





TOP SLAB LAYOUT OPTIONS

TERRE KLEEN - GENERAL NOTES:

THE TERRE KLEEN $_{\rm w}$ (US PATENT 6,676,832 B2) HYDRODYNAMIC SEPARATOR AS DESIGNED, MANUFACTURED AND INSTALLED BY TERRE HILL STORMMERES SYSTEMS. TO, DO BOX 10, 485 WEAVERLAND VALLEY ROAD, TERRE HILL STORMMERES SYSTEMS AT P.O. BOX 10, 485 WEAVERLAND VALLEY ROAD, TERRE HILL, PA 17581 (PHONE 1-800-242-1509) OR WWW.TERRESTORM.COM CONCRETE: f'c = 5,000 PSI @ 28 DAYS, WITH ASTM C-33 NO. 57 OR NO. 67 COARSE AGGREGATE.

ASTM A185. WIRE FABRIC

CORDANCE

N-SHRINK

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

MANHOLE FRAMES AND COVERS SUPPLIED BY TERRE HILL STORMWATER SYSTEMS. INSTALLATION AND GRADE ADJUST BY OTHERS, COVERS TO BE MARKED WITH "TERRE KLEEN STORMWATER TREATMENT SYSTEM" LOGO.

INSTALLATION AND MAINTENANCE MUST BE IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS AND COMPLY WITH LOCAL ORDINANCES AND NPDES PHASE II REGULATIONS.

_	TERRE KLEEN 45 HYDRODYNAMIC SEPARATOR SHALL HAVE 288 SQUARE FEET HORIZONTALLY PROJECTED SURFACE AREA IN THE GRIT CHAMBER.	REAR WALL -	OPTIONAL PIPE LOCATIONS	SIDEWALL PIPE	<u></u>
SECTION B-B			PRECAST BAFTLE WALL OPPROVE SDEWALL INCLUENT PIPE LIDOXITONS	3'-6" NIS 6" 6"	TOP UNIT (PA TYPE 'M SHOWN) W/ WELDED STEEL GRADE SUPPLIED BY THE'S. RISTALIATION AND FINAL GRADE SUPPLIED BY THE'S. RISTALIATION FORECAST TOP UNIT SHOWN, TERRE KEEN FRAME & COMER MAY BE USED AT THIS LOCATION)
COMPACIED 24 STONE BASE BY CONT'R	THRRE KLEEN 45 KSUPPLIED & NISTALLED BY THCP) SUDGE DISPERSION MANIFOLD (SUPPLIED & NISTALLED BY THCP)	EFFLUENT PIPE INVERT	OUTLET OUTLET OUTLET RISER UNIT, IF REC	NSIONS ARE SHOWN. THICKNESSES MAY ICATION CONDITIONS.	TERRE KLEEN FRAME & COVER SUPPLIED ADJUST BY COUNT'S. GRADE ADJUST, BY COVIT'S. TOP SLAB.
-	1-	-	1'-1" MINIMU)	<i>y</i>	1- 2 1/4

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

ORAGE ADJUST, BY CONT'R.

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- OPTIONAL INFLUENT PIPE LOCATIONS

INFLUENT PIPE

— TERRE KLEEN 45
HYDRODYNAMIC
SEPARATOR
(SUPPLIED &
INSTALLED BY THCP)

SECTION

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ALL DIDES TO BE CIT FILISH WITH INSIDE WALL AFTER OBOILT HAS DRIED	ANNULAR SPACE BETWEEN PIPE AND HOLE TO BE FILLED, BY OTHERS, WITH AN APPROVED NON-GROUT OR CONCRETE AS SPECIFIED.	btuary onsea, cs-1028 John Mitera, manifactired by concrete seajants, inc. and convocate oscilara, secondanto, scs-2-210a, johnt seajant must be institued in accumina concrete seajants, inc. recommendations.	DEFORMED STEEL CONFORMS TO ASTM A615 GRADE 60. WELDED WIRE FABRIC CONFORMS TO A DEFORMED WELDED WIRE FABRIC OF EQUAL SIZE MAY BE SUBSTITUTED FOR SMOOTH WELDED WI AND SHALL CONFORM TO ASTM A497.

UNI LIFT ANCHORS MANUFACTURED BY UNIVERSAL FORM CLAMP COMPANY, OR EQUAL TYPICAL FOR HANDLING. UNI LIFT ANCHORS

Design flow rates based on Weighted Removal according to NJDEP lab pro Peak headloss is defined by the standard insert clearance and defines per	TK54	TK45	TK36	TK27	TK18	TK09	TK05	TK02	TKO	Terre Kleen Model
Design flow rates based on Weighted Removal according to NUDEP lab protocol and adjusted for a particle density 140tbs/cft and 60 degree Fahrenheit water temperature. Paul headloss is defined by the standard insert classrance and defining seak liny. Halber flows of reduced treatment rates are additional and avoid external by	⊢	⊢	L	H	-	Ͱ	⊦)2	F	
* rate	346 Sc	288 SqFt	230 SqF1	172 SqFI	l 15 SqFt	57 SqFt	32 SqFt	13 SqFt	8 SqFt	Settling area in sedimen- tation chamber
7	Ft. 4	1	-	-	Н	Н	⊢	Н	1	
90	346 SqFt 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 _{si} =50 Micron
No.	0.16 In.	0.13 ln.	0.13 ln	0.11 ln	0.10 ln.	0.09 In	< 0.50 ln.	< 0.50 ln.	< 0.50 In.	Design flow head loss
	⊢	5	5	5	In.	'n	ō n	o n.	O In.	
	22.5	18.7 cfs	15.0 cfs	11.2 cfs	7.5 cfs	3.7 cfs	2.1 cfs	0.8 cfs	0.5 c	Design ¹ Capacity d ₅₀ =110 Micron
	3	1	_	_	_	1	V.		v.	
	22.5 cfs 3.58 in	3.08 In.	2.94 In.	2.71 n.	2.44 In.	1.93 ln.	< 0.50 n.	< 0.50 ln.	0.5 cfs < 0.50 ln.	Design flow head loss
5	41.9	34.9	27.8	20.8 cfs	13.9 cfs	6.9	3.9	1.6	1.0	Design ¹ Capacity d _{sc} =150 Micron
<u>e</u>	cfs	34.9 cfs	cfs			cfs	cfs	1.6 cfs	cfs	non 156
otocol	41.9 cfs 12.41 in	10.71 In.	27.8 cfs 10.11 ln.	9.36 In	8.37 ln.	6.9 cfs 6.70 ln	3.9 cfs < 0.50 in	< 0.50 n.	1.0 cfs < 0.50 ln	Design flow head loss
	3	H		⊢	Н	⊢	-	Н		
	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
	-	33.81 ln.	32.06 ln.	29.6	26.44 In.	21.30 ln.	< 0.50 n.	< 0.50 n.	< 0.50 In.	Design flow hea loss
	5 In	_		2 In.						Design low head loss
5	77.0 c	70.0 cfs 44.00 ln.	56.0 cfs 42.00 ln.	29.62 In 42.0 cfs 39.00 In	28.0 cfs 35.00 ln.	15.0 cfs 33.00 ln.	10.0 cfs 0.56 in.	4.0 cfs	2.5 cfs	Peak flow
	fs 43	fs 44	fs 42	fs 39	fs 35	fs 33	fs 0.	Н		
	00 n.	00 In.	00 In.	00 n.	.00 In.	00 In.	56 In.	0.21 In.	0.08 In.	Peak ^{2,4} head loss
-	39 25 In 77 0 cfs 43 00 In 72 In	60 In.	52 In.	42 In.	36 In.	24 In.	18 n.	18 In.	18 In.	max pipe Diam
3	г	H	-	H	Т	H	t.	Н	Г	
	299 CF	257 CF	216 CF	151 CF	116 CF	80 CF	132 CF	66 CF	66 CF	Standard ⁵ Sediment Storage
	452	389		265 Galon	203	140	236	123	192	Standard ⁵ Standard ⁵ Sediment Trash and Storage Oll volume
3	Salon	389 Galon	327 Galon	Salon	203 Gallon	140 Galon	236 Gallon	123 Gallon	192 Gallon	dard ⁵ 1 and slume
vater ten	452 Galon 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
nperat	Н	⊢	Н	⊢	-	⊢	H	Н	H	
Ē	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 invert to device bottom

Terre Kleen TK45 Performance, Design and Installation Specifications

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:

copture & permanently retain 100 percent of floatable trash & debris at all flows 2. capture & permanently retain > 30 percent of floatable free oil, grease and floatable retroisum hydrocarbouss (FHs) at all flows; unit shall be capable of receiving "oil sorbents" to permanently remore captured oil, grease and FHs. 2. capable of removing sit and clay size particles. 2. Capable of removing sit and clay size particles shall pass strong the pass of the size of

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 25.70 Cuft; entire sump area is below the settling surfoces and the treatment flow point, preventing re-suspension of captured poliutants.

9. Minimum volume of captured gross pollutant sump area is 257.0 Cuft.

10. Minimum organs oil storage volume is 389 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 pressurface sludge dispersion manifold telow stacked inclined plate sediment sump area, causing pollutants to drain to vacuum truck suction hose.

13. Manufacture pressurface shop draining sond such other information requested by Engineer to verify Performance and Design Specifications.

14. Warranty: Libbor and material for 4 years from date of installation in the event that the product supplied is not free from defects that materially affect its performance; ferre 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 warranty)

Product Substitution Procedure

 project-specific hydraulic calculations, with 3rd party performance verification, showing the hydraulic Grade Line (HGL) plotted through the structure for the design flow project— specific sizing calculations, with 3rd party performance verification, clearly showing that the unit meets or exceeds the Performance and Design Specifications of the "erre Kleen. . No stormwater treatment BMP shall be approved as an equivalent substitution unless to againeer 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 "Incidental Project is stated wherein the project is located showing the

1. Terre Kleen inclined plote assembly shall arrive at the job site fully assembled inside precast concrete structure. Precast structure may arrive in sections due to weight and transportation issues. Each precast structure may arrive in sections due to weight and transportation issues. Each precast structure mail contain lifting points with Un-initis, manufacturer shall provide lifting expertly of the provide provide structure. Contractor shall provide equipment with sufficient lifting capacity to unload and set the Terre Kleen.
2. Contractor shall excavate, benefits and share in accordance with project specifications, as provided by Engineer and OSH4 regulations.
3. Sub-grade shall be established as shown on the Drawings. Underlying sail and sub-grade material shall have design loading of not less than 2000 pounds per square foot (jest). Precost components shall be placed on the compacted base (93% Proctor Dentity), elevation confirmed, level and aligned to ensure that the entire unit will be properly positioned when fully installed. 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 once.

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

4. Ar and water pressurized sludge dispersion manifold, under inclined politics.

5. Removed malatrial must be handled and disposed according to local, state, and federal regulations. Terre Kleen Installation Specifications

fully installed. 4. Contractor shall pace "CONSEAL" or equivalent water light mastic material between each precast component. 5. Precast strough purpose. 6. Monhole frame/cover and inlets frame/grate, if required shall be diagned horizontally and werkfolly plumb. Contractor must confirm that the native large shall be level during and after completion of bookfill of the structure. 6. Monhole frame/cover and inlets frame/grate, if required shall be installed as shown on the drawings and grate algusted to match final grade elevations by Contractor. 7. Connect and soal storm dominiet and outlet pipes to large keep unit using non-shrink grout-fill material in accordance with project specifications. 8. BACKPLL SPECHONIONS: It is recommended that the store sub-base be extended a minimum of one foot (1 tt) beyond the exterior face of the precast and compacted to 95% Proctor bensity to sub-grade. Upon completion of the precast installation the backfill material shall be placed and compacted ochieving a minimum compaction of 90% Proctor Density, or as seperified by the Engineer, when tested by KSML A1557. Backfill material may be a specified by the Engineer, also provides an allowable bearing pressure of 2000 pounds per square foot (pss) and compacts to 90% Proctor bensity per KSMI A1557. If approved by the Engineer, in reasts of welfactor use, the upper two feet (2 tt) of backfill shall be aggregate base, compacted to 95% Proctor bensity per KSMI A1557.) Boothors shall remove all foreign material and debris, including all sediment, als, grease and construction materials and debris from the inlet pipe, outlet pipe and Terre Kleen upon completion of installation.

REVISIONS JOB: PRECAST
WATER QUALITY CHAMBER TERRE HIL

Initial

Release 11-12-08

8 :: ENG'R: CONT'R:

DATE:

SHT.1 OF 1

FILE NO.

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