MINNEHAHA CREEK WATERSHED DISTRICT
QUALITY OF WATER QUALITY OF LIFE

MEMORANDUM

To: MCWD Board of Managers

From: Anna Brown, Planner Project Manager

Date: August 27, 2015

Re: Resolution 15-072 approval of permit 15-266 and discussion of potential partnership with Lennar Corporation

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Purpose:
At the August 27, 2015 Board Meeting staff will review a permit application for Lennar Corporation for a proposed single family subdivision of 164 acres on the south side of Wasserman Lake in the City of Victoria.

At the meeting staff will summarize an opportunity for a unique partnership with Lennar Corporation and the City of Victoria to restore approximately 12 acres of public water wetland and requisite buffer area on the main-stem of Six Mile Creek, tributary to Wasserman Lake.

Background:
In 2009 the Minnehaha Creek Watershed District identified the Marsh-Wasserman Corridor within the Six Mile Creek subwatershed as a target area for conservation and restoration efforts because of its ecological values and potential to provide water resources benefits. Wasserman Lake, which receives inflow from Marsh Lake, is currently on the State List of Impaired Waters due to excessive nutrients. To address water quality goals, the District evaluated capital improvement projects within the Corridor which were not advanced because projects were not synced with City land use policy and development initiatives.

Building on recent successes in achieving positive natural resource outcomes through partnership and strategic focus in the Urban Corridor, in 2014 the Board of Managers established the policy framework *In Pursuit of a Balanced Urban Ecology*. This policy approach calls for the integration of land-use and water planning through partnerships, flexibility and innovation, and through increased geographic focus in areas of high need and opportunity. One mechanism of integration is early involvement in the development process. In March of 2015, the City of Victoria and the District executed a Memorandum of Understanding (MOU) which identifies planning and regulatory coordination to support and foster integrated water and natural resources management into development planning.

Through advanced coordination with the City of Victoria and Lennar Corporation under the framework of the recently adopted MOU and Board policy, staff is working to develop a

partnership to achieve a 12 acre wetland restoration similar to the one previously contemplated in 2009 for the Marsh-Wasserman Corridor on the main stem of Six Mile Creek.

Lennar Corporation and the District initiated permitting review in the spring of 2015. The proposed 164 acre subdivision will result in one acre of wetland impact associated with a proposed improvement to an existing farm road. As part of the Wetland Conservation Act (WCA) permitting process, wetland mitigation was proposed using off-site wetland banking credits outside the District. Wetland banking results in a net loss of wetland acreage due to a lack of credits within the District.

Therefore, as an alternative to wetland bank credit purchase, the Lennar-MCWD partnership proposes to meet WCA Wetland Replacement Plan requirements through project specific mitigation by restoring the adjacent public water wetland, previously contemplated as a capital project, which has potential to restore approximately 12 acres of wetland. The partnership approach has been vetted through the Technical Evaluation Panel (TEP), which has expressed support for both the preliminary technical details of the proposed restoration and the District's innovative approach to wetland resource management, which demonstrates how partnership and inter-agency coordination can achieve greater natural resource outcomes than regulation alone.

The goal of the restoration project for the wetland is to maintain or improve hydrologic ecosystem services and improve the supporting services of biodiversity, habitat, and water quality. These goals will be achieved through hydrologic modification designed in coordination with the DNR. Staff will review the proposed project on Thursday.

Through the contemplated approach, Lennar Corporation would construct the 12 acre wetland restoration in partnership with the District. As proposed, this partnership would result in 6-8 acres of restored wetland beyond what is necessary to meet Lennar's regulatory requirements. This approach adds significant value to both the specific wetland of interest and the District's priority sub-watershed as a whole, potentially enabling the District to complete a previously ordered Capital Improvement Project at subsidized cost. The approach further shifts the wetland management paradigm from simply protecting the quantity of wetlands in the region to improving the overall function of wetlands and watersheds within the District boundaries. This focus on wetland restoration is anticipated to be supported by e-grade, which indicates these types of restoration activities will enhance the function and value of wetlands in this geography, supporting ecosystem service goals and improving the overall subwatershed health.

Staff has worked with Lennar Corporation to develop a preliminary agreement of terms, which details roles and responsibilities to achieve the wetland restoration. The specific framework of the agreement is intended to capitalize on each parties' respective strengths. As currently contemplated, Lennar will perform construction and the District will coordinate on design, maintenance and monitoring of the wetland establishment. Currently, final site analysis, site design, easement acquisition, and other details remain to be completed pending Board support for the partnership. Should any of the above render the project infeasible, Lennar will submit to the District a signed purchase agreement for wetland bank credits identified in order to meet its WCA requirements, thus providing a fallback minimizing risk to both parties and giving the District and Lennar confidence to work in good faith to develop the value added partnership.

Next Steps:
The enclosed permit application seeks approval of WCA sequencing and conditional approval of District rules. While this permit type could typically be handled administratively, Staff are seeking Board support of the Lennar-MCWD partnership structure for WCA Wetland Replacement Plan compliance before proceeding.

Following the August 27th meeting, staff will:

- Develop Cooperative Agreement with Lennar detailing costs and responsibilities for the design, construction, and maintenance of the Wetland Restoration Plan which will be presented for Board consideration at a future meeting.
- Investigate acquisition of necessary land rights.
- Develop final restoration details and administratively process formal LGU (District) and TEP approval.
- Report back to board.

If there are questions in advance of the meeting, please contact Anna Brown by phone (952-641-4522) or email (abrown@minnehahacreek.org).

Permit Application No.: **15-266**

Rules: **Erosion Control, Floodplain Alteration, Waterbody Crossings & Structures, Wetland Protection, Stormwater Management**

Applicant: **Lennar Corporation**
Project: **Laketown 9th Development Project**
Location: **Carriage Drive and Red Fox Drive, City of Victoria**
Publicly Noticed: **August 13, 2015**

Staff Recommendation:

- Wetland Conservation Act (WCA) Sequencing application approval
    - WCA Replacement Plan application approval to be handled administratively at a later date.

- Erosion Control permit approval with the following conditions:
    1. Submission of Financial Assurance for Erosion Control measures in the amount of $13,400; and
    2. Reimbursement of Fees.

- Stormwater Management, Waterbody Crossings & Structures, Wetland Protection, and Floodplain Alteration permit approval with the following conditions:
    1. Fulfillment of WCA Replacement Plan criteria, to fulfill Wetland Protection rule criteria:
        i. Submission of a signed Purchase Agreement for the wetland bank credits identified in the WCA Wetland Replacement Plan application; and
        ii. Completion of the required 15 business day comment period on the application; and
        iii. Approval of the Wetland Replacement Plan application by staff acting under delegated authority when it is determined that applicable WCA requirements have been met, conditional on compliance with the post-approval WCA requirement that the wetland bank credits are purchased as described.

        OR, if the preferred alternative is pursued:

        i. Submission of final restoration design and specifications, timetable for implementation of the plan and completion of construction, the requisite property rights to perform the restoration; and
        ii. Completion of the required 15 business day comment period on the application; and
        iii. Approval of the Wetland Replacement Plan application by staff acting under delegated authority when it is determined that applicable WCA requirements have been met.
    2. Submission of Financial Assurances for Wetland Protection and Stormwater Management in the amount of $52,740; and
    3. Submission of a draft Declaration for maintenance of stormwater facilities and wetland buffers, for approval, then recordation.

Summary of Proposed Project:
Lennar Corporation (Lennar) has applied for a Wetland Conservation Act (WCA) Sequencing and Wetland Replacement Plan determination and a Minnehaha Creek Watershed District (MCWD) permit for Erosion Control, Floodplain Alteration, Waterbody Crossings & Structures, Wetland Protection, and Stormwater Management for a proposed subdivision development project on 163.9 acres of agricultural and residential property located adjacent to Carriage Drive and Red Fox Drive in the City of Victoria (Attachments 1 & 2). The permit does not require a variance or exception from the District rules; however, anticipating public hearing requests from residents within 600' of the property, the applicant has requested a Permit Consideration presentation before the Board of Managers.

The proposed subdivision development project includes the division of 99 individual lots, the construction of permanent public roads and recreational trails intended for neighborhood use, dedicated park and open space, and the installation of associated utilities needed for subdivision construction within the Six-Mile Creek sub-watershed. One of the proposed roads associated with development is an improvement to an existing farm road that crosses the Six-Mile Creek channel, impacting 0.97-acre of wetland. Lennar has submitted a WCA Sequencing application demonstrating that the justification for the road improvement meets WCA sequencing standards, as well as a

preliminary but incomplete Wetland Replacement Plan application for the impact proposing mitigation at a 2:1 ratio either through the purchase of wetland bank credits or project-specific mitigation. The project-specific mitigation option would involve a partnership with MCWD to restore other portions of the large wetland complex that is proposed for impact.

The specifics of regulatory compliance with the triggered rules are outlined below, as is the basis for the conditional approval of the Erosion Control, Floodplain Alteration, Waterbody Crossings & Structures, Wetland Protection, and Stormwater Management permit and approval of WCA Sequencing.

Rules Summary:

Erosion Control:

MCWD exercises Erosion Control permitting authority in the City of Victoria.

The District's Erosion Control rule is applicable for any project exceeding 5,000 square feet of soil disturbance or 50 cubic yards of excavation. Since the proposed project involves approximately 42.4 acres of disturbance within the City of Victoria, the rule is triggered. The erosion and sediment control practices proposed for the project comply with MCWD standards. Erosion and sediment control best management practices (BMPs) provided include: rock construction entrances, concrete washout, silt fence, ditch checks, erosion control blanket, 6 inches of topsoil for stabilization, and inlet protection, where applicable. The proposed erosion control plan meets the District's Erosion Control rule.

Floodplain Control:

MCWD exercises Floodplain Alteration permitting authority in the City of Victoria.

The District's Floodplain Alteration rule is applicable for any project that fills land below the projected 100-year high water elevation of a waterbody. The proposed project includes a new road and sanitary crossing connecting the Lake Wasserman Woods neighborhood to the proposed Laketown 9th, which involves filling the floodplain of Six Mile Creek with 2,440 cubic-yards of material. Since the proposed project involves fill within the floodplain, the rule is triggered. The applicant has provided calculations demonstrating that this fill will be more than compensated for by creating 2,850 cubic yards of floodplain storage elsewhere within the same floodplain on site. This floodplain alteration will not cause an increase in the 100-year flood elevation of Six Mile Creek. The floodplain alteration plan meets the District's Floodplain Alteration rule.

Waterbody Crossings & Structures:

MCWD exercises Waterbody Crossings & Structures permitting authority in the City of Victoria.

The District's Waterbody Crossings & Structures rule is applicable for any project that impacts the bed or bank of a waterbody. Since the proposed project involves two new crossings of Six Mile Creek, a Public Watercourse, the rule is triggered.

The first waterbody crossing is a culvert underneath the proposed road improvement that will enclose Six Mile Creek. A culvert currently exists at this location but has collapsed. The proposed culvert is a 21" RCP that maintains adequate hydrology through Six Mile Creek and maintains the 100-year elevation of the upstream and downstream wetlands. Replacing the collapsed culvert will provide a public benefit by ensuring the unimpeded flow of Six Mile Creek following construction of the proposed road improvement, which is required by the City of Victoria in accordance with its Comprehensive Plan (2009) and Southwest Area Master Plan (2004) to facilitate connectedness and efficient public access between residential developments and a local elementary school (discussed below). The new culvert will not affect treatment of the site's runoff and thus will not affect negatively affect water quality, and also represents the minimal impact scenario because absent a new culvert, the proposed road improvement would restrict the flow of Six Mile Creek. A wildlife passage is not relevant to the proposed crossing due to the combination of the stream's low/inadequate banks and the impact to hydraulic capacity that including a wildlife shelf within the culvert would cause.

The second waterbody crossing is a sanitary crossing that will run underneath the road improvement and the Six Mile Creek culvert. The sanitary crossing is a 27" PVC pipe. In the event of a sanitary sewer breakage, the sanitary crossing will provide redundancy from a sanitary discharge using a 42" PVC casing pipe throughout the length of the crossing; this design was reviewed by District and City staff and determined to fulfill the District's sanitary

discharge avoidance requirement. The pipe will also provide three feet of separation between the top of the pipe and the bottom of the Creek.

The proposed waterbody crossings meet the District's Waterbody Crossing & Structures rule.

Wetland Protection:
MCWD exercises Wetland Protection permitting authority and is the WCA Local Governing Unit (LGU) for the City of Victoria.

The District's Wetland Protection rule is triggered for any project proposing wetland impacts that are not exempted under WCA. Since the proposed project involves 0.97 acres of wetland impact, the rule is triggered. Portions of the proposed wetland impact are located within a state Public Waters Wetland (PWW); the Department of Natural Resources has waived regulation of PWW impacts to MCWD as the WCA LGU. In order to meet District requirements, the proposed impact must meet WCA sequencing standards and must be replaced for at a minimum 2:1 ratio under WCA wetland replacement plan standards. Additionally, the District requires that wetland buffer must be provided adjacent to each wetland within the project area.

Prior WCA Wetland Boundary & Type Determination
A wetland boundary & type determination for the wetlands within the Laketown 9th project boundary was issued on June 9, 2015. Four wetlands are located within the project area.

WCA Sequencing
WCA sequencing standards require a robust project purpose, avoidance efforts, and minimization efforts to demonstrate the necessity of the proposed wetland impact.

The stated purpose of the Laketown 9th project is to meet rising demand for residential housing in the City of Victoria in accordance with the City of Victoria Comprehensive Plan (2009) as revised and Southwest Area Master Plan (2004). The purpose of the wetland impact, specifically, is to allow for street and utility connections through the site and between adjacent neighborhoods to the east and west. The street connection is proposed to improve an existing farm road connection by extending a stub of Lakeside Drive, an existing road, west through the site across Six Mile Creek and the surrounding wetland to an existing road stub in the Lake Wasserman Woods neighborhood; the utility connection is proposed to be co-located with the street. Both connections are required by the City of Victoria's Southwest Area Master Plan to efficiently connect new neighborhoods west of the proposed development to a new elementary school east of the development. The proposed road improvement will shorten this route from 3.3-5 miles to .05-1.0 mile.

The applicant's avoidance efforts considered two project alternatives that avoid all wetland impacts. One alternative considered and rejected was the No Build alternative, which was deemed non-practicable as it fulfills neither the purpose of the project nor the City street and utility connection requirements. A second alternative considered and rejected was proceeding with the Laketown 9th project but removing the proposed road improvement, which would likewise remove all permanent wetland impacts, as installation of the utility connection would only require temporary impacts. However, removing the road improvement would not meet the City's street connection requirement for facilitating neighborhood interconnectedness and would additionally require a cul-de-sac that is too long to meet street design and safety standards, thereby diminishing safe ingress and egress for approximately 20 lots and necessitating their removal from the development. It was therefore determined that wetland impacts cannot be completely avoided; however, notably, the project design avoids impacting 98% of the wetland acreage on site.

The applicant's minimization efforts included a series of redesigned plans that eliminated three additional street crossings through wetlands; eliminated wetland fill for two recreational trails; and rejected an alternative street alignment for Lakeside Drive that would have impacted an additional wetland (Attachment 3). The applicant concurrently reduced the proposed lot sizes in order to accommodate these changes while retaining a similar number of lots as originally designed. These significant minimization efforts removed approximately 1.18 acres of proposed wetland impact.

Additional minimization efforts included steepening roadside slopes to the greatest extent possible while still meeting safety requirements; narrowing the street width from 28' to 26'; keeping the road bed as low as possible relative to the channel bottom to minimize the volume of fill required; and moving a recreational trail from the road side to behind the road curb.

The project purpose, impact avoidance, and impact minimization provided demonstrate that the proposed wetland fill represents the minimal wetland impact scenario and meets WCA sequencing standards.

WCA Replacement Plan
WCA replacement plan standards require that mitigation for the proposed wetland impact be provided at a minimum 2:1 ratio. Related to the WCA sequencing analysis for the project, no on-site wetland mitigation options are available at Laketown 9th and there are currently no wetland bank credits available within the Six Mile Creek sub-watershed or the Minnehaha Creek watershed. Lennar has identified within a preliminary Wetland Replacement Plan application, which has been submitted and distributed to the Technical Evaluation Panel (TEP) for over 15 business days of comment, two alternative mitigation strategies to fulfill its regulatory requirements. This application is currently incomplete and not being brought forward for the Board of Managers for approval at this time.

The first mitigation strategy included in the preliminary Wetland Replacement Plan application prescribes purchasing 1.95 wetland bank credits located within the Mississippi Metro (20) major (eight-digit Hydrologic Unit Code) watershed from the Meadowlark Preserve Bank (Account #1137). Submission of a signed Purchase Agreement for these wetland bank credits will render the Wetland Replacement Plan application complete. However, within the preliminary Wetland Replacement Plan, Lennar has identified as the company's preferred mitigation strategy the restoration of wetland, in partnership with MCWD, on property that Lennar does not own adjacent to the Laketown 9th project site (Attachment 4). MCWD staff have conducted substantial preliminary analysis of this concept, presented results to the TEP, and received preliminary statements of support. With the approval of the Board of Managers, MCWD staff will finalize and enter an agreement with Lennar to pursue restoration of wetlands that will, in part, serve as replacement for the impacts from the Laketown 9th project. Site analysis and project design work will then be finalized for approval as the WCA replacement plan for the project. In the event that the restoration project proves infeasible, Lennar will submit the purchase of credits from a wetland bank as its replacement plan. To pursue the project-specific mitigation strategy, final restoration design and specifications, a timetable for implementation of the plan and completion of construction, and the requisite property rights to perform the restoration must be submitted to complete the Wetland Replacement Plan application.

No replacement plan is being brought forward for approval by the Board of Managers at this time. When a complete replacement plan has been submitted, consisting of either:

i. Signed Purchase Agreement for the wetland bank credits identified in the WCA Wetland Replacement Plan application.

OR, if the preferred alternative is pursued:

i. Final restoration design and specifications, timetable for implementation of the plan and completion of construction, and the requisite property rights to perform the restoration.

the complete plan will be distributed for the required 15 business day comment period and approved administratively by staff acting under delegated authority when it is determined that the applicable WCA requirements have been met.

Wetland Buffers
The District's Wetland Protection rule requires the applicant to provide wetland buffer adjacent to each wetland on site. Of the four wetlands on site, 3.5 are Preserve wetlands, which require a 75' buffer, and half of one wetland, disconnected from its other half, is a Manage 3 wetland, which requires a 30' buffer. The site design establishes and/or maintains buffer at the widths required, incorporating buffer averaging as necessary in accordance with the District's rule to account for demonstrated site constraints and recreational trails; moreover, 82,405 square feet of buffer will be provided in excess of what is required (Attachment 5). Grading during construction will disturb 269,745 of buffer, for which the applicant has submitted a planting, maintenance, and monitoring plan that meets District requirements.

Once a the WCA Wetland Replacement Plan criteria have been fulfilled, the wetland protection plan will meet the District's Wetland Protection rule.

<u>Stormwater Management:</u>
MCWD exercises Stormwater Management permitting authority for the City of Victoria.

The District's Stormwater Management rule is applicable for any project proposing new or replacing existing impervious surface. Since the proposed project creates 487,103 square feet of new impervious surface, the rule is triggered. In accordance with Section 2 of the MCWD Stormwater Management rule, a new development project greater than 1 acre that will result in greater than 20 percent of impervious surface is required to provide phosphorus, rate, and volume control for the entire site's impervious surface. Table 1 provides the acreage of proposed disturbance to the site, as well as the acreage of proposed impervious surface.

Table 1

Size of Site (ac)	Site Drains To	Existing Impervious (ac)	Proposed Impervious (ac)
163.9 total (42.4 disturbed)	Six Mile Creek	0.00	13.41

Volume control standards require the abstraction of the first one inch of rainfall from the entire site's impervious surface. The applicant is proposing to meet the volume abstraction requirement through a combination of tree protection, filtration basins and soil amendments. Calculations submitted by the applicant and verified by the MCWD staff and engineer show that abstraction of the required one inch over the site's new impervious surface will be achieved.

Based on the new impervious surface of 13.41 acres, the applicant must provide 48,667 cubic feet of abstraction volume. The proposed combination of planting and preserving trees (2,238 cubic feet), filtration basins (37,569 cubic feet), and soil amendments (11,240 cubic feet), provide a total of 51,047 cubic feet of abstraction. The project meets the MCWD rule for volume control, as shown in Table 2.

Table 2

Abstraction Volume	
Required (cubic feet)	Provided (cubic feet)
48,667	51,047

The project meets phosphorus control through installation of filtration basins, in accordance with subsection 3(a)(2) of the Stormwater Management rule. Additionally, the site will include 269,745 square feet of buffer enhancements to de-compact the soil and aid in filtration. The enhanced wetland buffers and filtration basins will provide a phosphorus reduction that goes above the District's requirements, as shown in Table 3.

Table 3

Existing Load (pounds/year)	Proposed Load (pounds/year)
122.5	112.2

The applicant is proposing to meet the rate control requirements through the use of filtration basins and the enhancement of pervious areas (enhanced wetland buffer soils). Table 4 lists the pre- and post-construction runoff rates for all directions:

Table 4

Drainage Area	**1-year event**		**10-year event**		**100-year event**	
	Pre-	*Post-*	*Pre-*	*Post-*	*Pre-*	*Post-*
Total	**22.5**	19.2	77.4	52.9	262.6	151.5

The proposed peak runoff rates meet the District's rate-control requirements because all of the proposed lots drain toward wetlands or to streets that are directed to stormwater ponds, so there will be no increases in runoff rates to downgradient properties. The proposed stormwater management system meets the District's Stormwater Management rule.

Additionally, the applicant needed to show that the project will not have any adverse impacts on downstream waterbodies. Due to the presence of three Preserve wetlands that receive runoff, the project needed to show that:

1. The inundation period of the wetlands for the 1-, 10-, and 100-year storm event remains the same;
2. The proposed bounce elevations for the wetlands during the 1-, 10-, and 100-year storm events matches the existing bounce elevations, and
3. The runout control elevations for the wetlands do not change.

The hydroCAD calculations and plans that were submitted show that the project will meet the requirements listed above and will not have any adverse impacts on the downstream waterbodies.

Conclusion:
The project as proposed meets the District's Erosion Control rule and satisfies WCA Sequencing requirements. Based on the justification that has been provided, staff is recommending:

- Wetland Conservation Act (WCA) Sequencing application approval;
    - WCA Replacement Plan application approval to be handled administratively at a later date.

- Erosion Control permit approval with the following conditions:
    1. Submission of Financial Assurance for Erosion Control measures in the amount of $13,400; and
    2. Reimbursement of Fees.

- Stormwater Management, Waterbody Crossings & Structures, Wetland Protection, and Floodplain Alteration permit approval with the following conditions:
    1. Fulfillment of WCA Replacement Plan criteria, to fulfill Wetland Protection rule criteria:
        i. Submission of a signed Purchase Agreement for the wetland bank credits identified in the WCA Wetland Replacement Plan application; and
        ii. Completion of the required 15 business day comment period on the application; and
        iii. Approval of the Wetland Replacement Plan application by staff acting under delegated authority when it is determined that applicable WCA requirements have been met, conditional on compliance with the post-approval WCA requirement that the wetland bank credits are purchased as described.

        OR, if the preferred alternative is pursued:
        i. Submission of final restoration design and specifications, timetable for implementation of the plan and completion of construction, the requisite property rights to perform the restoration; and
        ii. Completion of the required 15 business day comment period on the application; and
        iii. Approval of the Wetland Replacement Plan application by staff acting under delegated authority when it is determined that applicable WCA requirements have been met.
    2. Submission of Financial Assurances for Wetland Protection and Stormwater Management in the amount of $52,740; and
    3. Submission of a draft Declaration for maintenance of stormwater facilities and wetland buffers, for approval, then recordation.

Attachments:
1. Site Location
2. Project Site Plans
3. Prior Development Concepts
4. Preliminary Wetland Restoration Concept
5. Wetland Buffer Plans

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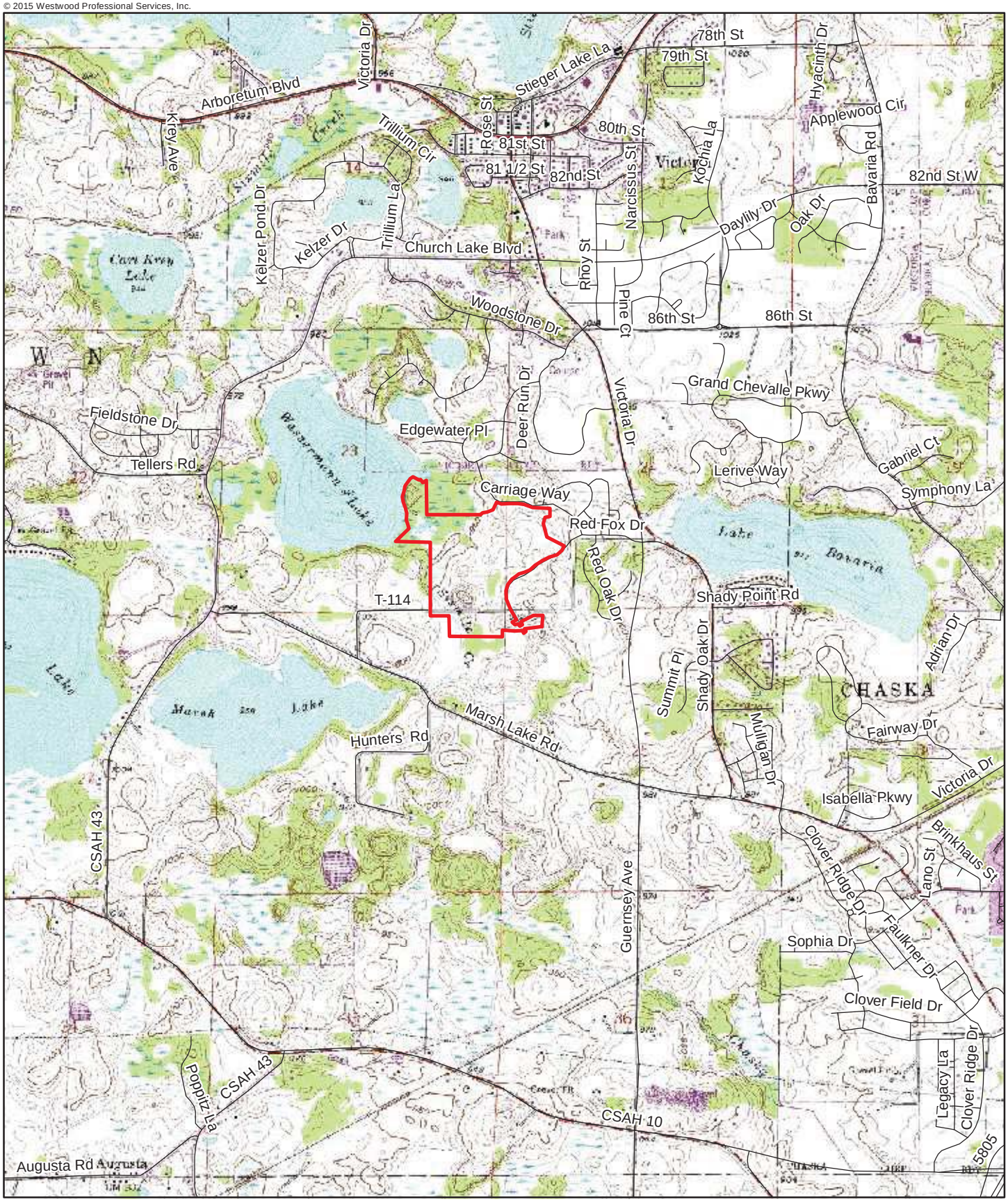

Data Source(s): MnDOT BaseMap Roads (2009), WEstwood 2015, USAD-NRCS (2002).

Laketwon 9th Addition

Victoria, Carver County, Minnesota

Site Locaiton & USGS Topography

EXHIBIT 1

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

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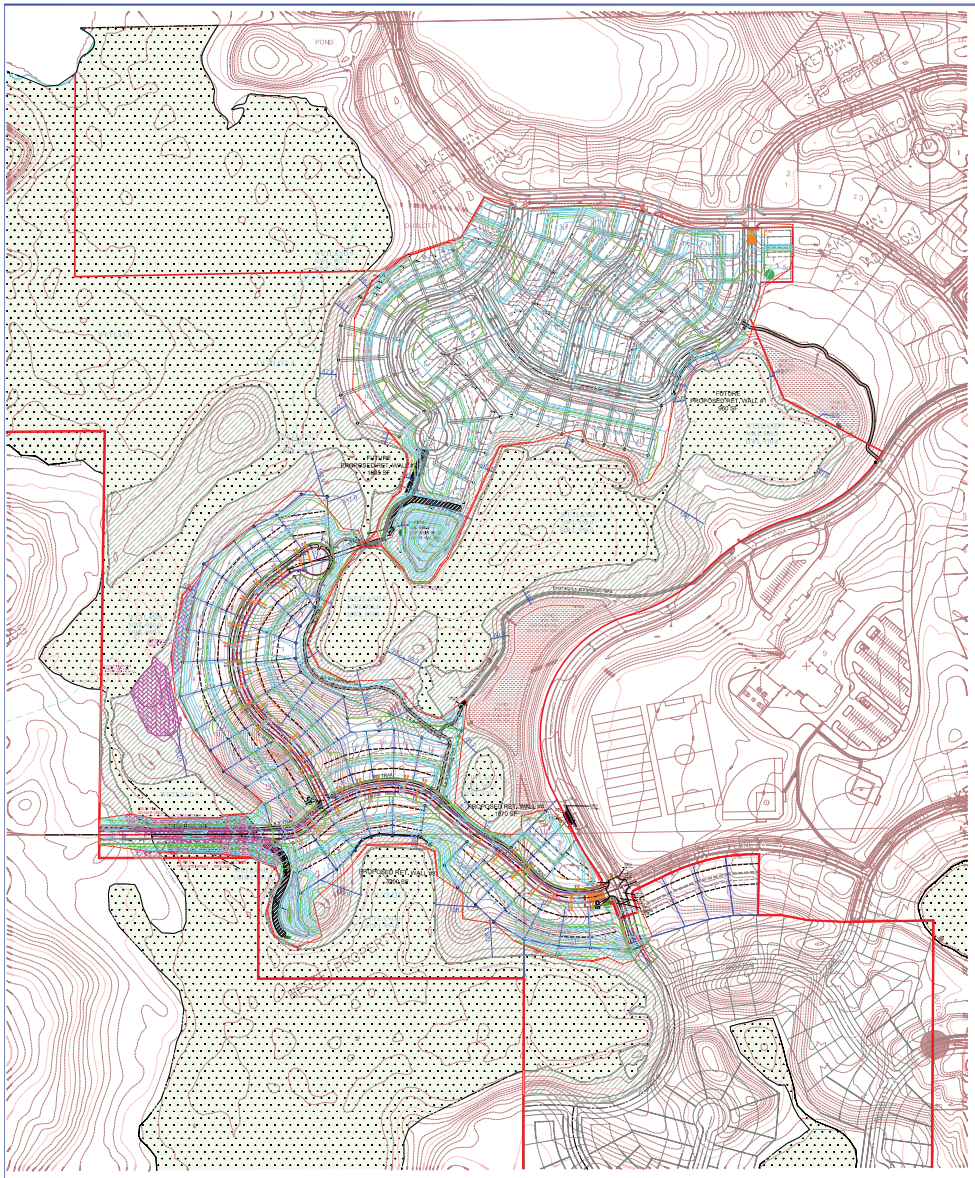
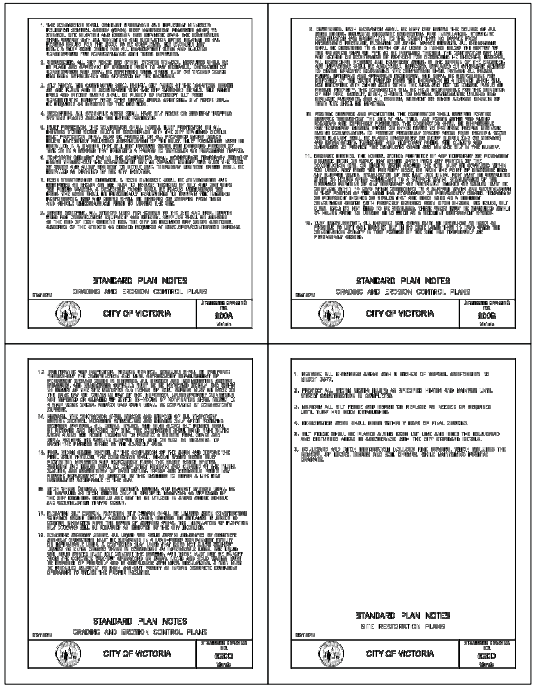
Map Document: P:\0005828.00\GIS\lennar_laketown_loc_01A_Ex1.mxd 6/8/2015 7:20:38 AM





CONSTRUCTION NOTES:

1. INSTALL SILT FENCE AS SHOWN ON PLAN, AS REQUIRED BY THE CITY OF VICTORIA, OR DIRECTED BY THE ENGINEER.
2. THE WATER QUALITY POND MUST BE EXCAVATED AT THE BEGINNING OF GRADING OPERATIONS TO PROVIDE TEMPORARY STORM WATER DETENTION DURING CONSTRUCTION. SAND,CLAYS, AND SILTS MUST BE REMOVED FROM THE POND AS NECESSARY DURING CONSTRUCTION AND AT THE COMPLETION OF THE PROJECT. REFER TO SECTION 2.2 OF THE STORM WATER POLLUTION PREVENTION PLAN.
3. BEGIN GRADING, INSTALL PERFORATED RISER PIPE IN PONDS WHEN POND GRADING IS COMPLETE. TEMPORARY DRAINAGE PIPE SHALL BE USED FOR INTERMEDIATE DRAINAGE DURING THE CONSTRUCTION PERIOD AS NECESSARY AND DIRECTED BY THE ENGINEER. THE TEMPORARY DRAINAGE PIPES SHALL BE INCIDENTIAL TO THE GRADING OPERATIONS. INSTALL SILT FENCE AROUND EXCAVATED POND. AFTER THE AS-BUILT ELEVATIONS HAVE BEEN VERIFIED BY THE ENGINEER.
4. INSPECT POND, SILT FENCE, AND ROCK ENTRANCE BERM AFTER ALL RAINFALL EVENTS AS REQUIRED BY THE NPDES PERMIT.
5. LINE ALL PONDS WITH A MINIMUM 3" ORGANIC SOILS & SEED SLOPES BETWEEN NWL AND 100 YR HWL WITH A WATER TOLERANT MIX, (OR AS NOTED)
6. REMOVE PERFORATED RISER PIPE WHEN STORM SEWER AND OUTLET STRUCTURE FOR PONDS ARE INSTALLED (INCIDENTAL).
7. LO & WO FINISHED PADS SHALL BE FLATTER THAN 3:1. ALL OTHER SLOPES 4:1 MAX (UNLESS NOTED)
8. RESTORATION - 42.3 ACRES PLUS WETLAND RESTORATION AREAS
   A. RESTORE ALL DISTURBED AREAS WITH 4" TO 8" OF TOPSOIL, OR EXISTING ON-SITE ORGANIC MTRL.
   B. SEED ALL DISTURBED AREAS WITH MNDOT MIXTURE 4250 AT A RATE OF 100 LBS/ACRE AND FERTILIZE WITH 20-3-10 AT 100 LBS./ACRE. (UNLESS OTHERWISE NOTED) WETLAND RESTORATION - BWSR SEED MIX FOR WETLANDS (AS NOTED IN THE WETLAND REPLACEMENT PLAN APPLICATION)
   C. ONLY PHOSPHOROUS FREE FERTILIZER IS TO BE USED ON SITE.
   D. MULCH WITH TYPE 1 AT A RATE OF 2 TONS/ACRE AND DISC ANCHOR IMMEDIATELY AFTER PLACEMENT. USE CAT. 3 EROSION CONTROL BLANKET ON ALL SLOPES 3:1 (FT) OR GREATER.
   E. PLACE APPROVED STORM SEWER INLET PROTECTION IN OR AROUND ALL STORM SEWER INLETS AND MAINTAIN UNTIL STREET CONSTRUCTION IS COMPLETED.
   F. MAINTAIN ALL SILT FENCE UNTIL TURF HAS BEEN ESTABLISHED.
   G. RESTORATION WORK WILL BE COMPLETED WITHIN 72 HOURS OF GRADING COMPLETION.
9. SILT FENCE, BEFORE GRADING - 15,960 LF
10. SILT FENCE, AFTER GRADING - 1,110 LF
11. CAT. 3 EROSION CONTROL BLANKET - 142,590 SQFT
12. ESTIMATED CUT: 167,606 C.Y.
    ESTIMATED FILL: 196,875 C.Y.
13. BOARDWALK OVER WETLAND 7 EOF TO BE CONSTRUCTED WITH FUTURE PHASE; NOTE 30" CLEARANCE MUST BE MAINTAINTED OVER EOF
14. STREET SECTION
    1.5" MNDOT 2360 TYPE SP BIT, WEARING COURSE
    2.0" MNDOT 2360 TYPE SP BIT, NON-WEARING COURSE
    8.0" AGGREGATE BASE, CL 5, 100% CRUSHED STONE AGGREGATE (SPEC 3138)
    24" SELECT GRANULAR BORROW (SPEC 3149,2B)
15. PERMITS TO BE OBTAINED PRIOR TO CONSTRUCTION, RETAINING WALLS TO BE REVIEWED AT THE TIME OF PERMITTING.
16. RETAINING WALLS GREATER THAN 4 FT. IN HEIGHT MUST BE CONSTRUCTED WITH PLANS PREPARED BY A REGISTERED PROFESSIONAL ENGINEER.
17. RETAINING WALLS SHALL MEET CITY SPECIFICATION 3232.

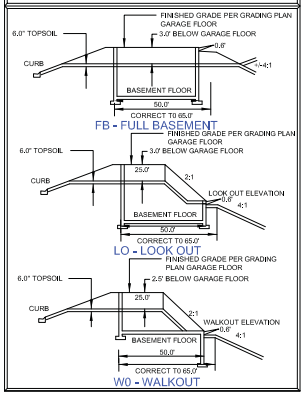
GENERAL NOTES:

1. THE GRADING CONTRACTOR IS RESPONSIBLE FOR ALL STORM WATER INSPECTIONS ACCORDING TO THE MPCA STORM WATER PERMIT. THIS INCLUDES BOTH WEEKLY INSPECTIONS AND INSPECTIONS DURING AFTER A 0.5" RAIN EVENT. A COPY OF THE INSPECTION REPORT MUST BE EMAILED TO THE ENGINEER AND DEVELOPER ON A WEEKLY BASIS.
2. THE CONTRACTOR SHALL PLACE INLET PROTECTION DEVICES FOR ALL STORM SEWER INLETS(EXISTING AND PROPOSED) AND MAINTAIN THEM AS AN EFFECTIVE SILT CONTROL DEVICE. INLET PROTECTION SHALL BE REMOVED WHEN RESTORATION HAS BEEN ESTABLISHED.
3. ALL RETAINING WALLS WILL REQUIRE A STRUCTURAL DESIGN, A BUILDING PERMIT & A FINAL INSPECTION REPORT.(IF APPLICABLE)
4. A 1"-2" CRUSHED ROCK ENTRANCE BERM SHALL BE PLACED AT THE SITE ENTRANCE, TO REPLACE SILT FENCE, AND MINIMIZE EROSION ON TO THE STREETS. THE ROCK BERMS SHALL BE THE WIDTH OF THE ENTRANCE AND 2 FEET HIGH WITH 4:1 SLOPES. (SEE DETAIL)
5. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM THE BUILDING PAD AND STREET AREAS THROUGHOUT CONSTRUCTION.
6. THE CONTRACTOR SHALL ATTEMPT TO PREVENT SOIL MATERIALS FROM LEAVING THE SITE BY EROSION AND VEHICLE WHEEL TRACKING. HE SHALL BE RESPONSIBLE FOR CLEANING OF STREET, BOULEVARD AND UTILITY FACILITIES THAT RECEIVE ANY ERODED OR TRACKED SOIL MATERIAL OR OTHER CONSTRUCTION DEBRIS OR MATERIAL. THE GRADING CONTRACTOR WILL BE REQUIRED TO PROVIDE STREET SWEEPING ON HIS DRIVE DURING THE GRADING OPERTIONS, IF REQUIRED.
7. EXISTING UTILITIES SHOWN ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES ARISING OUT OF HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES.

HOLDDOWN NOTES:

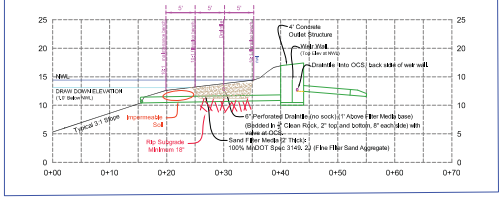
1. THE PAD HOLDDOWNS WILL BE PER THE DETAILS BELOW. THE TEMPLATES BELOW ARE STANDARD TEMPLATES, IN CERTAIN AREAS THE HOLDDOWN ELEVATIONS HAVE BEEN REVISED TO MAINTAIN POSITIVE DRAINAGE.
2. THE PROJECT ENGINEER WILL PROVIDE THE CONTRACTOR WITH A POINT LIST (ASC AND TXT FORMAT) OF THE FOLLOWING -
   - AT LEAST 4 CONTROL POINTS
   - CENTERLINE FINISHED GRADE EVERY 50 FEET
   - FINISHED GRADE LOT CORNER ELEVATIONS
   - PAD HOLDDOWN ELEVATIONS
   - DRAINAGE SWALE ELEVATIONS
3. THE GRADING CONTRACTOR WILL BE REQUIRED TO PROVIDE THE ENGINEER WITH AN AS-BUILT POINT LIST FOR THE SUBGRADE, PRIOR TO THE RE-SPREADING OF TOPSOIL, AND AN AS-BUILT FINISHED GRADE POINT LIST, PRIOR TO ASKING FOR AS-BUILT VERIFICATION, FOR EACH OF THE ITEMS OUTLINED IN ITEM 3 ABOVE.
4. (FILE TYPE: PNT NO, NORTHING, EASTING, ELEVATION, DESCRIPTION) (ASC OR TXT FORMAT)

HOLDDOWN DETAILS



	Filtration Vol [CF]	Rate [IN/HR]	Time [HR]	Area Needed [SF]	Area Provided [SF]	Flow Rate [CFS]
Pond E =	5,009.30	1.6	48	782	800	0.03
Pond I =	12,500.00	1.6	48	5078	5100	0.19

TYPICAL INFILTRATION BENCH DETAIL



DRAWING NAME	NO.	BY	DATE	REVISIONS
BASE LT9	01	DSG	04/23/15	CITY COMMENTS
DRAWN BY	02	DLS	05/14/15	WETLAND FILL COMMENTS
DSG	03	IJW	06/19/15	MCWD COMMENTS
CHECKED BY	04	IJW	06/30/15	MCWD COMMENTS
DLS	05	DSG	07/31/15	CITY/MCWD COMMENTS
DATE				
03/27/15				

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I HEREBY CERTIFY THAT THIS PLAN OR SPECIFICATION WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DANIEL SCHMIDT, P.E.
Date: 03/27/2015 Lic. No. 26147

SATHRE-BERGQUIST, INC.
150 SOUTH BROADWAY WAYZATA, MN. 55391 (952) 476-6000

CITY PROJECT NO.
–

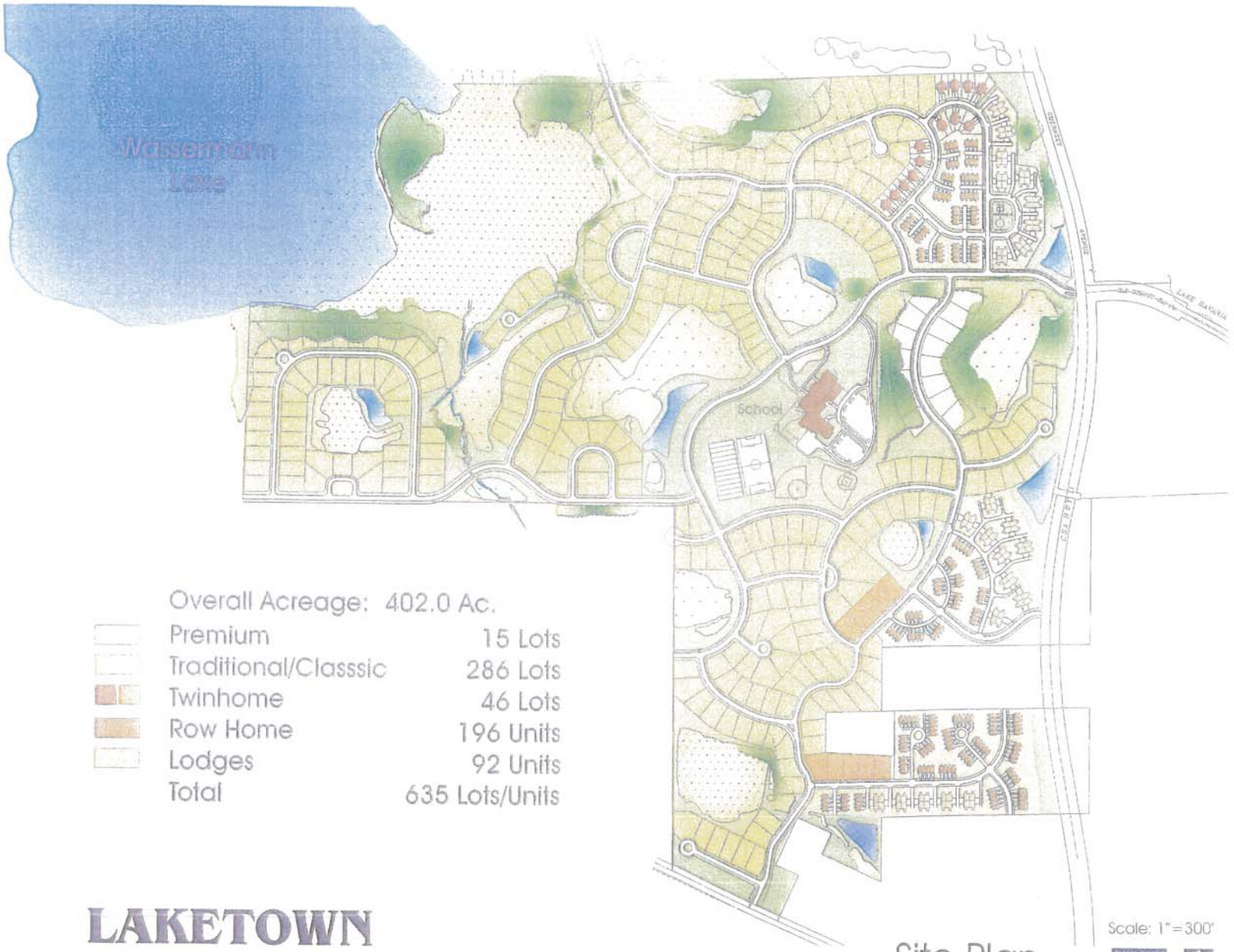
VICTORIA, MINNESOTA

GRADING PLAN
LAKETOWN 9TH ADDITION
LENNAR

FILE NO.
5401-669-900

15
39

LAKETOWN 9TH ADDN 5401-669-900



Overall Acreage: 402.0 Ac.

Premium	15 Lots
Traditional/Classsic	286 Lots
Twinhome	46 Lots
Row Home	196 Units
Lodges	92 Units
Total	635 Lots/Units

LAKETOWN

Victoria, MN

July 27,2004

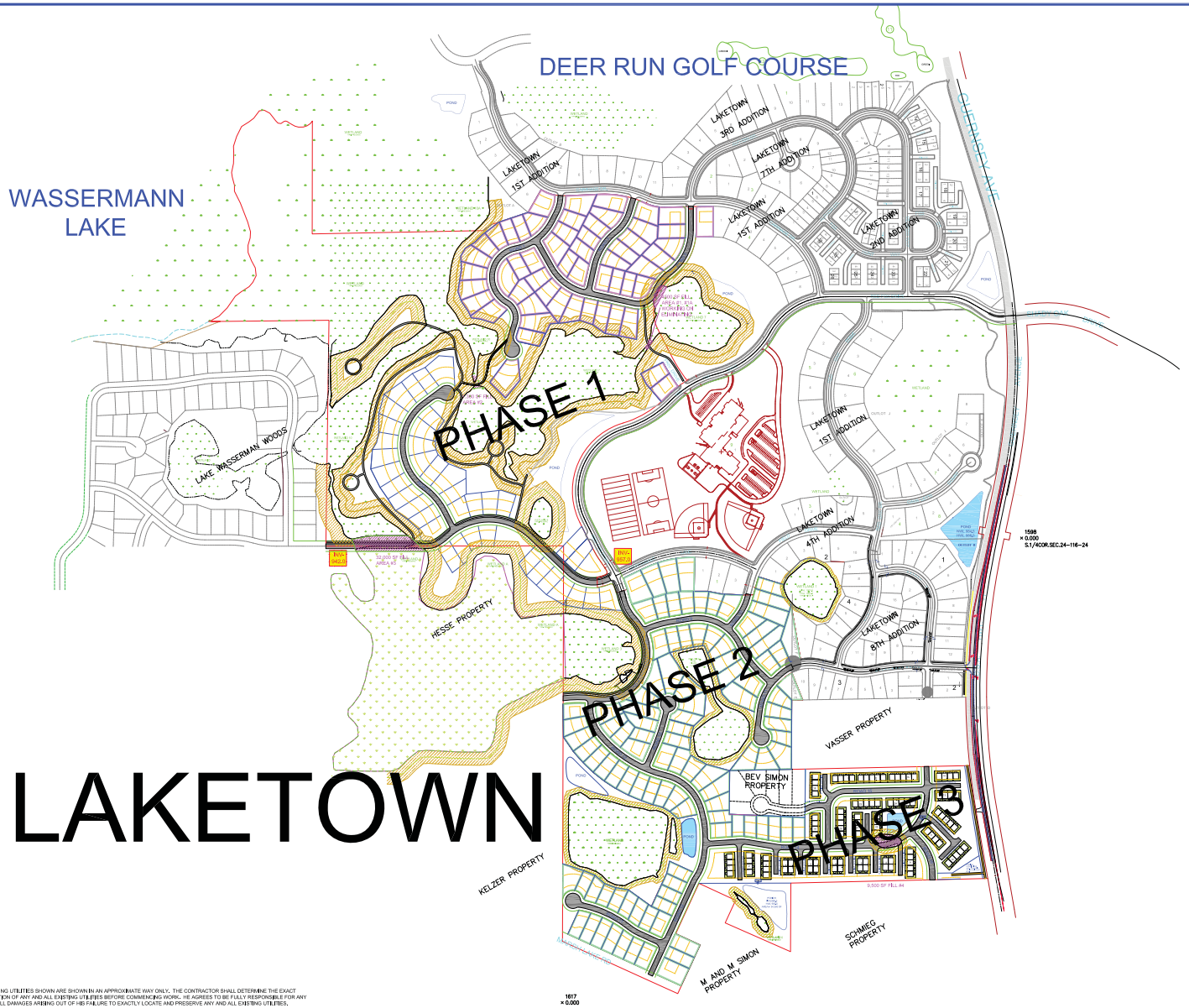
O:\4000\4100.8\LaketownFinalPlat726.cdr

Site Plan

Scale: 1"=300'

North

Exhibit 8



CONCEPT SKETCH DATA

LOT STANDARDS

Zoning: R Residential w/PUD Overlay

70 WIDE LOTS
MIN. FRONT YARD SETBACK = 30'
(FRONT YARD SETBACK CAN GO TO 25' TO SAVE TREES/WETLAND FILL)
MIN. SIDE YARD SETBACK = 10'
MIN. REAR YARD SETBACK = 30'
CORNER SETBACK - 20 FT
MAX LOT COVERAGE - 35%

Type	Buffer Width
Manage 3	20 feet
Manage 2	30 feet
Manage 1	40 feet
Preserve	75 feet

PARK AREA

PARK #1:	3.1 ACRES
PARK #2:	1.3 ACRES
PARK #3:	4.8 ACRES
PARK #4 :	0.8 ACRES
TOTAL:	10.0 ACRES

LEGEND

PHASE 1

PHASE 2

PARKS

NORTH

300 150 0 150 300 600

SCALE IN FEET

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Exhibit 8a

DESIGNER	NO.	BY	DATE	REVISIONS
DLS	4	DLS	10/27/2014	REVISED CONCEPT SKETCH
DRAWN BY	5	DSG	10/31/2014	REVISED CONCEPT SKETCH
CAW	6	DSG	11/21/2014	REVISED CONCEPT SKETCH
CHECKED BY	7	DSG	12/01/2014	REVISED CONCEPT SKETCH
DLS	8	DSG	12/08/2014	REVISED CONCEPT SKETCH
DATE	9	DSG	01/06/2015	REVISED SIMON SKETCH
04/16/13				

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Daniel J. Schmidt

Daniel J. Schmidt, P.E.
Date: 07-31-2014 Lic. No. 26147

SATHRE-BERGQUIST, INC.
150 SOUTH BROADWAY WAYZATA, MN. 55391 (952) 476-6000

CITY PROJECT NO.
—

VICTORIA, MINNESOTA

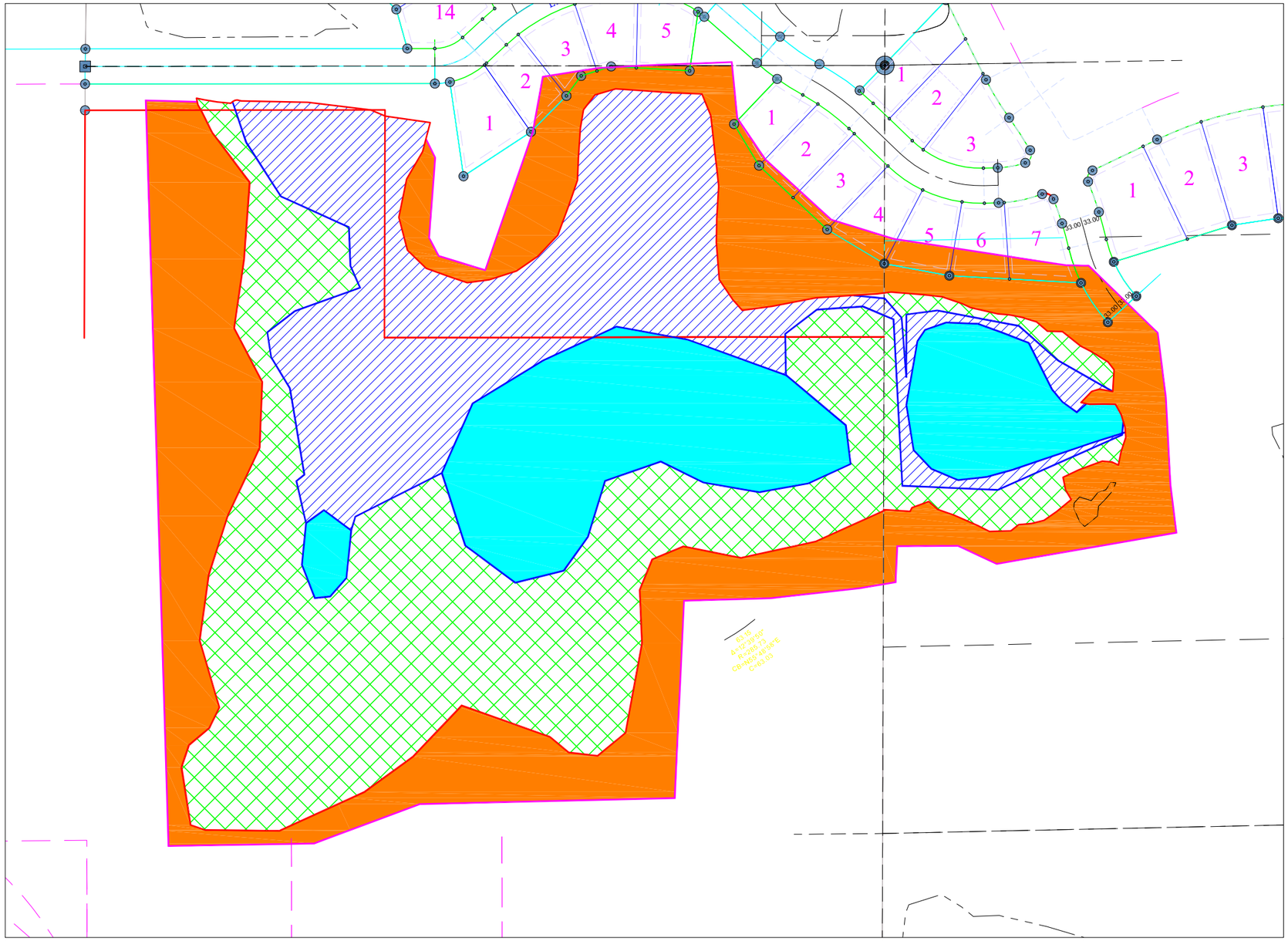
TITLE SHEET

LAKETOWN

FILE NO.
5401-651

C1
C4

LAKETOWN 9TH ADDITION
HESSE WETLAND IMPROVEMENT OVERLAY



EST.NATIVE BUFFER

INVASIVE SPEC. CONTROL

MAINT. NATIVE SPEC.

WATER

OWNER	TOTAL AREA	ESTABLISH NATIVE BUFFER	INVASIVE SPECIE CONTROL	MAINTAIN NATIVE SPEC.	WATER
	[ACRES]	[ACRES]	[ACRES]	[ACRES]	[ACRES]
LENNAR	12.0	5.1	1.1	4.3	1.5
OTHER	23.9	6.2	10.1	3.6	4.1

NORTH

SATHRE-BERGQUIST, INC.

WETLAND BUFFER SEEDING NOTES

1. BWSR SEED MIXES SHALL BE ACQUIRED FROM SHOOTING STAR NATIVE SEEDS OR SIMILAR DISTRIBUTOR.
2. THE CONTRACTOR SHALL SUBMIT SEED TAGS AND WRITTEN CERTIFICATION OF NATIVE WETLAND SEED MIX CONTENTS AND SUPPLIERS FOR APPROVAL BY THE ENGINEER/ENVIRONMENTAL SCIENTIST PRIOR TO INSTALLATION.
3. AFTER COMPLETION OF FINAL GRADING, THE SEEDBED SHALL BE PREPARED AND SMOOTHED TO BREAK UP ROOT SYSTEMS AND SOIL CLODS SO THAT THE AVERAGE CLUMP IS LESS THAN 2 INCHES IN DIAMETER.
4. PRIOR TO SEEDING, THE CONTRACTOR SHALL KILL AND PLOW OR DISC VEGETATION THAT COVERS MORE THAN 25 PERCENT OF THE GROUND IN THE AREA TO BE SEEDED.
5. THE SEEDBED SHALL BE PREPARED BY DECOMPACTING SOIL TO A DEPTH OF 18 INCHES AND AMMENDING SOIL WITH ORGANIC MATTER. SOIL DECOMPACTION WITHIN THE DRIP LINE OR CRITICAL ROOT ZONE OF TREES OR WITHIN 10 FEET OF UTILITIES WILL BE ACCOMPLISHED SOLELY BY INCORPORATION OF ORGANIC MATTER.
6. SEEDING SHALL NOT BE CONDUCTED BETWEEN JULY 10 AND AUGUST 20.
7. THE CONTRACTOR SHALL SEED: STATE SEED MIX 35-641 (MESIC PRAIRIE SOUTHEAST) (BWSR SEED MIX U5) ON GRADED/DISTURBED DESIGNATED BUFFER AREAS.
8. SEED MIXES SHALL BE INSTALLED AT THE RATES SPECIFIED BELOW:

MIX	LBS. PURE/LIVE SEED/ACRE
BWSR U5 (35-641)	12.0

9. SUBSTITUTIONS OF SIMILAR SPECIES OR MIXES MUST BE APPROVED BY THE ENVIRONMENTAL SCIENTIST.
10. SEED MIXES SHALL BE INSTALLED IN ACCORDANCE WITH:

- *RESTORING & MANAGING NATIVE WETLAND & UPLAND VEGETATION* (JACOBSON, 2006, MINNESOTA BOARD OF WATER & SOIL RESOURCES (BWSR) AND MINNESOTA DEPARTMENT OF TRANSPORTATION [see http://www.bwsr.state.mn.us/wetlands/publications/nativewetveg.pdf]),
- *2014 SEEDING MANUAL* (MINNESOTA DEPARTMENT OF TRANSPORTATION OFFICE OF ENVIRONMENTAL STEWARDSHIP, 2014 [see http://www.dot.state.mn.us/environment/erosion/pdf/seedingmanual.pdf]), AND
- *STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2014 EDITION* (MINNESOTA DEPARTMENT OF TRANSPORTATION, 2014).

11. SEED MIX U5 MAY BE BROADCAST OR SEEDED WITH A NATIVE GRASS DRILL.
12. AREAS SEEDED TO MIX U5 SHALL BE FIRMED WITH A ROLLING-TYPE PACKER WITHIN TWO DAYS AFTER SEEDING.
13. SEEDED AREAS SHALL BE MULCHED WITH MN/DOT TYPE 3 (MCIA CERTIFIED WEED FREE GRAIN STRAW) MULCH AT A RATE OF 2 TONS PER ACRE AND THE MULCH SHALL BE ANCHORED WITH A DISC OR TACKIFIER.

DISTURBED WETLAND BUFFER
356 SQFT
+ 1,745 SQFT
+ 2,460 SQFT
+ 53,985 SQFT
+ 96,420 SQFT
+ 3,530 SQFT
+ 11,855 SQFT
+ 15,500 SQFT
+ 49,545 SQFT
+ 23,020 SQFT
+ 229 SQFT
+ 11,100 SQFT
= 269,745 SQFT

WB BUFFER MONUMENTS TO BE USED ARE MCWD STANDARD

NORTH

200 100 0 100 200 400
SCALE IN FEET

DRAWING NAME	NO.	BY	DATE	REVISIONS
BASE LT9	01	DSG	04/23/15	CITY COMMENTS
DRAWN BY	02	DLS	05/14/15	WETLAND FILL COMMENTS
DSG	03	IJW	06/19/15	MCWD COMMENTS
CHECKED BY	04	IJW	06/30/15	MCWD COMMENTS
DLS	05	DSG	07/31/15	CITY/MCWD COMMENTS
DATE				
03/27/15				

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DANIEL SCHMIDT, P.E.
Date: 03/27/2015 Lic. No. 26147

ENGINEERS SURVEYORS DESIGNERS PLANNERS
SATHRE-BERGQUIST, INC.
150 SOUTH BROADWAY WAYZATA, MN. 55391 (952) 476-6000

CITY PROJECT NO. --

VICTORIA, MINNESOTA

WETLAND BUFFER PLAN
LAKETOWN 9TH ADDITION
LENNAR

FILE NO. 5401-669-900

BA2 / BA4