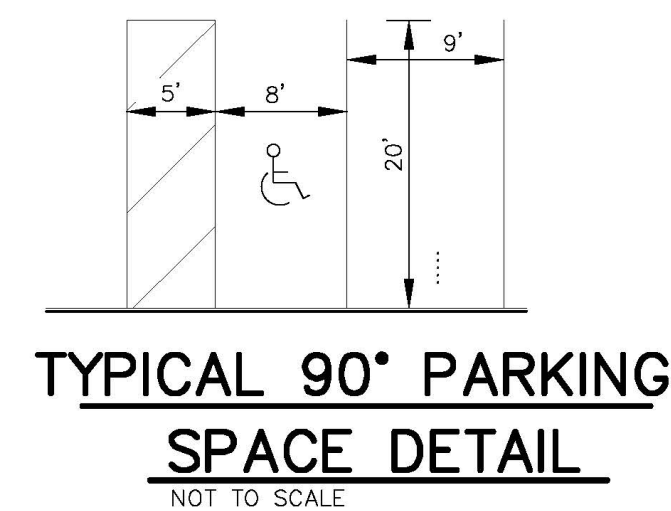
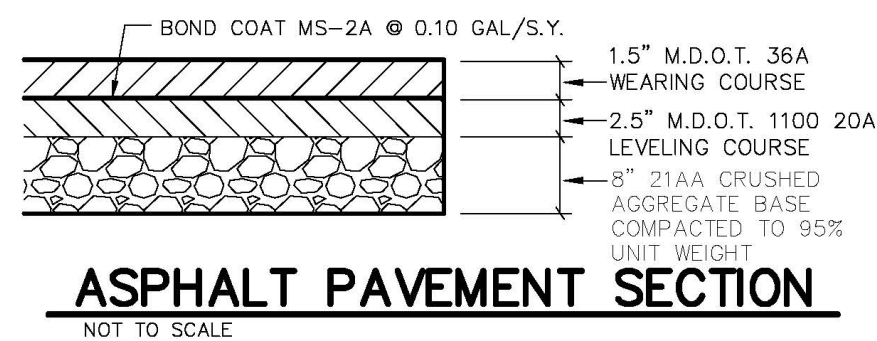




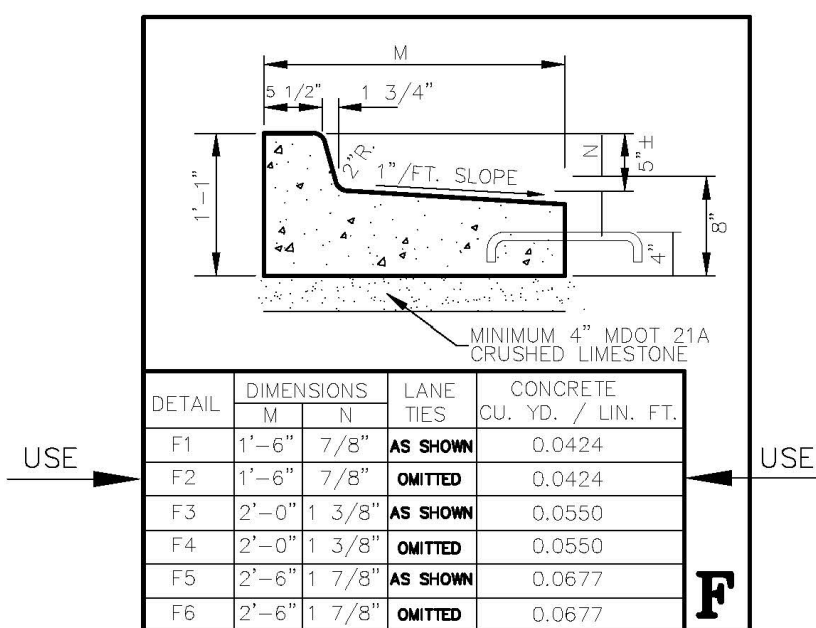
TYPICAL 90° PARKING SPACE DETAIL
NOT TO SCALE



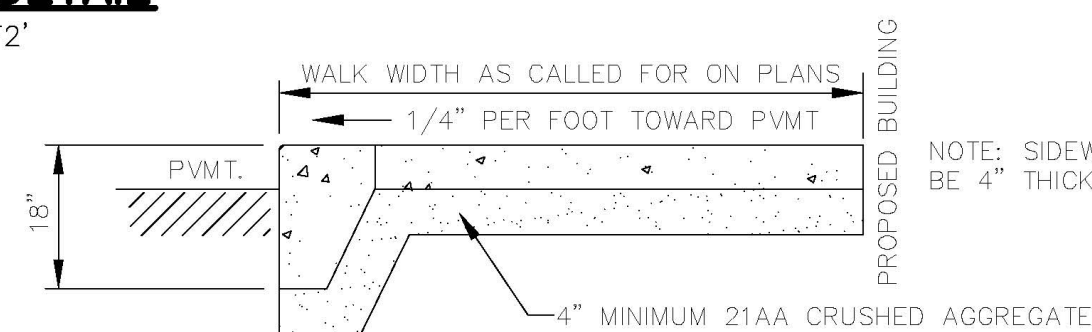
ASPHALT PAVEMENT SECTION
NOT TO SCALE

UTILITY CROSSINGS

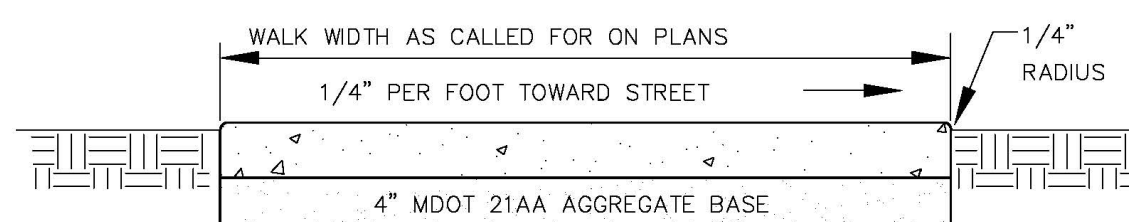
X-ING #1 INV. STORM SEWER 659.32,
LOWER 6" WATER MAIN TO T/PIPE
ELEVATION 657.50
X-ING #2 INV. STORM SEWER 658.90,
LOWER 6" WATER MAIN TO T/PIPE
ELEVATION 657.00
X-ING #3 INV. STORM SEWER 658.65,
LOWER 6" WATER MAIN TO T/PIPE
ELEVATION 657.00
X-ING #4 INV. STORM SEWER 659.60,
T/PIPE ELEVATION 657.50
X-ING #5 INV. STORM SEWER 659.40,
LOWER 6" WATER MAIN TO T/PIPE
ELEVATION 657.00



CURB & GUTTER DETAIL
USE CURB DETAIL 'F2'

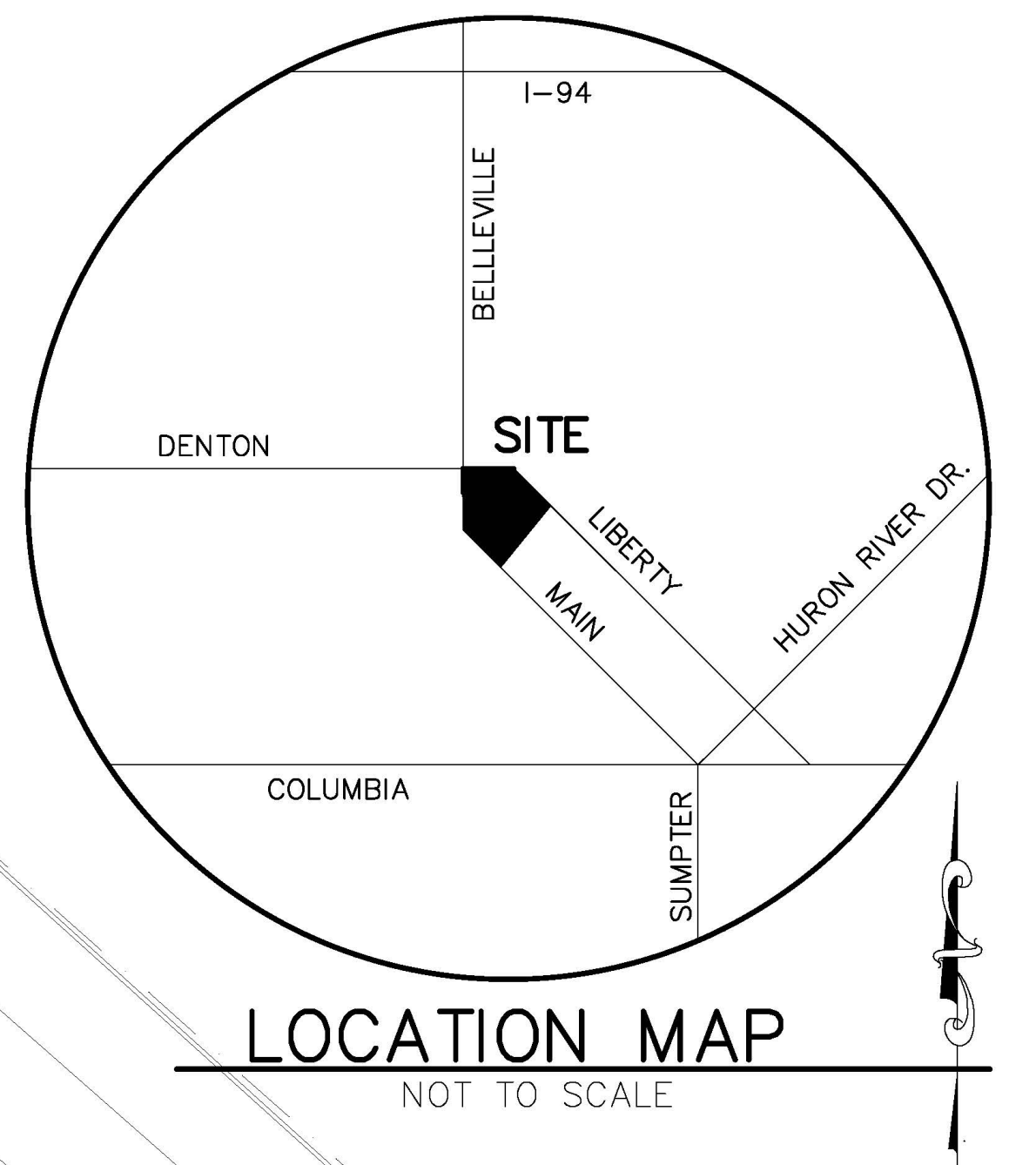


THICKENED EDGE CONCRETE SIDEWALK
NO SCALE



4\"/>

OWNER INFORMATION
SCOTT JONES BELLEVILLE MAIN LLC
11696 JUNIPER DRIVE
BELLEVILLE MI 48111



LOCATION MAP
NOT TO SCALE

SITE PLAN NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARDS, SPECIFICATIONS, AND GENERAL CONDITIONS OF THE CITY OF BELLEVILLE.
2. HANDICAP RAMPS SHALL BE CONSTRUCTED PER MDOT DETAIL R-28 (CURRENT REVISION).
3. THERE IS NO EXISTING PARKING SPACE STRIPPING ON THE SUBJECT PARCEL.
4. EXISTING ELECTRIC, PHONE, CABLE IS VIA OVERHEAD WIRES.

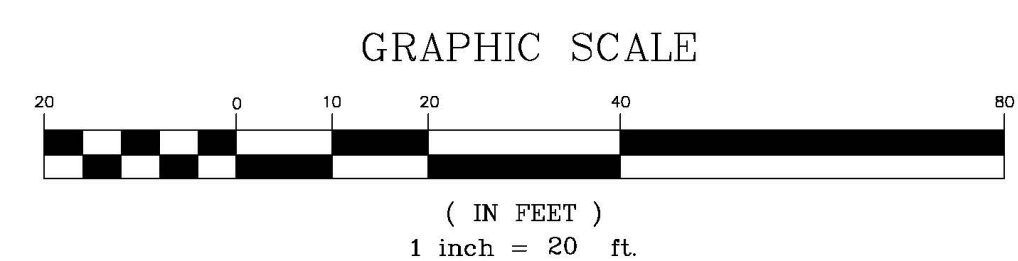


LEGEND

- EX. SIGN
- EX. SANITARY MANHOLE
- EX. HYDRANT
- EX. LIGHT POLE
- EX. UTILITY POLE
- EX. VALVE WELL
- EX. FENCE
- PROPOSED HYDRANT
- PROPOSED SHUT-OFF
- PROPOSED CLEANOUT
- PROPOSED STORM LINE
- PROPOSED SANITARY LINE
- PROPOSED WATER LINE

SHEET INDEX

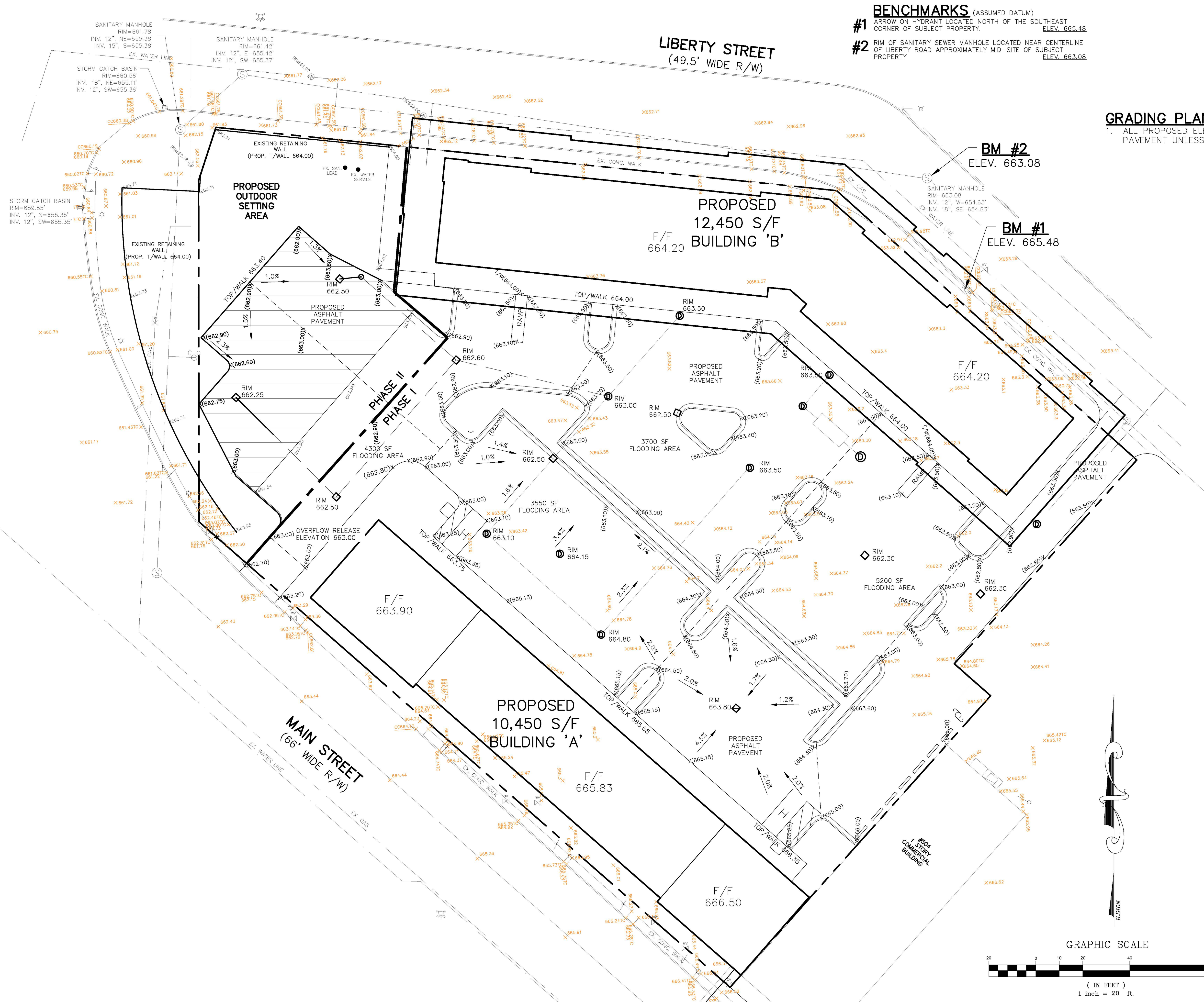
1. SITE PLAN
2. TOPOGRAPHIC SURVEY/REMOVALS PLAN
3. GRADING PLAN
4. STORM SEWER DESIGN/UTILITY PLAN
5. SOIL EROSION PLAN
6. PROFILES



WHEN DIGGING
OR WORKING
NEAR OVERHEAD
ELECTRIC WIRES IN
MICHIGAN, CALL
MISS DIG
3 WORKING DAYS
BEFORE STARTING YOUR PROJECT
811
(TOLL FREE)



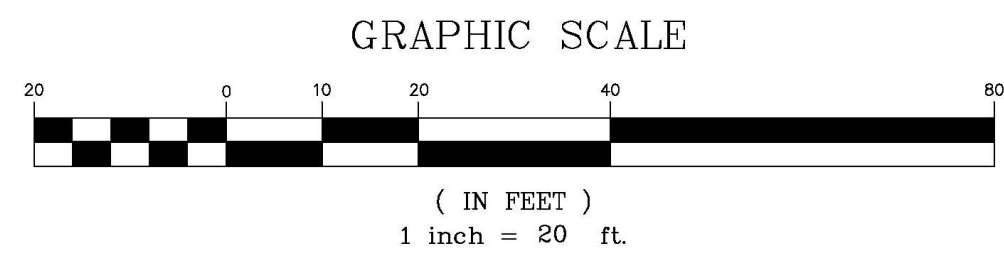
3 WORKING DAYS
BEFORE STARTING YOUR PROJECT
811
(TOLL FREE)



BENCHMARKS (ASSUMED DATUM)
#1 ARROW ON HYDRANT LOCATED NORTH OF THE SOUTHEAST CORNER OF SUBJECT PROPERTY. ELEV. 665.48
#2 RIM OF SANITARY SEWER MANHOLE LOCATED NEAR CENTERLINE OF LIBERTY ROAD APPROXIMATELY MID-SITE OF SUBJECT PROPERTY. ELEV. 663.08

GRADING PLAN NOTES
1. ALL PROPOSED ELEVATIONS ARE TO TOP OF PAVEMENT UNLESS OTHERWISE NOTED.

- LEGEND**
- EX. SIGN
 - EX. SANITARY MANHOLE
 - EX. HYDRANT
 - EX. LIGHT POLE
 - EX. UTILITY POLE
 - EX. VALVE WELL
 - EX. FENCE
 - PROPOSED HYDRANT
 - PROPOSED SHUT-OFF
 - PROPOSED CLEANOUT



STORM SEWER DESIGN CHART										Project Name:										Date:	
Roughness Coefficient				Rainfall Intensity				Project No.:										Prepared by:			
Varies				I = 151.8/(t+19.9)																	
Run-off Coefficient								Intensity	Runoff	Pipe Dia.	% Slope	Length	Velocity	Time of	Capacity	Invert		Ground			
From	To	Area, Ac.	Coeff. R	A x R	Total AxR	Time, Min.	L in/s	Q-CIA	In.			ft	fps	Flow, min	cfs	Upstream	Downstream	Upstream	Downstream		
12	4	0.15	0.95	0.14	0.143	15.00	4.35	0.62	12	0.32	47	2.78	0.28	2.18	EX. PIPE	659.80	659.95	663.50	663.00		
E2	4	0.06	0.95	0.06	0.057	15.00	4.35	0.25	12	0.32	78	2.78	0.47	2.18	EX. PIPE	660.20	660.45	662.80	663.00		
E1	2	0.07	0.95	0.07	0.067	15.00	4.35	0.29	12	0.32	95	2.78	0.57	2.18	EX. PIPE	660.00	659.70	664.00	663.00		
11	1	0.13	0.95	0.12	0.124	15.00	4.35	0.54	12	0.32	18	2.78	0.11	2.18	EX. PIPE	659.48	659.42	663.50	663.00		
10	3	0.21	0.90	0.19	0.189	15.00	4.35	0.82	12	0.32	78	2.78	0.51	2.18		659.60	659.35	662.70	662.00		
9	7	0.15	0.89	0.13	0.134	15.00	4.35	0.58	12	0.32	52	2.78	0.31	2.18		659.70	659.53	662.30	662.80		
8	7	0.26	0.84	0.22	0.218	15.00	4.35	0.95	12	0.32	85	2.78	0.51	2.18		659.80	659.53	663.50	662.80		
7	2	0.17	0.78	0.13	0.351	15.63	4.27	1.50	12	0.32	62	2.56	0.40	2.18		659.53	659.33	662.80	663.50		
6	5	0.19	0.95	0.18	0.181	15.00	4.35	0.79	12	0.32	77	2.78	0.50	2.18		659.76	659.51	662.60	662.60		
5	4	0.27	0.90	0.24	0.424	15.50	4.29	1.82	12	0.32	66	2.78	0.43	2.18		659.51	659.30	662.60	662.00		
4	3	0.00	0.00	0.00	0.623	15.93	4.24	2.64	15	0.25	30	2.63	0.19	3.23		659.30	659.23	662.00	663.00		
3	2	0.27	0.86	0.23	1.044	16.12	4.21	4.40	18	0.18	38	2.52	0.25	4.46		659.23	659.16	663.00	663.50		
2	1	0.00	0.00	0.00	1.462	16.37	4.19	6.12	24	0.14	35	2.69	0.22	8.46		659.16	659.11	663.50	663.00		
1	KSI	0.00	0.00	0.00	1.462	16.59	4.16	6.08	24	0.14	8	2.69	0.05	8.46	EX. PIPE	659.11	659.10	663.00	663.00		

BM #2
ELEV. 663.08

SITE QUANTITIES

6 EA. 2" DIAMETER INLET
8 EA. 4" DIAMETER CATCHBASIN
508 L.F. 12" ADS N-12 PIPE
30 L.F. 15" ADS N-12 PIPE
38 L.F. 18" ADS N-12 PIPE
35 L.F. 24" ADS N-12 PIPE

39,800 S/F ASPHALT PAVEMENT
8,000 S/F CONCRETE PAVEMENT
1,110 L.F. CONCRETE CURB/GUTTER
65 L.F. 6" SANITARY SEWER LEAD
590 L.F. 6" DIWM WATER MAIN
1 EA. 6" VALVE/WEEL
40 L.F. 2" TYPE 'K' COPPER WATER SERVICE

STORM SEWER DESIGN NOTES

PRE-DEVELOPMENT SITE 'C' = 0.95.
POST-DEVELOPMENT SITE 'C' = 0.89.
THERE IS A NET REDUCTION IN THE SITE COEFFICIENT OF 0.06.
THEREFORE ADDITIONAL DETENTION WILL NOT BE REQUIRED.

THE CITY OF BELLEVILLE REQUIRED THE OUTLET PIPES FROM
STRUCTURE 'C' TO THE EXISTING STORM SEWER SYSTEM WITHIN
LIBERTY STREET BE 12" DIAMETER.

CITY OF BELLEVILLE IS NOT REQUIRING STORM WATER RESTRICTOR
CALCULATIONS. THE PROPOSED 12" PIPE FROM OUTLET STRUCTURE
'C' WILL AS AS THE RESTRICTOR.

STORM SEWER DETENTION IS PROVIDED UTILIZING ALL THE EXISTING
AND PROPOSED STORM SEWER PIPING. DETENTION IS BASED ON
12" RESTRICTED STORM WATER RELEASE THROUGH OUTLET
MANHOLE 'C'.

STORM SEWER DESIGN NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT
STANDARDS, SPECIFICATIONS, AND GENERAL CONDITIONS OF THE
CITY OF BELLEVILLE.
- NO CONNECTION RECEIVING STORM WATER, SURFACE WATER OR
GROUND WATER SHALL BE MADE TO THE SANITARY SEWERS.
- REQUIRED PIPE BEDDING FOR SEWER IS MAXIMUM 3/4" CRUSHED
STONE.
- TRENCH "B" SAND BACKFILL IS REQUIRED FOR SEWER TRENCHES
LOCATED UNDER OR WITHIN THREE FEET OF PAVEMENT.
- TRENCH "A" BACKFILL MATERIAL MUST BE FREE OF LARGE LUMPS
OF CLAY, DEBRIS, AND ROCKS.

STORM WATER DETENTION QUANTITIES

301 L.F. 12" EXISTING PIPE (END AREA 0.785 S/F) - 301*0.785 = 236 C/F
508 L.F. 12" ADS N-12 PIPE (END AREA 0.785 S/F) - 508*0.785 = 399 C/F
30 L.F. 15" ADS N-12 PIPE (END AREA 1.227 S/F) - 30*1.227 = 37 C/F
38 L.F. 18" ADS N-12 PIPE (END AREA 1.787 S/F) - 38*1.787 = 68 C/F
35 L.F. 24" ADS N-12 PIPE (END AREA 3.142 S/F) - 35*3.142 = 110 C/F
TOTAL PIPE DETENTION STORAGE = 850 C/F

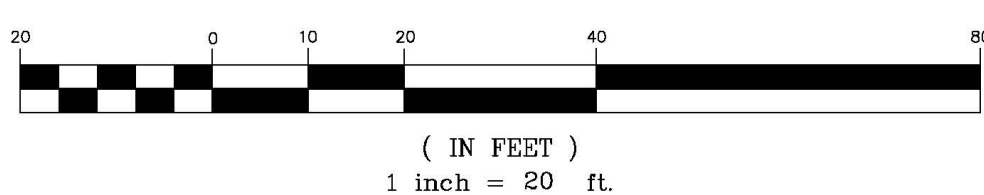
AREA OF PROPOSED PARKING = 16,750 S/F
AVERAGE DEPTH OF WATER STORAGE WITHIN PARKING AREA = 0.25'
TOTAL VOLUME WATER DETENTION WITHIN PARKING AREA = 16,750*0.25 = 4,188 C/F

TOTAL WATER STORAGE WITHIN SITE = 4,188+850 = 5,038 C/F

LEGEND

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- EX. HYDRANT
- EX. LIGHT POLE
- EX. UTILITY POLE
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- PROPOSED HYDRANT
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- PROPOSED CLEANOUT
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- PROPOSED SANITARY LINE
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GRAPHIC SCALE



UTILITY CROSSINGS

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LOWER 6" WATER MAIN TO T/PIPE
ELEVATION 657.50
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LOWER 6" WATER MAIN TO T/PIPE
ELEVATION 657.00
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LOWER 6" WATER MAIN TO T/PIPE
ELEVATION 657.00

BENCHMARKS

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CORNER OF SUBJECT PROPERTY. ELEV. 665.48
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OF LIBERTY ROAD APPROXIMATELY MID-SITE OF SUBJECT
PROPERTY. ELEV. 663.08



3 WORKING DAYS
BEFORE STARTING YOUR PROJECT
811
(TOLL FREE)