



This handout has been prepared by Engineering Division staff to convey applicable requirements for engineering drawings for proposed individual residential development within the Village. Please be advised the subsequent information defines minimal drawing submittal requirements concerning the subject improvement and additional provisions may be warranted following a thorough review by staff.

#### COVER SHEET:

- Engineering consultant contact information (please include applicable email address)
- Subject address along with reference to neighboring property addresses
- North Arrow
- Scale (1" = 10' preferably)
- Location Map
- Project benchmark elevation and description (NAVD '88 Datum)
- **A FEMA reference benchmark shall be utilized for properties located within the regulatory floodplain**
- PE Seal in ink along with Civil Engineer's signature
- Signed/dated drainage Certification
- Date of drawing along with all subsequent revisions
- Index of sheets which outline the composition of the plan set

#### EXISTING CONDITIONS/DEMOLITION PLAN:

- Pre-existing building footprint along with all other existing hard surfaces delineated (i.e., driveway, patio, service walk, pool, shed, deck, etc.)
- Existing Village utilities (Storm, Sanitary, Water) including direction of flow, rim/invert elevations, & diameters
- Miscellaneous utility features within Village Right-of-Way (manholes, fire hydrants, street lights, utility poles, transformers, junction boxes, pads/pedestals, etc.)
- Existing topography (1 ft. Contours) of the subject property and extending a minimum 25 ft. into the adjacent properties to confirm existing drainage patterns
- Topography of existing roadside ditch (if applicable)
- Roadway Features (material composition, delineation of edge-of-pavement/curb, applicable elevations, etc.)
- Existing Easements referenced
- Applicable front, rear, and side yard setback dimensions
- Location of 6 ft. Construction Fence and Erosion Control (Silt) Fence
- Location of Stabilized Construction Entrance
- Location of disconnects for private utility services
- Size/type of all trees 6" dia. or greater at 4 ½ feet above adjacent ground on the subject property, extending a minimum 25 ft. into the adjacent properties and within entire limits of Village Right-of-Way.
  - This information will be displayed in chart format that includes the following: Tree#, DBH (Inches), Common name, Scientific name, Health, Form, Comment, & Action. See Tree Preservation Requirements guidelines

#### GRADING PLAN:

- Location of downspouts and direction of discharge. Downspouts shall be directed to the front or rear property lines and must splash on grade
- Proposed Building Footprint along with applicable hard surface (driveway, patio, service walk, pool, shed, etc.)
- Top-Of-Foundation (T/F) elevation of both adjacent neighboring structures
- Proposed T/F elevation of new residence
- Proposed Finished Grade (F/G) elevation at foundation
- Delineation of all proposed variations to foundation (i.e., step foundation, brick ledge, stoop, steps, etc.)
- Proposed Topography (1 ft. contours)
- Directional flow arrows clearly depicting proposed flow path
- Depiction of proposed side yard swales with flow line elevations at 20 ft. intervals, delineating all summit points ([G-11 Typical Side Yard Swale Detail](#))
- Include side yard cross-sections depicting adequate drainage; include the following cross-sections and elevations
  - 1) Front face of building
  - 2) Center of building
  - 3) Rear face of building
  - 4) 25 feet to rear of building
  - 5) 25 feet from front of building

- Elevation at the flow line (this spot elevation must also be delineated upon the plan view)
- Elevation at the respective lot line
- The finished grade elevation at the foundation
- The pre-existing profile that existed prior to the development
- Spot elevations of proposed fronting sidewalk (if applicable)
- Designated on-site Overflow Route (bold arrows), along with description of continual off-site path until reaching appropriate outlet
- Delineation of erosion control/silt fence limits along with all other erosion control devices
- If a proposed driveway is within three-feet of a common property line the installation of a barrier curb will be required
- All Sidewalk cannot exceed a maximum cross slope of 2%, including any portion through the driveway

### **UTILITY PLAN:**

- Location of proposed water service: 1.5" Type "K" copper water service along with Buffalo Box
- Buffalo Box to be placed in Village Right-of Way and out of pavement
- Location of proposed sanitary service: 4" PVC SDR 26 (with Ductile Iron Pipe through foundation over dig)
- Location of proposed sump pump discharge into underground connection (4" PVC SDR 26) with air gap
- Clean-outs are required for all service lines where the length exceeds 100', there is a change in direction, or a change in pipe material occurs
- All details pertaining to the required on-site drainage system on the property (see Stormwater Improvements)
- All applicable tree preservation measures (mulching, root pruning, auger/boring, etc.) as specified by Village Tree Preservation Officer: Mark Cacioppo
- Delineation of auger/boring of any service beneath public roadway pavement (open-cutting is impermissible)
- Confirmation of all applicable IEPA requirements (vertical/horizontal separation of water and sewer)

### **IMPERVIOUS SURFACE COVERAGE CALCULATIONS:**

- Detailed impervious coverage calculations provided in a tabular format of both existing and proposed conditions with delineation of the resulting net increase. (Dimensions of all existing and proposed impervious surfaces to be included on plans)
- Proposed impervious coverage calculations for the front yard are also required. The front yard is defined as the portion of the lot between the front property line and the recorded building line. A maximum impervious coverage of 30% is allowed for the front yard

### **FLOODPLAIN DEVELOPMENT:**

- Delineation of 100-Yr. BFE contour
- Delineation of scaled Regulatory floodway
- Stationed cross-section locations taken at 20 ft. intervals within the work limits of the floodplain
- Completed floodplain development permit
- Pre/Post Construction Elevation Certificate
- Request of Letter Of Map Amendment (LOMA) to FEMA
- Storage Analysis (if applicable) which will consist of:
  - Cover sheet (dated, signed/sealed by P.E.)
  - Cross-sections depicting the 10/100-yr BFE along with existing/proposed profile with cut/fill areas shaded
  - Cut/fill quantity derivation (in tabular format) amid the 0 to 10-yr BFE confirming balance (1:1)
  - Cut/fill quantity derivation (in tabular format) amid the 10 to 100-yr BFE confirming balance (1:1)

### **STORMWATER IMPROVEMENTS:**

An on-site drainage system is required for all new single-family developments within the Village, unless specified otherwise by the Village Engineer. Given the characteristics of existing infrastructure within the vicinity of the subject property, one of the three criteria will apply:

- Direct Connection into existing infrastructure (Indicate location of proposed connection)
- Off-Site Storm Sewer Extension:
  - Complete topography of off-site work limits with all affected properties delineated
  - Plan/Profile view of proposed improvements
  - Proposed finished grading pattern
  - Delineation of all right-of-way restoration measures (driveway, culvert, swale, etc.)
  - Photographic record of off-site work limits for Village record
- On-Site Detention/Restricted Outlet (Sub-Standard Drainage Areas)

**When there is an increase of new impervious coverage to the existing property site 1,000 s.f. or greater, the resulting change to the land topography will trigger the requirement for On-site Stormwater Detention**

## **ON-SITE DETENTION REQUIREMENTS FOR NET INCREASE EXCEEDING 1000 SF IMPERVIOUS SURFACE:**

- Stormwater Management Report which will consist of:
  - Cover sheet (dated, signed/sealed by P.E.)
  - Summary of design characteristics (HWL, overflow, control, etc.)
  - Routing table results (**Illinois Bulletin 75 Rainfall Data**)
  - Orifice solution (assume 0.15 release, **1.5" diameter restrictor**)
  - ADS spreadsheet tabulation confirming the attainment of the required detention (if applicable)
- Given area constraints, detention shall be provided on private property utilizing an underground detention system designed by:  
Advanced Drainage Systems (ADS) or approved equal. Necessary information will include:
  - All applicable construction details pertaining to the underground detention system
  - The location of the proposed detention facility along with confirmation of required backfill specifications
  - A detailed schematic of the system indicating dimensions and item location
  - A schedule of materials providing a detailed description of each item along with the quantity needed.
  - Delineation of sump pump discharge connections into the proposed facility
- **A Restrictive Covenant is required for Above Ground Stormwater Detention Areas and Permeable Pavers**

## **NORTHBROOK STANDARD DETAILS AND GENERAL CONSTRUCTION NOTES:**

- Include all applicable Village Standard Details ([Engineering Standards & Specifications | Northbrook, IL](#))
- Include all Northbrook General Notes on plan set (contact the Public Works Department for more information)

## **MISCELLANEOUS:**

### ***Pre-Notification to Affected Residence***

- Contractor is responsible for notifying residents, that will be affected by permitted work or proposed off-site utility service connections, 10 days prior to start of work. The notification letter must include:
  - Contact information (Name, Address and Phone Number(s)) of the property owner and general contractor
  - Scope of work
  - Specification of immediate backfill following completion of work
  - Specification that final restoration will be completed in 5 calendar days (weather permitting)
  - Affected properties to be formally notified 10 days prior to start of work
  - See Sample Letter: ([W-12 Sample of Water Service Notification](#))

### ***Erosion Control/Silt Fence Inspection***

- Installation of silt control fencing and construction fence required as specified on building permit. Inspection required prior to construction (approved fencing to remain effective throughout construction process). To schedule inspections, Contact the Development & Planning Services Department: (847) 664-4050

### ***Tree Preservation Requirement Guidelines***

- All tree removals must be approved by the Village Tree Preservation Officer **PRIOR** to removal
- Include all Northbrook Tree Preservation Notes and Village Standard Details (contact the Public Works Department for more information)

### ***As-Built Engineering Drawings***

- Submission of As-Built drawings are required for residential improvements resulting in an increase of 400 s.f of impervious surface or more. For additional information refer to: ([Civil-Engineering-As-Built-Requirements](#))

## **DEVELOPMENT & PLANNING SERVICES DEPARTMENT DISCLAIMER:**

Please be advised that the Village of Northbrook **is not responsible** in either determining or confirming what other permitting authorities (i.e., Mission Brook Sanitary District, Glenbrook Sanitary District, CCHD, IDOT, MWRDGC, IEPA, IDNR, USACOE, FPDCC, etc.) may warrant in regards to the proposed improvement. This is the sole responsibility of the permittee. In addition, it must be understood that the approval by such outside permitting authority may be contingent upon Village approval of the subject permit. Please contact Civil Engineering Permit Coordinator, John O'Donnell **(847) 664-4121** concerning any questions regarding the above information.