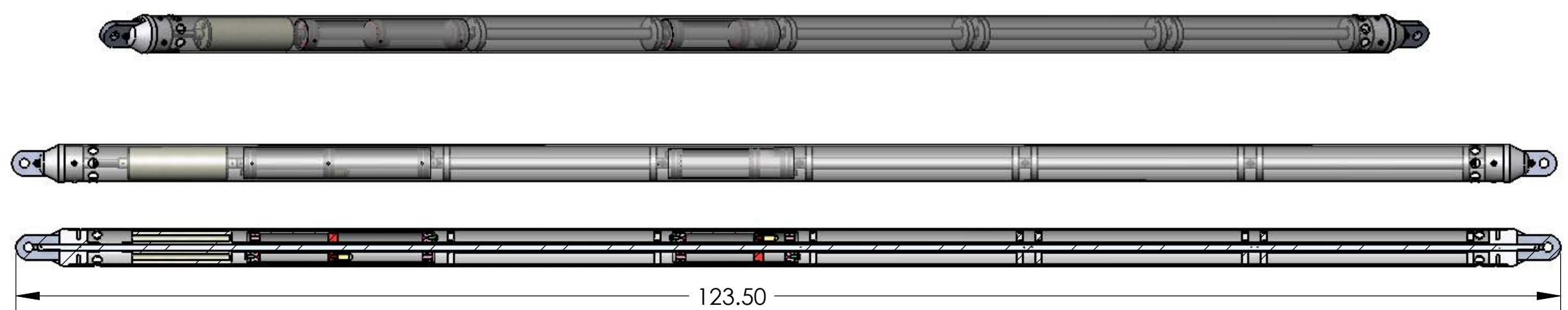
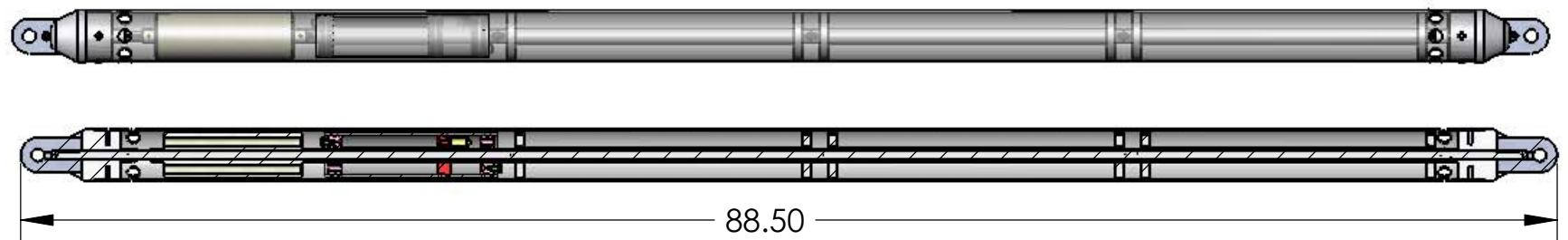


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REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		
A	Modified lengths for 2008	5/6/08	HWJ




Assembly: Configuration A



Assembly: Configuration B

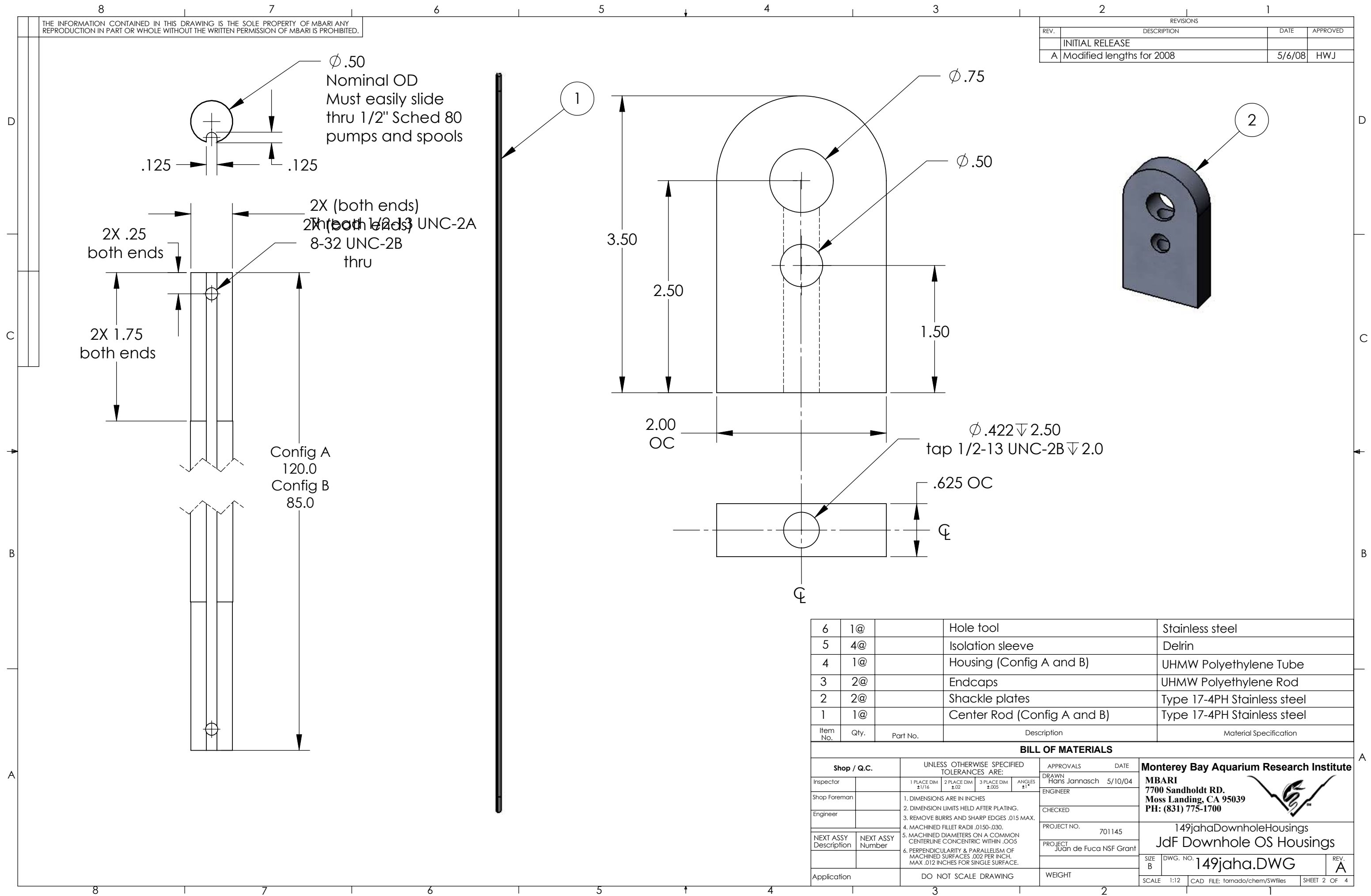
Item No.	Qty.	Part No.	Description	Material Specification
6	1@		Hole tool	Stainless steel
5	4@		Isolation sleeve	Delrin
4	1@		Housing (Config A and B)	UHMW Polyethylene Tube
3	2@		Endcaps	UHMW Polyethylene Rod
2	2@		Shackle plates	Type 17-4PH Stainless steel
1	1@		Center Rod (Config A and B)	Type 17-4PH Stainless steel

BILL OF MATERIALS

Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS	DATE	Monterey Bay Aquarium Research Institute	
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN Hans Jannasch	5/10/04	MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700	
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADII .0150-.030. 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 INCHES FOR SINGLE SURFACE.				ENGINEER		 149jahaDownholeHousings JdF Downhole OS Housings	
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.	701145		
Application		PROJECT	Juan de Fuca NSF Grant	SIZE B	DWG. NO.	149jaha.DWG	REV.	A	

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Config A
120.0
Config B
85.0

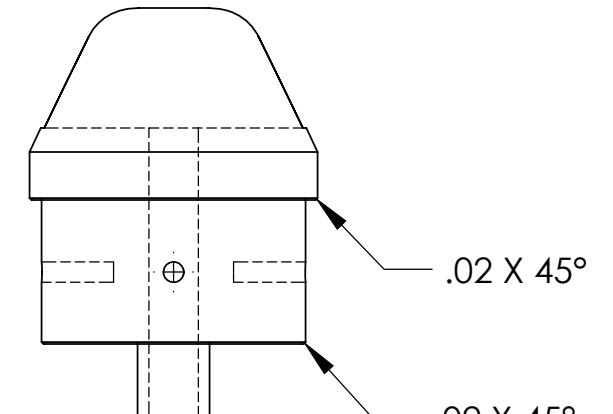
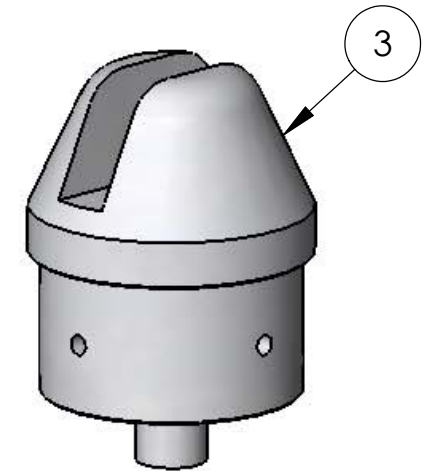
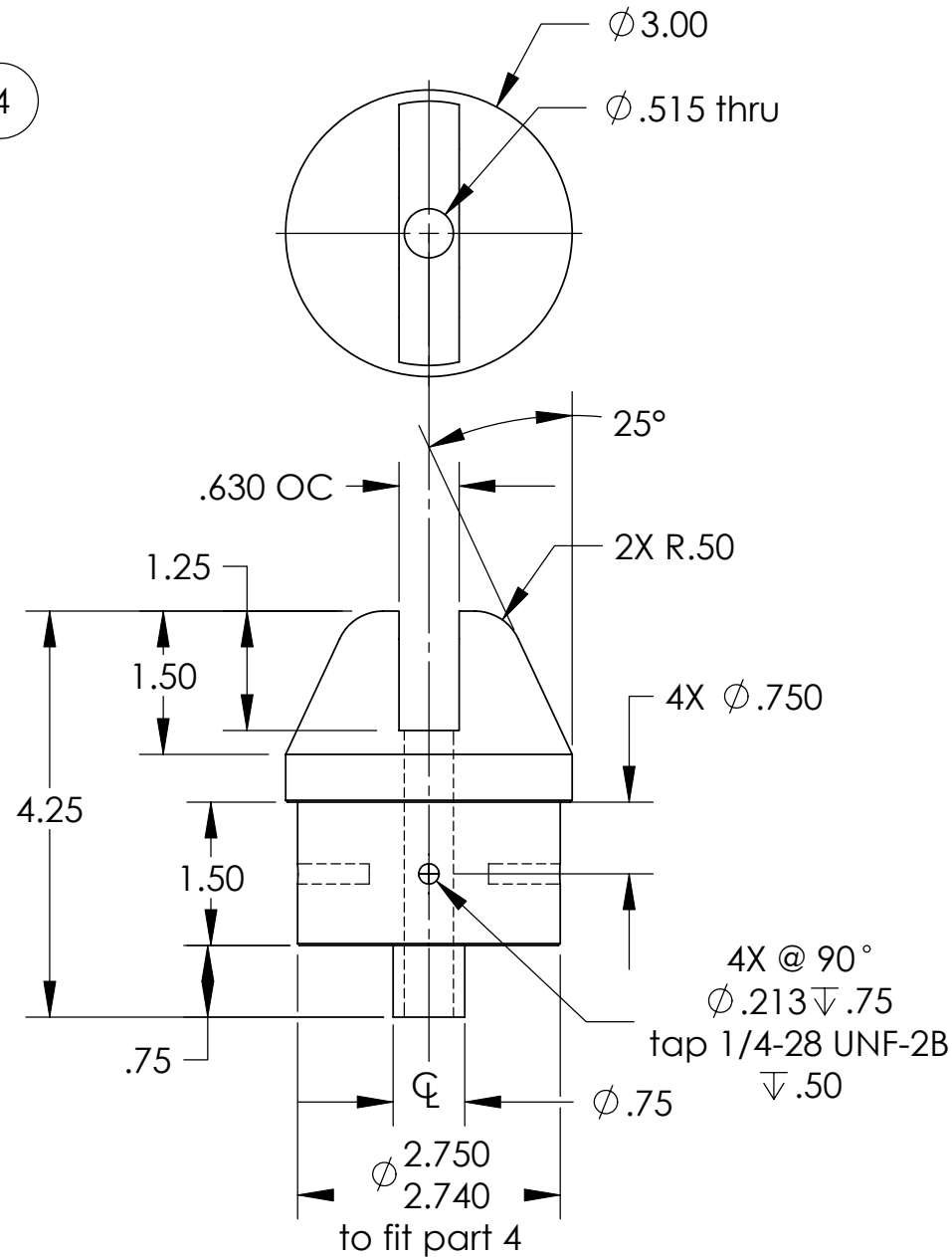
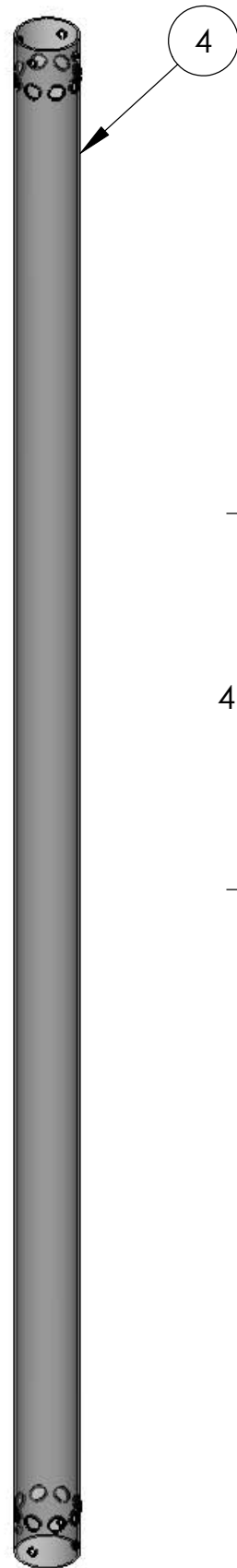
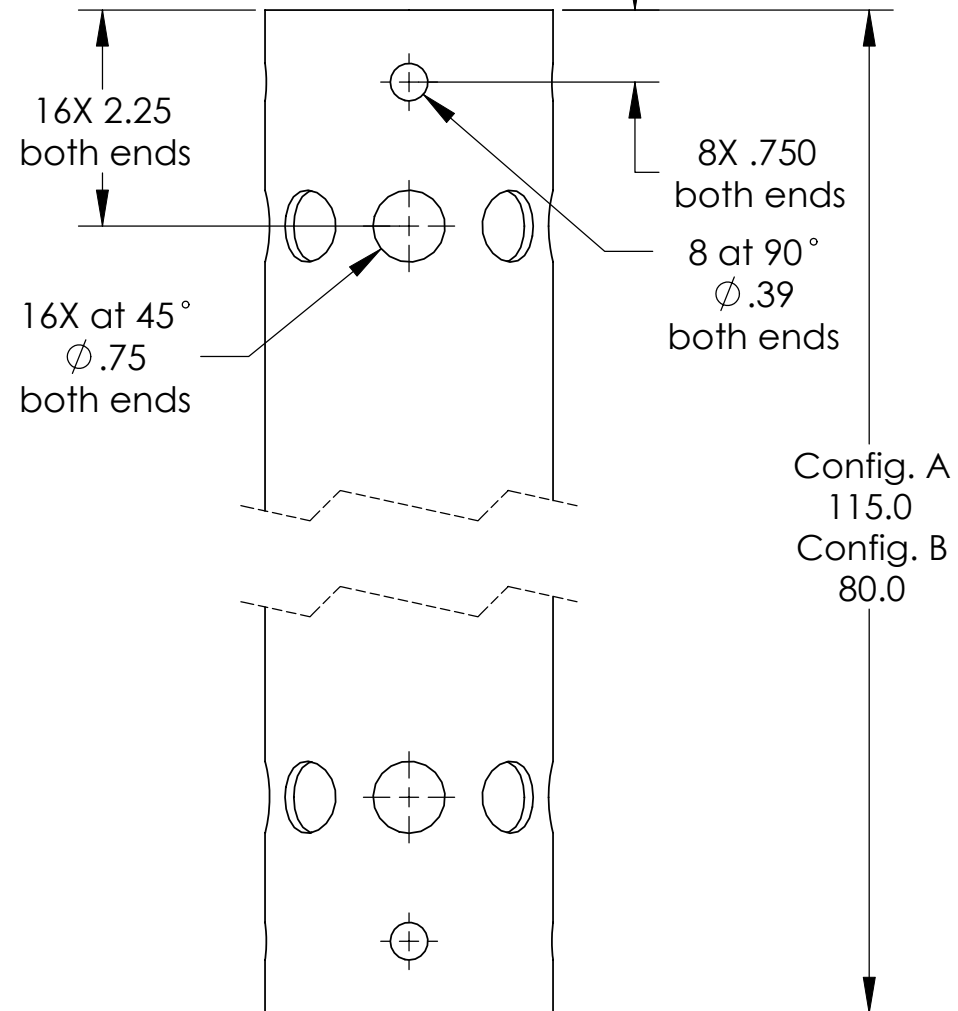
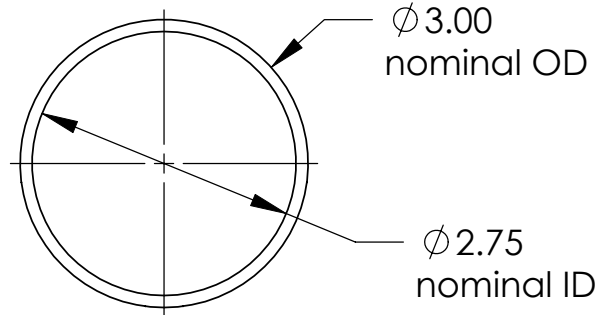
Item No.	Qty.	Part No.	Description	Material Specification
6	1@		Hole tool	Stainless steel
5	4@		Isolation sleeve	Delrin
4	1@		Housing (Config A and B)	UHMW Polyethylene Tube
3	2@		Endcaps	UHMW Polyethylene Rod
2	2@		Shackle plates	Type 17-4PH Stainless steel
1	1@		Center Rod (Config A and B)	Type 17-4PH Stainless steel

BILL OF MATERIALS

Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS	DATE	Monterey Bay Aquarium Research Institute	
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN Hans Jannasch	5/10/04	MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700	
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADII .0150-.030. 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 INCHES FOR SINGLE SURFACE.				ENGINEER		 149jahaDownholeHousings JdF Downhole OS Housings	
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.	701145		
Application		PROJECT	Juan de Fuca NSF Grant	SIZE B	DWG. NO.	149jaha.DWG	REV. A	SCALE 1:12 CAD FILE: tornado/chem/SWfiles SHEET 2 OF 4	


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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		
A	Modified lengths for 2008	5/6/08	HWJ



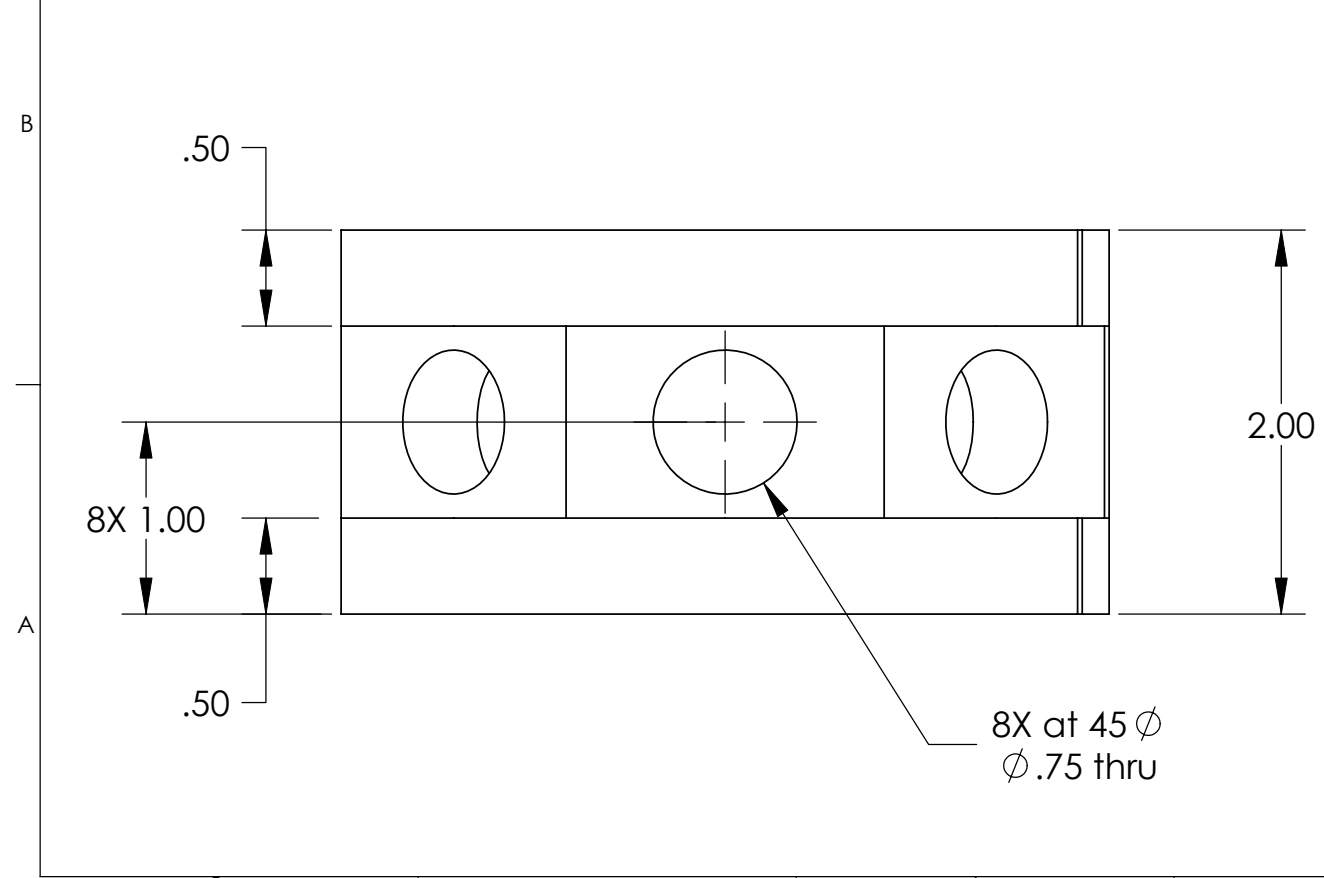
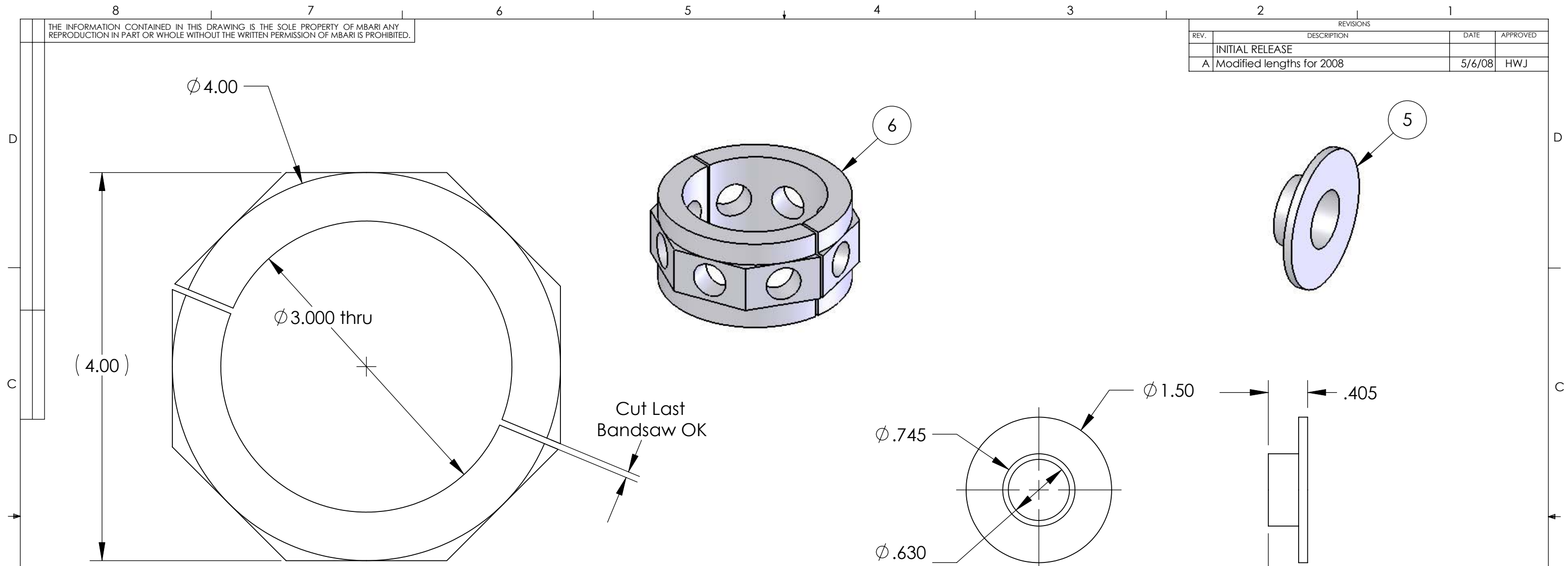
Item No.	Qty.	Part No.	Description	Material Specification
6	1@		Hole tool	Stainless steel
5	4@		Isolation sleeve	Delrin
4	1@		Housing (Config A and B)	UHMW Polyethylene Tube
3	2@		Endcaps	UHMW Polyethylene Rod
2	2@		Shackle plates	Type 17-4PH Stainless steel
1	1@		Center Rod (Config A and B)	Type 17-4PH Stainless steel

BILL OF MATERIALS

Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS	DATE	Monterey Bay Aquarium Research Institute	
Inspector		1 PLACE DIM $\pm 1/16$	2 PLACE DIM $\pm .02$	3 PLACE DIM $\pm .005$	ANGLES $\pm 1^\circ$	DRAWN Hans Jannasch	5/10/04	MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700	
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADII .0150-.030. 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 INCHES FOR SINGLE SURFACE.				ENGINEER		 149jahaDownholeHousings JdF Downhole OS Housings	
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.	701145		
Application		PROJECT	Juan de Fuca NSF Grant	SIZE B	DWG. NO.	149jaha.DWG	REV. A	SCALE 1:24 CAD FILE: tornado/chem/SWfiles SHEET 3 OF 4	

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		
A	Modified lengths for 2008	5/6/08	HWJ



Item No.	Qty.	Part No.	Description	Material Specification
6	1@		Hole tool	Stainless steel
5	4@		Isolation sleeve	Delrin
4	1@		Housing (Config A and B)	UHMW Polyethylene Tube
3	2@		Endcaps	UHMW Polyethylene Rod
2	2@		Shackle plates	Type 17-4PH Stainless steel
1	1@		Center Rod (Config A and B)	Type 17-4PH Stainless steel

Shop / Q.C.					UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE	Monterey Bay Aquarium Research Institute			
Inspector		1 PLACE DIM	±1/16	2 PLACE DIM	±.02	3 PLACE DIM	±.005	ANGLES	±1°	DRAWN	Hans Jannasch	5/10/04	MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700		
Shop Foreman		1. DIMENSIONS ARE IN INCHES				2. DIMENSION LIMITS HELD AFTER PLATING.		3. REMOVE BURRS AND SHARP EDGES .015 MAX.		CHECKED					
Engineer		4. MACHINED FILLET RADII .0150-.030.				5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005		6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 INCHES FOR SINGLE SURFACE.		PROJECT NO.	701145		149jahaDownholeHousings JdF Downhole OS Housings		
NEXT ASSY Description	NEXT ASSY Number	DO NOT SCALE DRAWING				WEIGHT		PROJECT	Juan de Fuca NSF Grant	SIZE	B	DWG. NO.			149jaha.DWG
Application		SCALE 1:1				CAD FILE: tornado/chem/SWfiles		SHEET 4 OF 4							