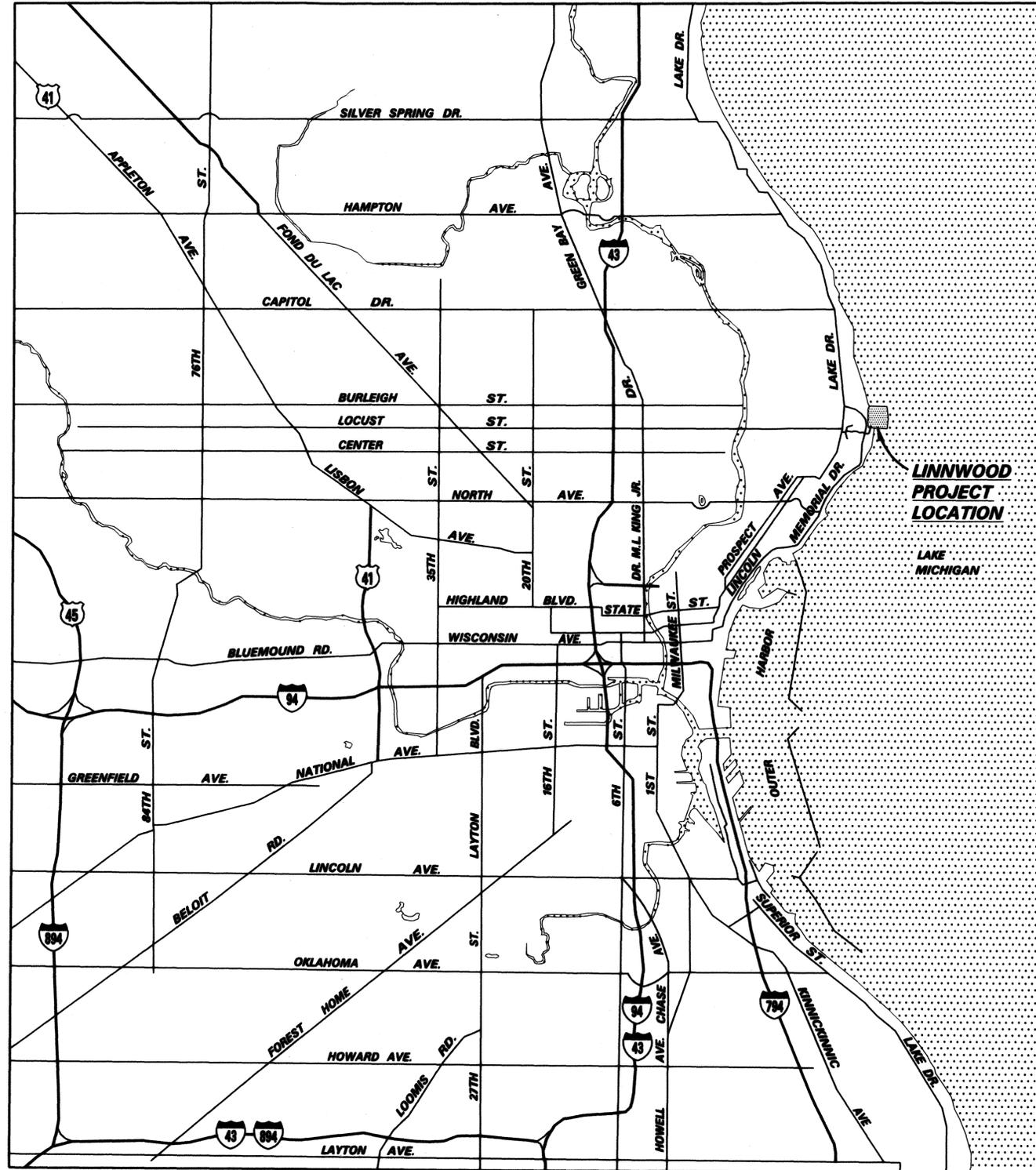


Milwaukee Water Works

LINNWOOD PURIFICATION PLANT

WP-313: FLOCCULATOR BEARING REPLACEMENT

NORTHEAST & NORTHWEST COAGULATION BASINS



MILWAUKEE, WISCONSIN
LOCATION MAP

DRAWING INDEX

<u>DRAWING NO.</u>	<u>TITLE</u>
WP-313-01	LOCATION MAP - DRAWING INDEX
WP-313-02	UHMW POLYETHYLENE BEARING
WP-313-03	SPACER PLATE DETAILS

REFERENCE DRAWING NO. TITLE

<u>DRAWING NO.</u>	<u>TITLE</u>
WP-158A-1	GENERAL ARRANGEMENT, DRAWING
WP-196-7	GENERAL ARRANGEMENT, PLAN VIEW, N.W. BASIN
WP-196-8	GENERAL ARRANGEMENT, PLAN VIEW, N.E. BASIN
WP-196-9	GENERAL ARRANGEMENT, SECTIONS AND DETAILS
WP-196-10	GENERAL ARRANGEMENT, PADDLE WHEEL SECTIONS
WP-196-11	GENERAL ARRANGEMENT, SPECIFICATIONS



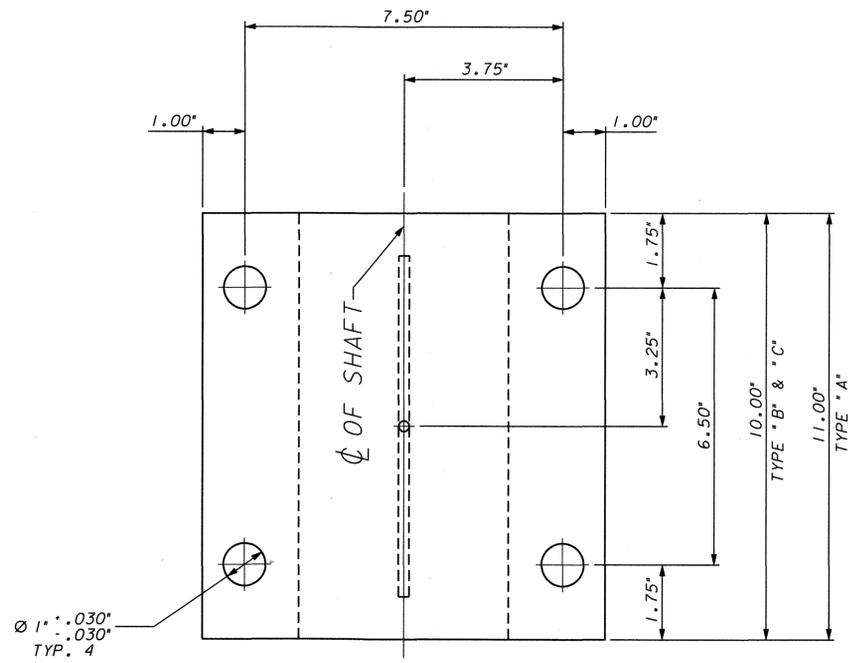
Milwaukee Water Works Water Engineering
Department of Public Works

LINNWOOD PURIFICATION PLANT

WP-313
FLOCCULATOR BEARING REPLACEMENT
NORTHEAST & NORTHWEST BASINS
LOCATION MAP - DRAWING INDEX

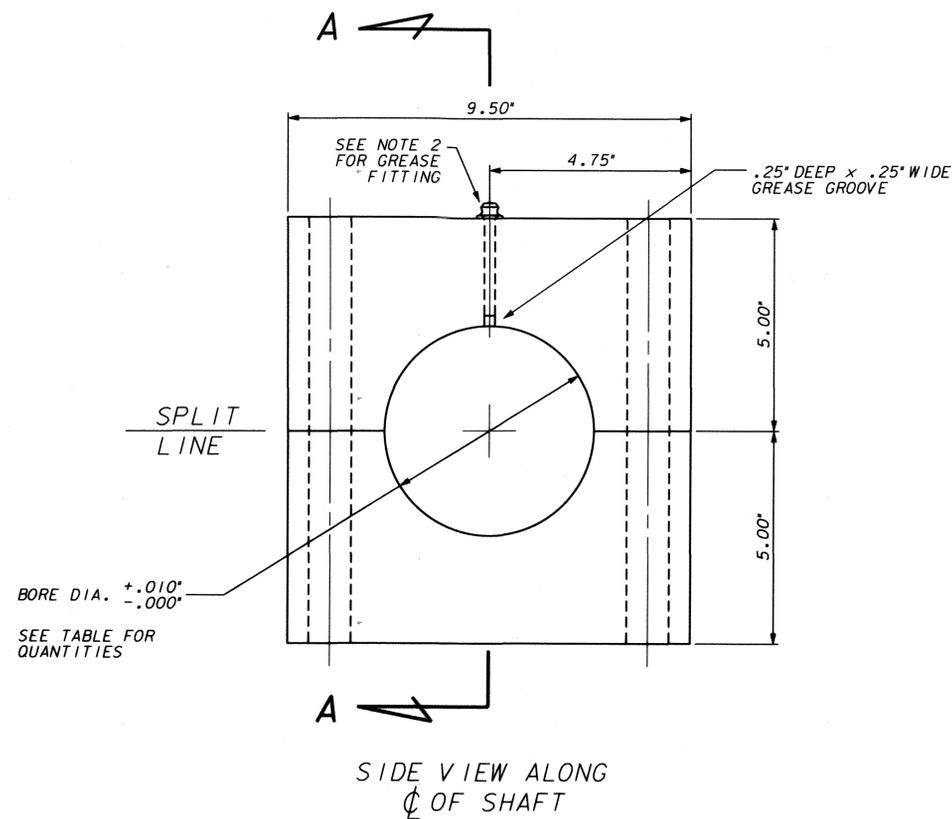
DESIGNED BY	A.J.S.	DATE	01/09/2012
DRAWN BY	S. MILLER	PLANT PROJECT MANAGER	<i>[Signature]</i>
CHECKED BY	A.J.S.	DATE	1/4-2012
SCALE	SEE DRAWING	DATE	1/11/12
WORK ORDER	WT060082200	SPECIAL DEPUTY COMMISSIONER OF PUBLIC WORKS	<i>[Signature]</i>
OFFICIAL NOTICE	127	DRAWING NO.	WP-313-01
FILE NO.	B-12-1		

NO.	BY	REVISION	DATE

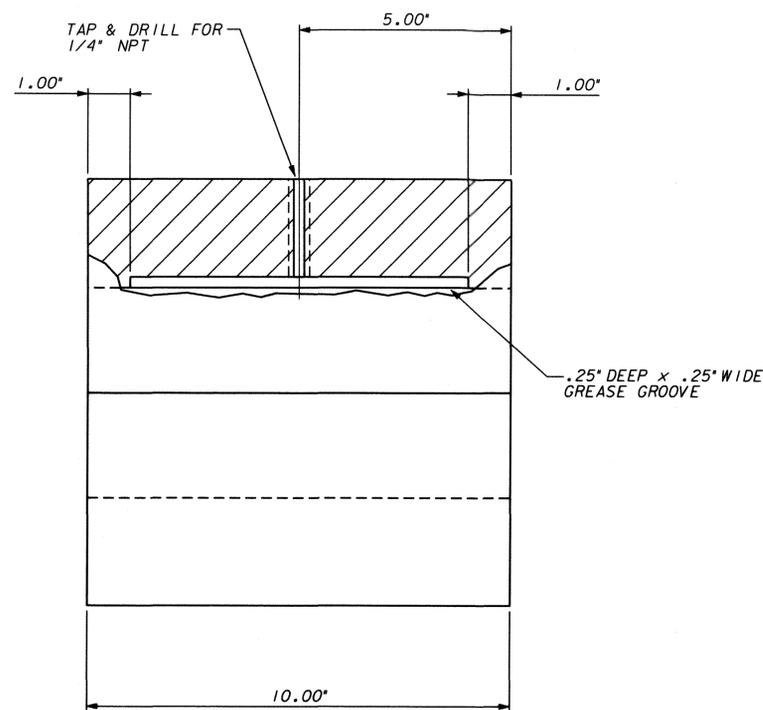


TOP VIEW: UHMW BEARING

N.W. BASIN			
TYPE	BORE DIAM.	NUMBER	UHMWPE BEARING SIZE
A	5.478"	12	4.5" x 11"
B	4.978"	6	4.5" x 10"
C	4.478"	2	4.5" x 10"
N.E. BASIN			
TYPE	BORE DIAM.	NUMBER	UHMWPE BEARING SIZE
A	5.478"	12	4.5" x 11"
B	4.978"	6	4.5" x 10"
C	4.478"	2	4.5" x 10"



SIDE VIEW ALONG Ø OF SHAFT



SECTION A-A

NOTES:

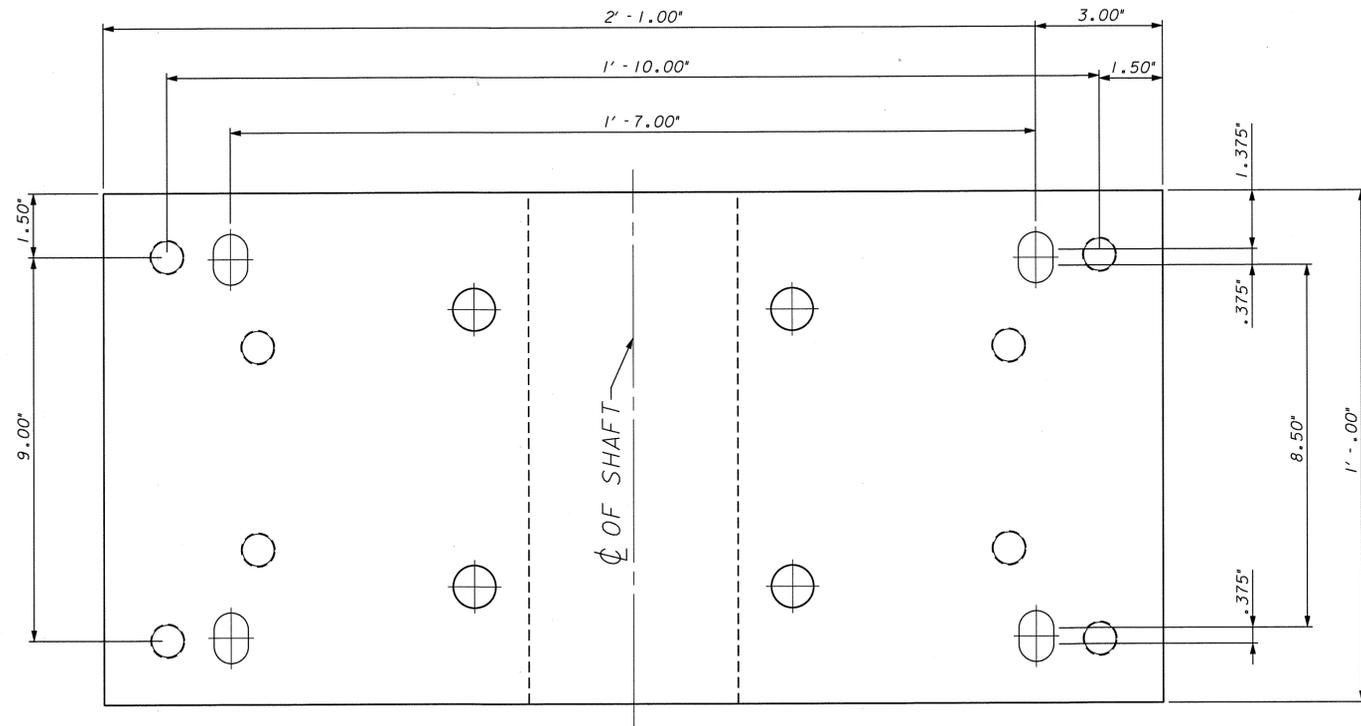
- 1 MATERIAL: UHMW POLYETHYLENE. SEE SPEC. SECTION 15545
- 2 USE 1/4" NPT 'ZIRK' STAINLESS STEEL GREASE FITTING
- 3 THERE ARE 2 HALVES FOR EACH BEARING

Milwaukee Water Works Water Engineering
 Department of Public Works
LINWOOD PURIFICATION PLANT
 WP-313
FLOCCULATOR BEARING REPLACEMENT
NORTHEAST & NORTHWEST BASINS
UHMWPE BEARING DETAILS

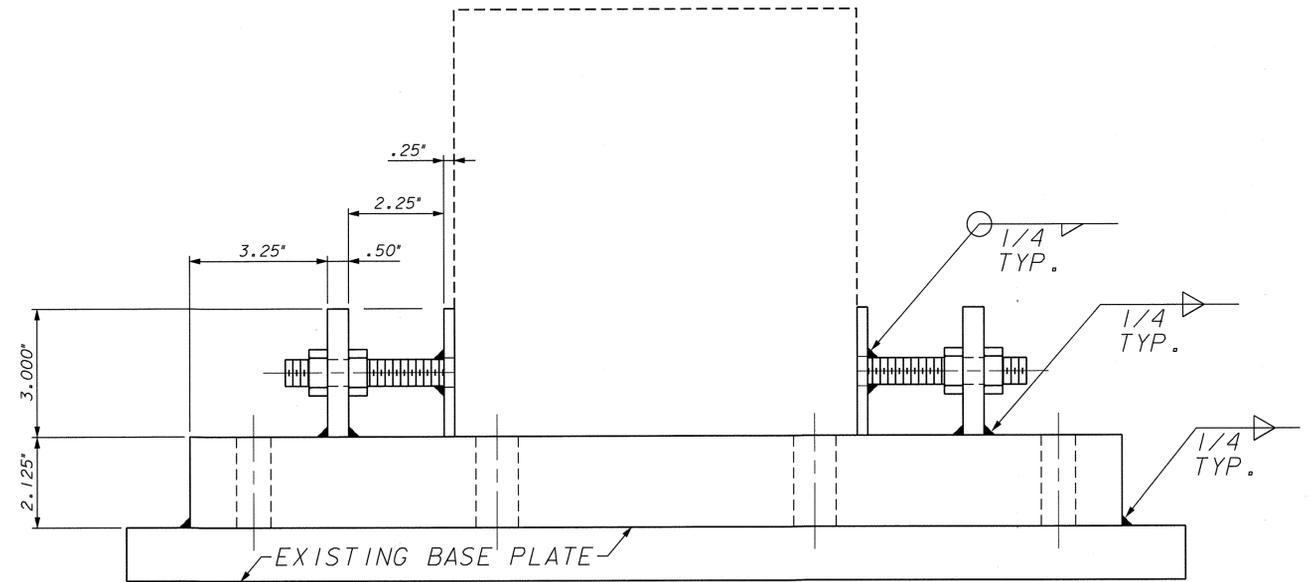
DESIGNED BY	A.J.S.	DATE	07/09/12
DRAWN BY	J.F.S., S.P.M.	PLANT PROJECT ENGINEER	
CHECKED BY	A.J.S.	DATE	1-8-2012
SCALE	0.60 TO 1	DATE	1/10/12
WORK ORDER	WT40002200	DATE	1/11/12
OFFICIAL NOTICE	127	DATE	

DRAWING NO. **WP-313-02**

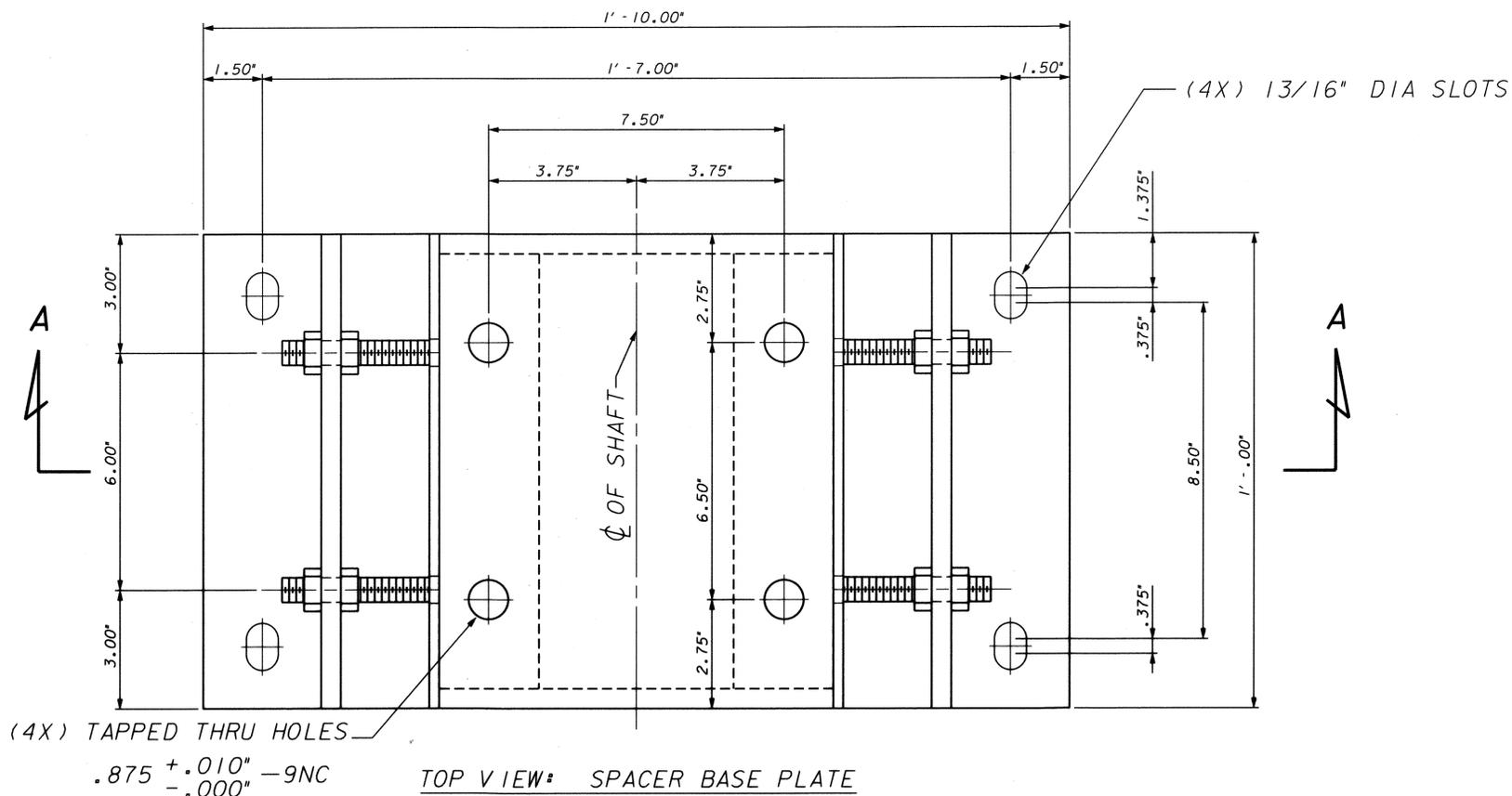
NO.	BY	REVISION	DATE	FILE NO.



TOP VIEW: EXISTING BASE PLATE



SECTION A-A



TOP VIEW: SPACER BASE PLATE

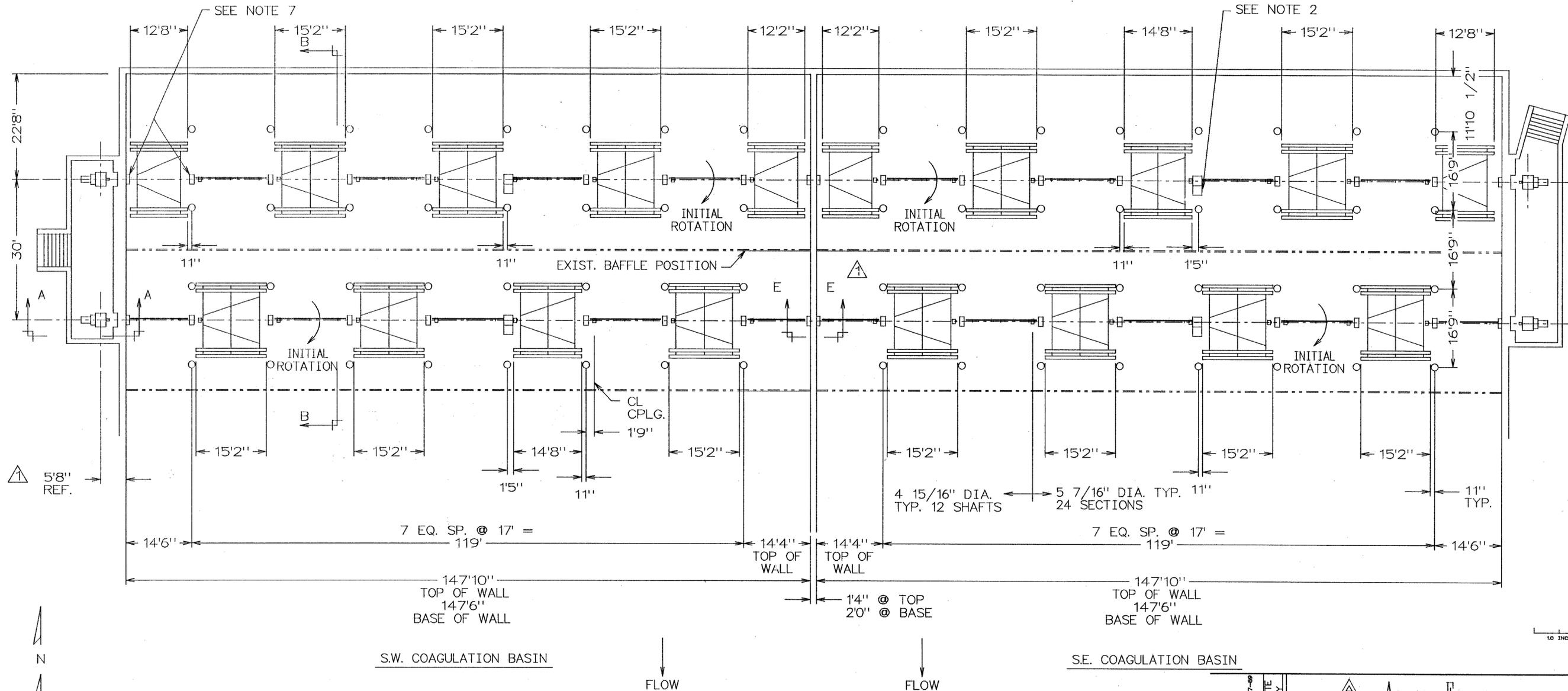
NOTES:

- 1 DISSASSEMBLE EXISTING ROLLER BEARINGS AND REMOVE FROM BASE PLATE. DO NOT REMOVE SHAFT. BRACE SHAFT TO AVOID BENDING.
- 2 CLEAN EXISTING BASEPLATE. REMOVE NUTS FROM TREATED RODS. INSTALL NEW SPACER PLATE OVER EXISTING PLATE USING THREADED ROD TO ANCHOR. SECURE WITH NUTS. USE CAUTION TO NOT DAMAGE SHAFT.
- 3 INSTALL UHMWPE BEARINGS AND SECURE ASSEMBLY PER DRAWING.
- 4 NEW SPACER PLATE MATERIAL SHALL BE TYPE 304 STAINLESS STEEL.
- 5 FABRICATE AND INSTALL SET COLLARS AND THRUST WASHERS AT DRIVE END OF EACH FLOCCULATOR. SEE REFERENCE DRAWING WP-196-9 FOR LOCATIONS.
- 6 SET COLLARS SHALL BE SPLIT CAST IRON, FURNISHED WITH 316 STAINLESS STEEL HARDWARE.

Milwaukee Water Works		Water Engineering	
Department of Public Works		Department of Public Works	
LINWOOD PURIFICATION PLANT			
WP-313			
FLOCCULATOR BEARING REPLACEMENT			
NORTHEAST & NORTHWEST BASINS			
SPACER PLATE DETAILS			
DESIGNED BY	A.J.S.	APPROVED	DATE 01/09/12
DRAWN BY	J.F.S.	PLANT PROJECT ENGINEER	
CHECKED BY	A.J.S.	DATE	1-4-2012
SCALE	0.50 TO 1	SCALE	0.50 TO 1
WORK ORDER	WT46002200	OFFICIAL NOTICE	127
NO.	BY	REVISION	DATE
FILE NO.	B-12-1	DRAWING NO.	WP-313-03

- NOTES: 1) SEE BILL OF MATERIAL No. 7003-100-2 FOR COMPONENT IDENTIFICATION AND SPECIFICATIONS.
- 2) CONTRACTOR TO REMOVE ALL EXISTING DRIVE SHAFTS AND ANCHORS AS REQUIRED TO PREVENT INTERFERENCE WITH NEW FLOCCULATOR ASSEMBLIES.
- 3) SEE ADDITIONAL SHEETS FOR SECTIONS AND DETAILS.
- 4) CONTRACTOR TO PROVIDE CONCRETE AND REINFORCING AS REQUIRED FOR NEW DRIVE BASES AND EXTENDED BEARING PIERS. TIE ANCHORS AND RE-BAR TO EXISTING RE-BAR. APPROX. VERTICAL LOAD/PIER = 2,500 LBS.
- 5) ANCHOR BOLTS TO BE PROVIDED BY OTHERS. ANCHORS TO BE CAST IN PLACE L OR J TYPE STAINLESS STEEL ANCHORS WITH SLEEVES.

- 6) CONTRACTOR TO SHIM BEARINGS AND DRIVE BASE PLATES AS REQUIRED TO LEVEL AND ALIGN ALL SHAFTS.
- 7) INSTALL SET COLLARS AND THRUST WASHERS AT DRIVE END OF EACH FLOCCULATOR.



CORRECTED ARM QTY'S		DATE	BY
REVISED DIVISION WALL		12-27-89	TJ
REVISED NOTE 4			
ADDED SECTION E-E			
REVISED REDUCER LOC.			
REVISIONS			
MARK			
1			

ALLAN ENGINEERING
MILWAUKEE, WISCONSIN

LINWOOD PURIFICATION PLANT
S.E. AND S.W. FLOCCULATOR REPLACEMENTS

GENERAL ARRANGEMENT DRAWING

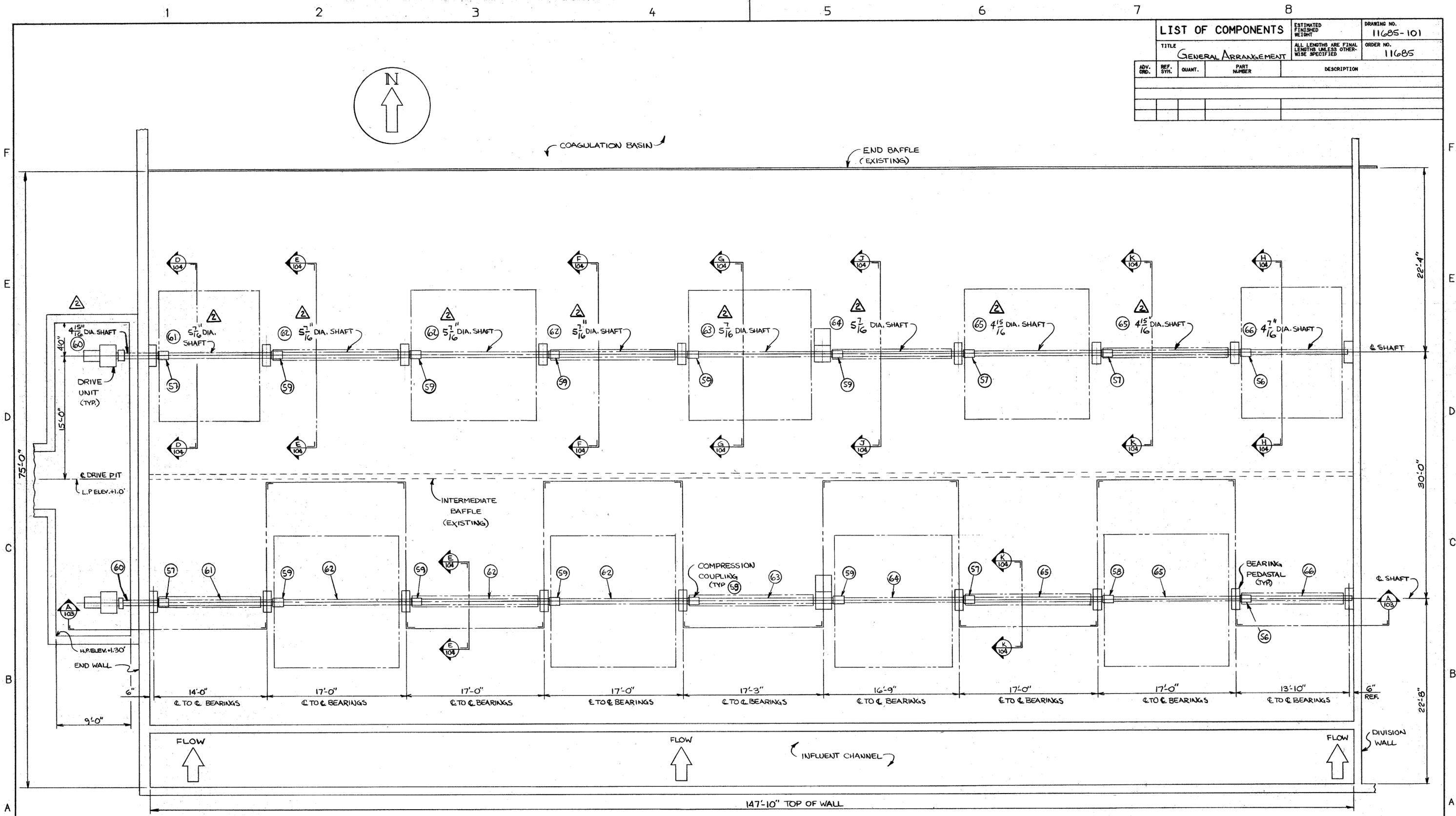
DRWN. TJ	DATE 3-30-89	SCALE	SHEET
CHKD.	DATE	3/32"=10'	SHEET 1 OF 4
APPD.	DATE		JOB NO. 7003-100-1

WP-158A-1

MICROFILMED

8-12-1 WP-158-1

LIST OF COMPONENTS				ESTIMATED FINISHED WEIGHT	DRAWING NO. 11685-101
TITLE GENERAL ARRANGEMENT				ALL LENGTHS ARE FINAL LENGTHS UNLESS OTHERWISE SPECIFIED	ORDER NO. 11685
ADV. ORD.	REF. SYM.	QUANT.	PART NUMBER	DESCRIPTION	



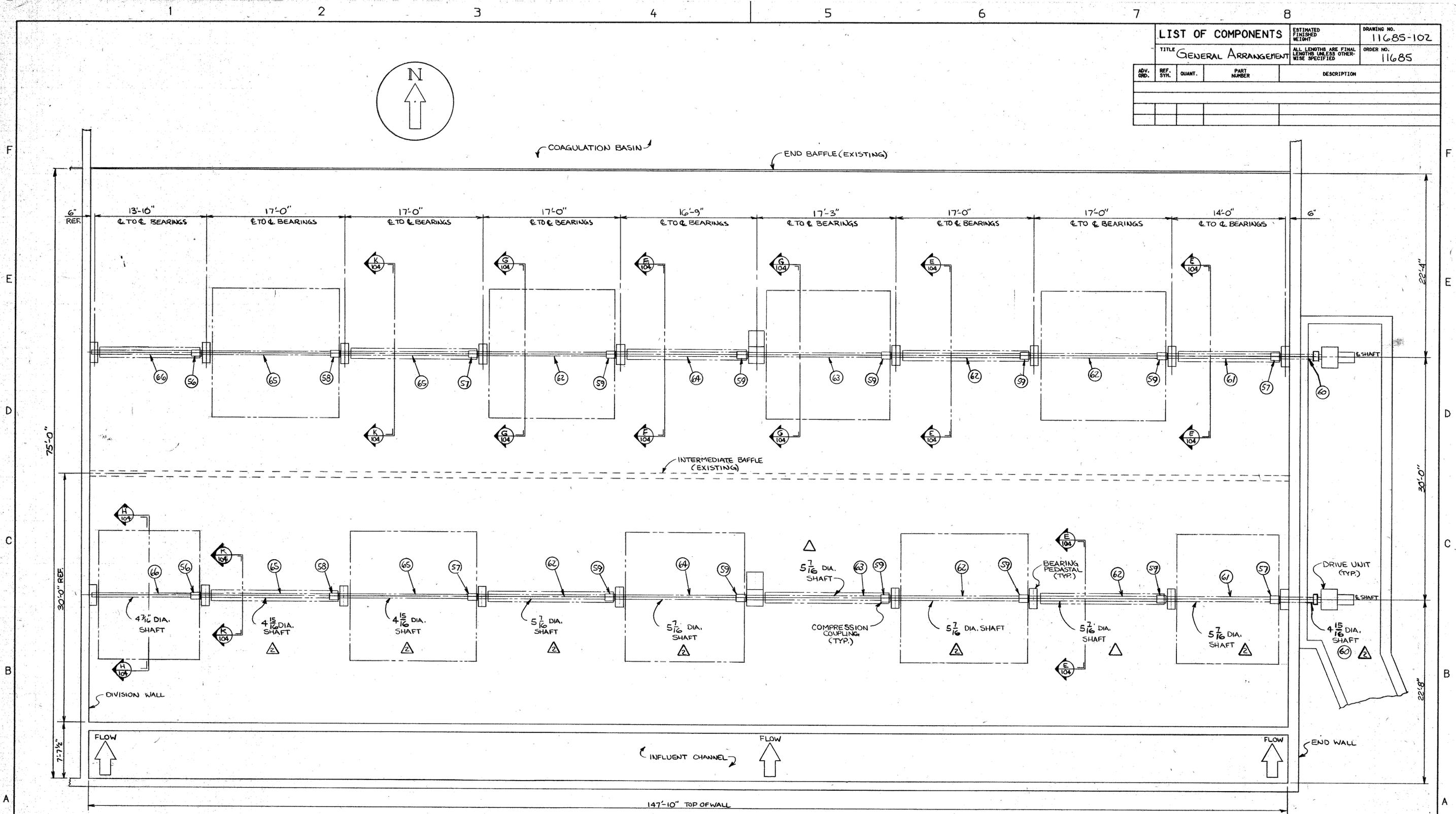
PLAN VIEW
N.W. BASIN

SPECIFICATION SECTION: WP196A

REV. NO.	DESCRIPTION OF REVISION	REV. BY	DATE
3	ADDED MEMO'S	JD	2-4-92
2	REVISED SHAFT DIA'S	JD	1-24-92
1	ADDED ITEM NUMBERS	JRN	12-4-91

DIMENSIONS IN INCHES UNLESS SPECIFIED		EST. NO. 11685		WORK THIS DRAWING WITH 11685-102, 103, 104 & 105	
TOLERANCES UNLESS OTHERWISE SPECIFIED		CUSTOMER PRICE ERECTING, INC.		TITLE	
TWO PLACE DEC. ±.06	STRUCTURAL DIMENSIONS ± 1/16	LOCATION LINWOOD PLANT, MILWAUKEE, WI		GENERAL ARRANGEMENT	
THREE PLACE DEC. ±.005	MACHINED SURFACES 250	ENGINEER CITY OF MILWAUKEE		PLAN VIEW	
ANGULAR ±.50°		CONFIDENTIAL-ALL RIGHTS RESERVED		N.W. BASIN	
SCALE	DRAWING MADE FROM ORIGINAL	Envirex WALKESHA WI. 53187		PART OR ORDER NO.	DRAWING NO.
DR'N JRN	PROJ. ENGR. ADAVIS			11685	11685-101
CHK'D J.DAIS	APP'D J.DAVIS				

LIST OF COMPONENTS				ESTIMATED FINISHED WEIGHT	DRAWING NO.
TITLE GENERAL ARRANGEMENT				ALL LENGTHS ARE FINAL LENGTHS UNLESS OTHERWISE SPECIFIED	11685-102
ADV. ORD.	REF. SYM.	QUANT.	PART NUMBER	DESCRIPTION	ORDER NO.
					11685



PLAN VIEW
N.E. BASIN

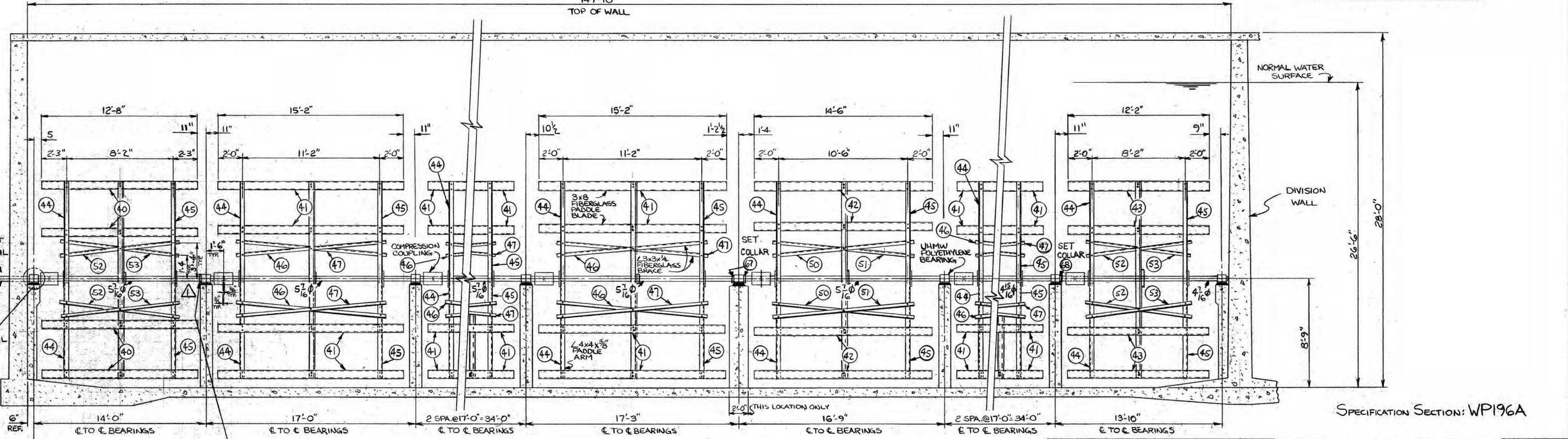
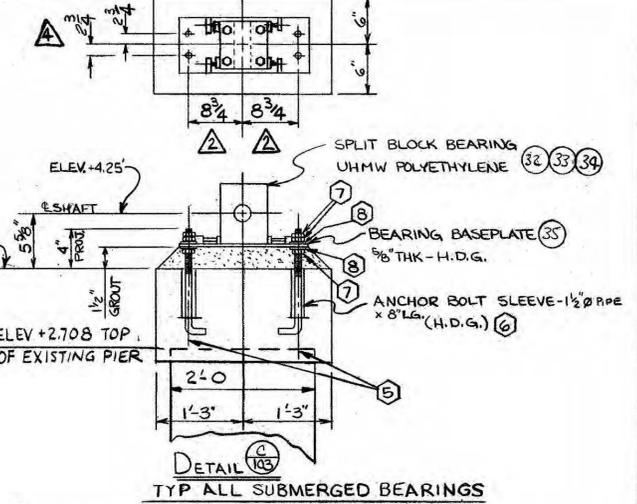
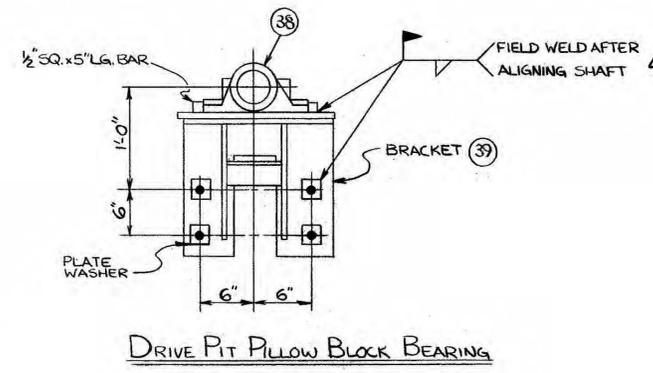
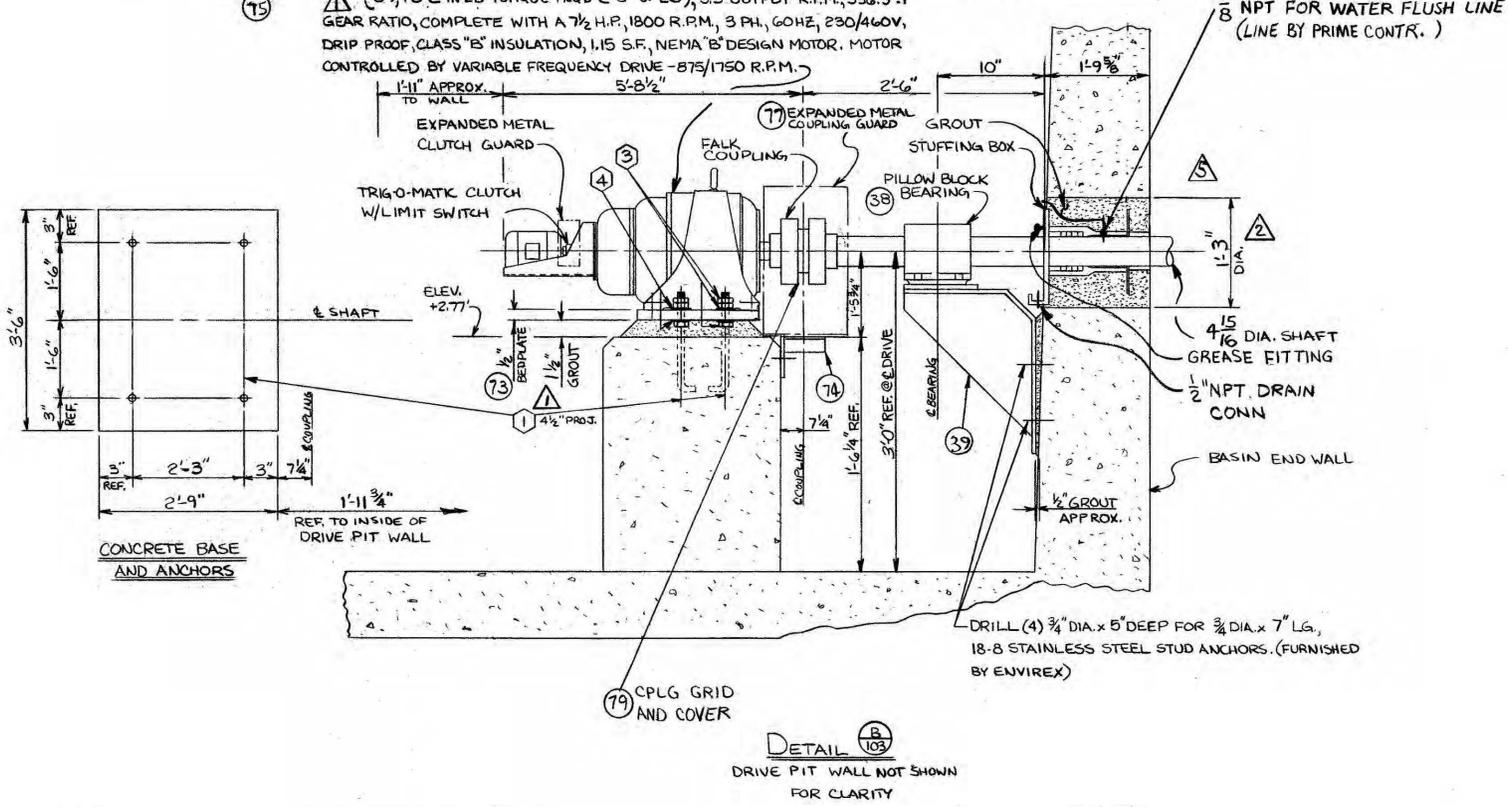
SPECIFICATION SECTION: WP196A

ECN NO.	REV. NO.	MICRO FILMED	DESCRIPTION OF REVISION	REV. BY	DATE
	3		ADDED MK NO'S	JD	2-4-92
	2		REVISED SHAFT DIA'S	JD	1-24-92
	1		ADDED ITEM NUMBERS	JRN	12-4-91

DIMENSIONS IN INCHES UNLESS SPECIFIED		EST. NO. 11685	WORK THIS DRAWING WITH 11685-101, 103, 104, 105
TOLERANCES UNLESS OTHERWISE SPECIFIED		CUSTOMER PRICE ERECTING, INC.	
TWO PLACE DEC. +.06	STRUCTURAL DIMENSIONS + 1/16	LOCATION LINWOOD PLANT, MILWAUKEE WI	TITLE GENERAL ARRANGEMENT
THREE PLACE DEC. +.005	MACHINED SURFACES 250	ENGINEER CITY OF MILWAUKEE	PLAN VIEW
ANGULAR +.50°			N.E. BASIN
SCALE	DRAWING MADE FROM ORIGINAL	CONFIDENTIAL-ALL RIGHTS RESERVED	
DR'N JRN	PROJ. ENGR. ADMN	Envirex WALKESHA WI. 53187	
CHK'D J.D.A/S	APP'D J.D.A/S	PART OR ORDER NO. 11685	DRAWING NO. 11685-102

DRIVE MACHINERY: FOOTE-JONES L84GB-21ST REDUCER, 1.4 AGMA CLASS II S.F. (199,800 IN-LB @ 1.0 S.F.)
 (89,102 IN-LB TORQUE REQ'D @ G OF 26), 33 OUTPUT R.P.M., 536.3:1 GEAR RATIO, COMPLETE WITH A 7 1/2 H.P., 1800 R.P.M., 3 PH., 60HZ, 230/460V, DRIP PROOF, CLASS "B" INSULATION, 1.15 S.F., NEMA "B" DESIGN MOTOR. MOTOR CONTROLLED BY VARIABLE FREQUENCY DRIVE - 875/1750 R.P.M.

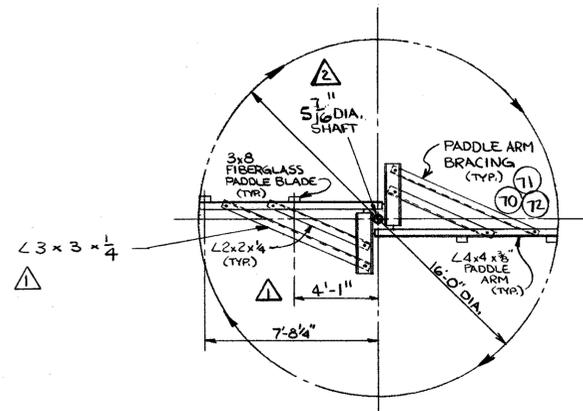
LIST OF COMPONENTS				ESTIMATED FINISHED WEIGHT	DRAWING NO.
TITLE				ALL LENGTHS ARE FINAL UNLESS OTHERWISE SPECIFIED	ORDER NO.
GENERAL ARRANGEMENT					11685-103
					11685
ADV. ORD.	REF. SYM.	QUANT.	PART NUMBER	DESCRIPTION	
304 STAINLESS STEEL ANCHORS-FURNISHED BY ENVIREX-SET BY OTHERS					
1	16		103-50369-12	1" DIA. X 17" LG. HOOKED ANCHOR BOLT	
2					
3	48		841-20565	1" DIA. HEX NUT	316 SS.
4	32		841-22220	1" DIA. CUTWASHER	SS.
5	160		103-50369-11	3/4" DIA. X 16" LG. HOOKED ANCHOR BOLT	
6	160		11682-106-100	ANCHOR SLEEVE	
7	480		841-20385	3/4" HEX NUT	316 SS.
8	320		841-22090	3/4" DIA. CUTWASHER	SS.
9					



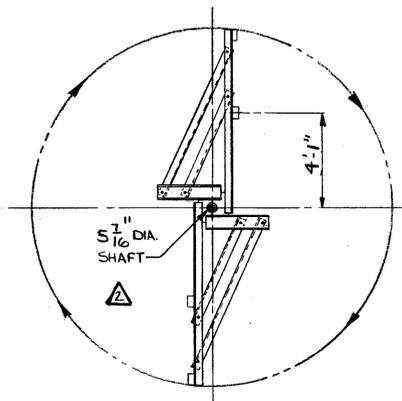
REV. NO.	DESCRIPTION OF REVISION	DATE
3	ADDED MIDDLE PADDLE ARM	1-24-92
2	REMOVED ITEM NOS. 834 WAS 2, 11-3 WAS 14, REVISED SHAFT DIA'S	1-24-92
1	L84GB WAS L84GA, 1 1/2 LG. GROUT WAS 1 1/2, 17 WAS 9 ANCHOR	12-11-91
5	REMOVED STUFF BOX BACK 12	2-17-92
4	ADDED RYE NUTS, REVISED DIM'S FROM 2.5 TO 3.0, PEDESTAL TO END OF PADDLE	2-4-92

VIEW (A) 101
 N.W. BASIN - SHOWN
 N.E. BASIN - SIMILAR (SEE DWG. 11685-102)
 INTERMEDIATE BAFFLE
 NOT SHOWN FOR CLARITY

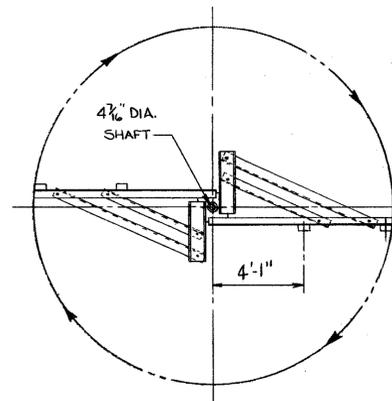
DIMENSIONS IN INCHES UNLESS SPECIFIED		EST. NO. 11685		WORK THIS DRAWING WITH 11685-101, 102, 104 & 105	
TOLERANCES UNLESS OTHERWISE SPECIFIED		CUSTOMER PRICE ERECTING, INC.		TITLE GENERAL ARRANGEMENT	
TWO PLACE DEC. + .05		LOCATION LINWOOD PLANT, MILWAUKEE, WI		SECTIONS AND DETAILS	
THREE PLACE DEC. + .005		ENGINEER CITY OF MILWAUKEE		PART OR ORDER NO.	
ANGULAR + .50°		CONFIDENTIAL - ALL RIGHTS RESERVED		DRAWING NO.	
SCALE		DRAWING MADE FROM ORIGINAL			
DRN JRN		PROJ. ENGR. ADNIS		DATE ISSUED 11/20/91	
CHK'D J. DAIS		APP'D J. DAIS		PROB. CODE	
		WALKESHA WI. 53187		Envirex	



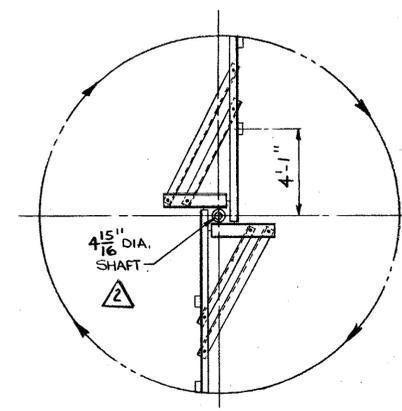
SECTION D (101 & 102)



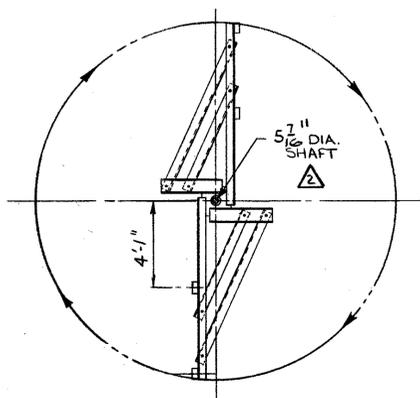
SECTION E (101 & 102)



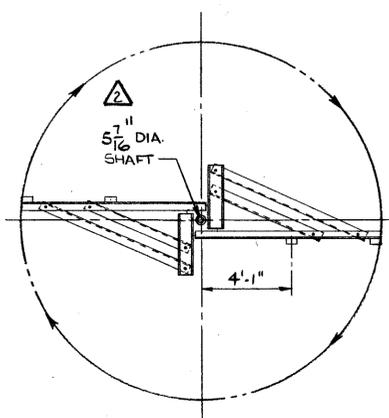
SECTION H (101 & 102)



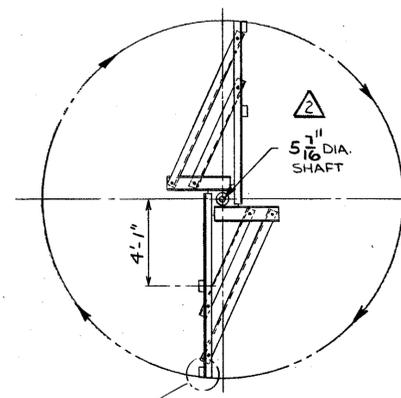
SECTION K (101 & 102)



SECTION E (101 & 102)



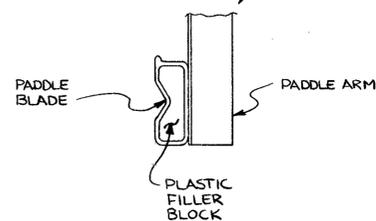
SECTION G (101 & 102)



SECTION J (101 & 102)

NOTES:

- 1) ALL PADDLE WHEEL CONFIGURATIONS ARE IDENTICAL TO SECTION "D". SHAFT SIZE VARIES.
- 2) ALL PADDLE WHEELS ARE BOLTED WITH 304 STAINLESS STEEL WITH DOUBLE NUTS.
- 3) FIBERGLASS CROSS BRACING BETWEEN PADDLE ARMS NOT SHOWN IN SECTION VIEWS.



SPECIFICATION SECTION: WP 196A

REV. NO.	DATE	DESCRIPTION OF REVISION	REV. BY
3	2-4-92	ADDED MK. NO'S	JD
2	1-24-92	REVISED SHAFT DIA'S REMOVED ITEM NO'S	JD
1	12-11-91	4'-1 WAS 5'-0 ADDED L3x3x1/4	JD
1	12-11-91	ADDED ITEM NUMBERS	JRN

SCALE: ~	DATE ISSUED: 11/20/91	CUSTOMER: PRICE ERECTING, INC.	TITLE: GENERAL ARRANGEMENT
DIMENSIONS IN INCHES UNLESS SPECIFIED		LOCATION: LINWOOD PLANT, MILWAUKEE, WI	PADDLE WHEEL SECTIONS
TOLERANCES UNLESS OTHERWISE SPECIFIED		ENGINEER: CITY OF MILWAUKEE	
CONFIDENTIAL - ALL RIGHTS RESERVED			
Envirox Inc.			
PART OR PROJECT NUMBER: 11685		DRAWING NUMBER: 11685-104	

PADDLE BLADES: 3x8 FIBERGLASS (40)(41)(42)(43)

PADDLE HUBS: FABRICATED STEEL, KEYED & SET-SCREWED, H.D.G.
1/2" x 16" SQ PL (HUBS ARE SHIPPED ASSEMBLED TO SHAFT)

PADDLE ARMS: L4x4x3/8, A-36, H.D.G. (44)(45)

PADDLE BLADE DIAGONALS: 3x3x1/4 FIBERGLASS, CUT EDGES AND MACHINED SURFACES COATED W/EPOXY (46)(47)(50)(51)(52)(53)

PADDLE ARM BRACING: L2x2x1/4 } A-36, H.D.G. (70)
L3x3x1/4 } (71)
CGx8.2" } (72)

SHAFT COUPLINGS: CAST IRON RIBBED COMPRESSION, KEYED & SPLIT FURNISHED WITH 304 STAINLESS STEEL BOLTS, WASHERS AND LOCKNUTS (56)(57)(58)(59)

SUBMERGED SHAFT BEARINGS: SPLIT BLOCK BEARING, SOLID UHMW POLYETHYLENE WITH ALEMITE LUBE FITTING (32)(33)(34)

NON-SUBMERGED SHAFT BEARINGS: SPLIT CAST IRON PILLOW BLOCK BEARING WITH ALEMITE LUBE FITTING, BRONZE BUSHED (38)

SHAFTING: AISI CFS SHAFT, TURNED, GROUND AND POLISHED; 4 3/16, 4 1/16 & 5 1/16 DIAMETERS (61)(62)(63)(64)(65)(66)

SET COLLARS: SPLIT CAST IRON, FURNISHED WITH 316 STAINLESS STEEL HARDWARE (67)(68)

SHAFT COUPLING: FALK TYPE T10 WITH HORIZONTAL SPLIT COVER, SIZE 1130T, TAPERED GRID, FLEX COUPLING

DRIVE CLUTCH: CENTRIC TRIG-O-MATIC, OVERLOAD RELEASE CLUTCH, TYPE CFC, SIZE 3 WITH LIMIT SWITCH PIN, MANUAL RESET

CLUTCH GUARD: *10 GA. EXPANDED METAL

COUPLING GUARD: *10 GA. EXPANDED METAL (77)

ANCHOR BOLTS: 304 STAINLESS STEEL

HARDWARE: 304 STAINLESS STEEL UNLESS OTHERWISE SPECIFIED - REFER TO FIELD CONNECTION DRAWING (FURNISHED WITH MANUALS)

STUFFING BOX: FABR STEEL, GREASE LUBRICATION FITTING, BRONZE GREASE RING, FLUSHING CONNECTION, BRONZE GLAND FOLLOWER, (5) PACKING RINGS - NON-ASBESTOS, ACRYLIC FIBER, GRAPHITE COATED, IMPREGNATED WITH LUBRICANT

PAINT NOTE: WOOD, NON-FERROUS & GALVANIZED MATERIAL TO REMAIN UNPAINTED, SHAFTING & EXPOSED MACHINED SURFACES ONE RUST PREVENTATIVE COATING OF MOBILARMA #245; COMPRESSION CPLGS, SET COLLARS, DRIVE BASE PLATE, DRY WELL BRG BRKT BLASTCLEAN PER SSPC-SP6 FOLLOWED BY ONE SHOP COAT OF TNEMEC 37H-77W 3.0MIL DFT; EXPANDED METAL CLUTCH AND COUPLING GUARDS TO BE PREPARED BY BLAST CLEANING PER SSPC-SP6, FOLLOWED BY ONE COAT OF TNEMEC #37-H-77W CHEM-PRIME PRIMER TO A DRY FILM THICKNESS OF 3.0 MILS. PRIMER TO BE FOLLOWED BY ONE COAT OF TNEMEC *2HBSV7 SAFETY YELLOW HI-BUILD TNEME-GLOSS TO A DRY FILM THICKNESS OF 2.5 MILS. DRIVE MACHINERY & BEARINGS MANUFACTURERS STANDARD. TOUCH-UP AND ALL ADDITIONAL COATS OF PAINT, NOT BY ENVIREX.

CUSTOMER NOTES: ENVIREX WILL FURNISH ONLY THOSE ITEMS SHOWN AND/OR NOTED ON THE DRAWINGS AND AS INDICATED IN OUR PROPOSAL. USE ERECTION SHIMS WHERE NECESSARY TO ALIGN EQUIPMENT. (SEE INSTRUCTION MANUAL)

SHAFTING ALIGNMENT NOTE: SHAFTING TO BE INSTALLED WITH A MINIMUM DEGREE OF MISALIGNMENT. THE ALIGNMENT PROCEDURE AS OUTLINED IN OUR SERVICE MANUAL SHALL BE FOLLOWED IN ACCORDANCE WITH CITY OF MILW SPEC WP-196A, FR-6

SAFETY HAZARD WARNING LABELS: LABELS ARE AFFIXED ON "ENVIREX" EQUIPMENT WHEN A VISUAL WARNING IS APPROPRIATE. THE EQUIPMENT OWNER IS RESPONSIBLE FOR KEEPING THESE LABELS VISABLE AND IN GOOD CONDITION. REPLACEMENT LABELS ARE AVAILABLE FROM THE "ENVIREX PARTS DEPARTMENT."

(31) ELECTRICAL CONTROLS (FURNISHED BY ENVIREX): (4) DRIVECON BUILT-UP 7.5 H.P., 460V, 24A, KVFX455E VARIABLE FREQUENCY DRIVE WITH NEMA 4 FIBERGLASS ENCLOSURE, 20A 5 CIRCUIT BREAKER W/DISCONNECT HANDLE, LOCAL/REMOTE SWITCH, ELAPSED TIME METER, RED RUN LIGHT AND START/STOP PUSH BUTTONS, 0-100% SPEED METER, AMMETER, AND 3 PH. LINE REACTOR ON INPUT. MANUAL SPEED POT. (4) LIMIT SWITCH - MANUAL RESET - (1) N.O. & (1) N.C. CONTACT

(78) SPARE PARTS: (1) CONTROL FUSE (1) POWER FUSE (1) MAIN PRINTED CIRCUIT BOARD (1) OPERATOR KEYPAD (2) COMPLETE HEATSINK CHASSIS (LESS CIR. BOARDS) (2) DIODE MODULES (1) RUN RELAY (1) CHARGE RELAY

SPECIFICATION SECTION: WP196A

MAX. VELOCITY GRADIENT@4°C	MAX. PADDLE TIP VELOCITY	MIN. PADDLE TIP VELOCITY
26 FPS/FT	276 F.P.S.	1.38 FPS

WORK THIS DRAWING WITH: 11685-101, 102, 103 & 104

SCALE ~	DATE ISSUED 11-20-91	CUSTOMER PRICE ERECTING, INC.	TITLE GENERAL ARRANGEMENT
DIMENSIONS IN INCHES UNLESS SPECIFIED		LOCATION LINWOOD PLANT, MILWAUKEE, WI	SPECIFICATIONS
TOLERANCES UNLESS OTHERWISE SPECIFIED		ENGINEER CITY OF MILWAUKEE	
TWO (2) PLACE DEC. ±.06		CONFIDENTIAL - ALL RIGHTS RESERVED	
THREE (3) PLACE DEC. ±.005		Envirex Inc.	
ANGULAR ±.50°		WAUKESHA, WI 53187	
STRUCTURAL DIMENSIONS 1/16	MACHINED SURFACES 250/	PART OR PROJECT NUMBER 11685	
PRODUCT CODE		DRAWING NUMBER 11685-105	
DRAWN JRN	PROJECT ENG. A DAVIS		
CHECKED J. DAVIS	APPROVED J. DAVIS		
DRAWING MADE FROM ORIGINAL			

TELETYPE POST 12/23/97

ECN NUMBER	REV. NO.	MF	DESCRIPTION OF REVISION	REV. BY	DATE
	1		ADDED DESCRIPTION	JD	12-11-91
	1		ADDED ITEM NUMBERS	JRN	12-11-91
	2		REVISED SHAFT DIA'S	JD	1-24-92