Borough of Oakland Wastewater Management Plan

Amending the following Areawide Water Quality Management Plans; Northeast WQMP

Date of Modified Submittal: ***February 3, 2023***
Adopted by the New Jersey Department of Environmental Protection: _____

Prepared By:

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LIST OF MAPS

I. Wastewater Management Planning Area

Introduction

The Borough is seeking the approval of a Water Quality Management Plan (WQMP) amendment to allow for a practical means to provide a central sewer system served by the Northwest Bergen County Utilities Authority (NBCUA), which will coincide with the adoption of the Septic Management Ordinance as a condition of the approval. This approach would provide a platform to extend the sanitary collection system into the proposed area while also initiating stricter water quality regulations on individual disposal systems in areas outside of the proposed sewer service area (SSA). The Borough estimates a 20 year-buildout of a sanitary collection system within the Highlands Planning Area will result in a maximum of 856,166 gallons per day (gpd) of flow being directed into a sanitary sewer system.

The purpose of this document is to provide a comprehensive Wastewater Management Plan (WMP) for the Borough of Oakland, pursuant to the WQMP rules, effective November 7, 2016. The WMP has been submitted to the New Jersey Department of Environment Protection for approval via the plan amendment procedure at N.J.A.C. 7:15-3.

Wastewater Management Planning Area

This plan outlines the anticipated wastewater management needs for the Borough. The Plan is based upon data compiled from current Borough sewer policies, existing wastewater treatment facilities and their service areas, and proposed developments pending before the Borough land use boards. Current zoning and existing land use have been utilized to determine the future of wastewater disposal needs.

The Borough is located along the northwestern boundary of Bergen County, New Jersey. Oakland is bordered on the west by the Borough of Wanaque, on the north by the Township of Mahwah, on the east by the Borough of Franklin Lakes and on the south by the Township of Pompton Lakes.

The overall land area of Oakland is approximately 8.782 square miles with a population of approximately 12,748 according to the 2020 US Census.

The Borough owns and operates three (3) small Wastewater Treatment Plants (WTPs) serving 258 residential units. These Borough-owned facilities include Skyview-Hibrook WTP, Chapel Hill WTP and Oakwood Knolls WTP. The local board of education owns an additional WTP servicing the Indian Hills Regional High School. There are also twenty-five (25) privately owned WTPs operating in the Borough at this time. Additionally, there are approximately 3,000 commercial and residential properties throughout the Borough served by individual onsite septic systems and cesspools. These systems have experienced significant problems relating to water quality. The Borough has actively sought a long-term solution to these problems and determined a central sanitary sewer system is necessary.

Many of the existing systems throughout the Borough are failing. Available records indicate that the systems are past their useful life and no permits have been issued to replace the systems. Failing septic systems and cesspools may leak excessive nutrients into groundwater and may have an impact on nearby surface waters. Below is a summary of the findings of the study (Map is in Appendix C):

TABLE 1.1: Individual Onsite System Study Findings

Neighborhood	Number of Systems Reviewed	Number of Cesspools	Percentage of Non-Compliance of All Systems Reviewed
Campgaw	66	22	91%
College Streets	81	55	86%
Crystal Lake	106	49	90%
Dogwood	79	27	85%
Downtown	42	27	93%
Heights	65	38	94%
Indian Hills	71	33	87%
Industrial Park	58	21	90%
Longhill	51	6	84%
Manito	67	37	90%
Mirror Lake	78	26	88%
Muni & Rec	46	11	87%
Potash Lake	27	1	93%
Pleasureland	145	26	98%
Industrial	24	8	86%
Ramapo Res.	sewered	-	-
Ramapo River	66	25	91%
Skyline	34	11	91%
W. Oakland Ave	83	22	95%
TOTAL:	**1,189**	**445**	**90% (AVG)**

Many of the systems, which were designed in the 1950's through the 1980's, fail to meet the latest NJDEP "Standards for Individual Subsurface Sewage Disposal Systems" last revised April 2, 2012 (N.J.A.C. 7:9A). In addition, the systems are located on lot sizes that do not conform to the average lot size per septic system by Land Use Capability Zone as dictated by Highlands. Further, there are at least 445 systems known to be cesspools and no repair date on file with Oakland's Health Department. Since critical requirements from both regulatory agencies are not being met and prevalent failures are occurring Borough-wide, the importance and need for a central sanitary sewer system becomes readily apparent.

The complete results of our system study are outlined in Section III.

Status of Previous Approved Local WMPs

The last WMP for the Borough that was approved by the DEP is dated 1990.

II. Summary of Significant Actions

Sewer Service Area Delineation Criteria

The criteria utilized to delineate the SSA included an evaluation of the existing WTPs and failing systems. The proposed SSA is the portion of the Borough tributary to the failing Borough owned WTPs, the surrounding areas and the Borough's downtown corridor. By installing sewers in the downtown area, it will permit the Borough to implement the goals of its Master Plan and allow for limited re- development of its downtown corridor.

The WTPs owned by the Borough require significant capital investment to effectively operate now and in the near future. This WMP proposes to decommission the WTPS owned by the Borough and divert their wastewater to NBCUA. The lack of a sanitary collection/treatment system has also adversely affected both the water quality and redevelopment patterns of the downtown and nearby residential areas. These areas are also proposed to be included in the NBCUA SSA proposed in this WMP.

The proposed SSA boundaries were developed to avoid including properties located in the Highlands Preservation Area, which are restricted by the Highlands Act. The proposed SSA was modified based on comments from the NJDEP and Highlands Council to ensure compliance with the following regulations.

According to the requirements of N.J.A.C. 7:38-3.3, any new discharge that would require an individual or general NJPDES permit and any extension of a sewer line that requires a Treatment Works Approval is prohibited within the preservation area unless the development in the preservation area satisfies any one of the following criteria:

1. Is exempt from the Highlands Act pursuant to N.J.A.C. 7:38-2.3 and consistent with the applicable areawide WQMP;
2. Qualifies for an emergency HPAA pursuant to N.J.A.C. 7:38-7; or
3. Qualifies for an HPAA with waiver in accordance with N.J.A.C. 7:38-6.

Eligible Sewer Service Areas

The term "Eligible for sewer service area" means areas determined to meet the criteria for designation as sewer service in accordance with N.J.A.C. 7:15-4.4, and are identified as "Assigned sewer service area," differentiating between areas that currently convey sewage to each existing facility and that which is proposed to convey sewage to each existing or proposed facility; or "Unassigned sewer service area," which are areas mapped for future sewer service with no designated treatment facility.

The current SSA is approximately 243.15 acres, comprised of 150.88 assigned to Ramapo River Reserve, 37.97 acres to Skyview, 44.11 acres to Oakwood Knolls and 10.19 acres to Chapel Hill Estates. The new SSA for NBCUA will be approximately 1059 acres.

The Bi-County Tract SSA will be approximately 50.6 acres, and pursuant to court order, will convey its flow to the Mountain View WTP in the Township of Wayne.

The proposed SSA is delineated on Map 3A in Appendix B. A summary of the permitted facilities, which are to be included in the SSA are described in Section III of this report.

Environmentally Sensitive Areas

Under the WQMP rules, large contiguous environmentally sensitive areas, or "ESAs," defined as 25 acres or larger consisting of habitat for Threatened and Endangered Species as identified on the Landscape Project Maps of Habitat for Endangered, Threatened or Other Priority Species version 3.3, Natural Heritage Priority Sites, Category One waters and their corresponding 300 foot riparian zones, and wetlands, alone or in combination are not eligible for sewer service.

Environmentally sensitive area 25 acres or larger are found in the area of the proposed Crystal Lake and Bi-County Tract SSAs. The environmentally sensitive areas around Crystal Lake not included in the proposed SSA. Only the residential zones surrounding the lake were left within the proposed SSA due to the number of failing systems. A Settlement Agreement between the Bi-County Development Corp. and the New Jersey Department of Environmental Protection (OAL Docket No. ELU06606-10N), signed in 2014, established that the property would remain in the SSA as the environmentally sensitive areas had been addressed in the Comprehensive Conservation Plan developed for the property.

Sewer Service in the Highlands

The existing SSA includes all NJPDES permitted wastewater treatment facilities within the Borough, whether discharging to surface or ground water as illustrated on Map 3A. The currently proposed SSA falls entirely within the Highlands planning area and does not extend into the Highlands preservation area, with the exception of the Bi-county tract which the New Jersey Department of Environmental Protection determined to be exempt from the Highlands Act under N.J.S.A 13:20-28(a)(17).

Septic System Development within the Sewer Service Areas

As the sanitary sewer system is built out throughout the Borough, all existing properties in the proposed SSA which currently utilize septic systems and cesspools, will have 36 months to connect to the new system. The Borough will pass an ordinance mandating the connection to the new sewer system.

Non-Sewer Service Areas

All properties in the Borough's non-sewer service area will be subject to a septic maintenance program that will ensure these facilities are functioning properly. Details of the septic maintenance program are included in Section VII.

Properties in the proposed SSA will adhere to the septic maintenance program until they connect to the proposed sanitary system, for which they'll have 36 months to do so.

Planning Coordination

N.J.A.C. 7:15-3.5 (f) requires the Borough to notify all governmental entities that have regulatory or planning jurisdiction over wastewater, water supply, or land use in any sewer service area being modified. The following agencies are:

- Veolia North America
- Passaic Valley Water Commission
- North Jersey District Water Supply Commission
- Great Falls Hydroelectric Company

- City of Paterson DPW Great Falls Raceway
- Dundee Water Power & Land Company c/o Veolia North America
- County of Bergen
- NBCUA
- Borough of Franklin Lakes
- Township of Wayne

The municipality has informed all the stakeholders listed above of the proposed WMP. To date, no specific issues have been brought to our attention from the agencies mentioned above.

Highlands Council

The Borough is located within the Highlands Planning Area and the Highlands Preservation Area. The Borough is no longer a conforming municipality but will comply with Highlands regulation for the parts of the Borough that fall within the Highlands Preservation Area. The Borough has been coordinating with the Highlands Council to secure a Highlands Regional Master Plan (RMP) Consistency Determination, which is necessary for the modification of the Borough's water allocation permit. The Borough revised the proposed SSA in response to the Highland's comments and submitted a copy of a prior draft of the WMP for their review. The Highlands Council requested that in accordance with Executive Order 114 (EO 114), the farm located on Block 4004, Lots 4 and 5 be removed from the proposed SSA. Therefore, Block 4004, Lots 4 and 5 have been removed. However, as noted under EO 114, the Fanale tract is also located within the Protection Zone, but due to ongoing Affordable Housing litigation, the property will remain in the proposed SSA.

The Borough adopted a Water Use and Conservation Management Plan (WUCMP) on August 12, 2021, which includes a mitigation plan to address the transfer of wastewater to the NBCUA WTP. The preparation of the WUCMP was a condition of the RMP Consistency Determination. In order to obtain the Consistency Determination from the Highlands Council, the Borough has identified mitigation strategies for a minimum of 100% of the proposed inter- basin transfer. The preparation and full implementation of the municipal wide Water User and Conservation Management Plan is to account for existing and future water deficits in the Borough.

III. Existing and Future Wastewater Treatment Facilities

This section addresses wastewater treatment facilities currently or anticipated to be utilized within the Borough, whether the treatment works itself is located within or outside of the municipality.

Overview of Wastewater Services and Wastewater Responsibilities

Only a small portion of the Borough is currently serviced by existing wastewater treatment facilities. This area includes community wastewater systems that serve 5% percent of the total Borough population. After performing an assessment of each of the three Borough owned wastewater treatment facilities, it was determined that the plants are at the end of their useful life. Two (2) alternatives have been identified to remedy the situation and avoid failure of the system:

- Complete replacement of the three (3) WTPs with new packaged plants.
- Decommissioning of the plants and installation of pumping stations to convey flow to the NBCUA.

The wastewater treatment facilities' assessment report is included in Appendix C.

A study of the existing individual onsite septic systems and cesspools throughout the Borough was completed in 2016. There are over 3,000 systems throughout the municipality. A sampling of over 1,000 system records throughout the different neighborhoods in the Borough were reviewed. Of the 1,000 systems, over 400 systems still rely on cesspools, which historically were made of concrete or cinder block with open joints. The improperly functioning systems allow untreated sewage to runoff into receiving ground and surface water. Findings indicate that many of the systems, which were designed in the 1950's through the 1980's, fail to meet the latest NJDEP "Standards for Individual Subsurface Sewage Disposal Systems" (N.J.A.C. 7:9A). Further, there are at least 445 systems which are known cesspools with no repair date on file with Oakland's Health Department. Since critical requirements from regulatory agencies are not being met and prevalent failures are occurring Borough-wide, the importance and need for a central sanitary sewer system becomes readily apparent. The findings are outlined in Appendix C, including a map illustrating the locations of each neighborhood within the Borough.

Existing Public Wastewater Treatment Works and Service Area

The table below lists the major domestic wastewater treatment facilities within Oakland Borough and the portion of the municipality they serve.

Wastewater Utility	Area Served
Skyview-Hibrook	68 Homes in the vicinity of Lakeside Boulevard
Oakwood Knolls	166 connections from the Oakcrest Townhouse Development and the Coppertree Mall.
Chapel Hill	24 homes in Chapel Hill Estates
Indian Hills HS	Indian Hills High School
Ramapo River	Ramapo River Reserve development; approximately 320 acres

Wastewater Facility Tables

This section addresses wastewater treatment facilities currently or anticipated to be utilized by development within the municipality, whether the treatment works itself is located within or outside of the municipality. Facility tables are provided for each existing and proposed wastewater treatment facility.

Table 3.1 Skyview-Hibrook WTP		
1. Existing or proposed facility:	Existing*	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0021342	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Pond Brook	
5. Classification of receiving water or aquifer:	FW2-NT	
6. Owner of facility:	Borough of Oakland	
7. Operator of facility:	Gerald C. Kastner	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	179 Lakeside Boulevard	
a. Municipality & County	Oakland, Bergen	
b. Street address	179 Lakeside Boulevard	
c. Block(s) and Lot(s)	5004,67	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.215851 b. Latitude 41.03141	
	c. State Plane Coordinates x 570475, y 800793	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.023 MGD	
*12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	196	0
Total	196	0
*13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2019) Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.017	0
Facility Total	0.017 MGD	0

*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table.**

Table 3.2 Oakwood Knolls WTP		
1. Existing or proposed facility:	Existing*	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0027774	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Ramapo River Tributary	
5. Classification of receiving water or aquifer:	FW2-NT	
6. Owner of facility:	Borough of Oakland	
7. Operator of facility:	Gerald C. Kastner	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	101 East Oak Street	
a. Municipality & County	Oakland, Bergen	
b. Street address	101 East Oak Street	
c. Block(s) and Lot(s)	3903, 89	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.240001 b. Latitude 41.023542	
	c. State Plane Coordinates x 563876.30, y 797869.53	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.035 MGD	
*12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	465	0
Total	465	0
*13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2019) Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.030	0
Facility Total	0.030 MGD	0

*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table.**

Table 3.3 Oakland Care Center		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0029858	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Hoppers Lake	
5. Classification of receiving water or aquifer:	FW2-NT	
6. Owner of facility:	Oakland Operator LLC DBA	
7. Operator of facility:	Sam Goldberger	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	20 Breakneck Road	
a. Municipality & County	Oakland, Bergen	
b. Street address	20 Breakneck Road	
c. Block(s) and Lot(s)	3101, 5	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.246981 b. Latitude 41.001305	
	c. State Plane Coordinates x 561824 y 789408	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.030 MGD	
*12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	215 beds	215 beds
Total	215 beds	215 beds
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2019) Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.03	0.03 MGD
Facility Total	0.03 MGD	0.03 MGD

Table 3.4 Chapel Hill Estates STP		
1. Existing or proposed facility:	Existing*	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0053112	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Pond Brook Tributary	
5. Classification of receiving water or aquifer:	FW2-NT	
6. Owner of facility:	Borough of Oakland	
7. Operator of facility:	Gerald C. Kastner	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	145 Hiawatha Boulevard	
a. Municipality & County	Oakland, Bergen	
b. Street address	145 Hiawatha Boulevard	
c. Block(s) and Lot(s)	5204, 25	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.226775 b. Latitude 41.036746	
	c. State Plane Coordinates x 567497.53, y 802670.17	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.01 MGD	
*12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	58	0
Total	58	0
*13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2019) Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.007	0
Facility Total	0.007 MGD	0

*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table.**

Table 3.5 Ramapo River Reserve WTP		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0080811	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Ramapo River Tributary	
5. Classification of receiving water or aquifer:	FW2-NT	
6. Owner of facility:	Ramapo River Reserve	
7. Operator of facility:	Karl Weber	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	27 Waters Edge	
a. Municipality & County	Oakland, Bergen	
b. Street address	27 Waters Edge	
c. Block(s) and Lot(s)	1103, 10	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.231524 b. Latitude 41.047243	
	c. State Plane Coordinates x 566226, y 806545	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.1137 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	810	810
Total	810	810
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2019) Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.092	0.092
Facility Total	0.092 MGD	0.092 MGD

Table 3.6 Indian Hills High School		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0021253	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Pond Brook Tributary	
5. Classification of receiving water or aquifer:	FW2-NT	
6. Owner of facility:	Oakland Board of Ed	
7. Operator of facility:	Michael Lyons	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	97 Yawpo Avenue	
a. Municipality & County	Oakland, Bergen	
b. Street address	97 Yawpo Avenue	
c. Block(s) and Lot(s)	4101, 1	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.231325 b. Latitude 41.02243	
	c. State Plane Coordinates x 566012, y 797854	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.0336 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	1226 Students	0
Total	1226 Students	0
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2019) Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.005	0
Facility Total	0.005 MGD	0
*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table.**		

Table 3.7
Engineering Laboratories Inc
SANITARY SUBSURFACESEWAGE DISPOSAL SYSTEM GENERAL PERMIT
(T-1 PERMIT) TREATMENT FACILITY TABLE

1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0051471	
2. Discharge to ground water (DGW) or surface water (DSW):	DGW	
3. Receiving water or aquifer:	Igneous and Metamorphic Rocks	
4. Classification of receiving water or aquifer:	II-A	
5. Owner of facility:	Peter R. Spinney, Inc	
6. Operator of facility:	Peter R. Spinney	
7. Location of facility:	360 West Oakland Avenue	
a. Municipality & County	Oakland, Bergen	
b. Street address	360 West Oakland Avenue	
c. Block(s) and Lot(s)	103, 3	
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.265386 b. Latitude 41.017079	
	c. State Plane Coordinates x 556994, y 796188	
10. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	31 Employees	31 Employees
Total	31 Employees	31 Employees
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.002275 MGD	

*** Facility is not expected to expand. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**

Table 3.8 Topcon Medical Systems, Inc.		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0078565	
3. Discharge to ground water (DGW) or surface water (DSW):	DGW	
4. Receiving water or aquifer:	Brunswick Shale	
5. Classification of receiving water or aquifer:	II-A	
6. Owner of facility:	111 Bauer Drive LLC	
7. Operator of facility:		
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	111 Bauer Drive	
a. Municipality & County	Oakland, Bergen	
b. Street address	111 Bauer Drive	
c. Block(s) and Lot(s)	3203, 4	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.241041 b. Latitude 41.006735	
	c. State Plane Coordinates x 563790, y 791736	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.0085 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	340 Employees	340 Employees
Total	340 Employees	340 Employees
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current Year 2019 Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.0008	0.0085
Facility Total	0.0008 MGD	0.0085 MGD

Table 3.9 Cablevision of Oakland		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0083038	
3. Discharge to ground water (DGW) or surface water (DSW):	DGW	
4. Receiving water or aquifer:	Crystalline Rocks	
5. Classification of receiving water or aquifer:	II-A	
6. Owner of facility:	Cablevision of Oakland	
7. Operator of facility:	Karl Weber	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	40 Potash Road	
a. Municipality & County	Oakland, Bergen	
b. Street address	40 Potash Road	
c. Block(s) and Lot(s)	3601, 4	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.240183 b. Latitude 41.011097	
	c. State Plane Coordinates x 563880, y 793292	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.002 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	40 Employees	32 Employees
Total	40 Employees	32 Employees
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current Year 2019 Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.0007	0.00048
Facility Total	0.0007 MGD	0.00048 MGD

Table 3.10 Platinum Press Inc.		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0086797	
3. Discharge to ground water (DGW) or surface water (DSW):	DGW	
4. Receiving water or aquifer:	Undifferentiated glacial drift	
5. Classification of receiving water or aquifer:	II-A	
6. Owner of facility:	CK Bergen Associates, LLC	
7. Operator of facility:	Karl Weber, NJ American Co.	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	5 Thornton Road	
a. Municipality & County	Oakland, Bergen	
b. Street address	5 Thornton Road	
c. Block(s) and Lot(s)	2303, 1	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.240183 b. Latitude 41.007123	
	c. State Plane Coordinates x 563939, y 791565	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.0019 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	25 Employees	25 Employees
Total	25 Employees	25 Employees
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current Year 2019 Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.000749	0.000749
Facility Total	0.000749 MGD	0.000749 MGD

Table 3.11 Robert Michael Shopping Center		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0167126	
3. Discharge to ground water (DGW) or surface water (DSW):	DGW	
4. Receiving water or aquifer:	Glacial Till	
5. Classification of receiving water or aquifer:	II-A	
6. Owner of facility:	Robert Michael Shopping Center	
7. Operator of facility:	R. Michael Kennedy	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	340 Ramapo Valley Road	
a. Municipality & County	Oakland, Bergen	
b. Street address	340 Ramapo Valley Road	
c. Block(s) and Lot(s)	3906, 2	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.241984 b. Latitude 41.023341	
	c. State Plane Coordinates x 563208, y 797837	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.00636 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	33,880 square feet	0
Total	33,880 square feet	0
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current Year 2019 Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.00312	0
Facility Total	0.00312 MGD	0

*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table.**

Table 3.12 Oakland Cross Roads		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0167631	
3. Discharge to ground water (DGW) or surface water (DSW):	DGW	
4. Receiving water or aquifer:	Feltville Formation	
5. Classification of receiving water or aquifer:	II-A	
6. Owner of facility:	Oakland Cross Roads	
7. Operator of facility:	Elias Joseph	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	409 Ramapo Valley Road	
a. Municipality & County	Oakland, Bergen	
b. Street address	409 Ramapo Valley Road	
c. Block(s) and Lot(s)	1706, 3.01	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.24077 b. Latitude 41.027005	
	c. State Plane Coordinates x 561005, y 799328	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.00787 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	30,200 square feet	0
Total	30,200 square feet	0
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current Year 2019 Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.001471	0
Facility Total	0.001471	0

*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table.**

Table 3.13 Amerlux LLC* SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0080276
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Basalt
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Amerlux LLC
6. Operator of facility:	Paul Shaskan
7. Location of facility:	178 Bauer Drive
a. Municipality & County	Oakland, Bergen
b. Street address	178 Bauer Drive
c. Block(s) and Lot(s)	3603, 3
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.235280 b. Latitude 41.010609
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 564883, y 793563
10. Summary of current population served identifying all wastewater generating uses:	Max of 375 employees
Commercial: amount of square footage	110,000 SF
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.01375
*** Facility is not expected to expand. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.14 Copper Tree Shopping Plaza* SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0133809
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Byram Gneiss Formation
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Copper Tree Shopping Plaza
6. Operator of facility:	Enrico Laurino
7. Location of facility:	350 Ramapo Valley Road
a. Municipality & County	Oakland, Bergen
b. Street address	350 Ramapo Valley Road
c. Block(s) and Lot(s)	3906, 1
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.241125 b. Latitude 41.023924
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 563550, Y 798018
10. Summary of current population served identifying all wastewater generating uses:	Shopping Mall
Commercial: amount of square footage	18,496 SF
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.002312
*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.15 Di Iorio Investors SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0262714
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Di Iorio Investors
6. Operator of facility:	Steven M. Segalas
7. Location of facility:	20 Elm Street
a. Municipality & County	Oakland, Bergen
b. Street address	20 Elm Street
c. Block(s) and Lot(s)	1802, 7
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.24279 b. Latitude 41.025147
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 563089 y 798462
10. Summary of current population served identifying all wastewater generating uses:	4,074 sq. foot retail building and a 144-seat restaurant
Commercial: amount of square footage	7,150 SF
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.00089 MGD
*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.16 Haband Company* SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0133469
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Basalt
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Haband Company
6. Operator of facility:	
7. Location of facility:	112 Bauer Drive
a. Municipality & County	Oakland, Bergen
b. Street address	112 Bauer Drive
c. Block(s) and Lot(s)	3204, 4
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.239792 b. Latitude 41.005872
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 563710, y 791469
10. Summary of current population served identifying all wastewater generating uses:	
Commercial: amount of square footage	30,000 SF
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.003 MGD
*** Facility is not expected to expand. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.17 Jayare Associates* SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0100757
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Jayare Associates LLC
6. Operator of facility:	Elliot S. Leiowitz
7. Location of facility:	14 Post Road
a. Municipality & County	Oakland, Bergen
b. Street address	14 Post Road
c. Block(s) and Lot(s)	2701, 1
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.256295 b. Latitude 41.01452
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 559770, y 794529
10. Summary of current population served identifying all wastewater generating uses:	Shopping Mall
Commercial: amount of square footage	88,000 SF
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.010935 MGD
*** Facility is not expected to expand. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.18 Long Hill Medical Plaza* SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0140082
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer Conglomerate
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Long Hill Medical Plaza
6. Operator of facility:	David A. Hals
7. Location of facility:	9 Post Road
a. Municipality & County	Oakland, Bergen
b. Street address	9 Post Road
c. Block(s) and Lot(s)	2703, 1
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.255263 b. Latitude 41.013665
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 559578, y 794249
10. Summary of current population served identifying all wastewater generating uses:	Professional/medical office building
Commercial: amount of square footage	22,000 SF
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.002788 MGD
*** Facility is not expected to expand. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.19 Oakland Bus Center #1* SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0168793
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Basalt
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Oakland Bus Center #1
6. Operator of facility:	Linda Correlli
7. Location of facility:	16 Thornton Road
a. Municipality & County	Oakland, Bergen
b. Street address	16 Thornton Road
c. Block(s) and Lot(s)	3201, 2
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.245931 b. Latitude 41.006585
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 563215, y 791265
10. Summary of current population served identifying all wastewater generating uses:	60 staff members
Commercial: amount of square footage	43,000 SF
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.005383 MGD
*** Facility is not expected to expand. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.20 Oakland Diner* SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0168629
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Oakland Diner
6. Operator of facility:	Harry Mihas
7. Location of facility:	72 Ramapo Valley Road
a. Municipality & County	Oakland, Bergen
b. Street address	72 Ramapo Valley Road
c. Block(s) and Lot(s)	2601, 7
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.260879 b. Latitude 41.015153
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 558119, y 794686
10. Summary of current population served identifying all wastewater generating uses:	112 seats
Restaurant: number of seats	112 seats
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.00392 MGD
*** Facility is not expected to expand. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.21 Our Lady of Perpetual Help SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0186091
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Our Lady of Perpetual Help
6. Operator of facility:	Thomas Paul Lipnicki
7. Location of facility:	117 Franklin Avenue
a. Municipality & County	Oakland, Bergen
b. Street address	117 Franklin Avenue
c. Block(s) and Lot(s)	4901, 1
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.226919 b. Latitude 41.028519
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 567359, y 799841
10. Summary of current population served identifying all wastewater generating uses:	300 students/staff
School: number of students and staff (specify cafeteria, labs, showers)	300 students/staff Catholic school (non-boarding school)
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.0105 MGD
*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.22 Portabello Banquet SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0142701
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Portabello Banquet
6. Operator of facility:	David Hall
7. Location of facility:	155 Ramapo Valley Road
a. Municipality & County	Oakland, Bergen
b. Street address	155 Ramapo Valley Road
c. Block(s) and Lot(s)	2401, 7
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.254115 b. Latitude 41015023
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 559896, y 794813
10. Summary of current population served identifying all wastewater generating uses:	307 seats
Restaurant: number of seats	307 seats
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.010745 MGD
*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.23 Portobello Feasts SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0137219
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Portobello Feasts
6. Operator of facility:	David Hall
7. Location of facility:	175 Ramapo Valley Road
a. Municipality & County	Oakland, Bergen
b. Street address	175 Ramapo Valley Road
c. Block(s) and Lot(s)	2601, 5
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.253004 b. Latitude 41.015760
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 560260, y 795004
10. Summary of current population served identifying all wastewater generating uses:	196 seats
Restaurant: number of seats	196 seats
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.00686 MGD
*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.24 Ramapo Shopping Center Inc SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0083470
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Ramapo Shopping Center Inc
6. Operator of facility:	John Ringer
7. Location of facility:	400 Ramapo Valley Road
a. Municipality & County	Oakland, Bergen
b. Street address	400 Ramapo Valley Road
c. Block(s) and Lot(s)	3901, 1
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.239632 b. Latitude 41.025903
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 563907, y 798751
10. Summary of current population served identifying all wastewater generating uses:	Shopping Center
Commercial: amount of square footage	13,000 SF
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.001665 MGD
*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.25 Ramapo Valley Resources LTD SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0145521
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Ramapo Valley Resources LTD
6. Operator of facility:	John Olsen
7. Location of facility:	345 349 Ramapo Valley Road
a. Municipality & County	Oakland, Bergen
b. Street address	345 349 Ramapo Valley Road
c. Block(s) and Lot(s)	1802, 8
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.242779 b. Latitude 41.024367
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 563093 y 798178
10. Summary of current population served identifying all wastewater generating uses:	Strip mall with retail stores & food service
Commercial: Identify amount of square footage	32,280 SF
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.005 MGD
*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.26 Trovatos Due SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0140023
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Trovatos Due
6. Operator of facility:	Antonio Trovato
7. Location of facility:	4 Barbara Lane
a. Municipality & County	Oakland, Bergen
b. Street address	4 Barbara Lane
c. Block(s) and Lot(s)	1705, 4
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.243004 b. Latitude 41.027416
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 563028 y 799289
10. Summary of current population served identifying all wastewater generating uses:	115 seats
Restaurant: number of seats	115 seats
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.004035 MGD
*** Facility is not expected to expand and is anticipated to connect to NBCUA. Wastewater flows previously sent to this facility will be accounted for in the NBCUA facility table. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.27 Barnstable Academy* SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0142441
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Brunswick Aquifer
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	Barnstable Academy
6. Operator of facility:	Matthew Frasco
7. Location of facility:	8 Wright Way
a. Municipality & County	Oakland, Bergen
b. Street address	8 Wright Way
c. Block(s) and Lot(s)	3301, 8
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.248217 b. Latitude 41.005765
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 561559, y 791426
10. Summary of current population served identifying all wastewater generating uses:	260 students/staff
School: number of students and staff (specify cafeteria, labs, showers)	260 students/staff (non-boarding)
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.0026 MGD
*** Facility is not expected to expand. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

Table 3.28 CTC Academy		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0251801	
3. Discharge to ground water (DGW) or surface water (DSW):	DGW	
4. Receiving water or aquifer:	Glacial Till	
5. Classification of receiving water or aquifer:	II-A	
6. Owner of facility:	CTC Academy	
7. Operator of facility:	Ken Berger	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:		
a. Municipality & County	Oakland, Bergen	
b. Street address	125 Bauer Drive	
c. Block(s) and Lot(s)	3601, 40	
10. Location of discharge (i.e. degrees, minutes, seconds):	c. Longitude 74.239426 d. Latitude 41.008143	
	c. State Plane Coordinates x 564086, y 792271	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.00782 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	330 Students	330 Students
Total	330 Students	330 Students
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current Year 2019 Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0.000502	0.00502
Facility Total	0.000502 MGD	0.00502 MGD

Table 3.29 Northwest Bergen County Utilities Authority WTP		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0024813	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Hohokus Brook	
5. Classification of receiving water or aquifer:	FW2-NT	
6. Owner of facility:	Northwest Bergen County Utilities Authority	
7. Operator of facility:	Robert Genetelli	
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	30 Wyckoff Avenue	
a. Municipality & County	Waldwick, Bergen	
b. Street address	30 Wyckoff Avenue	
c. Block(s) and Lot(s)	118, 1.02	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.123039 b. Latitude 41.006854	
	c. State Plane Coordinates x 596157, y 791918	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	16.8 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	0	3970
Total*	0	3970
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2019) Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0	0.856
Facility Total*	0	0.856
*Totals only represent values from Oakland Borough. NBCUA currently serves 14 municipalities. Existing flow is 12.283 mgd.		

Table 3.30 Mountain View WTP		
1. Existing or proposed facility:	Existing*	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0028002	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Preakness Brook	
5. Classification of receiving water or aquifer:	FW2-NT	
6. Owner of facility:	Township of Wayne	
7. Operator of facility:		
8. Co-Permittee of facility *(where applicable)*:		
9. Location of facility:	205 Dey Road Wayne	
a. Municipality & County	Wayne, Passaic	
b. Street address	205 Dey Road Wayne	
c. Block(s) and Lot(s)		
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.250589 b. Latitude 40.91031	
	c. State Plane Coordinates x 561057 y 756620	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	13.5 MGD	
12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2019) Population	Build-out
Municipality: Oakland	0	285
Total*	0	285
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2019) Flow (in MGD)	Build-out (in MGD)
Municipality: Oakland	0	0.0612
Facility Total*	0	0.0612
*Totals only represent values from Oakland Borough. Mountain View WTP also serves areas of Wayne Township. Existing flow is 8.909 mgd.		

Table 3.31 Existing Burger King Restaurant* SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0173967
2. Discharge to ground water (DGW):	DGW
3. Receiving aquifer:	Feltville Formation
4. Classification of receiving aquifer:	II-A
5. Owner of facility:	A&E Ventures of Oakland LLC
6. Operator of facility:	
7. Location of facility:	101 Plaza Road
a. Municipality & County	Oakland, Bergen
b. Street address	125 Bauer Drive
c. Block(s) and Lot(s)	2702, 1
8. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74.15316 b. Latitude 41.0889
9. Location of discharge (i.e. degrees, minutes, seconds):	c. State Plane Coordinates x 559659 y 794681
10. Summary of current population served identifying all wastewater generating uses:	Restaurant with 120 seats
Other: Refer to N.J.A.C. 7:9A-7.4	Estimated Flow: 0.0048 MGD
*** Facility is not expected to expand. The existing flow is unmetered. The above identified flow is calculated based on existing uses in accordance with N.J.A.C. 7:9A design criteria.**	

IV. Wastewater Treatment Capacity Analysis - Sewer Service Area

The existing and future wastewater management needs of each SSA was identified and evaluated in a wastewater treatment capacity analysis. This section describes the build out methodology used to calculate existing wastewater flows for assigned SSA (SSAs served by an identified permitted treatment facility), as well as project future wastewater treatment demand for the Borough.

Calculating Existing Wastewater Flows

Existing Development

For each assigned SSA, the Borough has identified the existing wastewater flow using the highest consecutive 12 months rolling average over the most recent five-year period preceding development of the WMP (January 2015-December 2019), as reported in the Discharge Monitoring Reports required pursuant to N.J.A.C. 7:14A-6.8 for each facility.

Assigned Sewer Service Area Capacity Analyses

The average daily flow from existing NJPDES permitted facilities in the Borough are outlined in the table below.

The ones with an asterisk are Borough owned wastewater treatment plants that will be decommissioned in the near future and whose flow will be conveyed to NBCUA:

Facility	Existing Flow (Peak 12-month Avg during 2015-2019)
SKYVIEW/HIBROOK WTP – NJ0021342*	
12 Month Rolling Average (MGD) October 2016-September 2017	0.017
Chapel Hill Estate STP – NJ0053112*	
12 Month Rolling Average (MGD) August 2017-July 2018	0.007
Oakwood Knolls WWTP – NJ0027774*	
12 Month Rolling Average (MGD) November 2018-October 2019	0.030
Indian Hills High School – NJG0021253	
12 Month Rolling Average (MGD) April 2017-March 2018	0.005
Topcon Medical Systems, Inc. – NJ0078565	
12 Month Rolling Average (MGD) December 2017-November 2018	0.0008
Oakland Cross Roads – NJ0167631	
12 Month Rolling Average (MGD) February 2017-January 2018)	0.001471
Robert Michael Shopping Center – NJ0167126	
12 Month Rolling Average (MGD) October 2018-September 2019	0.00312
Oakland Care Center – NJ0029858	
12 Month Rolling Average (MGD) January 2019-December 2019	0.03
Ramapo River Reserve – NJ0080811	
12 Month Rolling Average (MGD) July 2018-June 2019	0.092
Cablevision of Oakland – NJ0083038	
12 Month Rolling Average (MGD) March 2018-February 2019	0.0007
Platinum Press Inc. – NJ0086797	
12 Month Rolling Average (MGD) May 2018-April 2019	0.000749
CTC Academy – NJ0251801	

12 Month Rolling Average (MGD) January 2019-December 2019	0.000502

The NBCUA plant is a regional Sewage Treatment Plant effectively collecting and treating wastewater flows from 14 municipalities. The Borough of Oakland is not currently served by or within the SSA of NBCUA.

The highest 12-month rolling average over the past 5 years (January 2015 through December 2019) for NBCUA's flow is 12.283 MGD for August 2018-July 2019. NBCUA is permitted for 16.8 MGD and has the capacity to accept the proposed 856,166 gpd flow from the proposed SSA of the downtown corridor of Oakland Borough in addition to its currently adopted SSA with no upgrades necessary to the existing plant.

In accordance with the litigation for Bi-County (Appendix D), the flow for the development will be conveyed to the Township of Wayne.

The highest 12-month rolling average over the past 5 years for Mountain View STP is 8.909 MGD for August 2018-July 2019. The Plant is permitted for 13.5 MGD and there is no potential capacity deficit as a result of the proposed increase in flow.

All other NJPDES regulated facilities within the Borough serve a limited onsite development and are not expected or proposed to serve additional areas or development or expand beyond their current permitted flows. As such, no potential capacity deficits have been identified for those facilities.

Projecting Future Wastewater Flows

Wastewater Demand Projections in Sewer Service Areas

Wastewater flow was projected for existing developments within the proposed SSA. In accordance with N.J.A.C. 7:14A- 23.3, the projected flow for the existing development, and development of underdeveloped parcels in accordance with existing zoning, within the proposed NBCUA SSA is 0.770 MGD. The tabulated flow, broken down by zoning information is outlined in Appendix E.

In an effort to evaluate capacity and future sanitary flow volumes, a build out analysis was completed utilizing GIS and zoning information as outlined in N.J.A.C. 7:15. The following is a chart of undeveloped land that is found within the proposed SSA. Locations for these undeveloped tracts are outlined on Map 5 in Appendix B.

Name of Development	Area	Zone	Proposed	Future Sanitary Flow
1. Fanale	38.8 acres	Corporate Office	150 units – 3bd; 50 units – 2bd	56,250 gpd *
2. Raritan Rd Site	2.9 acres	I-3 Industrial	Approved for 40 Affordable Housing 1bd	6,000 gpd
3. Vacant Land	2.1 acres	Local Business	Approved for 10,000 sf of office	1,000 gpd
4. Vacant Land	4.4 acres	Professional Office	Max 47,916 sf per Borough ordinance	4,792 gpd
5. Vacant Land	2.4 acres	Local Business	Residential; Prop 80 - 2 bd apts;	18,000 gpd
			TOTAL	86,042 gpd

The amount of wastewater estimated to be generated by the developments were calculated in accordance with the Borough Code and N.J.A.C. 7:14A-23.3. The max building area for the Raritan Road Site is 0.725 acres (31,581 sf) per the Borough code (25% building coverage). Utilizing Table E-3 of the NJ Demographic Multipliers: The Profile of the Occupants for Residential and Non-residential Development, the max number of employees for industrial sites is between 1-2 per 1,000 sf. Utilizing 2 employees per 1,000 sf, there will be a max of 63 employees on site. As per N.J.A.C. 7:14A, the flow is 25 gpd/employee, which equates to 1,579 gpd. The higher affordable housing proposed flow was utilized.

* The Fanale tract will not be part of the interbasin transfer, because they are exporting water from the Saddle River Basin, the same as where it will be discharged. The total interbasin transfer is 799,916 gpd (770,124 gpd + 29,792 gpd).

Interbasin Transfer

The Borough is proposing to convey the wastewater generated within the proposed downtown SSA, which is located within the Ramapo River Basin, to the NBCUA, which is located in the Saddle River Basin. As outlined above, the transfer from the Ramapo River Basin to the Saddle River Basin is approximately 799,916 gpd, which is the flow calculated utilizing NJDEP standards. The Borough will partner with NBCUA to install the pumping station, force main and gravity interceptor along Route 202. The agreement will include a provision that all properties with frontage along the interceptor must tie in within 36 months. Once the pumping station is built and the three (3) failing WTPs are taken offline, those properties will automatically be tied in.

It is estimated that the build-out of the remaining sanitary sewer system will have an approximate construction cost of $30 M. This expenditure will take approximately 20 years, since it will have to be completed in stages. It will be mandatory for all residential and commercial properties to connect within 36 months of the sanitary sewer system being built. This will be enforced by Borough ordinance.

Any future properties, not outlined in this report, that want to connect to the sanitary sewer system will have to either get water from outside the basin or address the additional interbasin transfer amount. The Applicant will be required to get a site-specific WQMP amendment through the New Jersey Department of Environmental Protection.

V. Nitrate Dilution Analysis -Non-Sewer Service Area

Wastewater Demand Projections in Non-Sewer Service Areas

In areas outside of the proposed SSA, the wastewater management alternative is on-site discharge to groundwater of 2,000 gallons per day or less, commonly referred to as septic systems. Approximately 95% of the Borough is presently serviced by private septic systems and cesspools while the remaining 5% discharge to sanitary sewers. The sanitary sewage is treated by a number of small privately/municipality owned package treatment plants.

Highlands Preservation Area Analysis

N.J.A.C. 7:15 requires that for areas proposed to be served by individual subsurface sewage disposal systems discharging 2,000 gallons per day or less to ground water, the development density that can be accommodated and result in attainment of the target nitrate concentration for those areas be determined. In August 2009, The Highlands Council prepared a Municipal Build-Out Report of Oakland Borough which is composed of a detailed build-out analysis for the planning and preservation areas in accordance with standards set forth by N.J.A.C. 7:38 and has concluded the following:

"The Highlands Regional Master Plan Septic System Yield analysis determined a yield of 0 units for the Preservation Area."

Due to the fact this analysis has been developed by the Highlands Council and suggests no additional development is warranted within the **Highlands Preservation Area** (2,621 acres), these values will be utilized for this portion of the analysis. A copy of the Municipal Build-Out Report for the Borough of Oakland has been included within Appendix A.

Highlands Planning Area Analysis

Since the Borough is a non-conforming municipality, the Highlands **Planning Area** was evaluated for the capacity of groundwater to sustain a nitrate target of 2 mg/l over the Hydrologic Unit Code 11 (HUC11) watershed, as outlined at N.J.A.C. 7:15-4.5(c)1. The Borough utilized the New Jersey Geological Survey provided model that assigns a density in acres of undeveloped land per future dwelling unit. That density is intended to sustain the nitrate target over the area of the HUC11 watershed when considering future, additional development. Application of this density to the available, undeveloped and underdeveloped acreage in the HUC11 watershed results in a total number of possible additional dwelling units that could be developed in that watershed without impairing groundwater quality and causing the nitrate concentration to exceed 2 mg/l. All of Oakland Borough is located within the 02030103100 HUC 11.

The following methodology was used to estimate available recharge acreage in the non-sewer service area (Highlands planning area only) utilizing the NJDEP Recharge-Based Nitrate-Dilution Model for New Jersey V7.0 for Excel 2010. First, HUC11 boundaries and areas provided by NJDEP as a Geographic Information Systems (GIS) file were intersected with municipal boundaries to generate HUC 11 acreage within Oakland Borough. Then soils information from the Soil Survey Geographic Database (SSURGO) Bergen County Soil Survey was analyzed based on their septic density rating excluding polygons classified as "Urban Land," "Water" and "hydric soil." The area utilized excluded the SSA, the hydric soils and the Urban Land/Water/Hydric Soil from the land use data. The resulting final acreage was considered developable acreage.

The total number of allowable units has been summarized in the Nitrate Dilution Calculations in Appendix A. These values were calculated only in areas assigned a septic density value, as outlined in the NJDEP and NJGS guidance documents, while excluding the above mention information.

The total number of allowable Equivalent Dwelling Units (EDUs) within the Planning Area was calculated at 82 based on septic density values as shown on the Nitrate Dilution Model table (Appendix A). This number represents the maximum number of dwelling units that could be permitted within the Planning Area and remain below the 2 mg/l nitrate threshold.

A build-out analysis of the remaining undeveloped and underdeveloped land in the non-sewer service area of the Planning Area determined that 44 EDUs would be allowed based on the current municipal zoning as shown on the non-sewer service area Build-Out table (Appendix A). Based on this analysis, there would not be a deficit in the nitrate dilution capacity for the Borough.

Comparison

It should be noted that the method to calculate the allowable number of additional dwellings within the Highlands Preservation Area is not the same method that was utilized to calculate maximum dwelling units within the Highlands Planning Area. As mentioned above, the estimated build-out for the Highlands Preservation Area was based off septic density standards set forth by N.J.A.C. 7:38. The results of this analysis indicate the following:

Highlands Preservation Area: No additional septic systems are allowed within this portion of the Borough. The Septic System Yield analysis determined a yield of 0 units for this area (*a copy of the complete Highlands Municipal Build-Out Report can be found in Appendix A*). Any individual septic system that was added after completion of the August 2009 Highlands Build-out report automatically counts as a deficiency in the Highlands Preservation Area.

***Planning Area*:** The maximum allowable dwelling units allowed within the existing non-sewer service area to maintain the target nitrate concentration of 2 mg/L has been calculated at 82 units (*see Nitrate Dilution Model Calculations found in Appendix A*). The maximum number of units allowed under current zoning has been calculated at 44 units, which would not exceed the 82 units allowed by the Nitrate Dilution Model.

Existing Dwelling Units

While the Nitrate Dilution Analysis does not identify a deficit in the nitrate dilution capacity for the Borough, the vast majority of the non-SSA in Oakland has already been developed. Looking only at the undeveloped and underdeveloped portions of the non-SSA would not fully identify other factors impacting the nitrate concentrations in the groundwater. The possible number of allowable units based on the NDA was also compared to the existing number of dwelling units in the non-SSA of the Borough. The number of dwelling units and EDUs was quantified by performing a rooftop count of each residence/commercial building utilizing aerial imagery published in April 2017. This was done to provide a more accurate representation of existing conditions of developed land in the Borough.

The Borough of Oakland currently has approximately 3,417 existing residential dwelling units (Preservation and Planning Area) within the non-sewer service area. Additionally, the Borough has approximately 195 non-residential buildings with a total floor area of 5,599,366 s.f. (129 acres) within the non-sewer service area. The

individual floor areas were multiplied by a wastewater flow factor of 0.125 gpd then divided by 500 gpd (average flow for residential dwellings) to determine the total number of Equivalent Dwelling Units or EDU's. The total number of EDU's for non-residential buildings within the Borough limits is 1,400. (See Appendix A: Non-Residential Development Table).

Due to the fact the number of existing septic systems in the part of the Borough that lies within the Highlands Planning Area exceed the maximum allowable dwelling unit calculations by 4,197 units (4,279 Total Units in Planning Area – 82 Maximum Allowable Units), the installation of a public sewer system in the most heavily affected portions of the town, as proposed in this WMP, is the most practical strategy to reduce nitrate concentrations within the sub-watershed area. The proposed SSA will remove approximately 2,432 EDUs from the current non- sewer service area, reducing the number of EDUs in the Borough that lies within the Highlands Planning Area relying on septic systems, to 1,847.

VI. Mitigation Strategies

Mitigation Strategies in the Sewer Service Area

While no strategies are required to address potential capacity deficits in the wastewater treatment capacity, certain measures will be taken by the Borough to mitigate the conveyance of flow from the proposed SSA to NBCUA, which results in an interbasin transfer.

The following are the proposed mitigation strategies to reduce the interbasin transfer as a result of the actions proposed in this WMP:

- Requirement for Fanale Development to purchase water directly from Veolia. The property will receive water and discharge sewer to the Saddle River Basin, thereby eliminating the full 56,250 gpd interbasin transfer.
- The Bi-County Development, per court order, will convey sanitary sewer to the Township of Wayne.

Due to the interbasin transfer of the water from the Ramapo River Basin to the Saddle River Basin due to the proposed conveyance of wastewater to the NBCUA sewage treatment facility, a Major Modification of the Borough's Water Allocation Permit is required. A condition of the Major Modification is obtaining a Consistency Determination from the Highlands Council. In order to satisfy this condition, the Borough has coordinated with the Highlands Council in the preparation of the Water Use and Conservation Management Plan.

The Oakwood Knoll, Oakland Care Center, and Ramapo River Reserve facilities are over 80% capacity based on existing flow. The Oakwood Knoll facility is anticipated to be decommissioned and transfer all wastewater flows to the NBCUA facility. Therefore, capacity for the Oakwood Knoll facility going forward will not be an issue. Growth is not anticipated at the Oakland Care Center and Ramapo River Reserve facilities, and therefore does not represent an urgent issue. The Borough will require the permittee to perform an assessment of the treatment works; an evaluation of alternative measures that would maximize conveyance and treatment of existing flows, reduce or maintain existing flows below permitted flow at the facility and ensure adequate conveyance capacity.

VII. Septic Maintenance Program

Current ISSDS (septic system) Inventory:

The Borough Department of Health keeps records of all septic systems. Boswell has compiled the information (Appendix C), which includes the following:

- Neighborhood
- Street address/location of ISSDS
- Recorded Sanitary Issues Map
- Block and Lot
- Date ISSDS installed or approximate age of system;
- Date/description of last known permitted activity via Health Department (installation, alteration, repair);
- Condition of system
- General comments

Current Septic Management Practices:

The Borough code states:

> No person shall locate, construct, reconstruct, renovate, alter, repair or extend an individual sewage disposal system within the Borough until a permit has been issued by the Board of Health of the Borough. (Ord. #79-51, 1967 Code §54-2A)"
>
> Such permit for an individual sewage disposal system shall be issued by the Board of Health of the Borough, or its duly authorized agent, in accordance with the following:
>
> a. A permit may be issued upon the applicant's completing the necessary application form together with the appropriate fee and submitting the necessary surveys with sufficient detail and other engineering data, which engineering data shall be furnished by a licensed, professional engineer and certified by the engineer and shall be required to show the proposed construction is in compliance with the standards determined by the New Jersey Department of Health and this Chapter.
>
> b. Any amendments to any application shall conform to such requirements of the Oakland Board of Health or its designated representatives.
>
> c. In determining whether an applicant is entitled to a permit to construct an individual sewage disposal system, the Board of Health or its designated agent shall consider the applicant's percolation test and soil logs, which shall be furnished to the Board of Health and become a part of its records.
>
> d. Upon certification to the Oakland Board of Health or its designated representative that the application and the accompanying engineering data are in compliance with applicable standards, and payment of the appropriate fees, the Board of Health or its designated representative may issue a permit for the construction of an individual sewage disposal system upon payment of the proper fee, as set forth in this Chapter.
> (Ord. #79-51, 1967 Code §54-2B; Ord. #99-Code-64, §§1, 2)

There are no specific time requirements for maintenance/management or pump-outs. The ordinance only outlines the license requirements of the contractors performing the work.

All septic records are maintained in paper files. They are only updated once a permit for replacement is issued.

Proposed Improvements to Current Septic Management Practices and Plan to Complete Inventory:

Below are activities that will be evaluated and/or implemented over the next 10-year wastewater management planning period, that will improve the current municipal practices listed above associated with septic management. Examples of the types of activities being sought include:

In accordance with N.J.A.C. 7:9A-3.14 and Highland requirements for the Preservation Area, the Borough ordinance will be revised to include the following:

Notification of proper operation and maintenance practices.

a) The administrative authority shall notify each property owner issued approval for the design, construction, installation, alteration or repair of an individual subsurface sewage disposal system after January 1, 1990 of the proper operation and maintenance practices.

b) Written notification of the proper operation and maintenance practices shall initially be issued to the applicant with the approval for the location, design, construction, installation, alteration or repair of the individual subsurface sewage disposal system and reissued on every three (3) years to the present property owner.

c) The written notification shall inform the present property owner how to properly operate and maintain an individual subsurface sewage disposal system. A mass mailing to all property owners who have individual subsurface sewage disposal systems is an acceptable method of notice. The notice shall include, at a minimum:

    1. A general outline of how an individual subsurface sewage disposal system works and the potential impact of improper operation and maintenance on system performance, ground and surface water quality, and public health;

    2. The recommended frequency of septic tank and grease trap pumping to prevent over-accumulation of solids, and methodology for inspection to determine whether pumping is necessary;

    3. A list of materials containing toxic substances which are prohibited from being disposed of into an individual subsurface sewage disposal system;

    4. A list of inert or non-biodegradable substances which should not be disposed of within an individual subsurface sewage disposal system;

    5. Proper practices for maintaining the area reserved for sewage disposal;

    6. Impacts upon system performance resulting from excessive water use; and

    7. Warning signs of poor system performance or malfunction and recommended or required corrective measures.

d) The written notification may be developed by the municipality. Copies of relevant guidance material and/or technical manuals for onsite wastewater treatment systems may distributed subject to this chapter.

An ordinance will be passed requiring home owners to provide maintenance to the septic systems prior to receiving Certificate of Occupancy during the sale of a property.

The Board of Health will also implement Tracking and Notification process to further encourage regular pump- outs, system augmentation, and regular maintenance practices.

The Board of Health will share information with system owners on septic maintenance (e.g., classroom presentations or to civic groups such as Lions Club, Women's Clubs, or partnering with Environmental Commissions/ Advisory Councils/Watershed Ambassadors, etc.).

As part of the Borough's ongoing septic maintenance program, the Board of Health will keep an electronic inventory of all septic systems, updating as maintenance is performed.

VIII. Mapping

Map 1 – WMP Area Map

The following political and jurisdictional, boundaries, and features are identified on this map:

- The WMP area boundary
- Areawide WQM planning area boundaries
- Municipal boundaries
- The Highlands preservation area and the Highlands planning area

Map 2 – Selected Environmentally Sensitive Features Map

This is a map depicting each of the following environmental features below based on the most current GIS layers available from the New Jersey Department of Environmental Protection at the time of WMP submission.

- Suitable habitat for endangered and threatened species as identified on the Department's Landscape Project Maps version 3.3 of Habitat for Endangered, Threatened and Other Priority Wildlife as Rank 3, 4, and 5
- Natural Heritage Priority Sites (Not applicable to Oakland)
- Surface waters, as mapped on the Department's Geographic Information Systems (GIS) hydrography coverage
- Category One waters designated in the Department's Surface Water Quality Standards, N.J.A.C. 7:9B, based on the Department's maps of such waters, and their corresponding 300-foot riparian zone based on the Flood Hazard Area Control Act Rules, N.J.A.C. 7:13
- Coastal wetlands that have been mapped by the Department under the Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq. (Not applicable to Oakland)
- Other freshwater and estuarine wetlands, based on maps prepared by the Department under the Freshwater Wetlands Protection Act, N.J.S.A.13:9B-25c
- Coastal Fringe Planning Areas, Coastal Rural Planning Areas, and Coastal Environmentally

Sensitive Planning Area (Not applicable to Oakland)

- Environmentally sensitive areas in which 201 Facilities Plan grant limitations prohibit the extension of sewer service, if available (wetlands and flood prone areas as mapped by NJDEP based on a combination of FEMA, NJDEP and aerial photography data.)

Map 3 – Wastewater Service Area Map

The following planning area boundaries, wastewater-related jurisdictions, facilities, and wastewater service areas are identified on this map

- The land use capability zones established within the Highlands Regional Master Plan adopted by the Highlands Council pursuant to N.J.S.A. 13:20-8
- District boundaries of sewerage authority districts, as defined in N.J.S.A. 40:14A-3(6)
- The location of each domestic and industrial wastewater treatment facility that is anticipated to exist in the future, including existing facilities that will remain in service, and the discharge outfall for each. The name and NJPDES permit number(s), if assigned, of each wastewater treatment facility shall be identified
- A delineation of sewer service areas, as determined in accordance with N.J.A.C. 7:15-4.4, differentiating that area that is:
    - Assigned SSA, differentiating between area that currently conveys sewage to each existing or proposed wastewater treatment facility and that which is proposed to convey sewage to each existing or proposed wastewater treatment facility; or
    - Unassigned SSA; and
    - A delineation of non-sewer service area

Map 4 – Zoning map(s)

Map depicting municipal parcel mapping, current municipal zoning as used as the basis for the build-out analysis required pursuant to N.J.A.C. 7:15-4.5

Map 5 – Vacant Land Map

Vacant land, as depicted in this map, is the undeveloped land within the proposed SSA in the Highlands Planning Area which could be developed in the future, and of which the wastewater capacity analysis in the SSA is based.

Map 6 – Recorded Sanitary Issues Map

This map illustrates known cesspools, previously reported septic system failures and known cesspools, that were replaced with Septic Systems.

IX. Conditions of the Wastewater Management Plan Approval

The following will be conditions of the WMP approval:

- Future requests to amend the SSA, either through a regional/areawide amendment or a site-specific amendment will require the import of water from outside the Ramapo River Basin to serve the project.
- The Borough will continue to explore Water Use and Conservation measures as set forth by the Highlands Council to ensure the efficient use of water in the Borough.
- The local permitting of the development of the Fanale tract must include the import of water from outside the Ramapo Basin and the conveyance of wastewater in a manner that does not add to the 0.8 MGD interbasin transfer.
- The force main and pumps will be sized to limit the sewage exports from the basin to 0.8 MGD.
- The Borough will obtain the Water Allocation major modification permit prior to the submission of the Treatment Works Approval application for the construction of the wastewater interceptor. If the major modification to the Water Allocation permit cannot be issued in accordance with N.J.A.C. 7:19, then the proposed interbasin transfer cannot proceed.

APPENDIX A – Nitrate Dilution Model Calculations

FID	Shape *	AREASYMBOL	SPATIALVER	MUSYM	MUNAME	Acres	Sum Acres	Septic Density by Soil Type	Units Allowed	Recharge Area	# ISSDS
8	Polygon ZM	NJ003	2	BohB	Boonton moderately well drained gravelly loam, 3 to 8 percent slopes	8.350814				381.062486	82
6	Polygon ZM	NJ003	2	BohBb	Boonton moderately well drained gravelly loam, 0 to 8 percent slopes, ver	13.983568					
60	Polygon ZM	NJ003	2	BohC	Boonton moderately well drained gravelly loam, 8 to 15 percent slopes	9.166943					
14	Polygon ZM	NJ003	2	BohCb	Boonton moderately well drained gravelly loam, 8 to 15 percent slopes, ve	47.743833					
33	Polygon ZM	NJ003	2	BohCb	Boonton moderately well drained gravelly loam, 8 to 15 percent slopes, ve	13.556093					
109	Polygon ZM	NJ003	2	BohCb	Boonton moderately well drained gravelly loam, 8 to 15 percent slopes, ve	0.393306					
1	Polygon ZM	NJ003	2	BohDb	Boonton moderately well drained gravelly loam, 15 to 25 percent slopes, v	9.550633					
13	Polygon ZM	NJ003	2	BohDb	Boonton moderately well drained gravelly loam, 15 to 25 percent slopes, v	11.478808					
17	Polygon ZM	NJ003	2	BohDb	Boonton moderately well drained gravelly loam, 15 to 25 percent slopes, v	0.512472					
23	Polygon ZM	NJ003	2	BohDb	Boonton moderately well drained gravelly loam, 15 to 25 percent slopes, v	8.205697					
106	Polygon ZM	NJ003	2	BohDb	Boonton moderately well drained gravelly loam, 15 to 25 percent slopes, v	2.892514	125.834681	4.6	27.35537		
11	Polygon ZM	NJ003	2	BorB	Boonton moderately well drained-Rock outcrop complex, 3 to 8 percent slop	0.329427					
88	Polygon ZM	NJ003	2	BorB	Boonton moderately well drained-Rock outcrop complex, 3 to 8 percent slop	2.012656					
30	Polygon ZM	NJ003	2	BorC	Boonton moderately well drained-Rock outcrop complex, 8 to 15 percent slo	9.032588					
99	Polygon ZM	NJ003	2	BorC	Boonton moderately well drained-Rock outcrop complex, 8 to 15 percent slo	1.661839					
25	Polygon ZM	NJ003	2	BorD	Boonton moderately well drained-Rock outcrop complex, 15 to 25 percent sl	0.555006					
72	Polygon ZM	NJ003	2	BorD	Boonton moderately well drained-Rock outcrop complex, 15 to 25 percent sl	8.674156					
34	Polygon ZM	NJ003	2	BorE	Boonton moderately well drained-Rock outcrop complex, 25 to 45 percent sl	10.867774	33.133446	4.9	6.761928		
44	Polygon ZM	NJ003	2	BouB	Boonton-Urban land complex, 0 to 8 percent slopes	2.166616					
45	Polygon ZM	NJ003	2	BouB	Boonton-Urban land complex, 0 to 8 percent slopes	0.121729					
71	Polygon ZM	NJ003	2	BouB	Boonton-Urban land complex, 0 to 8 percent slopes	0.159208					
83	Polygon ZM	NJ003	2	BouB	Boonton-Urban land complex, 0 to 8 percent slopes	0.357673					
110	Polygon ZM	NJ003	2	BouB	Boonton-Urban land complex, 0 to 8 percent slopes	0.106608					
9	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	3.54392					
12	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	0.748931					
16	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	21.854031					
19	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	1.399175					
31	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	2.536865					
35	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	4.96048					
98	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	0.28736					
107	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	1.406464					
113	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	0.447218					
115	Polygon ZM	NJ003	2	BouC	Boonton-Urban land complex, 8 to 15 percent slopes	1.154566					
0	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	1.572743					
5	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	6.385383					
37	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	1.421911					
43	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	1.485473					
46	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	0.001787					
53	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	0.712694					
65	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	7.05727					
73	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	0.764685					
87	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	0.079438					
97	Polygon ZM	NJ003	2	BouD	Boonton-Urban land complex, 15 to 25 percent slopes	7.747033	68.479261	4.6	14.8868		
40	Polygon ZM	NJ003	2	DuoB	Dunellen loam, 3 to 8 percent slopes	0.381869					
54	Polygon ZM	NJ003	2	DuoB	Dunellen loam, 3 to 8 percent slopes	0.069522					
56	Polygon ZM	NJ003	2	DuoB	Dunellen loam, 3 to 8 percent slopes	6.505465					
61	Polygon ZM	NJ003	2	DuoB	Dunellen loam, 3 to 8 percent slopes	2.903877					
58	Polygon ZM	NJ003	2	DuoC	Dunellen loam, 8 to 15 percent slopes	3.781242					
63	Polygon ZM	NJ003	2	DuoC	Dunellen loam, 8 to 15 percent slopes	3.463524					
102	Polygon ZM	NJ003	2	DuoC	Dunellen loam, 8 to 15 percent slopes	0.214575					
38	Polygon ZM	NJ003	2	DuoD	Dunellen loam, 15 to 25 percent slopes	0.022468					
68	Polygon ZM	NJ003	2	DuoD	Dunellen loam, 15 to 25 percent slopes	4.996834	22.339376	3.9	5.728045		
4	Polygon ZM	NJ003	2	DuuB	Dunellen-Urban land complex, 3 to 8 percent slopes	0.009494					
27	Polygon ZM	NJ003	2	DuuB	Dunellen-Urban land complex, 3 to 8 percent slopes	0.675011					
49	Polygon ZM	NJ003	2	DuuB	Dunellen-Urban land complex, 3 to 8 percent slopes	1.827919					
50	Polygon ZM	NJ003	2	DuuB	Dunellen-Urban land complex, 3 to 8 percent slopes	0.011821					
74	Polygon ZM	NJ003	2	DuuB	Dunellen-Urban land complex, 3 to 8 percent slopes	0.006161					
114	Polygon ZM	NJ003	2	DuuB	Dunellen-Urban land complex, 3 to 8 percent slopes	2.848294					

2	Polygon ZM	NJ003	2	DuuC	Dunellen-Urban land complex, 8 to 15 percent slopes	0.227618			
42	Polygon ZM	NJ003	2	DuuC	Dunellen-Urban land complex, 8 to 15 percent slopes	2.040966			
77	Polygon ZM	NJ003	2	DuuC	Dunellen-Urban land complex, 8 to 15 percent slopes	7.817445			
93	Polygon ZM	NJ003	2	DuuC	Dunellen-Urban land complex, 8 to 15 percent slopes	0.024098			
100	Polygon ZM	NJ003	2	DuuC	Dunellen-Urban land complex, 8 to 15 percent slopes	0.002883	15.49171	3.9	3.972233
10	Polygon ZM	NJ003	2	HamBb	Haledon gravelly loam, 0 to 8 percent slopes, very stony	5.405966			
21	Polygon ZM	NJ003	2	HamBb	Haledon gravelly loam, 0 to 8 percent slopes, very stony	6.273229			
28	Polygon ZM	NJ003	2	HamBb	Haledon gravelly loam, 0 to 8 percent slopes, very stony	9.531805	21.211	4.7	4.512979
18	Polygon ZM	NJ003	2	HasB	Haledon-Urban land complex, 3 to 8 percent slopes	11.40762			
84	Polygon ZM	NJ003	2	HasB	Haledon-Urban land complex, 3 to 8 percent slopes	0.493913			
86	Polygon ZM	NJ003	2	HasB	Haledon-Urban land complex, 3 to 8 percent slopes	4.332906			
94	Polygon ZM	NJ003	2	HasB	Haledon-Urban land complex, 3 to 8 percent slopes	0.31079	16.545229	4.7	3.520261
82	Polygon ZM	NJ003	2	HhmBb	Hibernia loam, 0 to 8 percent slopes, very stony	1.195827	1.195827	4.6	0.259962
7	Polygon ZM	NJ003	2	OtsD	Otisville gravelly loamy sand, 15 to 25 percent slopes	0.233547			
20	Polygon ZM	NJ003	2	OtsD	Otisville gravelly loamy sand, 15 to 25 percent slopes	2.049041			
36	Polygon ZM	NJ003	2	OtsD	Otisville gravelly loamy sand, 15 to 25 percent slopes	4.993894	7.276482	3.5	2.078995
47	Polygon ZM	NJ003	2	PbuA	Pascack silt loam, 0 to 3 percent slopes	0.012037			
64	Polygon ZM	NJ003	2	PbuA	Pascack silt loam, 0 to 3 percent slopes	8.601033	8.61307	4.7	1.832568
70	Polygon ZM	NJ003	2	PHG	Pits, sand and gravel	34.881873	34.881873	3.4	10.25937
24	Polygon ZM	NJ003	2	RkrB	Riverhead sandy loam, 3 to 8 percent slopes	4.671645			
26	Polygon ZM	NJ003	2	RkrB	Riverhead sandy loam, 3 to 8 percent slopes	0.000925			
29	Polygon ZM	NJ003	2	RkrB	Riverhead sandy loam, 3 to 8 percent slopes	0.280329			
39	Polygon ZM	NJ003	2	RkrB	Riverhead sandy loam, 3 to 8 percent slopes	1.376766			
59	Polygon ZM	NJ003	2	RkrB	Riverhead sandy loam, 3 to 8 percent slopes	0.82251			
69	Polygon ZM	NJ003	2	RkrB	Riverhead sandy loam, 3 to 8 percent slopes	3.857545			
101	Polygon ZM	NJ003	2	RkrB	Riverhead sandy loam, 3 to 8 percent slopes	3.228846			
32	Polygon ZM	NJ003	2	RkrC	Riverhead sandy loam, 8 to 15 percent slopes	1.374542			
67	Polygon ZM	NJ003	2	RkrC	Riverhead sandy loam, 8 to 15 percent slopes	1.291449			
80	Polygon ZM	NJ003	2	RkrC	Riverhead sandy loam, 8 to 15 percent slopes	0.360771			
85	Polygon ZM	NJ003	2	RkrC	Riverhead sandy loam, 8 to 15 percent slopes	2.240674			
104	Polygon ZM	NJ003	2	RkrC	Riverhead sandy loam, 8 to 15 percent slopes	6.554529	26.060531	3.9	6.682187
						Total acres	381.062486	Total units	82.12265

COMMERCIAL BUILDING CALCULATIONS (ENTIRE BOROUGH)

FID No.	No. of Stories	Building Footprint (SF)	Total Floor Area (SF)	Total Floor Area (Acres)	Non-Residential Flow	Equivalent Dwelling Units (EDU)
0	1	20,514	20,514	0.5	2,564	5.1
1	1	32,119	32,119	0.7	4,015	8.0
2	1	41,844	41,844	1.0	5,231	10.5
3	2	40,546	81,092	1.9	10,137	20.3
4	1	60,239	60,239	1.4	7,530	15.1
5	2	99,035	198,070	4.5	24,759	49.5
6	1	49,453	49,453	1.1	6,182	12.4
7	1	39,305	39,305	0.9	4,913	9.8
8	1	42,583	42,583	1.0	5,323	10.6
9	1	19,790	19,790	0.5	2,474	4.9
10	1	31,227	31,227	0.7	3,903	7.8
11	2	187,598	375,196	8.6	46,899	93.8
12	2	72,628	145,256	3.3	18,157	36.3
13	2	94,501	189,002	4.3	23,625	47.3
14	1	152,921	152,921	3.5	19,115	38.2
15	1	28,150	28,150	0.6	3,519	7.0
16	1	20,397	20,397	0.5	2,550	5.1
17	1	4,068	4,068	0.1	509	1.0
18	1	40,564	40,564	0.9	5,071	10.1
19	2	31,532	63,065	1.4	7,883	15.8
20	1	44,519	44,519	1.0	5,565	11.1
21	1	36,517	36,517	0.8	4,565	9.1
22	1	23,885	23,885	0.5	2,986	6.0
23	1	40,880	40,880	0.9	5,110	10.2
24	2	25,996	51,993	1.2	6,499	13.0
25	2	30,573	61,145	1.4	7,643	15.3
26	2	23,532	47,064	1.1	5,883	11.8
27	2	3,792	7,584	0.2	948	1.9
28	2	41,429	82,858	1.9	10,357	20.7
29	3	44,135	132,406	3.0	16,551	33.1
30	3	44,346	133,038	3.1	16,630	33.3
31	1	45,315	45,315	1.0	5,664	11.3
32	2	46,787	93,574	2.1	11,697	23.4
33	3	12,928	38,784	0.9	4,848	9.7
34	1	3,914	3,914	0.1	489	1.0
35	1	2,412	2,412	0.1	301	0.6
36	2	2,334	4,668	0.1	583	1.2
37	1	859	859	0.0	107	0.2
38	1	96,781	96,781	2.2	12,098	24.2
39	2	21,264	42,528	1.0	5,316	10.6
40	3	4,634	13,903	0.3	1,738	3.5
41	1	3,773	3,773	0.1	472	0.9
42	2	5,735	11,469	0.3	1,434	2.9

43	1	4,248	4,248	0.1	531	1.1

FID No.	No. of Stories	Building Footprint (SF)	Total Floor Area (SF)	Total Floor Area (Acres)	Non-Residential Flow	Equivalent Dwelling Units (EDU)
44	1	5,454	5,454	0.1	682	1.4
45	1	2,427	2,427	0.1	303	0.6
46	1	5,805	5,805	0.1	726	1.5
47	1	3,597	3,597	0.1	450	0.9
48	2	6,090	12,180	0.3	1,522	3.0
49	2	4,136	8,272	0.2	1,034	2.1
50	2	8,061	16,122	0.4	2,015	4.0
51	2	15,296	30,592	0.7	3,824	7.6
52	1	8,059	8,059	0.2	1,007	2.0
53	2	2,749	5,497	0.1	687	1.4
54	2	1,580	3,159	0.1	395	0.8
55	2	13,493	26,986	0.6	3,373	6.7
56	2	4,661	9,321	0.2	1,165	2.3
57	1	1,022	1,022	0.0	128	0.3
58	1	1,084	1,084	0.0	135	0.3
59	2	14,100	28,200	0.6	3,525	7.0
60	2	35,929	71,858	1.6	8,982	18.0
61	2	32,623	65,247	1.5	8,156	16.3
62	1	20,869	20,869	0.5	2,609	5.2
63	2	35,293	70,585	1.6	8,823	17.6
64	2	35,476	70,952	1.6	8,869	17.7
65	2	35,076	70,152	1.6	8,769	17.5
66	1	24,170	24,170	0.6	3,021	6.0
67	2	15,738	31,475	0.7	3,934	7.9
68	2	12,964	25,928	0.6	3,241	6.5
69	1	13,276	13,276	0.3	1,660	3.3
70	1	2,793	2,793	0.1	349	0.7
71	1	6,467	6,467	0.1	808	1.6
72	1	2,508	2,508	0.1	314	0.6
73	2	21,072	42,145	1.0	5,268	10.5
74	1	6,238	6,238	0.1	780	1.6
75	1	33,628	33,628	0.8	4,204	8.4
76	1	46,110	46,110	1.1	5,764	11.5
77	1	21,032	21,032	0.5	2,629	5.3
78	2	10,660	21,320	0.5	2,665	5.3
79	2	4,859	9,719	0.2	1,215	2.4
80	1	5,299	5,299	0.1	662	1.3
81	1	9,282	9,282	0.2	1,160	2.3
82	1	6,006	6,006	0.1	751	1.5
83	1	2,966	2,966	0.1	371	0.7
84	1	4,478	4,478	0.1	560	1.1
85	2	15,299	30,598	0.7	3,825	7.6
86	1	1,054	1,054	0.0	132	0.3
87	1	3,215	3,215	0.1	402	0.8

FID No.	No. of Stories	Building Footprint (SF)	Total Floor Area (SF)	Total Floor Area (Acres)	Non-Residential Flow	Equivalent Dwelling Units (EDU)
88	1	8,718	8,718	0.2	1,090	2.2
89	1	30,138	30,138	0.7	3,767	7.5
90	1	48,951	48,951	1.1	6,119	12.2
91	1	40,760	40,760	0.9	5,095	10.2
92	2	14,707	29,413	0.7	3,677	7.4
93	1	5,673	5,673	0.1	709	1.4
94	1	3,596	3,596	0.1	449	0.9
95	1	3,221	3,221	0.1	403	0.8
96	1	3,535	3,535	0.1	442	0.9
97	1	2,213	2,213	0.1	277	0.6
98	1	7,072	7,072	0.2	884	1.8
99	1	3,663	3,663	0.1	458	0.9
100	1	1,224	1,224	0.0	153	0.3
101	2	25,304	50,607	1.2	6,326	12.7
102	1	3,874	3,874	0.1	484	1.0
103	1	6,861	6,861	0.2	858	1.7
104	2	11,643	23,287	0.5	2,911	5.8
105	1	77,180	77,180	1.8	9,648	19.3
106	2	3,200	6,400	0.1	800	1.6
107	2	11,019	22,037	0.5	2,755	5.5
108	1	15,482	15,482	0.4	1,935	3.9
109	1	2,950	2,950	0.1	369	0.7
110	2	4,942	9,883	0.2	1,235	2.5
111	2	3,770	7,539	0.2	942	1.9
112	1	2,019	2,019	0.0	252	0.5
113	1	38,796	38,796	0.9	4,849	9.7
114	2	10,032	20,064	0.5	2,508	5.0
115	1	29,547	29,547	0.7	3,693	7.4
116	1	4,768	4,768	0.1	596	1.2
117	1	7,630	7,630	0.2	954	1.9
118	1	2,426	2,426	0.1	303	0.6
119	2	1,492	2,985	0.1	373	0.7
120	1	1,562	1,562	0.0	195	0.4
121	1	7,504	7,504	0.2	938	1.9
122	1	2,469	2,469	0.1	309	0.6
123	2	2,017	4,034	0.1	504	1.0
124	1	3,027	3,027	0.1	378	0.8
125	1	2,701	2,701	0.1	338	0.7
126	2	3,104	6,208	0.1	776	1.6
127	1	2,002	2,002	0.0	250	0.5
128	2	1,836	3,673	0.1	459	0.9
129	1	4,698	4,698	0.1	587	1.2
130	2	1,899	3,799	0.1	475	0.9
131	2	766	1,533	0.0	192	0.4

FID No.	No. of Stories	Building Footprint (SF)	Total Floor Area (SF)	Total Floor Area (Acres)	Non-Residential Flow	Equivalent Dwelling Units (EDU)
132	1	2,039	2,039	0.0	255	0.5
133	1	903	903	0.0	113	0.2
134	1	1,359	1,359	0.0	170	0.3
135	1	1,737	1,737	0.0	217	0.4
136	1	833	833	0.0	104	0.2
137	2	969	1,938	0.0	242	0.5
138	1	136,702	136,702	3.1	17,088	34.2
139	1.5	193,779	290,668	6.7	36,334	72.7
140	1	22,808	22,808	0.5	2,851	5.7
141	2	14,824	29,647	0.7	3,706	7.4
142	2	23,514	47,027	1.1	5,878	11.8
143	1	5,782	5,782	0.1	723	1.4
144	2	48,476	96,953	2.2	12,119	24.2
145	1	24,882	24,882	0.6	3,110	6.2
146	1	2,301	2,301	0.1	288	0.6
147	2	1,041	2,081	0.0	260	0.5
148	2	2,794	5,588	0.1	698	1.4
149	2	35,303	70,606	1.6	8,826	17.7
150	1	3,009	3,009	0.1	376	0.8
151	2	96,544	193,089	4.4	24,136	48.3
152	2	12,446	24,892	0.6	3,111	6.2
153	1	6,918	6,918	0.2	865	1.7
154	1	7,490	7,490	0.2	936	1.9
155	1	4,514	4,514	0.1	564	1.1
156	1	13,755	13,755	0.3	1,719	3.4
157	2	2,146	4,292	0.1	537	1.1
158	2	3,522	7,044	0.2	880	1.8
159	1	2,437	2,437	0.1	305	0.6
160	2	3,186	6,371	0.1	796	1.6
161	2	1,453	2,906	0.1	363	0.7
162	1	3,752	3,752	0.1	469	0.9
163	1	870	870	0.0	109	0.2
164	1	2,294	2,294	0.1	287	0.6
165	1	13,504	13,504	0.3	1,688	3.4
166	1	1,715	1,715	0.0	214	0.4
167	1	3,316	3,316	0.1	414	0.8
168	2	2,733	5,465	0.1	683	1.4
169	2	4,646	9,292	0.2	1,162	2.3
170	2	1,630	3,260	0.1	407	0.8
171	1	1,718	1,718	0.0	215	0.4
172	1	988	988	0.0	123	0.2
173	1	5,598	5,598	0.1	700	1.4
174	1	3,497	3,497	0.1	437	0.9
175	2	1,333	2,666	0.1	333	0.7

FID No.	No. of Stories	Building Footprint (SF)	Total Floor Area (SF)	Total Floor Area (Acres)	Non-Residential Flow	Equivalent Dwelling Units (EDU)
176	2	6,017	12,033	0.3	1,504	3.0
177	2	984	1,968	0.0	246	0.5
178	2	3,198	6,396	0.1	799	1.6
179	1	779	779	0.0	97	0.2
180	1	7,350	7,350	0.2	919	1.8
181	1	734	734	0.0	92	0.2
182	2	38,313	76,625	1.8	9,578	19.2
183	2	3,271	6,542	0.2	818	1.6
184	1	4,478	4,478	0.1	560	1.1
185	1	63,597	63,597	1.5	7,950	15.9
186	2	2,403	4,806	0.1	601	1.2
187	1	2,228	2,228	0.1	278	0.6
188	2	4,415	8,830	0.2	1,104	2.2
189	2	1,650	3,300	0.1	413	0.8
190	2	3,200	6,400	0.1	800	1.6
191	1	1,993	1,993	0.0	249	0.5
192	2	30,570	61,139	1.4	7,642	15.3
193	3	44,798	134,393	3.1	16,799	33.6
194	2	2,711	5,423	0.1	678	1.4

Total Floor Area (SF)	**5,599,366**
Total Floor Area (Acres)	**129**
Total EDU's	**1,400**

* Equivalent Dwelling Units (EDU's) were calculated by converting the total SF of commercial properties within the Borough of Oakland and multiplying it by the Wastewater Flow Factor of 0.125 gallons per day (gpd) as per N.J.A.C.7-9A-7.4. The total flow of non-residential development was then divided by 500gpd to generate the resulting number of Equivalent Dwelling Units.

COMMERCIAL BUILDING CALCULATIONS (PLANNING AREA ONLY)

FID No.	No. of Stories	Building Footprint (SF)	Total Floor Area (SF)	Total Floor Area (Acres)	Non-Residential Flow	Equivalent Dwelling Units (EDU)
0	1	20,514	20,514	0.5	2,564	5.1
1	1	32,119	32,119	0.7	4,015	8.0
2	1	41,844	41,844	1.0	5,231	10.5
3	2	40,546	81,092	1.9	10,137	20.3
4	1	60,239	60,239	1.4	7,530	15.1
5	2	99,035	198,070	4.5	24,759	49.5
6	1	49,453	49,453	1.1	6,182	12.4
7	1	39,305	39,305	0.9	4,913	9.8
8	1	42,583	42,583	1.0	5,323	10.6
9	1	19,790	19,790	0.5	2,474	4.9
10	1	31,227	31,227	0.7	3,903	7.8
11	2	187,598	375,196	8.6	46,900	93.8
12	2	72,628	145,256	3.3	18,157	36.3
13	2	94,501	189,002	4.3	23,625	47.3
14	1	152,921	152,921	3.5	19,115	38.2
15	1	28,150	28,150	0.6	3,519	7.0
16	1	20,397	20,397	0.5	2,550	5.1
17	1	4,068	4,068	0.1	509	1.0
18	1	40,564	40,564	0.9	5,071	10.1
19	2	31,532	63,064	1.4	7,883	15.8
20	1	44,519	44,519	1.0	5,565	11.1
21	1	36,517	36,517	0.8	4,565	9.1
22	1	23,885	23,885	0.5	2,986	6.0
23	1	40,880	40,880	0.9	5,110	10.2
24	2	25,996	51,992	1.2	6,499	13.0
25	2	30,573	61,146	1.4	7,643	15.3
26	2	23,532	47,064	1.1	5,883	11.8
27	2	3,792	7,584	0.2	948	1.9
28	2	41,429	82,858	1.9	10,357	20.7
29	3	44,135	132,405	3.0	16,551	33.1
30	3	44,346	133,038	3.1	16,630	33.3
31	1	45,315	45,315	1.0	5,664	11.3
32	2	46,787	93,574	2.1	11,697	23.4
33	3	12,928	38,784	0.9	4,848	9.7
34	2	5,735	11,470	0.3	1,434	2.9
35	1	4,248	4,248	0.1	531	1.1
36	1	5,454	5,454	0.1	682	1.4
37	1	2,427	2,427	0.1	303	0.6
38	1	5,805	5,805	0.1	726	1.5
39	1	3,597	3,597	0.1	450	0.9
40	2	6,090	12,180	0.3	1,523	3.0
41	2	4,136	8,272	0.2	1,034	2.1
42	2	8,061	16,122	0.4	2,015	4.0

43	2	15,296	30,592	0.7	3,824	7.6

FID No.	No. of Stories	Building Footprint (SF)	Total Floor Area (SF)	Total Floor Area (Acres)	Non-Residential Flow	Equivalent Dwelling Units (EDU)
44	1	1,022	1,022	0.0	128	0.3
45	1	1,084	1,084	0.0	136	0.3
46	2	14,100	28,200	0.6	3,525	7.1
47	2	35,929	71,858	1.6	8,982	18.0
48	2	32,623	65,246	1.5	8,156	16.3
49	1	20,869	20,869	0.5	2,609	5.2
50	2	35,293	70,586	1.6	8,823	17.6
51	2	35,476	70,952	1.6	8,869	17.7
52	2	35,076	70,152	1.6	8,769	17.5
53	1	24,170	24,170	0.6	3,021	6.0
54	2	15,738	31,476	0.7	3,935	7.9
55	2	12,964	25,928	0.6	3,241	6.5
56	1	13,276	13,276	0.3	1,660	3.3
57	1	2,793	2,793	0.1	349	0.7
58	1	3,596	3,596	0.1	450	0.9
59	1	3,535	3,535	0.1	442	0.9
60	1	2,213	2,213	0.1	277	0.6
61	1	7,072	7,072	0.2	884	1.8
62	1	3,663	3,663	0.1	458	0.9
63	1	1,224	1,224	0.0	153	0.3
64	2	25,304	50,608	1.2	6,326	12.7
65	1	3,874	3,874	0.1	484	1.0
66	1	6,861	6,861	0.2	858	1.7
67	2	11,643	23,286	0.5	2,911	5.8
68	1	77,180	77,180	1.8	9,648	19.3
69	2	3,200	6,400	0.1	800	1.6
70	2	11,019	22,038	0.5	2,755	5.5
71	1	15,482	15,482	0.4	1,935	3.9
72	1	2,950	2,950	0.1	369	0.7
73	2	4,942	9,884	0.2	1,236	2.5
74	2	3,770	7,540	0.2	943	1.9
75	1	2,019	2,019	0.0	252	0.5
76	1	38,796	38,796	0.9	4,850	9.7
77	2	10,032	20,064	0.5	2,508	5.0
78	1	29,547	29,547	0.7	3,693	7.4
79	1	4,768	4,768	0.1	596	1.2
80	1	7,630	7,630	0.2	954	1.9
81	1	2,426	2,426	0.1	303	0.6
82	2	1,492	2,984	0.1	373	0.7
83	1	1,562	1,562	0.0	195	0.4
84	1	7,504	7,504	0.2	938	1.9
85	1	2,469	2,469	0.1	309	0.6
86	2	2,017	4,034	0.1	504	1.0
87	1	3,027	3,027	0.1	378	0.8

FID No.	No. of Stories	Building Footprint (SF)	Total Floor Area (SF)	Total Floor Area (Acres)	Non-Residential Flow	Equivalent Dwelling Units (EDU)
88	1	2,701	2,701	0.1	338	0.7
89	2	3,104	6,208	0.1	776	1.6
90	1	2,002	2,002	0.0	250	0.5
91	2	1,836	3,672	0.1	459	0.9
92	1	4,698	4,698	0.1	587	1.2
93	2	1,899	3,798	0.1	475	0.9
94	2	766	1,532	0.0	192	0.4
95	1	2,039	2,039	0.0	255	0.5
96	1	903	903	0.0	113	0.2
97	1	1,359	1,359	0.0	170	0.3
98	1	1,737	1,737	0.0	217	0.4
99	1	833	833	0.0	104	0.2
100	2	969	1,938	0.0	242	0.5
101	1	136,702	136,702	3.1	17,088	34.2
102	1.5	193,779	290,669	6.7	36,334	72.7
103	1	22,808	22,808	0.5	2,851	5.7
104	2	14,824	29,648	0.7	3,706	7.4
105	2	23,514	47,028	1.1	5,879	11.8
106	1	5,782	5,782	0.1	723	1.4
107	2	48,476	96,952	2.2	12,119	24.2
108	1	24,882	24,882	0.6	3,110	6.2
109	1	2,301	2,301	0.1	288	0.6
110	2	1,041	2,082	0.0	260	0.5
111	2	2,794	5,588	0.1	699	1.4
112	2	35,303	70,606	1.6	8,826	17.7
113	1	3,009	3,009	0.1	376	0.8
114	2	96,544	193,088	4.4	24,136	48.3
115	2	12,446	24,892	0.6	3,112	6.2
116	1	6,918	6,918	0.2	865	1.7
117	1	7,490	7,490	0.2	936	1.9
118	1	4,514	4,514	0.1	564	1.1
119	1	13,755	13,755	0.3	1,719	3.4
120	2	2,146	4,292	0.1	537	1.1
121	2	3,522	7,044	0.2	881	1.8
122	1	2,437	2,437	0.1	305	0.6
123	2	3,186	6,372	0.1	797	1.6
124	2	1,453	2,906	0.1	363	0.7
125	1	3,752	3,752	0.1	469	0.9
126	1	870	870	0.0	109	0.2
127	1	2,294	2,294	0.1	287	0.6
128	1	13,504	13,504	0.3	1,688	3.4
129	1	1,715	1,715	0.0	214	0.4
130	1	3,316	3,316	0.1	415	0.8
131	2	2,733	5,466	0.1	683	1.4

FID No.	No. of Stories	Building Footprint (SF)	Total Floor Area (SF)	Total Floor Area (Acres)	Non-Residential Flow	Equivalent Dwelling Units (EDU)
132	2	4,646	9,292	0.2	1,162	2.3
133	2	1,630	3,260	0.1	408	0.8
134	1	1,718	1,718	0.0	215	0.4
135	1	988	988	0.0	124	0.2
136	1	5,598	5,598	0.1	700	1.4
137	1	3,497	3,497	0.1	437	0.9
138	2	1,333	2,666	0.1	333	0.7
139	2	6,017	12,034	0.3	1,504	3.0
140	2	984	1,968	0.0	246	0.5
141	2	3,198	6,396	0.1	800	1.6
142	1	779	779	0.0	97	0.2
143	1	7,350	7,350	0.2	919	1.8
144	1	734	734	0.0	92	0.2
145	2	38,313	76,626	1.8	9,578	19.2
146	2	3,271	6,542	0.2	818	1.6
147	1	4,478	4,478	0.1	560	1.1
148	1	63,597	63,597	1.5	7,950	15.9
149	2	2,403	4,806	0.1	601	1.2
150	1	2,228	2,228	0.1	279	0.6
151	2	4,415	8,830	0.2	1,104	2.2
152	2	1,650	3,300	0.1	413	0.8
153	2	3,200	6,400	0.1	800	1.6
154	1	1,993	1,993	0.0	249	0.5
155	2	30,570	61,140	1.4	7,643	15.3
156	2	2,711	5,422	0.1	678	1.4

Total Floor Area (SF)	**4,824,174**
Total Floor Area (Acres)	**111**
Total EDU's	**1,206**

* Equivalent Dwelling Units (EDU's) were calculated by converting the total SF of commercial properties within the Borough of Oakland and multiplying it by the Wastewater Flow Factor of 0.125 gallons per day (gpd) as per N.J.A.C.7-9A-7.4. The total flow of non-residential development was then divided by 500gpd to generate the resulting number of Equivalent Dwelling Units.

Oakland Borough
Municipal Build-Out Report

Prepared by the State of New Jersey Highlands Water Protection and Planning Council in Support of the Highlands Regional Master Plan: Report on the Results of Modules 1 and 2 of the 2009 Plan Conformance Process

August 2009

OAKLAND BOROUGH
MUNICIPAL BUILD-OUT REPORT
for
HIGHLANDS REGIONAL MASTER PLAN CONFORMANCE

Purpose and Scope

The Highlands Regional Master Plan (RMP) requires that conforming municipalities develop a local build-out analysis that incorporates the policies and objectives of the RMP. Specifically, conforming municipalities are required to "use the Highlands Build-Out Model to develop a local build-out analysis that incorporates RMP policies and objectives to evaluate land use capability and capacity planning" (Objective 6G4c). The RMP build-out process requires a Limiting Factor Analysis to examine three categories of constraints:

1. Land Based Capacity (potential developable lands);
2. Resource Based Capacity (Septic System Yield and Net Water Availability); and
3. Utility Based Capacity (public water and wastewater).

This Municipal Build-Out Report provides the results of the local build-out analysis based on potential developable lands and existing municipal conditions, including sewer and water supply capacity and Net Water Availability where relevant. It incorporates the results of the first two modules of the 2009 Plan Conformance Grants Program: Module 1 "Current Municipal Conditions and Build-Out Analysis," and Module 2 "Land Use and Resource Capacity Analysis." Both modules were completed through a detailed process involving a cooperative effort of the municipality and the Highlands Council. This process was designed to ensure use of the most current municipal information available and proper application of RMP requirements in the conduct of all analyses. The results for Oakland Borough are presented in the section "**Full Build-Out and Constraints Summary**" and tabulated in Table 4 below.

The results of the local build-out analysis are for use by conforming municipalities for other planning activities required for Plan Conformance, such as development of Fair Share Plans addressing affordable housing obligations (Module 3). They also will be useful in complying with the New Jersey Department of Environmental Protection (NJDEP) wastewater management planning requirements under the Water Quality Management Planning rules at N.J.A.C. 7:15-5. The results are intended to assess current municipal conditions as they relate to specific RMP policies and objectives. It is important to note that the build-out analysis incorporates many but not every constraint to development included in the RMP, State regulations or local zoning. Future activities under Plan Conformance will address issues such as more refined or current analyses of land availability, resource capacity, resource protection and utility capacity that may modify these results to either increase or decrease the projected build out of the municipality (e.g., reducing build-out

projections through land preservation, increasing build-out projections by increasing Net Water Availability or designation of Highlands Redevelopment Areas).

The results of the municipal build-out analysis are designed to be utilized at a municipal scale and are not appropriate for determining if a particular parcel or development project is consistent with the RMP. Therefore, the Highlands Build-Out Model is not intended to be applied at a parcel level to determine the development potential of that parcel, as the municipality must apply additional planning and zoning analyses to determine appropriate future sustainable development.

All of the data and figures regarding specific parcels, including, but not limited to, preserved lands and water and sewer service, are based on a review of currently available information; however, unintentional inaccuracies may occur and may be formally addressed as RMP Updates. Any request for a formal determination to address updated information may be submitted to the Highlands Council in accordance with the RMP policies and procedures for RMP Updates. In addition, this report does not address any Map Adjustments that a municipality may seek to revise the Land Use Capability Zone Map; these will be addressed at a later date.

It is critical to note that this build-out analysis was conducted based on the requirements of Plan Conformance with the RMP, as applied to parcels deemed potentially developable (vacant, over- sized and redevelopable) as of early 2009. These results do not include:

- development that has been approved but not completed as of early 2009, which may yield more or less growth than the build-out results calculated for the affected parcels;

- the potential impact of some future development that may be deemed exempt from the Highlands Act, which may yield more or less growth than the build-out results calculated for those lands;[1]

- the potential impact of future redevelopment that may be approved through designation of Highlands Redevelopment Areas or other approvals granted with waivers as authorized by the Highlands Act, which may yield more growth than the build-out results calculated for those lands;

- the potential impact of certain land use restrictions based on State regulations and local ordinances that could not be assessed through a municipal level of analysis; and

[1] Where such development is located in an approved wastewater service area in the RMP Existing Community Zone (not including the Environmentally-Constrained Sub-Zone) or the Lake Community Sub-Zone, the results should be similar because the build-out analysis used local zoning. Future developments that may be authorized within the Environmentally-Constrained Sub-Zones, Protection Zone or Conservation Zone that use public or community on-site wastewater systems will have significantly different yields than calculated through the RMP build-out process. Likewise, the Septic System Yields for lands that will rely on septic systems may be significantly different from what those allowed by current municipal zoning.

- any reductions in build-out projections due to land preservation for open space or farmland beyond those preserved lands identified by the municipality through Module 1.

Therefore, the Highlands Municipal Build-Out Report for a municipality is a result of current conditions and application of RMP requirements. It provides a critical planning tool but cannot be used as a definitive prediction of the future or as a basis for parcel-based development potential.

This is a final Municipal Build-Out Report, which supersedes the Module 1 Summary Report. The results may be used in Module 3 by the municipality in support of its Housing Element and Fair Share Plan and other relevant purposes.

Report Structure

This Highlands Council report is based on the municipal build-out results from Modules 1 and 2 performed by Oakland Borough and the Highlands Council, in conformance with the Highlands Regional Master Plan (RMP). These results include consideration of potential land availability, utility capacity, municipal zoning in wastewater utility service areas, Septic System Yield and Net Water Availability in accordance with the RMP. The RMP build-out analysis estimates the potential for new development in Oakland Borough, for the entire municipality (see **Full Build-Out and Constraints Summary**, below).

First, the analysis addressed the build-out potential of the available lands, assuming application of RMP requirements for septic system yields and utility service areas without constraints related to the available capacity of public water supply and wastewater utilities or Net Water Availability. Essentially, the land-based build out represents the maximum potential for development in conformance with the RMP if no other constraints exist. Where sewered development is in conformance with the RMP, municipal zoning is used to determine build-out potential. Where septic systems will be used, the RMP requirements apply and the resulting septic system yield is assumed to be entirely residential in nature. To the extent that septic system capacity is used for non-residential development based on a proportional reallocation from residential development, the projected growth will be different than those reported above. Any reallocations of septic system yield will be addressed in Module 3 – Housing Element and Fair Share Plan.

Second, the public water supply and wastewater demands of development projected for the utility service area are compared to the utility capacity available to the municipality, regarding both public water supply and wastewater utilities. Where capacity is insufficient to support the build-out demand, the build-out estimates are reduced.

Third, the resulting water supply demands from build out in both public water supply utility service areas and domestic well service areas are compared to the Net Water Availability for the HUC14 subwatershed. In many cases, this step required information regarding water supply demands from other municipalities, so that the full demands against each HUC14 subwatershed could be assessed. Again, where Net Water Availability is insufficient to support the build-out demand, the build-out estimates are reduced.

Finally, where a wastewater utility had available capacity for a municipality after meeting all build-out demands, the Highlands Council investigated whether sufficient Net Water Availability exists to support the use of all or part of that wastewater utility capacity for such purposes as affordable housing, TDR Receiving Zones and other purposes supported by the RMP.

This report also includes a discussion of technical methods used in the build-out process, including quality control assessments and build-out impact factors.

Full Build-Out and Constraints Summary for Oakland Borough

Overview

The Oakland Borough is located within both the Preservation Area and Planning Area. The RMP build-out analysis for Oakland Borough estimates the following new development results for potential developable lands for the entire municipality, which are discussed in detail in the following section and summarized in Table 4:

1. Development in Wastewater Utility Service Areas: 0 residential dwelling units and 0 square feet of non-residential development, resulting in a wastewater demand of 0 gallons per day (gpd), or 0 million gallons per day (MGD), and estimated public water supply demands of 0 gpd, or 0 MGD.

2. Development in Septic System Areas: 16 septic systems in the Planning Area for all RMP Land Use Capability Zones and HUC14 subwatersheds, and 0septic systems in the Preservation Area.

The build-out results based on potential developable lands are not constrained by water supply utility capacity and wastewater utility capacity. The water supply demands from the build-out are not constrained by water availability.

Municipal Capacity Conditions and Analysis

A summary of findings on municipal build-out capacity conditions appears in Table 1. It includes the following: potential developable vacant, over-sized and redevelopable lands in the RMP wastewater utility area; potential developable vacant, over-sized and redevelopable parcels in the septic system areas; RMP Septic System Yield; RMP Build-Out Environmentally Constrained lands; available wastewater utility capacity; and available Public Community Water Supply utility capacity.

All figures are the results of an RMP consistency analysis applied to the information supplied by the Highlands Council, as supplemented and verified by Oakland Borough. Each Figure shows all of the parcels that were used in the build-out process, whether for Septic System Yield or for build out of RMP wastewater utility areas.

- **Figure 1** presents the parcel-based potential developable lands and their association with HUC14 subwatersheds and Land Use Capability Zones, which relate to the RMP Septic System Yield values where the parcels will be served by septic systems.

- **Figure 2** presents the parcel-based potential developable lands and the RMP Build-Out Environmentally Constrained lands (i.e., steep slopes, flood prone areas and Highlands Open Water buffers). Some of these areas are within the RMP Environmentally- Constrained Sub-Zones while others are smaller-scale environmental features outside those sub-zones.

- **Figure 3** presents the parcel-based potential developable lands and their association with the RMP utility area[2] for RMP HDSF[3] wastewater utilities.
- **Figure 4** presents the parcel-based potential developable lands associated with the RMP utility area[4] for RMP Public Community Water System utilities.

RMP Build-Out Developable Land, Over-Sized Lot Analysis and Redevelopable Land

Oakland Borough identified 219 acres of potential developable vacant lots and 10 acres of potential developable lands on over-sized lots within areas that will be served by septic systems, for a total of 229 acres of potential developable Septic System Yield lands. These lands were used as the basis for Septic System Yield, regardless of the extent to which any of the lands were steep slopes, flood prone areas or Highlands Open Water buffers.

In addition, there are no (0) acres of potential developable vacant lands and no (0) acres of identified potential redevelopable land (either over-sized lots or specifically identified by the municipality as being a redevelopment target) within the Existing Area Served by utilities. The municipal information for potential developable lands, over-sized lots and redevelopable land was evaluated by the Highlands Council in accordance with the RMP for the build-out analysis. The results for all report figures are summarized in Table 1.

RMP Septic System Yield Analysis

There are three (3) HUC14 subwatersheds located entirely or partially within the Planning Area of Oakland Borough. The RMP Septic System Yield analysis for the Planning Area determined a yield of 0 units for the Conservation Zone, 14 units for the Existing Community Zone and 2 units for the Protection Zone. The RMP Septic System Yield analysis determined a yield of 0 units for the Preservation Area. The total RMP Septic System Yield for Oakland Borough is 16 units. Refer to Table 1 and Figure 1 for additional details.

[2] The RMP utility area for wastewater includes the Existing Areas Served based on the RMP, plus any NJDEP-approved Sewer Service Area that is within the Existing Community Zone (not including the Environmentally-Constrained Sub-Zone) or the Lake Community Sub-Zone.

[3] HDSF - Highlands Domestic Sewerage Facility. These are wastewater treatment works that provide wastewater treatment primarily of sanitary sewage rather than industrial wastewater as a public utility, and may include service areas and treatment capacities sufficient to support redevelopment and regional growth opportunities. As such, they provide service to multiple parcels under different ownership, rather than to specific developments (e.g., schools, shopping centers, public institutions).

[4] The RMP utility area for public water supply includes the Existing Areas Served based on the RMP, plus any additional properties identified by the municipality that are within the Existing Community Zone (not including the Environmentally-Constrained Sub-Zone) or the Lake Community Sub-Zone.

The build out for septic systems in the Preservation Area identifies the number of septic systems that would be considered permissible under the NJDEP Preservation Area Rules at N.J.A.C. 7:38-3.4. Each vacant or over-sized lot identified through Module 1 and 2 was assessed to determine whether it was of sufficient size to accommodate one or more septic systems, based on NJDEP requirements for 1 unit per 25 acres of non-forested lands, 1 unit per 88 acres of forested lands, or some proportional combination thereof. The yield is assigned by parcel, not by aggregate acreage across multiple parcels, and is compiled for the entire Preservation Area of the municipality as shown in Table 1. Parcels that were too small to accommodate a new septic system under these provisions received no Septic System Yield.

In the Planning Area, the build out for septic systems is based on a yield evaluation for the aggregate of two areas: the acreage of vacant parcels and the net acreage of over-sized parcels. These areas are divided into HUC14 subwatershed/RMP Land Use Capability Zone combinations. Each combination of HUC14 subwatershed and Land Use Capability Zone within the municipality receives its own Septic System Yield, which is not transferable. The yield is based on RMP Policy 2L2, which establishes nitrate targets for each Land Use Capability Zone and incorporates the relevant drought recharge values for each HUC14 subwatershed.

The RMP Septic System Yield is calculated for <u>all</u> potential developable lands reliant on septic systems, which may include lands zoned for both residential <u>and</u> non-residential development. Any yields are provided in "equivalent residential units" which may later be allocated among residential and non-residential development using flow translation factors provided in the *Highlands Regional Build-Out Technical Report* (see Appendix B of this report). Therefore, Septic System Yield calculated for Oakland Borough would equate to 16 residential units only if no yield is allocated to non- residential development. Septic System Yield may be allocated to non-residential development by reducing the number of residential units and increasing the amount of non-residential development proportionally based on relative flows. This allocation process and the implications for affordable housing requirements will be addressed in Module 3 - Housing Element and Fair Share Plan; this analysis is not part of this report. Therefore, no estimate is made here of non-residential development. All development on septic systems is assumed to rely on domestic wells for the purposes of this analysis.

<u>RMP Build-Out Environmentally Constrained Lands</u>

The RMP Build-Out analysis identified portions of the potential developable lands that are environmentally constrained based on the RMP (i.e., steep slopes, flood prone areas and Highlands Open Water buffers). These constraints were used in the build-out analysis to determine, where wastewater utility service was anticipated based on conformance with the RMP and approved sewer service areas, whether specific parcels had at least 1,400 square feet of unconstrained area. In addition, the nature and extent of these lands may influence the future development of lands in the septic system areas regarding the allocation of Septic System Yield to them and utility lands that are suitable for development. Out of the 229 gross developable acres in Oakland Borough, for vacant

parcels there is a potential net developable area of 44 acres in the Planning Area and 0 acres in the Preservation Area; for over-sized parcels there is a potential net developable area of -1 acres in the Planning Area and 0 acres in the Preservation Area. These values are a summation of the parcel-specific analyses. Refer to Table 1 and Figure 2 for additional details. This analysis should be viewed as an indicator of the level of environmental constraints in potentially developable lands, not as a parcel-based measure of development capacity.

In certain instances, the municipal potential net developable acres may be under-reported relative to actual buildable area conditions, and may even show a zero or negative value. A zero or negative value indicates that a very high degree of environmental constraints exists on the potential developable parcels of the municipality as a whole and especially on the over-sized lots; however, some potential developable lands may still exist. This result reflects the evaluation of over-sized lots and of vacant lots that are partly included in the sewer service build-out analysis. The potential developable acres for over-sized parcels are calculated by subtracting the equivalent of a buildable area for a single unit of development (e.g., one house) under the RMP from the total parcel size. Likewise, some parcels are only partially eligible for sewered development. In both cases the environmental constrained acres for these parcels are calculated based on the entire parcel area due to GIS processing issues. This section of the Municipal Build-Out Report uses a municipal aggregate land area analysis. This information will be used in later aspects of Plan Conformance at a parcel level and not as a municipal land aggregate value. Evaluation of the relationship of septic system yield and buildable lands will be based on the build-out parcel data information and not the Table 1 municipal summary reported values.

As part of that analysis, the municipality will be able to use the database to analyze vacant parcels in septic system areas, to help identify parcels that could be considered to have some reasonable potential for development based on the amount of unconstrained land within them. Further analysis in later phases of Plan Conformance would then identify additional constraints to the realistic development potential of these parcels based on one or more of the following factors:

1. lack of a minimum one-acre contiguous, unconstrained building site;
2. the potential building site is not accessible or access will result in damage to environmentally constrained lands;
3. application of municipal zoning constraints such as those prohibiting creation of flag lots, landlocked parcels, etc.; or
4. parcel configuration or other parcel-specific issues.

This information on vacant lands with a reasonable potential for development can be used to support the evaluation of Septic System Yield assignment in later phases of Plan Conformance.

Available HDSF Wastewater Utility Capacity

One HDSF facility serving a very small portion of Oakland Borough is Pompton Lakes MUA. The current available Highlands Region capacity for the utility is 0.094 million gallons per day (MGD) (2003 data) for all municipalities served by the system. The current capacity available to Oakland Borough is not available at this time. There is no wastewater generation from the build out for this facility.

Another HDSF facility serving a very small portion of Oakland Borough is NW Bergen County MUA. The current available Highlands Region capacity for the utility is 0.691 million gallons per day (MGD) (2003 data) for all municipalities served by the system. The current capacity available to Oakland Borough is approximately 0.001 MGD, based upon information developed for the build- out process. There is no wastewater generation from the build out for this facility. Refer to Table 1 and Figure 3 for additional details.

Oakland Borough-Indian Hills HS, Skyview/Hibrook, Oakwood Knolls, Mountain View STP, Oakland Care Center, Manito Elementary School, Chapel Hill Estates, and Riverbend are Non- HDSF in Oakland Borough. There is no wastewater generation from build out for these facilities.

Based on the current municipal available capacity minus the build-out demands for this wastewater utility, there may be capacity available for future allocation. Priority shall be given to addressing additional needs based on Objective 2K3e, such as imminent threats to public health from areas of failing septic systems, designated TDR Receiving Zones, and to infill or redevelopment projects in the Existing Community Zone (not including the Environmentally-Constrained Sub-Zone) and the Lake Community Sub-Zone that are consistent with the RMP and either address affordable housing obligations or have final municipal approval. Additional priorities include Highlands Redevelopment Areas or cluster development consistent with the RMP. Capacity may also be allocated to the Existing Area Served for redevelopment purposes.

Available Public Community Water System Utility Capacity

The public water supply utility serving Oakland Borough is the Oakland Water Department. The current available Highlands Region capacity for the utility is 42.39 million gallons per month (MGM). The current capacity available to Oakland Borough is approximately 41.54 MGM. There is no public water demand from the build out for this facility. Refer to Table 1 and Figure 4 for additional details.

Based on the current municipal available capacity minus the build out for this water supply utility, there may be capacity available for future allocation. Priorities are similar to those for wastewater capacity (see RMP Objective 2J4c).

Water Availability Constraints

The build-out results for Oakland Borough, based on developable land and utility capacity, were compared to Net Water Availability by the Highlands Council to determine if Net Water Availability

posed an additional constraint on development capacity. This analysis determined the potential for Net Water Availability constraints by HUC14 subwatershed, including water demands from both Oakland Borough and other municipalities and water users that withdraw water from the same HUC14 subwatershed. The Highlands Council determined whether each demand was consumptive or depletive. For the purpose of this analysis, all septic system units were considered to represent a residential land use in accordance with the Highlands Module 2 Build-out Impact Factors presented in Appendix B, and were addressed as consumptive water uses.

The results were compared to Net Water Availability, whether for non-deficit (surplus) subwatersheds, or deficit (Conditional Water Availability) subwatersheds. These values, whether from a deficit or surplus subwatershed, are collectively referred to as Net Water Availability. In HUC14 subwatersheds dominated by Conservation Zone lands, the water availability dedicated for agricultural purposes is not used for this analysis.

Based on this analysis, the Highlands Council determined that the following HUC14 subwatersheds, both within the municipality and in other municipalities but relied upon for municipal water supply, have insufficient Net Water Availability to support the build out demand:

Table 2 – Net Water Availability Constraints Analysis – Deficits

HUC14 Subwatershed	Build-Out Demand (MGD)*	Net Water Availability (MGD)	Shortfall (MGD)
NA			

*Subsequent to any reductions due to utility constraints.

For the remaining HUC14 subwatersheds partially or entirely in the municipality, the Highlands Council also assessed the amount of Net Water Availability remaining after build out. The results are in Table 3, which indicates the remaining Net Water Availability for each HUC14 subwatershed (where positive) and the associated public water supply systems that rely upon the HUC14 subwatershed for supply. This information can be used by the municipality to determine whether there is water available to the public water supply system that could support development within any associated wastewater utility service area, whether within the same HUC14 subwatershed or another, for purposes consistent with the RMP as describe above. The wastewater utility must also have remaining capacity available to the municipality. (Note: this available water cannot be used to increase the Septic System Yield beyond the amount calculated by the Highlands Council, nor can it be used to justify creation or expansion of utilities in violation of RMP requirements.) A decision as to the allocation of this capacity may occur in Module 3 regarding affordable housing needs identified in the Fair Share Plan, or later in the Plan Conformance process regarding other uses. Where a HUC14 subwatershed is relied upon by more than one municipality for water supply, whether on-site or a public water supply system, coordination will be needed among the municipalities to ensure that proposals for additional use do not exceed the remaining Net Water Availability. Also, there may be additional HUC14 subwatersheds not within the municipality that supply water to the municipality, which are not assessed here.

Table 3 – Net Water Availability – Remaining Capacity		
HUC14 Subwatershed	**Remaining Net Water Availability (MGD)**	**Public Water Supply System(s) Reliant Upon the HUC14 Subwatershed (w/ PWSID)**
02030103100050 Ramapo R (Crystal Lk br to BearSwamp Bk)	0.008999	0242001 Oakland Water Department
02030103100060 Crystal Lake/Pond Brook	0.009082	0220001 United Water NJ Franklin Lakes 0242001 Oakland Water Department
02030103100070 Ramapo R (below Crystal Lake bridge)	0.007896	0242001 Oakland Water Department

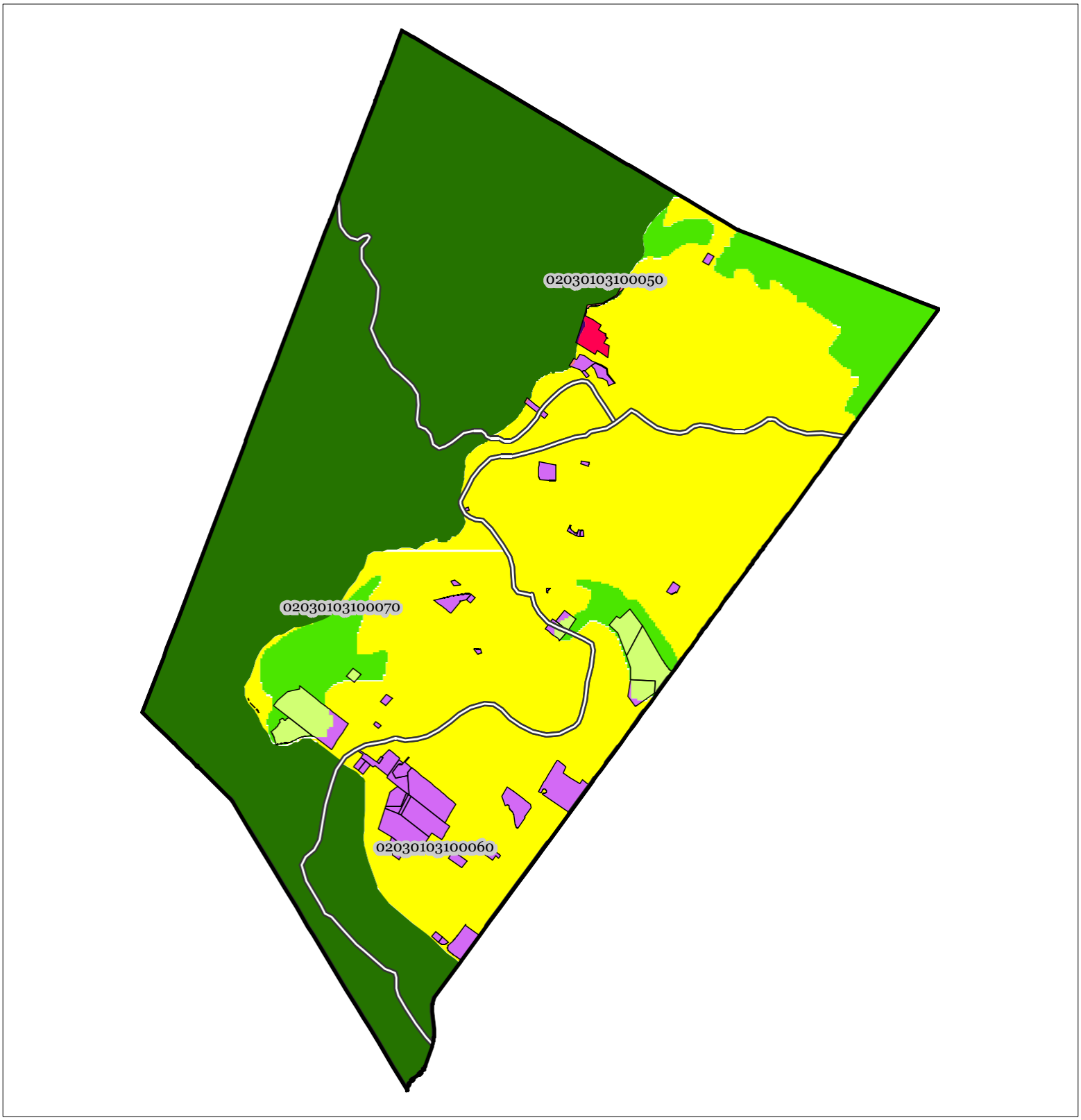
Final Build-Out Results

The build-out results for Oakland Borough are summarized in Table 4, based on land based capacity (potential developable land in both wastewater and septic system service areas), utility capacity and resource based capacity (Net Water Availability). These results are to be applied in Module 3 - Housing Element and Fair Share Plan toward the determination of affordable housing obligations. To assist in the evaluation of this information, an Excel file of the Module 2 database has been prepared by the Highlands Council for use in Module 3, where applicable. The Excel file is included on the Module 2 CD.

Table 4 – Municipal Build-Out Results With Resource and Utility Constraints			
	Preservation Area	**Planning Area**	**Totals**
Residential units – Sewered	0	0	0
Septic System Yield	0	16	16
Total Residential Units	0	16	**16**
Non-Residential Jobs – Sewered	0	0	**0**

Figure 1: Municipal Build-out Report Septic System Yield by HUC14 and LUCM Zone *

OAKLAND BOROUGH



Potential Undevelopable Lands	Potential Oversized Lots	Potential Developable Lands	Potential Redevelopable Lands
Conservation Zone	*in Conservation Zone*	*in Conservation Zone*	*in Conservation Zone*
Existing Community Zone	*in Existing Community Zone*	*in Existing Community Zone*	*in Existing Community Zone*
Protection Zone	*in Protection Zone*	*in Protection Zone*	*in Protection Zone*
Preservation Area	*in Preservation Area*	*in Preservation Area*	*in Preservation Area*

HUC14 Subwatersheds

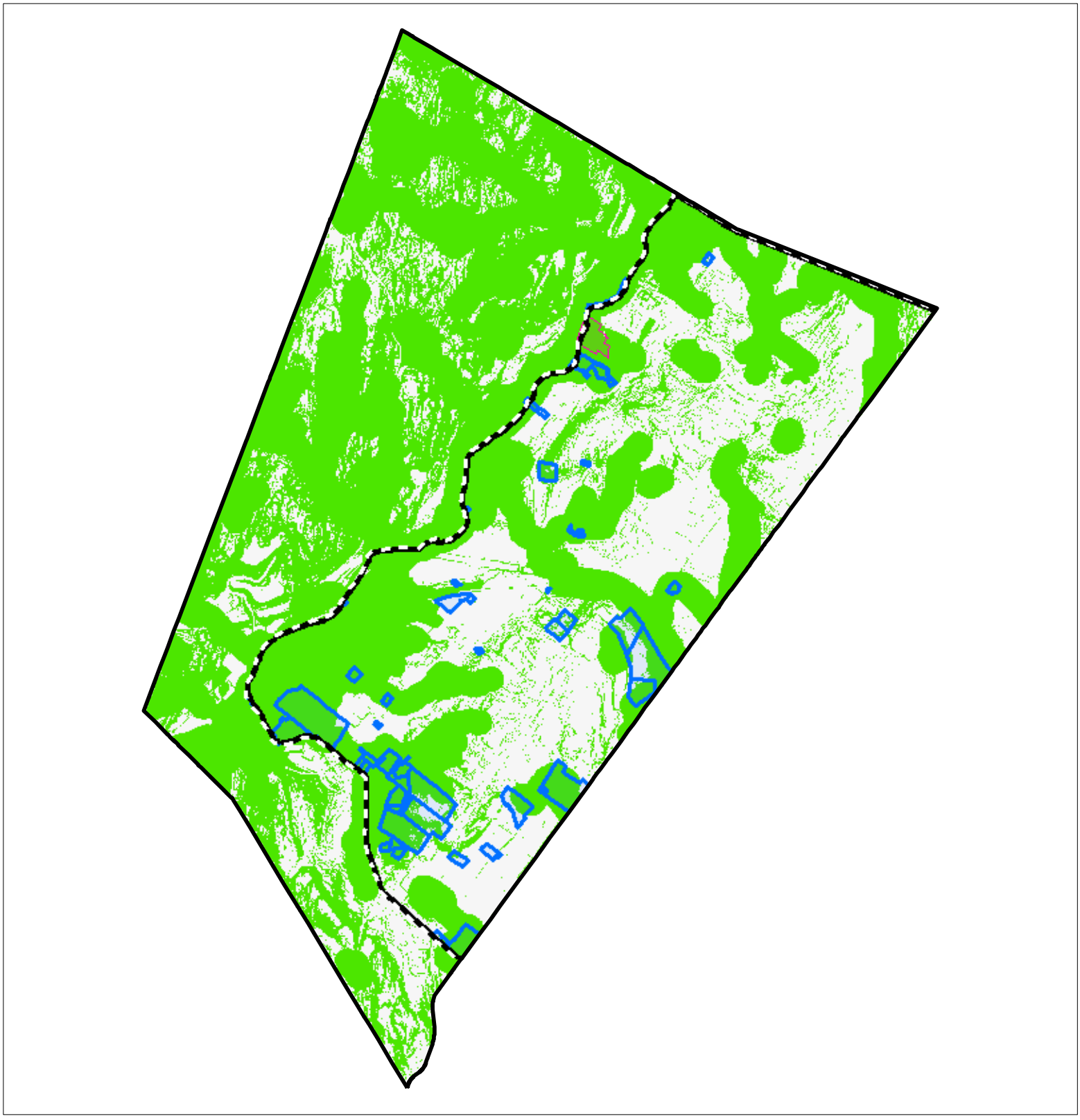
02030103100070 HUC14 ID Number

Highlands Council
New Jersey

* Refer to Table 1 for Septic System Yield values, indexed by HUC14 ID

0 0.5 1

Figure 2: Municipal Build-out Report Environmental Constrained Lands



Highlands Build-out Environmental Constrained Lands

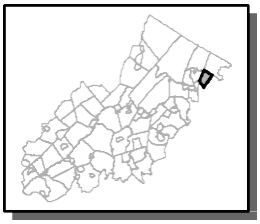
Constraints:
Highlands Open Water Buffers (300ft)
Flood Prone Areas
Steep Slopes (Moderate and Severe)

Potential Oversized Lots

Potential Developable Lots

Preservation Area

OAKLAND BOROUGH



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0 0.5 1

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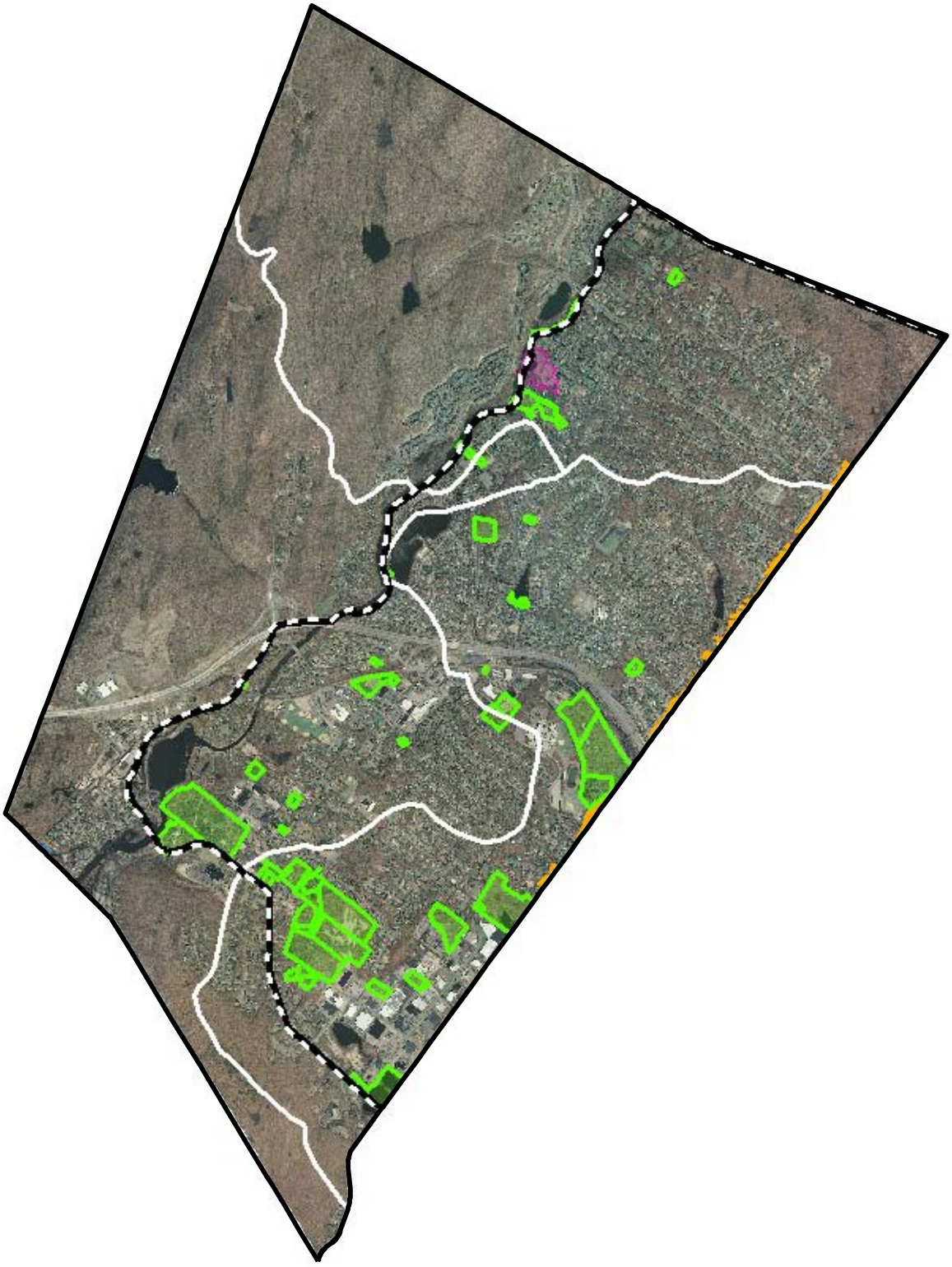
Highlands Council
New Jersey

Figure 3: Municipal Build-out Report RMP HDSF Wastewater Utilities

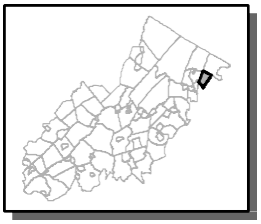


Highlands Domestic Sewerage Facilities "2008 RMP Existing Area Served"

NW Bergen County MUA

Pompton Lakes MUA

OAKLAND BOROUGH

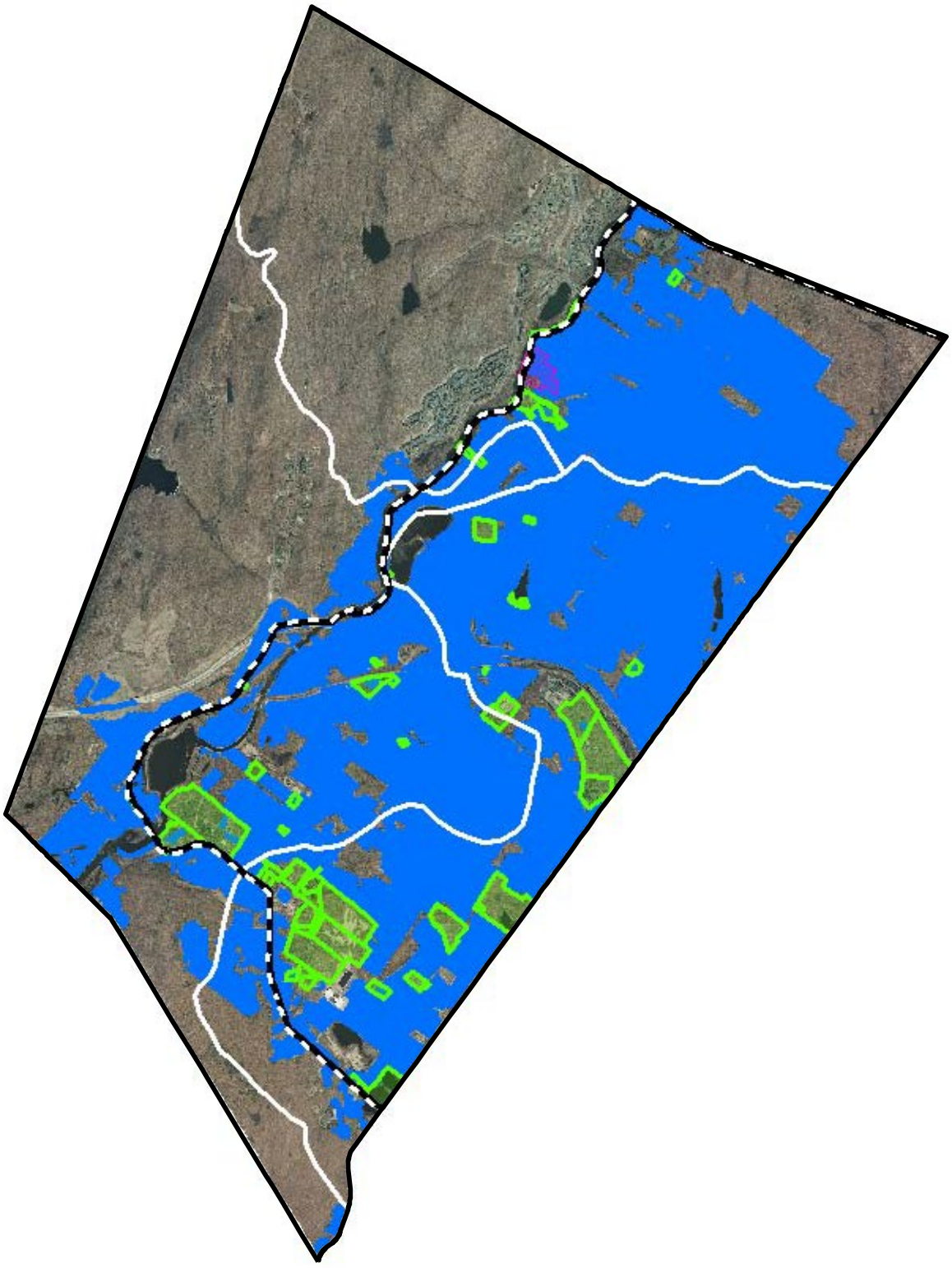


Miles

0 0.5 1

Highlands Council
New Jersey

Figure 4: Municipal Build-out Report RMP Public Community Water System Utilities

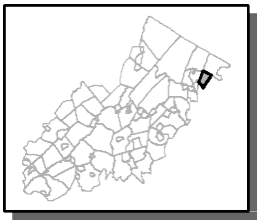


Public Community Water Systems "2008 RMP Existing Area Served"

OAKLAND WATER DEPARTMENT

HUC14 Subwatersheds

OAKLAND BOROUGH



Miles

0 0.5 1

Highlands Council

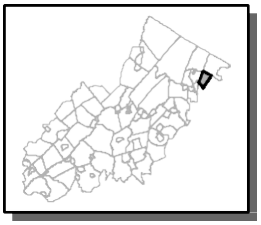
New Jersey

Figure 5: Municipal Build-out Report Final Build-out Results

Table 4 - Municipal Build-out Results With Resource and Utility Constraints			
	Preservation Area	Planning Area	Totals
Residential Units - Sewered	0	0	0
Septic System Yield	0	16	16
Total Residential Units	0	16	16
Non-Residential Jobs - Sewered	0	0	0

Preservation Area Boundary

OAKLAND BOROUGH



Miles

0 0.5 1

Highlands Council
New Jersey

Highlands Module 2 Municipal Summary Report

Table 1: RMP Municipal Capacity Conditions based on Module 2 Potential Developable Lands- OAKLAND BOROUGH

RMP Build-Out WASTE WATER UTILITY Existing Areas Served (EAS) Analysis

MUNICIPALITY	WASTEWATER UTILITY	Total Wastewater Generation (MGD) - Planning Area	Total Wastewater Generation (MGD) - Preservation Area	Municipal Assigned Percentage	Current Available Highlands Capacity (MGD)	Municipal Available Wastewater Capacity (MGD)
OAKLAND BOROUGH	NJ0023698 / Pompton Lakes MUA / HDSF	0	0	<1%	0.094	NA
OAKLAND BOROUGH	NJ0024813 / NW Bergen County MUA / HDSF	0	0	<1%	0.691	0.001
OAKLAND BOROUGH	NJ0021253 / OAKLAND BOROUGH INDIAN HILLS HS / NON	0	0	100%	Non HDSF	Non HDSF
OAKLAND BOROUGH	NJ0021342 / Skyview/Hibrook OAKLAND TWP / NON HDSF	0	0	100%	Non HDSF	Non HDSF
OAKLAND BOROUGH	NJ0027774 / Oakwood Knolls Oakland Borough / NON HDSF	0	0	100%	Non HDSF	Non HDSF
OAKLAND BOROUGH	NJ0028002 / Mountain View STP Oakland Borough / NON	0	0	100%	Non HDSF	Non HDSF
OAKLAND BOROUGH	NJ0029858 / Oakland Care Center Oakland Borough / NON HDSF	0	0	100%	Non HDSF	Non HDSF
OAKLAND BOROUGH	NJ0030384 / Manito Elementary School Oakland Borough / NON HDSF	0	0	100%	Non HDSF	Non HDSF
OAKLAND BOROUGH	NJ0053112 / Chapel Hill Estates Oakland Borough WMP / NON HDSF	0	0	100%	Non HDSF	Non HDSF
OAKLAND BOROUGH	NJ0080811 / Oakland Twp Riverbend / NON HDSF	0	0	100%	Non HDSF	Non HDSF

RMP Build-Out POTABLE WATER UTILITY Existing Areas Served (EAS) Analysis

MUNICIPALITY	WATER UTILITY	Total Water Demand (MGD) - Planning Area	Total Water Demand (MGD) - Preservation Area	Municipal Assigned Percentage	Water Utility Available Capacity (MGM)	Municipal Available Water Utility Capacity (MGM)
OAKLAND BOROUGH	242001 / OAKLAND WATER DEPARTMENT / Facility #61	0	0	98%	42.39	41.54

RMP Build-Out WASTEWATER UTILITY Existing Areas Served (EAS) Analysis Build-out Impact Results

MUNICIPALITY	WASTEWATER UTILITY	Residential Units	Nonresidential Square Feet	People	Jobs
OAKLAND BOROUGH	NJ0023698 / Pompton Lakes MUA / HDSF	0	0	0	0
OAKLAND BOROUGH	NJ0024813 / NW Bergen County MUA / HDSF	0	0	0	0
OAKLAND BOROUGH	NJ0021253 / OAKLAND BOROUGH INDIAN HILLS HS / NON	0	0	0	0
OAKLAND BOROUGH	NJ0021342 / Skyview/Hibrook OAKLAND TWP / NON HDSF	0	0	0	0
OAKLAND BOROUGH	NJ0027774 / Oakwood Knolls Oakland Borough / NON HDSF	0	0	0	0
OAKLAND BOROUGH	NJ0028002 / Mountain View STP Oakland Borough / NON	0	0	0	0
OAKLAND BOROUGH	NJ0029858 / Oakland Care Center Oakland Borough / NON HDSF	0	0	0	0
OAKLAND BOROUGH	NJ0030384 / Manito Elementary School Oakland Borough / NON HDSF	0	0	0	0
OAKLAND BOROUGH	NJ0053112 / Chapel Hill Estates Oakland Borough WMP / NON HDSF	0	0	0	0
OAKLAND BOROUGH	NJ0080811 / Oakland Twp Riverbend / NON HDSF	0	0	0	0

RMP Build-Out WATER UTILITY Existing Areas Served (EAS) Analysis Build-out Impact Results

MUNICIPALITY	WATER UTILITY	Residential Units	Nonresidential Square Feet	People	Jobs
OAKLAND BOROUGH	242001 / OAKLAND WATER DEPARTMENT / Facility #61	0	0	0	0

RMP Build-Out Septic System Yield Analysis

Planning Area

MUNICIPALITY	HUC14	SUBWATERSHED NAME	PLAN CZ YIELD	PLAN ECZ YIELD	PLAN PZ YIELD
OAKLAND BOROUGH	02030103100050	Ramapo R (Crystal Lk br to BearSwamp Bk)	0	1	0
OAKLAND BOROUGH	02030103100060	Crystal Lake/Pond Brook	0	12	1
OAKLAND BOROUGH	02030103100070	Ramapo R (below Crystal Lake bridge)	0	1	1
		totals	**0**	**14**	**2**

Preservation Area

MUNICIPALITY	PRES YIELD
OAKLAND BOROUGH	0

Highlands Module 2 Municipal Summary Report

Table 1: RMP Municipal Capacity Conditions based on Module 2 Potential Developable Lands- OAKLAND BOROUGH

RMP Build-Out Potential Developable Lands Analysis				
POTENTIAL DEVELOPABLE VACANT LOT SEPTIC SYSTEM ACRES				
MUNICIPALITY	**CZ ACRES - PLANNING**	**ECZ ACRES - PLANNING**	**PZ ACRES - PLANNING**	**PRESERVATION ACRES**
OAKLAND BOROUGH	0	144	75	0
POTENTIAL DEVELOPABLE OVERSIZED LOT SEPTIC SYSTEM ACRES				
MUNICIPALITY	**CZ ACRES - PLANNING**	**ECZ ACRES - PLANNING**	**PZ ACRES - PLANNING**	**PRESERVATION ACRES**
OAKLAND BOROUGH	0	10	0	0
POTENTIAL DEVELOPABLE WASTEWATER UTILITY ACRES				
MUNICIPALITY	**PLANNING ACRES**	**PRESERVATION ACRES**		
OAKLAND BOROUGH	0	0		
POTENTIAL DEVELOPABLE OVERSIZED LOT WASTEWATER UTILITY ACRES				
MUNICIPALITY	**PLANNING ACRES**	**PRESERVATION ACRES**		
OAKLAND BOROUGH	0	0		

RMP Build -Out Environmentally Constrained Lands Analysis						
Potential Developable Lot Acres						
MUNICIPALITY	**POTENTIAL FULL DEVELOPABLE ACRES - Planning Area**	**ENVIRONMENTAL CONSTRAINED ACRES - Planning Area**	**NET DEVELOPABLE ACRES - Planning Area**	**POTENTIAL FULL DEVELOPABLE ACRES - Preservation Area**	**ENVIRONMENTAL CONSTRAINED ACRES - Preservation Area**	**NET DEVELOPABLE ACRES - Preservation Area**
OAKLAND BOROUGH	219	175	44	0	0	0
Potential Oversized Lot Acres						
MUNICIPALITY	**POTENTIAL FULL DEVELOPABLE ACRES - Planning Area**	**ENVIRONMENTAL CONSTRAINED ACRES - Planning Area**	**NET DEVELOPABLE ACRES - Planning Area**	**POTENTIAL FULL DEVELOPABLE ACRES - Preservation Area**	**ENVIRONMENTAL CONSTRAINED ACRES - Preservation Area**	**NET DEVELOPABLE ACRES - Preservation Area**
OAKLAND BOROUGH	10	11	1	0	0	0

Overview of Technical Method for Build-Out Analysis

Module 1 "Current Municipal Conditions and Build-Out Analysis" (results of which are incorporated into or modified as appropriate for this report) was based on municipal information regarding potential developable lands (including identification of preserved lands and fully developed lands) and areas currently served with public water supply and wastewater utilities. It also included the current capacity conditions of public water supply and wastewater utilities, and was evaluated for municipal Land Use Capability in accordance with the RMP. The information was initially prepared by the Highlands Council and has been edited and verified by the municipality as representing the best available information on existing potential developable lands, which include vacant, non-preserved lands, as well as partially-developed lands having potential for further development (i.e., over-sized parcels) or redevelopment. The Highlands Council performed a quality control assessment to ensure that the database was technically sufficient for the build-out process (see Appendix A – Module 1). The build-out capacity conditions represent the complete build out of potential developable lands in accordance with the RMP, assuming no constraints other than location within areas served by water supply or wastewater utilities or, for those lands not within a wastewater utility service area, the Septic System Yield based upon RMP Land Use Capability Zone Map policies (which incorporate the NJDEP Rules for the Preservation Area at N.J.A.C. 7:38-3.4). The Module 1 Summary Report was prepared by the Highlands Council and provided to the municipality, which further verified or corrected land availability and municipal zoning information in the report as the first step in Module 2.

The build-out capacity conditions in Module 1 identified the available utility capacity (in units of flow) allocated to the municipality for associated Highlands Domestic Sewerage Facilities (HDSF), on-site wastewater facilities, and Public Community Water Supply Systems. The Highlands Council initially used available capacity information from the *Utility Capacity Technical Report (2008)*, which used 2003 data for wastewater utilities (comparing permitted flows to the rolling maximum three month daily average in million gallons per day, or MGD) and 2004 data for public water supply utilities (comparing permitted flows to the maximum monthly demand, in million gallons per month, or MGM). The available capacity estimates initially assumed that the capacity for regional utilities (i.e., serving more than one municipality) would be allocated on a first-come, first-served basis; available capacity was apportioned among the municipalities based on relative land availability in the service area municipalities. In the Module 1 process, municipalities and regional utilities were requested to provide both updated flow data and any available information on contracted flows for a municipality. Where such information was provided and verified, it was used to update both utility- wide and municipal available capacity estimates.

The build-out impacts analysis within RMP utility areas was performed by the Highlands Council using build-out environmental constraints, municipal zoning and various impact factors (e.g., water demand, sewerage demand, population, jobs) as identified in the *Highlands Regional Build-Out Technical Report* (2008) and listed in Appendix B of this report. This analysis was applied only within the RMP utility service areas, defined as the lands within a NJDEP approved utility service area that are also

located within the Existing Community Zone or Lake Community Sub-Zone (not including the Existing Community-Environmentally-Constrained Sub-Zone). Of these lands, only parcels with at least 1,400 square feet of land that is not environmentally constrained based on the RMP (i.e., steep slopes, flood prone areas and Highlands Open Water buffers) were evaluated for build out in RMP utility service areas. Potential developable lands that did not meet the criteria of the build-out RMP utility areas were evaluated as lands contributing to Septic System Yield.

In addition, the RMP Septic System Yield was calculated for the municipality. The build out for septic system areas in the Planning Area is based on the RMP Septic System Yield Analysis and does not incorporate or evaluate the effects of environmental constraints or municipal zoning. The build- out of septic system areas in the Preservation Area is based on the NJDEP Preservation Area Rules at N.J.A.C. 7:38-3.4, as required by the RMP. The total acreage of all vacant lands, the net acreage of over-sized parcels (i.e., the total lot size minus the acreage needed for one lot under the RMP) and redevelopable lands were used in the Septic System Yield analysis. In the Planning Area, the analysis used the nitrate target for the appropriate Land Use Capability Zone and the drought recharge value for the appropriate HUC14 subwatershed. In the Preservation Area, the analysis used the forested and non-forested lands at a parcel level. In keeping with RMP policies, preserved lands (including SADC, Green Acres, federal, State, county and local lands, and land trust properties and conservation easements where known) were excluded from this analysis. Environmentally constrained lands (i.e., steep slopes, flood prone areas and Highlands Open Water buffers) were included in the septic system yield analysis because the methodology assumes a mixture of constrained and unconstrained lands, but will affect how Septic System Yield is allocated in later stages of the Plan Conformance Process.

The information from Module 1 directly supported the Module 2 Land Use and Resource Capacity Analysis, results of which are incorporated into this report. In Module 2, the Highlands Council and the municipality evaluated the build-out impacts and the associated wastewater and water supply demands within the RMP utility areas as identified in Module 1.

In Module 2, municipalities reviewed the RMP build-out impacts for RMP utility areas and verified that they reflect densities allowed by existing municipal zoning. Areas included in the build-out process for sewer service included those lands within the wastewater Existing Area Served, as defined by the RMP, and also those lands within an NJDEP-approved Sewer Service Area that is also within the Lake Community Sub-Zone or the Existing Community Zone (excluding the Existing Community-Environmentally Constrained Sub-Zone). If the existing municipal zoning conditions have changed from the 2005 data used by the Highlands Council, then the municipality provided the current zoning and the Highlands Council revised the build-out impacts accordingly. The Highlands Council performed a quality control assessment to ensure that the database was technically sufficient for the build-out process (see Appendix A – Module 2).

When the land based build out of potential developable lands in Module 1 exceeded the available utility capacity conditions, further analysis by the Highlands Council was required in Module 2 to

determine the extent to which the build out was constrained by the lack of utility capacity. In such cases, the land-based build-out potential is lowered proportionately for residential and non- residential development within the service area. It is important to note that no change is made to the Existing Area Served for the utility; only the build-out potential is reduced.

Where utility capacity exceeded the land-based build out of potential developable lands in Module 1, the utility capacity is potentially available for future demands. The municipality will evaluate utility capacity assignment in Module 3 where appropriate to support affordable housing, and in support of later phases of Plan Conformance.

For some HUC14 subwatersheds in the municipality, the projected consumptive or depletive water demand based on both domestic well sources (either as derived from Septic System Yield, which is assumed to be supplied by domestic wells, or within a RMP wastewater utility area served by domestic wells) and water supply utility service indicate that the complete municipal build out of potential developable lands might exceed the Net Water Availability. In such cases, the Highlands Council then calculated Net Water Availability values in Module 2 for use as a further constraint on growth, and determined the extent to which the Net Water Availability would reduce the build out. The Highlands Council also assessed the extent to which the use of remaining wastewater utility capacity (i.e., beyond full build-out), if any, would be constrained by Net Water Availability. This information can be used by the municipality to determine whether the wastewater utility capacity can reasonably be used for purposes consistent with the RMP (e.g., affordable housing projects, TDR receiving zones, Highlands Redevelopment Areas, redevelopment within the Existing Area Served) as provided for by Objective 2K3e. A decision as to the allocation of this capacity will occur in Module 3 regarding affordable housing needs identified in the Fair Share Plan, or later in the Plan Conformance process regarding other uses.

Appendix A: Technical Sufficiency Review

MODULE 1

The Module 1 Geodatabase (GDB) and utility capacity spreadsheet information submitted by the municipality were evaluated for technical sufficiency and quality assurance and quality control purposes by the Highlands Council staff. The Highlands Council reviewed the GDB (GDB#1 and GDB#2, with GDB#3, where relevant) to determine that all the changes that the municipality made to the GDB are technically sufficient in order to process for RMP Build-out. All revisions made to a GDB by the Highland Council are reflected in the NJHC_QA_QC_COMMENTS field of the GDB. The same Build-out QA/QC Review method is conducted for both GDB#1 and GDB#2. These results were reviewed by the municipality in Module 2 (see below). Any database issues that were not specifically responsive to the technical sufficiency review and not specific to the Module 1 Build-Out Analysis were flagged in the GDB by the Highlands Council for future reference.

When a municipality received GDB#3 (the updated public water utility database), the Council joined and updated the PWSID data from GDB#3 into GDB#1 so all the Module 1 information was in GDB#1 for build-out processing.

Before a GDB is processed for Build-out, the Highlands Council reviewed the material submitted by the municipality including cover letters and any email correspondence for additional information relevant to the build-out analysis. The Highlands Council utilizes Microsoft Access to process the GDB through the NJHC QA/QC review method to create a Technical Protocol Status (TPS) report that flags all parcels that have contradictory data, as well as a SDE check which identifies inserted, deleted and updated information in the GDB. The Highlands Council utilized the TPS Report and the GDB along with the supporting documentation to evaluate any contradictory data reported as Error Codes on the TPS Report.

The TPS report created by the Highlands Council identifies parcels that may contain contradictory data in the GDB and therefore not process correctly in the build-out. There are 11 Error Codes and 5 Data Conditions that may potentially be flagged by the Highlands Council within a GDB. The identification of an Error Code may or may not result in an edit by the Council. If an edit was required in order to technically correct the GDB for build-out processing, the edit was conducted by the Highlands Council and recorded in the GDB. The following is a list of the TPS Error Codes and Data Conditions that may be applicable to the municipality:

- **Error Code 01: Municipal Verification Field Missing -** every verifiable field and row should include the Module 1 verifier's name. If a row was blank, the NJHC QA/QC reviewer would populate the field with the verifier's name or consult with the municipalityas required, and enter a comment in the NJHC_QA_QC_COMMENTS field in the GDB.

- **Error Code 02: Parcels identified as both a Condo and Open Space -** the Highlands Council evaluated the parcel's development and land preservation status to determine if the necessary data fields were populated correctly by the municipality.
- **Error Code 03: Parcels identified as both Developable and Open Space -** the Highlands Council evaluated the parcel's development status and land preservation status and determined if the necessary data fields were populated correctly by the municipality.
- **Error Code 04: Parcels identified as Oversized or Redevelopable and missing the oversized or redevelopable acreage value -** the Highlands Council would either consult with the municipality in order to edit the data field or utilized the GDB information to determine the missing value.
- **Error Code 05: Parcels identified as Oversized or Redevelopable that were also listed as Not Developable -** the Highlands Council evaluated the parcel and edited the PARC_STAT_DEV_STATUS data field accordingly.
- **Error Code 06: Parcels identified as connected to a wastewater utility however no System Provider was identified -** the Highlands Council would consult with the municipality and/or review the GDB and supporting documentation in order to edit the missing entry.
- **Error Code 07: Parcels identified as a "Yes" indicating they are currently both connected and not connected to a wastewater utility** - the Highlands Council edited Not Developable, oversized or redevelopable parcels in the wastewater no connect field to a "No." and if the parcel is vacant and developable then the Highlands Council edited the wastewater existing served field to a "No."
- **Error Code 08: Parcels identified as being connected to a wastewater utility and also identified as vacant or developable -** the Highlands Council evaluated these parcels to see if they are developable, redevelopable or oversized and edited and documented accordingly in the GDB.
- **Error Code 09: Parcels identified as connected to a public water utility however no System Provider was identified -** the Highlands Council would consult with the municipality and/or review the GDB and supporting documentation in order to edit the missing entry.
- **Error Code 10: Parcels identified as a "Yes" indicating they are currently both connected and not connected to a public water utility** - the Highlands Council edited Not Developable, oversized or redevelopable parcels in the public water no connect field to a "No." and if the parcel is vacant and developable then the Highlands Council edited the public water existing served field to a "No."
- **Error Code 11: Parcels identified as being connected to a public water utility and also identified as vacant or developable -** the Highlands Council evaluated these parcels to see if they are developable, redevelopable or oversized and edited and documented accordingly in the GDB.

- **Data Condition 1: Parcels identified as Not Developable due to Environmental Constraints or Inadequate Lot Geometry -** these parcels were evaluated in septic served areas to ensure that the environmentally constrained parcels in the GDB were not a water body and therefore not appropriate for inclusion in the RMP Septic System Area analysis. Otherwise, vacant parcels indicated to be "Not Developable" due to environmentally constrained lands were included in the Septic System Yield analysis. Parcels that were identified as an inadequate lot geometry but developable with an adjacent parcel may require further review by the municipality to ensure that the build-out process was applied correctly because the Highlands Council is not able to discern the adjacent parcel record that is in common ownership and referenced by the municipality.
- **Data Condition 2: Parcels identified as having a WW Utility with a Contractual Allocation** were flagged in the TPS Report.
- **Data Condition 3: Parcels identified for PW Utility with a Contractual Allocation** were flagged in the TPS Report.
- **Data Condition 4: Parcels containing entries as "OTHER" with associated comments** were reviewed to see if the proper data field associated with the comment had been completed correctly and to assist in the review of the GDB information.
- **Data Condition 5: Parcels with entries in any of the "Comment" data fields-** the Council reviewed this information as a means to assist in GDB technical evaluation and QA/QC review.

In addition to going through the TPS Report as described above, the Council evaluated all open space parcels to ensure they are technically correct in the GDB. The Council also reviewed parcels that have no provider listed for public water or wastewater to ensure that there are no "Yes" data fields in the utility connection status data field, as these parcels are on septic/domestic wells and not relevant regarding a utility connection status in the GDB. Lastly, the Council QA/QC reviewer initialed and dated the GDB to complete the TPS Report and QA/QC Review process.

The municipality then received a modified GDB that:

1. incorporated the results of all edits by the Highlands Council;
2. merged the final results of GDB's #1 and, where applicable, #2 and #3 into a single GDB;
3. identified the parcels that were processed for build out as potential developable vacant, redevelopable and over-sized lots in both septic system and sewer areas; and
4. incorporated additional fields used by the Highlands Council in running the build-out process, including municipal zoning for potential developable vacant and redevelopable parcels associated with sewer service conforming with RMP requirements, and having at least 1,400 square feet of land that is not environmentally constrained. Where such parcels were associated with public water supply service, they were also evaluated for water demands.

The Municipal Conditions Geodatabase may include in some cases duplicate parcel records within the municipality. These duplicates derive from the process of creating a spatial representation of parcels in GIS. The Highlands Council has taken the necessary steps to avoid double counting of developable duplicate parcels, in the summary reports and in the geodatabase and any derivatives thereof.

MODULE 2

In Module 2, the municipality completed a final check on parcel information and verified the municipal zoning applicable to parcels that were processed for build out in RMP utility areas. Where edits were made and returned to the Highlands Council, the Council incorporated the edits and, where necessary, performed a revised build-out analysis, the results of which are reflected in this report.

Please note that the Type A and Type B edits conducted by the municipality were reviewed by the Highlands Council and only when an edit was relevant to the RMP Build-out analysis was it incorporated and re-processed for build-out analysis as required.

Type A Edits – Tabular

- The information will be updated in the GDB as indicated.
- The nature and extent of the information may or may not affect the build-out results.
- Type A tabular edits that require a revised build-out will be processed and reported as a Module 2 Municipal Build-out Summary Report.

Type A Edits – Spatial

- The revised spatial information will be reviewed in accordance with the Module 1 Technical Review Protocols.
- Type A spatial edits that require a revised build-out will be processed and reported as a Module 2 Municipal Build-out Summary Report.

Type B Edits – Municipal Zoning

- The information will be updated in the GDB as indicated.
- Updated zoning changes only affect parcels in RMP utility areas.
- Type B edits that require a revised build-out will be processed and reported as a Module 2 Municipal Build-out Summary Report.

Appendix B – Highlands Module 2 Build-Out Model Impact Factors

Highlands Zone Type	Comparison Zone/Unit Type	Source	Region	Density Dwelling unit (du)/acre *	Efficiency Factor % (1)	Average Household Size (2)	Average School Children in Household (2)	Percent Impervious (3)	Consumptive/Depletive Water Use includes Indoor demand (gpd per person) plus outdoor demand as (gpd per unit) multiplied by Consumptive/Depletive Use Coefficient (4)	Public Water System Demand (5)	Public Wastewater System Generation (6)
SF Estate Residential or (PA-5)				0.05 to 0.20 (0.17 maximum)	95			0.075* acres	(75 gpd/person + 50 gpd/unit) * Consumptive/Depletive Coefficient	100 gallons per person per day	75 gallons per person per day
	Single-family Detached 4-5 BR	Statewide NJ Demographic Multipliers (2)	Northern[1]			3.809	1.072				
	Single-family Detached 4-5 BR		Central[2]			3.780	1.094				
SF Rural Residential, Resource Residential, or (PA-4B)				0.21 to 0.5 du/acre (0.17 maximum)	95			0.075* acres	(75 gpd/person + 50 gpd/unit) * Consumptive/Depletive Coefficient	100 gallons per person per day	75 gallons per person per day
	Single-family Detached 4-5 BR	Statewide NJ Demographic Multipliers (2)	Northern[1]			3.809	1.072				
	Single-family Detached 4-5 BR		Central[2]			3.780	1.094				
SF Low Density or (PA-4)				0.51 to 1.0 du/acre (1.16 maximum)	80			0.075* acres	(75 gpd/person + 50 gpd/unit) * Consumptive/Depletive Coefficient	100 gallons per person per day	75 gallons per person per day
	Single-family Detached 4-5 BR	Statewide NJ Demographic Multipliers (2)	Northern[1]			3.809	1.072				
	Single-family Detached 4-5 BR		Central[2]			3.780	1.094				
SF Medium Density, Suburban Residential, or (PA-3)				1.01 to 3.0 du/acre (3.81 minimum)	75			26.7	(75 gpd/person + 30 gpd/unit) * Consumptive/Depletive Coefficient	100 gallons per person per day	75 gallons per person per day
	Single-Family Detached, 2-3 BR	Statewide NJ Demographic Multipliers (2)	Northern[1]			3.137	0.607				
	Single-Family Detached, 2-3 BR		Central[2]			2.578	0.367				
SF High Density or (PA-2)				3.01 to 8.0 du/acre (7.04 minimum)	75			33.7	(75 gpd/person + 5 gpd/unit) * Consumptive/Depletive Coefficient	75 gallons per person per day	75 gallons per person per day
	Single-Family Attached, 2-3 BR	Statewide NJ Demographic Multipliers (2)	Northern[1]			2.477	0.296				
	Single-Family Attached, 2-3 BR		Central[2]			2.296	0.292				
Attached/Townhouse or (PA-1)				8.01 to 16.0 du/acre (9.78 minimum)	75			45.7	(75 gpd/person + 5 gpd/unit) * Consumptive/Depletive Coefficient	75 gallons per person per day	75 gallons per person per day

Appendix B – Highlands Module 2 Build-Out Model Impact Factors

Highlands Zone Type	Comparison Zone/Unit Type	Source	Region	Density Dwelling unit (du)/acre *	Efficiency Factor % (1)	Average Household Size (2)	Average School Children in Household (2)	Percent Impervious (3)	Consumptive/Depletive Water Use includes Indoor demand (gpd per person) plus outdoor demand as (gpd per unit) multiplied by Consumptive/Depletive Use Coefficient (4)	Public Water System Demand (5)	Public Wastewater System Generation (6)
	Single-Family Attached, 2-3 BR	Statewide NJ Demographic Multipliers (2)	Northern[1]			2.477	0.296				
	Single-Family Attached, 2-3 BR		Central[2]			2.296	0.292				
Garden Apartment or (PA-1)				16.01+ du/acre (9.78 minimum)	70			57.1	(75 gpd/person + 5 gpd/unit) * Consumptive/Depletive Coefficient	75 gallons per person per day	75 gallons per person per day
	5+ Units (Own/Rent), 2-3 BR	Statewide NJ Demographic Multipliers (2)	Northern[1]			2.262	0.308				
	5+ Units (Own/Rent), 2-3 BR		Central[2]			2.342	0.373				
Mixed use/Age Restricted Housing (percent mix based on 40% residential and 60% non-residential as Office/Commercial)		Municipal Zoning		Apply zone density and FAR value Note: Use Retail/Commercial Impact factors for non-res %	70	Varies Based on zoning Du/Acre description	0.00	68.8	(75 gpd/person + 5 gpd/unit) * Consumptive/Depletive Coefficient	75 gallons per person per day	75 gallons per person per day
Mixed use (percent mix based on 40% residential and 60% non-residential as Office/Commercial)		Municipal Zoning		Apply zone density and FAR value Note: Use Retail/Commercial Impact factors for non-res %	70	Varies Based on zoning Du/Acre description	Varies Based on zoning Du/Acre description	42.0	(75 gpd/person + 5 gpd/unit) * Consumptive/Depletive Coefficient	75 gallons per person per day	75 gallons per person per day
Senior or Age restricted Housing		Municipal Zoning		Varies Based on zoning Du/Acre description	70	Varies Based on zoning Du/Acre description	0.00	60.3	(75 gpd/person + 5 gpd/unit) * Consumptive/Depletive Coefficient	75 gallons per person per day	75 gallons per person per day

Highlands Build-Out Residential Impact Factors – Sources

* Residential dwelling units generated by the build-out model include both market rate and affordable units.

(1) Source: Efficiencies are given as a percentage, between 0 and 100, where a 100 value means complete efficiency (no land lost to development), and a 0 value means no buildings will be estimated for that land use. For example an efficiency of 70% may be representative of developable land that has a 10% set aside for parks and 20% for roads (100% - 10% - 20% = 70%). Project determined values.

(2) Source: Who Lives in New Jersey Housing? New Jersey Demographic Multipliers, The Profile of Occupants of Residential and nonresidential Development. Listokin, D., Voicu, I., Dolphin, W., Camp, M. Center for Urban Policy Research. Rutgers University. November 2006. Northern NJ values were applied to Bergen, Morris, Passaic, Sussex and Warren County municipalities. Central NJ values were applied to Hunterdon and Somerset County municipalities.

1 Table II-C-1 North Region of New Jersey Total Persons and Persons by Age (2000)(p. 85) 2 Table II-D-1 Central Region of New Jersey Total Persons and Persons by Age (2000) (p. 99)

(3) Source: NCNBR, Rutgers University, April 27, 2006. The impervious surface area for new dwelling units large lot zoned areas (*) is based on an average 15% impervious surface value (per NJDEP LU/LC) and a project determined average homestead area of 0.50 acres. No impact value is attached to the remaining undeveloped area. The impact percentage factors for the other residential composite zones represent weighted averages of NJ Highlands Percent Impervious Surface for all residentially developed lands in that composite zone. The raw data was obtained by overlaying NJ Highlands Zoning and DEP 2002 LU/LC spatial data files, and extracting the calculated percent impervious surface area attached to each LU/LC residential developed land polygon and the acres of associated developed land in each intersecting municipal zone polygon. The impervious surface areas in each municipal zone within the composite zone were aggregated and then divided by the total developed residential land area, to produce a weighted IS average for each composite zone.

(4) Source: Center for Urban Policy Research (CUPR), September 2000. NJGS Consumptive Use Coefficients. For consumptive uses, a factor of 29% is utilized. For depletive uses, a factor of 100% is used

(5) Source: NJDEP N.J.A.C. 7:10 Safe Drinking Water Act Regulations Adopted November 4, 2004, 7:10-12.6 Water Volume Requirements and State Plan Impact Assessment

(6) Source: NJDEP N.J.A.C. 7:14A-23.3 Pollutant Discharge Elimination System: Technical Requirements For TWA Applications; Projected flow criteria

Appendix B – Highlands Module 2 Build-Out Model Impact Factors

Highlands Composite Zone Type	Floor Area Ratio	Efficiency Factor %(1)	Region	Jobs per 1,000 sf (2)	Percent Impervious (3)	Consumptive/Depletive Water Use multiplied by Consumptive/Depletive Use Coefficient (4)	Public Water System Demand (5)	Public Wastewater System Generation (6)
Office/Commercial	Based on zoning	80	Northeast US	2.99	78.3	0.125 gpd/sf * Consumptive/Depletive Coefficient	0.125 gallons/day/sf	0.10 gallons/day/sf
Retail	Based on zoning	80	Northeast US	1.63	72.5	0.125 gpd/sf * Consumptive/Depletive Coefficient	0.125 gallons/day/sf	0.10 gallons/day/sf
Industrial	Based on zoning	80	Northeast US	1.11	53.4	25 gpd/person * Consumptive/Depletive Coefficient	25 gallons per person per day	25 gallons per person per day

Highlands Build-Out Non-Residential Impact Factors – Sources

(1) Source: Efficiencies are given as a percentage, between 0 and 100, where a 100 value means complete efficiency (no land lost to development), and a 0 value means no buildings will be estimated for that land use. For example an efficiency of 70% may be representative of developable land that has a 10% set aside for parks and 20% for roads (100% - 10% - 20%= 70%). Project determined values.

(2) Source: Who Lives in New Jersey Housing? New Jersey Demographic Multipliers, The Profile of Occupants of Residential and nonresidential Development. Listokin, D., Voicu, I., Dolphin, W., Camp, M. Center for Urban Policy Research. Rutgers University. November 2006.

a Table II-I-3 Commercial - Office Employees per 1,000 Square Feet of Gross Floor Area (GFA) (p. 136)
(Reported Northeast mean value).

b Table II-I-4 Commercial – Retail Employees per 1,000 Square Feet of Gross Floor Area (GFA) (p. 139)
(Value derived by averaging the mean number of employees per 1,000 sq. ft. of GFA for retail (excluding mall), retail (enclosed mall), and retail (strip shopping mall) space in the Northeast).

c Table II-I-6 Industrial – Warehouses Employees per 1,000 Square Feet of Gross Floor Area (GFA) (p. 143)
(Value derived by averaging the mean number of employees per 1,000 sq. ft. of GFA for Non-Refrigerated and Refrigerated space in the Northeast).

(3) Source: NCNBR, Rutgers University, April 27, 2006. The impervious surface area for new dwelling units large lot zoned areas (*) is based on an average 15% impervious surface value (per NJDEP LU/LC) and a project determined average homestead area of 0.50 acres. No impact value is attached to the remaining undeveloped area. The impact percentage factors for the other residential composite zones represent weighted averages of NJ Highlands Percent Impervious Surface for all residentially developed lands in that composite zone. The raw data was obtained by overlaying NJ Highlands Zoning and DEP 2002 LU/LC spatial data files, and extracting the calculated percent impervious surface area attached to each LU/LC residential developed land polygon and the acres of associated developed land in each intersecting municipal zone polygon. The impervious surface areas in each municipal zone within the composite zone were aggregated and then divided by the total developed residential land area, to produce a weighted IS average for each composite zone.

(4) Source: Center for Urban Policy Research (CUPR), September 2000. NJGS Consumptive Use Coefficients. For consumptive uses, a factor of 29% is utilized. For depletive uses, a factor of 100% is used

(5) Source: NJDEP N.J.A.C. 7:10 Safe Drinking Water Act Regulations Adopted November 4, 2004, 7:10-12.6 Water Volume Requirements and State Plan Impact Assessment

(6) Source: NJDEP N.J.A.C. 7:14A-23.3 Pollutant Discharge Elimination System: Technical Requirements For TWA Applications; Projected flow criteria

APPENDIX B – Maps

Township of Mahwah

of Ringwood

Borough of Oakland

Borough of Franklin Lakes

Borough of Wanaque

Borough of Pompton Lakes

Township of Wayne

Legend

- Highlands Planning Area
- Highlands Preservation Area
- WMP Area Boundary (Borough of Oakland)

Notes:

1. Development in areas mapped as environmentally sensitive features may be subject to special restrictions under Federal or State statutes or rules. Interested persons should check with the Department of Environmental Protection for the latest information. Depiction of environmental features shall be for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.

2. The aerial base map was prepared using the 2015 New Jersey High Resolution Orthoimagery from the New Jersey Information Warehouse.

BOSWELL ENGINEERING

ENGINEERS - SURVEYORS - PLANNERS - SCIENTISTS
330 Phillips Avenue South Hackensack, NJ 07606
Tel: 201-641-0770 ● Fax: 201-641-1757
N.J. Certificate of Authorization No. 24GA27958000

Map 1

WMP Area Map

Borough of Oakland

Bergen County **New Jersey**

N E S W

Last Edit:	June 19, 2020
	June 2020
Job No. OK-1620	
Scale	Drawn By: JMW
1 in = 1,600 ft	Check By: GD

Township of Mahwah

of Ringwood

Borough of Oakland

Borough of Franklin Lakes

Borough of Wanaque

gh of Pompton Lakes

Township of Wayne

Legend

- Surface Waters
- Streams (Catagory 1)
- 300' Riparian Zone of C1 Waters
- Rank 3: State Threatened T&E
- Rank 4: State Endangered T&E
- Rank 5: Federally Listed T&E
- Freshwater Wetlands
- Freshwater Wetlands w/ Rank 3-5
- WMP Area Boundary (Borough of Oakland)

Notes:

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2. The aerial base map was prepared using the 2015 New Jersey High Resolution Orthoimagery from the New Jersey Information Warehouse.

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Map 2

Selected Environmentally Sensitive Features Map

Borough of Oakland

Bergen County New Jersey

N E S W

Scale 1 in = 1,600 ft

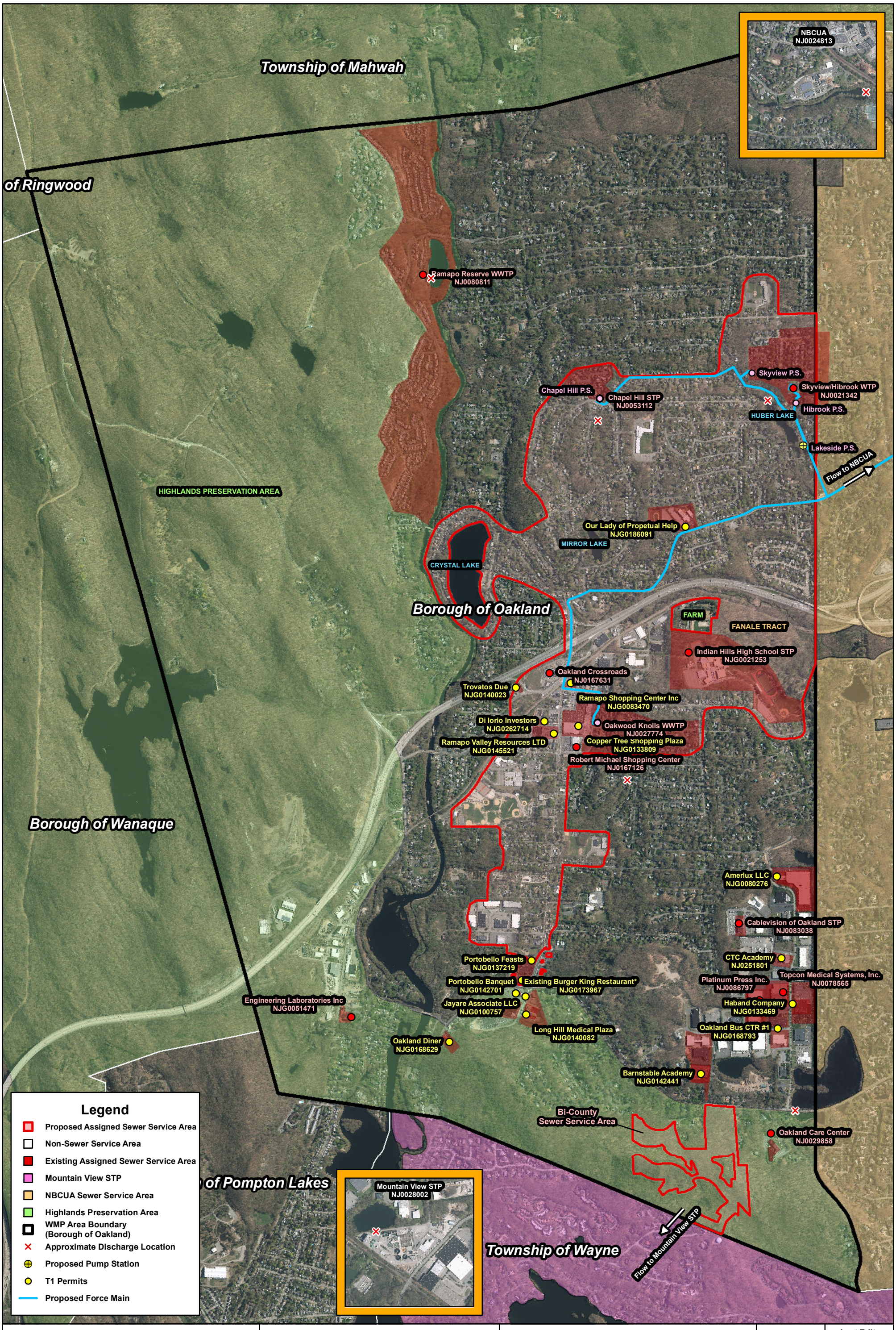
Last Edit: June 19, 2020

June 2020

Job No. OK-1620

Drawn By: JMW

Check By: GD



Notes:

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2. The aerial base map was prepared using the 2015 New Jersey High Resolution Orthoimagery from the New Jersey Information Warehouse.

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Map 3A

Wastewater Service Area Map

Borough of Oakland

Bergen County New Jersey

Last Edit:	October 10, 2022
	June 2020
Job No.	OK-1620
Drawn By:	JMW
Check By:	GD
Scale	1 in = 1,600 ft

Township of Mahwah

of Ringwood

Borough of Oakland

Borough of Franklin Lakes

Borough of Wanaque

ough of Pompton Lakes

Township of Wayne

Legend

- Existing Community Environmentally Constrained
- Existing Community Zone
- Lake Community Sub Zone
- Protection Zone
- WMP Area Boundary (Borough of Oakland)

Notes:

1. Development in areas mapped as environmentally sensitive features may be subject to special restrictions under Federal or State statutes or rules. Interested persons should check with the Department of Environmental Protection for the latest information. Depiction of environmental features shall be for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.

2. The aerial base map was prepared using the 2015 New Jersey High Resolution Orthoimagery from the New Jersey Information Warehouse.

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Map 3B

Wastewater Service Area Map
LandUse Capability Zone

Borough of Oakland

Bergen County **New Jersey**

N E S W

Last Edit:	June 19, 2020
	June 2020
Job No.	OK-1620
Scale	1 in = 1,600 ft
Drawn By:	JMW
Check By:	GD

Township of Mahwah

of Ringwood

HUBER LAKE

MIRROR LAKE

CRYSTAL LAKE

Borough of Oakland

Borough of Franklin Lakes

Borough of Wanaque

POTASH LAKE

Bi-County
Sewer Service Area

Borough of Pompton Lakes

Township of Wayne

Legend

- Proposed Assigned Sewer Service Area
- Mountain View Sewer Service Area
- NBCUA Sewer Service Area
- WMP Area Boundary (Borough of Oakland)

Notes:

1. Development in areas mapped as environmentally sensitive features may be subject to special restrictions under Federal or State statutes or rules. Interested persons should check with the Department of Environmental Protection for the latest information. Depiction of environmental features shall be for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.

2. The aerial base map was prepared using the 2015 New Jersey High Resolution Orthoimagery from the New Jersey Information Warehouse.

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Map 3C

Sewer Service Area Map

Borough of Oakland

Bergen County New Jersey

N E S W

Scale
1 in = 1,600 ft

Last Edit:
September 29, 2022
June 2020
Job No. OK-1620
Drawn By: JMW
Check By: GD

Township of Mahwah

of Ringwood

Borough of Oakland

Borough of Franklin Lakes

Borough of Wanaque

Township of Wayne

- Proposed Sewer Service Area
- AH, Affordable Housing
- B-2, Local Business
- B-3, Neighborhood Business
- C, Conservation
- CBD-1, Central Business District
- CBD-2, Central Business District II
- CO, Corporate Office
- CO/IP, Corporate Office & Industrial Park
- I-1, Industrial
- I-3, Industrial / Office
- IP, Industrial Park
- PO, Professional Office
- R/PP, Recreation / Public Purpose
- RA-1, Single-Family Residential
- RA-1A, Single-Family Residential / Life Care Facility
- RA-2, Single-Family Residential
- RA-2AH, Affordable Housing
- RA-3, Single-Family Residential
- RA-4, Single-Family Residential
- RA-C, Cluster Single-Family Residential
- RA-MD, Multiple-Family Residential
- RC, Residential Cluster

Notes:

1. Development in areas mapped as environmentally sensitive features may be subject to special restrictions under Federal or State statutes or rules. Interested persons should check with the Department of Environmental Protection for the latest information. Depiction of environmental features shall be for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.

2. The aerial base map was prepared using the 2015 New Jersey High Resolution Orthoimagery from the New Jersey Information Warehouse.

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Map 4

Zoning Map

Borough of Oakland

Bergen County **New Jersey**

N E S W

Last Edit:	October 22, 2021
	June 2020
Job No.	OK-1620
Scale	1 in = 1,600 ft
Drawn By:	JMW
Check By:	GD

Notes:

1. Development in areas mapped as environmentally sensitive features may be subject to special restrictions under Federal or State statutes or rules. Interested persons should check with the Department of Environmental Protection for the latest information. Depiction of environmental features shall be for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.

2. The aerial base map was prepared using the 2015 New Jersey High Resolution Orthoimagery from the New Jersey Information Warehouse.

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Map 5

Vacant Land Map

Borough of Oakland

Bergen County New Jersey

Last Edit:	June 19, 2020
	June 2020
Job No.	OK-1620
Scale	1 in = 1,600 ft
Drawn By:	JMW
Check By:	GD

Township of Mahwah

of Ringwood

HIGHLANDS PRESERVATION AREA

Borough of Oakland

Borough of Franklin Lakes

Borough of Wanaque

rough of Pompton Lakes

Township of Wayne

Legend

- Previous Problems Reported to the Borough of Oakland
- Known Cesspool - Records of Septic Tank Installation
- Known Cesspool - No Records of Replacement
- Highlands Preservation Area
- WMP Area Boundary (Borough of Oakland)

Notes:

1. Development in areas mapped as environmentally sensitive features may be subject to special restrictions under Federal or State statutes or rules. Interested persons should check with the Department of Environmental Protection for the latest information. Depiction of environmental features shall be for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.

2. The aerial base map was prepared using the 2015 New Jersey High Resolution Orthoimagery from the New Jersey Information Warehouse.

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Map 6

Recorded Sanitary Issues Map

Borough of Oakland

Bergen County New Jersey

Last Edit:	June 22, 2020
	June 2020
Job No.	OK-1620
Drawn By:	JMW
Check By:	GD
Scale	1 in = 1,600 ft

APPENDIX C – PREVIOUS STUDIES

Wastewater Treatment Plant Investigation
Septic Data Base

BOROUGH OF OAKLAND
NEW JERSEY

Wastewater Treatment Plant Investigation

Our File No: OK-1607

BOSWELL ENGINEERING

APRIL
2017

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

Boswell Engineering (Boswell) was retained by the Borough of Oakland (Borough) to perform an evaluation of the three (3) existing wastewater treatment plants (WTP), Skyview-HiBrook, Chapel Hill and Oakwood Knolls. The three (3) WTPs have a combined average daily flow of 65,000 gallons per day (gpd).

After performing an assessment of each facility, it was determined that the plants are at the end of their useful life. Preparation of an equipment repair prioritization list was not feasible due to the condition of the existing assets. Full replacement of the plants is required.

Boswell has identified two (2) alternatives to remedy the situation and avoid failure of the system:

a) Complete replacement of the three (3) WTP with new packaged plants.
b) Decommissioning of the plants and installation of pumping stations to convey flow to the Northwest Bergen County Utilities Authority (NBCUA).

2.0 INTRODUCTION

The Borough owns and maintains three WTPs, which serve selected areas of the Borough.

The Skyview-HiBrook WTP is located at the north end of Lakeside Boulevard. This facility services 68 homes. The design average flow is 23,000 gpd. Actual flow has averaged 15-16,000 gpd.

The Chapel Hill WTP is located at the intersection of Hiawatha Boulevard and Calumett Avenue. This facility serves 24 homes in the Chapel Hill Estates development. Average daily flow is 7,000 gallons.

The Oakwood Knolls WTP is located on the east side of Oak Street, south of Yawpo Avenue. This facility services 166 hook-ups from the Oakcrest Townhouse Development and the Coppertree Mall. The plant has a design average daily flow of 35,000 gallons.

All three (3) facilities are package activated sludge systems with in-ground steel treatment tanks.

3.0 INVESTIGATION

Boswell Engineering, in accordance with the Borough's request, conducted initial and follow-up site inspections to determine existing conditions, and needed repairs/upgrades required to maintain continued operations at each facility.

Inspections were conducted at the Skyview-HiBrook plant on November 22, 2016 and January 17, 2017, at the Chapel Hill plant on December 6, 2016 and January 19, 2017, and at the Oakwood Knolls plant on December 30, 2016 and January 24, 2017.

The investigations were conducted by Edward Stephens, P.E. of Boswell McClave Engineering and Gerald Kastner, the licensed operator for the Borough of Oakland.

This report details the findings for each facility and makes recommendations for needed modifications.

3.1 SKYVIEW-HIBROOK WTP

The Skyview-HiBrook plant includes an influent comminutor, two aeration and settling tanks, a junction and splitter box, four sand filters, a flow meter, a chlorine contact tank, a dechlorination chamber, and an outfall sewer.

Also included are a blower building, a sludge storage tank, and a chlorination building. The plant is 50 years old.

Much of the equipment in the existing plant is aged and in a deteriorated condition. The following conditions are noted:

a. There is no on-site emergency generator. Provision is made for the hook-up of a portable generator when needed.
b. The aeration blowers are approximately 20 years old. Only one of three units is presently operating, some spare parts are available.
c. The power supply to the Blower Building is in need of repair, as critical parts (circuit breakers) are missing. Also, there is no phase protection, or heat in the building.
d. Control valves on the incoming and bypass piping are frozen in place, and will require replacement.
e. The inflow comminutor has failed and been removed.
f. The smaller of the two steel aeration/settling basins is out of service due to leaks caused by corrosion. The retaining wall adjacent to this basin has developed a bulge. The larger aeration/settling tank, currently in use, requires replacement.
g. Piping systems inside the basins are deteriorated and need replacement.
h. Electrical wiring has deteriorated, causing shorts.
i. The concrete dosing chamber just upstream of the sand filters is in a deteriorated condition, requiring repair.
j. The sand filters themselves are operating and in reasonably good condition. Downstream of the sand filters, the chlorine contact tank is leaking and requires repair. The chlorine building needs replacement.
k. Downstream of the chlorine contact tank a clearwell houses a weir flow meter. The flow meter requires replacement. The clearwell tank is leaking into the driveway and needs repair. The clearwell tank also includes the de-chlorination chamber.
l. A steel sludge holding tank is in reasonably good condition.

m. Electric conduit and wiring throughout the plant is severely deteriorated. Temporary above ground wiring has been used to replace corroded underground conduit and wiring in some areas. Control panels also need replacement.
n. The plant will require a copper (cu) removal system.
o. It is noted that two ejector stations discharge into the Skyview-HiBrook plant, the Lakeside Boulevard and the Tuscarora Street stations. Both stations have leaks, and deteriorated controls and piping. Both stations require replacement.

3.2 CHAPEL HILL ESTATES WTP

The Chapel Hill Estates plant consists of an influent bar screen and comminutor, an aeration and settling tank, a feed well, an upflow clarifier, flocculation tank, tube filters, two media filters, a clear well, UV disinfection, a flow meter and outfall sewer.

A waste sludge storage tank, and a media filter backwash mud well are also included.

Standby power is provided by a 30 kw emergency generator, with a buried diesel fuel storage tank.

The plant was constructed in 1986.

The site survey revealed the following conditions:

a. The influent comminutor is functioning in a deteriorated condition and requires replacement.
b. The aeration tank air delivery system, including the blowers, diffusers and piping requires replacement.
c. The return activated sludge piping is also in need of repair or replacement.
d. The feedwell pumps, and float controls, which deliver flow from the settling tank to the upflow clarifier, need replacement. The feedwell tank is also cracked.
e. The media in the upflow clarifier needs replacement.
f. The flocculation tank equipment is inoperative, and is not used.
g. The media in the two filter wells requires replacement.
h. All pumping systems within the clearwell need replacement, including two effluent pumps, two filter backwash pumps, and one upflow clarifier backwash pump, along with controls.
i. The clear well aeration system is not operative. This was an added on system.
j. The ultra violet disinfection system leaks and requires replacement.
k. The discharge well piping needs replacement. Groundwater intrusion into the discharge well is also a problem. A sump pump is needed to remove the ground water.
l. Two pumps in the mud well, which receives the filter backwash flow, require replacement.
m. The air compressor for the filter scour system requires replacement.

n. This plant will also require a system for copper (cu) removal.
o. The flow-thru facilities are enclosed in in-ground steel tanks which have incurred corrosion in many sections.
p. The underground diesel fuel tank is 20 years old and needs to be inspected.

3.3 OAKWOOD KNOLLS WTP

The Oakwood Knolls Wastewater Treatment Plant was constructed around 1967.

Facilities include an influent splitter box, inflow comminutor, equalization tank, aeration and settling tank, feed well, upflow clarifier, filter tank, backwash tanks, (2), chlorine contact tank, denitrification clear well, effluent flow meter, outfall and two sludge holding tanks.

The following observations were noted, during the site investigations:

a. The electrical wiring to the comminutor has been replaced.
b. The weir control in the influent diversion chamber needs repair, due to corrosion.
c. The grinders in the equalization tank need to be replaced. The equalization tank aeration blower also requires replacement.
d. The pipeline from the equalization back to the aeration tank needs replacement.
e. Piping inside the aeration tank needs replacement.
f. The aeration tank walls above ground, are corroded in some areas, and the tank is leaking.
g. The underground air line from the blowers has corroded. Temporary above-ground piping has been installed. A new underground installation is required.
h. The v-notch weirs in the aeration tank have been replaced.
i. The pumps in the feed well, which discharge to the upflow clarifier, require replacement.
j. The filter tank, downstream from the upflow clarifier is not working due to deteriorated controls and corrosion. This tank was installed in 1992, also the filter media requires replacement. The Air Scour System also needs upgrading.
k. The system for backwashing the filter media requires upgrading. The backwash tanks are not used, due to leaks caused by corrosion. The filter backwash pumps require replacement.
l. The chlorine contact tank is severely corroded. The underground piping has been replaced with piping on grade.
m. The dechlorination building equipment and controls, need a total upgrade. The dechlorination building structure is adequate.
n. The clear well is in adequate condition.
o. The plant flow meter requires replacement.

p. The blower control panel in the blower building needs replacement. In the same building, the electric panel and the generator Automatic Transfer Switch (ATS) need replacement. Alarms are not functioning. The blower building roof is leaking.

4.0 SUMMARY AND RECOMMENDATION

Based on the fact that all three (3) facilities are at the end of their expected service life and have extensive deficiencies, it is recommended that the plants are decommissioned and either replaced in their entirety or replaced with pumping stations to convey flow to NBCUA.

A construction cost estimate for the replacement of the plants is included in Appendix C.

The timeline for design and construction would differ depending on the source of funding. If the Borough funds the project, the design phase can commence after funding is available. The following is the schedule:

Sept 1, 2017	Notice to proceed
Jan 14, 2017	Preliminary Design Plans for review by the DPW
Feb 15, 2017	Submission of a Treatment Works Approval (TWA) Permit Application to NJDEP
May 8, 2018	Receive TWA permit
May 22, 2018	Bid Project
June 16, 2018	Receive Bids
July 28, 2018	Award Project
Aug 12, 2018	Construction Begins
Apr 30, 2019	Completion of Project

If the Borough seeks funding through the New Jersey Environmental Infrastructure Trust Fund (NJEIT), the following is the schedule for the project:

Sept 1, 2017	Notice to proceed
Jan 14, 2017	Preliminary Design Plans for review by the DPW; Submission of Loan Application and documents to the NJEIT for review
Feb 15, 2017	Submission of a Treatment Works Approval (TWA) Permit Application to NJDEP
May 8, 2018	Receive TWA permit
July 16, 2018	Receive Authorization to Bid from the NJEIT
Aug 15, 2018	Bid Project
Sept 8, 2018	Receive Bids

Oct 3, 2018	Award Project
Oct 25, 2018	Construction Begins
Nov 24, 2019	Completion of Project

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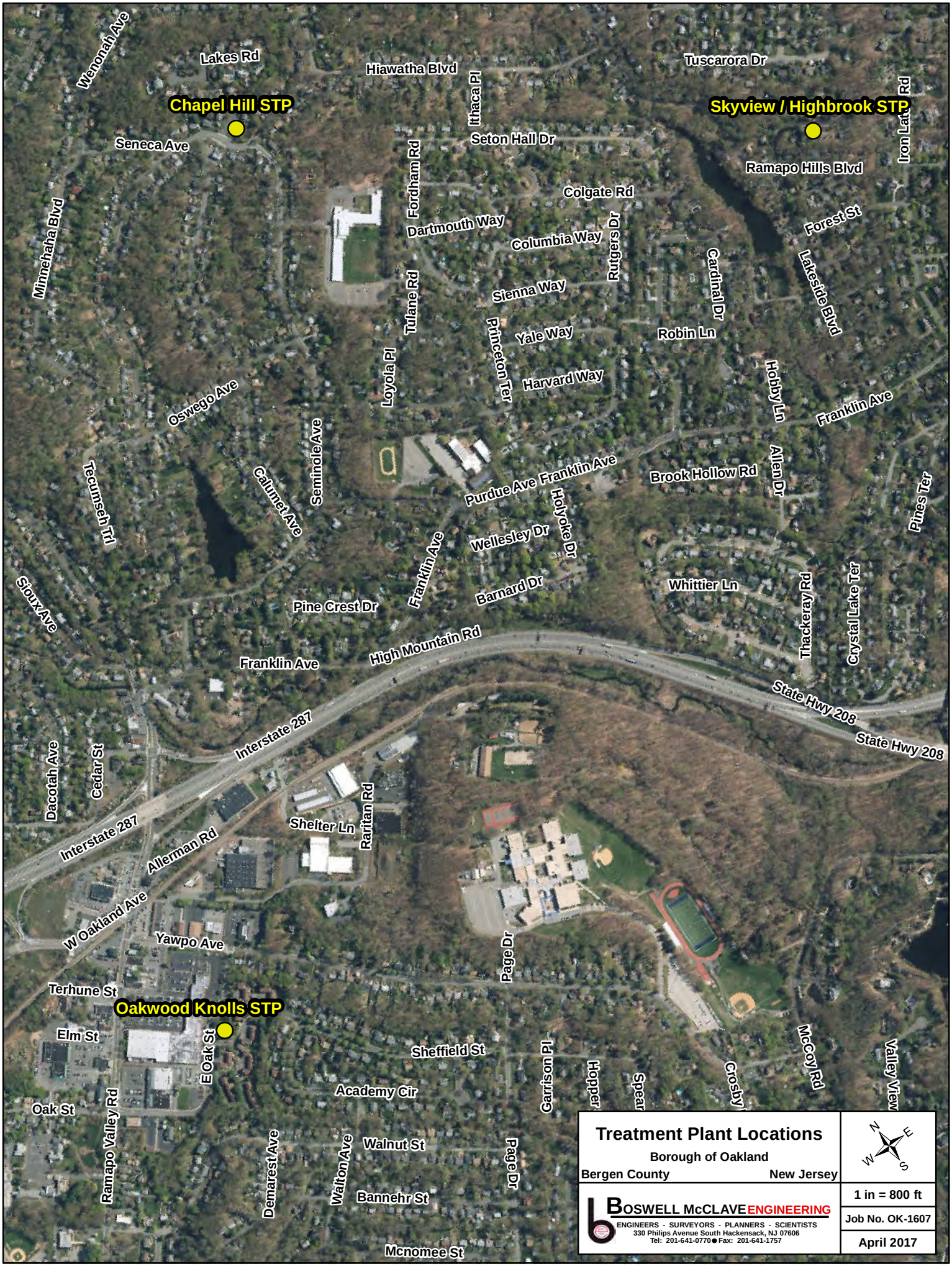
APPENDIX A – LOCATION MAP


Chapel Hill STP
Skyview / Highbrook STP
Oakwood Knolls STP
Wenonah Ave
Lakes Rd
Hiawatha Blvd
Tuscarora Dr
Ithaca Pl
Iron Lake Rd
Seneca Ave
Seton Hall Dr
Ramapo Hills Blvd
Minnehaha Blvd
Fordham Rd
Colgate Rd
Dartmouth Way
Columbia Way
Rutgers Dr
Forest St
Cardinal Dr
Lakeside Blvd
Tulane Rd
Sienna Way
Princeton Ter
Yale Way
Robin Ln
Loyola Pl
Harvard Way
Hobby Ln
Oswego Ave
Franklin Ave
Seminole Ave
Tecumseh Trl
Calumet Ave
Purdue Ave Franklin Ave
Brook Hollow Rd
Allen Dr
Pines Ter
Holyoke Dr
Wellesley Dr
Sioux Ave
Barnard Dr
Whittier Ln
Thackeray Rd
Crystal Lake Ter
Pine Crest Dr
High Mountain Rd
Franklin Ave
State Hwy 208
Interstate 287
Dacotah Ave
Cedar St
Shelter Ln
Raritan Rd
Allerman Rd
W Oakland Ave
Yawpo Ave
Page Dr
Terhune St
Elm St
E Oak St
Sheffield St
Garrison Pl
Hopper
Crosby
McCoy Rd
Valley View
Academy Cir
Oak St
Ramapo Valley Rd
Demarest Ave
Walton Ave
Walnut St
Page Dr
Bannehr St
Mcnomee St
Treatment Plant Locations
Borough of Oakland
Bergen County
New Jersey
N
E
S
W
1 in = 800 ft
Job No. OK-1607
April 2017
BOSWELL McCLAVE ENGINEERING
ENGINEERS - SURVEYORS - PLANNERS - SCIENTISTS
330 Philips Avenue South Hackensack, NJ 07606
Tel: 201-641-0770 Fax: 201-641-1757

APPENDIX B – PHOTOGRAPHS

BOSWELL MCCLAVE ENGINEERING

ENGINEERS • PLANNERS • SURVEYORS • SCIENTISTS

PHOTOGRAPHS

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Skyview Hi-brook WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 1.

Description:

Blower Room (one of the three (3) operating)

Photo No. 2.

Description:

Sludge Storage Tank and Blower Building

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Skyview Hi-brook WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 3.

Description:

Smaller treatment tank (not used due to corrosion)

Photo No. 4.

Description:

In-service treatment tank, junction box and splitter tank for sand filters

BOSWELL MCCLAVE ENGINEERING

ENGINEERS • PLANNERS • SURVEYORS • SCIENTISTS

PHOTOGRAPHS

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Skyview Hi-brook WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 5.

Description:

Retaining wall bulge at smaller treatment tank and sand filters.

Photo No. 6.

Description:

Sand Filters

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Skyview Hi-brook WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 7.

Description:

In-use aeration and settling tanks.

Photo No. 8.

Description:

Concrete deterioration at splitter box.

BOSWELL MCCLAVE ENGINEERING

ENGINEERS • PLANNERS • SURVEYORS • SCIENTISTS

PHOTOGRAPHS

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Chapel Hill WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 1.

Description:

Underground Diesel Storage Tank

Photo No. 2.

Description:

Clearwell, Mixed Media Filters and Mud Well

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Chapel Hill WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 3.	
Description: Walkway at Clearwell	

Photo No. 4.	
Description: Clearwell, Flocculation Tank and Denitrification Filter	

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Chapel Hill WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 5.	
Description: Mud Well (for backwash water)	

Photo No. 6.	
Description: Emergency Generator	

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Chapel Hill WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 7.

Description:

Inlet End looking downstream

Photo No. 8.

Description:

Aeration Blowers

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Chapel Hill WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 9.

Description:

Flocculation Tank and Denitrification Filter

Photo No. 10.

Description:

Feed Well

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Chapel Hill WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 11.	
Description: Sludge Holding Tank	

Photo No. 12.	
Description: Flocculation, Tube Media, Mixed Media, Denitrification and Mud Well	

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Chapel Hill WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 13.	
Description: Mud Well	

Photo No. 14.	
Description: Walkway at Aeration and Settling Tank	

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PHOTOGRAPHS

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Oakwood Knolls WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 1.

Description:

Equalization tank (not used due to leaks)

Photo No. 2.

Description:

Aeration-sedimentation tank

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Oakwood Knolls WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 3.	
Description: Un-used chambers	

Photo No. 4.	
Description: Circular sludge tanks (2); Aeration-settling tank and Filter Building	

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Oakwood Knolls WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 5.

Description:

Temporary air line from Blower Building; Original line corroded

Photo No. 6.

Description:

Chlorine Contact tank (corroded)

CLIENT NAME:	SITE LOCATION:	PROJECT NAME:	PROJECT NO.:
Borough of Oakland	Oakwood Knolls WTP	Wastewater Treatment Plant Investigation	OK-1607

Photo No. 7.

Description:

Top of Filter and Upflow Clarifier, Filter Building

Photo No. 8.

Description:

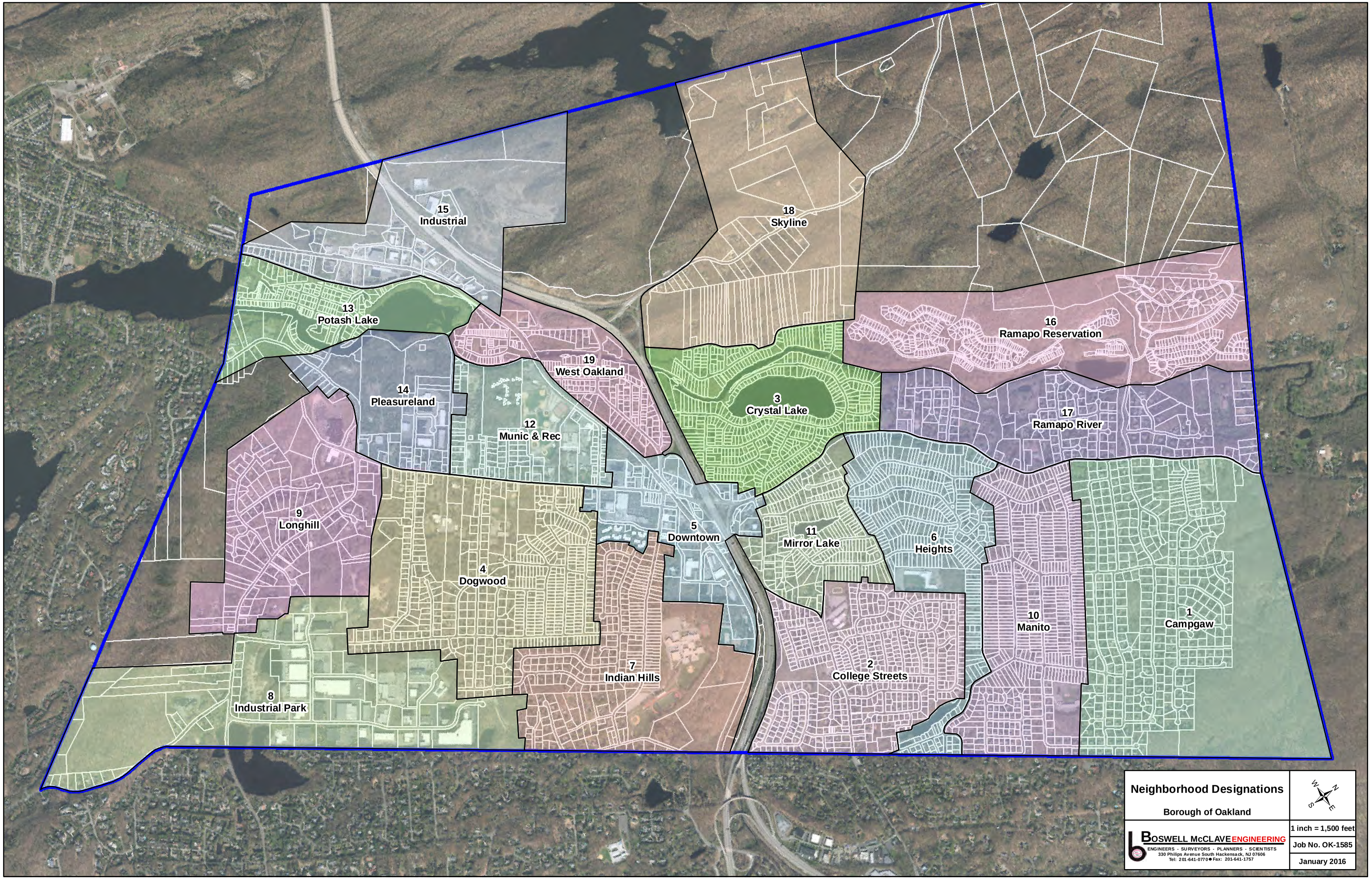
Electrical Panels, Filter Buildings

APPENDIX C – COST ESTIMATE

Borough of Oakland
Treatment Plant Replacements
Manufacturer's Design and Construction Cost
(Package Plants)
Our File No. OK-1607

	Construction*
Sky View – HiBrook	$ 765,000
Chapel Hill	$1,200,000
Oakwood Knolls	$1,355,000
Total Manufacturer's Cost	$3,320,000
Contingency (5%)	$ 160,000
Engineering/Inspection (15%)	$ 520,000
Total	$4,000,000

*Includes demolition of existing equipment, furnishing and installing new equipment.


15
Industrial
18
Skyline
13
Potash Lake
16
Ramapo Reservation
19
West Oakland
14
Pleasureland
3
Crystal Lake
17
Ramapo River
12
Munic & Rec
9
Longhill
5
Downtown
11
Mirror Lake
6
Heights
4
Dogwood
10
Manito
1
Campgaw
7
Indian Hills
2
College Streets
8
Industrial Park
Neighborhood Designations
Borough of Oakland
BOSWELL McCLAVE ENGINEERING
ENGINEERS - SURVEYORS - PLANNERS - SCIENTISTS
330 Philips Avenue South Hackensack, NJ 07606
Tel: 201-641-0770 Fax: 201-641-1757
1 inch = 1,500 feet
Job No. OK-1585
January 2016

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 1: Campgaw

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
1. Campgaw	5504	1	200 Manito Ave	1964	1973	-	N	-
1. Campgaw	5504	2	206 Manito Ave	1964	1972 / 1991	-	Y	-
1. Campgaw	5504	3	210 Manito Ave	1964	1970 / 1989 / 2006	-	N	-
1. Campgaw	5504	4	214 Manito Ave	1964	1976 / 2010	-	N	2010 - New system / 2013 - Asbuilts received
1. Campgaw	5504	6	213 Manito Ave	1964	1972 / 1984 / 2005	1983 - Overflowing septic	N	-
1. Campgaw	5504	7	209 Manito Ave	1964	1984 / 2007	-	N	-
1. Campgaw	5504	8	205 Manito Ave	1964	1984 / 1988	-	N	-
1. Campgaw	5504	9	199 Manito Ave	1964	2010	-	N	2010 - New system
1. Campgaw	5504	10	193 Manito Ave	1964	1980 / 1990 / 1999	-	N	-
1. Campgaw	5504	11	117 Chicasaw Dr	1963	2000 / 2001	1983 - Draiange field very wet, not overflowing	N	-
1. Campgaw	5504	12	117 Algonquin Trail	1967	1992	-	N	-
1. Campgaw	5504	13	113 Algonquin Trail	1967	1976 / 1983 / 2014	-	N	2014 - New System
1. Campgaw	5504	14	149 Chuckanutt Dr	1968	1998	-	N	-
1. Campgaw	5504	15	2 Cree Ct	1967	1975 / 1984 / 1996 / 2009	1976,1977 - Malfunctioning septic system	N	2009 - New System
1. Campgaw	5504	16	8 Cree Ct	1973	-	-	N	-
1. Campgaw	5504	17	12 Cree Ct	1967	1982	-	N	-
1. Campgaw	5504	18	135 Chuckanutt Dr	1973	-	-	N	-
1. Campgaw	5504	19	129 Chuckanutt Dr	1973	1978 / 1989 / 1991	-	N	-
1. Campgaw	5504	20	123 Chuckanutt Dr	1972	-	-	N	-
1. Campgaw	5504	21	117 Chuckanutt Dr	1972	-	-	N	-
1. Campgaw	5504	22	111 Chuckanutt Dr	1973	2014	2006 - Septic Overflow	N	-
1. Campgaw	5504	23	105 Chuckanutt Dr	1973	1985 / 2006	2006 - Septic Overflow	N	-
1. Campgaw	5504	24	99 Chuckanutt Dr	1973	1980 / 1987 / 1995	1978 - Septic backup, overflow within house	N	-
1. Campgaw	5504	25	110 Andrew Ave	1972	-	-	N	-
1. Campgaw	5404	1	94 Iroquiois Ave	1960	1993 / 2007	-	N	-
1. Campgaw	5404	2	100 Iroquiois Ave	1960	1964 / 1988	-	N	-
1. Campgaw	5404	3	106 Iroquiois Ave	1960	1973 / 1979	-	Y	-
1. Campgaw	5404	4	114 Iroquiois Ave	1958	-	-	N	-
1. Campgaw	5404	5	60 Chuckanutt Ave	1960	1969	-	Y	-
1. Campgaw	5404	6	64 Chuckanutt Ave	1960	1972 / 2000	-	Y	-
1. Campgaw	5404	7	68 Chuckanutt Ave	1960	1966 / 1985	1983 - Septic Malfunction	Y	-
1. Campgaw	5404	8	72 Chuckanutt Ave	1960	1967	1966 - System overflow	Y	-
1. Campgaw	5404	9	76 Chuckanutt Ave	1965	2002	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 1: Campgaw

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
1. Campgaw	5404	10	80 Chuckanutt Ave	1961	1965 / 1976 / 2007	-	Y	-
1. Campgaw	5404	11	84 Chuckanutt Ave	1962	1972	-	Y	-
1. Campgaw	5404	12	88 Chuckanutt Ave	1963	1975	-	N	-
1. Campgaw	5404	13	92 Chuckanutt Ave	1962	1975 / 1993	1977 - System Malfunction, overflow	Y	-
1. Campgaw	5404	14	96 Chuckanutt Ave	1965	1983	-	N	-
1. Campgaw	5404	15	63 Algonquin Trail	1969	1987 / 1997	-	N	-
1. Campgaw	5404	16	8 Hopi Ct	1968	1975 / 2015	-	N	2015 - New System
1. Campgaw	5404	17	9 Hopi Ct	1969	1976 / 1979 / 1983 / 1988	-	N	2009 - New pits installed
1. Campgaw	5404	18	7 Hopi Ct	1968	1970	-	N	-
1. Campgaw	5404	19	55 Algonquin Trail	1969	1978 / 2003	-	N	-
1. Campgaw	5404	20	47 Algonquin Trail	1964	-	-	Y	-
1. Campgaw	5404	21	41 Algonquin Trail	1967	1995	-	N	
1. Campgaw	5404	22	35 Algonquin Trail	1963	1966	-	N	
1. Campgaw	5304	2	778 Ramapo Valley Rd	-	1975 / 1997 / 2004 / 2007	-	-	-
1. Campgaw	5304	3	782 Ramapo Valley Rd	1961	1988 / 1999	-	Y	-
1. Campgaw	5304	4	788 Ramapo Valley Rd	1960	1967 / 1977 / 1980 / 1986	1977 - System Malfunction	Y	Also Repaired in: 1994 / 1995
1. Campgaw	5304	5	790 Ramapo Valley Rd	1962	1967 / 2011	-	Y	-
1. Campgaw	5304	6	792 Ramapo Valley Rd	-	1999 / 2000	-	-	-
1. Campgaw	5304	7	794 Ramapo Valley Rd	1962	1975 / 1998	1977 - System overflow	Y	1998 - New System
1. Campgaw	5304	8	800 Ramapo Valley Rd	1962	1968 / 1980 / 1985	-	N	-
1. Campgaw	5304	9	14 Andrew Ave	1976	1983 / 1985	-	Y	-
1. Campgaw	5304	10	16 Andrew Ave	1980	2015	-	N	-
1. Campgaw	5304	11	18 Andrew Ave	1958	1975 / 1989 / 1998	-	Y	-
1. Campgaw	5304	12	20 Andrew Ave	1970	1976 / 1988	-	N	-
1. Campgaw	5304	13	22 Andrew Ave	-	1972 / 2000 / 2014	1971,1972 - Overflow in front yard and into street	-	2000 - Septic tank cave in
1. Campgaw	5304	14	24 Andrew Ave	1953	1971 / 2004	-	N	-
1. Campgaw	5304	15	28 Andrew Ave	1961	1974 / 1990	-	Y	-
1. Campgaw	5304	16	30 Andrew Ave	1963	1972 / 1978 / 2013	-	N	-
1. Campgaw	5304	18	34 Andrew Ave	1954	1984 / 1986	-	Y	-
1. Campgaw	5304	19	38 Andrew Ave	1955	1974 / 2007	-	Y	-
1. Campgaw	5304	20	42 Andrew Ave	1964	1972 / 2002	-	Y	-
1. Campgaw	5304	21	46 Andrew Ave	1964	-	-	Y	-
1. Campgaw	5304	22	50 Andrew Ave	1963	1980 / 2004 / 2005	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 2: College Streets

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
2. College Streets	4910	2	26 Princeton Terr	1953	1973 / 2004	-	Y	2004 - New system
2. College Streets	4910	3	4 Sienna Way	1954	1972 / 1977 / 1998	1979 - Overflowing system	Y	1998 - New septic tanks
2. College Streets	4910	4	6 Sienna Way	1953	1967 / 1972	-	Y	-
2. College Streets	4910	5	8 Sienna Way	1954	1986 / 2013	-	Y	2013 - New System
2. College Streets	4910	6	10 Sienna Way	1954	1999 / 2015	-	Y	-
2. College Streets	4910	7	12 Sienna Way	1954	2011	-	Y	-
2. College Streets	4910	8	14 Sienna Way	1954	1964 / 2004	-	Y	-
2. College Streets	4910	9	16 Sienna Way	1954	1984 / 1994	1982,1984 - Overflowing system	Y	1994 - New System
2. College Streets	4910	10	18 Sienna Way	1954	1966	-	Y	-
2. College Streets	4910	11	20 Sienna Way	1953	2009 / 2014	-	Y	-
2. College Streets	4910	12	49 Rutgers Dr	1953	1956 / 1967 / 1983 / 2014	-	Y	-
2. College Streets	4910	13	37 Rutgers Dr	1953	1982 / 1986	-	Y	-
2. College Streets	4910	14	15 Yale Way	1953	1990 / 2007	-	Y	-
2. College Streets	4910	15	13 Yale Way	1953	1978 / 2005	-	Y	-
2. College Streets	4910	17	9 Yale Way	1953	1986 / 2002	-	Y	-
2. College Streets	4910	19	5 Yale Way	1953	2014	-	Y	-
2. College Streets	4403	1	11 Wellesley Dr	1951	1972 / 1978 / 1989 / 2004	-	Y	-
2. College Streets	4403	2	9 Wellesley Dr	1951	1959 / 1972 / 2001	-	Y	-
2. College Streets	4403	3	7 Wellesley Dr	1951	1964 / 1988 / 2005	-	Y	-
2. College Streets	4403	4	5 Wellesley Dr	1951	1963 / 1998	-	Y	-
2. College Streets	4403	5	3 Wellesley Dr	-	1981 / 1989	-	-	-
2. College Streets	4403	6	14 Mt. Holyoke Dr	-	1987	-	-	-
2. College Streets	4403	7	16 Barnard Dr	-	2002	-	-	-
2. College Streets	4403	8	20 Barnard Dr	1951	1972 / 1985 / 1992	-	Y	-
2. College Streets	4403	9	22 Barnard Dr	1951	1962 / 1969 / 1979 / 1988	-	Y	Also repaired in: 2002 / 2015
2. College Streets	4403	10	24 Barnard Dr	1951	1965 / 1989	-	Y	-
2. College Streets	4403	11	9 Vassar Pl	1951	1960 / 1999	-	Y	-
2. College Streets	4403	12	7 Vassar Pl	-	1954 / 1956 / 1973 / 1999	-	-	-
2. College Streets	5002	1	3 Cornell Pl	1953	1992	-	Y	1994 - Dining room addition
2. College Streets	5002	2	50 Rutgers Dr	1953	2005	-	Y	2005 - Second floor addition
2. College Streets	5002	3	52 Rutgers Dr	1955	1969 / 1995 / 1999	-	Y	1999 - Pool addition
2. College Streets	5002	4	54 Rutgers Dr	1953	1982 / 2014 / 2015	-	Y	-
2. College Streets	5002	5	56 Rutgers Dr	1953	2003	-	Y	2003 - New bedroom addition

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 2: College Streets

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
2. College Streets	5002	6	58 Rutgers Dr	1955	1972 / 2003	-	Y	-
2. College Streets	5002	7	60 Rutgers Dr	1953	2003 / 2004	-	Y	2000 - Pool addition
2. College Streets	5002	8	62 Rutgers Dr	1953	1969 / 1987	-	Y	-
2. College Streets	5002	9	64 Rutgers Dr	1953	2000	Leaves dumped in wooded area	Y	2000 - Septic tank installed
2. College Streets	5002	10	66 Rutgers Dr	1954	1989 / 2000	-	N	-
2. College Streets	5002	11	26 Colgate Rd	1954	2007	-	N	-
2. College Streets	5002	12	28 Colgate Rd	1954	1988 / 2010	-	N	-
2. College Streets	5002	13	30 Colgate Rd	1954	1999	-	N	-
2. College Streets	5002	14	32 Colgate Rd	1954	2004 / 2005	-	-	2004 - 3 Bedroom addition
2. College Streets	5002	15	34 Colgate Rd	1966	-	-	Y	-
2. College Streets	5003	1	11 Colgate Rd	1955	1992 / 1999	-	Y	-
2. College Streets	5003	2	6 Hobart Pl	1955	2000 / 2013	-	Y	2000 - Cesspool was replaced with Septic tank
2. College Streets	5003	3	8 Hobart Pl	1955	1987	-	Y	-
2. College Streets	5003	4	38 Seton Hall Dr	1955	1963 / 1986	Laundry discharge into street	Y	-
2. College Streets	5003	5	40 Seton Hall Dr	-	1986	-	N	-
2. College Streets	5003	6	42 Seton Hall Dr	1955	1969	-	Y	-
2. College Streets	5003	7	44 Seton Hall Dr	1955	2001 / 2004	-	Y	-
2. College Streets	5003	8	46 Seton Hall Dr	1955	2003	-	Y	-
2. College Streets	5003	9	48 Seton Hall Dr	1955	1968 / 1973 / 1986 / 2002	-	Y	-
2. College Streets	5003	10	50 Seton Hall Dr	1955	1966 / 1999	-	Y	-
2. College Streets	5003	11	54 Seton Hall Dr	1954	1987 / 2003 / 2010 / 2011	-	Y	2003 - House addition
2. College Streets	5003	12	60 Seton Hall Dr	1959	1988	-	Y	-
2. College Streets	5003	13	27 Colgate Rd	1985	1993	Septic overflow in rear yard	N	-
2. College Streets	5003	14	25 Colgate Rd	1954	-	-	-	-
2. College Streets	5003	15	23 Colgate Rd	1954	1969	Septic overflow in rear yard	-	-
2. College Streets	5003	16	21 Colgate Rd	1954	1965 / 1986 / 1994	-	N	2010 - Pool and deck replacement
2. College Streets	5003	17	19 Colgate Rd	1954	-	-	-	-
2. College Streets	5003	18	17 Colgate Rd	1955	2002	-	Y	-
2. College Streets	5003	19	15 Colgate Rd	1968	-	Laundry waste flowing into street	Y	-
2. College Streets	5003	20	13 Colgate Rd	1955	1972 / 1997	-	Y	1997 - Septic tank installed
2. College Streets	4306	1	54 Thackeray Rd	1966	1979 / 2014		N	2014 - New System
2. College Streets	4306	2	60 Thackeray Rd	1965	1973	1985 - Septic Overflow	N	-
2. College Streets	4306	3	66 Thackeray Rd	1966	1982	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 2: College Streets

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
2. College Streets	4306	4	70 Thackeray Rd	1966	1971 / 2005	-	N	-
2. College Streets	4306	5	74 Thackeray Rd	1966	2012	-	N	-
2. College Streets	4306	6	78 Thackeray Rd	1965	1994	-	N	-
2. College Streets	4306	7	84 Thackeray Rd	1965	1993 / 2007	-	N	-
2. College Streets	4306	8	90 Thackeray Rd	1965	1973 / 1986 / 1988 / 1991	-	N	Also repaired in: 2012
2. College Streets	4306	9	98 Thackeray Rd	1965	1972 / 1984 / 1988 / 2006	-	N	-
2. College Streets	4306	10	31 Whittier Lane	1964	1994 / 2015	-	Y	-
2. College Streets	4306	11	27 Whittier Lane	1963	1968 / 1970 / 1978	-	Y	-
2. College Streets	4306	12	23 Whittier Lane	1963	2006 / 2012	-	Y	-
2. College Streets	4306	13	19 Whittier Lane	1963	1972 / 1996	-	Y	-
2. College Streets	4306	14	17 Whittier Lane	1963	2002	-	N	-
2. College Streets	4306	15	15 Whittier Lane	1963	1996 / 1999	-	Y	-
2. College Streets	4306	16	11 Whittier Lane	1963	1979 / 1988	-	Y	-
2. College Streets	4306	17	7 Whittier Lane	1964	1980	-	N	-
2. College Streets	4306	18	3 Whittier Lane	1964	1983	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 3: Crystal Lake

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
3. Crystal Lake	1501	3	191 Lakeshore Dr	1955	1969 / 1979 / 1992	-	Y	1979 - New system
3. Crystal Lake	1501	4	189 Lakeshore Dr	1953	1997 /	-	Y	-
3. Crystal Lake	1501	5	187 Lakeshore Dr	1959	1984 / 1993	-	N	-
3. Crystal Lake	1501	6	185 Lakeshore Dr	1958	1997	-	N	-
3. Crystal Lake	1501	7	183 Lakeshore Dr	1960	1967	-	Y	-
3. Crystal Lake	1501	8	181n Lakeshore Dr	1956	1989	-	N	-
3. Crystal Lake	1501	9	179 Lakeshore Dr	1957	1996 / 2006	-	N	-
3. Crystal Lake	1501	10	177 Lakeshore Dr	-	1970 / 1986	-	N	-
3. Crystal Lake	1501	11	173 Lakeshore Dr	-	1972 / 1975	-	N	-
3. Crystal Lake	1501	12	171 Lakeshore Dr	1964	1975	-	N	-
3. Crystal Lake	1501	13	169 Lakeshore Dr	1957	1982 / 1985 / 1992	-	Y	-
3. Crystal Lake	1501	14	167 Lakeshore Dr	1960	-	-	Y	-
3. Crystal Lake	1501	15	165 Lakeshore Dr	1957	1965 / 2011	-	Y	-
3. Crystal Lake	1501	16	163 Lakeshore Dr	1957	1990	-	Y	-
3. Crystal Lake	1501	17	161 Lakeshore Dr	1974	-	-	N	1975 - Combined Lots - New house
3. Crystal Lake	1501	18	155 Lakeshore Dr	1954	1983	-	N	-
3. Crystal Lake	1501	19	153 Lakeshore Dr	1956	2013	-	N	2013 - New system
3. Crystal Lake	1501	20	147 Lakeshore Dr	1969	2014	-	N	-
3. Crystal Lake	1501	21	145 Lakeshore Dr	1969	-	-	N	-
3. Crystal Lake	1501	29	125 Lakeshore Dr	1956	1995 / 1999	-	N	-
3. Crystal Lake	1501	30	123 Lakeshore Dr	1956	1965	-	N	-
3. Crystal Lake	1501	32	119 Lakeshore Dr	1976	2009	-	N	-
3. Crystal Lake	1501	33	117 Lakeshore Dr	1987	1991	-	N	-
3. Crystal Lake	1501	34	113 Lakeshore Dr	1961	1967	-	N	-
3. Crystal Lake	1501	35	111 Lakeshore Dr	1958	-	-	Y	-
3. Crystal Lake	1501	36	105 Lakeshore Dr	1958	-	-	Y	-
3. Crystal Lake	1501	37	103 Lakeshore Dr	1961	-	-	N	-
3. Crystal Lake	1501	38	101 Lakeshore Dr	1958	1963	-	N	-
3. Crystal Lake	1501	39	99 Lakeshore Drive	1960	-	-	N	-
3. Crystal Lake	1501	41	93 Lakeshore Dr	-	1977 / 2005	-	Y	-
3. Crystal Lake	1501	43	89 Lakeshore Dr	1973	1982	-	N	-
3. Crystal Lake	1501	44	85 Lakeshore Dr	1954	1984 / 1992	-	Y	-
3. Crystal Lake	1501	45	83 Lakeshore Dr	1948	1951 / 1957 / 1962	-	Y	1990 - New pit installed

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 3: Crystal Lake

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
3. Crystal Lake	1501	46	79 Lakeshore Dr	1956	1986	-	Y	-
3. Crystal Lake	1501	47	77 Lakeshore Dr	-	1982 / 1990 / 2002	-	N	1948,1954 - Changed Owners (maybe septic install)
3. Crystal Lake	1501	48	75 Olakeshore Dr	1956	1973 / 1989	-	Y	1989 - New Pits
3. Crystal Lake	1501	49	73 Lakeshore Dr	1958	1981 / 1999	-	N	-
3. Crystal Lake	1501	50	71 Lakeshore Dr	1956	1988	-	N	-
3. Crystal Lake	1501	51	69 Lakeshore Dr	1960	1996	-	N	-
3. Crystal Lake	1501	52	67 Lakeshore Dr		1996 / 1999 / 2001	-	N	(OKES-1207)
3. Crystal Lake	1501	54	57 Lakeshore Dr	1956	-	-	Y	-
3. Crystal Lake	1501	55	55 Lakeshore Dr	1959	2012	-	Y	-
3. Crystal Lake	1501	56	51 Lakeshore Dr	1964	2009	-	N	-
3. Crystal Lake	1501	57	49 Lakeshore Dr	1953	1964 / 2014	-	Y	-
3. Crystal Lake	1501	58	45 Lakeshore Dr	1960	1965 / 1983	-	N	-
3. Crystal Lake	1501	59	43 Lakeshore Dr	1956	2004	-	Y	2004 - New System
3. Crystal Lake	1501	60	39 Lakeshore Dr	1958	1978 / 2005	-	Y	-
3. Crystal Lake	1501	61	37 Lakeshore Dr	1954	1995 / 2010	1995 - Open cesspool, sewage overflow	Y	2015 - Tenants out, Oakland wants to replace septic
3. Crystal Lake	1501	62	35 Lakeshore Dr	1955	1964 / 2003	-	Y	-
3. Crystal Lake	1501	63	33 Lakeshore Dr	1958	1964 / 1975 / 1999	-	N	-
3. Crystal Lake	1501	64	31 Lakeshore Dr	1954	-	-	N	-
3. Crystal Lake	1501	22	143 Lakeshore Dr	1956	-		N	-
3. Crystal Lake	1501	23	141 Lakeshore Dr	1959	1985		Y	-
3. Crystal Lake	1501	24	139 Lakeshore Dr	1959	2006 / 2014		N	-
3. Crystal Lake	1501	25	137 Lakeshore Dr	1957	2000 / 2001		Y	-
3. Crystal Lake	1501	26	135 Lakeshore Dr	1958	2003		N	-
3. Crystal Lake	1501	27	133 Lakeshore Dr	1958	2008		N	2008 - Second floor addition
3. Crystal Lake	1501	28	127 Lakeshore Dr	1955	1985		N	-
3. Crystal Lake	4504	1	42 Dacotah Ave	1958	2008		Y	-
3. Crystal Lake	4504	2	32 Nokomis Ave	1955	-		Y	-
3. Crystal Lake	4504	3	34 Nokomis Ave	1959	2000		N	-
3. Crystal Lake	4504	4	36 Nokomis Ave	1955	2000 / 2006		Y	2006 - Aditional floor with bathrooms and bedrooms
3. Crystal Lake	4504	5	38 Nokomis Ave	1959	1984 / 2010		N	-
3. Crystal Lake	4504	6	40 Nokomis Ave	1980	1999 / 2000		Y	-
3. Crystal Lake	4504	7	42 Nokomis Ave	1955	1989		Y	-
3. Crystal Lake	4504	8	44 Nokomis Ave	1958	1998		N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 3: Crystal Lake

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
3. Crystal Lake	4504	9	46 Nokomis Ave	1956	2010 / 2011		Y	-
3. Crystal Lake	4504	10	64 Lakeshore Dr	1958	-		N	-
3. Crystal Lake	4504	11	66 Lakeshore Dr	1958	1983 / 2003 / 2004		Y	-
3. Crystal Lake	4504	12	25 Rockaway Ave	1957	1971 / 1994 / 2001		Y	-
3. Crystal Lake	4504	13	23 Rockaway Ave	1974	1987		N	-
3. Crystal Lake	4504	14	21 Rockaway Ave	1957	1992 / 1993 / 2001		N	-
3. Crystal Lake	4504	15	19 Rockaway Ave	1967	1983 / 1995 / 2003		N	-
3. Crystal Lake	4504	16	17 Rockaway Ave	1955	1982 / 2013		Y	-
3. Crystal Lake	4504	17	15 Rockaway Ave	1956	2007 / 2015		Y	2007 - Cesspool replaced with septic tank
3. Crystal Lake	4504	18	13 Rockaway Ave	1956	1986 / 2007		Y	-
3. Crystal Lake	4504	19	11 Rockaway Ave	1978	-	odors from septic system	N	-
3. Crystal Lake	4504	20	9 Rockaway Ave	1976	2010		-	-
3. Crystal Lake	4504	22	5 Rockaway Ave	1977	1983 / 2004		Y	-
3. Crystal Lake	4504	23	23 Sioux Ave	1957	2010		N	-
3. Crystal Lake	4504	24	19 Sioux Ave	1956	2014		N	-
3. Crystal Lake	4504	25	17 Sioux Ave	1954	1993 / 1994 / 2014		Y	1994 - Septic tank installed
3. Crystal Lake	4504	26	15 Sioux Ave	1956	1981 / 2015		N	-
3. Crystal Lake	4504	27	13 Sioux Ave	1953	1970 / 2005		N	-
3. Crystal Lake	4504	28	11 Sioux Ave	1956	1967 / 1984		Y	-
3. Crystal Lake	4504	29	9 Sioux Ave	1955	1987 / 1999		Y	-
3. Crystal Lake	4504	30	7 Sioux Ave	1957	1983 / 1988		Y	-
3. Crystal Lake	4504	31	5 Sioux Ave	1955	-		Y	-
3. Crystal Lake	4504	32	3 Sioux Ave	1959	1965		N	-
3. Crystal Lake	4504	33	469 Ramapo Valley Rd	1963	2001		Y	-
3. Crystal Lake	4504	34	461/465 Ramapo Valley Rd	1956	1974 / 1998 / 2014 / 2015		Y	-
3. Crystal Lake	1606	1	92 Roosevelt Blvd	1961	1968	-	Y	-
3. Crystal Lake	1606	2	94 Roosevelt Blvd	1950	1963 / 1974 / 1987 / 2005	-	N	-
3. Crystal Lake	1606	3	96 Roosevelt Blvd	1956	-	Exposed septic tank	N	-
3. Crystal Lake	1606	4	98 Roosevelt Blvd	1954	-	-	Y	-
3. Crystal Lake	1606	5	100 Roosevelt Blvd	1962	-	-	Y	-
3. Crystal Lake	1606	6	102 Roosevelt Blvd	1963	-	-	N	-
3. Crystal Lake	1606	7	104 Roosevelt Blvd	1963	-	Pool not emptied and septic odors	N	-
3. Crystal Lake	1606	8	106 Roosevelt Blvd	1963	1982 / 2005	-	N	2005 - Pool added to property

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 3: Crystal Lake

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
3. Crystal Lake	1606	9	108 Roosevelt Blvd	1959	1974 / 1983 / 1989	-	Y	1989 - One story addition
3. Crystal Lake	1606	10	110 Roosevelt Blvd	1960	1980	Septic system running over rear yard	Y	1997 - Deck added to dwelling
3. Crystal Lake	1606	11	112 Roosevelt Blvd	-	1988 / 2009	-	N	-
3. Crystal Lake	1606	12	114 Roosevelt Blvd	1966	2008	Septic disposal field is bleeding out and odorous	N	-
3. Crystal Lake	1606	13	116 Roosevelt Blvd	1960	-	-	Y	-
3. Crystal Lake	1606	14	118 Roosevelt Blvd	1961	-	-	N	-
3. Crystal Lake	1606	15	62 Truman Blvd	1954	-	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 4: Dogwood

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
4. Dogwood	3801	43	61 Walton Ave	1961	2015	-	Y	-
4. Dogwood	3801	44	59 McNomee St	1960	1989 / 1998	-	N	-
4. Dogwood	3801	45	57 McNomee St	1957	1987	-	N	-
4. Dogwood	3801	46	55 McNomee St	1963	2007	-	N	-
4. Dogwood	3801	47	53 McNomee St	1959	2003	Leakage caused polluted water	N	-
4. Dogwood	3801	48	51 McNomee St	1958	2007	-	N	-
4. Dogwood	3801	49	49 McNomee St	1958	-	-	N	-
4. Dogwood	3801	50	47 McNomee St	1957	2011	-	N	-
4. Dogwood	3801	51	43 McNomee St	1958	2006	-	N	-
4. Dogwood	3801	53	42 McNomee St	1954	1998	-	Y	-
4. Dogwood	3801	54	44 McNomee St	1960	-	-	N	-
4. Dogwood	3801	55	48 McNomee St	1960	2012	-	N	-
4. Dogwood	3801	56	50 McNomee St	1982	1984 / 1989 / 1995 / 2003	Heavy drainage and mud from front yard	N	Also repaired in: 2005
4. Dogwood	3801	57	52 McNomee St	1958	-	Very bad septic odor	Y	-
4. Dogwood	3801	58	53 McNomee St	1961	2015	-	Y	-
4. Dogwood	3801	59	51 Walton Ave	1960	1979 / 2005	-	N	2005 - New deck installed
4. Dogwood	3801	60	49 Walton Ave	1959	-	Cesspool overflow	Y	-
4. Dogwood	3801	61	47 Walton Ave	1968	1993	Seepage tanks and seepage covers exposed	N	-
4. Dogwood	3801	63	43 Walton Ave	1958	1965 / 1978 / 2004	Neighbors complianed of spectic odors	N	-
4. Dogwood	3801	64	41 Walton Ave	1963	1995	-	N	2005 - Added a pool
4. Dogwood	3801	65	39 Walton Ave	1960	1989	Septic tank overflow	N	-
4. Dogwood	3801	66	37 Walton Ave	1967	1997 / 1998	-	N	1998 - New septic system, 2004 - House addition
4. Dogwood	3804	3	20 Bannehr St	1959	-	-	Y	-
4. Dogwood	3804	4	22 Bannehr St	1957	1995	-	N	1995 - New kitchen and deck
4. Dogwood	3804	5	24 Bannehr St	1957	-	-	Y	-
4. Dogwood	3804	6	26 Bannehr St	1957	-	Laundry soap in storm drain	Y	-
4. Dogwood	3804	7	28 Bannehr St	1956	1975 / 1996 / 2015	Septic system overflowing on ground	Y	1975 - Septic tanks put in
4. Dogwood	3804	8	30 Bannehr St	1959	1986 / 1998	Drainage and runoff from mound on 83 McNomee	N	1987 - Addition put onto existing house
4. Dogwood	3804	9	32 Bannehr St	1957	-	-	Y	-
4. Dogwood	3804	10	34 Bannehr St	1963	1998 / 2005	-	Y	-
4. Dogwood	3804	11	36 Bannehr St	1957	1972	-	N	-
4. Dogwood	3804	12	38 Bannehr St	1968	2009	-	N	-
4. Dogwood	3804	13	40 Bannehr St	1958	1965 / 1982 / 1986	-	Y	1965 - Septic tank installed

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 4: Dogwood

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
4. Dogwood	3804	14	42 Bannehr St	1968	2001 / 2003	-	N	-
4. Dogwood	3804	15	44 Bannehr St	1969	1992 / 2007	Septic tank overflow, ground always wet	N	-
4. Dogwood	3501	1	246 Ramapo Valley Rd	1956	1980	-	N	-
4. Dogwood	3501	2	8 Dogwood Dr	1965	2003	Stream next to property polluted with septic	N	-
4. Dogwood	3501	3	16 Dogwood Dr	1958	-	-	Y	-
4. Dogwood	3501	4	24 Dogwood Dr	1958	1991	Terrible septic odor	Y	1986 - Detached garage construction
4. Dogwood	3501	5	238 Ramapo Valley Rd	1952	1974 / 2001	-	Y	2012 - Decking added
4. Dogwood	3501	6	44 Dogwood Dr	1959	1998	Placed perforated drain pip across septic field	N	-
4. Dogwood	3501	7	32 Dogwood Dr	1959	-	-	Y	-
4. Dogwood	3501	8	38 Dogwood Dr	1959	1976 / 2006	-	Y	-
4. Dogwood	3501	9	50 Dogwood Dr	1959	1975 / 2004		N	
4. Dogwood	3501	10	124 Mandigo Ave	1961	2012		N	2012 - New System
4. Dogwood	3501	11	125 Mandigo Ave	1963	1973 / 1979 / 1996		N	
4. Dogwood	3501	12	58 Dogwood Dr	1959	1990		Y	
4. Dogwood	3501	13	64 Dogwood Dr	1959	1982		N	
4. Dogwood	3501	14	70 Dogwood Dr	1960	1968		N	
4. Dogwood	3501	15	46 Hickory Dr	1960	1988 / 2004 / 2005		Y	
4. Dogwood	3501	16	52 Hickory Dr	1961	1999		N	
4. Dogwood	3501	17	58 Hickory Dr	1959	2003		N	
4. Dogwood	3501	18	62 Hickory Dr	1959	-		Y	
4. Dogwood	3501	19	68 Hickory Dr	1959	1976 / 2015		Y	
4. Dogwood	3501	20	74 Hickory Dr	1961	1976 / 1987	-	N	-
4. Dogwood	3401	1	198 Ramapo Valley Rd	1963	-	-	Y	1997 - Deck added to dwelling
4. Dogwood	3401	2	194 Ramapo Valley Rd	1952	1968	-	Y	-
4. Dogwood	3401	3	8 & 10 Grove St	1952	1982	Sewage leakage onto ground causing health hazard	Y	-
4. Dogwood	3401	4	14 Grove St	-	1965	-	Y	-
4. Dogwood	3401	5	18 Grove St	-	1977	-	-	-
4. Dogwood	3401	6	22 Grove St	1951	1977 / 2008	-	-	-
4. Dogwood	3401	7	26 Grove St	1953	1964 / 2010 / 2013	-	Y	1964 - Cesspool was replaced with septic tank
4. Dogwood	3401	8	30 Grove St	1948	1990	-	-	-
4. Dogwood	3401	9	34 Grove St	1968	-	-	N	-
4. Dogwood	3401	10	40 Grove St	1976	-	-	N	-
4. Dogwood	3401	12	42 Grove St	1966	-	Water in the cellar	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 4: Dogwood

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
4. Dogwood	3401	13	44 Grove St	1968	1987 / 1999	-	-	-
4. Dogwood	3401	14	48 Grove St	1977	1999 / 2014 / 2015	New septic system overflows when doing laundry	N	-
4. Dogwood	3401	15	52 Grove St	1955	-	-	N	-
4. Dogwood	3401	16	56 Grove St	1955	2008	-	N	-
4. Dogwood	3401	17	60 Grove St	1955	1984 / 2014	-	N	-
4. Dogwood	3401	18	64 Grove St	1955	1976 / 1999 / 2015	-	N	-
4. Dogwood	3401	20	70 Grove St	1956	2004	-	Y	-
4. Dogwood	3401	21	74 Grove St	1964	2008	-	Y	-
4. Dogwood	3401	22	80 Grove St	1964	1992	-	Y	-
4. Dogwood	3401	23	84 Grove St	1954	-	-	Y	-
4. Dogwood	3401	24	86 Grove St	1986 / 1989	-	-	-	-
4. Dogwood	3401	25	88 Grove St	1961	1987 / 1998 / 2012	Septic running down driveway	N	-
4. Dogwood	3401	26	90 Grove St	1953	1970 / 1975 / 2002 / 2013	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 5: Downtown

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
5. Downtown	1706	2	413 Ramapo Valley Rd	2008			N	Columbia Bank
5. Downtown	1706	2.01	411 Ramapo Valley Rd	2008	2015		N	Starbucks
5. Downtown	1706	3	409 Ramapo Valley Rd	1961	2008		N	Walgreens
5. Downtown	2303.01	3 / 4	OLD Block and Lot	1960	1969 / 1998		Y	Current 1706 7-8 (Lots behind Walgreens)
5. Downtown	2303.01	5.02	OLD Block and Lot	1960 - 1964	1981 / 1984	Old shopping plaza next to Tony's Brothers	Y	Current Walgreens & Parking
5. Downtown	1706	4		2008		Old shopping plaza next to Tony's Brothers	N	Current Walgreens Parking
5. Downtown	1706	6	20 West Oakland Ave	1958	1966 / 1989 / 1999	1999 - Pit overflow	Y	Tony's Brothers (Lukas)
5. Downtown	1802	2	15 Terhune St	1948	1978 / 1997		Y	
5. Downtown	1802	3	11 Terhune St	1962	1985		Y	
5. Downtown	1802	4	373 Ramapo Valley Rd	1966	-		N	
5. Downtown	1802	5	357 Ramapo Valley Rd	1961	1989		Y	
5. Downtown	1802	6	6-14 Elm St	1953	1966 / 1977 / 2011		Y	
5. Downtown	1802	7	20 Elm St	1966	1971 / 1982 / 1985 / 1991		Y	
5. Downtown	4004	4 / 5	127 McCoy Rd	1950	1968 / 1978 / 1989 / 1997		Y	Horse Farm
5. Downtown	4004	2	18 Raritan Rd	1976	2008		N	84 Lumber
5. Downtown	4004	3	21 Raritan Rd	1987	1997		N	
5. Downtown	4004	6	17 Raritan Rd	1984	1985		N	
5. Downtown	4004	7	13 Raritan Rd	1978	1984		N	
5. Downtown	4403	1	11 Wellesley Dr	1951	1972 / 1989		Y	1972 - Removed Cesspool
5. Downtown	4403	2	9 Wellesely Dr	1951	1962 / 1972 / 2001		Y	
5. Downtown	4403	3	7 Wellesely Dr	1951	1964 / 1988		Y	
5. Downtown	4403	4	5 Wellesely Dr	1951	1963 / 1998		Y	
5. Downtown	4403	5	3 Wellesely Dr	1981	1989		N	
5. Downtown	4403	6	14 Mt. Holyoke Dr	1983	-		N	
5. Downtown	4403	7	16 Barnard Dr	-	2002		N	
5. Downtown	4403	8	20 Barnard Dr	1951	1972 / 1985		Y	
5. Downtown	4403	9	22 Barnard Dr	1951	1969 / 1979 / 1988 / 2002		Y	
5. Downtown	4403	10	24 Barnard Dr	1951	1965 / 1989		Y	
5. Downtown	4403	11	9 Vassar Pl	1951	1960 / 1999		Y	
5. Downtown	4403	12	7 Vassar Pl	1954	1973 / 1999		Y	
5. Downtown	4404	1	6 & 12 Franklin Ave	1964	1977 / 1986		Y	
5. Downtown	4404	2	20 Franklin Ave	1972	-		N	
5. Downtown	1708	1	391 Ramapo Valley Rd	1965	1973 / 1984		Y	

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 5: Downtown

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
5. Downtown	1708	3	383 Ramapo Valley Rd	1949	1957 / 1963 / 2013		Y	1963 - Removed Cesspool
5. Downtown	1708	4	379 Ramapo Valley Rd	1948	1959 / 1968 / 1976		Y	1976 - Removed Cesspool
5. Downtown	1708	5	12 Terhune St	1954	1974 / 2007		Y	
5. Downtown	3903	85	326 Ramapo Valley Rd	1957	1969 / 2015	1969 - Septic overflow	Y	
5. Downtown	3903	86	330 Ramapo Valley Rd	1964	1975 / 1991		N	
5. Downtown	3903	87	11 East Oak St	1985	-		N	
5. Downtown	4504	33	469 Ramapo Valley Rd	1963	2001		Y	
5. Downtown	4504	34	461-465 Ramapo Valley Rd	1956	1974 / 1998		Y	
5. Downtown	4504	36	4 Court House Pl	1962	1980 / 1989		Y	

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 6: Heights

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
6. Heights	5204	1	4 Oneida Ave	1954	1960 / 1991 / 2007 / 2008	Septic water surfacing onto ground	Y	1991 - Cesspool replaced with septic tank
6. Heights	5204	2	6 Oneida Ave	1957	1970 / 2010 / 2011	-	N	-
6. Heights	5204	3	8 Oneida Ave	1957	1980	-	Y	2012 - Room renovations
6. Heights	5204	4	10 Oneida Ave	1958	1964 / 2012	-	N	-
6. Heights	5204	5	12 Oneida Ave	1956	1972 / 1987	-	N	-
6. Heights	5204	6	14 Oneida Ave	1958	1988	Overflowing sewage disposal system	Y	-
6. Heights	5204	7	16 Oneida Ave	1959	1987 / 2006	Odors in catch basin in front of dwelling	Y	-
6. Heights	5204	8	18 Oneida Ave	1958	-	-	Y	-
6. Heights	5204	9	20 Oneida Ave	1953	1976	-	Y	-
6. Heights	5204	10	22 Oneida Ave	1957	1970	-	N	-
6. Heights	5204	11	24 Oneida Ave	-	1984	-	N	-
6. Heights	5204	12	28 Oneida Ave	1961	2014	-	Y	-
6. Heights	5204	13	32 Oneida Ave	1959	2009	-	Y	-
6. Heights	5204	14	17 Iroquois Ave	1958	-	-	Y	-
6. Heights	5204	15	13 Iroquois Ave	1956	1987	-	Y	-
6. Heights	5204	16	11 Iroquois Ave	1964	-	-	N	-
6. Heights	5204	17	7 Iroquois Ave	1958	2011 / 2015	-	N	-
6. Heights	5204	18	5 Iroquois Ave	1958	2000 / 2005 / 2006	Overflowing septic system	N	2005 - Additional second level 3 bedrooms & 2 baths
6. Heights	5204	19	165 Hiawatha Blvd	1971	2004	-	N	-
6. Heights	5204	20	163 Hiawatha Blvd	1959	-	-	N	-
6. Heights	5204	21	159 Hiawatha Blvd	1957	-	-	N	-
6. Heights	5204	22	157 Hiawatha Blvd	1961	-	-	Y	-
6. Heights	5204	47	137 Hiawatha Blvd	1958	-	-	N	-
6. Heights	5204	48	135 Hiawatha Blvd	1963	2009	-	Y	-
6. Heights	5204	49	23 Seneca Ave	1958	-	-	Y	-
6. Heights	5204	50	21 Seneca Ave	1956	1970 / 1991	-	Y	-
6. Heights	4803	1	46 Calumet Ave	1957	2004 / 2006 / 2008	-	N	2006 - New kitchen / 2008 - Pool installed
6. Heights	4803	2	48 Calumet Ave	1963	1989 / 2003	-	N	-
6. Heights	4803	3	52 Calumet Ave	1955	1974 / 1983 / 2004 / 2005	-	Y	-
6. Heights	4803	5	58 Calumet Ave	1963	1995	-	N	-
6. Heights	4803	6	60 Calumet Ave	-	1985 / 1987	Someone dumped junk on property, it stinks	N	-
6. Heights	4803	7	66 Calumet Ave	1956	1987	-	N	-
6. Heights	4803	8	68 Calumet Ave	1958	-	-	Y	2010 - Bathroom addition and remodel

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 6: Heights

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
6. Heights	4803	9	70 Calumet Ave	1956	1979	Previous owner built patio over septic field	N	-
6. Heights	4803	10	72 Calumet Ave	1959	2004	-	N	-
6. Heights	4803	11	74 Calumet Ave	1956	1972 / 2004	-	Y	-
6. Heights	4803	12	78 Calumet Ave	1958	2004	-	Y	-
6. Heights	4803	13	80 Calumet Ave	1959	1971 / 1987 / 2007	-	Y	-
6. Heights	4803	14	84 Calumet Ave	1965	-	Water in backyard	Y	-
6. Heights	4803	20	144 Hiawatha Blvd	-	1980 / 1999	System overflow	N	-
6. Heights	4803	21	146 Hiawatha Blvd	1960	2005	-	Y	-
6. Heights	4803	22	148 Hiawatha Blvd	1961	1992	-	Y	-
6. Heights	4803	23	131 Seminole Ave	1957	1981	-	Y	-
6. Heights	4803	24	127 Seminole Ave	1959	-	-	Y	-
6. Heights	4803	25	123 Seminole Ave	1957	-	-	Y	-
6. Heights	4804	1	72 Seminole Ave	1954	1969 / 2002	-	Y	-
6. Heights	4804	2	74 Seminole Ave	1957	1985 / 2000 / 2015	Washing water runs over driveway	N	-
6. Heights	4804	3	11 Lehigh Way	-	1987 / 1990 / 1994 / 2006	-	N	-
6. Heights	4804	4	76 Seminole Ave	-	1984 / 1985	-	-	-
6. Heights	4804	5	78 Seminole Ave	1956	1966 / 1997	-	Y	-
6. Heights	4804	7	82 Seminole Ave	1956	1997	-	Y	1997 - New septic tank installed
6. Heights	4804	8	84 Seminole Ave	1969	-	-	N	-
6. Heights	4804	9	86 Seminole Ave	1958	1967 / 2000 / 2001	Septic water running onto the street	Y	-
6. Heights	4804	10	88 Seminole Ave	1957	1980	Septic water running onto the street	Y	-
6. Heights	4804	11	92 Seminole Ave	1958	-	-	Y	-
6. Heights	4804	12	96 Seminole Ave	1956	1975 / 1979	-	Y	-
6. Heights	4804	13	98 Seminole Ave	1956	1985 / 2009	Septic installation caused heavy runoff clogging drain	Y	-
6. Heights	4804	14	102 Seminole Ave	1954	1980 / 2009	-	Y	-
6. Heights	4804	15	104 Seminole Ave	1957	2009	-	Y	-
6. Heights	4804	16	106 Seminole Ave	1957	1996	-	Y	-
6. Heights	4804	17	110 Seminole Ave	1958	1994	-	N	-
6. Heights	4804	22	120 Seminole Ave	1956	1977 / 2012		Y	-
6. Heights	4804	23	122 Seminole Ave	1957	1970 / 1977	1977 - System Malfunction	Y	-
6. Heights	4804	24	124 Seminole Ave	1963	2006	-	N	-
6. Heights	4804	25	126 Seminole Ave	1958	1968 / 2002	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 7: Indian Hills

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
7. Indian Hills	3702	1	63 Hopper St	1959	1981 / 1989 / 2014	-	Y	-
7. Indian Hills	3702	2	57 Hopper St	1960	1970 / 1971	Overflowing septic system	Y	-
7. Indian Hills	3702	3	51 Hopper St	1960	1965	-	Y	-
7. Indian Hills	3702	4	45 Hopper St	1959	1967 / 1989	-	Y	-
7. Indian Hills	3702	5	41 Hopper St	1960	1989	-	Y	-
7. Indian Hills	3702	6	33 Hopper St	1959	1963 / 1992	Septic water discharging from pipe in rear yard	Y	-
7. Indian Hills	3702	7	27 Hopper St	1959	1961 / 1992	-	Y	1992 - Septic tank installed
7. Indian Hills	3702	8	21 Hopper St	1959	1995	-	Y	-
7. Indian Hills	3702	9	15 Hopper St	1959	2000 / 2001	-	Y	-
7. Indian Hills	3702	10	11 Hopper St	1955	1983	-	N	-
7. Indian Hills	3702	11	7 Hopper St	1956	1986	-	N	-
7. Indian Hills	3702	12	3 Hopper St	1956	2015	-	N	-
7. Indian Hills	3702	13	6 Hopper St	1956	1970 / 1997 / 1999	-	N	-
7. Indian Hills	3702	14	10 Spear St	1955	1971	-	N	-
7. Indian Hills	3702	15	14 Spear St	1955	1968	-	N	-
7. Indian Hills	3702	16	20 Spear St	1959	1983	-	Y	-
7. Indian Hills	3702	17	26 Spear St	1959	1964 / 1992	-	Y	-
7. Indian Hills	3702	18	32 Spear St	1959	1994	-	Y	-
7. Indian Hills	3702	19	38 Spear St	1959	1991	-	Y	-
7. Indian Hills	3702	20	44 Spear St	1959	2012	-	Y	-
7. Indian Hills	3902	1	15 Yawpo Ave	1969	1970	-	N	Holding tank
7. Indian Hills	3902	2	19 Yawpo Ave	1965	1977 / 1981	-	N	-
7. Indian Hills	3902	3	25 Yawpo Ave	1965	-	-	N	-
7. Indian Hills	3902	4	43 Yawpo Ave	-	1983 / 1986	-	N	-
7. Indian Hills	3902	5	41 Yawpo Ave	1950	-	-	Y	-
7. Indian Hills	3902	6	47 Yawpo Ave	1965	1984 / 1999	-	N	-
7. Indian Hills	3902	7	51 Yawpo Ave	1958	-	-	N	-
7. Indian Hills	3902	8	53 Yawpo Ave	1957	2001	-	N	-
7. Indian Hills	3902	9	55 Yawpo Ave	-	1986 / 1996 / 2006	-	N	-
7. Indian Hills	3902	11	61 Yawpo Ave	1958	-	-	Y	-
7. Indian Hills	3902	12	63 Yawpo Ave	1959	1995 / 2008	Water runs onto the street	N	-
7. Indian Hills	3902	13	65 Yawpo Ave	1961	-	-	N	-
7. Indian Hills	3902	14	69 Yawpo Ave	1958	1962 / 1986 / 2005	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 7: Indian Hills

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
7. Indian Hills	3902	15	71 Yawpo Ave	1962	1976 / 1978 / 1982 / 2001	-	Y	-
7. Indian Hills	3902	16	73 Yawpo Ave	1958	1988 / 1997	-	Y	-
7. Indian Hills	3902	17	77 Yawpo Ave	1961	1989 / 2008 / 2012	Remediator installed without permit or license	Y	2013 - Unidentified septic tank found
7. Indian Hills	3902	18	79 Yawpo Ave	1959	1975	-	N	1976 - Replaced kitchen sink and dishwasher
7. Indian Hills	3902	19	83 Yawpo Ave	1959	1975 / 1991 / 2004	-	Y	1975 - Septic tank replaces cesspool
7. Indian Hills	3902	20	85 Yawpo Ave	1959	1975 / 1999	-	N	-
7. Indian Hills	3703	1	91 Spear St	1956	2005 / 2006	-	Y	-
7. Indian Hills	3703	2	95 Spear St	1956	1960 / 1977	-	Y	-
7. Indian Hills	3703	3	87 Spear St	1961	1971 / 2015	-	Y	-
7. Indian Hills	3703	4	77 Spear St	1959	-	-	Y	-
7. Indian Hills	3703	5	71 Spear St	1959	1971 / 2007	-	Y	-
7. Indian Hills	3703	6	63 Spear St	1959	1976 / 1987 / 1993	-	Y	-
7. Indian Hills	3703	8	57 Spear St	1959	2008 / 2012	-	Y	208 - Inground pool installed
7. Indian Hills	3703	9	51 Spear St	1959	1980	-	N	-
7. Indian Hills	3703	10	45 Spear St	1959	1975 / 1988	-	Y	-
7. Indian Hills	3703	11	39 Spear St	1959	-	-	Y	-
7. Indian Hills	3703	12	33 Spear St	1959	-	-	Y	-
7. Indian Hills	3703	13	27 Spear St	1960	2013	-	Y	-
7. Indian Hills	3703	14	21 Spear St	1959	1968 / 1985 / 2005	-	Y	1968 - Septic tank replaces cesspool
7. Indian Hills	3703	15	15 Spear St	1956	1970	-	Y	1970 - Septic tank replaces cesspool
7. Indian Hills	3703	16	11 Spear St	1956	1980 / 1988	-	N	-
7. Indian Hills	3703	17	7 Spear St	1956	-	-	N	-
7. Indian Hills	3703	18	3 Spear St	1956	1969 / 1983 / 1998	1983 - Sewerage Leak	N	-
7. Indian Hills	3703	19	23 Sheffield St	1956	1982 / 2006	-	N	2006 - Addition to home
7. Indian Hills	3703	20	19 Sheffield St	1956	1964 / 1976 / 1992	-	N	-
7. Indian Hills	3703	21	15 Sheffield St	1956	1969 / 2014	-	N	-
7. Indian Hills	3703	22	11 Sheffield St	1956	1997	-	N	-
7. Indian Hills	4101	12	119 Yawpo Ave	1957	-	-	N	2012 - Cracks in tank found, suggested to repair
7. Indian Hills	4101	13	117 Yawpo Ave	1959	1973	-	N	-
7. Indian Hills	4101	14	115 Yawpo Ave	1969	1981 / 1996	1996 - System Malfuncion	N	-
7. Indian Hills	4101	15	113 Yawpo Ave	1957	1964 / 1999	-	Y	-
7. Indian Hills	4101	16	111 Yawpo Ave	1949	2013	-	Y	2013 - 1000gal UTS removed from backyard
7. Indian Hills	4101	17	109 Yawpo Ave	1967	2012	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 7: Indian Hills

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
7. Indian Hills	4101	18	107 Yawpo Ave	1958	1998	-	Y	-
7. Indian Hills	4101	19	105 Yawpo Ave	1956	1991	-	Y	-
7. Indian Hills	4101	20	103 Yawpo Ave	1957	1962 / 1998	-	Y	1998 - New System
7. Indian Hills	4101	21	101 Yawpo Ave	1957	1998 / 2002 / 2006	-	N	-
7. Indian Hills	4101	22	99 Yawpo Ave	1969	1977	1988/1999 - Septic odors, no overflow	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 8: Industrial Park

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
8. Industrial Park	3201	1	7 Wright Way	1975	1986 / 2002 / 2003	-	N	-
8. Industrial Park	3201	2	16 Thornton Rd	1979	1979 / 2013	-	N	-
8. Industrial Park	3201	3	12 Thornton Rd	1979	1998 / 2007 / 2013	-	N	-
8. Industrial Park	3201	4	8 Thornton Rd	1976	1999 / 2000	Odor coming from floor drains in restrooms	N	-
8. Industrial Park	3201	5	103 Bauer Drive	1970	1976 / 1977 / 1978 / 1996	-	Y	Also repaired in: 2005
8. Industrial Park	3201	6	99 Bauer Drive	1966	1975 / 1991	-	N	-
8. Industrial Park	3201	7	95 Bauer Drive	1969	1990 / 1991	-	N	-
8. Industrial Park	3201	9	215 Long Hill Rd	-	1987	-	N	-
8. Industrial Park	3201	12	199 Long Hill Rd	-	1985 / 1987	-	N	-
8. Industrial Park	3201	13	193 Long Hill Rd	1972	2003	-	N	-
8. Industrial Park	3201	14	187 Long Hill Rd	-	1984 / 1986	-	N	-
8. Industrial Park	3201	15	181 Long Hill Rd	1974	1990 / 2000 / 2003 / 2004	-	Y	Also repaired in: 2005
8. Industrial Park	3204	2	100 Bauer Drive	1966	1973 / 1979 / 2000 / 2001	Sewage odors in basement	N	Also repaired in: 2014
8. Industrial Park	3204	3	104 Bauer Drive	-	2000 / 2001	-	N	-
8. Industrial Park	3204	4	112 Bauer Drive	-	1976 / 1977 / 1995 / 1998	-	N	-
8. Industrial Park	3204	5	118 Bauer Drive	-	1977 / 2008	-	N	-
8. Industrial Park	3601	1	169 Page Dr	1957	-	-	Y	-
8. Industrial Park	3601	2	167 Page Dr	1957	1987 / 2006 / 2008	-	Y	2008 - Septic tank installed
8. Industrial Park	3601	3	165 Page Dr	1957	1976 / 1986 / 2012	Terrible septic odor	Y	-
8. Industrial Park	3601	4	163 Page Dr	1957	1987	-	Y	-
8. Industrial Park	3601	5	161 Page Dr	1957	1976	-	Y	-
8. Industrial Park	3601	6	159 Page Dr	1956	1973 / 1978	Overflowing sewage causing health hazard	Y	-
8. Industrial Park	3601	7	159 Page Dr	1956	1996 / 2008	-	Y	2008 - Kitchen addition
8. Industrial Park	3601	8	155 Page Dr	1956	1982 / 1997	-	Y	-
8. Industrial Park	3601	9	153 Page Dr	1957	1977	-	Y	-
8. Industrial Park	3601	10	151 Page Dr	1957	1988	Septic malfunction, ponding over seepage pit	Y	-
8. Industrial Park	3601	11	149 Page Dr	1961	-	-	Y	-
8. Industrial Park	3601	12	147 Page Dr	1962	1989 / 1996	Sewage leakage in front lawn is a health hazard	Y	-
8. Industrial Park	3601	13	145 Page Dr	1968	-	-	N	-
8. Industrial Park	3601	14	143 Page Dr	1968	-	-	N	-
8. Industrial Park	3601	15	137 Page Dr	1958	1966 / 1997	-	Y	-
8. Industrial Park	3601	16	10 Fox Ct	1959	-	-	N	-
8. Industrial Park	3601	17	12 Fox Ct	1963	1978 / 1989 / 2000	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 8: Industrial Park

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
8. Industrial Park	3601	18	15 Fox Ct	1960	2004	-	Y	-
8. Industrial Park	3601	19	11 Fox Ct	1962	1973 / 1991 / 2015	-	Y	1973 - Septic tank installed
8. Industrial Park	3601	20	129 Page Dr	1960	-	-	N	-
8. Industrial Park	3601	21	125 Page Dr	1960	2010	-	N	-
8. Industrial Park	3601	22	120 Dogwood Dr	1958	1971 / 2002 / 2003	-	Y	1971 - Septic tank installed
8. Industrial Park	3601	23	126 Dogwood Dr	1958	1971 / 2000	-	Y	1971 - Septic tank installed
8. Industrial Park	3601	24	132 Dogwood Dr	1957	1963 / 1974 / 1987 / 2003	-	Y	1974 - Septic tank installed
8. Industrial Park	3601	25	138 Dogwood Dr	1958	1968	-	Y	1968 - Septic tank installed
8. Industrial Park	3601	26	144 Dogwood Dr	1958	1973 / 1987	-	Y	-
8. Industrial Park	3601	27	150 Dogwood Dr	1958	1982 / 2003	-	Y	-
8. Industrial Park	3101	2	206 Long Hill Rd	-	1992 / 2011 / 2012	-	N	-
8. Industrial Park	3101	3	210 Long Hill Rd	1970	1994 / 2015	-	N	-
8. Industrial Park	3101	4	8 Breakneck Rd	1949	1974 / 1995	-	Y	-
8. Industrial Park	3101	5	20 Breakneck Rd	1975	1976 / 1986 / 2002	-	N	-
8. Industrial Park	3101	6	44 Breakneck Rd	1955	1989	-	Y	-
8. Industrial Park	3101	7	48 Breakneck Rd	-	1989 / 2004 / 2005	-	N	-
8. Industrial Park	3101	8	8 Breakneck Rd	-	2001 / 2002 / 2003	2 open wells on vacant property	N	-
8. Industrial Park	3101	9	100 Breakneck Rd	1978	1986 / 1998 / 2001 / 2006	-	N	-
8. Industrial Park	3101	11	122 Breakneck Rd	1958	2009	-	N	-
8. Industrial Park	3101	12	126 Breakneck Rd	1960	1983	-	N	-
8. Industrial Park	3101	13	134 Breakneck Rd	1957	-	-	Y	-
8. Industrial Park	3101	14	140 Breakneck Rd	1958	1981	-	N	-
8. Industrial Park	3101	15	146 Breakneck Rd	1954	-	-	N	-
8. Industrial Park	3101	16	150 Breakneck Rd	1973	2006	-	N	-
8. Industrial Park	3101	17	162 Breakneck Rd	1973	1991	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 9: Longhill

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
9. Longhill	3401	44	55 Long Hill Rd	1954	1971 / 1988	-	Y	-
9. Longhill	3401	45	59 Long Hill Rd	1960	2006	-	N	-
9. Longhill	3401	46	51 Long Hill Rd	1961	1968	-	N	-
9. Longhill	3401	47	10 Ponds Way	-	2006 / 2007	-	N	2006 - Finished basement with additional bedroom
9. Longhill	3401	48	13 Ponds Way	-	2012 / 2013	-	N	-
9. Longhill	3401	49	31 Long Hill Rd	1963	1999 / 2004	-	N	2006 - Sunroom addition
9. Longhill	3401	50	9 Ponds Way	-	2006	-	N	2005 - Finished basement added
9. Longhill	3401	51	5 Ponds Way	-	2004 / 2005	-	N	-
9. Longhill	3401	53	15 Long Hill Rd	1980	2004	-	N	-
9. Longhill	2801	1	50 Long Hill Rd	1968	2014	-	N	-
9. Longhill	2801	2	62 Long Hill Rd	1974	2004 / 2010 / 2011	-	Y	-
9. Longhill	2801	3	70 Long Hill Rd	1957	1993	-	N	-
9. Longhill	2801	4	74 Long Hill Rd	1963	2009	-	N	-
9. Longhill	2801	5	78 Long Hill Rd	1963	1975 / 2011 / 2012	Septic is running onto surface of ground	N	-
9. Longhill	2801	6	86 Long Hill Rd	1964	1971 / 1996 / 2015	-	N	-
9. Longhill	2801	7	94 Long Hill Rd	1969	-	Septic overflow	N	-
9. Longhill	2801	9	100 Long Hill Rd	1965	2008	-	N	-
9. Longhill	2801	10	104 Long Hill Rd	-	2003	-	N	-
9. Longhill	2801	11	20 Martha Pl	1955	1985	-	Y	-
9. Longhill	2801	12	30 Martha Pl	1967	-	-	N	-
9. Longhill	2801	13	4 Stone Fence Rd	1968	1993	-	N	-
9. Longhill	2801	14	10 Stone Fence Rd	1968	1974 / 1993 / 2012	Bed area not graded and seeded, bad odor from septic	N	-
9. Longhill	2801	15	16 Stone Fence Rd	1969	1985 / 2009	Odors in catch basin, wet basement, dry wells	N	
9. Longhill	2801	16	22 Stone Fence Rd	1969	1984 / 1985 / 2006 / 2013	-	N	-
9. Longhill	2801	17	28 Stone Fence Rd	1968	1979	-	N	-
9. Longhill	2801	18	36 Stone Fence Rd	1968	1989	-	N	-
9. Longhill	2801	19	38 Stone Fence Rd	-	1988 / 1989	-	N	-
9. Longhill	2801	20	40 Stone Fence Rd	-	1976 / 1978 / 1988 / 2006	-	N	-
9. Longhill	2801	40	91 Martha Pl	-	1969 / 2006	-	Y	-
9. Longhill	2801	41	89A Martha Pl	-	1979 / 2004	-	N	-
9. Longhill	2801	42	89 Martha Pl	1967	2002 / 2003 / 2006	-	N	-
9. Longhill	2801	44	83 Martha Pl	1965	1982 / 1996	-	N	-
9. Longhill	2801	45	79 Martha Pl	1956	1975 / 2004 / 2005	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 9: Longhill

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
9. Longhill	3301	1	67 Long Hill Rd	-	1996 / 2006	Septic overflowing into street	N	-
9. Longhill	3301	3	23 Thornton Rd	-	1985 / 2003	-	N	-
9. Longhill	3301	4	19 Thornton Rd	-	1985 / 2000 / 2007	-	N	-
9. Longhill	3301	5	Rear Thornton Rd	-	2005	-	N	-
9. Longhill	3301	7	12 Wright Way	-	1984 / 1985 / 1990	-	N	-
9. Longhill	3301	8	8 Wright Way	-	1983 / 1984 / 2002	-	N	-
9. Longhill	3301	9	169 Long Hill Rd	-	1983 / 1993 / 2010	-	N	2010 - Hot tub installed
9. Longhill	3301	10	163 Long Hill Rd	-	1996	Septic overflow on front yard	N	-
9. Longhill	3301	12	151 Long Hill Rd	1983	-	-	N	-
9. Longhill	3301	13	149 Long Hill Rd	-	1984 / 1985	-	N	-
9. Longhill	3301	14	147 Long Hill Rd	1966	1975	-	N	-
9. Longhill	3301	15	141 Long Hill Rd	1965	1986 / 2014	-	N	-
9. Longhill	3301	16	137 Long Hill Rd	-	1990	-	N	-
9. Longhill	3301	18	133 Long Hill Rd	1965	1974 / 1987	-	N	-
9. Longhill	3301	20	129 Long Hill Rd	-	1972 / 1986 / 2014	-	N	-
9. Longhill	3301	21	123 Long Hill Rd	1953	1984	-	N	-
9. Longhill	3301	22	115 Long Hill Rd	-	1972	-	Y	-
9. Longhill	3301	23	111 Long Hill Rd	-	1999	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 10: Manito

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
10. Manito	5004	10	38 Monhegan Ave	1957	1983 / 1989 / 1998	-	Y	-
10. Manito	5004	11	42 Monhegan Ave	1957	1984 / 2013	-	Y	-
10. Manito	5004	12	44 Monhegan Ave	1958	1979 / 1983 / 1992	1979 - System overflow	Y	-
10. Manito	5004	13	46 Monhegan Ave	1963	1985	1985 - System overflow	N	-
10. Manito	5004	14	48 Monhegan Ave	1958	1969 / 1994	-	Y	-
10. Manito	5004	15	50 Monhegan Ave	1958	1963 / 1986 / 1988	-	Y	-
10. Manito	5004	16	52 Monhegan Ave	1958	1989 / 1993	-	Y	-
10. Manito	5004	17	92 Manito Ave	1960	1970 / 1986	-	Y	-
10. Manito	5004	18	96 Manito Ave	1960	-	-	Y	-
10. Manito	5004	19	102 Manito Ave	1959	1974	-	Y	-
10. Manito	5004	20	108 Manito Ave	1961	1986	1973 - System overflow	Y	-
10. Manito	5004	21	112 Manito Ave	1961	1980 / 2000	1980 - Cesspool in front yard collapsed	Y	-
10. Manito	5004	22	118 Manito Ave	1959	1968 / 1974 / 1990 / 1997	1967 - System overflow	Y	-
10. Manito	5004	23	124 Manito Ave	1961	1991 / 2004	1976 - System Malfunciton	N	-
10. Manito	5004	24	14 Cayuga Ave	1963	-	-	Y	-
10. Manito	5004	25	13 Massasoit Trail	1963	1978 / 1987	1987 - Septic installed within 10ft from propertly line	Y	-
10. Manito	5004	26	9 Massasoit Trail	1964	1984	-	Y	-
10. Manito	5004	27	5 Massasoit Trail	1963	-	-	N	-
10. Manito	5004	28	3 Massasoit Trail	1965	1983 / 2012	-	N	-
10. Manito	5004	29	1 Massasoit Trail	1964	2004	-	N	-
10. Manito	5004	30	4 Massasoit Trail	1963	1987	-	N	-
10. Manito	5004	31	8 Massasoit Trail	1963	1985 / 2003	-	N	-
10. Manito	5004	32	12 Massasoit Trail	1963	1991 / 2014	-	N	-
10. Manito	5401	10	76 Pawnee Ave	1953	1955 / 1967 / 1994 / 2013	1955 - Cesspool overflow	Y	-
10. Manito	5401	11	78 Pawnee Ave	1951	1961 / 1971 / 2004	-	Y	-
10. Manito	5401	12	80 Pawnee Ave	1956	1972 / 1996 / 1999	-	Y	-
10. Manito	5401	13	82 Pawnee Ave	1955	1970 / 1984 / 1998 / 2003	-	Y	-
10. Manito	5401	14	84 Pawnee Ave	1955	2015	-	N	2015 - New System
10. Manito	5401	15	86 Pawnee Ave	1958	1974 / 1988	-	N	-
10. Manito	5401	16	88 Pawnee Ave	1955	1968 / 1970 / 2011	-	Y	-
10. Manito	5401	17	90 Pawnee Ave	1955	-	-	N	-
10. Manito	5401	18	92 Pawnee Ave	1961	2003	-	Y	-
10. Manito	5401	19	96 Pawnee Ave	1962	1980 / 1998	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 10: Manito

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
10. Manito	5401	20	98 Pawnee Ave	1958	1986	-	N	-
10. Manito	5401	25	110 Pawnee Ave	1957	1970 / 2004	-	Y	-
10. Manito	5401	26	112 Pawnee Ave	1955	1979	-	Y	-
10. Manito	5401	27	114 Pawnee Ave	1955	1959 / 2007 / 2010	-	Y	-
10. Manito	5401	28	118 Pawnee Ave	1957	2013	-	N	-
10. Manito	5401	29	71 Monhegan Ave	1957	-	-	Y	-
10. Manito	5401	30	69 Monhegan Ave	1956	1972 / 1994	-	Y	-
10. Manito	5401	31	67 Monhegan Ave	1958	1965 / 2009	-	N	-
10. Manito	5401	32	65 Monhegan Ave	1956	1979 / 2002 /	-	Y	-
10. Manito	5401	33	63 Monhegan Ave	1958	1989	-	N	-
10. Manito	5401	35	85 Manito Ave	1958	1989 / 2012	-	N	-
10. Manito	5401	36	81 Manito Ave	1961	1999	-	Y	-
10. Manito	5401	37	79 Manito Ave	1957	1988	-	N	-
10. Manito	5201	14	23 Wenonah Ave	1957	1993 / 2004	-	Y	-
10. Manito	5201	15	21 Wenonah Ave	1957	1970 / 2009	-	Y	-
10. Manito	5201	16	19 Wenonah Ave	1960	1990	-	Y	-
10. Manito	5201	17	17 Wenonah Ave	1959	1973 / 1982 / 2005	-	Y	-
10. Manito	5201	18	13 Wenonah Ave	1958	2001 / 2015	-	Y	-
10. Manito	5201	19	98 Minnehaha Blvd	1960	1978 / 2015	-	N	-
10. Manito	5201	20	100 Minnehaha Blvd	1957	1978	-	Y	-
10. Manito	5201	21	102 Minnehaha Blvd	1958	1970	-	N	-
10. Manito	5201	22	106 Minnehaha Blvd	1960	1974 / 1981	-	N	-
10. Manito	5201	23	672 Ramapo Valley Rd	1960	1980	-	N	-
10. Manito	5201	24	674 Ramapo Valley Rd	1958	-	-	N	-
10. Manito	5201	25	676 Ramapo Valley Rd	1953	-	-	-	-
10. Manito	5201	27	680 Ramapo Valley Rd	1956	1978 / 2009	-	N	-
10. Manito	5201	28	686 Ramapo Valley Rd	1958	-	-	Y	-
10. Manito	5201	29	688 Ramapo Valley Rd	1969	2001	-	N	-
10. Manito	5201	30	690 Ramapo Valley Rd	1954	1982	-	N	-
10. Manito	5201	31	692 Ramapo Valley Rd	-	1979 / 1983	-	N	-
10. Manito	5201	32	694 Ramapo Valley Rd	1968	-	-	N	-
10. Manito	5201	33	698 Ramapo Valley Rd	1967	1973 / 1985 / 1989	Sewage on front lawn coming from leaking septic tank	N	-
10. Manito	5201	34	702 Ramapo Valley Rd	1956	1967 / 1985 / 2003	Sewage on front lawn coming from leaking septic tank	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 10: Manito

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
10. Manito	5201	35	6 Pawnee Ave	1955	1979 / 2005	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 11: Mirror Lake

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
11. Mirror Lake	4401	1	10 Purdue Ave	1959	1969 / 2009	-	N	-
11. Mirror Lake	4401	2	14 Purdue Ave	1983	1986 / 2013		N	Subdivision
11. Mirror Lake	4401	3	16 Purdue Ave	1983	1985	1987 - System Malfunction	N	Subdivision
11. Mirror Lake	4401	4	107 Franklin Ave	1973	2001 / 2014		N	
11. Mirror Lake	4401	5	20 Purdue Ave	1959	-		N	
11. Mirror Lake	4401	20	35 Franklin Ave	1974	2004 / 2006		N	Subdivision / (Scardo's Spring onsite)
11. Mirror Lake	4401	21	29 Franklin Ave	1984	-		N	
11. Mirror Lake	4401	22	25 Franklin Ave	1963	2000		N	
11. Mirror Lake	4401	23	21 Franklin Ave	1962	1991		N	
11. Mirror Lake	4401	24	6 Hiawatha Blvd	1973	2014		N	
11. Mirror Lake	4401	25	8 Hiawatha Blvd	1973	1988		N	
11. Mirror Lake	4401	37	11 Pine Crest Dr	1961	1999		Y	
11. Mirror Lake	4401	38	15 Pine Crest Dr	1961	2004		Y	
11. Mirror Lake	4401	39	17 Pine Crest Dr	1961	1989		Y	
11. Mirror Lake	4401	40	19 Pine Crest Dr	1961	-		Y	
11. Mirror Lake	4401	41	21 Pine Crest Dr	1961	1972 / 1986		Y	
11. Mirror Lake	4401	42	20 Pine Crest Dr	-	2000 / 2014		-	
11. Mirror Lake	4401	43	18 Pine Crest Dr	-	1975 / 1999 / 2007		Y	
11. Mirror Lake	4401	44	16 Pine Crest Dr	1961	2004		Y	
11. Mirror Lake	4401	45	14 Pine Crest Dr	1961	-		Y	
11. Mirror Lake	4601	2	524 Ramapo Valley Rd	1966	2005	5/11/89 Storm drains picking up septic. 6/21/89 No	N	2005 - Replace both tanks and outlet pipes
11. Mirror Lake	4601	5	19 Tecumseh Trail	1959	-	-	N	-
11. Mirror Lake	4601	6	15 Tecumseh Trail	-	2003	-	Y	2003 - New Septic, Removed Cesspool
11. Mirror Lake	4601	7	13 Tecumseh Trail	-	1998 / 2006	1998 - Septic system overflowing onto ground	N	1998 - New system / 2006 - Disposal field moved
11. Mirror Lake	4601	8	9 Tecumseh Trail	1963	1977 / 2001	-	N	2001 - Entire new system
11. Mirror Lake	4601	11	6 Tecumseh Trail	1960	1978	-	N	-
11. Mirror Lake	4601	12	10 Tecumseh Trail	1960	1978 / 1998	-	N	1998 - New disposal field
11. Mirror Lake	4601	16	26 Tecumseh Trail	1960	1998	-	Y	1998 - New Septic, Removed Cesspool
11. Mirror Lake	4601	17	28 Tecumseh Trail	1960	2001	-	N	2001 - New system
11. Mirror Lake	4601	18	53 Hiawatha Blvd	-	1971 / 1994	-	N	-
11. Mirror Lake	4601	19	51 Hiawatha Blvd	1957	1993	-	N	-
11. Mirror Lake	4601	24	41 Hiawatha Blvd	1957	1971 / 2009 / 2013	2009 - Water intrusion into septic	Y	1971 - Cesspool Removed
11. Mirror Lake	4601	25	39 Hiawatha Blvd	1955	1968 / 2002	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 11: Mirror Lake

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
11. Mirror Lake	4601	26	37 Hiawatha Blvd	1957	1973 / 2000	2000 - Septic system overflowing onto ground	N	-
11. Mirror Lake	4601	29	25 Hiawatha Blvd	1959	1978 / 2003	-	N	1978 - seepage pit relocated
11. Mirror Lake	4601	31	21 Hiawatha Blvd	1968	-	-	N	-
11. Mirror Lake	4601	32	19 Hiawatha Blvd	1960	1974	-	N	-
11. Mirror Lake	4601	33	15 Hiawatha Blvd	1956	1964 / 1998	-	N	1998 - New system
11. Mirror Lake	4601	34	13 Hiawatha Blvd	1972	-	-	N	-
11. Mirror Lake	4601	35	11 Hiawatha Blvd	1971	2009	-	N	-
11. Mirror Lake	4602	1	52 Hiawatha Blvd	1956	-	-	Y	-
11. Mirror Lake	4602	2	6 Oswego Ave	1956	1970 / 1986 / 2012	1970/1986/1992 - overflowing system	Y	1967 - Cesspool Removed
11. Mirror Lake	4602	3	8 Oswego Ave	1966	1974 / 1985 / 1992 / 2011	1985 / 2011 - Photos of rawr sewege on ground	-	1985 - Sewege flowing offsite, courts involved to fix
11. Mirror Lake	4602	4	10 Oswego Ave	1959	1998	-	Y	1998 - New system
11. Mirror Lake	4602	5	12 Oswego Ave	1960	2014	-	Y	-
11. Mirror Lake	4602	6	14 Oswego Ave	1970	1981 / 1996	-	N	-
11. Mirror Lake	4602	7	16 Oswego Ave	1957	-	-	N	-
11. Mirror Lake	4602	8	18 Oswego Ave	1959	1982 / 2000	-	Y	-
11. Mirror Lake	4602	9	20 Oswego Ave	-	1984 / 2014	-	Y	2014 - Cesspool Removed
11. Mirror Lake	4602	10	22 Oswego Ave	-	1972 / 2003	1972 - Septic system overflow	N	-
11. Mirror Lake	4602	11	24 Oswego Ave	1959	1985 / 1996	-	Y	-
11. Mirror Lake	4602	12	26 Oswego Ave	1954	1999	-	Y	-
11. Mirror Lake	4602	14	31 Calumet Ave	1957	1984 / 2002	1984 - Overflowing system	N	-
11. Mirror Lake	4602	15	29 Calumet Ave	-	1972 / 1996 / 2002	-	N	-
11. Mirror Lake	4602	16	27 Calumet Ave	1964	1987	-	N	-
11. Mirror Lake	4602	17	25 Calumet Ave	1953	-	-	N	-
11. Mirror Lake	4602	18	23 Calumet Ave	1957	1966	-	N	-
11. Mirror Lake	4602	19	21 Calumet Ave	1955	-	-	Y	-
11. Mirror Lake	4602	20	19 Calumet Ave	1958	2006	-	N	-
11. Mirror Lake	4602	21	15 Calumet Ave	1954	1962 / 1996	-	N	-
11. Mirror Lake	4602	22	13 Calumet Ave	1957	1983	1983 - Overflowing system	Y	-
11. Mirror Lake	4602	23	11 Calumet Ave	1963	1989 / 2010	-	N	1989 - New Bed
11. Mirror Lake	4602	24	9 Calumet Ave	1962	1998	-	N	-
11. Mirror Lake	4602	25	7 Calumet Ave	1963	1984	1984 - Overflowing system	Y	-
11. Mirror Lake	4602	26	3 Calumet Ave	1959	1964 / 2011	-	N	1964 - Moved bed, new drainage easement onsite
11. Mirror Lake	4602	27	33 Seminole Ave	1961	1973 / 2005	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 11: Mirror Lake

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
11. Mirror Lake	4602	28	31 Seminole Ave	1954	1967 / 2011	-	Y	2011 - Plan show an existing cesspool
11. Mirror Lake	4602	29	27 Seminole Ave	1955	2011	-	Y	-
11. Mirror Lake	4602	31	Seminole Ave	1957	1995	-	-	Proposed subdivision
11. Mirror Lake	4602	34	20 Hiawatha Ave	1954	1968 / 1985	-	Y	-
11. Mirror Lake	4602	35	24 Hiawatha Ave	1955	1975	-	Y	-
11. Mirror Lake	4602	36	28 Hiawatha Ave	1953	1981 / 2014	-	Y	-
11. Mirror Lake	4602	38	34 Hiawatha Ave	1956	1990	-	N	-
11. Mirror Lake	4602	39	38 Hiawatha Ave	-	1992	-	Y	-
11. Mirror Lake	4602	40	42 Hiawatha Ave	1957	1965 / 1981 / 2005	1981 - Overflowing system	N	-
11. Mirror Lake	4602	41	44 Hiawatha Ave	-	1959 / 1964 / 2005	1959,1964 - Overflowing system	Y	-
11. Mirror Lake	4602	42	46 Hiawatha Ave	1955	1970 / 2005	1970,1972 - Overflowing system	N	-
11. Mirror Lake	4602	43	48 Hiawatha Ave	1959	1975 / 1979 / 1994 / 2008	1975,1979 - Drainage complaints	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 12: Munic & Rec

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
12. Munic & Rec	1901	2	20 Lawlor Dr	1966	1991	-	N	Senior Center
12. Munic & Rec	1901	4	285 Ramapo Valley Road	1961	1995	Motor oil in septic tank	Y	First Aid Building
12. Munic & Rec	1901	5	39 Butternut Ct	1988	1990	-	N	-
12. Munic & Rec	1901	6	35 Butternut Ct	1988	1990	-	N	-
12. Munic & Rec	1901	7	31 Butternut Ct	1988	1993	-	N	-
12. Munic & Rec	1901	8	27 Butternut Ct	1988	1989	-	N	-
12. Munic & Rec	1901	9	23 Butternut Ct	1988	1989 / 2011 / 2012	-	N	-
12. Munic & Rec	1901	10	19 Butternut Ct	1988	1993	-	Y	1993 - Septic tank installed
12. Munic & Rec	1901	11	15 Lawlor Dr	1988	2009	-	N	-
12. Munic & Rec	1901	12	279 Ramapo Valley Road	1956	1980 / 1986	-	Y	-
12. Munic & Rec	1901	13	281 Ramapo Valley Road	1953	1964	-	Y	-
12. Munic & Rec	1901	14	277 Ramapo Valley Road	1977	2012	Open well between house and adjacent propoerty	N	-
12. Munic & Rec	1901	15	267 Ramapo Valley Road	-	1986	-	N	-
12. Munic & Rec	1901	16	14 Aspen Way	1967	-	-	N	-
12. Munic & Rec	1901	17	18 Aspen Way	1967	1980	-	N	-
12. Munic & Rec	1901	18	22 Aspen Way	1968	-	-	N	-
12. Munic & Rec	1901	19	26 Aspen Way	1967	1990	-	N	-
12. Munic & Rec	1901	20	30 Aspen Way	1967	2014	-	N	-
12. Munic & Rec	1901	21	34 Aspen Way	1968	2007	-	Y	-
12. Munic & Rec	1901	22	38 Aspen Way	1968	1969 / 2007	-	Y	1969 - Septic tank installed / 2007 - Pool replaced
12. Munic & Rec	1901	23	35 Aspen Way	1967	1969	-	N	-
12. Munic & Rec	1901	24	31 Aspen Way	1967	1986 / 2006	-	N	-
12. Munic & Rec	1901	25	27 Aspen Way	1967	2006 / 2009	-	N	-
12. Munic & Rec	1901	26	23 Aspen Way	1968	-	-	N	-
12. Munic & Rec	1901	27	19 Aspen Way	1967	-	-	N	-
12. Munic & Rec	1901	28	15 Aspen Way	1967	-	-	N	-
12. Munic & Rec	1901	29	11 Aspen Way	1969	2009	-	N	-
12. Munic & Rec	1901	30	261 Ramapo Valley Road	1962	-	-	N	-
12. Munic & Rec	1901	31	259 Ramapo Valley Road	1958	1994 / 1995 / 2004	-	N	-
12. Munic & Rec	1901	32	255 Ramapo Valley Road	1960	1971 / 1984	-	Y	-
12. Munic & Rec	1901	33	4 Bailey Ave	1984	1986 / 2015	-	N	-
12. Munic & Rec	1901	34	10 Bailey Ave	1948	1989	-	Y	-
12. Munic & Rec	1901	35	18 Bailey Ave	1969	-	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 12: Munic & Rec

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
12. Munic & Rec	1901	36	20 Bailey Ave	1959	2000	-	Y	-
12. Munic & Rec	1803	1	63 Oak St	1966	1978 / 1995	-	N	Oakland DPW
12. Munic & Rec	1803	2	41 Oak St	1958	2003	-	N	-
12. Munic & Rec	1803	5	35 Oak St	1967	1972 / 1978	-	N	-
12. Munic & Rec	1803	6	31 Oak St	1949	1983	Sewage leakage causing health hazards	Y	1983 - Septic tank installed
12. Munic & Rec	1803	8	29 Oak St	-	1992	-	N	-
12. Munic & Rec	1803	9	23 Oak St	1968	-	-	Y	-
12. Munic & Rec	1803	10	21 Oak St	1960	2000	-	Y	-
12. Munic & Rec	1803	11	17 Oak St	-	2000	-	N	-
12. Munic & Rec	1803	12	13 Oak St	1966	1995	-	N	-
12. Munic & Rec	1803	14	9 Oak St	1960	-	-	Y	-
12. Munic & Rec	1803	18	Municipal Plaza	1955	1966 / 1971 / 2001 / 2003	-	Y	1971 - Septic tank install / Also repaired in: 2014, 2015
12. Munic & Rec	1803	19	315 Ramapo Valley Road	1957	1999 / 2010 / 2012 / 2013	Catch basin loaded with grease	Y	-
12. Munic & Rec	1803	21	65 Oak St	1956	-	-	N	American Legion Post # 369

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 13: Potash Lake

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
13. Potash Lake	2205	2	49 Island Terr	1959	1985	Septic overflow	N	-
13. Potash Lake	2205	3	45 Island Terr	1972	1982	-	N	-
13. Potash Lake	2205	4	41 Island Terr	1973	-	-	N	1988 - Replaced existing deck
13. Potash Lake	2205	5	33 Island Terr	1964	1969 / 1990	-	N	-
13. Potash Lake	2205	7	3 Island Terr	-	2001	-	N	-
13. Potash Lake	2203	1	76 Island Terr	-	1992	-	N	-
13. Potash Lake	2203	3	60 Island Terr	1964	1968 / 1981	Septic tank overflowing	Y	1968 - Septic tank installed
13. Potash Lake	2203	5	58 Island Terr	1965	1970 / 1983	-	Y	1970 - Cesspool installed
13. Potash Lake	2203	6	54 Island Terr	1964	2015	-	N	-
13. Potash Lake	2203	7	46 Island Terr	-	1970 / 1994	-	N	-
13. Potash Lake	2203	8	42 Island Terr	1965	1982 / 2013	-	N	2013 - Emergency Overflow trench added
13. Potash Lake	2203	9	36 Island Terr	1956	1973	-	N	2009 - New deck installed
13. Potash Lake	2203	11	24 Island Terr	1955	-	-	Y	-
13. Potash Lake	2518	1	137 Lakeview Terr	1972	1995	Overflowing septic system	N	-
13. Potash Lake	2518	2	133 Lakeview Terr	-	1991	-	N	-
13. Potash Lake	2518	4	123 Lakeview Terr	-	1993	-	N	-
13. Potash Lake	2518	5	117 Lakeview Terr	1972	1975	-	N	-
13. Potash Lake	2518	7	113 Lakeview Terr	1965	1970	Overflowing septic system	N	-
13. Potash Lake	2518	8	107 Lakeview Terr	1964	1973	Overflowing septic system on side yard	N	-
13. Potash Lake	2518	9	105 Lakeview Terr	-	1971 / 2007 / 2008	-	N	-
13. Potash Lake	2518	10	103 Lakeview Terr	-	1981	-	N	-
13. Potash Lake	2518	11	99 Lakeview Terr	1963	1971	-	N	-
13. Potash Lake	2518	12	93 Lakeview Terr	1949	1992 / 2008	Septic tank overflowing , Water in basement	N	-
13. Potash Lake	2518	13	89 Lakeview Terr	-	1979	-	N	-
13. Potash Lake	2518	14	87 Lakeview Terr	-	1989	-	N	-
13. Potash Lake	2518	15	85 Lakeview Terr	-	1989	-	N	1989 - New septic tank installed
13. Potash Lake	2518	16	81 Lakeview Terr	-	1976	Spetic tank overflowing in front yard onto driveway	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 15: Industrial

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
15. Industrial	102	1	424 W Oakland Ave	1954	1971 / 1992	-	Y	1971 - Septic tank installed
15. Industrial	102	2	422 W Oakland Ave	1955	1984	-	Y	-
15. Industrial	102	3	416 W Oakland Ave	1958	1996 / 2013	-	Y	-
15. Industrial	102	4	412 W Oakland Ave	-	1970 / 1985	-	N	-
15. Industrial	102	5	408 W Oakland Ave	-	1980	-	N	-
15. Industrial	102	6	404 W Oakland Ave	1956	2012	-	N	-
15. Industrial	102	7	400 W Oakland Ave	1954	1984	-	Y	-
15. Industrial	102	8	396 W Oakland Ave	1954	2001 / 2004	-	Y	-
15. Industrial	102	9	392 W Oakland Ave	1954	1975 / 2000	-	Y	-
15. Industrial	102	10	388 W Oakland Ave	1957	1983	-	Y	1983 - In ground pool installed
15. Industrial	102	11	384 W Oakland Ave	1956	1977 / 1981 / 2014	-	Y	-
15. Industrial	102	12	7 Pool Hollow Ave	1966	-	-	N	-
15. Industrial	102	13	5 Pool Hollow Ave	1966	-	-	N	-
15. Industrial	102	14	380 W Oakland Ave	1958	-	-	Y	-
15. Industrial	201	1	Edison Ave	-	2002 / 2009	-	N	-
15. Industrial	201	2	50 Edison Ave	1969	1972 / 1997	-	N	-
15. Industrial	201	3	28 Edison Ave	1969	-	-	N	-
15. Industrial	201	4	38 Edison Ave	1984	1986	-	N	-
15. Industrial	201	5	40 Edison Ave	1984	1985 / 2010	-	N	-
15. Industrial	201	6	65 Edison Ave	1985	1986 / 1987	-	N	-
15. Industrial	201	9	45 Edison Ave	1977	1978 / 1986 / 2015	-	N	-
15. Industrial	201	10	37 Edison Ave	1972	1974	-	N	-
15. Industrial	201	11	29 Edison Ave	1986	1988	-	N	-
15. Industrial	201	12	19 Edison Ave	1977	1978	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 17: Ramapo River

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
17. Ramapo River	1301	7	599 Ramapo Valley Rd	1959	1997	-	Y	-
17. Ramapo River	1301	9	2 Thunderbird Dr	1962	1990 / 2004	-	Y	-
17. Ramapo River	1301	10	6 Thunderbird Dr	1961	1969 / 1982	-	Y	2015 - Still using greywater cesspool with the septic
17. Ramapo River	1301	11	14 Thunderbird Dr	1961	2005	-	Y	-
17. Ramapo River	1301	12	20 Thunderbird Dr	1962	1994	-	Y	-
17. Ramapo River	1301	13	26 Thunderbird Dr	1962	-	-	Y	-
17. Ramapo River	1301	14	32 Thunderbird Dr	1962	1982	-	Y	-
17. Ramapo River	1301	15	44 Thunderbird Dr	1962	1980	-	Y	-
17. Ramapo River	1301	16	7 Arapaho Ct	1962	1970	-	Y	-
17. Ramapo River	1301	17	11 Arapaho Ct	1963	2013	-	Y	-
17. Ramapo River	1301	18	12 Arapaho Ct	1962	2007 / 2014	-	Y	-
17. Ramapo River	1301	19	10 Arapaho Ct	1962	-	-	Y	-
17. Ramapo River	1301	20	6 Arapaho Ct	1962	2009	-	Y	-
17. Ramapo River	1301	21	2 Arapaho Ct	1963	1971	-	Y	-
17. Ramapo River	1301	22	56 Thunderbird Dr	1963	1988 / 2012	-	Y	-
17. Ramapo River	1301	23	595 Ramapo Valley Rd	1956	1996	-	Y	-
17. Ramapo River	1301	24	61 Thunderbird Dr	1992	1993	-	N	1992 - New construction
17. Ramapo River	1301	25	57 Thunderbird Dr	1963	1978 / 1987	-	Y	-
17. Ramapo River	1301	26	51 Thunderbird Dr	1963	2013	-	Y	-
17. Ramapo River	1301	27	45 Thunderbird Dr	1962	2006	-	N	-
17. Ramapo River	1301	28	39 Thunderbird Dr	1962	-	-	Y	-
17. Ramapo River	1301	29	33 Thunderbird Dr	1962	1985	-	Y	-
17. Ramapo River	1301	30	27 Thunderbird Dr	1962	2003	-	Y	-
17. Ramapo River	901	11	69 Glen Gray Rd	1963	1999	-	N	-
17. Ramapo River	901	12	65 Glen Gray Rd	1963	-	-	N	-
17. Ramapo River	901	13	59 Glen Gray Rd	1962	-	-	N	-
17. Ramapo River	901	14	51 Glen Gray Rd	1962	-	-	N	-
17. Ramapo River	901	15	45 Glen Gray Rd	1961	-	-	N	-
17. Ramapo River	901	16	39 Glen Gray Rd	1962	1980	-	N	-
17. Ramapo River	901	17	25 Glen Gray Rd	1973	1976 / 1982 / 2001	1982 - Septic overflow	Y	-
17. Ramapo River	901	18	17 Glen Gray Rd	1973	1976	-	Y	-
17. Ramapo River	901	19	9 Glen Gray Rd	1969	1979 / 2001	-	N	-
17. Ramapo River	901	20	855 Ramapo Valley Rd	1949	1956 / 1967 / 2001	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 17: Ramapo River

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
17. Ramapo River	901	21	845 Ramapo Valley Rd	1974	2002 /	-	N	-
17. Ramapo River	901	22	837 Ramapo Valley Rd	1974	1980 / 2015	-	N	-
17. Ramapo River	901	23	833 Ramapo Valley Rd	1979	1982	-	N	-
17. Ramapo River	901	24	829 Ramapo Valley Rd	1979	-	-	N	-
17. Ramapo River	901	25	819 Ramapo Valley Rd	1961	1968 / 1972	-	N	-
17. Ramapo River	901	26	815 Ramapo Valley Rd	1960	1998	-	N	-
17. Ramapo River	901	27	807 Ramapo Valley Rd	1959	1970 / 1972 / 1997 / 2005	-	N	-
17. Ramapo River	901	23	833 Ramapo Valley Rd	1979	1982	-	N	-
17. Ramapo River	901	24	829 Ramapo Valley Rd	1979	-	-	N	-
17. Ramapo River	901	25	819 Ramapo Valley Rd	1961	1968 / 1972	-	N	-
17. Ramapo River	901	26	815 Ramapo Valley Rd	1960	1998	-	N	-
17. Ramapo River	901	27	807 Ramapo Valley Rd	1959	1970 / 1972 / 1997 / 2005	-	N	-
17. Ramapo River	901	28	799 Ramapo Valley Rd	1961	1996	-	N	-
17. Ramapo River	901	29	791 Ramapo Valley Rd	-	1997	-	N	1996 - Subdivision
17. Ramapo River	901	30	781 Ramapo Valley Rd	1997	1999 / 2001	-	N	2000 - Subdivision
17. Ramapo River	901	31	773 Ramapo Valley Rd	1978	1988 / 1997	-	Y	-
17. Ramapo River	901	33	2 Valley Forge Rd	1998	-	-	N	-
17. Ramapo River	901	34	4 Valley Forge Rd	1998	-	-	N	-
17. Ramapo River	901	35	6 Valley Forge Rd	1998	-	-	N	-
17. Ramapo River	901	36	8 Valley Forge Rd	1998	-	-	N	-
17. Ramapo River	1002	1	28 Saratoga Dr	1965	1999	-	N	-
17. Ramapo River	1002	2	12 Heath Rd	1966	1980 / 2008	-	N	-
17. Ramapo River	1002	3	18 Heath Rd	1967	-	-	N	-
17. Ramapo River	1002	4	23 Brandywine Pl	1971	2014	-	N	2014 - New System
17. Ramapo River	1002	5	17 Brandywine Pl	1970	-	-	N	-
17. Ramapo River	1002	6	15 Brandywine Pl	1972	-	-	N	-
17. Ramapo River	1002	7	9 Brandywine Pl	1968	-	-	N	-
17. Ramapo River	1002	8	5 Brandywine Pl	1969	-	-	N	-
17. Ramapo River	1002	9	14 Gates End	1965	-	-	N	-
17. Ramapo River	1002	10	10 Gates End	1965	-	-	N	-
17. Ramapo River	1002	11	4 Gates End	1967	2008	-	N	-
17. Ramapo River	1002	12	13 Gates End	1964	1984	-	N	-
17. Ramapo River	1002	13	9 Gates End	1964	-	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 18: Skyline

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
18. Skyline	401	8,9	175 Skyline Dr	1977	1988	-	N	-
18. Skyline	401	10	155 Skyline Dr	1977	-	-	N	-
18. Skyline	401	11	149 Skyline Dr	1958	-	-	N	-
18. Skyline	401	12	137 Skyline Dr	1966	1972 / 1982	-	N	-
18. Skyline	401	14	125 Skyline Dr	1956	-	-	Y	-
18. Skyline	401	15	115 Skyline Dr	1967	2001	-	N	-
18. Skyline	402	3	119 Truman Blvd	1959	-	-	Y	-
18. Skyline	402	4	115 Truman Blvd	1956	-	-	N	-
18. Skyline	402	5	109 Truman Blvd	1962	1988 / 2008	-	N	2008 - New system
18. Skyline	402	7	101 Truman Blvd	1972	-	-	N	-
18. Skyline	402	8	99 Truman Blvd	1963	1989 / 2000	-	N	-
18. Skyline	402	9	97 Truman Blvd	1961	1973 / 2004	-	N	-
18. Skyline	402	10	95 Truman Blvd	1968	1977 / 2013	-	N	-
18. Skyline	402	11	93 Truman Blvd	1967	-	-	N	-
18. Skyline	402	12	91 Truman Blvd	1984	1986	-	N	-
18. Skyline	402	13	87 Truman Blvd	1984	-	-	N	-
18. Skyline	402	14	83 Truman Blvd	1984	-	-	N	1984 - Subdivision into 3 lots
18. Skyline	402	15	81 Truman Blvd	1966	1980 / 2002	1975,1977 - System Malfunction	N	-
18. Skyline	402	16	79 Truman Blvd	1968	2013	-	N	-
18. Skyline	402	19	65 Truman Blvd	1960	-	-	Y	-
18. Skyline	402	20	61 Truman Blvd	1989	1991	-	N	-
18. Skyline	402	44	66 Skyline Dr	1955	2003	-	Y	-
18. Skyline	402	45	70 Skyline Dr	1956	2004	-	Y	-
18. Skyline	402	46	76 Skyline Dr	1957	2015	-	Y	-
18. Skyline	402	47	90 Skyline Dr	1958	-	-	N	-
18. Skyline	402	48	106 Skyline Dr	1978	-	-	N	1978 - New System
18. Skyline	402	50	118 Skyline Dr	1960	2000	-	Y	-
18. Skyline	402	51	124 Skyline Dr	1958	2011	-	Y	2011 - New System
18. Skyline	402	52	130 Skyline Dr	1962	1996	-	Y	-
18. Skyline	402	53	140 Skyline Dr	1958	-	-	Y	-
18. Skyline	402	54	146 Skyline Dr	1959	1990	-	Y	-
18. Skyline	402	55	152 Skyline Dr	1959	1967 / 2003	-	Y	-
18. Skyline	402	56	158 Skyline Dr	1978	1985 / 1987 / 2000 / 2003	-	N	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 19: West Oakland

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
19. West Oakland	2001	1	48 A-B Park Dr	1976	-	-	N	-
19. West Oakland	2001	3	231 W Oakland Ave	1960	1964 / 1996	-	Y	1964 - Spetic tank installed
19. West Oakland	2001	7	4 Park Dr	1980	-	System Overflow onto ground	N	-
19. West Oakland	2001	8	6 Park Dr	1965	-	-	N	-
19. West Oakland	2001	9	8 Park Dr	-	2004 / 2005 / 2013	-	N	-
19. West Oakland	2001	10	10 Park Dr	1982	1991	Sewage leakage in rear yard	N	-
19. West Oakland	2001	11	12 Park Dr	1971	1988	-	N	1988 - New septic tank installed
19. West Oakland	2001	12	14 Park Dr	1966	1975 / 1987	-	N	-
19. West Oakland	2001	13	16 Park Dr	-	2002 / 2003 / 2004	-	N	-
19. West Oakland	2001	14	18 Park Dr	1970	1976 / 2000	Spetic tank leaking and causing odors in dwelling	N	-
19. West Oakland	2001	15	20 Park Dr	1973	1997	-	N	-
19. West Oakland	2001	16	22 Park Dr	1973	2000	Septic tank / pipes exposed causing health hazard	N	-
19. West Oakland	2001	17	24 Park Dr	1961	-	-	N	-
19. West Oakland	2001	18	26 Park Dr	1981	2008	-	N	-
19. West Oakland	2001	19	28 Park Dr	-	2008	-	N	-
19. West Oakland	2001	20	30 Park Dr	1973	2013	-	N	-
19. West Oakland	2001	21	32 Park Dr	-	1995 / 1997	-	N	1007 - Spetic tank replaced
19. West Oakland	2001	22	34 Park Dr	1973	-	-	N	-
19. West Oakland	2001	23	36 Park Dr	1970	1977 / 1994	-	N	-
19. West Oakland	2001	24	38 Park Dr	1970	-	-	N	-
19. West Oakland	2003	4	197 West Oakland Ave	1955	1963	-	Y	1963 - Septic Installed
19. West Oakland	2003	5	193 West Oakland Ave	-	2009	1979/1988 - Inspected,no issues,no record of tanks	Y	2009 - Remove cesspool
19. West Oakland	2003	6	189 West Oakland Ave	1957	1969	-	Y	-
19. West Oakland	2003	7	187 West Oakland Ave	-	1964	-	-	1964 - New tank
19. West Oakland	2003	8	183 West Oakland Ave	1986	1996	-	N	1986 - Subdivision (OKES-210-10)
19. West Oakland	2003	9	179 West Oakland Ave	1970	-	-	N	1986 - Subdivision
19. West Oakland	2003	10	173 West Oakland Ave	1960	1993	-	Y	1960 - Septic installed, abandoned cesspool till 1993
19. West Oakland	2003	11	171 West Oakland Ave	1973	-	-	Y	1973 - Septic Installed
19. West Oakland	2003	12	167 West Oakland Ave	-	2004	-	Y	2004 - Septic plans rejected
19. West Oakland	2003	13	163 West Oakland Ave	1954	1980 / 2004	-	Y	-
19. West Oakland	2003	14	159 West Oakland Ave	1975	1985	-	Y	1985 - Septic Installed
19. West Oakland	2004	1.1	6A Riverside Dr	1960	-	-	Y	-
19. West Oakland	2004	1.2	8A Riverside Dr	1960	-	-	Y	-

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 19: West Oakland

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
19. West Oakland	2004	1.3	10A Riverside Dr	1963	-	-	N	-
19. West Oakland	2004	1.4	12A Riverside Dr	1960	-	-	Y	-
19. West Oakland	2004	2.1	4 Riverside Dr	1969	2015	-	N	-
19. West Oakland	2004	2.2	55 Park Dr	1951	1967 / 1983 / 1988 / 2012	-	N	-
19. West Oakland	2004	4.1	6 Riverside Dr	1961	-	-	Y	-
19. West Oakland	2004	4.2	8 Riverside Dr	1960	-	-	Y	-
19. West Oakland	2004	5.1	10 Riverside Dr	1960	-	-	Y	-
19. West Oakland	2004	5.2	12 Riverside Dr	1960	-	-	Y	-
19. West Oakland	2004	7	18 Riverside Dr	1977	-	-	N	-
19. West Oakland	2004	8	22 Riverside Dr	1971	-	-	N	-
19. West Oakland	2004	9	26 Riverside Dr	1980	1983	-	Y	-
19. West Oakland	2004	10	30 Riverside Dr	1980	-	-	N	-
19. West Oakland	2004	11	32 Riverside Dr	1969	1977 / 1987	-	N	-
19. West Oakland	2004	12	34 Riverside Dr	-	1971	-	N	1971 - New septic tank installed
19. West Oakland	2004	13	36 Riverside Dr	1983	-	-	N	1983 - Septic tank installed
19. West Oakland	2004	14,15	40 Riverside Dr	1948	1956 / 1986	-	Y	-
19. West Oakland	2004	16	42 Riverside Dr	1960	-	Septic is being pumped out into the street	N	-
19. West Oakland	2004	17	44 Riverside Dr	1983	-	-	N	-
19. West Oakland	2004	18	46 Riverside Dr	1959	-	-	N	-
19. West Oakland	2004	19	48 Riverside Dr	1950	1966	-	Y	1966 - Septic tank installed
19. West Oakland	2004	20	52 Riverside Dr	1963	1983	-	Y	1982 - Septic tank installed
19. West Oakland	1805	1	115 West Oakland Ave	-	1980 / 1998		-	
19. West Oakland	1805	2	33 Hillside Ave	1960	1965 / 1979 / 1995		N	
19. West Oakland	1805	3	31 Hillsode Ave	1958	1993 / 2005		Y	1987 - Subdivide into 4 lots
19. West Oakland	1805	4	29 Hillside Ave	1992	-		N	
19. West Oakland	1805	5	23 Hillside Ave	1963	1986		N	
19. West Oakland	1805	6	19 Hillside Ave	1954	1968 / 2009		Y	
19. West Oakland	1805	7	15 Hillside Ave	1962	2011		Y	
19. West Oakland	1805	8	11 Hillside Ave	1949	1952 / 1960		Y	
19. West Oakland	1805	10	22 River Rd	1956	1962 / 1990 / 1993	1991 - Overflowing septic	N	NJDEP 0242-14-0001.1 FHA 140001
19. West Oakland	1805	11	24 River Rd	1961	1969 / 1972 / 1980 / 2010		N	NJDEP 0242-14-0002.1 FHA 140001
19. West Oakland	1805	12	26 River Rd	1954	1986 / 2000 / 2003	2012 - Bamboo onsite, Oakland told them to remove	Y	
19. West Oakland	1805	13	30 River Rd	1966	1985		N	

Boswell Engineering
330 Phillips Avenue
South Hackensack, NJ 07606

Borough of Oakland
Septic Problem Statement
OK-1585
Neighborhood 19: West Oakland

Neighborhood	Block/Lot		Street Address	Year Designed	Year Repaired	System Failures	Cesspool (Y/N)	Comments
19. West Oakland	1805	15	36 River Rd	1958	1972 / 1992		Y	
19. West Oakland	1805	16	38 River Rd	1963	1972 / 1990		N	
19. West Oakland	1702	6	62 River Rd	1954	1983 / 2009	1978 - Well water onsite contaminated	N	1964 - Fire destroyed the existing home
19. West Oakland	1702	8	24 Poplar St	1956	1981		N	
19. West Oakland	1702	9	53 Silver Birch Ave	1960	2001		N	
19. West Oakland	1702	11	43 Silver Birch Ave	1960	-		N	
19. West Oakland	1702	12	35 Silver Birch Ave	-	2003 / 2011		N	1990 - Subdivsion / 2011 - New System
19. West Oakland	1702	13	29 Silver Birch Ave	1953	1997		N	
19. West Oakland	1702	14	17 Silver Birch Ave	1958	1982 /		N	
19. West Oakland	1702	15	11 Silver Birch Ave	1959	-		Y	
19. West Oakland	1702	16	78 West Oakland Ave	1968	-		N	
19. West Oakland	1702	17	10 Valley View Ave	1959	1998		Y	
19. West Oakland	1702	22	21 Valley View Ave	1979	1995		N	
19. West Oakland	1702	23	19 Valley View Ave	1959	2009		Y	
19. West Oakland	1702	24	15 Valley View Ave	-	2014		-	2014 - New System
19. West Oakland	1702	25	9 Valley View Ave	-	1988	-	N	-
19. West Oakland	1702	26	90 & 94 W Oakland Ave	1952	1963 / 1977 / 2001	-	Y	-
19. West Oakland	1702	27	104 W Oakland Ave	1953	2005	Old oil pit not properly abandoned	Y	-

APPENDIX D – Bi-County Settlement

FILED

SEP 26 2001

JONATHAN N. HARRIS
J.S.C.

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Hawthorne, New Jersey 07507
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Attorneys for Plaintiff, PINNACLE COMMUNITIES LTD.

PINNACLE COMMUNITIES LTD. and BI-COUNTY DEVELOPMENT CORPORATION, Plaintiffs, vs. BOROUGH OF OAKLAND and TOWNSHIP OF WAYNE, Defendants.	SUPERIOR COURT OF NEW JERSEY LAW DIVISION BERGEN COUNTY DOCKET NO.: BER-L-8348-99 (Consolidated With BER-L-2444-00) Civil Action (Mount Laurel) ORDER OF FINAL JUDGMENT
BAKER RESIDENTIAL, L.P., and THOMJAC, INC., Plaintiffs, vs. BOROUGH OF OAKLAND and TOWNSHIP OF WAYNE, Defendants.	

THIS MATTER having come before the Court on the date designated for tri and the parties having filed cross-motions for summary judgment, Jerome A. Voge Esq., of Jeffer, Hopkinson & Vogel, appearing on behalf of Pinnacle Communiti Ltd.; David R. Oberlander, Esq., of Flaster Greenberg, appearing on behalf of E

County Development Corp., Michael B. Kates, Esq., of Nashel Kates, Nussma Rapone, Ellis & Traum, appearing on behalf of Baker Residential; Joseph V MacMahon, Esq., of Struble, Ragno, Petrie, Spinato, Bonanno, MacMahon, & Conte appearing on behalf of the Borough of Oakland; Joseph J. Maraziti, Jr., Esq., o Maraziti, Falcon & Healey, appearing on behalf of the Township of Wayne; an Laurence R. Maddock, Esq., of Waters, McPherson & McNeill, appearing on beha of Pines Lake Association; and it appearing that no genuine issue of material fac exists, the Court having considered the pleadings, briefs, documents and argument submitted by respective counsel; and for good cause as enunciated in the Court oral opinion on the record on September 5, 2001;

IT IS, on this 26 day of September, 2001,

ORDERED, that judgment be and hereby is entered as follows:

ORDERED, that the Township of Wayne has a constitutional obligation t accept all waste water effluent from plaintiffs' qualifying inclusionar developments, or either of them, by means of the alternate Pinnacle service optic described in a December 2000 report of Daniel D. Kelly as modified by deposition o May 8, 2001, and as reasonably modified in the future based upon engineerir requirements, if any; and it is further

ORDERED, that the Township of Wayne take all necessary municipal actio to permit its acceptance of all waste water effluent from plaintiffs' qualifyir inclusionary developments by means of the alternate Pinnacle service optic described in a December 2000, report of Daniel D. Kelly as modified by depositic

on May 8, 2001, and as reasonably modified in the future based upon engineerin requirements.

That the foregoing mandatory injunction, (mandamus), is conditioned on th following:

(A) Final unappealed COAH substantive certification of a housing elemer and fair share plan for the Borough of Oakland that includes either or both (plaintiffs' inclusionary developments.

(B) Final unappealed approval by all Federal and State regulator agencies having jurisdiction over the Township of Wayne's waste wat infrastructure, including, but not necessarily limited to, the New Jerse Department of Environmental Protection, and any funding agencies, if any.

(C) Receipt of final and unappealed land use development approvals und the Municipal Land Use Law.

(D) This judgment shall not preclude any party from appearing i opposition to the plaintiffs' projects in any forum lawfully available, including bu not limited to the Council On Affordable Housing, the New Jersey Department (Environmental Protection, and the Borough of Oakland Planning Board.

ORDERED, that an interlocal service agreement shall be executed an delivered between the Borough of Oakland and the Township of Wayne to provid for reasonable non-discriminatory fees and charges in relation to the plaintiff connection to the Township of Wayne's waste water infrastructure; and it is furthe

ORDERED, that the governing bodies of the Township of Wayne and th Borough of Oakland shall work with all deliberate speed to negotiate, execute an

to deliver said interlocal service agreement no later than December 31, 2001, an shall permit input from and cooperate with plaintiffs during the municipa negotiation; and it is further

ORDERED, that the interlocal service agreement, (or if the parties agree in separate agreement or agreements) include by way of illustration but not limitatio the following:

(A) the ownership of the 1 to 2 mile pipeline described in the alternat Pinnacle service option, the expense of construction and the expense of constructio oversight (inspection by Wayne's construction experts), repair and replacemen issues and the costs thereof, the allowance if any for other connections to thi pipeline (the Court neither requiring nor prohibiting other connectivity); and

(B) References and issues concerning connection fees and user fees wit deference to debt service and other fiscal matters relating to the sanitary sewe system of the Township of Wayne.

ORDERED, that the Court does not retain jurisdiction but remains availabl pursuant to the Rules of Court for applications in aid of litigants' rights.

ORDERED, that there shall be no reallocation of costs for attorney's fees t any party; and it is further

ORDERED, that a copy of this Order shall be served upon all attorneys c record in the within matter within seven (7) days of the date hereof.

J.S.C

This motion was:

___Opposed

___Unopposed

4

APPENDIX E – Calculated Flow

As Per N.J.A.C. 7:14A-23

Total Flow for Area by Zoning

LOCAL BUSINESS			
BLOCK	LOT	PROP LOC	GPD
1706	2		781.60
1706	7		0.00
1708	4	379 RAMAPO VALLEY RD	302.70
1708	2	RAMAPO VALLEY ROAD	0.00
1708	1	391 RAMAPO VALLEY RD	620.80
1708	5	12 TERHUNE ST	750.00
1708	3	383 RAMAPO VALLEY RD	270.10
1709	1	399 RAMAPO VALLEY RD	0.00
1706	4		0.00
1706	6	20 W OAKLAND AVE	157.00
1707	2	W OAKLAND AVE	0.00
1706	5		0.00
1706	3		1,350.40
1706	8		0.00
1706	1	413 RAMAPO VALLEY RD	416.50
1802	5	357 RAMAPO VALLEY RD	200.00
1802	6	6-8-10-12&14 ELM ST	541.00
1802	4	373 RAMAPO VALLEY RD	750.40
2302	29	191 RAMAPO VALLEY RD	827.20
2302	28	195 RAMAPO VALLEY RD	542.20
2302	27	7 SPRUCE ST	113.40
2302	26	11 SPRUCE STREET	144.00
2401	7	155 RAMAPO VALLEY RD	10,400.00
2401	5	175 RAMAPO VALLEY RD	5,040.00
2401	4	FRONT-RAM VAL RD	0.00
3401	54	11 LONGHILL ROAD	431.60
3401	55	160 RAMAPO VALLEY RD	424.80
3401	60	176 RAMAPO VALLEY RD	4,200.00
3907	1	394 RAMAPO VALLEY RD	200.20
3901	1	400 RAMAPO VALLEY RD	1,375.50
3906	2	332/340 RAMAPO VALLEY RD	3,879.60
4504	34	461/465 RAM VAL RD	3,000.00
3902	4	43 YAWPO AVENUE	2,489.20
3907	7	378 RAMAPO VALLEY RD	750.00
3902	2	19 YAWPO AVENUE	749.00
3906	1	350 RAMAPO VALLEY ROAD	13,670.20
3907	6	382 R.V.R.&5 MAPLE AVE	377.60
3907	5	384 RAMAPO VALLEY RD	236.50
3907	4	388 RAMAPO VALLEY RD	379.80
3907	3	390 RAMAPO VALLEY RD	150.00
3907	2	392 RAMAPO VALLEY RD	561.00

4001	1	410 RAMAPO VALLEY RD	546.60
4002	2	3 ALLERMAN RD.	300.90
4002	1	422 RAMAPO VALLEY RD	0.00
4404	2	20 FRANKLIN AVE	735.00
4404	1	6&12 FRANKLIN AVE	2,117.70
1707	1		87.00
2401	6	169 RAMAPO VALLEY RD	3,059.20
3401	56	170 RAMAPO VALLEY RD	545.40
3401	61	186 RAMAPO VALLEY RD	600.00
4504	33	469 RAMAPO VALLEY RD	625.00
4504	35	451-3-5-7 RAMAPO VALLEY RD	658.60
4504	36	4 COURT HOUSE PL	371.80
4508	2	445 RAMAPO VALLEY RD	326.00
1705	4	4 BARBARA LA	4,200.00
3902	1	15 YAWPO AVE	451.40
3902	3	25 YAWPO AVE	691.80
3903	86	330 RAMAPO VALLEY RD	1,190.30
3903	87	11 EAST OAK STREET	754.00
1802	9	2 OAK ST	900.00
1802	8	345-349 RAMAPO VALLEY RD	3,431.50
1802	7	20 ELM ST	763.00
1802	2	15 TERHUNE ST	246.90
		TOTAL	**78,684.40**

CORPORATE OFFICE

BLOCK	LOT	PROP LOC	GPD
4003	6	95 ROUTE 208	0.00
4003	5	ROUTE 208	0.00
4202	3		
4202	1	127B MCCOY ROAD	
4201	1	ROUTE 208	0.00
4101	1	97 YAWPO AVE	27,725.00
		TOTAL	**27,725.00**

INDUSTRIAL OFFICE

BLOCK	LOT	PROP LOC	GPD
2302	19	7 FIR COURT	7,058.60
2302	20	32 SPRUCE ST	6,524.60
2302	8	5 FIR COURT	7,095.20
2302	6	48 SPRUCE ST	7,185.80
4004	11		0.00
4005	4	5 RARITAN ROAD	9,695.20
4004	1	14 RARITAN RD	50.00
4005	3	1 RARITAN RD	19,308.80
4005	2	SHELTER LANE	0.00
4004	2	18 RARITAN ROAD	2,488.20

4005	1	SHELTER LANE	0.00
4003	3	155 ROUTE 208	230.10
4003	2	2 SHELTER LANE	767.00
4003	1	8 ALLERMAN RD.	7,060.60
4404	8	ROUTE 208	0.00
		TOTAL	**67,464.10**

RESIDENTIAL		
TYPE	NUMBER OF PARCELS	GPD
AFFORDABLE HOUSING	20	4,500
SINGLE FAMILY	1836	550,800
MULTI-FAMILY	88	39,600
RESIDENTIAL CLUSTER	3	900
TOWNHOUSE	2	450
	TOTAL	**596,250**

TOTAL **770,123.50**