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

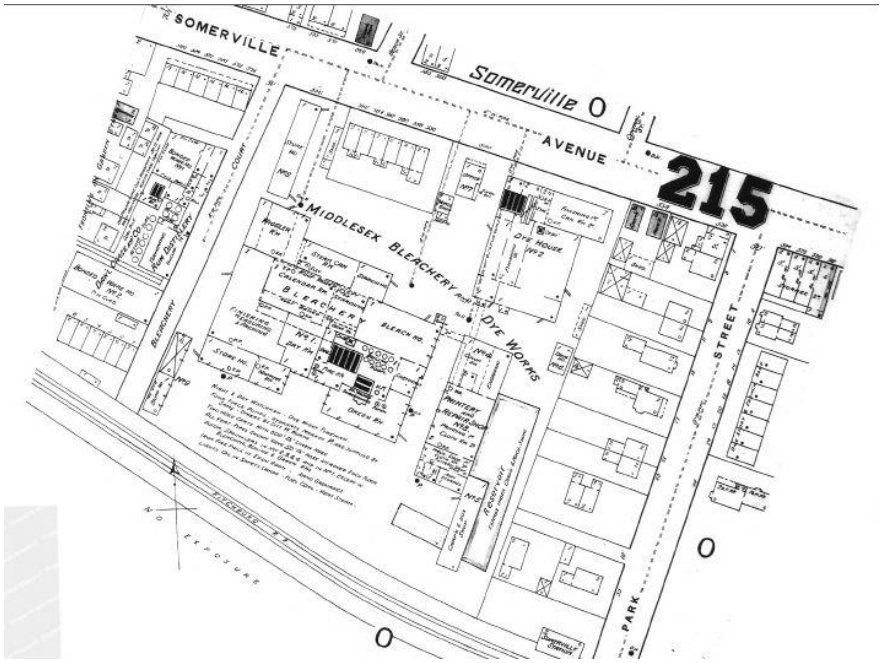
Meeting Agenda

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

1. BACKGROUND

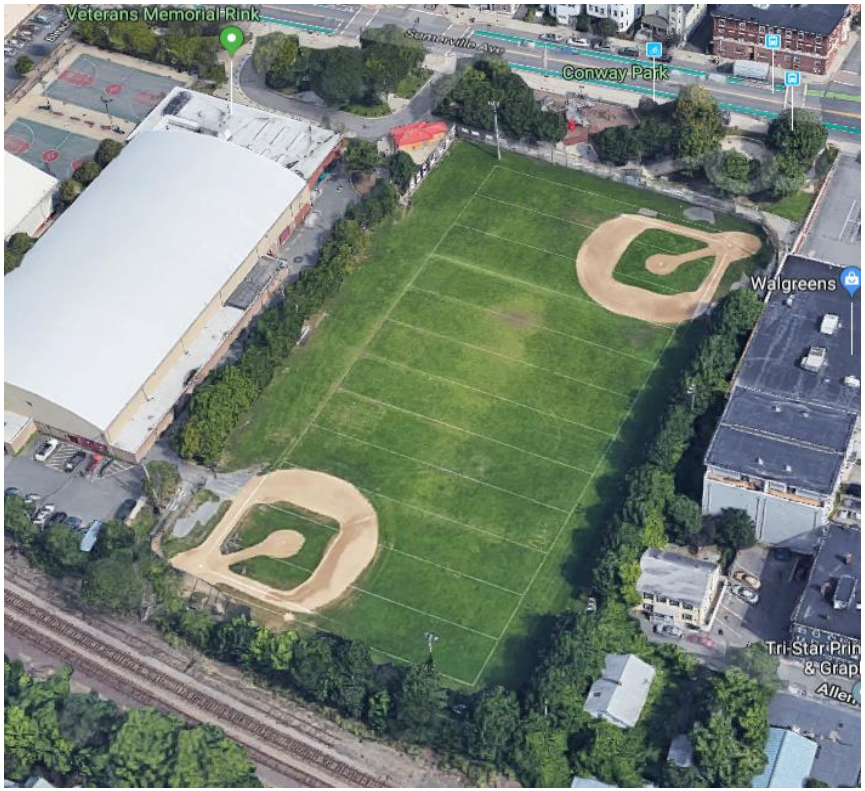
Site History

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

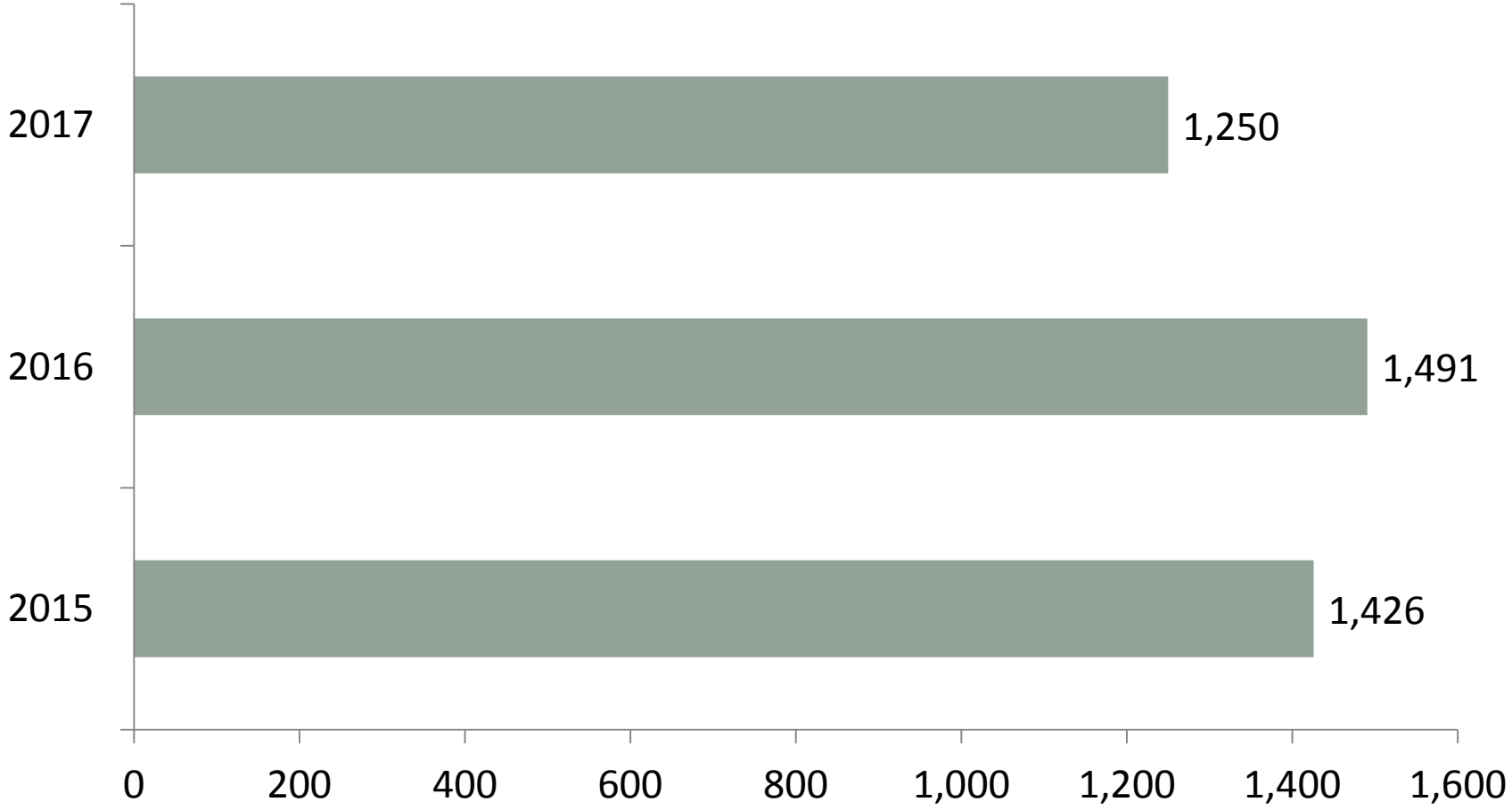


Uses Today

- 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

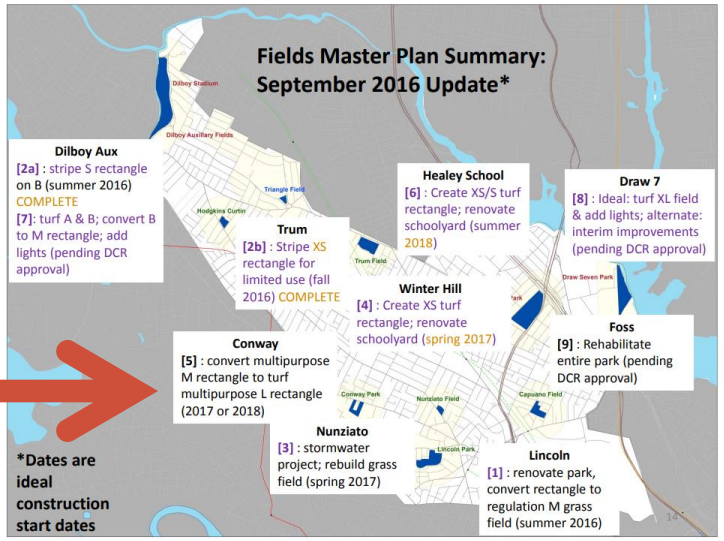


2. PROJECT OVERVIEW

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

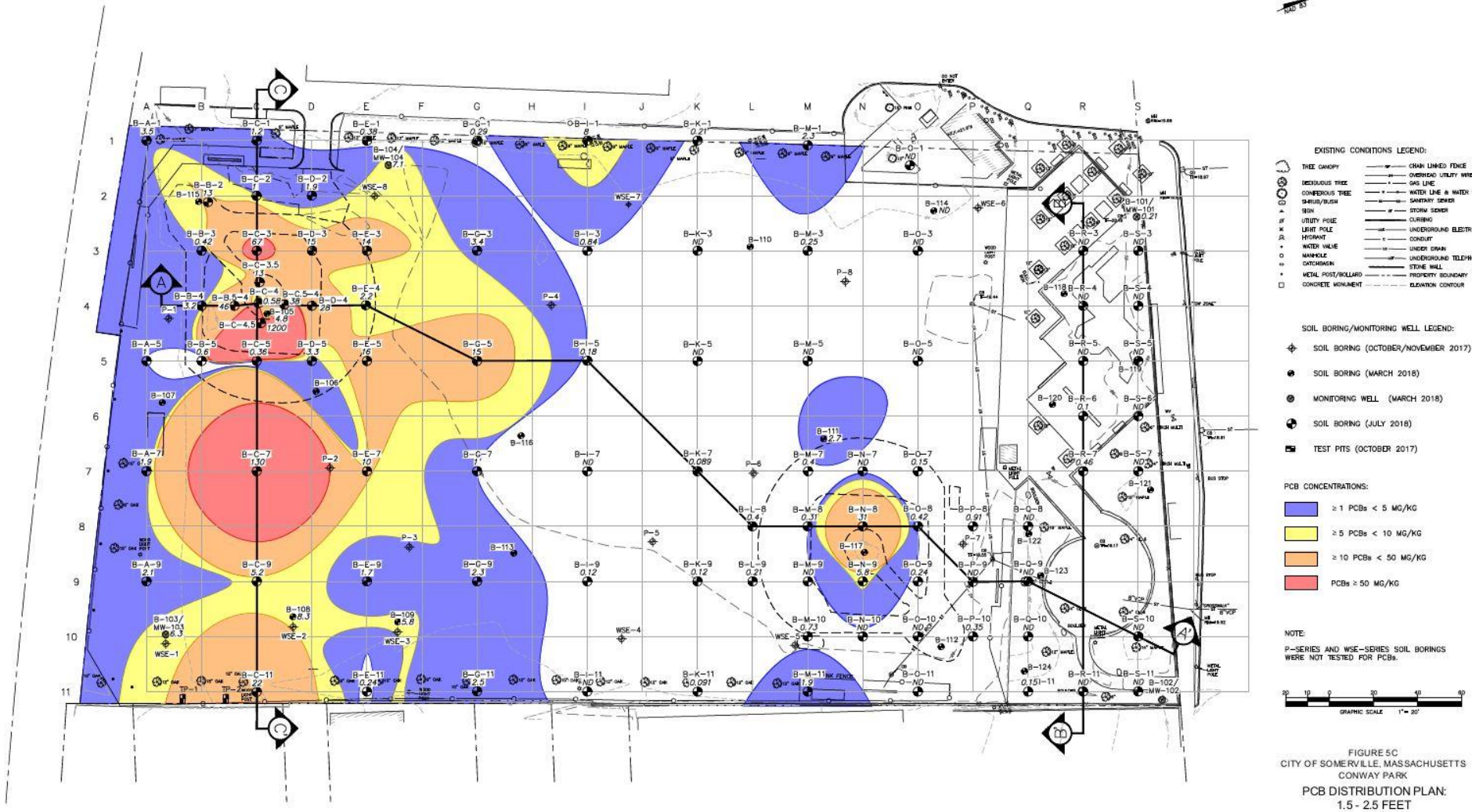


FIGURE 5C
CITY OF SOMERVILLE, MASSACHUSETTS
CONWAY PARK
PCB DISTRIBUTION PLAN:
1.5 - 2.5 FEET
NOVEMBER 2019 SCALE: 1" = 20'

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

PCBs at 2.5 to 3.5 feet below grade

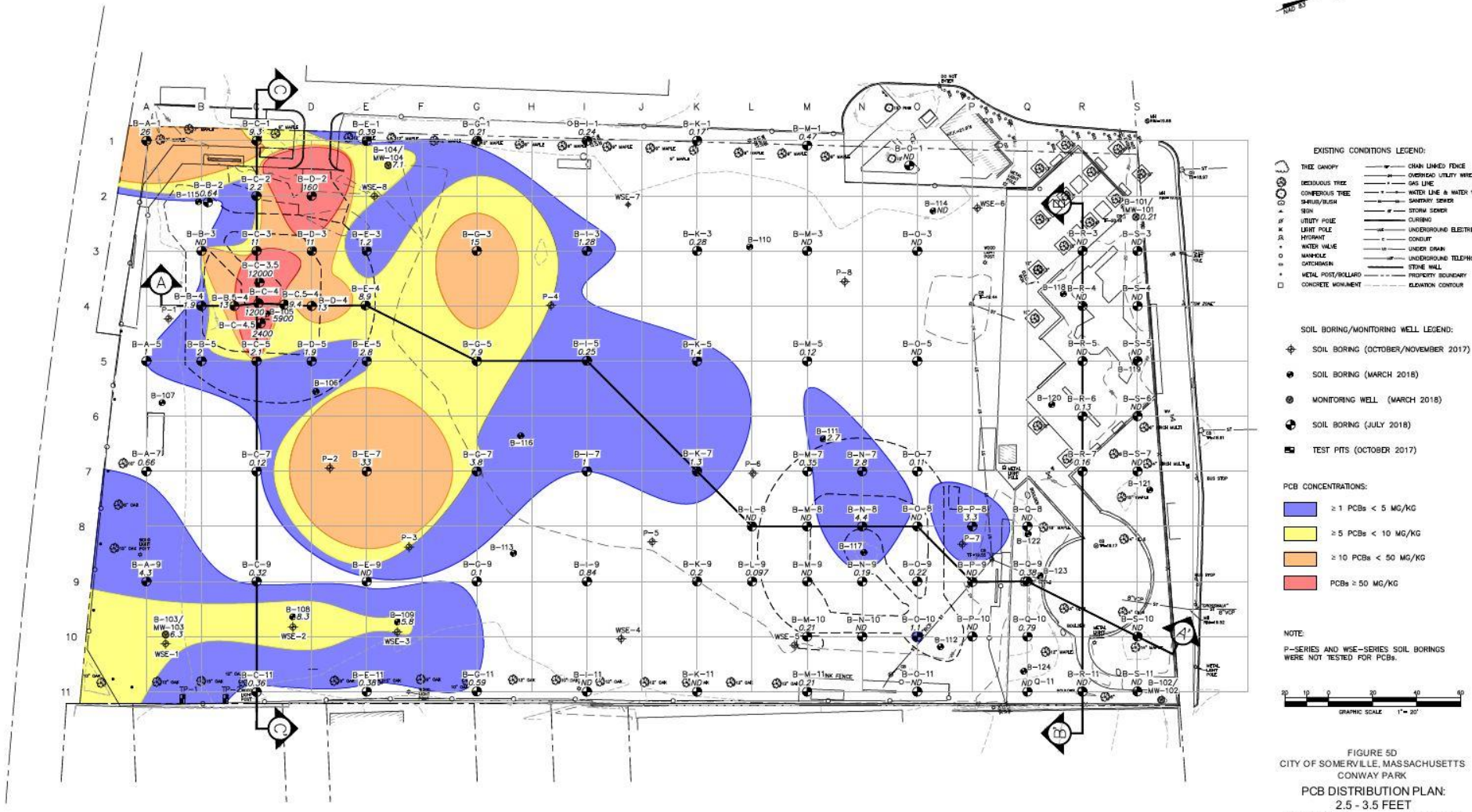


FIGURE 5D
CITY OF SOMERVILLE, MASSACHUSETTS
CONWAY PARK
PCB DISTRIBUTION PLAN:
2.5 - 3.5 FEET
NOVEMBER 2019 SCALE: 1" = 20'

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PCBs at 3.5 to 5.5 feet below grade

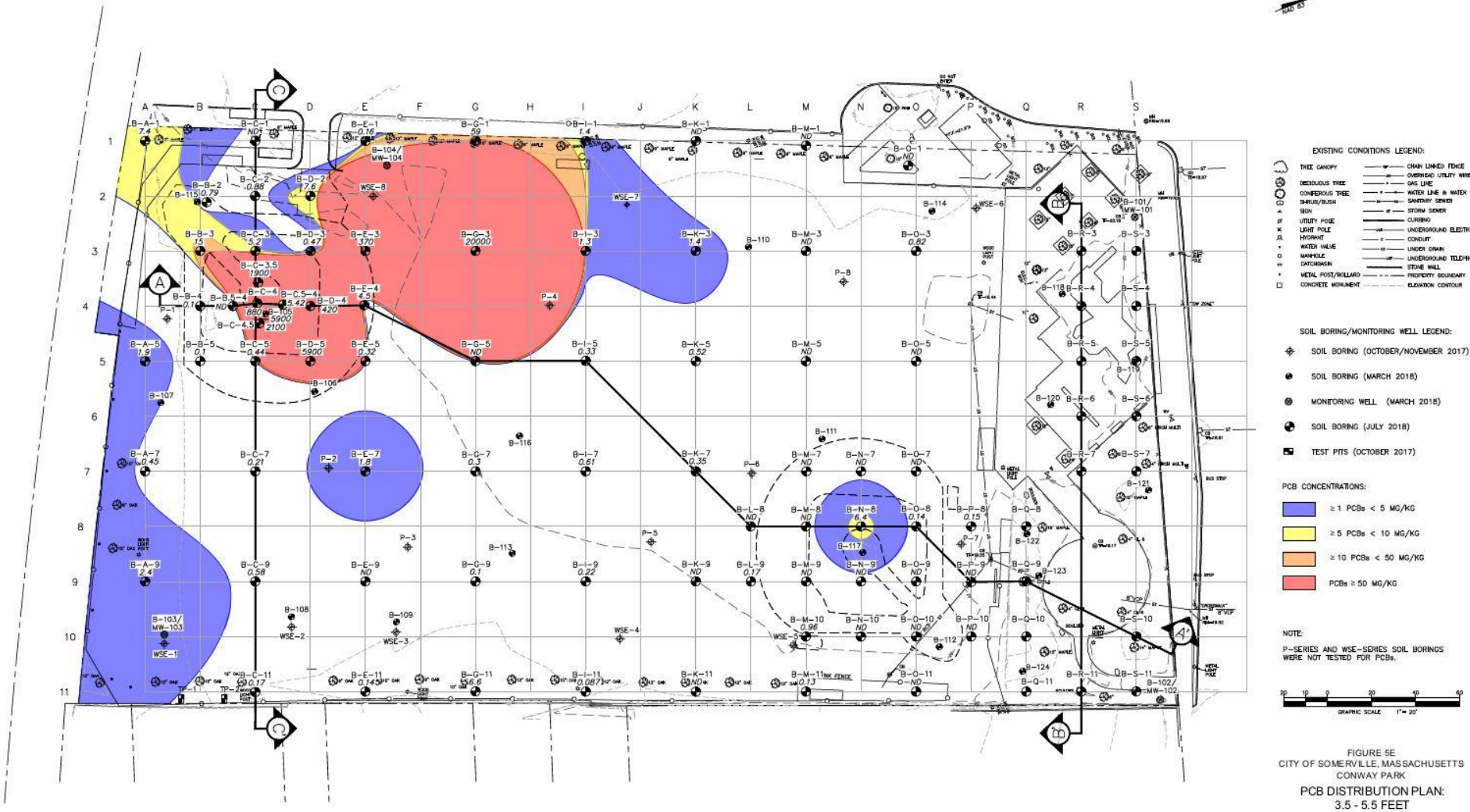

FIGURE 5E
CITY OF SOMERVILLE, MASSACHUSETTS
CONWAY PARK
PCB DISTRIBUTION PLAN:
3.5 - 5.5 FEET
NOVEMBER 2019 SCALE: 1" = 20'

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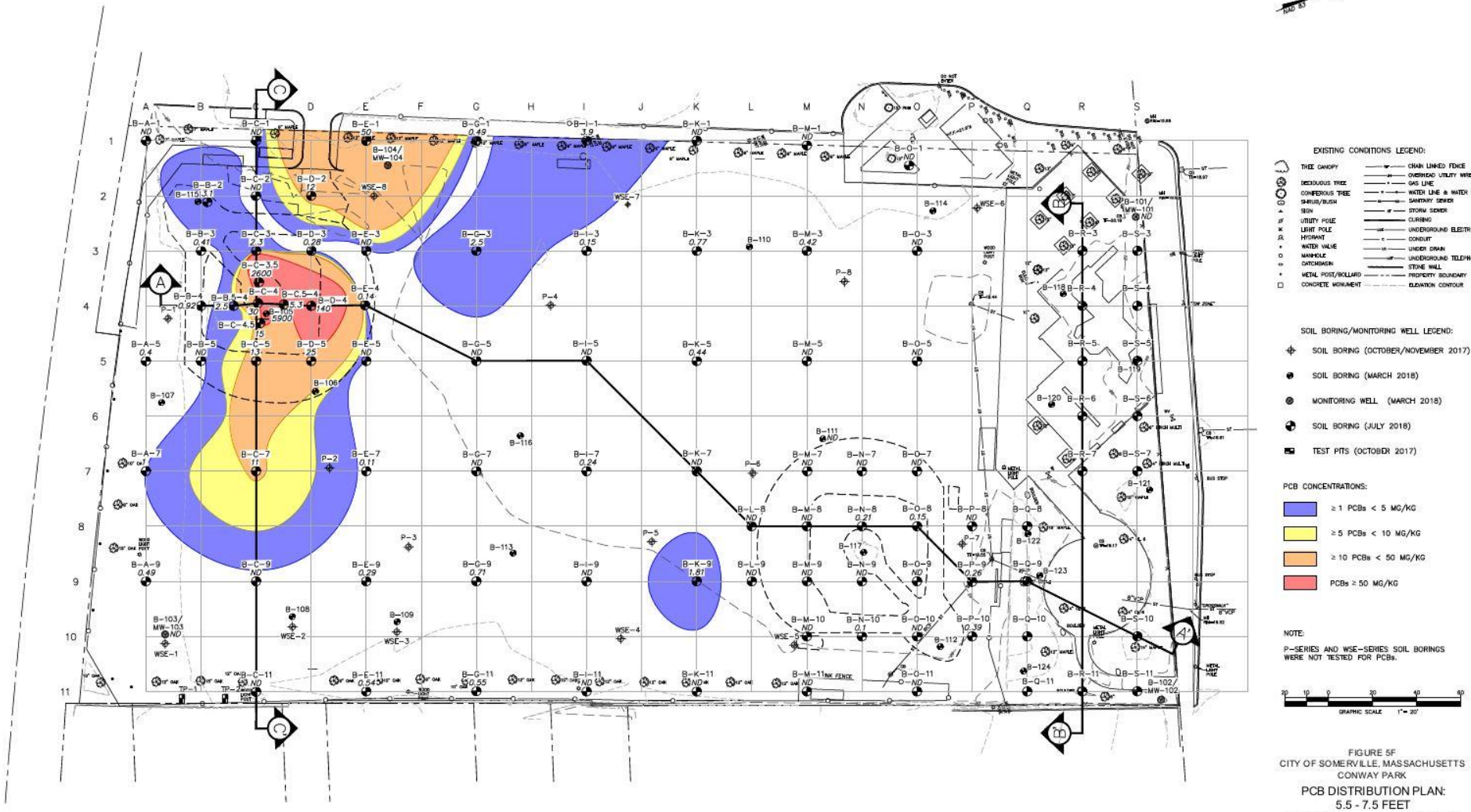
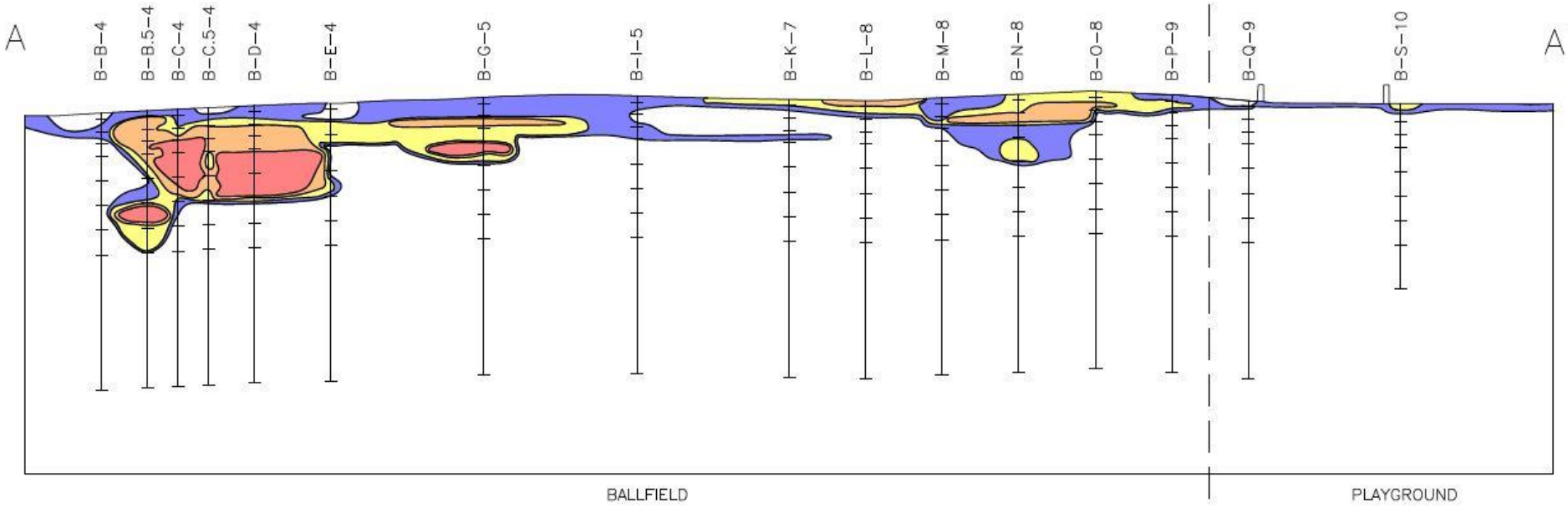
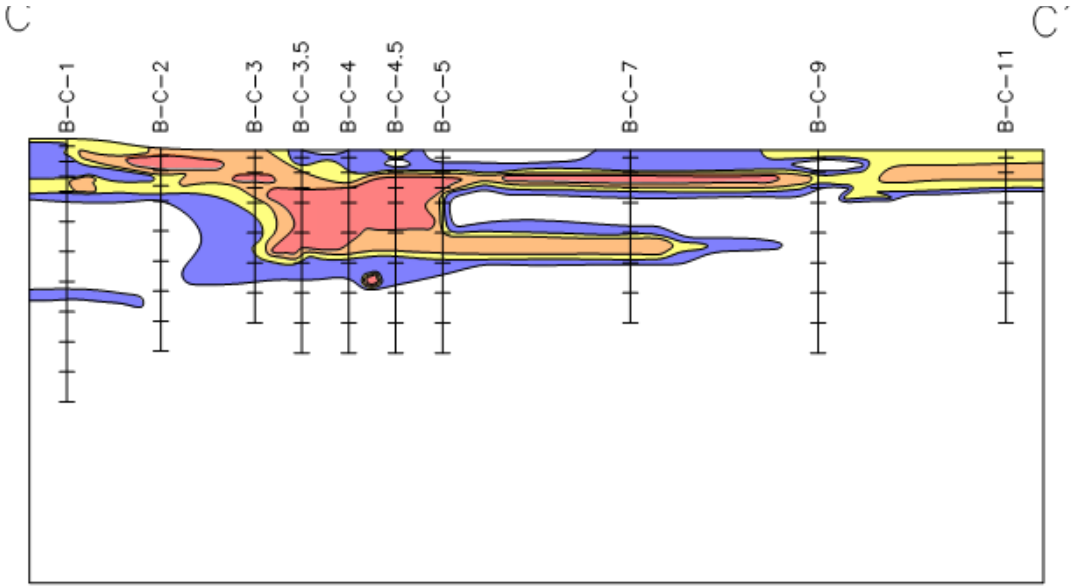
PCBs at 5.5 to 7.5 feet below grade



PCB Cross-Sections





PCB CONCENTRATIONS:

- 1 MG/KG ≤ PCBs < 5 MG/KG
- 5 MG/KG ≤ PCBs < 10 MG/KG
- 10 MG/KG ≤ PCBs < 50 MG/KG
- PCBs ≥ 50 MG/KG

The suspected source material include buried paper capacitors.

What does the data mean?

- *Why are PCBs dangerous?*
- *Exposure/bioavailablity*
- *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

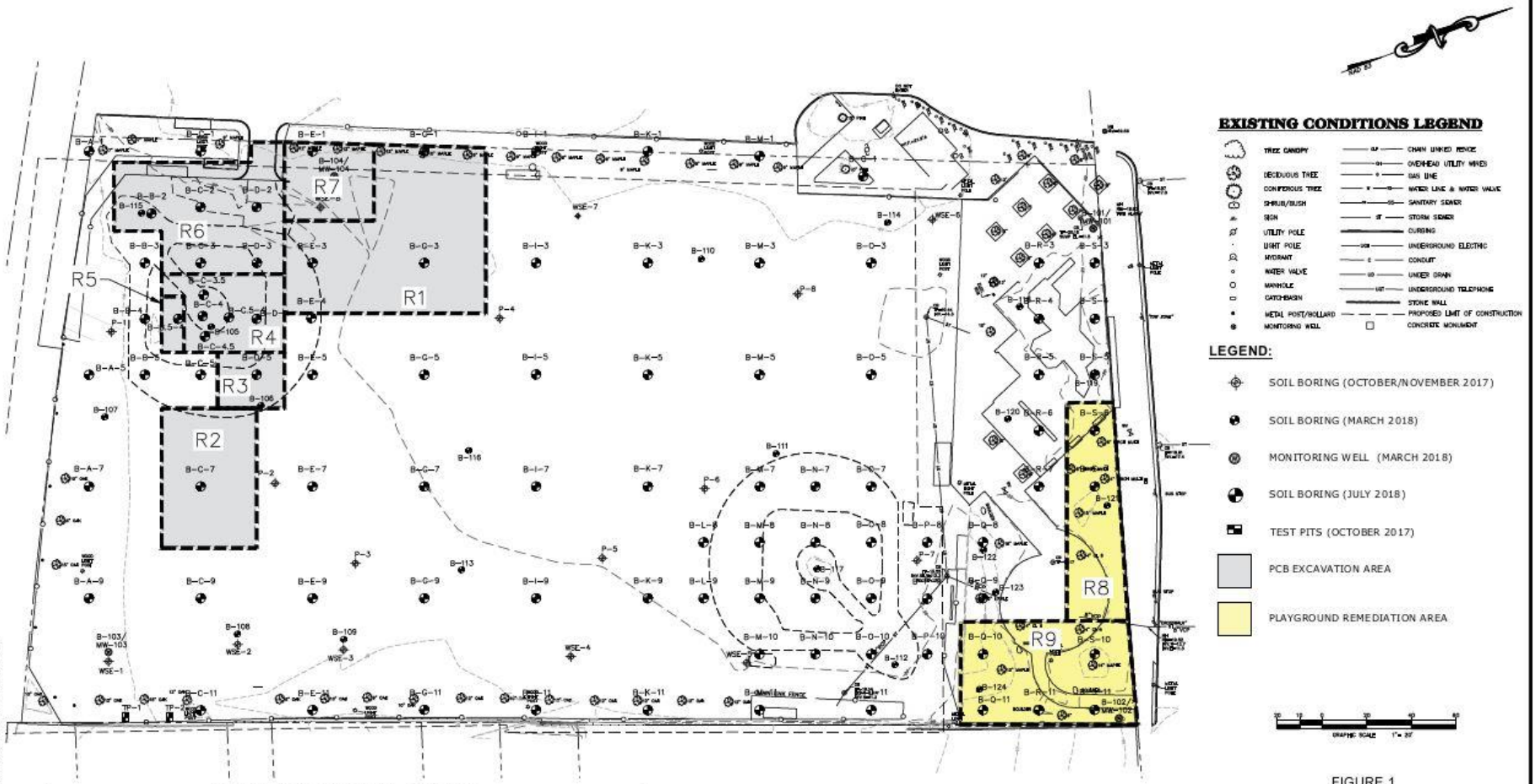
Pre-Remediation Site Prep

- 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

TREE CANOPY
DECIDUOUS TREE
CONIFEROUS TREE
SHRUB/BUSH
SIGN
UTILITY POLE
LIGHT POLE
HYDRANT
WATER VALVE
MANHOLE
CATCHBASIN
METAL POST/BOLLARD
MONITORING WELL
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
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

GRAPHIC SCALE 1" = 20'

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 ≥ 50PPM

MARCH 2019 SCALE: 1" = 20'

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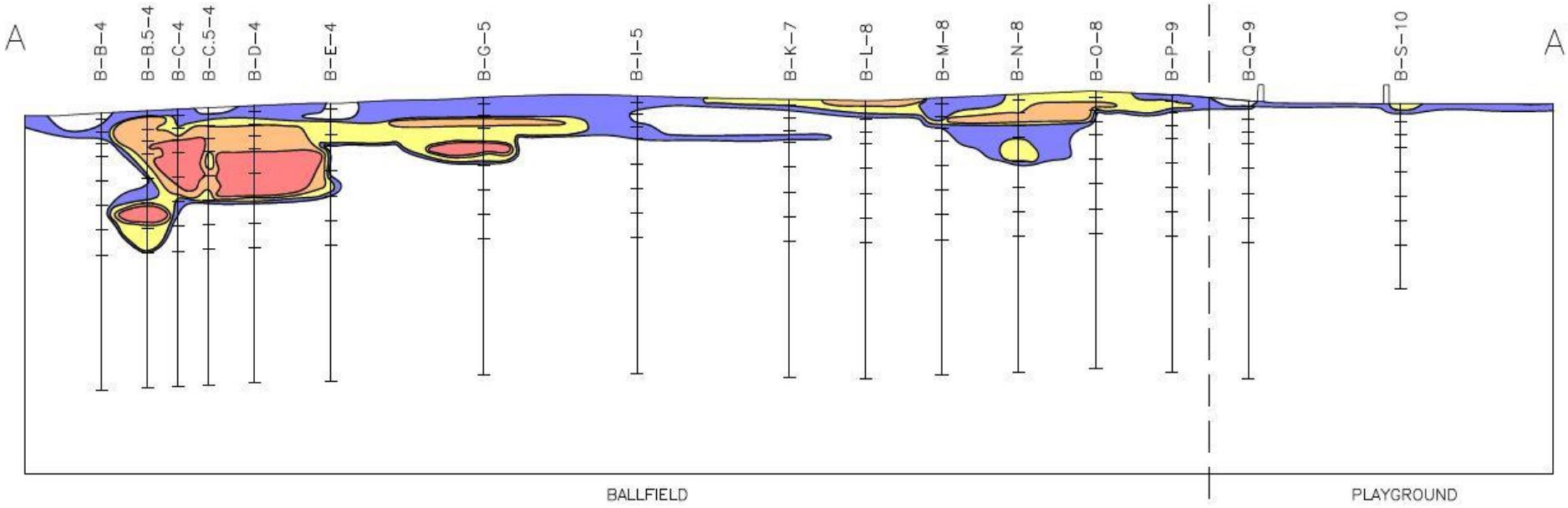
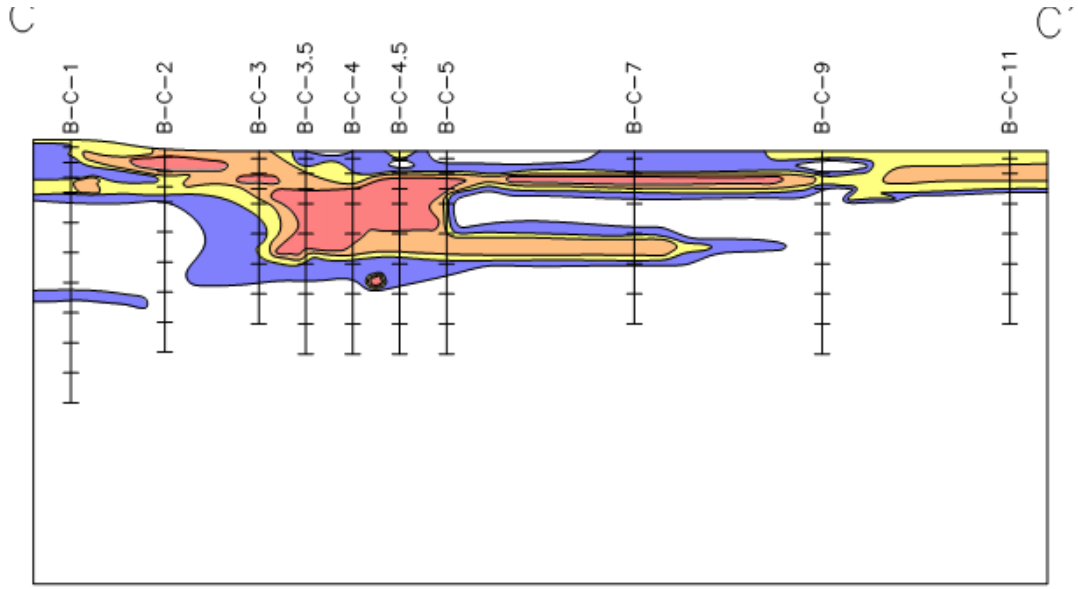
Weston & Sampson Engineers, Inc.
5 Centennial Drive, Peabody, MA 01960

PCB Cross-Sections

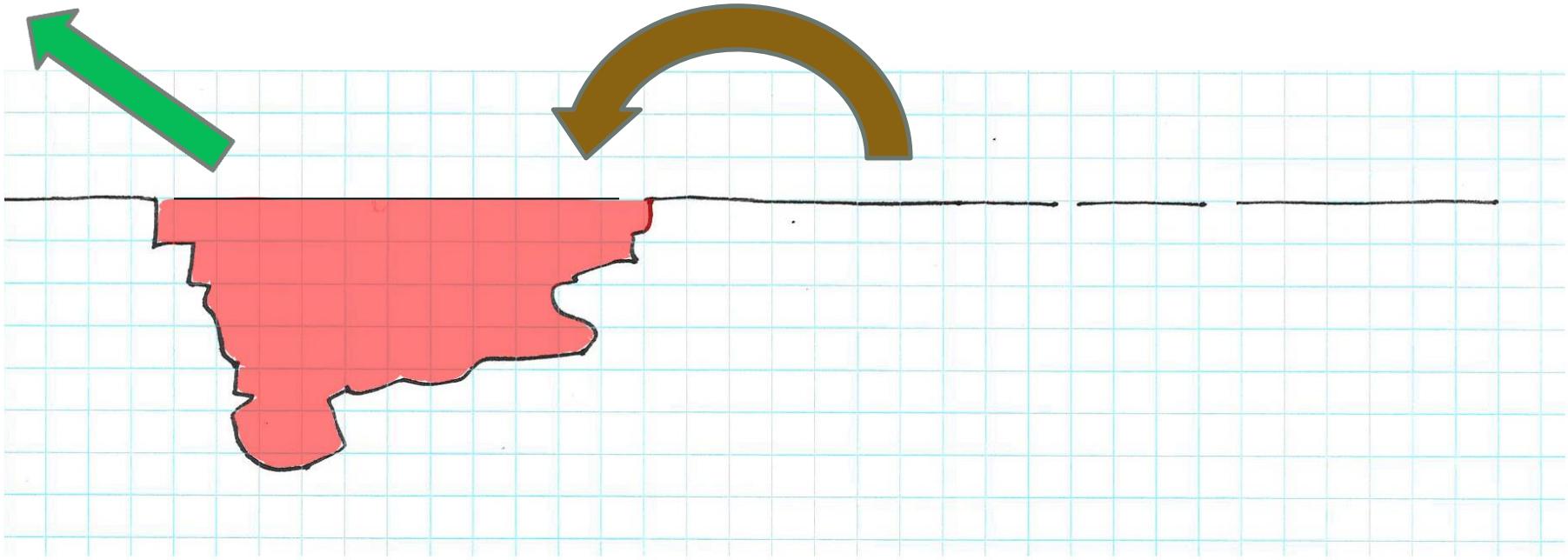




PCB CONCENTRATIONS:

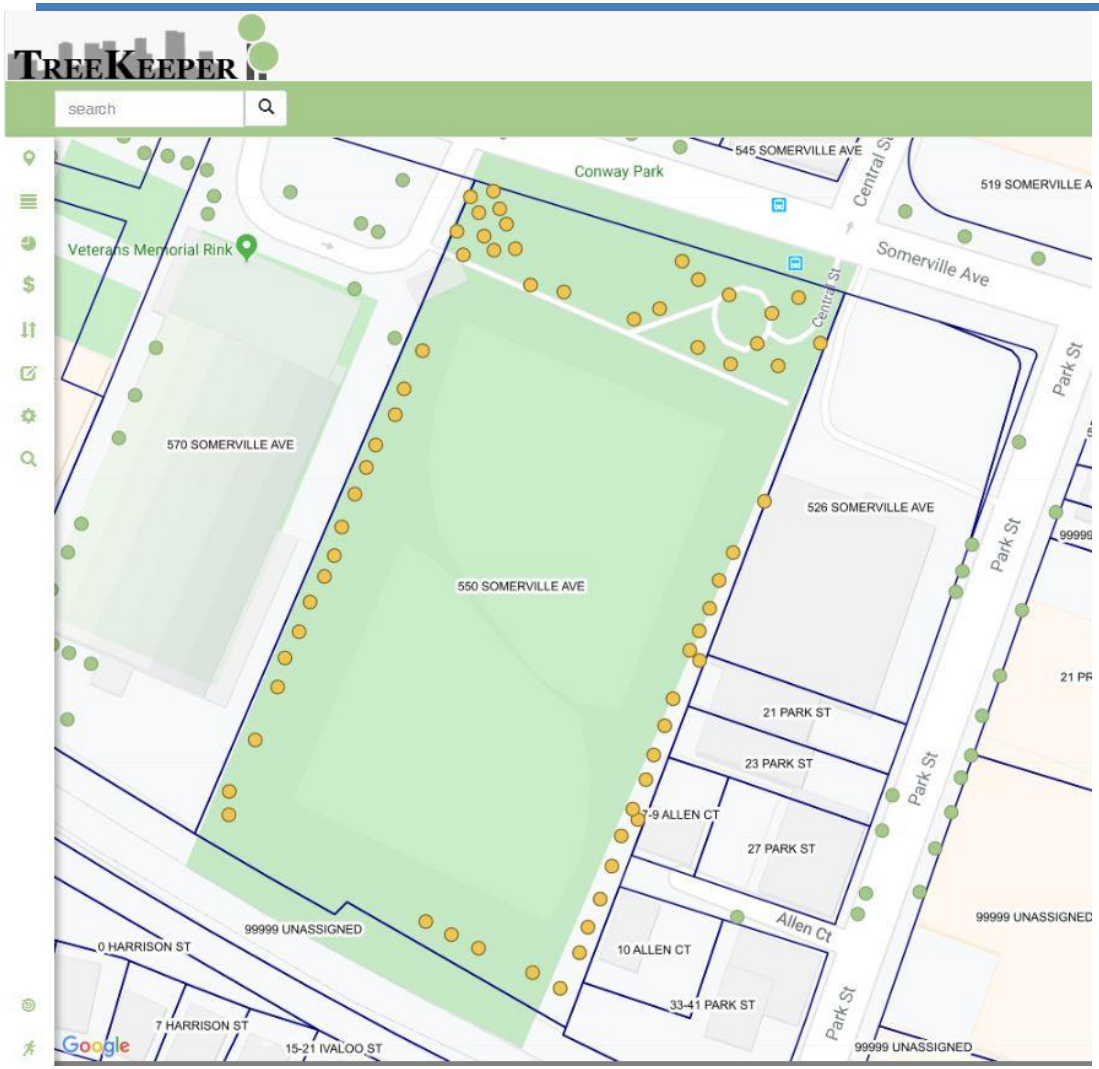
- 1 MG/KG ≤ PCBs < 5 MG/KG
- 5 MG/KG ≤ PCBs < 10 MG/KG
- 10 MG/KG ≤ PCBs < 50 MG/KG
- PCBs ≥ 50 MG/KG

1. Contaminated (>/= 50 ppm PCBs) soil removed from site



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

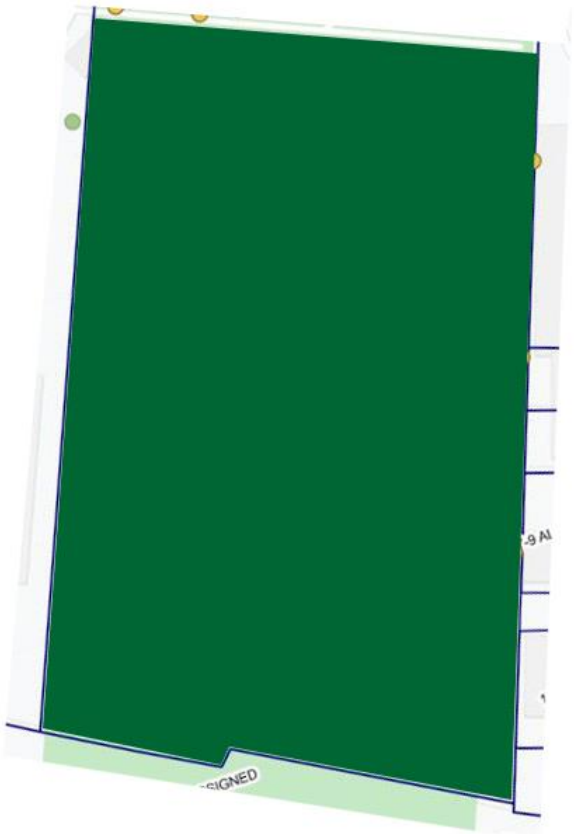
Remediation Plan: Trees



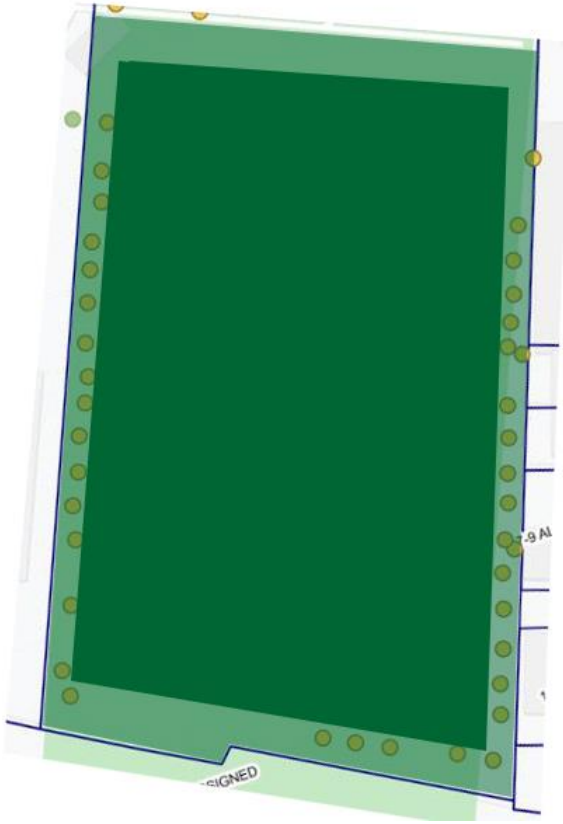
- Trees in remediation areas must be removed
- Minimize removal
- Replace trees

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

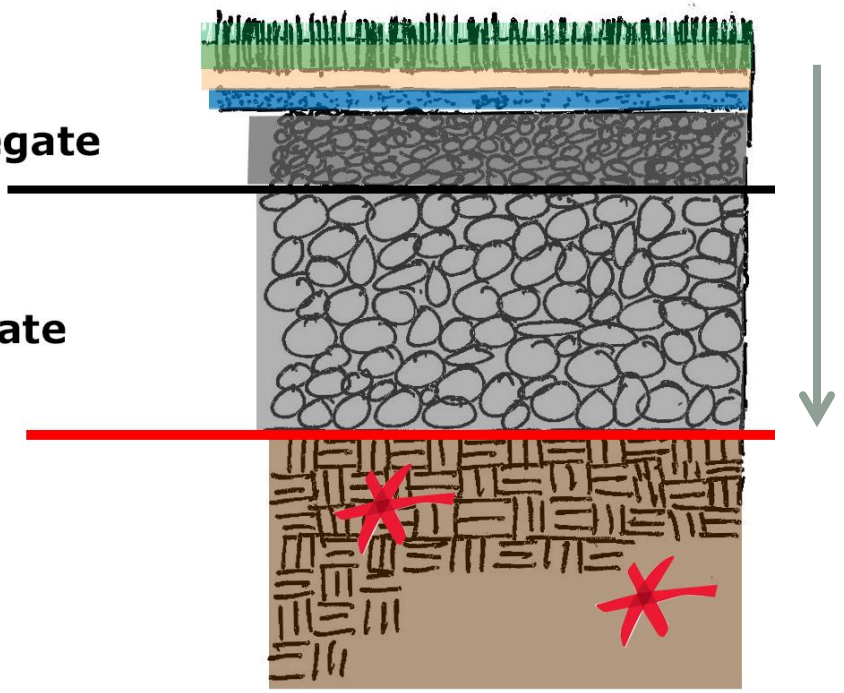
REMOVE 18” SOIL

Synthetic Turf
Infill Material
Shock Pad
Smaller Permeable Aggregate
Landscape Fabric

Larger Permeable Aggregate

BARRIER

Historic Fill



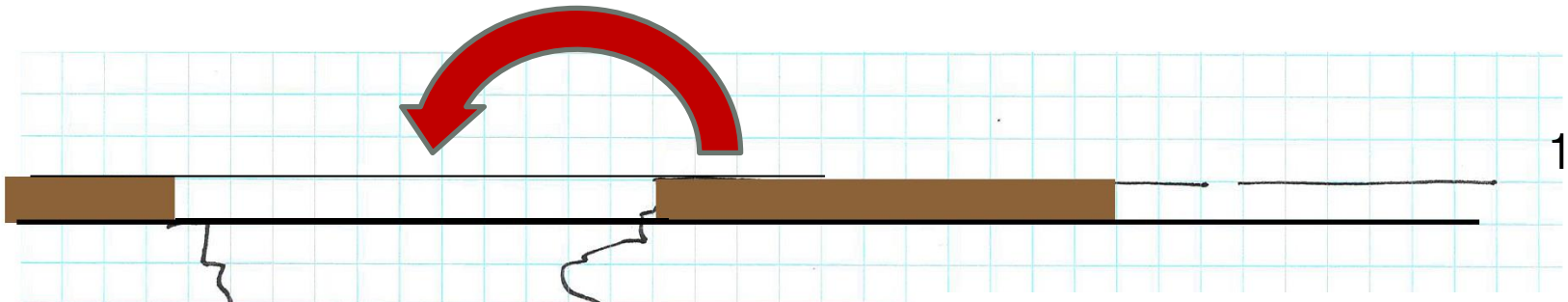
Layers of the field system

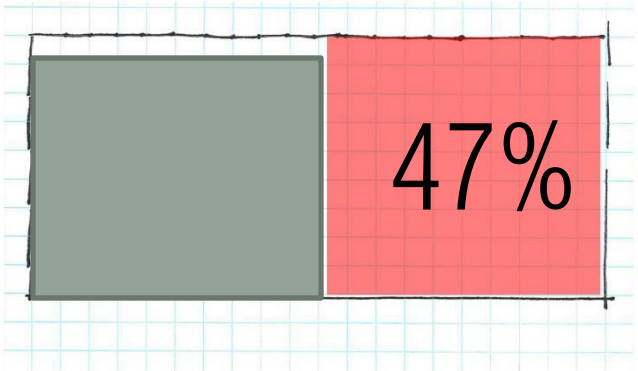
Synthetic Turf Option

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

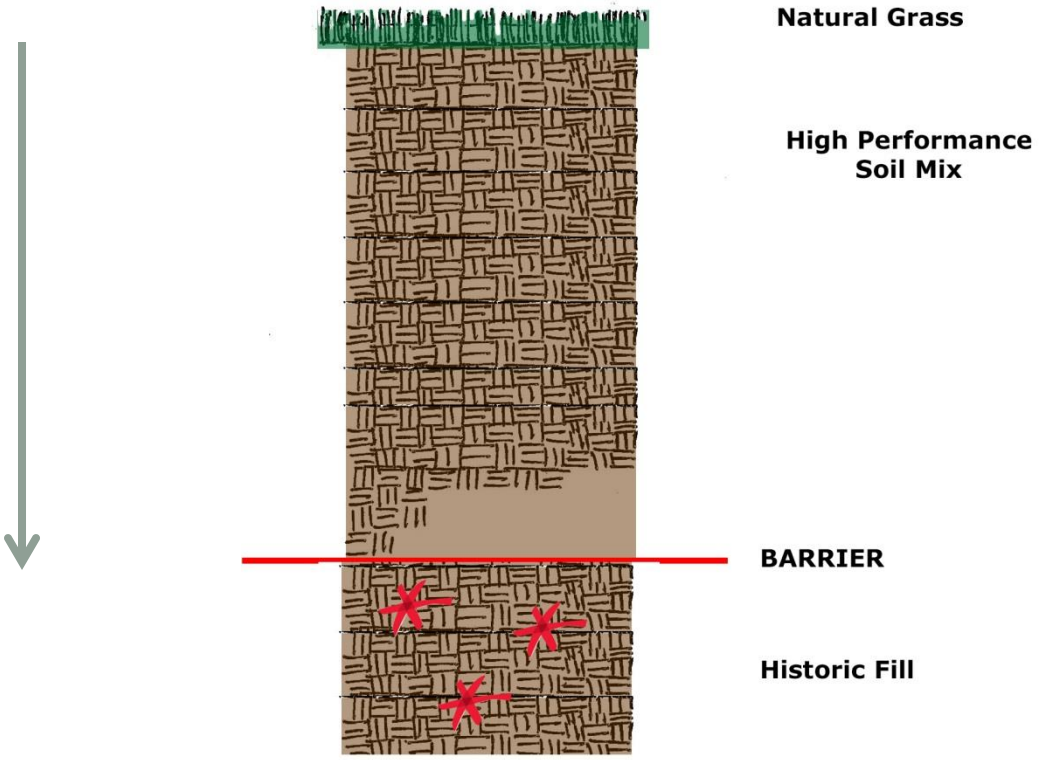




at 18” depth, 47% of site used as backfill
(53% removed & disposed of by City of Somerville)

Natural Grass Option

REMOVE
36” SOIL

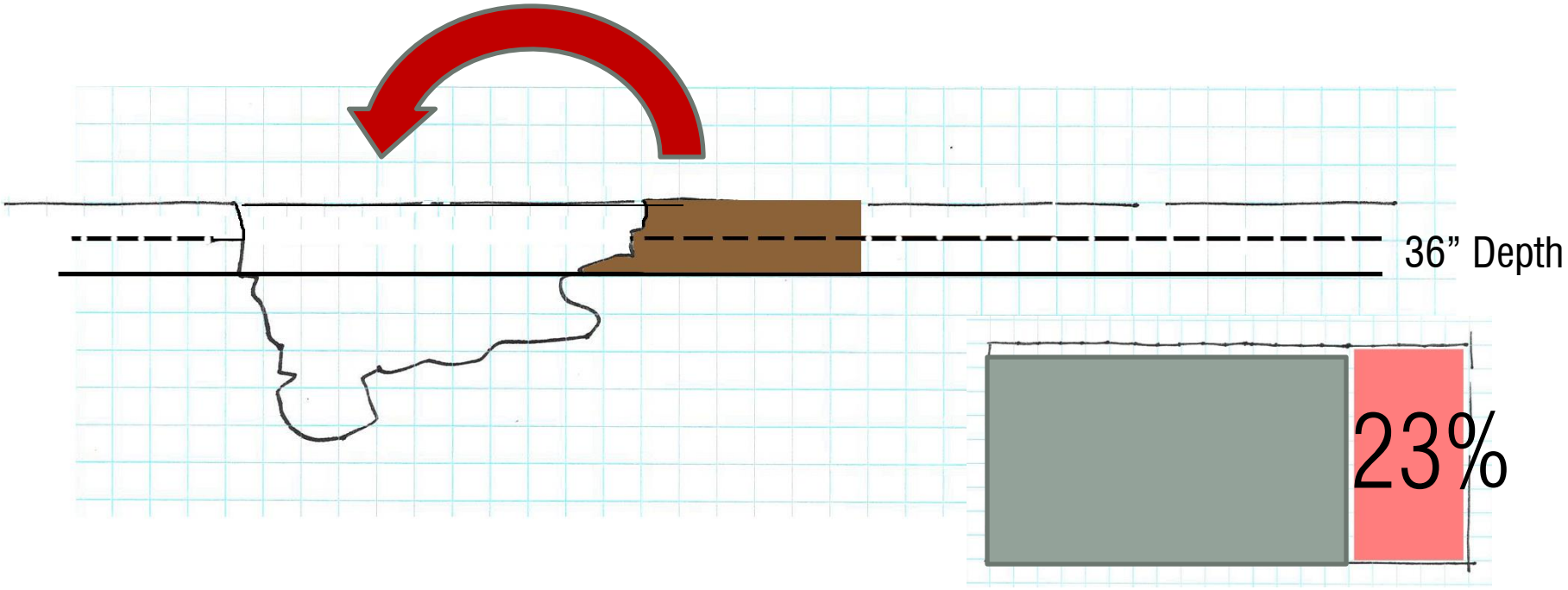


Natural Grass Option

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

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

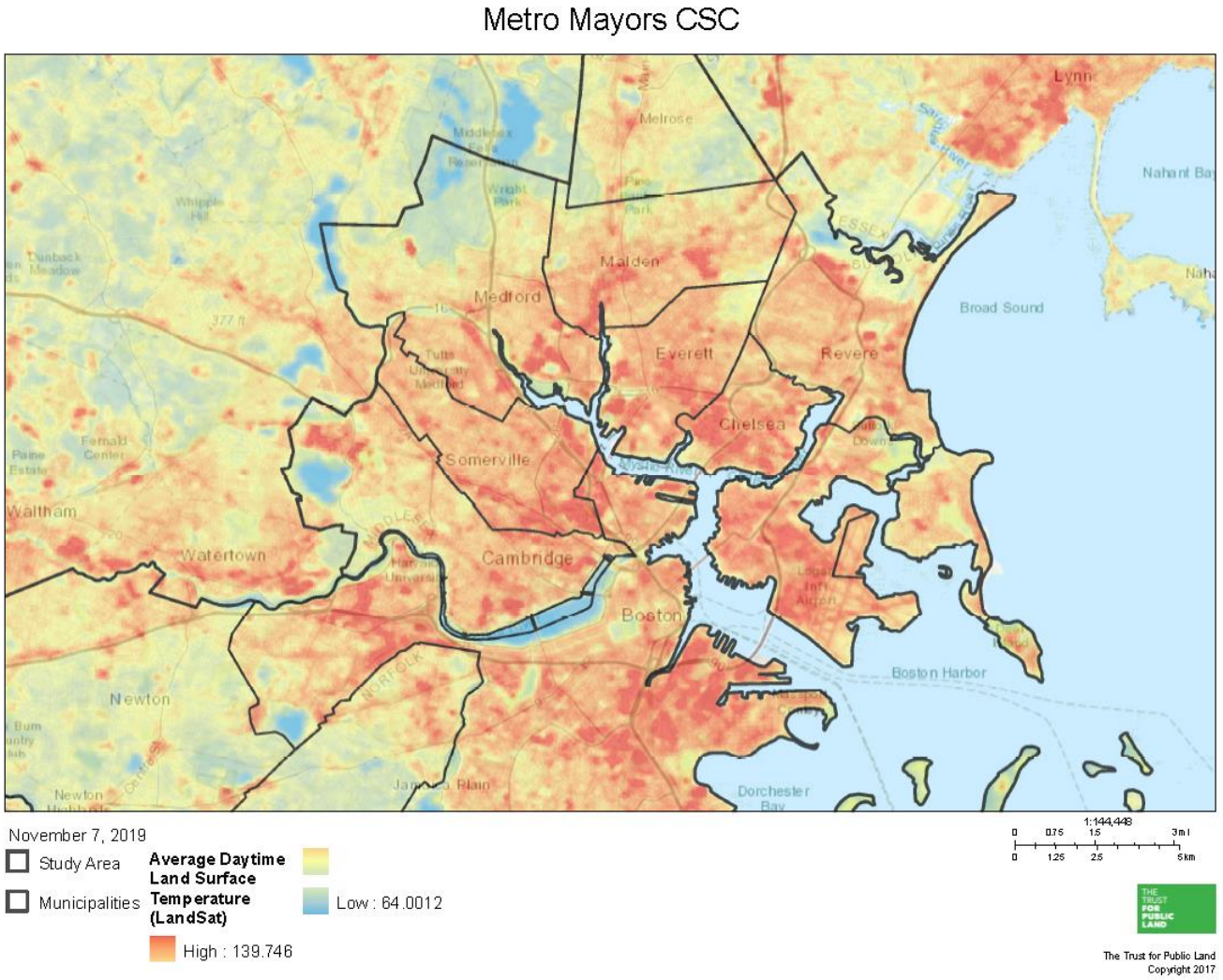
End of Slideshow

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
Lynn
Melrose
Malden
Medford
Everett
Revere
Chelsea
Somerville
Cambridge
Boston
Watertown
Waltham
Newton
Broad Sound
Boston Harbor
Dorchester Bay
November 7, 2019
Study Area
Municipalities
Average Daytime Land Surface Temperature (LandSat)
Low : 64.0012
High : 139.746
1:144,448
0 0.75 1.5 3 mi
0 1.25 2.5 5 km
THE TRUST FOR PUBLIC LAND
The Trust for Public Land
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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."

Player Safety

Concussion and abrasion

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

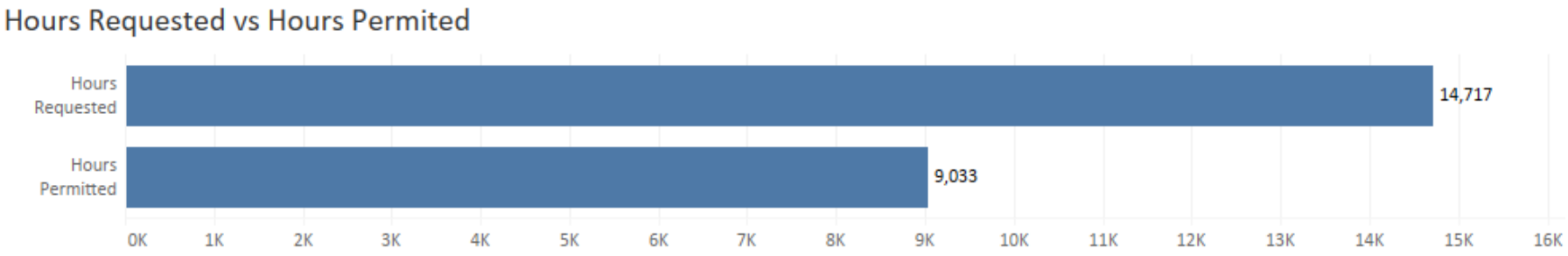
We cannot currently meet demand for playing hours on our fields:

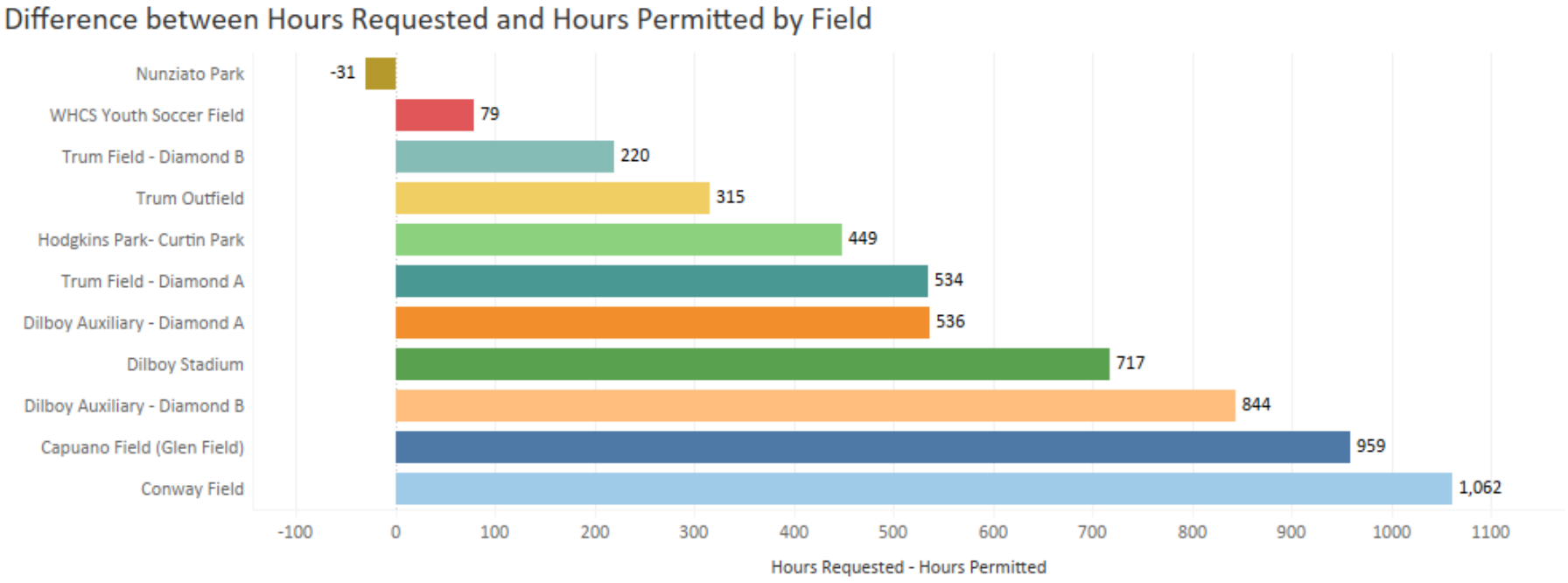
We currently have **5,684** hours requested that we cannot permit annually.

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.

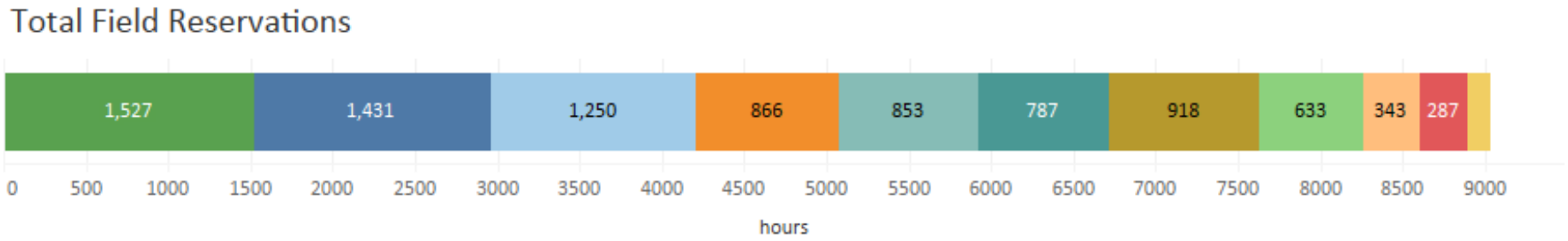
We cannot currently meet demand for playing hours on our fields

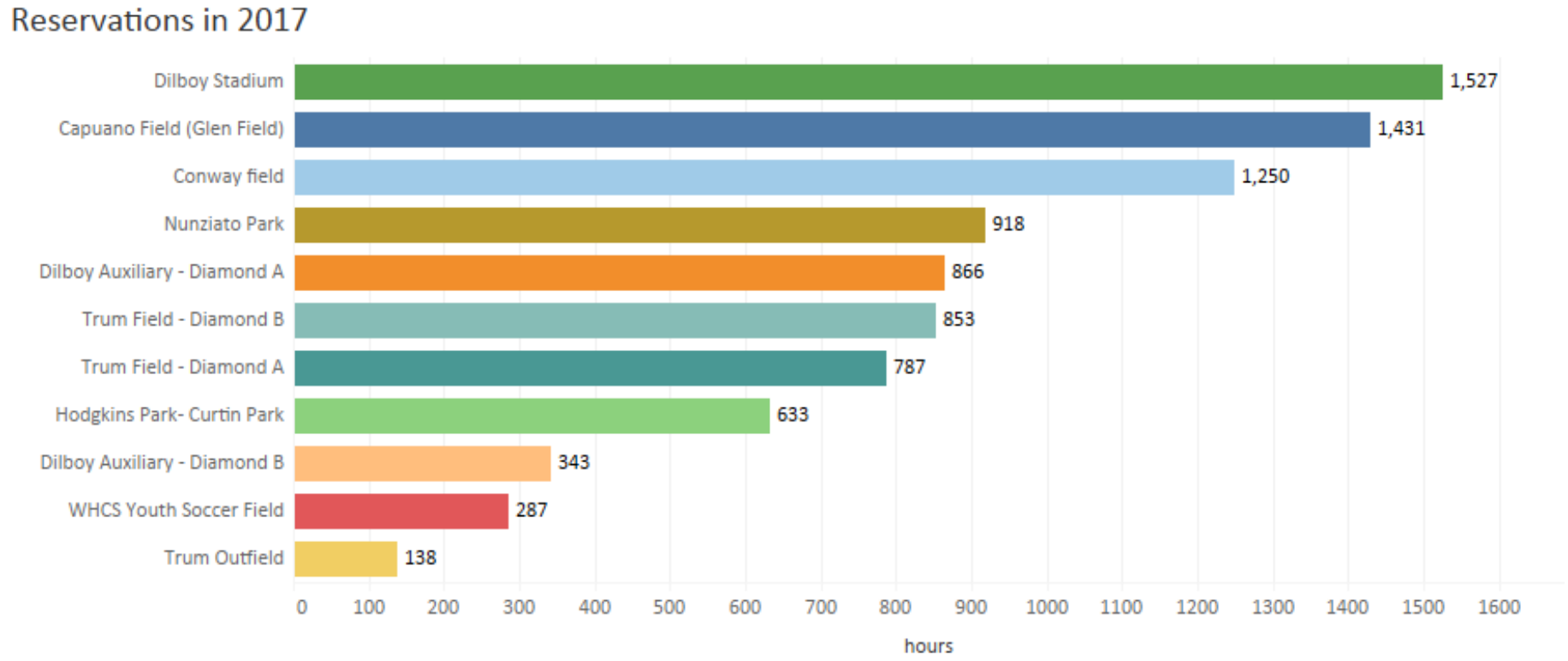




Over 9k hours of field use permitted in 2017

Somerville owned or managed fields only





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= **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