Proposed: **300 Plaza**

BMP Operation and Maintenance Manual

Location of Project:
6088, 6084, 6080, and 6072 W. 300 North
Greenfield, Indiana
46140

Prepared for:
Hancock County, IN

Prepared by:
Versatile Construction Group, LLC
570 E. Tracy Rd. Suite 610
New Whiteland, Indiana
46814
Ph. (317) 535-3579
Fax: (317) 535-3581

Trent A. Baxter — Trent A. Baxter

3/31/22 — Date:

Table of Contents:

Section 1

BMP Owner Contact Information

Name:	AJE Properties, LLC
Address:	4292 W. 186th Street
	Sheridan, Indiana 46069
Telephone:	(317) 340-6819
E-Mail Address:	Alfredo120274@yahoo.com

The BMP Owner is responsible for all maintenance and costs associated with the BMPs listed on the Owner Acknowledgement Agreement and shown on the Site Drawings.

The Site Drawings are considered to be part of this Operation and Maintenance Manual.

Hancock County, IN reserves the right to enter the premises to perform periodic inspection and maintenance on the BMPs as necessary.

The first annual inspection and maintenance report is due one year after construction is completed, with subsequent reports due each year within the same month of the initial report. If there are any deficiencies found during the inspections, these deficiencies should be remedied. If the inspection report is not received within the month it is due, if there are deficiencies which are not included in the report, or if any deficiencies included in the report are not addressed in a timely manner, the BMP Owner faces enforcement action from the City.

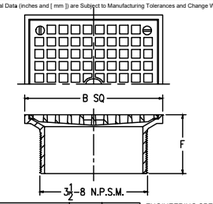
Based on recorded water quality BMP conditions, the BMP Owner shall adjust inspection and maintenance schedules accordingly. Hancock County, IN reserves the right to adjust the BMP inspection and maintenance schedules based on the results of the submitted Annual BMP Inspection and Maintenance reports.

Section 2

Z400S
"TYPE S" SQUARE STRAINER

SPECIFICATION SHEET
TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



Strainer Designation	Dimension in Inches [mm] Size BF	Height	Approx. Wt. Lbs. [kg]	Open Area Sq. In. [cm2]
-SS	5 X 5 [127 X 127]	2-1/8 [55]	3 [1]	9 [58]
-6S	6 X 6 [152 X 152]	2-11/32 [60]	4 [2]	13 [84]
-7S	7 X 7 [178 X 178]	3 [75]	5 [2]	21 [135]
-8S	8 X 8 [203 X 203]	2-3/8 [55]	6 [3]	28 [181]
-10S	10 X 10 [254 X 254]		12 [5]	

ENGINEERING SPECIFICATION: ZURN ZN400S
"TYPE S" square adjustable, light-duty strainer top with secured heel-proof grate.
(Specify ZB or ZN finish)

OPTIONS (Check/specify appropriate options)

PREFIXES
___ ZB Polished Bronze Top
___ ZN Polished Nickel Bronze Top*

SUFFIXES
___ -CP Chrome-Plated Bronze Top
___ -HD Heavy Duty Slotted Grate (ZN 6 x 6 [152 x 152] Only with 4 [100] Shank)
___ -OF Oval Funnel (Z329-7) (6,7,8,10 [152, 178, 203, 254] Strainers Only)
___ -PC Protective Cover
___ -V Backwater Valve
___ -VP Vandal-Proof Secured Top
___ -Y Sediment Bucket
___ -4 4 [102] Diameter Funnel (Z328)

* Regularly furnished unless otherwise specified.

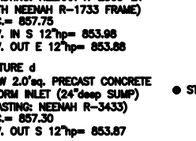
Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA U.S.A. 16502 · Ph. 855-663-9876, Fax 814-454-7929
In Canada | Zurn Industries Limited
3544 Nashua Drive, Mississauga, Ontario L4Y 1L2 · Ph. 905-405-8272, Fax 905-405-1292
www.zurn.com

Rev. L
Date: 09/26/2017
C.N. No. 137853
Prod. | Dwg. No. Z400S

Z415S
BODY ASSEMBLY W/ "TYPE S" STRAINER

SPECIFICATION SHEET
TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



A Pipe Size	Dimensions In Inches [mm] B X B* KK* Strainer Top Size Min.	Max.	Min.	Max.	Approx. Wt. Lbs. [kg]	Strainer Open Area Sq. In. [cm2]
2, 3, [51, 76]	5 X 5 [127 x 127]	1 [25]	1-19/32 [40]	1-1/4 [32]	2-3/8 [60]	12 [5] 6 [58]
2, 3, 4 [51, 76, 102]	6 x 6 [152 x 152]	1 [25]	1-27/32 [47]	1-13/32 [36]	2-19/32 [66]	13 [6] 13 [84]
2, 3, 4 [51, 76, 102]	7 x 7 [178 x 178]	1 [25]	1-7/8 [48]	1-3/8 [35]	2-5/8 [67]	14 [6] 2 [135]
3, 4 [76, 102]	8 x 8 [203 x 203]	1-3/32 [28]	1-7/8 [48]	1-3/4 [44]	2-5/8 [67]	15 [7] 28 [181]
6 [152]	10 x 10 [254 x 254]	1-3/32 [28]	1-7/8 [48]	1-3/4 [44]	2-5/8 [67]	21 [10] 28 [181]

ENGINEERING SPECIFICATION: ZURN ZN415S
Floor and shower drain, Dura-Coated cast iron body with bottom outlet, combination invertible membrane clamp and adjustable collar with seepage slots and "TYPE S" polished nickel bronze, square heel-proof, light-duty strainer.

OPTIONS (Check/specify appropriate options)

PIPE SIZE	(Specify size/type) OUTLET		"E" BODY HT. DIM.
2, 3, 4 [51, 76, 102]	____ IC Inside Caulk		4-3/16 [106]
2, 3, 4 [51, 76, 102]	____ IG Inside Gasket		4-3/16 [106]
2 [51]	____ IP Threaded		2-7/16 [62]
3 [76]	____ IP Threaded	[70]	2-3/4
4 [102]	____ IP Threaded		2-13/16 [71]
6 [152]	____ IP Threaded	[73]	2-7/8
2, 3, 4 [51, 76, 102]	____ NH No-Hub		3-13/16 [97]
2, 3, 4 [51, 76, 102]	____ NL Neo-Loc	[98]	3-7/8

PREFIXES
___ ZB D.C.C.I. Body Assembly w/ Polished Bronze Top
___ ZN D.C.C.I. Body Assembly w/ Polished Nickel Bronze Top*

SUFFIXES
___ -AR Acid Resisting Epoxy Coated Cast Iron
___ -CP Chrome-Plated Top
___ -G Galvanized Cast Iron
___ -HD Heavy-Duty Grate (ZN 6 x 6 [152 x 152] Only)
___ -OF Oval Funnel (See Z329-7) (6,7,8,10 [152,178,203,254]) Strainers only)
___ -P Trap Primer Connection (Specify 1/2 [13] or 3/4 [19])
___ -PC Protective Cover
___ -SA Stabilizer Assembly (See Z1035)
___ -SQ Stabilizer Q-Deck (See Z1035-Q)
___ -TC Neo-Loc Test Cap Gasket (2,3,4 [51,76,102] NL Outlet Only)
___ -U 1-3 [25-76] High Extension Adapter
___ -V Backwater Valve
___ -VP Vandal-Proof Secured Top
___ -Y Sediment Bucket
___ -4 4 [102] Diameter Funnel (Z328)
___ -90 90° Threaded Side Outlet Body Assembly (2,3 [51,76] Only)

* Regularly furnished unless otherwise specified.

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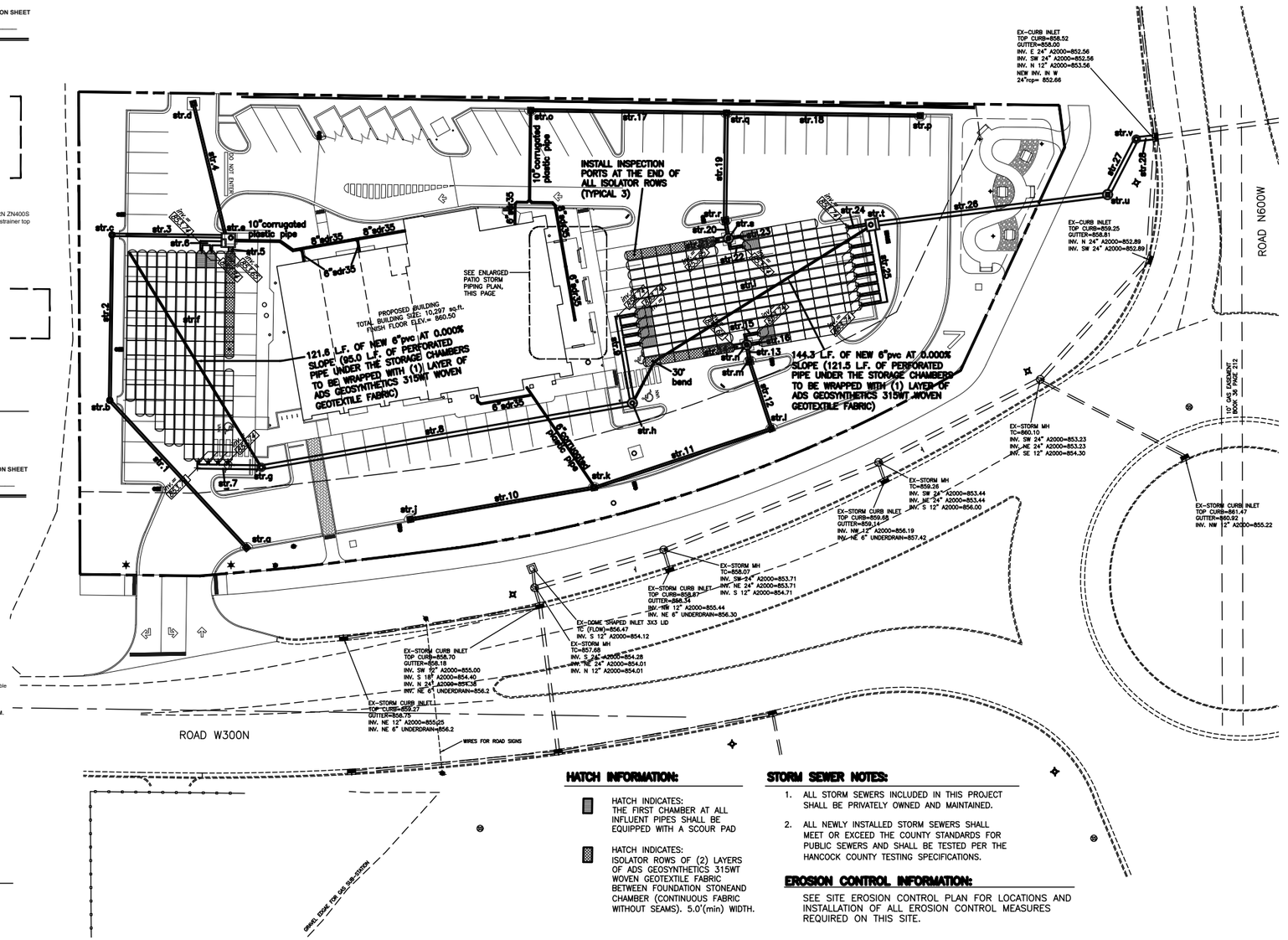


HATCH INFORMATION:

HATCH INDICATES:
THE FIRST CHAMBER AT ALL INFLUENT PIPES SHALL BE EQUIPPED WITH A SCOUR PAD

HATCH INDICATES:
ISOLATOR ROWS OF (2) LAYERS OF ADS GEOSYNTHETICS 315WT WOVEN GEOTEXTILE FABRIC BETWEEN FOUNDATION STONEAND CHAMBER (CONTINUOUS FABRIC WITHOUT SEAMS). 5.0'(min) WIDTH.

STORM SEWER NOTES:

1. ALL STORM SEWERS INCLUDED IN THIS PROJECT SHALL BE PRIVATELY OWNED AND MAINTAINED.
2. ALL NEWLY INSTALLED STORM SEWERS SHALL MEET OR EXCEED THE COUNTY STANDARDS FOR PUBLIC SEWERS AND SHALL BE TESTED PER THE HANCOCK COUNTY TESTING SPECIFICATIONS.

EROSION CONTROL INFORMATION:

SEE SITE EROSION CONTROL PLAN FOR LOCATIONS AND INSTALLATION OF ALL EROSION CONTROL MEASURES REQUIRED ON THIS SITE.

SITE INFRASTRUCTURE SUMMARY INFORMATION:

INLET/MANHOLE STRUCTURE

- **STRUCTURE a**
  NEW 2.0'sq. PRECAST CONCRETE STORM INLET (CASTING: NEENAH R-3234-B1)
  T.C.= 858.70
  INV. OUT NW 12"hp= 854.64
- **STRUCTURE b**
  NEW 2.0'dia. PRECAST CONCRETE STORM INLET (CASTING: NEENAH R-2560-E1 WITH NEENAH R-1733 FRAME)
  T.C.= 857.75
  INV. IN SE 12"hp= 854.33
  INV. OUT N 12"hp= 854.23
- **STRUCTURE c**
  NEW 2.0'dia. PRECAST CONCRETE STORM INLET (24"deep SUMP) (CASTING: NEENAH R-2560-E1 WITH NEENAH R-1733 FRAME)
  T.C.= 857.75
  INV. IN S 12"hp= 853.98
  INV. OUT E 12"hp= 853.88
- **STRUCTURE d**
  NEW 2.0'sq. PRECAST CONCRETE STORM INLET (24"deep SUMP) (CASTING: NEENAH R-3433)
  T.C.= 857.30
  INV. OUT S 12"hp= 853.87
- **STRUCTURE e**
  NEW 6.0'sq. PRECAST CONCRETE STORM STRICTURE WITH 6"wide WEIR WALL ELEV.= 854.15 (CASTING: NEENAH R-1733)
  T.C.= 859.15
  INV. IN W 12"hp= 853.66
  INV. IN N 12"hp= 853.66
  INV. IN E 10"corrugated plastic= 853.66
  INV. OUT S 24"hp= 853.66
  INV. OUT W 18"hp= 853.75
- **STRUCTURE No.f**
  (139) NEW "SC-740" 'STORMTECH' STORAGE CHAMBERS ARRANGED PER PLAN
  (1) INV. IN N 24"hp INFLUENT PIPES INV.= 853.65 (ISOLATOR ROW)
  (3) INV. IN N 12"hp INFLUENT PIPES INV.= 853.74
  (4) INV. OUT S 12"hp EFFLUENT PIPES INV.= 853.74
  BOTTOM OF TANK / TOP OF 6" STONE BASE= 853.64
- **STRUCTURE g**
  NEW 3.0'dia. PRECAST CONCRETE STORM MANHOLE (CASTING: NEENAH R-1733)
  T.C.= 859.90
  INV. IN NW 6"pvc= 853.14
  INV. IN W 24"hp= 853.74
  INV. OUT E 24"hp= 853.14
- **STRUCTURE h**
  NEW 4.0'dia. PRECAST CONCRETE STORM MANHOLE (CASTING: NEENAH R-1733)
  T.C.= 859.90
  INV. IN W 24"hp= 853.14
  INV. OUT NE 6"pvc= 853.14
  INV. OUT N 24"hp= 853.74
- **STRUCTURE No.i**
  (166) NEW "SC-740" 'STORMTECH' STORAGE CHAMBERS ARRANGED PER PLAN
  (4) INV. IN W 12"hp INFLUENT PIPES INV.= 853.74
  (2) INV. IN E 24"hp INFLUENT PIPES INV.= 853.65
  (4) INV. IN W 12"hp INFLUENT PIPES INV.= 853.74
  (9) INV. OUT W 12"hp EFFLUENT PIPES INV.= 853.74
  BOTTOM OF TANK / TOP OF 6" STONE BASE= 853.64
- **STRUCTURE j**
  NEW 2.0'sq. PRECAST CONCRETE STORM INLET (CASTING: NEENAH R-3234-B1)
  T.C.= 858.75
  INV. OUT NE 12"hp= 854.53
- **STRUCTURE k**
  NEW 2.0'dia. PRECAST CONCRETE STORM INLET (CASTING: NEENAH R-3234-B1)
  T.C.= 858.75
  INV. IN N 6"corrugated plastic= 854.25
  INV. IN SE 12"hp= 854.25
  INV. OUT NW 12"hp= 854.15
- **STRUCTURE l**
  NEW 2.0'dia. PRECAST CONCRETE STORM INLET (CASTING: NEENAH R-3234-B1)
  T.C.= 858.45
  INV. IN SE 12"hp= 853.87
  INV. OUT N 12"hp= 853.77
- **STRUCTURE m**
  NEW 2.0'dia. PRECAST CONCRETE STORM INLET (24"deep SUMP) (CASTING: NEENAH R-3234-B1)
  T.C.= 858.75
  INV. IN S 12"hp= 853.66
  INV. OUT N 12"hp= 853.66
- **STRUCTURE n**
  NEW 4.0'dia. PRECAST CONCRETE STORM STRICTURE WITH 6"wide WEIR WALL ELEV.= 854.15 (CASTING: NEENAH R-1733)
  T.C.= 858.89
  INV. IN S 15"hp= 853.65
  INV. OUT W 24"hp= 853.65
  INV. OUT E 12"hp= 853.75
  INV. OUT N 12"hp= 853.75
- **STRUCTURE o**
  NEW 2.0'sq. PRECAST CONCRETE STORM INLET (CASTING: NEENAH R-3234-B1)
  T.C.= 858.40
  INV. IN S 10"corrugated plastic= 854.62
  INV. OUT E 12"hp= 854.29
- **STRUCTURE p**
  NEW 2.0'sq. PRECAST CONCRETE STORM INLET (CASTING: NEENAH R-3234-B1)
  T.C.= 858.25
  INV. OUT W 12"hp= 854.29
- **STRUCTURE q**
  NEW 2.0'sq. PRECAST CONCRETE STORM INLET (CASTING: NEENAH R-3234-B1)
  T.C.= 858.00
  INV. IN W 12"hp= 854.00
  INV. IN E 12"hp= 854.00
  INV. OUT E 15"hp= 853.75
- **STRUCTURE r**
  NEW 2.0'sq. PRECAST CONCRETE STORM INLET (24"deep SUMP) (CASTING: NEENAH R-3234-B1)
  T.C.= 858.75
  INV. IN W 15"hp= 853.66
  INV. OUT E 15"hp= 853.66
- **STRUCTURE s**
  NEW 4.0'dia. PRECAST CONCRETE STORM STRICTURE WITH 6"wide WEIR WALL ELEV.= 854.15 (CASTING: NEENAH R-1733)
  T.C.= 858.89
  INV. IN N 15"hp= 853.65
  INV. OUT W 24"hp= 853.65
  INV. OUT E 12"hp= 853.75
  INV. OUT S 12"hp= 853.75
- **STRUCTURE t**
  NEW 5.5'x 5.0' PRECAST CONCRETE STORM STRICTURE WITH 6"wide WEIR WALL ELEV.= 856.69 WITH (1) 4"dia. OPENING INV. ELEV.= 853.14 (CASTING: NEENAH R-1733)
  T.C.= 860.35
  INV. IN W 6"pvc= 853.14
  INV. IN W 12"hp= 853.74
  INV. IN S 36"hp= 853.74
  INV. OUT E 24"rcp= 853.14
- **STRUCTURE u**
  NEW 4.0'dia. PRECAST CONCRETE STORM INLET (CASTING: NEENAH R-2560-E1 WITH NEENAH R-1733 FRAME)
  T.C.= 856.50
  INV. IN W 24"rcp= 852.93
  INV. OUT NE 24"rcp= 852.83
- **STRUCTURE v**
  NEW 4.0'dia. PRECAST CONCRETE STORM MANHOLE (CASTING: NEENAH R-1733)
  T.C.= 858.60
  INV. IN SW 24"rcp= 852.78
  INV. OUT E 24"rcp= 852.68

PIPE STRUCTURES

- **NEW STRUCTURE 1**
  97.21 L.F. OF NEW 12"hp AT 0.316% SLOPE
- **NEW STRUCTURE 2**
  80.00 L.F. OF NEW 12"hp AT 0.312% SLOPE
- **NEW STRUCTURE 3**
  53.28 L.F. OF NEW 12"hp AT 0.601% SLOPE
- **NEW STRUCTURE 4**
  64.86 L.F. OF NEW 12"hp AT 0.323% SLOPE
- **NEW STRUCTURE 5**
  2.75 L.F. OF NEW 24"hp AT 0.354% SLOPE
- **NEW STRUCTURE 6**
  10.00 L.F. OF NEW 18"hp AT 0.100% SLOPE WITH (2) 12"hp SOUTH INTO STORAGE CHAMBERS (SEE ABOVE FOR INVERTS)
- **NEW STRUCTURE 7**
  30.96 L.F. OF NEW 24"hp AT 0.000% SLOPE WITH (4) 12"hp NORTH OUT OF STORAGE CHAMBERS (SEE ABOVE FOR INVERTS)
- **NEW STRUCTURE 8**
  182.20 L.F. OF NEW 24"hp AT 0.000% SLOPE
- **NEW STRUCTURE 9**
  42.60 L.F. OF NEW 24"hp AT 0.000% SLOPE WITH (4) 12"hp EAST INTO STORAGE CHAMBERS (SEE ABOVE FOR INVERTS)
- **NEW STRUCTURE 10**
  90.18 L.F. OF NEW 12"hp AT 0.311% SLOPE
- **NEW STRUCTURE 11**
  90.56 L.F. OF NEW 12"hp AT 0.309% SLOPE
- **NEW STRUCTURE 12**
  34.31 L.F. OF NEW 12"hp AT 0.321% SLOPE
- **NEW STRUCTURE 13**
  8.00 L.F. OF NEW 15"hp AT 0.125% SLOPE
- **NEW STRUCTURE 14**
  6.10 L.F. OF NEW 24"hp AT 0.000% SLOPE
- **NEW STRUCTURE 15**
  10.84 L.F. OF NEW 12"hp AT 0.092% SLOPE
- **NEW STRUCTURE 16**
  6.10 L.F. OF NEW 12"hp AT 0.164% SLOPE
- **NEW STRUCTURE 17**
  94.74 L.F. OF NEW 12"hp AT 0.306% SLOPE
- **NEW STRUCTURE 18**
  93.71 L.F. OF NEW 12"hp AT 0.309% SLOPE
- **NEW STRUCTURE 19**
  51.88 L.F. OF NEW 15"hp AT 0.174% SLOPE
- **NEW STRUCTURE 20**
  8.00 L.F. OF NEW 15"hp AT 0.125% SLOPE
- **NEW STRUCTURE 21**
  6.10 L.F. OF NEW 24"hp AT 0.000% SLOPE
- **NEW STRUCTURE 22**
  10.84 L.F. OF NEW 12"hp AT 0.092% SLOPE
- **NEW STRUCTURE 23**
  6.10 L.F. OF NEW 12"hp AT 0.164% SLOPE
- **NEW STRUCTURE 24**
  10.00 L.F. OF NEW 12"hp AT 0.000% SLOPE
- **NEW STRUCTURE 25**
  36.00 L.F. OF NEW 36"hp AT 0.000% SLOPE WITH (7) 12"hp WEST OUT OF STORAGE CHAMBERS (SEE ABOVE FOR INVERTS)
- **NEW STRUCTURE 26**
  111.95 L.F. OF NEW 24"rcp AT 0.187% SLOPE
- **NEW STRUCTURE 27**
  30.21 L.F. OF NEW 24"rcp AT 0.180% SLOPE
- **NEW STRUCTURE 28**
  8.85 L.F. OF NEW 24"rcp AT 0.180% SLOPE

Indiana 811
Know what's below. Call before you dig.

UTILITY DISCLAIMER

EXISTING UNDERGROUND INSTALLATIONS SUCH AS WATER MAINS, GAS MAINS, SEWERS, TELEPHONE LINES, AND BURIED STRUCTURES IN THE VICINITY OF THE WORK TO BE DONE HEREUNDER ARE INDICATED ON THE DRAWINGS ONLY TO THE EXTENT SUCH INFORMATION HAS BEEN MADE AVAILABLE TO OR DISCOVERED BY THE SURVEYOR IN PREPARING THIS DRAWING. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF SUCH INFORMATION, AND ALL RESPONSIBILITY FOR ACCURACY AND COMPLETENESS THEREOF IS EXPRESSLY DISCLAIMED.

N

REVISION	
07/08/2022	revised pipe material for str. 26, 27, and 28
07/14/2022	revised sanitary sewer notes
11/17/2022	revised park lot, landscape, storm sewer, and added bike rack- cow
03/14/2023	revised storm sewer piping from rcp to hp pipe
03/29/2023	revised storm pipes 26,27,28 from to rcp pipe

VERSATILE CONSTRUCTION GROUP, LLC.
570 East Troy Road, Suite 410
New Whiteland, Indiana 46184
Ph: 317.535.3579 Fax: 317.535.3581

Beeson Trust / 300 Plaza
6088, 6084, 6080, and 6072 W. 300 N.
Mt. Comfort, Indiana 46140

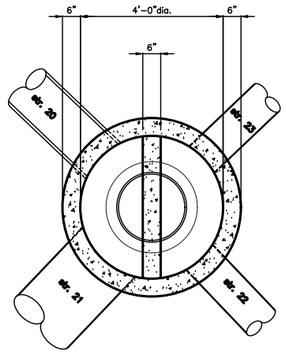
Storm Sewer Piping Plan

Job No.:	Date Stamped:
21081	03/31/2022
Drawn By:	Checked By: / Scale:
cow	tab / 1"= 30.0'

CAD FILE:
G:\21081\pl20 site grading plan.dwg

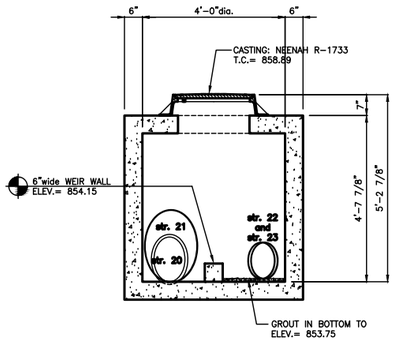
TRENT A. BAYLER — REGISTERED — No. 19700309 — STATE OF — Indiana — PROFESSIONAL ENGINEER
Trent A. Bayler
CERTIFIED BY:

SHEET TITLE:
C420

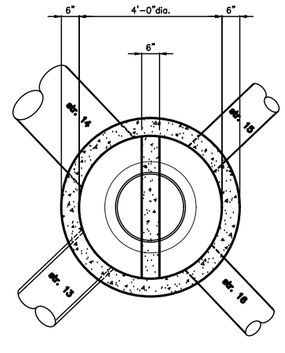


● STRUCTURE o
NEW 4.0'dia. PRECAST CONCRETE
STORM STRUCTURE WITH 6"wide WEIR WALL
ELEV.= 854.15
(CASTING: NEENAH R-1733)
T.C.= 858.89
INV. IN N 15"hp= 853.65
INV. OUT W 24"hp= 853.65
INV. OUT E 12"hp= 853.75
INV. OUT S 12"hp= 853.75

STRUCTURE o (PLAN VIEW)
SCALE: 1/2"= 1'-0"



STRUCTURE o (SECTION VIEW)
SCALE: 1/2"= 1'-0"



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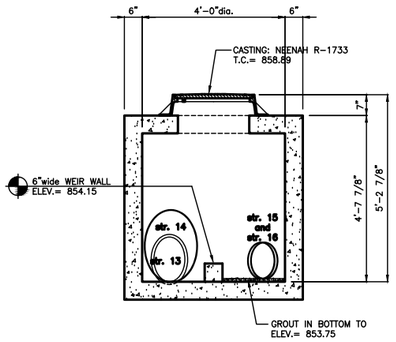
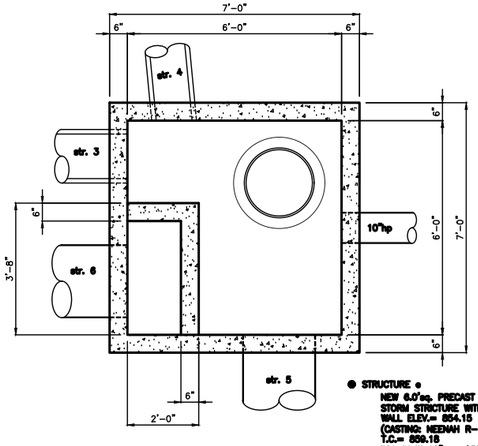
STRUCTURE n (PLAN VIEW)
SCALE: 1/2"= 1'-0"

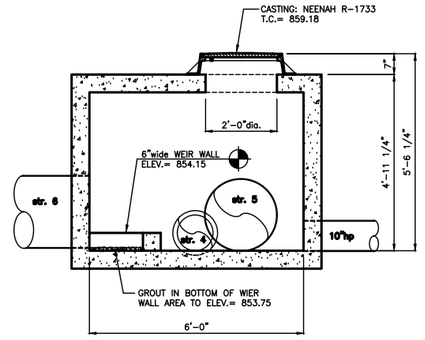


STRUCTURE n (SECTION VIEW)
SCALE: 1/2"= 1'-0"

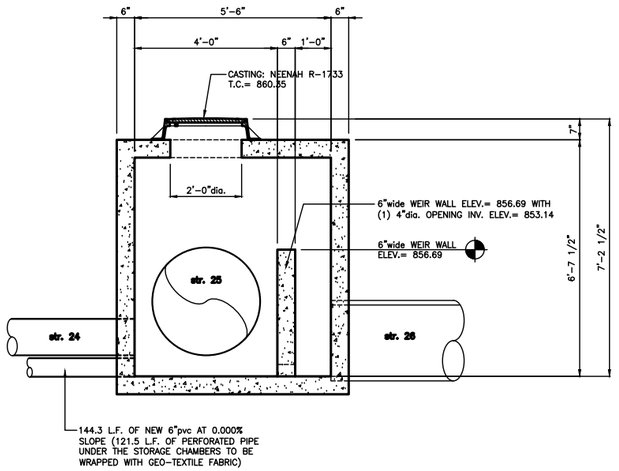


● STRUCTURE e
NEW 6.0'sq. PRECAST CONCRETE
STORM STRUCTURE WITH 6"wide WEIR
WALL ELEV.= 854.15
(CASTING: NEENAH R-1733)
T.C.= 859.18
INV. IN W 12"hp= 853.66
INV. IN N 12"hp= 853.66
INV. IN E 10"corrugated plastic=
853.66
INV. OUT S 24"hp= 853.66
INV. OUT W 18"hp= 853.75

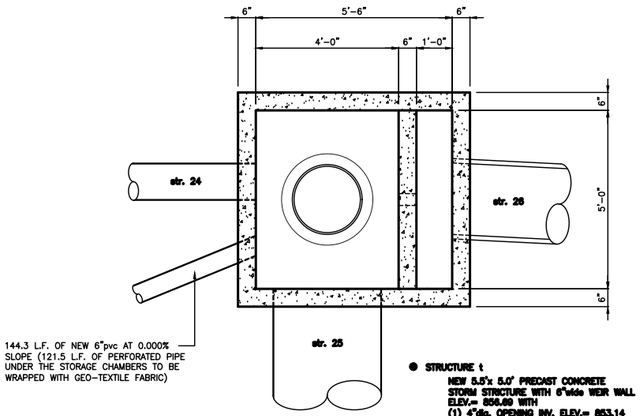
STRUCTURE e (PLAN VIEW)
SCALE: 1/2"= 1'-0"



STRUCTURE e (SECTION VIEW)
SCALE: 1/2"= 1'-0"



STRUCTURE t (SECTION VIEW)
SCALE: 1/2"= 1'-0"



● STRUCTURE t
NEW 5.5'x 5.0' PRECAST CONCRETE
STORM STRUCTURE WITH 6"wide WEIR WALL
ELEV.= 856.69 WITH
(1) 4"dia. OPENING INV. ELEV.= 853.14
(CASTING: NEENAH R-1733)
T.C.= 860.35
INV. IN W 6"pvc= 853.14
INV. IN W 12"hp= 853.74
INV. IN S 36"hp= 853.74
INV. OUT E 24"hp= 853.14

STRUCTURE t (PLAN VIEW)
SCALE: 1/2"= 1'-0"

REVISION

11/17/2022 revised park lot, landscape, storm sewer, and added bike rock- caw

03/14/2023 revised storm sewer piping from rcp to hp pipe

VERSATILE CONSTRUCTION GROUP, LLC.
570 East Troy Road, Suite 610
New Whiteland, Indiana 46184
Ph: 317.535.3579 Fax: 317.535.3581

Beeson Trust / 300 Plaza
6088, 6084, 6080, and 6072 W. 300 N.
Mt. Comfort, Indiana 46140

Storm Sewer Control Structure Details

Job No.:	Date Stamped:	
21081	03/31/2022	
Drawn By:	Checked By:	Scale:
caw	tab	as noted

CAD FILE:
G:\21081\w400 control structure plan.dwg

TRENT A. BAUER
REGISTERED
No. 19700309
STATE OF
PROFESSIONAL ENGINEER
CERTIFIED BY:

SHEET TITLE:

C460

Section 3

Inlet Maintenance

1. Collection and Control Structure (Inlets)
   This site contains 21 inlets/manholes.

a. Inspection
   The frequency of Inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e., industrial, commercial, residential, etc.) anticipated pollutant load, percent of imperviousness, climate, etc. All play a critical role in determining the actual frequency of inspection and maintenance practices. Initially these stormwater collection and control structure should be inspected every six months for the first year. For subsequent years, the inspection should be adjusted based upon previous observation of sediment disposition.

b. Maintenance
   The collection / control structures shall be vacuum / JetVac cleaned. Most sewer pipe maintenance companies have vacuum / JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Outfall Structures shall be inspected and riprap shall be restored if needed.

c. Replacement

   Inlets which require replacement shall be replaced with identical model and casting type.

Inspection Checklist for
Stormwater Collection / Control Structures

_____ _____

Property Address Property Owner

Type of Inspection: ____ After Heavy Runoff ____ Monthly ____ Quarterly
____ Annual ____ Semi-Quarterly

Inspection Schedule

Date	Conditions when maintenance is required	Depth of sediment	Maintenance Needed (Y/N)	Comments:

Additional Observation and / or Corrective Action Needed:

_____
_____
_____

_____ _____

Inspector Signature Inspector Name (Printed)

Section 4

Conveyances Maintenance (pipes, swales, ditches)

1. Stormwater Conveyance Pipes

   This site contains approximately 1,336.44 l.f. of storm water conveyance piping.

a. Inspection

   The frequency of Inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e., industrial, commercial, residential, etc.) anticipated pollutant load, percent of imperviousness, climate, etc. All play a critical role in determining the actual frequency of inspection and maintenance practices. Initially these stormwater storage pipes should be inspected every six months for the first year. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

b. Maintenance

   Maintenance is accomplished with a JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the stormwater conveyance pipes while scouring and suspending sediment. As the nozzle is retrieved, the captured pollutants are flushed back into the collection / control structure for vacuum / JetVac combination vehicles. Most sewer pipe maintenance companies have vacuum / JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or larger diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45 degrees are best. Most JetVac reels have 400 feet of hose allowing maintenance of these storage structures.

2. Swales and Ditches

   Swales and ditches shall be inspected for signs of erosion. If any erosion is present, remedial corrective action should be taken (installation of erosion control blankets, additional seeding, etc.). Swales and ditches should be kept free from trash and debris and mowed regularly to prevent impediment or impounding of water flow.

Inspection Checklist for
Stormwater Conveyance Pipes

_____ _____

Property Address Property Owner

Type of Inspection: ____ After Heavy Runoff ____ Monthly ____ Quarterly
____ Annual ____ Semi-Quarterly

Inspection Schedule

Date	Conditions when maintenance is required	Depth of sediment	Maintenance Needed (Y/N)	Comments:

Additional Observation and / or Corrective Action Needed:

_____
_____
_____

_____ _____

Inspector Signature Inspector Name (Printed)

Section 5

BMP Overview

Federal regulations for controlling discharges of pollutants from municipal separate storm sewers(MS4), construction sites, and industrial activities, were brought under the National Pollutant Discharge Elimination System (NPDES) permit process by the 1987 amendments to the Clean Water Act (CWA), and the subsequent 1990 promulgation of federal stormwater regulations issued by the U.S. Environmental Protection Agency (USEPA). The USEPA regulations require municipal and industrial stormwater discharges to comply with an NPDES permit. Hancock County, IN is a federally regulated MS4 operator and, as such, must conform to the required regulations. Any entity within Hancock County, IN MS4 jurisdiction must also abide by the Federal Clean Water regulations. Stormwater runoff is the most common cause of water pollution and is regulated under the NPDES regulations.

Water Quality Best Management Practices (BMPs) are control measures taken to mitigate changes to the quality of urban runoff caused through changes to land use. Water Quality BMPs focus on water quality problems caused by increased impervious surfaces from land development. Water Quality BMPs are designed to reduce nonpoint source pollution through evapotranspiration, infiltration, Settling, and filtration or biological and chemical actions.

Water Quality BMPs can be classified as "structural" (i.e., devices installed or constructed on a site) or "non-structural" (i.e., operational or procedural practices, such as minimizing use of chemical fertilizers and pesticides).

Site Specific BMP Operation and Maintenance Requirements:

Isolator Rows of (2) layers of ADS Geosynthetic 315WT woven Geotextile fabric between foundation stone and chamber (continuous fabric without seams) 5.0'(min) width. is shown on the plan view in Section 2 of this manual.

StormTech
Detention • Retention • Water Quality
An ADS company

Isolator® Row O&M Manual

THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS™

ADS

THE ISOLATOR® ROW

INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.

THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-160LP, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the SC-160LP, DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

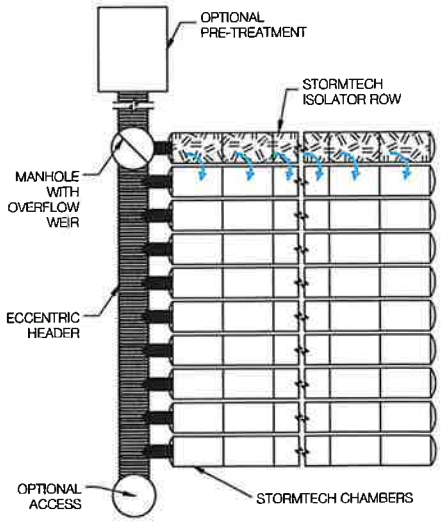
The Isolator Row is typically designed to capture the "first flush" and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

StormTech Isolator Row with Overflow Spillway (not to scale)



ISOLATOR ROW INSPECTION/MAINTENANCE

INSPECTION

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

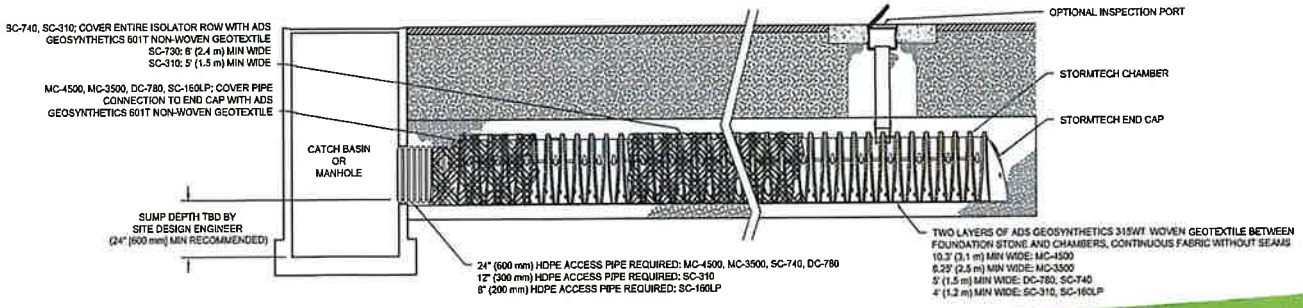
MAINTENANCE

The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)

Note: Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-4500 chamber models and is not required over the entire Isolator Row.



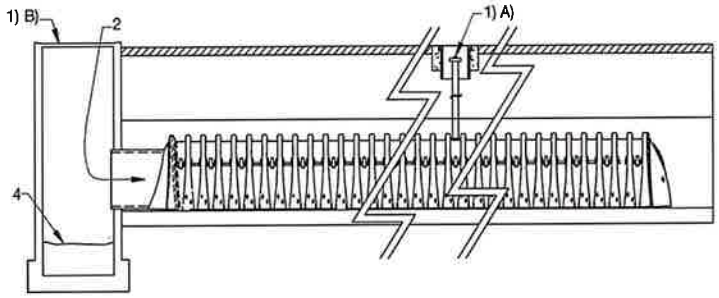
ISOLATOR ROW STEP BY STEP MAINTENANCE PROCEDURES

STEP 1
Inspect Isolator Row for sediment.
- A) Inspection ports (if present)
  - i. Remove lid from floor box frame
  - ii. Remove cap from inspection riser
  - iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
  - iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
- B) All Isolator Rows
  - i. Remove cover from manhole at upstream end of Isolator Row
  - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
    1. Mirrors on poles or cameras may be used to avoid a confined space entry
    2. Follow OSHA regulations for confined space entry if entering manhole
  - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

STEP 2
Clean out Isolator Row using the JetVac process.
- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

STEP 3
Replace all caps, lids and covers, record observations and actions.

STEP 4
Inspect & clean catch basins and manholes upstream of the StormTech system.



SAMPLE MAINTENANCE LOG

Date	Stadia Rod Readings		Sediment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

StormTech
A division of ADS

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

SC-310/SC-740/DC-780

StormTech
Detention • Retention • Water Quality
An ADS company

StormTech Construction Guide

REQUIRED MATERIALS AND EQUIPMENT LIST
- Acceptable fill materials per Table 1
- Woven and non-woven geotextiles
- StormTech solid end caps and pre-cored end caps
- StormTech chambers
- StormTech manifolds and fittings

IMPORTANT NOTES:

A. This installation guide provides the minimum requirements for proper installation of chambers. Non-adherence to this guide may result in damage to chambers during installation. Replacement of damaged chambers during or after backfilling is costly and very time consuming. It is recommended that all installers are familiar with this guide, and that the contractor inspects the chambers for distortion, damage and joint integrity as work progresses.

B. Use of a dozer to push embedment stone between the rows of chambers may cause damage to chambers and is not an acceptable backfill method. Any chambers damaged by using the "dump and push" method are not covered under the StormTech standard warranty.

C. Care should be taken in the handling of chambers and end caps. Avoid dropping, prying or excessive force on chambers during removal from pallet and initial placement.

Requirements for System Installation

Excavate bed and prepare subgrade per engineer's plans.

Place non-woven geotextile over prepared soils and up excavation walls. Install underdrains if required.

Place clean, crushed, angular stone foundation 6" (150 mm) min. Compact to achieve a flat surface.

Manifold, Scour Fabric and Chamber Assembly

Install manifolds and lay out woven scour geo textile at inlet rows (min. 12.5 ft (3.8 m)) at each inlet end cap. Place a continuous piece (no seams, double layer) along entire length of Isolator® Row(s).

Align the first chamber and end cap of each row with inlet pipes. Contractor may choose to postpone stone placement around end chambers and leave ends of rows open for easy inspection of chambers during the backfill process.

Continue installing chambers by overlapping chamber end corrugations. Chamber joints are labeled "Lower Joint – Overlap Here" and "Build this direction – Upper Joint". Be sure that the chamber placement does not exceed the reach of the construction equipment used to place the stone. Maintain minimum 6" (150 mm) spacing between rows

Attaching the End Caps

Lift the end of the chamber a few inches off the ground. With the curved face of the end cap facing outward, place the end cap into the chamber's end corrugation.

Prefabricated End Caps

24" (600 mm) inlets are the maximum size that can fit into a SC-740/DC-780 end cap and must be prefabricated with a 24" (600 mm) pipe stub. SC-310 chambers with a 12" (300 mm) inlet pipe must use a prefabricated end cap with a 12" (300 mm) pipe stub.

Isolator Row

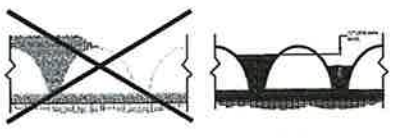
Place two continuous layers of ADS Woven fabric between the foundation stone and the isolator row chambers, making sure the fabric lays flat and extends the entire width of the chamber feet. Drape a strip of ADS non-woven geotextile over the row of chambers (not required over DC-780). This is the same type of non-woven geotextile used as a separation layer around the angular stone of the StormTech system.

Initial Anchoring of Chambers – Embedment Stone

Initial embedment shall be spotted along the centerline of the chamber evenly anchoring the lower portion of the chamber. This is best accomplished with a stone conveyor or excavator reaching along the row.

No equipment shall be operated on the bed at this stage of the installation. Excavators must be located off the bed. Dump trucks shall not dump stone directly on to the bed. Dozers or loaders are not allowed on the bed at this time.

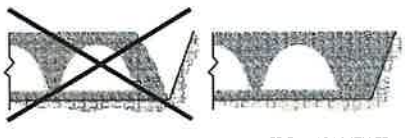
Backfill of Chambers – Embedment Stone



UNEVEN BACKFILL

EVEN BACKFILL

Backfill chambers evenly. Stone column height should never differ by more than 12" (300 mm) between adjacent chamber rows or between chamber rows and perimeter.



PERIMETER NOT BACKFILLED

PERIMETER FULLY BACKFILLED

Perimeter stone must be brought up evenly with chamber rows. Perimeter must be fully backfilled, with stone extended horizontally to the excavation wall.

Backfill - Embedment Stone & Cover Stone

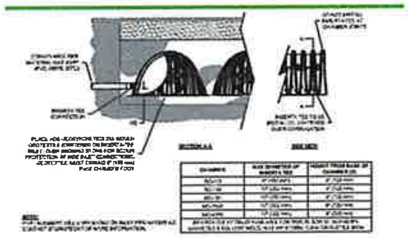
Continue evenly backfilling between rows and around perimeter until embedment stone reaches tops of chambers. Perimeter stone must extend horizontally to the excavation wall for both straight or sloped sidewalls. **Only after chambers have been backfilled to top of chamber and with a minimum 6" (150 mm) of cover stone on top of chambers can small dozers be used over the chambers for backfilling remaining cover stone.**

Small dozers and skid loaders may be used to finish grading stone backfill in accordance with ground pressure limits in Table 2. They must push material parallel to rows only. Never push perpendicular to rows. StormTech recommends that the contractor inspect chambers before placing final backfill. Any chambers damaged by construction shall be removed and replaced.

Final Backfill of Chambers – Fill Material

Install non-woven geotextile over stone. Geotextile must overlap 24" (600 mm) min. where edges meet. Compact each lift of backfill as specified in the site design engineer's drawings. Roller travel parallel with rows.

Inserta Tee Detail



StormTech Isolator Row Detail

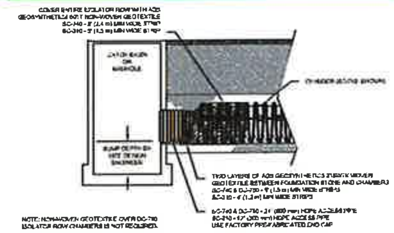


Table 1- Acceptable Fill Materials

Material Location	Description	AASHTO M43 Designation	Compaction/Density Requirement
Ⓓ **Final Fill** [illegible]	[illegible]	N/A	[illegible]
Ⓒ **Initial Fill** [illegible]	[illegible]	AASHTO M45 A-1, A-2-4, A-3 or AASHTO M43 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	[illegible]
Ⓑ **Embedment Stone** [illegible]	Clean, crushed, angular stone	AASHTO M43 3, 357, 4, 467, 5, 56, 57	No compaction required.
Ⓐ **Foundation Stone** [illegible]	Clean, crushed, angular stone.	AASHTO M43 3, 357, 4, 467, 5, 56, 57	Place and compact in 6" (150 mm) lifts using two full coverages with a vibratory compactor.

PLEASE NOTE:

1. *The listed AASHTO designations are for gradations only. The stone must also be clean, crushed, angular. For example, a specification for #4 stone would state: "clean, crushed, angular no. 4 (AASHTO M43) stone".*
2. *StormTech compaction requirements are met for 'A' location materials when placed and compacted in 6" (150 mm) (max) lifts using two full coverages with a vibratory compactor.*
3. *Where infiltration surfaces may be comprised by compaction, for standard installations and standard design load conditions, a flat surface may be achieved by raking or dragging without compaction equipment. For special load designs, contact StormTech for compaction requirements.*

Figure 1- Inspection Port Detail

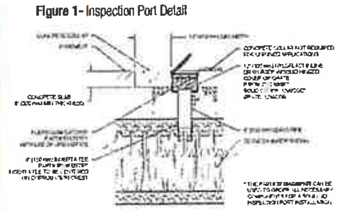
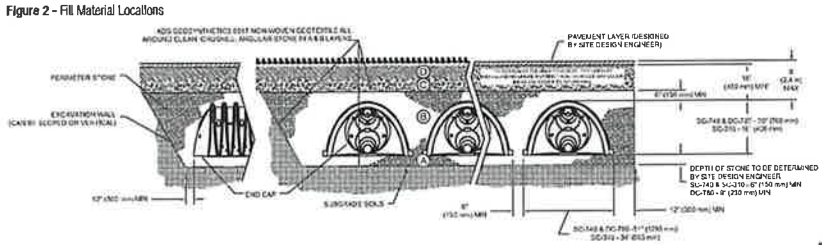


Figure 2 - Fill Material Locations



NOTES:

1. *36" (900 mm) of stabilized cover materials over the chambers is required for full dump truck travel and dumping.*
2. *During paving operations, dump truck axle loads on 18" (450 mm) of cover may be necessary. Precautions should be taken to avoid rutting of the road base layer, to ensure that compaction requirements have been met, and that a minimum of 18" (450 mm) of cover exists over the chambers. Contact StormTech for additional guidance on allowable axle loads during paving.*
3. *Ground pressure for track dozers is the vehicle operating weight divided by total ground contact area for both tracks. Excavators will exert higher ground pressures based on loaded bucket weight and boom extension.*
4. *Mini-excavators (< 8,000lbs/3,628 kg) can be used with at least 12" (300 mm) of stone over the chambers and are limited by the maximum ground pressures in Table 2 based on a full bucket at maximum boom extension.*
5. *Storage of materials such as construction materials, equipment, spoils, etc. should not be located over the StormTech system. The use of equipment over the StormTech system not covered in Table 2 (ex. soil mixing equipment, cranes, etc) is limited. Please contact StormTech for more information.*
6. *Allowable track loads based on vehicle travel only. Excavators shall not operate on chamber beds until the total backfill reaches 3 feet (900 mm) over the entire bed.*

Table 2 - Maximum Allowable Construction Vehicle Loads[6]

Material Location	Fill Depth over Chambers in. [mm]	Maximum Allowable Wheel Loads: Max Axle Load for Trucks lbs [kN]	Max Wheel Load for Loaders lbs [kN]	Maximum Allowable Track Loads: Track Width in. [mm]	Max Ground Pressure psf [kPa]	Maximum Allowable Roller Loads: Max Drum Weight or Dynamic Force lbs [kN]
Ⓓ **Final Fill Material**	36" [900] Compacted	32,000 [142]	16,000 [71]	12" [305] 18" [457] 24" [610] 30" [762] 36" [914]	3420 [164] 2350 [113] [illegible]	38,000 [169]
Ⓒ **Initial Fill Material**	24" [600] Compacted	32,000 [142]	16,000 [71]	12" [305] 18" [457] 24" [610] 30" [762] 36" [914]	2480 [119] 1770 [85] 1430 [68] 1210 [58] 1070 [51]	20,000 [89]
	24" [600] Loose/Dumped	32,000 [142]	16,000 [71]	12" [305] 18" [457] 24" [610] 30" [762] 36" [914]	2540 [122] 1925 [92] 1375 [66] 1100 [53] 1010 [48]	20,000 [89] Roller gross vehicle weight not to exceed 12,000 lbs. [53 kN]
	18" [450]	32,000 [142]	16,000 [71]	12" [305] 18" [457] 24" [610] 30" [762] 36" [914]	2010 [96] 1480 [71] 1220 [58] [illegible] 850 [45]	20,000 [89] Roller gross vehicle weight not to exceed 12,000 lbs. [53 kN]
Ⓑ **Embedment Stone**	12" [300]	16,000 [71]	NOT ALLOWED	12" [305] 18" [457] 24" [610] 30" [762] 36" [914]	1540 [74] 1190 [57] 1010 [48] 910 [43] 840 [40]	16,000 [71] Roller gross vehicle weight not to exceed 12,000 lbs. [53 kN]
	6" [150]	8,000 [35]	NOT ALLOWED	12" [305] 18" [457] 24" [610] 30" [762] 36" [914]	1070 [51] 900 [43] 800 [38] 760 [36] 720 [34]	NOT ALLOWED

Table 3 - Placement Methods and Descriptions

Material Location	Placement Methods/ Restrictions	Wheel Load Restrictions	Track Load Restrictions	Roller Load Restrictions
		See Table 2 for Maximum Construction Loads		
Ⓓ **Final Fill Material**	A variety of placement methods may be used. All construction loads must not exceed the maximum limits in Table 2.	36" (900 mm) minimum cover required for dump trucks to dump over chambers.	[illegible]	[illegible]
Ⓒ **Initial Fill Material**	[illegible]	[illegible]	[illegible]	[illegible]
Ⓑ **Embedment Stone**	[illegible]	[illegible]	[illegible]	No rollers allowed.
Ⓐ **Foundation Stone**	[illegible]			

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17.0 Standard Limited Warranty

STANDARD LIMITED WARRANTY OF STORMTECH LLC ("STORMTECH"): PRODUCTS

(A) This Limited Warranty applies solely to the StormTech chambers and end plates manufactured by StormTech and sold to the original purchaser (the "Purchaser"). The chambers and end plates are collectively referred to as the "Products."

(B) The structural integrity of the Products, when installed strictly in accordance with StormTech's written installation instructions at the time of installation, are warranted to the Purchaser against defective materials and workmanship for one (1) year from the date of purchase. Should a defect appear in the Limited Warranty period, the Purchaser shall provide StormTech with written notice of the alleged defect at StormTech's corporate headquarters within ten (10) days of the discovery of the defect. The notice shall describe the alleged defect in reasonable detail. StormTech agrees to supply replacements for those Products determined by StormTech to be defective and covered by this Limited Warranty. The supply of replacement products is the sole remedy of the Purchaser for breaches of this Limited Warranty. StormTech's liability specifically excludes the cost of removal and/or installation of the Products.

(C) THIS LIMITED WARRANTY IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

(D) This Limited Warranty only applies to the Products when the Products are installed in a single layer. UNDER NO CIRCUMSTANCES, SHALL THE PRODUCTS BE INSTALLED IN A MULTI-LAYER CONFIGURATION.

(E) No representative of StormTech has the authority to change this Limited Warranty in any manner or to extend this Limited Warranty. This Limited Warranty does not apply to any person other than to the Purchaser.

(F) Under no circumstances shall StormTech be liable to the Purchaser or to any third party for product liability claims; claims arising from the design, shipment, or installation of the Products, or the cost of other goods or services related to the purchase and installation of the Products. For this Limited Warranty to apply, the Products must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and StormTech's written installation instructions.

(G) THE LIMITED WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES. STORMTECH SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS; LABOR AND MATERIALS; OVERHEAD COSTS; OR OTHER LOSS OR EXPENSE INCURRED BY THE PURCHASER OR ANY THIRD PARTY. SPECIFICALLY EXCLUDED FROM LIMITED WARRANTY COVERAGE ARE DAMAGE TO THE PRODUCTS ARISING FROM ORDINARY WEAR AND TEAR; ALTERATION, ACCIDENT, MISUSE, ABUSE OR NEGLECT; THE PRODUCTS BEING SUBJECTED TO VEHICLE TRAFFIC OR OTHER CONDITIONS WHICH ARE NOT PERMITTED BY STORMTECH'S WRITTEN SPECIFICATIONS OR INSTALLATION INSTRUCTIONS; FAILURE TO MAINTAIN THE MINIMUM GROUND COVERS SET FORTH IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT OF IMPROPER MATERIALS INTO THE PRODUCTS; FAILURE OF THE PRODUCTS DUE TO IMPROPER SITING OR IMPROPER SIZING; OR ANY OTHER EVENT NOT CAUSED BY STORMTECH. THIS LIMITED WARRANTY REPRESENTS STORMTECH'S SOLE LIABILITY TO THE PURCHASER FOR CLAIMS RELATED TO THE PRODUCTS, WHETHER THE CLAIM IS BASED UPON CONTRACT, TORT, OR OTHER LEGAL THEORY.

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ADS GEOSYNTHETICS 0601T NONWOVEN GEOTEXTILE

Scope

This specification describes ADS Geosynthetics 6.0 oz (0601T) nonwoven geotextile.

Filter Fabric Requirements

ADS Geosynthetics 6.0 oz (0601T) is a needle-punched nonwoven geotextile made of 100% polypropylene staple fibers, which are formed into a random network for dimensional stability. ADS Geosynthetics 6.0 oz (0601T) resists ultraviolet deterioration, rotting, biological degradation, naturally encountered basics and acids. Polypropylene is stable within a pH range of 2 to 13. ADS Geosynthetics 6.0 oz (0601T) conforms to the physical property values listed below:

Filter Fabric Properties

PROPERTY	TEST METHOD	UNIT	M.A.R.V. (Minimum Average Roll Value)
Grab Tensile	ASTM D 4632	lbs (kN)	160 (0.711)
Grab Elongation	ASTM D 4632	%	50
Trapezoid Tear Strength	ASTM D 4533	lbs (kN)	60 (0.267)
CBR Puncture Resistance	ASTM D 6241	lbs (kN)	410 (1.82)
Permittivity*	ASTM D 4491	sec^{-1}	1.5
Water Flow*	ASTM D 4491	gpm/ft^2 ($l/min/m^2$)	110 (4480)
AOS*	ASTM D 4751	US Sieve (mm)	70 (0.212)
UV Resistance	ASTM D 4355	%/hrs	70/500

	PACKAGING
Roll Dimensions (W x L) – ft	3.0/5.0/6.25/7.5/9.0/12.5 x 360 / 15 x 300
Square Yards Per Roll	120/200/250/300/360/500 / 500
Estimated Roll Weight – lbs	44/65/97.5/102/141/195 / 195

* At the time of manufacturing. Handling may change these properties.

ADS GEOSYNTHETICS 315W WOVEN GEOTEXTILE

Scope

This specification describes ADS Geosynthetics 315W woven geotextile.

Filter Fabric Requirements

ADS Geosynthetics 315W is manufactured using high tenacity polypropylene yarns that are woven to form a dimensionally stable network, which allows the yarns to maintain their relative position. ADS Geosynthetics 315W resists ultraviolet deterioration, rotting and biological degradation and is inert to commonly encountered soil chemicals. ADS Geosynthetics 315W conforms to the physical property values listed below:

Filter Fabric Properties

PROPERTY	TEST METHOD	ENGLISH M.A.R.V. (Minimum Average Roll Value)	METRIC M.A.R.V. (Minimum Average Roll Value)
Tensile Strength (Grab)	ASTM D-4632	315 lbs	1400 N
Elongation	ASTM D-4632	15%	15%
CBR Puncture	ASTM D-6241	900 lbs	4005 N
Puncture	ASTM D-4833	150 lbs	667 N
Mullen Burst	ASTM D-3786	600 psi	4134 kPa
Trapezoidal Tear	ASTM D-4533	120 lbs	533 N
UV Resistance (at 500 hrs)	ASTM D-4355	70%	70%
Apparent Opening Size (AOS)*	ASTM D-4751	40 US Std. Sieve	0.425 mm
Permittivity	ASTM D-4491	.05 sec^{-1}	.05 sec^{-1}
Water Flow Rate	ASTM D-4491	4 gpm/ft^2	163 $l/min/m^2$
Roll Sizes		12.5' x 360' 15.0' x 300' 17.5' x 258'	3.81 m x 109.8 m 4.57 m x 91.5 m 5.33 m x 78.6 m

*Maximum average roll value.

Section 6

Routine Maintenance

a. Lawns and grass areas

Lawns and grass areas shall be kept free from trash and debris. They shall be kept free from weeds and invasive species. Lawns shall be mowed at regular intervals or as need to maintain a pristine appearance.

b. Landscaped Areas

Landscaped areas shall be kept free from trash and debris. Mulch areas shall be inspected and mulch replaced as needed. Landscaped areas shall be kept free from weeds and invasive species. Trees and shrubs shall be kept pruned and shall be replaced with identical species if they become injured or destroy

Section 7

Safety

Keep safety considerations at the forefront of inspection procedures at all times. Likely hazards should be anticipated and avoided. Never enter a confined space (outlet structure, manhole, etc.) without proper training or equipment. A confined space should never be entered without at least one additional person present.

If a highly toxic or flammable substance is discovered, the inspectors should leave the immediate area and contact the local Fire Department. If there is any question about a substance, leave the area immediately and contact the local Fire Department. Also, never open a sealed container to check the contents.

Potentially dangerous (i.e. fuel, chemicals, hazardous materials) substances are found in the area most be referred to the local Fire Department immediately for response by the Hazardous Material Unit.

Vertical drops may be encountered in areas located within and around the facility. Avoid walking on top of retaining walls or other structures that have a significant vertical drop. If a vertical drop is identified within the stormwater management facility that is greater than 48" in height, make the appropriate note / comment on the maintenance inspection form.

If any hazard is found within the facility area that poses an immediate threat to public safety, contact the local Fire Department immediately.