# CITY of NOVI CITY COUNCIL

**Agenda Item M**
**June 17, 2013**

**SUBJECT:** Approval to award an engineering services agreement to Spalding DeDecker Associates, Inc. for engineering services related to the Storm Water Master Plan Update, in the amount of $39,644.

**SUBMITTING DEPARTMENT:** Department of Public Services, Engineering Division BTC

**CITY MANAGER APPROVAL:**

| | |
|---|---|
| **EXPENDITURE REQUIRED** | **$ 39,644** |
| **AMOUNT BUDGETED** | **$ 35,000** |
| **APPROPRIATION REQUIRED** | **$ 4,644** |
| **LINE ITEM NUMBER** | **210-211.00-805.000** |

**BACKGROUND INFORMATION:**

The 2013 Storm Water Master Plan Update will focus on storm water flow in the streams and four locations where storm water issues have been identified. The goal of the Storm Water Master Plan Update is to identify problem areas, study and determine the potential solutions, and provide a list of recommendations and cost estimates for improvements to the storm water system to use in the development of the Capital Improvement Plan.

The five separate tasks that have been identified for further evaluation as part of the project include:

- In urbanized areas, the erosion of stream banks is common because sudden increases in flow due to lack of upstream infiltration or storage of storm water. Preventing and mitigating stream bank erosion prevents sedimentation in downstream lakes (such as Meadowbrook Lake) and streams. The consultant will review the streambanks along the Rouge River, Ingersol Creek and Bishop Creek to perform analysis of stream bank stability, identify corrective action, identify required easements and provide construction cost estimates.
- Since 1984, the City of Novi has accepted responsibility for on-going maintenance (including dredging) of Village Wood Lake and Village Oaks Lake. The eastern half of Village Oaks Lake was hydraulically dredged by the City in 2005. There has been minimal maintenance of the storm water inlets and outlets at the lakes over the past ten years. The consultant will review the existing conditions, evaluate the hydrology and hydraulic operation of the lakes relative to storm water, discuss history and problems in the area with field staff, and provide a comprehensive maintenance plan with construction cost estimates covering the next six years.
- The Randolph Street Drain Inter-County Drain Board studied flooding concerns that have been reported downstream of the private detention basin in Lexington Green Subdivision and upstream of the Randolph Street Drain. A recent hydraulic report concludes that the existing Lexington Green Basin is under sized for the 10-year, 24-hour storm event and causes storm water to find an overland route to the wetland located south of Lexington Green. The consultant will evaluate the feasibility of storing storm flow upstream of the basin, or redirecting flow to a different receiving

water source such as to the north to the Lexington Green Regional Detention Basin on Taft Road.

- The pond near the northern portion of the Hometown Novi Mobile Home Park frequently overflows into the adjacent streets during storm events. The pond discharges into a wetland complex located on either side of Novi Road, crossing Novi Road through several culverts, ultimately discharging under East Lake Drive to Walled Lake. The consultant will evaluate the hydrology of the tributary area and the hydraulics downstream of the pond to determine if there are any potential improvements necessary to mitigate the flooding.
- There are two storm water detention basins located on either side of Haggerty Road north of Eight Mile Road serving a commercial area in the southeasterly portion of Section 36. One basin is owned by the City of Novi, the other basin is owned by the Orchard Hill Place Association. The consultant will define the tributary area of each basin, define the hydrology for each basin, and evaluate the existing hydraulics of the basin. Based on the analysis, the consultant will provide recommendations to best meet the City of Novi Storm Water Standards. The consultant shall also identify any modifications to improve the function of the basins, and evaluate the downstream drainage course to identify any necessary improvements.

Following review of the proposals submitted by the City's three pre-qualified engineering consultants, staff recommends award of this project to Spalding DeDecker Associates because their approach appropriately addresses the above areas. SDA will provide a report, including recommendations and cost estimates for the appropriate corrective action in early 2014 for use in development of the FY2014-15 budget.

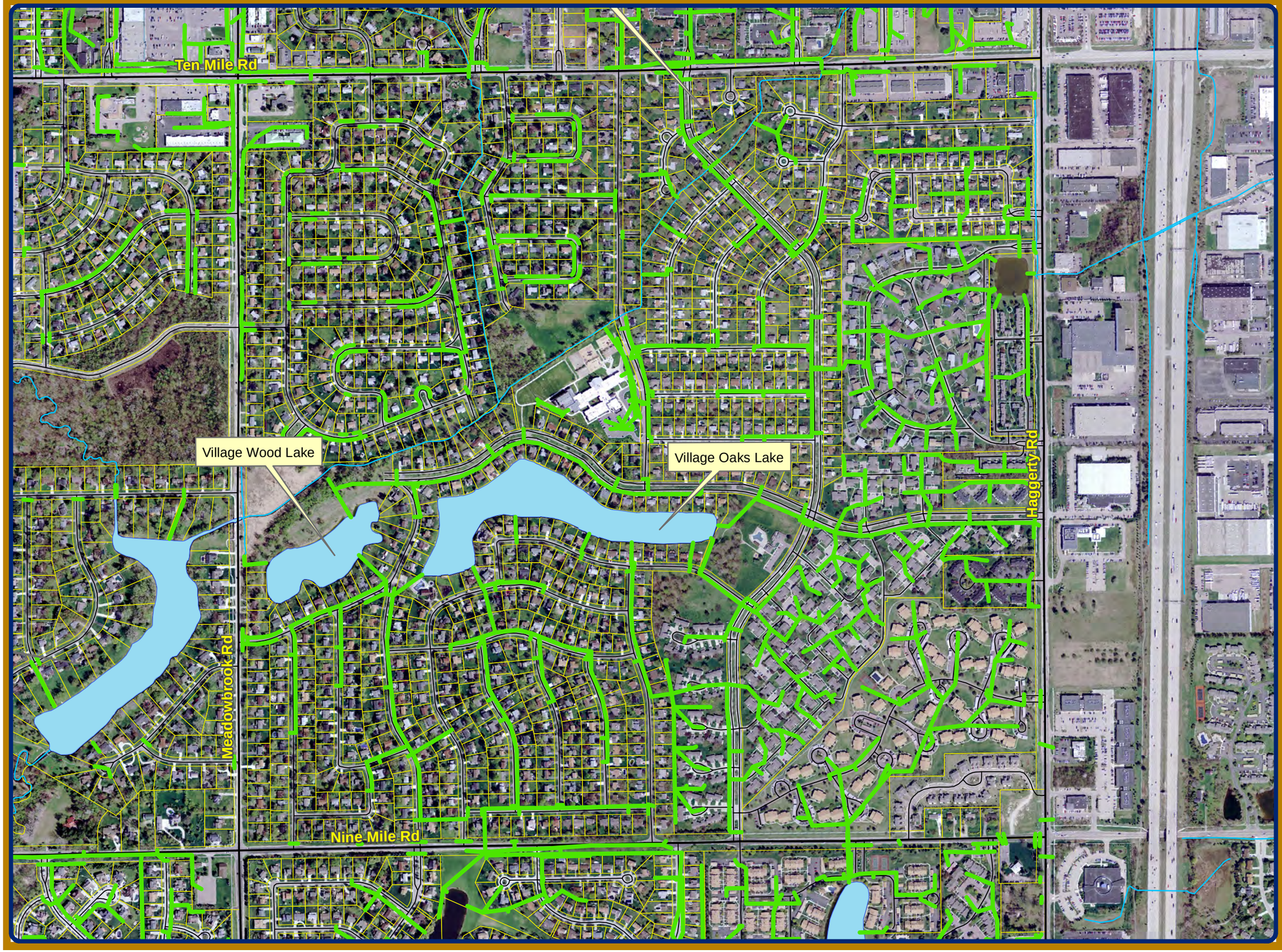
**RECOMMENDED ACTION:** Approval to award an engineering services agreement to Spalding DeDecker Associates, Inc. for engineering services related to the Storm Water Master Plan Update, in the amount of $39,644.

| | 1 | 2 | Y | N |
|---|---|---|---|---|
| **Mayor Gatt** | | | | |
| **Mayor Pro Tem Staudt** | | | | |
| **Council Member Casey** | | | | |
| **Council Member Fischer** | | | | |

| | 1 | 2 | Y | N |
|---|---|---|---|---|
| **Council Member Margolis** | | | | |
| **Council Member Mutch** | | | | |
| **Council Member Wrobel** | | | | |

# Village Oaks Lake and Village Wood Lake Location Map

## 2013 Storm Water Master Plan




**Map Legend**

- Storm Sewer
- Rivers
- Lakes

0 190 380 760 1,140 1,520

Feet

1 inch = 667 feet


# City of Novi

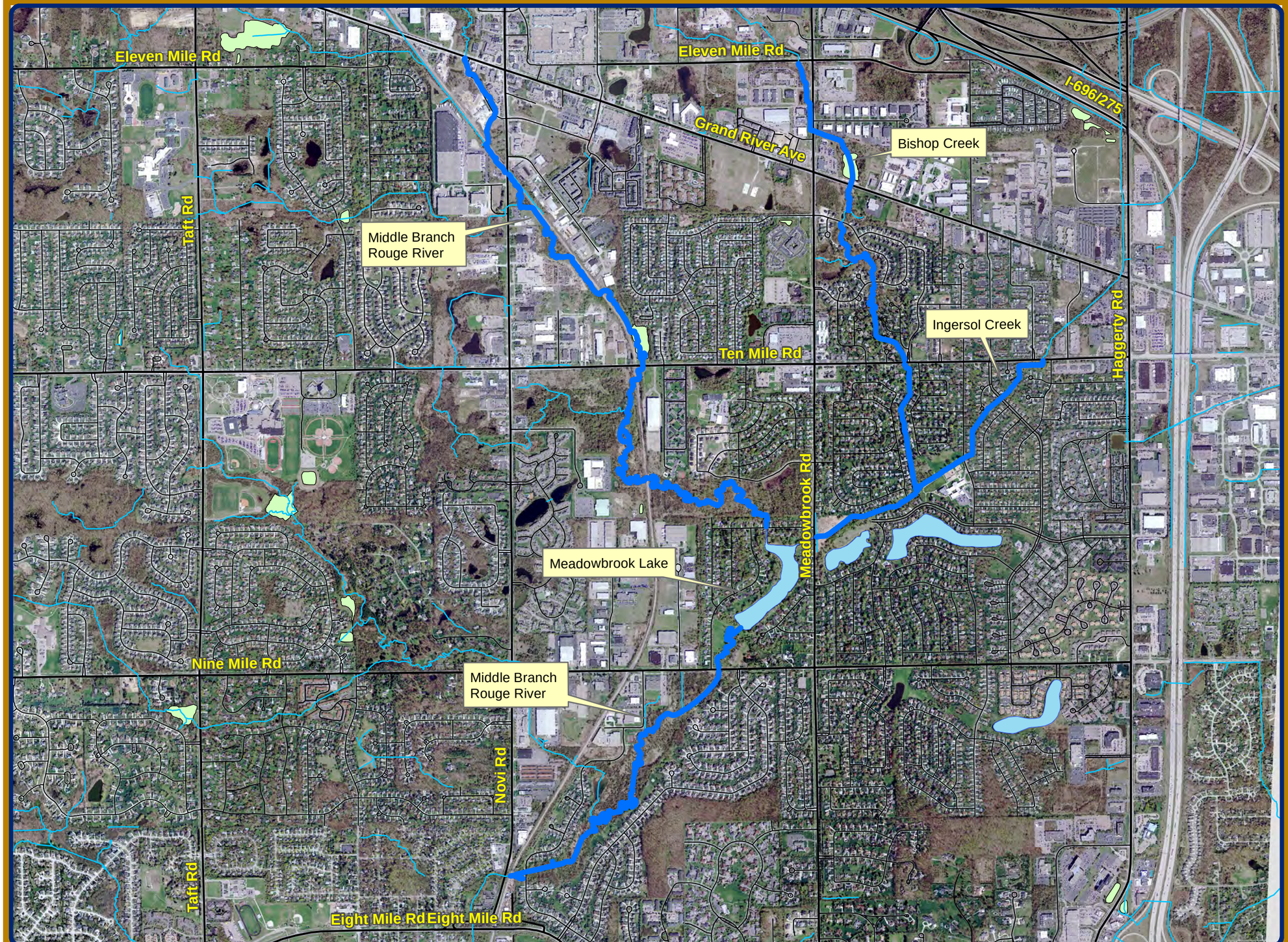
**Engineering Division**
**Department of Public Services**
**26300 Lee BeGole Drive**
**Novi, MI 48375**
**cityofnovi.org**

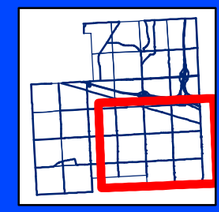

**Map Author: Brian Coburn**
**Date: 5/16/13**
**Project: 2013 Storm Water Study**
**Version #:**

**Amended By:**
**Date:**
**Department:**

# Streambank Stabilization Study Areas

## 2013 Storm Water Master Plan



**Map Legend**

- Stream Study Areas
- Rivers
- Lakes
- Regional Detention Basins

0 485 970 1,940 2,910 3,880

Feet

1 inch = 1,706 feet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**cityofnovi.org**


**Map Author: Brian Coburn**
**Date: 5/16/13**
**Project: 2013 Storm Water Study**
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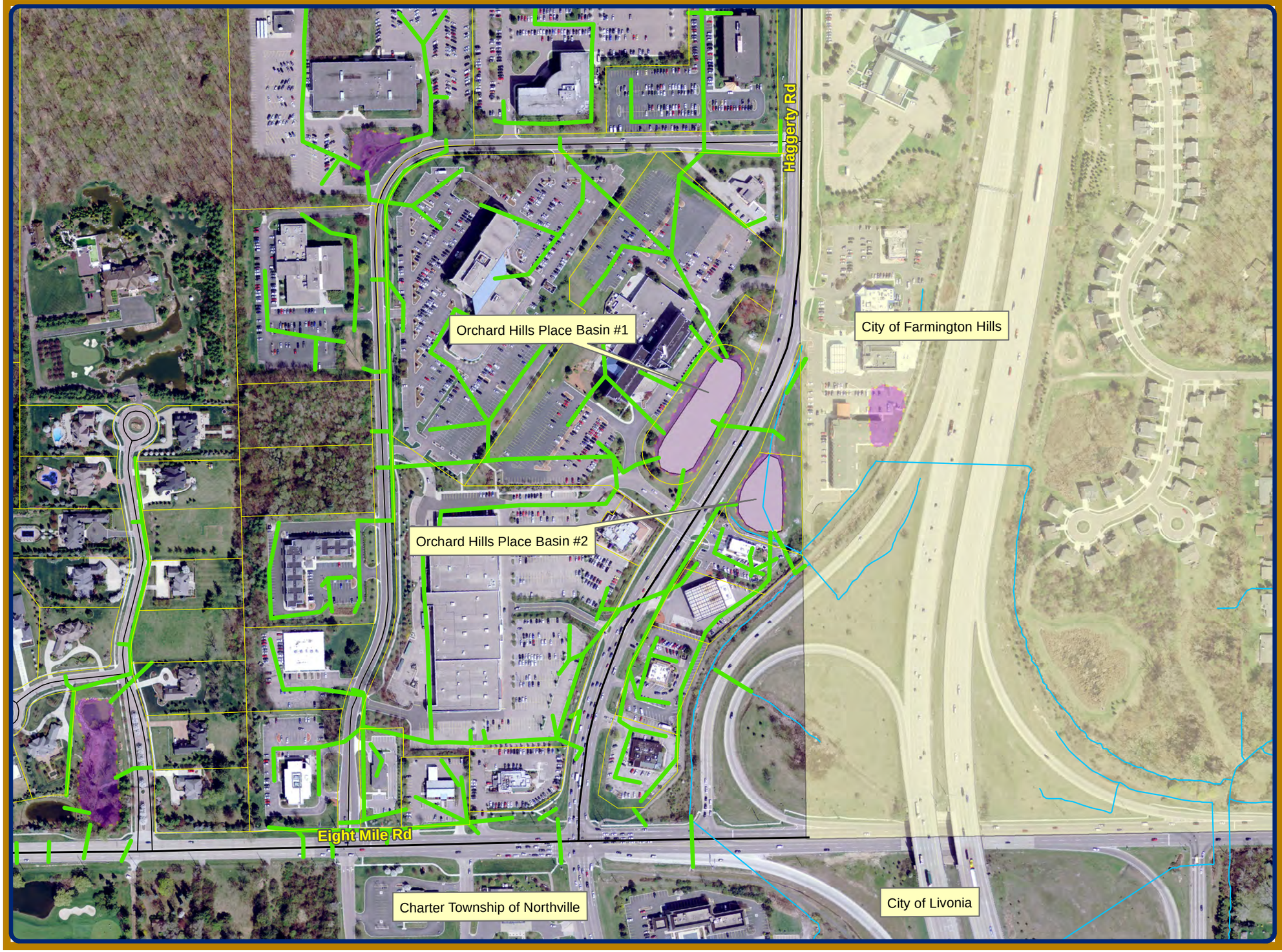
**Date:**
**Department:**

# Location Map Orchard Hill Place Basins

## 2013 Storm Water Master Plan




**Map Legend**

- Storm Sewer
- Rivers
- Wetlands

**Name**

- Farmington Hills
- Lakes
- Regional Detention Basins

0 85 170 340 510 680

Feet

1 inch = 297 feet


City of Novi

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Department of Public Services
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**Map Author:** Brian Coburn
**Date:** 5/16/13
**Project:** 2013 Storm Water Study
**Version #:**

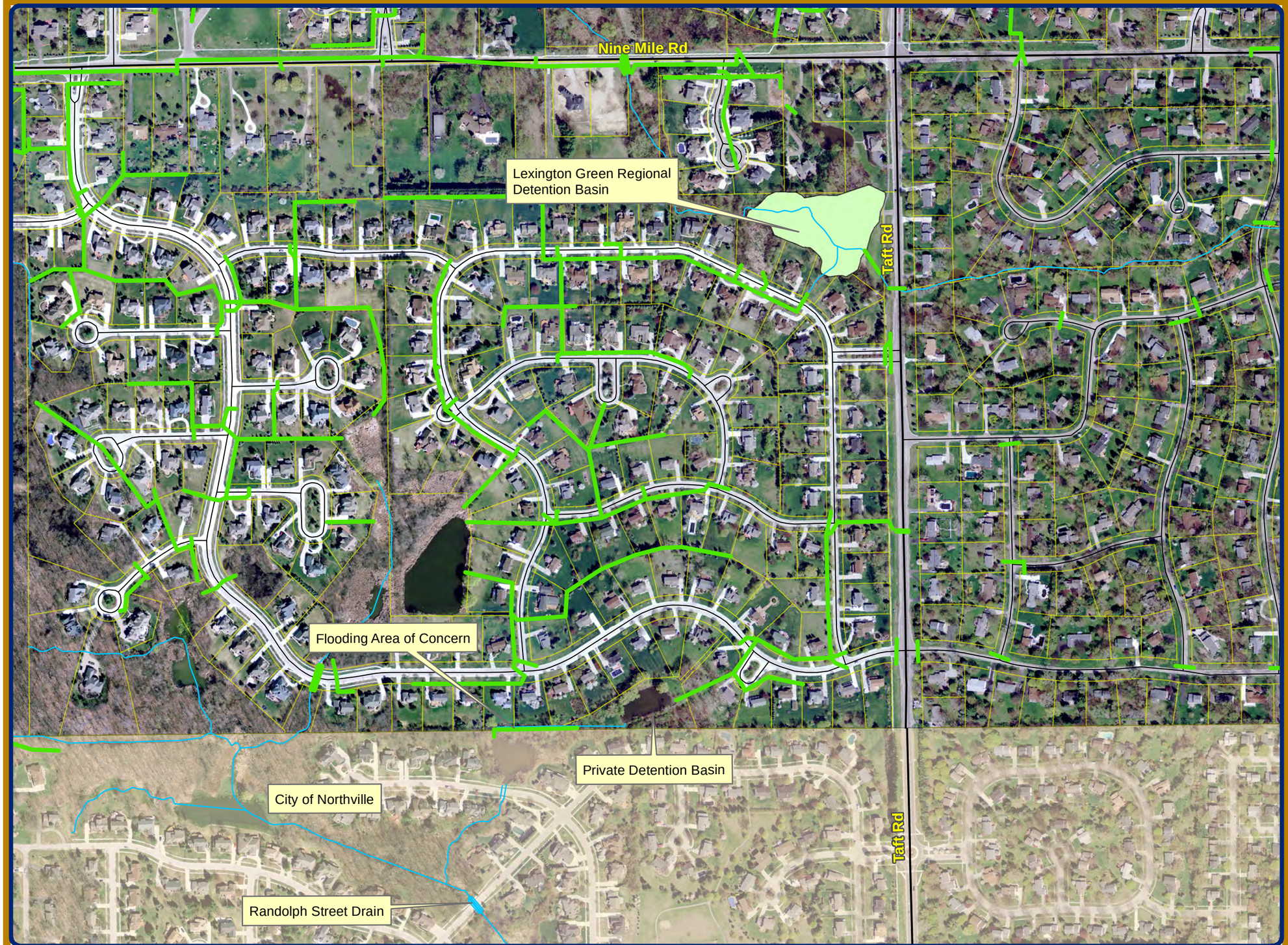
**Amended By:**
**Date:**
**Department:**

**MAP INTERPRETATION NOTICE**

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Pleased contact the City GIS Manager to confirm source and accuracy information related to this map.

# Location Map Lexington Green Drainage Concerns

## 2013 Storm Water Master Plan




**Map Legend**

- Storm Sewer
- Rivers

**Name**

- Northville
- Lakes

0 112.5 225 450 675 900

Feet

1 inch = 387 feet


# City of Novi

**Engineering Division**
**Department of Public Services**
**26300 Lee BeGole Drive**
**Novi, MI 48375**
**cityofnovi.org**


**Map Author: Brian Coburn**
**Date: 5/16/13**
**Project: 2013 Storm Water Study**
**Version #:**

**Amended By:**
**Date:**
**Department:**

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# Location Map Hometown Novi Drainage Concerns

## 2013 Storm Water Master Plan


**Map Legend**

- Storm Sewer
- Rivers
- Wetlands

**Name**

- Northville
- Lakes

0 137.5 275 550 825 1,100

Feet

1 inch = 490 feet


**City of Novi**

Engineering Division
Department of Public Services
26300 Lee BeGole Drive
Novi, MI 48375
cityofnovi.org


Map Author: Brian Coburn
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**SUPPLEMENTAL PROFESSIONAL ENGINEERING SERVICES AGREEMENT**

**2013 STORM WATER MASTER PLAN**

This Agreement shall be considered as made and entered into as of the date of the last signature hereon, and is between the City of Novi, 45175 W. Ten Mile Road, Novi, MI 48375-3024, hereafter, "City," and Spalding DeDecker Associates, Inc., whose address is 905 South Boulevard East, Rochester Hills, MI 48307, hereafter, "Consultant."

**R E C I T A L S:**

This Agreement shall be supplemental to, and hereby incorporates the terms and conditions of the AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES FOR PUBLIC PROJECTS, and attached exhibits, entered into between the City and the Consultant on December 17, 2012.

The project involves the necessary field evaluation and related work of the five areas identified in the RFP to develop a list of recommendations and cost estimates for improvements to the storm water system that would be used in the development of the Capital Improvement Plan for the City.

NOW, THEREFORE, in consideration of the foregoing, the City and Consultant agree as follows:

**Section 1**. **Professional Engineering Services**.

For and in consideration of payment by the City as provided under the "Payment for Engineering Services" section of this Agreement, Consultant shall perform the work described in the manner provided or required by the following Scope of Services, which is attached to and made a part of this Agreement as Exhibit A, all of said services to be done in a competent, efficient, timely, good and workmanlike manner and in compliance with all terms and conditions of this Agreement.

Exhibit A Scope of Services

**Section 2. Payment for Professional Engineering Services.**

1. Basic Fee.

Design Phase Services: The Consultant shall complete the design phase services as described herein for a lump sum fee of $39,644, as described in the attached proposal.

2. Payment Schedule for Professional Engineering Services Fee.

Consultant shall submit monthly statements for professional engineering services rendered. The statements shall be based on Consultant's estimate of the proportion of the total services actually completed for each task as set forth in Exhibit A at the time of billing. The City shall confirm the correctness of such estimates, and may use the City's own engineer for such purposes. The monthly statements should be accompanied by such properly completed reporting forms and such other evidence of progress as may be required by the City. Upon such confirmation, the City shall pay the amount owed within 30 days.

Final billing under this agreement shall be submitted in a timely manner but not later than three (3) months after completion of the services. Billings for work submitted later than three (3) months after completion of services will not be paid. Final payment will be made upon completion of audit by the City.

3. Payment Schedule for Expenses.

All expenses required to complete the scope of services described herein, including but not limited to costs related to mileage, vehicles, reproduction, computer use, etc., shall be included in the basic fee and shall not be paid separately. However, as compensation for expenses that are not included in the standard scope of services, when incurred in direct connection with the project, and approved by the City, the City shall pay the Consultant its actual cost times a factor of 1.15.

**Section 4. Ownership of Plans and Documents; Records.**

1. Upon completion or termination of this agreement, all documents prepared by the Consultant, including tracings, drawings, estimates, specifications, field notes, investigations, studies, etc., as instruments of service shall become the property of the City.

2. The City shall make copies, for the use of the Consultant, of all of its maps, records, laboratory tests, or other data pertinent to the work to be performed by the Consultant under this Agreement, and also make available any other maps, records, or other materials available to the City from any other public agency or body.

3. The Consultant shall furnish to the City, copies of all maps, records, field notes, and soil tests that were developed in the course of work for the City and for which compensation has been received by the Consultant.

**Section 5. Termination.**

1. This Agreement may be terminated by either party upon 7- days' prior written notice to the other party in the event of substantial failure by the other party to fulfill its obligations under this agreement through no fault of the terminating party.

2. This Agreement may be terminated by the City for its convenience upon 90 days' prior written notice to the Consultant.

3. In the event of termination, as provided in this Article, the Consultant shall be paid as compensation in full for services performed to the date of that termination, an amount calculated in accordance with Section 2 of this Agreement. Such amount shall be paid by the

City upon the Consultant's delivering or otherwise making available to the City, all data, drawings, specifications, reports, estimates, summaries, and that other information and materials as may have been accumulated by the Consultant in performing the services included in this Agreement, whether completed or in progress.

**Section 6. Disclosure.**

The Consultant affirms that it has not made or agreed to make any valuable gift whether in the form of service, loan, thing, or promise to any person or any of the person's immediate family, having the duty to recommend, the right to vote upon, or any other direct influence on the selection of consultants to provide professional engineering services to the City within the two years preceding the execution of this Agreement. A campaign contribution, as defined by Michigan law shall not be considered as a valuable gift for the purposes of this Agreement.

**Section 7. Insurance Requirements.**

1. The Consultant shall maintain at its expense during the term of this Agreement, the following insurance:

A. Worker's Compensation insurance relative to all Personnel engaged in performing services pursuant to this Agreement, with coverage not less than that required by applicable law.

B. Comprehensive General Liability insurance with maximum bodily injury limits of $1,000,000 (One Million Dollars) each occurrence and/or aggregate and minimum Property Damage limits of $1,000,000 (One Million Dollars) each occurrence and/or aggregate.

C. Automotive Liability insurance covering all owned, hired, and non-owned vehicles with Personal Protection insurance to comply with the provisions of the Michigan No Fault Insurance Law including Residual Liability insurance with minimum bodily injury limits of $1,000,000 (One Million Dollars) each occurrence and/or aggregate minimum property damage limits of $1,000,000 (One Million Dollars) each occurrence and/or aggregate.

D. The Consultant shall provide proof of Professional Liability coverage in the amount of not less than $1,000,000 (One Million Dollars) per occurrence and/or aggregate, and Environmental Impairment coverage.

2. The Consultant shall be responsible for payment of all deductibles contained in any insurance required hereunder.

3. If during the term of this Agreement changed conditions or other pertinent factors should in the reasonable judgment of the City render inadequate insurance limits, the Consultant will furnish on demand such additional coverage as may reasonably be required under the circumstances. All such insurance shall be effected at the Consultant's expense, under valid and enforceable policies, issued by the insurers of recognized responsibility which are well-rated by national rating organizations and are acceptable to the City.

4. All policies shall name the Consultant as the insured and shall be accompanied by a commitment from the insurer that such policies shall not be canceled or reduced without at least thirty (30) days prior notice to the City.

With the exception of professional liability, all insurance policies shall name the City of Novi, its officers, agents, and employees as additional insured. Certificates of Insurance evidencing such coverage shall be submitted to Sue Morianti, Purchasing Manager, City of Novi, 45175 West Ten Mile Road, Novi, MI 48375-3024 prior to commencement of performance under this Agreement and at least fifteen (15) days prior to the expiration dates of expiring policies.

5. If any work is sublet in connection with this Agreement, the Consultant shall require each subconsultant to effect and maintain at least the same types and limits of insurance as fixed for the Consultant.

6. The provisions requiring the Consultant to carry said insurance shall not be construed in any manner as waiving or restricting the liability of the Consultant under this Agreement.

**Section 8. Indemnity and Hold Harmless.**

A. The Consultant agrees to indemnify and hold harmless the City, its elected and appointed officials and employees, from and against any and all claims, demands, suits, losses and settlements, including actual attorney fees incurred and all costs connected therewith, for any damages which may be asserted, claimed or recovered against the City by reason of personal injury, death and/or property damages which arises out of or is in any way connected or associated with the actions or inactions of the Consultant in performing or failing to perform the work.

The Consultant agrees that it is its responsibility and not the responsibility of the City to safeguard the property and materials used in performing this Agreement. Further, this Consultant agrees to hold the City harmless for any loss of such property and materials used pursuant to the Consultant's performance under this Agreement.

**Section 9. Nondiscrimination.**

The Consultant shall not discriminate against any employee, or applicant for employment because of race, color, sex, age or handicap, religion, ancestry, marital status, national origin, place of birth, or sexual preference. The Consultant further covenants that it will comply with the Civil Rights Act of 1973, as amended; and the Michigan Civil Rights Act of 1976 (78. Stat. 252 and 1976 PA 4563) and will require a similar covenant on the part of any consultant or subconsultant employed in the performance of this Agreement.

**Section 10. Applicable Law.**

This Agreement is to be governed by the laws of the State of Michigan and the City of Novi Charter and Ordinances.

**Section 11. Approval; No Release.**

Approval of the City shall not constitute nor be deemed release of the responsibility and liability of Consultant, its employees, associates, agents and subconsultants for the accuracy and competency of their designs, working drawings, and specifications, or other documents and services; nor shall that approval be deemed to be an assumption of that responsibility by the City for any defect in the designs, working drawings and specifications or other documents prepared by Consultant, its employees, subconsultants, and agents.

After acceptance of final plans and special provisions by the City, Consultant agrees, prior to and during the construction of this project, to perform those engineering services as may be required by City to correct errors or omissions on the original plans prepared by Consultant and to change the original design as required.

**Section 12. Compliance With Laws.**

This Contract and all of Consultants professional services and practices shall be subject to all applicable state, federal and local laws, rules or regulations, including without limitation, those which apply because the City is a public governmental agency or body. Consultant represents that it is in compliance with all such laws and eligible and qualified to enter into this Agreement.

**Section 13. Notices.**

Written notices under this Agreement shall be given to the parties at their addresses on page one by personal or registered mail delivery to the attention of the following persons:

City: Rob Hayes, P.E., Director of Public Services and Maryanne Cornelius, Clerk, with a copy to Thomas R. Schultz, City Attorney

Consultant: David Eno, P.E., Project Manager

**Section 14. Waivers.**

No waiver of any term or condition of this Agreement shall be binding and effective unless in writing and signed by all parties, with any such waiver being limited to that circumstance only and not applicable to subsequent actions or events.

**Section 15. Inspections, Notices, and Remedies Regarding Work.**

During the performance of the professional services by Consultant, City shall have the right to inspect the services and its progress to assure that it complies with this Agreement. If such inspections reveal a defect in the work performed or other default in this Agreement, City shall provide Consultant with written notice to correct the defect or default within a specified number of days of the notice. Upon receiving such a notice, Consultant shall correct the specified defects or defaults within the time specified. Upon a failure to do so, the City may terminate this Agreement by written notice and finish the work through whatever method it deems appropriate, with the cost in doing so being a valid claim and charge against Consultant;

or, the City may preserve the claims of defects or defaults without termination by written notice to Consultant.

All questions which may arise as to the quality and acceptability of work, the manner of performance and rate of progress of the work, and the interpretation of plans and specifications shall be decided by the City. All questions as to the satisfactory and acceptable fulfillment of the terms of this agreement shall be decided by the City.

**Section 16. Delays.**

No charges or claims for damages shall be made by the Consultant for delays or hindrances from any cause whatsoever during the progress of any portions of the services specified in this agreement, except as hereinafter provided.

In case of a substantial delay on the part of the City in providing to the Consultant either the necessary information or approval to proceed with the work, resulting, through no fault of the Consultant, in delays of such extent as to require the Consultant to perform its work under changed conditions not contemplated by the parties, the City will consider supplemental compensation limited to increased costs incurred as a direct result of such delays. Any claim for supplemental compensation must be in writing and accompanied by substantiating data.

When delays are caused by circumstances or conditions beyond the control of the Consultant as determined by the City, the Consultant shall be granted an extension of time for such reasonable period as may be mutually agreed upon between the parties, it being understood, however, that the permitting of the Consultant to proceed to complete the services, or any part of them, after the date to which the time of completion may have been extended, shall in no way operate as a waiver on the part of the City of any of its rights herein set forth.

**Section 17. Assignment.**

No portion of the project work, heretofore defined, shall be sublet, assigned, or otherwise disposed of except as herein provided or with the prior written consent of the City. Consent to sublet, assign, or otherwise dispose of any portion of the services shall not be construed to relieve the Consultant of any responsibility for the fulfillment of this agreement.

**Section 18. Dispute Resolution.**

The parties agree to try to resolve any disputes as to professional engineering services or otherwise in good faith. In the event that the parties cannot resolve any reasonable dispute, the parties agree to seek alternative dispute resolution methods agreeable to both parties and which are legally permissive at the time of the dispute. The parties agree to use their best efforts to resolve any good faith dispute within 90 (ninety) days notice to the other party. In the event the parties cannot resolve that dispute as set forth above, they may seek such remedies as may be permitted by law.

WITNESSES

_____

_____

Spalding DeDecker Associates, Inc.

_____

By:
Its:

The foregoing _____ was acknowledged before me this ____ day of _____, 20___, by _____ on behalf of _____.

_____
Notary Public
_____ County, Michigan
My Commission Expires: _____

WITNESSES

_____

_____

CITY OF NOVI

_____

By:
Its:

The foregoing _____ was acknowledged before me this ____ day of _____, 20___, by _____ on behalf of the City of Novi.

_____
Notary Public
Oakland County, Michigan
My Commission Expires: _____

# EXHIBIT A - SCOPE OF SERVICES

Consultant shall provide the City professional engineering services in all phases of the Project to which this Agreement applies as hereinafter provided. These services will include serving as the City's professional engineering representative for the Project, providing professional engineering consultation and advice and furnishing customary civil, structural, mechanical and electrical engineering services and customary engineering services incidental thereto, as described below.

A. **Basic Services**.

1. See attached.

B. **Performance.**

1. The Consultant agrees that, immediately upon the execution of this Agreement, it will enter upon the duties prescribed in this agreement, proceed with the work continuously, and make the various submittals on or before the dates specified in the attached schedule. The City is not liable and will not pay the Consultant for any services rendered before written authorization is received by the Consultant.

2. The Consultant shall submit, and the City shall review and approve a timeline for submission of plans and/or the completion of any other work required pursuant to this Scope of Services. The Consultant shall use its best efforts to comply with the schedule approved by the City.

3. If any delay is caused to the Consultant by order of the City to change the design or plans; or by failure of the city to designate right-of-way, or to supply or cause to be supplied any data not otherwise available to the Consultant that is required in performing the work described; or by other delays due to causes entirely beyond the control of the Consultant; then, in that event, the time schedules will be adjusted equitably in writing, as mutually agreed between the City and the Consultant at the moment a cause for delay occurs.

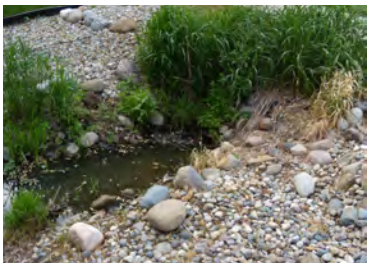
4. Since the work of the Consultant must be coordinated with the activities of the City (including firms employed by and governmental agencies and subdivisions working with the City), the Consultant shall advise the City in advance, of all meetings and conferences between the Consultant and any party, governmental agency, political subdivision, or third party which is necessary to the performance of the work of the Consultant.

# SPALDING DEDECKER ASSOCIATES, INC.

Engineering Consultants | Infrastructure | Land Development | Surveying

Toll Free: (800) 598-1600
www.sda-eng.com

# City of Novi
## Storm Water Master Plan


Engineering Service Proposal
Due: June 4, 2013
SDA PR13-136

**Detroit**
1435 Randolph St., Suite 400
Detroit, Michigan 48226
(313) 967-4700
Fax (313) 967-4707

**Rochester Hills**
905 South Blvd. East
Rochester Hills, Michigan 48307
(248) 844-5400
Fax (248) 844-5404

**San Antonio**
9120 Old Dietz Elkhorn Rd.
Fair Oaks Ranch, Texas 78015
(830) 755-8434
Fax (830) 755-8435

**Livonia Field Office**
39293 Plymouth Rd., Suite 102
Livonia, Michigan 48150
(734) 293-5200
Fax (734) 293-5202

**Monroe Field Office**
25 South Monroe St., Suite 305
Monroe, Michigan 48161
(734) 242-6816
Fax (734) 242-6817

**Cleveland Field Office**
5555 Canal Rd.
Cleveland, Ohio 44125
(216) 789-0748

SPALDING DEDECKER ASSOCIATES, INC.
905 South Boulevard East • Rochester Hills • Michigan 48307 • Tel 248 844 5400 • Fax 248 844 5404
www.sda-eng.com

June 4, 2013

Ben Croy, P.E.
Civil Engineer, Department of Public Services
City of Novi
Field Services Complex
26300 Lee BeGole Drive
Novi, MI 48375

Re: **Request for Proposal - Storm Water Master Plan**
**Spot Studies for Areas of Concern**
**SDA Proposal No. PR13-136**

Dear Mr. Croy:

**Spalding DeDecker Associates, Inc. (SDA)** is passionate about stream restoration and storm water management work, both as professionals and on a personal level. SDA has played an integral role in helping to improve water quality in the Rouge River, Clinton River, and Huron River Watersheds through study and design engineering services, and we have participated in many stream and river restoration volunteer efforts throughout southeastern Michigan.

Our water resources engineers on staff form an exceptionally strong team perfectly suited for these storm water management projects, as you will see in the following proposal. Together, we have worked on countless local stream restoration, streambank stabilization, riverine and lake flood control, drainage studies, and other storm water management projects.

We trust that you will find our proposal to be thorough, well thought-out, and focused on addressing the City's needs as identified in the Storm Water Master Plan RFP. We look forward to the opportunity to assist you in implementing sound storm water management practices for Novi and its residents.

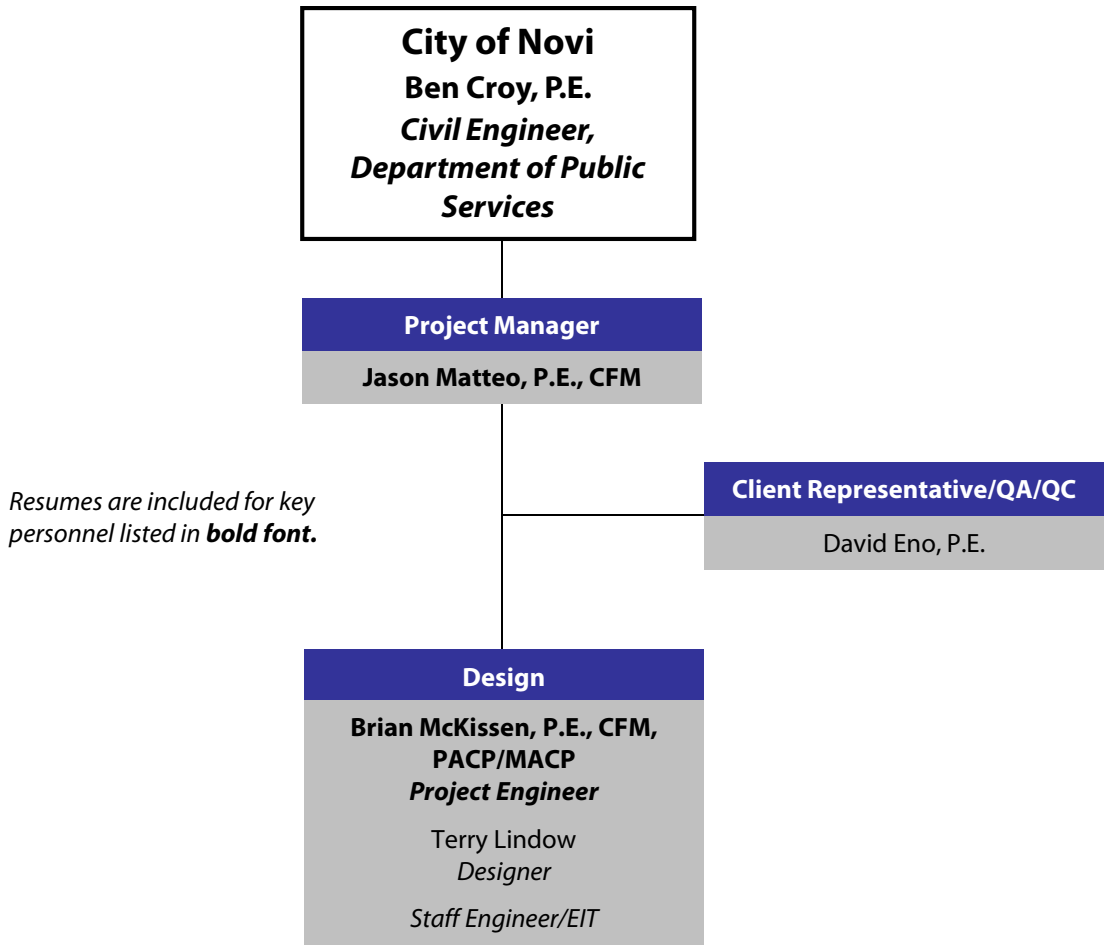
Sincerely,
**SPALDING DEDECKER ASSOCIATES, INC.**

Jason A. Matteo, P.E., CFM
Senior Project Manager

# Table of Contents

**City of Novi**
**Storm Water Master Plan**
**PR13-136**
**Due: June 4, 2013**

**Organizational Chart**




*Resumes are included for key personnel listed in **bold font.***

# Jason Matteo, P.E., CFM

## Senior Project Manager

With more than 13 years of experience in the industry, Jason Matteo, P.E., CFM is leading SDA's expansion in the water resources market and is responsible for project management, business development, marketing and providing technical direction on a wide range of water resources related study- and design-phase projects.

As Senior Project Manager in the Municipal Engineering Group, Mr. Matteo is responsible for all of SDA's water resources projects. He is also responsible for stormwater management plans, natural stream and wetland restoration design, and floodplain management projects. Mr. Matteo has performed over 30 floodplain/floodway studies to obtain LOMAs and LOMRs for site developments. He has also led efforts in streambank stabilization design, scouring analysis and sediment transport computations.

Mr. Matteo's technical expertise is in computational modeling of surface water and combined sanitary/storm sewerage systems, the design of CSO control facilities, and the analysis of water distribution networks. He has extensive experience using computer programs such as HEC-RAS, HEC-HMS, HEC-1, HEC-2, HEC-6, HEC-FFA, HEC-SSP, XP-SWMM, EPA-SWMM4 and EPA-SWMM5, EPANET, WaterCAD, StormCAD, MODFLOW, WinTR-55 and PeakFQ, among others.

**RELEVANT EXPERIENCE**

**Middle Branch Rouge River Flow Variability Study, Wayne County, MI** – Project Manager responsible for EPA-SWMM (RUNOFF, EXTRAN and TRANSPORT blocks) computer modeling. Also assisted in the conceptual design alternatives of improvements to several impoundments, dam structures and stream reaches along the Middle Rouge. The primary goal was to evaluate the potential for reducing flow variability and therefore reduce the risk of streambank and shoreline erosion that historically resulted in stream water quality degradation and significant downstream sediment accumulation.

**Rouge River Floodplain Modeling, Dearborn, MI** – Floodplain Manager responsible for the development of a HEC-RAS model of the Lower and Main Branches of the Rouge River through Dearborn, Michigan. The model predicted the flood elevations for the 1-year through the 100-year flood flows. Results from the HEC-RAS model were used to set the hydraulic model boundary conditions for baseline conditions and with the CSO control alternatives in-place.

**Franklin Subwatershed Study, OCWRC, Oakland Co., MI**

Project Manager responsible for the QA/QC Review of PCSWMM Regional Modeling of Regional Storm Sewer System. Project included stormwater master planning, streambank stabilization measures design, sediment transport computations, and NPDES (Phase II) permitting.

**North Branch Ecorse Creek Drain Flood Control Project, Wayne County, MI** – Floodplain Manager and Hydraulics Lead responsible for developing HEC-HMS and HEC-RAS models of the North Branch of the Ecorse Creek Drain (NBECD) in Wayne County, Michigan. The NBECD is located in a highly urbanized region and has experienced significant flooding in recent years. The HEC-RAS model included over 17 miles of the NBECD, which was modeled under steady- and unsteady-state conditions. Several green flood control projects were developed and evaluated with the hydrologic/hydraulic model.

**EDUCATION**

- M.S., Civil/Environmental Engineering, Wayne State University (2004)
- B.S., Biosystems Engineering (Environmental Studies Specialization), Michigan State University (2000)

**REGISTRATION**

- Professional Engineer, Michigan (2004)
- Professional Engineer, Texas (2012)

**PROFESSIONAL AFFILIATIONS**

- American Society of Civil Engineers
- Association of State Floodplain Managers
- Michigan Water Environment Association

**CERTIFICATIONS / SPECIALIZED TRAINING**

- Certified Floodplain Manager (2004)
- Confined Space Entry (2005)
- Storm Water Operator (2008)
- **Modeling:** HEC-RAS, HEC-HMS, HEC-1, HEC-2, HEC-6, HEC-FFA, HEC-SSP, XP-SWMM, EPA-SWMM4 and EPA-SWMM5, EPANET, WaterCAD, StormCAD, MODFLOW, WinTR-55. PeakFQ
- **GIS:** ArcViewGIS, GeoMedia Pro, Microsoft Access
- **Other:** Microsoft Word, Excel, PowerPoint, Suretrak Primavera

# Jason Matteo, P.E., CFM

## Senior Project Manager

**Streambank Stabilization Project, Dearborn, MI** – Project Engineer responsible for a streambank stabilization analysis as part of a river restoration project for a section of the Lower Branch of the Rouge River through Ford Field Park in Dearborn, Michigan. In addition, generated a HEC-RAS model to determine the 100 year floodplain before and after construction of several structures such as picnic shelters and fish lunkers.

**Paint Creek Critical Wetlands Preservation/Green Infrastructure Design**
Led the conceptual design effort of multifunctional Green Infrastructure solutions to recurring drainage problems and to recharge the wetlands to pre-settlement conditions. The Green Infrastructure included linear raingardens, bioswales, upland buffer restoration, and a bio-engineered wet pond. Prepared a Clean Michigan Initiative (CMI), nonpoint source pollution reduction grant (i.e., 319 Grant) application and full proposal. Also led the coordination effort with the Clinton River Watershed Council (CRWC) and Six Rivers Regional Land Conservancy (SRRLC) as local partners.

**Floodplain/Scour Analyses, Williamston, MI** – Floodplain Manager responsible for conducting HEC-RAS floodplain/scour analyses for the replacement of the Putnam Street Bridge over the Red Cedar River in the City of Williamston, Michigan. Prepared a hydraulic report and scour analysis report for the MDEQ and MDOT applications for permit.

**Lake St. Clair Marshland Restoration, Macomb County, MI** – Project Manager responsible for the hydrologic evaluation, historic lake level evaluation, and water balance for the natural restoration of 500 acres of coastal marshland near Metro Beach Metroparks on Lake St. Clair. Also responsible for the development of conceptual layouts and the preparation of engineering costs for several restoration alternatives.

**Frankenmuth Levee Flood Control Improvements**
Project Manager responsible for updating statistical analyses of USGS stream gauge data HEC-SSP computer program and utilized the updated flood flow rates to revise the 100-year flooding levels along the Cass River using the HEC-RAS computer program. Also modeled the City's storm sewer system tributary to a stormwater pumping station utilizing the SWMM5 computer program. Currently leading the design of the required levee and embankment improvements to accredit the levee system with FEMA.

**Grosenbacher Road Low Water Crossings, San Antonio, Bexar County, Texas** – Projet Manager responsible for preparing a hydrologic/hydraulic analysis and furnishing HEC-HMS and HEC-RAS computer models of two unnamed tributaries to the Pontranca Creek to accurately determine the 100-year flooding levels across two existing low water culvert crossings on Grosenbacher Road. This area has been subject to frequent road flooding due to the restrictive culvert crossings and limited stream channels conveyance capacities. Proposed culvert replacements and upstream and downstream stream channel and ditchline channel improvements were modeled and recommended to reduce the risk of road flooding. In addition, channel and streambank stabilization and energy dissipation measures were evaluated with the hydraulic computer model and designed as part of this project.

# Jason Matteo, P.E., CFM

## Senior Project Manager

**Romulus Floodplain Mapping Revisions**
Floodplain Manager responsible for making improvements to FEMA's floodplain maps for the City of Romulus. Several detailed flood studies were prepared and submitted to FEMA for review. All studies submitted to FEMA were accepted for inclusion in the final flood boundary maps. The floodplain work removed over 150 homes from the preliminary floodplain shown on FEMA's initial maps.

**Wyandotte Floodplain Mapping Revisions**
Led the technical and permitting efforts to successfully revise a U.S. Army Corps of Engineers study on the Detroit River and corrected the 100-year flood profile along the River. Conducted a detailed annual series statistical analysis on four NOAA stream gages. Successfully removed significant portions of residential, commercial and industrial properties in Wyandotte from FEMA's flood maps, thereby saving residents from paying annual flood insurance premiums.

**Wayne Road Extension Road Improvements**
Hydraulics Lead/Project Manager responsible for preparing a detailed hydrologic/hydraulic study using HEC-HMS and HEC-RAS of 14,800 feet of existing drains for drain and road improvement project. Improvements include relocation of 3,200 feet of open drain, three drain crossings and associated road improvements.

**M-57 Bridge Replacement**
Hydraulics Lead responsible for conducting detailed floodplain and scour analyses using HEC-RAS for proposed MDOT bridge replacement for the M-57 bridge crossing. Provided design input into the design of bridge superstructure including the bridge piers and abutments.

**Floodplain/Floodway Analyses, Southeastern MI**
Floodplain Manager responsible for conducting over 30 floodplain/floodway analyses of several major inland streams for state and federal permitting. These studies were developed for clients ranging from privately-owned residential and commercial developments to small- and large-scale municipal projects located throughout southeastern Michigan.

# Brian McKissen, P.E., CFM, PACP/MACP

## Project Engineer

Brian McKissen, P.E., CFM, PACP/MACP has more than 13 years with SDA with 14 years of experience in the industry. McKissen provides innovative approaches to complex projects. He has knowledge of commonly-used concepts, practices, and procedures within the municipal engineering field. As the Project Engineer, Brian supports the project and Project Manager by performing design evaluations and providing recommendations to develop and improve the quality of service. Through technical knowledge and excellent communication, he will ensure his workmanship is in conformance with the project's scope of work and SDA's ISO 9001-2000 established policies and objectives.

Mr. McKissen has experience in municipal engineering including the design of sanitary sewer, storm sewer, water main, and road design. He is a Certified Floodplain Manager and has a strong background in floodplain management, which includes a comprehensive understanding of the Federal Emergency Management Agency (FEMA) National Flood Insurance Program and State floodplain regulations. Brian assists several communities and school districts in the implementation of the NPDES Phase II program including Public Education, IDEP activities, and Storm Water Pollution Prevention Initiative compliance. His experience also includes storm water and flood plain modeling, water systems modeling, and the maintenance and development of Geographic Information Systems (GIS). His responsibilities include the preparation of cost estimates, engineering plans, and bid documents, permits applications, sketches, and easement documentation preparation, bid review and recommendations, and contract administration. Brian has extensive experience in site plan review for conformance to local, state and federal regulations and in accordance with accepted engineering practices. This includes reviewing site plans, reviewing and approving construction plans, and attending pre-construction meetings. McKissen is also experienced in AutoCAD, HEC-RAS, HEC-HMS, WinTR55, XP-SWMM, WaterCAD, and ArcGIS.

**RELEVANT EXPERIENCE**

**Storm Water Management/Implementation Planning, West Bloomfield Township, MI** – Project Engineer responsible for the development and implementation of the Township's Stormwater Management/Implementation Plan. Responsibilities include the inventory, inspection and deficiency reporting for existing private storm water basins and stormwater conveyance system. The establishment of an Annual Reporting system for these facilities and recommendations for improvements. Responsible for the review of documentation regarding legal access, the review of ordinance requirements and recommendations for ordinance modifications, and application of Flood Control ordinances to these drainage systems within the Township.

**2012 Hazard Mitigation Program, City of Mount Clemens, MI -** Project Engineer responsible for successfully obtaining federal assistance through preparation and submittal of a FEMA Hazard Mitigation Grant Application. The application included a benefit cost analysis utilizing FEMA's BCA 4.5.5.0 software to substantiate the necessity of the remediation measures. The funds will be used by the City to remediate street, basement, and sanitary sewer flooding.

**Groesbeck Highway Rear Lot Storm Sewer, Clinton Township, MI** - Project Engineer responsible for overseeing design and construction of 3,600 feet of storm sewer and private

**EDUCATION**

BS Civil Engineering, 1999,
Lawrence Technological University

**REGISTRATION**

Professional Engineer, Michigan, 6201051513, 2004

Association of State Floodplain Managers Certified Floodplain Manager, 2007

**PROFESSIONAL AFFILIATIONS**

Association of State Floodplain Managers

Michigan Stormwater-Floodplain Association – Board Member Representing Region 8

**CERTIFICATIONS / SPECIALIZED TRAINING**

Pipeline Assessment Certification Program (PACP)

Manhole Assessment Certification Program (MACP)

Urban Stream Restoration Training November 2003

HEC-RAS 3.1.3, July 2006

ESRI taught class for ARC GIS, December 2000

drainage systems. Improvements include the tunneling of 81 feet of 42" storm sewer under the Grant Trunk Western Railroad embankment. Tunneling operations were conducted without interfering with the regular railroad operations.

**I-94BL (Gratiot) from CSX Railroad to Ravenswood Rd, Marysville, MI** - Project Engineer for evaluation and replacement of the storm drainage system to alleviate long-term drainage and flooding issues for homes along the St. Clair River. Project includes full concrete roadway boulevard reconstruction, non-motorized pathway reconstruction, geometric improvements, and coordination with the City to incorporate utility upgrades.

**Pinnacle Aeropark Road Improvements, Huron Township, MI** – Project Engineer responsible for development of hydraulic/hydrologic evaluation of multiple drains to identify existing and proposed floodplain conditions for road and site improvements. Responsible for design or relocation and improvement of approximately 2,000 lineal feet of open drain incorporating self forming channel design.

**Floodplain Management Plan Review, City of Novi, City of Orchard Lake, & Macomb Township, MI –** Project Engineer responsible for review of Floodplain Management Plans for commercial, industrial, and residential developments throughout the communities. Review floodplain management plans to verify that they meet local, State, and Federal requirements.

**West Oaks Regional Detention Basin Improvements, City of Novi, MI –** Project Engineer responsible for the design for the rehabilitation and upgrade of the storm water detention basin. Improvements included routing the overland drainage through a water quality swale prior to discharging into the basin, sediment diversion baffles, outlet control structure modifications, a structural storm water BMP chamber, and the incorporation of stump islands within the wet basin to further enhance the basin as suitable habitat for wildlife.

**Civic Center Basin and Ella Mae Power Park Basin Rehabilitation, City of Novi, MI** – Project Engineer responsible for the design of the rehabilitation and upgrade of two City owned detention basins. Improvements to Civic Center Basin include a hydrologic/hydraulic evaluation of the outlet control structure to identify potential retrofits to better control bank full flows. Rehabilitation of the basins includes repair and replacement of associated storm drainage systems and outlet control structure overflow modifications. Project also includes 350' of grass pavers access drive and 640' of gravel access drive for maintenance.

**Kerruish Park Detention Basin Dam and Spillway Report, Cleveland, OH –** Design Engineer responsible for inspection of Kerruish Park Dam and spillway. Kerruish Park Dam is a 40 high earthen dam that serves as a detention basin for storm water runoff with a storage volume of 300 acre-feet. Inspection was performed for the City of Cleveland Division of Water Pollution Control in accordance with the Buffalo Region of the United States Army Corps of Engineers requirements.

**Macomb Corners Park, McBride Drain Hydraulic Study, Macomb Township, MI** – Design Engineer responsible for preparing Hydraulic/Hydrologic analysis of McBride Drain for

expansion of the existing Macomb Corners Park. Park improvements include one vehicular bridge and three pedestrian bridges across the McBride Drain. Responsible for submittal of hydraulic report to the Michigan Department of Environmental Quality for permits.

**Lane Drain Hydraulic Study, City of Troy, MI** – Design Engineer responsible for preparing Hydraulic/Hydrologic Study of the Lane Drain for the construction of a site condominium development. The hydraulic study included evaluation of approximately 1,500 lf of open drain with an outlet control structure. Responsible for submittal to the Federal Emergency Management Agency (FEMA) for a Conditional Letter of Map Revision.

**Jamian Drain, West Bloomfield, MI** – Prepared hydraulic model of existing drain conditions for drain improvement project. Improvements include excavating and dredging 2,300 cubic yards of material, drainage structure improvements, 8,000 plantings, and bank restoration along 1,500 LF of open drain.

**Forsythe Drain Clean-Out, Clinton Township, MI –** Design Engineer responsible for preparing plans, developing contract specifications, and obtaining municipal approvals and permits for the clean-out and rehabilitation of approximately 3320 feet of the Forsythe County Drain.

**NPDES Phase II Assistance, Watershed Based Permit, Macomb Township, MI –** Responsible for providing assistance to the Township towards permit compliance with the Township's MDEQ Phase II Stormwater General Permit and Certificate of Coverage (COC) through various sub-watersheds. Responsible for overseeing the implementation of the Public Education Plan (PEP), Illicit Discharge Elimination Plan (IDEP), and Storm Water Pollution Prevention Initiative (SWPPI). Responsible for preparing SWPPI and annual report outlining Township's progress for submittal to the Michigan Department of Environmental Quality. Attend subwatershed meetings and represent the Township by participating in the planning process for the Watershed Management Plan. Prepares watershed education materials for distribution in Township publications.

**NPDES Phase II Assistance, Watershed Based Permit, Macomb Township, Lenox Township, Mt. Clemens, Avondale School District, and Oxford School District, MI –** Responsible for providing assistance towards permit compliance with the MDEQ Phase II Stormwater General Permit and Certificate of Coverage (COC) through various sub-watersheds. Responsible for overseeing the implementation of the Public Education Plan (PEP), Illicit Discharge Elimination Plan (IDEP), and Storm Water Pollution Prevention Initiative (SWPPI). Responsible for preparing SWPPI and annual report outlining progress for submittal to the Michigan Department of Environmental Quality. Attend subwatershed meetings and represent the Townships, City, and School Districts by participating in the planning process for the Watershed Management Plan. Prepare watershed education materials for distribution in community and school district publications.

# Brian McKissen, P.E., CFM, PACP/MACP

## Project Engineer

**NPDES Phase II Assistance, Jurisdictional Based Permit, Clarkston Community Schools, Gibraltar School District, and Waterford School District, MI** – Responsible for providing assistance to the School Districts towards permit compliance with the District's MDEQ Phase II Stormwater General Permit and Certificate of Coverage (COC) through the Jurisdictional-Based Option. Responsible for overseeing the implementation of the Public Education Plan (PEP), Illicit Discharge Elimination Plan (IDEP), Public Involvement and Participation Plan (PIPP), Pollution Prevention and Good Housekeeping Plan (PPGHP), Construction Site Storm Water Runoff Control Plan (CSSWRCP), and Post-Construction Storm Water Management Program (P-CMP). Responsible for preparing annual report outlining District's progress for submittal to the Michigan Department of Environmental Quality. Prepares watershed education materials for distribution in District publications.

**Storm Water Management Plan and Floodplain Management Plan Review, West Bloomfield Township, MI** – Project Engineer responsible for review of West Bloomfield Township Storm Water Management Plans for commercial, industrial, and residential developments throughout the Township. Review plans to verify best management practices (BMPs) are designed according to Township storm water standards. Responsible for the review of floodplain management plans to verify that they meet Township, State, and Federal requirements.

**Floodplain Management Plan Review, City of Novi, MI** – Project Engineer responsible for review of the City of Novi's Floodplain Management Plans for commercial, industrial, and residential developments throughout the City. Review floodplain management plans to verify that they meet City, State, and Federal requirements.

**Lake Improvement Study, Eagle Lake, Waterford, MI –** Project Engineer for preparing Lake Improvement study. Study includes water quality and sediment analysis. Performed aquatic plant survey and contour mapping of lake bottom. Researched legal access rights to Lake and developed assessment map and benefit use factors. The lake level and lake control structure were inspected and evaluated and recommendations were made to their adjustment. Recommendations include a short term and long term management plan and a budget with financing options.

**Lake Improvement Study, Walled Lake, City of Novi and City of Walled Lake, MI –** Project Engineer for preparing Lake Improvement study. Study includes water quality and sediment analysis. Performed aquatic plant survey and contour mapping of lake bottom. Recommendations include a short term and long term management plan and a budget with financing options.

# Project Profile

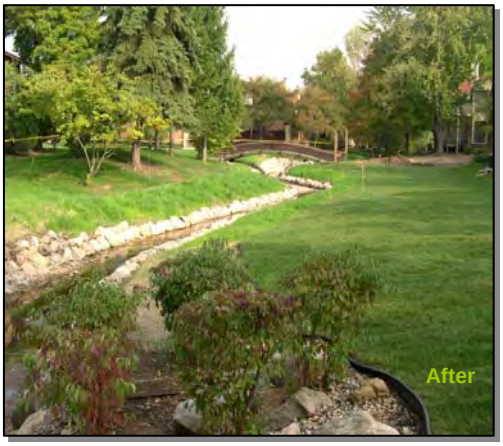
## Jamian Drain Improvements

West Bloomfield Township, Michigan

Improvements to the Jamian Drain, a legally established drain under the jurisdiction of the Oakland County Water Resources Commissioner (WRC), were required. The Jamian Drainage District, part of the Pebble Creek Subwatershed, is located within the northwest branch of the Main Branch of the Pebble Creek Subwatershed Drainage District. The district is located in the southwest 1/4 of Section 34 of West Bloomfield Township, Oakland County, Michigan.


The project involved streambank stabilization, the restoration of sediment basins, and reshaping of an existing meandering drain through a residential area. The project included permitting from MDEQ and local jurisdictions and public involvement from residents along the drain route.

**Spalding DeDecker Associates, Inc. (SDA)** was responsible for providing surveying, engineering design, and construction engineering services.




The preliminary design for the site improvements phase took into consideration the existing conditions, including erosion, sedimentation, and in-stream habitat, hydraulic modeling, and development of project concepts and alternatives that would enhance the peak flows characteristics of the channel and improve water quality.

As a part of the preliminary design, SDA facilitated stakeholder input and follow-up sessions to educate and solicit input on identifying specific design improvements. The following elements were critical during this phase:

- Incorporating input from the stakeholders (Pebble Creek residents)
- Educating the residents about the importance of the stream and its relationship to reduced flooding, drain / detention basin maintenance, and increased property values

Additionally, preliminary approval by the required State and local agencies was acquired.

The final design for the site improvements phase incorporated the preliminary design concepts into the construction drawings and specifications necessary to bid and construct this project. The permit submittal requirement was also finalized.

**OWNER / CLIENT**

Jamian Drainage District /
Oakland County Water Resources Commissioner
One Public Works Drive
Waterford, MI 48328
Phillip Sanzica, PE
Deputy and Chief Engineer
(248) 858-1031

**PROJECT START - END**

September 2004 - April 2007

**PROJECT COST**

$500,000

**SDA FEES**

$60,900.00

**SDA KEY PERSONNEL**

Brian McKissen, PE, CFM, PACP/MACP
George Platz, PS

**SDA PROJECT NO.**

OD04-101

# Project Profile

## Zander Drain Restoration Study

Macomb County, Michigan

The Zander Drain is an open County Drain in Macomb County that has been subject to sedimentation from the recently repaired Buckingham Regional Detention Basin. The result is loss of capacity in the low flow channel, stream bank erosion, and the proliferation of invasive plan species such as phragmites. The Office of Macomb County Public Works Commissioner contracted with **Spalding DeDecker Associates, Inc. (SDA)** to prepare a study to provide recommendations to restore the drain.

SDA obtained record information and reviewed the hydrologic analysis to evaluate and design hydraulic improvements to the drain for improved sediment transport, stream channel restoration and stability, and to control future excessive plant growth. Final recommendations and a cost estimate were prepared in a report that was used to define the scope of the design plans.

**OWNER / CLIENT**

Office of the Macomb County Public Works Commissioner
Mr. Kelly Kaufman
21777 Dunham Road
Clinton Twp., MI 48038
(586) 307-8227

**PROJECT START - END**

November 2010 – February 2011

**SDA KEY PERSONNEL**

Brian McKissen, PE, CFM, PACP/MACP

**SDA PROJECT NO.**

MP12-005

# Project Profile

## West Oaks Regional Detention Basin Improvements

Novi, Michigan

The West Oaks Regional Detention Basin had aging infrastructure that was identified for repair and included improving water quality, reducing sediment discharges from the basin, repairing eroded areas along the banks, replacing two inlets to the basin, installing a grass paver access drive, and modifying the outlet control structure's bar grate to prevent clogging under high flow conditions.

Several improvements were made for water quality measures, which included installing an Aqua-swirl chamber at an inlet to the basin with some of the greatest sediment contributions. Also, rock baffles were installed within the wet portion of basin to increase the flow length of the water from the inlets to the outlet to promote additional settling of sediment prior to discharge into the Creek.

One of the main sources of bank erosion was from the drainage from two curb cuts in an adjacent parking lot. Repair of the erosion problem called for routing the drainage from the curb cuts through a bioswale prior to discharging into the basin. The bioswale serves to prevent soil erosion and provide pre-treatment of the stormwater to improve water quality prior to entering the basin.

To improve the water quality and reduce sediment discharge from the basin, Best Management Practices (BMPs) were evaluated for the five storm sewer inlets into the basin. The level of water quality protection to be retrofitted into the basin was determined by evaluating the level of water quality protection provided by the existing basin and the downstream vegetated channel. The water quality goal was dictated by the requirements of the City's National Pollutant Discharge Elimination System (NPDES) Phase II stormwater discharge permit and was modeled with the Clinton River Site Evaluation Tool, which evaluates the level of pollutant loading based on land use and soils information of the watershed.

Finally, a means to further enhance the basin as suitable habitat for wildlife was achieved by incorporating partially submerged stump islands within the wet basin, which mimics the natural habitat of native fish species and other aquatic wildlife.

**OWNER / CLIENT**

City of Novi
Brian T. Coburn, PE
Engineering Manager
45175 W. Ten Mile Road
Novi, MI 48375
(248) 735-5632

**PROJECT START - END**

January 2009 – November 2009

**PROJECT COST**

$99,870.50

**SDA KEY PERSONNEL**

Brian McKissen, PE, CFM, PACP/MACP
Michael DeDecker, PS
Chris Robbins, PE
Ted Meadows

**SDA PROJECT NO.**

NV09-002

# Project Profile

## Civic Center and Ella Mae Power Park Detention Basin Rehabilitation

Novi, Michigan

The City of Novi identified the need to repair and improve the Civic Center Regional Detention Basin and the Ella Mae Power Park Detention Basin. The Civic Center Detention Basin is a regional in-line basin on the Miller Creek. The Ella Mae Power Park Detention Basin serves the Novi Civic Center, Ella Mae Power Park, and a portion of Novi High School.

The Civic Center Detention Basin was evaluated to identify if the outlet control structure could be retrofitted to better control the bankfull flows to improve the channel protection of the Miller Creek downstream of the Basin. A hydrologic and hydraulic analysis was completed to determine the Basin's ability to control the bankfull flows and the effects on the Basin's capacity. The study recommended that the basin outlet not be modified, because the basin would lose the capacity to store the bankfull volume and would lose the capacity to store the 100-year design flood volume.

In addition to evaluating the outlet control works, the project includes the repair of the outlet structure to the Miller Creek and the extension of an access road with sections of a grass paver and gravel access drive.

The Ella Mae Power Park has an aging infrastructure identified for repair and includes replacing the outlet pipe, repair and replacement of an inletting pipe to the basin, and extension of the shared access road with the Civic Center Detention Basin.

**OWNER / CLIENT**

City of Novi
Brian T. Coburn, PE
Engineering Manager
45175 W. Ten Mile Road
Novi, MI 48375
(248) 735-5632

**PROJECT START - END**

November 2010 – Ongoing

**PROJECT COST**

Est. $96,300.00

**SDA KEY PERSONNEL**

Brian McKissen, PE, CFM, PACP/MACP

**SDA PROJECT NO.**

NV10-003

# Project Profile

## Galway Drive Drainage Study

Novi, Michigan

Galway Drive is a residential road in the City of Novi that was subject to frequent road flooding, icing in the winter, and ditch/road degradation. The City previously made short-term repairs to address the issues and contracted with **Spalding DeDecker Associates, Inc. (SDA)** to prepare an analysis and long-term recommendations.

SDA collected detailed survey data to define the drainage, performed a hydrologic analysis to determine the impacts from a 10-year, 24-hour storm event, and evaluated the existing storm drainage capacity. SDA prepared a study with the findings of the survey and hydrologic/hydraulic analysis, final design recommendations, and cost estimate with conceptual layout of the proposed improvements.

**OWNER / CLIENT**

City of Novi
Ben Croy, PE
Civil Engineer
Department of Public Services
Field Services Complex
26300 Lee BeGole Drive
Novi, MI 48375
(248) 735-5635

**PROJECT START - END**

August 2011 - January 2012

**SDA KEY PERSONNEL**

Brian McKissen, PE, CFM, PACP/MACP

**SDA PROJECT NO.**

NV11-002

# Project Profile

## Frankenmuth Levee Improvements

City of Frankenmuth, Saginaw County, Michigan

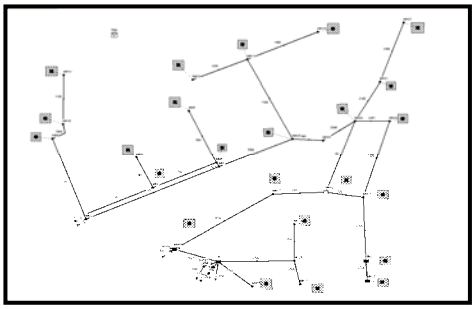
A significant portion of the downtown district in the **City of Frankenmuth** is protected by a levee/dike flood control system originally built by the U.S. Army Corps of Engineers (USACE). According to current FEMA levee regulations, some sections of this levee system do not currently provide sufficient freeboard above the current base flood elevations on the Cass River. However, the historical data and methods used to previously establish these elevations were outdated.

The **City of Frankenmuth** contracted Spalding DeDecker Associates, Inc. (SDA) to update statistical analyses of USGS stream gauge data (i.e., flood flow rates) using the **HEC-SSP** computer program. HEC-SSP generated updated flood discharges along the Cass River.

SDA utilized the flood flow rates to also revise the 100-year flooding levels along the Cass River on FEMA's Flood Insurance Rate Maps using the **HEC-RAS** computer program.

As part of the levee certification process, SDA also prepared a model of the City's storm sewer system tributary to a stormwater pumping station using information from the City's existing GIS system and field observations and survey data collected by SDA. The EPA's Stormwater Management Model, Version 5.0 (**SWMM5**) computer program was utilized for the storm sewer system analysis. The **SWMM5** model showed that some local ponding is predicted for a 100-year design storm and the stormwater pumping station is adequate in handling the peak flow rates and minimizing flooding on the interior of the levee.

Based upon the study phase work and associated hydrologic/hydraulic computer modeling of the Cass River and storm sewer system behind the levee described above, SDA is currently designing the required levee and embankment improvements to accredit the levee system with FEMA.



**OWNER/CLIENT**

City of Frankenmuth
Mr. Charles Graham
City Manager
240 W. Genesee Street
Frankenmuth, MI 48734
(989) 652-9901
cgraham@frankenmuthcity.com

**PROJECT START - END**

January 2012 - Ongoing

**PROJECT COST**

$64,700 (study phase)

**SDA KEY PERSONNEL**

Jason Matteo, PE, CFM, SWO
Brian McKissen, PE, CFM, PACP/MACP
Terry Lindow

**SDA PROJECT NO.**

MN12-005

# Project Profile

## Buckingham Village Detention Basin Rehabilitation

Macomb Township, Michigan

A need was identified by Macomb Township to repair and improve the Buckingham Village Detention Basin. The Buckingham Village Detention Basin is a regional basin, which serves four residential subdivisions and outlets through a pump station into the Zander County Drain. The basin's slopes had sloughed significantly, filling much of the bottom of the basin with soil and partially blocking the outlet to the pump station. Sediment was being discharged into the drain after rain events.

**Spalding DeDecker Associates, Inc. (SDA)** prepared plans and specifications to rehabilitate the basin by stabilizing the slopes of the basin through placement of interlocking stone at the lower sections identified as having weak soils and native planting to support the upper sections. The basin was surveyed pre- and post-construction to verify the original dimensions of the basin were re-established and to ensure the required detention capacity was met.

Additionally, modifications were made to the basin to improve the storm water quality treatment capabilities prior to discharging into the adjacent Zander Drain. The basin was retrofitted with an outlet control structure, a permanent water elevation, and native plantings to meet the minimum treatment requirements outlined in the Macomb County Public Works Procedures and Design Standards for Stormwater Management.

The basin was originally constructed by a private developer, and ownership of the basin was in the process of being transferred to the homeowners associations associated with the contributing subdivisions. SDA assisted in coordinating the public education meetings for the residents regarding the basin's function and operation and helped facilitate the transfer of ownership.

**OWNER / CLIENT**

Township of Macomb
Gerald Wangelin
Superintendent
Water & Sewer Dept
54111 Broughton Road
Macomb Twp., MI 48042
(586) 598-0687

**PROJECT START - END**

March 2008 - February 2012

**PROJECT COST**

$242,000

**SDA KEY PERSONNEL**

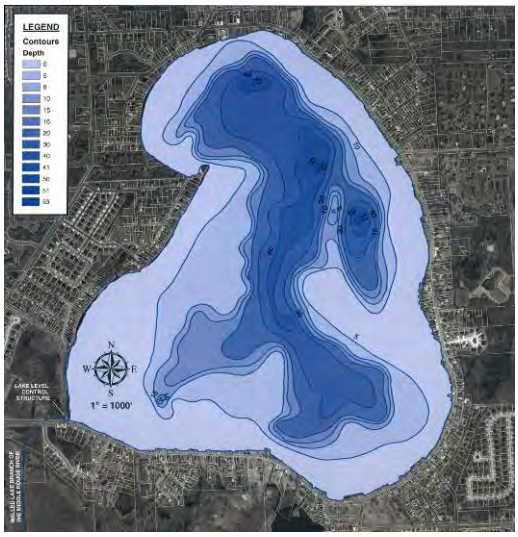
Christopher Robbins, PE
Michael DeDecker, PS
Brian McKissen, PE, CFM, PACP/MACP

**SDA PROJECT NO.**

MA99-139

## Lake Improvement Study for Walled Lake

Novi, Michigan




A Lake Improvement Study for Walled Lake was conducted to make recommendations and define the scope of a Lake Improvement Plan to meet the requirements of the Inland Lake Improvement Act, Part 309 of Public Act No. 451, 1994.

**Spalding DeDecker Associates, Inc. (SDA)** worked with the Walled Lake Improvement Board to identify the major concerns associated with the usage of the lake, which included the density of the invasive aquatic plant species Eurasian Water Milfoil and its effects on the lake's aesthetics, fishing, swimming, and boating.

SDA also developed recommendations for the assessment methodology of the interested residents and riparian owners for Lake Improvement Projects, which included an integrated approach of mechanical harvesting and herbicide treatment program to address the Eurasian Water Milfoil. Biological controls were also considered, but were deemed not a feasible option based on Walled Lake's characteristics and usage.

Water quality parameters were tested including:

1. Total Phosphorus (TP)
2. Nitrite + Nitrate - Nitrogen (NO2+NO3 - N)
3. Ammonia Nitrogen (NH3 - N)
4. Total Kjeldahl Nitrogen (TKN)
5. Escherichia coli (E. coli) bacteria
6. Chlorophyll-a
7. Temperature
8. Dissolved Oxygen (DO)
9. Secchi Disk Transparency
10. Specific Conductance (Conductivity)
11. pH

SDA provided recommendations to address the levels of E.Coli, as identified by the Oakland County Health Department, at a public beach through the use of a waterfowl management program.

SDA developed short-term and long-term budgets for the Lake Improvement projects and presented the findings and recommendations at the Lake Board meetings and public hearings.

**OWNER / CLIENT**

Walled Lake Improvement Board
Brian Coburn, Board Contact
c/o City of Novi
45175 W. Ten Mile Rd
Novi, MI 48375
(248) 735-5632

**PROJECT START - END**

June 2009 - August 2010

**PROJECT COST**

$16,865

**SDA KEY PERSONNEL**

Brian McKissen, PE, CFM, PACP/MACP

**SDA PROJECT NO.**

MN09-011

# Project Profile

## Lake Improvement Study for Eagle Lake

Waterford, Michigan

A Lake Improvement Study for Eagle Lake was conducted to make recommendations and define the scope of a Lake Improvement Plan to meet the requirements of the Inland Lake Improvement Act, Part 309 of Public Act No. 451, 1994.

**Spalding DeDecker Associates, Inc. (SDA)** worked with the Eagle Lake Improvement Board to identify the major concerns associated with the usage of the lake including aesthetics, fishing, swimming, and boating.

SDA performed multiple activities in the development of the Study. The basis for the study was the development of a lake bottom contour map and an aquatic plant inventory map. These maps helped identify the locations within the lake for water quality and sediment analysis and recommendations for control and/or removal of the aquatic weeds.

The feasibility of raising the lake level was evaluated based on the hydrologic and geographic features associated with the lake because the lake depth was a major concern.

The Eagle Lake Improvement Board implemented an aeration system to control weeds, algae, and sediment depths. SDA provided an analysis and recommendations regarding the effectiveness of the existing aeration system and also recommended modifications to that system.

Implementing the Lake Improvement Program required a monetary assessment to the residents who would directly benefit from the program. Legal lake access rights were evaluated and a list of assessable parcels and an assessment map were developed. Finally, a short- and long-term budget was developed for fee allocation among the residents within the Lake Improvement District.

**OWNER / CLIENT**

Eagle Lake Improvement Board
Marc Villella, Secretary
c/o Charter Township of Waterford
5200 Civic Center Drive
Waterford, MI 48329
(248) 872-9589

**PROJECT START - END**

December 2006 - October 2010

**PROJECT COST**

$10,200.00

**SDA KEY PERSONNEL**

Brian McKissen, PE, CFM, PACP/MACP
Keith Lumma, PACP/MACP

**SDA PROJECT NO.**

MN06-005

# Project Profile

## Donner Meadows Condominiums - Drainage Evaluation

Chesterfield Township, Michigan

Donner Meadows Condominiums is an existing development in Chesterfield Township with a private road and storm drainage system and a shared regional detention pond. Donner Meadows Condominium Association contracted with **Spalding DeDecker Associates, Inc. (SDA)** to inspect the site grading and storm drainage system due to frequent flooding throughout the development.

SDA performed a field investigation during a rain event and evaluated site grading and condition and function of the storm drainage system. SDA obtained record documents to compare actual site conditions to the original proposed design to assist with preparing final recommendations. SDA prepared a final report with findings identifying deficiencies in the drainage system and final recommendations with associated cost estimate.

**OWNER / CLIENT**

Service First Community Association
Managers, LLC
Jill Brodzik
P.O. Box 183288
Shelby Twp, MI 48318
(586) 850-5238

**PROJECT START - END**

April 2011 – May 2011

**SDA KEY PERSONNEL**

Brian McKissen, PE, CFM, PACP/MACP

**SDA PROJECT NO.**

MN11-003

# Work Plan and Timeline

Spalding DeDecker Associates, Inc. (SDA) has reviewed and fully understands the requirements detailed in the City of Novi's Storm Water Master Plan Request for Proposal. Our water resources engineers have already conducted reconnaissance site visits to each of the five areas of concern identified by the City. They have taken field notes and photographs at each location, and have developed a specific detailed approach to evaluating the individual storm water issues. Each project has unique challenges and will require comprehensive expertise in storm water management, floodplain analysis, channel restoration, streambank stabilization, and lake level control and management; areas of expertise in which our water resources engineers are recognized by our peers.

The storm water master planning effort will be led by ***Jason A. Matteo, P.E., CFM***, and assisted by ***Brian McKissen, P.E., CFM, PACP/MACP***, both of whom have more than 13 years of experience in water resources engineering, especially in hydrologic/hydraulic modeling (HEC-HMS and HEC-RAS), storm water master planning, and floodplain/floodway studies. ***Dave Eno, P.E.*** will serve as SDA's primary point of contact for the City and will provide QA/QC review services for these storm water projects.

The following work plan identifies the major work elements that we envision as being required to accomplish the desired storm water management strategies requested by the City, for each of the five storm water master plan projects.

## Project No. 1: Regional Storm Water System

### *Data Collection*

SDA will initiate the project with a kick-off meeting with the City to obtain and review all, but not limited to, the following background data:

- ✓ Past studies
- ✓ Field investigation reports
- ✓ Any existing hydrologic/hydraulic computer programs (i.e. HEC-HMS, HEC-RAS, SWMM models), if available

### *Recent Watershed and In-stream Improvements*

We will work with City staff to incorporate into the modeling effort any and all known physical changes and improvements within the watershed and in-stream.

We plan to work with the City and potentially affected neighborhood associations, if necessary, to ensure that the alternatives are clearly defined and satisfactory to all stakeholders involved in the identified projects.

### *Stream Inventory and Stability Assessment*

Our water resources engineers have conducted countless stream inventories and have successfully designed streambank stabilization measures which have withstood the test of time. Recent examples of these are the stream stability assessments, streambank stabilization design, and stream restoration projects on the ***Jamian Drain*** and ***Franklin Branch to the Middle Rouge River***, both in West Bloomfield.

SDA will conduct the following tasks on the *Middle Branch Rouge River, Ingersol Creek, and Bishop Creek* along the reaches specified in the RFP.

- Conduct another stream walk/site investigation according to the NRCS stream assessment protocol, identify/confirm potential problem areas, and collect specific parameters to be used for stream stability assessments scoring such as:

    - Channel condition
    - Bank stability
    - Water appearance
    - Lowest bank height and estimated bankfull depths
    - Width/depth ratios
    - $D_{50}$ of bed material and bar samples
    - Approximate water surface slopes

- Collect several surveyed cross-sections for each stream reach, for use in developing conceptual layouts for corrective measure alternatives.

- Applying Dr. Rosgen stream assessment principles and methodologies, calculate stream stability indexes for the selected stream reaches with identified streambank erosion/stream instability problems.

***Corrective Action Development***

SDA will evaluate several potential corrective action alternatives to specifically address streambank erosion and stream instabilities along the identified reaches. Each alternative will undergo a screening process and will be evaluated for the following criteria, in addition to several others that may be identified in the evaluation phase.

- Expected reduction in streambank erosion in selected reaches
- Cost-effectiveness
- Accessibility
- Potential easements
- Maintenance requirements
- Habitat enhancements
- Other environmental improvements and beneficial uses

***Conceptual Layouts***

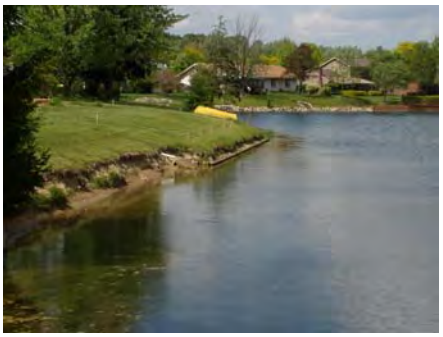
SDA will develop several conceptual alternatives for corrective action on/along the three (3) identified watercourses. SDA will involve the City throughout the evaluation process to ensure that City staff input is incorporated into the conceptual design recommendations.

***Cost Estimates and Prioritization of Options***

*Prioritization of Alternatives*

As part of the development of three stream restoration alternatives, SDA will prioritize and list the options with the most beneficial, highest scoring option(s) first. For each alternative, we will provide phases for construction and required maintenance activities. Planning-level cost estimates will be generated for each phase and maintenance activities identified in each management option.

## Project No. 2: Village Oaks and Village Wood Lakes



***Data Collection***

For this project, SDA will collect the following background data:

- ✓ Past studies and dredging reports/findings
- ✓ Historical flow rate and lake level data, if available
- ✓ Discuss historical erosion and sedimentation problems with City field staff and residents

***Lake Investigation and Condition Assessment***

SDA worked with the Walled Lake Improvement Board on the ***Walled Lake Improvement Study*** and the ***West Oaks Regional Detention Basin***, both located in Novi. The West Oaks Detention Basin had aging infrastructure that was identified for repair and included improving water quality, reducing sediment discharges from the basin, repairing eroded areas along the banks, replacing two inlets to the basin, installing a grass paver access drive, and modifying the outlet control structure's bar grate to prevent clogging under high flow conditions.

SDA will conduct similar studies on the *Village Oaks and Village Wood Lakes*, which will include the following tasks.

- Conduct detailed site investigation with City staff, identify potential problem areas, and conduct conditions assessments of the storm water inlets and outlets including:
  - o Overall structural condition
  - o Sediment accumulation depths, where accessible
  - o Hydraulic operation of the outlet structures
- Collect several surveyed cross-sections of the lake outlets and downstream reaches of the receiving watercourses for evaluating downstream impacts.

***Conduct Hydrologic Studies and Hydraulic Operation Evaluation***

SDA will prepare HEC-HMS models to study the hydrology of the drainage areas tributary to both lakes. The hydrologic models will be utilized to evaluate the inflow (i.e., tributary channel and sheet flow) into and attenuation of both lakes for a range of design storms.

The existing lake outlets will be hydraulically evaluated and their structural condition assessed. The operations of the lake outlets will be analyzed for impacts to lake levels, sedimentation, and shoreline erosion. Potential operational and physical improvements/retrofits to the lake outlets will be developed to reduce the likelihood of future sedimentation and/or erosion problems. In addition, HEC-RAS hydraulic models will be developed of the lakes and downstream receiving water courses to evaluate hydraulic impacts due to modifications to the lake outlets.

***Develop Maintenance Plan***

SDA will develop a detailed and comprehensive six-year Maintenance Plan that may include shoreline protection, sediment removal, lake treatment, and lake outlet operations and maintenance. The plan will outline any periodic (annual, semi-annual, during/after wet weather events) maintenance items (improvements/retrofits will be designed to eliminate or minimize maintenance), inspection schedules, and specific action to be taken by responsible parties, if any. Improvements to the lake outlets will be considered, minimizing operations and maintenance (O&M) items.

***Construction Cost Estimates***

For this project, SDA will develop capital costs and annual O&M cost estimates for the suggested lake improvements. Planning-level cost estimates will be generated for each phase and maintenance activity identified in the lake management options.

## Project No. 3: Lexington Green Subdivision

***Data Collection and Review of Previous Studies***

As shown in our related projects, SDA has developed numerous HEC-HMS and HEC-RAS models for a wide range of drainage studies, floodplain analyses, and flood mitigation projects.

SDA will collect the following background data:

- ✓ Previous hydrologic/hydraulic modeling and hydraulic reports completed by others
- ✓ Available stream channel and detention pond cross-sectional and topographic data
- ✓ Flooding observations and measurements, if available, from City staff and residents

***Feasibility Study/Hydraulic Modeling***

SDA will review the existing hydrologic/hydraulic modeling (HEC-HMS and HEC-RAS models) and run two options for a range of design storms, especially the 10-year, 24-hour design storm including: 1) upstream storage of flow; 2) upstream diversion into the Lexington Green Regional Detention Basin; and 3) downstream channel/floodplain improvements.

***Conceptual Layout Development***

SDA will develop conceptual layouts for each flood control (upstream storage/diversion) option. Each alternative will be evaluated for feasibility from hydraulics, constructability, social impacts, and cost perspectives. SDA will meet with City staff to review the alternatives and develop final recommendations.

***Cost Estimates***

As part of the development of the flood control alternatives, SDA will prioritize and list the options with the most beneficial, highest scoring cost option(s) first. For each alternative, we will provide phases for construction and required maintenance activities. Planning-level cost estimates will be generated for each phase and maintenance activity identified in each flood control option.

**Project No. 4: Hometown Novi Mobile Home Park**

***Data Collection***

For this project, SDA will collect the following background data:

- ✓ Field notes from SDA site investigations
- ✓ Observations from City staff and residents
- ✓ Previously-prepared flood studies, if available

SDA will also collect several surveyed cross-sections of the pond outlet, culvert crossings, and Novi Road culvert crossings.

***Drainage (Hydrologic) Evaluation***

SDA recently completed the ***Grosenbacher Road Low Water Crossing Replacement Project*** for the Bexar County Flood Control Division in San Antonio, Texas. This project consisted of a detailed drainage (hydrologic) analysis of the upstream watershed, hydraulic computer modeling of two receiving watercourses, and the design of two culvert crossing replacements and downstream flooding mitigation measures. A similar analysis will be completed for this project.

SDA will prepare hydrologic models/calculations (i.e., HEC-HMS and/or WinTR-55) to study the hydrology of the drainage area's tributary to the flooding sources. The hydrologic models will be utilized to evaluate the inflow (i.e., tributary channel, sheet flow, and storm sewer) into the pond for a range of design storms.

***Downstream Assessment (Hydraulic Analysis)***
SDA will incorporate the surveyed cross-section data and flood flows developed with the HEC-HMS model into a steady-state HEC-RAS model to study the downstream reaches, including culvert crossings, and assess the flooding sources/extent of flooding for a range of design storms.

***Flood Mitigation Alternative Development***
Several flood mitigation alternatives will also be developed and analyzed with the HEC-RAS model. Each alternative will undergo a screening process and will be evaluated during the evaluation phase of the pre-determined options.

SDA will include the City throughout the evaluation process to ensure that City staff input is incorporated into the conceptual design recommendations.

***Conceptual Layout Development***
SDA will develop conceptual layouts for each flood control/mitigation option. Each alternative will be evaluated for feasibility from hydraulics, constructability, social impact, and cost perspectives. SDA will meet with City staff to review the alternatives and develop final recommendations.

***Cost Estimates***
As part of the development of the flood control alternatives, SDA will prioritize and list the options with the most beneficial, highest scoring cost option first. For each alternative, we will provide phases for construction and required inspection and/or maintenance activities. Planning-level cost estimates will be generated for each phase and maintenance activity identified in each flood control option.

## Project No. 5: Operation of Orchard Hill Detention Basins

***Data Collection***
For this project, SDA will collect the following background data:

- ✓ Past studies and dredging reports/findings
- ✓ Historical flow rate and lake level data, if available
- ✓ Discuss historical erosion and sedimentation problems with City field staff and residents

***Lake Investigation and Condition Assessment***
As previously mentioned, SDA will conduct studies similar to others completed in Novi, such as the ***Walled Lake Improvement Study*** and the ***West Oaks Regional Detention Basin Study***, on the *Village Oaks and Village Wood Lakes*. These studies will include the following tasks:

- Conduct detailed site investigation with City staff, identify potential problem areas, and conduct conditions assessments of the storm water inlets and outlets including:

  - Watershed delineation
  - Overall structural condition
  - Sediment accumulation depths, where accessible
  - Hydraulic operation of the outlet structures

- Collect several surveyed cross-sections of the detention pond outlets and downstream reaches of the receiving watercourses.

***Conduct Hydrologic Studies and Hydraulic Operation Evaluation***

SDA will prepare HEC-HMS models to study the hydrology of the drainage areas tributary to both detention ponds. The hydrologic models will be utilized to evaluate the inflow (i.e., tributary channel and sheet flow) into both lakes for a range of design storms.

The existing detention pond outlets will be evaluated for hydraulic feasibility, and the operations of the pond outlets will be analyzed. In addition, HEC-RAS hydraulic models will be developed of the lakes and downstream receiving water courses to evaluate hydraulic impacts due to modifications to the pond outlets.

***Conceptual Layout Development***

SDA will develop conceptual layouts for each flood control/mitigation option. Each alternative will be evaluated for feasibility from hydraulics, constructability, social impact, and cost perspectives. SDA will meet with City staff to review the alternatives and develop final recommendations.

***Develop Maintenance Plan***

SDA will develop a detailed and comprehensive long-term Maintenance Plan that may include shoreline protection, sediment removal, and detention pond outlet operations and maintenance. The plan will outline periodic (annual, semi-annual, during/after wet weather events) maintenance items and specific action to be taken by responsible parties. Improvements to the detention pond outlets will be considered minimizing operations and maintenance items.

***Construction Cost Estimates***

For this project, SDA will develop capital costs and annual O&M cost estimates for the suggested pond improvements, as agreed upon by SDA and the City staff. Planning-level cost estimates will be generated for each phase and maintenance activity identified in the detention pond management options.

## Deliverables to City

The SDA team will compile the computer models used for this project, including model schematics, modeling results, and description of the model development for all five storm water master plan projects. Also, all streambank stabilization calculations, lake and detention pond levels and outlet design calculations, drainage studies, and hydraulic calculations will undergo a thorough QA/QC review. The screening of flooding mitigation/control alternatives, conceptual layout sketches, and cost estimates for each alternative will be prepared and finalized.

This information will then be provided to the City in one comprehensive, draft Storm Water Master Plan Hydrologic/Hydraulic Analyses Report for review and comment by City staff. Review comments will be discussed and incorporated into a final version of the report, which will be delivered to the City in hard copy and digital file format, including all supporting data and model input/output in electronic file format.

### Project Meetings

The SDA team Project Manager will plan, schedule, coordinate, and attend up to six (6) progress meetings with City staff. Meeting minutes and field notes will also be recorded for all meetings and distributed to the City for review within one (1) week of the meeting date. In addition, bi-weekly progress reports will be generated by the Project Manager and distributed to the pertinent City staff.

### Proposed Timeline

Although the aforementioned five (5) storm water master plan projects are unique, separate projects with their own storm water and floodplain challenges, much of the field work and engineering can occur concurrently. SDA is committed to completing the detailed storm water master plan projects in the time allotted in the RFP, and will submit all calculations, layout sketches, and the draft and final reports at the agreed upon project milestone dates, if not sooner. SDA maintains a reputation of producing high quality work within the agreed upon budgets in a timely manner. We will make these projects a priority to ensure we complete this project within the approximate seven (7) month period, and on or before the deadline of January 31, 2014.

We expect the collection of all required survey data and field work will occur in July 2013. However, additional field visits and measurements may be necessary during flooding conditions, depending on weather.

The drainage studies, hydrologic/hydraulic computer modeling development, floodplain analyses, and identification of sources of flooding, erosion, and sedimentation will occur over the course of the following two (2) months (August through September 2013).

The development and refinement of conceptual mitigation alternatives for each of the five (5) projects is expected to occur during the fourth month of the project (October 2013). This process will be iterative, and SDA will meet with City staff to ensure good communication and to discuss technical aspects of each project throughout the development of the corrective action layouts.

The final three (3) months of the project will be spent finalizing the hydrologic/hydraulic studies, conceptual design layouts, and preparing the draft and final Storm Water Master Plan Hydrologic/Hydraulic Analyses Reports. We will communicate with the City staff on a regular basis and will ensure that enough time is provided for scheduling meetings and review time for the City.

# Fee

Spalding DeDecker Associates, Inc. proposes to provide the requested scope of services for the not-to-exceed lump sum fee of **$39,644.00**.