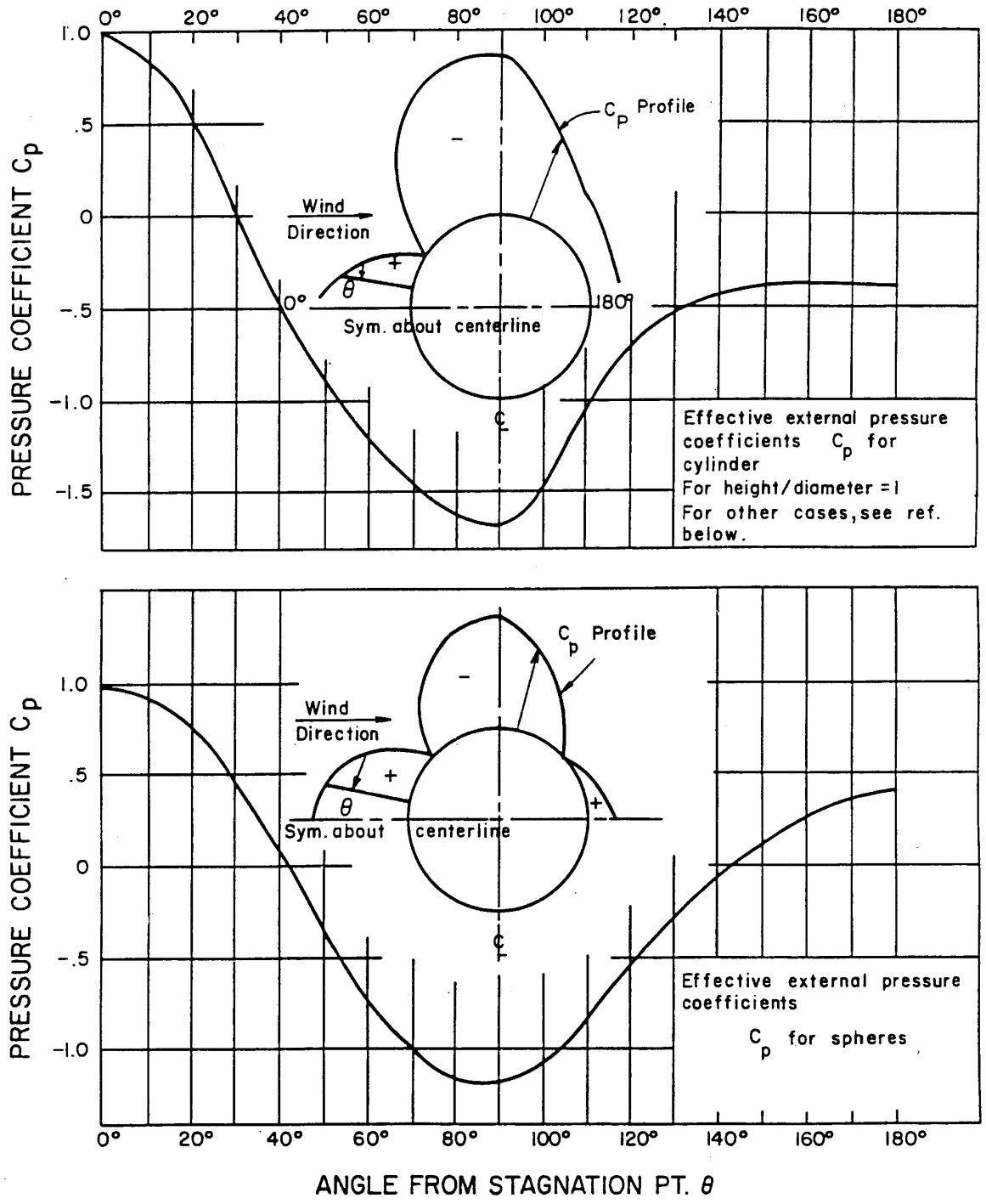
SEABROOK STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

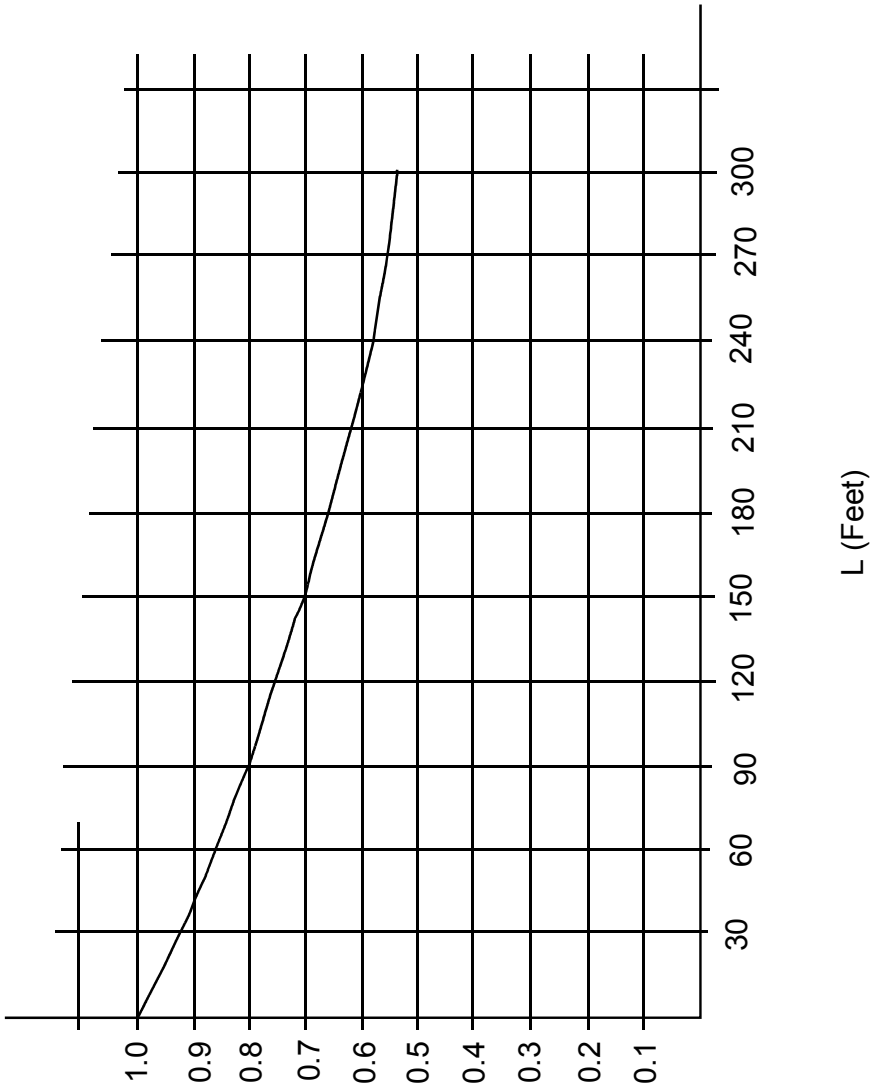
CHAPTER 3
DESIGN OF STRUCTURES, COMPONENTS, EQUIPMENT AND SYSTEMS

FIGURES



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Pressure Coefficients Distribution for Cylinders and Spheres	
		Figure 3.3-1

Size Factor C_S = Average Pressure/Max. Tornado Pressure



Size Factor C_S = Average Pressure/Max. Tornado Pressure

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SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Tornado Size Factor C_s Versus Building Length (L)	
		Figure 3.3-2

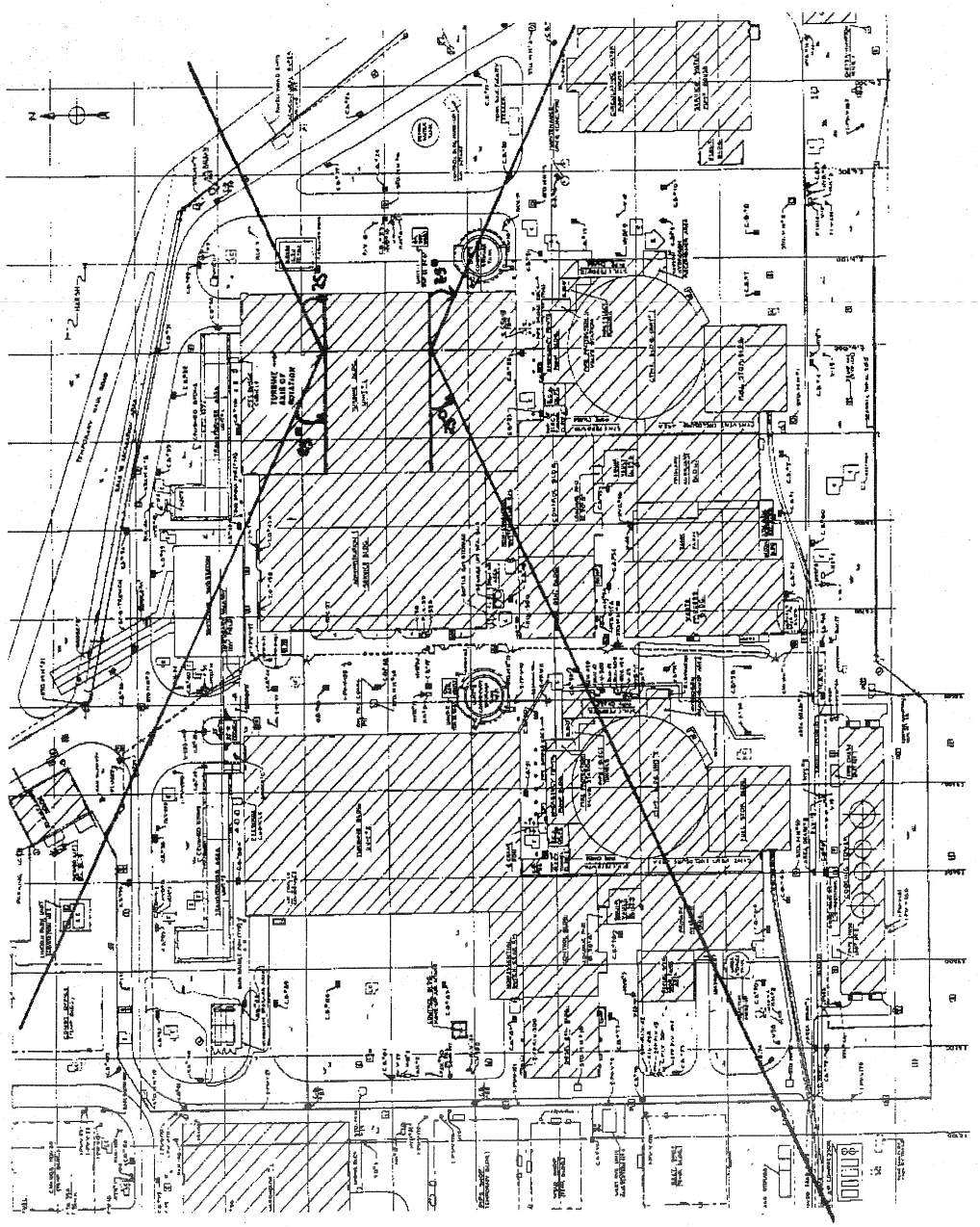
See 805067

See 202117

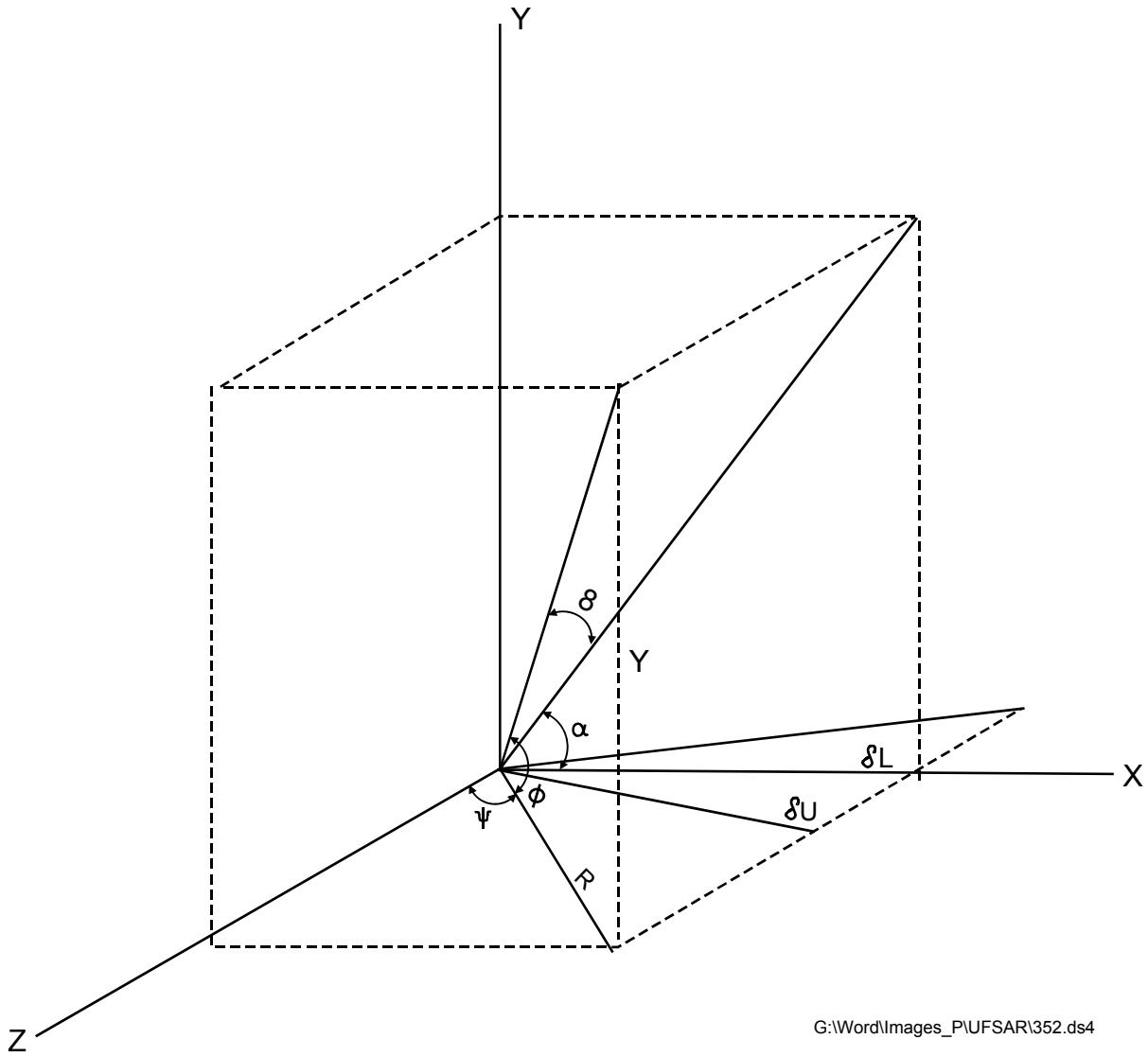
See 202118

See 101696

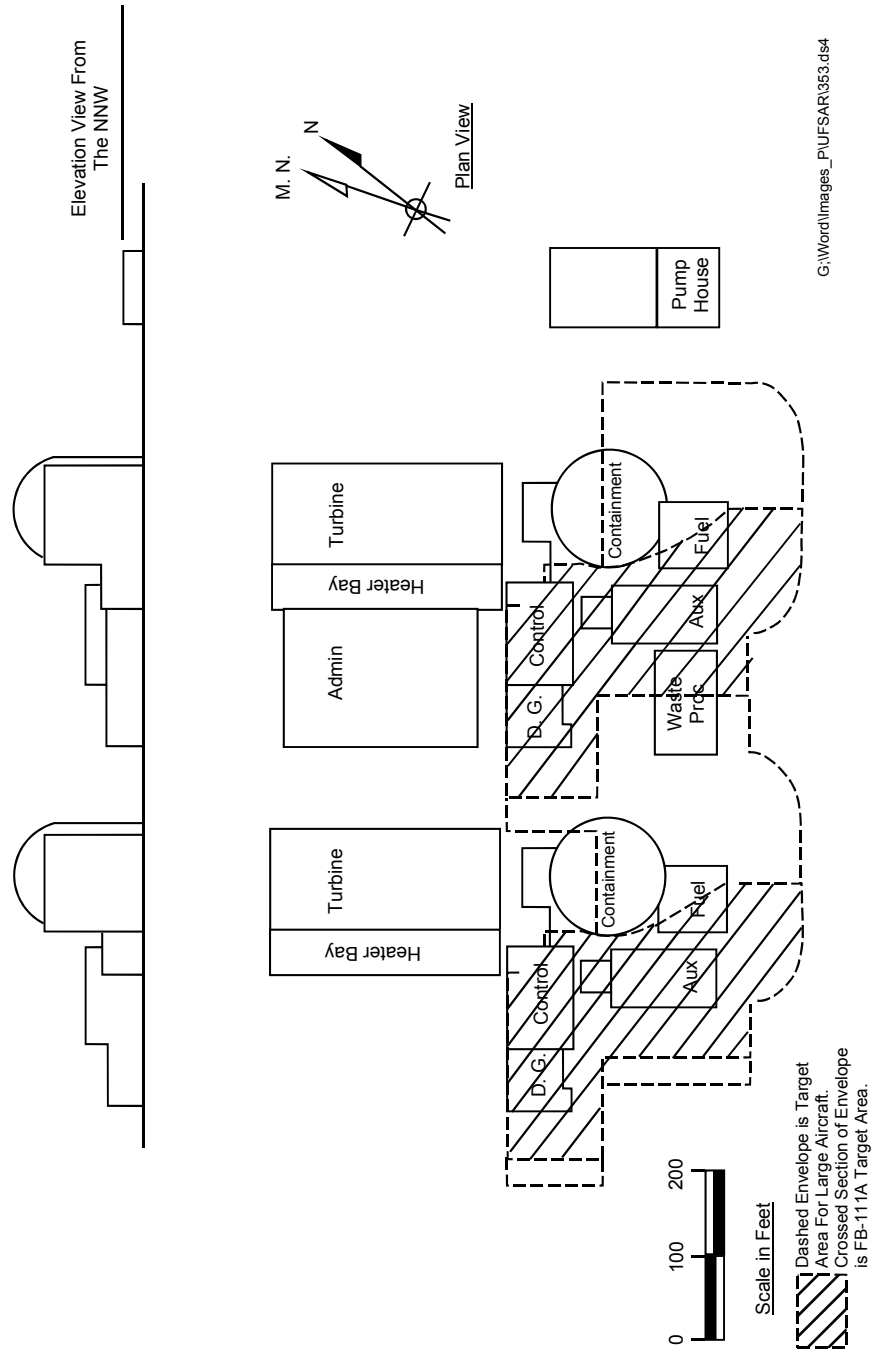
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Waterproofing Concrete Typical Details	
		Figure 3.4-1



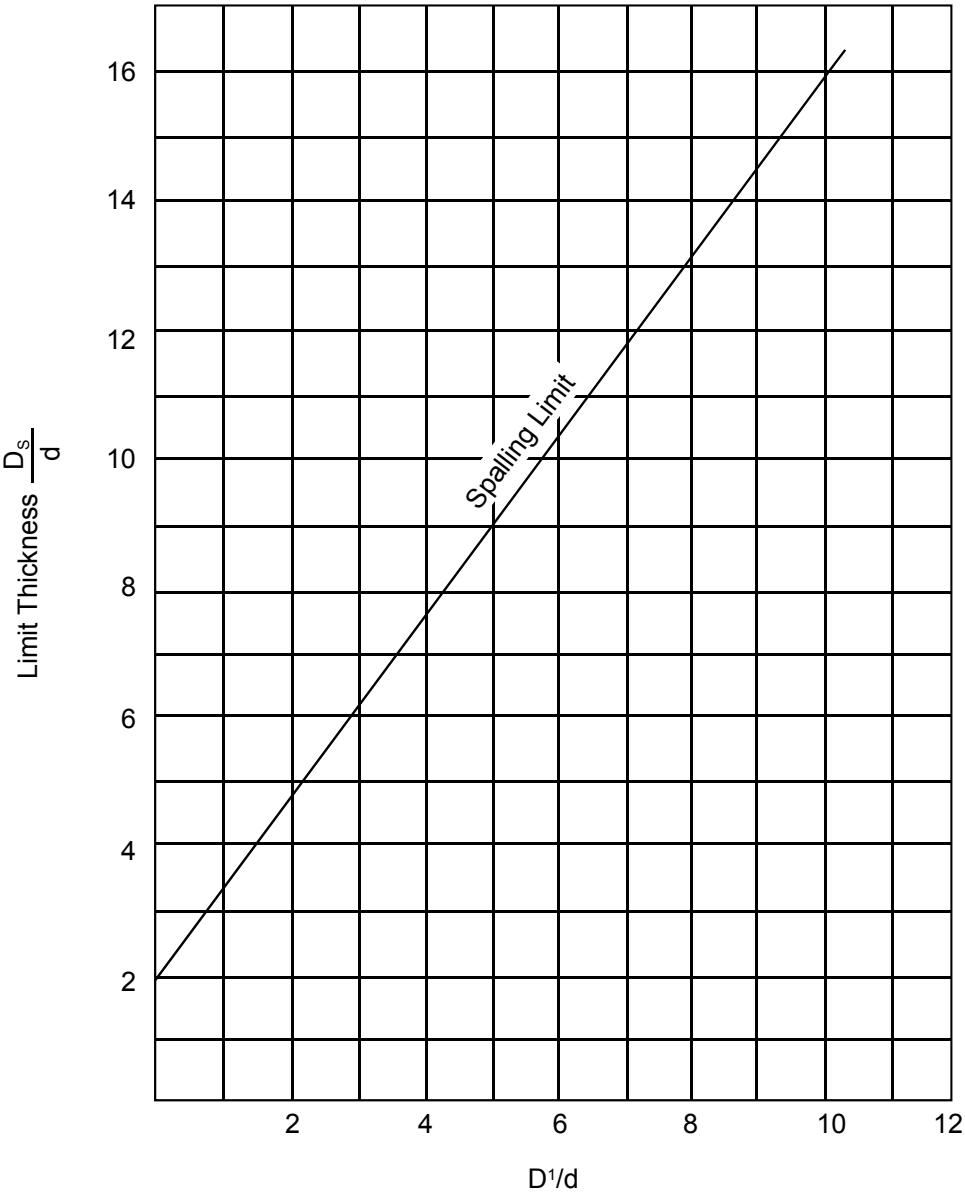
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Possible Turbine Missile Trajectory	
		Figure 3.5-1



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Coordinate Systems	
		Figure 3.5-2



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Plot Plan and Elevation View Showing Effective Target Area	
		Figure 3.5-3



D^1 = Penetration
d = Diameter of Missle
D_S = Thickness required to Prevent Spalling

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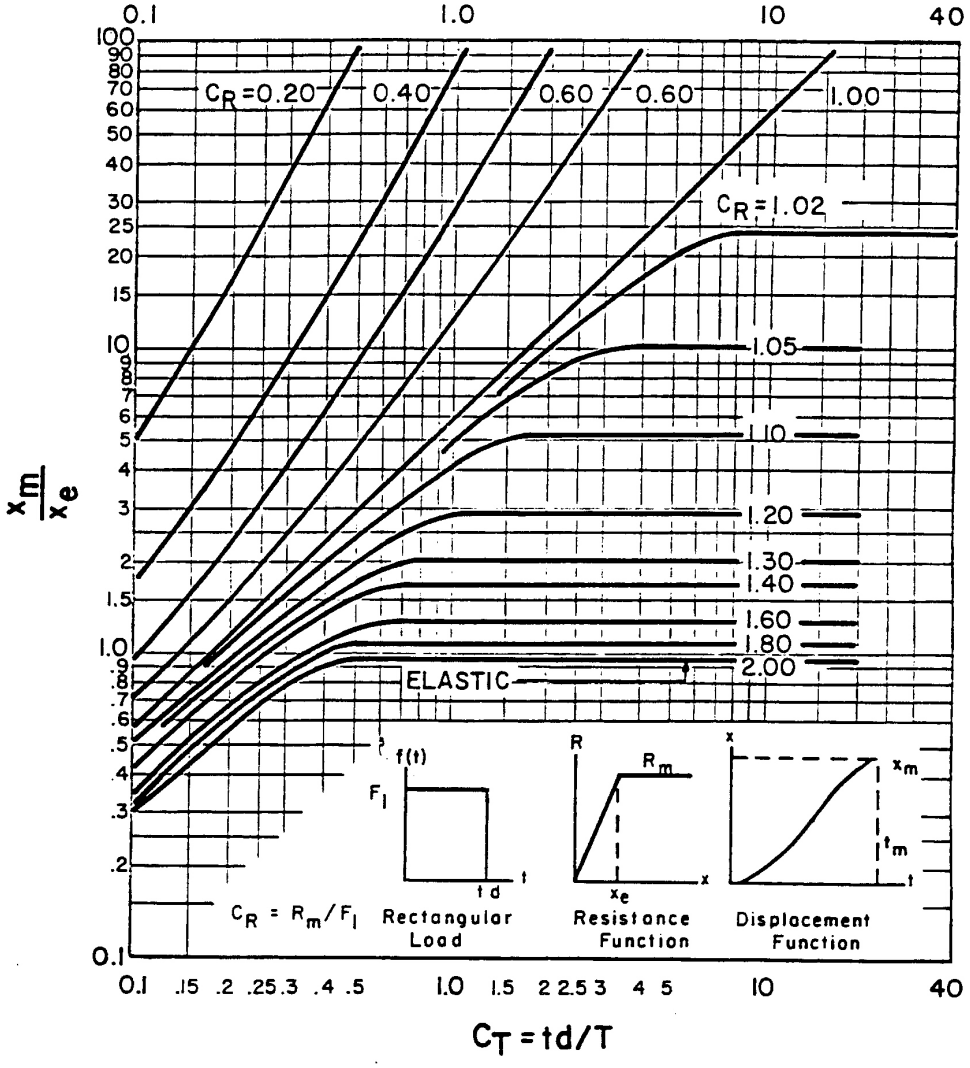
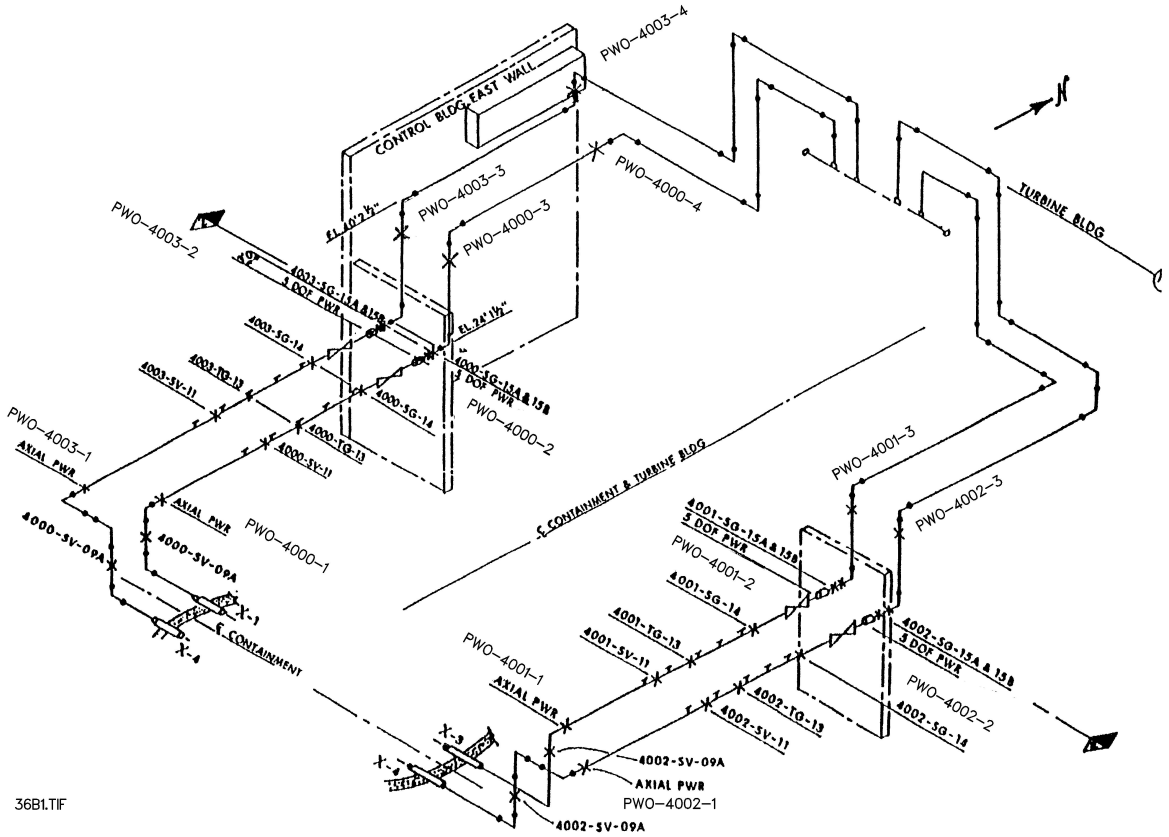
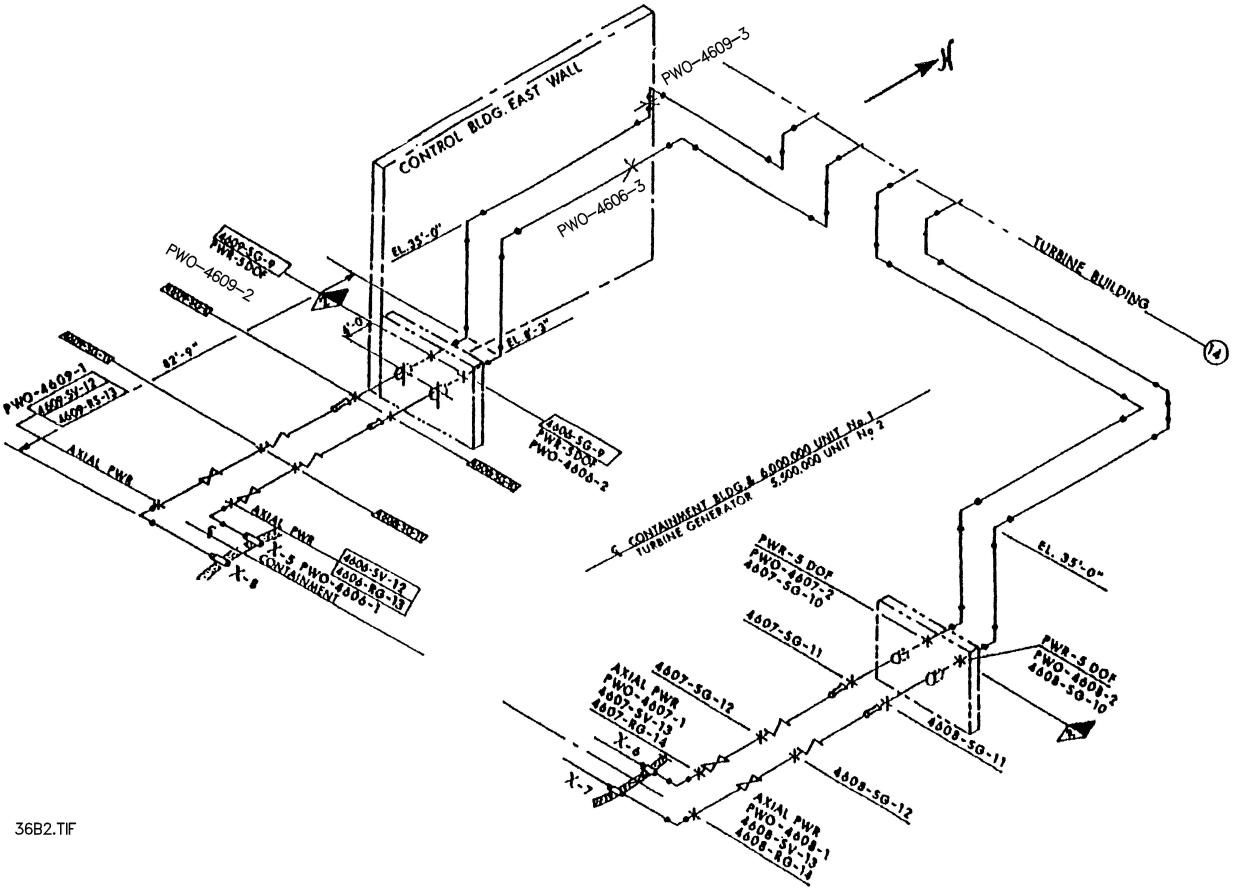
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Relationship of Penetration to Scabbing Limit Thickness (Reference 12)	
		Figure 3.5-4



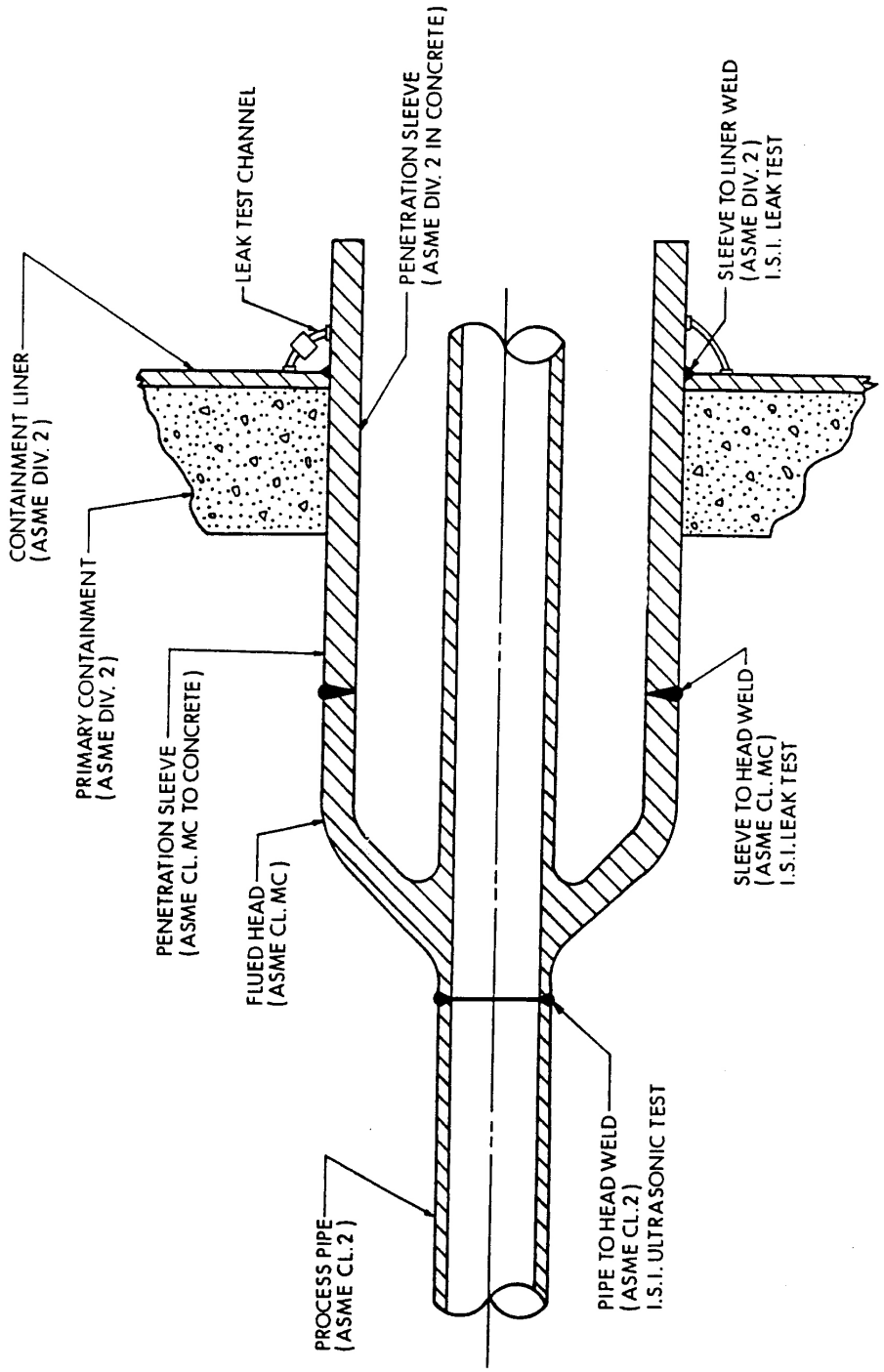
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	X_m/X_e Curves for Elasto-Plastic System Rectangular Impulse Load (Reference 15)	
		Figure 3.5-5



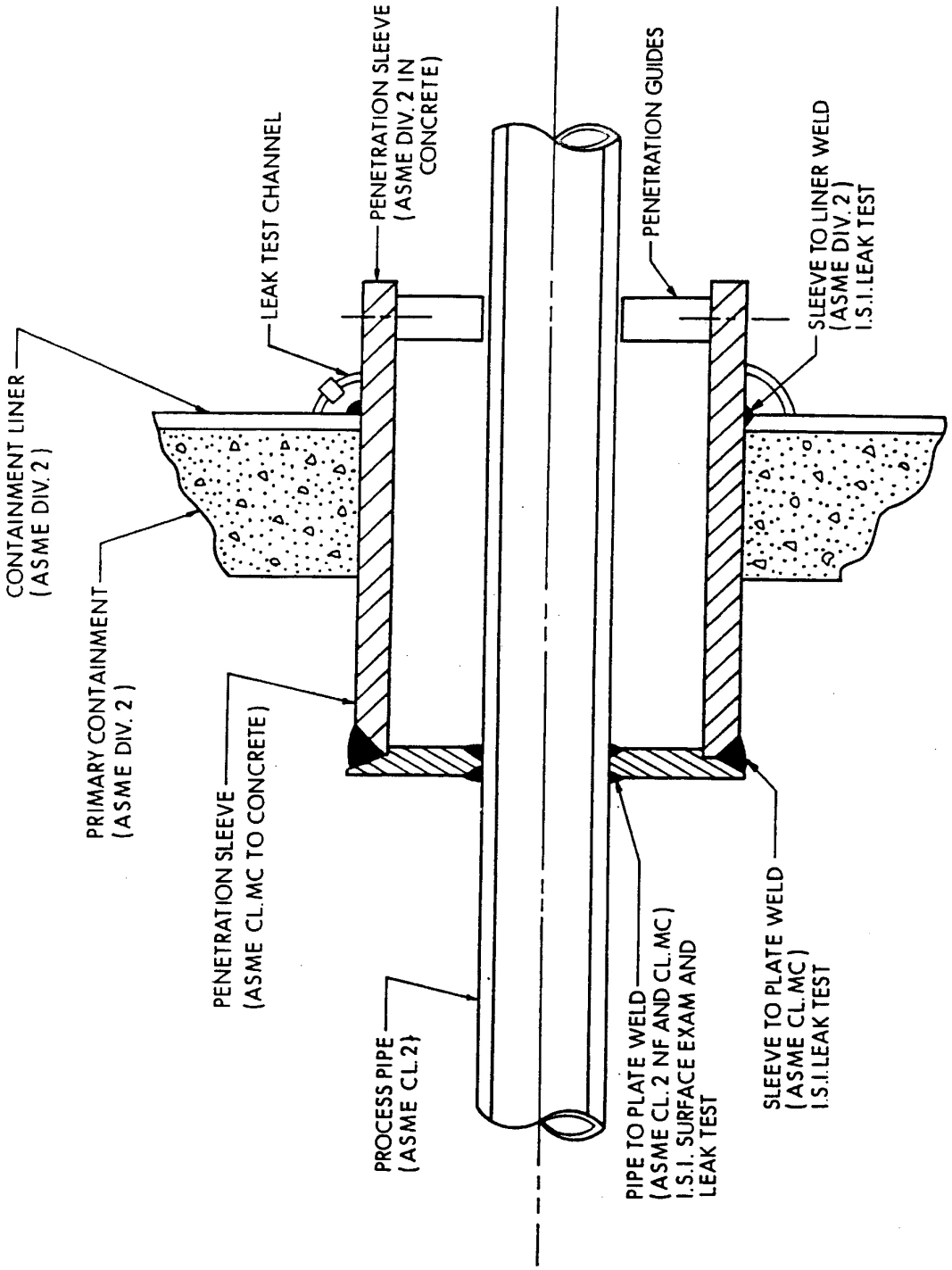
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Main Steam Piping Outside Containment	
		Figure 3.6(B)-1



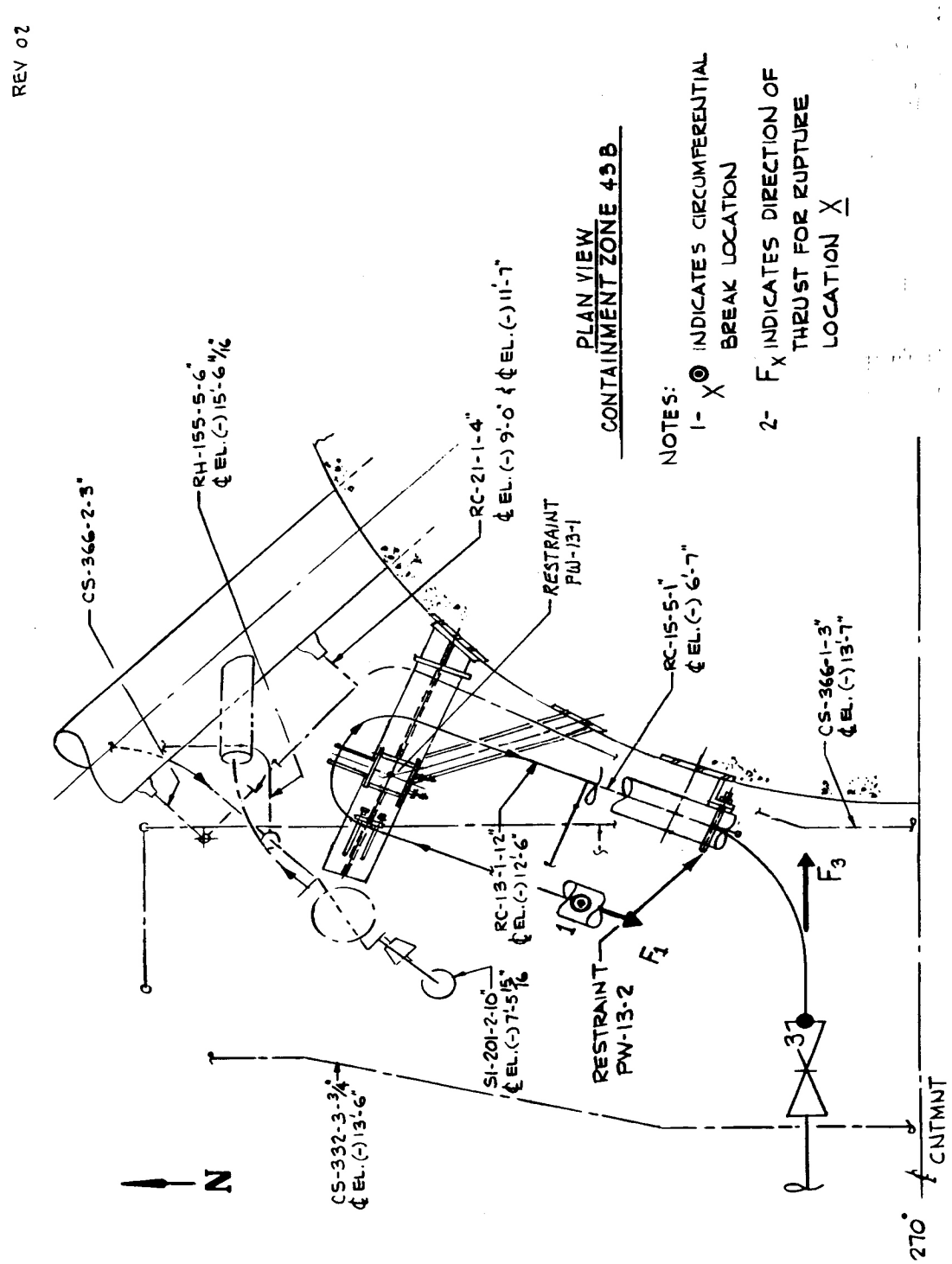
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Feedwater Piping Outside Containment	
		Figure 3.6(B)-2



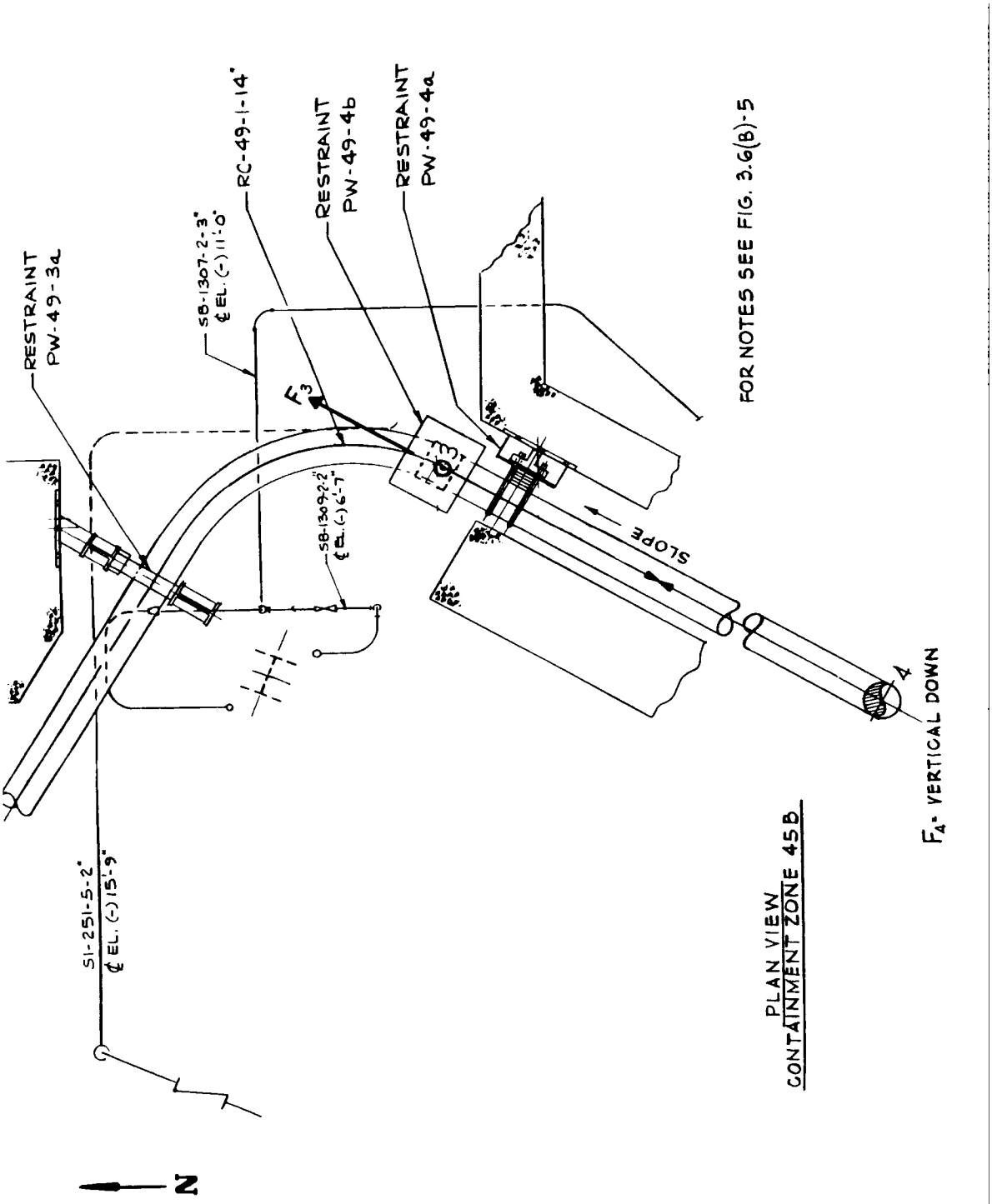
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Containment Penetration (Hot High Energy Lines)	
		Figure 3.6(B)-3



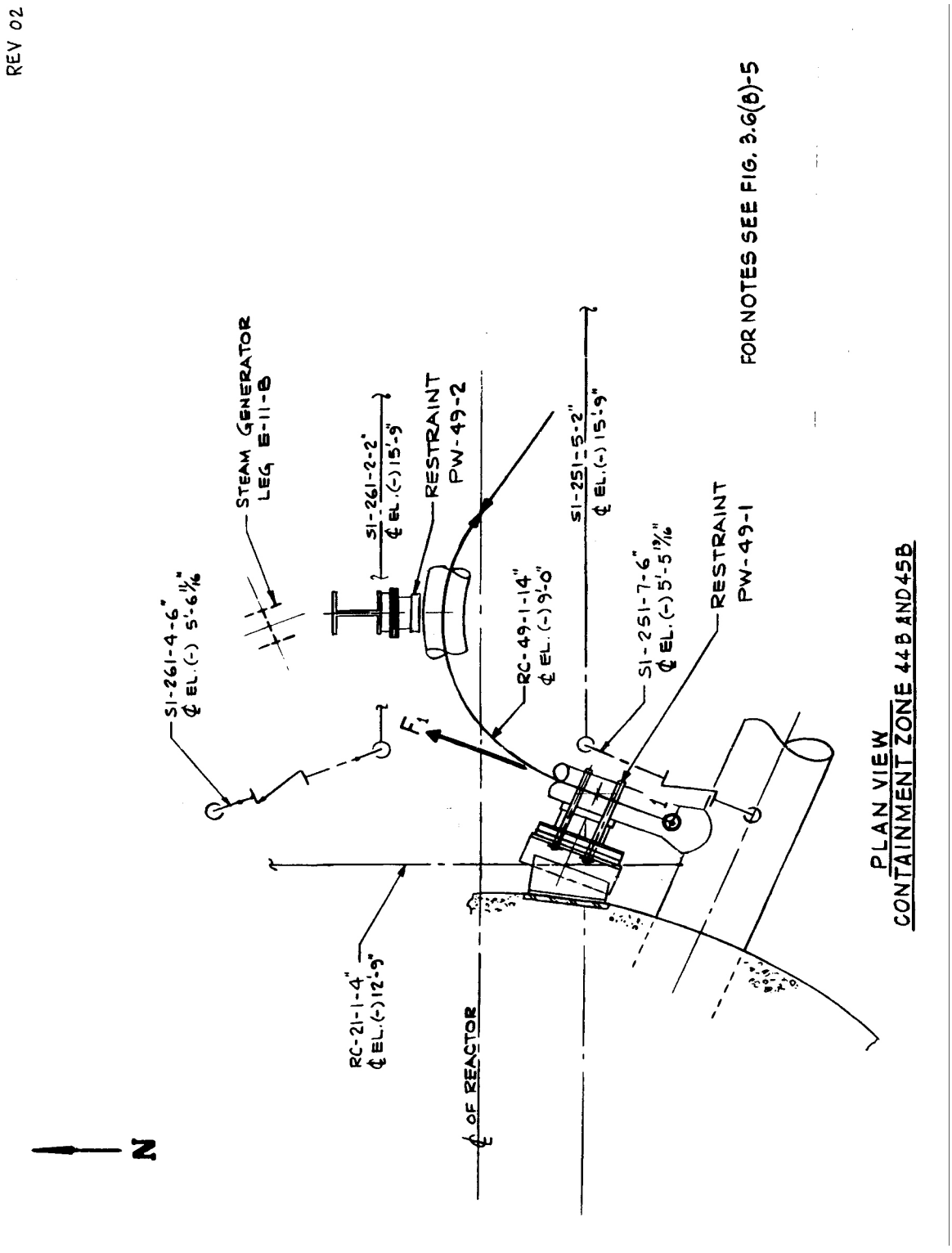
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Containment Penetration (Cold High Energy Lines)	
		Figure 3.6(B)-4



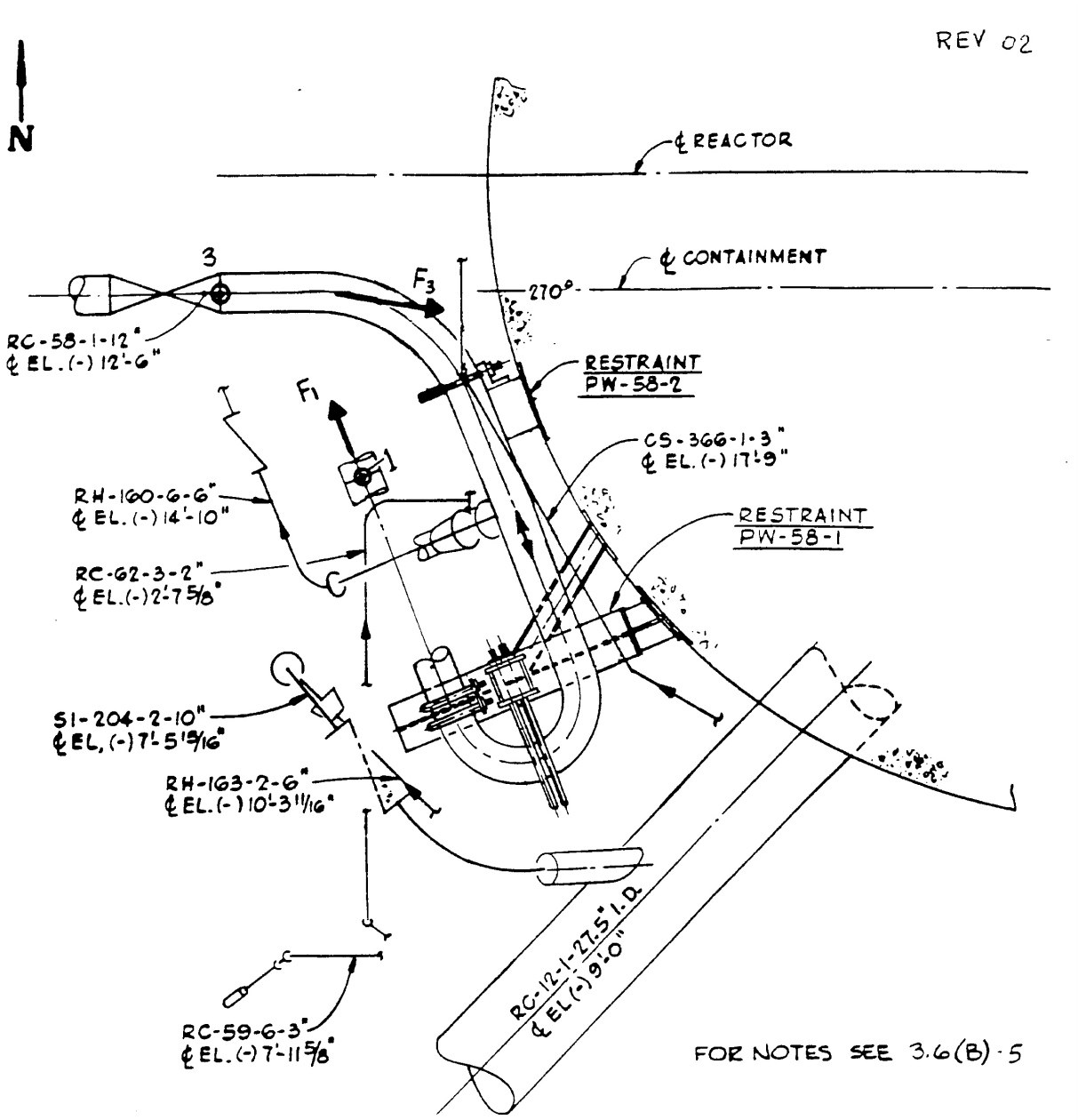
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	RC Line 13 Pipe Whip Restraint Protecting CS, RC and RH Lines and Valves - Containment Zone 43B	
		Figure 3.6(B)-5



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Pressurizer Surge Line Pipe Whip Restraint Protecting Steam Generator Blowdown and Safety Injection Lines - Containment Zone 45B	
		Figure 3.6(B)-6



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Pressurizer Surge Line Pipe Whip Restraint Protecting Steam Generator Support, Reactor Coolant and Safety Injection Lines -Containment Zone 44B and 45B	
		Figure 3.6(B)-7



PLAN VIEW
CONTAINMENT ZONE 46B

SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	RC-58 Pipe Whip Restraint Protecting RC, RH, and SI Lines and Valves - Containment Zone 46B	
		Figure 3.6(B)-8

SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Safety Injection Accumulator Line Pipe Whip Restraint Protecting CS, RH and RC Lines and Valves - Containment Zone 43B	
		Figure 3.6(B)-9

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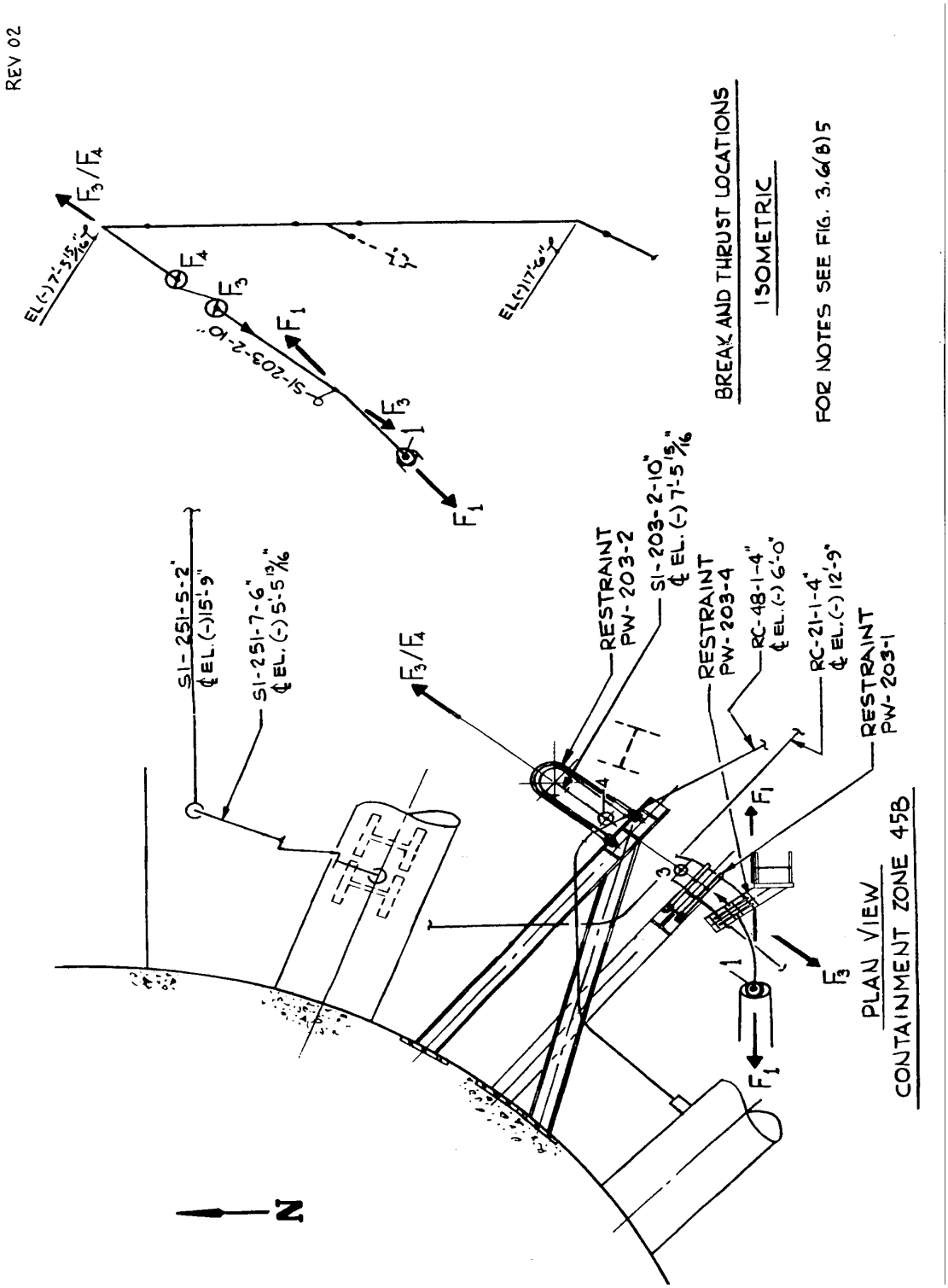
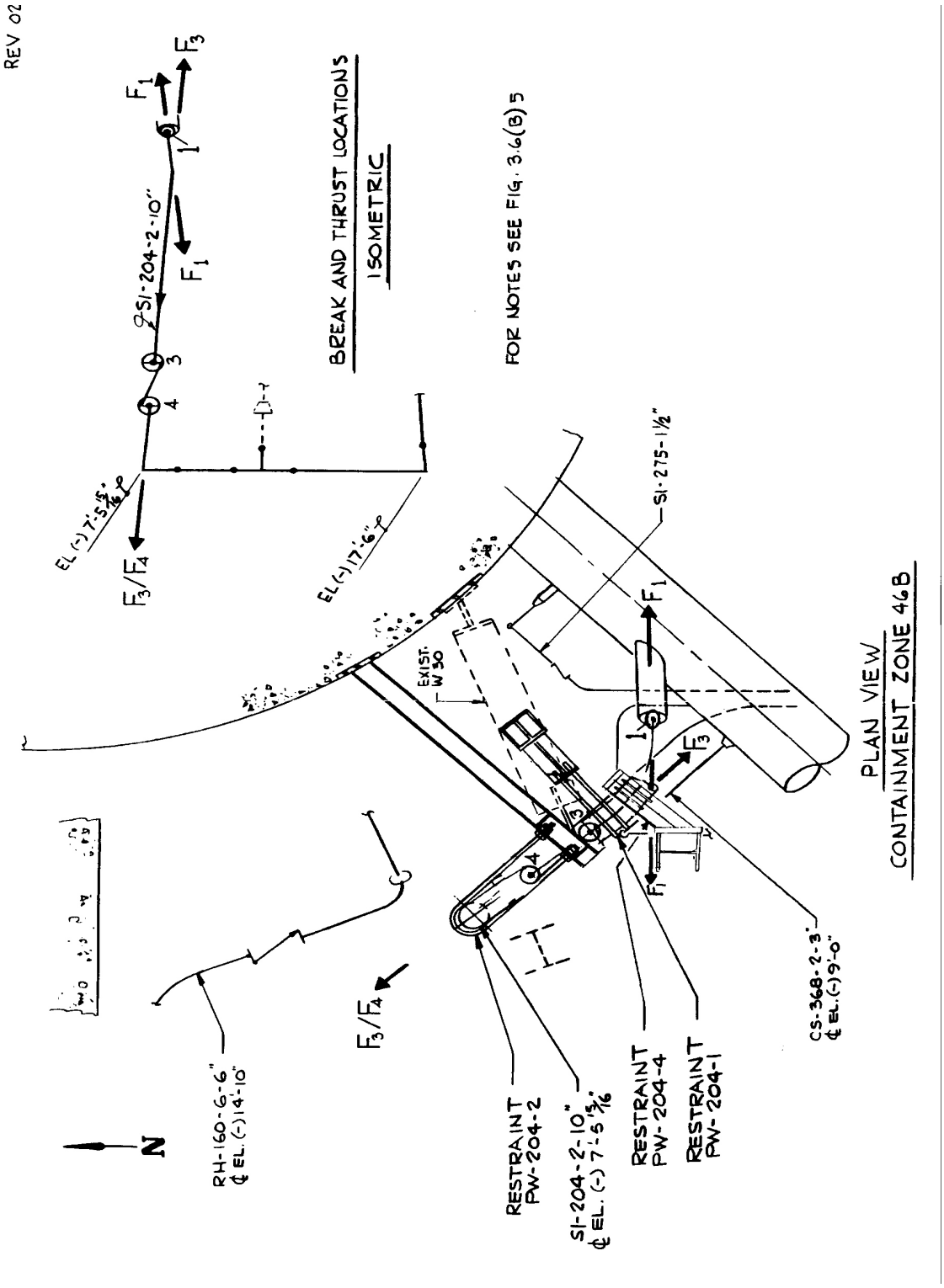
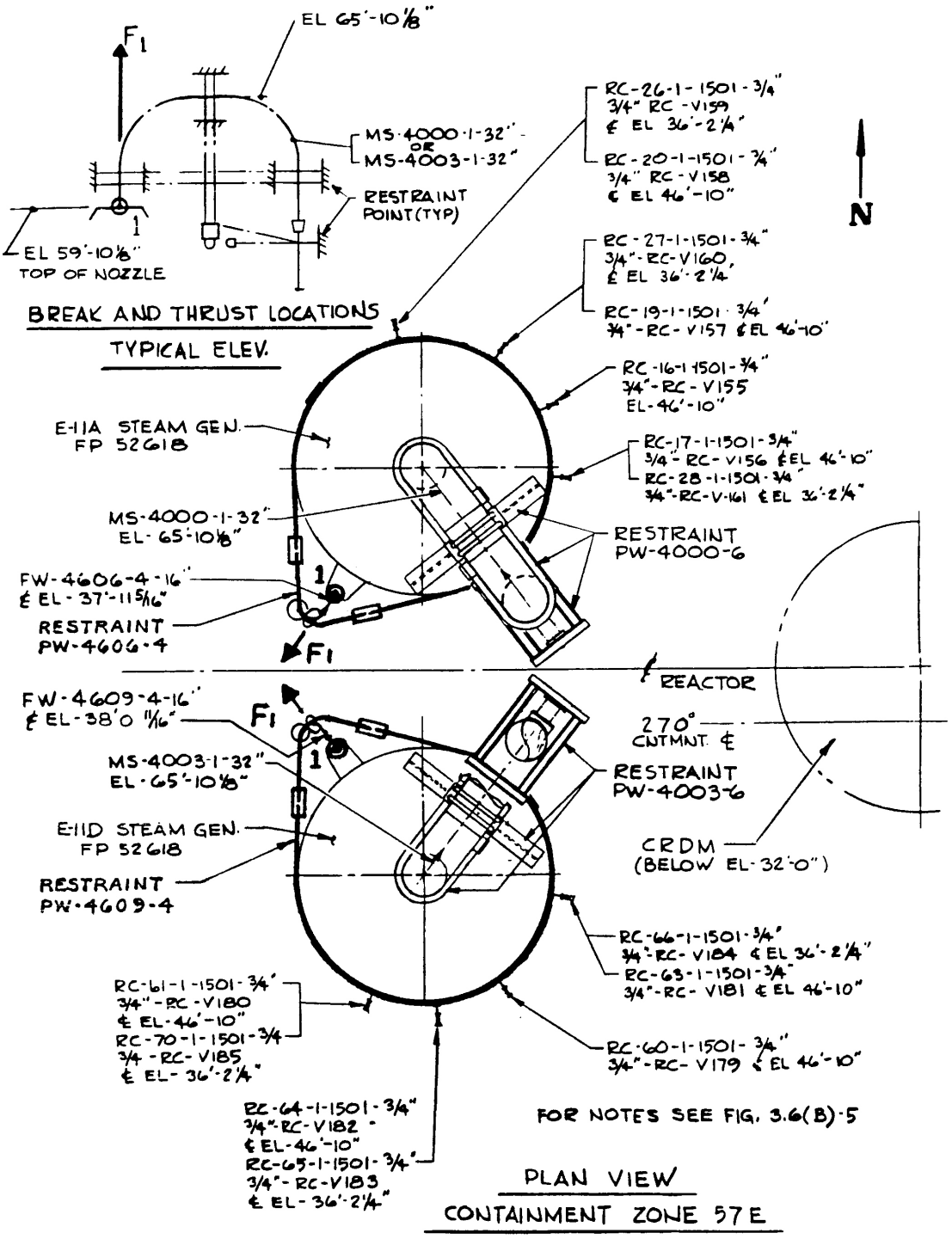
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	SI Line Pipe Whip Restraints Protecting RC, RH, and SI Lines and Valves - Containment Zone 44B	
		Figure 3.6(B)-10



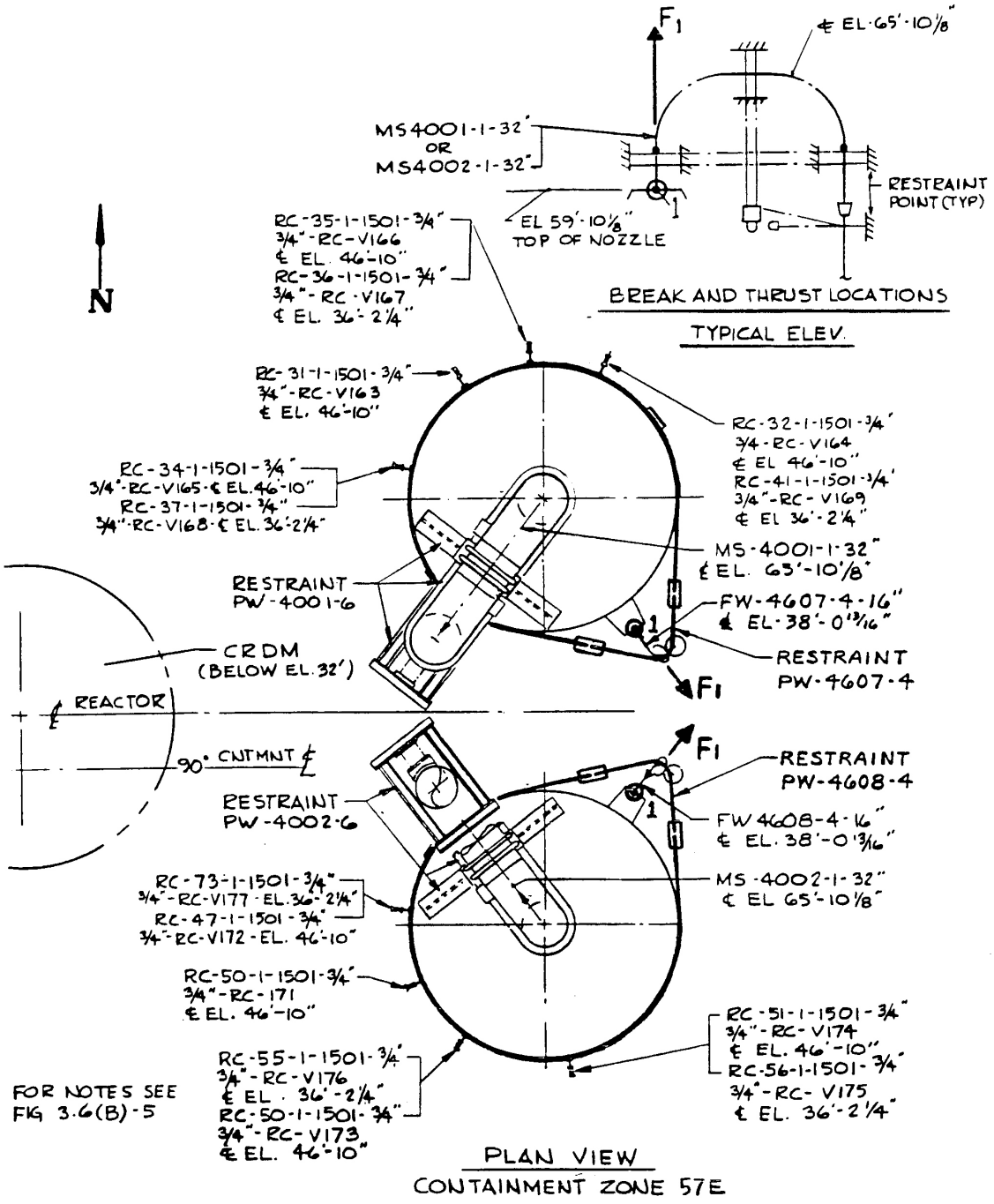
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	SI Pipe Whip Restraint Protecting RC and SI Lines and Valves -Containment Zone 45B	
		Figure 3.6(B)-11



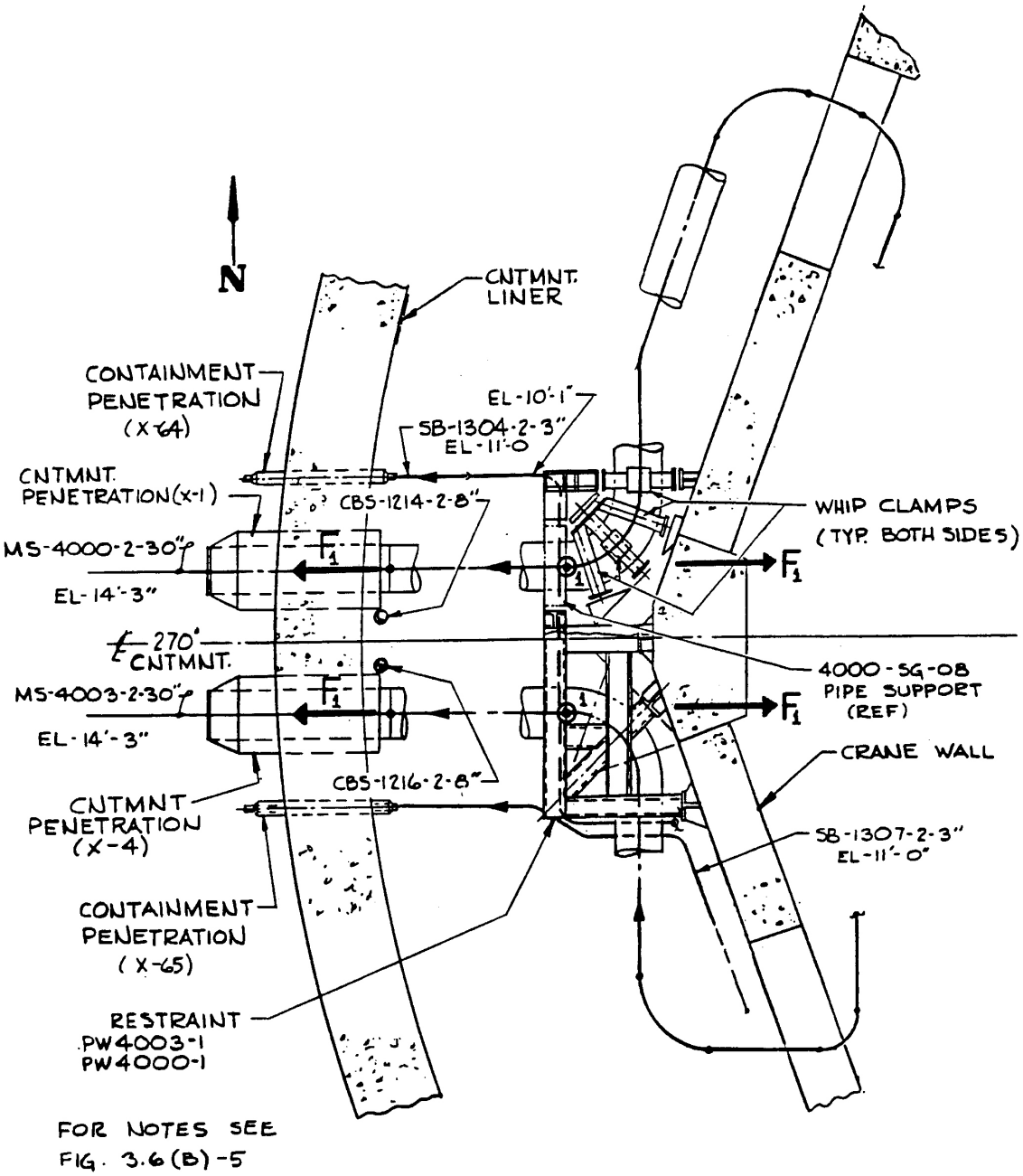
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	SI Pipe Whip Restraint Protecting CS, RC, RH and SI Lines and Valves - Containment Zone 46B	
		Figure 3.6(B)-12



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	MS & FW Pipe Whip Restraints Protecting MS and RC Lines, Upper Level Taps and CRDM Assembly - Containment Zone 57E [2 Sheets]	
		Figure 3.6(B)-13 Sh. 1 of 2

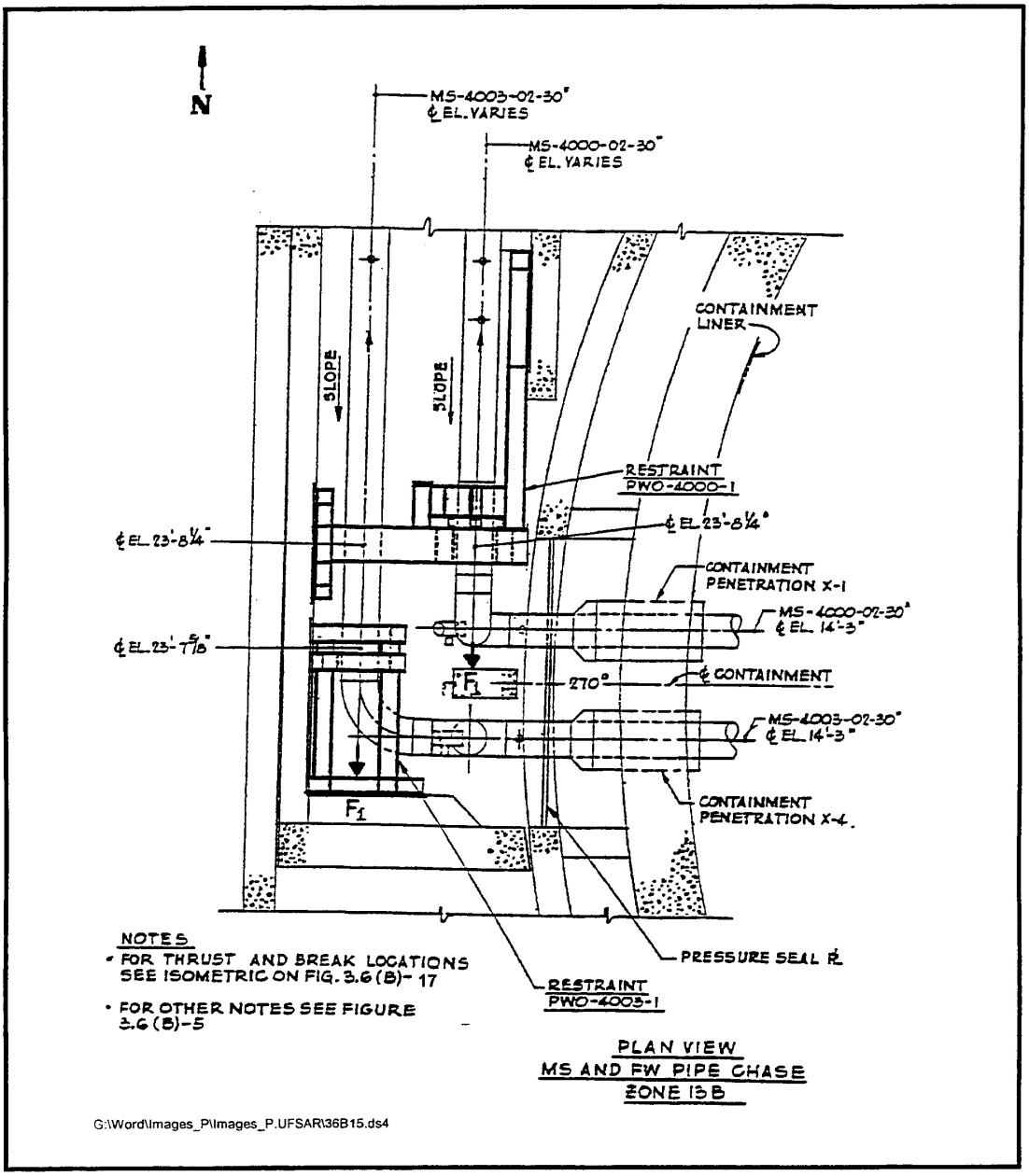


SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	MS & FW Pipe Whip Restraints Protecting MS and RC Lines, Upper Level Taps and CRDM Assembly - Containment Zone 57E [2 Sheets]	
		Figure 3.6(B)-13 Sh. 2 of 2

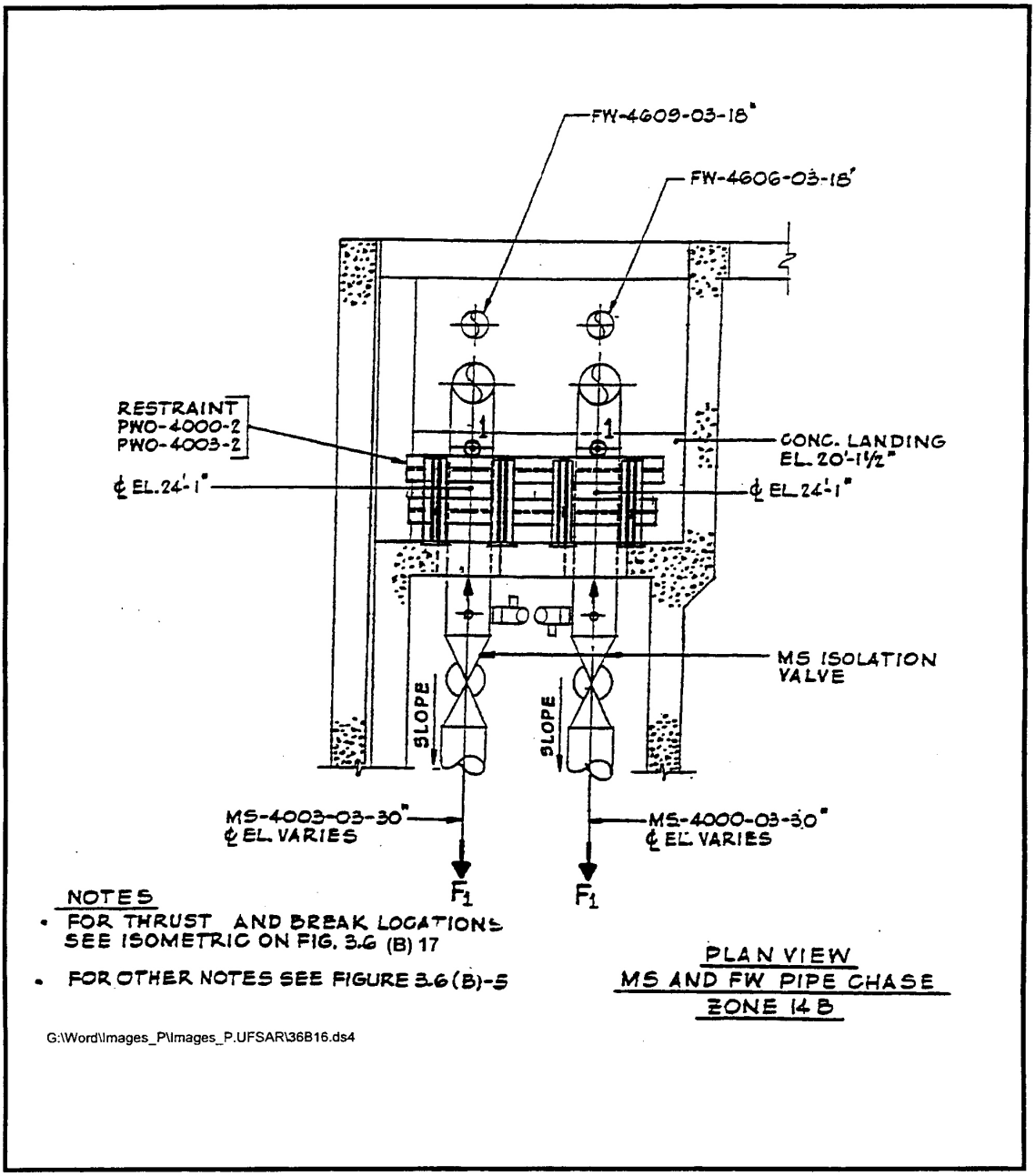


PLAN VIEW
CONTAINMENT ZONE 53C

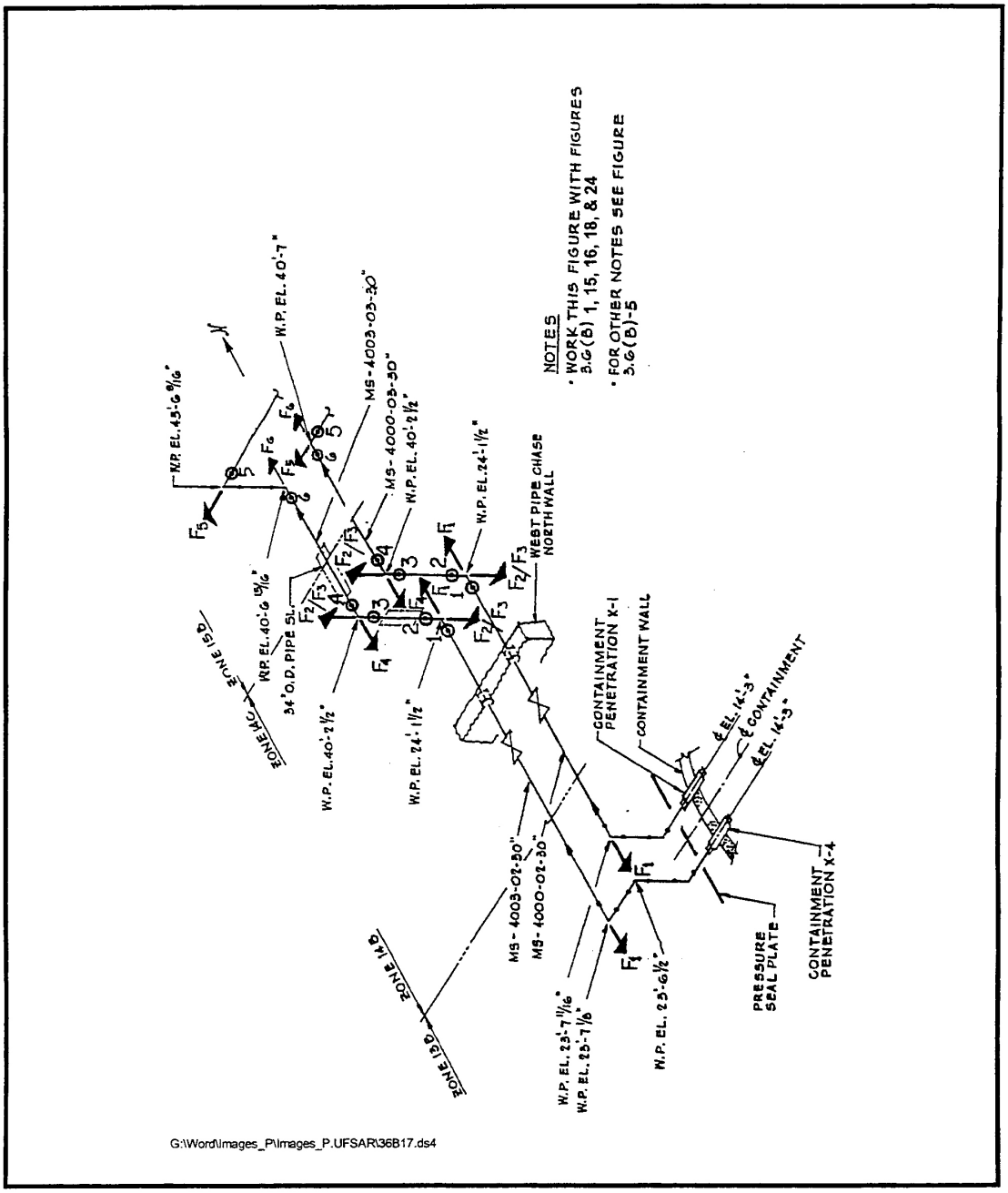
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Main Steam Pipe Whip Restraints Protecting SB, CBS Lines, Valves and Containment Liner/Penetrations - Containment Zone 53C	
		Figure 3.6(B)-14



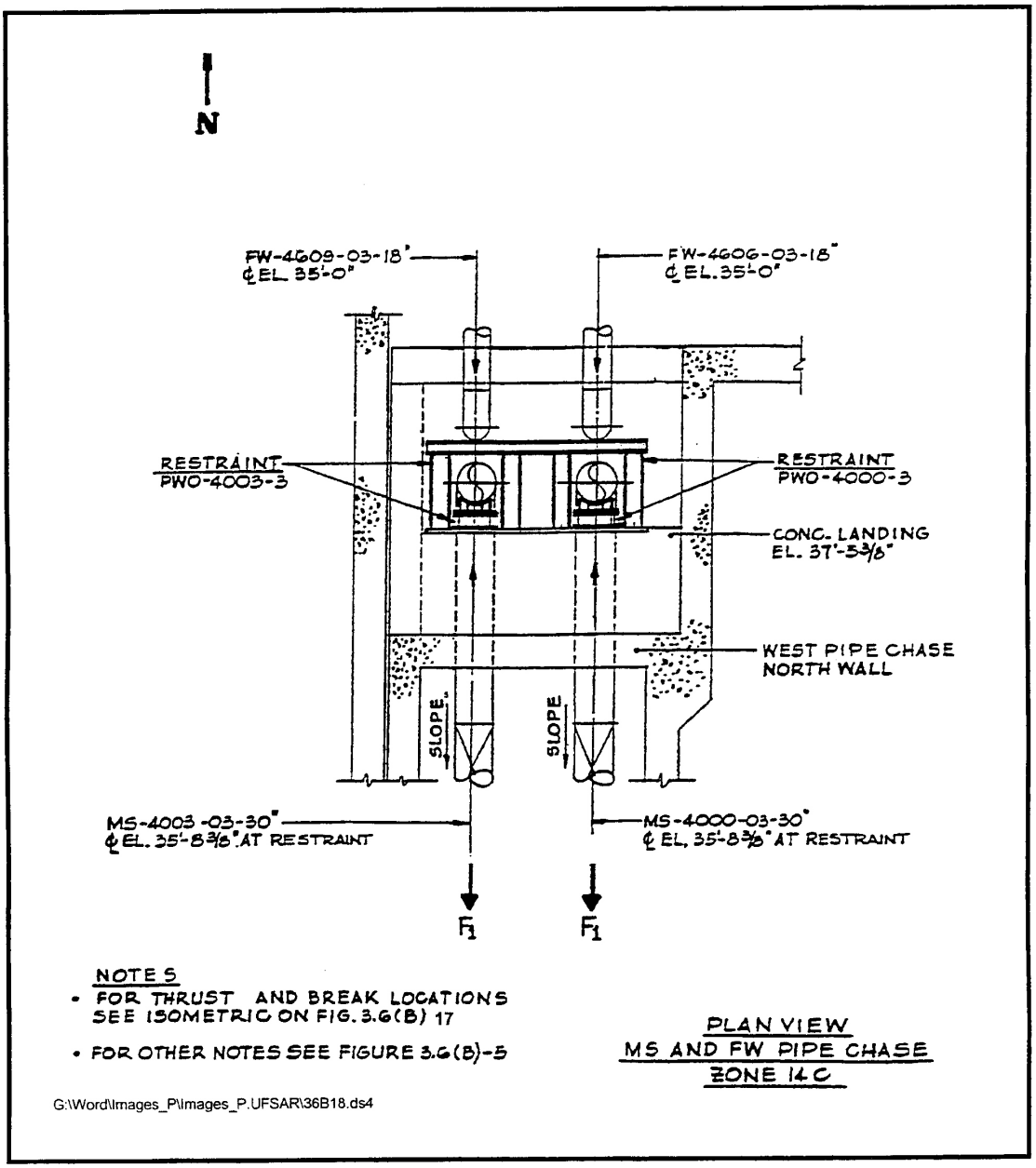
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Main Steam Line Axial Pipe Whip Restraints Protecting Containment Penetrations - MS and FW Pipe Chase Zone 13B	
		Figure 3.6(B)-15



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Main Steam Pipe Whip Restraints Protecting the Main Steam Isolation Valves and the Containment Penetrations - MS and FW Pipe Chase Zone 14B	
		Figure 3.6(B)-16



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Break and Thrust Locations Isometric for MS Pipes in West Pipe Chase	
		Figure 3.6(B)-17


N
FW-4609-03-18"
℄EL 35'-0"
FW-4606-03-18"
℄EL.35'-0"
RESTRAINT
PWO-4003-3
RESTRAINT
PWO-4000-3
CONC. LANDING
EL. 37'-5 3/8"
WEST PIPE CHASE
NORTH WALL
SLOPE
SLOPE
MS-4003-03-30"
℄EL. 35'-8 3/8" AT RESTRAINT
MS-4000-03-30"
℄EL. 35'-8 3/8" AT RESTRAINT
F1
F1
NOTES
• FOR THRUST AND BREAK LOCATIONS SEE ISOMETRIC ON FIG. 3.6(B) 17
• FOR OTHER NOTES SEE FIGURE 3.6(B)-5
PLAN VIEW
MS AND FW PIPE CHASE
ZONE 14C
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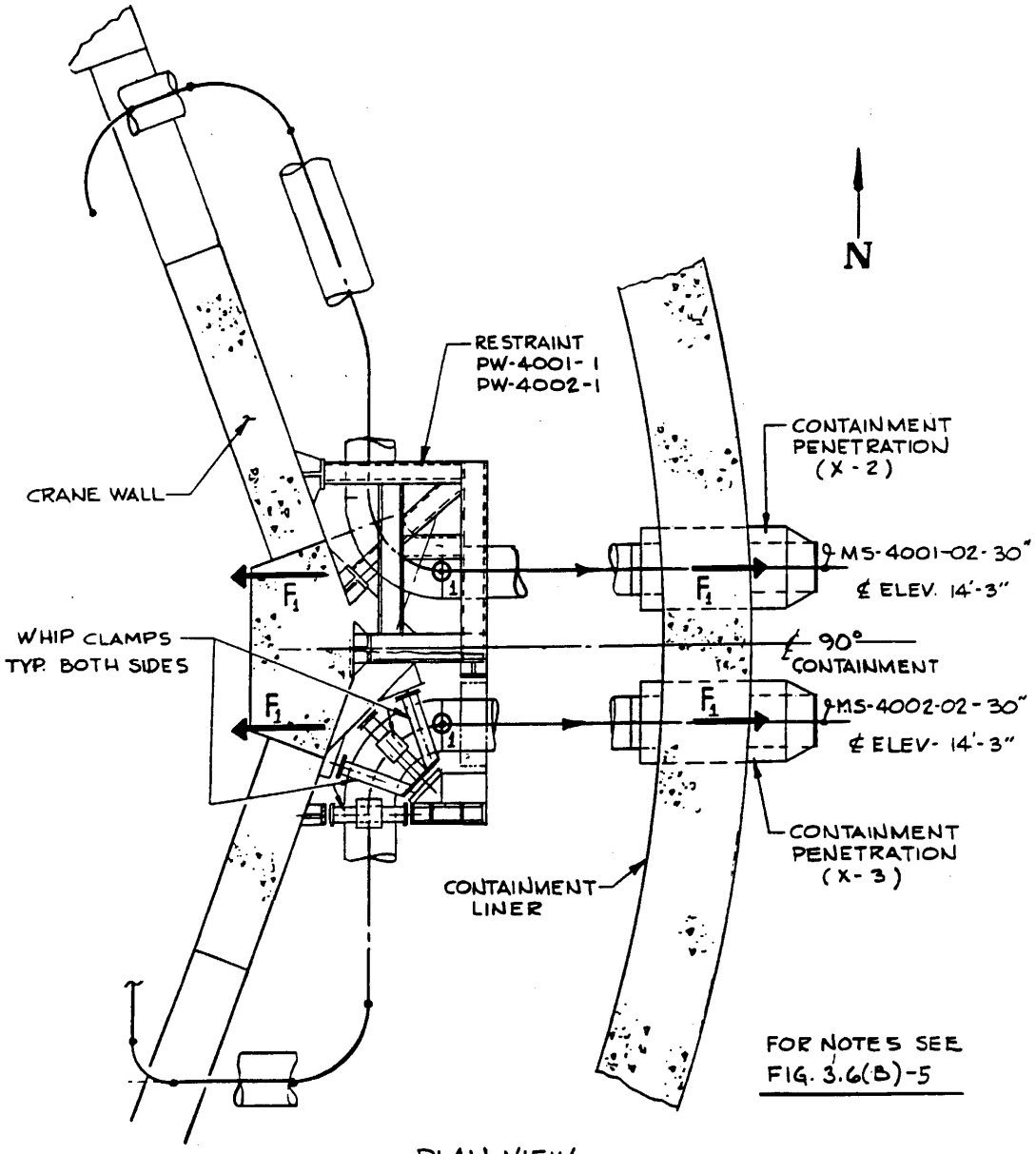
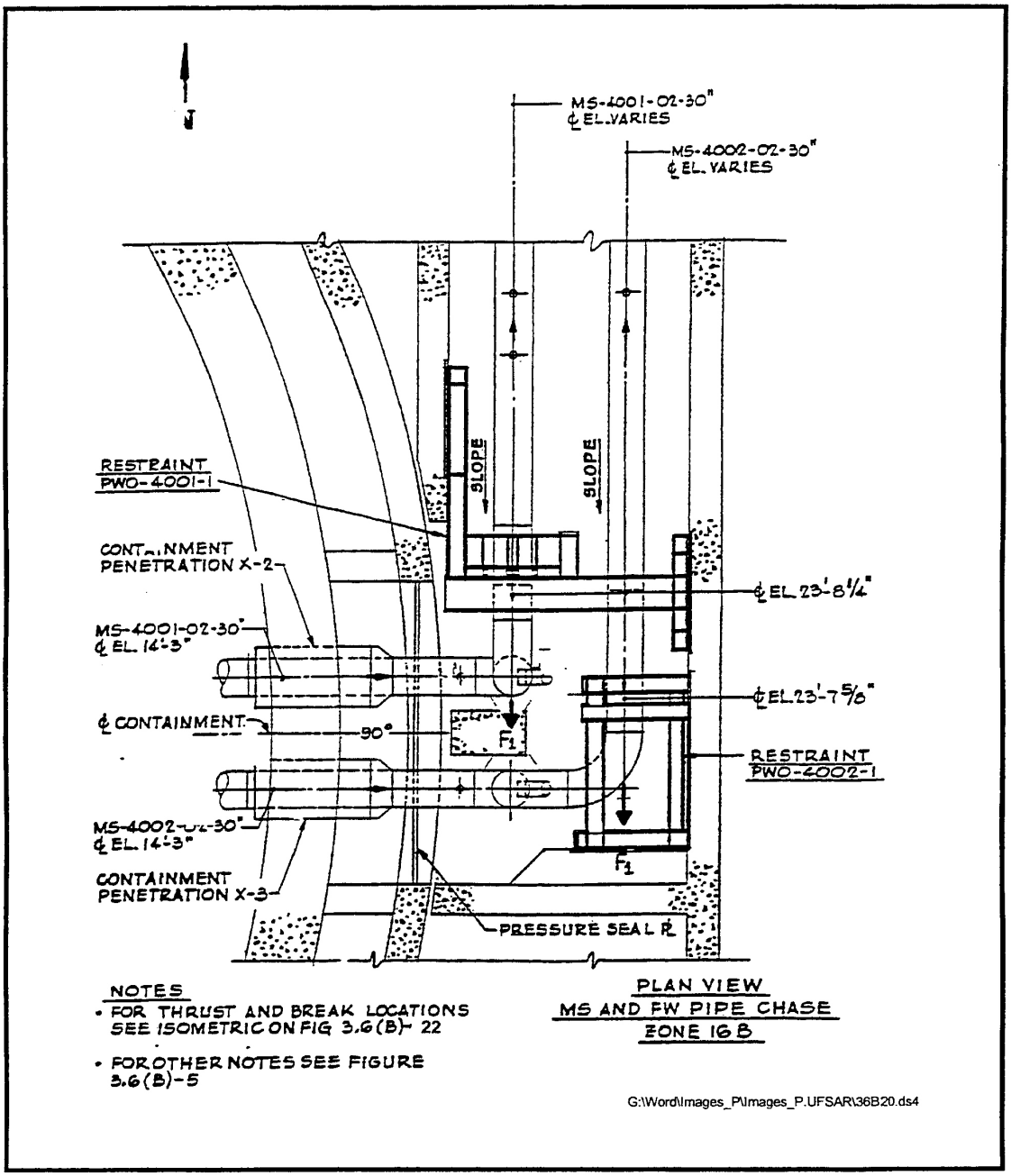
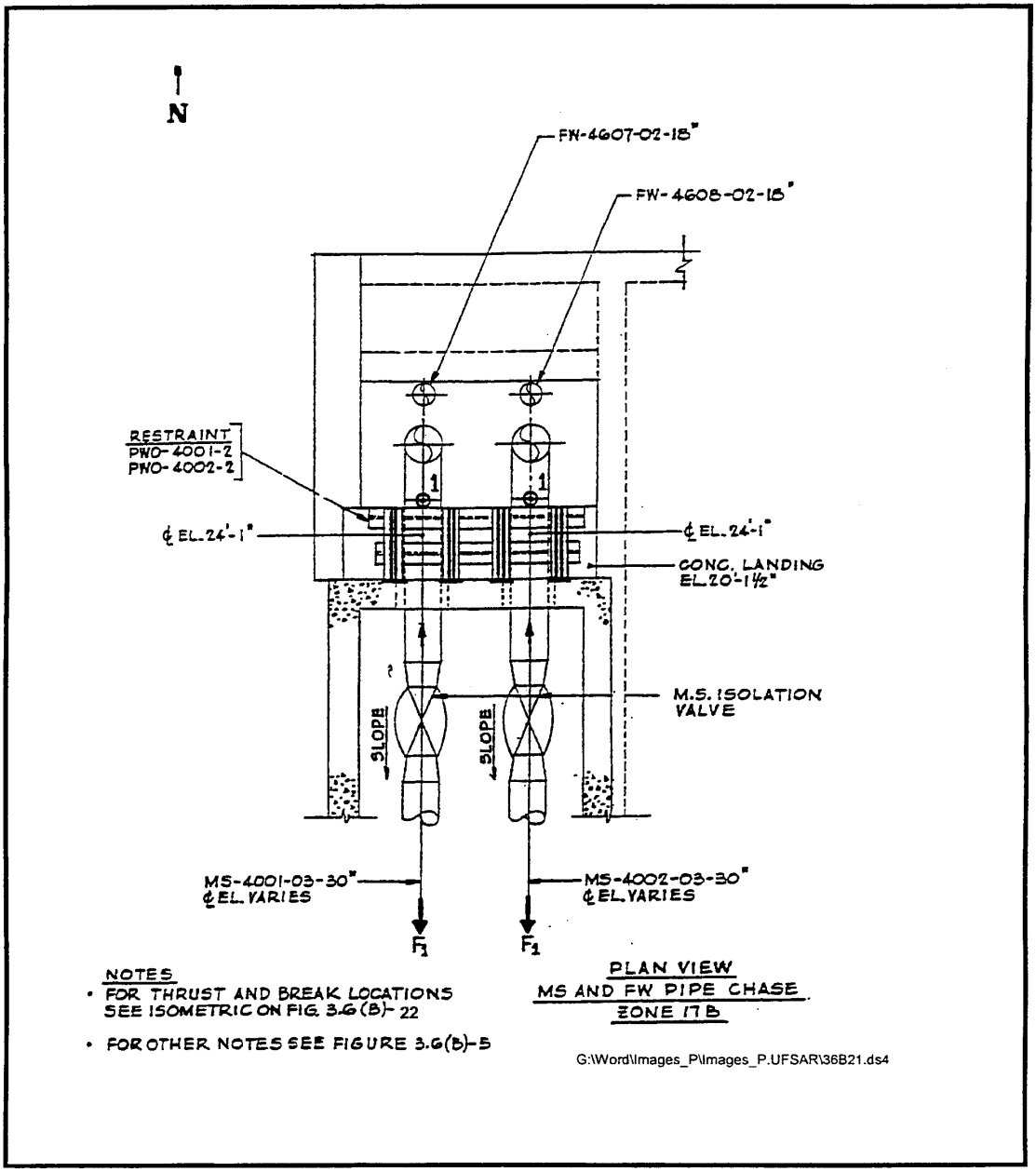


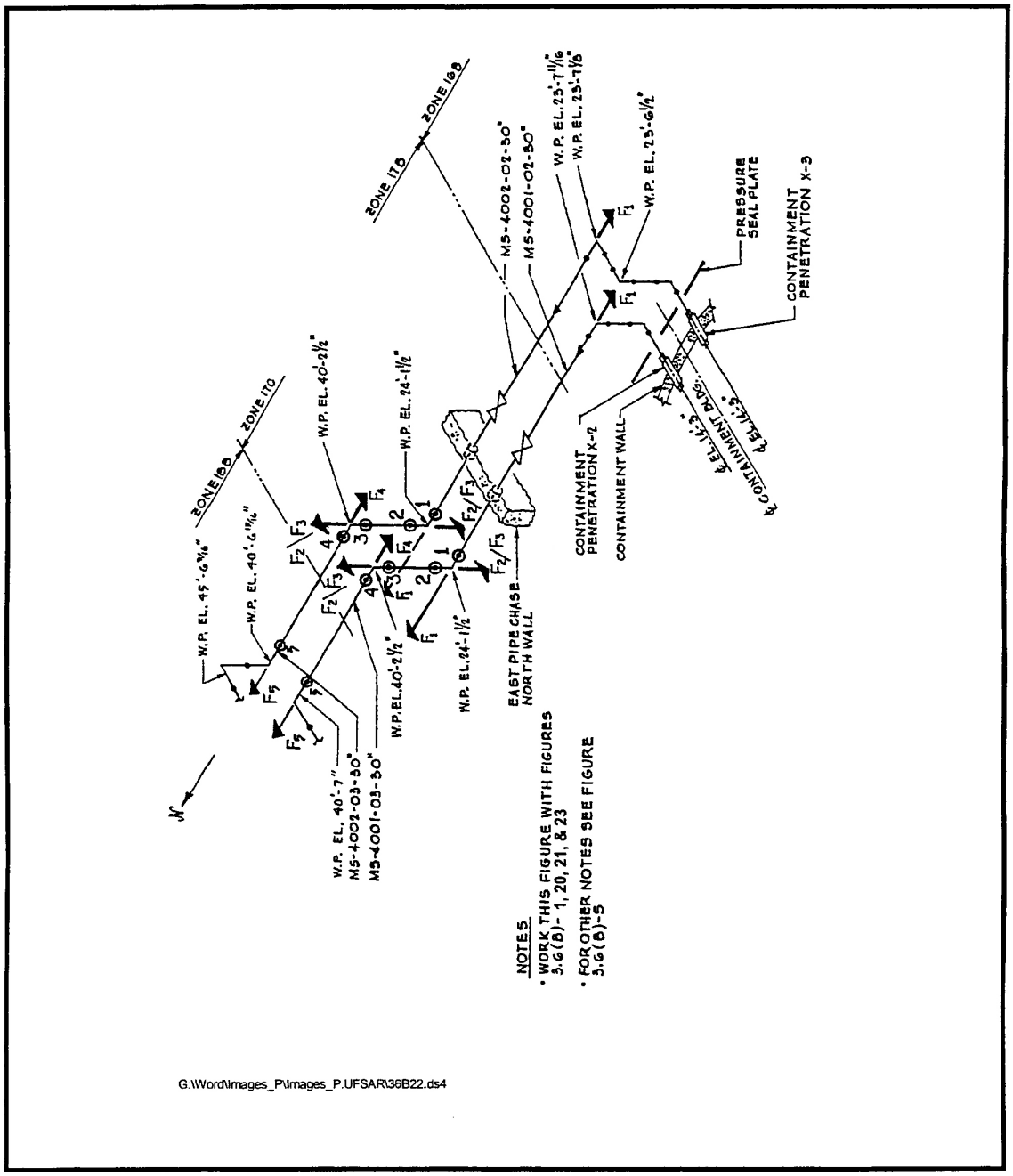
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Main Steam Pipe Whip Restraint Protecting Containment Liner and Penetrations - Containment Zone 55D	
		Figure 3.6(B)-19



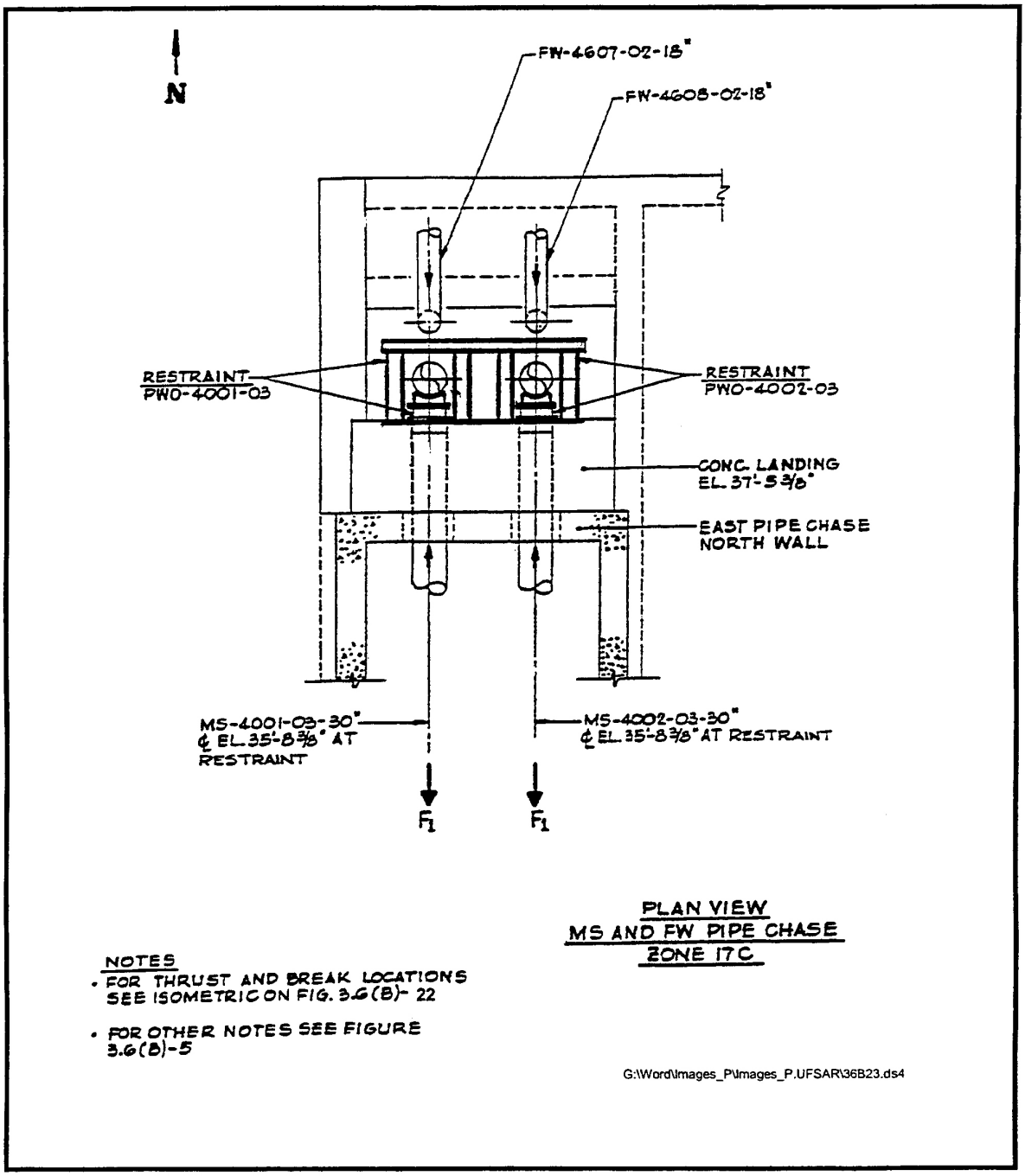
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Main Steam Line Axial Pipe Whip Restraints Protecting Containment Penetrations - MS and FW Pipe Chase Zone 16B	
		Figure 3.6(B)-20



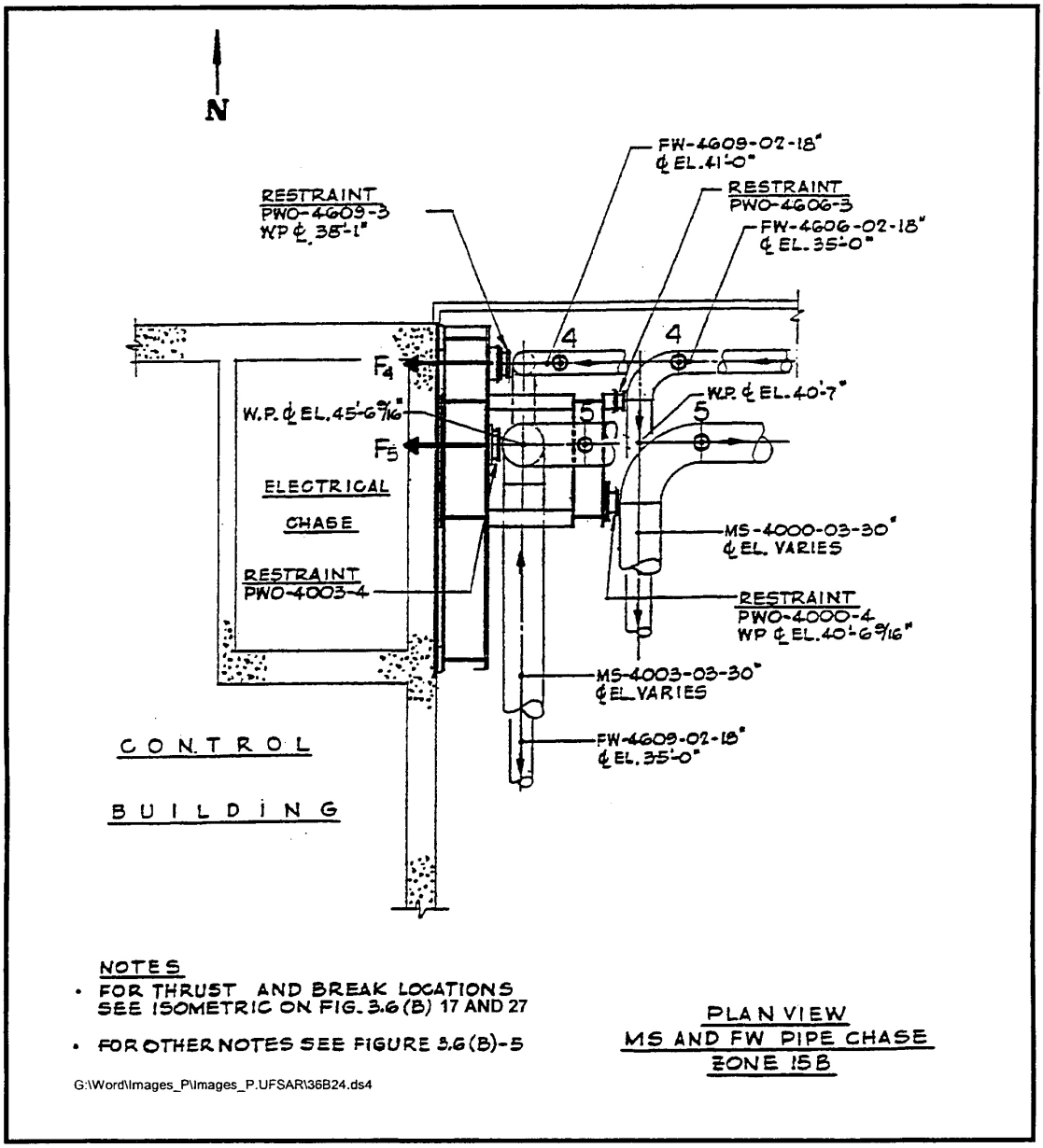
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Main Steam Pipe Whip Restraints Protecting the Main Steam Isolation Valves and Containment Penetrations - MS and FW Pipe Chase Zone 17B	
		Figure 3.6(B)-21



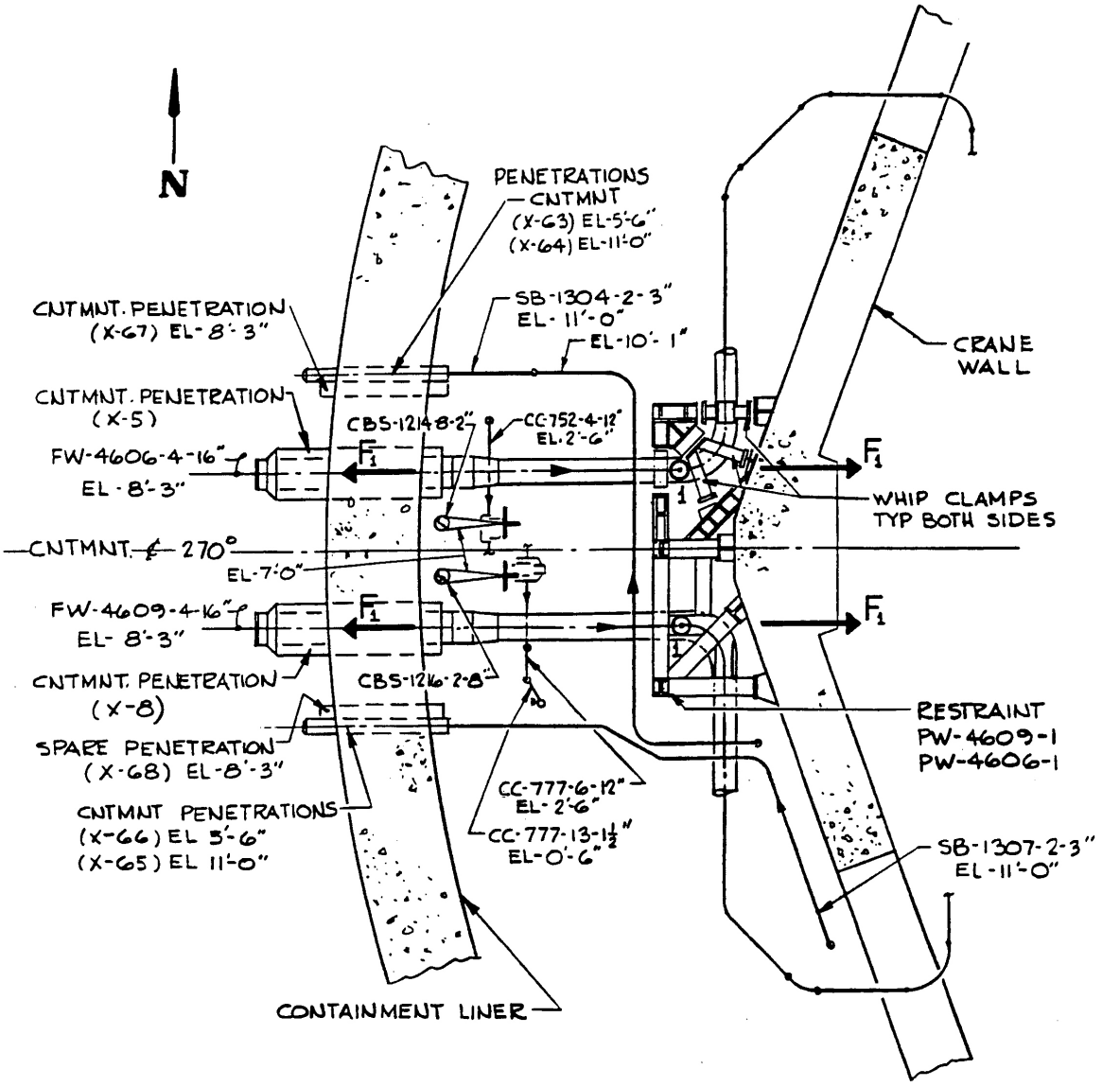
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Break and Thrust Locations Isometric for MS Pipes in East Pipe Chase	
		Figure 3.6(B)-22



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Main Steam Pipe Whip Restraints Protecting West Pipe Chase North Wall - MS and FW Pipe Chase Zone 17C	
		Figure 3.6(B)-23



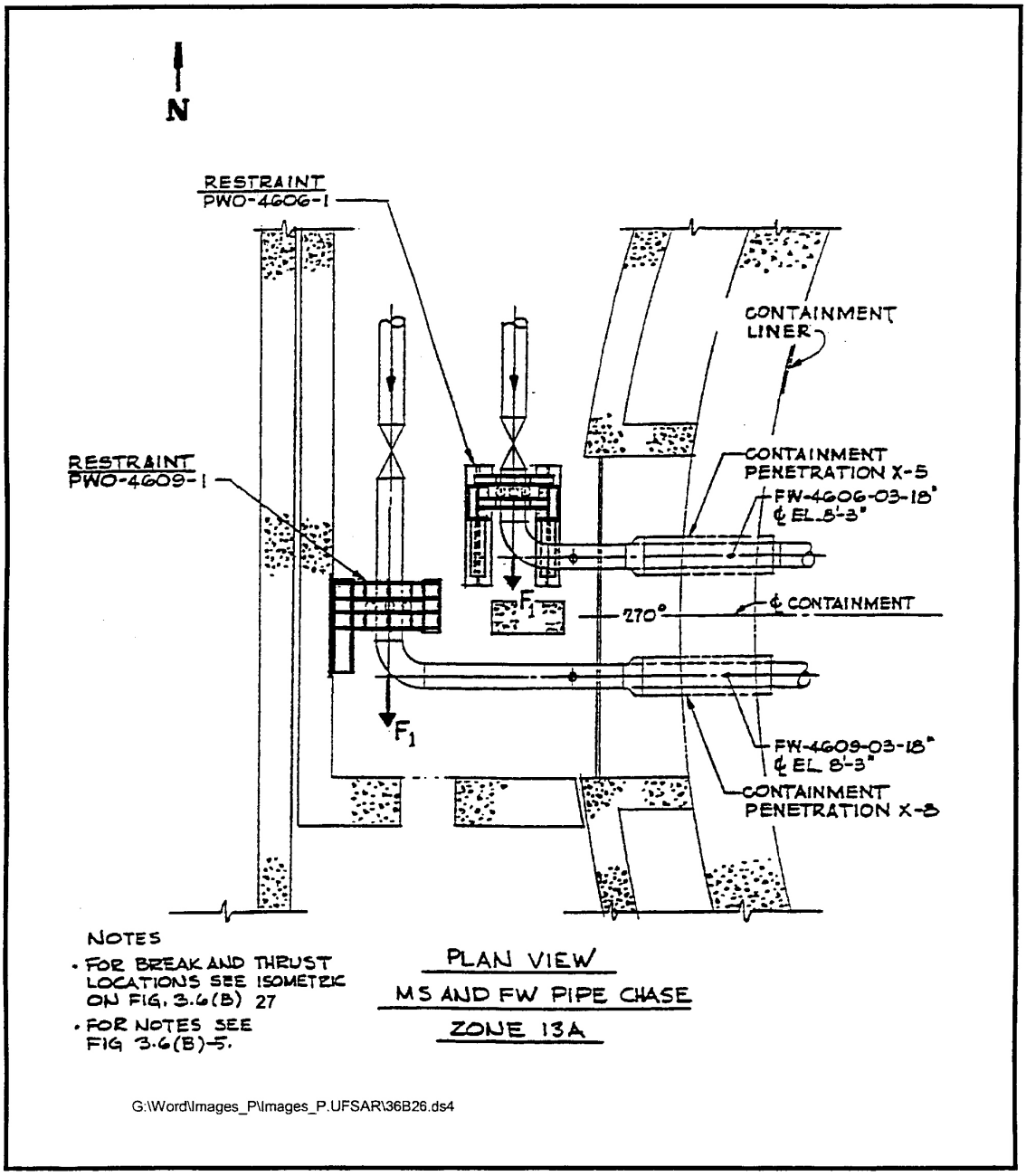
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Main Steam and Feedwater Pipe Whip Restraints Protecting East Wall of Control Building and Electrical Chase - MS and FW Pipe Chase Zone 15B	
		Figure 3.6(B)-24



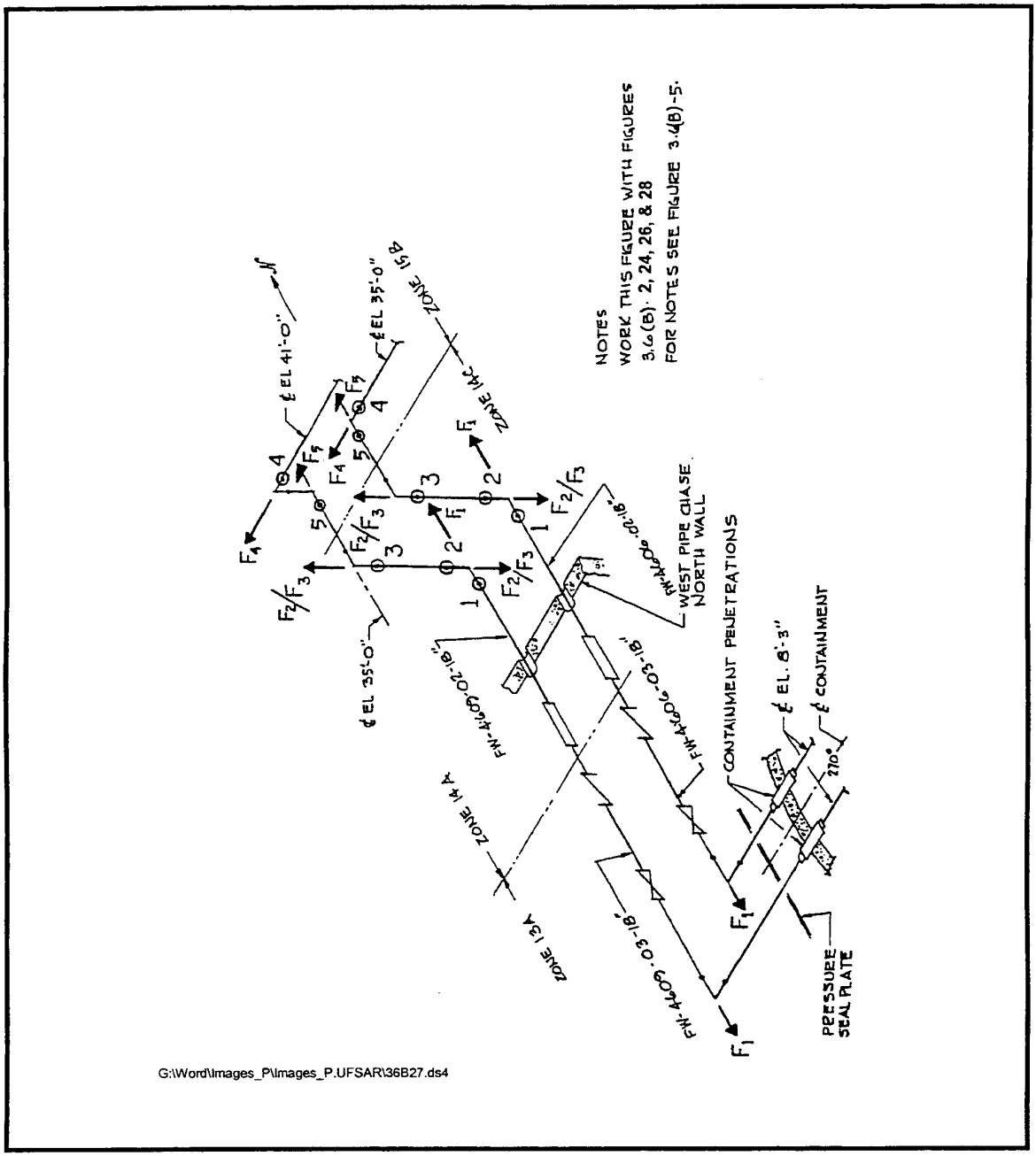
FOR NOTES SEE FIG. 3.6(B)-5

PLAN VIEW
CONTAINMENT ZONE 53C

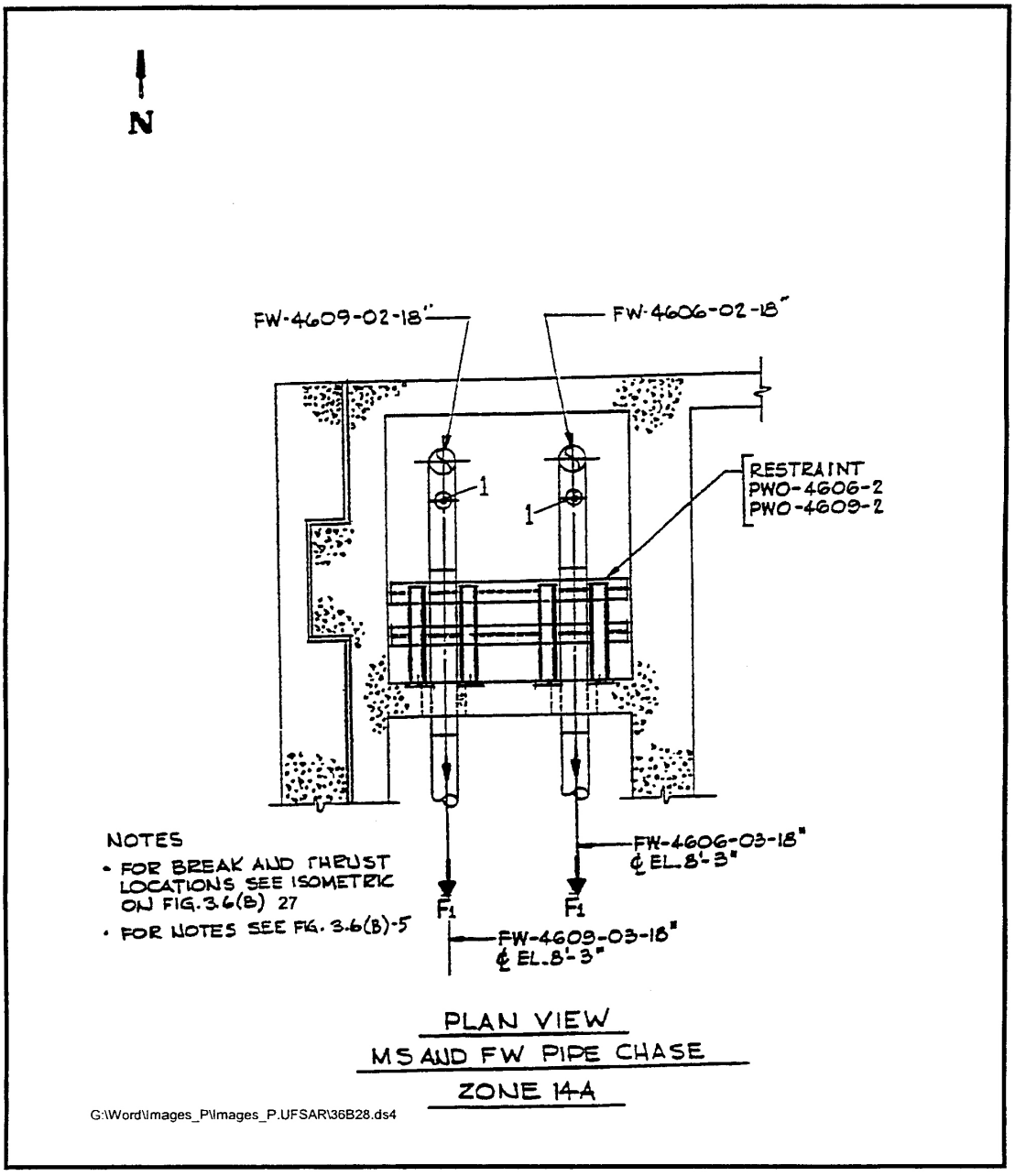
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Feedwater Pipe Whip Restraint Protecting the Containment Liner and Penetrations and CC & SB Lines and Valves - Containment Zone 53C	
		Figure 3.6(B)-25



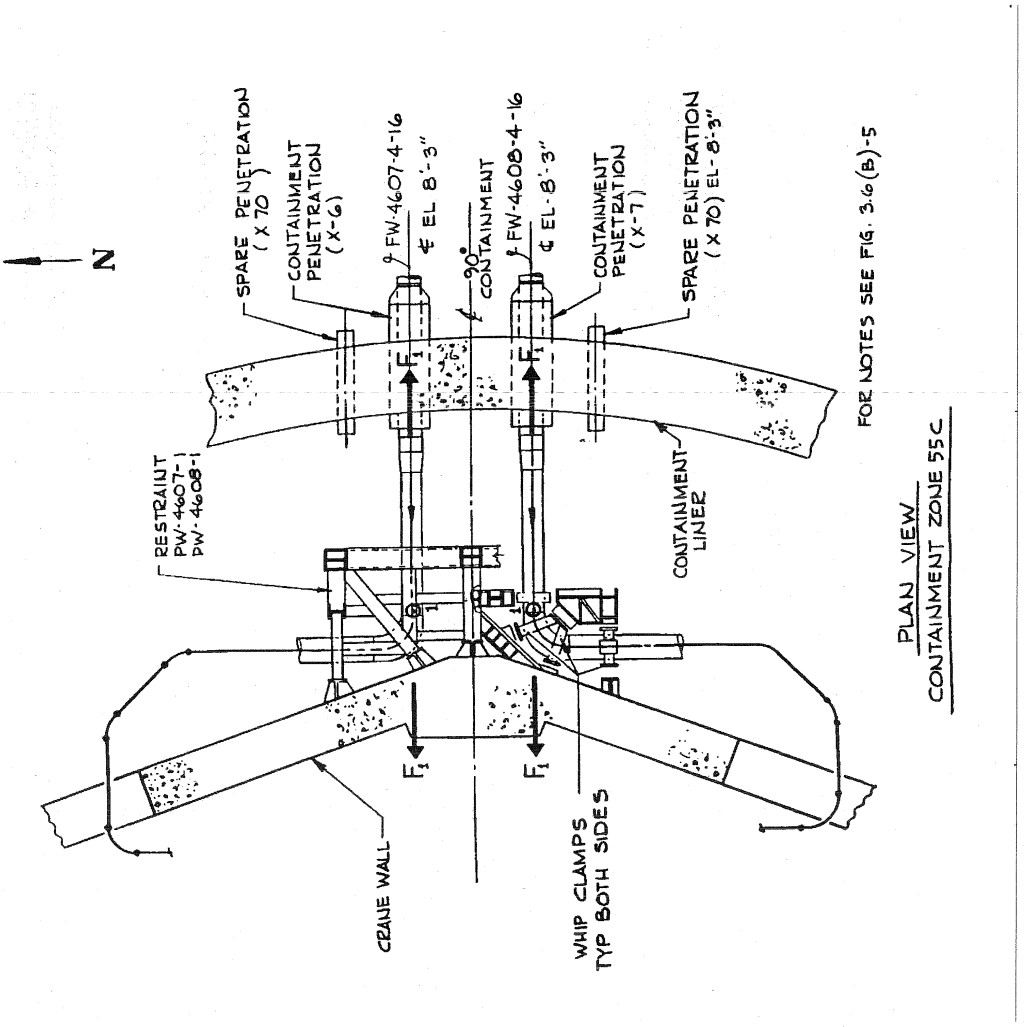
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Feedwater Pipe Whip Restraints Protecting Containment Liner and Penetrations - MS and FW Pipe Chase Zone 13A	
		Figure 3.6(B)-26



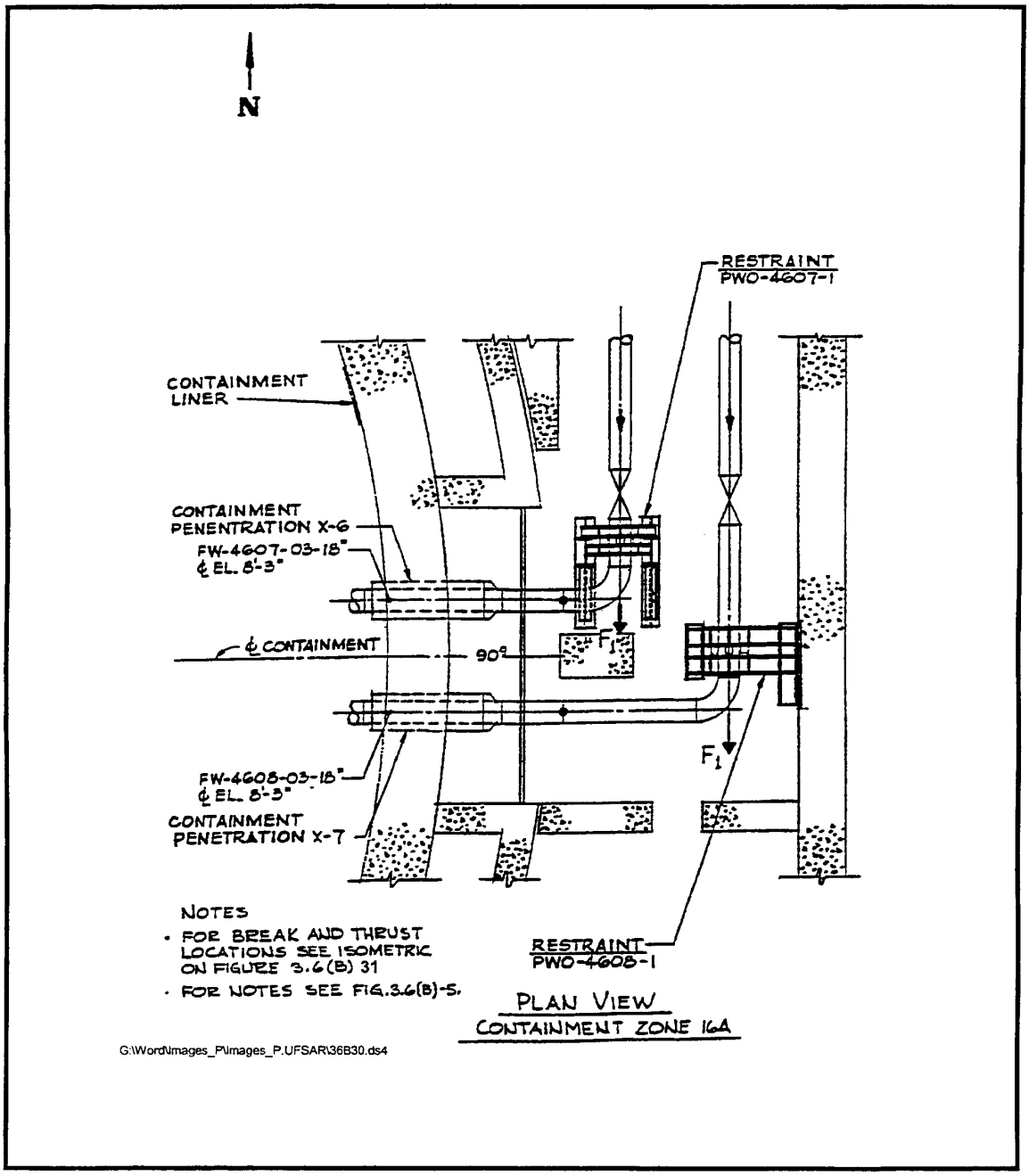
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Break and Thrust Locations Isometric for FW Pipes in West Pipe Chase	
		Figure 3.6(B)-27



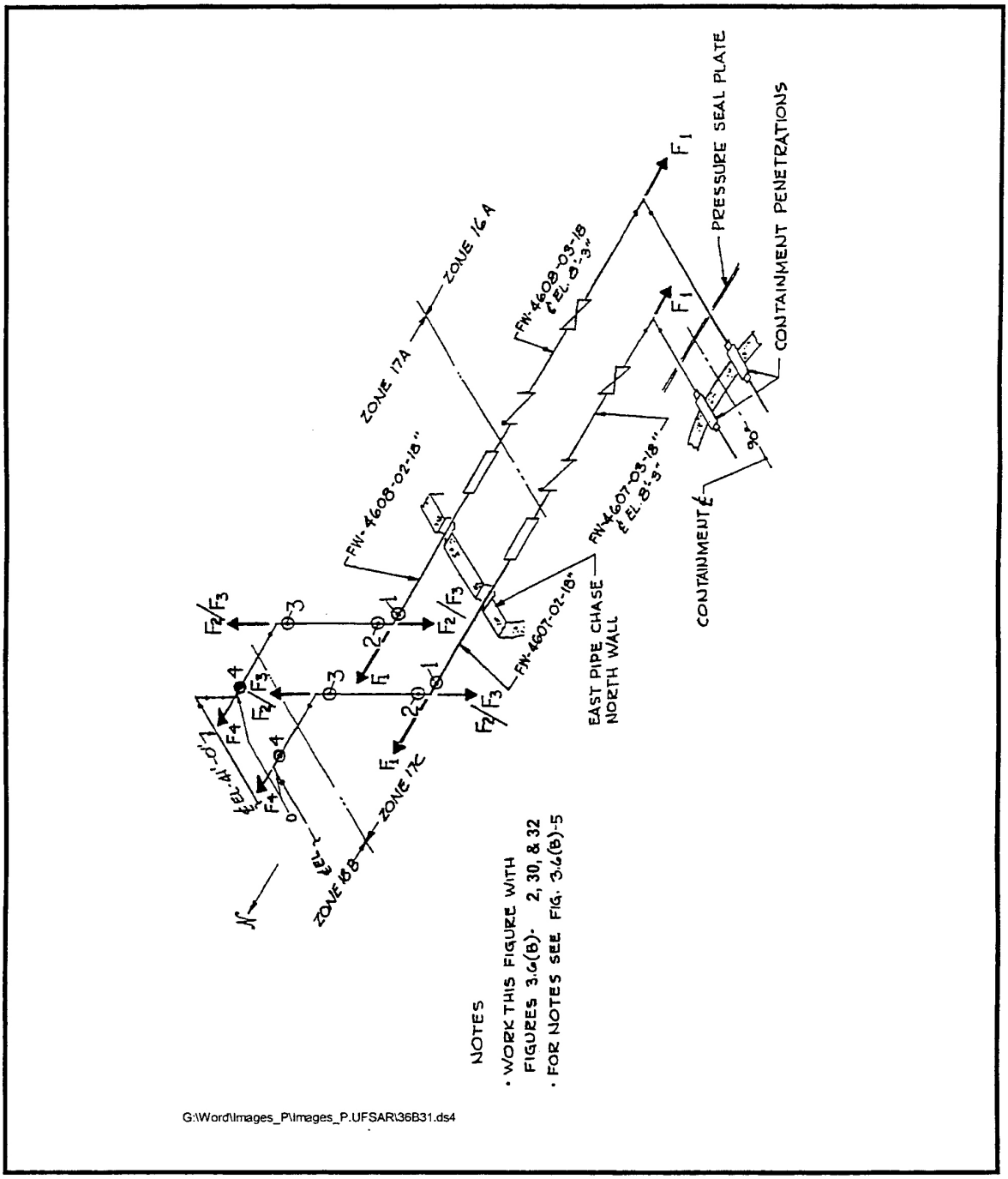
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Feedwater Pipe Whip Restraints Protecting Containment Liner and Penetrations - MS and FW Pipe Chase Zone 14A	
		Figure 3.6(B)-28



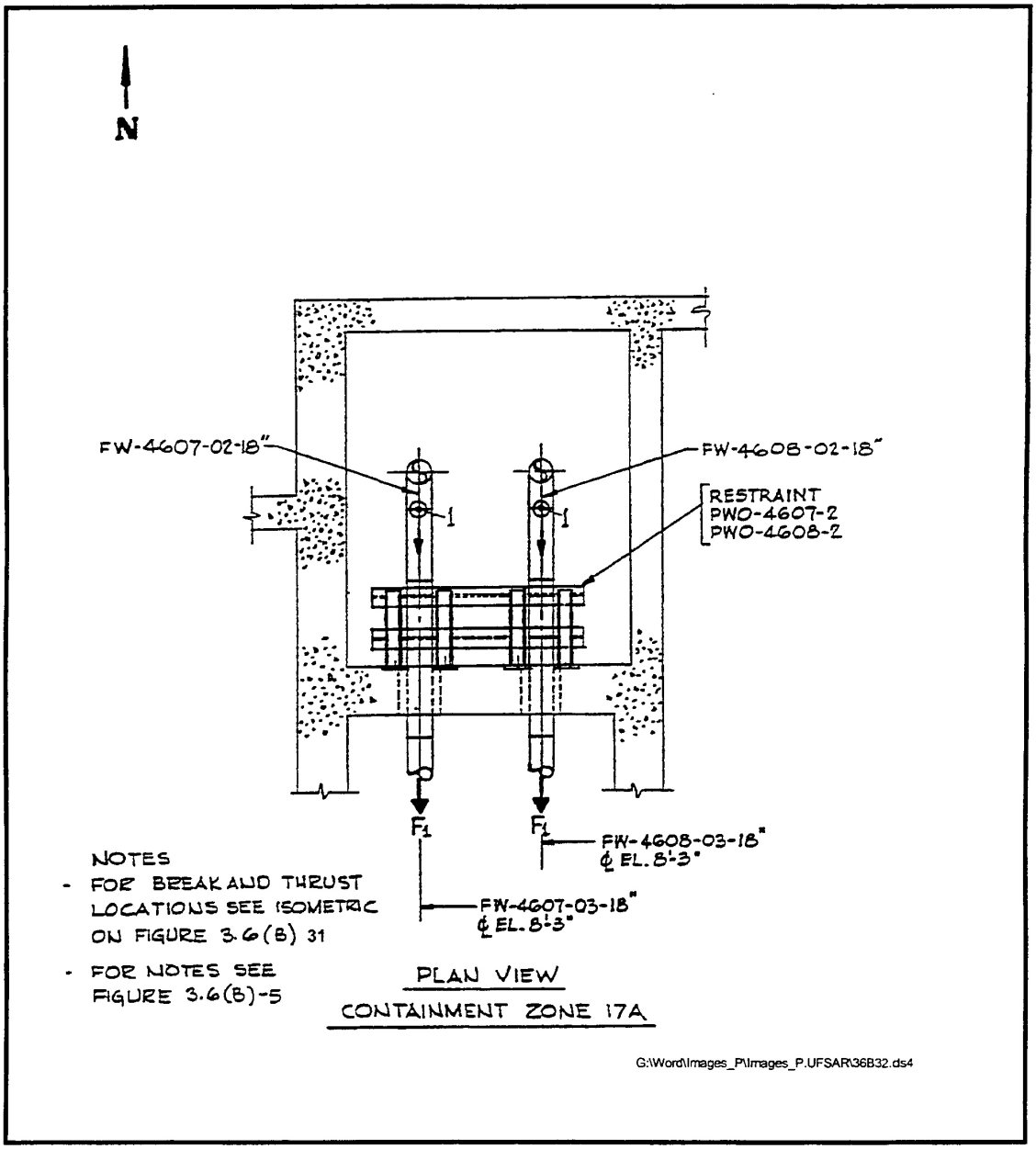
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Feedwater Pipe Whip Restraints Protecting Containment Liner and Penetrations - Containment Zone 55C	
		Figure 3.6(B)-29



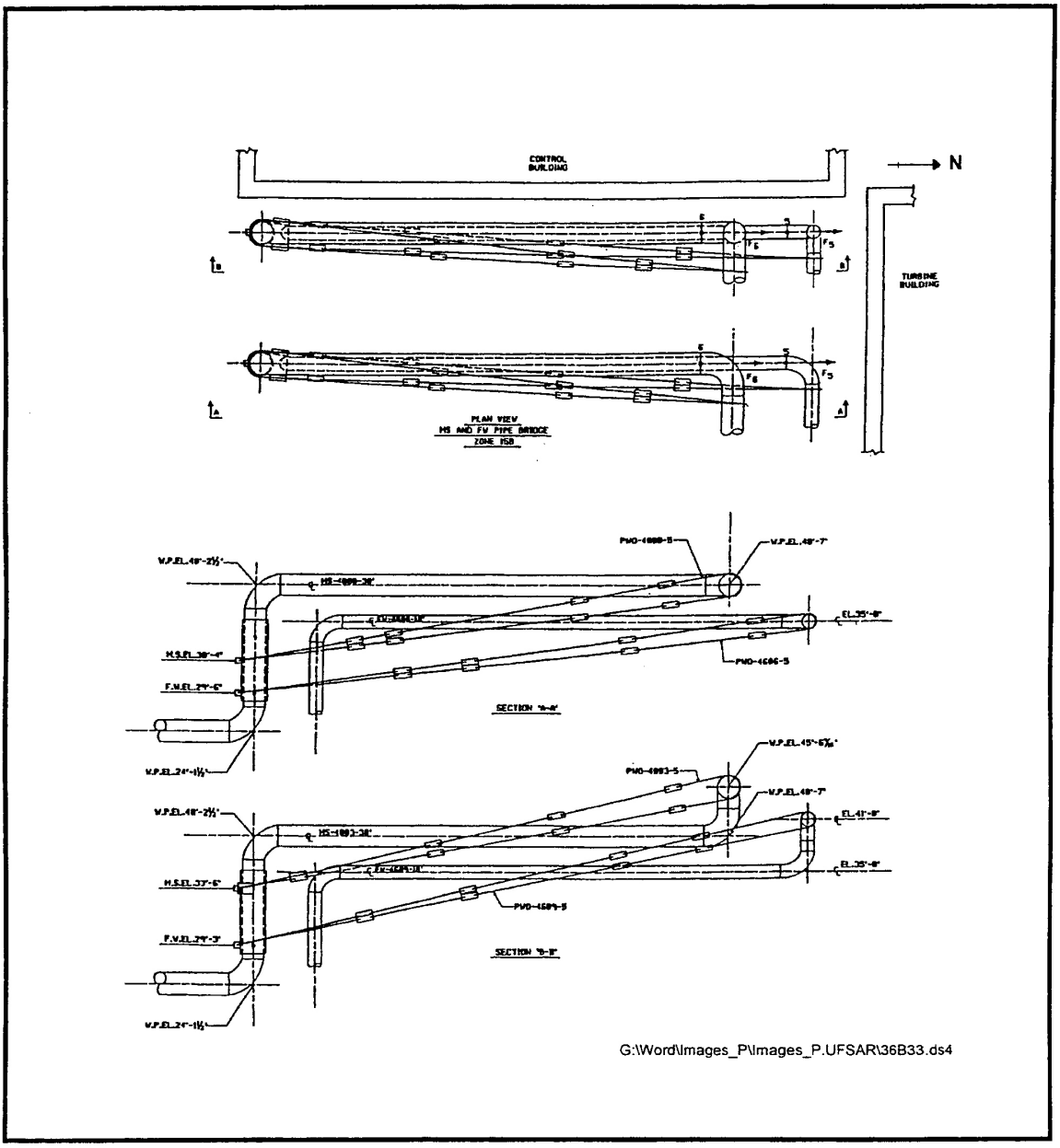
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Feedwater Pipe Whip Restraints Protecting Containment Liner and Penetrations - Containment Zone 16A	
		Figure 3.6(B)-30



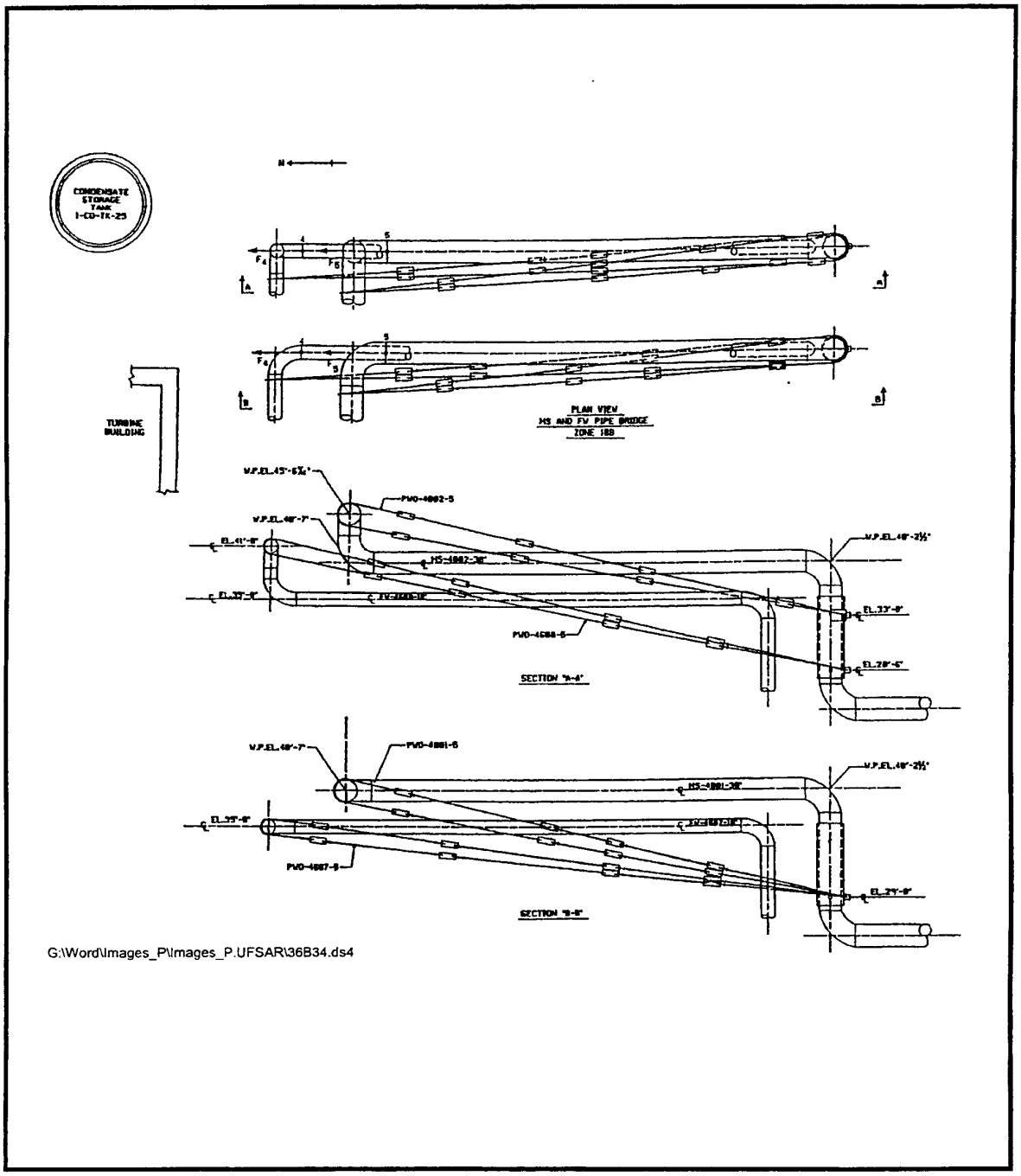
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Break and Thrust Locations Isometric for FW Pipes in East Chase	
		Figure 3.6(B)-31



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Feedwater Pipe Whip Restraints Protecting Containment Liner and Penetrations - Containment Zone 17A	
		Figure 3.6(B)-32

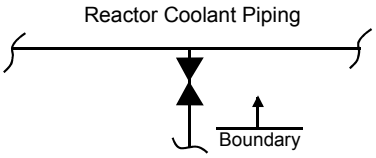


SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Pipe Bridge West Main Steam and Feedwater Pipe Whip Restraints Protecting Turbine and Control Buildings	
		Figure 3.6(B)-33



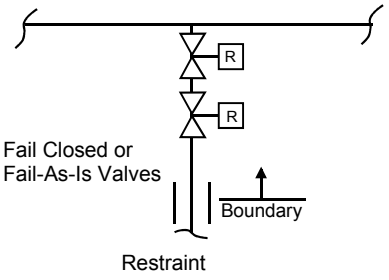
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Pipe Bridge East Main Steam and Feedwater Pipe Whip Restraints Protecting Turbine Building and Condensate Storage Tank	
		Figure 3.6(B)-34

CASE I — Outgoing Lines With Normally Closed Valve



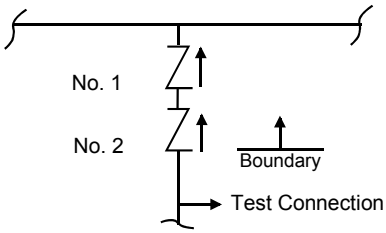
Note: Pressurizer Safety Valves Are Included Under This Case.

CASE II — Outgoing Lines With Normally Open Valve

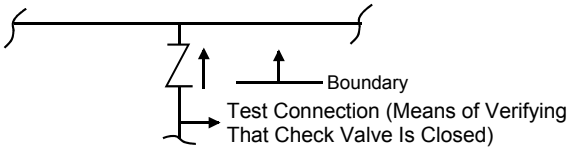


Note: The Reactor Coolant Pump No. 1 Seal Is Assumed To Be Equivalent To First Valve

CASE III — Incoming Lines Normally With Flow



CASE IV — Incoming Lines Normally Without Flow



CASE V — All Instrumentation Tubing and Instruments Connected Directly to the Reacotor Coolant System is Considered as a Boundary. However, a Break Within this Boundary Results in a Relatively Small Flow Which Can Normally be Made Up With the Charging System.

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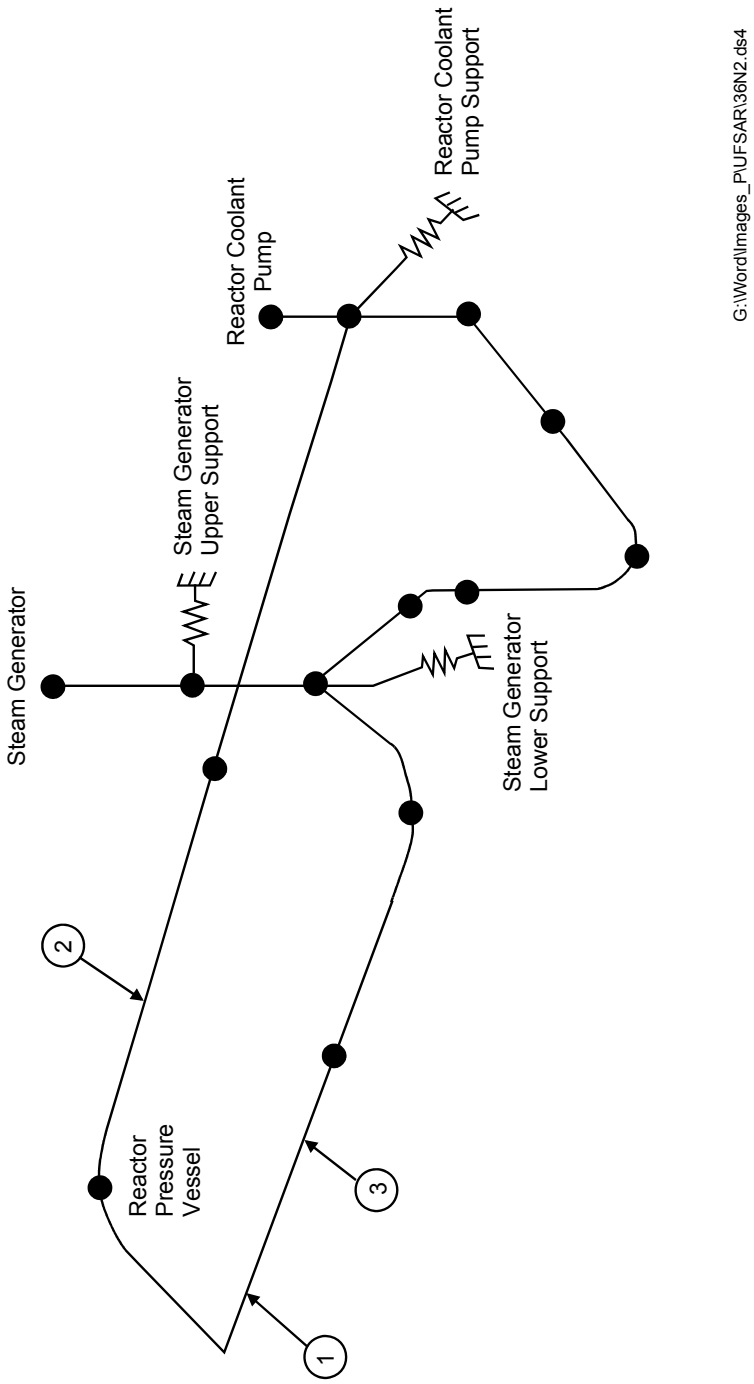
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Loss of Reactor Coolant Accident Boundary Limits	
		Figure 3.6(N)-1



SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Reactor Coolant System, Pipe Break and Whip Restraint Locations	
		Figure 3.6(N)-2