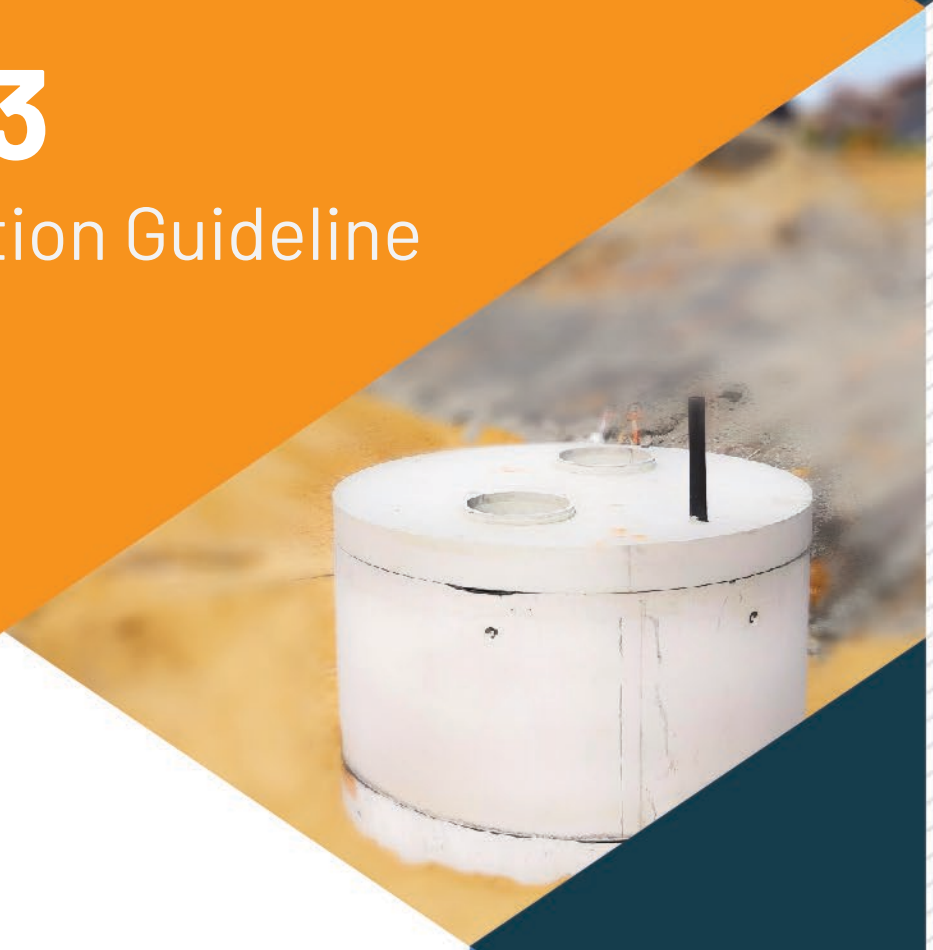
SDD3

Installation Guideline



EZStorm Underground retention / Infiltration structure

Installation Guideline

PRÉAMBULE

The SDD3 by NEXT Stormwater Solutions, a division of Groupe Brunet, is an enhanced Oil Grit Separator. Installation of a SDD is simple and similar to that of a standard manhole. This guideline provides information and recommendations needed for the installation of a SDD; however the installation should conform in general to state highway, provincial or local specifications for the installation of maintenance holes. In addition to this guideline, 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 SDD is composed of a precast concrete manhole with a flow separation insert which is situated 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).

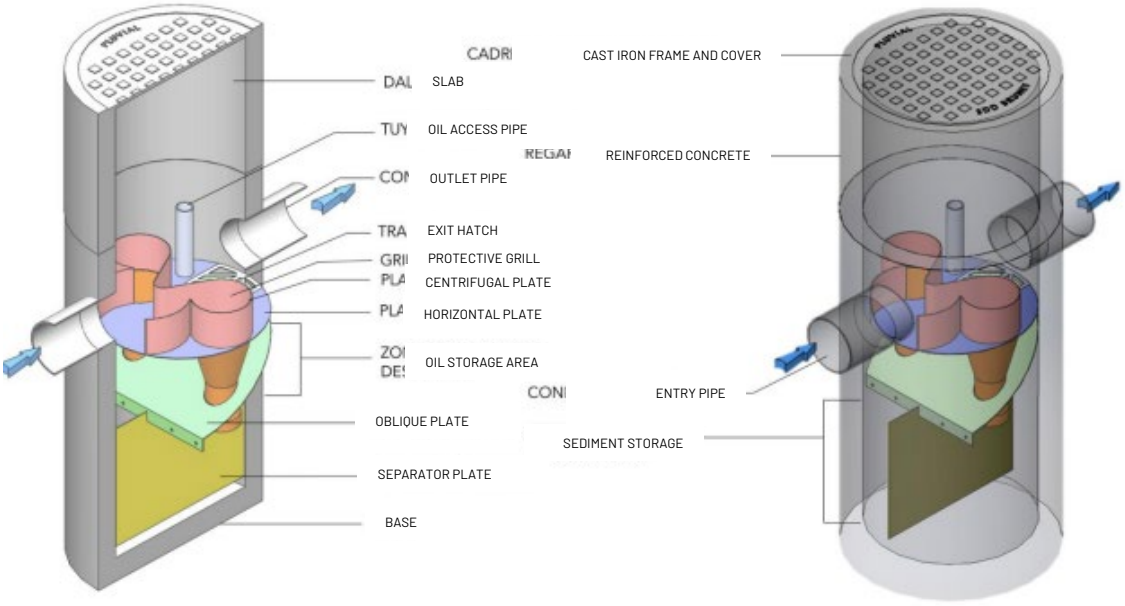


FIGURE 1 : PROCESSING UNIT COMPONENTS

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. 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 based on the model. Additionally, the inlet and outlet pipes are situated at the same elevation, facilitating system placement. The installation of SDD3 has no impact on the piezometric line.

TABLE 2: SUMMARY OF SDD3 FEATURES

SDD3 MODEL	UNIT DIAMETER (M)	MAXIMUM PIPE DIAMETER (MM)	NUMBER OF CONCRETE SECTIONS	SECTION WEIGHTS				
				FLOOR	EXTENSION #1	EXTENSION #2	EXTENSION #3	Slab
900	0,915	375	4	1215	1435	1144	-	200
1200	1,220	600	3	1975	2320	-	-	510
1600	1,600	750	3	3000	4250	-	-	1375
1800	1,830	900	3	6875	4050	-	-	2250
2100	2,130	900	4	6455	5650	6669	-	3215
2400	2,440	1050	4	10570	7230	7230	-	4385
3000	3,024	1050	5	8450	7350	9950	9950	6725
3200	3,200	1050	5	8450	7350	9950	9950	6725
3600	3,660	1050	5	13725	7125	12250	12250	8700
4000	4,052	1050	5	16765	7985	13975	13975	10885

1. The dimensions and characteristics of the SDD components may vary depending on the project requirements. Please refer to the specific plans for your SDD 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 SDD Oil Grit Separator. Moreover, 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 SDD 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:

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 (if required).
7. Install the frame and 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 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 beyond the outside radius of the base section is desirable).

FIGURE 2 : SEAT PREPARATION

The entire SDD 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.

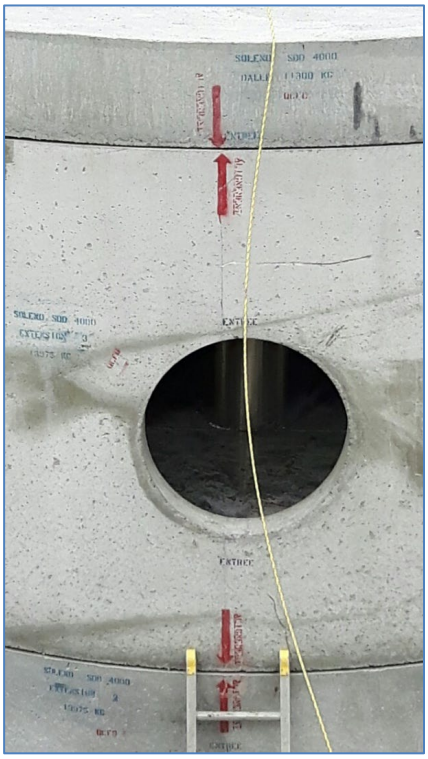


FIGURE 3:

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

MODÈLE DE SDD3	GARNITURE	
	CONDUITES	D'ÉTACHÉITÉ ENTRE LES SECTIONS
900	A-LOK	CAOUTCHOUC
1200	A-LOK	CAOUTCHOUC
1600	A-LOK	CAOUTCHOUC
1800	A-LOK	CAOUTCHOUC
2100	A-LOK	CAOUTCHOUC
2400	A-LOK	CAOUTCHOUC
3000	KOR-N-SEAL	BUTYLE
3200	3,200	BUTYLE
3600	3,660	BUTYLE
4000	4,052	BUTYLE

As with our standard manholes, each prefabricated SDD 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.

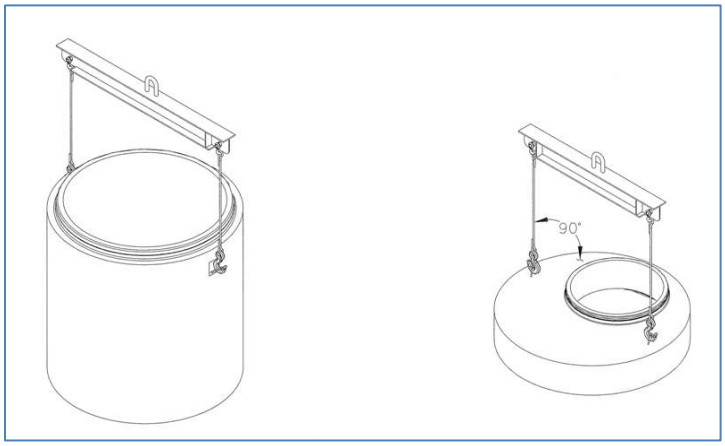


FIGURE 4 : RECOMMENDED LIFTING METHODS

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 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.

PIPE DIAMETER (INCHES)	MINIMUM LUBRICANT APPLICATION LENGTH (INCHES)	PIPE DIAMETER (INCH)	MINIMUM LUBRICANT APPLICATION LENGTH (INCHES)
4	12	24	24
6	12	27	24
8	12	30	24
10	12	33	24
12	12	36	24
15	12	42	24
16	18	48	24
18	18	54	24
21	24	60-80	24

TABLE 3: LUBRICANT APPLICATION LENGTH ACCORDING TO PIPE DIAMETER

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

SDD – INSTALLATION INSPECTION FORM

Installation date	

NEXT project number		
Project name		
Model	SDD-	
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

NEXT STORM

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