

PORT HURON CHARTER TOWNSHIP  
ENGINEERING DESIGN STANDARDS

A. GENERAL

1. The construction plans and specifications shall be prepared under the supervision of an Engineer registered in the State of Michigan and each sheet of the plans, excepting standard detail sheets provided by the Township, shall have imprinted thereon the seal of that Engineer.
2. Plans at a minimum shall consist of: (a) a cover sheet showing a plan view of the complete project, (b) plan and profile sheets, and (c) detail sheets. Sheet size shall be 24" x 36". Plan and profile sheets shall be drawn to a minimum scale of 1" = 50' horizontally and a minimum of 1" = 5' vertically. Preferred scale for smaller site plans is 1" = 20'. Plans not drawn neatly in a professional manner shall be rejected.
3. Elevations shall be based on USGS datum (NAVD, 1988) with two permanent bench marks established at least every 1200' and shown on the plans.
4. All easements, lengths and sizes of sewers and water mains shall be shown on the cover sheet and the plan and profile sheets.
5. Location (relative to property lines) of proposed streets and sanitary, storm and water lines shall be shown on the plans. ...
6. Design of public streets shall be in accordance with either the St. Clair County Road Commission (SCCRC) or Michigan Department of Transportation (MDOT) standards, as applicable. Private roads serving site condominiums shall meet SCCRC standards for residential subdivisions unless open ditches are requested for imperative environmental reasons, in which case pavement width shall be not less than 22 feet. All private roads shall also meet the requirements of the Private Easement Roads section of the Township Zoning Ordinance.
7. Proposed site grading shall be shown on the plans by the use of contours and spot elevations and flow arrows to realistically demonstrate the proposed route of flow of surface drainage.
8. Place notes on the plans as follows:
  - a. All construction shall be in accordance with the Township's current standards and specifications.
  - b. The Contractor shall notify the Township Engineer and/or the authority having jurisdiction, 48 hours prior to the beginning of construction.
  - c. Contractor shall contact MISS DIG (1-800-482-7171), 72 hours in advance of construction, for existing underground utility locations.
  - d. Full-time construction review may be required during all phases of

construction including grading, paving, installation of sanitary sewer, storm sewers, drains, watermains and appurtenances, and streets, where applicable.

9. Where it is necessary to extend offsite improvements and/or utilities in order to meet the current requirements of the Township ordinances, these improvements shall be the sole responsibility of the developer. However, once these improvements become public property the entity having jurisdiction shall have all rights and responsibilities to the improvements or utilities, subject to maintenance and guarantee bonds and agreements.

**B. GRADING AND PAVING**

1. Any earth disruption of more than one acre or within 500 feet of a lake or stream or adjacent to any protected wetland will require a soil erosion control permit from the St. Clair County Health Department.

2. Minimum and maximum grades shall be as follows unless approved by the Township Engineer:

	Minimum	Maximum
Grass Areas	1%	1 v to 3 h, max. of 3 ft. high. 1 v to 6 h, no height limit
Asphalt	1%	4% (8% in driveways)
Concrete	0.5%	4% (8% in driveways)

3. The limits of earth disruption shall be shown on the site plan.
4. All disturbed areas shall be revegetated prior to issuance of the certificate of occupancy. Topsoil in a quantity to cover disturbed areas to a depth of 3" must be retained on site.
5. All grading shall meet the adjacent property grades unless a grading easement is obtained from the adjacent property owner.
6. Any grade changes which, in the opinion of the Township Engineer require a soil retaining system shall be designed by a qualified structural or geotechnical engineer. A detail of the retaining structure, with calculations shall be submitted to the Engineering Consultant.
7. No filling or structures shall be placed in any floodplain unless compensatory volume is provided. All buildings shall comply with FEMA, and Township codes and ordinances regarding floodplain elevations.
8. Minimum standards for the construction of all asphalt parking areas and drives shall be 3 inches of MDOT #1100 bituminous mix, placed in two lifts, on 6 inches of compacted MDOT 21AA stone or 8 inches of compacted 22A gravel.
9. All concrete areas shall be constructed in accordance with MDOT standards.
10. When paved areas are excavated, asphalt areas shall be saw-cut and removed to a

distance equal to the depth of excavation (i.e. within a 1:1 slope from the bottom of excavation). Concrete shall be removed to the first joint past the distance equal to the depth of excavation. Compacted sand backfill is required in all excavations within a 1:1 slope of existing or proposed pavement.

C. STORM DRAINAGE SYSTEMS & RETENTION/DETENTION STANDARDS

Per Resolution No. 2018-12-17 A, Port Huron Township adopted the St. Clair County Drain Commission procedures and design criteria for stormwater drainage in development plans. Please reference St. Clair County Drain Commission Standards.

D. WATER SUPPLY AND DISTRIBUTION SYSTEMS.

1. Water systems shall be looped (2 or more sources of supply) whenever possible. It shall be the decision of the Township Engineer whether a water system must be looped.
2. All water mains shall be installed in a public street right-of-way, or in easements exclusively reserved for such use. All easements shall be a minimum of 12' wide and shall be dedicated to the Township.
3. No water mains shall be installed closer than 10' distant from any building, swimming pool, or other structure or with less than 10' horizontal separation (measured edge-to-edge) from any sanitary sewer, storm sewer or sewer manhole.
4. Water mains shall be a minimum of 8" diameter except for hydrant leads which may be 6" diameter.
5. Hydrant leads over 100' long shall be 8" diameter.
6. Water mains shall be installed with a minimum of 5'-6" of cover over the pipe except at gate wells where they shall be installed with a 5' depth of cover, so that a standard valve key can be used to operate the valve.
7. Valves and gate wells shall be so located that:
  - a. No more than 800' of water main will be out of service at one time.
  - b. No more than four valves must be closed to isolate a section of water main.
  - c. In general, the number of water services to buildings will be balanced between valves. (Note: Location and size of each service line shall be shown on the plans.)
  - d. In general, at least one hydrant located per item 8 (below) will remain in service at all times.
  - e. Ends of mains shall be stubbed for future extension.

8. Distribution systems shall be designed to be capable of delivering a minimum of 1,000 gallons per minute at 20 pounds per square inch pressure at each hydrant.
9. Hydrants shall be located:
  - a. At maximum intervals of 500' along residential streets, at cul-de-sacs ends, street intersections and watermain dead ends.
  - b. So that the most remote part of every commercial building can be reached from a minimum of two hydrants, utilizing a maximum unobstructed hose length of 300' from any hydrant.
  - c. So that they are readily accessible by fire fighting equipment. An improved all-weather-surfaced road or drive, at least extending to within 15' of each hydrant, shall be provided.
  - d. So that they are at least 50' distant from any building.
10. Traffic islands, with 6" concrete curbs shall be provided for hydrants located in paved areas, to protect them from accidental damage by vehicular traffic.
11. In traffic island areas 6 ft. hydrants shall be used.
12. Water service leads shall be less than 100' and for multiple type uses the following minimum sizes shall apply:

<u>NUMBER OF RESIDENTIAL UNITS PER BUILDING</u>	<u>WATER SERVICE SIZE</u>
1	1"
4	1-1/2"
12	1-1/2"
16	2"
24	2"
32	3"

13. The watermain shall be extended across the entire frontage of the site. Size and location shall be dictated by the Township Engineer.
14. All watermain quantities must appear on the plans.
15. All notes, details and specifications found on the "Watermain Standard Details" sheet(s) shall apply.

E. SANITARY SEWER SYSTEMS.

1. Generally, no sewer shall be less than 8' in depth to the invert below crown of road, and in no case shall have less than 4' of cover.

2. Pipe materials and joints as well as standard construction details for manholes, drop connections, sumps, house lead, and risers shall be in accordance with the current standards of Port Huron Township.
3. A listing of the current "Township Sanitary Sewer Construction Notes" shall be incorporated in the plans and all requirements and all regulations contained in these notes shall be followed.
4. The "Standard Bedding" details of the Township shall apply for type of pipe utilized.
5. Service leads to buildings shall be a minimum 6" diameter and a maximum length of 150'. Approved cleanouts shall be located at intervals of no more than 75', and at all changes in direction.
6. Service leads shall be installed at a minimum one percent (1%) grade.
7. Any sewer serving more than one building shall be a minimum 8" sewer with manholes. Any sewer serving more than one property shall be a public sewer.
8. No sanitary sewer shall be installed closer than 10' distant from any building, swimming pool or other structure.
9. There shall be a temporary 1 ft. sump in the furthest downstream manhole for construction and testing purposes.
10. The last run (furthest upstream run) shall have a minimum grade of 1%, unless approved by the Township Engineer.
11. All leads to commercial or institutional food service operations shall have a grease interceptor sized as specified in the Michigan Plumbing Code. The kitchen facilities only shall be connected to this interceptor.
12. Downspouts, foundation drains, weep tiles or any conduit that carries stormwater or groundwater will not be permitted to discharge into the sanitary sewer system. Floor drains and truck wells shall connect to the sanitary sewer.
13. Extension of the sanitary sewer across the entire frontage of the site is required. The size and location shall be as required by the Township Engineer.
14. Sanitary sewer will be located so as to provide unrestricted access for maintenance and inspection. Wherever possible the sanitary sewer should be located within 15 feet of a paved road or parking area.
15. Both existing and proposed ground elevations shall be shown on profiles.
16. Utility crossings (sanitary, storm, water, house lead, and water services), with elevations, shall be shown on all profiles. Generally, a minimum of 18" clearance, vertically shall be provided between utilities. Watermain should be above sanitary sewer.

17. Lengths of run between structures, pipe size and class, percentage of grade, and elevation of tops of frame and cover, and dimensions to all leads from the nearest down-stream manhole shall be indicated on the profiles of storm and sanitary.
18. External drop connections shall be used for all manhole locations with 18 inches or more difference between inverts of pipes unless otherwise approved.
19. Where pipes of differing sizes join in a manhole the 8/10 flow lines shall match.
20. Where an angle of less than 135 is created by two pipes in a manhole, the outflowing invert shall be a minimum of 0.1 ft. lower than the inflowing invert.
21. All public sanitary sewers shall be installed in a public street right-of-way or in an easement exclusively reserved for such use. All easements shall be 20' wide and shall be dedicated to the Township.
22. Additional items pertaining to sanitary sewer capacities and depths of cover for pipe materials, etc., can be found in the "Sanitary Sewer Standard Details" sheet(s). All notes, standards and specifications found on the "Sanitary Sewer Details" sheet shall apply.

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