

# PROCESSING PROCEDURES AND GUIDELINES FOR SUBDIVISIONS AND SITE CONDOMINIUMS

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Washtenaw County  
Health Department

**Environmental Health Division**  
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## **Section 1: Pre-Preliminary Plat / Site Condominium Review**

The developer, or a designated representative, is encouraged to consult with the Washtenaw County Environmental Health Division before a Preliminary Plat or a Site Condominium is prepared. The Division will examine the plan for suitability of an on-site sewage disposal and well water supply and determine the potential availability of municipal sewer and water. The Division will make recommendations using the following:

- a) Existing available records
- b) Soils maps
- c) Well information of surrounding properties in the vicinity of the development
- d) USGS Topographical maps
- e) Aerial photos
- f) Municipal water and sewer plans
- g) Other available records

## **Section 2: Review Process**

Subsequent to receipt of tentative approval by the municipality, the preliminary plat must be transmitted to Washtenaw County Environmental Health Division in accordance with Act 288, Public Acts of 1967 and Act 59, Public Acts of 1978, as amended. Only one (1) copy of the plat shall be submitted for review purposes. When all the requirements have been completed for approval, five (5) final copies of the plat must be submitted to this office.

### **2.1 Availability of Municipal Water and Sewer**

The submission of plats to the Washtenaw County Environmental Health Division for review purposes is based on the type of water supply and sewage disposal systems to be provided. Before an on-site water or sewage system can be considered, it must be determined that public water and/or sanitary sewer facilities are not available. There are cases where political boundaries provide almost insurmountable obstacles to the extension of municipal services to nearby subdivisions. Each case of availability will be decided on its own merit. In determining availability, the following shall be given consideration:

- a) Distance to the nearest public services from the proposed subdivision (less than one-quarter mile warrants consideration).
- b) Planned public services that are to be installed and ready for use within a one (1) year period.
- c) Topography between the proposed subdivision and the public services.
- d) Capacity of existing public system.
- e) Policy of local municipality on service extension.
- f) Population density of surrounding area to determine need for public service. (See Appendix I)

### **2.2 Initial Submittal Requirements**

A completed plan shall include the following:

- a) A site plan that shows the proposed lot layout, individual lot areas, with total acreage and minimum lot size noted.
- b) Legal description of the property.
- c) Clear legible contour lines with either one (1) foot or two (2) foot increments referenced to USGS datum.
- d) All streams, drains, and ponds within two hundred (200) feet of the proposed subdivision.
- e) Depressions clearly marked by standard notations.
- f) Benchmarks, if required.

- g) All easements and utility lines.
- h) The one hundred (100) year flood plain elevation of streams as established and approved by the Michigan Department of Environmental Quality (MDEQ).
- i) Boring logs of any previous soils work and location of borings.
- j) Any existing wells, cisterns, septic tanks and/or drainfields.

### 2.3 Soil Evaluation

Contact the Environmental Health Division to schedule a site visit. The site visit must include a design engineer and a representative from the Division. The design engineer shall locate and log all soils test pits. Before any review may be conducted, all applicable fees must be paid, and the application must be deemed complete. The design engineer shall certify, in writing, that test pits are accurately located on site plans.

- a) A minimum of two (2) backhoe cuts in the proposed drainfield in the presence of a WCEHD representative is required.
- b) All test pits must be logged, accurately located by the engineer and submitted with subsequent plat provisions.

### 2.4 Additional Information Required Before Washtenaw County Environmental Health Division (WCEHD) Grants Final Approval

- a) Completed Subdivision Site Report. (See Appendix II)
- b) Written statement from the local municipality operating the nearest water and sewer systems stating the availability and accessibility of public sewers and/ or water.
- c) Plan showing the following:
  - i. Proposed detention/retention pond.
  - ii. High water elevations of ponds, (greater than a quarter acre and without inlets), reflecting a twenty-five (25) year, six (6) hour duration storm.
  - iii. All existing septic tanks, drainfields, and ground water wells within two hundred (200) feet of the proposed development.
  - iv. The proposed rectangular area for each drainfield site must be shown on the plat.
  - v. A minimum area of four thousand (4000) square feet must be shown for both the primary and the reserve drainfield for each lot.
  - vi. The proposed well location for each lot.
- d) Boring logs of any previous soil work. Soil borings performed by rotary augers are not accepted for WCEHD inspection.
- e) All soils logs shall be presented in a profile form. Date of excavation, as well as grade elevations of test pits should appear on this log.
- f) Water well logs within one-eighth (1/8) mile of the proposed subdivision and within one-quarter (1/4) mile for sparsely populated areas.
- g) All plans shall be prepared and sealed by a professional engineer or registered land surveyor.
- h) All field work such as grading of the drainfield areas or deep-cut drainfield construction shall be certified by a professional engineer or registered land surveyor. The written certification shall acknowledge that the work has been completed and meets all approved plans.

### **Section 3: Subdivision Test Wells and Hydrogeological Study Procedures**

These procedures are intended to test unconsolidated formations for a water supply for single-family dwellings in a proposed subdivision. The procedures may be modified to conform to particular site and development conditions.

#### **3.1 Types of Groundwater Supplies**

The Michigan Safe Drinking Water Act, Act 399, P.A. 1976, as amended, defines these water supplies:

- a) "Type I" or "Community Water Supply": A year-round service to twenty-five (25) or more residents or fifteen (15) or more service connections. Permits are required from MDEQ.
- b) "Type II" or "Non-community Water Supply": A non-residential water supply that serves water for drinking or household purposes to at least 15 service connections. Permits are required from MDEQ or local health department.
- c) "Type III": All public water supplies that are not Type I or Type II.

#### **3.2 Private Groundwater Supply Wells**

If the lots in a proposed development are to be supplied by individual wells, a hydrogeological study must be submitted to the WCEHD as required under the provisions of the Subdivision Control Act, P.A.288 of 1967. It is the sole intent of the hydrogeological study to provide information on the suitability of the groundwater supply in terms of protection, quality and quantity.

A competent hydro-geologist and/or a Professional Engineer must document such work. The results of these findings shall be submitted to the WCEHD in a written report. The report and its contents shall follow the detailed format provided below.

#### **3.3 Scope of Work and Hydro-Geological Report Format**

The work to be done under this section consists of final surveying, developing, and testing of one or more production wells. The number of production wells is primarily dependent on the location of this development and the number of lots proposed.

***Sections 3.4 through 3.10 outline the format to be followed when preparing a hydro-geological study for a proposed development.***

#### **3.4 Preliminary and Background Information**

Under the preliminary and background section of the report, the following information shall be provided:

- a) Location of the proposed development
- b) Background information regarding the subject property such as previous use and any environmental issues that may be of concern.

#### **3.5 Requirements of Private Residential Wells**

- a) Minimum of ten (10) gpm yield.
- b) Minimum of ten (10) feet of clay protection above the water- bearing formation. The ten (10) feet continuous clay barrier must be found below the first twenty-five (25) feet from ground surface. If ten (10) feet of clay protection is not available, as shown above, then the bottom of the casing or top of the screen must be fifty (50) feet below the static water level in the well casing. In such case, the minimum horizontal distance between a drainfield and a well shall be no less than one-hundred fifty (150) feet.
- c) Analysis of existing water supplies.
  - i. This analysis shall provide information about existing wells located within a reasonable distance (usually a 1/4 mile radius) from the proposed development.
  - ii. Copies of all well logs, (installed since 1968), within one-quarter (1/4) mile from the proposed development shall be obtained from the WCEHD or MDEQ and be included with the report. Providing these copies to the WCEHD without proper analysis is not acceptable.

- d) Analysis of existing groundwater supplies shall include the following:
  - i. Information on low-yield wells and dry holes in the area under consideration.
  - ii. Information on groundwater contamination, if any.
  - iii. Information on aquifer vulnerability.

**3.6 Test Well(s)**

Number of Test Wells Required

Depending on the location, geometry and the number of lots proposed, the following chart shall be followed to determine the number of test wells:

Number of lots	Number of test wells
1-25	3
26-50	4
51-100	5
101+	To be determined

If nearby well records and reliable hydro-geological data are available that show the aquifer to have a large potential in regards to groundwater supply, a reduction in the number of test wells may be granted at the discretion of the WCEHD.

The test well(s) location shall be coordinated between the WCEHD and the Hydro-geologist/Engineer. The following are required prior to test well development:

- a) A scaled plan showing the location of the test wells shall be submitted to the WCEHD for approval prior to commencement of the work.
- b) Applicable permits must be obtained from the WCEHD prior to commencement of work.
- c) A well driller registered in the state of Michigan shall drill all test wells.
- d) An accurate well log describing the formation and related information as required under P.A. Act 368, 1978, must be obtained. The log should show every change in formation.
- e) The well should be drilled to a minimum of 100 feet or through an impermeable layer of over 10 feet in thickness. The screen should be set at the deepest water-bearing formation. If this information is unacceptable, a shallower formation could be tested or the well drilled deeper, whichever is most acceptable.

**3.7 Determining Groundwater Flow Direction**

The hydro-geological investigation shall determine the groundwater flow direction as part of this study. Groundwater flow direction may be made by either triangulation (Three Well Method) or by contouring of the groundwater.

**3.8 Aquifer Pump Test**

The well shall be pumped until clear. The contractor shall furnish and install necessary pumping equipment, including throttling devices if necessary to control rate of discharge, and temporary discharge pipe and fittings to conduct water away from the site. Controls and appurtenances shall be capable of being operated without interruption. A pumping test shall be made with the pumping rate and the pumping level noted.

All test wells within the development shall be pumped using standard or accepted practices to determine pumping capacity as gallons per minute (gpm). For developments of one-hundred (100) lots or less, one (1) aquifer-pumping test shall be conducted on a test well closest to the center of the planned development. Additional aquifer pumping tests shall be conducted for each additional group of one-hundred (100) lots or any portions thereof.

### Aquifer Pumping Procedures

The aquifer test is one of the most accurate methods that can be used to estimate aquifer parameters. An aquifer test consists of a production or pumping well, which discharges groundwater from the aquifer and observation wells from where the drawdown/recovery in the water level is measured. Two observation wells are considered appropriate for thorough test results. Additional observation wells may be required as determined by the WCEHD. The pumping and observation wells may be constructed in such a way to allow later conversion to a potable drinking water supply, if the proposed development has received approval for location of said observation well and both the groundwater and wastewater systems. The following procedure shall be followed when conducting an aquifer-pump test:

- a) The observation wells shall be installed at right angles to each other. The location of the observation wells shall be on the nearest adjacent lots from the pumping well. The observation wells may consist of adjacent wells terminated in the same aquifer and not in service during the aquifer test or wells constructed for the sole purpose of obtaining drawdown measurements during the aquifer test.
- b) Static water level readings in all wells shall be taken prior to the pumping test. It is highly recommended that such reading be taken after static water stabilization has occurred and over a period equal to at least one-quarter (1/4) of the anticipated lengths of the aquifer test.
- c) The pump driver must maintain a constant flow for the anticipated duration of the test.
- d) The “pump well” must operate for a period of no less than four (4) hours and at a pumping rate of at least twenty (20) gpm. This pumping rate should allow significant drawdown to occur in all of the observation wells over the time of the test.
- e) Observation wells and pumping well water level measurements shall be taken at logarithmic intervals. A recommended schedule for drawdown measurements from the start of pumping:
  - i. Every minute for the first 10 minutes.
  - ii. Every 2 minutes from 10 to 20 minutes.
  - iii. Every 5 minutes from 20 to 30 minutes.
  - iv. Every 15 minutes from 30 to 60 minutes.
  - v. Every 3 minutes from 60 to 180 minutes.
  - vi. Every 60 minutes from 180 minutes to the end of the test.
- f) Accuracy of drawdown measurements should be within 0.01 feet
- g) Groundwater recovery measurements shall be made in accordance with the drawdown schedule above. These measurements shall be recorded until all water levels in all wells are within 95% of the original static water level for not less than one-third (1/3) the length of the pumping period. A recommended schedule from the end of pumping (recovery):
  - i. Every 2 minutes for the first 10 minutes.
  - ii. Every 5 minutes for the next 20 minutes.
  - iii. Every 10 minutes for the next 30 minutes.
  - iv. Every 15 minutes for the next hour.
  - v. Every 30 minutes for the next 2 hours.
  - vi. Every 60 minutes through the conclusion of the test.

### **3.9 Water Quality Testing**

Groundwater samples shall be collected to conduct bacteriological and chemical analysis from the test well. The samples shall be tested by a MDEQ certified laboratory and the results included in the hydro-geological report. The following parameters shall be analyzed for each test well within the proposed development:

Chemical Analysis

The following parameters shall be tested:

Parameter	MCL
Chloride	250 mg/L
Fluoride	4.0 mg/L
Hardness (CaCO <sub>3</sub> )	<200 mg/L
Iron	0.3 mg/L
Nitrate	10 mg/L
Nitrite	1.0 mg/L
Sulfate	250 mg/L
Specific Conductance	850 mmhos

Complete Metal Scan

The following inorganic chemicals shall be tested:

Parameter	MCL
Antimony	0.006 mg/L
Arsenic	0.05 mg/L
Barium	2.0 mg/L
Beryllium	0.004 mg/L
Chromium	0.1 mg/L
Mercury	0.002 mg/L
Nickel	0.1 mg/L
Thallium	0.02 mg/L
Selenium	0.05 mg/L

Volatile Organic Compounds (VOC)

The above test shall be conducted using EPA method 502.2 or 524.2.

***Additional sampling may be required depending on site location and condition. Similarly, a reduction in sampling requirements may be granted if enough information is available to allow for such reduction. Rock wells must be tested for explosive gases.***

**3.10 Final Hydro-geological Report**

Upon completion of all the necessary fieldwork as outlined above, and upon generating all the pertinent data, a written report shall be submitted to the WCEHD office for review and approval. The report shall follow the general outline as presented below:

- a) Preliminary and Background Information
- b) Project location
- c) Ideal conditions for private residential wells (in subdivisions ten (10) gpm minimum yield)
- d) Analysis of existing residential wells
- e) Aquifer Pumping Test

- f) Test well data and location map
- g) Groundwater parameters
- h) Recovery data
- i) Prediction of future drawdown
- j) Conclusions
- k) Recommendations about the groundwater supply.

***The Hydro-geologist must certify in writing that the groundwater aquifer will supply the proposed development on a long-term basis and is adequate in terms of quality and quantity.***

The above information can be found by using the following sources:

- a) Definition of terms used in the report
- b) Aquifer test results
- c) Calculation methods used to determine aquifer parameters
- d) Area well logs
- e) Analysis of aquifer pumping tests
- f) Test well logs
- g) Water quality test results

Test wells, if constructed in accordance to applicable standards, can be used as a drinking water supply upon approval of WCEHD.

#### **Section 4: Deep Excavation Drainfield Requirements**

If permeable soil for construction of a standard disposal field cannot be found at the surface, there may be dry porous sand and gravel soil at greater depths that can be developed by excavation and backfill for disposal of septic effluent. The following should be adhered to when deep cut sewage disposal systems are utilized in a subdivision project:

- a) No excavation of more than twenty (20) feet from undisturbed original grade shall be permitted.
- b) The thickness of the approved material must be uniformly four (4) feet or greater.
- c) Excavation should not be made into or through saturated soils. Where required, the minimum lot size is one acre.
- d) The T-trench cut down is acceptable. That is, 100% of the required drainfield surface area should be excavated and backfilled for the first 6 feet. The remaining cut down to suitable soils can be made utilizing an excavation centrally located in the drainfield and exposing a minimum of 50% of the required surface drainfield area.
- e) Backfilling of pre-excavated drainfield sites should only utilize clean medium or 2NS sand. Compaction using machine equipment is not allowed. Overfilling the deep cut is required to compensate for soil settlement between the time the fill is placed and when the system is utilized.
- f) The four (4) corners of the pre-excavated drainfield site shall be marked with 4 x 4 wooden posts.
- g) The location of the pre-excavated drainfield area must be clearly marked on the plans submitted for approval. Labeling or cross-hatching is acceptable.
- h) A WCEHD representative must inspect the cut down and fill operation. The engineer must also inspect this work and submit his or her written certification to WCEHD prior to final approval by this office.
- i) The WCEHD and MDEQ will jointly make the final decision on approval of a cut down proposal when cuts will be in excess of 10 feet, but not more than 20 feet Hydro-geologic information verifying the protection of usable aquifers is necessary. (See Appendix III)

**Appendix I: Connection of Subdivision to Public Utilities**



JAMES J. BLANCHARD, Governor

**DEPARTMENT OF PUBLIC HEALTH**

3500 N. LOGAN  
P.O. BOX 30035, LANSING, MICHIGAN 48909  
Raj M Wiener, Acting Director

**M E M O R A N D U M**

TO: Environmental Health Directors  
County, City, and District Health Departments

FROM: Thomas C. Hoogerhyde, P.E., Chief *A*  
Division of Environmental Health  
Bureau of Environmental and Occupational Health

SUBJECT: Connection of Subdivisions to Public Utilities

DATE: 04/14/89

The decision concerning when to require the extension of municipal sewer and/or water service to a subdivision project considered for approval under the Subdivision Control Act, Act 288, P.A. of 1967, can be a difficult one. Traditionally, the state and local health departments have utilized engineering and economic considerations as the determining factors. Increasingly, however, we are forced to consider political boundaries in these determinations.

Rule 560.405(a) promulgated by the Michigan Department of Public Health with the Subdivision Control Act, states:

"Notice of approval or rejection of the preliminary plat shall be sent to the proprietor and the governing body within 30 days of receipt of the preliminary plat and site report. A preliminary plat shall be rejected for one or more of the following reasons:

(a) Failure to provide for installation of public water and sanitary sewer facilities where they are available for immediate use for the subdivision or where the proposed subdivision is in a location for which water and/or sewer services are planned."

In the past, municipal utilities were deemed available when those utility systems had capacity to serve the project in question and when extension of the systems to the project were determined to be economically feasible. When the subdivision and the utility systems were located in different municipalities and agreements between those municipalities for utility service were not in existence, annexation was often a requirement for obtaining service. In those situations, the developer was directed to take the necessary steps to have the project annexed to the municipality and thereby obtain the required service.

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April 14, 1989

In recent months, we have been involved in projects where the township losing property strongly objects to the annexation. When a township objects to annexation, we must consider key provisions of the previously cited Subdivision Control Act rule as well as a provision of the Mandatory Connection Provision of the Public Health Code, Act 368, P.A. of 1978. As stated previously, the Subdivision Control Act rule requires that the utility systems be "available for immediate use." In addition, Section 12753(2) of the Public Health Code states:

"Structures in which sanitary sewage originates lying outside the limits of a city, village, or township in which the available public sanitary sewer lies shall be connected to the available public sanitary sewer after approval of both city, village, or township in which the structure and the public utility lies and if required by the city, village, or township in which the sewage originates."

These statutes require that the utility systems be "available for immediate use" and that in the case of sewers, when the project is in one municipality and the utility systems are in another, both municipalities must approve the connection.

If the township losing property objects to the annexation, the only resolution is a hearing before the Boundary Commission. Such hearings are associated with lengthy delays and the requirements of the "available for immediate use" test cannot be met. In addition, if the township objects to annexation, they are also not approving the connection.

Accordingly, when considering these matters, the following procedure should be followed. An analysis of whether public utilities are available from an engineering and economic basis should be made by the developer's consulting engineer. Michigan Department of Public Health staff should be consulted concerning this determination. If public utilities are deemed available, the developer should be directed to make arrangements to have them extended to serve the project.

If the utility systems are owned and operated by a municipality other than the municipality the project is located in, and if annexation is required as a condition of service, the developer must request annexation. If the township where the project is located objects to annexation (resolution of township board) the utilities will not be considered available for immediate use and the project can be evaluated for utilization of on-site sewage disposal systems and/or individual wells.

Determination of public utility availability, conducted in this manner, will be consistent with the provisions of both the Subdivision Control Act and the Public Health Code.

TCH:JCA

cc: Lee E. Jager, P.E., Chief, Bureau of Environmental and Occupational Health  
cc: Cletus Courchaine, P.E., Chief, Division of Upper Peninsula  
cc: James K. Cleland, P.E., Acting Division Chief, Division of Water Supply

**Appendix II: Subdivision Site Report**



MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION

**SUBDIVISION AND CONDOMINIUM SITE REPORT**

*This information is required under authority of 1978 PA 368, 1978 PA 59, and 1967 PA 288.*

Review cannot be completed without providing this information.

<b>1. SUB CONDO</b> <input type="checkbox"/>	<b>2. NAME OF PROPOSED SUB/CONDO</b>	<b>3. COUNTY</b>	<b>4. SECTION &amp; TOWNSHIP</b>
<b>5. PROPRIETOR</b>		<b>6. ADDRESS</b>	
<b>7. INTENDED USE:</b> Single Family <input type="checkbox"/> Two Family <input type="checkbox"/> Multiple Family <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Other <input type="checkbox"/> _____			
<b>8. ADJACENT PROPERTY:</b> (a) Same Ownership? Yes <input type="checkbox"/> No <input type="checkbox"/> (b) Public Ownership? Yes <input type="checkbox"/> No <input type="checkbox"/> (c) Developed? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, type of development _____			
<b>9. NUMBER OF ACRES</b>	<b>10. NUMBER OF LOTS/UNITS</b>	<b>11. MINIMUM LOT/UNIT AREA (Ft<sup>2</sup>)</b>	
<b>12. WATER SUPPLY</b> Distance to nearest existing public water system _____ Is a public water system, all or in part, intended to be utilized for this development? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, type: <input type="checkbox"/> Municipal: Name _____ or <input type="checkbox"/> Community System Serving Proposal  <input type="checkbox"/> This development will utilize individual wells. Attach information to support suitability of the water supply such as well record data, water sample results, yield or performance testing data, and other hydrogeological information. (See Rules 404 thru 415.)  COMMENTS: _____			
<b>13. WASTEWATER TREATMENT AND DISPOSAL</b> Distance to nearest existing public sewer system _____ Is a public sewer system, all or in part, intended to be utilized for this development? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, type: <input type="checkbox"/> Municipal: Name _____ or <input type="checkbox"/> Community System Serving Proposal  <input type="checkbox"/> This development will utilize individual onsite systems. Attach or record on the preliminary plat, a report of soil profile evaluations to a minimum of six (6) feet (using the USDA classification system). The report shall include soil horizon depths, soil texture, soil structure, soil mottling, and depth to high groundwater elevation or bedrock. (See Rules 416, 420, and 421.)  COMMENTS: _____			
<b>14. ENGINEER/SURVEYOR COMPLETING SITE REPORT FORM</b>  Name: _____ LICENSE #: _____ Firm: _____ Address: _____ _____  Engineer/Surveyor statement of site suitability for onsite water supply and/or onsite sewage treatment and disposal. See Rule 403(g). Include statement below or attach.  _____ _____ _____ _____  Signed: _____ Date: _____			

The Department of Environment, Great Lakes, and Energy, Onsite Wastewater Program, or authorized local health department, receives 3 copies of the site report if a public water or public sewerage system is not available.

Appendix III: Utilization of "Deep Cut" On-site Sewage Systems in Subdivision Projects



JAMES J. BLANCHARD, Governor

DEPARTMENT OF PUBLIC HEALTH

3423 N. LOGAN  
P.O. BOX 30195, LANSING, MICHIGAN 48909

Raj M Wianer, Director

MEMORANDUM

TO: Environmental Health Directors DATE: 9/22/89  
County, City and District Health Departments

FROM: Thomas C. Hoogerhyde, P.E., Chief *TH*  
Division of Environmental Health  
Bureau of Environmental and Occupational Health

SUBJECT: Utilization of "Deep-Cut" On-Site Sewage Systems  
in Subdivision Projects

As you know, approval of the utilization of individual on-site sewage disposal systems in a proposed subdivision project requires that suitable soil conditions exist on each lot in the project. Suitable soil conditions have traditionally been defined as coarse textured soils such as sand, sandy loam and loamy sand without seasonal high water table in the upper six feet.

As it becomes more difficult to find such conditions at the surface, the practice of cutting through unsuitable surface soils has been utilized in an attempt to reach coarse textured soils which are suitable for sewage disposal. These systems have come to be known as "deep-cut" systems. Such systems are being built in numerous jurisdictions throughout the state. The purpose of this memo is to insure uniformity in the utilization of "deep cuts" in subdivision projects approved throughout the state under the Subdivision Control Act.

The following conditions and requirements should be adhered to when "deep-cut" sewage systems are utilized in a subdivision project.

1. A suitable site for the deep cut system must be identified on each lot. A minimum of two borings or excavations identifying the sewage disposal area is required. These borings or excavations must be deep enough to verify a minimum of 4 feet of acceptable permeable soil exists below the clay overburden.
2. Soil conditions in excess of 20 feet below the surface should not be considered. That is, for subdivision projects, deep cuts in excess of 20 feet should not be allowed.

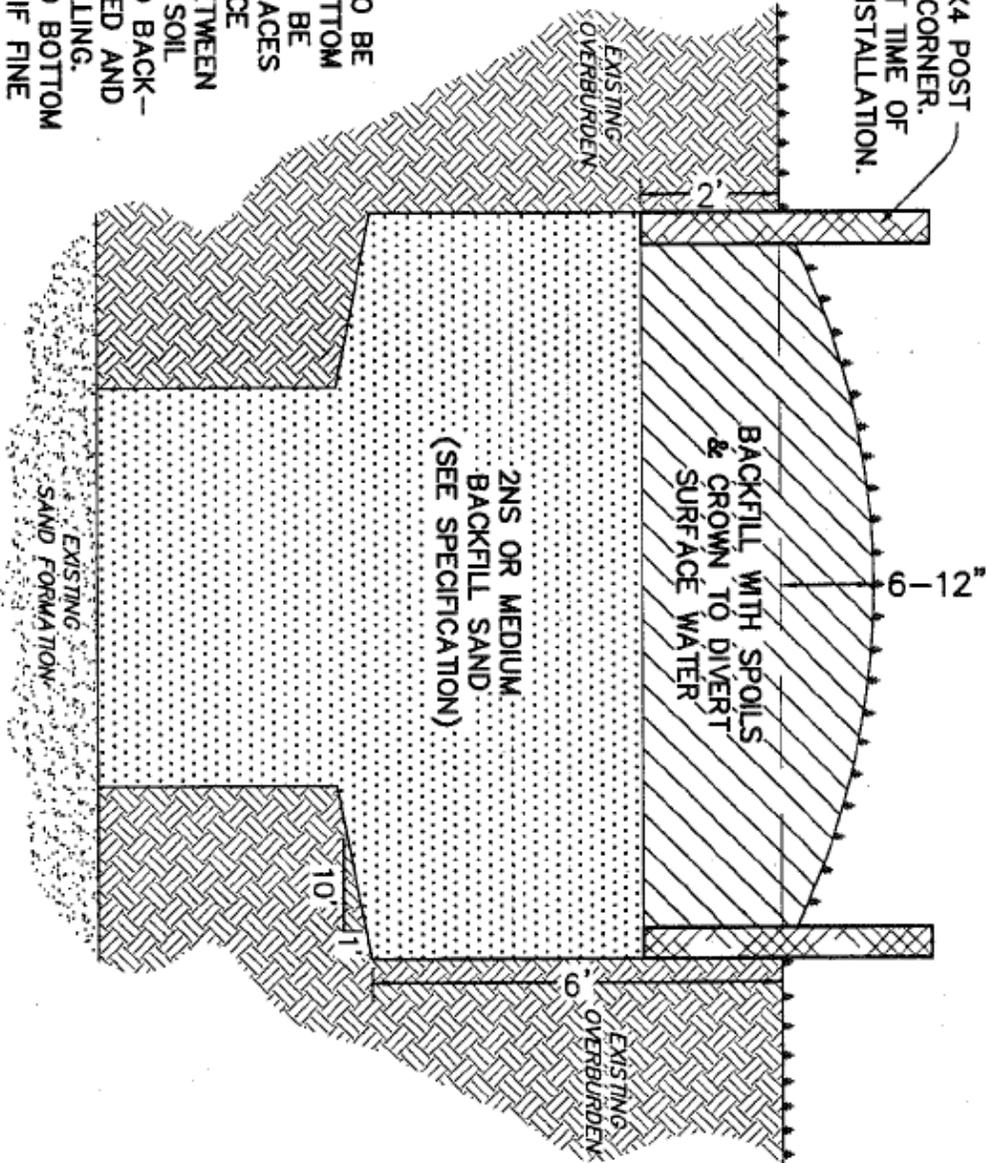
Utilization of "Deep-Cut" On-Site Sewage Systems  
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3. When a site is approved that requires a deep cut in excess of 10 feet, but less than 20 feet, the site should be prepared for sewage disposal prior to the plat being recorded. Such a site is prepared by making the cut through the unsuitable overburden and backfilling it with suitable material.
4. Suitable backfill material for deep cut systems is clean, medium to coarse sand.
5. Deep cuts should not be made into or through saturated soils.
6. For systems where the cut is between 10 and 20 feet, a minimum lot size of 1 acre should be maintained. Where cuts are between 6 and 10 feet, lot size should be carefully reviewed to insure that adequate area is available.
7. The T-trench cut down system is acceptable. That is, 100% of the required drainfield area should be excavated and backfilled for the first 6 feet. The remaining cut down to suitable soils can be made utilizing a trench centrally located in the drainfield and having an area 50% of the required drainfield area.
8. The issue of compaction should be handled by overfilling the cut down. Sufficient compaction must take place between the time the fill is placed and when the system is built.
9. The cut down and fill operation for deep cuts between 10 and 20 feet should be inspected by local health department personnel.
10. The final decision on approval of a cut down proposal, where cut downs will be in excess of 10 feet but not more than 20 feet, should be jointly made by Michigan Department of Public Health and the local health department. Hydrogeologic information verifying protection of useable aquifers is necessary.

TCH:JCA

cc: Division of Upper Peninsula  
cc: Michigan Department of Commerce, Subdivision Control & County Zoning  
cc: MALPH

BOTTOM OF EXCAVATION TO BE 800 SF MINIMUM. THE BOTTOM OF THE EXCAVATION MUST BE CLEAN & FREE OF ANY TRACES OF HEAVY SOIL OR SURFACE WASH. THE INTERFACE BETWEEN THE NATURAL PERMEABLE SOIL FORMATION AND THE SAND BACK-FILL MUST BE UNCOMPACTED AND FRIABLE PRIOR TO BACKFILLING. THE SIZE OF THE EXPOSED BOTTOM AREA MAY BE INCREASED IF FINE TEXTURED SOILS ARE ENCOUNTERED.



**PRE-EXCAVATED DEEP EXCAVATION  
DRAINFIELD (SUBDIVISION  
SITE CONDOMINIUM, P.U.D.)**

(NO SCALE)