Timber Ridge Community Storm Water Management Practice Maintenance Agreement

Timber Ridge Community Association, as the master association of the property described below, in accordance with Chapter 32 City of Waukesha Storm Water Management and Erosion Control, agrees to install and maintain storm water management practice(s) on the subject property in accordance with approved plans and Storm Water Management Plan conditions. The owner further agrees to the terms stated in this document to ensure that the storm water management practice(s) continues serving the intended functions in perpetuity. This Agreement includes the following exhibits:

Exhibit A: <u>Legal Description</u> of the real estate for which this Agreement applies ("Property").

Exhibit B: <u>Location Map(s)</u> – shows an accurate location of each storm water management practice affected by this Agreement.

Exhibit C: <u>Maintenance Plan</u> – prescribes those activities that must be carried out to maintain compliance with this Agreement.

Exhibit D: <u>Design Summary</u> – contains a summary of key engineering calculations and other data used to design the wet detention basin.

Exhibit E: <u>As-built Survey</u> – shows detailed "as-built" cross-section and plan view of the wet detention basin.

Exhibit F: Engineering/Construction Verification – provides verification from the project engineer that the design and construction of the wet detention basin complies with all applicable technical standards and City of Waukesha ordinance requirements.

Exhibit G: Storm Water Management & Erosion Control Permit

Termination – provides certification by the City of Waukesha that the

Storm Water and Erosion Control Permit for the above noted site has been terminated.

City of Waukesha 130 Delafield Street Waukesha, WI 53188

Through this Agreement, the Owner hereby subjects the Property to the following covenants, conditions and restrictions:

- 1. The Owner shall be responsible for the routine and extraordinary maintenance and repair of the storm water management practice(s) and drainage easements identified in Exhibit B until Storm Water and Erosion Control Permit termination by the City of Waukesha in accordance with Chapter 32 of the City Code of Ordinances.
- 2. After Storm Water and Erosion Control Permit termination under 1., the current Owner(s) shall be solely responsible for maintenance and repair of the storm water management practices and drainage easements in accordance with the maintenance plan contained in Exhibit C.
- 3. Upon written notification by City of Waukesha or their designee, the Owner(s) shall, at their own cost and within a reasonable time period determined by the City of Waukesha, have an inspection of the storm water management practice conducted by a qualified professional, file a report with the City of Waukesha and complete any maintenance or repair work recommended in the report. The Owner(s) shall be liable for the failure to undertake any maintenance or repairs.
- 4. In addition, and independent of the requirements under paragraph 3 above, the City of Waukesha, or its designee, is authorized to access the property as necessary to conduct inspections of the storm water management practices or drainage easements to ascertain compliance with the intent of this Agreement and the activities prescribed in Exhibit C. The City of Waukesha may require work to be done which differs from the report described in paragraph 3 above, if the City of Waukesha reasonably concludes that such work is necessary and consistent with the intent of this agreement. Upon notification by the City of Waukesha of required maintenance or repairs, the Owner(s) shall complete the specified maintenance or repairs within a reasonable time frame determined by the City of Waukesha.
- 5. If the Owner(s) do not complete an inspection under 3. above or required maintenance or repairs under 4. above within the specified time period, the City of Waukesha is authorized, but not required, to perform the specified inspections, maintenance or repairs. In the case of an emergency situation, as determined by the City of

- Waukesha, no notice shall be required prior to the City of Waukesha performing emergency maintenance or repairs. The City of Waukesha may levy the costs and expenses of such inspections, maintenance or repair related actions as a special charge against the Property and collected as such in accordance with the procedures under s. 66.0627 Wis. Stats. or subch. VII of ch. 66 Wis. Stats.
- 6. This Agreement shall run with the Property and be binding upon all heirs, successors and assigns. After the Owner records the addendum noted above, the City of Waukesha shall have the sole authority to modify this agreement upon a 30-day notice to the current Owner(s).

Dated this day of, 201	
Owner:	
Steve DeCleene	
Ac	eknowledgements
State of Wisconsin: County of Waukesha	
Personally came before me this day of _ known to be the person who executed the forego	, 201, the above named Steve DeCleene to me ping instrument and acknowledged the same.
	.
	Notary Public, Waukesha County, WI My commission expires:
This document was drafted by: Ellena Engineering Consultants, LLC	
700 Pilgrim Parkway, Suite 100 Elm Grove, WI 53122	
	For Certification Stamp

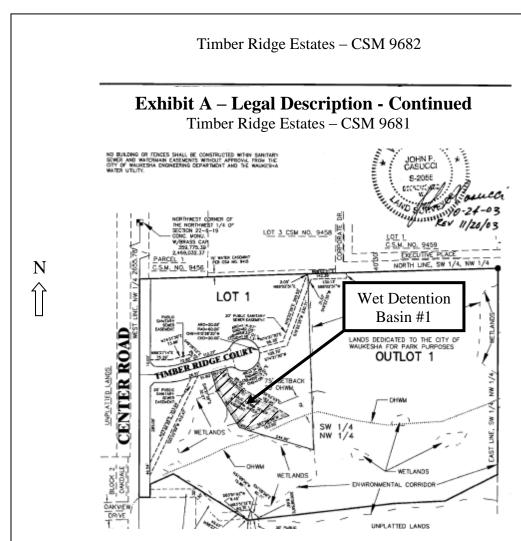
Exhibit A – Legal Description

The following description and reduced copy map identifies the land parcel(s) affected by this Agreement. For a larger scale view of the referenced document, contact the Waukesha County Register of Deeds office.

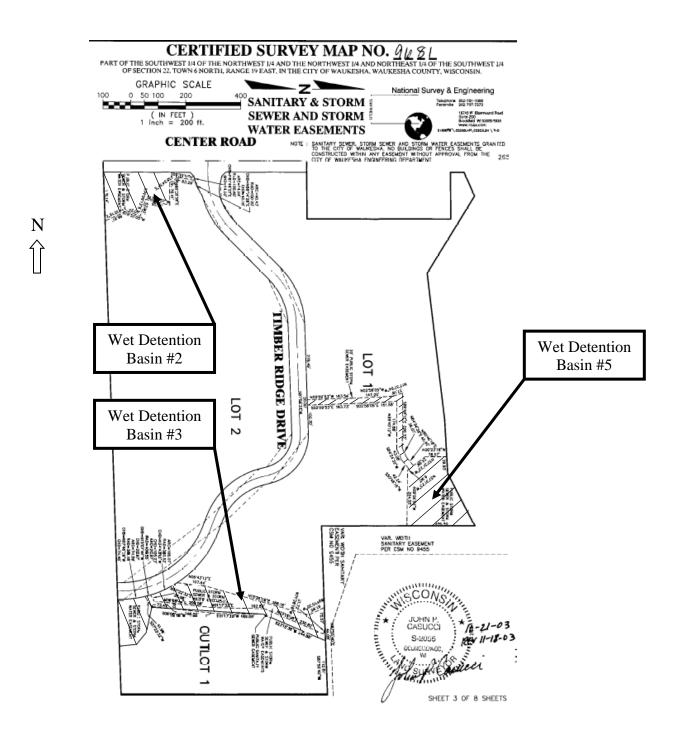
Project Identifier: **Timber Ridge Estates** Acres:

Date of Recording: December 4, 2003

Map Produced By: National Survey & Engineering, 16745 W. Bluemound Road, S200, Brookfield, WI Legal Description: Lot 1 and Lot 2 Certified Survey Map No. 9681, part of the Southwest 1/4 of the Northwest 1/4 and the Northwest 1/4 and Northeast 1/4 of the Southwest 1/4 of Section 22, Town 6 North, Range 19 East, in the City of Waukesha, Waukesha County, Wisconsin, Also Lot 1 of Certified Survey Map No. 9682, part of the Southwest 1/4 of the Northwest 1/4 of Section 22, Town 6 North, Range 19, East, in the City of Waukesha, Waukesha County, Wisconsin.



<u>Drainage Easement Restrictions</u>: The cross hatched area on map indicates a drainage easement for storm water collection, conveyance and treatment. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt storm water flows in any way. See Exhibit C for specific maintenance requirements for storm water management practices within this area. See CSM for details on location.



<u>Drainage Easement Restrictions</u>: The cross hatched areas on map indicates a drainage easement for storm water collection, conveyance and treatment. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt storm water flows in any way. See Exhibit C for specific maintenance requirements for storm water management practices within this area. See CSM for details on location.

Exhibit B - Location Map Storm Water Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of a portion of the construction plans, as shown below. The practices include four wet detention basins and all associated pipes, earthen berms, emergency wiers and other components of these practices. All of the noted storm water management practices are located within a drainage easement on a recorded Certified Survey Map, as noted in Exhibit A.

Subdivision Name: Timber Ridge Estates

Storm water Practices: Wet Detention Basin 1, 2, 3 and 5

<u>Location of Practices</u>: Stormwater Easements as shown on the recorded Certified Survey Maps.

Owners of Stormwater Easements: Timber Ridge Homeowners Association

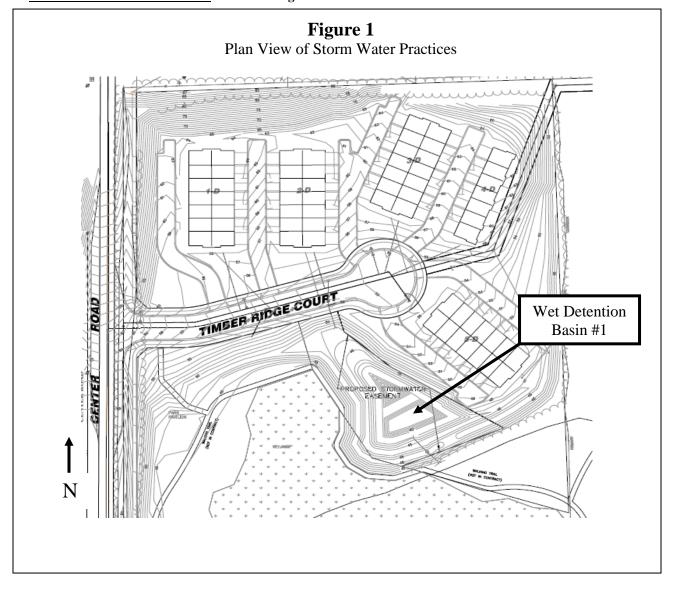


Exhibit B – Continued Figure 1A

Enlarged Plan View of Pond 1

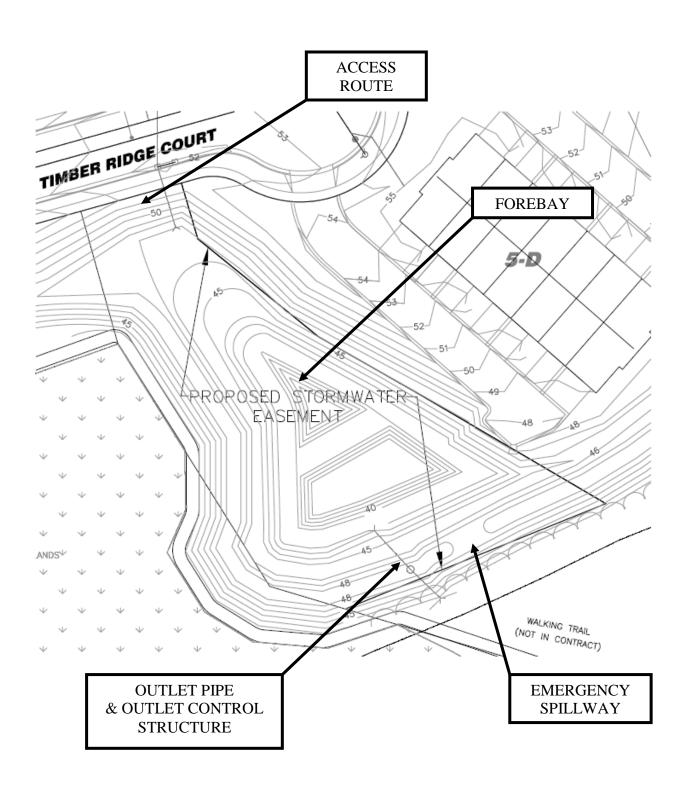


Exhibit B – Continued

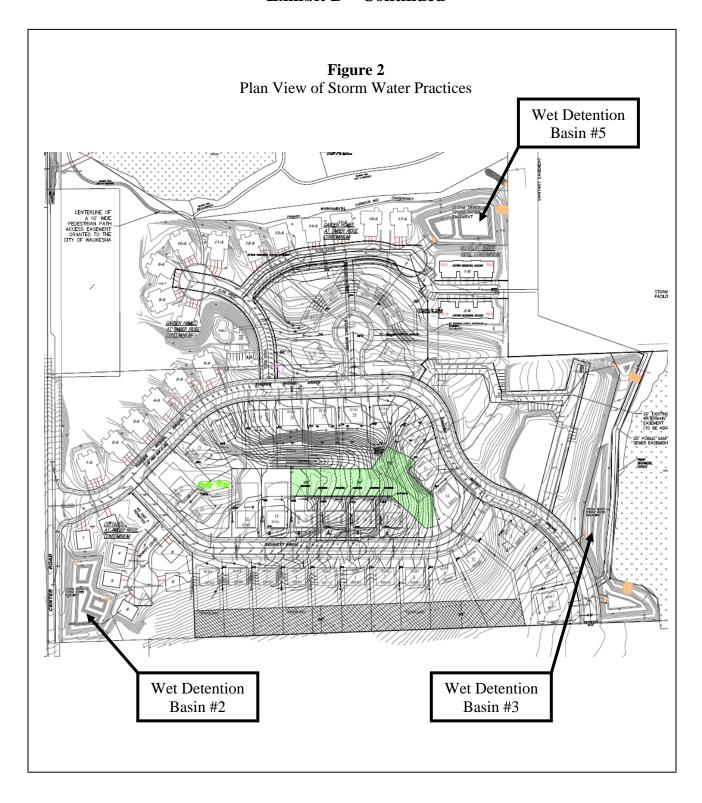
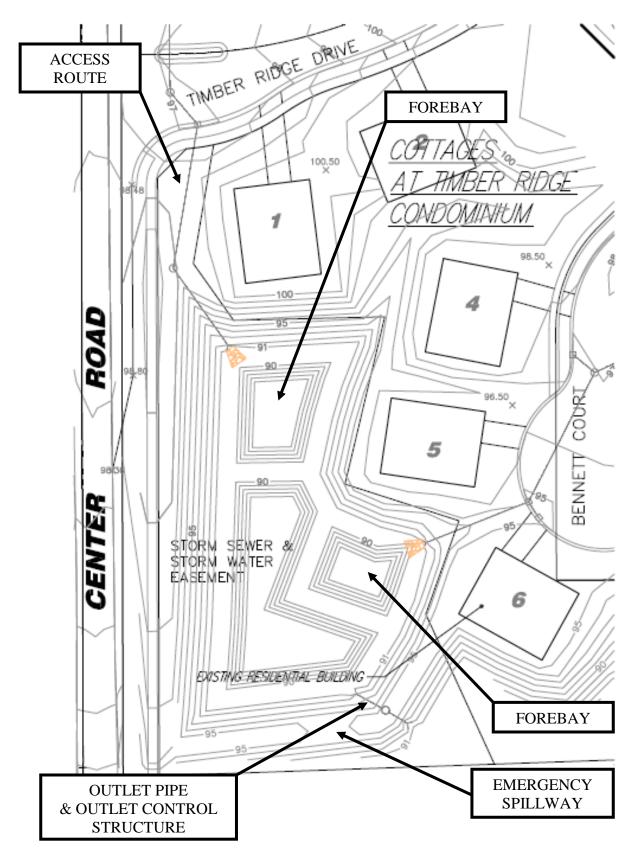


Exhibit B – Continued Figure 2A

Enlarged Plan View of Pond 2



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Exhibit B – Continued Figure 2B

Enlarged Plan View of Pond 3

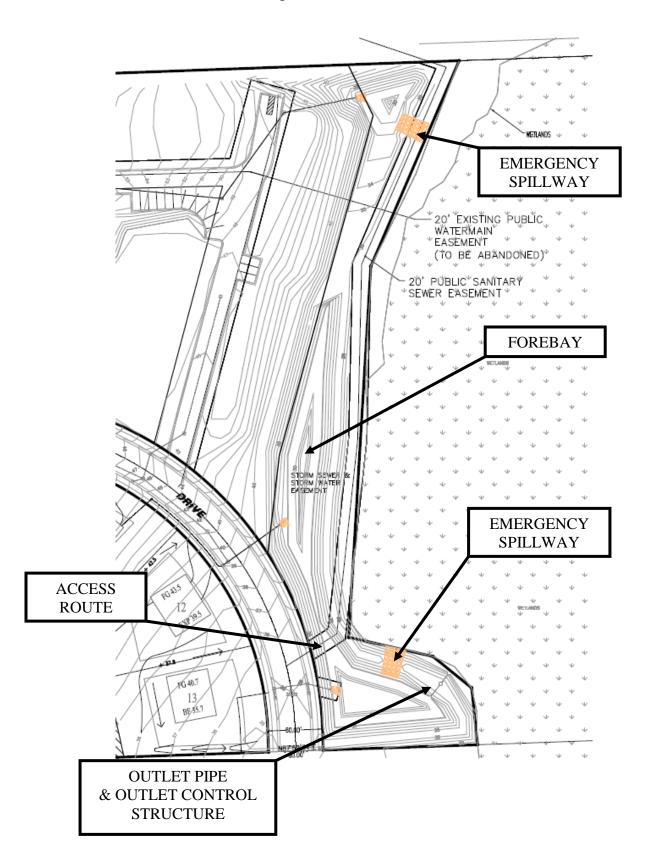


Exhibit B – Continued
Figure 2C
Enlarged Plan View of Pond 5

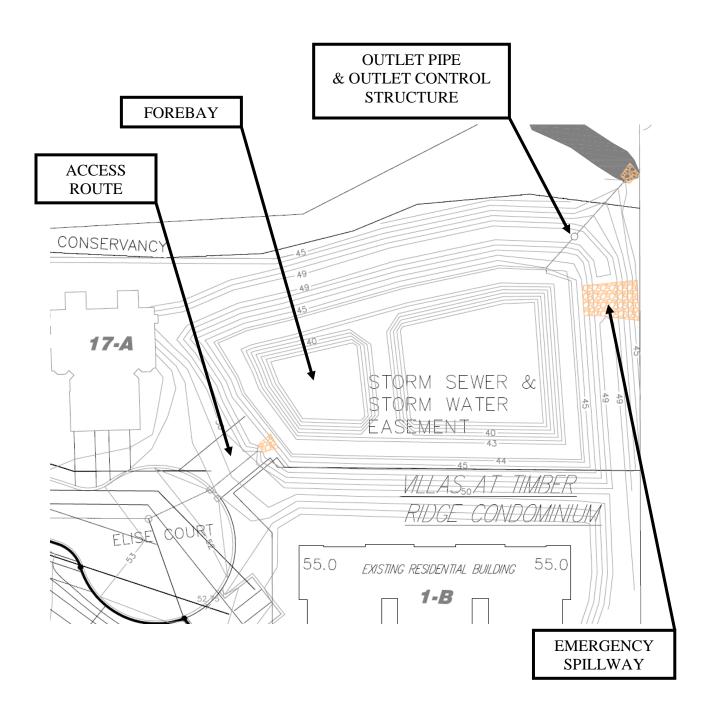


Exhibit C Storm Water Practice Maintenance Plan

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the minimum maintenance requirements to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the stormwater practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Owner(s) to enforcement of the provisions listed on page 1 of this Agreement by the City of Waukesha.

System Description:

The proposed site is on a 69.1-acre parcel located along Center Road ½ mile North of Lawnsdale Road (C.T.H. "I"), and bounded to the East by the Wisconsin Central Ltd. Railroad, in the City of Waukesha. It is further described as being part of the Northwest one-quarter and Southwest one-quarter, of Section 22, Township 6 North, Range 19 East, in the City of Waukesha, Waukesha County, Wisconsin. The original development consisted of: (4) 14-unit, (1) 7-unit, (8) 6-unit, (1) 4-unit, (17) 2-unit and 64 single unit residences, totaling 213 units. The proposed Timber Ridge development will use four wet detention ponds to control the stormwater on-site and to provide water quality benefits. The ponds were modeled and sized to comply with the City of Waukesha's storm water requirements for peak flow discharge rates and water quality. The Wisconsin DNR conservation practice standard "Wet Detention Pond" (Code 1001) was utilized to design the ponds for storm water quality. This provides for the removal of 80% of the suspended solids from the runoff into the storm water ponds on an average annual basis. Timber Ridge Drive that is shown as a dead-end street into the South property line will most likely ultimately be extended into a future residential development that will provide its own storm water management facilities.

Specifically, post development drainage areas 2,3,6,7 and 8 make up the majority of the site and are tributary to existing wet ponds. Refer to the original Storm Water Management Report, *Hydrology Exhibit – Proposed Conditions* for more information on these areas.

M&I Marshall & Ilsley Bank held the original mortgage on the property. The original developer failed to sell a sufficient number of condominiums and defaulted on the mortgage. The bank foreclosed on the property in 2007 and its affiliate, M&I Regional Properties, LLC, took title to the property and has subsequently sold the un-constructed portion of the property to Timber Ridge Holdings, LLC.

The original single family condominium lots located in the post development drainage areas 6 and 8 were rezoned by M&I Regional Properties, LLC, to 37 single family lots. Furthermore, the roadways within the new plat were improved with asphalt pavement and concrete curbs to public City standards. Upon acceptance by the City, all streets will be dedicated for public roadway purposes.

Per a Storm Water Management Report Addendum created by the original development, pond 4 was connected into pond 3 and the outlet of pond 4 was abandoned. The outlet structure for pond 4 was plugged and abandoned in place. The emergency spillway for pond 4 would remain in place. Pond 3 is now the call out for ponds 3 & 4.

"As-built" construction drawings of the basin, showing actual dimensions, elevations, outlet structures, etc. have also been included in this agreement.

Minimum Maintenance Requirements:

To ensure the proper long-term function of the storm water management practices described above, the following activities must be completed:

- 1. All outlet pipes must be checked monthly to ensure there is no blockage from floating debris or ice. Any blockage must be removed immediately.
- 2. Inlets and outlets must be checked after heavy rains (minimum of annually) for signs of erosion. Any eroding areas must be repaired immediately to prevent premature sediment build-up in the downstream forebays or basin. Erosion matting is recommended for repairing grassed areas.
- 3. NO trees are to be planted or allowed to grow on the earthen berms. Tree root systems can reduce soil compaction and cause berm failure. The berms must be inspected annually and any woody vegetation removed.

- 4. Invasive plant and animal species shall be managed in compliance with Wisconsin Administrative Code Chapter NR 40. This may require eradication of invasive species in some cases.
- 5. If the permanent pool falls below the safety shelf, a review shall be performed to determine whether the cause is liner leakage or an insufficient water budget. If the cause is leakage, the liner shall be repaired. Leakage due to muskrat burrows may require removal of the animals. If the permanent pool cannot be sustained at the design elevation, benching of the safety shelf may be necessary.
- 6. If floating algae or weed growth becomes a nuisance (decay odors, etc.), it must be removed from the basin or the forebay and deposited where it cannot drain back into the basin. Removal of the vegetation from the water reduces regrowth the following season (by harvesting the nutrients). Wetland vegetation must be maintained along the waters edge for safety and pollutant removal purposes.
- 7. When sediment in the forebays or the basin has accumulated to an elevation of three feet below the outlet elevation, it must be removed (see Exhibit D). All removed sediment must be placed in an appropriate upland disposal site and stabilized (grass cover) to prevent sediment from washing back into the basin. The forebays will likely need sediment removal first. Failure to remove sediment from the forebays will cause resuspension of previously trapped sediments and increase downstream deposition.
- 8. No grading or filling of the basin or berm other than for sediment removal is allowed, unless otherwise approved by the City of Waukesha.
- 9. Periodic mowing of the grass swales will encourage vigorous grass cover and allow better inspections for erosion. Waiting until after August 1 will avoid disturbing nesting wildlife. Mowing around the basin or the forebays may attract nuisance populations of geese to the property and is not necessary or recommended.
- 10. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City of Waukesha under the provisions listed on page 1 of this Agreement.
- 11. The titleholder(s) or their designee must document all inspections as specified above. Documentation shall include as a minimum: (a) Inspectors Name, Address and Telephone Number, (b) Date of Inspections, (c) Condition Report of the Storm Water Management Practice, (d) Corrective Actions to be Taken and Time Frame for Completion, (e) Follow-up Documentation after Completion of the Maintenance Activities. All documentation is to be delivered to the City of Waukesha Engineering Department.

Exhibit D Design Summaries for the Wet Detention Basins

Project Identifier: <u>Timber Ridge Estates</u> Project Size: 69.1 Acres

Number of Runoff Discharge Points: 4 Watershed (ultimate discharge): Pebble Brook Watershed Area (including off-site runoff traveling through project area): 67 acres (26 acres off-site)

Per the original storm water management report the allowable release rates for the entire development is as follows:

PRE-DEVELOPMENT RUNOFF RATES

Area	Acres	2-year Peak Flow	10-year Peak Flow	100-year Peak Flow	
Total Pre	157.7	78.2 cfs	186.0 cfs	338.4 cfs	

Per the addendum to the original storm water management report the following information summarizes the design data used to determine peak discharge flows and for each of the wet detention basins and the maximum release rates for the development:

PROPOSED CONDITIONS

It is proposed to construct a combination of single and multi-family residences, which will disturb approximately 41 acres. Five wet detention ponds will be constructed in order to control peak runoff rates and provide water quality benefits. The majority of the flow, which includes all paved and building areas, will be conveyed via swales and storm sewers to the detention ponds located on the perimeter of the disturbed area. A portion of the perimeter areas of the site will be released un-detained. The development was divided into eight major areas to analyze the proposed flows. Post development areas 1,4, and 5 make up of the area of the site that is not detained in the ponds. Post development areas 2,3,6,7 and 8 make up the majority of the site and will be tributary to the ponds. Refer to the enclosed drawing Hydrology Exhibit – Proposed Conditions for more information on these areas.

Post Development Areas 1,4 & 5

POST-DEVELOPMENT RUNOFF RATES

Area	Acres	2-year Peak Flow	10-year Peak Flow	100-year Peak Flow
1	113.1	49.2 cfs	124,4 cfs	232.0 cfs
4	5.88	4.9 cfs	11.2 cfs	20.1 cfs
5	4.8	1.7 cfs	5.2 cfs	10.3 cfs

Detention Pond 1: (Unchanged)

It is proposed to use an 18" diameter outlet pipe from the control structure at invert elevation 41.00. A 12" diameter orifice will be provided at elevation 41.00. A rectangular weir will be provided at elevation 43.50. The normal water surface elevation will be 41.00 feet. The detention pond will reduce the inflow of 29.37 cfs to 6.82 cfs for the 100-year developed storm and is modeled to reach a maximum water surface elevation of 43.81 feet and will reduce the inflow of 18.76 cfs to 3.61 cfs for the 10-year developed storm and is modeled to reach a maximum water surface elevation of 42.89 feet and will reduce the inflow of 10.34 cfs to 2.27 cfs for the 2-year developed storm and is modeled to reach a maximum water surface elevation of 42.05 feet. A 20-foot emergency spillway will be provided at an elevation of 46.00 feet and will handle the 100-year storm event if the outlet pipe should plug or fail. The top of berm for this pond will be at an elevation of 47.00 feet.

Detention Pond 2: (Unchanged)

It is proposed to use a 12" diameter outlet pipe from the control structure at invert elevation 91.00. A 7" diameter orifice will be provided at elevation 91.00. A rectangular weir will be provided at elevation 92.00. The normal water surface elevation will be 91.00 feet. The detention pond will reduce the inflow of 20.71 cfs to 1.99 cfs for the 100-year developed storm and is modeled to reach a maximum water surface elevation of 92.17 feet and will reduce the inflow of 13.30 cfs to 0.74 cfs for the 10-year developed storm and is modeled to reach a maximum water surface elevation of 91.77 feet and will reduce the inflow of 7.44 cfs to 0.35 cfs for the 2-year developed storm and is modeled to reach a maximum water surface elevation of 91.41 feet. A 20-foot emergency spillway will be provided at an elevation of 94.00 feet and will handle the 100-year storm event if the outlet pipe should plug or fail. The top of the berm for this pond will be at an elevation of 95.00 feet.

Detention Pond 3: (Volume increased, outlet unchanged, flows and elevations changed as follows) – New values shown in bold and in parentheses.

It is proposed to use a 36" diameter outlet pipe from the control structure at invert elevation 31.00. Two 24" diameter orifices will be provided in each structure at elevation 30.75. Two 12" diameter orifices will be provided at elevation 31.75. A rectangular weir will be provided at elevation 33.00. The normal water surface elevation will be at 30.75. The detention pond will reduce the inflow of 50.70(59.39) cfs to 22.09(23.37) cfs for the 100-year developed storm and is modeled to reach a maximum water surface elevation of 33.58(33.88) feet and will reduce the inflow of 32.11(37.48) cfs to 14.98(17.02) cfs for the 10-year developed storm and is modeled to reach a maximum water surface elevation of 32.70(32.97) feet and will reduce the inflow of 17.47(20.28) cfs to 7.72(9.29) cfs for the 2-year developed storm and is modeled to reach a maximum water surface elevation of 31.97(32.13) feet. A 20-foot emergency spillway will be provided at an elevation of 34.00 feet and will handle the 100-year storm event if the outlet pipe should plug or fail. The top of berm for this pond will be at an elevation of 35.00 feet.

Detention Pond 5: (Unchanged)

It is proposed to use an 18" diameter outlet pipe from the control structure at invert elevation 43.50. A 12" diameter orifice will be provided at elevation 43.50 and a 6" diameter orifice will be provide at elevation 45.00. A rectangular weir will be provided at elevation 45.70. The normal water surface elevation will be 43.50 feet. The detention pond will reduce the inflow of 35.23 cfs to 6.37 cfs for the 100-year developed storm and is modeled to reach a maximum water surface elevation of 46.90 feet and will reduce the inflow of 22.25 cfs to 3.81 cfs for the 10-year developed storm and is modeled to reach a maximum water surface elevation of 45.73 feet and will reduce the inflow of 12.05 cfs to 2.24 cfs for the 2-year developed storm and is modeled to reach a maximum water surface elevation of 44.70 feet. A 20-foot emergency spillway will be provided at an elevation of 48.00 feet and will handle the 100-year storm event if the outlet pipe should plug or fail. The top of berm for this pond will be at an elevation of 49.00 feet.

POST-DEVELOPMENT RUNOFF RATES

Area	Acres	2-year Peak Flow	10-year Peak Flow	100-year Peak Flow
Total Post	157.7	66.8 cfs	159.9 cfs	292.8 cfs

The maximum flows were determined by overlaying the resulting hydrographs from the undetained areas combined with the discharge from the detention ponds. This resulted in a combined site discharge of 292.8(295.07) cfs for the 100-yr storm with an allowable of 340.3 cfs, a combined site discharge of 159.9(159.3) cfs for the 10-yr storm with an allowable of 185.3 cfs and a combined site discharge of 66.8(67.22) cfs for the 2-yr storm with an allowable of 78.5 cfs.

Exhibit E Plan View of the As-Built Survey for Wet Detention Basin #1

Project Identifier: <u>Timber Ridge Estates</u> Project Size: 69.1 Acres

Number of Runoff Discharge Points: 4 Watershed (ultimate discharge): Pebble Brook Watershed Area (including off-site runoff traveling through project area): 67 acres (26 acres off-site)

Figure 1

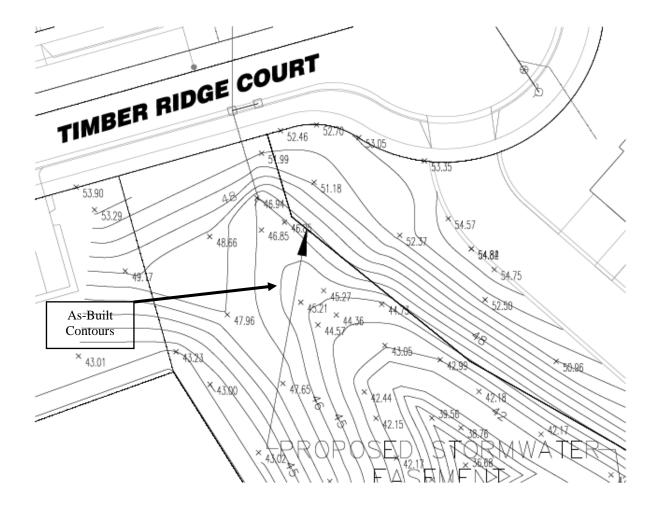


Figure 1 Continued

Plan View of the As-Built Survey for the Wet Detention Basin #1

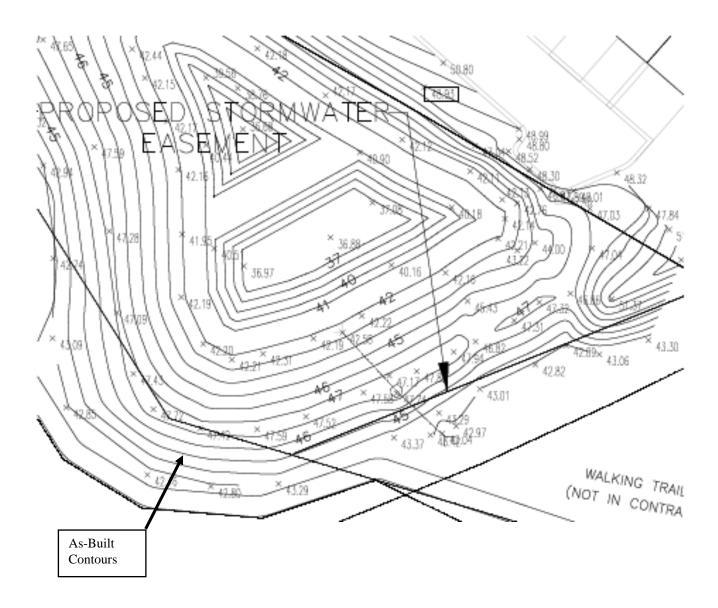


Figure 1 Continued

Plan View of the As-Built Survey for the Wet Detention Basin #2

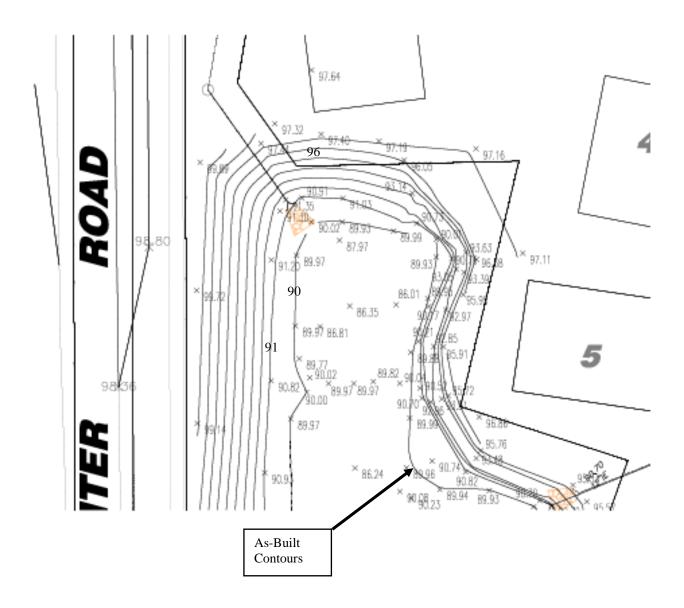


Figure 1 Continued

Plan View of the As-Built Survey for the Wet Detention Basin #2

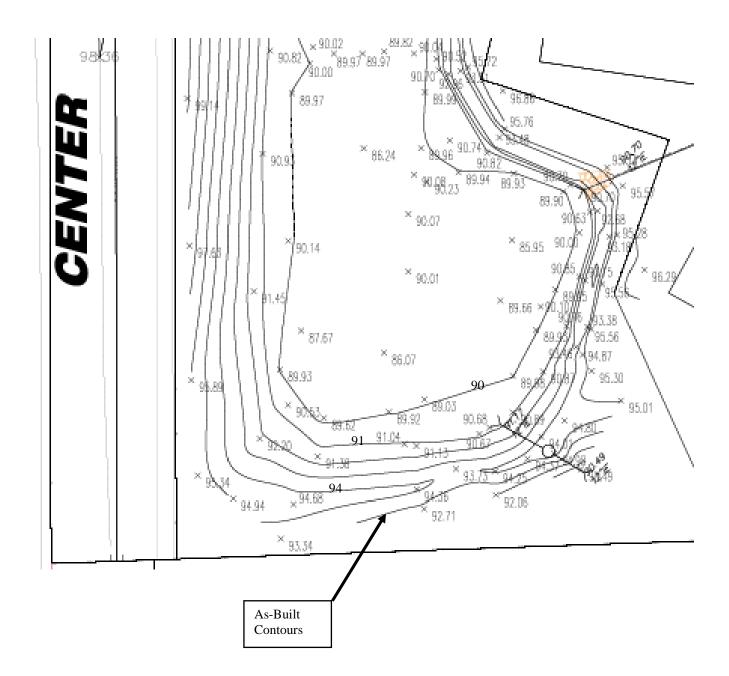
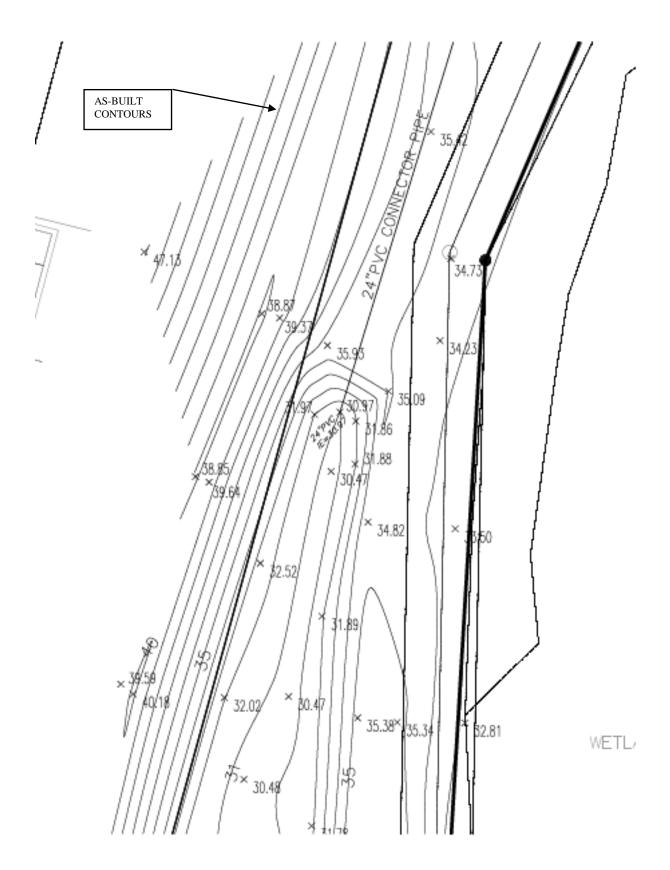


Figure 1 Continued
Plan View of the As-Built Survey for the North End of Wet Detention Basin #3 × 39.35 41.99 36.18 × 32.57 × 32.26 35.00 31.62 39.78 × 39.76 39.06 31 96 As-Built Contours 34.66 33.82

Figure 1 Continued
Plan View of the As-Built Survey for the Central Portion of Wet Detention Basin #3



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Figure 1 ContinuedPlan View of the As-Built Survey for the South End of Wet Detention Basin #3

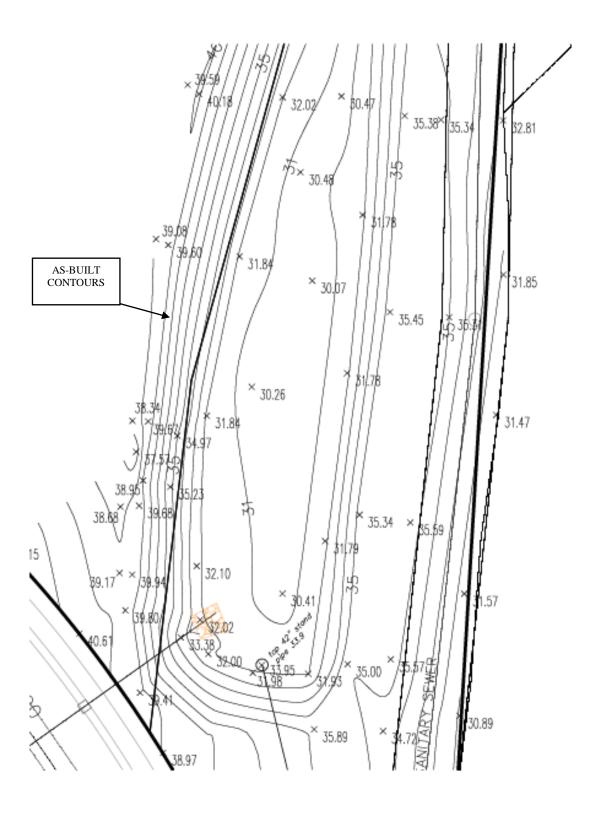


Figure 1 Continued
Plan View of the As-Built Survey for the Wet Detention Basin #5

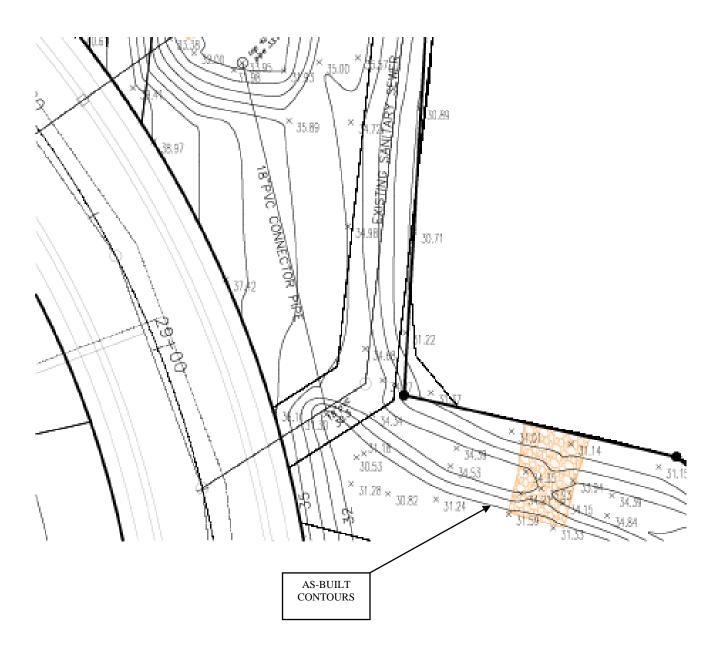


Figure 1 Continued Plan View of the As-Built Survey for the Wet Detention Basin #5

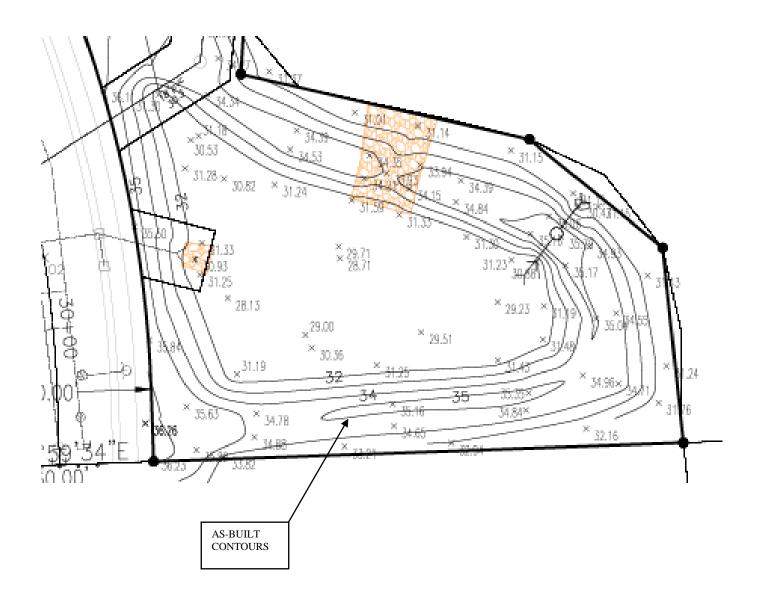
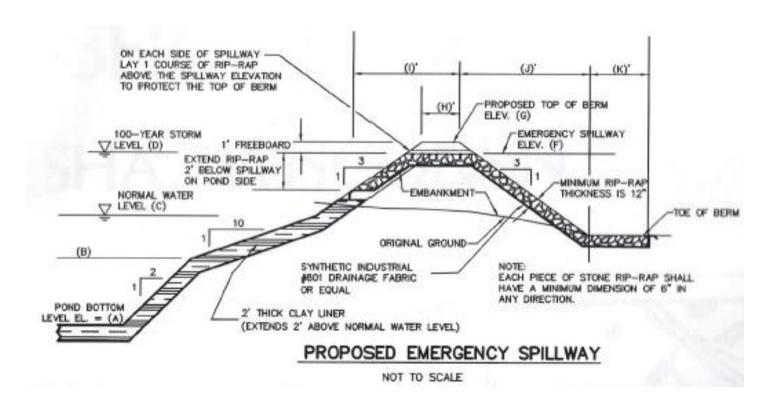


Exhibit E

Figure 2: TYPICAL CROSS-SECTION



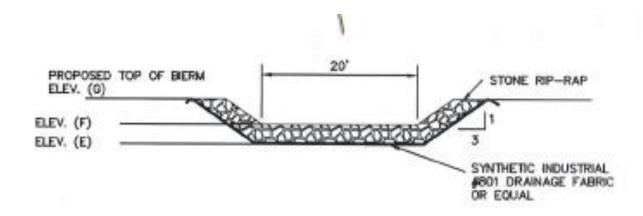


Exhibit E

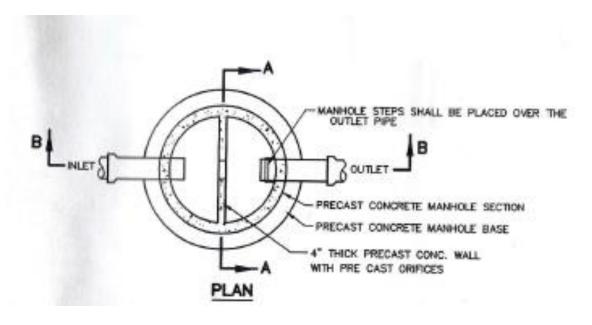
EMERGENCY SPILLWAY DATA TABLE

	POND 1	POND 2	POND 3	POND 5
A	37.00	86.00	28.00	37.00
В	41.00	90.00	29.75	42.50
С	42.00	91.00	30.75	43.50
D	44.61	92.17	33.58	46.53
E	46.00	93.00	33.00	47.00
F	47.00(46.8)	94.00(93.7)	34.00(33.9)	48.00(47.6)
G	48.00	95.00	35.00	49.00
H	8.00	8.00	8.00	8.00
I	18.00	19.00	18.00	17.00
J	9.00	10.00	13.00	12.00
K	5.00	3.00	2.00	3.00

^() AS-BUILT ELEVATION BY KW SURVEY, INC DATED APRIL 17, 2014

Exhibit E

Figure 3: OUTLET STRUCTURES



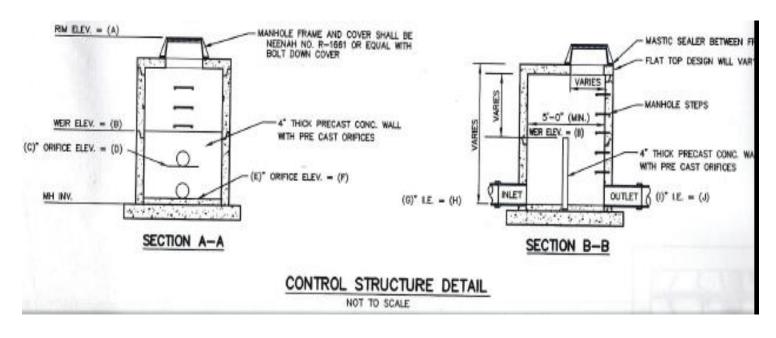


Exhibit E

<u>DETENTION POND OUTLET STRUCTURE TABLE</u>

	POND 1	POND 2	POND 3	POND 5
A	48.00	95.00	35.00	49.00
В	44.50	92.00	33.00	45.70
С	N/A	N/A	2-12"	6"
D	N/A	N/A	31.75	45.00
E	12"	7"	2-24"	12"
F	42.00	91.00	30.75	43.50
G	18"	12"	36"	18"
H	42.00(42.58)	91.00(91.17)	30.75(30.88)	43.50(43.88)
I	18"	12"	36"	18"
J	42.00(42.04)	91.00(90.49)	30.75(30.47)	43.50(43.27)

^() AS-BUILT ELEVATION BY KW SURVEY, INC DATED APRIL 17, 2014

Exhibit E

DETENTION POND VOLUME COMPARISON

Р	OND 1 DESIGN POND		POND 1 DESIGN POND		AS BUILT POND)	
STAGE	ELEVATION	AREA	INC	TOTAL	AREA	INC	TOTAL
STAGE	ELEVATION	ANEA	STORAGE	STORAGE	ANEA	STORAGE	STORAGE
0	42	8137	0	0	8093	0	0
1	43	9495	8816	8816	9720	8907	8907
2	44	10950	10223	19039	11656	10688	19595
3	45	13008	11979	31018	13732	12694	32289
4	46	17250	15129	46147	16106	14919	47208
5	47	21366	19308	65455	19058	17582	64790

The detention pond will reduce the inflow of 29.37 cfs to 6.82 cfs for the 100-year developed storm and is modeled to reach a maximum water surface elevation of 43.81 feet

P	POND 2		ID 2 DESIGN POND			AS BUILT POND)
STAGE	ELEVATION	AREA	INC STORAGE	TOTAL STORAGE	AREA	INC STORAGE	TOTAL STORAGE
0	91	15070	0	0	14012	0	0
1	92	16777	15924	15924	15696	14854	14854
2	93	18690	17734	33657	17429	16563	31417
3	94	20917	19804	53461	19635	18532	49949

The detention pond will reduce the inflow of 20.71 cfs to 1.99 cfs for the 100-year developed storm and is modeled to reach a maximum water surface elevation of only 92.17 feet

Р	POND 3 DESIGN POND		POND 3 DESIGN POND AS BUILT PON			AS BUILT POND)
STAGE	ELEVATION	AREA	INC STORAGE	TOTAL STORAGE	AREA	INC STORAGE	TOTAL STORAGE
0	31	14967	0	0	8702	0	0
1	32	19278	17123	17123	15220	11961	11961
2	33	23946	21612	38735	19345	17283	29244
3	34	28912	26429	65164	23942	21644	50887
*	YR EVENT	2yr	10yr	100yr	2yr	10yr	100yr
	EL/FLOW	31.98/10.57	32.64/21.19	33.41/34.13	32.12/12.75	32.83/23.67	33.65/36.14

^{*} HYDROLOGIC ANALYSIS REQUIRED DUE TO SUBSTANTIAL CHANGE IN POND VOLUME. DESIGN VS AS-BUILT RESULTS SHOW COMPLIANCE WITH SWM PLAN.

Р	POND 5 DESIGN POND			AS BUILT POND)		
STAGE	ELEVATION	AREA	INC STORAGE	TOTAL STORAGE	AREA	INC STORAGE	TOTAL STORAGE
0.0	43.5	17658	0	0	19442	0	0
0.5	44.0	18500	9040	9040	19626	9767	9767
1.5	45.0	20150	19325	28365	21333	20480	30247
2.5	46.0	21970	21060	49425	23083	22208	52455
3.5	47.0	24087	23029	72453	24877	23980	76435
4.5	48.0	26030	48000	97425	26973	50056	102511

The detention pond will reduce the inflow of 35.23 cfs to 6.37 cfs for the 100-year developed storm and is modeled to reach a maximum water surface elevation of 46.90 feet

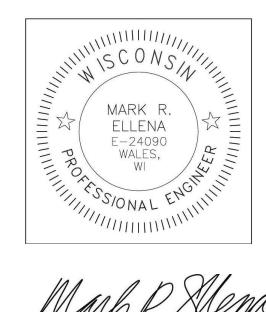
Exhibit F **Engineering/Construction Verification**

DATE:	November 6, 2014
TO:	City of Waukesha
FROM:	Ellena Engineering Consultants, LLC
RE:	Engineering/Construction Verification for the following project: Project Name:Timber Ridge Estates
	Section, City of Waukesha
	Storm Water Management Practices: The practices include four wet detention basins and
	all associated pipes, earthen berms, emergency wiers and other components of these

For the above-referenced project and storm water management practices, this correspondence shall serve as verification that: 1) all site inspections outlined in approved inspection plans have been successfully completed; and 2) the storm water management practice design data presented in Exhibit D, and the "asbuilt" construction documentation presented in Exhibit E comply with all applicable state and local technical standards, in accordance with the City of Waukesha Storm Water Management and Erosion Control Ordinance.

practices.

1. Any variations from the originally approved construction plans are noted in Exhibit E. These variations are considered to be within the tolerances of standard construction techniques and do not affect the original design as presented in Exhibit D in any way.





Mark P. Alema

Exhibit G Storm Water Management and Erosion Control Permit Termination

Project Identifier: Timber Ridge Estates Location: CSM 9682 & CSM 9681, located in all that part of the Southwest 1/4 of the Northwest 1/4 and the Northwest 1/4 and Northeast 1/4 of the Southwest 1/4 of Section 22, Township 6 North, Range 19 East, in the City of Waukesha, Waukesha County, Wisconsin. Storm Water Management and Erosion Control Permit Holder's Name: Storm Water Management & Erosion Control Permit #: Chapter 32 – City of Waukesha Storm Water Management and Erosion Control requires that all newly constructed storm water management practices be maintained by the Storm Water and Erosion Control Permit Holder until permit termination, after which maintenance responsibilities shall be transferred to the responsible party identified on the subdivision plat and referenced in this Maintenance Agreement. Upon execution below, this exhibit shall serve to certify that the Storm Water Permit Holder has satisfied all requirements of the Storm Water Management and Erosion Control Ordinance and that the City of Waukesha has terminated the Storm Water Management and Erosion Control Permit for the property covered by this Maintenance Agreement. Dated this ____ day of ______, 201___. City of Waukesha representative: (Signature) (Typed Name and Title) Acknowledgements State of Wisconsin County of Waukesha Personally came before me this ______day of ______, 201___, the above named _ to me known to be the person who executed the foregoing instrument and acknowledged the same. Notary Public, Waukesha County, WI My commission expires: