RETURN TO UAO AR INDEX

US Army Corps
of Engineers
New England District

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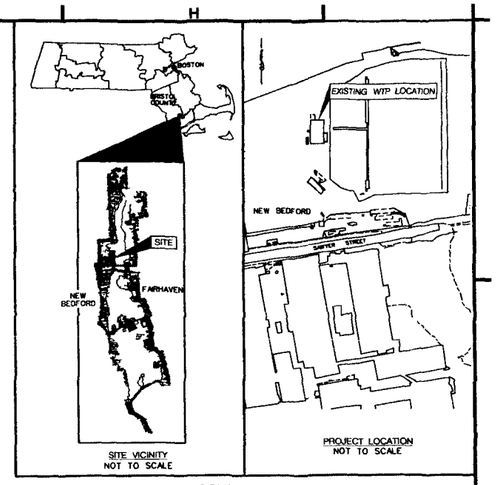
6.4
209087



LOCUS MAP

WATER TREATMENT PLANT DESIGN

NEW BEDFORD HARBOR SUPERFUND SITE

100% DESIGN
JUNE 2002

NEW BEDFORD,
MASSACHUSETTS

RDMS DocID 000209087

PROJ. NO. 5197.1720.3392	INDEX TO DRAWINGS	
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4	C-102	17AC1020.dgn	SITE GRADING PLAN
5	C-103	17AC1030.dgn	YARD PIPING/UTILITIES PLAN
6	S-501	17AS5010.dgn	FOUNDATION FLOOR PLAN
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14	M-603	17AM6030.dgn	PIPING AND INSTRUMENTATION DIAGRAM - POLISHING FILTRATION SYSTEM/LIQUID PHASE CARBON ADSORPTION SYSTEM
15	M-604	17AM6040.dgn	PIPING AND INSTRUMENTATION DIAGRAM - CHEMICAL FEED SYSTEMS
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17	A-202	17AA2020.dgn	ARCHITECTURAL ELEVATIONS - WEST AND SOUTH
18	A-203	17AA2030.dgn	NORTH ARCHITECTURAL ELEVATIONS FOR NEW AND EXISTING WTP AND CONNECTING WALKWAY
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21	E-102	17AE1020.dgn	ELECTRICAL SERVICE PLAN
22	E-601	17AE6010.dgn	SINGLE LINE DIAGRAM (SHEET 1 OF 2)
23	E-602	17AE6020.dgn	SINGLE LINE DIAGRAM (SHEET 2 OF 2)

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PREPARED BY: PRINCIPAL: FIRM DATE
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APPROVED FUNCTIONAL ADEQUACY
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CHIEF, DESIGN BRANCH DATE
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CHIEF, GEOTECH & WATER MGT BR DATE
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CHIEF, ENGRG MGMT BRANCH DATE
APPROVED BY:
CHIEF, ENGRG/PLANNING DIV DATE

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

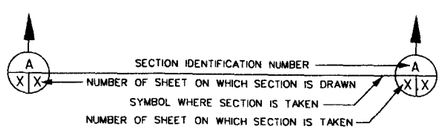
COVER SHEET AND INDEX

Reference number:
G-001
Sheet 1 of 23

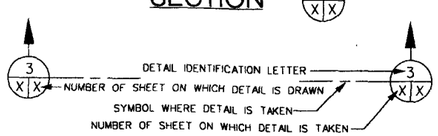
CAD FILE: 17AG0010.DGN

LEGEND:

EXISTING	NEW	DESCRIPTION
		INDEX CONTOUR
		INTERMEDIATE CONTOUR
	x 6.00	SPOT ELEVATION
		FLOW ARROW
		EARTH CUT
		EARTH FILL
		RIP-RAP
		BOUNDARY LINE
		EASEMENT LINE
		CHAIN LINK FENCE
		EDGE OF PAVEMENT
S 01°40'24" E		BOUNDARY BEARING & DIRECTION
W	W	POTABLE WATER SERVICE
G	G	GAS SERVICE
E	E	ELECTRIC SERVICE
S	S	SANITARY SEWER
D	D	STORM DRAIN
WR	WR	WATER RETURN
WW	WW	WASTE WATER
OHW		OVERHEAD UTILITY SERVICE LINES
		FIRE HYDRANT
		UTILITY POLE
		LIGHT
		NAIL FOUND
		CATCH BASIN
		SIGN
		VALVE
		TREE
		MANHOLE
		SEWER MANHOLE
		DRAIN MANHOLE
		GAS MANHOLE
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		BOLLARD
MW-C8		EXISTING MONITORING WELL LOCATION
OW-C2		EXISTING OBSERVATION WELL LOCATION
CSO-C2 FC-C2		SOIL BORING LOCATION



SECTION



DETAIL

ABBREVIATIONS

BM	BENCH MARK
BOP	BEGINNING OF PROJECT
℄	CENTERLINE
C.O.	CLEANOUT
CONC.	CONCRETE
CSO	COMBINED SEWER OVERFLOW
DEP	DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIA.	DIAMETER
DI	DUCTILE IRON
DR	DRIVE
EL., ELEV.	ELEVATION
EOP	END OF PROJECT
EXIST.	EXISTING
FWENC	FOSTER WHEELER ENVIRONMENTAL CORP.
HDPE	HIGH DENSITY POLYETHYLENE
HYD.	HYDRANT
INV.	INVERT
MH	MANHOLE
MHW	MEAN HIGH WATER
MLW	MEAN LOW WATER
MW	MONITORING WELL
N/A	NOT APPLICABLE
NAD83	NORTH AMERICAN HORIZONTAL DATUM OF 1983
NGVD29	NATIONAL GEODETIC VERTICAL DATUM OF 1929
OW	OBSERVATION WELL
PI	POINT OF INTERSECTION
PROP	PROPERTY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REF	REFERENCE
ROW	RIGHT-OF-WAY
STA	STATION
TURB	TURBIDITY
TYP	TYPICAL
USACE	U.S. ARMY CORPS OF ENGINEERS
VERT.	VERTICAL
WL	WATER LEVEL
W/	WITH
WP	POTABLE WATER
WTP	WATER TREATMENT PLANT
YR.	YEAR

100% DESIGN

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR 100% DESIGN SUBMITTAL	6/24/02	J.B.
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Drawn by: C.R.POTVIN
Reviewed by: J.BRINKMAN
Submitted by:

U.S. ARMY ENGINEER DISTRICT
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CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

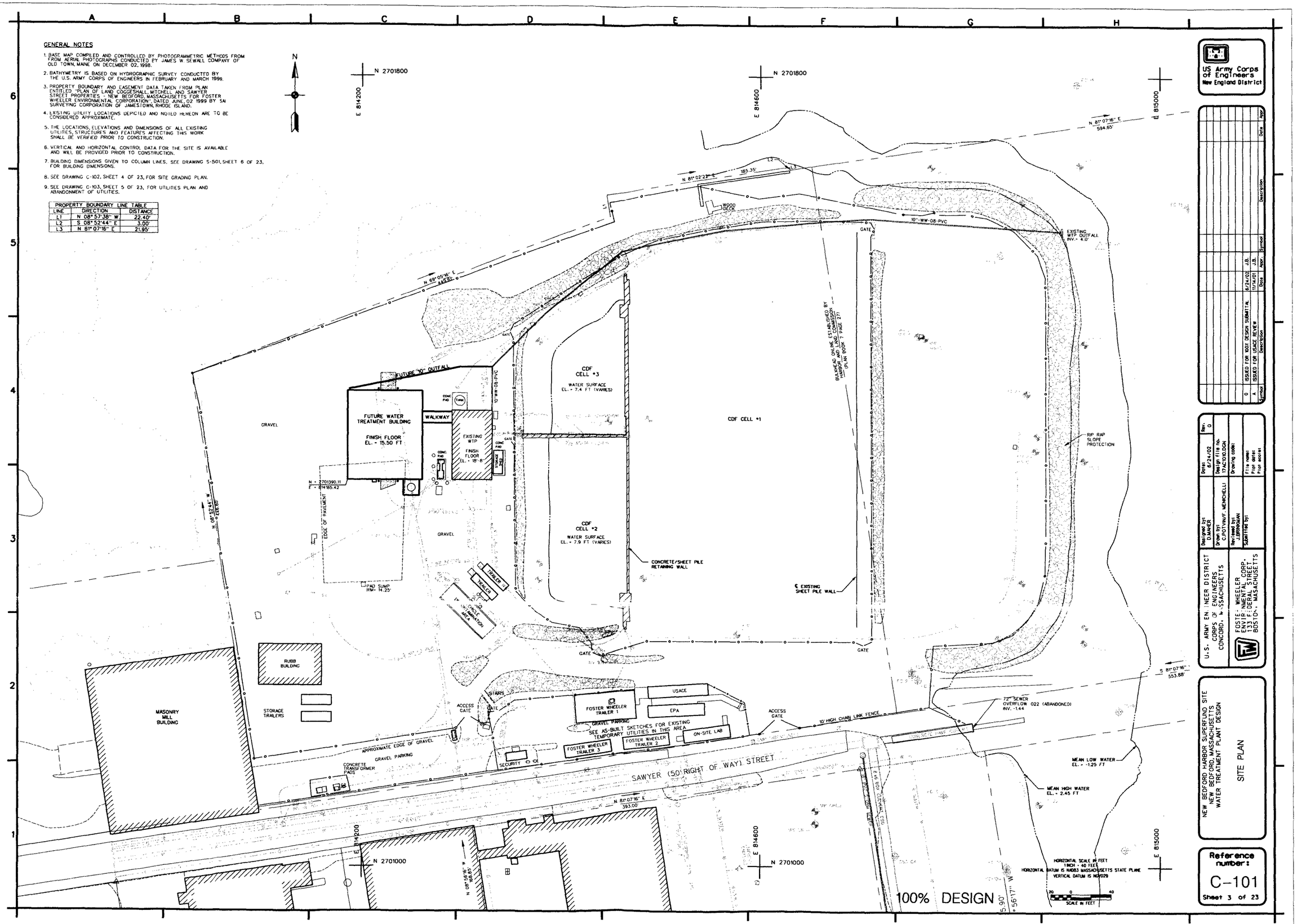
LEGEND AND ABBREVIATIONS

Reference number:
G-002
Sheet 2 of 23

GENERAL NOTES

1. BASE MAP COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS FROM FROM AERIAL PHOTOGRAPHS CONDUCTED BY JAMES W. SEWALL COMPANY OF OLD TOWN, MAINE ON DECEMBER 02, 1998.
2. BATHYMETRY IS BASED ON HYDROGRAPHIC SURVEY CONDUCTED BY THE U.S. ARMY CORPS OF ENGINEERS IN FEBRUARY AND MARCH 1999.
3. PROPERTY BOUNDARY AND EASEMENT DATA TAKEN FROM PLAN ENTITLED "PLAN OF LAND COGGESHALL, MITCHELL AND SAWYER STREET PROPERTIES - NEW BEDFORD, MASSACHUSETTS FOR FOSTER WHEELER ENVIRONMENTAL CORPORATION", DATED JUNE, 02 1999 BY SAI SURVEYING CORPORATION OF JAMESTOWN, RHODE ISLAND.
4. EXISTING UTILITY LOCATIONS DEPICTED AND NOTED HEREON ARE TO BE CONSIDERED APPROXIMATE.
5. THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND FEATURES AFFECTING THIS WORK SHALL BE *VERIFIED PRIOR TO CONSTRUCTION.*
6. VERTICAL AND HORIZONTAL CONTROL DATA FOR THE SITE IS AVAILABLE AND WILL BE PROVIDED PRIOR TO CONSTRUCTION.
7. BUILDING DIMENSIONS GIVEN TO COLUMN LINES. SEE DRAWING S-501, SHEET 6 OF 23, FOR BUILDING DIMENSIONS.
8. SEE DRAWING C-102, SHEET 4 OF 23, FOR SITE GRADING PLAN.
9. SEE DRAWING C-103, SHEET 5 OF 23, FOR UTILITIES PLAN AND ABANDONMENT OF UTILITIES.

PROPERTY BOUNDARY LINE TABLE		
LINE	DIRECTION	DISTANCE
L1	N 08°57'38" W	22.40'
L2	S 08°52'44" E	3.00'
L3	N 81°07'16" E	21.95'



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Drawn by: C.POTVIN/F. MENICHELLI
Reviewed by: J.BOUCHARD
SUBMITTED BY:

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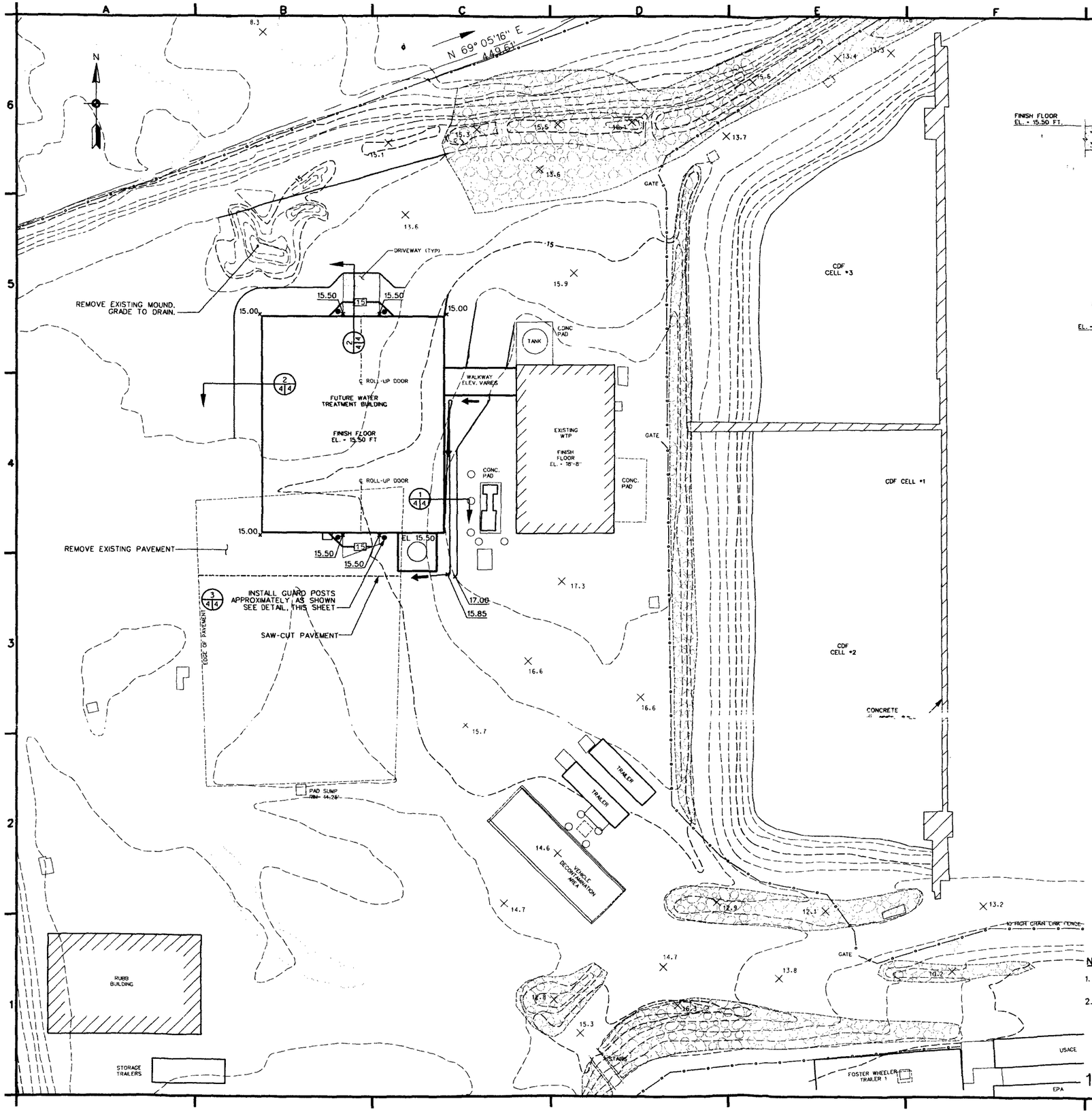
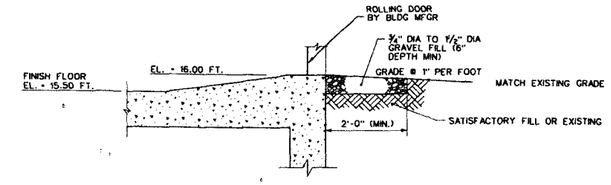
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

SITE PLAN

Reference number:
C-101
Sheet 3 of 23

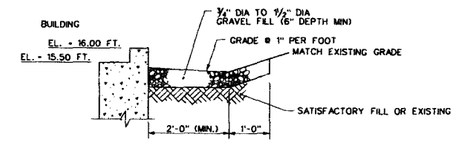




NOTES:

1. TYPICAL AT ALL EXTERIOR BUILDING LOCATIONS.
2. SEE DRAWING S-501, SHEET 6 OF 23, FOR FOUNDATION DETAILS

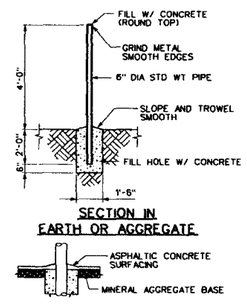
(2/4|4) **TYPICAL GRADE TREATMENT**
NOT TO SCALE



NOTES:

1. GRADE TREATMENT AT EXTERIOR BUILDING LOCATIONS AT OR ABOVE FINISH GRADE IN VINCINITY OF SWALE. SEE DRAWING S-501, SHEET 6 OF 23, FOR FOUNDATION DETAILS.
2. SWALE SLOPE = 0.0025 FT/FT

(1/4|4) **TYPICAL SWALE DETAIL**
NOT TO SCALE



NOTES:

1. GUARD POST TO BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER AND TWO COATS OF EXTERIOR HIGH GLOSS ENAMEL COLOR YELLOW TO MATCH FED STD 595 CHIP NO. 13538.
2. CONCRETE TO HAVE A 28-DAY COMPRESSION STRENGTH OF 3000 PSI.
3. PLACE GUARD POST 2 FEET (MIN.) FROM FACE OF BUILDING AND LIMITS OF WALK/DRIVEWAYS.

(3/4|4) **TYPICAL GUARD POST DETAIL**
NOT TO SCALE

NOTES

1. SEE SITE PLAN, DRAWING C-101, SHEET 3 OF 23, FOR GENERAL NOTES AND SITE LAYOUT.
2. ALL DISTURBED AREAS WITHIN THE LIMITS OF CONSTRUCTION NOT SPECIFICALLY DESIGNATED HEREON WITH A SURFACE TYPE SHALL BE RESTORED TO ORIGINAL CONDITIONS.

HORIZONTAL SCALE IN FEET
1 INCH = 20 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

100% DESIGN

SCALE IN FEET (10 0 20)

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Reviewed by: J.BRINKMAN
Submitted by:

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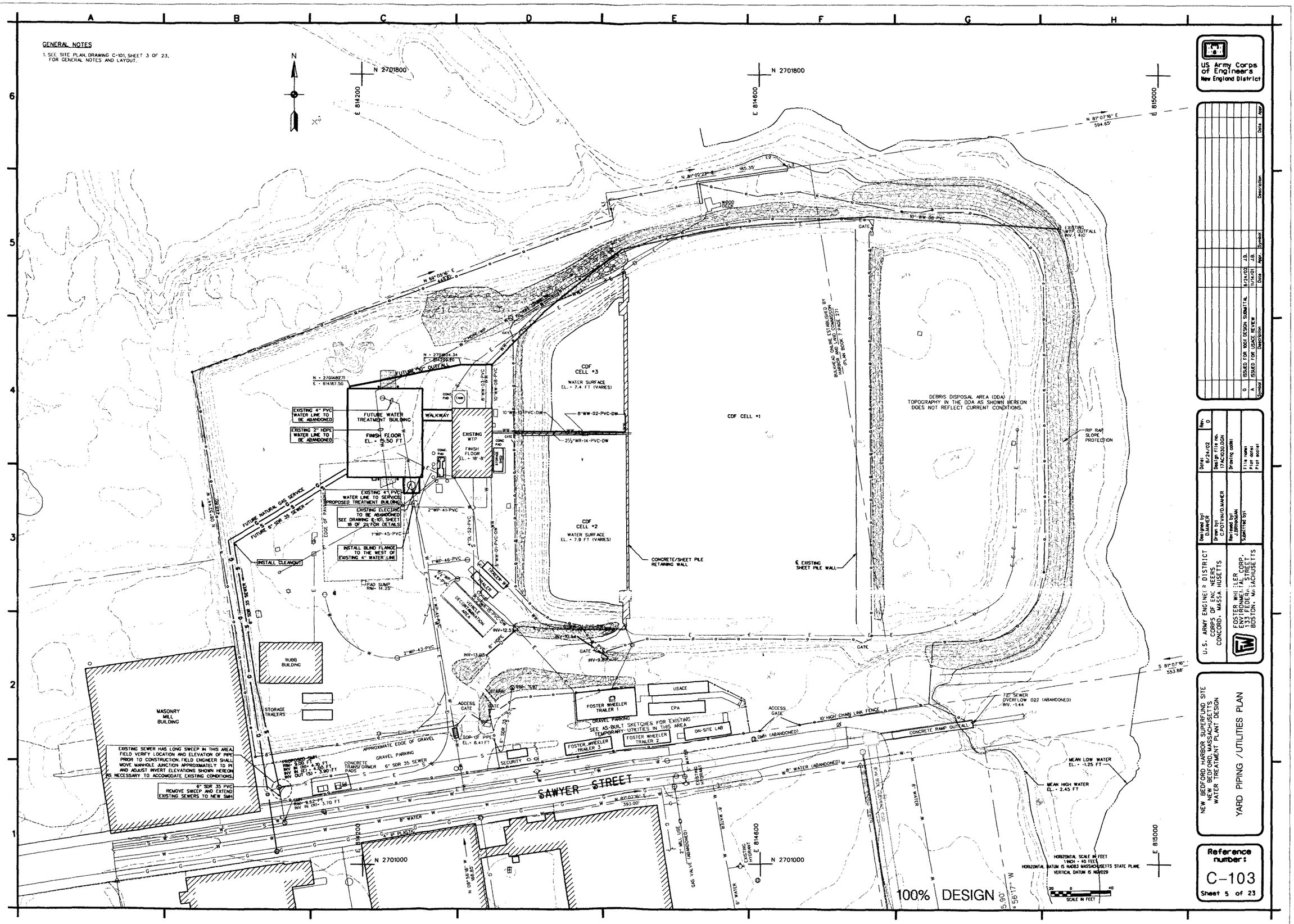
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

SITE GRADING PLAN

Reference number:
C-102
Sheet 4 of 23

GENERAL NOTES

1. SEE SITE PLAN, DRAWING C-101, SHEET 3 OF 23, FOR GENERAL NOTES AND LAYOUT.



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NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

YARD PIPING /UTILITIES PLAN

Reference number:
C-103
Sheet 5 of 23

NOTES:

A. GENERAL

1) BUILDING DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE COMMONWEALTH OF MASSACHUSETTES STATE BUILDING CODE, SIXTH EDITION.

2) THE FOLLOWING MINIMUM LIVE LOADS SHALL BE USED FOR DESIGN:

SNOW LOAD: 35 P.S.F.

WIND SPEED: 90 MPH, EXPOSURE "C"

SEISMIC: ZONE 2, IMPORTANCE FACTOR I

B. FOUNDATIONS

1) ALL FOUNDATIONS AND FLOOR SLAB SHALL BEAR ON UNDISTURBED SOIL OR PREPARED BASE HAVING A MINIMUM ALLOWABLE BEARING CAPACITY OF 2,000 P.S.F.

2) FLOOR ELEVATION SHOULD BE AS INDICATED ON SHEET C-102, SHEET 4 OF 23.

C. EQUIPMENT PAD ELEVATIONS SHALL BE 6 INCHES ABOVE FLOOR ELEVATION EXCEPT AS NOTED.

D. SECTION CUTS ARE PROVIDED ON DRAWING A-201, SHEET 16 OF 23.

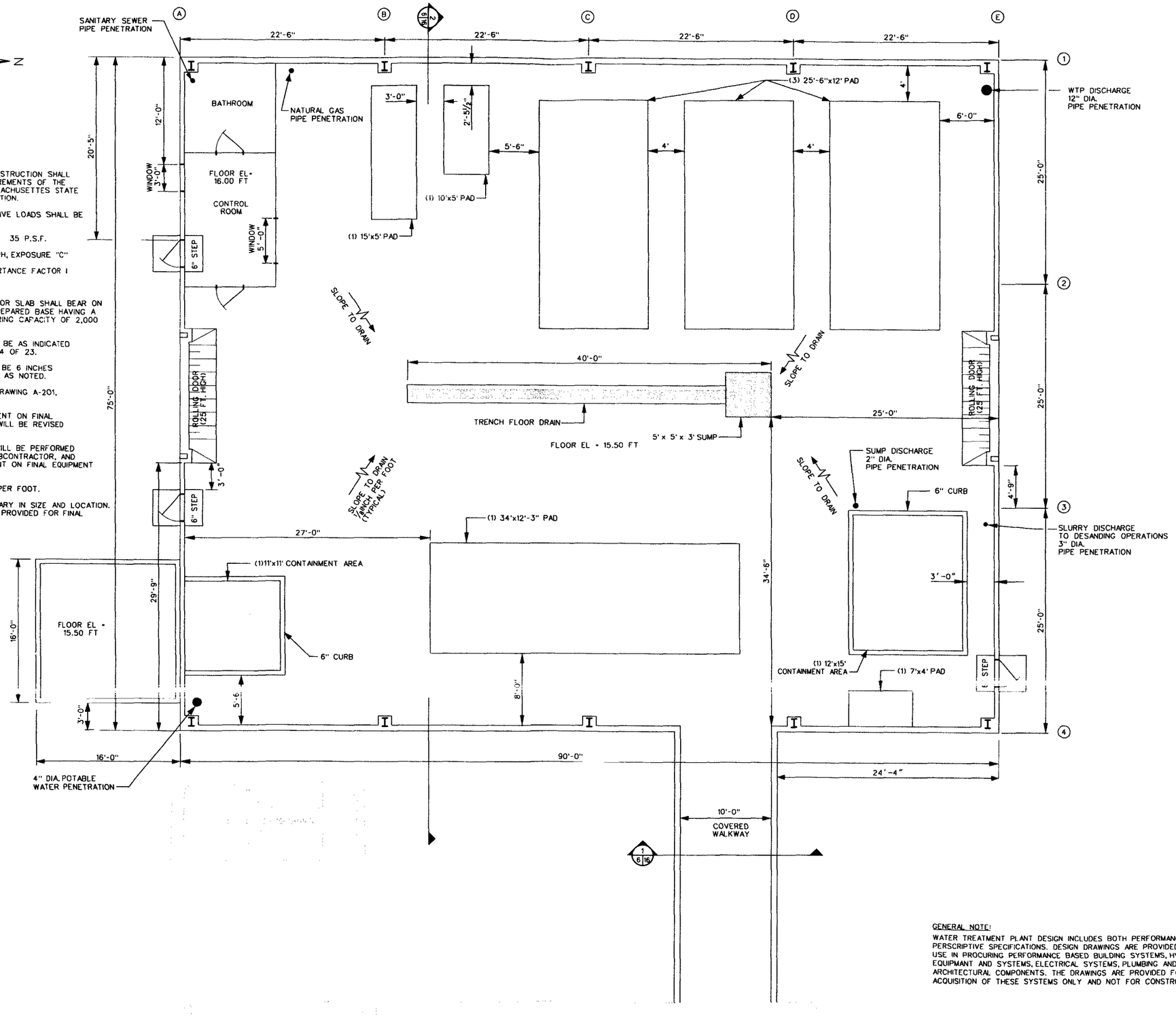
E. EQUIPMENT PAD SIZES ARE DEPENDENT ON FINAL EQUIPMENT SELECTION. DRAWING WILL BE REVISED ACCORDINGLY.

F. DETAILED DESIGN OF FOUNDATION WILL BE PERFORMED BY THE BUILDING/FOUNDATION SUBCONTRACTOR, AND FINAL LAYOUT WILL BE CONTINGENT ON FINAL EQUIPMENT SELECTIONS.

G. SLOPE TO DRAIN WILL BE 1/8 INCH PER FOOT.

H. PENETRATIONS SHOWN ARE PRELIMINARY IN SIZE AND LOCATION. FINAL SIZE AND LOCATION TO BE PROVIDED FOR FINAL FOUNDATION DESIGN.

I. ANTICIPATED OPERATIONAL LOADS:
CLARIFIER - 250,700 LBS
GAC - 230,000 LBS



GENERAL NOTE:

WATER TREATMENT PLANT DESIGN INCLUDES BOTH PERFORMANCE AND PERSCRIPTIVE SPECIFICATIONS. DESIGN DRAWINGS ARE PROVIDED FOR USE IN PROCURING PERFORMANCE BASED BUILDING SYSTEMS, HVAC EQUIPMANT AND SYSTEMS, ELECTRICAL SYSTEMS, PLUMBING AND ARCHITECTURAL COMPONENTS. THE DRAWINGS ARE PROVIDED FOR ACQUISITION OF THESE SYSTEMS ONLY AND NOT FOR CONSTRUCTION.

100% DESIGN

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

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New England District

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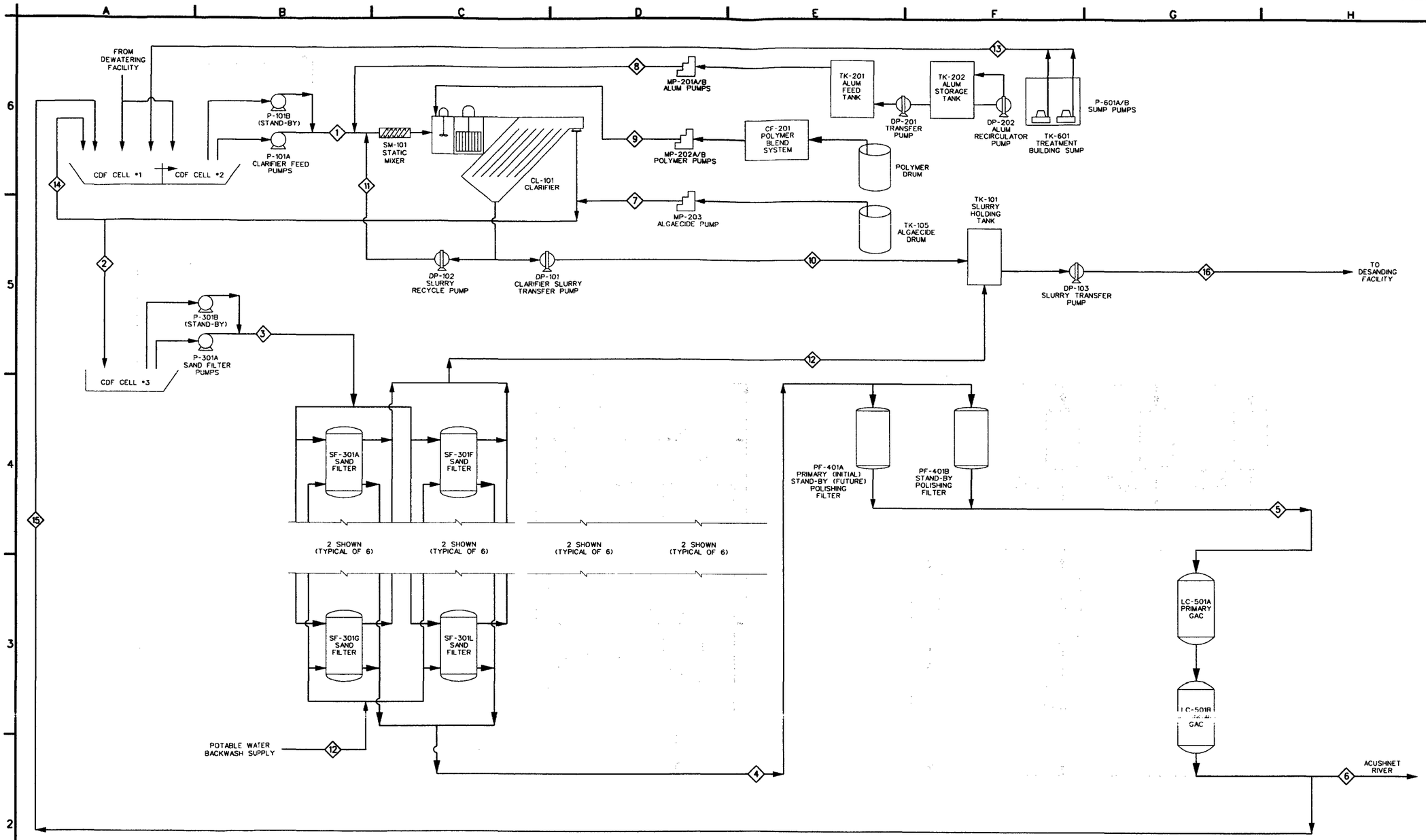
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

FOUNDATION FLOOR PLAN

Reference number:
S-501
Sheet 6 of 23



WATER TREATMENT PLANT MASS BALANCE CALCULATION	1 CLARIFIER INFLUENT	2 CLARIFIER EFFLUENT	3 CDF CELL #3 EFFLUENT	4 SAND FILTER EFFLUENT	5 POLISHING FILTER EFFLUENT	6 GAC EFFLUENT	7 ALGACIDE FEED SYSTEM	8 ALUM FEED SYSTEM	9 POLYMER FEED SYSTEM	10 CLARIFIER SLURRY †	11 SLURRY RECYCLE	12 SAND FILTER BACKWASH †	13 TREATMENT BUILDING SUMP	14 CLARIFIER EFFLUENT RECYCLE	15 GAC EFFLUENT RECYCLE	16 SLURRY EFFLUENT †
INITIAL AVERAGE FLOW (GPM)	700	665	665	665	665	665	0.01	0.15	0.27	35	NA	45	100**	665**	665**	70
INITIAL TOTAL SUSPENDED SOLIDS (PPM)	15	7	1.49	0.88	0.88	0.60	25	150	2	3,122	NA	9	NA	NA	NA	1,391
INITIAL MASS FLOW - WATER (LB./HR)	355,440	337,884	337,884	337.884	337,884	337,884	0	56	140	17,772	NA	22,512	NA	NA	NA	40,021
INITIAL MASS FLOW - SOLIDS (LB./HR)	5	2	0.50	0.29	0.29	0.20	9	53	1	56	NA	0.20	NA	NA	NA	57
FUTURE AVERAGE FLOW (GPM)	2000	1901	1901	1901	1901	1901	0.05	0.44	0.78	100	NA	90	100**	1900**	1900**	190
FUTURE TOTAL SUSPENDED SOLIDS (PPM)	15	7	1.49	0.88	0.88	0.60	25	150	2	3,122	NA	13	NA	NA	NA	1,674
FUTURE MASS FLOW - WATER (LB./HR)	1,015,544	965,384	965,384	965,384	965,384	965,384	0	160	399	50,777	NA	45,024	NA	NA	NA	95,051
FUTURE MASS FLOW - SOLIDS (LB./HR)	15	6	1.42	0.84	0.84	0.57	25	150	2	161	NA	0.58	NA	NA	NA	162
NTUs*	10	4.37	1.00	0.59	0.59	0.40	NA	NA	NA	NM	NA	NA	NA	NA	NA	NA
PCBs (PPB) <0.05 ug/l	15.00	12.87	2.69	2.01	2.01	<0.05	NA	NA	NA	26	NA	NA	NA	NA	NA	NA
TOTAL CADMIUM (PPB) <5.0	<5	<5	<5	<5	<5	<5	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA
TOTOL CHROMIUM (PPB) <22.0	<22	<22	<22	<22	<22	<22	NA	NA	NA	<22	NA	NA	NA	NA	NA	NA
TOTAL COPPER (PPB) <3.0	25	13	12	NA	NA	2	NA	NA	NA	<3	NA	NA	NA	NA	NA	NA
TOTAL LEAD (PPB) <5.0	9	<5	<5	<5	<5	<5	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA

** - DESIGN FLOW RATE INDICATED. FLOW NOT NORMALLY PRESENT
*NTUs - NEPHELOMETRIC TURBIDITY UNITS
NM - NO MESUREMENT
NA - NOT APPLICABLE
† - STREAMS ARE INTERMITTENT

NOTE:
SUBDUED CONDITIONS REPRESENT FUTURE EQUIPMENT INSTALLATIONS FOR 2,000 GPM CAPACITY SYSTEM.

100% DESIGN

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR 100% DESIGN SUBMITTAL	6/24/02	JB
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Reviewed by: J.BRINKMAN
Submitted by:

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CONCORD, MASSACHUSETTS

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BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

PROCESS FLOW DIAGRAM AND MASS BALANCE

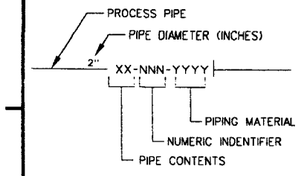
Reference number:
D-601
Sheet 7 of 23

LEGEND TABLE
MEANINGS OF IDENTIFICATION LETTERS

THIS TABLE APPLIES ONLY TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	ANALOG	ALARM		
B	BURNER FLAME		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL OR DIGITAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGING (DIMENSIONAL)		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE OR INPUT		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE OR HUMIDITY				MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VISCOSITY			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	USER'S CHOICE			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

PROCESS PIPING IDENTIFICATION



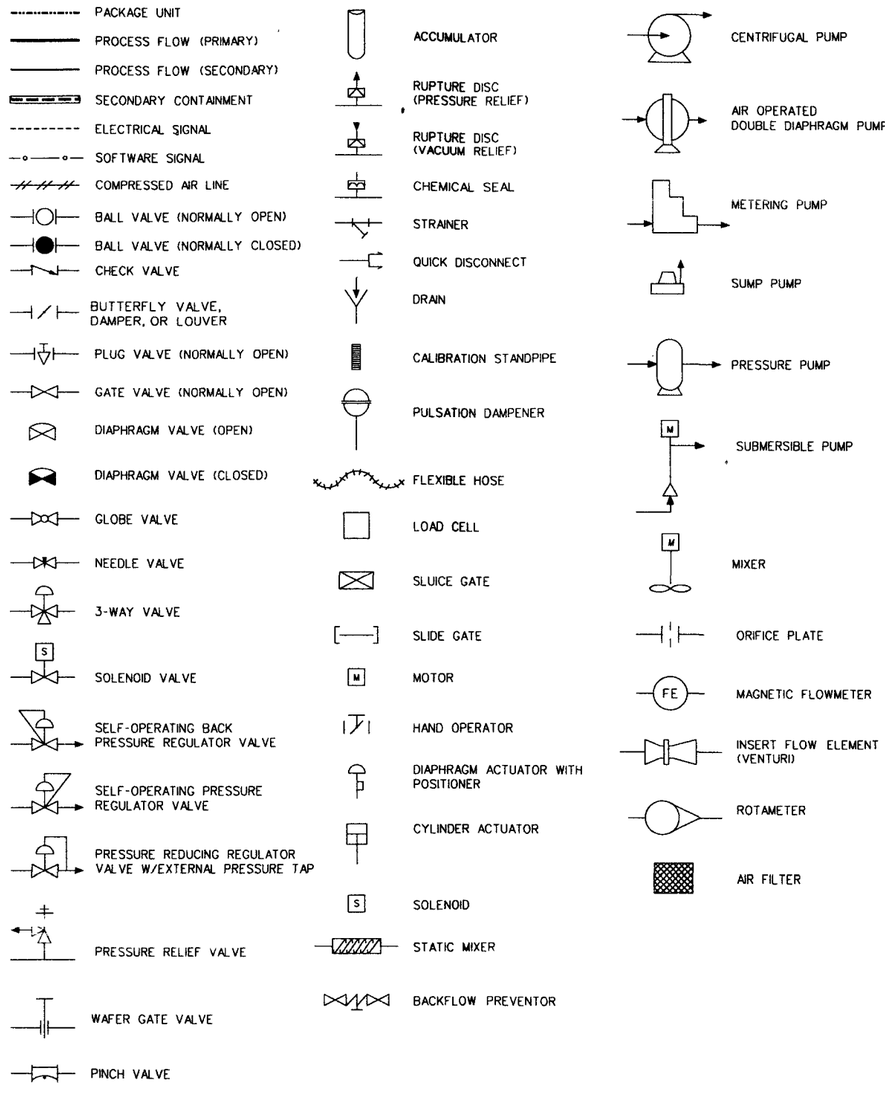
PIPING MATERIAL IDENTIFICATION

CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL
COP	COPPER
CM	CORRUGATED METAL
CI	CAST IRON
DI	DUCTILE IRON
GSP	GALVANIZED STEEL
HDPE	DOUBLE WALL HDPE
KR	KYNAR
PT	POLYTETRAFLUOROETHYLENE
PP	POLYPROPYLENE
PVC	POLYVINYL CHLORIDE
RC	REINFORCED CONCRETE
RUB	RUBBER HOSE
SDT	STEEL DUCT
SS	STAINLESS STEEL
VC	VITRIFIED CLAY
PTFE	POLY TETRA FLUOROETHYLENE (TEFLON)

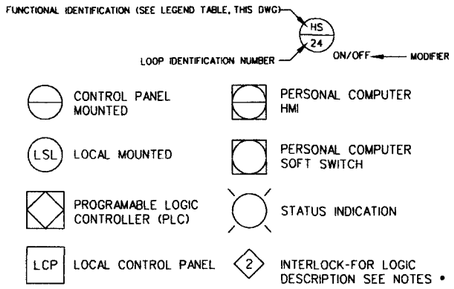
PIPING CONTENTS

WW	WASTEWATER
BW	BACKWASH WATER
IN	INFLUENT
OV	OVER FLOW
CC	CARBON CHANGEOUT
CF	CHEMICAL FEED
EF	EFFLUENT
WP	POTABLE WATER
DL	DRAIN LINE
WR	RECYCLE WATER
SA	SAMPLE
VT	VENT
AP	PLANT AIR

SYMBOLS



INSTRUMENT SYMBOLS



THE FOLLOWING DESIGNATIONS ARE USED TO BETTER IDENTIFY AN INSTRUMENT CONTROL FUNCTION

HS	HAND SWITCH
LCP	LOCAL CONTROL PANEL
VFD	VARIABLE FREQUENCY DRIVE
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
MI	MOTOR RUN INDICATOR

HAND SWITCH POSITION SYMBOLS

(UNLABELLED SWITCHES ARE TO BE ON-OFF)

A	AUTOMATIC
C	CLOSE
H	HAND
J	JOG
L	LOCAL
M	MANUAL
O	OPEN OR OFF
R	REMOTE
E/S	EMERGENCY STOP
S/S	START/STOP
A/B	SELECTOR SWITCH

GENERAL NOTES

1. SHUTDOWN THE CLARIFIER FEED PUMPS (P-101 A, B OR C) DUE TO LOW-LOW LEVEL (LSLL-101) WITHIN THE FILTRATE EQUALIZATION BASIN (CDF CELL •2).
2. SHUTDOWN THE CLARIFIER FEED PUMPS (P-101 A, B OR C) DUE TO HIGH PRESSURE (PSH-101) WITHIN THE CLARIFIER FEED PUMP EFFLUENT LINE.
3. SHUTDOWN THE CLARIFIER SLURRY PUMP (DP-101) DUE TO HIGH-HIGH LEVEL (LSHH-102) WITHIN THE SLURRY HOLDING TANK (TK-101).
4. SHUTDOWN THE FILTRATION FEED PUMPS (P-301 A, B OR C) DUE TO LOW-LOW LEVEL (LSLL-301) WITHIN THE FILTRATION FEED BASIN (CDF CELL •3).
5. SHUTDOWN THE CLARIFIER FEED PUMPS (P-101 A, B OR C) DUE TO HIGH-HIGH LEVEL (LSHH-301) WITHIN THE FILTRATION FEED BASIN (CDF CELL •3).
6. SHUTDOWN THE FILTRATION FEED PUMPS (P-301 A, B OR C) DUE TO HIGH PRESSURE (PSH-301) WITHIN THE FILTRATION FEED PUMP EFFLUENT LINE.
7. SHUTSDOWN THE FILTRATION FEED PUMPS (P-301 A, B OR C) DUE TO HIGH-HIGH PRESSURE (PSHH-501, 502 OR 503) WITHIN THE INFLUENT LINE TO LIQUID PHASE CARBON ADSORPTION SYSTEMS (LC-501, 502 OR 503).

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0	ISSUED FOR 100% DESIGN SUBMITTAL	6/24/02	J.B.
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Drawn by: D.LAWRENCE
Reviewed by: J.BRINKMAN
Submitted by:

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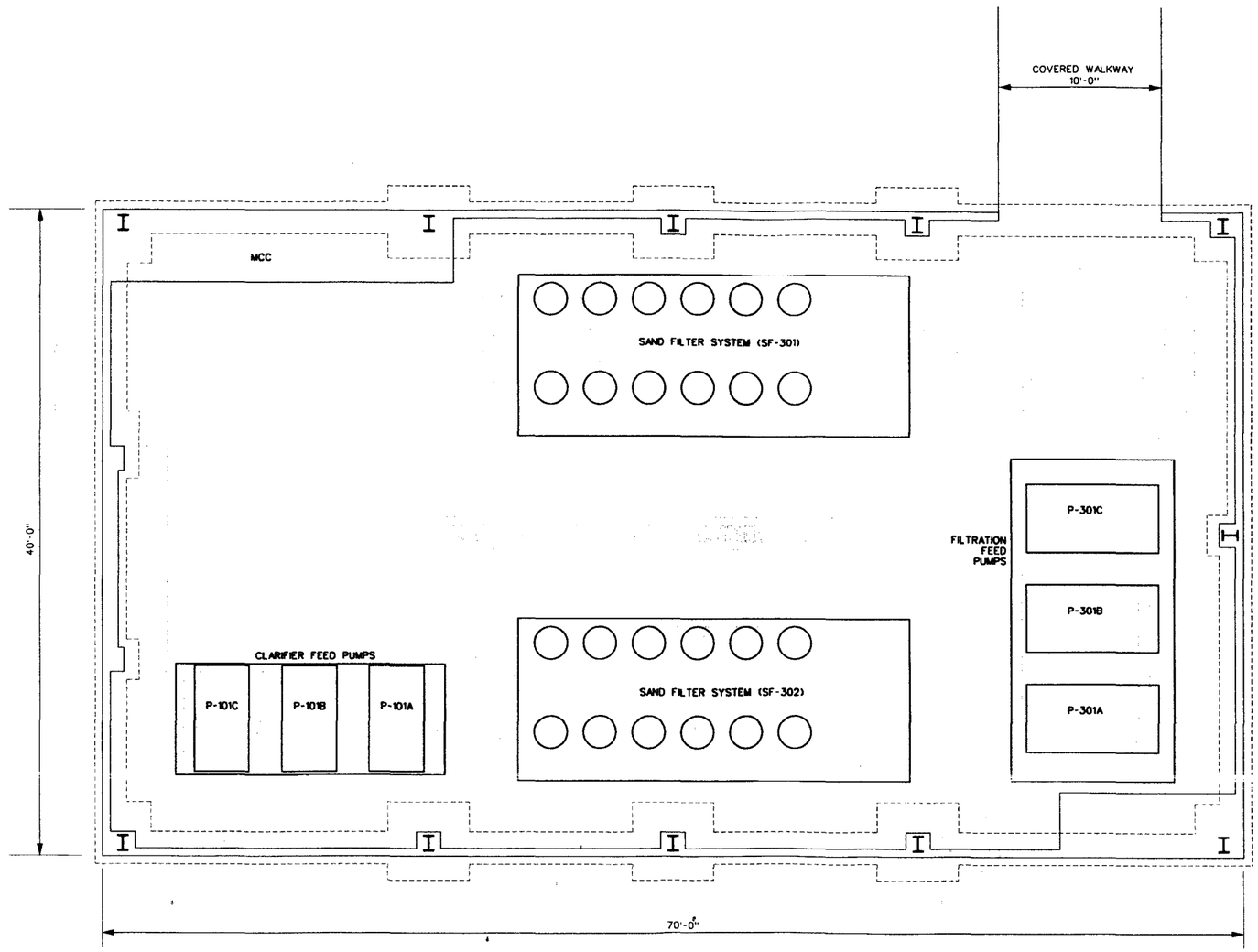
FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

PIPING LEGEND AND SYMBOLS

Reference number:
M-001
Sheet 8 of 23



FLOOR PLAN

NOTES:

1. SUBDUED CONDITIONS REPRESENT EXISTING PADS AND CURBING.
2. EXISTING PROCESS EQUIPMENT, PADS, AND CURBING TO BE REMOVED AS INDICATED ON DRAWING M-103, SHEET 11 OF 23.
3. P-101C, P-301C, SF-302 ARE FUTURE INSTALLATIONS IF 2,000 GPM CAPACITY SYSTEM IS REQUIRED.
4. EQUIPMENT PAD SIZES ARE DEPENDENT ON FINAL EQUIPMENT SELECTION. DRAWING WILL BE REVISED ACCORDINGLY.

SCALE 1/4"=1'-0"

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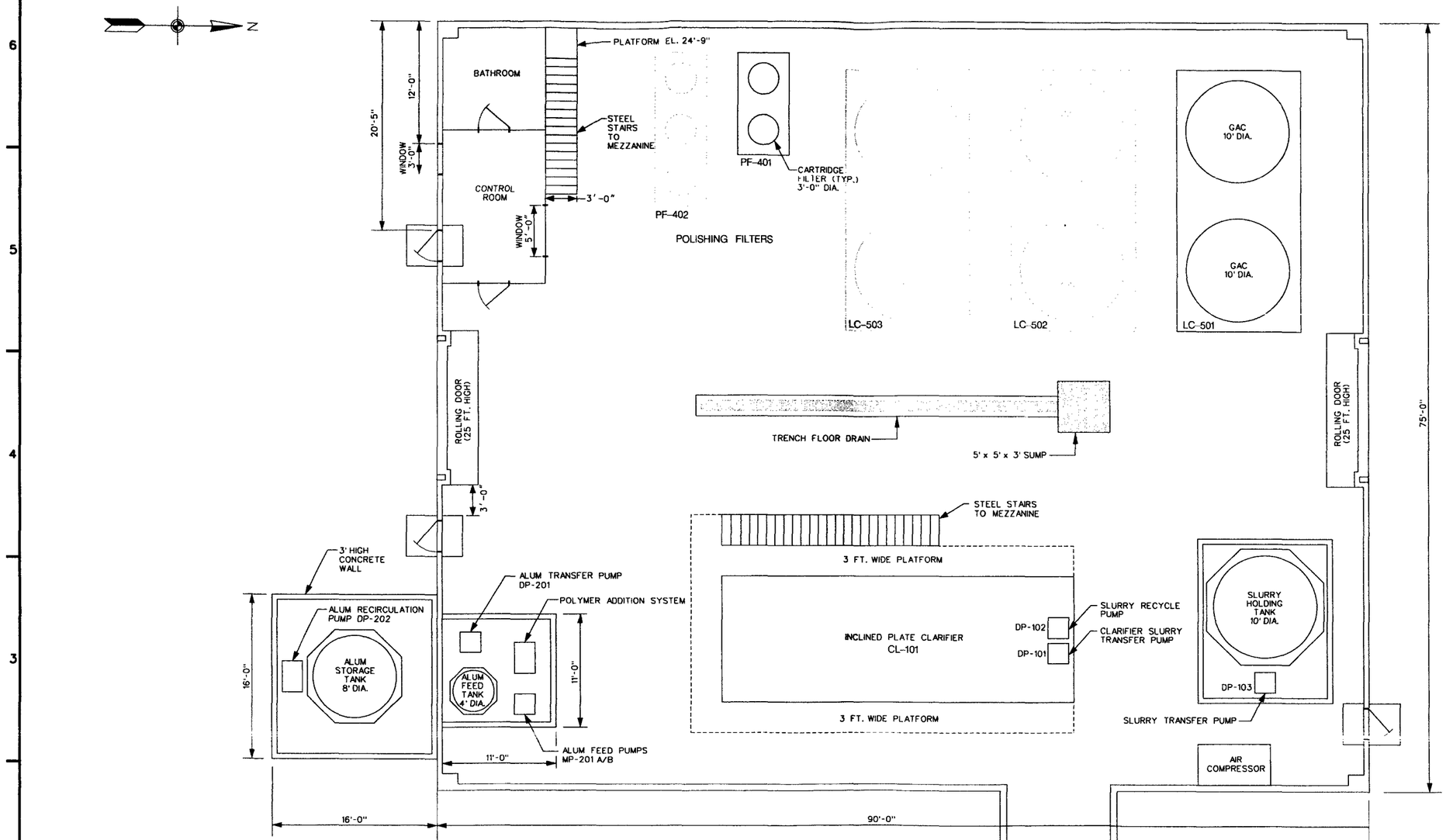
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

GENERAL ARRANGEMENT/
EQUIPMENT LAYOUT
FEED PUMPS (EXISTING WTP)

Reference number:
M-101
Sheet 9 of 23



NOTES:

1. SUBDUED CONDITIONS INSIDE WATER TREATMENT PLANT REPRESENT FUTURE EQUIPMENT INSTALLATIONS FOR 2,000 GPM CAPACITY SYSTEM.
2. PF-402, LC-502, LC-503 ARE FUTURE INSTALLATIONS IF 2,000 GPM CAPACITY SYSTEM IS REQUIRED.
3. OPERATIONAL LOAD FOR CLARIFIER IS 250,700 LBS.
4. OPERATIONAL LOAD FOR EACH GAC IS 230,000 LBS.

100% DESIGN

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

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NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

GENERAL ARRANGEMENT / EQUIPMENT LAYOUT PROCESS EQUIPMENT

Reference number:
M-102
Sheet 10 of 23

LOCATION OF SAND FILTERS (SF-301)

REMOVE:
1. TK-101 - POLISHING FILTER FEED SUMP
2. P-103 A & B - POLISHING FILTER FEED PUMPS
3. F-101 A & B - POLISHING FILTERS
4. ASSOCIATED PROCESS PIPING
5. ASSOCIATED POWER & CONTROL WIRES (REFER TO DRAWING E-101, SHEET 20 OF 23)
6. ASSOCIATED CONCRETE PADS

ACCESS TO BREEZEWAY

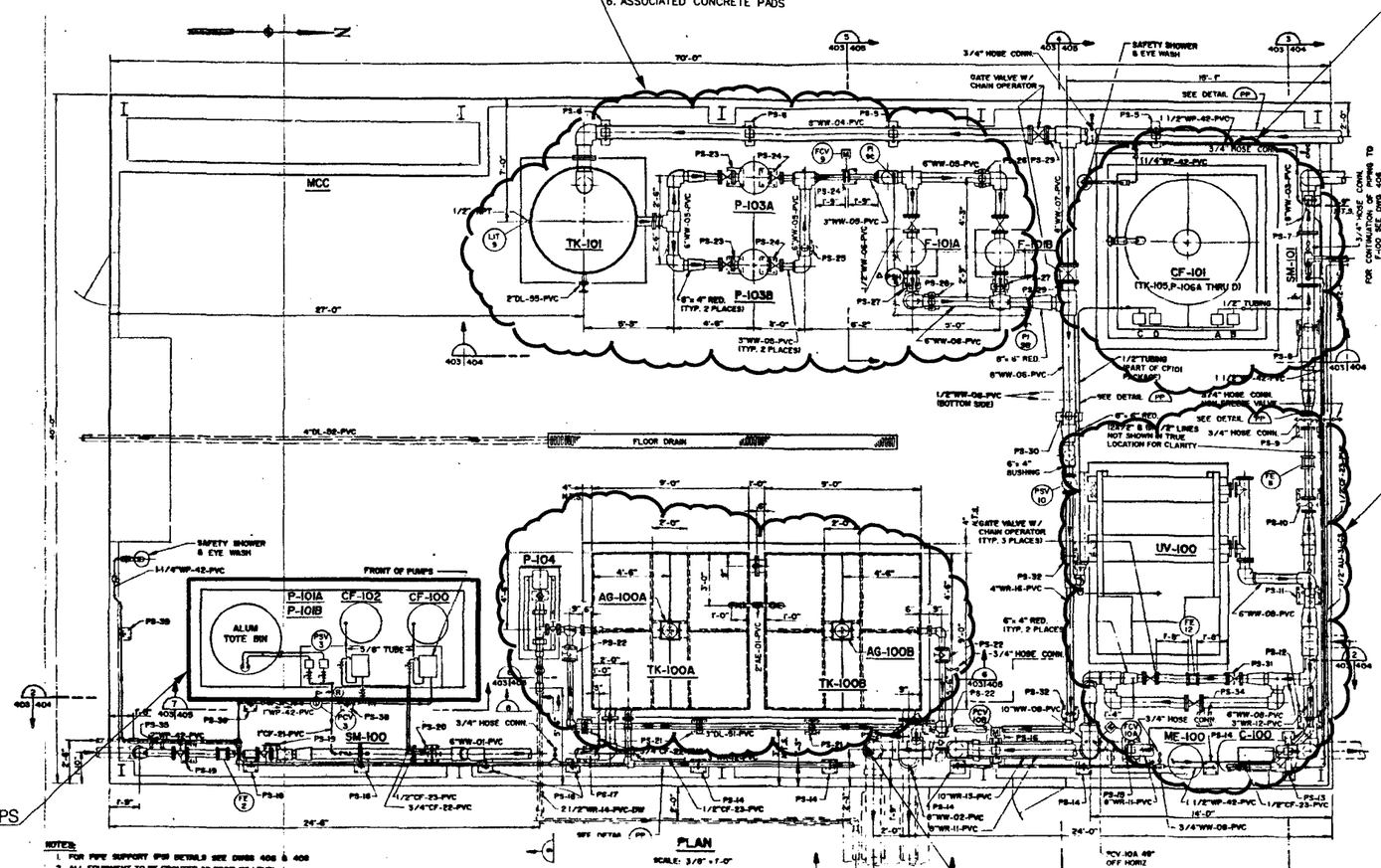
REMOVE:
1. CF-101 - HYDROGEN PEROXIDE STORAGE TANK
2. P-106 A/B/C/D - HYDROGEN PEROXIDE FEED PUMPS
3. ASSOCIATED PROCESS PIPING
4. ASSOCIATED POWER & CONTROL WIRES (REFER TO DRAWING E-101, SHEET 20 OF 23)
5. ASSOCIATED CONCRETE PADS AND CONTAINMENT CURBING
6. BUILDING CURBING FOR BREEZEWAY

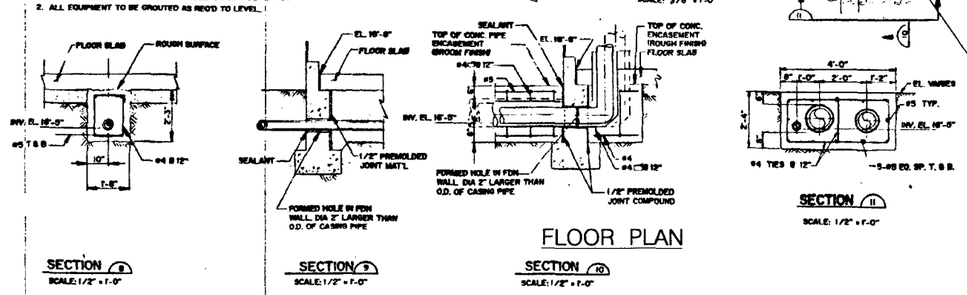
LOCATION OF FILTRATION FEED PUMPS (P-301 A /B /C)

REMOVE:
1. UV-100 - UV/OXIDATION SYSTEM
2. ME-100 - COMPOSITE SAMPLER
3. C-100 - AIR COMPRESSOR
4. ASSOCIATED PROCESS PIPING
5. ASSOCIATED POWER & CONTROL WIRES (REFER TO DRAWING E-101, SHEET 20 OF 23)
6. ASSOCIATED CONCRETE PADS AND CURBING

PAD FOR CLARIFIER FEED PUMPS (P-101 A /B /C)

REMOVE:
1. ALUM TOTE BIN
2. P-101 A & B - ALUM FEED PUMPS
3. CF-102 - POLYMER BLENDING & FEED SYSTEM
4. CF-100 - POLYMER BLENDING & FEED SYSTEM
5. ASSOCIATED PROCESS PIPING
6. ASSOCIATED POWER & CONTROL WIRES (REFER TO DRAWING E-101, SHEET 20 OF 23)





LOCATION OF SAND FILTERS (SF-302)

REMOVE:
1. TK-100 A&B - FLOCCULATION TANKS
2. AG - 100 A&B - FLOCCULATION TANK AGITATORS
3. P-104 - FLOCCULATION SLUDGE TRANSFER PUMP
4. ASSOCIATED PROCESS PIPING
5. ASSOCIATED POWER & CONTROL WIRES (REFER TO DRAWING E-101, SHEET 20 OF 23)
6. ASSOCIATED CONCRETE PADS AND CURBING

NOTES:

1. SCANNED IMAGE ADAPTED FROM DRAWING CER47-400E-403, ENTITLED "TREATMENT BUILDING PIPING PLANS AND SECTIONS", DATED DECEMBER 1991, PRODUCED BY ERM.
2. FLOOR DRAIN AND ASSOCIATED PIPING TO REMAIN IN USE WITHOUT MODIFIED ROUTING.
3. MCC TO BE UPDATED TO SUPPORT NEW PROCESS EQUIPMENT.

SCALE 1/4"=1'-0"

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A	ISSUED FOR 90% DESIGN SUBMITTAL	6/24/02	J.B.
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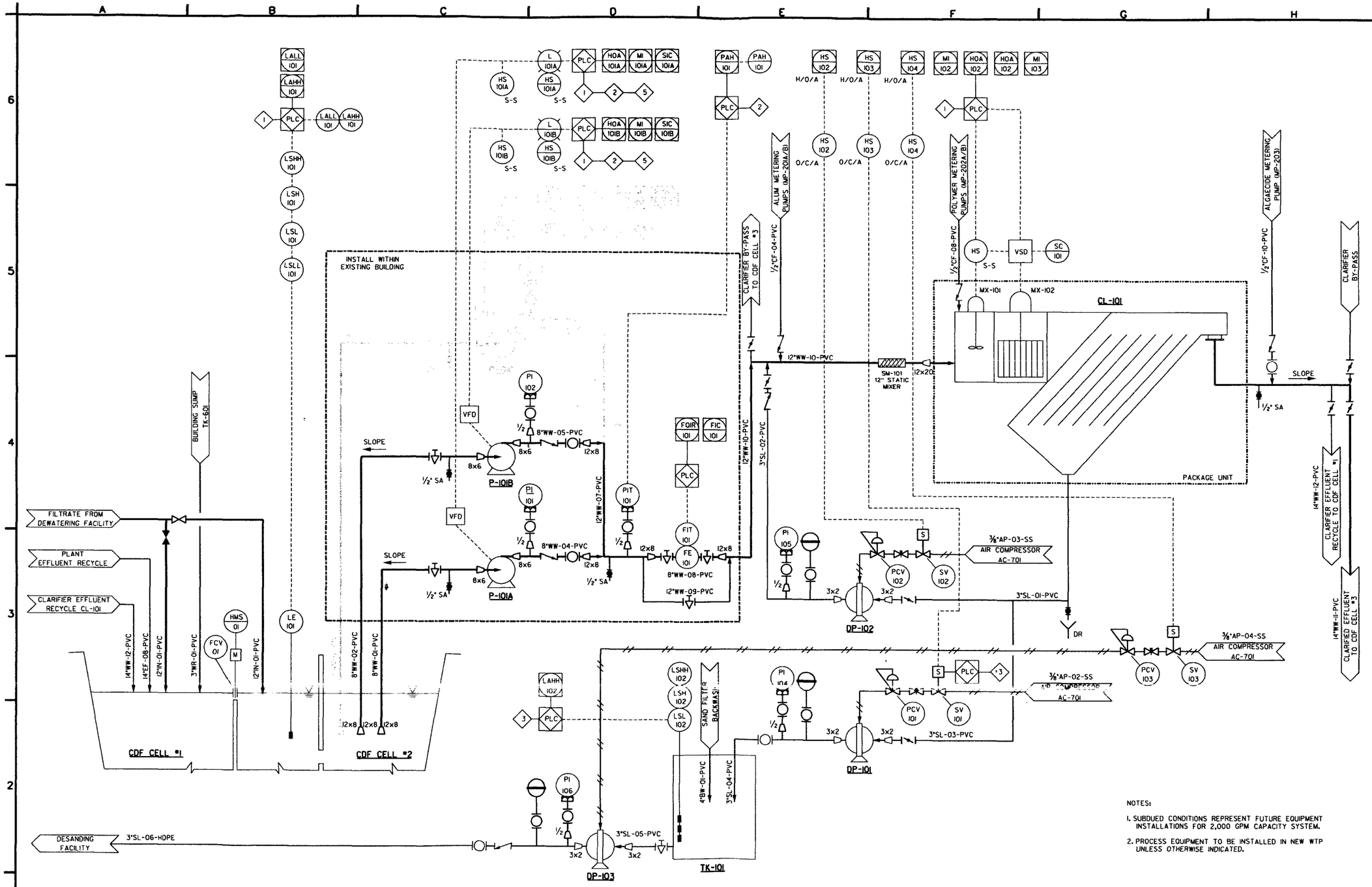
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

MECHANICAL DEMOLITION PLAN
(EXISTING WTP)

Reference number:
M-103
Sheet 11 of 23



NOTES:

1. SUBDUED CONDITIONS REPRESENT FUTURE EQUIPMENT INSTALLATIONS FOR 2,000 GPM CAPACITY SYSTEM.
2. PROCESS EQUIPMENT TO BE INSTALLED IN NEW WTP UNLESS OTHERWISE INDICATED.

CDF CELL #1
SURGE BASIN
4,600,000 GALLONS

CDF CELL #2
FILTRATE EQUALIZATION BASIN
540,000 GALLONS

P-101A/B/C
CLARIFIER FEED PUMPS
1,000 GPM @ 44 FT. TDH
60 HP, 2200 RPM
3 Ø, 460 V
VARIABLE FREQUENCY DRIVE

DP-103
SLURRY TRANSFER PUMP
100 GPM @ 40 PSI

TK-101
SLURRY HOLDING TANK
9,000 GAL.

DP-102
SLURRY RECYCLE PUMP
20 GPM @ 10 PSI

DP-101
CLARIFIER SLURRY TRANSFER PUMP
100 GPM @ 40 PSI

SM-101
STATIC MIXER

MX-101
FLASH MIX TANK MIXER
1/2 HP
CONSTANT SPEED DRIVE

MX-102
FLOCCULATOR TANK MIXER
1/2 HP
VARIABLE SPEED DRIVE

CL-101
INCLINED PLATE CLARIFIER
1.0 GPM/SF @ 2,000 GPM
2,640 SF HORIZONTAL PROJECTED AREA

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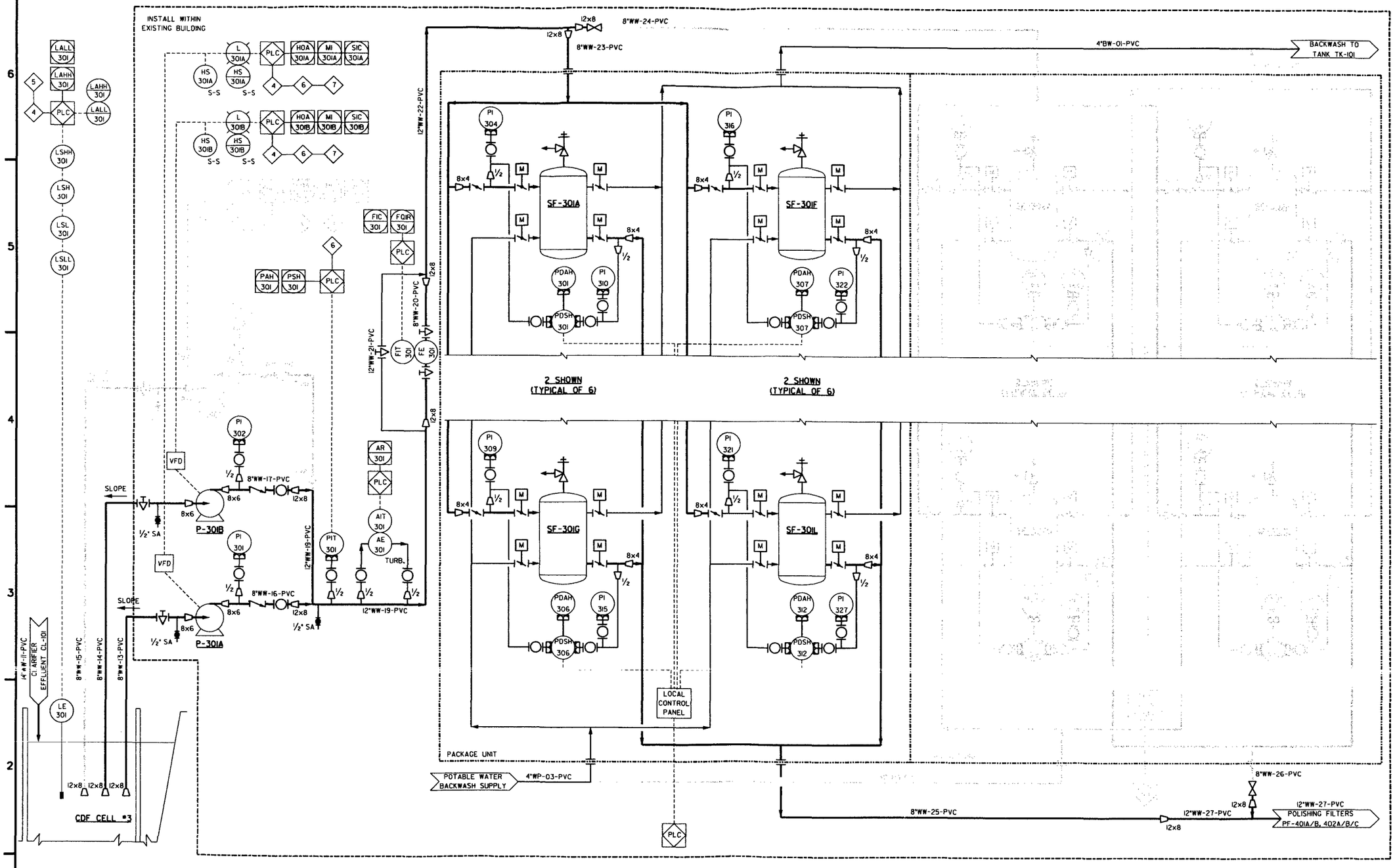
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

PIPING AND INSTRUMENTATION DIAGRAM
CLARIFIER SYSTEM

Reference number:
M-601
Sheet 12 of 23



CDF CELL #3
FILTRATION EQUALIZATION BASIN
430,000 GALLONS

P-301A/B/C
FILTRATION FEED PUMPS
1000 GPM @ 140 FT. TDH
150 HP 2400 RPM
3 Ø, 460 V
VARIABLE FREQUENCY DRIVE

SF-301A THROUGH L
SF-302A THROUGH L
SAND FILTERS
1,000 GPM PER PACKAGE UNIT

NOTE:
SUBDUED CONDITIONS REPRESENT FUTURE EQUIPMENT INSTALLATIONS FOR 2,000 GPM CAPACITY SYSTEM.

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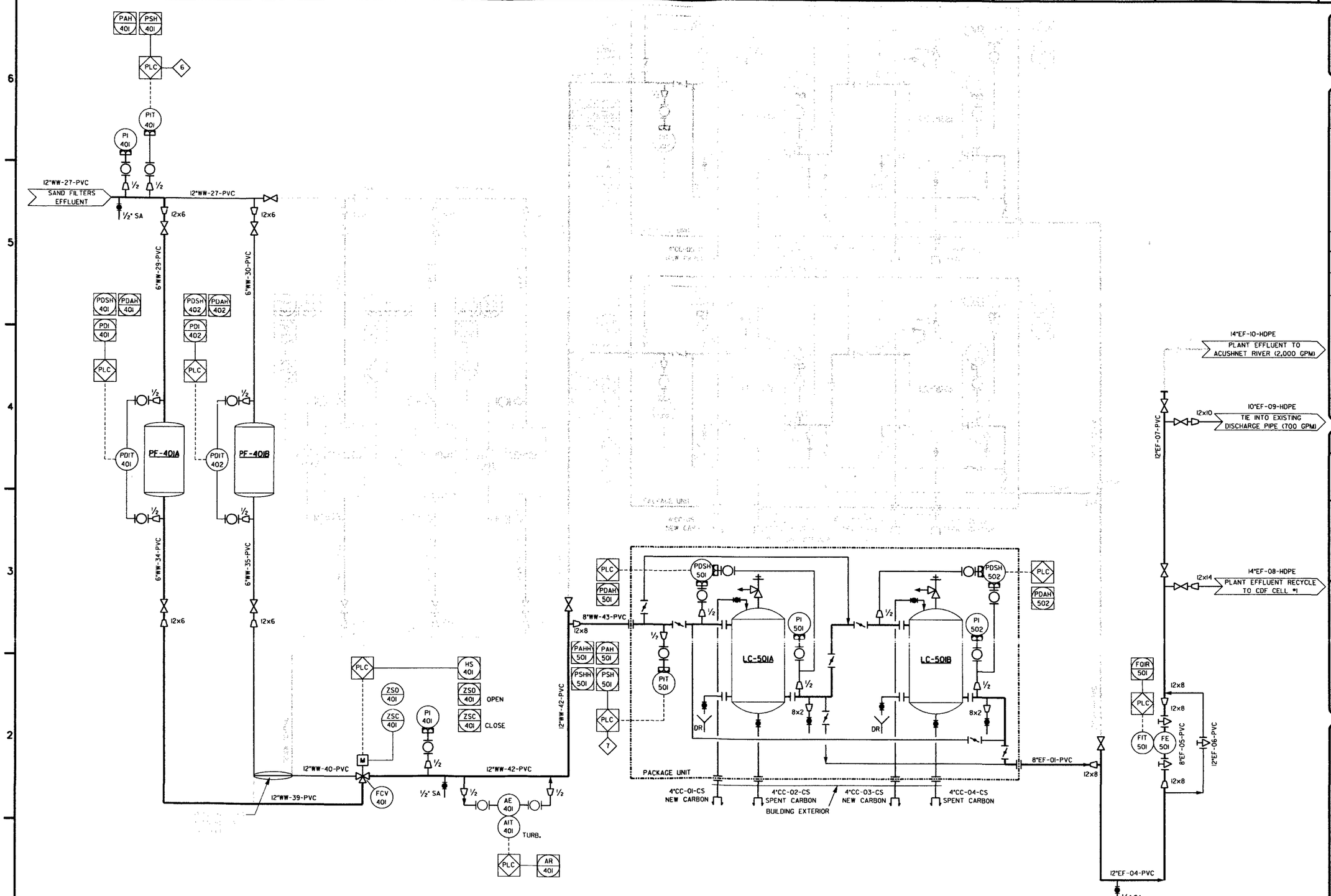
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

PIPING AND INSTRUMENTATION DIAGRAM
SAND FILTRATION SYSTEM

Reference number:
M-602
Sheet 13 of 23



PF-401A/B, 402A/B/C

POLISHING FILTERS
304 STAINLESS STEEL
HOUSING

LC-501A/B, 502A/B, 503A/B

LIQUID PHASE CARBON
20,000 LBS CARBON EACH
10' DIAMETER x 22' HIGH

NOTE:
SUBDUED CONDITIONS REPRESENT FUTURE EQUIPMENT INSTALLATIONS FOR 2,000 GPM CAPACITY SYSTEM.

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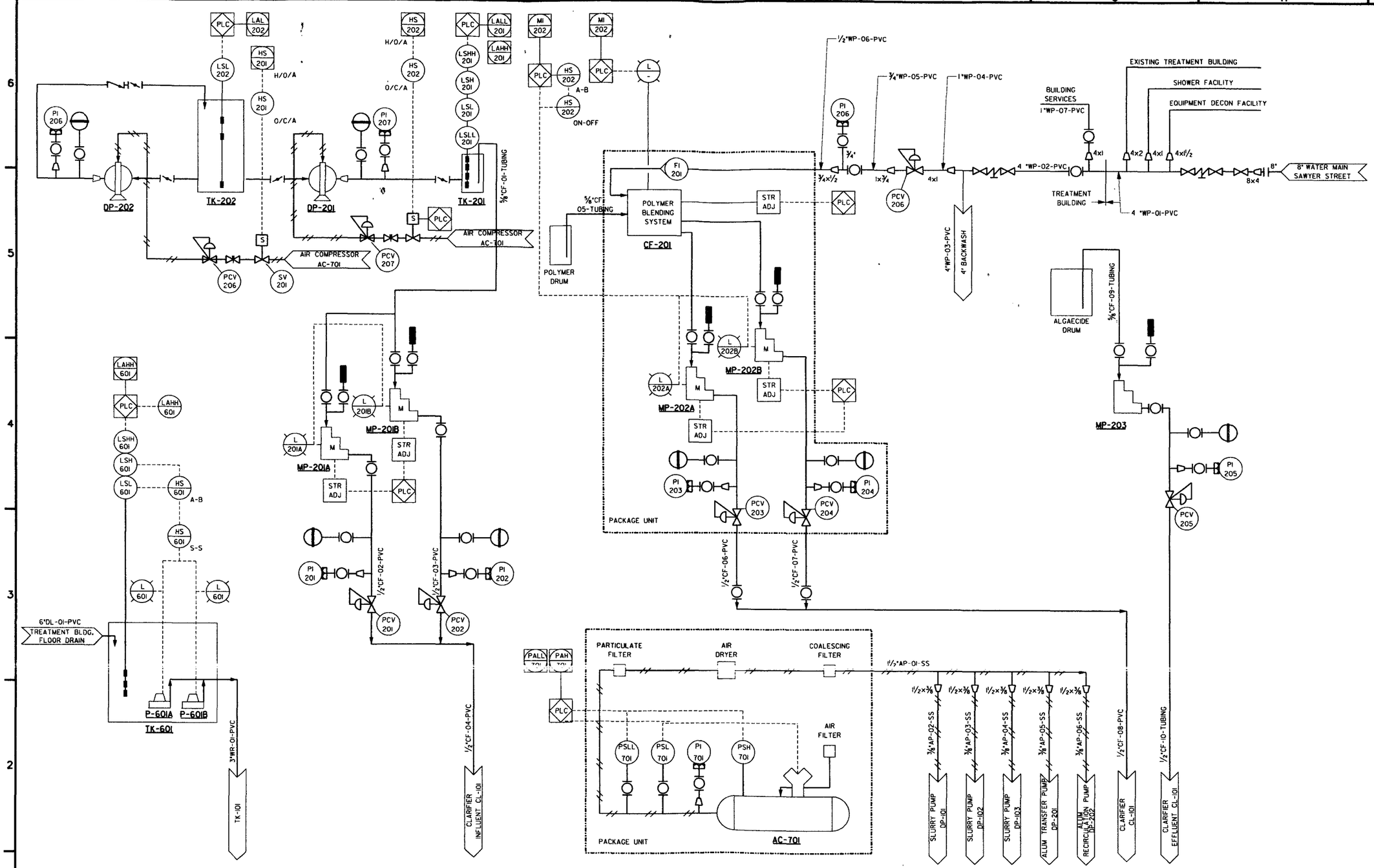
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

PIPING AND INSTRUMENTATION DIAGRAM
POLISHING FILTRATION SYSTEM/
LIQUID PHASE CARBON
ADSORPTION SYSTEM

Reference number:
M-603
Sheet 14 of 23



TK-601
TREATMENT BUILDING SUMP

P-601A/B
TREATMENT BUILDING SUMP PUMPS
100 GPM
1 1/2 HP
3 Ø, 460 V

TK-201
ALUM FEED TANK
500 GALLONS

MP-201A, 201B
ALUM METERING PUMPS
10 GPH TO 30 GPH
3/4 HP
1Ø, 115 V

TK-202
ALUM STORAGE TANK
4,500 GALLONS

DP-201
ALUM TRANSFER PUMP
20 GPM @ 10 PSI

DP-202
ALUM RECIRCULATION PUMP
20 GPM @ 10 PSI

CF-201
POLYMER BLENDING SYSTEM

AC-701
AIR COMPRESSOR
125 PSIG

MP-202A, 202B
POLYMER METERING PUMPS
15 - 50 GPH
3/4HP
1Ø, 115V

MP-203
ALGAECIDE METERING PUMP
1 GPH TO 5 GPH

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0	ISSUED FOR 100% DESIGN SUBMITTAL	6/24/02	JB
A	ISSUED FOR USACE REVIEW	10/11/02	JB

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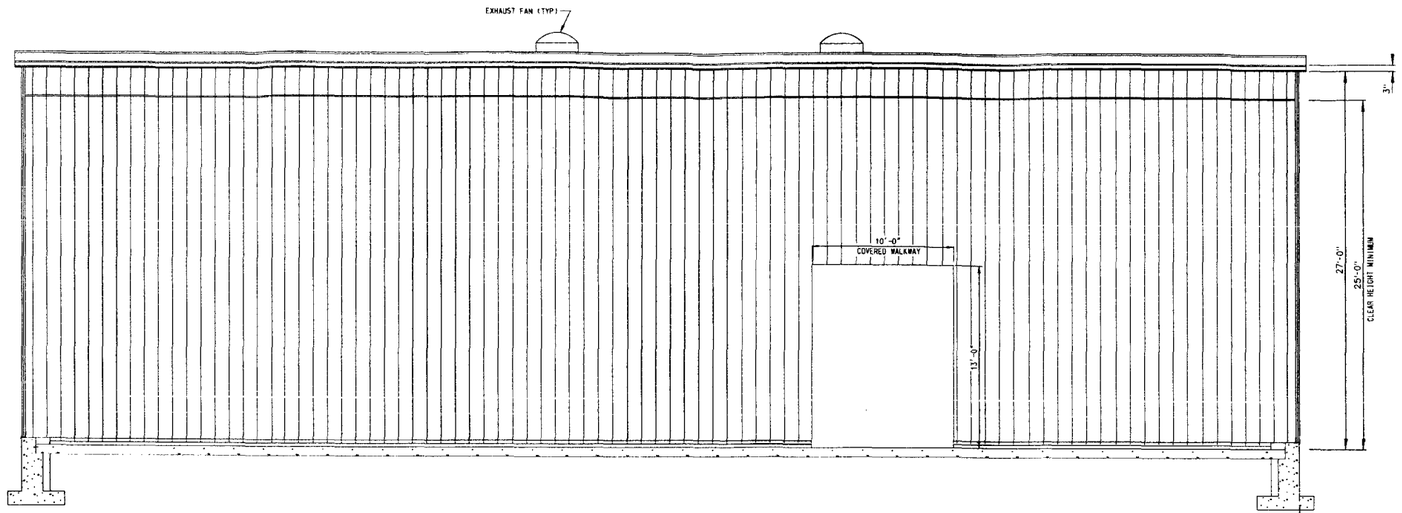
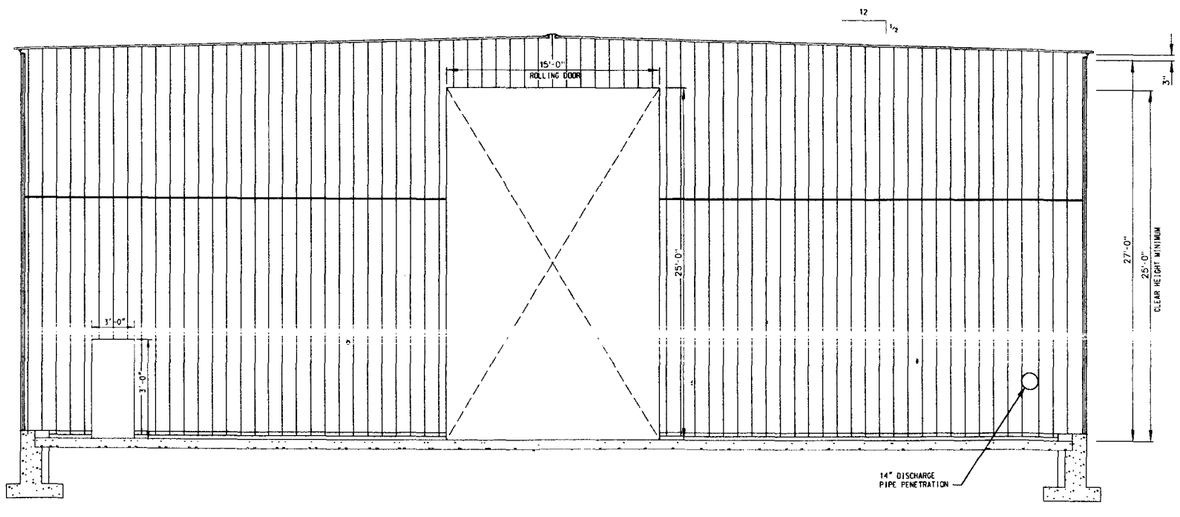
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

PIPING AND INSTRUMENTATION DIAGRAM
CHEMICAL FEED SYSTEMS

Reference number:
M-604
Sheet 15 of 23



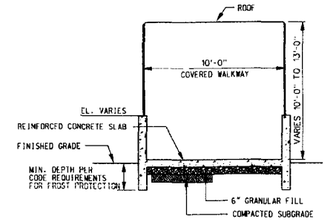
EAST ELEVATION



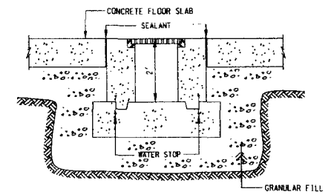
NORTH ELEVATION

NOTE:
THE ARCHITECTURAL DRAWINGS ARE CONCEPTUAL IN DESIGN AND ARE PROVIDED IN ORDER TO ILLUSTRATE OPENINGS AND PENETRATIONS IN THE PRE-ENGINEERED METAL BUILDING. FINAL DESIGN OF THE PRE-ENGINEERED BUILDING AND FOUNDATION TO BE COMPLETED BY THE SUBCONTRACTOR.

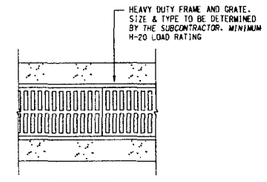
5 0 5 10 15 FEET
SCALE 1"= 5'-0"



1/6|16 COVERED WALKWAY PAVEMENT TYPICAL SECTION
NOT TO SCALE



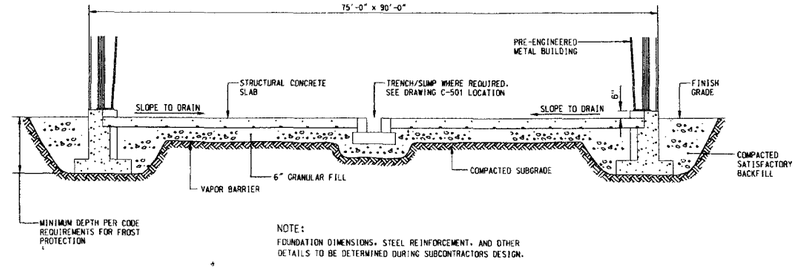
SECTION VIEW



PLAN VIEW

NOTE:
SEE PLAN DRAWING C-501 FOR LOCATION.
ALL CONCRETE THICKNESSES AND STEEL REINFORCEMENT TO BE DETERMINED BY THE SUBCONTRACTOR.

CONCRETE TRENCH DETAILS
NOT TO SCALE



NOTE:
FOUNDATION DIMENSIONS, STEEL REINFORCEMENT, AND OTHER DETAILS TO BE DETERMINED DURING SUBCONTRACTORS DESIGN.

2/6|16 TYPICAL BUILDING SECTION
NOT TO SCALE

100% DESIGN

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0	ISSUED FOR 100% DESIGN SUBMITTAL	6/24/02	J.B.
A	ISSUED FOR USACE REVIEW	11/14/01	J.B.

Designed by: G. ZHAO
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Reviewed by: J. BRINKMAN
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Date: 6/24/02
Rev. 0
Design file no. 17AA2010.dgn
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Plot scale:

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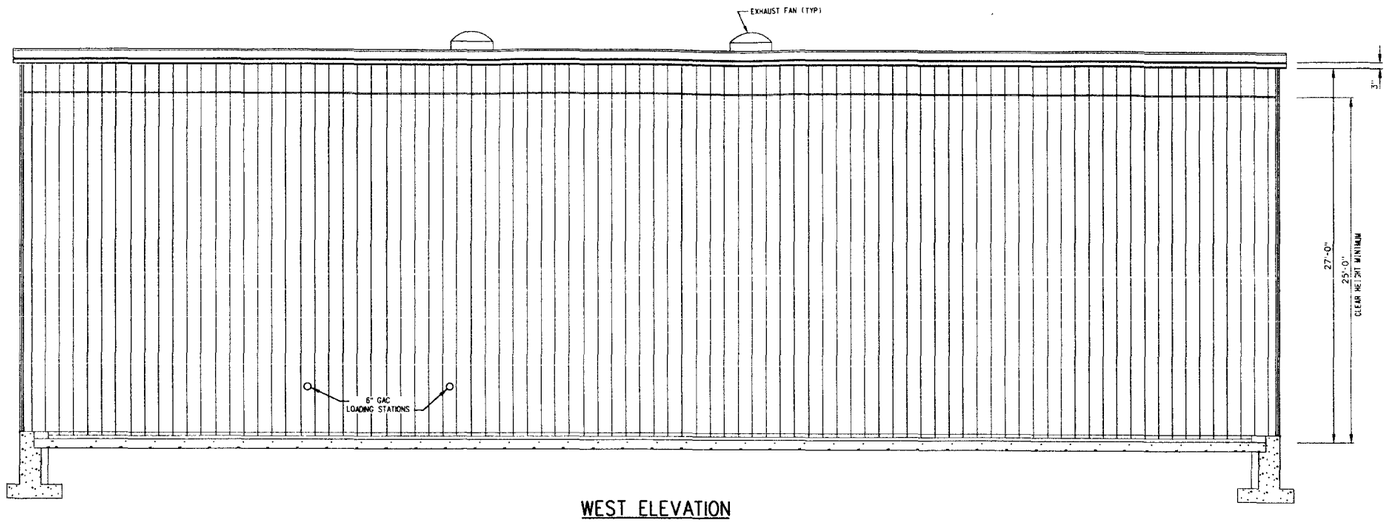
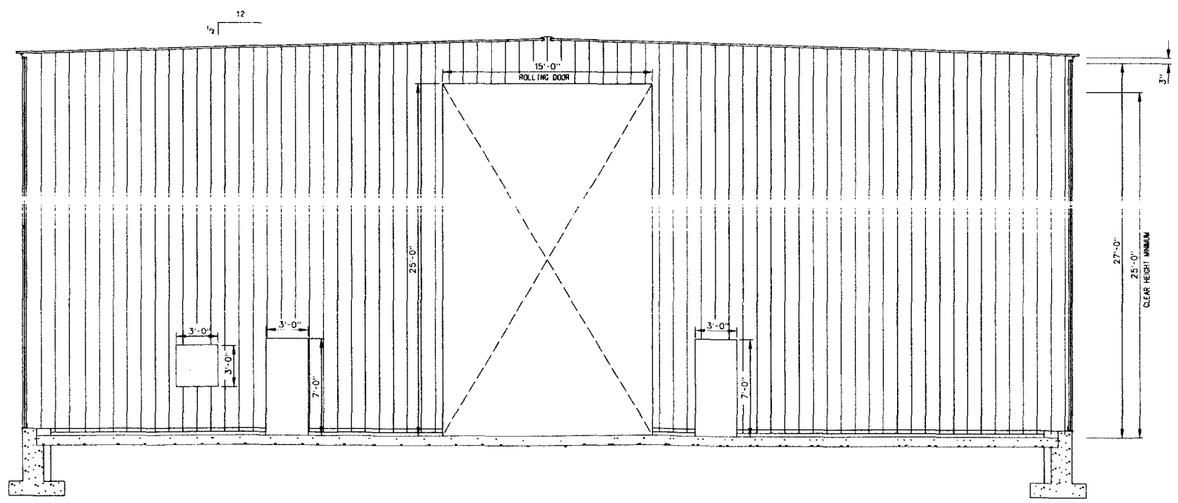
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN
ARCHITECTURAL ELEVATIONS
EAST AND NORTH
AND
STRUCTURAL DETAILS

Reference number:
A-201
Sheet 16 of 23



WEST ELEVATION



SOUTH ELEVATION

NOTE:

THE ARCHITECTURAL DRAWINGS ARE CONCEPTUAL IN DESIGN AND ARE PROVIDED IN ORDER TO ILLUSTRATE OPENINGS AND PENETRATIONS IN THE PRE-ENGINEERED METAL BUILDING. FINAL DESIGN OF THE PRE-ENGINEERED BUILDING AND FOUNDATION TO BE COMPLETED BY THE SUBCONTRACTOR.

5 0 5 10 15 FEET

SCALE 1" = 5'-0"

100% DESIGN

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Symbol	Description	Date	App.

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BOSTON, MASSACHUSETTS

Designed by: L. TOROYAN
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Reviewed by: J. BRANNAN
Submitted by:

Date: 6/24/02
Rev. 0
Design file no. 17AA2020.dgn
Drawing code:
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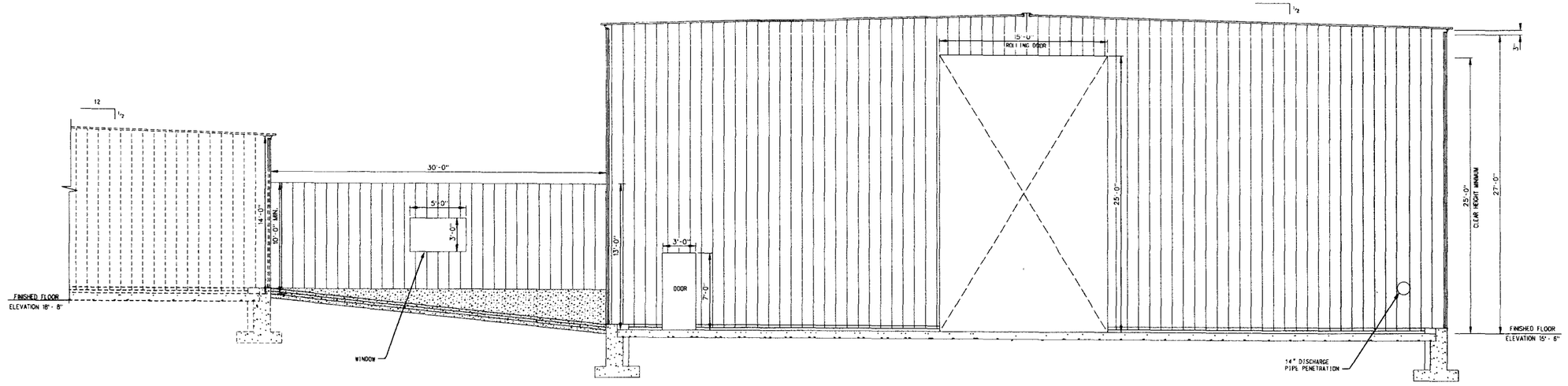
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

ARCHITECTURAL ELEVATIONS
WEST AND SOUTH

Reference number:
A-202

Sheet 17 of 23



NORTH ELEVATION

NOTE:

THE ARCHITECTURAL DRAWINGS ARE CONCEPTUAL IN DESIGN AND ARE PROVIDED IN ORDER TO ILLUSTRATE OPENINGS AND PENETRATIONS IN THE PRE-ENGINEERED METAL BUILDING. FINAL DESIGN OF THE PRE-ENGINEERED BUILDING AND FOUNDATION TO BE COMPLETED BY THE SUBCONTRACTOR.

5 0 5 10 15 FEET

SCALE 1"= 5'-0"

100% DESIGN

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0	ISSUED FOR 100% DESIGN SUBMITTAL	6/24/02	J.B.
A	ISSUED FOR USACE REVIEW	11/14/01	J.B.

Designed by: L. TOROYAN
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Reviewed by: J. BRANNAN
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NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

NORTH ARCHITECTURAL ELEVATIONS
FOR NEW AND EXISTING WTP
AND CONNECTING WALKWAY

Reference number:
A-203
Sheet 18 of 23

SINGLE LINE DIAGRAM

SYMBOL	DESCRIPTION
100 1P 2P	THERMAL MAGNETIC CIRCUIT BREAKER 100A TRIP 1P - SINGLE POLE 2P - DOUBLE POLE (ALL OTHERS 3-POLE)
1	FULL VOLTAGE, NON REVERSING, MAGNETIC MOTOR STARTER 1 - NEMA SIZE
	DISCONNECTING DEVICE
	SWITCH, FUSE DISCONNECTING TYPE
	SWITCH, DISCONNECTING TYPE
S	AC INDUCTION MOTOR 5 - 5 HP
	TRANSFORMER, SIZE & RATING AS INDICATED
	EQUIPMENT LOCATED AT MISCELLANEOUS CONTROL PANEL I/O PANEL
	DOUBLE THROW TRANSFER SWITCH
	COMMON ENCLOSURE OR GROUPED EQUIPMENT
V	VARIABLE FREQUENCY DRIVE
LA	LIGHTNING ARRESTER
	GROUND
M	METER
PLP	POWER AND LIGHTING PANEL

LIGHTING LEGEND

CODE	DESCRIPTION
	FLUORESCENT FIXTURE, OVERHEAD MOUNTED 4-LAMP
	EXIT LIGHT
S1	EMERGENCY BATTERY OPERATED LIGHT

ELECTRICAL LEGEND

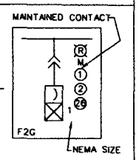
SYMBOL	DESCRIPTION
	SINGLE POLE SWITCH 20 AMP UNLESS OTHERWISE NOTED
3	THREE WAY SWITCH 20 AMP UNLESS OTHERWISE NOTED
GFI	SINGLE RECEPTACLE, GROUNDED, MTD 18" AFF. GFI - GROUND FAULT INTERRUPTER: 20 AMP UNLESS OTHERWISE NOTED.
TS 2	THERMOSTAT - COORDINATE LOCATION WITH HVAC CONTRACTOR. MTD. 60" AFF. (2) INDICATES 2-STAGE
	GROUND ROD, COPPERWELD
AFF	ABOVE FINISHED FLOOR
GFI	GROUND FAULT INTERRUPTER
	CONDUIT RUN BURIED OR CONCEALED
	CONDUIT RUN EXPOSED
	CONDUIT - HASH MARKS INDICATE NO. OF CONDUCTORS
C	BARE COPPER GROUND WIRE. SIZE PER NEC. CADWELD ALL CONNECTIONS
	HOMERUN TO PANELS: LP - LIGHTING PANEL (LP CKT__) CP - CONTROL PANEL
LP	SURFACE MOUNTED BOX OR PANEL LP - LIGHTING PANEL CP - CONTROL PANEL MD - MAIN DISCONNECT
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
	GROUND CONNECTION PIGTAIL
150	SINGLE RECEPTACLE, 4 PRONG, 150 AMP
DS	DOOR SWITCH INTRUSION ALARM
	INCOMING METER & SOCKET
	DUPLEX RECEPTACLE, GROUNDED, MTD 18" AFF 20 AMP UNLESS OTHERWISE NOTED

COMBINATION MAGNETIC STARTER LEGEND

PUSHBUTTON
1 START
2 STOP
3 EMERGENCY STOP
4 FORWARD
5 REVERSE
6 SLOW
7 FAST
8 JOG FWD.
9 JOG REV.
10 OPEN
11 CLOSE

SELECTOR SWITCHES
21 HAND-AUTO
22 TEST-AUTO, JOG-AUTO
23 FAST-SLOW
24 FWD. REV.
25 UP-DOWN
26 ON-OFF
27 STOP-START
30 HAND-OFF-AUTO

INDICATING LIGHTS
R RED
G GREEN
A AMBER



SOFTWARE INTERCONNECT

TS TEMPERATURE SWITCH
LC LEVEL CONTROL
PS PRESSURE SWITCH
JB JUNCTION BOX
MCP MAIN CONTROL PANEL
LS LEVEL SWITCH
H HUMIDISTAT
PLC PROGRAMMABLE LOGIC CONTROLLER

ELEMENTARY WIRING DIAGRAM LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	LIQUID LEVEL SWITCH N.C. OPEN RISING LEVEL	M	MOTOR CONTACTOR
	LIQUID LEVEL SWITCH N.C. OPEN FALLING LEVEL		FLOW SWITCH
(M)	RELAY, N.C. CONTACT OR M, N.C. CONTACT (MOTOR STARTER)	CR	CONTROL OR AUXILIARY RELAY
(M)	RELAY, N.O. CONTACT OR M, N.O. CONTACT (MOTOR STARTER)		LOCATION POINT
MCC	MOTOR CONTROL CENTER	CP	CONTROL PANEL
L	LOCAL	LSL	LEVEL SWITCH LOW
LSHH	LEVEL SWITCH HIGH HIGH	FSL	FLOW SWITCH LOW
LC	LEVEL CONTROL		CONNECTION POINT
	FUSE	R	PILOT LIGHT G - GREEN R - RED A - AMBER
OL	MOTOR OVERLOAD (OL)		PUSHBUTTON
ON & OFF	ON/OFF SELECTOR SWITCH		PLC INPUT OR PLC OUTPUT
H O A	HAND-OFF-AUTO SWITCH		
	TEMPERATURE SWITCH N.O.		

LOGIC LEGEND

CODE	DESCRIPTION
OR	LOGICAL OR
AND	LOGICAL AND
NOT	LOGICAL NOT
TD	TIME DELAY ADJUSTABLE
SET RESET	SET - RESET
R	LIGHT - RED

CLOCK RECEPTACLE, MTD. 90" AFF

SPECIAL PURPOSE OUTLET WEATHERPROOF, TWIST LOCK WITH GROUND

START STOP
START-STOP PUSHBUTTON MAINTAINED CONTACT

EUH
ELECTRIC UNIT HEATER

(FURNISHED BY VENDOR UNLESS OTHERWISE SPECIFIED)

60
SPECIAL PURPOSE RECEPTACLE (60) - INDICATES AMP RATING TWIST LOCK W/GND CONN.

C - 120 V AC CONTROL
H - HIGH VOLTAGE
P - 480 V AC POWER
X - 120 V AC POWER
SH- SHIELDED

SIZE

P1 23

CONDUIT/CABLE NUMBER

EXAMPLE
480 V AC POWER, CONDUIT #23, SIZE 1", CABLE #23 (IF USED)

ELECTRICAL ABBREVIATIONS

SYMBOL	DESCRIPTION
KVA	KILOVOLT-AMPERE
CU	COEFFICIENTS OF UTILIZATION
AVE	AVERAGE
MIN	MINIMUM
MAX	MAXIMUM
V	VOLT
Ø	PHASE
H.P.S.	HIGH PRESSURE SODIUM
C	CELSIUS
W/	WITH
TYP.	TYPICAL
°	DEGREE
W	WIRE OR WATT
>	GREATER THAN OR EQUAL TO
I/O	INPUT/OUTPUT
FUT.	FUTURE
CP	CONTROL PANEL
PLC	PROGRAMMABLE CONTROLLER
M	STARTER AUXILIARY CONTACT
OL	MOTOR OVERLOAD
SM	SMOKE DETECTOR
MD	MAIN DISCONNECT
PLP	POWER & LIGHTING PANEL
ANN	ANNUNCIATOR
HS	HAND SWITCH
RGS	RIGID GALVANIZED STEEL
IAP	INTRUSION ALARM PANEL
HH	HAND HOLE
R	RACEWAY
PH	PHONE
TH	THERMOSTAT
T	TRANSFORMER
DP	POWER DISTRIBUTION PANEL
MCC	MOTOR CONTROL CENTER
JB	JUNCTION BOX
PB	PULL BOX

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0	ISSUED FOR 90% DESIGN SUBMITTAL	6/24/02	J.B.
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Designed by: H.RANA
Drawn by: D.WAGNER
Reviewed by: J.BRINKMAN
Submitted by:

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CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
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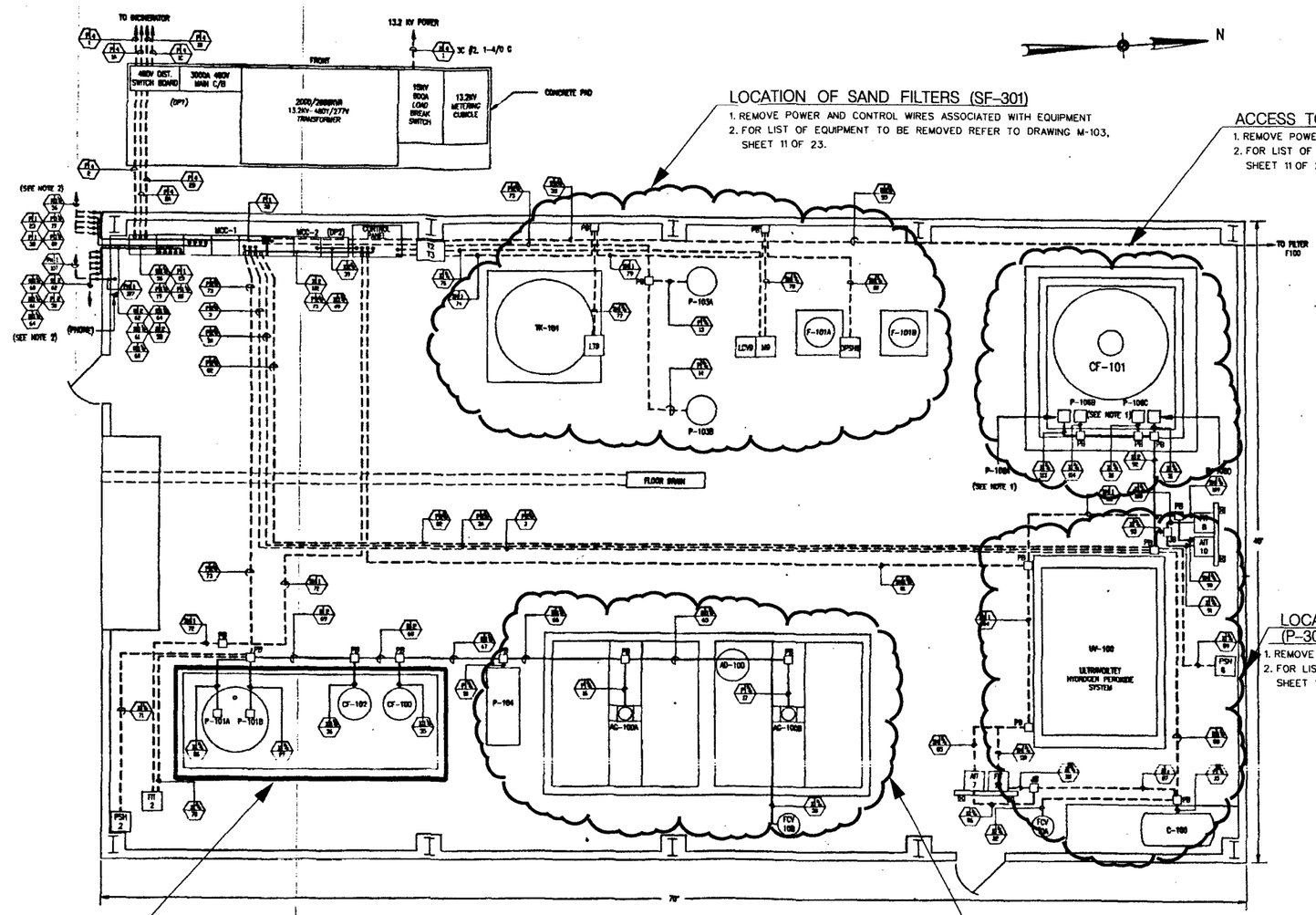
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

ELECTRICAL
LEGEND AND SYMBOLS

Reference number:
E-001
Sheet 19 of 23

100% DESIGN



LOCATION OF SAND FILTERS (SF-301)

1. REMOVE POWER AND CONTROL WIRES ASSOCIATED WITH EQUIPMENT
2. FOR LIST OF EQUIPMENT TO BE REMOVED REFER TO DRAWING M-103, SHEET 11 OF 23.

ACCESS TO BREEZEWAY

1. REMOVE POWER AND CONTROL WIRES ASSOCIATED WITH EQUIPMENT
2. FOR LIST OF EQUIPMENT TO BE REMOVED REFER TO DRAWING M-103, SHEET 11 OF 23.

LOCATION OF FILTRATION FEED PUMPS (P-301 A /B /C)

1. REMOVE POWER AND CONTROL WIRES ASSOCIATED WITH EQUIPMENT
2. FOR LIST OF EQUIPMENT TO BE REMOVED REFER TO DRAWING M-103, SHEET 11 OF 23.

PAD FOR CLARIFIER FEED PUMPS (P-101 A /B /C)

1. REMOVE POWER AND CONTROL WIRES ASSOCIATED WITH EQUIPMENT
2. FOR LIST OF EQUIPMENT TO BE REMOVED REFER TO DRAWING M-103, SHEET 11 OF 23.

FLOOR PLAN

LOCATION OF SAND FILTERS (SF-302)

1. REMOVE POWER AND CONTROL WIRES ASSOCIATED WITH EQUIPMENT
2. FOR LIST OF EQUIPMENT TO BE REMOVED REFER TO DRAWING M-103, SHEET 11 OF 23.

NOTE:
SCANNED IMAGE ADAPTED FROM DRAWING CER 47-400E-505, ENTITLED "TREATMENT BUILDING CONDUIT PLAN", DATED DECEMBER 1991, PRODUCED BY ERM.

SCALE 1/4"=1'-0"

100% DESIGN

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D	ISSUED FOR 100% DESIGN SUBMITTAL	6/24/02	J.B.
A	ISSUED FOR USACE REVIEW	11/14/01	J.B.

Designed by: J.BRINKMAN
Drawn by: C.POTVIN
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Date: 6/24/02
Rev. 0
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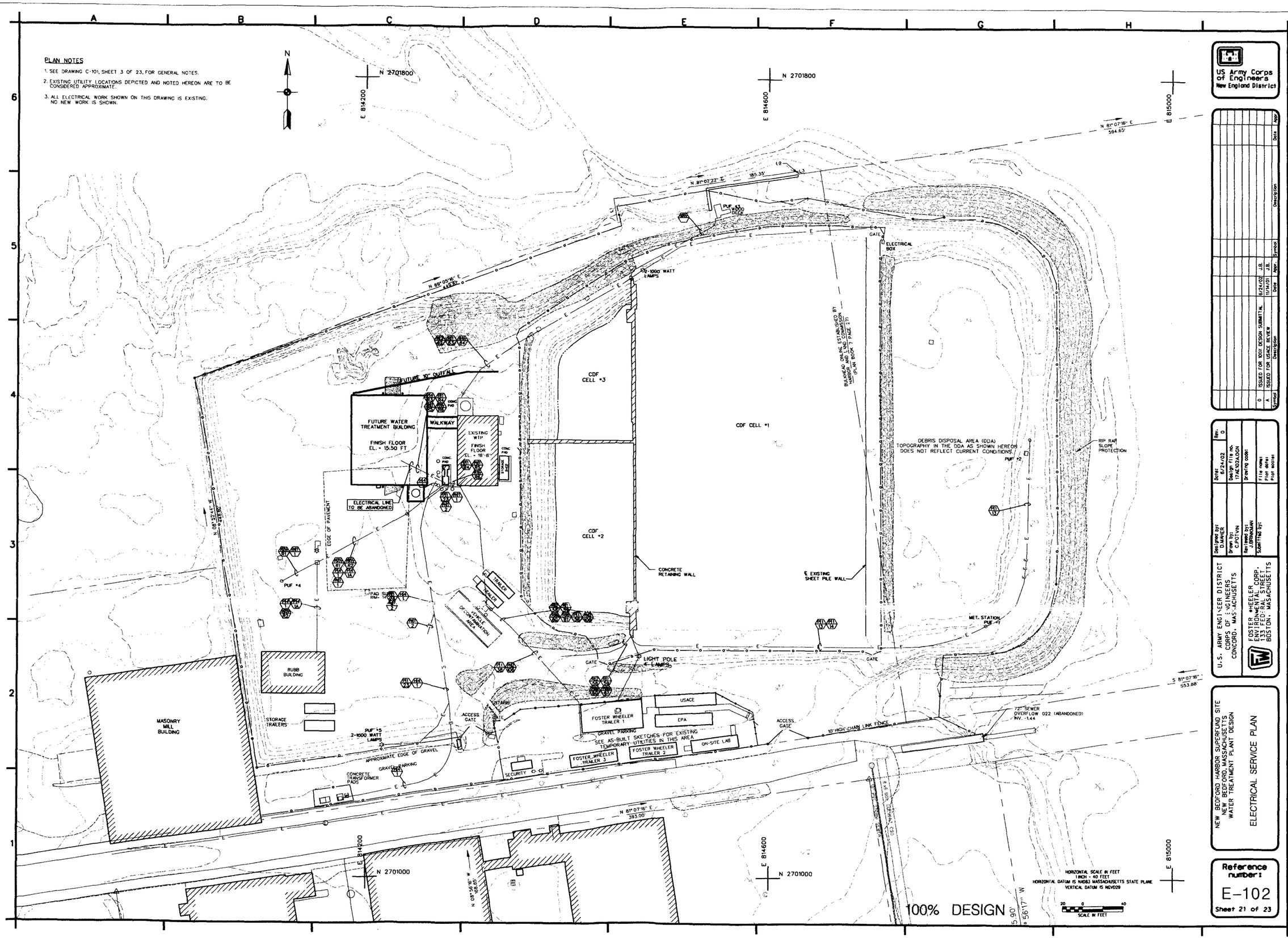
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

ELECTRICAL DEMOLITION PLAN
(EXISTING WTP)

Reference number:
E-101
Sheet 20 of 23

PLAN NOTES

1. SEE DRAWING C-101, SHEET 3 OF 23, FOR GENERAL NOTES.
2. EXISTING UTILITY LOCATIONS DEPICTED AND NOTED HEREON ARE TO BE CONSIDERED APPROXIMATE.
3. ALL ELECTRICAL WORK SHOWN ON THIS DRAWING IS EXISTING. NO NEW WORK IS SHOWN.



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Reviewed by: J.BERNAGAN
Submitted by: SCOTT NIX

Date: 8/24/02
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Drawing code:
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Plot date:
Plot scale:

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NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

ELECTRICAL SERVICE PLAN

Reference number:
E-102
Sheet 21 of 23

SERVICE	CABLE SIZE (AWG)	CKT. NO.	BREAKER TRIP AMPS	BREAKER TRIP TYP	BREAKER POLE	LOAD VA	MAIN BUS	LOAD VA	BREAKER POLE	BREAKER TRIP TYP	BREAKER TRIP AMPS	CKT. NO.	CABLE SIZE (AWG)	SERVICE
(5) LIGHTING FIXTURES		1	20	TM	1				1	TM	20	2		(5) LIGHTING FIXTURES
(5) LIGHTING FIXTURES		3	20	TM	1				1	TM	20	4		(5) LIGHTING FIXTURES
(4) RECEPTACLES		5	20	TM	1	800		800	1	TM	20	6		(4) RECEPTACLES
"EXIT" LIGHTS		7	20	TM	1	400		400	1	TM	20	8		EMERGENCY LIGHTS
MP-202A & B POLYMER FEED PUMP		9	20	TM	1	300		300	1	TM	20	10		MP-201A & B ALUM FEED PUMP
MP-203 ALGAECIDE FEED PUMP		11	20	TM	1	300			1	TM	20	12		
CL-101 CLARIFIER CONTROL PANEL		13	20	TM	1	1000			1	TM	20	14		
		15	20	TM	1				1	TM	20	16		
		17	20	TM	1				1	TM	20	18		
		19	20	TM	1				1	TM	20	20		
		21	20	TM	1				1	TM	20	22		
		23	20	TM	1				1	TM	20	24		
		25	20	TM	1				1	TM	20	26		
		27	20	TM	1				1	TM	20	28		
		29	20	TM	1				1	TM	20	30		

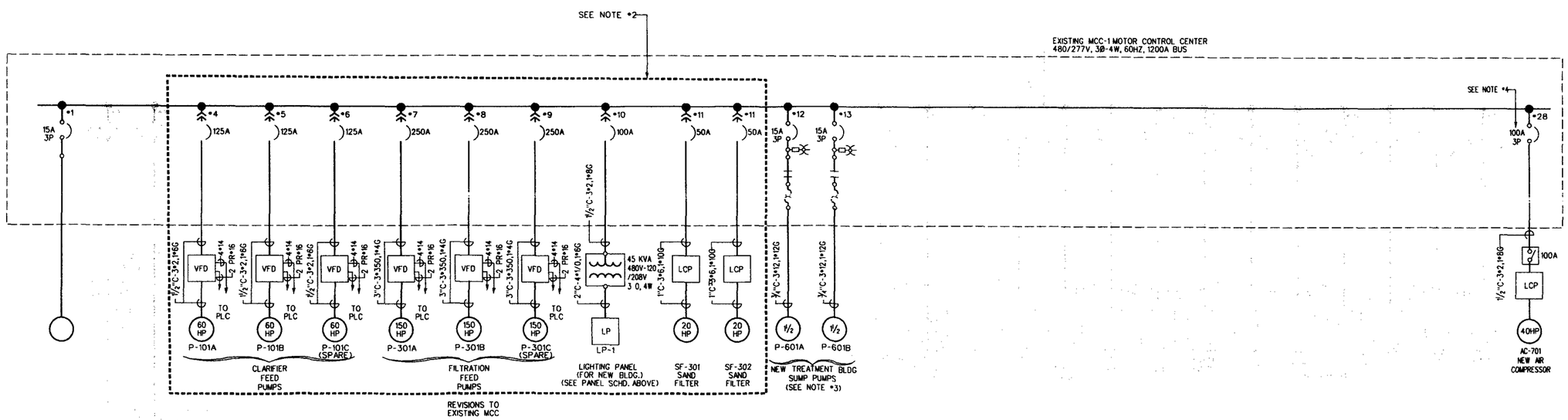
150A

NAMEPLATE: LP-1
CABINET TYPE: NEMA-12
MIN REQ'D IC: 10,000 AMP
NORMAL SERVICE: 120/208V

MAIN BUS: 200A
MAIN: 150A BKR
MOUNTING: WALL
LOCATION: CONTROL ROOM

NOTES:

1. DRAWING ADAPTED FROM DRAWING CER47-400E-502, ENTITLED "TREATMENT BUILDING SINGLE LINE DIAGRAM", DATED DECEMBER 1991, PRODUCED BY ERM.
2. SUBDUED CONDITIONS REPRESENT EXISTING EQUIPMENT.
3. ALL ELECTRICAL INSTALLATIONS SHALL MEET CURRENT NATIONAL ELECTRICAL CODE (NEC) REQUIREMENTS.
4. REMOVE EXISTING STARTER BUCKET AND INSTALL NEW BREAKER BUCKET IN EXISTING MCC.
5. USE EXISTING SIZE-1 STARTERS OF MIXERS M-01 AND M-02. CHANGE OVERLOAD HEATERS IF REQUIRED.
6. REPLACE EXISTING 15A BREAKER WITH NEW 100A BREAKER.



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0	ISSUED FOR 100% DESIGN SUBMITTAL	6/24/02	J.B.				
A	ISSUED FOR USACE REVIEW	10/14/01	J.B.				

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Designed by: H.RANA
Drawn by: C.POTVIN
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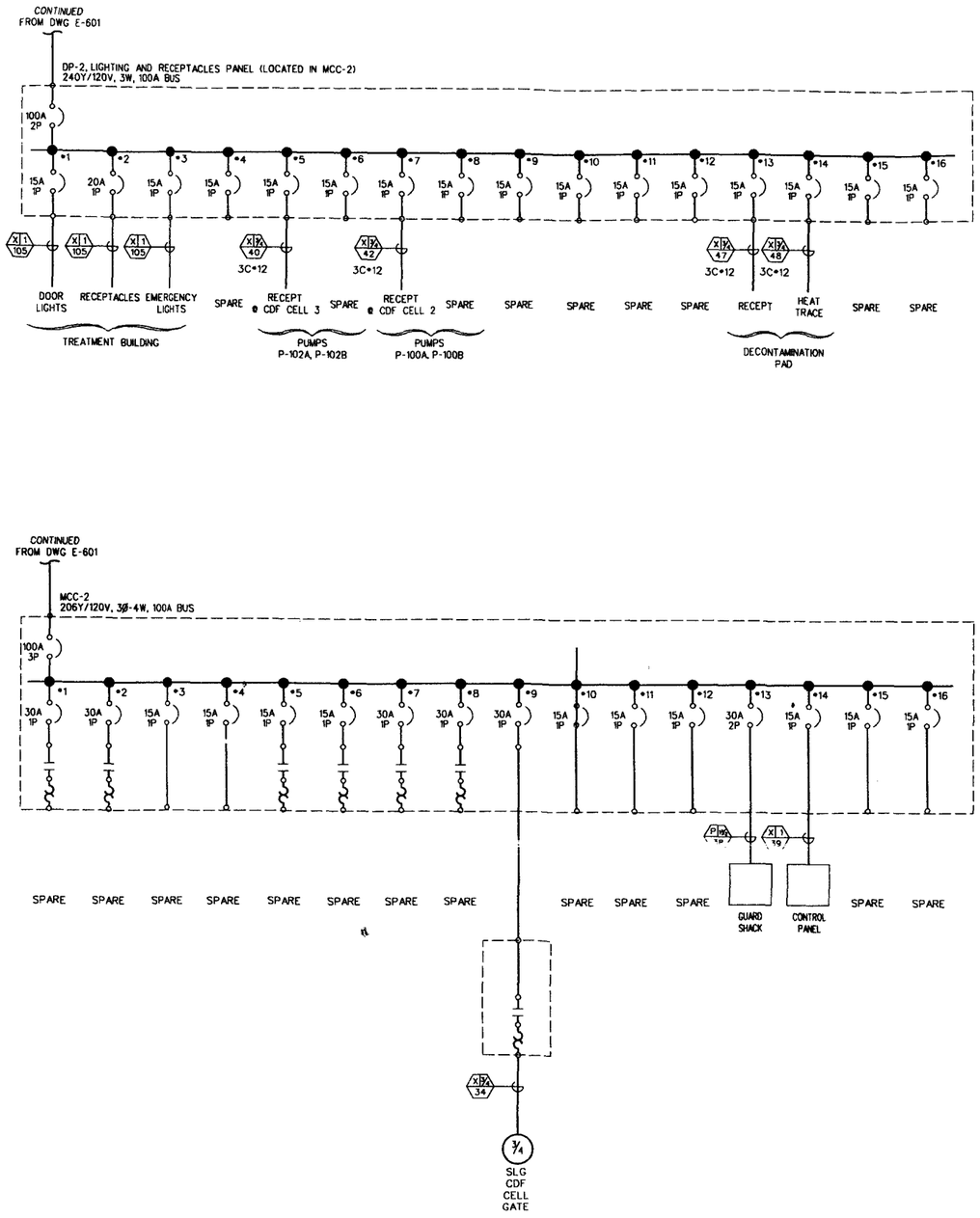
NEW BEDFORD HARBOR SUPER FUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

SINGLE LINE DIAGRAM
(SHEET 1 OF 2)

Reference number:
E-601
Sheet 22 of 23

100% DESIGN



NOTE:
DRAWING ADAPTED FROM DRAWING CER47-400E-503, ENTITLED "TREATMENT BUILDING SINGLE LINE DIAGRAM", DECEMBER 1991, PRODUCED BY ERM.

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133 FEDERAL STREET
BOSTON, MASSACHUSETTS

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Drawn by: C.POTVIN
Reviewed by: J.BRINKMAN
Submitted by:
Date: 6/24/02
Rev. 0
Design file no. 17AE6020.DGN
Drawing code:
File name:
Plot date:
Plot scale:

NEW BEDFORD HARBOR SUPER FUND SITE
NEW BEDFORD, MASSACHUSETTS
WATER TREATMENT PLANT DESIGN

SINGLE LINE DIAGRAM
(SHEET 2 OF 2)

Reference number:
E-602
Sheet 23 of 23