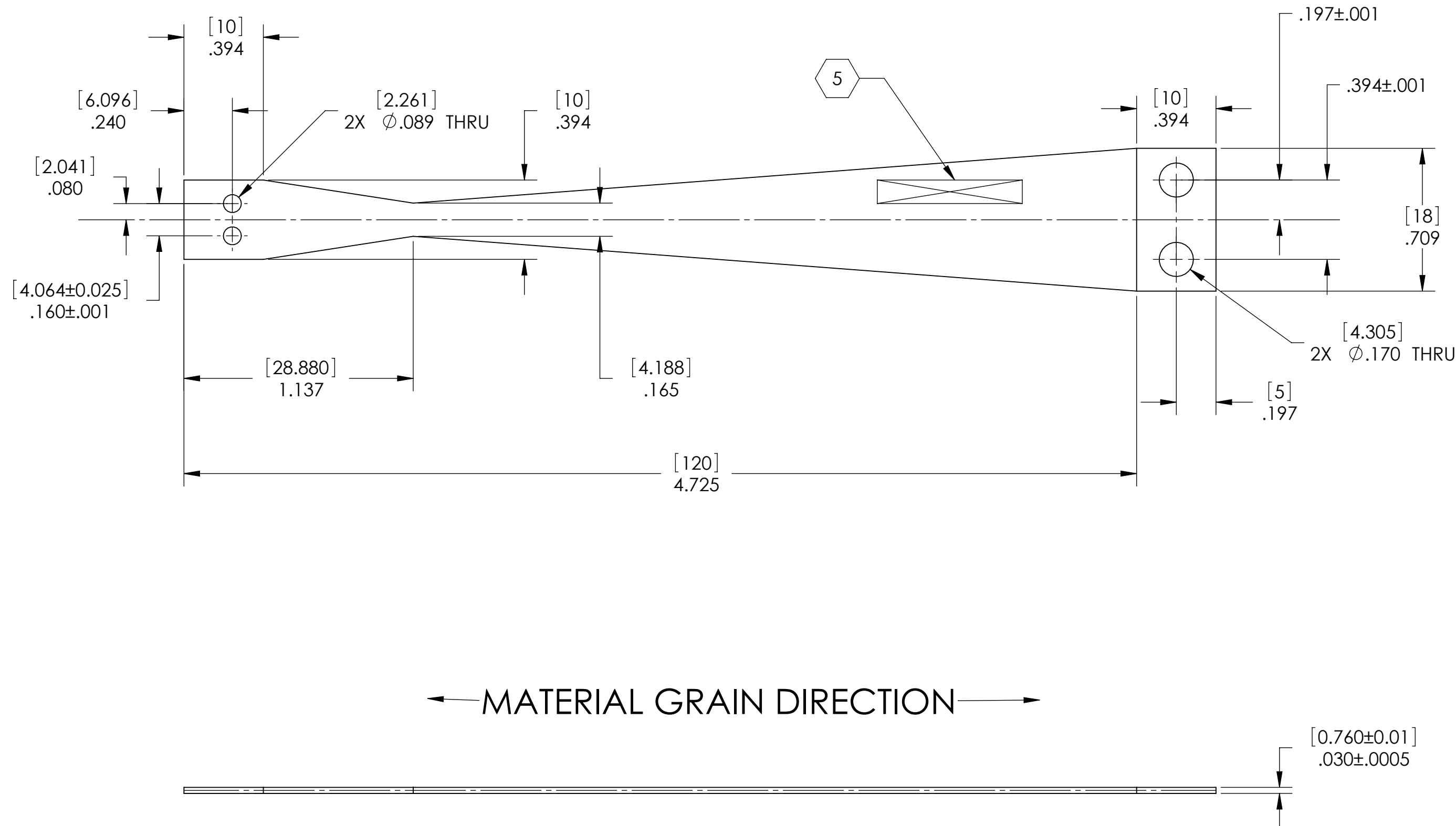


- NOTES:**
1. INTERPRET DRAWING PER ASME Y14.5-1994.
 2. REMOVE ALL SHARP EDGES, R.02 MIN.
 3. DO NOT SCALE FROM DRAWING.
 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 500 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12" HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE: DXXXXXX-VY, TYPE-XX, S/N XXX
 6. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900023.

REV.	DATE	DCN #	DRAWING TREE #
v1	5 JAN 2009	E0900001-v1	-
v2	01 APR 2009	E0900101-v1	-
v3	28 JUL 2010	E1000255	-
v4	06 DEC 2010	E1000834	-
			-



VIEWS PRIOR TO FORMING

INTERNAL LIGO NOTES:

1. EXCEL SPREADSHEET REF T1000352-v2
2. SHAPE FACTOR FOR LOWER BLADE = 1.54 AND YOUNGS MODULUS USED IS $1.86e11$ Pa.
3. LOAD ON LOWER BLADE (FLAT) = 1.4595 kg AND UNCOUPLED LOAD = 0.7422 kg.
4. PREDICTED UNCOUPLED SUSPENSION FREQUENCY = 2.17 Hz.
5. PREDICTED FIRST BLADE INTERNAL FREQUENCY = 199 Hz.
6. MAXIMUM STRESS = 992 MPa
7. MID TO MID DEFLECTION = 103.7 mm. FROM THE EXCEL SPREADSHEET. NOT VALID FOR EXTREME CURVATURE
8. MID TO MID DEFLECTION (MEASURED TOP TO TOP) FROM FEA IS 78.095 mm FOR RADIUS OF CURVATURE 73.4 mm
9. LENGTH IS 120 mm (130 mm INCLUDING CLAMPING LENGTH), THICKNESS IS 0.76 mm AND WIDTH IS 18 mm.
10. RADIUS IS 73.4 mm DETERMINED BY FEA Compare to $R = EI/M = 71.3$ mm
11. IN THE CURVED SKETCH IN SW PART ADD MID TO MID DEFLECTION AND ADJUST RADIUS UNTIL DESIRED LENGTH IS ATTAINED
12. IN SW PART, BLADE IS DRAWN WITH SHEET METAL AND EXTRUDED VERTICALLY DOWNWARDS.
13. ON SW DRAWING, SOLIDWORKS RADIUS VALUE IS THE VALUE MEASURED DIRECT FROM SW USING THE DIMENSION TOOL.

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES [MM]

TOLERANCES:
 .XX ± .01
 .XXX ± .005

ANGULAR ± 0.5°

MATERIAL

MARAGING STEEL C250

FINISH

32 μ inch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM

ADVANCED LIGO

SUB-SYSTEM

SUS

NEXT ASSY

D020534

PART NAME

HSTS LOWER BLADE

DESIGNER

M. MEYER 14 JUL 2010

DRAFTER

M. MEYER 16 JUL 2010

CHECKER

C. TORRIE 28 JUL 2010

APPROVAL

SIZE

c

DWG. NO.

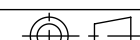
D080761

REV.

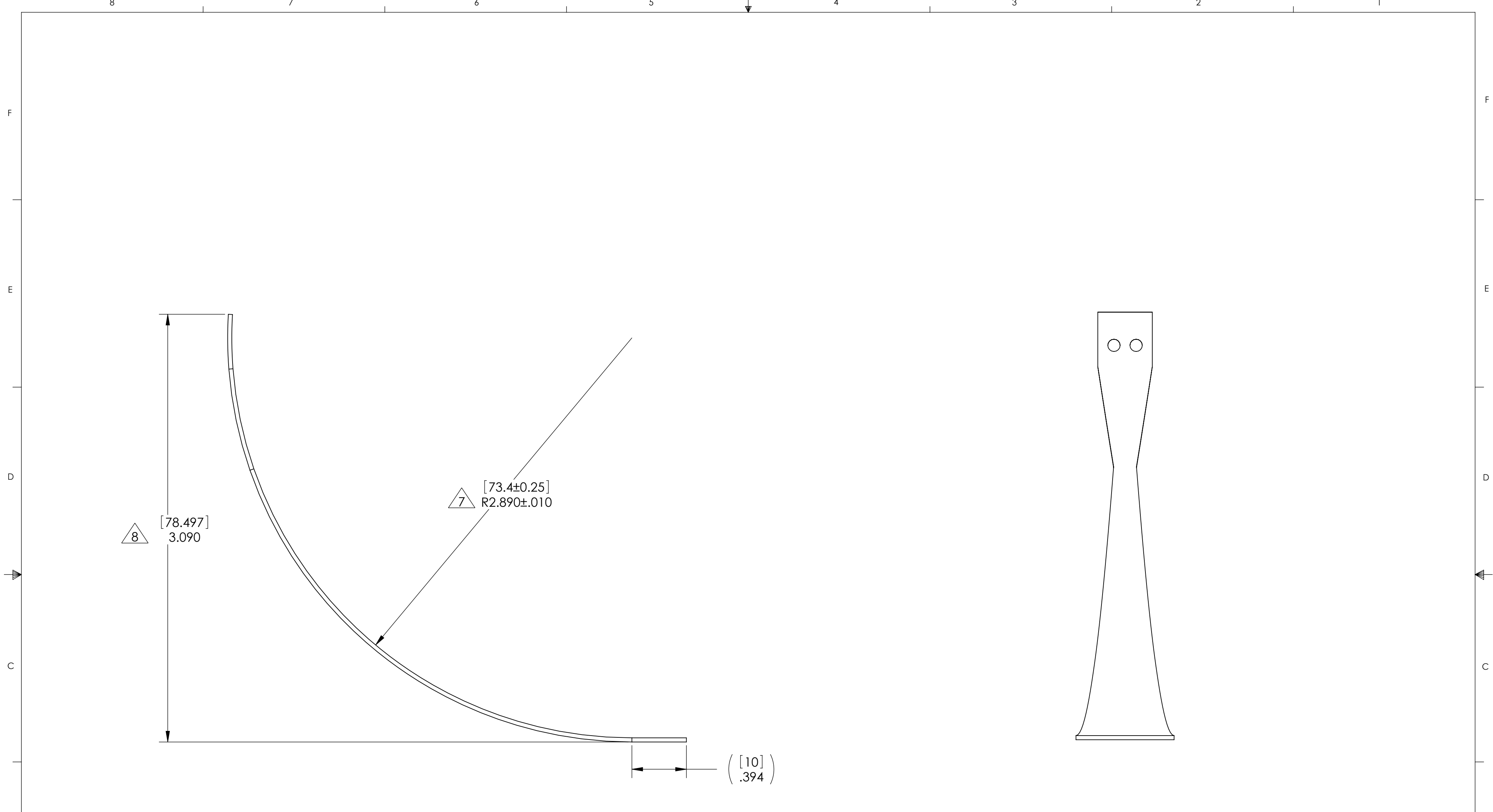
v4

SCALE: 2:1

PROJECTION:





SHEET 1 OF 2



VIEWS AFTER FORMING AND HEAT TREATMENT

- △7 THE RADIUS OF THE CURVATURE IS THE INSIDE RADIUS
- △8 THE OVERALL DEFLECTION IS MEASURED FROM THE BOTTOM OF THE BASE POINT TO THE HIGHEST POINT ON THE TIP

 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
SIZE C	DWG. NO. D080761	REV. v4
SCALE: 2:1	PROJECTION: 	SHEET 2 OF 2