Tighe&Bond

Washington Village
Norwalk, Connecticut
FMC/FME 2014-01124

Response to CTDEEP Comments

Prepared For:

Norwalk Redevelopment Agency
Norwalk, Connecticut

July 24, 2014

23-1020-1-01
July 24, 2014

Tighe&Bond
www.tighebond.com

Ms. Evonne Klein
Commissioner
State of Connecticut
Department of Housing
505 Hudson Street
Hartford, Conencticut 06106

Re: **Washington Village, Norwalk**
Clarification of CTDEEP Comments

Dear Ms. Klein:

This letter is written in response to additional comments by the Connecticut Department of Energy and Environmental Protection in its July 14, 2014 e-mail to John Rosenthal of your staff on the Washington Village project. These comments were clarified during a conference call between CTDEEP, CTDOH, the Norwalk Housing Authority, the developer, and ourselves on July 16.

We have repeated CTDEEP's concerns outlined in the July 14 e-mail below, with our response following in bold type.

1. The applicant (CT Department of Housing) has not shown that the proposal will not pose a hazard to human life, health or property in the event of a base flood for critical activity or in the case of the exemption which requires the applicant to demonstrate that the proposed critical activity will not injure persons or damage property. The application submitted to DEEP does not include funding or proposed roadway work at the intersection of Day Street and Raymond Street or any work in Ryan Park. Therefore, this application does not provide dry access/egress as certified by the applicant. It is not sufficient to mentioned as a future project or show as a conceptual master plan. The applicant must modify the application materials to remove and clearly demonstrate how this application will assure no hazard to life or property.

   <u>Raymond and Day Intersection</u>

   Since our last submission, the City has obtained funding for the proposed improvements at Day and Raymond Street, which are currently under design by our office. We have included in Appendix A, the following materials:

   - **Updated drainage plan and profile of Raymond and Day Streets, including more information on location of drainage structures.**
     - PP.01 Raymond Street Roadway Plan and Profile
     - PP.02 Day Street Roadway Plan and Profile – 1
     - PP.03 Day Street Roadway Plan and Profile – 2

- **Calculations verifying the sizing of the proposed drainage improvements.**

We have also included supporting documentation regarding the funding and design of the Raymond and Day project in Appendix B:

- **Letter from Mayor Harry W. Rilling of the City of Norwalk summarizing the design intent and funding sources for the intersection improvement project.**

- **Copy of Tighe & Bond's design contract with the City of Norwalk for the Raymond and Day intersection design.**

- **Schedule of Day & Raymond Street Improvements**

The proposed drainage improvements will not adversely impact drainage in the area as shown by our calculations. As a reminder, the Zoning Commission approval requires the Raymond and Day Intersection improvements to be constructed in order to obtain a Certificate of Zoning Compliance. A Certificate of Zoning Compliance is required before a Certificate of Occupancy will be issued for the buildings.

<u>Ryan Park</u>

The City has also received funding for the Ryan Park improvements, as mentioned in the letter from the City of Norwalk Redevelopment Agency. We have prepared a concept plan showing how access will be achieved across the park, by constructing a level access path, with a stabilized surface suitable for emergency vehicle passage, across the park at or above elevation 12 NAVD88. The proposed improvements will not adversely impact drainage, and the drainage from portions of the park has been incorporated into the Raymond/Day roadway design. The following is included in Appendix C:

- **Ryan Park Concept Plan, Drawing RP.01**

- **Design contract with the City of Norwalk for the Ryan Park Dry Access Design.**

<u>Updated Flood Contingency Plan</u>

We have updated the Flood Contingency Plan of the application to remove references allowing residents to shelter in place. The updated flood contingency plan appears in Appendix D.

2. There is a discrepancy in the 500-year flood elevation. Parts of the application reference 13.6 NAVD88 while others reference 15 NAVD88. The guidance provided by DEEP at the time the application was submitted was to multiply the 100-year flood elevation by a factor of 1.25 thereby calculating a 500-year elevation of 15 NAVD88. All parts of the application must reference the 500-year flood elevation at 15 NAVD88. Please be aware that since the submittal of the application the multiplier has changed to 1.5. Since this project was submitted during transition of

the FEMA map modernization program we will allow the use of 1.25 for this project, however 1.5 must be used on all future projects.

We agree that the flood elevation is elevation 15 NAVD88 for the 0.2 percent chance event. We have revised the previous application forms where the 13.6 NAVD88 was previously referenced. Please refer to the following updated forms in Appendix E:

- **Attachment A (revised to correct 0.2% chance flood elevation)**
- **Attachment H2, Section I, Question 3c (revised to correct 0.2% chance flood elevation)**
- **Attachment H2, Section III (for $ 3,000,000 Raymond/Day Grant)**
- **Attachment H2, Section III (for $ 4,500,000 Critical Community Improvements Implementation Grant)**
- **Attachment H2, Section III (for $ 400,000 CDBG Entitlement for Ryan Park)**

3. The Erosion and Sedimentation Control Plans note #28 must include the 500 year elevation of 15 feet NAVD88.

Note 27 (Building A) and Note 28 (Building B and Buildings C-D-E) have been revised to include the 0.2 percent chance floodplain elevation. The updated sediment and erosion control drawings appear in Appendix F.

4. The documentation supporting the stormwater infiltration galleries is insufficient. The response states that percolation tests will be performed during construction documents process to validate the estimated infiltration rates and proposed storage system sizing. This is not adequate if the infiltration galleries are used for the required detention and water quality treatment.

We have attached the geotechnical report for the site in Appendix G, and a memo from the geotechnical engineer certifying the permeability of the soils. The soils permeability is faster than the design rate we initially assumed.

5. The documentation requested showing that the city has accepted the new stormwater into the city system is not sufficient. The response references the approval resolution from the City Zoning Permit which was included in Appendix G. It was not clear where the city reviewed and approved the stormwater system and any increases in runoff.

We have included a letter from the City of Norwalk Department of Public Works in Appendix H confirming that the Department reviewed our drainage computations for the Washington Village Project, and found them acceptable, and also grants the developer the right to connect to the City storm drainage system. The DPW letter also discusses the review of the drainage calculations for the proposed plans for the Raymond and Day intersection.

We thank you for the opportunity to respond to these comments. Should you have any additional questions, please feel free to contact us.

Sincerely,

TIGHE & BOND, INC.

Joseph Canas, PE, LEED AP, CFM
Project Manager

John W. Block, PE, LS
Senior Vice President

J:\N\N1020 Washington Village FPM Services\Administration\Letters\N1020 2014_07-24 letter e klein re ctdeep responses.docx

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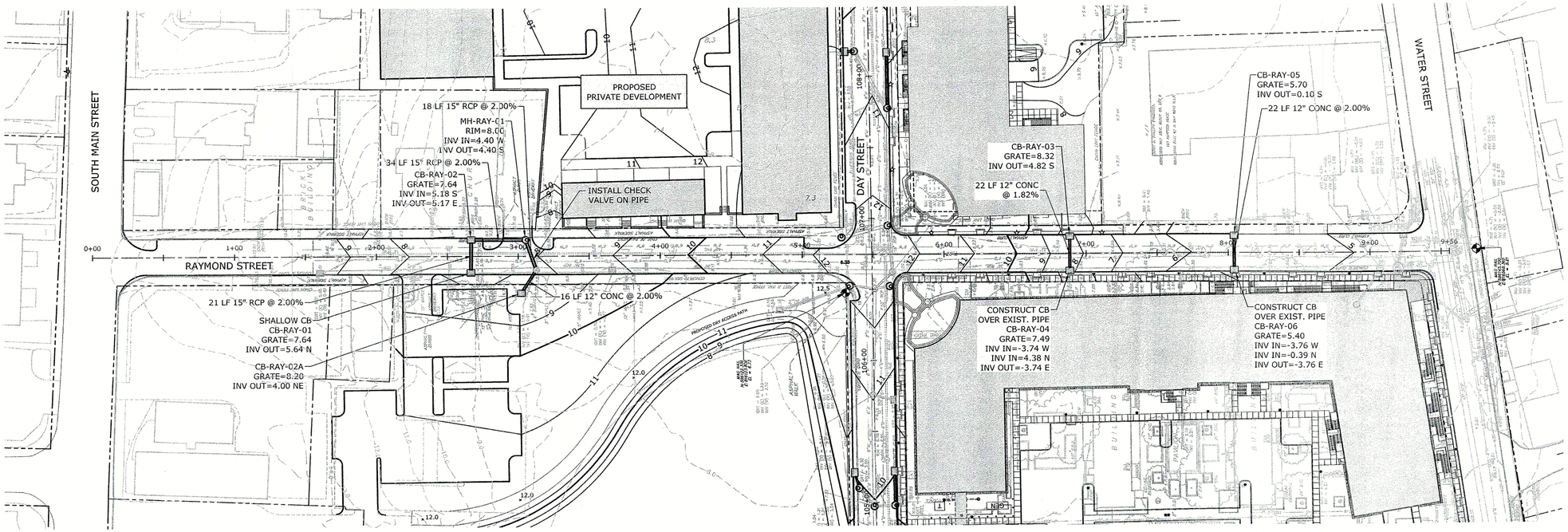
APPENDIX A



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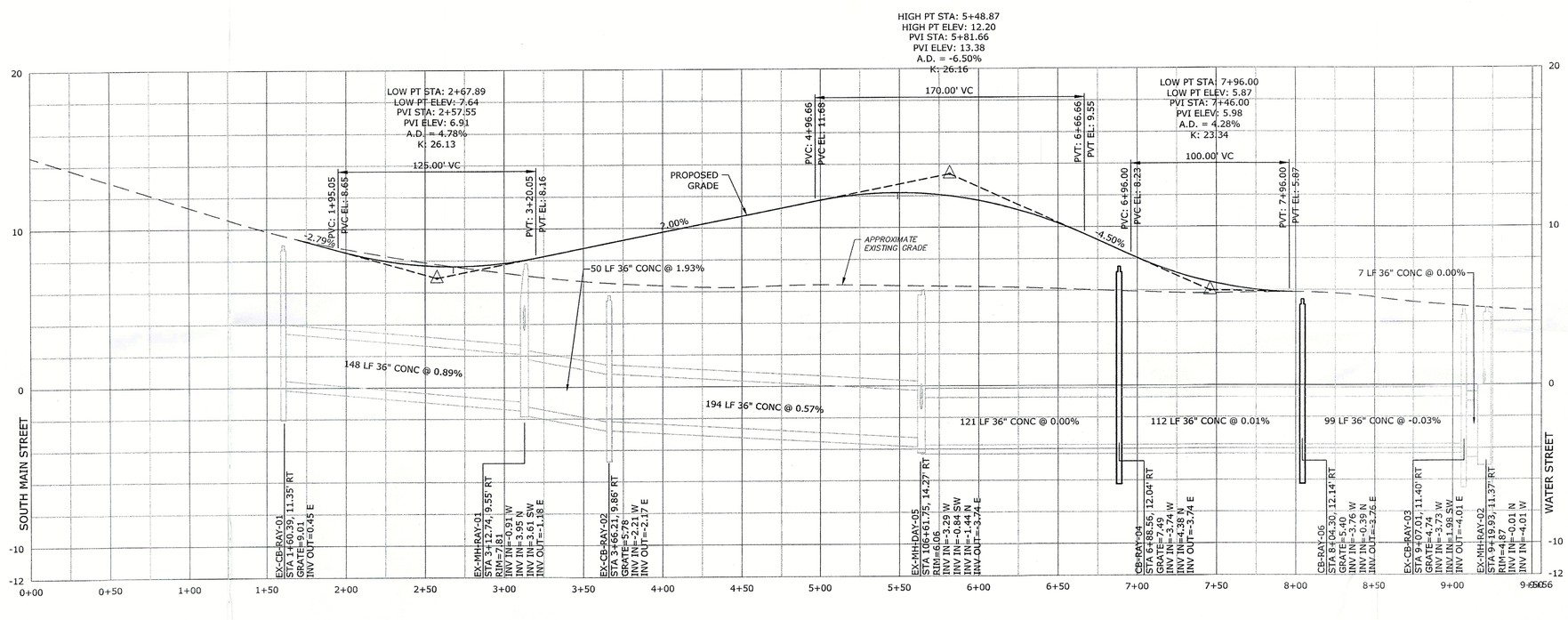
SCALE IN FEET

0 40' 80'

GRAPHIC SCALE



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PROGRESS PRINT

STATE OF CONNECTICUT
JONATHAN A. ROSATI
No. PEN.0026070
LICENSED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT
JOHN W. BLOOM
8488
LICENSED PROFESSIONAL ENGINEER
7/23/14

Raymond St. and Day St.

City Of Norwalk

Norwalk, Connecticut

July, 2014

MARK	DATE	DESCRIPTION
PROJECT NO:		N1039
FILE:		PP-N1039-40.dwg
DRAWN BY:		MDS
CHECKED:		JAR
APPROVED:		JWB

RAYMOND STREET
ROADWAY PLAN
AND PROFILE

SCALE: 1" = 40'

PP.01

07/23/201

Jul 23, 2014-2:15pm Plotted By: JAR
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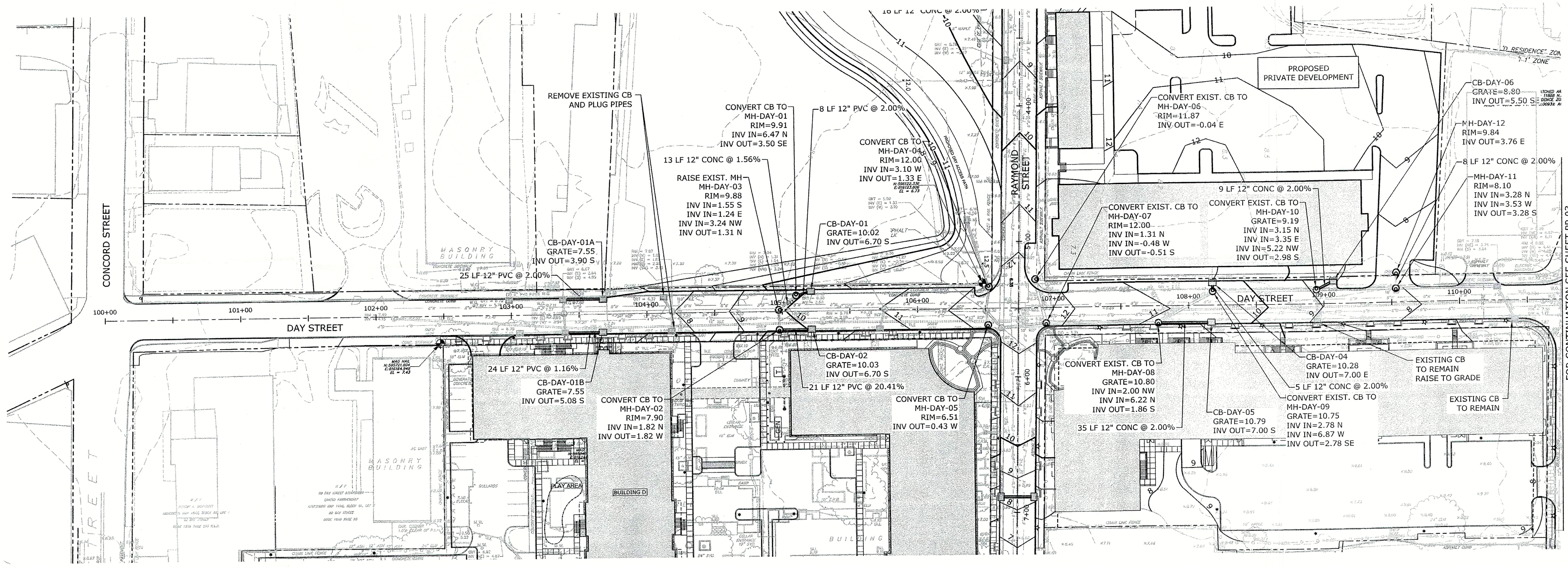

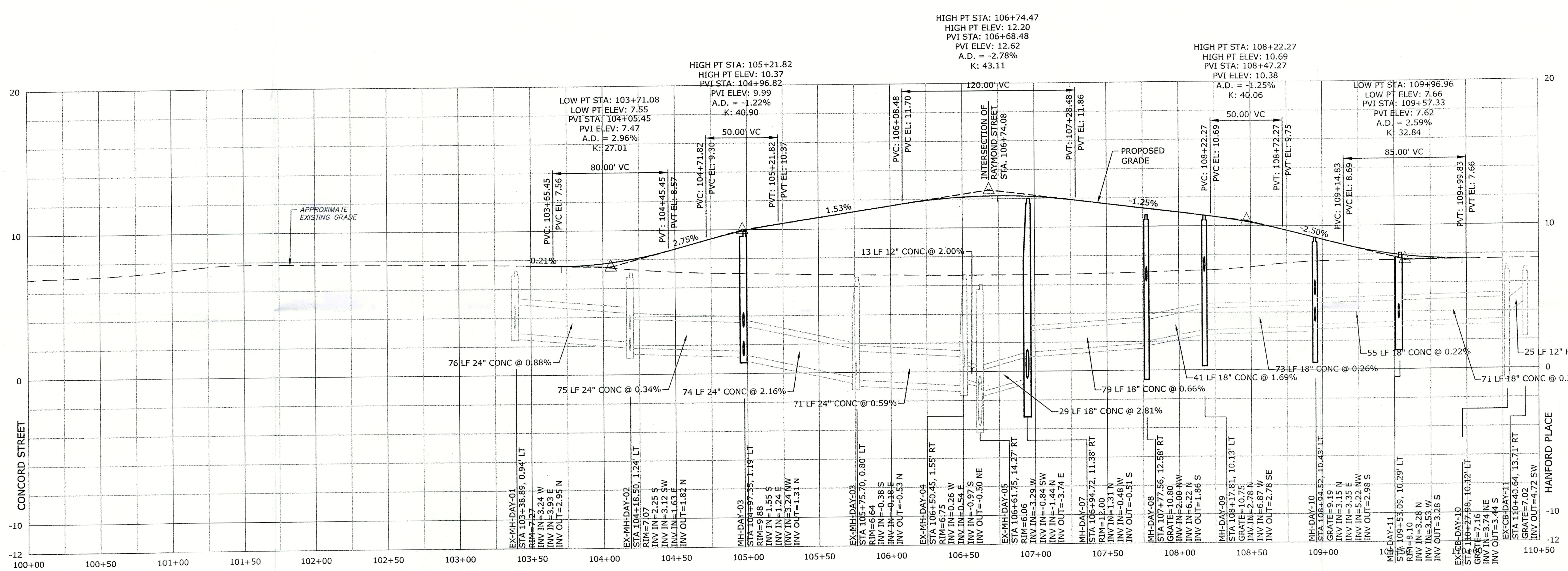

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PROGRESS PRINT

STATE OF CONNECTICUT — JONATHAN A. RICKER — LICENSED PROFESSIONAL ENGINEER 7/23/14
STATE OF CONNECTICUT — JOHN W. BLOCK — 18488 — LICENSED PROFESSIONAL ENGINEER 7/23/14

Raymond St. and Day St.

City Of Norwalk

Norwalk, Connecticut

July, 2014

MARK	DATE	DESCRIPTION
PROJECT NO:		N1039
FILE: PP-N1039-40.dwg		
DRAWN BY:		MDS
CHECKED:		JAR
APPROVED:		JWB

DAY STREET ROADWAY PLAN AND PROFILE - 1

SCALE: 1" = 40'

PP.02

07/23/2014

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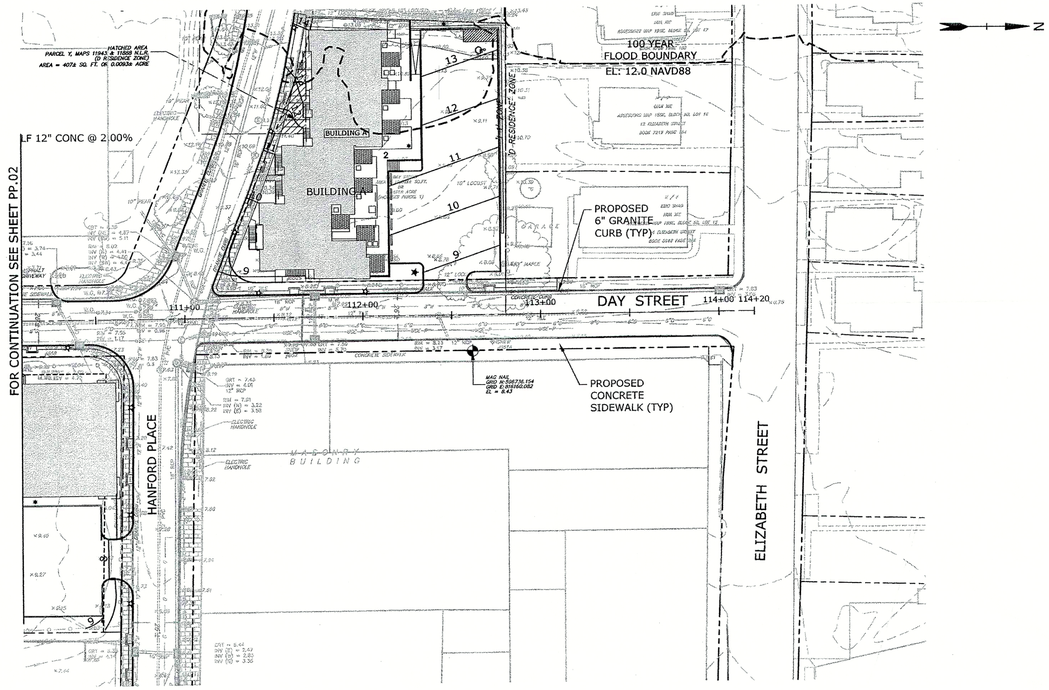

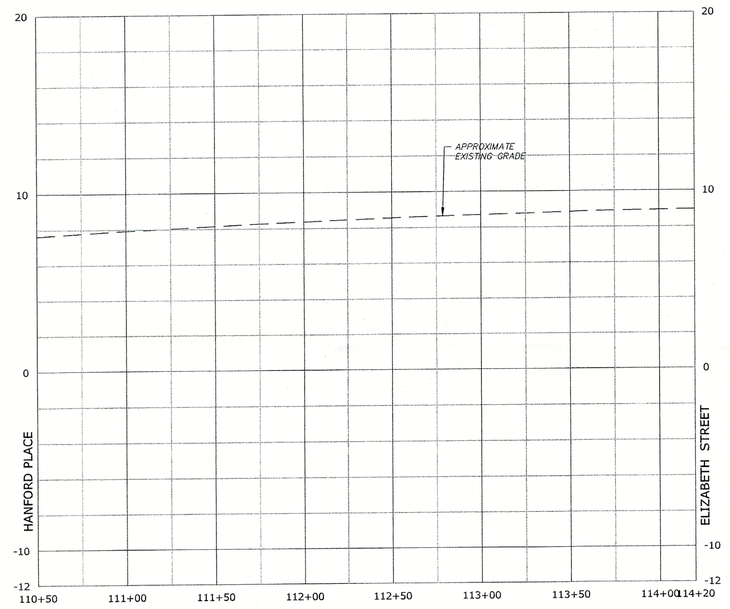

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12/5/14

STATE OF CONNECTICUT
JOHN W. BLOOM
LICENSED
PROFESSIONAL ENGINEER
7/23/14

0 GRAPHIC SCALE

Raymond St. and Day St.

City Of Norwalk

Norwalk, Connecticut

July, 2014

MARK	DATE	DESCRIPTION

PROJECT NO:	N1039
FILE:	PP-N1039-40.dwg
DRAWN BY:	MDS
CHECKED:	JAR
APPROVED:	JWB

DAY STREET
ROADWAY PLAN
AND PROFILE - 2

SCALE: 1" = 40'

PP.03

07/23/201

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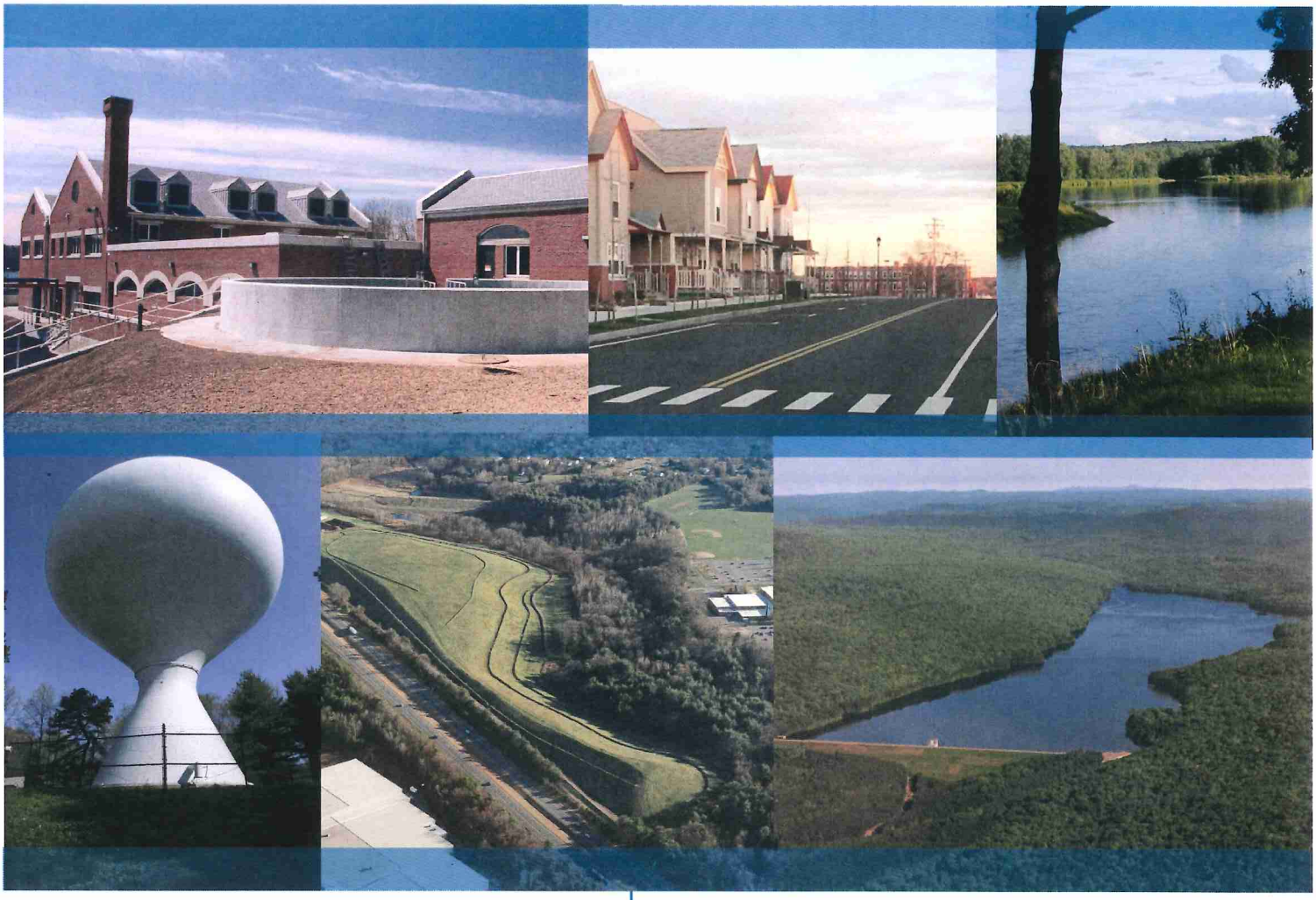


Tighe&Bond

Drainage Report
Preliminary Submission

Day & Raymond Street Improvements

Norwalk, Connecticut

Submitted to:

City of Norwalk
Department of Public Works

July 21, 2014

Day & Raymond Street Improvements
Norwalk, Connecticut

DRAINAGE REPORT
Preliminary Submission

July 21, 2014

Figures:

Appendices:

Section 1
Executive Summary

1.1 Introduction

Tighe & Bond has prepared this Drainage Report in connection with the planned Day & Raymond Street Improvements project in Norwalk, Connecticut (the "Project"). The Project involves the raising of the intersection of Day and Raymond Streets above the 100-Year flood elevation in order to provide dry access to the proposed Washington Village housing complex. The Project also involves streetscape improvements and improvements to existing utilities along these roadways, including undergrounding of overhead utilities.

Section 2
Stormwater Management

2.1 Existing Storm Sewer System

The existing drainage system in the Project area is comprised of a system of pipes, manholes and catch basins that collect surface runoff from the surrounding streets and properties. There are two main trunk lines in the project area that were analyzed for this drainage report: a 36" RCP storm sewer in Raymond Street; and an 18" RCP storm sewer in Hanford Place and the northern block of Day Street that connects to a 30" RCP storm sewer in Elizabeth Street. Both systems run easterly to Water Street before discharging through a 72" outfall to Long Island Sound.

The storm sewer in Raymond Street collects runoff from portions of Raymond Street and the surrounding properties, Day Street and the surrounding properties, and an area west of South Main Street. Runoff on Day and Raymond Street primarily flows toward the intersection of these two streets. A previous study prepared by Leggette, Brashears & Graham, Inc. (LBG) delineated the drainage area west of South Main Street that contributes to the Raymond Street storm sewer. This delineation was used to determine the runoff entering the system from areas outside of the Project area.

The storm sewer system in Hanford Place runs east to Day Street before turning north and connecting to the 30" RCP main in Elizabeth Street. This system collects runoff from portions of Hanford Street and the surrounding properties, the northern block of Day Street and the surrounding properties and Elizabeth Street.

The LBG study also analyzed the 72" outfall to Long Island Sound. The study determined that the 25-Year peak discharge from the entire watershed contributing to this outfall would be 204.4 cubic feet per second (CFS). The existing 72" outfall has a capacity of 367.3 CFS at the assumed slope of 0.75%, thus the outfall from the overall Project area watershed has sufficient capacity to convey the 25-Year storm event.

The contributing watershed areas are heavily developed under existing conditions. The Project area is an urbanized area composed primarily of roads, businesses and private residences. See the Existing Watershed Map attached for more information. Runoff calculations for the existing storm sewer system are included in the Appendix.

2.2 Proposed Storm Sewer System

The Day and Raymond Street Improvement Project will involve reconfiguring the existing storm sewer system and adding catch basins, primarily due to the raising of the Day and Raymond Street intersection. Catch basins will be located at the new low points of both roadways as well as intermediate points along the roadways to collect surface runoff. While the direction of surface flow will be changed, running away from the Day and Raymond Street intersection rather than towards it as it functions under existing conditions, the new catch basins will connect to the same storm drain in Raymond Street, creating no net change in the contributing area.

The storm sewer system in Hanford Place and the northern block of Day Street will essentially be unchanged under proposed conditions. There is no significant re-grading proposed in this area, thus the contributing areas will be essentially unchanged. Minor reconfiguration of catch basins may be necessary to accommodate the revised curb layout.

Raising the intersection of Day and Raymond Street, along with construction of the Dry Access Path in Ryan Park, will create low points on the existing parcels. Temporary catch basins are proposed at these locations to intercept surface runoff.

The adjacent private development sites have each been designed with stormwater detention/retention systems that will reduce the post-development runoff rates to pre-development conditions. Thus we have assumed that the proposed Washington Village Development sites will create the same stormwater runoff rates under proposed conditions as they do under existing conditions.

The existing and proposed peak runoff from the Project area was analyzed to the existing manhole in Raymond Street at the Water Street intersection. The and the existing catch basin in Day Street at the Elizabeth Street intersection. The project does not impact any drainage areas downstream of these points. Both systems ultimately discharge to the 72" outfall analyzed in the LBG study. The capacity of the City drainage systems was analyzed for the 25-year storm event. See Table 1 below.

Table 1

Stormwater Discharge Calculations
25-Year Frequency

	Raymond Street System (CFS)	Hanford Place/Day Street System (CFS)
Existing Condition	44.68	7.63
Proposed Condition	44.72	7.63

See the Proposed Watershed Map attached for more information. Hydraflow Storm Sewer calculations for the proposed storm sewer system are included in the Appendix.

2.3 Storm Drainage Design Criteria

1. The pipes and drainage system are designed for a 25-Year storm event.

2. Minimum time of concentration = 5 minutes.

3. For rational method (storm sewer calculations), runoff coefficients were as follows:

   Paved areas = 0.90
   Landscaped areas = 0.30

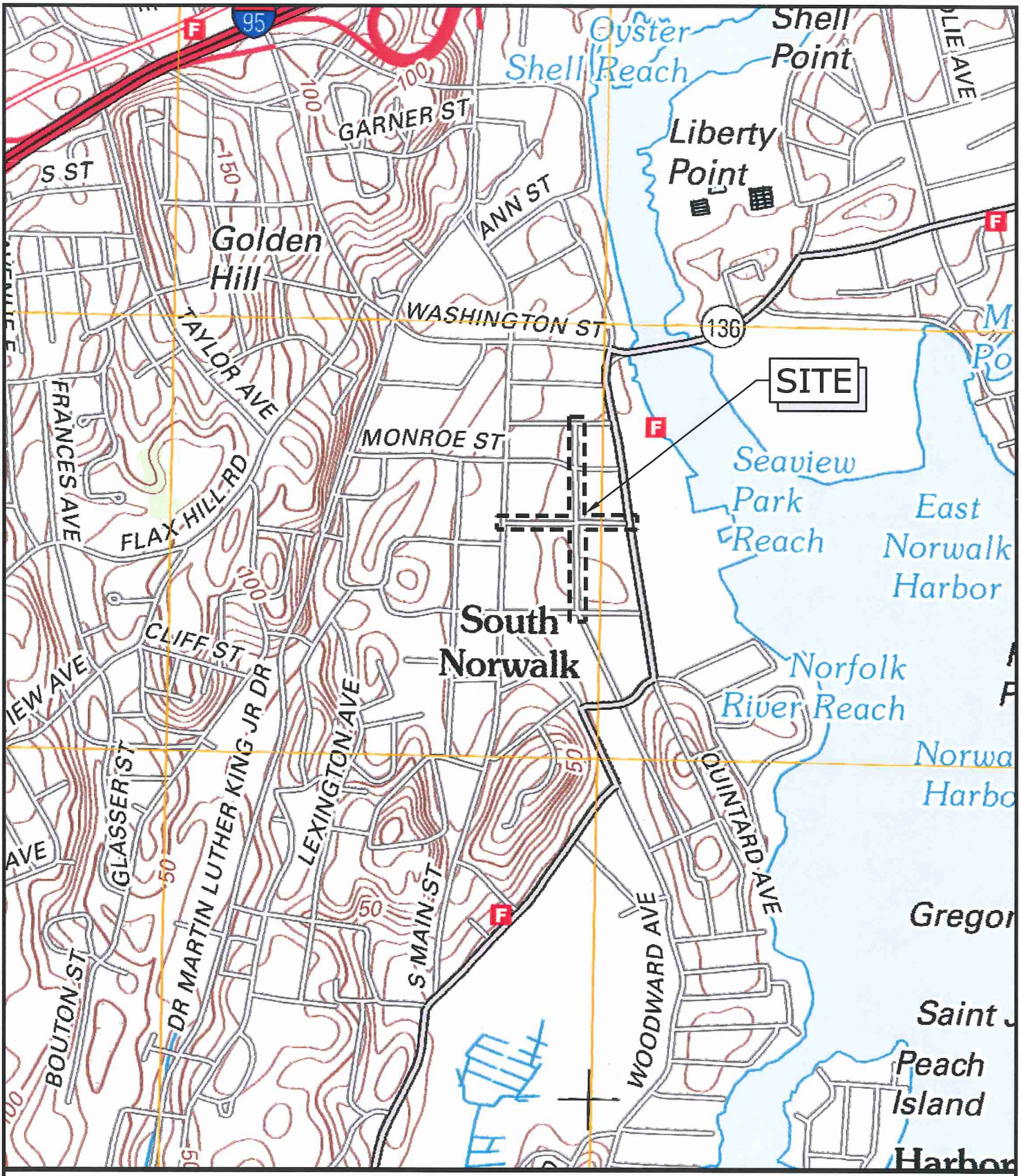
Runoff computations and storm sewer calculations are included in the Appendix.

2.4 Conclusion

The proposed storm drainage system has been designed in accordance with the City of Norwalk Drainage Manual and has sufficient capacity to convey runoff from the proposed Day and Raymond Street Improvements Project in the design storm.

J:\N\N1039 Norwalk Day & Raymond Street\Report\FM Certification Drainage Report\2014_07-21 Drainage Report.Doc

Figures



DAY & RAYMOND STREET IMPROVEMENTS

NORWALK, CONNECTICUT

SITE LOCATION MAP

NORWALK SOUTH QUADRANGLE
CONNECTICUT-NEW YORK
7.5 MINUTE SERIES

NORTH

SCALE: 1:24,000
1" = 1000'

FIGURE 1

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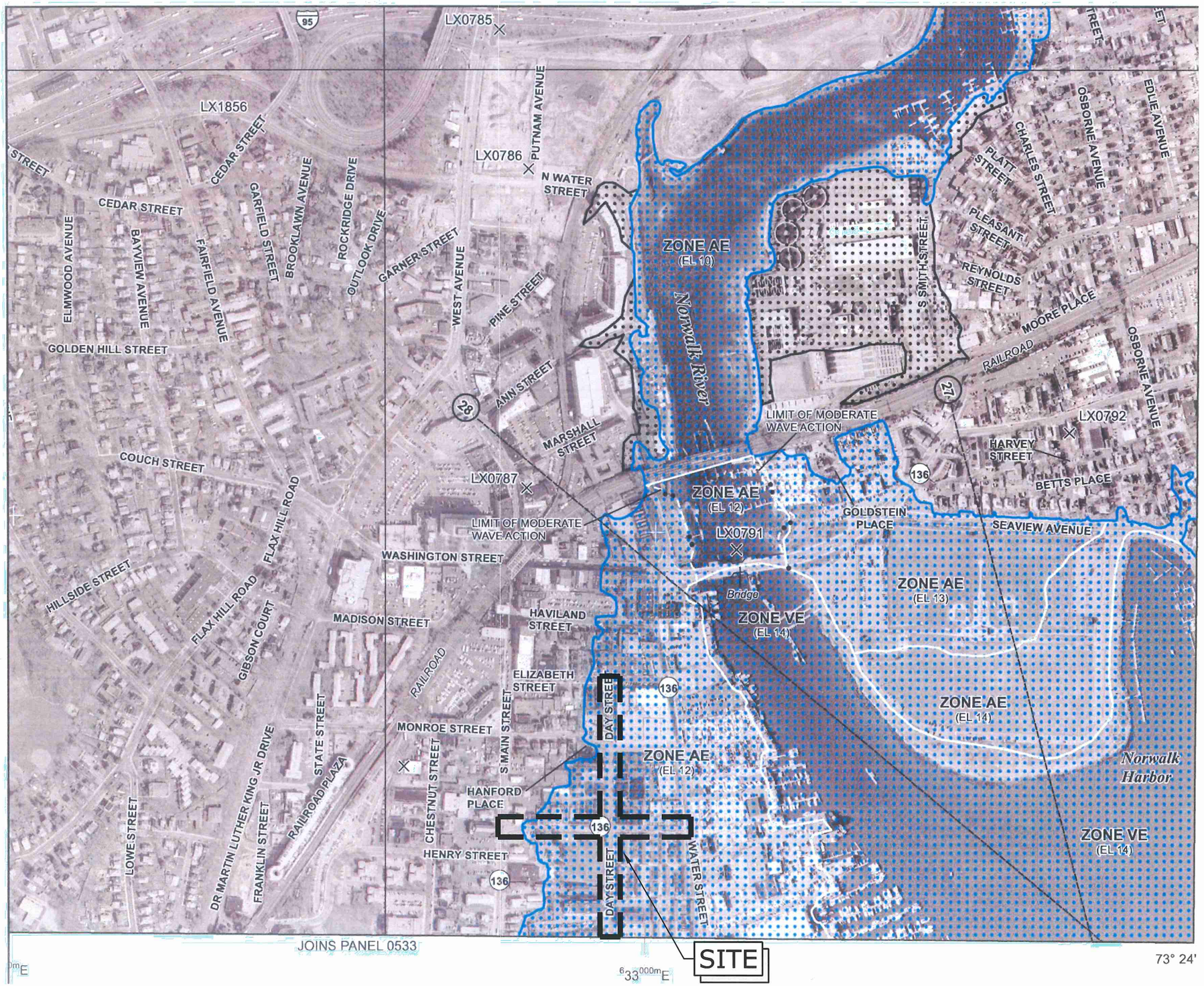
07/21/2014



MAP SCALE 1" = 500'

50 0 500 1000 FEET

NFIP

PANEL 0531G

FIRM

FLOOD INSURANCE RATE MAP

FAIRFIELD COUNTY, CONNECTICUT (ALL JURISDICTIONS)

PANEL 531 OF 626

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
NORWALK, CITY OF	090012	0531	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 09001C0531G

MAP REVISED JULY 8, 2013

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

DAY & RAYMOND ST. IMPROVEMENTS
NORWALK, CONNECTICUT

FIRM MAP

DATE: 7-21-2014
SCALE: AS NOTED
FIGURE 2

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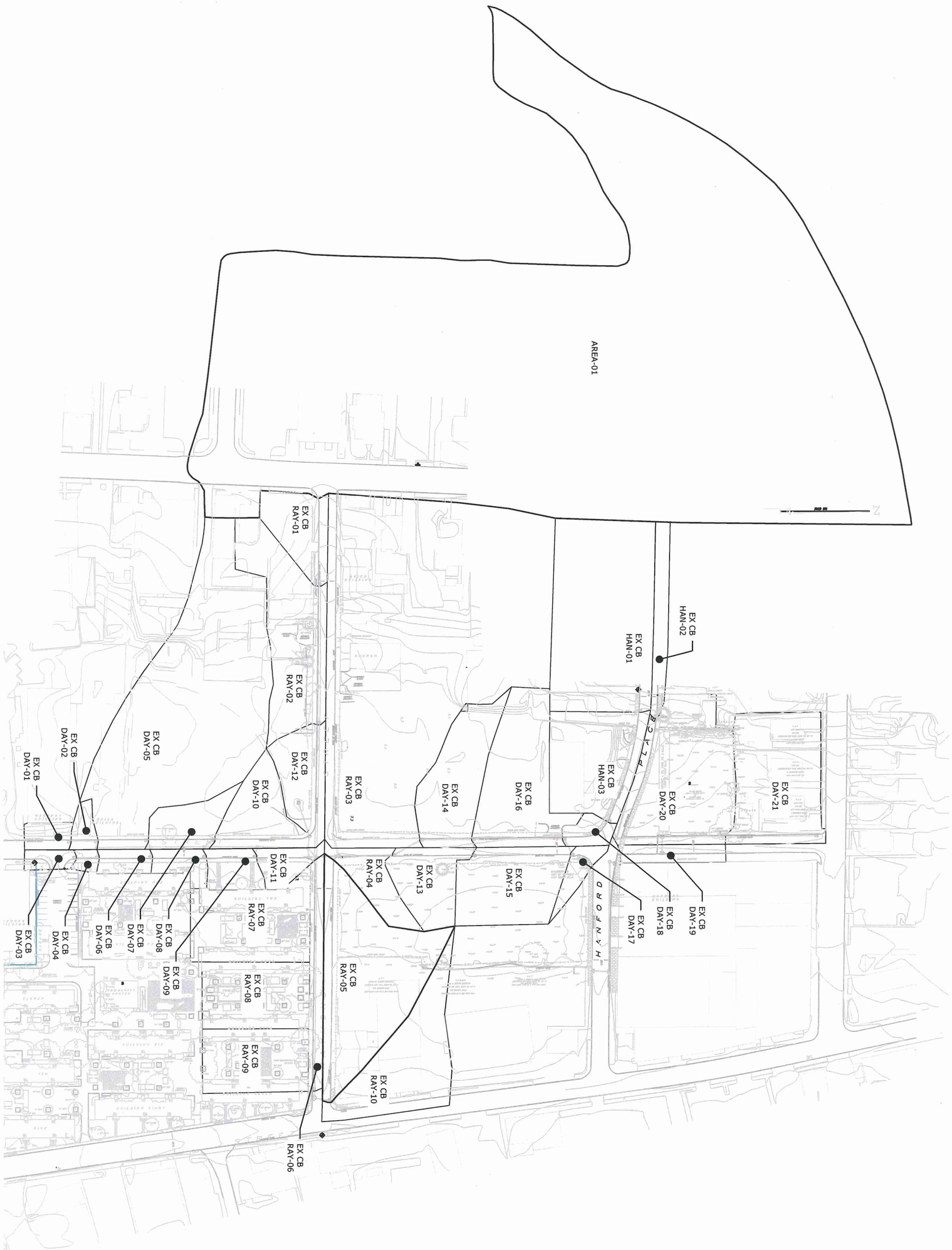
www.tighebond.com

07/23/2014

Jul 23, 2014-8:33am Plotted By: JAR
Tighe & Bond, Inc. J:\NW\1039 Norwalk Day & Raymond Street\Report\FM Certification Drainage Report\FIGURE 2.dwg

Appendix A

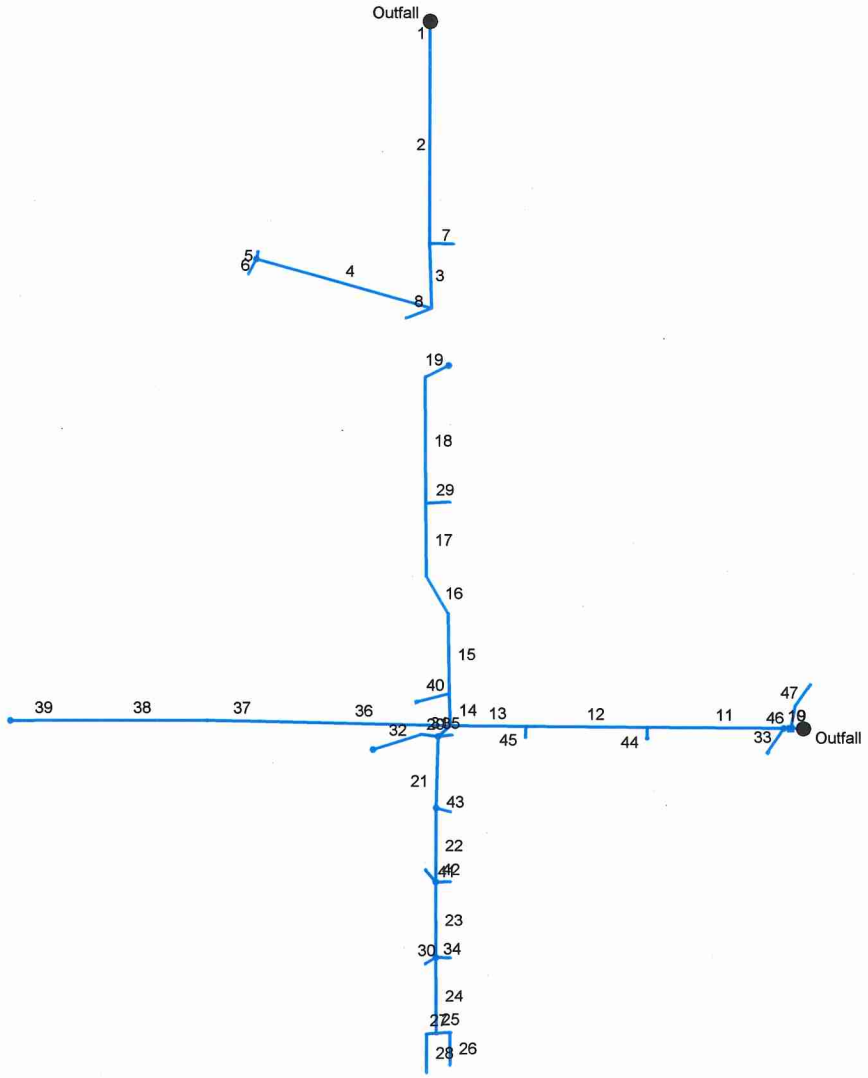


Tighe&Bond www.tighebond.com 1000 Bridgeport Avenue Suite 320 Shelton, CT 06484 (203) 712-1100	Scale: 1" = 140' Job No. N-1039 Drawn By: CRD Date: 7/22/2014	Date:	Revision:	Raymond St. and Day St. Norwalk, CT EXISTING CONDITIONS WATERSHED MAP	NORTH Sheet No: WM-1

07/22/2014

Appendix B

Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2011 Plan



Project File: Existing Raymond and Day.stm	Number of lines: 47	Date: 7/23/2014

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Outfall	7.63	18	Cir	5.000	3.00	3.05	1.000	4.50	4.52	0.15	4.66	End	DropGrate
2	EX CB Day-20	6.64	18	Cir	227.523	3.05	4.12	0.470	4.66	5.37	0.41	5.79	1	DropGrate
3	Pipe - (41)	5.46	18	Cir	67.491	4.35	4.41	0.089	5.79	5.91	0.15	6.06	2	None
4	Pipe - (40)	3.88	18	Cir	187.570	4.00	5.88	1.002	6.06	6.63	n/a	6.63 j	3	Manhole
5	EX CB Han-02	0.75	12	Cir	7.875	8.10	8.18	1.016	8.47	8.55	0.13	8.68	4	DropGrate
6	EX CB Han-01	3.35	12	Cir	17.389	8.00	8.38	2.185	8.78	9.16	n/a	9.16	4	DropGrate
7	EX CB Day-19	0.48	12	Cir	24.105	4.98	5.70	2.987	5.79	5.99	n/a	5.99 j	2	DropGrate
8	EX CB Han-03	2.03	12	Cir	28.059	4.44	4.67	0.820	6.06*	6.14*	0.10	6.24	3	DropGrate
9	outfall	44.68	54	Cir	13.000	-4.00	-4.01	-0.077	0.50*	0.51*	0.12	0.63	End	Manhole
10	EX CB Ray-06	42.65	36	Cir	7.000	-4.01	-4.01	0.000	0.63*	0.65*	0.74	1.39	9	DropGrate
11	Pipe - (04) (1) (1) (1)	41.71	36	Cir	140.897	-3.73	-2.55	0.837	1.39*	1.86*	0.54	2.40	10	None
12	Pipe - (04) (1) (1)	41.14	36	Cir	124.637	-2.55	-3.29	-0.594	2.40*	2.80*	0.53	3.33	11	None
13	Pipe - (04) (1)	40.24	36	Cir	78.000	-3.29	-3.74	-0.577	3.33*	3.57*	0.50	4.08	12	Manhole
14	EX CB Ray-04	7.73	18	Cir	33.649	-1.44	-0.51	2.764	4.08*	4.23*	0.45	4.68	13	DropGrate
15	EX CB Day-13	3.38	18	Cir	82.180	1.31	1.86	0.669	4.68*	4.75*	0.05	4.80	14	DropGrate
16	EX CB Day-14	2.88	18	Cir	46.215	2.00	2.78	1.688	4.80*	4.83*	0.03	4.86	15	DropGrate
17	EX CB Day-16	2.24	18	Cir	76.712	2.78	2.98	0.261	4.86*	4.89*	0.04	4.93	16	DropGrate
18	EX CB Day-18	0.74	18	Cir	133.942	3.15	3.44	0.217	4.93	4.93	0.00	4.94	17	DropGrate
19	EX CB Day-17	0.38	12	Cir	26.562	3.74	4.72	3.689	4.94	4.98	n/a	4.98 j	18	DropGrate
20	Pipe - (09)	6.49	12	Cir	17.015	-0.84	-1.27	-2.527	4.08*	4.56*	1.06	5.62	13	Manhole
21	Pipe - (16)	5.25	24	Cir	74.780	-0.97	-0.53	0.588	5.62*	5.65*	0.04	5.70	20	Manhole
22	Pipe - (15)	5.00	24	Cir	78.350	-0.38	1.31	2.157	5.70*	5.73*	0.04	5.77	21	Manhole
23	Pipe - (14)	4.30	24	Cir	78.858	-0.50	1.82	2.942	5.77*	5.79*	0.03	5.82	22	Manhole

Project File: Existing Raymond and Day.stm | Number of lines: 47 | Run Date: 7/23/2014

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
24	Pipe - (13)	0.98	24	Cir	79.612	2.25	2.95	0.879	5.82*	5.82*	0.00	5.82	23	Manhole
25	EX CB Day-04	0.42	12	Cir	14.130	3.93	4.83	6.369	5.82	5.83	0.01	5.83	24	DropGrate
26	EX CB Day-03	0.27	6	Cir	33.564	4.82	5.49	1.996	5.83	5.89	0.04	5.93	25	DropGrate
27	EX CB Day-02	0.58	12	Cir	10.034	3.24	3.64	3.986	5.82*	5.83*	0.01	5.84	24	DropGrate
28	EX CB Day-01	0.32	6	Cir	39.991	4.69	5.71	2.551	5.84	6.00	n/a	6.12 j	27	DropGrate
29	EX CB Day-15	0.75	12	Cir	24.431	3.35	4.32	3.970	4.93	4.92	0.04	4.96	17	DropGrate
30	EX CB Day-05	3.48	12	Cir	12.170	3.12	2.76	-2.958	5.82*	5.92*	0.30	6.23	23	DropGrate
31	EX CB Day-10	1.16	12	Cir	17.705	0.26	1.33	6.043	5.62*	5.64*	0.02	5.66	20	DropGrate
32	EX CB Day-12	0.28	12	Cir	52.183	3.10	2.59	-0.977	5.66*	5.66*	0.00	5.66	31	DropGrate
33	EX CB Ray-09	1.20	12	Cir	30.254	1.98	2.45	1.554	2.44	2.91	0.18	2.91	10	DropGrate
34	EX CB Day-06	0.32	12	Cir	14.469	1.63	2.08	3.110	5.82*	5.82*	0.00	5.83	23	DropGrate
35	EX CB Day-11	0.54	12	Cir	13.929	0.54	0.43	-0.790	5.62*	5.62*	0.01	5.63	20	DropGrate
36	EX CB Ray-02	27.85	36	Cir	197.550	-3.29	-2.17	0.567	4.08*	4.37*	0.12	4.49	13	DropGrate
37	MH-RAY-01	26.87	36	Cir	53.467	-2.21	-1.18	1.926	4.49*	4.57*	0.03	4.60	36	Manhole
38	EX CB RAY-01	27.21	36	Cir	152.364	-0.91	0.45	0.893	4.60*	4.82*	0.12	4.93	37	DropGrate
39	Area 1	26.88	36	Cir	50.000	0.45	0.55	0.200	4.93*	5.00*	0.22	5.23	38	Manhole
40	EX CB Ray-03	4.95	24	Cir	35.173	-0.48	-0.04	1.251	4.68*	4.69*	0.04	4.73	14	DropGrate
41	EX CB Day-07	0.91	12	Cir	16.688	3.24	3.50	1.558	5.77*	5.78*	0.02	5.80	22	DropGrate
42	EX CB Day-08	0.43	12	Cir	14.635	1.24	1.82	3.963	5.77*	5.77*	0.00	5.77	22	DropGrate
43	EX CB Day-09	0.59	12	Cir	14.743	-0.18	1.37	10.513	5.70*	5.70*	0.01	5.71	21	DropGrate
44	EX CB Ray-08	1.27	8	Cir	11.629	-1.38	2.44	32.849	2.40	2.97	0.28	2.97	11	DropGrate
45	EX CB Ray-07	1.59	15	Cir	11.761	-2.41	2.13	38.601	3.33	3.34	0.03	3.36	12	DropGrate
46	EX CB Ray-05	3.07	12	Cir	23.438	-0.01	1.58	6.784	0.73	2.32	0.27	2.32	9	DropGrate

Project File: Existing Raymond and Day.stm | Number of lines: 47 | Run Date: 7/23/2014

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
47	EX CB Ray-10	1.15	12	Cir	25.680	1.70	1.51	-0.740	2.32	2.40	0.04	2.43	46	DropGrate

Project File: Existing Raymond and Day.stm | Number of lines: 47 | Run Date: 7/23/2014

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	5.000	0.57	2.85	0.50	0.29	1.90	20.0	21.0	4.0	7.63	11.38	4.33	18	1.00	3.00	3.05	4.50	4.52	7.83	7.56	Outfall
2	1	227.523	0.70	2.28	0.50	0.35	1.61	20.0	20.0	4.1	6.64	7.80	3.99	18	0.47	3.05	4.12	4.66	5.37	7.56	7.56	EX CB Day-20
3	2	67.491	0.00	1.49	0.00	0.00	1.19	0.0	16.0	4.6	5.46	3.39	3.11	18	0.09	4.35	4.41	5.79	5.91	7.56	8.02	Pipe - (41)
4	3	187.570	0.00	1.03	0.00	0.00	0.82	0.0	15.1	4.7	3.88	11.39	3.28	18	1.00	4.00	5.88	6.06	6.63	8.02	14.56	Pipe - (40)
5	4	7.875	0.14	0.14	0.80	0.11	0.11	5.0	5.0	6.7	0.75	3.89	2.86	12	1.02	8.10	8.18	8.47	8.55	14.56	14.29	EX CB Han-02
6	4	17.389	0.89	0.89	0.80	0.71	0.71	15.0	15.0	4.7	3.35	5.70	5.12	12	2.19	8.00	8.38	8.78	9.16	14.56	14.42	EX CB Han-01
7	2	24.105	0.09	0.09	0.80	0.07	0.07	5.0	5.0	6.7	0.48	6.67	1.60	12	2.99	4.98	5.70	5.79	5.99	7.56	7.62	EX CB Day-19
8	3	28.059	0.46	0.46	0.80	0.37	0.37	10.0	10.0	5.5	2.03	3.49	2.59	12	0.82	4.44	4.67	6.06	6.14	8.02	8.39	EX CB Han-03
9	End	13.000	0.00	21.35	0.00	0.00	14.32	0.0	33.0	3.1	44.68	0.00	2.81	54	-0.08	-4.00	-4.01	0.50	0.51	4.87	4.74	outfall
10	9	7.000	0.16	20.04	0.90	0.14	13.67	5.0	32.9	3.1	42.65	0.00	6.03	36	0.00	-4.01	-4.01	0.63	0.65	4.74	4.74	EX CB Ray-06
11	10	140.897	0.00	19.54	0.00	0.00	13.27	0.0	32.5	3.1	41.71	66.12	5.90	36	0.84	-3.73	-2.55	1.39	1.86	4.74	5.50	Pipe - (04) (1) (1)
12	11	124.637	0.00	19.18	0.00	0.00	13.00	0.0	32.2	3.2	41.14	0.00	5.82	36	-0.59	-2.55	-3.29	2.40	2.80	5.50	5.80	Pipe - (04) (1) (1)
13	12	78.000	0.00	18.73	0.00	0.00	12.66	0.0	31.9	3.2	40.24	0.00	5.69	36	-0.58	-3.29	-3.74	3.33	3.57	5.80	6.06	Pipe - (04) (1)
14	13	33.649	0.17	4.86	0.60	0.10	2.36	5.0	30.4	3.3	7.73	18.91	4.37	18	2.76	-1.44	-0.51	4.08	4.23	6.06	5.86	EX CB Ray-04
15	14	82.180	0.24	1.69	0.50	0.12	0.76	10.0	16.8	4.5	3.38	9.31	1.92	18	0.67	1.31	1.86	4.68	4.75	5.86	6.30	EX CB Day-13
16	15	46.215	0.39	1.45	0.40	0.16	0.64	15.0	16.3	4.5	2.88	14.78	1.63	18	1.69	2.00	2.78	4.80	4.83	6.30	6.20	EX CB Day-14
17	16	76.712	0.52	1.06	0.40	0.21	0.48	15.0	15.3	4.7	2.24	5.81	1.27	18	0.26	2.78	2.98	4.86	4.89	6.20	6.73	EX CB Day-16
18	17	133.942	0.07	0.14	0.80	0.06	0.11	5.0	5.3	6.6	0.74	5.29	0.42	18	0.22	3.15	3.44	4.93	4.93	6.73	7.16	EX CB Day-18
19	18	26.562	0.07	0.07	0.80	0.06	0.06	5.0	5.0	6.7	0.38	7.41	1.40	12	3.69	3.74	4.72	4.94	4.98	7.16	7.02	EX CB Day-17
20	13	17.015	0.00	2.89	0.00	0.00	1.68	0.0	22.6	3.9	6.49	0.00	8.26	12	-2.53	-0.84	-1.27	4.08	4.56	6.06	6.75	Pipe - (09)
21	20	74.780	0.00	2.30	0.00	0.00	1.33	0.0	21.8	3.9	5.25	18.80	1.67	24	0.59	-0.97	-0.53	5.62	5.65	6.75	6.64	Pipe - (16)

Project File: Existing Raymond and Day.stm

Number of lines: 47

Run Date: 7/23/2014

NOTES:Intensity = 101.98 / (Inlet time + 15.80) ^ 0.90; Return period =Yrs. 25 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
22	21	78.350	0.00	2.19	0.00	0.00	1.25	0.0	21.0	4.0	5.00	35.99	1.59	24	2.16	-0.38	1.31	5.70	5.73	6.64	7.04	Pipe - (15)
23	22	78.858	0.00	1.94	0.00	0.00	1.05	0.0	20.0	4.1	4.30	42.03	1.37	24	2.94	-0.50	1.82	5.77	5.79	7.04	7.07	Pipe - (14)
24	23	79.612	0.00	0.19	0.00	0.00	0.15	0.0	5.8	6.5	0.98	22.98	0.31	24	0.88	2.25	2.95	5.82	5.82	7.07	7.27	Pipe - (13)
25	24	14.130	0.03	0.08	0.80	0.02	0.06	5.0	5.4	6.6	0.42	9.74	0.54	12	6.37	3.93	4.83	5.82	5.83	7.27	6.85	EX CB Day-04
26	25	33.564	0.05	0.05	0.80	0.04	0.04	5.0	5.0	6.7	0.27	0.86	1.48	6	2.00	4.82	5.49	5.83	5.89	6.85	6.70	EX CB Day-03
27	24	10.034	0.05	0.11	0.80	0.04	0.09	5.0	5.3	6.6	0.58	7.70	0.74	12	3.99	3.24	3.64	5.82	5.83	7.27	6.67	EX CB Day-02
28	27	39.991	0.06	0.06	0.80	0.05	0.05	5.0	5.0	6.7	0.32	0.97	2.18	6	2.55	4.69	5.71	5.84	6.00	6.67	6.89	EX CB Day-01
29	17	24.431	0.40	0.40	0.40	0.16	0.16	15.0	15.0	4.7	0.75	7.69	1.24	12	3.97	3.35	4.32	4.93	4.92	6.73	6.60	EX CB Day-15
30	23	12.170	1.69	1.69	0.50	0.85	0.85	20.0	20.0	4.1	3.48	0.00	4.43	12	-2.96	3.12	2.76	5.82	5.92	7.07	6.37	EX CB Day-05
31	20	17.705	0.34	0.49	0.60	0.20	0.26	10.0	17.4	4.4	1.16	9.48	1.48	12	6.04	0.26	1.33	5.62	5.64	6.75	5.98	EX CB Day-10
32	31	52.183	0.15	0.15	0.40	0.06	0.06	15.0	15.0	4.7	0.28	0.00	0.36	12	-0.98	3.10	2.59	5.66	5.66	5.98	6.16	EX CB Day-12
33	10	30.254	0.34	0.34	0.75	0.26	0.26	15.0	15.0	4.7	1.20	4.81	3.36	12	1.55	1.98	2.45	2.44	2.91	4.74	6.37	EX CB Ray-09
34	23	14.469	0.06	0.06	0.80	0.05	0.05	5.0	5.0	6.7	0.32	6.80	0.41	12	3.11	1.63	2.08	5.82	5.82	7.07	6.68	EX CB Day-06
35	20	13.929	0.10	0.10	0.80	0.08	0.08	5.0	5.0	6.7	0.54	0.00	0.68	12	-0.79	0.54	0.43	5.62	5.62	6.75	5.83	EX CB Day-11
36	13	197.550	0.57	10.98	0.60	0.34	8.62	15.0	31.1	3.2	27.85	54.40	3.94	36	0.57	-3.29	-2.17	4.08	4.37	6.06	5.78	EX CB Ray-02
37	36	53.467	0.00	10.41	0.00	0.00	8.28	0.0	30.9	3.2	26.87	100.3	3.80	36	1.93	-2.21	-1.18	4.49	4.57	5.78	6.67	MH-RAY-01
38	37	152.364	0.23	10.41	0.60	0.14	8.28	10.0	30.2	3.3	27.21	68.26	3.85	36	0.89	-0.91	0.45	4.60	4.82	6.67	9.01	EX CB RAY-01
39	38	50.000	10.18	10.18	0.80	8.14	8.14	30.0	30.0	3.3	26.88	32.31	3.80	36	0.20	0.45	0.55	4.93	5.00	9.01	0.00	Area 1
40	14	35.173	3.00	3.00	0.50	1.50	1.50	30.0	30.0	3.3	4.95	27.41	1.58	24	1.25	-0.48	-0.04	4.68	4.69	5.86	6.00	EX CB Ray-03
41	22	16.688	0.17	0.17	0.80	0.14	0.14	5.0	5.0	6.7	0.91	4.82	1.16	12	1.56	3.24	3.50	5.77	5.78	7.04	8.00	EX CB Day-07
42	22	14.635	0.08	0.08	0.80	0.06	0.06	5.0	5.0	6.7	0.43	7.68	0.55	12	3.96	1.24	1.82	5.77	5.77	7.04	6.52	EX CB Day-08

Project File: Existing Raymond and Day.stm

Number of lines: 47

Run Date: 7/23/2014

NOTES:Intensity = 101.98 / (Inlet time + 15.80) ^ 0.90; Return period =Yrs. 25 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
43	21	14.743	0.11	0.11	0.80	0.09	0.09	5.0	5.0	6.7	0.59	12.51	0.75	12	10.51	-0.18	1.37	5.70	5.70	6.64	6.25	EX CB Day-09
44	11	11.629	0.36	0.36	0.75	0.27	0.27	15.0	15.0	4.7	1.27	7.50	3.95	8	32.85	-1.38	2.44	2.40	2.97	5.50	5.94	EX CB Ray-08
45	12	11.761	0.45	0.45	0.75	0.34	0.34	15.0	15.0	4.7	1.59	43.46	1.30	15	38.60	-2.41	2.13	3.33	3.34	5.80	6.13	EX CB Ray-07
46	9	23.438	0.82	1.31	0.50	0.41	0.66	15.0	15.2	4.7	3.07	10.05	4.90	12	6.78	-0.01	1.58	0.73	2.32	4.74	4.69	EX CB Ray-05
47	46	25.680	0.49	0.49	0.50	0.25	0.25	15.0	15.0	4.7	1.15	0.00	1.91	12	-0.74	1.70	1.51	2.32	2.40	4.69	4.34	EX CB Ray-10

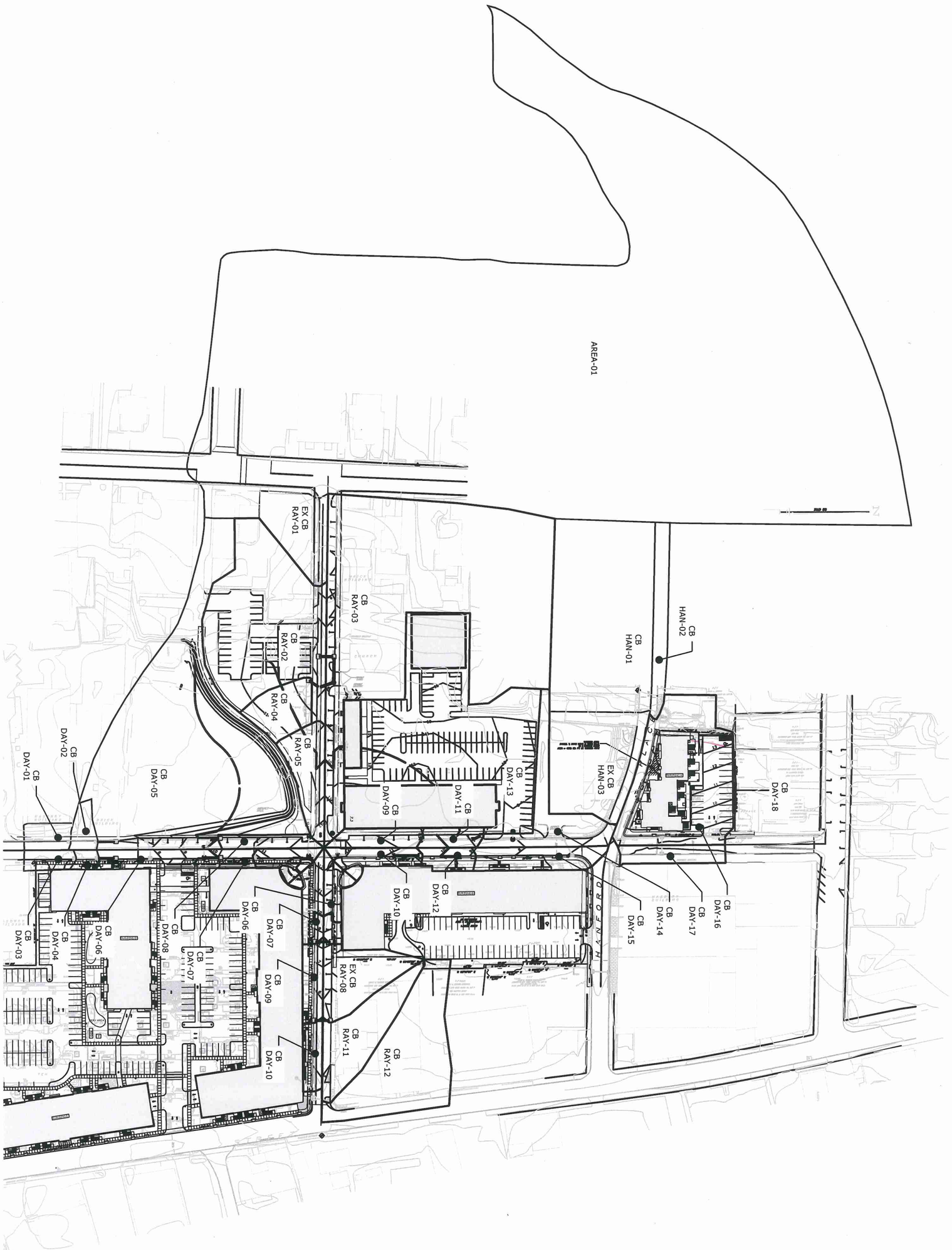
Project File: Existing Raymond and Day.stm

Number of lines: 47

Run Date: 7/23/2014

NOTES:Intensity = 101.98 / (Inlet time + 15.80) ^ 0.90; Return period =Yrs. 25 ; c = cir e = ellip b = box

Appendix C

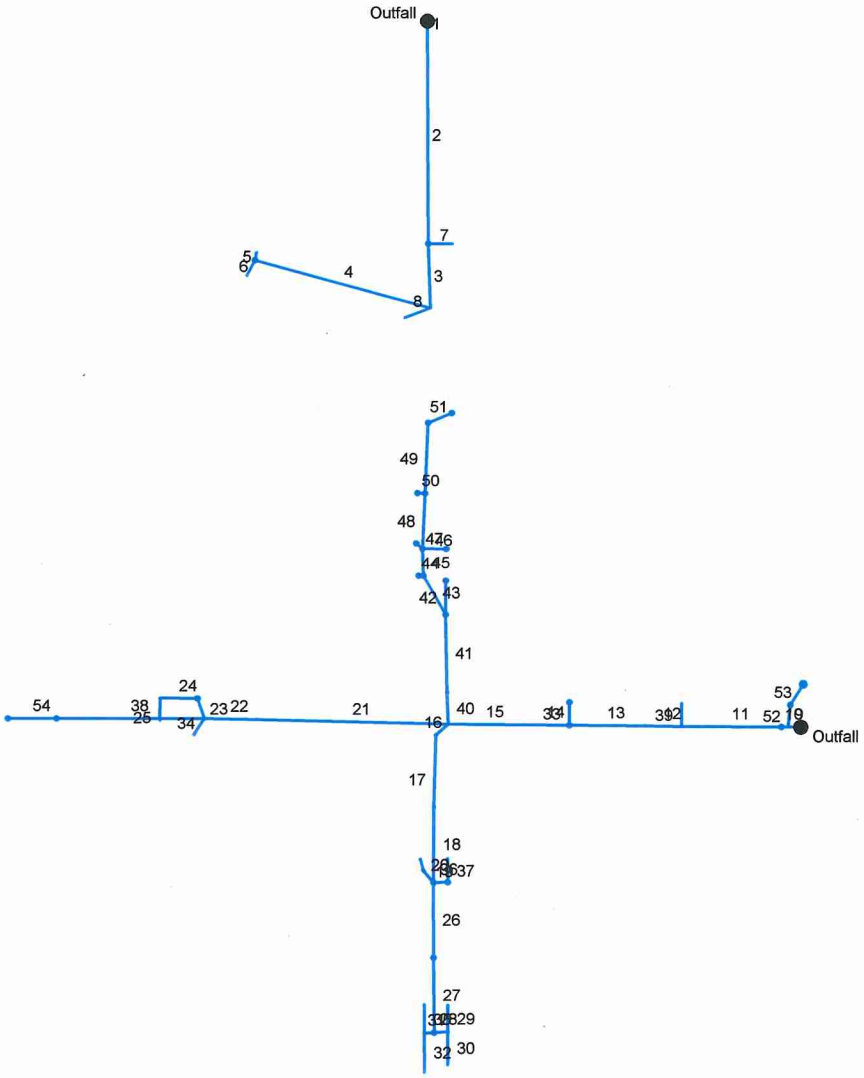


Tighe&Bond www.tighebond.com 1000 Bridgeport Avenue Suite 320 Shelton, CT 06484 (203) 712-1100	Scale: 1" = 140' Job No. N-1039 Drawn By: CRD Date: 7/22/2014	Date:	Revision:	Raymond St. and Day St. Norwalk, CT PROPOSED CONDITIONS WATERSHED MAP	NORTH Sheet No: WM-2

07/22/2014

Appendix D

Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2011 Plan



Project File: Proposed Raymond and Day.stm	Number of lines: 54	Date: 7/23/2014

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Outfall	7.63	18	Cir	5.000	3.00	3.05	1.000	4.50	4.52	0.15	4.66	End	DropGrate
2	CB-Day-16	6.64	18	Cir	227.523	3.05	4.12	0.470	4.66	5.37	0.41	5.79	1	DropGrate
3	Pipe - (41)	5.46	18	Cir	67.491	4.35	4.41	0.089	5.79	5.91	0.15	6.06	2	None
4	Pipe - (40)	3.88	18	Cir	187.570	4.00	5.88	1.002	6.06	6.63	n/a	6.63 j	3	Manhole
5	CB-HAN-02	0.75	12	Cir	7.875	8.10	8.18	1.016	8.47	8.55	0.13	8.68	4	DropGrate
6	CB Han-01	3.35	12	Cir	17.389	8.00	8.38	2.185	8.78	9.16	n/a	9.16	4	DropGrate
7	CB-Day-17	0.48	12	Cir	24.105	4.98	5.70	2.987	5.79	5.99	n/a	5.99 j	2	DropGrate
8	CB Han-03	2.03	12	Cir	28.059	4.44	4.67	0.820	6.06*	6.14*	0.10	6.24	3	DropGrate
9	Outfall	43.09	54	Cir	12.927	-4.00	-4.01	-0.077	0.50*	0.51*	0.11	0.62	End	Manhole
10	CB-Ray-10	41.86	36	Cir	7.000	-4.01	-4.01	0.000	0.62*	0.64*	0.27	0.92	9	DropGrate
11	CB-RAY-09	41.91	36	Cir	102.712	-3.73	-3.76	-0.029	0.92*	1.26*	0.82	2.08	10	DropGrate
12	Pipe - (04) (1) (1) (1)	39.64	36	Cir	38.189	-3.76	-3.77	-0.026	2.08*	2.20*	0.07	2.27	11	None
13	CB-RAY-07	39.81	36	Cir	77.551	-3.77	-3.74	0.039	2.27*	2.51*	0.74	3.24	12	DropGrate
14	Pipe - (04) (1) (1)	39.48	36	Cir	47.085	-3.74	-3.73	0.021	3.24*	3.39*	0.07	3.46	13	None
15	Pipe - (04) (1)	39.65	36	Cir	77.733	-3.73	-3.74	-0.013	3.46*	3.69*	0.49	4.18	14	Manhole
16	Pipe - (09)	4.67	12	Cir	17.015	-0.84	-1.27	-2.527	4.18*	4.43*	0.42	4.85	15	Manhole
17	Pipe - (16)	4.75	24	Cir	74.780	-0.97	-0.53	0.588	4.85*	4.88*	0.01	4.89	16	Manhole
18	Pipe - (15)	4.85	24	Cir	78.350	-0.38	1.31	2.157	4.89*	4.92*	0.04	4.95	17	Manhole
19	Pipe - (29)	0.42	12	Cir	16.688	3.24	3.50	1.558	4.95*	4.96*	0.00	4.96	18	Manhole
20	CB-DAY-08	0.42	12	Cir	11.362	6.47	6.70	2.024	6.75	6.98	0.09	6.98	19	DropGrate
21	CB-RAY-05	32.20	36	Cir	197.550	-3.29	-2.17	0.567	4.18*	4.57*	0.16	4.74	15	DropGrate
22	MH-RAY-01	31.99	36	Cir	53.467	-2.21	-1.18	1.926	4.74*	4.84*	0.30	5.14	21	Manhole
23	Pipe - (66)	5.06	12	Cir	22.344	3.95	4.40	2.014	5.14*	5.53*	0.61	6.14	22	Manhole

Project File: Proposed Raymond and Day.stm | Number of lines: 54 | Run Date: 7/23/2014

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
24	CB-RAY-03	5.07	12	Cir	38.424	4.40	5.17	2.004	6.14*	6.80*	0.97	7.77	23	DropGrate
25	CB-RAY-02	2.40	12	Cir	23.171	5.18	5.64	1.985	7.77*	7.86*	0.15	8.01	24	DropGrate
26	Pipe - (14)	4.35	24	Cir	78.858	1.55	1.82	0.342	4.95*	4.98*	0.00	4.98	18	Manhole
27	Pipe - (13)	4.45	24	Cir	79.612	2.25	2.95	0.879	4.98*	5.01*	0.03	5.04	26	Manhole
28	CB-DAY-04	1.01	12	Cir	14.130	3.93	4.83	6.369	5.04	5.26	n/a	5.26 j	27	DropGrate
29	CB-DAY-06	0.59	12	Cir	27.626	4.76	5.08	1.158	5.26	5.41	n/a	5.41 j	28	DropGrate
30	CB-DAY-03	0.27	6	Cir	33.564	4.82	5.49	1.996	5.26	5.75	n/a	5.75 j	28	DropGrate
31	CB-DAY-02	3.83	12	Cir	10.000	3.24	3.64	4.000	5.04*	5.14*	0.55	5.69	27	DropGrate
32	CB-DAY-01	0.32	6	Cir	39.991	4.69	5.71	2.551	5.69	6.00	n/a	6.00 j	31	DropGrate
33	CB-RAY-06	0.43	12	Cir	24.227	4.38	4.82	1.816	4.66	5.10	0.09	5.10	13	DropGrate
34	CB-RAY-04	0.30	12	Cir	19.429	3.61	4.00	2.007	5.14*	5.14*	0.00	5.15	22	DropGrate
35	CB-DAY-05	3.48	12	Cir	29.407	3.31	3.90	2.006	5.69*	5.93*	0.30	6.24	31	DropGrate
36	Pipe - (28)	0.60	12	Cir	14.635	1.24	1.82	3.963	4.95*	4.96*	0.01	4.97	18	Manhole
37	CB-DAY-07	0.60	12	Cir	23.907	1.82	6.70	20.413	4.97	7.03	n/a	7.03 j	36	DropGrate
38	CB-RAY-01	27.21	36	Cir	152.364	-0.91	0.45	0.893	5.14*	5.36*	0.12	5.48	22	DropGrate
39	CB-RAY-08	0.61	12	Cir	24.296	-0.39	0.10	2.017	2.08*	2.09*	0.01	2.10	11	DropGrate
40		4.07	18	Cir	33.649	-1.44	-0.51	2.764	4.18*	4.23*	0.01	4.24	15	Manhole
41		4.12	18	Cir	82.180	1.31	1.86	0.669	4.24*	4.35*	0.04	4.39	40	Manhole
42	CB-Day-10	0.54	12	Cir	35.000	5.30	6.00	2.000	5.61	6.31	n/a	6.31	41	DropGrate
43		3.88	18	Cir	46.215	2.00	2.78	1.688	4.39*	4.44*	0.07	4.51	41	Manhole
44	CB-Day-09	0.48	12	Cir	5.000	6.87	7.00	2.600	7.16	7.29	0.10	7.29	43	DropGrate
45		3.66	18	Cir	29.206	2.78	2.98	0.685	4.51*	4.54*	0.07	4.61	43	Manhole
46	CB-Day-12	0.32	12	Cir	24.430	3.35	4.32	3.971	4.61	4.59	0.06	4.64	45	DropGrate

Project File: Proposed Raymond and Day.stm | Number of lines: 54 | Run Date: 7/23/2014

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
47	CB-Day-11	0.32	12	Cir	9.000	5.22	5.50	3.111	5.46	5.74	0.08	5.74	45	DropGrate
48		3.38	18	Cir	58.000	3.15	3.28	0.224	4.61	4.65	0.06	4.71	45	Manhole
49	CB-Day-14	1.41	12	Cir	75.000	3.78	4.06	0.373	4.71	4.79	0.11	4.90	48	DropGrate
50	CB Day-13	2.54	15	Cir	8.000	3.53	3.76	2.875	4.71	4.69	0.11	4.79	48	Manhole
51	CB-Day-15	0.75	12	Cir	26.562	3.74	4.72	3.689	4.90	5.09	n/a	5.09 j	49	DropGrate
52	CB-RAY-11	1.88	12	Cir	23.438	-0.01	1.58	6.784	0.62	2.16	n/a	2.16 j	9	DropGrate
53	CB Ray-12	1.25	12	Cir	25.680	1.70	1.51	-0.740	2.17	2.38	0.05	2.43	52	DropGrate
54	Area-01	26.88	36	Cir	50.000	0.45	0.55	0.200	5.48*	5.54*	0.22	5.77	38	Manhole

Project File: Proposed Raymond and Day.stm | Number of lines: 54 | Run Date: 7/23/2014

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	5.000	0.57	2.85	0.50	0.29	1.90	20.0	21.0	4.0	7.63	11.38	4.33	18	1.00	3.00	3.05	4.50	4.52	7.80	7.83	Outfall
2	1	227.523	0.70	2.28	0.50	0.35	1.61	20.0	20.0	4.1	6.64	7.80	3.99	18	0.47	3.05	4.12	4.66	5.37	7.83	7.56	CB-Day-16
3	2	67.491	0.00	1.49	0.00	0.00	1.19	0.0	16.0	4.6	5.46	3.39	3.11	18	0.09	4.35	4.41	5.79	5.91	7.56	8.02	Pipe - (41)
4	3	187.570	0.00	1.03	0.00	0.00	0.82	0.0	15.1	4.7	3.88	11.39	3.28	18	1.00	4.00	5.88	6.06	6.63	8.02	14.56	Pipe - (40)
5	4	7.875	0.14	0.14	0.80	0.11	0.11	5.0	5.0	6.7	0.75	3.89	2.86	12	1.02	8.10	8.18	8.47	8.55	14.56	14.29	CB-HAN-02
6	4	17.389	0.89	0.89	0.80	0.71	0.71	15.0	15.0	4.7	3.35	5.70	5.12	12	2.19	8.00	8.38	8.78	9.16	14.56	14.42	CB Han-01
7	2	24.105	0.09	0.09	0.80	0.07	0.07	5.0	5.0	6.7	0.48	6.67	1.60	12	2.99	4.98	5.70	5.79	5.99	7.56	7.62	CB-Day-17
8	3	28.059	0.46	0.46	0.80	0.37	0.37	10.0	10.0	5.5	2.03	3.49	2.59	12	0.82	4.44	4.67	6.06	6.14	8.02	8.39	CB Han-03
9	End	12.927	0.00	20.06	0.00	0.00	13.82	0.0	33.0	3.1	43.09	0.00	2.71	54	-0.08	-4.00	-4.01	0.50	0.51	4.87	4.74	Outfall
10	9	7.000	0.07	19.26	0.80	0.06	13.42	5.0	33.0	3.1	41.86	0.00	5.92	36	0.00	-4.01	-4.01	0.62	0.64	4.74	0.00	CB-Ray-10
11	10	102.712	0.80	19.19	0.80	0.64	13.36	5.0	32.7	3.1	41.91	0.00	5.93	36	-0.03	-3.73	-3.76	0.92	1.26	0.00	5.70	CB-RAY-09
12	11	38.189	0.00	18.17	0.00	0.00	12.61	0.0	32.6	3.1	39.64	0.00	5.61	36	-0.03	-3.76	-3.77	2.08	2.20	5.70	5.80	Pipe - (04) (1) (1)
13	12	77.551	0.09	18.17	0.80	0.07	12.61	5.0	32.3	3.2	39.81	14.21	5.63	36	0.04	-3.77	-3.74	2.27	2.51	5.80	8.33	CB-RAY-07
14	13	47.085	0.00	18.00	0.00	0.00	12.48	0.0	32.2	3.2	39.48	10.53	5.59	36	0.02	-3.74	-3.73	3.24	3.39	8.33	10.10	Pipe - (04) (1) (1)
15	14	77.733	0.00	18.00	0.00	0.00	12.48	0.0	32.0	3.2	39.65	0.00	5.61	36	-0.01	-3.73	-3.74	3.46	3.69	10.10	12.20	Pipe - (04) (1)
16	15	17.015	0.00	2.16	0.00	0.00	1.24	0.0	23.7	3.8	4.67	0.00	5.94	12	-2.53	-0.84	-1.27	4.18	4.43	12.20	12.30	Pipe - (09)
17	16	74.780	0.00	2.16	0.00	0.00	1.24	0.0	22.9	3.8	4.75	18.80	1.51	24	0.59	-0.97	-0.53	4.85	4.88	12.30	11.00	Pipe - (16)
18	17	78.350	0.00	2.16	0.00	0.00	1.24	0.0	22.0	3.9	4.85	35.99	1.54	24	2.16	-0.38	1.31	4.89	4.92	11.00	9.88	Pipe - (15)
19	18	16.688	0.00	0.07	0.00	0.00	0.06	0.0	5.1	6.7	0.42	4.82	0.54	12	1.56	3.24	3.50	4.95	4.96	9.88	9.93	Pipe - (29)
20	19	11.362	0.07	0.07	0.90	0.06	0.06	5.0	5.0	6.7	0.42	5.49	2.40	12	2.02	6.47	6.70	6.75	6.98	9.93	10.05	CB-DAY-08
21	15	197.550	0.17	13.63	0.60	0.10	9.96	10.0	31.1	3.2	32.20	54.40	4.56	36	0.57	-3.29	-2.17	4.18	4.57	12.20	8.80	CB-RAY-05

Project File: Proposed Raymond and Day.stm

Number of lines: 54

Run Date: 7/23/2014

NOTES:Intensity = 101.98 / (Inlet time + 15.80) ^ 0.90; Return period =Yrs. 25 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
22	21	53.467	0.00	13.46	0.00	0.00	9.86	0.0	30.9	3.2	31.99	100.3	4.53	36	1.93	-2.21	-1.18	4.74	4.84	8.80	7.81	MH-RAY-01
23	22	22.344	0.00	2.90	0.00	0.00	1.54	0.0	30.1	3.3	5.06	5.48	6.44	12	2.01	3.95	4.40	5.14	5.53	7.81	7.90	Pipe - (66)
24	23	38.424	2.05	2.90	0.50	1.03	1.54	30.0	30.0	3.3	5.07	5.46	6.45	12	2.00	4.40	5.17	6.14	6.80	7.90	7.64	CB-RAY-03
25	24	23.171	0.85	0.85	0.60	0.51	0.51	15.0	15.0	4.7	2.40	5.44	3.06	12	1.99	5.18	5.64	7.77	7.86	7.64	7.64	CB-RAY-02
26	18	78.858	0.00	1.99	0.00	0.00	1.09	0.0	21.1	4.0	4.35	14.34	1.38	24	0.34	1.55	1.82	4.95	4.98	9.88	7.98	Pipe - (14)
27	26	79.612	0.00	1.99	0.00	0.00	1.09	0.0	20.1	4.1	4.45	22.98	1.42	24	0.88	2.25	2.95	4.98	5.01	7.98	7.27	Pipe - (13)
28	27	14.130	0.03	0.19	0.80	0.02	0.15	5.0	5.3	6.6	1.01	9.74	2.22	12	6.37	3.93	4.83	5.04	5.26	7.27	6.85	CB-DAY-04
29	28	27.626	0.11	0.11	0.80	0.09	0.09	5.0	5.0	6.7	0.59	4.15	2.09	12	1.16	4.76	5.08	5.26	5.41	6.85	7.55	CB-DAY-06
30	28	33.564	0.05	0.05	0.80	0.04	0.04	5.0	5.0	6.7	0.27	0.86	2.02	6	2.00	4.82	5.49	5.26	5.75	6.85	6.70	CB-DAY-03
31	27	10.000	0.05	1.80	0.80	0.04	0.93	5.0	20.1	4.1	3.83	7.72	4.88	12	4.00	3.24	3.64	5.04	5.14	7.27	6.67	CB-DAY-02
32	31	39.991	0.06	0.06	0.80	0.05	0.05	5.0	5.0	6.7	0.32	0.97	2.19	6	2.55	4.69	5.71	5.69	6.00	6.67	6.89	CB-DAY-01
33	13	24.227	0.08	0.08	0.80	0.06	0.06	5.0	5.0	6.7	0.43	5.20	2.41	12	1.82	4.38	4.82	4.66	5.10	8.33	8.32	CB-RAY-06
34	22	19.429	0.15	0.15	0.30	0.05	0.05	5.0	5.0	6.7	0.30	5.47	0.38	12	2.01	3.61	4.00	5.14	5.14	7.81	7.00	CB-RAY-04
35	31	29.407	1.69	1.69	0.50	0.85	0.85	20.0	20.0	4.1	3.48	5.46	4.43	12	2.01	3.31	3.90	5.69	5.93	6.67	7.55	CB-DAY-05
36	18	14.635	0.00	0.10	0.00	0.00	0.09	0.0	5.2	6.6	0.60	7.68	0.76	12	3.96	1.24	1.82	4.95	4.96	9.88	7.90	Pipe - (28)
37	36	23.907	0.10	0.10	0.90	0.09	0.09	5.0	5.0	6.7	0.60	17.43	1.72	12	20.41	1.82	6.70	4.97	7.03	7.90	10.05	CB-DAY-07
38	22	152.364	0.23	10.41	0.60	0.14	8.28	10.0	30.2	3.3	27.21	68.26	3.85	36	0.89	-0.91	0.45	5.14	5.36	7.81	9.01	CB-RAY-01
39	11	24.296	0.22	0.22	0.50	0.11	0.11	10.0	10.0	5.5	0.61	5.48	0.77	12	2.02	-0.39	0.10	2.08	2.09	5.70	5.70	CB-RAY-08
40	15	33.649	0.00	2.21	0.00	0.00	1.28	0.0	31.7	3.2	4.07	18.91	2.30	18	2.76	-1.44	-0.51	4.18	4.23	12.20	12.00	
41	40	82.180	0.00	2.21	0.00	0.00	1.28	0.0	31.1	3.2	4.12	9.31	2.33	18	0.67	1.31	1.86	4.24	4.35	12.00	10.90	
42	41	35.000	0.09	0.09	0.90	0.08	0.08	5.0	5.0	6.7	0.54	5.46	2.59	12	2.00	5.30	6.00	5.61	6.31	10.90	10.50	CB-Day-10
43	41	46.215	0.00	2.12	0.00	0.00	1.19	0.0	30.8	3.3	3.88	14.78	2.20	18	1.69	2.00	2.78	4.39	4.44	10.90	10.50	
44	43	5.000	0.08	0.08	0.90	0.07	0.07	5.0	5.0	6.7	0.48	6.22	2.50	12	2.60	6.87	7.00	7.16	7.29	10.50	10.20	CB-Day-09

Project File: Proposed Raymond and Day.stm

Number of lines: 54

Run Date: 7/23/2014

NOTES:Intensity = 101.98 / (Inlet time + 15.80) ^ 0.90; Return period =Yrs. 25 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
45	43	29.206	0.00	2.04	0.00	0.00	1.12	0.0	30.6	3.3	3.66	9.41	2.07	18	0.68	2.78	2.98	4.51	4.54	10.50	8.90	
46	45	24.430	0.06	0.06	0.80	0.05	0.05	5.0	5.0	6.7	0.32	7.69	1.15	12	3.97	3.35	4.32	4.61	4.59	8.90	8.80	CB-Day-12
47	45	9.000	0.06	0.06	0.80	0.05	0.05	5.0	5.0	6.7	0.32	6.80	2.21	12	3.11	5.22	5.50	5.46	5.74	8.90	8.80	CB-Day-11
48	45	58.000	0.00	1.92	0.00	0.00	1.03	0.0	30.1	3.3	3.38	5.39	1.96	18	0.22	3.15	3.28	4.61	4.65	8.90	8.10	
49	48	75.000	0.24	0.38	0.60	0.14	0.26	10.0	10.0	5.5	1.41	2.36	2.08	12	0.37	3.78	4.06	4.71	4.79	8.10	7.50	CB-Day-14
50	48	8.000	1.54	1.54	0.50	0.77	0.77	30.0	30.0	3.3	2.54	11.86	2.36	15	2.88	3.53	3.76	4.71	4.69	8.10	8.00	CB Day-13
51	49	26.562	0.14	0.14	0.80	0.11	0.11	5.0	5.0	6.7	0.75	7.41	1.91	12	3.69	3.74	4.72	4.90	5.09	7.50	7.02	CB-Day-15
52	9	23.438	0.27	0.80	0.50	0.14	0.40	15.0	15.2	4.7	1.88	10.05	3.78	12	6.78	-0.01	1.58	0.62	2.16	4.74	4.69	CB-RAY-11
53	52	25.680	0.53	0.53	0.50	0.27	0.27	15.0	15.0	4.7	1.25	0.00	2.56	12	-0.74	1.70	1.51	2.17	2.38	4.69	4.34	CB Ray-12
54	38	50.000	10.18	10.18	0.80	8.14	8.14	30.0	30.0	3.3	26.88	32.31	3.80	36	0.20	0.45	0.55	5.48	5.54	9.01	10.00	Area-01

Project File: Proposed Raymond and Day.stm

Number of lines: 54

Run Date: 7/23/2014

NOTES:Intensity = 101.98 / (Inlet time + 15.80) ^ 0.90; Return period =Yrs. 25 ; c = cir e = ellip b = box

Tighe&Bond

APPENDIX B

NORWALK on the move!

OFFICE OF THE MAYOR

HARRY W. RILLING

July 21, 2014

Ms. Evonne Klein, Commissioner
State of Connecticut
Department of Housing
505 Hudson Street
Hartford, CT 06106-7106

Dear Commissioner Klein:

The full implementation of the Washington Village / South Norwalk Transformation Plan is viewed by the City of Norwalk as essential to unlocking the economic and community development potential of this 30 block neighborhood fronting on the harbor and directly serviced by the South Norwalk – Metro North Commuter Rail Station. Recognizing that much of the neighborhood is located within the flood plain is foremost in our minds as we prepare for its redevelopment. Our local efforts in this regard are grounded in providing the neighborhood with improved power and telecommunication accessibility, elevated infrastructure and the construction of resilient buildings.

The need to ensure the ability of neighborhood residents and emergency responders to have safe, dry access to and from the newly constructed residential units is critical given their location. This has been a condition of the federal funding awarded to the project by your department. A component piece of that dry egress requirement has always been a newly constructed walkway through Ryan Park at elevation 12. As advanced in preliminary design, the walkway would enter the park to the east at Day and Raymond Streets and continue to the most western edge of the park, exiting in the parking lot located outside of the flood plain and less than a block from South Main Street. The City has obtained funding for the Ryan Park improvements. The concept design of the proposed dry egress improvements as previously represented to the Department of Housing (DOH) will be incorporated into the City's master plan for Ryan Park. Further, the dry egress improvements to Ryan Park will be completed prior to the Certificates of Occupancy being issued for the Phase I Improvements to Washington Village.

The Redevelopment Agency, working in concert with the City's Department of Public Works and Park Department, is serving as the City's lead public agency regarding the implementation of the Washington Village / South Norwalk Transformation Plan. As such, the Agency has contracted with Tighe & Bond to complete the final design and engineering work to advance both the Ryan Park and Day and Raymond Street improvements to bid. This bid package is anticipated to be released in February of 2015. The funding sources associated with this project and the relevant backup are attached.

Sincerely,

Harry W. Rilling

Harry W. Rilling
Mayor

Enclosure

125 East Avenue • Post Office Box 5125 • Norwalk, CT 06856-5125 • Telephone 203-854-7701 • Fax 203-854-7939 • hrilling@norwalkct.org

Ryan Park, Day & Raymond Street Funding Sources

CDBG DR 2	3,000,000	Condition of Funding Letter
Choice Neighborhoods	4,500,000	Neighborhood Strategy Budget
CDBG Entitlement	400,000	Reprogramming Memo
TOTAL	**$ 7,900,000.00**	

Dannel P. Malloy
Governor

STATE OF CONNECTICUT
DEPARTMENT OF HOUSING

Evonne M. Klein
Commissioner

June 24, 2014

Mr. Tim Sheehan
Executive Director
Norwalk Redevelopment Agency
25 East Avenue
Norwalk, CT 06851

Re: Washington Village: Elevating Raymond and Day Streets
CDBG-DR Infrastructure Application

Dear Mr. Sheehan:

The Department of Housing (DOH) has reviewed your application for financial assistance in the amount of $3,000,000 for the Norwalk infrastructure project that adds resiliency to Raymond and Day Streets by raising them above the 100 year flood plain. You requested that DOH provide this financial assistance with the funds allocated by the State of Connecticut from the US Department of Housing and Urban Development (HUD) under the Community Development Block Grant – Disaster Recovery (CDBG-DR) program which is administered by DOH.

An essential element of the Washington Village revitalization is the elevation of Raymond and Day Streets. This road elevation increase will allow safe access of emergency vehicles and an evacuation route for residents during flood events, and provide greater resiliency and reduce the impact of future flooding in the project area.

This letter serves to outline certain basic provisions and conditions of funding. **This letter is not a contract.** The State shall not be bound until an Assistance Agreement has been fully executed in accordance with all applicable Federal, State and Local Laws.

Conditions of CDBG-DR assistance includes:

1. Compliance with the National Environmental Policy Act (NEPA) including completion of the Statutory Checklist, Environmental Assessment Checklist and the Environmental Review Record.
2. HUD's written approval of the Release of Funds upon completion of NEPA requirements. Be advised, DOH is prohibited from incurring any hard costs, or entering into contracts prior to HUD's written approval of DOH's Request for Release of Funds (24 CFR Part 58, Section 58.22(a).
3. Execution of the Assistance Agreement and supporting documents required for grant award.
4. **A Grant in the amount of $3,000,000 from the Second Tranche of Infrastructure program may be secured upon HUD's approval for the Release of Funds; Passage of a Town/City Resolution to Accept Funds; and an Executed Assistance Agreement and supporting documents.**

Thank you for your application to the CBBG-DR Program. If you have any questions about this letter, please contact John Rosenthal, Economic and Community Development Agent, at 860-270-8173.

Cordially,

Evonne M. Klein
Commissioner

Choice Neighborhoods Budget

Implementation Grants

Part I: Summary

U.S. Department of Housing and Urban Development

Office of Public and Indian Housing

OMB Approval No. 2577-0269

(exp. 1/31/2015)

Grantee Name: Housing Authority of City of Norwalk

Devel. Name: Washington Village

CN Grant Number:

Budget Revision Number:

Line No.	Summary by Budget Line Item	Revised Overall Choice Neighborhoods Budget for All Project Phases	Previous Authorized Amount of Funds in LOCCS	Requested Changes to LOCCS Authorized Amount in this Revision	HUD-Approved Total Authorized Amount of Funds in LOCCS
1	1405 Supportive Services	$ 4,500,000.00			
2	1408 Management Improvements				
3	1409 Evaluation				
4	1410 Administration	$ 1,475,000.00			
5	1430 Fees and Costs	$ 600,000.00			
6	1440 Site Acquisition				
7	1450 Site Improvement				
8	1460 Dwelling Structures	$ 16,400,000.00			
9	1465 Dwelling Equipment-Nonexpendable				
10	1470 Nondwelling Structures				
11	1475 Nondwelling Equipment				
12	1480 Critical Community Improvements	$ 4,500,000.00			
13	1485 Demolition	$ 1,600,000.00			
14	1495 Relocation Costs - Residents	$ 925,000.00			
15	1496 Relocation Costs - Non-Residents				
16	**Total Funds Authorization**		$ -	$ -	$ -
17	U2000 Funds held in Reserve		$ 30,000,000.00		$ 30,000,000.00
18	**Amount of Grant**	$ 30,000,000.00			$ 30,000,000.00

Signature of Executive Officer

X Date 9/4/13

HUD Certification: In approving this budget and providing assistance to a specific housing development(s), I hereby certify that the assistance will not be more than is necessary to make the assisted activity feasible after taking into account assistance from other government sources (24 CFR 12.50).

Signature of Authorized HUD Official

X Date

Sheehan, Timothy

From: Strauss, Tami
Sent: Monday, July 21, 2014 3:59 PM
To: Sheehan, Timothy
Cc: Slovak, John
Subject: Reprogramming

The Norwalk Redevelopment Agency currently has roughly $400,000 in unspent/uncommitted CDBG funds (this figure is subject to final approval). We will seek the Common Council's approval to reprogram these funds for the sole use of implementing the Ryan Park Master Plan. The improvement of Ryan Park is a key component of the neighborhood strategy described in the Washington Village / South Norwalk Transformation Plan which was recently awarded a $30 million Choice Neighborhoods Grant.

Tami Strauss
Director of Community Development Planning
Norwalk Redevelopment Agency
125 East Avenue, Room 202
Norwalk, CT 06851
tstrauss@norwalkct.org
(203)854-7810 x46787

23-1039-0-035
June 17, 2014
Revised July 3, 2014

Mr. Timothy Sheehan
Director
Norwalk Redevelopment Agency
125 East Avenue
Norwalk, CT 06856

Re: **Proposal for Engineering Services**
Day Street & Raymond Street Roadway Reconstruction

Dear Mr. Sheehan:

Tighe & Bond is pleased to submit our proposal to provide engineering and construction administration services for the Day Street and Raymond Street Roadway Reconstruction project.

Tighe & Bond has significant knowledge of this area due to our work on the South Norwalk Transit Oriented Development Infrastructure Study and our current contract for site engineering at the Washington Village redevelopment site. This knowledge, combined with our extensive experience in roadway design projects in Norwalk, will enable us to provide the City of Norwalk with exceptional engineering services for the Day Street and Raymond Street Roadway Reconstruction project.

Project Understanding

The proposed Washington Village project requires "Dry Access" to the site above the 100 Year flood elevation to provide flood resiliency and receive Federal funding. In order to accomplish this, portions of Day Street and Raymond Street will be raised, which will require reconstruction of the roadways. The South Norwalk Transit Oriented Development Infrastructure Study prepared by our office also recommended reconstruction of Day Street and Raymond Street due to deteriorated pavement, curb and sidewalk condition and utility improvements that will be required to serve the anticipated development.

The project limits include Day Street from Ellsworth Street to Van Zant Street and Raymond Street from South Main Street to Water Street.

Scope of Work

Preliminary Engineering Phase

This phase will include preliminary roadway design and generally define the 30% completion stage. The following drawings are anticipated to constitute the Preliminary Design Drawings.

Title Sheet

Index Plan and Profile Sheet (1 Drawing)

Existing Condition Sheets (2 Drawings)

Typical Section Sheets (1 Drawing)

Roadway Construction Plan & Profile Sheets (4 Drawings)

Critical Cross Sections Sheets (4 Drawings)

Detail Sheets (3 Drawings)

Phasing Plans (2 Drawings)

1. We will meet with representatives from the City of Norwalk to establish design criteria and to review the scope of work, assignment of work and the project schedule. During this meeting, we will request any information from the City which may facilitate the design process including, but not limited to, existing topographic mapping, previous studies, utility plans, property records, sewer videos and traffic counts.

2. We have provided an allowance to provide survey and mapping to supplement the partial survey of Day Street and Raymond Street performed for the Washington Village project. Survey will be provided at 1" = 20' scale. The survey will include the roadway corridor and 50 feet beyond existing street lines, or to front face of all main buildings within the survey limits. The survey will show street lines and side property lines.

   Accuracy shall be to Class T-2 (topography) and A-2 (boundary) in accordance with the Recommended Standards for Surveys and Maps in the State of Connecticut as adopted for use by the Connecticut Association of Land Surveyors, Inc., on September 24, 1992 and latest addenda thereto.

   Horizontal control will be tied into the State of Connecticut coordinate system NAD 83 and vertical control to NAVD 88. Baselines and benchmarks at intervals no greater than 350 feet will be provided, with coordinates and ties for construction clearly marked.

   The survey will include as-built locations, by coordinates, of the edge of pavement; the location and elevations of any visible permanent features within the corridor; location and size of all overhead and underground utilities; location of utility poles with number and ownership; location, grate and invert elevation of catch basins and manholes; location of hydrants, significant trees, walls, fences, mailboxes, signs, pavement markings and other street furniture; location size and rim and invert elevations of storm water drains and sanitary sewer lines. Existing buildings will. Street numbers and first floor elevations will also be shown.

   The surveyed roadway profiles will show roadway centerline elevation and underground utilities such as gas lines, water mains, electric, telephone and television cables, storm drains, catch basins, sanitary sewers.

   Coordinated centerlines will be provided for Day Street and Raymond Street.

   Deliverables to the City will include mylar mapping and digital format mapping file in AutoCAD, DWG. All plans and profiles will utilize the City of Norwalk standard format mylar sheets. A survey worksheet will be provided on translucent bond or vellum with all the information as described above plus survey traverse, all spot elevations taken for cross sections, and locations of planimetric features.

3. Obtain City maps, as-builts and reports from the Department of Public Works to supplement data gaps in the project survey to establish the storm drainage and sanitary sewer piping and structures within the project area and the adjacent streets.

4. Set the centerline/baseline for construction utilizing the project survey at a scale of 1" = 20'.

5. Develop the preliminary vertical alignment of the new roadways at a horizontal scale of 1" = 20' and a vertical scale of 1" = 2'.

6. Spot check critical cross sections against existing cross sections, based on the survey information, to determine the impact of profiles being set on adjacent properties and on intersecting streets.

7. Develop a preliminary lane arrangement plan to define the proposed method of operation for the project, indicating the proposed method of control for each intersection.

8. Prepare a preliminary drainage design and layout indicating the general work scope and possible utility conflicts. Basic assumptions of the drainage design will be that existing storm mains adjacent to the project area have sufficient capacity to handle the discharge from the proposed project. An engineering report will be prepared documenting the drainage design. A full analysis of the existing watershed is not included.

9. Prepare a preliminary sanitary sewer design and layout. Subcontract with a video inspection service to provide video recordings of the existing sanitary sewers in Day Street and Raymond Street to evaluate their condition. Provide recommendations for any improvements necessary based on this evaluation. It is anticipated that lining or replacement of the existing sewers may be necessary due to the raising of the Day Street and Raymond Street intersection. Analyze the capacity of the existing and new sanitary sewers utilizing anticipated peak discharges provided by the Redevelopers.

10. Prepare plans and profiles on standard size sheets showing the proposed roadway layout.

11. Develop preliminary phasing plans. It is anticipated that construction to raise Day Street and Raymond Street will occur before redevelopment in some areas. Assess impact on existing and proposed utilities from proposed reconstruction. Develop preliminary options for temporary earth retention due to raising of the roadways. It is anticipated that modular block walls may be used for this purpose. Structural design of permanent retaining walls is not included.

12. Contact the local utility companies (South Norwalk Electric and Water (SNEW), Yankee Gas, AT&T and Cablevision) and request their existing facilities mapping within and adjacent to the project area. The existing mapping will be used to supplement data gaps within the existing conditions survey. Submit written questions to the utility companies to comment on their ability to service the proposed developments, the condition of their existing facilities, any planned utility system improvements which may impact the project, and any requirements for utility companies to upgrade their facilities as a result of raising Raymond and Day Streets and to serve the project.

13. Meet with representatives of each utility company individually to review their proposed design. After completion of the individual meetings, arrange and attend two meetings with all utility companies and the City of Norwalk to finalize the utility design. We have assumed a total of six (6) meetings for the utility coordination process.

14. Coordinate the proposed design with the Redevelopers' designs of site improvements. Attend one (1) meeting with the Redevelopers and/or their engineers to coordinate site improvements and phasing of temporary services to the existing buildings during construction of new utilities.

15. Prepare a quantity takeoff from the preliminary design plans, profiles and critical cross sections and develop an Opinion of Probable Cost.

16. Submit the preliminary design plans, preliminary design report and Opinion of Probable Cost to the City of Norwalk for review and approval.

17. Attend one (1) meeting with the City of Norwalk and the Redevelopers' representatives to present the preliminary design and to review and coordinate preliminary design submission comments.

Ryan Park Coordination

1. Meet with the Ryan Park master planner and representatives of the Parks Department to review the proposed roadway design and coordinate with the Ryan Park design. We have assumed two meetings.

2. Provide the Ryan Park master planner with the design criteria for providing dry access to the intersection of Day & Raymond through the park.

3. Review and comment on the Ryan Park master planner's proposed alternatives.

4. Assist the Ryan Park master planner with alternative details for surface treatments to provide dry access through Ryan Park.

5. Provide phasing plans that may be required to provide "Dry Access" as an interim measure until the park renovations are designed and ready for construction.

Semi-Final Engineering Phase

This phase shall address comments from the preliminary roadway design phase and generally define the 75% completion stage, outlining the details and specifics of the proposed construction.

The following drawings are anticipated to constitute the Semi-Final Design Drawings. We will prepare these plans in accordance with the guidance provided by the City.

Title Sheet

Index Plan and Profile Sheet (1 Drawing)

General Notes, Legend, Abbreviations, Survey Ties (1 Drawing)

Existing Condition Sheets (4 Drawings)

Typical Section Sheets (1 Drawing)

Miscellaneous Detail Sheets (4 Drawings)

Roadway Construction Plan & Profile Sheets (4 Drawings)

Intersection Grading Plan (1 Drawing)

Street Lighting Plans (4 Drawings)

Sedimentation and Erosion Control Plan Sheets (4 Drawings)

Signing and Pavement Marking Plan Sheets (4 Drawings)

Signing and Pavement Marking Detail Sheets (2 Drawings)

Cross Sections Sheets (10 Drawings)

Phasing Plans (2 Drawings)

1. Prepare semi-final roadway construction plans which will include new curb lines, curb cuts, sidewalks, drainage systems, sanitary sewers, street lighting, new utility construction and utility relocations.

2. Forward copies of the approved preliminary design plans to all utility companies for the purpose of ascertaining the impact of proposed construction on their respective facilities and to assist in finalizing their utility designs.

3. Attend four (4) coordination meetings with the utilities and the City of Norwalk. Provide liaison with the utility companies and incorporate their designs for installation and relocation of utilities in the semi-final plans.

4. Develop details of the vertical and horizontal geometry including grades at 50 foot intervals, profiles, all details and curve data utilizing the approved preliminary design.

5. Develop plans and profiles indicating construction items, with notes, on standard size sheets at a scale of 1" = 20' horizontal and 1" = 2' vertical for profiles. Plans and profiles will indicate existing utility information and proposed roadway and utility construction.

6. Complete typical sections to clearly illustrate the work required.

7. Develop cross sections at 50' intervals and at critical locations such as driveways and building entrances.

8. Prepare intersection grading plan for the following intersection:

   - Day Street & Raymond Street

9. Meet with SNEW to confirm service requirements and details for electrical service connections for street lighting.

   Prepare the following lighting drawings:

A. Legend / Notes / Standard Abbreviations - This sheet will show legends and notes applicable to lighting plan sheets as well as standard abbreviations used on the project. This sheet will also include the fixture schedule and the single-line wiring diagram.

B. Lighting Plan - The Lighting Plan will show the locations of the various fixtures and the required conduit and wiring sizes between the fixtures, as well as the point of connection to the power source. Perform calculations as needed to establish lighting fixture layout.

C. Details - Prepare detail sheets to clearly identify the character and scope of lighting and miscellaneous structures necessary to properly accomplish the work.

10. Prepare sedimentation and erosion control plans.

11. Locate catch basins and prepare the final layout and profiles for the storm drainage, based on the approved preliminary design, and on gutter flow analysis.

12. Show appropriate construction notes.

13. Prepare pavement marking and signage plans.

14. Prepare detail sheets to clearly identify the character and scope of miscellaneous structures necessary to properly accomplish the work. We will utilize City of Norwalk standard construction details for roadway construction on City streets.

15. Specify maintenance and protection of traffic to be in conformance with the Manual of Uniform Traffic Control devices (MUTCD) and the City's guidelines for construction projects.

16. Prepare semi-final phasing plans indicating any required temporary utility measures and location and type of temporary earth retention systems. It is anticipated that modular block walls may be used for this purpose. Structural design of permanent retaining walls is not included.

17. Prepare technical specifications following City of Norwalk Standard Specifications and ConnDOT Form 816.

18. Coordinate our design with the Redevelopers' design of site improvements.

19. Prepare estimates of quantities and make an Opinion of Probable Cost for the proposed work, based on the semi-final design drawings.

20. Present the semi-final plans, specifications and Opinion of Probable Cost to the City of Norwalk for review and approval.

21. Attend two (2) meetings with the City of Norwalk and the Redevelopers to review and coordinate semi-final review comments.

22. Prepare 75% Construction Plans, Construction Cost Estimate, Draft Specifications submit to City for semi-final review.

Final Engineering Phase

The following drawings are anticipated to constitute the Final Design Drawings, and are similar to the content provided in the Semi-Final Design.

Title Sheet

Index Plan and Profile Sheet (1 Drawing)

General Notes, Legend, Abbreviations, Survey Ties (1 Drawing)

Existing Condition Sheets (4 Drawings)

Typical Section Sheets (1 Drawing)

Miscellaneous Detail Sheets (4 Drawings)

Roadway Construction Plan & Profile Sheets (4 Drawings)

Intersection Grading Plan (1 Drawing)

Street Lighting Plans (4 Drawings)

Sedimentation and Erosion Control Plan Sheets (4 Drawings)

Signing and Pavement Marking Plan Sheets (4 Drawings)

Signing and Pavement Marking Detail Sheets (2 Drawings)

Cross Sections Sheets (10 Drawings)

Phasing Plans (2 Drawings)

This submittal shall address comments from the Semi-Final phase and will generally include the following tasks:

1. Incorporate City Semi-Final Design comments into the plans and details.

2. Complete special provisions for items not included in Form 816 or to supplement semi-final specifications. Coordinate with the City of Norwalk and prepare the Project Manual. We have assumed that the City will prepare the front end specifications and we will compile the front end specifications and our technical specifications into a Project Manual.

3. Finalize estimates of quantities and make cost estimates for the proposed work.

4. Submit documents for final review. These documents include the final plans, special provisions, cost estimate, design statement, and final drainage report.

5. We have assumed attendance at one (1) meeting for the Final Engineering Phase.

Construction Documents

1. Incorporate changes, based on comments received from the City of Norwalk final design review, and issue the construction documents.

2. Revise Project Manual based on comments from the City of Norwalk final design review.

Construction Administration

A. Bidding Phase Services

Provide assistance to the City of Norwalk for the advertising, receiving, reviewing and awarding of bids for a construction contract. These services will include the following:

1. Attend one (1) pre-bid meeting.

2. Review Contractors questions/comments and issue addenda.

3. Attend bid openings.

4. Review bids received and prepare a recommendation to the City for award of the contract.

B. Construction Administration Services (Office)

Provide construction administration assistance to the City of Norwalk during the construction phase of the project, which we have estimated to span a construction period of approximately 10 months (220 work days) from contract execution to final completion, including but not limited to the following:

1. Review and process contractor pay estimates. We have assumed 10 pay estimates will be processed.

2. Review detailed construction, shop and erection drawings for compliance with design concept and intent.

3. Review and analyze laboratory, shop and mill test reports and certificates for materials and equipment.

4. Review and respond to Contractor questions and RFI's during construction.

5. Process contract change orders, if necessary.

6. Meet with City of Norwalk officials to review construction progress on a biweekly basis. We have assumed attendance at 18 meetings.

7. Provide periodic observations of work in progress and project updates. We have assumed 10 site visits will be required.

8. Prepare supplementary sketches required to adapt to field conditions.

9. Complete final review of the completed construction and prepare a report on any deficiencies, corrective actions required, and recommendations for final acceptance of the project.

C. Construction Observation Services (Field)

Provide services to the City of Norwalk including on-site observation of construction by employees of the Engineer. Services will be provided during the construction phase of the project, which we have estimated to be 10 months (220 work days). Services will include:

1. Furnish resident engineering services throughout the construction period as required.

2. Field checking of the construction contractor's shop and working drawings and comparing them with the approved plans.

3. Measurement, computation, or checking of quantities of work performed and quantities of materials in place for partial and final payments to the contractors; and maintenance of field observation reports and other project records to document the work.

4. Monitoring adherence to construction contract requirements.

5. Oversight of outside testing and observation services; arranging for, conducting, or witnessing of field, laboratory, or shop tests for construction materials as specified to be completed by the City of Norwalk in the drawings and specifications.

6. Review and approval of requests for monthly and final payments to the contractor.

7. Preparation of daily observation reports covering the work in progress, and documenting delays to construction, unusual events, visitors to the work site, etc.

8. Coordination of the construction activity with the City of Norwalk.

9. Receipt of contractor's record information for preparation of record drawings of the completed project.

10. Testing of completed facilities.

11. Coordination of field and laboratory testing.

It should be understood that it is not the intent of this section of the proposal to provide supervisory personnel for the construction contractor.

Assumptions and Exclusions

1. We have assumed that the Redevelopers will complete the OSTA approval or determination process for their respective projects (if required) and forward any comments received regarding the proposed City roadways.

2. Design of improvements to Ryan Park and any improvements beyond the street Rights of Way are excluded, except for assistance during the Master Planning stage as described in this proposal.

3. Traffic signal design or modification is excluded.

4. The number of meetings is limited to the number specifically stated in this proposal.

5. Preparation of easement maps and taking maps is excluded.

6. Pavement corings and soil testing are excluded.

7. All work not specifically identified in this proposal is excluded.

Fees

Phase 1 - Design

Survey	$10,000
Preliminary Design Phase	$62,000
Ryan Park Coordination	$9,500
Semi-Final Design Phase	$80,000
Final Design Phase	$18,000
Construction Documents	$5,000
Reimbursables	$2,500
Sub-Total Phase 1 – Design	**$187,000**

Phase 2 – Construction Administration

A.	**Bidding Phase**	$5,000
B.	**Construction Administration – Office**	$46,000
C.	**Construction Administration – Field**	$221,000
D.	**Reimbursables**	$2,500
	Sub-Total Phase 2 – Constr. Admin.	**$274,500**

We will undertake this work on an hourly plus expense basis and you will be billed in accordance with the attached rate schedule. In the event that the scope of work is increased for any reason, the limiting fee to complete the work shall be mutually revised by written amendment. Our attached Terms and Conditions is part of this letter agreement.

If you have any questions, please do not hesitate to contact us at 203-712-1100.

Sincerely,

TIGHE & BOND, INC.

Jonathan A. Richer, P.E.
Project Manager

John W. Block, P.E., L.S.
Senior Vice President

ACCEPTANCE:

On behalf of the City of Norwalk, the scope, fee, and terms of this proposal are hereby accepted.

Authorized Representative

Date

Enclosures: Terms and Conditions
2014 Hourly Rate Schedule

J:\N\N1039 Norwalk Day & Raymond Street\PROP\Day & Raymond Proposal 14_07-03.Docx

2014 FIXED HOURLY RATE SCHEDULE

ENGINEERS/SCIENTISTS	
Principal	$200.00
Principal Engineer 2	$180.00
Principal Engineer 1	$160.00
Senior Consultant	$300.00
Traffic Consultant	$180.00
Senior Project Manager	$165.00
Project Manager	$160.00
Senior Engineer	$155.00
Project Engineer	$125.00
Staff Engineer 3	$120.00
Staff Engineer 2	$98.00
Staff Engineer 1	$90.00
Senior Planner	$118.00
Project Planner	$95.00
Planner	$80.00
Construction Services Manager	$135.00
Construction Observer	$110.00
Senior Compliance Specialist	$130.00
Project Compliance Specialist	$93.00
Compliance Specialist 2	$90.00
Compliance Specialist 1	$78.00
Principal Environmental Scientist	$135.00
Senior Environmental Scientist	$133.00
Project Environmental Scientist	$96.00
Environmental Scientist 2	$83.00
Environmental Scientist 1	$73.00

GIS	
GIS Director	$160.00
Senior Development Engineer	$145.00
GIS Project Manager	$115.00
GIS Developer 2	$90.00
GIS Developer 1	$82.00
GIS Analyst 2	$108.00
GIS Analyst 1	$87.00
GIS Technician 2	$77.00
GIS Technician 1	$67.00
GIS Support	$55.00

SUPPORT	
Remediation Technician*	$78.00
Senior Designer/Drafter*	$125.00
Designer/Drafter*	$89.00
CAD Technician	$60.00
Engineering Technician*	$74.00
Contract Manager	$115.00
Administrative Support*	$75.00

EXPENSES

1. Automobile transportation expense for employee travel directly related to the project shall be invoiced at the prevailing Federal rate per vehicle mile.
2. Outside reimbursable expenses and services, which are rendered to Tighe & Bond by other than direct employees, and any permitting fees paid by Tighe & Bond on behalf of the Client, shall be invoiced at Tighe & Bond's direct cost plus ten percent administrative fee.
3. Reimbursable expenses such as in-house field supplies and equipment rental, tolls and parking, overnight mailings and bulk notification mailings, and in-house printing shall be invoiced at cost or unit costs as applicable.
4. Costs for items such as regular mailings of project documents, telephone or fax communications, computer usage charges, and miscellaneous in-house printing are included in the hourly rates shown above.

PROVISIONS

1. Rates are effective until January 1, 2015 at which time rates will be increased based on annual salary review.

* For non-salaried personnel (noted above by an "*"), time worked in excess of eight hours in any day or forty hours per calendar week shall be invoiced at 150 percent of the above rate.

"CLIENT" is defined in the acceptance line of the accompanying proposal letter or the name the proposal is issued to; Tighe & Bond, Inc. is hereby referenced as "ENGINEER".

1. SCHEDULE OF PAYMENTS

1.1 Invoices will generally be submitted once a month for services performed during the previous month. Payment will be due within 30 days of invoice date. Monthly payments to ENGINEER shall be made on the basis of invoices submitted by ENGINEER and approved by CLIENT. If requested by CLIENT, monthly invoices may be supplemented with such supporting data as reasonably requested to substantiate them.

1.2 In the event of a disagreement as to billing, the CLIENT shall pay the agreed portion.

1.3 Interest will be added to accounts in arrears at the rate of one and one-half (1.5) percent per month (18 percent per annum) or the maximum rate allowed by law, whichever is less, of the outstanding balance. In the event counsel is retained to obtain payment of an outstanding balance, CLIENT will reimburse ENGINEER for all reasonable attorneys' fees and court costs.

1.4 If CLIENT fails to make payment in full within 30 days of the date due for any undisputed billing, ENGINEER may, after giving seven days' written notice to CLIENT, suspend services and retain work product until paid in full, including interest. In the event of suspension of services, ENGINEER will have no liability to CLIENT for delays or damages caused by such suspension.

2. SUCCESSORS AND ASSIGNS

2.1 CLIENT and ENGINEER each binds itself, its partners, successors, assigns and legal representatives to the other parties to this Agreement and to the partners, successors, assigns and legal representatives of such other parties with respect to all covenants of this Agreement. ENGINEER shall not assign, sublet or transfer its interest in this Agreement without the written consent of CLIENT, which consent shall not be unreasonably withheld.

2.2 This Agreement represents the entire and integrated Agreement between CLIENT and ENGINEER and supersedes all prior negotiations, representations or Agreements, whether written or oral. This Agreement may be amended only by written instrument signed by both CLIENT and ENGINEER.

2.3 Nothing contained in this Agreement shall create a contractual relationship or cause of action in favor of a third party against CLIENT or against ENGINEER.

3. STANDARD OF CARE

3.1 In performing professional services, ENGINEER will use that degree of care and skill ordinarily exercised under similar circumstances by members of the profession practicing in the same or similar locality.

4. TERMINATION

4.1 This Agreement may be terminated by either party upon seven days' written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party. In addition, CLIENT may terminate this Agreement for its convenience at any time by giving written notice to ENGINEER. In the event of any termination, CLIENT will pay ENGINEER for all services rendered and reimbursable expenses incurred under the Agreement to the date of termination and all services and expenses related to the orderly termination of this Agreement.

5. RECORD RETENTION

5.1 ENGINEER will retain pertinent records relating to the services performed for the time required by law, during which period the records will be made available upon reasonable request and upon reimbursement for any applicable retrieval/copying charges.

5.2 Samples - All soil, rock and water samples will be discarded 30 days after submission of ENGINEER's report, unless mutually agreed otherwise or unless ENGINEER's customary practice is to retain for a longer period of time for the specific type of services which ENGINEER has agreed to perform. Upon request and mutual agreement regarding applicable charges, ENGINEER will ship, deliver and/or store samples for CLIENT.

6. OWNERSHIP OF DOCUMENTS

6.1 All reports, drawings, specifications, computer files, field data, notes, and other documents, whether in paper or electronic format or otherwise ("documents"), are instruments of service and shall remain the property of ENGINEER, which shall retain all common law, statutory and other reserved rights including, without limitation, the copyright thereto. CLIENT's payment to ENGINEER of the compensation set forth in the Agreement shall be a condition precedent to the CLIENT's right to use documents prepared by ENGINEER.

6.2 Documents provided by ENGINEER are not intended or represented to be suitable for reuse by CLIENT or others on any extension or modification of this project or for any other projects or sites. Documents provided by ENGINEER on this project shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party, other than regulatory agencies, without the prior written consent of ENGINEER. Reuse of documents by CLIENT or others on extensions or modifications of this project or on other sites or use by others on this project, without ENGINEER's written permission and mutual agreement as to scope of use and as to compensation, if applicable, shall be at the user's sole risk, without liability on ENGINEER's part, and CLIENT agrees to indemnify and hold ENGINEER harmless from all claims, damages, and expenses, including attorney's fees, arising out of such unauthorized use or reuse.

6.3 Electronic Documents - ENGINEER cannot guarantee the authenticity, integrity or completeness of data files supplied in electronic format. If ENGINEER provides documents in electronic format for CLIENT's convenience, CLIENT agrees to waive any and all claims against ENGINEER resulting in any way from the unauthorized use, alteration, misuse or reuse of the electronic documents, and to defend, indemnify, and hold ENGINEER harmless from any claims, losses, damages, or costs, including attorneys fees, arising out of the unauthorized use, alteration, misuse or reuse of any electronic documents provided to CLIENT.

6.4 Electronic Data Bases – In the event that ENGINEER prepares electronic data bases, geographical information system (GIS) deliverables, or similar electronic documents, it is acknowledged by CLIENT and ENGINEER that such project deliverables will be used and perhaps modified by CLIENT and that ENGINEER's obligations are limited to the deliverables and not to any subsequent modifications thereof. Once CLIENT accepts the delivery of maps, databases, or similar documents developed by ENGINEER, ownership is passed to CLIENT. ENGINEER will retain the right to use the developed data and will archive the data for a period of three years from the date of project completion.

7. INSURANCE

7.1 ENGINEER will retain Worker's Compensation Insurance, Professional Liability Insurance with respect to liabilities arising from negligent errors and omissions, Commercial General Liability Insurance, Excess Liability, and Automobile Liability during this project. ENGINEER will furnish certificates at CLIENT's request.

7.2 Risk Allocation - For any claim, loss, damage, or liability resulting from error, omission, or other professional negligence in the performance of services, the liability of ENGINEER to all claimants with respect to this project will be limited to an aggregate sum not to exceed $50,000 or ENGINEER's compensation for consulting services, whichever is greater.

7.3 Damages – Notwithstanding any other provision of this Agreement, and to the fullest extent permitted by law, neither CLIENT nor ENGINEER, their respective officers, directors, partners, employees, contractors or subconsultants shall be liable to the other or shall make any claim for any incidental, indirect or consequential damages arising out of or connected in any way to the project or to this Agreement. This mutual waiver of certain damages shall include, but is not limited to, loss of use, loss of profit, loss of business, loss of income, loss of reputation and any other consequential damages that may be incurred from any cause of action including negligence, strict liability, breach of contract and breach of strict or implied warranty. Both CLIENT and ENGINEER shall require similar waivers of consequential damages protecting all the entities or persons named herein in all contracts and subcontracts with others involved in this project.

8. INDEMNIFICATION AND DISPUTE RESOLUTION

8.1 ENGINEER agrees, to the fullest extent permitted by law, to indemnify and hold CLIENT harmless from any damage, liability or cost to the extent caused by ENGINEER's negligent acts, errors or omissions in the performance of professional services under this Agreement and those of its subconsultants or anyone for whom ENGINEER is legally liable. ENGINEER is not obligated to indemnify CLIENT in any manner whatsoever for CLIENT's own negligence.

8.2 CLIENT agrees, to the fullest extent permitted by law, to indemnify and hold ENGINEER harmless from any damage, liability or cost to the extent caused by CLIENT's negligent acts, errors or omissions in the performance of this Agreement or anyone for whom CLIENT is legally liable. CLIENT is not obligated to indemnify ENGINEER in any manner whatsoever for ENGINEER's own negligence.

8.3 CLIENT agrees that any and all limitations of ENGINEER's liability, waivers of damages by CLIENT to ENGINEER shall include and extend to those individuals and entities ENGINEER retains for performance of the services under this Agreement, including but not limited to ENGINEER's officers, partners, and employees and their heirs and assigns, as well as ENGINEER's subconsultants and their officers, employees, and heirs and assigns.

8.4 In the event of a disagreement arising out of or relating to this Agreement or the services provided hereunder, CLIENT and ENGINEER agree to attempt to resolve any such disagreement through direct negotiations between senior, authorized representatives of each party. If any disagreement is not resolved by such direct negotiations, CLIENT and ENGINEER further agree to consider using mutually acceptable non-binding mediation service in order to resolve any disagreement without litigation.

9. SITE ACCESS

9.1 Right of Entry - Unless otherwise agreed, CLIENT will furnish right-of-entry on the land for ENGINEER to make any surveys, borings, explorations, tests or similar field investigations. ENGINEER will take reasonable precautions to limit damage to the land from use of equipment, but the cost for restoration of any damage that may result from such field investigations is not included in the agreed compensation for ENGINEER. If restoration of the land is required to its former condition, upon mutual agreement this may be accomplished as a reimbursable additional service at cost plus ten percent.

9.2 Damage to Underground Structures - Reasonable care will be exercised in locating underground structures in the vicinity of proposed subsurface explorations. This may include contact with the local agency coordinating subsurface utility information and/or a review of plans provided by CLIENT or CLIENT representatives for the site to be investigated. ENGINEER shall be entitled to rely upon any information or plans prepared or made available by others. In the absence of confirmed underground structure locations, CLIENT agrees to accept the risk of damage and costs associated with repair and restoration of damage resulting from the exploration work.

10. OIL AND HAZARDOUS MATERIALS

10.1 If, at any time, evidence of the existence or possible existence of asbestos, oil, or other hazardous materials or substances is discovered, ENGINEER reserves the right to renegotiate the terms and conditions of this Agreement, the fees for ENGINEER's services and ENGINEER's continued involvement in the project. ENGINEER will notify CLIENT as soon as practical if evidence of the existence or possible existence of such hazardous materials or substances is discovered.

10.2 The discovery of the existence or possible existence of hazardous materials or substances may make it necessary for ENGINEER to take accelerated action to protect human health and safety, and/or the environment. CLIENT agrees to compensate ENGINEER for the cost of any and all measures that in its professional opinion are appropriate to preserve and/or protect the health and safety of the public, the environment, and/or ENGINEER's personnel. To the full extent permitted by law, CLIENT waives any claims against ENGINEER and agrees to indemnify, defend and hold harmless ENGINEER from any and all claims, losses, damages, liability, and costs, including but not limited to cost of defense, arising out of or in any way connected with the existence or possible existence of such hazardous materials substances at the site.

11. SUBSURFACE INVESTIGATIONS

11.1 In soils, groundwater, and other subsurface investigations, conditions may vary significantly between successive test points and sample intervals and at locations other than where observations, exploration, and investigations have been made. Because of the variability of conditions and the inherent uncertainties in subsurface evaluations, changed or unanticipated underground conditions may occur that may affect overall project costs and/or execution. These variable conditions and related impacts on cost and project execution are not the responsibility of ENGINEER.

12. FEDERAL AND STATE REGULATORY AGENCY AUDITS

12.1 For certain services rendered by ENGINEER, documents filed with federal and state regulatory agencies may be audited after the date of filing. In the event that CLIENT's project is selected for an audit, CLIENT agrees to compensate

ENGINEER for time spent preparing for and complying with an agency request for information or interviews in conjunction with such audit. CLIENT will be notified at the time of any such request by an agency, and ENGINEER will invoice CLIENT based on its standard billing rates in effect at the time of the audit.

13. CLIENT's RESPONSIBILITIES

13.1 Unless otherwise stated in the Agreement, CLIENT will obtain, arrange, and pay for all notices, permits, and licenses required by local, state, or federal authorities; and CLIENT will make available the land, easements, rights-of-way, and access necessary for ENGINEER's services or project implementation.

13.2 CLIENT will examine ENGINEER's studies, reports, sketches, drawings, specifications, proposals, and other documents and communicate promptly to ENGINEER in the event of disagreement regarding the contents of any of the foregoing. CLIENT, at its own cost, will obtain advice of an attorney, insurance counselor, accountant, auditor, bond and financial advisors, and other consultants as CLIENT deems appropriate; and render in writing decisions required by CLIENT in a timely manner.

14. OPINIONS OF COST, FINANCIAL ANALYSES, ECONOMIC FEASIBILITY PROJECTIONS, AND SCHEDULES

14.1 ENGINEER has no control over cost or price of labor and materials required to implement CLIENT's project, unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs, competitive bidding procedures and market conditions, time or quality of performance by operating personnel or third parties, and other economic and operational factors that may materially affect the ultimate project cost or schedule. Therefore, ENGINEER makes no warranty, expressed or implied, that CLIENT's actual project costs, financial aspects, economic feasibility, or schedules will not vary from any opinions, analyses, projections, or estimates which may be provided by ENGINEER. If CLIENT wishes additional information as to any element of project cost, feasibility, or schedule, CLIENT at its own cost will employ an independent cost estimator, contractor, or other appropriate advisor.

15. CONSTRUCTION PHASE PROVISIONS

15.1 CLIENT and Contractor - The presence of ENGINEER's personnel at a construction site, whether as onsite representatives or otherwise, does not make ENGINEER or ENGINEER's personnel in any way responsible for the obligations, duties, and responsibilities of the CLIENT and/or the construction contractors or other entities, and does not relieve the construction contractors or any other entity of their respective obligations, duties, and responsibilities, including, but not limited to, all construction methods, means, techniques, sequences, and procedures necessary for coordinating and completing all portions of the construction work in accordance with the construction contract documents and for providing and/or enforcing all health and safety precautions required for such construction work.

15.2 Contractor Control - ENGINEER and ENGINEER's personnel have no authority or obligation to monitor, to inspect, to supervise, or to exercise any control over any construction contractor or other entity or their employees in connection with their work or the health and safety precautions for the construction work and have no duty for inspecting, noting, observing, correcting, or reporting on health or safety deficiencies of the construction contractor(s) or other entity or any other persons at the site except ENGINEER's own personnel.

15.3 On-site Responsibility - The presence of ENGINEER's personnel at a construction site is for the purpose of providing to CLIENT an increased degree of confidence that the completed construction work will conform generally to the construction documents and that the design concept as reflected in the construction documents generally has been implemented and preserved by the construction contractor(s). ENGINEER neither guarantees the performance of the construction contractor(s) nor assumes responsibility for construction contractor's failure to perform work in accordance with the construction documents.

15.4 Payment Recommendations - Recommendations by ENGINEER to CLIENT for periodic construction progress payments to the construction contractor(s) are based on ENGINEER's knowledge, information, and belief from selective observation that the work has progressed to the point indicated. Such recommendations do not represent that continuous or detailed examinations have been made by ENGINEER to ascertain that the construction contractor(s) have completed the work in exact accordance with the construction documents; that the final work will be acceptable in all respects; that ENGINEER has made an examination to ascertain how or for what purpose the construction contractor(s) have used the moneys paid; that title to any of the work, materials, or equipment has passed to CLIENT free and clear of liens, claims, security interests, or encumbrances; or that there are not other matters at issue between CLIENT and the construction contractors that affect the amount that should be paid.

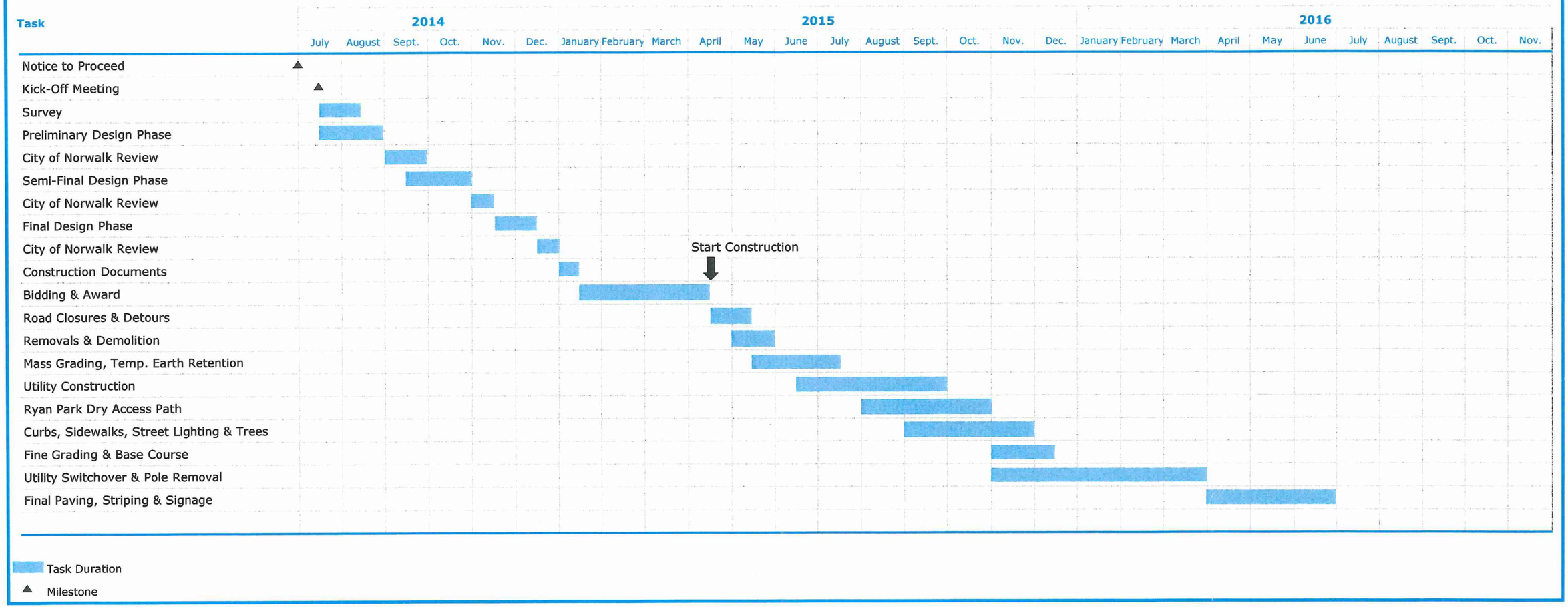
15.5 Record Drawings - Record drawings, if required as part of ENGINEER's agreed scope of work, will be prepared, in part, on the basis of information compiled and furnished by others, and may not always represent the exact location, type of various components, or exact manner in which the project was finally constructed. ENGINEER is not responsible for any errors or omissions in the information from others that are incorporated into the record drawings.

Project Schedule

Day & Raymond Street Improvements

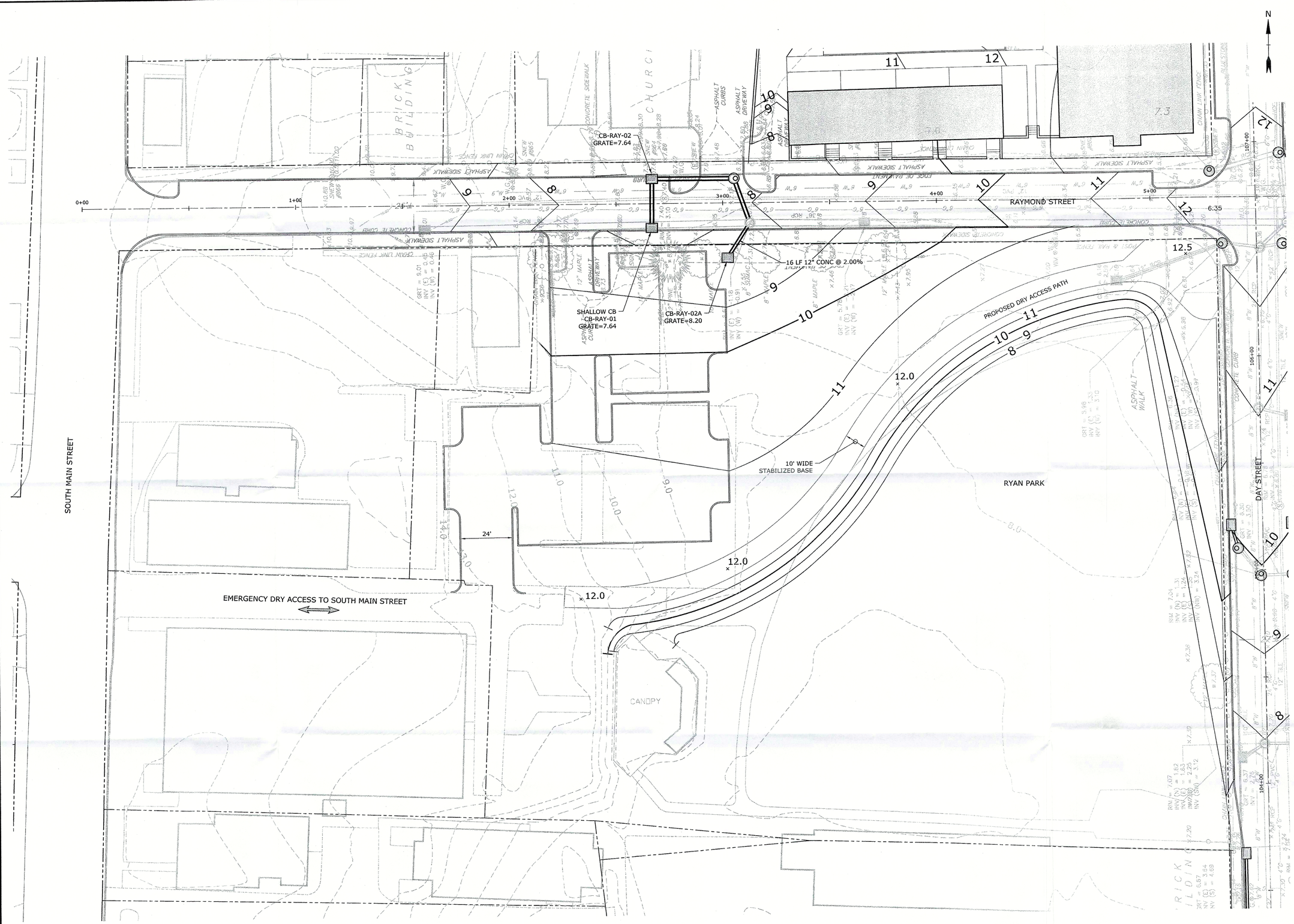
Norwalk, Connecticut

Tighe&Bond
Consulting Engineers
Environmental Specialists



Tighe&Bond

APPENDIX C



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PROGRESS PRINT

STATE OF CONNECTICUT
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No. PEN.0026570
LICENSED PROFESSIONAL ENGINEER
7/23/14

STATE OF CONNECTICUT
JOHN W. BLOCKI
No. 24486
LICENSED PROFESSIONAL ENGINEER
7/15/14

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Ryan Park

City Of Norwalk

Norwalk, Connecticut

July, 2014

MARK	DATE	DESCRIPTION

PROJECT NO:	N1039
FILE:	GR-N1039-40.dwg
DRAWN BY:	MDS
CHECKED:	JAR
APPROVED:	JWB

CONCEPT PLAN

SCALE: 1" = 20'

RP.01

07/23/201

Jul 23, 2014-2:21pm Plotted By: JAR
Tighe & Bond, Inc. J:\N\N1039 Norwalk Day & Raymond Street\Drawing\Sheet\GR-N1039-40.dwg

APPENDIX D

Washington Village Redevelopment
Norwalk, Connecticut

FLOOD CONTINGENCY PLAN

July 2014

The purpose of the flood contingency plan is to describe measures to be taken to protect life and property and to prevent pollution during significant precipitation events. The plan discusses contingency plans during and after construction.

1.0 General Overview

1.1 Site Location and Relationship to Flooding Source

The site is located approximately 800 to 1000 feet from Norwalk Harbor, as shown in **Figure 1**. Norwalk Harbor is subject to coastal flooding as a result of coastal storms, particularly winter nor'easters, tropical storms and hurricanes. Based upon the Flood Insurance Rate Map (FIRM) Panel Number 09001C0531G, effective July 8, 2013, the site is located landward of the limit of moderate wave action (LiMWA), in Zone AE, as shown in **Figure 2**. Since the site is located landward of the LiMWA, it is not within the coastal high hazard area. Based upon FEMA mapping, the area will flood up to elevation 12 NAVD88 in a 100-year event, and elevation 15 NAVD88 in a 500-year event.

1.1 Flooding Impact Overview

Existing ground elevations at the site range between 6.5 and 12 NAVD88. The lowest elevations are at Water Street, and generally increase moving landward. Therefore, during a 100-year event, portions of Water Street could potentially be inundated to a depth of 5.4 feet. West of the site, FEMA mapping shows that South Main Street would not be flooded during a 100-year or 500-year event.

1.2 Definition of National Weather Service Watches and Warnings

Typically, the National Weather Service issues hurricane warnings 36 hours in advance, and tropical storm warnings 48 hours in advance. It is expected that floodwaters would recede within 48 to 72 hours, but this could vary depending upon the direction of the prevailing wind after the storm.

Tropical Storm Watch. A tropical storm watch is an announcement that tropical-storm conditions (sustained winds of 39 to 73 mph) are ***possible*** within the specified area. A tropical storm watch is issued 48 hours in advance of the anticipated onset of tropical storm force winds in the area.

Tropical Storm Warning. Tropical storm warnings indicate that tropical storm conditions (sustained winds of between 39 and 73 mph) are ***expected*** somewhere within the specified area. Because preparedness activities become difficult once winds reach tropical storm force (sustained winds of 39 to 73 mph), the tropical storm warning is issued 36 hours in advance of the anticipated onset of tropical storm force winds to allow for important preparation.

Hurricane Watch. A hurricane watch means that hurricane conditions (sustained winds of 74 mph or higher) are ***possible*** within the specified area. A hurricane watch is issued 48 hours in advance of the anticipated onset of tropical storm force winds in an area.

Hurricane Warning Hurricane warnings indicate that hurricane conditions (sustained winds of 74 mph or higher) are ***expected*** somewhere within the specified area. Because hurricane preparedness activities become difficult once winds reach tropical storm force (sustained winds of 39 to 73 mph), the hurricane warning is issued 36 hours in advance of the anticipated onset of tropical storm force winds to allow for important preparation.

1.3 Overview of Building Relationship to Flood Elevations

Under the completed project, all of the residential units will be above the 100-year flood elevation of 12.0 NAVD88 and the 500-year flood elevation of 15.0 NGVD, but the parking beneath the building will be below the flood elevation. It is anticipated that in advance of flood events, residents will need to move their cars to one of the nearby parking garages as made available by the City.

Dry access from the buildings will be limited because of flooding in surrounding streets. Dry access is provided for the 100-year event, to allow emergency personnel and vehicles to access the buildings during a flooding event.

1.3.1 Dry Access From Building A

The first floor elevation of Building A will be set above the 500-year flood elevation. Dry access can be achieved by going through the front doors of the units and utilizing the walkway immediately in front of the units to travel west, above the floodwaters, and then travelling west to dry ground on Hanford Place. Please refer to **Figure 3A**.

1.3.2 Dry Access From Building B

The intersection of Raymond and Day Streets will be raised above the 100-year flood elevation. Additionally, the City has plans to reconstruct Ryan Park and provide a path across the park and above the base flood elevation. The path will be wide enough to facilitate the movement of emergency vehicles between South Main Street and the Raymond and Day Intersection.

Dry access from Building B can be achieved by proceeding to the intersection of Raymond and Day, and then using the new path across Ryan Park to South Main Street. Please refer to **Figure 3B**.

1.3.3 Dry Access From Building C

The intersection of Raymond and Day Streets will be raised above the 100-year flood elevation. Additionally, the City has plans to reconstruct Ryan Park and provide a path across the park and above the base flood elevation. The path will be wide enough to facilitate the movement of emergency vehicles between South Main Street and the Raymond and Day Intersection.

Dry access from Building C can be achieved by proceeding to the intersection of Raymond and Day, and then using the new path across Ryan Park to South Main Street. Please refer to **Figure 3C**.

1.3.4 Dry Access From Building D

The intersection of Raymond and Day Streets will be raised above the 100-year flood elevation. Additionally, the City has plans to reconstruct Ryan Park and provide a path across the park and above the base flood elevation. The path will be wide enough to facilitate the movement of emergency vehicles between South Main Street and the Raymond and Day Intersection.

Dry access from Building D can be achieved by crossing over to Building C using the pedestrian bridge linking the two buildings, and then proceeding to the ground floor of Building C. Once on the ground floor of Building C, proceed to the intersection of Raymond and Day, and then using the new path across Ryan Park to South Main Street. Please refer to **Figure 3D**.

1.3.5 Dry Access From Building E

The intersection of Raymond and Day Streets will be raised above the 100-year flood elevation. Additionally, the City has plans to reconstruct Ryan Park and provide a path across the park and above the base flood elevation. The path will be wide enough to facilitate the movement of emergency vehicles between South Main Street and the Raymond and Day Intersection.

Dry access from Building E can be achieved by crossing over to Building D using the pedestrian bridge linking the two buildings, and then across the pedestrian bridge linking Building D to Building C. Proceed to the ground floor of Building C. Once on the ground flood of Building C, cross the intersection of Raymond and Day, and then using the new path across Ryan Park to South Main Street. Please refer to **Figure 3E**.

2.0 Flood Contingency Operation Plan During Construction

The objective of the construction flood contingency plan is to minimize the impact of flooding on adjoining properties and the environment by limiting the amount of material that would be transported off-site by floodwaters. The principal controls to meet this objective will be to manage construction such that on-site material stockpiles are minimized. Therefore, the Developer shall retain a Construction Manager who will have the responsibility for implementing the construction flood contingency plan outlined below.

All activities are to be carried out in accordance with the City's sedimentation and erosion control regulations, and control measures shall conform to the 2002 Connecticut Erosion and Sedimentation Control Guidelines.

Materials that are hazardous, flammable, explosive, soluble, or expansive, or otherwise injurious to human, animal or plant life are to be stored above the 500-year floodplain elevation of 15.0 NAVD88, or stored off-site, outside of the floodplain at the end of a day's work. These materials will need to be transported to the site on a daily basis from off-site storage as needed. Examples of such materials include, but are not limited to gasoline, oil, solvents, paints, and maintenance fluids.

Other construction materials, such as wood and piping may be stored below the floodplain elevation, but only in reasonable quantities necessary to complete small, discrete tasks. Such materials shall be stored as close to the floodplain boundary as possible, and shall be

adequately anchored with strapping and block to prevent flotation in advance of forecast storm events.

Soil stockpiles shall be floodproofed to the 100-year floodplain elevation plus one foot, which is elevation 13 NAVD88 on the sites. Potential methods of floodproofing the soil stockpiles include:

1. Coralling stockpiles in dumpsters with a minimum size of 30 cubic yards, and securely anchoring them to protect against flotation, especially when the dumpster is less than half empty. Dumpsters shall be watertight, with the top of the dumpster no lower than elevation 13 NAVD88 to provide one foot of freeboard over the 100-year flooding event.

2. Constructing a gabion or concrete block enclosure with an interior lining on the floor and walls to prevent infiltration of flood waters. The enclosure would need to be closed off in advance of predicted storm events in order to floodproof the soil stockpiles. The top of the enclosure would need to be elevated to a minimum elevation of 13 NAVD88.

3.0 Coordination with Norwalk's Emergency Plan

The City of Norwalk has established guidelines for protective actions before, during and after a hurricane, tropical storm, or other major flooding event. The Building Manager is expected to communicate and cooperate with the City through the Norwalk Housing Authority in the execution of the City's Emergency Operations Plan (EOP).

4.0 Post-Construction Flood Contingency Operation Plan Overview

The objective of the post-construction contingency plan is to protect the lives and property of residents in the event of a flood, and prepare residents for downtime and limited or no access to the premises during flooding events to the maximum extent practicable. The Building Manager is the primary entity responsible for the implementation of the plan, and coordination with the Norwalk Housing Authority and the City of Norwalk Office of Emergency Management.

The goal of this plan is to prepare residents and give them sufficient warning in advance of a storm event so they can make appropriate arrangements to prepare for evacuation of the premises. It is anticipated that there would be warning in advance of most flooding events. In the event of a disaster without warning, the timeline below would be compressed, and would require the participation of all available response personnel, with some of the tasks performed concurrently.

The Building Manager shall also designate a secondary person responsible for implementing the post-construction flood contingency plan in the event that the Building Manager is not available, and communicate that person's contact information to the Norwalk Housing Authority and the City's Office of Emergency Management.

The Building Manager shall also monitor weather reports and notify the City of Norwalk Housing Authority once the plan is implemented, and advise of the status of the implementation of the individual plan elements.

4.0.1 Persons Responsible

The following is a list of phone numbers of of Flood Contingency Plan leaders and emergency agencies:

Leader	Home Telephone	Cell Phone
(Building Manager Contact)	xxx-xxxx	xxx-xxxx
(Alternate Contact)	xxx-xxxx	xxx-xxxx
Dan Williamson (Housing Authority Contact)	203-515-4271	203-515-4271
Peter Agosta (Alternate Housing Authority Contact)	203-515-4265	203-515-4265
Emergency Agencies		
Norwalk Police		203-854-3000
Norwalk Fire / Emergency Management		203-854-0238
CTDEMHS, Region 1		203-696-2640

4.1 Normal Operations

During the year, under normal weather circumstances a number of tasks should be performed to ensure that participants are trained and recognize their roles, to maintain the plan to ensure that it is current, and to review procedures and ensure that materials and resources to implement the plan are in place:

The Building Manager is responsible for the following tasks:

1. Maintain the Flood Contingency Plan as outlined in the Section "Maintaining the Plan".

2. Monitor and track tropical systems in coordination with City of Norwalk Office of Emergency Management.

3. Review staffing and resource needs.

4. Coordinate with the City of Norwalk Office of Emergency Management to ensure consistency between plans and reinforce working relationships.

5. Coordinate with volunteer organizations to reinforce working relationships.

6. Determine the number of potential evacuees from general and special populations and confirm appropriateness of evacuation plans.

7. Encourage and educate residents regarding preparedness coordination with the City of Norwalk Office of Emergency Management.

8. Identify and participate in available training activities.

9. Create and maintain lists of critical resources, vendors and personnel.

10. Review hazards and risks.

11. Conduct mitigation activities to protect residents, property, supplies and services as appropriate.

12. Identify special needs groups within the building to ensure that they have contingency plans.

4.1.1 Maintaining the Plan

The plan should be reviewed annually by the Building Manager to ensure that staff are familiar with the contents and are aware of how it shall be implemented.

Please refer to the following table.

Timing	Person	Action
September of Every Year	Building Manager	Building manager shall review the plan and forward to the Norwalk Housing Authority to incorporate their comments into the plan for updates.
October of Every Year	Building Manager	Conduct training for staff members who will need to help implement the Plan, assure that staff members have access to the Plan.
October of Every Year	Building Manager	Ensure electric and gas utility shutoff procedures are current and posted.
Year-Round	Building Manager	Monitor weather reports

4.2 Implementing the Plan

There may be times when a storm or series of storms in excess of the 100-year event may require individuals to take appropriate emergency actions. These actions may range from the careful monitoring of the progress of a storm to the evacuation of the property. The State of Connecticut Department of Energy and Environmental Protection and National Weather Service maintain a series of rain gauges, water level sensors and other technological resources throughout the area to monitor the progress of severe storm and flood events. As conditions dictate, flood watches, warnings, evacuation notices and/or other important information may be broadcast on local radio and television stations. During the days and hours preceding a major storm event, building management should carefully monitor local radio and television reports for relevant weather and flood hazard information and coordinate with the City Emergency Management Officer.

The intent is to convey warnings and recommendations regarding potential flood threats to building residents. The Building Manager shall inform the Norwalk Housing Authority of these warnings. The Building Manager shall inform the Norwalk Housing Authority of these warnings. The Building Manager is to disseminate this information to building residents through by e-mail, text or phone messages, and also through the City's CodeRed notification system.

Additionally, Local news and information may be obtained on the following stations:

RADIO		TELEVISION	
WSTC	1400 AM	WTNH Channel 8	New Haven
WEBE	107.1 FM	Cablevision 12	Norwalk
WFOX	95.9 FM	Public Access 79	Norwalk
WEZN	99.9 FM		
WNLK	1350 AM		
WCUM	1450 AM		
WDJZ	1530 AM		
WEDW	88.5 FM		
WGCH	1490 AM		
WICC	600 AM		
WNLK	1350 AM		
WSHU	1260 AM		
WSHU-FM	91.1 FM		

The plan will be implemented in phases, dependent upon the timeframe before a projected event:

1. Readiness Phase (72 hours or more in advance)
2. Increased Rediness Phase (48 to 72 hours in advance)
3. Pre-Landfall Phase (Watch/Warning Issued, 24 to 48 hours in advance)
4. Response Phase (24 hours in advance)
5. Recovery

4.2.1 Readiness Phase

This phase represents identification of a situation that could potentially require the Building Manager to activate the emergency response plan.

1. Coordinate with the City Office of Emergency Management.

2. Monitor tropical system advisories and projected storm path, and assess potential impact to the facility in coordination with the City's Office of Emergency Management.

3. Disseminate storm timeline and sequence of events based on current storm track and forecast developed by the City of Norwalk Office of Emergency Management.

4. Participate in conference calls with the City's Office of Emergency Management.

5. Review WebEOC updates obtained from the City and contribute updates to the City as needed.

6. Coordinate CodeRed/e-mail dissemination of information as needed, specifically tailored to the Washington Village site.

7. Estimate potential number of evacuees with special needs and communicate to City Office of Emergency Management.

8. Evaluate potential staffing and resources required to implement plan and assist with evacuation, if required. Communicate available resources to City of Norwalk Office of Emergency Management.

9. Post notices in conspicuous places in public common areas in each of the buildings, including preparation recommendations, and evacuation routes.

10. Confirm that needed mechanical equipment is in working order.

11. Review emergency response plans.

12. Review contingencies for power disruption.

13. Review evacuation route across Ryan Park and report to City Office of Emergency Management.

14. Test generators and ensure ample fuel.

15. Relocate equipment as needed.

4.2.2 Increased Readiness Phase

This phase addresses a situation where the Building Manager will take action. A State of Emergency may be in place at this time.

1. Re-evaluate threat in cooperation with the City of Norwalk Office of Emergency Management.

2. Participate in conference calls with the City Office of Emergency Management.

3. Review WebEOC updates from the City Office of Emergency Management, and contribute updates as warranted.

4. Coordinate with City Office of Emergency Management regarding implementation of plan.

5. Begin event log.

6. Send "stand-by" notification to personnel assigned to emergency operations at the facility.

7. Disseminate advisory information to building residents. Ensure availability in multiple languages as needed.

8. Track personnel and financial costs related to implementation of the plan.

9. Coordinate with the Office of Emergency Management's Public Information Officer regarding necessary preparedness/evacuation information.

10. Test communications equipment, including phones, radios and fax lines.

11. Coordinate with City regarding potential shelter locations for building residents, and for pets.

4.2.3 Pre-Landfall Phase

Under this phase, the City has partially staffed its Emergency Operations Center, and has implemented its Emergency Operations Plan.

1. Coordinate with the City of Norwalk Emergency Operations Center.
2. Provide information for City of Norwalk EOC briefing.
3. Ensure provision of food/shelter for emergency operations staff.
4. Participate in conference calls with the City of Norwalk EOC.
5. Review WebEOC updates from the City Office of Emergency Management, and contribute updates as warranted.
6. Monitor the track of the storm based upon updates provided by the City of Norwalk EOC.
7. Update events log.
8. Mobilize emergency response staff after declaration of State of Emergency.
9. Disseminate updates to building residents, including warnings and preventative measures via phone, text and e-mail.
10. Coordinate with City EOC regarding necessity of evacuation and/or removal of vehicles.
11. Consider need for additional local assets in implementing the plan.
12. Coordinate with City EOC and disseminate information to residents regarding recommended or ordered evacuation, and sheltering locations.
13. Send deployment notification to emergency operations staff.
14. Consider provisions for security for the building after it has been evacuated.
15. Continue to track financial expenditures of implementing the plan.
16. Outreach to vulnerable populations within building.

4.2.4 Response Phase

The City's Emergency Operations Plan will begin evacuations 24 hours prior to projected landfall, and are anticipated to end approximately 3 hours prior to landfall.

1. Monitor the level of the Norwalk River and the surrounding area from within the building or from a safe distance. Never enter or approach flooded areas.

2. Monitor utilities for disruptions and report same to City of Norwalk EOC.

3. Monitor local radio and television broadcasts for up to date weather and flood hazard information.

4. Assess the availability and condition of available modes of transportation.

5. Ensure that telephone capacity is available to allow for important phone messages or emergency calls.

6. Provide for any persons having special needs (the elderly, ill or physically handicapped) such as individuals that would be unable to rapidly evacuate the building in an emergency situation. Arrange for any special transportation needs as required.

7. Coordinate with City as to where residents can move cars parked beneath the building and disseminate information accordingly. Provide return transportation from designated off-site parking area as needed.

8. Coordinate with City EOC and terminate operations when sustained wind speeds exceed 39 mph.

9. Communicate status reports back to City EOC.

10. Obtain feedback from City EOC on condition of evacuation routes.

11. Post signage and directions for relocation of vehicles and evacuating residents.

12. Communicate with City EOC regarding status of shelters.

13. Disseminate information regarding shelters from City EOC to building residents.

14. Monitor systems around building, assess needs.

15. Deploy second shift if needed.

16. Communicate damage reports back to City EOC.

17. Address damages that can be safely addressed with existing on-hand resources.

Additionally, those responsible for building maintenance should initiate action to reduce potential damages caused by adverse weather conditions and flood. Appropriate action may include the following:

1. Store, elevate or make provisions for safe, dry storage of important building documents, and other readily damaged items.

2. Bring outdoor items inside the building to prevent them from floating or blowing away. These items include unsecured outdoor furnishings, benches, trash receptacles, tools, signs, building supplies and other moveable objects.

3. Tape windows to prevent shattering if it is anticipated that the storm will be accompanied by strong winds.

The following table will assist the Building Manager in the implementation of the plan from the time a flood warning is issued:

Timing	Action
0 hours	Notify Housing Authority contact of flood warning. • If Housing Authority contact is not present, call cell phone • If Housing Authority contact is not available, call Housing Authority alternate contact.
Every 2 hours	Monitor progress of implementation and flood warnings. Communicate changes in the warning to other staff members implementing the plan.
0 hours	Activate flood contingency plan.
0 hours	Bring outdoor possessions inside the building to prevent them floating or blowing away.
0 hours	Advise building residents to move cares to higher ground.
0 hours	Notify building residents of the flood hazard and urge precautions to consider needs for food and medicine during evacuation.
0 hours	Tape windows to prevent shattering.
0 hours	Confirm backup power systems are functional.
3 hours	Relocate valuable equipment and files in common rooms and administrative areas to higher shelving or storage locations to the maximum extent practicable, if they are currently stored below the flood elevation.
3 hours	Apply rust preventative compounds to equipment subject to flooding that cannot be easily moved or relocated.
6 hours	Deploy sandbags as an additional measure near lobby door locations as an additional backup measure.
72 hours	Turn off the electric and natural gas supply when water is within 1 foot of entering the building. Engage backup power supply.

4.2.5 Recovery Phase

The Recovery Phase begins when weather hazards have abated.

1. Assess status of occupants.
2. Assess damage around building.
3. Provide assistance to residents as needed.
4. Prioritize resources and staff for repair of building damage.
5. Communicate observations with City EOC.
6. Begin to restore critical services.
7. Communicate with residents any specific information released by City EOC to be disseminated.
8. Secure buildings from looting and vandalism.
9. Document damages to building.
10. Arrange for transportation for residents from building to locations where cars have been temporarily parked.
11. Arrange for disposal of debris.

4.2.6 Post-Recovery Phase

1. Identify plan successes and failures
2. Complete and submit necessary paperwork and forms.
3. Obtain feedback from building residents.
4. Disseminate recovery information, such as disaster recovery loans.

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APPENDIX E

Washington Village Redevelopment
Norwalk, Connecticut

EXECUTIVE SUMMARY

Attachment A

The Washington Village site in Norwalk consists of three parcels totaling 6.55 acres. All parcels once had housing units, however, only the southernmost parcel current contains housing units. Existing development on this parcel consists of 136 housing units in 14 buildings and a community center. The remaining two parcels are currently vacant. All three parcels are within or partially in the 100-year floodplain

The Norwalk Housing Authority and its developer, Trinity Washington Village Limited Partnership, will construct one higher income unit for each of the existing public housing units for a total of 273 units. The units will be a mixture of one to four bedroom units in multi- story buildings. 500 parking spaces are proposed, with 198 to be at-grade beneath the proposed buildings, and 302 at-grade in surface lots.

The buildings will be constructed such that the first floor residential units are constructed at elevation a minimum elevation of 16.0, which is one foot above the 500-year flood elevation plus wave setup of 15.0. Parking will be located at-grade below the first floor units. Floodproofed elevators and stairwells will provide access from the elevated units to street level. All mechanical units for the units will be placed above the 500-year flood elevation, and utilities below this elevation would be floodproofed to minimize infiltration or discharge.

In conjunction with the project, infrastructure improvements are proposed in the area. This includes raising the profile of Raymond and Day Streets such that the elevation of the intersection is 12.1, which is above the base flood elevation. Dry access to contiguous dry land will be provided from the intersection across Ryan Park. The path across Ryan Park will be designed to accommodate emergency vehicles.

This project complies with all of the State standards for floodplain management, except for the provision regarding non-intensive floodplain uses. The State Department of Housing is seeking an exemption from the non-intensive floodplain use provision because the project is in the public interest, will not cause injury or property damage, and complies with National Flood Insurance Program (NFIP) regulations.

Since all the proposed units will be above the 500-year flood elevation, the proposed project will reduce flood risk in comparison with the existing project, where all of the units are below the 100 year floodplain elevation. This project will also incorporate stormwater treatment practices that will improve the quality of the stormwater discharged from the site in comparison with the untreated stormwater that is currently discharged.

Section I: Floodplain Management (continued)

4. Will the space below the lowest floor be either free of obstruction or constructed with non-supporting breakaway walls? ☐ Yes ☐ No

5. Will fill be used for structural support of any buildings within coastal high hazard areas?
   ☐ Yes ☐ No

b. *Structures in Floodplain Areas* - Are the structures residential or nonresidential?
   ☒ Residential ☐ Nonresidential If *nonresidential*, skip to paragraph 3(d) below.

c. *Residential Structures* - If the structure or facility is for human habitation will the lowest floor of such structure or facility, including its basement, be elevated one foot above the level of the 500 year flood?
   ☐ Yes ☒ No
   The 500 year flood elevation is: **15.0** ft. (Datum: **NVD88**)
   The elevation of the lowest floor, including basement, is: **16.0** ft. (Datum: **NVD88**)

d. *Non-residential Structures* - If the structure or facility is not intended for residential uses, will the lowest floor of such structure or facility, including its basement, be elevated to or above the 100 year flood height or be floodproofed to that height, or in the case of a critical activity, the 500 year flood height?
   ☐ Yes ☐ No
   If yes, the structure will be: ☐ Elevated ☒ Floodproofed
   The base flood elevation is: ft. (Datum:)
   The elevation of the lowest floor, including basement, is: ft. (Datum:)
   The structure is floodproofed to: ft. (Datum:)
   Note: for insurance purposes nonresidential structures must be floodproofed to at least one foot above the base flood elevation. DEP strongly encourages that the height of floodproofing incorporate one foot of freeboard.

e. *Utilities* - Will service facilities such as electrical, heating, ventilation, plumbing, and air conditioning equipment be constructed at or above the elevation of the base flood or floodproofed with a passive system? ☒ Yes ☐ No

f. *Water Supply Systems* - Does the proposed project include a new or replacement water supply system?
   ☒ Yes ☐ No
   If yes, is the water supply system designed to prevent floodwaters from entering and contaminating the system during the base flood? ☒ Yes ☐ No

g. *Sanitary Sewage Systems* - Does the proposed project include a new or replacement sanitary sewage or collection system? ☒ Yes ☐ No
   If yes, is the sanitary sewage system designed to minimize or eliminate the infiltration of flood waters into the systems and discharges from the systems into flood waters during the base flood?
   ☒ Yes ☐ No

h. *Foundation Drains* - Are foundation drains of buildings designed to prevent backflow from the 100 year frequency flood into the building?
   ☒ Yes ☐ No ☐ No foundation drains

Section III: State Grants and Loans

Name of Applicant: **City of Norwalk,Connecticut**

Name of Proposed Project: **Washington Village Redevelopment**

1. This Flood Management Certification concerns a: ☒ grant ☐ loan

2. Total amount of grant or loan: $ **3,000,000**

3. The recipient of the grant or loan will be:

   Name: **City of Norwalk Redvelopment Agency**

   Mailing Address: **125 East Avenue**

   City/Town: **Norwalk** State: **CT** Zip Code: **06856**

   Phone: **203-854-7810** ext. Fax:

   Recipient Contact person:

   Name: **Timothy Sheehan**

   Mailing Address: **125 East Avenue**

   City/Town: **Norwalk** State: **CT** Zip Code: **06856**

   Phone: **203-854-7810** ext. Fax: **203-838-6535**

4. The recipient will use the grant or loan to (check all that apply):

   ☒ construct a structure, obstruction or encroachment or conduct other work within a floodplain or coastal high hazard area.

   ☒ construct a facility or develop a site affecting drainage and stormwater runoff.

   ☒ conduct a study or prepare a report concerning land use or land use planning affecting a floodplain, drainage or stormwater runoff.

5. If the grant or loan is for a study or report, describe the anticipated effects on floodplains, drainage or stormwater runoff if the recommendations are implemented:

   No impact anticipated.

6. Will the proposed project promote development in floodplains or will utilities servicing the project be located so as to enable floodplain development? ☒ Yes ☐ No

   Explain:

   An exemption has been requested for this requirement. The proposed roadway work is part of the overall plan to provide dry access to and from the Washington Village redevelopment site, where no such dry access exists today.

   If the grant or loan is for construction of a structure, obstruction or encroachment or other work within a floodplain, or if it is for construction of a facility or development of a site that will affect drainage and stormwater runoff, Sections I and/or II of this Worksheet must be completed and the engineering report (Attachment H) and plans (Attachment G) must be provided as part of this application.

Section III: State Grants and Loans

Name of Applicant: **City of Norwalk,Connecticut**

Name of Proposed Project: **Washington Village Redevelopment**

1. This Flood Management Certification concerns a: ☒ grant ☐ loan

2. Total amount of grant or loan: $ **4,500,000**

3. The recipient of the grant or loan will be:

   Name: **City of Norwalk Redvelopment Agency**

   Mailing Address: **125 East Avenue**

   City/Town: **Norwalk** State: **CT** Zip Code: **06856**

   Phone: **203-854-7810** ext. Fax:

   Recipient Contact person:

   Name: **Timothy Sheehan**

   Mailing Address: **125 East Avenue**

   City/Town: **Norwalk** State: **CT** Zip Code: **06856**

   Phone: **203-854-7810** ext. Fax: **203-838-6535**

4. The recipient will use the grant or loan to (check all that apply):

   ☒ construct a structure, obstruction or encroachment or conduct other work within a floodplain or coastal high hazard area.

   ☒ construct a facility or develop a site affecting drainage and stormwater runoff.

   ☒ conduct a study or prepare a report concerning land use or land use planning affecting a floodplain, drainage or stormwater runoff.

5. If the grant or loan is for a study or report, describe the anticipated effects on floodplains, drainage or stormwater runoff if the recommendations are implemented:

   No impact anticipated.

6. Will the proposed project promote development in floodplains or will utilities servicing the project be located so as to enable floodplain development? ☒ Yes ☐ No

   Explain:

   An exemption has been requested for this requirement. The proposed roadway work is part of the overall plan to provide dry access to and from the Washington Village redevelopment site, where no such dry access exists today.

   If the grant or loan is for construction of a structure, obstruction or encroachment or other work within a floodplain, or if it is for construction of a facility or development of a site that will affect drainage and stormwater runoff, Sections I and/or II of this Worksheet must be completed and the engineering report (Attachment H) and plans (Attachment G) must be provided as part of this application.

Section III: State Grants and Loans

Name of Applicant: **City of Norwalk,Connecticut**

Name of Proposed Project: **Washington Village Redevelopment**

1. This Flood Management Certification concerns a: ☒ grant ☐ loan

2. Total amount of grant or loan: $ **400,000**

3. The recipient of the grant or loan will be:

   Name: **City of Norwalk Redvelopment Agency**

   Mailing Address: **125 East Avenue**

   City/Town: **Norwalk** State: **CT** Zip Code: **06856**

   Phone: **203-854-7810** ext. Fax:

   Recipient Contact person:

   Name: **Timothy Sheehan**

   Mailing Address: **125 East Avenue**

   City/Town: **Norwalk** State: **CT** Zip Code: **06856**

   Phone: **203-854-7810** ext. Fax: **203-838-6535**

4. The recipient will use the grant or loan to (check all that apply):

   ☒ construct a structure, obstruction or encroachment or conduct other work within a floodplain or coastal high hazard area.

   ☒ construct a facility or develop a site affecting drainage and stormwater runoff.

   ☒ conduct a study or prepare a report concerning land use or land use planning affecting a floodplain, drainage or stormwater runoff.

5. If the grant or loan is for a study or report, describe the anticipated effects on floodplains, drainage or stormwater runoff if the recommendations are implemented:

   No impact anticipated.

6. Will the proposed project promote development in floodplains or will utilities servicing the project be located so as to enable floodplain development? ☒ Yes ☐ No

   Explain:

   An exemption has been requested for this requirement. The proposed Ryan Park work is part of the overall plan to provide dry access to and from the Washington Village redevelopment site, where no such dry access exists today.

   If the grant or loan is for construction of a structure, obstruction or encroachment or other work within a floodplain, or if it is for construction of a facility or development of a site that will affect drainage and stormwater runoff, Sections I and/or II of this Worksheet must be completed and the engineering report (Attachment H) and plans (Attachment G) must be provided as part of this application.

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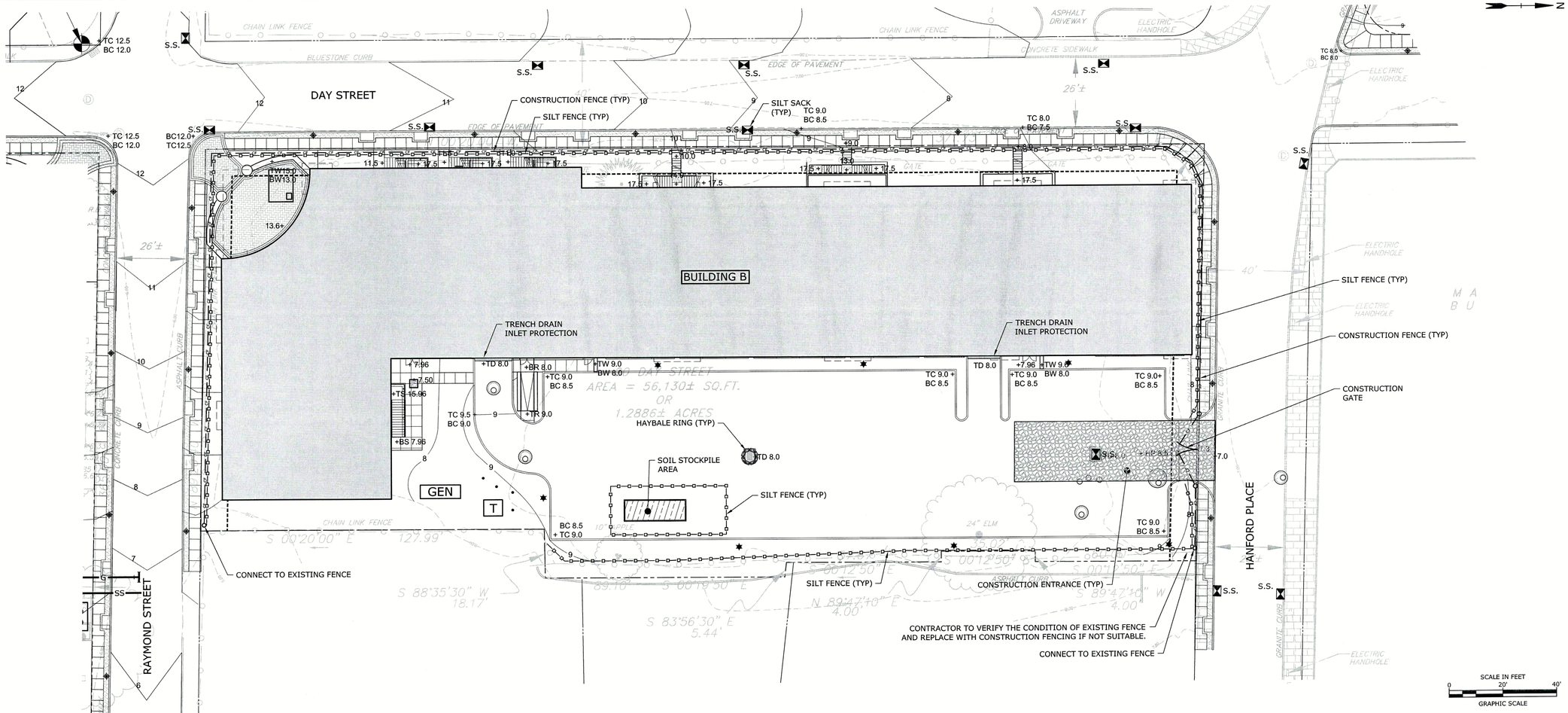
APPENDIX F



SITE SOIL EROSION AND SEDIMENT CONTROL PLAN NOTES

1. REFERENCE IS MADE TO PLAN ENTITLED "PROPERTY , TOPOGRAPHIC & ALTA/ACSM LAND TITLE SURVEY" PREPARED FOR TRINITY WASHINGTON VILLAGE LIMITED PARTNERSHIP AND THE NORWALK HOUSING AUTHORITY, PREPARED BY WILLIAM W. SEYMOUR & ASSOCIATES P.C., DATED SEPTEMBER 4, 2013.
2. CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" (1-800-922-4455) AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION OPERATION.
3. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING AND OTHER DATA SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES, GOVERNMENTAL AGENCIES AND/OR OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH DATA MAY EXIST ON SITE, THE EXISTENCE OF WHICH IS UNKNOWN TO TIGHE & BOND. THE EXISTENCE, SIZE AND LOCATION OF ALL SUCH FEATURES MUST BE DETERMINED AND VERIFIED IN THE FIELD BY APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION @ CALL-BEFORE-YOU-DIG 1-800-922-4455.
4. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" DEEP BULLETIN NO 34, AND ALL AMENDMENTS AND ADDENDA THERETO AS PUBLISHED BY THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION.
5. LAND DISTURBANCE SHALL BE KEPT TO THE MINIMUM NECESSARY FOR CONSTRUCTION.
6. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND ELSEWHERE AS ORDERED BY THE OWNER'S REPRESENTATIVE, OR THE CITY OF NORWALK.
7. ALL CATCH BASINS SHALL BE PROTECTED WITH SILT SACKS, HAYBALE RING, SILT FENCE OR BLOCK AND STONE INLET PROTECTION THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.
8. WHEREVER POSSIBLE, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION.
9. ADDITIONAL CONTROL MEASURES SHALL BE INSTALLED DURING CONSTRUCTION PERIOD AS ORDERED BY THE OWNER'S REPRESENTATIVE, OR THE CITY OF NORWALK.
10. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
11. SEDIMENT REMOVED SHALL BE DISPOSED OF LEGALLY OFFSITE.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PERIOD.
13. THE CONTRACTOR SHALL MAINTAIN A SUPPLY OF SILT FENCE/HAYBALES AND ANTI-TRACKING CRUSHED STONE ON-SITE FOR EMERGENCY REPAIRS.
14. THE CONTRACTOR SHALL UTILIZE APPROVED METHODS/MATERIALS FOR PREVENTING THE BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES ONTO ADJACENT PROPERTIES AND SITE AREAS.
15. ALL DRAINAGE STRUCTURES SHALL BE INSPECTED WEEKLY BY THE CONTRACTOR AND CLEANED TO PREVENT THE BUILD-UP OF SILT.
16. KEEP ALL PAVED ROADWAYS CLEAN. SWEEP BEFORE FORECASTED STORMS OR WEEKLY AS NECESSARY.
17. TREAT ALL UNPAVED SURFACES WITH 4" MINIMUM OF TOPSOIL AND SEEDING PRIOR TO FINAL STABILIZATION.
18. HAYBALE BARRIERS AND SILT FENCING SHALL BE INSTALLED ALONG THE TOE OF CRITICAL CUT AND FILL SLOPES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE OR THE CITY OF NORWALK.
19. ALL TRUCKS LEAVING THE SITE MUST BE COVERED.
20. DISTURBED SLOPES SHALL BE TREATED WITH AN EROSION CONTROL SLURRY CONSISTING OF A MIXTURE OF WOOD FIBER MULCH, PLANT SEED AND 3 GALLONS/ACRE OF SILT STOP 640 LIQUID FLOCCULENT. THE FLOCCULENT IS PROVIDED BY HYDROGRASS TECHNOLOGIES, OXFORD MASSACHUSETTS.
21. ALL SEDIMENTATION AND EROSION CONTROLS SHALL BE CHECKED WEEKLY AND AFTER EACH RAINFALL EVENT. NECESSARY REPAIRS SHALL BE MADE WITHOUT DELAY.
22. PRIOR TO ANY FORECASTED RAINFALL, EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED AND REPAIRED AS NECESSARY.
23. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED; EROSION CONTROLS MAY BE REMOVED ONCE AUTHORIZATION TO DO SO HAS BEEN SECURED FROM THE CITY OF NORWALK. DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
24. CONTRACTOR IS TO COMPLY WITH THE REQUIREMENTS OF THE SOIL EROSION AND SEDIMENTATION CONTROL PLAN.
25. VERTICAL DATUM: NAVD88.
26. SOIL STOCKPILE SHALL BE FLOODPROOFED TO ELEVATION 13 NAVD88. THE DETAIL SHEET, C3.2, PRESENTS ONE POTENTIAL METHOD FOR THE CONTRACTOR TO FLOODPROOF THESE STOCKPILES. CONTRACTOR MAY PROPOSE ALTERNATE MEANS OF FLOODPROOFING STOCKPILE, SUBJECT TO APPROVAL BY ENGINEER.
27. HAZARDOUS MATERIALS INCLUDING, BUT NOT LIMITED TO, FUELS, MAINTENANCE FLUIDS, AND OTHER MATERIALS MUST BE STORED ABOVE THE 500 YEAR FLOODPLAIN AT THE END OF THE DAY. 500 YEAR FLOOD ELEVATION IS 15.0 NAVD88. 5

SITE SOIL EROSION AND SEDIMENTATION CONTROL PLAN LEGEND

PROPERTY LINE

SILT SACK

HAYBALE

CONSTRUCTION ENTRANCE

SILT FENCE

CONSTRUCTION FENCE

CONSTRUCTION GATE

HAYBALE BARRIER

TEMPORARY SOIL STOCKPILE AREA

Washington Village Phase 1
Building B

Norwalk, CT

Trinity Washington Village Limited Partnership & the Norwalk Housing Authority

ICON architecture
38 Chauncy Street
Boston, MA 02111
617-451-3333
www.iconarch.com

CONSULTANT

Tighe&Bond
www.tighebond.com
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

STAMP

STATE OF CONNECTICUT JOSEPH A. CANAS JR. No. 20873 LICENSED PROFESSIONAL ENGINEER 07/23/14

STATE OF CONNECTICUT JOHN W. BLOCK 8483 LICENSED PROFESSIONAL ENGINEER 7/23/14

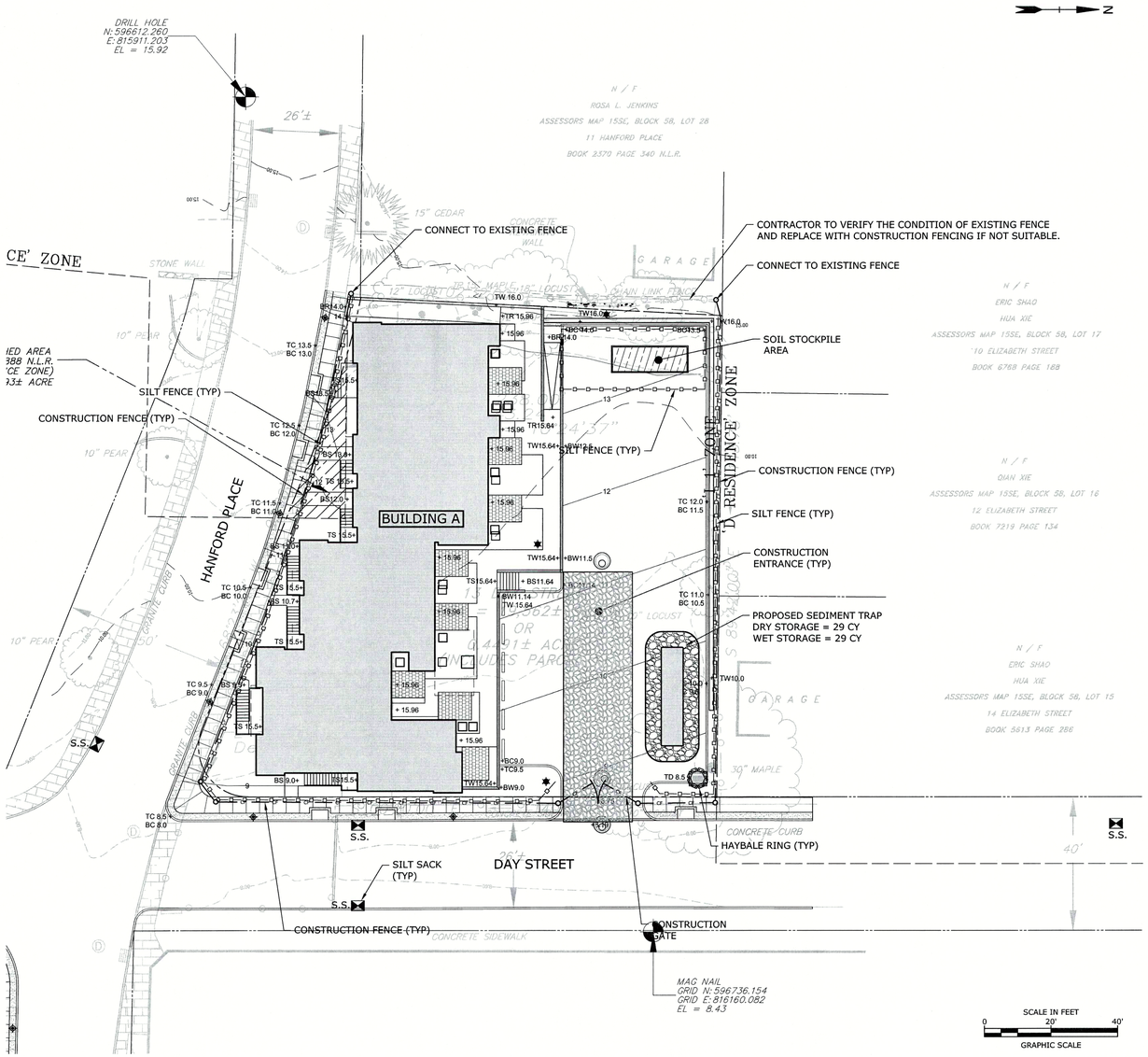
MARK	DATE	DESCRIPTION
5	07-24-2014	REVISED PER CTDEEP COMMENTS
4	5-15-2014	REVISED PER CTDEEP COMMENTS
3	06-13-2014	75% CD SET
2	11-18-2013	40% CHFA CD SET
1	08-06-2013	PRICING SET

PROJECT NO.: I0071
DRAWN BY: APW
CHECKED BY: EWL

SHEET TITLE

SITE SOIL EROSION AND SEDIMENT CONTROL PLAN

C3.1



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16. THE CONTRACTOR SHALL CAREFULLY COORDINATE THE PLACEMENT OF EROSION CONTROL MEASURES WITH THE PHASING OF CONSTRUCTION.
17. KEEP ALL PAVED ROADWAYS CLEAN. SWEEP BEFORE FORECASTED STORMS OR WEEKLY AS NECESSARY.
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24. CONTRACTOR IS TO COMPLY WITH THE REQUIREMENTS OF THE SOIL EROSION AND SEDIMENTATION CONTROL PLAN.
25. SEE DRAWING C3.2 FOR SOIL EROSION CONTROL NARRATIVE AND DETAILS.
26. VERTICAL DATUM: NAVD88
27. SOIL STOCKPILE SHALL BE FLOODPROOFED TO ELEVATION 13 NAVD88. THE DETAIL SHEET, C3.2, PRESENTS ONE POTENTIAL METHOD FOR THE CONTRACTOR TO FLOODPROOF THESE STOCKPILES. CONTRACTOR MAY PROPOSE ALTERNATE MEANS OF FLOODPROOFING STOCKPILE, SUBJECT TO APPROVAL BY ENGINEER.
28. HAZARDOUS MATERIALS INCLUDING, BUT NOT LIMITED TO, FUELS, MAINTENANCE FLUIDS, AND OTHER MATERIALS MUST BE STORED ABOVE THE 500 YEAR FLOODPLAIN AT THE END OF THE DAY. 500 YEAR FLOODPLAIN ELEVATION IS 15.0 NAVD88.

5

SITE SOIL EROSION AND SEDIMENTATION CONTROL PLAN LEGEND

PROPERTY LINE

SILT SACK — S.S.

HAYBALE

CONSTRUCTION ENTRANCE

SILT FENCE

CONSTRUCTION FENCE — CF

CONSTRUCTION GATE — CF

HAYBALE BARRIER

TEMPORARY SOIL STOCKPILE AREA

Washington Village Phase 1
Building A

Norwalk, CT

Trinity Washington Village Limited Partnership & the Norwalk Housing Authority

ICON architecture
38 Chauncy Street
Boston, MA 02111
617-451-3333
www.iconarch.com

CONSULTANT

Tighe&Bond
www.tighebond.com
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

STAMP

STATE OF CONNECTICUT — JOSEPH A. CAINE — No. 20872 — LICENSED PROFESSIONAL ENGINEER — 7/23/14

STATE OF CONNECTICUT — ERIN W. BLOCK — 24488 — LICENSED PROFESSIONAL ENGINEER — 7/23/14

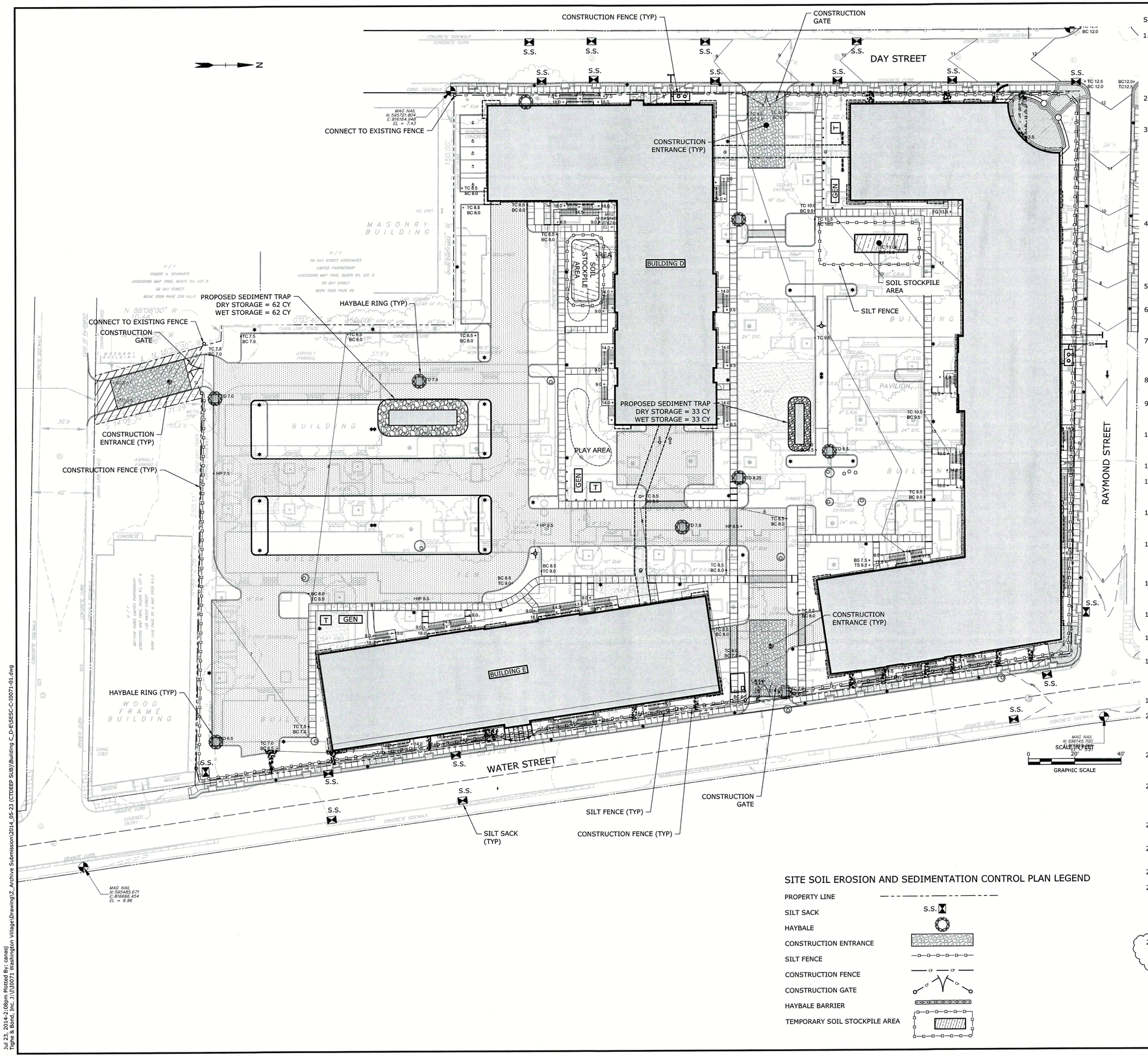
MARK	DATE	DESCRIPTION
5	07-24-2014	REVISED PER CTDEEP COMMENTS
4	5-15-2014	REVISED PER CTDEEP COMMENTS
3	06-13-2014	75% CD SET
2	11-18-2013	40% CHFA CD SET
1	08-06-2013	PRICING SET

PROJECT NO.: I0071
DRAWN BY: APW
CHECKED BY: EWL

SHEET TITLE

SITE SOIL EROSION AND SEDIMENT CONTROL PLAN

C3.1



SITE SOIL EROSION AND SEDIMENTATION CONTROL PLAN LEGEND

- PROPERTY LINE
- SILT SACK
- HAYBALE
- CONSTRUCTION ENTRANCE
- SILT FENCE
- CONSTRUCTION FENCE
- CONSTRUCTION GATE
- HAYBALE BARRIER
- TEMPORARY SOIL STOCKPILE AREA

SITE SOIL EROSION AND SEDIMENT CONTROL PLAN NOTES

1. REFERENCE IS MADE TO PLAN ENTITLED "PROPERTY, TOPOGRAPHIC & ALTA/ACSM LAND TITLE SURVEY SHEET 1 OF 3 SHEETS DEPICTING WASHINGTON VILLAGE, 13 & 20 DAY STREET" PREPARED FOR TRINITY WASHINGTON VILLAGE LIMITED PARTNERSHIP AND THE NORWALK HOUSING AUTHORITY, PREPARED BY WILLIAM W. SEYMOUR & ASSOCIATES DATED SEPTEMBER 4, 2013.
2. CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" (1-800-922-4455) AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION OPERATION.
3. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING AND OTHER DATA SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES, GOVERNMENTAL AGENCIES AND/OR OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH DATA MAY EXIST ON SITE, THE EXISTENCE OF WHICH IS UNKNOWN TO TIGHE & BOND. THE EXISTENCE, SIZE AND LOCATION OF ALL SUCH FEATURES MUST BE DETERMINED AND VERIFIED IN THE FIELD BY APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION @ CALL-BEFORE-YOU-DIG 1-800-922-4455.
4. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" DEEP BULLETIN NO 34, AND ALL AMENDMENTS AND ADDENDA THERETO AS PUBLISHED BY THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION.
5. LAND DISTURBANCE SHALL BE KEPT TO THE MINIMUM NECESSARY FOR CONSTRUCTION.
6. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND ELSEWHERE AS ORDERED BY THE OWNER'S REPRESENTATIVE, OR THE CITY OF NORWALK.
7. ALL CATCH BASINS SHALL BE PROTECTED WITH SILT SACKS, HAYBALE RING, SILT FENCE OR BLOCK AND STONE INLET PROTECTION THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.
8. WHEREVER POSSIBLE, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION.
9. ADDITIONAL CONTROL MEASURES SHALL BE INSTALLED DURING CONSTRUCTION PERIOD AS ORDERED BY THE OWNER'S REPRESENTATIVE, OR THE CITY OF NORWALK.
10. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
11. SEDIMENT REMOVED SHALL BE DISPOSED OF LEGALLY OFFSITE.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PERIOD.
13. THE CONTRACTOR SHALL MAINTAIN A SUPPLY OF SILT FENCE/HAYBALES AND ANTI-TRACKING CRUSHED STONE ON-SITE FOR EMERGENCY REPAIRS.
14. THE CONTRACTOR SHALL UTILIZE APPROVED METHODS/MATERIALS FOR PREVENTING THE BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES ONTO ADJACENT PROPERTIES AND SITE AREAS.
15. ALL DRAINAGE STRUCTURES SHALL BE INSPECTED WEEKLY BY THE CONTRACTOR AND CLEANED TO PREVENT THE BUILD-UP OF SILT.
16. KEEP ALL PAVED ROADWAYS CLEAN. SWEEP BEFORE FORECASTED STORMS OR WEEKLY AS NECESSARY.
17. TREAT ALL UNPAVED SURFACES WITH 4" MINIMUM OF TOPSOIL AND SEEDING PRIOR TO FINAL STABILIZATION.
18. HAYBALE BARRIERS AND SILT FENCING SHALL BE INSTALLED ALONG THE TOE OF CRITICAL CUT AND FILL SLOPES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE OR THE CITY OF NORWALK.
19. ALL TRUCKS LEAVING THE SITE MUST BE COVERED.
20. ALL SEDIMENTATION AND EROSION CONTROLS SHALL BE CHECKED WEEKLY AND AFTER EACH RAINFALL EVENT BY A QUALIFIED INSPECTOR. NECESSARY REPAIRS SHALL BE MADE WITHOUT DELAY.
21. PRIOR TO ANY FORECASTED RAINFALL, EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR AND REPAIRED AS NECESSARY.
22. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED; EROSION CONTROLS MAY BE REMOVED ONCE AUTHORIZATION TO DO SO HAS BEEN SECURED FROM THE CITY OF NORWALK. DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
23. CONTRACTOR IS TO COMPLY WITH THE REQUIREMENTS OF THE SOIL EROSION AND SEDIMENTATION CONTROL PLAN.
25. SEE DRAWING C3.2 FOR SOIL EROSION CONTROL NARRATIVE AND DETAILS.
26. VERTICAL DATUM: NAVD88.
27. SOIL STOCKPILE SHALL BE FLOODPROOFED TO ELEVATION 13 NAVD88. THE DETAIL SHEET, C3.2, PRESENTS ONE POTENTIAL METHOD FOR THE CONTRACTOR TO FLOODPROOF THESE STOCKPILES. CONTRACTOR MAY PROPOSE ALTERNATE MEANS OF FLOODPROOFING STOCKPILE, SUBJECT TO APPROVAL BY ENGINEER.
28. HAZARDOUS MATERIALS INCLUDING, BUT NOT LIMITED TO, FUELS, MAINTENANCE FLUIDS, AND OTHER MATERIALS MUST BE STORED ABOVE THE 500 YEAR FLOODPLAIN AT THE END OF THE DAY. 500 YEAR FLOODPLAIN ELEVATION IS 15.0 NAVD88.

5

Washington Village Buildings C, D, E

Norwalk, CT

Trinity Washington Village Limited Partnership & the Norwalk Housing Authority

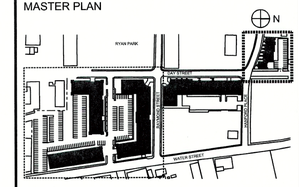
ICON architecture
38 Chauncy Street
Boston, MA 02111
617-451-3333
www.iconarch.com

CONSULTANT

Tighe&Bond
www.tighebond.com
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

STAMP

MASTER PLAN



MARK	DATE	DESCRIPTION
5	07-24-2014	REVISED PER CTDEEP COMMENTS
4	5-15-2014	REVISED PER CTDEEP COMMENTS
3	11-22-2013	ZONING REVISION
2	10-25-2013	ZONING REVISION
1	9-19-2013	SPECIAL PERMIT/CAM SUBMISSION

PROJECT NO.: I0071
DRAWN BY: MDS
CHECKED BY: EWL

SHEET TITLE

SITE SOIL EROSION AND SEDIMENTATION CONTROL PLAN

C3.1

Jul 23, 2014-2:08pm Plotted By: canasj
Tighe & Bond, Inc. I:\I\I0071 Washington Village\Drawing\Z_Archive Submission\2014_05-23 (CTDEEP SUB)\Building C_D-ESESC-C-I0071-01.dwg

Tighe&Bond

APPENDIX G

McPHAIL ASSOCIATES, LLC

FOUNDATION ENGINEERING REPORT

WASHINGTON VILLAGE PHASE I DEVELOPMENT

NORWALK CONNECTICUT

for

Trinity Financial Washington Village
Limited Partnership

July 18, 2014

Project No. 5763

McPHAIL ASSOCIATES, LLC

July 18, 2014

Trinity Washington Village Limited Partnership
75 Federal Street, 4th Floor
Boston, MA 02110

Attention: Mr. Frank Edwards

Reference: Washington Village Phase I; Norwalk, Connecticut
Foundation Engineering Report

Ladies and Gentlemen:

This letter report documents the results of our subsurface explorations and foundation design study for the proposed Washington Village Phase I development located in Norwalk, Connecticut. Refer to the Project Location Plan (Figure 1) for the general site location. This report was prepared in accordance with our proposal dated May 2, 2014 and the subsequent authorization of Trinity Financial, Inc. These services are subject to the limitations contained in Appendix A.

Purpose and Scope

The purposes of the subsurface exploration program and foundation design study are to assess the subsurface soil and groundwater conditions at the site as they relate to foundation design and construction, and based on this information, to provide safe and economic foundation design recommendations for the proposed residential redevelopment.

Foundation design includes foundation support of the proposed structures and their lowest level slabs, treatment of the lowest level slabs in consideration of groundwater, and seismic design considerations in accordance with the provisions of the 2005 Connecticut State Building Code (2003 International Building Code) and the 2009 Amendment to the 2005 Connecticut Supplement (Code). Foundation construction considerations are also presented herein.

Available Information

Information provided to us by Trinity Financial, Inc. included the following environmental reports: "Phase I Environmental Site Assessment, 13 Day Street, Norwalk, Connecticut" dated August 29, 2013 and "20 Day Street, Norwalk, Connecticut" dated August 29, 2013, each of which was prepared by Tighe & Bond of Middletown, Connecticut. In addition, we were provided with 30-scale ALTA/ACSM Land Survey Plans of each parcel dated September 4, 2013 and prepared by William W. Seymour & Associates, P.C. Additional information provided to us included a set of construction drawings entitled "Washington Village Phase I, 13 Day Street, Parcel 1, Building A, 75% Construction Documents" dated June 13, 2014 and "Washington Village Phase I, 20 Day Street, Parcel 2, Building B, 75% Construction Documents" dated June 13, 2014.

Site History and Existing Site Conditions

The approximate 20,000 square-foot parcel located at 13 Day Street, herein referred to as Parcel 1, fronts onto Hanford Place to the south and is bounded by Day Street and commercial property to the east, and residential properties to the north and west. Norwalk Harbor is located within about 1,000 feet to the east.

Existing grade across the site slopes downward from west to east from approximately Elevation +14 to Elevation +8. Currently, the site is an unpaved vacant lot. While no structures currently exist at the Parcel 1 site, a review of the available information prepared by others documents the presence of several former structures at this site.

Parcel 2 is an approximate 56,000 square-foot rectangular parcel located at 20 Day Street which fronts onto Day Street to the west and is bounded by Hanford Place to the north, Raymond Street to the south and commercial properties to the east. It is understood that the existing site is relatively level with existing grade varying slightly across the majority of the site between Elevation +8 and +9. Parcel 2 is currently vacant with the majority of the site covered by overgrown vegetation and a small area within the central portion of the site covered by broken asphalt pavement. The site is surrounded by a chain link fence with a vehicular-size gate providing access to Day Street. While no structures currently exist at the Parcel 2 site, a review of the available information prepared by others documents the presence of several former structures at this site.

In addition to the above, the Phase I development site includes a portion of the nearby existing Washington Village Housing complex. The approximate 4.78-acre Washington Village Housing complex fronts onto Day Street to the west, Raymond Street to the north, Water Street to the east and is bounded by commercial property along Water Street to the south. The housing development was constructed during the 1940's and is comprised of eleven (11), 2- to 3-story multi-family residential buildings and a separate community center building. A paved surface parking lot is located at the southwest portion of the site and play areas and landscape areas are located throughout the development. Landscaped areas of the site adjacent to the existing buildings are surrounded by iron fencing roughly 3-foot in height. Existing site grades within the housing complex are relatively level across the site and vary slightly between Elevation +7 and Elevation +8. Elevations as referenced herein are in feet and refer to the NAVD88 vertical datum.

Proposed Site Development

The proposed Phase I development includes the construction of new structures at Parcels 1 and 2. In addition, the proposed Phase I development also includes the demolition of the existing Community Center building at the Washington Village Housing complex and construction of a temporary paved surface parking lot.

The proposed Parcel 1 Building A is understood to consist of an irregularly-shaped 3-story wood-framed residential structure. The lowest level space of the new building is understood to be at Elevation +16 which is approximately 3 feet above existing grade at the west end of the site and up to approximately 8 feet above existing grade at the east end of the site.

The proposed Parcel 2 Building B is understood to consist of an L-shaped structure. Within the long wing of the building a single level of parking is proposed at the ground level at approximately Elevation +7.6. Three floors of residential space and a third level consisting of an open air roof deck is proposed above the ground level parking area. Within the shorter (southern) wing of the building, an above-grade lobby area with three levels of residential space above are proposed. The lowest level slab in the lobby area will be at approximately Elevation +13.6 which is approximately 6 to 7 feet above existing grade. It is understood that the north foundation wall of the proposed southern (lobby) wing adjacent to the parking area of Building B will be designed as a retaining wall.

As indicated above, the Phase I development project also includes the demolition of the existing Community Center building located at the nearby Washington Village Housing complex to the south of and on the opposite side of Raymond Street from Parcel 2. A new temporary paved surface parking lot will be constructed in place of the demolished Community Center.

Site improvements at each parcel include exterior paved parking areas and new utilities to service the buildings. Site retaining walls will be constructed to the north of Building A adjacent to the proposed parking area. Storm drain plans include the installation of a subsurface stormwater infiltration system beneath the exterior parking areas at each parcel. In addition, it is understood that the City of Norwalk plans to raise the existing grade of Raymond and Day Streets adjacent to Parcel 2 (20 Day Street) by 2 to 6 feet; the highest change in grade is located at the intersection or Raymond and Day Streets.

Exploration Procedures

On June 12 through July 2, 2014, twelve (12) standard borings and twenty (20) direct-push geoprobe explorations were performed at the site by Seaboard Drilling, Inc. of Springfield, Massachusetts under contract to McPhail Associates, LLC (McPhail). Explorations were completed at each parcel as follows: Parcel 1 - two (2) borings and three (3) geoprobes, and installation of four (4) groundwater monitoring wells; Parcel 2 - four (4) borings and six (6) geoprobes, and installation of four (4) groundwater monitoring wells. Approximate exploration locations are indicated on the enclosed Subsurface Exploration Plan - 13 Day Street, Subsurface Exploration Plan - 20 Day Street, and Subsurface Exploration Plan - Washington Village Housing Phase I Parking Area, Figures 2A, 2B, and 2C, respectively, which are based on the above referenced site plans.

The borings were performed within or adjacent to the footprints of the proposed new buildings and proposed improvements to assess the subsurface soil and groundwater conditions at the site as they relate to foundation design and construction. The borings were performed utilizing truck-mounted and track mounted drilling equipment and advanced using hollow stem augers. Standard 2-inch O.D. split-spoon samples and standard penetration tests (SPT) were obtained continuously or at minimum 5-foot intervals of depth in accordance with the standard procedures in ASTM D1586. Each of the borings was terminated within a natural glacial outwash or glacial till deposit at depths ranging from about 15 to 38 feet below the existing ground surface. Groundwater observation wells were installed in completed boreholes B13-2 and B20-4. Boring logs are presented in Appendix B following the text of this report.

The geoprobes were performed within or adjacent to the footprints of the proposed new buildings and proposed improvements to assess the subsurface soil and groundwater conditions at the site mainly as they relate to the environmental conditions at each parcel. The geoprobes were performed utilizing ATV-mounted direct-push sampling equipment. Soil samples were obtained continuously with depth. Each of the geoprobes was terminated within a natural glacial outwash deposit at depths ranging from about 12.5 to 15 feet below the existing ground surface. Groundwater observation wells were installed in completed geoprobes GP13-1, GP13-2, GP13-3, GP20-2, GP20-3, and GP20-4. Boring logs are presented in Appendix B following the text of this report.

The explorations were monitored by a McPhail representative who performed field layout, prepared field logs, obtained and visually classified soil samples, monitored groundwater conditions in the completed boreholes and monitoring wells, made minor relocations of the borings and geoprobes, and determined the required boring depths based upon the actual subsurface conditions encountered.

Field locations of the explorations were determined by taping from existing site features indicated on the above referenced site plans. The existing ground surface elevations at each boring location was determined by a level survey performed by our field staff utilizing vertical control information on the site plans.

Laboratory Testing

At the completion of the field work, soil samples obtained from the borings were returned to our laboratory for more detailed classification, analysis and testing. The laboratory testing consisted of sieve analyses to determine the gradations and confirm the visual classifications of the fill and glacial outwash deposits. Laboratory test procedures were in general accordance with applicable ASTM Standards. Results of the sieve analyses appear on Figures 3 through 6 following the text of this report.

Subsurface Conditions

A detailed description of the subsurface conditions encountered at each of the completed explorations is presented on the boring logs contained in Appendix B. The generalized subsurface conditions across the site were inferred primarily from the explorations, but also from our general knowledge of the local geology. The subsurface conditions encountered in the explorations are described below.

Parcel 1

Fill was encountered directly beneath the existing ground surface that was observed to extend to depths ranging from about 5 to 7.5 feet below the existing ground surface. The fill generally consists of a compact to very dense, gray to dark brown gravelly sand with some silt, varying to a sand and gravel with some silt and containing trace ash, cinders, brick and concrete. Grain-size distributions of typical samples of the fill from Parcel 1 are provided on Figure 3.

Underlying the fill, a glacial outwash deposit was encountered that generally consists of a compact to very dense, tan-brown sandy gravel with a trace of silt. Where penetrated in borings B13-1 and B13-2, the glacial outwash deposit was observed to vary from approximately 9 to 18 feet in thickness. Grain-size distributions of typical samples of the glacial outwash deposit from Parcel 1 are provided in Figure 4.

Groundwater levels were observed within the completed boreholes at the completion of drilling at about 8 feet below the existing ground surface, or between Elevation +1.3 and Elevation +4.3. Groundwater levels recorded in observation wells B13-2 (OW), GP13-1 (OW), GP13-2 (OW), and GP13-3 (OW) were observed at 9 feet, 8.9 feet, 8.4 feet, and 9.1 feet below the existing ground surface, corresponding to Elevations +0.3, +3.4, +0.9, and +0.8, respectively. It is anticipated that future groundwater levels across the project site may vary from those reported herein based on such factors such as normal seasonal changes, runoff during or following periods of heavy precipitation, and alterations to existing drainage patterns. Groundwater monitoring reports documenting levels observed within the observation wells installed at the site are included in Appendix C.

Parcel 2

Fill was encountered directly beneath the existing ground surface that was observed to extend to depths ranging from about 4 to 7.5 feet below the existing ground surface. The fill generally consists of a compact to dense, brown gravelly sand with some silt, varying to a sand and gravel with some silt and

containing trace ash, cinders, brick and concrete. Grain-size distributions of typical samples of the fill from Parcel 2 are provided on Figure 5.

Underlying the fill, a glacial outwash deposit was encountered that generally consists of a dense to very dense, tan-brown sandy gravel with a trace of silt varying with depth to a silty sand and gravel. Where penetrated in borings B20-2, B20-3 and B20-4, the glacial outwash deposit was observed to vary from approximately 14 to 19 feet in thickness. Grain-size distributions of typical samples of the glacial outwash deposit from Phase 2 are provided in Figure 6.

Groundwater levels were observed within the completed boreholes at the completion of drilling at about 5 to 8 feet below the existing ground surface, or between Elevation +1.1 and Elevation +4.2. Groundwater levels recorded in observation wells B20-4 (OW), GP20-2 (OW), GP20-3 (OW), and GP20-4 (OW) were observed at 5.2 feet, 5.6 feet, 5.2 feet, and 5.5 feet below the existing ground surface, corresponding to Elevations +2.2, +3.6, +4.0, and +3.7, respectively. It is anticipated that future groundwater levels across the project site may vary from those reported herein based on such factors such as normal seasonal changes, runoff during or following periods of heavy precipitation, and alterations to existing drainage patterns. Groundwater monitoring reports documenting levels observed within the observation wells installed at the site are included in Appendix C.

Ground Penetrating Radar (GPR) Survey

As part of our geoenvironmental phase of explorations at the site, Radar Solutions International (RSI) was subcontracted by McPhail to conduct a GPR survey of Parcels 1 and 2 to assess for the possible presence of buried tanks.

At the Parcel 1 (13 Day Street) property, the results of the GPR survey indicated below grade anomalies within several areas across the site where below grade remains of former foundations or utilities may be present. Further, there was evidence of two possible buried tanks identified at the site within the west/central portion of the site. At the Parcel 2 (20 Day Street) site the results indicated below grade anomalies within several areas across the property where below grade remains of former foundations or utilities may be present. There was no evidence of buried tanks identified. McPhail is in the process of coordinating with an excavating subcontractor to perform test pits at these locations to assess the anomalies and suspect tanks. A copy of the RSI GPR survey reports for Parcels 1 and 2 is contained in Appendix D.

Foundation Design Recommendations

It is recommended that the proposed Buildings A and B to be located at Parcels 1 and 2, respectively, be founded on conventional spread footings bearing on the natural glacial outwash sand, on compacted structural fill placed on the surface of the glacial outwash, or on lean concrete placed after removal of all existing fill beneath proposed perimeter and interior foundations. Furthermore, within the within entire Building A footprint and beneath the slab within the southern lobby wing of Building B the existing fill material should be removed to the surface of the natural glacial outwash and be replaced with compacted structural fill.

Footings should be proportioned utilizing a maximum allowable design bearing pressure of 2 tons per square-foot. Preparation of the footing bearing surfaces is further discussed under the "Foundation Construction Considerations" section of this report.

It is recommended that continuous wall footings have a minimum width of 2 feet, and that isolated column footings have a minimum width of 3 feet. All foundations should be designed in accordance with the Code.

Perimeter foundations and foundations below unheated areas should be provided with a minimum 3.5-foot thickness of soil cover as frost protection. Within the at-grade parking area within Building B, if the parking area is to remain unheated, all interior column footings should therefore bear a minimum of 3.5 feet below the crawl space mud slab. Alternatively, the interior column footings could be provided with a thickness of rigid insulation with an R-Value equivalent to 3.5 feet of soil cover. Interior foundations below heated or insulated areas should be located such that the top of the foundation concrete is a minimum of 6 inches below the underside of the lowest level slab. All foundations should be located such that they are below a theoretical line drawn upward and outward at 2 horizontal to 1 vertical from the bottom exterior edge of all adjacent footings, structures and utilities.

Preparation of the building pad for Building A (Parcel 1) should include the complete removal of all existing fill below the proposed building footprint down to the surface of the natural glacial outwash deposit followed by replacement with structural fill. Based on the results of the borings, over-excavation below the bottom of the proposed footings to the natural glacial outwash bearing surface may extend to depths of 4 feet at the western portion of the proposed building up to 7 feet at the eastern end of the proposed building footprint.

Within Building B (Parcel 2), preparation of the subgrade for support of the perimeter wall foundations and interior column footings beneath the at-grade parking space should include the removal of all existing fill below the proposed foundations down to the surface of the natural glacial outwash deposit followed by replacement with structural fill or lean concrete. Within the southern (lobby) wing of Building B, the existing fill should be removed in its entirety down to the surface of the natural glacial outwash followed by replacement with structural fill. Based on the results of the borings, over-excavation below the bottom of the proposed footings to the natural glacial outwash bearing surface may extend to depths of 2 to 3 feet below existing grade.

In areas where the existing fill extends deeper than the proposed bottom of footing elevation, structural fill should be placed from the surface of the glacial outwash deposit to the proposed bottom of footing elevation. Structural fill placed within the footprint of the proposed building for support of foundations should extend laterally beyond the edge of the footings to a distance equal to the depth of fill plus 2 feet in all plan directions. Where lean concrete is used for support of foundations, the lateral limits of the lean concrete should extend beyond the plan dimensions of the footing by at least 6 inches in all directions.

The lowest-level slabs of the proposed residential buildings should be designed as conventional slabs-on-grade underlain by a polyethylene vapor barrier. A minimum 6-inch thickness of compacted gravel fill should be placed directly beneath the vapor barrier. The existing fill may remain in place below the parking area pavement within the Building B footprint provided it is proof-compacted with a vibratory drum roller prior to the placement of any fill to raise grades. All soft and/or compressible areas detected by the proof-compaction should be removed and replaced with compacted structural fill.

It is recommended that the north foundation wall of the Building B lobby area slab at Elevation +13.6 adjacent to the at-grade parking area at Elevation +7.6 be provided with foundation drainage in order to protect the at-grade parking area from weeping and to provide hydrostatic pressure-relief for the retaining wall foundation. All below-grade basement walls of the buildings should receive a troweled-on bitumastic damproofing. A prefabricated drainage product, such as Miradrain 6000, should be installed directly against the foundation wall and be tied into a drainage system which connects to the storm water drainage

system. Backfill against the north foundation walls may consist of structural fill.

The prefabricated drainage product should connect to a 4-inch diameter perforated PVC pipe having the highest invert a minimum of 6 inches above the top of the north foundation wall footing. Where possible, the pipe should be pitched down at a minimum 0.5 percent slope in the direction of flow and be surrounded by a minimum 6-inch thickness of 3/4-inch crushed stone surrounded by a thickness of filter fabric such as Mirafi 140N, or equivalent. The drain line should be gravity drained to a storm drain line that is not subject to surcharge or terminated within a sump pit that discharges into the storm drain system. It is recommended that all localized depressions in the building slabs (such as elevator pits, etc.) be provided with properly tied continuous waterstops in all construction joints and metallic waterproofing applied to properly prepared interior surfaces.

Below-grade foundation walls receiving lateral support at the top and bottom (i.e. restrained walls) should be designed for a lateral pressure corresponding to an equivalent fluid density of 60 pounds per cubic-foot. Cantilevered site retaining walls may be designed utilizing a lateral earth pressure corresponding to an equivalent fluid density of 40 pounds per cubic-foot. These pressures are conditioned upon the walls being provided with positive drainage to prevent hydrostatic pressures from acting on the walls. To these values must be added the pressures attributable to earthquake forces per Section 1615 of the Code.

Lateral forces can be considered to be transmitted from the structure to the soil by passive pressure against the foundation walls utilizing an equivalent fluid density of 120 pounds per cubic-foot providing that the walls are designed to resist these pressures. Lateral force can also be considered to be transmitted from the structure to the soil by friction on the base of footings using a coefficient of 0.5, to which a safety factor of 1.5 should be applied.

Seismic Design Considerations

For the purposes of determining parameters for structural seismic design, this site is considered to be a Site Class D as defined in Table 1615.1.1 of IBC 2003. Further, the bearing strata on the proposed site is not considered to be subject to liquefaction during an earthquake.

Foundation Construction Considerations

The primary construction considerations include removal of the below grade remains of former structures and utilities, over-excavation of existing fill, preparation of the foundation bearing surfaces, construction dewatering, subgrade protection, reuse of on-site soils and off-site disposal of excess excavated soil.

Excavation for footing subgrades in the compacted structural fill or glacial outwash deposits should be performed utilizing a smooth-edged or "toothless" excavator bucket to avoid disturbance of the bearing surface or should be hand-cleared of loose and disturbed material.

As noted herein, it is anticipated that the below grade remains of former structures and utilities (obstructions) will be encountered at Parcels 1 and 2. These obstructions should be removed in their entirety within the proposed building footprints. Outside of the new building footprints, these obstructions should be removed to a depth of 2 feet below finished grade.

Based on the soil and groundwater conditions encountered in the subsurface explorations, it is anticipated that groundwater and surface water can be controlled using conventional sumping in combination with

strategic use of trenches and berms. In consideration of the limited scope of dewatering anticipated to be required, it is recommended that pumped groundwater be discharged on site into appropriately sized trenches. Otherwise, it would be necessary to dispose of pumped groundwater into a nearby storm drain or combined sewer which would require the need for a groundwater discharge permit.

Due to the moderate silt content of the existing fill, proper control of groundwater and surface water will be necessary to maintain a firm subgrade to support construction traffic. Even with proper control of both surface water and groundwater, it is probable that during periods of wet weather off-site gravel fill and/or crushed stone may be required to maintain trafficability for construction equipment.

Excavated existing fill and glacial outwash are expected to be suitable for reuse as structural fill within the proposed building footprints and as ordinary fill beneath the required base course materials for concrete and paved areas of the sites (including the temporary parking area at the Washington Village Housing site) provided that they are maintained in a relatively dry condition and can be properly compacted. Additionally, the explorations indicate the presence of cobbles and below-grade remains of former structures in the existing fill deposit. Thus, prior to reusing the existing fill, it will be necessary to cull out all material in excess of 4 inches in largest dimension.

As discussed previously, the existing fill deposit contains a moderate silt content. Hence, it is emphasized that this soil can become unsuitable for reuse as fill if it becomes too wet. It is recommended that stockpiles of excavated material intended for reuse be protected against increases in moisture content by securely covering the stockpiles prior to and during precipitation events. Therefore, the placement and compaction of the on-site soil should be completed during relatively dry and non-freezing conditions. If, due to any of the above conditions, the excavated glacial outwash or existing fill deposits become unsuitable for reuse as structural or ordinary fill, they should be utilized as site fill in landscaped areas and an imported gravel fill consisting of a well-graded natural sand and gravel with a maximum of 8 percent by weight passing the No. 200 sieve be used.

In consideration of the excavation required for the proposed site development, chemical testing of soil samples may be required for off-site soil disposal of excess generated soil. Off-site disposal of excess generated soil should be conducted in accordance with the current policies of the Connecticut Department of Energy and Environmental Protection (CT DEEP).

Final Comments

McPhail has been retained to provide design assistance to the design team during the final design phase of this project. The purpose of this involvement would be to review the structural foundation drawings and foundation notes for conformance with the recommendations presented herein and to review and/or generate the earthwork specification section for inclusion into the Contract Documents for construction.

It is recommended that McPhail be retained during the construction period to observe final preparation of the foundation bearing surfaces and to monitor placement and compaction of structural fill in accordance with the design requirements and the Construction Documents. Our involvement during the construction phase of the work should minimize costly delays due to unanticipated field problems since our field engineer would be under the direct supervision of our project manger who was responsible for the subsurface explorations and foundation design recommendations documented herein.

We trust that the above is sufficient for your present requirements. Should you have any questions concerning the recommendations presented herein, please do not hesitate to call us.

Very truly yours,

McPHAIL ASSOCIATES, LLC

Joseph G. Lombardo, Jr., L.S.P.

Jonathan W. Patch, P.E.

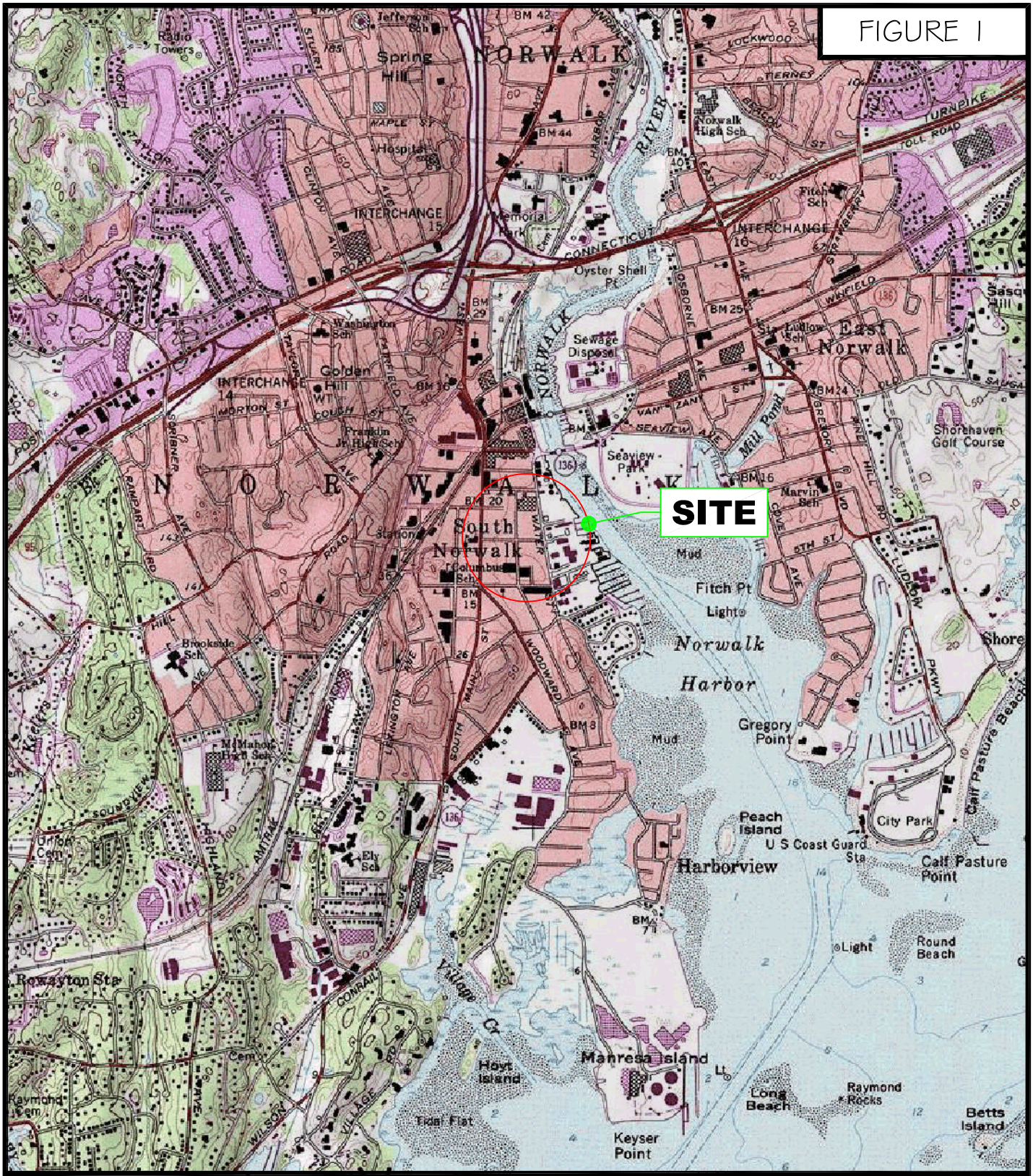
Ambrose J. Donovan, P.E.

Enclosures

5763 Washington Village Ph I FER_071814.wpd

JGL/ajd/jwp

FIGURE 1



McPHAIL ASSOCIATES, LLC
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Cambridge, MA 02140
617/868-1420
617/868-1423 (Fax)
www.mcphailgeo.com

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SCALE 1: 25,000

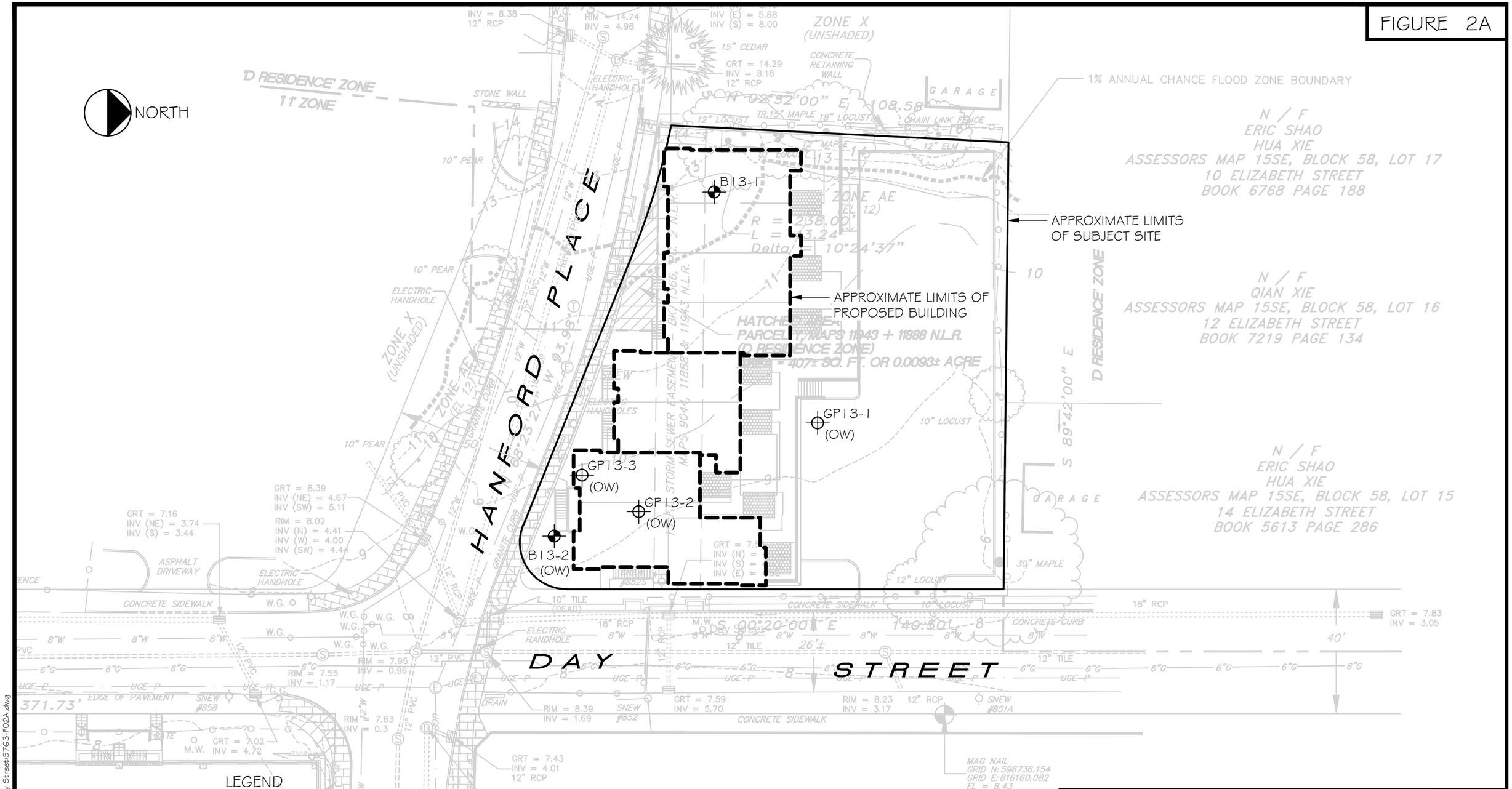
PROJECT LOCATION PLAN

WASHINGTON VILLAGE HOUSING

PHASE I PARKING AREA

NORWALK CONNECTICUT

FIGURE 2A



LEGEND

- ⊕ — APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY SEABOARD GEOLOGICAL AND ENVIRONMENTAL DRILLING, INC. ON JULY 1 AND JULY 2, 2014 FOR McPHAIL ASSOCIATES, LLC
- ⊕ — APPROXIMATE LOCATION OF GEOPROBE PERFORMED BY SEABOARD GEOLOGICAL AND ENVIRONMENTAL DRILLING, INC. ON JUNE 30, 2014 FOR McPHAIL ASSOCIATES, LLC
- (OW) — INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

REFERENCE: THIS PLAN WAS PREPARED FROM A 30-SCALE DRAWING ENTITLED "PROPERTY, TOPOGRAPHIC & ALTA / ACSM LAND TITLE SURVEY" DATED SEPTEMBER 4, 2013 BY WILLIAM W. SEYMOUR & ASSOCIATES, P.C.

GRAPHIC SCALE

30 0 30 60

McPHAIL ASSOCIATES, LLC
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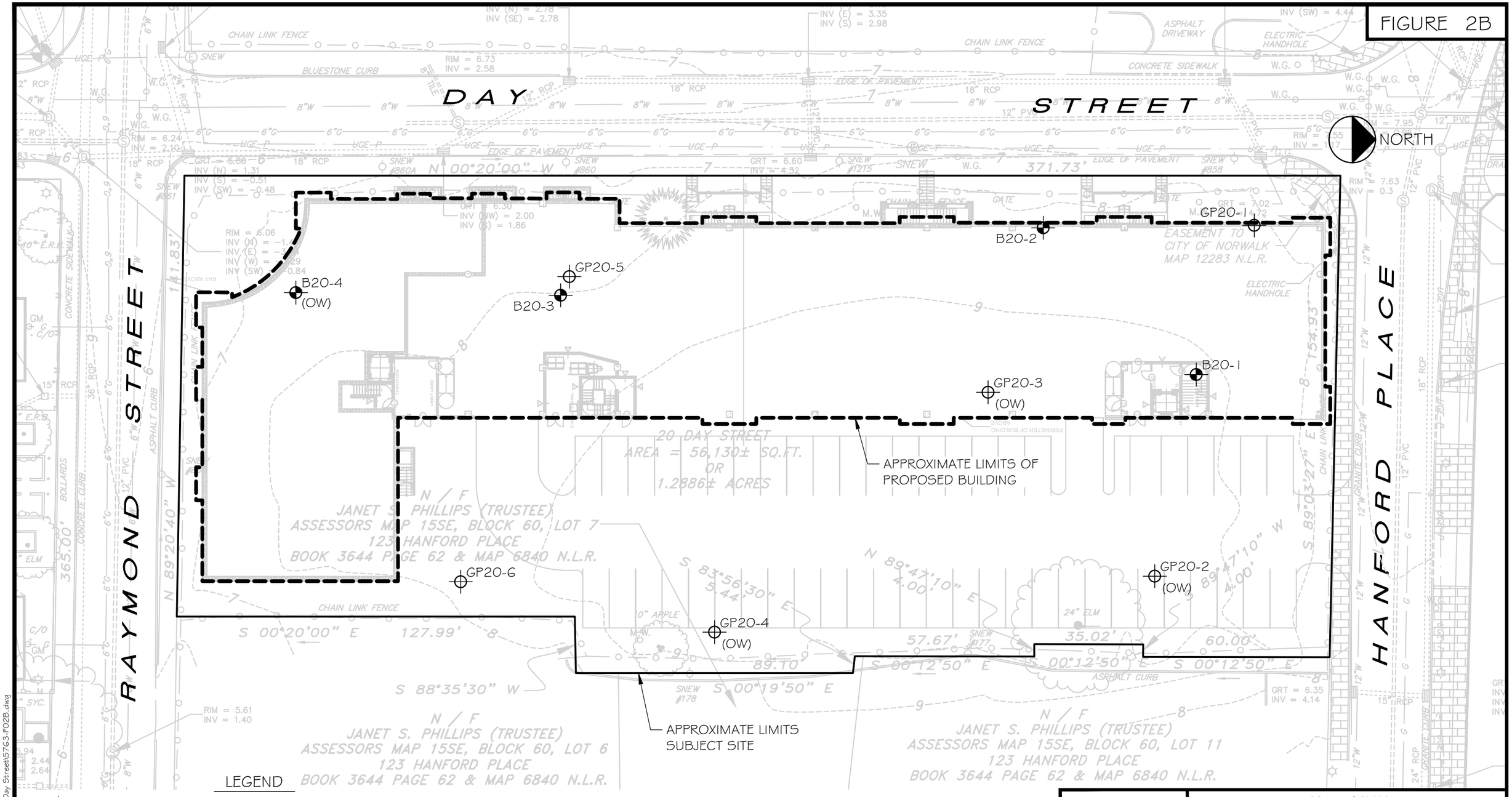
13 DAY STREET
NORWALK CONNECTICUT
SUBSURFACE EXPLORATION PLAN
FOR
TRINITY WASHINGTON VILLAGE LLC
BY
McPHAIL ASSOCIATES, LLC

Date: JULY 2014	Dwn: I.J.M.	Chkd: A.M.F.	Scale: 1" = 30'
Project No: 5763			

FILE NAME: H:\Acad\JOBS\5763\13 Day Street\5763-FO2A.dwg

FIGURE 2B



LEGEND

— APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY SEABOARD GEOLOGICAL AND ENVIRONMENTAL DRILLING, INC. ON JUNE 26, JUNE 30 AND JULY 1, 2014 FOR McPHAIL ASSOCIATES, LLC

— APPROXIMATE LOCATION OF GEOPROBE PERFORMED BY SEABOARD GEOLOGICAL AND ENVIRONMENTAL DRILLING, INC. ON JUNE 30, 2014 FOR McPHAIL ASSOCIATES, LLC

(OW) — INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

REFERENCE: THIS PLAN WAS PREPARED FROM A 30-SCALE DRAWING ENTITLED "PROPERTY, TOPOGRAPHIC & ALTA / ACSM LAND TITLE SURVEY" DATED SEPTEMBER 4, 2013 BY WILLIAM W. SEYMOUR & ASSOCIATES, P.C.

GRAPHIC SCALE

30 0 30 60

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20 DAY STREET

NORWALK CONNECTICUT

SUBSURFACE EXPLORATION PLAN

FOR

TRINITY WASHINGTON VILLAGE LLC

BY

McPHAIL ASSOCIATES, LLC

Date: JULY 2014	Dwn: I.J.M.	Chkd: A.M.F.	Scale: 1" = 30'
Project No: 5763			

FILE NAME: H:\Acad\JOBS\5763\20 Day Street\5763-FO2B.dwg

NORTH

LEGEND

— APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY SEABOARD GEOLOGICAL AND ENVIRONMENTAL DRILLING, INC. ON JUNE 13, JUNE 17 AND JUNE 27, 2014 FOR McPHAIL ASSOCIATES, LLC

— APPROXIMATE LOCATION OF GEOPROBE PERFORMED BY SEABOARD GEOLOGICAL AND ENVIRONMENTAL DRILLING, INC. ON JUNE 12, JUNE 13 AND JUNE 16, 2014 FOR McPHAIL ASSOCIATES, LLC

(OW) — INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

GP-1 GP-2 (OW) GP-3 (OW) GP-4 GP-5 B-1 B-2 (OW) B-3 GP-8 B-4 (OW) B-5 (OW) GP-9 (OW) GP-10 (OW) GP-12 GP-13 GP-7 B-6

APPROXIMATE LOCATION OF PROPOSED PARKING LOT

REFERENCE: THIS PLAN WAS PREPARED FROM A 30-SCALE DRAWING ENTITLED "PROPERTY, TOPOGRAPHIC & ALTA / ACSM LAND TITLE SURVEY" DATED SEPTEMBER 4, 2013 BY WILLIAM W. SEYMOUR & ASSOCIATES, P.C.

GRAPHIC SCALE

40 0 40 80 160

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WASHINGTON VILLAGE HOUSING
PHASE I PARKING AREA

NORWALK CONNECTICUT

SUBSURFACE EXPLORATION PLAN

FOR

TRINITY WASHINGTON VILLAGE LLC

BY

McPHAIL ASSOCIATES, LLC

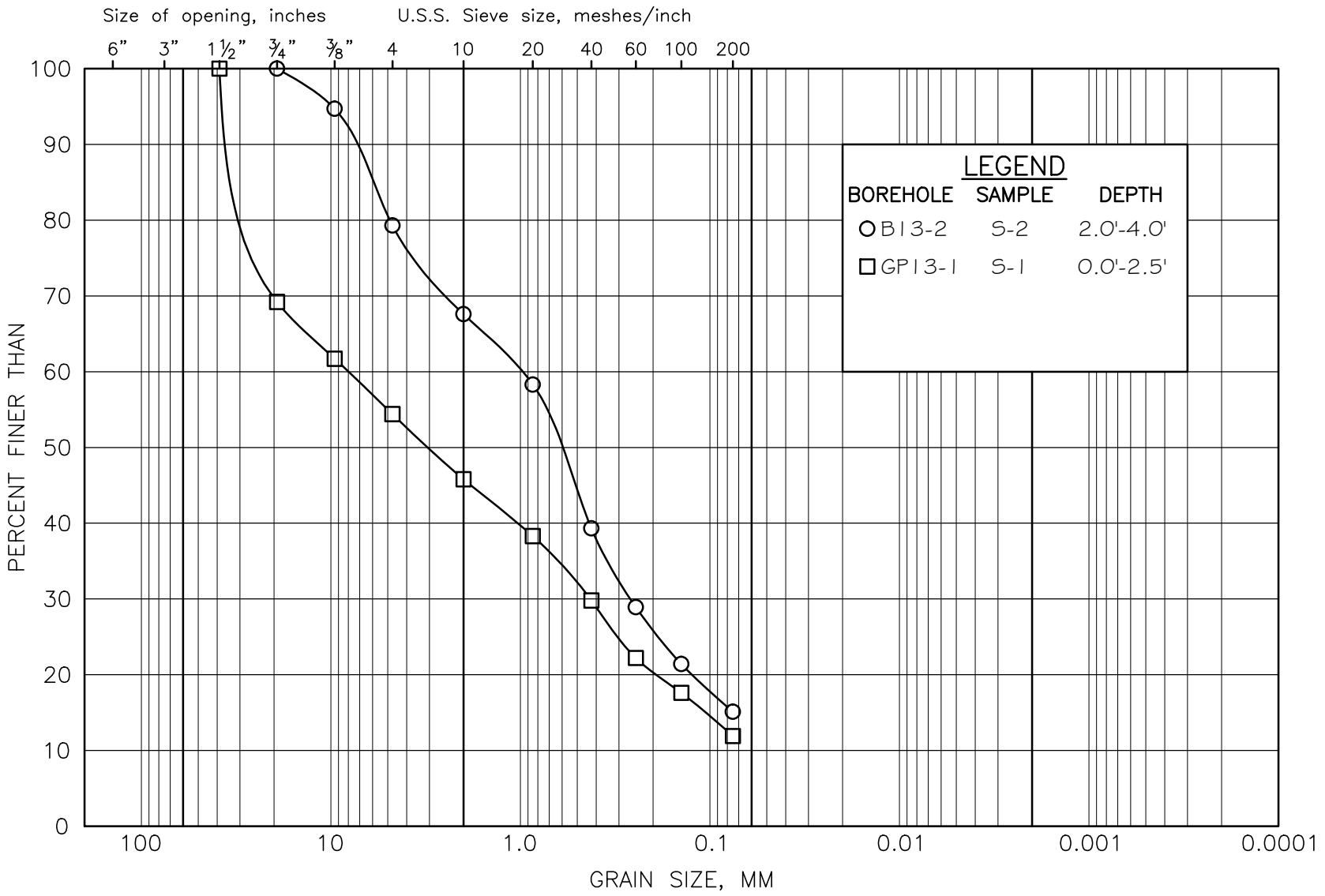
Date: JULY 2014	Dwn: I.J.M.	Chkd: J.G.L.	Scale: 1" = 40'
Project No: 5763			FIGURE 2C

FILE NAME: H:\Acad\JOBS\5763\Washington Village Housing\5763-F02C.dwg

FILE NAME: H:\Acad\JOBS\5763\5763-F03_Sieve.dwg

PROJECT No. 5763

M.I.T. GRAIN SIZE SCALE



McPHAIL ASSOCIATES, LLC

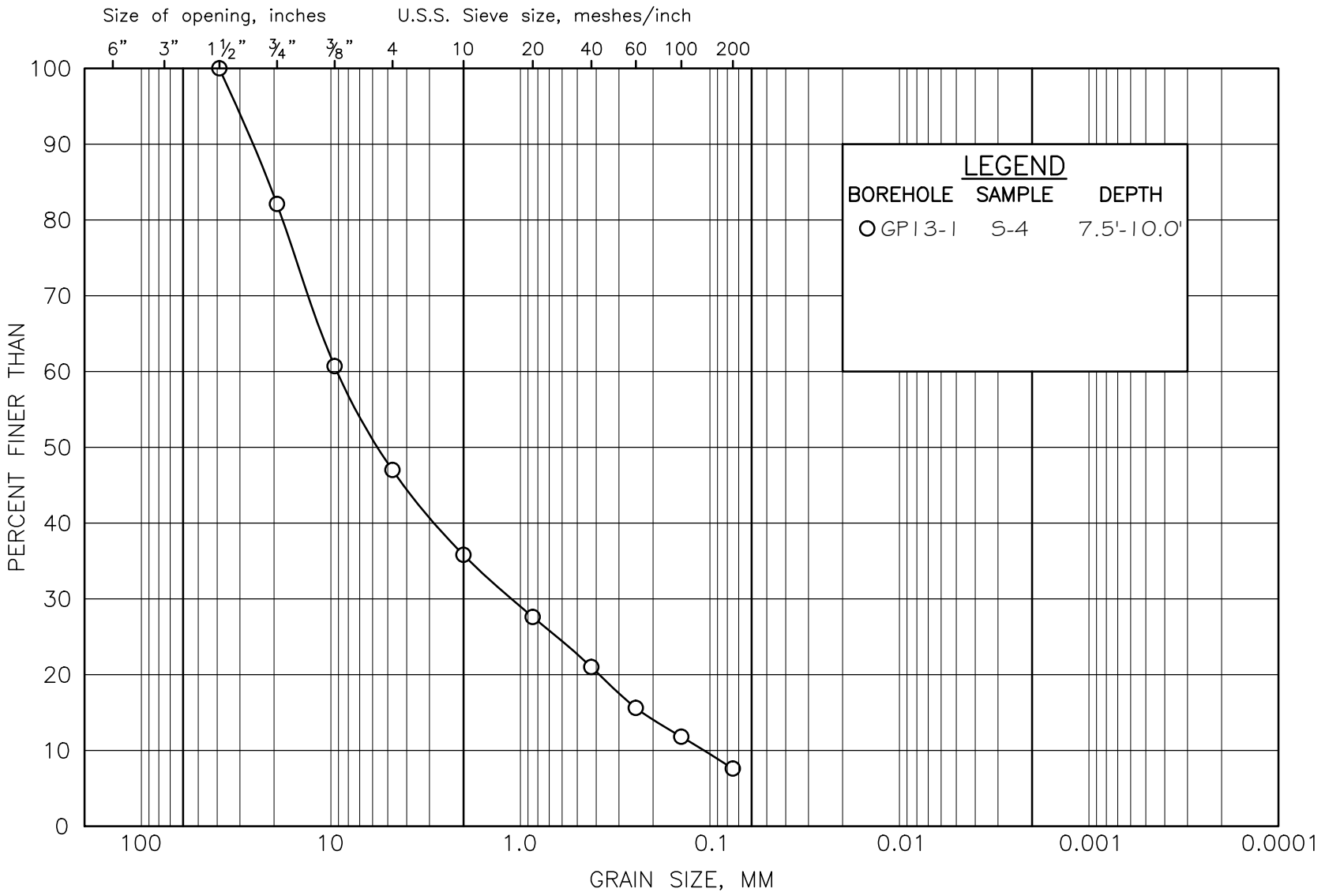
GRAIN SIZE DISTRIBUTION
FILL

FIGURE 3

FILE NAME: H:\Acad\JOBS\5763\5763-F04_Sieve.dwg

PROJECT No. 5763

M.I.T. GRAIN SIZE SCALE



COBBLE SIZE	COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	SILT SIZE	CLAY SIZE
	GRAVEL SIZE			SAND SIZE			FINE GRAINED	

McPHAIL ASSOCIATES, LLC

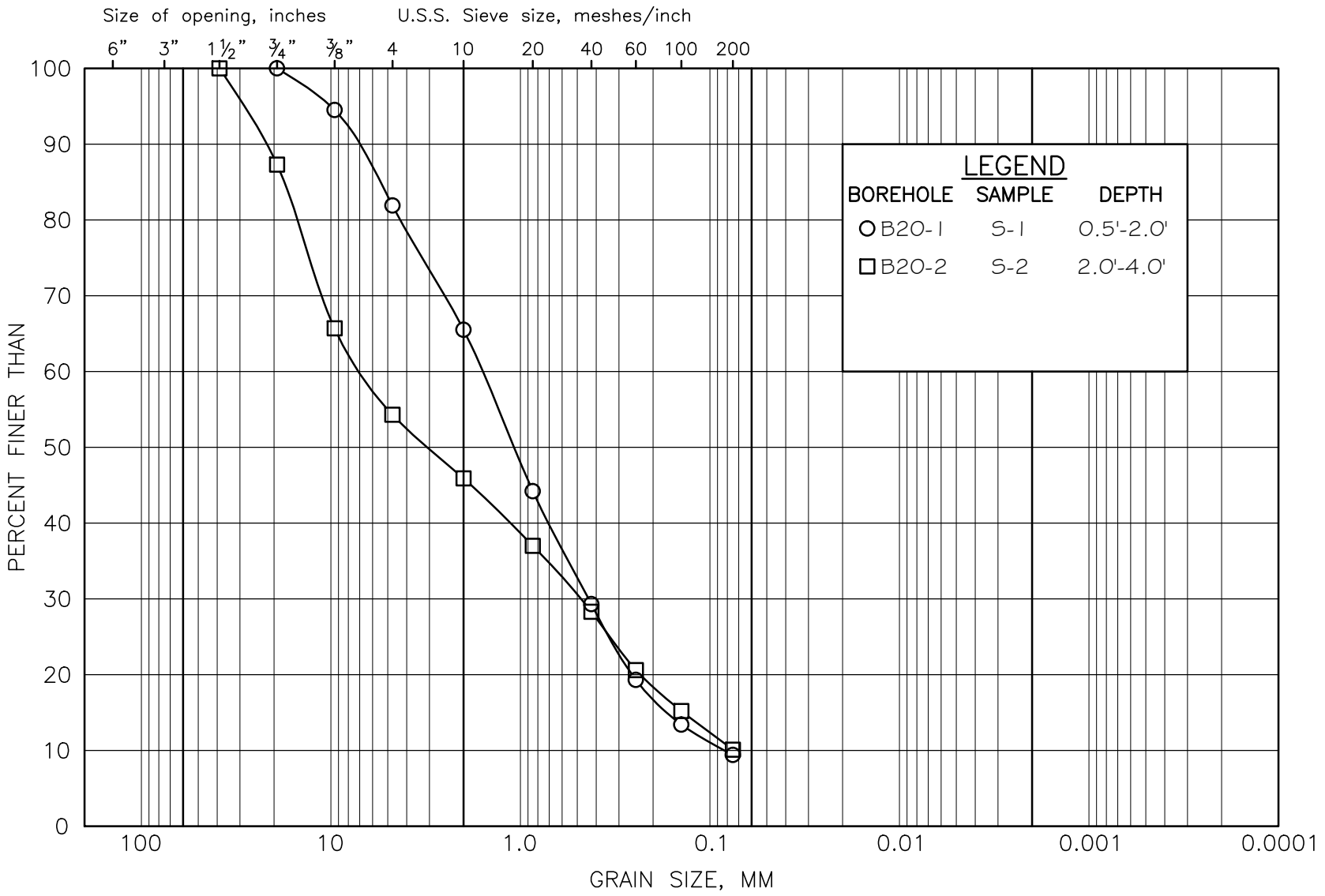
GRAIN SIZE DISTRIBUTION
GLACIAL OUTWASH

FIGURE 4

FILE NAME: H:\Acad\JOBS\5763\5763-F05_Sieve.dwg

PROJECT No. 5763

M.I.T. GRAIN SIZE SCALE



COBBLE SIZE	COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	SILT SIZE	CLAY SIZE
	GRAVEL SIZE			SAND SIZE			FINE GRAINED	

McPHAIL ASSOCIATES, LLC

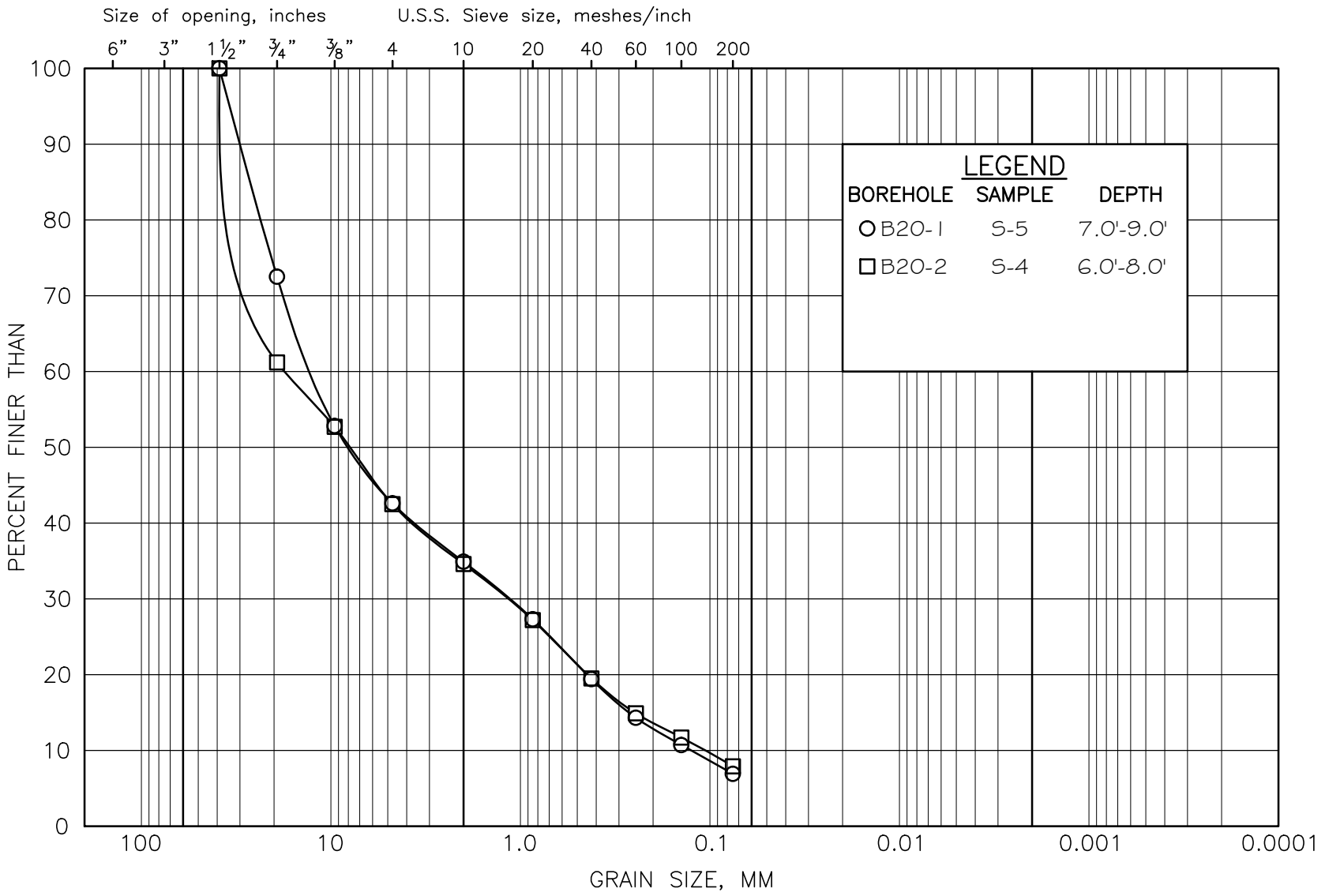
GRAIN SIZE DISTRIBUTION
FILL

FIGURE 5

FILE NAME: H:\Acad\JOBS\5763\5763-F06_Sieve.dwg

PROJECT No. 5763

M.I.T. GRAIN SIZE SCALE



COBBLE SIZE	GRAVEL SIZE			SAND SIZE			FINE GRAINED	
	COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	SILT SIZE	CLAY SIZE

McPHAIL ASSOCIATES, LLC

GRAIN SIZE DISTRIBUTION
GLACIAL OUTWASH

FIGURE 6

McPHAIL ASSOCIATES, LLC

APPENDIX A

Limitations

McPHAIL ASSOCIATES, LLC

Limitations

This report has been prepared on behalf of and for the exclusive use of the Trinity Washington Village Limited Partnership for specific application to the proposed Washington Village Phase I Development in Norwalk, Connecticut in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

In the event that any changes in nature or design of the proposed building are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations presented in this report are based upon the data obtained from the explorations performed at the approximate locations indicated on the enclosed plan. If variations in the nature and extent of subsurface conditions between the widely spaced explorations become evident during the course of construction, it will be necessary for a reevaluation of the recommendations of this report to be made after performing on-site observations during the construction period and noting the characteristics of any variations.

McPhail Associates, LLC has been retained to provide design assistance to the Architect and Structural Engineer during the final design phase of this project. The purpose of this involvement is to review the structural foundation drawings and foundation notes for conformance with the recommendations herein, and to prepare the earthwork specification section for inclusion into the Contract Documents for construction.

McPHAIL ASSOCIATES, LLC

APPENDIX B

Seaboard Drilling, Inc.
Boring Logs

Project: Washington Village Housing Development
Location: 13 Day Street
City/State: Norwalk, CT

Job #: 5763.2.01
Date Started: 7-2-14
Date Finished: 7-2-14

Boring No.
B13-1

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 12.3

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
7-2-14	8	4.3	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	12				88	2.1	S1	24/17	0.0-2.0	21 31 57 64	Very dense, gray gravelly SAND, some silt, with concrete and cinders (Fill)
2	11										
3	10				100/5"	1.0	S2	5/4	2.0-2.4	100/5"	Very dense, gray gravelly SAND, some silt, with concrete and cinders (Fill)
4	9			(FILL)							
5	8				57	1.0	S3	24/14	4.0-6.0	62 29 28 22	Very dense, dark brown to black gravelly SAND, some silt, with concrete, brick, ash and cinder (Fill)
6	7		6.0 / 6.3								
7	6				83	0.1	S4	24/15	6.0-8.0	29 40 43 50	Very dense, tan-brown sandy GRAVEL, trace silt (Outwash)
8	5										
9	4										
10	3										
11	2			(OUTWASH)	50	0.0	S5	24/16	10.0-12.0	9 25 25 24	Very dense, tan-brown sandy GRAVEL, trace silt (Outwash)
12	1										
13	0										
14	-1										
15	-2		15.0 / -2.7								
16	-3				15	0.0	S6	24/20	15.0-17.0	6 6 9 15	Compact, gray-brown silty SAND, trace gravel (Glacial Till)
17	-4			(GLACIAL TILL)							
18	-5										
19	-6		19.0 / -6.7		100/6"	0.0	S7	12/4	18.0-19.0	38 100	Very dense, light tan silty SAND and GRAVEL (Glacial Till)
20	-7			Bottom of Exploration							
21	-8										
22	-9										
	-10										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 85

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location: 13 Day Street
City/State: Norwalk, CT

Job #: 5763.2.01
Date Started: 7-1-14
Date Finished: 7-1-14

Boring No. B13-2 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.3

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
7-1-14	8	1.3	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	9				42	0.0	S1	24/13	0.0-2.0	10 21 21 34	Very dense, gray gravelly SAND, some silt, with concrete and cinder (Fill)
2	8										
3	7				86	0.0	S2	24/20	2.0-4.0	55 55 31 45	Very dense, brown to black gravelly SAND, some silt, with ash and cinder (Fill)
4	6			(FILL)							
5	5				23	26.9	S3	24/16	4.0-6.0	9 11 12 13	Compact, brown SAND and GRAVEL, trace silt, with asphalt (Fill)
6	4		6.0 / 3.3								
7	3				76	7.4	S4	24/11	6.0-8.0	40 34 42 35	Very dense, tan-brown SAND and GRAVEL, trace silt (Outwash)
8	2										
9	1										
10	0				81	3.5	S5	24/14	10.0-12.0	12 36 45 31	Very dense, tan-brown SAND and GRAVEL, trace silt (Outwash)
11	-1										
12	-2										
13	-3										
14	-4										
15	-5			(OUTWASH)	15	1.1	S6	24/15	15.0-17.0	8 8 7 8	Compact, tan-brown silty fine SAND, trace gravel (Outwash)
16	-6										
17	-7										
18	-8										
19	-9										
20	-10										
21	-11				35	1.4	S7	24/9	20.0-22.0	20 15 20 30	Dense, gray-brown SAND and GRAVEL, some silt (Outwash)
22	-12										
	-13										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of boring, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	13 Day Street	**Date Started:**	7-1-14
City/State:	Norwalk, CT	**Date Finished:**	7-1-14

Boring No.

B13-2 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.3

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
7-1-14	8	1.3	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-14		24.0 / -14.7	(OUTWASH)							
25	-15										
26	-16			(GLACIAL TILL)	100	1.8	S8	24/8	25.0-27.0	31 46 54 29	Very dense, gray-brown silty SAND and GRAVEL (Glacial Till)
27	-17		27.0 / -17.7								
28	-18			Bottom of Exploration							
29	-19										
30	-20										
31	-21										
32	-22										
33	-23										
34	-24										
35	-25										
36	-26										
37	-27										
38	-28										
39	-29										
40	-30										
41	-31										
42	-32										
43	-33										
44	-34										
45	-35										
	-36										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of boring, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

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2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	13 Day Street	**Date Started:**	6-30-14
City/State:	Norwalk, CT	**Date Finished:**	6-30-14

Geoprobe No.

GP13-1 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Dave/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.6

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	8	1.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	9			(FILL)	0.0	S1	30/12	0.0-2.5	Compact, brown SAND and GRAVEL, some silt, with brick and concrete (Fill)
2	8								
3	7				0.0	S2	30/12	2.5-5.0	Compact, brown SAND and GRAVEL, some silt, with brick and concrete (Fill)
4	6								
5	5								
6	4				0.3	S3	30/15	5.0-7.5	Compact, brown SAND and GRAVEL, some silt, with brick and concrete (Fill)
7	3								
	2		7.5 / 2.1						
8	1			(OUTWASH)	1.3	S4	30/15	7.5-10.0	Dense, gray-brown sandy GRAVEL, trace silt (Outwash)
9	0								
10	-1				1.8	S5	30/15	10.0-12.5	Dense, gray-brown sandy GRAVEL, trace silt (Outwash)
11	-2								
12	-3				0.1	S6	30/15	12.5-15.0	Dense, gray-brown sandy GRAVEL, trace silt (Outwash)
13	-4								
14	-5								
15			15.0 / -5.4						
16	-6			Bottom of Exploration					
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								
	-13								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Partly Cloudy Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	13 Day Street	**Date Started:**	6-30-14
City/State:	Norwalk, CT	**Date Finished:**	6-30-14

Geoprobe No.

GP13-2 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Dave/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.3

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	8	1.3	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	9								
2	8								
3	7								
4	6			(FILL)	0.4	S1	30/15	0.0-2.5	Loose to compact, brown SAND and GRAVEL, some silt, with concrete (Fill)
5	5				0.3	S2	30/15	2.5-5.0	Loose to compact, brown SAND and GRAVEL, some silt, with concrete (Fill)
6	4				0.0	S3	30/15	5.0-7.5	Loose to compact, brown SAND and GRAVEL, some silt, with concrete (Fill)
7	3								
8	2		7.5 / 1.8						
9	1				0.0	S4	30/15	7.5-10.0	Dense to very dense, gray-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
10	0								
11	-1			(OUTWASH)	0.2	S5	30/16	10.0-12.5	Dense to very dense, gray-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
12	-2								
13	-3				0.4	S6	30/16	12.5-15.0	Dense to very dense, gray-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
14	-4								
15	-5		15.0 / -5.7						
16	-6			Bottom of Exploration					
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								
	-13								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Partly Cloudy Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	13 Day Street	**Date Started:**	6-30-14
City/State:	Norwalk, CT	**Date Finished:**	6-30-14

Geoprobe No.

GP-13-3 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Dave/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.9

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	8	1.9	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	9			(FILL)	0.5	S1	30/15	0.0-2.5	Very dense to loose, gray to brown SAND and GRAVEL, some silt, with concrete (Fill)
2	8								
3	7				9.9	S2	30/15	2.5-5.0	Very dense to loose, gray to brown SAND and GRAVEL, some silt, with concrete (Fill)
4	6								
5	5		5.0 / 4.9						
6	4			(OUTWASH)	0.2	S3	30/15	5.0-7.5	Dense to very dense, gray-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
7	3								
8	2				100+	S4	30/15	7.5-10.0	Dense to very dense, gray-brown to orange-brown sandy GRAVEL, trace silt. Staining and petroleum odor (Outwash)
9	1								
10	0				38.7	S5	30/14	10.0-12.5	Dense to very dense, gray-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
11	-1								
12	-2				1.9	S6	30/14	12.5-15.0	Dense to very dense, gray-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
13	-3								
14	-4								
15	-5		15.0 / -5.1	Bottom of Exploration					
16	-6								
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Partly Cloudy Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location: 20 Day Street
City/State: Norwalk, CT

Job #: 5763.2.01
Date Started: 6-26-14
Date Finished: 6-26-14

Boring No.

B20-1

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.1

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-26-14	8	1.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
			0.3 / 8.8	(ASPHALT)							
1	8				22	0.1	S1	18/12	0.5-2.0	7 11 11	Compact, light brown gravelly SAND, some silt, with wood and asphalt (Fill)
2	7				-	0.7	S2	5/5	2.0-2.4	100/5"	Very dense, light brown to brown gravelly SAND, some silt, with wood and concrete (Fill)
3	6			(FILL)	37	1.9	S3	24/12	3.0-5.0	26 12 25 26	Dense, brown gravelly SAND, some silt, with wood, ash and cinder (Fill)
4	5										
5	4				33	2.0	S4	24/10	5.0-7.0	13 19 14 21	Dense, light brown to gray SAND and GRAVEL, trace silt, with cinder (Fill)
6	3										
7	2		7.0 / 2.1		91	0.5	S5	24/24	7.0-9.0	37 47 44 55	Very dense, tan sandy GRAVEL, trace silt (Outwash)
8	1										
9	0										
10	-1				48	0.0	S6	24/12	10.0-12.0	19 24 24 30	Dense, tan sandy GRAVEL, trace silt (Outwash)
11	-2			(OUTWASH)							
12	-3										
13	-4										
14	-5										
15	-6				144/9"	1.0	S7	15/14	15.0-16.3	15 44 100/3"	Very dense, tan to light gray sandy GRAVEL, trace silt (Outwash)
16	-7		16.3 / -7.2	Bottom of Exploration							
17	-8										
18	-9										
19	-10										
20	-11										
21	-12										
22	-13										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Overcast Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location: 20 Day Street
City/State: Norwalk, CT

Job #: 5763.2.01
Date Started: 6-26-14
Date Finished: 6-26-14

Boring No.
B20-2

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.6

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-26-14	7	1.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	8				15	0.1	S1	24/11	0.0-2.0	8 8 7 23	Compact, brown gravelly SAND, some silt, with brick, ash and cinder (Fill)
2	7										
3	6			(FILL)	29	0.2	S2	24/12	2.0-4.0	18 19 10 10	Compact, brown silty gravelly SAND, with brick, grout, ash and cinder (Fill)
4	5										
5	4				34	1.8	S3	24/7	4.0-6.0	12 14 20 32	Dense, light gray gravelly SAND, trace silt, with brick, ash and cinder (Fill)
6	3		6.0 / 2.6								
7	2				96	0.0	S4	24/14	6.0-8.0	44 50 46 49	Very dense, gray sandy GRAVEL, trace silt (Outwash)
8	1										
9	0										
10	-1										
11	-2				67	0.5	S5	24/10	10.0-12.0	11 24 43 19	Very dense, red-brown to dark brown sandy GRAVEL, trace silt (Outwash)
12	-3										
13	-4										
14	-5										
15	-6			(OUTWASH)	69	2.1	S6	24/24	15.0-17.0	19 32 37 30	Very dense, red-brown sandy Gravel, tract to some silt (Outwash)
16	-7										
17	-8										
18	-9										
19	-10										
20	-11										
21	-12				25	2.1	S7	24/18	20.0-22.0	13 9 16 12	Compact, tan-brown sandy GRAVEL, trace to some silt (Outwash)
22	-13										
	-14										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Overcast Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location: 20 Day Street
City/State: Norwalk, CT

Job #: 5763.2.01
Date Started: 6-26-14
Date Finished: 6-26-14

Boring No.
B20-2

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.6

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-26-14	7	1.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-15			(OUTWASH)							
25	-16		25.0 / -16.4								
26	-17			(GLACIAL TILL)	66	3.2	S8	24/24	25.0-27.0	49 49 17 25	Very dense, blue-gray silty SAND and GRAVEL, trace clay (Glacial Till)
27	-18		27.0 / -18.4								
28	-19			Bottom of Exploration							
29	-20										
30	-21										
31	-22										
32	-23										
33	-24										
34	-25										
35	-26										
36	-27										
37	-28										
38	-29										
39	-30										
40	-31										
41	-32										
42	-33										
43	-34										
44	-35										
45	-36										
	-37										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Overcast Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location: 20 Day Street
City/State: Norwalk, CT

Job #: 5763.2.01
Date Started: 6-26-14
Date Finished: 6-30-14

Boring No.
B20-3

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.1

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	7	2.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	8				70	1.4	S1	24/12	0.0-2.0	15 27 43 44	Very dense, brown to black gravelly SAND, some silt, with brick, asphalt, ash and cinder (Fill)
2	7				100/5"	0.6	S2	5/4	2.0-2.4	100/5"	Very dense, brown gravelly SAND, some silt (Fill)
3	6			(FILL)							
4	5										
5	4				68	2.0	S3	24/6	4.0-6.0	18 30 38 40	Very dense, dark brown to gray SAND and GRAVEL, trace silt (Fill)
6	3		6.0 / 3.1								
7	2				78	1.0	S4	24/15	6.0-8.0	42 49 29 24	Very dense, tan to gray sandy GRAVEL, trace silt (Outwash)
8	1										
9	0										
10	-1				75	2.7	S5	24/17	10.0-12.0	20 38 37 34	Very dense, tan-brown sandy GRAVEL, trace silt (Outwash)
11	-2										
12	-3										
13	-4			(OUTWASH)							
14	-5										
15	-6				44	0.9	S6	24/21	15.0-17.0	14 22 22 17	Dense, dark brown sandy GRAVEL, trace silt (Outwash)
16	-7										
17	-8										
18	-9										
19	-10										
20	-11		20.0 / -10.9		45	3.1	S7	24/20	20.0-22.0	30 24 21 31	Dense, gray-brown silty SAND and GRAVEL (Glacial Till)
21	-12			(GLACIAL TILL)							
22	-13										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Partly Cloudy Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location: 20 Day Street
City/State: Norwalk, CT

Job #: 5763.2.01
Date Started: 6-26-14
Date Finished: 6-30-14

Boring No.
B20-3

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.1

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	7	2.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-15										
25	-16				150	2.5	S8	24/7	25.0-27.0	30 73 77 76	Very dense, gray-brown silty SAND and GRAVEL (Glacial Till)
26	-17										
27	-18										
28	-19				-	-	RC1	12/12	28.0-29.0		Rollerbit refusal at 28 feet. Attempted rock core at 28 feet. Broke through boulder at 29 feet. Boulder consisted of granodiorite.
29	-20										
30	-21			(GLACIAL TILL)	106	-	S9	24/7	30.0-32.0	18 27 79 41	Very dense, gray-brown silty SAND and GRAVEL (Glacial Till)
31	-22										
32	-23										
33	-24										
34	-25										
35	-26										
36	-27										
37	-28				93	-	S10	24/5	36.0-38.0	88 42 51 100	Very dense, light tan silty SAND and GRAVEL (Glacial Till)
38	-29		38.0 / -28.9	Bottom of Exploration							
39	-30										
40	-31										
41	-32										
42	-33										
43	-34										
44	-35										
45	-36										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Partly Cloudy Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location: 20 Day Street
City/State: Norwalk, CT

Job #: 5763.2.01
Date Started: 7-1-14
Date Finished: 7-1-14

Boring No.

B20-4 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.4

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
7-1-14	5	2.4	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	7				37	7.6	S1	24/12	0.0-2.0	18 20 17 20	Dense, black gravelly SAND, trace silt, with concrete, brick, ash and cinder (Fill)
2	6										
3	5			(FILL)	26	5.7	S2	24/10	2.0-4.0	16 13 13 11	Compact, gray to black gravelly SAND, trace silt, with concrete, brick, ash and cinder (Fill)
4	4		4.0 / 3.4								
5	3				20	0.1	S3	24/4	4.0-6.0	10 10 10 8	Compact, gray-brown sandy GRAVEL, trace silt (Outwash)
6	2										
7	1										
8	0										
9	-1										
10	-2										
11	-3				46	3.4	S4	24/7	10.0-12.0	6 18 28 33	Dense, brown sandy GRAVEL, trace silt (Outwash)
12	-4			(OUTWASH)							
13	-5										
14	-6										
15	-7										
16	-8				25	2.6	S5	24/11	15.0-17.0	39 14 11 17	Compact, dark brown silty SAND and GRAVEL (Outwash)
17	-9										
18	-10										
19	-11										
20	-12		20.0 / -12.6								
21	-13				46	6.9	S6	24/10	20.0-22.0	17 21 25 27	Dense, blue-gray silty SAND and GRAVEL (Glacial Till)
22	-14			(GLACIAL TILL)							
	-15										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of the exploration, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Overcast Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	20 Day Street	**Date Started:**	7-1-14
City/State:	Norwalk, CT	**Date Finished:**	7-1-14

Boring No.

B20-4 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.4

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
7-1-14	5	2.4	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-16										
	-17										
25	-18			(GLACIAL TILL)							
					142	2.3	S7	24/15	25.0-27.0	38 72 70 100	Very dense, gray silty SAND and GRAVEL (Glacial Till)
26	-19										
27			27.0 / -19.6								
	-20			Bottom of Exploration							
28	-21										
29	-22										
30	-23										
31	-24										
32	-25										
33	-26										
34	-27										
35	-28										
36	-29										
37	-30										
38	-31										
39	-32										
40	-33										
41	-34										
42	-35										
43	-36										
44	-37										
45	-38										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of the exploration, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Overcast Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	20 Day Street	**Date Started:**	6-30-14
City/State:	Norwalk, CT	**Date Finished:**	6-30-14

Geoprobe No.

GP20-1

Contractor: Seaboard Drilling
Driller/Helper: Dave/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.1

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	5	3.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	7			(FILL)	0.0	S1	30/18	0.0-2.5	Loose to compact, brown SAND and GRAVEL, trace to some silt (Fill)
2	6								
3	5				0.2	S2	30/18	2.5-5.0	Loose to compact, brown SAND and GRAVEL, trace to some silt (Fill)
4	4								
5	3		5.0 / 3.1						
6	2			(OUTWASH)	3.1	S3	30/12	5.0-7.5	Dense, tan-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
7	1								
8	0				4.2	S4	30/12	7.5-10.0	Dense, tan-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
9	-1								
10	-2								
11	-3				4.0	S5	30/18	10.0-12.5	Dense, tan-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
12	-4								
13	-5				3.9	S6	30/18	12.5-15.0	Dense, tan-brown to orange-brown sandy GRAVEL, trace silt (Outwash)
14	-6								
15	-7		15.0 / -6.9	Bottom of Exploration					
16	-8								
17	-9								
18	-10								
19	-11								
20	-12								
21	-13								
22	-14								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	20 Day Street	**Date Started:**	6-30-14
City/State:	Norwalk, CT	**Date Finished:**	6-30-14

Geoprobe No.

GP20-2 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Dave/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.2

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	5	4.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	9								
2	8								
3	7								
4	6								
5	5			(FILL)	0.1	S1	30/18	0.0-2.5	Loose to compact, dark brown to gray-brown SAND and GRAVEL, trace to some silt, with concrete, brick, wood, ash and cinder (Fill)
6	4				0.0	S2	30/18	2.5-5.0	Loose to compact, dark brown to gray-brown SAND and GRAVEL, trace to some silt, with concrete, brick, wood, ash and cinder (Fill)
7	3				0.5	S3	30/12	5.0-7.5	Loose to compact, dark brown to gray-brown SAND and GRAVEL, trace to some silt, with concrete, brick, wood, ash and cinder (Fill)
8	2		7.5 / 1.7						
9	1				0.2	S4	30/12	7.5-10.0	Dense to very dense, gray-brown sandy GRAVEL, trace silt (Outwash)
10	0								
11	-1				0.0	S5	30/15	10.0-12.5	Dense to very dense, gray-brown sandy GRAVEL, trace silt (Outwash)
12	-2			(OUTWASH)					
13	-3				0.0	S6	30/15	12.5-15.0	Dense to very dense, gray-brown sandy GRAVEL, trace silt (Outwash)
14	-4								
15	-5		15.0 / -5.8						
16	-6			Bottom of Exploration					
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								
	-13								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	20 Day Street	**Date Started:**	6-30-14
City/State:	Norwalk, CT	**Date Finished:**	6-30-14

Geoprobe No.

GP20-3 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Dave/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.2

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	5	4.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	9								
2	8								
3	7								
4	6			(FILL)	0.0	S1	30/15	0.0-2.5	Compact, gray-brown SAND and GRAVEL, trace to some silt, with concrete, brick, ash and cinder (Fill)
5	5				0.3	S2	30/15	2.5-5.0	Compact, gray-brown SAND and GRAVEL, trace to some silt, with concrete, brick, ash and cinder (Fill)
6	4				0.0	S3	30/12	5.0-7.5	Compact, gray-brown SAND and GRAVEL, trace to some silt, with concrete, brick, ash and cinder (Fill)
7	3								
8	2		7.5 / 1.7						
9	1				0.0	S4	30/12	7.5-10.0	Dense, gray-brown to red-brown sandy GRAVEL, trace silt (Outwash)
10	0								
11	-1			(OUTWASH)	0.0	S5	30/15	10.0-12.5	Dense, gray-brown to red-brown sandy GRAVEL, trace silt (Outwash)
12	-2								
13	-3				0.0	S6	30/15	12.5-15.0	Dense, gray-brown to red-brown sandy GRAVEL, trace silt (Outwash)
14	-4								
15	-5		15.0 / -5.8						
16	-6			Bottom of Exploration					
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								
	-13								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	20 Day Street	**Date Started:**	6-30-14
City/State:	Norwalk, CT	**Date Finished:**	6-30-14

Geoprobe No.

GP20-4 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Dave/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 9.2

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	5	4.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	9								
2	8				0.7	S1	30/18	0.0-2.5	Loose to compact, brown SAND and GRAVEL, trace to some silt, with concrete (Fill)
3	7								
4	6				0.0	S2	30/18	2.5-5.0	Loose to compact, brown SAND and GRAVEL, trace to some silt, with concrete (Fill)
5	5			(FILL)					
6	4				1.8	S3	30/15	5.0-7.5	Loose to compact, brown SAND and GRAVEL, trace to some silt, with concrete (Fill)
7	3								
8	2		7.5 / 1.7						
9	1				0.4	S4	30/15	7.5-10.0	Dense to very dense, gray to tan-brown sandy GRAVEL, trace silt, with cobbles (Outwash)
10	0								
11	-1			(OUTWASH)					
12	-2				0.3	S5	30/10	10.0-12.5	Dense to very dense, gray to tan-brown sandy GRAVEL, trace silt, with cobbles (Outwash)
13	-3		12.5 / -3.3						
14	-4			Bottom of Exploration					
15	-5								
16	-6								
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								
	-13								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 12.5 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	20 Day Street	**Date Started:**	6-30-14
City/State:	Norwalk, CT	**Date Finished:**	6-30-14

Geoprobe No.

GP20-5

Contractor: Seaboard Drilling
Driller/Helper: Dave/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.8

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	5	2.8	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	7			(FILL)	0.0	S1	30/12	0.0-2.5	Compact, brown to gray-brown SAND and GRAVEL, trace to some silt, with concrete (Fill)
2	6								
3	5				0.1	S2	30/12	2.5-5.0	Compact, brown to gray-brown SAND and GRAVEL, trace to some silt, with concrete (Fill)
4	4								
5	3				0.5	S3	30/12	5.0-7.5	Compact, brown to gray-brown SAND and GRAVEL, trace to some silt, with concrete (Fill)
6	2								
7	1		7.5 / 0.3						
8	0			(OUTWASH)	3.1	S4	30/12	7.5-10.0	Dense to very dense, gray-brown sandy GRAVEL, trace silt (Outwash)
9	-1								
10	-2				0.1	S5	30/15	10.0-12.5	Dense to very dense, gray-brown sandy GRAVEL, trace silt (Outwash)
11	-3								
12	-4				0.1	S6	30/15	12.5-15.0	Dense to very dense, gray-brown sandy GRAVEL, trace silt (Outwash)
13	-5								
14	-6								
15	-7		15.0 / -7.2						
16	-8			Bottom of Exploration					
17	-9								
18	-10								
19	-11								
20	-12								
21	-13								
22	-14								
	-15								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.01
Location:	20 Day Street	**Date Started:**	6-30-14
City/State:	Norwalk, CT	**Date Finished:**	6-30-14

Geoprobe No.

GP20-6

Contractor: Seaboard Drilling
Driller/Helper: Dave/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.5

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-30-14	5	2.5	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	7				2.1	S1	30/18	0.0-2.5	Loose to compact, brown to gray SAND and GRAVEL, trace to some silt, with concrete and loam (Fill)
2	6								
3	5				4.1	S2	30/18	2.5-5.0	Loose to compact, brown to gray SAND and GRAVEL, trace to some silt, with concrete and loam (Fill)
4	4			(FILL)					
5	3				9.7	S3	30/15	5.0-7.5	Loose to compact, brown to gray SAND and GRAVEL, trace to some silt, with concrete and loam (Fill)
6	2								
7	1								
8	0		7.5 / 0.0		0.9	S4	30/15	7.5-10.0	Dense to very dense, gray-brown sandy GRAVEL, trace silt (Outwash)
9	-1								
10	-2				0.0	S5	30/18	10.0-12.5	Dense to very dense, gray-brown sandy GRAVEL, trace silt (Outwash)
11	-3			(OUTWASH)					
12	-4				0.9	S6	30/18	12.5-15.0	Dense to very dense, gray-brown sandy GRAVEL, trace silt (Outwash)
13	-5								
14	-6								
15	-7		15.0 / -7.5						
16	-8			Bottom of Exploration					
17	-9								
18	-10								
19	-11								
20	-12								
21	-13								
22	-14								
	-15								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Boring No. B-1

Contractor: Seaboard Drilling
Driller/Helper: Mike/Davey
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.6

Casing Type/Depth (ft): 4" HW
Casing Hammer (lbs)/Drop (in): 300 lb/24 in
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-13-14	4	3.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	7				36	0.0	S1	24/12	0.0-2.0	19 21 15 18	Dense, black silty SAND, trace gravel, with brick, ash and cinder (Fill)
2	6										
3	5			(FILL)	7	0.0	S2	24/12	2.0-4.0	6 4 3 3	Compact, gray-brown silty SAND, trace gravel (Fill)
4	4										
5	3				10	0.0	S3	24/8	4.0-6.0	3 4 6 15	Loose to compact, brown silty SAND, trace gravel, with brick (Fill)
6	2		6.0 / 1.6								
7	1				112	0.0	S4	24/12	6.0-8.0	43 53 59 69	Very dense, tan-brown SAND and GRAVEL, trace silt (Outwash)
8	0										
9	-1										
10	-2										
11	-3				100/5"	0.0	S5	11/5	10.0-10.9	29 100/5"	Very dense, gray-brown SAND and GRAVEL, trace silt and cobbles (Outwash)
12	-4										
13	-5										
14	-6										
15	-7			(OUTWASH)							
16	-8				50	0.0	S6	24/24	15.0-17.0	20 20 30 34	Dense to very dense, tan-brown SAND, some gravel, trace silt (Outwash)
17	-9										
18	-10										
19	-11										
20	-12										
21	-13				22	0.0	S7	24/24	20.0-22.0	9 11 11 21	Compact, gray SAND, some gravel, trace silt (Outwash)
22	-14										
	-15										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair to Rain Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Boring No.
B-1

Contractor: Seaboard Drilling
Driller/Helper: Mike/Davey
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.6

Casing Type/Depth (ft): 4" HW
Casing Hammer (lbs)/Drop (in): 300 lb/24 in
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-13-14	4	3.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-16			(OUTWASH)							
25	-17		25.0 / -17.4								
26	-18			(GLACIAL TILL)	80	0.0	S8	24/8	25.0-27.0	33 44 36 50	Very dense, gray silty SAND and GRAVEL (Glacial Till)
27	-19										
28	-20										
29	-21										
30	-22										
31	-23				100	0.0	S9	24/8	30.0-32.0	84 50 50 100	Very dense, gray silty SAND, some gravel (Glacial Till)
32	-24		32.0 / -24.4								
33	-25			Bottom of Exploration							
34	-26										
35	-27										
36	-28										
37	-29										
38	-30										
39	-31										
40	-32										
41	-33										
42	-34										
43	-35										
44	-36										
45	-37										
	-38										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair to Rain Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-27-14
Date Finished: 6-27-14

Boring No.
B-2 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.3

Casing Type/Depth (ft): 3 3/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-27-14	4	3.3	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
	7		0.3 / 7.0	(CONCRETE)							
1	6				33	0.8	S1	18/15	0.5-2.0	9 13 20	Compact, brown SAND, some silt, trace gravel, with concrete, brick, ash and cinder (Fill)
2	5										
3	4			(FILL)	21	2.1	S2	24/20	2.0-4.0	17 10 11 12	Compact, brown to black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
4	3										
5	2				37	11.3	S3	24/19	4.0-6.0	8 28 9 4	Dense, dark brown to black SAND, some silt and gravel, with brick, ash and cinder (Fill)
6	1		6.0 / 1.3								
7	0				7	0.0	S4	24/8	6.0-8.0	3 5 2 1	Loose, brown fibrous PEAT, trace organic silt (Organics)
8	-1										
9	-2			(ORGANICS)	1	0.0	S5	24/10	8.0-10.0	1/12" 0 1 1	Very loose, dark brown organic SILT, some peat fibers (Organics)
10	-3										
11	-4				2	0.6	S6	24/12	10.0-12.0	1/12" 0 2 7	Very loose, dark brown organic SILT, trace sand (Organics)
12	-5		12.0 / -4.7								
13	-6										
14	-7										
15	-8				28	0.1	S7	24/9	15.0-17.0	6 11 17 14	Compact, gray gravelly SAND, trace silt (Outwash)
16	-9										
17	-10			(OUTWASH)							
18	-11										
19	-12										
20	-13				21	0.0	S8	24/11	20.0-22.0	8 8 13 12	Compact, light gray gravelly SAND, trace silt (Outwash)
21	-14										
22	-15										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of boring, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 70

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-27-14
Date Finished: 6-27-14

Boring No.
B-2 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.3

Casing Type/Depth (ft): 3 3/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-27-14	4	3.3	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-16										
	-17										
25	-18			(OUTWASH)							
					25	0.0	S9	24/18	25.0-27.0	8 9 16 5	Compact, gray gravelly SAND, trace silt (Outwash)
26	-19										
27			27.0 / -19.7								
	-20			Bottom of Exploration							
28	-21										
29	-22										
30	-23										
31	-24										
32	-25										
33	-26										
34	-27										
35	-28										
36	-29										
37	-30										
38	-31										
39	-32										
40	-33										
41	-34										
42	-35										
43	-36										
44	-37										
45	-38										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of boring, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 70

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Boring No.
B-3

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.0

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-13-14	4	4.0	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	7				8	0.0	S1	24/5	0.0-2.0	1 3 5 12	Loose, brown SAND, some silt, with roots, ash and cinder (Fill)
2	6										
3	5			(FILL)	19	44.5	S2	24/18	2.0-4.0	22 12 7 5	Compact, dark brown to black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
4	4										
5	3				2	18.2	S3	24/5	4.0-6.0	2 1 1 1	Very loose, black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
6	2		6.0 / 2.0								
7	1				48	1.4	S4	24/8	6.0-8.0	16 21 27 25	Dense, tan-brown SAND and GRAVEL, trace silt (Outwash)
8	0										
9	-1										
10	-2				-	0.8	S5	4/4	10.0-10.3	100/4"	Very dense, gray-brown SAND and GRAVEL, trace silt and cobbles (Outwash)
11	-3										
12	-4										
13	-5										
14	-6			(OUTWASH)							
15	-7										
16	-8				60	0.0	S6	24/12	15.0-17.0	12 27 33 47	Very dense, gray-brown SAND and GRAVEL, trace silt (Outwash)
17	-9										
18	-10										
19	-11										
20	-12										
21	-13				56	0.0	S7	24/9	20.0-22.0	12 28 28 42	Very dense, gray-brown SAND, some silt and gravel (Outwash)
22	-14										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Rain Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Boring No.
B-3

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.0

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-13-14	4	4.0	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-16			(OUTWASH)							
25	-17		25.0 / -17.0								
26	-18		25.9 / -17.9	(GLACIAL TILL)	100/5"	0.0	S8	11/11	25.0-25.9	42 100/5"	Very dense, gray silty SAND and GRAVEL (Glacial Till)
27	-19			Bottom of Exploration							
28	-20										
29	-21										
30	-22										
31	-23										
32	-24										
33	-25										
34	-26										
35	-27										
36	-28										
37	-29										
38	-30										
39	-31										
40	-32										
41	-33										
42	-34										
43	-35										
44	-36										
45	-37										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Rain Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-27-14
Date Finished: 6-27-14

Boring No.
B-4 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.0

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-27-14	4	3.0	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
			0.3 / 6.7	(CONCRETE)							
1	6				31	16.2	S1	18/12	0.5-2.0	5 8 23	Compact, dark brown silty SAND, with brick, ash and cinder (Fill)
2	5										
3	4			(FILL)	13	800+	S2	24/13	2.0-4.0	14 8 5 4	Compact, black SAND, some silt, with brick, ash and cinder (Fill)
4	3										
5	2				13	5.8	S3	24/17	4.0-6.0	4 5 8 12	Compact, brown silty SAND, trace gravel (Fill)
6	1		6.0 / 1.0								
7	0				111	0.5	S4	24/11	6.0-8.0	23 54 57 62	Very dense, gray-brown SAND and GRAVEL, trace silt (Outwash)
8	-1										
9	-2										
10	-3										
11	-4				46	0.9	S5	24/19	10.0-12.0	29 23 23 15	Dense, gray-brown SAND and GRAVEL, trace silt (Outwash)
12	-5										
13	-6										
14	-7			(OUTWASH)							
15	-8										
16	-9				22	15.8	S6	24/6	15.0-17.0	6 10 12 17	Compact, brown silty fine SAND (Outwash)
17	-10										
18	-11										
19	-12										
20	-13										
21	-14				24	0.5	S7	24/13	20.0-22.0	15 12 12 13	Compact, gray-brown silty SAND, some gravel (Outwash)
22	-15										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of boring, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-27-14
Date Finished: 6-27-14

Boring No.
B-4 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.0

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-27-14	4	3.0	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-17										
25	-18			(OUTWASH)						13	
26	-19				30	0.0	S8	24/13	25.0-27.0	15	Compact to dense, gray-brown silty SAND, some gravel (Outwash)
27	-20		27.0 / -20.0							15	
28	-21			Bottom of Exploration						25	
29	-22										
30	-23										
31	-24										
32	-25										
33	-26										
34	-27										
35	-28										
36	-29										
37	-30										
38	-31										
39	-32										
40	-33										
41	-34										
42	-35										
43	-36										
44	-37										
45	-38										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of boring, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 75

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-17-14
Date Finished: 6-17-14

Boring No.
B-5 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.4

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-17-14	7	1.4	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
	8		0.3 / 8.1	(CONCRETE)							
1	7				25		S1	24/9	1.0-3.0	8 8 17 31	Compact, light tan to gray-brown SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
2	6										
3	5				16		S2	24/9	3.0-5.0	14 8 8 9	Comapct, brown SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
4	4			(FILL)							
5	3				17		S3	24/6	5.0-7.0	11 10 7 21	Compact, tan to brown SAND, some silt, trace gravel, with brick and cinder (Fill)
6	2										
7	1				15		S4	24/4	7.0-9.0	8 8 7 7	Compact, gray-brown SAND, some silt, trace gravel, with brick (Fill)
8	0		9.0 / -0.6								
9	-1				35		S5	24/6	9.0-11.0	9 17 18 15	Dense, orange-brown SAND and GRAVEL, trace silt (Outwash)
10	-2										
11	-3				46		S6	24/12	11.0-13.0	10 16 30 32	Dense, orange-brown SAND and GRAVEL, trace silt (Outwash)
12	-4			(OUTWASH)							
13	-5										
14	-6		14.5 / -6.1								
15	-7				47		S7	24/13	15.0-17.0	16 21 26 25	Dense, gray silty SAND and GRAVEL, with cobbles (Glacial Till)
16	-8										
17	-9										
18	-10										
19	-11			(GLACIAL TILL)							
20	-12				100/5"		S8	11/6	20.0-20.9	23 100/5"	Very dense, gray silty SAND and GRAVEL, wtih cobbles (Glacial Till)
21	-13										
22	-14										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of boring, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model:
TVOC Background: ppm
Weather: Overcast Temperature: 70

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-17-14
Date Finished: 6-17-14

Boring No.
B-5 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.4

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
6-17-14	7	1.4	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-15										
	-16			(GLACIAL TILL)							
25	-17		25.9 / -17.5		100/5"		S9	11/8	25.0-25.9	24 100/5"	Very dense, gray silty SAND and GRAVEL, with cobbles (Glacial Till)
26	-18			Bottom of Exploration							
27	-19										
28	-20										
29	-21										
30	-22										
31	-23										
32	-24										
33	-25										
34	-26										
35	-27										
36	-28										
37	-29										
38	-30										
39	-31										
40	-32										
41	-33										
42	-34										
43	-35										
44	-36										
45	-37										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of boring, a groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval.

Total Volatile Organic Compounds (TVOC) Measured with PID Model:
TVOC Background: ppm
Weather: Overcast Temperature: 70

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TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Boring No. B-6

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 6.9

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	6				3	0.0	S1	24/7	0.0-2.0	1 2 1 2	Very loose, dark brown silty SAND, trace gravel, with wood (Fill)
2	5			(FILL)							
3	4				2	0.0	S2	24/4	2.0-4.0	1 1 1 3	Very loose, dark brown SAND, some silt and gravel, with wood (Fill)
4	3		4.0 / 2.9								
5	2				38	0.9	S3	24/14	4.0-6.0	10 15 23 33	Dense, brown to orange-brown SAND and GRAVEL, trace silt (Outwash)
6	1										
7	0				55	0.8	S4	24/18	6.0-8.0	35 30 25 26	Very dense, gray-brown SAND and GRAVEL, trace silt (Outwash)
8	-1										
9	-2										
10	-3				44	3.2	S5	24/15	10.0-12.0	19 19 25 28	Dense, gray-brown SAND and GRAVEL, trace silt (Outwash)
11	-4										
12	-5										
13	-6										
14	-7			(OUTWASH)							
15	-8										
16	-9				24	2.0	S6	24/24	15.0-17.0	11 12 12 10	Compact, orange-brown silty fine to medium SAND (Outwash)
17	-10										
18	-11										
19	-12										
20	-13										
21	-14				30	0.1	S7	24/24	20.0-22.0	10 13 17 19	Compact to dense, gray-brown silty fine to medium SAND (Outwash)
22	-15										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Overcast to Rain Temperature: 70

McPHAIL ASSOCIATES, LLC
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FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Boring No.
B-6

Contractor: Seaboard Drilling
Driller/Helper: Jeff/Joe
Logged By/Reviewed By: BRB
Surface Elevation (ft): 6.9

Casing Type/Depth (ft): 4 1/4" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8" SS
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	-17										
25	-18			(OUTWASH)						12	Dense, gray-brown silty SAND, trace gravel (Outwash)
26	-19				32	8.3	S8	24/8	25.0-27.0	14	
27	-20		27.0 / -20.1							18	
				Bottom of Exploration						18	
28	-21										
29	-22										
30	-23										
31	-24										
32	-25										
33	-26										
34	-27										
35	-28										
36	-29										
37	-30										
38	-31										
39	-32										
40	-33										
41	-34										
42	-35										
43	-36										
44	-37										
45	-38										

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Overcast to Rain Temperature: 70

McPHAIL ASSOCIATES, LLC
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CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Geoprobe No.

GP-1

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.2

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-13-14	4	3.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	6			(FILL)	0.1	S1	24/15	0.0-2.0	Compact, brown to black SAND, some silt, trace gravel, with brick, ash, and cinder (Fill)
2	5								
3	4				0.0	S2	24/15	2.0-4.0	Compact, brown to black SAND, some silt, trace gravel, with brick, ash, and cinder (Fill)
4	3		4.0 / 3.2						
5	2			(ORGANICS)	0.0	S3	24/14	4.0-6.0	Very loose to loose, organic SILT, some peat (Organics)
6	1		6.0 / 1.2						
7	0			(OUTWASH)	0.0	S4	24/14	6.0-8.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
8	-1								
9	-2				0.0	S5	24/15	8.0-10.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
10	-3								
11	-4				0.0	S6	24/15	10.0-12.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
12	-5								
13	-6				0.0	S7	24/18	12.0-14.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
14	-7								
15	-8				0.0	S8	24/18	14.0-16.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
16	-9		16.0 / -8.8	Bottom of Exploration					
17	-10								
18	-11								
19	-12								
20	-13								
21	-14								
22	-15								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-16-14
Date Finished: 6-16-14

Geoprobe No. GP-10 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.1

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-16-14	4	3.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	6			(FILL)	16.5	S1	24/15	0.0-2.0	Loose to compact, brown SAND, some silt, trace gravel, wtih brick, ash and cinder (Fill)
2	5								
3	4				0.0	S2	24/15	2.0-4.0	Loose to compact, brown SAND, some silt, trace gravel, wtih brick, ash and cinder (Fill)
4	3		4.0 / 3.1						
5	2			(ORGANICS)	0.0	S3	24/15	4.0-6.0	Very loose to loose, brown organic SILT, trace peat fibers (Organics)
6	1								
7	0				0.0	S4	24/15	6.0-8.0	Very loose to loose, brown organic SILT, trace peat fibers (Organics)
8	-1		8.0 / -0.9						
9	-2			(OUTWASH)	0.0	S5	24/15	8.0-10.0	Dense to very dense, tan SAND, some gravel, trace silt (Outwash)
10	-3								
11	-4				0.0	S6	24/15	10.0-12.0	Dense to very dense, tan SAND, some gravel, trace silt (Outwash)
12	-5								
13	-6				0.4	S7	24/15	12.0-14.0	Dense to very dense, tan SAND, some gravel, trace silt (Outwash)
14	-7								
15	-8				0.1	S8	24/15	14.0-16.0	Dense to very dense, tan SAND, some gravel, trace silt (Outwash)
16	-9		16.0 / -8.9	Bottom of Exploration					
17	-10								
18	-11								
19	-12								
20	-13								
21	-14								
22	-15								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 13 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 70

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-12-14
Date Finished: 6-12-14

Geoprobe No.
GP-12

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.8

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-12-14	7	1.8	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	8			(FILL)	0.3	S1	24/20	0.0-2.0	Compact to dense, brown SAND, some silt, trace gravel, with brick, concrete, ash and cinder (Fill)
2	7								
3	6				1.6	S2	24/20	2.0-4.0	Compact to dense, brown to tan SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
4	5								
5	4				4.7	S3	24/9	4.0-6.0	Compact to dense, brown SAND and GRAVEL, trace silt (Fill)
6	3								
7	2				2.7	S4	24/9	6.0-8.0	Compact to dense, brown SAND and GRAVEL, trace silt (Fill)
8	1		8.0 / 0.8						
9	0			(OUTWASH)	0.0	S5	24/20	8.0-10.0	Very dense, brown to red-brown SAND and GRAVEL, trace silt (Outwash)
10	-1								
11	-2				0.0	S6	24/20	10.0-12.0	Very dense, brown to red-brown SAND and GRAVEL, trace silt (Outwash)
12	-3								
13	-4				0.0	S7	24/23	12.0-14.0	Very dense, brown to red-brown SAND and GRAVEL, trace silt (Outwash)
14	-5								
15	-6				0.0	S8	24/23	14.0-16.0	Compact to dense, gray silty SAND, trace gravel (Outwash)
16	-7		16.0 / -7.2						
17	-8			Bottom of Exploration					
18	-9								
19	-10								
20	-11								
21	-12								
22	-13								
	-14								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Rain Temperature: 65

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2269 MASSACHUSETTS AVENUE
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TEL: 617-868-1420
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Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-16-14
Date Finished: 6-16-14

Geoprobe No.

GP-13

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.1

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-16-14	4	4.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	7			(FILL)	0.2	S1	24/13	0.0-2.0	Loose to compact, brown to black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
2	6								
3	5				0.0	S2	24/13	2.0-4.0	Loose to compact, brown to black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
4	4		4.0 / 4.1						
5	3			(OUTWASH)	0.2	S3	24/15	4.0-6.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
6	2				1.3	S4	24/15	6.0-8.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
7	1								
8	0				1.1	S5	24/22	8.0-10.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
9	-1								
10	-2				0.5	S6	24/22	10.0-12.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
11	-3								
12	-4				4.6	S7	24/19	12.0-14.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
13	-5								
14	-6				2.8	S8	24/19	14.0-16.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
15	-7								
16	-8		16.0 / -7.9	Bottom of Exploration					
17	-9								
18	-10								
19	-11								
20	-12								
21	-13								
22	-14								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Geoprobe No.

GP-2 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.7

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-13-14	4	3.7	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	7			(FILL)	0.1	S1	24/15	0.0-2.0	Compact, brown to black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
2	6								
3	5				1.3	S2	24/15	2.0-4.0	Compact, brown to black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
4	4		4.0 / 3.7						
5	3			(OUTWASH)	0.1	S3	24/12	4.0-6.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
6	2								
7	1				0.0	S4	24/12	6.0-8.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
8	0								
9	-1				0.0	S5	24/14	8.0-10.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
10	-2								
11	-3				0.0	S6	24/14	10.0-12.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
12	-4								
13	-5				0.0	S7	24/16	12.0-14.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
14	-6								
15	-7				0.0	S8	24/16	14.0-16.0	Dense to very dense, tan-brown to gray-brown SAND and GRAVEL, trace silt (Outwash)
16	-8		16.0 / -8.3						
17	-9			Bottom of Exploration					
18	-10								
19	-11								
20	-12								
21	-13								
22	-14								
	-15								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 16 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Geoprobe No.
GP-3 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.0

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-13-14	4	3.0	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	6			(FILL)	0.0	S1	24/20	0.0-2.0	Loose, tan to gray SAND, some silt, trace gravel, with ash and cinder (Fill)
2	5								
3	4				32.0	S2	24/20	2.0-4.0	Loose, tan to gray SAND, some silt, trace gravel, with ash and cinder. Petroleum odor and staining (Fill)
4	3		4.0 / 3.0						
5	2			(ORGANICS)	10.5	S3	24/18	4.0-6.0	Very loose, brown to black organic SILT, some peat fibers (Organics)
6	1								
7	0				0.0	S4	24/18	6.0-8.0	Loose to compact, tan-brown sandy organic SILT (Organics)
8	-1		8.0 / -1.0						
9	-2			(OUTWASH)	12.0	S5	24/18	8.0-10.0	Dense, tan-brown to gray SAND and GRAVEL, trace silt. Petroleum odor and staining (Outwash)
10	-3								
11	-4				3.2	S6	24/18	10.0-12.0	Dense, tan-brown to gray SAND and GRAVEL, trace silt. Petroleum odor and staining (Outwash)
12	-5								
13	-6				3.7	S7	30/18	12.0-14.5	Dense, tan-brown to gray SAND and GRAVEL, trace silt. Petroleum odor and staining (Outwash)
14	-7		14.5 / -7.5						
15	-8			Bottom of Exploration					
16	-9								
17	-10								
18	-11								
19	-12								
20	-13								
21	-14								
22	-15								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 14 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-12-14
Date Finished: 6-12-14

Geoprobe No.

GP-4 (OW)

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.0

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-12-14	4	4.0	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	7			(FILL)	1.1	S1	24/20	0.0-2.0	Compact, brown to black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
2	6								
3	5				0.0	S2	24/20	2.0-4.0	Compact, brown to black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
4	4								
5	3				52.6	S3	24/20	4.0-6.0	Compact, brown to black SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
6	2		6.0 / 2.0						
7	1			(ORGANICS)	1.2	S4	24/20	6.0-8.0	Loose, brown to gray-brown organic SILT, some peat fibers (Organics)
8	0		8.0 / 0.0						
9	-1			(OUTWASH)	46.3	S5	24/20	8.0-10.0	Dense to very dense, gray-brown SAND and GRAVEL, trace silt (Outwash)
10	-2								
11	-3				40.7	S6	24/20	10.0-12.0	Dense to very dense, gray-brown SAND and GRAVEL, trace silt (Outwash)
12	-4								
13	-5				2.5	S7	24/20	12.0-14.0	Dense to very dense, gray-brown SAND and GRAVEL, trace silt (Outwash)
14	-6								
15	-7				1.7	S8	24/20	14.0-16.0	Dense to very dense, gray-brown SAND and GRAVEL, trace silt (Outwash)
16	-8		16.0 / -8.0	Bottom of Exploration					
17	-9								
18	-10								
19	-11								
20	-12								
21	-13								
22	-14								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Upon completion of exploration, groundwater monitoring well was installed at a depth of 15 feet below ground surface with a 10-foot screened interval

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 80

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2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Geoprobe No.

GP-5

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft):

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-13-14	4		

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1				(FILL)	1.3	S1	24/14	0.0-2.0	Compact to dense, brown SAND, some silt and gravel, trace brick, ash and cinder (Fill)
2									
3					7.0	S2	24/14	2.0-4.0	Compact to dense, brown SAND, some silt and gravel, trace brick, ash and cinder (Fill)
4									
5					0.0	S3	24/12	4.0-6.0	Compact to dense, brown SAND, some silt and gravel, trace brick, ash and cinder (Fill)
6			6.0 /						
7				(OUTWASH)	0.0	S4	24/12	6.0-8.0	Compact, to dense dark brown silty SAND (Outwash)
8									
9					0.0	S5	24/15	8.0-10.0	Compact, to dense dark brown silty SAND (Outwash)
10									
11					0.0	S6	24/15	10.0-12.0	Compact, to dense dark brown silty SAND (Outwash)
12									
13					0.0	S7	24/16	12.0-14.0	Compact, to dense dark brown silty SAND (Outwash)
14									
15					0.0	S8	24/16	14.0-16.0	Compact, to dense dark brown silty SAND (Outwash)
16			16.0 /	Bottom of Exploration					
17									
18									
19									
20									
21									
22									

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-16-14
Date Finished: 6-16-14

Geoprobe No.

GP-7

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 6.3

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-16-14	5	1.3	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
	6		0.2 / 6.1	(CONCRETE)					
1	5				0.0	S1	18/15	0.5-2.0	Loose to compact, brown SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
2	4				10.3	S2	24/15	2.0-4.0	Loose to compact, brown SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
3	3								
4	2			(FILL)					
5	1				0.0	S3	24/12	4.0-6.0	Loose to compact, brown SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
6	0								
7	-1				0.0	S4	24/12	6.0-8.0	Loose to compact, brown SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
8	-2		8.0 / -1.7						
9	-3				0.0	S5	24/14	8.0-10.0	Dense, tan SAND, trace silt and gravel (Outwash)
10	-4				0.0	S6	24/14	10.0-12.0	Dense, tan SAND, trace silt and gravel (Outwash)
11	-5								
12	-6			(OUTWASH)					
13	-7				1.9	S7	24/15	12.0-14.0	Dense, tan SAND, trace silt and gravel (Outwash)
14	-8								
15	-9				0.0	S8	24/15	14.0-16.0	Dense, tan SAND, trace silt and gravel (Outwash)
16	-10		16.0 / -9.7	Bottom of Exploration					
17	-11								
18	-12								
19	-13								
20	-14								
21	-15								
22	-16								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Washington Village Housing Development
Location:
City/State: Norwalk, CT

Job #: 5763.2.00
Date Started: 6-13-14
Date Finished: 6-13-14

Geoprobe No.

GP-8

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 7.1

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes
6-13-14	4	3.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Description and Notes
1	6			(FILL)	0.0	S1	24/15	0.0-2.0	Loose to compact, brown to black SAND, some silt, trace gravel (Fill)
2	5								
3	4				7.2	S2	24/15	2.0-4.0	Loose to compact, brown to black SAND, some silt, trace gravel (Fill)
4	3								
5	2				0.0	S3	24/18	4.0-6.0	Loose to compact, brown to black SAND, some silt, trace gravel (Fill)
6	1		6.0 / 1.1						
7	0			(OUTWASH)	1.8	S4	24/18	6.0-8.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
8	-1								
9	-2				0.2	S5	24/15	8.0-10.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
10	-3								
11	-4				1.2	S6	24/15	10.0-12.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
12	-5								
13	-6				0.0	S7	24/16	12.0-14.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
14	-7								
15	-8				0.0	S8	24/16	14.0-16.0	Dense to very dense, gray to tan SAND and GRAVEL, trace silt (Outwash)
16	-9		16.0 / -8.9	Bottom of Exploration					
17	-10								
18	-11								
19	-12								
20	-13								
21	-14								
22	-15								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Washington Village Housing Development	**Job #:**	5763.2.00
Location:		**Date Started:**	6-16-14
City/State:	Norwalk, CT	**Date Finished:**	6-16-14

Geoprobe No.

GP-9

Contractor: Seaboard Drilling
Driller/Helper: Mike/Doug
Logged By/Reviewed By: BRB
Surface Elevation (ft): 8.4

Casing Type/Depth (ft): 2-1/2 in. OD Drive Tube
Casing Hammer (lbs)/Drop (in): n/a
Sampler Size/Type: 1-11/16 in. I.D. Plastic Sheath
Sampler Hammer (lbs)/Drop (in): n/a

Groundwater Observations

Date	Depth	Elev.	Notes

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample TVOC (ppm)	Sample No.	Sample Pen. /Rec. (in)	Sample Depth (ft)	Sample Description and Notes
	8		0.2 / 8.2	(CONCRETE)					
1	7			(FILL)	6.8	S1	30/30	0.5-3.0	Compact, brown SAND, some silt, trace gravel, with brick, ash and cinder (Fill)
2	6								Refusal at 3 feet
3			3.0 / 5.4						
	5			Refusal					
4	4								
5	3								
6	2								
7	1								
8	0								
9	-1								
10	-2								
11	-3								
12	-4								
13	-5								
14	-6								
15	-7								
16	-8								
17	-9								
18	-10								
19	-11								
20	-12								
21	-13								
22	-14								

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Total Volatile Organic Compounds (TVOC) Measured with PID Model: Mini-RAE 3000 w/ 10.6 eV probe
TVOC Background: 0.0 ppm
Weather: Fair Temperature: 70

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2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
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McPHAIL ASSOCIATES, LLC

APPENDIX C

McPhail Associates, LLC
Groundwater Monitoring Reports

GROUNDWATER MONITORING REPORT

Well I.D.	B-13-2(OW)	**Elevation of Road Box**	+9.3	**Job. No. Job Name**	5763 13 Day Street

Date	Time	Elapsed Time	Depth of Water from Road Box	Elevation of Water	Remarks	Read By
		Days	Feet	Feet		
7/2/2014	10:00	Initial	9.0	+0.3	Installed to 15'	BB

GROUNDWATER MONITORING REPORT

Well I.D.	GP-13-1(OW)	**Elevation of Road Box**	+12.3	**Job. No. Job Name**	5763 13 Day Street	
Date	**Time**	**Elapsed Time**	**Depth of Water from Road Box**	**Elevation of Water**	**Remarks**	**Read By**
		Days	**Feet**	**Feet**		
6/30/2014	13:30	Initial	8.7	3.6	Installed at 15'	BB
7/2/2014	10:00	3	8.9	+3.4		BB

GROUNDWATER MONITORING REPORT						
Well I.D.	GP-13-2(OW)	**Elevation of Road Box**	+9.3	**Job. No. Job Name**	5763 13 Day Street	
Date	**Time**	**Elapsed Time**	**Depth of Water from Road Box**	**Elevation of Water**	**Remarks**	**Read By**
		Days	**Feet**	**Feet**		
6/30/2014	13:30	Initial	8.2	+1.1	Installed at 15'	BB
7/2/2014	10:00	3	8.4	+0.9		BB

GROUNDWATER MONITORING REPORT

Well I.D.	GP-13-3 (OW)	**Elevation of Road Box**	+9.9	**Job. No. Job Name**	5763 13 Day Street	

Date	**Time**	**Elapsed Time**	**Depth of Water from Road Box**	**Elevation of Water**	**Remarks**	**Read By**
		Days	**Feet**	**Feet**		
6/30/2014	13:30	Initial	8.0	+1.9	Installed to 15'	BB
7/2/2014	10:00	3	9.1	+0.8		BB

GROUNDWATER MONITORING REPORT

Well I.D.	B20-4(OW)	**Elevation of Road Box**	+7.4
Job. No. Job Name	5763 20 Day Street		

Date	Time	Elapsed Time	Depth of Water from Road Box	Elevation of Water	Remarks	Read By
		Days	Feet	Feet		
7/1/2014	10:00	Initial	5.0	+2.4	Installed at 15 ft	BB
7/2/2014	10:00	1	5.2	+2.2		BB

GROUNDWATER MONITORING REPORT

Well I.D.	GP20-2(OW)	**Elevation of Road Box**	+9.2	**Job. No. Job Name**	5763 20 Day Street

Date	Time	Elapsed Time	Depth of Water from Road Box	Elevation of Water	Remarks	Read By
		Days	Feet	Feet		
7/1/2014	10:00	0	5.5	+3.7	Installed	BB
7/2/2014	10:00	1	5.6	+3.6		BB

GROUNDWATER MONITORING REPORT						
Well I.D.	GP20-3(OW)	**Elevation of Road Box**	+9.2	**Job. No. Job Name**	5763 20 Day Street	
Date	**Time**	**Elapsed Time**	**Depth of Water from Road Box**	**Elevation of Water**	**Remarks**	**Read By**
		Days	**Feet**	**Feet**		
7/1/2014	10:00	Initial	5.2	+4.0	Installed at 15'	BB
7/2/2014	10:00	1	5.2	+4.0		BB

GROUNDWATER MONITORING REPORT

Well I.D.	GP20-4(OW)	**Elevation of Road Box**	+9.2	**Job. No. Job Name**	5763 20 Day Street

Date	Time	Elapsed Time	Depth of Water from Road Box	Elevation of Water	Remarks	Read By
		Days	Feet	Feet		
7/1/2014	10:00	Initial	5.5	+3.7	Installed to 15'	BB
7/2/2014	14:00	1	5.5	+3.7		BB

McPHAIL ASSOCIATES, LLC

APPENDIX D

Radar Solutions International - Ground Penetrating Radar Report

Radar Solutions International, Inc.™

Geophysics for People and the Environment

June 26, 2014

Mr. Joe Lombardo
Ms. Amy Falconeri
McPhail Associates, LLC
2269 Massachusetts Avenue
Cambridge, MA 02140

Via Email: JGL@mcphailgeo.com, AF@mcphailgeo.com

Subject: Geophysical Survey for USTs
GPR/EM-61/EM-31 Investigations
13 and 20 Day Street
Norwalk, Connecticut

Dear Joe and Amy:

In accordance with your authorization, Radar Solutions International (RSI) conducted ground penetrating radar (GPR), EM-61 and EM-31 surveys at the above-referenced property on June 11th and 12th, 2014 The purpose of our survey was to help determine the location or absence of potential USTs. RSI's finalized survey results and interpretations are summarized below.

LOCATION AND SURVEY CONTROL

The surveys were located on two separate parcels owned by the City, one at 13 Day Street and the other at 20 Day Street in Norwalk, Connecticut. The area of investigation at 13 Day Street was an area approximately 150 feet by 110 feet and was bounded on all sides by a fence and heavy brush. However, the heaviest brush was only within the last 10 feet or so of the chain link fence.

EM-61 survey lines were acquired along lines spaced 2.5 feet apart and oriented in the east-west direction. GPR lines were collected along orthogonal lines spaced 2.5 feet apart.

The area of investigation located at 20 Day Street was an area approximately 350 feet by 115 feet and contained extremely thick and tall brush, piles of loam and various debris from a nearby garden center. Due to these obstructions, EM-61 and GPR could not be conducted, as both of these methods require good coupling to the ground and smooth, even surfaces. Because the goal was to locate possible abandoned USTs and foundations, RSI's President and Sr. Geophysicist recommended the use of an EM-31 terrain conductivity meter to conduct survey instead. EM-31 lines were collected every 5 feet in the north-south direction.

METHODOLOGY

Three geophysical methods were used to help identify potential USTs and other metallic or nonmetallic targets. The time-domain models EM-61 and EM-31 electromagnetic time domain induction meters manufactured by Geonics LTD, were used to detect and determine the approximate mass of buried metal. GPR was used to determine the approximate location, size, shape and orientation, and depth of buried targets and to help locate areas that have been previously excavated.

EM-61 Time Domain Induction

The EM-61 instrument, developed by Geonics, LLD., was originally designed for detecting unexploded ordinance, including when in proximity to above-ground metal targets. Because of the relatively small response from overhead power lines and nearby metal fences and vehicles, the EM-61 has been adopted by the environmental industry for urban geophysical surveys.

The EM-61 technology measures the strength of the electromagnetic field, measured in millivolts, induced within buried metal objects after the primary electromagnetic pulse has been switched off. In this particular model (Mark II), measurements are obtained at both top and bottom receiver coils at four different time increments, called “time-gates”. High induced voltages indicate the presence of above or below ground metal. In the absence of any metal, the differential measurement (i.e. the value at the top coil minus the value at the bottom coil) is zero. Positive, high-amplitude differential readings indicate that metal is likely to be present below grade. The higher the induced voltages, the more massive the metal target, especially when observed in the later time-gates.

EM-61 data are typically collected along lines parallel to the long axis of the survey areas. At the office, EM-61 data was transferred to a computer and contoured (i.e. data with similar values were shaded similarly to bring out patterns of high and low values). Magenta, red, and orange-filled contours are indicative of high residual electrical values associated with metal objects. Large spatial distribution and amplitude of observed anomalies indicate large buried metal targets.

EM-31 Time Domain Induction

The terrain conductivity survey was conducted using a Geonics Model EM31-DL Terrain Conductivity Meter. This induction-type instrument measures terrain conductivity without electrodes or direct soil contact. The terrain conductivity method operates on the principle that secondary electric and magnetic currents can be induced in metal objects and conductive bodies, such as iron or steel USTs, when an electric field is applied. This instrumentation measures the secondary magnetic field strength relative to the primary magnetic field and converts it directly into a conductivity value, measured in millimhos per meter (mmhos/m) and a resolution of 1 mmho/m.

The EM-31 also records the amount of phase-shift occurring between primary and secondary magnetic fields. The in-phase component measures that portion of the secondary magnetic field that is aligned with the primary field. Because metal objects are almost perfect conductors, there is sometimes no phase shift between primary and secondary magnetic fields. Hence, metal objects are detectable using the in-phase component (measured in parts per thousand or ppt). Additionally, in the presence of metal, conductivity values are often negative ("polarity reversals") and highly irregular.

The transmitting and receiving coils in the EM31-DL have a fixed separation of 3 meters, and when used in its normal operating mode (vertical dipole mode), the EM-31 achieves a depth of penetration of about 6 meters. The instrument response is more affected by near-surface than by deeper material, especially when used in the vertical dipole mode. Conductivity and in-phase data were digitally stored and transferred to computer, where they were contoured.

Ground Penetrating Radar

The GPR method operates by transmitting low-powered microwave energy (0.04 Watts peak-power) into the ground using an ultra-wide band (UWB) transceiver antenna. EM energy from the antenna propagates at frequencies ranging from 10 MHz to 3 GHZ, although antenna frequencies for commercially available antennas typically range from 200 MHz to 1.5 GHz. The peak power of this antenna is 20 to 100 times less the wattage of a cellular phone, and the energy is directed into the ground (and not at the operator) by means of shielding on the top side of the antenna. The GPR signal is then reflected back to the antenna by materials with contrasting electrical impedance, which is primarily determined by dielectric and conductivity properties of the material, its magnetic permeability, and its physical properties. The greater the contrast in the real dielectric permittivity (RDP) of two materials, the greater the reflection amplitude. Typically, high-amplitude reflections occur at metal, lithologic or mineralogic changes, or where there is a sudden change in water content.
A material's dielectric properties are primarily determined by mineralogy, and water content. A soil with a high iron and/or magnesium content, or one that contains mineralogical clay or other platey minerals, will have a higher RPD value than a quartz-rich sand. Similarly, a soil that has a high porosity and is water saturated will have a higher RDP for the same unsaturated soil.

Reflections observed on GPR records can be non-unique, meaning that a similar reflector can be caused by different objects. Strong reflections are typically produced from metal objects, which has an RDP of 1,000, the water-table, and from clay layers. Objects, such as USTs and utilities, that have a discrete length and width, typically produce hyperbolic reflections on GPR records.

The success of the GPR methodology also depends on the amount of EM signal attenuation experienced at any given site. GPR signal attenuation is caused by four loss mechanisms: conductive losses, molecular relaxation losses, "clay" (or interfacial polarization) losses, and scattering losses (Kutrubes, 1986). By far, the greatest source of loss is caused by conduction losses, such as which occur when road salt or clay is present. Conduction losses are most severe at frequencies of 300 MHz and below. The greater the soil/medium conductivity the more

attenuation and loss of resolution there will be. Road salt contributes to conduction signal loss, even in the warm months and after heavy rains, as road salt still resides within the asphalt pores and soils beneath it.

The GPR data for this project were acquired using a GSSI SIR 3000 digital radar system and 400 MHz antenna. GPR data were processed and visually inspected using GSSI's proprietary radar software processing package, RADAN©. A 3D GPR file was produced of the area. This file was visually inspected for reflectors characteristic of excavations, possible tank graves, USTs, utilities, and other possible features of interest.

RESULTS

GPR signal penetration was generally good, penetrating a maximum of 6 feet below grade, which is typical for urban sites. RSI's interpreted results for the 13 Day Street site are presented on Figures 1 through 3 of this report, while results from the 20 Day Street property are presented on Figures 4 and 5. Figures are presented at a 20 scale. Key results are presented below.

13 Day Street Property

- There are several metal objects indicated by the EM-61, as show in Figures 1 and 3. The linear, elongated and high amplitude anomaly located from 0E,20N to 120E,38N is attributed to a utility, but could also represent a foundation.

- The linear, elongated anomaly from 140E,0N to 148E,30N has sufficient length to feasibly represent a 10,000gal tank, although it appears narrow in cross-section. However, it is possible that it the anomaly could be attributed to a large diameter utility (Figure 1). GPR indicated two targets parallel to each other, the one trending roughly parallel to 145E appears to be from a large diameter utility. The second target, located between 135E and 143E, observed from 0N to 30N appears flattish on top and sometimes irregular in shape. Therefore, this target may represent a duct bank or possibly a building foundation (Figures 2 and 3).

- There is an EM-61 anomaly located near 20E,75N that is sufficient in size to represent a UST (Figure 1). This buried metal target is coincident with several large GPR reflectors, observed at an approximate 4 foot depth, and could represent a UST (Figures 2 and 3).

- Numerous other high-amplitude EM anomalies are observed at this site, which are interpreted to represent buried metal. The approximate locations of these additional metal targets are denoted on Figure 1 using a black dotted line. There are many instances where these large metal targets that are not coincident with large GPR reflectors. Nevertheless, these targets may very well be investigated, as GPR signal penetration was spotty, penetrating to barely 4 feet in several areas.

20 Day Street Property

- There appears to be less metal, or at least less massive metal, on the 20 Day Street property. In general, the area south of Grid Line 160N has more metal than to the north (Figure 4). Weak, linear EM-31 reflections are indicated on Figure 4 by black dotted lines, and could represent former foundation walls. Negative and/or hig-amplitude conductivity anomalies, shown as dark blue and magenta filled contours on Figure 4, indicate the more massive metal. Of these anomalies, only a limited number would be substantial in size to represent a UST. The anomaly near 55E and 80N could feasibly represent a UST. Likewise, the anomaly at 30E and140N could feasibly represent a UST, although its irregular shape would suggest otherwise. Smaller metal targets are also shown on Figure 4, and are indicated by a black dotted line.

- The high-amplitude anomaly observed in the northern and northwestern portion of the site could correspond to a former foundation wall (Figure 4).

- The in-phase component of the EM-31 tells what percentage of the overall measurement is from metal. Interestingly, many of the targets identified on the conductivity map are observed on the in-phase map (Figure 5), although their position is either shifted, or there are two peaks instead of the one. Most, however, correlate with conductivity anomalies.

SUMMARY AND RECOMMENDATIONS

Numerous buried metal targets have been identified, mostly on the 13 Day Street property. The EM anomaly/GPR target near 20E, 75N could represent a UST, as could the anomaly at 50E, and 50N. The many sizeable metal targets are shown on Figures 1 and 4, and additional test pits could be conducted at their locations to determine their nature.

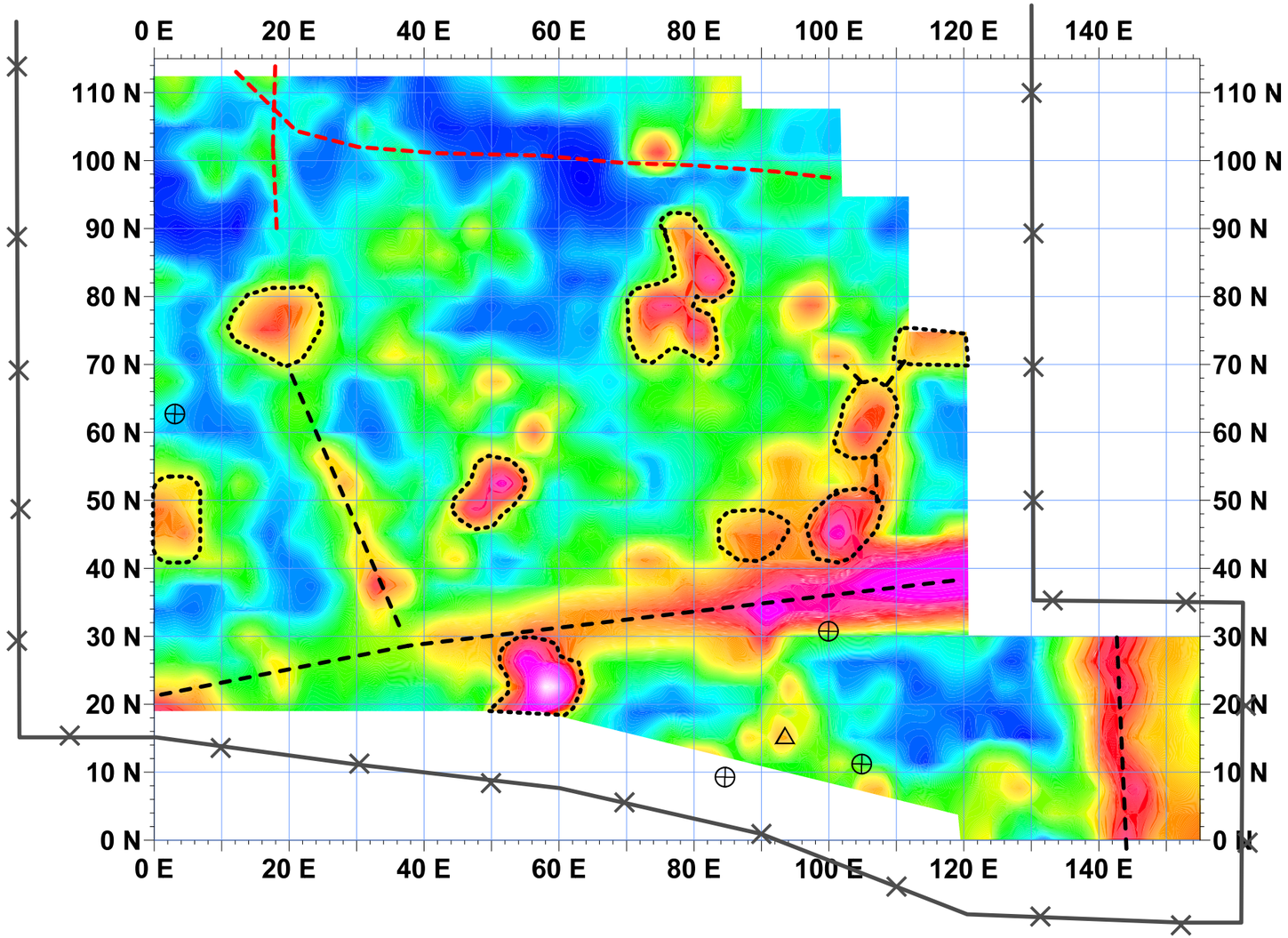
***

We appreciate this opportunity to work with McPhail Associates, LLC again. Please call should you have any inquiries regarding this or future assignments.

Sincerely,

Doria L. Kutrubes

Doria Kutrubes, M.Sc., P.G
RADAR SOLUTIONS INTERNATIONAL
President and Senior Geophysicist



LEGEND

- Stakes
- Monitoring Well
- Building
- Possible Utility or Foundation Remnant (Interpreted from linear EM anomaly)
- Area in which Buried Metal is Indicated

SCALE: 1 Inch = 20 Feet

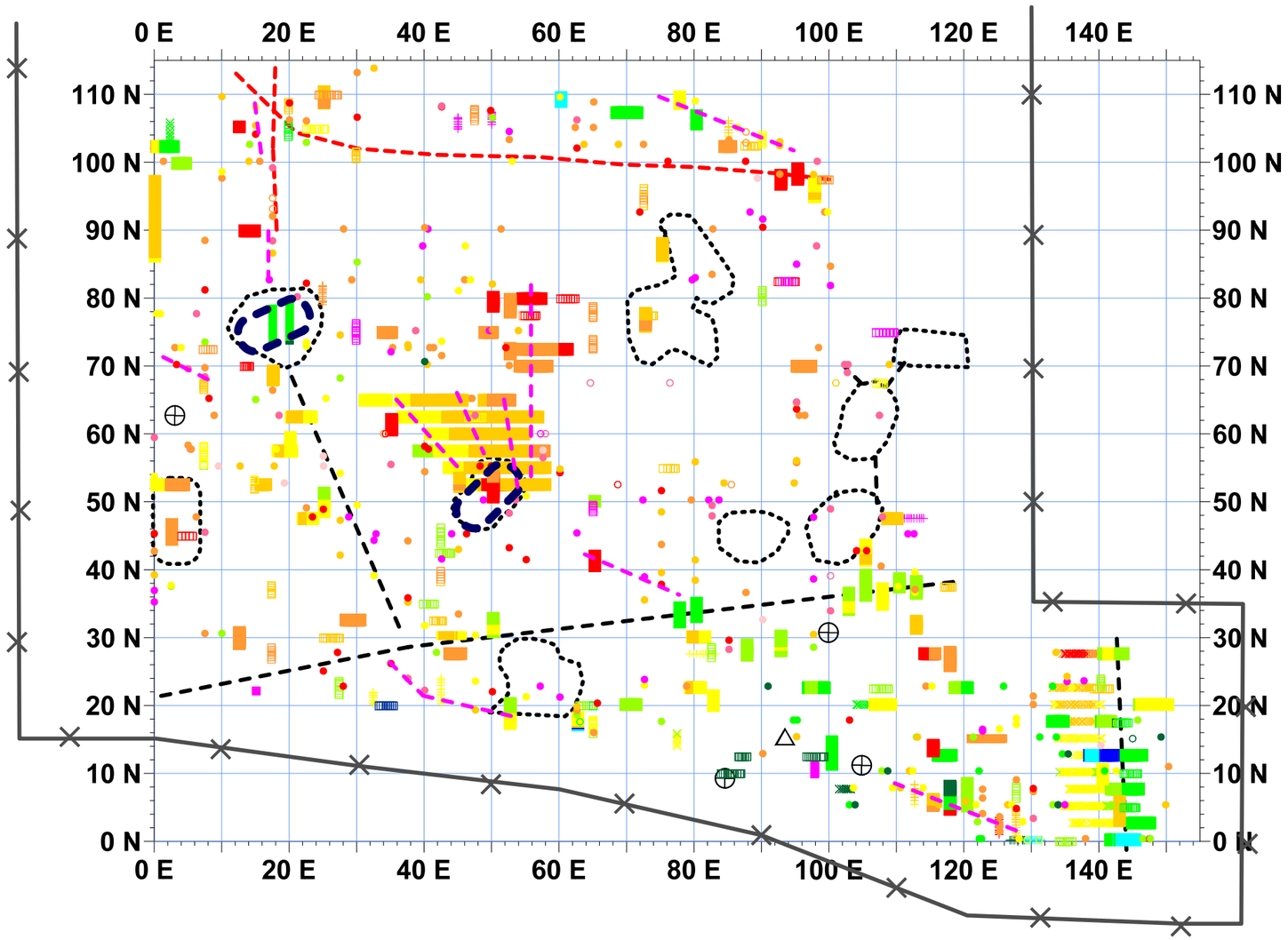
20 0 20 Feet

BOTTOM COIL MEASUREMENTS (mVolts)

← Background → Increasing Metal Content →

FIGURE 1
CONTOURED EM-61 RESULTS
13 DAY STREET
NORWALK, CONNECTICUT
Prepared for
MCPHAIL ASSOCIATES, LLC
JUNE 2014

RSI Geophysics for People and the Environment
Radar Solutions International, Inc.™



LEGEND

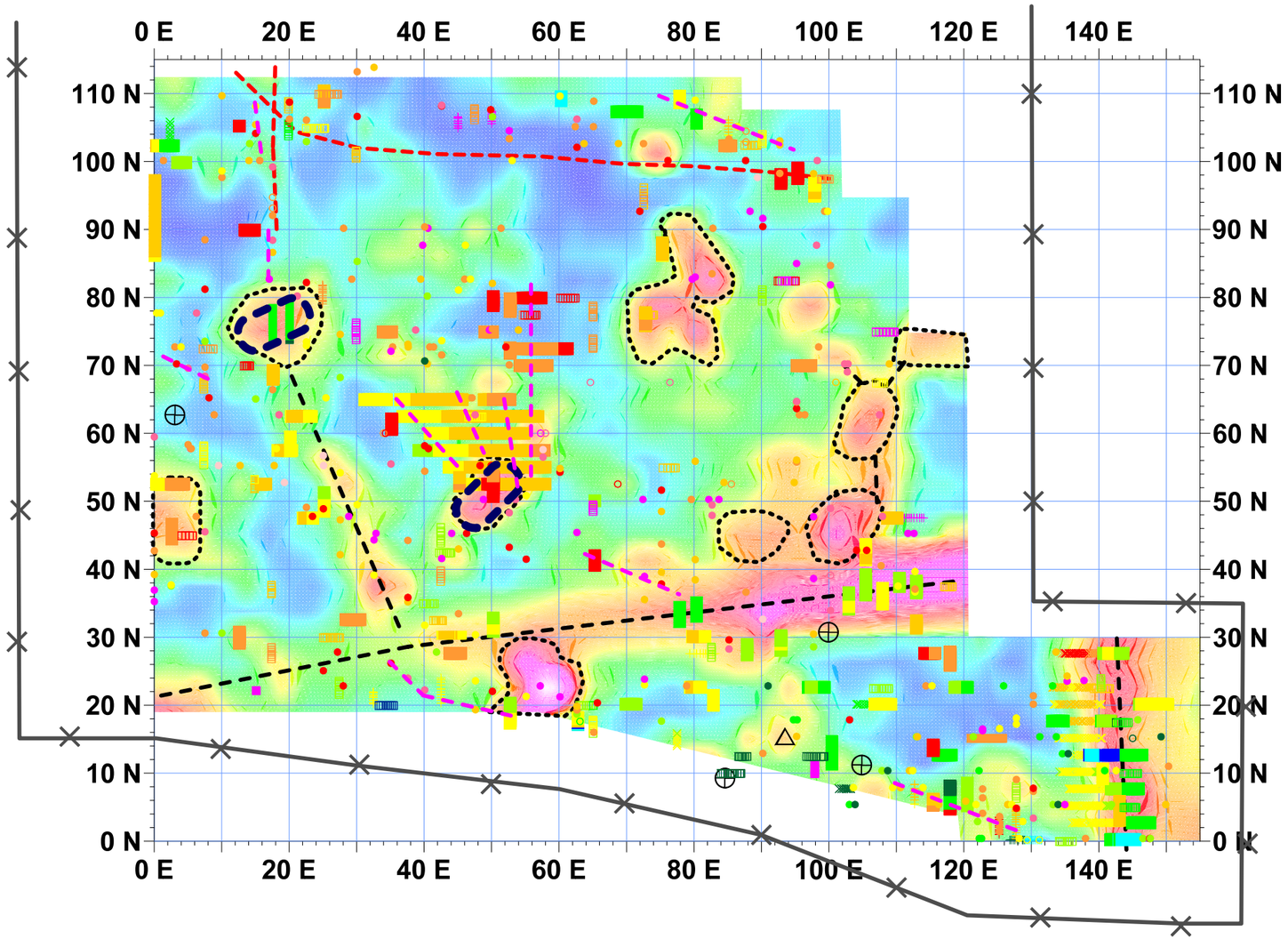
- Stakes
- Monitoring Well
- Chain Link Fence
- Small GPR Reflector (small pipe, cobble, metal scrap); depth as indicated by color
- Small, weak GPR reflector (probable cobble); depth as indicated by color
- Large, high-amplitude GPR reflector (possible reflection from a UST, large diameter utility or metal scrap); depth as indicated below:
  - 0.0 FT. to 0.5 FT.
  - 0.5 FT. to 1.0 FT.
  - 1.0 FT. to 1.5 FT.
  - 1.5 FT. to 2.0 FT.
  - 2.0 FT. to 2.5 FT.
  - 2.5 FT. to 3.0 FT.
  - 3.0 FT. to 3.5 FT.
  - 3.5 FT. to 4.0 FT.
  - 4.0 FT. to 4.5 FT.
  - 4.5 FT. to 5.0 FT.
  - 5.0 FT. to 5.5 FT.
  - 5.5 FT. to 6.0 FT.
  - 6.0 FT. to 7.0 FT.
  - 7.0 FT. to 8.0 FT.
- Large, Weak-Amplitude Reflector (possible utility, boulder); Depth as indicated above
- Flat GPR Reflector (possible concrete slab or stratigraphic feature); Depth (ft) as noted above
- Irregularly Shaped GPR Reflector (Reflector from multiple large diameter utilities, foundation wall, or possible duct bank); Depth (ft) as noted above
- Possible Utility (Interpreted from visual inspection of data and from the alignment of targets from adjacent lines)
- Possible UST (Interpreted from visual inspection of data)
- Area in which Buried Metal is Indicated (EM-61)

SCALE: 1 Inch = 20 Feet

20 0 20 Feet

FIGURE 2
INTERPRETED GPR RESULTS FROM THE VISUAL INSPECTION OF DATA
13 DAY STREET
NORWALK, CONNECTICUT
Prepared for
MCPHAIL ASSOCIATES, LLC
JUNE 2014

RSI Geophysics for People and the Environment
Radar Solutions International, Inc.™



LEGEND

- Stakes
- Monitoring Well
- Chain Link Fence
- Small GPR Reflector (small pipe, cobble, metal scrap); depth as indicated by color
- Small, weak GPR reflector (probable cobble); depth as indicated by color
- Large, high-amplitude GPR reflector (possible reflection from a UST, large diameter utility or metal scrap); depth as indicated below:
  - 0.0 FT. to 0.5 FT.
  - 0.5 FT. to 1.0 FT.
  - 1.0 FT. to 1.5 FT.
  - 1.5 FT. to 2.0 FT.
  - 2.0 FT. to 2.5 FT.
  - 2.5 FT. to 3.0 FT.
  - 3.0 FT. to 3.5 FT.
  - 3.5 FT. to 4.0 FT.
  - 4.0 FT. to 4.5 FT.
  - 4.5 FT. to 5.0 FT.
  - 5.0 FT. to 5.5 FT.
  - 5.5 FT. to 6.0 FT.
  - 6.0 FT. to 7.0 FT.
  - 7.0 FT. to 8.0 FT.
- Large, Weak-Amplitude Reflector (possible utility, boulder); Depth as indicated above
- Flat GPR Reflector (possible concrete slab or stratigraphic feature); Depth (ft) as noted above
- Irregularly Shaped GPR Reflector (Reflector from multiple large diameter utilities, foundation wall, or possible duct bank); Depth (ft) as noted above
- Possible Utility (Interpreted from visual inspection of data and from the alignment of targets from adjacent lines)
- Possible UST (Interpreted from visual inspection of data)
- Area in which Buried Metal is Indicated (EM-61)

SCALE: 1 Inch = 20 Feet

20 0 20 Feet

BOTTOM COIL MEASUREMENTS (mVolts)

← Background → Increasing Metal Content →

FIGURE 3
COMBINED GEOPHYSICAL RESULTS
13 DAY STREET
NORWALK, CONNECTICUT
Prepared for
MCPHAIL ASSOCIATES, LLC
JUNE 2014

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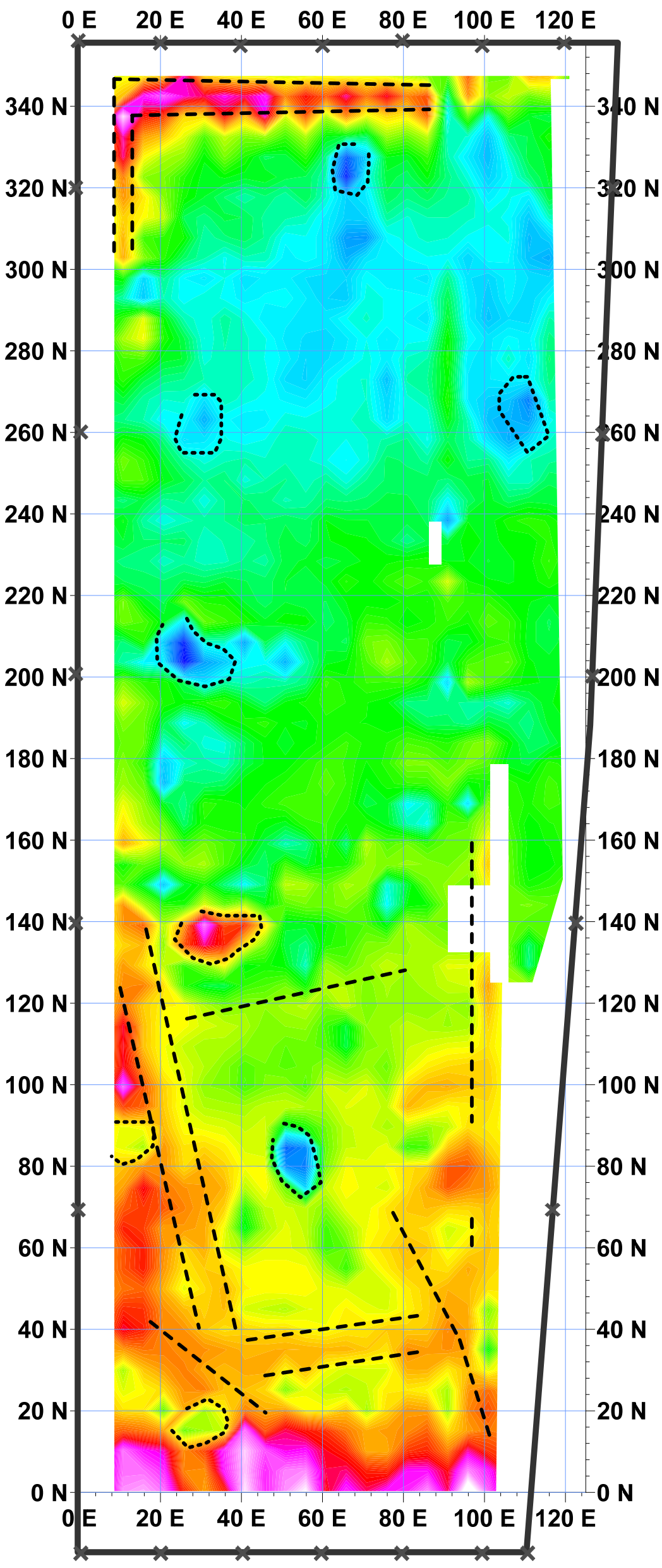
Radar Solutions International, Inc.™



LEGEND

- Stakes
- Monitoring Well
- Building
- Possible Utility or Foundation Remnant (Interpreted from linear EM anomaly)
- Area in which Buried Metal is Indicated

SCALE: 1 Inch = 30 Feet

30 0 30 Feet

CONDUCTIVITY MEASUREMENTS (mmhos/m)

← Background → Increasing Metal Content →

FIGURE 4
CONTOURED EM-31 RESULTS
CONDUCTIVITY VALUES
20 DAY STREET
NORWALK, CONNECTICUT
Prepared for
MCPHAIL ASSOCIATES, LLC
JUNE 2014

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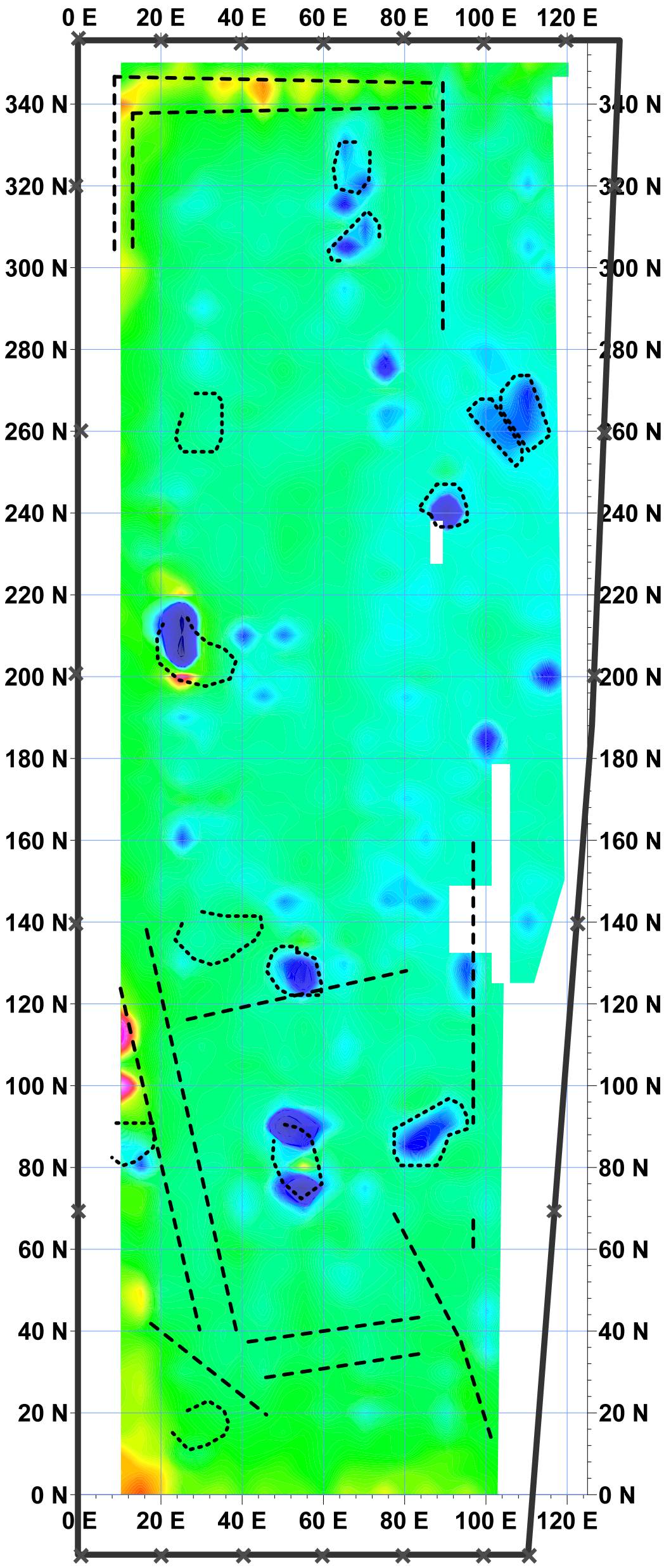

LEGEND

- Stakes
- Monitoring Well
- Building
- Possible Utility or Foundation Remnant (Interpreted from linear EM anomaly)
- Area in which Buried Metal is Indicated

SCALE: 1 Inch = 30 Feet

30 0 30 Feet

CONDUCTIVITY MEASUREMENTS (mmhos/m)

Increasing Metal Content ← Back-ground → Increasing Metal Content

FIGURE 5
CONTOURED EM-31 RESULTS
IN-PHASE VALUES
20 DAY STREET
NORWALK, CONNECTICUT
Prepared for
MCPHAIL ASSOCIATES, LLC
JUNE 2014

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Tighe&Bond

APPENDIX H

NORWALK on the move!

DEPARTMENT OF PUBLIC WORKS

July 22, 2014

Mr. John Rosenthal
Community Development Agent
State of Connecticut
Department of Housing
505 Hudson Street
Hartford, Connecticut 06106

Re: **Washington Village**
Norwalk

Dear Mr. Rosenthal:

As part of the City of Norwalk Zoning Commission's approvals of the Washington Village project, the City of Norwalk Department of Public Works reviewed the proposed storm drainage design and stormwater management systems on the three parcel sites located at 13 Day Street, 20 Day Street, and the existing Washington Village housing site, which is enclosed by Day, Raymond and Water Streets. We have reviewed the Drainage Report Preliminary Submission for Day & Raymond Street Improvements dated July 21, 2014 prepared by Tighe and Bond. Based upon our review, the systems are designed in general conformance with the City of Norwalk's stormwater management policies and storm drainage system design requirements. We are aware that portions of the proposed system discharge into drainage structures owned and maintained by the City, and do not object to these connections.

The Department has also reviewed Progress Plans for the reconstruction of Raymond Street and Day Street and the regrading of a portion of Ryan Park as shown on plans prepared by Tighe & Bond drawings PP.01, PP.02, PP.03 and GR.01 dated July 2014. We find these preliminary plans to be acceptable and consistent with City Standards for road and storm drainage improvements.

Should you have any questions, please contact me at (203) 854-7878.

Sincerely,

Richard P. Linnartz, PE
Principal Engineer

125 East Avenue • Post Office Box 5125 • Norwalk, CT 06856-5125 • Telephone 203-854-7791 • Fax 203-857-0143