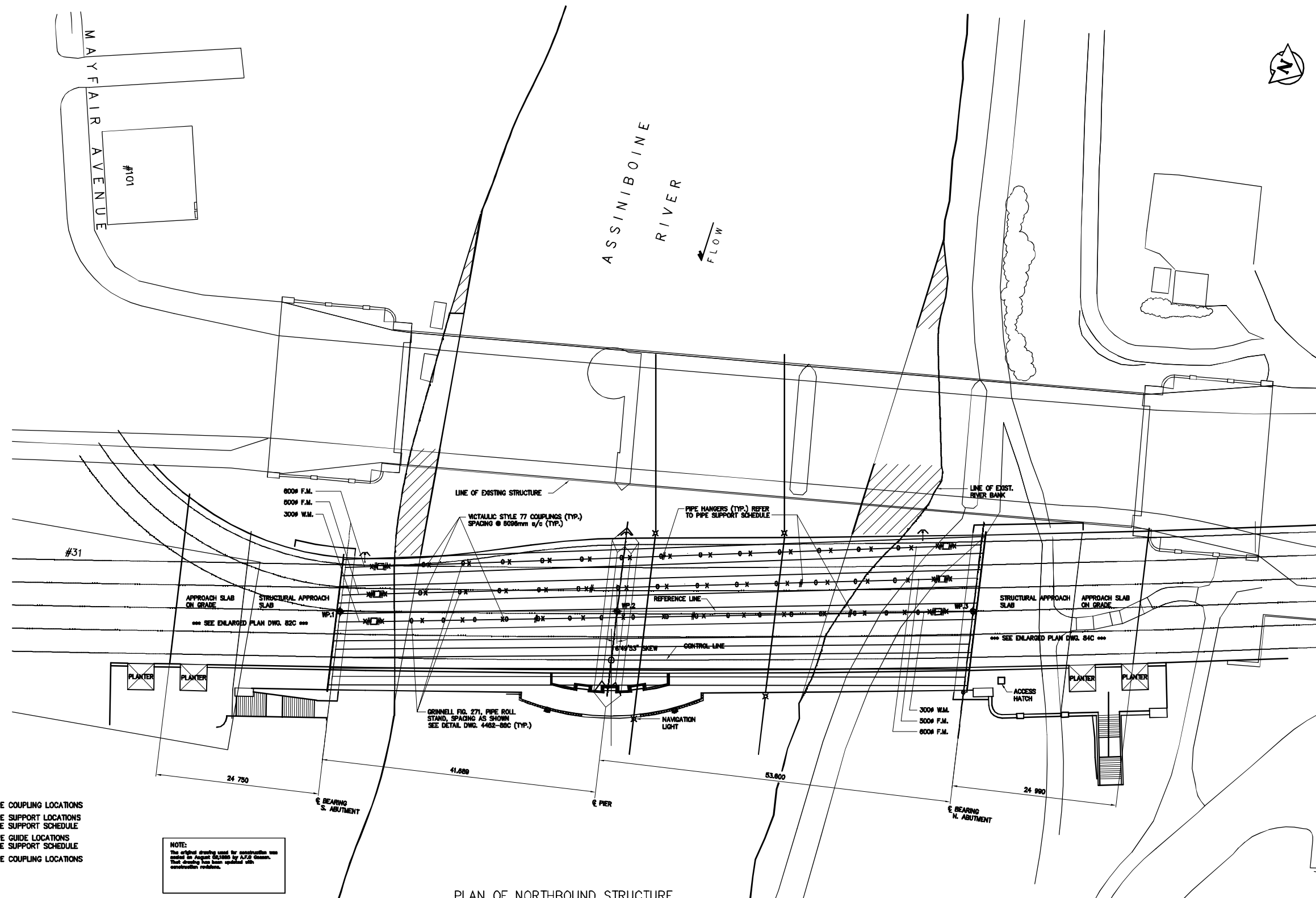


PLOT SCALE: 1:300

KGS FILE NO. G:\94-183-03\AS-CONSTRUCTED\418303-1M.dwg



- LEGEND**
- X INDICATES PIPE COUPLING LOCATIONS
  - O INDICATES PIPE SUPPORT LOCATIONS REFER TO PIPE SUPPORT SCHEDULE
  - # INDICATES PIPE GUIDE LOCATIONS REFER TO PIPE SUPPORT SCHEDULE
  - INDICATES PIPE COUPLING LOCATIONS

**NOTE:**  
This original drawing used for construction was created as a project file by A.F.G. Gossen. That drawing has been updated with construction revisions.

**PIPE SUPPORT SCHEDULE**

PIPE SIZE	PIPE HANGERS AND ROLLERS	PIPE GUIDES	PIPE COUPLINGS
300mm	4.8M SPACING 1 PER SPOOL MIN.	WITHIN 4 PIPE DIA. OF EXPANSION JOINT 30M SPACING ON PIPE LINE MAX.	VICTAULIC STYLE 07 ON ELBOWS, STYLE 77 ELSEWHERE
500mm	6.0M SPACING 1 PER SPOOL MIN.	WITHIN 4 PIPE DIA. OF EXPANSION JOINT 45M SPACING ON PIPE LINE MAX.	VICTAULIC STYLE 07 ON ELBOWS, STYLE 77 ELSEWHERE
600mm	6.0M SPACING 1 PER SPOOL MIN.	WITHIN 4 PIPE DIA. OF EXPANSION JOINT 54M SPACING ON PIPE LINE MAX.	VICTAULIC STYLE 07 ON ELBOWS, STYLE 77 ELSEWHERE

**AS-CONSTRUCTED**

**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

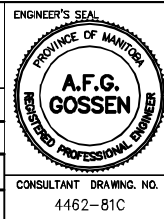
**KGS CONSULTING ENGINEERS & PROJECT MANAGERS**  
WINNIPEG THUNDER BAY

**LOCATIONS APPROVED UNDERGROUND STRUCTURES**

DATE: \_\_\_\_\_  
 DESIGNED BY: RBB  
 CHECKED BY: AFG  
 DRAWN BY: VJH  
 AUTHORIZED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 HOR. SCALE: 1:300  
 VERTICAL SCALE: \_\_\_\_\_  
 DATE: JUNE 1995  
 BY: B. EBENSPANER / BRIDGE ENGINEER

NO.	REVISIONS	DATE	BY
1	AS-CONSTRUCTED - FROM INFORMATION	12/97	JMB
2	SUPPLIED	06/98	JMB
3	ISSUED FOR TENDER	06/98	JMB

**DS-Lea Consultants Ltd.**  
 Consulting Engineers - Planners - Transportation Consultants  
 Suite 111-83 Lombard Avenue Winnipeg, Manitoba R2S 3B1  
 Phone (204) 943-5770 Fax (204) 943-4648



**THE CITY OF WINNIPEG**  
 WORKS AND OPERATIONS DIVISION  
 STREETS AND TRANSPORTATION DEPARTMENT

MAIN STREET AND NORWOOD BRIDGES PROJECT  
 MAIN STREET BRIDGE  
 NORTHBOUND STRUCTURE

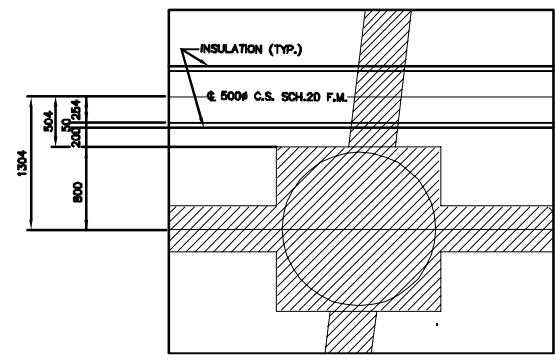
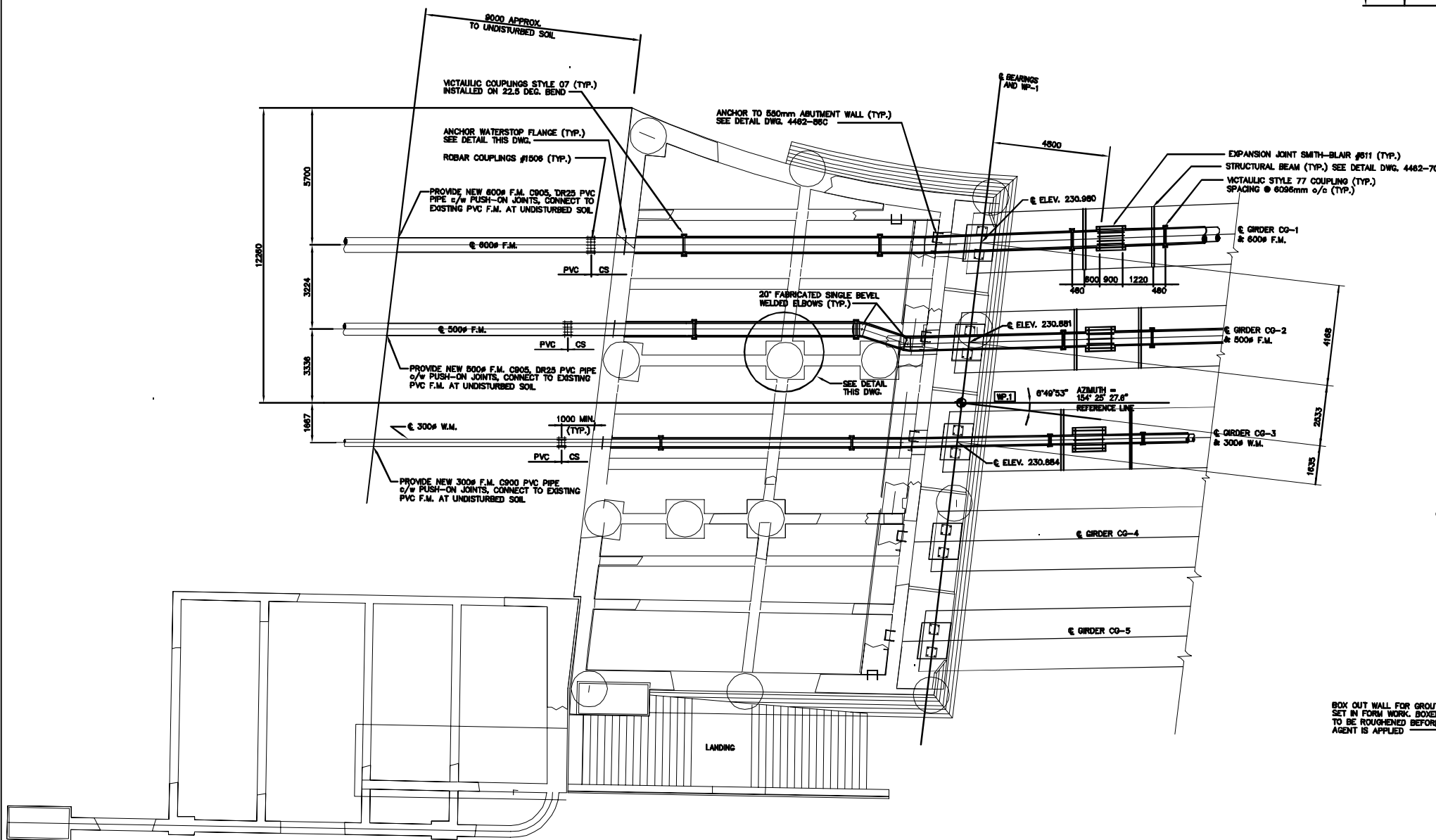
CITY DRAWING NUMBER: B104-95-81C  
 SHEET 81 OF 121

CONSULTANT DRAWING NO. 4462-81C

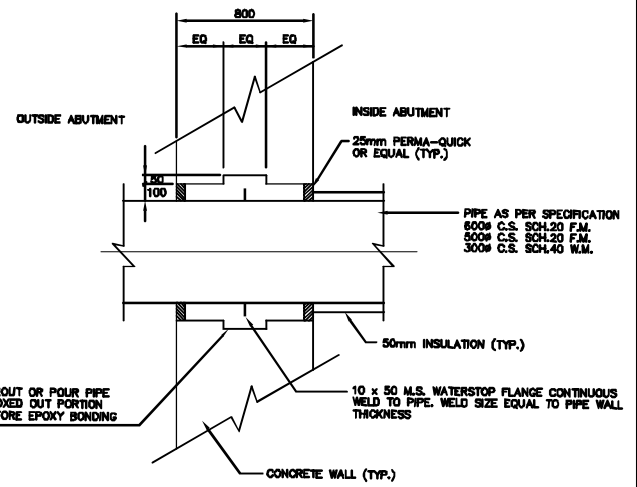
CONCRETE GIRDER GENERAL ARRANGEMENT PLAN OF FORCEMAINS AND WATERMAINS

05788

**HALF SIZE REDUCTION**



DETAIL OF 500Ø PIPE (TYP.)  
N.T.S.



ANCHOR WATERSTOP FLANGE DETAIL  
N.T.S.

PLAN OF SOUTH ABUTMENT BELOW SLAB  
1:100

**NOTE:**  
The original drawing used for construction was issued on August 02, 1995 by A.F.G. Gossen. That drawing has been updated with construction revisions.

**AS-CONSTRUCTED**

**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

**KGS GROUP CONSULTING ENGINEERS & PROJECT MANAGERS**  
WINNIPEG THUNDER BAY

**LOCATIONS APPROVED UNDERGROUND STRUCTURES**

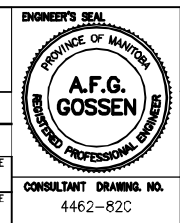
SUPPLY U/G STRUCTURES COMMITTEE	DATE

**NOTE:**  
LOCATION 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 DISTANCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION

NO.	REVISIONS	DATE	BY

**DS-Lea Consultants Ltd.**  
Consulting Engineers - Planners - Transportation Consultants  
Suite 111-93 Lombard Avenue Winnipeg, Manitoba R3B 3B1  
Phone (204) 943-3178 Facsimile (204) 943-4848

DESIGNED BY: RBB	CHECKED BY: AFG
DRAWN BY: VJH	APPROVED BY: [Signature]
HOR. SCALE: 1:100	AUTHORIZED BY: [Signature]
VERTICAL SCALE: 1:100	ACCEPTED BY: [Signature]
DATE: JUNE 1995	DATE: [Blank]



**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
STREETS AND TRANSPORTATION DEPARTMENT

MAIN STREET AND NORWOOD BRIDGES PROJECT  
MAIN STREET BRIDGE  
NORTHBOUND STRUCTURE

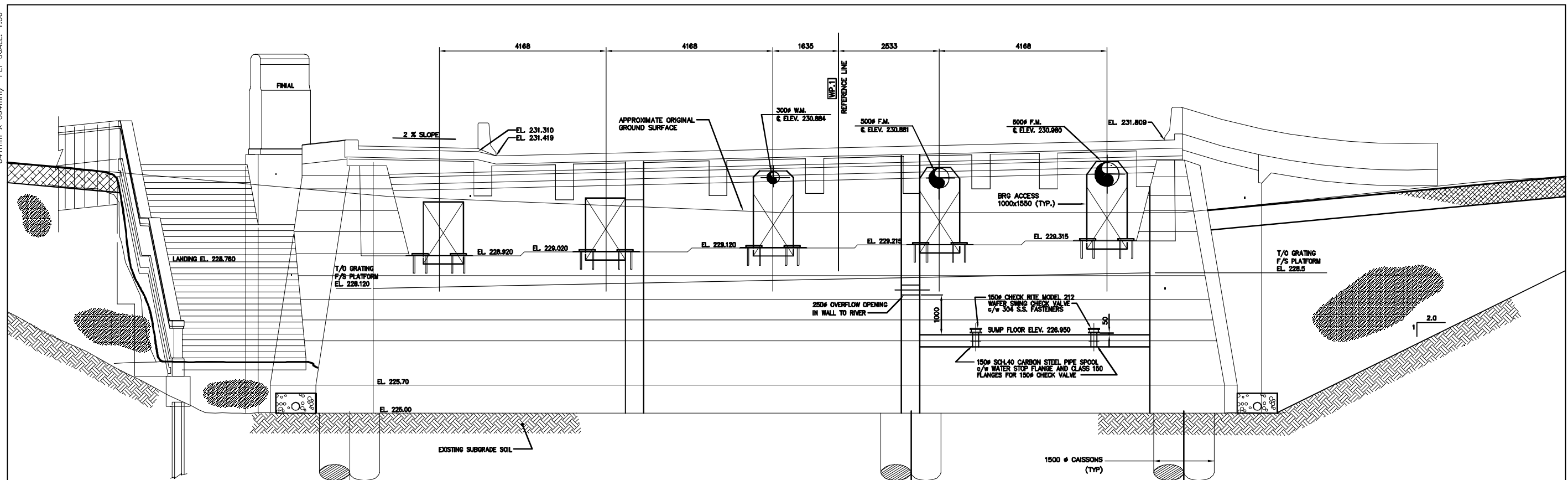
CONCRETE GIRDER SOUTH ABUTMENT PLAN

CITY DRAWING NUMBER: B104-95-82C  
SHEET 82 OF 121

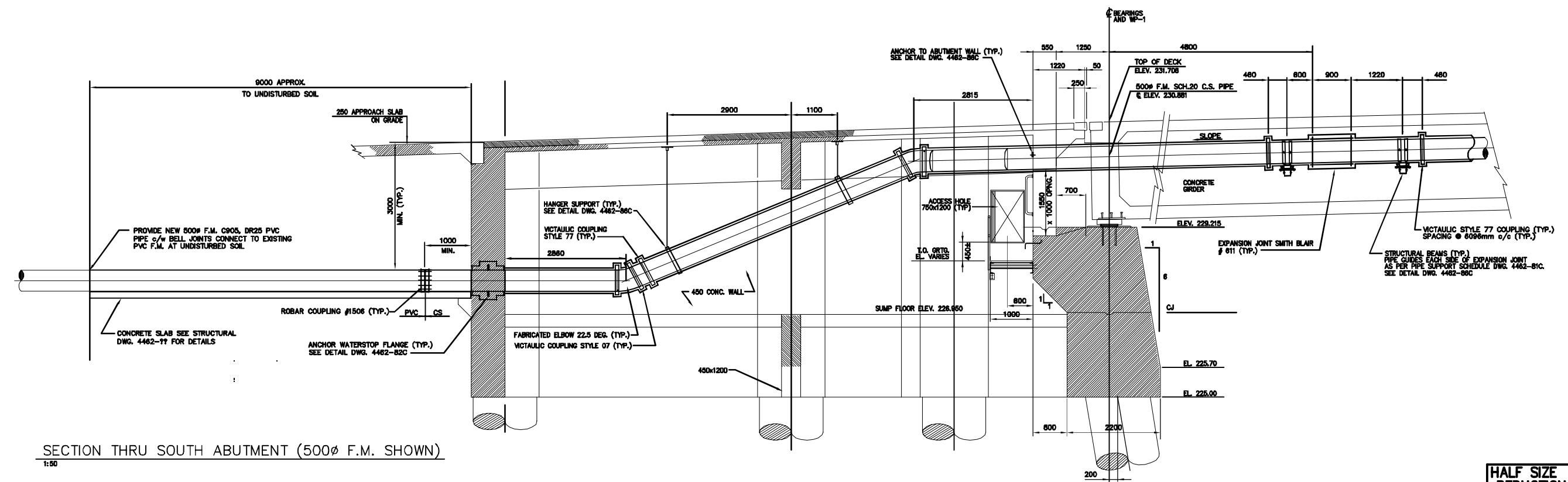
CONSULTANT DRAWING NO. 4462-82C

05789

**HALF SIZE REDUCTION**



ELEVATION OF SOUTH ABUTMENT  
1:50



SECTION THRU SOUTH ABUTMENT (500Ø F.M. SHOWN)  
1:50

HALF SIZE REDUCTION

NOTE:  
The original drawing used for construction was issued on August 02, 1995 by A.F.G. Gossen. That drawing has been updated with construction revisions.

METRIC  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

**KGS CONSULTING ENGINEERS & PROJECT MANAGERS**  
WINNIPEG THUNDER BAY

AS-CONSTRUCTED

LOCATIONS APPROVED UNDERGROUND STRUCTURES			
SUPV	U/G STRUCTURES	DATE	COMMITTEE
D	AS-CONSTRUCTED - FROM INFORMATION		
	SUPPLIED	12/97	JWB
	REVISED PIPING LAYOUT	08/95	AS
	ISSUED FOR CONSTRUCTION	08/95	JWB
	ISSUED FOR TENDER	06/95	JWB
NO.	REVISIONS	DATE	BY

DS-Lea Consultants Ltd.			
Consulting Engineers - Planners - Transportation Consultants			
Suite 111-93 Lombard Avenue Winnipeg, Manitoba R3B 3P1			
Phone [ 204 ] 943-3178 Facsimile [ 204 ] 943-4948			
DESIGNED BY	RBB	CHECKED BY	AFG
DRAWN BY	VJH	APPROVED BY	
HOR. SCALE	1:50	AUTHORIZED BY	DATE
VERTICAL		G.S. SMITH / SENIOR BRIDGE ENGINEER	DATE
		B. EBENSPANER / BRIDGE ENGINEER	DATE
			JUNE 1995



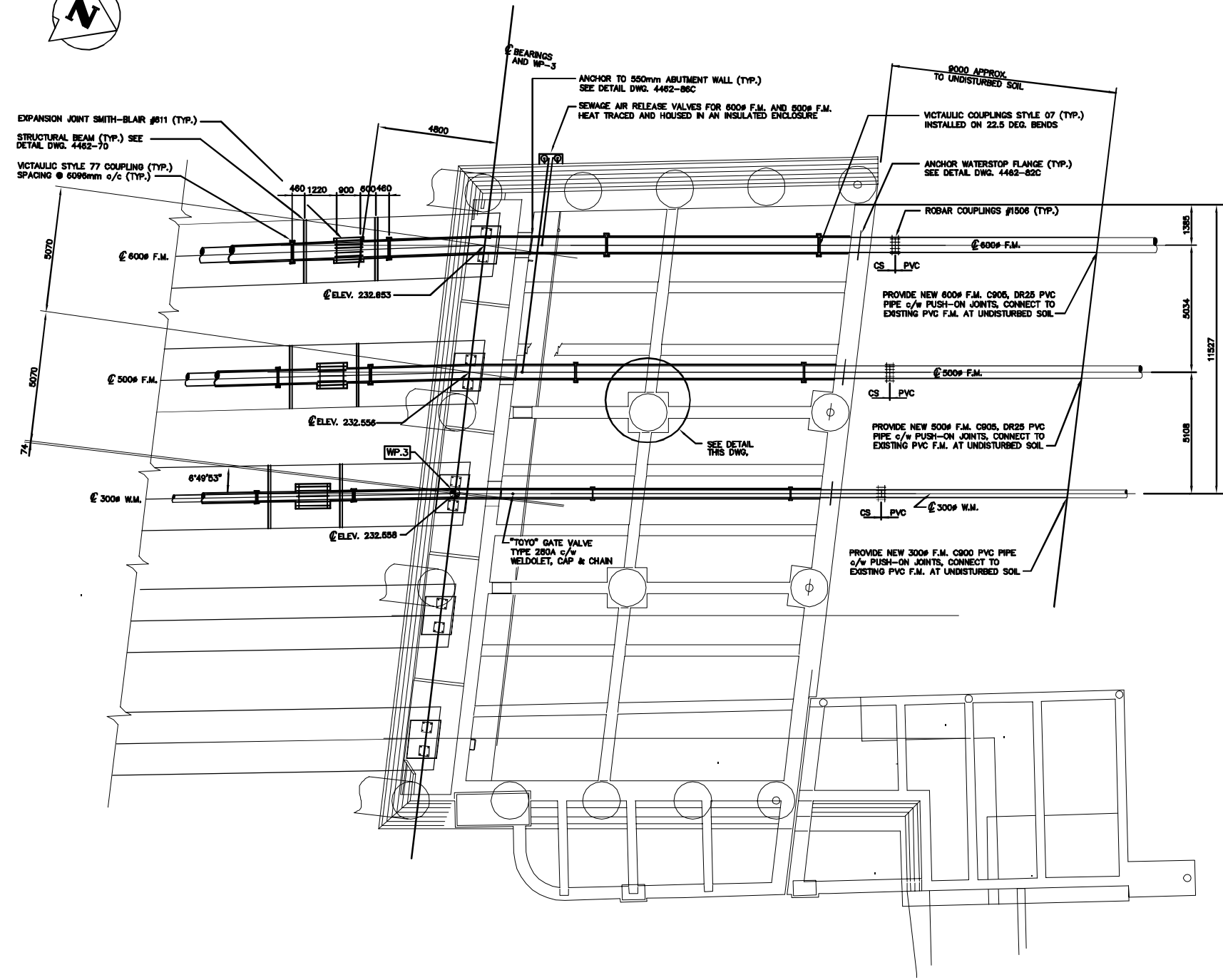
**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
STREETS AND TRANSPORTATION DEPARTMENT

MAIN STREET AND NORWOOD BRIDGES PROJECT  
MAIN STREET BRIDGE  
NORTHBOUND STRUCTURE

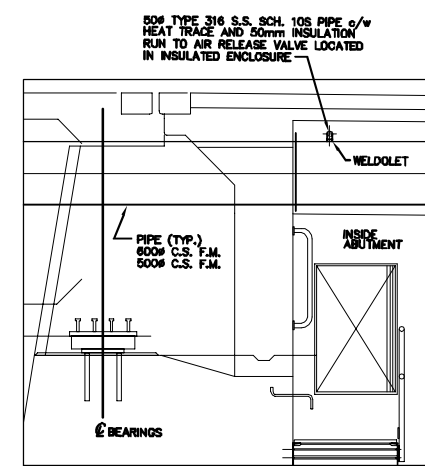
CONCRETE GIRDER SOUTH ABUTMENT  
ELEVATION AND SECTION

CITY DRAWING NUMBER  
B104-95-83C  
SHEET 83 OF 121

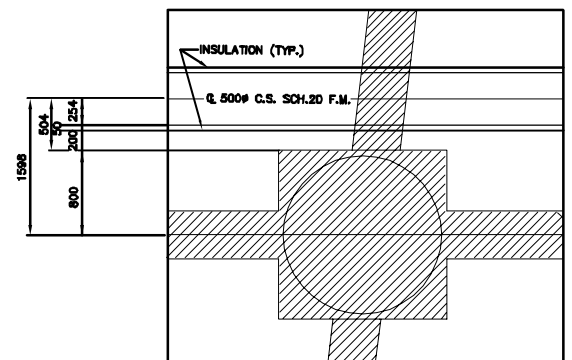
05790



PLAN OF NORTH ABUTMENT BELOW SLAB  
1:100



DETAIL OF AIR RELEASE PIPING  
N.T.S.



DETAIL OF 500# PIPE (TYP.)  
N.T.S.

**NOTE:**  
The original drawing used for construction was sealed on August 02, 1995 by A.F.G. Gossen. That drawing has been updated with construction revisions.

**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

**KGS CONSULTING ENGINEERS & PROJECT MANAGERS**  
WINNIPEG THUNDER BAY

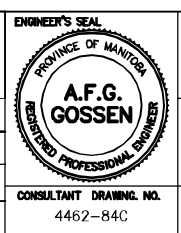
**AS-CONSTRUCTED**

LOCATIONS APPROVED UNDERGROUND STRUCTURES		SUPPLY	U/G STRUCTURES COMMITTEE	DATE
D	AS-CONSTRUCTED - FROM INFORMATION			
C	REVISED PIPING LAYOUT	12/97	JWB	
B	ISSUED FOR CONSTRUCTION	08/96	AS	
A	ISSUED FOR TENDER	08/96	JWB	
NO.	REVISIONS	DATE	BY	DATE

**NOTE:**  
LOCATION 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 UTILITIES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

**DS-Lea Consultants Ltd.**  
Consulting Engineers - Planners - Transportation Consultants  
Suite 111-93 Lombard Avenue Winnipeg, Manitoba R3B 3B1  
Phone [204] 943-3178 Facsimile [204] 943-4948

DESIGNED BY: RBB  
DRAWN BY: V.J.H.  
HOR. SCALE: 1:100  
VERTICAL SCALE: AS SHOWN  
DATE: JUNE 1995



**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
STREETS AND TRANSPORTATION DEPARTMENT

MAIN STREET AND NORWOOD BRIDGES PROJECT  
MAIN STREET BRIDGE  
NORTHBOUND STRUCTURE

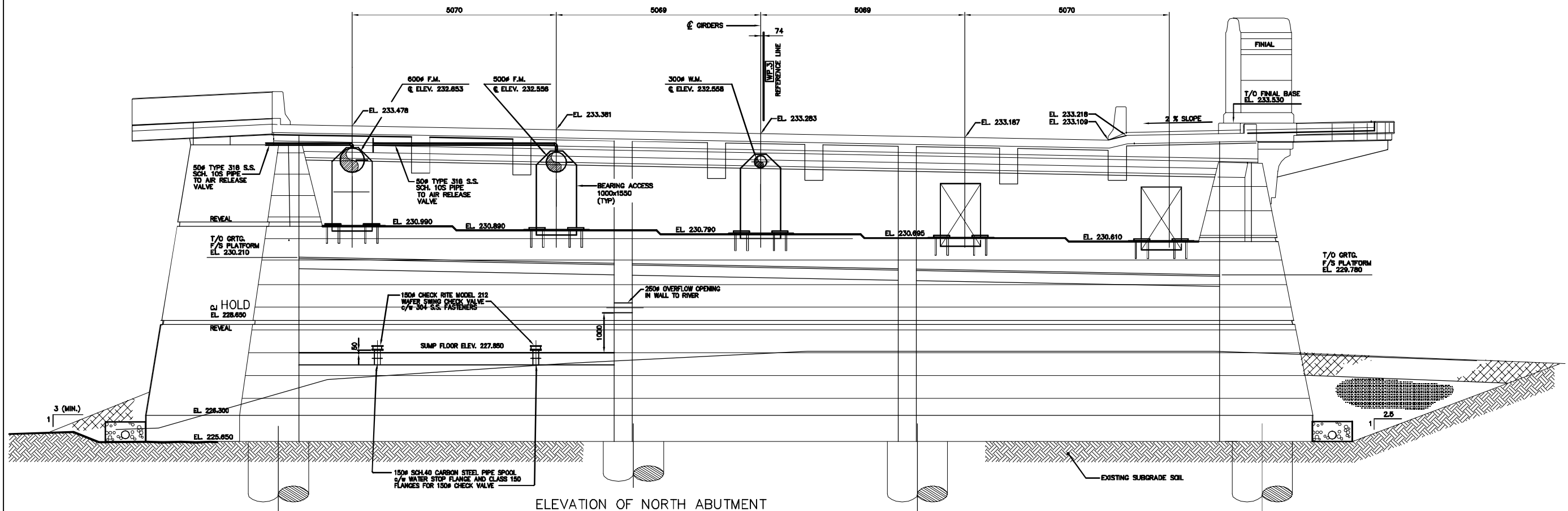
CONCRETE GIRDER NORTH ABUTMENT PLAN

CITY DRAWING NUMBER: B104-95-84C  
SHEET 84 OF 121  
05791

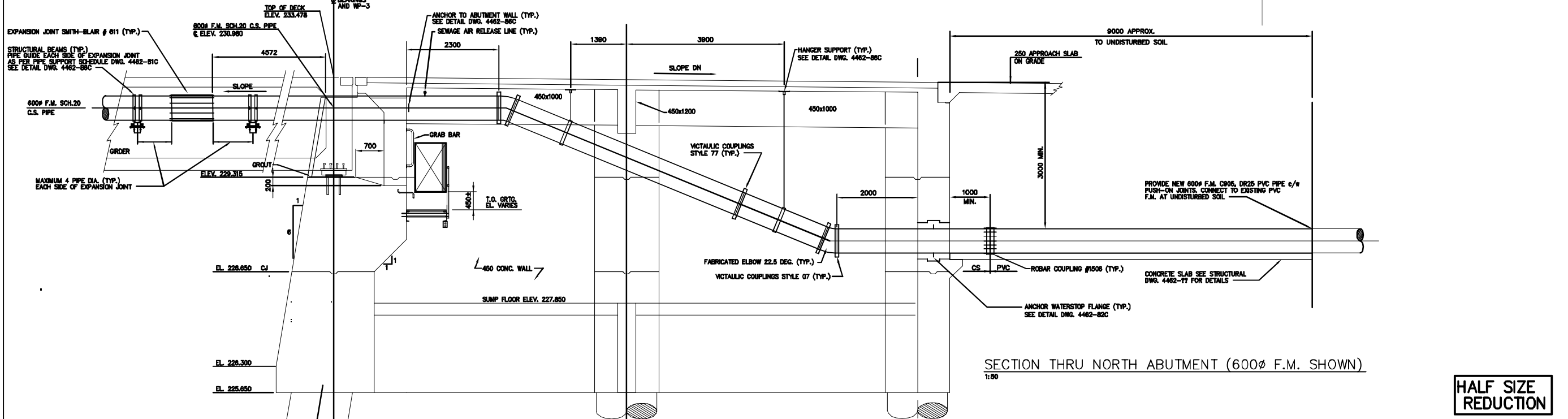
**HALF SIZE REDUCTION**

84 mm X 594mm / PLT SCALE: 1:50

KGS FILE NO. G:\94-183-03\AS-CONSTRUCTED\418303-5M.dwg



ELEVATION OF NORTH ABUTMENT  
1:50



SECTION THRU NORTH ABUTMENT (600 F.M. SHOWN)  
1:50

HALF SIZE REDUCTION

**NOTE:**  
The original drawing used for construction was issued on August 02, 1995 by A.F.G. Gossen. That drawing has been updated with construction revisions.

AS-CONSTRUCTED

**KGS GROUP**  
CONSULTING ENGINEERS & PROJECT MANAGERS  
WINNIPEG THUNDER BAY

METRIC  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

**LOCATIONS APPROVED UNDERGROUND STRUCTURES**

NO.	U/G STRUCTURES	DATE

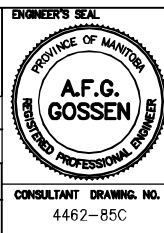
**NOTE:**  
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL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

NO.	REVISIONS	DATE	BY

**DS-Lea Consultants Ltd.**  
Consulting Engineers - Planners - Transportation Consultants  
Suite 111-93 Lombard Avenue Winnipeg, Manitoba R3B 3B1  
Phone [ 204 ] 943-3178 Facsimile [ 204 ] 943-4948

DESIGNED BY: RBB  
DRAWN BY: VJH  
CHECKED BY: AFG  
APPROVED BY:  
AUTHORIZED BY: DATE  
G.P. SMITH / SENIOR BRIDGE ENGINEER  
ACCEPTED BY: DATE  
B. ECKENSPANGLER / BRIDGE ENGINEER

HOR. SCALE: 1:50  
VERTICAL: 1:50  
DATE: JUNE 1995



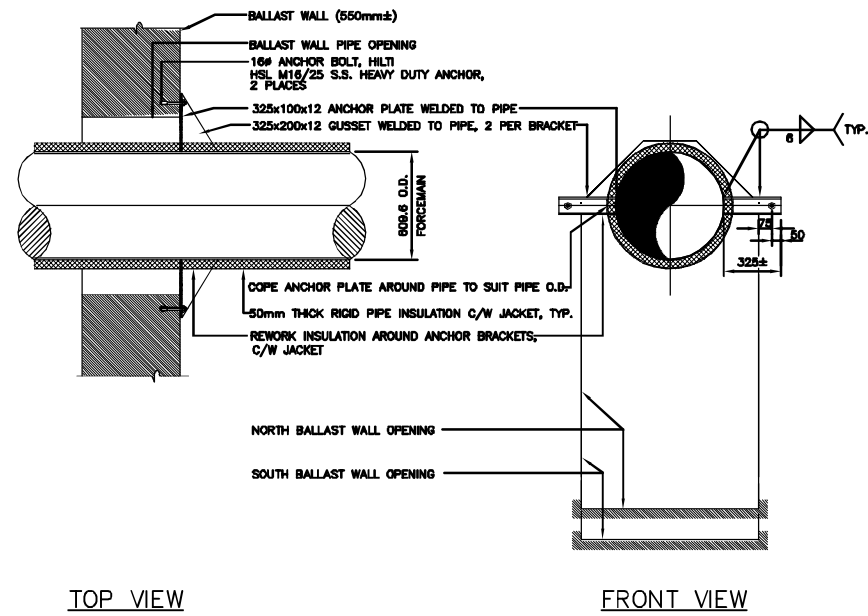
**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
STREETS AND TRANSPORTATION DEPARTMENT

MAIN STREET AND NORWOOD BRIDGES PROJECT  
MAIN STREET BRIDGE  
NORTHBOUND STRUCTURE

CONCRETE GIRDER NORTH ABUTMENT  
ELEVATION AND SECTION

CITY DRAWING NUMBER B104-95-85C  
SHEET 85 OF 121

05792

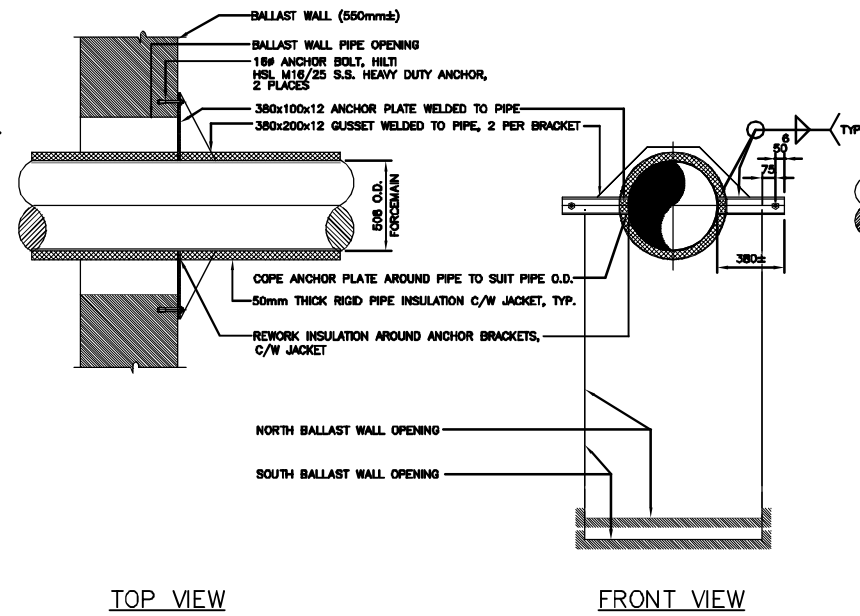


TOP VIEW

FRONT VIEW

600Ø PIPE THRUST RESTRAINT BRACKET DETAIL, (x2)

1:20

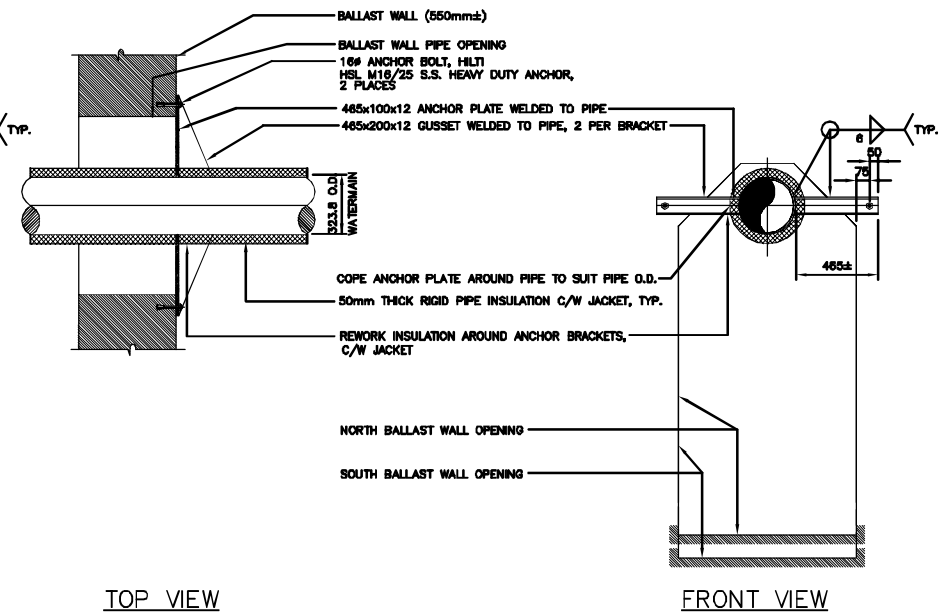


TOP VIEW

FRONT VIEW

500Ø PIPE THRUST RESTRAINT BRACKET DETAIL, (x2)

1:20

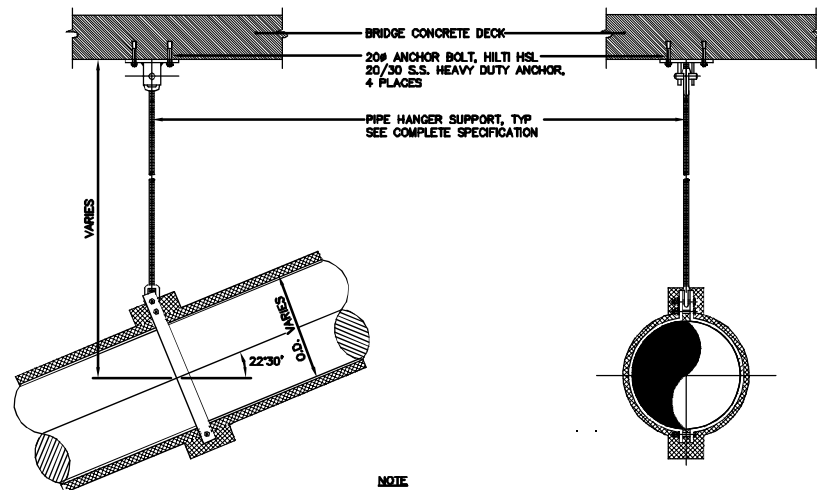


TOP VIEW

FRONT VIEW

300Ø PIPE THRUST RESTRAINT BRACKET DETAIL, (x2)

1:20



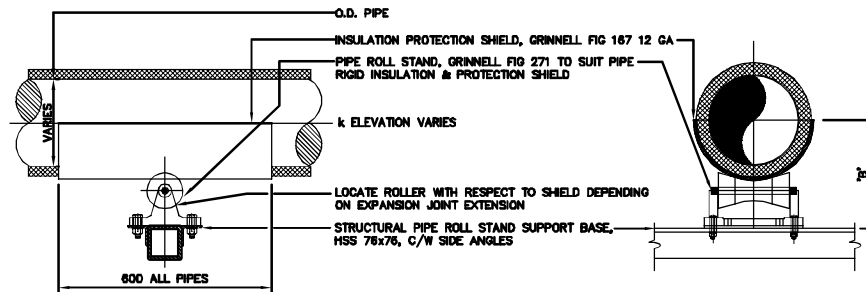
NOTE  
CONTRACTOR TO LOCATE REBAR PRIOR TO DRILLING FOR ANCHOR BOLTS INSTALLATION.

- PIPE HANGER SUPPORT
- CONCRETE CLEVIS PLATE, GRINNELL FIG. 49 SIZE TO SUIT ROD Ø
  - WELDLESS EYE NUT, GRINNELL FIG. 290 TO SUIT ROD Ø (2 REQ'D. EACH SUPPORT)
  - A# HANGER ROD, GRINNELL FIG. 148 304 S.S.
  - DOUBLE BOLT PIPE CLAMP, GRINNELL FIG. 295 TO SUIT PIPE O.D.

PIPE O.D.	A#
323.8	22
508	32
609.6	32

PIPE HANGER SUPPORT (TYP.)

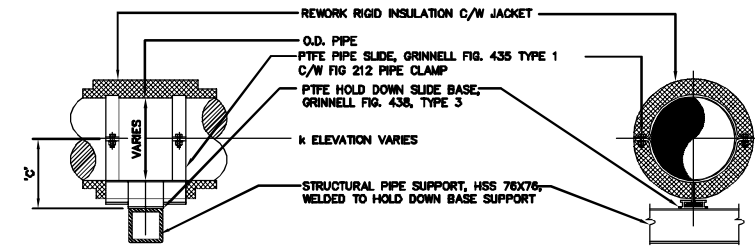
1:20



PIPE ROLL STAND SUPPORT (TYP.)

N.T.S.

PIPE O.D.	INSULATION SHIELD	PIPE ROLL STAND	"B"
323.8	GRINNELL FIG. 167-18C	GRINNELL FIG. 271 FOR 425 O.D. PIPE	349
508	GRINNELL FIG. 167-25C	GRINNELL FIG. 271 FOR 610 O.D. PIPE	453
609.6	GRINNELL FIG. 167-28C	GRINNELL FIG. 271 FOR 710 O.D. PIPE	582



PIPE GUIDE SUPPORT (TYP.)

1:20

PIPE O.D.	PIPE SLIDE	HOLD DOWN BASE	"C"
323.8	GRINNELL FIG. 435 TYPE 1, FOR PIPE SIZE 250Ø-350Ø	GRINNELL FIG. 438, TYPE 3 SIZE B	129
508	GRINNELL FIG. 435 TYPE 1, FOR PIPE SIZE 400Ø-750Ø	GRINNELL FIG. 438, TYPE 3 SIZE B	131
609.6	GRINNELL FIG. 435 TYPE 1, FOR PIPE SIZE 400Ø-750Ø	GRINNELL FIG. 438, TYPE 3 SIZE B	131

NOTE:  
The original drawing used for construction was revised on August 02, 1999 by A.F.G. Gosson. That drawing has been updated with construction revisions.

HALF SIZE REDUCTION

AS-CONSTRUCTED

METRIC  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

**KGS CONSULTING ENGINEERS & PROJECT MANAGERS**  
GROUP WINNIPEG THUNDER BAY

LOCATIONS APPROVED UNDERGROUND STRUCTURES	SUPV U/G STRUCTURES COMMITTEE	DATE

NOTE:  
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN 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

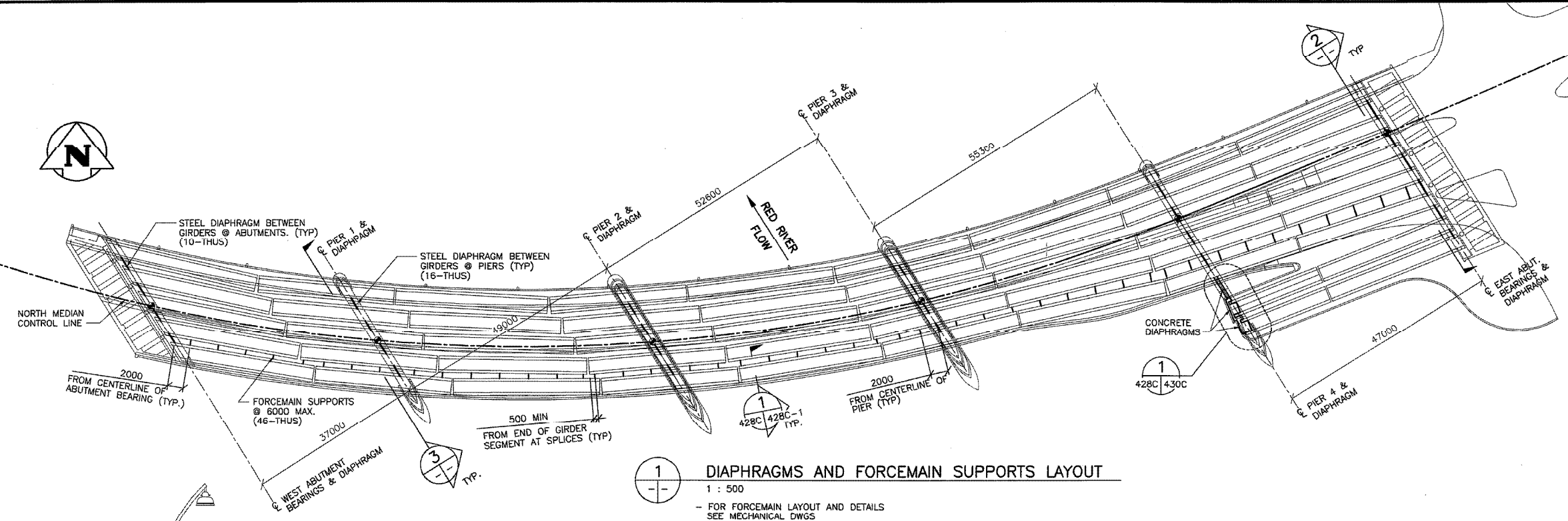
DESIGNED BY	CHECKED BY	DATE
RBB	AFG	
DRAWN BY	APPROVED BY	DATE
AS		
HOR. SCALE	VERTICAL	DATE
1:20		

ENGINEER'S SEAL  
PROVINCE OF MANITOBA  
**A.F.G. GOSSON**  
REGISTERED PROFESSIONAL ENGINEER  
CONSULTANT DRAWING NO. 4462-86C

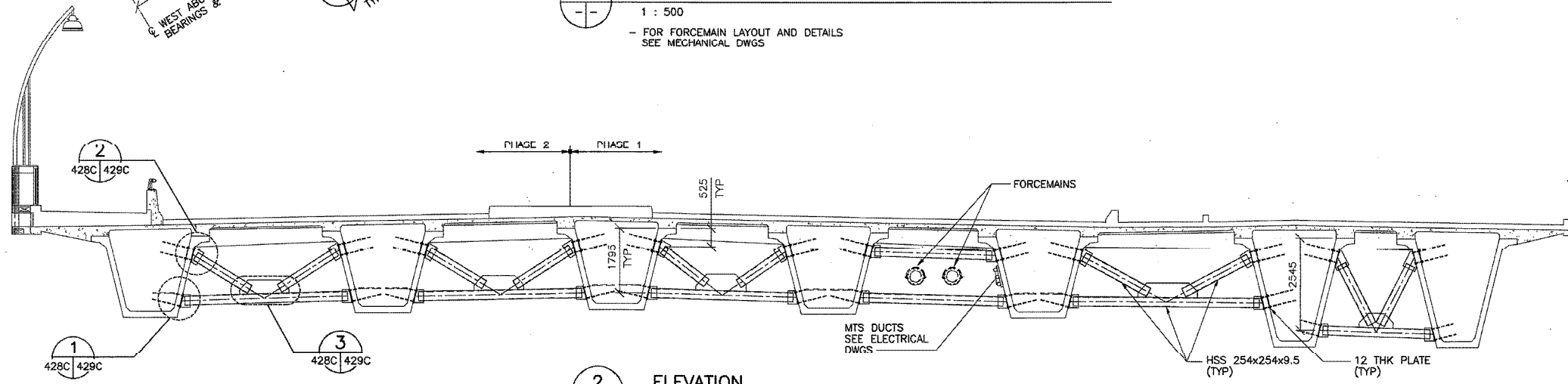
**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
STREETS AND TRANSPORTATION DEPARTMENT

MAIN STREET AND NORWOOD BRIDGES PROJECT  
MAIN STREET BRIDGE  
NORTH-BOUND STRUCTURE

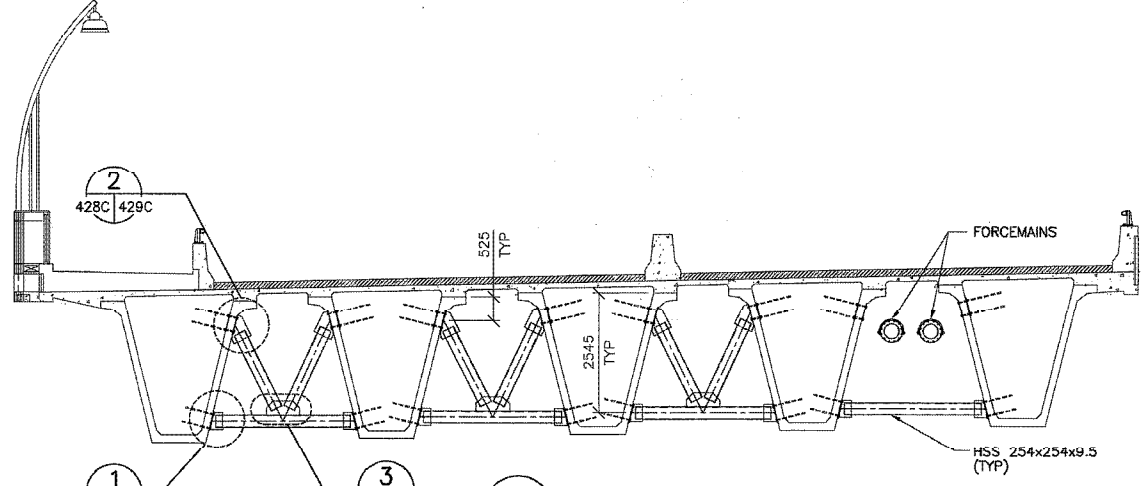
CITY DRAWING NUMBER B104-95-86C  
SHEET 86 OF 121  
05793



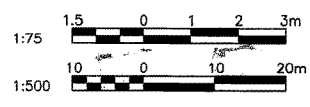
**1** DIAPHRAGMS AND FORCEMAIN SUPPORTS LAYOUT  
 1 : 500  
 - FOR FORCEMAIN LAYOUT AND DETAILS SEE MECHANICAL DWGS



**2** ELEVATION  
 1 : 75  
 - SHOWING TYPICAL DIAPHRAGMS AT ABUTMENTS

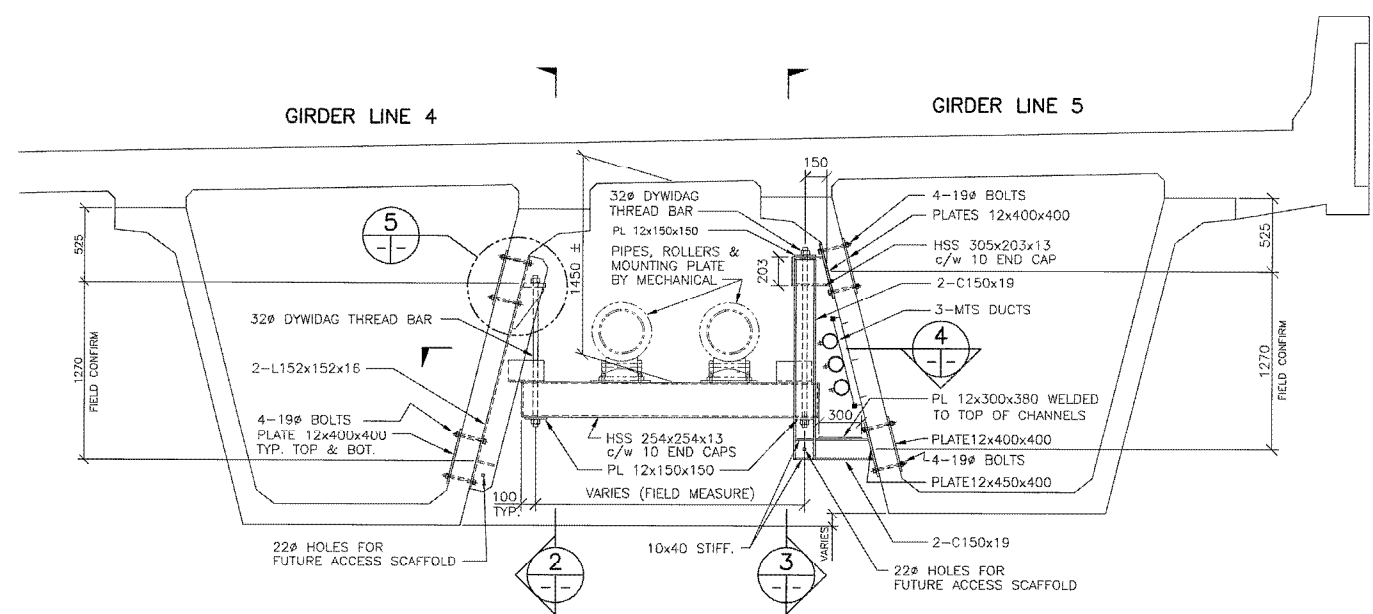


**3** ELEVATION  
 1 : 75  
 - SHOWING TYPICAL DIAPHRAGMS AT PIERS

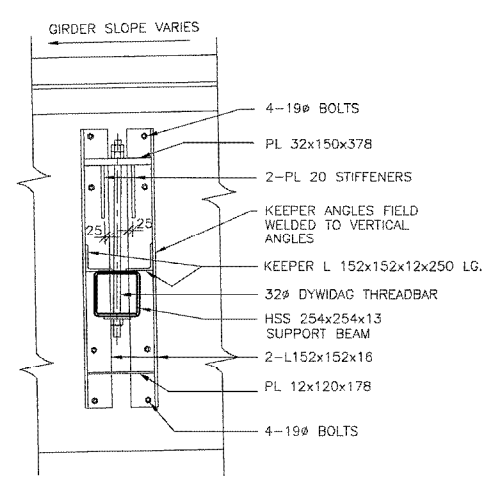


**RECORD DRAWING**  
 DATE 05.01.20 BY W.P.S.  
 REVIEWED BY *P.S.*

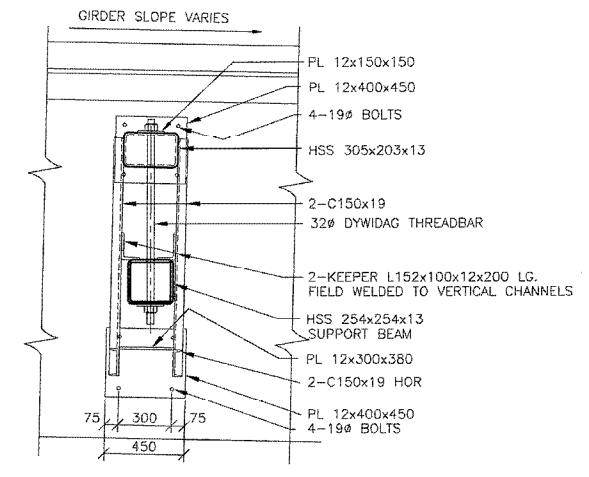
B.M. ELEV.	F.B.	<b>WARDROP</b> Engineering Inc.	ORIGINAL DRAWING	<b>THE CITY OF WINNIPEG</b> PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	CITY DRAWING NUMBER <b>B110-01-077C</b>
			REVISION "0" SEALED BY D.N. BURMEY 01.04.24		
DESIGNED BY D.N.B./B.C.	CHECKED BY D.N.B.		ACCEPTED BY DATE	GIRDER DIAPHRAGMS AND FORCEMAIN SUPPORTS - PLAN AND SECTIONS	SHEET OF
DRAWN BY A.K.	APPROVED BY R.V.G.		ORIGINAL DRAWING SIGNED BY B. EBENSCHANGER (01.04.24)		
2 RECORD DRAWING	05.01.20	SCALE: AS NOTED	CONSULTANT DRAWING NO. 990007-08-00	428C	
1 ISSUED FOR CONSTRUCTION	01.07.05	VERTICAL:			
0 ISSUED FOR TENDER	01.04.30				
NO. REVISIONS		DATE	BY		



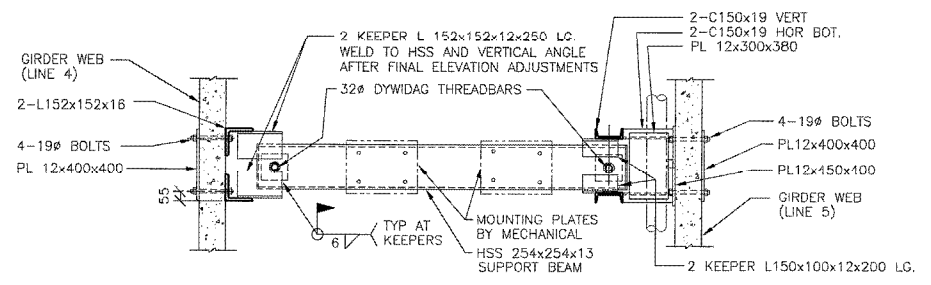
**1** ELEVATION - TYPICAL FORCEMAIN SUPPORT  
248C 248C-1 1 : 25



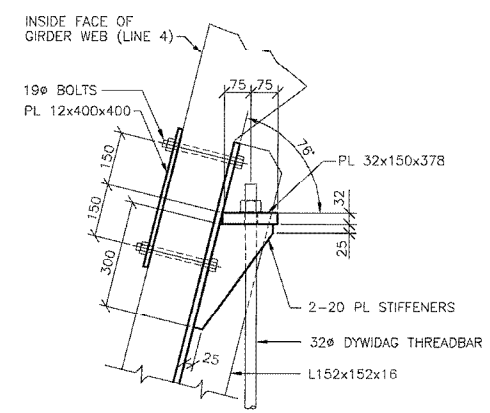
**2** SECTION  
1 : 20



**3** SECTION  
1 : 20



**4** PLAN/SECTION  
1 : 20



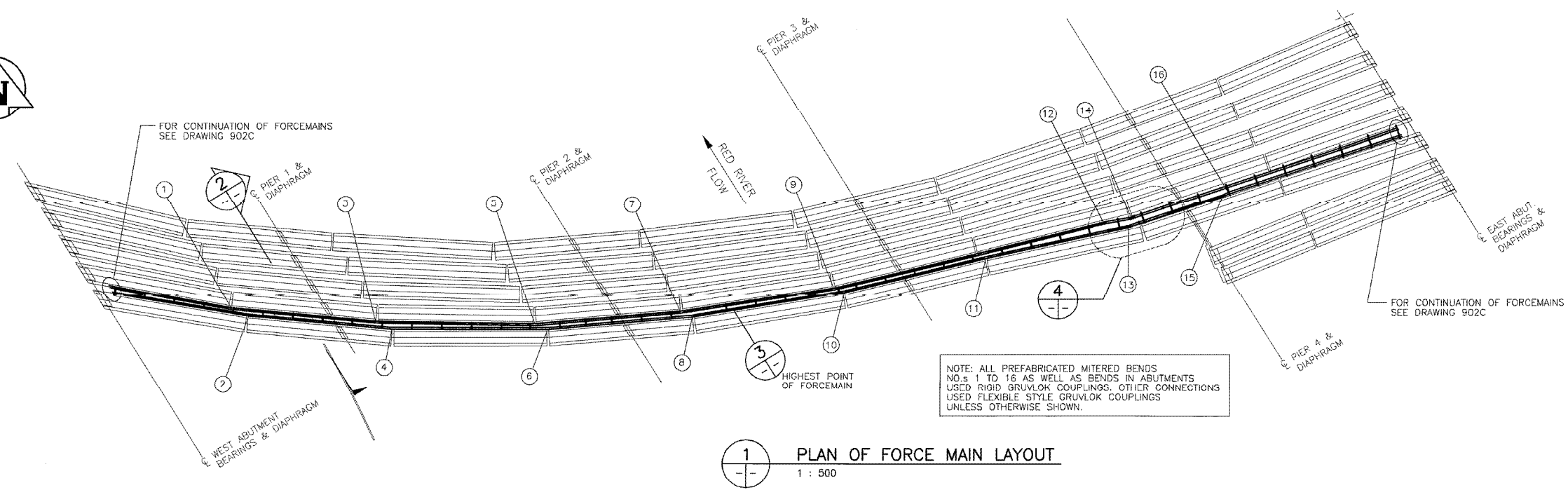
**5** DETAIL  
1 : 10

- GENERAL NOTES
- DISTANCE AND RELATIVE ELEVATION BETWEEN GIRDER LINES 4 AND 5 VARIES OVER THE LENGTH OF THE BRIDGE. CONTRACTOR SHALL FIELD CONFIRM ALL DIMENSIONS AND ELEVATIONS.
  - ALL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
  - MINIMUM WELD SHALL BE 8mm FILLET.

**RECORD DRAWING**  
DATE 05.01.20 BY W.P.S.  
REVIEWED BY P.S.

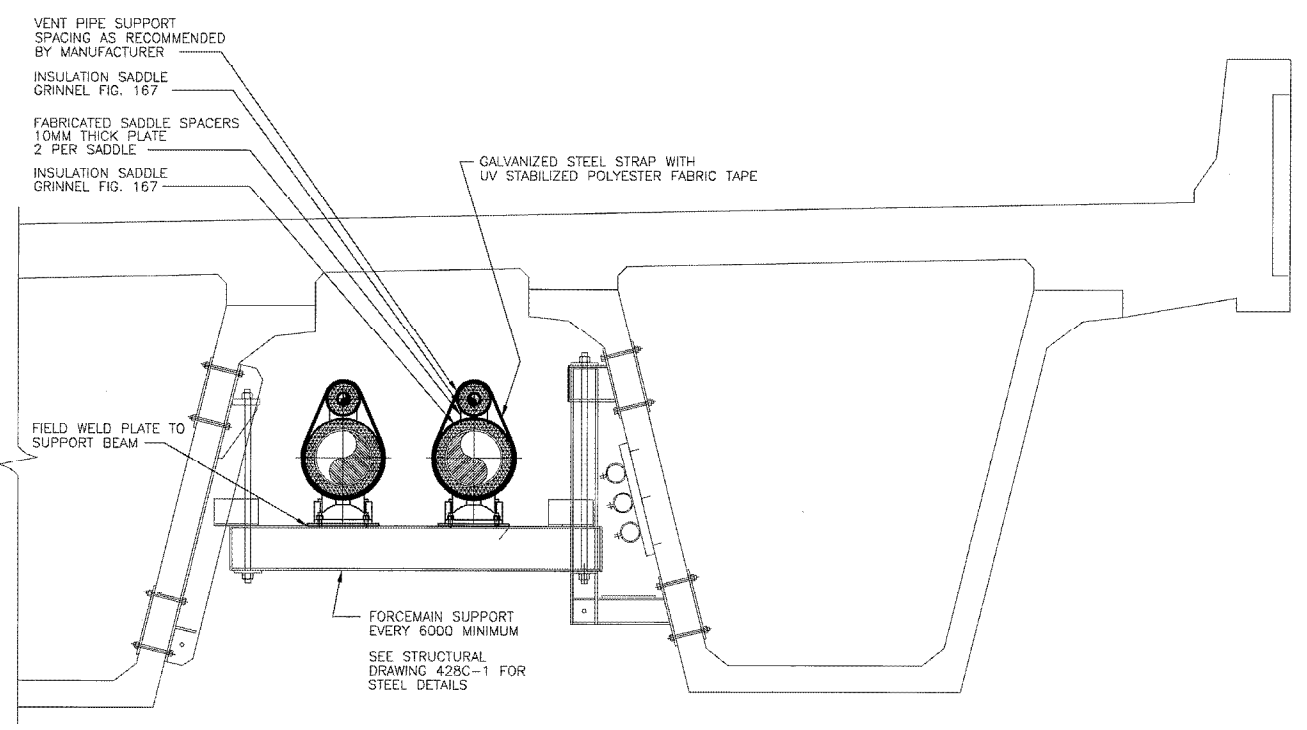
B.M. ELEV.	F.B.	<b>WARDROP</b> Engineering Inc.		<b>THE CITY OF WINNIPEG</b> PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
DESIGNED BY D.N.B.	CHECKED BY	PROVENCHER PAIRED BRIDGES PROJECT	CITY DRAWING NUMBER	B110-01-144C	
DRAWN BY P.S.	APPROVED BY	VEHICULAR BRIDGE CONCRETE GIRDER ALTERNATIVE	SHEET OF	428C-1	
1 RECORD DRAWING 05.01.20 P.S.	HR. SCALE: AS NOTED	REVISD FORCEMAIN SUPPORTS	CONSULTANT DRAWING NO.	990007-08-00	
0 ISSUED WITH P.C.N. 18 02.03.01 D.N.B.	VERTICAL:	TYPICAL ELEVATION, SECTIONS AND DETAILS	DATE	02.03.01	
NO. REVISIONS	DATE	DATE	B. EBENSCHNIGER, P. ENG. BRIDGE DESIGN AND PROJECTS ENGINEER		



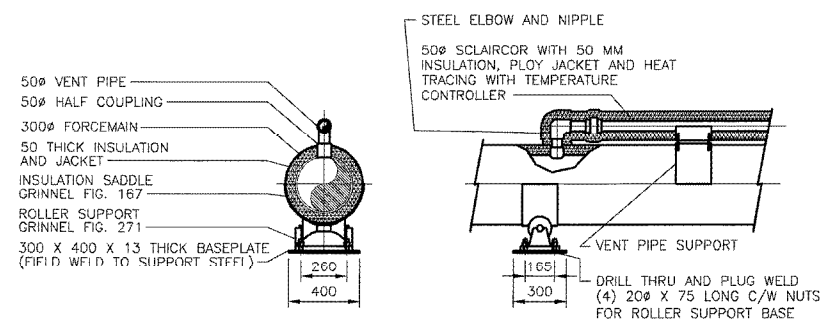


WELDED MITER SCHEDULE STEEL PIPE ELBOWS	
NO.	ANGLE IN DEGREES
1.	5.1'
2.	4.1'
3.	4.5'
4.	4.3'
5.	5.8'
6.	4.9'
7.	4'
8.	4.6'
9.	4.6'
10.	4.6'
11.	1.3'
12.	3.5'
13.	6.3'
14.	8.1'
15.	7.7'
16.	7.9'

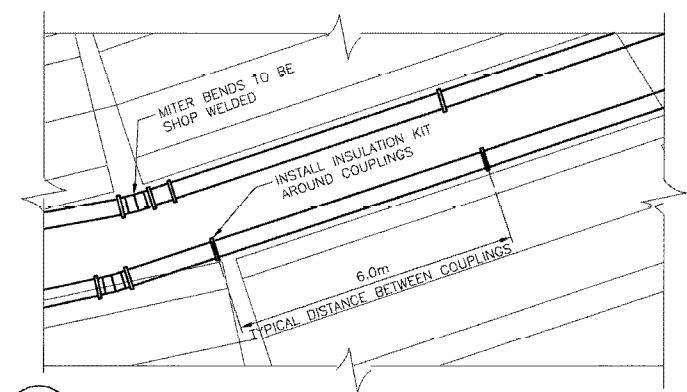
1 PLAN OF FORCE MAIN LAYOUT  
1 : 500



2 FORCEMAINS SUPPORTS AND VENT PIPING SUPPORT LOOKING EAST  
1 : 20

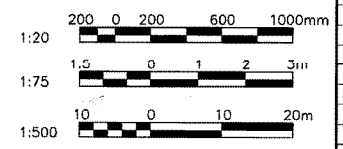


3 FORCEMAIN DETAIL - VENT CONNECTION AT HIGHEST ELEVATION OF BRIDGE  
1 : 20



4 MITERED BEND AND COUPLING SPACING DETAIL  
1 : 75

**RECORD DRAWING**  
DATE 05.01.20 BY W.P.S.  
REVIEWED BY P.S.



B.M. ELEV.	F.B.	DESIGNED BY	CHECKED BY	APPROVED BY	DATE
		M.B.	M.B.	R.V.G.	
		M.B.			
2	RECORD DRAWING	05.01.20	P.S.		
1	ISSUED FOR CONSTRUCTION	01.07.05	R.V.G.		
0	ISSUED FOR TENDER	01.04.30	M.B.		
NO.	REVISIONS	DATE	BY	DATE	

ORIGINAL DRAWING REVISION "0" SEALED BY M. BIMA 01.04.25  
CONSULTANT DRAWING NO. 990007-08-01

**WARDROP Engineering Inc.**

**THE CITY OF WINNIPEG**  
PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION

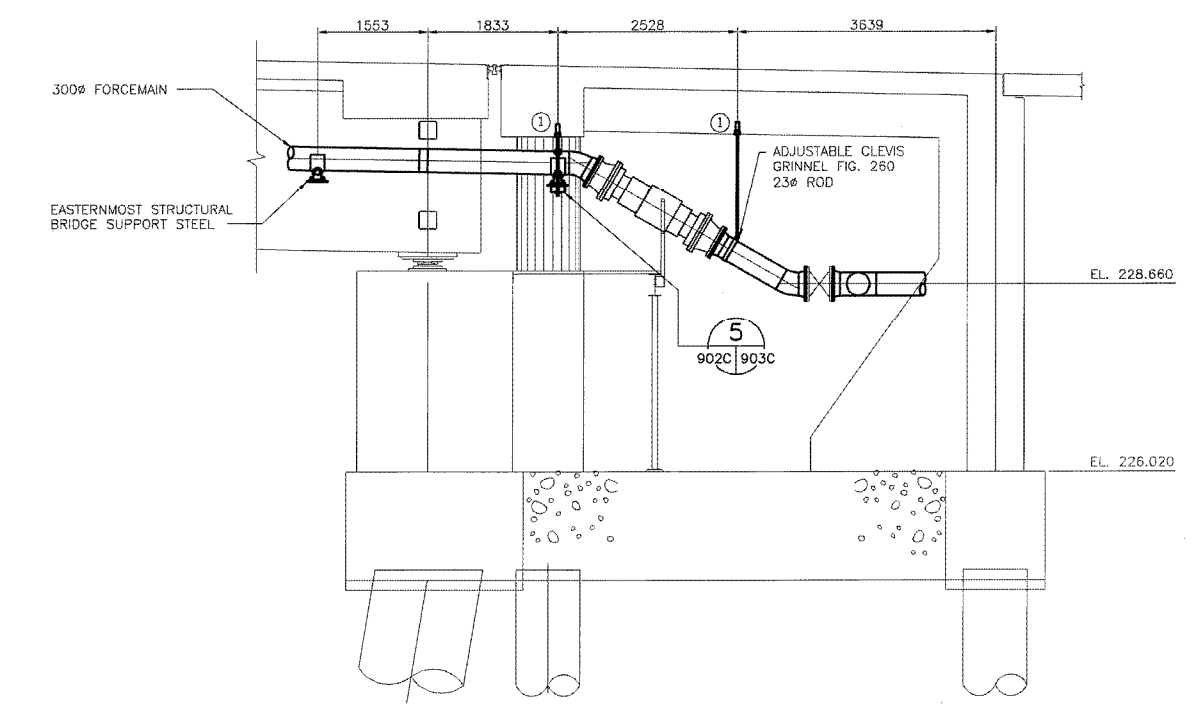
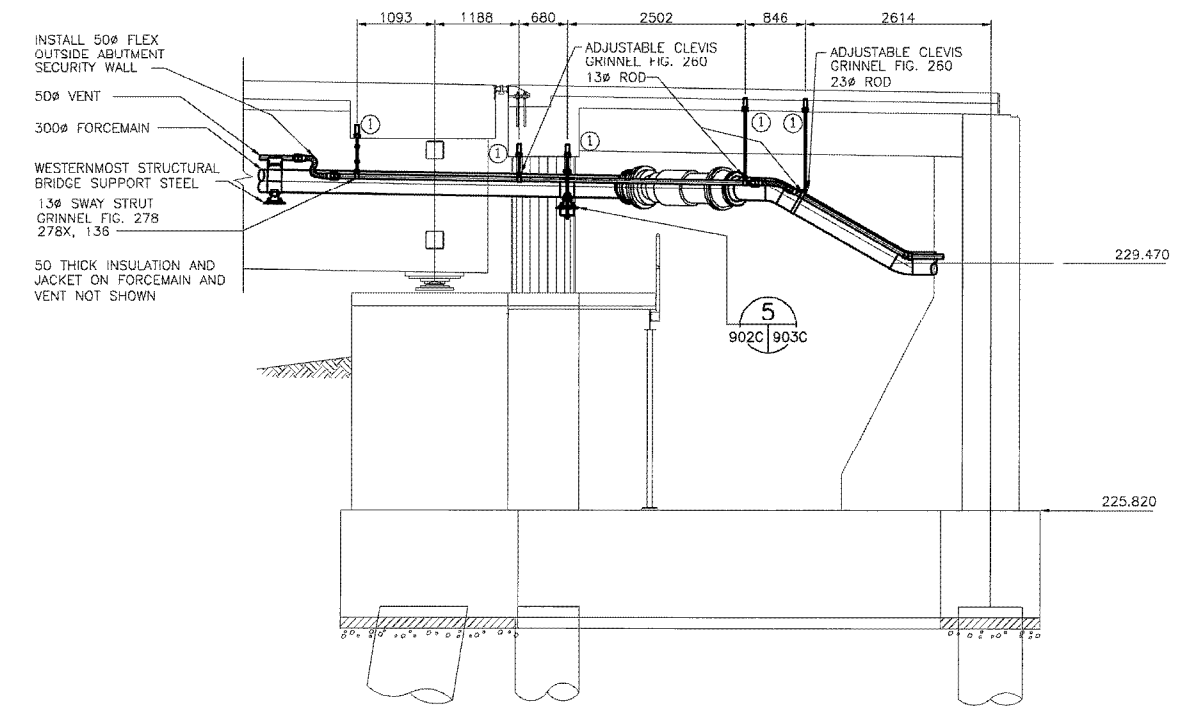
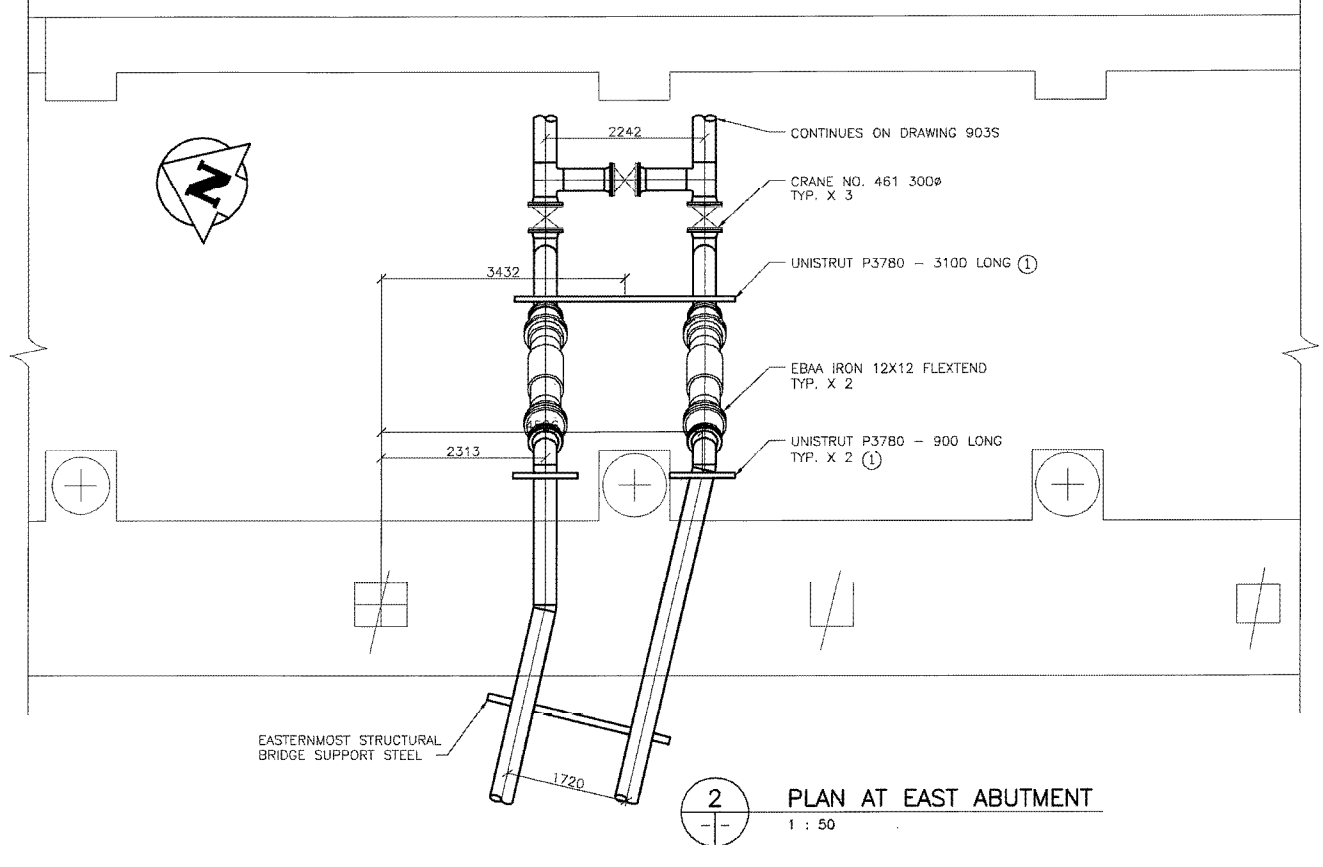
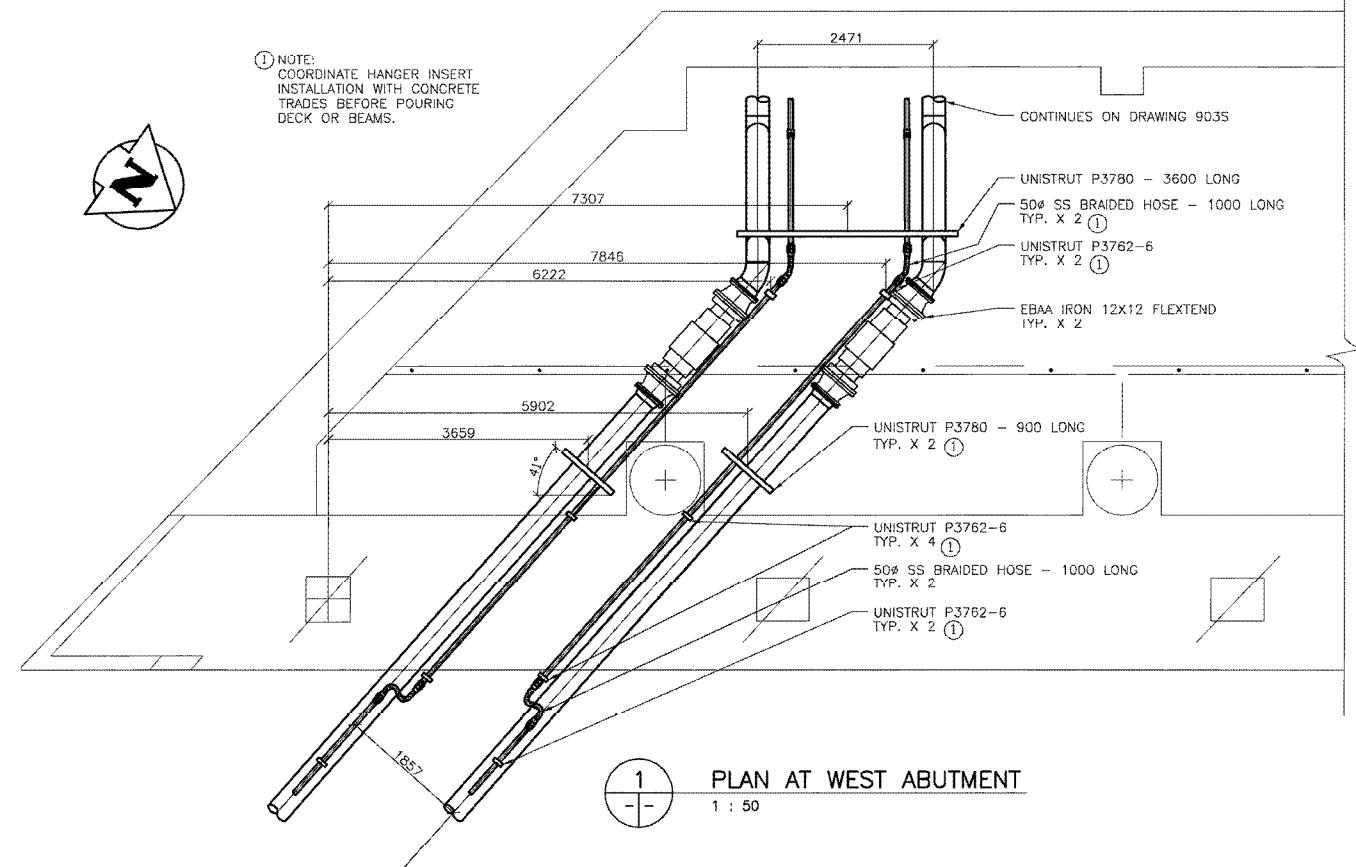
Winnipeg

PROVENCHER PAIRED BRIDGES PROJECT  
VEHICULAR BRIDGE  
CONCRETE GIRDER ALTERNATIVE

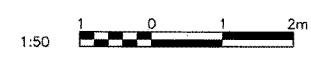
CITY DRAWING NUMBER B110-01-124C  
SHEET OF

FORCEMAIN AND VENT PIPING PLAN AND DETAILS

901C

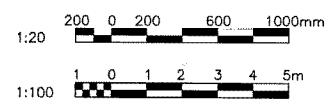
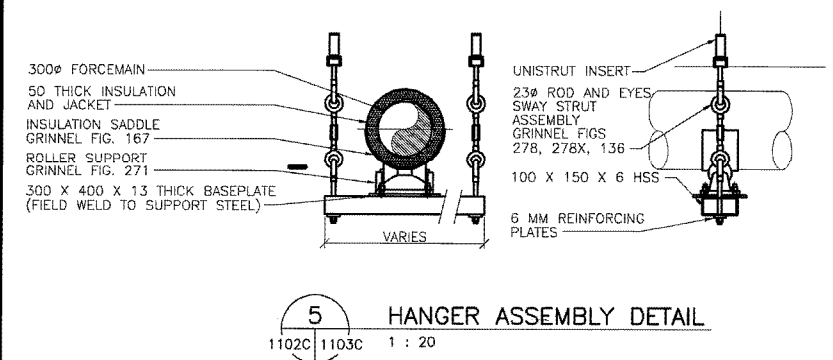
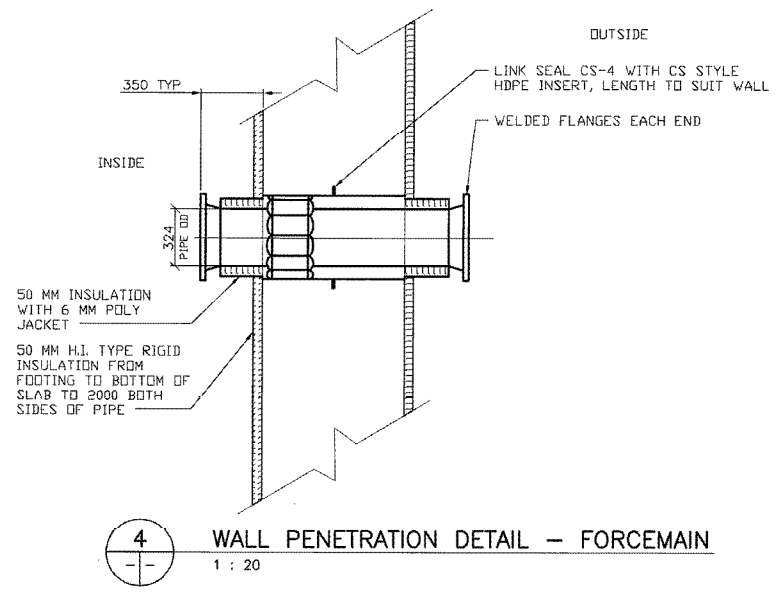
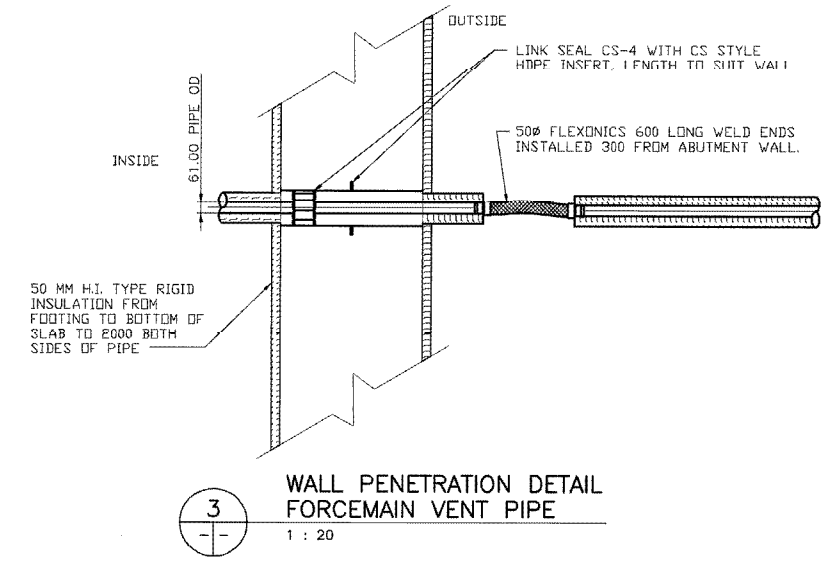
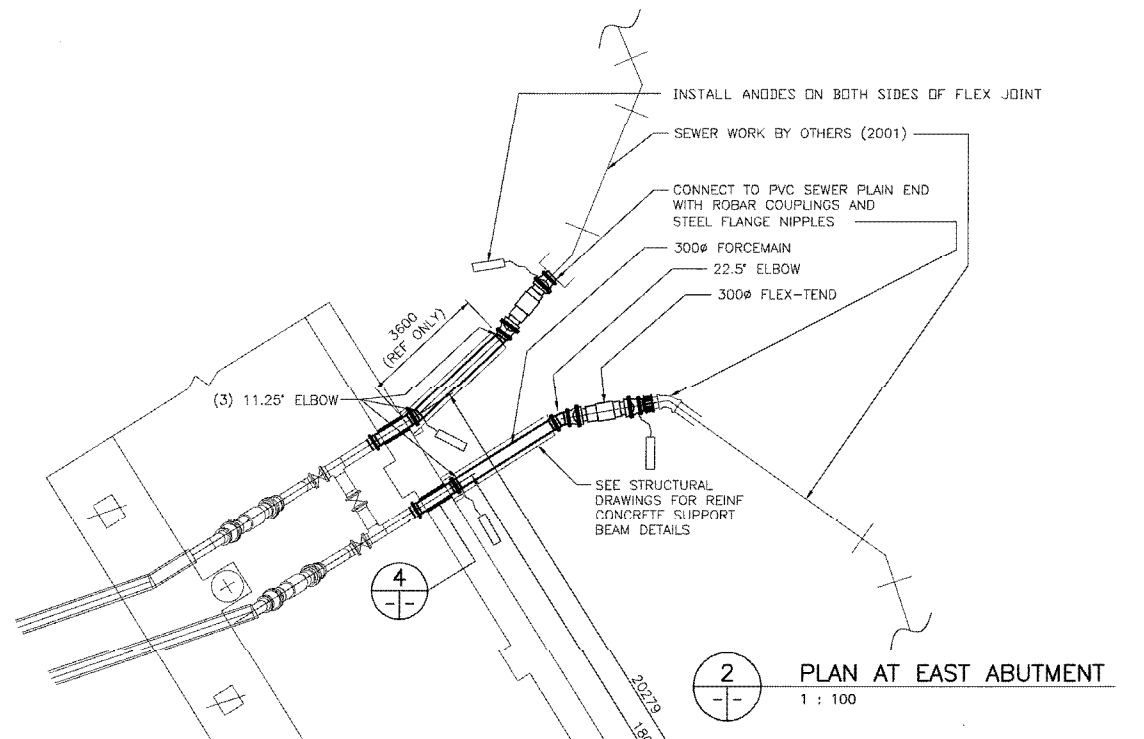
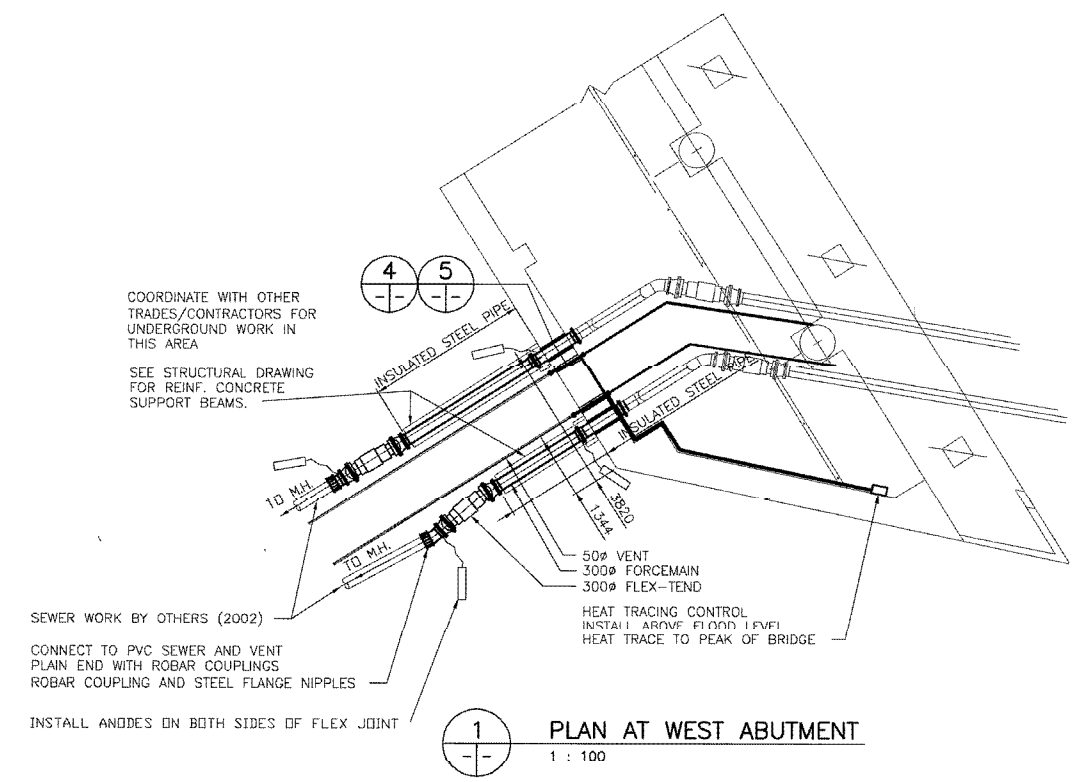


**RECORD DRAWING**  
DATE 05.01.20 BY W.P.S.  
REVIEWED BY P.S.



B.M. ELEV.	F.B.	<b>WARDROP</b>   Engineering Inc.		ORIGINAL DRAWING REVISION "0" SEALED BY M. BIMA 01.04.25	<b>THE CITY OF WINNIPEG</b> PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	CITY DRAWING NUMBER <b>B110-01-125C</b>
		DESIGNED BY M.B.	CHECKED BY M.B.	CONSULTANT DRAWING NO. 990007-08-01		<b>PROVENCER PAIRED BRIDGES PROJECT</b> VEHICULAR BRIDGE CONCRETE GIRDER ALTERNATIVE FORCEMAIN AND VENT PIPING ABUTMENTS PLANS AND ELEVATIONS
2	RECORD DRAWING	05.01.20	P.S.	HOR. SCALE: AS NOTED	ACCEPTED BY R. SOROKOWSKI (01.04.25)	
1	ISSUED FOR CONSTRUCTION	01.07.05	R.v.g.	VERTICAL:		
0	ISSUED FOR TENDER	01.04.30	M.B.	DATE 01.04.30		
NO.	REVISIONS	DATE	BY	DATE		

CITY DRAWING NUMBER 5798



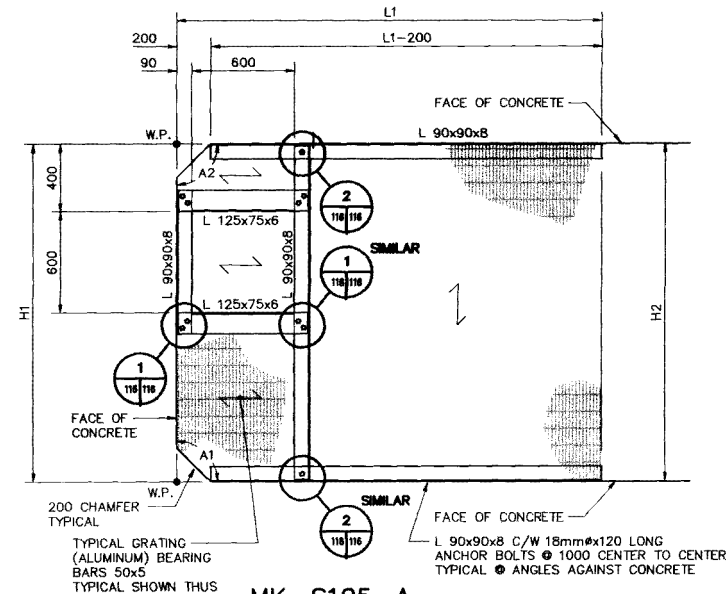
**RECORD DRAWING**  
DATE 05.01.20 BY W.P.S.  
REVIEWED BY P.S.

B.M. ELEV.		F.B.		<b>WARDROP</b> Engineering Inc.	ORIGINAL DRAWING REVISION "0" SEALED BY M. BIMA 01.04.25	<b>THE CITY OF WINNIPEG</b> PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	PROVENCER PAIRED BRIDGES PROJECT VEHICULAR BRIDGE CONCRETE GIRDER ALTERNATIVE	CITY DRAWING NUMBER <b>B110-01-126C</b>
DESIGNED BY M.B.		CHECKED BY M.B.						ACCEPTED BY DATE ORIGINAL DRAWING SIGNED BY R. SOROKOWSKI (01.04.25) R. SOROKOWSKI, P. ENG. WATER AND WASTE DEPARTMENT
DRAWN BY M.B.		APPROVED BY R.v.G.		HOR. SCALE: AS NOTED		FORCEMAIN AND VENT PIPING ABUTMENT PLAN AND DETAILS		
NO. REVISIONS		DATE BY		VERTICAL: AS NOTED				
2 RECORD DRAWING		05.01.20 P.S.		DATE 01.04.30				
1 ISSUED FOR CONSTRUCTION		01.07.05 R.v.G.						
0 ISSUED FOR TENDER		01.04.30 M.B.						

CITY DRAWING NUMBER 5799



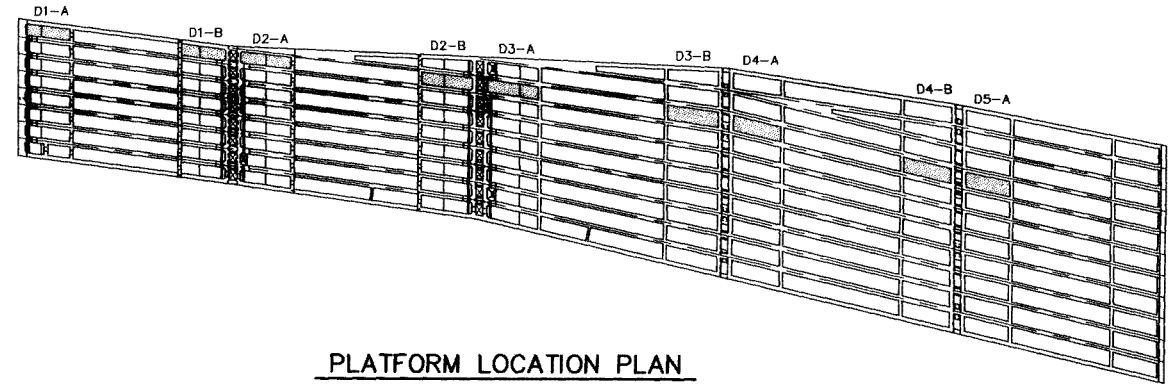




**MK. S105-A  
PLATFORM PLAN**

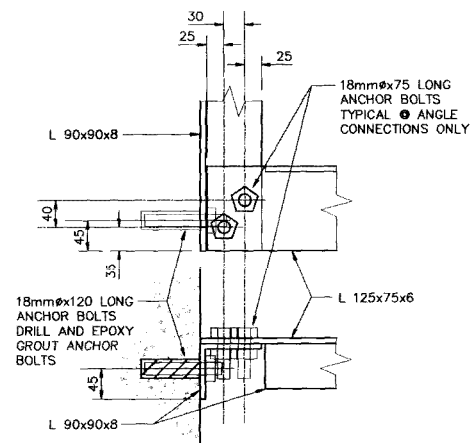
NOTE: - RUN GRATING OVER BOLTS.  
- TRIM GRATING BARS TO SUITE BOLTS.

PLATFORM SCHEDULE					
LOCATION	L1	H1	H2	A1	A2
D1-A	1008	1685	1685	97'25"19"	82'35"35"
D1-B	4730	1692	1692	82'34"41"	97'24"25"
D2-A	5173	1699	1715	96'45"0"	83'38"2"
D2-B	5434	1821	1801	83'21"20"	96'27"50"
D3-A	5702	1832	1899	98'37"16"	82'3'30"
D3-B	5620	2175	2241	81'26"59"	97'52"14"
D4-A	6188	2244	2240	103'36"7"	76'21"40"
D4-B	5710	2222	2226	76'23"53"	103'38"20"
D5-A	4384	2228	2246	101'59"9"	78'15"33"

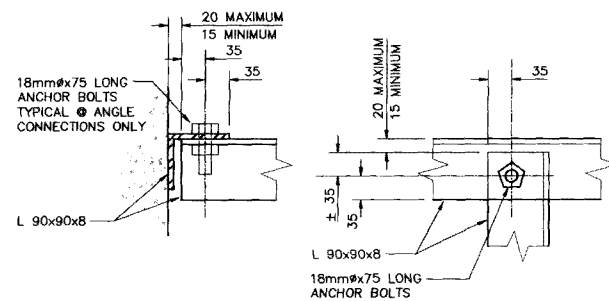


**PLATFORM LOCATION PLAN**

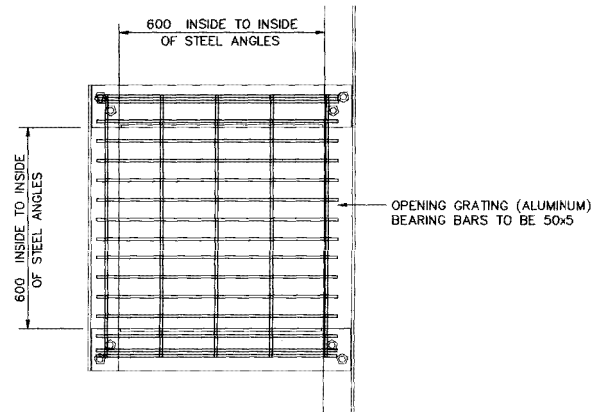
NOTE: FOR SIZE OF MEMBERS  
SEE PLATFORM SCHEDULE



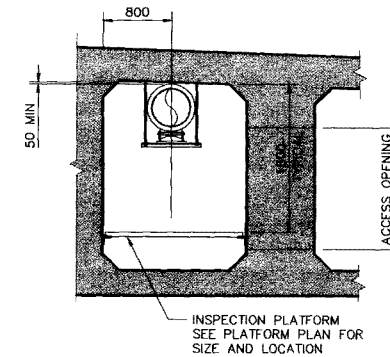
**1 DETAIL  
SCALE 1:10**



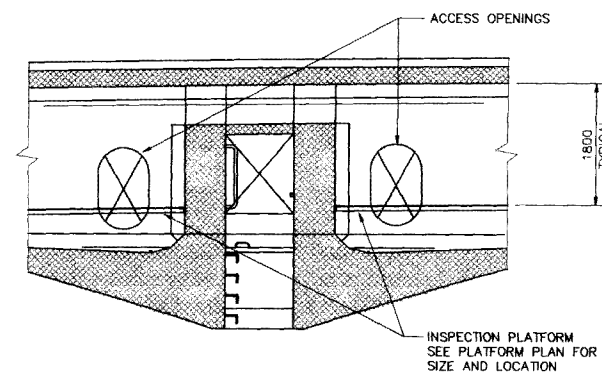
**2 DETAIL  
SCALE 1:10**



**GRATING @ HATCH OPENING**



**MK. S105-B  
PLATFORM ELEVATION**

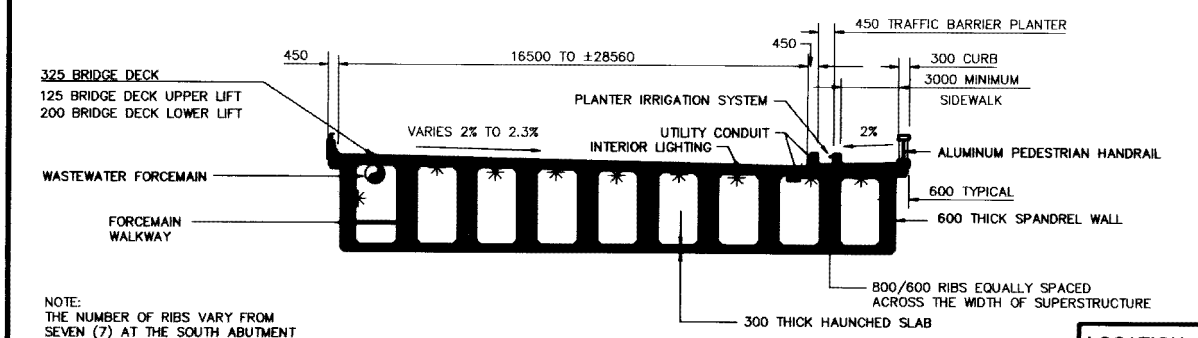
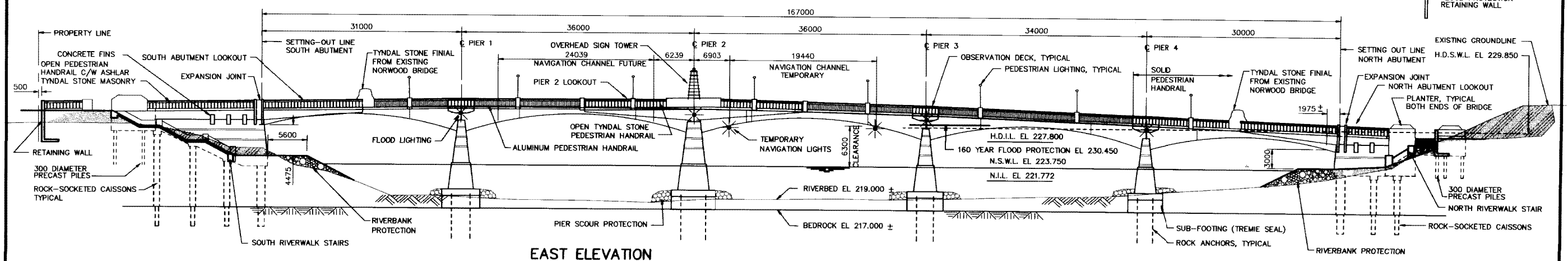
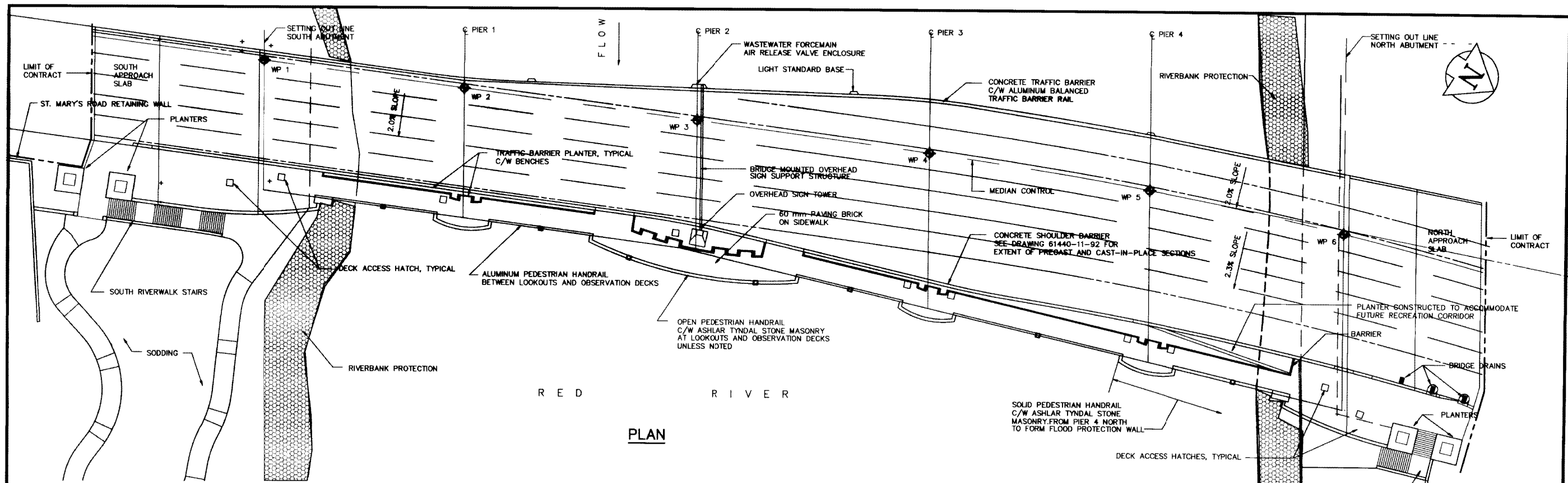


**MK. S105-C  
PLATFORM ELEVATION**

REID, CROWTHER & PARTNERS LIMITED  
WINNIPEG  
**AS CONSTRUCTED**  
SIG: [Signature] DATE: 07/19/20

B-5990-116

<b>LOCATION APPROVED UNDERGROUND STRUCTURES</b> SUPV. U/G STRUCTURES COMMITTEE DATE NOTE: LOCATION 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.	B.M. ELEV. DESIGNED BY: TLK DRAWN BY: TLK HOR. SCALE: AS NOTED VERTICAL: AS NOTED DATE: 03/15/95	REID, CROWTHER & PARTNERS LTD. ENGINEERS PLANNERS SCIENTISTS CHECKED BY: APPROVED BY: AUTHORIZED BY: DATE S.R. SMITH / SENIOR BRIDGE ENGINEER ACCEPTED BY: DATE B. ERDMAN / BRIDGE ENGINEER	ENGINEER'S SEAL PROVINCE OF MANITOBA ORIGINAL SIGNED BY G.A. WEBSTER 95/03/15 REGISTERED PROFESSIONAL ENGINEER CONSULTANT DRAWING NO. 61440-11-116	<b>THE CITY OF WINNIPEG</b> WORKS AND OPERATIONS DIVISION STREETS AND TRANSPORTATION DEPARTMENT MAIN STREET AND NORWOOD BRIDGES PROJECT NORWOOD BRIDGE - NORTHBOUND QUANTITY DRAWING NUMBER B103-95-121 SHEET 116 OF 126 REV. B
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**NOTES**

CONTRACTOR TO MAINTAIN FLOOD PROTECTION TO EL 230.450 AT ALL TIMES TO ALL AREAS OUTSIDE WORK LIMITS AS SHOWN ON DRAWING 61440-11-06

SPAN LENGTHS AS SHOWN ARE MEASURED PERPENDICULAR TO CENTERLINE OF PIERS AND ABUTMENT BEARING. THE SUBSTRUCTURE IS SET OUT BY WORKING POINTS AND BEARING ANGLES AS INDICATED ON DRAWING 61440-11-18. THE SUPERSTRUCTURE IS SET OUT FROM HORIZONTAL AND VERTICAL GEOMETRIC CONTROL DATA AS SHOWN ON DRAWINGS 61440-11-09, 10 AND 11.

THIS PROJECT IS SET OUT BY CO-ORDINATE GEOMETRY BASED ON CONTROL MONUMENTS AS SHOWN ON DRAWING 61440-11-09.

**ABBREVIATIONS**

N.S.W.L.	NORMAL SUMMER WATER LEVEL
N.I.L.	NORMAL ICE LEVEL
H.D.I.L.	HIGH DECILE ICE LEVEL
H.D.S.W.L.	HIGH DECILE SUMMER WATER LEVEL (160 YEAR FLOOD EVENT)

**REID, CROWTHER & PARTNERS LIMITED**  
WINNIPEG  
**AS CONSTRUCTED**  
SIG. DATE 03/15/95

**LOCATION APPROVED UNDERGROUND STRUCTURES**

SUPV. U/G STRUCTURES COMMITTEE	DATE
DESIGNED BY	CHECKED BY
DRAWN BY	APPROVED BY
HOR. SCALE:	AUTHORIZED BY
VERTICAL:	DATE
NO. REVISIONS	DATE BY

**REID CROWTHER**  
Field Consultant & Partner Ltd.  
Engineers Planners Scientists

DESIGNED BY	CHECKED BY
DRAWN BY	APPROVED BY
HOR. SCALE:	AUTHORIZED BY
VERTICAL:	DATE
NO. REVISIONS	DATE BY



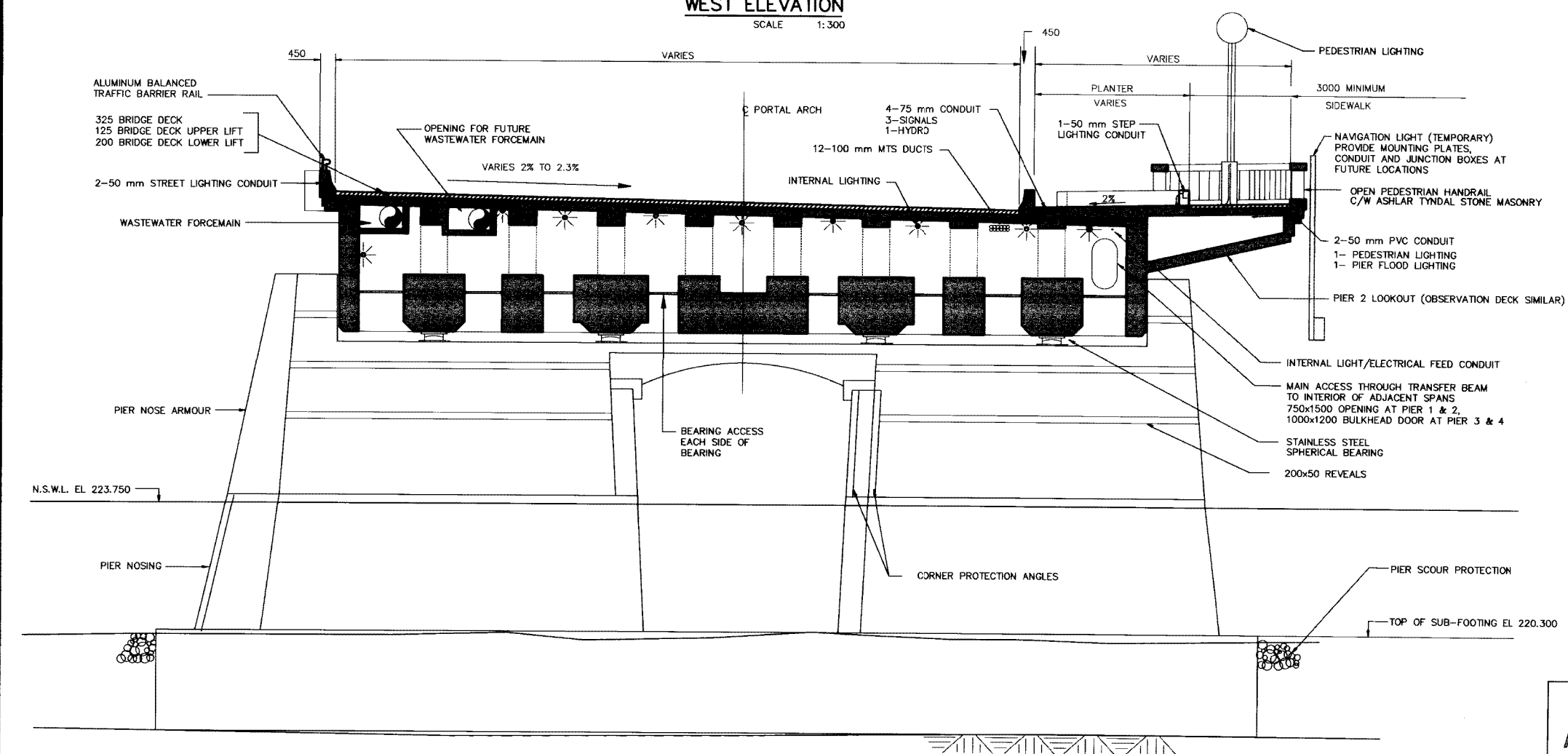
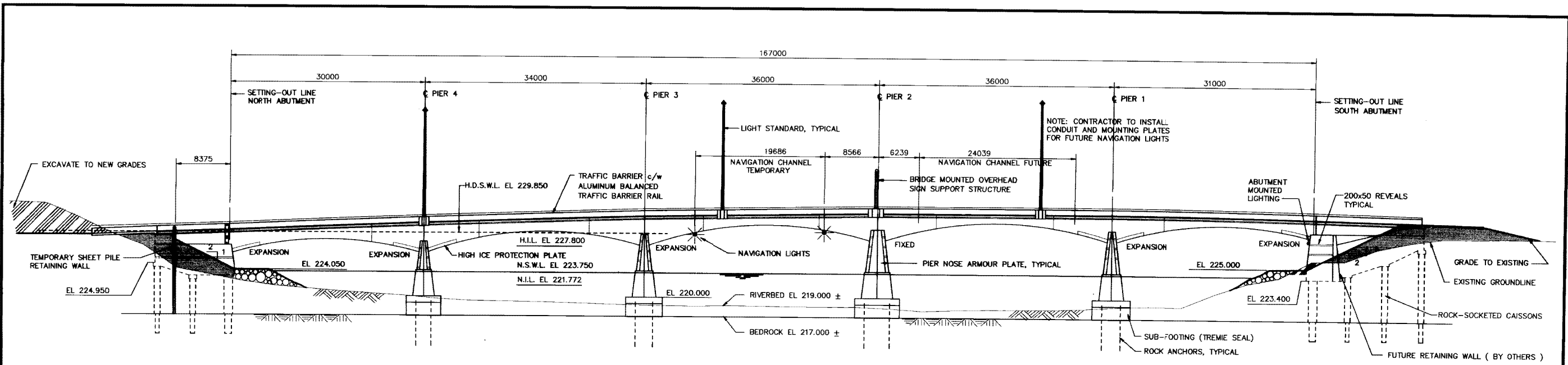
**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
STREETS AND TRANSPORTATION DEPARTMENT

**B-5990-04**

**MAIN STREET AND NORWOOD BRIDGES PROJECT**  
NORWOOD BRIDGE - NORTHBOUND

GENERAL ARRANGEMENT OF PROPOSED WORKS  
PLAN, EAST ELEVATION AND  
TYPICAL SECTION

CITY DRAWING NUMBER  
B103-95-09  
SHEET 4 OF 126  
REV. B



REID, CROWTHER & PARTNERS LIMITED  
WINNIPEG  
**AS CONSTRUCTED**  
SIG. DATE

B-5990-05

TYPICAL PIER ELEVATION AND CROSS-SECTION OF SUPERSTRUCTURE  
SCALE 1:150

**LOCATION APPROVED UNDERGROUND STRUCTURES**

SUPV. U/G STRUCTURES COMMITTEE DATE

NOTE:  
LOCATION 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.

B.M. ELEV.	NO.	REVISIONS	DATE	BY

**Reid Crowther**  
Reid Crowther & Partners Ltd  
Engineers Planners Scientists

DESIGNED BY	CHECKED BY
DRAWN BY	APPROVED BY
HOR. SCALE:	AUTHORIZED BY
VERTICAL:	DATE
	DATE

ENGINEER'S SEAL  
PROVINCE OF MANITOBA  
ORIGINAL SIGNED BY  
GA  
WEBSTER  
95/03/15  
REGISTERED PROFESSIONAL ENGINEER

**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
STREETS AND TRANSPORTATION DEPARTMENT

MAIN STREET AND NORWOOD BRIDGES PROJECT  
NORWOOD BRIDGE - NORTHBOUND

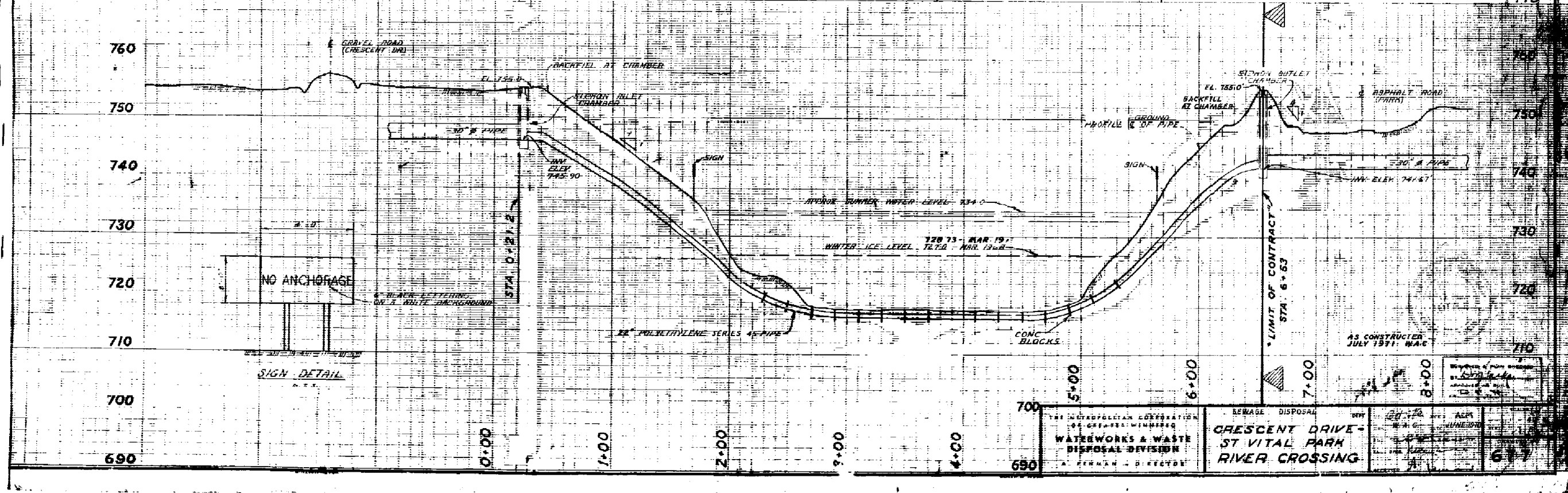
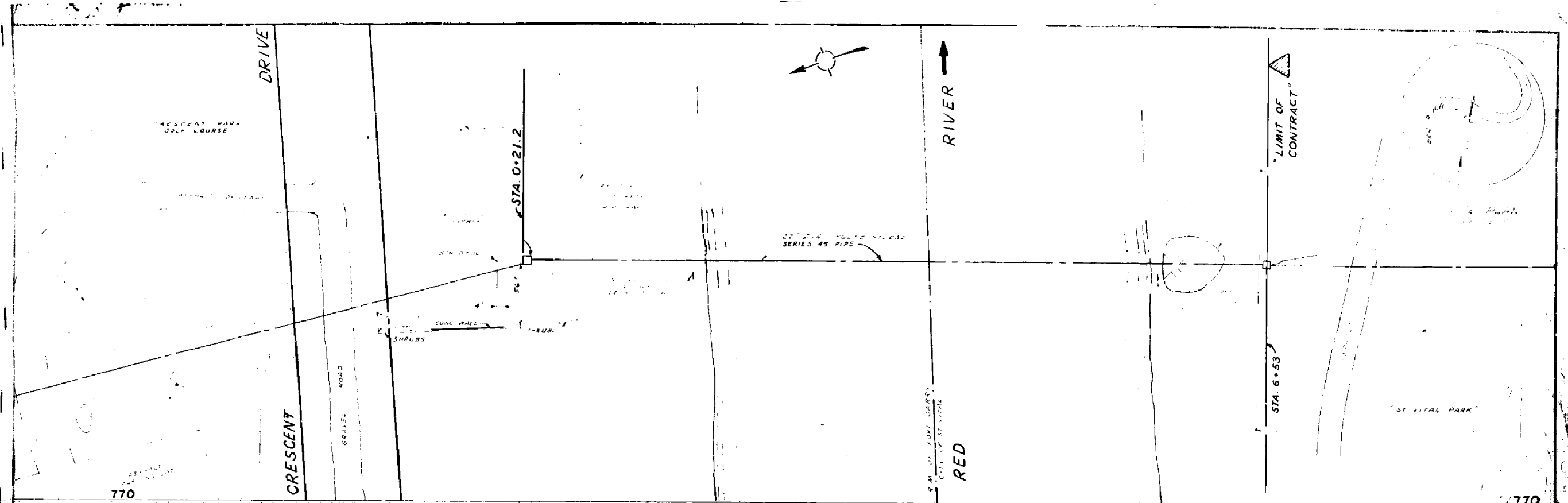
CITY DRAWING NUMBER B103-95-10  
SHEET 5 OF 126

GENERAL ARRANGEMENT OF PROPOSED WORKS  
WEST ELEVATION AND  
TYPICAL SECTION AT PIER

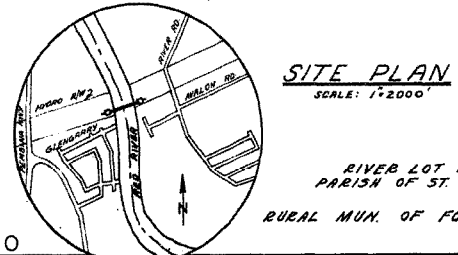
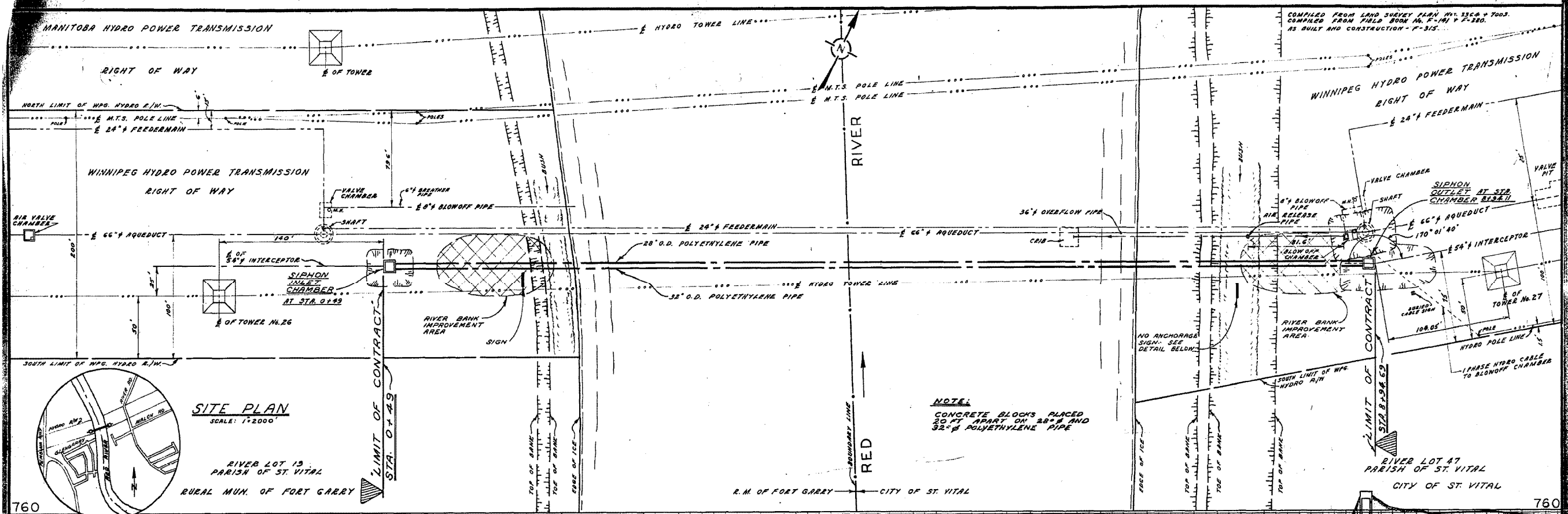
REV. A

METRIC  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

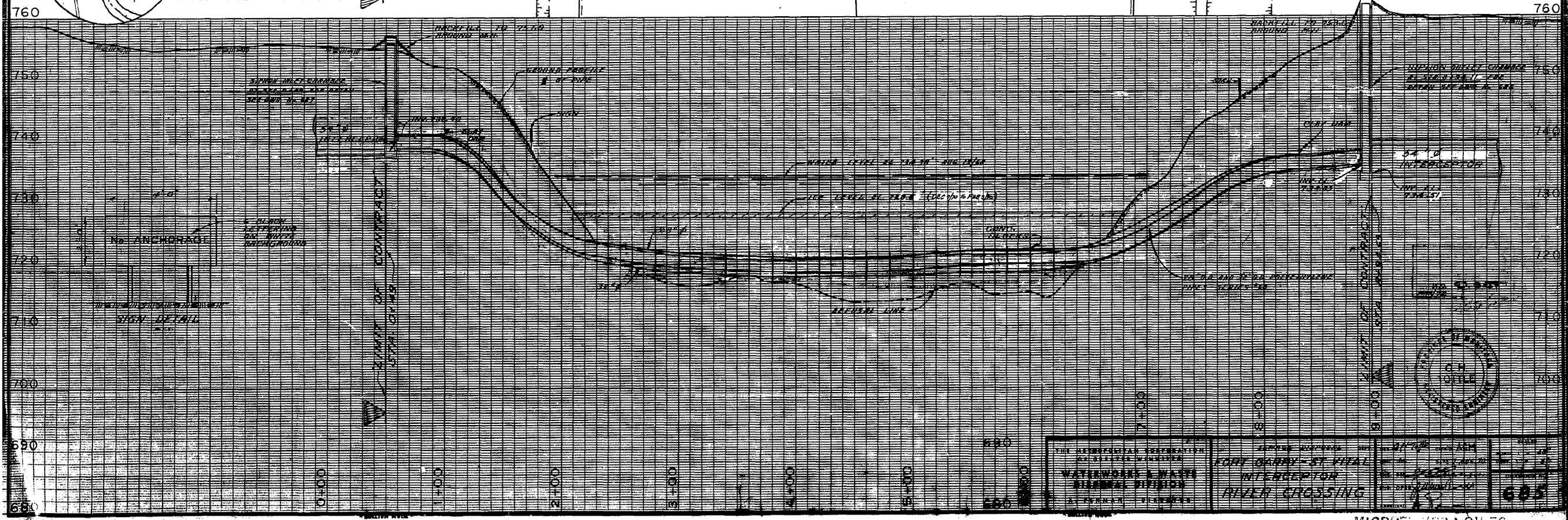




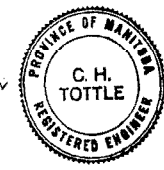
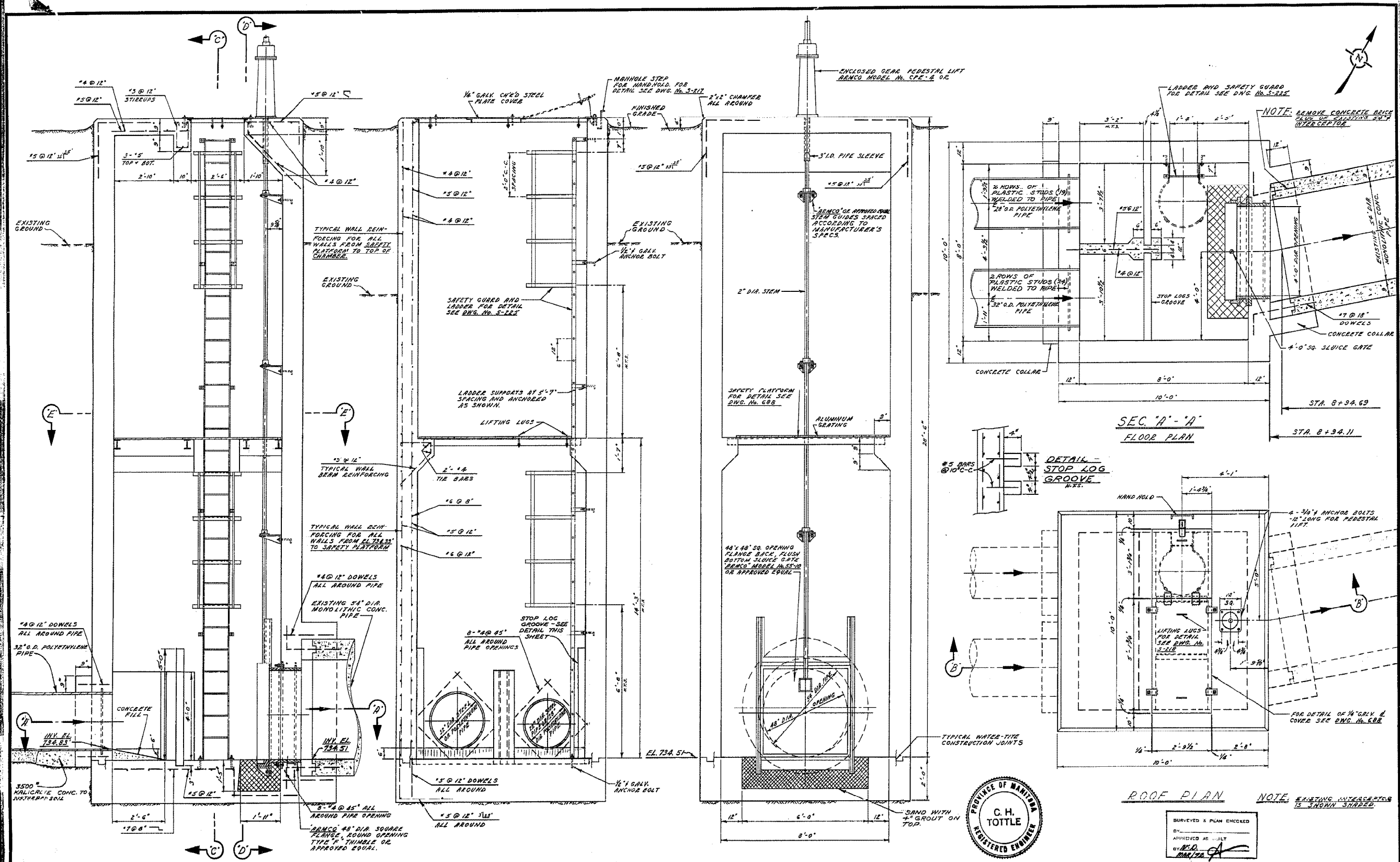
COMPILED FROM LAND SURVEY PLAN No. 1524 & 7003.  
 DATED FROM FIELD BOOK No. F-141 & F-180.  
 AS BUILT AND CONSTRUCTION - 7-315.



**NOTE:**  
 CONCRETE BLOCKS PLACED  
 20 FT. APART ON 28\"/>



THE MUNICIPAL ENGINEER WATERWORKS & WASTE DIVISION AT FORT GARRY, MANITOBA	PROJECT NO. 100-100-100 FORT GARRY - ST. VITAL INTERCEPTOR RIVER CROSSING	SHEET NO. 605
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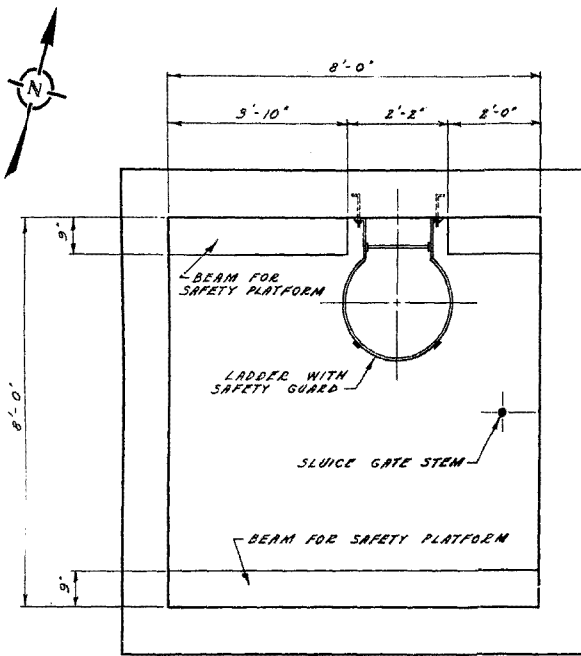
BURNEVED & PLAN CHECKED  
 BY: \_\_\_\_\_  
 APPROVED AS SHOWN  
 BY: C.H. TOITTE  
 DATE: 10/2/78

THE METROPOLITAN CORPORATION  
 OF GREATER WINNIPEG  
**WATERWORKS & WASTE  
 DISPOSAL DIVISION**  
 A. PENMAN - DIRECTOR

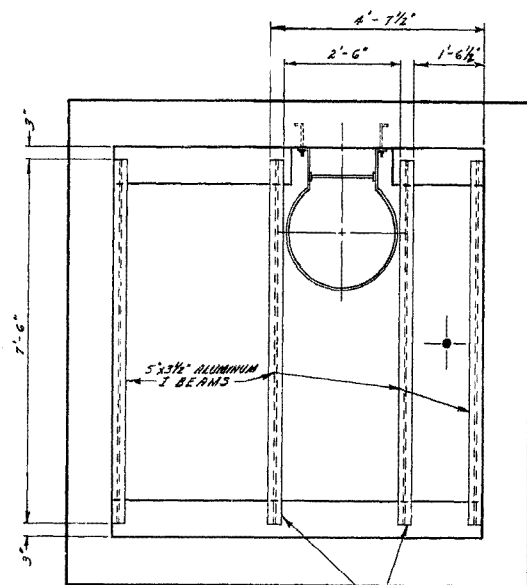
SEWAGE DISPOSAL DEPT.  
 FT. GARRY-ST. VITAL INTERCEPTOR  
 RIVER CROSSING  
**SIPHON OUTLET  
 CHAMBER**

SCALE: 1/2" = 1'-0"  
 DRAWING NO. **686**  
 MICROFILMED 1978





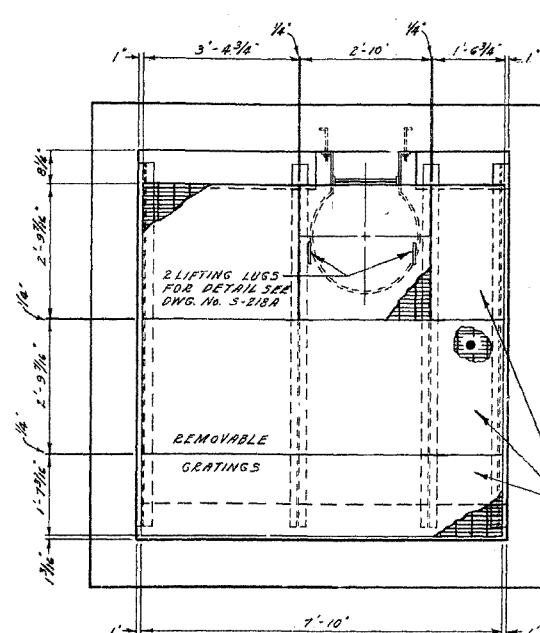
CONCRETE PLATFORM BEAMS



ALUMINUM I BEAM SUPPORTS FOR GRATING

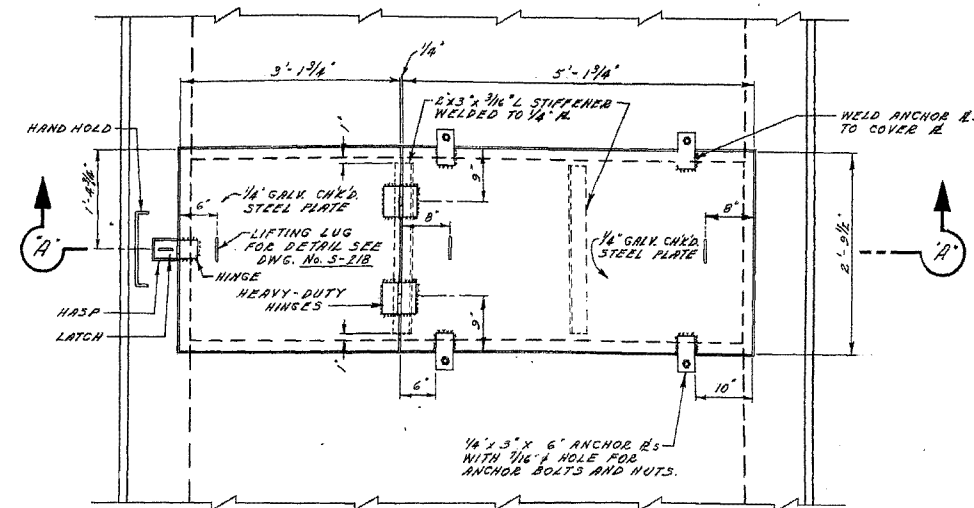
DETAIL OF SAFETY PLATFORM

SCALE - 1/4" = 1'-0"

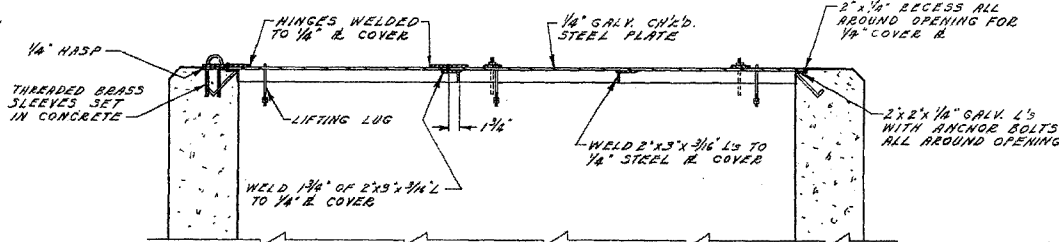


NOTE GRATING TO BE INSTALLED BEFORE 2" GATE STEM INSTALLATION. CUT OPENING IN GRATING FOR STEM AT TIME OF STEM INSTALLATION.

SEC. "E" - "E" COMPLETE PLATFORM



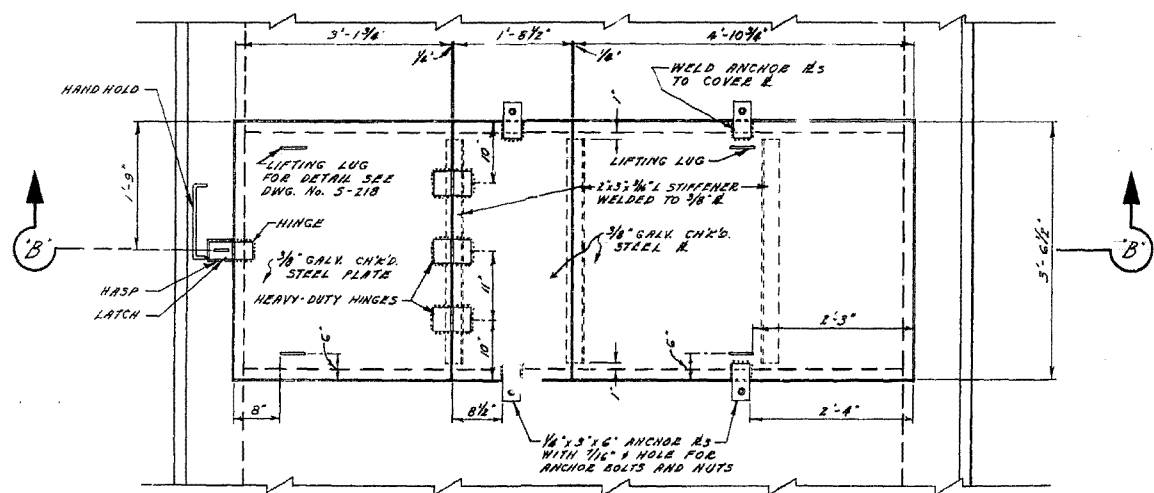
PLAN



SEC. "A" - "A"

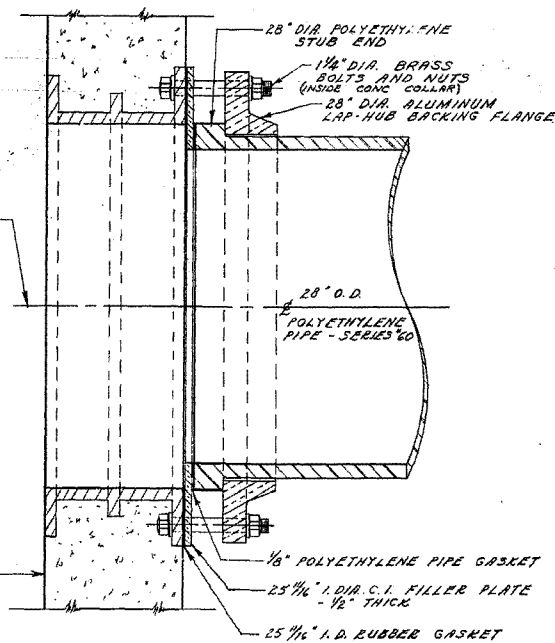
DETAIL OF HINGES, PADLOCK AND ANGLE IRON STIFFENER OF 1/4" PLATE COVER FOR SIPHON OUTLET CHAMBER AT STA. 8+94.11

SCALE - 3/16" = 1'-0"



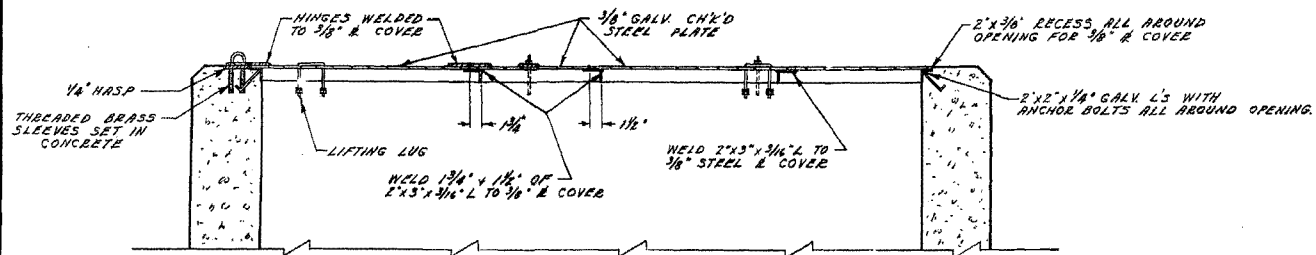
PLAN

Ø OF 30" DIA. C.I. WELL THIMBLE (SQ. TO ROUND FLGE)



DETAIL OF SPECIAL FLANGE ASSEMBLY FOR 28" DIA. POLYETHYLENE PIPE CONNECTION

SCALE - 1 1/2" = 1'-0"



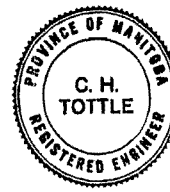
SEC. "B" - "B"

DETAIL OF HINGES, PADLOCK AND ANGLE IRON STIFFENER OF 3/8" PLATE COVER FOR SIPHON INLET CHAMBER AT STA. 0+49

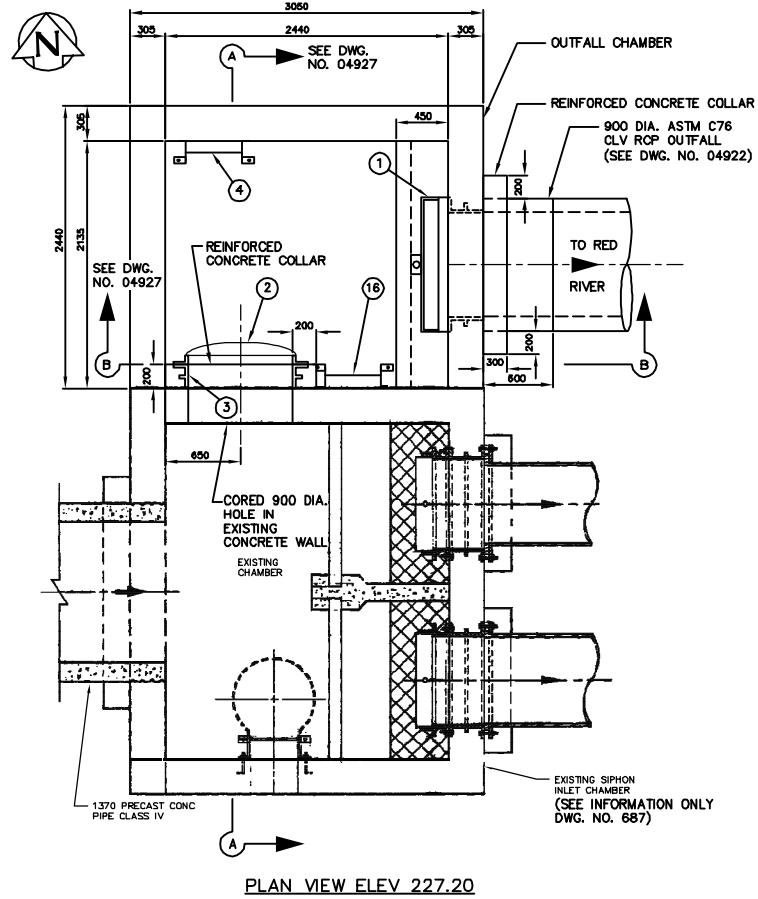
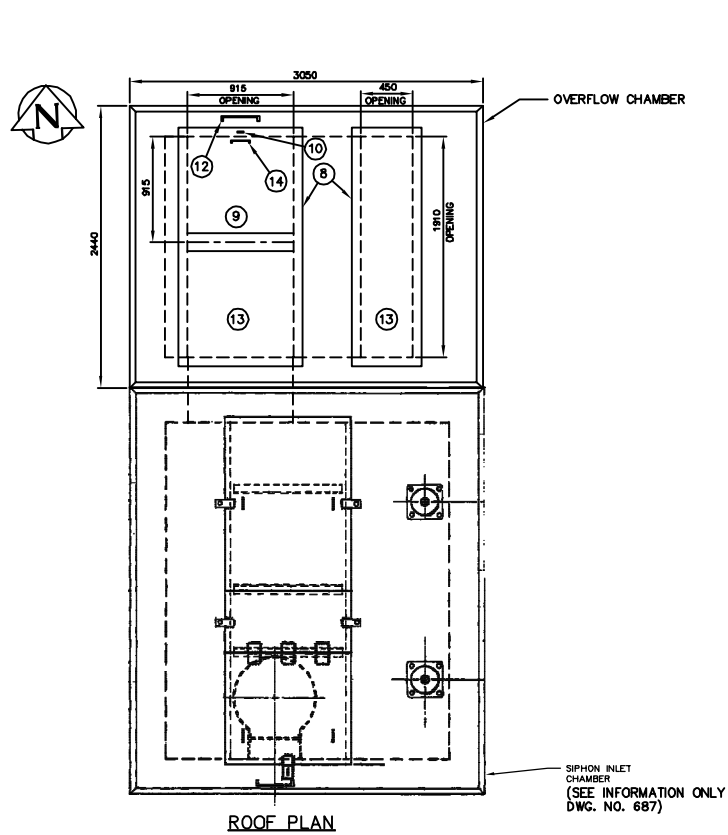
SCALE - 3/16" = 1'-0"

SURVEYED & PLAN CHECKED BY: \_\_\_\_\_

APPROVED AS BUILT BY: *AWD* 8/27/72



THE METROPOLITAN CORPORATION OF GREATER WINNIPEG <b>WATERWORKS &amp; WASTE DISPOSAL DIVISION</b> A. PENMAN - DIRECTOR	SEWAGE DISPOSAL DEPT. FT. GARRY-ST. VITAL INTERCEPTOR RIVER CROSSING	DES. <i>AWD</i> CH'KD. <i>AWD</i> DRN. S.C. DATE 23 SEPT. 70 ENG. DES. <i>AWD</i> ENG. OPER. <i>AWD</i> APPROV. <i>AWD</i>	SCALE - AS NOTED DRAWING NO. 688
	MISC. DETAILS		



LIST OF MATERIALS			
NO.	DESCRIPTION	LENGTH	QUANTITY
1.	900X900 STAINLESS STEEL SLUICE GATE FONTAINE SERIES 20 MODEL 204 C/W MODEL F-2 STAINLESS STEEL WALL THIMBLE		1
2.	900# ARMTEC MODEL 20C CI FLAP GATE WITH BRONZE SEATING FACES		1
3.	900# CI ROUND FLANGE ROUND OPENING ARMTEC TYPE "F" WALL THIMBLE		1
4.	FABRICATED GALVANIZED STEEL LADDER (RUNGS @ 300 O.C.)	7785	1
5.	STAINLESS STEEL STEM GUIDE C/W UHMWPE BUSHING		AS REQ'D
6.	SOLID ROUND STAINLESS STEEL VALVE STEM		AS REQ'D 1
7.	PEDESTAL MOUNTED GATE OPERATOR C/W STEM COVER AND POSITION INDICATOR (FONTAINE TYPE MNEP)		1
8.	ALUMINUM ANGLE EXTRUSION (DIE #670826) FRAME C/W CONC. ANCHORS @ 300 O.C.		AS REQ'D 2
9.	10 THICK ALUMINUM TREAD PLATE COVER C/W 3 THICK X 32 WIDE NEOPRENE GASKET BONDED TO ANGLE FRAME		AS REQ'D 1
10.	50 X 38 X 10 ALUMINUM BAR C/W 15# HOLE FOR PADLOCK		1
11.	100 X 64 X 6 ALUMINUM SUPPORT CHANNEL	915	1
12.	19# CONTINUOUS ALUMINUM HINGE C/W 10# REMOVABLE STAINLESS STEEL PIN	1005	1
13.	10 THICK ALUMINUM TREAD PLATE COVER C/W 3 THICK X 32 WIDE NEOPRENE GASKET BONDED TO ANGLE FRAME AND 8# X 20 LONG FLAT HEAD SCREWS @ 450 O.C. MAX.		AS REQ'D 2
	12# ALUMINUM ROD LIFTING HANDLE		1
	FABRICATED ALUMINUM HANDHOLD C/W 12# X 140 LONG ANCHOR BOLTS	300	1
	FABRICATED STEEL LADDER		1

NOTES:

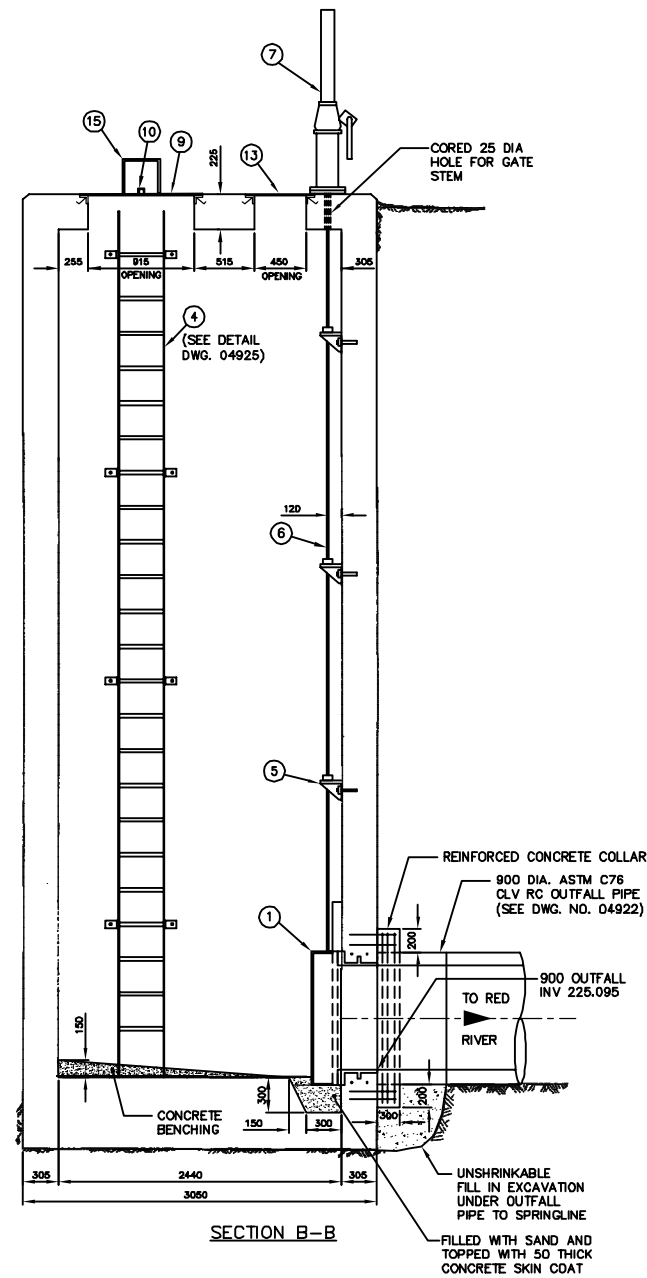
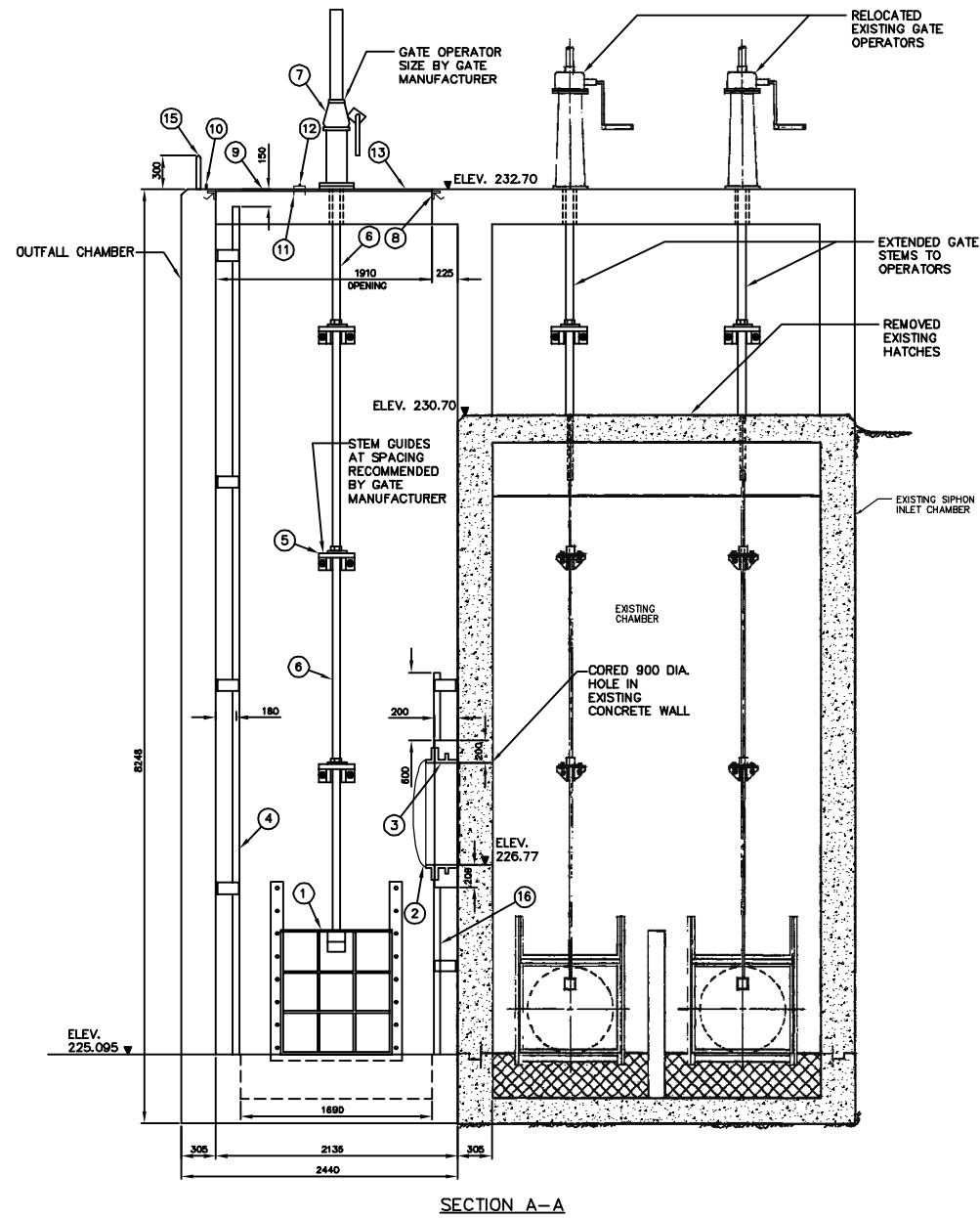
- SEE DRAWING 04920 FOR CHAMBER LOCATION
- ALL ALUMINUM MATERIAL 6351-T6
- ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE TREATED WITH TWO COATS OF ALKALI RESISTANT BITUMINOUS PAINT
- ALL UNIDENTIFIED NUTS, BOLTS AND ANCHORS TYPE 316 STAINLESS STEEL

THIS DRAWING CONTAINS A RASTER IMAGE  
FILENAME:  
04926\_687SEC.tif

CONTRACTOR: NELSON RIVER CONSTRUCTION  
PROJECT COMPLETION DATE: 2004 01 01

**RECORD DRAWING**  
WATER AND WASTE DEPARTMENT

B.M. ELEV.	FIELD BOOK #	CITY OF WINNIPEG WATER AND WASTE ENGINEERING DIVISION		ENGINEER'S SEAL	<b>THE CITY OF WINNIPEG</b> WATER AND WASTE DEPARTMENT D'ARCY WASTEWATER PUMPING STATION BUILDING, GATE CHAMBER MODIFICATIONS, OUTFALL, AND SITE GRADING <b>OUTFALL CHAMBER PLAN VIEWS</b>	SHEET 7 OF 11 CITY DRAWING NUMBER <b>04926</b>
POSTED TO LBIS		DESIGNED BY TW	CHECKED BY TW	ORIGINAL SIGNED BY W.D. WATTERS 01/08/16		
		DRAWN BY WKT	APPROVED BY	RELEASED FOR CONSTRUCTION	TENDER NO. 0695-2001	
		HOR. SCALE 1:30	VERTICAL	DATE 2001 08 16	AUTOCADR2000: 04926.dwg	
1	REVISED TO RECORD DWG.	08.04.14	CJM		PLOT DATE: 2008 06 03	



LIST OF MATERIALS			
NO.	DESCRIPTION	LENGTH	QUANTITY
1.	900X900 STAINLESS STEEL SLUICE GATE FONTAINE SERIES 20 MODEL 204 C/W MODEL F-2 STAINLESS STEEL WALL THIMBLE		1
2.	900# ARMTEC MODEL 20C CI FLAP GATE WITH BRONZE SEATING FACES		1
3.	900# CI ROUND FLANGE ROUND OPENING ARMTEC TYPE 7" WALL THIMBLE		1
4.	FABRICATED GALVANIZED STEEL LADDER (RUNGS @ 300 O.C.)	7785	1
5.	STAINLESS STEEL STEM GUIDE C/W UHMWPE BUSHING		AS REQ'D
6.	SOLID ROUND STAINLESS STEEL VALVE STEM		AS REQ'D
7.	PEDESTAL MOUNTED GATE OPERATOR C/W STEM COVER AND POSITION INDICATOR (FONTAINE TYPE MNEP)		1
8.	ALUMINUM ANGLE EXTRUSION (DIE #670826) FRAME C/W CONC. ANCHORS @ 300 O.C.		AS REQ'D
9.	10 THICK ALUMINUM TREAD PLATE COVER C/W 3 THICK X 32 WIDE NEOPRENE GASKET BONDED TO ANGLE FRAME		AS REQ'D
10.	50 X 38 X 10 ALUMINUM BAR C/W 15# HOLE FOR PADLOCK		1
11.	100 X 64 X 6 ALUMINUM SUPPORT CHANNEL	915	1
12.	19# CONTINUOUS ALUMINUM HINGE C/W 10# REMOVABLE STAINLESS STEEL PIN	1005	1
13.	10 THICK ALUMINUM TREAD PLATE COVER C/W 3 THICK X 32 WIDE NEOPRENE GASKET BONDED TO ANGLE FRAME AND 8# X 20 LONG FLAT HEAD SCREWS @ 450 O.C. MAX.		AS REQ'D
14.	12# ALUMINUM ROD LIFTING HANDLE		1
15.	FABRICATED ALUMINUM HANDHOLD C/W 12# X 140 LONG ANCHOR BOLTS	300	1
16.	FABRICATED STEEL LADDER		1

- NOTES:
- SEE DRAWING 04920 FOR CHAMBER LOCATION
  - ALL ALUMINUM MATERIAL 6351-T6
  - ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE TREATED WITH TWO COATS OF ALKALI RESISTANT BITUMINOUS PAINT
  - ALL UNIDENTIFIED NUTS, BOLTS AND ANCHORS TYPE 316 STAINLESS STEEL
  - SEE DRAWING NO. 04928 AND 04929 FOR REINFORCING

THIS DRAWING CONTAINS  
A RASTER IMAGE  
FILENAME:  
04927\_687SEC.tif

CONTRACTOR: NELSON RIVER CONSTRUCTION  
PROJECT COMPLETION DATE: 2004 01 01

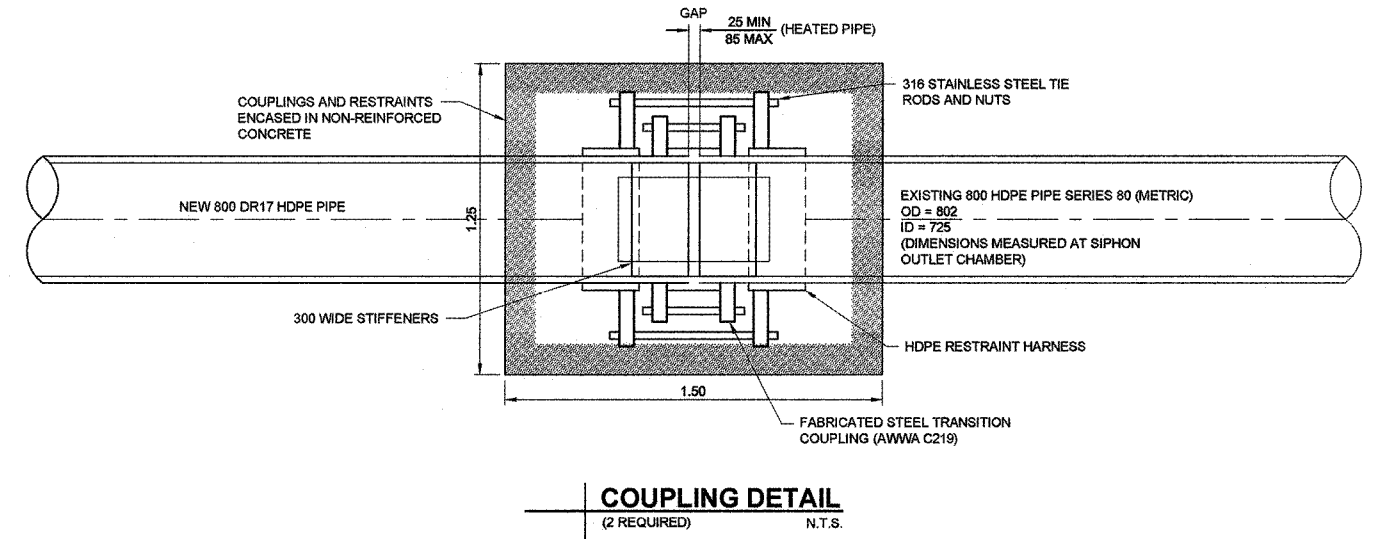
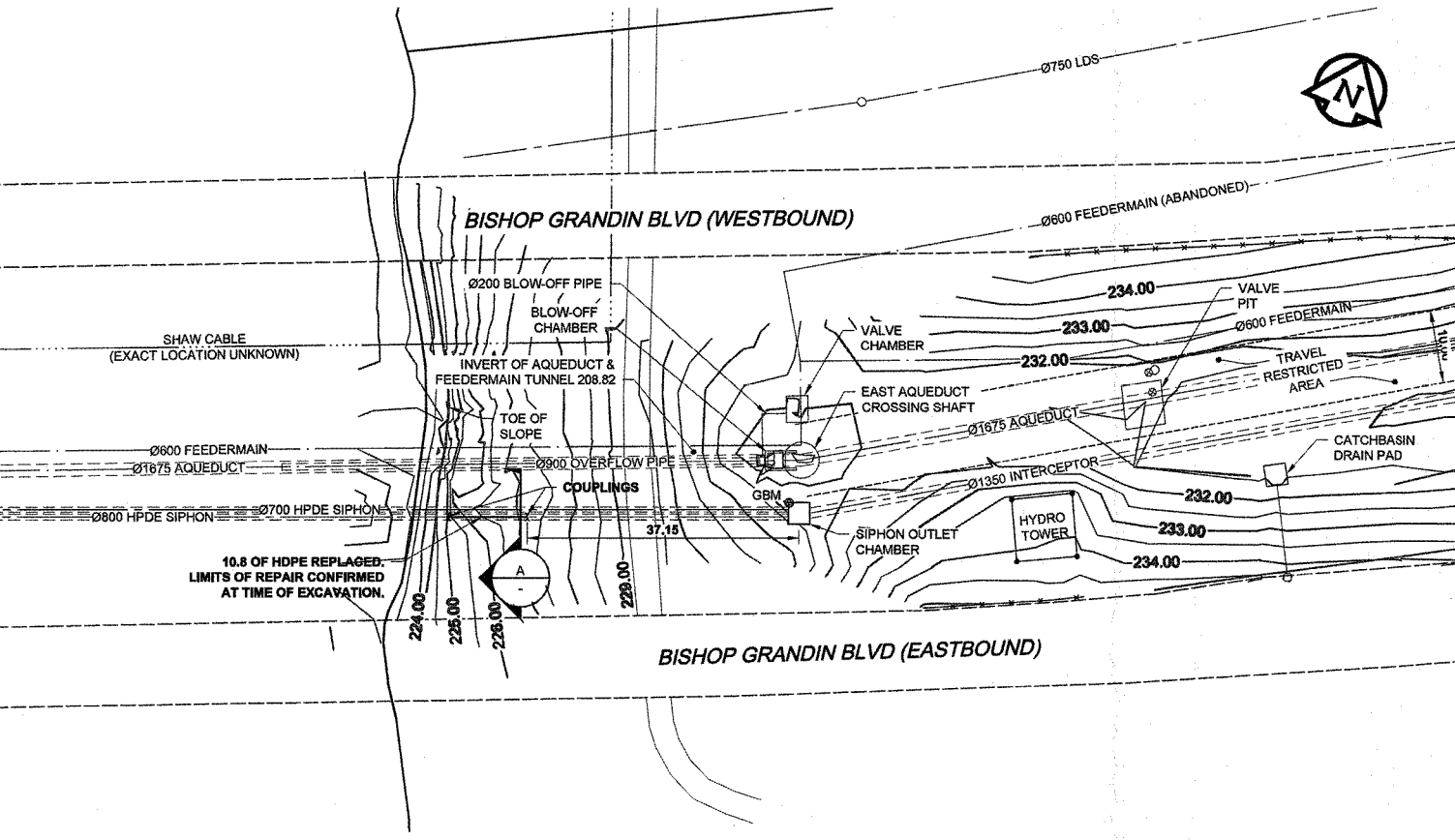
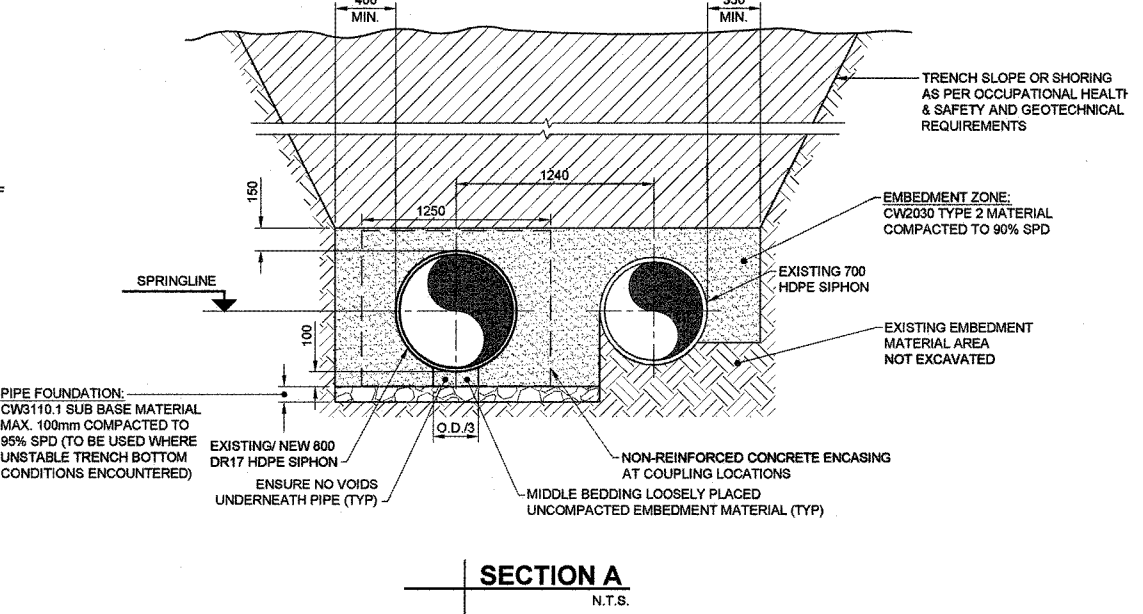
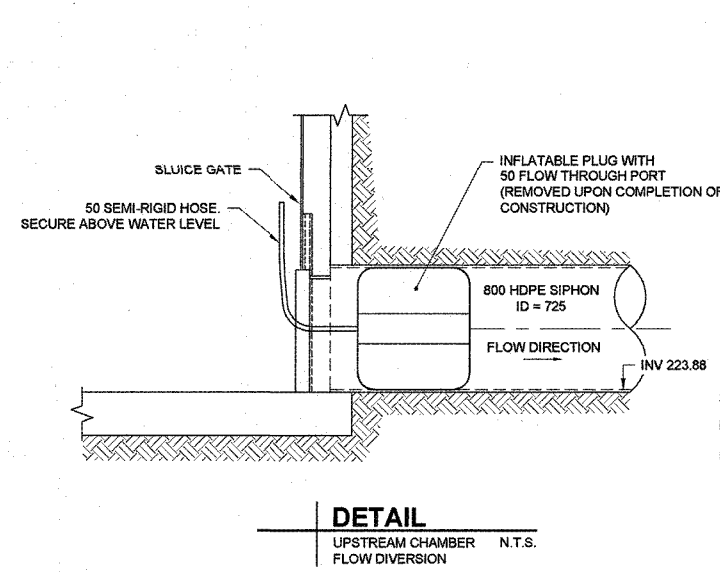
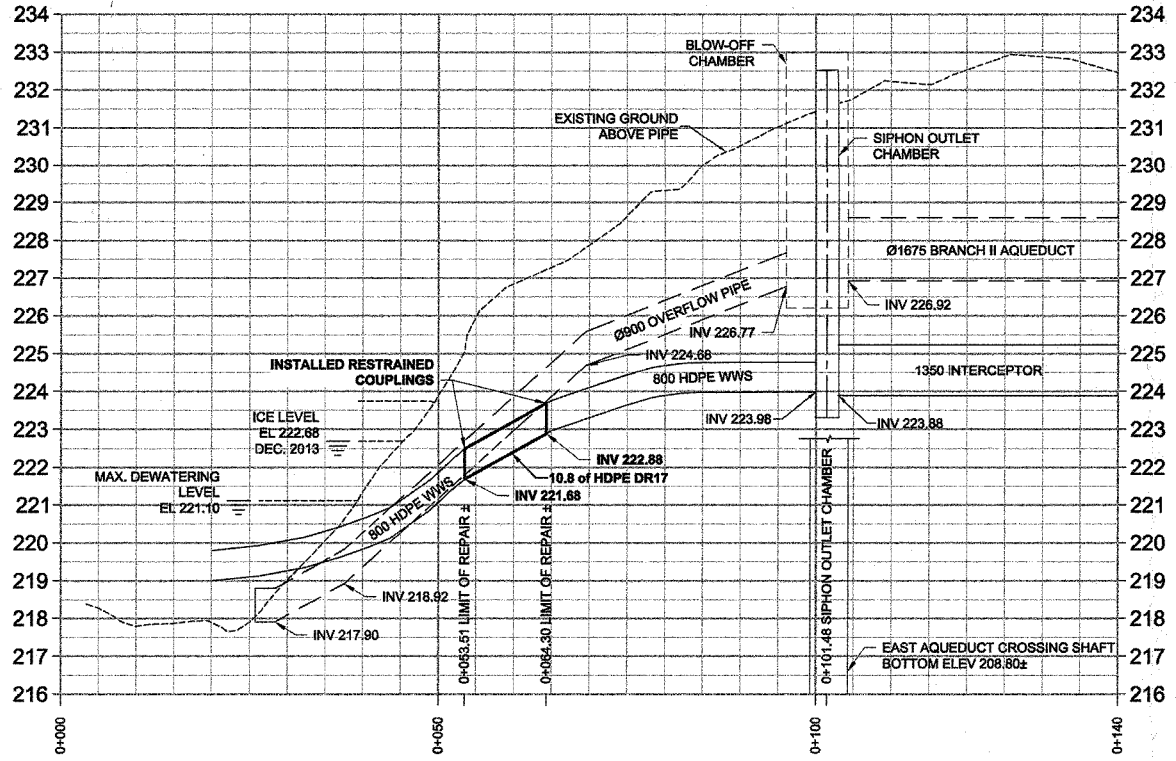
**RECORD DRAWING**  
WATER AND WASTE DEPARTMENT

B.M. ELEV.	FIELD BOOK #	CITY OF WINNIPEG WATER AND WASTE ENGINEERING DIVISION		ENGINEER'S SEAL	<b>THE CITY OF WINNIPEG</b> WATER AND WASTE DEPARTMENT	SHEET 8 OF 11 CITY DRAWING NUMBER 04927
POSTED TO LBS		DESIGNED BY TW	CHECKED BY TW	ORIGINAL SIGNED BY W.D. WATTERS 01/08/16		
		DRAWN BY WKT	APPROVED BY		D'ARCY WASTEWATER PUMPING STATION BUILDING, GATE CHAMBER MODIFICATIONS, OUTFALL, AND SITE GRADING <b>OUTFALL CHAMBER</b> <b>SECTION VIEWS</b>	
		HOR. SCALE 1:30	RELEASED FOR CONSTRUCTION	TENDER NO. 0695-2001		
1	REVISED TO RECORD DWG.	08.06.02	CJH/WKT	DATE 2001 08 16	AUTOCADR2000: 04927.dwg PLOT DATE: 2008 06 03	

D SIZE 22" x 34" (56mm x 864mm)

PLOT: 05/2016 9:23:43 AM

AECOM REVIEW DRFT CHK  
AECOM FILE NAME: 00274906-01-C-1001-RUX.dwg Saved By: [Name]



MATERIAL LIST	MANUFACTURER	MATERIAL SPECIFICATION	SPECIAL FEATURES
ITEM			
WATER WORKS			
800 HDPE PIPE	WL Plastics Corporation	AWWA C908 ASTM F714	DR 17 IRON PIPE SIZE (IPS) PE4710
750 STEEL SLEEVE TRANSITION COUPLING	ROBAR INDUSTRIES LTD.	AWWA C219 MODEL "1846/1946"	STEEL SLEEVE & END RINGS. 12.7 X 254 MM CENTER RING 316 STAINLESS STEEL BOLTS, NUTS & WASHERS FUSION BONDED EPOXY COATING 304 STAINLESS STEEL 12 GAUGE X 305 MM LONG STEEL RINGS 316 STAINLESS STEEL BOLTS, NUTS & WASHERS FUSION BONDED EPOXY COATING 6 SERRATIONS PER INCH
750 PIPE STIFFENER	ROBAR INDUSTRIES LTD.	MODEL "9626"	
750 HDPE RESTRAINT HARNESS	JMC INDUSTRIES INC.	MODEL "SUR-GRIP RESTRAINER"	
CLASS 350 RIPRAP	MULDER CONSTRUCTION & MATERIALS LTD.		
DRAINAGE FABRIC	BROCK WHITE CANADA	PROPEX GEOTEX 801	NON-WOVEN GEOTEXTILE

CONTRACT INFORMATION  
CONTRACTOR: JC PAVING LTD.  
CONSTRUCTION PERIOD: FEB. 28 - APR. 15, 2014  
FIELD BOOK NO.:

**APECM**  
Certificate of Authorization  
AECOM Canada Ltd.  
No. 4671 Date: June 14/16

**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES  
BID OPPORTUNITY NO. 1040-2013

**RECORD DRAWING**

150 WM	WATERMAIN	150 WM	150 WM	CURB STOP	150 WM	WATERMAIN	150 WM
+	HYDRANT	+	+	REDUCER	+	HYDRANT	+
+	VALVE	+	+	COUPLING	+	VALVE	+
+	LAND DRAINAGE SEWER	+	+	ANODE	+	LAND DRAINAGE SEWER	+
+	WASTE WATER SEWER	+	+	HYDRO	+	WASTE WATER SEWER	+
○	MANHOLE	○	○	MTS	○	MANHOLE	○
□	CATCH BASIN	□	□	GAS	□	CATCH BASIN	□
△	CURB INLET	△	△	TESTHOLE	△	CURB INLET	△
—	CULVERT	—	—	LAMP STANDARD	—	CULVERT	—
—	PIPE ABANDONMENTS	—	—	TREE	—	PIPE ABANDONMENTS	—
+	SURVEY BAR	+	+		+	SURVEY BAR	+
+	LEGEND - PLAN	+	+	LEGEND - PLAN	+	LEGEND - PROFILE	+
+	NEW	+	+	NEW	+	NEW	+

**LOCATION APPROVED**  
UNDERGROUND STRUCTURES  
DATE: [Date]  
NOTE: LOCATION 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	BY
1	ISSUED FOR RECORD	16/05/12	CLC/KLC
0	ISSUED FOR CONSTRUCTION	13/12/13	KLC

**AECOM**

DESIGNED BY: ADB  
CHECKED BY: [Signature]  
DRAWN BY: JP  
APPROVED BY: [Signature]

HOR. SCALE: 1:500  
VERT. SCALE: 1:100

RELEASED FOR CONSTRUCTION  
DATE: [Date]

PROFESSIONAL'S SEAL  
PROVINCE OF MANITOBA  
A.D. BRAUN  
Member  
24453  
June 14/16  
REGISTERED PROFESSIONAL ENGINEER

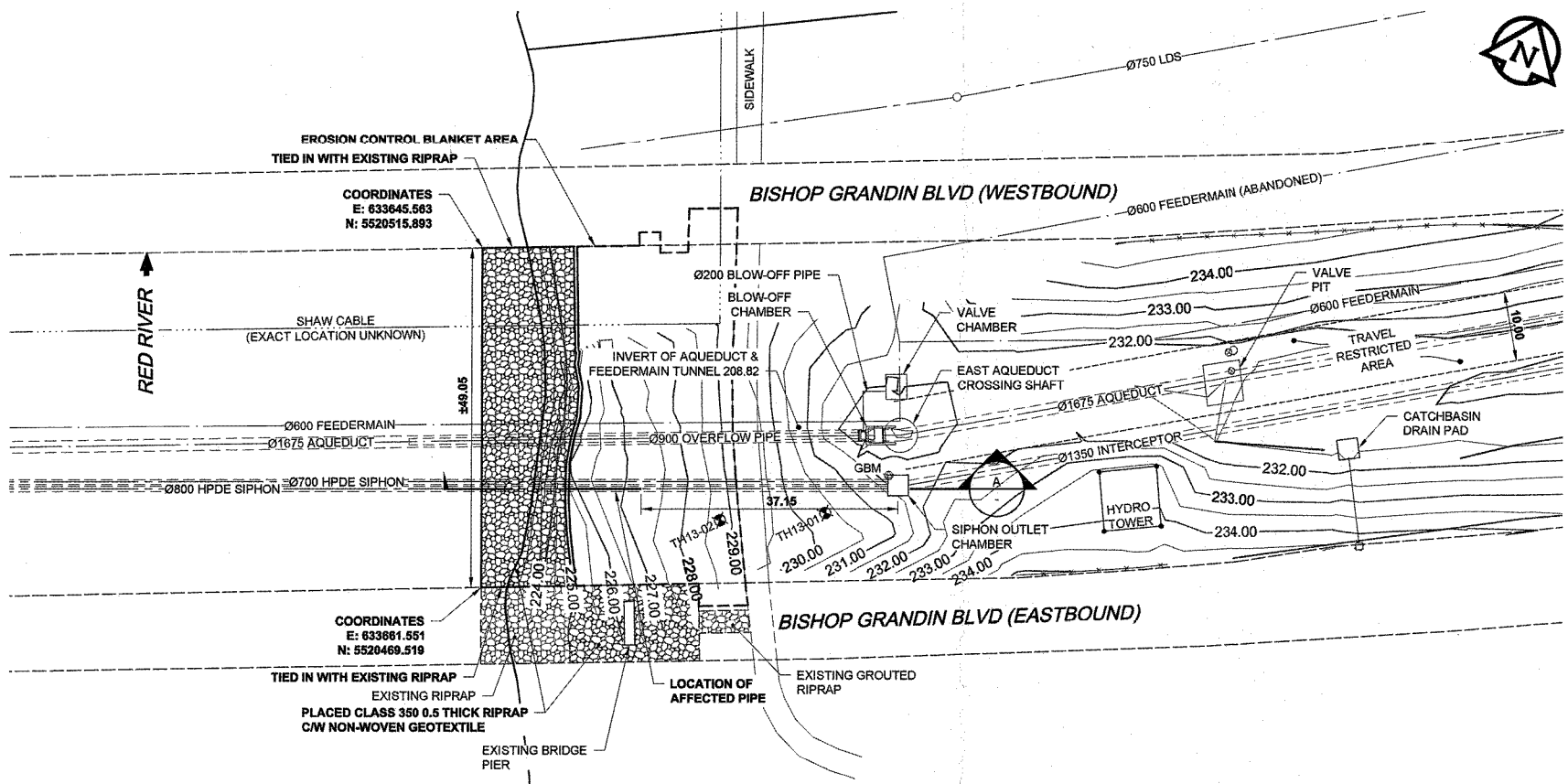
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**THE CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT

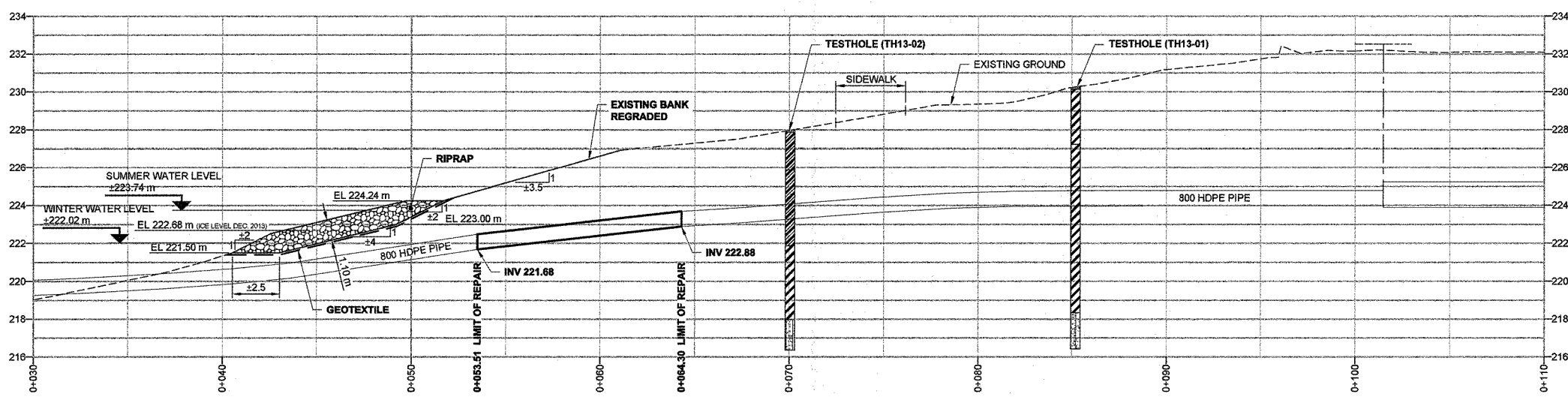
**FORT GARRY INTERCEPTOR SIPHON REPAIR CIVIL**  
PLAN/ PROFILE & DETAILS

SHEET 1 OF 2  
CITY DRAWING NUMBER  
10723





**PLAN**  
1:500



**A SECTION**  
1:150

**LEGEND**

---	EXISTING GROUND PROFILE	[Hatched]	EXISTING GROUND TO BE EXCAVATED	[Hatched]	TOPSOIL / ORGANICS	[Hatched]	CLAY
---	GEOTEXTILE	[Stippled]	RIP RAP CLASS 350	[Hatched]	CLAY AND SILT	[Hatched]	TILL
---	NEW GROUND PROFILE						

**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

**AECOM**  
Certificate of Authorization  
AECOM Canada Ltd.  
No. 4671 Date: June 14/16

**RECORD DRAWING**

BID OPPORTUNITY NO. 1040-2013

150 WM	WATERMAIN	150 WM		CURB STOP		150 WM	WATERMAIN	150 WM	
300 LDS	LAND DRAINAGE SEWER	300 LDS		REDUCER		300 LDS	LAND DRAINAGE SEWER	300 LDS	
250 WWS	WASTE WATER SEWER	250 WWS		COUPLING		250 WWS	WASTE WATER SEWER	250 WWS	
○	MANHOLE	○		ANODE		○	MANHOLE	○	
□	CATCH BASIN	□		HYDRO		□	CATCH BASIN	□	
△	CURB INLET	△		MTS		△	CURB INLET	△	
⊠	PIPE ABANDONMENTS	⊠		GAS		⊠	PIPE ABANDONMENTS	⊠	
+	SURVEY BAR	+		TESTHOLE		+	SURVEY BAR	+	
---	EXISTING	---	NEW	LAMP STANDARD		---	EXISTING	---	NEW
---	LEGEND - PLAN	---	NEW	TREE		---	LEGEND - PROFILE	---	NEW

**LOCATION APPROVED**  
UNDERGROUND STRUCTURES

SUPR. U/G STRUCTURES DATE COMMITTEE

**NOTE:**  
LOCATION 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.

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0	ISSUED FOR CONSTRUCTION	13/12/13	CM
NO.	REVISIONS	YYMMDD	BY

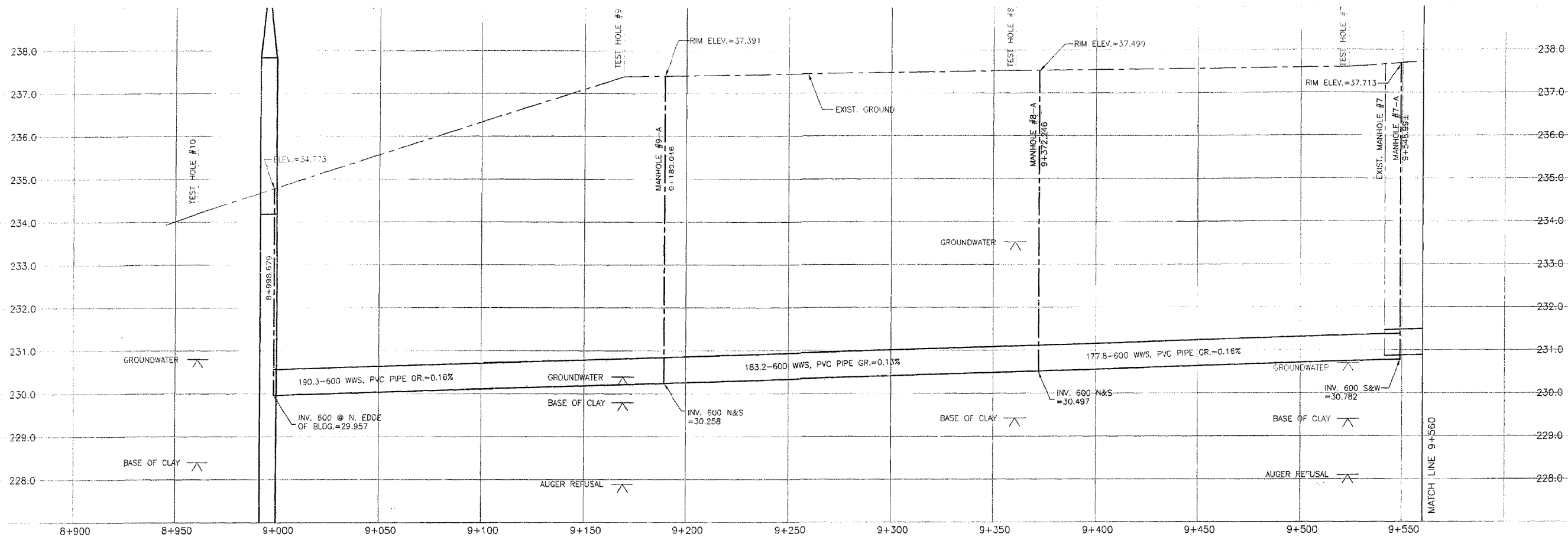
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DRAWN BY	CM	APPROVED BY	[Signature]
HOR. SCALE	AS NOTED	RELEASED FOR CONSTRUCTION	
VERT. SCALE	AS NOTED	DATE	

PROFESSIONAL'S SEAL  
Z.T. AL-HAYAZI  
Member  
37236  
CONSULTANT DRAWING NO.  
60274906-01-B-1002-ROX.dwg

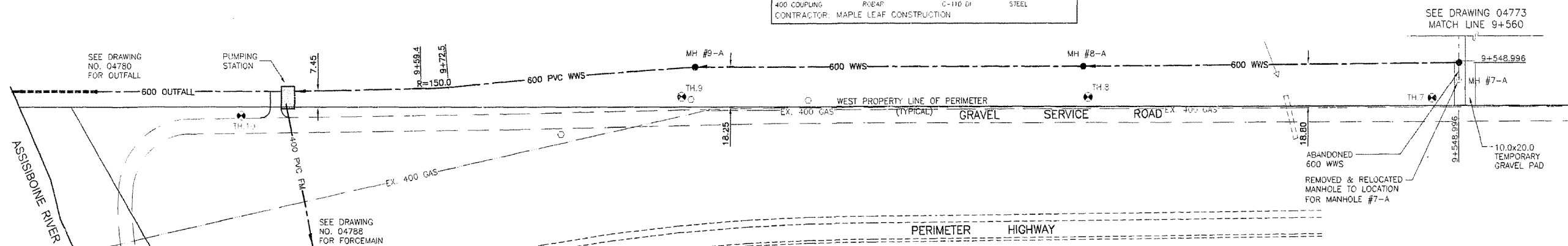
**THE CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT

**FORT GARRY INTERCEPTOR SIPHON REPAIR GEOTECHNICAL PLAN/PROFILE**

SHEET 2 OF 2  
CITY DRAWING NUMBER  
LD-7277  
REV 1



MATERIAL LIST			
WASTE WATER SEWER	MANUFACTURER	SPECIFICATION	SPECIAL FEATURES
MANHOLE BASES	LAFARGE	ASTM C76	REINF. CONC.
MANHOLE RISERS	LAFARGE	ASTM C76	REINF. CONC.
FRAMES AND COVERS	TITAN FOUNDRY	CW 2131/CW 3205	C.I.
600 SEWER	IPEX	ASTM F769	PVC
600 OUTFALL SEWER	LAFARGE	ASTM C76	REINF. CONC.
400 FORCEMAIN PIPE	IPEX CENTURION	ASTM C-900	PVC
550 ENCASEMENT PIPE	OCIF (OAKVILLE, ONT.)	8.7mm THICK	STEEL
400 ENCASEMENT PIPE (RIVER CROSSING)	OCIF	9.53mm THICK	STEEL (DEV-TAR COATING)
600 CSP	ARMCO	2mm THICK	CALVANIZED METAL
600 SLIP JOINT	ARMCO		CALVANIZED METAL
400-45' BEND	GRINNELL	AWWA C-110	C.I.
400-22.5' BEND	IPEX	ASTM-C900	PVC
400 GATE VALVE	CLOW	AWWA C-509	PVC
400-300 REDUCER	STAR	C-110	PVC
400-11.25' BEND	STAR	C-110	PVC
COUPLING	FORD		STEEL
400 COUPLING	ROEAP	C-110 Di	STEEL
CONTRACTOR: MAPLE LEAF CONSTRUCTION			



**METRIC**  
 WHOLE NUMBERS INDICATE MILLIMETRES  
 DECIMALIZED NUMBERS INDICATE METRES

NOTE:  
 CHAINAGE IS CALCULATED ALONG  
 CENTERLINE OF 600 WASTEWATER SEWER

82r471-S.E. Cor. Portage Ave. & Camp  
 Manitou Rd., Tblt. on top of 0.05 m dia  
 x 2.4 m iron pipe, 6.9 m N. of S.L.  
 Portage Ave. & 3 m W. of E.L. Camp  
 Manitou Rd.

REVISED AS CONSTRUCTED  
 BY: V.M. DATE: 2001/04/04  
 CHECKED BY: R.M.

CONSTRUCTION COMPLETION DATE - AUGUST 2001

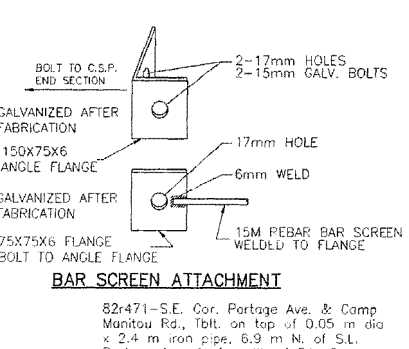
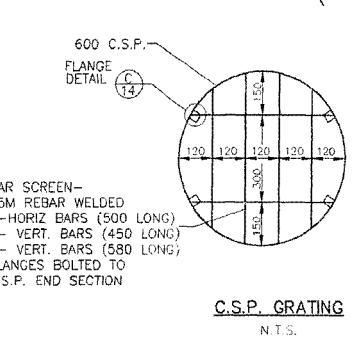
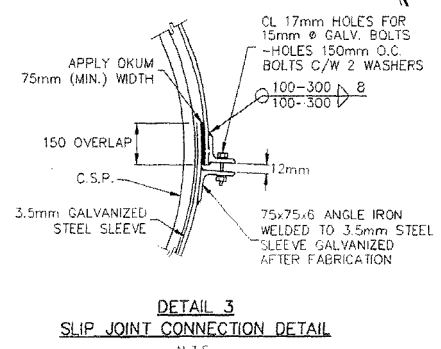
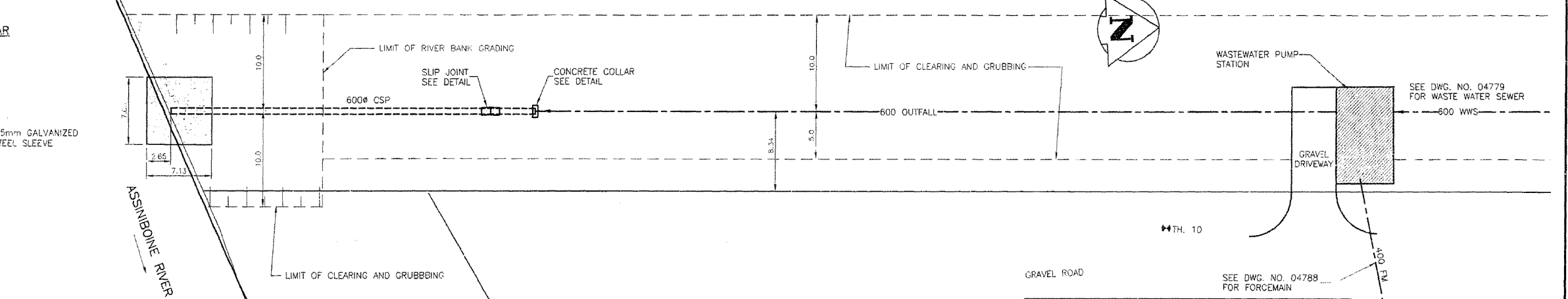
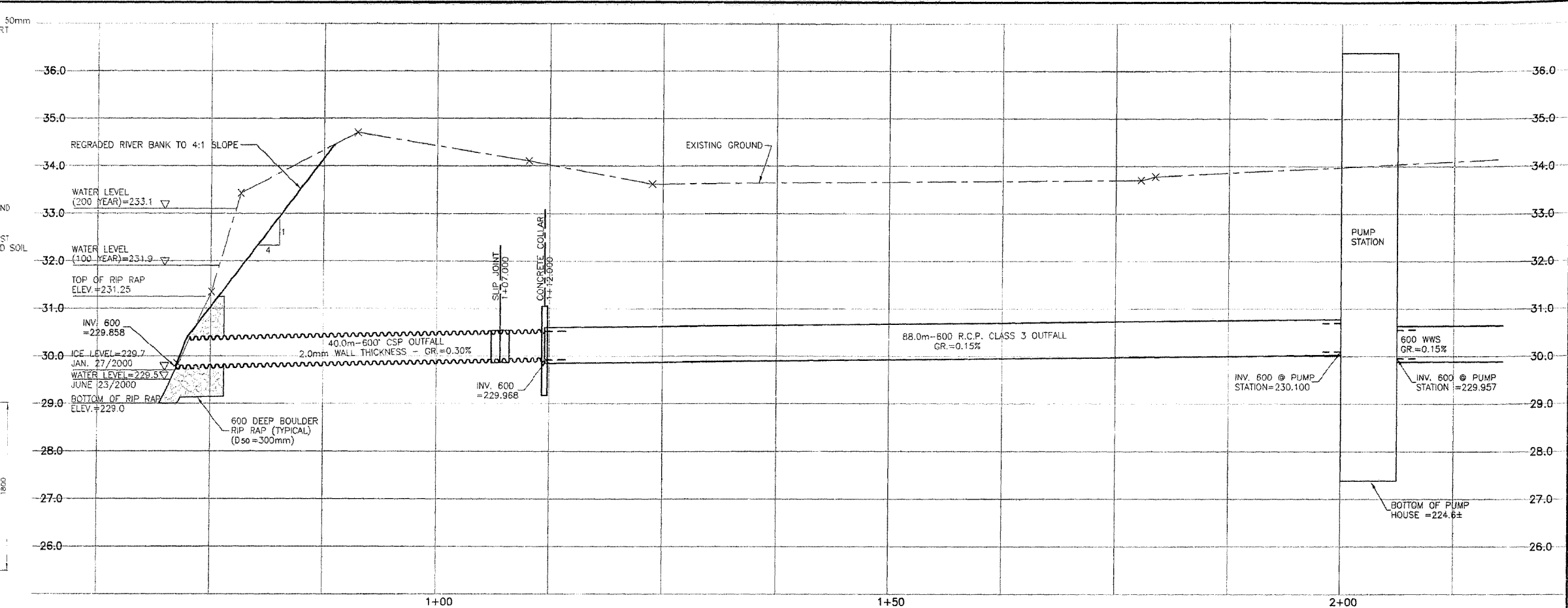
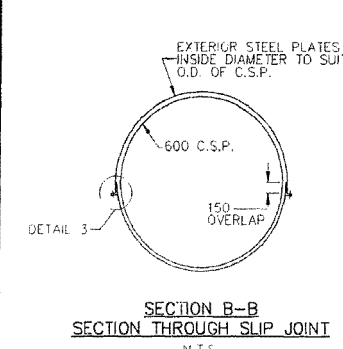
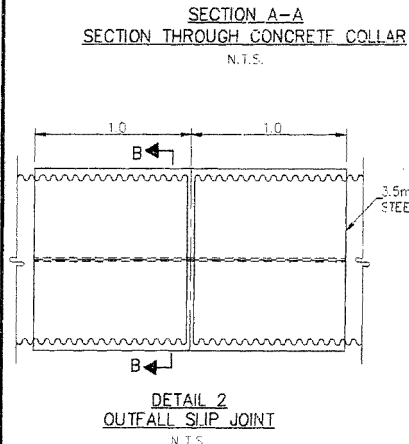
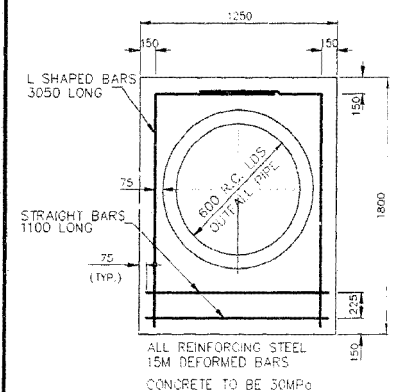
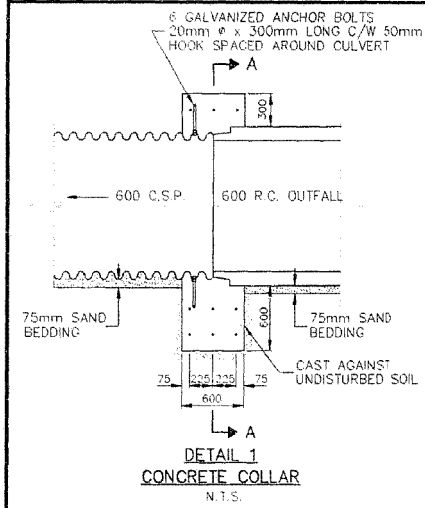
EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PROFILE	PROPOSED
150 WWS	WATERMAIN	150 WWS	HYDRANT	HYDRO	150 WWS	WATERMAIN	WATERMAIN	150 WWS
300-10%	LAND DRAINAGE SEWER	300-10%	VALVE	M.T.S.	300-10%	LAND DRAINAGE SEWER	HYDRANT, VALVE	300-10%
250 WWS	WASTE WATER SEWER	250 WWS	CONCRETE	CONCRETE	250 WWS	WASTE WATER SEWER	LAND DRAINAGE SEWER	250 WWS
	MANHOLE		ASPHALT	ASPHALT		WASTE WATER SEWER	WASTE WATER SEWER	
	CATCH BASIN		SIDEWALK	SIDEWALK		Q PROFILE	Q PROFILE	
	CURB INLET		PROPERTY LINE	PROPERTY LINE		NORTH OR WEST GUTTER	NORTH OR WEST GUTTER	
	JUNCTION		SURVEY BAR	SURVEY BAR		SOUTH OR EAST GUTTER	SOUTH OR EAST GUTTER	
	SULVERT		DITCH	DITCH		NORTH OR WEST R	NORTH OR WEST R	
			ELEVATION	ELEVATION		SOUTH OR EAST R	SOUTH OR EAST R	
			TEST HOLE	TEST HOLE		NORTH OR WEST DITCH	NORTH OR WEST DITCH	
						SOUTH OR EAST DITCH	SOUTH OR EAST DITCH	

LOCATION APPROVED UNDERGROUND STRUCTURES	
SUPV. U/G STRUCTURES	DATE COMMITTEE
NOTE: LOCATION 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. CONSERVATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.	

Stantec Consulting Ltd.		ENGINEER'S SEAL	
DESIGNED BY: C.L.D.	CHECKED BY: P.S.		THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT
DRAWN BY: K.R.	APPROVED BY: D.S.		
HOR. SCALE: 1:1000	RELEASED FOR CONSTRUCTION	PERIMETER WEST FORCEMAIN AND WASTE WATER PUMP STATION 600 WASTEWATER SEWER INSTALLATION PHASE 2 PUMPING STATION TO STA. 9+560 NORTH	
VERTICAL: 1:50	DATE: 1999.06.08	CITY DRAWING NUMBER: 04779 SHEET: 1 OF 24	
DATE: 2001.04.04		CONSULTANT DRAWING NO.: PW-83-549	

Stantec Consulting Ltd.		ENGINEER'S SEAL	
DESIGNED BY: C.L.D.	CHECKED BY: P.S.		THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT
DRAWN BY: K.R.	APPROVED BY: D.S.		
HOR. SCALE: 1:1000	RELEASED FOR CONSTRUCTION	PERIMETER WEST FORCEMAIN AND WASTE WATER PUMP STATION 600 WASTEWATER SEWER INSTALLATION PHASE 2 PUMPING STATION TO STA. 9+560 NORTH	
VERTICAL: 1:50	DATE: 1999.06.08	CITY DRAWING NUMBER: 04779 SHEET: 1 OF 24	
DATE: 2001.04.04		CONSULTANT DRAWING NO.: PW-83-549	

4/18/01/160220 - Perimeter w/s 600 WWS/Temp/04779-04  
 2001-08-09 09:51AM By: r.m.m.



**MATERIAL LIST**

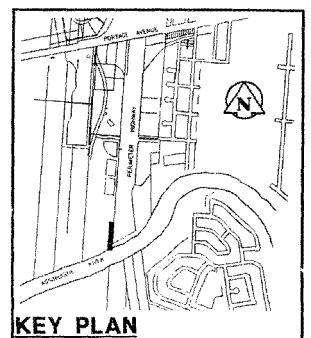
WASTE WATER SEWER	MANUFACTURER	SPECIFICATION	SPECIAL FEATURES
MANHOLE BASES	LAFARGE	ASTM C76	REINF. CONC.
MANHOLE RISERS	LAFARGE	ASTM C76	REINF. CONC.
FRAMES AND COVERS	TITAN FOUNDRY	GW 2131/CW 3205	C.I.
600 SEWER	IPEX	ASTM F769	PVC
600 OUTFALL SEWER	LAFARGE	ASTM C76	REINF. CONC.
400 FORCEMAIN PIPE	IPEX CENTURION	ASTM C-900	PVC
550 ENCASUREMENT PIPE	CCTF (DARVILLE, ONT.)	3.74mm THICK	STEEL (DEV-TAR COATING)
400 ENCASUREMENT PIPE (RIVER CROSSING)	CCTF	9.53mm THICK	STEEL (DEV-TAR COATING)
600 CSP	ARMCO	2mm THICK	GALVANIZED METAL
600 SLIP JOINT	ARMCO		GALVANIZED METAL
400-45° BEND	GRINNELL	AWWA C-110	C.I.
400-22.5° BEND	IPEX	ASTM-C990	PVC
400 GATE VALVE	AWWA C-509		PVC
400-300 REDUCER	STAR	C-110	PVC
400-11.25° BEND	STAR	C-110	PVC
COUPLING	FORC		
400 COUPLING	ROBAR	C-110 DI	STEEL

CONTRACTOR: MAPLE LEAF CONSTRUCTION

**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

REVISED AS CONSTRUCTED  
BY: V.M. DATE: 2001/04/04  
CHECKED BY: R.M.

CONSTRUCTION COMPLETION DATE - AUGUST 2001



EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PROFILE	PROPOSED
150 W.M.	WATERMAIN	150 W.M.	HYDRANT	HYDRANT	150 W.M.	WATERMAIN	HYDRANT, VALVE	150 W.M.
300 L.D.S.	LAND DRAINAGE SEWER	300 L.D.S.	M.T.S.	CONCRETE	300 L.D.S.	WATERMAIN	LAND DRAINAGE SEWER	300 L.D.S.
250 W.W.S.	WASTE WATER SEWER	250 W.W.S.	ASPHALT	PROPERTY LINE	250 W.W.S.	WASTE WATER SEWER	WASTE WATER SEWER	250 W.W.S.
○	MANHOLE	●	SIDEWALK	SURVEY BAR	○	WASTE WATER SEWER	WASTE WATER SEWER	○
□	CATCH BASIN	■	DITCH	DITCH	○	WASTE WATER SEWER	WASTE WATER SEWER	○
▽	CURB INLET	▲	ELEVATION	ELEVATION	○	WASTE WATER SEWER	WASTE WATER SEWER	○
○	JUNCTION'S	○			○	WASTE WATER SEWER	WASTE WATER SEWER	○
○	CULVERT	○			○	WASTE WATER SEWER	WASTE WATER SEWER	○
○	C.A.S.	○			○	WASTE WATER SEWER	WASTE WATER SEWER	○

**LOCATION APPROVED UNDERGROUND STRUCTURES**

DATE: 00.03.05

NO. REVISIONS: 3

DATE: 00.03.05

DATE: 00.03.05

**Stantec Consulting Ltd.**

905 Waverley Street, Winnipeg, Manitoba  
Tel: 204-489-5900 Fax: 204-453-9017

DESIGNED BY: C.D. CHECKED BY: P.J.S.  
DRAWN BY: R.M. APPROVED BY: D.G.M.

HGR. SCALE: 1:250  
VERTICAL: 1:50

RELEASED FOR CONSTRUCTION: DATE

ENGINEER'S SEAL: C. L. DYCK

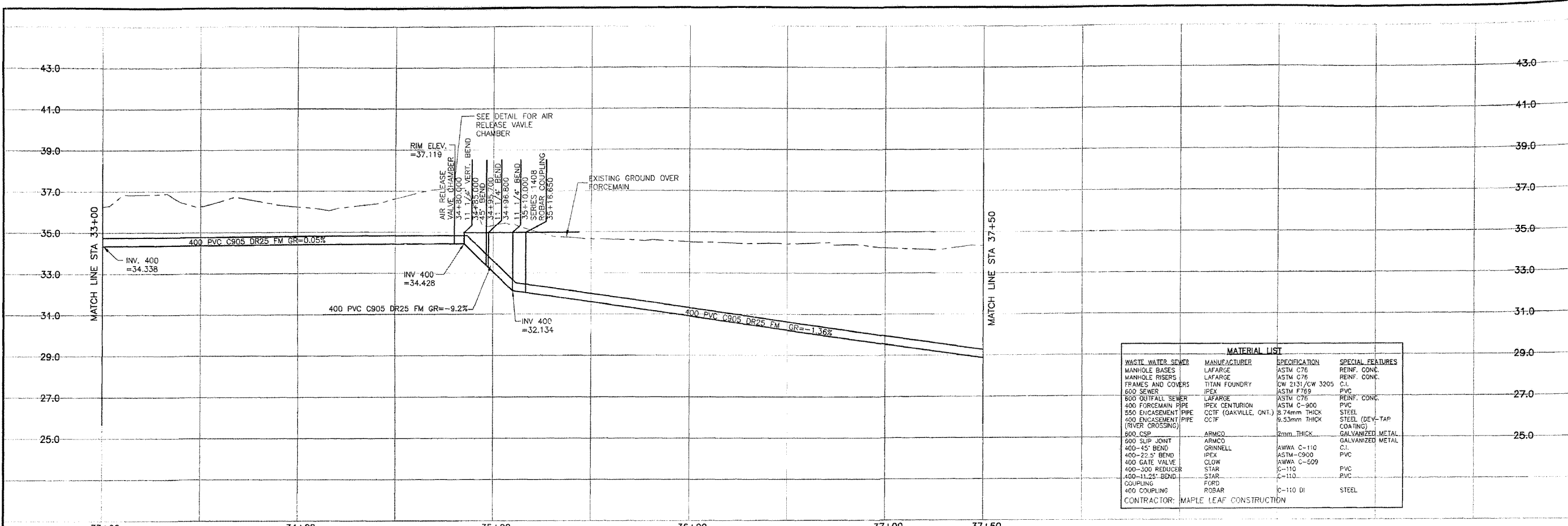
**THE CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT

PERIMETER WEST FORCEMAIN AND WASTE WATER PUMP STATION

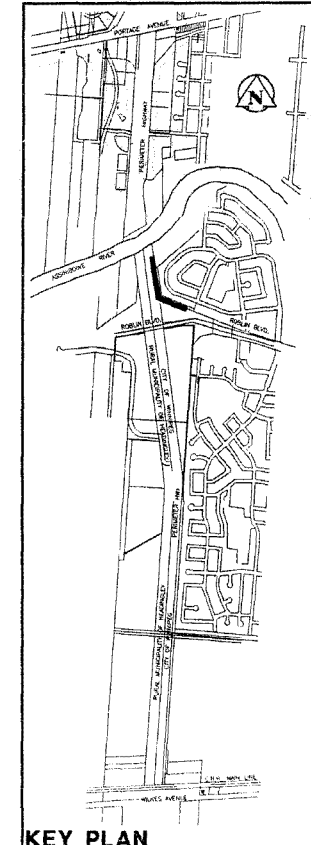
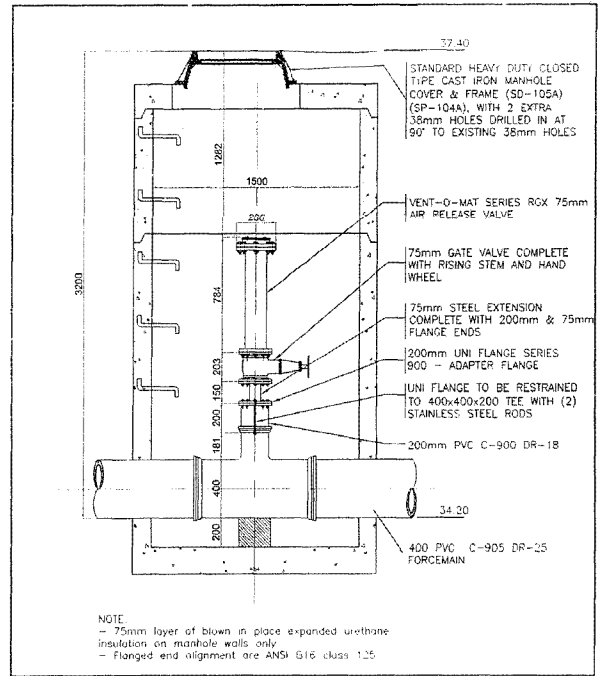
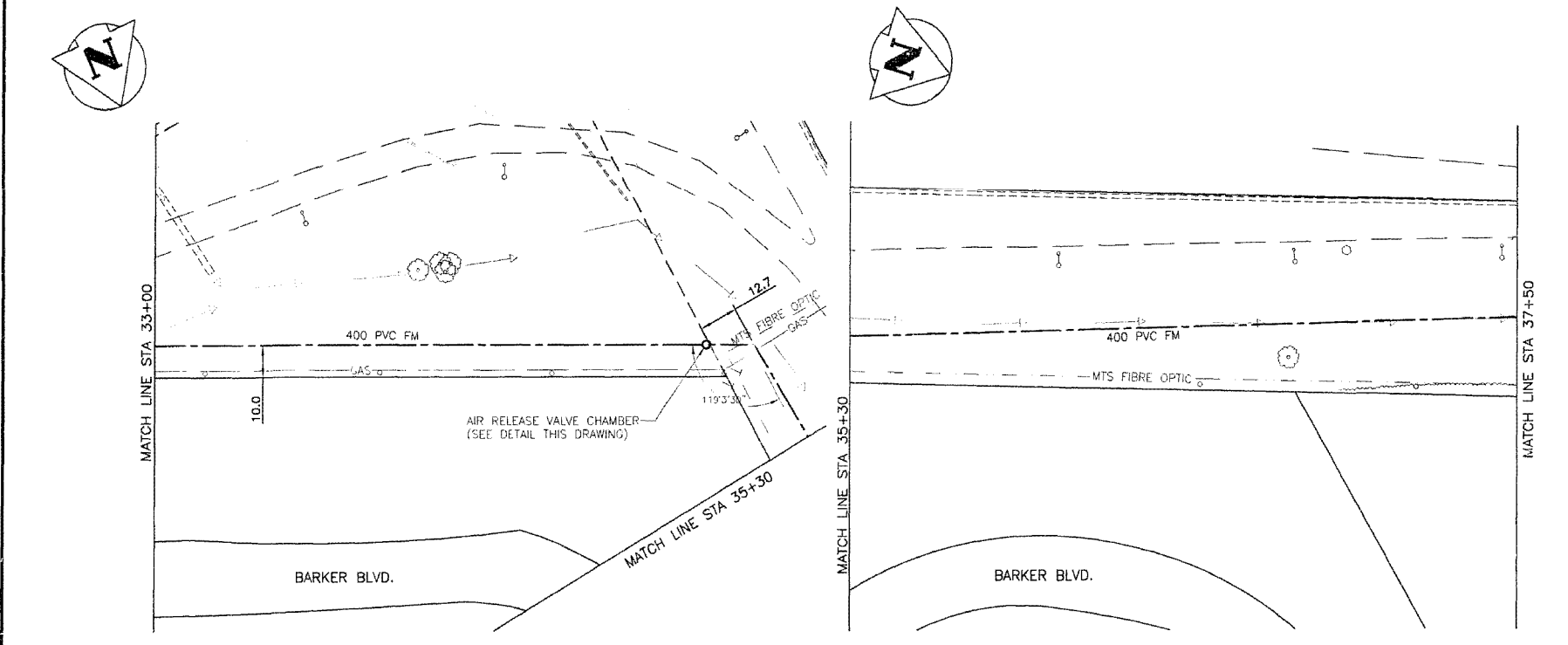
600 DIA. OUTFALL SEWER  
PHASE 2  
PUMP STATION TO ASSINIBOINE RIVER

CITY DRAWING NUMBER: 04780  
SHEET: 2 OF 24

CONTRACTOR: MAPLE LEAF CONSTRUCTION



MATERIAL LIST			
WASTE WATER SEWER	MANUFACTURER	SPECIFICATION	SPECIAL FEATURES
MANHOLE BASES	LAFARGE	ASTM C76	REINF. CONC.
MANHOLE RISERS	LAFARGE	ASTM C76	REINF. CONC.
FRAMES AND COVERS	TITAN FOUNDRY	QW 2131/CW 3205	C.I.
600 SEWER	IPEX	ASTM F769	PVC
600 OUTFALL SEWER	LAFARGE	ASTM C76	REINF. CONC.
400 FORCEMAIN PIPE	IPEX CENTURION	ASTM C-900	PVC
350 ENCASEMENT PIPE	CTCF (GAKVILLE, ONT.)	8.74mm THICK	STEEL
400 ENCASEMENT PIPE (RIVER CROSSING)	CTCF	9.53mm THICK	STEEL (DEV-TAP COATING)
500 CSP	ARMCO	2mm THICK	GALVANIZED METAL
500 SLIP JOINT	ARMCO		GALVANIZED METAL
400-45\" BEND	GRINNELL	AWWA C-110	C.I.
400-22.5\" BEND	IPEX	ASTM-C900	PVC
400 GATE VALVE	CLOW	AWWA C-509	PVC
400-300 REDUCER	STAR	C-110	PVC
400-11.25\" BEND	STAR	C-110	PVC
COUPLING	FORD	C-110 DI	STEEL
400 COUPLING	ROBAR		
CONTRACTOR: MAPLE LEAF CONSTRUCTION			



REVISED AS CONSTRUCTED  
 BY V.M. DATE 2001/04/04  
 CHECKED BY R.M.

**METRIC**  
 WHOLE NUMBERS INDICATE MILLIMETRES  
 DECIMALIZED NUMBERS INDICATE METRES

NOTE:  
 CHAINAGES CALCULATED ALONG  
 CENTERLINE OF 400 PVC FM

NOTE:  
 ALL 400 FM BENDS RESTRAINED USING  
 A SERIES 1300 UNI-FLANGE BLOCK  
 BUSTER RESTRAINT DEVICE AND A  
 THRUST BLOCK (SD-004,SD-005)

Bench Mark  
 81RG28 - Perimeter Hwy. (P.T.H. 100) &  
 Roblin Blvd. Interchange; Tblt. on top of N.  
 span (sidewalk) of overpass at interchange,  
 6.3m W. & 0.9m Nly. of N.E. Conc. edge of  
 sidewalk on overpass.

CONSTRUCTION COMPLETION DATE - AUGUST 2001

EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PROFILE	PROPOSED
150 W.W.	WATERMAIN	150 W.W.	HYDRO	HYDRO	150 W.W.	WATERMAIN	WATERMAIN	150 W.W.
+	HYDRANT	+	M.T.S.	M.T.S.	+	HYDRANT, VALVE	HYDRANT, VALVE	+
○	VALVE	○	CONCRETE	CONCRETE	○	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	○
300 LGS	LAND DRAINAGE SEWER	300 LGS	ASPHALT	ASPHALT	300 LGS	WASTE WATER SEWER	WASTE WATER SEWER	300 LGS
250 WWS	WASTE WATER SEWER	250 WWS	SIDEWALK	SIDEWALK	250 WWS	PROPERTY LINE	PROPERTY LINE	250 WWS
○	MANHOLE	○	SURVEY BAR	SURVEY BAR	○	DITCH	DITCH	○
□	CATCH BASIN	□	ELEVATION	ELEVATION	□	NORTH OR WEST GUTTER	NORTH OR WEST GUTTER	□
▽	CURB INLET	▽	31.34	31.34	▽	SOUTH OR EAST GUTTER	SOUTH OR EAST GUTTER	▽
+	JUNCTIONS	+	32.23	32.23	+	NORTH OR WEST R	NORTH OR WEST R	+
+	CULVERT	+			+	SOUTH OR EAST R	SOUTH OR EAST R	+
+	GAS	+			+	NORTH OR WEST DITCH	NORTH OR WEST DITCH	+
+		+			+	SOUTH OR EAST DITCH	SOUTH OR EAST DITCH	+

NO.	REVISIONS	DATE	BY
2	REVISED AS CONSTRUCTED	2001/04/04	V.M.
1	ADDED WATER & WASTE COMMENTS	00/10/18	T.G.

**Stantec Consulting Ltd.**  
 905 Waverley Street, Winnipeg, Manitoba  
 Tel 204-489-5900 F 204-453-9012

DESIGNED BY: C.D.  
 CHECKED BY: P.J.S.  
 DRAWN BY: T.G.  
 APPROVED BY: D.M.

RELEAS'D FOR CONSTRUCTION: \_\_\_\_\_  
 DATE: \_\_\_\_\_

CONSTRUCTION COMPLETION DATE - AUGUST 2001

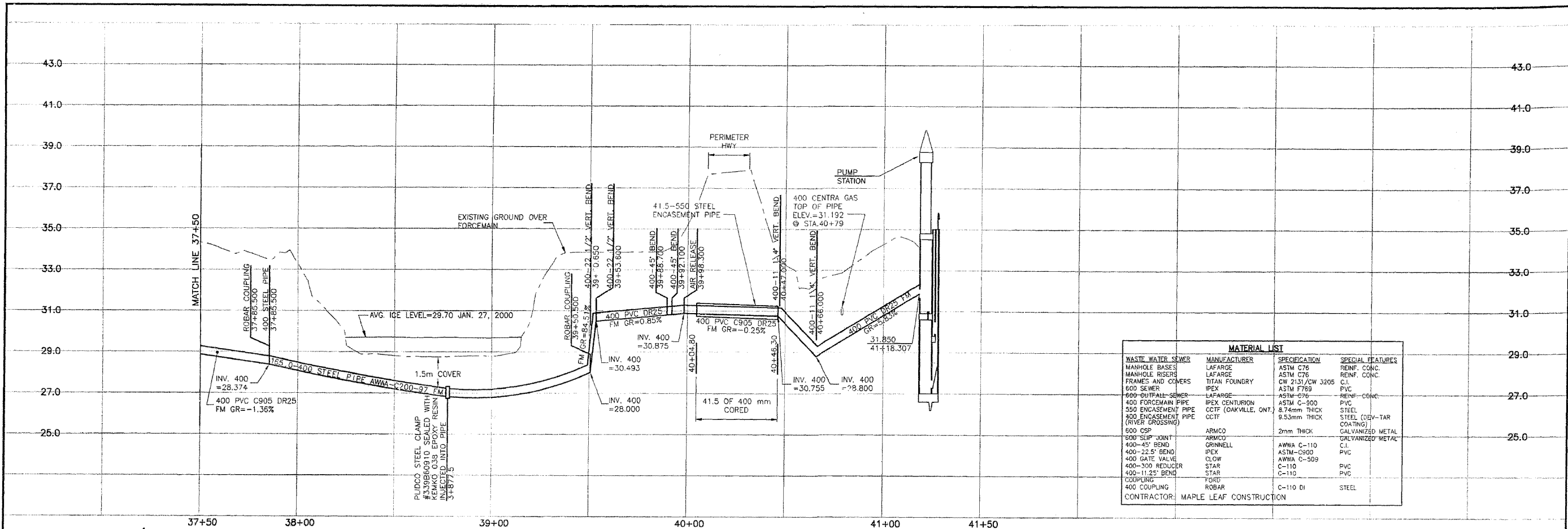
**THE CITY OF WINNIPEG**  
 WATER AND WASTE DEPARTMENT

PERIMETER WEST FORCEMAIN  
 WASTE WATER SEWER AND PUMP STATION

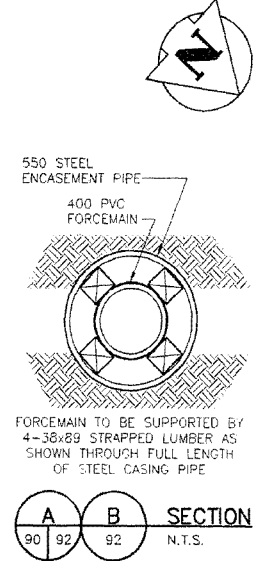
400 FORCEMAIN  
 PHASE 2  
 STA 33+00 TO STA 37+50

PROVINCE OF MANITOBA  
 REGISTERED PROFESSIONAL ENGINEER  
 C.L. DYCK  
 PW-91-549

DRAWING NUMBER: 04787  
 SHEET: 9 OF 24

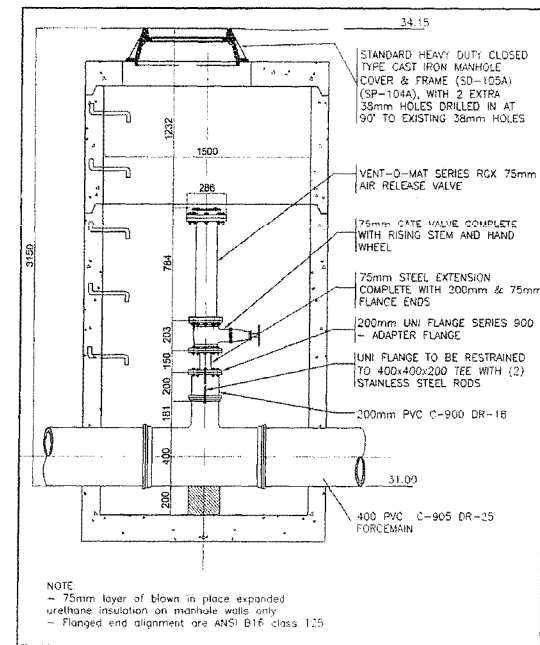
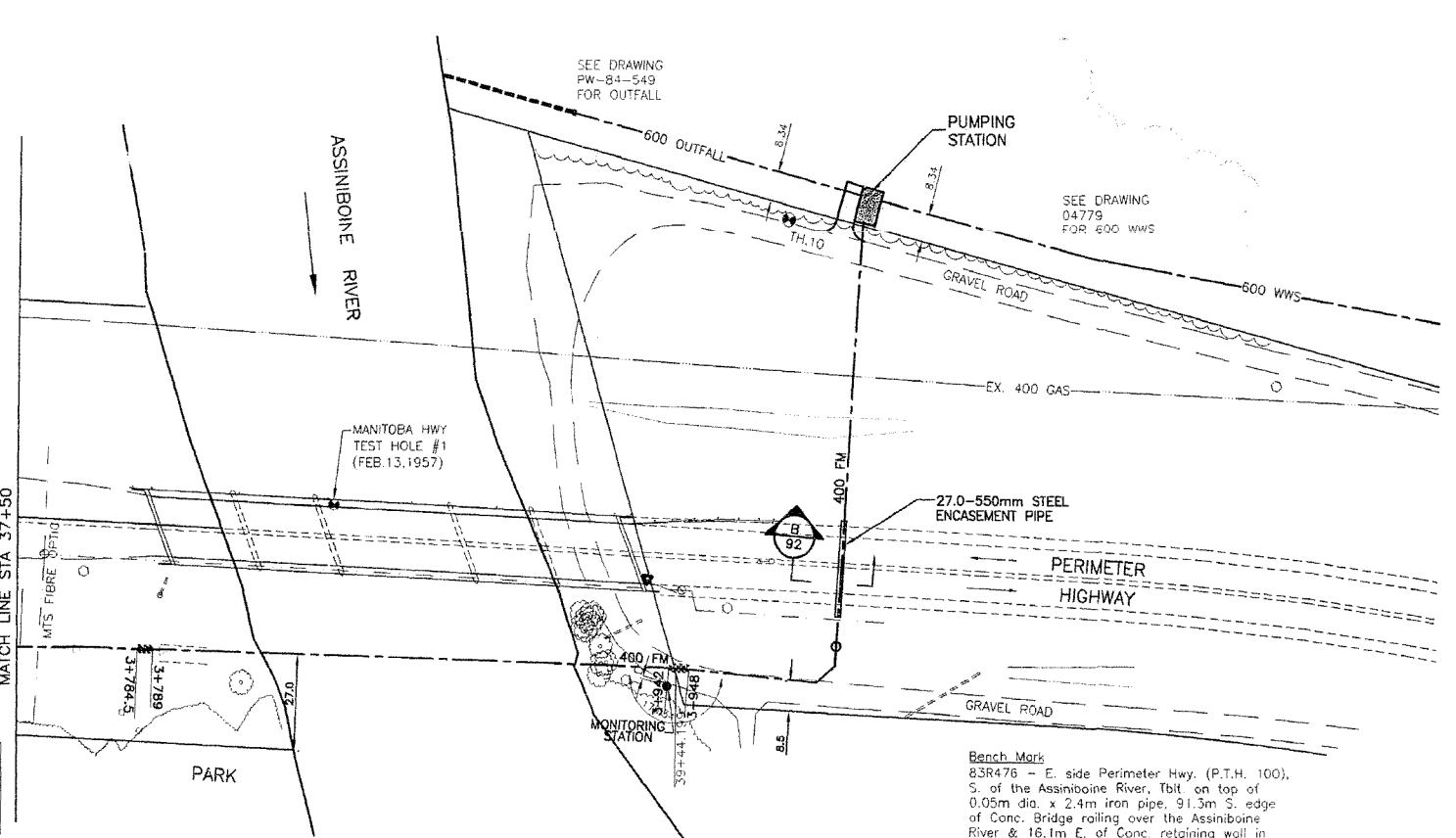


MATERIAL LIST			
WASTE WATER SEWER	MANUFACTURER	SPECIFICATION	SPECIAL FEATURES
MANHOLE BASES	LAFARGE	ASTM C76	REINF. CONC.
MANHOLE RISERS	LAFARGE	ASTM C76	REINF. CONC.
FRAMES AND COVERS	TITAN FOUNDRY	CW 2151/CW 3205	C.I.
600 SEWER	IPEX	ASTM F769	PVC
600 OUTFALL SEWER	LAFARGE	ASTM C76	REINF. CONC.
400 FORCEMAIN PIPE	IPEX CENTURION	ASTM C-900	PVC
550 ENCASUREMENT PIPE	CCTF (OAKVILLE, ONT.)	8.74mm THICK	STEEL (DEV-TAR COATING)
400 ENCASUREMENT PIPE (RIVER CROSSING)	CCTF	9.53mm THICK	STEEL (DEV-TAR COATING)
500 CSP	ARMCO	2mm THICK	GALVANIZED METAL
500 SLIP JOINT	ARMCO		GALVANIZED METAL
400-45' BEND	GRINNELL	AWWA C-110	C.I.
400-22.5' BEND	IPEX	ASTM-C900	PVC
400 GATE VALVE	CLOW	AWWA C-509	PVC
400-300 REDUCER	STAR	C-110	PVC
400-11.25' BEND	STAR	C-110	PVC
COUPLING	FORD		
400 COUPLING	ROBAR	C-110 DI	STEEL
CONTRACTOR: MAPLE LEAF CONSTRUCTION			



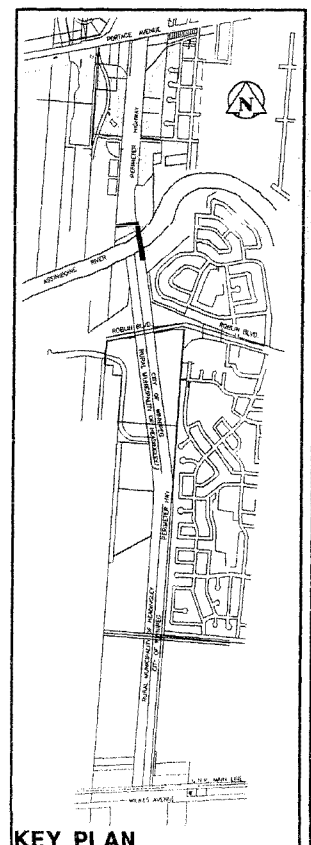
**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

REVISED AS CONSTRUCTED  
By V.M. DATE 2001/04/04  
CHECKED BY P.M.



**AIR RELEASE VALVE CHAMBER  
AT STATION 39+98.300**

NOTE:  
- 75mm layer of blown in place expanded urethane insulation on manhole walls only  
- Flanged end alignment are ANSI B16 class 125



150 MM	150 MM	HYDRO	150 MM	150 MM	150 MM
WATERMAIN	WATERMAIN	M.T.S.	WATERMAIN	WATERMAIN	WATERMAIN
HYDRANT	HYDRANT	CONCRETE	HYDRANT, VALVE	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER
VALVE	VALVE	ASPHALT	LAND DRAINAGE SEWER	WASTE WATER SEWER	WASTE WATER SEWER
300 L.D.S.	300 L.D.S.	PROPERTY LINE	Q PROFILE	NORTH OR WEST GUTTER	NORTH OR WEST GUTTER
250 WWS	250 WWS	SURVEY BAR	NORTH OR WEST R	SOUTH OR EAST GUTTER	SOUTH OR EAST GUTTER
MANHOLE	MANHOLE	DITCH	NORTH OR WEST R	NORTH OR WEST R	NORTH OR WEST R
CATCH BASIN	CATCH BASIN	ELEVATION	SOUTH OR EAST R	SOUTH OR EAST R	SOUTH OR EAST R
CURB INLET	CURB INLET		NORTH OR WEST DITCH	NORTH OR WEST DITCH	NORTH OR WEST DITCH
JUNCTIONS	JUNCTIONS		SOUTH OR EAST DITCH	SOUTH OR EAST DITCH	SOUTH OR EAST DITCH
CULVERT	CULVERT				
GAS	GAS				
EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PROFILE	PROPOSED

LOCATION APPROVED UNDERGROUND STRUCTURES		B.M. 48-025 ELEV. 237.037m	
DESIGNED BY	C.D.	DATE	
CHECKED BY	F.J.S.	DATE	
DRAWN BY	T.G.	DATE	
APPROVED BY	D.M.	DATE	
RELEASED FOR CONSTRUCTION		DATE	
NO. REVISIONS		DATE	

**Stantec Consulting Ltd.**  
905 Waverley Street, Winnipeg, Manitoba  
Tel 204-489-5900 Fax 204-453-9012

ENGINEER'S SEAL  
**C.L. DYCK**  
REGISTERED PROFESSIONAL ENGINEER

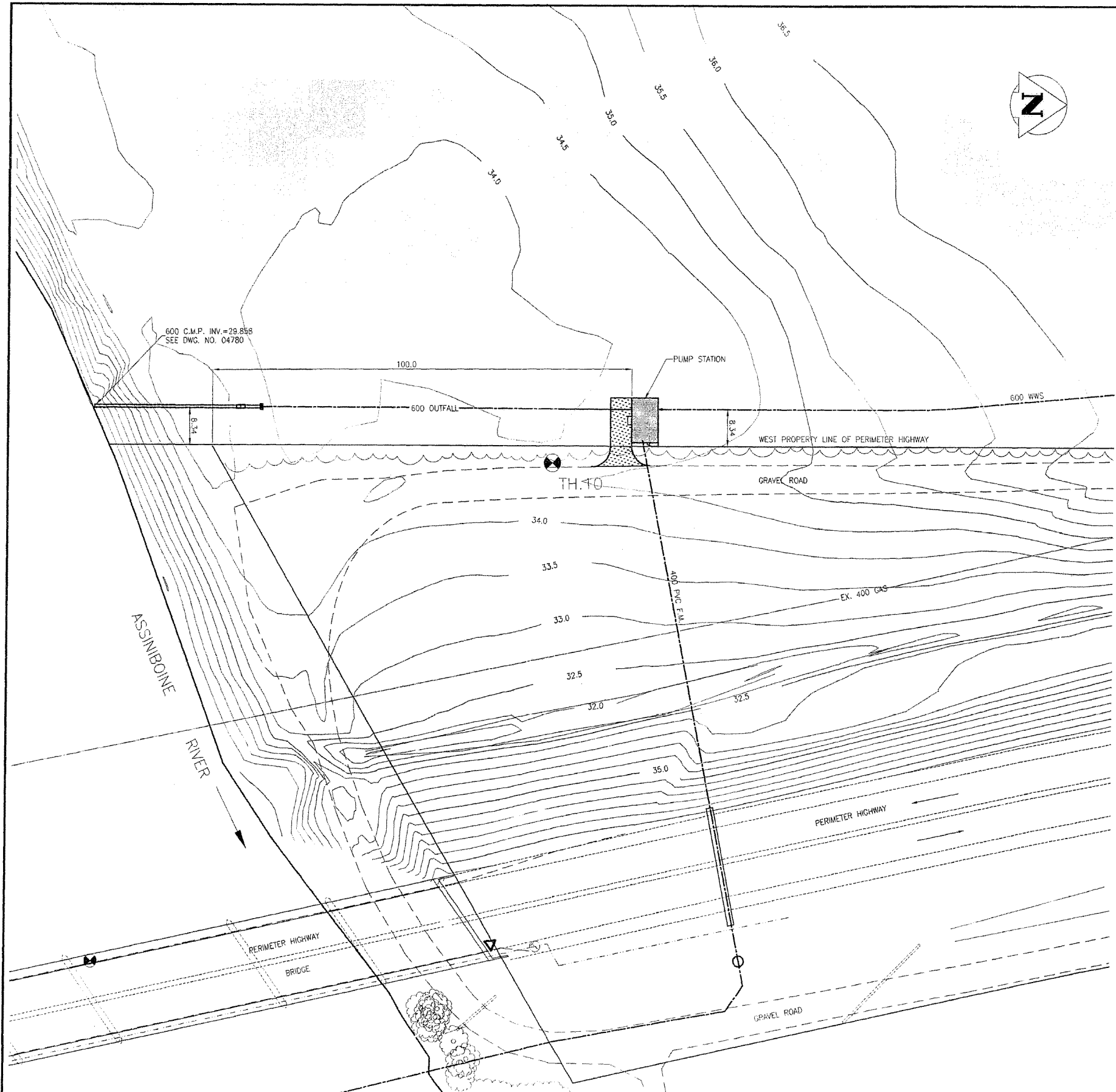
CONSULTANT DRAWING NO. PW-92-549

**THE CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT

PERIMETER WEST FORCEMAIN  
WASTE WATER SEWER AND PUMP STATION  
400 FORCEMAIN AND PUMP STATION  
PHASE 2  
STA 37+50 TO STA 41+50

CITY DRAWING NUMBER 04788  
SHEET 10 OF 24

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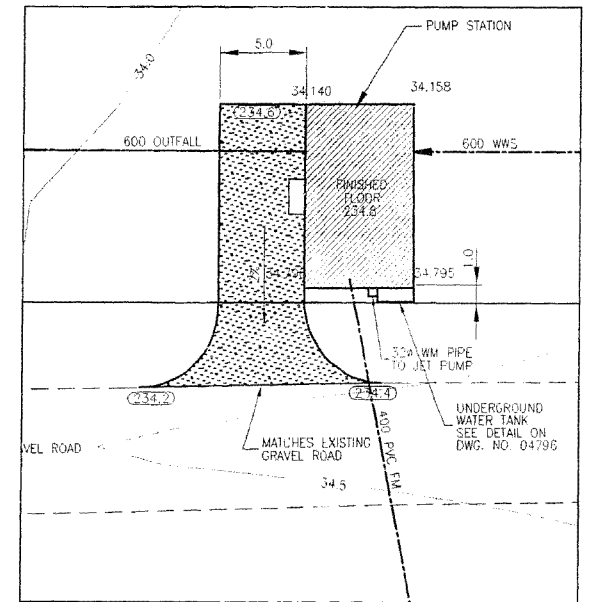
Testhole No. TH10

Depth (m)	Symbol	Testhole Log	Elevation (m)	Other Tests
0		Ground Surface	234.2	
0		FILL - grass covered clay	233.743	
1		CLAY		Water Level 99/05/13  -UFVS=123kPa -DFVS=29kPa
2		-very stiff to stiff, black, some roots		
2		-brown below 1.2m, trace silt and gypsum		
2		-sand layers below 2.4m, slight seepage		
2		-grey at 4.9m		
2		-firm to soft below 5m		
6		GLACIAL TILL	228.409	
7		-very soft, clayey, grey, wet		
7		-medium dense at 6.1m, silty, sandy, gravelly		
7		-abundant gravel, some cobbles below 7.6m		
8		-red, medium dense to dense below 10.1m, some gravel		
8		-seepage		
10			223.532	
11				

End testhole at 10.7m from grade.

NOTES

- 1) Testhole open to 7.9m from grade upon completion of drilling.
- 2) Ground water level at 3.4m from grade upon completion of drilling.



SITE PLAN  
SCALE: 1:500

CONSTRUCTION COMPLETION DATE - AUGUST 2001

REVISED AS CONSTRUCTED  
 BY: K.R. DATE: 24/08/2001  
 CHECKED BY: R.M.

METRIC  
 WHOLE NUMBERS INDICATE MILLIMETRES  
 DECIMALIZED NUMBERS INDICATE METRES

LOCATION APPROVED UNDERGROUND STRUCTURES		B.M. ELEV.
SUPV. U/G STRUCTURES COMMITTEE	DATE	
NOTE: LOCATION 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	BY
1	24.08.01	K.R.

**Stantec Consulting Ltd.**  
 905 Waverley Street, Winnipeg, Manitoba  
 Tel: 204-489-5900 Fax: 204-455-9012

DESIGNED BY: T.T.	CHECKED BY: T.T.
DRAWN BY: R.M.	APPROVED BY: D.G.M.
HOR. SCALE: AS SHOWN	RELEASED FOR CONSTRUCTION:
VERTICAL:	DATE: MAY 8, 2000

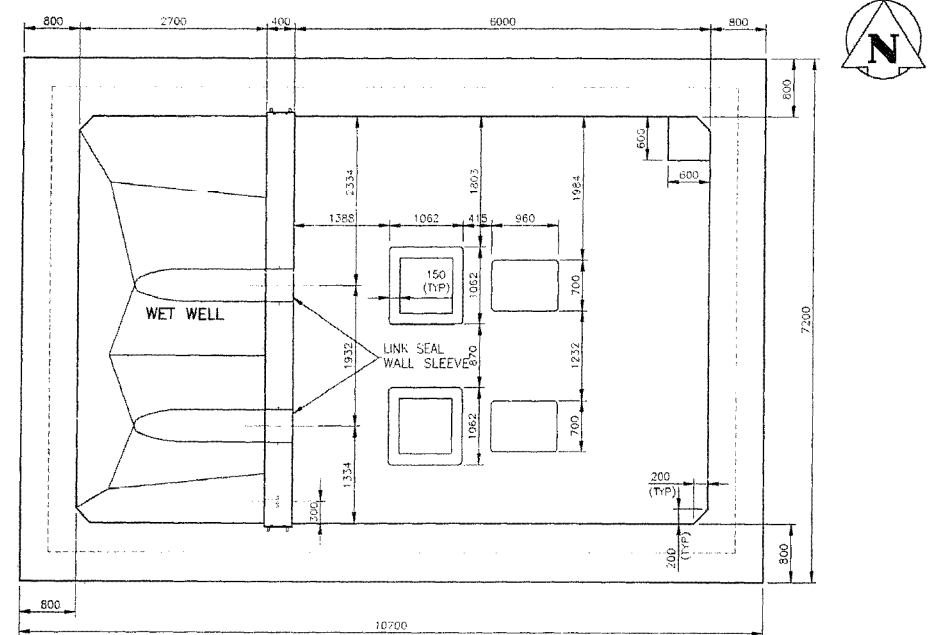
ENGINEER'S SEAL  
**D. G. MULDER**  
 REGISTERED ENGINEER  
 CONSULTANT DRAWING NO. PW-93-549

**THE CITY OF WINNIPEG**  
 WATER AND WASTE DEPARTMENT

PERIMETER WEST FORCEMAIN  
 WASTEWATER SEWER AND PUMP STATION  
 WASTE WATER PUMP STATION  
 PHASE 2  
 SITE PLAN

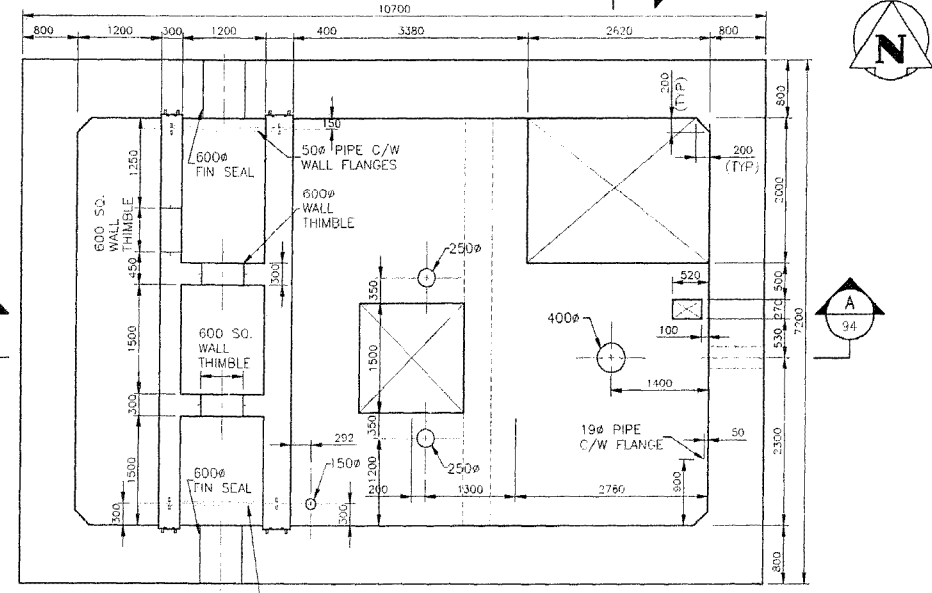
CITY DRAWING NUMBER: 04789  
 SHEET 11 OF 24

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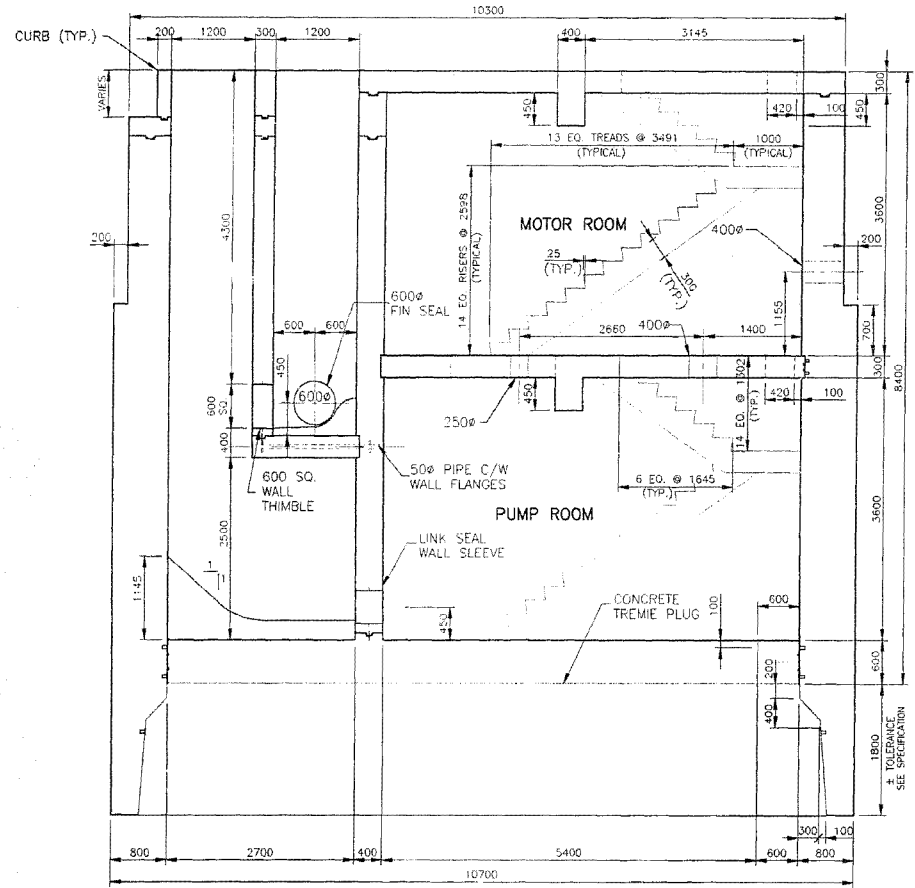


**WET WELL/DRY WELL FLOOR PLAN**  
SCALE: 1:50

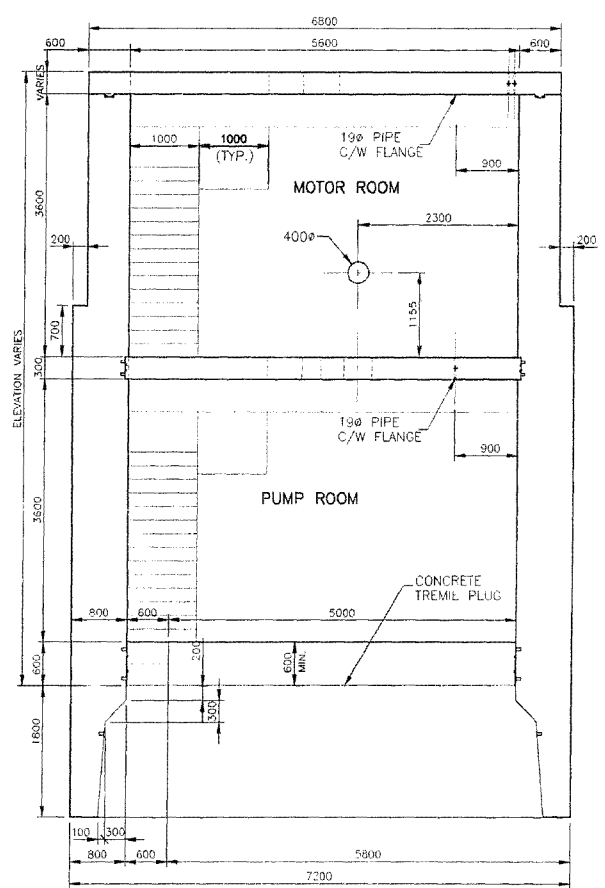
NOTE:  
CONCRETE STAIRS AND  
LANDING NOT SHOWN ON  
PLANS FOR CLARITY.  
REFER TO SECTIONS



**MOTOR ROOM FLOOR PLAN**  
SCALE: 1:50



**SECTION A**  
SCALE 1:50



**SECTION B**  
SCALE 1:50

A:\18750\18750.dwg - Revise: wif 000 PW-94-549-01.dwg  
 2002-08-22 11:42:09 By: jmc

REVISED AS CONSTRUCTED  
 BY: P.P. DATE: 24/08/2001  
 CHECKED BY: P.M.

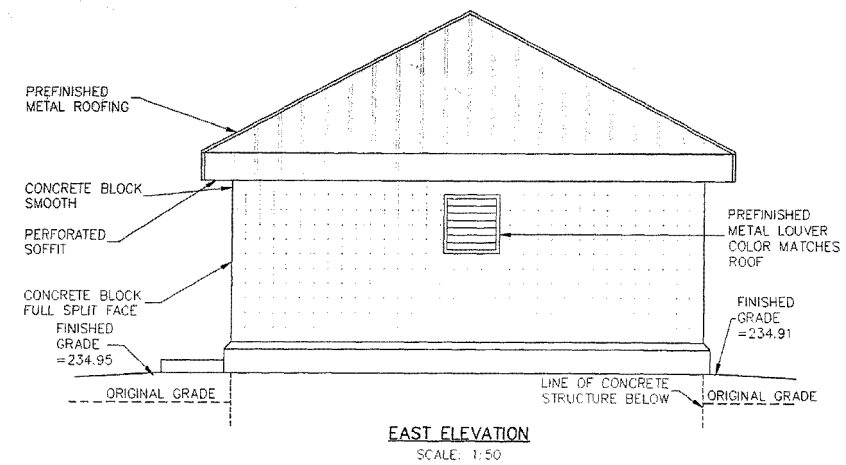
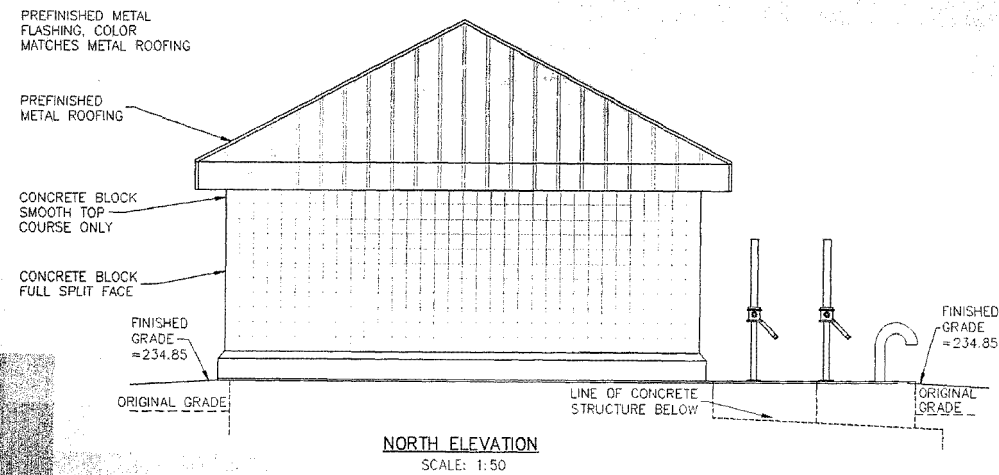
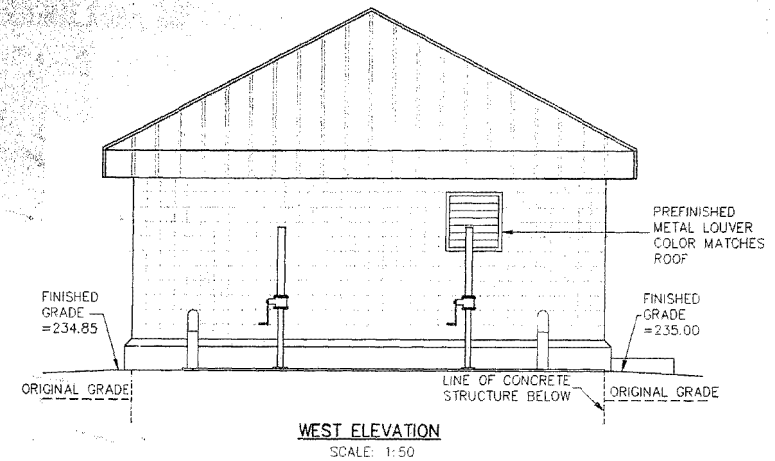
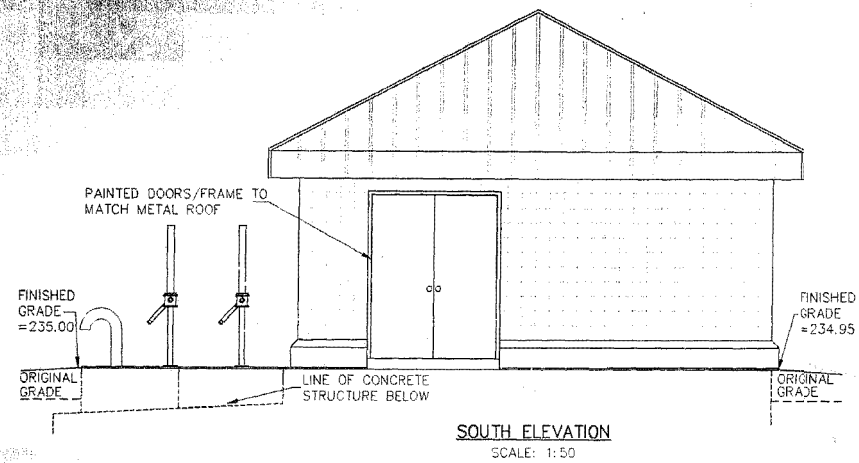
**METRIC**  
 WHOLE NUMBERS INDICATE MILLIMETRES  
 DECIMALIZED NUMBERS INDICATE METRES

LOCATION APPROVED UNDERGROUND STRUCTURES		B.M. ELEV.
SUPV. U/G STRUCTURES COMMITTEE	DATE	
NOTE: LOCATION 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 BY
1	REVISED AS CONSTRUCTED	24.08.01 K.R.

<b>Stantec Consulting Ltd.</b> 905 Waverley Street, Winnipeg, Manitoba Tel 204-489-5900 Fax 204-453-9011		
DESIGNED BY: W.S.	CHECKED BY: W.S.	
DRAWN BY: R.M.	APPROVED BY: D.G.M.	
HOR. SCALE: 1:50	RELEASED FOR CONSTRUCTION	
VERTICAL:	DATE: JULY 24, 2000	

	CONSULTANT DRAWING NO. <b>PW-94-549</b>
--	--

<b>CONSTRUCTION COMPLETION DATE - AUGUST 2001</b>	
<b>THE CITY OF WINNIPEG</b> WATER AND WASTE DEPARTMENT	
PERIMETER WEST FORCEMAIN WASTE WATER SEWER AND PUMP STATION PHASE 2 <b>WASTE WATER PUMP STATION</b> CONCRETE PLANS AND SECTIONS SHEET #1	CITY DRAWING NUMBER 04790 SHEET 12 OF 24



**METRIC**

WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

REVISED AS CONSTRUCTED  
BY K.R. DATE 24/08/2001  
CHECKED BY R.M.

LOCATION APPROVED UNDERGROUND STRUCTURES		B.M. ELEV.
SUPV. U/G STRUCTURES COMMITTEE	DATE	
NOTE: LOCATION 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	BY
1	24.08.01	K.R.

**Stantec Consulting Ltd.**  
905 Waverley Street, Winnipeg, Manitoba  
Tel 204-489-5900 | 204-453-9012

DESIGNED BY: W.S.	CHECKED BY: W.S.
DRAWN BY: R.M.	APPROVED BY: D.G.A.
HOR. SCALE: AS SHOWN	RELEASED FOR CONSTRUCTION: DATE
VERTICAL:	

ENGINEER'S SEAL  
PROVINCE OF MANITOBA  
ORIGINAL STAMPED BY  
W.A. SCHOENFELD  
P. ENG. 20.07.00  
REGISTERED PROFESSIONAL ENGINEER  
CONSULTANT DRAWING NO.  
PW-98-549

CONSTRUCTION COMPLETION DATE - AUGUST 2001

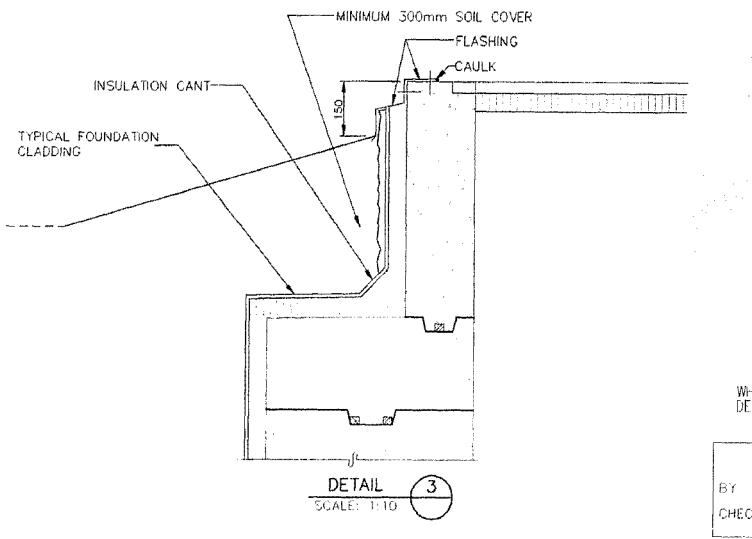
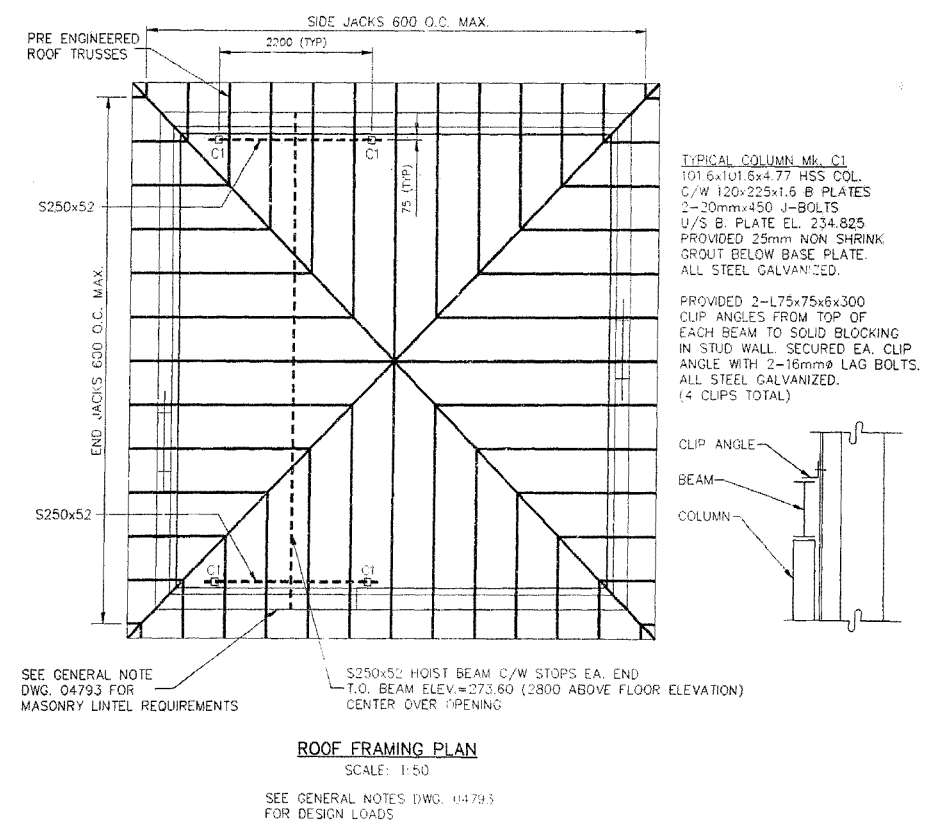
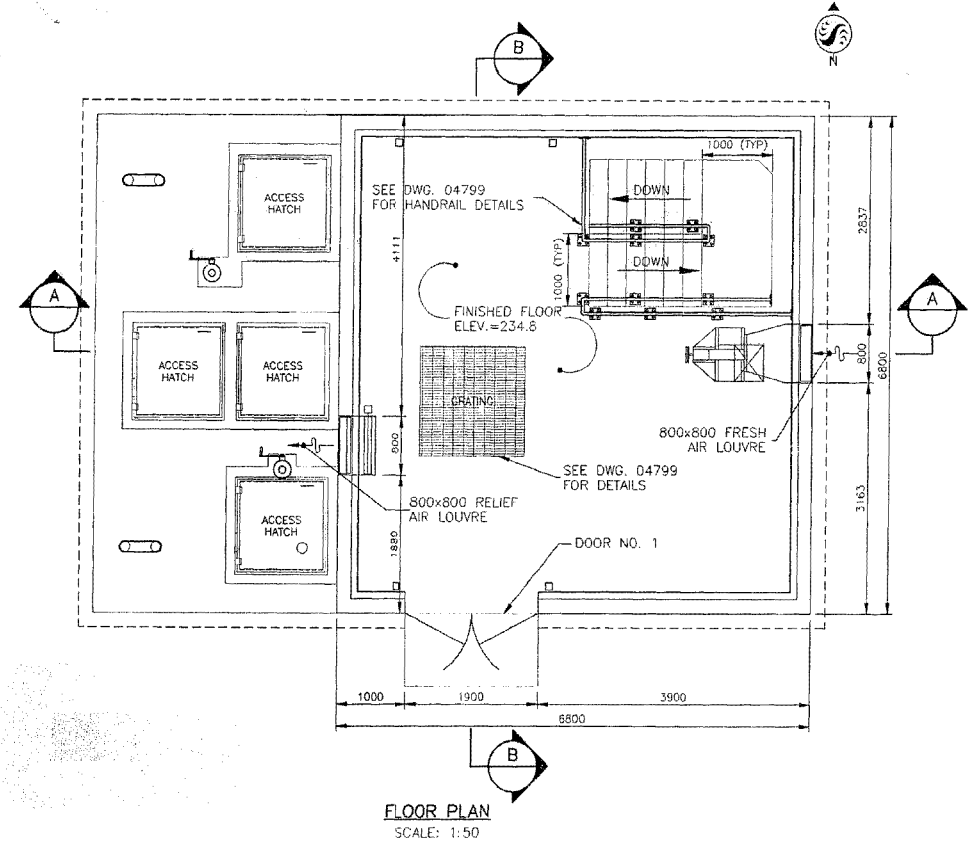
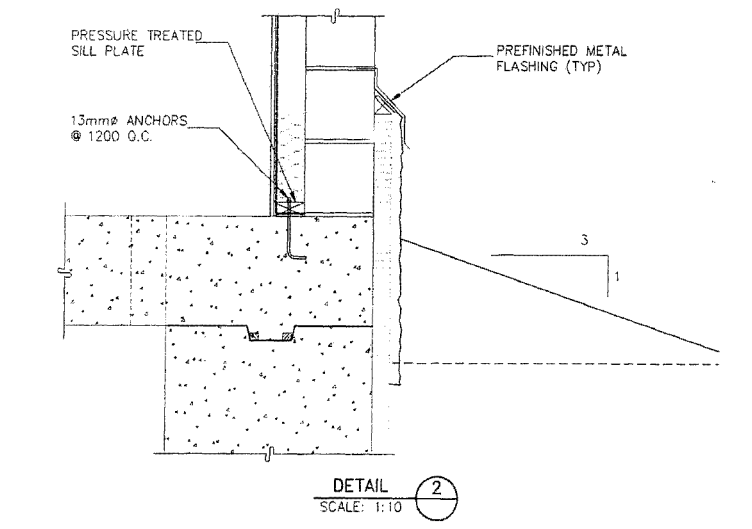
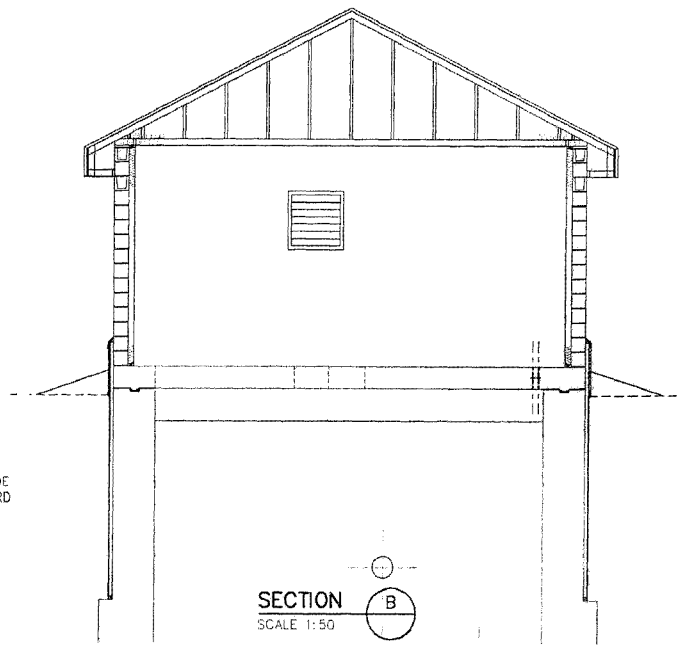
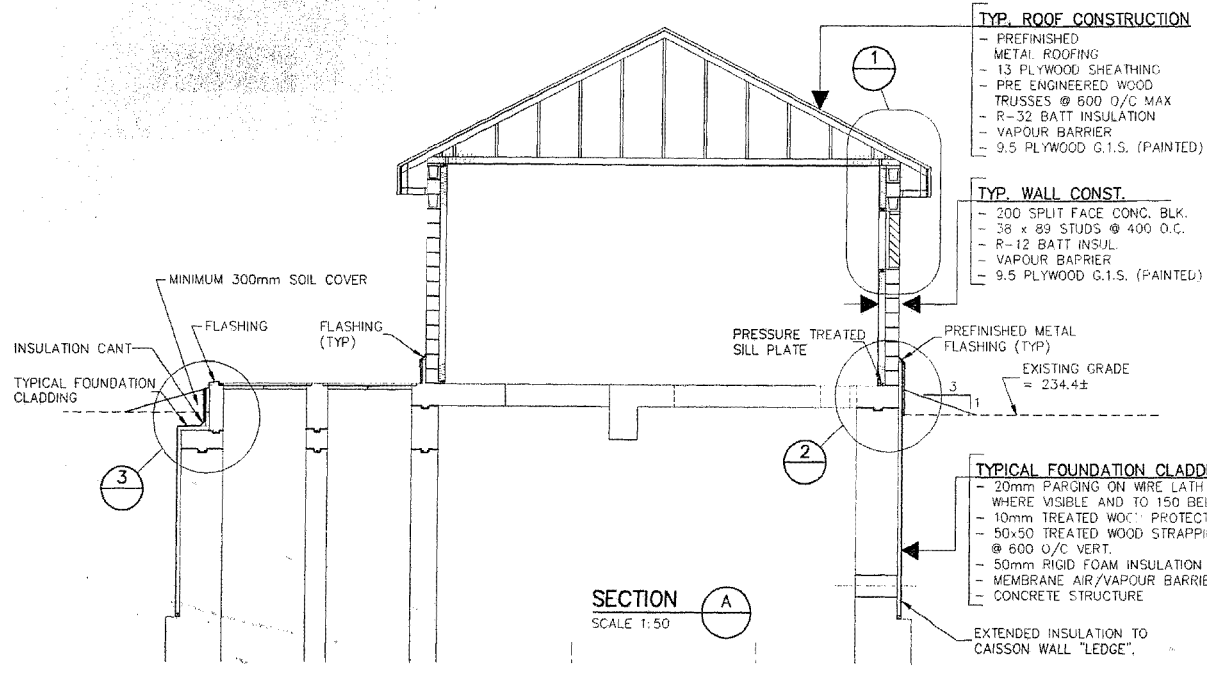
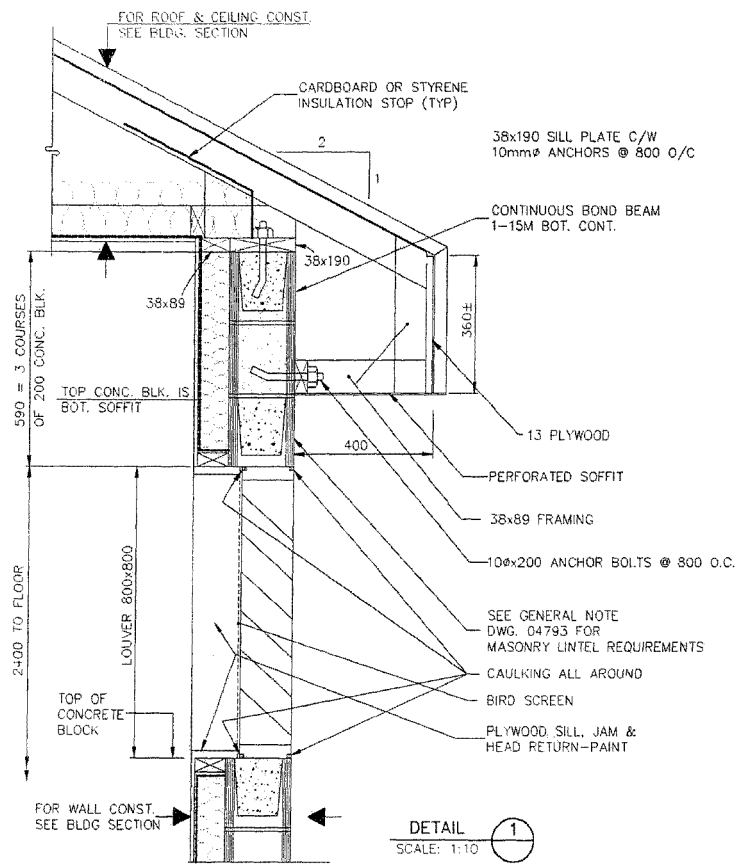
**THE CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT

PERIMETER WEST FORCEMAIN  
WASTE WATER SEWER AND PUMP STATION  
PHASE 2

PUMP HOUSE  
BUILDING ELEVATIONS  
AND DETAILS

CITY DRAWING NUMBER 04794
SHEET 16 OF 24





**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

REVISED AS CONSTRUCTED  
BY K.R. DATE 24/08/2001  
CHECKED BY P.M.

LOCATION APPROVED UNDERGROUND STRUCTURES		B.M. ELEV.
SUPV. U/G STRUCTURES COMMITTEE	DATE	
NOTE: LOCATION 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	BY
1	REVISED AS CONSTRUCTED 24.08.01	K.R.

**Stantec Consulting Ltd.**  
905 Waverley Street, Winnipeg, Manitoba  
Tel 204-489-5900 Fax 204-453-9012

DESIGNED BY W.S.	CHECKED BY W.S.
DRAWN BY R.M.	APPROVED BY D.C.
HOR. SCALE: AS SHOWN	RELEASED FOR CONSTRUCTION
VERTICAL	DATE
DATE MAY 8, 2000	DATE

ENGINEER'S SEAL: PROVINCE OF MANITOBA ORIGINAL STAMPED BY W.A. SCHOENFELD P. ENG. 20.07.00 REGISTERED PROFESSIONAL ENGINEER CONSULTANT DRAWING NO. PW-99-549

**CONSTRUCTION COMPLETION DATE - AUGUST 2001**

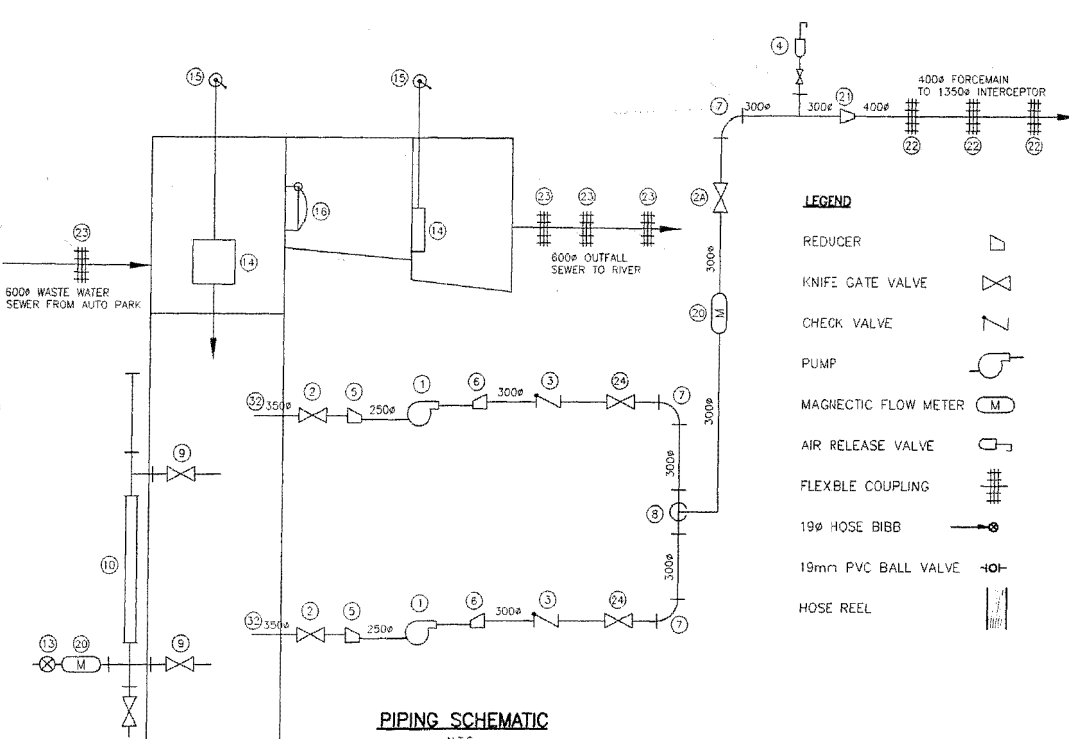
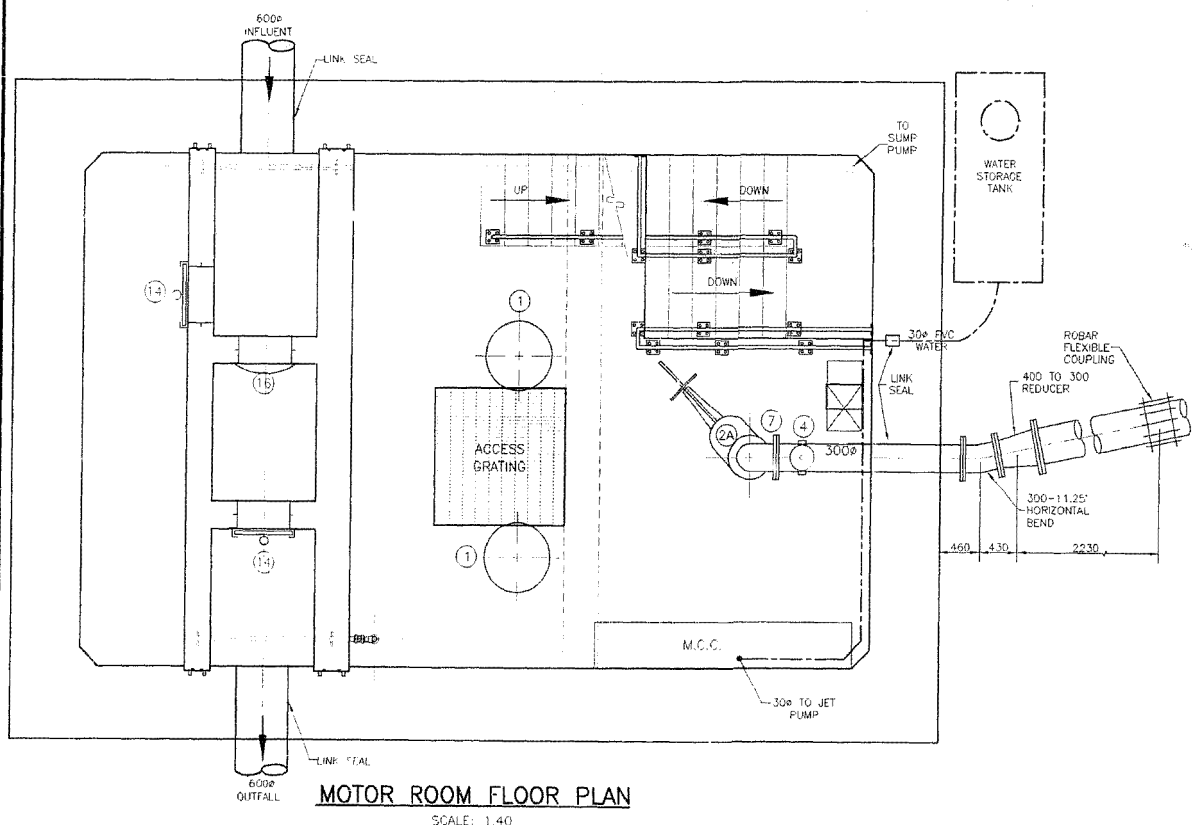
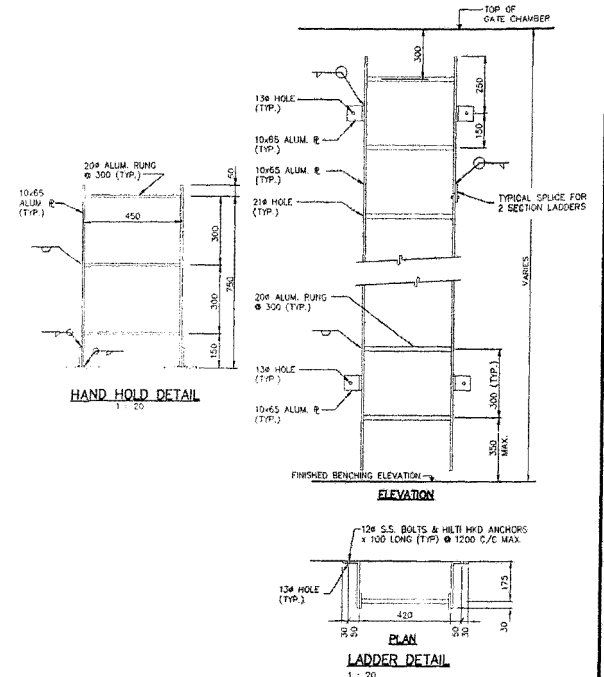
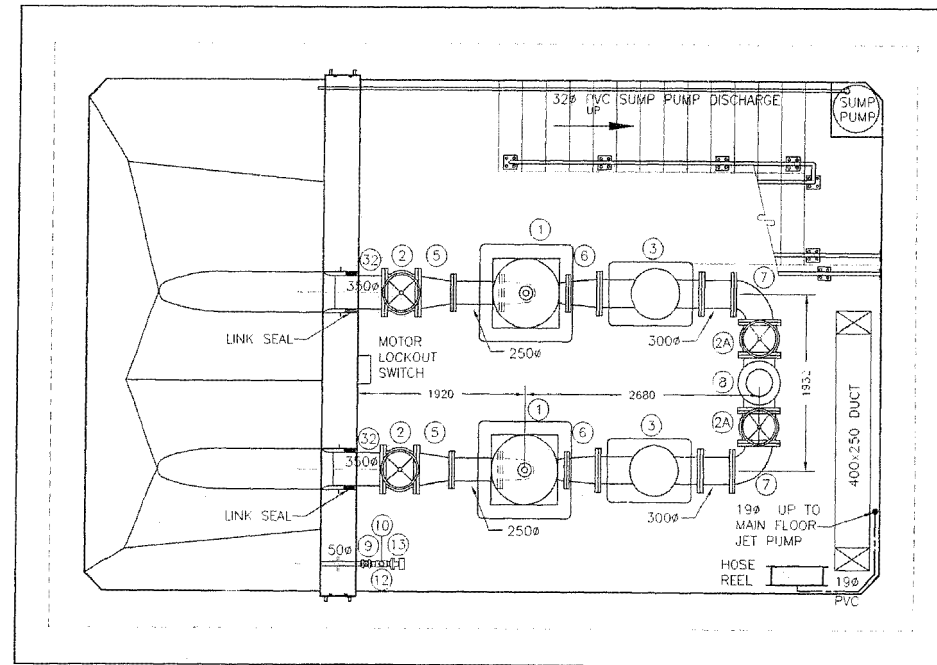
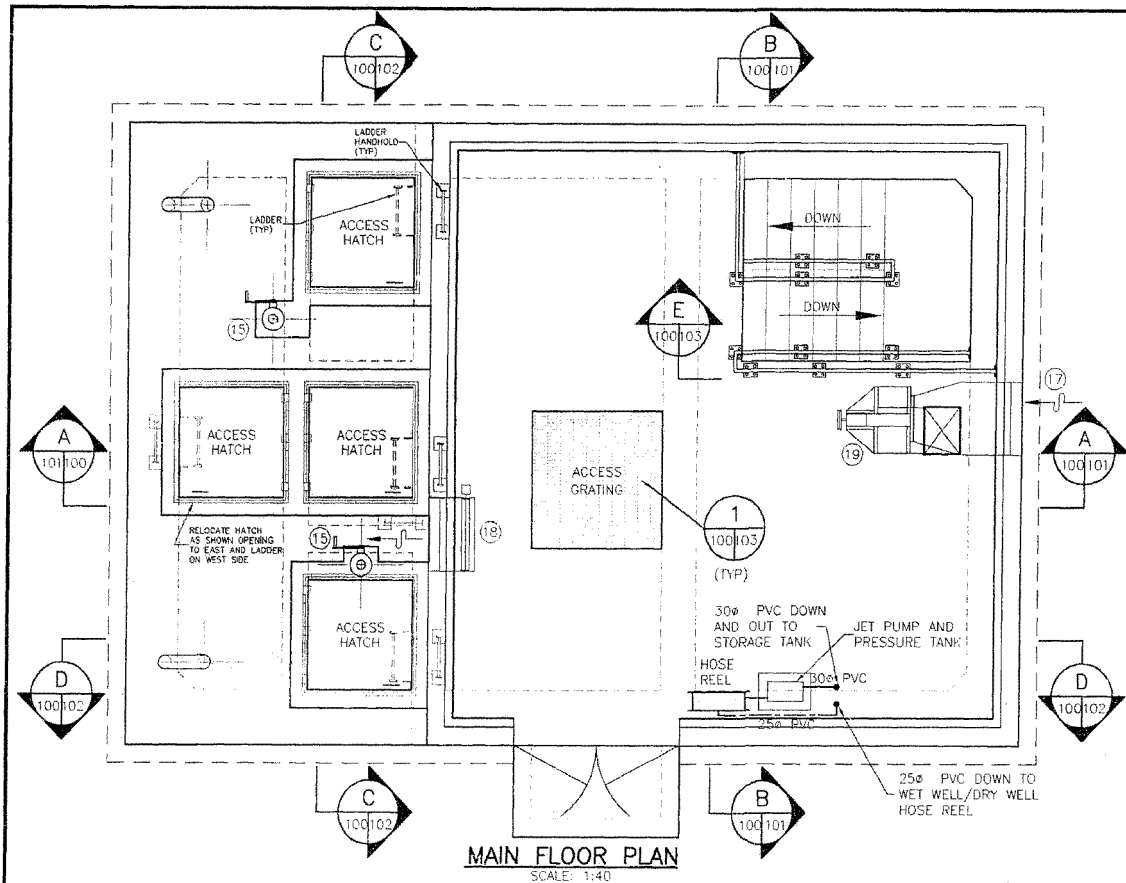
**THE CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT

PERIMETER WEST FORCEMAIN  
WASTE WATER SEWER AND PUMP STATION  
PHASE 2

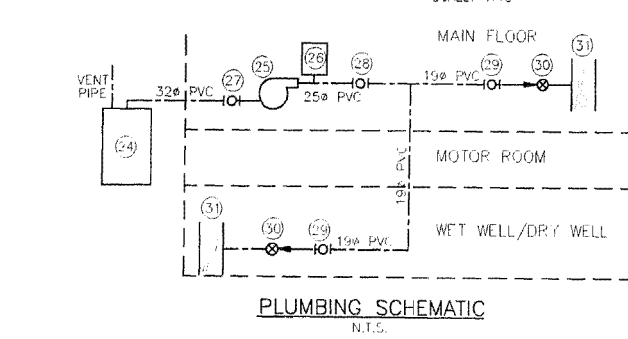
PUMP STATION  
BUILDING ELEVATIONS  
AND DETAILS

CITY DRAWING NUMBER 04795  
SHEET 17 OF 24

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ITEM NO.	NO.	DESCRIPTION
1.	2	125 H.P. SEWAGE PUMP
2.	2	350Ø GATE VALVE (RISING STEM)
2A.	3	300Ø GATE VALVE (RISING STEM)
3.	2	300Ø BALL CHECK VALVE
4.	1	AIR RELIEF VALVE
5.	2	350Ø TO 250Ø ECCENTRIC REDUCER
6.	2	300Ø TO 250Ø OR 200Ø ECCENTRIC REDUCER
7.	3	300Ø-90° BEND
8.	1	300x300x300 TEE
9.	2	50Ø GATE VALVE
10.	1	50Ø SITE GLASS
11.	1	50x50x50 CROSS
12.	1	50x50x50 TEE
13.	1	DP CELL
14.	2	610x610 HEAVY DUTY C.I. SLUICE GATE GEARED LIFT AND PEDESTAL
15.	2	610Ø FLAP GATE
16.	1	800x800 VENTILATION AIR LOUVRE
17.	1	800x800 EXHAUST AIR LOUVRE
18.	1	VENTILATION FAN
19.	1	300Ø FLOW METER
20.	1	400Ø TO 320Ø CONCENTRIC REDUCER
21.	1	400Ø FLEXEND FLEXIBLE COUPLING
22.	1	600Ø FLEXEND FLEXIBLE COUPLING
23.	5	600Ø FLEXEND FLEXIBLE COUPLING
24.	1	UNDERGROUND WATER STORAGE TANK
25.	1	WATER PUMP - MONARCH MUS-50
26.	1	PRESSURE TANK - MONARCH JR-255
27.	1	32mm PVC BALL VALVE
28.	1	25mm PVC BALL VALVE
29.	2	19mm PVC BALL VALVE
30.	2	19mm HOSE BIBB
31.	2	HOSE REEL
32.	2	350Ø CL. 52 DUCTILE IRON INLET PIPE 1 END FLANGED & 1 END PLAIN



**METRIC**

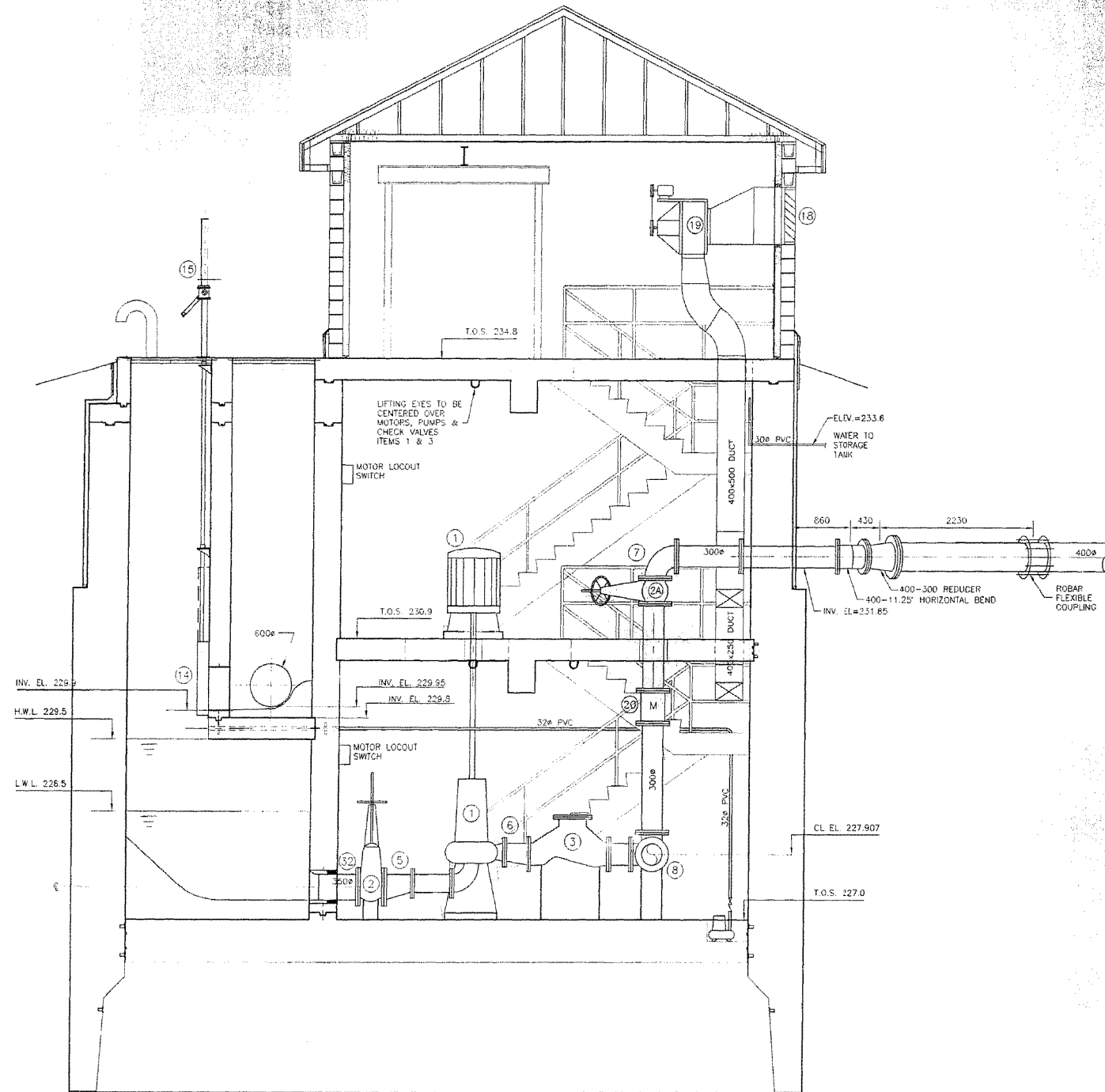
REVISED AS CONSTRUCTED

BY: K.R. DATE: 24/08/2001

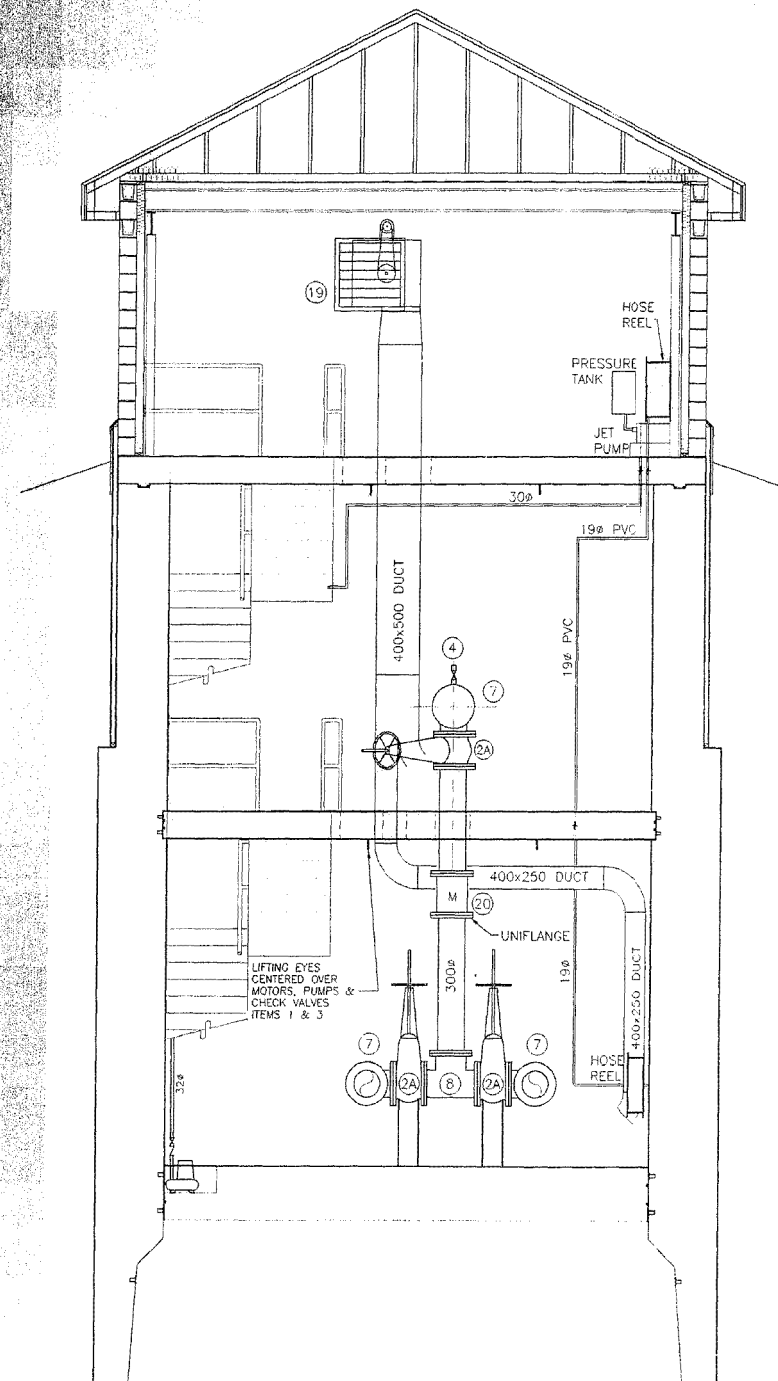
CHECKED BY: R.M.

<b>LOCATION APPROVED UNDERGROUND STRUCTURES</b> SUPV. U/G STRUCTURES COMMITTEE DATE: _____ NOTE: LOCATION 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 SPAN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.	R.M. ELEV. _____ NO. REVISIONS _____ DATE _____ BY _____	<b>Stantec Consulting Ltd.</b> 905 Waverley Street, Winnipeg, Manitoba Tel: 204-489-9000 Fax: 204-453-9012	ENGINEER'S SEAL 	<b>CONSTRUCTION COMPLETION DATE - AUGUST 2001</b>	
				<b>THE CITY OF WINNIPEG</b> WATER AND WASTE DEPARTMENT PERIMETER WEST FORCEMAIN WASTE WATER SEWER AND PUMP STATION PHASE 2 <b>WASTE WATER PUMP STATION MECHANICAL PLANS</b>	
			CITY DRAWING NUMBER: 04796 SHEET 18 OF 24	PW-100-549	

#11818461180230 - Perimeter wsf 400 PWAsp/umpstn/04796.dwg  
 2001-08-09 10:54M B. moore



SECTION A  
SCALE 1:40



SECTION B  
SCALE 1:40

K:\168\04797\1680223 - Perimeter West 450 PA\450\mechanical\04797.dwg  
 2002-08-12 01:27PM By: mrona  
 SHEET 19 OF 24

CONSTRUCTION COMPLETION DATE - AUGUST 2001

METRIC

REVISED AS CONSTRUCTED  
 BY: K.R. DATE 24/08/2001  
 CHECKED BY: R.M.

LOCATION APPROVED UNDERGROUND STRUCTURES

SUPPLY U/G STRUCTURES DATE COMMITTEE

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

NO.	REVISIONS	DATE	BY
1	REV. WET WELL SLOPES, INLET PIPE & TYPE OF COUPLINGS	30.09.21	R.M.
2	REVISED AS CONSTRUCTED	24.08.01	K.R.

**Stantec Consulting Ltd.**  
 905 Waverley Street, Winnipeg, Manitoba  
 Tel 204-489-5900 Fax 204-453-1112

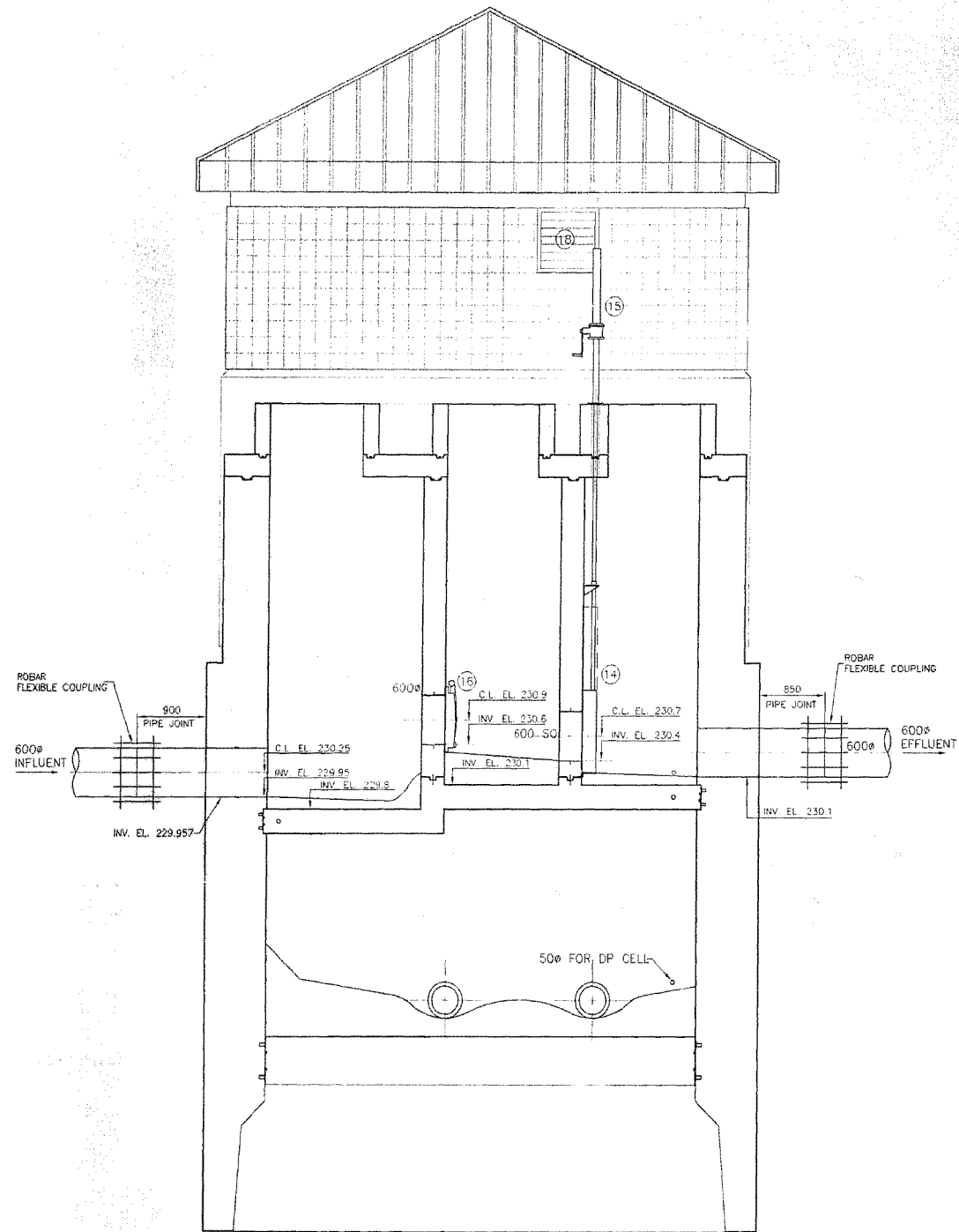
DESIGNED BY: T.T.	CHECKED BY: T.T.
DRAWN BY: R.M.	APPROVED BY: D.G.M.
HOR. SCALE: AS SHOWN	RELEASED FOR CONSTRUCTION: DATE
VERTICAL: DATE	DATE: MAY 8, 20000

ENGINEER'S SEAL  
**D. G. MULDER**  
 14-7-00  
 CONSULTANT DRAWING NO.  
 PW-101-549

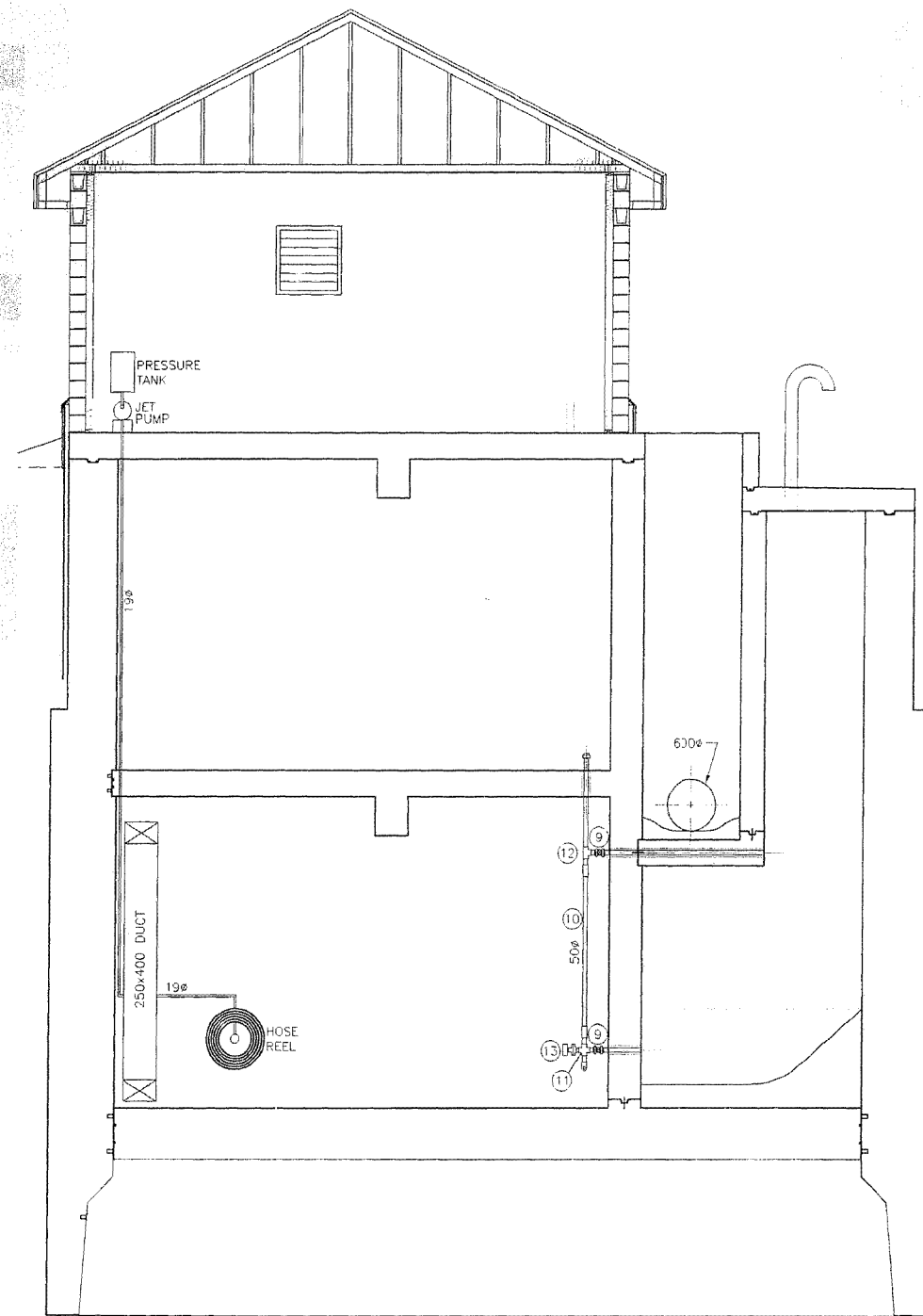
**THE CITY OF WINNIPEG**  
 WATER AND WASTE DEPARTMENT

PERIMETER WEST FORCEMAIN  
 WASTE WATER SEWER AND PUMP STATION  
 PHASE 2  
 WASTE WATER PUMP STATION  
 MECHANICAL SECTIONS-1

CITY DRAWING NUMBER: 04797  
 SHEET: 19 OF 24



SECTION C  
SCALE 1:40



SECTION D  
SCALE 1:40

**METRIC**

WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

REVISED AS CONSTRUCTED  
BY: K.R. DATE 24/08/2001  
CHECKED BY: R.M.

**LOCATION APPROVED UNDERGROUND STRUCTURES**

SUPV. U/G STRUCTURES DATE COMMITTEE

NOTE:  
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NO.	REVISIONS	DATE	BY
2	REVISED AS CONSTRUCTED	24.08.01	K.R.
1	REV. WET WELL SLOPES & TYPE OF COUPLINGS	00.09.21	R.M.

**Stantec Consulting Ltd.**  
905 Waverley Street, Winnipeg, Manitoba  
Tel 204-489-5900 Fax 204-453-9012

DESIGNED BY: T.T.	CHECKED BY: T.
DRAWN BY: R.M.	APPROVED BY: D.G.M.

HOR. SCALE: AS SHOWN  
VERTICAL: RELEASED FOR CONSTRUCTION

DATE: MAY 8, 20000

ENGINEER'S SEAL  
**D. G. MULDER**  
24-7-00  
REGISTERED ENGINEER  
CONSULTANT DRAWING NO. PW-102-549

**THE CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT

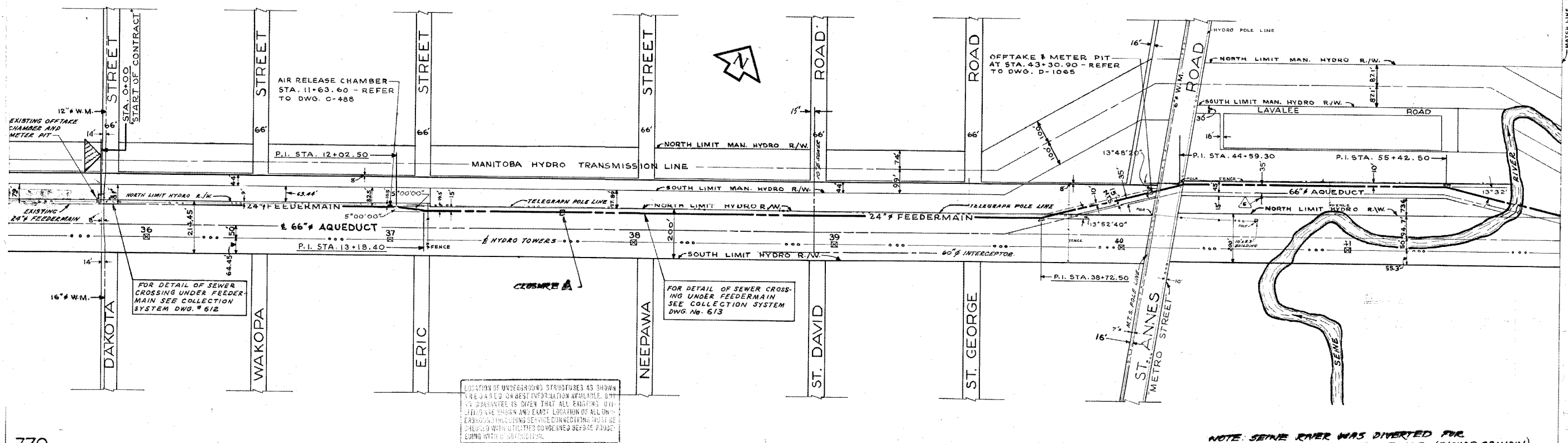
PERIMETER WEST FORCEMAIN  
WASTE WATER SEWER AND PUMP STATION  
PHASE 2  
WASTE WATER PUMP STATION  
MECHANICAL SECTIONS-2

CITY DRAWING NUMBER: 04798  
SHEET 1 OF 20

CONSTRUCTION COMPLETION DATE - AUGUST 2001

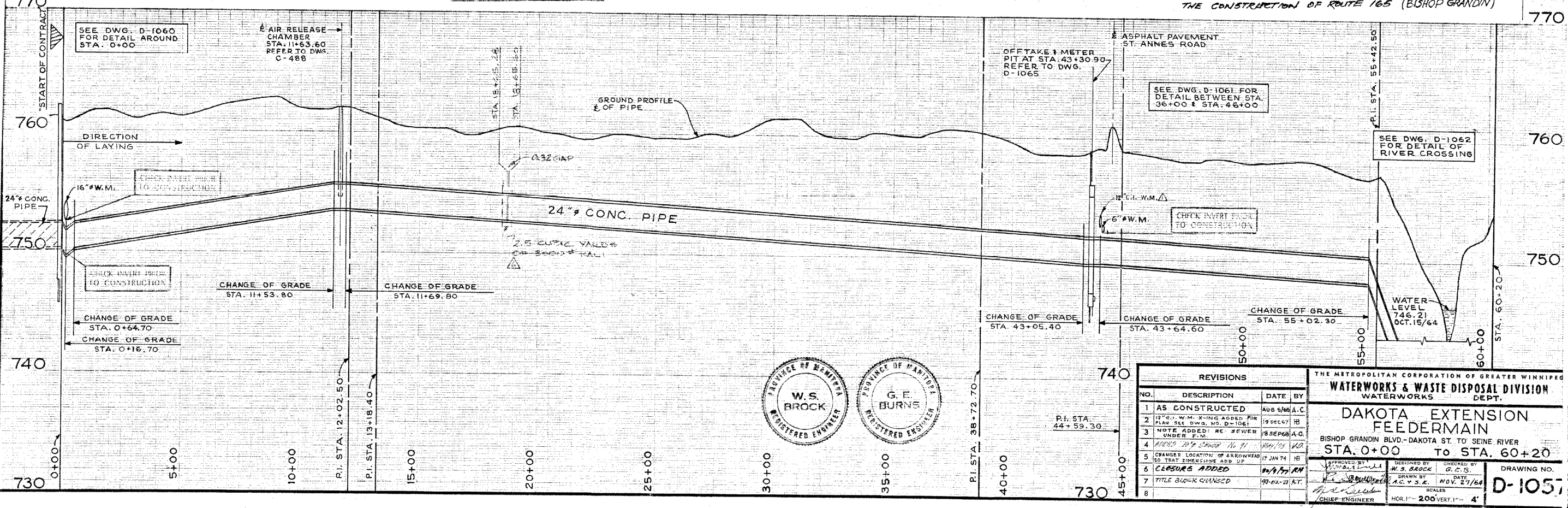
# CITY OF ST. VITAL

COMPILED FROM REG'D. PLANS No. 3460, 2040, 3364, 6914, 1774  
COMPILED FROM FIELD BOOKS No. 81, 91, AND



LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON BEST INFORMATION AVAILABLE. THE CONTRACTOR IS ADVISED THAT ALL EXISTING UTILITIES ARE SHOWN AND EXACT LOCATION OF ALL UTILITIES INCLUDING SERVICE CONNECTIONS MUST BE CHECKED WITH UTILITIES COORDINATED BEFORE PROCEEDING WITH CONSTRUCTION.

NOTE: SEINE RIVER WAS DIVERTED FOR THE CONSTRUCTION OF ROUTE 165 (BISHOP GRANDIN)



REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	AS CONSTRUCTED	AUG 5/68	A.C.
2	12" C.I. W.M. X-ING ADDED FOR PLAN SEE DWS. NO. D-1061	19 DEC 67	HB
3	NOTE ADDED RE SEWER UNDER P.M.	18 SEP 68	A.C.
4	ADDED 12" SLOPE No. 91	NOV 15 68	VD
5	CHANGED LOCATION OF ARROWHEAD SO THAT DIMENSIONS ADD UP	17 JAN 74	HB
6	CLOSURE ADDED	04/17/77	RN
7	TITLE BLOCK CHANGED	03-02-77	AT
8			

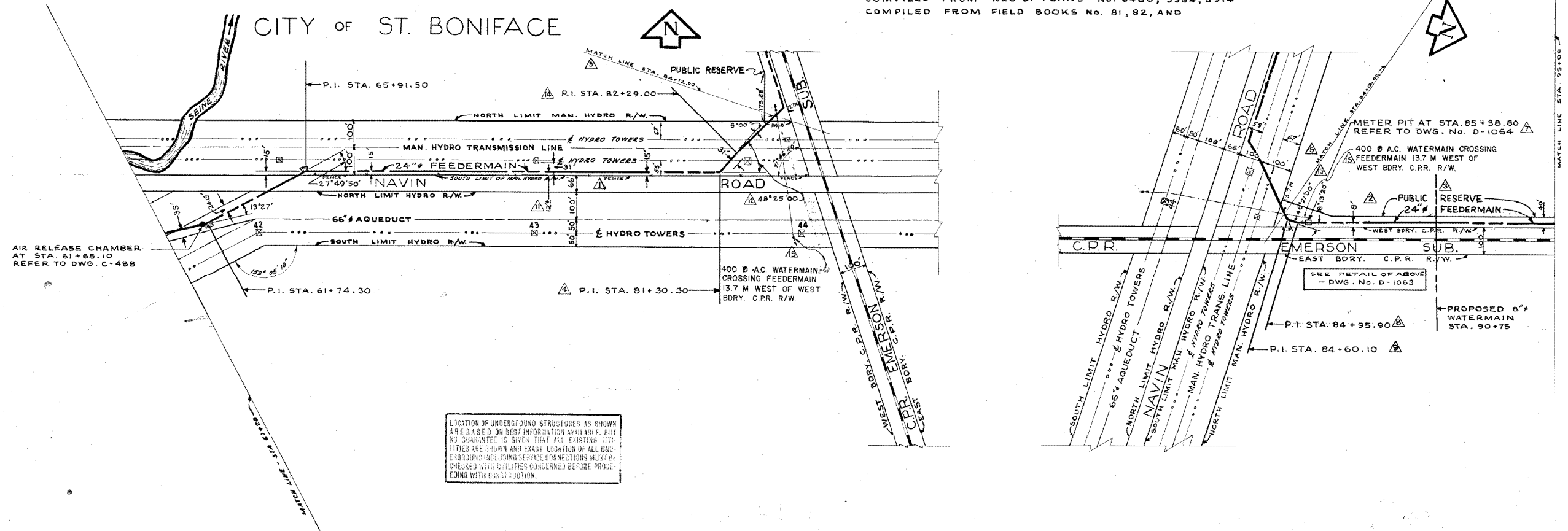
THE METROPOLITAN CORPORATION OF GREATER WINNIPEG  
**WATERWORKS & WASTE DISPOSAL DIVISION**  
WATERWORKS DEPT.

**DAKOTA EXTENSION FEEDER MAIN**  
BISHOP GRANDIN BLVD.-DAKOTA ST. TO SEINE RIVER  
STA. 0+00 TO STA. 60+20

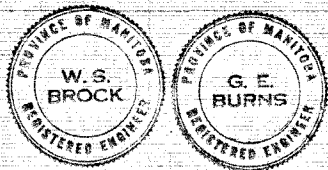
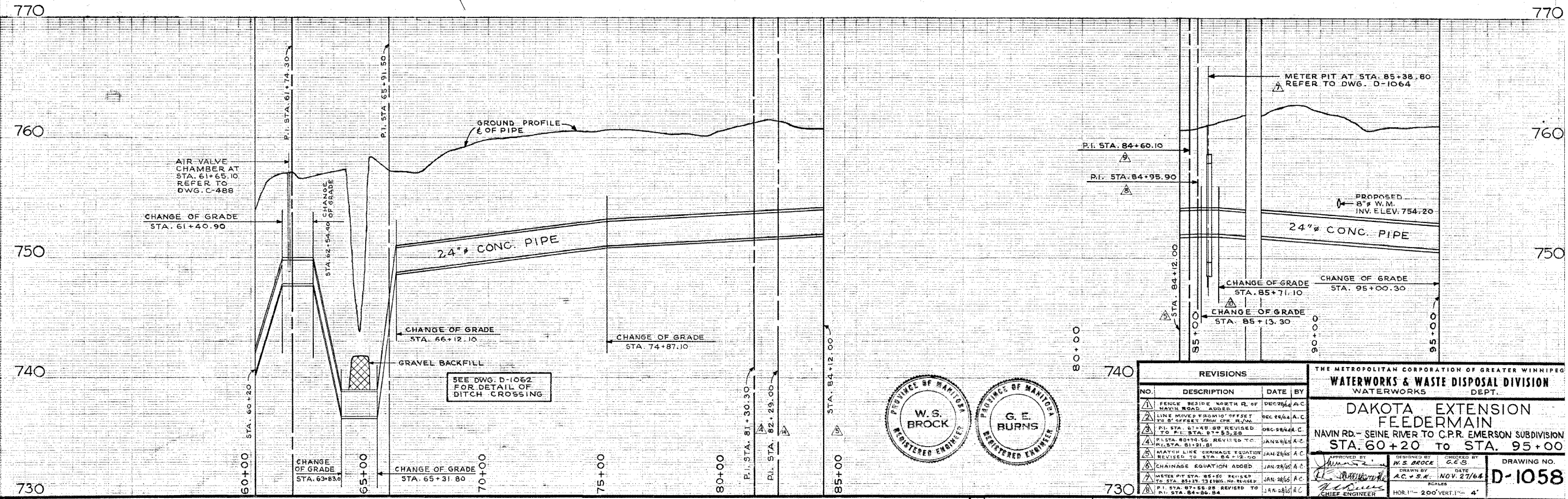
DESIGNED BY: W.S. BROCK  
CHECKED BY: G.C.B.  
DRAWN BY: A.C.V.S.E.  
DATE: NOV. 27/68  
SCALE: HOR. 1"=200' VERT. 1"=4'

DRAWING NO. **D-1051**

CITY OF ST. BONIFACE



LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON BEST INFORMATION AVAILABLE. BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN AND EXACT LOCATION OF ALL UNDERGROUND INCLUDING SERVICE CONNECTIONS MUST BE CHECKED WITH UTILITIES CONCERNED BEFORE PROCEEDING WITH CONSTRUCTION.



REVISIONS		
NO.	DESCRIPTION	DATE BY
1	FENCE BESIDE NORTH R. OF NAVIN ROAD ADDED	DEC 20/64 AC
2	LINE MOVED FROM 10' OFFSET TO 5' OFFSET FROM C.P.R. R/W	DEC 24/64 AC
3	P.I. STA. 87+48.89 REVISED TO P.I. STA. 87+53.28	DEC 28/64 AC
4	P.I. STA. 80+74.50 REVISED TO P.I. STA. 81+31.81	JAN 28/65 AC
5	MATCH LINE CHAINAGE EQUATION REVISED TO STA. 84+12.00	JAN 28/65 AC
6	CHAINAGE EQUATION ADDED	JAN 28/65 AC
7	METER PIT STA. 85+50 REVISED TO STA. 85+38.80	JAN 28/65 AC
8	P.I. STA. 87+86.25 REVISED TO P.I. STA. 84+86.84	JAN 28/65 AC
9	CHAINAGE EQUATION AT P.I. REVISED FROM STA. 84+50.00 TO STA. 84+50.00	JAN 28/65 AC
10	ANGLE AT P.I. STA. 82+29.00 REVISED FROM 45° TO 48° 25'	MAR 2/65 AC
11	ANGLE AT P.I. STA. 82+51.05 REVISED FROM 45° TO 48° 21'	MAR 2/65 AC
12	DEFLECT OF 24" FEEDERMAIN REVISED TO CLEAR TOWER	MAR 2/65 AC
13	ADDED PUBLIC RESERVE - W. SIDE C.P.R. R/W	93.02.23 KT

THE METROPOLITAN CORPORATION OF GREATER WINNIPEG  
**WATERWORKS & WASTE DISPOSAL DIVISION**  
 WATERWORKS DEPT.  
**DAKOTA EXTENSION FEEDERMAIN**  
 NAVIN RD. - SEINE RIVER TO C.P.R. EMERSON SUBDIVISION  
 STA. 60+20 TO STA. 95+00

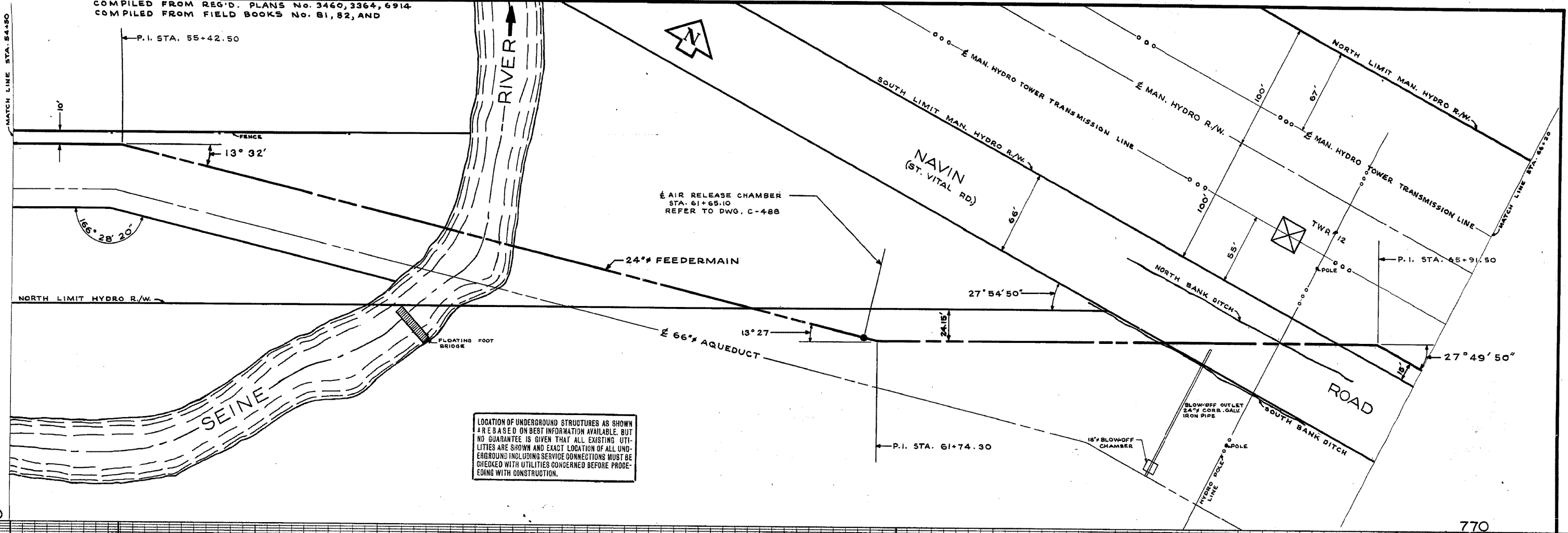
APPROVED BY: *[Signature]* DESIGNED BY: W.S. BROCK CHECKED BY: G.E.S.  
 DRAWN BY: *[Signature]* DATE: NOV. 27/64  
 SCALES: HOR. 1" = 200' VERT. 1" = 4'

DRAWING NO. **D-1058**

AS CONSTRUCTED  
 AUG. 6/65 A.C.  
 400 mm X-ing  
 (6) Jan. 36 m.p.



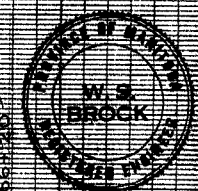
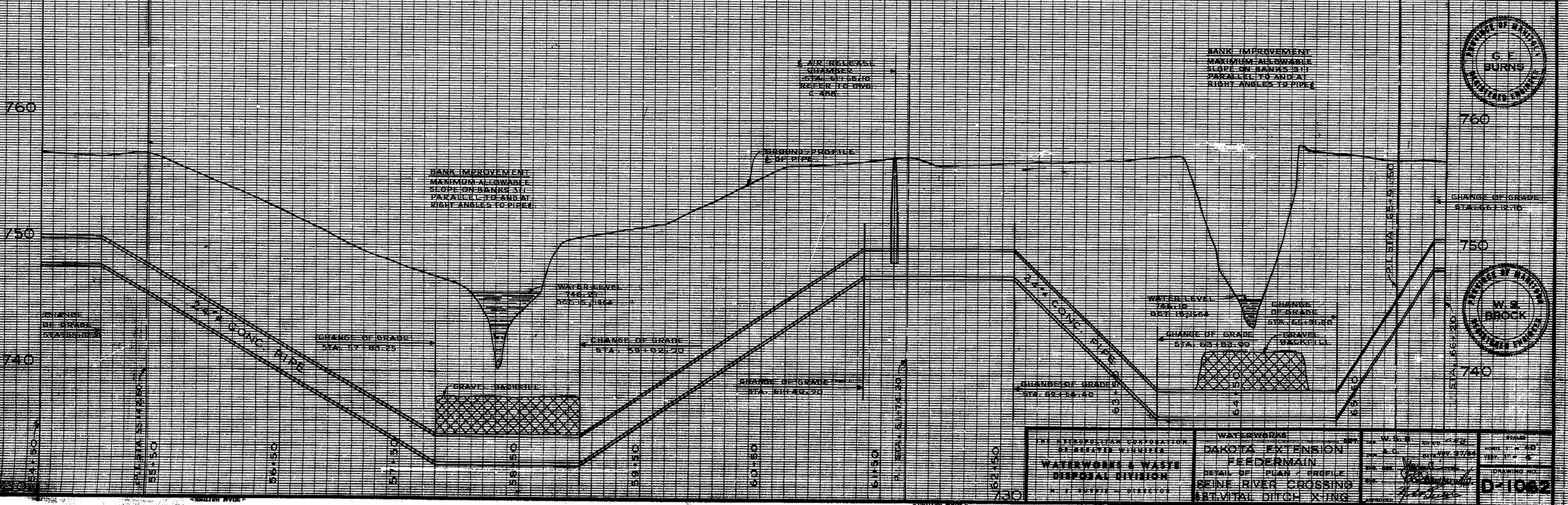
COMPILED FROM REG'D. PLANS No. 3460, 3364, 6914  
COMPILED FROM FIELD BOOKS No. 81, 82, AND



LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN AND EXACT LOCATION OF ALL UNDERGROUND INCLUDING SERVICE CONNECTIONS MUST BE CHECKED WITH UTILITIES CONCERNED BEFORE PROCEEDING WITH CONSTRUCTION.

770

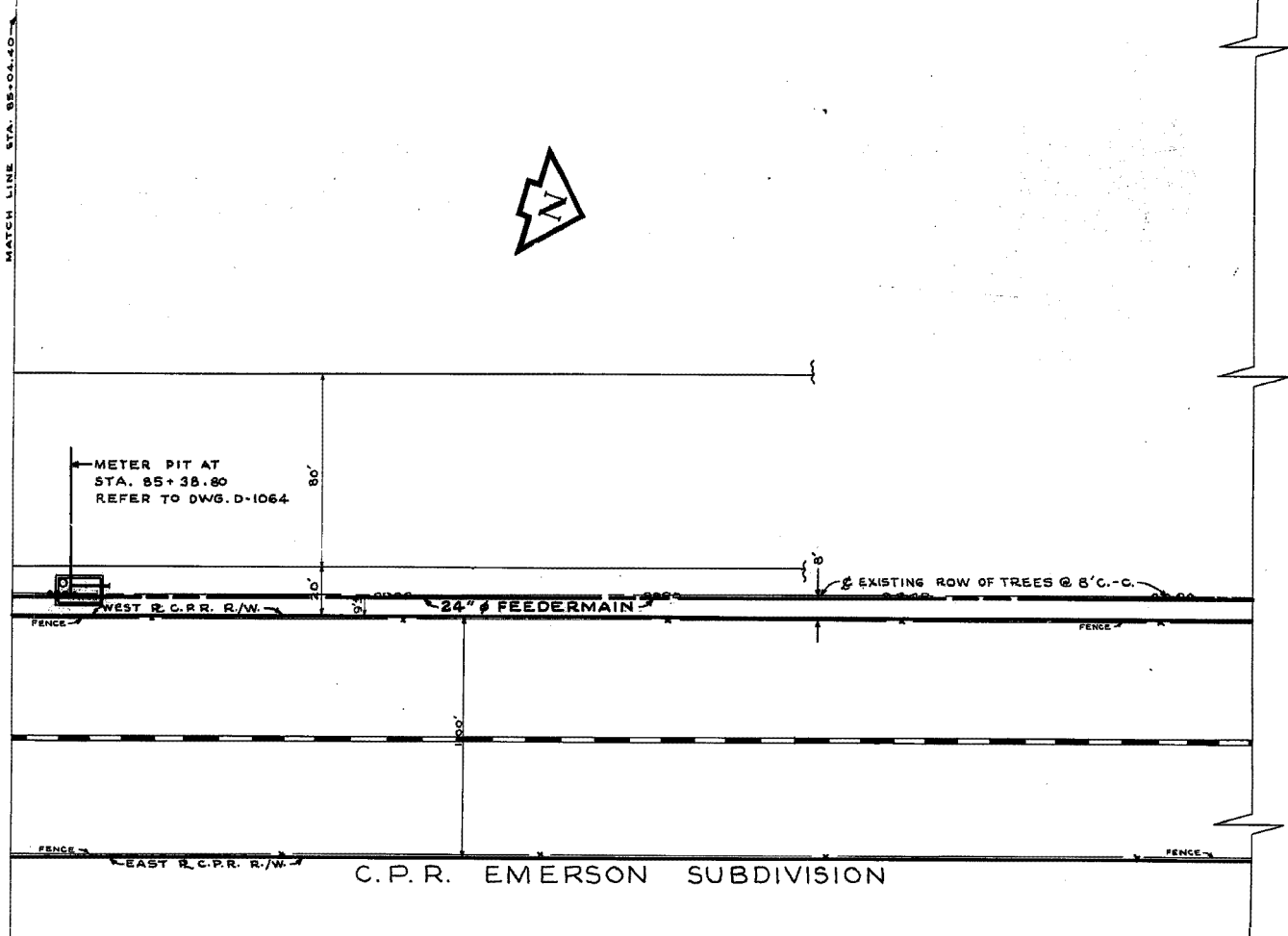
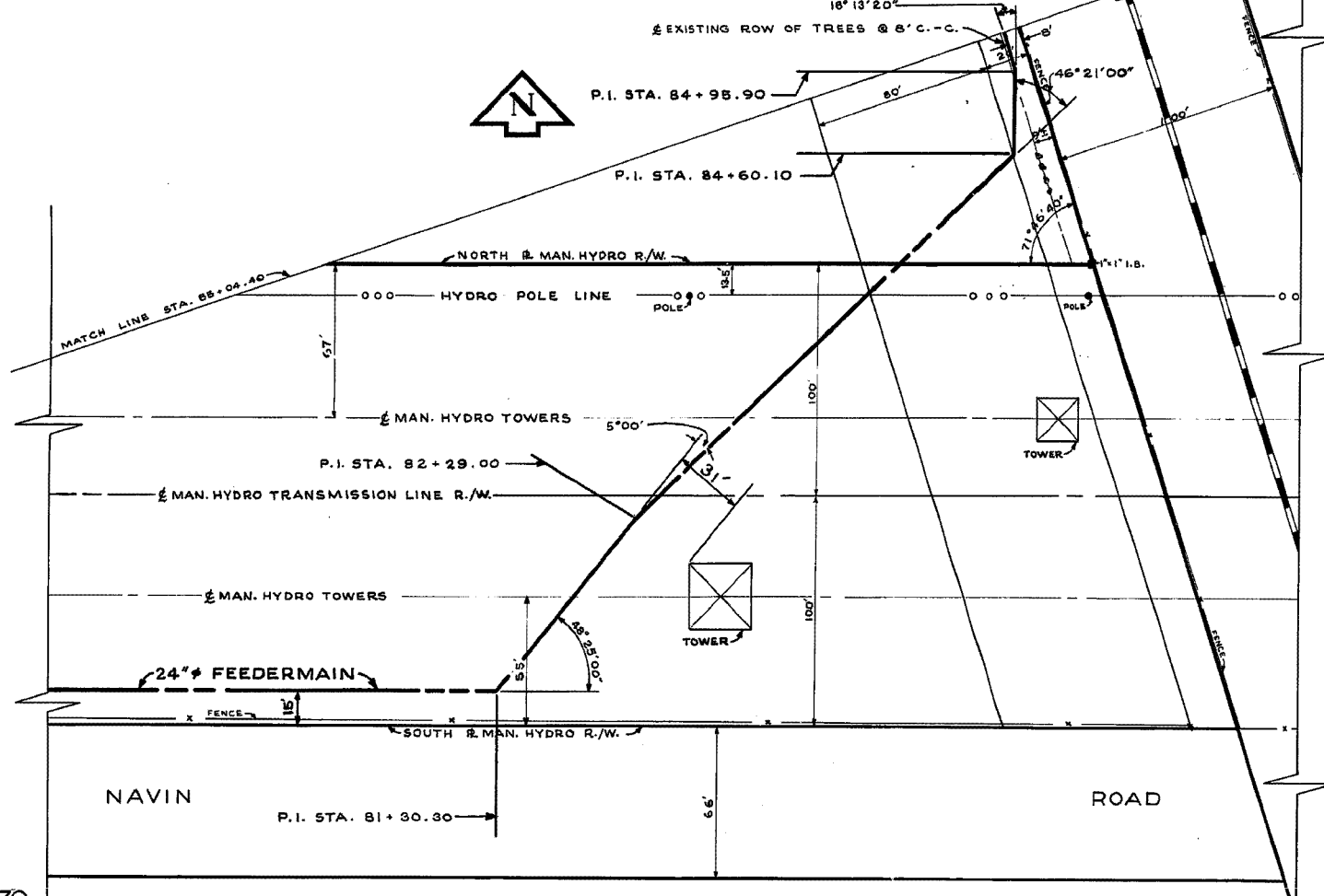
770



THE MUNICIPAL CORPORATION OF BEMIDJIE WISNICKI <b>WATERWORKS &amp; WASTE DISPOSAL DIVISION</b> N. J. TUPPEE - DIRECTOR		<b>WATERWORKS</b> DAKOTA EXTENSION <b>FEEDERMAIN</b> DETAIL OF PLAN & PROFILE SEINE RIVER CROSSING ST. VITAL DITCH CROSSING		SHEET NO. 2272 DATE 8/17/66 DRAWING NO.
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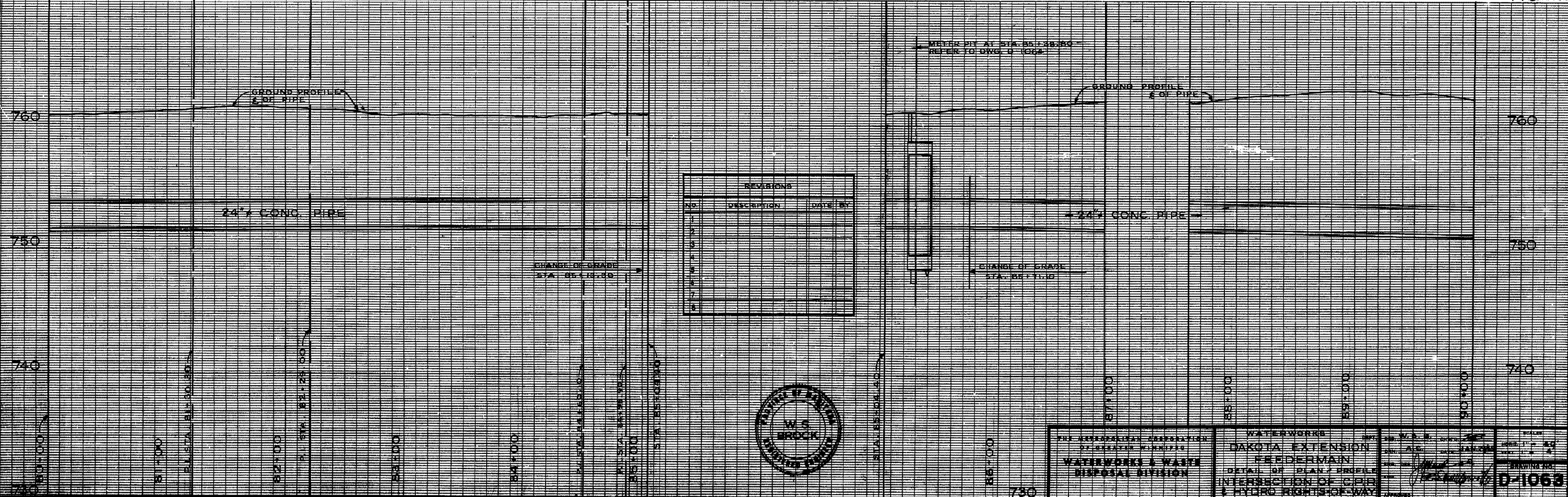
AS CONSTRUCTED AUG. 17, 66 A.C.

C.P.R. EMERSON SUBDIVISION



770

770

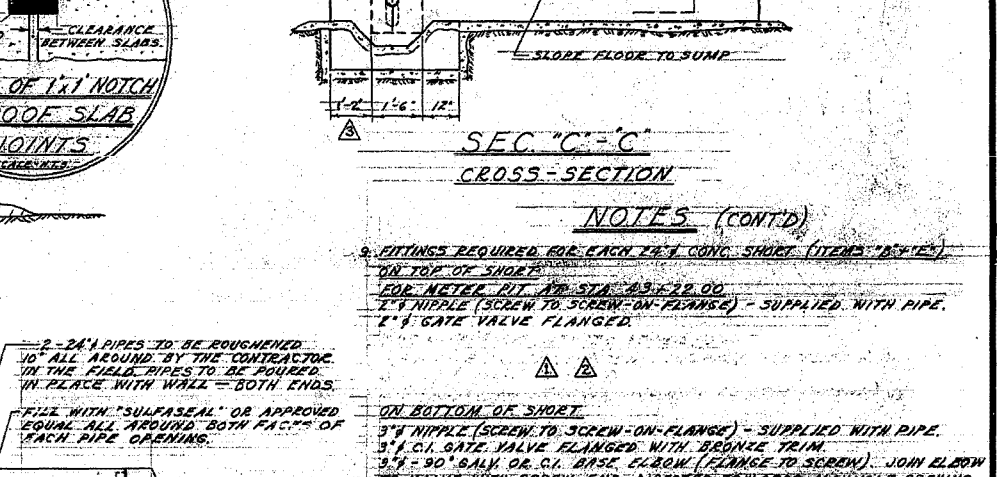
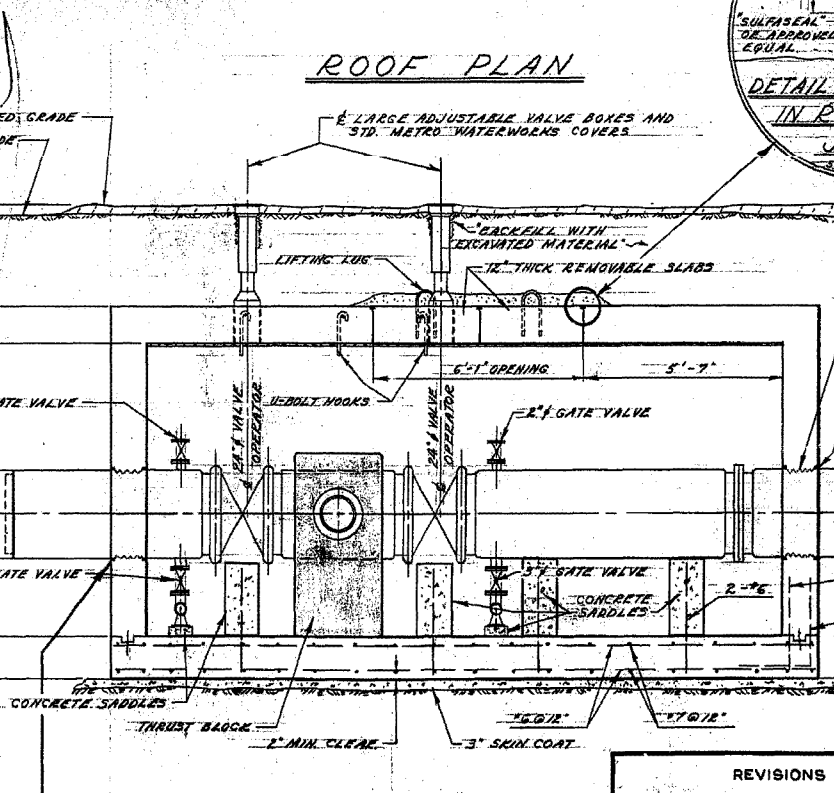
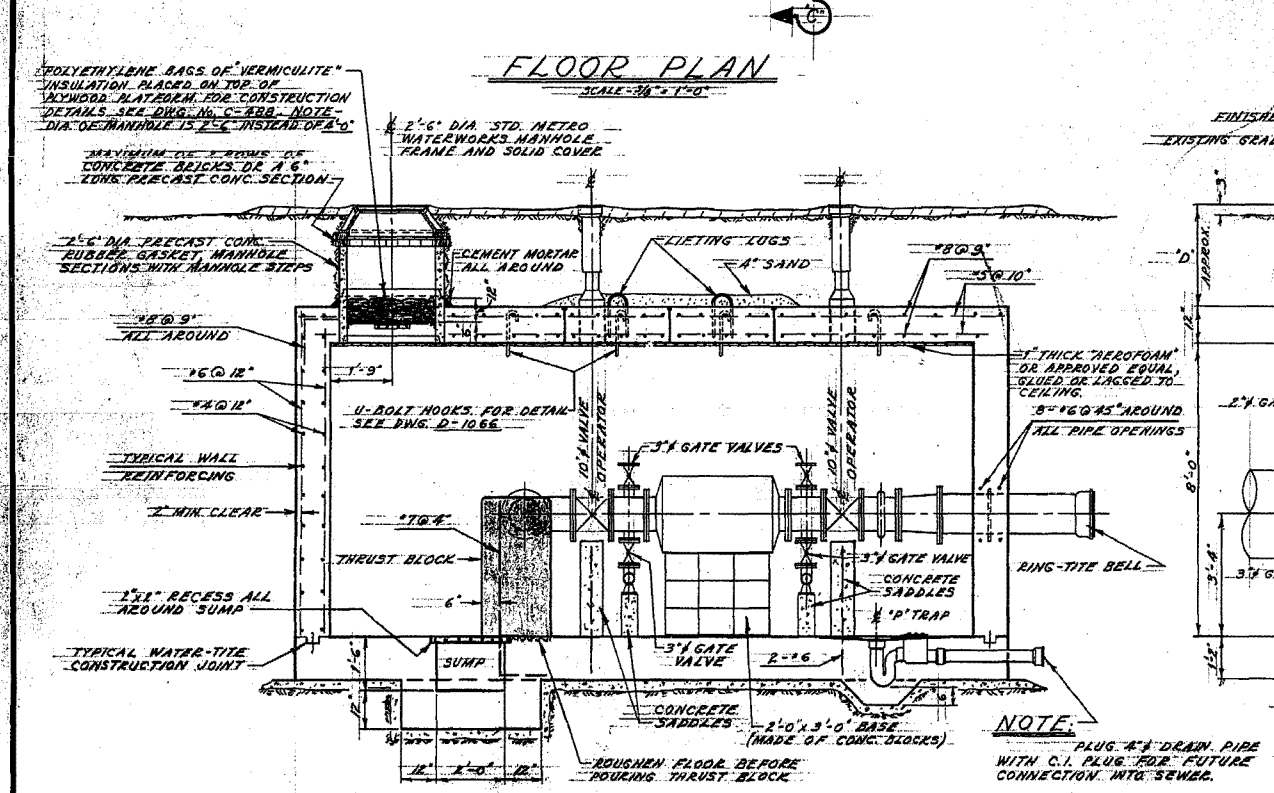
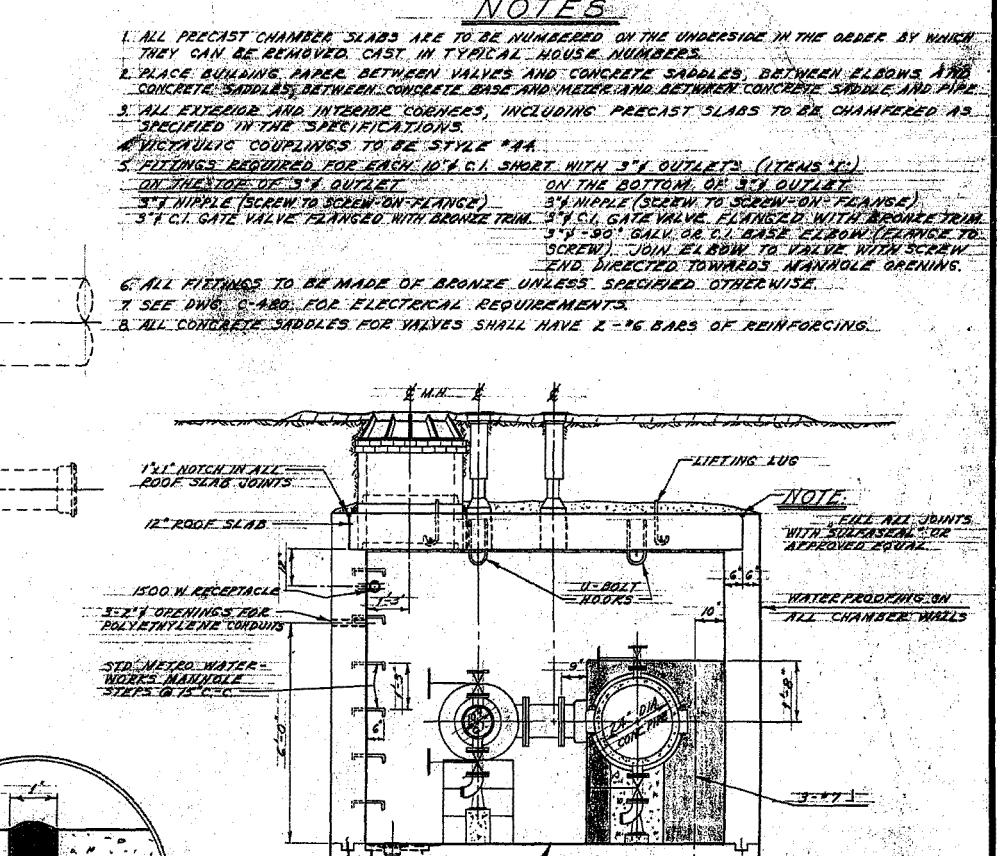
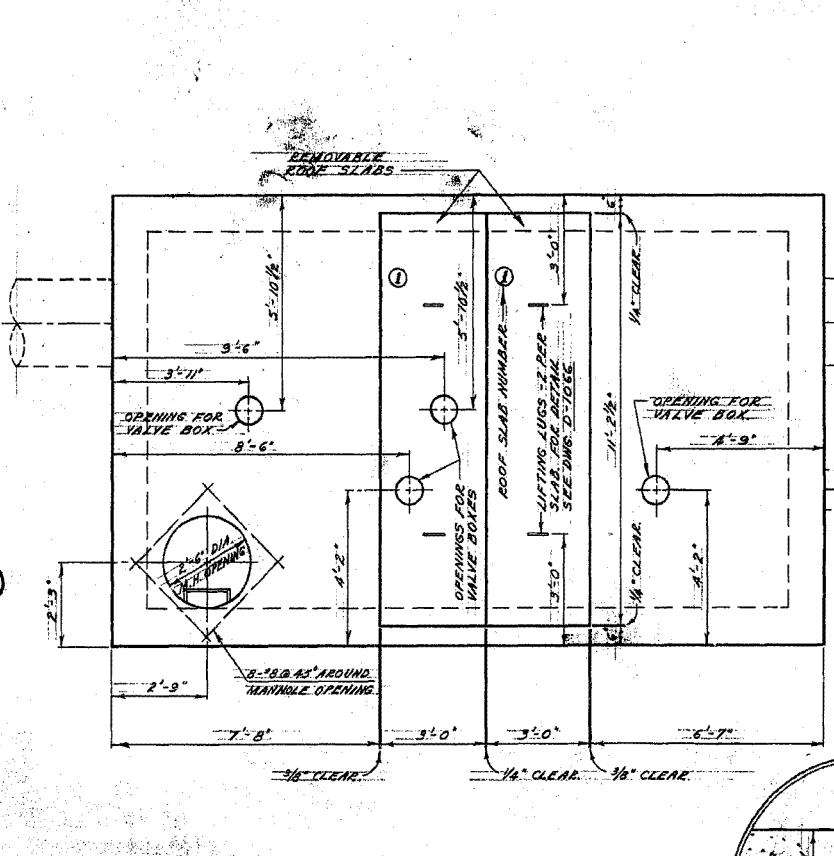
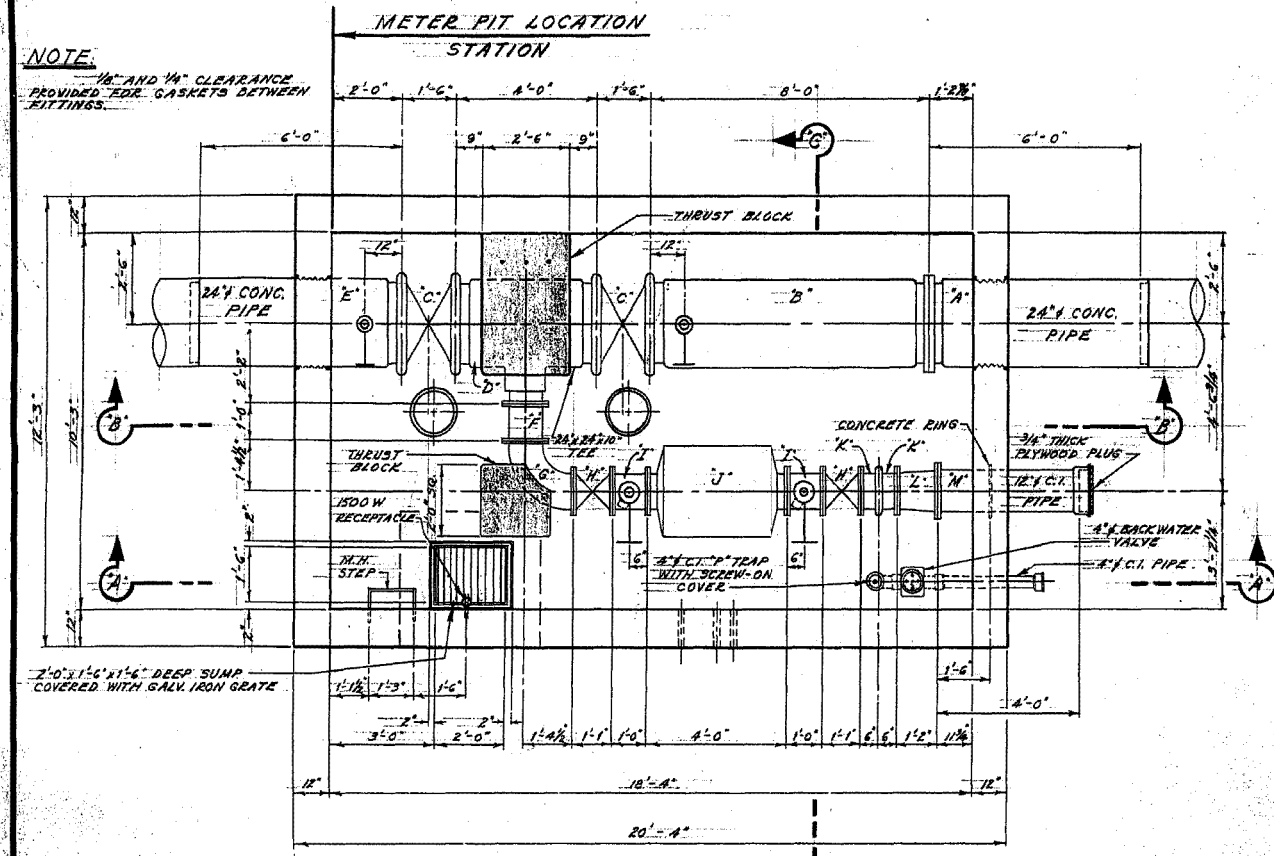


REVISIONS		
NO.	DESCRIPTION	DATE BY
1		
2		
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5		
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10		



THE MINNESOTA ASSOCIATION OF PROFESSIONAL ENGINEERS WATERWORKS & WASTE DISPOSAL DIVISION	WATERWORKS DAKOTA EXTENSION FEEDERMAIN	DATE: AUG 19 1965 DRAWING NO.: D-1063
	DETAIL OF PLAN & PROFILE INTERSECTION OF C.P.R. & HYDRO RIGHTS-OF-WAY	





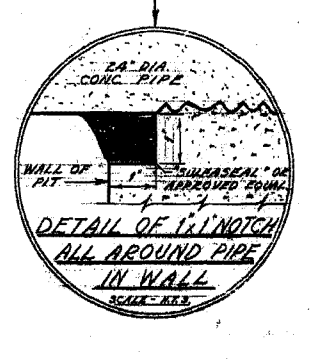
- NOTES**
- ALL PRECAST CHAMBER SLABS ARE TO BE NUMBERED ON THE UNDERSIDE IN THE ORDER BY WHICH THEY CAN BE REMOVED. CAST IN TYPICAL HOUSE NUMBERS.
  - PLACE BUILDING PAPER BETWEEN VALVES AND CONCRETE SADDLES, BETWEEN ELBOWS AND CONCRETE SADDLES, BETWEEN CONCRETE BASE AND METER AND BETWEEN CONCRETE SADDLE AND PIPE.
  - ALL EXTERIOR AND INTERIOR CORNERS, INCLUDING PRECAST SLABS TO BE CHAMFERED AS SPECIFIED IN THE SPECIFICATIONS.
  - VICTAULIC COUPLINGS TO BE STYLE #4A.
  - FITTINGS REQUIRED FOR EACH 10" C.I. SHORT WITH 3" OUTLETS (ITEMS 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z'):  
ON TOP OF SHORT:  
3" NIPPLE (SCREEN TO SCREEN ON FLANGE) - SUPPLIED WITH PIPE.  
3" x 90° GALV. OR C.I. BASE ELBOW (FLANGE TO SCREEN) - JOIN ELBOW TO VALVE WITH SCREEN END DIRECTED TOWARDS MANHOLE OPENING.  
ON THE BOTTOM OF 3" OUTLET:  
3" NIPPLE (SCREEN TO SCREEN ON FLANGE) - SUPPLIED WITH PIPE.  
3" x 90° GALV. OR C.I. BASE ELBOW (FLANGE TO SCREEN) - JOIN ELBOW TO VALVE WITH SCREEN END DIRECTED TOWARDS MANHOLE OPENING.
  - ALL FITTINGS TO BE MADE OF BRONZE UNLESS SPECIFIED OTHERWISE.
  - SEE DWG. C-888 FOR ELECTRICAL REQUIREMENTS.
  - ALL CONCRETE SADDLES FOR VALVES SHALL HAVE 2-#6 BARS OF REINFORCING.

**LIST OF MATERIALS FOR METER PIT**

NO.	ITEM	DESCRIPTION	LENGTH
1	A	24" CONC. SHORT (BELL TO FLANGE)	6'-0"
2	B	24" CONC. SHORT (FLANGE TO VICTAULIC)	8'-0"
3	C	2-24" VICTAULIC BUTTERFLY VALVES	1'-6"
4	D	24" x 24" x 10" CONC. TEE (VIC. TO VIC. TO FLANGE BR.)	4'-0"
5	E	24" CONC. SHORT (VICTAULIC TO SPIGOT END)	6'-0"
6	F	10" C.I. FILLER PIECE FLANGED	1'-0"
7	G	10" x 90° C.I. ELBOW (LONG RADIUS) FLANGED	1'-6"
8	H	2-10" GATE VALVES FLANGED	1'-1"
9	I	2-10" FILLER PIECES FLANGED WITH 3" OUTLETS	1'-0"
10	J	10" MAGNETIC FLOW METER FLANGED	4'-0"
11	K	2-10" C.I. FILLER PIECES (FLANGE TO VICTAULIC)	0'-6"
12	L	10" x 12" C.I. INCREASER FLANGED	1'-2"
13	M	12" C.I. SHORT (FLANGE TO RING-TITE BELL)	4'-0"

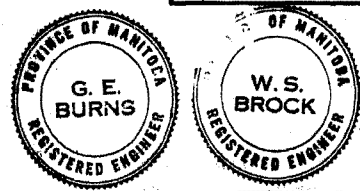
**TABLE OF ELEVATIONS FOR METER PITS**

LOCATION	TOP OF FLOOR SLAB	4' OF PIPE	TOP OF ROOF SLAB	EXISTING GRADE	FINISHED GRADE	'D'
STA. 43+22.00	EL. 147.27	EL. 150.60	EL. 156.27	EL. 158.77	EL. 159.02	2'-9"



**REVISIONS**

NO.	DESCRIPTION	DATE	BY
1	METER PIT AT STA. 43+22.00 REVISED TO STA. 43+22.75	JAN. 29/65	A.C.
2	METER PIT AT STA. 43+22.75	FEB. 1/65	A.C.
3	DIMENSION REVISED FROM 12" TO 1'-2"	FEB. 1/65	A.C.
4			
5			
6			



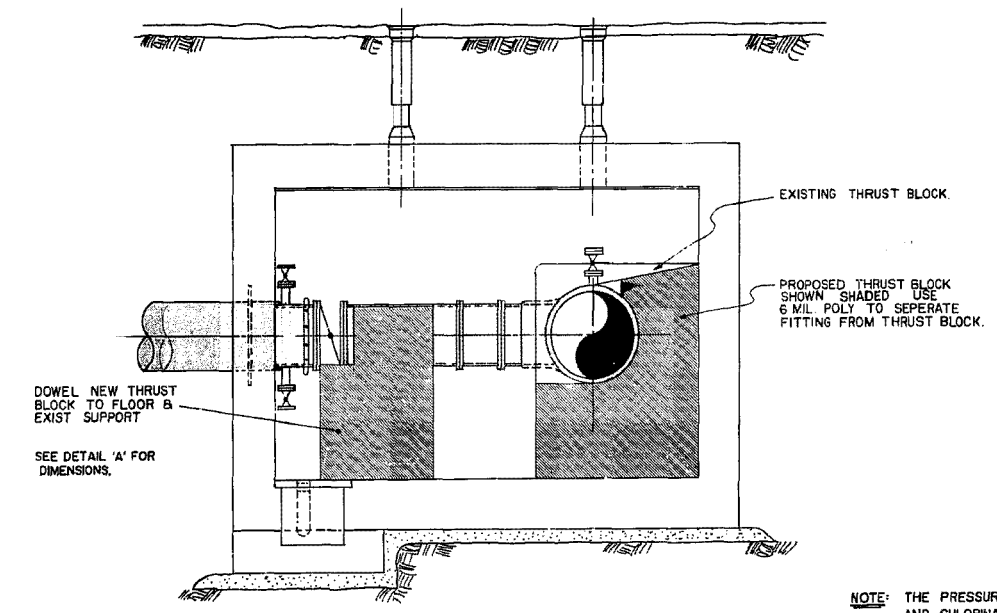
THE METROPOLITAN CORPORATION OF GREATER WINNIPEG  
**WATERWORKS & WASTE DISPOSAL DIVISION**  
N. S. BUBBIS - DIRECTOR

**WATERWORKS** DEPT.  
DAKOTA EXTENSION FEEDERMAIN  
**METER PIT**  
AT  
STA. 43+22

DES. H. J. BROCK CH'ED. 2/25/65  
DWN. S.E. DATE 20 MARCH 1965  
ENG. DES. [Signature]  
ENG. INCHARGE [Signature]  
APPROVED [Signature]

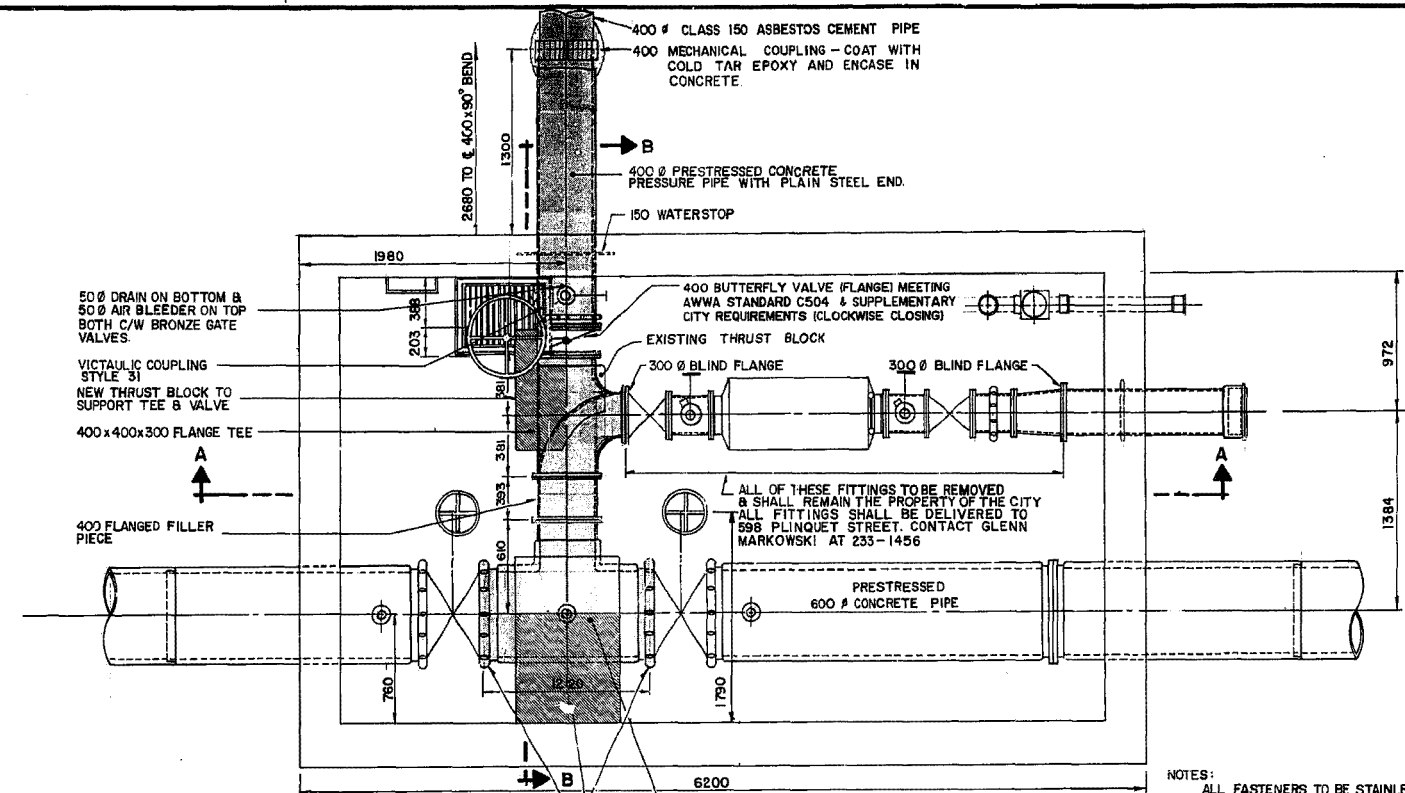
SCALE: 3/8" = 1'-0" AND AS NOTED.  
DRAWING NO. **D-1065**

REF. OF DRAWING No. D-1758 FILE # FE 10370 DETAILS



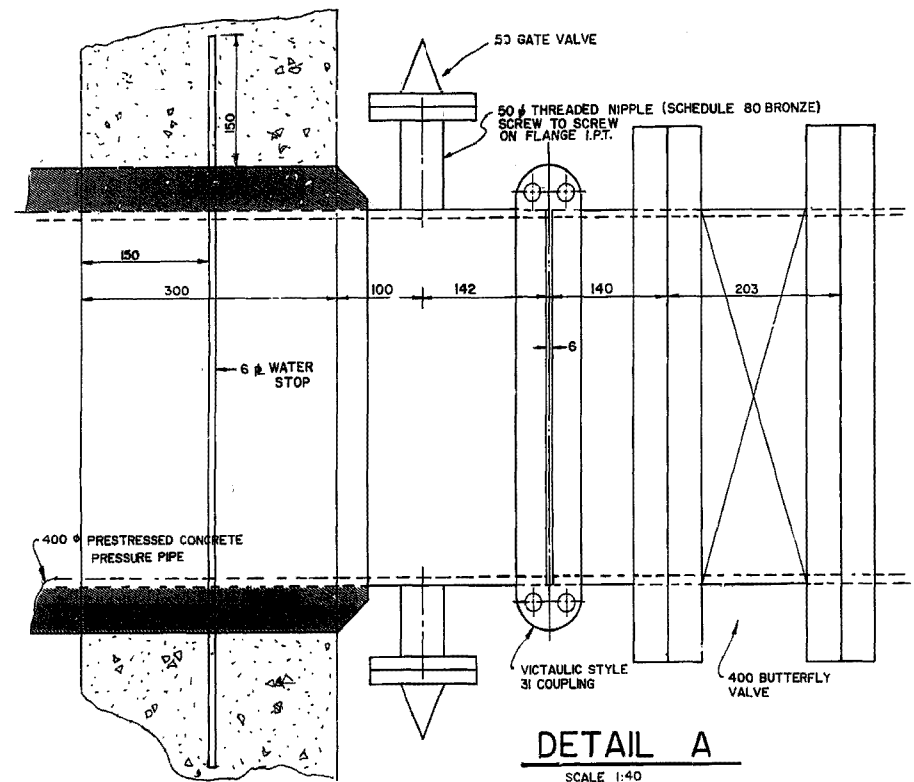
**SECTION B-B**

NOTE: THE PRESSURE TESTING AND CHLORINATION OF THE NEW 400 # WATERMAIN SHALL INCLUDE THE PIPING AND FITTINGS WITHIN THE CHAMBER.

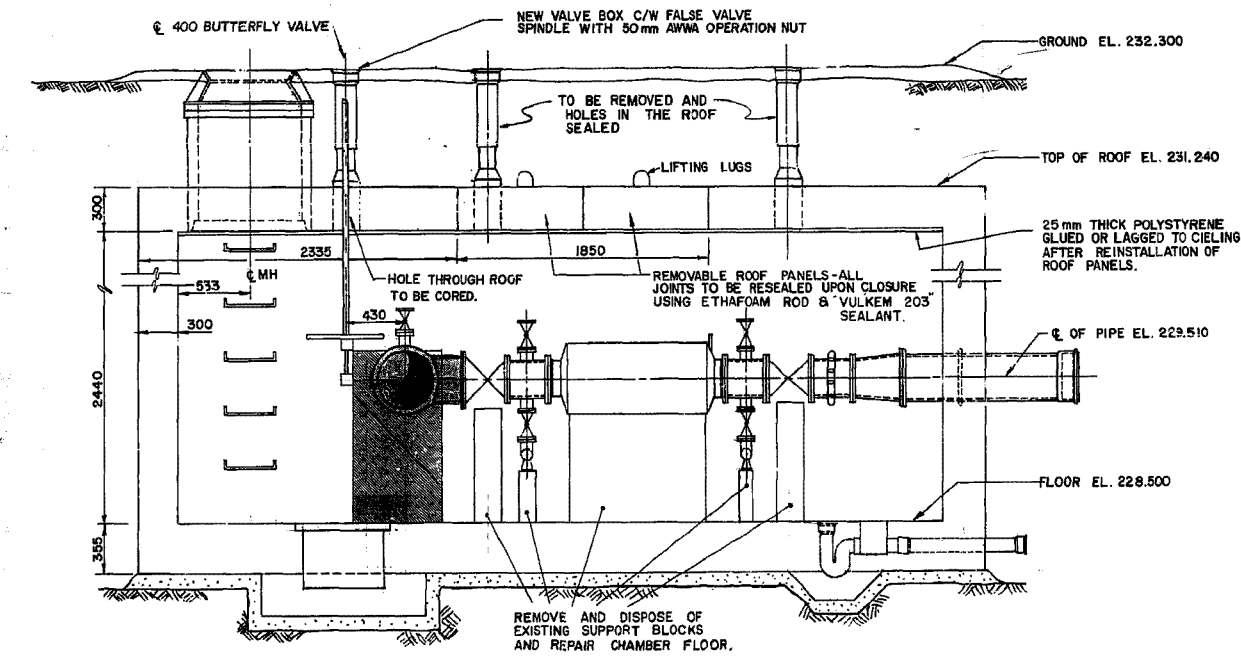


**PLAN**

NOTES:  
ALL FASTENERS TO BE STAINLESS STEEL TYPE 316 C/W RAISED OR INDENTED 3/16 NUMERALS.  
ALL FLANGED CONNECTIONS TO HAVE FULL FACED CLOTH INSERTED RED RUBBER GASKETS.



**DETAIL A**  
SCALE 1:40



**SECTION A-A**  
**VALVE CHAMBER DETAIL**  
SCALE 1:25

Bench Mark 55 - 011 232.282 m  
1bit. in 7.6 m Conc. pile, 60 m N. of Route 165 and 15 m E. of C.P.R. tracks.

**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETERS  
DECIMALIZED NUMBERS INDICATE METERS

150 mm W.M.	WATERMAIN	150 mm W.M.	HYDRO	150 mm W.M.	WATERMAIN
Hydrant Valve	HYDRANT VALVE	Concrete	M.T.S. CONCRETE	Hydrant Valve	HYDRANT VALVE
300 mm L.D.S.	LAND DRAINAGE SEWER	Asphalt	ASPHALT	300 mm L.D.S.	LAND DRAINAGE SEWER
250 mm W.W.S.	WASTE WATER SEWER	Property Line	PROPERTY LINE	250 mm W.W.S.	WASTE WATER SEWER
Manhole	MANHOLE	Survey Bar	SURVEY BAR	Profile	PROFILE
Catch Basin	CATCH BASIN				
Curb Inlet	CURB INLET				
Junctions	JUNCTIONS				
Culvert	CULVERT				
Gas	GAS				
EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED

**LOCATION APPROVED UNDERGROUND STRUCTURES**

DATE COMMITTEE

NOTE:  
LOCATION 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 COORDINATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. ELEV.				
NO.	REVISIONS	DATE	BY	

**E. H. HANSON & ASSOCIATES LTD.**  
ENGINEERING SERVICES

**CLARK SOLMUNDSON & ASSOCIATES INC.**  
Consulting Engineers

DESIGNED BY: I MCK  
CHECKED BY: I MCK

DRAWN BY: JV / GK  
APPROVED BY:

HOR SCALE AS SHOWN  
VERTICAL

RELEASED FOR CONSTRUCTION  
DATE

DATE: AUG 1985

CONSULTANT DRAWING NO. 016-301 45

**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION

DAKOTA EXTENSION FEEDERMAIN

VALVE CHAMBER - STA. 85+29.73

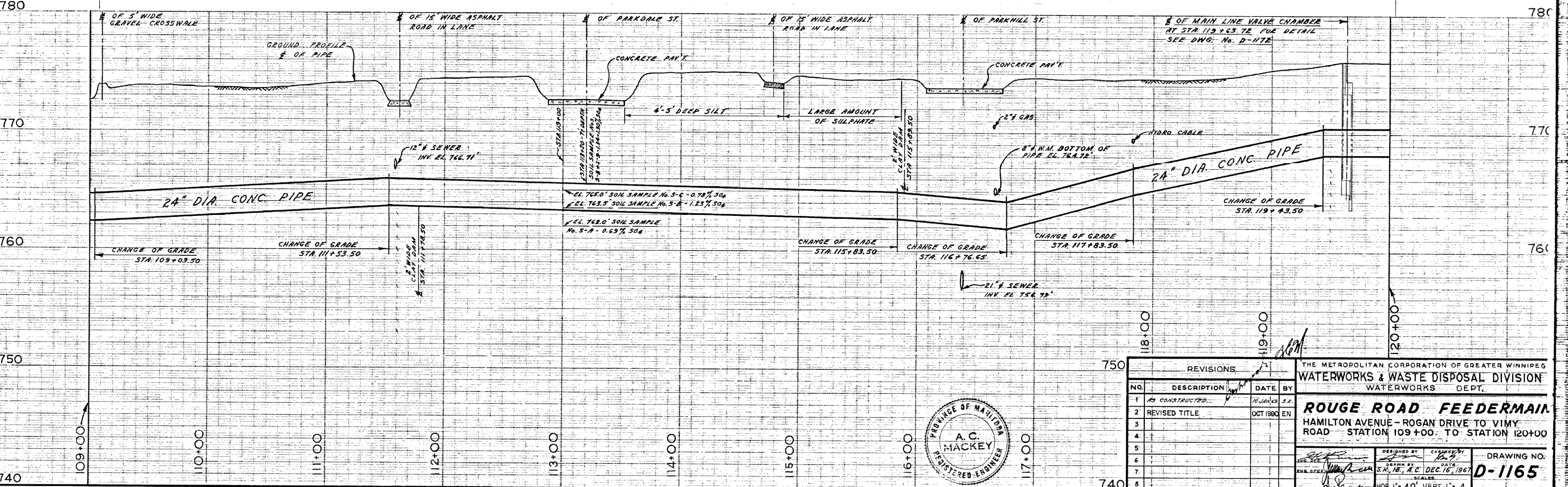
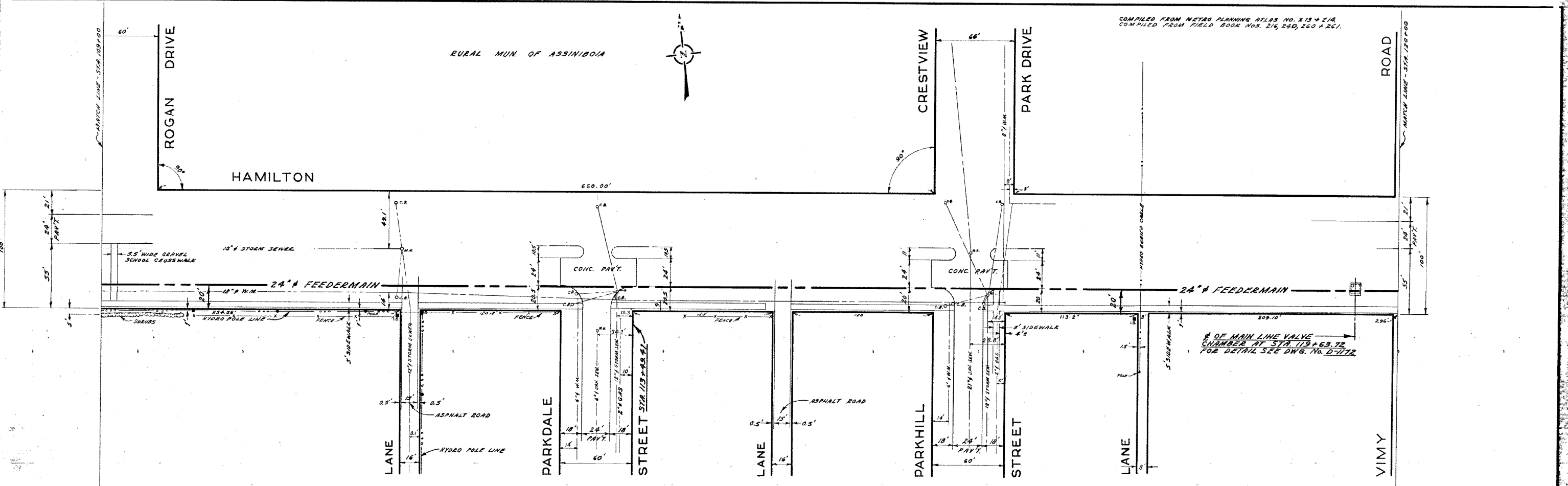
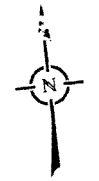
PUBLIC RESERVE - N. OF BISHOP GRANDIN BLVD., W. OF C.P.R. EMERSON SUBDIVISION

CITY DRAWING NUMBER  
SHEET OF  
D-1758

REGISTERED ENGINEER  
I. G. MCKINNON

COMPILED FROM METRO PLANNING ATLAS No. 213 + 21A  
COMPILED FROM FIELD BOOK Nos. 216, 240, 260 + 261.

RURAL MUN. OF ASSINIBOIA



REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	AS CONSTRUCTED	10/20/69	S.E.
2	REVISED TITLE	OCT 1960	EN
3			
4			
5			
6			
7			
8			

THE METROPOLITAN CORPORATION OF GREATER WINNIPEG  
WATERWORKS & WASTE DISPOSAL DIVISION  
WATERWORKS DEPT.

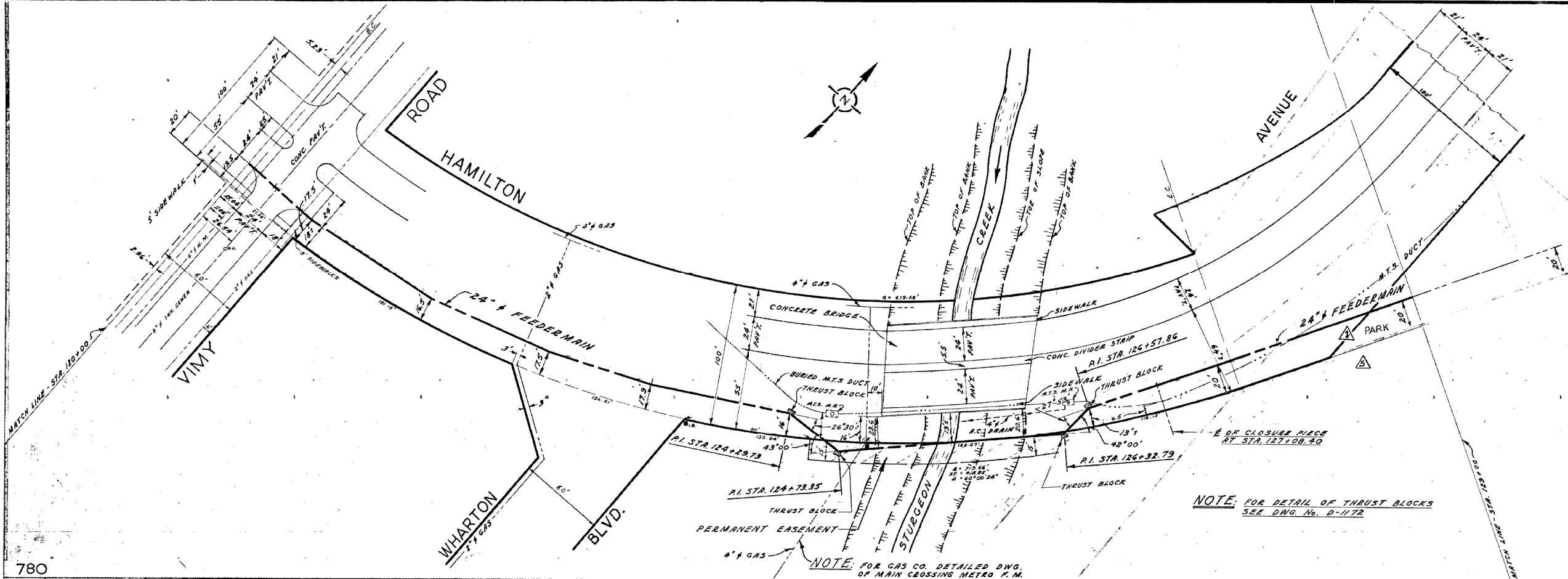
**ROUGE ROAD FEEDERMAIN**  
HAMILTON AVENUE - ROGAN DRIVE TO VIMY ROAD  
STATION 109+00 TO STATION 120+00

DESIGNED BY: [Signature] CHECKED BY: [Signature]  
DRAWN BY: [Signature] DATE: DEC. 16, 1967  
SCALE: [Blank] DRAWING NO.: **D-1165**

HOR. 1" = 40' VERT. 1" = 4'

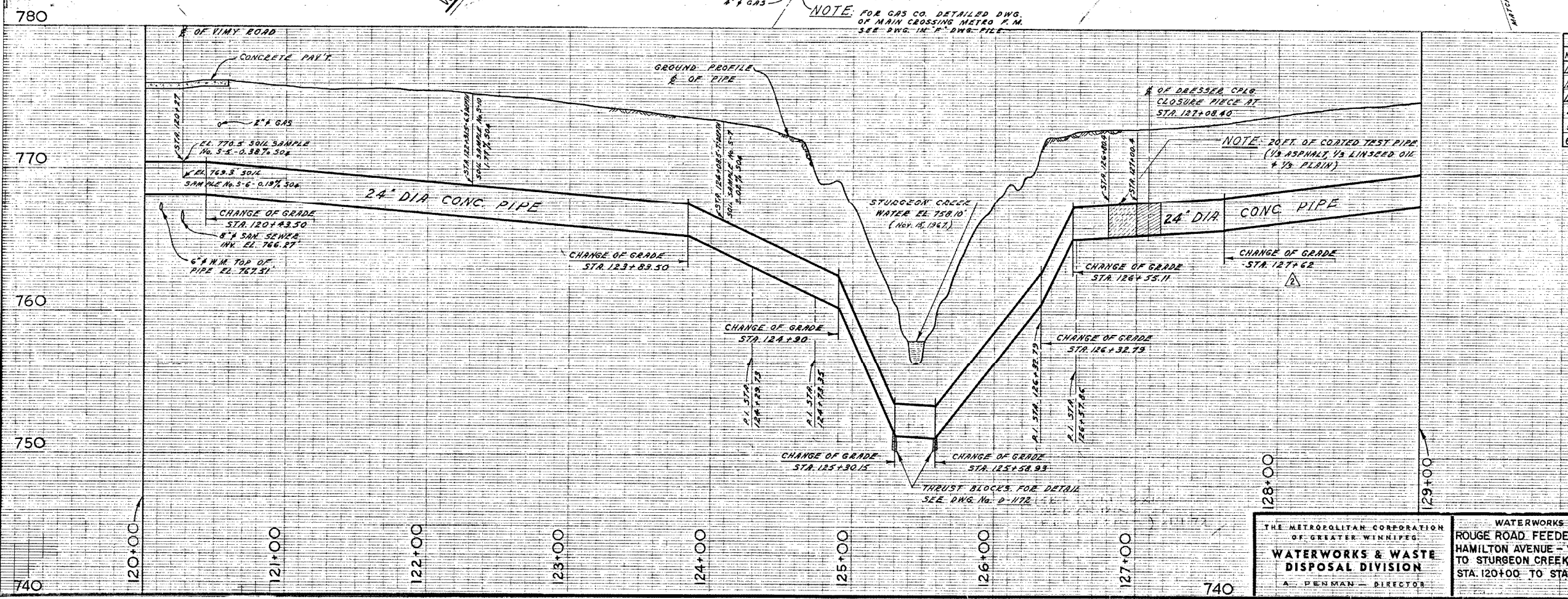
City of Winnipeg  
W002300

D-1165



NOTE: FOR DETAIL OF THRUST BLOCKS  
SEE DWG. No. D-1172

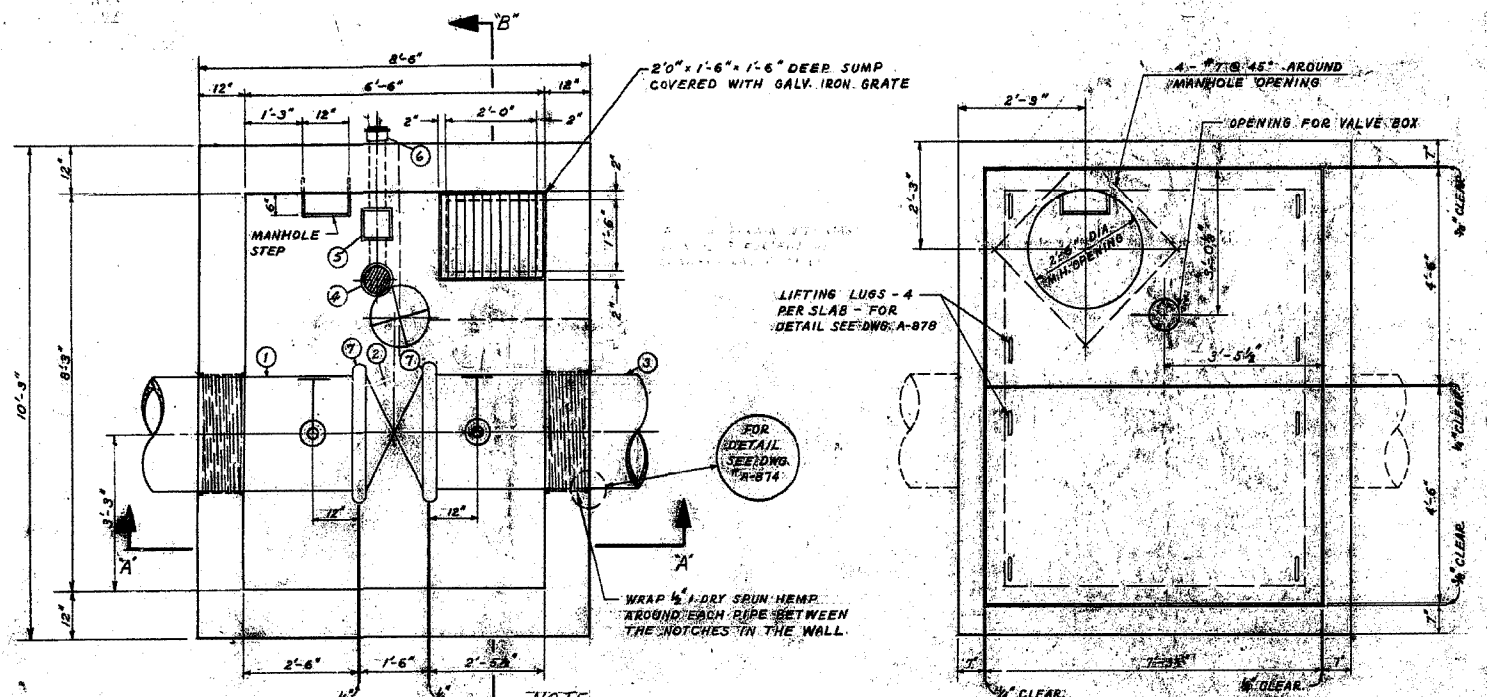
NOTE: FOR GAS CO. DETAILED DWG.  
OF MAIN CROSSING METRO P.M.  
SEE DWG. IN "A" DWG. FILE



REVISIONS		
No.	DESCRIPTION	BY DATE
1	ALIGNMENT OF 24" FM CHANGED	A.C. APRIL 30/68
2	PIPE PROFILE REVISED	A.C. APRIL 30/68
3	MATCH LINE & TITLE BLOCK REVISED	A.C. APRIL 30/68
4	AS CONSTRUCTED (W.M.A.N.)	S.K. 15 MAY 69
5	TITLE & PROPERTY LINE REVISED	M.D. JAN 91
6		



THE METROPOLITAN CORPORATION OF GREATER WINNIPEG <b>WATERWORKS &amp; WASTE DISPOSAL DIVISION</b> A. PENMAN - DIRECTOR	DEPT. <b>WATERWORKS</b> CHIEF <b>SK, A.C.</b> DATE <b>DEC 18/67</b>	SCALE HORIZ: 1" = 40' VERT: 1" = 4' DRAWING NO. <b>D-1166</b>
	PROJECT <b>ROUGE ROAD FEEDERMAIN HAMILTON AVENUE - VIMY ROAD TO STURGEON CREEK</b> STA. 120+00 TO STA. 129+00	APPROVED <i>[Signature]</i>
	APPROVED <i>[Signature]</i>	



FLOOR PLAN

ROOF PLAN

**NOTE:**  
 VALVE CHAMBER AT STA. 61+68.52 HAS 4" PIT DRAIN CONNECTED TO STREET ON PORTLAND CEMENT M.H. SECTION INSTALLED 1'-4" x 1'-0" AND 1'-1'-0" WITH 2 ROWS OF BRICKS TO M.H. FRAME 1'-0" DEPTH FROM TOP OF ROOF SLAB TO M.H. COVER.  
 VALVE CHAMBER AT STA. 112+63.72 HAS 4" PIT DRAIN WITH PLUG. THEREFORE NOT CONNECTED TO STREET AND CONTAINS 2' DRAIN M.H. SECTION INSTALLED 1'-1'-6" WITH NO BRICKS TO M.H. FRAME. 1'-0" DEPTH FROM TOP OF SLAB TO M.H. COVER.

24" DIA. MAIN LINE VALVE CHAMBER	
STATION	ELEV. $\frac{1}{2}$ OF PIPE
STATION 61+68.52	ELEV. 764.89'
STATION 112+63.72	ELEV. 759.16'

LIST OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	24" CONC. PIPE 6' LONG	1
2	24" BUTTERFLY VALVE (WORM VALVE)	1
3	14' LONG PIPE VICTAULIC TO BALL	1
4	4" PIT DRAIN WITH SCREW-ON COVER	1
5	4" BACKWATER VALVE	1
6	4" C.I. PIPE	1
7	24" STYLE #44 VICTAULIC COUPLING	2
8	2" BRONZE GATE VALVE - SCREWED ENDS	2
9	2" BRONZE NIPPLE - SCREWED ENDS	2
10	3" BRONZE NIPPLE - SCREWED ENDS	2
11	3" BRONZE GATE VALVE - SCREWED ENDS	2
12	3/4-90° WELDED BLOW - SCREWED ENDS	2

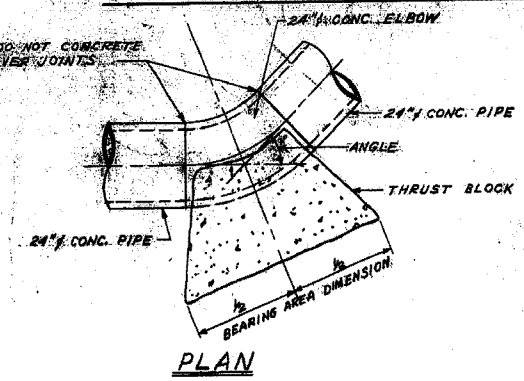
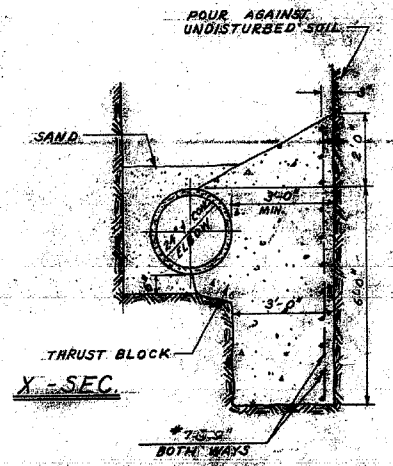
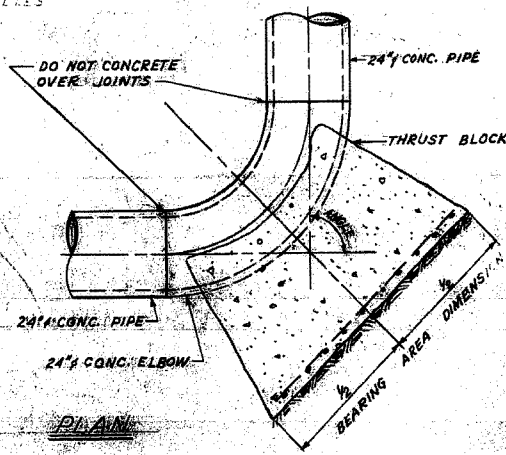
LIST OF THRUST BLOCKS			
No.	LOCATION	ANGLE	BEARING AREA
1	P.I. STA. 33+03.60	5°00'00"	3'-0" x 2'-6"
2	P.I. STA. 34+28.86	5°00'00"	3'-0" x 2'-6"
3	P.I. STA. 61+28.51	75°07'00"	8'-0" x 7'-0"
4	P.I. STA. 64+28.08	35°00'00"	5'-0" x 4'-9"
5	P.I. STA. 68+38.54	45°00'00"	6'-0" x 5'-6"
6	P.I. STA. 88+00.59	74°58'50"	8'-0" x 7'-0"
7	P.I. STA. 103+15.38	7°30'00"	3'-0" x 2'-6"
8	P.I. STA. 105+36.16	7°30'00"	3'-0" x 2'-6"
9	P.I. STA. 124+28.73	26°30'00"	3'-0" x 4'-3"
10	P.I. STA. 124+28.73	26°30'00"	3'-0" x 4'-3"
11	P.I. STA. 125+30.15 (CHAMBER OF GRADE)	15°00'00"	3'-0" x 4'-3"
12	P.I. STA. 125+30.15 (CHAMBER OF GRADE)	15°00'00"	3'-0" x 4'-3"
13	P.I. STA. 125+30.15 (CHAMBER OF GRADE)	15°00'00"	3'-0" x 4'-3"
14	P.I. STA. 125+30.15 (CHAMBER OF GRADE)	15°00'00"	3'-0" x 4'-3"
15	P.I. STA. 125+30.15 (CHAMBER OF GRADE)	15°00'00"	3'-0" x 4'-3"
16	P.I. STA. 125+30.15 (CHAMBER OF GRADE)	15°00'00"	3'-0" x 4'-3"
17	P.I. STA. 125+30.15 (CHAMBER OF GRADE)	15°00'00"	3'-0" x 4'-3"
18	P.I. STA. 125+30.15 (CHAMBER OF GRADE)	15°00'00"	3'-0" x 4'-3"
19	P.I. STA. 125+30.15 (CHAMBER OF GRADE)	15°00'00"	3'-0" x 4'-3"

**NOTE:**  
 BUILDING PAPER PLACED BETWEEN CONCRETE PIPE AND THRUST BLOCK FOR T.B. NO. 13 AND NO. 14.

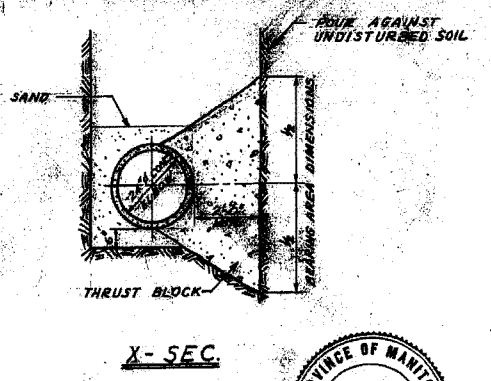
**NOTE:**  
 BUILDING PAPER PLACED BETWEEN VALVES AND CONCRETE SADDLES.

**NOTE:**  
 PLACE BUILDING PAPER BETWEEN ALL UNDESIRED WALLS AND CONCRETE WALLS.

TYPICAL THRUST BLOCK DETAIL FOR 24" 70° TO 90° CONC. ELBOWS  
 SCALE: 3/8"=1'-0"

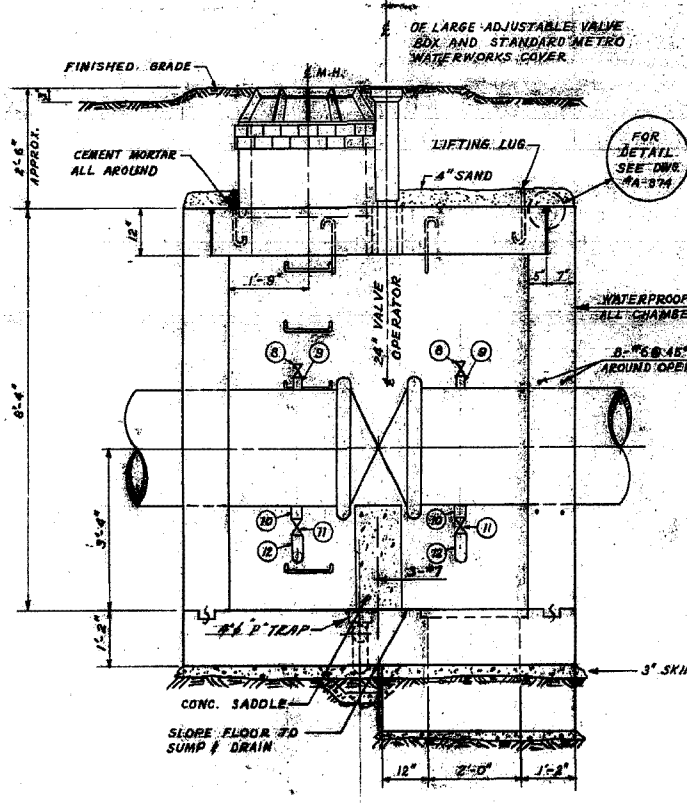


PLAN

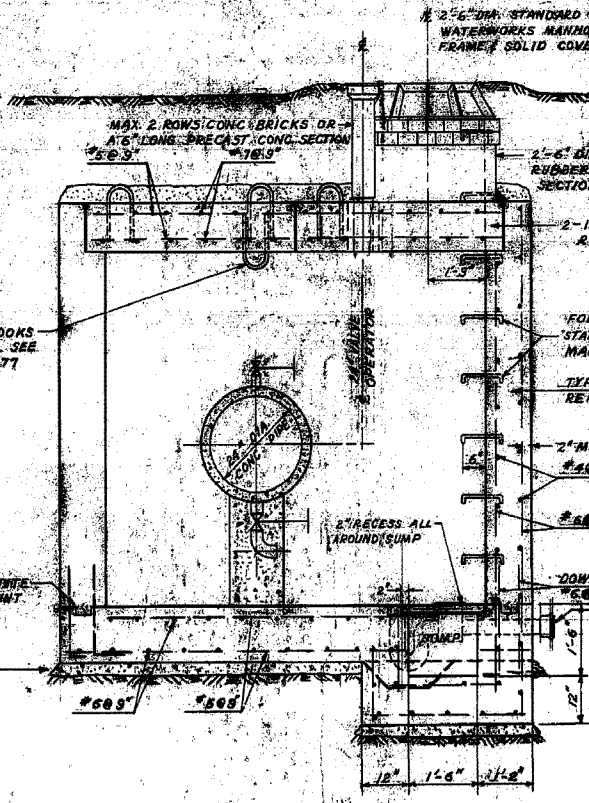


X-SEC.

TYPICAL THRUST BLOCK DETAILS FOR 24" 45° OR LESS - CONC. ELBOWS  
 SCALE: 3/8"=1'-0"



SEC. A-A



SEC. B-B

TYPICAL 24" DIA. MAIN LINE VALVE CHAMBER  
 SCALE: 1/8"=1'-0"

REVISIONS		
No.	DESCRIPTION	BY DATE
1	THRUST BLOCKS No. 13 & 14 DELETED	A.C. APRIL 1968
2	THRUST BLOCK No. 15 RELOCATED	A.C. APRIL 1968
3	AS CONSTRUCTED.	S.E. 15 MAY 68
4		
5		

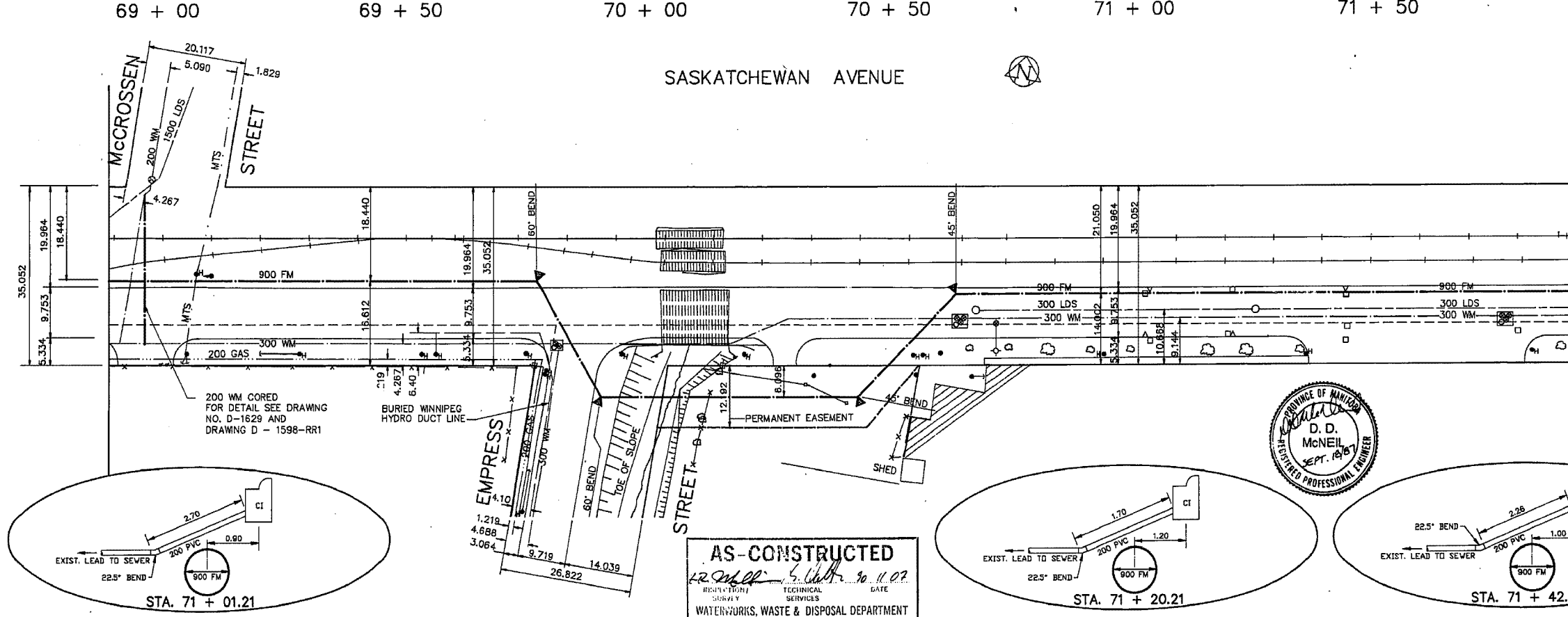
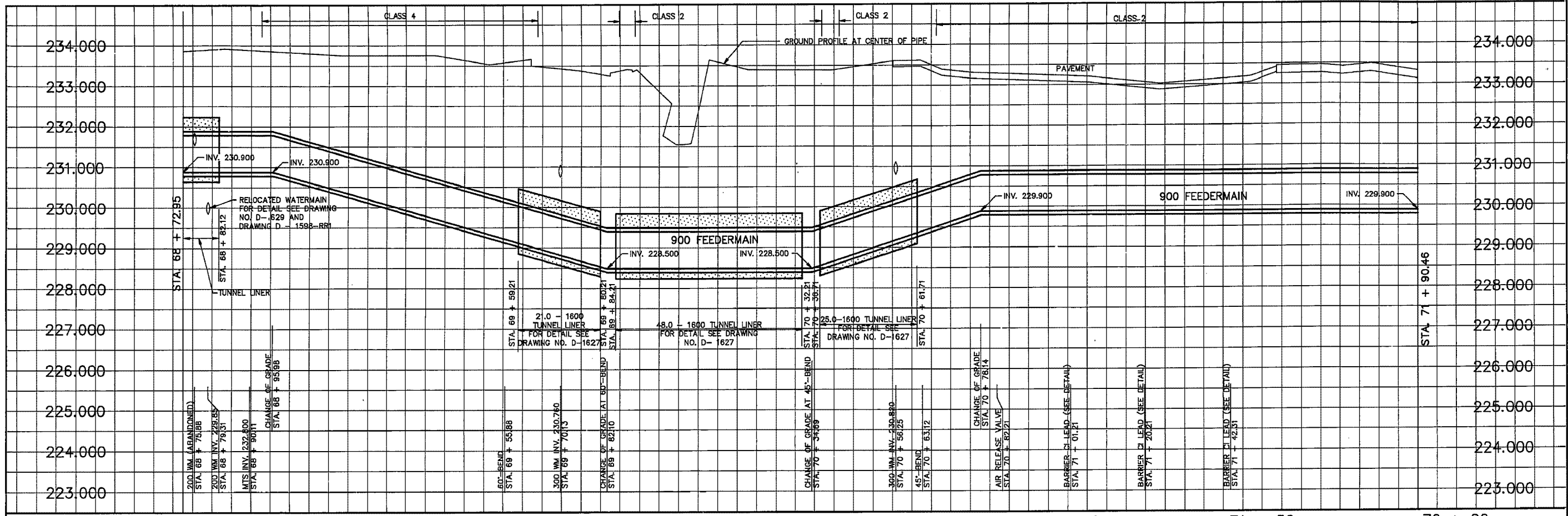
THE METROPOLITAN CORPORATION OF GREATER WINNIPEG  
 WATERWORKS & WASTE DISPOSAL DIVISION  
 A. PENMAN - DIRECTOR

WATERWORKS DEPT.  
**ROUGE ROAD FEEDERMAIN**  
 MAIN LINE VALVE CHAMBERS & THRUST BLOCK DETAILS

DESIGNED BY: [Signature]  
 DATE: JAN 10/68  
 ENGR. IN CHARGE: [Signature]  
 APPROVED BY: [Signature]

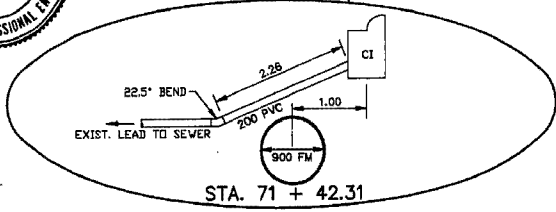
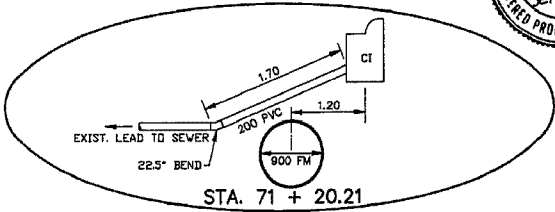
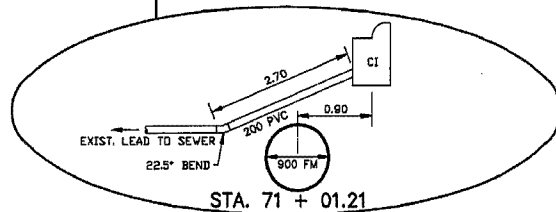
SCALE: AS SHOWN  
 DRAWING NO. **D-1172**





1W-404

**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES



**AS-CONSTRUCTED**  
12.2.2000  
REVISION SURVEY  
DATE  
WATERWORKS, WASTE & DISPOSAL DEPARTMENT

200 WM	WATERMAIN	200 WM	SL - HYDRO	150 WM	WATERMAIN	150 WM
HYDRANT	HYDRANT	MTS	CONCRETE	HYDRANT	HYDRANT	VALVE
VALVE	VALVE	PROPERTY LINE	PROPERTY LINE	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	300 LDS
525 LDS	LAND DRAINAGE SEWER	375 WWS	WASTEWATER SEWER	250 WWS	WASTEWATER SEWER	250 WWS
MANHOLE	MANHOLE	FENCE	FENCE	WASTEWATER SEWER	WASTEWATER SEWER	250 WWS
CATCH BASIN	CATCH BASIN	POLE - HYDRO, MTS	POLE - HYDRO, MTS	WASTEWATER SEWER	WASTEWATER SEWER	250 WWS
CURB INLET	CURB INLET	RAILWAY SIGN	RAILWAY SIGN	WASTEWATER SEWER	WASTEWATER SEWER	250 WWS
JUNCTIONS	JUNCTIONS	GUY ANCHOR	GUY ANCHOR	WASTEWATER SEWER	WASTEWATER SEWER	250 WWS
CULVERT	CULVERT	LIGHT STANDARD	LIGHT STANDARD	WASTEWATER SEWER	WASTEWATER SEWER	250 WWS
50 GAS	GAS	TREE	TREE	WASTEWATER SEWER	WASTEWATER SEWER	250 WWS
EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	EXISTING
LEGEND-PROFILE	PROPOSED	EXISTING	LEGEND-PROFILE	PROPOSED	EXISTING	LEGEND-PROFILE

**LOCATION APPROVED**  
UNDERGROUND STRUCTURES  
DATE  
SUPPLY U/O STRUCTURES COMMITTEE

NOTE:  
LOCATION 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.

**The City of Winnipeg**  
Works & Operations Division  
Waterworks, Waste & Disposal Department

DESIGNED BY RAS,DDM  
CHECKED BY RAS,DDM  
DRAWN BY REF, TM  
APPROVED BY  
HOR. SCALE 1:500  
VERTICAL 1:50  
RELEASED FOR CONSTRUCTION  
OCTOBER, 1986

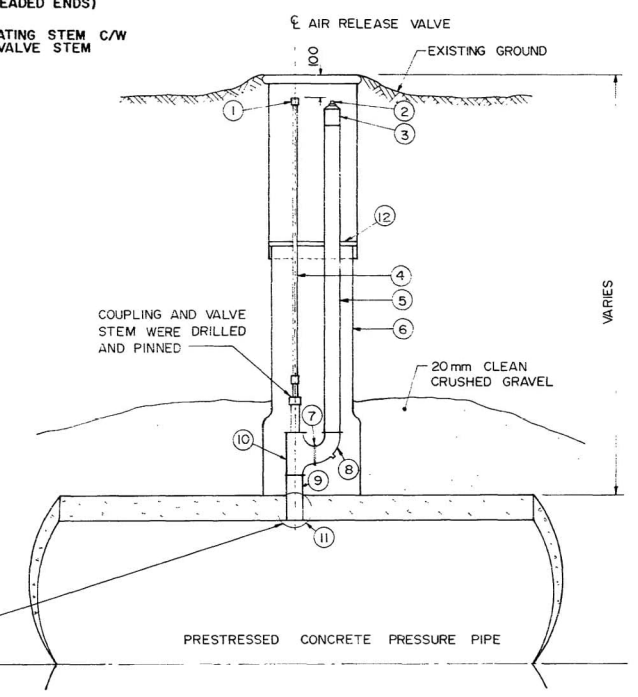
ENGINEER'S SEAL  
PROVINCE OF MANITOBA  
D. D. McNEIL  
SEPT. 1987  
REGISTERED PROFESSIONAL ENGINEER

**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
WATERWORKS WASTE AND DISPOSAL DEPARTMENT

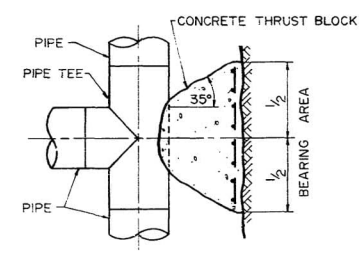
WEST END FEEDERMAIN  
SASKATCHEWAN AVE. - McCROSSEN ST.  
TO 270 METERS EAST  
STA. 68 + 72.95 TO STA. 71 + 90.46

CITY DRAWING NUMBER  
SHEET OF  
D-1599

- ① 25 OPERATING NUT
- ② 32 CAST BRONZE OR BRASS PLUG (FINGER TIGHT)
- ③ 32 CAST BRONZE OR BRASS COUPLING (THREADED ENDS)
- ④ 19 TYPE 316 STAINLESS STEEL VALVE OPERATING STEM C/W THREADED COUPLING SIZED FOR ITEM ⑩ VALVE STEM
- ⑤ 32 COPPER PIPE (FIELD MEASURED)
- ⑥ STANDARD CITY OF WINNIPEG ADJUSTABLE VALVE BOX
- ⑦ 32 CLOSE BRONZE OR BRASS NIPPLE
- ⑧ 32 90° CAST BRONZE OR BRASS STREET ELBOW WITH 5 DRAINING HOLES
- ⑨ 32 CAST BRONZE OR BRASS NIPPLE 75 LONG (THREADED)
- ⑩ 32 CLASS 150 BRONZE, ANGLE GLOBE VALVE (CRANE FIG. 17 OR APPROVED EQUAL)
- ⑪ 32 THREADED OUTLET (IRON PIPE THREADS)
- ⑫ SUPPORT WASHER

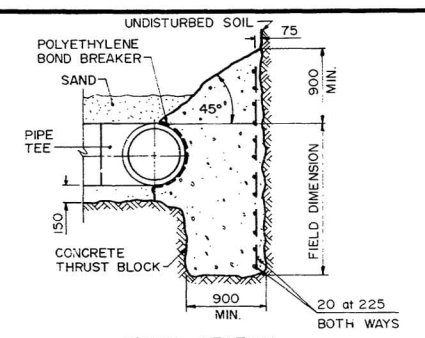


STANDARD AIR RELEASE VALVE DETAIL - N.T.S.

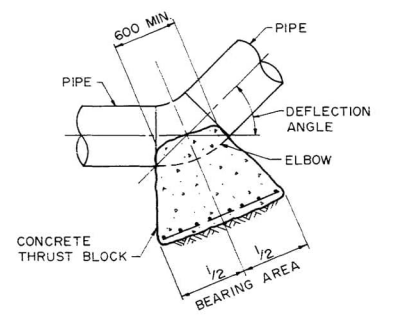


PLAN

TEE

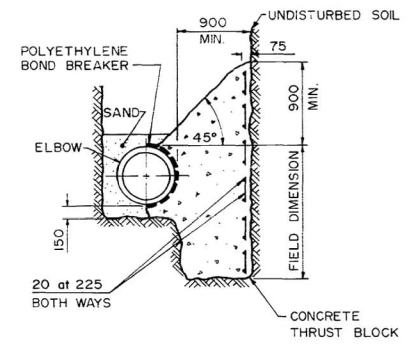


CROSS-SECTION



PLAN

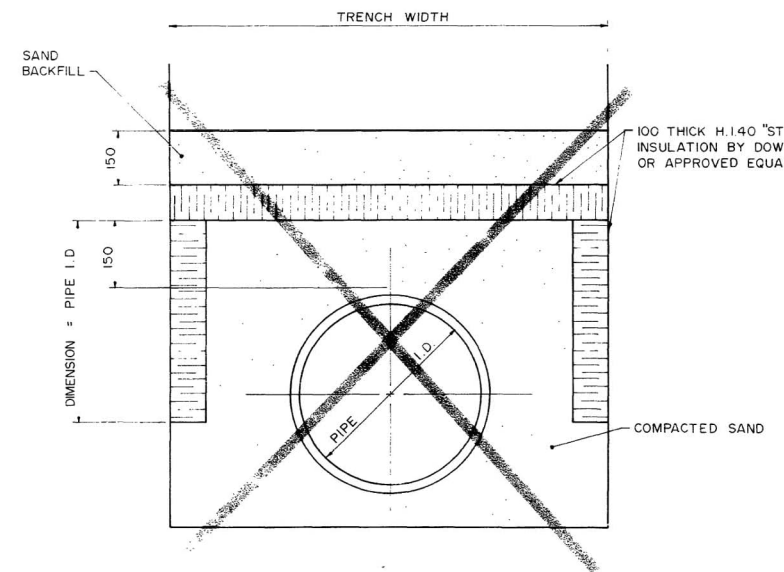
ELBOW



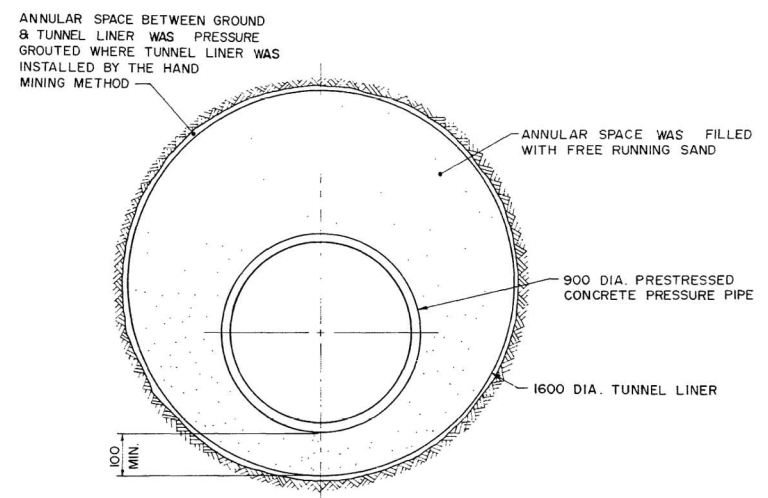
CROSS-SECTION

TYPICAL THRUST BLOCK DETAILS FOR ELBOWS AND TEES - N.T.S.

LIST OF THRUST BLOCKS			
LOCATION (APPROX.)	PIPE DIA.	ANGLE	BEARING AREA
STA. 0+39.20	900	45°	7.25 sq. metres
STA. 0+55.37	900	45°	7.25 sq. metres
STA. 3+79.22	900	45°	7.25 sq. metres
STA. 4+69.24	900	45°	7.25 sq. metres
STA. 18+67.14	900	45°	7.25 sq. metres
STA. 18+75.76	900	45°	7.25 sq. metres
STA. 34+67.35	900	45°	7.25 sq. metres
STA. 34+80.28	900	45°	7.25 sq. metres
STA. 37+96.77	900	45°	7.25 sq. metres
STA. 38+10.96	900	45°	7.25 sq. metres
STA. 38+76.12	900	45°	7.25 sq. metres
STA. 38+89.16	900	45°	7.25 sq. metres
STA. 48+57.58	900	60°	9.46 sq. metres
STA. 49+00.73	900	30°	4.90 sq. metres
STA. 54+69.49	900	45°	7.25 sq. metres
STA. 55+04.01	900	35°	5.70 sq. metres
STA. 66+37.58	900	22°30'	3.69 sq. metres
STA. 66+60.28	900	22°30'	3.69 sq. metres
STA. 69+66.67	900	60°	9.46 sq. metres
STA. 69+92.89	900	60°	9.46 sq. metres
STA. 70+45.48	900	45°	7.25 sq. metres
STA. 70+73.91	900	45°	7.25 sq. metres
STA. 75+26.35	900	45°	7.25 sq. metres
STA. 75+37.79	900	35°	5.70 sq. metres
STA. 76+86.06	900	23°30'	3.86 sq. metres
STA. 79+21.87	900	45°	7.25 sq. metres
STA. 79+28.94	900	45°	7.25 sq. metres
STA. 80+67.36	900	58°	9.18 sq. metres
STA. 80+86.91	900	58°	9.18 sq. metres
STA. 83+99.99	900	26°23'35"	4.30 sq. metres
STA. 87+18.16	900	11°56'	1.97 sq. metres
STA. 87+48.89	900	33°05'	5.39 sq. metres
STA. 87+57.48	900	45°	7.25 sq. metres
STA. 93+49.31	900	45°	7.25 sq. metres
STA. 93+56.38	900	45°	7.25 sq. metres
STA. 95+53.72	900	45°	7.25 sq. metres
STA. 95+60.79	900	45°	7.25 sq. metres
STA. 96+76.05	900	46°51'	7.53 sq. metres
STA. 96+82.88	900	46°51'	7.53 sq. metres
STA. 96+92.26	900	DEAD END	9.46 sq. metres



INSULATION DETAIL - N.T.S.

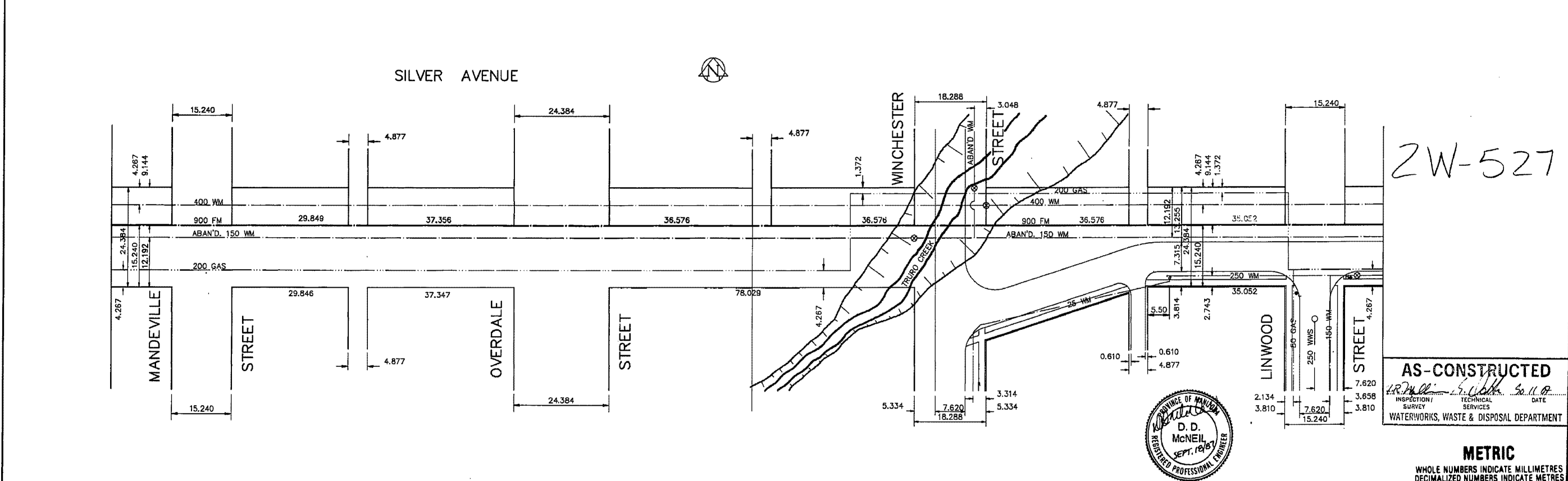
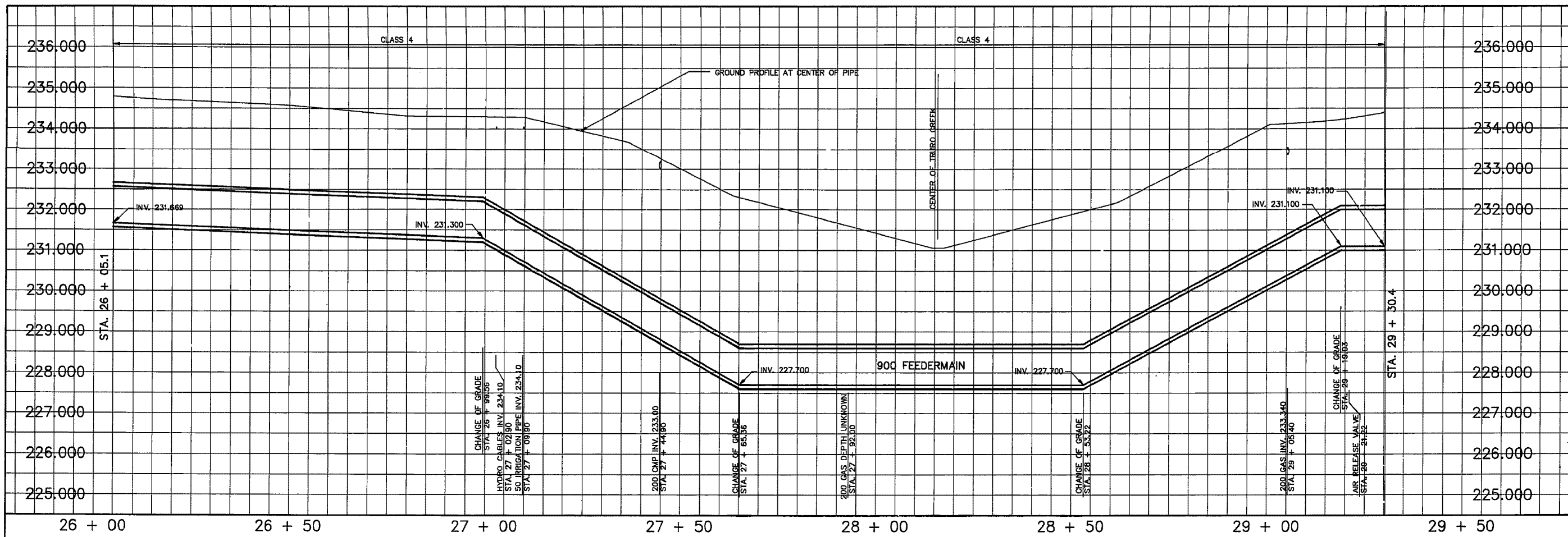


TYPICAL TUNNEL LINER DETAIL - N.T.S.



**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

B.M. ELEV.		<b>WORKS &amp; OPERATIONS DIVISION</b> WATERWORKS, WASTE & DISPOSAL DEPARTMENT	ENGINEER'S SEAL 	<b>THE CITY OF WINNIPEG</b> WORKS AND OPERATIONS DIVISION	CITY DRAWING NUMBER
		DRAWN BY J.D.P.	APPROVED BY <i>[Signature]</i>	CONSULTANT DRAWING NO.	D-1627
01	REVISED TO ASBUILT	HOR SCALE AS SHOWN	RELEASED FOR CONSTRUCTION		
NO	REVISIONS	DATE	DATE		



2W-527

**AS-CONSTRUCTED**  
 INSPECTOR: *[Signature]* DATE: *[Blank]*  
 SURVEY SERVICES  
 WATERWORKS, WASTE & DISPOSAL DEPARTMENT



**METRIC**  
 WHOLE NUMBERS INDICATE MILLIMETRES  
 DECIMALIZED NUMBERS INDICATE METRES

200 WM	WATERMAIN	200 WM	SL, HYDRO	150 WM	WATERMAIN	150 WM
HYDRANT	HYDRANT	MTS	CONCRETE	HYDRANT	HYDRANT	VALVE
VALVE	VALVE	CONCRETE	PROPERTY LINE	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER
575 LDS	LAND DRAINAGE SEWER	575 LDS	SURVEY BAR	300 LDS	LAND DRAINAGE SEWER	300 LDS
375 WWS	WASTEWATER SEWER	375 WWS	FENCE	250 WWS	WASTEWATER SEWER	250 WWS
MANHOLE	MANHOLE	POLE - HYDRO, MTS	RAILWAY SIGN	250 WWS	WASTEWATER SEWER	250 WWS
CATCH BASIN	CATCH BASIN	RAILWAY SIGN	GUY ANCHOR	250 WWS	WASTEWATER SEWER	250 WWS
CURB INLET	CURB INLET	LIGHT STANDARD	TREE	250 WWS	WASTEWATER SEWER	250 WWS
JUNCTIONS	JUNCTIONS	TREE		250 WWS	WASTEWATER SEWER	250 WWS
CULVERT	CULVERT			250 WWS	WASTEWATER SEWER	250 WWS
50 GAS	GAS			250 WWS	WASTEWATER SEWER	250 WWS
EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	EXISTING
				LEGEND-PROFILE	PROPOSED	

**LOCATION APPROVED**  
 UNDERGROUND STRUCTURES

SURV. U/C STRUCTURES COMMITTEE DATE

NOTE:  
 LOCATION 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. CONTRIBUTION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

**The City of Winnipeg**  
 Works & Operations Division  
 Waterworks, Waste & Disposal Department

DESIGNED BY RAS,DDM  
 DRAWN BY REF, TM  
 HOR. SCALE 1:500  
 VERTICAL 1:50  
 DATE OCTOBER, 1986

CHECKED BY RAS,DDM  
 APPROVED BY *[Signature]*  
 RELEASED FOR CONSTRUCTION  
 DATE

ENGINEER'S SEAL  
 PROVINCE OF MANITOBA  
 R. A. SOLOMONY  
 SEPT. 1987  
 REGISTERED PROFESSIONAL ENGINEER

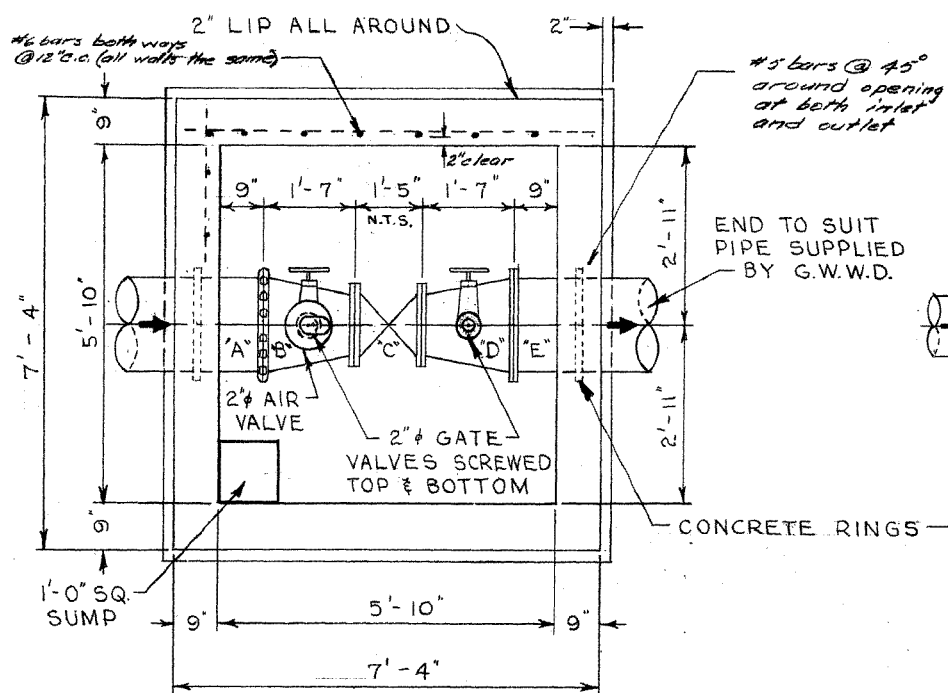
CONSULTANT DRAWING NO.

**THE CITY OF WINNIPEG**  
 WORKS AND OPERATIONS DIVISION  
 WATERWORKS WASTE AND DISPOSAL DEPARTMENT

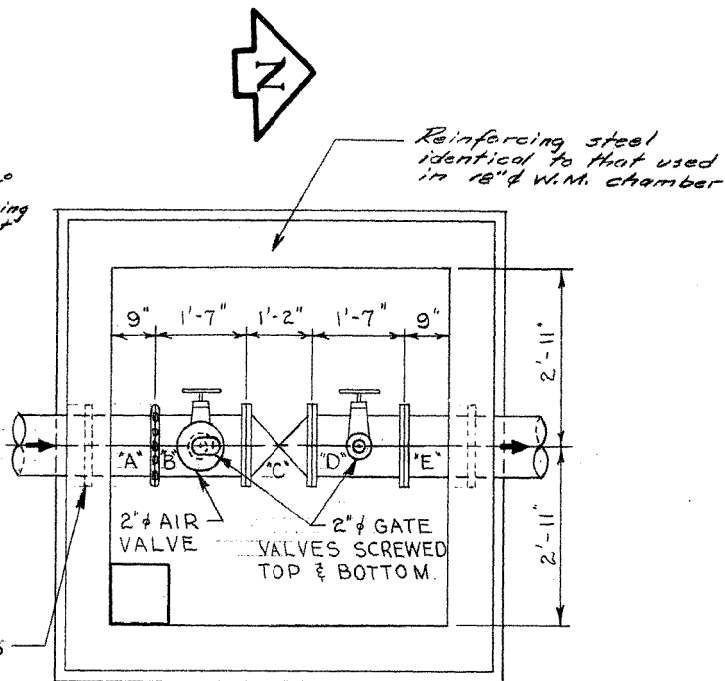
**WEST END FEEDERMAIN**  
 SILVER AVE. - BELVIDERE ST. TO  
 LINWOOD ST.  
 STA. 26 + 05.1 TO STA. 29 + 30.4

CITY DRAWING NUMBER  
 SHEET OF  
**D-1584**

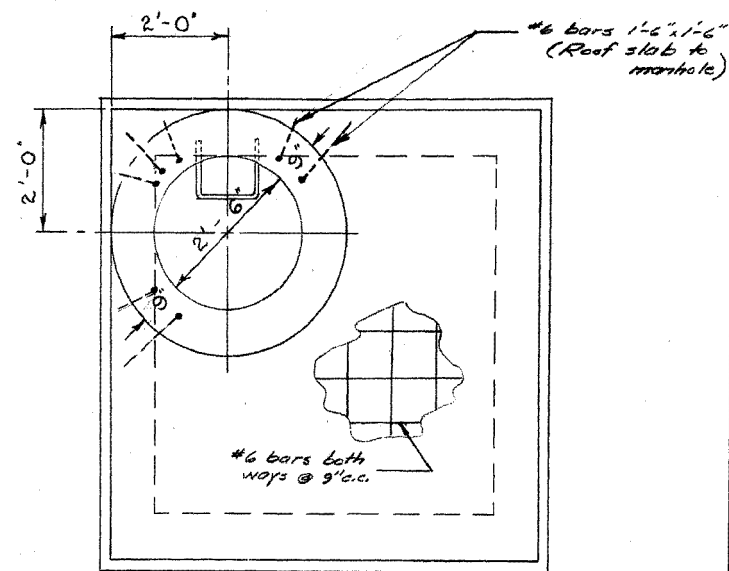




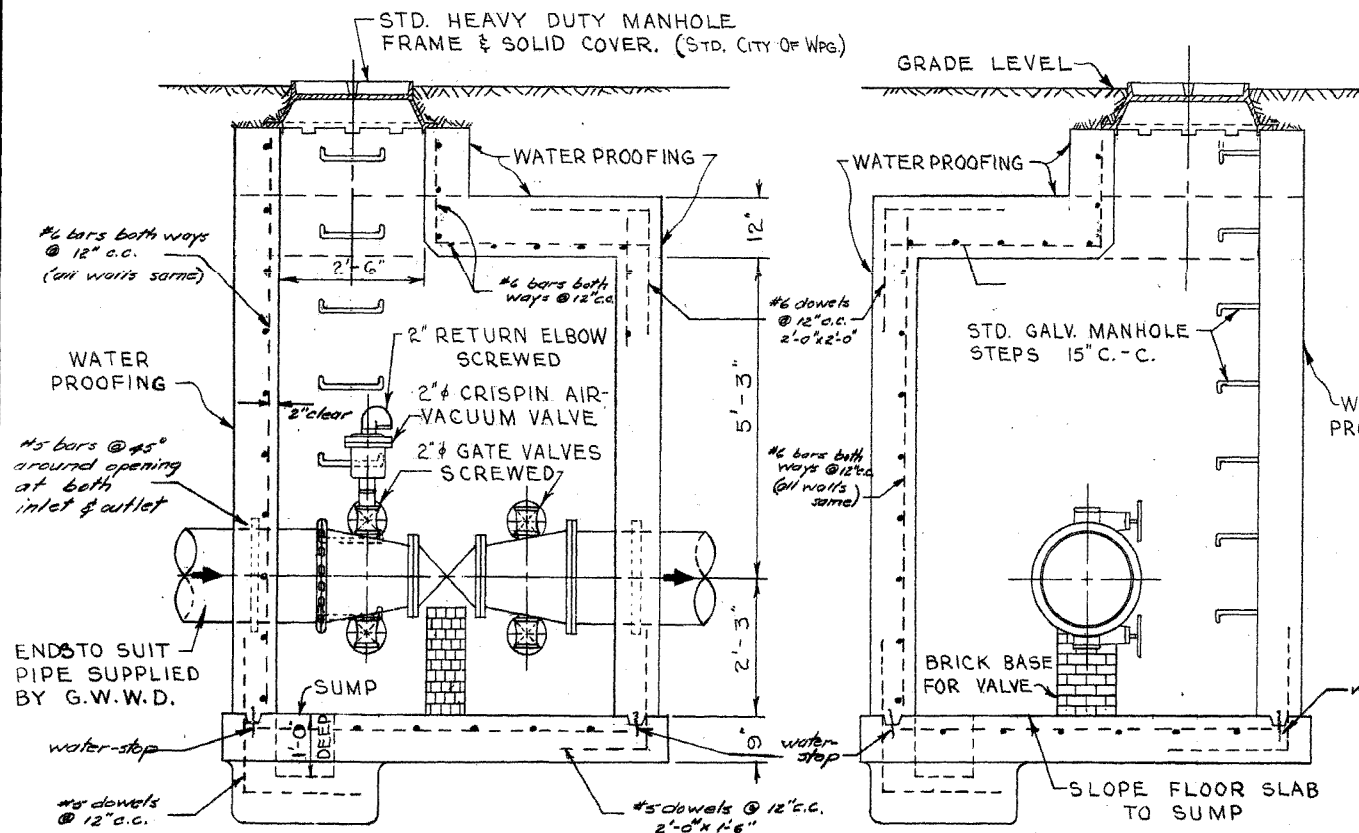
**FLOOR PLAN**  
FOR 18" DIA. WATERMAIN



**FLOOR PLAN**  
FOR 12" DIA. WATERMAIN  
(SAME CHAMBER DIMENSIONS AS)  
(FOR 18" WATERMAIN)



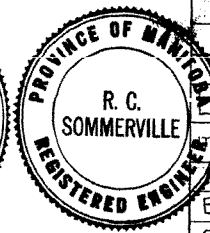
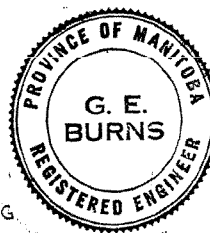
**ROOF PLAN**  
FOR 18" OR 12" DIA. WATERMAIN



**LONGITUDINAL SECTION**  
FOR 18" OR 12" DIA. WATERMAIN

**X-SECTION**  
FOR 18" OR 12" DIA. WATERMAIN

Note:  
Reinforcing steel to be 2" clear



**NOTE:**  
PIPE THROUGH CHAMBER WALLS SHALL BE C. I. OR STEEL. A. C. PIPE WILL NOT BE ALLOWED.

**LIST OF MATERIALS FOR 18" WATERMAIN**

ITEM	DESCRIPTION	NO. REQ'D
A	18" C.I. PIPE - ENDS TO SUIT	1
B	18" x 16" REDUCER - VICT. CPLG. TO FLGE.	1
C	16" GEARED GATE VALVE FLGED. (N.R.S.)	1
D	18" x 12" REDUCER FLGED.	1
E	18" C.I. PIPE - ENDS TO SUIT.	1
	2" CRISPIN AIR-VACUUM VALVE SCREWED.	1
	2" RETURN ELBOW SCREWED.	1
	2" BRASS GATE VALVE SCREWED WITH NIPPLES	4

**LIST OF MATERIALS FOR 12" WATERMAIN**

ITEM	DESCRIPTION	NO. REQ'D
A	12" C.I. PIPE - ENDS TO SUIT.	1
B	12" C.I. PIPE - VICT. CPLG. TO FLGE.	1
C	12" GATE VALVE FLGED. (N.R.S.)	1
D	12" C.I. PIPE FLGED.	1
E	12" C.I. PIPE - ENDS TO SUIT.	1
	2" CRISPIN AIR-VACUUM VALVE SCREWED	1
	2" RETURN ELBOW SCREWED.	1
	2" BRASS GATE VALVE SCREWED WITH NIPPLES	4
	1-18" OR 12" VICTAULIC COUPLING REQUIRED.	

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	5.6 FEET ADDED TO STA. CHAINAGE.	30 June 60	S.K.

**GREATER WINNIPEG WATER DISTRICT**  
MUNICIPAL WATERMANS

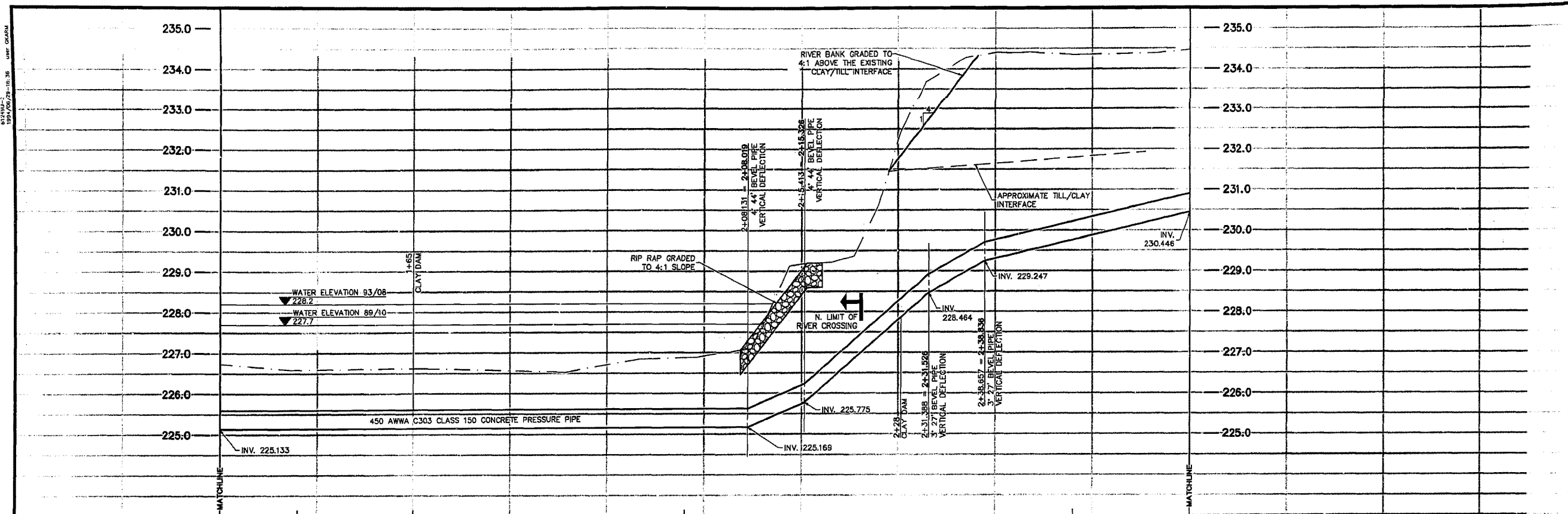
TITLE:  
**HANEY - MORAY WATERMAIN**  
**GATE VALVE CHAMBER**  
@ STA. 62 + 55.6

APPROVED BY: *[Signature]* CHIEF ENGINEER  
DESIGNED BY: NWS.  
CHECKED BY: ECS  
DRAWN BY: S.K.  
DATE: 16 JUNE 60.

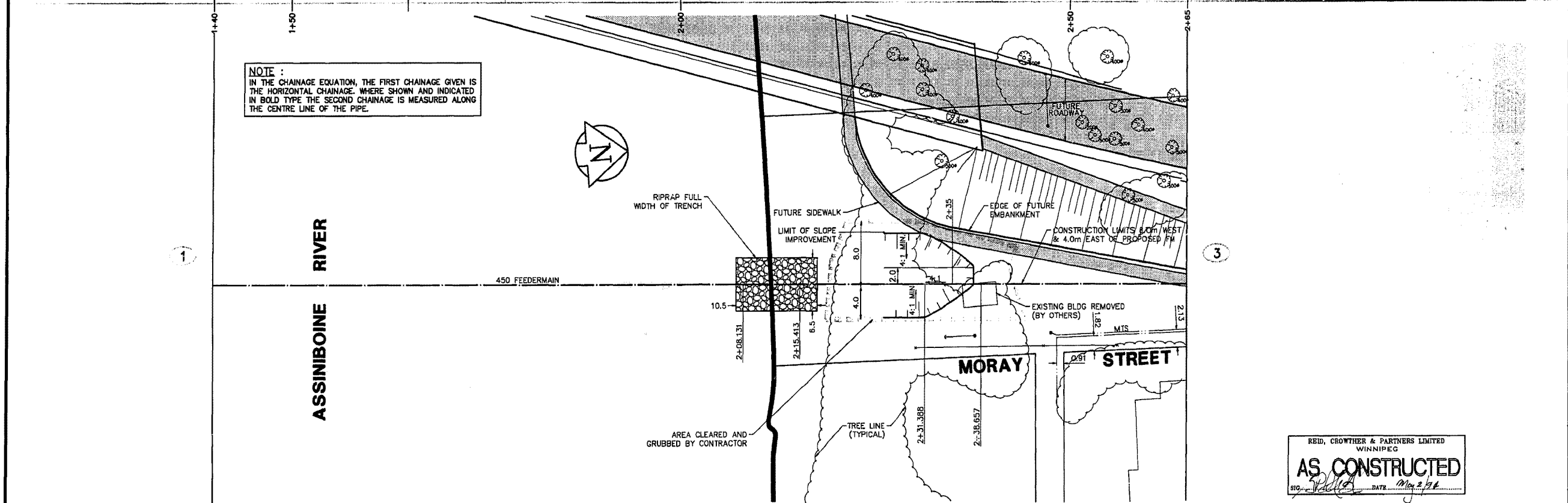
SCALES:  
1/2" INCH = 1'-0" FT.  
OTHERWISE AS NOTED.

DRAWING NO. **C-451**





NOTE:  
IN THE CHAINAGE EQUATION, THE FIRST CHAINAGE GIVEN IS THE HORIZONTAL CHAINAGE. WHERE SHOWN AND INDICATED IN BOLD TYPE THE SECOND CHAINAGE IS MEASURED ALONG THE CENTRE LINE OF THE PIPE.



REID, CROWTHER & PARTNERS LIMITED  
WINNIPEG  
**AS CONSTRUCTED**  
DATE: May 2, 1994

EXISTING	LEGEND - PLAN	PROPOSED	EXISTING	LEGEND - PLAN	PROPOSED	EXISTING	LEGEND - PROFILE	PROPOSED
150 mm W.M.	WATERMAIN	150 mm W.M.	HYDRO	M.T.S.		150 mm W.M.	WATERMAIN	150 mm W.M.
300mm L.D.S.	LAND DRAINAGE SEWER	300mm L.D.S.	CONCRETE	ASPHALT		300mm L.D.S.	LAND DRAINAGE SEWER	300mm L.D.S.
250mm W.W.S.	WASTEWATER SEWER	250mm W.W.S.	PROPERTY LINE	SURVEY BAR		250mm W.W.S.	WASTE WATER SEWER	250mm W.W.S.
	MANHOLE		ELEVATION	(32.750)			FEEDERMAIN	
	CATCH BASIN		TREE					
	JUNCTIONS		SIDEWALK RAMP					
	CULVERT		CONCRETE SIDEWALK					
	GAS		FENCE					

**LOCATION APPROVED UNDERGROUND STRUCTURES**

SUPV. U/G STRUCTURES	DATE
COMMITTEE	

NOTE:  
LOCATION 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.

B.M.	38-048	ELEV.	237.184
N. SIDE PORTAGE IN MEDIUM OF MORAY ST. 191.1 ON TOP OF 0.05m x 2.4m IRON PIPE. 0.5m W.M.L. PORTAGE @ 12.5m W/E.L. USWAY.			
D	AS CONSTRUCTED	04.05.02	GSK
C	ISSUED FOR TENDER	03.08.15	DED
B	ISSUED FOR CITY REVIEW	03.08.24	GSK
A	ISSUED FOR APPROVAL	03.08.13	GSK
NO. REVISIONS		DATE	BY

**Reid Crowther**  
Bald Crowther & Robinson Ltd.  
Consulting Engineers

DESIGNED BY	BAM/GSK	CHECKED BY	BAM
DRAWN BY	GSK	APPROVED BY	
HOR. SCALE:	250	RELEASED FOR CONSTRUCTION:	
VERTICAL:	50	DATE	93-08-28

ENGINEER'S SEAL  
PROFESSIONAL ENGINEER  
DESIGN ORIGINAL  
STAMPED BY  
B.A. MORTON  
AUG. 16 / 93  
REGISTERED PROFESSIONAL ENGINEER

CONSULTANT DRAWING NO.  
61249-01-2

**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
WATER WORKS, WASTE AND DISPOSAL DEPT.

**HANEY-MORAY FEEDERMAIN RELOCATION**  
298m NORTH OF ROBLIN BLVD. TO PINEWOOD DRIVE  
FEEDERMAIN RELOCATION

CITY DRAWING NUMBER  
SHEET 2 OF 5  
D-1956

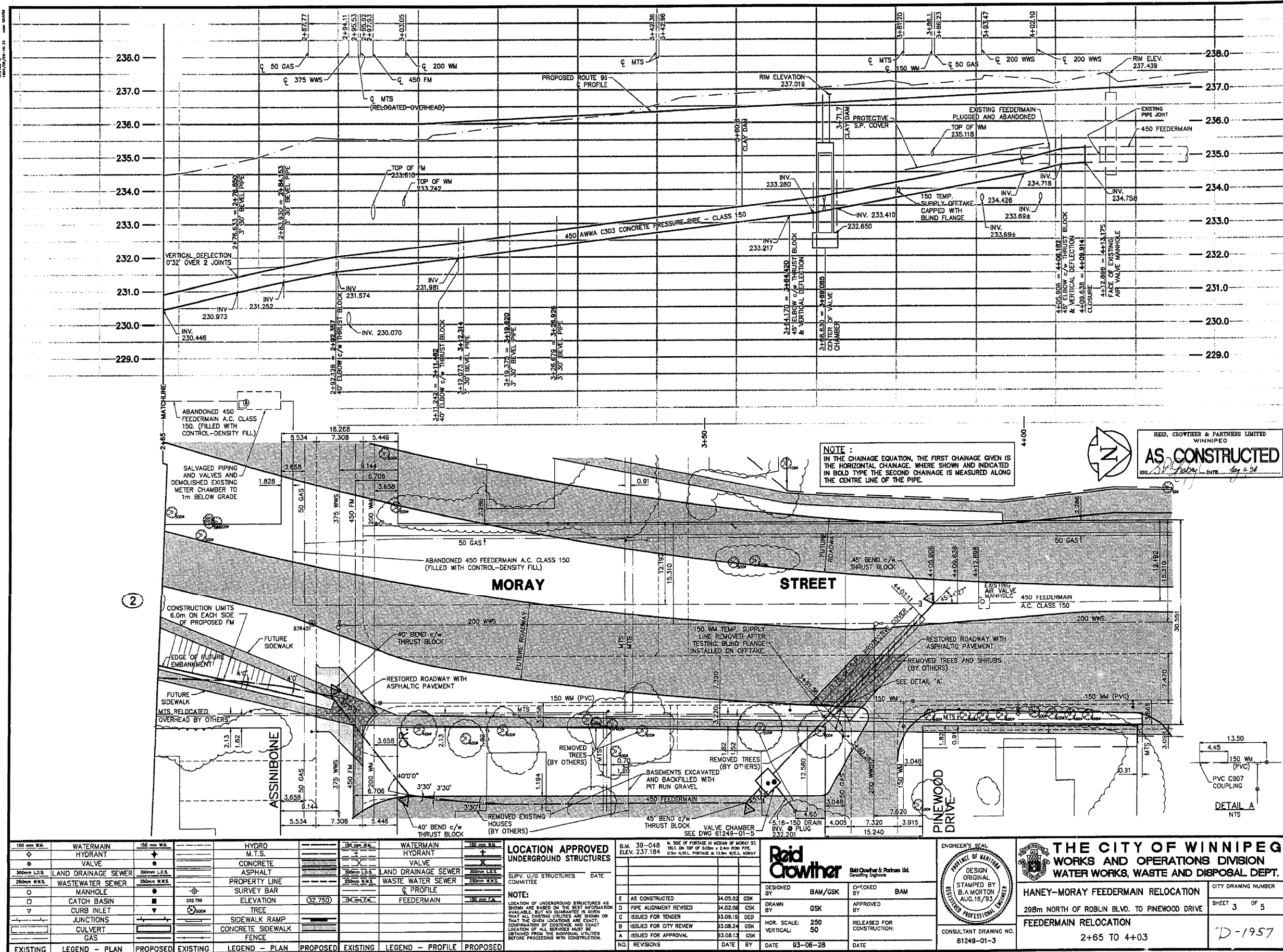
1+40 TO 2+65

**D-1957**

REF. or DRAWING No.

DETAILS

File # FE10864



**NOTE:**  
IN THE CHAINAGE EQUATION, THE FIRST CHAINAGE GIVEN IS THE HORIZONTAL CHAINAGE, WHERE SHOWN AND INDICATED IN BOLD TYPE THE SECOND CHAINAGE IS MEASURED ALONG THE CENTRE LINE OF THE PIPE.

**AS CONSTRUCTED**  
REID, CROWTHER & PARTNERS LIMITED  
WINNIPEG  
DATE: Aug 2, 93

EXISTING	LEGEND - PLAN	PROPOSED	EXISTING	LEGEND - PLAN	PROPOSED	EXISTING	LEGEND - PROFILE	PROPOSED
150mm W.M.	WATERMAIN	150mm W.M.	HYDRO	M.T.S.	150mm W.M.	WATERMAIN	HYDRANT	150mm W.M.
300mm L.D.S.	LAND DRAINAGE SEWER	300mm L.D.S.	CONCRETE	ASPHALT	300mm L.D.S.	LAND DRAINAGE SEWER	WASTE WATER SEWER	300mm W.W.S.
250mm W.W.S.	WASTEWATER SEWER	250mm W.W.S.	PROPERTY LINE	SURVEY BAR	250mm W.W.S.	WASTE WATER SEWER	Q PROFILE	250mm W.W.S.
○	MANHOLE	○	ELEVATION	(32.750)	150mm W.M.	FEEDERMAIN	150mm W.M.	150mm W.M.
□	CATCH BASIN	□	SIDEWALK RAMP	CONCRETE SIDEWALK	CONCRETE SIDEWALK	FENCE	FENCE	CONCRETE SIDEWALK
▽	CURB INLET	▽	TREE	TREE	TREE	TREE	TREE	TREE
+	JUNCTIONS	+	JUNCTIONS	JUNCTIONS	JUNCTIONS	JUNCTIONS	JUNCTIONS	JUNCTIONS
○	CULVERT	○	CULVERT	CULVERT	CULVERT	CULVERT	CULVERT	CULVERT
○	GAS	○	GAS	GAS	GAS	GAS	GAS	GAS

**LOCATION APPROVED UNDERGROUND STRUCTURES**  
SUPV. U/G STRUCTURES COMMITTEE  
**NOTE:**  
LOCATION 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.

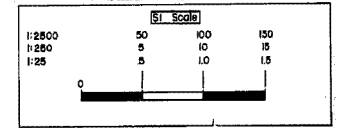
NO.	REVISIONS	DATE	BY
E	AS CONSTRUCTED	04.05.02	GSK
D	PIPE ALIGNMENT REVISED	04.02.06	GSK
C	ISSUED FOR TENDER	03.09.15	DED
B	ISSUED FOR CITY REVIEW	03.08.24	GSK
A	ISSUED FOR APPROVAL	03.08.13	GSK

**Reid Crowther**  
Reid Crowther & Partners Ltd.  
Consulting Engineers

**THE CITY OF WINNIPEG**  
WORKS AND OPERATIONS DIVISION  
WATER WORKS, WASTE AND DISPOSAL DEPT.  
**HANEY-MORAY FEEDERMAIN RELOCATION**  
298m NORTH OF ROBLIN BLVD. TO PINEWOOD DRIVE  
FEEDERMAIN RELOCATION  
2+65 TO 4+03  
CITY DRAWING NUMBER  
SHEET 3 OF 5  
D-1957

File # FE10864

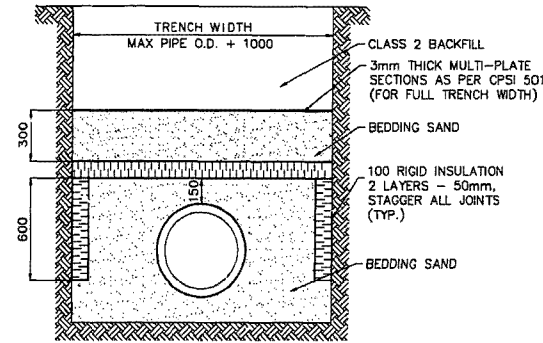
29x



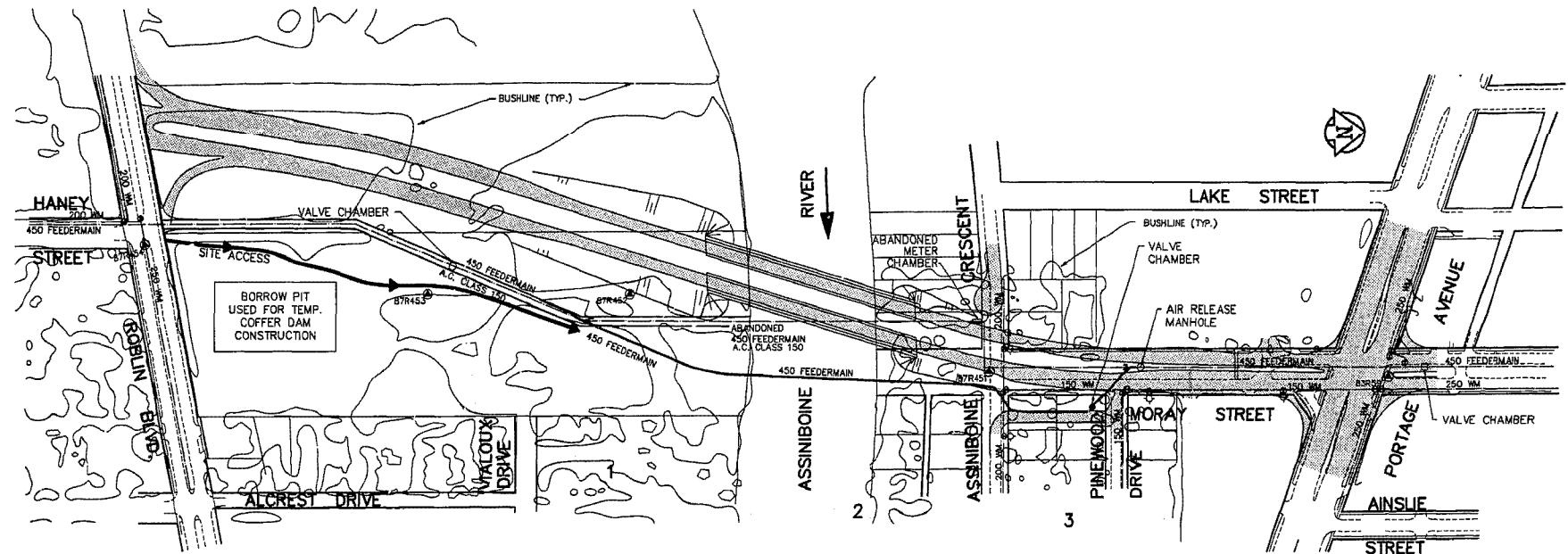
file # FE10865

3130110300  
1894/09/25-16-42  
1894/09/25-16-42

**MATERIALS :**  
450mm FEEDERMAIN - MANUFACTURED BY HYPRESCON INC.  
TO AWWA C303 CLASS 150  
CLOSURES - MANUFACTURED BY ROBAR INDUSTRIES LTD.  
STYLE 140B c/w 10kg ZINC ANODE CAD WELDED  
TO COUPLING.

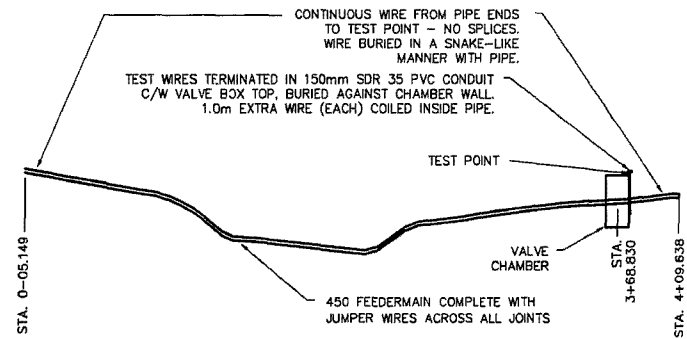


PIPE INSULATION/PROTECTION DETAIL  
STATION 3+81.36 TO 4+03.11  
NTS

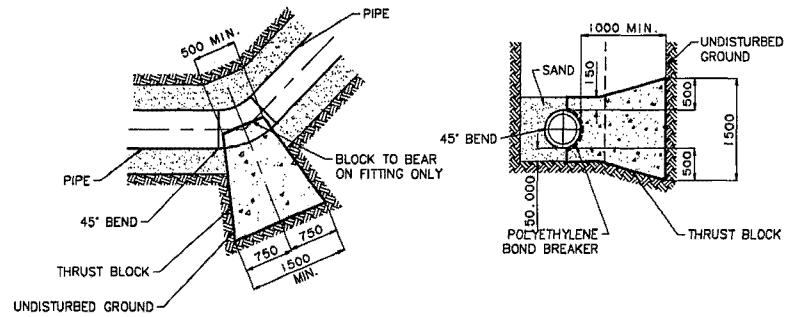


PLAN OF EXISTING AND PROPOSED MAINS

SCALE 1:2000



ELECTRICAL CONTINUITY AND TEST POINT SCHEMATIC  
NTS



THRUST BLOCK DETAILS  
NTS

SURVEY DETAILS

PROJECT COORDINATES	INVERT	CHAINAGE	HORIZONTAL	VERTICAL	COMPOSITE	DESCRIPTION
NORTHING	EASTING	ELEVATION	HORIZONTAL	ANGLE	ANGLE	ANGLE
5527045.720	624906.827	231.206	0-5.149	0-5.148	0° 0' 0"	CLOSURE
5527117.767	624939.829	229.629	0-74.079	0-74.094	0° 0' 0"	PI
5527134.523	624947.482	229.500	0-92.500	0° 0' 0"	21° 11' 9"	PT
5527152.715	624948.894	226.716	1-10.364	1-10.539	0° 0' 0"	
CHAINAGE EQUATION		1-10.747	1-10.384			
5527160.803	624949.554	225.620	1-18.881	1-18.750	0° 0' 0"	BEVEL
5527168.086	624950.120	225.120	1-26.186	1-26.072	0° 0' 0"	BEVEL
5527249.785	624956.462	225.169	2-08.131	2-08.017	0° 0' 0"	BEVEL
5527257.059	624957.027	225.775	2-15.427	2-15.339	0° 0' 0"	BEVEL
5527272.972	624958.263	228.464	2-31.388	2-31.524	0° 0' 0"	BEVEL
5527280.216	624958.825	229.247	2-38.654	2-38.831	0° 0' 0"	BEVEL
5527318.081	624961.765	230.373	2-76.633	2-76.850	4° 0' 0"	BEVEL
5527320.299	624962.836	231.252	2-83.930	2-84.153	4° 0' 0"	BEVEL
5527333.305	624964.604	231.574	2-92.128	2-92.357	40° 0' 0"	BBEND
5527344.957	624979.755	231.981	3-11.242	3-11.482	40° 0' 0"	BEND
5527345.769	624979.934	232.000	3-12.073	3-12.314	3° 30' 0"	BEVEL
5527352.983	624981.070	232.185	3-19.378	3-19.620	3° 30' 0"	BEVEL
5527360.253	624981.765	232.374	3-26.679	3-26.925	3° 30' 0"	BEVEL
5527397.724	624982.950	233.217	3-64.169	3-64.420	45° 0' 3"	BEND
5527428.017	624954.498	234.718	4-05.906	4-06.182	45° 44' 27"	BEND
5527431.745	624954.664	234.758	4-09.638	4-09.914	45° 45' 0"	CLOSURE

PROJECT CONTROL MONUMENTS

NORTHING	EASTING	MONUMENT No.
5527607.2010	624966.8680	83R597
5527330.6930	624953.6940	87R451
5527084.4510	624893.0180	87R452
5526944.5190	624887.8510	87R453
5526749.9070	624847.9510	87R454

REFERENCE NOTES:

- A. RCPL FIELD BOOKS No. 3623, 3649, 3674, 8 3918.
- B. LEGAL PLANS No. 6564 & 7368.
- C. BASELINE CHAINAGE IS HORIZONTAL THROUGH PI POINTS AND IS ADJUSTED AT THE END OF THE CURVE. CHAINAGES SHOWN IN BOLD ARE MEASURED ALONG THE PIPE CENTER LINE.

REID, CROWTHER & PARTNERS LIMITED  
WINNIPEG  
**AS CONSTRUCTED**  
DATE: Mar 2/91

150 mm W.M.	150 mm W.M.	HYDRO	150 mm W.M.	150 mm W.M.	150 mm W.M.	150 mm W.M.	150 mm W.M.
WATERMAIN HYDRANT	WATERMAIN HYDRANT	M.T.S.	WATERMAIN HYDRANT	WATERMAIN HYDRANT	WATERMAIN HYDRANT	WATERMAIN HYDRANT	WATERMAIN HYDRANT
VALVE	VALVE	CONCRETE	VALVE	VALVE	VALVE	VALVE	VALVE
LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	ASPHALT	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER
WASTEWATER SEWER	WASTEWATER SEWER	PROPERTY LINE	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER
MANHOLE	MANHOLE	SURVEY BAR	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER
CATCH BASIN	CATCH BASIN	ELEVATION (32.750)	FEEDERMAIN	FEEDERMAIN	FEEDERMAIN	FEEDERMAIN	FEEDERMAIN
CURB INLET	CURB INLET	TREE					
JUNCTIONS	JUNCTIONS	SIDEWALK RAMP					
CULVERT	CULVERT	CONCRETE SIDEWALK					
GAS	GAS	FENCE					

LOCATION APPROVED UNDERGROUND STRUCTURES  
SUPV. U/G STRUCTURES COMMITTEE DATE  
NOTE: LOCATION 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.

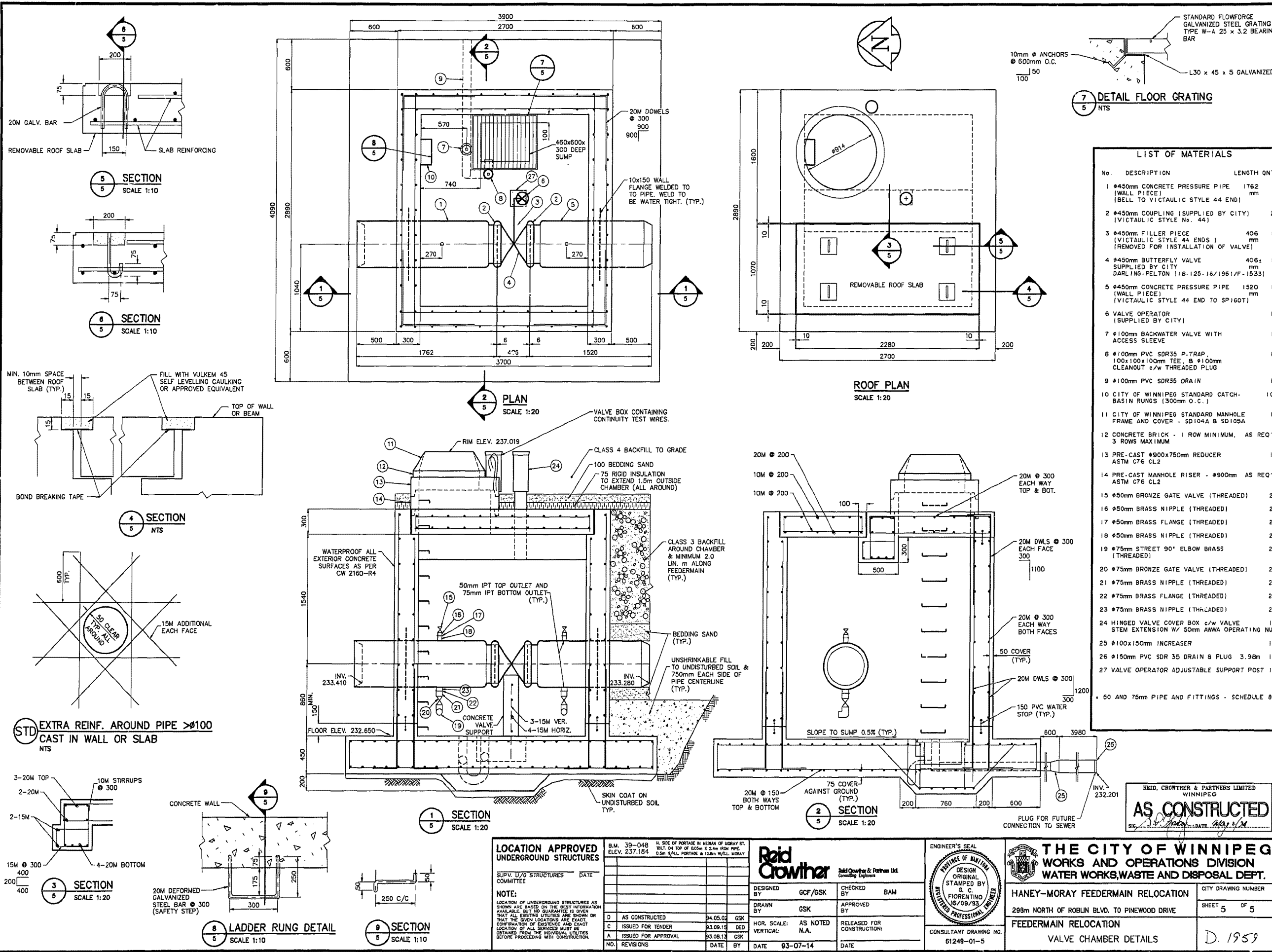
B.M.	30-048	N. SIDE OF PORTAGE IN MIDDLE OF MORAY ST.
ELEV.	237.184	TRK. ON TOP OF 0.025m x 2.4m HIGH PIPE.
		0.5m N.W.L. PORTAGE & 1.25m W.L. MORAY

Reid Crowther  
DESIGNED BY BAM  
CHECKED BY BAM  
DRAWN BY GSK  
APPROVED BY  
HOR. SCALE: AS NOTED  
VERTICAL: N.A.  
RELEASED FOR CONSTRUCTION: 93-07-12

ENGINEER'S SEAL  
PROVINCE OF MANITOBA  
DESIGN ORIGINAL STAMPED BY B.A. MORTON AUG. 16/93  
REGISTERED PROFESSIONAL ENGINEER  
CONSULTANT DRAWING NO. 61249-01-4

THE CITY OF WINNIPEG  
WORKS AND OPERATIONS DIVISION  
WATER WORKS, WASTE AND DISPOSAL DEPT.  
HANEY-MORAY FEEDERMAIN RELOCATION  
298m NORTH OF ROBILN BLVD. TO PINEWOOD DRIVE  
FEEDERMAIN RELOCATION  
LOCATION PLAN AND DETAILS  
CITY DRAWING NUMBER SHEET 4 OF 5  
D-1958

File # FE-10866



**LIST OF MATERIALS**

No.	DESCRIPTION	LENGTH	QTY
1	Ø450mm CONCRETE PRESSURE PIPE (WALL PIECE) (BELL TO VICTAULIC STYLE 44 END)	1762 mm	1
2	Ø450mm COUPLING (SUPPLIED BY CITY) (VICTAULIC STYLE No. 44)		2
3	Ø450mm FILLER PIECE (VICTAULIC STYLE 44 ENDS) (REMOVED FOR INSTALLATION OF VALVE)	406 mm	1
4	Ø450mm BUTTERFLY VALVE SUPPLIED BY CITY (DARLING-PELTON 11B-125-16/1961/F-1533)	406 mm	1
5	Ø450mm CONCRETE PRESSURE PIPE (WALL PIECE) (VICTAULIC STYLE 44 END TO SP160T)	1520 mm	1
6	VALVE OPERATOR (SUPPLIED BY CITY)		1
7	Ø100mm BACKWATER VALVE WITH ACCESS SLEEVE		1
8	Ø100mm PVC SDR35 P-TRAP, 100x100x100mm TEE, Ø100mm CLEANOUT c/w THREADED PLUG		1
9	Ø100mm PVC SDR35 DRAIN		1
10	CITY OF WINNIPEG STANDARD CATCH-BASIN RUNGS (300mm O.C.)		10
11	CITY OF WINNIPEG STANDARD MANHOLE FRAME AND COVER - SD104A B SD105A		1
12	CONCRETE BRICK - 1 ROW MINIMUM, AS REQ'D 3 ROWS MAXIMUM		
13	PRE-CAST Ø900x750mm REDUCER ASTM C76 CL2		1
14	PRE-CAST MANHOLE RISER - Ø900mm AS REQ'D ASTM C76 CL2		
15	Ø50mm BRONZE GATE VALVE (THREADED)		2
16	Ø50mm BRASS NIPPLE (THREADED)		2
17	Ø50mm BRASS FLANGE (THREADED)		2
18	Ø50mm BRASS NIPPLE (THREADED)		2
19	Ø75mm STREET 90° ELBOW BRASS (THREADED)		2
20	Ø75mm BRONZE GATE VALVE (THREADED)		2
21	Ø75mm BRASS NIPPLE (THREADED)		2
22	Ø75mm BRASS FLANGE (THREADED)		2
23	Ø75mm BRASS NIPPLE (THREADED)		2
24	HINGED VALVE COVER BOX c/w VALVE STEM EXTENSION w/ 50mm AWWA OPERATING NUT		1
25	Ø100x150mm INCREASER		1
26	Ø150mm PVC SDR 35 DRAIN & PLUG 3.98m		1
27	VALVE OPERATOR ADJUSTABLE SUPPORT POST		1

Ø 50 AND 75mm PIPE AND FITTINGS - SCHEDULE 80

**LOCATION APPROVED UNDERGROUND STRUCTURES**  
 SUPV. U/G STRUCTURES COMMITTEE DATE  
 NOTE: LOCATION 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.

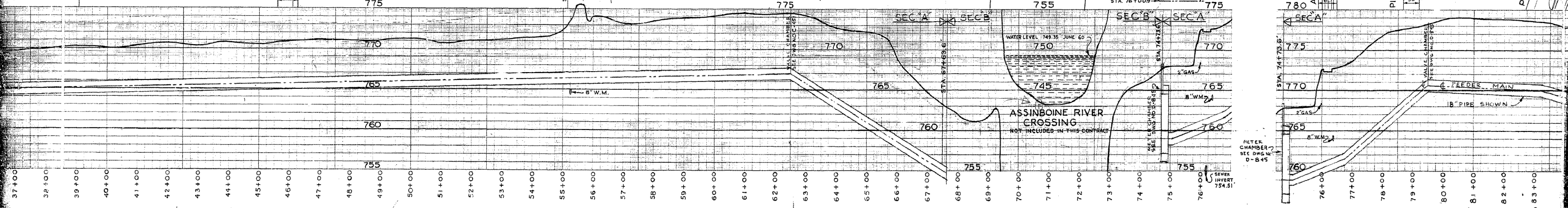
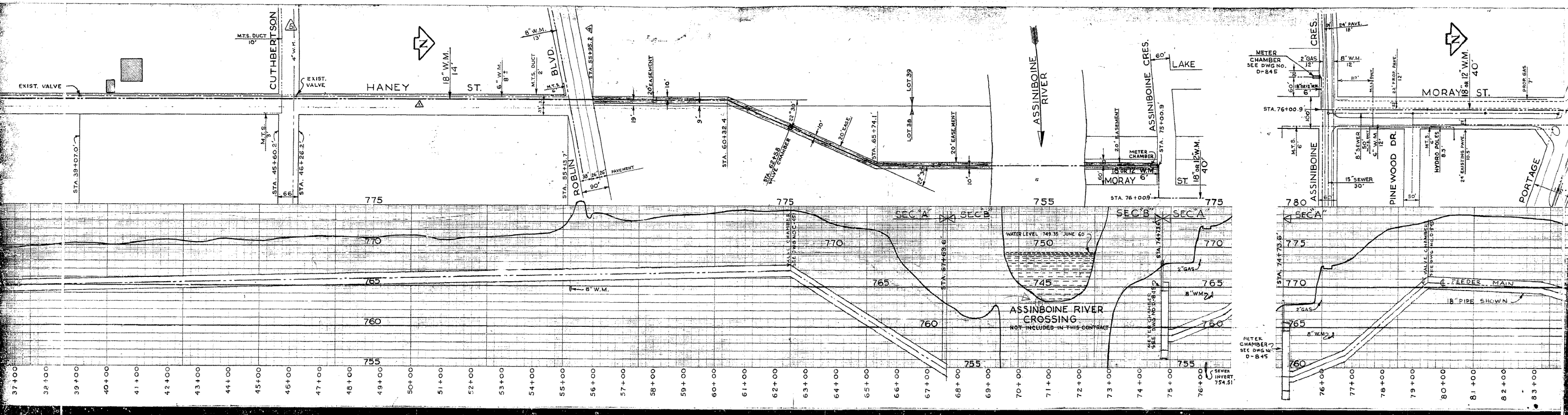
NO.	REVISIONS	DATE	BY
D	AS CONSTRUCTED	04.05.02	GSK
C	ISSUED FOR TENDER	03.09.15	DED
A	ISSUED FOR APPROVAL	03.08.13	GSK

**Raid Crowther**  
 DESIGNED BY: GCF/GSK  
 CHECKED BY: BAM  
 DRAWN BY: GSK  
 APPROVED BY:  
 HOR. SCALE: AS NOTED  
 VERTICAL: N.A.  
 RELEASED FOR CONSTRUCTION:  
 DATE: 03-07-14

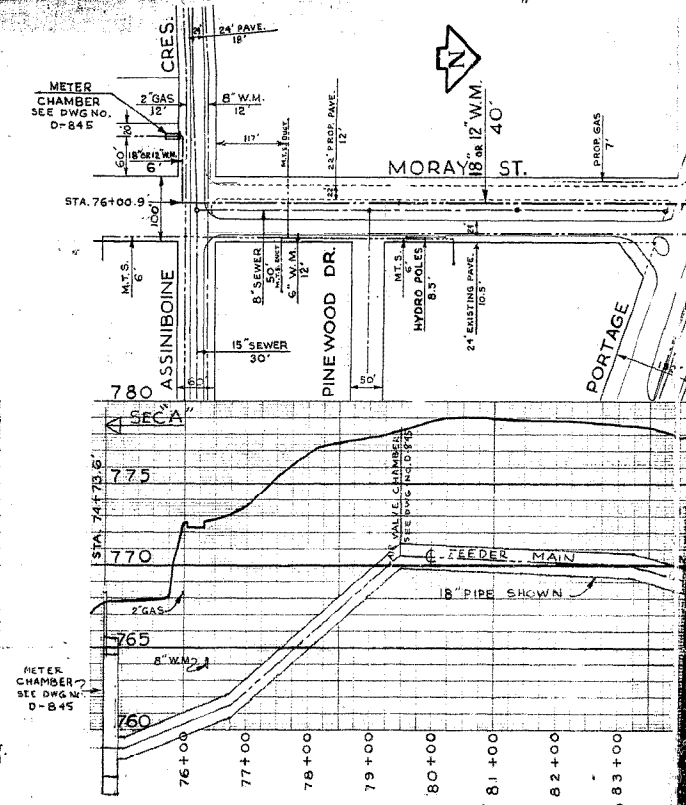
ENGINEER'S SEAL  
 PROVINCE OF MANITOBA  
 DESIGN ORIGINAL STAMPED BY  
 S. C. FIORENTINO  
 06/09/93  
 REGISTERED PROFESSIONAL ENGINEER  
 CONSULTANT DRAWING NO. 61248-01-5

**THE CITY OF WINNIPEG**  
 WORKS AND OPERATIONS DIVISION  
 WATER WORKS, WASTE AND DISPOSAL DEPT.  
 HANEY-MORAY FEEDERMAIN RELOCATION  
 298m NORTH OF ROBLIN BLVD. TO PINWOOD DRIVE  
 FEEDERMAIN RELOCATION  
 VALVE CHAMBER DETAILS  
 CITY DRAWING NUMBER SHEET 5 OF 5  
 D. 1959

File # FE 10866

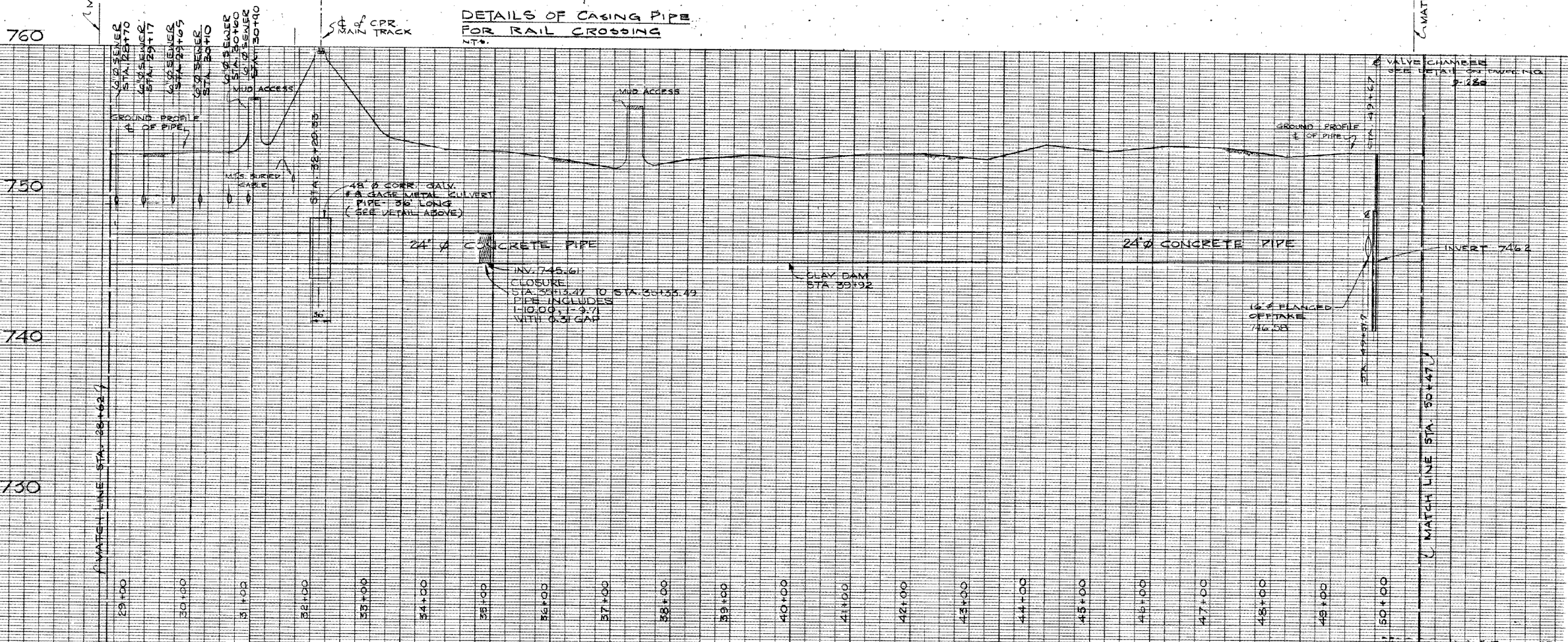
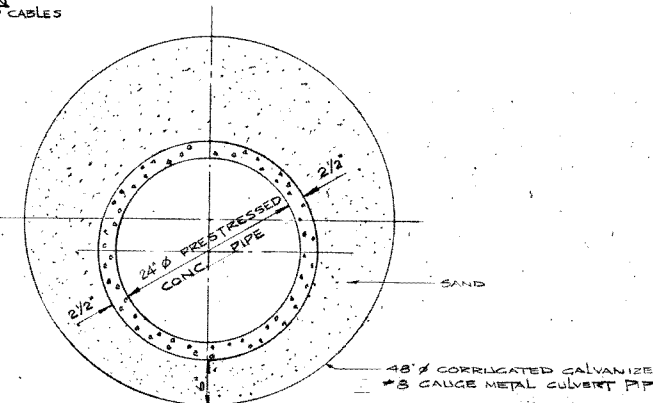
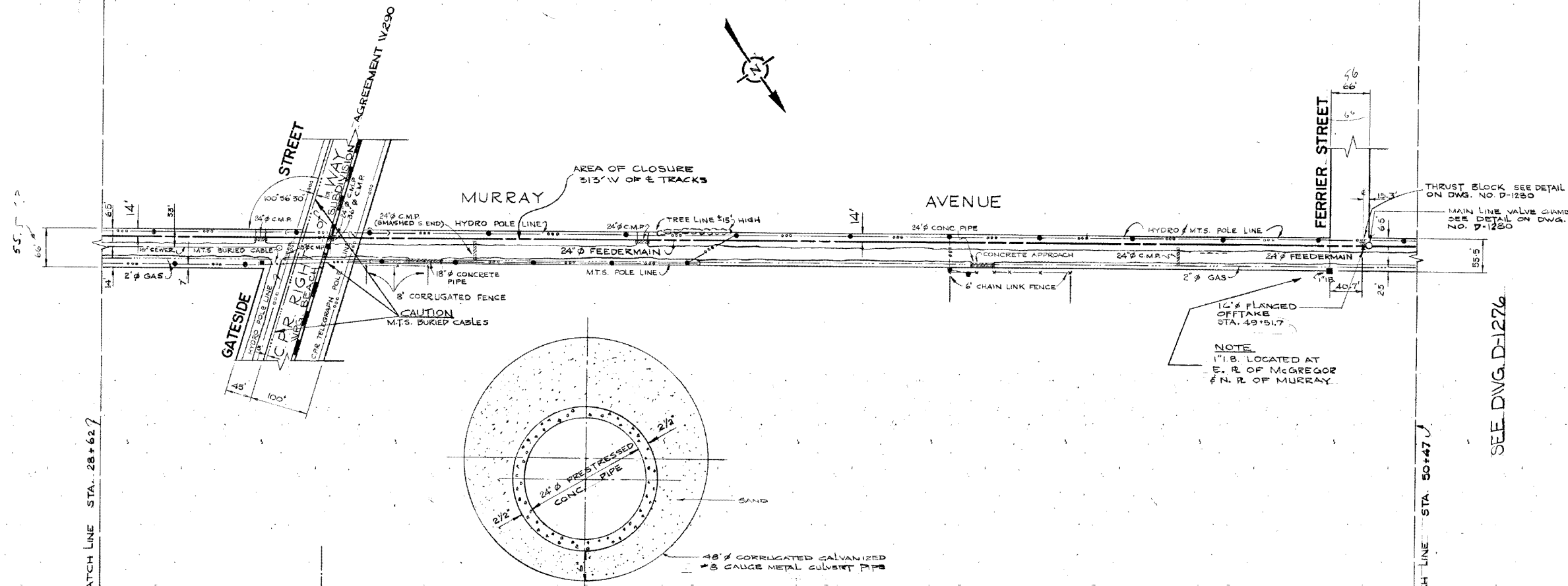


STA. 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00



STA. 76+00.9 77+00 78+00 79+00 80+00 81+00 82+00 83+00

SEE DWG. D-1274



**LEGEND**

**WATERWORKS, WASTE AND DISPOSAL / UNDERGROUND UTILITIES**

PROPOSED FORCEMAIN, INTERCEPTOR OR SECONDARY SEWER \_\_\_\_\_

EXISTING FORCEMAIN, INTERCEPTOR OR SECONDARY SEWER \_\_\_\_\_ W.W.D. 24" SEWER

PROPOSED FEEDERMAIN \_\_\_\_\_

EXISTING FEEDERMAIN \_\_\_\_\_ W.W.D. 24" F.W.M.

W.W.D. — WATERWORKS, WASTE AND DISPOSAL

**OTHER UNDERGROUND UTILITIES**

COMMUNITY SEWER \_\_\_\_\_

COMMUNITY WATERMAIN \_\_\_\_\_

GAS \_\_\_\_\_

HYDRO DUCT \_\_\_\_\_

M.T.S. DUCT OR CABLE \_\_\_\_\_

STREET LIGHTING, RAILWAY SIGNAL OR TRAFFIC SIGNAL CABLE \_\_\_\_\_

**SURFACE UTILITIES**

COMMUNITY BOUNDARY LINE \_\_\_\_\_

FENCE LINE \_\_\_\_\_ X \_\_\_\_\_ X

POLE LINE \_\_\_\_\_

RAILWAY LINE \_\_\_\_\_

**MISCELLANEOUS SYMBOLS**

CATCH BASIN \_\_\_\_\_ ○

CULVERT \_\_\_\_\_ □

HYDRANT \_\_\_\_\_ ⊕

MANHOLE \_\_\_\_\_ ○

HYDRO OR M.T.S. POLE \_\_\_\_\_ ●

LAMP STANDARD \_\_\_\_\_ ⊕

RAILWAY OR TRAFFIC SIGNAL STANDARD \_\_\_\_\_ ⊕

SURVEY BAR \_\_\_\_\_ ⊠

TREE \_\_\_\_\_ ○

VALVE \_\_\_\_\_ ⊕

**NOTES**

**AS BUILT**

D. S. G. SURVEY *W. Alexopoulos* Nov 25/76  
ENGINEERING DATE

3	REVISED TITLE & STREET NAMES	91-01-22 M.T.S.	
4	6-6" SEWER CROSSINGS ADDED	781005 RH	
	AS BUILT	1-11-76 M.S.	
NO.	DESCRIPTION	DATE	BY

**REVISIONS**

FIELD BOOK(S) NO. F-387, F-394, F-408, F-426 SURVEYED BY D.M. GALKA

LAND SURVEY PLAN(S) NO. DATE MAY 14, 1974

B. M.

**The City of Winnipeg**

Waterworks, Waste and Disposal Division

Branch Operations (Waterworks)

**MURRAY AVENUE FEEDERMAIN**

FROM A POINT 220FT EAST OF GATESIDE STREET TO FERRIER STREET STA. 28+62 TO STA 50+47

DESIGNED BY *Rub* DRAWN BY F. Kolbert

CHECKED BY *[Signature]* DATE SEPT. 10-74

APPROVED BY *[Signature]*

SCALE HOR. - 1" = 100' VERT. - 1" = 4'-0"

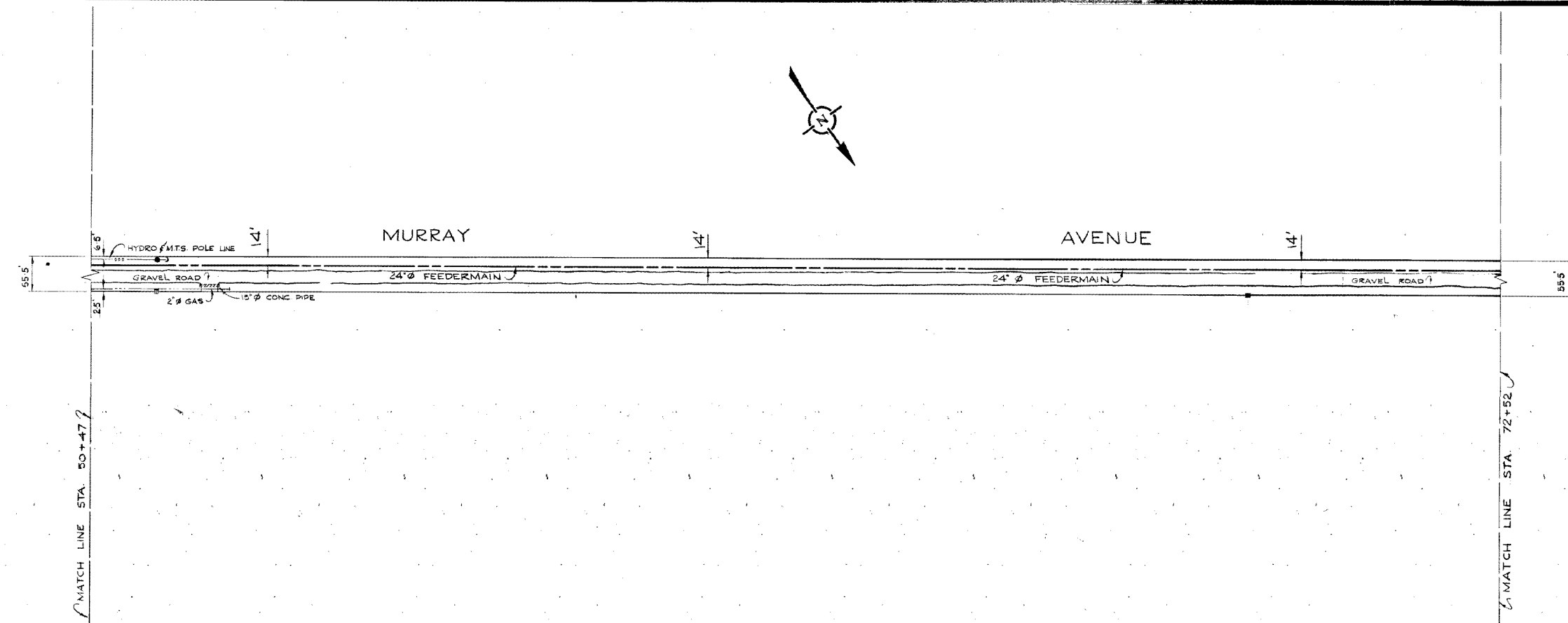
DRAWING NO. **D-1275**

D-1275

CITY OF WINNIPEG  
WATERWORKS  
DIVISION



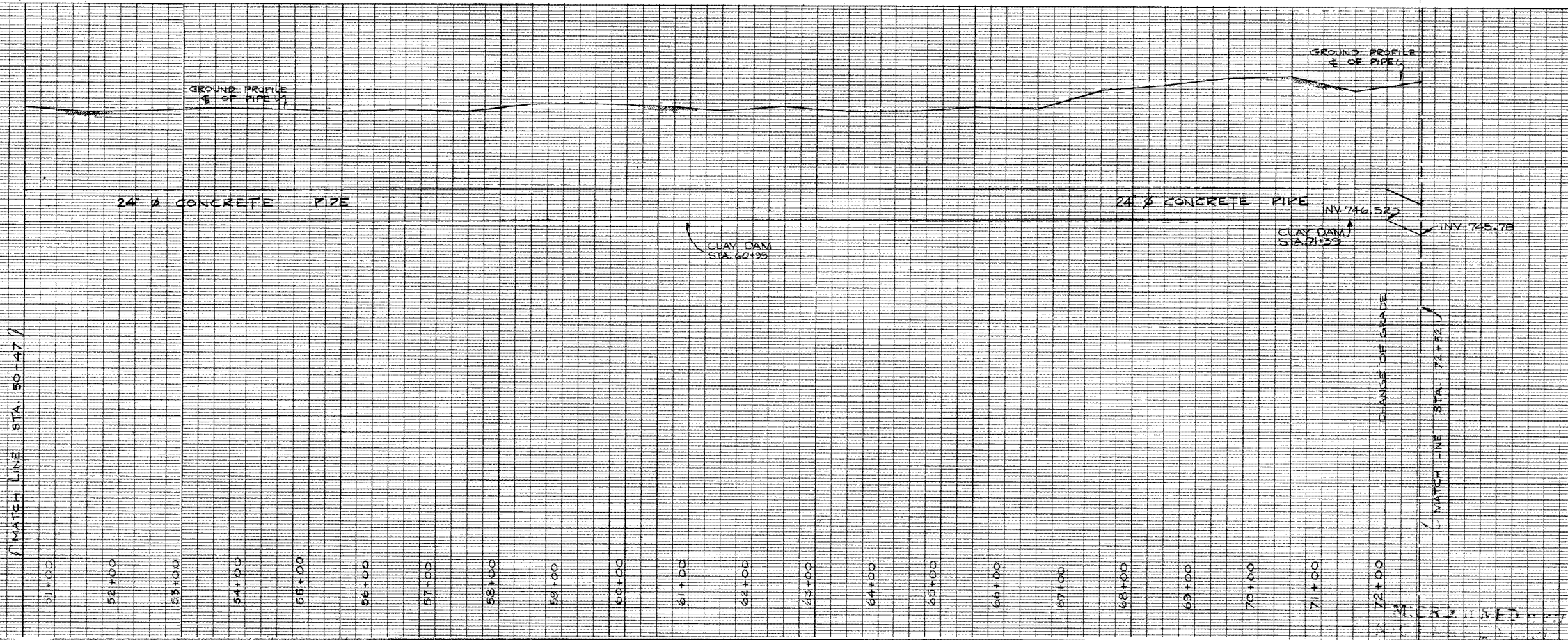
SEE DWG. D-1275



760

740

730



SEE DWG. D-1277

**LEGEND**

WATERWORKS, WASTE AND DISPOSAL - UNDERGROUND UTILITIES	
PROPOSED FORCEMAIN, INTERCEPTOR OR SECONDARY SEWER	_____
EXISTING FORCEMAIN, INTERCEPTOR OR SECONDARY SEWER	_____ W.W.D. 24" SEWER
PROPOSED FEEDERMAIN	_____
EXISTING FEEDERMAIN	_____ W.W.D. 24" F.W.M.
W.W.D.	_____ WATERWORKS, WASTE AND DISPOSAL
OTHER UNDERGROUND UTILITIES	
COMMUNITY SEWER	_____
COMMUNITY WATERMAIN	_____
GAS	_____
HYDRO DUCT	_____
M.T.S. DUCT OR CABLE	_____
STREET LIGHTING, RAILWAY SIGNAL OR TRAFFIC SIGNAL CABLE	_____
SURFACE UTILITIES	
COMMUNITY BOUNDARY LINE	_____
FENCE LINE	_____ X _____ X
POLE LINE	_____ O O O
RAILWAY LINE	_____
MISCELLANEOUS SYMBOLS	
CATCH BASIN	○
CULVERT	□
HYDRANT	⊕
MANHOLE	⊙
HYDRO OR M.T.S. POLE	●
LAMP STANDARD	⊙
RAILWAY OR TRAFFIC SIGNAL STANDARD	⊙
SURVEY BAR	⊙
TREE	⊙
VALVE	⊙

**NOTES**

**AS BUILT**  
 Survey Engineering Date  
 11/17/76

2	REVISED TITLE	91-01-22 M.T.S
1	AS BUILT	1-11-76 M.S
NO.	DESCRIPTION	DATE BY
REVISIONS		
FIELD BOOKS NO. F-387, F-394, F-408, F-426		SURVEYED BY D.M. GALKA
LAND SURVEY PLANS NO.		DATE MAY 14, 1974
B. M.		

*The City of Winnipeg*  
 Waterworks, Waste and Disposal Division

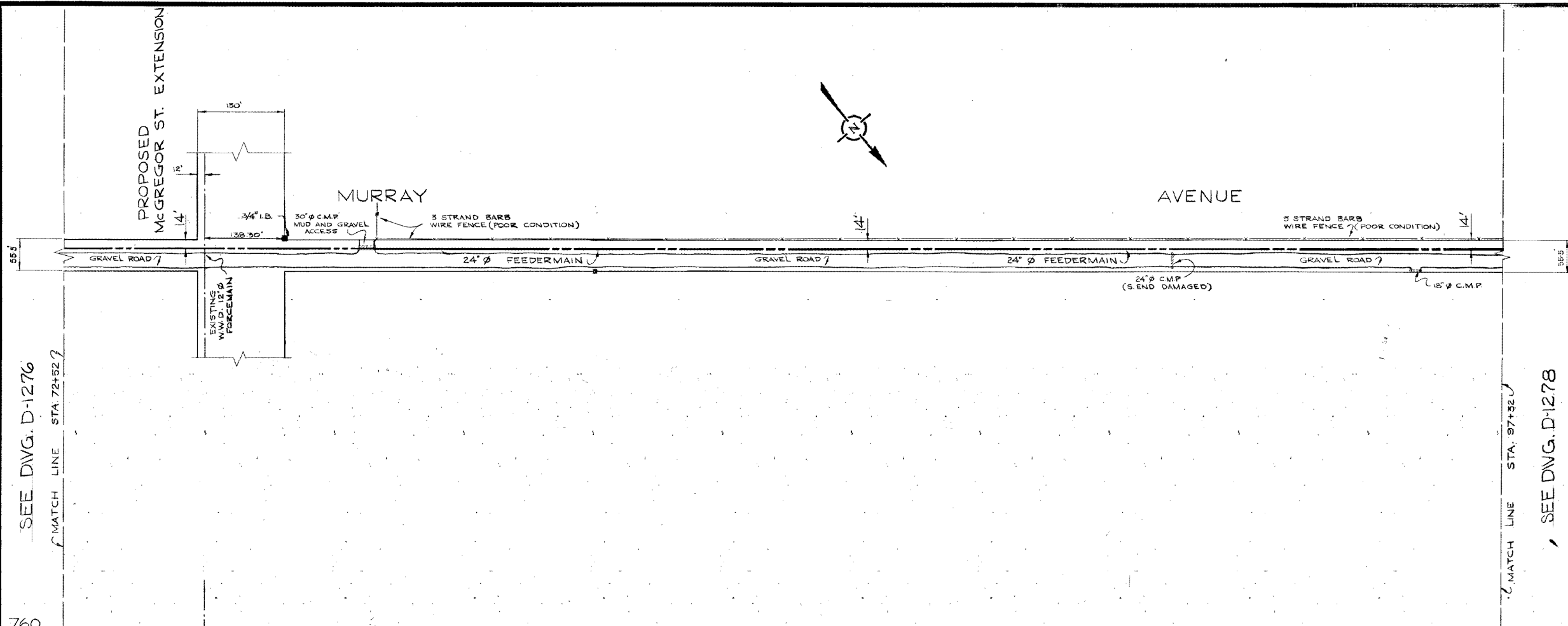
Branch Operations (Waterworks)  
**MURRAY AVENUE FEEDERMAIN**

FROM A POINT 80 FT WEST OF FERRIER ST. TO A POINT 230 FT EAST OF MCGREGOR STREET STA. 50+47 TO STA. 72+52

DESIGNED BY: *Rab.* DRAWN BY: F. Kolbert  
 CHECKED BY: *[Signature]* DATE: SEPT-10-74  
 APPROVED BY: *[Signature]*  
 SCALE: HOR. - 1"=100' VERT. - 1"=4'-0"  
 DRAWING NO. **D-1276**

City of Winnipeg  
W000018

D-1276



**LEGEND**

**WATERWORKS, WASTE AND DISPOSAL; UNDERGROUND UTILITIES**

PROPOSED FORCEMAIN, INTERCEPTOR OR SECONDARY SEWER \_\_\_\_\_

EXISTING FORCEMAIN, INTERCEPTOR OR SECONDARY SEWER \_\_\_\_\_ W.W.D. 24\"/>

PROPOSED FEEDERMAIN \_\_\_\_\_

EXISTING FEEDERMAIN \_\_\_\_\_ W.W.D. 24\"/>

W.W.D. \_\_\_\_\_ WATERWORKS, WASTE AND DISPOSAL

**OTHER UNDERGROUND UTILITIES**

COMMUNITY SEWER \_\_\_\_\_

COMMUNITY WATERMAIN \_\_\_\_\_

GAS \_\_\_\_\_

HYDRO DUCT \_\_\_\_\_

M.T.S. DUCT OR CABLE \_\_\_\_\_

STREET LIGHTING, RAILWAY SIGNAL OR TRAFFIC SIGNAL CABLE \_\_\_\_\_

**SURFACE UTILITIES**

COMMUNITY BOUNDARY LINE \_\_\_\_\_

FENCE LINE \_\_\_\_\_ X \_\_\_\_\_ X \_\_\_\_\_

POLE LINE \_\_\_\_\_

RAILWAY LINE \_\_\_\_\_

**MISCELLANEOUS SYMBOLS**

CATCH BASIN \_\_\_\_\_ O

CULVERT \_\_\_\_\_ [ ]

HYDRANT \_\_\_\_\_ +

MANHOLE \_\_\_\_\_ O

HYDRO OR M.T.S. POLE \_\_\_\_\_ ●

LAMP STANDARD \_\_\_\_\_ ◆

RAILWAY OR TRAFFIC SIGNAL STANDARD \_\_\_\_\_ ⊠

SURVEY BAR \_\_\_\_\_ [ ]

TREE \_\_\_\_\_ ●

VALVE \_\_\_\_\_ ⊙

**NOTES**

**AS BUILT**  
 P. J. WALKER ENGINEERING  
 SURVEY ENGINEERING DATE  
 Nov 25/76

2	REVISED TITLE	91-01-22 M.T.S.
1	AS BUILT	5-11-76 M.S.
NO.	DESCRIPTION	DATE BY
<b>REVISIONS</b>		
FIELD BOOK(S) NO.	F-387, F-384, F-406, F-424	SURVEYED BY
LAND SURVEY PLAN(S) NO.		DATE
B. M.		MAY 14, 1974

**The City of Winnipeg**  
 Waterworks, Waste and Disposal Division

Branch Operations (Waterworks)

**MURRAY AVENUE FEEDERMAIN**

FROM A POINT 230FT EAST OF MCGREGOR STREET TO A POINT 55FT EAST OF MCPHILLIPS STREET STA. 72+52 TO STA. 97+32

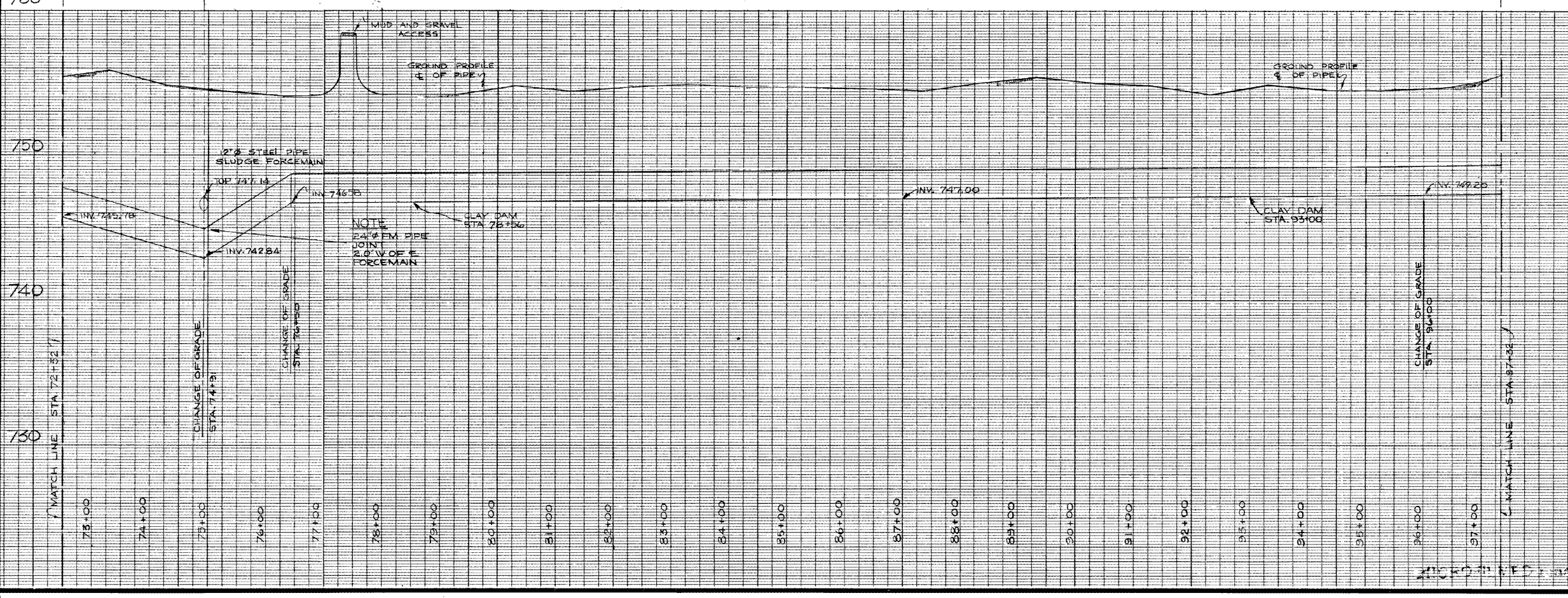
DESIGNED BY *Big* DRAWN BY f. kolbert

CHECKED BY *AS* DATE SEPT-10-74

APPROVED BY *St. Pannan*

SCALE HOR. - 1"=100' VERT. - 1"=4'-0"

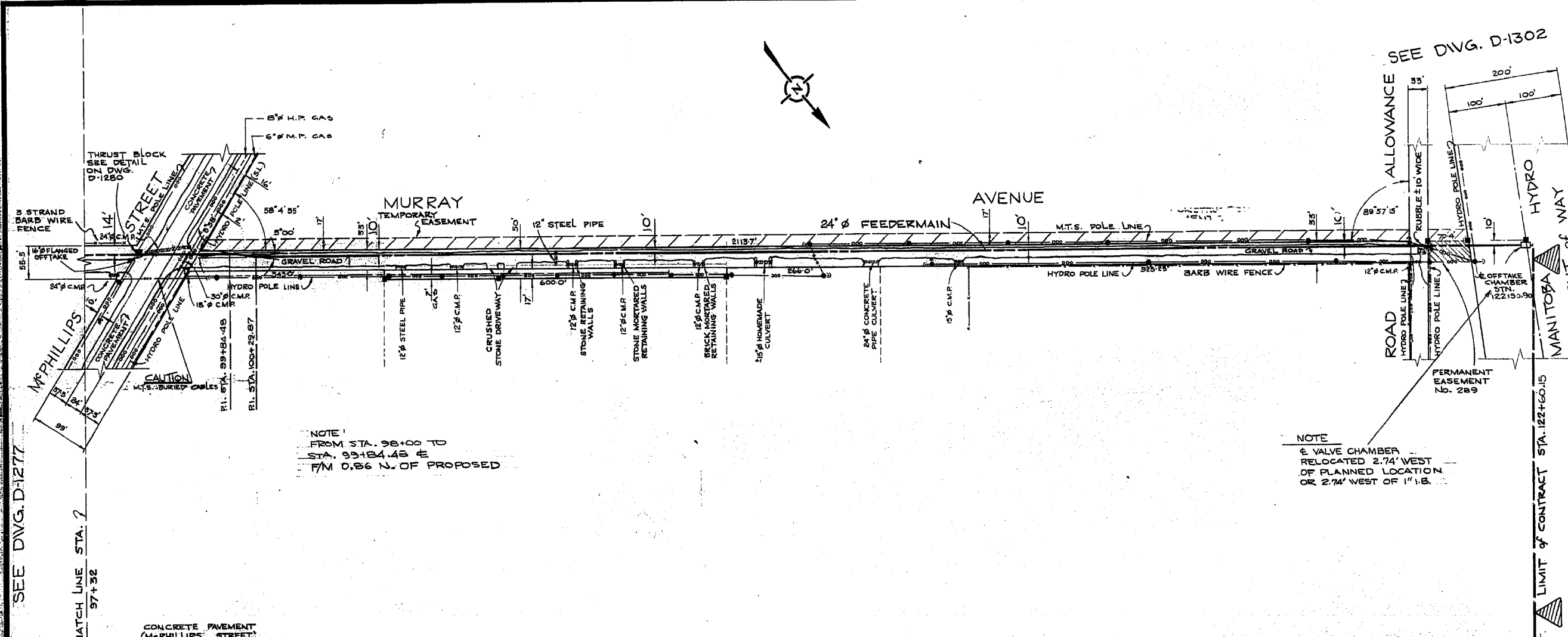
DRAWING NO. **D-1277**



SEE DWG. D-1276  
 MATCH LINE STA. 72+52

MATCH LINE STA. 97+32  
 SEE DWG. D-1278

City of Winnipeg  
 W0003017  
 D-1277



NOTE  
 FROM STA. 98+00 TO  
 STA. 99+84.48 E  
 1/4 M. C.S.B. N. OF PROPOSED

NOTE  
 E VALVE CHAMBER  
 RELOCATED 2.74' WEST  
 OF PLANNED LOCATION  
 OR 2.74' WEST OF 1" I.B.

**LEGEND**

**WATERWORKS, WASTE AND DISPOSAL: UNDERGROUND UTILITIES**

PROPOSED FORCEMAIN, INTERCEPTOR OR SECONDARY SEWER \_\_\_\_\_

EXISTING FORCEMAIN, INTERCEPTOR OR SECONDARY SEWER \_\_\_\_\_ W.W.O. 24" SEWER

PROPOSED FEEDERMAIN \_\_\_\_\_

EXISTING FEEDERMAIN \_\_\_\_\_ W.W.O. 24" W.M.

W.W.O. WATERWORKS, WASTE AND DISPOSAL

**OTHER UNDERGROUND UTILITIES**

COMMUNITY SEWER \_\_\_\_\_

COMMUNITY WATERMAIN \_\_\_\_\_

GAS \_\_\_\_\_

HYDRO DUCT \_\_\_\_\_

M.T.S. DUCT OR CABLE \_\_\_\_\_

STREET LIGHTING, RAILWAY SIGNAL OR TRAFFIC SIGNAL CABLE \_\_\_\_\_

**SURFACE UTILITIES**

COMMUNITY BOUNDARY LINE \_\_\_\_\_

FENCE LINE \_\_\_\_\_

POLE LINE \_\_\_\_\_

RAILWAY LINE \_\_\_\_\_

**MISCELLANEOUS SYMBOLS**

CATCH BASIN \_\_\_\_\_

CULVERT \_\_\_\_\_

HYDRANT \_\_\_\_\_

MANHOLE \_\_\_\_\_

HYDRO OR M.T.S. POLE \_\_\_\_\_

LAMP STANDARD \_\_\_\_\_

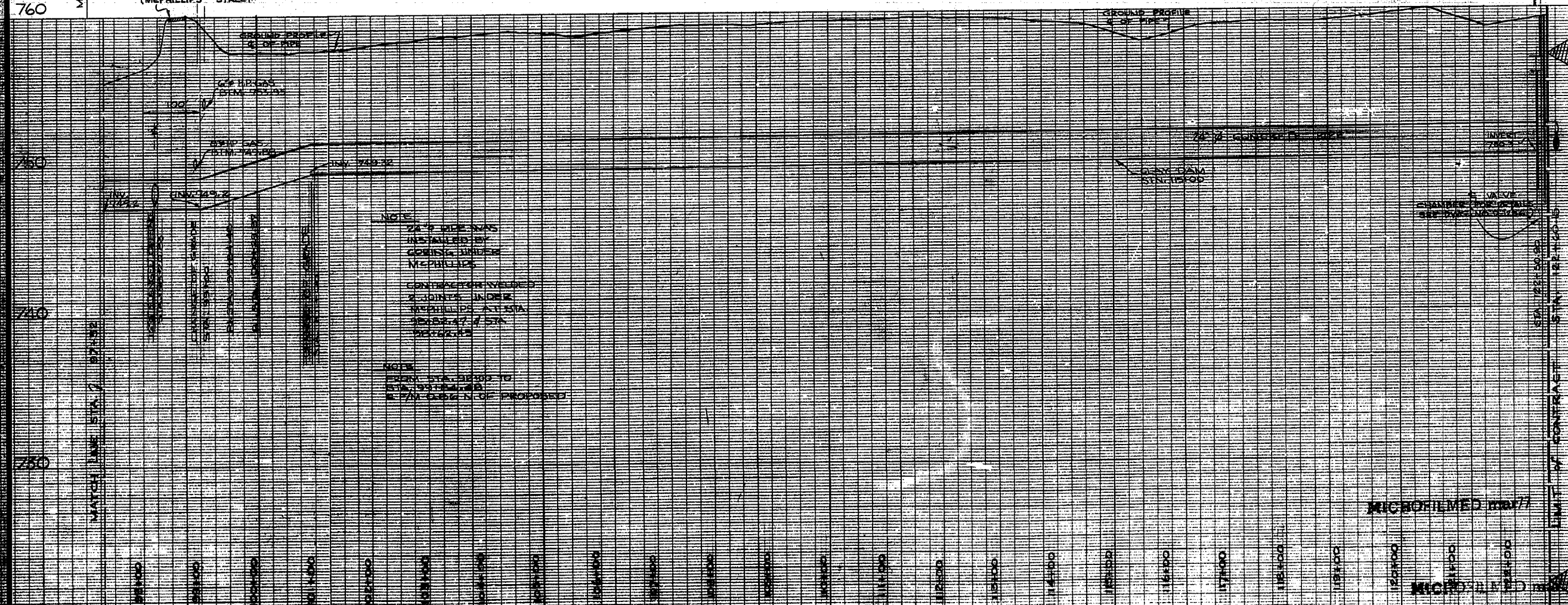
RAILWAY OR TRAFFIC SIGNAL STANDARD \_\_\_\_\_

SURVEY BAR \_\_\_\_\_

TREE \_\_\_\_\_

VALVE \_\_\_\_\_

**NOTES**



NOTE  
 24" PIPE WAS  
 INSTALLED BY  
 GEORGE J. JONES  
 McPHILLIPS  
 CONTRACTOR WELDED  
 X JOINTS UNDER  
 McPHILLIPS AT STA.  
 98+84.48 E

NOTE  
 FROM STA. 98+00 TO  
 STA. 99+84.48 E  
 1/4 M. C.S.B. N. OF PROPOSED

**AS BUILT**

D. S. SURVEY W. Alex. Lion ENGINEERING Nov 25/76 DATE

AS BUILT	9-11-74	M.S.
NO.	DESCRIPTION	DATE BY

**REVISIONS**

FIELD BOOKS NO. F-587, F-394, F-406, F-426	SURVEYED BY P.M. GALKA
LAND SURVEY PLANS NO.	DATE MAY 14, 1974
R.M.	

**The City of Winnipeg**  
 Waterworks, Waste and Disposal Division

Branch Operations (Waterworks)

-MURRAY AVENUE FEEDERMAIN -  
 MAIN ST. TO MANITOBA HYDRO  
 RIGHT OF WAY  
 PLAN - PROFILE

STA. 97+32 TO STA. 122+60.15

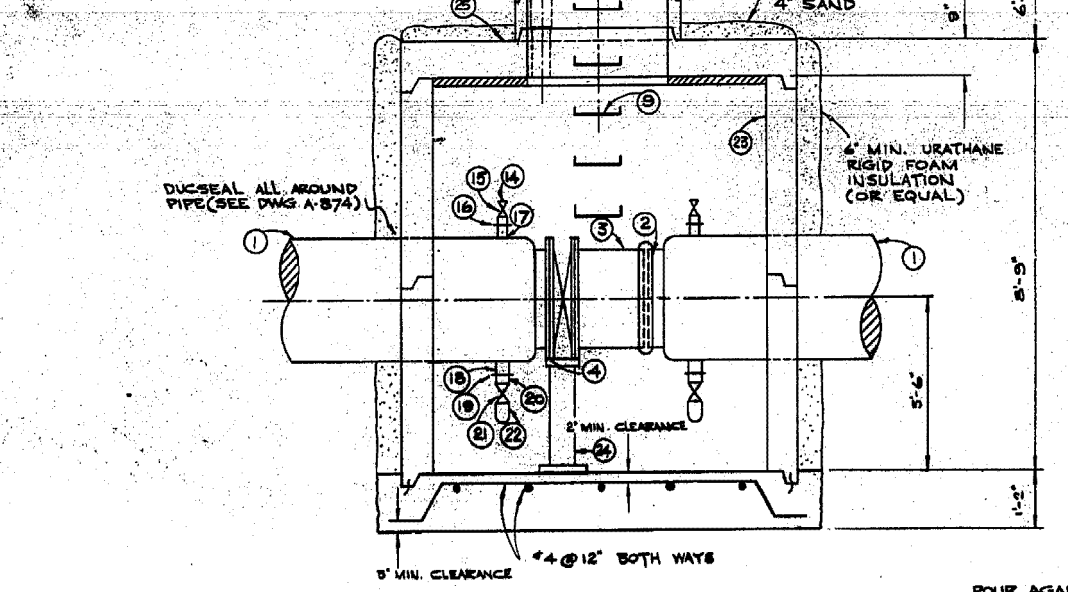
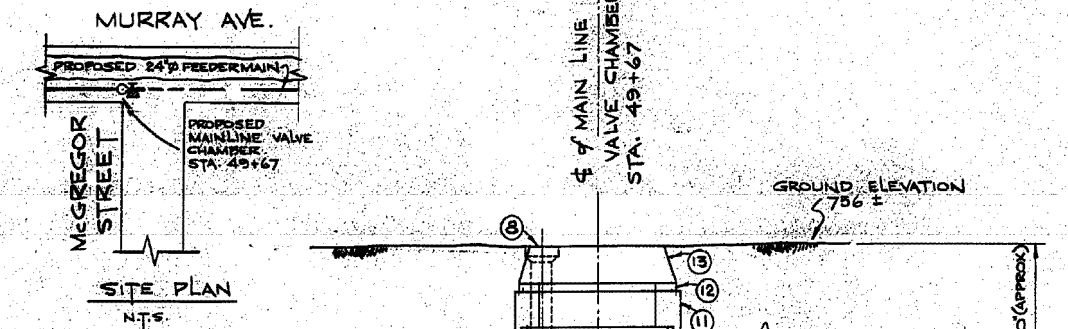
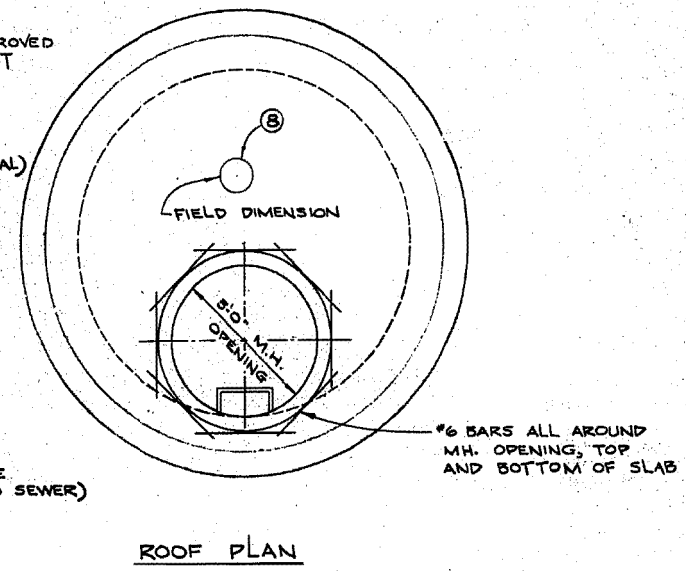
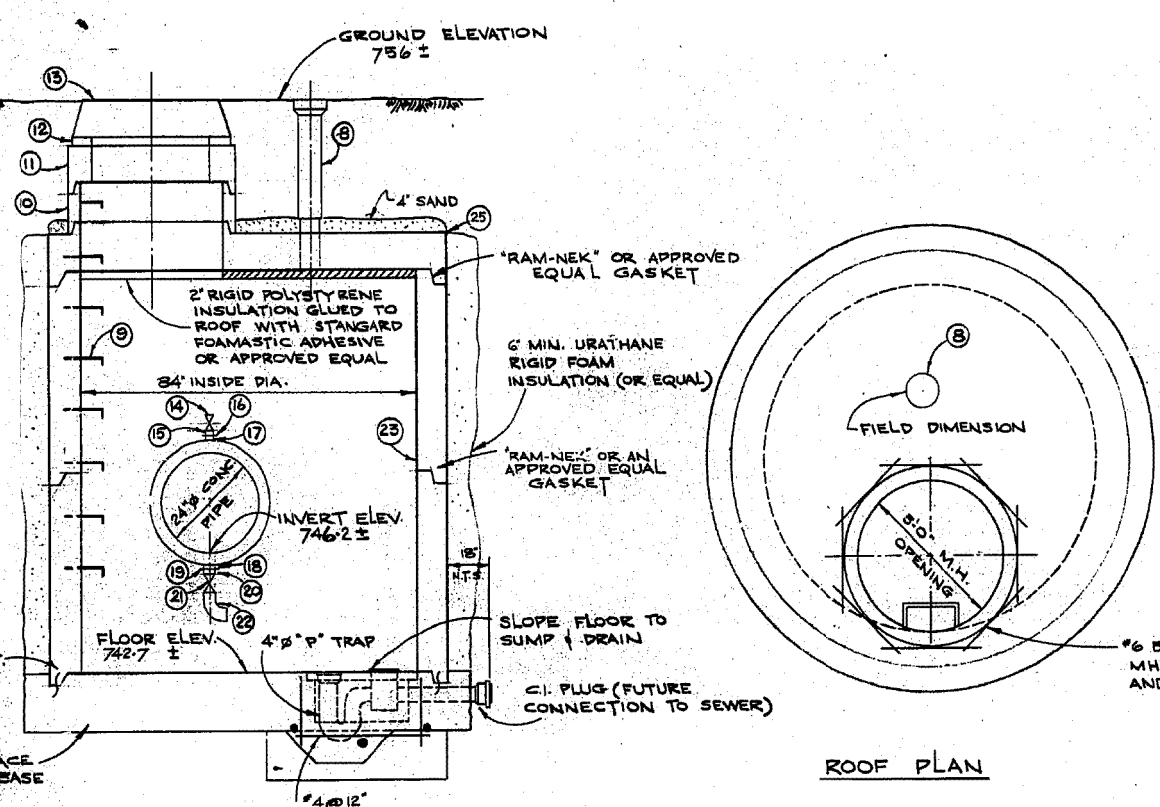
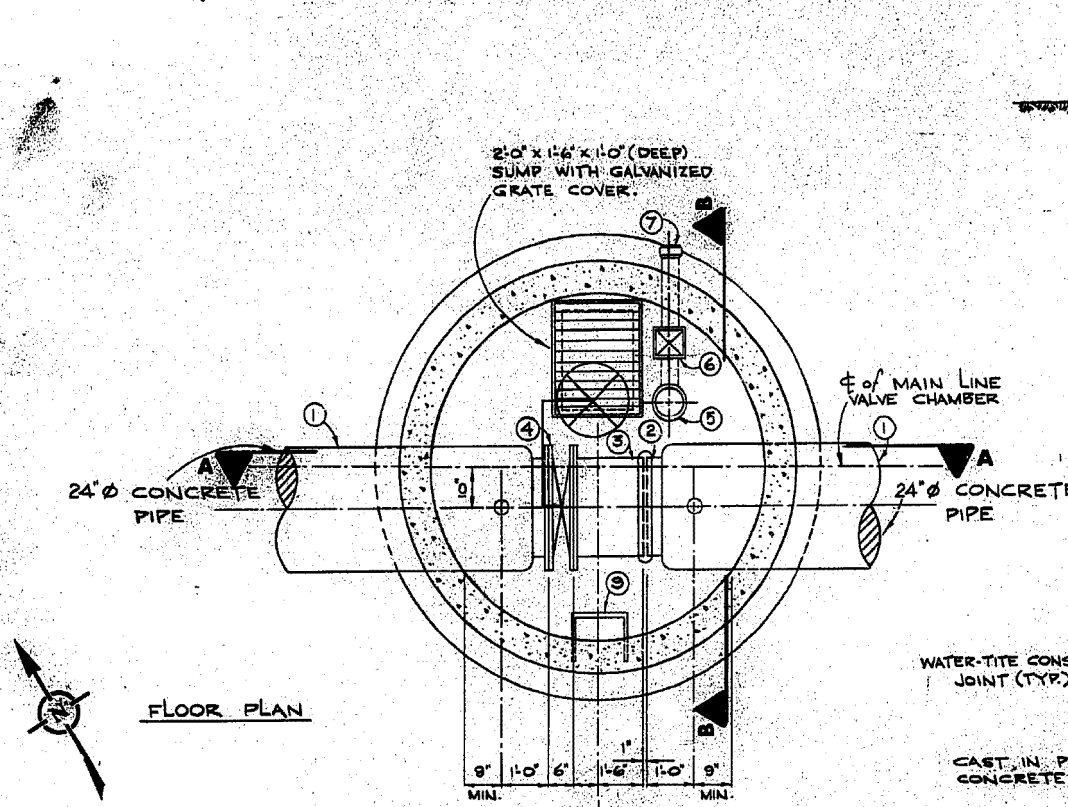
DESIGNED BY *Ruh* DRAWN BY f. kolbert

CHECKED BY *[Signature]* DATE SEPT. 10-74

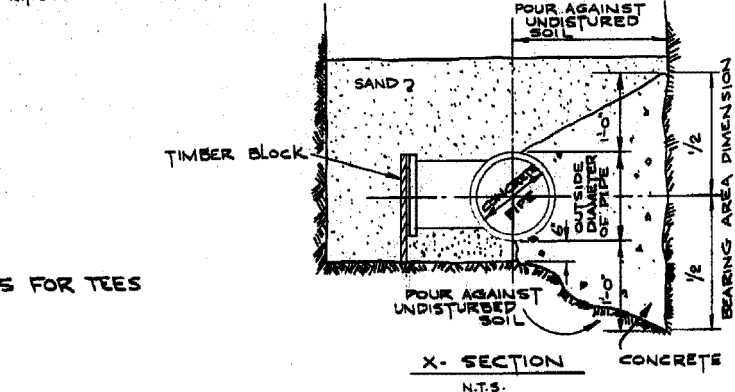
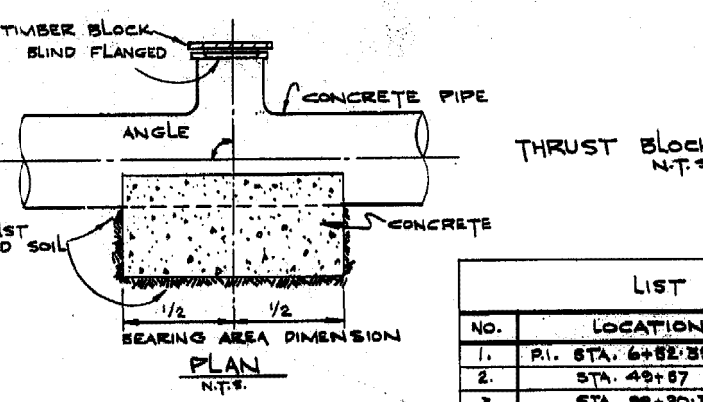
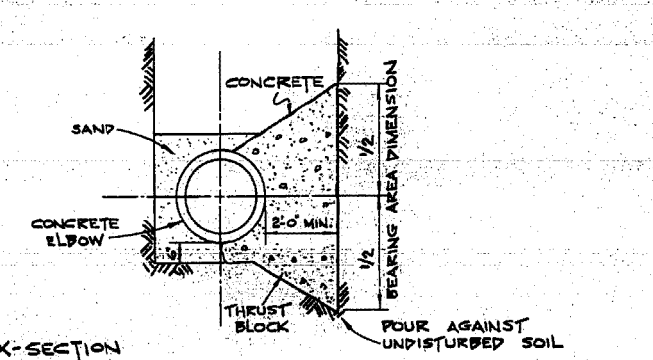
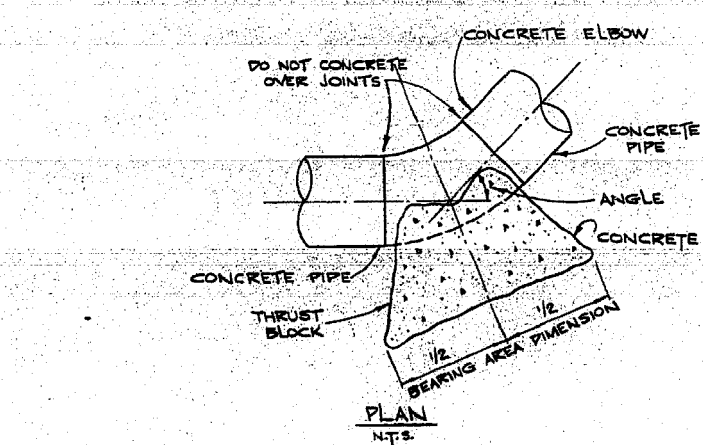
APPROVED BY *[Signature]*

SCALE HOR. 1"=100' VERT. 1"=40'

DRAWING NO. D-1278



**TYPICAL THRUST BLOCK DETAILS FOR 20" Ø + 24" Ø - 45" OR LESS CONC ELBOWS SCALE - N.T.S.**



**LIST OF THRUST BLOCKS**

NO.	LOCATION	PIA.	ANGLE	BEARING AREA
1.	PI. STA. 6+52.39	24'	90°	3'-0" x 3'-0"
2.	STA. 49+67	24'	90°	4'-6" x 10'-0"
3.	STA. 98+20.39	24'	90°	4'-6" x 10'-0"

**AS BUILT**

DESIGNED BY: *R. K.*

CHECKED BY: *[Signature]*

APPROVED BY: *[Signature]*

DATE: *NOV 27 1974*

SURVEY ENGINEERING

PROVINCE OF MANITOBA REGISTERED ENGINEER

**List of Materials**

NO.	DESCRIPTION	QUANTITY
1.	4'-0" short prestressed concrete pipe	1
2.	Victallic coupling style #51	1
3.	1'-6" prestressed concrete pipe adapter	1
4.	24" Butterfly valve w/ waffer style	1
5.	4" C.I. "P" trap and drain with screw-on cover.	1
6.	4" Backwater valve	1
7.	4" C.I. pipe spigot to bell	1
8.	Large adjustable valve box and standard City of Winnipeg Waterworks cover.	1
9.	Standard City of Winnipeg manhole steps at 12" centre to centre. For details see Drawing No. 817.	1
10.	36" ASTM C76-70 Class II precast concrete manhole section with "Ram-Nek" or an approved equal gasket.	1
11.	30" x 36" ASTM C76-70 Class II precast concrete eccentric flat top reducer section.	1
12.	Maximum 2 rows concrete brick or 6" long precast section.	1
13.	Standard City of Winnipeg Waterworks manhole frame and solid cover.	1
14.	2" Bronze gate valve - threaded.	2
15.	2" Bronze nipple-threaded	2
16.	2" Threaded Flange	2
17.	2" Steel outlet-Flanged	2
18.	3" Steel outlet - Flanged	2
19.	3" Threaded Flange	2
20.	3" Bronze nipple Threaded	2
21.	3" Bronze Gate Valve - Threaded.	2
22.	3" Elbow - Threaded and Galvanized.	2
23.	36" ASTM C76-70 Class II precast concrete manhole section with "Ram-Nek" or an approved equal gasket	2
24.	Orinell 24" galvanized manhole cover or approved equal	2
25.	84" to 36" eccentric reducer	1

\* To be supplied by The City

**REVISIONS**

NO.	DESCRIPTION	DATE	BY
1	AS BUILT	9-11-74	m.s.

FIELD BOOK(S) NO. \_\_\_\_\_ SURVEYED BY \_\_\_\_\_

LAND SURVEY PLAN(S) NO. \_\_\_\_\_ DATE \_\_\_\_\_

B. M. \_\_\_\_\_

**The City of Winnipeg**

Waterworks, Waste and Disposal Division

**-MURRAY AVENUE FEEDERMAIN-  
MAINLINE VALVE CHAMBER- STA. 49+67  
THRUST BLOCK - STA. 6+52.39,  
STA. 49+57 + STA. 98+20.39**

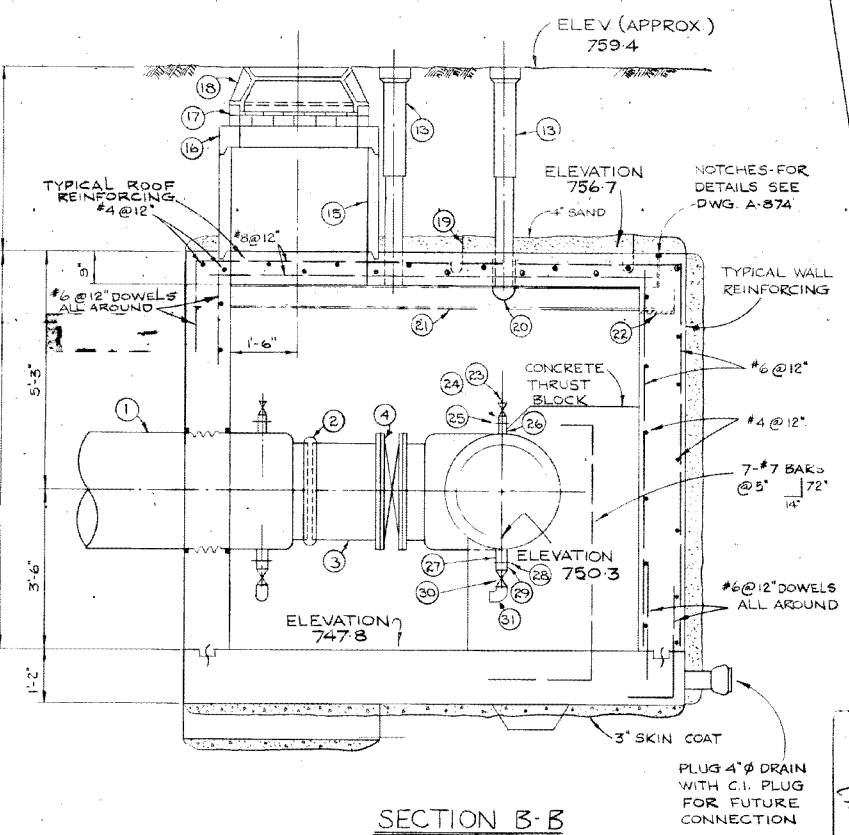
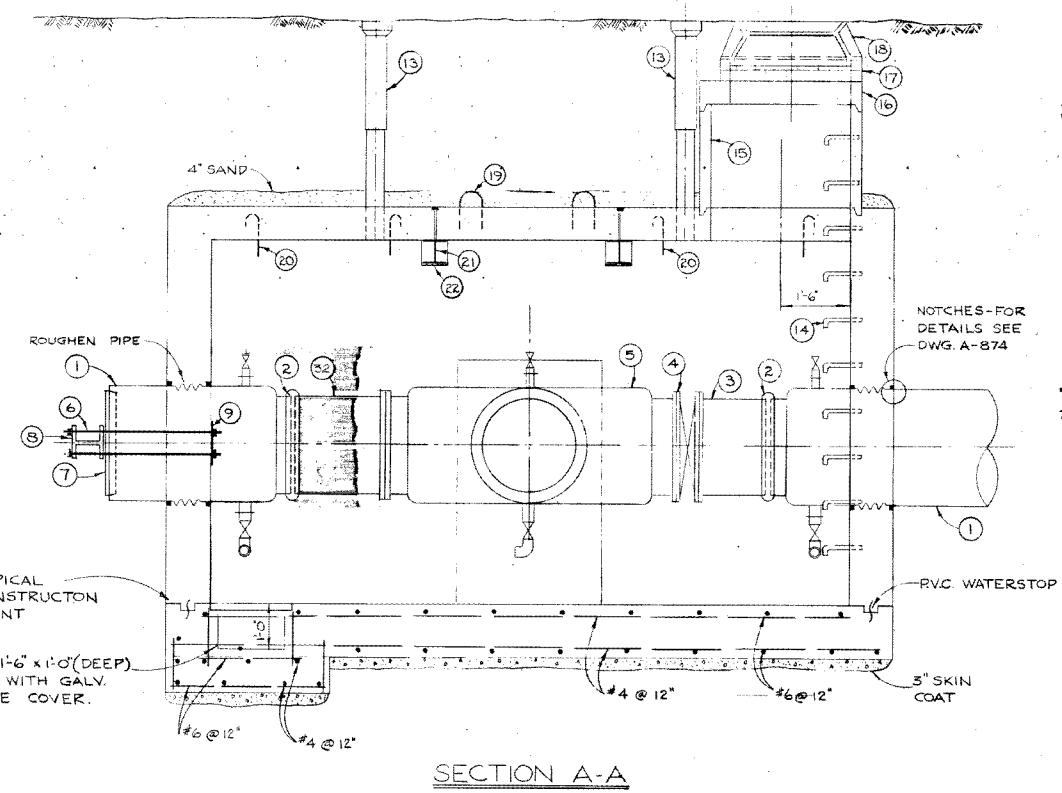
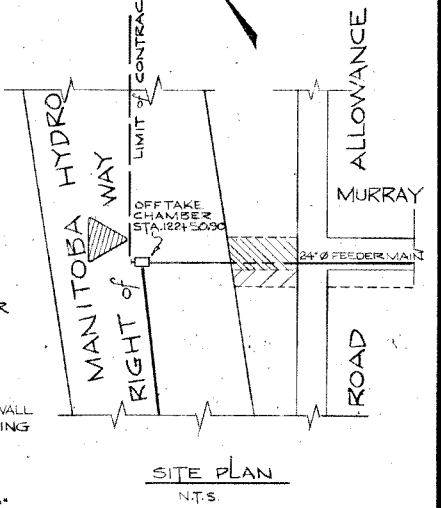
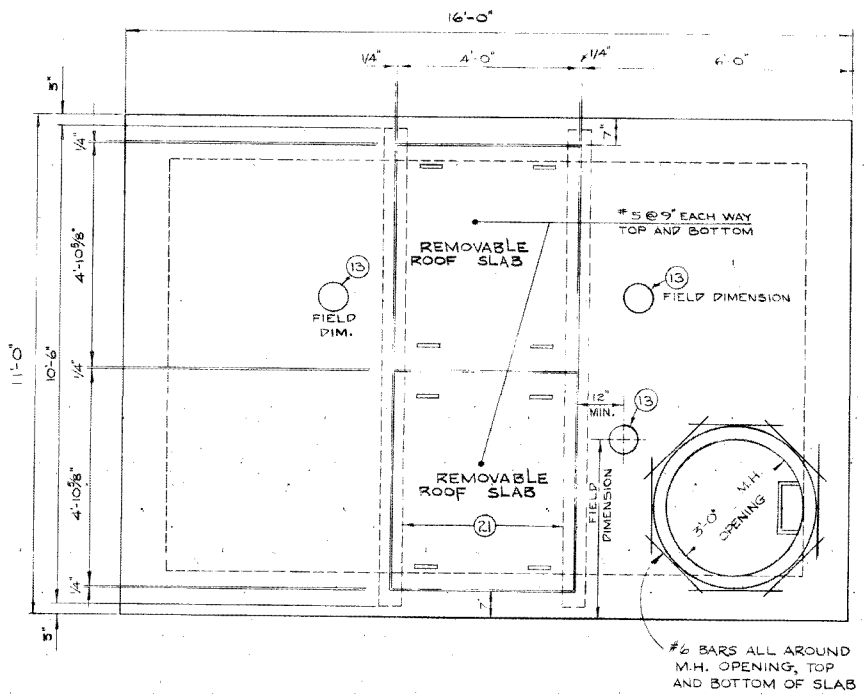
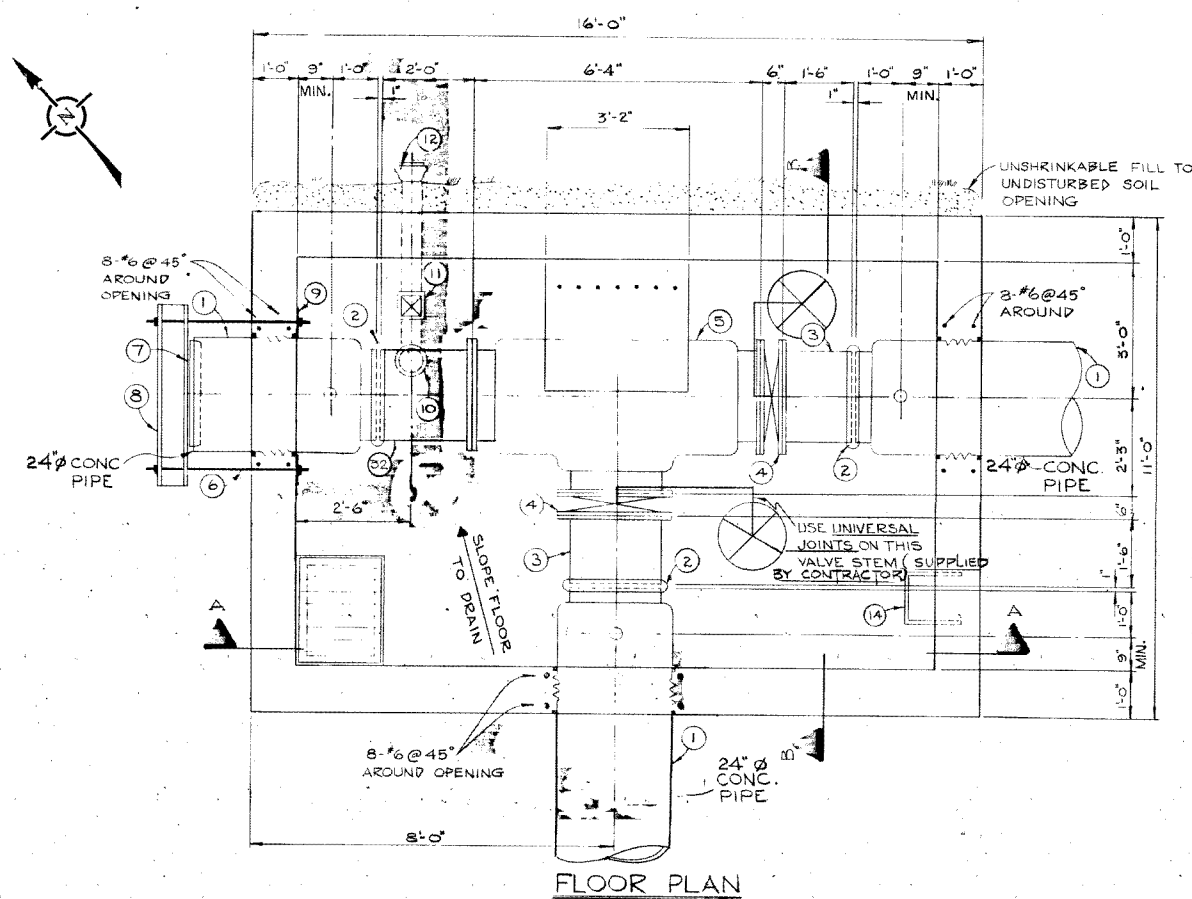
DESIGNED BY: *R. K.* DRAWN BY: *F. Kolbert*

CHECKED BY: *[Signature]* DATE: *SEPT. 10-74*

APPROVED BY: *[Signature]*

SCALE: 1/2" = 1'-0"

DRAWING NO. **D-1280**



**LIST OF MATERIALS FOR OFFTAKE CHAMBER**

No.	Description	Quantity
1*	4'0" short prestressed concrete pipe	3
2*	Victaulic coupling style #51	3
3*	1'6" prestressed concrete adaptor	2
4*	Butterfly Valve wafer style	2
5*	Prestressed concrete tee flange to flange to flange	1
6	4'0"x1 5/8" galvanized bolts c/w cadmium plated nuts and washers	8
7*	Concrete Plug	2
8	W 12 x 19 steel beam	2
9	10"x10" galvanized plate 1/2" thick	2
10	4"Ø C.I. "P" trap and drain with screw on cover	1
11	4" backwater valve	1
12	4"Ø C.I. Pipe spigot to bell	1
13	Large adjustable valve box and standard City of Winnipeg Waterworks Cover c/w stems	3
14	Standard City of Winnipeg manhole steps at 12" center to center. For details see drawing No. A-817	3
15	36"Ø ASTM C-76 Class II precast concrete manhole section with "Ramtek" or an approved equal gasket.	1
16	30"x36"Ø ASTM C-76 Class II precast concrete eccentric flat top reducer section.	1
17	Maximum 2 rows concrete brick or a 6" long precast concrete section. Standard City of Winnipeg waterworks manhole frame and solid cover.	1
18	Lifting Lugs. For details see drawing No. A-878.	8
19	U-bolt hook. For details see drawing No. A-877	4
20	W6 x 20 steel beam (6 40.12)	2
21	Bearing plate 9"x6"x3/8"	4
22	2"Ø bronze gate valve - threaded	3
23	2"Ø bronze nipple - threaded	3
24	2"Ø threaded flange	3
25	2"Ø steel outlet - flanged	3
26	3"Ø steel outlet - flanged	3
27	3"Ø threaded flange	3
28	3"Ø bronze nipple - threaded	3
29	3"Ø bronze gate valve - threaded	3
30	3"Ø 90° elbow - threaded and galvanized	3
31	32* 2'-0" x 2'-0" filler piece	1

- \* To be supplied by the City.  
Notes:  
1. Waterproofing to be supplied to all exterior walls.  
2. Concrete on tee to be roughened and coated with epoxy bonding agent prior to pouring of thrust block.

2 REMOVED THRUST BEAM FROM SOUTH WALL 9/10/18 M.T.

NO.	DESCRIPTION	DATE	BY
1	AS BUILT	0-11-76	M.S.

**REVISIONS:**

FIELD BOOK(S) NO. SURVEYED BY: \_\_\_\_\_  
LAND SURVEY PLAN(S) NO. DATE: \_\_\_\_\_  
R.M. \_\_\_\_\_

**The City of Winnipeg**  
Waterworks, Waste and Disposal Division

Branch Operations (Waterworks)  
- MURRAY AVE. FEEDERMAIN -  
VALVE CHAMBER  
MAN. HYDRO R.O.W. & MURRAY AVE EX  
STA 122+50.90

**AS BUILT**  
D.S. & W. & N. SURVEY ENGINEERING DATE  
MICROFILMED

DESIGNED BY: <i>R. Kolbert</i>	DRAWN BY: <i>R. Kolbert</i>
CHECKED BY: <i>[Signature]</i>	DATE: OCT. 10-74
APPROVED BY: <i>[Signature]</i>	
SCALE: 1/2" = 1'-0"	DRAWING NO. D-1286

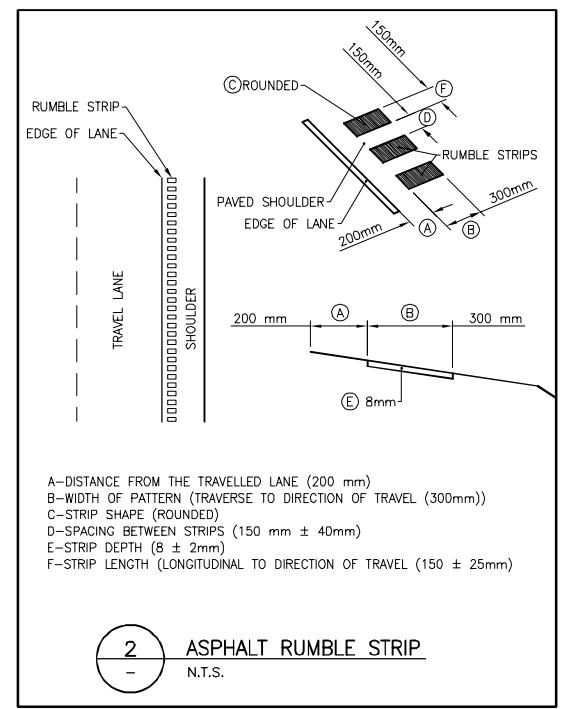
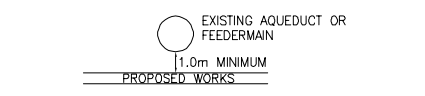
LBIS 96-09-24

City of Winnipeg  
W003027

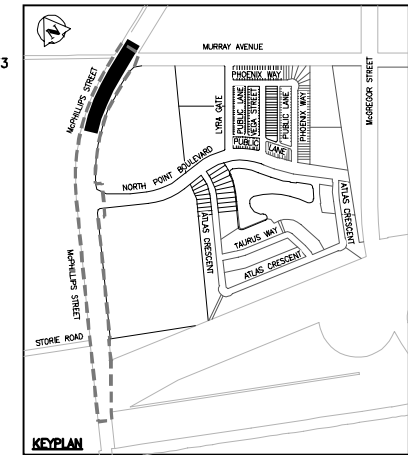
D-1286

- NOTES:**
- CHAINAGES SHOWN ARE ALONG CENTERLINE OF R.O.W.
  - ALL LONG ASSEMBLY HYDRANTS (SD-006) ALL SHORT ASSEMBLY HYDRANTS (SD-007).
  - PRIOR TO ANY CONSTRUCTION, THE FEEDERMAIN WAS EXPOSED BY A SOFT DIG METHOD SO AS TO CONFIRM DEPTH AND LOCATION.
  - A MINIMUM CLEARANCE OF 1.0m WAS PROVIDED BETWEEN THE UNDERSIDE OF THE FEEDERMAIN AND THE TOP OF THE PROPOSED WORKS.

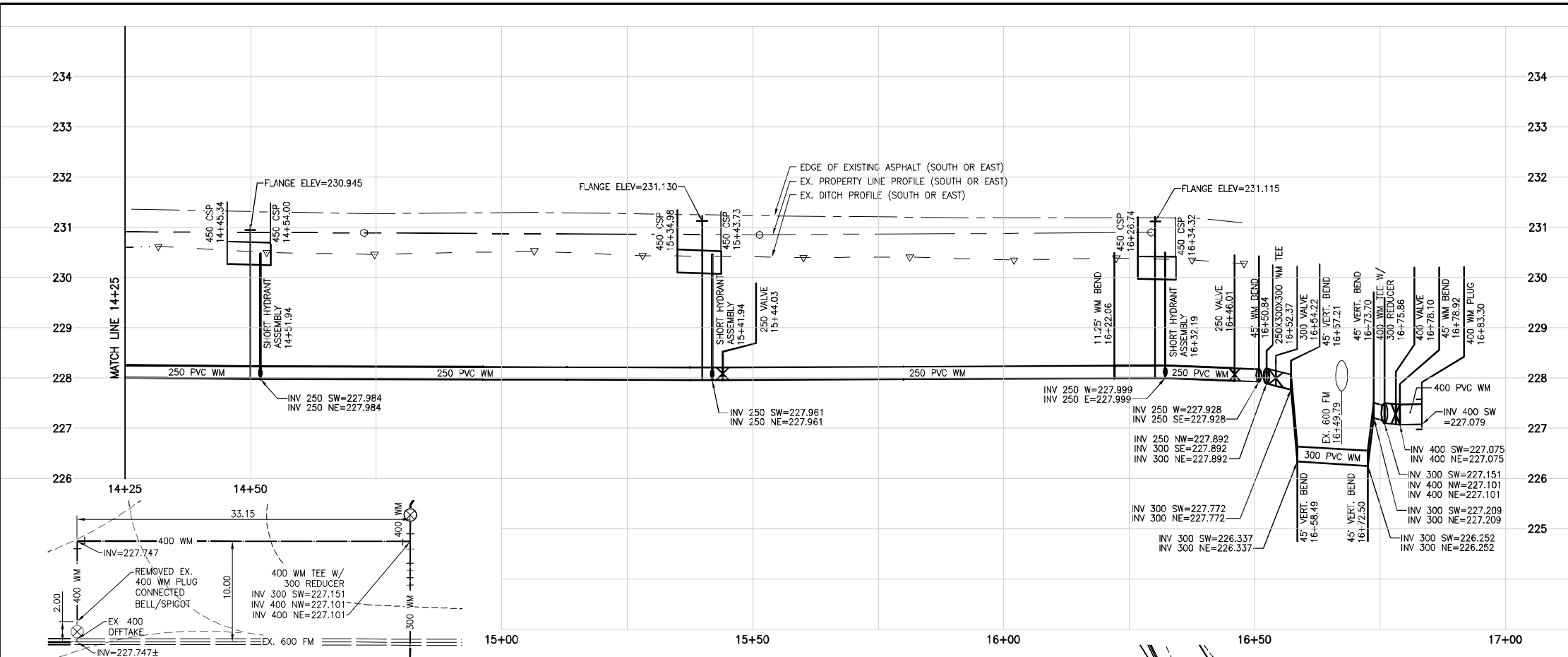
- A SHAFT WAS EXCAVATED BY SOFT DIG METHODS 4.0m FROM THE CENTERLINE OF THE FEEDERMAIN TO CONFIRM THE ALIGNMENT AND ELEVATION OF THE DRILLING ROD BEFORE IT CROSSED UNDER THE FEEDERMAIN. THIS CONFIRMATION WAS WITNESSED BY A CITY REPRESENTATIVE.
- VIBRATORY EQUIPMENT WAS NOT OPERATED OVER OR WITHIN 3.0m OF THE FEEDERMAIN CENTERLINE. INSTALLATION EQUIPMENT DID NOT CROSS OR TRAVEL ALONG EITHER SIDE OF THE FEEDERMAIN WITHIN A LATERAL DISTANCE OF 5.0m FROM THE CENTERLINE OF THE AQUEDUCT AND/OR FEEDERMAIN.
- CONSTRUCTED VERTICAL WM BENDS IN ACCORDANCE WITH SD-005.



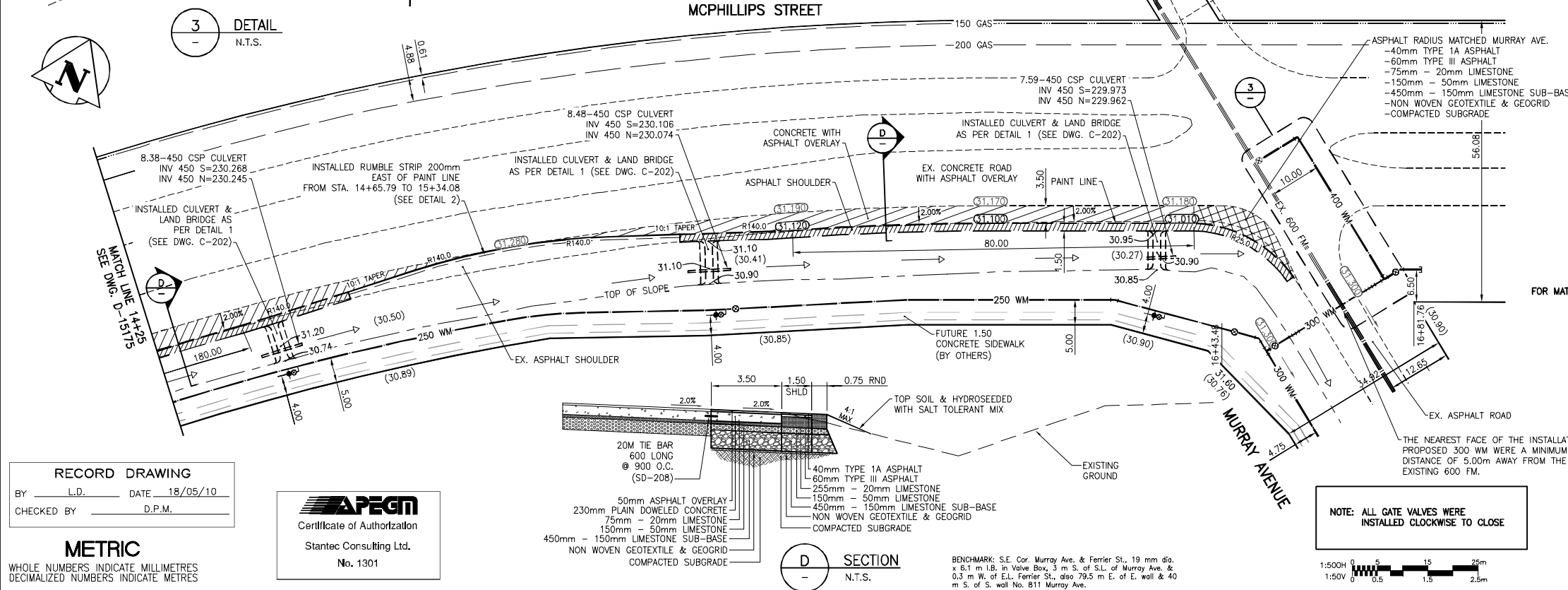
- A-DISTANCE FROM THE TRAVELLED LANE (200 mm)
- B-WIDTH OF PATTERN (TRAVERSE TO DIRECTION OF TRAVEL (300mm))
- C-STRIP SHAPE (ROUNDED)
- D-SPACING BETWEEN STRIPS (150 mm ± 40mm)
- E-STRIP DEPTH (8 ± 2mm)
- F-STRIP LENGTH (LONGITUDINAL TO DIRECTION OF TRAVEL (150 ± 25mm))



CONSTRUCTION COMPLETION DATE - SEPTEMBER 2017



**3** DETAIL  
N.T.S.



**RECORD DRAWING**  
BY L.D. DATE 18/05/10  
CHECKED BY D.P.M.



**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

**D** SECTION  
N.T.S.

NOTE: ALL GATE VALVES WERE INSTALLED CLOCKWISE TO CLOSE

BENCHMARK: S.E. Cor. Murray Ave. & Ferrier St., 19 mm dia. x 6.1 m I.B. in Valve Box, 3 m S. of S.L. of Murray Ave. & 0.3 m W. of E.L. Ferrier St., also 79.5 m E. of E. wall & 40 m S. of S. wall No. 811 Murray Ave.



150 WM	WATERMAIN	150 WM	HYDRO	150 WM	WATERMAIN	150 WM
+	HYDRANT	+	M.T.S.	+	HYDRANT VALVE	+
⊗	VALVE	⊗	CONCRETE	⊗	LAND DRAINAGE SEWER	⊗
300 LDS	LAND DRAINAGE SEWER	300 LDS	ASPHALT	250 WWS	WASTE WATER SEWER	250 WWS
250 WWS	WASTE WATER SEWER	250 WWS	SIDEWALK	⊗	C PROFILE	⊗
⊙	MANHOLE	⊙	PROPERTY LINE	⊙	NORTH OR WEST GUTTER	⊙
■	CATCH BASIN	■	SURVEY BAR	+	SOUTH OR EAST GUTTER	+
▽	CURB INLET	▽	DITCH	◇	NORTH OR WEST R	◇
+	JUNCTIONS	+	ROAD ELEVATION	⊙	SOUTH OR EAST R	⊙
⊙	CULVERT	⊙	ELEVATION	△	NORTH OR WEST DITCH	△
---	GAS	---		▽	SOUTH OR EAST DITCH	▽
---	EXISTING	---	LEGEND-PLAN	---	LEGEND-PROFILE	---

**LOCATION APPROVED UNDERGROUND STRUCTURES**  
SUPV. U/G STRUCTURES COMMITTEE DATE  
NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN 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	BY	DATE
5	RECORD DRAWING	L.D.	18.05.10
4	ISSUED FOR CONSTRUCTION	L.D.	16.09.28
3	RESUBMITTED FOR REVIEW	L.D.	16.08.28
2	ISSUED FOR BIDDING	L.D.	16.04.28
1	SUBMITTED FOR CITY REVIEW	L.D.	16.04.25

**Stantec**  
500 - 311 Portage Avenue, Winnipeg MB Canada R3B 2B9  
Tel. 204.489.5900 Fax. 204.453.9012 www.stantec.com

DESIGNED BY D.P.M. CHECKED BY P.J.S.  
DRAWN BY L.D. APPROVED BY D.P.M.

HOR. SCALE: 1:500  
VERTICAL: 1:50

RELEASED FOR CONSTRUCTION: DATE 2016.01.26

ENGINEER'S SEAL  
ORIGINAL SEALED BY D.P. MAGES P. ENG. 16/09/28  
CONSULTANT DRAWING NO. C-204

**THE CITY OF WINNIPEG**  
DASZ 40/2016  
1910588 ALBERTA LTD. (AG 40/16)

AURORA AT NORTH POINT - MCPHILLIPS STREET  
MCPHILLIPS STREET  
200m NE OF NORTH POINT BOULEVARD TO  
MURRAY AVENUE

SHEET 5 OF 5  
CAD FILE DRAWING NUMBER 0940IC-201-880DWG  
CITY DRAWING NUMBER D-15176