

LEGEND -
 A.B.M. ADJUSTED TRIANGULATION - TOP OF MAIN OPERATING
 S.M.P. HORIZONTAL TRIANGULATION
 M.T.P. METRIC TURNING POINT
 S.M.P. SURVEY PINNACLES
 S.M.P. SURVEY GRADES

NOTE! FOR SETTING-OUT (S) DIMENSIONS SEE (S)

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



Department of Public Works
 Ministère des Travaux publics

J. ELAREN & ASSOCIATES LIMITED
 CONSULTING ENGINEERS
 189 FIRST AVENUE - OTTAWA 1, ONT.



A detail no. détail no.
 B location drawing no. sur dessin no.
 C drawing no. dessin no.
 revisions révisions

project title titre du projet
 OTTAWA ONTARIO
 CONFEDERATION HEIGHTS
 CENTRAL HEATING PLANT
 HEATING AND COOLING
 SERVICE ADDITIONS

drawing title titre du dessin
 UNDERGROUND DISTRIBUTION
 EXTENSION
 PLAN AND PROFILE

designed by SDD conçu par
 date DEC 68 JES- dessiné par
 reviewed by JES- examiné par
 approved by JES- approuvé par
 project number no. du projet
 CR 67-9-161

drawing no. dessin no.
 M-1 of 8



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Ministère des Travaux publics

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185 FIRST AVENUE - OTTAWA 1, ONT.



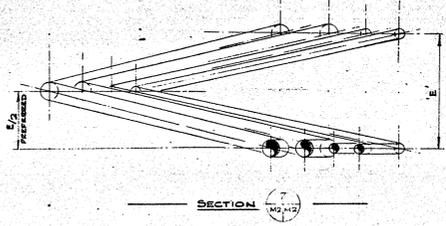
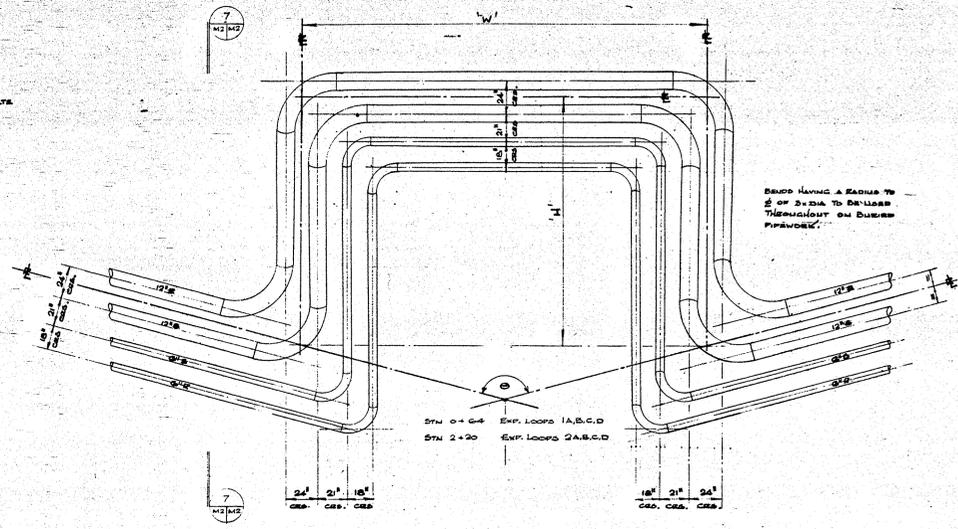
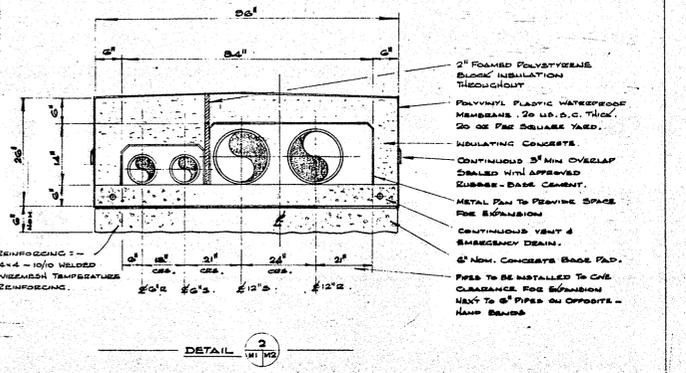
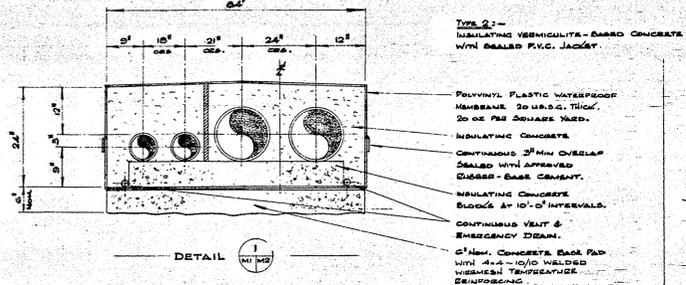
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OTTAWA ONTARIO
CONFEDERATION HEIGHTS
CENTRAL HEATING PLANT
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SERVICE ADDITIONS

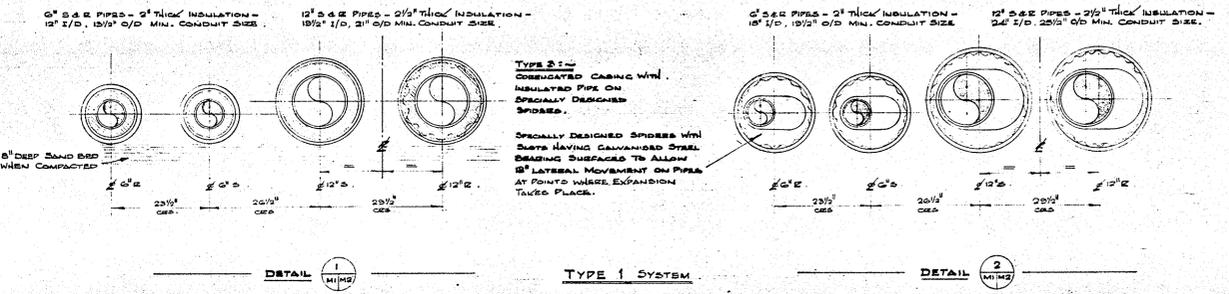
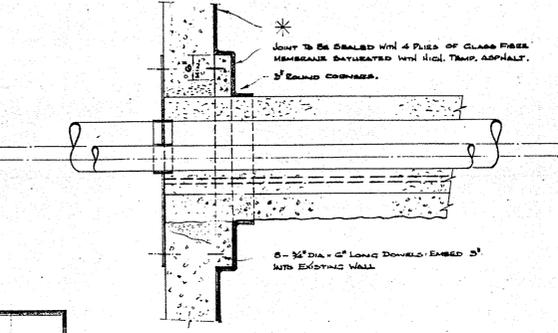
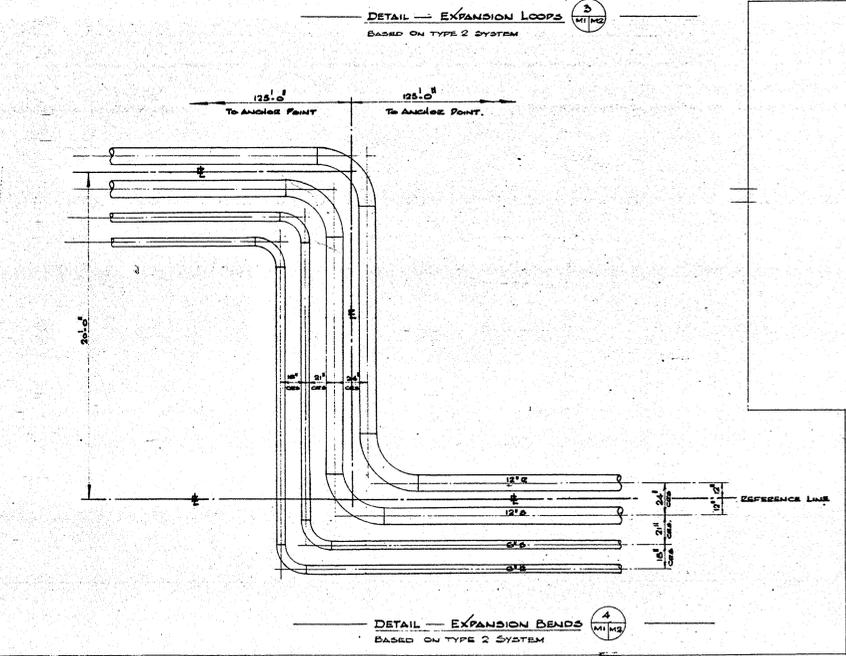
drawing title titre du dessin
UNDERGROUND DISTRIBUTION
EXTENSION
DETAILS

designed by conçu par S D D
date
drawn by dessiné par J E S
date
reviewed by examiné par
approved by approuvé par
date
project number no. du projet
CR 67-9-161
drawing no. dessin no.
M-2 of 8

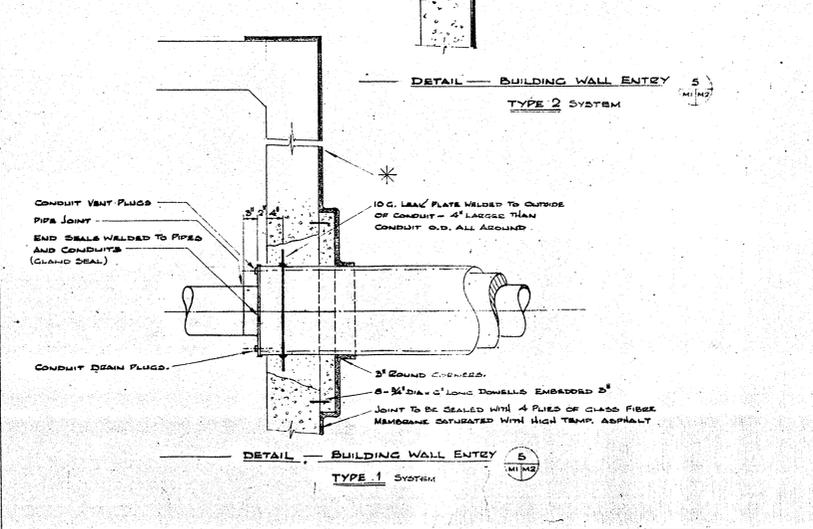
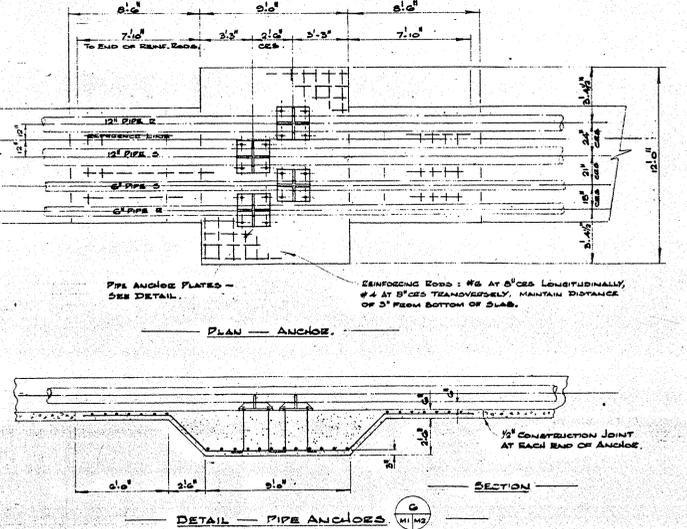
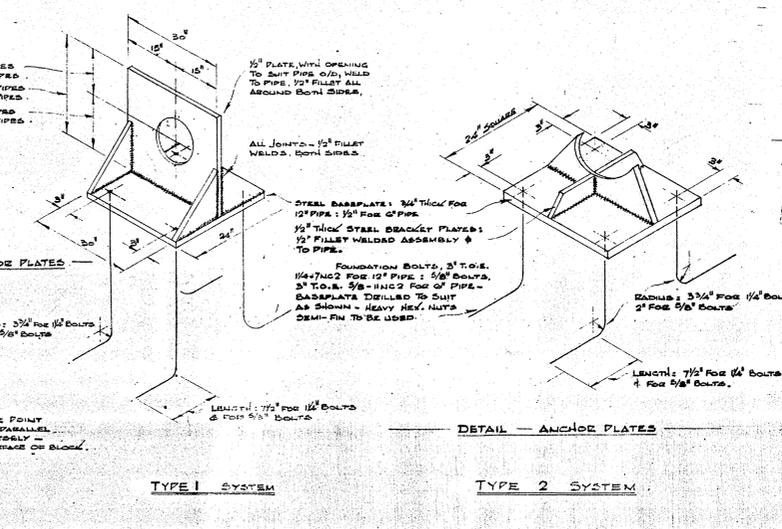
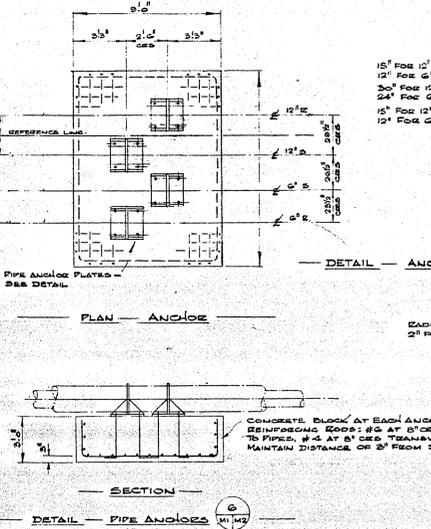
TYPE 2 SYSTEM



	W	E	∠
EXPANSION LOOP NO 1	24'-0"	24'-0"	180°
EXPANSION LOOP NO 2	24'-0"	24'-0"	180°



Note: ALL CONCRETE - 2500 PSI STRENGTH AT 28 DAYS





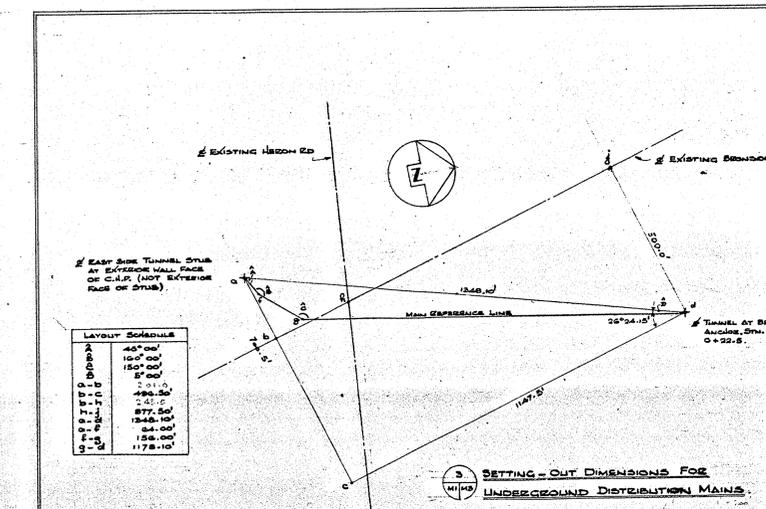
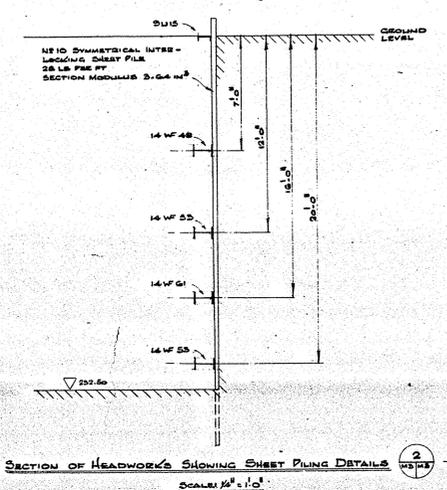
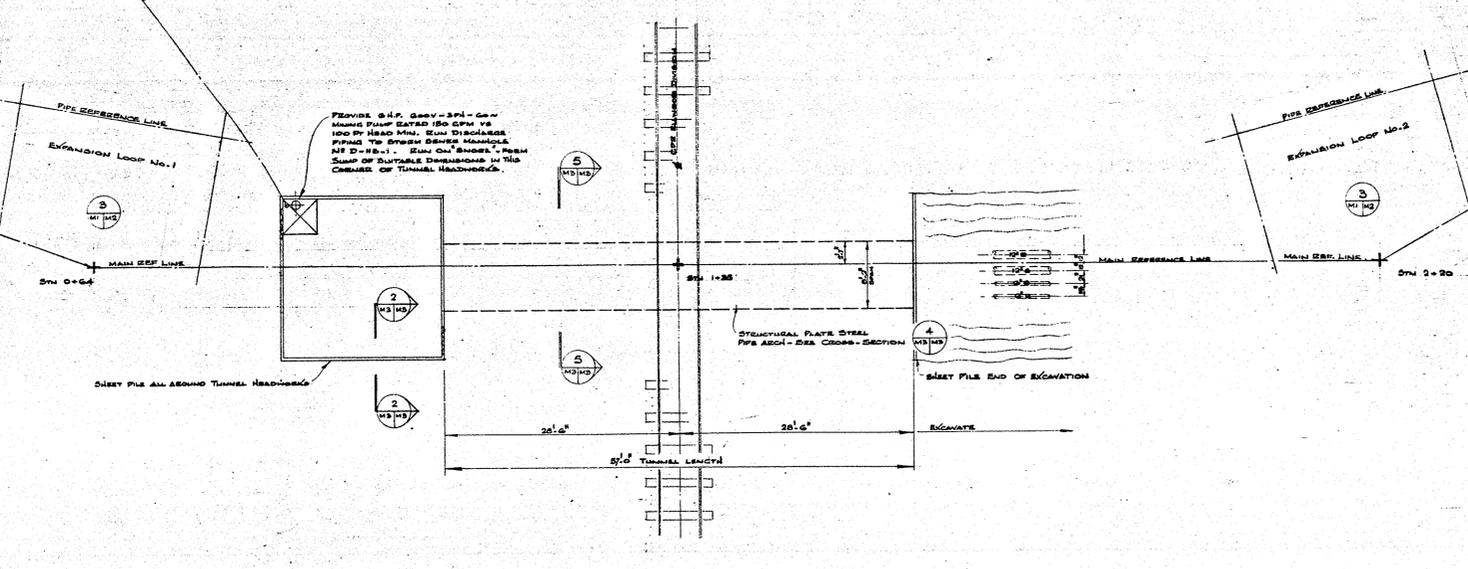
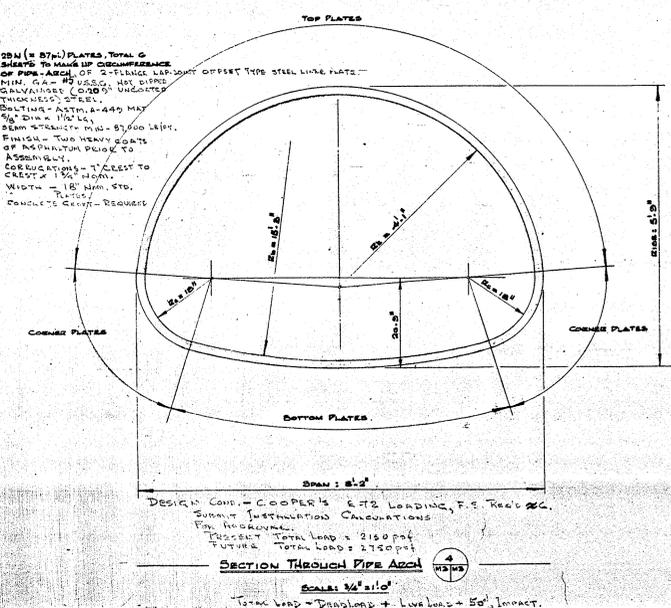
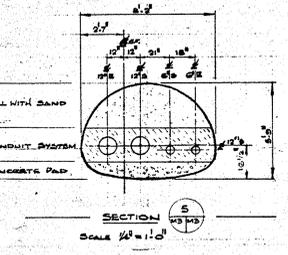
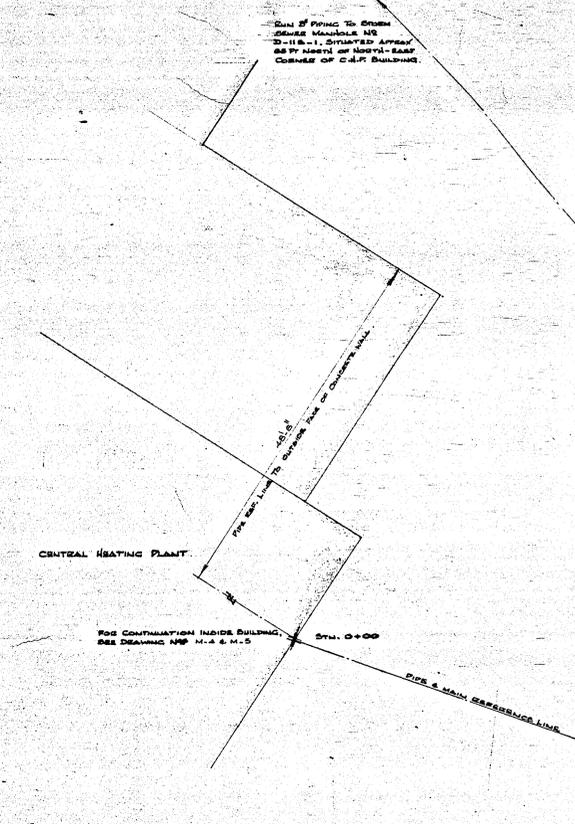
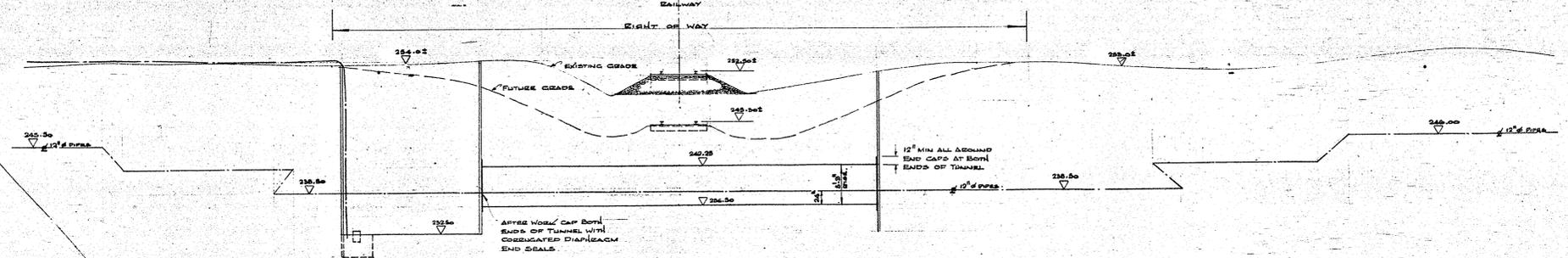
Department of Public Works
Ministère des Travaux publics

J. ELASHEN & ASSOCIATES LIMITED
CONSULTING ENGINEERS
180 FIRST AVENUE, OTTAWA, 1, ONT.



A detail no. detail no.
B location drawing no. loc. design no.
C drawing no. design no.
revisions date

project title: Ottawa Confederation Heights Central Heating Plant Heating and Cooling Service Additions
drawing title: Underground Distribution Extension Railway Crossing Details
designed by: S.D.D.
drawn by: J.E.S.
date: DEC 68
approved by: [Signature]
date: Jan 3 1969
project number: CR 67-9-161
drawing no.: M-3 of 8



100-011030101



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185 FIRST AVENUE - OTTAWA 1, ONT.



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revisions date

OTTAWA ONTARIO
CONFEDERATION HEIGHTS
CENTRAL HEATING PLANT
HEATING AND COOLING
SERVICE ADDITIONS

drawing title titre du dessin
CENTRAL HEATING PLANT
MAIN OPERATING FLOOR

designed by conçu par
S D D

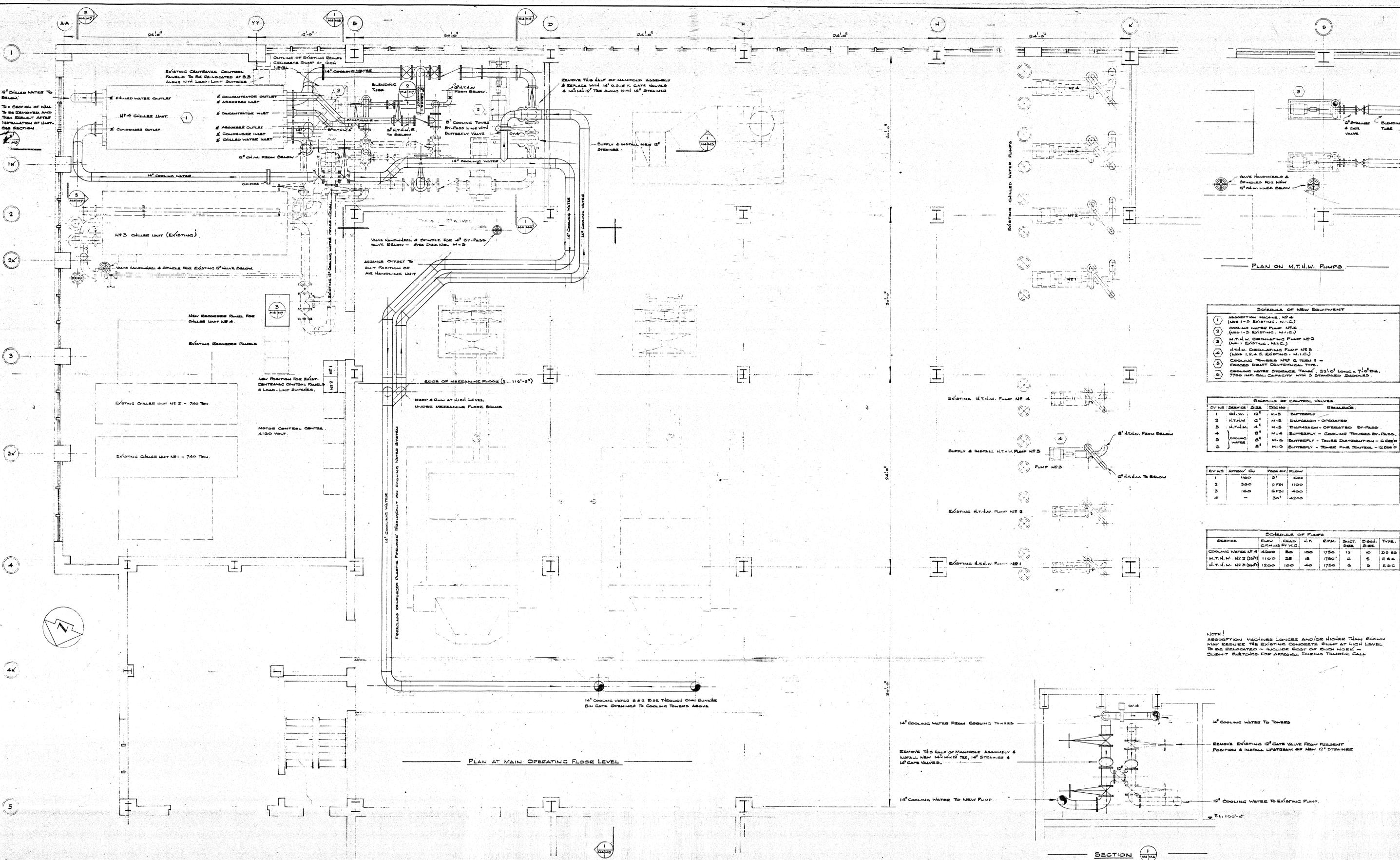
drawn by dessiné par
DEC 68 J E S

reviewed by examiné par

approved by approuvé par
date date

project number no. du projet
CR 67-9-161

drawing no. dessin no.
M-4 of 8



SCHEDULE OF NEW EQUIPMENT

- ABSORPTION MACHINE, HP 4 (ADD 1-2 EXISTING, N.I.C.)
- COOLING WATER PUMP NS 4 (ADD 1-2 EXISTING, N.I.C.)
- M.T.H.W. CIRCULATING PUMP NS 2 (N.I.C. EXISTING, N.I.C.)
- M.T.H.W. CIRCULATING PUMP NS 3 (ADD 1-2 EXISTING, N.I.C.)
- COOLING TOWERS NS 6 & TOWER II - FORCED DRAFT CENTRIFUGAL TYPE. COOLING WATER STORAGE TANK, 32 1/2' LONG X 7 1/2' DIA. 7700 IMP. GAL. CAPACITY WITH 3 STANDARD SADDLES.

SCHEDULE OF CONTROL VALVES

CV NO.	DEVICE	SIZE	DESIGN	REMARKS
1	CH. W.	12"	M-5	BUTTERFLY
2	M.T.H.W.	6"	M-5	DIAPHRAGM - OPERATED
3	M.T.H.W.	4"	M-5	DIAPHRAGM - OPERATED BY PASS.
4	CH. W.	8"	M-4	BUTTERFLY - COOLING TOWERS BY PASS.
5	COOLING WATER	8"	M-5	BUTTERFLY - TOWER DISTRIBUTION - G 2200
6	CH. W.	8"	M-5	BUTTERFLY - TOWER FINE CONTROL - G 2200

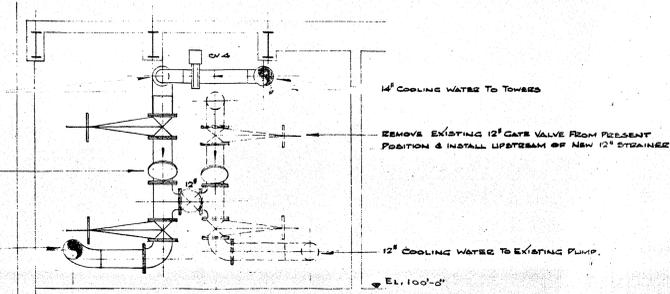
CV NO. APPROX. CV. PRESS. FLOW

1	100	5'	1600
2	350	3 PSI	1100
3	100	3 PSI	400
4	-	30'	4200

SCHEDULE OF PUMPS

DEVICE	FLOW G.P.M.	HEAD FT. W.G.	H.P.	E.P.M.	SUCT. SIZE	DISCH. SIZE	TYPE
COOLING WATER PUMP NS 4	4200	80	100	1750	12	10	25 55
M.T.H.W. NS 2 (ADD)	1100	25	15	1750	6	5	8 5 C
M.T.H.W. NS 3 (ADD)	1200	100	40	1750	6	5	8 5 C

NOTE!
ABSORPTION MACHINES LONGER AND/OR HIGHER THAN SHOWN MAY EXCEED THE EXISTING CONCRETE SLAB AT HIGH LEVEL TO BE RELOCATED - INCLUDE COST OF SUCH WORK - SUBMIT SCHEDULE FOR APPROVAL DURING TENDER CALL



14" COOLING WATER FROM COOLING TOWERS

REMOVE THIS HALF OF MANIFOLD ASSEMBLY & INSTALL NEW 14" X 14" TEE, 14" STRAINER & 14" GATE VALVES.

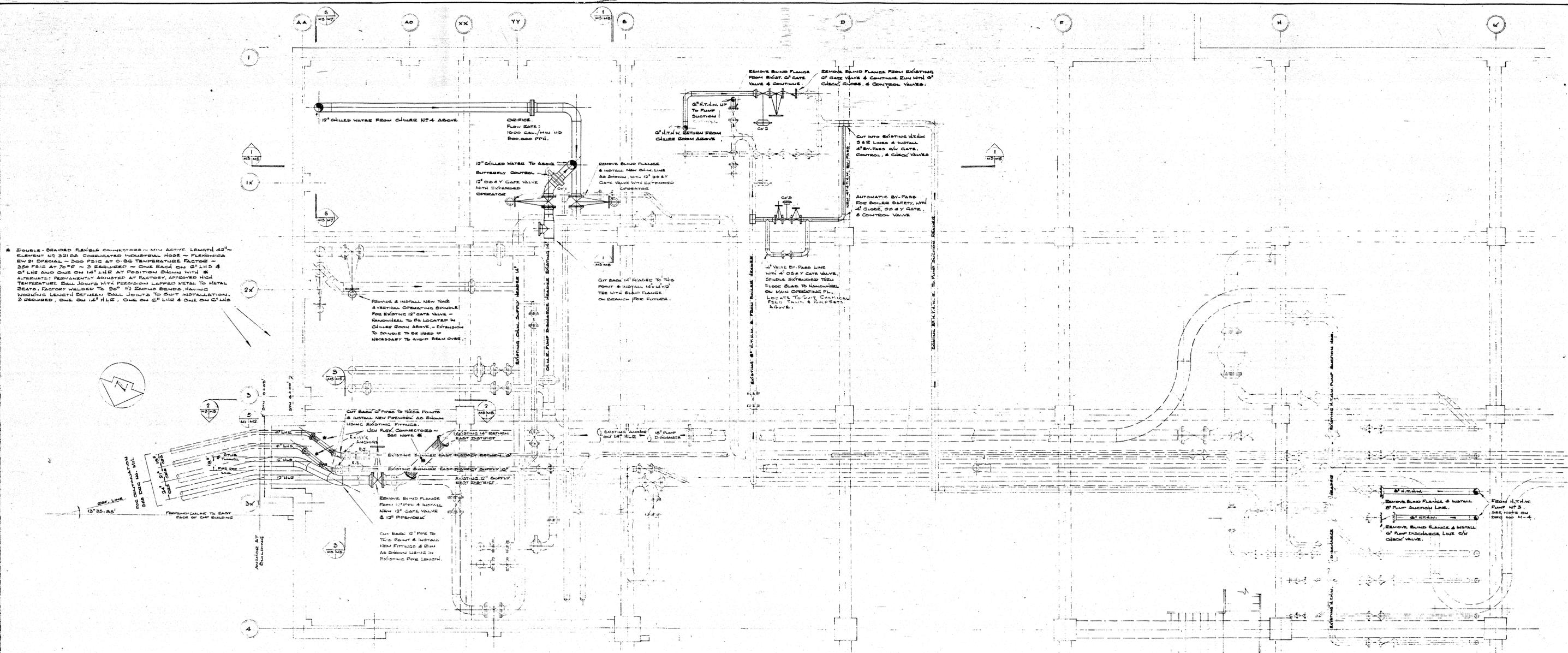
14" COOLING WATER TO NEW PUMP

14" COOLING WATER TO TOWERS

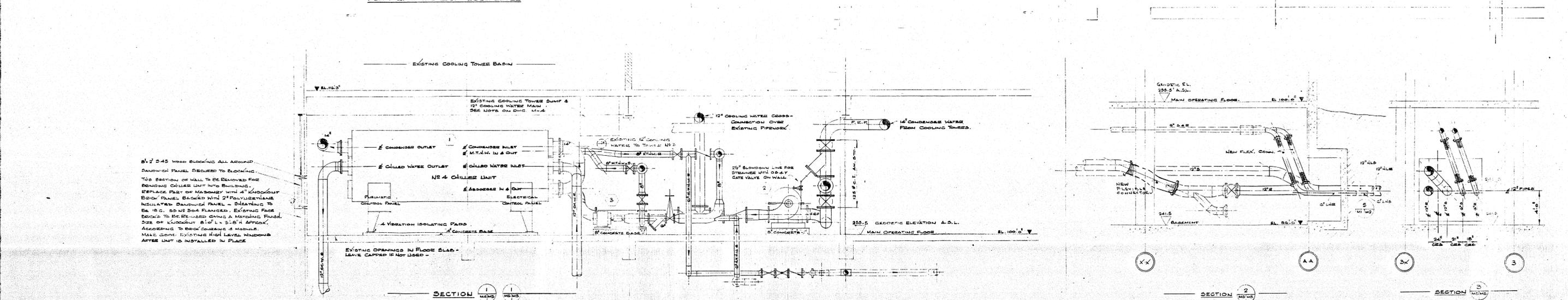
REMOVE EXISTING 12" GATE VALVE FROM PRESENT POSITION & INSTALL UPSTREAM OF NEW 12" STRAINER

12" COOLING WATER TO EXISTING PUMP.

El. 100'-0"



PLAN AT BASEMENT FLOOR LEVEL



SECTION 1

SECTION 2

SECTION 3

* DOUBLE-BRAIDED FLEXIBLE CONNECTORS - MIN ACTIVE LENGTH 42" ELEMENT NO. 20100 CORRUGATED INDUSTRIAL HOSE - FLEXIBILITY EN BY SPECIAL - 300 PSIG AT 0.80 TEMPERATURE FACTOR - 250 PSIG AT 70°F - 3 REQUIRED - ONE EACH ON 2" L.H.D. & 2" L.H.E. AND ONE ON 1 1/2" L.H.D. AT POSITION SHOWN WITH 1/2" ALUMINUM PLUGS ADJUSTED AT FACTORY APPROVED HIGH TEMPERATURE BALL JOINTS WITH FERRULES LAPPED METAL TO METAL SEATS, FACTORY WELDED TO 200# 1/2" STAINLESS STEEL HAVING WORKING LENGTH BETWEEN BALL JOINTS TO SUIT INSTALLATION. 2 REQUIRED, ONE ON 1 1/2" L.H.E., ONE ON 2" L.H.D. & ONE ON 2" L.H.E.

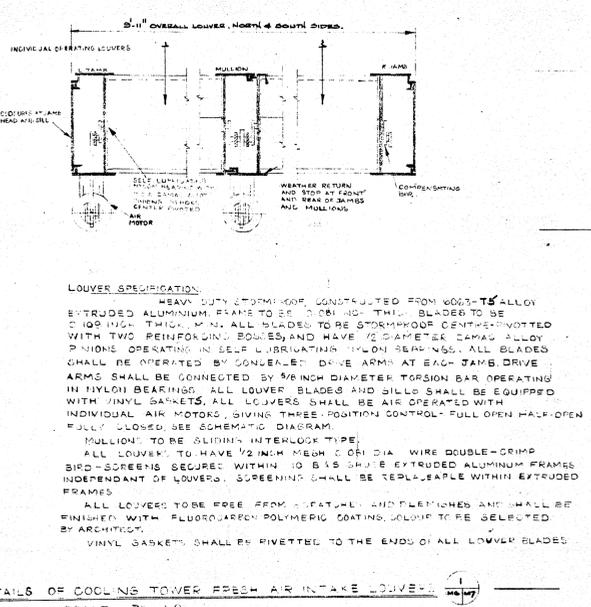
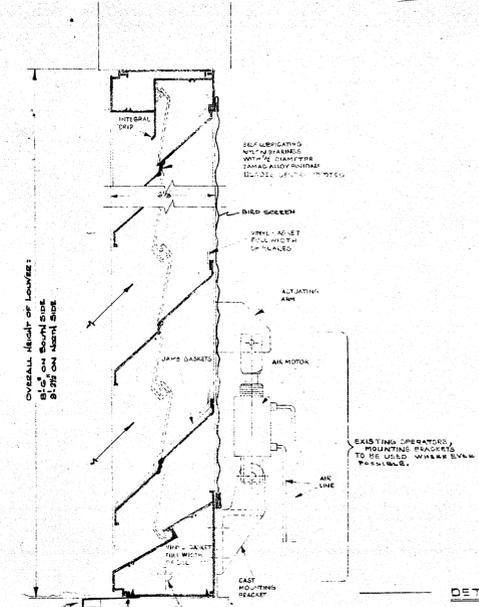
BY 2 S45 WOOD BLOCKING ALL AROUND SANDWICH PANEL REQUIRED TO BLOCKING THE SECTION OF WALL TO BE REMOVED FOR REMOVING CHILLER UNIT INTO BUILDING. REPLACE PART OF MASONRY WITH 4" KNOCKOUT BRICK PANEL BACKED WITH 2" POLYURETHANE INSULATED SANDWICH PANEL - DIMENSIONS TO BE 16.0' 50.00' DIA. FLANGED, EXISTING FACE BRICKS TO BE REMOVED USING A MATCHING FINISH. SEE OR KNOCKOUT 8" O.D. 1/2" DIA. APPROX. ACCORDING TO ROOM CONCRETE & MASONRY MAKE GOOD EXISTING HIGH LEVEL WINDOWS AFTER UNIT IS INSTALLED IN PLACE.

Department of Public Works
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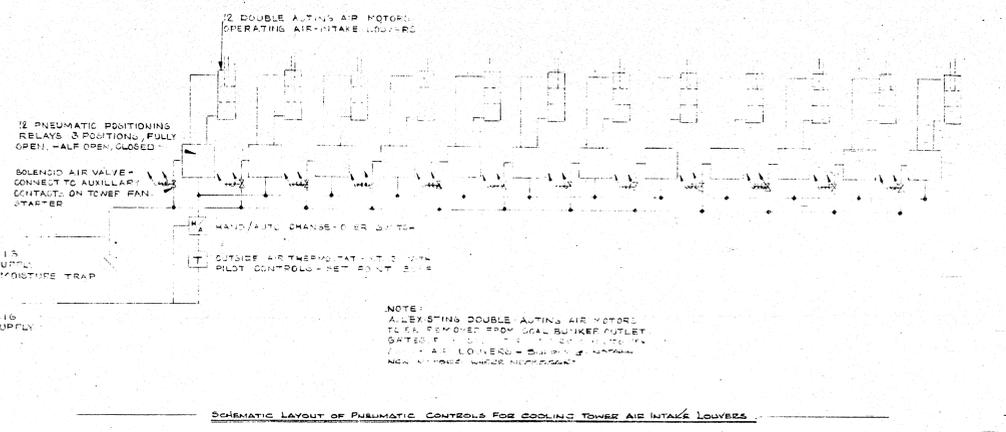
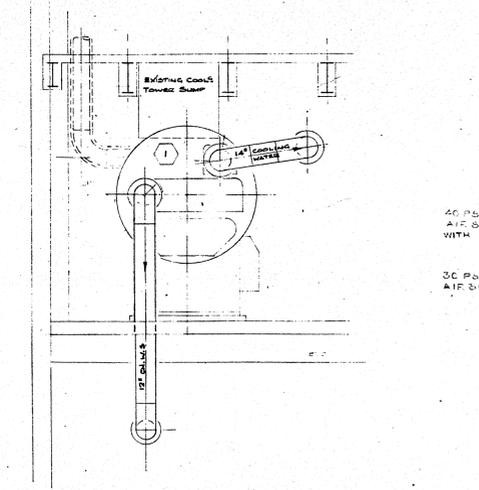
J. KLASSEN & ASSOCIATES LIMITED
CONSULTING ENGINEERS
105 FIRST AVENUE - OTTAWA 1, ONT.

A detail no.	detail no.
A B/C	B location drawing no. our design no.
C drawing no.	design no.
revisions	date

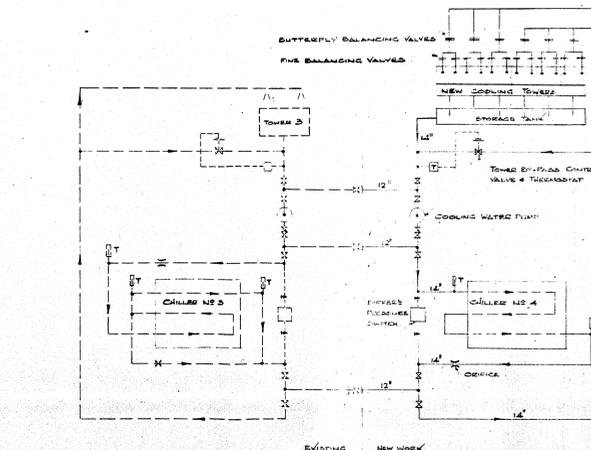
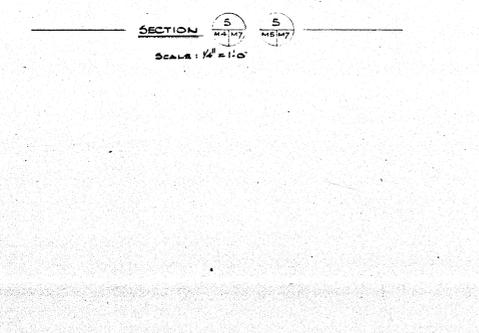
project title	titre du projet
OTTAWA CONFEDERATION HEIGHTS CENTRAL HEATING PLANT HEATING AND COOLING SERVICE ADDITIONS	OTTAWA CONFEDERATION HEIGHTS CENTRAL HEATING PLANT HEATING AND COOLING SERVICE ADDITIONS
drawing title	titre du dessin
CENTRAL HEATING PLANT BASEMENT LEVEL	CENTRAL HEATING PLANT BASEMENT LEVEL
designed by	conçu par
date	date
drawn by	dessiné par
date	date
reviewed by	examiné par
date	date
approved by	approuvé par
date	date
project number	no. de projet
drawing no.	dessin no.



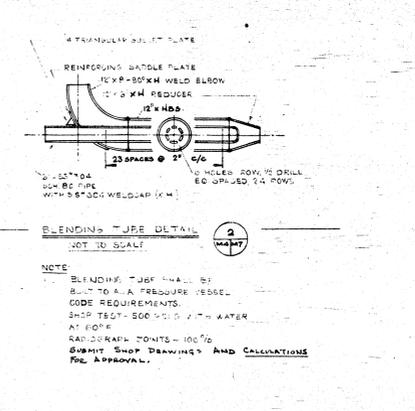
DETAILS OF COOLING TOWER FRESH AIR INTAKE LOUVER
SCALE: 3/4" = 1'-0"



SCHEMATIC LAYOUT OF PNEUMATIC CONTROLS FOR COOLING TOWER AIR INTAKE LOUVERS

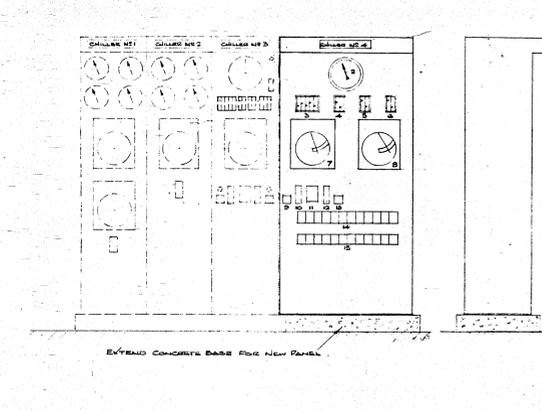


COOLING WATER PIPING SCHEMATIC



BLENDING TUBE DETAIL
NOT TO SCALE

NOTE: BLENDING TUBE SHALL BE BUILT TO A.A. PRESSURE VESSEL CODE REQUIREMENTS. SHOP TEST 500 PSI WITH WATER AT 60°F. RADIOGRAPH ZONITS-100% SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR APPROVAL.



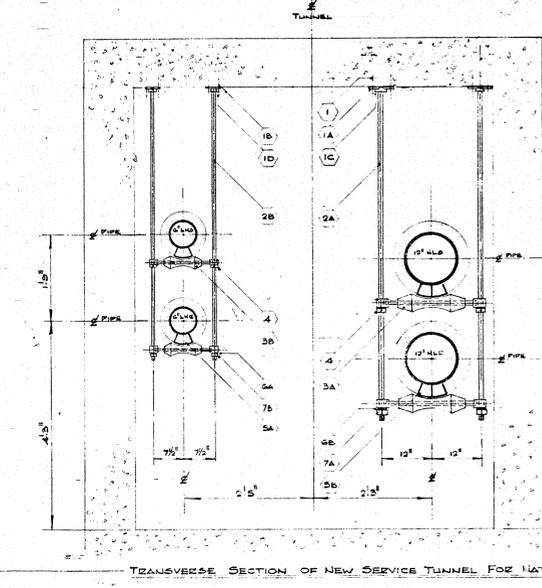
CHILLED WATER PLANT INSTRUMENT PANEL EXTENSION
SCALE: 1/2" = 1'-0"

LEGEND

- EXISTING PIPEWORK & EQUIPMENT SHOWN DOTTED
- PNEUMATIC CONTROL VALVE
- GLOBE VALVE
- GATE VALVE, D.S. & Y.
- GLOBE VALVE
- THERMISTOR
- TEMPERATURE TRANSMITTER

CAST IRON ON HIGH TEMPERATURE SERVICE

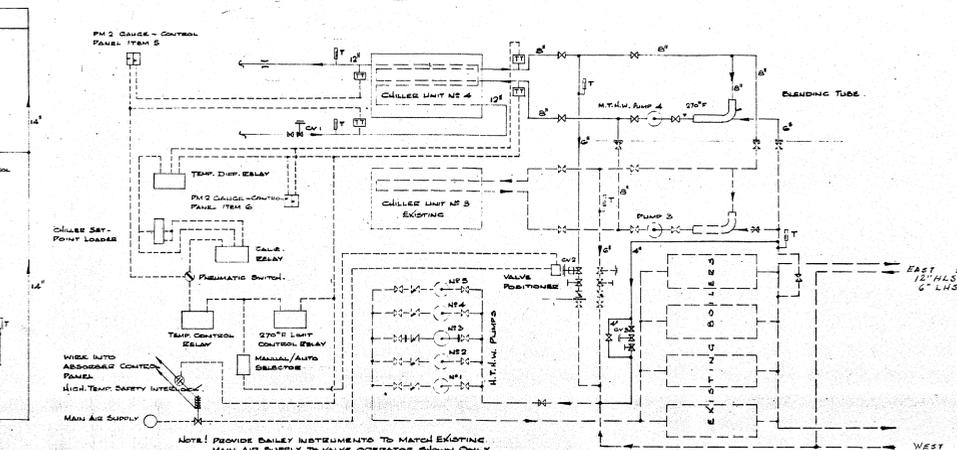
ITEM	DESCRIPTION OR NAME PLATE MARKING	SCALE
1	TOTALISING BR/HE INDICATOR - 12" DIA. 15" MATCH CLOCK IN PANEL 2	
2	COOLING WATER TEMPERATURE	
3	INLET TEMPERATURE	40 - 140 °F
4	OUTLET TEMPERATURE	40 - 140 °F
5	INLET CONCENTRATION	40 - 140 °F
6	OUTLET CONCENTRATION	40 - 140 °F
7	CHILLED WATER FLOW	0 - 80000 LPH
8	FLOW RATE	0 - 50 FPM
9	HEAD LOSS THROUGH UNIT	
10	CHILLED WATER TEMPERATURE	
11	INLET TEMPERATURE	0 - 100 °F
12	OUTLET TEMPERATURE	0 - 100 °F
13	INLET CONCENTRATION	0 - 1000 °F
14	OUTLET CONCENTRATION	0 - 1000 °F
15	CHILLED WATER BR/HE METER	
16	M.T.H.W. BR/HE METER	
17	DETECTOR SWITCH WITH PANEL LIGHT	
18	MANUAL LOCKER FOR CHILLER OUTPUT	
19	MANUAL/AUTOMATIC SELECTOR SWITCH	
20	MANUAL LOCKER FOR CHILLED WATER FLOW	
21	DETECTOR SWITCH WITH LIGHT 'BLANDED WATER REGULATOR'	
22	2 POSITION SWITCHES FOR COOLING TOWER FANS	
23	2 POSITION SWITCHES FOR TOWER INTAKE LOUVERS	



TRANSVERSE SECTION OF NEW SERVICE TUNNEL FOR NATIONAL AVENUE H.Q.

ITEM	MATERIAL	PARTS LIST FOR PIPE HANGER ASSEMBLIES	REMARKS
1A	304 STAINLESS STEEL	2 LIGHT THREADED CORRUGATED METAL PIPE HANGER FLANGE ASSEMBLY AS FOLLOWS 1-	4 3/8" O.D. PIPE HANGER FLANGE
1B	304 STAINLESS STEEL	3/4" DIA. ANCHORS FOR 12" PIPE, 2/4" & HEAVY HEX HEAD SEMI-FINISHED BOLTS.	
1C	304 STAINLESS STEEL	1/2" DIA. ANCHORS FOR 12" PIPE, 2/4" & HEAVY HEX HEAD SEMI-FINISHED BOLTS.	
1D	304 STAINLESS STEEL	3/4" DIA. ANCHORS FOR 12" PIPE, 2/4" & HEAVY HEX HEAD SEMI-FINISHED BOLTS.	
2A	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2B	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2C	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2D	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2E	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2F	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2G	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2H	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2I	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2J	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2K	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2L	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2M	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2N	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2O	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2P	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2Q	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2R	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2S	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2T	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2U	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2V	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2W	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2X	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2Y	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2
2Z	304 STAINLESS STEEL	1/2" DIA. HANGER ROD	TAPPED CENTER BORE FOR 3/4" O.D. - 11NC2

TRANSVERSE SECTION OF NEW SERVICE TUNNEL FOR NATIONAL AVENUE H.Q.



CHILLED WATER AND H.T.H.W. PIPING SCHEMATIC AND CONTROL DIAGRAM

LEGEND

- EXISTING PIPEWORK & EQUIPMENT SHOWN DOTTED
- PNEUMATIC CONTROL VALVE
- GLOBE VALVE
- GATE VALVE, D.S. & Y.
- GLOBE VALVE
- THERMISTOR
- TEMPERATURE TRANSMITTER

CAST IRON ON HIGH TEMPERATURE SERVICE

Department of Public Works
Ministère des Travaux publics

J. KASEN & ASSOCIATES LIMITED
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185 FIRST AVENUE - OTTAWA 1, ONT.

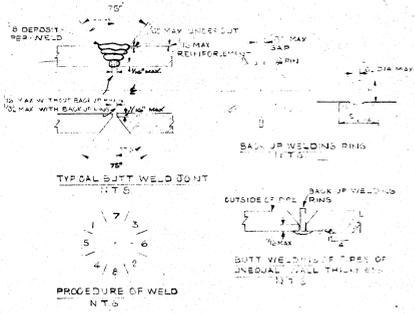
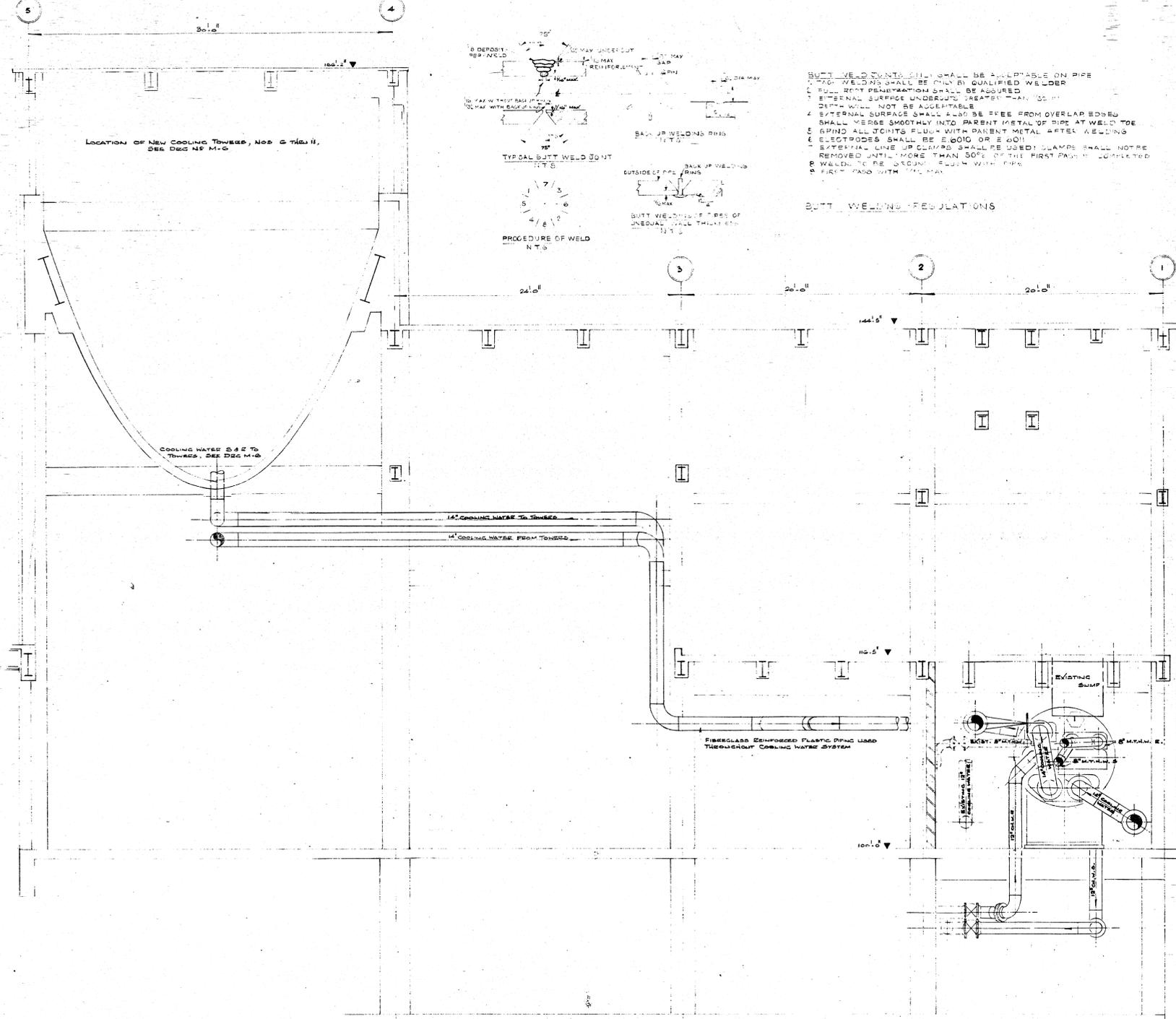


A detail no. detail no.
B location drawing no. our design no.
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revisions date

project title titre du projet
OTTAWA CONFEDERATION HEIGHTS CENTRAL HEATING PLANT HEATING AND COOLING SERVICE ADDITIONS OTTAWA CONFEDERATION HEIGHTS CENTRAL HEATING PLANT HEATING AND COOLING SERVICE ADDITIONS

drawing title titre du dessin
CENTRAL HEATING PLANT CENTRAL HEATING PLANT
SECTION S-S AND DETAILS SECTION S-S AND DETAILS

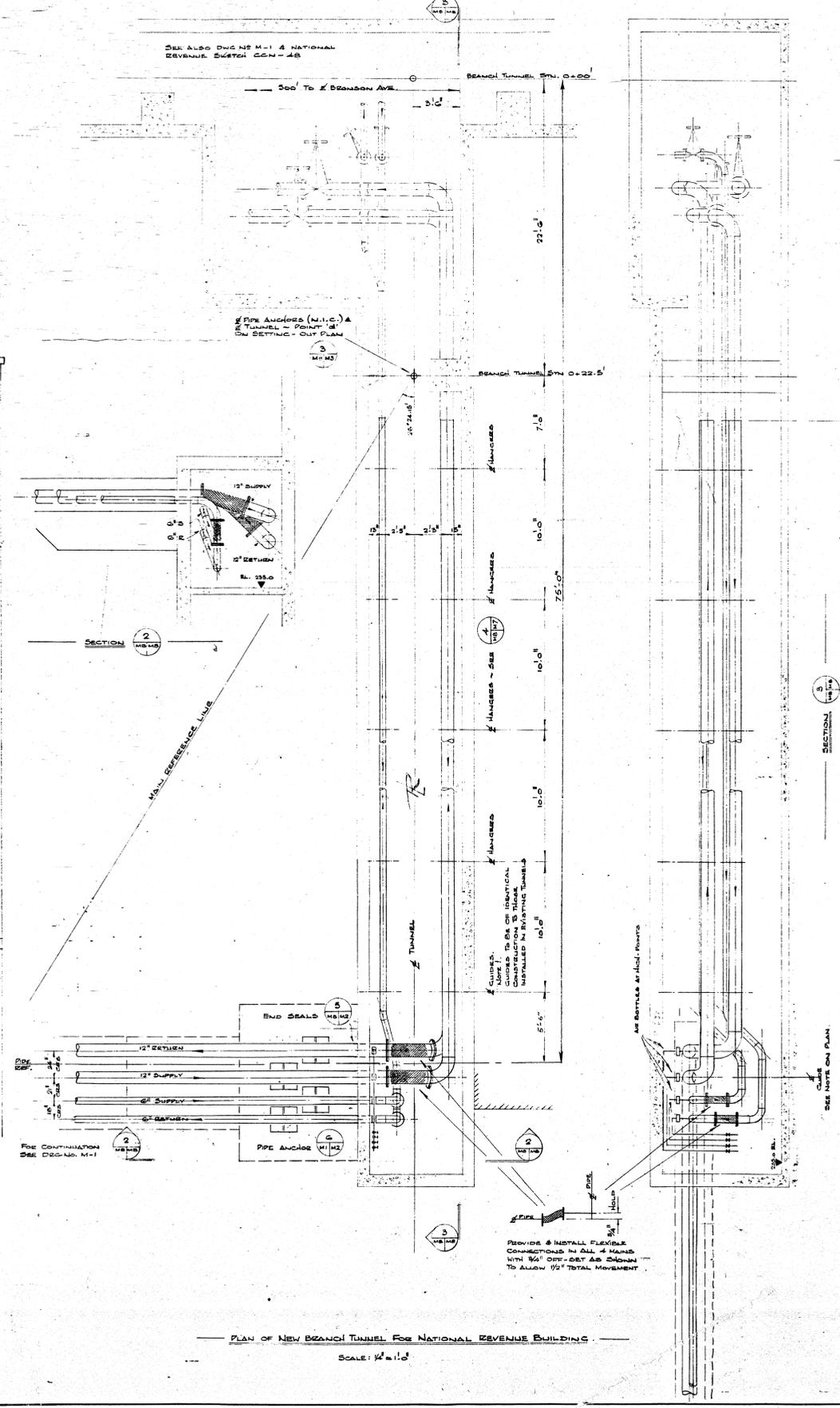
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date Jan 31/69 date
project number CR 67-9-161 no. du projet
drawing no. M-7 OF 8 dessin no.



BUTT WELDING REGULATIONS

1. WELDING SHALL BE ONLY BY QUALIFIED WELDER
2. FULL ROOT PENETRATION SHALL BE ASSURED
3. INTERNAL SURFACE UNDERCUTS DEPT. 1/16" SHALL NOT BE ACCEPTABLE
4. EXTERNAL SURFACE SHALL ALSO BE FREE FROM OVERLAP EGGED SHALL VERGE SMOOTHLY INTO PARENT METAL OF PIPE AT WELD JOE
5. SPIND ALL JOINTS FLUSH WITH PARENT METAL AFTER WELDING
6. ELECTRODES SHALL BE E 6010 OR E 6011
7. EXTERNAL LINE UP CLAMPS SHALL BE USED! CLAMPS SHALL NOT BE REMOVED UNTIL MORE THAN 50% OF THE FIRST PASS IS COMPLETED
8. WELDS TO BE INSPECTED VISUALLY WITH PIPE
9. FIRST PASS WITH 1/16" MAX.

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



PLAN OF NEW BRANCH TUNNEL FOR NATIONAL REVENUE BUILDING
SCALE: 1/4" = 1'-0"



Department of Public Works
Ministère des Travaux publics

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B location drawing no. sur dessin no.	
C drawing no.	dessin no.
revisions	date

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