



**EXCEL**

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**Storm Water &  
Erosion Control  
Memo For:**

# **Cobblestone Hotel and Suites**

**Waukesha, WI**

Excel Job # 2269000

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Prepared by Excel Engineering  
100 Camelot Drive • Fond du Lac, WI 54935  
920-926-9800 • [www.excelengineer.com](http://www.excelengineer.com)

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## 0.0 Introduction

### 0.1 Existing Conditions

The proposed development is located on the north side of Wisconsin Ave. in the city of Waukesha, WI. The project site is bound by N. Grand Ave. to the east, Clinton St. to the west, and commercial/residential property to the north. The existing site currently contains an existing bank building and a parking lot. The site currently drains to the northwest to the Clinton Street ROW. The existing site can be seen on sheet C1.0.

- Property Area: 0.86 acres

### 0.2 Proposed Project Overview

The proposed project will include a proposed building with parking located to the north and southeast. The proposed development will drain to inlets that will drain stormwater northwest to the Clinton Street ROW. The site is considered a redevelopment project with disturbance less than 1 acre and a decrease in impervious surface compared to the existing, so the project will be exempt from stormwater management requirements. The proposed site can be seen on Sheet C1.1.

- Disturbed Area: 0.84 acres

## 1.0 Stormwater Management Requirements

### 1.1 Peak Discharge / Quality / Infiltration

**City/State/MMSD Requirements** – The project will disturb less than 1 acre and will decrease the total impervious surface onsite, therefore, the site is exempt from any stormwater management requirements. The existing impervious coverage onsite is 87% and the proposed is 73%.

## 2.0 Storm Sewer Design

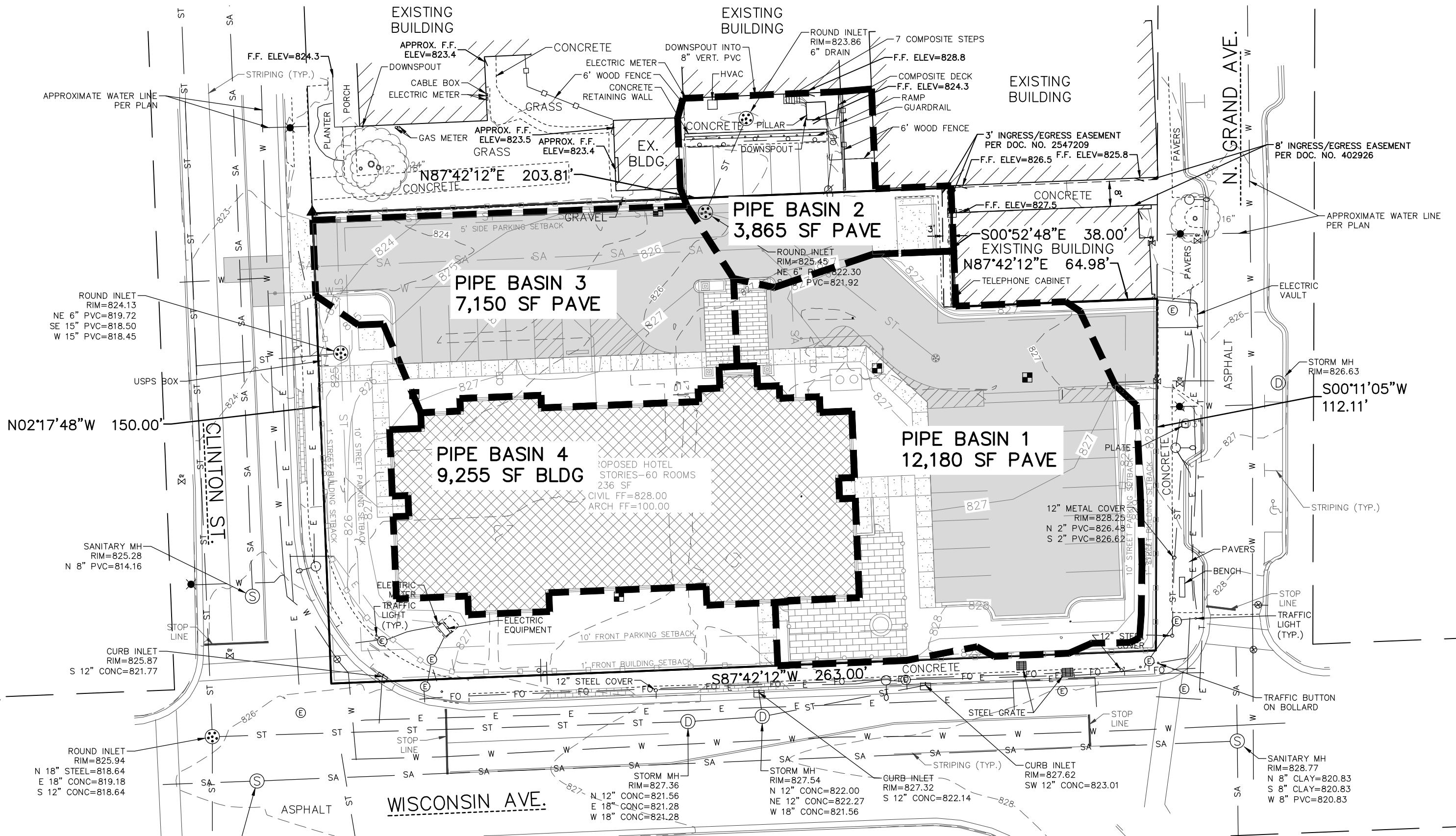
All storm sewer has been sized per Wisconsin Department of Safety and Professional Services Plumbing Code (SPS 382.36(5)1.). Ample relief is provided to safely pass storm events in excess of pipe design capacity overland into the Clinton Street ROW.

See Appendix A and B for pipe drainage areas and pipe sizing calculations.

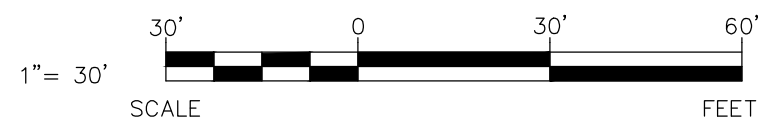
## 3.0 Erosion Control

The erosion control specifications, construction sequence, site stabilization notes, seeding notes, dewatering notes, and post construction and maintenance plan will be included on sheet C0.1 of the construction plan set.

# Appendix A: Storm Sewer Basin Map



# STORM SEWER BASIN MAP



# Appendix B: Storm Sewer Manning's Spreadsheet

Excel Engineering Project No. 2269000

Project Name Cobblestone Waukesha

Pipe Data				Pipe Capacity (DSPS)				
Pipe No.	Diameter (FT)	Slope (FT/FT)	Manning's n	Basin No.	Total Flow (cfs)	Total Flow (gpm)	Full Flow Capacity (cfs)	Full Flow Capacity (gpm)
1	0.66	0.010	0.012	1	0.84	375	1.28	574
2	0.83	0.017	0.012	1,2	1.10	495	3.07	1378
3	0.83	0.020	0.012	1,2,3	1.59	715	3.33	1495
4	0.66	0.020	0.012	4	0.80	360	1.81	811
X	X	X	X	X	X	X	X	X

Full Flow Capacity based off Manning's Equation

$$Q = \frac{1.49}{n} R^{2/3} S^{1/2} a$$

Where: Q = Full Flow Capacity of Pipe (cfs)  
 n = manning's roughness coefficient  
 R = hydraulic radius (ft) (D/4)  
 s = hydraulic gradient, slope (ft/ft)  
 a = flow area (sq. ft.)

Typical Manning's n

HDPE 0.012  
 PVC 0.012  
 Concrete 0.013  
 CMP 0.024

\*Total Flow calculated via TR-55 hydrologic calculations. Reference Storm Pipe Basin Map & TR-55 Calculations

# Appendix C: Post Construction Operation and Maintenance Plan



The owner of the property affected shall inspect and maintain the following stormwater management systems frequently, especially after heavy rainfalls, but at least on an annual basis unless otherwise specified.

<b>STORMWATER FACILITY</b>	<b>TYPE OF ACTION</b>
1. Lawn and Landscaped Areas	All lawn areas shall be kept clear of any materials that block the flow of stormwater. Rills and small gullies shall immediately be filled and seeded or have sod placed in them. The lawn shall be kept mowed, tree seedlings shall be removed, and litter shall be removed from landscaped areas.
2. Catch Basin/Curb Inlet Grates	The grate openings to these structures must be cleared of any clogging or the blocking of stormwater flow from getting into the stormwater conveyance system of any kind.
3. Record of Maintenance	The operation and maintenance plan shall remain onsite and be available for inspection when requested by WDNR. When requested, the owner shall make available for inspection all maintenance records to the department or agent for the life of the system.