ATT. IA

DYNASAND® FILTER

QUOTATION NO: DSF-1769-I

April 2, 1990

TO: BOARD OF DIRECTORS - SAUSALITO-MARIN CITY SANITARY AGENCY
(hereinafter "Purchaser")
#1 Fort Baker Road
Sausalito, California 94965

ATTENTION: Raymond G. Gergus, President - Board of Directors

PARKSON CORPORATION OFFERS THE PRODUCT AS DESCRIBED BELOW:

SPECIFICATIONS:

(2) PACKAGED DynaSand® Filters Model DSF-64DB **each** consisting of:

A. Cylindrical tank; feed inlet and risers; feed distributor ring; filtrate weir and flume; airlift pipe; internal sand washer, sand distributor cones, reject compartment with weir and flume; compressed air control station and headloss gauge. The tank overall dimensions are approximately 9'-0" inside diameter by 21'-10-1/2" H. Total filtration area is 128 sq.ft. total for two filters. Loading rate at 925 gpm design flow is 7.23 gpm/sq.ft.

B. Shipped in pre-assembled modules. Approximate Shipping weight 8,000 lbs. Approximate total operating weight 143,000 lbs. (Figures are per filter.)

C. MATERIALS OF CONSTRUCTION

1. Tanks/Supports: Epoxy painted carbon steel, per specifications.
2. Filter Internal Parts: FRP, 304 stainless steel, polyethylene.

D. FILTER MEDIA (as specified on page 2) By Parkson

E. Access ladder and safety cage with interconnecting platform, grating, handrails, constructed of anodized aluminum.
F. Seismic Zone IV construction.
G. Dual compressor package.
H. Pulse start.
I. Float switches with solenoid.
J. Ten percent (10%) extra media.
K. NEMA 4X enclosures.
L. Insurance.
M. TAX.
N. Anchor bolts by others.

2727 N.W. 62nd Street
P.O. Box 408399
Fort Lauderdale, Florida 33340-8399
Telephone: 305 974-6610
FAX: 305 974-6182

An Axel Johnson Inc. Company

TOTAL PRICE: F.O.B. Point of Shipment U.S. $ 259,919.00
With equipment freight & media freight allowed to the jobsite
Prices valid for 60 days for delivery of equipment within 6 months.

PAYMENT TERMS:
10% Upon favorable review of shop drawings;
70% Upon delivery and acceptance of the goods;
10% Upon favorable review of manuals;
10% After installation by others and upon completion of special field services including affidavits.

STANDARD SHIPMENT: 112 days after final drawing approval (latest).

FILTER MEDIA:	By Parkson
Type	Sand
Filtration bed depth	80 inches
Media Density	124 lb./ft.3 wet
Effective Size	Confirm with factory prior to ordering sand
Uniformity Coefficient	Confirm with factory prior to ordering sand
Shipping Weight	30 tons, plus 10% extra media

UTILITY REQUIREMENTS (By Parkson)

Compressed Air: 3.3 SCFM at 15-25 psig per filter -
(Compressed air system will be designed to accommodate five (5) filters.)

APPLICATION/DATA

The following process description is based upon pilot testing conducted during October, 1989 on a representative secondary effluent (trickling filter) feed. For a peak flow of 925 gpm with a feed containing less than 45 ppm suspended solids after filtering through deep-bed DynaSand Filters at a surface loading rate of 7.23 gpm/ft.^{2}, the filtrate will contain less than 25 ppm suspended solids.

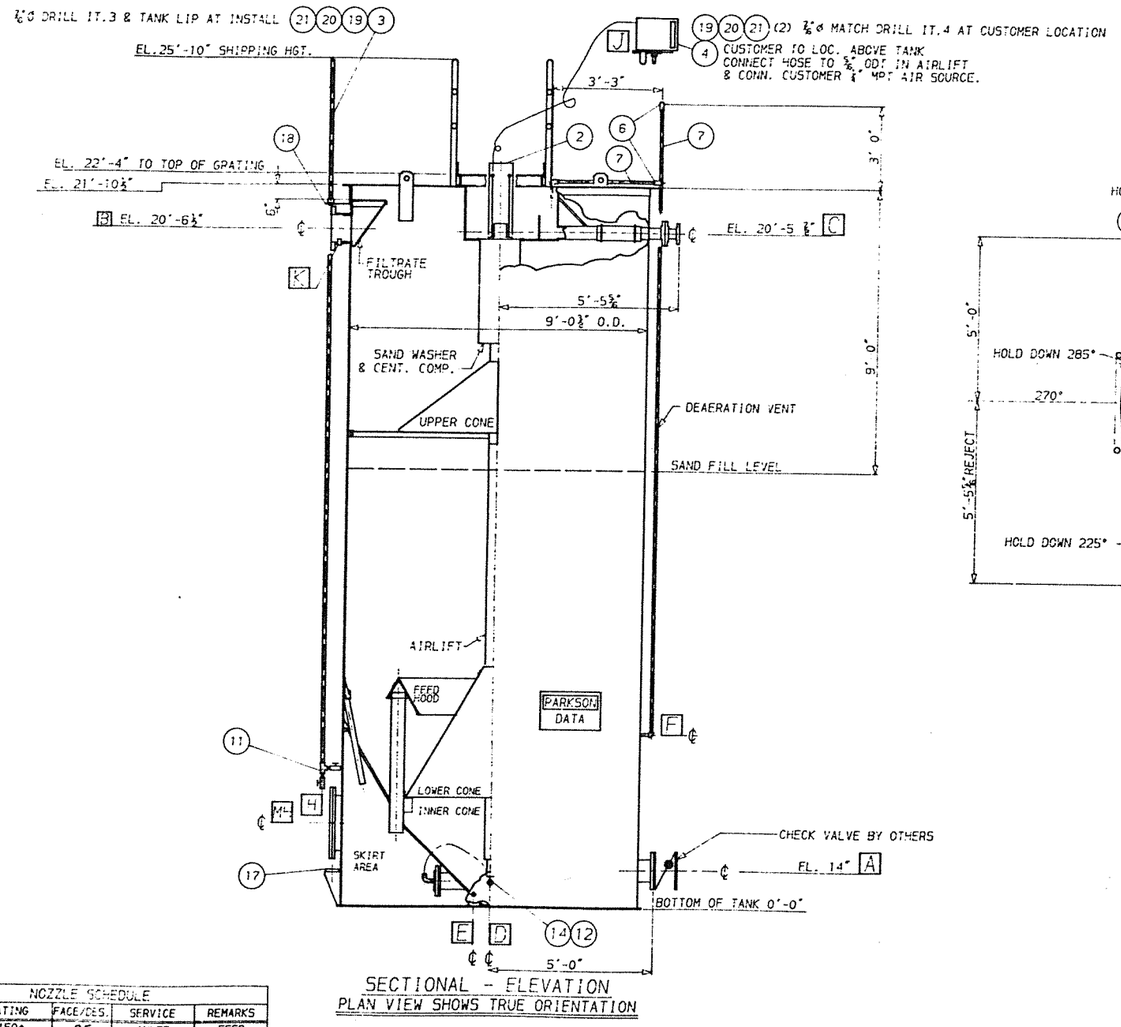
The proposed units are similar to that depicted on drawing #3F-1660, enclosed.

PATENTS: The DynaSand® Filter quoted herein operates under the following U.S. patents: 4,126,546; 4,197,201 and 4,246,102. Additional patents are pending. The quoted price includes a one-time royalty payment (if any) which provides the Purchaser with an immunity to operate the equipment specified in the quotation under this patent or patents which are pending should they issue.

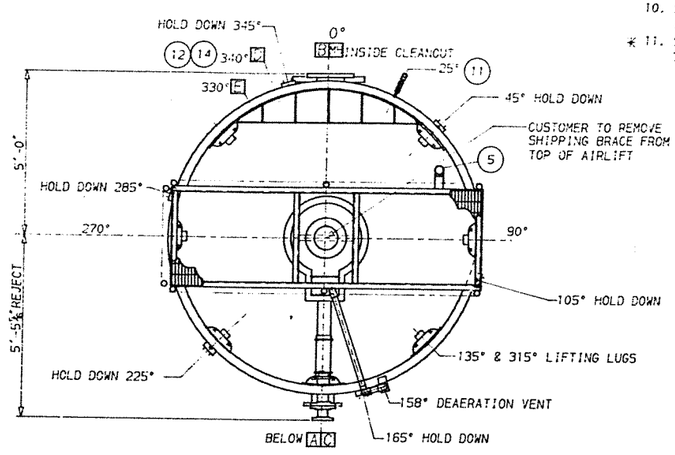
DRAWINGS, OPERATING & MAINTENANCE MANUALS:

Per specifications.

3F-2379



SECTIONAL - ELEVATION
PLAN VIEW SHOWS TRUE ORIENTATION



PLAN

NOTES
1. MATERIALS OF CONSTRUCTION
   TANK-C.STL.
   CONES AND SAND WASHER - FRP.
   AIRLIFT - 304 SS
2. WEIGHTS
   FILTER EMPTY: 9,000 LBS.
   FILTER WITH DRY SAND: 69,000 LBS.
   FILTER WITH SAND AND WATER: 133,000 LBS.
3. USE ONLY A TWO POINT SPREADER BAR FOR LIFTING.
4. DO NOT SUPPORT PIPELINES FROM FILTER FLANGES.
5. A FLAT, HORIZONTAL FOUNDATION MUST BE PROVIDED FOR THE FILTER WITH THE BEARING CAPACITY AS ON THE LOADING DIAGRAM.
6. IT IS RECOMMENDED THAT TANKS BE GROUTED IN PLACE.
7. FILL SAND ONLY TO THE LEVEL INDICATED ON THIS DWG. AND FOLLOW THE PROCEDURE IN THE OPERATING INSTRUCTIONS.
8. PROVIDE AUTOMATIC INTERLOCK TO STOP AIR FLOW WHEN FEED STOPS.
9. ALL ITEMS ON THIS DRAWING ARE TO BE SHIPPED LOOSE FOR FIELD ASSEMBLY BY OTHERS.
10. SEE PAINT SPECIFICATION FOR SURFACE PREPARATION AND COATING.
* 11. SHOP TO CUT AND ASSEMBLE IT.6 & 7 TO ASSURE FIT & THEN DISASSEMBLE FOR SHIPPING.

NOZZLE SCHEDULE

LTR	SIZE	RATING	FACE/DES.	SERVICE	REMARKS
A	8"	150#	RF	INLET	FEED
B	10"	150#	RF	OUTLET	FILTRATE
C	3"	150#	RF	OUTLET	REJECT
D	1"	150#	NPT	INSIDE DRAIN	VALVE
E	¾"	150#	NPT	SKIRT DRAIN	PLUG
F	1½"	150#	NPT	VENT	LOWER
G					
H	¼		NPT	SAMPLE	FEED
J	1"		MPT	CUSTOMER AIR	
K	¼		NPT	SAMPLE	FILTRATE
MH	20"			MANHOLE	

ITEM NO.	QTY	DESCRIPTION	REFERENCE	MATERIAL	REMARKS
22					
21	2	WASHER, FLAT	⅜"Ø		316 SS
20	1	NUT	⅜"Ø		316 SS
19	1	BOLT, HEX	⅜"Ø		316 SS
18	1	HEADLOSS BRACKET	1F-1222		304SS
17	6	HOLD DOWN PLATE	1F-437		EPOS
16					
15					
14	1	BALL VALVE	1"NPT		STEEL W/SS TRIM
13					
12	1	NIPPLE, CLOSE	1" SCH 80		GALV STEEL
11	1	HEAD LOSS, SAMPLE	1F-1339		ASSEMBLY
10					
9					
8					
* 7	10'-0"	PIPE SCH 80	1½"Ø	PVC	
* 6	4	90° ELBOW	1½"Ø	PVC	
5	1	LEVEL SWITCH	1F-697		
4	1	INSTRUMENT PANEL	3F-2415		W/SOL
3	1	HEAD LOSS GAUGE	1F-1339		
2	1	SAND WASHER & COMP.	3F-564	FRP	IT.4 & 16-22
1	1	ASSEMBLY	3F-2380		

REV. IND.	REVISION/CHANGE NOTE NO.	DATE	REV. BY	ZONE	REV. IND.	REVISION/CHANGE NOTE NO.	DATE	REV. BY	ZONE

Drawn RMP 7-16-90 | Checked 7-17-90 | Std. | Approved | Scale ½"=1'-0" | Preceding Dra. | Superceding Dra.

PARKSON CORPORATION FT. LAUDERDALE, FLORIDA

DynaSand® Filter GENERAL ARRANGEMENT 640B SF. C.STL.

Proj. | Dr. no. | Date | Code | Dr. No. 3F-2379 | Rev.

DSF-1769-1