

Memorandum

To: Program Projects and Operations Subcommittee
From: Lori Laster, Stormwater Management Engineer
Date: March 30, 2009
Re: Stormwater Best Management Practices Program Update

In June 2008, the Board approved a new District Program, 17.41 Stormwater BMP Program. A total of \$50,000 was included in FY09 budget and the program expected to provide funding for five projects. This program provides a 50 percent cost share up to \$10,000 for local subdivisions and government who install innovative best management practices to control stormwater runoff and improve water quality. All five grants were approved.

Two grants were awarded to Douglas County Environmental Services. They are installing a rain garden and a green roof at the Eastern Nebraska Office on Aging. These two BMPs will disconnect roof drains and parking lots from the combined sewer system. The total estimated cost for the rain garden is \$20,000. They were awarded the maximum cost share of \$10,000 for this project. The green roof will cost \$100,000. This project was also awarded the maximum cost share of \$10,000.

The City of Omaha was awarded a grant to construct a bio-swale along West Maple Road at 168th Street. This bio-swale will collect water from a new area drain and promote infiltration. Native vegetation will minimize watering and maintenance requirements. This total cost for this project is \$48,000. This project was awarded the maximum cost share of \$10,000.

The Colonies subdivision (SID 330) was awarded a grant to install a bio-swale along Hillsdale Avenue. The existing drainage swale does not have adequate vegetation and has had erosion problems. The swale will be rehabilitated and native vegetation will be planted to increase infiltration and decrease maintenance. The total project cost is \$20,042. This project was awarded the maximum cost share of \$10,000.

Millard West High School was awarded a grant to install a rain garden as part of their wetland rehabilitation project. The total project cost, including the wetland rehabilitation, is \$53,761. This project was awarded \$9,960.

For the FY10 budget this program was advertised along with other District programs and a deadline of March 17, 2009 was set for applications. Four applications were received. City of Papillion - Sumtur Amphitheater Rain Garden – The City of Papillion will install a rain garden to capture stormwater runoff from an existing parking lot. The total project cost is estimated at \$19,470 and they are requesting a 50% cost share of \$9,735.

City of La Vista – 83rd Street Stormceptor – The City of La Vista will install a Stormceptor Water Quality System on an existing storm sewer pipe that terminates at the upper pond La Vista Falls Golf Course, which eventually drains to Thompson Creek.

The total project cost is estimated at \$81,900. They are requesting a cost share of \$10,000, the maximum of this program.

City of South Sioux City – Scenic Park Rain Gardens – The City of South Sioux City will install two rain gardens in areas of Scenic Park that do not currently have storm sewer access. Each rain garden will cost \$13,555. They are requesting a cost share of \$6,777, for a total of \$13,555.

| Project Name | Total Project Cost | Cost Share Requested |
|-------------------------------------|---------------------------|-----------------------------|
| Sumtur Amphitheater Rain Garden | \$19,470 | \$9,735 |
| 83 rd Street Stormceptor | \$81,900 | \$10,000 |
| Scenic Park Rain Garden 1 | \$13,555 | \$6,777.50 |
| Scenic Park Rain Garden 2 | \$13,555 | \$6,777.50 |
| Total | \$128,480 | \$33,290 |

Staff recommends that the Subcommittee recommend to the Board of Directors that the City of Papillion Rain Garden application for \$9,735, the City of La Vista Stormceptor application for \$10,000, and the City of South Sioux City applications for Scenic Park Rain Garden 1 for \$6,777.50, and the Scenic Park Rain Garden 2 for \$6,777.50, for a total of \$33,290, be approved subject to funding the in Fiscal Year 2010 budget.

PAPPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT



17.41 STORMWATER BEST MANAGEMENT PRACTICES PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: March 11, 2009

2. PROJECT NAME: Sumtur Amphitheater Parking Lot Rain Garden

3. PROJECT SPONSOR: City of Papillion

ADDRESS: 122 East Third Street
Papillion, NE 68046

4. CONTACT PERSON: Tony Gowan

TITLE: Parks Director

5. EMAIL AND PHONE: tgowan@papillion.org

8901 S. 154TH ST.
OMAHA, NE 68138-3621
(402) 444-6222
FAX (402) 895-6543
www.papionrd.org

6. PROJECT LOCATION:

Northerly of parking lot for Sumtur Amphitheater at 11691 South 108th Street,
Papillion, Nebraska 68046

7. DESCRIPTION OF STORMWATER BEST MANAGEMENT PRACTICE AND HOW IT WILL BE INCORPORATED IN THE PROJECT:

Diversion of the initial storm water flows from an existing parking lot into a new rain garden. The rain garden will provide water quality enhancement of the storm water prior to discharge into a tributary that is upstream of Walnut Creek Lake.

9. TOTAL ESTIMATED COST: \$ 19,470

10. COST SHARE REQUESTED: \$ 9,735

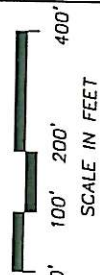
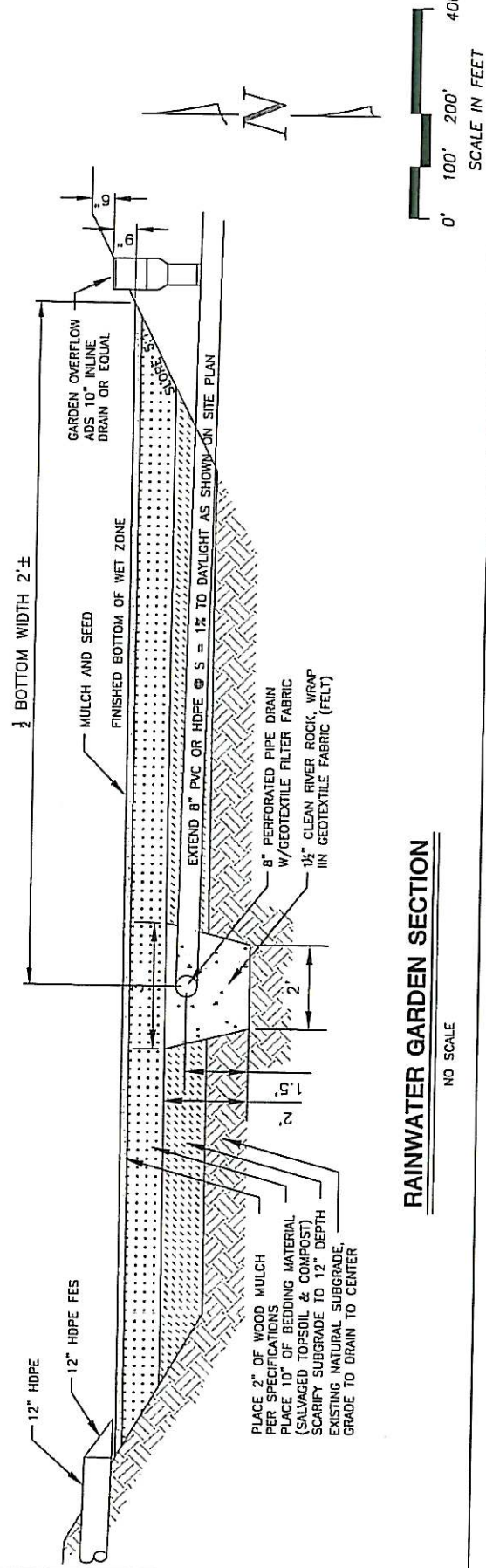
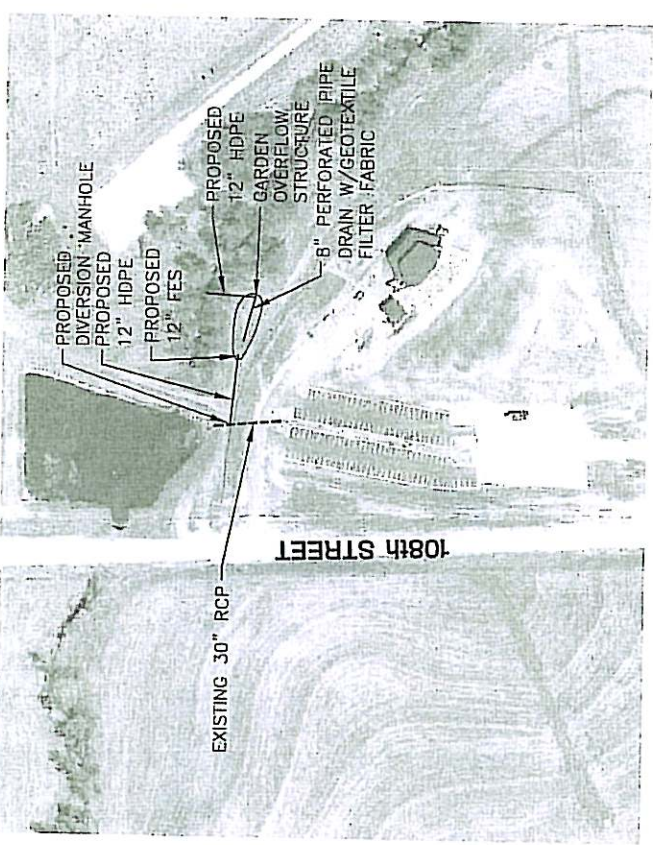
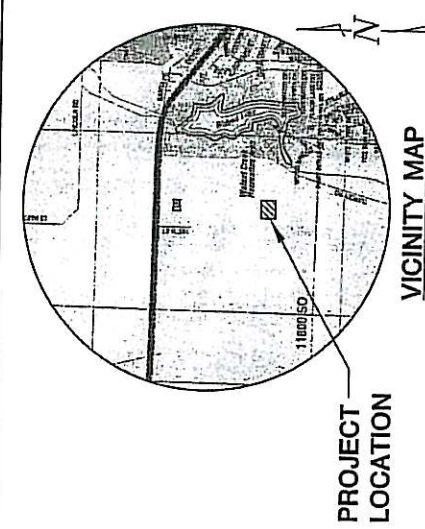
11. SIGNATURE/TITLE:  PARKS DIRECTOR

City of Papillion - Sumtur Amphitheater Parking Lot Rain Garden

TD2 h:\100\181-538\spreadsheets\3-10-09 Estimate for Sumtur Parking Lot Rain Garden.xls

3/10/2009

| Item | Description | Approx. Quantity | Unit | Unit Price | Amount |
|------|--|---------------------|------|--------------|--------------|
| 1 | Rain Garden, per plan | 1 | Job | \$ 16,500.00 | \$ 16,500.00 |
| | Estimated Engineering, Surveying and Testing | | | \$ | 2,970.00 |
| | Estimated Total Project | | | \$ | 19,470.00 |



PAPIO-MISSOURI RIVER
NATURAL
RESOURCES
DISTRICT



17.41 STORMWATER BEST MANAGEMENT PRACTICES PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: March 12, 2009

2. PROJECT NAME 83rd Street Stormceptor

3. PROJECT SPONSOR: City of La Vista

ADDRESS: 9900 Portal Rd.
La Vista, NE 68128

8901 S. 154TH ST.
OMAHA, NE 68138-3621
(402) 444-6222
FAX (402) 895-6543
www.papionrd.org

4. CONTACT PERSON: Joe Soucie

TITLE: Public Works Director

5. EMAIL AND PHONE: jsoucie@cityoflavista.org 402-331-8927

6. PROJECT LOCATION:

8305 Park View Blvd. - La Vista, Nebraska
See attached map.

7. DESCRIPTION OF STORMWATER BEST MANAGEMENT PRACTICE AND HOW IT WILL BE INCORPORATED IN THE PROJECT:

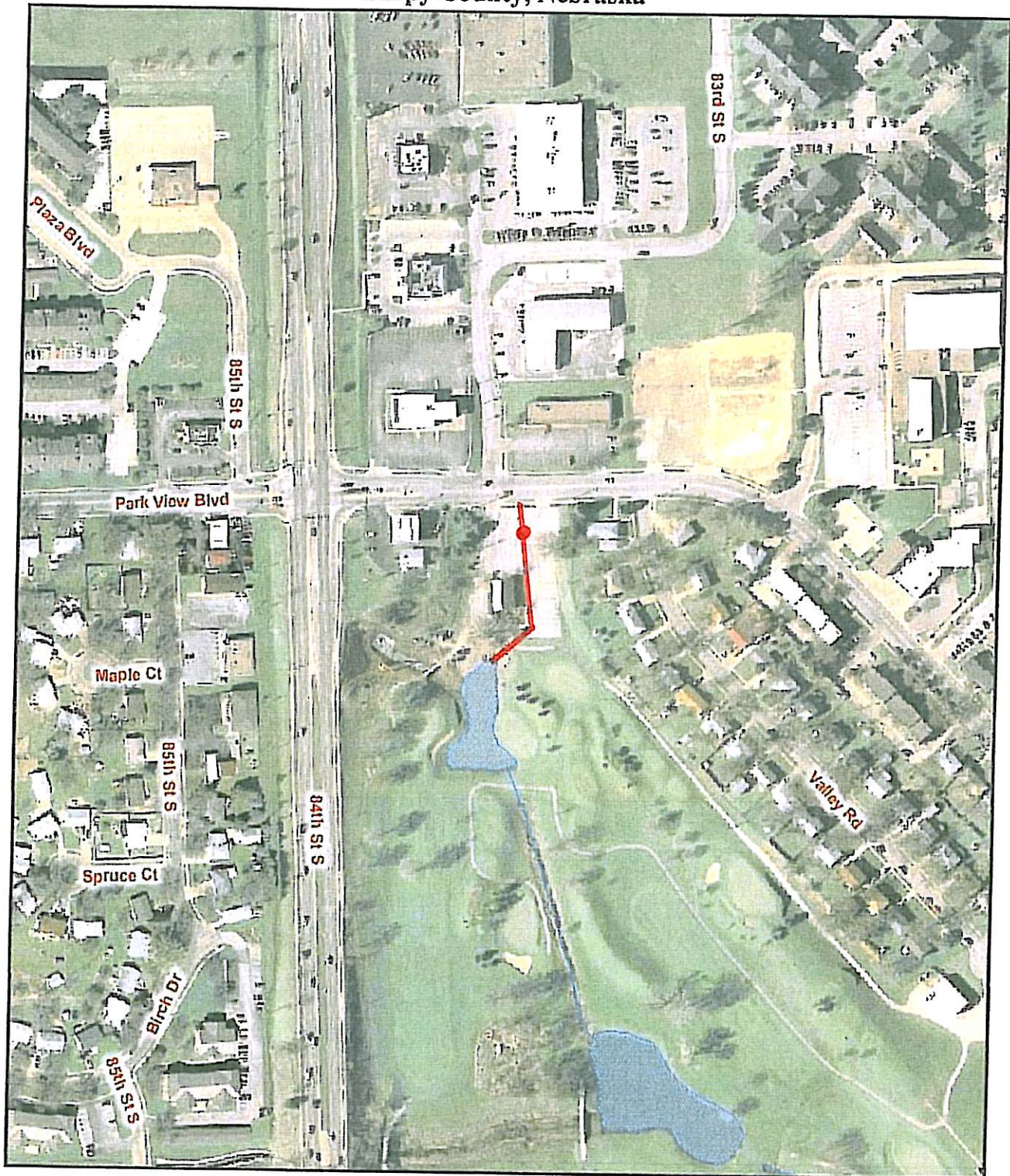
Installation of a Stormceptor Water Quality System on an existing 36" storm sewer pipe. The existing 36" pipe services a 20 acre area that is predominately commercial in nature. The pipe terminates at the upper pond on the La Vista Falls Golf Course; which in turn flows to the lower pond that is part of Thompson Creek. The upper pond receives a large amount of debris and sediment from the drainage basin. The intention is to capture this debris and sediment prior to entering the upper pond. The City of La Vista possesses a Vac-Truck that is capable of regular maintenance on the Stormceptor System. Please see the attachment for the Stormceptor water quality specifications.

9. TOTAL ESTIMATED COST: \$ 81,900

10. COST SHARE REQUESTED: \$ 10,000

11. SIGNATURE/TITLE: Joe Soucie Public Works Director

Sarpy County, Nebraska



Disclaimer: This data is for informational purposes only, and should not be substituted for a true titles search, property appraisal, survey, or for zoning district verification. Sarpy County and the Sarpy County GIS Coalition assume no legal responsibility for the information contained in this data.

Map Scale
1 inch = 256 feet

Kansas City, Iowa, Nebraska
Stormceptor Price List
 (Prices effective 10/01/06)

| DESCRIPTION | DIAMETER (I.D) | PRICE F.O.B. PLANT |
|-------------|-------------------|-----------------------|
| STC 450i | 48"Ø | \$6,000 |
| STC 900 | 72"Ø | \$9,625 |
| STC 1200 | 72"Ø | \$11,275 |
| STC 1800 | 72"Ø | \$13,475 |
| STC 2400 | 72"Ø / 96"Ø | \$17,875 |
| STC 3600 | 72"Ø / 96"Ø | \$20,900 |
| STC 4800 | 72"Ø / 120"Ø | \$26,950 |
| STC 6000 | 72"Ø / 120"Ø | \$31,680 |
| STC 7200 | 72"Ø / 144"Ø | \$42,450 |
| STC 11000 | 96"Ø / 120"Ø | \$48,000 |
| STC 13000 | 96"Ø / 120"Ø | \$59,750 |
| STC 16000 | 96"Ø / 144"Ø | \$78,000 |

Prices include complete structure:

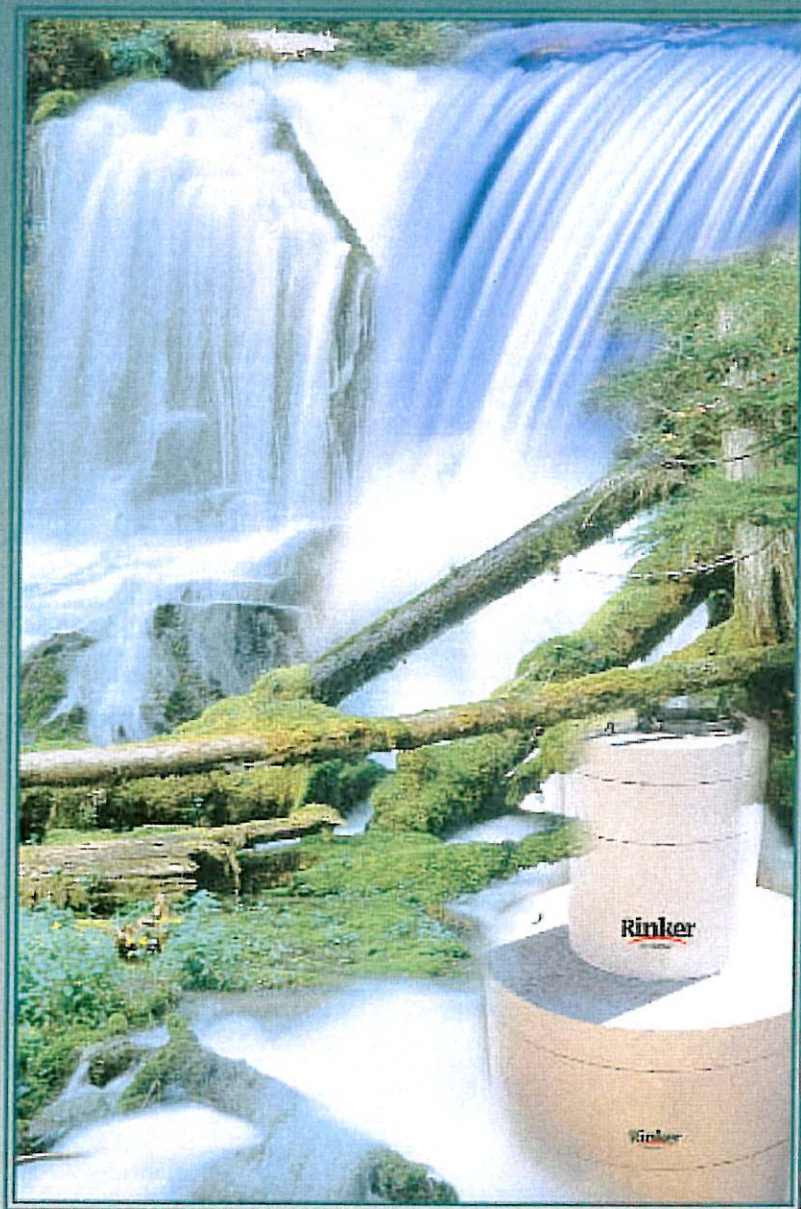
- Concrete manhole sections
- Top and bottom slabs
- Reducing slab (if necessary)
- Fiberglass disc insert
- Gaskets and lubricant
- Kor-N-Seal boots (where applicable)
- Cast iron frame, Stormceptor access cover, and grade rings

Notes:

- Prices do not include freight.
- Contractor is responsible for unloading and installation.
- Modification to original Stormceptor design may require additional charge.
- Submerged Stormceptor units may require additional charge.

Rinker
MATERIALS™


Stormceptor®



**THE STORMCEPTOR® SYSTEM
STORMWATER QUALITY TREATMENT**

STORMWATER RUN-OFF POLLUTION CONTROL

The Stormceptor[®] System is a stormwater separator that efficiently removes sediment and hydrocarbons from stormwater run-off, and stores the pollutants for safe and easy removal. The versatile Stormceptor product line consists of In-Line, Inlet, Series and Submerged designs. Unit sizes range from the 450 gallon Inlet Stormceptor to the 16,000 gallon Series Stormceptor.

Designed to treat 85% - 95% of annual runoff, Stormceptor captures stormwater runoff pollution at the source. Stormceptor effectively captures high percentages of Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) in stormwater runoff.

RESEARCH & TESTING

Our ongoing commitment to field and laboratory testing has made the Stormceptor System one of the most approved Best Management Practices in North America. Stormceptor has been approved through numerous state and federal verification programs, including the Massachusetts STEP program and the ETV Canada verification program. Complete reports of all tests are available from the Stormceptor office.

Partial Summary of Testing:

- Field Monitoring - Seattle, WA 87% TSS Removal, 99% TPH Removal
- Field Monitoring - Westwood, MA 93% TSS Removal, 82% TPH Removal
- STEP Verification, Six state environmental partnership (MA, CA, IL, PA, NJ, NY)
- ETV Canada, Verification of Stormceptor Sizing program
- National Water Research Institute Lab Testing
- Coventry University - Full Scale Testing 83% TSS Removal, 97.9% TPH Removal

STORMCEPTOR DESIGN CRITERIA

Recognizing rainfall patterns vary drastically from region to region, Stormceptor is the only BMP designed based on a local hydrological conditions. The sizing program available on CD, takes into account:





- US EPA Recommended Particle Size Distribution
- Local rainfall data
- Pollutant build-up/wash off characteristics
- Variable PSD Settling Calculations

LOWER LIFE CYCLE COSTS

The vertically oriented Stormceptor is designed to fit easily in a smaller space allowance than other structural BMPs. Stormceptor is designed as an In-Line or Inlet structure. Other structural BMPs require off-line bypass structures and multiple structures increasing installation and maintenance costs.

Stormceptor is readily inspected and maintained from the surface via the identifiable Stormceptor cover. Typical installations only require annual maintenance. Maintenance is easily done from the surface via vacuum truck.

Proper use of Stormceptor as a stand-alone BMP may eliminate the need for catch basin sediment traps. Stormceptor will also reduce the maintenance frequency and increase the life span of other devices such as natural BMPs and infiltration practices.

The precast concrete Stormceptor arrives at the job site in easy to assemble concrete components. Once excavation is complete, installation generally takes less than half a day.

APPLICATIONS

Stormceptor is most commonly used in urban environments where local, regional or national regulations require water quality devices. Locations that generate significant amounts of motor vehicle related contaminants and/or are

prone to petroleum spills are the most common applications.

Stormceptor has been used in the following applications

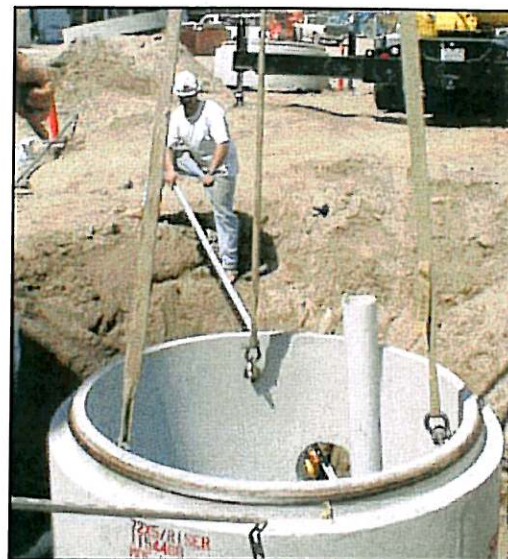
- Parking Lots
- Highways/Roadways
- Loading/Unloading Facilities
- Public Works Yards
- Vehicle Maintenance Facilities
- Commercial Properties
- Industrial Properties
- Residential Developments
- Transportation Facilities
- Military Installations
- Pretreatment of conventional BMPs

STAND ALONE DEVICE:

The most common use of the Stormceptor System is in highly developed urbanized areas where land use is too restrictive for conventional/natural devices. These areas include commercial and industrial properties, transportation and distribution centers and highway and roadway applications. In these applications, Stormceptor is effective at removing high percentages of suspended solids and hydrocarbons. By utilizing Stormceptor as a stand-alone device, maintenance is localized in one structure, saving the property owner time and money.

RETROFIT IN EXISTING DEVELOPMENTS:

For retrofit applications, the Stormceptor's vertical orientation allows for installation with minor disruption to existing utilities. By only requiring a one inch drop throughout the structure (three inches for the Series Stormceptor) Stormceptor can easily accommodate the slope of the existing pipe.



SPILL CONTROL:

With the ability to remove up to 99% of free oil, combined with more than 3,000 gallons of available storage capacity, Stormceptor is an ideal product for spill control applications. The fiberglass insert provides dual wall containment of captured hydrocarbons, ensuring safe storage of spilled materials. Thousands of gallons of spilled hydrocarbons have been captured by Stormceptor since its introduction in 1990.

PRETREATMENT/TREATMENT TRAIN APPROACH:

While most commonly implemented as a stand alone device, Stormceptor can also be used as part of a treatment train approach. Stormceptor helps reduce the maintenance burden and improve the performance of ponds, wetlands, infiltration systems and other conventional BMPs. Spilled hydrocarbons and contaminated sediments are captured in the upstream Stormceptor, before reaching natural structures, allowing for easier maintenance and clean-up.

STORMCEPTOR PRODUCT LINE

IN-LINE STORMCEPTOR

The most commonly installed unit is the In-Line Stormceptor. It is designed with single or multiple inlets and a single outlet, and is available in eight different unit sizes, ranging from 900 to 7200 gallon storage capacities. Each unit is constructed from precast concrete components and a patented fiberglass insert that separates the upper (by-pass) and lower (separation/holding) chambers. In areas where oil or TPH spills accumulate in substantial volume between cleaning, the fiberglass insert provides dual wall containment to ensure trapped hydrocarbons are safely stored inside the treatment chamber.

NORMAL OPERATING CONDITIONS

Under normal (frequent) operating conditions, stormwater flows into the upper by-pass chamber and is diverted by a u-shaped weir, down an orifice of pipe, into the separation/holding chamber. This downward flow is directed, by right-angle outlets,

around the circular walls of the chamber. Flow continues horizontally to the outlet pipe. Fine and coarse sediment settle to the floor of the chamber, while the petroleum products rise and become trapped beneath the fiberglass insert.

BY-PASS OPERATING CONDITIONS

During infrequent high flow events,

peak stormwater flows will pass over the diverting weir and continue through the by-pass chamber into the downstream stormwater system. This by-pass activity creates pressure equalization across the by-pass chamber, preventing scouring. A portion of incoming sediment continues to be diverted by the weir into the lower chamber where it is stored, along with previously collected sediment and hydrocarbons. Stormceptor is the only device with an internal by-pass that prevents scouring of trapped pollutants.

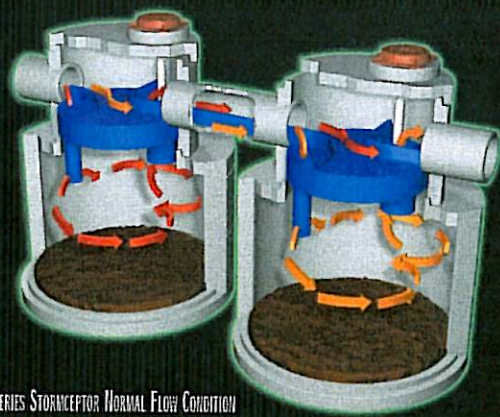
SERIES STORMCEPTOR

Designed to treat run-off from larger drainage areas, the Series Stormceptor can more than double the treated drainage area of the In-Line Stormceptor System. The series models are available in 11,000, 13,000 and 16,000 gallon sizes.

The Series Stormceptor consists of two structures. The first structure acts as a flow splitter, diverting half of the flow into the first treatment chamber, and allowing the second half of the flow to travel through the unit to the second treatment chamber. The Series Stormceptor units contain the patented internal by-pass inherent in all Stormceptor designs, preventing scour and resuspension during high flows, which have hampered the performance of conventional separator systems.

NORMAL OPERATING CONDITIONS

Under normal (frequent) operating conditions, stormwater enters the upper by-pass chamber of the first structure. Half of the flow is diverted by a u-shaped weir into the separation/holding chamber of the first structure. This downward flow is directed, by right-angle outlets, around the circular walls of the chamber. Fine and coarse sediment settle to the floor of the chamber, while the petroleum products rise and become trapped beneath the fiberglass insert. The half of the flow which is not diverted in the lower chamber continues through the first structure to the second structure. This remaining flow is diverted into the lower chamber of the second structure. Suspended



NEW SERIES STORMCEPTOR NORMAL FLOW CONDITION



NEW SERIES STORMCEPTOR HIGH FLOW CONDITION

solids and floatables are separated as they are in the first chamber.

By-Pass Operating Conditions

During infrequent high flow events, peak stormwater flows will pass over the diverting weirs in the first and second chamber and continue through the by-pass chamber into the downstream sewer system. This by-pass activity creates pressure equalization across both units, preventing scouring. A portion of incoming sediment continues to be diverted by the weirs in the first and second structure into the treatment chamber.

INLET STORMCEPTOR

Taking the place of traditional inlet structures, the Inlet Stormceptor is ideal for small drainage areas such as truck loading bays, electrical transformer stations and fuel storage pads. Its unique design allows for run-off to enter the structure directly through a grated inlet.

The Inlet Stormceptor is manufactured with 48" diameter precast concrete components. Like the conventional In-Line Stormceptor, a sloped fiberglass insert separates the upper (by-pass) and lower (separation/holding) chambers. The insert extends into the treatment chamber providing dual wall containment of free oils.

NORMAL OPERATING CONDITIONS

Under normal (frequent) operating conditions, stormwater

enters the upper by-pass chamber via the grated inlet and is diverted, through a drop pipe with right angle outlets, into the lower chamber. Fine and coarse sediment settle to the chamber floor, while the petroleum products rise and become trapped beneath the fiberglass insert.

By-Pass Operating Conditions

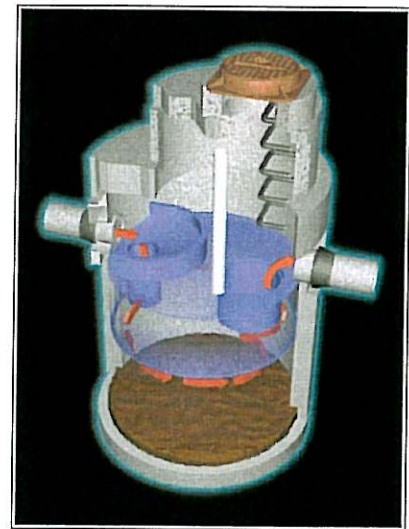
During infrequent high flow events, peak stormwater flows will pass over the diverting weir into the downstream drainage system preventing scouring of previously trapped pollutants. A portion of incoming sediment will continue to be diverted into the lower chamber. The high flow by-pass prevents previously collected pollutants from scour and resuspension.

SUBMERGED STORMCEPTOR SYSTEM

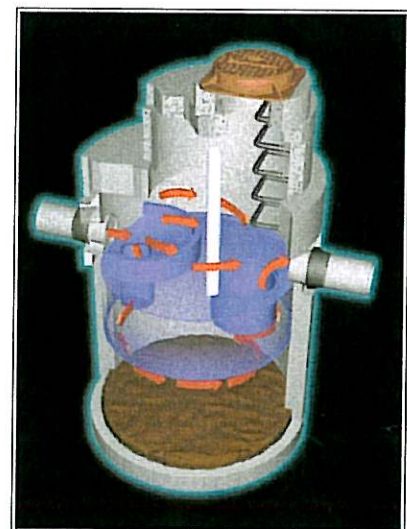
The Submerged Stormceptor is designed to remove hydrocarbons and sediment from stormwater run-off in partially submerged pipes. The precast concrete sections are manufactured in easily assembled components and available in the same sizes as the In-Line Stormceptor (900 to 7200 gallon storage capacity). A customized weir separates the upper (by-pass) and lower (separation/holding) chambers.

NORMAL OPERATING CONDITIONS

The Submerged Stormceptor operates much like the In-Line Stormceptor. The submerged design includes a customized weir height (depending on the average water level in the



IN-LINE STORMCEPTOR NORMAL FLOW CONDITION



IN-LINE STORMCEPTOR HIGH FLOW CONDITION

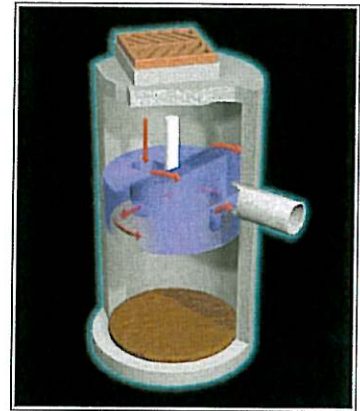
storm drain and annual water level fluctuation) and two inlet drop pipes. The lower drop pipe is always submerged. This drop pipe transports suspended solids and bedload sediment into the separation chamber. The higher drop pipe is located at the average submergence elevation and transports lighter material (free oil/TPH) into the separation chamber. The Submerged Stormceptor is effective for free oil and sediment removal under partially submerged (frequent) conditions.

By-Pass Operating Conditions

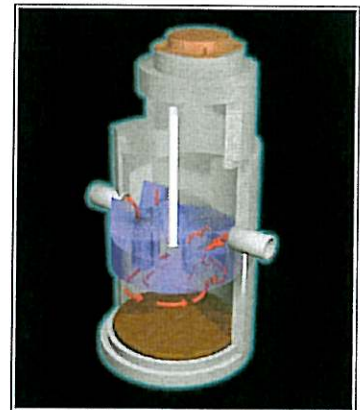
During infrequent high flow events, water is conveyed over the internal by-pass weir directly to the downstream storm drain. By-passing high flows prevents high velocities of water from entering the separation chamber and scouring and resuspending previously trapped pollutants.



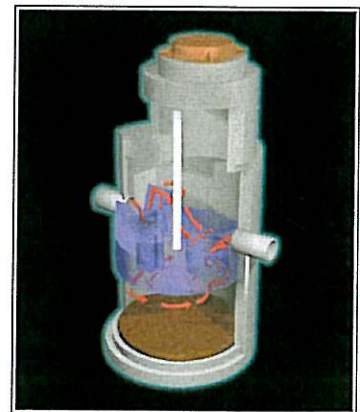
INLET STORMCEPTOR NORMAL FLOW CONDITION



INLET STORMCEPTOR HIGH FLOW CONDITION



SUBMERGED STORMCEPTOR NORMAL FLOW CONDITION



SUBMERGED STORMCEPTOR HIGH FLOW CONDITION



TEST RESULTS:

- Massachusetts STEP Report
- University of Coventry Study
- National Water Research Institute Test
- Westwood, MA Field Monitoring Study
- Edmonton, Canada Field Monitoring Study
- Como Park, MN Field Monitoring Study
- Florida Atlantic University Submerged Stormceptor Testing
- Oil Removal Field Validation
- Sludge Analysis and Particle Size Analysis

TECHNICAL INFORMATION:

- Stormceptor CD ROM
- Stormceptor Technical Manual
- Stormceptor Installation Guide
- Stormceptor Owner's Manual

Call the Stormceptor Information Line (800.909.7763)
for more detailed information and test results.



The Stormceptor System

Stormwater Quality Treatment



6560 Langfield Road • Building 3 • Houston, TX 77092
Phone: 832.590.5300 • Fax: 832.590.5399 • Toll Free: 800.909.7763
www.rinkerstormceptor.com
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Rev. 3/2006

**17.41 Stormwater Best Management
Practices Program Special Project Request
Application**



Project Information

Date April 1, 2009
Project Name Aquaplex Rain Garden
Project Sponsor City of South Sioux City
City ST ZIP Code South Sioux City, NE 68776
Contact Person/Title Paul Nolan, Public Works Director
E-Mail/Phone Anolan@southsiouxcity.org 402-494-7534

Project Location

This project is located in Scenic Park @ 801 Riverview Drive. It is near the outdoor pool.

Project Description

Construct a 900 square feet rain garden to reduce localized ponding of stormwater. It will eliminate standing water without installing storm sewer pipe

Cost Estimate

Total Estimated Cost \$13,555.⁰⁰
Cost Share Requested \$6,777.⁵⁰

Agreement and Signature

Name (printed) Sandra K. Ehrich
Signature
Date

Aquaplex Rain Garden
CONSTRUCTION COSTS
 Clearing, Grubbing, & Grading
 Plants & Mulching

300.00 CY
 900.00 SF
CONSTRUCTION COSTS

11.00
 7.50

3/11/2009

3,300.00
 6,750.00
 10,050.00

CONSTRUCTION SUBTOTAL
CONTINGENCY 10%
DESIGN

\$10,050.00
 \$1,005.00
 \$2,500.00

PROJECT TOTAL

\$13,555.00

50% COST SHARE REQUEST
CITY'S COST

\$6,777.50
 \$6,777.50



**17.41 Stormwater Best Management
Practices Program Special Project Request
Application**



Project Information

Date April 1, 2009
Project Name Scenic Park Rain Garden
Project Sponsor City of South Sioux City
City ST ZIP Code South Sioux City, NE 68776
Contact Person/Title Paul Nolan, Public Works Director
E-Mail/Phone pnolan@southsiouxcity.org 402-494-7534

Project Location

This project is located in Scenic Park at 801 Riverview Drive. It is near the tenting section of the park.

Project Description

Construct a 900 squarefoot rain garden to reduce localized ponding of stormwater. At times the standing water makes the tenting area unusable. This will help beautify the park and will eliminate standing water

Cost Estimate

Total Estimated Cost \$13,555.⁰⁰
Cost Share Requested \$6,777.⁵⁰

Agreement and Signature

Name (printed) Sandra K Ehrich
Signature
Date

Scenic Park Rain Garden
CONSTRUCTION COSTS
Clearing, Grubbing, & Grading
Plants & Mulching

300.00 CY
900.00 SF
CONSTRUCTION COSTS

3/11/2009
3,300.00
6,750.00
10,050.00

11.00
7.50

CONSTRUCTION SUBTOTAL
CONTINGENCY 10%
DESIGN

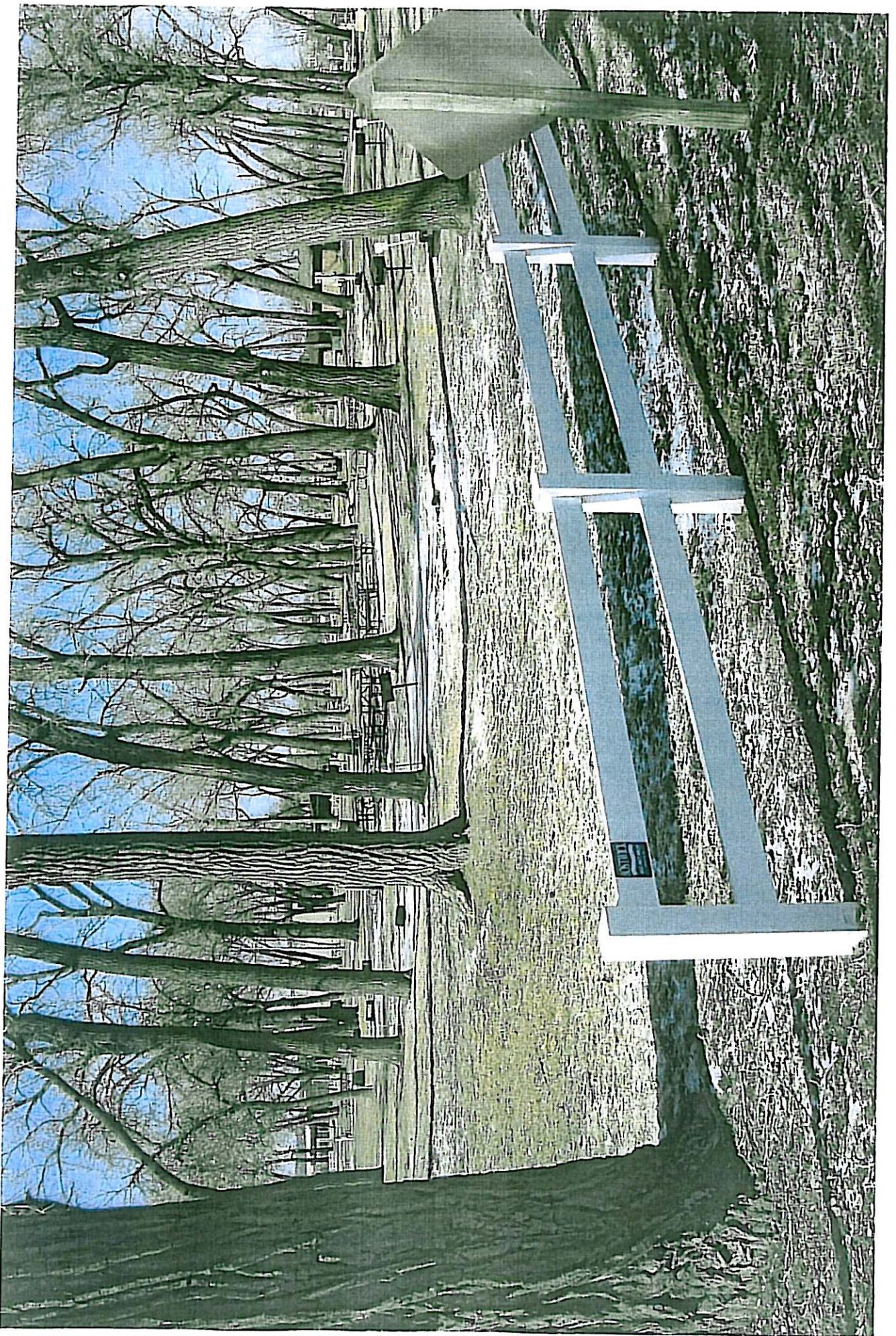
\$10,050.00
\$1,005.00
\$2,500.00

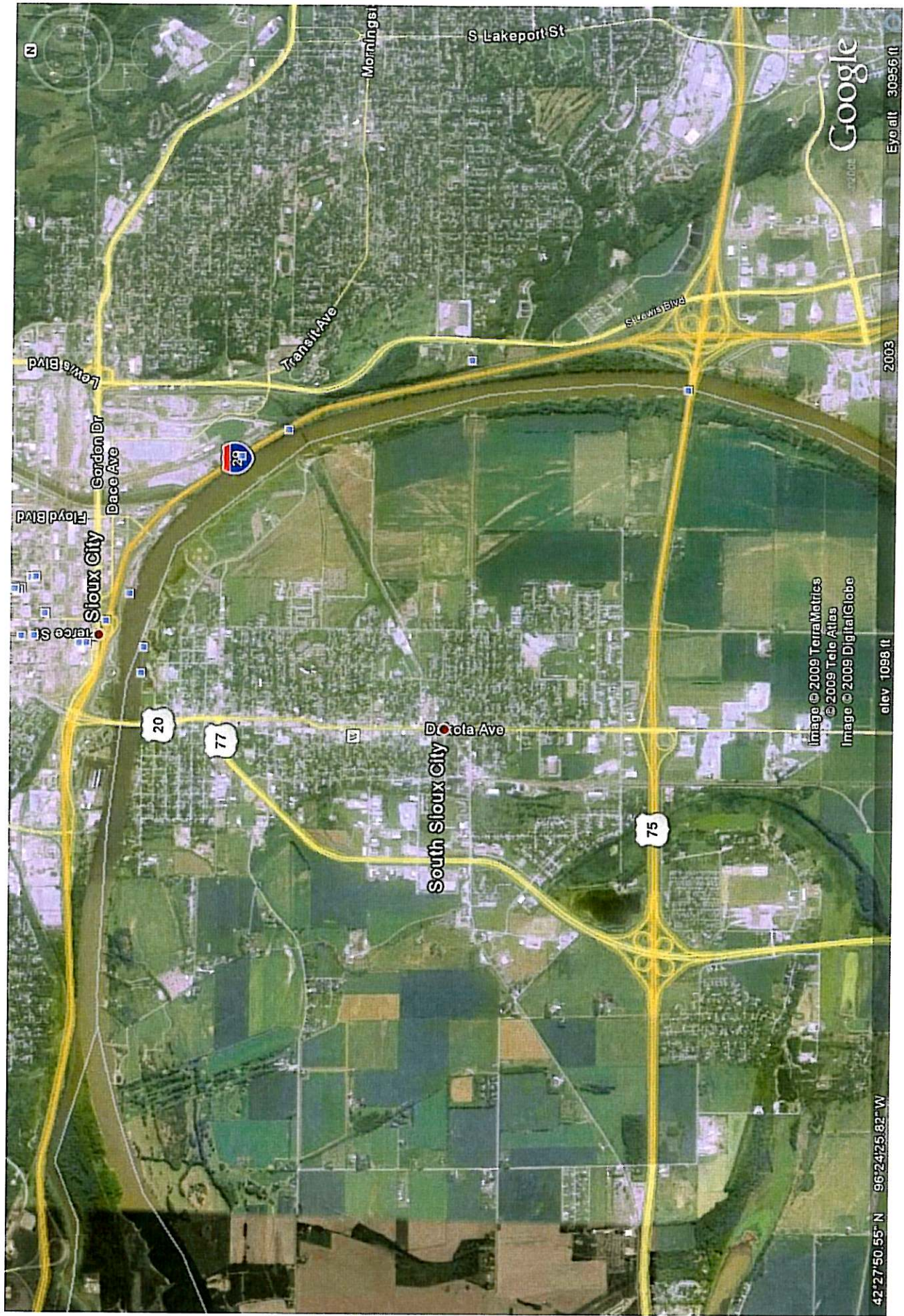
PROJECT TOTAL

\$13,555.00

50% COST SHARE REQUEST
CITY'S COST

\$6,777.50
\$6,777.50





Google

Eye alt 30956 ft

2003

Image © 2009 TerraMetrics
© 2009 Tele Atlas
Image © 2009 DigitalGlobe

elev 1098 ft

42°27'50.55" N 96°24'25.82" W