HYDROLOGY

K19/D54

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STANDARD REQUIREMENTS FOR DRAINAGE PLANS

PURPOSE: The increasing volume of drainage plans submitted to this office makes it mandatory that such plans be standardized as much as possible in order to expedite reviews. This standardization is as much to the advantage of the developer and engineer as it is to the Hydrology Section which enforces the AMAFCA RES. 72-2. For parcels of land less than 20,000 sq. ft. in surface area no formal drainage report is required; the construction plans need only to include the standard form attached herein and the site drainage plan. Developers for larger parcels of land will have to submit a formal drainage report as specified in the Resolution.

RUNOFF PONDING: In most instances on site ponding is mandatory, with dispersal in the ground of the excess runoff arising from newly created impervious surfaces. The only exception allowed, is for those properties adjacent to a diversion channel which was designed for higher standard than 100 years frequency storm (existing conditions). For detailed computations of the runoff before and after development the assumed runoff coefficient recommended are C = 0.4 for undeveloped, landscaped or similar open areas and C = 0.9 for all other impervious surfaces, including areas in southwestern type landscaping with underlying polyethylene film and gravel covered parking areas where vehicular traffic will compact the soil and render it impervious. Due to the inadequacy of the existing drainage facilities in the valley area and to the limited capabilities of the City for providing relief, ponding requirements in the valley are higher than elsewhere.

COMPUTATION OF VOLUME OF RETENTION:

Valley Area $= 1.0 \times \frac{2.2''}{12''} \times \text{Area (ft.)} = 0.18 \times A$

East and West Mesa $= (0.9 - 0.4) \times \frac{4''}{2''} \times \text{Area (ft.)} = 0.1 \times A$

In order to facilitate the design of drainage facilities, a checklist that will be followed in the review process is listed below:

CHECK LIST

1 - Flooding potential - adjacent water courses

no Is property located in the flood plain? K 19 FHBM 24

If so, is the finished floor above the 100 yrs. flood level?

no Is property adjacent to a natural or artificial water course?

It so, what are the specific AMAFCA or City requirements?

no Are drainage R.O.W or easements shown on, or in the proximity of property? If so, are there drainage problems?

2 - Relation of property to surroundings

no Per topo map, does property intercept other drainage upstream?

If so, how is runoff conveyed across property?

no May there be erosion associated with offsite runoff conveyance?

no May erosion or siltation result from proposed construction activities?

no Does development block drainage from adjacent property?

3 - Site grading

no Does site plan show contours before development (extending a minimum of 25 ft. beyond property lines)?

yes Does site plan show proposed grading with adequate swale definition to convey water to ponds?

yes Is all runoff conveyed to ponding areas before it overflows to public facilities?

no Does the proposed grading plan indicate that under cutting or back-filling adjacent to property lines may require retention walls?

yes Is there continuity between proposed new contours and old contours offsite?

yes Is elevation of property line at least 0.3 ft. above top of curb?

4 - Storm water retention

yes Is ponding volume adequate (supply detailed computation)?

yes Are ponds balanced with areas they drain (can area draining to each pond be easily identified and will actually water flow there)? The plot plan must outline each drainage area.

yes Can pond volume be computed and verified?

yes Are ponds practical, can they be built as shown?

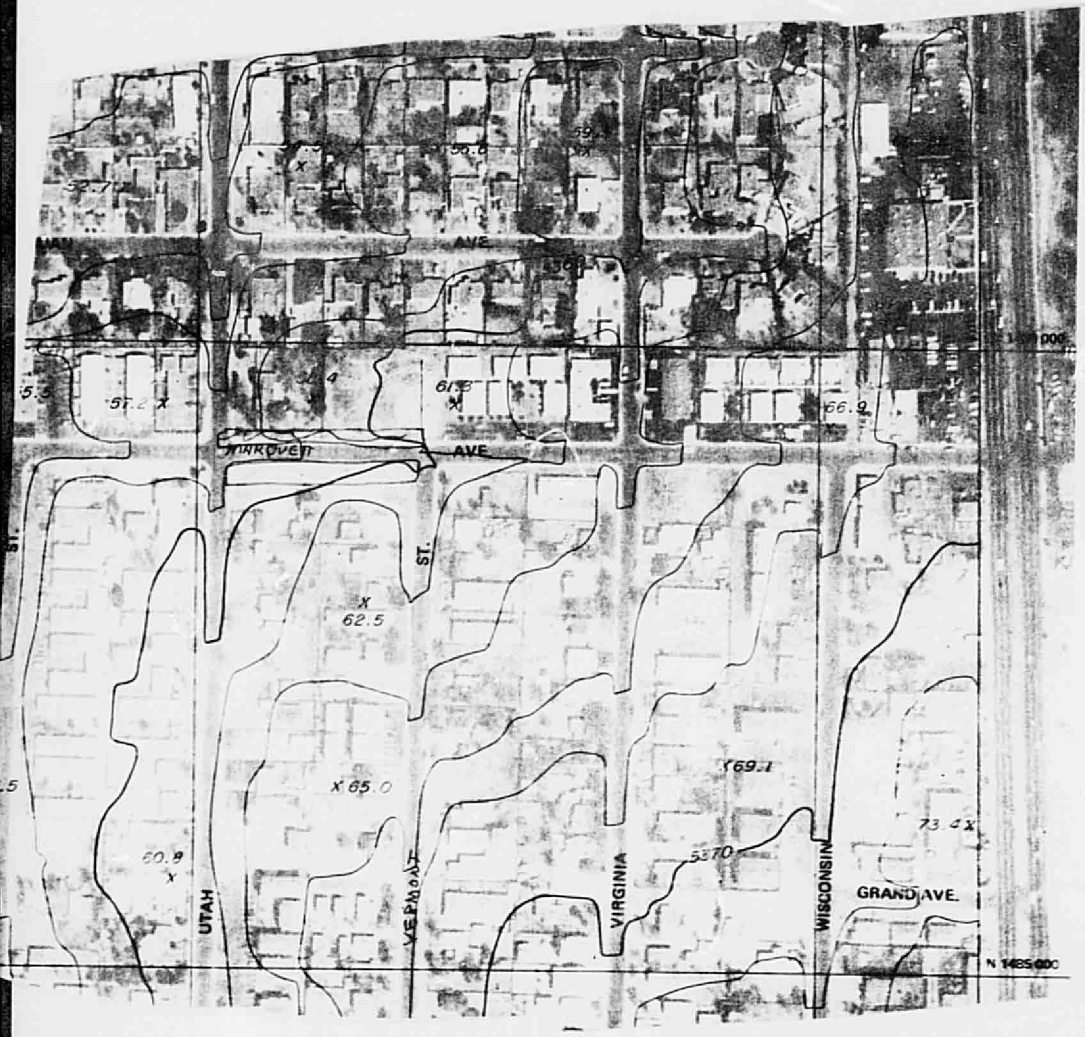
5 - Safety

no Do the drainage provisions constitute an attractive nuisance, or safety hazard?

not greater

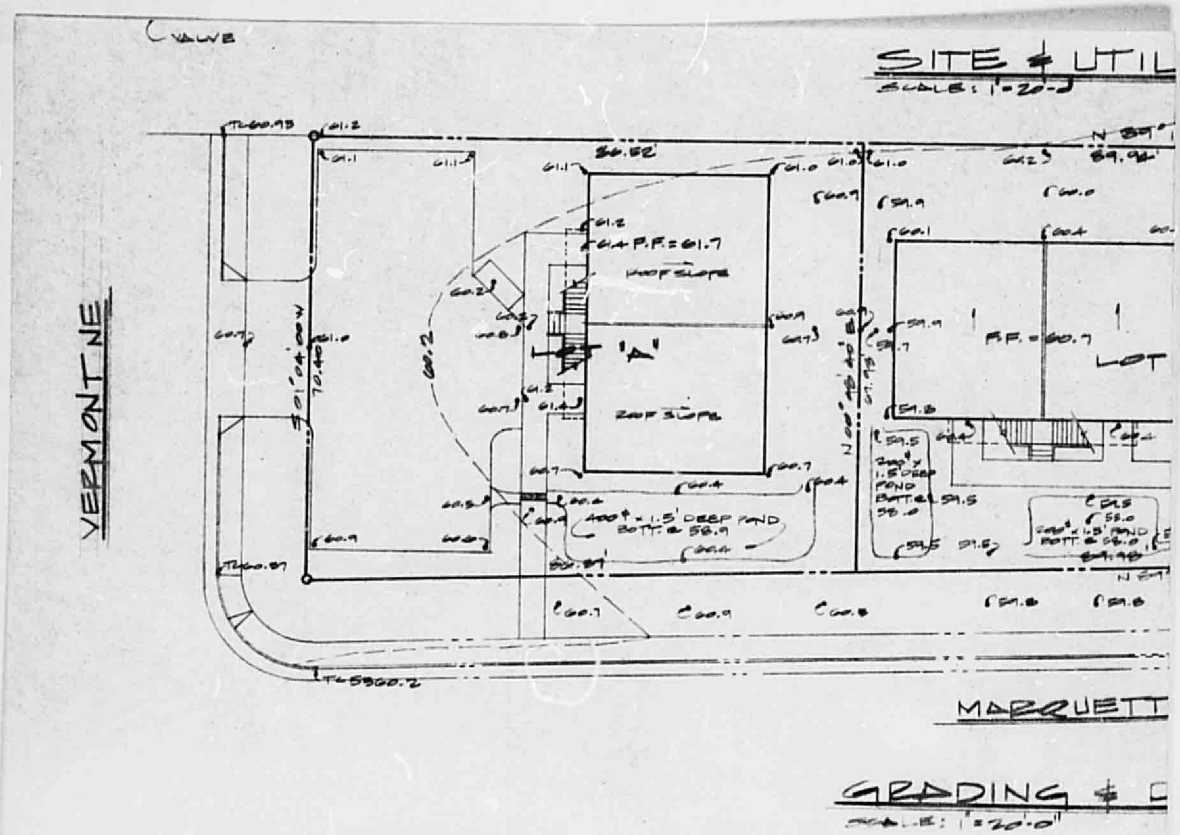
If the pond depth is greater than 18", are safety provisions supplied? (Minimum 3.0 ft. high chain link fence or similar physical barrier of ponding areas are adjacent to public R.O.W.?)

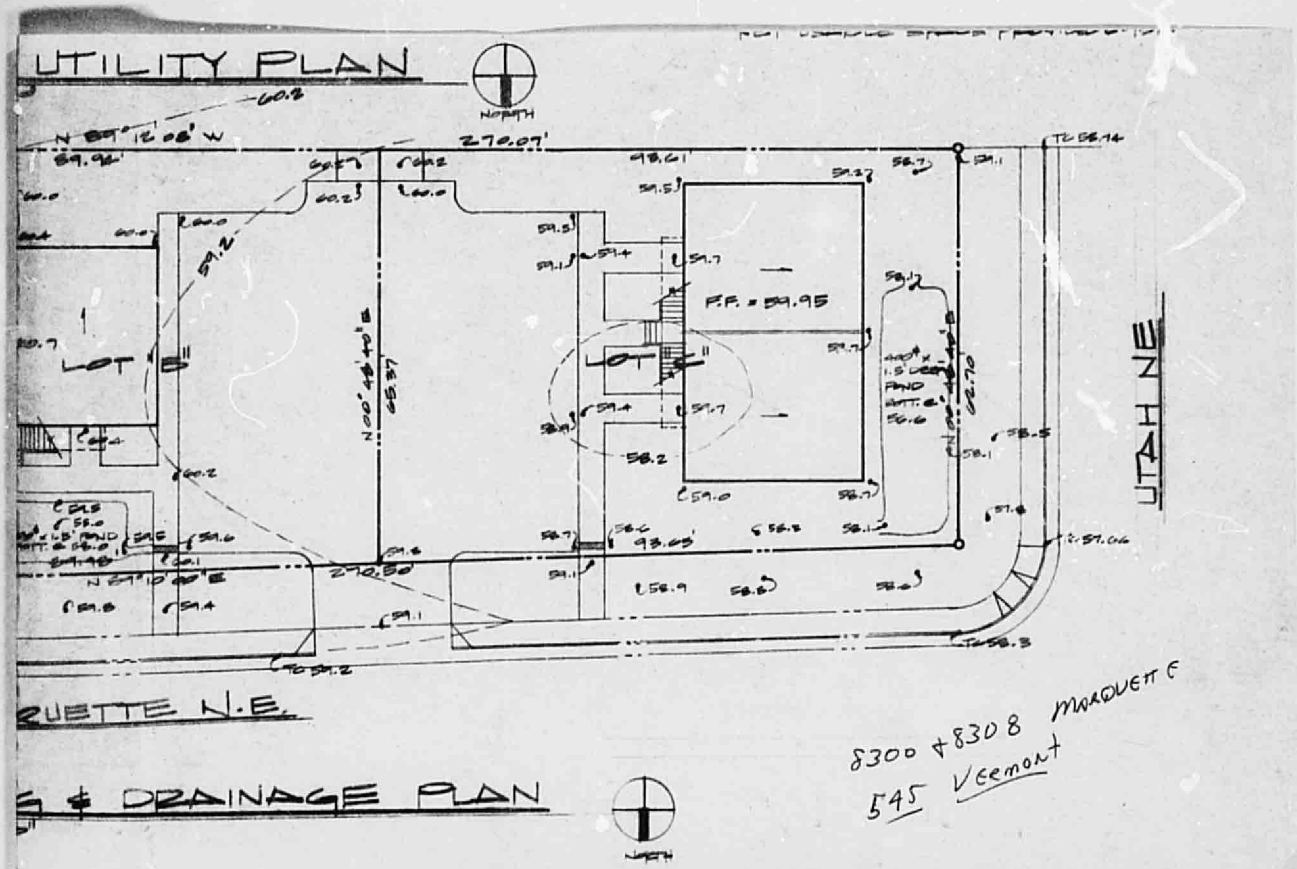
In general, ponds of depth greater than 18" will not be accepted for both safety consideration and for long term effectiveness of the facilities. In those cases where limited space is available for ponding, the use of gravel pits under the parking areas is suggested. It must be pointed out that mainstream and effectiveness of these facilities is necessary and is the responsibility of the owner. Existing or planned City facilities (streets, channels, storm sewers) can accommodate the natural runoff volumes. Greater discharges would cause flooding downstream and need to be limited at the source.



Depression Contour

x 23.6 Spot Elevation


VALVE
SITE & UTIL
SCALE: 1"=20'-0"
VERMONT NE
F.F. = 61.7
ROOF SLOPE
ROOF SLOPE
"A"
400' x 1.5' DEEP POND
BOTT. @ 58.9
F.F. = 60.7
LOT
MARQUETT
GRADING &
SCALE: 1"=20'-0"



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