SPALDING DEDECKER ASSOCIATES, INC.
905 South Boulevard East • Rochester Hills • Michigan 48307 • Tel 248 844 5400 • Fax 248 844 5404
www.sda-eng.com

PLYMOUTH CHARTER TOWNSHIP
ENGINEERING PLAN REVIEW

Date:_____Project Name_____

Applicant Name/Address/Phone/Email:

Engineer/Architect Name/Address/Phone/Email:_____

A. <u>Utility Services</u>

1. Water Service Plan Details Required:

   a. Size of building service.

   b. Finished grade on valves.

   c. Valve box shut-off located at one foot inside property line.

   d. Fire protection service connection and lead size.

   e. Locate fire service within125 feet of hydrant.

   f. Fire protection service notes.

   g. Locate hydrants in paved areas no closer than three feet and no further than fifteen feet from back of curb.

2. Sanitary Sewer Service Plan Details Required:

   a. Length, size and slope of pipe. Required minimum size and slope is 6" pipe at 1% slope.

   b. Type of pipe to be used.

   c. The invert elevation at the building and at the point of connection to the main sanitary sewer.

   d. The rim elevations of all cleanouts. Cleanouts are required at every bend in the pipe, and every 100 ft. when the lead exceeds 100 ft.

3. Construction Details for Water, Sewer and Fire Services: W/S attached

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B. Storm Sewer and Site Drainage

1. Calculations furnished.
2. Storm sewer profile shows:
   a. Length of run between manholes.
   b. Type and class of pipe between manholes.
   c. Size and slope of sewer between manholes.
   d. Class (or type) of bedding.
   e. Rim elevation of all manholes.
   f. Top of curb line or centerline of road profile.
   g. Existing and proposed ground elevation
   h. Invert elevations of all sewers at manholes.
   i. Show watermain crossing with 18" clearance.
   j. Location of compacted sand backfill.
   k. Sump in first upstream catch basin.
3. Ten feet clearance from centerline of sewer to outside edge of any structure.
4. Manhole spacing 400 feet.
5. Runoff contained on site.
6. Perimeter swale.
7. Off-site runoff picked up.
8. Rear yard drainage system.
9. Sump pump drainage system.
10. Easements for rear yard and under-drainage system.

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C. <u>Storm Water Detention</u>

1. Provide for off-site pass thru
2. Proper formulas used.
3. Basin drawing shows:
   a. Cross section
   b. Outlet
   c. 12 inch freeboard
   d. Side slopes 1 on 6
   e. Spillway
   f. Seed/mulch on sod slopes
   g. Positive slope on basin invert
   h. Soil erosion riprap at outlet
   i. Access easement
4. Computed basis size and outlet are

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D. Sanitary Sewer

1. Design Basis on Plans
2. Minimum size is 8 inch
3. Sanitary Sewer Profiles Show:
   a. Length of run between manholes.
   b. Type and class of pipe between manholes.
   c. Size and slope of sewer between manholes.
   d. Class (or type) of bedding.
   e. Top of rim elevation of all manholes.
   f. Existing and proposed ground elevation along the route of the sewer.
   g. A logical numbering system for manholes.
   h. Invert elevations of all sewers at manholes.
   i. Watermain crossings with 18 inch clearance. Use water quality pipe (20 L.F. Min.) for sewer or leads above watermain.
   j. Location of compacted sand backfill.
   k. All wyes shall be shown on both plan and profile and located by the distance from the downstream manhole.
4. Twenty foot easement shown.
5. Stub for upstream service.
6. Minimum depth 9 feet.
7. Ten feet clearance from structures.
8. Manhole spacing 400 ft. maximum.

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9. Temporary bulkhead in first manhole.

10. External drop for more than 18 inch invert change.

E. <u>Watermain</u>

1. Minimum 8 inch pipe.

2. Ten feet clearance to any structure.

3. Easement shown 12 feet wide.

4. Maximum of 600 feet between valves.

5. On distribution watermains valves paired with hydrants.

6. Tapping sleeve for connection to existing watermain. (Not recommended when proposed watermain diameter equals or exceeds existing)

7. Hydrants spaced at 600 foot maximum.

8. Locate hydrants no closer than 3 feet and no further than 15 feet from back of curb.

9. Plans show:

   a. Dimensions of the watermain from valve to fittings or hydrants to hydrants.

   b. Finish grade on gate well covers and hydrants.

   c. Dimension of the watermain from the property right of way lines to the centerline of the main.

   d. Locate all watermains a minimum of 10 feet horizontally from any sanitary sewer, storm sewer, or sewer manhole, as required by the Ten State Standards.

10. Dead end lines have blow-off or hydrant, GVW and stub.

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F. Grading Plans

1. Grading Plan Shows:

   a. Lot lines with dimension.

   b. Streets, approaches and drainage.

   c. Existing contours, spot elevations at 50 foot grid, at least 50 feet beyond site boundary.

   d. Drainage outlets.

   e. Detention basins.

   f. Storm sewer system.

   g. Perimeter swales.

   h. Side and rear yard swales.

   i. Rear yard drainage systems.

   j. Sump pump collection systems.

   k. Easements.

   l. Houses drawn to scale, located on the lot by the front setback dimension.

   m. Direction of drainage flow as an arrow.

   n. Proposed buildings located by setback lines.

   o. Drives, islands, parking lots, sidewalks and parking lot perimeter curbing.

2. Elevations Show:

   a. Finished floor of buildings.

   b. Top of curb at 50 ft. intervals.

   c. Top of all castings.

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d. Sidewalks at 50 ft. intervals.

e. Finished grade along site boundary at 50 ft. intervals.

f. Elevation of swales at 50 ft. intervals.

g. Parking lot high and low points.

h. Fifty (50) ft. intervals on parking areas.

i. Finished grade at building corners and midpoints of buildings.

3. Minimum slopes 2% on graded surface, maximum 1:3

4. Cross section of parking areas.

5. Paved slopes min. 1%, max. 6%.

G. <u>Pavement Surfacing</u>

1. Plans for Non-Public Streets and Parking Areas Show:

a. Plan View:

1. Easements on the site.

2. Existing adjacent streets.

3. Proposed surfacing and public street access approaches with alignment and dimensions.

4. Utilities and structures.

5. Storm sewers and structures.

6. North arrow and scale.

7. Construction notes.

8. Storm sewer outlet.

9. Type of surfacing.

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10. Sidewalks and approaches.

b. Profiles (For Non-Public Streets Only):

1. Existing and proposed centerline.
2. Proposed top of curb.
3. Proposed storm sewer or ditch profile.
4. Vertical curves and percent of grade on surfacing and drainage.
5. Existing storm drainage.

c. Cross-Sections:

1. Surfacing and base type, thickness and specification.
2. Surfacing width, crown, cross slope.
3. Curb section.
4. Sub-grade treatment.

2. Minimum slope on paved surfaces is 1%.
3. Minimum width 24 feet.
4. Minimum cross-section 3" A/C on 8" Aggregate