



Conway Park Community Meeting

December 16, 2019

Introductions

- City Representatives
- Weston & Sampson (Licensed Site Professionals (LSP))
- Massachusetts Department of Environmental Protection (DEP)
- United States Environmental Protection Agency (EPA)

Public Meetings to Date

1. March 29, 2018, Information Session
2. Dec 5, 2018 Information Session
3. May 29, 2019 Information Session (PIP)
4. December 16, 2019 : TODAY

Where posted: local newspapers, social media, cable wheel, City calendar, City Council, Portuguese, Spanish, and Haitian Kreyol liaisons

www.somervillema.gov/conwayfield

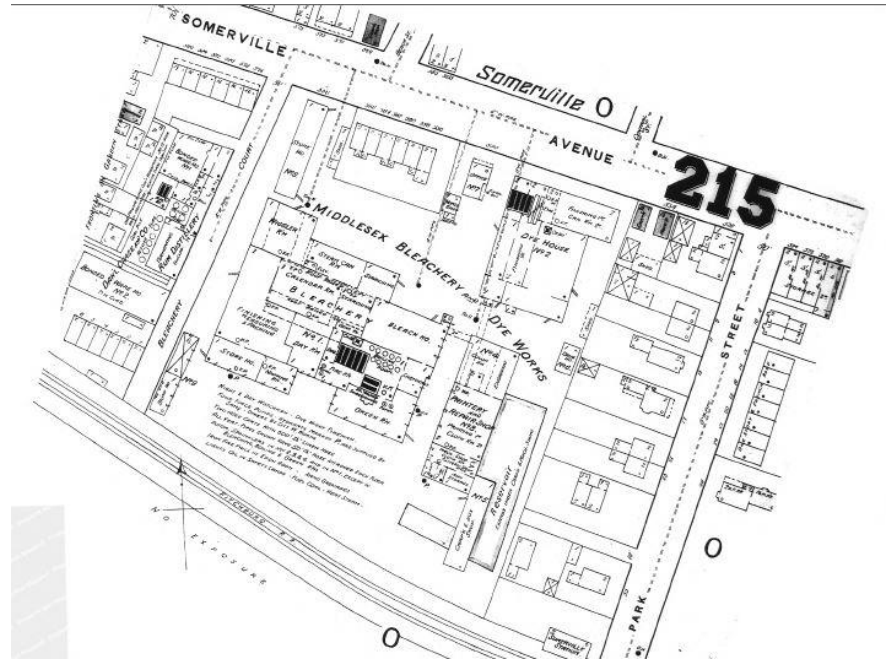
Meeting Agenda

1. Background
2. Project Overview
3. Remediation Plan
4. Next Steps
5. Questions

1. BACKGROUND

Site History

- 1800s bleachery and dye works established
- Operated until early 1930s
- Field discussed in early-mid 1940s
- Renovated in 1976 and in 2001

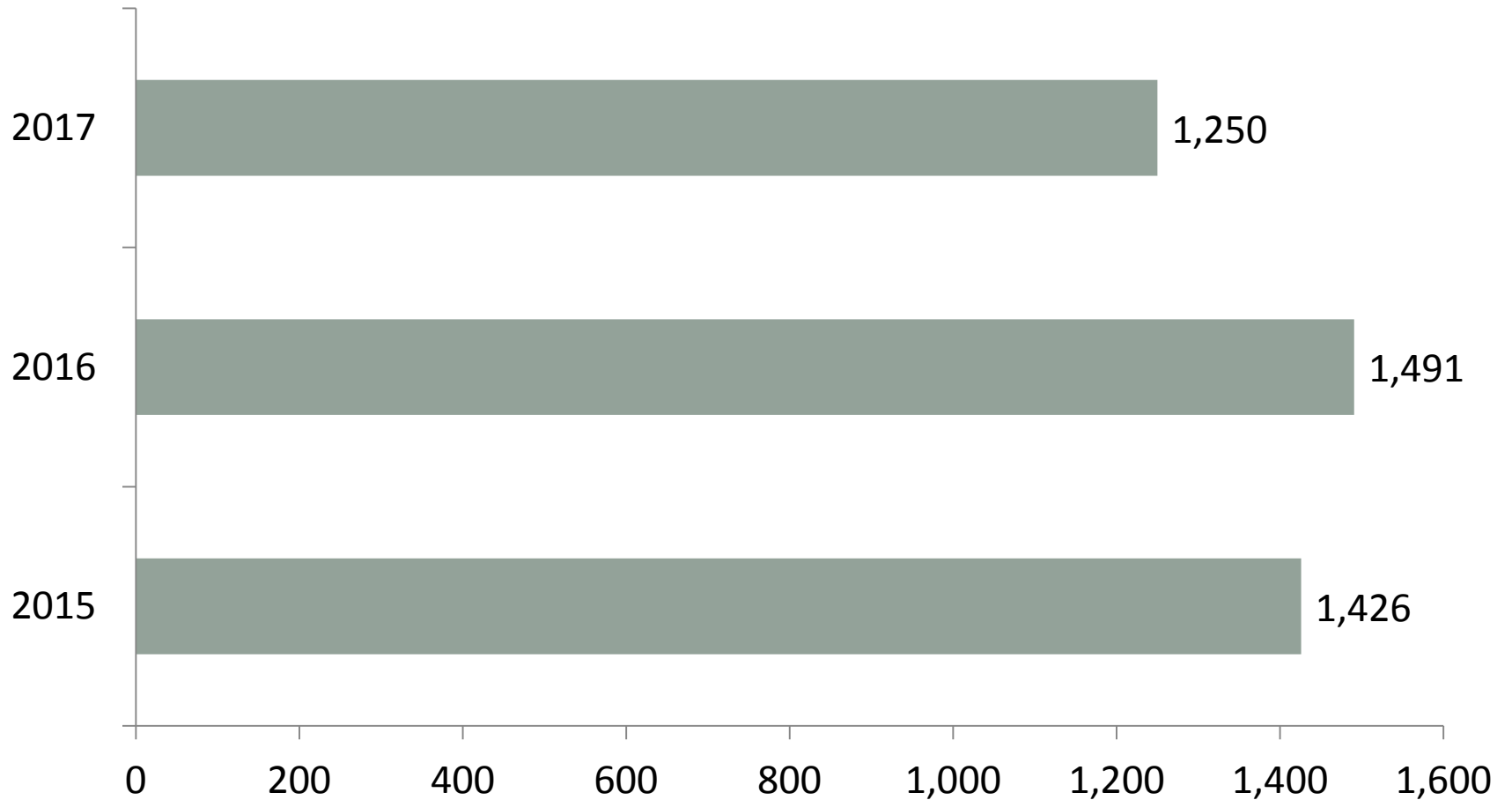


Uses Today

- Playground & splashpad
- Multi-purpose natural grass field:
 - 2 little league diamonds
 - 1 U12 (M) field
 - Uses: soccer, football, ultimate frisbee, little league baseball, softball, kickball



Field Hours of Use



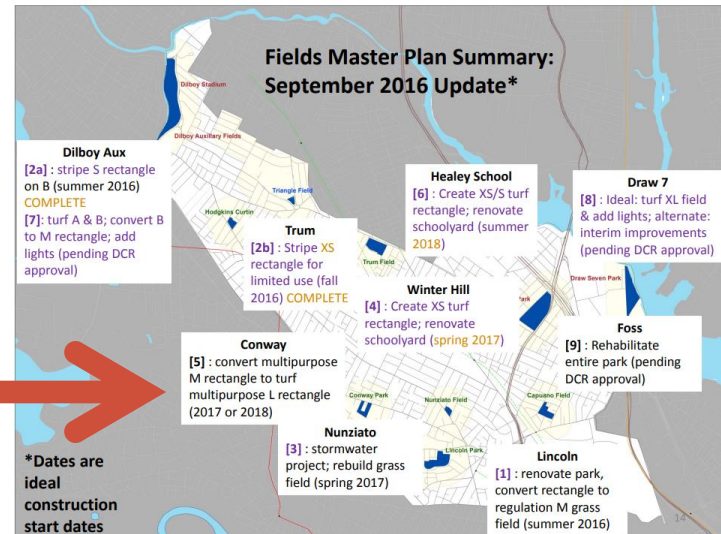
2. PROJECT OVERVIEW

Project Overview

1. 2016 Fields Master Plan: hours and quality

“Conway

[5] convert multipurpose M rectangle to turf multipurpose L rectangle (2017 or 2018)”



2. Necessity to address the structural integrity of the retaining wall

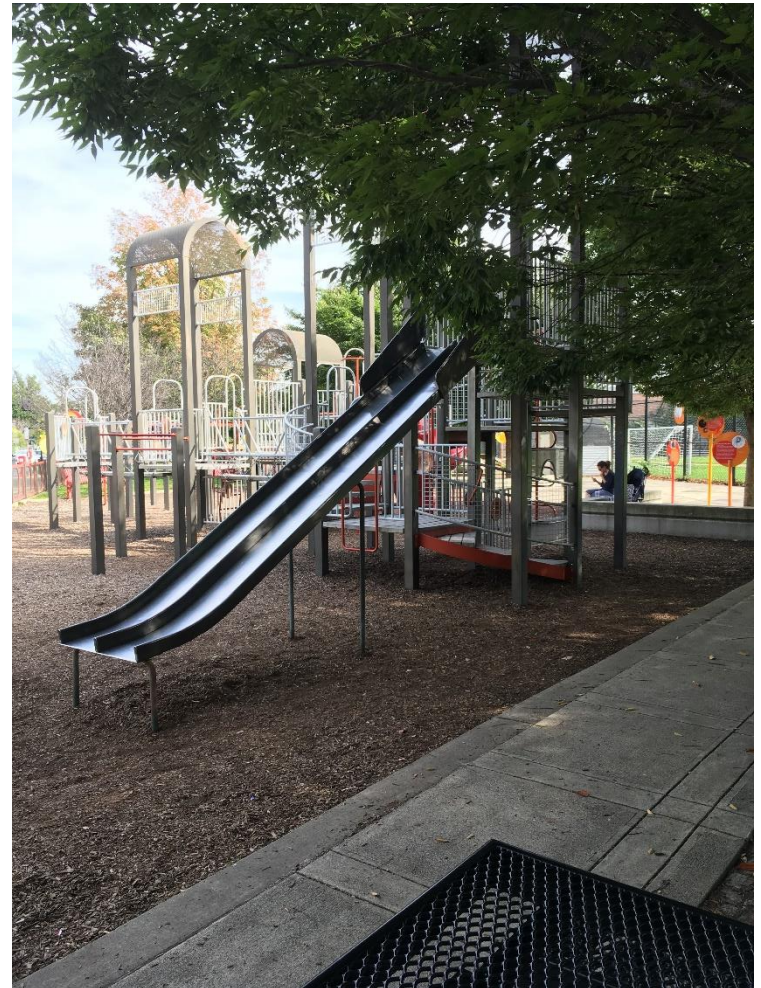
Timeline to Date

- Dec 2017: Lead and PCBs found at Conway
- Mar 2018: Supplemental testing, Notified MassDEP, Park Closed
- June 2018: Met with MassDEP & EPA
- July-Dec 2018: Detailed site assessment and data eval
- Jan-June 2019: Evaluation of Remedial Options, Conceptual Remedial Design
- May 2019: Test pits study
- Jun-Sep 2019: Conversations with EPA
- Sept-Nov 2019: Evaluation of EPA/City Cost-Sharing Options

Playground

EPA & DEP approved reopening the northwest portion of the playground in fall 2018.

The southeast portion remains closed as a precautionary measure.



Data Summary – Playground

- Northwest portion
 - PCB Concentrations non detect or below 1 ppm
 - Lead - 1 sample met standard, rest below.

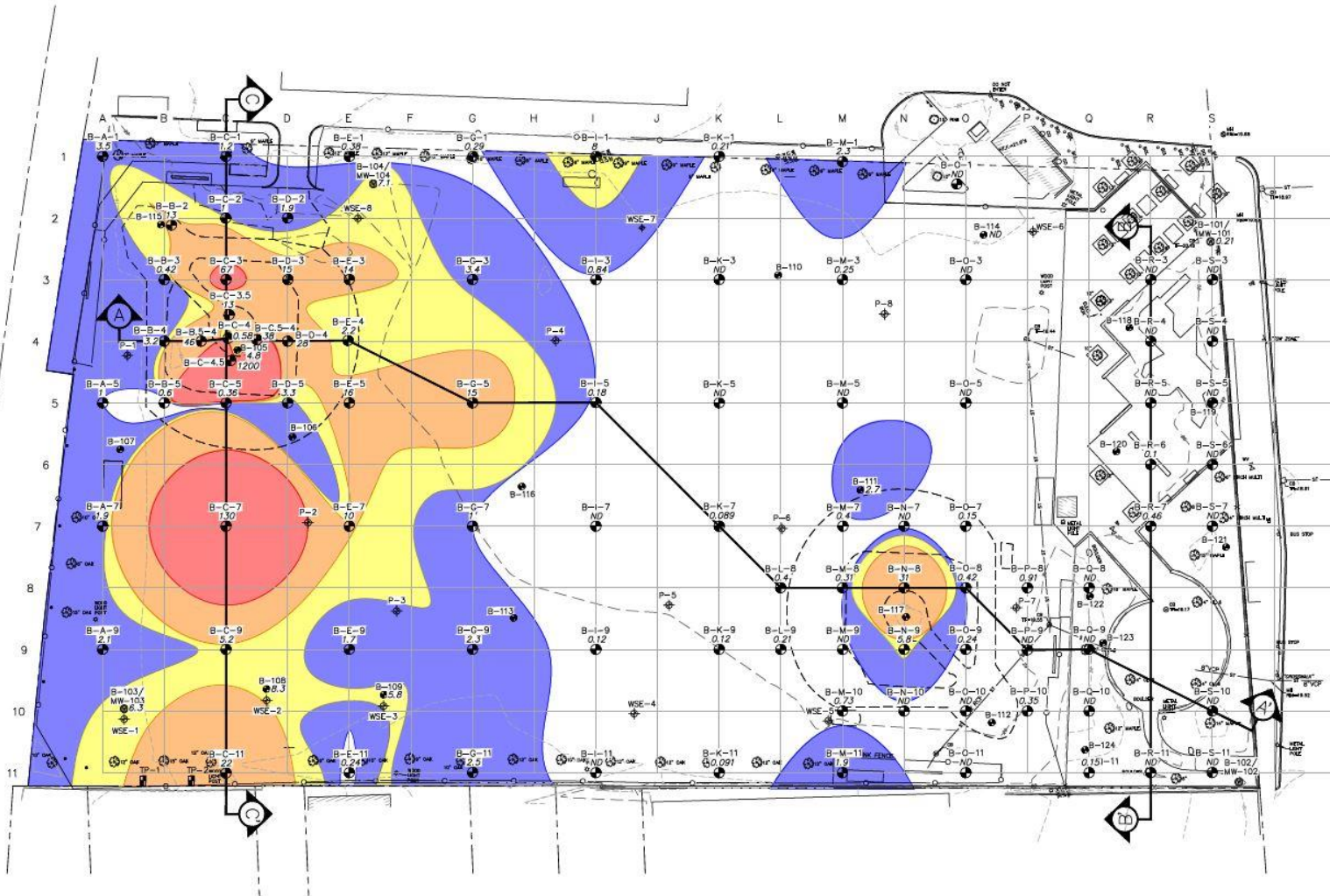
Parameter	Units	Min Conc.	Max. Conc.	No. of samples	EPC-Average All data	No. of samples	EPC-Average Surficial	MCP Method 1 Standard
Total PCBs	mg/kg	ND (<0.081)	0.27	39	0.07	20	0.09	1
Lead	mg/kg	4.2	200	35	63.82	18	67.91	200

Data Summary – Field

- Lower PCB concentrations closer to surface
- 0-6 inches (surface) not as impacted
- Highest concentrations are at greater depth and limited to the southwest portion of site

Depth Below Ground Surface	Non-Detect < 1 mg/kg	>/=1, < 5 mg/kg	>/=5, < 10 mg/kg	>/=10, < 50 mg/kg	> 50 mg/kg	Max Concentration
0 – 0.5 feet	24	22	21	7	0	26 mg/kg
0.5 – 1.5 feet	38	15	7	12	2	74 mg/kg
1.5 – 2.5 feet	38	19	4	11	2	1,200 mg/kg
2.5 – 3.5 feet	42	17	4	7	4	12,000 mg/kg
3.5 – 5.5 feet	53	7	5	1	8	20,000 mg/kg
5.5 – 7.5 feet	57*	7	1	6	3	2,600 mg/kg
7.5 – 9.5 feet	60*	2	1	1	1	40,000 mg/kg
9.5 – 11.5 feet	57*	3	1	1	0	49 mg/kg

PCBs at 1.5 to 2.5 feet below grade



- EXISTING CONDITIONS LEGEND:**
- TREE CANOPY
 - DECIDUOUS TREE
 - CONIFEROUS TREE
 - SHrub/BUSH
 - STUMP
 - UTILITY POLE
 - LIGHT POLE
 - HIGHLIGHT
 - WATER VALVE
 - GROUNDHOLE
 - MARKER
 - CURB/VALE
 - METAL POST/VALLAD
 - CONCRETE MONUMENT
 - CHAIN LINKED FENCE
 - OVERHEAD UTILITY WIRES
 - GAS LINE
 - WATER LINE & WATER VALVE
 - SANITARY SEWER
 - STORM SEWER
 - CURBING
 - UNDERGROUND ELECTRIC
 - UNDERGROUND CONDUIT
 - UNDERGROUND TELEPHONE
 - STONE WALL
 - PROPERTY BOUNDARY
 - ELEVATION CONTOUR

- SOIL BORING/MONITORING WELL LEGEND:**
- ⊕ SOIL BORING (OCTOBER/NOVEMBER 2017)
 - SOIL BORING (MARCH 2018)
 - ⊙ MONITORING WELL (MARCH 2018)
 - ⊕ SOIL BORING (JULY 2018)
 - ⊞ TEST PITS (OCTOBER 2017)

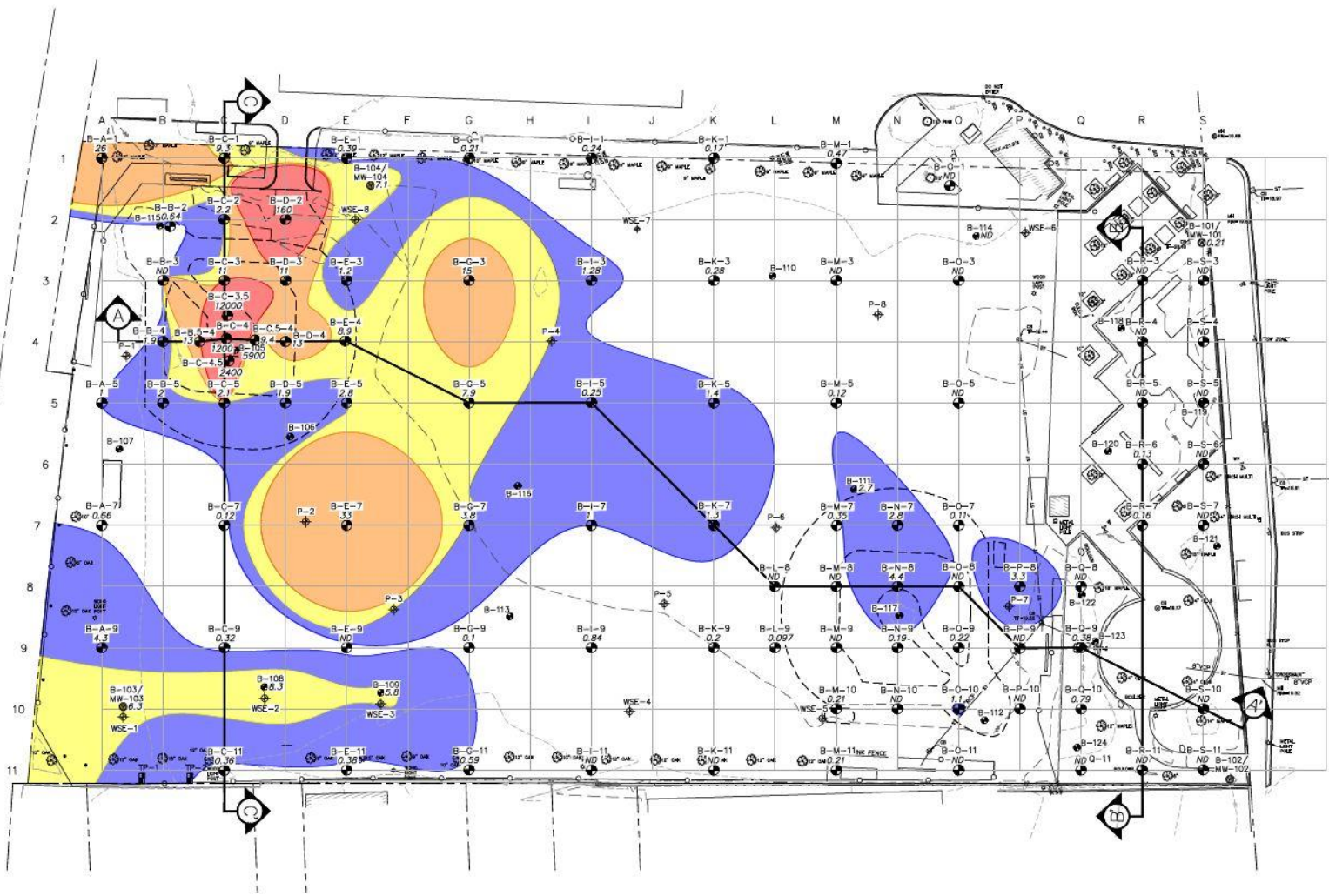
- PCB CONCENTRATIONS:**
- Blue: ≥ 1 PCBs <math>< 5</math> MG/KG
 - Yellow: ≥ 5 PCBs <math>< 10</math> MG/KG
 - Orange: ≥ 10 PCBs <math>< 50</math> MG/KG
 - Red: PCBs ≥ 50 MG/KG

NOTE:
P-SERIES AND WSE-SERIES SOIL BORINGS WERE NOT TESTED FOR PCBs.

GRAPHIC SCALE 1" = 20'

FIGURE SC
CITY OF SOMERVILLE, MASSACHUSETTS
CONWAY PARK
PCB DISTRIBUTION PLAN:
1.5 - 2.5 FEET
NOVEMBER 2019 SCALE: 1" = 20'

PCBs at 2.5 to 3.5 feet below grade



- EXISTING CONDITIONS LEGEND:**
- TREE CANOPY
 - DECIDUOUS TREE
 - CONIFEROUS TREE
 - SHRUB/BUSH
 - SINK
 - UTILITY POLE
 - LIGHT POLE
 - HOBNAUT
 - WATER VALVE
 - CURBING
 - UNDERGROUND ELECTRIC
 - CONDUIT
 - UNDER DRAIN
 - UNDERGROUND TELEPHONE
 - STONE WALL
 - PROPERTY BOUNDARY
 - ELEVATION CONTOUR
 - CHAIN LINKED FENCE
 - GAS LINE
 - WATER LINE & WATER VALVE
 - SANITARY SEWER
 - STORM SEWER
 - UNDERGROUND ELECTRIC
 - CONDUIT
 - UNDER DRAIN
 - UNDERGROUND TELEPHONE
 - STONE WALL
 - PROPERTY BOUNDARY
 - ELEVATION CONTOUR

- SOIL BORING/MONITORING WELL LEGEND:**
- ⊕ SOIL BORING (OCTOBER/NOVEMBER 2017)
 - SOIL BORING (MARCH 2018)
 - ⊕ MONITORING WELL (MARCH 2018)
 - ⊕ SOIL BORING (JULY 2018)
 - ⊕ TEST PITS (OCTOBER 2017)

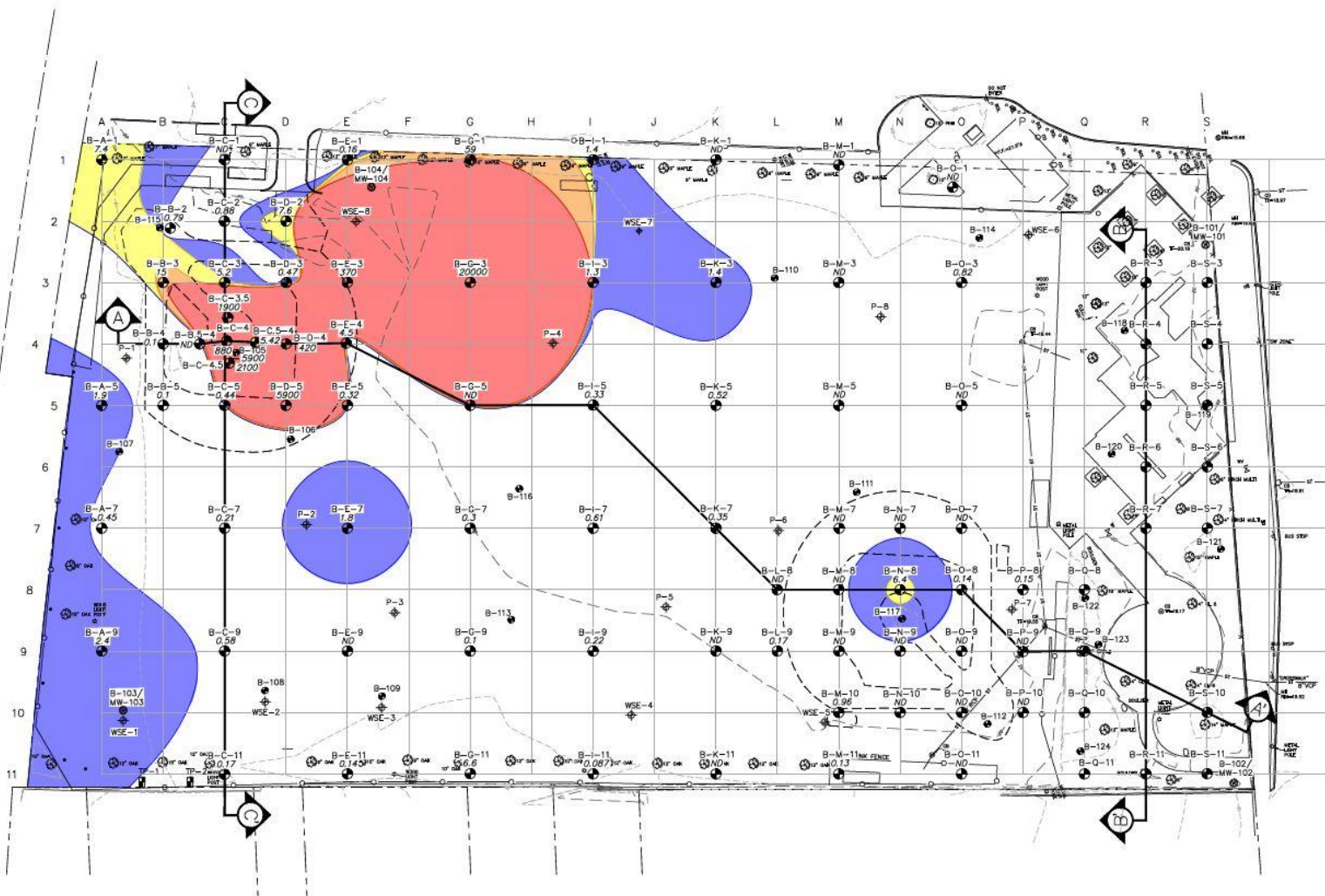
- PCB CONCENTRATIONS:**
- Blue: ≥ 1 PCBs <math>< 5</math> MG/KG
 - Yellow: ≥ 5 PCBs <math>< 10</math> MG/KG
 - Orange: ≥ 10 PCBs <math>< 50</math> MG/KG
 - Red: PCBs ≥ 50 MG/KG

NOTE:
P-SERIES AND WSE-SERIES SOIL BORINGS WERE NOT TESTED FOR PCBs.

GRAPHIC SCALE 1" = 20'

FIGURE 5D
CITY OF SOMERVILLE, MASSACHUSETTS
CONWAY PARK
PCB DISTRIBUTION PLAN:
2.5 - 3.5 FEET
NOVEMBER 2019 SCALE: 1" = 20'

PCBs at 3.5 to 5.5 feet below grade



- EXISTING CONDITIONS LEGEND:**
- ☐ TREE CANOPY
 - DECIDUOUS TREE
 - CONIFEROUS TREE
 - SHRUB/BUSH
 - SIGN
 - UTILITY POLE
 - LIGHT POLE
 - MONUMENT
 - WATER VALVE
 - MANHOLE
 - GUTTERGRAB
 - METAL POST/BOLLARD
 - CONCRETE MONUMENT
 - CHAIN LINKED FENCE
 - OVERHEAD UTILITY WIRES
 - GAS LINE
 - WATER LINE & WATER VALVE
 - SANITARY SEWER
 - STORM SEWER
 - CURBING
 - UNDERGROUND ELECTRIC
 - CONDUIT
 - UNDER DRAIN
 - UNDERGROUND TELEPHONE
 - STONE WALL
 - PROPERTY BOUNDARY
 - ELEVATION CONTOUR

- SOIL BORING/MONITORING WELL LEGEND:**
- ⊕ SOIL BORING (OCTOBER/NOVEMBER 2017)
 - SOIL BORING (MARCH 2016)
 - ⊙ MONITORING WELL (MARCH 2018)
 - ⊕ SOIL BORING (JULY 2018)
 - ⊞ TEST PITS (OCTOBER 2017)

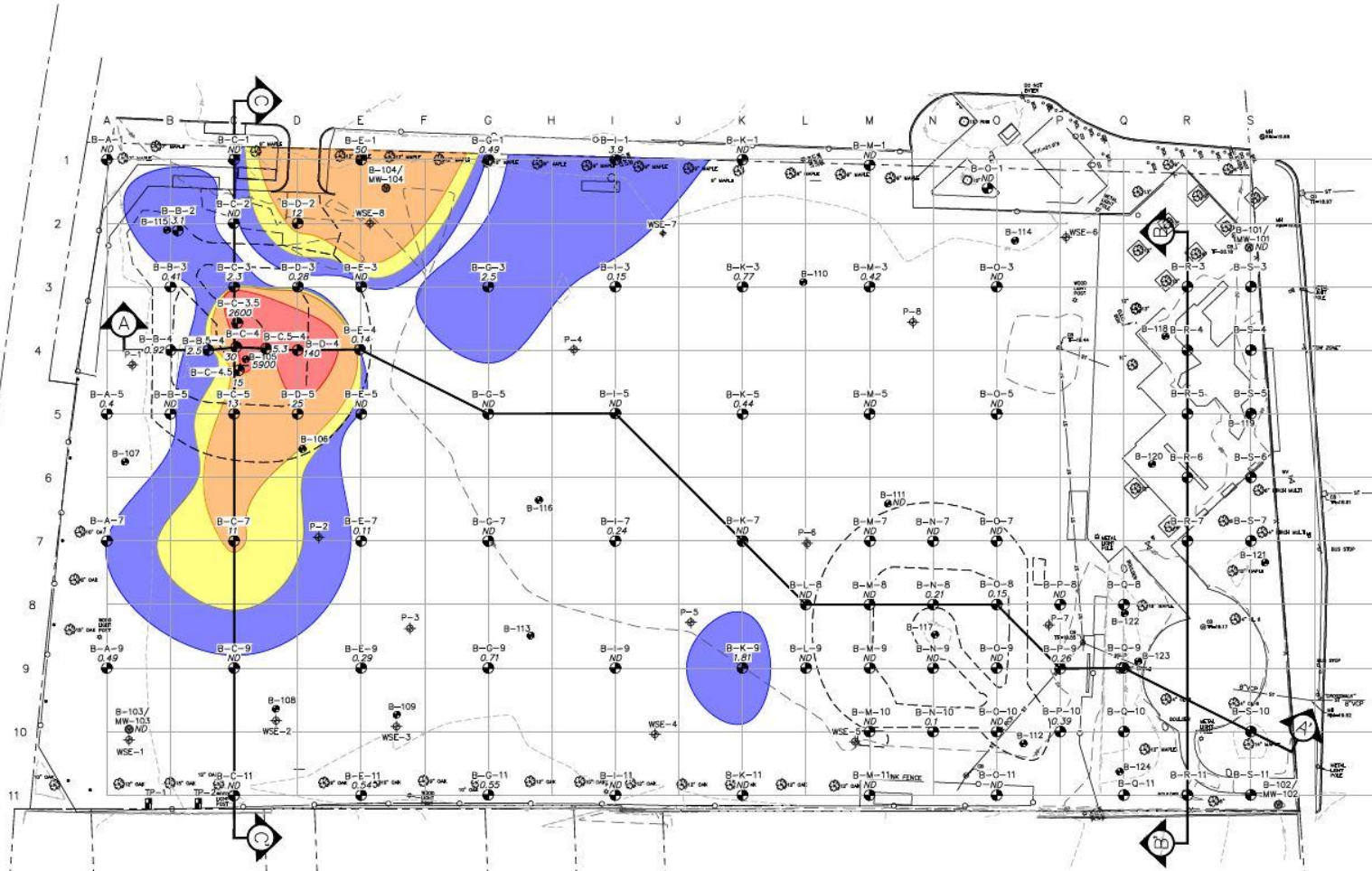
- PCB CONCENTRATIONS:**
- Blue: ≥ 1 PCBs <math>< 5</math> MG/KG
 - Yellow: ≥ 5 PCBs <math>< 10</math> MG/KG
 - Orange: ≥ 10 PCBs <math>< 50</math> MG/KG
 - Red: $\text{PCBs} \ge 50$ MG/KG

NOTE:
P-SERIES AND WSE-SERIES SOIL BORINGS WERE NOT TESTED FOR PCBs.

GRAPHIC SCALE 1" = 20'

FIGURE 5E
CITY OF SOMERVILLE, MASSACHUSETTS
CONWAY PARK
PCB DISTRIBUTION PLAN:
3.5 - 5.5 FEET
NOVEMBER 2019 SCALE: 1" = 20'

PCBs at 5.5 to 7.5 feet below grade



- EXISTING CONDITIONS LEGEND:**
- ⊕ TREE CANOPY
 - ⊙ DECIDUOUS TREE
 - ⊙ CONIFEROUS TREE
 - ⊙ SHrub/BUSH
 - ⊙ SHrub
 - ⊙ UTILITY POLE
 - ⊙ LIGHT POLE
 - ⊙ HYPHANT
 - ⊙ WATER VALVE
 - ⊙ DATCHMEN
 - ⊙ METAL POST/WALLAND
 - ⊙ CONCRETE WORKMENT
 - CHAIN LINKED FENCE
 - OVERHEAD UTILITY WIRES
 - GAS LINE
 - WATER LINE & WATER VALVE
 - SANITARY SEWER
 - STORM SEWER
 - CURBING
 - UNDERGROUND ELECTRIC
 - CONDUIT
 - UNDER DRAIN
 - UNDERGROUND TELEPHONE
 - STONE WALL
 - PROPERTY BOUNDARY
 - ELEVATION CONTOUR

- SOIL BORING/MONITORING WELL LEGEND:**
- ⊕ SOIL BORING (OCTOBER/NOVEMBER 2017)
 - SOIL BORING (MARCH 2018)
 - ⊙ MONITORING WELL (MARCH 2018)
 - ⊕ SOIL BORING (JULY 2018)
 - ⊕ TEST PITS (OCTOBER 2017)

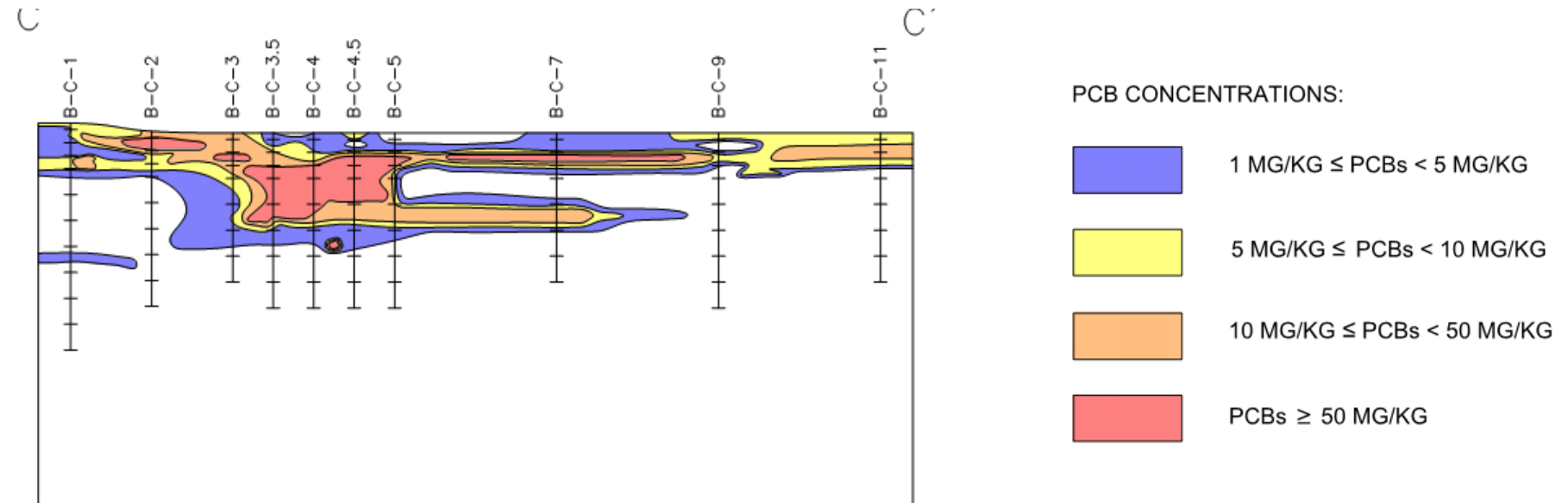
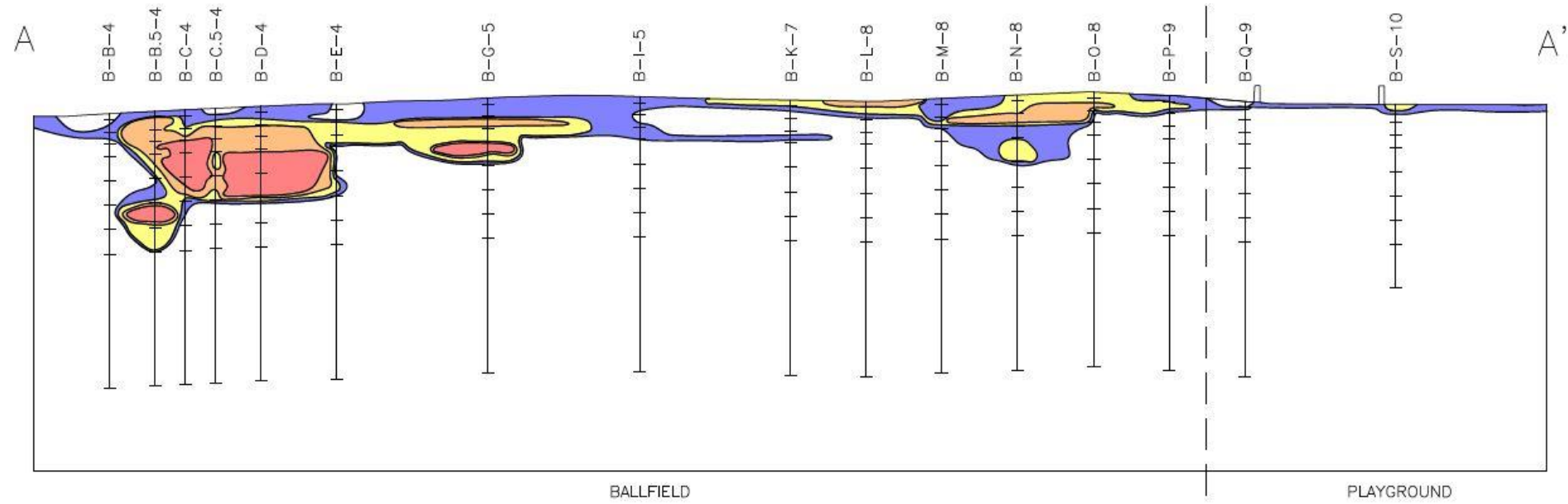
- PCB CONCENTRATIONS:**
- ⬜ ≥ 1 PCBs < 5 MG/KG
 - ⬜ ≥ 5 PCBs < 10 MG/KG
 - ⬜ ≥ 10 PCBs < 50 MG/KG
 - ⬜ PCBs ≥ 50 MG/KG

NOTE:
P-SERIES AND WSE-SERIES SOIL BORINGS WERE NOT TESTED FOR PCBs.



FIGURE 5F
CITY OF SOMERVILLE, MASSACHUSETTS
CONWAY PARK
PCB DISTRIBUTION PLAN:
5.5 - 7.5 FEET
NOVEMBER 2019 SCALE: 1" = 20'

PCB Cross-Sections





The suspected source material include buried paper capacitors.

What does the data mean?

- *Why are PCBs dangerous?*
- *Exposure/bioavailability*
- *Federally regulated - we are legally obligated to remediate*
- *Other risks (lead)*

Not a typical parks project.

**We are legally
obligated to remediate.**

3. REMEDIATION PLAN

Regulatory Process

Site is regulated by:

1. Massachusetts DEP

- Mass. Contingency Plan (MCP)
- LSP Oversight

2. US EPA

- Toxic Substance Control Act
- PCB sites
- Approval process

EPA Removal Program

Emergency Planning and Response Branch (EPRB)

- Provides funding to assist communities
- Provides technical and project management assistance
- **EPA FUNDS CAN ONLY BE USED FOR REMEDIATION**

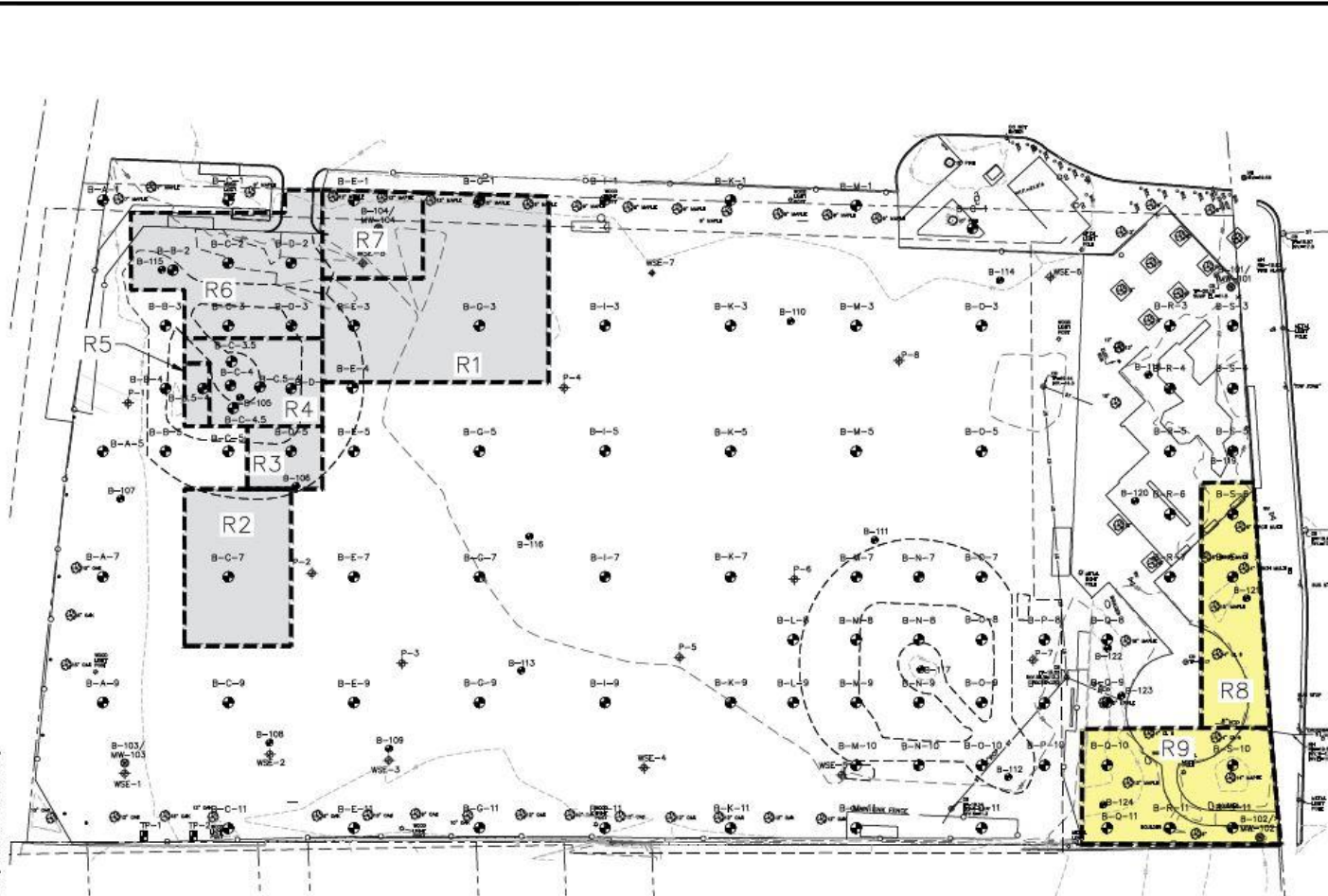
Pre-Remediation Site Prep

- Construct a controlled entrance
- Close off entire site to the public (including playground)
- Security measures to maintain restricted access
- Decontamination area for vehicles/staff exiting
- Monitor for dust at site perimeter and in active work zones
- Add'l regulatory and public safety measures

Remediation Steps

1. Pre-remediation site prep measures taken
2. Contaminated soil (≥ 50 ppm PCBs) excavated, removed, and disposed of off-site
3. Backfill area with soils below 50 ppm PCBs
4. Remove & dispose of soil necessary for field construction
5. Install a barrier (geotextile fabric)
6. Construct field

Red text - EPA FUNDS CAN BE USED



EXISTING CONDITIONS LEGEND

- TRUCK CANOPY
- DECIDUOUS TREE
- CONIFEROUS TREE
- DRIVE/SLUSH
- SEW
- UTILITY POLE
- WATER POLE
- WATER VALVE
- MANHOLE
- CATCH-BASIN
- METAL POST/WALLAND
- MONITORING WELL
- CHAIN LINKED FENCE
- OVERHEAD UTILITY WIRES
- GAS LINE
- WATER LINE & WATER WALK
- SEWERY SEWER
- STORM SEWER
- CURBING
- UNDERGROUND ELECTING
- CONDUIT
- UNDER DRAIN
- UNDERGROUND TELEPHONING
- STONE WALL
- PROPOSED LIMIT OF CONSTRUCTION
- CONCRETE MONUMENT

LEGEND:

- SOIL BORING (OCTOBER/NOVEMBER 2017)
- SOIL BORING (MARCH 2018)
- MONITORING WELL (MARCH 2018)
- SOIL BORING (JULY 2018)
- TEST PITS (OCTOBER 2017)
- PCB EXCAVATION AREA
- PLAYGROUND REMEDIATION AREA

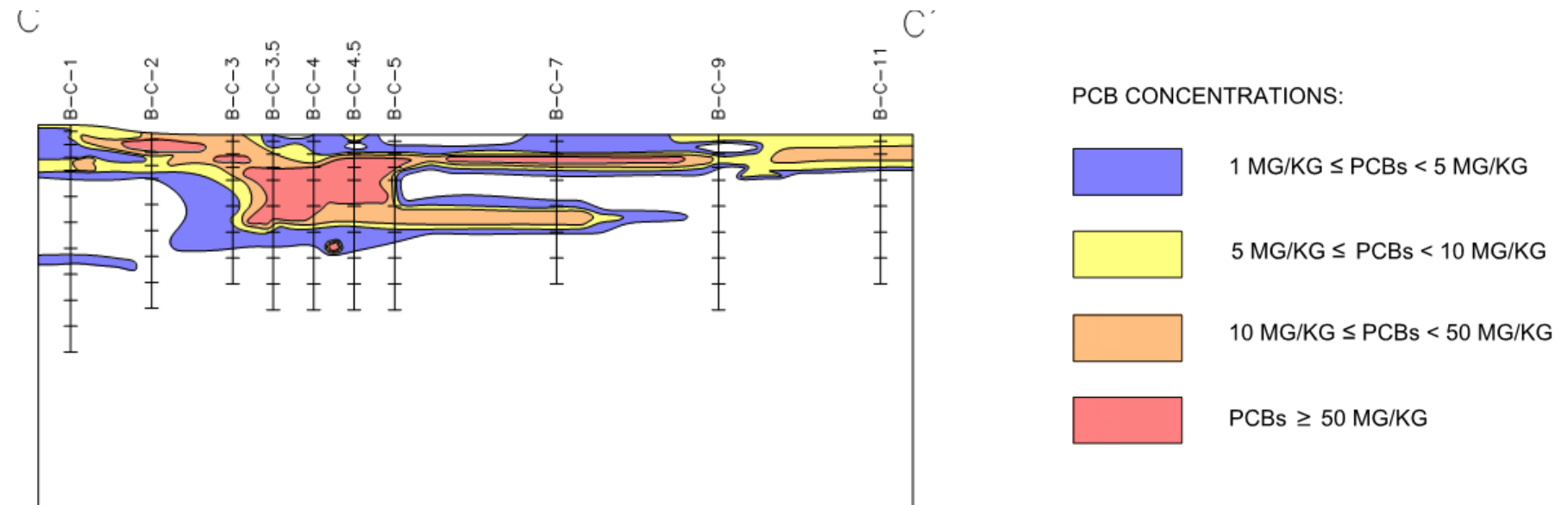
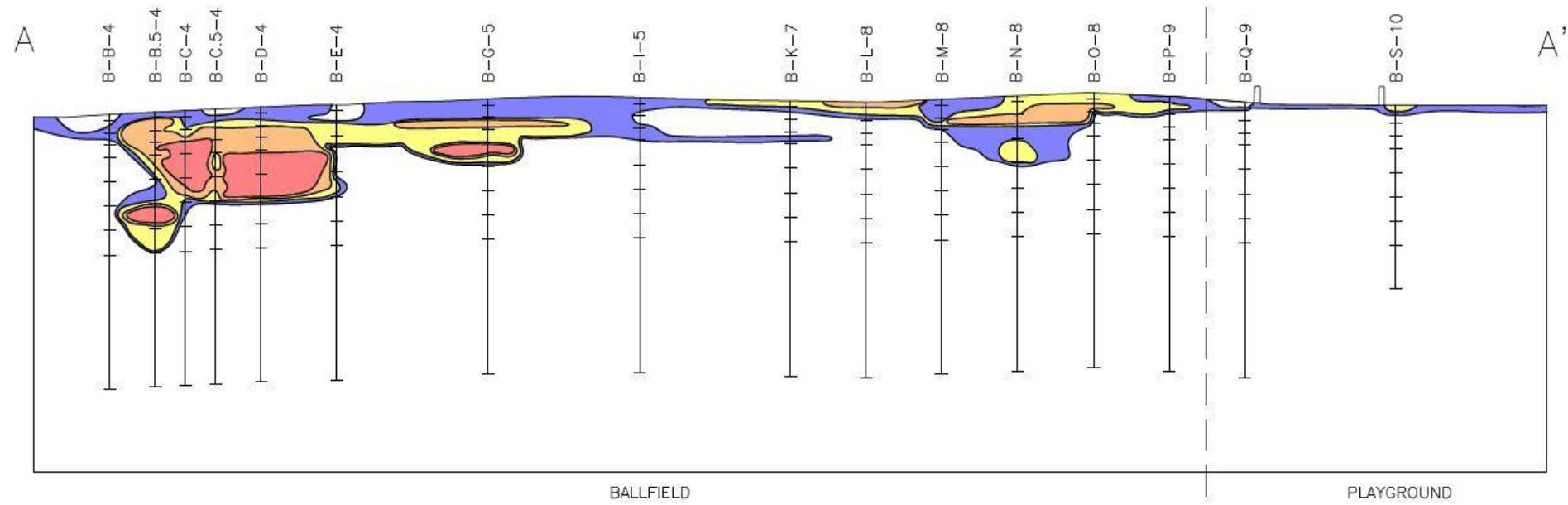


TOTAL EXCAVATION DEPTHS	
REMEDIAL CELL	DEPTH (FT BGS)
R1	6.0
R2	3.0
R3	6.0
R4	8.0
R5	10.0
R6	4.0
R7	12.0
R8	1.0
R9	2.0

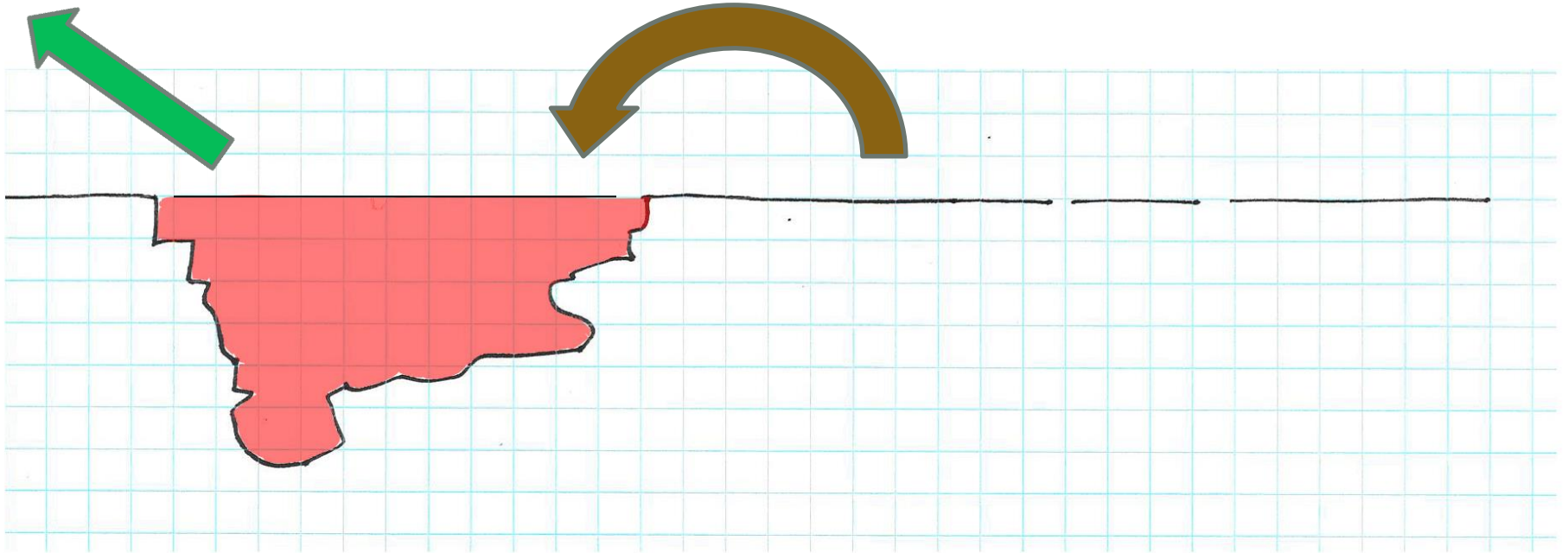
FIGURE 1
CITY OF SOMERVILLE, MASSACHUSETTS
CONWAY PARK
**REMEDIAL SITE PLAN
FOR AREAS \geq 50PPM**
MARCH 2019 SCALE: 1" = 20'

Weston & Sampson
Weston & Sampson Engineers, Inc.
5 Centennial Drive, Peabody, MA 01960

PCB Cross-Sections

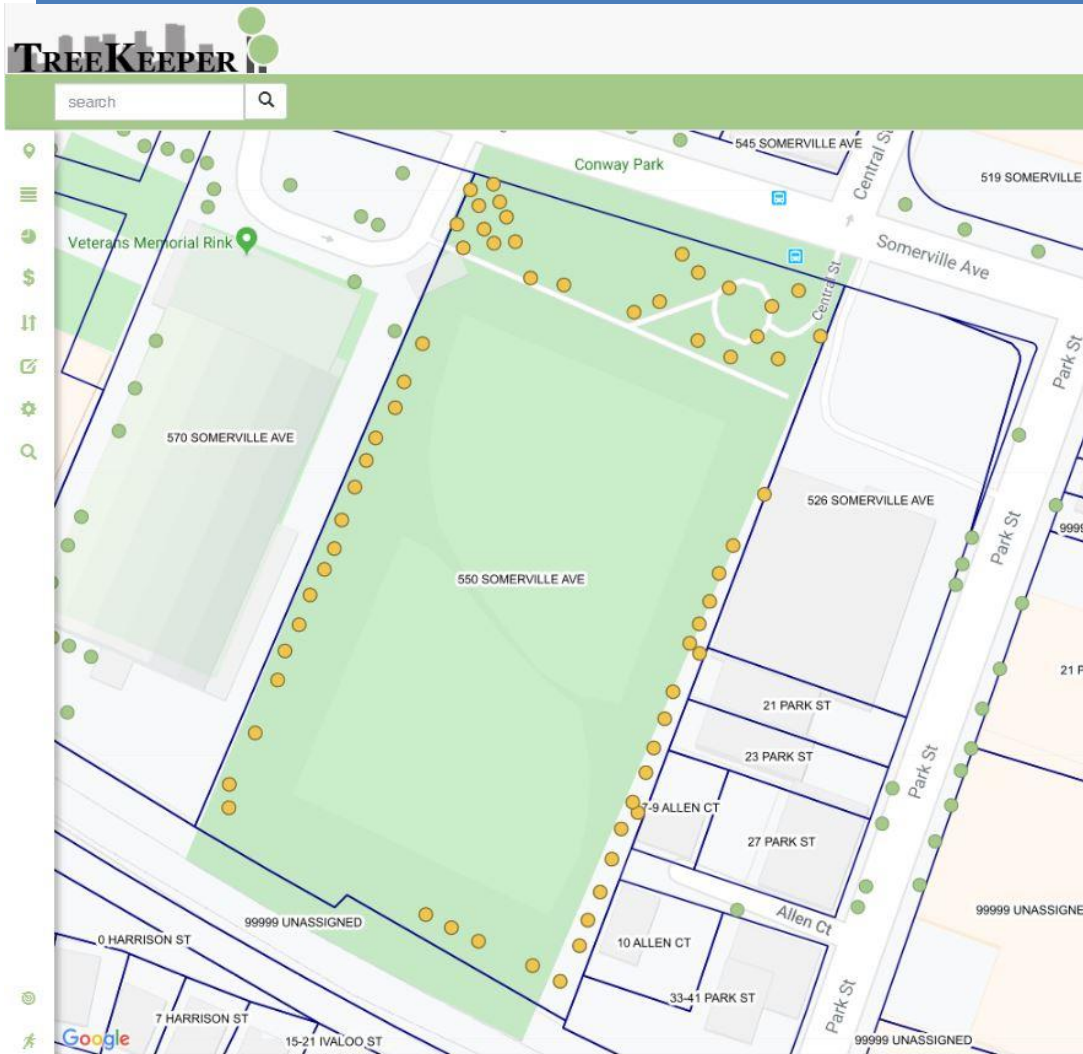


1. Contaminated (≥ 50 ppm PCBs) soil removed from site



2. Area backfilled with soils containing less than 50ppm PCBs from site

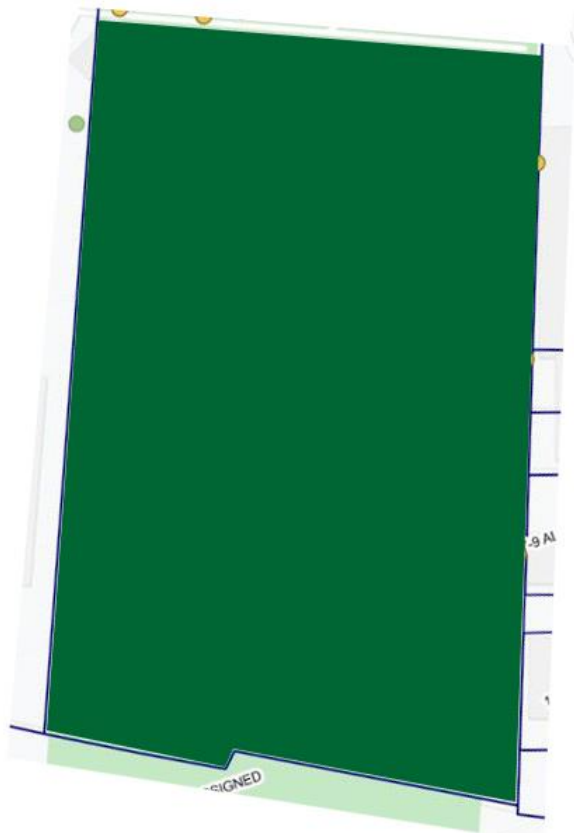
Remediation Plan: Trees



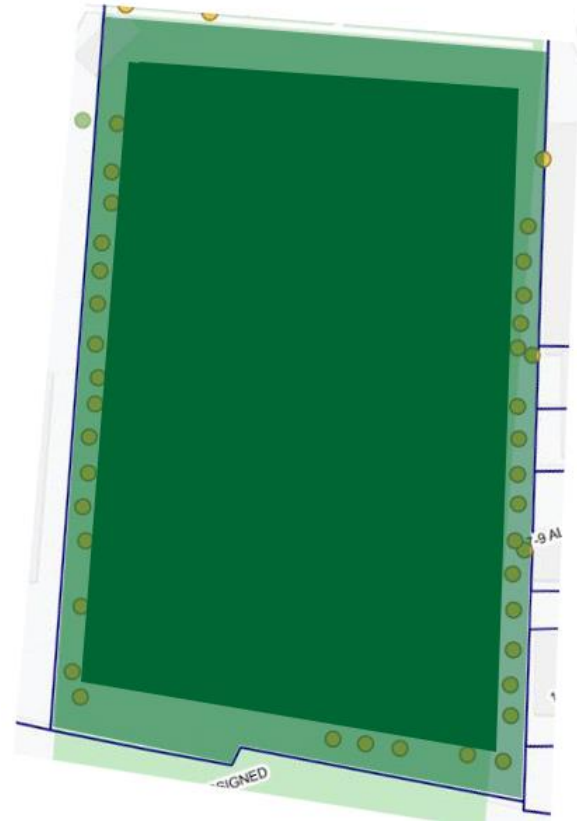
- Trees in remediation areas must be removed
- Minimize removal
- Replace trees

Remediation Plan: Trees

Maximum U14 field size leaves
no room to replant trees



City will install smaller U14 field to
create room to replant trees



Athletic Field

Once most highly contaminated soil is transported and disposed of, there are two options:

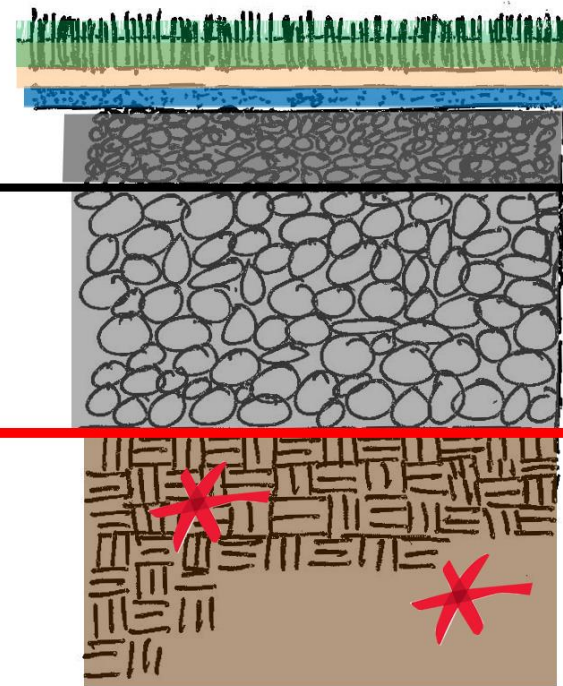
- Cover with 3 feet of clean fill
- Alternative cap/cover (synthetic field option)
- Close with a risk assessment and Activity and Use Limitation

Synthetic Turf Option

Synthetic Turf
Infill Material
Shock Pad
Smaller Permeable Aggregate
Landscape Fabric

Larger Permeable Aggregate
BARRIER

Historic Fill



REMOVE
18" SOIL

Layers of the field system



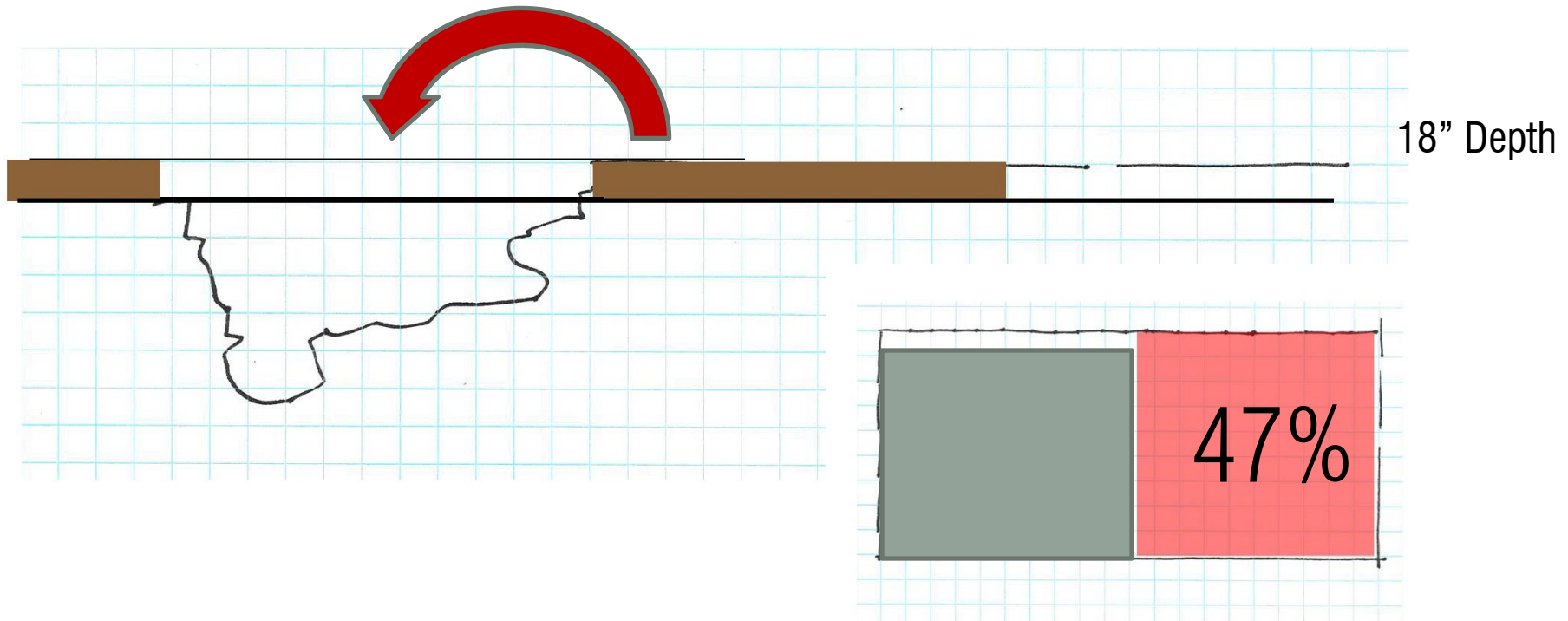


Synthetic Turf Option

1. Removal of contaminated soil
2. Backfill with “clean” soil (<50 ppm)
3. City removes remaining soil to 18” depth
4. Add a required barrier at 18”
5. Install field subbase
6. Install synthetic turf system

EPA FUNDS CAN BE USED

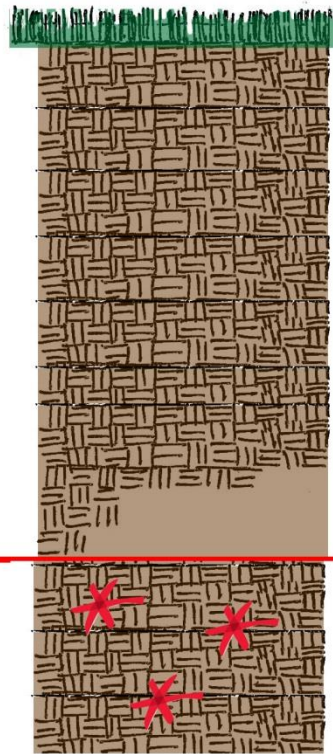
backfill with “clean” soil



at 18” depth, 47% of site used as backfill
(53% removed & disposed of by City of Somerville)

Natural Grass Option

**REMOVE
36" SOIL**



Natural Grass

**High Performance
Soil Mix**

BARRIER

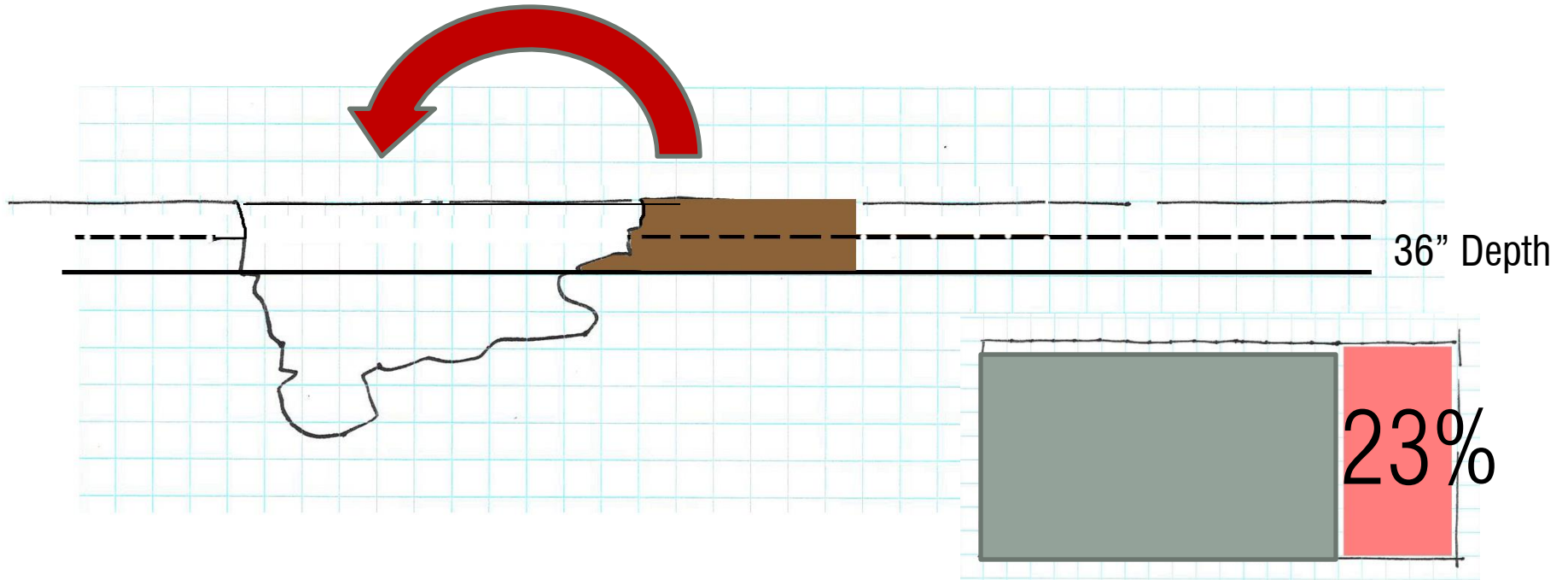
Historic Fill

Natural Grass Option

1. Removal of contaminated soil
2. Backfill with clean soil
3. City removes remaining soil to 36" depth
4. Add a required barrier at 36"
5. Install field subbase
6. Install natural grass
7. Two growing seasons (spring & fall)

EPA FUNDS CAN BE USED

backfill with “clean” soil



at 36" depth, 23 % of site used as backfill
(77% removed & disposed of by City of Somerville)

Comparison of Options

Action	Synthetic Turf	Natural Grass
Depth of Soil to be Removed & Disposed of (R & D) *	18" (1.5 feet)	36" (3 feet)
Quantity of Soil for R & D *	4,300 tons	12,400 tons
Trucking Impact *	145 truckloads	415 truckloads
R & D cost to City *	\$650,000	\$1.8 Million
Remediation time	15 months	17 months
Field Installation	3 months	1 months
Field Growing Season	0	12 months (2 growing seasons spring and fall)

Represents soil removal required for field construction, which is in addition to EPA removal of soil with PCB concentrations greater than/equal to 50 ppm

Summary

	Synthetic Turf	Natural Grass
Total cost to City	\$3 million plus field	\$4.2 million plus field
Total truckloads through city	270	540
Start to finish timeline	1.5 years	2.5 years
Hours available for permitting	3,850	500-800

Decision Making Summary

- Seriousness of contaminants
- Cost of remediation
- Disturbance of remediation
- Timeline
- Hours of play needed for youth

Synthetic turf is the option chosen by the City of Somerville at Conway park.

Synthetic Turf Conversations

1. 3 synthetic turf fields constructed in Somerville in last 3 years (Winter Hill Schoolyard, East Somerville Schoolyard, Capuano Field). We have verified that PFAS were not used in manufacturing. We can control this in our specs.
2. These fields were infilled with sand or plant-based infill



ATHLETIC FIELDS MASTER PLANNING Staff Report: Public Hearing

Jill Lathan, Director of Parks & Recreation
Luisa Oliveira, ASLA, Senior Planner for Landscape Design, OSPCD
Emily Monea, SomerStat Director
November 15, 2016
Somerville, MA

City-owned fields: balance

	Grass	Turf
Conway (multiuse)		X
Capuano		X
ESCS		X
Winter Hill		X
Hodgkins-Curtin	X	
Lincoln diamond	X	
Lincoln rectangle	X	
Nunziato	X	
Trum (multi use)	X	
SHS (new)		X
Healey (new)		X
Total	5	6

Infill Comparison

	Petroleum Based					Sand	Plant Based			Living Grass
Infill Type	Post-Consumer Tire Crumb Rubber (SBR)	Post-Industrial Product Grinds	New Synthetic Crumb Rubber (EPDM)	New Plastic Crumb (TPE) Thermoplastic Elastomer	New Acrylic Polymer Coated Sand	Sand (Post-Industrial Application)	Coconut Fiber Over Sand	Coconut Fiber & Cork Mix	Cork	Grass Turf in Soil
Fields in PP&R Permit System	6	2								180
Infill Image										
Management Considerations										
Health										
Chemical Exposure	●	●	●	●	●	●	●	●	●	●
Sports Injuries	●	●	●	●	●	●	●	●	●	●
Heat Exposure	●	●	●	●	●	●	●	●	●	●
Environment										
Carbon Footprint	●	●	●	●	●	●	●	●	●	●
Water Consumption	●	●	●	●	●	●	●	●	●	●
Reuse / Recyclability	●	●	●	●	●	●	●	●	●	●
Recreation Value										
Hours of play available	●	●	●	●	●	●	●	●	●	●
Reliable Playability	●	●	●	●	●	●	●	●	●	●
Cost										
Installation & Replacement	●	●	●	●	●	●	●	●	●	●
Annual Maintenance	●	●	●	●	●	●	●	●	●	●
Total Cost Over 20 Years	●	●	●	●	●	●	●	●	●	●
Legend										
	● Post Consumer Tire Crumb Rubber	● Post Industrial Product Grinds	● New Synthetic Crumb Rubber (EPDM)	● New Plastic Crumb (TPE) Thermoplastic Elastomer	● New Acrylic Polymer Coated Sand	● Sand	● Coconut Fiber over sand	● Coconut Fiber & Cork Mix	● Cork	● Grass Turf in Soil
	● Area of Concern	● Manageable Concern	● Manageable	● Manageable Benefit	● Area of Benefit					

Comparison of Synthetic Turf Infill Materials

Updated July 2016 This information will be monitored, reevaluated and updated periodically.



PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland

4. NEXT STEPS

- Request City Council funding for field design (includes retaining wall, trees, areas that may need rebuilding in splash pad/playground)
- Finalize scope with EPA
- Sign agreement with EPA
- Bid remediation project
- Bid Field project
- CONSTRUCTION
- PIP process and EPA public process on going

5. QUESTIONS?

For more information:

Fields Master Plan:

www.somervillema.gov/departments/ospcd/psuf/public-space

Conway Project Page:

<https://www.somervillema.gov/conwayfield>

Sign up for updates on the project or to be notified of the Public Involvement Process (PIP) on the project page.

Stay Informed

www.somervillema.gov/conwayfield

PIP@somerville.gov

City of Somerville Contacts:

Arn Franzen, Project Manager

Afranzen@somervillema.gov

Luisa Oliveira, Director Public Space & Urban Forestry

LOliveira@somervillema.gov

End of Slideshow

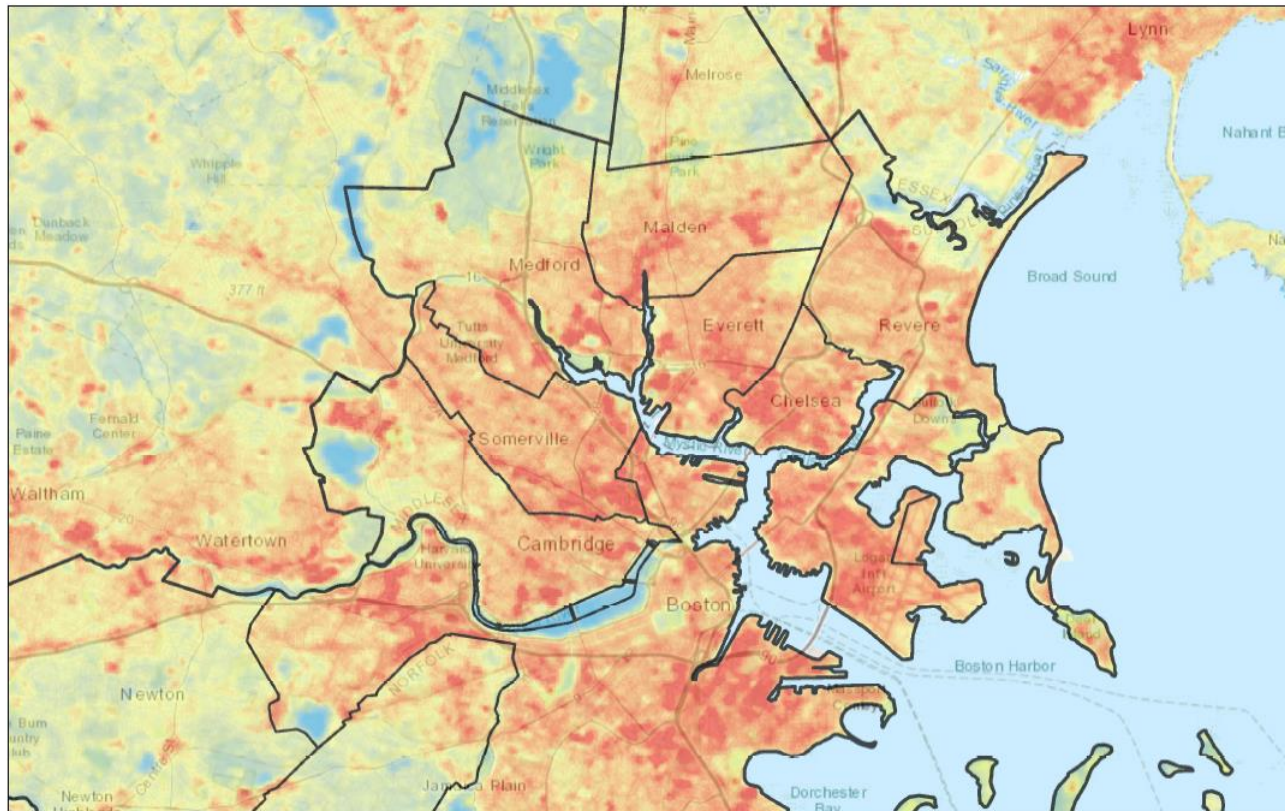
Supplement Data Used in Answering Questions

Heat Island

- The Boston region is in an urban heat island- a playing field is too small to impact this
- Natural grass does not capture greenhouse gas emissions.
- Synthetic artificial turf fields are not known to be heat sinks.

Heat Island

Metro Mayors CSC



November 7, 2019

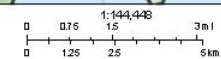
Study Area

Municipalities

Average Daytime
Land Surface
Temperature
(Landsat)

High : 139.746

Low : 64.0012

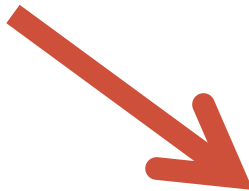


The Trust for Public Land
Copyright 2017

Surface Temperatures

- Trees will be planted to provide shade outside the field.
- Hydration is key.
- No one should be on fields during excessive heat.

“During times of extreme heat, do not play on the field. Always keep players hydrated.”



The sign is a green rectangular poster with white text and icons. At the top left is the Seal of the State of Tennessee. The title 'CAPUANO FIELD RULES & REGULATIONS' is centered. Below the title are four columns of text in Spanish, English, and Chinese, detailing rules for school use and general field safety. At the bottom, there are three icons: a dog on a leash, a person with a cigarette, and a person with a trash can. A phone number '311' is also present.

REGLAS & REGULACIONES
DURANTE LAS HORAS DE ESCUELA, SOLAMENTE LOS ESTUDIANTES DE LA ESCUELA SON PERMITIDOS.
DURANTE LOS TIEMPOS PERMITIDOS, SOLO PERSONAS AUTORIZADAS SON ADMITIDAS.
NO VEHÍCULOS DE NINGUNA CLASE EN LA GANCHA.
• NO perros ni mascotas de ningún tipo
• NO alcohol, alimentos ni bebidas, incluyendo chicle, semillas, bebidas deportivas, etc.
• NO fumar ni use productos de tabaco
• NO botellas ni contenedores de vidrio
• NO sillas plegables ni cualquier otro tipo de mobiliario de exterior
• NO bicicletas
• NO juego golf
• NO tix de las fibras de césped o relleno
Durante los días de calor extremo, no juegue en el campo. Mantenga siempre a los jugadores hidratados.

REGRAS & REGULAMENTOS
DURANTE O HORÁRIO ESCOLAR, SOMENTE OS ALUNOS DA ESCOLA HILL SCHOOL SÃO AUTORIZADOS A UTILIZAR O CAMPO.
DURANTE OS HORÁRIOS RESERVADOS, SOMENTE PESSOAS AUTORIZADAS PODEM UTILIZAR O CAMPO.
PROIBIDO VEÍCULOS NO CAMPO
• PROIBIDA a entrada de cães ou animais de nenhuma espécie no campo
• PROIBIDO o consumo de álcool, alimentos e bebidas, chicletes, sementes, etc.
• PROIBIDO fumar e usar tabaco
• PROIBIDO o porte de garrafas ou recipientes de vidro
• PROIBIDO o porte de cadeiras dobráveis ou qualquer tipo de mobiliário sobre o campo
• PROIBIDO o porte de bicicletas
• PROIBIDO o uso do campo para a prática de golfe
• PROIBIDO puxar as fibras de grama ou fazer qualquer tipo de enserto
Durante os períodos de extremo calor, não jogue no campo. Mantenha os jogadores hidratados.

REG AK REGLEMAN
PANDAN LĒKOL LA APĀNSKYONE, SELĒMAN LĒV NĀN LĒKOL LA GEN PĒMISYON.
PANDAN MOMAN PĒMISYON AN, SELĒMAN MOUN KI GEN PEMI GEN DWA.
OKENN VEYIKIL NĒNPŌT TIP NĀN TERĒN AN.
• Okenn chyen ōwva animal domestik nan nenpŏt kalite
• Pa dwe genyen okenn alkŏl, manje, bwasan makwe, chiklet, gran, bwasan sportif etc.
• Pa finnen ni siparet ōwva pwovŏl tabak de tout sŏt
• Okenn bonty ōwva konteni de tant sŏt
• Okenn chye plyani e nenpŏt tip de mŏb pos deyo.
• Okenn bisiklet.
• Okenn jwet golf.
• Pa dwe nale fib zeb ōwva rempisa
Li fi fe che anpil, pa jwe nan teren an. Toujou kenbe jwv yo idrate.

Call 311 to report problems.

Player Safety

Concussion and abrasion

- Gmax tests: measure impact attenuation – no one type of field is “better-dependent on the condition of the field

We cannot currently meet demand for playing hours on our fields:

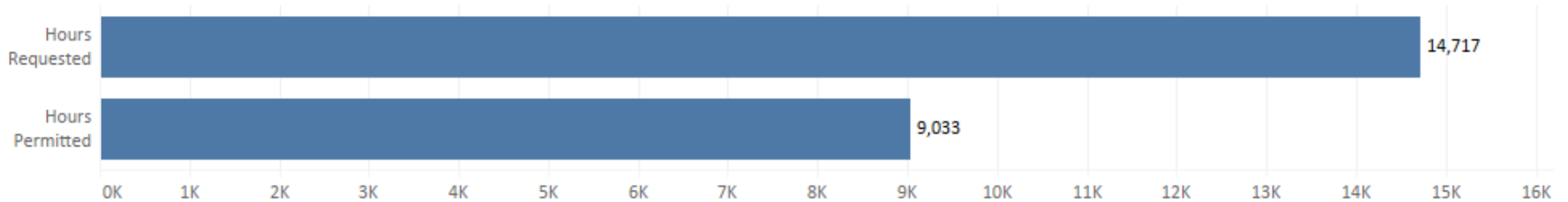
We currently have **5,684** hours requested that we cannot permit annually.

Youth soccer has adapted by doubling up practices. This means that there are about **3,000** hours of completely unmet demand each year.

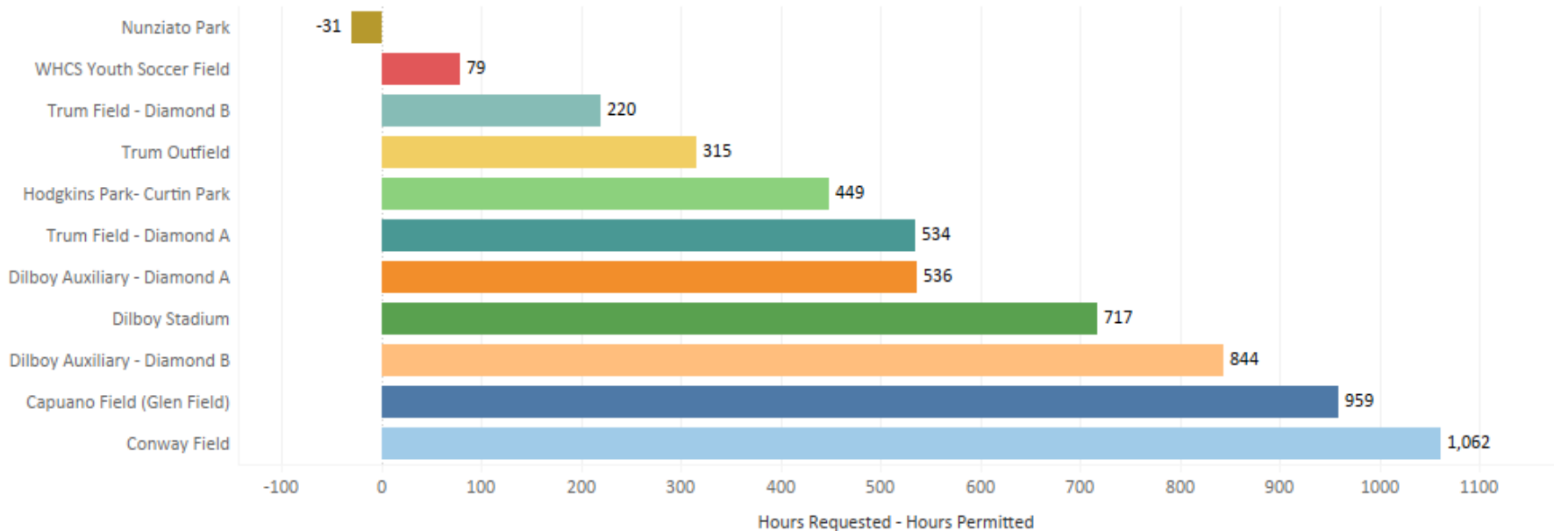
More information about fields use data in Fields Master Plan.

We cannot currently meet demand for playing hours on our fields

Hours Requested vs Hours Permitted



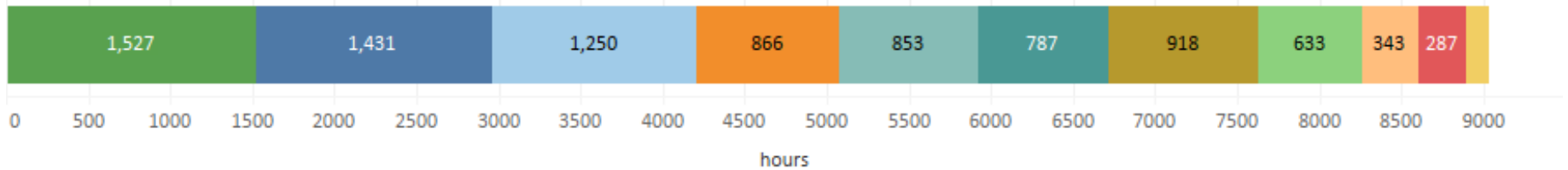
Difference between Hours Requested and Hours Permitted by Field



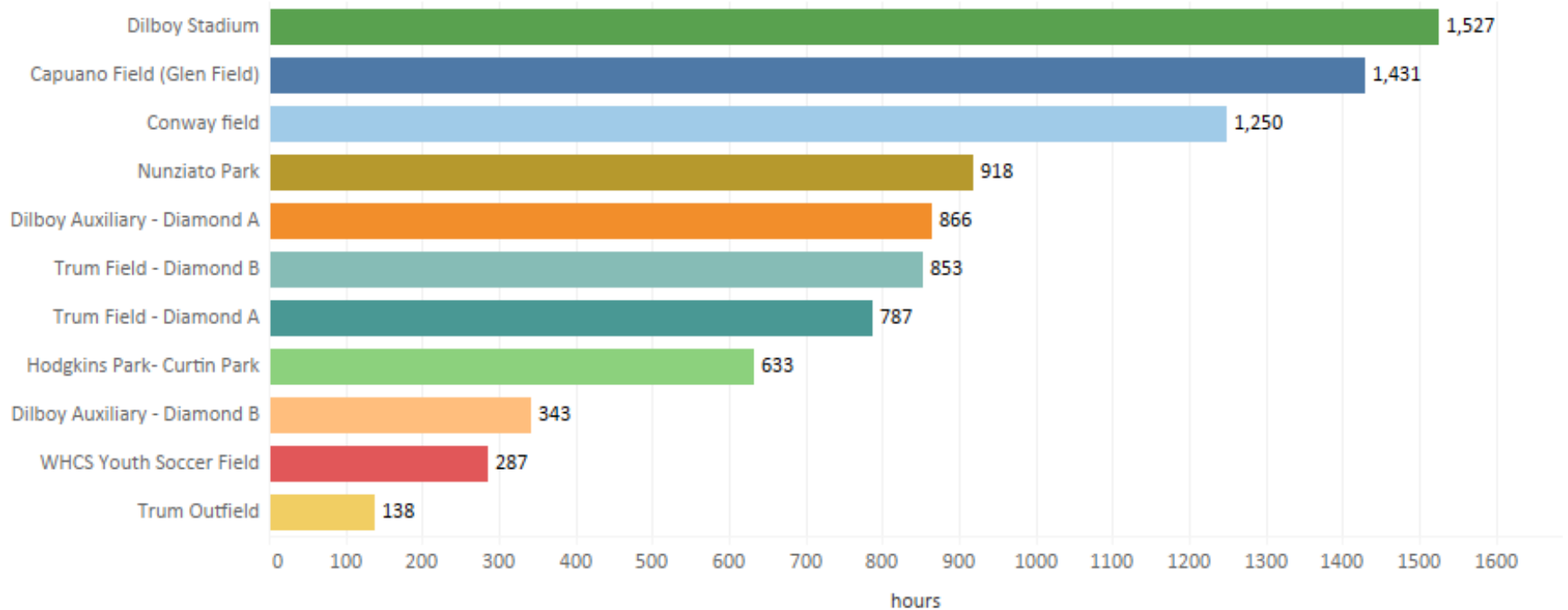
Over 9k hours of field use permitted in 2017

Somerville owned or managed fields only

Total Field Reservations



Reservations in 2017



Demand for Conway does not support natural grass

City policy: Natural grass fields should not be permitted for more than **500-800** hours (rectangle-diamond.)

Conway had been permitted as if it was artificial turf with **1,389** hours permitted before closed.

$1,389 - 650 = \mathbf{739}$ hours of play removed from Conway

We're working to fill this gap

Anticipated New Athletic Field Capacity	Year Open	Size	Added Peak Hours
Conway Park	2020 or 2021	U14/Large	0
Dilboy Auxiliary (adding lights)	2021 or 2022	U14/Large	546
Somerville High School	2021	U12/Medium (non-regulation)	1,638
Healey School	2022	U12/Medium	1,638
Total new peak hours:			3,822

Working to provide a range of field options.

Improved management practices have increased the quality of our natural grass fields.

- 3 years of organic lawn care
- Measurable improvement
(porosity, density of growth, planarity, grass to weed, etc.)

Field Hours Summary

City Policy: New Natural Grass Fields

500 hours Rectangle, 800 hours Diamond

Synthetic Turf Fields:

from March 1- Dec 1, 8 am -10 pm

Total of 3,850 hours PERMIT-able

PEAK HOURS: Mon- Friday 3pm-10pm spring 7 fall =
910 hours

Financial analysis

15-year lifecycle, U12 field

	STMA (2008) & Millar/Loan (unknown) Low Estimates		STMA (2008) & Millar/Loan (unknown) High Estimates	
	Grass	Turf	Grass	Turf
Construction	\$315,000	\$292,500	\$450,000	\$495,000
Maintenance	\$112,500	\$75,000	\$375,000	\$75,000
Replacement	\$17,500	\$270,000	\$25,000	\$270,000
Disposal	\$0	\$45,000	\$0	\$45,000
15-year lifecycle cost	\$445,000	\$682,500	\$850,000	\$885,000
Usable athletic hours per year	500	1,638	500	1,638
Total usable athletic hours (15 years)	7,500	24,570	7,500	24,570
Cost per hour	\$59.33	\$27.78	\$113.33	\$36.02
Break-even hours per year*	1,068		1,573	

Source: Sports Turf Management Association (2008) & Millar/Loan (unknown); City calculation of usable athletic hours

Notes: Estimates are for natural grass field with sand and drainage; U12 field size is ~45,000 square feet

*Hours needed on grass field per year to achieve same cost per hour as turf field

Financial analysis

15-year lifecycle, U12 field

	Weston & Sampson (2016)	
	Grass	Turf
Construction	\$292,500	\$517,500
Maintenance	\$388,125	\$118,125
Replacement	\$50,625	\$270,000
Disposal	\$0	\$45,000
15-year lifecycle cost	\$731,250	\$950,625
Usable athletic hours per year	500	1,638
Total usable athletic hours (15 years)	7,500	24,570
Cost per hour	\$97.50	\$38.69
Break-even hours per year*	1,260	

Source: Weston & Sampson (2016); City calculation of usable athletic hours
Notes: U12 field size is ~45,000 square feet
*Hours needed on grass field per year to achieve same cost per hour as turf field

Environmental impacts

	Natural Grass	Synthetic Turf
Water usage		✓
Permeability	✓ (quality dependent)	
Carbon sink (sequestration)	✓ (quality dependent)	
Carbon footprint	✓	
Recycled content		✓ (material dependent)
Maintenance	regime dependent	
Heat	✓	
✓ Indicates which material performs better from an environmental perspective		

EPA funds only for remediation.

Working toward this final condition:
Remove 18"
Add trees as possible

