ORANGE COUNTY DEPARTMENT OF HEALTH
REALTY SUBDIVISION CHECKLIST

I. Application

1. A check payable to the Orange County Health Department in the amount of $25.00 per lot plus $200.00 for each lot on public sewers and $400.00 ($600 if over 1000 gpd) for each lot served by an individual subsurface disposal system.
2. OCHD Realty Subdivision Application (formerly H.D. Gen. 157), completely filled out and signed by both the engineer and the applicant or a responsible official of the company or corporation that is applying.
3. Proof of preliminary planning board approval.
4. An engineer's report.
5. Two complete copies of the plans must be provided for our use. Plans must be legible, and in final approvable form, and must be signed and sealed by a New York State Licensed Professional Engineer and Land Surveyor.
6. For proper definition of the Total Area, refer to Article 11, Title II of the New York State Public Health Law for definitions of Lot, Subdivision, and Tract. In general, all land within ½ mile under common ownership within the past 3 years must be included in the total area indicated on the application. A description of any subdivision of the land within the prior 3 years should be included with the submission. If any subdivision includes or will include 50 lots or more, provisions for community water and sewer facilities must be addressed (Part 74). Furthermore, consideration should be given to planning for central water and/or sewer facilities if subdivision of adjacent properties is anticipated to create a total of 200 lots or more (or an equivalent demand is expected) within 5 years. Providing dry waterlines and/or dry sewer lines may be recommended.
7. If the subdivision is to be served by a community water supply, the watermain extension and any other improvements must be submitted to this office as a separate project. Water supply facilities must be approved prior to approval of the subdivision. The engineer's report must provide a narrative description of water supply/distribution facilities, including design flow rates, materials, etc.
8. If the subdivision is to be served by a central sewage treatment facility, the sewage system must obtain any necessary approvals from the New York State Department of Environmental Conservation prior to the approval of the subdivision by this office. Be aware that some portions, such as private collection systems, may require the review and approval of this office under the realty subdivision application if they do not fall under the jurisdiction of the NYSDEC. The engineer's report must provide a narrative description of sewage facilities including design flow rates, materials, etc.
9. Alternative systems (as per sections 9 and 10 of Appendix 75A) shall not be permitted in realty subdivisions. No more than 25% of the lots may utilize shallow absorption trench systems.
10. Provide verification that any construction work performed within the watershed of a Public Water Supply source will be performed in a manner considered satisfactory to the water supplier and in compliance with any existing Watershed Rules & Regulations. If the property does not fall within a public water supply watershed, or if there will be no construction on the watershed lands, a statement to that effect must be provided on the plans and in the engineer's report.

11. The Design Professional will be required to submit scanned copies of the approved documents to the OCHD within 30 days following OCHD approval. Please provide an email address (in space provided on application) that will be used to submit these documents so that it can be entered in our Sharefile system. Failure to submit these documents may delay our review and/or approval of subsequent projects.

II. **Individual Wells** (Also refer to NYSDOH Appendix 5-B)

1. Well Siting

a. A set of plans should be submitted to the O.C.H.D. for selection of test well locations once the local planning board has substantially accepted the lot layout. Any pertinent information regarding potential impacts and/or concerns regarding water quality or quantity must also be reported at this time, including any known active or inactive hazardous waste sites, fuel storage, agricultural/orchard usages, etc. within 1 mile. These plans must include the lot layout, proposed well & sewage disposal system locations, topography, roads, etc. The pump test and water quality data must be included in the initial (complete) submission for realty subdivision approval. Laboratory chain of custody forms may be accepted in lieu of actual water quality results to provide a complete submission, providing that results are submitted prior to the actual time of our review.
b. Well site must be readily accessible to well drilling rig at time of initial construction and for subsequent maintenance and repairs. Consideration must be given to topography, wetlands and proposed structures during the siting process.
c. Wells should be located at least 50’ from the subdivision boundary.

2. **Quantity** – Expected stabilized well yields shall be determined as described in New York State Department of Health Appendix 5-B of Subpart 5-1, NYS Sanitary Code. Wells to be constructed and tested shall be specified by this Department.
   a. Proposed wells having an expected stabilized yield of 5 gpm (min.) should be provided for each lot.
   b. If testing indicates a stabilized yield of 2-5 gpm is expected; storage for 24 hours usage **must** be designed and installed. Storage within the well casing may be taken into consideration in accordance with NYSDOH Appendix 5-B.
   c. All lots must have a reliable supply of 2 gpm of water minimum.
   d. Combined pumping and/or monitoring of on-site test wells and existing wells on adjacent properties may be necessary to address concerns regarding known low yields in the surrounding area. A hydrogeological assessment by a qualified professional may be required.
   e. A well log using the NYSDEC Well Completion Report must be submitted for each test well. All applicable information, including minimum depth at which water may enter the well and the driller’s NYSDEC registration number, must be provided.

3. **Quality -** Each well chosen to be constructed shall be tested for quality as follows:

   a. If the aquifer is contaminated by coliform bacteria, development using individual wells shall not be permitted. Provide tests showing the water supply to be free of coliform bacteria.

b. Provide test results for the following water quality parameters. Tests must be performed by a New York State Certified Lab. If the results exceed the indicated level, provide a design for treatment.

Also provide test results for pH and alkalinity to show the level of corrosivity.

Sodium	>270 mg/l (note req'd)
Lead	5 ug/l (source water)
Nitrate	10 mg/l
Chloride	250 mg/l
Iron	0.3 mg/l
Manganese	0.3 mg/l
Iron& Manganese	0.5 mg/l
Sulfate	250 mg/l
Total Hardness	150 mg/l
Color	15
Odor	3
Turbidity	5 NTU

c. If the subdivision is located in the vicinity of petroleum storage, gasoline stations, or any other potential source of volatile organic contamination, testing using EPA Method 502.2 (with MTBE) or equivalent shall be performed.

d. If the subdivision is located in the vicinity of current or recent (within the past 10 years) commercial crop production (particularly corn), testing for atrazine, alachlor, and carbaryl will be required. The scans used to detect the 3 chemicals listed above will also detect a number of additional pesticides. The results for these additional pesticides should be included in the lab report.

e. If the subdivision is located in the vicinity of a landfill, hazardous waste site, or other area of possible concern, all tests as recommended by the New York State Department of Health, Division of Environmental Exposure, shall be performed on representative well(s).

f. Aquifers contaminated by organic chemicals exceeding Drinking Water Standards are unacceptable for individual well development on subdivisions.

g. If treatment facilities produce backwash or regeneration wastes, this effluent must be disposed of in the septic system, or a separate facility meeting the requirements of Appendix 75-A. The entire volume of discharge must be used as the design flow (i.e. design for peak day, not average day).

h. If hardness is above 150 mg/l, the following must be provided:
   i. Indicate the make and model of a proposed softener. Provide a catalog cut.
   ii. Provide a note indicating that softening utilizing a sodium salt adds 46 mg/l of sodium for every 100 mg/l of hardness removed (also consider mentioning that a potassium salt may also be used if increased sodium levels are of concern).
   iii. Indicate that softening is at the discretion of the homeowner.
   iv. All sewage disposal system designs must include an allowance for the backwash flow.

4. Construction: As per NYSDOH Appendix 5-B, indicate:

a. The anticipated well depth and type of overburden.

b. That a sanitary well seal and pitless adapter approved by the Water Systems Council must be provided (www.watersystemscouncil.org).

c. The material, diameter and depth of the well casing (as per AWWA A-100, latest edition) and the diameter of all drill holes. Be aware that if the depth at which water may enter the well is less then 50 ft., either there must be a minimum of 50 ft. of

properly grouted casing installed, or separations must be increased by 50% in accordance with Appendix 5-B, Table 1, Note 1.

d. Grouting requirements.
e. Height of casing: 12" min. above finished grade and 24" min. above the 100 year flood level.
f. Material and size of service line, minimum cover.
g. Electric lines in the detail.
h. Well pump and minimum height off bottom of well (Note: actual height off bottom of well may need to be specified if taking credit for water storage in well casing).

III. Site Plan

1. Locate all wells and sewage disposal systems within 300 ft. of the project and show them on the plan view or indicate that no such systems exist with an appropriate note on the plans.
2. Provide a site location map that will allow field personnel to find the site.
3. Topography including: 2' contours, proposed and existing buildings, foundations, stone walls, tree lines, fences, driveways, water courses, storm-drainage, wells and sewage disposal systems (existing and proposed). If the area of the sewage disposal system is relatively flat, 1' contours should be provided and the lowest sewerable elevation and appropriate invert elevations should be indicated for all related piping/structures.
4. Complete metes and bounds (including easements).
5. Provide a legend and clearly indicate the scale of the map.
6. Design a full replacement sewage disposal system for any building served by an existing system or provide proof that the existing system (with a 50% expansion area) was designed to current standards and construction certified by a New York State licensed design professional.
7. Show an appropriately sited well and sewage disposal system drawn accurately to scale, on each lot. The largest sewage disposal system for that lot for which a design is provided must be shown.
8. Show a proposed replacement location for any improperly sited, existing well within the project.
9. Required separations should be indicated in notes, charts, or in a typical lot layout detail.
10. Confirm that the wetlands determination has been accepted as accurate by the organization having jurisdiction for all wetlands within 200' of any proposed absorption area.

IV. Sewage Disposal System Design

(The O.C.H.D. has adopted a Design Policy & Standards to Appendix 75A & the 2012 NYSDOH Design Handbook that includes some additional guidance. The Design Policy & Standards is available as an Addendum to this checklist.)

1. **Engineer's Report –** Should include the following:
   a. Description of project
   b. Description of site, including the history of former uses of the land.
   c. Description of soil conditions
      i. Provide results, including date, for at least 2 deep tests and 2 percolation tests on each lot.
      ii. Note any bedrock, groundwater, mottling or impervious layers.
      iii. Provide field notes (i.e. depth, start/stop times) for all percolation tests. Tests must be stabilized. Subsequent runs that are faster than previous runs should be disregarded. Tests will be considered stabilized when the last 2 runs are within:
         a. 10% of each other for 0-10 minute tests.

b. One minute for 11-30 minute tests.
c. Two minutes for 31-60 minute tests.

iv. Discuss any percolation results less than 1 minute or greater than 60 minutes.

v. Discuss any areas in proposed fields which may be compacted (e.g. existing roadways, rock walls, buildings). Provide percolation tests in these areas.

vi. Describe any surface water or storm drainage that may impact siting of absorption fields.

vii. Describe any site work required (e.g. fill, curtain drains, etc.) to provide 4' min. of usable soil. Generally, this work must be completed prior to approval. When curtain drains are proposed, the potential for short-circuiting must be addressed.

d. For gravity dosed systems provide calculations showing 75-85% of distribution network volume discharged per dose.

e. For pumped systems:
i. Provide performance curves for specified pump(s).
ii. Calculate TDH.
iii. Provide calculations for pump settings to dose 75-85% of distribution network volume. (5-10 times network volume for pressure distribution).

f. Include current manufacturer's catalog "cut sheets" from a locally available supplier for all septic tanks, distribution boxes, drop boxes, dosing chambers/devices, pump chambers, pumps, etc.

2. **Plan**

a. Indicate the number of bedrooms, number and length of laterals, and location of soil tests (2 percolation tests and 2 deep tests on each lot). Indicate the date soil tests were performed. Be aware that the locations of the soils tests should be apparent during a preliminary site inspection that will be performed by this office; flagging would be appreciated.

b. Describe design flow rates.
i. If water treatment backwash/regeneration waste is added to the system. The entire volume must be added to the daily design flow and air gap detail shown.
ii. Describe any other unusual loads (e.g. spa tubs, garbage grinders, etc.)

c. Provide a minimum of 50% expansion area.

d. The reviewing engineer may require inverts be provided for the septic tank, dosing or pump chamber, distribution or drop box, first and last lateral, and lowest sewerable elevation (LSE) of the house. Typically they will be required on lots that are relatively flat, especially if drop boxes are used.

e. Provide surface water diversion swales.

f. Satisfy all separation requirements.

g. Show roof/footing drain discharge locations.

h. If curtain drains are proposed, show them discharging to grade, provide invert elevations, at highpoints, transitions from perforated to solid pipe and outlets. Show proper separations to absorption areas and screened outlets.
i. Building sewers shall be constructed of cast/ductile iron or Schedule 80 PVC, and shall not have bends exceeding 45°. Cleanouts shall be provided every 75' (min.) and at every 45° bend.

ii. The effluent line shall have cleanouts every 75' (min.) and at all bends of 45° or greater.

j. If grading (e.g. for road) will impact absorption areas, provide proposed contours.

k. The orientation of pipe inlets and outlets shown on the plans must be consistent with the details.

l. Subsurface absorption systems described in Sections 8b-8h of Appendix 75-A must meet the requirements found in that publication and the O.C.H.D.'s Design Policy and Standards (see addendum). Use of absorption trench systems is required where practical. Note that alternative systems described in Section 9 and 10 of Appendix 75-A are not acceptable for use in new construction on subdivisions.

m. If the area of a proposed field has a slope between 15% and 20%, the laterals must be spaced further apart as described in the Residential Onsite Wastewater Treatment Systems Design Handbook. No portion of the absorption field shall have a slope of greater than 20%.

3. Notes

a. When applicable, each of the following should be added to the plans as appropriately worded notes:

i. No lot is to be further subdivided without Orange County Department of Health review and approval.

ii. The design and location of sanitary facilities (water and sewer systems) shall not be changed.

iii. All wells and septic systems within 300 ft. of this project have been located and are shown on the plans.

iv. Trenches shall not be installed in wet soil. The sides and bottom of trenches must be raked. The ends of the laterals must be capped.

v. There shall be no regrading, except as shown on the approved plans, in the area of the absorption fields.

vi. Heavy equipment shall be kept off the area of the absorption fields except during the actual construction. There shall be no unnecessary movement of construction equipment in the absorption field area before, during, or after construction. Extreme care must be taken during the actual construction so as to avoid any undue compaction that could result in a change of the absorption capacity of the soil on which the design was based.

vii. No swimming pools, driveways, or structures that may compact the soil shall be located over any portion of the absorption field.

viii. This system was not designed to accommodate garbage grinders, jacuzzi type spa tubs over 100 gallons, or water conditioners. As such, these items shall not be installed unless the system is redesigned to account for them and reapproved by the Orange County Health Department.

ix. There must be an uninterrupted positive slope from the septic tank (or any pumping or dosing chamber) to the house, allowing septic gases to discharge through the stack vent.

x. The purchaser of each lot shall be provided with a copy of the approved plans and an accurate as-built drawing of any existing sanitary facilities, including NYSDEC well completion report.

xi. Provide notes for any of the following that may apply:

- Septic tanks should be inspected periodically and pumped every 2-3 years.

- Pump stations/dosing chambers should be inspected periodically by a properly trained person for proper operation, including high water alarms, venting and any physical damage.
- Distribution Boxes/Drop Boxes should be inspected periodically to assure that they are level and operating properly.

xii. *****Individual wells and sewage disposal systems shall no longer be constructed or used for household domestic purposes when public facilities become available. Connection to the public sewer system is required within 1 year of availability.

xiii. *****Orange County Department of Health plan approval is limited to 5 years. Time extensions for plan approval may be granted by the Orange County Department of Health based upon development facts and the realty subdivision regulations in effect at that time. A new plan submission may be required to obtain a time extension.

xiv. *****The approved plans must be filed with the Orange County Clerk's office prior to offering lots for sale and within 90 days of the last approval of final plans.

xv. A New York State licensed professional engineer (or other Design Professional as allowed by the NYS Education Dept.) shall inspect the sanitary facilities (water supply, any water treatment, and sewage disposal facilities) at the time of construction. Prior to occupancy of the dwelling, the engineer shall certify to the Orange County Department of Health and the local code enforcement officer that the facilities have been installed in accordance with the approved plans and that any septic tank joints have been sealed and tested for water tightness. A copy of the NYSDEC Well Completion Report must also be provided.

b. Each sheet must include a note indicating that it is incomplete and invalid unless accompanied by each of the other sheets in the set.

*** These notes must appear on sheet 1 of the plans.**

4. **Construction**

a. Septic tanks
   i. Make and model
   ii. Dimensions (length, liquid depth, baffles, tees, inverts, etc.)
   iii. Access manhole openings (20" min. in smallest dimension)
   iv. 12" max. earth cover
   v. 3" min. sand, pea gravel, or trench aggregate as bedding.
   vi. Sanitary tees with gas deflection baffles are recommended for all installations.
   vii. Analyze for flotation where appropriate.

b. Central Distribution Boxes
   i. Sufficient number of openings for system plus expansion area.
   ii. 12" maximum earth cover
   iii. 12" min. bedding of sand, pea gravel or trench aggregate.
   iv. Outlet inverts identical
   v. Baffle, extending vertically to inlet centerline, and laterally ~4" from inlet. May instead use sanitary tee, with adequate clearance from top and bottom of box.
   vi. 2" minimum sump.
   vii. 2" minimum drop between inlet and outlet inverts.
   viii. Flow equalizers are required on all outlets.

ix. Note that outlets must be used in a manner that will allow access to the expansion area without disturbing existing piping. A piping detail may be necessary if this cannot be clearly shown on the plan view.

c. Drop Manholes (not for use with dosing by gravity or pumping):
   i. Baffle or sanitary tee as per distribution box.
   ii. Cover and bedding as per distribution box.
   iii. Outlets to laterals 1" to 1 ½" below outlet to next box.
   iv. 2" minimum sump.
   v. 1" min. between the invert of the inlet and outlet to the next.

d. Absorption Fields:
   i. Sized as per Table 4A of Appendix 75-A, or manufacturer's installation manual, as appropriate.
   ii. All laterals the same length.
   iii. Maximum lateral length 60', 100' if dosed (by gravity or pumping).
   iv. Trenches to be 6' on center (minimum).
   v. 4' min. undisturbed soil between trenches.
   vi. If drop manholes are used, provide 2' min. of solid pipe between the box and trench. This section of trench should be backfilled with native material, not aggregate.

e. Absorption Trenches (pipe and aggregate):
   i. 2' min. width.
   ii. Bottom of trench to be set level.
   iii. 12" min. ¾"-1 ½" aggregate (washed gravel, crushed stone or manufactured tire derived aggregate), 6" min. under lateral, 2", min. over lateral.
   iv. Aggregate must be covered with (in order of preference) a permeable geotextile fabric, or 4" of hay or straw.
   v. 12" max., 6" min. earth back fill over appropriately covered aggregate, mounded for settling.
   vi. Gravity fed systems – slope laterals 1/32 to 1/16 inch per foot. If dosed, laterals should be set nearly level.
   vii. Perforations in pipe must face down.
   viii. Indicate size and material of pipes.
   ix. Do not install in wet soil. Rake sides and bottom of trench prior to placing aggregate. Ends of all laterals must be capped.

f. Gravity Dosing (dosing required with over 500' of laterals)
   i. Make and model and dimensions of equipment, including chamber and siphon.
   ii. 3" min. bedding of sand, pea gravel, or trench aggregate for chamber.
   iii. 12" max. earth cover over chamber.
   iv. Dimensions including high water level, draw down, pipe diameter, height of overflow, trap depth.
   v. Recommend high water alarms.

g. Pump Chambers
   i. Make and model and dimensions of pump chamber.
   ii. 3" min. bedding under structure.
   iii. Openings at grade must be lockable and watertight.
   iv. Indicate settings of controls.
   v. Indicate the size and material of discharge piping.
   vi. Address venting of the chamber.
   vii. Provide duplex pumps or 24 hour storage between the high water alarm and inlet invert elevations.

viii. Describe the alarm to be provided (audible/visual), including its location.
ix. Provide a note indicating that applicable NEC requirements are met.
x. Analyze for flotation where appropriate.
xi. Address protection of the force main from freezing.
xii. Cleanouts in force mains are not required, however provisions for periodic flushing of pressure distribution laterals are recommended.
xiii. Orifice shields are recommended for pressure distribution laterals.

h. Other Absorption Area Designs
   i. Installation must be detailed in accordance with manufacturer's instructions and any Health Department addenda.
   ii. Manufacturer's installation instructions must be included on the plans.

i. Miscellaneous construction items
   i. Indicate minimum slopes of all pipes in the sewage disposal system.
   ii. Polylock Seals, used in many precast products, allow a maximum deflection of 15°± from perpendicular which must be reflected throughout proposed designs.

5. **Joint Site Inspection**
   a. Onsite personnel must be knowledgeable and familiar with the project.
   b. Design soil test locations and absorption area corners must be accurately marked and in agreement with the plan view.

V. Miscellaneous

a. Identify plan sheets and details not for review or approval by Orange County Health Department (e.g. erosion control, road profiles, etc.). In general, sheets that do not require OCHD review and approval should be deleted from the set submitted to this office unless they contain information necessary for our review. All sheets remaining in the set must bear a note indicating that they are incomplete and invalid without the remaining sheets of the set (see IV. 3. b).
b. If frontage is on a State or County Highway indicate that the appropriate entrance permit must be obtained prior to beginning construction.
c. All information submitted must be legible.
d. If the property is located on a former orchard, the engineer must contact the OCHD regarding soil testing and remediation requirements. This may be done prior to receiving preliminary approval from the local planning board.
e. The oldest preparation date and most recent revision date for the set of plans must appear on sheet number 1.