

Figure 3.7.2-14: Transverse View of Half of Reactor Building in Ground (Looking Northeast)

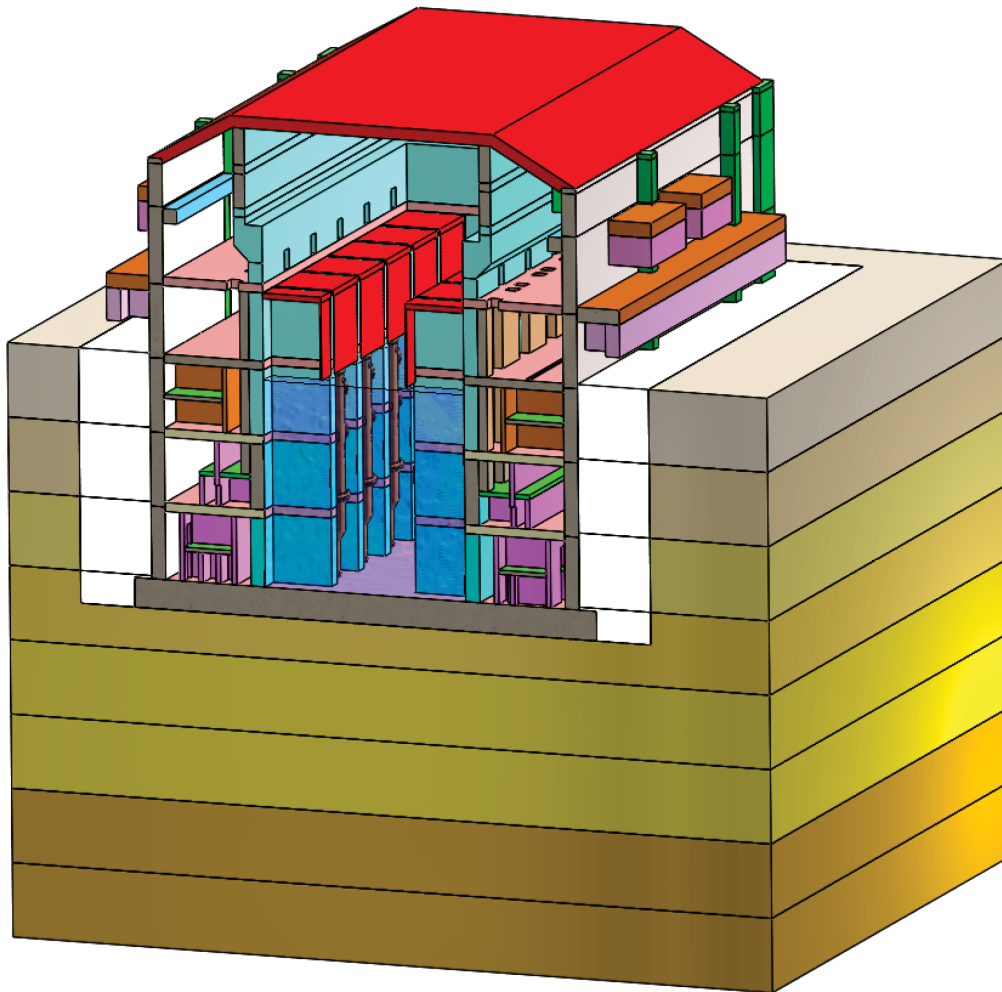


Figure 3.7.2-15: Reactor Building SASSI2010 Model

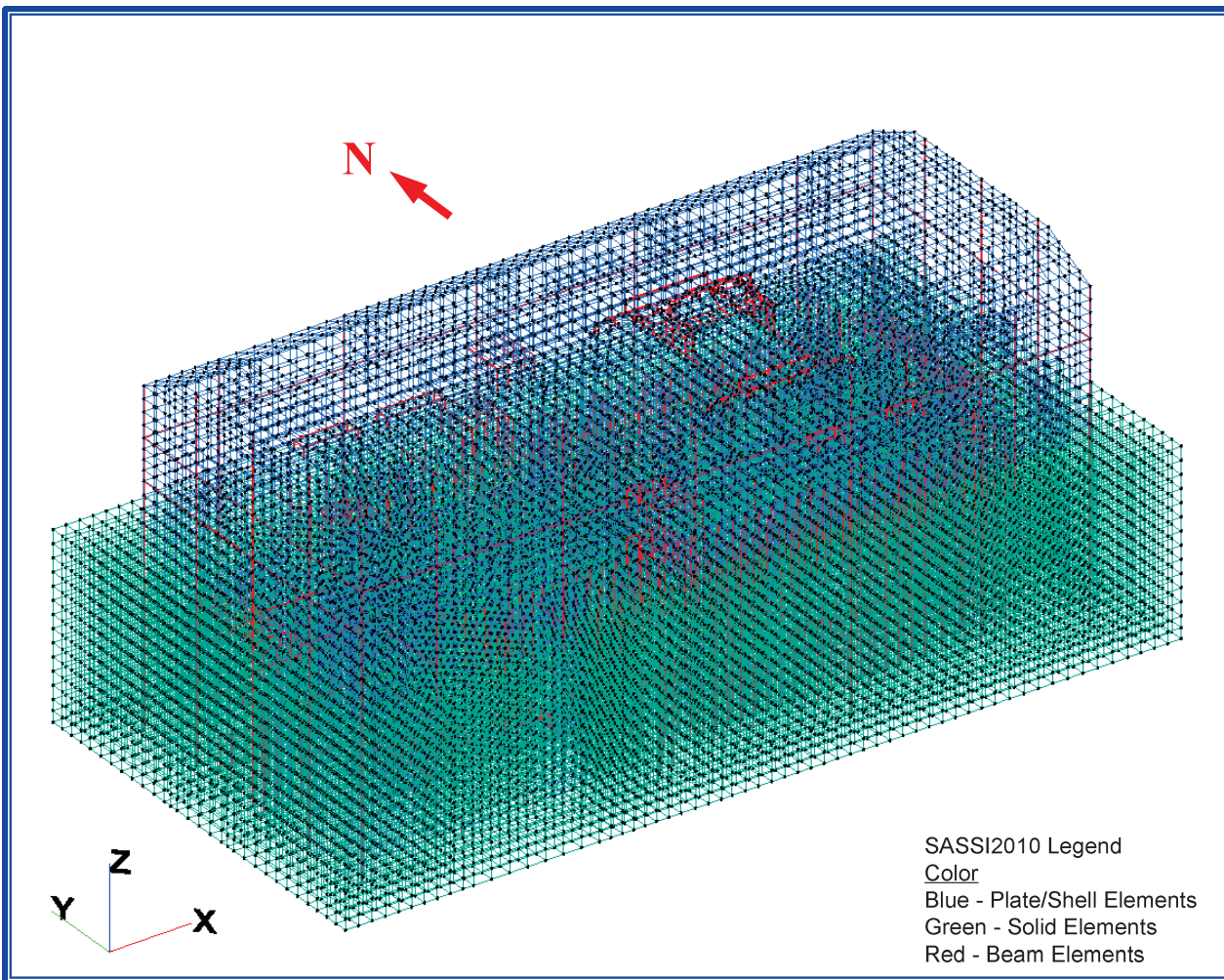


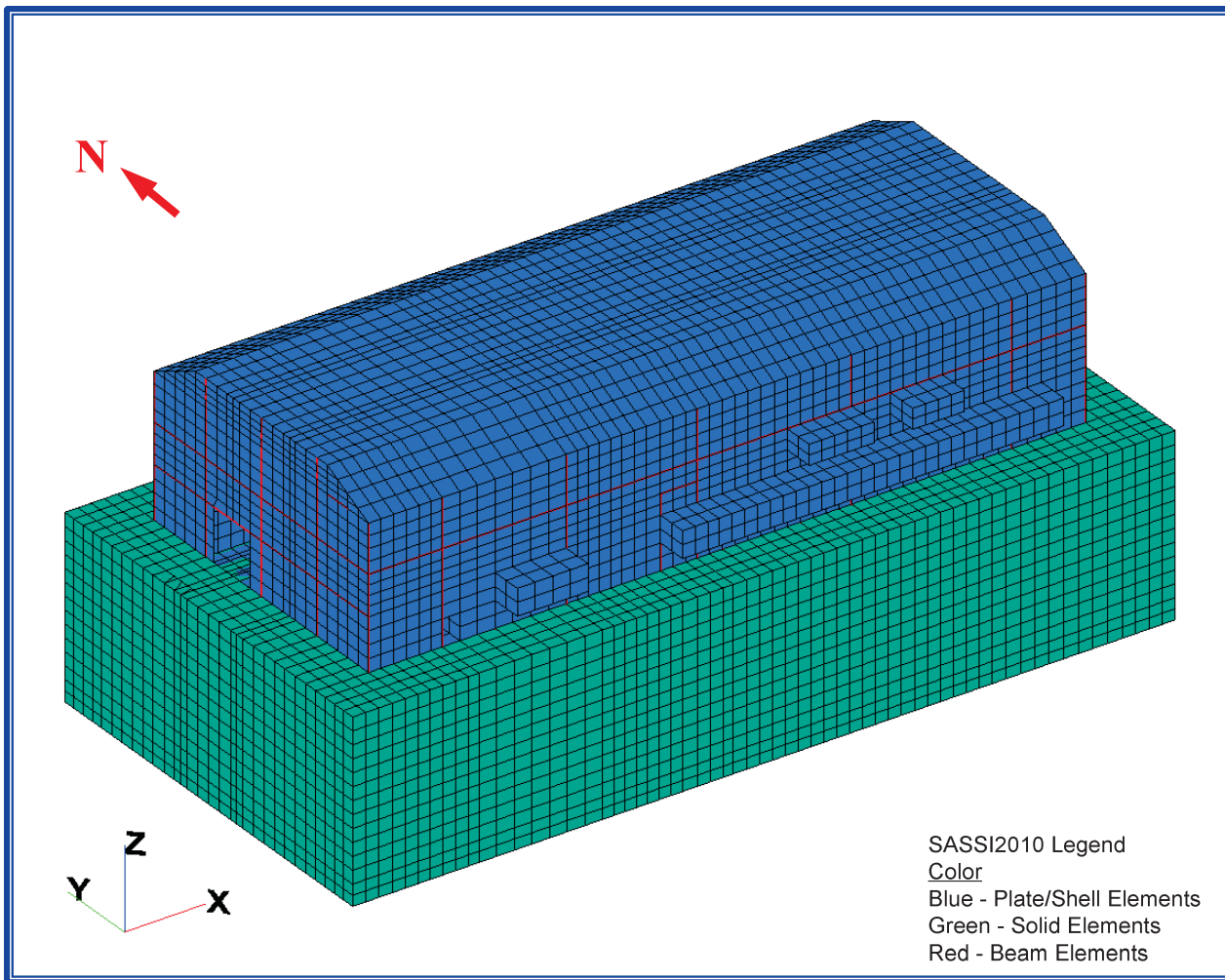
Figure 3.7.2-16: Reactor Building SASSI2010 Model without Hidden Lines

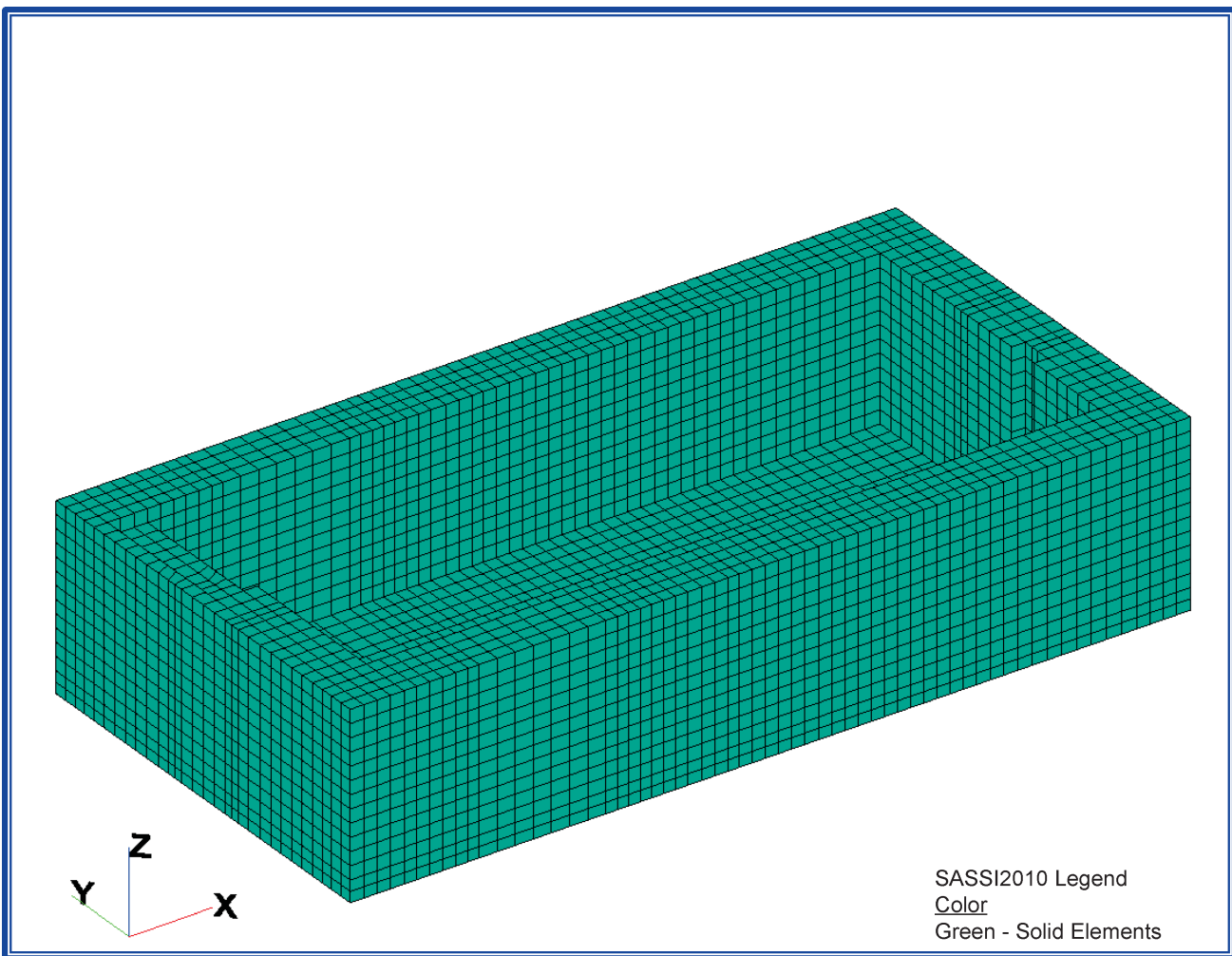
Figure 3.7.2-17: Reactor Building SASSI2010 Backfill Soil Model

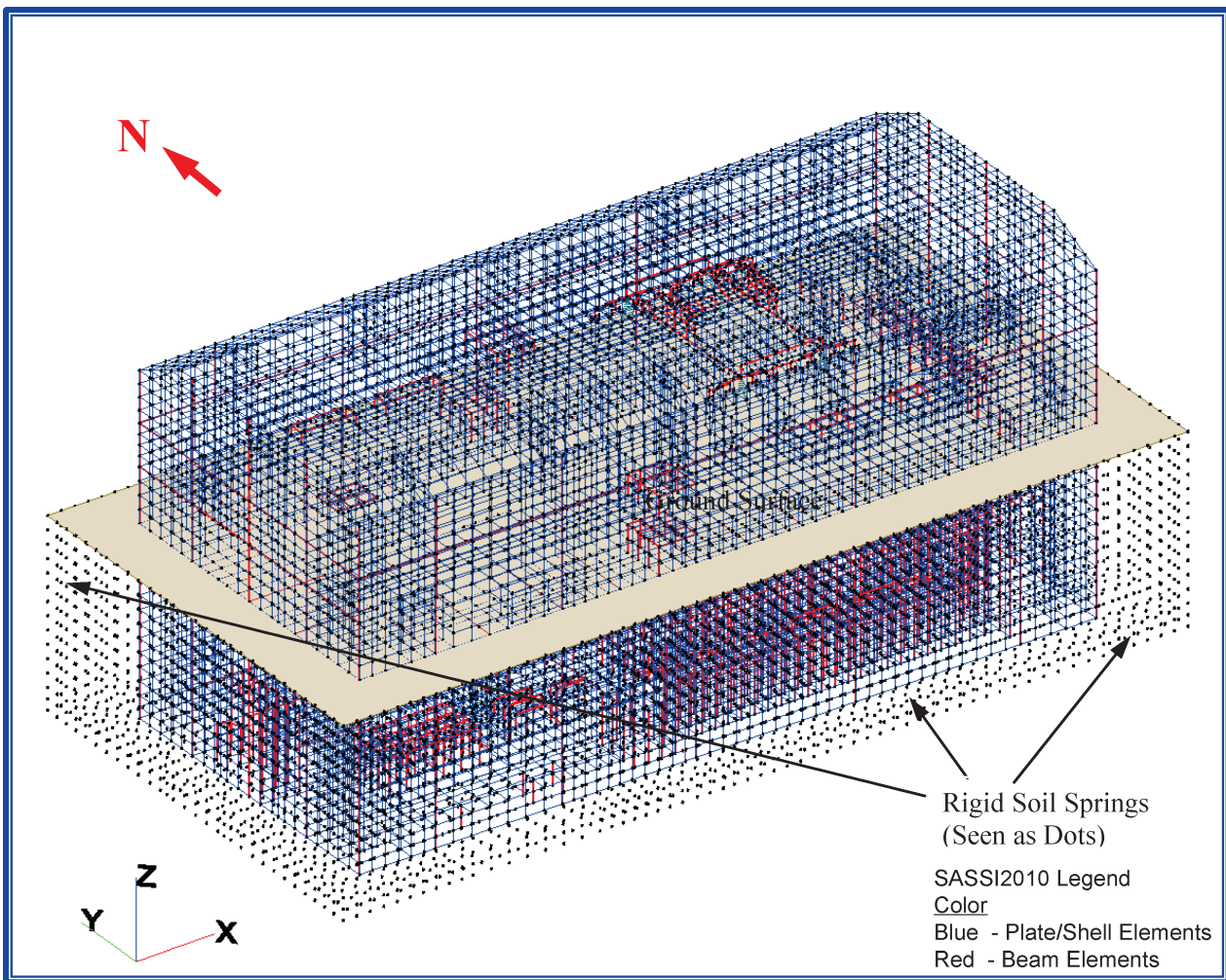
Figure 3.7.2-18: Reactor Building SASSI2010 Model without Backfill

Figure 3.7.2-19: Reactor Building SASSI2010 Excavated Soil Model without Hidden Lines

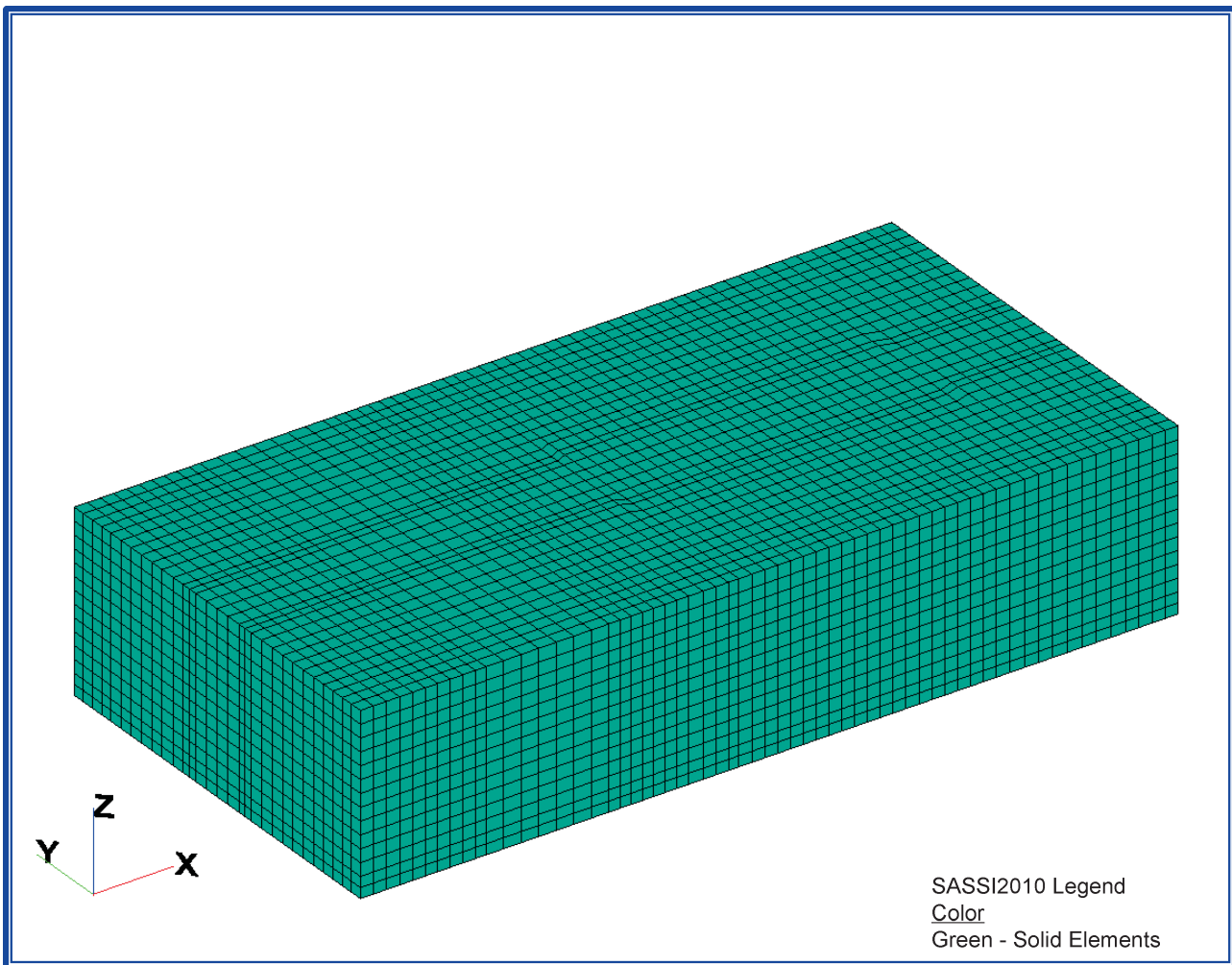


Figure 3.7.2-20: Half of Reactor Building SASSI2010 Model without Hidden Lines

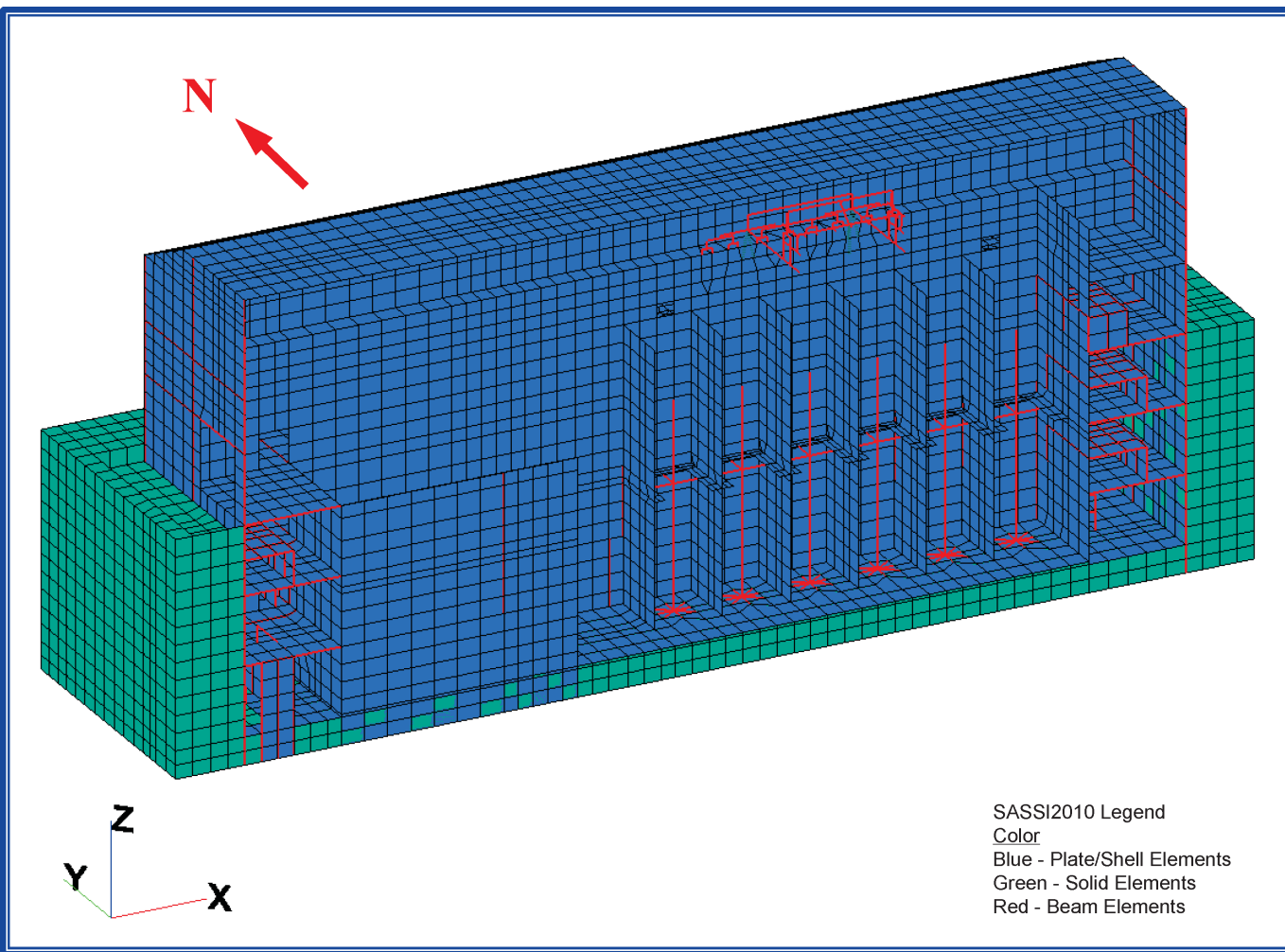


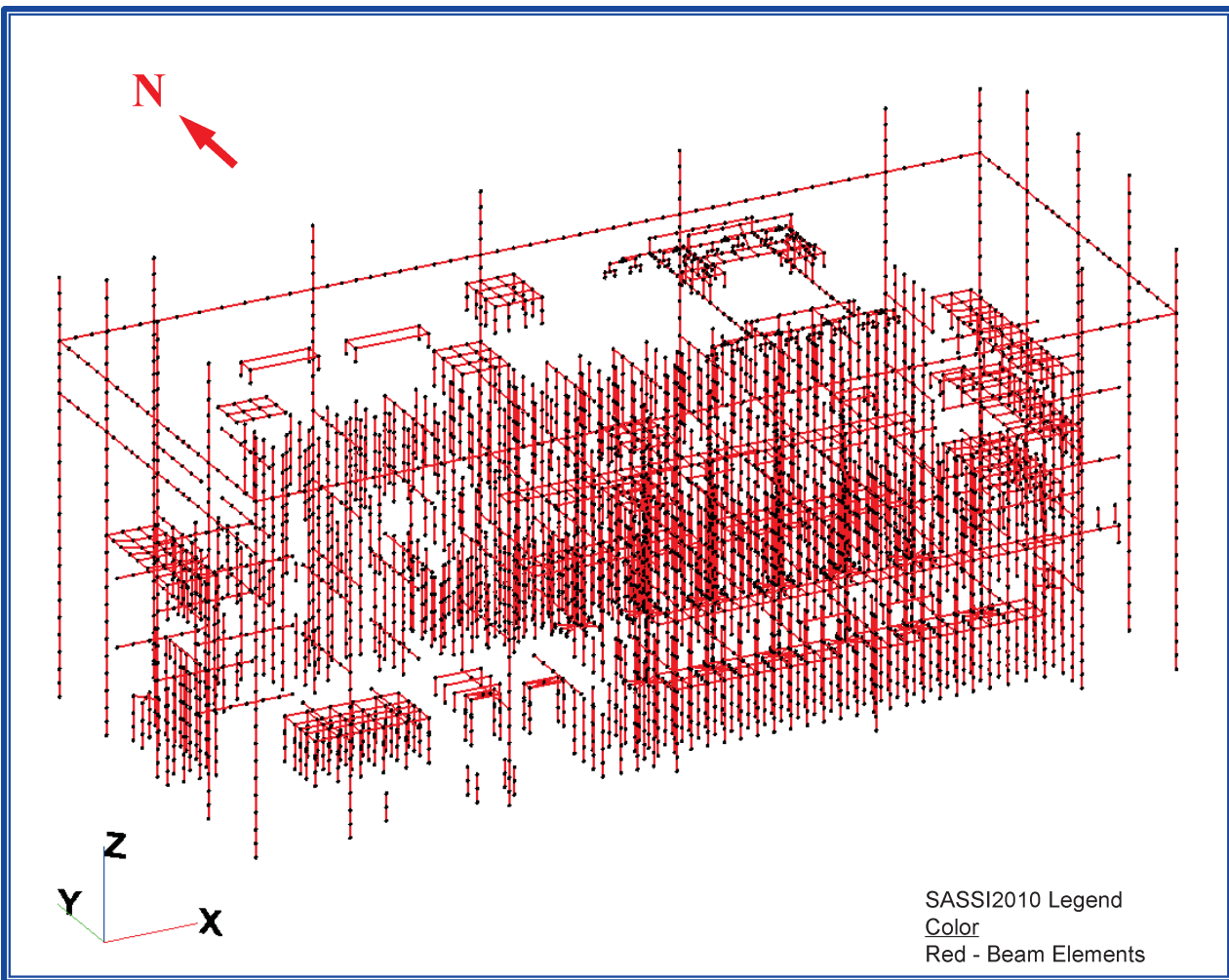
Figure 3.7.2-21: Reactor Building Beam Elements of SASSI2010 Model

Figure 3.7.2-22: NuScale Power Module Lug Restraint (in Green)

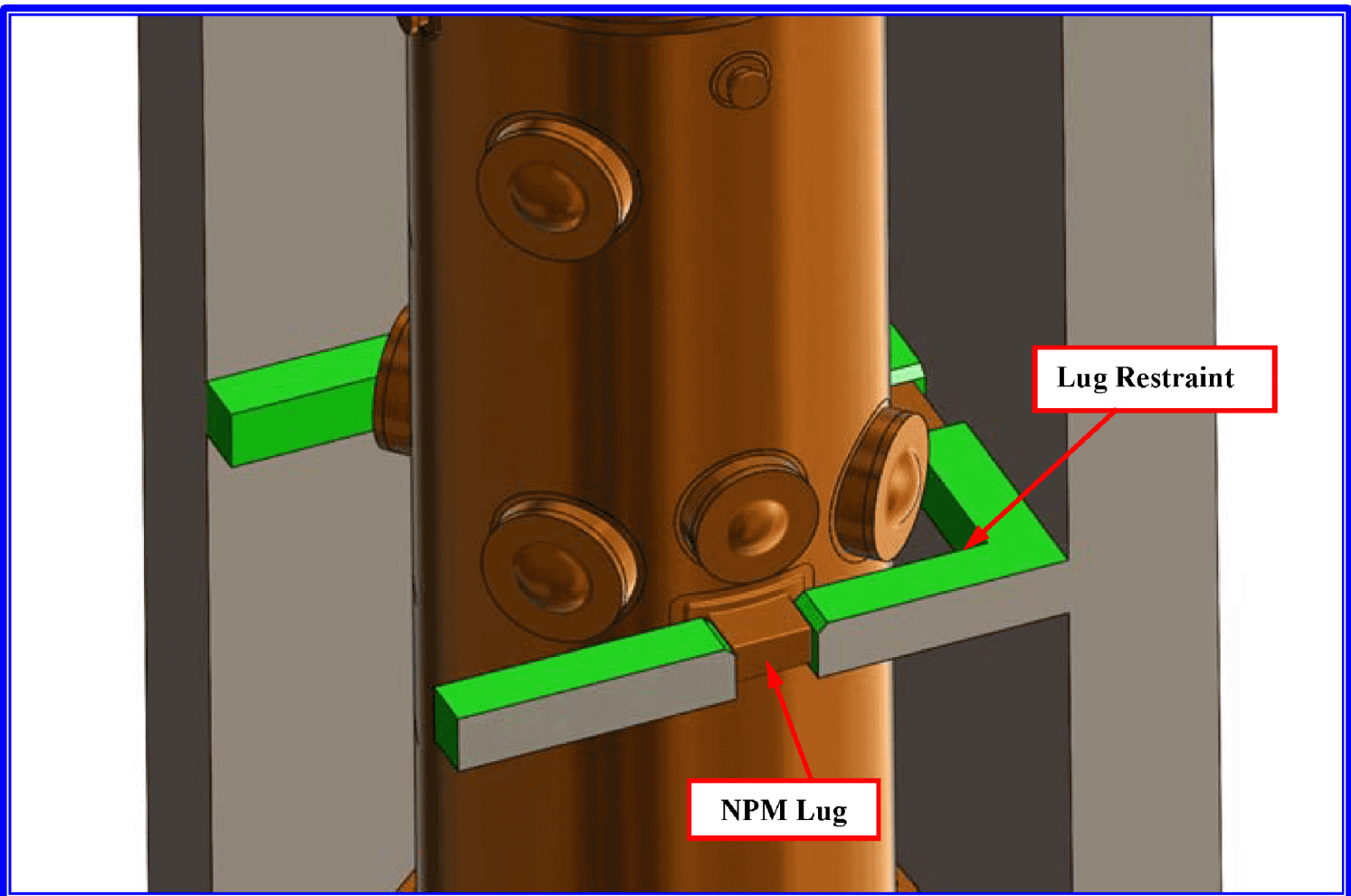


Figure 3.7.2-23: Top View of NuScale Power Module Lug Restraint and Support Walls

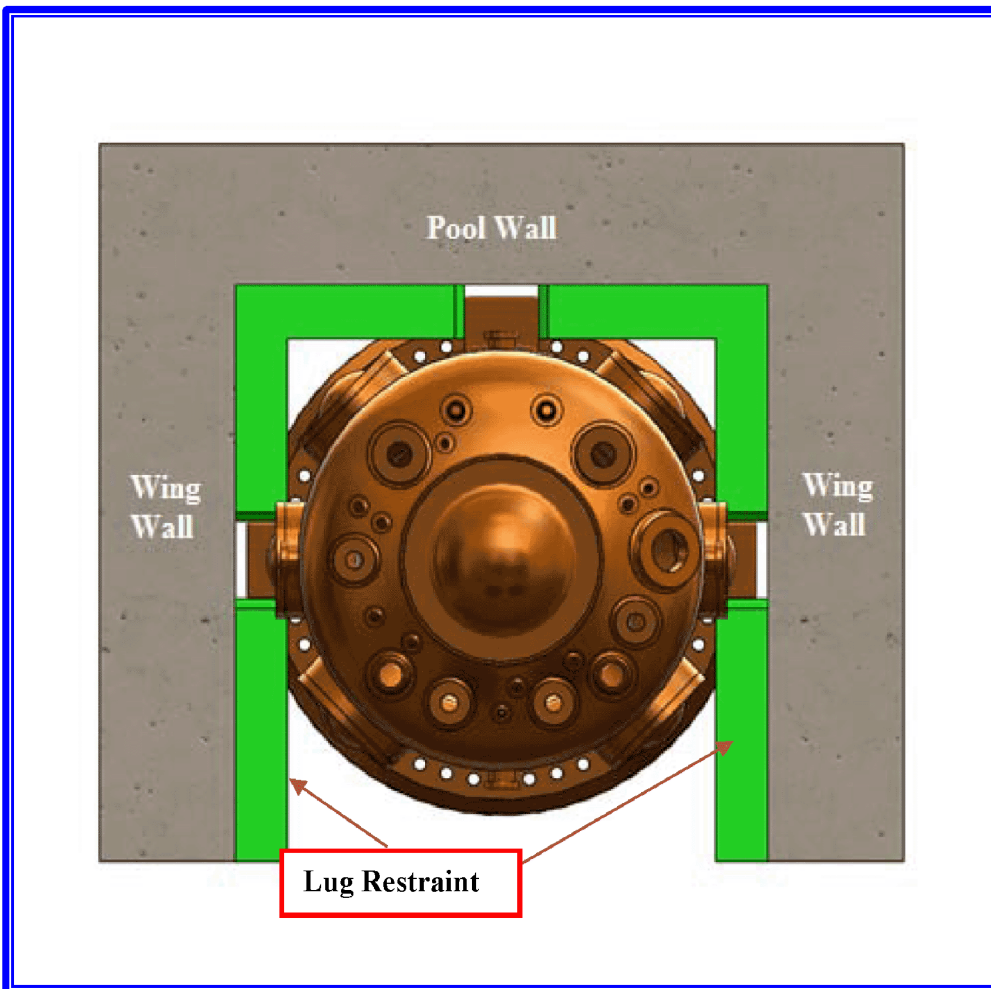


Figure 3.7.2-24: View of Reactor Building Looking Down

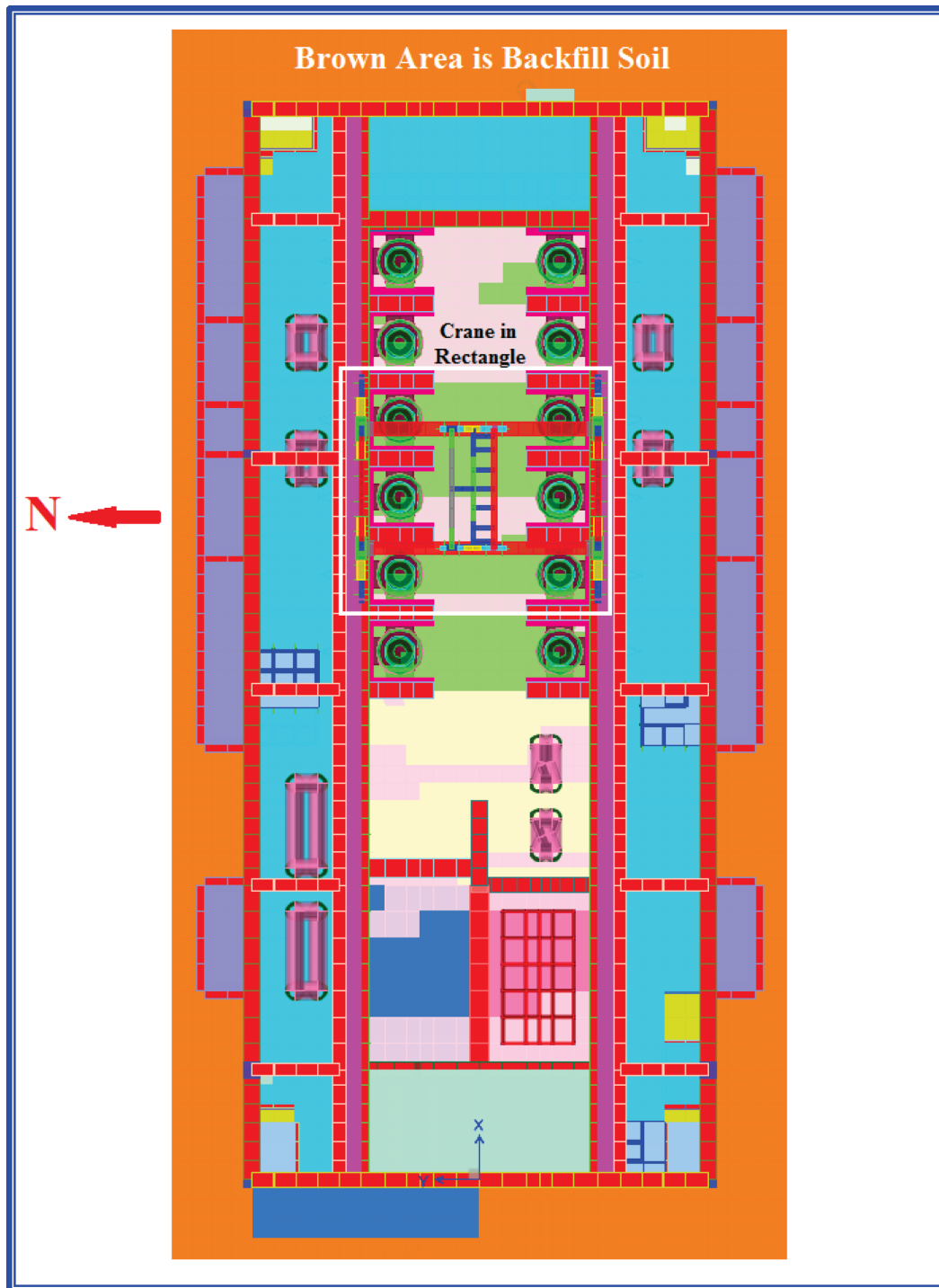


Figure 3.7.2-25: Enlarged View of Reactor Pool Looking Down

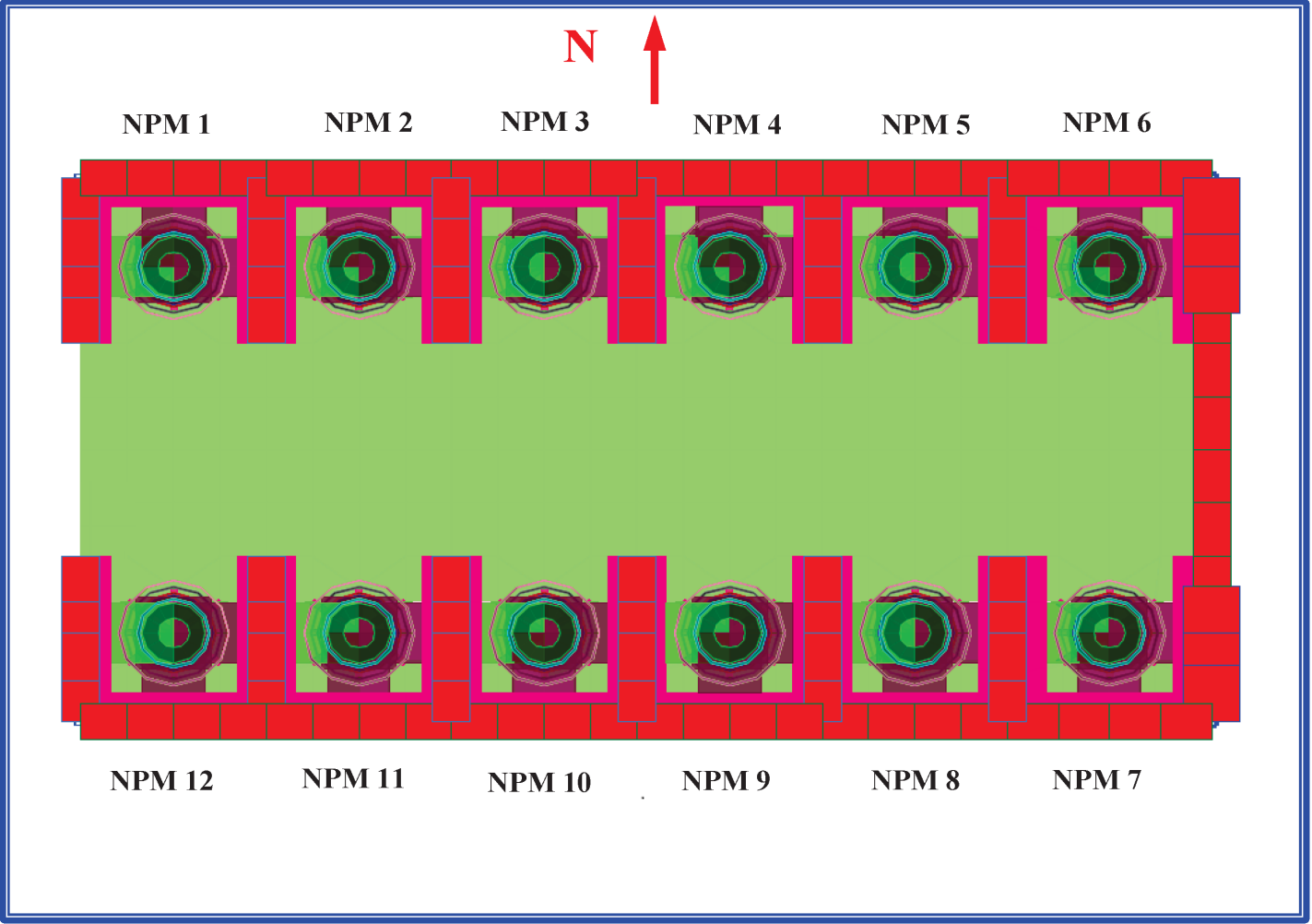


Figure 3.7.2-26: Extruded View of the NuScale Power Modules and Support Walls

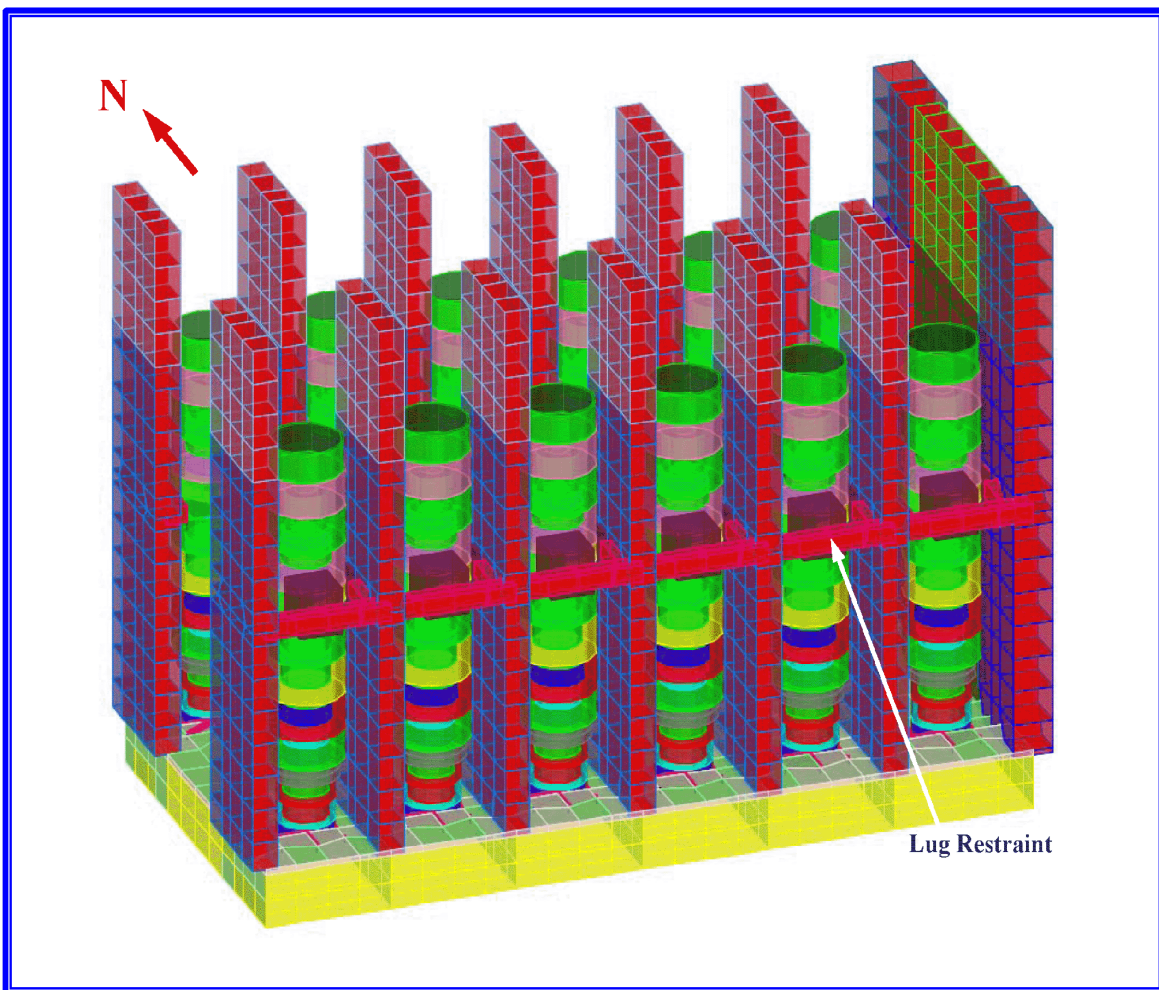


Figure 3.7.2-27: NuScale Power Module Model with Lug Restraint and Base Skirt Supports

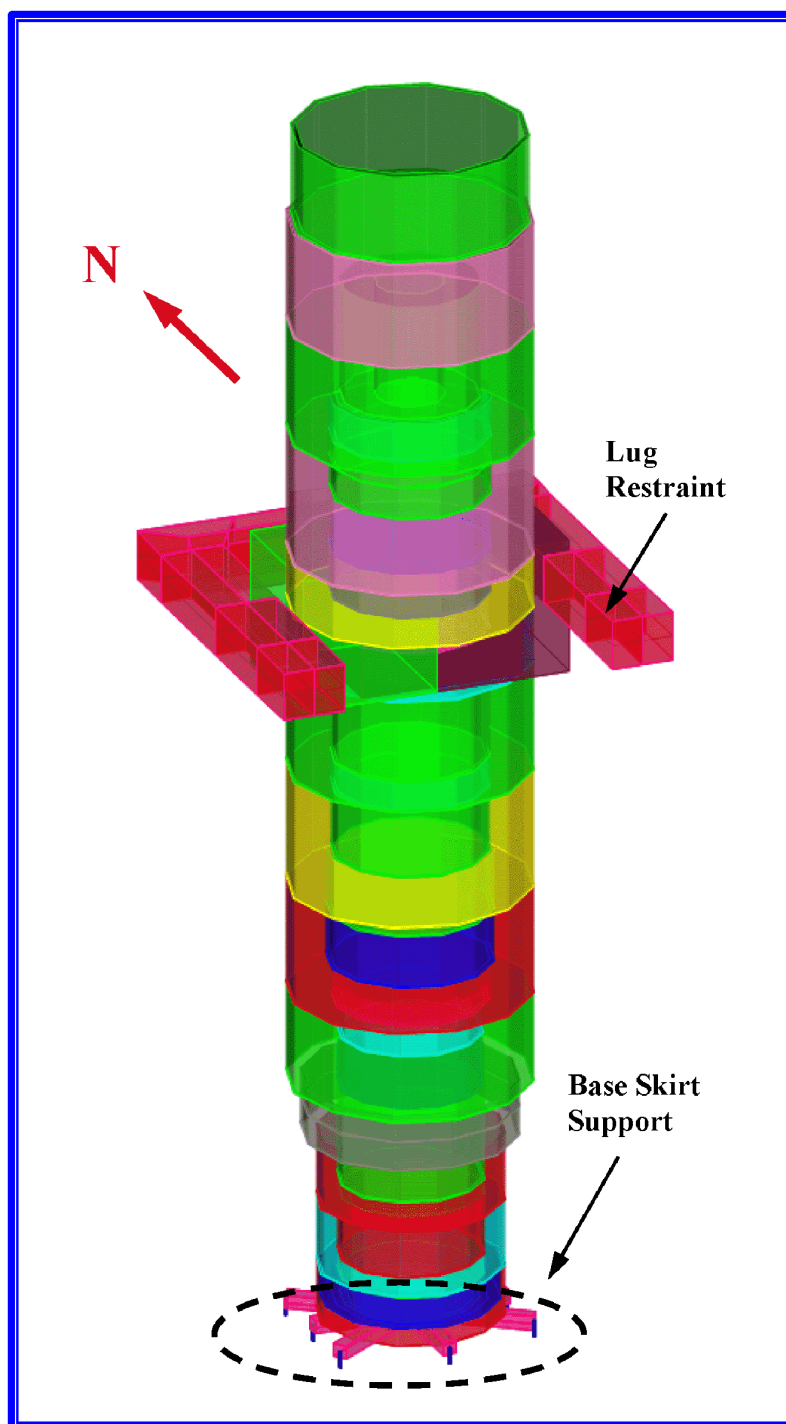
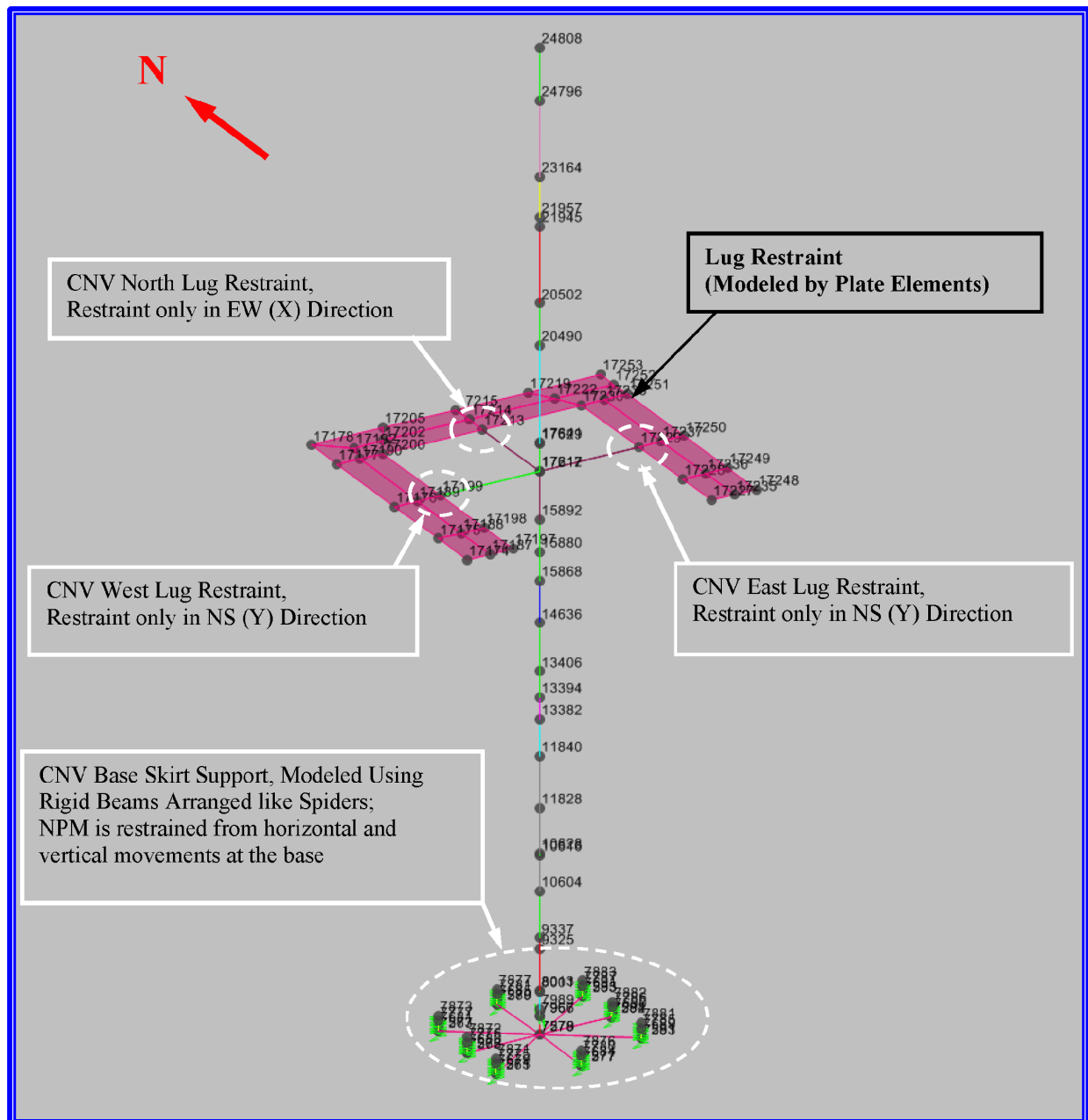


Figure 3.7.2-28: NuScale Power Module Beam Model



Note: Actual CNV Skirt Support is free to move vertically upward and restrained downward. As SASSI2010 cannot model this non-linear behavior, spring supports are added for analysis model stability purposes only.

Figure 3.7.2-29: Beam and Spring Model of Reactor Building Crane

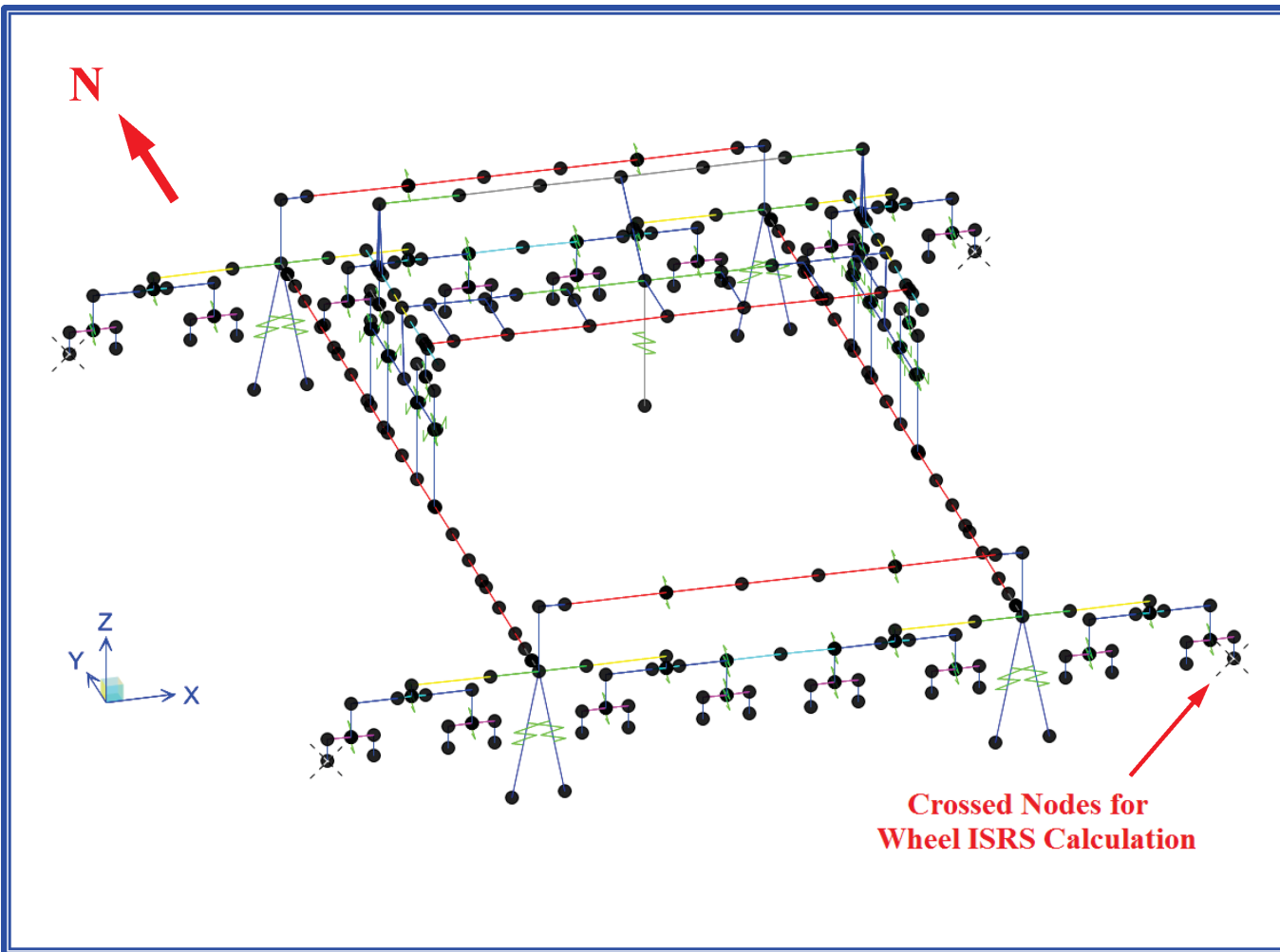


Figure 3.7.2-30: Longitudinal Section View of Pool Water and NuScale Power Modules

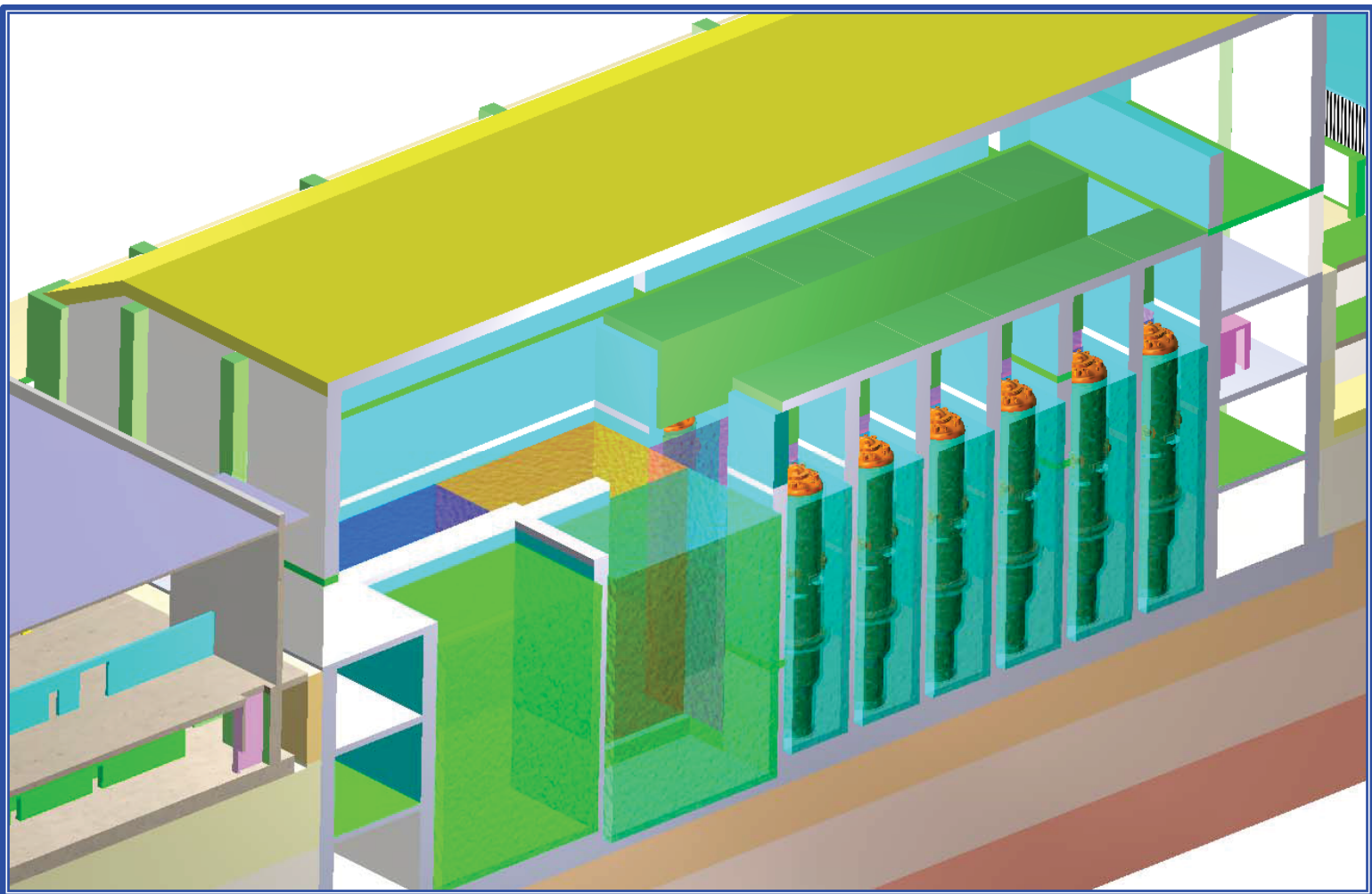


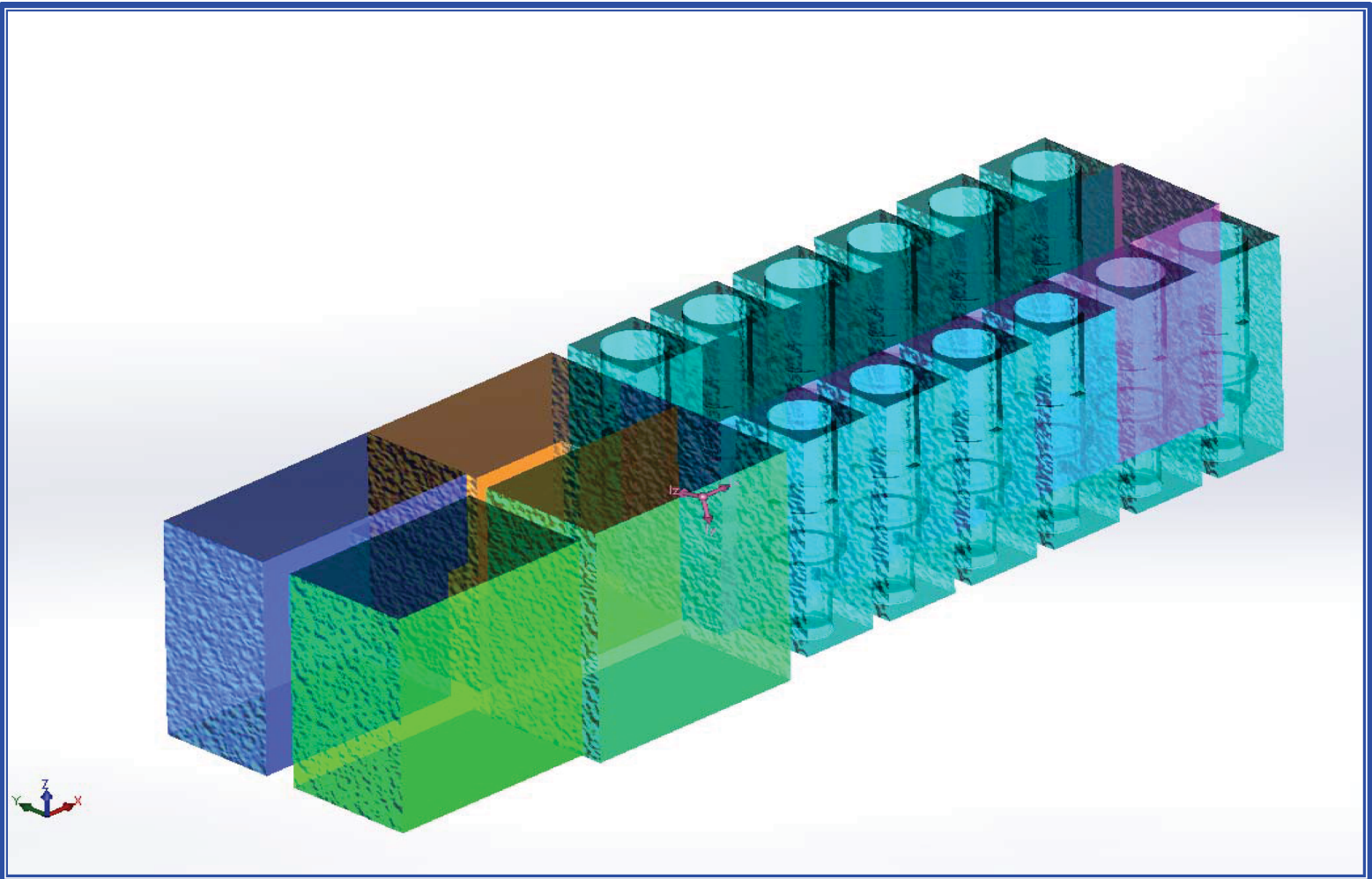
Figure 3.7.2-31: Model of Reactor Building Pool Water

Figure 3.7.2-32: Half Sectional View of Reactor Building ANSYS Model with Pool Fluid and Backfill Soil

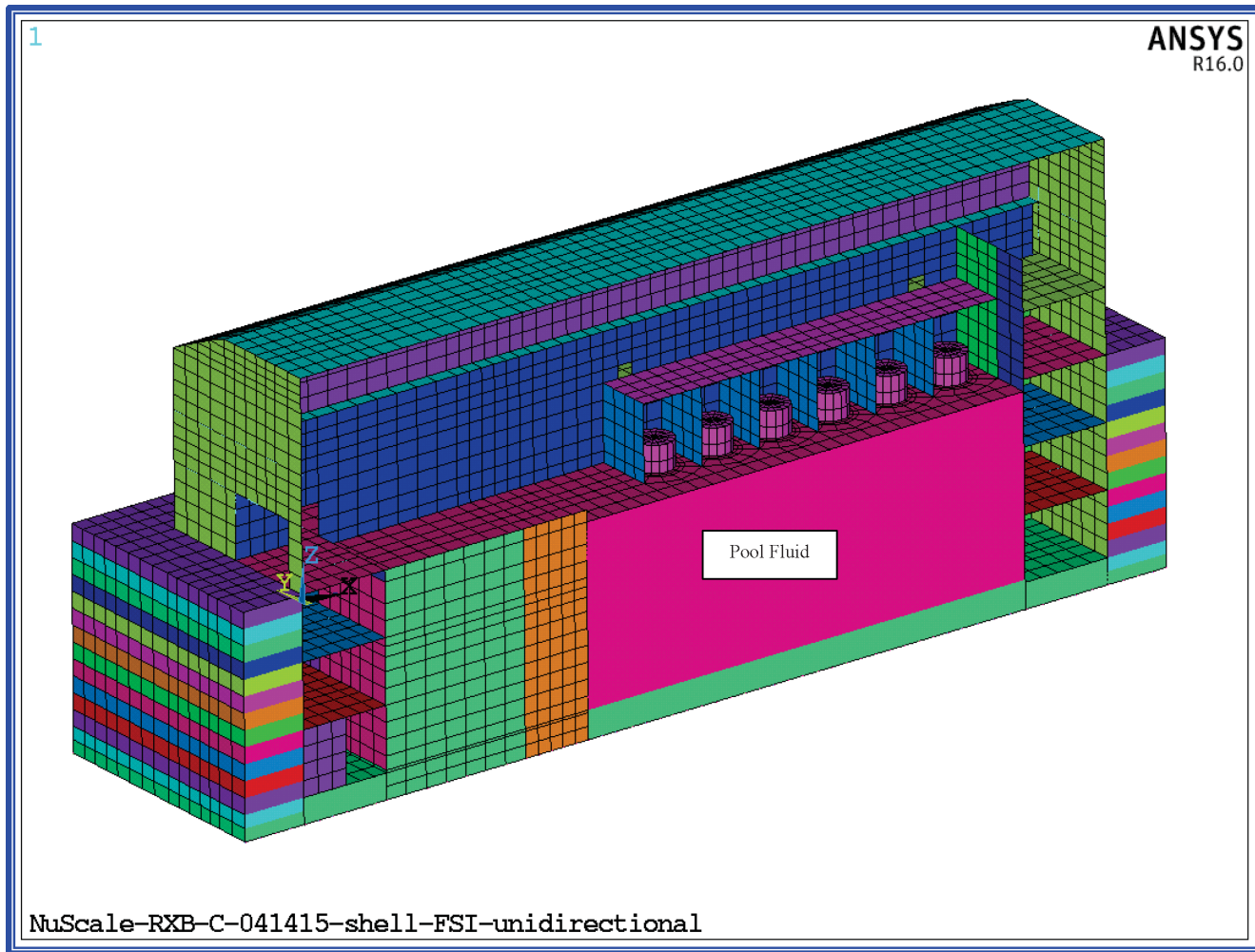


Figure 3.7.2-33: ANSYS Model of Fluid, NuScale Power Modules, Foundation and Interior Pool Walls

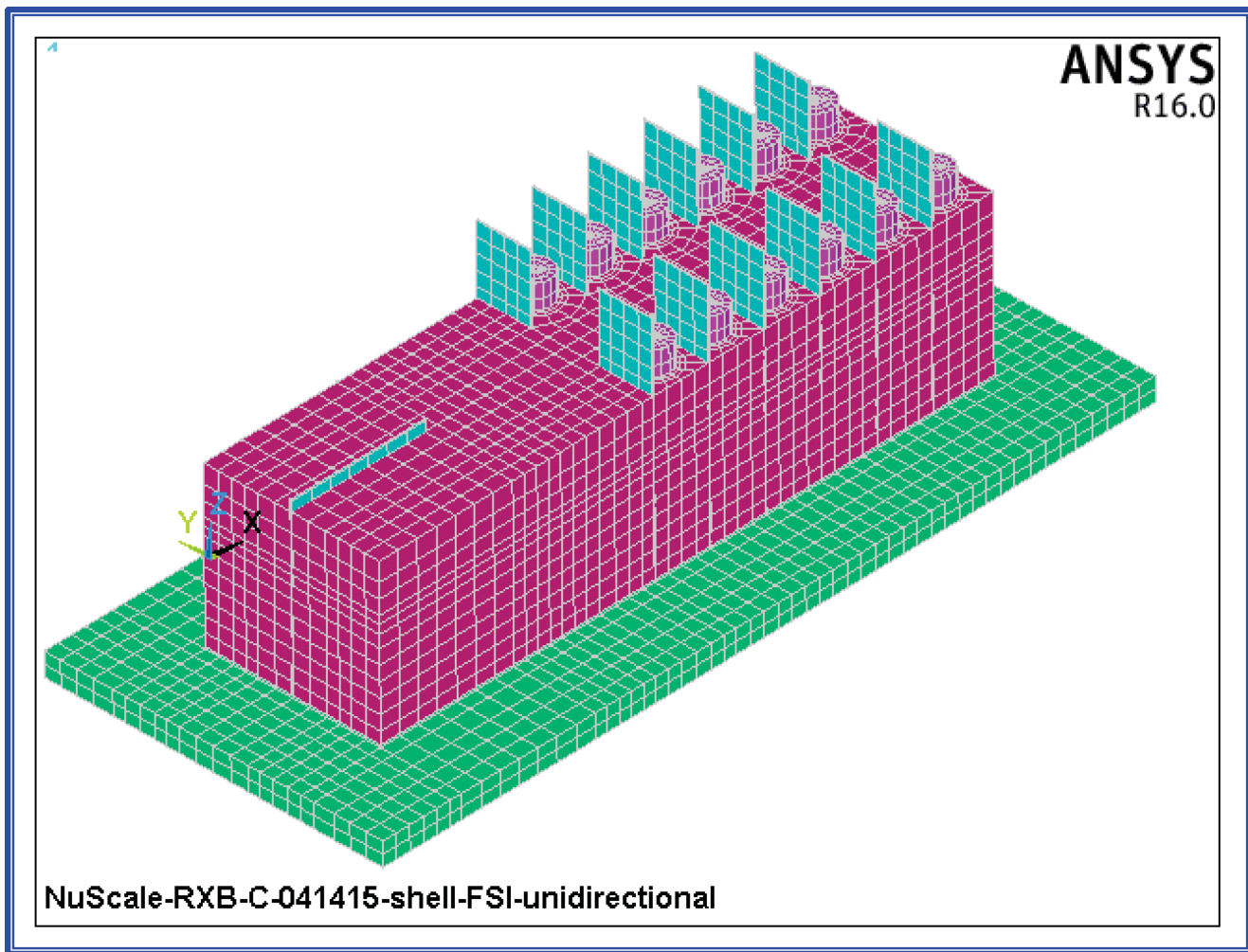


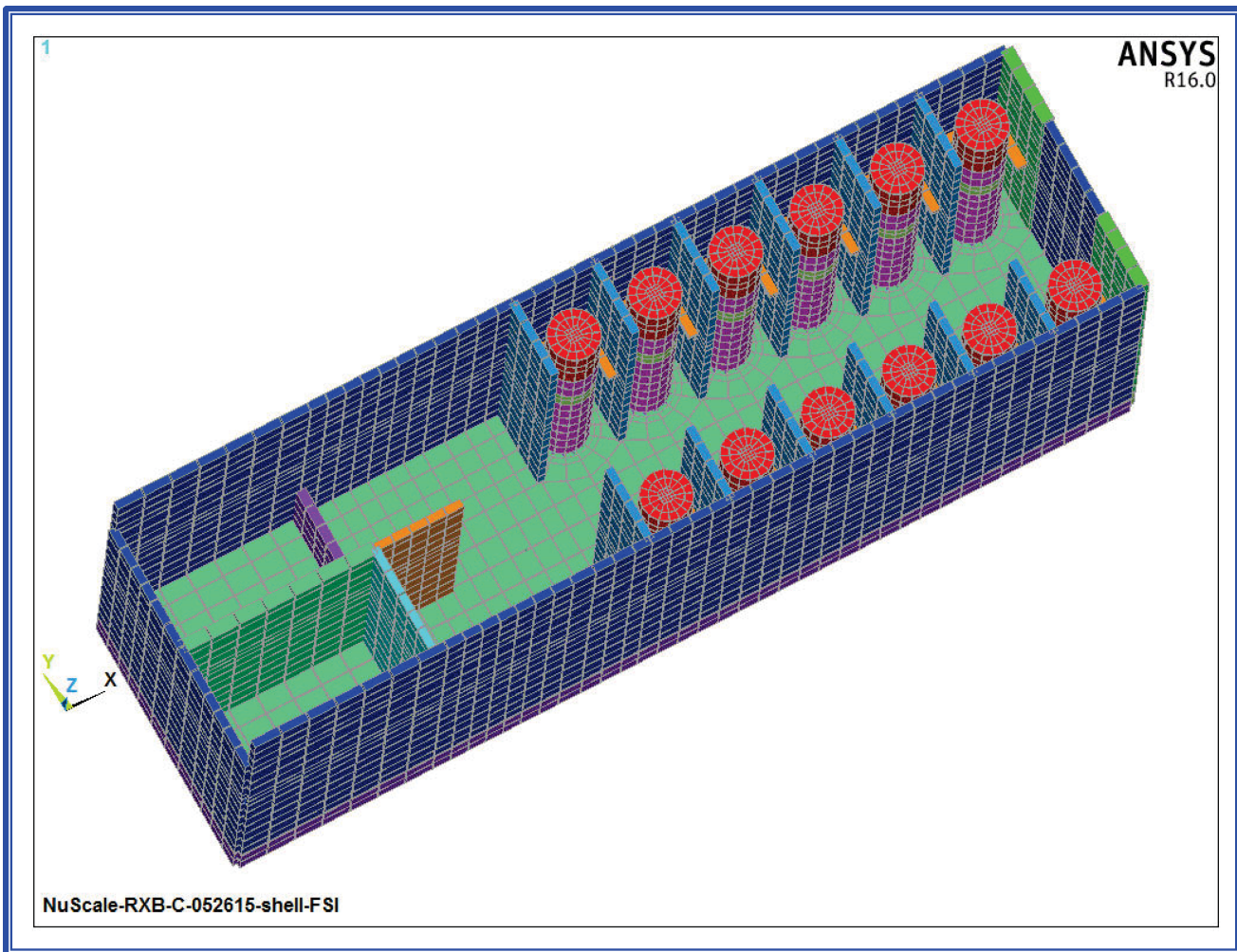
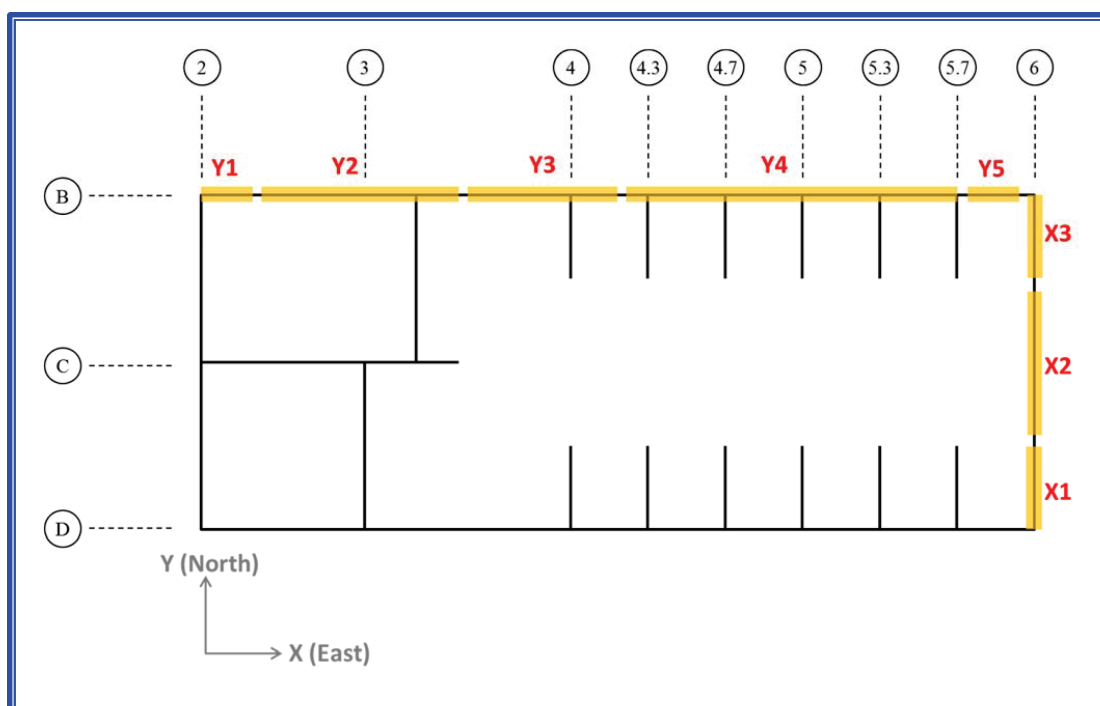
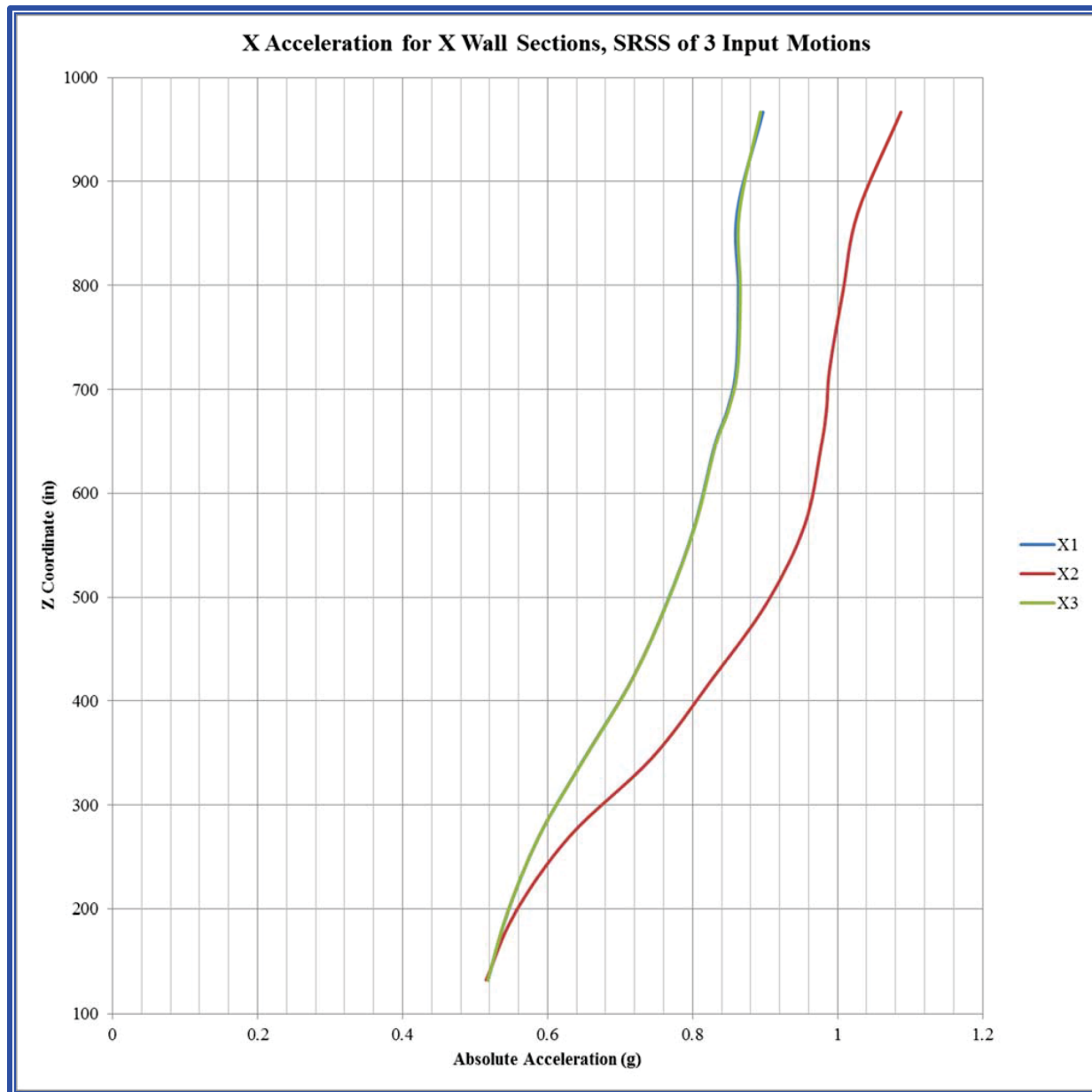
Figure 3.7.2-34: 3D View of Pool without Water with 12 NuScale Power Modules

Figure 3.7.2-35: Plan View of Wall Segments used for FSI analysis



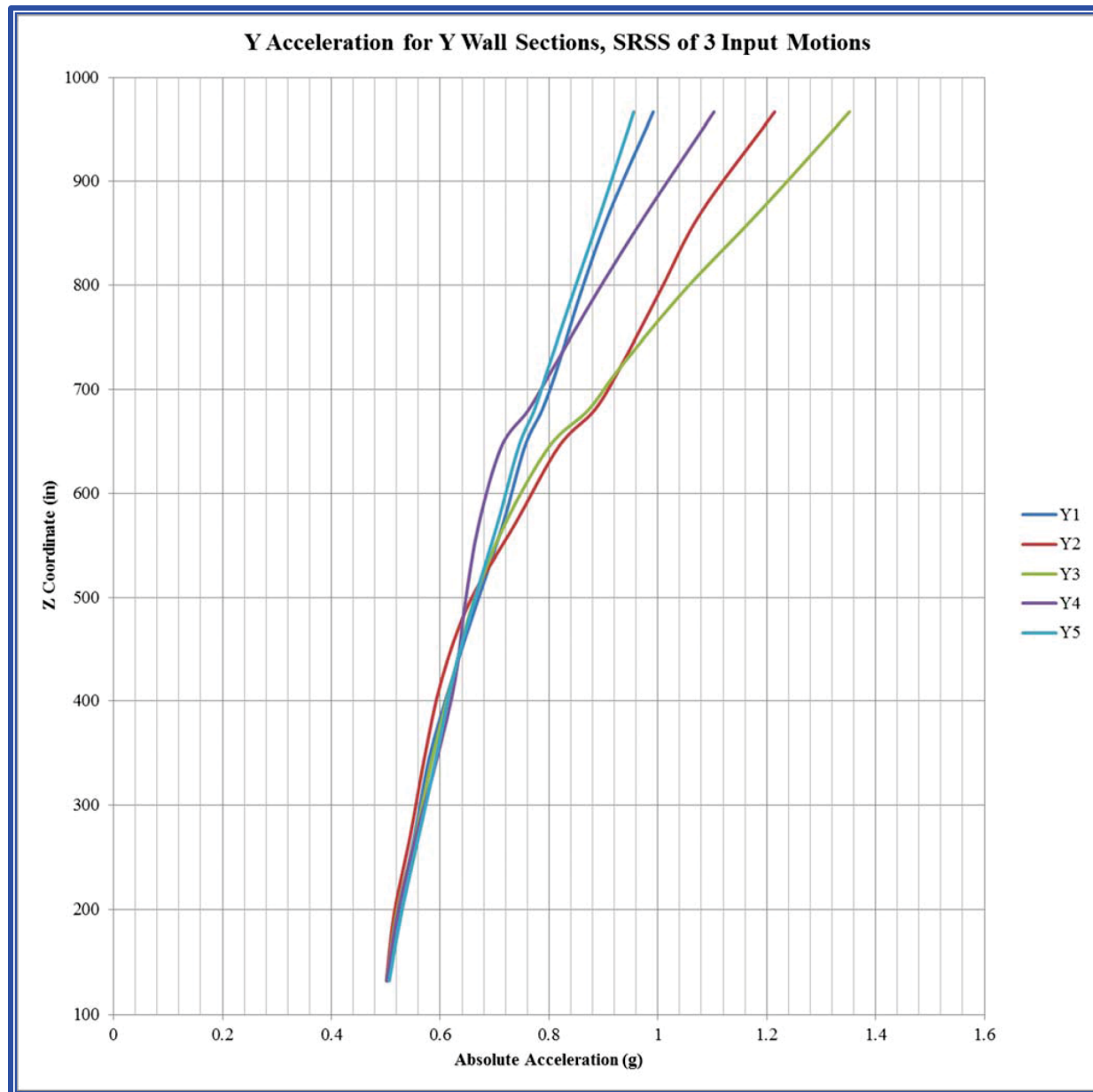
Wall Section Name	X (in)	Y (in)	Wall Section Length (in)
X1	3672	-453 to -202.5	250.5
X2	3672	-202.5 to 202.5	405.0
X3	3672	202.5 to 453	250.5
Y1	420 to 672.5	453	252.5
Y2	672.5 to 1481	453	808.5
Y3	1481 to 2056.4	453	575.4
Y4	2056.4 to 3387.6	453	1331.2
Y5	3387.6 to 3672	453	284.4

Figure 3.7.2-36: Maximum Accelerations for X Wall Sections from ANSYS



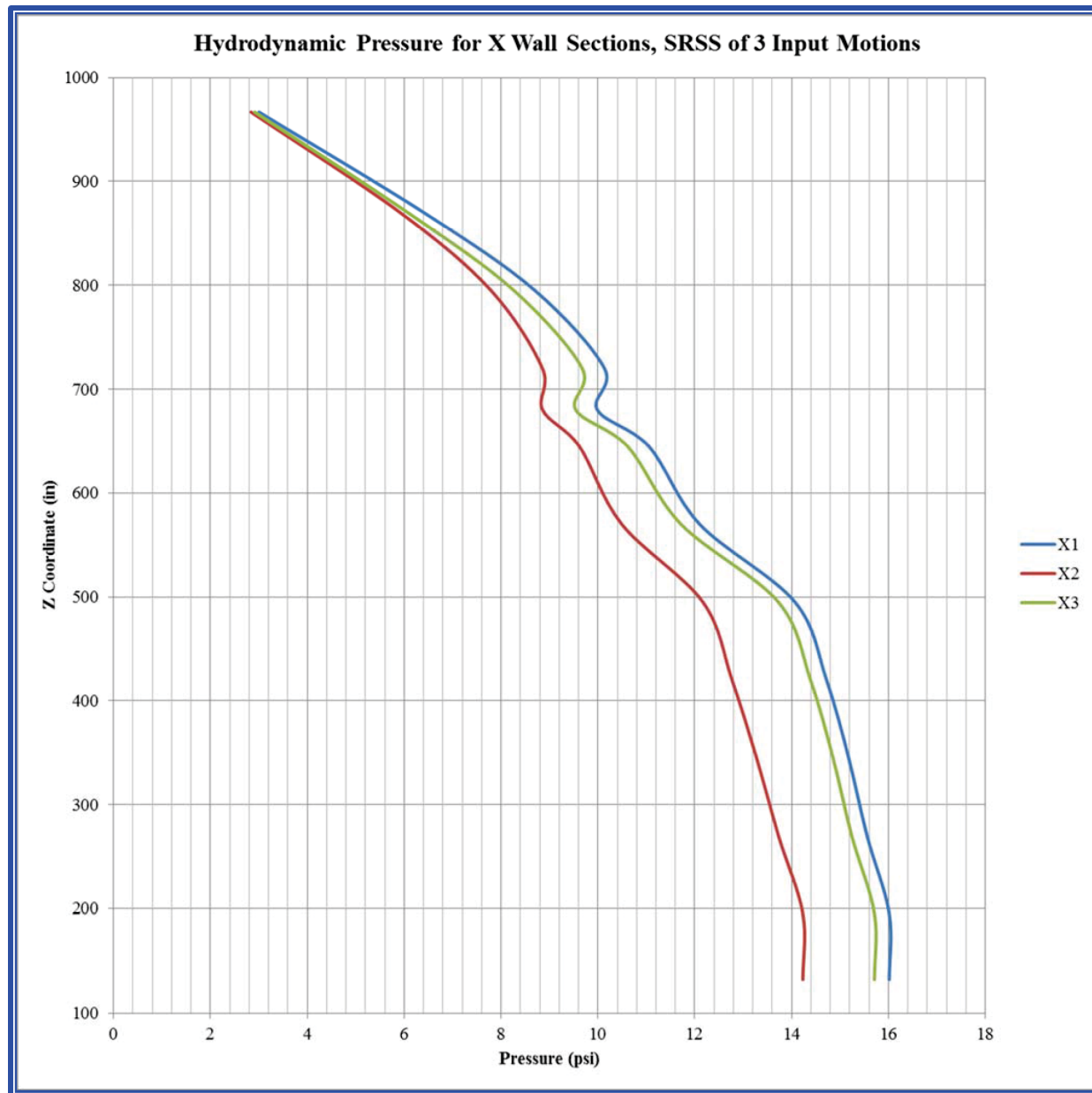
Note: ANSYS ordinate was changed in graph to align with ordinate at base of foundation, as used in the SASSI2010 and SAP2000 models, for comparison.

Figure 3.7.2-37: Maximum Accelerations for Y Wall Sections from ANSYS



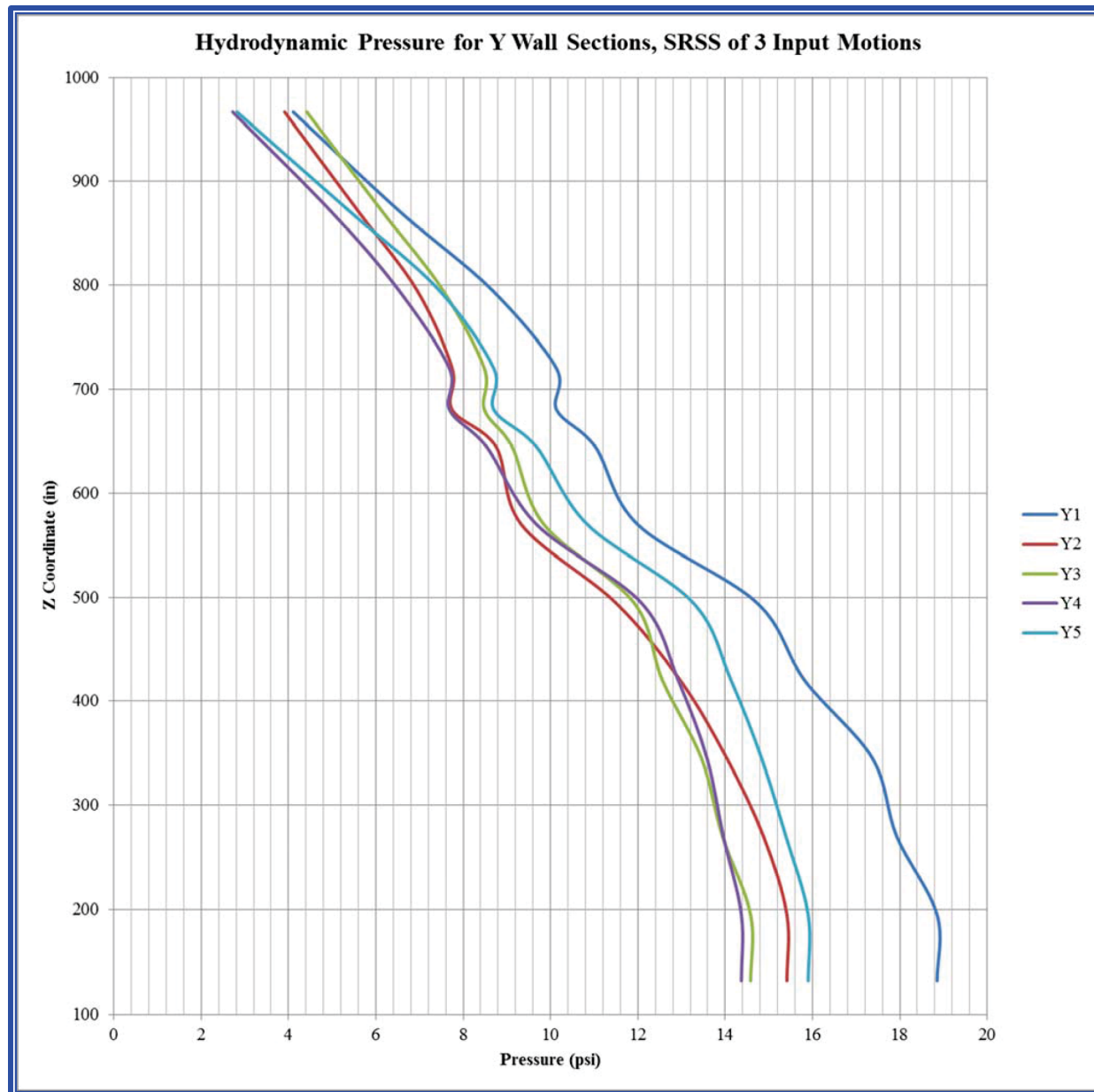
Note: ANSYS ordinate was changed in graph to align with ordinate at base of foundation, as used in the SASSI2010 and SAP2000 models, for comparison.

Figure 3.7.2-38: Hydrodynamic Pressure for X Wall Sections from ANSYS



Note: ANSYS ordinate was changed in graph to align with ordinate at base of foundation, as used in the SASSI2010 and SAP2000 models, for comparison.

Figure 3.7.2-39: Hydrodynamic Pressure for Y Wall Sections from ANSYS



Note: ANSYS ordinate was changed in graph to align with ordinate at base of foundation, as used in the SASSI2010 and SAP2000 models, for comparison.

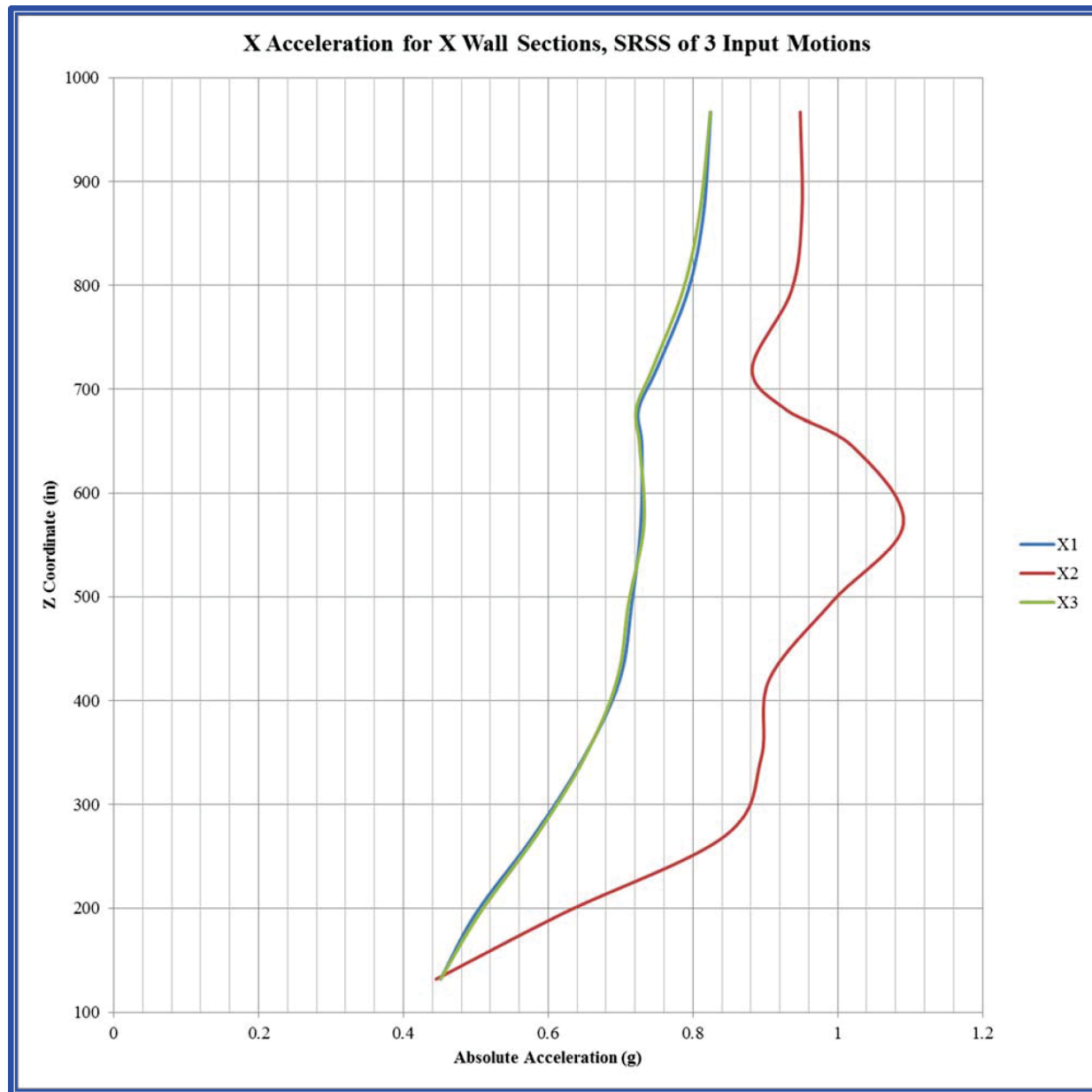
Figure 3.7.2-40: Maximum Accelerations for X Wall Sections, Soil Type 7 from SASSI2010

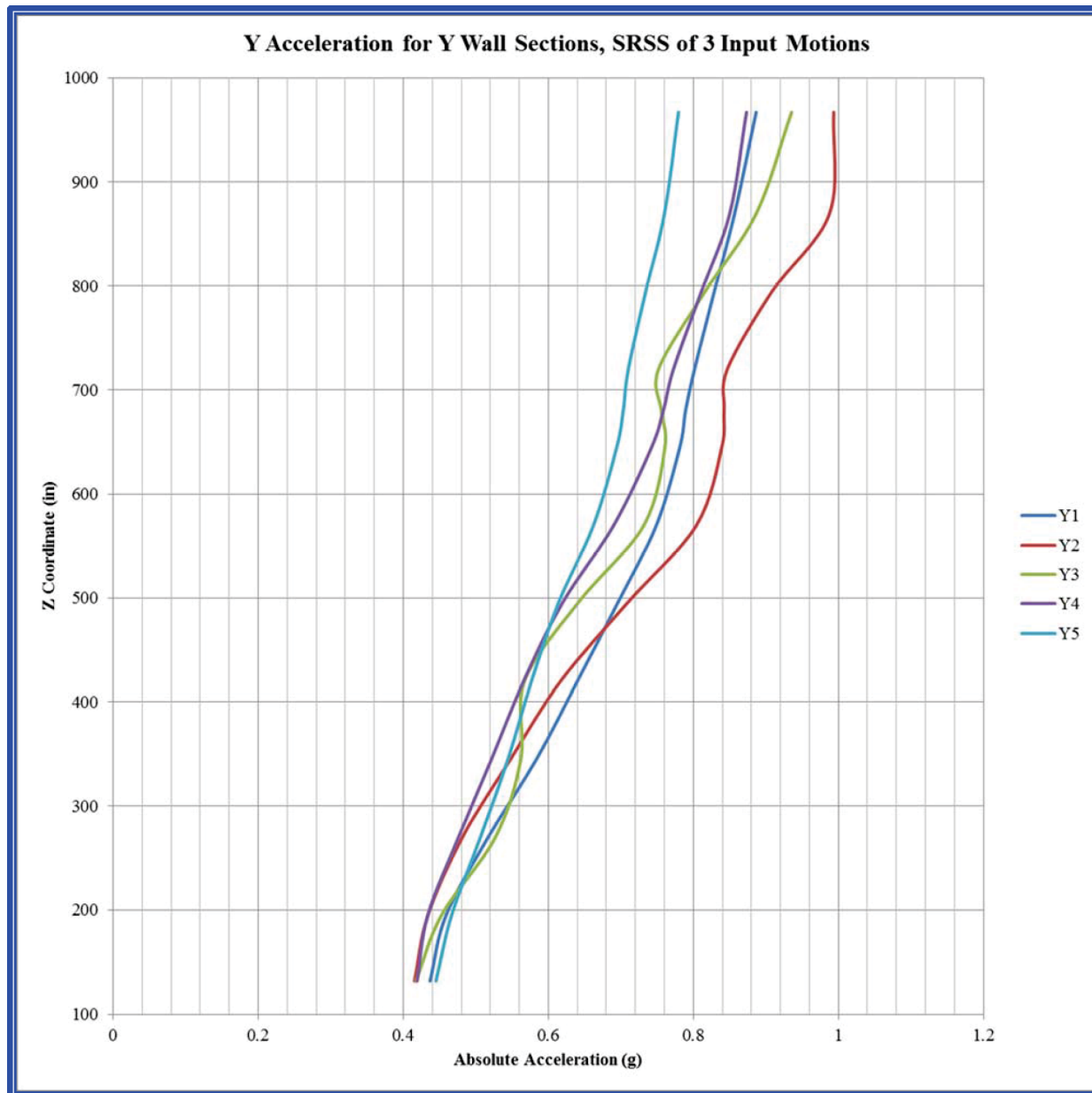
Figure 3.7.2-41: Maximum Accelerations for Y Wall Sections, Soil Type 7 from SASSI2010

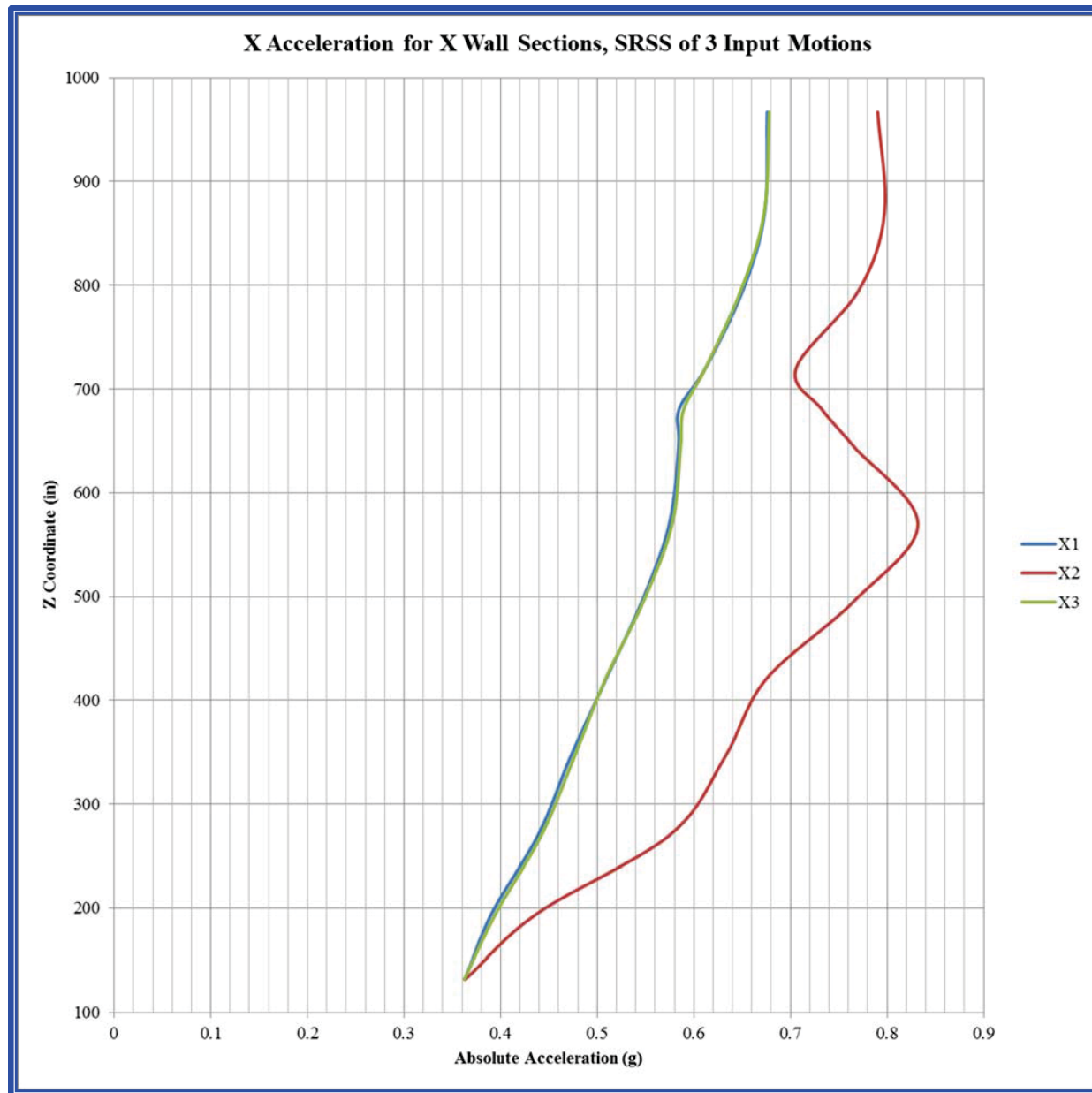
Figure 3.7.2-42: Maximum Accelerations for X Wall Sections, Soil Type 8 from SASSI2010

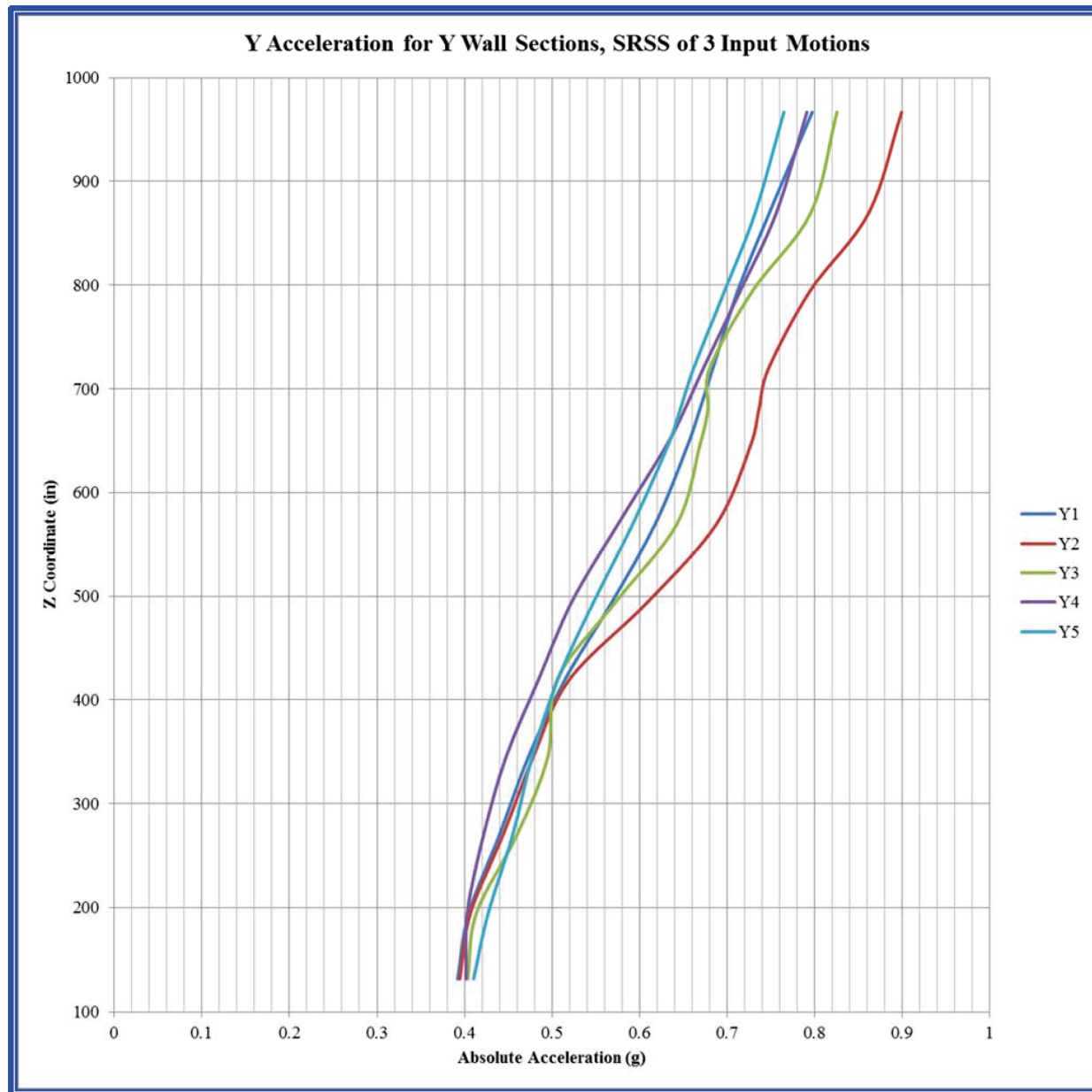
Figure 3.7.2-43: Maximum Accelerations for Y Wall Sections, Soil Type 8 from SASSI2010

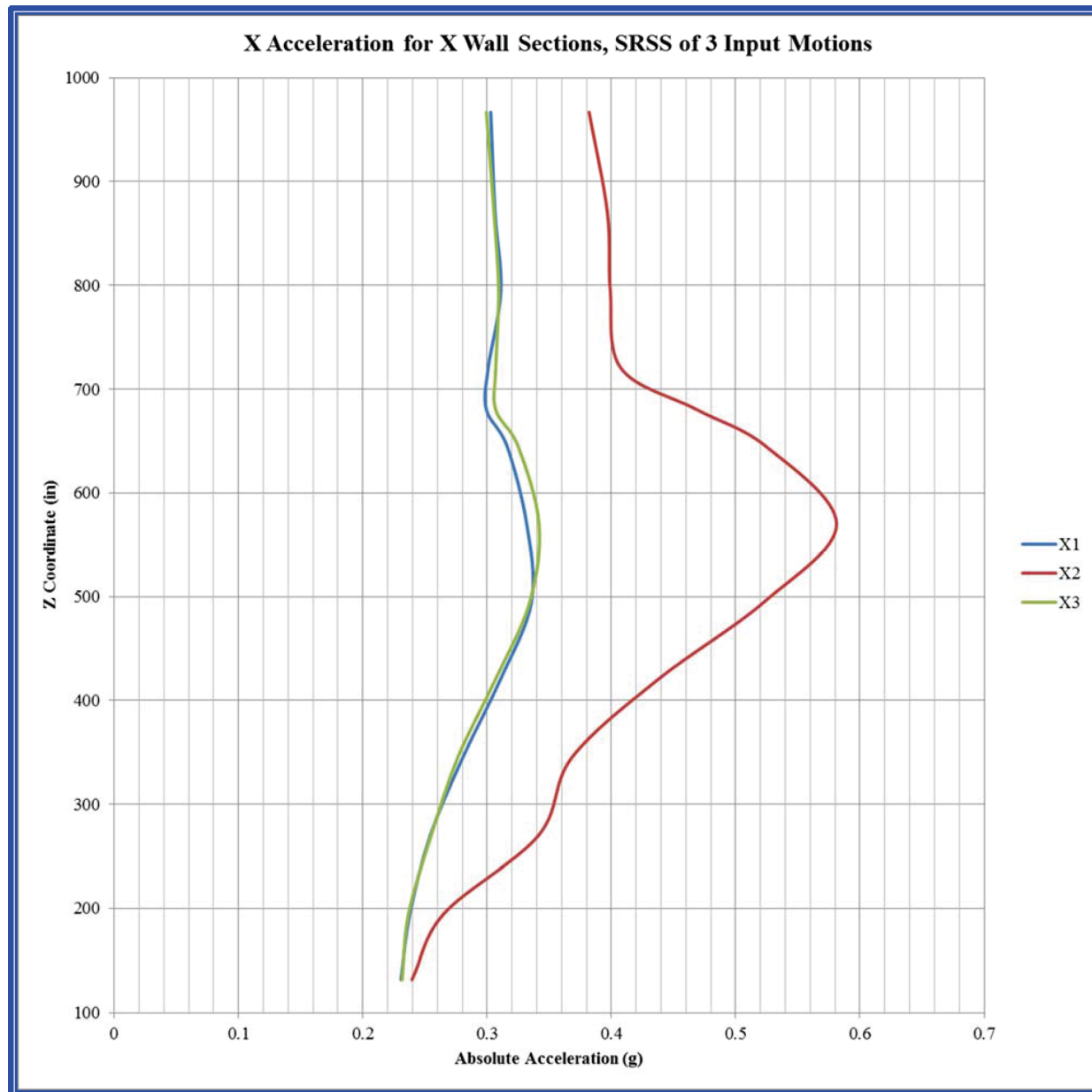
Figure 3.7.2-44: Maximum Accelerations for X Wall Sections, Soil Type 11 from SASSI2010

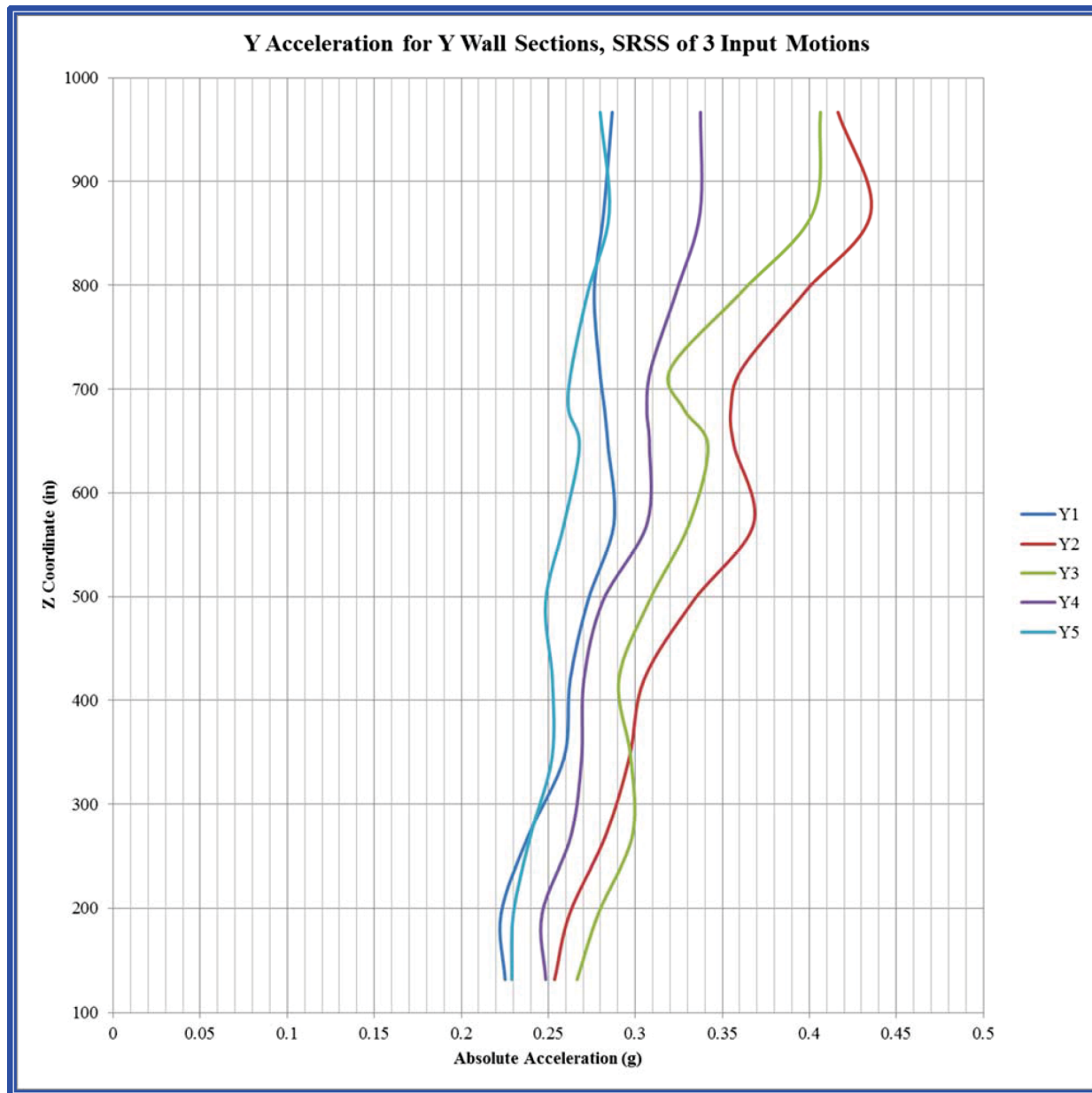
Figure 3.7.2-45: Maximum Accelerations for Y Wall Sections, Soil Type 11 from SASSI2010

Figure 3.7.2-46: Control Building (Looking Northeast)

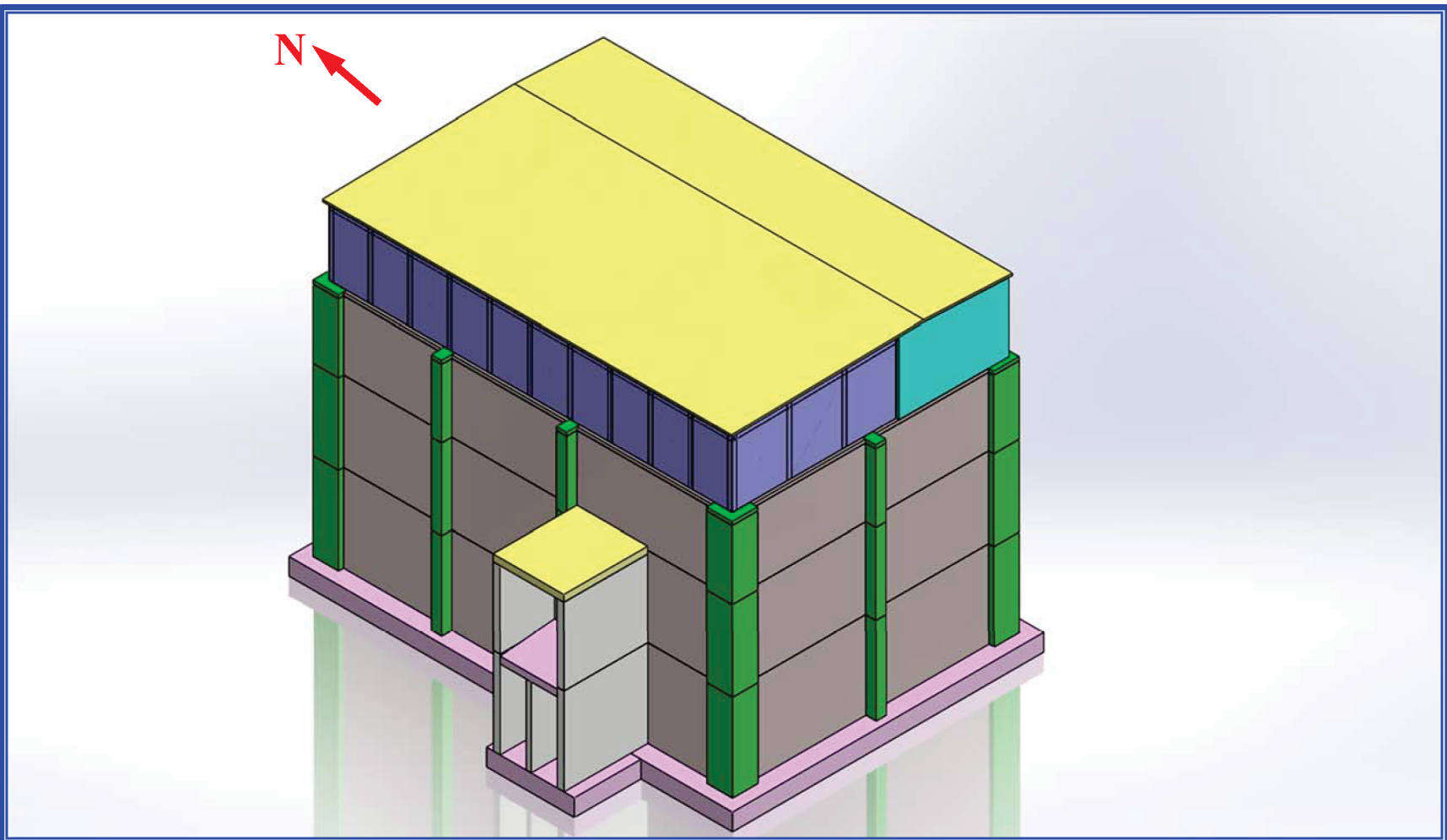


Figure 3.7.2-47: East-West Section Cut View of Control Building in Soil

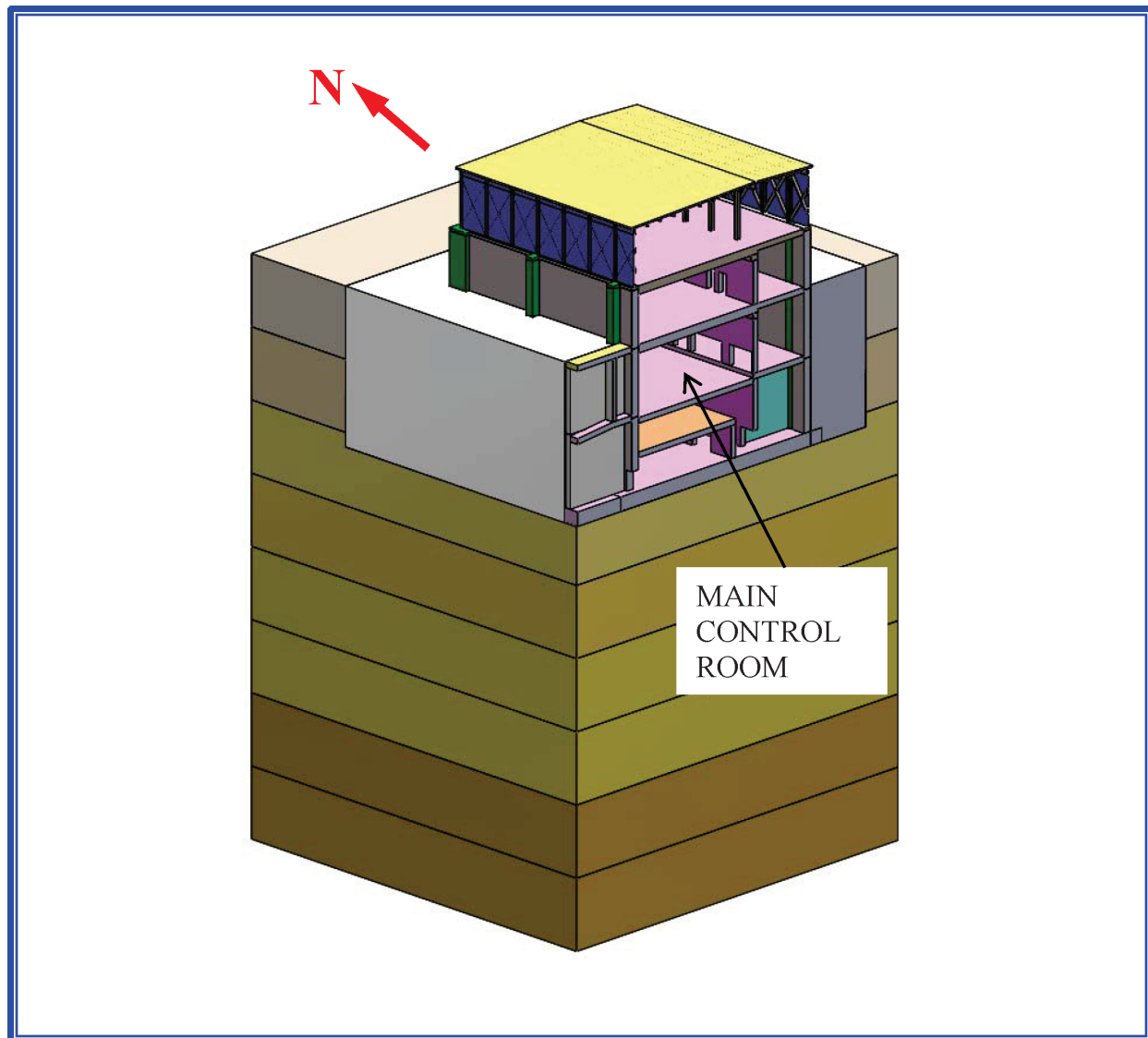


Figure 3.7.2-48: North-South Section Cut View of Control Building in Soil

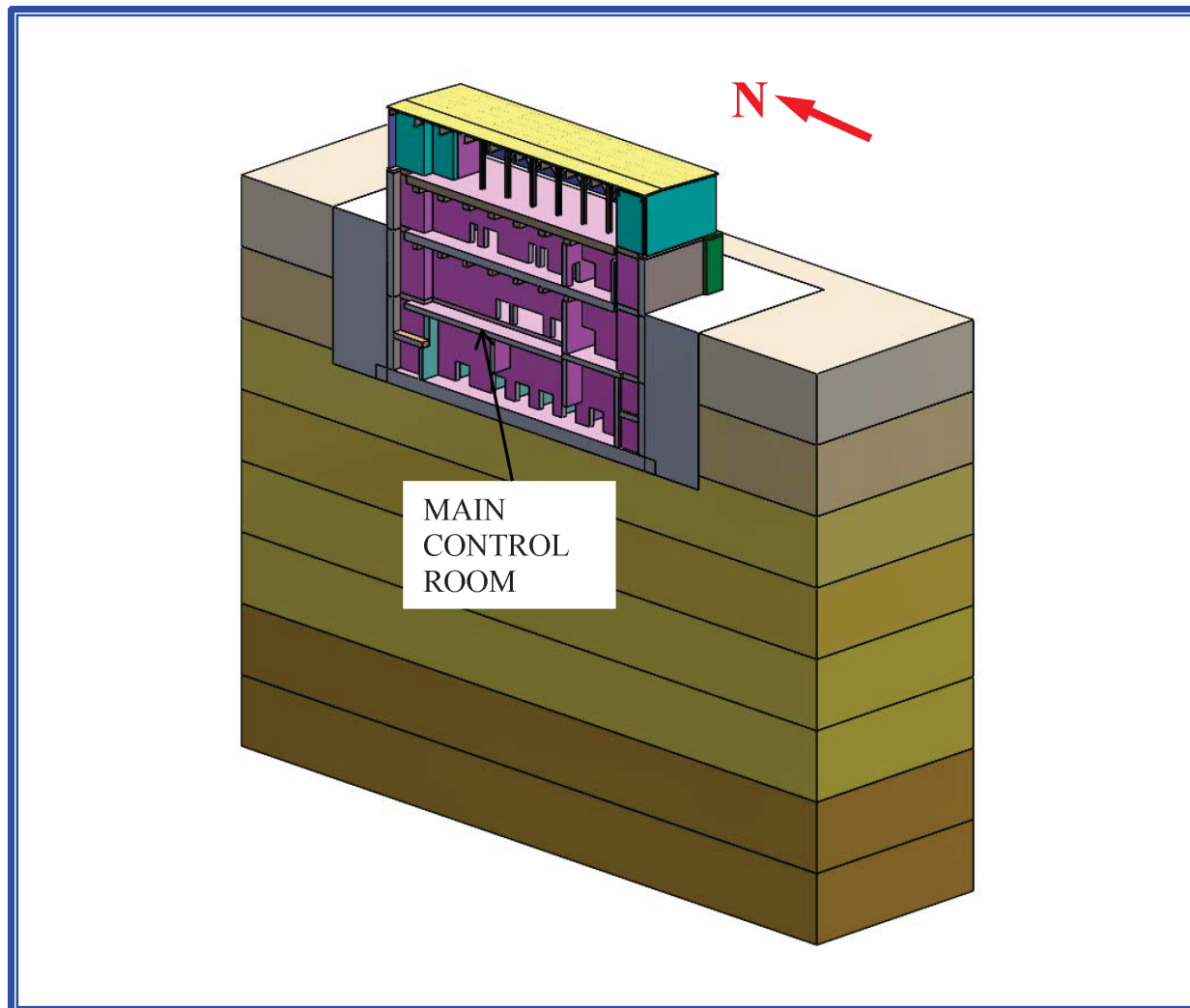


Figure 3.7.2-49: Quarter View of Control Building in Soil

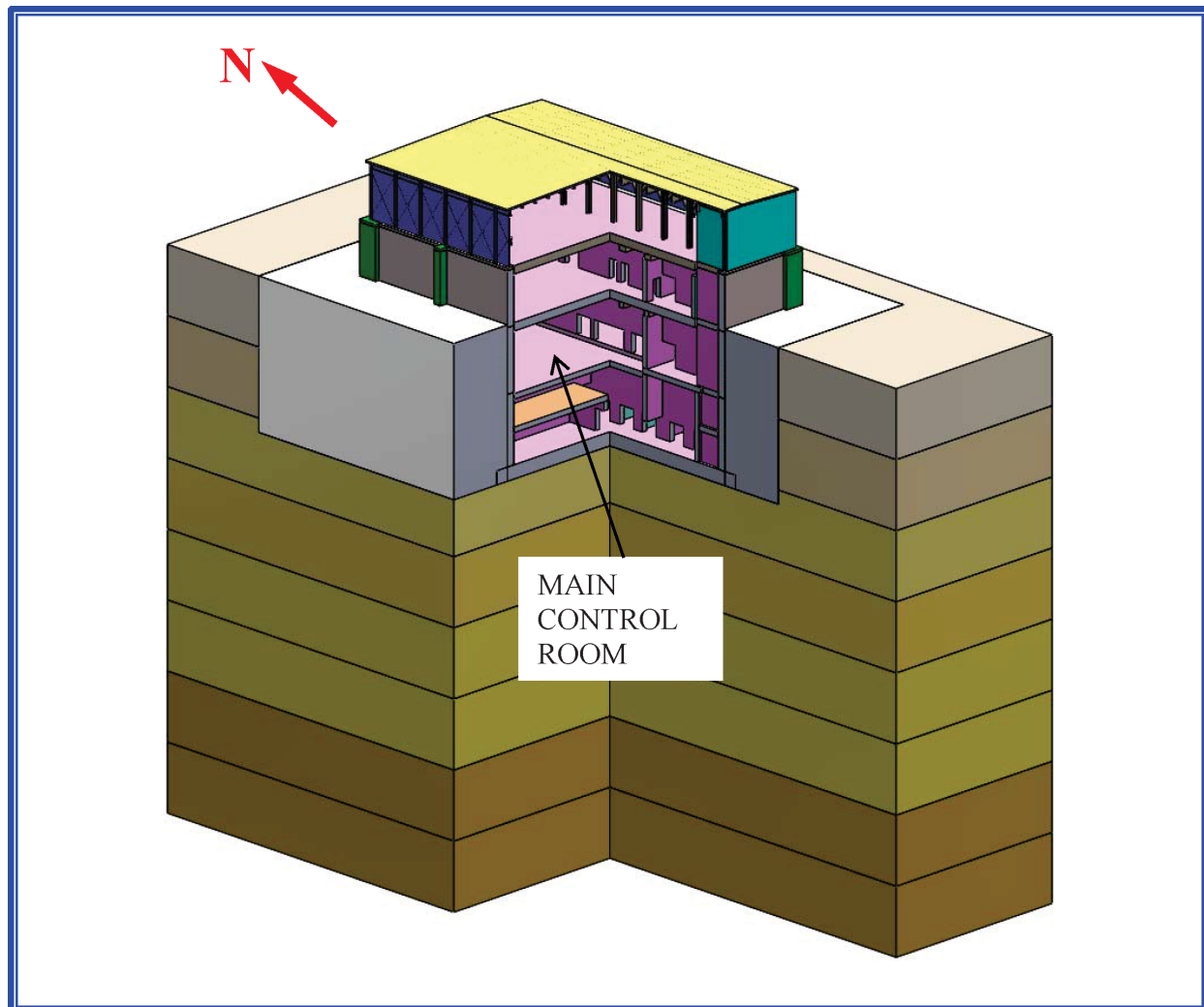


Figure 3.7.2-50: SAP2000 Control Building Model

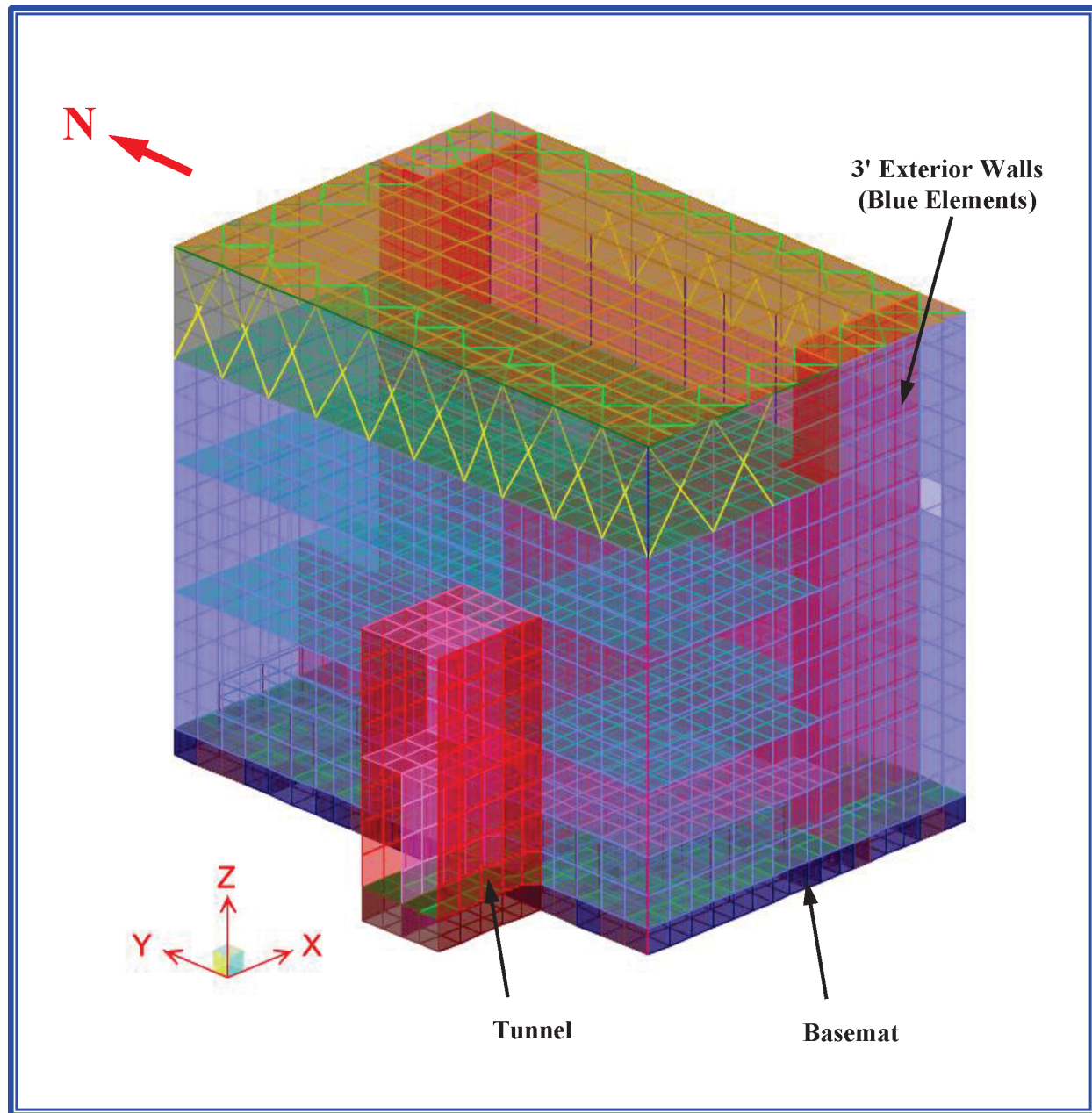


Figure 3.7.2-51: SAP2000 Control Building Model Beam Elements

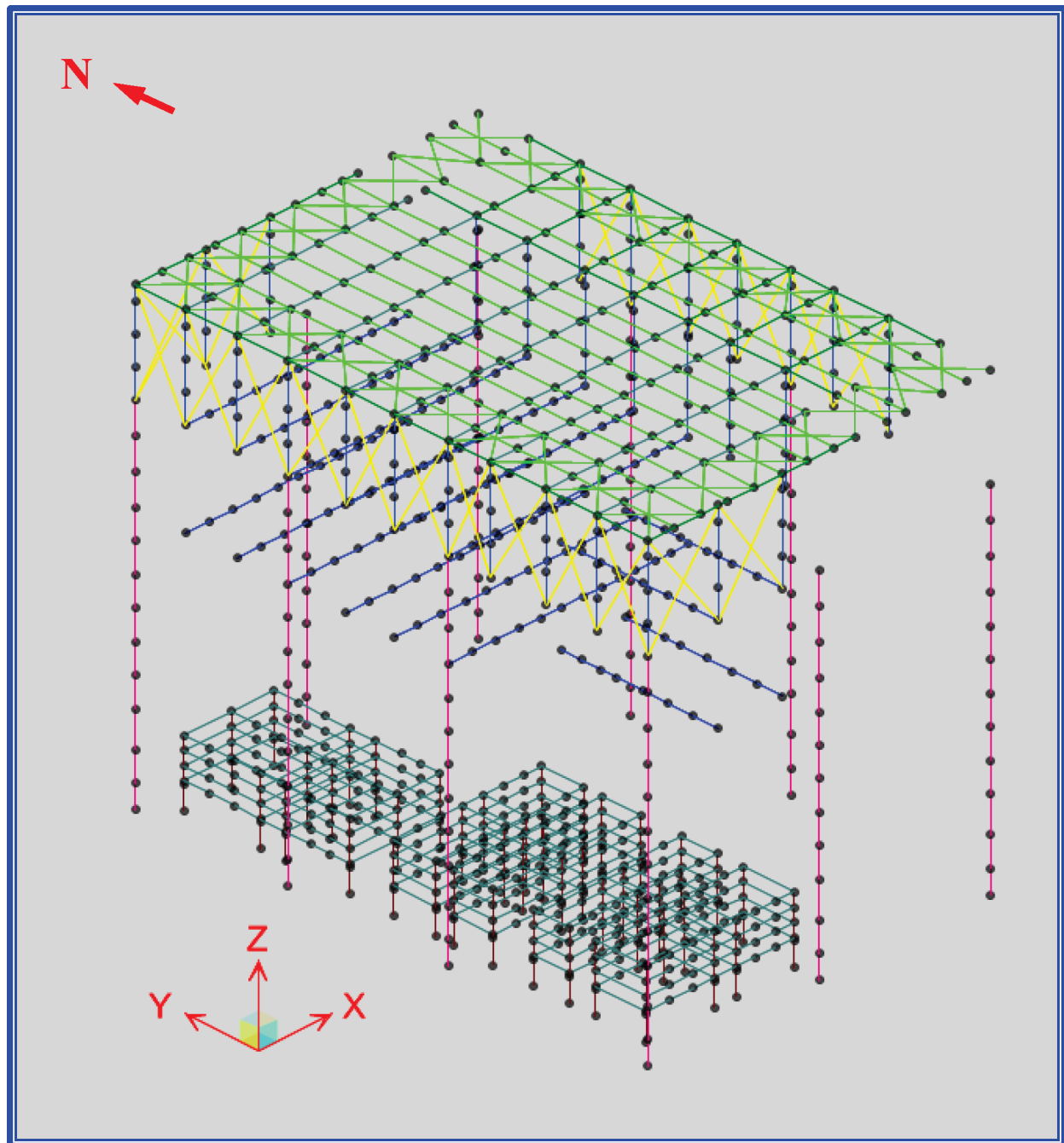


Figure 3.7.2-52: SAP2000 Control Building Model with Backfill Soil

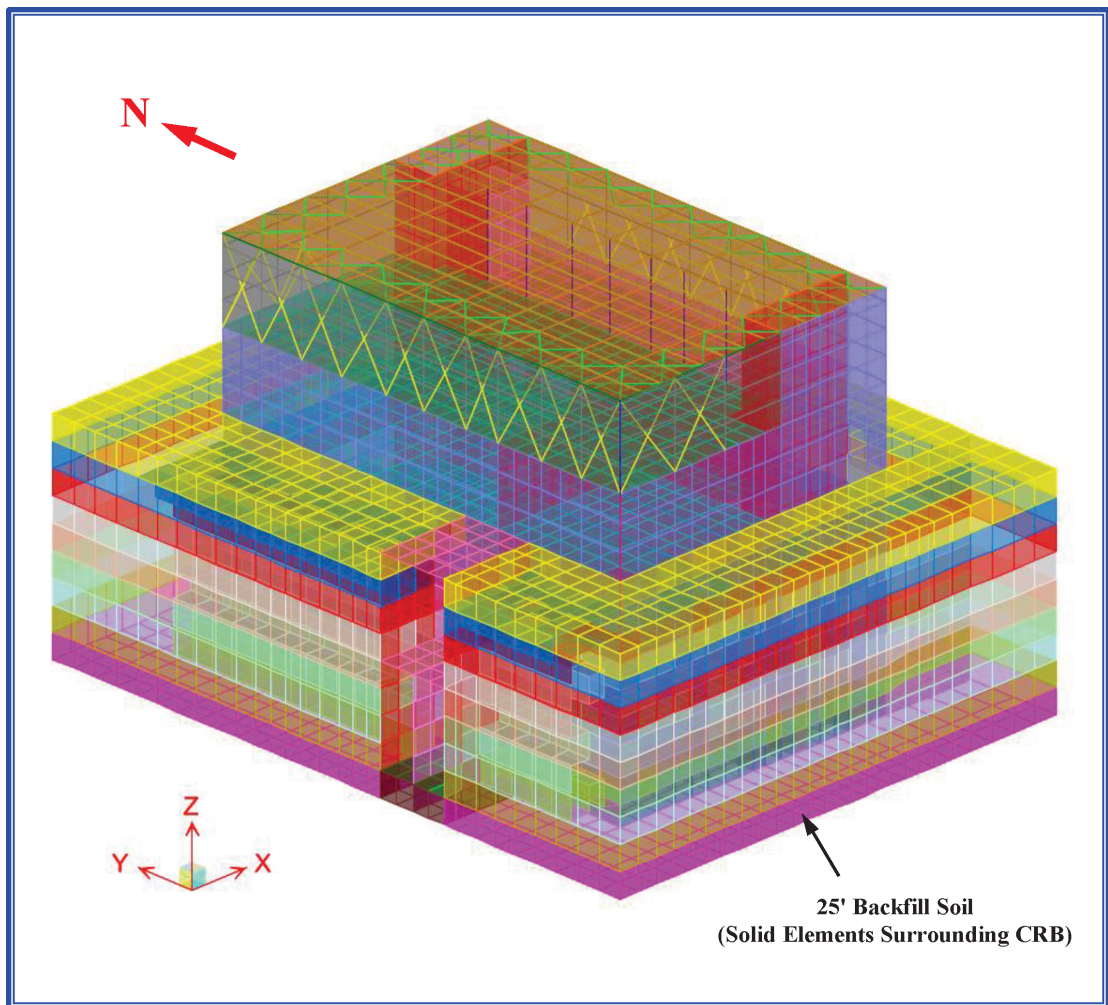


Figure 3.7.2-53: Control Building SASSI2010 Model

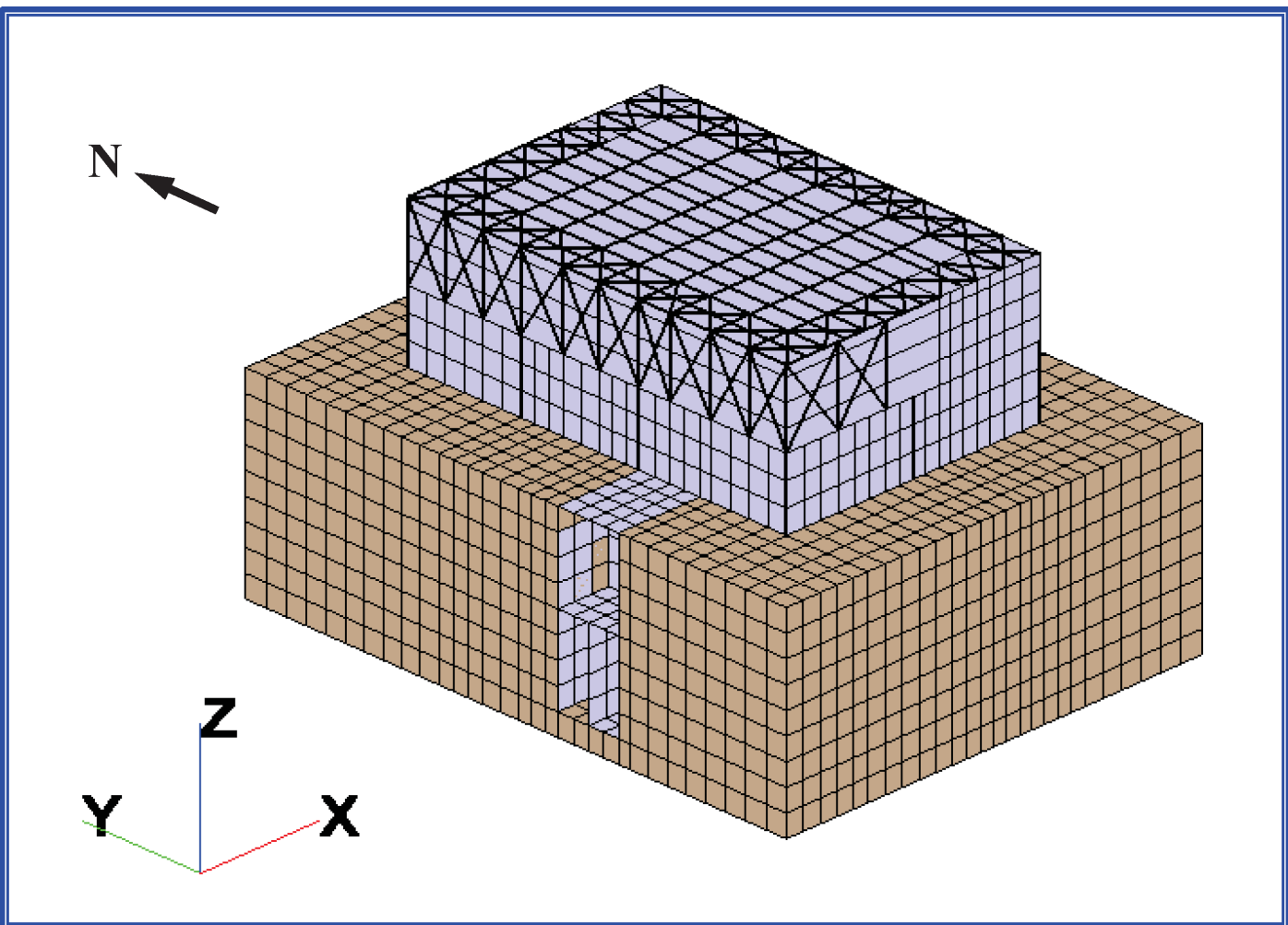


Figure 3.7.2-54: Excavated Soil of Control Building SASSI2010 Model

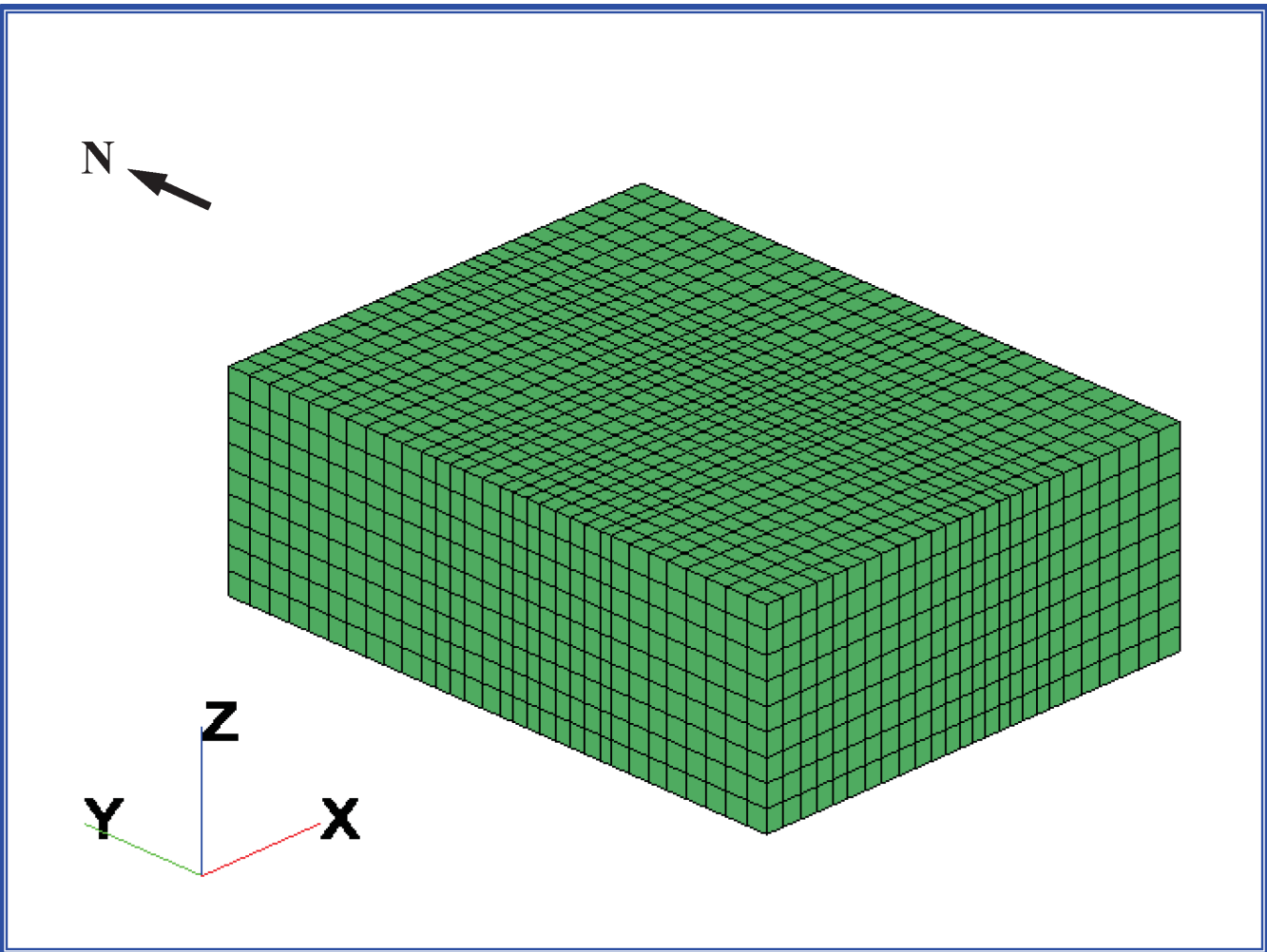


Figure 3.7.2-55: Control Building SASSI2010 Model Backfill Soil Solid Elements

