Public Works
Engineering Division (650-330-6740)
701 Laurel Street, Menlo Park, CA 94025
January 1st, 2017

Plan Review Checklist
-to comply with-
FEMA Requirements & Sea Level Rise (SLR)

1. **NOTICE TO THE APPLICANT:**
   a. All New Construction or Substantial Improvements (SI) within the flood zone are subject to Menlo Park's Flood Damage Prevention Ordinance. This ordinance is based on FEMA's floodplain construction guidelines. Refer to Chapter 12.42 of Menlo Park's Municipal Code for additional information: http://www.codepublishing.com/CA/MenloPark/

   b. A project is considered a Substantial Improvement if the value of the project is 50% or more than the value of the existing structure. Refer to the City's webpage for additional information: https://www.menlopark.org/DocumentCenter/View/788

   c. FEMA will issue new Flood Insurance Rate Maps (FIRMs) by mid-2017. To be grandfathered into the current FIRM, projects subject to the City's flood ordinance must begin construction prior to the issuance of the new map. The required flood heights are expected to rise in select locations of the City when the 2017 FIRM is released. Please contact the Engineering Department at 650-330-6740 for any project specific inquiries.

   d. Note regarding flood insurance: Property Owners may apply to FEMA to remove the building or property from the flood zone through the Letter of Map Amendment (LOMA) process if the structure's finished floor elevation AND lowest adjacent grade is at or above Base Flood Elevation (BFE). If granted, the LOMA will allow the federally-backed mortgage holder to cancel the requirement for flood insurance. Current and future Owner's should be informed that flood insurance will be required in perpetuity for all properties with a federally-backed mortgage within the floodzone. As of 2013, flood insurance rates are increasing by 18% to 25% per year to cover flood losses nationwide.

   e. Effective January 1st, 2017 all New Construction within the M-2 District will be subject to Sea Level Rise (SLR) requirements in addition to the Flood Ordinance. For additional information, refer to Section 5 below and Chapter 16.43 to Chapter 16.45 of Menlo Park's Municipal Code: http://www.codepublishing.com/CA/MenloPark/

   f. Refer to **Figure 1** below for a flowchart showing the City's Flood Ordinance and SLR review guidelines on a project specific basis. The applicant is highly encouraged to review this document to ensure compliance with both codes.

2. **GENERAL FLOOD CONSTRUCTION:**
The following requirements apply to ALL New Construction or Substantial Improvements in the Flood Zone:

a. When an addition is proposed for a building that is located within a flood zone, the City requires an Elevation Certificate to be submitted with the Planning or Building application. When a new building is proposed, no elevation certificate is required but site elevations should be shown clearly on the topographic survey.

b. The Elevation Certificate and topographic survey shall be based on the NAVD'88 (North American Vertical Datum of 1988). This is the datum used in the City's digital Flood Insurance Rate Maps (FIRMs) and represents the sea level elevation from which all other elevations or altitudes are measured. Prior to October 16, 2012, the FIRMs were based on the National Geodetic Vertical Datum of 1929 (NGVD'29). Plans and elevations certificates based on this old standard will not be accepted.

c. The on-site drainage plan shall show how flood waters will be directed around the structure. Show that the 1% annual flood will have no adverse impact on neighboring properties.

d. The title sheet of the plans shall show the Flood Zone designation and Base Flood Elevation (BFE).

e. The title sheet of the plans shall contain the following flood notes:

   i. *"All materials below BFE shall be resistant to flood damage." (i.e., concrete, Redwood or pressure treated Douglas Fir)."*

   ii. *"The bottom elevation of all appliances and utilities (meters, air conditioning units, etc) shall be at or above BFE for non-residential projects and 12" above BFE for residential projects".*

   iii. *"Storm runoff resulting from the project's grading and drainage activities shall not encroach onto any neighboring lot. Runoff must be contained on-site."*

   iv. *"No basements or any habitable enclosure below the BFE are allowed for projects in the flood zone."*

   v. The title sheet must include the following statement of compliance to the Engineering Department:
   "I certify that I am the engineer (or architect) of record and the plans dated ____, submitted on_____ comply with the City's Flood Damage Prevention Ordinance (Chapter 12, Section 42)."
   Signature and Stamp

f. The following elevations must be shown on the plans:
   i. Finished Floor Elevation (FFE), BFE, and top of slab (if applicable)

ii. Bottom of crawlspace, if applicable (shall be no more than 2' below the lowest adjacent grade or 4' from the bottom of floor joist)

iii. Bottom of PG&E gas meter, AC unit, or other appliances serving the building, if any. No utilities (e.g. gas, meters, AC units, electrical conduits) are permitted below BFE. Water and sewer pipes, sealed to prevent flood water intrusion, are allowed.

iv. Highest and lowest adjacent grade within 2 feet from the structure.

g. The City shall affix the following notes to the plans for projects in the flood zone:

i. For slab construction:
"PRIOR TO APPROVAL OF FOUNDATION INSPECTION, A LICENSED SURVEYOR SHALL VERIFY FOUNDATION ELEVATION BY SUBMITTING A SIGNED, STAMPED STATEMENT."

ii. For crawlspace construction:
"PRIOR TO APPROVAL OF UNDER FLOOR FRAMING INSPECTION, A LICENSED SURVEYOR SHALL VERIFY FOUNDATION ELEVATIONS BY SUBMITTING A SIGNED, STAMPED STATEMENT."

iii. For both types of construction:
"A FINISHED CONSTRUCTION ELEVATION CERTIFICATE WILL BE REQUIRED AT PROJECT COMPLETION"

3. RESIDENTIAL FLOOD CONSTRUCTION:

The following requirements apply to all Residential New Construction or Substantial Improvements in the Flood Zone. The General Flood Construction methods outlined in Section 2 shall also apply in addition to the following measures below:

a. The City defines Residential projects under the following categories:

i. Single family homes, duplexes, townhouses
ii. Any other residential structure up to 2 units.

b. Non-habitable enclosures used solely for storage or parking, (such as a crawlspace or garage), are allowed below the BFE provided that the enclosure is adequately wet-flood proofed to allow for the automatic entry and exit of floodwater. Otherwise, the Finished Floor Elevation (FFE) of the structure must be raised to 12" above BFE for all residential New Construction or Substantial Improvements in the flood zone.

c. Residential wet-flood proofing is designed to meet the following requirements:

i. The FFE of the structure is 12" above BFE
ii. Flood vents are installed so that flood water can flow freely into and out of any non-habitable enclosure below the BFE (i.e. garage or crawlspace)
iii. All parts of the building below the BFE are built with flood resistant materials

iv. All utilities are installed 12" above the BFE
v. The design complies with the City's Flood Damage Prevention Ordinance (Chapter 12.42) and FEMA technical bulletins.

d. Flood vents shall have a total net area of not less than one square inch for every square foot of enclosed space. At least one flood vent shall be located on each exterior side of the enclosure to allow the automatic entry and exit of floodwater. Provide the area of the outside foundation dimensions for the enclosed area in addition to the size, number and location of flood vents.

4. NON-RESIDENTIAL FLOOD CONSTRUCTION:

The following requirements apply to all Non-Residential New Construction or Substantial Improvements in the Flood Zone. The General Flood Construction methods outlined in Section 2 shall also apply in addition to the following measures below:

a. The City defines Non-Residential projects under the following categories:
   i. Large housing developments in excess of 2 units (i.e. apartments etc).
   ii. Any commercial structure or enclosure within the floodzone not explicitly listed in this document.

4i) Non-Residential Wet-Flood Proofing:

a. Commercial New Construction and large housing developments in excess of 2 units must abide by the Wet-Flood Proofing guidelines detailed in this section.

b. Non-habitable enclosures used solely for storage or parking, (such as a crawlspace or garage), are allowed below the BFE provided that the enclosure is adequately wet-flood proofed to allow for the automatic entry and exit of floodwater. Otherwise, the Finished Floor Elevation (FFE) of the structure must be raised to be at or above BFE for all non-residential housing developments and Commercial New Construction in the flood zone.

c. Non-Residential wet-flood proofing is designed to meet the following measures:
   i. The FFE of the structure is at or above BFE
   ii. Flood vents are installed so that flood water can flow freely into and out of any non-habitable enclosure below the BFE
   iii. All parts of the building are built with flood resistant materials
   iv. All utilities are installed is at or above the BFE
   v. The design complies with the City's Flood Damage Prevention Ordinance (Chapter 12.42) and FEMA technical bulletins.

d. Flood vents shall have a total net area of not less than one square inch for every square foot of enclosed space. At least one flood vent shall be located on each exterior side of the enclosure to allow the automatic entry and exit of floodwater. Provide the area of the outside foundation dimensions for the enclosed area in addition to the size, number and location of flood vents.

4ii) Dry-Flood Proofing:

a. Dry-Flood Proofing is defined as a combination of measures that results in a structure, including the attendant utilities and equipment, being watertight with all elements substantially impermeable to resist flood loads.

b. Only commercial projects in the flood zone undergoing Tenant Improvements may elect to Dry-Flood Proof in lieu of the Wet-Flood Proof design guidelines outlined in Section 4i of this document. Dry Flood Proofing includes measures such as installing a waterproof epoxy up to 12" above the BFE to form a watertight perimeter or creating a berm around the structure to the BFE. The applicant should note that all doorways and entrances must be elevated above the BFE to prevent the intrusion of floodwater into the building. Refer to the following FEMA bulletin for more information:
https://www.fema.gov/media-library-data/20130726-1511-20490-5294/job6.pdf

c. If dry-flood proofing is selected as the compliance option, then the following documents will be required prior to issuance of the building permit:

i. A floodproofing certificate must be completed by a licensed professional. A copy of the document may be found on FEMA's website (linked below):
https://www.fema.gov/media-library-data/1453839550764-ecccb73790b94b69695ad66356844600/FEMA_Form_086_0_34_June2015.pdf

ii. A signed statement from the Engineer of Record:
"*I certify that:*
I am the engineer (or architect) of record and the plans dated _____, submitted on _____ is designed in accordance with ASCE24-05 and the City's Flood Damage Prevention Code (Ch. 12.42) to ensure that the building envelope will be impermeable to water up to 12" above the base flood elevation."

iii. The Owner shall enter into an Operations & Maintenance Agreement with the City to ensure that dry-flood proofing measures are maintained as long as the building exists.

iv. All dry-flood proofing measures must be clearly shown on the site plan and labeled.

5. SEA LEVEL RISE (M-2 DISTRICT ONLY):

The following requirements apply to all New Construction in the City's M-2 District. The Flood Construction methods outlined in Sections 2, 3, and 4 (as applicable) shall also apply in addition to the freeboard requirements detailed below:

a. Refer to the following zoning map, linked below, for the M-2 District boundary.
http://www.menlopark.org/documentcenter/view/12610

b. The following measures shall apply to all M-2 New Construction in the floodzone:
   i. The FFE of all M-2 New Construction encompassing over 2 acres, and located within the floodzone, will be 24" above BFE to mitigate sea level rise (SLR).

   ii. The FFE of all M-2 New Construction of 2 acres or less, and located within the floodzone, must be designed to the maximum practical freeboard above BFE to mitigate sea level rise. The applicant should note that the freeboard shall, under no circumstance, be less than 6" above BFE.

c. The following measures shall apply to all M-2 New Construction out of the floodzone:
   i. The FFE of any M-2 commercial or residential project encompassing over 2 acres, and located out of the floodzone, will be 24" above Existing Grade to mitigate sea level rise.

   ii. The FFE of any M-2 commercial or residential project of 2 acres or less, and located within the floodzone, must be designed to the maximum practical freeboard above Existing Grade to mitigate sea level rise. The applicant should note that the freeboard shall, under no circumstance, be less than 6" above Existing Grade.

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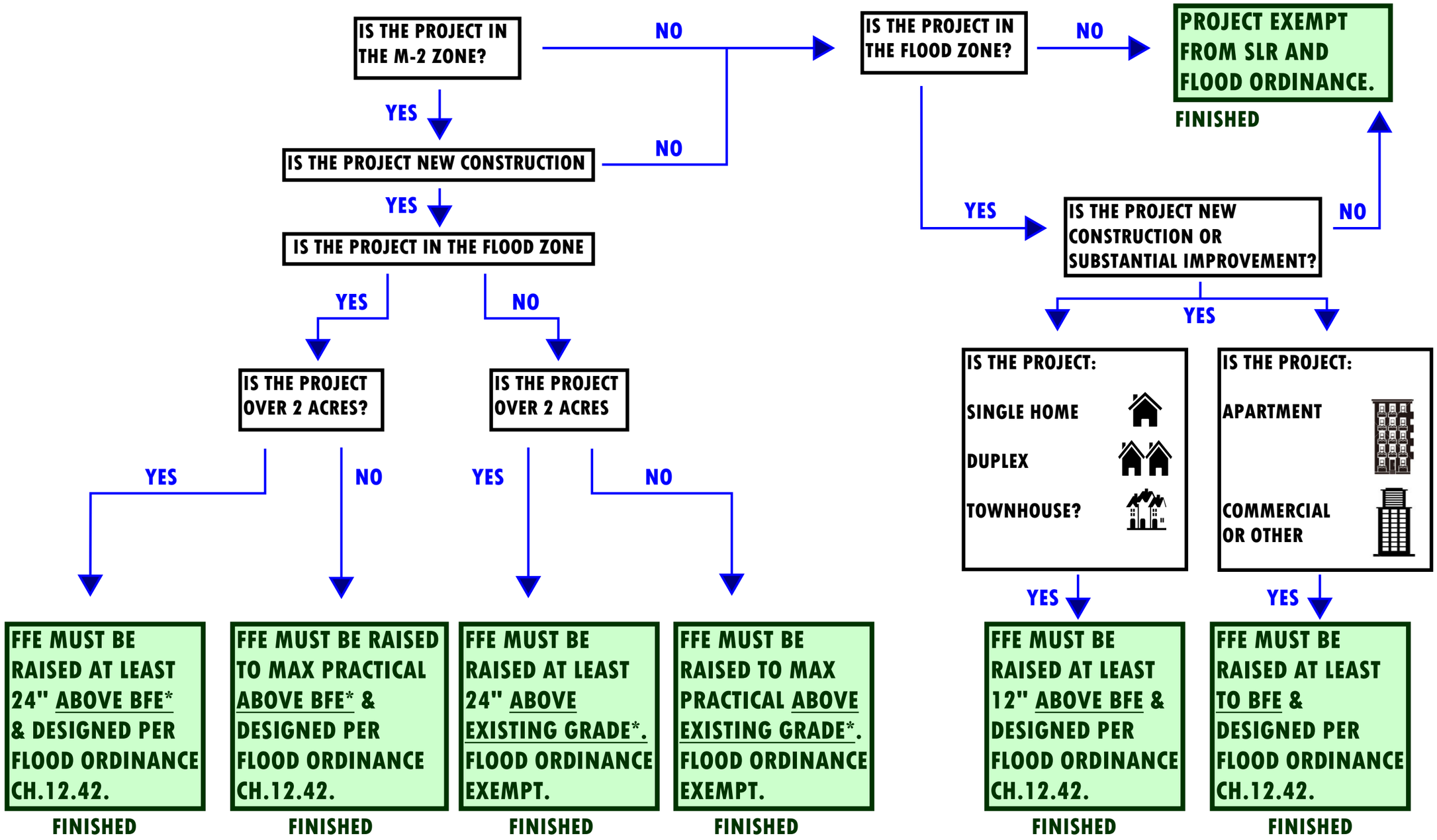
FIGURE 1:

WHICH PROJECTS ARE SUBJECT TO MENLO PARK'S 2017 FLOOD / ZONING ORDINANCE



*FREEBOARD REQUIREMENT IN THE M-2 DISTRICT REFLECTS THE LATEST CITY ZONING ORDINANCE TO COMBAT SEA LEVEL RISE PER MENLO PARK'S GENERAL PLAN AND THE GREEN BUILDING STANDARDS.