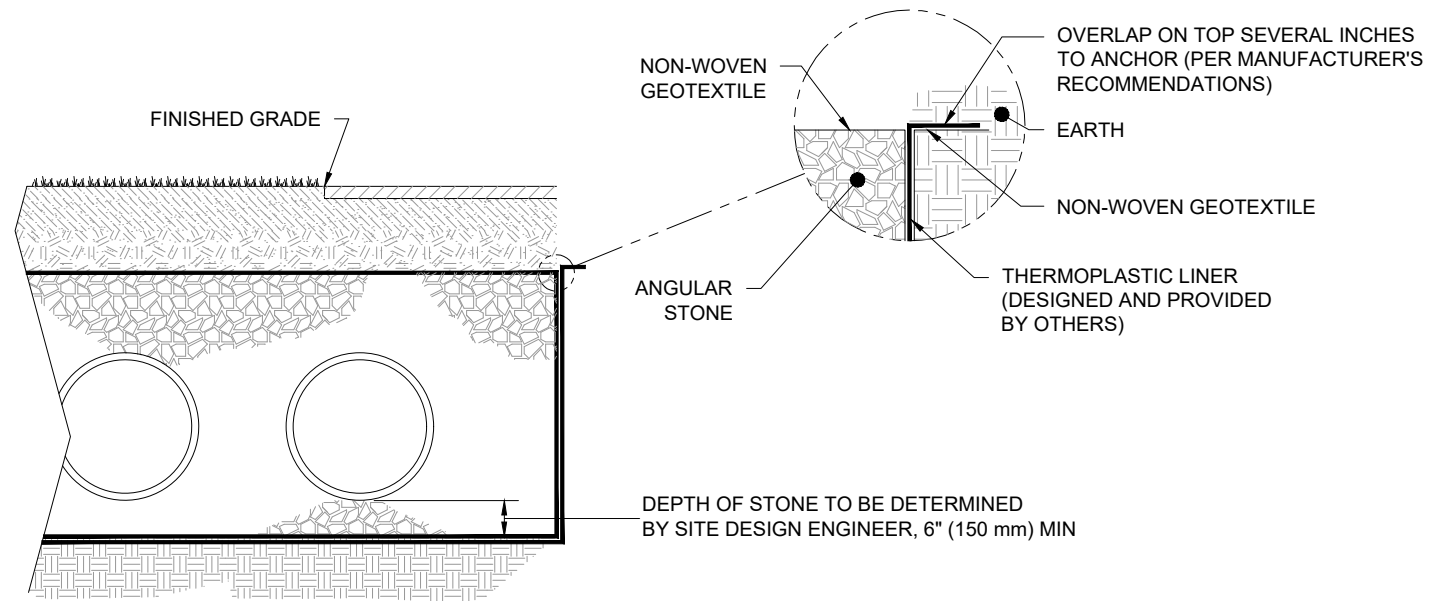## SPECIAL PROVISIONS - PIPE DETENTION BELOW STRUCTURE

1. INSTALLATION REQUIREMENTS SHALL BE AS SPECIFIED PER ASTM D2321 EXCEPT AS MODIFIED IN THESE SPECIAL PROVISIONS.

2. THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE PIPE TO THE BUILDING/STRUCTURE. NO FOUNDATION OR COLUMN LOADS SHALL BE TRANSMITTED TO THE PIPE. THE SITE DESIGN ENGINEER MUST CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON BEARING CAPACITY OF SOILS AND SEEPAGE INTO BASEMENTS.

3. CONTRACTOR REQUIRED TO SCHEDULE PRE-CONSTRUCTION MEETING WITH AN ADS REPRESENTATIVE PRIOR TO INSTALLATION WITH ON-SITE INSTALLATION AND INSPECTION PERSONNEL

4. INSPECTION DURING THE INSTALLATION BY THE SITE DESIGN ENGINEER, OWNER, OR OTHER REPRESENTATIVE IS REQUIRED. THE INSPECTION SHALL ENSURE THE CONTRACTOR STRICTLY ADHERES TO THE REQUIREMENTS AND GUIDANCE PROVIDED IN ASTM D2321 AND THE ADS INSTALLATION GUIDE. DILIGENCE SHOULD BE TAKEN DURING INSPECTION TO ENSURE BACKFILL OF THE SYSTEM IS COMPLETED UNIFORMLY AS TO NOT PROMOTE UNILATERAL PIPE DEFLECTION.

5. POST-INSTALLATION INSPECTION BY THE SITE DESIGN ENGINEER, OWNER, OR OTHER REPRESENTATIVE IS REQUIRED. INSTALLATION REPORTS SHALL BE PROVIDED TO SITE DESIGN ENGINEER, OWNER, CONTRACTOR, AND MANUFACTURER.

6. PRECAUTION SHALL BE TAKEN TO MITIGATE ANY/ALL CONSTRUCTION LOADING.

7. ANY LOADING ASSOCIATED WITH CONSTRUCTION SEQUENCING AND/OR TEMPORARY SHORING HAS NOT BEEN EVALUATED AND MUST BE EVALUATED BY LICENSED STRUCTURAL ENGINEER

FINISHED GRADE

NON-WOVEN GEOTEXTILE

OVERLAP ON TOP SEVERAL INCHES TO ANCHOR (PER MANUFACTURER'S RECOMMENDATIONS)

EARTH

NON-WOVEN GEOTEXTILE

THERMOPLASTIC LINER (DESIGNED AND PROVIDED BY OTHERS)

ANGULAR STONE

DEPTH OF STONE TO BE DETERMINED BY SITE DESIGN ENGINEER, 6" (150 mm) MIN

MEMBRANE LINER DETAIL
NTS

UNEVEN BACKFILL

EVEN BACKFILL

12" (305 mm) MAX.

BACKFILL PIPE EVENLY. STONE COLUMN HEIGHT SHOULD NEVER DIFFER BY MORE THAN 12" (305 mm) BETWEEN ADJACENT PIPE LATERALS OR BETWEEN PIPE AND PERIMETER.

PERIMETER NOT BACKFILLED

PERIMETER FULLY BACKFILLED

PERIMETER FILL MUST BE BROUGHT UP EVENLY WITH PIPE LATERALS. PERIMETER MUST BE FULLY BACKFILLED, WITH FILL EXTENDED HORIZONTALLY TO THE EXCAVATION WALL.
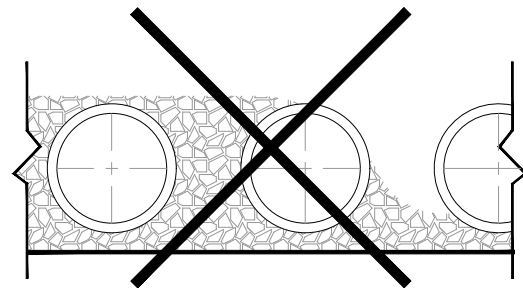
GENERAL NOTES:

1. THIS DETAIL PROVIDES THE REQUIREMENTS FOR A MEMBRANE LINER SYSTEM USING PIPE STRUCTURES AND ANGULAR STONE BACKFILL MATERIALS CONFORMING TO ASTM D2321.
2. THE CONTRACTOR RESPONSIBLE FOR THE LINER INSTALLATION IS REFERRED TO AS THE "INSTALLER". THE CONTRACTOR RESPONSIBLE FOR THE PIPE INSTALLATION IS REFERRED TO AS THE "CONTRACTOR".
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT NO DAMAGE OCCURS TO THE INSTALLED LINER SYSTEM DURING THE CONSTRUCTION AND BACKFILL OF THE PIPE SYSTEM.
4. PIPE SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PIPE MANUFACTURER REQUIREMENTS, WITH ADDITIONAL REQUIREMENTS AS SPECIFIED HERE.
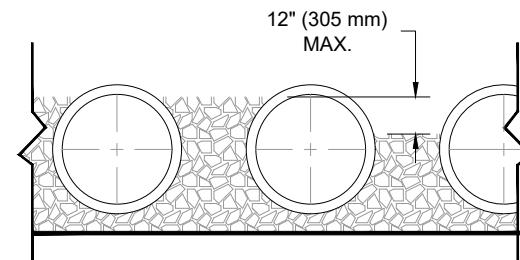
MEMBRANE LINER NOTES:

1. LINER MEMBRANE THICKNESS SHALL BE AT LEAST 30 mil.
2. THE LINER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. SCOPE OF LINER SYSTEM & INSTALLATION SHALL INCLUDE BUT IS NOT LIMITED TO:
   A. INSTALLATION OF NONWOVEN MEMBRANE PROTECTION LAYERS
   B. INSTALLATION OF MEMBRANE
   C. FIELD WELDING OF SEAMS
   D. INSTALLATION OF BOOTS OR SPECIAL FITTINGS AT PIPE PENETRATION
4. ALL MEMBRANE LINER WELDING SHALL BE CONDUCTED BY IAGI CERTIFIED WELDING TECHNICIANS.

ADDITIONAL REQUIREMENTS FOR THE CONTRACTOR:

1. PREPARATION OF BOTTOM AND SIDEWALLS OF EXCAVATION:
   A. ALL PROTRUSIONS OF STONE OR OTHER MATERIALS SHALL BE REMOVED FROM THE BOTTOM AND SIDEWALLS OF THE EXCAVATION
   B. THE BOTTOM OF THE EXCAVATION SHALL BE ROLLED SMOOTH
2. THE CONTRACTOR SHALL PROVIDE ANCHOR TRENCHES OR OTHER MEANS OF HOLDING UP THE LINER AT THE TOP OF THE EXCAVATION AS DIRECTED BY THE INSTALLER.
3. STONE (FOUNDATION STONE) SHALL BE SPREAD ON THE NONWOVEN PROTECTIVE LAYER IN A MANNER SO AS TO NOT DAMAGE THE MEMBRANE.
   A. NO EQUIPMENT, TRACKED OR WHEELED, SHALL BE DRIVEN DIRECTLY ON THE NONWOVEN PROTECTIVE LAYER
   B. LOW GROUND PRESSURE (LGP) TRACKED VEHICLES MAY BE USED WITH 6" (150 mm) OR MORE STONE DEPTH UNDER THE TRACKS
   C. STONE SHALL NOT BE DUMPED OR DROPPED ONTO THE PROTECTIVE LAYER IN MORE THAN A 5' (1.52 m) FALL
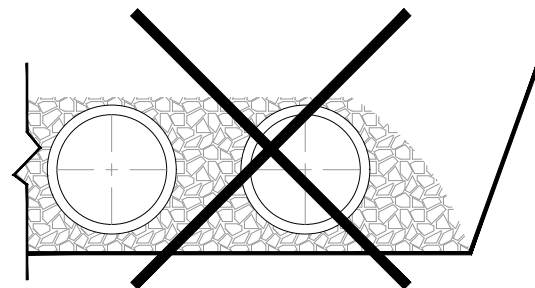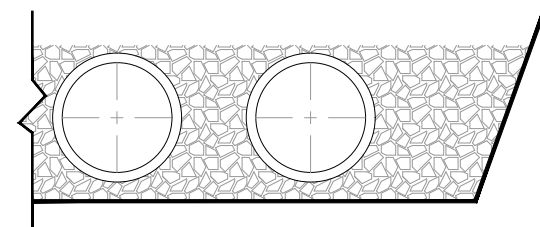4. ROLLING OF FOUNDATION STONE SHALL BE LIMITED TO A MAXIMUM DRUM WEIGHT OF 5000 lbs. (2267 kg.) NO DYNAMIC FORCE IS ALLOWED.