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Oct. 1984

Report on the Feasibility of Providing Sewerage Service and Potable Water Supply for the Seagull Village Development

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REPORT

ON THE

FEASIBILITY OF PROVIDING SEWERAGE SERVICE

AND

POTABLE WATER SUPPLY

FOR THE

SEA GULL VILLAGE DEVELOPMENT

Job #84025A

October 1984

HOWARD M. SCHOOR
P.E.-L.S. #14551

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I. INTRODUCTION

The purpose of this Report is to investigate and evaluate the feasibility of providing sanitary sewerage service and potable water supply to the Sea Gull Village Development located in Colts Neck Township. The proposed development will consist of 800 multi-family units and will be designed for conformance with the Mount Laurel II decision which mandates provisions for low and middle income families. The development is located adjacent to the Freehold Township border paralleling Hunt Road between Rte. 537 and Stone Hill Road. Assuming that the development will result in an average of 2.5 people per dwelling and that sewerage flow will average 75 gallons per person per day and water consumption will average 80 gallons per person per day, the population of the development is estimated at 2,000 people, the average sewage flow is estimated at 150,000 gallons per day and the average water consumption is estimated at 160,000 gallons per day. These estimates provide the basis for the analyses regarding required sewerage and potable water facilities.

II. SUMMARY AND CONCLUSIONS

A. Sanitary Sewerage Facilities

The most feasible method of providing sanitary sewerage facilities to Sea Gull Village would be to construct an onsite pump station, and a force main to convey the sewage directly to the MRRSA system located in Freehold Township. Under this proposal, there would be no connection to any Freehold Township Facility and, therefore, there would be no adverse impact on said facilities. Sea Gull Village would become a non-member customer of the MRRSA and sewerage services would be billed based on actual sewage flow to be measured by a flow meter installed at the pump station.

B. Potable Water Supply

The analysis of potential potable water supply schemes indicates that there are three (3) options that are technically and economically feasible. The three (3) options are as follows:

1. Connect to Freehold Township Water System after Freehold Township connects to the Matchaponix Water Supply Company.
2. Construct an independent water supply system for the development by utilizing groundwater supplies from the Englishtown Aquifer.

3. Connect to the Gordons Corner Water Company after the Gordons Corner Water Company connects to the Matchaponix Water Supply Company.

Another option, namely the connection to the Monmouth Consolidated Water Company, was dismissed due to the excessive cost of connecting to the facility which is located more than six (6) miles from the development.

Options No. 1 and No. 3 are predicated on the operation of the Matchaponix Water Supply Company which recently obtained diversion rights of 5 MGD from the Matchaponix Brook and the cooperation of regional authorities.

Option No. 2 is predicated on obtaining groundwater diversion rights for diversion of water from the Englishtown Aquifer.

It is the opinion of this office, that all three (3) options must be further pursued in order to fully evaluate each option as to the possibility of implementation and timing considerations. Specific conditions and requirements must be defined and evaluated in order to accurately determine the actual cost of water supply. However, it appears that Option No. 2 can provide independent service and would not be dependent upon availability of water from the Matchaponix Water Supply Company and said option could be implemented in accordance with the September 21, 1984 NJDEP letter from Mr.

Ernest Harding and the September 25, 1984 letter from GPM Associates.

III. Sanitary Sewerage System Analysis

The Sea Gull Village development is located adjacent to the Freehold Township border and, therefore, is in close proximity to sewerage facilities located within Freehold Township. The Township is a member of the Manasquan River Regional Sewerage Authority (MRRSA) and initial operation of the MRRSA is scheduled for sometime during the first quarter of 1985. A review of existing sewerage facilities in the area reveals the following:

1. Existing Freehold Township facilities exist in nearby Hunt Road and Route 537. The sewage from this area is currently collected by a gravity collection system and pumped via a 12"Ø force main to a gravity sewer on Harding Road. From there, the sewage flows by gravity to another pump station at Chesterfield Garden Apartments. From there, the sewage is currently pumped to the Freehold Borough Sewage Treatment Plant on Center Avenue for treatment and disposal. When the MRRSA system commences operation, the Chesterfield Garden Apartments Pump Station and the Freehold Borough Sewage Treatment Plant will be abandoned and all sewage from the area will flow

by gravity directly into the MRRSA DeBois Creek Interceptor for conveyance to the Ocean County Utilities Authority (OCUA) Treatment Plant in Brick Township for treatment and disposal.

2. The MRRSA system, as stated above, includes the DeBois Creek Interceptor which extends to the cul-de-sac at the end of Harding Road adjacent to the Chesterfield Garden Apartment. This facility is owned by the MRRSA and does not come under Freehold Township jurisdiction.

In summary, the existing facilities in the area consist of Freehold Township collection and pumping facilities and the MRRSA interceptor which is scheduled to commence operation in the first quarter of 1985. Therefore, there exists two (2) possibilities for sewerage facilities for Sea Gull Village as follows:

1. Pump the sewage from the development to the nearby Freehold Township facilities for inclusion in the Freehold Township flow which is conveyed by Freehold Township facilities to the MRRSA interceptor.

2. Pump the sewage from the development directly to the MRRSA interceptor and, therefore, avoid the use of any Freehold Township facility.

The first option, which includes the use of Freehold Township facilities, has been reviewed in general terms and dismissed as not being implementable because of the following:

1. The additional flow from Sea Gull Village would have a substantial impact on existing Freehold Township facilities. Modifications to the existing pump station would be necessary in order to ensure adequate pumping capacity.

2. It is believed that Freehold Township would object to the use of their facilities by a development that is not located within the Township. Also, the system capacity allocated to Sea Gull Village would reduce the reserve capacity in the system for future development within the Township.

The second option, which includes pumping of the system directly to the MRRSA system, appears to be the most feasible and implementable option because of the following:

1. Freehold Township facilities are not affected in any way.

2. All capital and operating costs for the conveyance of the sewage is clearly the responsibility of Sea Gull Village and will not have any impact on Freehold Township residents.

3. The MRRSA system has adequate capacity to handle the flow from the development and would, more than likely, be receptive to accepting Sea Gull Village as a non-member customer.

Because of the above, we have analyzed this option in detail. Our analysis indicates that the most feasible sewage collection and conveyance scheme consists of the following:

1. Sewage shall be collected within the development via 8" PVC gravity sewers and conveyed to a pump station located onsite in the northeastern section of the development.

2. The pump station would consist of a wet well and dry well which shall house two (2) centrifugal, non-clog sewage pumps or possibly a submersible type pump station with two (2) submersible pumps. The selection of the exact type of pump station would depend on the outcome of a more detailed analysis regarding pump station characteristics, owner preference and economics, etc.

The maximum flow from the development has been estimated as follows:

$$\text{Avg. Daily Flow} = 800 \text{ D.U.} \times 2.5 \frac{\text{people}}{\text{D.U.}} \times 75 \frac{\text{gal.}}{\text{person day}}$$

$$= 150{,}000 \text{ gal/day} = 104 \text{ GPM}$$

$$\text{Peak Daily Flow (Peak Factor = 4)} = 4.0 \times 150{,}000 \text{ gal/day} = 600{,}000 \frac{\text{gal}}{\text{day}}$$

$$= 420 \text{ GPM}$$

Therefore, each pump would be designed to pump 420 GPM at a total dynamic head (TDH) of 140'. Only one (1) pump would be required with the second pump serving as a standby unit. Preliminary analysis indicates that each pump would be equipped with a 30 H.P. motor. In summary, the pump station would consist of the following:

a. Wet Well

b. Dry Well

c. Two (2) centrifugal, non-clog sewage pumps rated at 402 GPM at TDH = 140' with 30 H.P. constant speed electric motors.

3. The Pump Station would also include a sewage flow meter for measurement of flow for billing purposes. The details of the meter construction, etc. would be subject to MRRSA and Freehold Township approval. The MRRSA system is designed such that flow volumes and bills are allocated to each member municipality based on actual flow as measured at MRRSA meter stations which are located throughout the MRRSA system. The meter station for Freehold Township is located at the Freehold Twp.-Howell Twp. border and, therefore, the flow from Sea Gull Village would be measured at the Freehold Township Meter Station. An agreement between MRRSA and

presumably Colts Neck Township would be required and said agreement would include the billing of Sea Gull Village for sewerage service based on the Sea Gull Village meter reading and the deduction of that volume from the Freehold Township bill.

4. The Pump Station would also include a diesel powered emergency generator for generation of electricity during power outages.

5. A force main from the pump station to the MRRSA interceptor located in the vicinity of the Chesterfield Garden Apartments at the cul-de-sac at Harding Road would be required. Our analysis indicates that the force main would be 8" diameter ductile iron and would be installed along the following route:

a. Hunt Road from northeastern part of the development to Rte. 537.

b. In a southwestern direction along Rte. 537 to the intersection of Rte. 537 and Wilson Avenue.

c. Along Wilson Avenue to the MRRSA interceptor at Harding Road.

This route was chosen in order to provide the shortest possible route as well as the route which

results in the least disruption of existing facilities. The 8"Ø force main would connect directly to the MRRSA manhole D-82. Our analysis indicates the following estimated quantities of force main.:

a. 8"Ø Ductile Iron Pipe Force Main - approximately 11,600 linear feet.

The force main size was selected based on a maximum peak flow of 420 GPM as follows:

Force Main

The velocity for the 8"Ø force main is 2.66 ft/sec which is greater than the minimum of 2 ft/sec for solids deposition. The friction head loss for 8"Ø with a hazen-williams factor of C-100 = 70'. The static head is 70' and, therefore, the TDH = 70'+70" = 140 which = 60 psi. This TDH results in reasonable pressures and power consumption.

A 6"Ø force main was ruled out due to excessive friction loss, high pressure and high power requirements (75 H.P. motors). Also, the use of a 10"Ø force main was ruled out because of velocities that would be less than 2 ft/sec and because the use of 10"Ø force main does not substantially reduce power costs and, therefore, would not be economical.

In conclusion, the most feasible and implementable option for sewerage facilities is the construction of a pump station onsite at the development and the construction of a force main which includes the direct connection to the MRRSA system and which has no impact on existing Freehold Township facilities. The construction cost for this connection is estimated at $620,000 and a cost breakdown is included at the end of this Section.

TABLE 1

Sanitary Sewerage Facilities

Direct Connection of Sewerage Facilities from Sea Gull Village to the MRRSA Debois Creek Interceptor

Construction Cost Analysis

1.	Pump Station	$250,000
2.	Emergency Generator	20,000
3.	8"Ø Force Main (DIP)	
	11,600 x $25/ft = $290,000	290,000
4.	Connection to MRRSA	3,000
		$563,000
	10% Contingency	56,300
	TOTAL	$619,300
	SAY	$620,000

IV. Potable Water Supply

The construction of 800 multi-family dwelling units will result in a community of approximately 2,000 people (800 D.U. x 2.5 $\frac{\text{people}}{\text{D.U.}}$ = 2,000 people). A community of this size will require an adequate and reliable water supply to meet daily average and peak flow demands as well as emergency flow demands such as fire flow and flows during power outages. A review of existing nearby facilities reveals that the Freehold Township Water System is located within close proximity of the development and that the Gordons Corner Water Company system located at the area of Rte. 18 and Rte. 79 in Marlboro Township is within approximately three miles of the development. Therefore, the connection of the development to existing water systems is possible. Another potential means of supplying water for the development is the construction of groundwater wells which would pump the water out of either the Englishtown Aquifer or the Magothy Raritan Aquifer. These options appear to be the most reasonable approaches to solving the problem of water supply for the development. Therefore, the balance of this Report will analyze each of the following options and evaluate the best option due to economics, implementability and environmental concerns.

Option No. 1

Connect to the Freehold Township System and become a customer of Freehold Township.

Option No. 2

Construct groundwater wells and treatment system for totally independent treated groundwater supply for the development.

Option No. 3

Connect to the Gordons Corner Water Company system in Marlboro Township and become a customer of the Gordons Corner Water Co.

Prior to evaluating the three (3) options, the water supply needs of Sea Gull Village will be evaluated. The estimated required water flows are as follows:

1. Average Daily Flow

$$800 \text{ D.U.} \times 2.5 \frac{\text{people}}{\text{D.U.}} \times 80 \text{ gal/person/day} = 160{,}000 \frac{\text{gal}}{\text{day}}$$

$$= 111 \text{ GPM}$$

2. Peak Daily Flow =

$$2.5 \times 160{,}000 \text{ gal/day} = 400{,}000 \text{ gal/day} = 278 \text{ GPM}$$

3. Peak Hourly Flow

$$4.0 \times 160{,}000 \text{ gal/day} = 800{,}000 \text{ gal/day} = 444 \text{ GPM}$$

Based on these requirements, each of these options will be evaluated.

Option No. 1 - Connect to Freehold Township System

Freehold Township is currently expanding their system by the addition of two (2) new wells and a new water treatment plant. These new facilities are designed to meet the needs of some of the projected future development within the Township. The current water supply for Freehold Township is solely derived from groundwater aquifers. As a consequence of the NJDEP approval of the additional diversion rights for the new treatment and supply facilities, the NJDEP has placed conditions on Freehold Township which includes a less than requested diversion during the maximum month, requirements for implementation of conservation methods and a requirement that the Township undertake studies to secure surface water supplies to augment the groundwater supplies and relieve the overstressed condition of the groundwater aquifers. The NJDEP diversion permit is in conformance with NJDEP's stated policy of "conjunctive use" whereby a dual system of groundwater and surface water is used in order to provide adequate supply and allow for natural recharging of the groundwater aquifers.

During the latter part of September, 1984, the NJDEP granted permission to a private company to divert 5 MGD of surface water from the Matchaponix Brook. The Matchaponix

Water Supply Co. (MWSC) plans to provide treated surface water to various systems that are located within a reasonable distance of the new facility. The Matchaponix Water Supply Company hopes to serve both Freehold Township and the Gordons Corner Water Company with surface water to augment their groundwater supplies. We understand that Freehold Township is interested in the surface water as is the Gordons Corner Water Co. and the Marlboro Twp. Municipal Utilities Authority.

Therefore, the water supply situation in Freehold Township is such that current development in the Township is limited because of NJDEP restrictions on groundwater diversion. Additional development in the Township, beyond that which is approved as within the existing groundwater diversion limits, will be predicated on the connection to the Matchaponix Water Supply Co. for use of surface water from the Matchaponix Brook. Once this connection and the Matchaponix Water Supply Company become a reality, the future developments would be able to proceed.

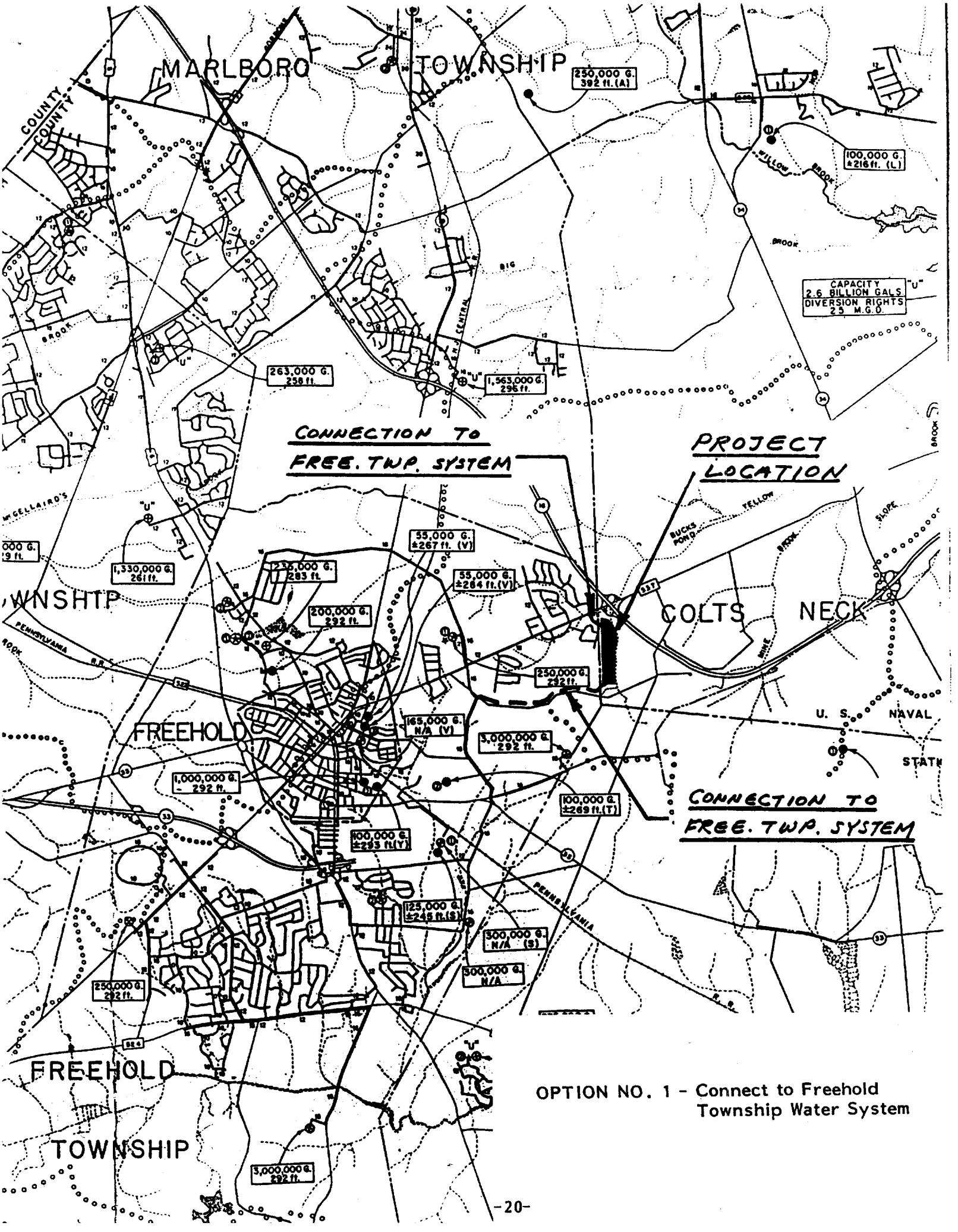
We understand that Freehold Township currently objects to the use of its water system for supply of water to the development. Clearly, the existing situation regarding diversion rights for the Township precludes the use of Freehold Township water. However, once Freehold Township connects to the Matchaponix Water Supply Company for use of the surface water, the connec-

tion to the Freehold Township system may be possible. At that time, only the Freehold Township Distribution system would be used for conveyance of the water from the Freehold Township - Matchaponix Water Supply Company connection to the connection point between Freehold Township and Sea Gull Village. The Sea Gull Village water supply would come from an allocation from the Matchaponix Water Supply Company and would not diminish Freehold Township's supply. The Freehold Township system would serve as an intermediate distribution system. This type of an arrangement could be beneficial to both Freehold Township and Sea Gull Village as follows:

1. The most probable connection between Sea Gull Village and the Freehold Township system would be the extension of the existing 12"Ø main in Stone Hill Road (Burlington Road) for connection to Sea Gull's water system in the southwestern portion of the development. The extension of this 12"Ø main in Stone Hill to Hunt Road is shown on the Freehold Township Water Distribution Facilities Master Plan as a proposed future main extension. This extension would improve the water system in the Hunt Road area which is presently realizing increased development.

2. The additional customers would share the costs of the existing system capital and operating budgets as well as help pay for the connection to the Matchaponix Water Supply Company.

In summary, connection to the Freehold Township Water System could not occur until after Freehold Township connects to the Matchaponix Water Supply Company's system for utilization of surface water from the Matchaponix Brook. The Township's water distribution system would be upgraded in the Stone Hill-Hunt Road area of the Township which would result in improved system pressure. The Township's water distribution system would serve to extend the range of the supply from the Matchaponix Water Supply Company and would comply with NJDEP's "conjunctive use" strategy.



OPTION NO. 1 - Connect to Freehold Township Water System

Option No. 2 - Construct Groundwater Wells and Treatment System for Totally Independent Water System

Under this option, a total, independent water system would be constructed. The system would include two (2) groundwater wells and a treatment plant. As calculated previously in the Report, the average daily consumption for the 800 unit development would be 160,000 gal/day which is in excess of the 100,000 gal/day NJDEP limit for a diversion permit. Therefore, unless the scope of the project was reduced, an NJDEP water diversion permit would be required. Previous correspondence between the NJDEP and GPM Associates on behalf of the developer indicated that the most favorable aquifer in the area would be the Englishtown Aquifer. According to the Monmouth County Water Quality Management Plan, the expected quality of water from the Englishtown Aquifer in this area would be 0.3 to 5.0 mg/l of iron and 0.00 to 0.05 mg/l of manganese. From this information, it can only be concluded that water treatment facilities may be required for iron removal and disinfection.

Therefore, it will be assumed that the following water supply and treatment system would be required if the ground-

water from the Englishtown Aquifer was utilized:

1. Two (2) production wells
2. Treatment Plant consisting of the following:
   a. Manganese greensand filters for iron removal
   b. Backwash storage and recycling facilities
   c. Backwash sludge storage and disposal system
   d. Chemical feed system including pH adjustment system, potassium permanganate system
   e. Disinfection system including chlorination supply and feed facilities.
3. Storage Tank - 250,000 gallons minimum

Under this option, a water diversion permit would be required for diversion in excess of 100,000 GPD. Water diversion permits have become increasingly difficult to obtain due to the condition of the aquifers and NJDEP's policy of conjunctive use. Correspondence between GPM Associates and the Sea Gull Village developer has indicated that, if diversion rights for the Englishtown Aquifer were not possible, another option for groundwater supply might include the use of the Magothy-Raritan Aquifer. GPM Associates, in their September 25, 1984 letter to Mr. James Gordon, indicated

that it may be possible for the Matchaponix Water Company to recharge the Magothy-Raritan Aquifer under an arrangement with Sea Gull Village and thereby enable Sea Gull Village to divert water from the Raritan Aquifer for their use with no net depletion of the aquifer. Obviously this scheme would result in additional costs beyond the operation of the wells and treatment system in order to pay for the recharging of the aquifer.

For the purpose of this Report, it will be assumed that a water diversion permit for the Englishtown Aquifer can be obtained for this option. Schemes regarding recharging of aquifers will no doubt be expensive and difficult to implement.

This option has the advantage of providing an independent system that is relatively free of dependance on approvals, etc. from adjacent water system. However, the disadvantages of this option are also significant and are listed as follows:

1. Water Diversion Permit is required for diversion of more than 100,000 GPD.

2. Treatment system is required including filters, chemical feed and disinfection systems.

3. Treatment system will require daily operation by qualified water plant personnel under the supervision of a water treatment plant operator.

4. Yearly operating and maintenance costs including power costs, chemicals, labor, sludge disposal, repair costs, etc. will be incurred.

5. A water storage tank is required. The other options would not require a tank due to the high system pressures and existing storage facilities.

Essentially, this option will require the formation of a water company for the development which, if fully developed, would be larger than several existing Monmouth County communities.

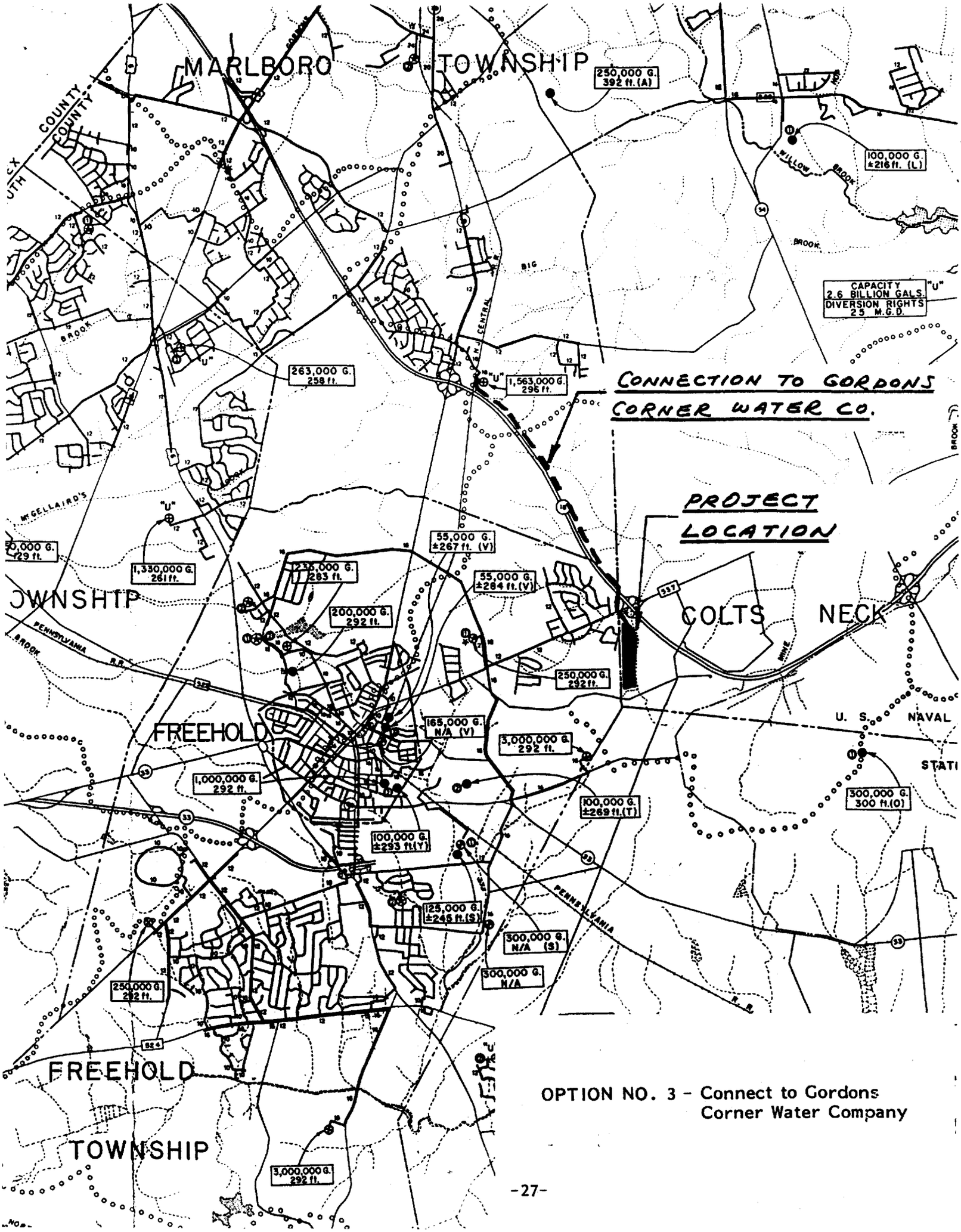
Option No. 3 - Connect to the Gordons Corner Water Company

As discussed under Option No. 1, the Gordons Corner Water Company (GCWC) will utilize the surface water supply from the MWSC. As previously discussed, the use of groundwater in conjunction with surface water is viewed very favorably by NJDEP. It is assumed, as was the case for Option No. 1, that the water for the Sea Gull Village development will be derived mainly from the surface waters of the Matchaponix Brook via the MWSC and, therefore, the water requirements of the development will not place additional stress on existing limited groundwater supplies.

Our review of the Gordons Corner Water Company distribution system indicates that the closest connection point would be in the area of the intersection of Rtes. 18 and 79 in Marlboro Township. In order to serve the development from this connection, the system would have to be extended from the existing Gordons Corner Water Company storage tank at Rte. 79 and Rte. 18 in a southerly direction along Rte. 18 to the intersection of Rte. 18 and Rte. 537. From there, the water main would run along Rte. 537 to the Hunt Road intersection and then along Hunt Road to the development. The water main extension would be approximately 16,000 feet in length or approximately three (3) miles long. Preliminary analysis indicates the size of the water main to be 16"Ø ductile iron pipe. The construction would re-

quire jacking and boring beneath Rte. 18 in order to cross same. This connection could only be possible if Gordons Corner Water Company agreed to the connection and if the Gordons Corner Water Company's own distribution system was found to be adequate to convey the flow.

As was the case for Option No. 1, this option may be beneficial to the Gordons Corner Water Company because of the increased number of customers to share the financial burden of existing capital and operating costs as well as additional customers to help pay for the connection to the Matchaponix Water Supply Company.



OPTION NO. 3 - Connect to Gordons Corner Water Company

V. POTABLE WATER SUPPLY

Cost Estimates

Cost estimates for the various options are included at the end of this Section. The costs are for construction only and are based on assumptions regarding water main routes, water agency requirements, etc. The costs have not been based on detailed site and route investigations. Once more detailed information is obtained as to actual water supply scheme to be used and site specific conditions, etc. are known, more detailed cost estimates can be prepared. The cost estimates are summarized below:

1. Option No. 1 - Connect to the Freehold Township Water System $ 360,000
2. Option No. 2 - Construction of Independent Water System Utilizing Groundwater Well and Treatment System $1,250,000
3. Option No. 3 - Connect to the Gordons Corner Water Company System $1,350,000

Costs for Option No. 1 and No. 3 do not include costs for payment of a connection fee for the privilege of connecting to the existing system. It is assumed that the water purveyors would require a connection fee to help defray the cost of connecting to the Matchaponix Water Supply System.

The actual connection fee would be subject to negotiation with the water purveyor and would result in higher costs. The following tables summarize the estimated construction cost for each option. All costs are approximate and based on limited available information. Revised estimates should be prepared once actual negotiations with a water pruveyor or diversions rights are obtained and actual requirements are defined.

TABLE 2

POTABLE WATER SUPPLY

OPTION NO. 1 - Connection to Freehold Township Water System

Construction Cost Analysis

1.	Water Main Extension - 12"Ø (DIP)	
	*6,000' x $50/ft. = $300,000	$300,000
2.	Meter Pit	20,000
		$320,000
	10% Contingency	32,000
		$352,000
	* SAY	$360,000

* Length includes connection on Stone Hill Road and connection to water main at Rte. 357 and Hunt Road.

* Connection fee not included. Fee would be subject to negotiations. Actual cost would be higher.

TABLE 3

POTABLE WATER SUPPLY

OPTION NO. 2 - Construction of Independent Water System Utilizing Groundwater from the Englishtown Aquifer

Construction Cost Analysis

1.	Two (2) Production Wells	$300,000
2.	Treatment Plant	500,000**
3.	Miscellaneous Piping, Site Work, etc.	50,000
4.	Water Storage Tank	280,000
		$1,130,000
	10% Contingency	113,000
		$1,243,000
	SAY	$1,250,000

** Assumption is that iron removal will require treatment facilities. If not required, cost may be reduced by the indicated amount.

TABLE 4

POTABLE WATER SUPPLY

OPTION NO. 3 - Connection to the Gordons Corner Water Company

Construction Cost Analysis

1.	Water Main Extension - 16"Ø (DIP)	
	16,000' x $65/foot	$1,040,000
2.	Jacking and Boring	
	300' x $500/ft = $150,000	150,000
3.	Meter Pit	20,000
		1,210,000
	10% Contingency	121,000
		$1,331,000
	*SAY	$1,350,000

* Connection fee not included. Fee would be subject to negotiations. Actual cost would be higher.

APPENDIX A

Manasquan River Regional Sewerage Authority

KNUD SCHOLER
EXECUTIVE DIRECTOR

3435 HIGHWAY 9, P.O. BOX 500
FREEHOLD, NEW JERSEY 07728-0500
(201) 431-6166

February 21, 1984

James F. Gordon
Sea Gull Ltd.
20 White Road
Shrewsbury, NJ 07701

Dear Mr. Gordon:

This is to acknowledge receipt of your application for the sewer extension for your proposed development, to be located in the Township of Colts Neck.

We also acknowledge your check in the amount of $300.00 and a letter to Mr. Lou Locasio, Drazin & Warshaw, 25 Reckless Place, Red Bank, New Jersey from Mr. James Gordon, dated February 15, 1984.

The information contained in the above mentioned letter is basically correct with the exception of item Number 3, which says the Manasquan River Regional Sewerage Authority would get the DEP approval. Manasquan River Regional Sewerage Authority will, if approved by the Engineer, sign the CP-1 Form. However, it is the developers responsibility to get NJDEP approval, which is only obtainable after the Authority has signed the CP-1 Form.

The receipt of the application and the $300.00 is with the understanding that no action will be taken by the Authority until a complete set of plans, specifications, Engineering Report, with the appropriate fee has been submitted to the Authority.

Very truly yours,

Knud Scholer
Executive Director

KS:jh

cc: Frank Williamson, ETK

State of New Jersey

HW GASTON JR., P.E.
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
CN 029
TRENTON, NEW JERSEY 08625

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

, August 9, 1984

Mr. James Gordon
Sea Gull Ltd., Builders
20 White Road
Shrewsbury, N.J. 07701

Dear Mr. Gordon:

This is in response to your telephone request for information in the Matchaponix Water Co. request for an allocation of 5 million gallons per day from the Matchaponix Brook.

As you know, a public hearing was held on March 27, 1984. The hearing transcript was received in July and the hearing officer is now preparing his report and recommendations. I expect to receive them next week. At that time I will send a copy to all interested parties, who will have 10 days in which to submit written comments. At the end of the comment period, I will send the recommendations and comments received to the decision maker, who is William Whipple, the Assistant Director for Water Supply and Flood Plain Management. Upon his approval, we issue the permit. I expect this process to be completed during August.

One of my concerns was that the Western Monmouth Utilities Authority had informed us unofficially of their intent to appeal the allocation if granted. We understand that the Board of the MUA has recently decided not to oppose the allocation.

When approved Matchaponix Water Co. will be in a position to provide up to 5 million gallons of surface water per day for approximately 8 months per year. This water will be purchased by regional water systems to supplement their well water supplies. The idea is to use surface water when it is available and to save the wells for those periods when surface water is not available. This will increase the total water available to the regional area.

Very truly yours,

Ernest L. Hardin

Ernest L. Hardin, Chief
Bureau of Water Allocation

SEP 2 4 RECD

State of New Jersey

JOHN W. GASTON JR. P.E.
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
CN 029
TRENTON, NEW JERSEY 08625

September 21, 1984

David R. Monie
GPM Associates, Inc.
P.O. Box 334
Westville, NJ 07093

Dear Mr. Monie:

This is to confirm our discussion on September 17, 1984 regarding a proposed Mount Laurel development in Colts Neck. I had previously been contacted by Mr. Jim Gordon. Under the current regulations, a person may divert up to 100,000 gallons of water per day without a water allocation permit. If he elects to construct a well supply for the development, we suggest that the Englishtown aquifer was less stressed in the Colts Neck area and would be a feasible choice.

You asked about the possibility of obtaining a water allocation permit if the needs of the project exceeded 100,000 gallons per day. The developer is free to apply for a permit in accordance with the regulations. At that time, we would review the application in terms of the statutory requirements which include the following:

1. That the plans are in the public interest;

2. That the diversion shall not unduly interfere with other existing supplies;

3. That the diversion shall not exceed the natural replenishment...of the water resources...;

4. That the plans are just and equitable to other water users;

5. That the proposed diversion does not lie within a cone of depression where the aquifer is overstressed or threatened by saline intrusion or hazardous waste.

I cannot prejudge our determination in this case. The applicant would be expected to provide technical data and an analysis by a hydrogeologist. In this case, he will have the advantage of being able to use the data collected during the first phase of the project.

In addition to the above, there may be alternate sources of water available. For example, on this date the permit for the Matchaponix Water Supply Company was approved, which will provide an additional 3 million gallons per day (mgd) for the region. The Manasquan Reservoir when completed will provide a safe yield of 31 mgd.

In summary, I see a number of possibilities for meeting the future needs of the Colts Neck project, assuming, of course, that here is regional cooperation.

Very truly yours,

Ernest L. Hardin, Chief
Bureau of Water Allocation

GPM associates, inc.
WATER ENGINEERING and MANAGEMENT CONSULTANTS

Red Fern Lane • P.O. Box 334 • Westville, N.J. 08093 • 609-456-7135

September 25, 1984

Mr. James Gordon
Seagull Builders
20 White Road
Shrewsbury, NJ 07701

Re: Water For Proposed
800 Unit Development

Dear Mr. Gordon:

At your request, we have looked into the feasibility of supplying public water supply to your proposed 800 unit development in Colts Neck, Monmouth County, New Jersey. We are writing to summarize our findings to date in this regard.

In order to meet all applicable standards and in order to provide safe, adequate and proper service, the water system should consist of two wells, a storage tank, and a distribution system. Since the project does not cover an extensive area, the two wells and the storage tank can be located on the same piece of property. The following is a brief description of each of the component parts of the water system, including any regulatory approvals which must be obtained:

(1) Distribution System: The distribution system will include pipes ranging in size from 12" to 6". Fire hydrants will be located at appropriate points to meet all local fire company requirements. Service pipes will come off of the distribution system to serve the individual condominium units in the project. Bureau of Potable Water approval is necessary for the distribution system and such approval is routine as long as the requirements of the Bureau of Potable Water are met. These requirements are not overly stringent and our design would meet all of the requirements of the Bureau of Potable Water.

(2) Storage Tank: The Bureau of Potable Water requires that one average day of useable storage be provided for all community public water supplies, such as the one which will serve this development. We have estimated that the average daily requirement for the proposed development will be 200 gallons per unit per day. This consumption is relatively low for two reasons. First, the project is a condominium project with a significant part of the project being multi-family type construction; and second, most of the lawn sprinkling requirements will be met by surface water on site being utilized by the

Condominium Association. Conservation devices will also be installed to save water in the facilities. Based on an average daily consumption of 200 gallons per day per unit and a development consisting of 800 units, the total storage requiement would be 160,000 gallons. This storage could be accomplished by either using an elevated storage tank with a capacity of 160,000 gallons or by using a 300,000 gallon standpipe which would be approximately 22 feet in diameter and 112 feet high. Approvals will be needed for the construction of this standpipe by the Bureau of Potable Water and such approval is routine as long as the requirements of the Bureau are met. Our design would meet all requirements for storage of the Bureau of Potable Water.

(3) Water Supply: Our design for water supply for the proposed development would consist of two wells, each with a capacity of approximately 280 gallons per minute. Each well should be able to meet the maximum requirements for the system. The second well would, therefore, be strictly a stand-by well to assure the reliablility of water supply. The capacity is based on meeting the maximum daily demands of the system which are estimated at 400,000 gallons per day for the 800 unit development. One 280 gallon per minute well would meet this maximum day requirement. There are two potential aquifers capable of supplying this water requirement; namely, the Englishtown Formation and the Raritan Formation. There is little doubt that either formation would be capable of meeting the demands of this development. In order to utilize this water, well drilling permits must be obtained. The well drilling permits are easily obtained by the well drilling contractor. Once more than 100,000 gallons per day average during any month were diverted by the development, a water diversion permit from the Department of Environmental Protection would be required. We have attached a letter dated September 21, 1984 from Mr. Ernest Hardin of the D.E.P. in connection with water diversion approval for this development. Mr. Hardin mentions two possible sources for water supply for this development, in addition to confirming the 100,000 gallon per day threshold limit. It should be noted that approximately 333 units could be constructed prior to exceeding the 100,000 gallons per day during a maximum month (this is based on an average day of 300 gallons per unit during the maximum month). Mr. Hardin recommended that the wells be drilled into the Englishtown Formation. We concur with that recommendation, since the Englishtown Formation has high quality water and has not been utilized to a great extent in the Colts Neck area. Prior to the consumption exceeding 3.1 million gallons per month, an application will

have to be submitted for diversion rights for this project. It is our estimate that the overall diversion right request would be approximately 7.5 million gallons per month. Prior to the actual filing of the application, information will be obtained from the wells drilled into the Englishtown Formation that serve the development in its first stages. It is anticipated that such data could form the basis for the statutory requirements of the diversion application. In the event that the Englishtown Formation is not found suitable for meeting all of the needs of the proposed development, alternate sources of supply will exist. Mr. Hardin, on page 2 of his letter, alludes to two of these possible sources. Matchaponix Water Supply Company has received diversion rights for five million gallons per day of surface water in the region. The ownership of Matchaponix Water Supply Company is similar to, but not identical to, the ownership of G.P.M. Associates, Inc. Mr. August C. Schultes, III, and the undersigned are both principle owners of Matchaponix Water Supply Company and G.P.M. Associates, Inc. The purpose of the Matchaponix Water Supply Company is to provide an alternative surface supply to augment the water currently being discharged from the Raritan Formation. The Raritan Formation, although able to meet the requirements of this proposed development, has been determined to be overstressed in this area and it is likely that this development would not be allowed additional diversion from the Raritan Formation. It is, in our opinion, feasible for the Matchaponix Water Supply Company to recharge water to the Raritan Formation under an arrangement with your development and then pump water at the location of your development from the Raritan Formation in an amount that does not exceed the recharge from Matchaponix Water Supply Company. In summary, water supply for your development is available from two different formations and it is likely that diversion permits can be obtained by one of the two methods mentioned.

We hope that this information is satisfactory and we look forward to working with you on the design phase and construction phase of the proposed water facilities.

Very truly yours,

G.P.M. ASSOCIATES, INC.

David R. Monie

David R. Monie, P.E.
President

DRM:mw
Enclosure
cc: Mr. August C. Schultes, III, P.E.