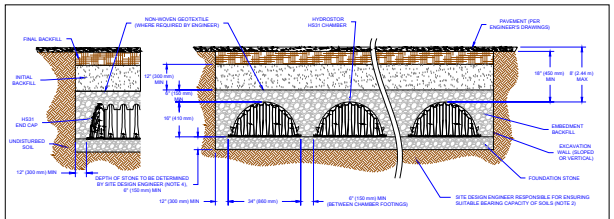

NOTES:

1. HYDROSTOR HS31 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418. HS31 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S LATEST INSTALLATION GUIDELINES.
2. **SUBGRADE:** TRENCH BOTTOMS WITH UNSTABLE OR UNYIELDING MATERIAL SHALL BE EXCAVATED TO A DEPTH DIRECTED BY THE ENGINEER AND REPLACED WITH SUITABLE MATERIAL. FOR UNSTABLE MATERIALS, GEOTEXTILE MAY BE USED TO STABILIZE THE TRENCH BOTTOM, IF DIRECTED BY THE ENGINEER. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING SUBGRADE SUITABILITY WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
3. **GEOTEXTILE:** AN AASHTO M288 CLASS 2 OR 3 NON-WOVEN GEOTEXTILE SHOULD BE USED FOR EMBEDMENT BACKFILL MATERIAL 3/4 TO 2 INCH (19 - 51 MM). GEOTEXTILE FILTER FABRIC IS PLACED AROUND THE SYSTEM TO PREVENT NATIVE SOIL FROM MIGRATING INTO THE EMBEDMENT BACKFILL MATERIAL. TO ENSURE FABRIC IS SUITABLE WITH IN SITU SOILS, A GEOTECHNICAL ENGINEER SHOULD BE CONSULTED.
4. **FOUNDATION STONE:** SUITABLE MATERIAL SHALL BE A 3/4 - 2 INCH (19 - 51 mm), CLEAN, CRUSHED ANGULAR STONE. OR AASHTO M43 SIZES (3, 357, 4, 467, 5, 56, 57) WITH CLEAN, CRUSHED, ANGULAR STONE ADDED TO THE GRADATION, e.g., CLEAN, CRUSHED, ANGULAR #5 (AASHTO M43) STONE. COMPACTION SHOULD BE DONE IN LIFTS OF NO MORE THAN 6 INCHES (150 mm). THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE ALLOWABLE BEARING CAPACITY OF THE SUBGRADE SOIL AND DETERMINING THE FOUNDATION STONE THICKNESS. REFER TO PRINSCO'S HYDROSTOR DESIGN GUIDE SECTION 4.1 FOR ADDITIONAL GUIDANCE.
5. **EMBEDMENT BACKFILL:** SUITABLE MATERIAL SHALL BE A 3/4 - 2 INCH (19 - 51 mm), CLEAN, CRUSHED ANGULAR STONE. OR AASHTO M43 SIZES (3, 357, 4, 467, 5, 56, 57) WITH CLEAN, CRUSHED, ANGULAR STONE ADDED TO THE GRADATION, e.g., CLEAN, CRUSHED, ANGULAR #5 (AASHTO M43) STONE. EMBEDMENT BACKFILL SHALL EXTEND FROM TOP OF BEDDING TO NOT LESS THAN 6" (150 mm) INCHES ABOVE THE TOP OF THE CHAMBER. NO COMPACTION IS REQUIRED BUT AN EFFORT SHOULD BE MADE TO HAND KNIFE STONE IN BETWEEN ALL CORRUGATIONS.
6. **INITIAL BACKFILL:** SUITABLE MATERIAL SHALL BE A GRANULAR, WELL GRADED SOIL WITH LESS THAN 35% FINES OR AASHTO M43 SIZES (3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10). MOST PAVEMENT SUBBASE MATERIALS FALL WITHIN THIS GRADING CRITERIA. INITIAL BACKFILL SHALL EXTEND FROM TOP OF EMBEDMENT BACKFILL TO NOT LESS THAN 18 INCHES (450 mm) ABOVE THE TOP OF THE CHAMBER. COMPACT TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY.
7. **FINAL BACKFILL:** SUITABLE MATERIALS SHALL BE ANY SOIL DIRECTED BY THE ENGINEER. FINAL BACKFILL SHALL EXTEND FROM TOP OF INITIAL BACKFILL TO NO MORE THAN 8 FEET (2.44 m) ABOVE THE TOP OF THE CHAMBER. COMPACTION LEVELS SHOULD FOLLOW ENGINEERS RECOMMENDATIONS.
8. **MINIMUM COVER:** FOR TRAFFIC APPLICATIONS A MINIMUM COVER OF 18 INCHES (450 mm) IS REQUIRED, MEASURED FROM THE TOP OF THE CHAMBER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR TO THE TOP OF RIGID PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING MAY OCCUR, INCREASE COVER TO 24 INCHES (600 mm). ADDITIONAL COVER MAY BE REQUIRED FOR CONSTRUCTION LOADS.
9. **MAXIMUM COVER:** A COVER HEIGHT OF OVER 8 FEET (2.44 m) IS NOT RECOMMENDED. COVER HEIGHT IS MEASURED FROM THE TOP OF THE CHAMBER TO THE TOP OF THE PAVEMENT.
10. **LOAD RATING:** HS31 CHAMBERS ARE TRAFFIC RATED FOR H-20 VEHICLES WITH ADDITIONAL CONSIDERATION FOR LANE LOADING. COMMONLY REFERRED TO AS HL-93 LOAD RATING (AASHTO DESIGN TRUCK).

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TITLE:	HYDROSTOR HS31 - CROSS SECTION
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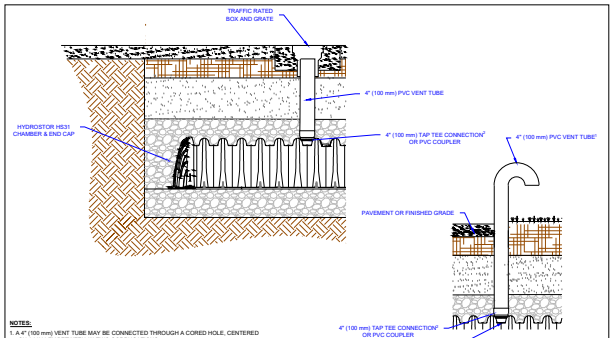
SCALE: NTS	SHEET: 1 OF 1
DRAWING NUMBER:	D-7-403A



NOTES:

1. A 4" (100 mm) VENT TUBE MAY BE CONNECTED THROUGH A CORED HOLE, CENTERED ON A VALLEY BETWEEN (2) TWO CORRUGATIONS.
2. TAP TEE CONNECTION MAY CONSIST OF QWICKSEAL OR APPROVED EQUAL.
3. ALL PVC FITTINGS TO BE SOLVENT CEMENTED.
4. PVC MAY BE EITHER SDR 35 or SCH 40.
5. PVC PIPE MAY BE SOLID OR PERFORATED PER ENGINEER.
6. CORE HOLE SIZE AS FOLLOWS: 4" (100 mm) CUT TO 5" (125 mm)

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TITLE:	HYDROSTOR HS31 - VENT TUBE
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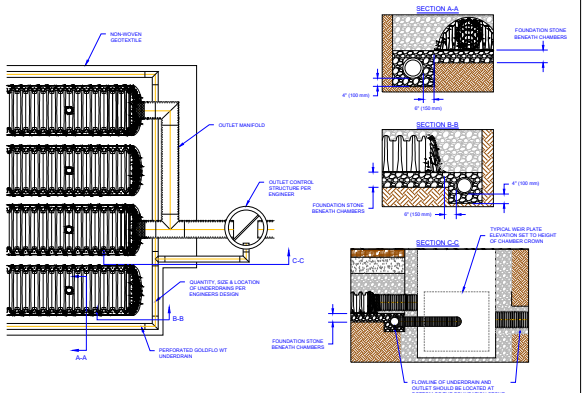
SCALE: NTS	SHEET: 1 OF 1
DRAWING NUMBER:	D-7-406



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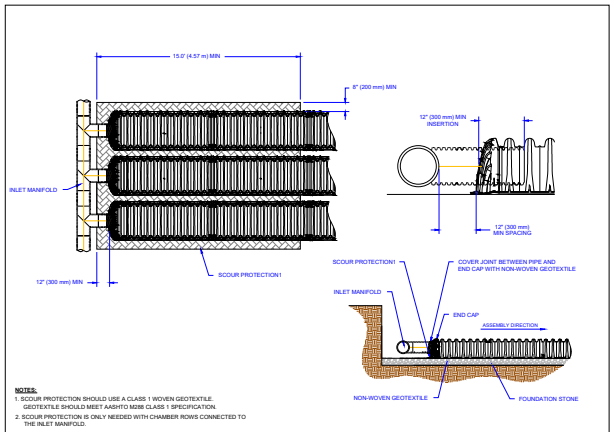
TITLE:	HYDROSTOR HS31 - UNDERDRAIN
DRAWN BY: AED	DATE: 31-Jul-24
SCALE: NTS	SHEET: 1 OF 1
DRAWING NUMBER:	D-7-406



NOTES:

1. SCOUR PROTECTION SHOULD USE A CLASS 1 WOVEN GEOTEXTILE. GEOTEXTILE SHOULD MEET AASHTO M288 CLASS 1 SPECIFICATION.
2. SCOUR PROTECTION IS ONLY NEEDED WITH CHAMBER ROWS CONNECTED TO THE INLET MANIFOLD.

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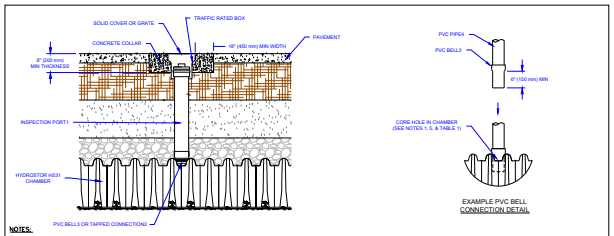
TITLE:	HYDROSTOR HS31 - SCOUR PROTECTION
DRAWN BY: AED	DATE: 26-Aug-24
SCALE: NTS	SHEET: 1 OF 1
DRAWING NUMBER:	D-7-407



NOTES:

1. REFER TO TABLE 1 FOR DETAILS. CIRCULAR CUT OUT POINT IS LOCATED AT THE CENTER OF EACH HS31 CHAMBER.
2. TAPPED CONNECTION CAN CONSIST OF QWIKSEAL OR APPROVED ENGINEERING EQUIVALENT.
3. PVC FITTING CAN CONSIST OF BELL OR OTHER CONNECTION WHICH PREVENTS PIPE FROM SLIDING INTO THE CHAMBER. ALL PVC FITTINGS TO BE SOLVENT CEMENTED.
4. PVC MAY BE EITHER SDR 35 OR SCH 40.
5. HOLES SHOULD BE CUT WITH A HOLE SAW. IF NEEDED, START WITH SMALLER SIZE AND SLOWLY CUT OUT MORE EVENLY FROM SIDES UNTIL TIGHT FIT OF CONNECTION IN HOLE.

TABLE 1

CORED HOLE SIZE ESTIMATES (CONFIRM DIMENSIONS PRIOR TO CUTTING)

CONNECTION	4" (100 mm) PVC INSPECTION PORT	6" (150 mm) PVC INSPECTION PORT
QWIKSEAL	3" (127 mm) hole centered on corrugation crest. PN: QS-6	7" (180 mm) hole centered on corrugation crest. PN: QS-8
SDR 35*	+0.125" (158 mm) hole on circular cut out pt.	+0.125" (162 mm) hole centered on corrugation crest.
SCH 40*	+0.625" (177 mm) hole on circular cut out pt.	+0.375" (172 mm) hole centered on corrugation crest.

* CONFIRM O.D. OF PIPE PRIOR TO CUTTING TO ENSURE HOLE IS TIGHT FIT FREE AROUND PVC PIPE. CUT HOLE TO MATCH O.D. AS CLOSE AS POSSIBLE.

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TITLE:	HYDROSTOR HS31 - INSPECTION PORT
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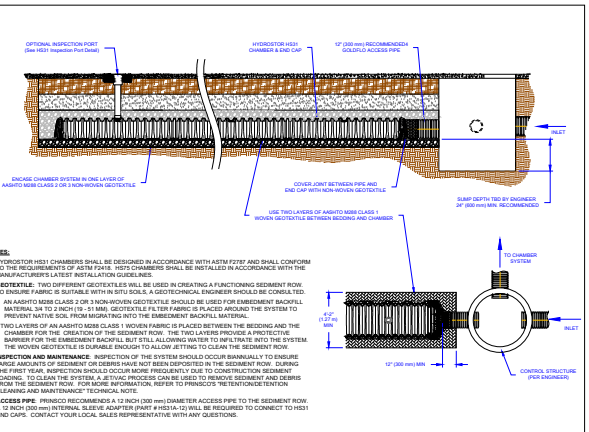
DRAWING NUMBER:	D-7-403



NOTES:

1. HYDROSTOR HS31 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418. HS75 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S LATEST INSTALLATION GUIDELINES.
2. **GEOTEXTILE:** TWO DIFFERENT GEOTEXTILES WILL BE USED IN CREATING A FUNCTIONING SEDIMENT ROW. TO ENSURE FABRIC IS SUITABLE WITH IN SITU SOILS, A GEOTECHNICAL ENGINEER SHOULD BE CONSULTED.
   - AN AASHTO M288 CLASS 2 OR 3 NON-WOVEN GEOTEXTILE SHOULD BE USED FOR EMBEDMENT BACKFILL MATERIAL 3/4 TO 2 INCH (19 - 51 MM). GEOTEXTILE FILTER FABRIC IS PLACED AROUND THE SYSTEM TO PREVENT NATIVE SOIL FROM MIGRATING INTO THE EMBEDMENT BACKFILL MATERIAL.
   - TWO LAYERS OF AN AASHTO M288 CLASS 1 WOVEN FABRIC IS PLACED BETWEEN THE BEDDING AND THE CHAMBER FOR THE CREATION OF THE SEDIMENT ROW. THE TWO LAYERS PROVIDE A PROTECTIVE BARRIER FOR THE EMBEDMENT BACKFILL BUT STILL ALLOWING WATER TO INFILTRATE INTO THE SYSTEM. THE WOVEN GEOTEXTILE IS DURABLE ENOUGH TO ALLOW JETTING TO CLEAN THE SEDIMENT ROW.
3. **INSPECTION AND MAINTENANCE:** INSPECTION OF THE SYSTEM SHOULD OCCUR BIANNUALLY TO ENSURE LARGE AMOUNTS OF SEDIMENT OR DEBRIS HAVE NOT BEEN DEPOSITED IN THE SEDIMENT ROW. DURING THE FIRST YEAR, INSPECTION SHOULD OCCUR MORE FREQUENTLY DUE TO CONSTRUCTION SEDIMENT LOADING. TO CLEAN THE SYSTEM, A JETVAC PROCESS CAN BE USED TO REMOVE SEDIMENT AND DEBRIS FROM THE SEDIMENT ROW. FOR MORE INFORMATION, REFER TO PRINSCO'S "RETENTION/DETENTION CLEANING AND MAINTENANCE" TECHNICAL NOTE.
4. **ACCESS PIPE:** PRINSCO RECOMMENDS A 12 INCH (300 mm) DIAMETER ACCESS PIPE TO THE SEDIMENT ROW. A 12 INCH (300 mm) INTERNAL SLEEVE ADAPTER (PART # HS31A-12) WILL BE REQUIRED TO CONNECT TO HS31 END CAPS. CONTACT YOUR LOCAL SALES REPRESENTATIVE WITH ANY QUESTIONS.

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TITLE:	HYDROSTOR HS31 - SEDIMENT ROW
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SCALE: NTS	SHEET: 1 OF 1
DRAWING NUMBER:	D-7-402

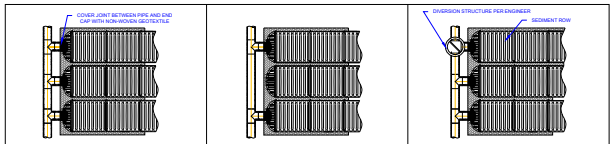

FIGURE 1. INLET MANIFOLD WITH STUBS INTO END CAP OF EACH STORM CHAMBER ROW.

FIGURE 2. INLET MANIFOLD WITH STUBS INTO END CAP OF ALTERNATING STORM CHAMBER ROWS.

FIGURE 3. DIVERSION STRUCTURE PER ENGINEER TO DIRECT INITIAL LOW FLOW TO SEDIMENT ROW AHEAD OF INLET MANIFOLD.

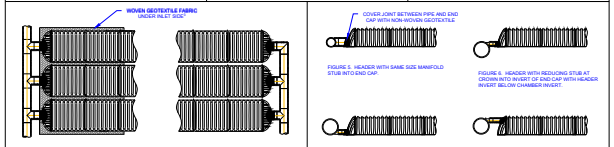

FIGURE 4. INLET MANIFOLD ON THE LEFT SIDE AND OUTLET MANIFOLD ON THE RIGHT SIDE.

FIGURE 5. HEADER WITH SAME SIZE MANIFOLD STUB INTO END CAP.

FIGURE 6. HEADER WITH REDUCING STUB AT CROWN INTO INVERT OF END CAP WITH HEADER INVERT BELOW CHAMBER INVERT.

FIGURE 7. HEADER WITH REDUCING STUB AT FLOWLINE INTO END CAP.

FIGURE 8. HEADER WITH REDUCING STUB AT CROWN INTO TOP OF END CAP WITH HEADER INVERT AT OR BELOW STUB INVERT.

NOTES:

1. THERE ARE MANY INLET HEADER AND OUTLET HEADER POSSIBILITIES. THE CONFIGURATIONS SHOWN ON THIS DRAWING ARE JUST A FEW OF THE OPTIONS.
2. INLET AND OUTLET MANIFOLDS SHALL BE INSERTED AT LEAST 12" (300 mm) INTO CHAMBER END CAPS. MANIFOLD HEADERS SHALL BE AT LEAST 12" (300 mm) FROM THE BASE OF THE END CAPS.
3. PRINSCO RECOMMENDS A SCOUR CONTROL MEASURE AT INLETS SUCH AS A WOVEN GEOTEXTILE FABRIC TO PROTECT FOUNDATION STONE. REFER TO PRINSCO'S SCOUR PROTECTION DETAIL.
4. PRINSCO RECOMMENDS A NON-WOVEN GEOTEXTILE BE PLACED AT ALL PIPE-END CAP JOINTS.

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TITLE:	HYDROSTOR CHAMBER - HEADER CONFIGURATIONS
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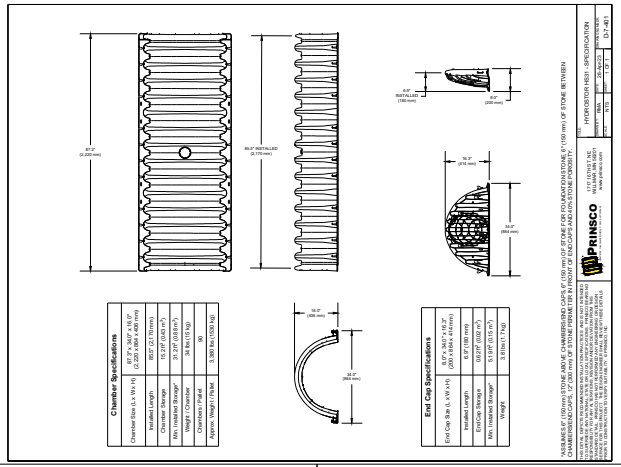
SCALE: NTS	SHEET: 1 OF 1
DRAWING NUMBER:	D-7-100



Chamber Specifications	
Chamber Size (L x W x H)	87.2" x 34.0" x 16.0" (2,220 x 860 x 406 mm)
Installed Length	89.9" (2,170 mm)
End Cap Storage	12" (305 mm)
Min. Installed Storage*	31.2" (793 mm)
Weight / Chamber	34 lbs (15.5 kg)
Chambers / Pallet	60
Approx. Weight / Pallet	1,365 lbs (1,025 kg)

End Cap Specifications	
End Cap Size (L x W x H)	12.2" x 34.0" x 16.0" (305 x 860 x 406 mm)
Installed Length	6.9" (180 mm)
End Cap Storage	0.9" (22 mm)
Min. Installed Storage*	5.1 lbs (1.1 kg)
Weight	5.0 lbs (1.1 kg)

*ASSUMES 9" (150 mm) STONE ABOVE CHAMBERS/END CAPS & 6" (150 mm) OF STONE FOR FOUNDATION STONE & 6" (150 mm) OF STONE BETWEEN CHAMBERS/END CAPS. 12" (305 mm) OF STONE PRIME DEPTH WITH A HEIGHT OF END CAPS AND FOUNDATION STONE EQUALS 27" (685 mm).

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TITLE:	HYDROSTOR HS31 - SPECIFICATION
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SCALE: NTS	SHEET: 1 OF 1
DRAWING NUMBER:	D-7-401

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TITLE:	HYDROSTOR HS31 - DATA SHEET
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SCALE: NTS	SHEET: 1 OF 1
DRAWING NUMBER:	D-7-409