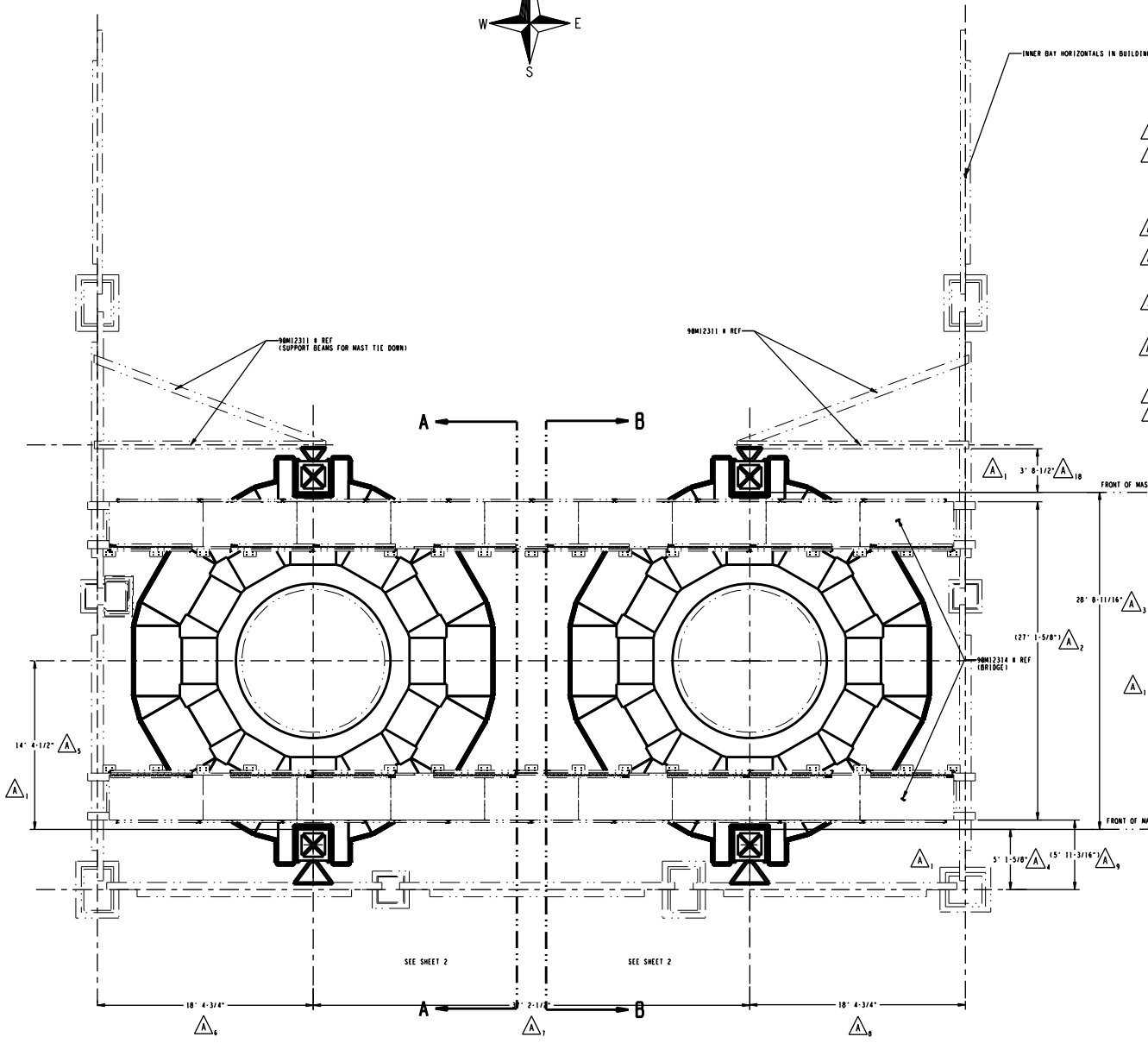
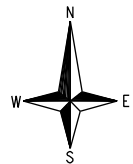


ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED SHALL BE IN FEET AND INCHES. DIMENSIONS SHALL BE TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED. DIMENSIONS SHALL BE TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED. DIMENSIONS SHALL BE TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED.

NO.	REVISION	DATE	APPROVED
1	REVISED SHEET 2	5-23-09	
2	REVISED SHEET 2	5-27-09	
3	REVISED SHEET 2	5-27-09	
4	REVISED SHEET 2	5-27-09	
5	REVISED SHEET 2	5-27-09	
6	REVISED SHEET 2	5-27-09	
7	REVISED SHEET 2	5-27-09	
8	REVISED SHEET 2	5-27-09	
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10	REVISED SHEET 2	5-27-09	
11	REVISED SHEET 2	5-27-09	
12	REVISED SHEET 2	5-27-09	
13	REVISED SHEET 2	5-27-09	
14	REVISED SHEET 2	5-27-09	
15	REVISED SHEET 2	5-27-09	
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18	REVISED SHEET 2	5-27-09	
19	REVISED SHEET 2	5-27-09	
20	REVISED SHEET 2	5-27-09	
21	REVISED SHEET 2	5-27-09	
22	REVISED SHEET 2	5-27-09	
23	REVISED SHEET 2	5-27-09	
24	REVISED SHEET 2	5-27-09	



SPECIFICATION NOTES:

1. MAST CLIMBERS SHALL BE DRIVEN BY ELECTRIC MOTORS.
2. MAST CLIMBER PLATFORMS SHALL BE BRIDGED TOGETHER IN TWO TOWER CONFIGURATION.
3. MAST CLIMBERS SHALL HAVE A SYNCHRONIZING / LEVELING MECHANISM BETWEEN THE TWO DRIVE UNITS IN TWO TOWER CONFIGURATION.
4. MAST CLIMBERS SHALL HAVE A MANUAL EMERGENCY DESCENT MECHANISM IN CASE LOSS OF POWER.
5. MAST CLIMBERS SHALL HAVE A VISIBLE & AUDIBLE ALARM WHILE IN MOTION.
6. MAST CLIMBERS SHALL BE AUTOMATICALLY STOPPED IF PLATFORMS BECOME UNEVEN DURING OPERATION IN TWO TOWER CONFIGURATION.
7. MAST CLIMBERS SHALL HAVE AN OVERLOAD SENSING DEVICE THAT WILL SHUT OFF THE MOTORS TO THE MAST CLIMBERS, IF MAXIMUM LOAD IS EXCEEDED.
8. MAST CLIMBERS SHALL HAVE MECHANICAL AND ELECTRICAL SAFETY CONTROLS FOR THE UPPER AND LOWER LIMIT OF TRAVEL.
9. MAST CLIMBERS SHALL HAVE SAFETY FENCING AROUND THE MAST.
10. MAST CLIMBERS SHALL HAVE THE FUNCTIONALITY OF BEING USED IN A SINGLE TOWER CONFIGURATION WITH THE MAST AND MAST TIE OFFS TOWARD THE WORK AREA. THE PLATFORM EXTENSIONS SHALL SPAN ALONG THE WORK AREA, STRAIGHT OUT FROM THE DRIVE UNITS.
11. MAST CLIMBERS WHEN BRIDGED TOGETHER SHALL BE ABLE TO BE CONTROLLED FROM ONE LOCATION.
12. MAST CLIMBERS SHALL BE ABLE TO USE THE MAIN PLATFORM STRAIGHT EXTENSIONS FROM THE TWO TOWER CONFIGURATION IN A SINGLE TOWER CONFIGURATION WITH THE PLATFORM EXTENSIONS BEING MOVED TO THE INSIDE OF THE DRIVE UNIT FACING THE WORK AREA.
13. VENDOR SHALL PROVIDE MAXIMUM HORIZONTAL SPAN LENGTH IN ONE TOWER CONFIGURATION.
14. MAST CLIMBERS SHALL BE ANCHORED TO CONCRETE FLOORING IN TWO TOWER CONFIGURATION WITH VENDOR SUPPLIED HARDWARE.
15. MAST CLIMBERS SHALL NOT NEED LATERAL STABILIZATION ANY MORE FREQUENTLY THAN 24 FT.
16. VENDOR SHALL PROVIDE TRAINING FOR OPERATION AND ASSEMBLY OF MAST CLIMBERS. VENDOR SHALL ALSO PROVIDE INSTRUCTOR TRAINING FOR OPERATION OF MAST CLIMBERS.
17. MAST CLIMBER PLATFORMS SHALL BE DESIGNED TO A SAFETY FACTOR OF 4 TO 1 AT MAXIMUM LOAD CONDITION.
18. MAST CLIMBERS SHALL HAVE A MINIMUM LOAD CAPACITY OF 5000 LBS EVENLY DISTRIBUTED OVER PLATFORMS IN THE TWO TOWER CONFIGURATION, AND A MINIMUM HORIZONTAL SPAN LENGTH IN ONE TOWER CONFIGURATION.
19. VENDOR SHALL PROVIDE LOAD CHARTS INCLUDING MAXIMUM LOAD CAPACITY FOR BOTH ONE AND TWO TOWER CONFIGURATIONS, AND ATTACH THE CHARTS AT OPERATION STATIONS.
20. VENDOR SHALL PROVIDE ENGINEERING DATA, INCLUDING DEFLECTION ANALYSIS AND STRESS ANALYSIS OF PLATFORM AND MAST AND LOADS AT THE MAST TIE OFF POINTS UNDER MAXIMUM LOAD CONDITION IN TWO TOWER CONFIGURATION.
21. REMOVABLE DECKING SHALL BE LEVEL WITH SECONDARY DECKING AND MAIN PLATFORM DECKING.
22. ALL SAFETY FENCES SHALL COMPLY WITH 29 CFR 1910.23 (c).
23. MAST CLIMBERS SHALL CONFORM TO ANSI/SIA A92.9.
24. MAST CLIMBERS SHALL HAVE HARD STOPS AT THE TOP AND BOTTOM OF TRAVEL. IN CASE OF LIMIT SWITCH FAILURE.

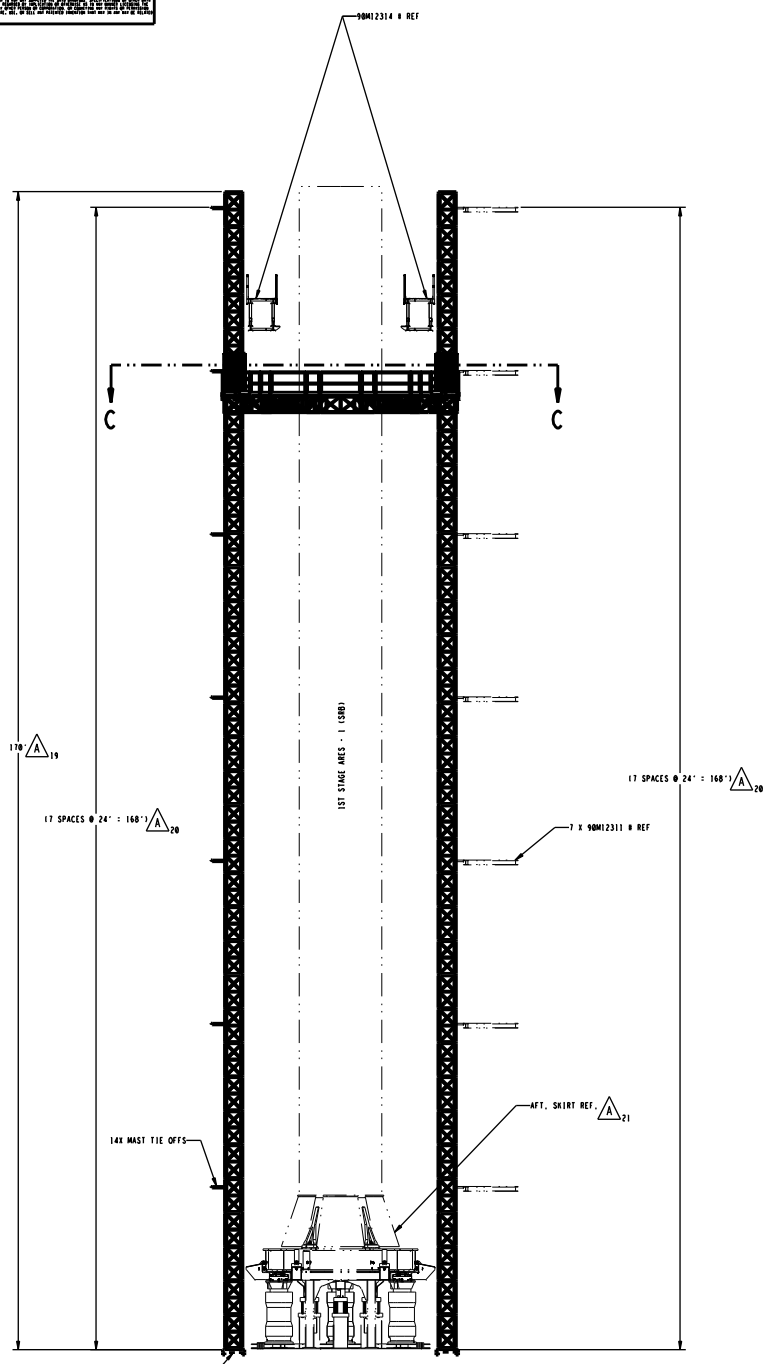
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90M12310

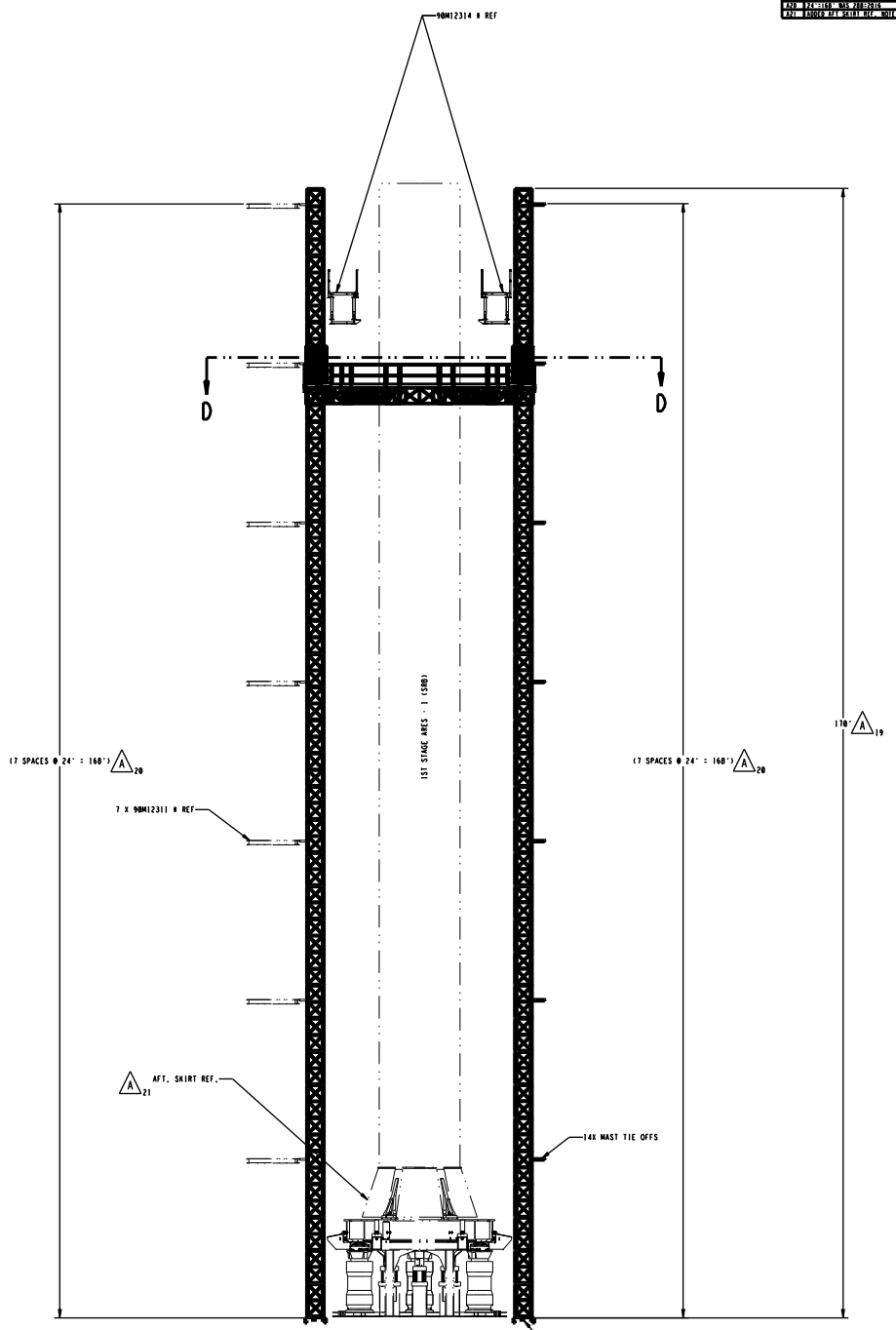
UNLESS OTHERWISE SPECIFIED	BY: JOHN D. ALLEN	DATE: 5-23-09	MAST CLIMBER ASSEMBLY SPECIAL CONTRACT GEORGE C. MARSHALL SPACE FLIGHT CENTER NASA 90M12310
APPROVED BY: KATHY O. KAPPUS	DATE: 5-27-09		
1. PREPARED BY: J. D. ALLEN 2. CHECKED BY: J. D. ALLEN 3. DESIGNED BY: J. D. ALLEN 4. DRAWN BY: J. D. ALLEN 5. SCALE: AS SHOWN	BUILDING 4550 SHEET NO. 1 OF 1	DATE: 5-23-09 TIME: 10:00 AM BY: ALVIN J. EIDSON CHECKED BY: SCOTT MCCLUNEY	DATE: 5-23-09 TIME: 10:00 AM BY: JEFF SHEPHERD CHECKED BY: BSM

ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN FEET AND INCHES. DIMENSIONS IN PARENTHESES ARE IN METERS. DIMENSIONS IN METERS ARE FOR INFORMATION ONLY. DIMENSIONS IN FEET AND INCHES ARE THE GOVERNING DIMENSIONS. DIMENSIONS IN METERS ARE FOR INFORMATION ONLY. DIMENSIONS IN FEET AND INCHES ARE THE GOVERNING DIMENSIONS.

REV	DESCRIPTION	DATE	APPROVAL
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3	ISSUED FOR CONSTRUCTION		



SECTION A-A ROTATED 90° CW
SCALE 1:50



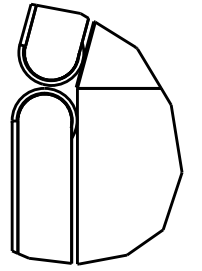
SECTION B-B ROTATED 90° CCW
SCALE 1:50

90M12310
SEE SHEET 1000

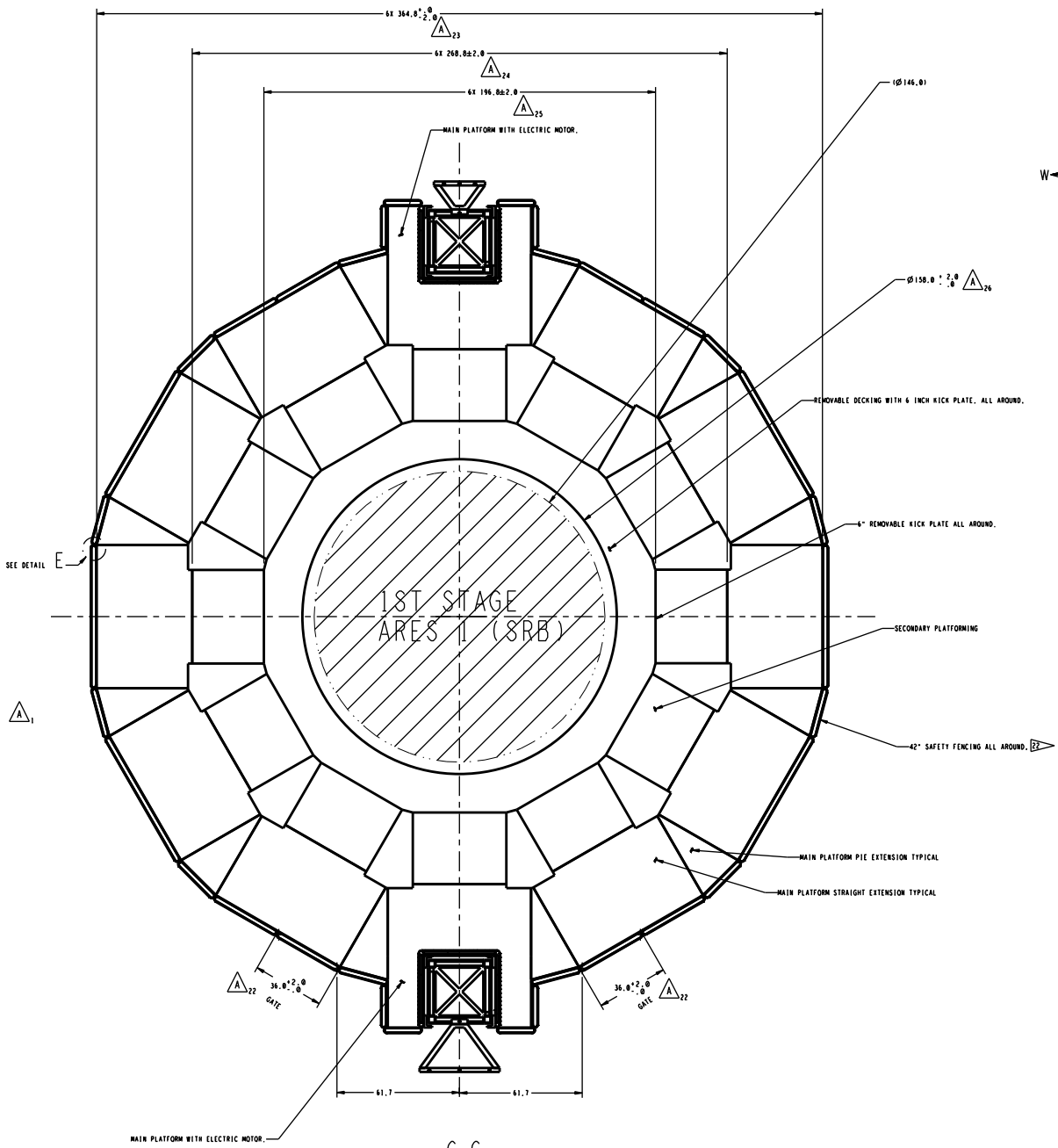
MAST CLIMBER ASSEMBLY		SPECIAL EQUIPMENT GEORGE C. MARSHALL SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	
2008-05-23 JEFF SHEPHERD	EX33 NOTED	90M12310	2 / 3

ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES. DIMENSIONS IN PARENTHESES ARE IN METERS. DIMENSIONS IN METERS ARE FOR INFORMATION ONLY. DIMENSIONS IN INCHES ARE THE GOVERNING DIMENSIONS. DIMENSIONS IN METERS ARE FOR INFORMATION ONLY. DIMENSIONS IN INCHES ARE THE GOVERNING DIMENSIONS.

REV	DESCRIPTION	DATE	APPROVAL
1	ISSUE FOR CONSTRUCTION		
2	ISSUE FOR CONSTRUCTION		
3	ISSUE FOR CONSTRUCTION		
4	ISSUE FOR CONSTRUCTION		
5	ISSUE FOR CONSTRUCTION		



DETAIL E
SCALE 1:2



SECTION C-C SEE SHEET 2 ROTATED 90° CW
SECTION D-D SEE SHEET 2 ROTATED 90° CW

▶ TWO TOWER CONFIGURATION
SCALE 1:20

90M12310
SEE SHEET 1 FOR TOWER

MAST CLIMBER ASSEMBLY		<small>SPECIAL DRAWING</small> GEORGE C. MARSHALL SPACE FLIGHT CENTER <small>UNIVERSITY OF ALABAMA IN SPACE RESEARCH</small>	
		2008-05-23 <small>JEFF SHEPHERD</small>	EX33 <small>NOTED</small>