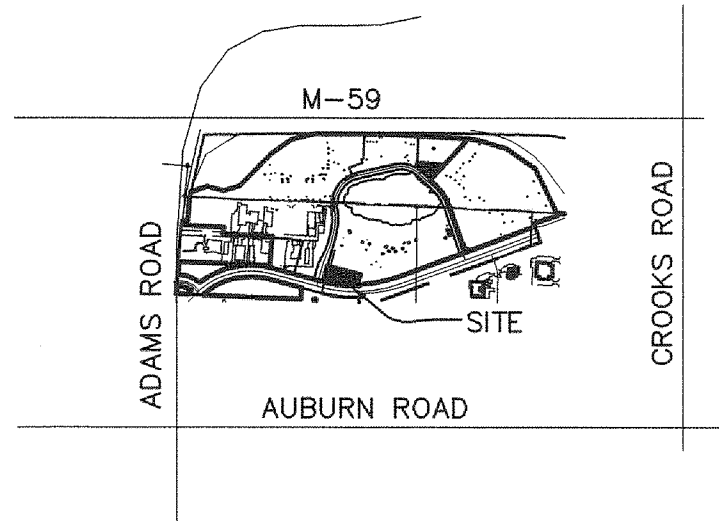


# PROPOSED FLAGSTAR BANK

## ADAMS MARKETPLACE

### ROCHESTER HILLS, MICHIGAN



LOCATION MAP  
NOT TO SCALE

**PROJECT SPONSOR:**  
**FLAGSTAR BANK**  
5151 CORPORATE DRIVE  
TROY, MI  
CONTACT: PAUL BUC

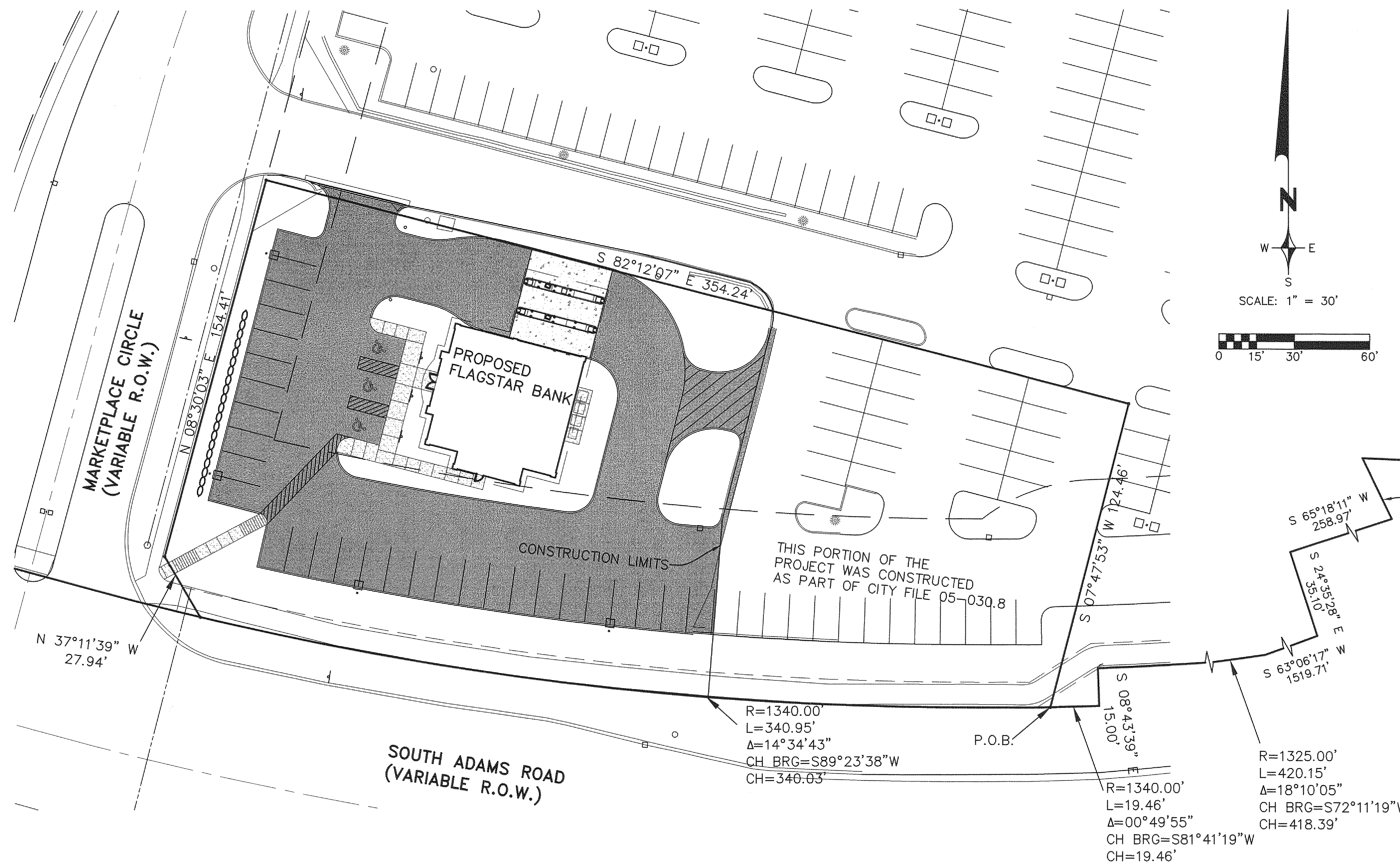
**CIVIL ENGINEER:**  
**ZEIMET-WOZNAK AND ASSOC., INC.**  
55800 GRAND RIVER  
SUITE 100  
NEW HUDSON, MI  
CONTACT: SHAWN BLASZCZYK, PE

**ARCHITECT:**  
**MICHAEL BOGGIO ASSOCIATES**  
30100 TELEGRAPH ROAD  
SUITE 216  
BINGHAM FARMS, MI  
CONTACT: MICHAEL BOGGIO, AIA

**LANDSCAPE ARCHITECT:**  
**ALLEN DESIGN**  
557 CARPENTER  
NORTHVILLE, MI  
CONTACT: JIM ALLEN

#### Sheet Index

- COVER SHEET
- CE-1 DIMENSION PLAN
- CE-2 GRADING & EROSION CONTROL PLAN
- CE-3 UTILITY PLAN
- CE-4 STORM AREA PLAN
- CE-5 EXISTING CONDITIONS
- L-1 LANDSCAPE PLAN
- IR-1 IRRIGATION PLAN
- A-1 FLOOR PLAN
- A-2 ELEVATIONS
- STANDARD DETAIL SHEETS
- A WATERMAIN DETAILS
- B WATERMAIN DETAILS
- D SANITARY SEWER DETAILS
- E STORM SEWER DETAILS
- F EROSION CONTROL DETAILS



**FLAGSTAR BANK PARCEL DESCRIPTION**

A PARCEL OF LAND LOCATED IN PART OF THE SOUTHWEST 1/4 OF SECTION 30, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS:

COMMENCING AT THE EAST 1/4 CORNER OF SAID SECTION 30 AND PROCEEDING ALONG THE EAST AND WEST 1/4 LINE OF SAID SECTION 30 S. 85°45'03" W. 942.80 FEET AND S. 32°42'01" E. 26.68 FEET AND S. 65°18'11" W. 258.97 FEET AND S. 24°35'28" E. 35.10 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF ADAMS ROAD (VARIABLE WIDTH); THENCE THE FOLLOWING FOUR (4) COURSES ALONG SAID NORTHERLY RIGHT-OF-WAY LINE: 1) S. 63°06'17" W. 1519.71 FEET, 2) 420.15 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, RADIUS 1325.00 FEET, CENTRAL ANGLE 18°10'05" AND A CHORD THAT BEARS S. 72°11'19" W. 418.39 FEET, 3) S. 08°43'39" E. 15.00 FEET, 4) 19.46 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, RADIUS 1340.00 FEET, CENTRAL ANGLE 00°49'55", AND A CHORD THAT BEARS S. 81°41'19" W. 19.46 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY LINE 340.95 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, RADIUS 1340.00 FEET, CENTRAL ANGLE 14°34'43", AND A CHORD THAT BEARS S. 89°23'38" W. 340.03 FEET, THENCE N. 37°11'39" W. 27.94 FEET; THENCE N. 08°30'03" E. 154.41 FEET; THENCE S. 82°12'07" E. 354.24 FEET; THENCE S. 07°47'53" W. 124.46 FEET TO THE POINT OF BEGINNING AND CONTAINING 1.28 ACRES OF LAND MORE OR LESS.

**WATERMAIN QUANTITIES:**

2" DOMESTIC WATER SERVICE	117 LF
2" SHUT-OFF	1 EA

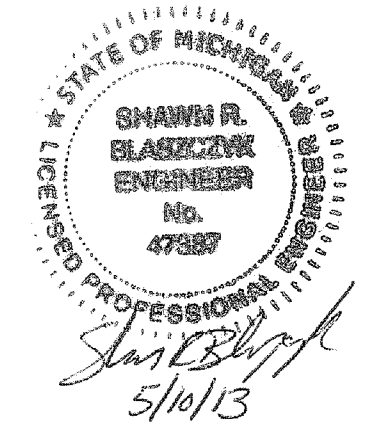
**STORM SEWER QUANTITIES:**

12" INLET	3 EA
12" C76 CL IV	161 LF
6" UNDERDRAIN	230 LF
REMOVE EXISTING BULKHEAD	3 EA

**SANITARY SEWER QUANTITIES:**

6" PVC SDR 23.5 LEAD	89 LF
CLEAN OUT	1 EA

**NOTE:**  
QUANTITIES SHOWN ABOVE ARE FOR PERMIT PURPOSES ONLY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING THE ACTUAL SCOPE OF WORK IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS.



NOT FOR CONSTRUCTION  
CITY FILE 05-030.9

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REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER CITY REVIEW	5/10/13	SRB									

**ZEIMET WOZNAK & ASSOCIATES**  
Civil Engineers & Land Surveyors  
40024 GRAND RIVER AVE, SUITE 100  
NOVI, MICHIGAN 48375  
P: (248) 442-1101 F: (248) 442-1241 www.zeimetwozniak.com

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THREE FULL WORKING DAYS BEFORE YOU DIG, CALL THE MISS DIG SYSTEM

**CLIENT:**  
MICHAEL BOGGIO  
30100 TELEGRAPH RD., SUITE 216  
BINGHAM FARMS, MI 48025 248.258.5155

<b>COVER SHEET</b>		DATE: 4/1/13	SCALE: HOR: 1" = 30'
<b>FLAGSTAR BANK</b>		DESIGNED BY: SRB	VER: 1" = N/A
ROCHESTER HILLS, MICHIGAN, SECTION 30		DRAWN BY: SRB	JOB NO.: 13122
		SHEET	







**SANITARY SEWER BASIS OF DESIGN**

BLDG. AREA (S.F.) BLDG. USE UNIT FACTOR UNITS  
 2,840 Bank 0.40/1,000 s.f. 1.13  
 No. of people = 3.5ppu x 1.13 units = 3.96 people  
 Average daily flow = 100gpd x 3.96 people = 0.001 cfs  
 (7.5 x 24 x 3600)  
 Peak daily flow = 4 x 0.001 = 0.004 cfs  
 An 8" sewer at 0.40% (minimum) has a capacity of 0.76cfs.

**WATERMAIN BASIS OF DESIGN**

Initial Service Connections = 0  
 Total Service Connections = 3.96 (number of people)  
 Initial Design Average Day Flow = 0 MGD  
 Initial Maximum Day Flow = 0 MGD  
 Total Design Average Day Flow = (3.96 x 120)/1,000,000 = 0.0005 MGD  
 Total Maximum Day Flow = 3 x 0.0005 = 0.0015 MGD

WATERMAIN STRUCTURES		
Northing	Easting	STRUCTURE
4532.81	6683.10	W.S.O.

STORM STRUCTURES		
Northing	Easting	STRUCTURE
4414.19	6731.62	INL 59A
4444.69	6620.66	INL 60
4344.32	6651.02	INL 64

SANITARY STRUCTURES		
Northing	Easting	STRUCTURE
4360.73	6697.51	C.O.

**LEGEND**

EXISTING	PROPOSED
○ MANHOLE	● MANHOLE
□ CATCH BASIN	■ CATCH BASIN
⊗ INLET	⊗ INLET
⊙ CLEANOUT	⊙ CLEANOUT
△ END SECTION	△ END SECTION
⊗ GATE VALVE	⊗ GATE VALVE
⊕ HYDRANT	⊕ HYDRANT
⊕ WATER SHUT-OFF	⊕ WATER SHUT-OFF
⊕ UTILITY POLE	⊕ UTILITY POLE
⊕ GUY ANCHOR	⊕ GUY ANCHOR
⊕ LIGHT POLE	⊕ LIGHT POLE
⊕ SIGN	⊕ SIGN
⊕ TREE	⊕ TREE
— SANITARY SEWER	— SANITARY SEWER
— STORM SEWER	— STORM SEWER
— WATER MAIN	— WATER MAIN
— GAS MAIN	— GAS MAIN
— ELECTRIC CABLE	— ELECTRIC CABLE
— CONTOUR MAJOR	— CONTOUR MAJOR
— CONTOUR MINOR	— CONTOUR MINOR
+100.00 SPOT ELEVATION	899.0 PROPOSED GRADE

**SANITARY SEWER NOTES:**

- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THAT WORK.
- ALL SANITARY SEWER BUILDING LEADS WILL BE SOLID WALL PVC SDR 23.5 PIPE.
- SANITARY SEWER DROP CONNECTIONS MUST BE EXTERNAL TYPE.
- THE MINIMUM SLOPE FOR 6" SANITARY BUILDING LEADS IS 1.00%.
- ALL PROPOSED SEWERS SHALL HAVE CHEMICALLY WELDED JOINTS.

**WATERMAIN NOTES:**

- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THAT WORK.
- ALL HYDRANTS, INCLUDING NOZZLES AND PROJECTIONS SHALL BE 3" MINIMUM FROM EDGE OF SIDEWALK, OR 6" MINIMUM FROM BACK OF CURB.
- THE WATERMAIN WILL HAVE A MINIMUM OF 6 FEET OF COVER.
- THE CONTRACTOR SHALL DETERMINE DEGREE OF BEND FOR THE WATERMAIN FITTINGS. PIPE DEFLECTIONS SHALL NOT EXCEED 75% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE DEFLECTION.
- WATERMAIN SHALL BE CEMENT-LINED (DOUBLE THICKNESS), DUCTILE IRON PIPE, CLASS 54.
- A VERTICAL SEPARATION OF 18 INCHES MUST BE MAINTAINED BETWEEN THE WATERMAIN AND SANITARY SEWERS, STORM SEWERS, OR OTHER PROPOSED UTILITIES.
- ALL GATE VALVES SHALL BE RESILIENT WEDGE OR SEATED TYPE GATE VALVES (E.J.L.W. OR U.S. PIPE).
- PER THE SOIL BORINGS, ALL WATERMAIN SHALL REQUIRE POLYWRAP (8 MILS THICK).
- RESTRAINED RODDED JOINTS SHALL BE USED AT ALL VERTICAL BENDS. THE NUMBER OF RESTRAINED RODDED JOINTS REQUIRED SHALL BE DETERMINED BY THE MANUFACTURER, SUBJECT TO APPROVAL BY THE CITY ENGINEER.
- USE HYDRANT CONNECTION DETAIL 'A' (STANDARD DETAIL SHEET A).
- NO FDC IS PROPOSED.

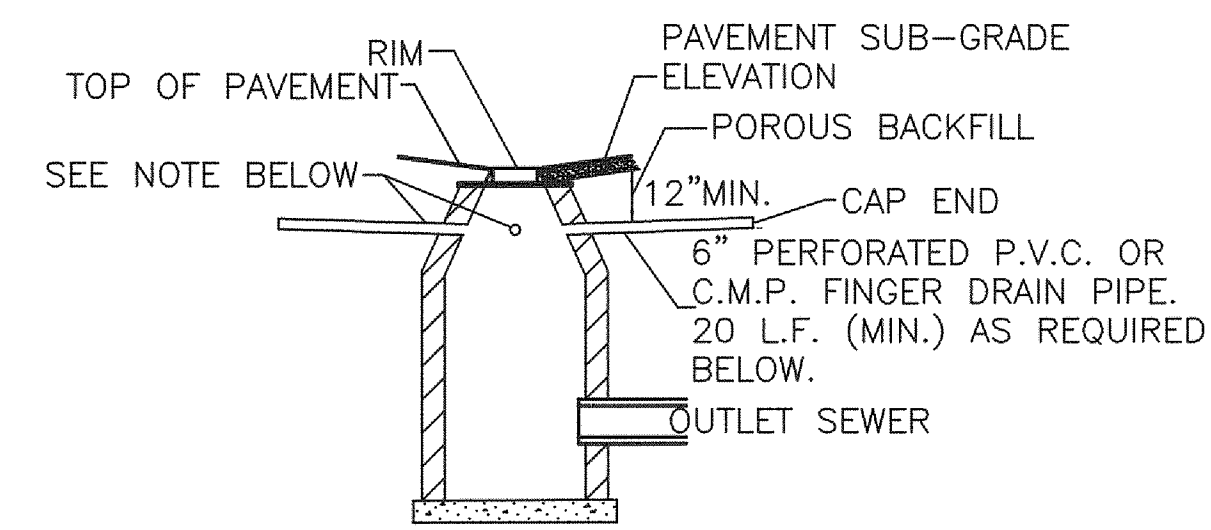
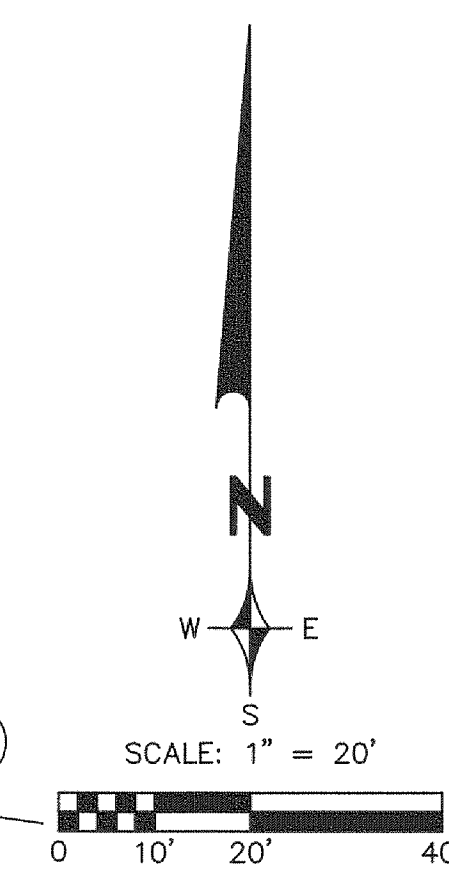
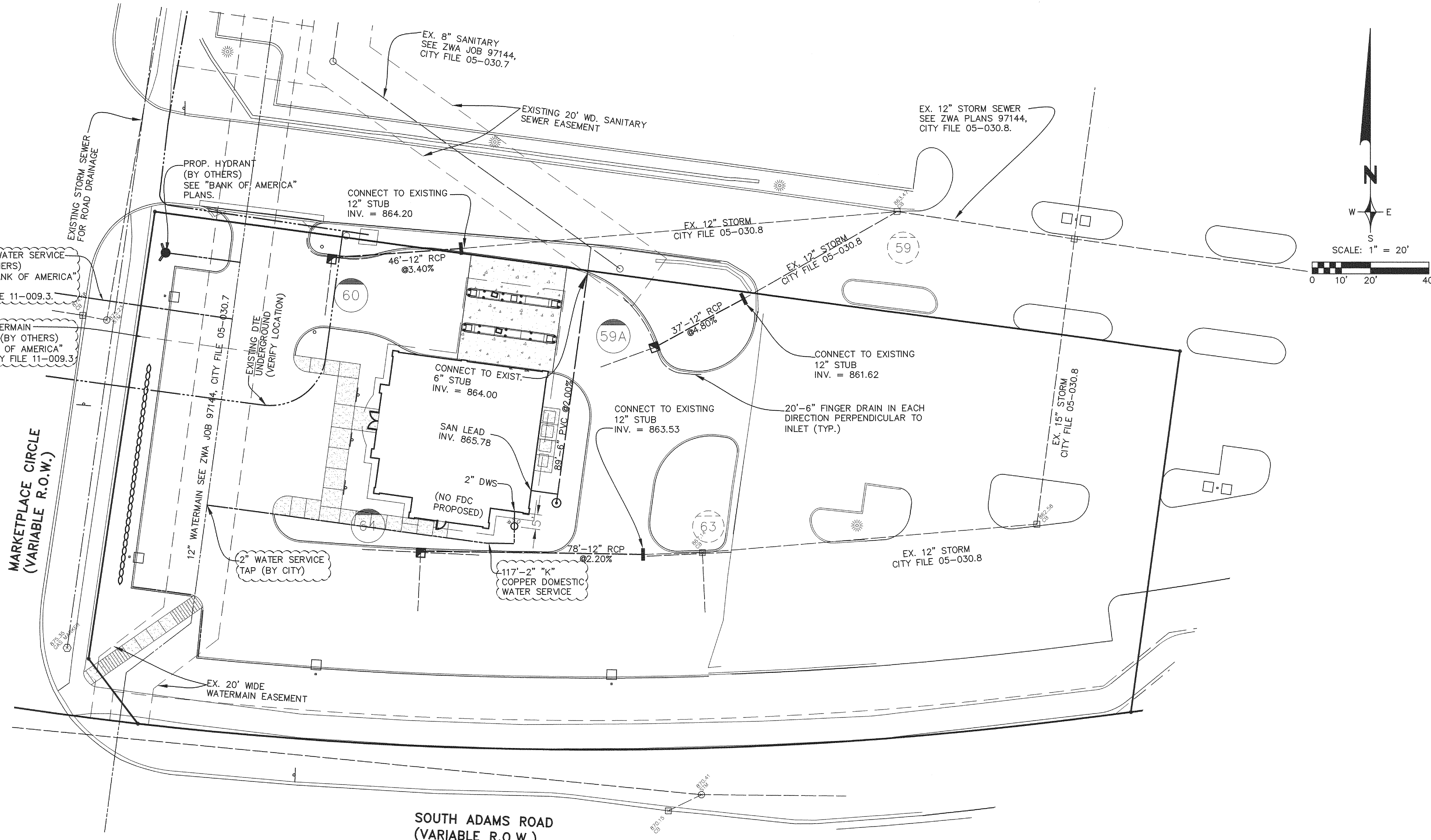
**STORM SEWER NOTES:**

- PROPOSED STRUCTURE COVERS/GRATES SHALL BE PROVIDED AS REQUIRED ON THE CITY OF ROCHESTER HILLS STANDARD DETAIL SHEETS.
- FINGER DRAINS TO BE 20' IN EACH DIRECTION AT 90° ANGLES FROM INLET STRUCTURES LOCATED IN PAVED AREAS.
- STRUCTURAL CALCULATIONS AND SHOP DRAWINGS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER (REGISTERED IN THE STATE OF MICHIGAN) SHALL BE SUBMITTED TO THE CITY FOR REVIEW PRIOR TO CONSTRUCTION OF ALL STORM SEWER STRUCTURES GREATER THAN 6 FEET IN DIAMETER.
- PROPOSED ROOF DRAINS SHALL BE SCHEDULE 40 PVC PIPE WITH CHEMICALLY WELDED JOINTS.
- PROPOSED STORM SEWER PIPE SHALL BE REINFORCED CONCRETE CLASS IV WITH RUBBER GASKETS AND CLASS B BEDDING.

**GENERAL NOTES:**

- M.D.O.T. CLASS II BACKFILL TO BE COMPACTED IN 6" LAYERS TO 95% OF MAXIMUM UNIT WEIGHT.
- ABOVE REQUIRED UNDER OR WITHIN A 1 ON 1 SLOPE OF EXISTING OR PROPOSED PAVEMENT.
- ALL CONTRACTORS SHALL NAME ZEIMET-WOZNAK & ASSOCIATES AS ADDITIONALLY INSURED ON ALL INSURANCE POLICIES.

NOT FOR CONSTRUCTION  
 CITY FILE 05-090.3



- NOTE:
- WHERE INTAKE STRUCTURE IS LOCATED AT CURB LINE, PROVIDE TWO 20' LENGTHS @ 180° AND PARALLEL TO CURB
  - WHERE INTAKE STRUCTURE IS WITHIN PAVED AREA, PROVIDE (4) 20' LENGTHS @ 90°
  - ADDITIONAL FINGER DRAIN MAY BE REQUIRED AS DIRECTED BY THE SOILS ENGINEER IN THE FIELD.

TYPICAL FINGER DRAIN DETAIL  
 NO SCALE

- NOTES:**
- EXISTING TOPOGRAPHY SHOWN AS SURVEYED BY ZWA 3-27-13.
  - ALL WORK WITHIN THE CONSTRUCTION LIMITS SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ROCHESTER HILLS.

**NOTE:**  
 THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

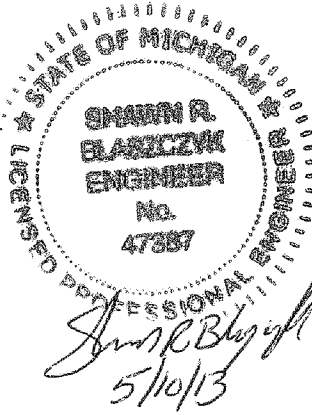
**NOTICE:**  
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER CITY REVIEW	5/10/13	SRB									

**ZEIMET WOZNAK & ASSOCIATES**  
 Civil Engineers & Land Surveyors  
 40024 GRAND RIVER AVE, SUITE 100  
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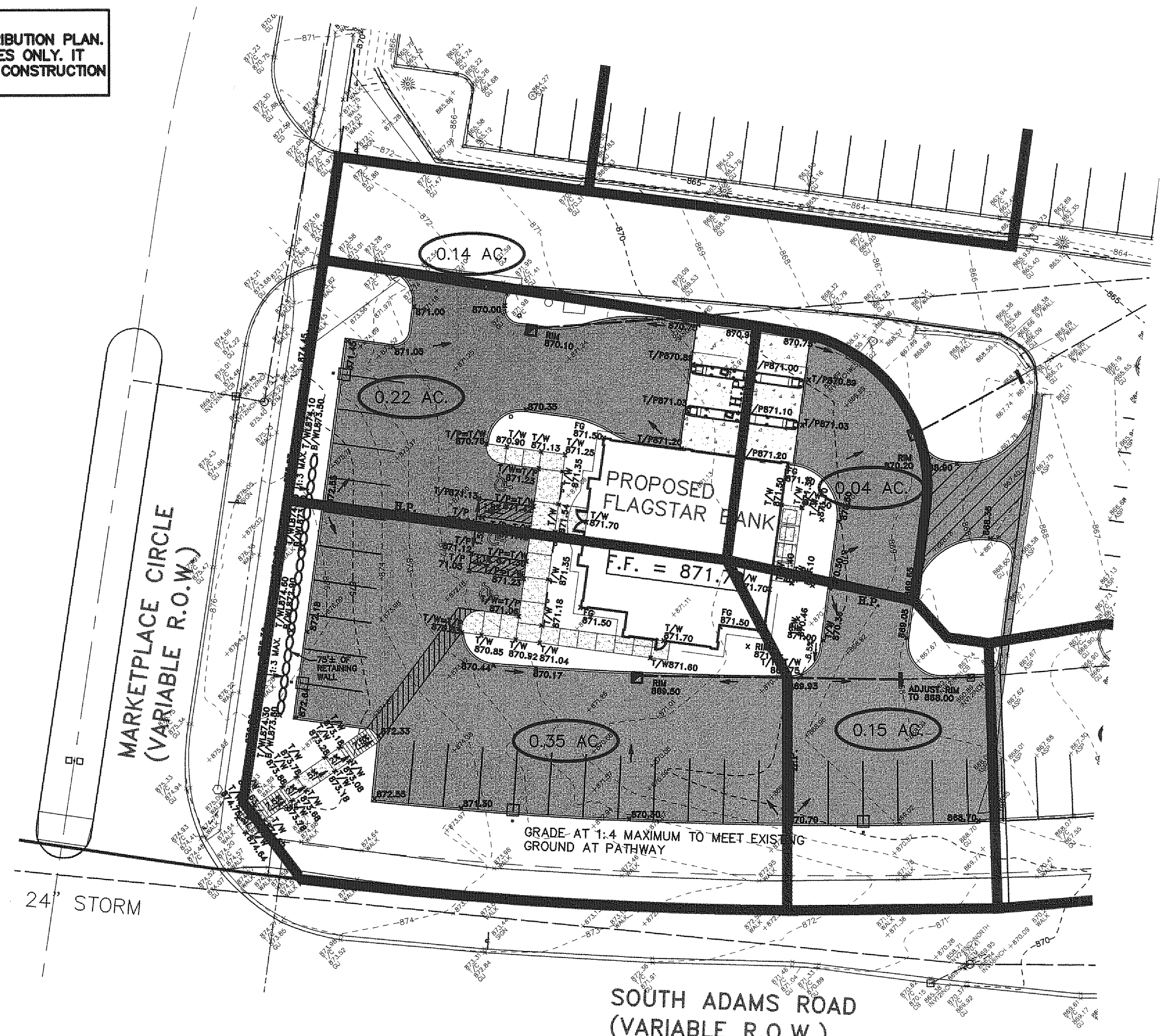
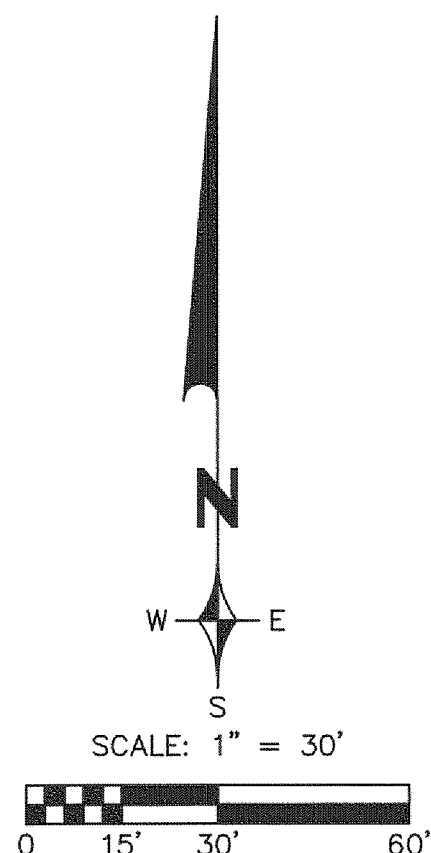
**UTILITY PLAN**  
**FLAGSTAR BANK**  
 ROCHESTER HILLS, MICHIGAN, SECTION 30

DATE	4/1/13	SCALE	HOR: 1" = 20'
DESIGNED BY	SRB	VER:	1" = N/A
DRAWN BY	SRB	JOB NO.	13122
CHECKED BY	SRB	SHEET	CE-3

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NOTE:  
THIS IS A DRAINAGE DISTRIBUTION PLAN.  
IT IS FOR REVIEW PURPOSES ONLY. IT  
SHALL NOT BE USED FOR CONSTRUCTION  
OR FIELD WORK.



**STORM WATER MANAGEMENT SYSTEM OVERVIEW**

The storm water management system for this project will consist of collection, pretreatment, detention, and discharge of treated storm water. The storm water runoff from all roads, buildings and parking areas shall be collected using the proposed storm sewer system. The storm sewer shall collect the runoff at all low points in the road and parking areas and at intermediate points along both as necessary to prevent excessive flow to any one structure. The system is designed to handle a 10-year storm event with an initial time of concentration of 15 minutes.

The storm sewer shall discharge into an approved pretreatment system which may include sedimentation basins or mechanical treatment chambers such as Storm Ceptor, Vortechnic's, Aquaswirl, or an approved equivalent. The pretreatment system shall treat all collected storm water for a 10-year event.

Upon the completion of pretreatment, the storm water shall be discharged into the existing 8.36 acre wetland located in the central portion of the site. The wetland is capable of storing more than a 100-year storm without any detrimental impact to adjacent properties. This allows us to provide further treatment of the storm water improving both its quality and quantity. The large storage volume also reduces the chances of downstream flooding as well. A controlled outlet will be placed within the wetland to slowly discharge the treated storm water to the proposed storm sewer in Adams Road that ultimately discharges to the existing MDOT storm water system.

By discharging treated water to and storing within the existing wetland, the hydrologic condition of the wetland will be greatly improved. Note that the temporary sedimentation/detention basins are permitted under MDEQ Permit #05-63-0278-P. The MDEQ issued permit #06-63-0005-P on June 16, 2006 for the permanent sediment basins and wetland storage.

**STORMWATER MANAGEMENT CALCULATIONS**

THIS SITE IS PART OF A MASTER PLAN THAT WAS BUILT PRIOR TO THE ADOPTION OF THE 2008 STORMWATER MANAGEMENT STANDARDS (SEE ZWA PLANS 97144 "PROPOSED RETAIL BUILDING 'A'", CITY FILE 05-030.5 FOR DETAILS OF THE EXISTING SEDIMENTATION BASIN AND WETLAND DETENTION AREA BEING UTILIZED FOR THIS PROJECT).

THE FOLLOWING CALCULATIONS ARE TO SIZE THE PROPOSED SEDIMENT BASIN FOR STORAGE AND TREATMENT OF THE FIRST FLUSH VOLUME FOR THE CONTRIBUTING AREA, WHICH INCLUDES THIS PROJECT.

CONTRIBUTING AREA = 15.2 ACRES (ULTIMATE)

USING THE CURRENT OCDC STANDARDS FOR CALCULATING FIRST FLUSH VOLUME:

**RUNOFF COEFFICIENT CALCULATION (OVERALL)**

PAVEMENT: 63.04 AC. @ 0.95 = 59.89  
BUILDING: 16.72 AC. @ 0.95 = 15.88  
WATER: 3.40 AC. @ 1.00 = 3.40  
LANDSCAPE: 34.01 AC. @ 0.25 = 8.50  
117.17

$C = 87.67/117.17 = 0.75$  USE 0.80

$V_{ff} = 4320 \times A \times C = 4320 \times 15.2 \times 0.80 = 52,531$  CF REQUIRED

**VOLUME PROVIDED:**

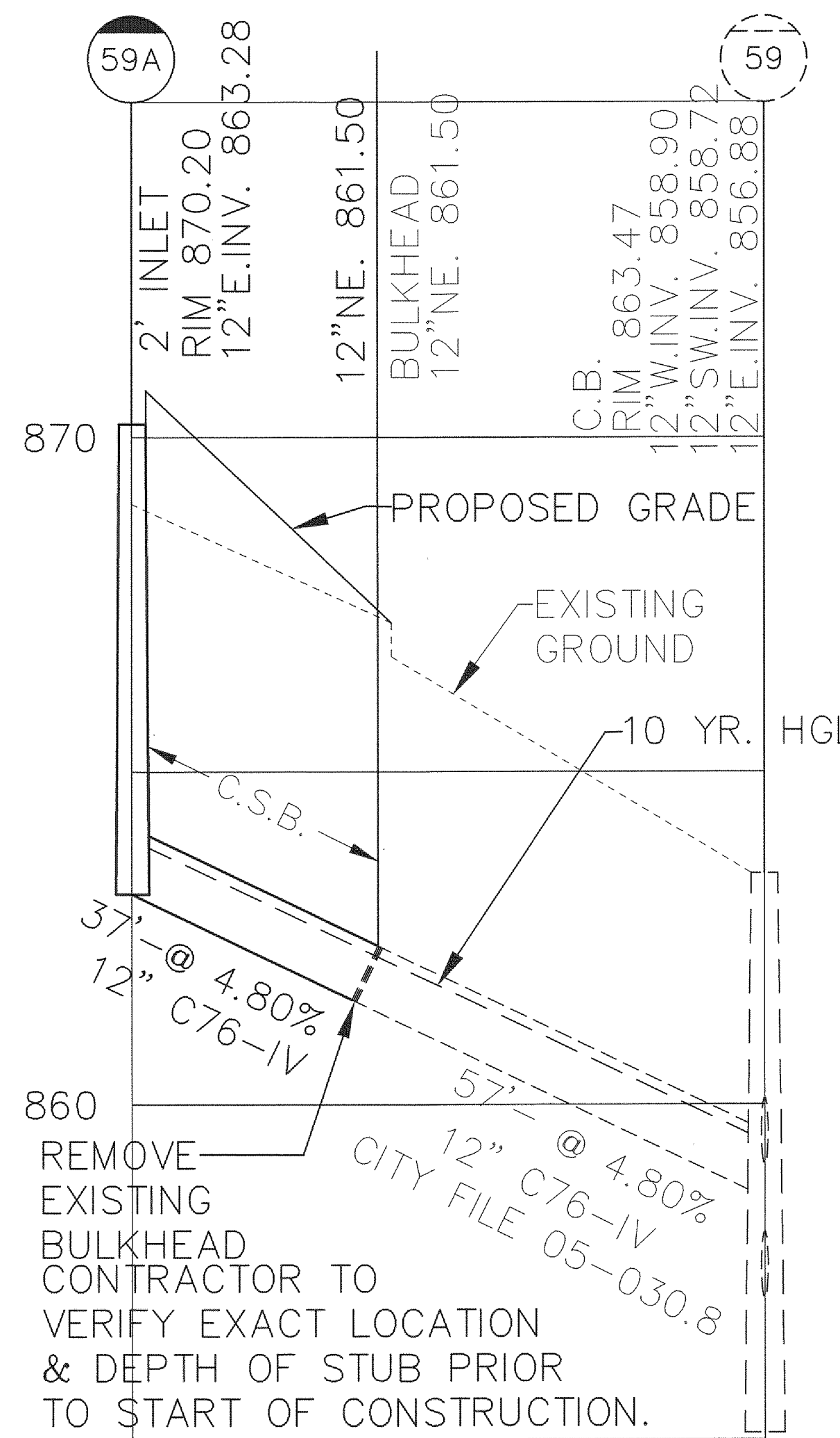
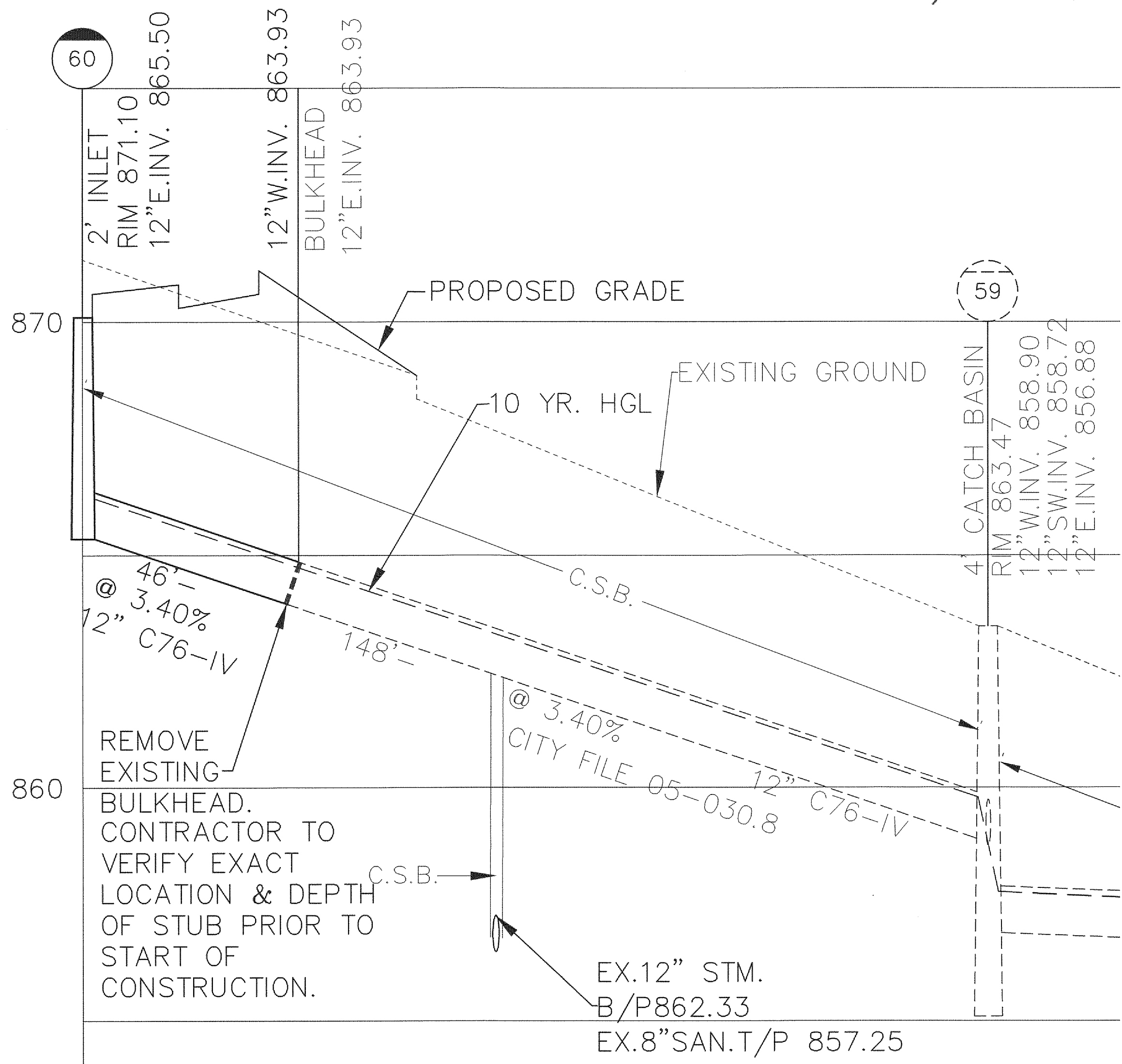
ELEV.	AREA(SF)	AVG. AREA (SF)	DEPTH (FT)	VOL.(CF)
849.5	20,194			
849	18,985	19,590	0.5	9,795
848	16,650	17,818	1.0	17,818
847	14,425	15,538	1.0	15,538
846	12,307	13,366	1.0	13,366
845.7	11,693	12,000	0.3	3,600
				60,117 CF

AT ELEVATION 849.5 A STORAGE VOLUME OF 60,117 CF IS PROVIDED.

**SIZE OUTLET:**

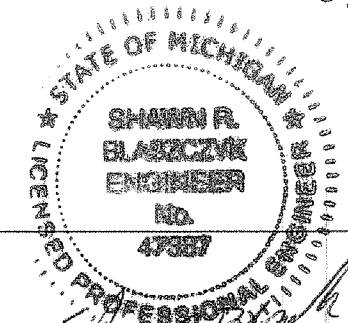
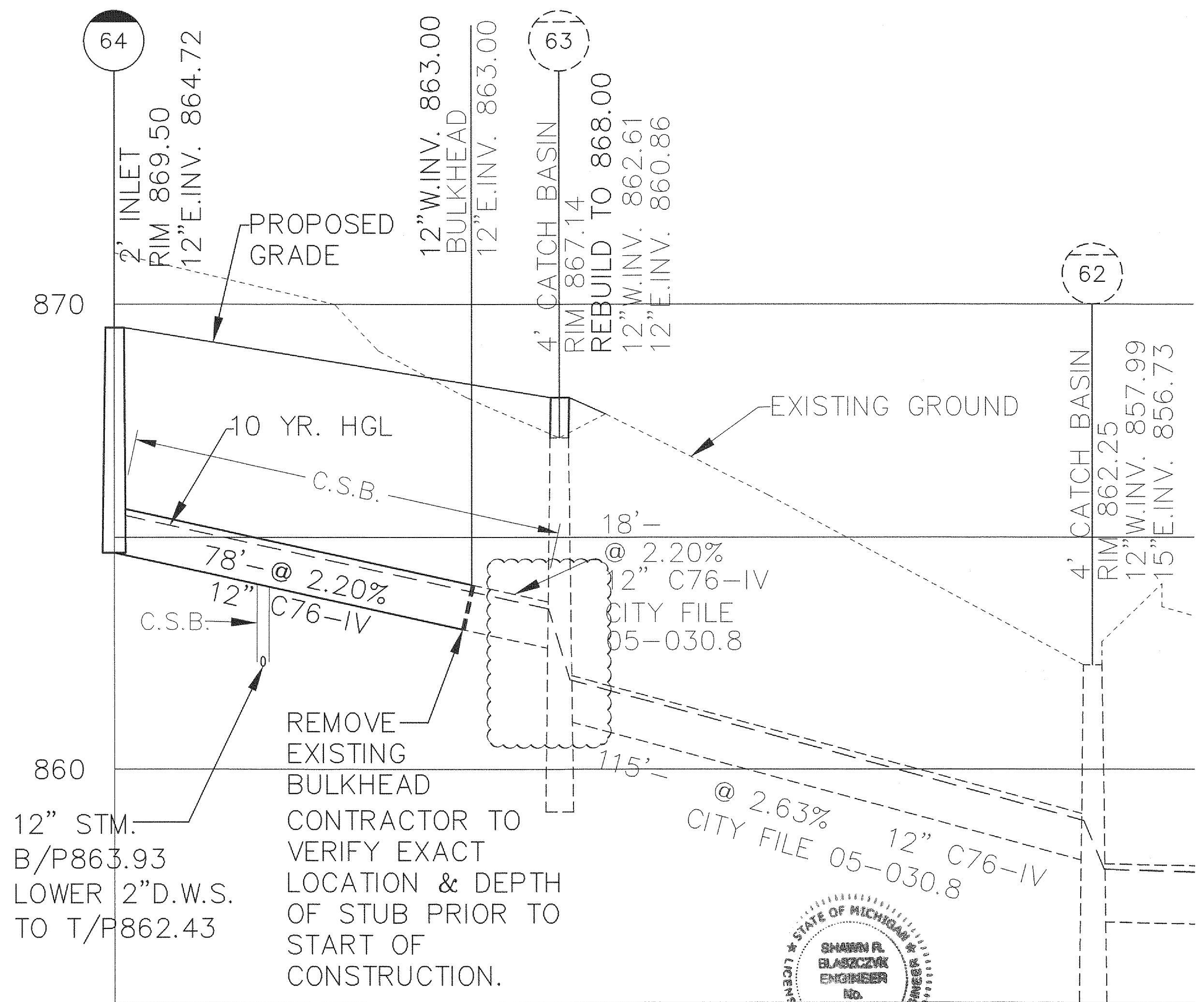
(ULTIMATE CONDITIONS)  
A = 15.2 ACRES  
QA =  $0.20 \times 15.2 = 3.04$  CFS  
AM =  $(\sqrt{HW}) = 52,531/3.8 = 13,823.9$   
A =  $0.3988 (13,823.9) 3.8/172,800 = 0.0622 = 3.37"$   
USE A 12" DIAMETER PIPE WITH 1.5' OF 3" PVC GROUDED INTO THE DOWNSTREAM INVERT OF THE PIPE.  
**SIZE HOLES IN STANDPIPE:**  
HW = 3.8'  
AM =  $(\sqrt{HW}) = 52,531/3.8 = 13,823.9$   
A =  $0.3988 (13,823.9) 3.8/172,800 = 0.0622$   
A 1" HOLE HAS AN AREA = 0.0055 SF  
NO. OF 1" HOLES =  $0.0622/0.0055 = 11.3$   
USE 12-1" DIAMETER HOLES AT ELEV. 845.7  
**SIZE OVERFLOW WEIR (100-YR.)**  
 $Q = CLH^{3/2}$   
 $C = 3.33, H = 0.5'$   
 $Q = Q100 = CIA = 0.80(6.87)(15.2) = 83.5$  CFS  
 $83.5 = 3.33L (0.5)^{3/2}$   
 $L = 70.9$  SAY 71'

I =		C =		T =		ZEMETWOZNAK		SHEET		I		OF		I		March 23, 2007				
PROJECT:		JOB NO.		COMMUNITY:		COUNTY:		March 29, 2013												
FROM MH INPUT	TO MH	INCREMENT ACRES (A)	C	EQUIV. AREA 100% ACRES CA	TOTAL AREA 100% ACRES SUM CA	T TIME (MIN)	I (IN PER HOUR)	Q-CIA C.F.S. FLOW	CAPACITY OF SEWER (C.F.S.)	DIAM. OF PIPE (IN.)	LENGTH OF LINE (FT.)	SLOPE OF PIPE (%)	SLOPE OF HG (%)	VEL. FLOW FULL (FT./SEC.)	TIME OF FLOW (MIN)	H.G. ELEV. UPPER END	GR. ELEV. UPPER END	LOWER END	INV. ELEV. UPPER END	LOWER END
60	59	0.21	0.90	0.19	0.19	15.00	4.38	0.83	6.6	12	194	3.40	3.40	8.4	0.4	66.30	70.10	63.47	65.50	58.90
64	63	0.36	0.90	0.32	0.32	15.00	4.38	1.42	5.3	12	96	2.20	2.20	6.7	0.2	65.52	69.50	68.00	64.72	62.61
59A	59	0.09	0.90	0.08	0.00	15.00	4.38	2.17	7.8	12	95	4.80	4.80	9.9	0.2	64.08	70.20	63.47	63.28	58.72
																59.52				



**STORM SEWER PROFILES**

SCALE: 1" = 20' H  
1" = 2' V



NOT FOR CONSTRUCTION  
CITY FILE 05-090.3

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REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER CITY REVIEW	5/10/13	SRB									

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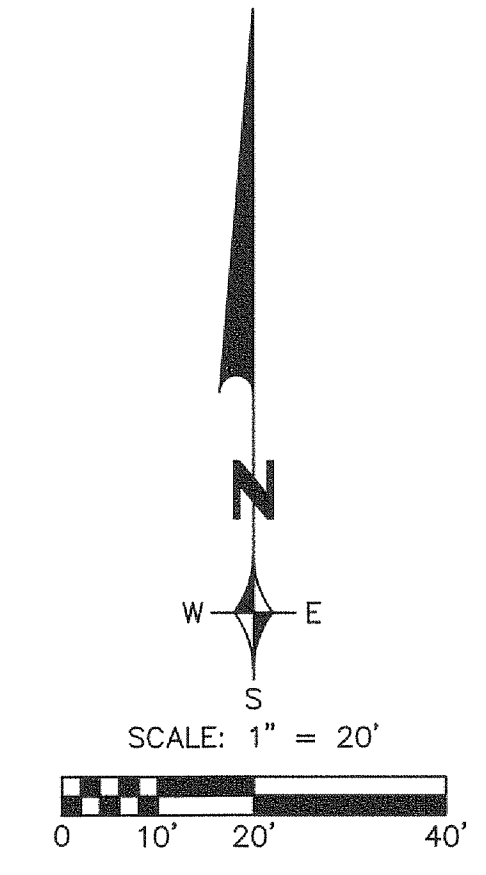
**STORM AREA PLAN**  
**FLAGSTAR BANK**  
ROCHESTER HILLS, MICHIGAN, SECTION 30

DATE	SCALE	HOR. VER.
4/1/13	1" = 30'	1" = N/A
DESIGNED BY SRB	JOB NO.	13122
DRAWN BY SRB	SHEET	CE-4

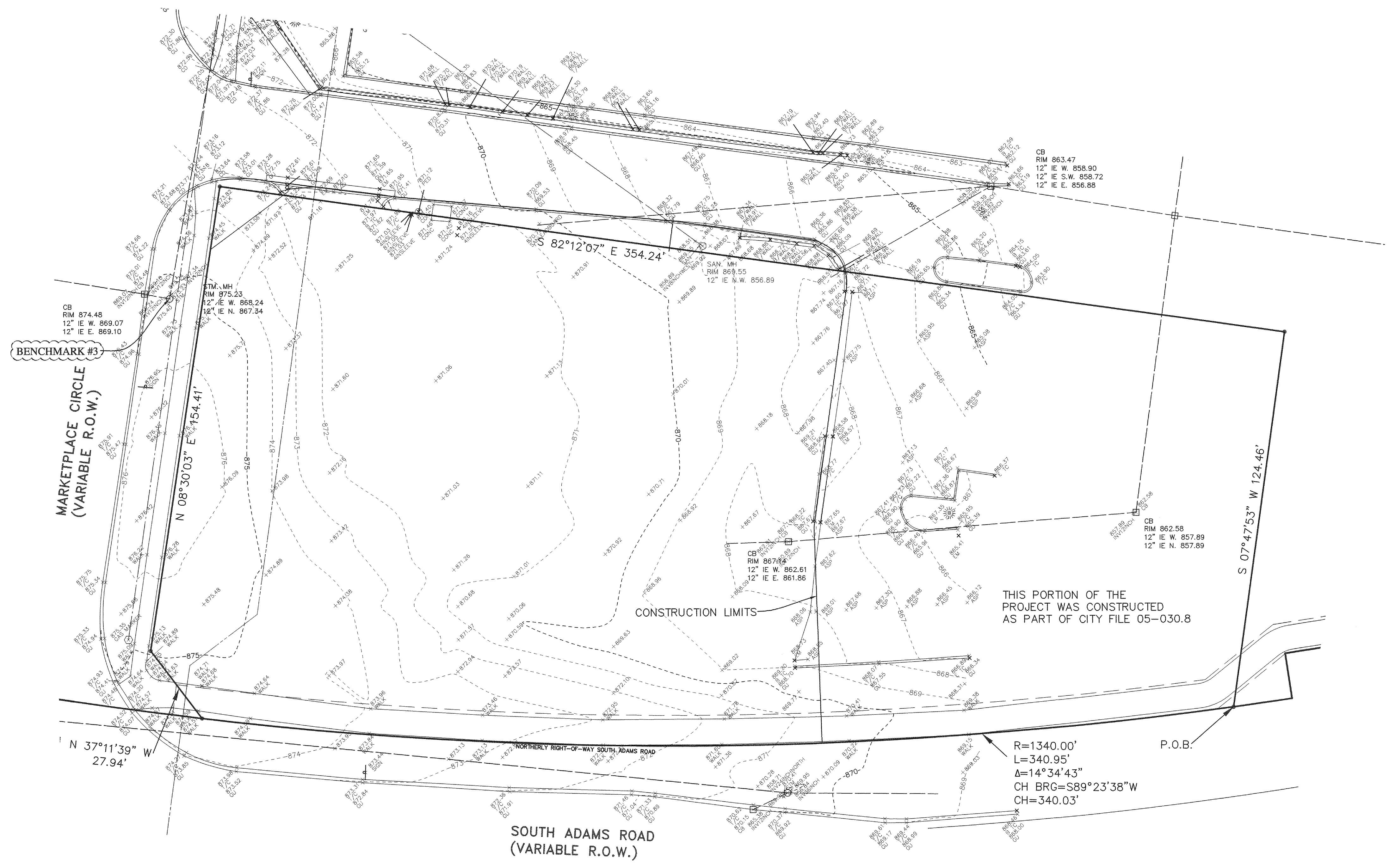


**EXISTING LEGEND**

- MANHOLE
- CATCH BASIN
- ⊠ INLET
- ⊙ CLEANOUT
- ⊕ END SECTION
- ⊖ ROOF DRAIN
- ⊗ GATE VALVE
- ⊙ HYDRANT
- ⊙ WATER SHUT-OFF
- ⊙ UTILITY POLE
- ⊙ GUY ANCHOR
- ⊙ LIGHT POLE
- ⊙ SIGN
- ⊙ TREE
- TREE LINE
- FENCE
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- GAS MAIN
- ELECTRIC CABLE
- CONTOUR MAJOR
- CONTOUR MINOR
- T/P TOP OF PAVEMENT
- T/C TOP OF CURB
- B/C BOTTOM OF CURB
- +100.00 SPOT ELEVATION



- BENCH MARKS:**
1. ARROW ON HYDRANT ON EAST SIDE OF MARKETPLACE CIRCLE 575'± NORTH OF ADAMS ROAD. ELEV. 865.67
  2. ARROW ON HYDRANT ON NORTH SIDE OF INDUSTRIAL DRIVE 135'± WEST OF MARKETPLACE CIRCLE. ELEV. 874.04
  3. STORM SEWER MANHOLE RIM IN EASTERLY R.O.W. OF MARKETPLACE CIRCLE 40'± SOUTH OF EXISTING DRIVEWAY. ELEV. 875.23



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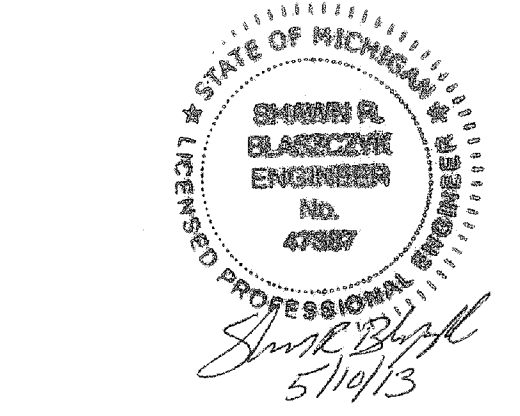
REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER CITY REVIEW	5/10/13	SRB									

**ZIMET WOZNAK & ASSOCIATES**  
Civil Engineers & Land Surveyors  
40024 GRAND RIVER AVE, SUITE 100  
NOVI, MICHIGAN 48275  
P: (248) 442-1101 F: (248) 442-1241 www.zimetwozniak.com

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BINGHAM FARMS, MI 48025 248.258.5155

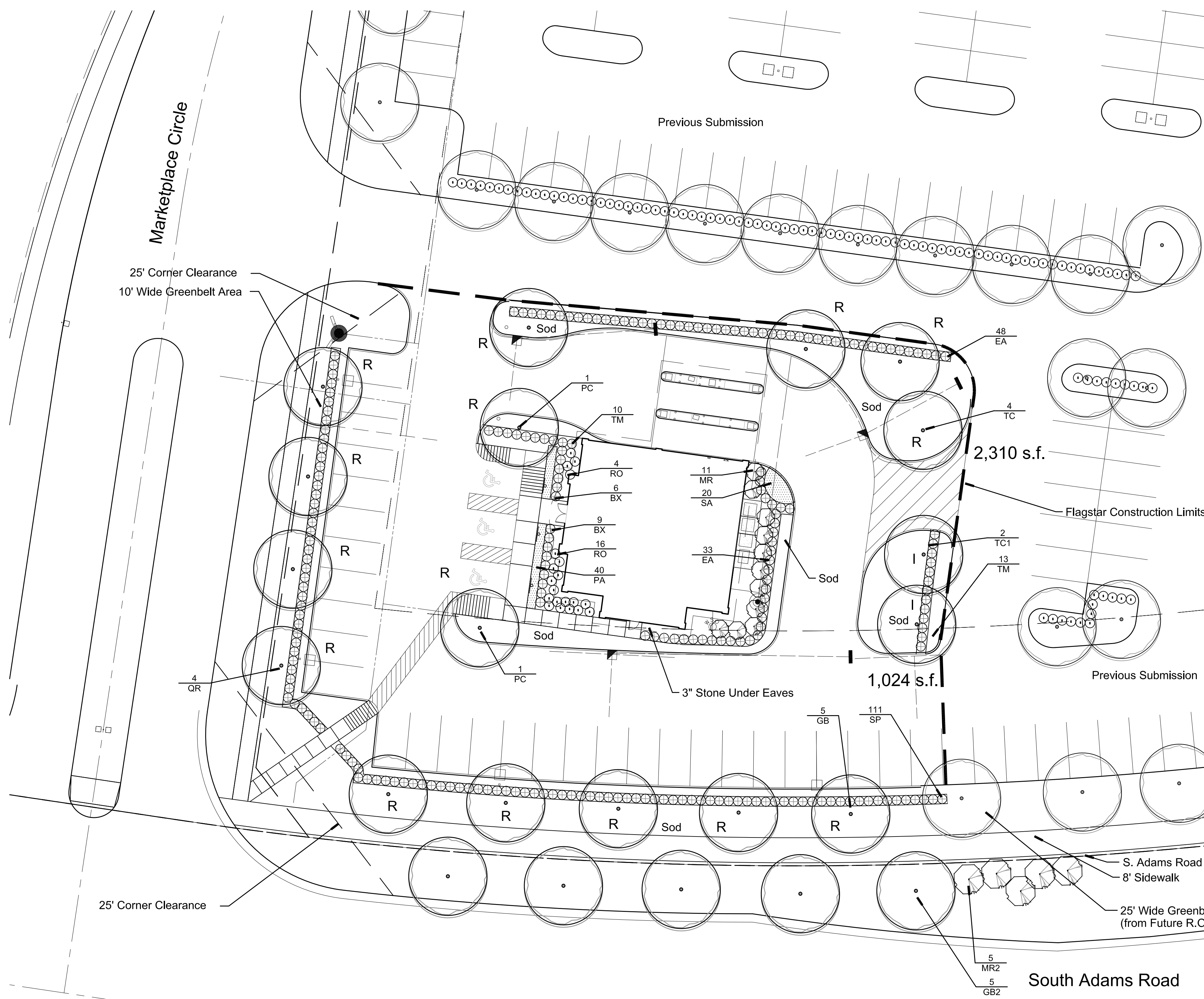
EXISTING CONDITIONS  
**FLAGSTAR BANK**  
ROCHESTER HILLS, MICHIGAN, SECTION 30



NOT FOR CONSTRUCTION  
CITY FILE 05-090.3

DATE	4/1/13	SCALE	HOR: 1" = 20'	VER: 1" = N/A
DESIGNED BY	SRB	JOB NO.	13122	
DRAWN BY	SRB	SHEET	CE-5	





### Landscape Summary

<b>Parking Lot Landscaping</b>	
Spaces Shown	33 Spaces
Landscape Area Required (150 s.f. per 10 Spaces)	600 s.f.
Landscape Area Shown	3,334 s.f.*
Trees Required (1 Tree per 300 s.f.)	2 Trees
Trees Shown	2 Trees
<b>Right of Way Landscaping**</b>	
Adams Road	
Frontage	180 l.f.
Trees Required	5 Trees (1 per 35')
Trees Provided	5 Trees
Ornamental Trees Required	5 Trees (1 per 35')
Ornamental Trees Provided	5 Trees
Marketplace Drive	
Frontage	90 l.f.
Trees Required	2 Trees (1 per 35')
Trees Provided	0 (Payment to Tree Fund)
Ornamental Trees Required	2 Trees (1 per 35')
Ornamental Trees Provided	0 (Payment to Tree Fund)

\* As measured from the back of curb and Excluding Sidewalks.  
 \*\* ROW Plantings will Require a RCOG Permit. If the Permit is Not Granted, the Value of Required Trees Shall be Placed in the City Tree Fund.

### Environmental Statement

No natural features exist. This site has been recently mass graded.

#### Additional Notes:

- All Landscaped Areas shall be irrigated with an Automatic, Underground System.
- Islands shall be Sod.
- Owner shall be Responsible for Replacing Damaged Plant Material Due to Utility Maintenance.
- Prior to the release of the Performance Bond, the City of Rochester Hills Forestry Division must inspect all landscape plantings including but not limited to existing trees, replacement trees, buffer plantings, and parking lot islands and the Forestry Division must inspect all right-of-ways to identify any plantings new or existing that pose a hazard to the safe use of the right-of-way. Forestry may require the developer to remove and possibly replace any such trees.
- All trees and shrubs must be planted at least 10' from the edge of a public roadway. Shade trees and shrubs must be planted at least 5' from the edge of a public sidewalk. Evergreen and ornamental trees must be planted at least 10' from the edge of a public sidewalk. All trees and shrubs must be planted at least 10' from any hydrant. Shade and evergreen trees must be planted at least 15' from the nearest overhead wire and at least 10' from the nearest underground utility.
- No tree or shrub may be planted within the triangular area formed at the intersection of any street right-of-way at a distance of 25' from their point of intersection. No tree or shrub may be planted in the triangular area formed at the intersection of any driveway with a public sidewalk at a distance along each line of 15' from their point of intersection.
- Prior approval is required to plant any tree or shrub in the public right-of-way.
- No substitutions or changes of location or plant types shall be made without the approval of the developer and the City of Rochester Hills Landscape Architect. City's Landscape Architect has Final Right of Approval for the Release of the Performance and Maintenance Bonds.
- The developer and/or the City of Rochester Hills Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans or specifications.
- Replacement trees may not be planted within the drip line of existing trees.
- Trees must be at least 10' from underground utilities and 10' from overhead utilities.
- Trees may not be planted within 4' of any property line.

#### Utility Maintenance Statement:

If, in the event, Utility Maintenance Results in the Removal of Landscaping, as Shown on this Plan, it will be the Owner's Responsibility to Repair and Replace Shrubs and Trees that are Located within the Utility Easements.

### Plant List

sym.	qty.	botanical name	common name	caliper	spacing	root	height	price	total	
<b>Parking Lot Island Trees</b>										
TC1	2	Tilia cordata 'Greenspire'	Greenspire Linden	3.0"	as shown	B&B		\$ 425.00	\$ 850.00	
									Sub Total	
									\$ 850.00	
<b>Right of Way Trees</b>										
GB2	5	Ginkgo biloba	Ginkgo	3.0"	as shown	B&B		\$ 425.00	\$ 2,125.00	
MR2	5	Malus sargentii	Sargent Crab	2.0"	as shown	B&B		\$ 200.00	\$ 1,000.00	
									Sub Total	
									\$ 3,125.00	
<b>Right of Way Trees Paid into City Tree Fund</b>										
	2	Deciduous Tree		3.0"				\$ 425.00	\$ 850.00	
	2	Ornamental Tree		2.0"				\$ 200.00	\$ 400.00	
									Sub Total	
									\$ 1,250.00	
<b>Replacement Trees</b>										
GB	5	Ginkgo biloba	Ginkgo	3.0"	as shown	B&B		\$ 425.00	\$ 2,125.00	
PC	2	Pyrus calleryana 'Redspire'	Redspire Pear	3.0"	as shown	B&B		\$ 425.00	\$ 850.00	
QR	4	Quercus rubra	Red Oak	3.0"	as shown	B&B		\$ 425.00	\$ 1,700.00	
TC	4	Tilia cordata 'Greenspire'	Greenspire Linden	3.0"	as shown	B&B		\$ 425.00	\$ 1,700.00	
	15	trees, 30 credits							Sub Total	
									\$ 6,375.00	
<b>General Plantings</b>										
BX	15	Buxus microphylla 'Wintergreen'	Wintergreen Bowwood		as shown	B&B	24"	\$ 45.00	\$ 675.00	
EA	81	Euonymus alata 'Compact'	Compact Burning Bush		as shown	B&B	30"-36"	\$ 50.00	\$ 4,050.00	
MR	11	Malus sargentii	Sargent Crab	2.0"	as shown	B&B		\$ 200.00	\$ 2,200.00	
	40	50	Pennisetum a. 'Little Bunnies'	Dwarf Fountain Grass				Full, well rooted 1 gal.	\$ 15.00	\$ 750.00
	20	37	Rosa 'Nearly Wild'	Nearly Wild Rose				as shown 24"	\$ 45.00	\$ 1,665.00
	SA	20	Hosta x 'Antioch'	Antioch Hosta				Full, well rooted 1 gal.	\$ 15.00	\$ 300.00
	SP	111	Spirea j. 'Anthony Waterer'	Anthony Waterer Spirea				as shown 30"-36"	\$ 50.00	\$ 5,550.00
	TM	23	Taxus x media 'Densiformis'	Dense Yew				as shown 30"-36"	\$ 50.00	\$ 1,150.00
		576	Kentucky Blue Grass, (S.Y.)					\$ 4.00	\$ 2,304.00	
			Irrigation System						\$ 35,000.00	
									Sub Total	
									\$ 53,644.00	

### LANDSCAPE REQUIREMENTS

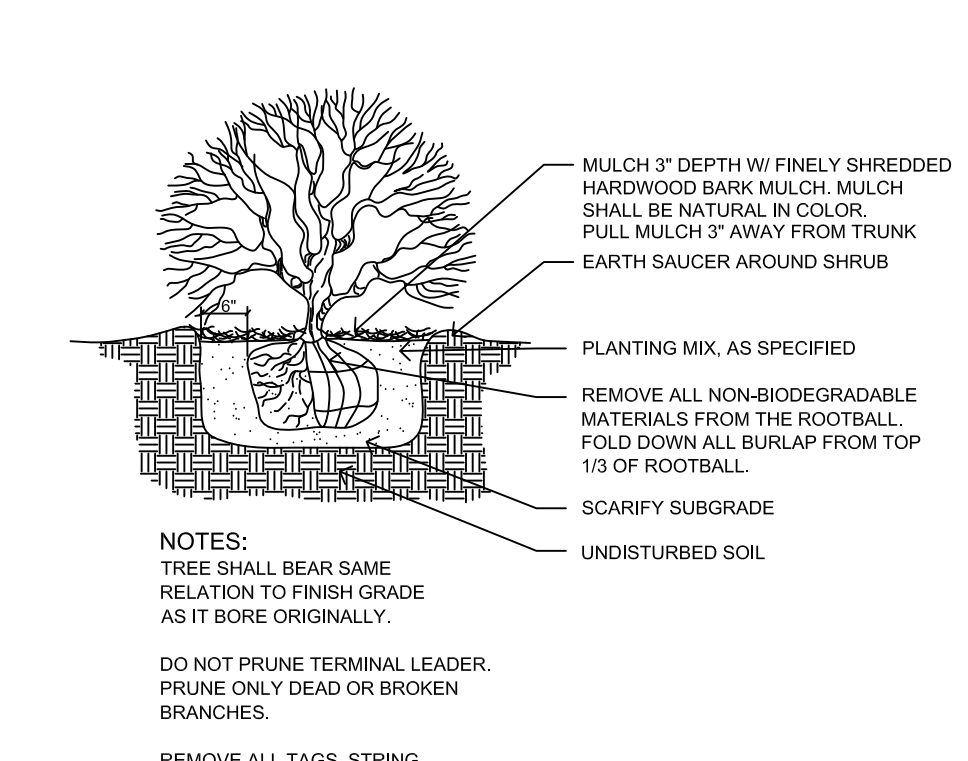
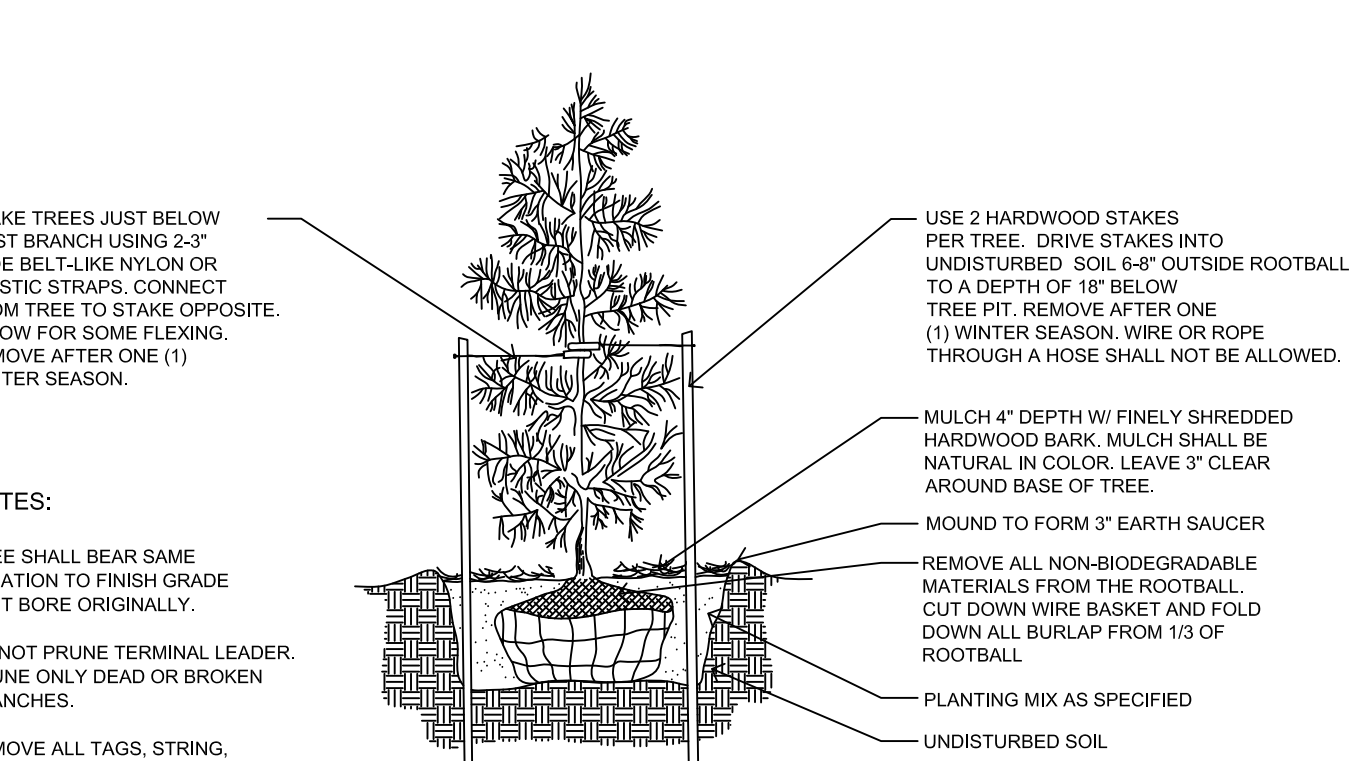
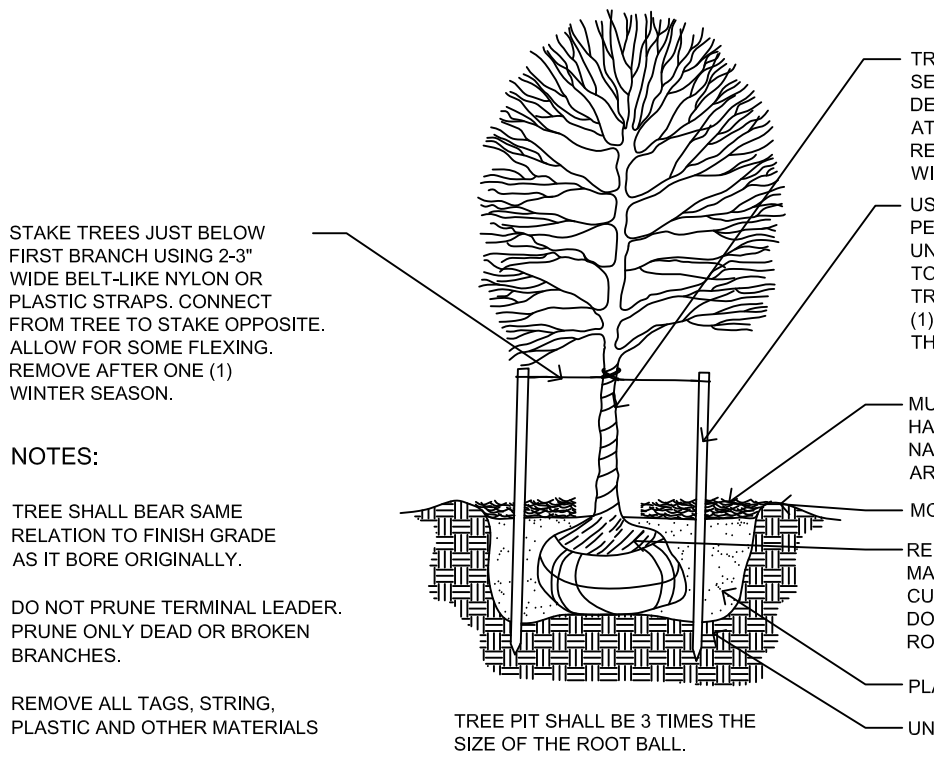
- The work shall consist of providing all necessary materials, labor, warrants, equipment, tools and supervision required for the completion as shown on the drawings.
- The plant materials shall conform to type stated on the plant list. Sizes shall be the minimum stated on the plant list or larger. All measurements shall be in accordance with the latest edition of "A.A.N. Standard for Nursery Stock".
- The plant material shall be nursery grown and inspected by the owner's representative before planting. The owner's representative reserves the right to reject any plant material at any time.
- Plants designated "B & B" shall be balled and burlapped with firm bales of earth.
- The contractor is responsible for planning the materials at the correct grades and spacing. The plants shall be oriented as to give the best appearance.
- When the plant has been properly set, the pit shall be backfilled with a topsoil mixture, gradually filling, patting and setting with water.
- All plant materials shall be pruned and injuries repaired. The amount of pruning shall be limited to the removal of dead or injured twigs and to compensate for the loss of roots from transplanting. Cuts should be flush, leaving no stubs. Cuts over 1" shall be painted with tree paint.
- The contractor agrees to guarantee all plant materials for the period of two years. At that time the owner's representative reserves the right for a final inspection. Plant material with 25% die back, as determined by the owner's representative shall be replaced. This guarantee includes the furnishing of new plants, labor and materials. These new plants shall also be guaranteed for the period of one year.
- Topsoil shall be friable, fertile topsoil of clay loam character containing at least 5% but not more than 20% by weight of organic matter with a PH range from 6.0 to 7.0. Soil shall be free from clay lumps, coarse sand, plant roots, sticks and other foreign materials.
- Seed mix shall consist of the following types and proportions: Kentucky Blue Grass - "Baron/Cheradelpin" 60% Cheating Chew Fescue 15% Creeping Reed Fescue 15% Perennial Rye Grass 10%. Weed content shall not exceed 1%. The mix shall be applied at a rate of 200 lbs./acre.
- Sod shall be two year old "Baron/Cheradelpin" Kentucky Blue Grass grown in a sod nursery on loam soil.
- The Contractor shall verify all rights of way, easements, property lines and limits of work, etc. prior to commencing work.
- The Contractor shall be responsible for contacting and coordinating with all pertinent utility companies 72 hours in advance of any digging to make himself familiar with all underground utilities, pipes and structures. The Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.
- The Contractor shall not utility proceed with construction as designed when it is obvious that unknown obstructions and/or grade differences exist. Such conditions shall be immediately brought to the attention of the owner's representative and/or Landscape Architect. The Contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.
- Any discrepancies between dimensioned layout and actual field conditions shall be reported to the Owner's representative and Landscape Architect. Failure to make such discrepancies known will result in Contractor's responsibility and liability for any changes and associated cost.
- The Contractor to verify percolation of all planting pits prior to installation of plant material.

#### Overhead Line Statement:

No Overhead Lines Exist

#### Loading Area Statement:

Proposed Landscaping and/or Walls Shall Adequately Screen Loading Area from Public R.O.W.



Seal:



Title:  
**Landscape Plan**

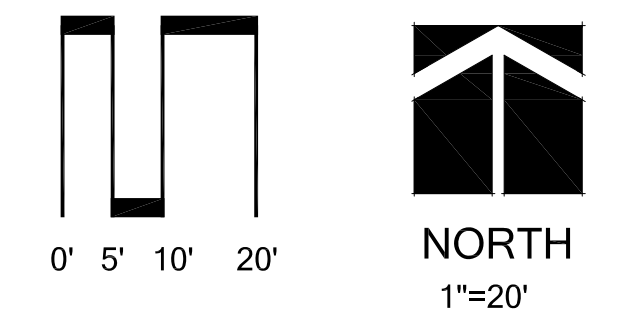
Project:  
**Adams Marketplace  
 Flagstar Bank  
 Rochester Hills, Michigan**

Prepared for:  
**Zeimet Wozniak & Associates  
 40024 Grand River Avenue, Suite 100  
 Novi, Michigan 48375  
 248.442.1101**

Revision: Issued:  
 Site Plan Submission February 22, 2007  
 Revised per City March 23, 2007  
 Revised per City April 24, 2007  
 Revised per City June 15, 2007  
 Revised May 8, 2013

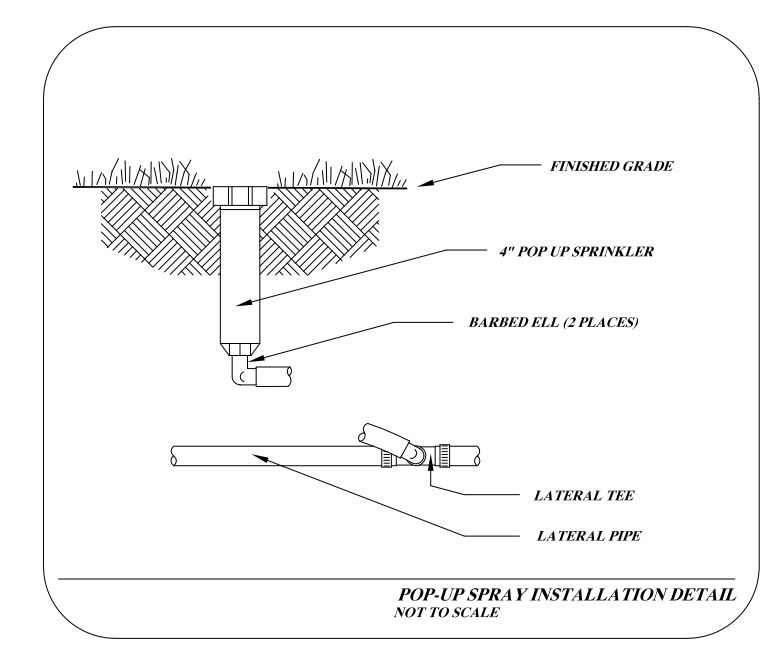
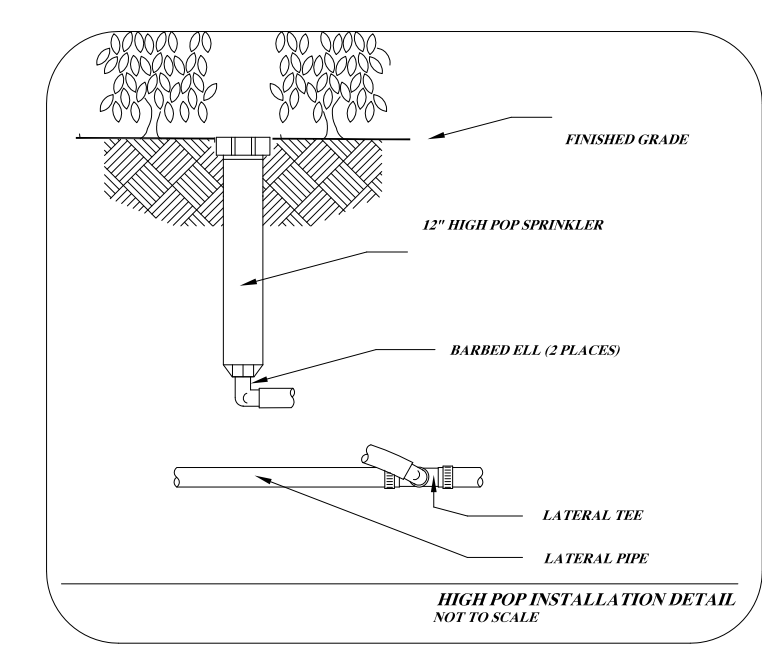
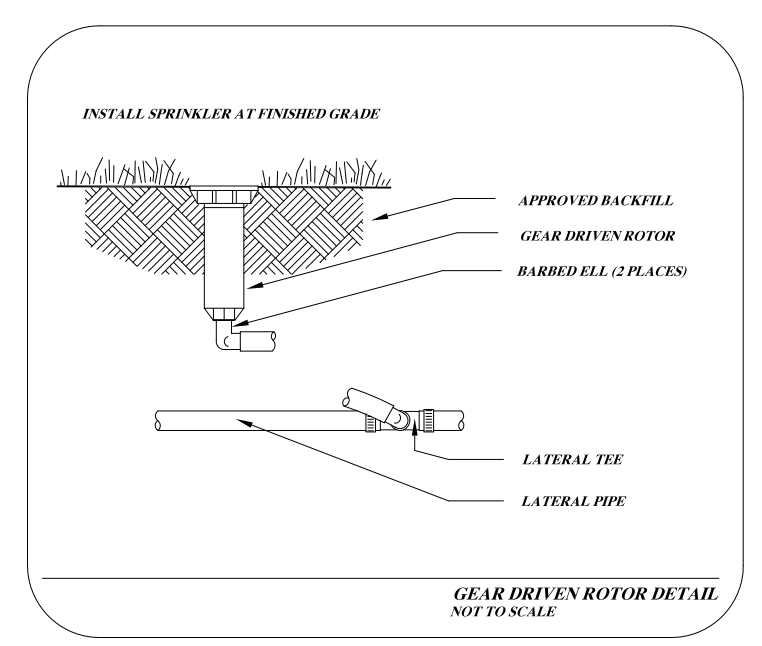
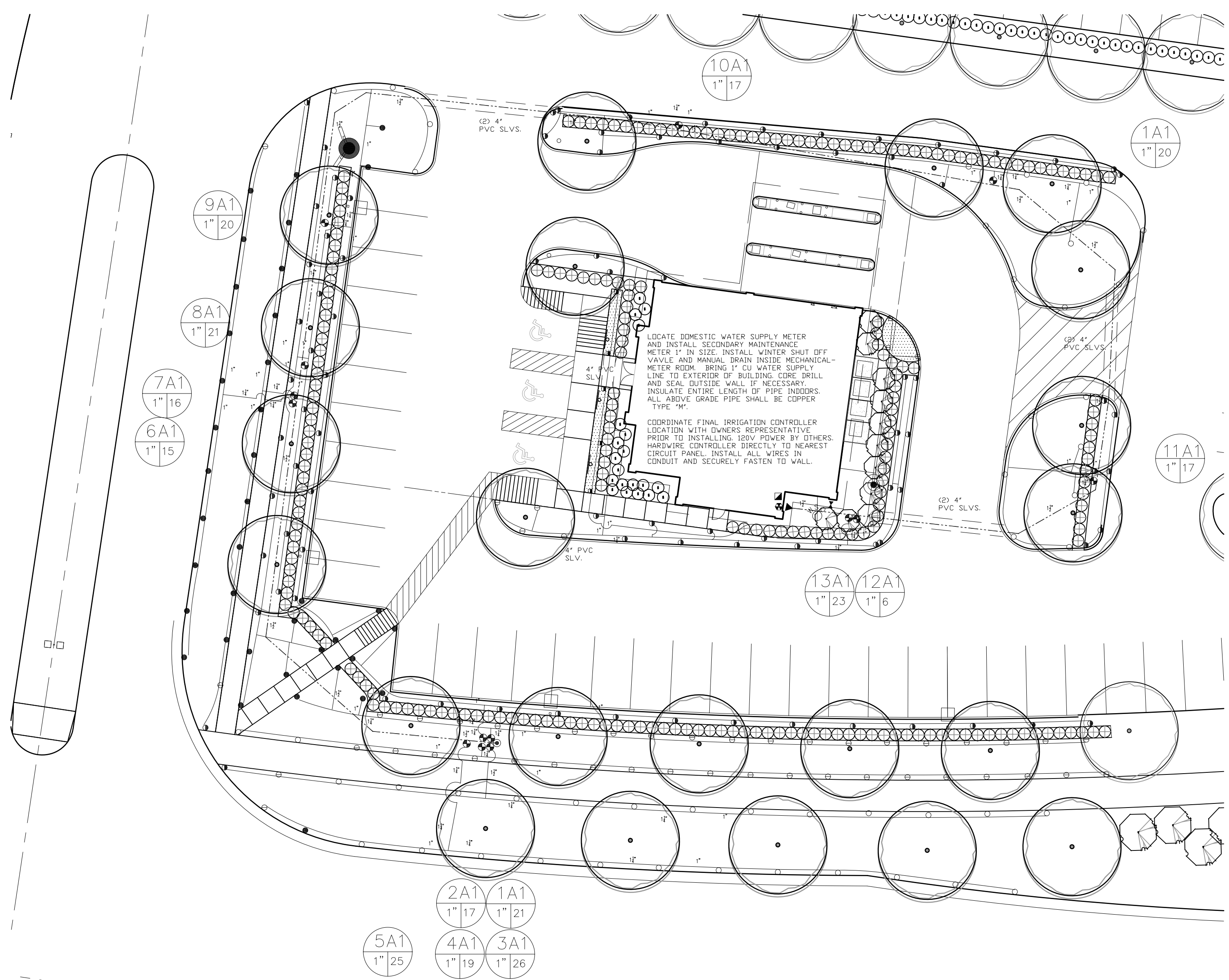
Job Number:  
 07-009

Drawn By: Checked By:  
 jca jca



Sheet No.





**IRRIGATION LEGEND:**

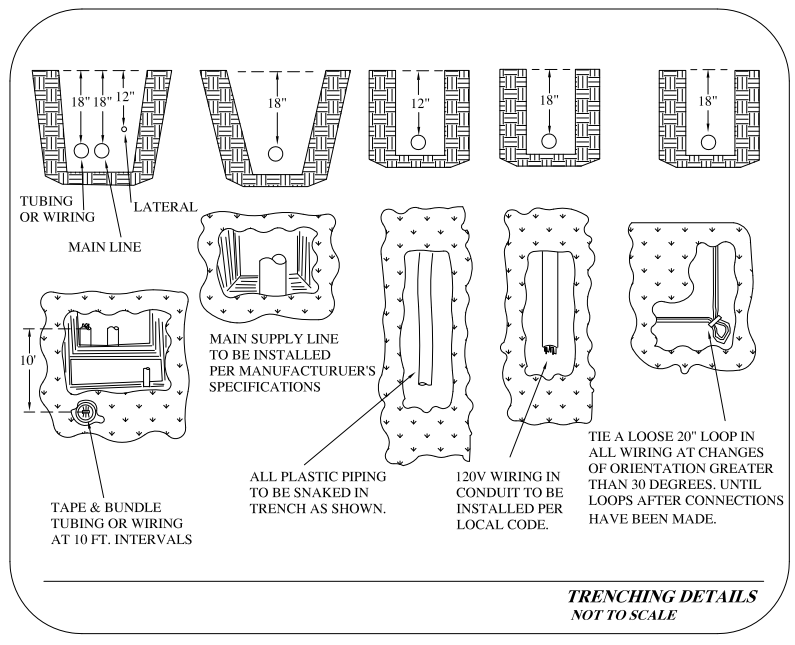
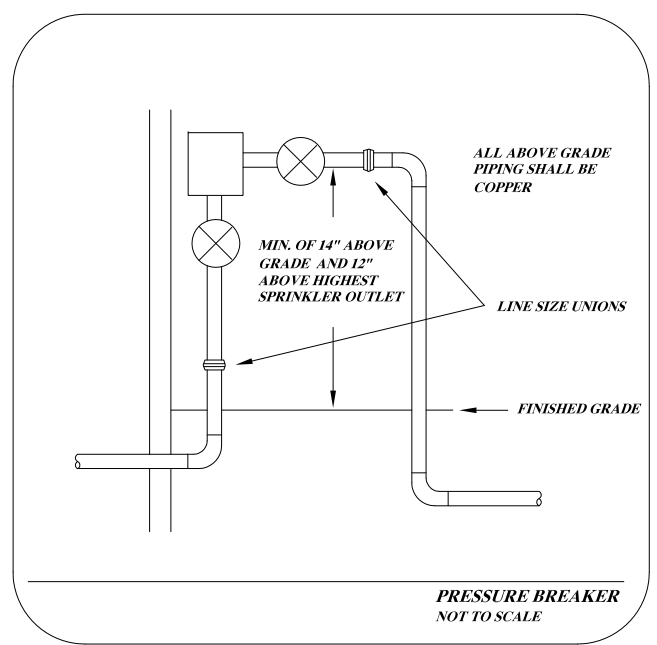
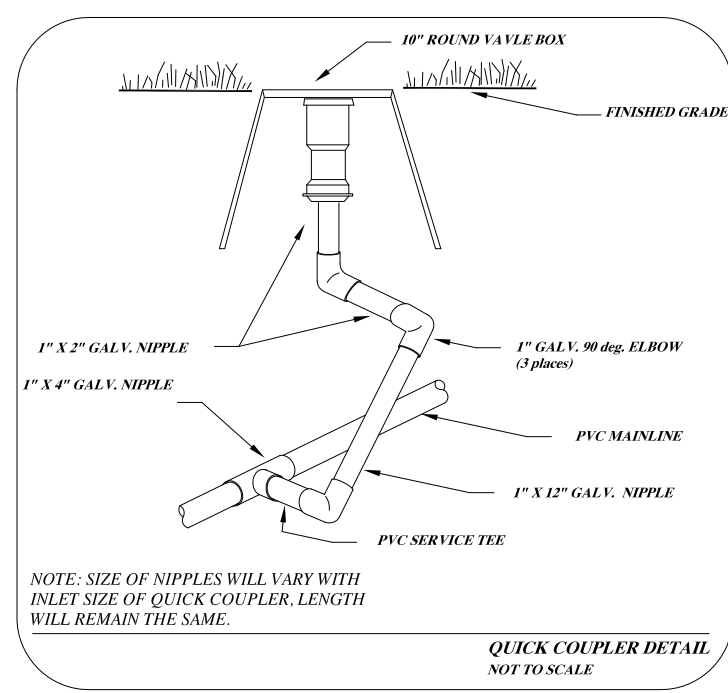
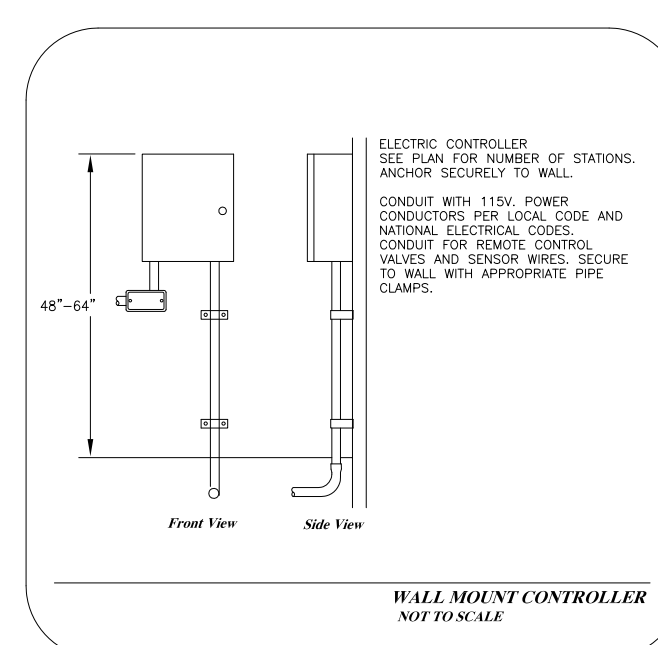
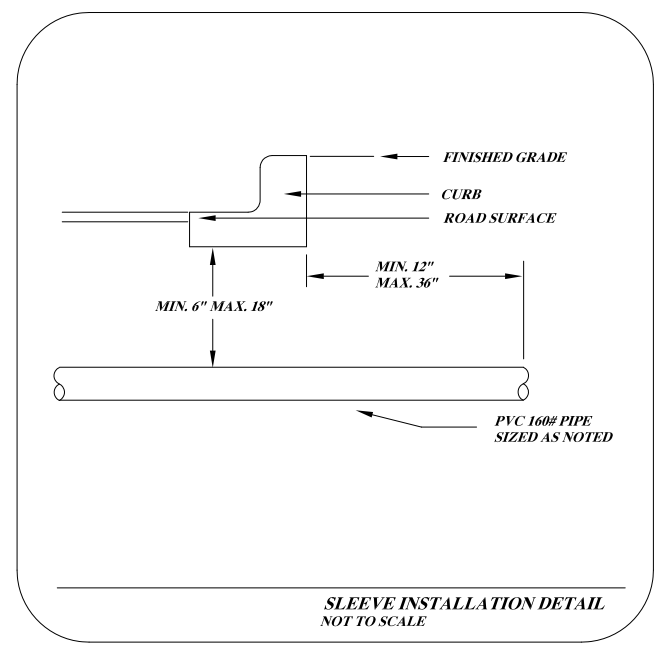
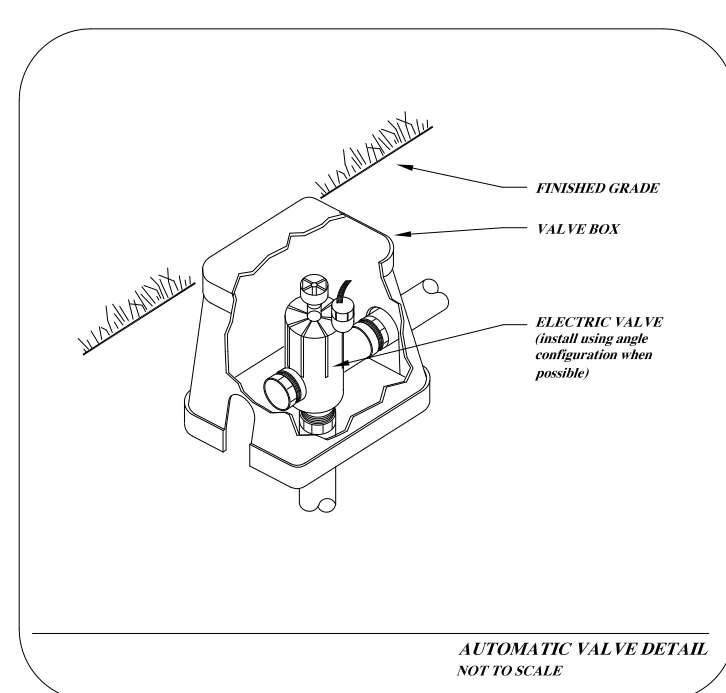
<b>FIXED SPRAY POP-UP (4")</b> ○ 10 Series ● 12 Series ○ 15 Series ▸ Strip Series	Rainbird 1804 Toro 570z4P PROS-04
<b>FIXED SPRAY POP-UP (12")</b> □ 10 Series ■ 12 Series □ 15 Series ▸ Strip Series	Rainbird 1812 Toro 570z12P PROS-12
<b>FIXED SPRAY POP-UP (12") w/ 2' radius nozzle</b>	Rainbird 1812 Toro 570z12P PROS-12
<b>GEAR DRIVEN ROTARY POP-UP</b> ● 1.5 GPM ○ 3.0 GPM ● 6.0 GPM	Rainbird 5004 Weathermatic T3 Hunter PGP
<b>ELECTRIC VALVE</b>	Rainbird PGA Series Toro P220 Series ICV-Series
<b>QUICK COUPLER VALVE</b>	Rainbird 4RC Toro 474-01 QVC-100
<b>ELECTRIC CONTROLLER</b>	Rainbird ESP16M CCM15 ICC16M
<b>PRESSURE VACUUM BREAKER</b>	FEBCO 765P100
<b>RAIN SENSOR DEVICE (Install at all controller locations)</b>	Mini-Click II (wireless)
<b>POINT OF CONNECTION TO WATER SOURCE</b>	See note this sheet
<b>PVC MAINLINE, SDR 26, BE, Size as shown</b>	
<b>POLYETHYLENE PIPE, 100#, NSF APPROVED, Size as shown</b>	
<b>PVC SLEEVES - SDR 26 - Size as shown</b>	

**WATER REQUIREMENTS: 23 GPM @ 55 PSI**  
 (CONTRACTOR TO VERIFY PSI AVAILABLE ON SITE PRIOR TO SYSTEM INSTALLATION)

**VALVE DESIGNATION:**

Controller and Station Number  
 Valve Size  
 Gallons Per Minute

- NOTES:**
- Refer to the specifications for installation details and descriptions, as well as, construction methods which will be accepted.
  - All work shall be in compliance with all local, state, and federal codes and ordinances.
  - All electrical connections shall be made using 3m DBY splice kits.
  - All control wiring downstream of the controller shall be single strand copper 14AWG UL approved for direct bury.
  - All clamps shall be stainless steel worm gear type clamps. Pipes 1-1/2" or larger shall be double clamped.
  - Pipe routing is schematic. All heads are to be field adjusted to within 2' to take into consideration any obstruction. Final head placements are subject to the landscape architects approval.
  - All sprinkler heads shall be mounted on 2 elbow poly swing joints as specified.
  - Contractor to verify final controller location with owner's authorized representative prior to installation.
  - All pipe not sized downstream of control valve is 1".
  - All sleeves shall be PVC 160# (see specifications).
  - Irrigation contractor's point of connection to water source shall be as noted on this sheet. Locate and connect to indicated water source. All pipe installed above grade shall be copper type "M".
  - 120v power to the controller location should be provided owner. Coordinate with owner's representative. **Hardwire controller directly to nearest circuit panel.** Place all wires in conduit per code.
  - Design pressure does not take into account seasonal supply fluctuations. Periods of drought may cause temporary pressure losses to the city water supply resulting in inadequate irrigation system performance. Irrigation design is based on normal weather conditions and typical municipal water supply abilities.
  - Irrigation contractor shall be responsible for determining and maintaining the irrigation schedule during the project construction and throughout the length of the warranty period. The irrigation schedule shall deliver 1" of precipitation per week +/- natural rainfall quantities for turf grass. Landscape material shall receive adjusted amounts of precipitation to maintain proper plant health.
  - Landscape and turf grass shall be irrigated separately.
  - Rotors and spray zones may not be combined to operate at the same time.
  - The Hours of operation for Lawn Irrigation System Shall not be During the Hours of 5:00 A.M. to 9:00 A.M. and from 5:00 P.M. to 9:00 P.M.



**LIQUID ASSETS**  
 IRRIGATION DESIGN & WATER MANAGEMENT  
 4843 Kittery NW  
 Comstock Park, Michigan 49321  
 Tel. (248) 789-0330 (616) 745-5779  
 email: abarnes@liquidassets.org  
 www.liquidassets.org

Seal: \_\_\_\_\_

Title: **Irrigation Plan**

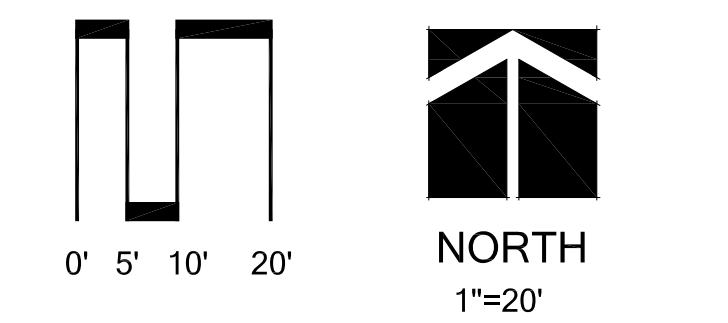
Project: **Adams Marketplace Flagstar Bank Rochester Hills, Michigan**

Prepared for: **Zeimet Wozniak & Associates 40024 Grand River Avenue, Suite 100 Novi, Michigan 48375 248.442.1101**

<b>Revision:</b>	<b>Issued:</b>
Site Plan Submission	February 22, 2007
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Revised	May 8, 2013

Job Number: 07-009

Drawn By: ajb Checked By: jca



Sheet No. \_\_\_\_\_