



ENT 36212:2019 PG 1 of 17
JEFFERY SMITH
UTAH COUNTY RECORDER
2019 Apr 29 11:40 am FEE 189.00 BY IP
RECORDED FOR AMERICAN FORK CITY

STORM WATER FACILITY AGREEMENT

THIS AGREEMENT, is made and entered into this 8 day of April, 2019, by and between Terracom Properties (hereinafter referred to as "Owner", and American Fork City (hereinafter referred to as the "City"), a Municipal Corporation.

RECITALS

WHEREAS, the Owner desires to improve, develop or redevelop real property located at approximately 400 South 650 East in American Fork City, Utah County, State of Utah (hereinafter referred to as the "Property"), which is more particularly described in Exhibit A attached hereto;

WHEREAS, said development requires the installation and maintenance of storm water facilities (hereinafter referred to as "Facilities") to be constructed according to designs and plans approved by the City;

WHEREAS, the Owner, for and in behalf of its administrators, executors, successors, heirs, or assigns, including any homeowners association, recognizes and agrees that the health, safety, and welfare of the citizens of the City require that the Facilities be constructed and adequately maintained on the Property throughout the life of the development; and

NOW, THEREFORE, in consideration of the foregoing, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

**SECTION 1
FACILITIES**

Facilities include all storm water detention and control structures, flood control devices, or other improvements, which may include, but is not limited to all pipes, channels, or other structures and infrastructure built to convey storm water to the Facilities, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the storm water which are required by the City in the site plan attached hereto as Exhibit B & C.

**SECTION 2
FACILITIES CONSTRUCTION**

The Owner shall, at its sole cost and expense, construct the Facilities in accordance with the plans and specifications for the development approved by the City. Owner understands and agrees that modifications may be needed to make the system work properly after the Facilities are installed and agrees to make modifications and adjustments as may be necessary and required by the City.

SECTION 3 MAINTENANCE

The Owner shall, at its sole cost and expense, adequately maintain the Facilities in good working condition acceptable to the City and in accordance with the schedule of long term maintenance activities agreed to by the parties and attached hereto as Exhibit D. Adequate maintenance is herein defined as follows: 1) keeping the Facilities in good working condition so that the Facilities are performing their design functions, 2) performing facility inspections and repairs as may be needed, and 3) replacing and/or modifying portions, or all of the system, as may be needed to maintain the intended function of the facility.

SECTION 4 EASEMENT

The Owner hereby grants permission to the City, its authorized agents, and employees to enter upon the Property and to inspect the Facilities whenever the City deems it necessary. Whenever possible, the City shall provide notice prior to entry. Inspections by the City shall be conducted in a reasonable manner and at reasonable times, as determined appropriate by the City. The purpose of the inspection shall be to determine and ensure that the Facilities are being adequately maintained, are continuing to perform in an adequate manner, and are in compliance with all laws, regulations, and approved plans and specifications. The Owner hereby grants a twenty-five (25) foot access easement in favor of the City with the midpoint of the easement lying over the midpoint of the Facilities identified in the attached plan. This easement shall be limited in scope to allow only those actions which are necessary to allow the City to inspect, ensure adequate maintenance, and to cause any repairs to be made that the City deems necessary. This easement shall include, but is not be limited to, prohibiting the construction of structures or improvements that would impact or obstruct the intended purposes of the Facilities or restrict the ability of the Owner or the City to inspect, maintain, or repair the Facilities.

SECTION 5 FAILURE TO MAINTAIN FACILITIES

In the event the Owner fails to maintain the Facilities in good working order acceptable to the City and in accordance with the maintenance schedule incorporated in this Agreement, the City, in addition to any other remedies provided by State or City code, may, with due notice as provided in Section 6, enter the property and take whatever steps it deems necessary to return the Facilities to good working order. This provision shall not be construed to allow the City to erect any structure of a permanent nature on the property that is not included in the plans and specifications for the development, or other agreement between the parties. It is expressly understood and agreed that the City is under no obligation to maintain or repair the Facilities. The decision to maintain or repair the Facilities shall be at the City's sole discretion and in no event shall this Agreement be construed to impose any such obligation on the City or to create any liability for the City refusing to undertake such a duty.

SECTION 6 NOTICE OF DEFICIENCIES

If the City finds that the Facilities contain any defects or are not being maintained adequately, the City shall provide Owner written notice of the defects or deficiencies and provide Owner with a reasonable time, as determined by the City, to cure such defects or deficiencies.

SECTION 7 RECOUPMENT OF COSTS

In the event the City performs work of any nature pursuant to the Agreement, or expends any funds in the performance of said work for labor, use of equipment, supplies, materials, and the like, the Owner shall reimburse the City within thirty (30) days of receipt thereof for all the costs incurred by the City. If not paid within the prescribed time period, the City shall be entitled to record a lien against the real property in the amount of such costs. The actions described in this section are in addition to and not in lieu of any and all legal remedies available to the City as a result of the Owner's failure to maintain the Facilities.

SECTION 8 LIMITATION OF LIABILITIES

It is the sole intent of this Agreement to insure the proper construction and maintenance of the Facilities by the Owner. As the Facilities are not part of the City's Storm Water Collection System, this agreement does not create or extend any rights to immunity or liability protections provided by law to municipalities. This Agreement shall not be deemed to create or affect any additional liability of any party for damage alleged to result from or caused by storm water runoff, or to constitute a waiver of any immunity provided to the City through the Utah State Code or Constitution.

SECTION 9 SEDIMENT ACCUMULATION

Adequate maintenance shall include control of sediment accumulation resulting from the normal operation of the Facilities. The Owner will make accommodations for the removal and appropriate disposal of all accumulated sediments.

SECTION 10 REQUIREMENTS AND STANDARDS

The Parties agree to follow and comply with all requirements applicable to storm water detention and control facilities as by the Utah Department of Environmental Quality, Division of Water Quality, including the Small MS4 General UPDES Permit requirements, and by the City ordinances and Storm Water Management Plan as existing at the time of executing this agreement and as may be amended from time to time. The parties agree that these requirements and regulations are incorporated herein by this reference and that this agreement shall be deemed

automatically amended to incorporate any and all changes and amendments made thereto after the signing of this agreement.

SECTION 11 INSPECTIONS

The Owner shall perform an annual inspection of the Facilities. The City may require more frequent inspections should it have reason to believe that such inspections are necessary. All inspections shall be conducted by a qualified inspector and the results shall be reported to the City. The purpose of the inspection and reporting is to assure safe and proper functioning of the Facilities, including but not limited to, the structural improvements, berms, outlet structure, pond areas, access roads, vegetation, landscaping, etc. All annual inspection reports shall be submitted to the City Public Works Department no later than September 1 of any given year and shall be on the Maintenance Inspection Report attached hereto as Exhibit E.

SECTION 12 INDEMNITY

The Owner indemnifies and holds harmless the City and its authorized agents and employees for any and all damages, accidents, casualties, occurrences or claims which might arise or be asserted against the City from the construction, presence, existence or maintenance of the facility or facilities by the Owner. In the event a claim is asserted against the City, its authorized agents or employees, the City shall promptly notify the Owner and the Owner shall defend at its own expense any suit based on such claim. If any judgment or claims against the City, its authorized agents or employees shall be allowed, the Owner shall pay for all costs and expenses in connection herewith.

SECTION 13 COVENANT RUNNING WITH THE LAND

This Agreement shall be recorded at the Utah County Recorder's Office and shall constitute a covenant running with the land and shall be binding on the Owner, its administrators, executors, heirs, assigns and any other successors in interest, including any homeowners association.

SECTION 14 REMEDIES

This Agreement may be enforced by proceedings at law or in equity by or against the parties hereto and their respective successors in interest. Any rights or remedies contained in this Agreement shall be in addition, and non-exclusive, to any rights existing under the Utah Code or that may exist under the common law.

SECTION 15
ATTORNEYS FEES

If any party retains, consults, or uses an attorney because of any breach, default, or failure to perform as required by this Agreement, the non-breaching/defaulting party shall be entitled to reasonable attorney's fees incurred before litigation is filed. In the event that any litigation is commenced to enforce or interpret this Agreement the prevailing party shall be entitled to its attorneys fees, expert witness expenses, and litigation related expenses, including but not limited to court costs.

SECTION 16
THIRD PARTY BENEFICIARIES

This Agreement shall be binding upon and inure solely to the benefit of the parties herein and is not intended to create contractual rights in any third party.

SECTION 17
NO PARTNERSHIP

Nothing contained in this Agreement shall be deemed to create any form of a partnership or joint-venture between the City and Owner.

SECTION 18
UTAH LAW AND VENUE

This Agreement shall be interpreted pursuant to the laws of the State of Utah. Any and all suits for any claims or for any and every breach or dispute arising out of this Agreement shall be maintained in the appropriate court of competent jurisdiction in Utah County, Utah.

SECTION 19
INTEGRATED AGREEMENT

This Agreement sets forth the entire agreement of the parties and supersedes all prior agreements, whether written or oral, that exists between the parties regarding the subject matter of this Agreement.

SECTION 20
SEVERABILITY

The provisions of this agreement shall be severable and if any phrase, clause, sentence or provision is declared unconstitutional, or the applicability thereof to the, its successors and assigns, is held invalid, the remainder of this Covenant shall not be affected thereby.

SECTION 21
AMENDMENTS

Except as expressly provided elsewhere in this Agreement, no provision of this Agreement may not be modified except in writing agreed to by both parties.


IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the dates set forth below.

Date: APRIL 8, 2019. [Signature]
By: Doug Brady
Its: owner

NOTARIZATION

STATE OF UTAH)
):ss
COUNTY OF UTAH)

The above Agreement was executed on this 8 day of April, 2019 by Douglas Brady, for and on behalf of Terracom Properties, the Owner identified in the above signed Agreement. In executing this Agreement, the signer did swear before me that he is duly authorized to sign the agreement on behalf of the Owner.

 [Signature]
NOTARY PUBLIC

AMERICAN FORK CITY

Date: April 10, 2019. [Signature]
Scott Sensanbaugher
Director of Public Works

ATTEST:

[Signature]

Exhibit A

CK FARMS, TERRACOM COMMUNITIES, PHASE 1

PART OF SECTION 24, TOWNSHIP 5 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT THAT LIES S89°38'26"E ALONG THE MONUMENT LINE BETWEEN THE WEST QUARTER CORNER AND THE EAST QUARTER CORNER OF SAID SECTION 24, 2650.98 FEET; AND N00°21'34"E 206.85 FEET FROM THE WEST QUARTER CORNER OF SAID SECTION 24; AND RUNNING THENCE EAST 13.65 FEET; THENCE S44°58'51"E 113.27 FEET; THENCE S83°03'58"E 450.32 FEET; THENCE S04°07'54"E 214.09 FEET TO THE NORTHWEST CORNER OF SOUTH POINT PHASE 2; THENCE S00°48'16"W ALONG THE WEST LINE OF SOUTH POINT PHASE 2, 349.07 FEET; THENCE N89°51'41"W 43.05 FEET; THENCE ALONG A TANGENT CURVE TURNING TO THE RIGHT WITH A RADIUS OF 386.00 FEET, AN ARC LENGTH OF 167.82 FEET, A DELTA ANGLE OF 24°56'36", A CHORD BEARING OF N77°24'17"W, AND A CHORD LENGTH OF 166.50 FEET; THENCE N64°56'59"W 60.48 FEET; THENCE ALONG A TANGENT CURVE TURNING TO THE LEFT WITH A RADIUS OF 314.00 FEET, AN ARC LENGTH OF 137.30 FEET, A DELTA ANGLE OF 25°03'13", A CHORD BEARING OF N77°28'36"W, AND A CHORD LENGTH OF 136.21 FEET; THENCE N89°59'59"W 143.03 FEET; THENCE N00°27'02"E 69.00 FEET; THENCE WEST 1.56 FEET; THENCE N00°01'44" W 536.50 FEET TO THE POINT OF BEGINNING

CONTAINING 293,476 SQUARE FEET OR 6.737 ACRES MORE OR LESS

CK FARMS, TERRACOM COMMUNITIES, PHASE 2

PART OF THE SOUTH HALF OF SECTION 24, TOWNSHIP 5 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY. MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EXTENSION OF THE SOUTH LINE OF CK FARMS TERRACOM COMMUNITIES PHASE 1, SAID POINT BEING S89°38'26"E ALONG THE LINE BETWEEN THE WEST QUARTER CORNER AND THE EAST QUARTER CORNER OF SAID SECTION 24, 2656.07 FEET AND S00°21'34"W 398.63 FEET FROM THE WEST QUARTER CORNER OF SAID SECTION 24; AND RUNNING ALONG THE SOUTHERLY BOUNDARY OF CK FARMS, TERRACOM COMMUNITIES, PHASE 1, THE FOLLOWING FIVE (5) COURSES; (1) S89°59'59"E 143.03 FEET; (2) ALONG A NON-TANGENT CURVE TURNING TO THE RIGHT WITH A RADIUS OF 314.00 FEET, AN ARC LENGTH OF 137.30 FEET, A DELTA ANGLE OF 25°03'08", A CHORD BEARING OF S77°28'33"E, AND A CHORD LENGTH OF 136.20 FEET; (3) S64°56'59"E 60.48 FEET; (4) ALONG A TANGENT CURVE TURNING TO THE LEFT WITH A RADIUS OF 386.00 FEET, AN ARC LENGTH OF 167.82 FEET, A DELTA ANGLE OF 24°54'36", A CHORD BEARING OF S77°24'17"E, AND A CHORD LENGTH OF 166.50 FEET; (5) S89°51'41"E 43.05 FEET TO A POINT ON THE WEST LINE OF SOUTH POINT PHASE 2; THENCE S00°48'16"W ALONG THE WEST LINE OF SOUTH POINT PHASE 2, 93.07 FEET; THENCE S00°06'16"E 259.73 FEET; THENCE N89°38'26"W 538.97 FEET; THENCE N00°27'02"E 440.98 FEET TO THE SOUTHWEST CORNER OF CK FARMS TERRACOM COMMUNITIES, SAID POINT ALSO BEING THE POINT OF BEGINNING.

CONTAINING 217,378 SQUARE FEET OR 4.990 ACRES MORE OR LESS, WITH A TOTAL OF 63 UNITS

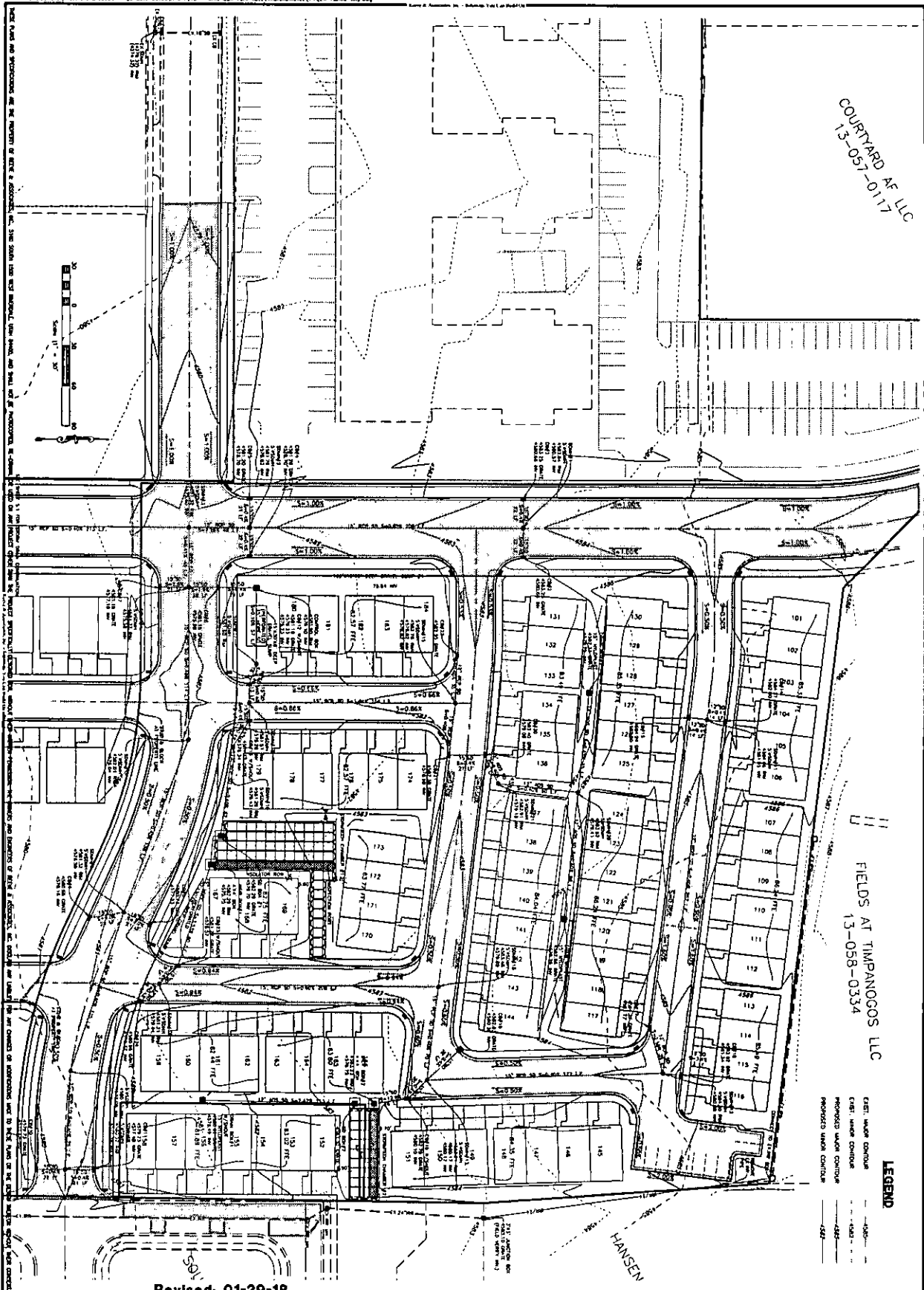


EXHIBIT B

Revised: 01-29-18

Sheet	20
Drawings	6
DATE	JANUARY 2018
PROJECT	CK FARMS - TERRACOM COMMUNITIES PHASE 1
LOCATION	AMERICAN FORK CITY, SALT LAKE COUNTY, UTAH



CK Farms - Terracom Communities Phase 1
 AMERICAN FORK CITY, SALT LAKE COUNTY, UTAH
Grading & Drainage Plan

DATE	REVISION/DESCRIPTION
04-12-12	CK - Site Grading
06-02-12	CK - Utility Layout
08-02-12	CK - Site Grading
12-18-17	CK - Proposed Improvements
01-27-18	CK - Final Grading

Reeve & Associates, Inc.
 1000 WEST 1000 SOUTH, SUITE 200
 SALT LAKE CITY, UT 84119
 (801) 466-1000
 WWW.REEVE-ASSOCIATES.COM

Note: Contractor to verify ALL Existing Utility Locations, Terminations, and Invert Elevations.

CONSTRUCTION NOTES:

- 1) ALL WORK FOR EXISTING DRIVE
- 2) SEE DETAIL LOCATED ON SHEET 12 FOR NEW DRIVE LOCATED ON THE NEW V&S
- 3) INSTALL AESTHETIC CURBS (OR EQVA) AND 12" SLURRY IN ALL CURB DRIVES FROM TO 6"-WIDE STORMWATER.

EXTENSION CAPACITY:
 1228 CF. WAS INSTALLED CAPACITY FOR DRIVEWAY + WAS VOIDED.
 1028 CF. WAS INSTALLED CAPACITY FOR DRIVEWAY + WAS VOIDED.
 4'-WIDE AREA:
 TOTAL STORAGE (DOUBLE-WALL) = 1278 CF.
 TOTAL STORAGE (SINGLE-WALL) = 2822 CF.
 4'-WIDE AREA:
 270' MODULUS (DOUBLE-WALL) X 10.25' CF. = 2768 CF.
 270' MODULUS (SINGLE-WALL) X 10.25' CF. = 2768 CF.
 270' MODULUS (DOUBLE-WALL) X 10.25' CF. = 2768 CF.
 270' MODULUS (SINGLE-WALL) X 10.25' CF. = 2768 CF.
 TOTAL STORAGE (DOUBLE-WALL) X 10.25' CF. = 2768 CF.
 TOTAL STORAGE (SINGLE-WALL) X 10.25' CF. = 2768 CF.
 270' MODULUS (DOUBLE-WALL) X 10.25' CF. = 2768 CF.
 270' MODULUS (SINGLE-WALL) X 10.25' CF. = 2768 CF.
 TOTAL STORAGE (DOUBLE-WALL) X 10.25' CF. = 2768 CF.
 TOTAL STORAGE (SINGLE-WALL) X 10.25' CF. = 2768 CF.

LEGEND

- EXISTING MAJOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MAJOR CONTOUR

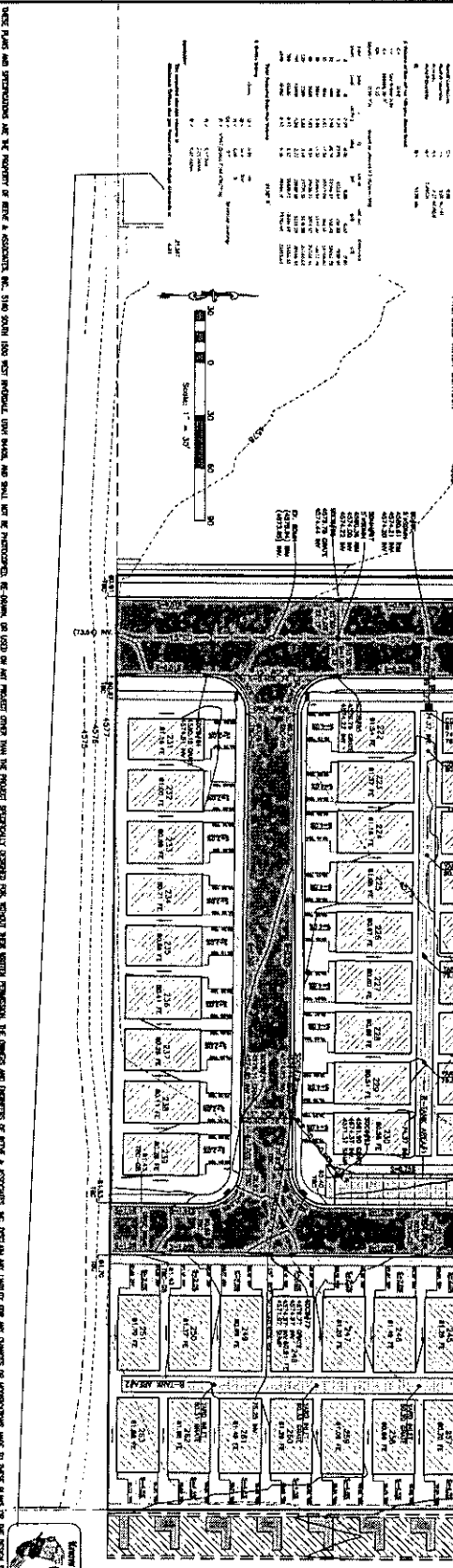
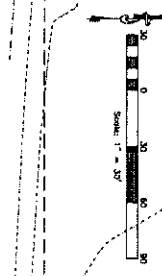


EXHIBIT C



CK Farms - Terracom Communities Phase 2
 AMERICAN FORK CITY, UTAH COUNTY, UTAH

Grading & Drainage Plan

DATE	DESCRIPTION
11-17-17	Design Completed
11-20-17	Perkins Layout
12-11-17	City Comments



Reeve & Associates, Inc.
 1110 WEST 4000 WEST, SALT LAKE CITY, UT 84119
 801.487.3700 FAX 801.487.3705
 www.reeveandassociates.com
 REEVE AND ASSOCIATES, INC. IS AN EQUAL OPPORTUNITY EMPLOYER.
 MAJOR PROJECTS: HOUSING, COMMERCIAL, LANDSCAPE ARCHITECTURE

	Engineer: Brian A. Erickson, P.E. Date: 12/15/2017
	Designer: [Name] Date: [Date]
	Checker: [Name] Date: [Date]
Project: CK Farms Location: American Fork, UT Project No.: 16 Sheet No.: 16 of 16	Scale: 1" = 30' Drawn by: [Name]

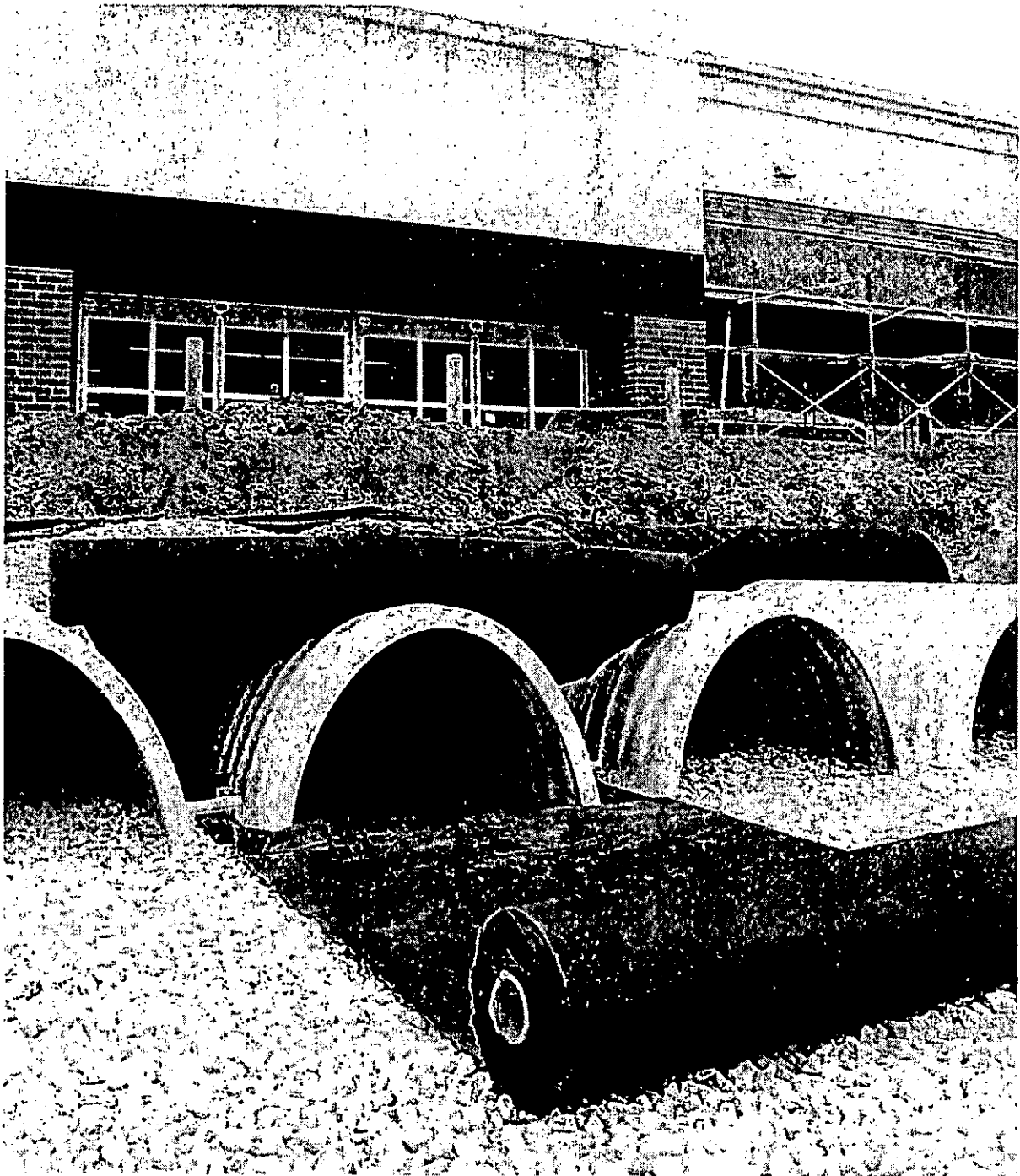
Exhibit D

STORM WATER FACILITIES MAINTENANCE SCHEDULE					
Task	Parking area	Catch Basin Inlets	StormTech System*	R-Tank System*	Schedule
Inspect for sediment accumulation		X	X	X	Annually and as needed
Removal of sediment accumulation		X	X	X	Annually and as needed
Inspect and cleaning for floatables and debris		X			Annually and as needed
Clean Parking Area	X				Annually and as needed
Make adjustments as determined by annual wet weather inspection		X	X	X	As needed
Keep all records of all inspections and maintenance activities	X	X	X	X	Semi-annually

*See Stormwater Management documents for additional maintenance information

**Save Valuable Land and
Protect Water Resources**


StormTech®
Detention • Retention • Recharge
Subsurface Stormwater Management™

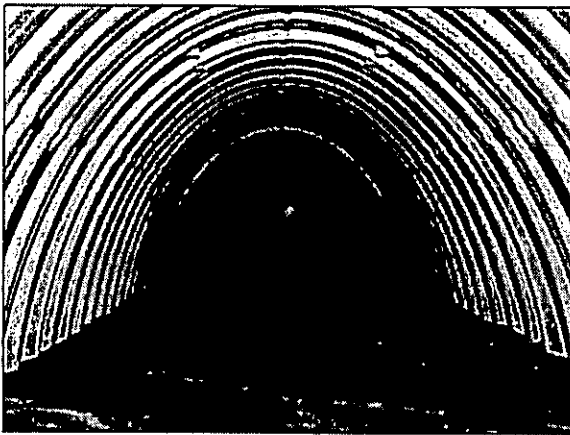


Isolator™ Row O&M Manual
StormTech® Chamber System for Stormwater Management

1.0 The Isolator™ Row

1.1 INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a patent pending technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.



Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

1.2 THE ISOLATOR™ ROW

The Isolator Row is a row of StormTech chambers, either SC-310, SC-740 or MC-3500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

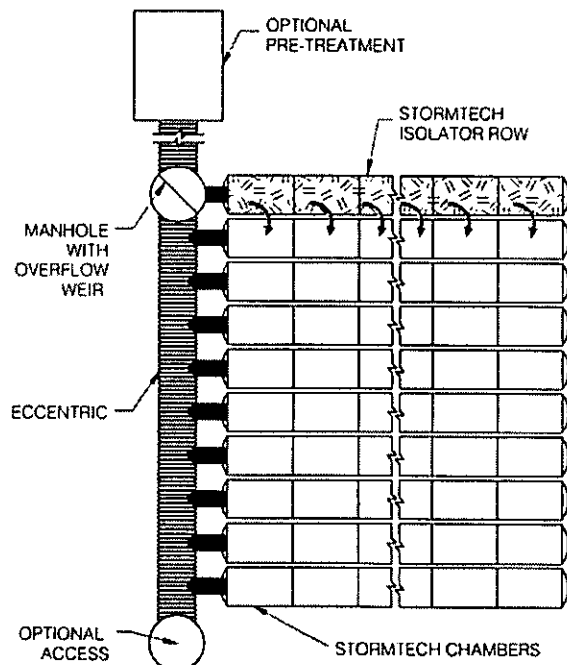
Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber.

The Isolator Row is typically designed to capture the “first flush” and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

StormTech Isolator Row with Overflow Spillway
(not to scale)



2.0 Isolator Row Inspection/Maintenance



2.1 INSPECTION

The frequency of Inspection and Maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

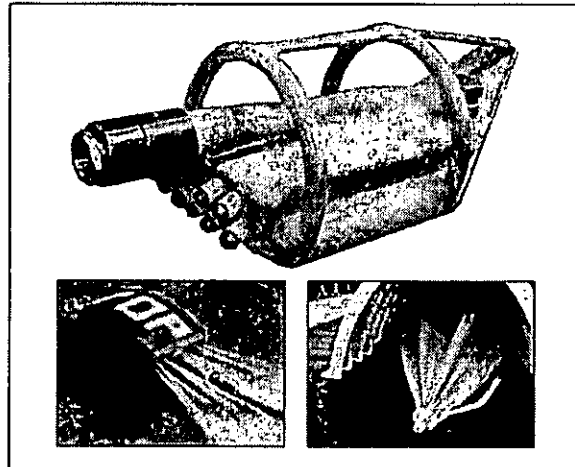
At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

2.2 MAINTENANCE

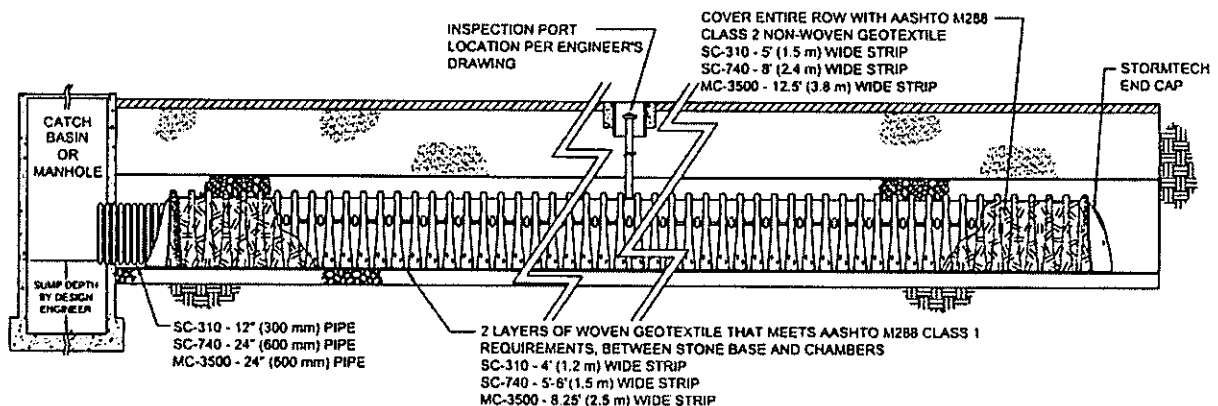
The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.



Examples of culvert cleaning nozzles appropriate for Isolator Row maintenance. (These are not StormTech products.)

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)

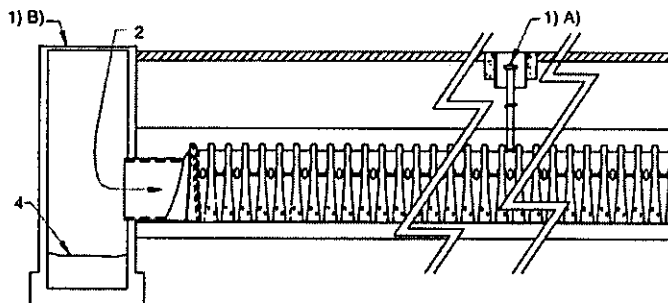


3.0 Isolator Row Step By Step Maintenance Procedures

Step 1) Inspect Isolator Row for sediment

- A) Inspection ports (if present)
 - i. Remove lid from floor box frame
 - ii. Remove cap from inspection riser
 - iii. Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.
 - iv. If sediment is at, or above, 3 inch depth proceed to Step 2. If not proceed to step 3.

StormTech Isolator Row (not to scale)



- B) All Isolator Rows
 - i. Remove cover from manhole at upstream end of Isolator Row
 - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
 - 1. Mirrors on poles or cameras may be used to avoid a confined space entry
 - 2. Follow OSHA regulations for confined space entry if entering manhole
 - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches) proceed to Step 2. If not proceed to Step 3.

Step 2) Clean out Isolator Row using the JetVac process

- A) A fixed culvert cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

Step 3) Replace all caps, lids and covers, record observations and actions

Step 4) Inspect & clean catch basins and manholes upstream of the StormTech system

Sample Maintenance Log

Date	Stadia Rod Readings		Sediment Depth (1) - (2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/01	6.3 ft.	none		New installation. Fixed point is CI frame at grade	djm
9/24/01		6.2	0.1 ft.	Some grit felt	sm
6/20/03		5.8	0.5 ft.	Mucky feel, debris visible in manhole and in Isolator row, maintenance due	rv
7/7/03	6.3 ft.		0	System jetted and vacuumed	djm



20 Beaver Road, Suite 104 | Wethersfield | Connecticut | 06109
 860.529.8188 | 888.892.2694 | fax 866.328.8401 | www.stormtech.com



R-TANK MAINTENANCE

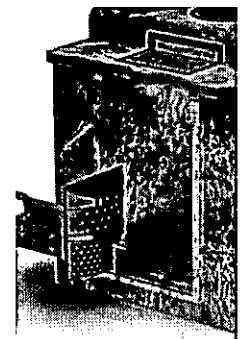
Designing an underground stormwater detention system with future maintenance in mind is a simple process that includes three primary objectives: **PREVENT** debris from entering the system by using good pre-treatment systems, **ISOLATE** debris and sediments that manage to enter the system, and **PROTECT** the body of the system by providing backflush mechanisms to ensure longevity.

1. PREVENT

Keeping debris and sediment out of the system by pre-treating runoff is one of the smartest things an engineer can do when designing underground detention systems. It makes no sense to allow trash and sediments to flow unrestricted into an underground system where removal will be expensive. Instead, capture pollutants simply and inexpensively in the inlets, where removal is easy. There are several ways this can be accomplished with minimal cost impacts to your project.

Trash Guard Plus®

Trash Guard Plus is a patented stormwater pretreatment device that traps debris, sediment and floatables in the inlet. It helps extend maintenance cycles by using the full volume of the inlet structure for sediment capacity. And it is easy to maintain by accessing pollutants through the manhole lid.

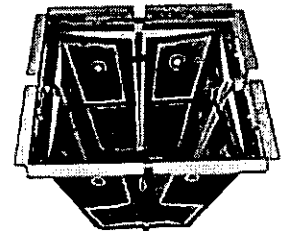


Trash Guard Plus®

Trash Guard Plus works by both screening debris out of the runoff and by slowing the flow of runoff, causing sediments to fall to the bottom of the inlet. Testing at NC State has shown the Trash Guard to be effective at removing trash, sediment, nutrients, and metals.

Gratemaster

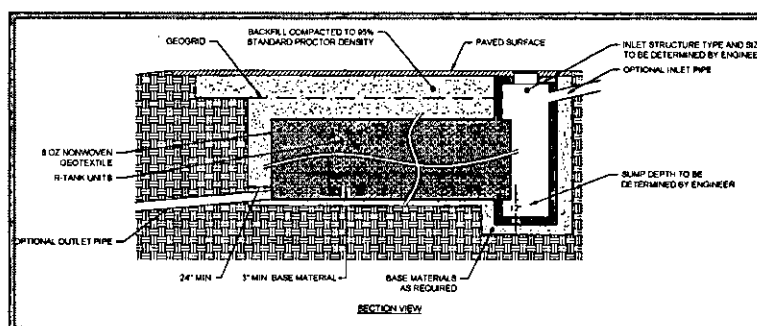
To treat a single inlet that serves as a junction for a larger drainage area, consider an insert like the Gratemaster. Ideal for capturing sediment and trash, it makes clean-up a snap by holding all the pollutants right near the surface for easy extraction.



Gratemaster

R-Tank Screening

For a more centralized approach, some engineers prefer to create an opening in the inlet structures to allow the R-Tank modules to penetrate the structure to act as a trash screen. This works best with a structure that includes a sump (see drawing below).



R-TANK MAINTENANCE

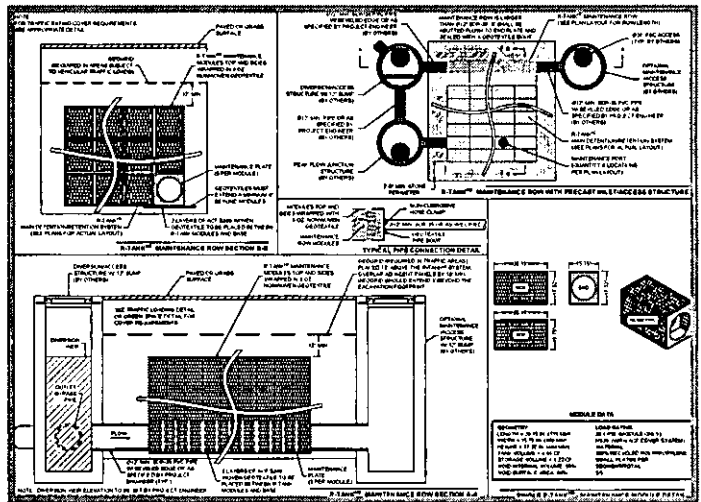
2. ISOLATE

Some pollutants may elude the pre-treatment systems. Trap these materials inside the maintenance row (see drawing to right). Consolidating sediments in a single location makes them easy to remove. Maintenance rows are formed by using maintenance modules, which have open internal components that are fully accessible by conventional jet-vac systems. These modules are set in a row (or multiple rows) to your desired length. Longer maintenance rows should include an access structure on both ends. Extremely long rows may require access from the middle of the row, as well.

The maintenance row is always wrapped in geotextile independently from the rest of the system. The geotextile retains trash, sediments, and other solids, preventing contamination of the rest of the system.

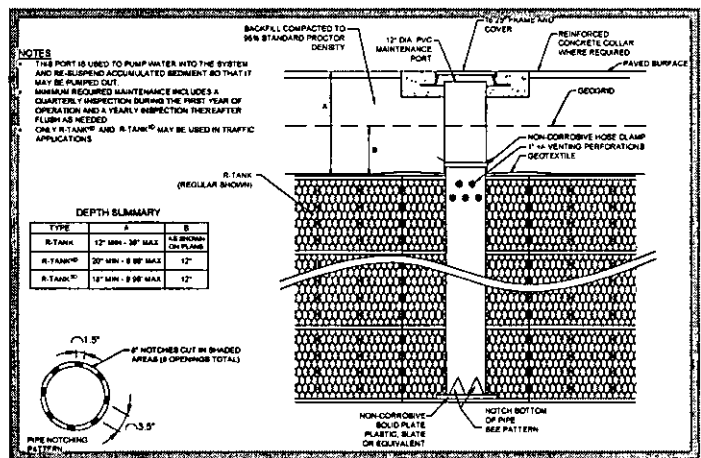
The maintenance row should be sized to treat the first flush (usually 1") of runoff. Use a bypass structure to divert that flow into the maintenance row, and allow larger flows to continue to a downstream inlet where they can enter the R-Tank outside of the maintenance row.

The maintenance row is only available in LD, HD, and UD modules. For SD and XD modules, consider creating a forebay around the inlet locations to collect sediment. This is done by using a taller module installed at a lower invert. Geotextile baffles between the forebay and the rest of the system can help retain sediments. Concentrate Maintenance Ports (see PROTECT below) in the forebay to ensure access to sediment for removal.



3. PROTECT

Every good system has a fall-back plan. You can ensure a long system life by including maintenance ports throughout the system footprint to remove any pollutants that evade the pretreatment system and maintenance row. Maintenance ports should be specified within 10' of inlet and outlet connections, and roughly 50' on center (see maintenance port detail to right).



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Exhibit E

Facility Operation and Maintenance Inspection Report for Storm Drain Facilities

Inspector Name:		Subdivision Name:			
Inspection Date:		Address:			
Frequency of inspection		<input type="checkbox"/> Weekly		<input type="checkbox"/> Monthly	
		<input type="checkbox"/> Quarterly		<input type="checkbox"/> Annual	
Item Inspected	Checked		Maintenance		Observations and Remarks
	Yes	No	Req'd	Not Req'd	
Pond Facilities					
1	Landscaping maintenance				
2	Remove sedimentation				
3	Remove debris				
4	Repair side slopes				
5	Repair rip-rap protection				
6	Repair control structure				
7	Cleaning of outfall				
8	Removal of floatable debris				
9	Maintenance of inlets				
10	Maintenance of outlets				
Storm drain system					
1	Remove sediment from catch basins				
2	Cleaning storm drain pipes				
3	Maintenance of drainage swales				
4	Remove sediment from manholes				
5	Remove sediment from sumps				
6	Repair oil/ water separator				
7	Repair sand filters				
Parking lot and roads maintenance					
1	Sweeping of parking lot				
2	Sweeping of streets				
3	Cleaning of garbage enclosure				
4	Cleaning of non-hazardous spills				
5	Managing fertilizer use				
6	Managing pesticide use				
7	Removal of grass after lawn mowing				

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information provided is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BY: Date:
 Site Inspector