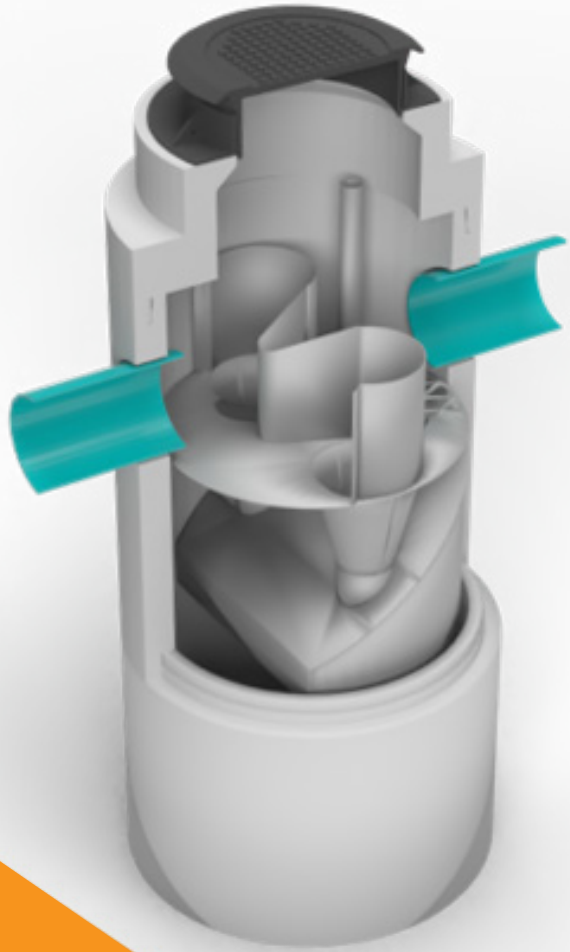
SDD3™
Installation Guide



SDD3 - Oil and Grit Separator

Installation Guideline

INTRODUCTION

The SDD3, by NEXT Stormwater Solutions, a division of Groupe Brunet, is an enhanced Oil and Grit Separator. The Installation of a SDD3 is simple and similar to that of a standard manhole. This guide provides information and recommendations needed for the installation of a SDD3. However, the installation should conform in general to state highway, provincial or local specifications for the installation of maintenance holes. In addition to this guide, the user must also refer to the project specifications and site-specific plans. It is the user's responsibility to determine the project needs and applicable regulatory requirements.

1. SYSTEM COMPONENTS

The SDD3 is composed of a precast concrete manhole with a flow separation insert, which is located at the invert of the storm sewer pipe. This effectively separates the unit into an upper chamber above the insert and a lower chamber below the insert (Figure 1).

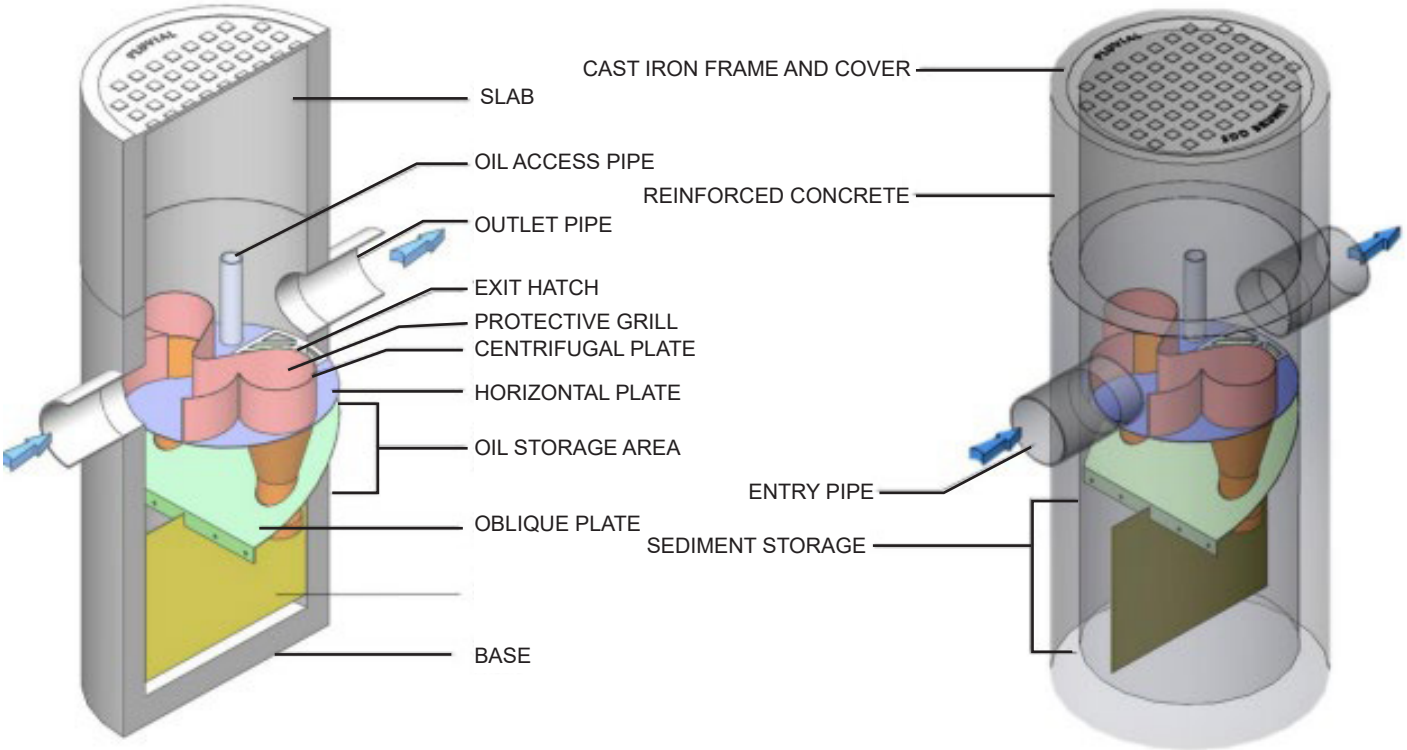


FIGURE 1: PROCESSING UNIT COMPONENTS

The external structure of SDD3 is made of reinforced concrete, compliant with the fabrication standards for manholes, BNQ 1809-300, BNQ 2622-420, and DN-II-3-002, from the Quebec Ministry of Transportation, or any local requirements, as specified in the project plans and specifications. The internal system for sediment removal is constructed from 5052-H32 aluminum, an alloy with excellent mechanical properties and good resistance to fatigue and corrosion. The internal components of SDD3 are pre-installed onto the structure of the manhole and delivered together to the installation site.

The SDD3 system can adapt to various pipe diameters. Table 1 shows the recommended maximum diameter for inlet and outlet pipes for all the models. Additionally, the inlet and outlet pipes are at the same elevation, facilitating system placement. The installation of SDD3 has no impact on the piezometric line.

Model	UNIT DIAMETER		MAXIMUM PIPE DIAMETER		NUMBER OF CONCRETE SECTIONS	SECTION WEIGHTS									
						FLOOR		EXT. #1		EXT. #2		EXT. #3		Slab	
	(mm)	(ft)	(mm)	(in)		(kg)	(lb.)	(kg)	(lb.)	(kg)	(lb.)	(kg)	(lb.)	(kg)	(lb.)
900	915	3	375	15	4	1215	2680	1435	3165	1144	2525	-	-	200	445
1200	1220	4	600	24	3	1975	4355	2320	5115	-	-	-	-	510	1125
1600	1600	5.2	750	30	3	3000	6615	4250	9370	-	-	-	-	1375	3035
1800	1830	6	900	36	3	6875	15160	4050	8930	-	-	-	-	2250	4960
2100	2130	7	900	36	4	6455	14230	5650	12460	6669	14705	-	-	3215	7090
2400	2440	8	1050	42	4	10570	23305	7230	15940	7230	15940	-	-	4385	9670
3000	3024	9.9	1050	42	5	8450	18630	7350	16205	9950	21940	9950	21940	6725	14830
3200	3200	10.5	1050	42	5	8450	18630	7350	16205	9950	21940	9950	21940	6725	14830
3600	3660	12	1050	42	5	13725	30260	7125	15710	12250	27010	12250	27010	8700	19180
4000	4052	13.3	1050	42	5	16765	36960	7985	17605	13975	30810	13975	30810	10885	24000

TABLE 1: SUMMARY OF SDD3 PROPERTIES

1. The dimensions and characteristics of the SDD3 components may vary, depending on the project requirements. Please refer to the specific plans of your SDD3 unit.

2. The characteristics of the components may differ, based on the project.

2. HEALTH AND SAFETY

Local regulatory, safety, health, and environmental requirements should be adhered to during the installation of a SDD3 Oil and grit Separator. In order to ensure a safe and proper installation, we encourage that all workers read and acknowledge the procedures described in this manual, prior to installation. Some general recommendations are listed below:

- Safety equipment should be used during installation (hard hats, safety shoes, safety glasses, hearing protection, hand protection, traffic cones, etc.)
- A spotter should be assigned to supervise and watch for worker safety during the installation process.
- Suitable lifting devices capable of safely lifting the various SDD sections should be used.
- Lifting operations must be properly planned, appropriately supervised, and carried out by competent and trained personnel.
- It is recommended that confined space entry protocols be followed if entry into the unit is required.

3. INSTALLATION

The SDD3 is composed of and delivered in separated sections which include a base, intermediate sections, a flat top slab, grade rings, a cast iron frame, and cover. The number of concrete sections will vary, depending on the SDD model, as listed in Table 1. The flow separation insert is pre-installed into one of the intermediate sections and does not require onsite assembly. The typical construction and installation sequence for a SDD is described below:

1. Excavate and prepare the foundation of SDD3.
2. Place and level the unit's base.
3. Install the intermediate sections.
4. Begin backfilling up to the level of the foundation of the inlet and outlet pipes.
5. Connect the pipes.
6. Install the reducing slab and the chimney access riser (if required).
7. Install the cast iron frame andd the cover.
8. Backfill and compact up to ground level.

3.1. Excavation and manhole bedding

General site preparation includes removing topsoil, excavation, and bedding preparation. A minimum of 150 mm (6 inches) of approved granular bedding material compacted to a minimum 90% Proctor in an area not less than the bin base area is recommended (150 mm or 6 inches beyond the outside radius of the base section is desirable).

FIGURE 2 : SEAT PREPARATION

The entire SDD3 base should be in contact with the bedding material. Local ground conditions and regulations may require additional bedding thickness along with other considerations (ex. soil capacity, groundwater, water, and soil composition, etc.). Please refer to the specific project and local requirements.

3.2. SDD Installation process

The installation of the SDD3 system is straightforward and similar to that of a standard manhole. Here are the steps to follow during the installation of the SDD3 system:

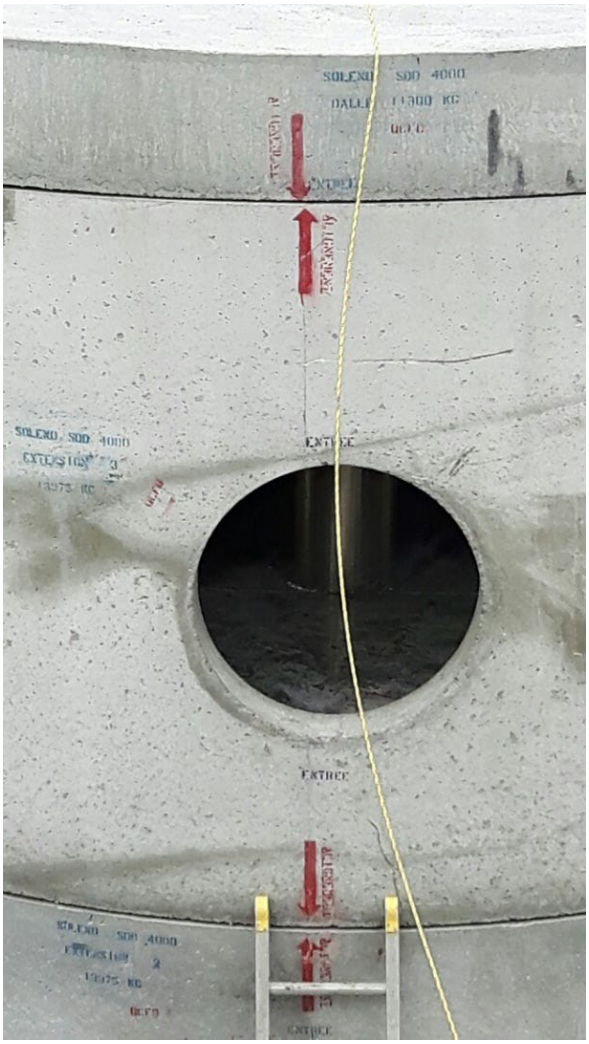


FIGURE 3:

ALIGNMENT OF THE ARROWS OF DIFFERENT SECTIONS OF SDD3

1. Ensure a proper foundation, as specified in the project's relevant specifications.
2. Place the SDD3 base aligned with the inlet pipe (following the alignment arrow), on a previously prepared and compacted foundation.
3. Each section is marked with alignment arrows that should be matched together (Figure 3).
4. Install the intermediate sections (extensions), while maintaining alignment with the marked arrows.
5. Verify the alignment of the internal components of the system (vortex, deflector plate, oil pipe).
6. Install the slab and confirm the alignment of the access openings with respect to the vortex and oil pipe, as applicable (chimney/chimneys and valve box for oil tank access).
7. Install the upper part of the oil tank access pipe (for SDD3-1800 models and larger only) (Figure 5).

To ensure the system's waterproofing, sealing gaskets are provided and must be installed between each section. Table 2 below lists different types of gaskets and their respective components, according to the chosen SDD3 model.

TABLE 2: TYPES OF SEALS AND THEIR COMPONENTS ACCORDING TO THE SDD3 MODEL

SDD3 MODEL	GASKET	
	PIPES	WATERTIGHTNESS BETWEEN SECTIONS
900	A-LOK	RUBBER
1200	A-LOK	RUBBER
1600	A-LOK	RUBBER
1800	A-LOK	RUBBER
2100	A-LOK	RUBBER
2400	A-LOK	RUBBER
3000	KOR-N-SEAL	BUTYL
3200	KOR-N-SEAL	BUTYL
3600	KOR-N-SEAL	BUTYL
4000	KOR-N-SEAL	BUTYL

As with our standard manholes, each prefabricated SDD3 section includes lifting lugs, designed to ensure a proper and safe manipulation during the installation process. The use of a certified spreader beam with sufficient capacity is recommended when manipulating the concrete sections (Figure 4). Chains or straps can also be used provided they are sufficiently long and respect a minimum angle of 60º with the horizontal axis. Improperly manipulating the concrete sections can cause irreparable damage. Furthermore, failure to comply with these recommendations can cause serious injury or death.

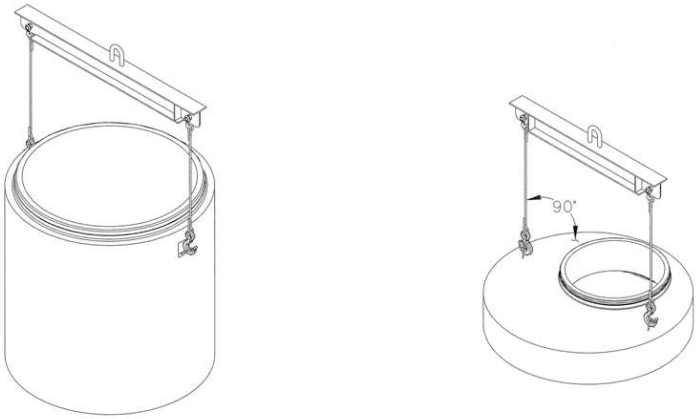


FIGURE 4 : RECOMMENDED LIFTING METHODS

For models SDD-1800 and greater, the upper portion of the oil access port must be installed once all the concrete sections have been set. A construction sealant must be used to ensure a watertight connection (Figure 5).

FIGURE 5 : GASKET ON OIL ACCESS PIPE

3.3. Pipe connections

The inlet and outlet openings of the SDD3 are situated at the same elevation, which simplifies the connection to the drainage system. The pipes are typically aligned at 180°. However, this angle between the connections can vary, depending on the project requirements. Please refer to the specific project plans and specifications to confirm the pipe placement.

For the proper connection of pipes to the SDD3, it's crucial to adhere to local regulations and the project-specific guidelines outlined in the specifications. Additionally, the following steps need to be followed:

1. Bevel and clean the pipe wall to prevent the gasket from tearing, during its insertion into the element. Additionally, clean the SDD3 gasket.

2. Lubricate the end of the pipe generously with an appropriate lubricant based on the pipe diameter (refer to Table 3).

3. Before proceeding with pipe connection, ensure that the inlet and outlet pipes are adequately supported with approved backfill materials.

4. Position the pipe perpendicular to the structure and push it into the opening using a bar or a backhoe shovel.

TABLE 3: LUBRICANT APPLICATION LENGTH ACCORDING TO PIPE DIAMETER

PIPE DIAMETER		MINIMUM LUBRICANT APPLICATION LENGTH		PIPE DIAMETER		MINIMUM LUBRICANT APPLICATION LENGTH	
in	mm	in	mm	in	mm	in	mm
4	100	12	300	24	600	24	600
6	150	12	300	27	675	24	600
8	200	12	300	30	750	24	600
10	250	12	300	33	850	24	600
12	300	12	300	36	900	24	600
15	375	12	300	42	1050	24	600
16	400	18	450	48	1200	24	600
18	450	18	450	54	1375	24	600
21	525	24	600	60-80	1500-2025	24	600

3.4. Backfilling

Backfill material should be properly placed around the SDD unit to provide support and prevent tipping. Compact the gravel fill in accordance with state highway, provincial or local regulations.

4. Appendix 1: INSTALLATION INSPECTION FORM

SDD3 - INSTALLATION INSPECTION FORM

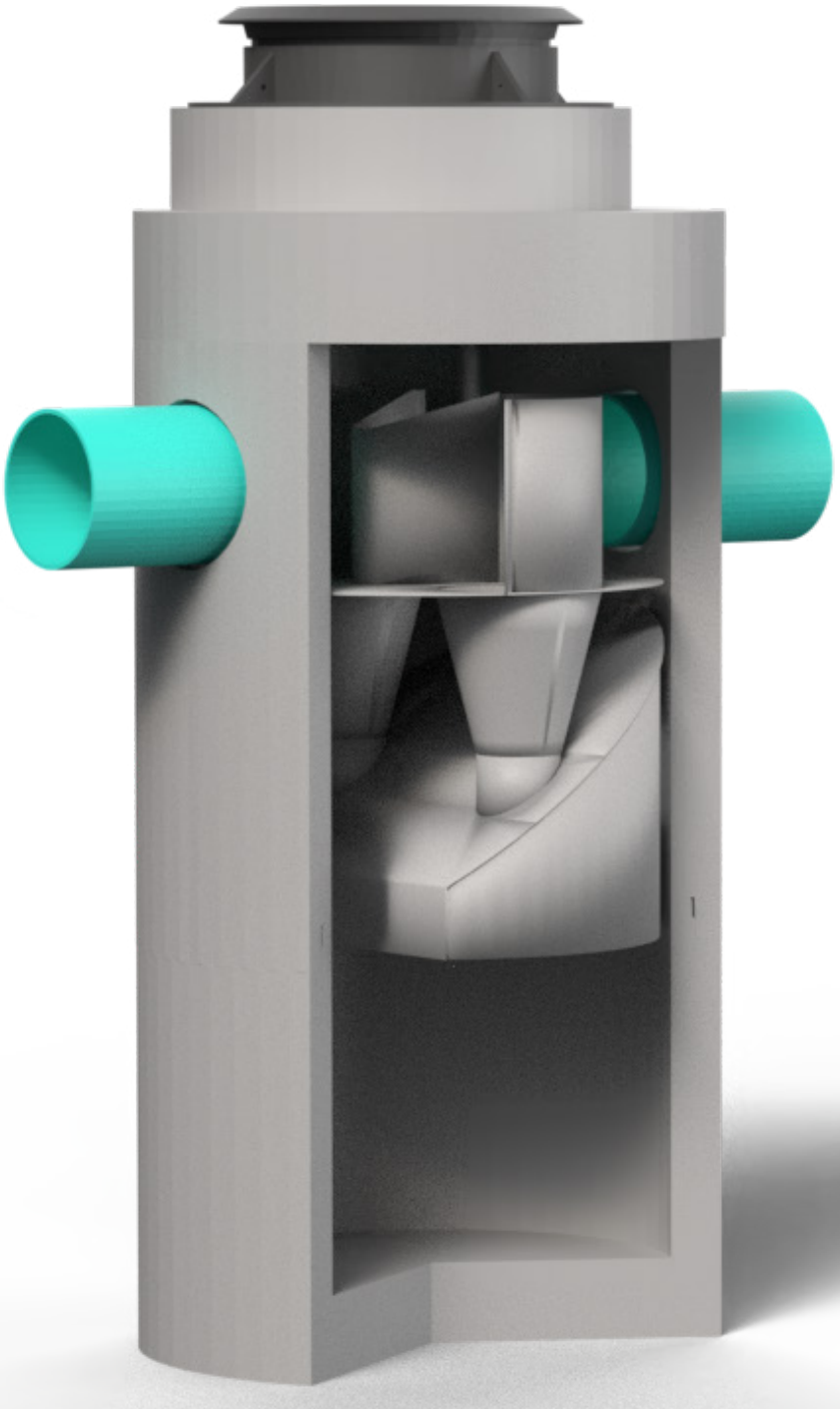
Instalation date	

NEXT project number		
Project name		
Model	SDD3 -	
Owner		
Client		
On-site contact		
NEXT Stormwater Solutions representative		
Location (GPS coordinates, address or other reference point)	Latitude:	
	Longitude:	
Installation pictures	YES ◯	NO ◯
Transportation arrival time		
Equipment used for installation		

Component	Base	Extension 1	Extension 2	Extension 3	Extension 4	Extension 5	Top Slab
Unloading time							
Installation time							

Signature on-site representative

Signature NEXT Stormwater Solutions representative



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