

**CITY OF LA VISTA**  
**MAYOR AND CITY COUNCIL REPORT**  
**AUGUST 7, 2012 AGENDA**

<b>Subject:</b>	<b>Type:</b>	<b>Submitted By:</b>
THOMPSON CREEK, PHASE VI, PART 2 — GRANT APPLICATIONS	◆ RESOLUTION ORDINANCE RECEIVE/FILE	JOHN KOTTMANN CITY ENGINEER

**SYNOPSIS**

A resolution has been prepared authorizing the submittal of grant applications for work associated with Part 2, Phase VI of the Thompson Creek project.

**FISCAL IMPACT**

*The FY 11/12 Capital Improvement Program provides funding for the preparation of the grant applications.*

**RECOMMENDATION**

Approval.

**BACKGROUND**

The City is proposing to submit grant applications to the Nebraska Department of Environmental Quality (NDEQ) and the Nebraska Environmental Trust Fund for the second phase of the Thompson Creek project, which will include stream channel improvements and realignment, including expanding the project into Central Park (as proposed in the Civic Center Park plan). The applications are due in September. These applications are a pre-requisite to applying to the Papio-Missouri River NRD for funds from their Urban Drainageway Program at the 60% level.

The city's consulting firm on this project, RDG, has completed the grant application form for the Nebraska Environmental Trust Fund, including conceptual plans and cost estimates for the channel improvements, methods to improve watershed management and water quality, and techniques for public education and citizen involvement. The same content will be used for the NDEQ proposal (these application forms are not available yet). The same information will also be submitted to the Papio-Missouri River NRD for matching funds.

A resolution has been prepared to authorize submittal of all three applications for funding, based on Council's understanding of the fiscal commitments involved in the applications and a general outline of the scope of work that will be involved if the grants are approved.

Determinations by these agencies as to the success of these applications will not be known until the first half of 2013.

RESOLUTION NO. \_\_\_\_\_

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF LA VISTA, NEBRASKA AUTHORIZING THE SUBMITTAL OF A GRANT APPLICATION TO THE NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY (NDEQ) AND THE NEBRASKA ENVIRONMENTAL TRUST FUND AND THE APPLICATION REQUESTING MATCHING FUNDS FROM THE PAPIO-MISSOURI RIVER NRD FOR PHASE VI, PART 2 OF THE THOMPSON CREEK PROJECT IN LA VISTA NEBRASKA.

WHEREAS, the City Council of the City of La Vista has determined that said Thompson Creek improvements are necessary; and

WHEREAS, the FY 11/12 Capital Improvement Program budget contains funding for preparation of grant applications; and

WHEREAS, submittal of a grant application to the Nebraska Department of Environmental Quality (NDEQ) and the Nebraska Environmental Trust Fund is necessary; and

WHEREAS, submittal of an application requesting funds from the Papio-Missouri River NRD is necessary; and

WHEREAS, the City's consulting firm on this project, RDG, has completed the grant application for the Nebraska Environmental Trust Fund of which this information will be used for the NDEQ grant application and for the Papio-Missouri River NRD request for matching funds; and

WHEREAS, the City will authorize submittal of three applications for funding, based on the City Council's understanding of the fiscal commitments involved in the applications and a general outline of the scope of work that will be involved if the grants are approved;

NOW, THEREFORE BE IT RESOLVED, by the Mayor and City Council of La Vista, Nebraska, authorizing the City Administrator to sign the grant applications to the Nebraska Department of Environmental Quality (NDEQ) and the Nebraska Environmental Trust Fund and the application requesting matching funds from the Papio-Missouri River NRD for Phase VI, Part 2 of the Thompson Creek Project in La Vista, Nebraska.

PASSED AND APPROVED THIS 7TH DAY OF AUGUST, 2012.

CITY OF LA VISTA

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Douglas Kindig, Mayor

ATTEST:

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Pamela A. Buethe, CMC  
City Clerk



## NEBRASKA ENVIRONMENTAL TRUST FUND

### APPLICATION COVER SHEET

**H1. Project Sponsor:** **City of La Vista**

**H2. Project Name:** **Thompson Creek Watershed Restoration**

3. County(s) where project is located: **Sarpy**

4. Nearest town: **La Vista**

5. Total Amount Requested: **\$1,112,000**

6. Years of funding requested (select one): **3**

**Contact Person:**

7. Name: **John Kottmann**

8. Title: **City Engineer/Assistant Public Works Director**

9. Organization: **City of La Vista**

10. Address, City, State & Zip: **9900 Portal Rd LaVista, NE 68128**

11. Daytime Phone: **(402) 331-8927**

12. Alternate phone: **(402) 669-9003**

13. Fax: **(402)331-1051**

14. E-mail: **jkottmann@cityoflavista.org**

15. Sponsor web site: **http://www.cityoflavista.org**

16. Is this a continuation request for a project previously funded by the Trust:

YES NO: **NO**

Is this a resubmission of a project application previously not funded by the Trust:

YES NO: **NO**

17. Please indicate which category best describes the applicant:

Selections are: Individual **City or County** Natural Resources District Federal Agency Private for Profit  
Private Nonprofit Consortium School, Irrigation, Power or Development District State Agency Other (specify):

18. Will this project receive federal funds or require a federal review or permit? YES NO: **YES**

If yes, identify the agency(s) and its role:

**The City of La Vista has submitted a grant application to the Nebraska Department of Environmental Quality (NDEQ) for a federally-funded (state-administered) 319(h) grant for non-point source pollution elimination. The City requested \$780,000 in 319 grant monies for the Thompson Creek Watershed Restoration project. Notification of award for the NDEQ 319(h) grants is expected in January 2013.**

**The City of La Vista has met with the USACE Omaha District Regulatory Office to discuss the Thompson Creek Watershed Restoration project. Due to the high level of biological and wetland functions and values achievable under the project, a Nationwide Permit 27 will be sought for the stream restoration portion of the project.**

19. Will this project receive other State of Nebraska funds or require a state review or permit? YES NO: **YES**

If yes, identify the agency(s) and its role:

**The Papio-Missouri River Natural Resources District (P-MRNRD), a regional government agency, will be contributing funds for this project.**

**The 319(h) grant requested through the NDEQ is federally funded but administered by the State of Nebraska.**



## NEBRASKA ENVIRONMENTAL TRUST FUND

### APPLICATION COVER SHEET

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

Urban streams greatly improve the quality of life for communities, but they usually are too damaged to be an asset. Urban streams experience eroding banks, damaged infrastructure, poor water quality, and poor habitat for fish and aquatic life. The City of La Vista intends to restore Thompson Creek, an urban stream at the center of its community. Future park and other development plans will make Thompson Creek a recreation and leisure destination and backdrop to many community events and facilities. The Thompson Creek Watershed Restoration implements this vision with a holistic watershed restoration approach phased over three years (with two additional years of water quality and habitat monitoring). Implementing the 1,250-acre Watershed Restoration requires \$2,689,750, with funding by the City, NDEQ 319 Grant, Papio-Missouri River Natural Resource District, and the Environmental Trust Fund. NET's contribution represents 41% of the total amount over three years.

Planned activities are:

1. Pre- and post-construction monitoring of water quality, stream stage, and stream habitat and biota. Data will largely be collected for educational purposes by teachers and students, guided by contracted professionals. Stream macroinvertebrates, other biota, and water quality parameters will be tested. A stream gauge will be installed and maintained by the City.
2. Education and outreach through web and print-based communications, open houses and tours, and volunteer activities, including engaging students and teachers in the Papillion-La Vista School District.
3. Cost-sharing and demonstration projects, targeting homes and apartments for runoff reduction and larger projects in commercial areas and public open space.
4. Reconstruction largely using bioengineering of 4,757 linear feet of eroding Thompson Creek, with engineered storm sewer outlet structures and created wetlands for pre-treatment.

The Watershed Restoration is expected to significantly improve water and habitat quality in Thompson Creek:

1. In-stream habitat conditions will significantly improve, based on the USEPA's Rapid Bioassessment Protocol.
2. The first polluted stormwater flush will be treated for a significant portion of the watershed (with 100% in 10 years).
3. Peak flows for the 2-year, 24-hour event are expected to decrease by 25%.
4. Eroding banks will be reduced by 80%.

21. On behalf of the sponsor(s) named above, I hereby certify that the information contained in this application, including all attachments, is true, accurate and complete.

\_\_\_\_\_  
Authorized Signature of Sponsor Organization

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Typed or Printed Name of Authorized Signatory

\_\_\_\_\_  
Typed or Printed Title

### H1. Project Sponsor: City of La Vista

### H2. Project Name: Thompson Creek Watershed Restoration

#### PROJECT OVERVIEW

The 1,250-acre Thompson Creek Watershed Restoration is in the City of La Vista, Sarpy County, Nebraska. It is a significant natural resource in the City, with signature parks and proximity to City Hall. It is an urban watershed, largely residential, but with several large commercial areas. It flows east for 2 miles to a channelized section of Big Papillion Creek (HUC 12 Big Elk Creek-Big Papillion Creek 102300060205). Thompson Creek experiences typical urban issues/ stressors:

- Frequent and significant water level changes resulting from even small storms due to engineered collection and conveyance of stormwater runoff from impervious surfaces;
- Deeply-incised channel (7 to 15 ft in areas) experiencing severe bed and bank erosion from volatile flow rates, lack of floodplain storage below a detention basin, and lack of dense-rooting herbaceous vegetation on steep (2:1 horizontal:vertical) stream banks;
- Flooding above the detention basin (east of 84<sup>th</sup> Street) with >5 year storms, which reduces usability of the area;
- High phosphorus loading, eutrophication and algae blooms due to direct input of untreated stormwater runoff from residential and commercial areas, parking lots and streets;
- Poor in-stream aquatic life due to lack of riffle-run features and high frequency of bed and bank scouring events; and
- Infrastructure and public and private property damage due to the unstable flow regime of the stream.

The Thompson Creek Watershed Restoration extends from the western headwaters to 66<sup>th</sup> Street near Papillion Creek (Figure 1). The project addresses the issues and stressors through a holistic, sustainable design, building on past efforts and investments. Previous work includes Papio-Missouri River Natural Resources District (NRD) studies, a 2006 channel study of the creek, and a FEMA grant to acquire 24 flood-prone residences to provide room for stream improvements.

The Thompson Creek Watershed Restoration has the following goals:

- **Improve water quality** in Thompson Creek and downstream receiving waters by:
  - Improving stormwater management throughout the watershed. Expected to reduce volume, improve rate control, and reduce pollutant loading of nutrients and sediment.
  - Reducing erosion of the creek channel. Expected to reduce input and transport of nutrient-laden sediment.
- **Improve in-stream and riparian habitat** by:
  - Improving water quality;
  - Re-meandering the channel;
  - Stabilizing stream banks;
  - Constructing pools and riffles;
  - Reconstructing a floodplain bench.
- **Reduce flooding and damage to infrastructure and public and private property** by:
  - Improving stormwater management throughout the watershed;
  - Reconstructing the creek and floodplain.
- **Create public support for the project and its goals** by:
  - Increasing awareness of individual property contributions to non-point source pollution;
  - Increasing understanding of linkages between non-point source pollution, water quality, and stream health;
  - Implementing cooperative projects to demonstrate cost-effective means of improving stream health.

Implementation this stream restoration project will create a highly-visible community asset that will improve quality of life for La Vista residents and serve as a replicable model for other urban streams in the region.

#### PROJECT DESIGN CONSIDERATIONS

##### Watershed Characteristics

The 1,250-acre Thompson Creek Watershed is in the Big Papillion Creek Watershed. In 2009 the Papillion Creek Watershed Partnership completed a plan to address watershed pollution and volume control issues. The plan combines Low Impact Development practices for new construction with structural volume control measures. The Thompson Creek Watershed Restoration project complements the watershed plan by improving an already-developed urban stream and watershed.



## NEBRASKA ENVIRONMENTAL TRUST FUND

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

Land use in the Thompson Creek Watershed is mixed, with different pollutant loadings and runoff patterns at different locations. The different locations require different education/outreach strategies and different stormwater Best Management Practices (BMPs). The watershed's land uses can be generalized into 3 classes: residential neighborhoods, commercial/institutional areas, and open space (Figure 1). These land use classes provide a useful framework to address stormwater impacts, education strategies, and appropriate stormwater BMPs. The watershed above 72<sup>nd</sup> street contains four subwatersheds defined by Thomson, Dreessen and Dorner, Inc. (Figure 1). Subwatershed 1 is primarily residential, with commercial/institutional and open space. At the downstream end of Subwatershed 1 is a dry dam that serves as a grade control structure for the creek and stormwater detention basin. Subwatershed 2 is also primarily residential, with commercial/institutional and open space land uses. Subwatersheds 3 and 4 are primarily residential; 4 continues east toward 66<sup>th</sup> Street. Subwatersheds 2, 3 and 4 have limited flood storage. As with all urban streams, runoff area disproportionately affects stream flow. On Thompson Creek, for example, an additional 50% in watershed area below Central Park/Edgewood Boulevard increases flow at 72<sup>nd</sup> Street by nearly 100% (1347 cfs to 2541 cfs).

### **Pollutants, Pollutant Sources & Pollutant Loads**

Pollutants in the Thompson Creek Watershed are typical of urban watersheds, including nutrients (phosphorus, nitrogen species, etc.), suspended solids/ sediments, hydrocarbons, metals, and *E.coli* bacteria. The sources of pollutants are also typical of urban watersheds: a) diffuse and acute soil erosion, b) street and parking lot runoff, c) residential and commercial lawns, d) golf courses and manicured parkland, d) erosion of the stream channel itself, and e) pet and wildlife waste. Excess stormwater volume and greater runoff rates also significantly affect the watershed, contributing to poor water quality, erosion, and flooding. Inadequate stormwater management strategies and BMPs worsen volume and runoff rate problems. The volume and rate problem contributes directly to stream habitat degradation by a) burying and eroding spawning and feeding habitat for fish and macroinvertebrates, b) causing bank erosion and eliminating vegetated shoreline habitat, and c) creating hydrological conditions (frequent flood/drying cycles) that prevents colonization by aquatic animals and plants. Photos of Thompson Creek at the end of this proposal highlight these typical problems of urban streams.

Current pollutant loads have not been documented for the Thompson Creek Watershed. However, using land cover data and the model WinSLAMM, the watershed's land surface is estimated to contribute approximately one-half ton of total suspended solids (TSS) per acre per year, totaling 650 tons of TSS loading to Thompson Creek per year. While the detention basin below 84<sup>th</sup> Street is believed to capture some sediment, it does not capture fine or dissolved sediment and nutrients, and additional loading occurs downstream due to eroding banks. *E. coli* is not believed to represent significant loading, but the downstream receiving water, Big Papillion Creek, is listed as impaired for *E. coli* where Thompson Creek discharges.

### **Project Objectives**

Based on the pollutants and estimated loadings in the Thompson Creek Watershed and the principles of Low Impact Development, the following measurable objectives are proposed for this project:

- Increase study reach's habitat condition per USEPA's Rapid Bioassessment Protocol (RBP);
- Capture and treat the first ½" of net runoff for all storms (this addresses approximately 90% of pollutant loadings and reduces runoff volume and rate for frequent storms; fully achieved in 10 years);
- Achieve a 25% reduction in peak flows from a 2-year, 24-hr storm (3") relative to existing baseline (this provides rate control for more significant storms, reducing pollutant transport, erosion, flooding, and habitat degradation);
- Achieve an 80% reduction in erodible bank;

Engage residents and students in order to build understanding of watershed management, stream restoration and water quality improvement.

### **SCOPE OF WORK**

In order to achieve the above-listed goals and objectives, several coordinated projects will be implemented, following a prioritized/phased approach.



## NEBRASKA ENVIRONMENTAL TRUST FUND

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

### Phase 1

**Task 1.1 Education/Outreach** – An education/outreach program (Table 1) will be implemented throughout the Thompson Creek Watershed (Figure 1) to increase awareness among La Vista's residents, students and businesses regarding the importance of stormwater management and actions they can take to improve water quality and watershed and stream health. This project also offers an excellent opportunity to both educate about and promote the environmental mission of project partners. The City will engage the Papillion-La Vista School District in identifying educational opportunities in the Thompson Creek corridor. Programs will include as many age classes as possible and benefit students from both communities.

**Table 1. Phase 1, 2 & 3 Education/Outreach Strategies for Thompson Creek Watershed Restoration**

TOPICS	Urban Streams & Thompson Creek Issues	Watershed/Stream Health & Stewardship	Downspout Redirection	Rain Barrels	Rain Gardens	Fertilizer & Pesticide Use
<b>PHASE 1 ACTIVITIES</b>						
Task 1.1 Brochure & Fact Sheets	X	X	X	X		X
Task 1.1 Newsletter Articles	X	X	X	X		X
Task 1.1 City Website & Partner Links	X	X	X	X		X
Task 1.1 Open Houses & Tours	X	X				X
<b>PHASE 2 ACTIVITIES</b>						
Task 2.1 Brochure & Fact Sheets	X	X	X	X	X	X
Task 2.1 Newsletter Articles	X	X	X	X	X	X
Task 2.1 City Website & Partner Links	X	X	X	X	X	X
Task 2.1 Open Houses & Tours	X	X				
Task 2.1 Interpretive Signage on Stream	X	X				X
Task 2.1 Bioblitz - Annual Species Search	X	X				
Task 2.1 Student/Teacher Stream Monitoring	X	X	X	X	X	X
<b>PHASE 3 ACTIVITIES</b>						
Task 3.1 Newsletter Articles	X	X	X	X	X	X
Task 3.1 City Website & Partner Links		X	X	X	X	X
Task 3.1 Bioblitz - Annual Species Search	X	X				
Task 3.1 Student/Teacher Stream Monitoring	X	X	X	X	X	X

**Task 1.2 Cost-Share/Demonstration Projects** – With support from the education/outreach activities above, the City will implement a voluntary cost-share program to incentivize demonstration projects that illustrate stormwater BMPs. Phase 1 focus is water quality improvement and runoff volume and rate reduction in Subwatersheds 2 and 3 (Figure 1). Initial BMPs are expected to focus on residential portions of the subwatersheds and include:

- Downspout redirection (single-family residential and apartments) – Prevent direct runoff discharge to storm sewer system; modify/add gutters and downspouts with minor grading to direct runoff to lawn, rain barrel, or rain garden.
- Rain barrels (single-family residential) – Simple, affordable means to capture and later discharge first flush of runoff from rooftops.



## NEBRASKA ENVIRONMENTAL TRUST FUND

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

- Boulevard tree planters (public rights-of-way) – Where space allows, capture street runoff and clean polluted first flush, then release to storm sewer.

Task 1.3 Reconstruct Thompson Creek – Thompson Creek will be redesigned and reconstructed for approximately 4,575 lineal feet, from the detention basin east of 84<sup>th</sup> Street to 72<sup>nd</sup> Street (Figure 2). This reconstruction will entail re-meandering the channel, raising the streambed (where feasible), stabilizing banks (e.g., bioengineering techniques), installing grade controls, constructing pools and riffles (e.g., using cross vanes, J-hooks), reconstructing a floodplain bench, and restoring native vegetation on banks. Bank stabilization and the riffle-pool technique are depicted in Figures 2 and 3. Re-meandering and floodplain reconstruction will be designed to provide a cost-effective channel that is dynamically stable over the long-term and does not threaten public or private property or infrastructure. The upstream portion of this project offers more space and has less channel incision than segments farther downstream, allowing channel bed to be raised in conjunction with grade controls, and for wider meanders and floodplain wetlands. Current modeling and analysis suggest that less constrained sections may have the following average design parameters: 50 ft wide top of channel, meander length 567 ft, and radius of curvature 119.5 ft. The conceptual low-flow channel is expected to have the following average design parameters: 3 ft wide bottom, 10 ft wide top, average depth of 1.75 ft, 2:1 side slopes, meander length 112 ft, radius of curvature 20 ft, and meander amplitude 20 ft. The floodplain bench will be established at or near the 2-year storm stage to provide a release for channel energy during these higher flows. Groundcover vegetation installed along the riparian corridor will be hardy native perennials that establish dense, fibrous root systems, provide wildlife habitat, are attractive, and do not negatively affect public safety. Canopy cover will be largely eliminated on the side of the stream where 24 homes have been removed, and elsewhere, in order to promote vigorous development of the perennial groundcover. Large specimen trees, and selected other trees will be retained where that does not hinder stream restoration. Tree and shrub planting will be part of the installation in order to increase the project's attractiveness to adjacent landowners. A power distribution line will be moved away from the creek to provide room for bank stabilization work. The creek reconstruction design will be driven by cost-effective enhancements that use proven techniques and provide multiple benefits. This includes bioengineering to stabilize streambanks, using natural materials and vegetation. The project will reduce the stream's longitudinal slope, with a target of 0.5%, promote optimal stream and floodplain geometry, diffuse energy, and balance sediment transport. In turn this will reduce erosion, improve water quality, improve aquatic and riparian habitat, and protect public and private property/infrastructure.

Task 1.4 Outlet Treatments – Six to eight stormwater outlets along Thompson Creek in the reconstructed reach will be retrofitted and complemented with supporting BMPs. An appropriate design in areas with sufficient space (Figure 4) would entail installation of a “SAFL Baffle” (St. Anthony Falls Laboratory, <http://stormwater.safl.umn.edu/updates-december-2011>) at an existing storm sewer’s final manhole before the creek. This cost-effective hydrodynamic separator promotes the settling of nutrient-laden sediments and allows easy access for cleaning/maintenance. The outlet would then discharge into a relatively small treatment wetland, integrated with the creek’s new meanders. The treatment wetland would be designed to hold a volume of water sufficient to create hydraulic head and push water through an engineered filter to remove phosphorous (<http://stormwater.safl.umn.edu/updates-october-2010>), then into the creek. Local groundwater would be recharged, providing baseflow to the creek during dry periods.

### **Phase 2**

**Task 2.1 Continued Education/Outreach**

Outreach activities in Phase 2 would continue those started in Phase 1 (Table 1) but add rain garden education, interpretive signage along the creek, and participation by students, teachers, and volunteers in monitoring the stream corridor and learning and teaching about watersheds, streams and water quality. One proposed event is a Bioblitz, a one-day intensive documentation of all life forms in the creek’s stream, riparian zone and adjacent parks.

**Task 2.2 Additional Cost-Share/Demonstration Projects** – The program in Task 1.2 will continue, with the addition of rain gardens in residential areas and the construction of demonstration projects with commercial partners and on public land.



## NEBRASKA ENVIRONMENTAL TRUST FUND

### H1. Project Sponsor: City of La Vista

### H2. Project Name: Thompson Creek Watershed Restoration

Residential BMPs will be encouraged throughout the watershed. BMPs appropriate for commercial/institutional areas and open space are identified below.

- Rain gardens (single-family residential and apartments) – Effective landscaping technique to manage runoff, often from roof downspouts, but also from driveways and other hard surfaces where feasible.
- Commercial/Institutional Areas (large rooftop areas and extensive parking)
  - Stormwater treatment train – A series of engineered and naturalized surface elements that provide water quality treatment, flood storage, and peak flow reduction.
  - Below-ground opportunities – Infiltration systems or galleries under parking lots, or cisterns integrated with an irrigation system.
- Open Space at Civic Center Park (currently La Vista Falls Golf Course)
  - Outlet treatments;
  - Stormwater treatment train;
  - Stream and riparian corridor habitat improvement.

In addition to continuing cost-share for homes and apartments watershed-wide, Task 2.1 will fund two significant cost-share/demonstration projects in a commercial/institutional setting. One will be on public land and one on private land.

### Phase 3

#### Task 3.1 Continued Education/Outreach

Outreach activities in Phase 3 would continue those started in Phase 1 and 2 (Table 1).

Task 3.2 Additional Cost-Share/Demonstration Projects – The project will fund one additional commercial cost-share/demonstration project (describe above), and one project on public open space, possibly at the public pool or a school. The cost-share in residential areas will continue.

### **Management Practices**

Adaptive management will be practiced, ensuring that changing circumstances and unanticipated responses/events will be considered and management adapted dynamically to ensure project goals achieved most cost-effectively and as quickly as reasonably possible.

### **Evaluation Criteria**

The Project Objectives listed above constitute the criteria by which the success of this project will be measured.

- Treatment of first half-inch net runoff for all storms. Phased over 3 years, the percent of watershed receiving treatment will be determined at the design development/construction document stage of the project. Anticipate a meaningful amount of the watershed to receive treatment by year 3, and the remaining watershed by year 10. Calculated as a percent of watershed area based on installed BMPs in storm sewer catchment areas.
- 25% reduction in peak flows from a 2-year, 24-hr storm (3") relative to existing baseline. Modeled based on new stream gauge on Thompson Creek and existing HEC-RAS model for detention pond below 84<sup>th</sup> Street.
- Achieve an 80% reduction in erodible banks. Bank condition will be mapped in a walking survey of the open channel.
- Improve habitat condition (USEPA RBP). In-stream sampling of benthic macroinvertebrates, primarily kick-samples, following USEPA protocol. Sampling will be done by students, teachers and volunteers in a teaching-learning environment. Complete in Years 1, 2, and 3. Bioblitz in Years 2 and 3 may be used to augment RBP by identifying aerial dragonflies, damselflies, etc.

### **Feature Bonus/Geopoint Bonus**

This project is in Sarpy County, a congressional district with limited past and recent expenditures of NET dollars, and will be awarded 20 bonus points.



# NEBRASKA ENVIRONMENTAL TRUST FUND

## APPLICATION BUDGET SUMMARY

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

**BUDGET YEAR: SUMMARY**

Column A	Column B	Column C	Column D	Column E	Column F
<b>1. Source of Funds ►</b>	<b>Nebraska Environmental Trust (NET)</b>	<b>Federal 319 (h) Grant</b>	<b>Papio-Missouri Natural Resources District (NRD)</b>	<b>City of La Vista</b>	<b>TOTALS ▼</b>
<b>2. Budget Category ▼</b>					
<b>3. Task 1.1 Education/Outreach</b>	\$35,000	\$10,000		\$5,000	\$50,000
<b>4. Task 1.2 - Cost-share/Demonstration Projects</b>	\$17,000	\$15,000		\$3,000	\$35,000
<b>5. Task 1.3 &amp; 1.4 Reconstruct Thompson Creek – Pre-Construction Monitoring</b>		\$50,000			\$50,000
<b>6. Task 1.3 &amp; 1.4 Reconstruct Thompson Creek – Design, Construction Engineering &amp; Management</b>	\$130,000	\$55,000	\$58,050	\$30,950	\$274,000
<b>7. Task 1.3 &amp; 1.4 Reconstruct Thompson Creek – Construction Costs</b>	\$595,000	\$420,000	\$417,000	\$283,750	\$1,715,750
<b>8. Task 1.3 &amp; 1.4 – Reconstruct Thompson Creek – Post-Construction Monitoring (3 years)</b>	\$20,000	\$20,000			\$40,000
<b>9. Task 2.1 Continued Education/Outreach</b>	\$10,000	\$5,000			\$15,000
<b>10. Task 2.2 Additional Cost-share/ Demonstration Projects</b>	\$100,000	\$50,000			\$150,000
<b>11. Task 3.1 Continued Education/Outreach</b>	\$15,000	\$15,000			\$30,000
<b>12. Task 3.2 Additional Cost-share/ Demonstration Projects</b>	\$190,000	\$140,000			\$330,000
<b>13. TOTALS ►</b>	<b>\$1,112,000</b>	<b>\$780,000</b>	<b>\$475,050</b>	<b>\$322,700</b>	<b>\$2,689,750</b>



# NEBRASKA ENVIRONMENTAL TRUST FUND

## APPLICATION BUDGET YEAR ONE

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

**BUDGET YEAR: PHASE 1**

Column A	Column B	Column C	Column D	Column E	Column F
<b>1. Source of Funds ►</b>	<b>Nebraska Environmental Trust (NET)</b>	<b>Federal 319 (h) Grant</b>	<b>Papio-Missouri Natural Resources District (NRD)</b>	<b>City of La Vista</b>	<b>TOTALS ▼</b>
<b>2. Budget Category ▼</b>					
<b>3. Task 1.1 Education/Outreach</b>	\$35,000	\$10,000		\$5,000	\$50,000
<b>4. Task 1.2 - Cost-share/Demonstration Projects</b>	\$17,000	\$15,000		\$3,000	\$35,000
<b>5. Task 1.3 &amp; 1.4 Reconstruct Thompson Creek – Pre-Construction Monitoring</b>		\$50,000			\$50,000
<b>6. Task 1.3 &amp; 1.4 Reconstruct Thompson Creek – Design, Construction Engineering &amp; Management</b>	\$100,000	\$25,000	\$33,300	\$20,700	\$179,000
<b>7. Task 1.3 &amp; 1.4 Reconstruct Thompson Creek – Construction Costs</b>	\$175,000	\$200,000			\$375,000
<b>8. Task 1.3 &amp; 1.4 – Reconstruct Thompson Creek – Post-Construction Monitoring (3 years)</b>					
<b>9. Task 2.1 Continued Education/Outreach</b>					
<b>10. Task 2.2 Additional Cost-share/ Demonstration Projects</b>					
<b>11. Task 3.1 Continued Education/Outreach</b>					
<b>12. Task 3.2 Additional Cost-share/ Demonstration Projects</b>					
<b>13. TOTALS ►</b>	\$327,000	\$300,000	\$33,300	\$28,700	\$689,000



## NEBRASKA ENVIRONMENTAL TRUST FUND

### APPLICATION BUDGET YEAR TWO

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

**BUDGET YEAR: PHASE TWO**

Column A	Column B	Column C	Column D	Column E	Column F
1. Source of Funds ►	Nebraska Environmental Trust (NET)	Federal 319 (h) Grant	Papio-Missouri Natural Resources District (NRD)	City of La Vista	<b>TOTALS ▼</b>
2. Budget Category ▼					
3. Task 1.1 Education/Outreach					
4. Task 1.2 - Cost-share/Demonstration Projects					
5. Task 1.3 & 1.4 Reconstruct Thompson Creek – Pre-Construction Monitoring					
6. Task 1.3 & 1.4 Reconstruct Thompson Creek – Design Construction Engineering & Management	\$25,000	\$25,000	\$18,750	\$6,250	\$75,000
7. Task 1.3 & 1.4 Reconstruct Thompson Creek – Construction Costs	\$400,000	\$200,000	\$417,000	\$283,750	\$1,300,750
8. Task 1.3 & 1.4 – Reconstruct Thompson Creek – Post-Construction Monitoring (3 years)					
9. Task 2.1 Continued Education/Outreach	\$10,000	\$5,000			\$15,000
10. Task 2.2 Additional Cost-share/ Demonstration Projects	\$100,000	\$50,000			\$150,000
11. Task 3.1 Continued Education/Outreach					
12. Task 3.2 Additional Cost-share/ Demonstration Projects					
<b>13. TOTALS ►</b>	<b>\$535,000</b>	<b>\$280,000</b>	<b>\$435,750</b>	<b>\$290,000</b>	<b>\$1,540,750</b>



## NEBRASKA ENVIRONMENTAL TRUST FUND

### APPLICATION BUDGET YEAR THREE

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

**BUDGET YEAR: PHASE THREE**

Column A	Column B	Column C	Column D	Column E	Column F
<b>1. Source of Funds ►</b>	<b>Nebraska Environmental Trust (NET)</b>	<b>Federal 319 (h) Grant</b>	<b>Papio-Missouri Natural Resources District (NRD)</b>	<b>City of La Vista</b>	<b>TOTALS ▼</b>
<b>2. Budget Category ▼</b>					
<b>3. Task 1.1 Education/Outreach</b>					
<b>4. Task 1.2 - Cost-share/Demonstration Projects</b>					
<b>5. Task 1.3 &amp; 1.4 Reconstruct Thompson Creek – Pre-Construction Monitoring</b>					
<b>6. Task 1.3 &amp; 1.4 Reconstruct Thompson Creek – Design, Construction Engineering &amp; Management</b>	\$5,000	\$5,000	\$6,000	\$4,000	\$20,000
<b>7. Task 1.3 &amp; 1.4 Reconstruct Thompson Creek – Construction Costs</b>	\$20,000	\$20,000			\$40,000
<b>8. Task 1.3 &amp; 1.4 – Reconstruct Thompson Creek – Post-Construction Monitoring (3 years)</b>	\$20,000	\$20,000			\$40,000
<b>9. Task 2.1 Continued Education/Outreach</b>					
<b>10. Task 2.2 Additional Cost-share/ Demonstration Projects</b>					
<b>11. Task 3.1 Continued Education/Outreach</b>	\$15,000	\$15,000			\$30,000
<b>12. Task 3.2 Additional Cost-share/ Demonstration Projects</b>	\$190,000	\$140,000			\$330,000
<b>13. TOTALS ►</b>	\$250,000	\$200,000	\$6,000	\$4,000	\$460,000



# NEBRASKA ENVIRONMENTAL TRUST FUND

## APPLICATION BUDGET JUSTIFICATION

H1. Project Sponsor: City of La Vista

H2. Project Name: Thompson Creek Watershed Restoration

1. Have other sources of funding not listed in the Budget Worksheet been approached for project support? If yes, name them and explain the outcome of your request.

No

2. Are all of the matching funds in the Budget Worksheet confirmed? If not, please identify those entities and list the date when confirmation is expected. Explain how you will implement the project if these sources do not confirm participation.  
**No. The 319 Grant approvals are expected in January 2013. The Papio-Missouri River Natural Resource District funding decision for one year is expected in April 2013. A second year of funding from the PMRNRD will be requested for consideration by its board. If funding sources do not confirm participation, the project will be scaled back or postponed until alternate funding sources can be identified.**

3. If any of the project costs identified in Column B of the Budget Worksheet have been expended or if debt has been incurred for these costs or a sponsor or partner is obligated for these costs in any other way: List these costs here. Explain clearly why Trust grant funds are requested for these costs.

**No prior expenditures or debt are included in this proposal budget.**

4. For each line item in column A of the Budget Worksheet, justify the basis for the dollar amount indicated for that item.

CATEGORY/COMPONENT (from Column A of the Budget Worksheet)	BASIS USED TO DETERMINE COST	Attachment? Y or N	ATTACHMENT LABEL
3. Task 1.1 Education/Outreach	Consultant experience designing similar projects	N	
4. Task 1.2 - Cost-share/Demonstration Projects	Consultant experience designing similar projects	N	
5. Task 1.3 & 1.4 Reconstruct Thompson Creek – Pre- Construction Monitoring	Engineering consultant experience designing similar projects	N	
6. Task 1.3 & 1.4 Reconstruct Thompson Creek – Design, Construction Engineering & Management	Engineering consultant experience designing similar projects	N	
7. Task 1.3 & 1.4 Reconstruct Thompson Creek – Construction Costs	Engineering consultant experience designing similar projects	N	
8. Task 1.3 & 1.4 – Reconstruct Thompson Creek – Post- Construction Monitoring (3 years)	Engineering consultant experience designing similar projects	N	
9. Task 2.1 Continued Education/Outreach	Consultant experience designing similar projects	N	
10. Task 2.2 Additional Cost-share/ Demonstration Projects	Consultant experience designing similar projects	N	
11. Task 3.1 Continued Education/Outreach	Consultant experience designing similar projects	N	
12. Task 3.2 Additional Cost-share/ Demonstration Projects	Consultant experience designing similar projects	N	



## NEBRASKA ENVIRONMENTAL TRUST FUND

### PROJECT SPONSOR FINANCIAL INFORMATION

H1. Project Sponsor: City of La Vista

H2. Project Name: Thompson Creek Watershed Restoration





## NEBRASKA ENVIRONMENTAL TRUST FUND TIMELINE

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

### ANTICIPATED PROJECT SCHEDULE

Month/Year	Task Description:
September 2012	319 Grant Application & Nebraska Environmental Trust Fund Grant Application submitted
October 2012	319 Grant award decision
Jan 2013	319 Grant funds released
Apr 2013	Nebraska Environmental Trust Fund grant award decision & grant funds released
Apr 2013	Papio-Missouri Natural Resources District funding allocation decisions
<b>Phase 1</b>	
Apr – Jun 2013	Task 1.1 Development of education/outreach program
Jul – Dec 2013	Task 1.1 Implementation of education/outreach program
Apr – Nov 2013	Task 1.2 Development and implementation of cost-share/demonstration projects
Apr – Oct 2013	Task 1.3 & 1.4 Preconstruction monitoring of Thompson Creek
Apr – Dec 2013	Task 1.3 & 1.4 Final design and construction documents for stream reconstruction and outlet treatments
Jan – Feb 2014	Task 1.3 & 1.4 Thompson Creek reconstruction construction bidding
Apr – Oct 2014	Task 1.3 & 1.4 Reconstruction of Thompson Creek & outlet treatments
<b>Phase 2</b>	
Jan – Dec 2014	Task 2.1 Continued implementation of education/outreach program
Jan – Dec 2014	Task 2.2 Additional Cost-share/Demonstration Projects
<b>Phase 3</b>	
Apr 2015 – Oct 2018	Task 1.3 & 1.4 Post-construction monitoring (Trust grant ends June 30, 2016. Monitoring in 2017 and 2018 will be funded from 319 grant.)
Apr 2015 – Jun 2016	Task 3.1 Continued implementation of education/outreach program
Apr 2015 – Jun 2016	Task 3.2 Additional Cost-share/Demonstration Projects



## NEBRASKA ENVIRONMENTAL TRUST FUND PARTNERS

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

### PROJECT PARTNER COMMITMENTS

Partner	Contribution
Papio-Missouri Natural Resources District	Requesting \$475,050 over two years. No commitment currently, except that the board will consider the project. Actual budget amount not known until board approval in April 2013.
Nebraska Department of Environmental Quality	Requesting \$780,000 over three years. Proposal will be submitted September 2012. If funded, funds available January 2013.
City of La Vista	Contributing \$300,000 in cash and \$22,700 in-kind services over 2 years.



## NEBRASKA ENVIRONMENTAL TRUST FUND REAL ESTATE / SITE PLAN

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

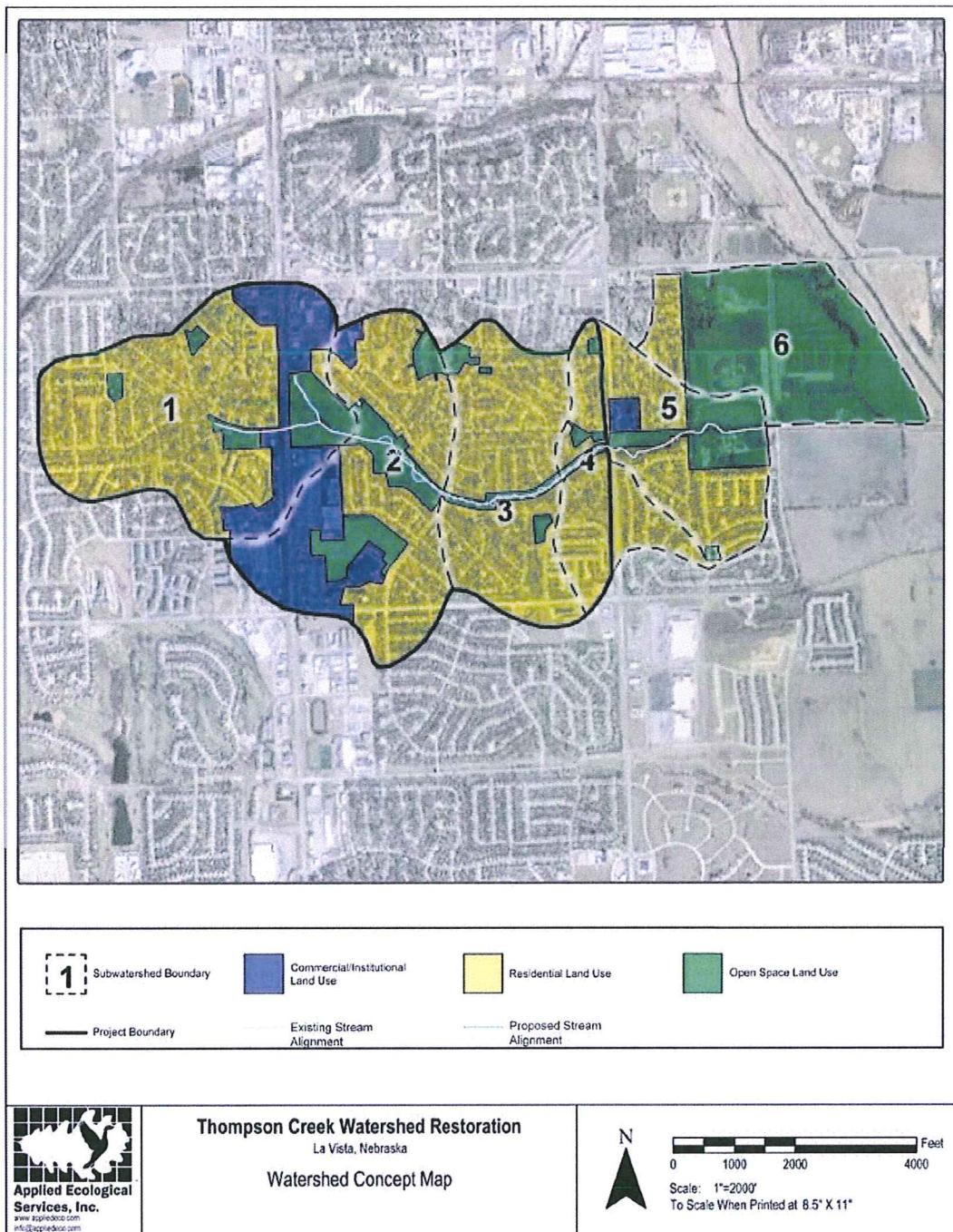
This section will not apply to every project. Please see instructions for section F. Attachments should be sent with the hardcopy submission.

Legal Description	County	#Acres

**H1. Project Sponsor:** City of La Vista

**H2. Project Name:** Thompson Creek Watershed Restoration

**Figure 1. Thompson Creek Watershed Restoration**



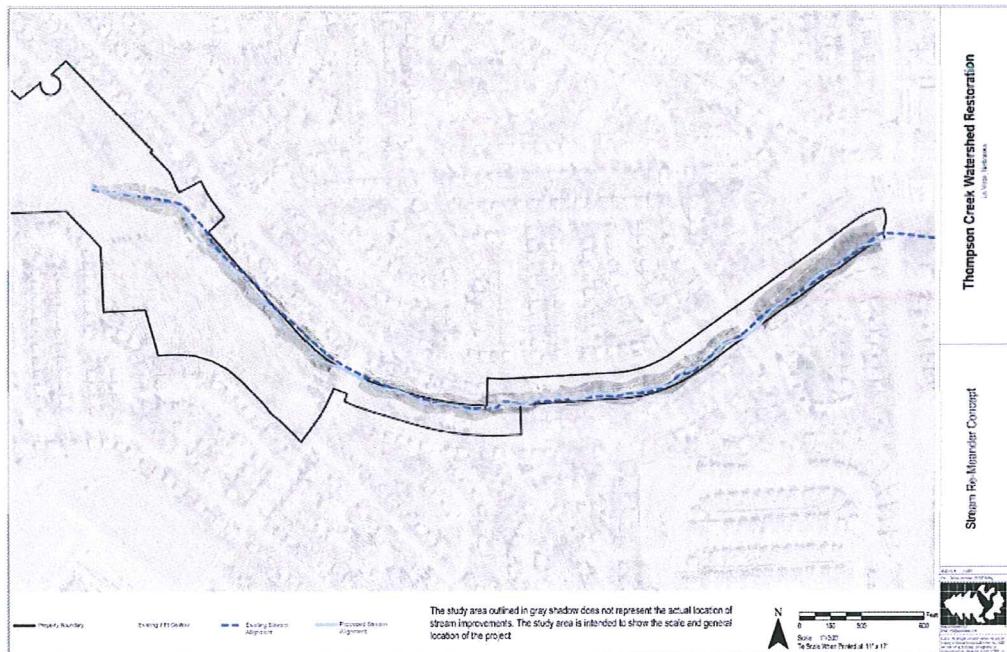


## NEBRASKA ENVIRONMENTAL TRUST FUND

H1. Project Sponsor: City of La Vista

H2. Project Name: Thompson Creek Watershed Restoration

Figure 2. Thompson Creek potential project footprint, showing scale and potential extent. The final design will reflect the wishes of adjacent property owners and the City's park master planning process.



Electronic Grant Application  
Revised July 2011



## NEBRASKA ENVIRONMENTAL TRUST FUND

H1. Project Sponsor: City of La Vista

H2. Project Name: Thompson Creek Watershed Restoration

Figure 3. Conceptual Riffle-Pool Sequence (with hypothetical trail)

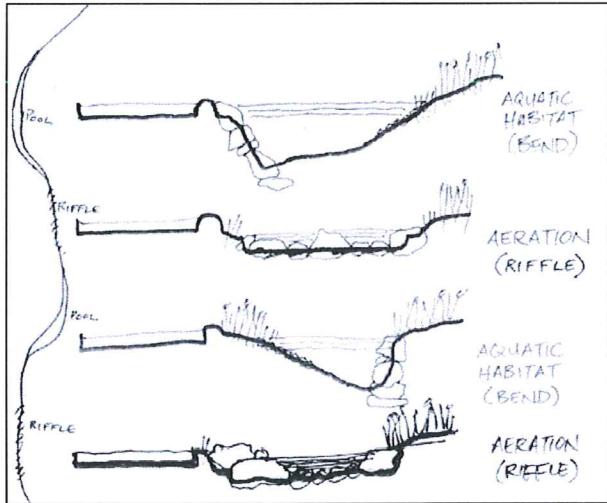
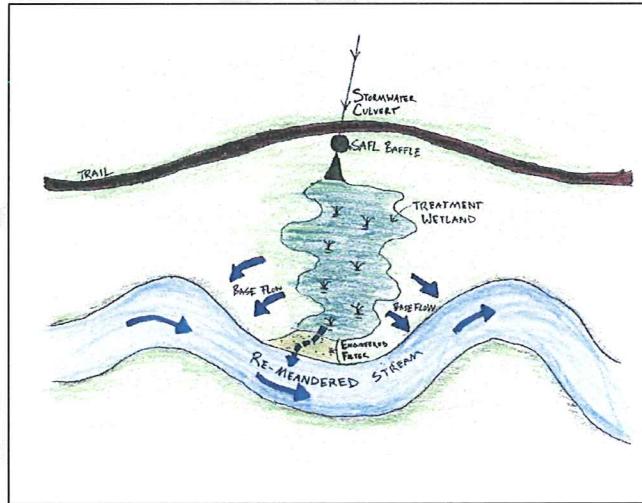


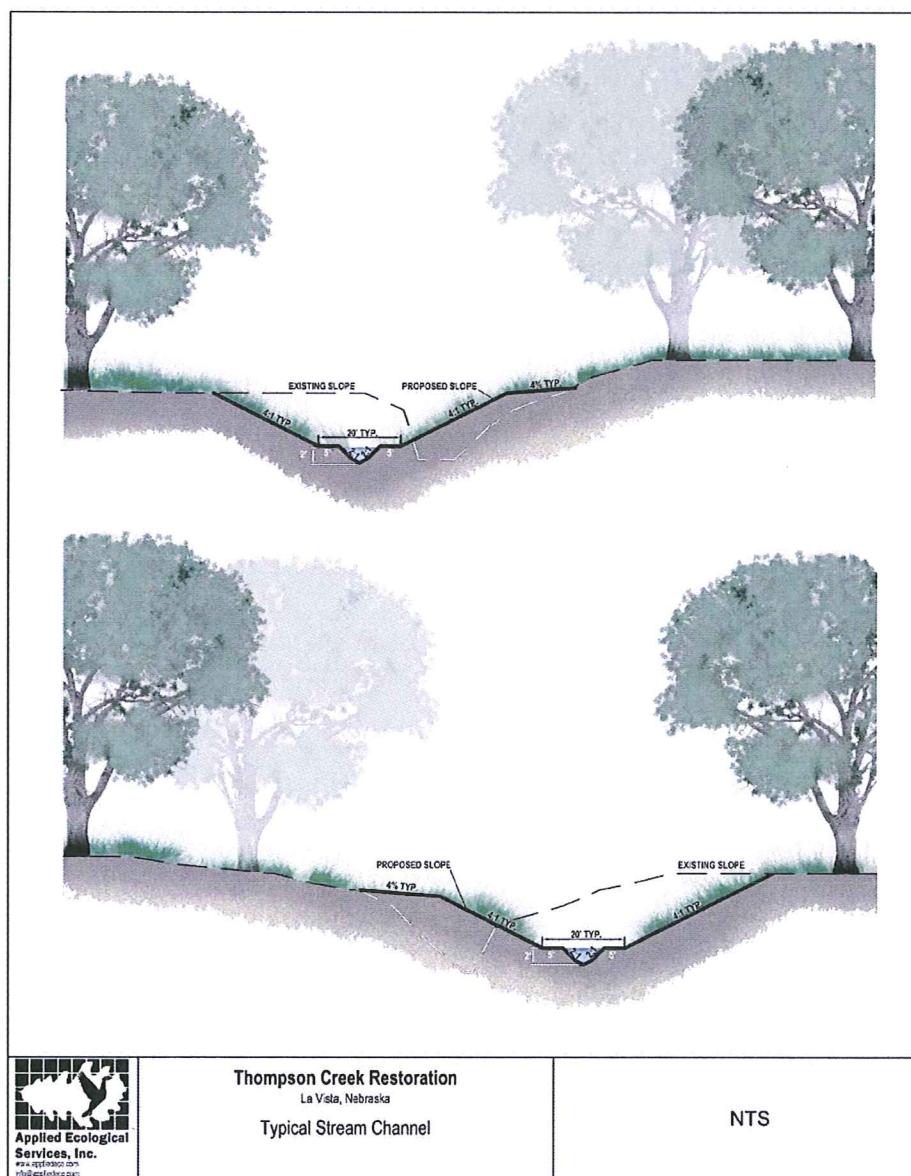
Figure 4. Conceptual Outlet Treatment



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**Figure 5. Conceptual cross-sections of Thompson Creek.** The existing stream is cutting into its bed, making its side slopes canyon-like. Natural streams have gentler slopes that allow vegetation to grow and help stabilize the banks, preventing erosion. The gentler slopes also protect private property and municipal parks and infrastructure, and allow people to safely walk down to the stream.



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**Thompson Creek, July 2012.** Bare soil and sparse vegetation create poor stream habitat. Recent rains darkened the soil, and the quick fall in stream level severely limits the variety and types of aquatic life that live in Thompson Creek.



**Thompson Creek, July 2012.** Poor water quality is indicated by the excessive growth of algae, caused by too much phosphorus entering the stream with sediment and stormwater runoff.





## NEBRASKA ENVIRONMENTAL TRUST FUND

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Thompson Creek, July 2012. Severe bank erosion threatens private property and contributes large amounts of sediment to Thompson Creek. The sediment and phosphorus then pollutes Big Papillion Creek downstream.

