The Storm Sewer System of Choice
Corrugated Steel Pipe (CSP)

NCSPA
STEEL: PROVEN 100-YEARS STRONG

Spiral Rib CSP vs. RCP

Spiral Rib CSP provides significant time and money saves over reinforced concrete. This effective and economical system provides an idea solution for your storm sewer needs.

- Hydraulically efficient - 0.012 Manning's "n"
- Longer lengths
- Lighter weights
- Efficient trench & installation savings
- Variety of coatings for durability & service life requirements

DESIGN CHALLENGE » 3000 LF 60" STORM SEWER

PROJECT MATERIALS SUMMARY	SPIRAL RIB CSP (14 GA.)	RCP*
Pipe length (ft)	24	8
Inside diameter (in)	60	60
Outside diameter (in)	62	72
Weight per foot (lbs/ft)	61	1,349
Weight per piece (lbs/ft)	1464	10792
Quantity (ft)	3000	3000
Number of pieces	125	375

PROJECT REQUIREMENTS	SPIRAL RIB CSP	RCP	SPIRAL RIB ADVANTAGES
Total # of pieces	125	375	67% fewer pieces
Total weights, lbs	183,000	4,047,000	220% less weight
Total # of trucks	31	94	67% fewer truckloads
Excavation volume[1]	5,500 yd^3	6,667 yd^3	18% less volume
Bedding backfill material[2]	4,318 yd^3	5,192 yd^3	17% less material
Installation cycle time[3]	42 hours	125 hours	66% less time

** ASTM C-76 Tongue & Groove joints, Class III*

1. Assume 6" below pipe O.D. and trench width is 2' out from each.
2. Assume backfill material extends to 1' over top of pipe.
3. Assuming production time for line/grade prepration, handling, and setting pipe is 20 minutes per piece.

30-50% material savings in less than half the time!

PRODUCT COMPARISON

	36"		42"		48"		60"		72"		84"		96"	
	RCP	Spiral Rib	RCP	Spiral Rib	RCP	Spiral Rib	RCP	Spiral Rib	RCP	Spiral Rib	RCP	Spiral Rib	RCP	Spiral Rib
	Class III	16 Ga.	Class III	16 Ga.	Class III	16 Ga.	Class III	14 Ga.	Class III	12 Ga.	Class III	12 Ga.	Class III	12 Ga.
Pipe Length, Ft.	8	24	8	24	8	24	6	24	6	24	6	24	6	24
Approx. Wt. Lb./Ft.	559	29	786	33	972	38	1,349	61	2,158	99	2,807	116	3,562	158
O.D., In.	44	38	51	44	58	50	72	62	86	74	100	86	114	98
Max. Allowable Fill, Ft.	16	54	16	46	16	40	16	45	15	63	15	54	15	68
Truck Loads per 1000 Ft. of Pipe	11	5	14	6	18	6	27	11	38	21	50	21	65	21
Number of Pieces per 1000 Ft. of Pipe	125	42	125	42	125	42	167	42	167	42	167	42	167	42
Trench Width, In.	67.0	60	76	67	85	75	102	90	120	105	132	120	155	135

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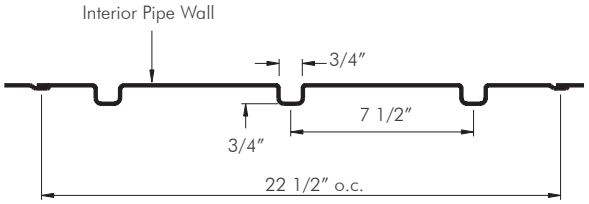
SUBMITTAL FOR SPIRAL RIB PIPE AS AN ALTERNATE STORM SEWER MATERIAL

Please consider this a formal request for your review and approval of Aluminized Type 2 (ALT2) Spiral Rib Pipe for storm sewer application and inclusion into this project. NCSPA proposes to furnish this pipe as an alternate to the project specified material.



External Rib Profile

ALUMINIZED TYPE 2 SPIRAL RIB PIPE:

1. Significant material cost savings
2. Fast lead times
3. Installation advantages offered by lightweight pipe in long lengths
   a. 48" spiral rib pipe is 49lbs/ft, coupled with 24 ft lengths means maximum production value (custom lengths also available)
   b. Utilize lightweight equipment
   c. All junctions, fittings, manholes, grate inlets, etc. can be handled "in-line" as a fabricated fitting – "Feels like another piece of pipe..."

ALUMINIZED TYPE 2 SPIRAL RIB PIPE FOR STORM SEWER

1.0 GENERAL

This specification covers the furnishing, installation, and design considerations for Aluminized Type 2, Spiral Rib Pipe and Pipe-Arch for culverts and storm sewers for the types, sizes, and designations as shown on the plans.

2.0 MATERIAL

The pipe shall be fabricated from an ALUMINIZED Type 2 coil, conforming to the requirements of AASHTO M-274 or ASTM A-929.

3.0 PIPE

The pipe and pipe-arch shall be manufactured to conform to AASHTO M-36 or ASTM A-760. The pipe shall have a helical corrugation pattern, and shall have the sectional properties per AASHTO Section 12.5.4.1 or ASTM A-796

4.0 COUPLING BANDS

Coupling bands for the pipe and pipe-arch shall be made of the same base metal and coatings as the pipe and pipe-arch. Hugger bands and fully corrugated bands for round or pipe-arch shall be a minimum of 18 gage, 12" wide bands with annular corrugations that are spaced to properly index with re-rolled corrugations of the pipe.

5.0 INSTALLATION

The pipe shall be installed in accordance with AASHTO Section 26, Division II or ASTM A-798.

6.0 HYDRAULICS

Values of Coefficient of Roughness (Manning's "n") will not exceed 0.012 or that recognized by other materials.

7.0 STRUCTURAL

Material thickness will be determined based on AASHTO Section 12 and specific loading conditions. For highway loading, minimum Height of Covers are 12", 15" and 18" for up to and including 48" diameter, 54" to 60" and 66" to 72" diameter pipes, respectively. Further consideration can be made for pipes exceeding 72" diameter.

8.0 DURABILITY

Aluminized Type 2 pipe provides a minimum service life of 75 years in the appropriate environment. ($5.0 \leq pH \leq 9.0$, $r > 1500$ ohm-cm) Considering the application for use is pavement surface runoff with select backfill, it is anticipated that a minimum service life of 75 years will be achieved.