

**HIGHLANDS WATER PROTECTION AND PLANNING COUNCIL  
AMENDED GRANT AGREEMENT NO. 09-033-011-1004**

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**HIGHLANDS IMPLEMENTATION PLAN STUDIES  
STREAM CORRIDOR IMPROVEMENTS**

**BOROUGH OF CALIFON  
HUNTERDON COUNTY, NEW JERSEY**

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**OCTOBER 2012**

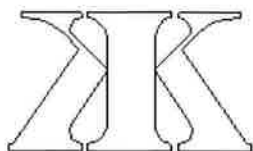
**PREPARED FOR:**

**CALIFON BOROUGH  
39 Academy Street  
Califon, NJ 07830**

**PREPARED BY:**

**KELLER & KIRKPATRICK, INC.  
301 Gibraltar Drive, Suite 2A  
Morris Plains, New Jersey 07950**

**Final Report  
October 15, 2012**



**Keller & Kirkpatrick, Inc.**

CONSULTING ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS

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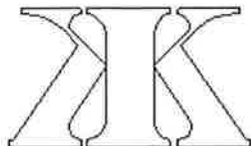
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Donald A. Scott, Jr., P.E., P.P.  
New Jersey Professional Engineer, License No. 25890



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PUBLIC INFORMATION CENTER

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## EXECUTIVE SUMMARY

Occurrences of flooding problems are common within the central core of the Borough. Much of the historic core of the Borough was developed during the mid-late 19<sup>th</sup> century around waterpower sites. The early manmade infrastructure systems still remain in-place, but today are antiquated and unable to convey modern day runoff resulting in frequent flooding.

A reoccurring flooding problem exists along an unnamed tributary which traverses a natural, wooded area between Academy Street and Main Street. During flooding events, recharge to groundwater is reduced, suspended solids and floatables by-pass normal catchments, and septic systems are inundated. The quality of the Borough's Category 1 receiving waters is degraded.

Stream corridor improvements are needed to reduce flooding, meet current stormwater management standards, and to enhance stormwater quality. An initial stream corridor study was undertaken through a Highlands Council Initial Assessment Grant to define the tributary watersheds, inventory the primary drainage features, and to identify sensitive environmental resources related to the stream corridor. As part of the *Highlands Council Draft Consistency Review Report*, a recommendation was made to continue with the required scoping studies needed for advancing the preliminary design of stream corridor improvements.

The purpose of advancing selected study tasks as part of the Borough's Highlands Implementation Plan Studies was to establish baseline information regarding existing conditions of the drainage system, hydrologic and hydraulic conditions, and mapping of site conditions for review and advancement of stream corridor improvement alternatives. The study tasks included the following:

- *Task 1 – Closed Circuit Television Inspection and Conveyance System Mapping.* This task included a closed circuit television inspection of a stone masonry culvert that traverses under the firehouse parking area from the upstream entrance headwall to the Main Street discharge. Mapping of the conveyance system was prepared from recovered field survey data and the inspector's field sketch.
- *Task 2 – Field Survey and Base Mapping.* This task included field survey to collect detailed site information for conceptual design and development of stream corridor improvements. Base mapping was prepared from recovered field survey data. Recovered survey data was also used for hydrologic and hydraulic existing conditions stream modeling.
- *Task 3 – Preliminary Hydrology and Hydraulic Analysis.* This task included development of computer modeling for preliminary hydrologic and hydraulic analysis of existing conditions along the unnamed tributaries traversing the areas between Academy Street and Main Street extending to the Columbia Trail pathway crossing on the downstream end. Flood flow hydrographs, peak runoff flow rates and hydraulic water surface profiles and elevations for various storm recurrence intervals were determined. The information from this study can be used to develop future floodplain mapping delineations, and for the evaluation of flood mitigation design concepts.





The above scoping and preliminary design tasks were undertaken as part of the Borough's Highlands Implementation Plan Studies to develop viable concepts for stream corridor improvements. Available mapping supplemented by field survey were used to develop detailed base mapping for the assessment of alternatives and the preparation of conceptual plans depicting the proposed stream corridor improvements.

The preparation of this report is made possible through a grant from the Highlands Water Protection and Planning Council. This study may serve as a guide in support of the Borough of Califon Stormwater Management Plan, as well as a valuable resource for the development of a comprehensive plan for future infrastructure improvements within the Borough of Califon.



**TASK 1 – CLOSED CIRCUIT TELEVISION INSPECTION AND CONVEYANCE  
SYSTEM MAPPING**

**TASK 1**  
Stream Corridor Improvements  
Borough of Califon  
Hunterdon County, New Jersey



## **TASK 1 – CLOSED CIRCUIT TELEVISION INSPECTION AND CONVEYANCE SYSTEM MAPPING**

***CCTV Inspection.*** A closed circuit television inspection of the stormwater conveyance system from the natural channel entrance headwall to the Main Street discharge was performed on November 15, 2011 with the assistance of the Raritan Township MUA. A dye test was also conducted to verify continuity of the culvert run. The field inspection revealed two (2) blockages in the culvert; both at locations where cast or ductile iron pipes cross through the culvert. The obstructions appeared to be small branches, leaves and other natural debris that have accumulated at the cross-through pipes.

The existing culvert is constructed of stone masonry with a rubble channel bottom of silt and stone. The hydraulic opening of the culvert is somewhat variable due to irregular construction, and compromised by pass-through conduits and repair modifications.

***Conveyance System Mapping.*** Mark-out from the inspection was recovered by field survey. Mapping of the conveyance system was prepared from recovered field survey data and the inspector's field sketch.



**FIELD NOTES, FIELD SKETCH AND SELECTED PHOTOS**

**TASK 1**  
Closed Circuit Television  
Inspection





## CLOSED CIRCUIT TELEVISION INSPECTION

Name and Contact Information:

Inspection Equipment:

Company: Raritan Township MUA

Camera: Pan and tilt camera

Foreman: Mike

Drive : All-terrain wheels

Assistant: John

Video: Cable feed to monitor

Assistant: \_\_\_\_\_

Media: VHS

Conditions: *Depth of flow in culvert approx. 4" to 6".*

PIPE INSPECTION RUNS

Run ID#	Pipe Size (RxS)	Begin (Feet)	End (Feet)	Total Length (Feet)	Remarks
1	26"x24"	0'	25'	Discont. (Non-Traversable)	Channel intake to inlet.
2	26"x38"	0'	75'	Discont. (Obstruction Encountered)	Inlet to discharge.
3	26"x38"	0'	30'	Discont. (Obstruction Encountered)	Discharge to inlet. (Visual Only)





## OBSERVATIONS

*Run #1 – Stone masonry culvert with a natural rubble channel bottom of silt and stone (26"x24" at headwall / 26"x38" beyond). Camera had difficulty advancing over irregular bottom and upset at 25'. CCTV inspection discontinued and camera retrieved.*

*Run #2 – Stone masonry culvert with stone and silt channel bottom. Obstruction of small branches encountered at 75'. Small diameter pipe observed crossing through the upper section of the culvert at the obstruction. CCTV inspection discontinued.*

*Run #3 – Visual observations made from discharge end of culvert at Main Street. The stone masonry culvert has a 12" concrete pipe inserted in barrel. Obstruction of small branches observed at 30'. Small diameter (12" DIP or CIP) pipe observed crossing through the lower section of the culvert at the obstruction.*

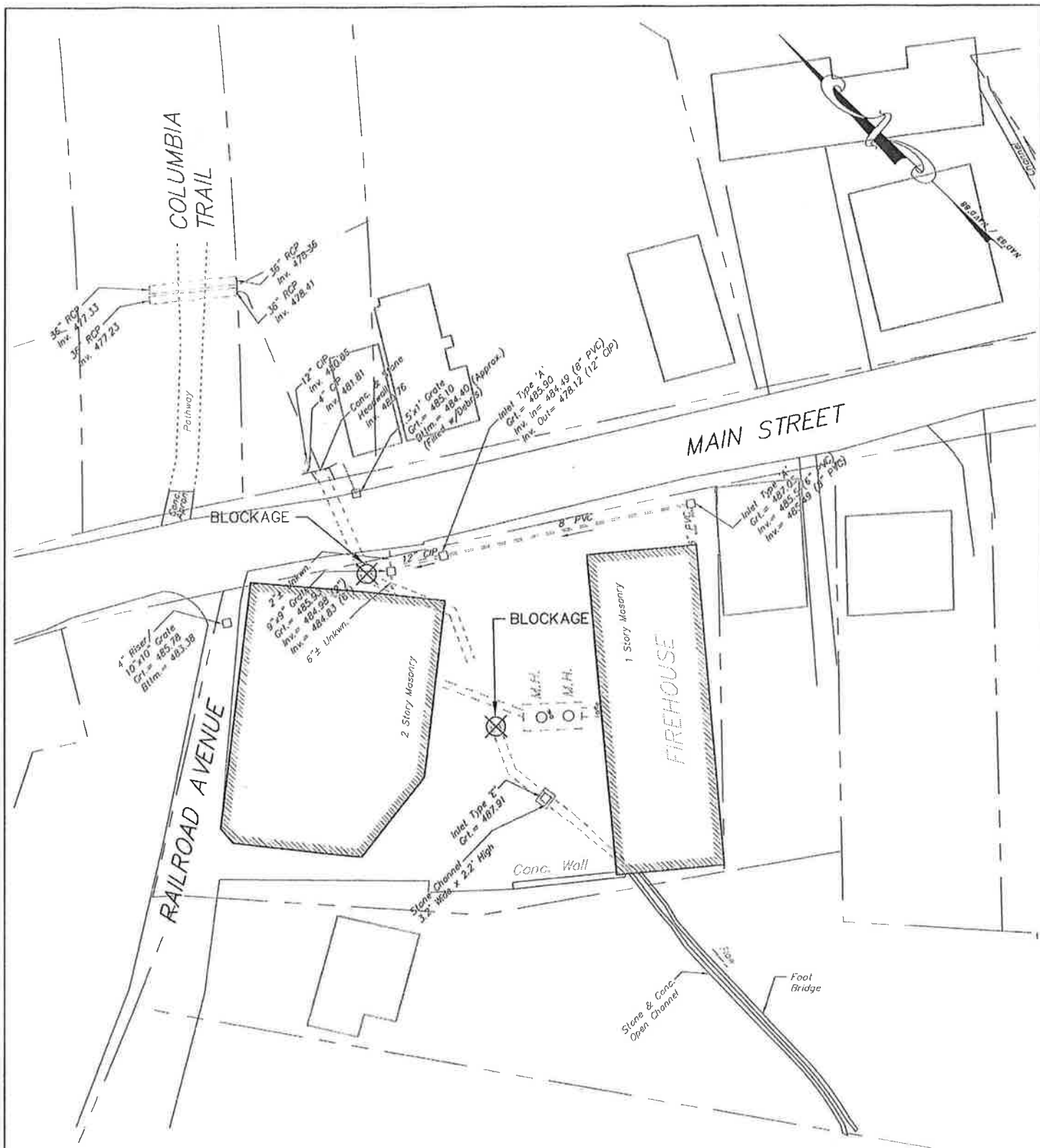
*A dye test was conducted to verify continuity of the culvert run. Dye was placed in the culvert at the parking lot inlet and observed in the discharge flow at the culvert outlet at Main Street.*

## ATTACHMENTS

- *Inspector's field sketch and notes, dated Nov. 15, 2011.*
- *Selected photos taken on Nov. 15, 2011.*







REFERENCE:  
 HUNTERDON COUNTY DIVISION OF GIS,  
 NJDEP GIS, AND BOROUGH OF CALIFON  
 TAX MAPS AND CONTOUR MAPS.

HIGHLANDS IMPLEMENTATION PLAN STUDIES  
 STREAM CORRIDOR IMPROVEMENTS  
 CALIFON BOROUGH, HUNTERDON COUNTY

FIELD SKETCH  
 PROJECT No. 2011081  
 DATE(S): Nov. 15, 2011  
 INSPECTOR: J. Voorhees

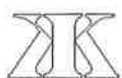




**Photo No. 1 – View across the Firehouse Parking Lot looking from Main Street culvert to stone masonry channel at the stream corridor.**



**Photo No. 2 – CCTV equipment trailer and monitoring station. Inspection services arranged with Raritan Township MUA**





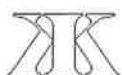




**Photo No. 3 – Inlet located in the Firehouse Parking Lot served as a second access point to the system (camera unit in background).**



**Photo No. 4 – Upstream access point at stone masonry channel.**







**Photo No. 5 – Positioning the camera in the stone masonry channel.**



**Photo No. 6– Stone masonry channel opens to a wider stone masonry culvert under the corner of the Firehouse.**



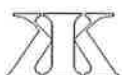




**Photo No. 7– Downstream view of the first reach of the stone masonry culvert under the Firehouse Parking Lot.**



**Photo No. 8– Upstream view of the first reach from inlet (similar to downstream view from inlet).**



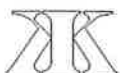




**Photo No. 9– View of the Main Street at the culvert crossing  
(Columbia Trail in background).**



**Photo No. 10– View of Main Street culvert downstream headwall  
and receiving channel.**







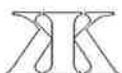


**Photo No. 11– Concrete pipe in barrel of Main Street culvert at downstream end.**



**Photo No. 12– Concrete pipe extending in culvert barrel (beyond view DIP/CIP cross-through pipe below concrete pipe).**

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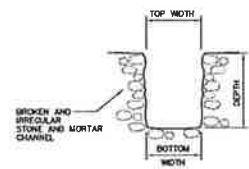


**FIELD SURVEY AND MAPPING OF  
CONVEYANCE SYSTEM AT FIRE COMPANY PARKING LOT**  
Plate 1 – Open Channel and Culvert at Firehouse

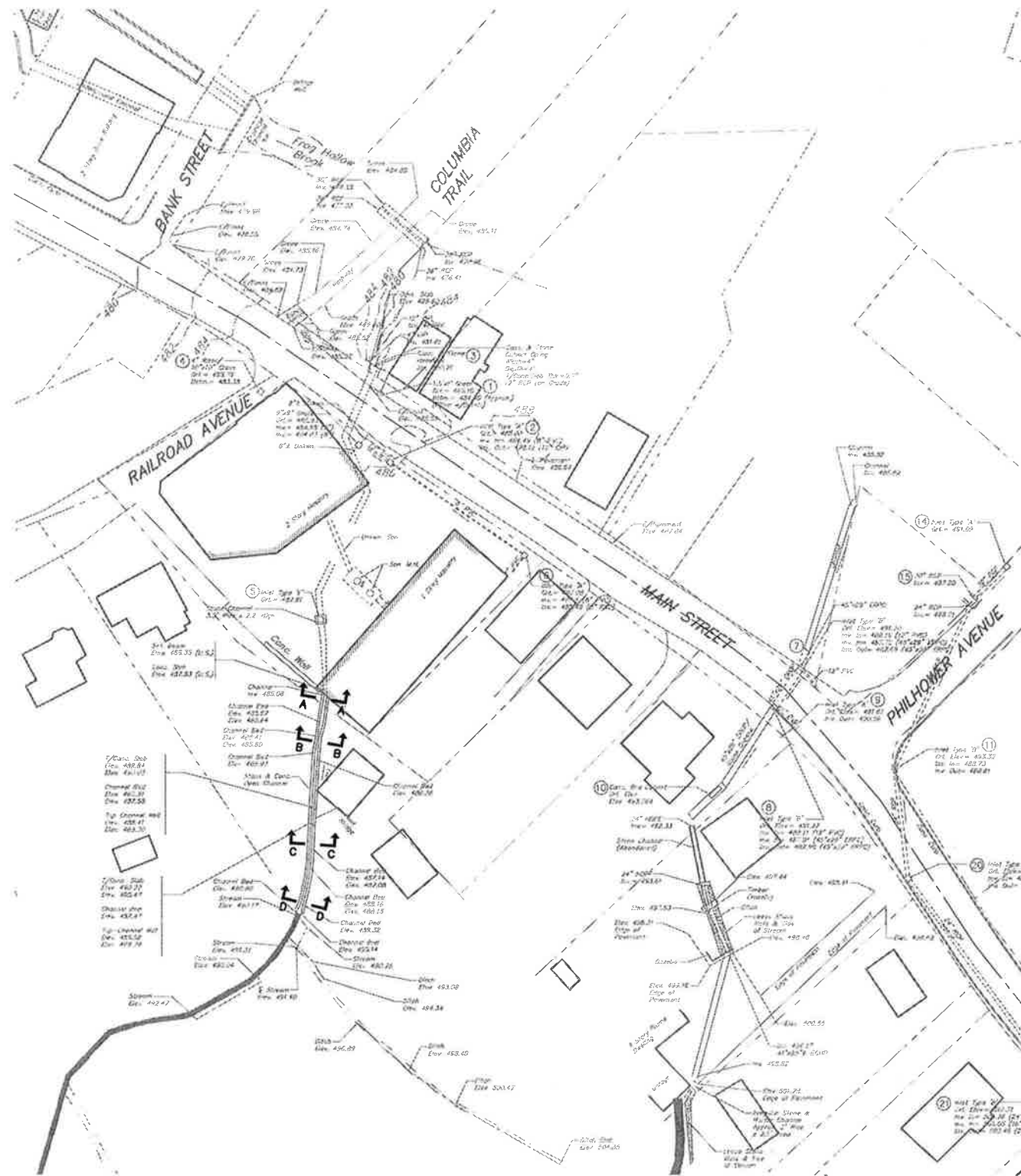
**TASK 1**  
Conveyance System Mapping



	DISTANCE	TOP WIDTH	BOTTOM WIDTH	DEPTH
	(FT.)	(FT.)	(FT.)	(FT.)
SECTION A-A	25	2.3	1.9	2.75
SECTION B-B	60	0.9	1.5	2.75
SECTION C-C	32	1.7	1.7	2.3
SECTION D-D		1.5	1.5	1.95



**CHANNEL SECTION**  
N.T.S.



**PARTIAL PLAN - MAIN STREET**  
SCALE: 1"=30'  
AT FIREHOUSE

**LEGEND:**

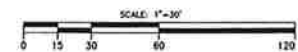
⊙ STRUCTURE NUMBER

**REFERENCES:**

1. STRUCTURE AND DRAINAGE FACILITIES NUMBERS SHOWN HEREON ARE FROM MAPPINGS AND DRAINAGE INFRASTRUCTURE INVENTORY COMPILED FOR "STREAM CORRIDOR STUDY, CALIFON BOROUGH - INITIAL ASSESSMENT GRANT," HIGHLANDS COUNCIL, GRANT NO. 08-033-010-00A, DATED MARCH 2009 BY KELLER & KIRKPATRICK.
2. PROPOSED CHANGE OF USE FOR LOTS R, 9, & 10 - BLOCK 22 AT INTERSECTION OF MAIN STREET AND BANK STREET, BOROUGH OF CALIFON, HUNTERDON COUNTY, NEW JERSEY, DED. NO. 100-01 REV. 4, PREPARED BY FRANCIS L. JAWAZZI, P.E., P.C. PROFESSIONAL ENGINEERING SERVICES.

**GENERAL NOTES**

1. PROJECT HORIZONTAL DATUM IS N.A.D. OF 1983 AS DETERMINED BY C.P.S. METHODOLOGY FROM CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) N.J.N.T.
2. PROJECT VERTICAL DATUM IS N.A.V.D. OF 1988 AS DETERMINED BY G.P.S. METHODOLOGY FROM CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) N.J.N.T.
3. PLANIMETRIC FEATURES AND TOPOGRAPHY BASED ON FIELD SURVEYS CONDUCTED ON NOVEMBER 15, 16 AND 17, 2011 BY KELLER AND KIRKPATRICK, INC. ADDITIONAL FIELD SURVEY CONDUCTED ON APRIL 4, 2012 BY KELLER AND KIRKPATRICK, INC.



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Certificate of Authorization #12A23037400

**OPEN CHANNEL AND CULVERT AT FIREHOUSE**

HIGHLANDS IMPLEMENTATION PLAN STUDIES  
STREAM CORRIDOR IMPROVEMENTS  
BOROUGH OF CALIFON, HUNTERDON COUNTY, NEW JERSEY

**PLATE**  
**No. 1**





**TASK 2 – FIELD SURVEY AND BASE MAPPING**

**TASK 2**

Stream Corridor Improvements  
Borough of Califon  
Hunterdon County, New Jersey





## **TASK 2 – FIELD SURVEY AND BASE MAPPING**

*Field Survey and Base Mapping.* Detailed site conditions are needed to support the development and assessment of alternatives and the conceptual design of stream corridor improvements. GIS mappings relating to the areas of the proposed stream corridor improvements were provided by the County and used to supplement mappings previously prepared under the Highlands Council Initial Assessment Grant. Field survey was performed on November 15, 16 and 17, 2011 to collect additional detailed site information relative to concept development of selected alternatives. Base mapping was prepared from recovered field survey data.



**FIELD SURVEY AND BASE MAPPING**

Plate 2 – Watershed Boundary and Topographic Map

Plate 3 – Diversion Channel

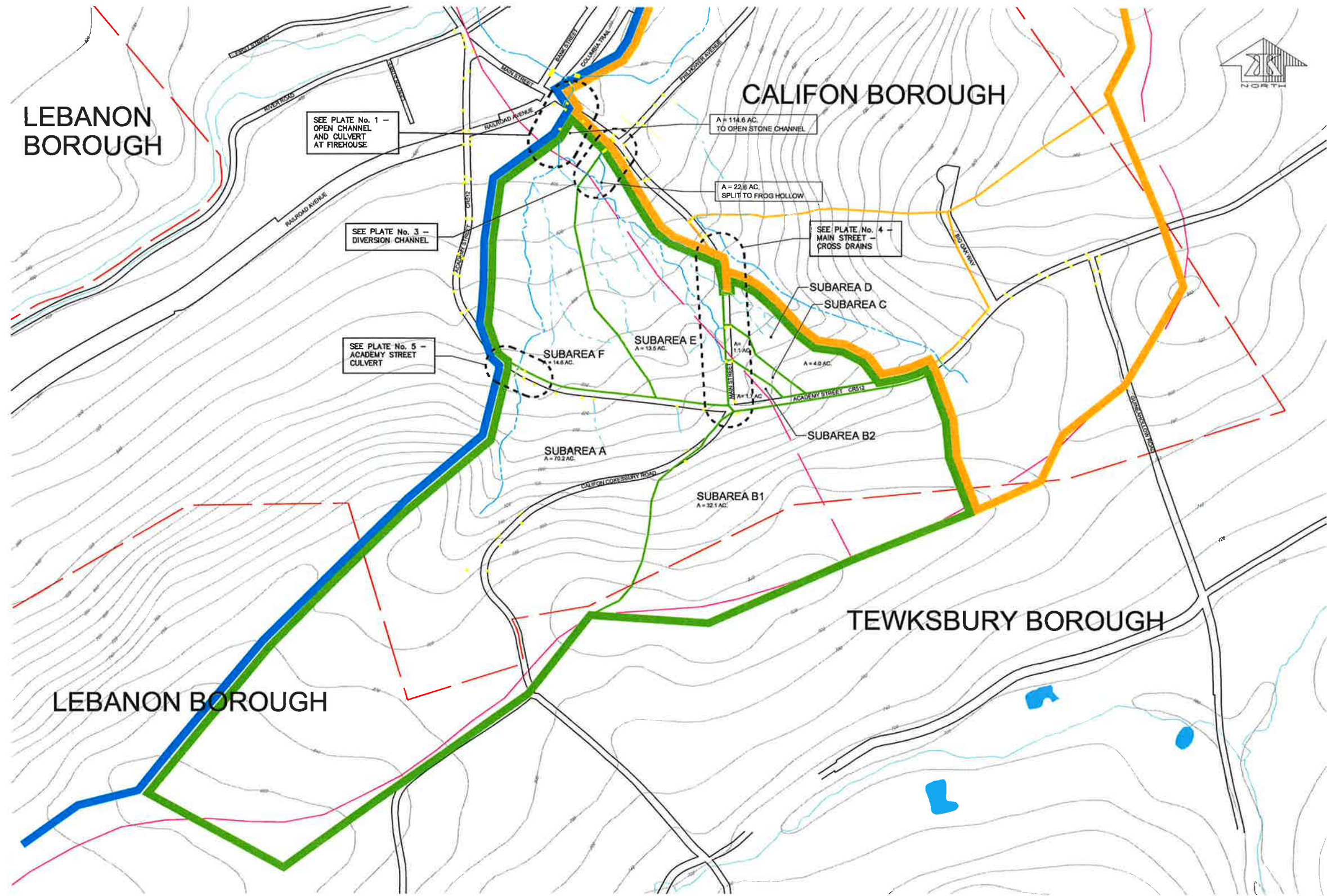
Plate 4 – Main Street Cross drains

Plate 5 – Academy Street Culvert

**TASK 2**

Field Survey and Base  
Mapping





SEE PLATE No. 1 -  
OPEN CHANNEL  
AND CULVERT  
AT FIREHOUSE

A = 114.6 AC.  
TO OPEN STONE CHANNEL

A = 22.8 AC.  
SPLIT TO FROG HOLLOW

SEE PLATE No. 3 -  
DIVERSION CHANNEL

SEE PLATE No. 4 -  
MAIN STREET -  
CROSS DRAINS

SEE PLATE No. 5 -  
ACADEMY STREET  
CULVERT

SUBAREA F  
A = 14.8 AC.

SUBAREA E  
A = 13.5 AC.

A = 1.5 AC.

A = 4.8 AC.

SUBAREA A  
A = 10.2 AC.

SUBAREA B2  
A = 1.5 AC.

SUBAREA B1  
A = 32.1 AC.

TEWKSBURY BOROUGH

LEBANON BOROUGH

**LEGEND**

- MUNICIPAL BOUNDARY
- UNNAMED TRIBUTARY
- FROG HOLLOW BROOK
- NJDEP WATERSHEDS
- NJDEP SUBWATERSHEDS

**REFERENCE**

HUNTERDON COUNTY DIVISION OF GR AND  
NJDEP GR

**Keller & Kirkpatrick, Inc.**  
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301 Gibraltar Drive, Suite 2A Tel. (973) 377-8500  
Morris Plains, NJ, 07950 Certificate of Authorization 22-203-00037-000 Fax (973) 887-0925

**WATERSHED BOUNDARY AND TOPOGRAPHIC MAP**

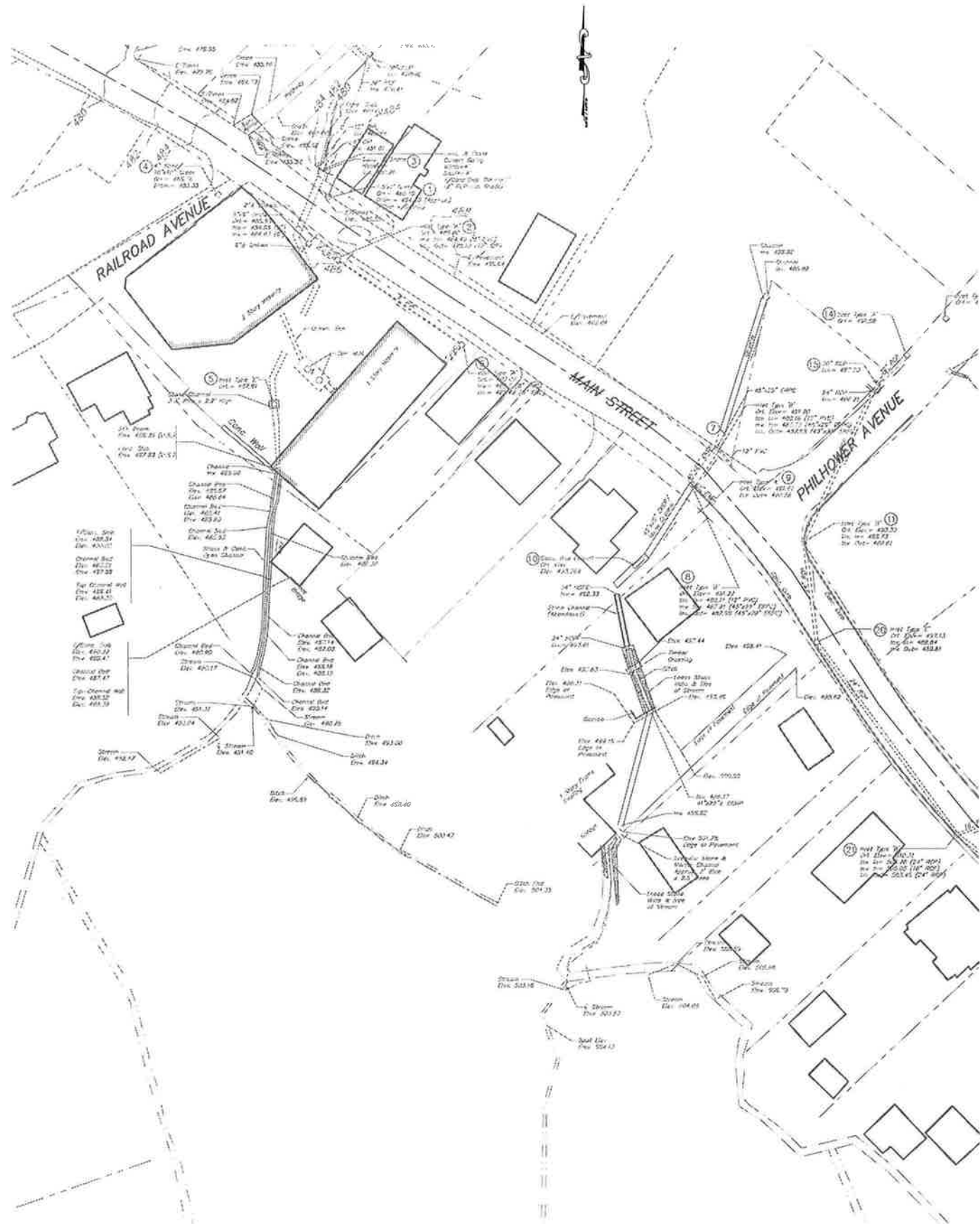
HIGHLANDS IMPLEMENTATION PLAN STUDIES  
STREAM CORRIDOR IMPROVEMENTS  
BOROUGH OF CALIFON, HUNTERDON COUNTY, NEW JERSEY

**PLATE  
No. 2**

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**LEGEND:**

⊕ STRUCTURE NUMBER

**REFERENCES:**

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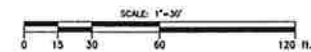
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**PARTIAL PLAN - MAIN STREET**

SCALE: 1"=30'

**UPSTREAM STONE CHANNEL**

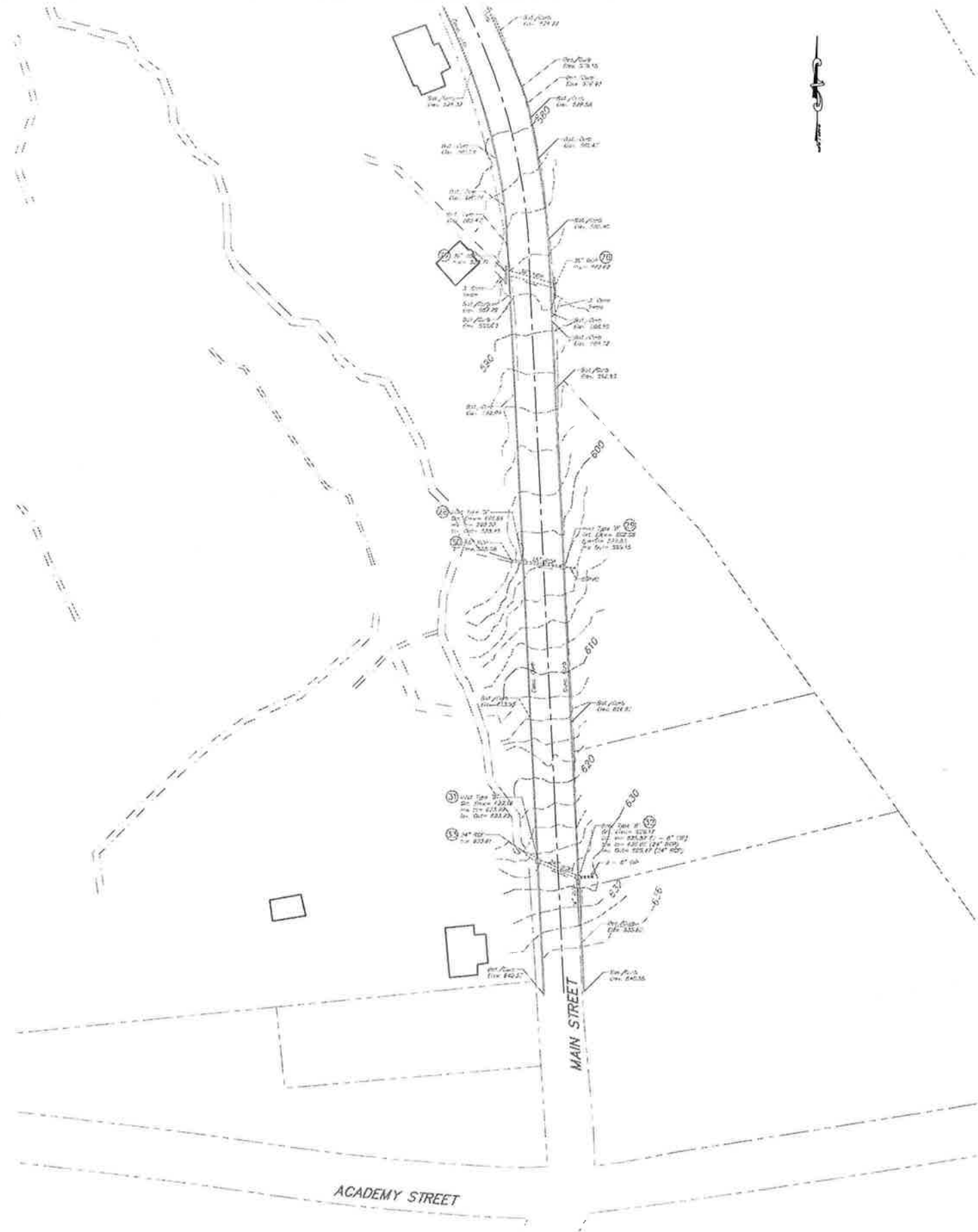


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	<b>DIVERSION CHANNEL</b>	
HIGHLANDS IMPLEMENTATION PLAN STUDIES STREAM CORRIDOR IMPROVEMENTS BOROUGH OF CALIFON, HUNTERDON COUNTY, NEW JERSEY		<b>PLATE</b> <b>No. 3</b>





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**LEGEND:**

⊙ STRUCTURE NUMBER

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**GENERAL NOTES**

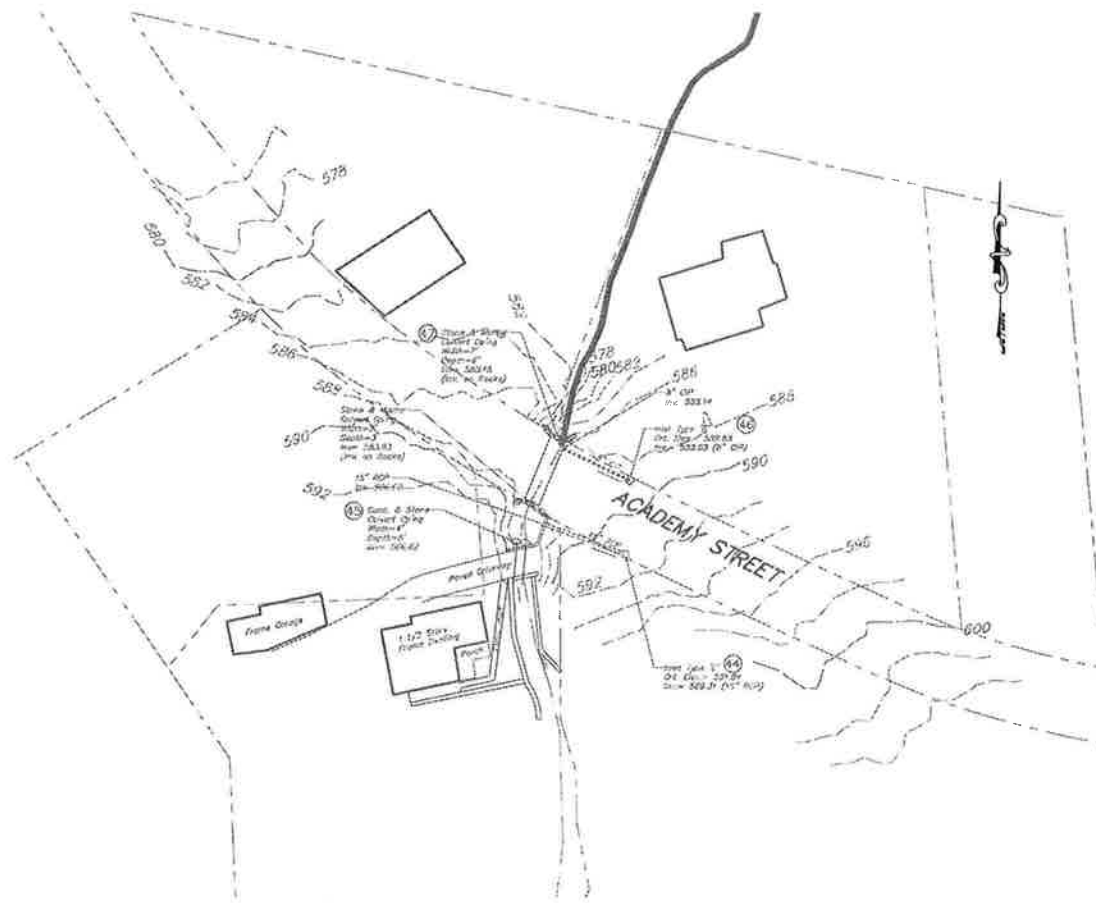
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2. PROJECT VERTICAL DATUM IS M.A.S.L. OF 1988 AS DETERMINED BY G.P.S. METHODOLOGY FROM CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) NAME.
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**PARTIAL PLAN - MAIN STREET**  
SCALE: 1"=30'  
**OUTLET OF SUBAREA 'C' ALONG MAIN STREET**



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	<b>MAIN STREET - CROSS DRAINS</b>	
HIGHLANDS IMPLEMENTATION PLAN STUDIES STREAM CORRIDOR IMPROVEMENTS BOROUGH OF CALIFON, HUNTERDON COUNTY, NEW JERSEY		<b>PLATE</b> <b>No. 4</b>





**LEGEND:**

⊙ STRUCTURE NUMBER

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2. PROPOSED CHANGE OF USE FOR LOTS 8, 9, & 10 - BLOCK 22 AT INTERSECTION OF MAIN STREET AND BANK STREET, BOROUGH OF CALIFON, HUNTERDON COUNTY, NEW JERSEY, INC. NO. 100-01 REV. 8, PREPARED BY FRANK L. JAWAIZO, P.E., P.C. PROFESSIONAL ENGINEERING SERVICES.

**GENERAL NOTES**

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**PARTIAL PLAN - ACADEMY STREET**

SCALE: 1"=30'  
OUTLET OF SUBAREA 'A' ALONG ACADEMY STREET



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	<b>ACADEMY STREET CULVERT</b>		
HIGHLANDS IMPLEMENTATION PLAN STUDIES STREAM CORRIDOR IMPROVEMENTS BOROUGH OF CALIFON, HUNTERDON COUNTY, NEW JERSEY			<b>PLATE No. 5</b>



## **TASK 3 – PRELIMINARY HYDROLOGY AND HYDRAULIC ANALYSIS**

### **TASK 3**

Stream Corridor Improvements  
Borough of Califon  
Hunterdon County, New Jersey



### **TASK 3 – PRELIMINARY HYDROLOGY AND HYDRAULIC ANALYSIS**

C.V. Associates (CVA) was retained on behalf of the Borough to perform preliminary hydrologic and hydraulic analysis of existing conditions along the unnamed tributaries traversing the areas between Academy Street and Main Street extending to the Columbia Trail pathway crossing.

***Previous Studies.*** An initial study was undertaken through the Highlands Council (Initial Assessment Grant No. 08-033-010-1004) for the purpose of identifying those issues that would relate to Califon's reaching Plan Conformance. The study included detailed field reconnaissance to inventory and document existing features as needed to confirm tributary watershed areas. A detailed field reconnaissance survey was performed to inventory and document existing watershed features. The entire stream corridor and surrounding drainage areas were investigated to identify existing drainage features and determine the watershed areas tributary to the stream corridor.

Incoming storm runoff flows from the stream corridor tributaries are severely restricted by an existing small open stone channel and piping under the existing firehouse and parking area resulting in flooding during frequent storm events. The total tributary area to the open stone channel was determined to be approximately 137.2 acres. The watershed is comprised of seven (7) subarea watersheds. A portion of the watershed is split-off via an upstream stone channel and culvert diversion under Main Street.

The unnamed tributaries to the South Branch Raritan River that traverse the areas between Academy Street and Main Street have not been studied or delineated by the NJDEP. The existing model ends at the confluence with Frog Hollow Brook. Flows at this location are controlled by a three (3) cell culvert under Bank Street which is affected by the flood reach of the South Branch.

***Site Reconnaissance.*** On April 3, 2012, CVA conducted a site visit to document existing drainage features and visually observe the contributory watershed areas, and stream channel tributaries. During the site visit, CVA collected additional field measurements of the stream channel tributaries, culvert and related hydraulic openings to supplement and confirm the information previously compiled by Keller & Kirkpatrick.

***Preliminary Hydrologic and Hydraulic Analysis.*** Available existing topographic and watershed mapping was used to develop a hydrologic model of existing conditions. In the absence of stream gauging station data, the peak runoff flow rates and flood flow hydrographs were estimated using the U.S. Army Corps of Engineers HEC-1 computer model program.

The computed peak flood flow rates were then used in performing the preliminary existing conditions hydraulic modeling. The existing conditions hydraulic analysis was performed for the existing tributary stream corridors. Hydraulic modeling was performed using the U.S. Army Corps of Engineers HEC-RAS computer model program. The existing conditions hydraulic





modeling was used to determine peak water surface elevations and profiles along the tributary stream corridors.

The watershed hydrologic and hydraulic analysis of existing conditions has provide preliminary results for flood flow hydrographs, peak runoff flow rates and hydraulic water surface profiles and elevations during the 5-, 10-, 25-, 50- and 100-year storm recurrence interval events. The information from this study can be used to develop any future floodplain mapping delineations, and for the evaluation of flood mitigation design concepts.

**Summary Report.** The full details and complete results of the modeling are presented in a report entitled *Califon Borough Preliminary Watershed Stream Floodplain Analysis Report, Preliminary Existing Conditions Hydrologic & Hydraulic Modeling* provided under separate cover.



**CONCEPT DEVELOPMENT**

**CONCEPT DEVELOPMENT**  
Stream Corridor Improvements  
Borough of Califon  
Hunterdon County, New Jersey



## **CONCEPT DEVELOPMENT**

**Project Need.** Of specific concern is a reoccurring flooding problem that exists along an unnamed tributary which traverses a natural, wooded area between Academy Street and Main Street. Severe flooding occurs as flows overtop the existing channel and then sheet overland along Railroad Avenue and Main Street. Flooding along the area reoccurs on a regular basis and results in the degradation of water quality of the downstream receiving watercourses.

The severe flooding at Railroad Avenue and Main Street is primarily attributed to rapidly peaking storm flows from two (2) primary watercourses; one (1) the unnamed tributary extending from the firehouse at Main Street across the northerly portion of an unimproved property (Block 20 Lot 4 – Winters Tract) following a wooded stream corridor to the County culvert on Academy Street, and one (1) which extends along behind the residences on Main Street and along the easterly boundary of the undeveloped tract.

**Project Goals.** There are three (3) main project goals; 1) mitigate current flooding conditions and enhance stormwater quality, 2) develop an effective and practical design approach within the framework of the *NJDEP Highlands Rules N.J.A.C. 7:38 Preservation Guidelines* and current *Surface Water Quality Standards N.J.A.C. 7:9B*, and 3) implement an environmentally responsible plan with water quality enhancements.

The Winters Tract was ultimately deemed to be a valuable resource to develop a comprehensive plan for future mitigation improvements to reduce flooding and improve stormwater quality. The acquisition of the Winters' property is an integral part of the Borough's comprehensive stormwater management plan, and was purchased jointly by the NJ Water Supply Authority, the South Branch Watershed Association and the Borough through funds from the Environmental Infrastructure Financing Program (EIFP) and the Green Acres Program.

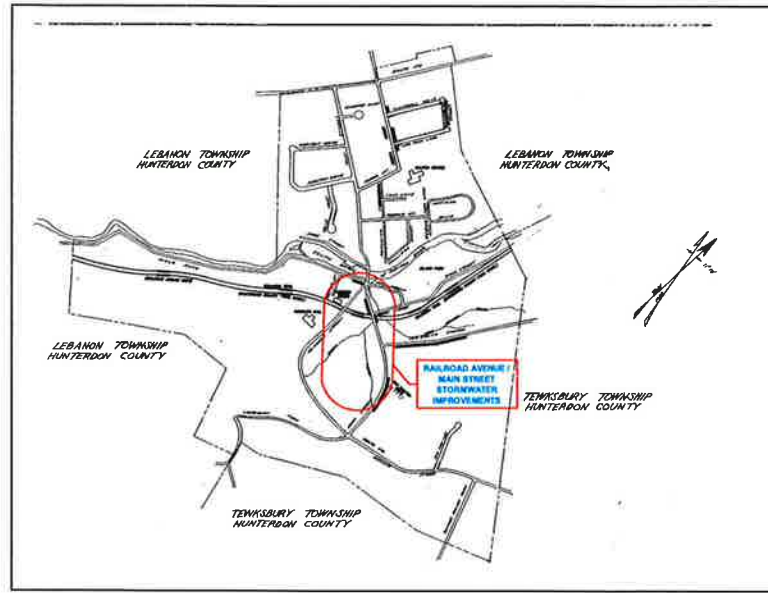
**Alternatives Study.** Available GIS mappings relating to the areas of the proposed stream corridor improvements was requested and received from the County. This mapping was supplemented by field survey performed on November 15, 16 and 17, 2011. The field survey recovered site conditions that were used to develop detailed base mapping for the assessment of alternatives and the preparation of conceptual plans depicting the proposed stream corridor improvements.

It is proposed that improvements consist of three (3) major components; 1) replacement of the existing antiquated stormwater piping and open channel system extending from Main Street to the natural stream channel on the recently acquired mitigation tract; 2) construction of a stormwater conveyance relief pipe along Main Street parallel to the existing system of culverts to provide additional capacity to the discharge point at Mill Street, and 3) construction of mini-diversions from existing tributary rivulets to infiltration and recharge trenches throughout the mitigation tract.

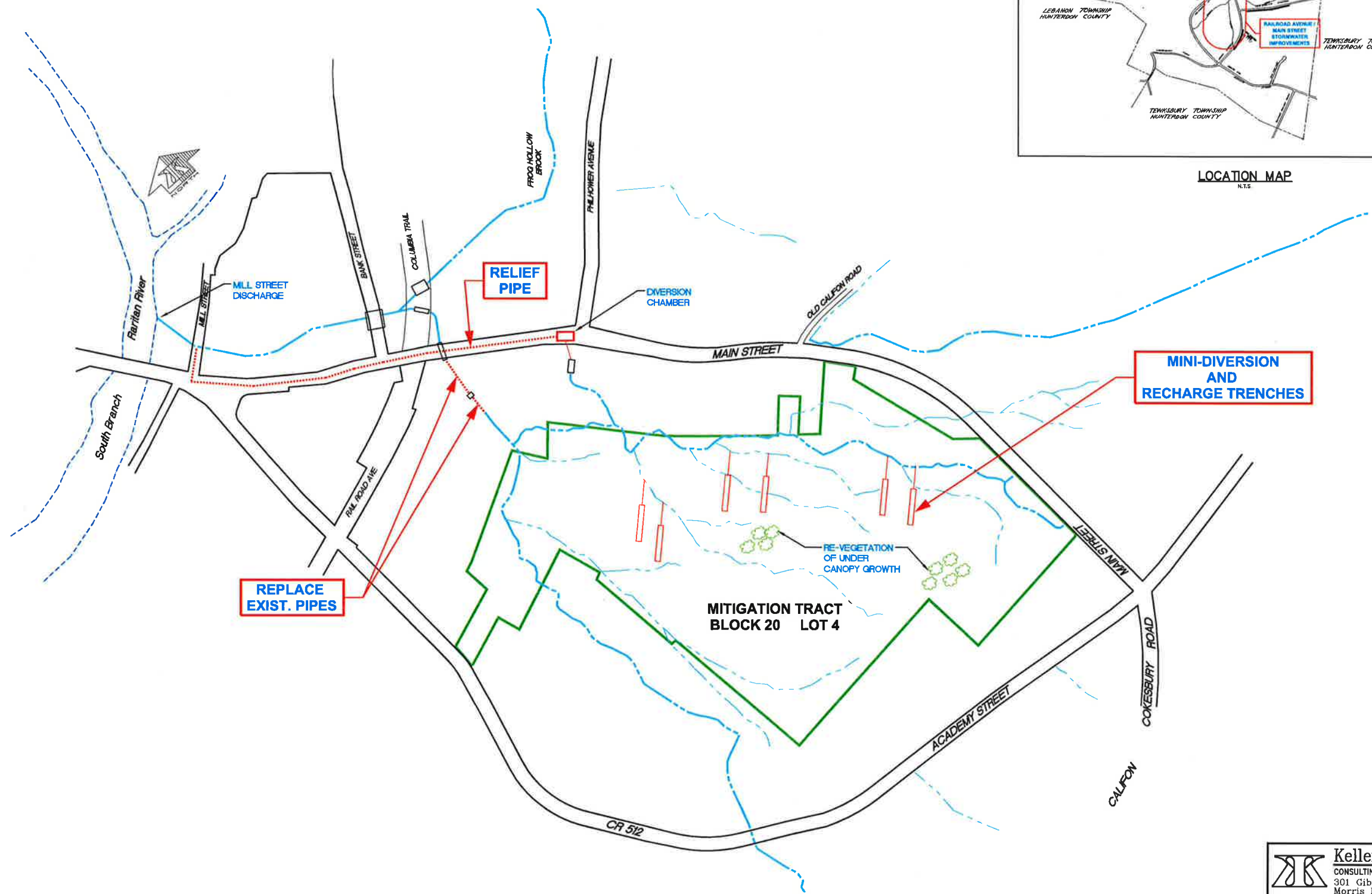
**Additional Mitigation Measures.** Preliminary investigations have been initiated by NJWSA to explore some possible regenerative stormwater management options (i.e. woodland restoration, water quality enhancements, demonstration rain garden). The re-establishment of under-canopy growth within the mitigation tract is being considered as an additional means to reduce runoff and improve water quality.



V:\100000\dwg\Dsgrndwg\DRRAIN-STAG.dwg, 8/17/2012 11:55:58 AM, dancheta



LOCATION MAP  
N.T.S.



KEY MAP  
SCALE 1"=100'

**LEGEND**  
 - - - - - STREAM  
 - - - - - FLOWLET

**REFERENCE**  
 HUNTERDON COUNTY DIVISION OF  
 PLANNING AND BOROUGHS OF CALPON  
 TAX MAPS



**Keller & Kirkpatrick, Inc.**  
 CONSULTING ENGINEERS · SURVEYORS · PLANNERS · LANDSCAPE ARCHITECTS  
 301 Gibraltar Drive, Suite 2A Tel. (973) 377-8500  
 Morris Plains, NJ, 07950 Certificate of Authorization #E-CA28037-000 Fax (973) 887-0925

**CONCEPT PLAN**

HIGHLANDS IMPLEMENTATION PLAN STUDIES  
 STREAM CORRIDOR IMPROVEMENTS  
 BOROUGH OF CALPON, HUNTERDON COUNTY, NEW JERSEY

**PLATE No. 6**





**PUBLIC INFORMATION CENTER**

**PUBLIC INFORMATION CENTER**  
Stream Corridor Improvements  
Borough of Califon  
Hunterdon County, New Jersey



## PUBLIC NOTICE

### BOROUGH OF CALIFON

Highlands Implementation Plan Studies

### Stream Corridor Improvements

Borough of Califon, Hunterdon County, NJ

### Public Information Center

August 20, 2012

Notice is hereby given that a Public Information Center will be held on August 20, 2012 from 5:00 P.M. to 7:00 P.M. at the Borough of Califon Municipal Offices, 39 Academy Street, Califon, New Jersey. Representatives from the Borough will be present to answer questions relating to the study tasks and findings.

The purpose of this public information center is to inform local residents, and any interested parties of the results of the study tasks and provide the opportunity for public comment.

**Background:** Occurrences of flooding problems are common within the historic central core of the Borough. During the mid-late 19<sup>th</sup> century, natural waterways were diverted and drainageways constructed to collect and deliver stormwater to waterpower sites and then discharge to the South Branch of the Raritan River. Considerable segments of these natural drainage courses and early infrastructure systems still remain in-place, but today are antiquated and unable to convey modern day runoff resulting in frequent flooding.

Of specific concern is reoccurring flooding that exists along the stream corridor of an unnamed tributary which traverses a natural, wooded area between Academy Street and Main Street. During flooding events, recharge to groundwater is reduced, suspended solids and floatables bypass normal catchments, and septic systems are inundated. As a consequence, the quality of the Borough's Category 1 receiving waters is degraded. Stream corridor improvements are needed to reduce flooding, meet current stormwater management standards, and to enhance stormwater quality.

**Study Tasks:** As part of the Borough's proposed Highlands Implementation Plan Studies, scoping and preliminary design tasks were undertaken to develop viable concepts for stream corridor improvements. Study tasks included closed circuit television inspection and mapping of selective segments of the primary stormwater conveyance system, computer modeling of existing hydrologic and hydraulic conditions, and field survey and base mapping of site conditions for the review and advancement of stream corridor improvement alternatives.

**Funding:** The performance of the various study tasks and preparation of related reports is made possible through a grant from the Highlands Water Protection and Planning Council.

**More Information:** For further information contact Laura Eidsvaag, Borough Clerk at 908-832-7850.



## Scott, Donald

---

**From:** Scott, Donald  
**Sent:** Friday, July 27, 2012 8:58 AM  
**To:** 'Laura Eidsvaag'  
**Subject:** RE: Highlands Implementation Plan Studies - Interested Parties

Laura,  
Here is my current list of interested parties. Please review. Feel free to add to the list, edit, update, etc. as appropriate.

Highlands Water Protection and Planning Council  
100 North Road (Route 513)  
Chester, NJ 07930-2322  
Maryjude Haddock-Weiler, Principal Planner

Hunterdon County  
Office of the County Engineer  
Route 12 County Complex, Building #1, First Floor  
PO Box 2900  
Flemington, NJ 08822-2900  
John P. Glynn, Director Roads, Bridges & Engineering

Hunterdon County Soil Conservation District  
687 Pittstown Road  
Frenchtown, NJ 08825  
John Van Nuys, District Chairman  
Chris Testa

NJDEP Division of Water Quality  
Municipal Finance and Construction Element  
Mail Code 401-03D  
PO Box 420  
Trenton, NJ 08625 -0420  
Linda L. Coles, P.G., Principal Environmental Specialist  
Elizabeth Davis  
Daniel DiLollo, Environmental Specialist

NJDEP Historic Preservation Office  
Mail Code 501-04B  
PO Box 420  
Trenton, NJ 08625 -0420  
Daniel D. Saunders, Deputy State Historic Preservation Officer

NJ Natural Resources Conservation Service  
54 Old Highway 22, Suite 201  
Clinton, NJ 08809-1389  
Gail M. Bartok, District Conservationist

USDA-NRCS  
220 Davidson Ave, 4<sup>th</sup> Floor  
Somerset, NJ 08873  
Timothy M. Dunne, State Resource Conservationist  
David T. Lamm, State Conservation Engineer



NJ Water Supply Authority  
74 East Main Street  
Somerville, NJ 08876-2312

Kenneth H. Klipstein, Director Watershed Protection Programs  
Julie Hajdusek  
Kathy Hale  
Bob O'Neil

South Branch Watershed Association  
c/o Raritan Headwaters Association  
PO Box 273  
Gladstone, NJ 07934

Bill Kibler, Director of Policy & Science

U.S. Environmental Protection Agency  
Region 2  
290 Broadway  
New York, NY 10007

John C. Mello, Chief, Special Projects Section

**Donald A Scott**  
Director Structural Engineering Services  
**Keller & Kirkpatrick, Inc.**  
301 Gibraltar Drive, Suite 2A  
Morris Plains, NJ 07950  
Direct: 973-434-8336  
Fax: 973-887-0925  
Email: [dscott@kellkirk.com](mailto:dscott@kellkirk.com)  
web: [www.kellkirk.com](http://www.kellkirk.com)

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**BOROUGH OF CALIFON  
MUNICIPAL OFFICES**

39 Academy St., P.O. Box 368, Califon, N.J. 07830

(908) 832-7850

Emailed to Hunterdon Democrat on 7/30/12 FAX (908) 832-6085



Office of the Clerk/Administrator  
LAURA G. EIDSVAAG, R.M.C.  
ext. 201  
leidsvaag@califonboro.net

July 30, 2012

Hunterdon County Democrat  
Attn: Jeanette Kryzymalski

Re: **Borough of Califon**


I enclose the following legal notice for publication in the next edition of your newspaper:  
Thursday, August 9, 2012

**BOROUGH OF CALIFON**

**PUBLIC NOTICE**

**PUBLIC INFORMATION CENTER – AUGUST 20, 2012  
STREAM CORRIDOR IMPROVEMENTS**

Kindly send your statement and proof of publication to the undersigned at the above address.

  
Laura G. Eidsvaag, RMC  
Municipal Clerk/Administrator

c.c. Don Scott, P.E., Borough Engineer



**BOROUGH OF CALIFON  
MUNICIPAL OFFICES**

39 Academy St., P.O. Box 368, Califon, N.J. 07830  
(908) 832-7850  
FAX (908) 832-6085



e-mailed to Review on 7.30.12

Office of the Clerk/Administrator  
LAURA G. EIDSVAAG, R.M.C.  
ext. 201  
leidsvaag@califonboro.net

July 30, 2012

Hunterdon Review  
Attn: Laura

Re: **Borough of Califon**

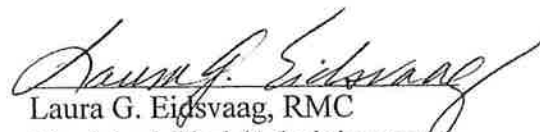
I enclose the following legal notice for publication in the next edition of your newspaper:  
Wednesday, August 8, 2012

**BOROUGH OF CALIFON**

**PUBLIC NOTICE**

**PUBLIC INFORMATION CENTER – AUGUST 20, 2012  
STREAM CORRIDOR IMPROVEMENTS**

Kindly send your statement and proof of publication to the undersigned at the above address.

  
Laura G. Eidsvaag, RMC  
Municipal Clerk/Administrator

c.c. Don Scott, P.E., Borough Engineer



**BOROUGH OF CALIFON  
MUNICIPAL OFFICES**

39 Academy St., P.O. Box 368, Califon, N.J. 07830  
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FAX (908) 832-6085



Office of the Clerk/Administrator  
LAURA G. EIDSVAAG, R.M.C.  
ext. 201  
leidsvaag@califonboro.net

**MEMORANDUM**

**TO: MaryJude Haddock-Weiler, Principal Planner, Highlands Council  
John P. Glynn, Dir. Roads, Bridges & Engin. Office of Hunterdon County Engineer  
John Van Nuys, district Chairman, H.C. Soil Conservation District  
Linda Coles, P.G., Principal Environmental Specialist, DEP, Div. of Water Quality  
Elizabeth Davis, DEP, Div. of Water Quality  
Daniel DiLollo, DEP, Div. of Water Quality  
Daniel D. Saunders, Deputy State Historic Preservation Officer, NJDEP HPO  
Gail M. Bartok, District Conservationist, N.J. Natural Resources Conservation Dist.  
Timothy M. Dunne, State Resource Conservationist, USDA-NRCS  
Ken Klipstein, Director, Watershed Protection Programs, NJWSA  
Julie Hajdusek, NJWSA  
Kathy Hale, NJWSA  
Bob O'Neil, NJWSA  
William Kibler, Director of Policy & Science, Raritan Headwaters Association  
John C. Mello, Chief, Special Projects Section, USEPA**

**FROM: Laura G. Eidsvaag, RMC, Municipal Clerk/Administrator**

**DATE: July 31, 2012**

**RE: Notice of Public Information Center on August 20, 2012**

**TO ALL INTERESTED PARTIES:**

**I have enclosed a "Public Notice – Highlands Implementation Plan Studies -Stream Corridor Improvements – Public Information Center" which is scheduled to be held on Monday, August 20, 2012 from 5:00 p.m. to 7:00 p.m.**

**Please join us for this informative session.**

**Questions?? Please call Laura at (908) 832-7850 ext. 201 or e-mail at leidsvaag@califonboro.net.**



# MEMORANDUM

TO: FILE

DRAFT

FROM: Donald A. Scott, P.E., P.P.  
Borough Engineer

DATE: August 22, 2012

RE: Highlands Implementation Plan Studies  
**Stream Corridor Improvements**  
Borough of Califon, Hunterdon County, NJ

**Highlands Water Protection and Planning Council**  
**Amended Grant Agreement No. 09-033-011-1004**

Our File No. 2011081

The Public Information Center was scheduled by the Borough to inform local residents, and any interested parties of the results of the various study tasks undertaken through a grant from the Highlands Water Protection and Planning Council. The Public Information Center allowed the examination of the reports and provided the opportunity for public comment. Comments from the public were solicited for advisement and future consideration in the advancement of the project.

## PUBLIC INFORMATION CENTER

Monday, August 20, 2012 from 5:00 pm to 7:00 pm

The meeting was held at the Borough of Califon Municipal Offices, 39 Academy Street, Califon, New Jersey.

## IN ATTENDANCE

Charles Daniel, Mayor

Laura Eidsvaag, Borough Clerk

Donald Scott, Keller & Kirkpatrick, Borough Engineer

Residents and interested parties (*attendance list attached*)

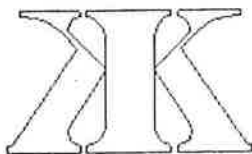
## NOTICE OF MEETING

A display notice was published in the local newspaper. A copy of the public notice was also posted at the municipal building and on the Borough's website. Copies of the notice were mailed to interested parties.

## DISPLAY BOARDS

Display boards were prepared for presentation. The follow exhibits were mounted on foam boards and referenced during the Public Information Center:

- Closed Circuit Television Inspection Exhibit (mounted color photos)
- Plan - Open Channel and Culvert at Firehouse
- Watershed Boundary and Topographic Map (color rendering)



**Keller & Kirkpatrick, Inc.**

CONSULTING ENGINEERS SURVEYORS PLANNERS LANDSCAPE ARCHITECTS

Tel. (973) 377-8500

Fax (973) 887-0925

E-Mail: [kellkirk@kellkirk.com](mailto:kellkirk@kellkirk.com)

301 Gibraltar Drive, Suite 2A

Morris Plains, NJ 07950

WEB Site: [kellkirk.com](http://kellkirk.com)





- Plan – Diversion Channel
- Plan – Main Street Cross Drains
- Plan - Academy Street Culvert
- Hydrologic & Hydraulic Analysis Figures (color rendering)
- Concept Plan (color rendering)

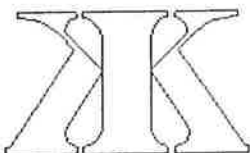
### **PRESENTATION**

An overview presentation was made of the study tasks; closed circuit television inspection and mapping of selective segments of the primary stormwater conveyance system, computer modeling of existing hydrologic and hydraulic conditions, and field survey and base mapping of site conditions for the review and advancement of stream corridor improvement alternatives.. Representatives from the Borough were present to answer questions relating to the study tasks and findings. Comments and questions were offered by local residents and interested parties.

Comments were generally offered in support of the need for stream corridor improvements. Several residents relayed incidents of flooding and conditions that were observed. Most of the questions that were posed related to the development of concept plans, and continuing efforts for advancing the preliminary design of stream corridor improvements. Considerable interest was expressed in regenerative measures to reduce stormwater runoff and individual measures such as rain gardens.

cc: L. Eidsvaag, Borough Clerk

M:\2011081\Public Outreach\PIC Meeting minutes.das.doc



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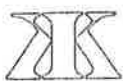
**Highlands Implementation Plan Studies  
 Stream Corridor Improvements**

BOROUGH OF CALIFON  
 HUNTERDON COUNTY, NEW JERSEY

Public Information Center  
 August 20, 2012

SIGN IN SHEET

NAME	AFFILIATION / ADDRESS	TELEPHONE NUMBER	EMAIL ADDRESS
P de la Hay/C Kitto	1 Academy St, Califon	908-212-3468	
Bob & Sue Grant	45 Main St, Califon	908-832-7727	grantscalifon@gmail.com
ERIK EAST	1 RAIL ROAD AVE	908-832-6439	EAST.ERIK@CALIFON.NJ
SUSAN LAFFLER	33 Main St.	908-578-2999	SUSANLAFFLER@CALIFON.NJ
BOB O'NEIL	New Jersey Water Supply	908-805-0315 x205	Yoneilo@paritan.com
Charles Daniel	Mayor, Califon	908-832-5866	cdaniel@califon.nj.us
Gill Smith	Councilman	832-2235	Gsmith@califon.nj.us
BRUCE MORROW	55 Main	832-4634	wmk@birenet.com
J. Raymond	37 RIVER RD	832-9649	MLP@TOLK37@COMCAST.NET
BRUCE MORROW	47 Academy St	832-0418	
Debs Dawson	Reports / Hunterdon County	287-2885	ddawson@nj.gov
TIM WEILON	27 Main St	832-2027	
Kethe Anderson	Box 20 / 100 Main St	832-7811	
MIKE MENDEA	23 PARITAN DR.	832-0380	M.Mendea@califon.nj.us
JASON BEARD	20 main st.	908-520-0109	JBEARD@CALIFON.NJ



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## Scott, Donald

---

**From:** Scott, Donald  
**Sent:** Wednesday, August 22, 2012 10:12 AM  
**To:** 'Robert Grant'  
**Cc:** 'Laura Eidsvaag'; [cdaniel@califonboro.net](mailto:cdaniel@califonboro.net)  
**Subject:** RE: Thanks, and a question or 2

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Thank you Bob for your comments. They are much appreciated as several design issues are yet in a preliminary planning phase.

As you suggest, a connection is being considered between the culvert from the firehouse parking lot and the new relief pipe in Main Street. A diversion chamber is envisioned that would control the flow of stormwater between the two (2) systems. This proposed interconnection is at a concept level and will require further evaluation.

The number of mini-diversion and recharge trenches and proposed locations have not been determined. This will require additional field investigation to identify the "best fit" and most practical locations. The hydraulic modeling will then be used to refine the number and locations for the most effective design.

Your other comments and suggestions for consideration will require additional review, and certainly merit further discussion as the project advances.

Thank you Bob for coming out to Monday's presentation. Please extend a thank you to your wife as well. It was a pleasure to meet Sue.

Don

**Donald A Scott**  
Director Structural Engineering Services  
**Keller & Kirkpatrick, Inc.**  
301 Gibraltar Drive, Suite 2A  
Morris Plains, NJ 07950  
Direct: 973-434-8336  
Fax: 973-887-0925  
Email: [dscott@kellkirk.com](mailto:dscott@kellkirk.com)  
web: [www.kellkirk.com](http://www.kellkirk.com)

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**From:** Robert Grant [<mailto:grantscalifon@gmail.com>]  
**Sent:** Tuesday, August 21, 2012 10:56 AM  
**To:** Scott, Donald  
**Cc:** Charles Daniel; Laura Eidsvaag  
**Subject:** Thanks, and a question or 2

Don, Thanks for the presentation yesterday. My wife and I thought you did a very good job, and it was both informative and encouraging. Sorry that I had to leave so quickly - I had a meeting in Clinton that I had to be present for.



You and your team have obviously done a lot of work on this, and I like the concepts and solutions you have come up with. I think the idea of a storm drain from Philhower to Mill Street is a very good one. Would this include catch basins being installed along Main Street? Also, any thought to connecting the box culvert under the Fire Company parking lot to this new storm drain? I just have a sense that reducing some of the volume of water that passes through the culvert under Bank Street would be helpful to the homes and businesses between Bank and Mill Streets that are along that raceway.

Your drawings showed some relief trenches (I think you called them) along the tributary that runs behind the homes on the west side of Main Street above Philhower. I did not see any relief trenches along the other tributary that runs behind the homes on the east side of Academy Street. Are there any planned on that side? This tributary feeds into a raceway behind #1 Railroad Avenue, which is very narrow (18 inches or less I think) and not very deep (between 2 to 3 feet I think), and seems very inadequate for the volume of water that comes from this tributary during heavy/intense rain storms. Any thoughts about what might need to be done with the raceway behind #1 Railroad Avenue?

Finally, although Califon doesn't own the land south of Academy Street going uphill along Cokesbury Road, can anything be done to divert or slow down some of the water (via relief trenches or other means) that feeds into the tributary that eventually flows into the box culvert under the Fire Company parking lot?

Hope I am not driving you crazy with all this, but thought it better to express these thoughts than to not do so.

Again, thanks so much for what you have done on this. I think the turnout from the residents yesterday showed the need for this work to go forward, and I appreciate your efforts to see this through.

Bob Grant





## Scott, Donald

---

**From:** Scott, Donald  
**Sent:** Wednesday, August 29, 2012 3:59 PM  
**To:** 'kandersen@califonboro.net'  
**Cc:** 'Laura Eidsvaag'; cdaniel@califonboro.net  
**Subject:** RE: Califon drainage project

Thank you Kathie for your e-mail. I greatly appreciate you taking the time to provide the additional information and further explanation of your concerns.

Our intent, of course, is to alleviate as best possible flooding problems along the stream corridor and Main Street without adversely impacting any downstream properties. Improvements upstream of the confluence with Frog Hollow Brook at Bank Street are proposed to reduce flooding, improve stormwater quality, and increase groundwater recharge on the mitigation (Winters property) tract. The relief pipe proposed parallel to the existing drainage system in Main Street is to provide additional conveyance capacity within the stormwater system. This is intended to remediate the current condition of storm flows now carried by over inundation and surface flooding down the roadway. The design of this system will require a comprehensive analysis as you suggest.

The project design is at a concept level and as you are aware more evaluation is needed to develop a detailed plan. Your comments and concerns will most certainly be given thoughtful consideration as the project design is advanced.

Don

**Donald A Scott**  
Director Structural Engineering Services  
**Keller & Kirkpatrick, Inc.**  
301 Gibraltar Drive, Suite 2A  
Morris Plains, NJ 07950  
Direct: 973-434-8336  
Fax: 973-887-0925  
Email: [dscott@kellkirk.com](mailto:dscott@kellkirk.com)  
web: [www.kellkirk.com](http://www.kellkirk.com)

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**From:** Kathleen Andersen [<mailto:kandersen@califonboro.net>]  
**Sent:** Wednesday, August 29, 2012 12:32 PM  
**To:** Scott, Donald  
**Cc:** Laura Eidsvaag; Charles Daniel  
**Subject:** Califon drainage project  
**Importance:** High

Hi Don,

We spoke briefly after the public hearing about the drainage plan in Califon. I wanted to further explain my concerns to you.

If my understanding is correct, the current plan is to collect water as it runs down Main Street, collect it into a pipe that would run under Main Street and then turn onto Mill Street and empty into Frog Hollow Brook.



At the same time, the piping under the Fire Company will be “improved” to collect more water, run it under and across Main Street to empty into Frog Hollow Brook near the Consignment shop.

This sounds like a good plan in theory. However, I have lived in Califon for 36 years, (directly across the Frog Hollow Brook behind Rambo’s store – a stone house), so perhaps I can shed some light on what actually happens. ( By the way, in the time I’ve been here, my house has never flooded – in fact, my basement has remained dry in all these storms.)

When it rains – and not necessarily heavily - Frog Hollow Brook cannot empty into the Raritan River fast enough. Consequently it backs up and the yard of the house on Mill Street that also backs on the Raritan River (Tommy Turtle’s house) floods with nearly every rain.

If it rains just a bit harder, the water begins backing up into the yard of 104 Mill Street (Kearns) and the Califon Book Shop on Main Street. A little harder rain will see the River running down Mill Street and put water in the basement of 108 Mill Street, David Rambo’s house on Main Street, Rambo’s store on Main Street and (perhaps – I don’t know for sure ) Acropolis spa.

Added to this situation is the fact that, the owner of the Acropolis spa (Jennifer Cusmano) erected a fence at the end of the property at 106 Mill Street. This fence

- a.) is kept barred on the spa side and cannot be opened by the residents of the Mill Street extension, and
- b) was not constructed correctly and rests on the ground so that, even if it were unlocked, a normal person would have trouble moving it.

When Mill Street floods, the residents of the Mill Street Extension are cut off and cannot leave, or move their cars to safety.

If the quantity of water is increased in any way, this situation will definitely become worse and flooding will occur with greater frequency.

I believe you mentioned that the DEP prefers drainage plans to make use of existing exits to the river – and that this would make the permitting process for Califon easier. Perhaps that is true, but I think you will find that unless some other solution is found to how the water gets into the river, you will simply move Califon’s drainage problem from higher up on Main Street down to create even more problems for the houses and businesses closer to the river – with consequent complaints.

Kathie Andersen  
Councilwoman

FYI: In the time we’ve lived here, our house has never flooded, – in fact, our basement has remained dry.



**APPENDIX**

**APPENDIX**

Stream Corridor Improvements  
Borough of Califon  
Hunterdon County, New Jersey



**APPENDIX**

**APPENDIX**  
Stakeholder Meeting Minutes





## Scott, Donald

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**From:** Scott, Donald  
**Sent:** Monday, August 16, 2010 3:19 PM  
**To:** 'Charles Daniel'; Robert and Susan Grant  
**Cc:** Laura  
**Subject:** Winters Property Site Meeting - August 16, 2010

A site meeting was held on Monday, August 16<sup>th</sup> at 9 AM. The following were present:

Ken Klipstein – NJ Water Supply Authority  
Bob O'Neil - NJ Water Supply Authority  
Julie Hajdusek - NJ Water Supply Authority

Gail Bartok – District Conservationist, NJ NRCS  
Tim Dunne – State Resource Conservationist, NJ NRCS  
Dave Lamm – State Conservation Engineer, NJ NRCS

Bill Kibler – South Branch Watershed Association

Bob Grant – Borough of Califon  
Don Scott – Borough Engineer

A brief overview of the property acquisition status was given by Ken Klipstein. Bob Grant commented on re-occurring flooding. Bill Kibler commented on water quality issues related to inundation of septic systems during flood events.

A group walk-through of the site was then conducted. Tim Dunne commented on possible measures to reduce runoff and improve on-site recharge. It was suggested that standard non-structural best management practices would not be the most effective mitigation for the site. More innovative measures such as contour trenching and strategically placed slit infiltration trenches would be a better approach. These innovative measures do not have a documented track record, and may or may not prove highly effective. Use of these measures however would provide an opportunity for a performance based monitoring program.

Following the walk-through, the group convened at the Borough Hall. Bob Grant showed the DVD from the August 2009 storm. A short discussion followed regarding a possible funding grant through the NRCS for demonstration projects using innovative conservation practices. There was also a brief discussion on the restrictions of the EIFP agreement which prohibits grading, excavation, filling, or any other activity that alters the topography of the site. NJWSA representatives indicated that there was an understanding with the EIFP staff that certain activities would be undertaken to reduce runoff, and improve recharge and water quality. They also noted that any change in the agreement at this time to specifically allow innovative conservation activities would be unlikely to achieve.

Tim Dunne indicated that his group would prepare a report of findings and recommend that soil test pits be conducted by the NRCS. The test pits would be used to determine the depth to permeable strata. The Borough would be asked to provide a backhoe to dig the test pits.

A copy of the site plan and copies of the stream corridor study mappings were given to NJ NRSC for reference.

PS – Bob, I read your summary of today's events; very complete and concise... nicely done. Both you and Bill provided excellent commentary at key points during today's discussions. Thanks much.



# MEMORANDUM

TO: FILE

FROM: Donald A. Scott, P.E., P.P.  
Borough Engineer

DATE: March 27, 2012

RE: **Stakeholders Progress Review Meeting**  
Highlands Implementation Plan Studies  
Califon Borough - Stream Corridor Improvements  
Amended Grant Agreement No. 09-033-011-1004

Hunterdon County, NJ  
Our File No. 2011081.00

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This memorandum is a brief summary of the Stakeholders Progress Review Meeting held between 3:30-5:00 p.m. at the Municipal Building Meeting Room, on Tuesday, March 20, 2012. The meeting was held to provide a forum for interested parties to be updated on the findings of tasks completed in advancing the Borough's Stream Corridor Improvement scoping studies and preliminary design tasks.

## Invitation

Interested parties representing the various stakeholders were contacted and then a meeting confirmation was sent via e-mail.

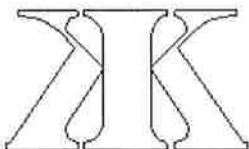
## Attendance

The following representatives of the Borough were in attendance to present the study task updates and to facilitate ensuing discussions:

- Mayor Charles Daniel, Califon Borough
- Laura Eidsvaag, Borough Clerk
- Donald Scott, P.E., P.P., Borough Engineer

Representatives of the following agencies were present:

- Ken Klipstein, NJ Water Supply Authority
- John Mello, EPA Special Projects Section
- Michael Fleischacker, Quercus Studio
- Robert Staudt, Quercus Studio



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CONSULTING ENGINEERS SURVEYORS PLANNERS LANDSCAPE ARCHITECTS

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900 Lanidex Plaza

Parsippany, NJ 07054

WEB Site: [kellkirk.com](http://kellkirk.com)



## Discussion

A brief overview of the study tasks and findings to date was given.

*Drainage System Inventory and Condition Survey.* The closed circuit television inspection of the stormwater conveyance system under the Firehouse parking lot was performed on November 15, 2011 with the assistance of the Raritan Township MUA. The inspection revealed two (2) blockages. The obstructions prevented the complete viewing of the conveyance system. A dye test was also performed to confirm the continuity of the system from the stone channel headwall to the end of culvert at Main Street. Conveyance system mapping was prepared from data recovered by field survey and from the inspector's field sketch.

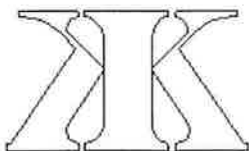
*Alternatives Study.* Available GIS mappings relating to the areas of the proposed stream corridor improvements was requested and received from the County. This mapping was supplemented by field survey performed on November 15, 16 and 17, 2011. The field survey recovered site conditions that were used to develop detailed base mapping for the assessment of alternatives and the preparation of conceptual design plans depicting the proposed stream corridor improvements.

It is proposed that the stream corridor improvements consist of three (3) major components; 1) replacement of the existing stormwater conveyance system under the firehouse parking lot, 2) construction of a stormwater relief pipe along Main Street parallel to the existing system of culverts, and 3) construction of mini-diversions from existing tributary rivulets to recharge trenches to be sited within the mitigation tract.

*Preliminary Hydrology and Hydraulic Analysis.* The unnamed tributary that traverses the mitigation tract, as well as the two primary watercourses parallel to Main Street, have not been studied or delineated by the NJDEP. CV Associates has been retained to review the watershed mapping and prepare an existing conditions hydrology analysis and a hydraulic modeling for the watercourses. This task is currently in progress.

The meeting was then opened for discussion.

*Recharge Options.* An initial field meeting and group walk-through of the Mitigation Tract was conducted on August 16, 2010 with Natural Resources Conservation Service staff, and representatives of NJ Water Supply Authority, South Branch Watershed Association and the Borough. Based on the observed conditions of the property, innovative measures such as contour trenching and slit infiltration trenches were initially suggested as possible recharge measures. As follow-up, soil test pits were conducted by the NRCS on November 12, 2010. The results of the test pits were not supportive of surface infiltration options.



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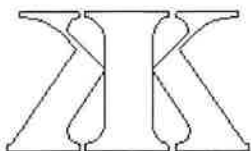
As a modification of the initially suggested measures, a more robust version of contour trenching is now being considered. Mini-diversions are proposed to direct overbank flows from the rivulets to recharge trenches. The recharge trenches are proposed to be of sufficient depth to penetrate the fragipan.

*Additional Mitigation Measures.* An opinion was offered that a re-establishment of under-canopy growth within the mitigation tract may also reduce runoff and improve water quality. Preliminary discussions between the NJWSA and Quercus Studio have been initiated to explore some possible regenerative stormwater management options (i.e. woodland restoration, water quality enhancements, demonstration rain garden).

*Appropriations Grant Status.* Initial EPA review of the filed grant application indicates two (2) issues as pivotal in the NEPA process; 1) SHPO consultation and 2) threatened and endangered species advisement. The Borough's matching portion of the grant still remains to be fulfilled. The grant will not be fully secured until these issues have been addressed.

*Next Phase Tasks.* The next *step* would be review of the results from the hydrology and hydraulic analyses. The next *phase* tasks would be advancement of the conceptual design to the preliminary design of improvements. This phase would also include a pre-application meeting with NJDEP to identify permitting issues and potential requirements.

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**APPENDIX**

**APPENDIX**  
Various Correspondences





State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
Division of Water Quality

Municipal Finance and Construction  
Office of Technical Services

Phone (609) 633-1170 Fax (609) 633-8165  
<http://www.state.nj.us/dep/dwq/mface.htm>

CHRIS CHRISTIE  
Governor

KIM GUADAGNO  
Lt. Governor

BOB MARTIN  
Commissioner

17 March 2010

Julie A. Hajdusek, Property Administrator  
New Jersey Water Supply Authority  
PO Box 5196  
Clinton, NJ 08809

Re: Roerig and Winters Properties Land Acquisition  
Bethlehem Township and Califon Borough, Hunterdon County  
New Jersey Environmental Infrastructure Financing Program  
Project No. 343054-06  
Cultural Resource Review

NEW JERSEY  
PROPERTY ADMINISTRATION  
MUNICIPAL FINANCE AND CONSTRUCTION  
2010 MAR 31 10 32 A

Dear Ms. Hajdusek:

The Office of Technical Services (Office) has completed the cultural resources review of the proposed projects, which consist of the purchase of two parcels of land for open space preservation.

The Roerig Parcel is located in Bethlehem Township and consists of approximately 40 acres located between Jugtown Mountain Park and Tower Hill Park. Because construction on or use of the land for purposes other than passive recreation will not be permitted on property financed by the Environmental Infrastructure Finance Program, any significant subsurface cultural resources that may be present should not be affected by the acquisition of these parcels. Therefore, no cultural resource survey is required.

The Winters Parcel is located within Califon Borough and consists of approximately 13.5 acres. The Winters Parcel is completely within the boundaries of the Califon Historic District, which is listed on the New Jersey and National Registers of Historic Places. The western portion of the parcel will be funded by the Environmental Infrastructure Financing Program. The western portion includes a natural, intermittent watercourse. Within this portion of the parcel is a low earthen berm or dam constructed in the past to create a pond from which ice could be harvested. Outside of the parcel, the watercourse enters a stone culvert system originally constructed in the nineteenth century to provide water to power mills. On the eastern portion of the parcel there is a gravel access road, a

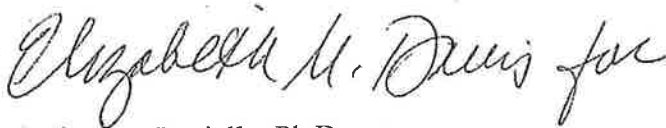


second intermittent watercourse, and a series of ditches excavated approximately thirty years ago to channel water into the town's stormwater system.

Any significant cultural resources that may be present should not be affected by the acquisition of these parcels and no cultural resource survey is required. Furthermore, in the opinion of the Office, the purchase of the Winters parcel for open space preservation does not constitute an encroachment on the New Jersey State Register of Historic Places-listed Califon Historic District. Please be aware, however, that any modifications to the parcel, such as infilling of the recent drainage ditches to reduce stormwater flooding, excavation, or other landscape modification, may require an Application for Project Authorization to be submitted by the applicant to the New Jersey Historic Preservation Office. This requirement is irrespective of whether funding for land acquisition is acquired from the NJEIT.

If the projects change, a revised determination must be obtained from the Office. If you have any questions regarding the cultural resources aspect of this project, please do not hesitate to contact Cregg Madrigal, Ph.D., of my staff at (609) 633-1170, or [cregg.madrigal@dep.state.nj.us](mailto:cregg.madrigal@dep.state.nj.us).

Sincerely,



Anthony J. Puniello, Ph.D.  
Chief, Office of Technical Services

- c. Maryclaire D'Andrea, Acting Executive Director, NJ Environmental Infrastructure Trust  
John Vetter, Archaeologist, USEPA Region II  
Kate Marcopul, Historic Preservation Specialist, NJ Historic Preservation Office  
Gwen Breault, Environmental Reviewer, OTS



United States Department of Agriculture



Natural Resources Conservation Service  
687 Pittstown Road – Suite 2  
Frenchtown, NJ 08825

Tel. 908-782-4614 X3  
Fax 908-782-0501  
<http://www.nj.nrcs.usda.gov>

December 16, 2010

Mayor Charles Daniel  
Califon Borough  
39 Academy Street  
Califon, NJ 07830

Dear Mr. Daniel:

Attached you will find a trip report from Fred Schoenagel, NRCS Resource Soil Scientist, which describes in detail the soil pits dug on 11/12/2010 at the "Winters" property in Califon Boro.

Soil pits were recommended by Tim Dunne, NRCS State Resource Conservationist, and Dave Lamm, NRCS State Engineer, to explore runoff control options using infiltration facilities. Digging soil pits would help identify potential infiltration sites. Findings from the 11/12 site visit indicate that the soils are different from those mapped. Instead of excessively drained Parker soil, we found soils with a fragipan ranging from 21-33". A fragipan is a dense, brittle subsurface horizon that restricts downward movement of water. Fragipan in these soils is keeping the water perched near the ground surface, limiting natural infiltration. Fragipans will limit the effectiveness of any infiltration practices we had hoped to demonstrate on this site.

Therefore, our recommendations are to control erosion on some of the critically eroding areas on the property, obtain a forest management plan for the woodlot, and to examine more closely the sources of storm water runoff adjacent to the site (such as the dam along the old mill).

Any questions, please contact our office.

Sincerely,

A handwritten signature in black ink that reads "Gail Bartok".

Gail Bartok  
District Conservationist

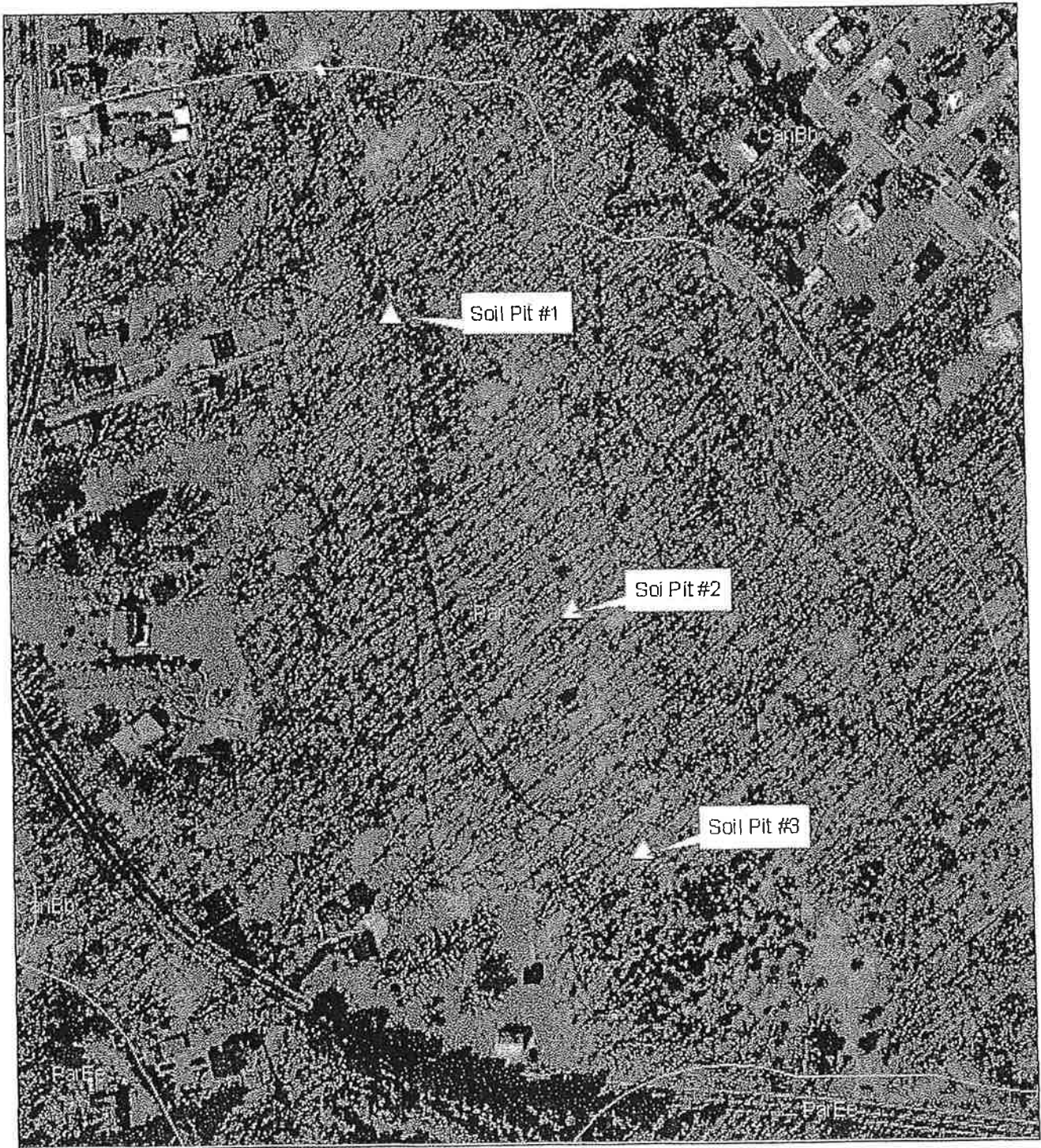
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**Soils Investigation  
November 12, 2010  
Califon Boro, Hunterdon County**

**Scale=1:2000**



54 Old Highway 22, Suite 201, Clinton NJ 08809-1389  
Tel: 908-735-0737 Fax: 908-735-0744  
<http://www.nj.nrcs.usda.gov>

November 30, 2010

To: Gail M. Bartok  
District Conservationist  
Frenchtown, New Jersey

Subject: Soils Investigation for Califon Boro, Hunterdon County

Gail,

I summarized my findings from the soils investigation I performed on November 12, 2010. The purpose of this soils investigation was to evaluate the soil conditions, and to verify the soil mapping, on a property located in Califon Boro, Hunterdon County. One objective of this soils investigation was to determine if this site was suitable for the installation of stormwater best management practices to help alleviate flooding that is occurring within the boro as a result of water entering and flowing through this site.

Present along with you and I for the soils investigation were Charles Daniel, the Mayor of Califon Boro; Clark Kuhar, who provided and operated the backhoe for the purpose of digging soil pits for us; and Dave Clapp, Agricultural Resource Specialist from the Frenchtown NRCS Service Center.

The property we evaluated was a broad side slope with a slope ranging from approximately 10 to 14 percent. At its base the side slope graded into a toeslope with a slope of approximately 3 to 4 percent. Rock fragments in the form of stones (10 to 24 inches in diameter) covered approximately 15 to 20 percent of the ground surface.

According to the SSURGO digital soils coverage of Hunterdon County, the property was mapped with the map unit "ParC - Parker cobbly loam, 3 to 15 percent slopes". The Parker soil series is represented by soils that are typically somewhat excessively drained, meaning that there is no water table present within 40 inches of the ground surface, and that water moves very quickly through this soil. Parker soils typically contain 35 to 70 percent rock fragments throughout most of the soil profile, and can increase to 90 percent in lower horizons in the profile.

The soils in this area were observed using soil pits dug with a backhoe. Each location of digging was located with a Garmin GPS unit; the locations of the soil pits are shown on the attached location map.



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We began the investigation near the upper third of the side slope. The backhoe excavated a soil pit within this area; within this soil pit I observed the following (soil textures are USDA texture classes, and soil colors are Munsell notation):

Soil Pit #1: upper third of side slope					
Depth (inches)	Color	Texture	Structure	Rock fragments	Notes/observations
0 to 9	7.5YR 3/2	loam	granular	5%	
9 to 21	7.5YR 4/4	clay loam	subangular blocky	15 %	No redox present
21 to 42	7.5YR 4/6	sandy clay loam	prismatic	25%	Fragipan horizon; no redox present
42 to 55	7.5YR 4/6	sandy clay loam	platy	25%	Fragipan horizon; no redox present
Notes: <ul style="list-style-type: none"> <li>• slope = 14 percent</li> <li>• surface stoniness = 20 percent</li> <li>• matches the Annandale soil series</li> <li>• no water table observed</li> <li>• fragipan begins at 21 inches</li> </ul>					

Based on what I observed in this soil pit, the soil represented by this soil pit is not the Parker series, but more closely matches the Annandale series, which is a well drained soil with a fragipan horizon present within the profile. A "fragipan" is a dense, brittle subsurface horizon that acts as a restrictive horizon that impedes the downward movement of soil water and roots. Fragipans can have soil structure types such as prismatic and platy, which do not contain a great number of vertical cracks or spaces to allow water to move downward and consequently, are conducive to holding up water within a soil profile. Soil water that cannot move down through a fragipan gets "perched" on top of the fragipan, resulting in a perched water table.

Within this soil profile I did not observe any evidence of a water table being perched on top of the fragipan, which would have been evidenced by grey soil colors; however, the fragipan within this soil may still be able to perch water periodically and conduct water laterally on top of it downslope to lower areas, so this part of the site might be contributing subsurface water to areas downslope.



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We then moved downslope to about the central third of the slope, but still within the same ParC map unit delineation, and dug another soil pit; within this soil pit I observed the following (soil textures are USDA texture classes, and soil colors are Munsell notation):

Soil Pit #2: central third of side slope					
Depth (inches)	Color	Texture	Structure	Rock fragments	Notes/observations
0 to 11	10YR 3/2	loam	subangular blocky	5%	
11 to 29	10YR 4/3	silty clay loam	subangular blocky	10 %	20% 10YR 6/2 iron depletions 5% 7.5YR 4/6 iron concentrations
29 to 48	7.5YR 4/4	sandy clay loam	prismatic and platy	40%	Fragipan horizon; no redox present
Notes: <ul style="list-style-type: none"> <li>• slope = 10 percent</li> <li>• surface stoniness = 15 percent</li> <li>• matches the Califon soil series</li> <li>• water table begins at 11 inches</li> <li>• fragipan begins at 29 inches</li> </ul>					

Based on what I observed in this soil pit, the soil represented by this soil pit is not the Parker series, but more closely matches the Califon series, which is a somewhat poorly drained soil with a fragipan horizon present within the profile. A soil with a drainage class of "somewhat poorly drained" contains a water table that begins at depths between 6 and 18 inches below the ground surface.

Within this soil profile I did observe evidence of a water table being perched above the fragipan, which is evidenced by the low chroma (chroma  $\leq 2$ ) soil colors observed as iron depletions in the horizon found between 11 and 29 inches below the ground surface. The reason this water table is perched is evidenced by the fact that the fragipan horizon does not express any reduction or oxidation of iron in the form of redox features, and because the matrix (or dominant) soil color of the fragipan is a "high chroma" matrix soil color (chroma  $> 2$ ). The high chroma soil colors in the fragipan show that this horizon is not saturated with water, unlike the soil horizon above the fragipan. The water perched above the fragipan in the soils on this part of the site may be contributing a certain amount of subsurface water to areas downslope.





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We then moved further downslope to the lower third of the side slope, but still within the same ParC map unit delineation, and dug another soil pit; within this soil pit I observed the following (soil textures are USDA texture classes, and soil colors are Munsell notation):

Soil Pit #3: lower third of side slope					
Depth (inches)	Color	Texture	Structure	Rock fragments	Notes/observations
0 to 14	10YR 2/2	silty clay loam	subangular blocky	5%	Dark surface due to organic matter accumulation
14 to 23	2.5Y 6/2	clay loam	subangular blocky	10 %	15% 7.5YR 4/6 iron concentrations
23 to 33	2.5Y 6/1	silty clay loam	subangular blocky	10 %	25% 7.5YR 4/6 iron concentrations
33 to 51	7.5YR 4/4	sandy clay loam	prismatic and platy	10%	Fragipan horizon  25% 10YR 5/2 iron depletions along prism faces  15% 7.5YR 4/6 iron concentrations between prism faces
Notes: <ul style="list-style-type: none"> <li>• slope = 6 percent</li> <li>• surface stoniness = 15 percent</li> <li>• matches the Cokesbury soil series</li> <li>• water table near surface; evidenced by dark surface horizon and low chroma matrix colors in subsurface horizons</li> <li>• fragipan begins at 33 inches</li> </ul>					

Based on what I observed in this soil pit, the soil represented by this soil pit is not the Parker series, but more closely matches the Cokesbury series, which is a poorly drained soil with a fragipan horizon present within the profile. A soil with a drainage class of "poorly drained" contains a water table that begins at depths of less than 6 inches below the ground surface.

Evidence of a water table at or near the soil surface is found in the dark colored surface horizon at 0 to 14 inches, as evidenced by the low value (value of 2) in the matrix color of this



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horizon. A surface horizon can achieve a dark color due to an accumulation of organic material, which is common in soils that are saturated with water at or near the ground surface. In addition, there is evidence of saturation by water in the form of low chroma matrix soil colors in the subsurface soil horizons found between 14 and 33 inches below the ground surface. The matrix colors of these soil horizons are evidence of periodic saturation, and are the result of the reduction and mobilization of iron in these horizons. A significant amount of iron has been reduced and mobilized, leaving behind the background grey mineral soil colors. Evidence of a perched water table is found within the fragipan horizon at 33 to 51 inches, as this horizon has a high chroma matrix soil color. The fragipan is not saturated with water and consequently does not have a low chroma matrix color nor any redox within its matrix except along the prism faces of the prismatic structure. The prism faces allow a small amount of water to slowly percolate between the prisms and can allow redox features to form. The water perched above the fragipan in the soils on this part of the site may be contributing a certain amount of subsurface water to areas downslope.

This property does not show any evidence of the existence of the Parker soil series, and therefore the soil mapping of this property cannot be used as a guide for the use and management of the soils on this property. The soils that do exist here include the well drained Annandale series, the somewhat poorly drained Califon series, and the poorly drained Cokesbury soil series.

The fragipans in these soils are controlling the hydrology of the property, resulting in water tables that are close to the ground surface. Based on where the soils were found on the site, it appears that the water table gets closer to the ground surface as you go from the upper third of the side slope to the lower third; however, the hydrology of the property is probably more complex than that, and all three soils could occur anywhere on the property. Whatever practices are used to address the water tables on this property, they will have to be technologies specifically designed for perched water table situations. As we discussed at the site, it seems likely that a very significant source of the water leaving this property is actually originating from areas adjacent to this property, especially areas adjacent to the lower third of the side slope, and that those sources may be contributing a much larger amount of stormwater than this property is contributing on its own. Perhaps those areas will require some study as well to determine the best course of action to deal with the flooding by stormwater of Califon Boro by this property

If you have any questions or comments on this report, please do not hesitate to contact me.

Respectfully submitted,

Fred C. Schoenagel III  
Resource Soil Scientist, Clinton, NJ

Cc: Ron L. Taylor, State Soil Scientist, Somerset, New Jersey  
Timothy M. Dunne, State Resource Conservationist, Somerset, New Jersey  
David T. Lamm, State Conservation Engineer, Somerset, New Jersey  
David Clapp, Agricultural Resource Specialist, Frenchtown, New Jersey



## Scott, Donald

---

**From:** Rob Ent, Jr. [robert@co.hunterdon.nj.us]  
**Sent:** Monday, November 14, 2011 1:07 PM  
**To:** Scott, Donald  
**Subject:** Highlands Stream Corridor Study for Califon Boro

Mr Scott

John Glynn asked me to put together a GIS map that you requested in your 11/9/2011 memo to Mr. Glynn and a have a couple of questions:

What type of deliverable do you need paper maps or digital maps? As for a paper I would not to plot 30 scale paper map because the max width of our plotter is 36" and the project will fit on a 36" wide sheet, in order to fit the project area on one sheet, the best I could do would be a 40 scale map with a sheet size of 36" x 50".

I can give you a cad drawing of the map (parcels, contours and roads, no aerial photo) and you could scale it on your end. If you are looking for a pdf or similar image file (tiff, jpeg, etc.) the file size will be to large to email I would have to send you a cd of the map, but I would be able to include the areal photography.

Please let me know what you would like me to produce.

## Thanks

### Rob

*Robert Ent, Jr., PLS*  
*Land Surveyor*  
*Hunterdon County Engineering Department*  
*robert@co.hunterdon.nj.us*

**From:** Niemeyer, Sean  
**Sent:** Monday, November 14, 2011 3:43 PM  
**To:** Robert Ent  
**Cc:** Scott, Donald  
**Subject:** Re: Highlands Stream Corridor Study for Califon Boro

Rob,

Don asked me to contact you regarding the deliverable of the GIS map that you are putting together for him. The best format for our use would be digital; this would allow us a little more flexibility in scales, sheet sizes, etc... Of course as you stated the files would be too large in size to email. We do have a secure file transfer site set up that you could upload the files to as an alternative to mailing a CD. You can access the site via this link:

<https://files.gpinet.com/slingshot/amlogin/login.jsp>

Then click on the "First time user? Register Here", follow the instructions and then you will be able to upload the files to our secure site where I'll be able to download them. Of course if you have a slow internet connection it might be better just to mail a CD. Either way just let me which way you are going to deliver the files so I can be on the lookout for either an email notice from the site or a CD.

--

**Sean Niemeyer**  
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## HIGHLANDS IMPLEMENTATION PLAN STUDIES

### Stream Corridor Improvements

#### Borough of Califon

Pre-field survey briefing on Monday, November 14, 2011.

1. Establish a baseline along Main Street from Mill Street To Philhower Avenue.
2. Locate Mill Street discharge and take invert gr.
3. Locate Mill Street culvert and get size and inverts.
4. Locate inlets 69, 70, 71, 72 and 73 and take inverts.
5. Locate Main Street 48" x 48" culvert at Columbia Trail, confirm size and take invert at discharge.
6. Locate 2-36" pipes under Columbia Trial, confirm size and take inverts.
7. Locate intake of stone masonry channel at Firehouse, get size and take invert.
8. Locate upstream open stone channel, get size and take inverts.
9. Locate the point of confluence of the Main Street rivulet.
10. Locate inlets 1, 2, 3, 4, and 5 and take inverts.
11. Recover CCTV mark-out at Firehouse parking lot.
12. Locate inlets 6, 7, 8 and 9 and take inverts.
13. Locate covered channel (Inlet 10) and take inverts.
14. Locate upstream open stone channel, get size and take inverts.
15. Locate inlets 11, 20, 21, 22, 23, 26 and 27 and take inverts.
16. Locate headwall 25 and take invert.
17. Locate Main Street 36" culvert, confirm size and take inverts (76 & 77).
18. Locate inlets 29 and 30 and discharge 28 and take inverts.
19. Locate inlets 32 and 33 and discharge 31 and take inverts.
20. Confirm tributary points of confluence along the Main Street rivulets.







State of New Jersey

MAIL CODE 501-04B  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NATURAL & HISTORIC RESOURCES  
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BOB MARTIN  
Commissioner

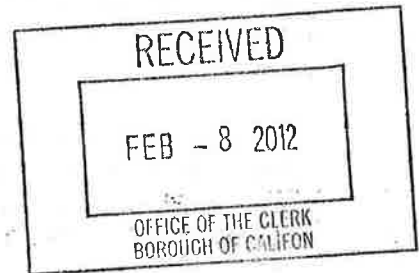
CHRIS CHRISTIE  
Governor

KIM GUADAGNO  
Lt. Governor

May 12, 2012  
cc: Council  
D. Scott  
J. Mello

February 6, 2012

Dr. John F. Vetter  
Division of Environmental Planning & Protection  
United States Environmental Protection Agency - Region 2  
290 Broadway, 25th Floor  
New York, NY 10007-1866



Dear Dr. Vetter:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the *Federal Register* on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40544-40555), I am providing Consultation Comments for the following proposed undertaking:

**Hunterdon County, Califon Borough  
Proposed Railroad Avenue/Main Street Storm Water Improvements  
United States Environmental Protection Agency**

These comments are provided in response to a submission regarding the proposed Railroad Avenue/Main Street Storm Water Improvements, made by the Borough of Califon.

**800.4 Identification of Historic Properties**

The above referenced project proposes upgrades to the existing storm water management system in Califon Borough, due to the systems inadequacy to handle current storm water flows. The project proposes the replacement of the existing storm water piping and open channel system, extending from Main Street to the natural stream channel on the Winters mitigation tract. In addition, the project also proposes the installation of a storm water conveyance relief pipe along Main Street, parallel to the existing system of culverts, to provide additional capacity to the discharge point at Mill



Street. Finally, the project proposes the construction of mini-diversions from existing tributary rivulets to infiltration and recharge trenches throughout the mitigation tract.

Based upon the documentation submitted, the project area is located within the Califon Historic District, listed in the National Register of Historic Places on October 14, 1976. In addition, the project site is also located within close proximity to the unnamed tributary located on the Winters mitigation tract. Well-drained terraced areas within 500 feet of a stream and/or wetland complex is consistent with current archaeological models for locations containing Native American archaeological deposits. Current models for archaeological site sensitivity in New Jersey are available at our webpage at: [http://www.nj.gov/dep/hpo/identify/arkeo\\_res.htm](http://www.nj.gov/dep/hpo/identify/arkeo_res.htm). Therefore, the project site identified in the documentation provided indicates a high potential for containing Native American archaeological resources and a low to moderate potential for historic archaeological resources.

In consequence, based on the site sensitivity for Native American and historic archaeological deposits, and in order to complete 36 CFR § 800.4 - Identification of Historic Properties, a Phase I archaeological survey, must be conducted within the project's area of potential effects (APE) to identify the presence or absence of archaeological resources within the APE.

Please note, as part of the Phase I survey, the HPO also requests documentation of the existing stone masonry channel and culvert system, located behind the firehouse. The HPO requests that a complete set of architectural survey forms be completed for the property in order to adequately evaluate the historic significance and integrity of the resource. The survey product shall include: Base Form, Building Attachment(s), Eligibility Worksheet, and Continuation Sheets as required. Survey forms and instructions are available on the HPO's website at <http://www.state.nj.us/dep/hpo/identify/survarcht.htm>. The survey forms shall be completed in accordance with the HPO's *Guidelines for Architectural Survey* and the Standards for Architectural Survey Reports at N.J.A.C. 7:4-8.6. All survey work, as well as any eligibility evaluations, should be performed by individuals who meet the National Park Service's Professional Qualifications Standards for architectural history and/or history.

All phases of the archaeological survey and reporting will need to be in keeping with the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation*. Survey must also be consistent with the HPO's Phase I survey guidelines, available through the HPO's web page at: (<http://www.nj.gov/dep/hpo/identify/survarkeo.htm>). Reasoning and documentation for areas excluded from testing must be included in the technical report. Evaluations to determine the National Register eligibility of archaeological sites must be in keeping with the National Park Service's 2000 National Register Bulletin, *Guidelines for Evaluating and Registering Archeological Properties*. The individual(s) conducting the work will need to meet the Secretary of the Interior's Professional Qualifications Standards for archaeology (48 FR 44738-9).



If potential human burials or human skeletal remains are encountered, all ground disturbing activities in the vicinity shall cease immediately and the Historic Preservation Office should be contacted, as well as any appropriate legal officials. The potential burials shall be left in place unless imminently threatened by human or natural displacement.

#### **New Jersey Register of Historic Places Act**

In addition, please note that because the project is being undertaken by the Borough in the Califon Historic District, which is listed on the New Jersey Register of Historic Places, this project requires review under the New Jersey Register of Historic Places Act. The New Jersey Register of Historic Places Act, Chapter 268, Laws of 1970, requires prior written authorization from the Commissioner of the Department of Environmental Protection for any state, county, or municipal, (or any agent thereof), undertaking which may effect properties listed on the New Jersey Register. The Borough of Califon should submit an application for project authorization under the New Jersey Register of Historic Places Act prior to project implementation. The application can be downloaded from our website at: ([http://www.nj.gov/dep/hpo/2protection/sr\\_revapp.pdf](http://www.nj.gov/dep/hpo/2protection/sr_revapp.pdf)).

#### **Additional Comments**

Thank you for providing the opportunity to review and comment on the potential for the above-referenced project to affect historic properties. The HPO looks forward to continued consultation for the improvements of storm water management in Califon Borough, pursuant to Section 106 of the National Historic Preservation Act. If additional consultation with the HPO is needed for this undertaking, please reference the HPO project number 12-0137 in any future calls, emails, or written correspondence to help expedite your review and response. Please do not hesitate to contact Jesse West-Rosenthal (609-984-6019) of my staff with any questions regarding archaeology or Jonathan Kinney (609-984-0141) with questions regarding historic architecture.

Sincerely,



Daniel D. Saunders  
Deputy State Historic  
Preservation Officer

Cc: Laura Eidsvaag – Califon Borough  
John Mello – EPA (via e-mail)

DDS/KJM/JWR

