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Engineering Feasibility Report
by Olewik for Timber Prop.

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ENGINEERING FEASIBILITY REPORT

FOR

PROPOSED TOWNHOUSE DEVELOPMENT

MOUNTAIN VIEW ROAD

WARREN, N. J.

PREPARED FOR

TIMBER PROPERTIES, INC.

PREPARED BY
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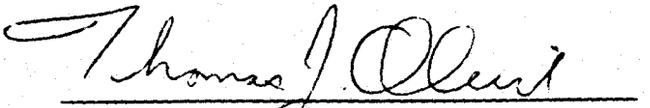

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A. INTRODUCTION

This report concerns itself with the engineering feasibility of the development of a parcel of property generally located to the south of Mountain View Road opposite the newly constructed Chubb Office Complex in Warren, N.J. The total area of property to be developed is 72.27 acres and is composed of the following lots (as found on Sheets 3, 4 and 4A of the Warren Township Tax Maps):

Block	Lot	Acres
111	12	7.84
111	13	28.73
111	19	21.5
111	19C	2.05
111	36	2.2
111	37	1.58
111	38	0.72
121	4	1.87
122	1	2.91
123	1	2.87
	TOTAL:	72.27 acres

In the development of any parcel of property of this acreage, several engineering factors must be considered and properly satisfied as the design and review process proceeds. These factors are:

1. Area and Boundary of the Property
2. Topographic Conditions
3. Proposed Density and Type of Housing Units
4. Environmental Impact of the Project on the Property and Surrounding Parcels.

5. Traffic Generation
6. Provision for a Potable Water Supper
7. Disposal of Sanitary Sewage Wastes
8. Stormwater Management
9. Solid Waste Disposal

As part of the Planning Board Process, these factors must be quantified to the maximum practical extent possible so that technical analysis of the data can proceed and proper conclusions be offered. Concurrently with this process is consideration of the Local, County and State requirements and regulations that may preclude or limit certain aspects of the site development. It is the purpose of this report to discuss the above mentioned items and to indicate to what extent the technical aspects of this particular property meet generally respected engineering principles for site development based upon preliminary data acquisition.

B. ENGINEERING CONSIDERATIONS

1. Area and Boundary of the Property

It is certain that the property in question (PQ) contains a sufficient acreage to support a high density development of approximately 12 units to an acre. The boundaries of the property do form a fairly irregular shape but this factor should not be considered a negative one. The reason for this statement is that the property can provide access to two established roadways, Mountain View Road (MVR) and Liberty Corner Road (LCR). This factor along with the normal landscape and buffering requirements for a properties' perimeter will allow a high density of development without direct physical impact on the adjoining properties.

2. Topographical Conditions

The topography of a property is of equal importance with the boundary lines in planning the technical feasibility of a project. It is normally beneficial to have a property that has significant elevation difference from one side to the other. This significance is realized by aesthetically locating housing units according to the topography along with detailed design of the gravity utility systems (storm and sanitary sewers). This site does possess good elevation differences so that the architect and engineer can provide a solution that is in cooperation with the natural elevation features. This judgment can be discovered by a field inspection of the site along with an examination of the topographic maps available from public (Warren Township) and private sources. The topography for this site indicates a maximum elevation of 390 at the southwest corner to a maximum elevation of 270 at the intersection of the property boundary at MVR. This 120 foot change in elevation allows the design professionals many altnernatives to the architectural and technical design of a project not normally available to a site that has little elevation change. Conversely, local severe changes in grade can provide areas within a project that have to be developed very carefully or abandoned in favor of passive open space. This site does contain a sector of property that would more properly be left in its natural state. Since most local planning boards have requirements in their Zoning Ordinances for open space, it is felt that the proposed development could proceed with a high density design on the flatter slopes and preserve the steep sector for a natural conservation and buffer area.

3. Density of Development

The physical features of the property and the technical factors discussed below would allow for an allowable

density of approximately 12 units to an acre or a total of approximately 850 units. It is assumed that certain provisions will be made for a percentage of the development to be for purchasers that can be classified as having low and moderate income. It is probable that these units will be of a lower living space area than what is provided in townhouse developments currently existing in Somerset County. The lower floor area coupled with a proper architectural treatment of the arrangement of units will allow for the provision of approximately 850 units of housing.

4. Environment Impact

A detailed report concerning the environmental impact of the project will be prepared as the project proceeds towards Preliminary Planning Board approval. This detailed study will provide an inventory of flora, fauna, etc., and will discuss ways to minimize the impact on existing environmental resources. An initial field inspection review of the property by this author does not indicate any special environmental conditions that would prevent full density development.

5. Traffic Generation

As with 4 above, a detailed study of the existing roads would be made by a traffic engineer and a report would be filed with local and county agencies in charge of this part of the review process. Even without this report, it would be safe to conclude at this point in time that the generation of traffic by the occupants of the site would be safely absorbed by the surrounding road network. With the construction of the Chubb Office Building directly to the north of the site and the completion of U.S. 78 just beyond the Chubb facility, adequate, convenient access to a major capacity road is available. Significant improvements have been recently made to LCR and MVR. Since the proposed project will properly provide access to each road, via

intersection and/or signalization, it is felt that the development of this site will not create traffic congestion in the area.

6. Potable Water

Potable water would be available in sufficient quantity from the Elizabethtown Water Company who have recently expanded their system to include service along MVR.

7. Disposal of Sanitary Sewage

This aspect of a project is one that could preclude any development on a site. In a developing town like Warren Township, it is often the case that municipal wastewater treatment plants (MWTP) are not available or are at design capacity and cannot be expanded because of space or regulatory limitations. At the present time, a recently completed MWTP has become operational (September 1983) to serve this area of Warren Township. The plant is known as the Stage V STP (Sewage treatment plant) and is operated by the Warren Township Sewerage Authority under New Jersey Pollutant Discharge Elimination System Permit No. N.J. 0050369. A review of this Permit and an examination of the Plant leads to the following observations:

a. The existing plant is designed to treat 380,000 gallons per day (gpd) (average flow) of domestic sewage at a high treatment level.

b. The current flow to the plant originates solely from Chubb Office Building and amounts to an average flow-rate of 10,000 gpd. It is understood that Chubb has purchased the rights to deliver a maximum average flow of 90,000 gpd from their site.

c. The remaining plant capacity has been purchased by

other property owners to be served by the plant based upon current Warren Township zoning requirements of one unit of housing to each 1.5 acres of property. It is also apparent that the existing plant was sized on this low value of density development.

d. The quality of the discharge from the plant is meeting the requirements stated in the above mentioned permit and appears to be functioning as originally designed.

e. The plant could be expanded to handle a flow double its current average design flowrate or a total of 760,000 gpd. This construction could be accomplished at the site of the existing plant as sufficient property exists. It is assumed that an expanded plant would be required to maintain the same high degree of treatment. This requirement will not prove to be any impediment to obtaining approval from the New Jersey Department of Environmental Protection (NJ. DEP). Furthermore, an expanded plant could be designed to meet even more stringent treatment levels if required by the N.J. DEP.

f. It is also possible that an on-site MWTP could be designed and eventually receive approval from the N.J. DEP. However, it certainly appears that expansion of the existing Stage V Plant is more desireable for everyone concerned.

g. Conveyance of the sewage to the existing plant would be accomplished easily through the use of an adequate gravity sewer system under MVR. At a proposed density of 850 units an average daily

flowrate of 255,00 pgd (assumed per capita flow of 75 gpd and 4 people per unit) would be created by the site in question. As stated above, capacity at the Plant could be made available by a simple expansion of facilities.

8. STORMWATER MANAGEMENT

Modern stormwater management requires the use of a storage facility for the detention of stormwater runoff in excess of the flow that originates from the undeveloped site. This provision can be met by construction of a detention pond on the site or through the use of the area wide pond that may be located on public property. The topography of the site will not prevent the construction of such a facility.

9. SOLID WASTE DISPOSAL

The disposal of solid wastes generated by a residential development is accomplished by normal collection of wastes by a private or public means and disposal into a sanitary landfill. It is anticipated that this problem will not impede the development of this or any other site.

C. CONCLUSIONS

Based on the above summaries of various important technical considerations for the proposed project, it is concluded that there exists no engineering reason for the project to be rejected by any local, county or State agencies. As more complete engineering analyses are developed during the detailed design stage, the overall foundation for support of a high density development will be enhanced rather than reduced.