

8. Certified softment, organic solids and other settled material in the primary and grit chambers are stored in a sump area containing not less than 152.0 Cuft; entire sump area is below the settling surfoces and the teachment flow poth, preventing re-suspension of captured pollutants.

9. Minimum volume of captured gross pollutant sump area is 132.0 Cuft 10. Minimum gross oil storage volume is 256 gallons.

11. 30 inch manhole access for maintenance from grade by vacuum truck; with not less than 18 inch continuous access opening to bottom of sump area.

12. Air and water pressurized subge dispension manifold below stacked inclined plate sediment sump area, causing pollutants to drain to vacuum truck surfom hose sediment sump area, causing pollutants to drain to vacuum truck surfom hose to the state of the state of the sediment of the product supplied is not first hop draining and such other information requested by 1. Morranty: Labor and material for 4 years from date of installation in the event that the product supplied is not first from defects that materially affect its performance; Terre Kleen shall be installed and used only in the particular application for which it was specifically designed, engineered and manufactured (see written Terre Kleen warranty for entire worranty)

Terre Kleen is a HYDRODYNAMIC SEPARATOR consisting of preinstalled, stacked inclined plates housed inside a precast structure. Ferre Kleen removes pollutants by separating sediment and floatables such as oils, grease, trash and debris from stormwater. Terre Kleen features are as follows:

capture & permanently retain 100 percent of floatable trash & debtis at all flows . Capture & permanently retain > 90 percent of floatable free oil, grease and folial retroisum hydrocarbous (CHP) at all flows; unit shall be capable of receiving "oil sortents" to permanently retain and and an arrivational personal capture of the capable of remained soft and clay gize see particles. It is capable of remained soft and clay gize particles. All storm water flows shall enter the Terre Kleen and, flows in excess of design flows, that places through the internal flow through duct to the effluent pipe without the use of an external bypass.

ternal bypass. stacked inclined plates in the grit chamber are self cleaning settling surfaces HS 25 traffic and earth loadings

Terre Kleen TK05 Performance, Design and Installation Specifications

9'-0"

TOP SLAB LAYOUT OPTIONS

TERRE KLEEN - GENERAL NOTES:

Molinarina Procedures

1. Quarterly inspection is recommended to record sediment, oil, and trash accumulation.

2. Clearing is recommended when the sediment reaches 16 inches in depth in one or both sediment sump onces.

3. No confined space entry required: Terre (Mean design allews access from grade, to both tommens by vocum hose for removal of 100% of locaptured political politics.

5. Removed and error in must be handled and disposed according to local, state, and federal regulations.

a, project—specific sizing calculations, with 3rd party performance verification, clearly showing that the unit meets or exceeds the Performance and besign Specifications of the letter kleen.

. No stormwater treatment BMP shall be approved as an equivalent substitution unless to agineer shall receive and approve drawings and specifications stamped and sealed by a ordessional engineer registered in the state wherein the project is located showing the

project—specific hydraulic calculations, with 3rd party performance verification, showing the hydraulic Grade Line (HGL) plotted through the structure for the design flow

Product Substitution Procedure

THE TERRE KLEEN w (US PATENT 6,676,832 B2) HODRODYNAMIC SEPARATOR AS DESIGNED, MANUFACTURED AND INSTALLED BY TERRE HLL. STORMMATER SYSTEMS.

CONTACT: TERRE HLL. STORMMATER SYSTEMS AT P.O. BOX 10, 485 WEAVERLAND WALLEY ROAD, TERRE HLL, PA 17581 (PHONE 1-800-242-1509) OR WWW.TERRESTORM.COM

Terre Kleen Installation Specifications

DEFORMED STELL CONFORMS TO ASTM A615 GRADE 60. WELDED WIRE FABRIC CONFORMS TO ASTM A185. DEFORMED WELDED WIRE FABRIC OF EQUAL SIZE MAY BE SUBSTITUTED FOR SMOOTH WELDED WIRE FABRIC AND SHALL CONFORM TO ASTM A497. CONCRETE: f'c = 5,000 PSI @ 28 DAYS, WITH ASTM C-33 NO. 57 OR NO. 67 COARSE AGGREGATE.

BRIUMEN COMEDA CS-1028 JOINT MATERIAL MANUFACTURED BY CONCRETE SEALANTS, I CONFORMS TO FEDERAL SPECIFICATION SS-9-210A. JOINT SEALANT MUST BE INSTALLET WITH CONCRETE SEALANTS, INC. RECOMMENDATIONS. INC. AND ED IN ACCORDANCE

1. Terre Kleen inclined plote assembly shall arrive at the job site fully assembled inside precost concrete structure. Precost structure and in sections due to weight and transportation issues. Each precost structure shall contain lifting paths with Uni-Hits, annulacturer shall provide lifting equipment required between the uni-Hit and the lifting straps / crare hook, which shall be the property of manufacturer. Contractors shall provide equipment with sufficient lifting capacity to unload and set the Terre Kleen.

2. Contractor shall excounts dewater and shore in accordance with project specifications, as provided by Engineer and ISSH regulations.

3. Sub-grade shall be established as shown on the Drawings, Underlying soil and sub-grade material shall have design loading of not less than 2000 pounds per square foot (psr). Precost components shall be placed on the compacted base (95% Practor bensity), elevation confirmed, level and disped to ensure that the entire unit will be properly positioned when fully installed.

TOP UNIT (PA TYPE 'W' SHOWN) W WELDED NO STELL GRATE SUPPLIED BY THESP. INSTALLATION AND FINAL GRADE BAULIST BY COUTE IN FEED (PRECAST TOP UNIT SHOWN, TERRE KLEEN FRAME & COVER MAY BE USED AT THIS LOCATION)

TERRE KLEEN FRAME & COVER SUPPLIED BY THCP. INSTALLATION AND FINAL GRADE ADJUST BY CONT'R IN FIELD

GRADE ADJUST, BY CONT'R.

7 1/4"

ANNULAR SPACE BETWEEN PIPE AND HOLE TO BE FILLED, BY OTHERS, WITH AN APPROVED NON-SHRINK GROUT OR CONCRETE AS SPECIFIED.

UNI LIFT ANCHORS MANUFACTURED BY UNIVERSAL FORM CLAMP COMPANY, OR EQUAL UNI LIFT ANCHORS TYPICAL FOR HANDLING. DROP-IN ANCHORS TO BE HILTI 316 STAINLESS STEEL KWIK BOLT II AS MANUFACTURED BY HILTI CORP.

ALL PIPES TO BE CUT FLUSH WITH INSIDE WALL, AFTER GROUT HAS DRIED.

INSTALLATION AND MAINTENANCE MUST BE IN ACCORDANCE WITH THE MANUFACTURERS WINSTRUCTIONS AND COMPLY WITH LOCAL ORDINANCES AND NPDES PHASE II REGULATIONS AANHOLE FRAMES AND COVERS SUPPLIED BY TERRE HILL STORMWATER SYSTEMS. INSTALLATION AND GRADE "DUIST BY OTHERS, COVERS TO BE MARKED WITH "TERRE KLEEN STORMWATER TREATMENT SYSTEM" LOCO. WRITTEN

SIDEWALL PIPE TERRE KLEEN FRAME & COVER SUPPLIED BY THCP. INSTALLATION AND FINAL GRADE ADJUST BY CONT'R IN FIELD GRADE ADJUST, BY CONT'R. - TERRE KLEEN 05 (SUPPLIED AND INSTALLED BY THCP) Ē Terre Kleen Model

REARWALL— INFLUENT PIPE

-PRECAST BAFFLE WALL

OILET OILET

SIDEWALL -

- TERRE KLEEN 05 (SUPPLIED AND INSTALLED BY THCP)

8'-2" MINIMUM

SECTION A-A

INSTALL VAULT LEVEL & PLUMB ON A 6" COMPACTED 2A STONE BASE BY CONT'R

SECTION B-B

346 SqFt	288 SqFt	230 SqFt	172 SqFt	115 SqFt	57 SqFt	32 SqFt	13 SqFt	8 SqFt	Settling area in sedlmen tatlon chamber
4.7 cfs	3.9 cfs	3.1 cfs	2.3 cfs	1.5 cfs	0.8 cfs	0.4 cfs	0.2 cfs	0.1 cfs	Design ¹ Capacity d ₅₀ =50 Micron
0.16 ln.	0.13 ln	0.13 ln	0.11 ln	0.10 ln.	0.09 In	< 0.50 ln	< 0.50 ln.	< 0.50 ln	Design flow head loss
22.5 cfs	18.7 cfs	15.0 cfs	11.2 cfs	7.5 cfs	3.7 cfs	2.1 cfs	0.8 cfs	0.5 cfs	Design ¹ Capacity d ₅₀ =110 Micron
3.58 n	3.08 In	2.94 In	2.71 n	2.44 In.	1.93 In.	< 0.50 n.	< 0.50 ln.	< 0.50 ln.	Design flow head loss
41.9 cfs	34.9 cfs	27.8 cfs	20.8 cfs	13.9 cfs	6.9 cfs	3.9 cfs	1.6 cfs	1.0 cfs	Design ¹ Capacity d ₅₀ =150 Micron
12 41 ln	10.71 ln.	10.11 ln.	9.36 In	8.37 In.	6.70 ln.	< 0.50 In.	< 0.50 ln.	< 0.50 ln.	Design flow head loss
74.5 cfs	62.0 cfs	49.5 cfs	37.0 cfs	24.7 cfs	12.3 cfs	6.9 cfs	2.8 cfs	1.7 cfs	Design ¹ Capacity d ₅₀ =200 Micron
39.25 In.	33.81 ln.	32.06 In.	29.62 In.	26 44 In	21.30 ln.	< 0.50 n.	< 0.50 ln.	< 0.50 ln.	Design flow head loss
77.0 cfs	70.0 cfs	56.0 cfs	42.0 cfs		15.0 cfs	10.0 cfs	4.0 cfs	2.5 cfs	Peak flow
77.0 cfs 43.00 in.	44.00 ln.	42.00 ln.	39.00 ln.	35.00 In.	33.00 ln.	0.56 ln.	0.21 h.	0.08 ln.	Peak ^{2,4} head loss
72 ln.	60 ln.	52 In.	42 ln.	36 In.	24 ln.	18 In.	18 ln.	18 ln.	max plpe Dlam.
299 CF	257 CF	216 CF	151 CF	116 CF	80 CF	132 CF	66 CF	66 CF	Standard ⁵ Sediment Storage
452 Gallon	389 Gallon	327 Gallon	265 Gallon	203 Gallon	140 Gallon	236 Gallon	123 Gallon	192 Gallon	Standard ⁵ Trash and Oll volume
3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	2.52 Ft	Minimum grade to pipe invert ³
6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	Standard pipe inver to device bottom

Design flow rates based on Weighted Removal according to NUDEP lab protocol and adjusted for a particle density 140bs/cft and 60 degree Fahrenheit water temperature. Peak headoss is defined by the standard insert oberance and defines peak flow. Higher flows at reduced treatment rates are optional and avoid external by Add 9" for grade adjust and frame and cover, otherwise cast into the lid. Excess design overflow through a screen is possible bove insert.

Special designs are available to increase these values.

Initial

Release 11-12-08

8 :: ENG'R: CONT'R:

DATE:

SHT.1 OF 1

FILE NO.

REVISIONS JOB: 6'-0" x 8'-0" PRECAST WATER QUALITY CHAMBER TERRE HIL

fully installed.

4. Contractor shall place "CONSEAL" or equivalent water light mastic material between each preast component.

5. Preasat structure condaining the Terre Kleen component shall be dispred horizontally and vertically plumb. Contractor must confirm that the entire Terre Kleen shall be level during and offer completion of bookfull of the structure.

6. Marnhole frame/cover and inlets frame/grate, if required shall be installed as shown on the drawings and grade adjusted to match final grade elevations by Contractor.

7. Connect and seal starm drawin hiet and outlet pipes to after Kleen until using non-shrink groul-fill material in accordance with project specifications.

8. BACKFLL SPECICIAINS: It is recommended that the store sub-base be extended a minimum of one foot (1 ft) beyond the exterior face of the precast and compacted to \$5% Proctor Pensity to sub-grade Upon completion of the precast installation the backfill material shall be placed and compacted achieving a minimum compaction of 90% Proctor Density, or as secretified by the Engineer, when tested by KSM A1557. Backfill material may be a "minimal compaction effort" material. Native material may be used if the material provides an allowable bearing pressure of 2000 pounts per square foot (pst) and compacts to \$0% Proctor Density (SIM A1557). If approved by the Engineer, in the rests of well-cular use, the upper two feet (2 ft) of backfill shall be aggregate base, compacted to \$5% Proctor Density (SIM A1557). If approved by the Engineer, in the construction materials and debris from the inlet pipe, outlet pipe and Terre Kleen upon completion of installation.

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