

ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at:

<http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm>. The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. Project title: Vicksburg Lane Reconstruction and Expansion Project, Plymouth

2. Proposer:

Contact person: Jim Renneberg
Title: Assistant City Engineer, City of Plymouth
Address: 3400 Plymouth Boulevard
City, State, ZIP: Plymouth, MN 55447
Phone: 763-509-5541
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3. RGU:

Contact person: Jim Renneberg
Title: Assistant City Engineer, City of Plymouth
Address: 3400 Plymouth Boulevard
City, State, ZIP: Plymouth, MN 55447
Phone: 763-509-5541
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4. Reason for EAW Preparation: (check one)

Required:

- ☐ EIS Scoping
☒ Mandatory EAW

Discretionary:

- ☐ Citizen petition
☐ RGU discretion
☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s): Minnesota Rules Chapter 4410.4300 Subpart 22.B. (For construction of additional travel lanes on an existing road for a length of one or more miles)

5. Project Location:

County: Hennepin

City/Township: City of Plymouth

PLS Location (¼, ¼, Section, Township, Range): T118N R22W Sections 4, 5, 8, 9, 16, and 17

Watershed (81 major watershed scale): Mississippi River

GPS Coordinates: Northern Terminus - 93°28'54.159"W 45°3'56.644"N
Southern Terminus - 93°28'54.346"W 45°1'54.77"N

Tax Parcel Number: Not Applicable.

At a minimum attach each of the following to the EAW:

- County map showing the general location of the project;
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and
- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.

See Appendix A: Figures.

6. Project Description:

- a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).**

The City of Plymouth proposes to reconstruct and expand Vicksburg Lane from a two lane undivided roadway to a four lane undivided road with dedicated turn lanes from Old Rockford Road to the boundary with Maple Grove north of Hennepin County Road (CR) 47.

- b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.**

Project Description

The project would be constructed in two segments: 1) South Segment (City Project 15001, Old Rockford Road to Schmidt Lake Road) and 2) North Segment (City Project 16001, Schmidt Lake Road to CR 47) (see Figure 1 and Figure 2, Appendix A). Vicksburg Lane would be reconstructed for a length of approximately 2.3 miles with four lanes and dedicated turn lanes at selected intersections. Driveways would be reconstructed and culverts would be replaced. Curb and gutter systems would be constructed to convey stormwater to the existing storm sewer system and stormwater treatment ponds. Some ponds already exist along the corridor and some new ponds would be added as part of the project. The project will also construct eight-foot paved trails along both sides of the road along the North Segment, and a 10 foot trail and five-foot sidewalk along the South Segment. The proposed North Segment project is illustrated in Figures 3 through 5, Appendix A. The proposed South Segment project is illustrated in Figures 6A and 6B, Appendix A. The proposed typical section for the South Segment and the North Segment is illustrated in Figure 7, Appendix A.

The Canadian Pacific (CP) Railway crosses Vicksburg Lane north of Schmidt Lake Road. Vicksburg Lane currently crosses the CP Railway at-grade. An engineering study was completed in fall 2013 to evaluate alternatives for the Vicksburg Lane crossing of the CP Railway. Two concepts were considered: an at-grade crossing and a grade separated crossing (i.e., Vicksburg Lane on a bridge over the CP Railway). The at-grade crossing of the CP Railway was rejected from further consideration because major regrading would be needed to alter the vertical alignment of the roadway (see Item 6d below for additional information regarding the roadway grade issues). This major regrading of the roadway would lower the roadway, introducing conflicts with the water table that would require a stormwater lift station and relocation of water main, as well as additional retaining walls. Therefore, the bridge option is proposed. See Appendix C for additional detail regarding the two options considered.

There are several homes along the north side of the CP Railway near the proposed bridge with driveway access onto Vicksburg Lane. It is not feasible to maintain these existing driveway connections with the proposed bridge; therefore, alternative access would be provided. For the residence along the north side of the CP Railway, west of Vicksburg Lane, a new driveway would be constructed to Weston Lane (see Figure 4, Appendix A). A new access road for residences along the north side of the CP Railway, east of Vicksburg Lane would be constructed to Ranchview Lane (see Figure 4, Appendix A). This would require alternative access for homes near the bridge with driveways onto Vicksburg Lane. The project would construct access roads in limited locations to provide alternative access. In addition, the bridge would be configured to leave room for a potential future trail connection under the bridge.

The project would also construct a bridge for the future Northwest Greenway Trail near 57th Avenue North over Vicksburg Lane. The Northwest Greenway is planned to provide an east-west trail connection through Plymouth. Decisions regarding connections between the Northwest Greenway Trail bridge and the proposed trails along Vicksburg Lane will be addressed in final design (i.e., construct trail connections with the Vicksburg Lane project or at a later date as a separate project).

In order to widen the roadway, grading and vegetation/tree removal would be required. Existing utilities along Vicksburg Lane would be relocated as necessary. A City water supply reservoir is located in the northwest quadrant of the Vicksburg Lane/Schmidt Lake Road intersection, and an associated trunk water main is located along Vicksburg Lane. Water main lines would be protected as needed during project construction.

Construction Methods and Impacts

Construction activities include reconstructing the surface of the road, grading, and adding curb and gutter. Travel lanes would be striped as 12-foot travel lanes. The roadway section would be filled in as needed and paved. Excavation for ponds would occur early in the project to potentially provide fill material and mitigate for drainage runoff during construction. Unsuitable materials generated during construction would be removed from the project area and disposed. Construction activities are likely to result in temporary noise and dust (see Items 16 and 17 below for additional information).

Timing and Duration of Construction Activities

The north segment would be reconstructed first, followed by the southern segment. Local access would be maintained during construction, though lane closures would likely be required. Full closure of Vicksburg Lane to through traffic is anticipated to accommodate construction of the

bridge over the CP Railroad. Detailed construction staging plans would be identified during final design.

Project Schedule

EAW Preparation	Winter 2013/2014
Publication of EAW	Spring 2014
EIS Need Decision	Spring 2014
Final Design/Property Acquisitions	2014
Begin Construction – North Segment	2015
Begin Construction – South Segment	2016

Cost (Total Project)¹

Old Rockford Road to Schmidt Lake Road - \$5,400,000
Schmidt Lake Road to Maple Grove - \$14,300,000

c. Project magnitude:

Total Project Acreage	
Linear project length	2.3 miles
• South Segment (CP 15001)	• 0.8 miles
• North Segment (CP 16001)	• 1.5 miles
Number and type of residential units	N/A
Commercial building area (in square feet)	N/A
Industrial building area (in square feet)	N/A
Institutional building area (in square feet)	N/A
Other uses – specify (in square feet)	N/A
Structure height(s)	N/A

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

Project Purpose

The purpose of the project is to increase capacity and improve traffic operations and safety along Vicksburg Lane between Old Rockford Road and CR 47. The existing facility will not be able to meet the projected traffic demand in the future. Additionally, other goals of the project are to improve bicycle and pedestrian connections and improve the CP Railway crossing in response to planned railroad operational changes.

Project Need

The City of Plymouth *Comprehensive Plan (Plan)* (adopted 2009) identifies northwest Plymouth as an area of growth, specifically through residential subdivision and redevelopment. See Item 9 below for additional discussion of existing and planned land uses. Vicksburg Lane is a north/south “A” minor arterial expander route which connects to east/west arterial routes within the City of Plymouth, provides north/south connectivity within the City, and also provides connectivity to neighboring cities. The City of Plymouth expects growth and development in the

¹ City of Plymouth Capital Improvements Program for 2014-2018

northwest Plymouth area and along the project corridor. This growth and development includes an anticipated 2,900 to 5,600 new households in the northwest Plymouth area, which accounts for approximately 70 percent of the City's projected growth from year 2000 to year 2030. Improvements in transportation infrastructure are needed to accommodate the additional trips generated by this planned growth and development.

Traffic Capacity

The existing Vicksburg Lane facility between Old Rockford Road and CR 47 consists of a two-lane undivided roadway. 2009 daily traffic volumes on this segment of Vicksburg Lane range from approximately 8,400 vehicles per day (vpd) to approximately 11,200 vpd.² Traffic counts conducted in 2013 show increasing traffic volumes (see Table 1). According to the City of Plymouth *2030 Comprehensive Plan* (2009), the year 2030 forecast volume for Vicksburg Lane is projected to be 15,200 vpd from CR 47 to Schmidt Lake Road, and 14,200 vpd south of Schmidt Lake Road to Old Rockford Road. The existing two-lane configuration will not be able to accommodate this increase in traffic volume.

**TABLE 1
EXISTING TRAFFIC VOLUMES**

Segment	MnDOT Counts (2009) ² (vpd)	MSAS Counts (2013) ³ (vpd)
North of Old Rockford Road	11,200	13,825
South of Schmidt Lake Road	9,400	12,025
South of CR 47	8,400	11,153
North of CR 47	6,200	7,187

vpd = vehicles per day

Traffic Operations

The Vicksburg Lane/CR 47 and Vicksburg Lane/Old Rockford Road intersections currently operate at an acceptable overall level of service (LOS) C during the a.m. and p.m. peak hours. However, the Vicksburg Lane/Schmidt Lake Road intersection operates at an unacceptable overall LOS F during the a.m. and p.m. peak hours. The southbound queue in this location extends approximately one-half mile, particularly during the a.m. peak hour. It should be noted that the southbound left-turn lane quickly fills with vehicles during the a.m. peak hour, which then results in vehicles queuing across the yellow cross-hatch for an additional 150 feet beyond the left-turn lane storage. This movement also experiences multiple cycle failures.⁴

Forecasts for the year 2030 were completed assuming 1.5 percent annual growth rate based on the year 2013 average daily traffic (ADT) values. The results of the year 2030 no build traffic operations analysis indicate that the duration of delays are forecast to increase at all intersections. The Vicksburg Lane/CR 47 intersection is expected to operate acceptably (i.e. LOS D or better) during the a.m. and p.m. peak hours, though the delay time will increase. The Vicksburg Lane intersections at Schmidt Lake Road and Old Rockford Road are both expected to operate over capacity (i.e. LOS F) during the a.m. and p.m. peak hours. See Table 2 below for LOS and seconds of delay for existing and future conditions.

² Source: Minnesota Department of Transportation. 2012 Publication Traffic Volumes Metro Street Series – 4E.

³ City of Plymouth 2013 Municipal State Aid Street (MSAS) counts, unpublished data.

⁴ At least one vehicle must wait through more than one red light before making the left turn from southbound Vicksburg Lane to eastbound Schmidt Lake Road.

TABLE 2
EXISTING AND FUTURE (2030) NO BUILD LEVEL OF SERVICE RESULTS

Cross-Street	AM Peak Hour LOS (Delay)		PM Peak Hour LOS (Delay)	
	Existing	Year 2030 No Build	Existing	Year 2030 No Build
CR 47	C (30 sec.)	D (42 sec.)	C (28 sec.)	C/D (35 sec.)
Schmidt Lake Road	F (83 sec.)	F (106 sec.)	F (57 sec.)	F (74 sec.)
Old Rockford Road	C (34 sec.)	F (83 sec.)	C (28 sec.)	F (60 sec.)

Traffic Safety

A crash analysis was completed for the segment of Vicksburg Lane between Old Rockford Road and Schmidt Lake Road as part of a 2011 funding submittal to the Metropolitan Council. This analysis looked at crashes along this segment of Vicksburg Lane for the three-year period from 2007 to 2009. According to the Minnesota Department of Transportation (MnDOT) Traffic Incident System data for January 1, 2007 through December 31, 2009, there were nine crashes on Vicksburg Lane between Old Rockford Road and Schmidt Lake Road. There was an additional crash documented by the City of Plymouth that was not included in the MnDOT database, for a total of 10 crashes over the three year analysis period. These 10 crashes included four personal injury crashes and six property damage crashes. As traffic volumes increase on Vicksburg Lane over time, the potential for congestion-related incidents is also expected to increase.

Vicksburg Lane is a Municipal State Aid Street (MSAS 156), and therefore must be designed in accordance with MnDOT State Aid standards. As previously noted, the forecast volume for Vicksburg Lane north of Schmidt Lake Road is 15,200 vpd. The existing two-lane roadway design does not meet the Department of Transportation State Aid for Local Transportation Division standards (MN Rule 8820) for an urban design where the design speed is over 40 mph. State aid standards require at least four through-traffic lanes for projected traffic volumes greater than 15,000 vpd.

Additional Goals and Objectives

The existing pedestrian and bicycle facilities along Vicksburg Lane consist of a paved trail along the west side of the road from Old Rockford Road to a point just north of 51st Avenue. Trails along the east side of Vicksburg Lane are not continuous, extending from Schmidt Lake Road to a point north of 51st Avenue, and are also substandard width. There are no trails along Vicksburg Lane beyond this point. The lack of facilities presents a barrier to non-motorized transportation choices for residents along the corridor traveling between home and work, school, or recreation. An additional goal of this project is to improve pedestrian and bicycle facility connections along Vicksburg Lane, consistent with its role as a major trail corridor as identified in the City's 2030 *Comprehensive Plan*.

The CP Railway currently crosses Vicksburg Lane at grade. The railroad speed on this line is 40 mph which requires a roadway grade of 5.2 percent perpendicular to the tracks. An advisory speed limit of 30 mph is in place for vehicles at the roadway crossing. Future planned upgrades to the rail line will increase the train speed to 60 mph and would require additional grade changes to the roadway crossing, increasing the grade to 8 percent. The timing of these planned railroad

upgrades is unknown. An additional goal of this project is to improve the Vicksburg Lane crossing of the CP Railway to accommodate the planned railroad upgrades.

Project Beneficiaries

The project would benefit existing and future residents in the project area, as well as the traveling public, via improved traffic capacity, safety, and operations.

- e. Are future stages of this development including development on any other property planned or likely to happen?** ☐ Yes ☒ No

If yes, briefly describe future stages, relationship to present project, timeline, and plans for environmental review.

- f. Is this project a subsequent stage of an earlier project?** ☐ Yes ☒ No

If yes, briefly describe the past development, timeline and any past environmental review.

- 7. Cover types: Estimate the acreage of the site with each of the following cover types before and after development:**

South Segment (CP 15001) (Old Rockford Road to Schmidt Lake Road)

	Before	After		Before	After
Wetlands	0.01	0	Lawn/landscaping	3.37	1.07
Deep water/streams	0	0	Impervious surface	4.94	7.16
Wooded/forest	0	0	Stormwater Pond	0	0.49
Brush/Grassland	0	0	Other (describe)	--	--
Cropland	0	0			
			TOTAL	8.72	8.72

North Segment (CP 16001) (Schmidt Lake Road to CR 47)

	Before	After		Before	After
Wetlands	1.8	0	Lawn/landscaping	16.3	13.94
Deep water/streams	0	0	Impervious surface	10.2	14.00
Wooded/forest	0	0	Stormwater Pond	0.29 ⁵	0.65
Brush/Grassland	0	0	Other (describe)	--	--
Cropland	0	0			
			TOTAL	28.59	28.59

⁵ Stormwater ponds may also be considered wetland areas, but for the purposes of cover types are counted as stormwater ponds.

- 8. Permits and approvals required:** List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of government	Type of application	Status
U.S. Army Corps of Engineers	Section 404 Permit	To be obtained (only if Corps jurisdictional wetlands)
Minnesota Department of Natural Resources (DNR)	Temporary Water Appropriation Permit	To be obtained (if necessary)
Minnesota Pollution Control Agency (MPCA)	National Pollutant Discharge Elimination System (NPDES) Permit	To be obtained
MPCA	Section 401 Water Quality Certification	To be obtained
Shingle Creek Watershed Management Commission (WMC)	Stormwater treatment and erosion control review	To be conducted
Bassett Creek WMC	Stormwater treatment and erosion control review	To be conducted
City of Plymouth	Wetland Conservation Act Permit	To be obtained
City of Plymouth	Environmental Impact Statement (EIS) Need Decision	To be completed
City of Plymouth	Stormwater Pollution Prevention Plan (SWPPP)	To be completed

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19

9. Land use:

a. Describe:

- i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.**

Land uses surrounding the corridor are primarily single family residential uses, with several parks, schools, institutional, and mixed use areas. Some areas of agricultural uses are located along the north portion of the project corridor; however, these areas are planned for residential development. Gateway Park is located at the southeast corner of the Vicksburg Lane/Schmidt Lake Road intersection. There is a node of multi-family residential development at the Vicksburg Lane/Schmidt Lake Road intersection, and a node of recent multi-family and commercial development surrounding the Vicksburg Lane/CR 47 intersection. Parcels along the north portion of the project corridor in particular have undergone parcel subdivision over the last decade, resulting in the conversion of rural

residential uses and agricultural land/open space to primarily single-family residential uses and increasing in residential density.

- ii. **Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.**

The City of Plymouth *2030 Comprehensive Plan (Plan)* identifies increased growth along the corridor through subdivision and development on existing low density residential lots, transitioning to higher density residential uses to accommodate the planned growth for Northwest Plymouth. Future planned land uses are shown on the 2030 Land Use Map (see Appendix D). The Plan identifies that single family residential areas will be converted to higher density residential uses, as demonstrated by the applicable zoning categories discussed below. This development is underway now. Additionally a new trail facility, the Northwest Greenway, is planned to cross Vicksburg Lane (see Figure 3, Appendix A).

- iii. **Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.**

Zoning along the project corridor includes Residential Single Family Detached 1, 2, and 3, Future Restricted Development, Multiple Family 2 and 3, Planned Unit Development, and Office uses. Future Restricted Development is a holding zone until the landowner makes an application for development, at which time the City will appropriately zone the property.

The area along Vicksburg Lane north of the CP Railway is part of the Northwest Plymouth overlay district. This district is planned to accommodate an anticipated 2,900 to 5,600 new households between year 2000 and year 2030. The areas along the corridor are designated as Rural Living 2 and 3 which designate density ranging from two to six units per acre.

- b. **Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.**

The expanded roadway is consistent with the types of existing and planned land uses in the project area. The stormwater pond at Gateway Park would be expanded as part of the project, but the park facilities (play area) would not be impacted. The need for expansion of Vicksburg Lane and a grade separated rail crossing is identified in the *Plan* as well. The project is compatible with nearby land uses, zoning and plans.

- c. **Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.**

Not applicable.

10. Geology, soils and topography/land forms:

- a. **Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.**

A review of the Minnesota Geologic Survey's County Geologic Atlas for Hennepin County (1989) and the DNR GIS-based karst database indicates no known sinkholes, unconfined/shallow aquifers, karst features, or shallow limestone formations within the project limits. The depth to bedrock within the project area is estimated at 200 to 300 feet. Based on the geologic composition of the area, no adverse effects are anticipated as a result of the project.

- b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.**

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.

According to the NRCS Soil Survey for Hennepin County, the project area is composed primarily of loam to clay loam soils. The soils in the project area are tight to medium textured soils, making them somewhat susceptible to contamination, and are ranked as having a moderately-slow to moderate permeability. Table 3 lists soil types, erodibility, percent slope, and drainage class along the corridor, according to the Soil Survey for Hennepin County. Potential for groundwater contamination in the project area is dependent on multiple factors: the properties of the contaminant itself, permeability of the soils above the water resource, and depth to groundwater. Areas that have the highest groundwater are often associated with wetland areas along the corridor. Although extensive grading has taken place since publication of the soil survey, construction work in areas with steep slopes or areas classified as highly erodible or potentially highly erodible would utilize BMPs to reduce erosion and sedimentation during and after construction (see Section 11.b.ii).

The project would grade 28 acres and 15,800 cubic yards of fill. Impacts will be limited to routine grading and soil import for roadway embankment expansion. Minimal soil corrections will occur for retaining wall foundation construction and bridge abutment construction.

**TABLE 3
SOIL TYPES**

Symbol	Name	Hydrologic Group	Drainage Class	Slope	Erodability
L18A	Shields silty clay loam	C/D	Somewhat poorly drained	0-3% Slope	NHEL
L22C2	Lester loam, morainic	B	Well drained	6-12% Slope	PHEL
L22D2	Lester loam, morainic	B	Well drained	12-18% Slope	HEL

TABLE 3 continued
SOIL TYPES

Symbol	Name	Hydrologic Group	Drainage Class	Slope	Erodability
L22E	Lester loam, morainic	B	Well drained	18-25% Slope	HEL
L23A	Cordova loam	C/D	Poorly drained	0-2% Slope	NHEL
L36A	Hamel, overwash-Hamel complex	C/D	Somewhat poorly drained	1-4% Slope	NHEL
L37B	Angus loam, morainic	B	Well drained	2-5% Slope	NHEL
L44A	Nessel loam	C	Moderately well drained	1-3% Slope	NHEL
L45A	Dundas-Cordova complex	C/D	Somewhat poorly drained	0-3% Slope	NHEL

NHEL – Not Highly Erodible Land

PHEL – Potentially Highly Erodible Land

HEL – Highly Erodible Land

11. Water resources:

- a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.
 - i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

DNR Public Waters

Vicksburg Lane crosses a public watercourse approximately 700 feet south of 55th Avenue. This public watercourse is identified by the DNR as Un-Named Tributary to Bass Lake #27029a (also referred to as Upper Bass Creek, see Figure 10 in Appendix A). There is an exemption from permitting in Public Waters Work Rules for culvert crossings on watercourses with a tributary drainage area of less than five square miles. Since this watercourse meets that requirement, a Public Waters Work Permit is not required and further coordination with DNR for this culvert extension is not required.

Wetlands

A combined on/off-site wetland delineation was conducted between October 11 and October 22, 2013 to document wetlands within and adjacent to the proposed Vicksburg reconstruction and expansion area for initial roadway design efforts (Figures 8 and 9, Appendix A). During the 2014 growing season the off-site delineated wetland boundaries will be field adjusted (delineated) and jurisdictional determinations will be made by the Technical Evaluation Panel (TEP) to determine if currently functioning stormwater ponds and roadside ditches were constructed for the sole purpose of stormwater conveyance and treatment and are outside the scope of the Wetland Conservation Act (WCA) and U.S. Army Corps of Engineers Jurisdiction under Section 404 of the Clean Water Act. The wetlands within the project area are mostly Type 2 (wet-meadow) and Type 3 (shallow marsh) wetlands

dominated by cattails (*Typha sp.*) and reed canary grass (*Phalaris arundinacea*) that have low vegetative diversity.

MPCA 303d Impaired Waters List

Two impaired waters are located within one mile of the project location. Pomerleau Lake is within 1 mile of Vicksburg Lane (approximately 3,600 feet east of Vicksburg Lane) and is impaired for excess nutrients (TMDL plan approved September 2009). Elm Creek is also within 1 mile of Vicksburg Lane (approximately 4,800 feet west of Vicksburg Lane) and is impaired for dissolved oxygen and E. coli (see Figure 10, Appendix A).⁶

- ii. **Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.**

Wellhead Protection Areas (WHPA)

The Minnesota Department of Health's (MDH) Wellhead Protection Area database was reviewed to determine if any WHPAs were located within the project area. The purpose of a WHPA is to protect the surface and subsurface area surrounding a public water supply from contaminants entering the public drinking supply. The MDH identifies one WHPA at the south end of the South Segment near Old Rockford Road.

Water Wells

A search of the Minnesota County Well Index (CWI) indicates multiple wells outside the project limits (Table 4). Wells in the reviewed area were located at residential locations throughout the corridor, and have been abandoned and sealed.

TABLE 4
WELLS WITHIN 200' OF THE PROPOSED PROJECT LIMITS

Well Number	Sealed (Y or N)	Within Construction Limits Or Outside of Construction Limits
00204209	Y	Outside Limits
00204288	Y	Outside Limits
00204210	Y	Outside Limits
00155324	Y	Outside Limits
00145426	Y	Outside Limits
00204211	Y	Outside Limits
00255882	Y	Outside Limits
00204806	Y	Outside Limits

The County Well Index does not represent all wells in the state, but it is the single most complete listing of state wells. If any unused or unsealed wells are discovered in the project area during construction, they will be addressed in accordance with Minnesota Rules Chapter 4725 or through an annual maintenance permit.

⁶ Minnesota Pollution Control Agency. 2014. Minnesota's Impaired Waters and TMDLs. 2012 Final TMDL List accessed 02-17-2014 at <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/impaired-waters-list.html>.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

- i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.**
- 1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.**
 - 2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.**
 - 3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.**

Not applicable. The project would not produce wastewater.

- ii. Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.**

Pollutants typically associated with roadway corridors consist of various trace metals, phosphorous, chlorides from winter deicing activities, and total suspended solids (TSS). These pollutants collect on the roadway surface and are conveyed into the roadway drainage system during rainfall events.

Runoff from the North Segment project area currently drains to Bass Creek and Elm Creek. The project segment of Bass Creek discharges to Bass Lake, which outlets through Bass Creek to Shingle Creek, and ultimately the Mississippi River. The segment of Elm Creek within the project area discharges to Rice Lake, which outlets through Elm Creek to the Mississippi River. Runoff from the South Segment project area currently drains to Turtle Lake and Plymouth Creek. Turtle Lake outlets to Plymouth Creek, south of Old Rockford Road, which ultimately drains into Medicine Lake. Runoff from the North Segment of Vicksburg Lane is currently conveyed in roadside ditches into adjacent wetlands and channels. Runoff from the South Segment of Vicksburg Lane is currently conveyed by both roadside ditches and curb and gutter into the City of Plymouth storm sewer system. The areas adjacent to Vicksburg Lane have been or are currently being developed into residential lots, and stormwater treatment ponds have been constructed to treat runoff from new impervious areas associated with the new development.

The project corridor falls within the jurisdiction of three watershed management commissions (WMCs): Shingle Creek, Elm Creek, and Bassett Creek. The City of

Plymouth submitted a letter to Elm Creek WMC requesting: 1) Elm Creek WMC waive their review of the Vicksburg Lane Project, and 2) that the portion of the project within Elm Creek watershed be reviewed by the Shingle Creek WMC. This request was approved by the Elm Creek WMC in January 2014. The portion of the project that is located within Elm Creek and Shingle Creek watersheds will therefore be reviewed by the Shingle Creek WMC. See agency correspondence in Appendix B.

As noted above, three creeks receive runoff from the project corridor (Elm Creek, Bass Creek, and Plymouth Creek). Of these water bodies, Elm Creek is on the impaired waters list and is located within one mile of the project corridor (see Figure 10, Appendix A). Elm Creek is listed as impaired for aquatic recreation (*Escherichia coli*) and aquatic life (dissolved oxygen). A multi-parameter, watershed-wide Total Maximum Daily Load (TMDL) is being developed to address all impairments throughout the Elm Creek watershed.⁷ Bass Creek is listed as impaired for chloride, dissolved oxygen, and aquatic life (i.e., stressors affecting fish species); however, the segment of Bass Creek that is listed as impaired is located east of the project area near US Highway 169. The segment of Bass Creek within one mile of the project corridor is not listed as impaired (Upper Bass Creek, see Figure 10 in Appendix A).

Pomerleau Lake is also located within one mile of the project corridor (see Figure 10, Appendix A) and is impaired for excess nutrients. Pomerleau Lake is listed as impaired for its designated use of aquatic recreation. Excess nutrients from stormwater runoff contribute to poor water quality conditions, which subsequently limits recreational activities in Pomerleau Lake. Pomerleau Lake is part of the *Schmidt, Pomerleau, and Bass Lakes Nutrient TMDL Implementation Plan* (approved 2009).⁸ While Pomerleau Lake is located within one mile of the project corridor, it is not a receiving water body for project area runoff.

North Segment Proposed Stormwater Management

The existing impervious area within the North Segment project area is 10.2 acres. In order to account for the 3.8 acres of additional impervious surface area within the North Segment, roadway runoff will be collected in curb and gutter and pipes and directed to stormwater ponds as shown in Figures 3 through 5, Appendix A. The ponds will provide water quality treatment and rate control to mitigate for the increased in impervious surface. Several existing ponds along the corridor that were constructed when the adjacent land was developed will also be utilized to provide treatment for the north segment of Vicksburg Lane. Note that existing ponds treating stormwater for the north segment that would not be expanded as part of the project are shown outside the construction limits.

⁷ Minnesota Pollution Control Agency. 2014. Minnesota's Impaired Waters and TMDLs. Project: Elm Creek Watershed Management Organization Watershed-Wide TMDL and Protection and Implementation Plan accessed 02-17-2014 at <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/tmdl-projects/upper-mississippi-river-basin-tmdl/project-elm-creek-watershed-management-organization-watershed-wide-tmdl-protection.html>

⁸ Minnesota Pollution Control Agency. 2014. Minnesota's Impaired Waters and TMDLs. TMDL Project: Schmidt, Pomerleau, and Bass Lakes TMDL: Excess Nutrients accessed 02-17-2014 at <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/tmdl-projects/upper-mississippi-river-basin-tmdl/project-schmidt-pomerleau-bass-lakes-excess-nutrients.html>.

South Segment Proposed Stormwater Management

The existing impervious surface associated with the South Segment project area is approximately 4.9 acres. The South Segment Project would increase impervious surface area by approximately 2.2 acres.

The majority of the area surrounding Vicksburg Lane between Schmidt Lake Road and Old Rockford Road has been developed with minimal right of way widths. Therefore, the ability to accommodate new stormwater ponds within this area is severely limited. A new pond location at the southwest corner of Vicksburg Lane and Schmidt Lake Road would be constructed at Gateway Park (see Figure 6b, Appendix A and Exhibit 1 below). The property is owned by the City of Plymouth and has an existing pond located on it that would be expanded for additional treatment. There is a playground on the property that would remain and the area where the pond could be expanded is wooded. This pond would treat approximately 500 feet on Vicksburg Lane from Schmidt Lake Road to the south and a portion of the northern segment reconstruction.



Exhibit 1. Potential stormwater pond expansion at Gateway Park.

The remainder of the storm water runoff would continue south to Old Rockford Road. Stormwater runoff would be conveyed by curb and gutter and discharged to a storm sewer system that includes sump manholes with SAFL baffles.⁹ The City will establish a schedule for routine maintenance of the sump manholes (e.g., pollutant and sediment cleaning with a vacuum truck on an annual basis). This approach to stormwater management for the South Segment has been reviewed with Shingle Creek WMC staff. As an additional measure to reduce the amount of added impervious surface, a porous material for the proposed trail will also be considered during final design.

⁹ A SAFL baffle is a structure that is installed in a sump manhole that is designed to help remove sediment from stormwater runoff.

Stormwater Pollution Prevention Program and Other Permitting

The MPCA will require that a National Pollutant Discharge Elimination System (NPDES) permit be obtained for the North and South segments of the project and all design and construction will follow NPDES permitting requirements. A stormwater pollution prevention plan (SWPPP) will be developed during final design which describes temporary and permanent runoff controls and potential best management practices (BMP) site locations to manage or treat stormwater runoff. During construction, sediment control and erosion prevention will be required to prevent sediment from leaving the site and adversely impacting surface waters adjacent to the roadway.

Plymouth also has a city-wide stormwater management program. Consistent with this program, Plymouth pursues stormwater enhancement projects throughout the City. Over the past five years, the City has completed a stream restoration project on a portion of Plymouth Creek, erosion repair projects to a number of tributary creeks, installation of a series of ponds adjacent to Medicine Lake, and incorporation of rain gardens with the annual street reconstruction program. In the next five years, the Capital Improvement Program calls for additional projects such as a stream restoration project for Elm Creek and another portion of Plymouth Creek, a wetland enhancement/erosion repair project near the Four Seasons Mall, and many other erosion repair projects.

- iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.**

If temporary dewatering is necessary during project construction, the appropriate DNR groundwater appropriation permits would be obtained for temporary dewatering activities.

Refer to Section 11.a.ii for a discussion of water wells. The project would not involve other water uses (e.g., connection to municipal water system, expansion of municipal water infrastructure).

- iv. Surface Waters**
 - a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.**

Complete avoidance of wetland impacts is not feasible with the proposed project. It is not feasible to avoid all wetlands while also addressing the need for the project and

designing the proposed roadway expansion to current safety standards. Wetland impacts have been reduced by steeping the side slope to the maximum allowed by State Aid rules. The proposed project is anticipated to impact 1.8 acres of wetland including approximately 0.01 acres from the South Segment project. Impacts to wetlands are regulated by WCA and the USACE under Section 404 of the Clean Water Act. Current regulations require impacts to wetlands within this area of the state be replaced at a minimum ratio of 2:1. A total of 3.6 acres of mitigation are required for the approximately 1.8 acres of permanent wetland impacts. The developed areas surrounding the proposed project do not allow for on-site wetland mitigation, so mitigation for impacts that will occur as a result of the proposed project will derive from the purchase of private mitigation credits from a suitable bank to be determined during the permitting process.

- b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices (BMPs) that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.**

Physical Effects or Alterations to Surface Water Features

The only surface water feature in the project area that would be impacted is the unnamed public water crossing described in Section 11.a.i. A culvert extension is anticipated. A DNR public waters work permit would not be required. Any BMPs specific to extending the culvert would be addressed during coordination with the WMCs.

Number or Type of Watercraft

Not applicable. The project would not change the number or type of watercraft on any water body.

12. Contamination/Hazardous Materials/Wastes:

- a. Pre-project site conditions – Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.**

Minnesota Pollution Control Agency (MPCA) information from the “What’s in My Neighborhood” website identified one previously contaminated site adjacent to the project corridor at the northwest corner of the Vicksburg Lane/CR 47 intersection. The recently

constructed West View Estates apartment building is located on this property. The site is a previous leak site and petroleum brownfield cleanup site. The site was issued a site closure letter in 2011 (See Appendix B). The site was graded as part of the building construction project, including along the east side of Vicksburg Lane where soils would be minimally disturbed as part of project construction. Construction would follow standard procedures to minimize potential impacts related to disturbing contaminated soils. Any contaminated materials encountered during construction would be handled in accordance with state and federal requirements.

No other contaminated sites are located within 0.25 miles of the project corridor.

- b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.**

Not applicable. The project would not generate solid wastes.

- c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.**

The project would not include permanent hazardous materials storage. Hazardous materials that would be present at the site include fuel and lubrication for construction equipment.

Temporary fuel tanks may be stored on the project site for construction machinery use. No permanent fuel storage tanks are anticipated. Appropriate measures would be taken to avoid spills. In the event a leak or spill occurs during construction, it would be responded to in accordance with MPCA containment and remedial action procedures.

- d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.**

Not applicable. The project would not generate or store hazardous waste. Temporary storage of fuel for construction equipment is discussed above.

13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

- a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.**

The proposed project is located within a developed area of the City of Plymouth, with ongoing redevelopment taking place in the lower density residential uses along the corridor. The corridor is dominated by disturbed uplands - mainly mowed lawns and disturbed roadside ditches with small patches of wetland which have low vegetative diversity. Dominant vegetation within the wetlands and stormwater treatment ponds is mostly cattails (*Typha sp.*) and reed canary grass

(*Phalaris arundinacea*). Scattered wooded areas are located throughout the corridor, including some mature trees. These areas are small and are located near the roadway and residential areas, and therefore do not provide substantial habitat. Wildlife resources within the corridor are limited to species that thrive in urban environments that are accustomed to frequent human disturbance, including various bird species, and small mammals such as squirrels and raccoons.

- b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-625) and/or correspondence number (ERDB _____) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.**

A one-mile buffer surrounding the proposed project was evaluated for the presence of rare plants, animals, native plant communities, and other rare features using Geographical Information Systems (GIS) in conjunction with the Minnesota Department of Natural Resources (DNR) Natural Heritage Information System (NHIS)¹⁰. The Natural Heritage data is provided by the DNR Division of Ecological and Water Resources and was current as of September 25, 2013 (License Agreement 625). These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present. Based on the NHIS review, no threatened, endangered, or special concern species exist within one mile of the proposed project. The NHIS lists three Central Region Regionally Significant Ecological Areas (CRRSEAs), four Minnesota County Biological Survey sites with moderate biodiversity significance, and four native plant communities within 0.25 miles of the project area. No known calcareous fens, railroad right-of-way prairies, trout streams, or other rare species are within one mile of the proposed project.

- c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.**

Roadside ditches, uplands, and wetlands have been greatly impacted through past and present development along the corridor. Impacts to surrounding wetlands and uplands have been reduced through a series of minimization measures including minimizing changes to road profile in an effort reduce the project foot print, steepened side slopes of 1:3 where possible, and relocation of a stormwater management pond to reduce wetland impacts.

Impacts to vegetation and wildlife habitat would occur mainly to habitat consisting of low-quality wetlands, small amounts of wooded areas, and mowed roadside ditches. Impacts to wetlands will be mitigated under local, state and federal regulations – see Section 11.iv.a. All native plant communities, biodiversity sites and CRRSEAs identified within one mile of the project are outside the construction limits and would not be disturbed as a result of the project. Based on the nature and location of the project, no adverse effects are anticipated to fish, wildlife, or rare features as a result of the project.

- d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.**

¹⁰ Copyright 2013 State of Minnesota, Department of Natural Resources.

The DNR provided comments on the project and recommended measures to minimize impacts to native vegetation and wildlife (see Appendix B). Specifications for wildlife-friendly erosion control mesh will be considered during the final design process. Native seed mixes will be used where appropriate, such as adjacent to proposed stormwater ponds. Turf grass will be planted in boulevard areas between the roadway and proposed trails. Use of wildlife-friendly curb design has been considered, but will not be installed because of the urban nature of the corridor (i.e., limited wildlife habitat, see discussion in EAW Item 13.a. above) and grade characteristics of the roadway.

During the construction phase of the project, best management practices (BMPs) would be used to reduce the spread of invasive species to or from the project location. Potential BMPs include cleaning equipment from soil and material prior to entering or leaving the site to reduce the spread of invasive species. Disturbed areas will be controlled for erosion and sedimentation through the project's SWPPP. A vegetation establishment plan will be developed during final design. Rapid establishment of vegetation would reduce the potential for weeds to establishment within disturbed areas or the corridor.

14. Historic properties:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

Information regarding historic properties was obtained from the State Historic Preservation Office (SHPO). Results from the SHPO inventory database are attached in Appendix B and are summarized below.

Archaeological Sites

There are no previously inventoried archaeological sites within the project area.

Historic Railroad

The Soo Line railroad (now owned by CP Railway) is listed on the SHPO database as eligible for listing on the National Register of Historic Places (NRHP). A bridge for the roadway will be constructed over the railroad. The project will not alter the railroad itself or change the use of the railroad.

Historic Structures

The SHPO database search for the project area (T118N; R22W; Sections 4, 5, 8, 9, 16, 17) identified 29 previously inventoried structures. Of these 29 properties, 10 are or were located along the project segment of Vicksburg Lane (the remainder are located more than 0.25 miles away from the project location). None of these properties are identified as having been evaluated for NRHP eligibility. All but two farmhouses have been razed as part of ongoing residential development along Vicksburg Lane.

The farmhouse at 5635 Vicksburg Lane is located on a parcel planned for redevelopment and subdivision (proposed Brynwood Development). This farmhouse is anticipated to be razed as part of this future residential development.

The farmhouse at 5215 Vicksburg Lane is located just south of the CP Railway on the west side of Vicksburg Lane. The project would reconstruct driveways but would otherwise not impact the parcel. Vicksburg Lane would be widened to a four-lane roadway to the east in front of the farmhouse. The project would construct a grade-separated bridge for the roadway over the railroad approximately 500 feet away from the house.

15. Visual:

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

There are no scenic views or vistas on or near the project site. Existing street lighting will be maintained at intersections with Vicksburg Lane. Negative visual impacts are not anticipated.

16. Air:

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

Not applicable. The project includes no stationary source air quality pollutant generators.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

No increase in vehicle-related air emissions is anticipated as a result of the project. No new traffic will be generated as a result of the project, and the project would improve congestion that causes increases in air pollutant emissions.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

The proposed project would not generate substantial odors during construction. Potential odors would include exhaust from diesel engines and fuel storage. Dust generated during construction would be minimized through standard dust control measures such as applying water to exposed soils and limiting the extent and duration of exposed soil conditions. Contractors would be required to control dust and other airborne particulates in accordance with the construction contract specifications. After construction is complete, dust levels are anticipated to be minimal because all soil surfaces exposed during construction would be in permanent cover (i.e., paved or re-vegetated areas).

17. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

Affected Environment and Existing Noise Sources

The proposed project is located in a suburban environment in the City of Plymouth. Land uses along the project corridor are primarily single family residential uses. While some areas of agricultural uses are located along the north portion of the project corridor, these areas are planned for future residential development. Existing noise sources in the project area include traffic noise generated by vehicles traveling on Vicksburg Lane, CR 47, Schmidt Lake Road, Old Rockford Road, and other intersecting local roadways. Noise is also generated by freight trains operating on the CP Railway north of Schmidt Lake Road.

Construction Noise

Construction of the proposed project may result in increased noise levels relative to existing conditions. These impacts would primarily be associated with the operation of construction equipment. Table 5 shows peak noise levels monitored at 50 feet from various types of construction equipment. This equipment is primarily associated with site grading/site preparation, generally the roadway construction phase associated with the greatest noise levels.

**TABLE 5
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS AT 50 FEET**

Equipment Type	Manufacturers Sampled	Total Number of Models in Sample	Peak Noise Level (dBA)	
			Range	Average
Backhoes	5	6	74-92	83
Front Loaders	5	30	75-96	85
Dozers	8	41	65-95	85
Graders	3	15	72-92	84
Scrapers	2	27	76-98	87
Pile Drivers	N/A	N/A	95-105	101

Source: United States Environmental Protection Agency and Federal Highway Administration.

Elevated noise levels are, to a degree, unavoidable for this type of project. The City of Plymouth would require that construction equipment be properly muffled and in proper working order. In general, the City would require its contractor(s) to comply with applicable local noise restrictions and ordinances to the extent that it is reasonable. Nighttime construction is not anticipated with the proposed project. Construction would be limited to daytime hours as much as possible. The project is anticipated to be under construction for two construction seasons. The staging of construction activities and the need for any nighttime construction would be determined during final design.

Any associated high-impact equipment noise, such as pavement sawing, jack hammering, or pile driving would be unavoidable with construction of the proposed project. Pile-driving noise is typically associated with any bridge construction and sheet piling necessary for retaining wall or other construction activities. Pile-driving equipment results in the highest peak noise level, as shown in

Table 5. Pile driving may be necessary in conjunction with construction of the Vicksburg Lane bridge over the CP Railway and the Northwest Greenway bridge over Vicksburg Lane. The use of pavement sawing equipment, jack hammers, and pile drivers would be prohibited during nighttime hours.

Traffic-Related Noise

The project would be located on a City of Plymouth roadway without full control of access. County and City roads without full control of access outside the Cities of Minneapolis and St. Paul are exempt from Minnesota state noise standards per Minnesota Statute 116.07, Subdivision 2a. State standards would therefore not apply to Vicksburg Lane.

18. Transportation

- a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.**

The project will not add parking spaces and would not generate traffic.

A shared bicycle/pedestrian trail is located along the west side of Vicksburg Lane. While existing facilities would not be available during reconstruction, these facilities would be improved as part of the project.

Plymouth Metrolink provides transit service along Vicksburg Lane for the length of the project corridor (route 776) with peak hour service to downtown Minneapolis. Transit service along the corridor would continue during project construction and would be coordinated with Metrolink. Transit riders would benefit from the improved roadway capacity which would address traffic congestion.

- b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.**

If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: <http://www.dot.state.mn.us/accessmanagement/resources.html>) or a similar local guidance.

According to the City of Plymouth's 2030 *Comprehensive Plan*, the forecast volume for Vicksburg Lane for the year 2030 is projected to be 15,200 vpd just north of the CP Railway, and 14,200 vpd just south of Schmidt Lake Road. The proposed four-lane roadway will provide adequate capacity to accommodate the forecast traffic volumes for Vicksburg Lane.

The following two options were considered for the Vicksburg Lane intersections with CR 47, Schmidt Lake Road, and Old Rockford Road under future Build conditions:

Option 1 (no right turns)

- Includes a northbound and southbound left, thru, and shared thru/right-turn lane in each direction

Option 2 (with right turns)

- Includes a northbound and southbound left, two thru, and a right-turn lane in each direction

An operations analysis for each of these options was completed to identify any differences in LOS (see Table 6 below). Results of the operations analysis indicate that both options are expected to provide acceptable overall intersection operations under year 2030 a.m. and p.m. peak hour conditions. Option 2 will provide slightly better operations, when compared to Option 1, which are the result of the dedicated right-turn lanes. It should be noted that although the operations are relatively similar between Option 1 and Option 2, the addition of the right-turn lanes do provide some safety benefits because slower turning vehicles are separated from vehicles using the thru lane. Therefore, the dedicated right-turn lane was selected at CR 47. With these improvements, traffic operations at all intersections along the project corridor will be at acceptable LOS C or better, providing substantial improvements compared to no build conditions (LOS D and F – see EAW Item 6.d).

**TABLE 6
FUTURE (2030) BUILD ALTERNATIVE LEVEL OF SERVICE RESULTS**

Cross-Street	AM Peak Hour LOS (Delay)		PM Peak Hour LOS (Delay)	
	Year 2030 Build No RTs	Year 2030 Build with RTs	Year 2030 Build No RTs	Year 2030 Build with RTs
CR 47	C (31 sec.)	C (28 sec.)	C (30 sec.)	C (29 sec.)
Schmidt Lake Road	C (34 sec.)	C (32 sec.)	C (30 sec.)	C (27 sec.)
Old Rockford Road	C (25 sec.)	C (24 sec.)	B (19 sec.)	B (19 sec.)

- c. **Identify measures that will be taken to minimize or mitigate project related transportation effects.**

With the added thru lanes and turn lanes, no additional traffic mitigation would be needed.

19. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

- a. **Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.**

The geographic scale considered for cumulative effects analysis is the roadway corridor and development areas adjacent to the Vicksburg Lane corridor, as well as adjacent roadways. The analysis considered other projects under construction or planned to occur between now and 2030, which is consistent with the planning horizon documented in the City of Plymouth *Comprehensive Plan*.

- b. **Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.**

Recent (in the last several years) and ongoing projects within the project area are listed below. All projects are recently completed or in progress unless noted (e.g., under construction, preliminary plat phase, etc.). Projects that were considered are consistent with EQB guidance that projects be considered if it is actually planned or if a basis of expectation has been laid (i.e., reasonably likely to occur and sufficiently detailed information is available about the project to contribute to the understanding of cumulative potential effects).

- Creek Ridge – 22 single family homes
- Spring Meadows – 109 single family homes
- Taylor Creek – 54 single family homes
- Brynwood – 72 single family homes
- Wood Crest – 54 single family homes in phase 1, 31 more homes in phase 2
- Wood Crest Hills – 29 single family homes
- Legacy Park – 102 single family homes, 265 town house units
- West View Estates – 67 unit apartment building
- Commercial development at northeast corner of Vicksburg Lane/CR 47 intersection – includes a gas station/convenience store, drugstore, and daycare
- City water storage facility at Schmidt Lake Road
- Northwest Greenway Trail
- Future fire station at Schmidt Lake Road
- Trail under bridge over CP Railway

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

Potential impacts that were considered as part of the cumulative potential effects evaluation include water-resource issue areas (e.g., wetlands, water quality and quantity, stormwater management). The proposed Vicksburg Lane expansion is anticipated to result in approximately 1.8 acres of wetland fill impacts. Additional impervious surface area would increase the rate, volume, and quality of stormwater runoff from the roadway. BMPs are proposed in conjunction with the Vicksburg Lane reconstruction and expansion to manage stormwater runoff quantity and quality.

The development noted above also likely resulted in some wetland fill impacts. Conversion of land uses from rural residential, agricultural, and open space to more dense residential development also resulted in an increase in impervious surface area. Stormwater BMPs have been incorporated with these development projects in accordance with City, Watershed, and MPCA requirements.

The projects noted above, as well as the Vicksburg Lane Reconstruction and Expansion Project, have been planned for and are consistent with the City of Plymouth *2030 Comprehensive Plan*. All projects noted above, whether public or private, are subject to site plan review and permitting in accordance with local, state, and federal requirements, including wetland mitigation and stormwater management requirements. Therefore, there is little potential for substantial cumulative effects to the resources directly or indirectly affected by the project.

20. **Other potential environmental effects:** If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

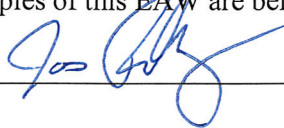
No other potential environmental effects are anticipated.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature



Date

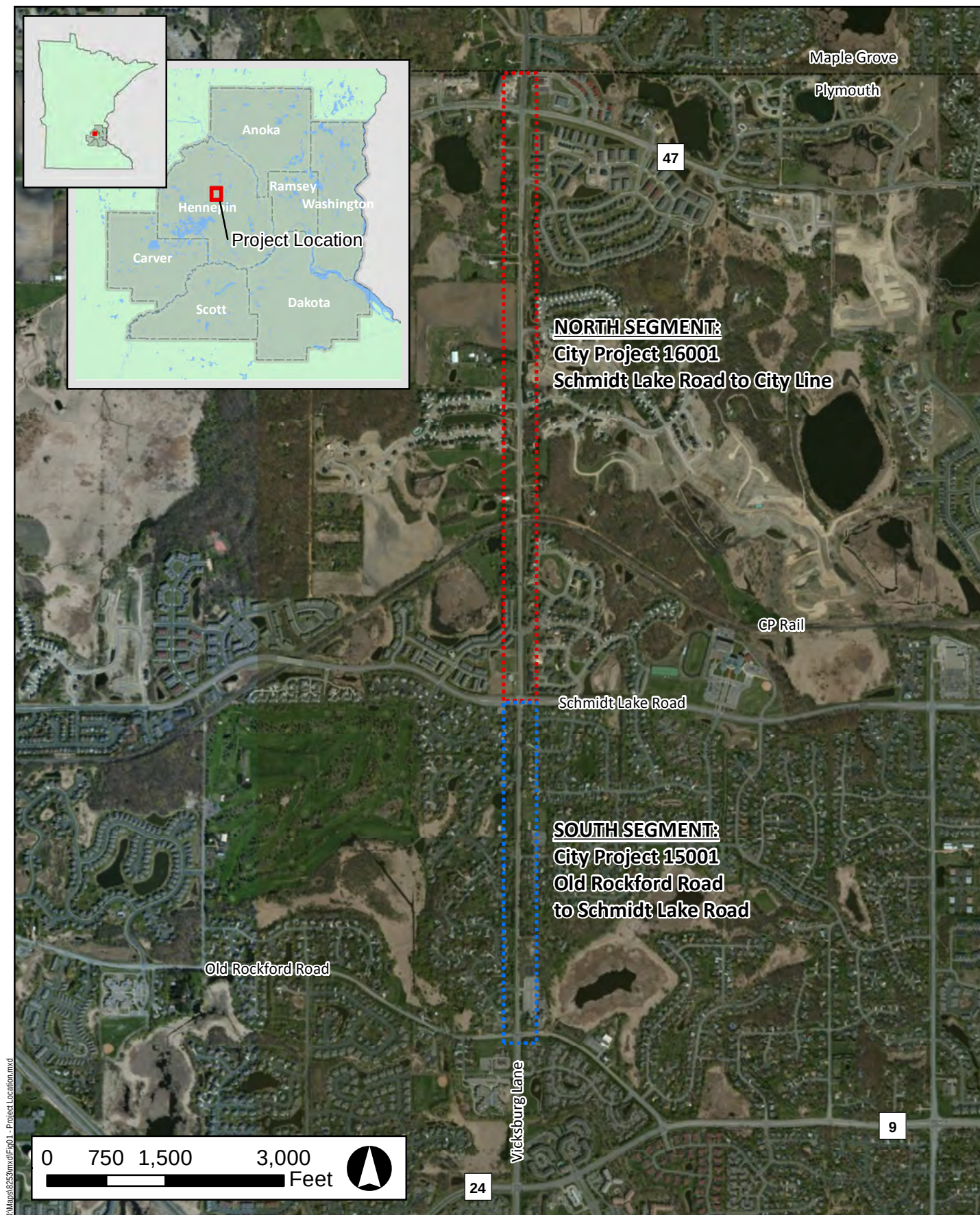
3-13-14

Title

Engineering Manager

APPENDIX A

Figures



Project Location

Vicksburg Lane Reconstruction and Expansion
Plymouth, MN

Figure 1

Map of the Plymouth area showing project segments.

North Segment: City Project 16001
Schmidt Lake Road to City Line

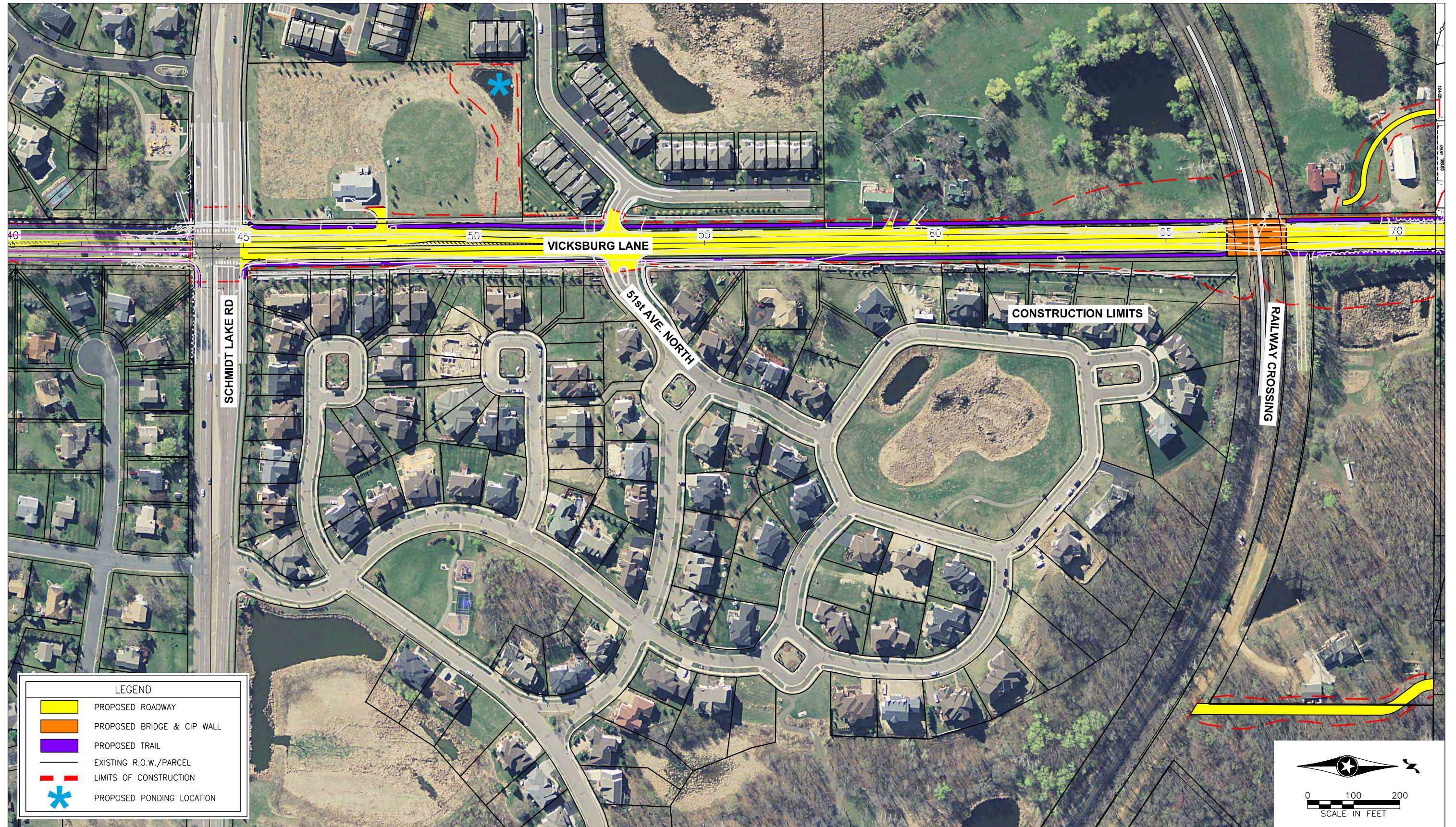
South Segment: City Project 15001
Old Rockford Road to Schmidt Lake Road

Inset Map: Hennepin County and surrounding areas (Anoka, Ramsey, Washington, Carver, Scott, Dakota). Project Location is marked in Hennepin.

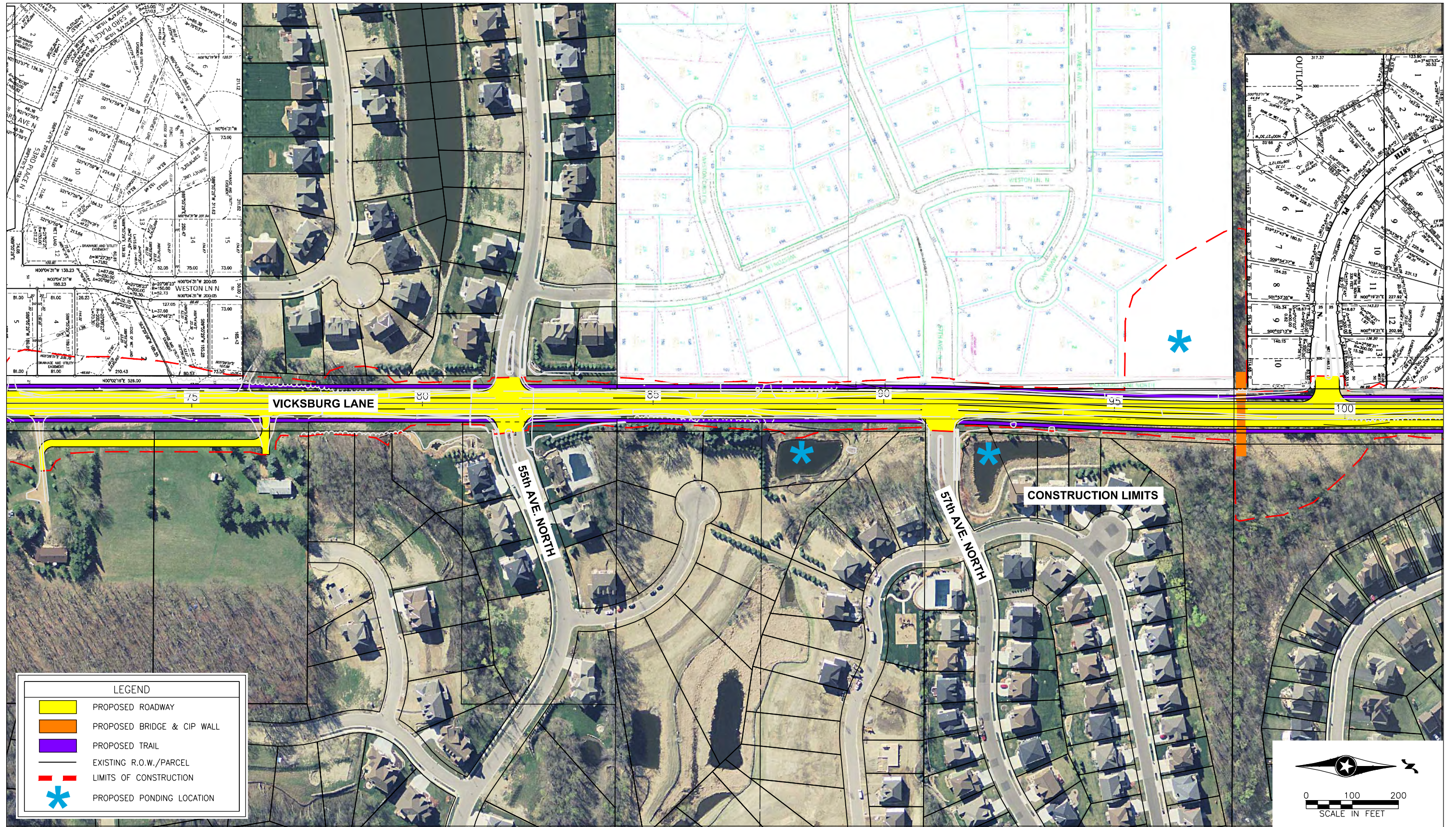
Scale: 0 750 1,500 3,000 Feet

Map Labels: Maple Grove, Plymouth, Anoka, Ramsey, Washington, Carver, Scott, Dakota, Hennepin, Project Location, Schmidt Lake Road, Old Rockford Road, Holly Lane, Vicksburg Lane, Rockford Road, Pomerleau Lake, Turtle Lake, Golf Course, CP Rail, Gravel Pit, Mud Lake, PLYMOUTH.

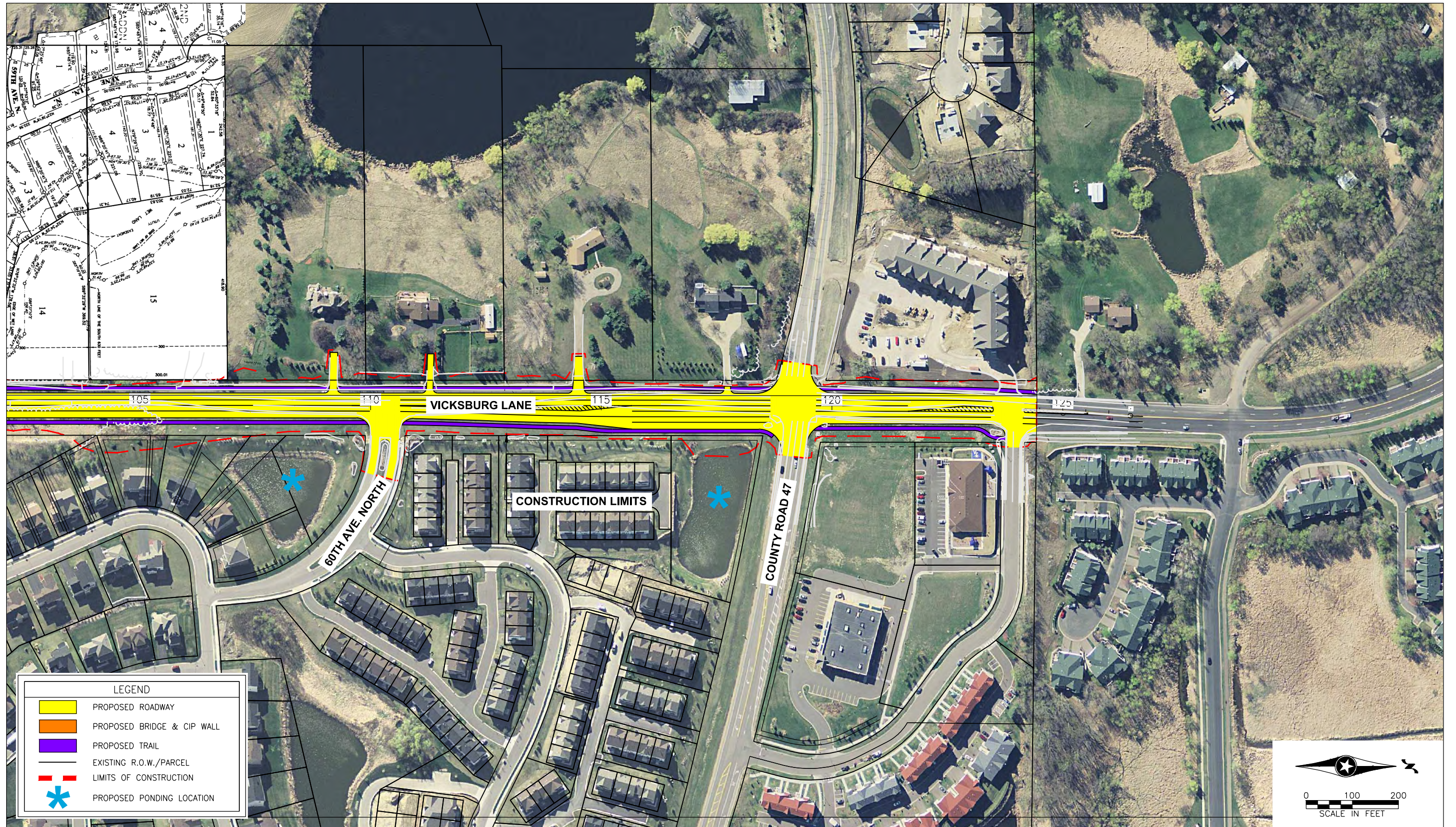
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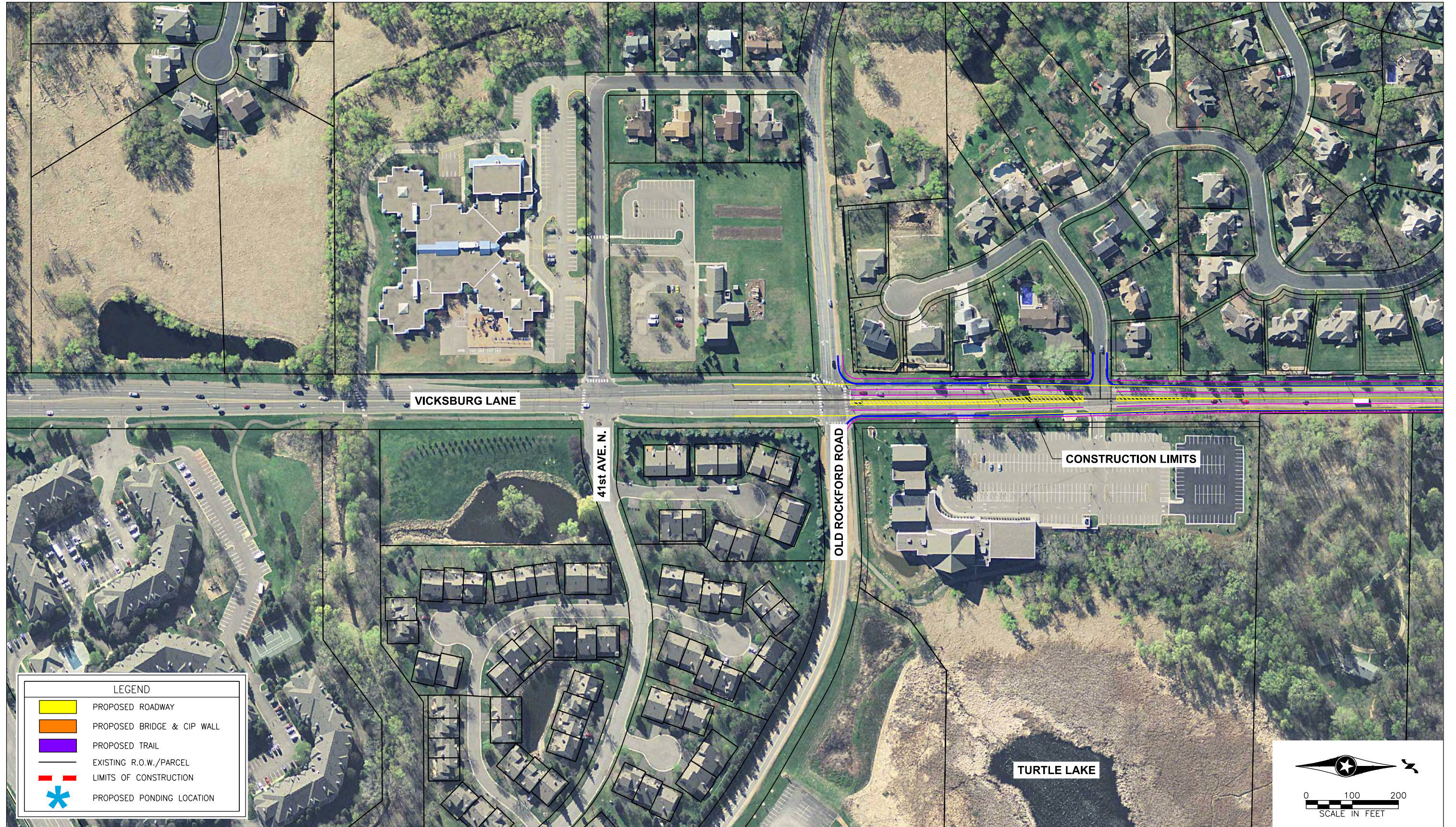
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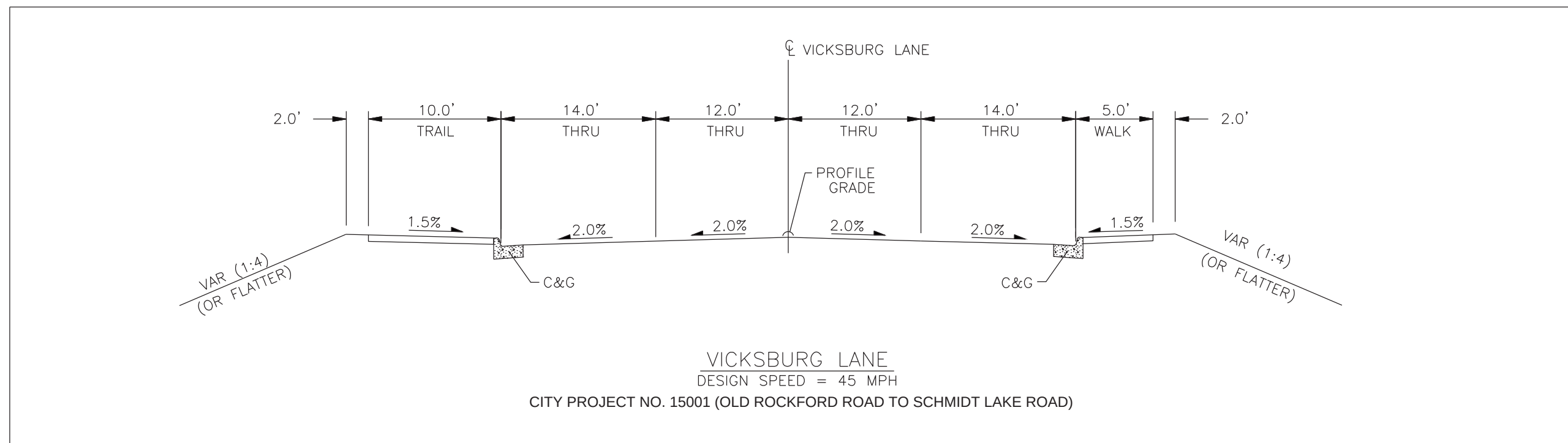
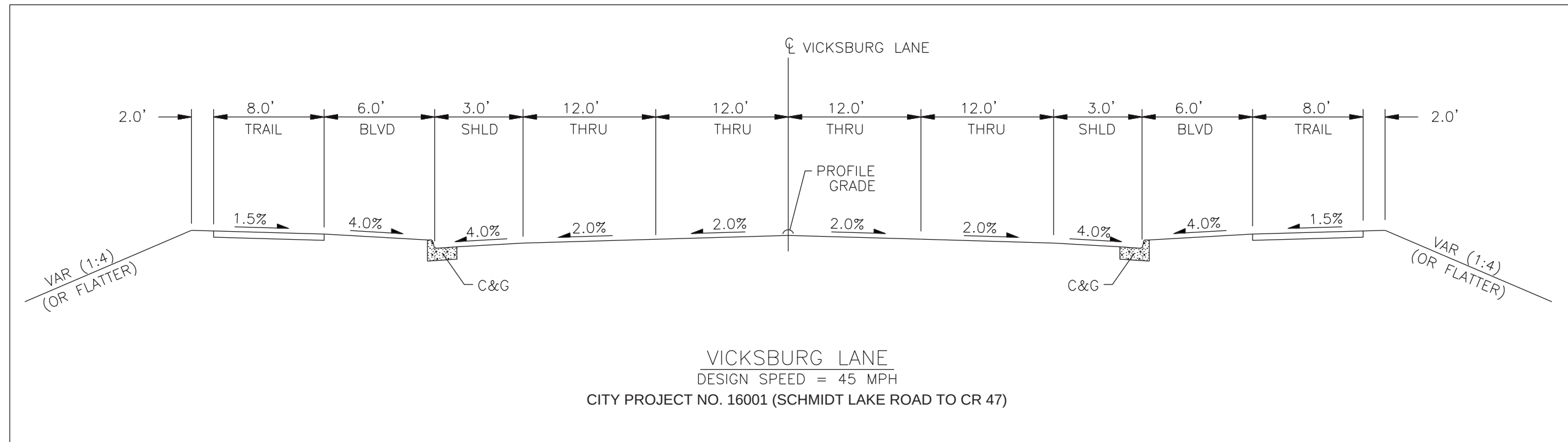
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Wetlands

Vicksburg Lane Reconstruction and Expansion
Plymouth, MN

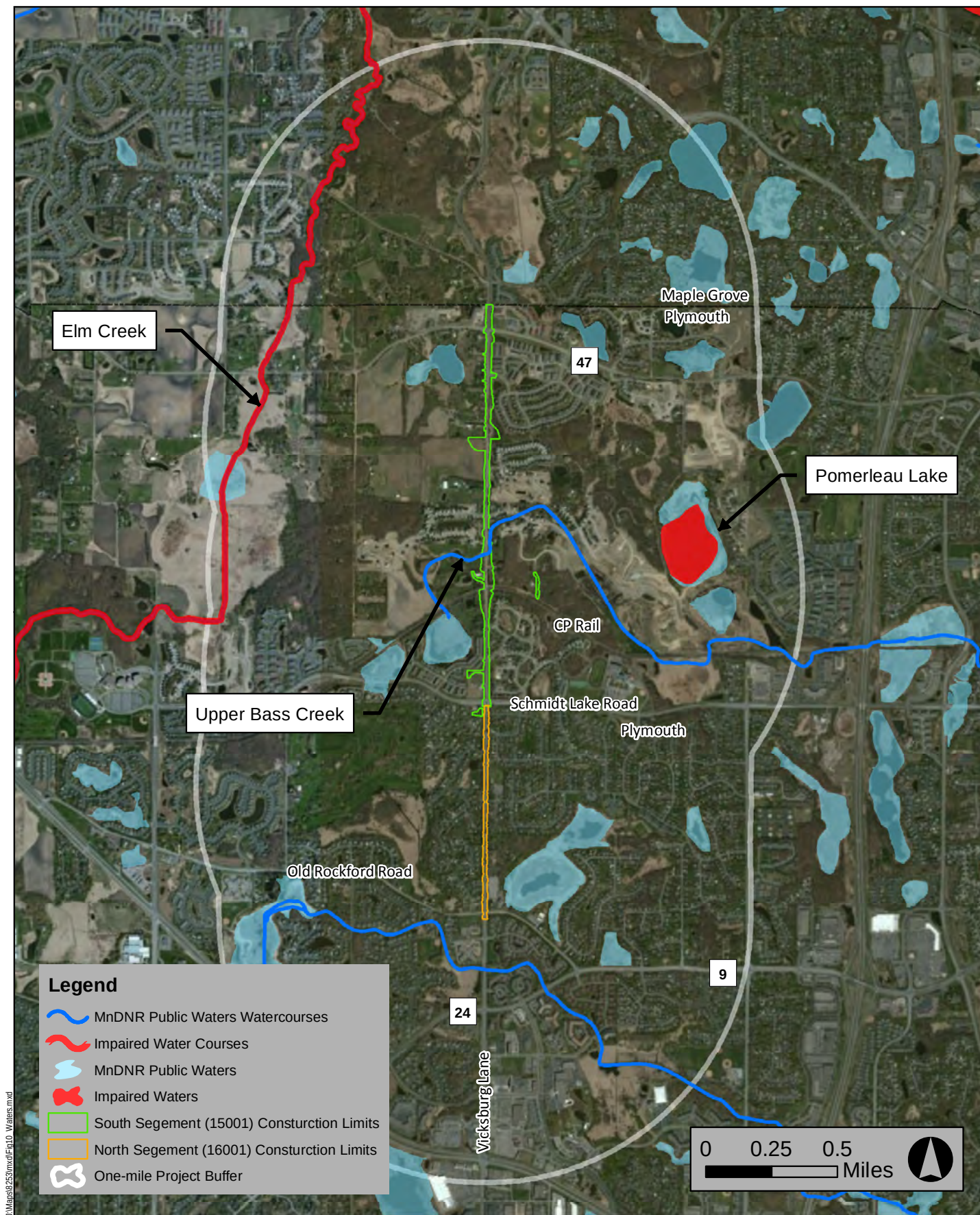
Figure 8



Wetlands

Vicksburg Lane Reconstruction and Expansion
Plymouth, MN

Figure 9



Public Waters

Vicksburg Lane Reconstruction and Expansion
Plymouth, MN

Figure 10

APPENDIX B

Correspondence

elm creek

Watershed Management Commission

ADMINISTRATIVE OFFICE
3235 Fernbrook Lane
Plymouth, MN 55447
PH: 763.553.1144
FAX: 763.553.9326
email: judie@jass.biz
www.elmcreekwatershed.org

TECHNICAL OFFICE
Hennepin County DES
701 Fourth Ave S Suite 700
Minneapolis, MN 55415-1600
PH: 612.596.1171
FAX: 612.348.8532
email: Ali.Durgunoglu@co.hennepin.mn.us

January 28, 2014

Derek Asche
City of Plymouth via email
3400 Plymouth Boulevard
Plymouth, Minnesota 55447

Re: 2013-054 Vicksburg Lane Improvements

Dear Mr. Asche:

At their January 8, 2014 meeting the Elm Creek Watershed Management Commission reviewed your letter dated December 20, 2013 in which you request a waiver of the Commission's review of the referenced project which is located in both the Elm Creek and Shingle Creek watersheds. You further request that the Shingle Creek Watershed Management Commission review that portion of the project located within the Elm Creek watershed boundary.

The following action was taken at the January 8 meeting:

Project Review 2013-054 Vicksburg Lane Reconstruction, Plymouth.* In a letter dated December 20, 2013, from Derek Asche, Water Resources Manager for the City of Plymouth, the city is requesting the Elm Creek Commission to waive their regulatory review of this project to the Shingle Creek Commission and requesting the latter to review the portion of the project that is within the Elm Creek watershed. Motion by Moore, second by Weir to approve this request. *Motion carried unanimously.*

Your request has been approved.

Regards,



Judie A. Anderson
Administrator
JAA:tim

Cc: Ed Matthiesen, PE, Wenck Associates/via email

Z:\Elm Creek\Projects\Projects 2013\2013-054_Vicksburg Lane Reconstruction_waiver of review.doc



Adding Quality to Life

December 20, 2013

Ms. Judie Anderson, JASS
Elm Creek Watershed Management Commission
Shingle Creek Watershed Management Commission
3235 Fernbrook Lane North
Plymouth, MN 55447

SUBJECT: VICKSBURG LANE RECONSTRUCTION PROJECT
SCHMIDT LAKE ROAD TO CO. RD. 47
CITY PROJECT NO. 16001

Dear Ms. Anderson,

The City of Plymouth is proposing to reconstruct Vicksburg Lane from Schmidt Lake Road to County Road 47 beginning in the spring of 2015. This project is within portions of both the Elm Creek and Shingle Creek Watersheds, however, the project is primarily in the Shingle Creek Watershed. For reference, the watershed boundary is located just north of 57th Avenue North near the potential Northwest Greenway Grade Separated Crossing (see attached).

Based on discussion at a December 19, 2013 water resources coordination meeting hosted by the City of Plymouths consultant and attended by engineering staff of both the Elm Creek and Shingle Creek Watersheds, the City of Plymouth is requesting the Elm Creek Watershed Management Commission formally waive their regulatory review on this project to the Shingle Creek Watershed. Further, the City of Plymouth is requesting the Shingle Creek Watershed review the portion of this project which is within the Elm Creek Watershed. This request is expected to improve an already complex permitting process.

Please let me know of any questions regarding this request. I look forward to your response.

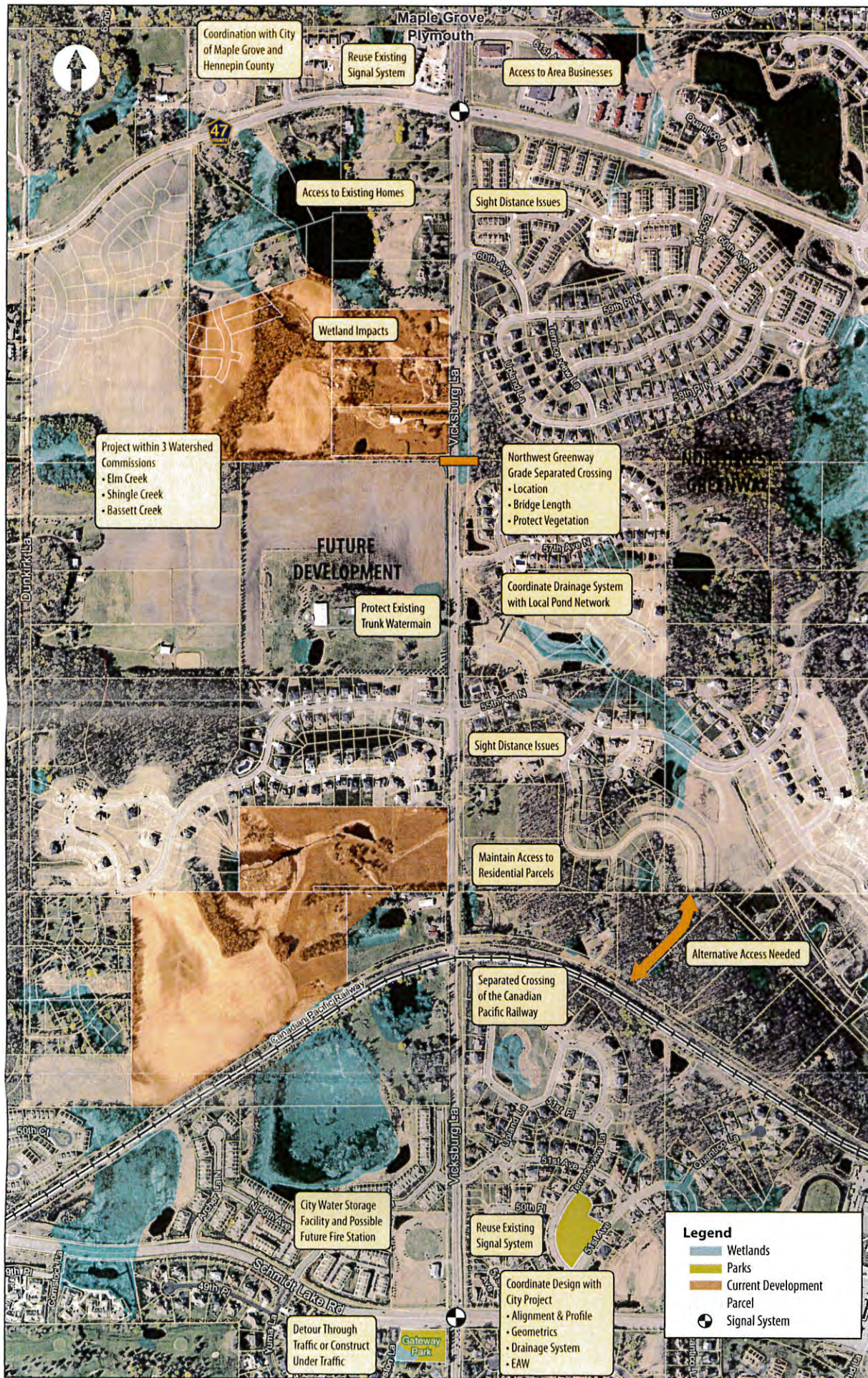
Sincerely,

Derek Asche
Water Resources Manager

enc

cc: Jim Renneberg, Engineering Manager
Fred Moore, Commissioner Elm Creek Watershed
Dawn Swanson, Commissioner Shingle Creek Watershed
Ben Scharenbroich, Water Resources Technician





From: [Haworth, Brooke \(DNR\)](#)
To: [Kelcie Campbell](#)
Subject: Vicksburg Lane Project - Plymouth - DNR comments
Date: Monday, December 02, 2013 7:16:12 PM
Attachments: [image001.jpg](#)
[wildlife-friendly-erosion-control.pdf](#)
[native-seed-mix.pdf](#)
[turtles_and_roadways.pdf](#)

Dear Ms. Campbell,

The DNR has reviewed the Vicksburg Lane Project in Plymouth and offers the following comments.

Impacts to water resources should be addressed (acres of proposed fill, new outfalls, reconstructed bridges). A discussion of storm water management would be appropriate as well. There is one public water crossing within the footprint of this project, which may require a DNR public water permit. Work affecting wetlands present along the route may require WCA authorization. Wetland delineations or mitigations that are not considered Public Water Wetlands do not require approval by the DNR. The DNR does encourage a design scenario that reduces impacts to wetlands. Regardless of quality, wetlands provide important hydrologic functions and habitat for wildlife.

Temporarily exposed soil at the work site will be vulnerable to the establishment of invasive plant seeds. Work conducted during winter months will help to control invasive plant establishment. When construction is performed during the growing season, please direct contractors to limit the introduction, establishment, and spread of invasive species during contracted work by cleaning equipment prior to arriving at the project site. The expedient establishment of new vegetation is also important. We encourage seeding road sides, new ditches and other green spaces with native prairie seed mixes appropriate to the area (see attached native seed guidance). This vegetation would also provide food and habitat for butterflies and other native pollinators (see: <http://www.xerces.org/pollinator-conservation-roadsides/>).

We encourage you to consider gutter and curb designs throughout this project that allow safer passage for urban wildlife (see attached factsheet "Turtles and Roadways"). During erosion control activities, we also encourage the use of wildlife-friendly erosion control materials (non-plastic, non-welded – see attached factsheet). Traditional erosion control mesh has been found to be detrimental to wildlife that can result in injury or death. Reptiles and amphibians are species that are particularly susceptible.

Thank you for the opportunity to review this project. Please contact me if you have any questions.

Sincerely,

Brooke Haworth

Region 3 Environmental Assessment Ecologist
MnDNR Division of Ecological and Water Resources
1200 Warner Road, St. Paul, MN 55106
Phone: 651-259-5755
Email: Brooke.haworth@state.mn.us

From: Kelcie Campbell [<mailto:KCampbell@srfconsulting.com>]

Sent: Thursday, November 07, 2013 3:28 PM

To: Doperalski, Melissa (DNR); Colvin, Steve E (DNR)

Subject: Vicksburg Lane Project - Plymouth

SRF Consulting Group, Inc., on behalf of the City of Plymouth, is completing an Environmental Assessment Worksheet (EAW) for the proposed conversion of Vicksburg Lane from a two-lane to a four-lane road between Old Rockford Road and County Road 47. The EAW document will inform decision makers about the potential environmental and community impacts of the project. Project location maps are attached for your reference.

The purpose of this email is to provide you with early notification of the project and request your input regarding issues of concern and recommendations. This information will be used in the EAW. We will be completing a Natural Heritage database review. We would appreciate it if you could respond by December 2, 2013 with any initial concerns or recommendations.

Thank you,

Kelcie Campbell, AICP

Senior Environmental Planner

SRF Consulting Group, Inc.

Direct: 763.452.4784 | kcampbell@srfconsulting.com

Main: 763.475.0010

One Carlson Parkway North, Suite 150, Minneapolis, MN 55447-4443

www.srfconsulting.com



Table C-1: Summary of Basic Standard Native Seed Mixes, Uses, and Where They are Applicable in Minnesota

See Mn/DOT website for additional standard mixes

Mix #	Standard Seed Mix Name	Uses	For use in the following Ecological Provinces (see note “A” below)	For use in the following Mn/DOT Districts
34-182	Persistently Flooded	Pond edge or lakeshore: sow along water’s edge and plants will eventually spread into water over time	All	All
33-261	Temporarily Flooded	Temporarily flooded ditch bottoms, streambanks, pond margin above persistently flooded zone, temporarily flooded dry ponds	EBF, PPA, TAP	2(west), 3B, 4, Metro, 6, 7 & 8
35-241	Mesic Prairie General	Low maintenance, multifunctional roadside; mesic prairie restoration	EBF, PPA, TAP	2(west), 3B, 4, Metro, 6, 7 & 8.
35-221	Dry Prairie General	Low maintenance, multifunctional roadside; Dry prairie restoration	EBF, PPA, TAP	2(west), 3B, 4, Metro, 6, 7 & 8
36-311	Woodland Edge – Northeast	Revegetation at edge of woodland or forest in Northeastern Woodland Edge Seeding Zone	See Figure 3-6 for which woodland mix to use for your location	1 & 2(east)
36-711	Woodland Edge – Central	Revegetation at edge of woodland or forest in Central Woodland Edge Seeding Zone	See Figure 3-6 for which woodland mix to use for your location	2(southeast) & 3A
36-211	Woodland Edge – South & West	Revegetation at edge of woodland or forest in Southern and Western Woodland Edge Seeding Zone	See Figure 3-6 for which woodland mix to use for your location	2(west), 3B, 4, Metro, 6, 7 & 8
36-411	Woodland Edge – Northwest	Revegetation at edge of woodland or forest in Northwestern Woodland Edge Seeding Zone	See Figure 3-6 for which woodland mix to use for your location	2(west)

Notes:

A. Ecological Provinces are shown in Figure 3-4. There are four Provinces in Minnesota:

- 1) Eastern Broadleaf Forest Province (EBF)
- 2) Laurentian Mixed Forest Province (LMF)
- 3) Prairie Parkland Province (PPA)
- 4) Tallgrass Aspen Parklands Province (TAP).

These are “units of land defined using major climate zones, native vegetation, and biomes such as prairies, deciduous forests, or boreal forests” by the Minnesota Department of Natural Resources (MNDNR) and the U.S. Forest Service (Minnesota Department of Natural Resources, 2005a). In other words, they are areas in Minnesota that are similar ecologically at a broad scale. Because some plant communities are restricted to a limited number of Ecological Provinces within Minnesota, not all the mixes are applicable statewide.

B. For most current standard mix composition, look for “Seed Mixes” in the “A to Z Index” on www.mndot.gov.

C. Nomenclature used in the standard mixes follows Gleason and Cronquist, because that nomenclature is most commonly used in the industry. See the master species list at www.mndot.gov for updated names used by the Minnesota Department of Natural Resources and USDA PLANT Database.



Roadways and Turtles

Solutions for Safety



©Peter Leete

This year conservation groups around the country are partnering to raise awareness of the plight of turtles. The Minnesota Department of Natural Resources (DNR) has joined in this effort. There are many threats to turtles; roads are just one of the obstacles that they encounter.

This flyer offers some practical ideas on how road authorities can minimize the negative impacts of roads on turtles and other wildlife. They are recommendations and a call to action; not requirements. Minnesota's "Toward Zero Deaths" effort has made tremendous progress in saving human lives. The science of Road Ecology challenges us further to provide safe passage for wildlife and reduce wildlife-vehicle collisions.

The following suggestions will also help safeguard water quality, increase road safety, and may also save you time and money. Incorporating just one recommendation into your road program may be enough to improve turtle conservation in your area. It is possible to balance habitat and transportation safety issues through cooperation, collaboration and coordination.

Roadside Maintenance

- Gravel shoulders and inslopes near lakes and wetlands are favorable nesting sites for some turtle species. Whenever possible, avoid or minimize grading road shoulders near lakes and wetlands from mid-May to August; this will increase the chance of a successful hatch.



To improve turtle nesting success, reduce spring and summer roadside disturbance.

- Turtles which are in imminent danger should be moved, by hand, out of harm's way. Turtles which are not in imminent danger should be left undisturbed.
- Spot mow or spot spray invasive species rather than broadcast spray pesticides on roadsides.
- Roadside mowing should be done as infrequently as possible.
- Brush removal should occur in the fall through early spring.
- Temporary turtle crossing signs can be installed to increase public awareness, reduce road kills, and increase road safety.
- Systematic record keeping of turtle mortality on Minnesota roads does not exist. You can help by identifying where turtles are found (dead or alive). Contact your DNR Nongame Wildlife Specialist for technical assistance. <http://www.dnr.state.mn.us/eco/nongame/index.html>

Road Design

- New road alignments should avoid bisecting wetlands. When they do, crossings should be bridged.
- On existing roads, where there are turtle hot spots, fencing should be considered to prevent turtles from attempting to cross them. Fencing should lead

turtles to a nearby culvert or bridge. This is more important on roads with higher average daily traffic, than on low volume roads.

- Maintenance people are often knowledgeable about the likelihood of wildlife on roads; involve them in planning reconstruction projects or new road projects.
- Traditional curb and gutter should be avoided (see Curb and Gutter section).
- Roads should be kept to minimum standards on widths and lanes (this reduces road kills by slowing traffic and reducing the distance turtles need to cross).



Turtles, snakes, ducklings and other wildlife can get tangled in welded plastic mesh. Use woven or unwelded mesh instead.

A likely turtle hot spot is where a road bisects a wetland or waterway.



Level passage benches make bridge inspection easier and benefit wildlife.



Construction

- Silt fencing should be set up to keep turtles out of construction areas during the nesting season. This is often required in areas of known threatened or endangered species in order to prevent nesting within the work area. This fencing should be removed when the area is no longer undergoing active construction.
- Avoid using erosion control products that are made with welded plastic mesh or webbing. Turtles, and other wildlife, can become entangled in the mesh. Products with woven or unwelded material allow flexibility of the openings and can be utilized.
- Use biodegradable material in all components of erosion control blanket and biologs (fiber rolls) that are to be left on site as part of final stabilization.

Passage Structures

- In Minnesota, turtles use rivers and streams as travel corridors as well as for core habitat. Most, if not all turtles can pass under bridges while in the water, however there are typical designs that can aid other species movement along our waterways. Incorporating a passage bench into riprap design is a cost effective solution. See Chap. 1 pg. 16 at the link: http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/gp_2004_0001_manual.html
- Existing structures may only need small modifications such as filling in riprap with gravel so turtles and other wildlife can pass safely.

- Exclusion fencing to prevent turtles from reaching the roadway may be the best option in areas where turtles have been known to cause traffic problems.
- Culverts between wetland areas, or between wetlands and nesting areas, should be sized accordingly, with a minimum diameter of 36 inches for dry culverts and bankfull width in diameter for culverts on perennially flowing waters. A flat-bottomed or arched culvert with the shortest possible length is preferred.

Fencing

- For permanent fencing, standard Mn/DOT right-of-way chain-link fencing installed tight to the ground is adequate to guide turtles toward underpasses.
- It is critical that the fence endposts fit tightly to abutments or railings.
- The fences are most successful if they do not deflect turtle movements by more than 60 degrees.
- Methods to allow animals off the roadway also need to be incorporated into wildlife exclusion methods.
- For seasonal or temporary situations, standard erosion control is adequate.



Curb and Gutter

- Areas near lakes, rivers, streams and wetlands (typical turtle habitat) should have rural shoulders and vegetated swale road ditches, not typical curb and gutter stormwater systems. If a curb and gutter stormwater system must be installed, curbs that turtles can traverse should be used (Type D or Type S curb).
- Traditional curb and gutter can inadvertently trap turtles within the road and also directs small mammals and reptiles into the storm sewer, often with fatal results.
- Where traditional curb and gutter is to be installed, a design without the side box inlet gives the animals a better chance of moving past the storm sewer as they search for an exit route.
- If a type D or S type curb is not desired, install a few feet of it on either side of the storm water drain to allow animals to exit prior to the storm sewer drop structure.

- Stormwater ponds that discharge to natural areas should not have outlets that block turtle movement.

For More Information

This information is from the *Best Practices for Meeting DNR General Public Water Permit* by Peter Leete, Transportation Hydrologist with the DNR Division of Ecological and Water Resources. The complete manual with additional information can be found at: http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/gp_2004_0001_manual.html

And from The *DNR Environmental Review Fact Sheet* Series: Blanding's Turtle: http://files.dnr.state.mn.us/natural_resources/animals/reptiles_amphibians/turtles/blandings_turtle/factsheet.pdf

For additional information on Minnesota's turtles, see the poster *Protect Our Turtles*.



Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155-4040
651-296-6157 (Metro Area)
1-888-MINNDNR (646-6367) (MN Toll Free)
mndnr.gov

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An Equal Opportunity Employer

This document is available in alternative formats to individuals with disabilities by calling 651-296-6157 (Metro Area) or 1-888-MINNDNR (MN Toll Free) or Telecommunication Device for the Deaf/TTY: 651-296-5484 (Metro Area) or 1-800-657-3929 (Toll Free TTY).

Printed on recycled paper containing 30% post-consumer fiber.

Wildlife-friendly Erosion Control

Wildlife entanglement in, and death from, plastic netting and other man-made plastic materials has been documented in birds (Johnson, 1990; Fuller-Perrine and Tobin, 1993), fish (Johnson, 1990), mammals (Derraik, 2002), and reptiles (Barton and Kinkead, 2005; Kapfer and Paloski, 2011). Unfortunately, the use of these materials for erosion control continues in many cases, often without consideration for wildlife impact. This plastic netting is frequently used for erosion control during construction and landscape projects and can negatively impact terrestrial and aquatic wildlife populations as well as snag in maintenance machinery, resulting in costly repairs and delays. However, erosion-control materials that are wildlife friendly do exist and are sold by several large companies. Below are a few key considerations before starting a project.

Know Your Options

- Remember to consult with local natural resource agencies (DNR, USFWS, etc.) before starting a project. They can help you identify sensitive areas and rare species.
- When erosion control is necessary, select products with biodegradable netting (natural fiber, biodegradable polyesters, etc.).
- DO NOT use products that require UV-light to biodegrade (also called “photodegradable”) as they do not biodegrade properly when shaded by vegetation.
- Use netting with rectangular-shaped mesh (not square mesh).
- Use netting with flexible (non-welded) mesh.



Know the Landscape

- It is especially important to use wildlife-friendly erosion control around:
 - Areas with threatened or endangered species.
 - Wetlands, rivers, lakes, and other watercourses.
 - Habitat-transition zones (prairie – woodland edges, rocky outcrop – woodland edges, steep rocky slopes, etc.).
- Use erosion mesh wisely; not all areas with disturbed ground necessitate its use. Do not use plastic mesh unless it is specifically required. Other erosion-control options exist (open weave textile (OWT), rolled erosion control products (RECPs) with woven, natural fiber netting).



Protect Wildlife

- Avoid photodegradable erosion-control materials where possible.
- Use only biodegradable materials (typically made from natural fibers), preferably those that will biodegrade under a variety of conditions.
- The cost of erosion-control material that is wildlife friendly is often comparable to conventional plastic netting.



Plains Gartersnake trapped and killed by welded-plastic square erosion-control mesh placed along a newly installed cement culvert in southern Minnesota. ©MN DNR, Carol Hall

Literature Referenced

Barton, C. and K. Kinkead. 2005. Do erosion control and snakes mesh? Soil and Water Conservation Society 60:33A-35A.

Derraik, J.G.B. 2002. The pollution of the marine environment by plastic debris: a review. Marine Pollution Bulletin 44:842-852.

Fuller-Perrine, L.D., and M.E. Tobin. 1993. A method for applying and removing bird-exclusion netting in commercial vineyards. Wildlife Society Bulletin 21:47-51.

Johnson, S.W. 1990. Distribution, abundance, and source of entanglement debris and other plastics on Alaskan beaches, 1982-1988. Proceedings of the Second International Conference on Marine Debris 331-348.

Kapfer, J.M., and R.A. Paloski. 2011. On the threat to snakes of mesh deployed for erosion control and wildlife exclusion. Herpetological Conservation and Biology 6:1-9.



A small vole that was strangled and killed by plastic erosion-control material with welded and square mesh. Photo taken in southern Minnesota and provided courtesy of Tom Jessen.



From: Thomas Cinadr <thomas.cinadr@mnhs.org>
Sent: Wednesday, November 13, 2013 11:00 AM
To: Kelcie Campbell
Subject: Re: SHPO file search request for Vicksburg Lane Project
Attachments: Historic.rtf

THIS EMAIL IS NOT A PROJECT CLEARANCE.

This message simply reports the results of the cultural resources database search you requested. The database search produced results for only previously known archaeological sites and historic properties. Please read the note below carefully.

No archaeological sites were identified in a search of the Minnesota Archaeological Inventory and Historic Structures Inventory for the search area requested. **A report containing the historic properties identified is attached.**

The result of this database search provides a listing of recorded archaeological sites and historic architectural properties that are included in the current SHPO databases. Because the majority of archaeological sites in the state and many historic architectural properties have not been recorded, important sites or structures may exist within the search area and may be affected by development projects within that area. Additional research, including field survey, may be necessary to adequately assess the area's potential to contain historic properties.

If you require a comprehensive assessment of a project's potential to impact archaeological sites or historic architectural properties, you may need to hire a qualified archaeologist and/or historian. If you need assistance with a project review, please contact Kelly Gragg-Johnson in Review and Compliance @ 651-259-3455 or by email at kelly.graggjohnson@mnhs.org.

The Minnesota SHPO Survey Manuals and Database Metadata and Contractor Lists can be found at <http://www.mnhs.org/shpo/survey/inventories.htm>

SHPO research hours are 8:00 AM – 4:00 PM Tuesday-Friday.

The Office is closed on Mondays.

Tom Cinadr
Survey and Information Management Coordinator
Minnesota State Historic Preservation Office

Minnesota Historical Society
345 Kellogg Blvd. West
St. Paul, MN 55102

651-259-3453

On Thu, Nov 7, 2013 at 3:10 PM, Kelcie Campbell <KCampbell@srfconsulting.com> wrote:

Dear Mr. Cinadr:

SRF Consulting Group, Inc., on behalf of the City of Maple Grove, is completing an Environmental Assessment Worksheet (EAW) for the proposed conversion of Vicksburg Lane from a two-lane to a four-lane road between Old Rockford Road and County Road 47. The EAW document will inform decision makers about the potential environmental and community impacts of the project. Project location maps are attached for your reference.

Therefore, we are requesting a search of the MNHS Report database for the project area and file searches of the Architectural/History Sites and Known Archeological Sites for the sections within the project area.

The file search will be used to help compare potential impacts of the proposed project, as described above. The project area township/range/sections are as follows: T118N R22W Sections 4, 5, 8, 9, 16, and 17.

Please contact me if you have questions or comments.

Thank you,

Kelcie Campbell, AICP

Senior Environmental Planner

SRF Consulting Group, Inc.

Direct: 763.452.4784 | kcampbell@srfconsulting.com

Main: 763.475.0010

One Carlson Parkway North, Suite 150, Minneapolis, MN 55447-4443

www.srfconsulting.com

History/Architecture Inventory

PROPERTY NAME	ADDRESS	Twp	Range	Sec	Quarters	USGS	Report	NRHP	CEF	DOE	Inventory Number
COUNTY:	Hennepin										
CITY/TOWNSHIP:	Multiple										
Minneapolis, St. Paul & Sault St. Marie (Soo Line) Railroad		118	22	17					Y		HE-XXX-0001
CITY/TOWNSHIP:	Plymouth										
farmhouse	5680 Juneau Lane	118	22	4	NE-SW-SE	Osseo	HE-88-1H				HE-PLC-001
farmhouse	15740 Co. Rd. 47	118	22	4	SW-NE-NW	Osseo	HE-88-1H				HE-PLC-002
farmstead	15325 Co. Rd. 47	118	22	4	NW-NW-	Osseo	HE-88-1H				HE-PLC-003
farmhouse	5215 Vicksburg Lane	118	22	8	NE-SE-NE	Osseo	HE-88-1H				HE-PLC-006
farmstead	16530 Rockford Rd.	118	22	17		Osseo					HE-PLC-011
farmstead	14800 Rockford Rd.	118	22	16	N-SE	Osseo					HE-PLC-016
John Jordan Farmhouse (razed)	3830 Dunkirk Lane	118	22	17		Osseo					HE-PLC-023
house	3855 Dunkirk Lane	118	22	17	SE-NE-SW	Osseo					HE-PLC-025
house	4215 Dunkirk Lane	118	22	17	NE-SE-NW	Osseo					HE-PLC-026
house	17430 Medina Rd.	118	22	17	SW-SW-SW	Hamel					HE-PLC-059
house (razed)	4830 Vicksburg Lane	118	22	9		Osseo					HE-PLC-081
house	4925 Vicksburg Lane	118	22	8	NE-NE-SE	Osseo					HE-PLC-082
house	5505 Vicksburg Lane	118	22	5	SE-SE-SE	Osseo					HE-PLC-083
house	5550 Vicksburg Lane	118	22	4	NW-SW-SW	Osseo					HE-PLC-084
house	5635 Vicksburg Lane	118	22	5	S-NE-SE	Osseo					HE-PLC-085
house	5750 Vicksburg Lane	118	22	4	NW-NW-SW	Osseo					HE-PLC-086
house (razed)	14820 Co. Rd. 9	118	22	16		Osseo					HE-PLC-116
house	14915 Co. Rd. 9	118	22	16	NE-NW-SE	Osseo					HE-PLC-117

PROPERTY NAME	ADDRESS	Twp	Range	Sec	Quarters	USGS	Report	NRHP	CEF	DOE	Inventory Number
COUNTY:	Hennepin										
CITY/TOWNSHIP:	Plymouth										
house (razed)	15340 Co. Rd. 9	118	22	16		Osseo					HE-PLC-118
house	16000 Co. Rd. 9	118	22	17	NE-SW-NE	Osseo					HE-PLC-119
house	14511 Co. Rd. 47	118	22	4	N-SE-NE	Osseo					HE-PLC-132
house	15920 Co. Rd. 47	118	22	5	NE-NE-NE	Osseo					HE-PLC-133
house	16440 Co. Rd. 47	118	22	5	NE-NW-NE	Osseo					HE-PLC-134
farmstead	17210 Co. Rd. 47	118	22	5	SE-NW-NW	Osseo					HE-PLC-135
house	5660 Vicksburg Lane	118	22	4	SW-NW-SW	Osseo					HE-PLC-148
commercial building	16800 TH 55	118	22	17	SE-SW	Osseo	XX-2006-1H				HE-PLC-173
commercial building		118	22	17	SE-SW	Osseo	XX-2006-2H				HE-PLC-173
house	1xxxx TH 55	118	22	17	NW-SW	Osseo	XX-2006-2H				HE-PLC-182
house		118	22	17	NW-SW	Osseo	XX-2006-1H				HE-PLC-182



Minnesota Pollution Control Agency

520 Lafayette Road North | St. Paul, MN 55155-4194 | 651-296-6300 | 800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us

November 8, 2011

Mr. Jerry Cornish
4712 McDonald Drive Place
Stillwater, MN 55082

RE: Petroleum Tank Release Site File Closure
Site: Proposed Westview Estates, 15920 County Road 47, Plymouth, Minnesota 55446
Site ID#: LEAK00018450

Dear Mr. Cornish:

We are pleased to let you know that the Minnesota Pollution Control Agency (MPCA) has determined that your investigation and/or cleanup have adequately addressed the petroleum tank release at the site listed above. Based on the information provided, the MPCA has closed the petroleum tank release site file.

The closure of the petroleum tank release file means that the MPCA does not require any additional investigation and/or cleanup work at this time or in the foreseeable future. Please be aware that file closure does not necessarily mean that all petroleum contamination has been removed from this site. However, the MPCA has concluded that any remaining contamination, if present, does not appear to pose a threat to public health or the environment under current conditions.

The MPCA reserves the right to reopen this file and to require additional investigation and/or cleanup work if new information, changing regulatory requirements or changed land use makes additional work necessary. If you or other parties discover additional contamination (either petroleum or nonpetroleum) that was not previously reported to the MPCA, Minnesota state law requires that the MPCA be immediately notified.

You should understand that this letter does not release any party from liability for the petroleum contamination under Minn. Stat. ch. 115C (2010) or any other applicable state or federal law. In addition, this letter does not release any party from liability for nonpetroleum contamination, if present, under Minn. Stat. ch. 115B (2010), the Minnesota Superfund Law.

Please note that as a result of performing the requested work you may be eligible to apply to the Petroleum Tank Release Compensation Fund (Petrofund) for partial reimbursement of the costs you have incurred in investigating and cleaning up this petroleum tank release. The Petrofund is administered by the Petroleum Tank Release Compensation Board (Petro Board) and the Minnesota Department of Commerce. To learn more about who is eligible for reimbursement, the type of work that is eligible for reimbursement, and the amount of reimbursement available, please contact Petrofund staff at 651-215-1775 or 1-800-638-0418.

Mr. Jerry Cornish
Page 2
November 8, 2011

If future development of this property or the surrounding area is planned, it should be assumed that petroleum contamination may still be present. If petroleum contamination is encountered during future development work, the MPCA staff should be notified immediately.

For specific information regarding petroleum contamination that may remain at this leak site, please call the Petroleum Remediation Program File Request Program at 651-757-2799 or 651-757-2309. The MPCA fact sheet *Request to Bill for Services Performed* must be completed prior to arranging a time for file review.

Thank you for your response to this petroleum tank release and for your cooperation with the MPCA to protect public health and the environment. If you have any questions regarding this letter, please contact MPCA project manager Jessica Ebertz at 651-757-2328 or MPCA hydrogeologist John Kaehler at 651-757-2480.

Sincerely,



Jessica Ebertz
Planner Principal
Petroleum Remediation Section
Remediation Division



John Kaehler
Hydrogeologist
Petroleum Remediation Section
Remediation Division

JME:JK:tf

cc: Plymouth Housing Group. LLC, Plymouth
Jamie Thelen, Plymouth West View Estates, LLC, Waite Park
Sandy Engdahl, Plymouth City Clerk
Richard Kline, Plymouth Fire Chief
Dave Jaeger, Hennepin County Solid Waste Officer
Jason Lieffring, Braun Intertec Corp., Hibbing
Minnesota Department of Commerce Petrofund Staff

APPENDIX C

Preliminary Engineering Report

To: Jim Renneberg, PE
City of Plymouth

From: Michael Turner, PE (MN SD TX), Principal
Michael Mohs, PE (MN), Senior Associate

Date: December 13, 2013

Subject: VICKSBURG LANE RECONSTRUCTION AND EXPANSION
CITY PROJECT NO. 16001

Introduction

Vicksburg Lane is being upgraded from a two-lane rural section roadway to a four-lane undivided roadway with an urban section from Schmidt Lake Road to the Plymouth/Maple Grove city boundary. This segment includes an existing at-grade crossing of the Canadian Pacific (CP) Railway. This memorandum examines both an at-grade and a grade-separated (roadway bridge) crossing at the intersection of the CP Railway and Vicksburg Lane.

Railroad History

The CP Railway through the City of Plymouth is part of the Paynesville Subdivision Line. At the intersection with Vicksburg Lane, the railway is in a horizontal curve. Until as recent as the early 2000's, the operational design speed for the train was 40 mph, which created a very abrupt roadway crossing, signed with an advisory speed of 10 mph for vehicle traffic.

Due to a combination of reduced operational train speeds and requests on behalf of the City, CP Railway adjusted the northern (outside) rail elevation through the curve and thus provided a flatter at-grade roadway crossing for vehicular traffic. For approximately the past 10 years, regular maintenance at this crossing has allowed vehicles to traverse the roadway at or near the posted 50 mph speed limit.

In January 2013, CP Railway sent notice to the City that it would be restoring the operational train speed limit on this line back to 40 mph. In June 2013, CP Railway informed the City that modifications were necessary on Vicksburg Lane to operate their trains at 40 mph, resulting in a longitudinal roadway grade of 5.2% across the tracks. The City of Plymouth has since made some minor adjustments to the approaches, either side of this crossing, resulting in an advisory speed limit of 30 mph across the tracks.

According to the 2010 Minnesota Comprehensive Statewide Freight and Passenger Rail Plan, the Paynesville subdivision operates approximately 20 trains per day. In 2007, this line carried between 20-39 Freight Rail Tons. The forecast for 2030 slates a portion of this line to carry 40-80 Freight

Rail Tons. Congruent with this projected increase in volume, the railway operational speed will increase to 60 mph. In conversations with CP Railway staff about this change, the precise timing of this upgrade is still unknown, but this will result in further modifications to track super-elevation through the curve that crosses Vicksburg Lane. According to staff, the northern rail elevation will need to be raised by an additional two inches, which would thus create a roadway crossing grade of over 8%.

Concept Alternatives

Using the following parameters as the baseline for our analysis, we developed the concept alternatives shown below. The projected 2030 Design AADT for Vicksburg Lane is over 15,000 VPD. The proposed roadway section is a four-lane-undivided roadway with an eight-foot wide trail, separated by a boulevard on either side of the roadway. The design speed for all vertical and horizontal curves for this segment of Vicksburg Lane is 45 mph.

At-Grade Roadway Crossing

The first alternative for the project is continuation of an at-grade roadway crossing of the CP Railway tracks. This alternative is shown in Figures 1 (plan view) and 2 (profile view).

Figure 1. At-Grade Crossing Alternative (Plan view)

Figure 2. Profile views (both At-Grade and Grade-Separated profiles included)

Originally, this alternative would seemingly present itself as the much more economical option. However, given that the existing crossing is at 5.2% across the tracks, fitting in a 45 mph design speed vertical curve results in approximately \$1.1 million in construction costs for roadway excavation and embankment costs alone. The other “face value” benefits for this alternative appear to be a reduced construction time and overall ease of construction with minimal or no existing driveway/access implications. However, the required grade change from the existing roadway grade essentially negates these items. Potential negative impacts for this alternative include the following:

- The required excavation on the south side of the CP Railway of greater than 30 feet below existing centerline grade would likely be at or below the existing water table based on the presence of existing adjacent surface waters.
- The low point south of the CP Railway would require installation of a lift station to remove stormwater. The approximate construction cost of a lift station for the volume of runoff at this location is \$500,000. In addition, there will be operation and maintenance costs required to operate this system.
- The additional cost of approximately \$100,000 for special rock trenching and a grit chamber structure to treat the stormwater collected at the low point south of the CP Railway.

- The deep excavation also has impacts to existing public and private utilities, namely relocation of 800 lineal feet of existing 20-inch watermain. The construction cost to offset this segment of pipe, part of which will be submerged below the water table, is estimated at \$400,000.
- Seven Greens development is built above existing roadway. In addition to grading costs for the roadway, there will costs of approximately \$700,000 for a 1,000' long by 20' tall cast-in-place retaining wall required to avoid impacts to existing properties in this development.
- Across from Seven Greens, another cast-in-place retaining wall 500' long and 20' tall, costing approximately \$350,000, will be required to avoid impacts to the existing buildings at 5215 Vicksburg Lane. Relocation of the access to this property is also required.
- Installation of high retaining walls on either side of the roadway will produce a "trench" effect for vehicles and pedestrians traveling through the corridor south of the CP Railway, as shown in the typical section located in the upper left corner of Figure 1.
- The grading required on the north side of the CP Rail will push the construction limits out in the NE quadrant and thus impact approximately 0.5 acres of existing wetland.
- The at-grade crossing poses vehicular and pedestrian safety concerns at this high volume roadway/high speed railway intersection.
- The current and projected increased train volumes impose notable vehicular traffic delays.
- The required grading for the crossing necessitates modifications to the driveways/property access points located immediately north of the CP Railway.
- Future increase of railway operation speed (from 40 mph to 60 mph) may require additional modifications to roadway profile, and thus may incur future roadway costs.
- Construction phasing will require coordination with CP Railway construction to widen their existing crossing and vehicle/pedestrian gate control equipment.

Grade-Separated Crossing (Roadway Bridge over CP Rail)

The other alternative for the project is a grade-separated (roadway bridge) crossing of the existing CP Railway tracks. This alternative is shown in Figures 3 (plan view) and 2 (profile view).

Figure 3. Grade-Separated Crossing Alternative – Plan View

The overall footprint of the bridge is approximately 89'-4" wide by 130' long. The width is comprised of four 12-foot wide lanes, two 6-foot wide shoulders (required for 45 mph undivided roadway with traffic volumes over 1500 VPD), crash barriers for trails, and 12-foot trails on both the east and west sides of the bridge as shown in Figure 4.

Figure 4. Bridge Typical Section

The estimated cost for the bridge alone would be approximately \$1.4 million. In addition, the cost of a 300' long by 20' tall cast-in-place retaining wall along the west side of Vicksburg Lane north of the tracks to reduce impacts to the O'Brien property (5365 Vicksburg Lane North) will be approximately \$200,000. The combined grading costs to complete the embankment on either side of the bridge would amount to approximately \$1.1 million.

The Grade-Separated alternative provides some distinctive benefits over the At-Grade Crossing, which are detailed below.

- No vehicular traffic delays due to rail crossing.
- Increased pedestrian and vehicle safety compared to an at-grade crossing.
- Stormwater management and conveyance is much more straightforward and simplified.
- Reduced impacts to existing public and private utilities. (Impacts to existing watermain are approximately \$100,000 for this option instead of \$400,000 in the At-Grade option.)
- Minimal or no impacts to existing properties in the Seven Greens Development.
- Roadway system independent of future operational rail speed increase, therefore minimal or no future costs to be incurred due to CP Rail modifications.
- Roughly the same grading costs as the At-Grade alternative.

The Grade-Separated alternative also provides some unique complications compared to the At-Grade Crossing, which are identified below.

- Access is required for four properties on the corridor, three of which (5330, 5365 and 5400 Vicksburg Lane North) require relocation.
- Bridge construction requires a full-closure to a portion of the roadway. Providing a bypass route at the CP Railway tracks during bridge construction would necessitate right-of-way impacts that are not feasible.
- The overall time required to construct a bridge, particularly if settlement of bridge embankment soils is required, could increase the time of construction by up to six months beyond the time required to complete the At-Grade alternative.

To simplify the analysis of these two alternatives, we created the following table for line-by-line comparison:

Table 1. Line-by-Line Alternative Comparison

Issue	At-Grade Alternative	Grade-Separated Alternative
Approximate Construction Cost	Grading, Retaining Wall, Lift Station, Relocate Watermain costs = \$3.1 M.	Grading, Bridge, Wall, and Relocate Watermain costs= \$2.8 M.
Future Cost	Unknown, but significant. CP rail track modification is in future programming. Also an ongoing operations and maintenance cost for the lift Station.	Operations and Maintenance costs for the bridge.
Utility Impacts	Relocate approximately 800 LF of existing 20" watermain.	Relocate approximately 200 LF of existing 20" watermain.
Stormwater	Lift station required to remove storm water. Special trenching and structure required for treatment.	Simplified stormwater management.
Safety	High volume roadway with high speed trains concern for vehicle and pedestrian interaction with trains.	Minimal impacts.
Operations	Significant delays for vehicle traffic.	No operational impacts.
Wetlands	Impact 0.5 Acres in NE quadrant.	Impact 0.25 Acres in SW quad and 0.75 Acres in NE Quadrant (1.0 Acres total).*
Driveway Access/ Relocations	Minor access implications to four existing driveways north of the tracks. Access relocation required for 5215 Vicksburg Lane North located south of the tracks.	Access implications to four existing driveways north of the tracks, three of which require relocation (5330, 5365 and 5400 Vicksburg Lane North).
R/W Impacts	Notable impacts to all but the NW quadrant. Impacts not as significant as the grade-separated crossing.	Notable impacts to all but the SE quadrant. Mitigation with wall and associated costs has been identified.*
Visual Impacts	20' tall retaining walls on either side of the roadway create a "Trench" effect south of the CP Railway for vehicles and pedestrians.	Open experience for vehicles and pedestrians on Vicksburg Lane.
Noise Impacts	Minimal or no increase in roadway traffic noise. Train horns on Railway ongoing with at-grade crossing.	Noticeable increase in vehicle noise to adjacent properties due to elevated roadway and additional traffic lanes. Train horn due to at-grade crossing eliminated.
Construction Schedule	Substantial Completion within one construction season (April-November 2015).	Soil settlement requirements could push substantial completion up to 6 months (April 2015 – June 2016).

*Note: costs Wetland and Right of Way impacts could be reduced or eliminated with the addition of CIP walls in North East and South West Quadrants. Approximate costs are \$315,000 for a 300' long by 30' tall CIP wall in the NE quadrant and \$210,000 for a 300' long by 20' tall CIP wall in the SW quadrant.

Summary and Recommendation

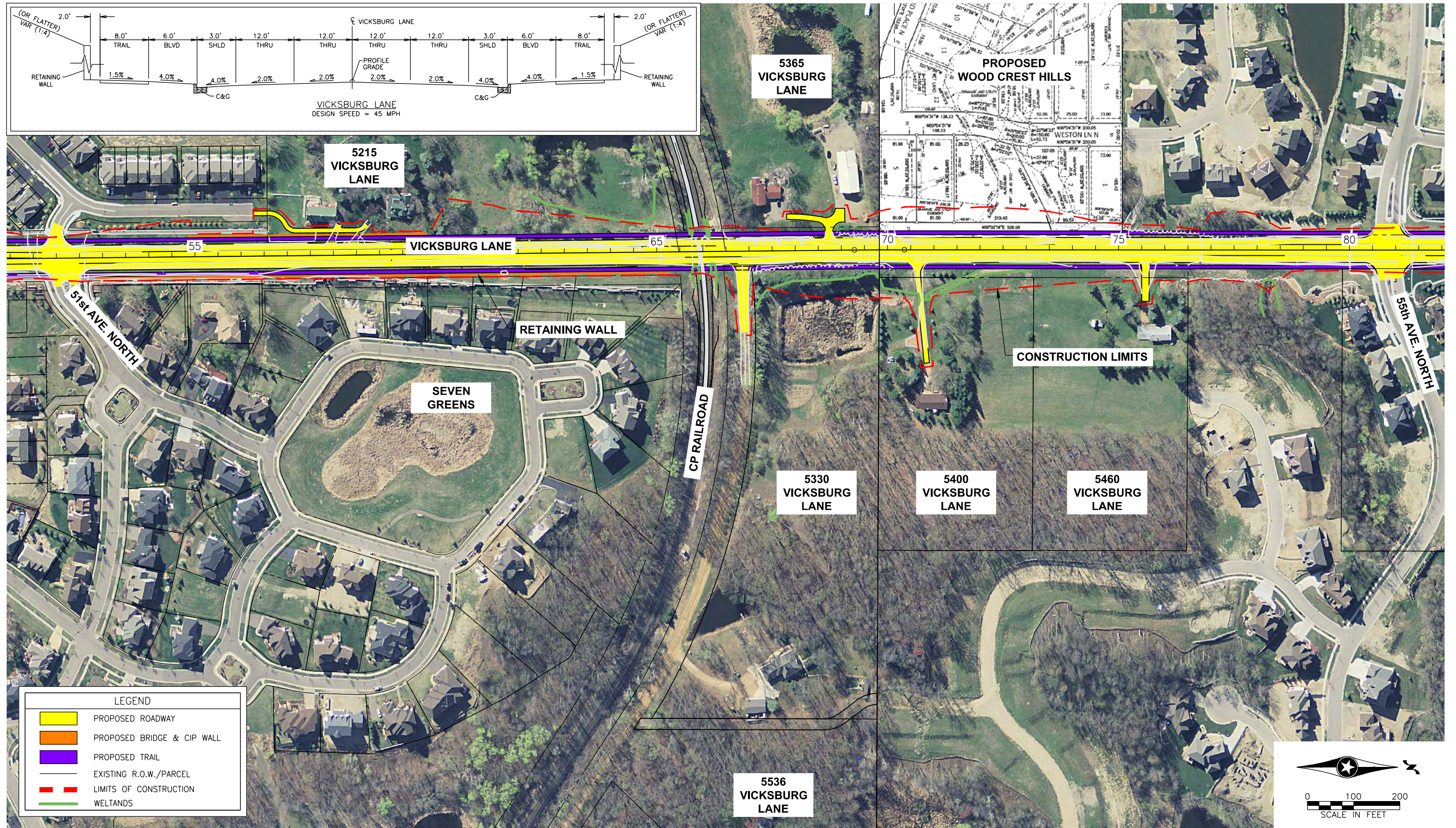
As detailed above, the At-Grade alternative poses an initial construction cost savings over the Grade-Separated alternative. However, adding in the costs for a 1,000' long, 20' tall retaining wall for the Seven Greens development, a 500' by 20' tall wall for 5215 Vicksburg Lane North, stormwater management, and watermain relocation south of the crossing, the approximate overall cost is greater than the Grade-Separated alternative. The At-Grade alternative may also carry the unknown future cost associated with the programmed CP Rail operational speed increase from 40 mph to 60 mph. Depending on the timing of this change, the cost for the At-Grade alternative may even increase further above the Grade-Separated alternative.

In addition to having an overall lower construction cost, the Grade-Separated crossing provides a multitude of previously detailed benefits namely safety, operation, stormwater management and overall life-cycle costs. The Grade-Separated crossing poses some addition access and construction schedule complications, but these items can be effectively minimized during the design process. Based on this analysis, we recommend that the City proceed with the Grade-Separated Crossing alternative for the Vicksburg Lane Reconstruction and Expansion project.

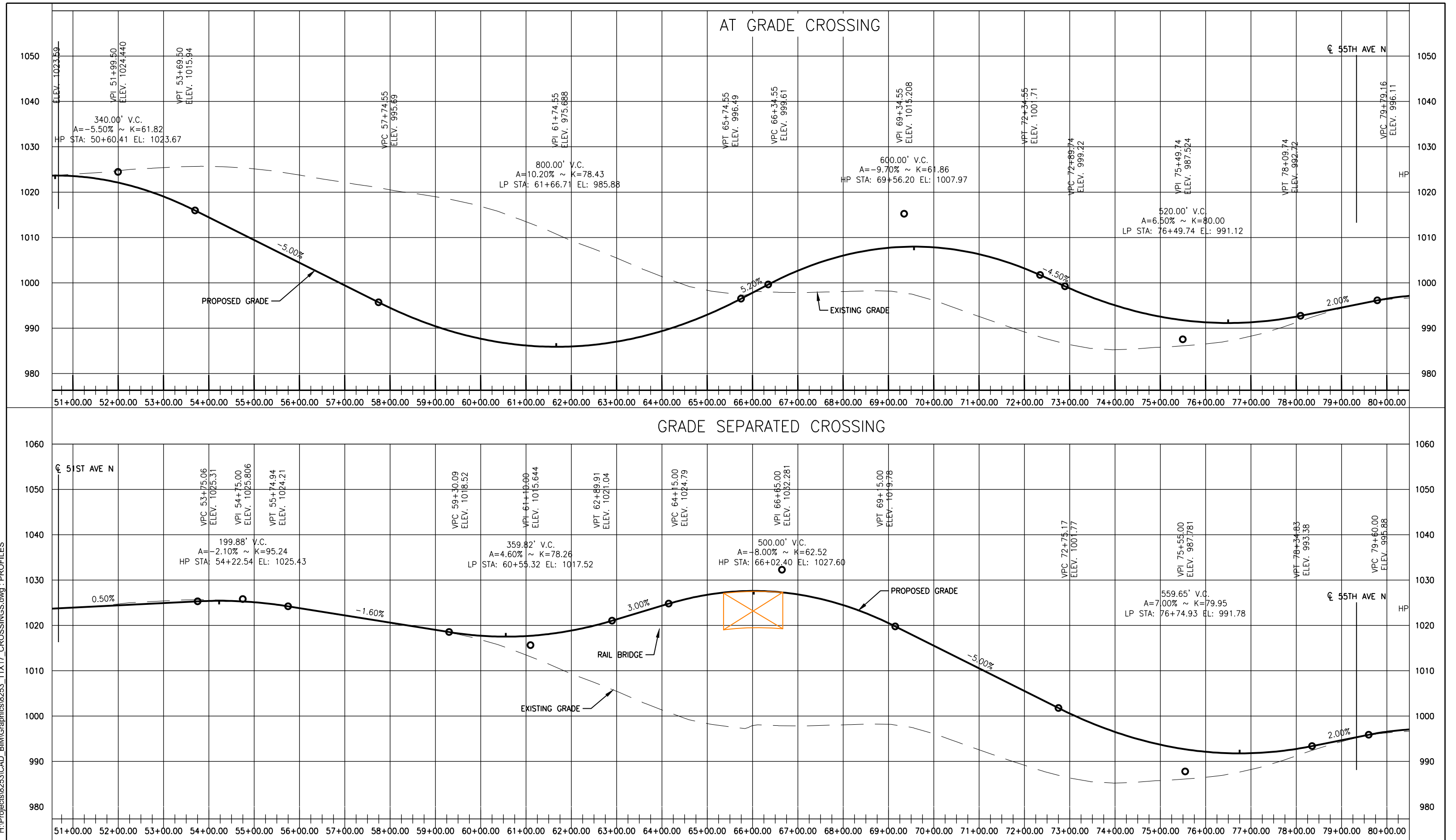
MRT/MJM/bls

Attachments

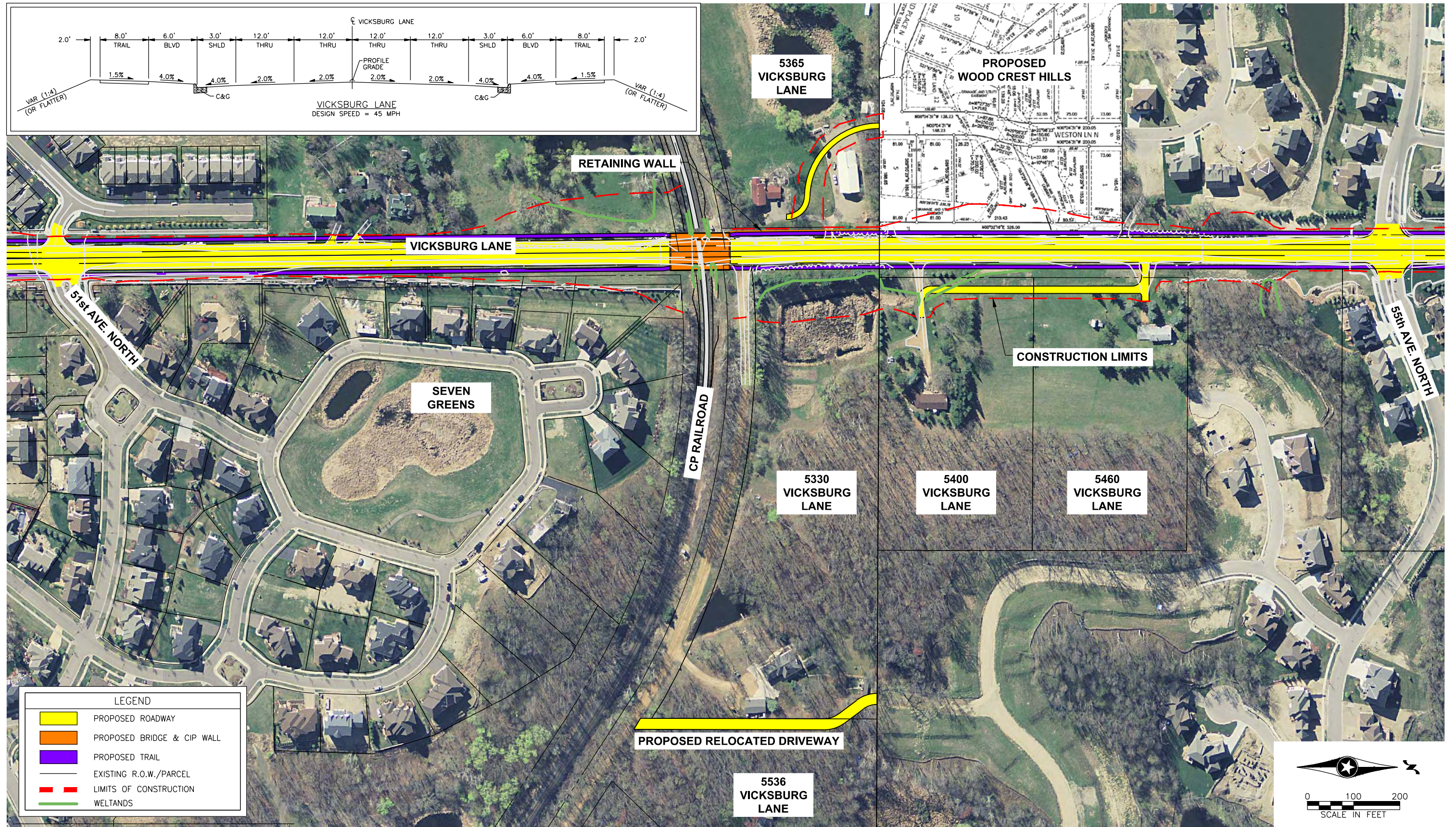
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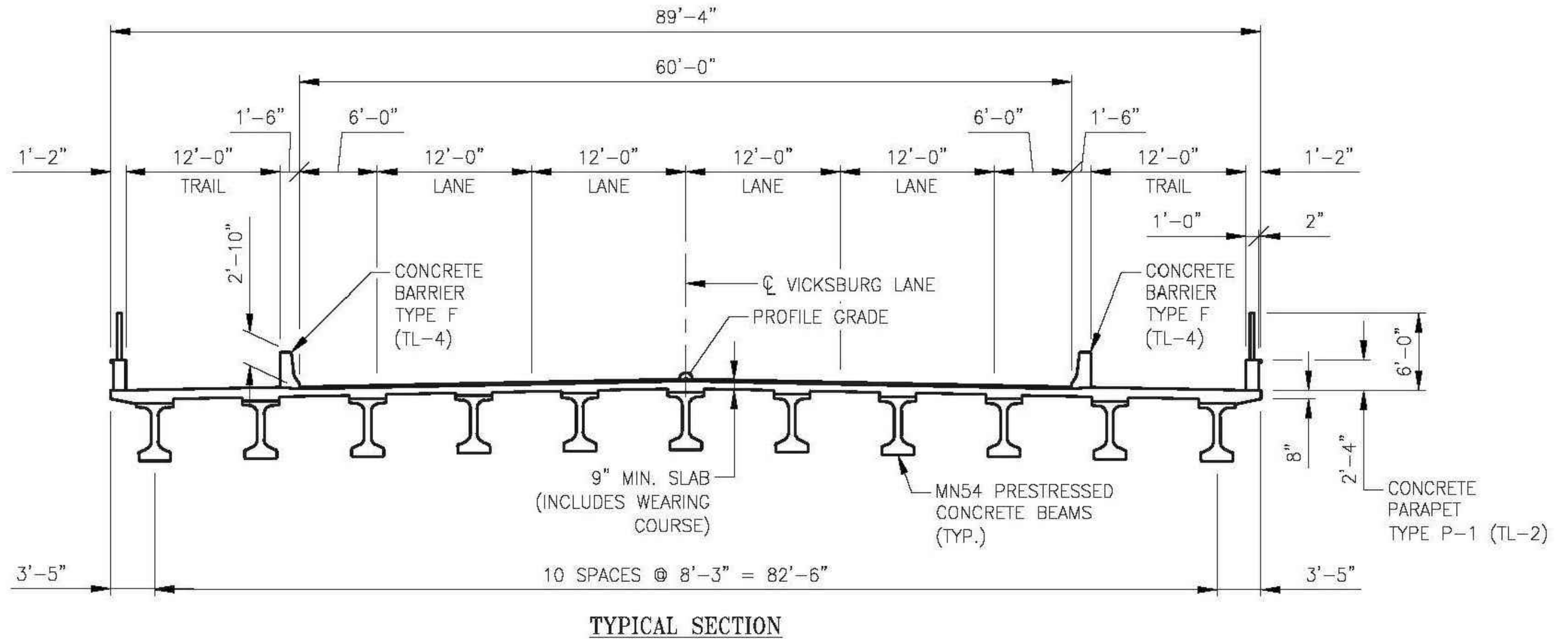
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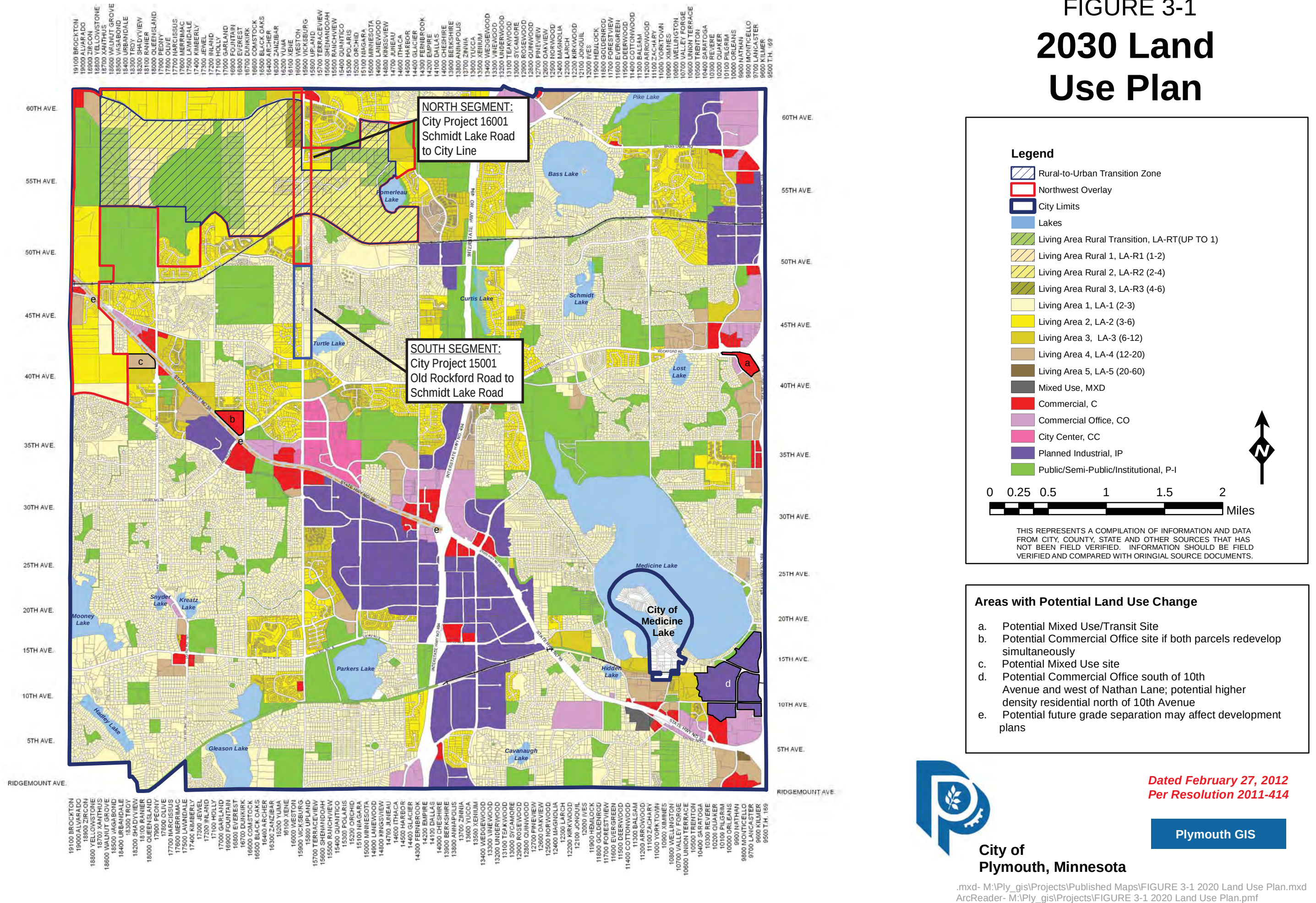
H:\Projects\8253\CAD_BIM\Graphics\8253_11X17_CROSSINGS.dwg : BRIDGE TYPICAL SECTION- 04



APPENDIX D

2030 Land Use Map

FIGURE 3-1 2030 Land Use Plan



City of
Plymouth, Minnesota

Plymouth GIS

Dated February 27, 2012
Per Resolution 2011-414