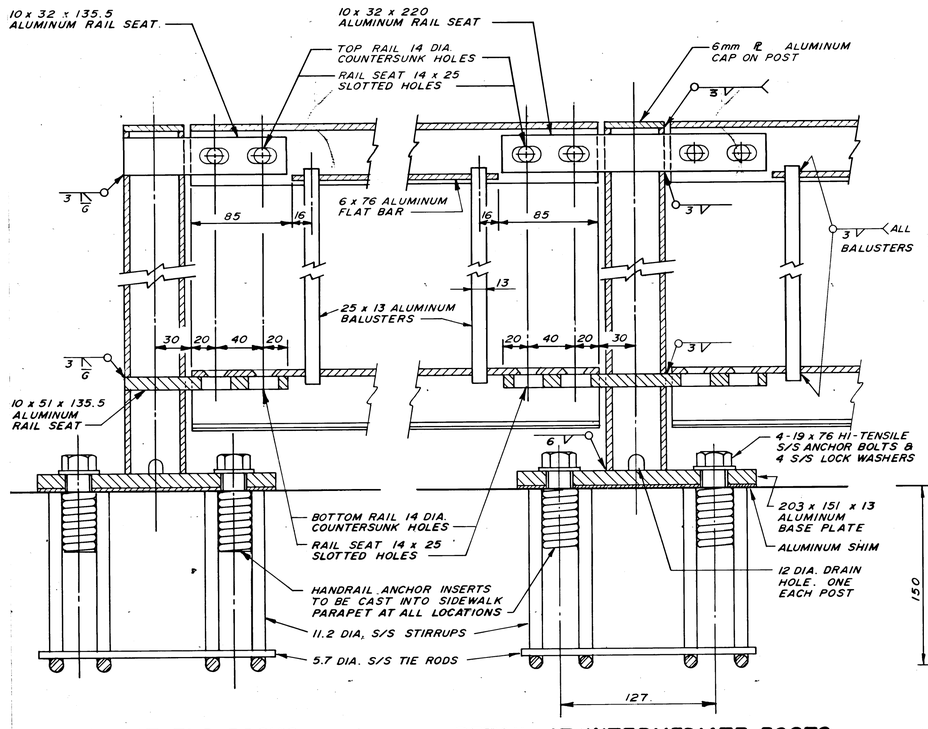
POST DETAIL
SHOWING SLOTS FOR RAIL SEATS
SCALE 1:2.5



PEDESTRIAN POST SHIM
SCALE 1:5

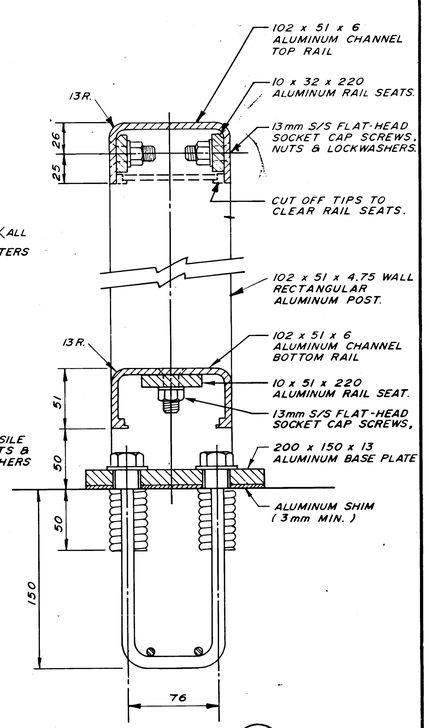
NOTES

1. ALL ALUMINUM CHANNELS, POSTS AND BARS SHALL CONFORM TO ASTM B221, ALLOY 6061-T6 OR ALLOY 6351-T6.
2. PAINT UNDERSIDE OF POST SHIMS WITH 2 COATS OF ALKALI-RESISTANT BITUMINOUS PAINT MEETING THE REQUIREMENTS OF CGSB 31-GP-3M. EACH COAT TO BE 1mm IN THICKNESS.
3. ALL BOLTS, NUTS, WASHERS & MISC. HARDWARE SHALL BE STAINLESS STEEL TYPE 304.
4. POST ANCHORAGE SYSTEM SHALL BE STAINLESS STEEL ACROW - RICHMOND TYPE DGR-1 C/W TYPE 416 HI-TENSILE STAINLESS STEEL BOLTS AND WASHERS.
5. REMOVE EXISTING CONCRETE, ANCHOR BOLTS AND INSERTS WHERE REQUIRED TO INSTALL NEW ANCHORAGE SYSTEM.
6. USE A COMBINATION OF 1.5mm, 3.0mm OR 6.0mm ALUMINUM SHIMS AS REQUIRED TO SET POSTS VERTICAL TO THE SPECIFIED HEIGHT. A MINIMUM 3.0mm SHIM IS REQUIRED AT EACH POST.
7. VERIFY ALL DIMENSIONS AND BENDS REQUIRED IN RAIL SEATS BY FIELD MEASUREMENTS PRIOR TO FABRICATION.
8. ALL SLOTTED HOLES SHALL BE FINISHED SMOOTH AND TRUE.
9. THE M.I.G. PROCESS OF WELDING SHALL BE USED.

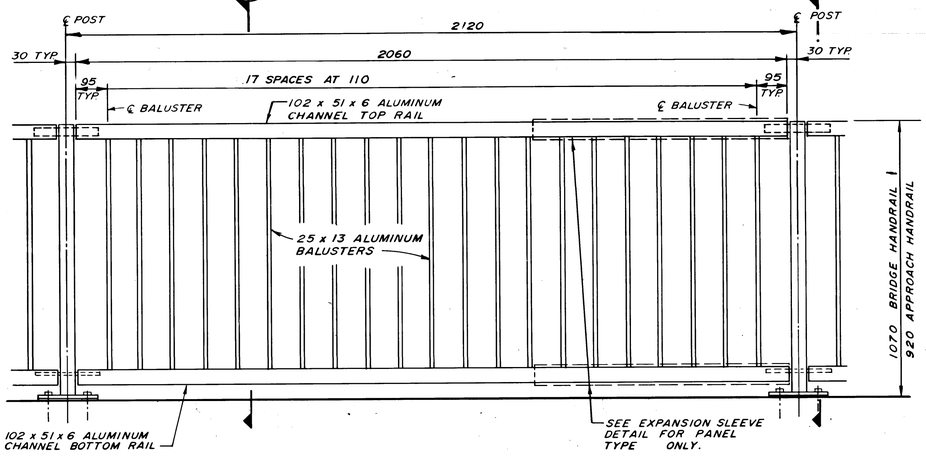


DETAIL AT END POSTS
SCALE 1:2.5

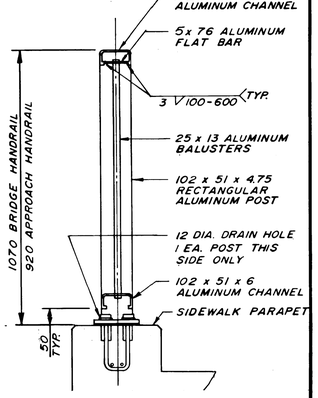
DETAIL AT INTERMEDIATE POSTS
SCALE 1:2.5



SECTION 1
SCALE 1:2.5



PANEL ELEVATION
N.T.S.



SECTION 2
SCALE 1:10

AS BUILT
APPROVED BY:

B-5530-6

NO	REVISIONS	DATE	APP.

PROVINCE OF MANITOBA — May 3/85 — N.B. ULYATT — REGISTERED ENGINEER

PROVINCE OF MANITOBA — May 3/85 — S.S. RIHAL — REGISTERED ENGINEER — ENGINEER'S SEAL

DILLON
Consulting Engineers & Planners

DESIGNED BY: S.S.R.	DRAWN BY: W.P.S.
CHECKED BY: N.B.U.	DATE: MAY 85
APPROVED BY: N.B. Ulyatt	DATE: May 3/85

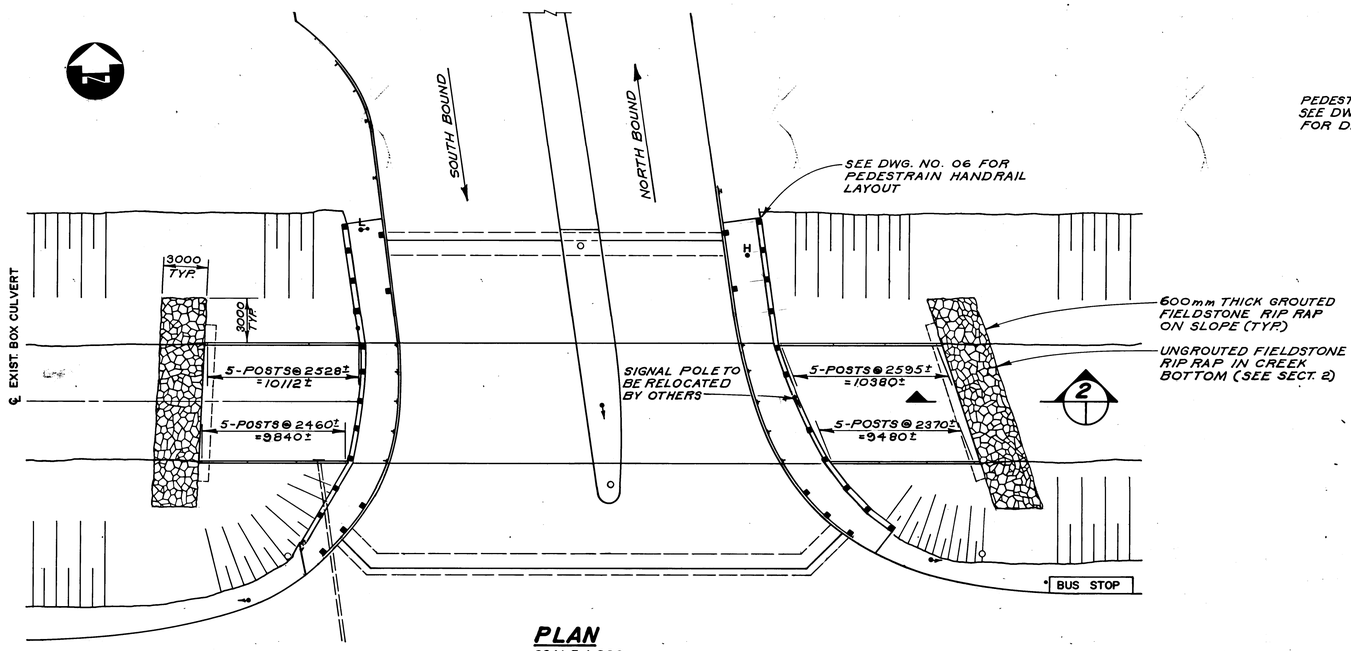
THE CITY OF WINNIPEG
WORKS & OPERATIONS DIVISION
STREETS & TRANSPORTATION DEPARTMENT

ROUTE 90 CULVERT AT OMAND'S CREEK
TOP SLAB REHABILITATION, STRUCTURAL STRENGTHENING AND RELATED WORKS

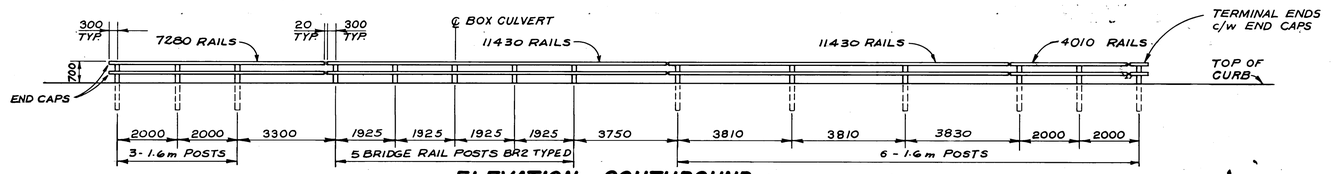
LAYOUT & DETAILS OF ALUMINUM PEDESTRIAN HANDRAIL

AUTHORIZED BY: STREETS & BRIDGES ENGINEER — DATE 1985-05-03
ACCEPTED BY: BRIDGE ENGINEER — DATE 1985 05 03
SCALE: 1:100 OR AS NOTED
DRAWING NO. C315-85-06

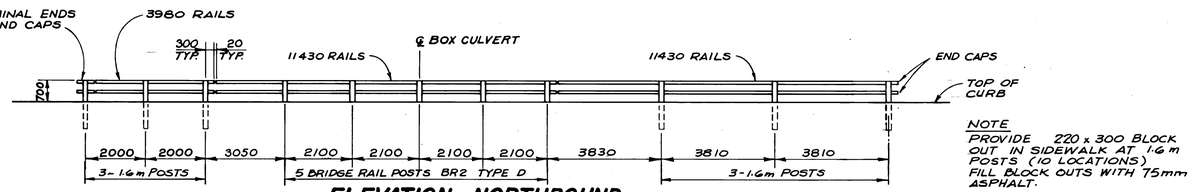
M.M.D. 9439-01
FIELD BOOK NO. B-43-1



PLAN
SCALE: 1:200

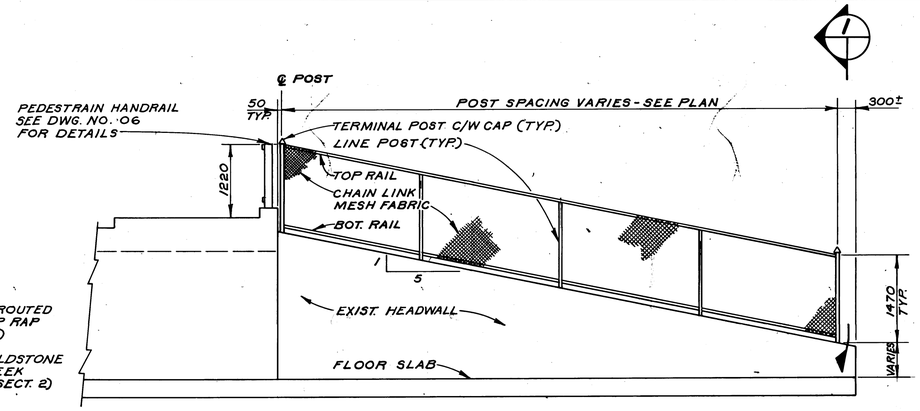


ELEVATION – SOUTHBOUND (LOOKING WEST)
SCALE: 1:100

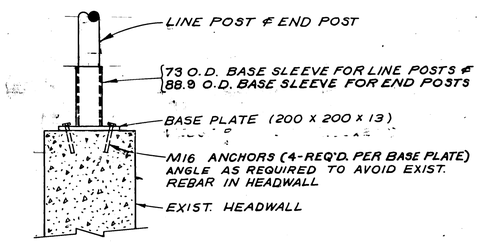


NOTE
PROVIDE 220 x 300 BLOCK OUT IN SIDEWALK AT 1.6 m POSTS (10 LOCATIONS) FILL BLOCK OUTS WITH 75mm ASPHALT.

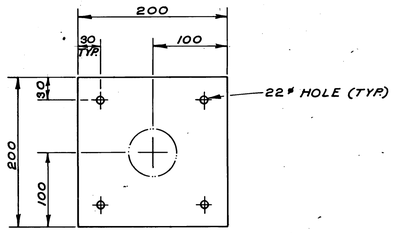
ELEVATION – NORTHBOUND (LOOKING WEST)
SCALE: 1:100



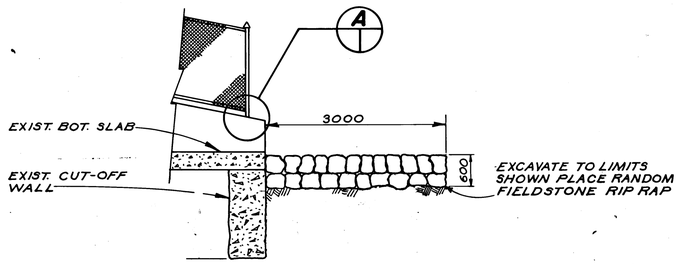
ELEVATION – SHOWING CHAIN LINK FENCE
SCALE: 1:50



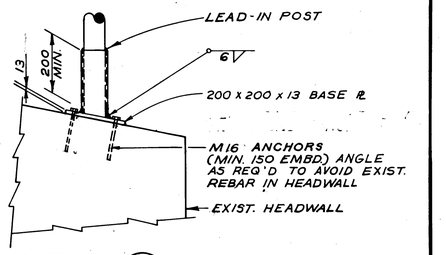
SECTION 1
SCALE: 1:10



BASE PLATE DETAIL
SCALE: 1:40



SECTION 2
SCALE 1:50

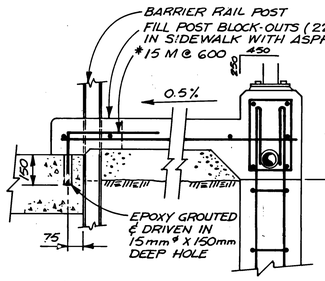


DETAIL A
SCALE: 1:50

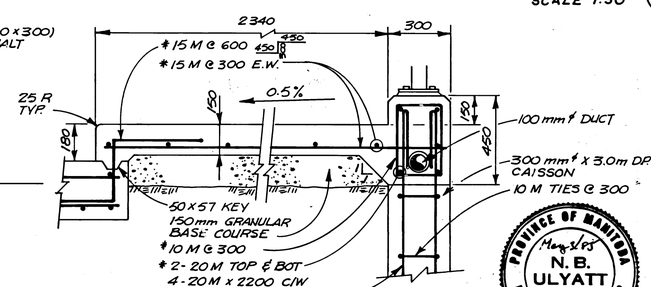
ALUMINUM TRAFFIC BARRIER RAIL COMPONENTS
BILL OF MATERIALS

ITEM	FOR INSTALLATION	FOR STANDBY
BARRIER RAIL 11430 (STRAIGHT)	4	-
BARRIER RAIL 11430 (PREBENT)	4	1
BARRIER RAIL 7280 (PREBENT)	2	1
BARRIER RAIL 4010 (PREBENT)	2	1
BARRIER RAIL 3980 (PREBENT)	2	1
TERMINAL ENDS	4	-
BRIDGE RAIL POSTS (BR 2 TYPE D)	10	-
BARRIER POST (1600)	15	1
STANDARD SPLICE BAR	14	-
RAIL CLAMP BAR	104	-
CAP SCREWS	264	-
WASHERS	264	-
SHIMS FOR RAIL POSTS	AS REQUIRED	-
SHIMS FOR RAIL END SECTION	AS REQUIRED	-
RAIL END CAPS	8	-
RAIL POST ANCHOR BOLTS	50	-

NOTE: RADIUS OF ALL PREBENT RAILS SHALL BE CHECKED WITH FIELD MEASUREMENTS TO SUIT FIELD CONDITIONS PRIOR TO FABRICATION



SECTION 5
SCALE 1:15



SECTION 6
SCALE 1:15

CHAINLINK FENCE NOTES

1. VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS PRIOR TO FABRICATION.
2. ALL FENCING MATERIALS TO BE GALVANIZED, AS SPECIFIED, AND TOUCHED UP USING "GALVALLOY".
3. CHAIN LINK MESH FABRIC TO BE CONNECTED TO POSTS AND RAILS WITH A "SLINKY" COIL.
4. NO SHARP POINTS SHALL REMAIN ON ENDS OF WIRE MESH FABRIC.
5. POSTS SHALL BE LEADED INTO GALVANIZED STEEL BASE SLEEVES.
6. POSTS AND RAILS TO BE SCH.40 PIPE.
7. ALL TERMINAL AND CORNER POSTS TO BE 73.0 mm O.D.
8. ALL LINE POSTS TO BE 60.3 mm O.D.
9. TOP AND BOTTOM RAILS TO BE 42.9 mm O.D.
10. FABRIC MESH TO BE 3.77 mm (9 GAUGE) WIRE.
11. ANCHOR BOLTS - TO BE S/S 20 mm ϕ "KEYSTON ANCHOR SYSTEMS" EACH C/W S/S NUT AND S/S WASHER.

PROVINCE OF MANITOBA
May 3/85
N. B. ULYATT
REGISTERED ENGINEER

AS BUILT
APPROVED BY:

B-5530-7
METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

ITEM	ITEM	EXISTING	PROPOSED
POLES - HYDRO(H) M.T.S.(T)	EDGE OF PAV'T NO CURB		
SIGNAL POLE	EDGE OF PAV'T CURBED		
LIGHT STANDARD	EDGE PAV'T CURB ℄ GUTTER		
SURVEY BAR	PARAPLEGIC RAMP		
FIRE HYDRANT	ELEVATIONS	40.265	40.265
WATER VALVE	ASPHALT OVERLAY		
	PROPERTY LINE		
	MANHOLE	○	●
	CATCH BASIN	□	■
	CATCH BASIN INLET	▽	▼

WARNING

IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST:
1) NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION.
2) TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS.
SEE PROVINCIAL REGULATION 210/72 FOR DETAILS

LOCATION APPROVED UNDERGROUND STRUCTURES

DATE SUPERVISOR

LOCATIONS OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

NO	REVISIONS	DATE	APP

PROVINCE OF MANITOBA
May 3/85
S. S. RIHAL
REGISTERED ENGINEER
ENGINEER'S SEAL

DILLON
Consulting Engineers & Planners

DESIGNED BY: S.S.R.	DRAWN BY: C.R.B.
CHECKED BY: N.B.U.	DATE: MAY 85
APPROVED BY:	DATE: May 3/85

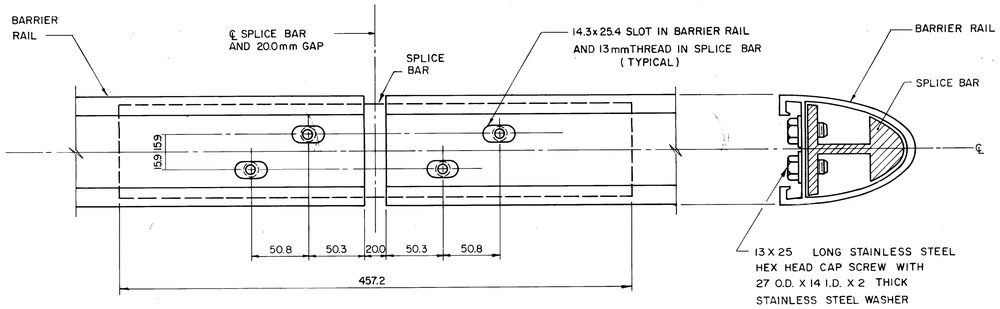
THE CITY OF WINNIPEG
WORKS & OPERATIONS DIVISION
STREETS & TRANSPORTATION DEPARTMENT

ROUTE 90 CULVERT AT OMAND'S CREEK
TOP SLAB REHABILITATION, STRUCTURAL STRENGTHENING AND RELATED WORKS

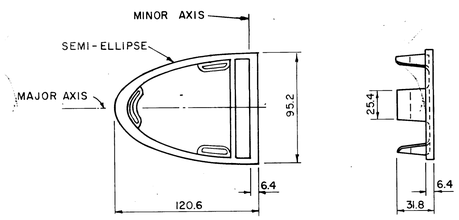
LAYOUT OF BALANCED ALUMINUM SHOULDER BARRIER, HEADWALL CHAINLINK FENCE AND RIP RAP

AUTHORIZED BY: STREETS & BRIDGES ENGINEER	DATE: 1985-05-03
ACCEPTED BY: BRIDGE ENGINEER	DATE: 1985 05 03
SCALE: 1:100 OR AS NOTED	DRAWING NO. C315-85-07

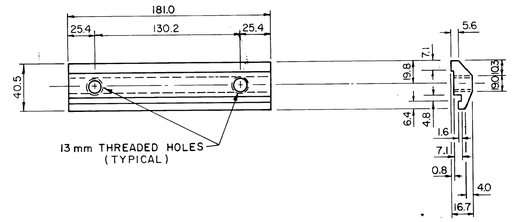
M.M.D. 9439-01
FIELD BOOK NO. B-43-1



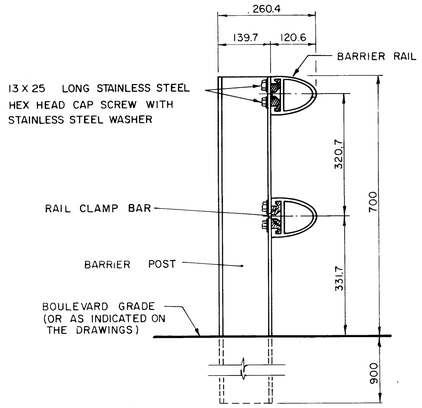
SPLICE BAR TO RAIL ASSEMBLY DETAIL



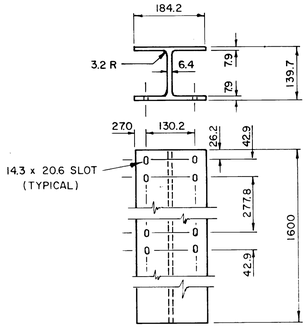
RAIL END CAP



RAIL CLAMP BAR

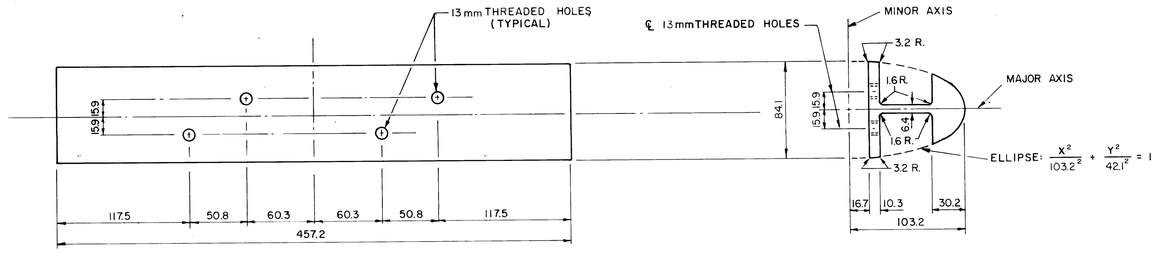


RAIL TO POST ASSEMBLY DETAIL

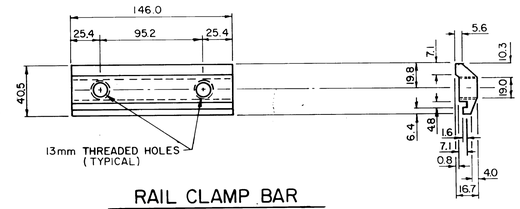


1.600 m POST

(0.800 m POST SIMILAR EXCEPT WITH ONLY FOUR SLOTS AT TOP OF POST)

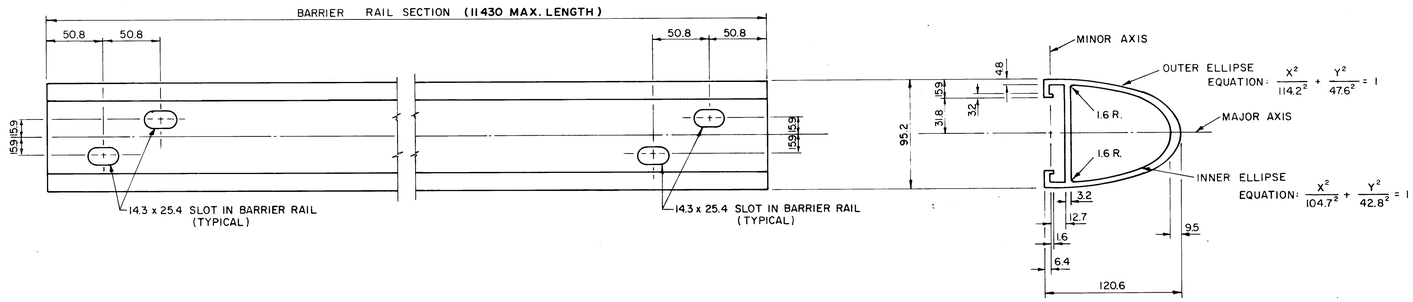


SPLICE BAR

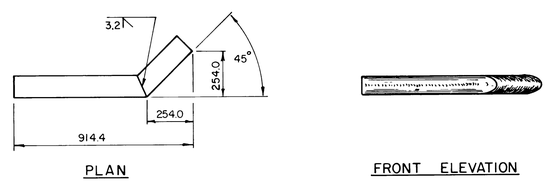


RAIL CLAMP BAR

(FOR BR 1 C BRIDGE RAIL POST)



BARRIER RAIL



PLAN

FRONT ELEVATION

TERMINAL END

(FABRICATED FROM BARRIER RAIL)

MATERIAL SPECIFICATIONS

1. ALUMINUM RAILS, POSTS, SPLICE BARS, CLAMP-BARS, AND END CAPS SHALL CONFORM TO ASTM B221, ALLOY 6061-T6, OR ALLOY 6351-T6.
2. STAINLESS STEEL WASHERS SHALL CONFORM TO ASTM A296.
3. CAP SCREWS SHALL CONFORM TO ASTM A276, TYPE 430 STAINLESS STEEL.
4. NOTE THAT ALL FASTENERS ARE SPECIFIED IN IMPERIAL UNITS.

METRIC

ALL DIMENSIONS SHOWN ON THIS PLAN ARE IN MILLIMETRES EXCEPT AS OTHERWISE INDICATED

NO	REVISIONS	DATE	APP
R2	RE-DRAWN	83-12-21	
R1	BRIDGE RAIL CLAMP BAR ADDED	83-6-16	

N. A.

ENGINEER'S SEAL

Dicom Consulting Engineers and Planners

DESIGNED BY: N. A.	DRAWN BY: GFN
CHECKED BY: ZVK	DATE: 80-03-18
APPROVED BY: [signature]	DATE: 83 12 22

THE CITY OF WINNIPEG

WORKS & OPERATIONS DIVISION

STREETS & TRANSPORTATION DEPARTMENT

ROUTE 90 CULVERT AT OMAND'S CREEK
TOP SLAB REHABILITATION, STRUCTURAL STRENGTHENING AND RELATED WORKS

BALANCED SHOULDER BARRIER STANDARD DETAIL

RECOMMENDED BY: [signature] CITY BRIDGES ENGINEER 1983-12-23 DATE

ACCEPTED BY: [signature] BRIDGE ENGINEER 1983.12.22 DATE

SCALE N. T. S. DRAWING NO C 315-85-08

M.M.D. 9439-01
FIELD BOOK NO. B-43-1

STD. DETAIL N° CW 302-R2

B-5530-8

NOTES

THE 25.4 x 31.8 SLOTS (5) IN THE BASE OF BRIDGE RAIL POSTS TYPE D, BR2 AND BR3A, ARE DESIGNED TO ACCOMODATE 20mm Ø ANCHOR BOLTS. THE 19mm Ø HOLES (4) IN THE BASE OF BRIDGE RAIL POST BR1 TYPE C ARE DESIGNED TO ACCOMODATE 16mm Ø RAIL POST ANCHOR BOLTS.

COMBINATION OF 1.5mm, 3.0mm OR 6.0mm ALUMINUM SHIMS TO BE USED AS REQUIRED TO SET BRIDGE RAIL POSTS TO THE SPECIFED HEIGHT. A MINIMUM 3.0mm SHIM IS REQUIRED AT EACH POST.

SPECIFICATIONS

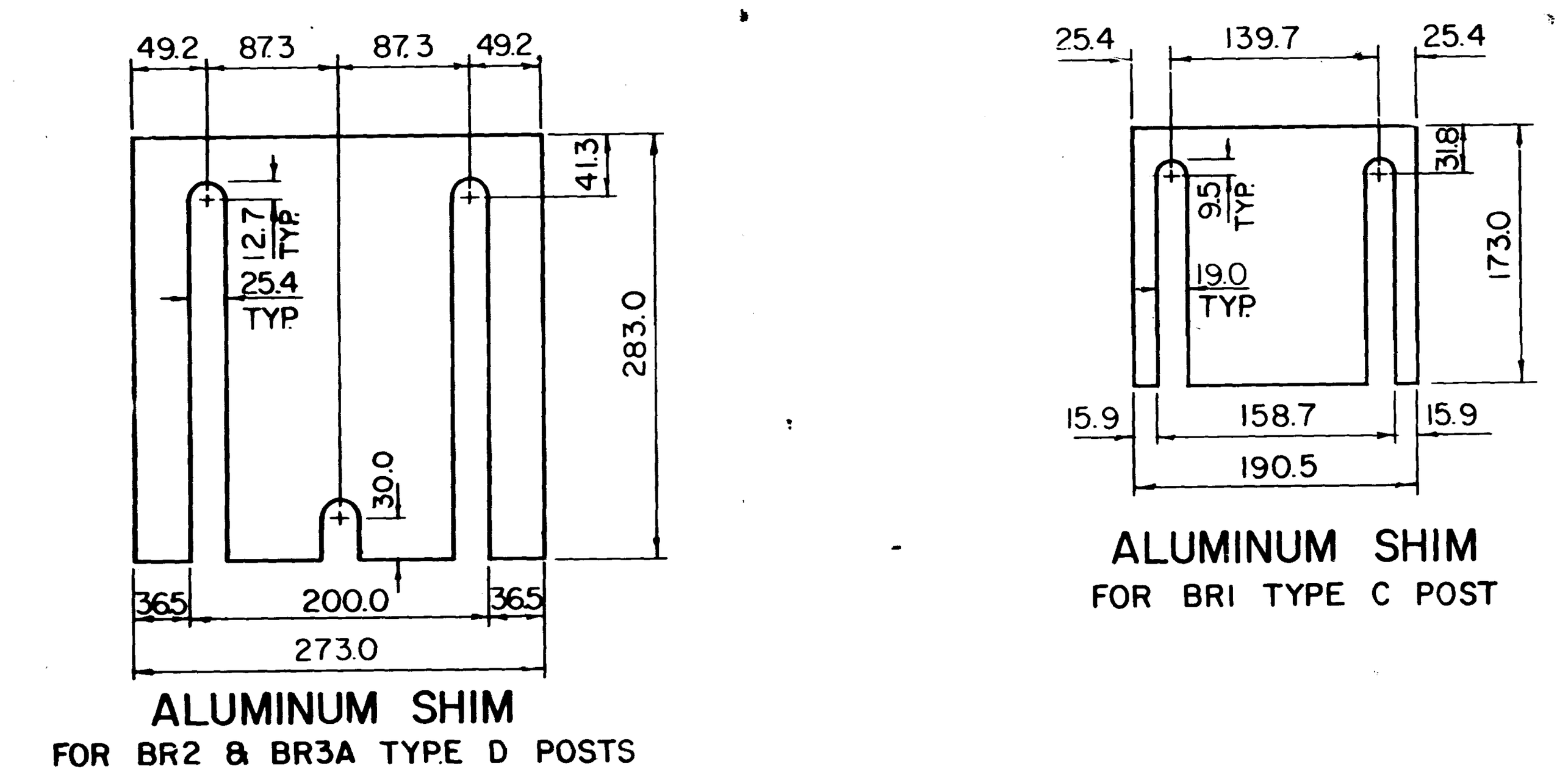
EXTRUDED ALUM. SHAPES SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. B221, ALLOY 6061-T6 OR ALLOY 6351-T5 (MINIMUM ELONGATION 10%)

CAP SCREW SHALL MEET THE REQUIREMENTS OF A.S.T.M. A276, TYPE 430 AND THE DIMENSIONAL REQUIREMENTS OF A.N.S.I. B18.3.

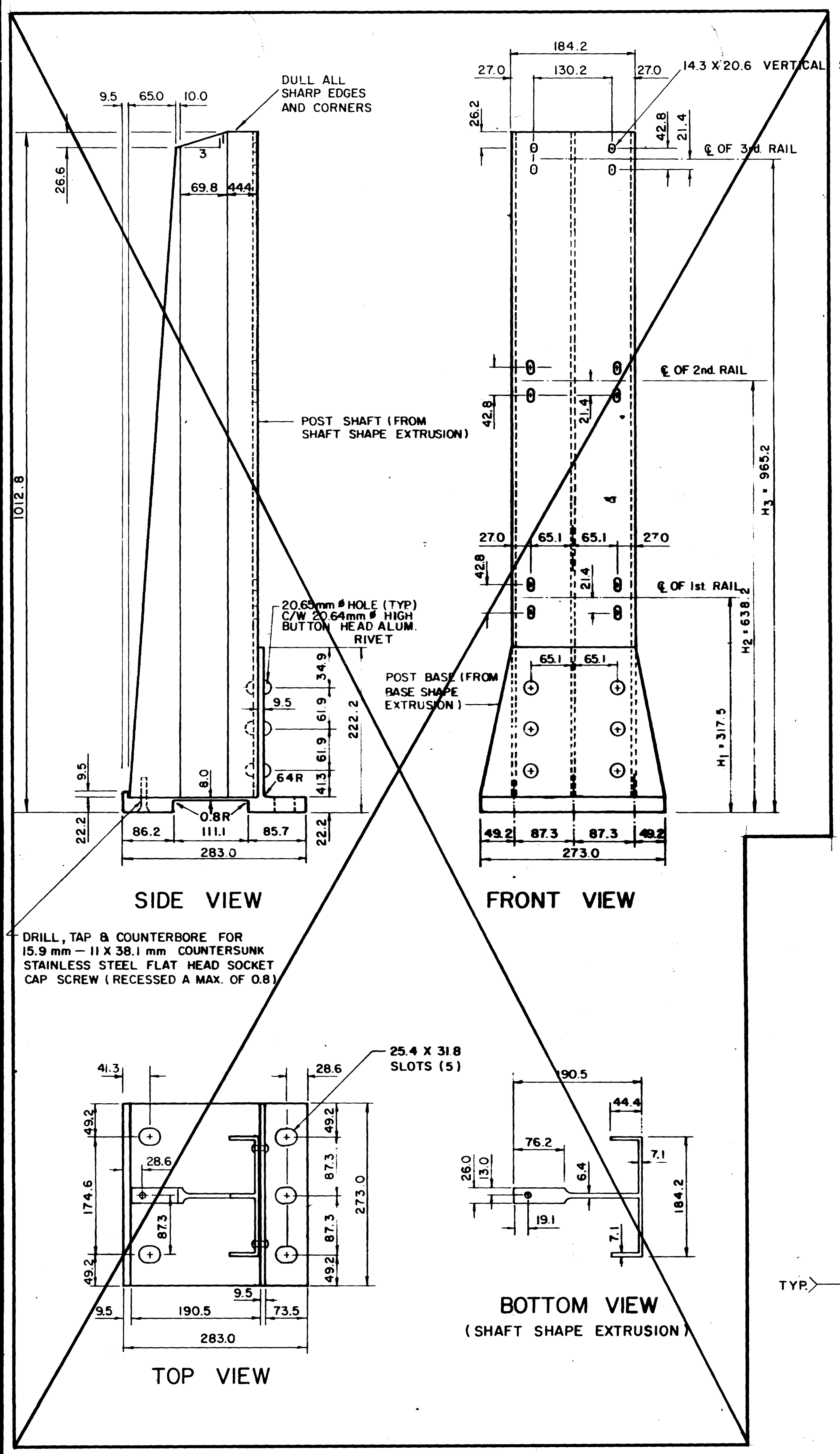
RIVET MATERIAL SHALL MEET THE REQUIREMENTS OF A.S.T.M. B316 OR B221, ALLOY 6061-T6. RIVETS SHALL HAVE MANUFACTURED HIGH BUTTON HEADS MEETING THE DIMENSIONAL REQUIREMENTS OF A.N.S.I. B18.4, SHALL HAVE DRIVEN CONE POINT HEADS, AND SHALL MEET THE REQUIREMENTS OF SECTION 6.5 OF THE ALUMINUM ASSOCIATION'S SPECIFICATIONS FOR ALUMINUM BRIDGE AND OTHER HIGHWAY STRUCTURES.

THE POST BASE SHALL BE MADE FROM A SINGLE BASE SHAPE EXTRUSION. SIMILARLY, THE POST SHAFT SHALL BE MADE FROM A SINGLE SHAFT SHAPE EXTRUSION. THE POST BASE AND POST SHAFT SHALL BE CONNECTED USING THE HIGH BUTTON HEAD ALUMINUM RIVETS AND THE STAINLESS STEEL CAP SCREW TO FORM A BRIDGE RAIL POST.

DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE AND ACCEPTED MANUFACTURING PRACTICES.

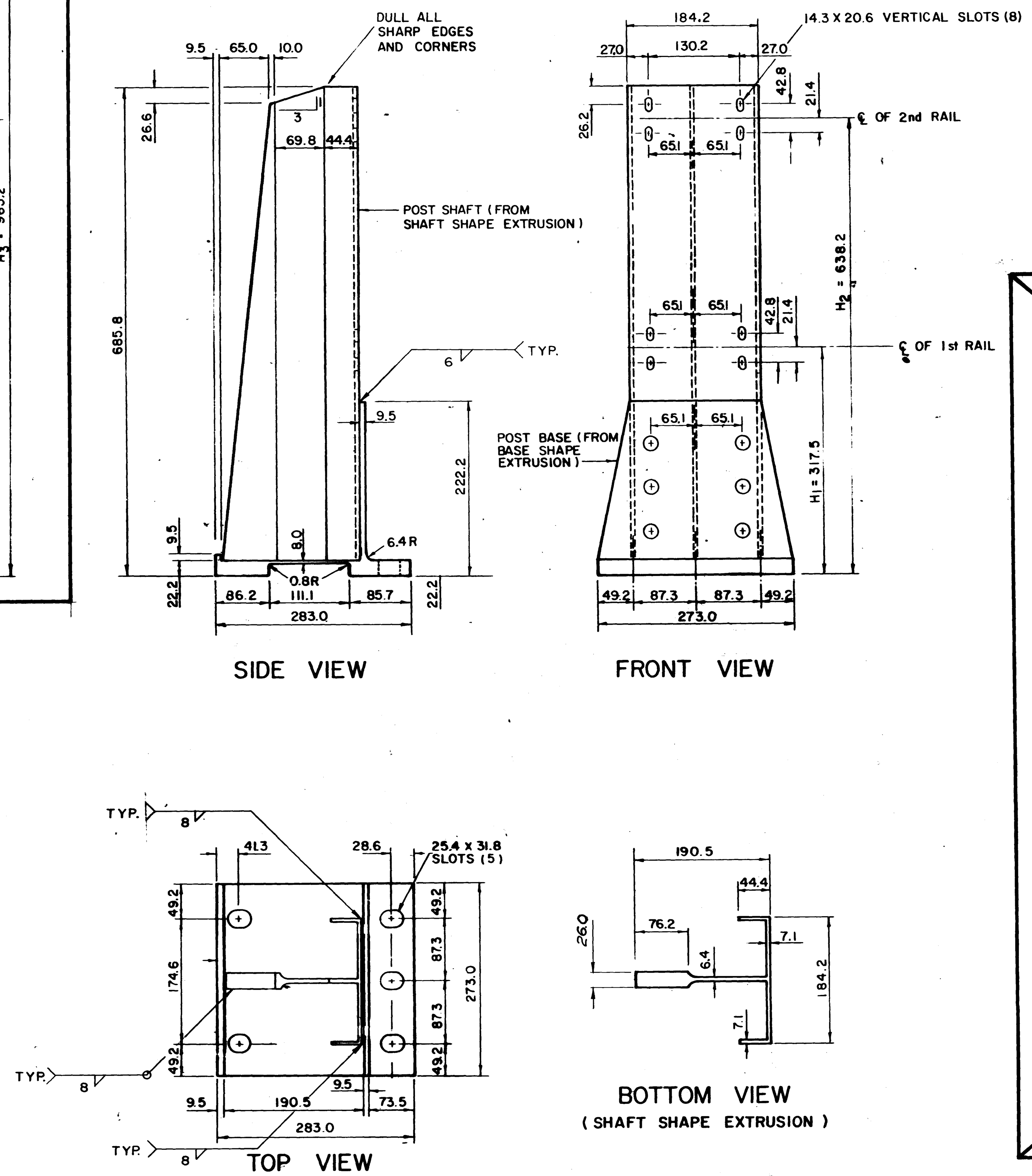


BRIDGE RAIL POST SHIM DETAILS



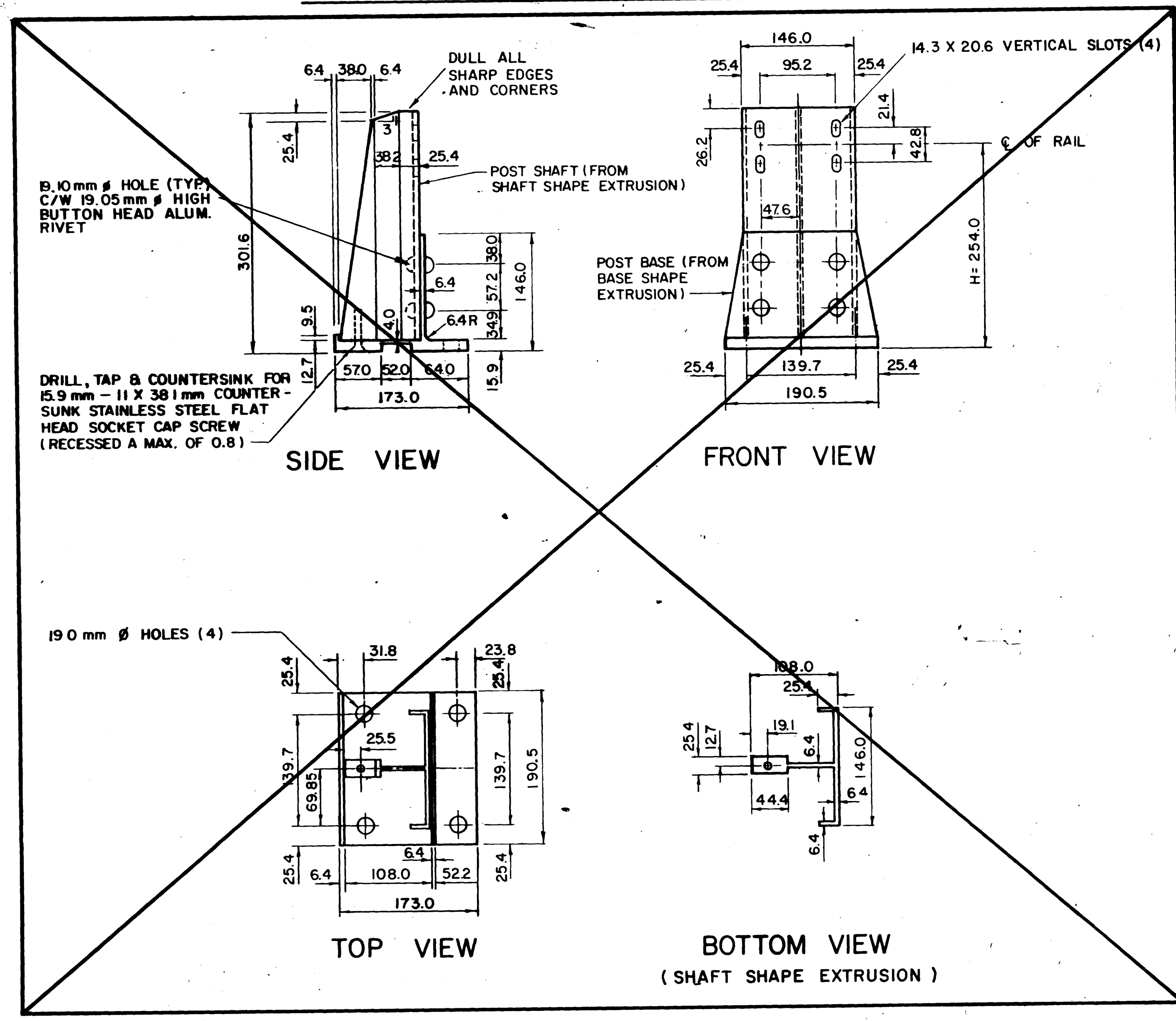
BRIDGE RAIL POST

BR3A TYPE D (ALUMINUM)



BRIDGE RAIL POST

BR 2 TYPE D (ALUMINUM)



BRIDGE RAIL POST

BR1 TYPE C (ALUMINUM)

(FOR USE ON CONCRETE TRAFFIC BARRIER)

AS BUILT
APPROVED BY: [signature]

B-5530-9

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES

NO	REVISIONS	DATE	APP.
R-1	NOTES ON SHIMS	83-06-01	[signature]

N.A.

ENGINEER'S SEAL

DILLON
Consulting Engineers & Planners

DESIGNED BY: N.A.	DRAWN BY: HN
CHECKED BY: G.R.S. 82-03-19	DATE: 80-11-28
APPROVED BY: [signature]	DATE: 82-05-13

THE CITY OF WINNIPEG
WORKS & OPERATIONS DIVISION
STREETS & TRANSPORTATION DEPARTMENT

ROUTE 90 CULVERT AT OMAND'S CREEK
TOP SLAB REHABILITATION, STRUCTURAL STRENGTHENING AND RELATED WORKS

DETAILS OF ALUMINUM BRIDGE RAIL POSTS

RELEASED FOR CONSTRUCTION: [signature]	DRAWING NO. C315-85-09
SCALE: N.T.S.	STD. DETAIL: CW-305 R1

M.M.D. 9439-01
FIELD BOOK NO. B-43-1