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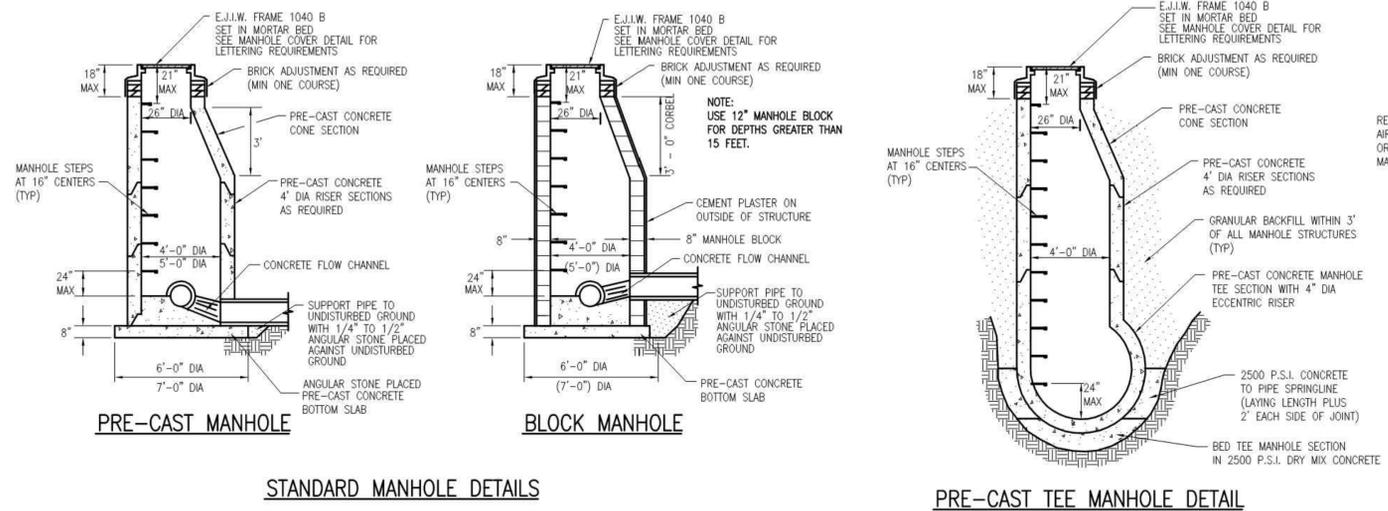
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### GENERAL NOTES FOR STORM SEWER CONSTRUCTION

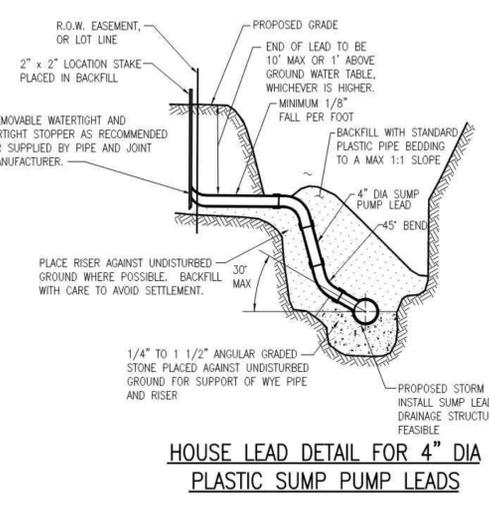
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF CHARTER TOWNSHIP OF SUPERIOR.
  - TYPE AND CLASS OF PIPE SHALL BE AS SPECIFIED ON PLANS.
  - SAND BEDDING SHALL BE USED THROUGHOUT, UNLESS OTHERWISE SPECIFIED ON THE PLAN.
  - ALL END SECTIONS 18" AND LARGER SHALL BE PROVIDED WITH A GALVANIZED BAR SCREEN.
- CONTRACTOR SHALL CONSTRUCT MANHOLES WITH PRECAST REINFORCED CONCRETE IN LIEU OF CONCRETE, BRICK AND BLOCK MANHOLES IN ACCORDANCE WITH THE FOLLOWING CONDITIONS:
  - NO OPENINGS SHALL BE MADE IN PRECAST UNITS WHICH WOULD LEAVE LESS THAN 12" OF UNDISTURBED PRECAST STRUCTURE WALL BETWEEN PIPES (AS MEASURED BETWEEN OUTSIDE PIPE WALLS) OR WOULD REMOVE MORE THAN 40% OF THE CIRCUMFERENCE ALONG ANY HORIZONTAL PLANE.
  - STRUCTURES FOR SEWERS LARGER THAN 18", OR THOSE NOT MEETING THE OPENING REQUIREMENTS, MAY BE BUILT OF BLOCK OR BRICK UP TO A MINIMUM OF 8" ABOVE THE TOP OF SEWER, WITH PRECAST UNITS BEING USED ABOVE THIS POINT. WHERE PRECAST UNITS REST ON THE BLOCK OR BRICK, THE GROOVE IN THE PRECAST UNIT SHALL BE FILLED WITH MORTAR.
  - OPENINGS FOR THE OUTLET SEWER SHALL BE PRECAST WITH A DIAMETER OF 3 INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE OUTLET PIPE. ALL OTHER OPENINGS SHALL BE MADE IN THE FIELD AFTER THE MANHOLE HAS BEEN CONSTRUCTED.
- ALL VERTICAL OPENINGS IN CONCRETE BLOCK STRUCTURE WALLS SHALL BE COMPLETELY FILLED WITH MORTAR. ALL VERTICAL WALL JOINTS SHALL BE CEMENT POINTED.
  - CONCRETE PIPE REQUIREMENTS:
    - THE CONTRACTOR SHALL PROVIDE REINFORCED CONCRETE PIPE AS SPECIFIED ON THE PLANS.
    - ALL ROUND REINFORCED CONCRETE PIPE SHALL HAVE MODIFIED GROOVE TONGUE JOINTS WITH O-RING TYPE RUBBER GASKET, PER A.S.T.M. SPECIFICATIONS C443. ALL ELLIPTICAL CONCRETE PIPE SHALL HAVE GROOVE TONGUE JOINTS WITH BITUMINOUS (DEWITT #10) JOINT MATERIAL AND INSIDE MORTAR POINTING. ELLIPTICAL CONCRETE PIPE JOINTS SHALL ALSO BE WRAPPED PER A.S.T.M. SPECIFICATION C877 FOR EXTERNAL SEALING BANDS FOR NON-CIRCULAR CONCRETE PIPE.
    - THE INSIDE JOINT OF PIPE SIZES OVER 27" DIAMETER SHALL BE POINTED UP WITH MORTAR UPON COMPLETION OF BACKFILLING OPERATIONS.
    - WHERE UNSTABLE GROUND CONDITIONS ARE ENCOUNTERED, STONE BEDDING SHALL BE USED AS DIRECTED BY THE ENGINEER IN ORDER TO PROVIDE A STABLE FOUNDATION FOR PIPE AND MANHOLES.
    - ALL PIPES ENTERING OR LEAVING A MANHOLE SHALL BE ADEQUATELY SUPPORTED WITH 1/4" TO 1/2" ANGULAR GRADED STONE FILL FROM UNDISTURBED EARTH TO SPRINGLINE OR WITH APPROVED CRUSHED AGGREGATE.

### DRAINAGE STRUCTURE REQUIREMENTS:

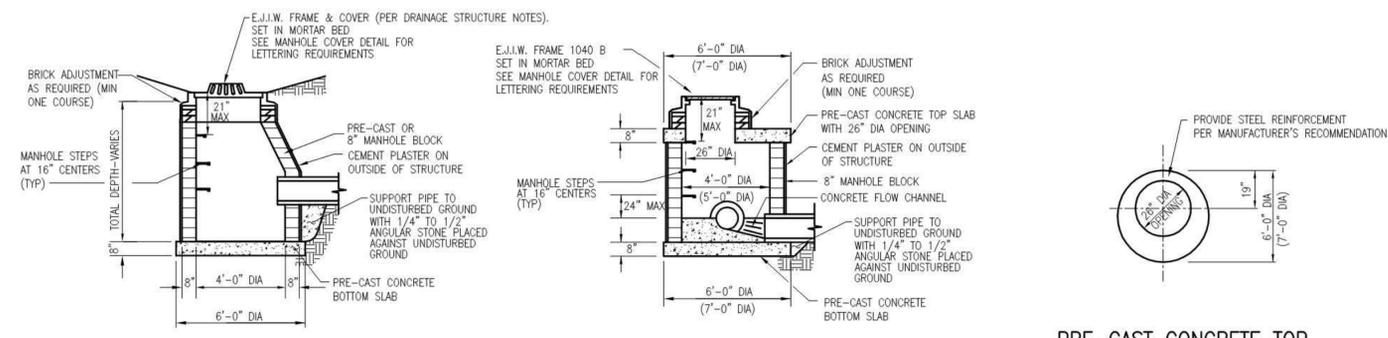
- ALL STRUCTURE(S) SHALL BE 4" IN DIAMETER UNLESS OTHERWISE INDICATED ON CONSTRUCTION DRAWINGS. 2" DIAMETER CATCH BASINS AND INLETS SHALL BE USED ONLY WITH PRIOR TOWNSHIP APPROVAL.
- MANHOLE STEPS SHALL BE STEEL, ENCASED WITH POLYPROPYLENE PLASTIC OR APPROVED EQUIVALENT TO M.A. INDUSTRIES, INC., PS-1 FOR BRICK, OR PS-1B FOR BLOCK, EAST JORDAN IRON WORKS 8503 (OR APPROVED EQUAL). MANHOLE STEPS AT 16" CENTERS.
- CATCH BASIN STEPS SHALL BE EAST JORDAN IRON WORKS 8502 PLASTIC COATED (OR APPROVED EQUAL).
- CATCH BASIN AND INLET FRAME AND COVER SHALL BE:
  - EAST JORDAN IRON WORKS 5080, TYPE "M1" COVER WITH STRAIGHT FACE CURB AND GUTTER (OR AS APPROVED EQUAL).
  - EAST JORDAN IRON WORKS 5080, TYPE "M1" COVER WITH MOUNTABLE CURB AND GUTTER AND INTEGRAL CURB AND GUTTER (OR AS APPROVED EQUAL).
  - EAST JORDAN IRON WORKS 1040, TYPE "O2" COVER (BEEHIVE) TO BE USED ON OPEN DITCHES AND SWALES, REAR YARD CATCH BASIN (OR AS APPROVED EQUAL), IF WITHIN 8' OF ROAD, TYPE "N" COVER (LOW BEEHIVE) SHALL BE USED.
  - FRAMES SHALL BE SET IN FULL BED OF MORTAR AND THE SIDE SHALL BE OVERLAPPED TO PREVENT LEAKAGE.
- A PROPER CHANNEL SHALL BE CONSTRUCTED WITHIN THE EXISTING MANHOLE OR OTHER STRUCTURE AT WHICH THE CONNECTION IS TO BE MADE TO DIRECT THE FLOW TO THE EXISTING OUTLET IN A MANNER WHICH WILL TEND TO CREATE THE LEAST AMOUNT OF TURBULENCE. THE CHANNEL SHALL BE CONSTRUCTED TO THE SAME SIZE AS THE INSIDE DIAMETER OF THE EXISTING PIPES, AND SHALL BE BUILT TO HEIGHT OF 1/3 THE EXISTING PIPE DIAMETER WITH A MINIMUM OF 2% SLOPE ON THE BENCHES.
- STANDARD BRICK ADJUSTMENT: MINIMUM OF ONE COURSE AND A MAXIMUM OF 5 COURSES OF BRICK.
  - ALL BRICKS AND BLOCKS USED FOR ADJUSTMENT SHALL BE CONCRETE.
  - BLOCK USED FOR STANDARD CATCH BASINS AND MANHOLES SHALL BE 8" (FOR 0'-15" DEEP) AND 12" (FOR 15'-25" DEEP). BLOCK USED FOR 2" DIAMETER INLETS AND CATCH BASINS SHALL BE 6".
  - PRECAST REINFORCED CONCRETE SECTION AS MINIMUM SHALL CONFORM TO A.S.T.M. C-478.
  - CONCRETE BASE FOR MANHOLE, CATCH BASIN, AND INLET SHALL BE MDOT GRADE 30P (MIN), 8" THICK, 3000 PSI.
- PLASTER ALL OUTSIDE MASONRY SURFACES WITH 1 1/2 MASONRY CEMENT (TYPE II) 1/2" THICK.
- WHEN TAPPING INTO AN EXISTING STRUCTURE A BRICK COLLAR SHALL BE PLACED 12" THICK AROUND THE PIPE AND EXTENDED 12" BEYOND THE OPENING. IF PRE-CAST SECTION IS TAPPED, BEND MESH AND USE AS REINFORCEMENT WITH BRICK COLLAR.
- ALL PRECAST RISER(S) SHALL BE PLACED IN A FULL BED OF MORTAR. ALL JOINTS & LIFTHOLES SHALL BE POINTED UP WITH MORTAR ON THE OUTSIDE AND INSIDE.
  - ALL VERTICAL AND HORIZONTAL BRAS SHALL BE TACK-WELDED TO THE ANGLE FRAME.
  - THE BAR GRATE SCREEN SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IS COMPLETE.



STANDARD MANHOLE DETAILS

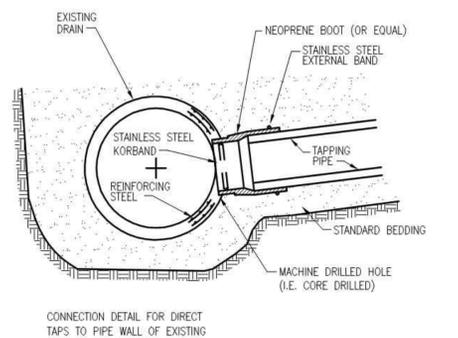


HOUSE LEAD DETAIL FOR 4" DIA PLASTIC SUMP PUMP LEADS

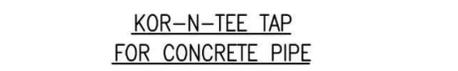


CATCH BASIN DETAIL

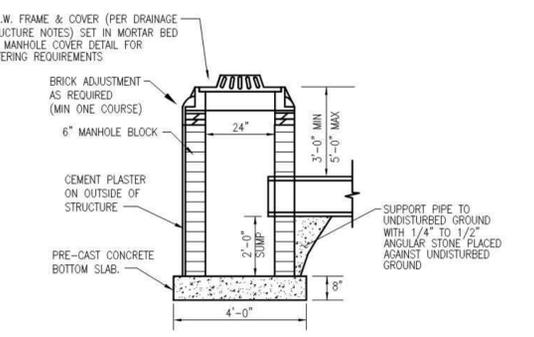
LOW HEAD MANHOLE AND CATCH BASIN DETAIL



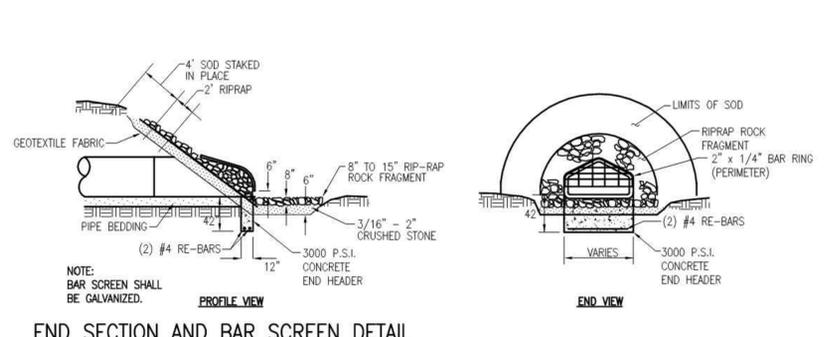
PRE-CAST CONCRETE TOP SLAB DETAIL, 8" THICK



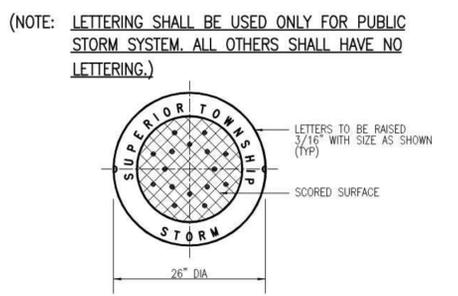
KOR-N-TEE TAP FOR CONCRETE PIPE



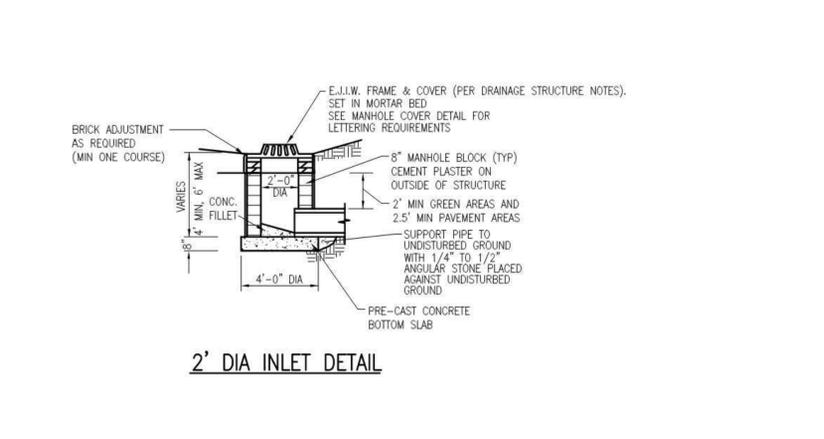
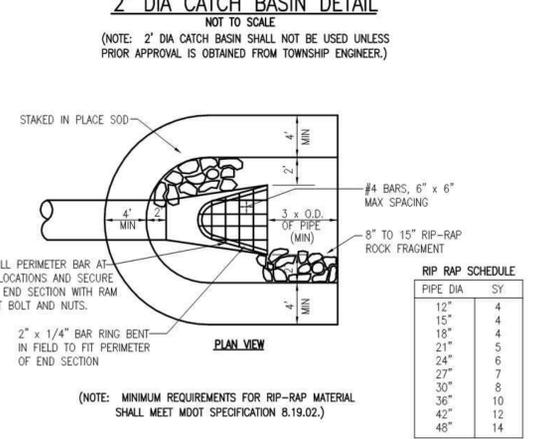
2" DIA CATCH BASIN DETAIL



END SECTION AND BAR SCREEN DETAIL



CAST IRON MANHOLE COVER E.J.I.W. 1040



2" DIA INLET DETAIL

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CHARTER TOWNSHIP OF SUPERIOR STANDARD STORM SEWER DETAILS



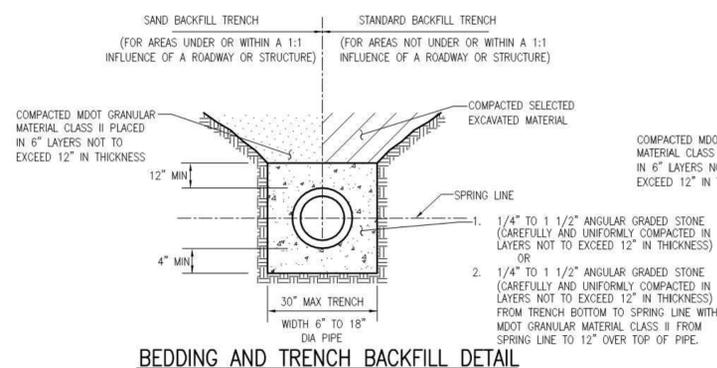
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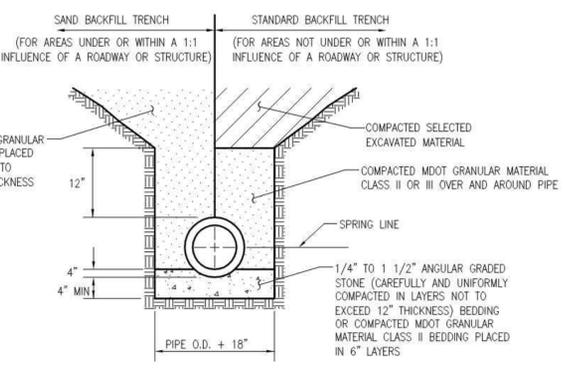
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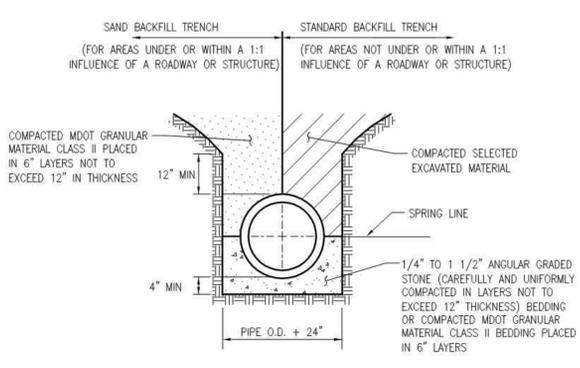
CHARTER TOWNSHIP OF SUPERIOR  
STANDARD STORM SEWER DETAILS



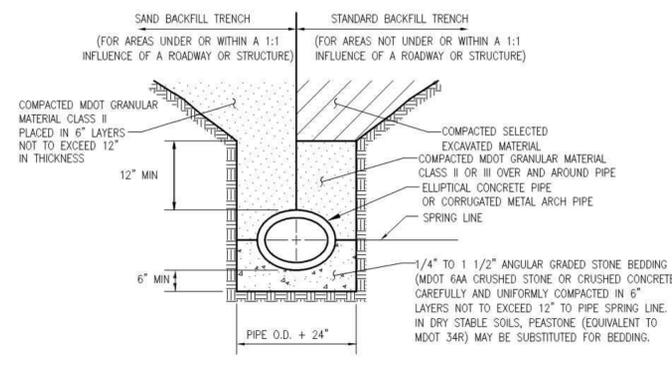
**BEDDING AND TRENCH BACKFILL DETAIL FOR 18" DIAMETER AND SMALLER PIPE (PVC SOLID WALL, AND TRUSS PIPE)**



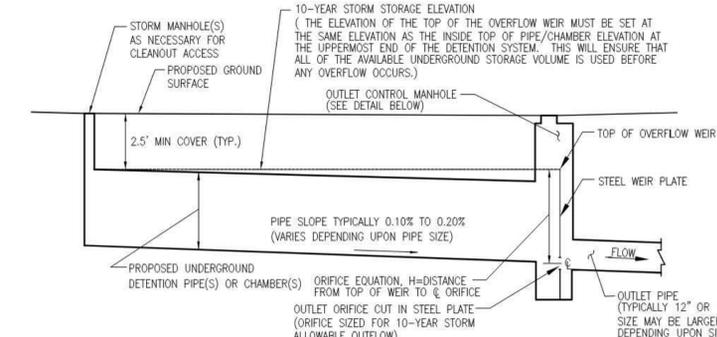
**BEDDING AND TRENCH BACKFILL DETAIL FOR 24" DIAMETER AND SMALLER PIPE**



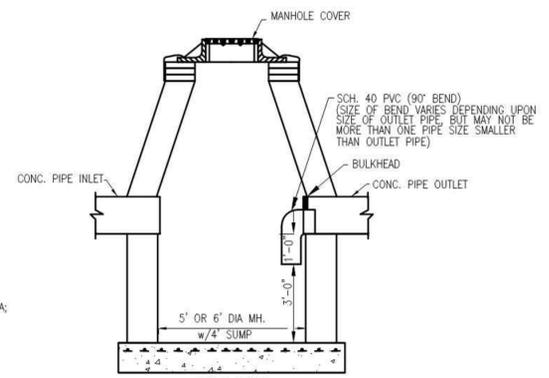
**BEDDING AND TRENCH BACKFILL DETAIL FOR 27" DIAMETER AND LARGER PIPE**



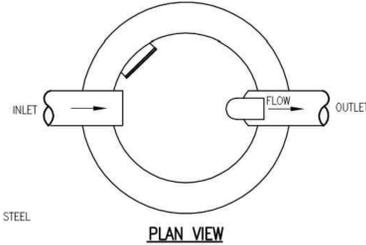
**BEDDING AND TRENCH BACKFILL DETAIL FOR ELLIPTICAL CONCRETE PIPE OR CORRUGATED METAL ARCH PIPE**



**DETENTION SYSTEM PROFILE**



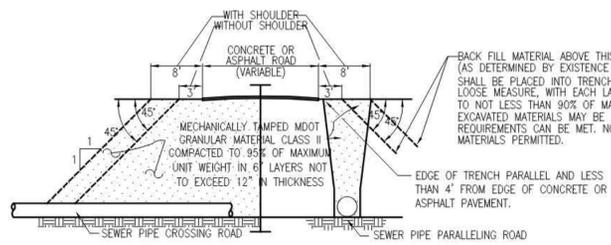
**SIDE VIEW**



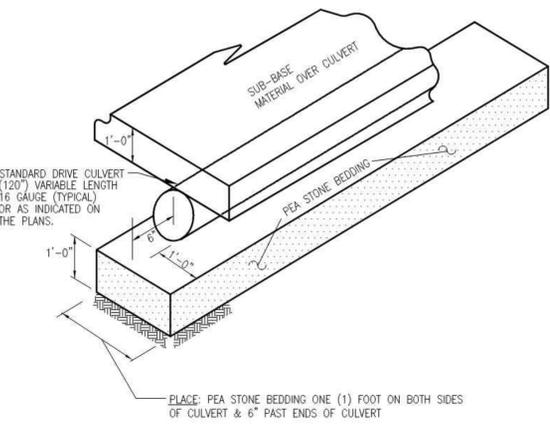
**PLAN VIEW**

**OIL/GAS SEPARATOR PLACEMENT DETAIL FOR 18" DIAMETER AND SMALLER OUTLET PIPE**

(FOR OUTLET PIPES LARGER THAN 18" IN DIAMETER, AN ALTERNATE DESIGN MUST BE APPROVED BY THE TOWNSHIP ENGINEER)



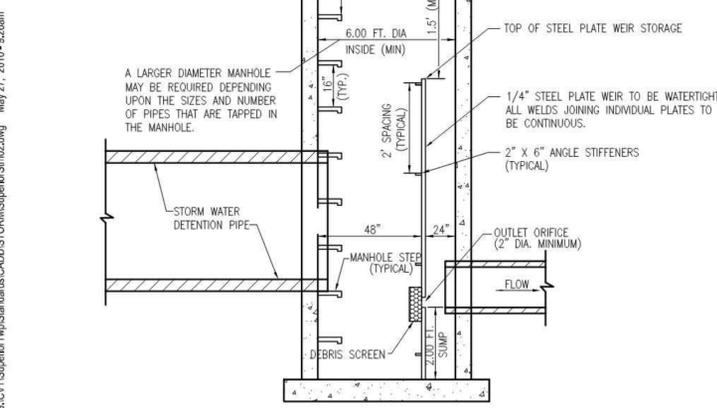
**SAND OR GRAVEL BACKFILL DETAILS FOR SEWERS UNDER CONCRETE OR ASPHALT PAVEMENTS, SIDEWALKS, DRIVEWAYS AND PARKING AREAS**



**DRIVE CULVERT BEDDING DETAIL**

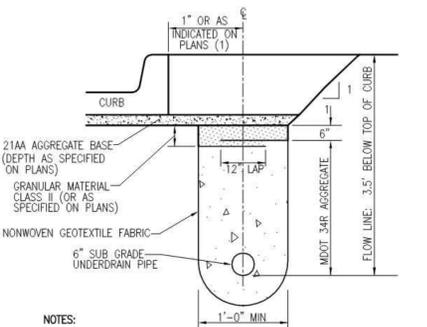
**GENERAL NOTES FOR STORM SEWER CONSTRUCTION**

- PIPE BEDDING AND BACKFILLING:**  
BEDDING SHALL EXTEND A MINIMUM OF 4" BELOW PIPE, UNLESS OTHERWISE NOTED ON CONSTRUCTION PLANS. BEDDING SHALL BE OF A SUITABLE MATERIAL AND SHALL BE FREE OF ANY ORGANIC MATERIALS AND ROCKS LARGER THAN 3" IN SIZE. BACKFILL SHALL BE RAMPED INTO TRENCH AND COMPACTED WITH A SMALL DOZER OR OTHER APPROVED METHODS. WHERE TRENCH IS WITHIN A 1:1 INFLUENCE OF STREETS, ALLEYS, SIDEWALKS, DRIVEWAYS AND PARKING AREAS, SAND BACKFILL SHALL BE USED WHICH SHALL CONSIST OF MDOT GRANULAR MATERIAL CLASS II OR III COMPACTED IN 6" LAYERS NOT TO EXCEED 12" TO A DENSITY OF 95% AS DETERMINED BY AASHTO T99. ALL BACKFILL PLACED WITHIN A 1:1 INFLUENCE OF STRUCTURES SHALL BE APPROVED SAND, PLACED IN 1" LAYERS AND COMPACTED. NO FROZEN MATERIAL SHALL BE BURIED MORE THAN 4" BELOW THE FINAL ELEVATION OF THE GROUND.
  - SUMP PUMP LEAD REQUIREMENTS:**  
ALL SUMP PUMP LEADS CONNECTED TO A DRAIN SHALL BE PRE-MANUFACTURED. SUMP PUMP MAINS AND LEADS SHALL BE A SDR 35, NON-PERFORATED, SOLID WALL, PVC, ARMO TRUSS PIPE, OR APPROVED EQUAL, WITH PREMIUM JOINTS. TAPS TO 12" STORM SEWER SHALL BE MADE WITH A FERROE EZ TAP OR APPROVED EQUAL TAPS TO OTHER SIZE STORM SEWER SHALL BE MADE WITH A ROMAC SADDLE, KOR-N-TEE LATERAL CONNECTOR FOR CONCRETE PIPE, OR APPROVED EQUAL. ENDS OF ALL 4" SUMP PUMP LEADS SHALL BE TEMPORARILY CAPPED AND THEIR LOCATION STAKED, WITNESSED AND RECORDED. ALL SUMP PUMP LEADS TO BE TAKEN TO THE PROPERTY LINE, EASEMENT LINE OR AS INDICATED ON THE PLAN. SUMP PUMP CLEANOUTS SHALL BE A MINIMUM INSIDE DIAMETER OF 24" AND BE CONSTRUCTED AT CHANGES OF ALIGNMENT, ENDS OF SUMP PUMP MAINS OR AS INDICATED ON THE PLAN.
  - RESTORATION REQUIREMENTS:**  
ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY SHALL BE RESTORED AS FOLLOWS, UNLESS OTHERWISE NOTED ON CONSTRUCTION DRAWINGS:  
FINISH GRADE  
PLACE 3" THICKNESS OF "QUALITY" TOPSOIL ACCEPTABLE TO THE ENGINEER.  
APPLY SOD OR SEED AND FERTILIZER AS FOLLOWS:
- | LOCATION   | SODDING/ SEEDING REQUIREMENTS  | FERTILIZER REQUIREMENT   |
|--|--|--|
| SLOPES & DITCH BANKS, ETC.                             | MDOT "ROADSIDE" MIX (50% PERENNIAL RYE, 15% KENTUCKY BLUE, 35% RED FESCUE) APPLIED AT 100 LBS/ACRE | 240 LBS/ACRE OF CHEMICAL FERTILIZER NUTRIENTS IN EQUAL PROPORTIONS OF NITROGEN, PHOSPHORIC ACID AND POTASH. (MUST BE A SLOW-RELEASE FERTILIZATION) |
| OTHER AREAS  | MDOT "CLASS A" MIX (30% PERENNIAL RYE, 30% KENTUCKY BLUE, 40% RED FESCUE) APPLIED AT 100 LBS/ACRE  | 240 LBS/ACRE OF CHEMICAL FERTILIZER NUTRIENTS IN EQUAL PROPORTIONS OF NITROGEN, PHOSPHORIC ACID AND POTASH. (MUST BE A SLOW-RELEASE FERTILIZATION) |
| DITCH BOTTOMS, SLOPES EXCEEDING 3:1, AND AT STRUCTURES | 3" TOPSOIL WITH CLASS A SOD  |  |
- APPLY STRAW MULCH AT THE RATE OF 2-3 BALES/1000 SQUARE FEET.  
THE CONTRACTOR SHALL BE RESPONSIBLE TO INSURE THE GROWTH OF ALL SEEDED AREAS, AND SHALL RE-SEED AS NECESSARY TO ACCOMPLISH THIS.



**SECTION A-A  
6 FT. DIA OUTLET MANHOLE**

**TYPICAL UNDERGROUND DETENTION AND OUTLET MANHOLE DETAILS**



**SUBGRADE UNDERDRAIN, 6"**

- NOTES:
- LOCATION MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
  - ALL UNDERDRAIN SHALL BE APPROVED PLASTIC PIPE. METAL PIPE SHALL NOT BE USED.
  - ALL UNDERDRAIN SHALL OUTLET TO DRAINAGE STRUCTURE.
  - UNDERDRAIN CONNECTIONS (AT LOW POINTS) SHALL BE MADE AS CLOSE TO THE STRUCTURE INVERT AS PRACTICAL, WITH A SPIRAL WRAP OF THE STRUCTURE USED TO MAKE THE TRANSITION FROM THE REQUIRED FLOW LINE DEPTH TO STRUCTURE INVERT.

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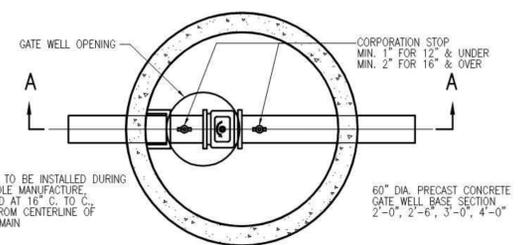


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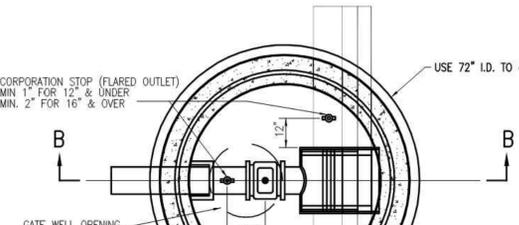
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CHARTER TOWNSHIP OF SUPERIOR  
STANDARD WATER MAIN DETAILS

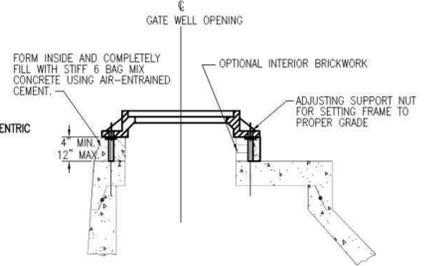


PLAN GATE WELL TYPICAL

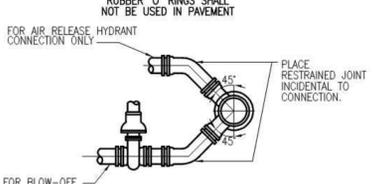
STEPS TO BE INSTALLED DURING MANHOLE MANUFACTURE, PLACED AT 16" C. TO C. 45° FROM CENTERLINE OF WATERMAIN



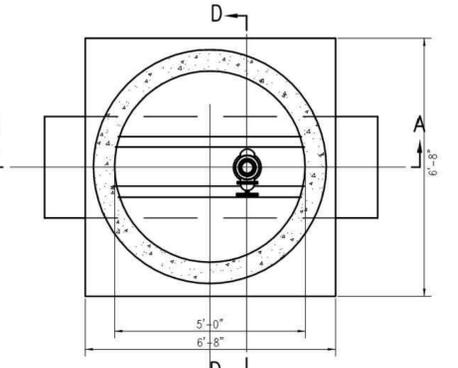
TAPPING SLEEVE VALVE & WELL TYPICAL



GATE WELL TOPS WITHIN PAVEMENT AREAS

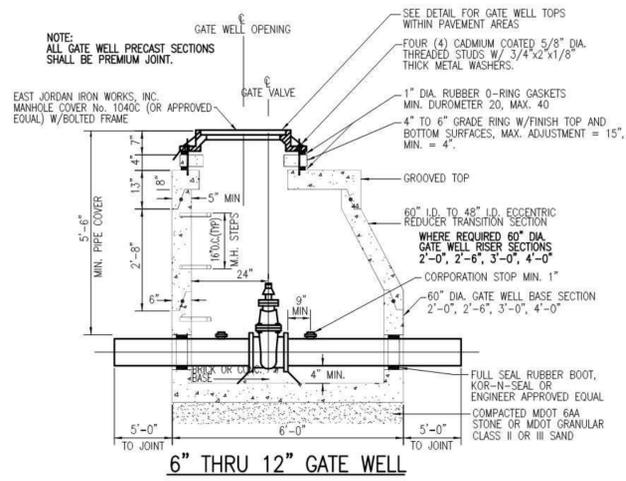


AIR RELEASE AND BLOW-OFF CONNECTION

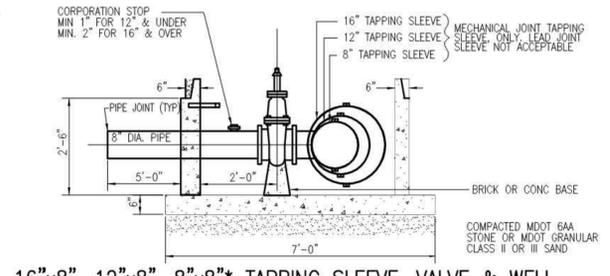


STANDARD AIR RELEASE & WELL FOR 16" & 20" WATER MAIN

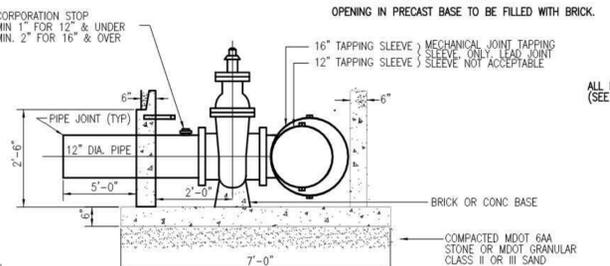
NOTES:  
ALL AIR RELEASE WELLS SHALL BE PRECAST STRUCTURES.  
ALL AIR RELEASE VALVES SHALL BE AUTOMATIC.



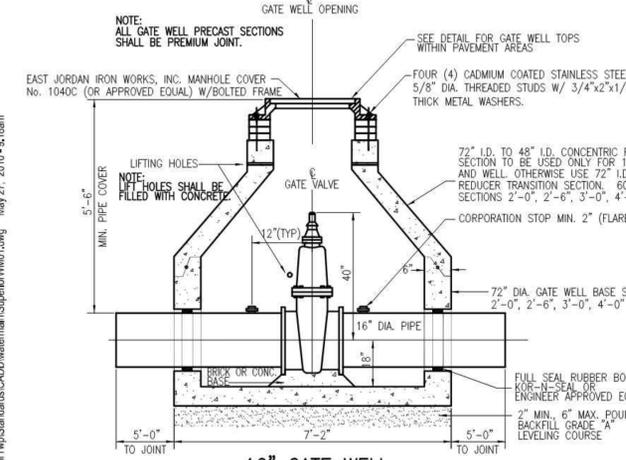
6" THRU 12" GATE WELL



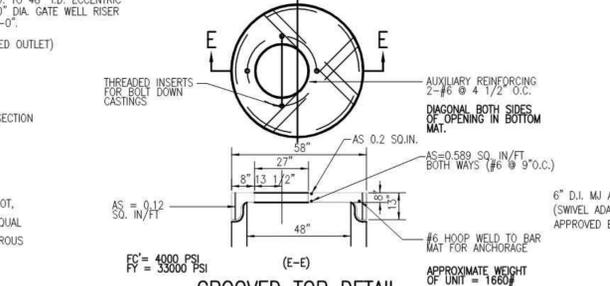
16"x8", 12"x8", 8"x8" TAPPING SLEEVE, VALVE & WELL



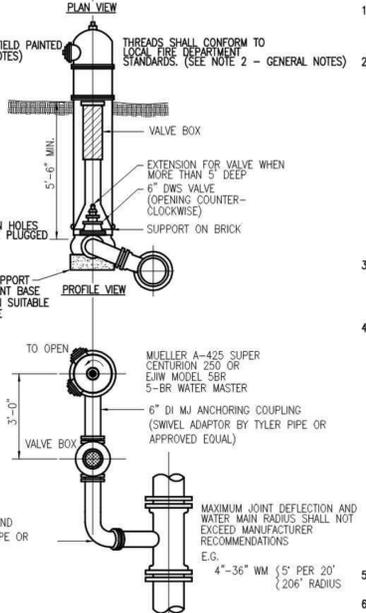
16"x12", 12"x12" TAPPING SLEEVE, VALVE & WELL



16" GATE WELL



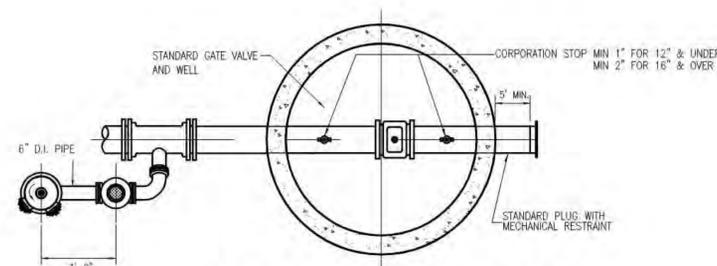
GROOVED TOP DETAIL



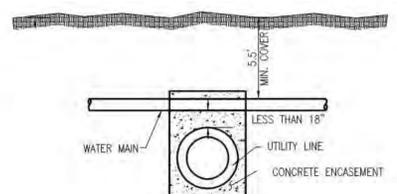
DETAIL OF HYDRANT SETTINGS

- WATER MAIN NOTES**
- All construction procedures and materials used on all water main projects shall conform to Ypsilanti Community Utilities Authority (Y.C.U.A.), Detroit Water System Department (D.W.S.D.), and the Charter Township of Superior current Standards and Specifications.
  - All hydrants shall be Mueller A-425-Super-Centurion 250 or E.J.L.W. 5-BR Water Master and shall conform to AWWA current standards and shall have a 5 1/4" valve opening which closes with the water pressure. Hydrants shall be traffic style with breakable flange and coupling. Hydrants shall have a swivel flange to allow bonnet to be turned 360 degrees without removing the bonnet and barrel flanges shall be integrally cast with the barrel. Inlet shoe shall have a bronze valve seat, which can be removed without digging. Inlet connection shall be 6" mechanical joint, ASA-A21-11. Stem threads shall be sealed with double "O" rings and shall be permanently lubricated with oil weather grease. Hose connections: Two (2) 4 1/2" pumper nozzles facing the centerline of the road unless otherwise directed by the Township. Pumper connections shall have: National Standard Threads on one pumper connection (4 1/2" I.D., 4 threads per inch, 5.389 minor dia., 5.761 major dia., 5.586 pitch dia.) and Storz Fitting on the other pumper connection (R/S Manufacturing). Operating Nut: (1) 1 1/2" P-F pentagon, open left. Drain holes in hydrant shall be plugged and watertight. Hydrants shall be painted red above the ground and black below. All hydrants shall be constructed with companion valve in a three piece pipe adjustable cast iron valve box.
  - All water mains shall be ductile iron as per the following specification. Ductile iron pipe shall be ANSI 1-A21.51 (AWWA-C151) std. wall thickness, cement lined with bituminous seal coat Class 54 for sizes 6" through 16" Class 55 for 24" pipe, pipe sizes larger than 24" in nominal diameter shall meet all the requirements of the current AWWA C100 for ductile iron pipe.
  - Gate Valves shall be iron body, fully bronze mounted, E.J.L.W. resilient wedge, non-rising stem, opening counterclockwise with 2" square operating nut conforming to Y.C.U.A. and D.W.S.D. specifications. All gate valves with operating nuts at a distance greater than 5' below ground surface shall be provided with an extension stem. The length of the extension shall be such that it will be within 5' of ground surface when an extension stem is used. It shall be held in place by two extension stem guide assemblies. Each assembly shall be comprised of a "U" bracket and "L" bracket supplied by E.J.L.W. The stem guides shall be located opposite from each other, and shall be suitably fastened to the wall of the gate well. In addition, a "stop" shall be welded to the extension stem in a location that will prevent the extension stem from slipping off the operating nut. Details of extension stem and method of installation shall be approved by the engineer prior to installation. All precast concrete gate well sections shall be manufactured to conform with ASTM C478, standard specifications for precast reinforced concrete manhole sections, except wall thickness, shall be shown on these details. All joints for precast concrete gate well sections shall be "modified grooved tongue" with gasket manufactured to conform with ASTM C443, standard specification for joints for circular concrete sewer and culvert pipe rubber gaskets. All gate well covers shall be E.J.L.W. #1040C with bolted frame and have words "Superior Township Water Main and Logo" in raised letters on the frame cover, or approved equal.
  - Tapping sleeve shall be mechanical joint with DWS Mechanical Joint Tapping Gate Valve. Lead joint sleeves shall not be used.
  - No installation of water main is to be attempted without Township's inspector being present. Unless otherwise specified on plans, top of all water mains shall be 5.5 ft. below existing or proposed road centerline, or 5.5 ft. below existing or proposed ground, whichever results in lower elevation. An 18" minimum vertical clearance between storm or sanitary sewer shall be maintained.
  - Three (3) working days before you dig, dial MISS DIG at 1-800-482-7171.
  - All required cross connection devices shall be installed as required by the local plumbing inspector and in accordance with the standards of the Michigan Department of Public Health.
  - The design engineer shall furnish Superior Township with mylar "Record" water main plans along with a computer disk using the most recent release of AutoCAD, upon job completion. Plans shall locate all water mains, hydrants and gate valves and wells.
  - Where work is to be performed in the vicinity of a Superior Township main, contractor shall notify the Superior Township Utility Department at (734) 480-5500 at least 3 working days prior to start of construction as well as township engineer to schedule inspection.
  - All pipe and all pipe fittings shall be made in the U.S.A.
  - All bolts on all flanged and mechanical joint fittings shall be domestic origin high strength, low alloy COR-BLUE steel bolts or approved equal. These bolts shall meet the current provisions of American National Standard ANSI/AWWA C111/A21.11-90 for rubber gasket joints for ductile iron pressure pipes and fittings. Bolt manufacturer's certificate of compliance must accompany each shipment.
  - BACKFILL NOTE: Under road surfaces, pavement, sidewalk, curb, driveways and where the edge of the trench is within 3 (three) feet of the pavement or as called for on the plans, the trench depth shall be 4 (four) inches lower than the proposed water main elevation. The trench width shall be the outside diameter plus 16 (sixteen) inches for pipe diameters up to 36 (thirty-six) inches and larger. The trench shall be backfilled by placing granular material by the "controlled Density Method" or other means having approval of the engineer and compacting it to 95 (ninety-five) percent of its maximum unit weight.
  - "Mega Lugs," "Field Lock Gaskets," or a mechanical joint restraint system shall be used instead of concrete thrust blocks for joint restraint.
  - All bolts used in securing fittings to the water main shall be "COR-BLUE" bolts or approved equal.
  - All buried bolts, nuts and washers shall be "COR-BLUE" or equivalent and poly-wrapped.
  - Like size to like size tapping sleeves shall not be used with transite pipe.
  - Where water main is located under pavement, the Township shall not be responsible for repairing pavement within the easement in the event that maintenance or repairs to the water main become necessary.
  - Mechanical and slip-on joints for ductile iron shall be in accordance with AWWA C111 (ANSI A21.11)
  - All fire hydrant joints shall be totally restrained by use of "Mega Lugs" or other approved restrained joint.
  - Fittings for ductile iron pipe shall be ductile iron or cast iron and shall meet requirements of AWWA C110 (ANSI A21.10) or AWWA C153 (ANSI A21.53). Ductile iron fittings shall be rated for 350 psi, pipe 24" diameter and less and 250 psi for pipe sizes over 24" diameter, except that ductile iron flanged fitting shall be rated for 250 psi for all pipe diameters.
  - Manhole steps shall be steel encased with polypropylene plastic or approved equivalent to M.A. Industries, Inc., PS-1 for brick, or PS-18 for block, East Jordan Iron Works 8502 (or approved equal). Manhole steps at 16" centers.
  - Maximum joint deflection and water main radius shall not exceed manufacturer recommendations (e.g. 4"-36" WM - 5' per 20' or 206' radius).

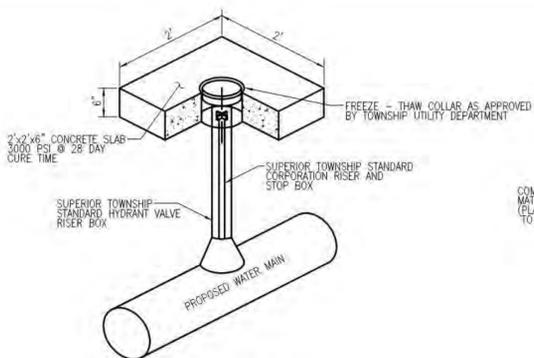
DRAWING PATH: S:\CIVIL\Superior\wp\Standards\CADD\watermain\Standard\16\"/>



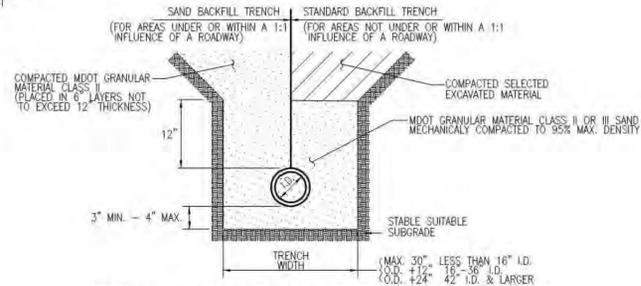
END OF WATER LINE ASSEMBLY FOR WATER MAINS



UTILITY CROSSING WITH LESS THAN 18" CLEARANCE

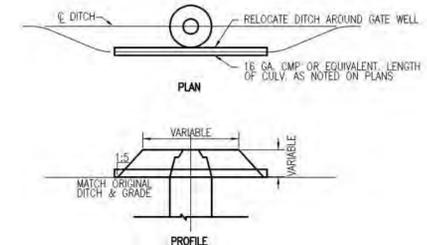


STOP BOX IN PAVEMENT

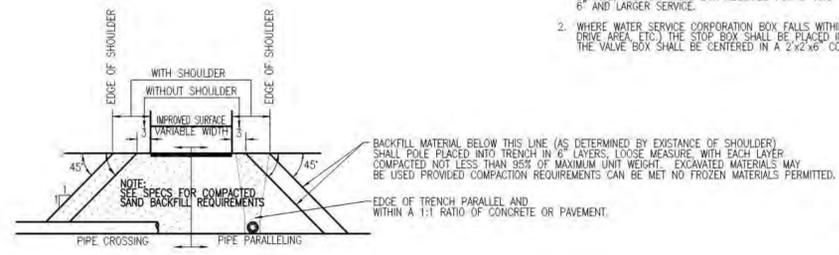


STANDARD BEDDING AND TRENCH BACKFILL DETAIL FOR WATER MAIN

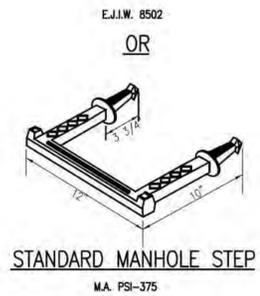
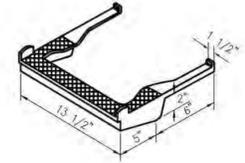
- WATER STOP BOX REQUIREMENTS:
- TWO HOLE ARCH PATTERN (ERIE PATTERN) TYPE WITH 1" UPPER AND 5' EXTENDED LENGTH WITH 42" ROD (FORD STOP BOX PART NO. EA1-50-40-42R OR APPROVED EQUAL). SMALL BOX REQUIRED FOR 3/4" AND 1" SERVICE; LARGE BOX REQUIRED FOR 1-1/2" AND 2" SERVICE; HYDRANT VALVE BOX REQUIRED FOR 3" AND 4" SERVICE; GATE WELL REQUIRED FOR 6" AND LARGER SERVICE.
  - WHERE WATER SERVICE CORPORATION BOX FALLS WITHIN A PAVED AREA (PARKING LOT, SERVICE DRIVE AREA, ETC.) THE STOP BOX SHALL BE PLACED IN A STANDARD HYDRANT VALVE BOX. THE VALVE BOX SHALL BE CENTERED IN A 2'x2' CONCRETE SLAB.



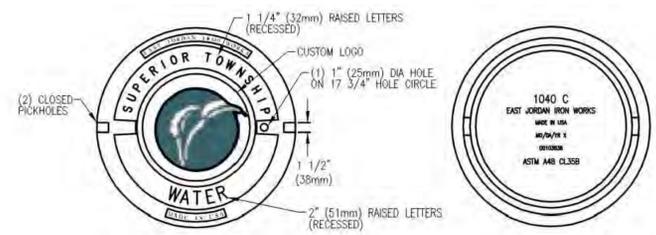
DITCH ENCLOSURE AT GATE WELL



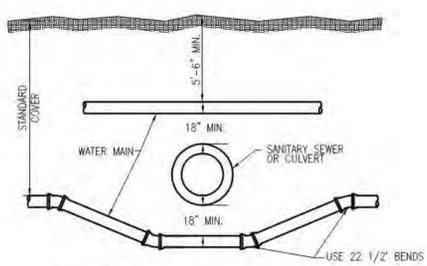
BACKFILL IN THE AREA OF STREETS, ALLEYS, SIDEWALKS, DRIVES & PARKING LOTS



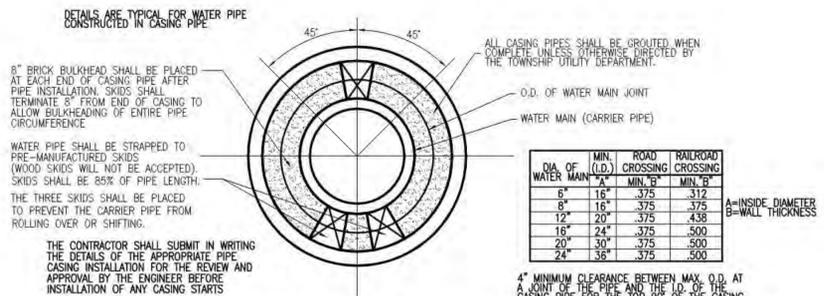
STANDARD MANHOLE STEP



STANDARD COVER & FRAME



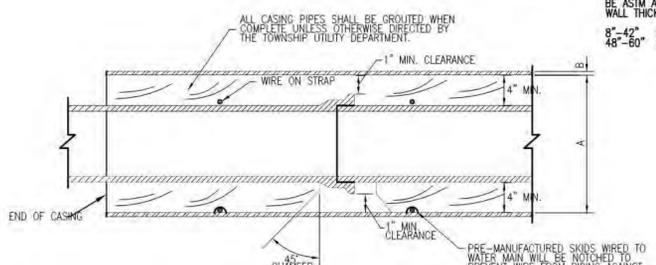
SEWER OR CULVERT CROSSING



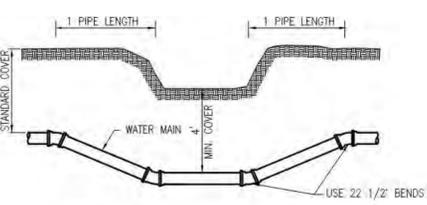
PIPE BARREL SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING PIPE

DIA. OF WATER MAIN	ROAD CROSSING		RAILROAD CROSSING	
	MIN. 'A'	MIN. 'B'	MIN. 'A'	MIN. 'B'
8"	16"	.375	.312	
8"	16"	.375	.375	
12"	20"	.375	.438	
16"	24"	.375	.500	
20"	30"	.375	.500	
24"	36"	.375	.500	

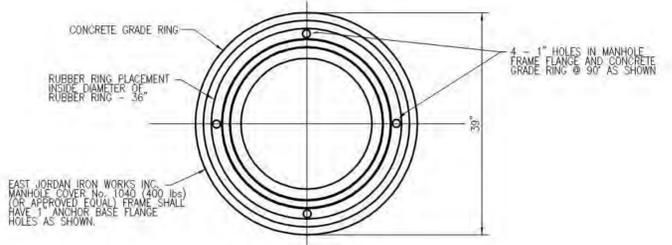
4" MINIMUM CLEARANCE BETWEEN MAX. O.D. AT A JOINT OF THE PIPE AND THE I.D. OF THE CASING PIPE FOR THE TOP 90° OF THE CASING



STANDARD CASING SECTION



DITCH OR STREAM CROSSING



CAST IRON GATE WELL COVER AND GRADE RING

**Landscape Summary - Phase 4**

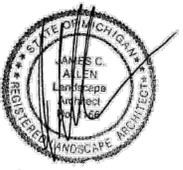
**Street Trees**  
 Total Street Frontage 3,816'  
 Street Trees Required 63.6 Trees (3,816' / 60')  
 Street Trees Provided 64 Trees

**Woodland Replacement**  
 Trees Provided 293 Trees

**Plant List - This Sheet**

sym.	qty.	botanical name	common name	caliper	spacing	root	height
<b>Woodland Replacement</b>							
AFR	18	Acer x. Freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	B&B	
ARR	34	Acer rubrum 'October Glory'	Red Maple 'October Glory'	2.5"	as shown	B&B	
ASR	29	Acer saccharum 'Green Mountain'	Sugar Maple	2.5"	as shown	B&B	
BNR	4	Betula nigra	Multi-Stem River Birch		as shown	B&B	10'-12'
COR	29	Celtis occidentalis	Northern Hackberry	2.5"	as shown	B&B	
GTR	25	Gleditsia triacanthos var. inermis	Honeylocust	2.5"	as shown	B&B	
LTR	17	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
PGR	24	Picea glauca var. densata	Black Hills Spruce		as shown	B&B	6'-7'
PER	7	Platanus x acerifolia 'Exclamation'	Exclamation London Planetree	2.5"	as shown	B&B	
PSR	27	Pinus strobus	White Pine		as shown	B&B	6'-7'
QRR	29	Quercus rubra	Red Oak	2.5"	as shown	B&B	
TAR	28	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	B&B	
UPR	22	Ulmus x hollandica 'Pioneer'	Pioneer Elm	2.5"	as shown	B&B	
	293	Woodland Replacement Trees Provided					
<b>Street Trees</b>							
AF	7	Acer x. Freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	B&B	
AR	20	Acer rubrum 'October Glory'	Red Maple 'October Glory'	2.5"	as shown	B&B	
GT	16	Gleditsia triacanthos var. inermis	Honeylocust	2.5"	as shown	B&B	
UP	21	Ulmus x hollandica 'Pioneer'	Pioneer Elm	2.5"	as shown	B&B	
	64	Street Trees Provided					

Seal:



Title:  
**Landscape Plan**

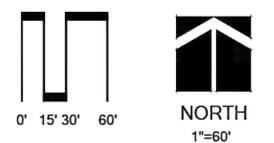
Project:  
**Propsect Point Phase 4  
 Superior Township, Michigan**

Prepared for:  
 SE Michigan Land Holdings LLC  
 13001 23 Mile Road, Suite 200  
 Shelby Township, Michigan 48315

Revision: Issued:  
 Review August 11, 2025

Job Number:  
 21-075

Drawn By: Checked By:  
 jca jca



Sheet No.







**Carlisle | Wortman**  
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

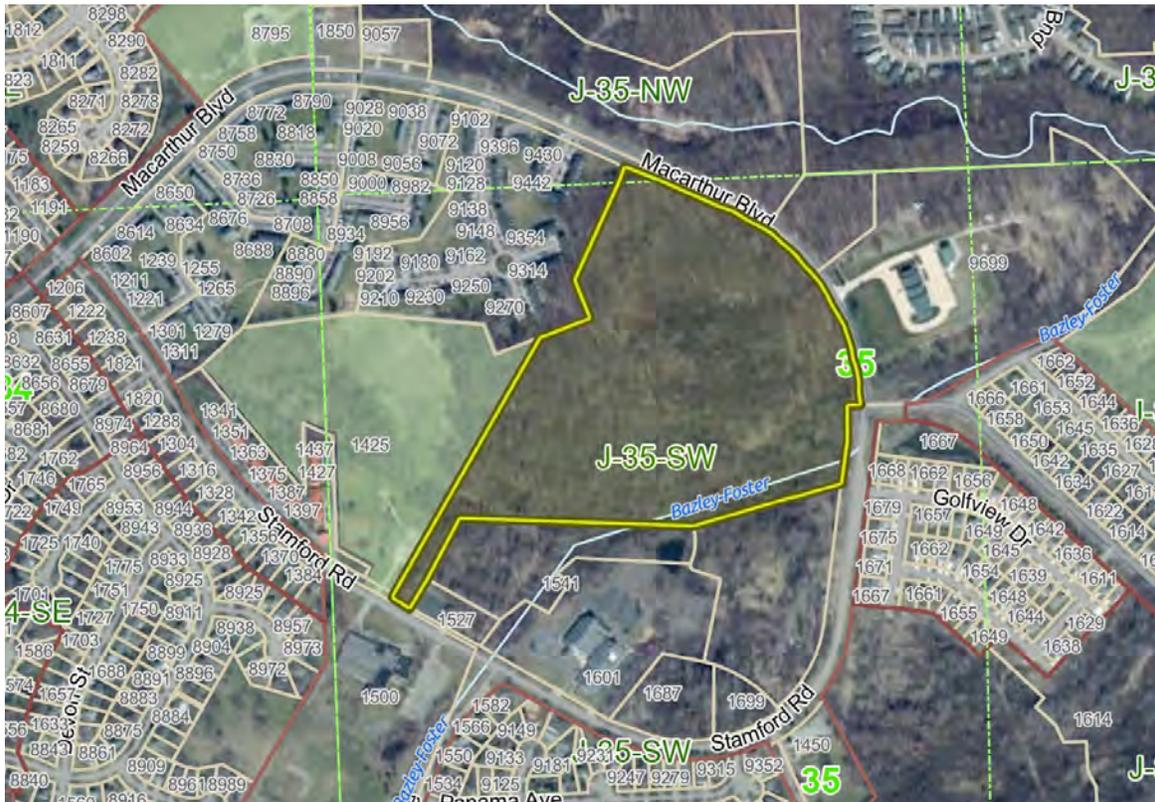
**To:** Superior Township Planning Commission

**From:** Ben Carlisle, AICP

**Date:** December 2, 2025

**Re:** Timber Creek Concept Plan

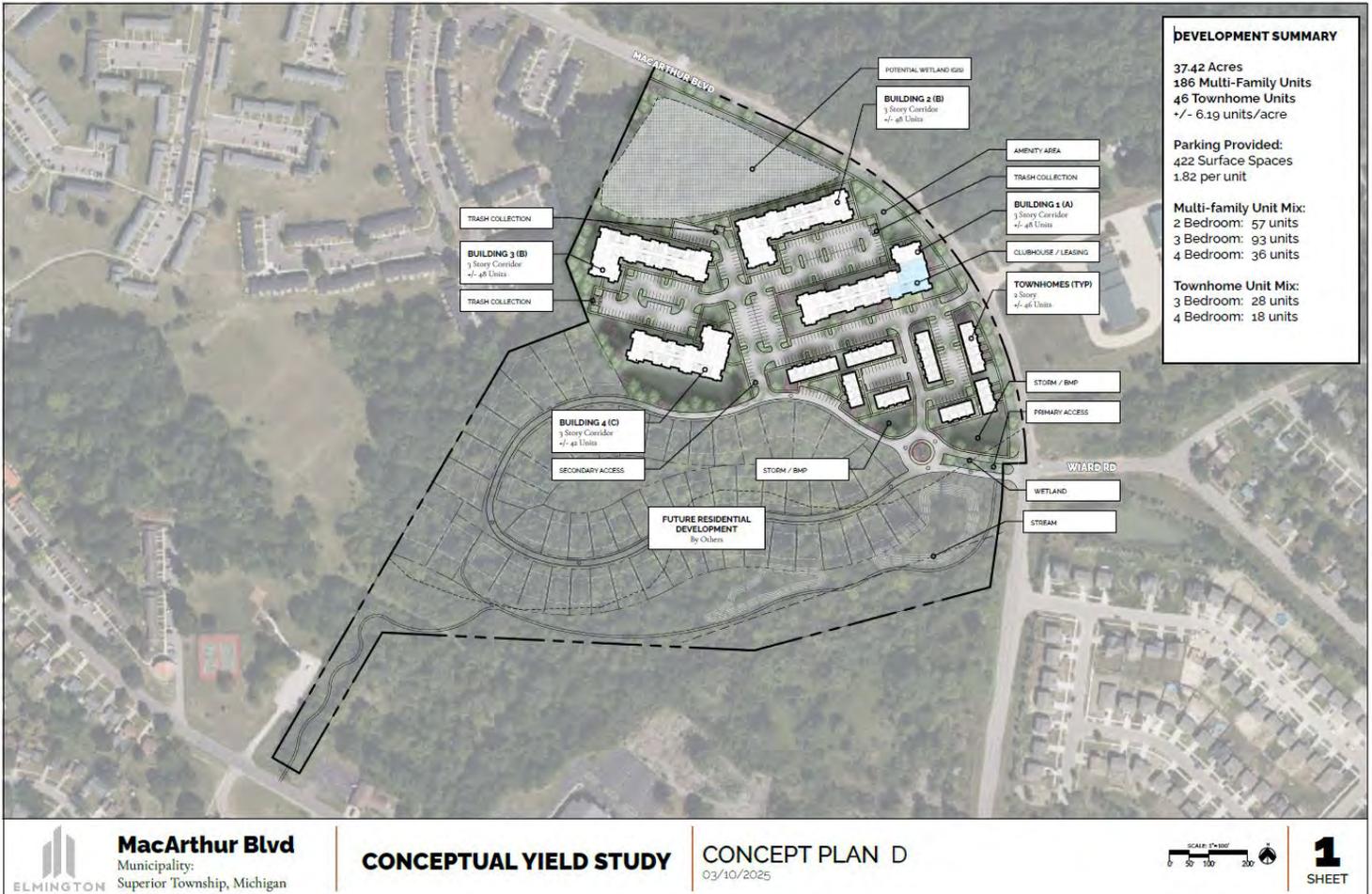
A Concept Plan has been submitted to develop a 37-acre site at Macarthur Boulevard and Wiard Road:



The site is heavily wooded and includes the Bazley Foster drain along the western edge of the property. The applicant has not provided a detailed tree survey or natural feature plan, however they note that one will be submitted in a future submittal. The location of natural features may alter the overall layout of the site.

## Concept Plan

The submitted Concept Plan shows the development approximately half of the 37-acre site is proposed as a mixed-residential community, and the remaining portion as single-family residential.



### Mixed-Residential

The mixed-residential portion of the development is located along the northern half of the site and includes a total of 232 units. Of the 232 units, 186 are three-story multiple family apartments, and 46 are 2-story attached townhomes. The bedroom mix is as follows:

- Multifamily
  - 2-Bedroom: 57 units
  - 3-Bedroom: 93 units
  - 4-Bedroom: 36 units

- Townhomes
  - 3-Bedroom: 28 units
  - 4-Bedroom: 18 units

Site layout details:

- The total amount of parking provided is 422 spaces, which equates to 1.82 spaces per unit.
- Primary access from MacArthur Blvd; secondary access from Wiard Road.
- Four multifamily buildings (Buildings A, B, C, and B repeated) arrayed near the northern half of the site.
- Townhomes arranged along internal drives near the eastern portion of the site.
- Central clubhouse / leasing building and amenity area integrated into the multifamily cluster.
- Trash collection areas distributed throughout.
- Environmental features shown include potential wetlands, streams, and areas designated for stormwater/BMP facilities.

**Single-Family Residential Area Description**

The southern portion of the site, labeled “Future Residential Development by Others,” is designated for single-family detached homes. While unit counts and lot dimensions are not specified at this conceptual stage, the plan illustrates a traditional curvilinear street pattern with a central loop road.

This area is intentionally separated from the multifamily and townhome components by preserved open space, stormwater/BMP areas, and natural features, creating a gradual transition in building scale and density.

Natural constraints, including mapped wetlands and stream corridors near the southeastern boundary, dictate the open space configuration and will guide the future lotting pattern, buffering, and storm system design. The layout appears to preserve these environmental elements.

Primary access to the single-family portion of the development is off Wiard Road, shown near the eastern edge of the concept. Overall, the single-family component is envisioned as a traditional detached residential neighborhood, compatible with surrounding housing patterns.

## **Natural Features**

The site contains several significant natural resources that shape the development layout and establish a framework for open space, stormwater management, and buffering.

### Wetlands

Mapped potential wetlands are identified along the eastern and southeastern portions of the property. These areas act as a natural low point within the site and influence the placement of stormwater Best Management Practice (BMP) facilities. The presence of wetlands also informs building setbacks, limits grading in sensitive zones, and reinforces preservation corridors between the residential areas and the surrounding properties.

### Stream Corridors

A stream alignment is shown running along the southern and southeastern edges of the site. This water feature forms part of a broader hydrologic system that feeds off-site drainage patterns. The stream corridor functions as a natural greenway, supporting habitat continuity and providing a physical edge that separates the planned multifamily/townhome phase from the future single-family neighborhood.

### Topographic Drainage / Lowland Conditions

The concentration of wetlands and stream features at the lower elevation of the property reflects a south-to-east drainage pattern. The site's stormwater BMP placements are co-located with these natural basins, minimizing disruption and allowing engineered detention to work with existing hydrology rather than against it.

### Environmental Buffers & Open Space

Because the concept concentrates buildings in the northern and central portions of the parcel, the southern watershed area is preserved as a natural buffer. These preserved landscapes provide:

- Wildlife habitat continuity
- Noise and visual separation between housing clusters
- Opportunities for passive open space or trail connections in future phases
- Floodplain-compatible land use that prevents encroachment into sensitive soils
- Stormwater/BMP Integration

Multiple stormwater / BMP nodes are placed at the edges of the development footprint, especially near wetland and stream interfaces. Their locations indicate an intent to:

- Treat runoff close to its source
- Reduce downstream discharge velocities
- Maintain natural hydrologic function
- Protect water quality before entering the natural stream corridor

## **Master Plan Consistency**

### 1. Land Use Compatibility & Density Targeting

The Master Plan identifies this northern MacArthur/Wiard Road area as appropriate for attached and mixed residential formats at a moderate density rather than large-lot suburban expansion. This mix of townhomes and multifamily is consistent with the Plan's objective to diversify housing types while maintaining compatibility with surrounding development patterns.

### 2. Housing Diversity & Attainability

The Master Plan emphasizes increasing attainable housing opportunities without compromising open space and rural character. The multiple family portion of the concept delivers 232 total units spanning 2-, 3-, and 4-bedroom formats across multifamily and townhomes, directly supporting the Plan's call to:

- Provide family-sized rental units
- Offer non-single-family options
- Encourage a spectrum of prices, unit sizes, and living formats

### 3. Natural Features Preservation & Green Infrastructure

The Township Plan underscores protection of wetlands, streams, drainage corridors, and woodland edges as a precondition for growth in this sector. While it appears that the applicant is preserving many of the sites natural features, natural features preservation plan is an important requirement for the submittal of a formal site plan and rezoning application.

### 4. Edge Management & Transitional Form

The Plan repeatedly stresses transitioning intensity from corridor edges toward lower-density land and natural systems. The Concept Plan supports this by:

- Concentrating higher-intensity multifamily buildings near MacArthur Blvd
- Positioning townhomes as the step-down housing type
- Reserving the entire southern loop for future single-family detached development to complete the transition of land use

This sequencing exactly matches the Master Plan's prescribed land-use gradient: multifamily → attached townhomes → detached single-family → natural/open space boundary.

## 5. Transportation and Connectivity Intent

The Master Plan discourages extending through-traffic in sensitive residential pockets while still expecting multimodal connectivity. The concept provides:

- Primary access from Macarthur Blvd
- Secondary/emergency access only via Wiard Road to protect neighborhood traffic conditions
- A walkable internal block structure that can support future pedestrian network tie-ins without creating cut-through vehicular routes

## Master Plan Discussion Points

### 1. Natural Feature Preservation

The Township Plan underscores protection of wetlands, streams, drainage corridors, and woodland edges as a precondition for growth in this sector. While it appears that the applicant is preserving many of the sites natural features, natural features preservation plan is an important requirement for the submittal of a formal site plan and rezoning application.

### 2. Lack of Preserved, Functional Open Space Programming

The Master Plan stresses recreation, trail systems, and environmental corridors as public or semi-public amenities, not just undeveloped residual land. In the Concept Plan natural features (wetlands/stream corridor) and stormwater areas are preserved, but no usable open space or trail system is defined, and the “amenity area” is limited to the multifamily core rather than community-wide reach

This creates:

- Open space as *drainage* rather than *community usable green*,
- No meaningful passive parkland or perimeter trail linkage,
- No alignment with Master Plan greenway connectivity goals.

### 3. Unresolved Southern Phase Ambiguity

The Master Plan stresses phasing clarity and infrastructure-rational growth. Labeling the entire southern area “Future Residential Development by Others.” The plan doesn’t::

- Define unit types,
- Confirm road layouts,
- Confirm open space requirements,
- Confirm public access

### 4. Lack of Edge Buffer Strategy Adjacent to Natural Systems

Although preservation is shown, the Master Plan expects edge character definition (buffers, interpretive open space, natural area design standards). The concept uses wetlands as separation but does not establish a naturalized buffer plan, ecological stewardship area, or educational open space function.

#### 5. Amenity Exclusivity

The amenity area and clubhouse are internalized to the multifamily block, not neighborhood-wide. The Master Plan encourages shared central amenities that knit together diverse housing typologies. Townhomes and future single-family do not share identity/access to amenities,

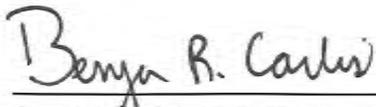
#### **Discussion**

Items for Planning Commission Consideration:

- Is the Concept Plan consistent with the Master Plan?
- Does the Planning Commission overall support the development?
- Does the Planning Commission support the mix of housing types?
- Are there additional amenities that should be incorporated?
- Are there any other general comments or thoughts that the applicant should consider?

I look forward to continuing the conversation and answering any additional questions you may have.

Sincerely,



---

CARLISLE/WORTMAN ASSOC., INC  
Benjamin R. Carlisle, AICP, LEED AP  
President

# Timber Creek

SUPERIOR TOWNSHIP, MI

PRELIMINARY AREA PLAN APPLICATION

2025/12/17



## ELMINGTON PROPERTY PORTFOLIO

A - 2 | Timber Creek | 2025/12/17





## OUTDOOR GATHERING & SOCIAL SPACES

A - 3 | Timber Creek | 2025/12/17





## INTERIOR GATHERING & SOCIAL SPACES

A - 4 | Timber Creek | 2025/12/17



## APARTMENT UNIT EXAMPLES

A - 5 | Timber Creek | 2025/12/17





## RENDERED SITE PLAN

A - 6 | Timber Creek | 2025/12/17



## SITE AERIAL PERSPECTIVE

A - 7 | Timber Creek | 2025/12/17





## SITE ENTRY PERSPECTIVE

A - 8 | Timber Creek | 2025/12/17



## SITE AMENITIES PERSPECTIVE

A - 9 | Timber Creek | 2025/12/17

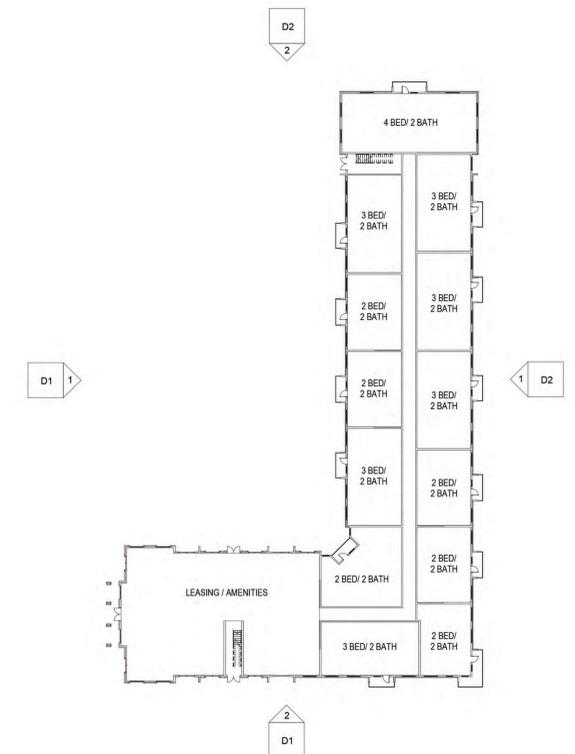




1 BLDG. A - WEST ELEVATION  
D1 1/8" = 1'-0"



2 BLDG A - SOUTH ELEVATION  
D1 1/8" = 1'-0"

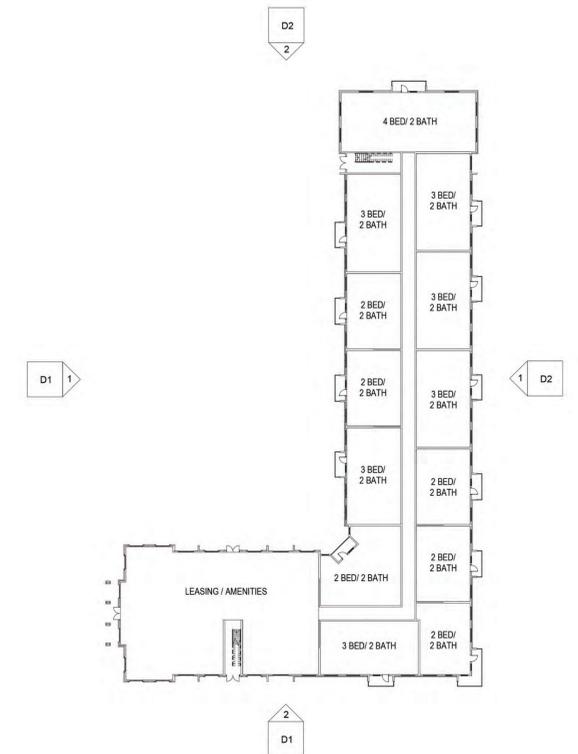




1 BLDG A - EAST ELEVATION  
D2 1/8" = 1'-0"



2 BLDG A - NORTH ELEVATION  
D2 1/8" = 1'-0"





1 BLDG TYPE "B" - FRONT ELEVATION  
D3 1/8" = 1'-0"



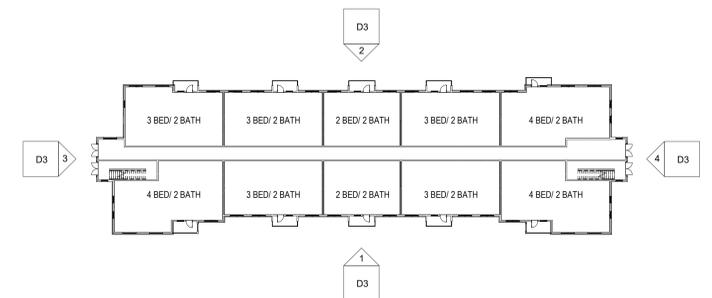
2 BLDG TYPE "B" - REAR ELEVATION  
D3 1/8" = 1'-0"



3 BLDG TYPE "B" - SIDE ELEVATION  
D3 1/8" = 1'-0"



4 BLDG TYPE "B" - SIDE ELEVATION  
D3 1/8" = 1'-0"

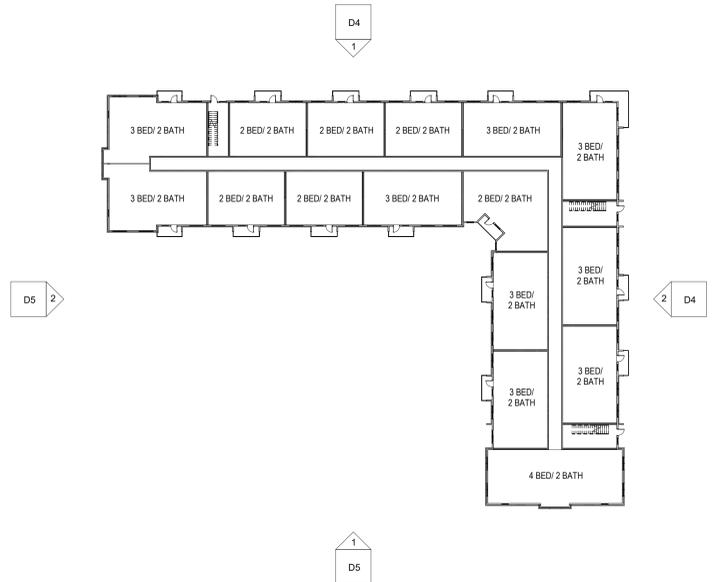




1 BLDG C - NORTH ELEVATION  
1/8" = 1'-0"



2 BLDG C - EAST ELEVATION  
1/8" = 1'-0"

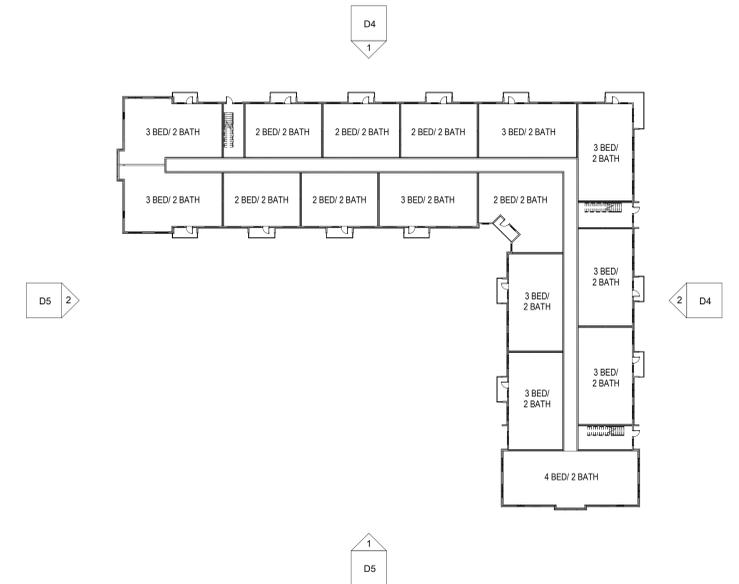




1 BLDG C - SOUTH ELEVATION  
1/8" = 1'-0"



2 BLDG C - WEST ELEVATION  
1/8" = 1'-0"



# TIMBER CREEK

## PROPOSED RESIDENTIAL COMMUNITY AREA PLAN FOR PLANNED COMMUNITY ZONING SECTION 35, T.2S., R.7E., SUPERIOR TOWNSHIP, WASHTENAW COUNTY

### PROPERTY OWNER

TIMBER CREEK L.L.C.  
YUKON BUILDING & LAND DEVELOPMENT  
25519 WOODWARD AVENUE  
ROYAL OAK, MI 48067  
PHONE: (248) 541-0200  
FAX: (248) 541-0201  
CONTACT: DAVID A. DOWLING

### TOPOGRAPHIC SURVEY

E.P. KUBISKE & ASSOCIATES  
1430 E. MICHIGAN AVE.  
YPSILANTI, MI 48198-5906  
CIVIL ENGINEERS & LAND SURVEYORS  
TELE: (734) 481-1322  
FAX: (734) 481-2215  
CONTACT: MARK DAVIS

### ENGINEER

J.W. SHINK & ASSOCIATES  
CONSULTING ENGINEERING  
4146 PINE GROVE AVE.  
FT. GRATIOT, MI 48059  
TELE: (810) 385-3882  
FAX: (810) 385-3048  
CONTACT: LORI SHINK

#### LEGAL DESCRIPTION (AS PROVIDED)

A PARCEL OF LAND IN THE WEST 1/2 OF SECTION 35, T.2S., R.7E., SUPERIOR TOWNSHIP, WASHTENAW COUNTY, MICHIGAN. SAID PARCEL IS FURTHER DESCRIBED AS:

BEGINNING 2711.79 FEET NORTH AND 1463.13 FEET EAST OF THE S.W. CORNER OF SAID SECTION 35;  
THENCE S65°44'E, 441.05 FEET;  
THENCE 1049.9 FEET IN THE ARC OF A CURVE TO THE RIGHT, RADIUS OF 940 FEET, CHORD S33°44'15"E, 996.15 FEET;  
THENCE S89°55'10"W, 60.03 FEET;  
THENCE 143.77 FEET IN THE ARC OF A CURVE TO THE RIGHT, RADIUS OF 880 FEET, CHORD S02°49'10"W, 143.63 FEET;  
THENCE S07°30'W, 171.32 FEET;  
THENCE S74°23'10"W, 628.85 FEET;  
THENCE N87°48'45"W, 951.56 FEET;  
THENCE S29°54'20"W, 416.70 FEET;  
THENCE N.W./LY IN NORTH LINE OF STAMFORD ROAD TO A POINT S30°59'W FROM THE POINT OF BEGINNING;  
THENCE EN30°59'00"E TO THE POINT OF BEGINNING, EXCEPT THAT PART LYING EASTERLY OF A LINE DESCRIBED AS:  
COMMENCING AT THE N.W. CORNER OF SAID SECTION 35; THENCE S01°47'15"E, 2151.7 FEET; THENCE S82°21'05"E, 617.52 FEET; THENCE S15°49'56"W, 60.00 FEET; THENCE S73°03'55"E, 312.02 FEET; THENCE S65°44'05"E, 417.20 FEET TO THE POINT OF BEGINNING;  
THENCE S24°13'55"W, 506.31 FEET;  
THENCE S21°E, 164.63 FEET;  
THENCE S69°W, 218.06 FEET;  
THENCE S29°54'20"W, 1203.38 FEET TO A POINT OF ENDING.

CONTAINING 37.42 ACRES OF LAND MORE OR LESS.

SUBJECT TO ANY EASEMENTS OR RESTRICTIONS OF RECORD.

#### LEGAL DESCRIPTION (AS SURVEYED)

A PARCEL OF LAND IN THE WEST 1/2 OF SECTION 35, T.2S., R.7E., SUPERIOR TOWNSHIP, WASHTENAW COUNTY, MICHIGAN. SAID PARCEL IS FURTHER DESCRIBED AS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 35; THENCE N00°35'42"E, ALONG THE WEST LINE OF SAID SECTION 35, 2668.90 FEET TO THE WEST 1/4 CORNER OF SAID SECTION 35, SAID POINT BEING S00°51'35"W, 19.54 FEET OF A REFERENCE MONUMENT AND N00°47'26"W, 30.53 FEET OF A REFERENCE MONUMENT;  
THENCE S89°54'53"E, ALONG THE E-W 1/4 LINE OF SAID SECTION 35, 2636.58 FEET TO THE POINT OF BEGINNING;  
THENCE N26°17'27"E, 113.86 FEET TO THE CENTERLINE OF MACARTHUR BOULEVARD, 120 FEET WIDE;  
THENCE ALONG SAID CENTERLINE IN THE FOLLOWING 2 COURSES:  
S63°42'33"E, 443.24 FEET;  
THENCE 1049.89 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 940.00 FEET, A CENTRAL ANGLE OF 063°59'38", AND A CHORD BEARING S31°42'44"E, 996.16 FEET;  
THENCE N89°42'56"W, 60.00 FEET;  
THENCE 145.48 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 880.00 FEET, A CENTRAL ANGLE OF 009°28'43", AND A CHORD BEARING S05°04'26"W, 143.42 FEET;  
THENCE S09°45'47"W, 172.43 FEET;  
THENCE S76°38'51"W, 626.05 FEET;  
THENCE N85°32'58"W, 954.83 FEET;  
THENCE S32°10'07"W, 418.10 FEET TO THE NORTH LINE OF STAMFORD ROAD;  
THENCE N58°13'03"W, ALONG SAID NORTHLINE, 80.09 FEET;  
THENCE N31°53'52"E, 1203.38 FEET;  
THENCE N71°01'32"E, 218.06 FEET;  
THENCE N18°58'28"W, 164.37 FEET;  
THENCE N26°17'27"E, 435.84 FEET TO THE POINT OF BEGINNING.

CONTAINING 37.601 ACRES OF LAND MORE OR LESS.

SUBJECT TO THE RIGHTS OF THE PUBLIC IN MACARTHUR BOULEVARD AND ANY EASEMENTS OR RESTRICTIONS OF RECORD.



LOCATION MAP

### SHEET INDEX

COVER SHEET	1
EXISTING CONDITIONS & NATURAL RESOURCES	2
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AREA PLAN FOR P-C ZONING	4
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*J. Shink*

L-12  
 T2S, R7E,  
 SUPERIOR TWP.  
 AS RECORDED IN L. 2,  
 P. 001, WASHTENAW  
 COUNTY RECORDS

J-12  
 T2S, R7E,  
 SUPERIOR TWP.



SCALE 1" = 100'

**SOILS**  
 NaB - NAPPANEE SILTY CLAY LOAM, 2 TO 6 PERCENT SLOPES. THIS SOIL IS ON FOOT SLOPES AND ALONG DRAINAGE WAYS OF TILL PLAINS, MDRAINES, AND LAKE PLAINS. AREAS ARE IRREGULAR IN SHAPE AND RANGE FROM 3 TO ABOUT 550 ACRES IN SIZE. THIS SOIL HAS THE PROFILE DESCRIBED AS REPRESENTATIVE OF THE SERIES.

THIS SOIL HAS A SEASONAL HIGH WATER TABLE. THE HAZARD OF EROSION IS MODERATE. RUNOFF IS SLOW.

INCLUDED WITH THIS SOIL IN MAPPING ARE SMALL AREAS OF ST. CLAIR CLAY LOAM AND HOYTVILLE SILTY CLAY LOAM. SOME SMALL AREAS OF YPSI SANDY LOAM, POORLY DRAINED SOILS, VERY POORLY DRAINED SOILS, AND STEEPER SOILS ARE IDENTIFIED ON THE MAP BY SPOT SYMBOLS. SMALL AREAS OF NEARLY LEVEL SOILS ARE ALSO INCLUDED.

Pc - PELLA SILT LOAM, THIS SOIL IS IN DEPRESSIONS AREAS, BROAD LOW-LYING AREAS, AND DRAINAGE WAYS OF LAKE PLAINS AND OUTWASH PLAINS. SLOPE IS 0 TO 2 PERCENT. AREAS ARE IRREGULAR IN SHAPE AND RANGE FROM 5 TO 180 ACRES IN SIZE.

INCLUDED WITH THIS SOIL IN MAPPING ARE SMALL AREAS OF GRANBY FINE SAND, COLWOOD LOAM, PALMS MUCK, LAWSON FINE SANDY LOAM, AND KIBBIE LOAM. SMALL AREAS OF SOILS THAT ARE LESS THAN 20 INCHES DEEP OVER THE UNDERLYING MATERIAL ARE ALSO INCLUDED.

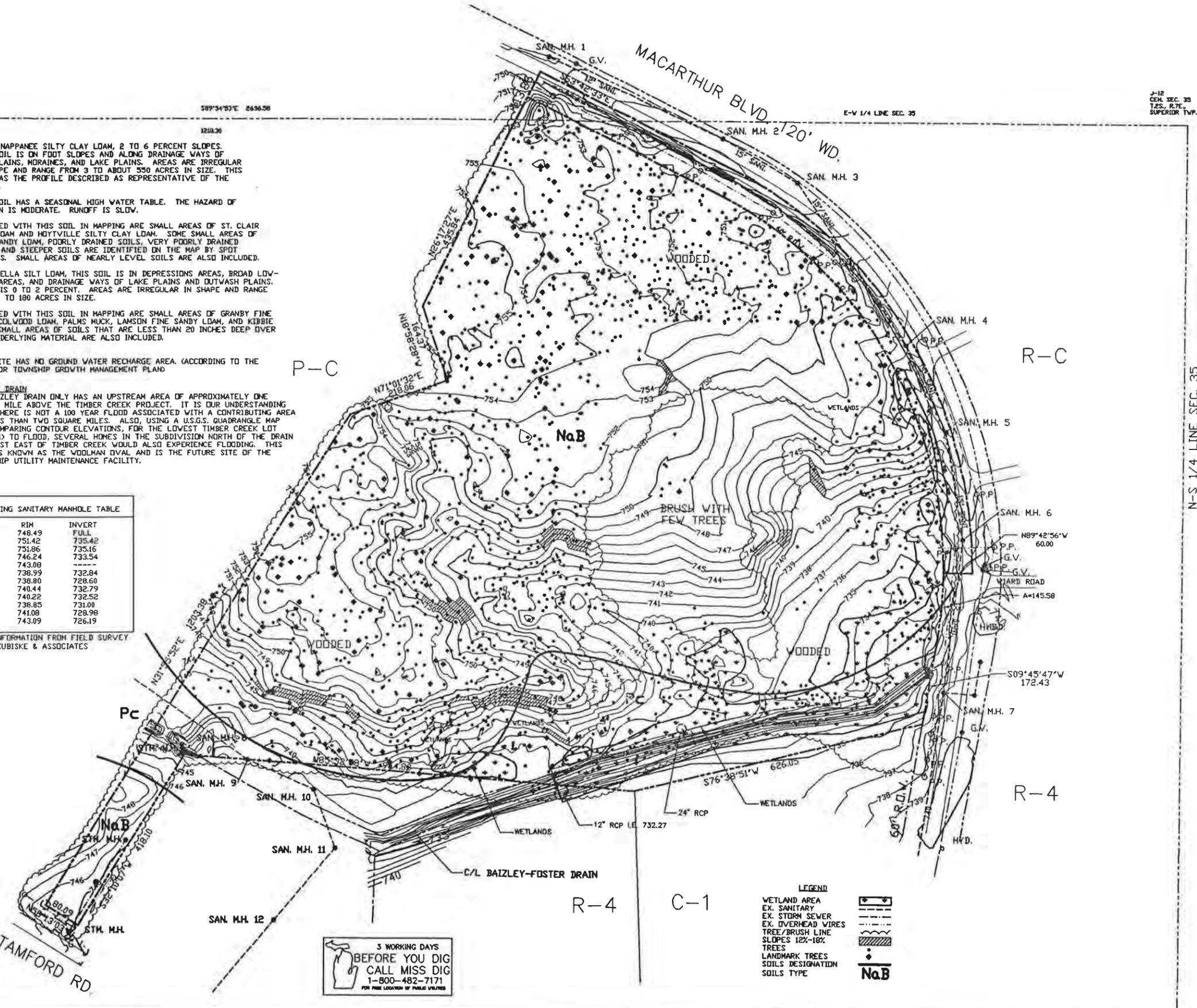
THIS SITE HAS NO GROUND WATER RECHARGE AREA. (ACCORDING TO THE SUPERIOR TOWNSHIP GROWTH MANAGEMENT PLAN)

**BAZLEY DRAIN**

THE BAZLEY DRAIN ONLY HAS AN UPSTREAM AREA OF APPROXIMATELY ONE SQUARE MILE ABOVE THE TIMBER CREEK PROJECT. IT IS OUR UNDERSTANDING THAT THERE IS NOT A 100 YEAR FLOOD ASSOCIATED WITH A CONTRIBUTING AREA OF LESS THAN TWO SQUARE MILES. ALSO, USING A U.S.G.S. QUADRANGLE MAP AND COMPARING CONTOUR ELEVATIONS, FOR THE LOWEST TIMBER CREEK LOT (LOT #1) TO FLOOD, SEVERAL HOMES IN THE SUBDIVISION NORTH OF THE DRAIN AND JUST EAST OF TIMBER CREEK WOULD ALSO EXPERIENCE FLOODING. THIS AREA IS KNOWN AS THE WOOLMAN OVAL AND IS THE FUTURE SITE OF THE TOWNSHIP UTILITY MAINTENANCE FACILITY.

EXISTING SANITARY MANHOLE TABLE		
M.H. #	RIM	INVERT
1	748.49	FULL
2	751.42	735.42
3	751.86	735.16
4	746.24	733.54
5	743.00	-----
6	738.99	732.84
7	738.80	728.60
8	740.44	732.79
9	740.22	732.52
10	738.85	731.00
11	741.08	728.98
12	743.09	726.19

ABOVE INFORMATION FROM FIELD SURVEY  
 BY: E.P. KUBISKE & ASSOCIATES



WEST LINE SEC. 35

N-S 1/4 LINE SEC. 35

STAMFORD RD

3 WORKING DAYS  
 BEFORE YOU DIG  
 CALL MISS DIG  
 1-800-482-7171  
 FOR FREE LOCATION OF PUBLIC UTILITIES

**LEGEND**

- WETLAND AREA
- EX. SANITARY
- EX. STORM SEWER
- EX. OVERHEAD WIRES
- TREE/BRUSH LINE
- SLOPES 12%-18%
- TREES
- LANDMARK TREES
- SOILS DESIGNATION
- SOILS TYPE

NaB

**EXISTING CONDITIONS & NATURAL RESOURCES**

TIMBER CREEK  
 PROPOSED RESIDENTIAL COMMUNITY  
 SUPERIOR TOWNSHIP, MICHIGAN

DATE: SEPTEMBER 2002  
 SCALE: AS SHOWN  
 SHEET NO. 8 OF 8 SHEETS  
 CONSULTING ENGINEER  
 JAMES V. EDOK & ASSOC.  
 4444 FIVE POINTS DRIVE, SUITE 200, GRAND RAPIDS, MI 49508  
 P.O. BOX 10000

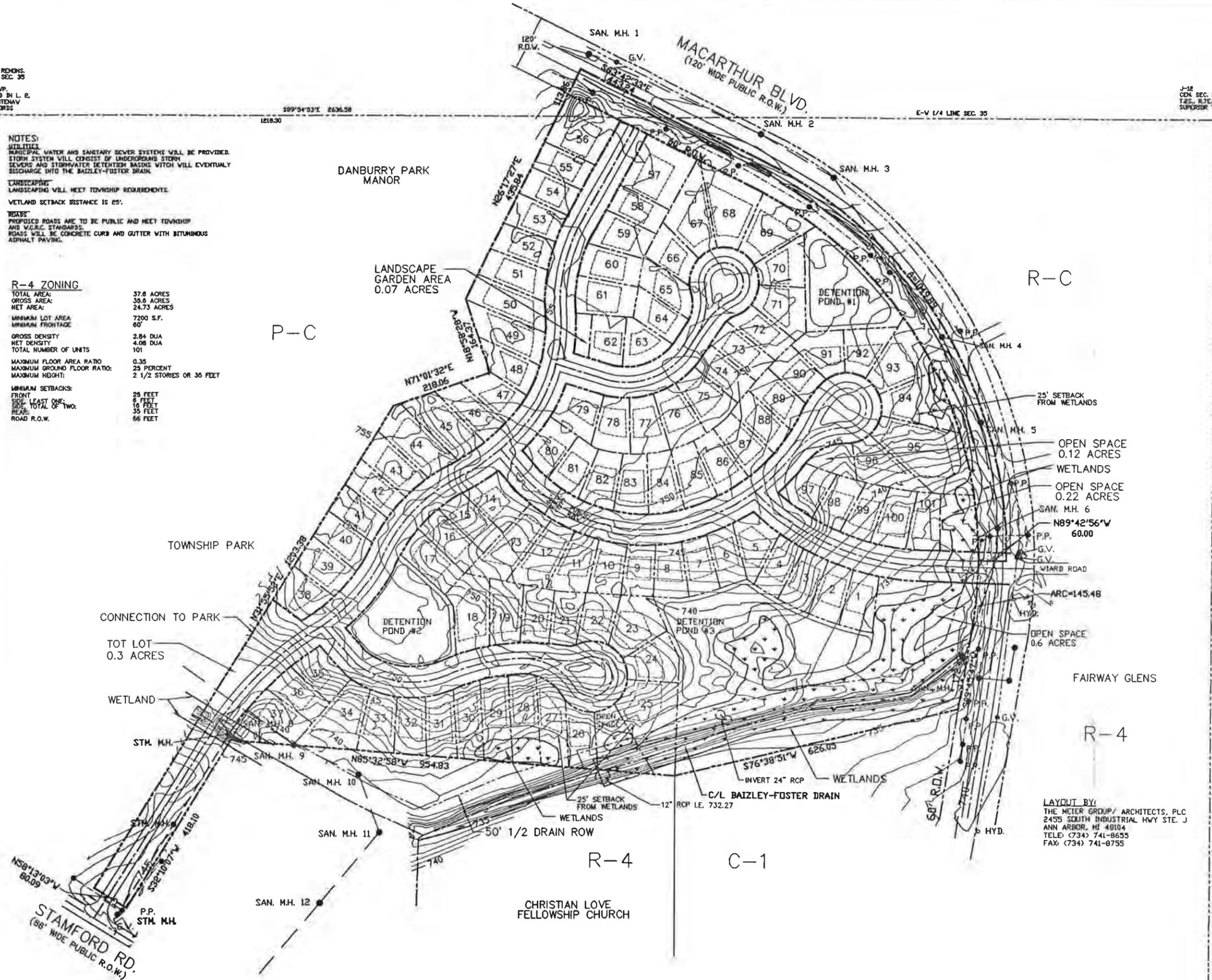
1-12  
 FIN. & REF. RECORDS  
 V. 1/4 COR. SEC. 35  
 T2S., R7E.  
 SUPERIOR TWP.  
 AS RECORDED IN L. P.  
 P. 001, VASHTENAV  
 COUNTY RECORDS

J-12  
 COR. SEC. 35  
 T2S., R7E.  
 SUPERIOR TWP.

**NOTES:**  
 UTILITIES  
 MUNICIPAL WATER AND SANITARY SEWER SYSTEMS WILL BE PROVIDED.  
 STORM SYSTEM WILL CONSIST OF UNDERGROUND STORM  
 SEWERS AND STORMWATER DETENTION BASINS WHICH WILL EVENTUALLY  
 DISCHARGE INTO THE BAIZLEY-FOSTER DRAIN.  
 LANDSCAPING  
 LANDSCAPING WILL MEET TOWNSHIP REQUIREMENTS.  
 WETLAND SETBACK DISTANCE IS 25'.  
 ROADS  
 PROPOSED ROADS ARE TO BE PUBLIC AND MEET TOWNSHIP  
 AND M.C.R.C. STANDARDS.  
 ROADS WILL BE CONCRETE CURB AND GUTTER WITH BITUMINOUS  
 ASPHALT PAVING.

**R-4 ZONING**  
 TOTAL AREA: 37.6 ACRES  
 GROSS AREA: 38.8 ACRES  
 NET AREA: 24.73 ACRES  
 MINIMUM LOT AREA: 7200 S.F.  
 MINIMUM FRONTAGE: 60'  
 GROSS DENSITY: 2.84 DU/A  
 NET DENSITY: 4.08 DU/A  
 TOTAL NUMBER OF UNITS: 101  
 MAXIMUM FLOOR AREA RATIO: 0.35  
 MAXIMUM GROUND FLOOR RATIO: 25 PERCENT  
 MAXIMUM HEIGHT: 2 1/2 STORIES OR 35 FEET  
 MINIMUM SETBACKS:  
 FRONT: 25 FEET  
 SIDE (EACH SIDE): 10 FEET  
 SIDE (TOTAL OF TWO): 35 FEET  
 REAR: 35 FEET  
 ROAD R.O.W.: 66 FEET

WEST LINE SEC. 35



1" = 100'

SCHEDULE OF UNIT AREAS

UNIT	AREA
1	7200.00
2	7200.00
3	7200.00
4	7200.00
5	7200.00
6	7200.00
7	7200.00
8	7200.00
9	7200.00
10	7200.00
11	7200.00
12	7200.00
13	7200.00
14	7200.00
15	7200.00
16	7200.00
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92	7200.00
93	7200.00
94	7200.00
95	7200.00
96	7200.00
97	7200.00
98	7200.00
99	7200.00
100	7200.00
101	7200.00

N-S 1/4 LINE SEC. 35

OPEN SPACE  
 0.12 ACRES  
 WETLANDS  
 OPEN SPACE  
 0.22 ACRES  
 SAN. M.H. 6  
 N89°42'56"W  
 60.00  
 G.V.  
 WARD ROAD  
 ARC=145.48  
 HYD.  
 OPEN SPACE  
 0.6 ACRES

FAIRWAY GLENS  
 R-4  
 LAYOUT BY:  
 THE MEIER GROUP/ ARCHITECTS, PLC  
 2455 SOUTH INDUSTRIAL HWY STE. J  
 ANN ARBOR, MI 48104  
 TELE: (734) 741-8655  
 FAX: (734) 741-8755



PARALLEL PLAN BASED ON EXISTING R-4 ZONING

TIMBER CREEK  
 PROPOSED RESIDENTIAL COMMUNITY  
 SUPERIOR TOWNSHIP, MICHIGAN

DATE: 08/20/2009  
 DRAWN BY: J. SHANK  
 CHECKED BY: J. SHANK  
 DESIGNED BY: J. SHANK  
 PROJECT NO.: 09-001

# TIMBER CREEK

## P-C ZONING

TOTAL AREA:	37.6 AC.
GROSS AREA:	35.6 AC.
NET AREA:	25.45 AC.
GROSS DENSITY:	2.67 DUA
NET DENSITY:	3.73 DUA
MINIMUM LOT AREA:	7200
MAXIMUM LOT AREA:	16999
MINIMUM FRONTAGE:	60'
TOTAL NUMBER OF UNITS:	95
MAXIMUM FLOOR AREA RATIO:	0.35
MAXIMUM GROUND FLOOR RATIO:	20%
MAXIMUM HEIGHT:	2 1/2 STORIES OR 35'
MINIMUM SETBACKS:	
FRONT:	25'
SIDE, LEAST ONE:	6'
SIDE, TOTAL OF TWO:	16'
REAR:	35'
ROAD RIGHT-OF-WAY:	66'

## ON-SITE RETENTION

POND #1:	93913 CF
POND #2:	77469 CF
POND #3:	105123 CF
RETENTION PROVIDED:	276507 CF
RETENTION REQUIRED:	275163 CF

## OPEN SPACE AREAS

OPEN SPACE #1:	2.31 AC.
OPEN SPACE #2:	0.25 AC.
OPEN SPACE #3:	1.06 AC.
OPEN SPACE #4:	0.18 AC.
OPEN SPACE #5:	0.12 AC.
OPEN SPACE #6:	0.10 AC.
OPEN SPACE #7:	2.69 AC.
WETLAND AREA I:	1.25 AC.
WETLAND AREA II:	1.54 AC.
DRAIN EASEMENT:	

### LEGEND

PROPOSED TREES	
PROPOSED SHRUBS	
PROPOSED ROCKERY	
CUT/FILL AREAS	
LANDMARKED TREES	
EX. CONTOUR	
EX. INDEX CONTOUR	
WETLAND AREA	
EX. SANITARY	
EX. STORM SEWER	
EX. OVERHEAD WIRES	

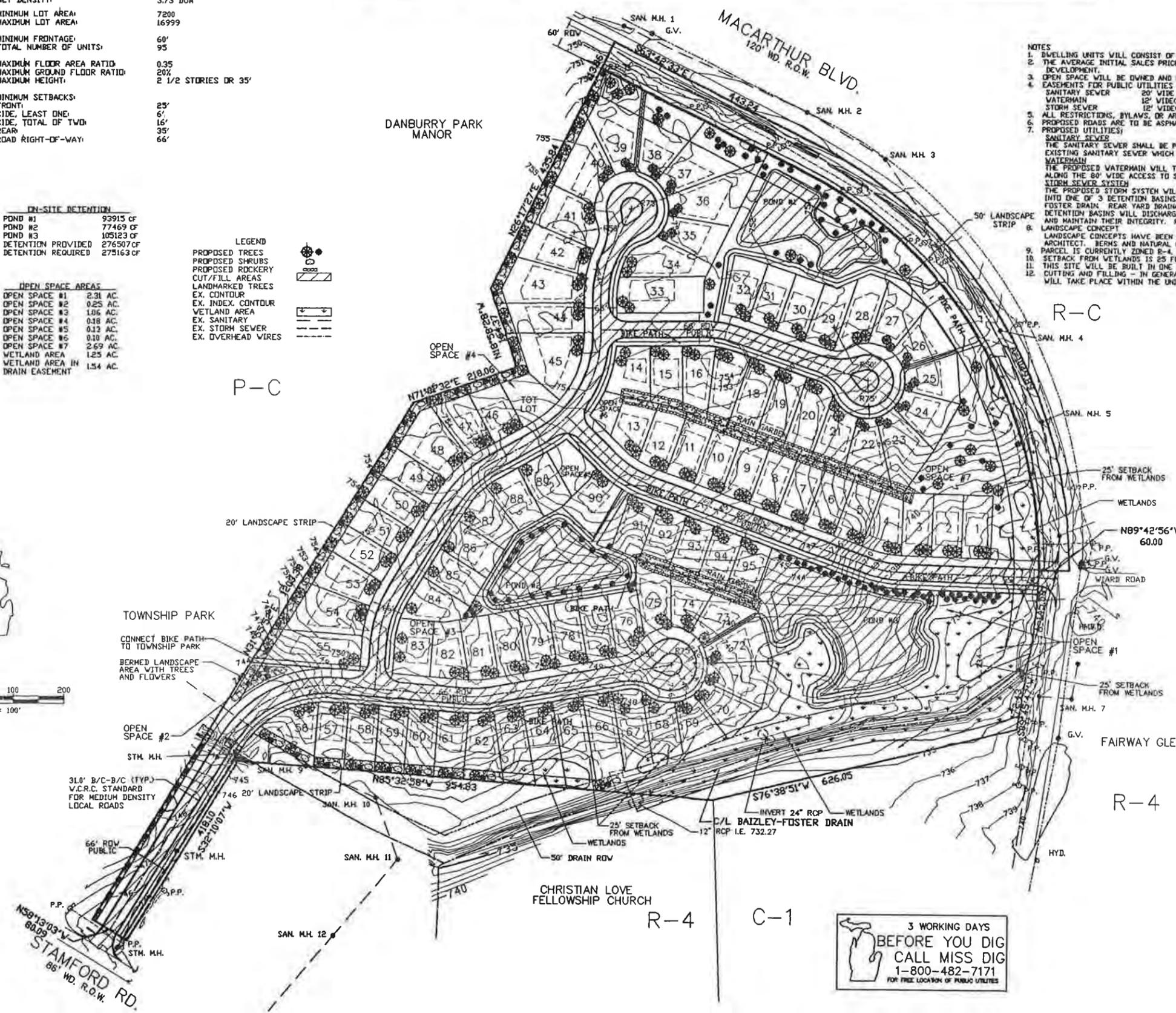
P-C

## NOTES

- DWELLING UNITS WILL CONSIST OF SINGLE FAMILY HOUSES RANGING IN SIZE FROM 1,300 S.F. TO 2,000 S.F.
- THE AVERAGE INITIAL SALES PRICE OF THE DWELLING UNITS WILL BE \$165,000. THE OWNER INTENDS ON SELLING ALL UNITS WITHIN THIS DEVELOPMENT.
- OPEN SPACE WILL BE OWNED AND MAINTAINED BY THE CONDOMINIUM ASSOCIATION.
- EASEMENTS FOR PUBLIC UTILITIES WILL CONSIST OF THE FOLLOWING:  
SANITARY SEWER 20' WIDE  
WATERMAIN 12' WIDE(MIN)  
STORM SEWER 12' WIDE(MIN)
- ALL RESTRICTIONS, BYLAWS, OR ARTICLES OF INCORPORATION FOR THE CONDOMINIUM ASSOCIATION WILL BE PREPARED BY AN ATTORNEY.
- PROPOSED ROADS ARE TO BE ASPHALT SURFACE WITH CONCRETE CURB AND GUTTER DESIGNED TO V.C.R.C. STANDARDS.
- PROPOSED UTILITIES:  
SANITARY SEWER:  
THE SANITARY SEWER SHALL BE PUBLIC. THE SEWER WILL CONNECT TO THE EXISTING SANITARY SEWER ON MACARTHUR BLVD. AND THE EXISTING SANITARY SEWER WHICH RUNS ACROSS THE SOUTH END OF THE SITE.  
WATERMAIN:  
THE PROPOSED WATERMAIN WILL TIE INTO THE EXISTING 12" WATERMAIN ALONG MACARTHUR BLVD. THERE IS A 12" WATERMAIN WHICH RUNS ALONG THE 80' WIDE ACCESS TO STAMFORD.  
STORM SEWER SYSTEM:  
THE PROPOSED STORM SYSTEM WILL CONSIST OF REAR YARD DRAINAGE AND DRAINAGE WITHIN THE ROAD R.O.W. WHICH WILL DISCHARGE INTO ONE OF 3 DETENTION BASINS. THE DETENTION BASINS WILL EVENTUALLY OUTLET AT A RESTRICTED RATE INTO THE BAIZLEY-FOSTER DRAIN. REAR YARD DRAINAGE WILL CONSIST OF RAIN GARDENS AND OR REAR YARD CATCH BASINS. WHERE POSSIBLE, UPPER LEVEL DETENTION BASINS WILL DISCHARGE (AT THE ALLOWABLE RELEASE RATE) ABOVE THE EXISTING WETLAND AREAS TO HELP NOURISH THEM AND MAINTAIN THEIR INTEGRITY. RAIN GARDENS CAN SERVE AS SEDIMENTATION BASINS AS WELL AS A NATURAL DIVIDER BETWEEN UNITS.  
LANDSCAPE CONCEPT:  
LANDSCAPE CONCEPTS HAVE BEEN PROVIDED ON THE SITE PLAN. A LANDSCAPE PLAN WILL BE PREPARED BY A LICENSED LANDSCAPE ARCHITECT. BERMS AND NATURAL CONCEPTS WILL BE INCORPORATED AS MUCH AS POSSIBLE.  
PARCEL IS CURRENTLY ZONED R-4.  
SETBACK FROM WETLANDS IS 25 FEET.  
THIS SITE WILL BE BUILT IN ONE PHASE.  
CUTTING AND FILLING - IN GENERAL CUTTING WILL TAKE PLACE IN THE ROAD RIGHT-OF-WAY AND THE DETENTION AREAS. FILLING WILL TAKE PLACE WITHIN THE UNIT AREAS TO PROVIDE POSITIVE DRAINAGE.

## SCHEDULE OF UNIT AREAS

UNIT	UNIT AREA	UNIT	UNIT AREA
1	7,500	51	8,100
2	7,500	52	8,100
3	7,500	53	9,135
4	7,841	54	13,141
5	7,672	55	13,803
6	7,675	56	9,231
7	7,678	57	7,775
8	7,681	58	7,805
9	7,685	59	7,805
10	7,689	60	7,805
11	7,692	61	7,798
12	7,581	62	8,854
13	7,281	63	9,098
14	7,793	64	9,850
15	7,506	65	10,147
16	8,029	66	9,798
17	8,642	67	9,322
18	8,790	68	7,209
19	8,852	69	7,211
20	8,708	70	7,250
21	7,390	71	8,198
22	8,047	72	8,580
23	10,466	73	8,214
24	8,163	74	7,410
25	8,011	75	8,725
26	7,880	76	7,219
27	8,437	77	7,530
28	8,873	78	7,530
29	7,744	79	7,530
30	7,200	80	7,530
31	7,200	81	7,465
32	7,390	82	7,248
33	12,415	83	8,154
34	9,718	84	7,274
35	8,045	85	7,241
36	12,912	86	7,218
37	15,525	87	7,232
38	13,552	88	7,233
39	16,999	89	7,264
40	13,297	90	7,633
41	11,232	91	7,232
42	10,137	92	7,232
43	13,575	93	7,232
44	9,987	94	7,232
45	13,351	95	7,232
46	8,199		
47	9,642		
48	12,990		
49	8,128		
50	8,100		



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
1-800-482-7171  
FOR FREE LOCATION OF PUBLIC UTILITIES

## AREA PLAN FOR P.C. ZONING

TIMBER CREEK  
PROPOSED RESIDENTIAL COMMUNITY  
SUPERIOR TOWNSHIP, MICHIGAN

DATE: 11/14/2008  
DRAWN BY: JAMES V. SHUNK & ASSOC.  
CHECKED BY: JAMES V. SHUNK & ASSOC.  
DATE: 11/14/2008

JAMES V. SHUNK & ASSOC.  
CONSULTING ENGINEERS  
1444 PINE BLVD. FORT MYERS, FL 33901  
P.O. BOX 10000 TAMPA, FL 33610

