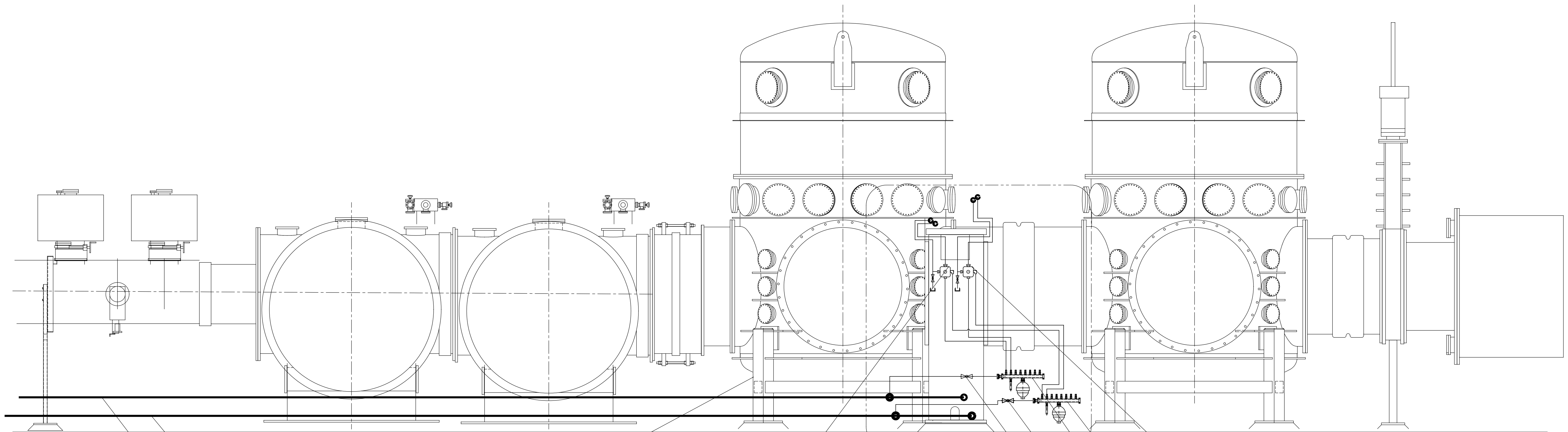


REV.	DATE	DCN #	DRAWING TREE #



Main Return Line

BSC Chamber Stand

Hydraulic Actuator
4-way 2-position
crossover valve
(horizontal actuator)

see sheet 2 for
typ. routing
detail

Main Supply Line

Hydraulic Actuator
4-way 2-position
crossover valve
(vertical actuator)

Typical
Return
Manifold

Typical
Supply
Manifold

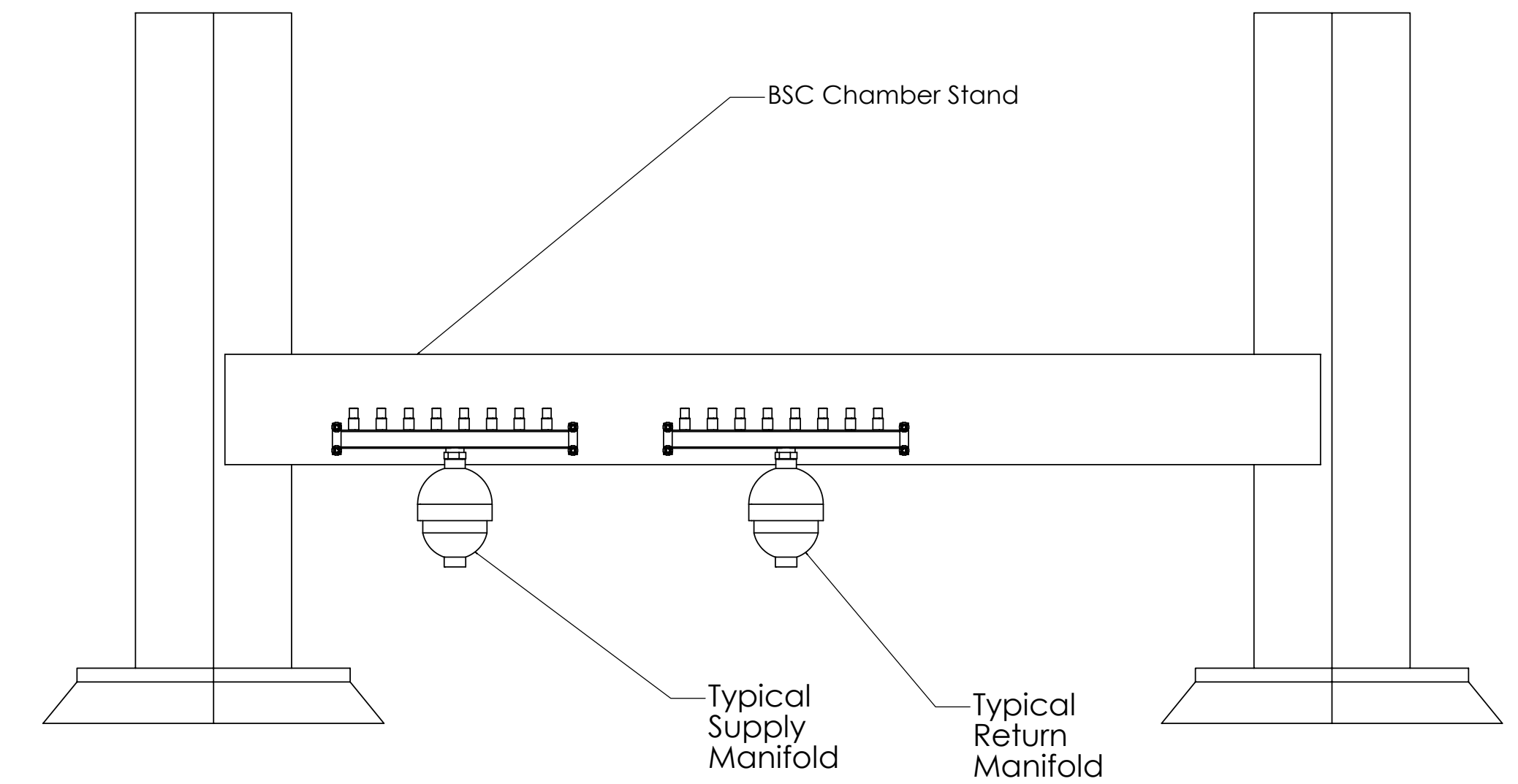
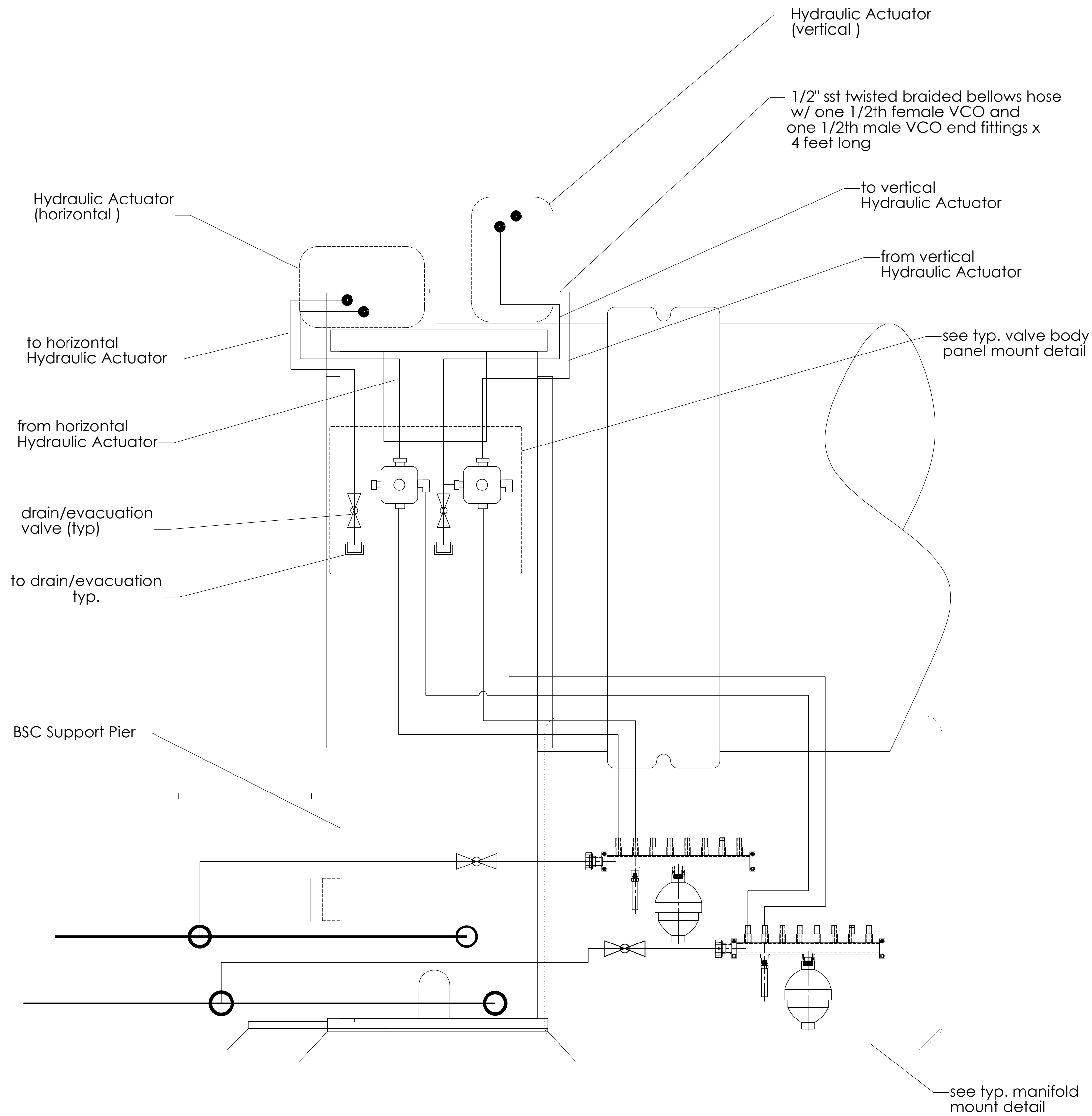
Typical
Return
Isolation
Valve

Typical
Supply
Isolation
Valve

Drawing for Estimating Purposes Only
Not Intended for Production

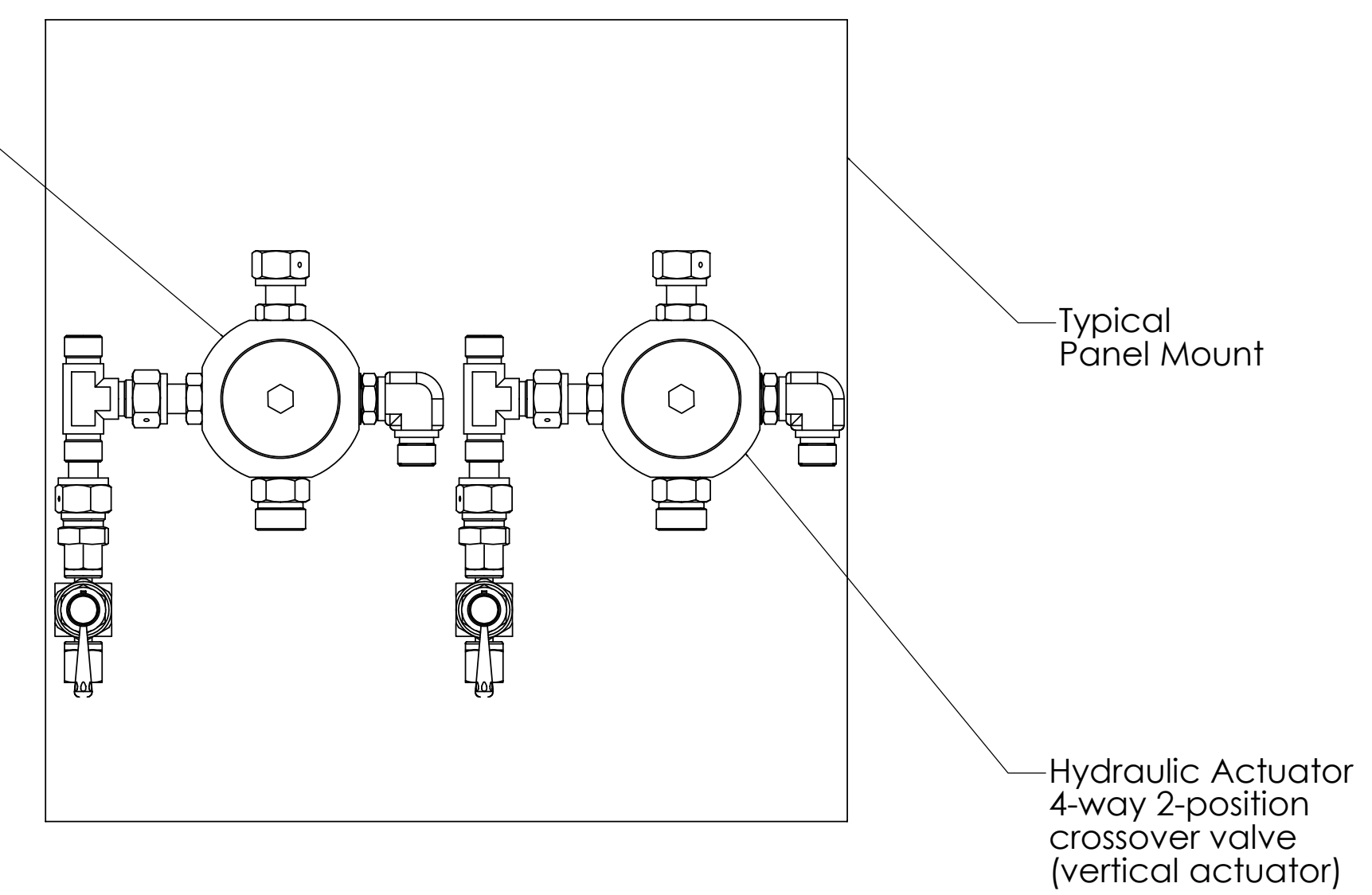
NOTES: (UNLESS OTHERWISE SPECIFIED)		DIMENSIONS ARE IN INCHES		LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
1. REMOVE ALL SHARP EDGES. R.002 MIN.	2. DO NOT SCALE FROM DRAWING.	XX ± 0.01	XXX ± 0.005	SYSTEM SEI External Pre-Isolation	
3. ALL MACHINING FLUTES SHALL BE WATER SOLUBLE AND FREE OF SULFUR, CHLORINE AND SILICONE. SUCH AS CHEMOMET MACHRONS CIMTECH 410 (STAINLESS STEEL)	4. SCRIBE, ENGRAVE OR STAMP DRAWING PART NUMBER ON NOTED SURFACE OF PART AND A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST PART AND PROCEED CONSECUTIVELY. USE 0FF-HIGH CHARACTERS. EXAMPLE: 0001815 001. A VIBRATORY TOOL MAY BE USED.	ANGULAR ± 0.5 °	MATERIAL	SUB-SYSTEM HEP1	
				NEXT ASSY	
				PART NAME EPI LVEA Elevation Layout	
DRAWN	M. Hammond 11/20/03	SIZE	DWG. NO.	REV.	
CHECKED		B	D030773	00	
APPROVED		SCALE: 1:1	PROJECTION:		SHEET 1 OF 3

REV.	DATE	DCN #	DRAWING TREE #



Typical Manifold Installation (Reference illustration only). Manifolds will be field fit during installation.

Hydraulic Actuator 4-way 2-position crossover valve (horizontal actuator)

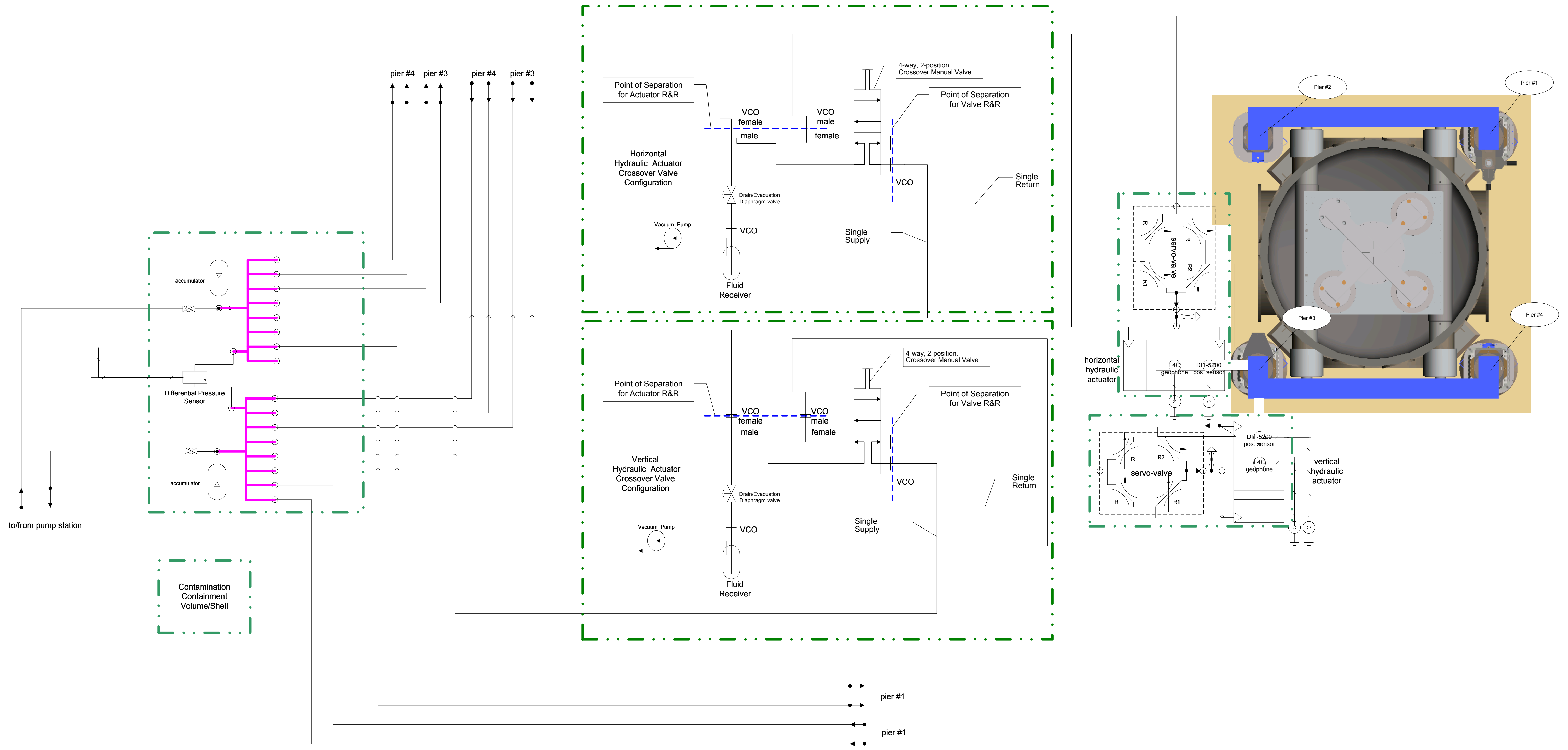


Typical Cross Over Valve Installation (Reference illustration only). Valves will be field fit during installation.

Drawing for Estimating Purposes Only
Not Intended for Production

NOTES: (UNLESS OTHERWISE SPECIFIED)		PARTS LIST	
1. REMOVE ALL SHARP EDGES. R.02 MIN.	2. DO NOT SCALE FROM DRAWING.	DIMENSIONS ARE IN INCHES	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
3. ALL MACHINING FLUTES SHALL BE WATER SOLUBLE AND FREE OF SULFUR, CHLORINE AND SILICONE, SUCH AS CHEMICAL MAGNESIUM CIMATECH 410 (STAINLESS STEEL)	4. Scribe, engrave or stamp drawing part number on noted surface of part and a three digit serial number. SERIAL NUMBERS START AT 001 FOR THE FIRST PART AND PROCEED CONSECUTIVELY. USE UPPER CASE CHARACTERS. EXAMPLE: D001S01. A VIBRATORY TOOL MAY BE USED.	TOLERANCES: XX .001 XXX .0005 ANGULAR ± 0.5 °	
		FINISH	PART NAME
		---	EPI LVEA Elevation Layout
		DRAWN M. Hammond 11/20/03	SIZE DWG. NO. D030773
		CHECKED	REV 00
		APPROVED	SCALE: 1:1.6 PROJECTION: SHEET 2 OF 3

REV.	DATE	DCN #	DRAWING TREE #



Drawing for Estimating Purposes Only
Not Intended for Production

NOTES: (UNLESS OTHERWISE SPECIFIED)		DIMENSIONS ARE IN INCHES		LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
1. REMOVE ALL SHARP EDGES. R.02 MIN.	2. DO NOT SCALE FROM DRAWING.	XX ± 0.01	XXX ± 0.005	SYSTEM	SEI External Pre-Isolation
3. ALL MACHINING FLUTES SHALL BE WALLS SQUARE AND FREE OF SULFUR, CHLORINE AND SILICONE. SUCH AS CHEMOMETRIAL MICROFILMS CMTech 410 (STAINLESS STEEL)	4. SCREWS, ENGRAVE OR STAMP DRAWING PART NUMBER ON NOTED SURFACE OF PART AND A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS SHALL START AT 001 FOR THE FIRST PART AND PROCEED CONSECUTIVELY. USE 0177 FOR CHARACTERS. EXAMPLE: 000155-011. A VIBRATORY TOOL MAY BE USED.	ANGULAR ± 0.5 °	MATERIAL	SUB-SYSTEM	HEPI
FINISH		PART NAME		NEXT ASSY	
DRAWN	M. Hagan	DATE	11/20/03	Piping & Instrumentation Diagram	
CHECKED		SIZE	B	DWG. NO.	D020214
APPROVED		SCALE	1:1/6	PROJECTION	
				REV.	01
				SHEET 3 OF 3	