

# SPECIAL PERMIT/SITE PLAN APPLICATION

Littleton Sewer Expansion  
Project, Phase 1A, Water  
Resources Recovery Facility  
(WRRF) at 242 King Street,  
Littleton Water Department,  
Massachusetts

March 2022





75 State Street, Suite 701  
Boston, Massachusetts 02109  
tel: 617 452-6000

April 8, 2022

Ms. Maren Toohill, Town Planner  
37 Shattuck Street  
Littleton, MA 02346

Subject: Site Plan Review – Special Permit Application  
Littleton Sewer Expansion Project, Phase 1A, Water Resources Recovery Facility  
(WRRF)  
242 King Street, Littleton, MA

Dear Ms. Toohill:

On behalf of the LWD (Littleton Water Department), CDM Smith Inc. (CDM Smith) is pleased to submit for Site Plan Review and Special Permit Approval for the proposed Sewer Expansion Project, Phase 1A, Water Resources Recovery Facility (WRRF) at 242 Kings Street. The property is approximately 9 acres in size and located north of King Street and west of Route 495. The parcel is within the Residential District R, the Aquifer and Water Resource Overlay Districts, and is shown on Map U36, Parcel 7, of the Town of Littleton, MA Assessors maps.

The project purpose is for the Town of Littleton to expand its wastewater treatment to include a collection system designed to convey wastewater flow to one centralized water reclamation facility to be located at 242 King Street. The wastewater expansion will allow the Town of Littleton to meet its water and land resource management needs while achieving desired smart economic growth and improve impaired water resources.

With the project site being within the Aquifer & Water Resource Overlay Districts, these Districts limit the total impervious cover on the site. The new WRRF and site improvements will increase the total impervious area on the site from 4.9% (0.44 acre) to 11% (0.97 acre). This percentage is below the 30% maximum allowed coverage but does requires a Special Permit from the Planning Board since more than 2,500 square feet of impervious area is proposed. The proposed WRRF and site improvements will render 42,253 square feet of the parcel impervious. Though there is an increase of impervious area on the total site, the proposed site improvements reduce the amount of untreated impervious cover and provide stormwater infiltration and recharge.





Littleton Planning Board

April 8, 2022

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We respectfully request Site Plan and Special Permit Approval. Feel free to contact me at (617) 452-6597 or Kara Johnston, Project Manager, at (617) 452-6621 if you have any questions or require additional information.

Very truly yours,

A handwritten signature in black ink, appearing to read "Magdalena Lofstedt".

Magdalena Lofstedt, PWS  
Environmental Scientist  
CDM Smith Inc.

cc: Corey Godfrey, LWD  
Kara Johnston, CDM Smith Inc.



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**TOWN OF LITTLETON  
PLANNING BOARD  
FORM 1 APPLICATION**  
ADOPTED FEB. 2, 2022

Filing Date: \_\_\_\_\_  
Planning Board: \_\_\_\_\_  
Town Clerk: \_\_\_\_\_  
Filing Fee: \_\_\_\_\_  
☐ Abutters List Attached

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**PART I. BASIC APPLICATION**

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**Project Summary & Applicant Information**

Project Name: Littleton Sewer System Expansion Project, Phase 1A , Water Resources Recovery Facility (WRRF)  
Location (Street Address): 242 King Street, Littleton, MA 01460  
Assessor's Map/Parcel (s): U36 7-0

Applicant: Littleton Water Department (LWD)  
Address: 39 Ayer Road, P.O. Box 2406, Littleton, MA 01460  
Telephone: 9785402222 Email: cgodfrey@lelwd.com

Property Owner: Littleton Water Department (LWD)  
Address: 39 Ayer Road, P.O. Box 2406, Littleton, MA 01460  
Telephone: 9785402222 Email: cgodfrey@lelwd.com

Registry: Middlesex Book: 022 Page: 6564

**Site Information**

Total Area (Acres): 8.98 Lot Frontage (Lin. Ft): 580.56'

Zoning District(s):  
☒ Residence  
☐ Village Common  
☐ Business  
☐ King Street Common  
☐ Industrial-A  
☐ Industrial-B

All or a portion of the Site is also located in one or more overlay districts:  
☐ Wetlands  
☒ Floodplains  
☒ Aquifer District  
☐ Adult Use Marijuana District  
☒ Water Resource District  
☐ Littleton Village Overlay District  
West—Beaver Brook Area

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**PART II. SPECIAL PERMIT(S) REQUESTED** (check all that apply)

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- ☒ Site Plan Review
- ☐ Accessory Business Uses at Active Farms (§173-57)
- ☐ Adult Uses (§173-140 - §173-142)
- ☒ Aquifer and Water Resource District (§173-61 - §173-64) *Attach Form 1A.*
- ☐ Commercial Solar Photovoltaic Installations (§173-180 - §173-184) *Attach Form 1D.*
- ☐ Conversion of Municipal Building (§173-69)
- ☐ Inclusionary Housing (§ 173-196 - § 173-205) *Attach Form 1F.*
- ☐ Littleton Village Overlay District West-Beaver Brook Area (§173-167 - §173-179)
- ☐ Major Commercial or Industrial Use (§173-86 - §173-88)
- ☐ Master Planned Development (§173-89)
- ☐ Mixed Use in Village Common FBC District (§173-166) *Attach form 1H.*
- ☐ Open Space Development (§173-93 - §173-118)
- ☐ Senior Residential Development (§173-145 - §173-152) *Attach Form 1E.*
- ☐ Shared Residential Driveways (§173-125 - §173-127)
- ☐ Vehicular Retail Sales (§173-26)
- ☐ Wireless Telecommunications Towers and Facilities (§173-128 - §173-133); *Attach Form 1B.*
- ☐ Registered Marijuana Dispensary (§ 173-85 – § 173-92) *Attach Form 1C.*
- ☐ Adult Use Marijuana Establishment (§ 173-194 – § 173-202) *Attach Form 1G.*
- ☐ Sidewalk Curb Cut (§173-224) *Attach Form 1H.*
- ☐ VC District + AWRD Lot Coverage (§173-224) *Attach Form 1H.*

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**PART III. APPLICANT AND OWNER CERTIFICATIONS**

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The undersigned hereby certifies that they have read and examined this Application, including all attachments hereto, and that the proposed project is accurately represented in the statements made in this Application. The undersigned also certifies that this application has been filed both with the Planning Board and Town Clerk, and that all submission requirements in the Planning Board's Rules and Regulations have been met.

**Property Owner**

I/we hereby acknowledge that the Applicant is authorized to act on my/our behalf and that any and all representations made by the Applicant will be binding on me/us as Owners of the property.

Signature: 

Date: 3-28-2021

Print: Corey Godfrey

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Print: \_\_\_\_\_

**Applicant**

Signature: 

Date: 3-28-2021

Print: Corey Godfrey

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Print: \_\_\_\_\_

Applicant is: ☒ Owner    ☐ Agent/Attorney    ☐ Purchaser

## PART IV. SUBMITTAL REQUIREMENTS

### ALL APPLICATIONS

Required Materials		Notes
<input checked="" type="checkbox"/>	Application Cover Page	2 prints 1 electronic
<input checked="" type="checkbox"/>	Plans sealed by a registered professional engineer, registered architect, landscape architect, surveyor, or other design professional in their area of expertise.	1 full size print 1 reduced print (11x17) 1 electronic

### SPECIAL PERMIT APPLICATIONS

Required Information & Materials		Notes
<input checked="" type="checkbox"/>	Forms & Checklists	See Application Cover Page for required forms & checklists based on specific special permits requested
<input checked="" type="checkbox"/>	Summary Table (Required/Existing/Proposed)	Zoning District Lot Area Gross Floor Area Lot Coverage Building Height Parking Spaces Density Trip Generation Open Space
<input checked="" type="checkbox"/>	Vicinity map	all lots, streets, and driveways within 500 feet from the exterior boundary of the lot
<input checked="" type="checkbox"/>	Existing conditions plan	existing uses; inventory of natural features; all watercourses, wetlands, bogs, swamps, marshes, and boundaries of public water supply watersheds and environmentally sensitive zones; floodways and floodplain boundaries; zoning districts
<input checked="" type="checkbox"/>	Existing & proposed topography	contours at 2' intervals
<input checked="" type="checkbox"/>	Construction area plan	showing all areas to remain undisturbed
<input checked="" type="checkbox"/>	Site layout plan	showing required setbacks and other information required for zoning compliance; Location, height, and materials of all retaining walls; Location of proposed outdoor bulk trash containers or dumpsters, and screening details; Location of proposed on-site sewage disposal systems and reserve areas, and design computations
<input checked="" type="checkbox"/>	Utility plan	existing and proposed fire hydrants and sewer, water, gas, electric, and other utility lines and easements

<input checked="" type="checkbox"/>	Storm drainage plan	
<input checked="" type="checkbox"/>	Parking, loading, & access plan	parking and loading spaces and areas, including stalls, aisles, driveways, turning radii, landscaped areas and islands, and their dimensions as required; All existing and proposed points of vehicular access to the site, and clear sight triangles for corner lots; and sight lines for proposed driveways
<input checked="" type="checkbox"/>	Exterior lighting plan	
<input checked="" type="checkbox"/>	Architectural plans	Elevations of all buildings and structures. Elevations shall be drawn to scale, showing the height, location, and extent of all material; Roof top plan showing all proposed mechanical equipment and screening
<input checked="" type="checkbox"/>	Landscape plan	
<input type="checkbox"/>	Sign plan	
<input checked="" type="checkbox"/>	Drainage report (with calculations)	
<input type="checkbox"/>	Traffic impact assessment	

#### **SITE PLAN REVIEW APPLICATIONS**

<b>Required Information &amp; Materials</b>		<b>Notes</b>
<input checked="" type="checkbox"/>	Site Plan Review Checklist	

#### **SITE PLAN REVIEW APPLICATIONS (Village Common & King Street Common FBC Area)**

<b>Required Information &amp; Materials</b>		<b>Notes</b>
<input type="checkbox"/>	Site Plan Review Checklist	
<input type="checkbox"/>	Form 1H	
<input type="checkbox"/>	VC & KSC FBC Area Checklist	

If you wish to review application requirements and/or materials with Planning Department Staff prior to submitting your application, please call or email us.



**TOWN OF LITTLETON  
PLANNING BOARD SPECIAL PERMIT  
FORM 1A  
AQUIFER & WATER RESOURCES DISTRICTS**

Littleton Town Offices  
37 Shattuck Street  
Room 303  
Littleton, MA 01460  
(978) 540-2425

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**PART IV. PROJECT SUMMARY**

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Project Name: Littleton Sewer Expansion Project, Phase 1A, Water Resources Recovery Facility ☐  
(WRRF) ☐

Location (Street Address): 242 King Street

Assessor's Map/Parcel Number (s): U36-7-0

X ☐ Parcel in Aquifer District or X ☐ Parcel in Water Resource District

**Submission Requirements.** Per § 173-62 (D) of the Littleton Zoning Bylaw, the following must be attached to this application for a special permit.

- ☒ Attached checklist, completed
- ☒ Complete list of potentially toxic or hazardous materials used or stored on the premises - see attached sheet
- ☒ Description of protective and preventive measures - see attached sheet
- ☒ Description of potentially toxic or hazardous wastes with storage and disposal method - see attached sheet
- N/A ☐ Evidence of DEP approval of waste system
- N/A ☐ Evidence of qualified professional supervision of underground storage system design and installation
- N/A ☐ Analysis by qualified engineer

**Identify the uses proposed in this Special Permit application.**

Use	Proposed	Allowed in either Aquifer Protection or Water Resource District	Allowed only in Aquifer Protection District	Allowed only in Water Resource District
<b>Principal Use</b>				
• Self-Storage Facility		X		
• Truck Terminal				X
• Sanitary landfill, junkyard, salvage yard, other solid waste disposal				X
• Motor vehicle service or washing station				X
<b>Accessory Use</b>				
• Manufacture, use, transport, storage or disposal of toxic or hazardous materials in excess of 5 gallons or 25 pounds dry weight of any substance or a total of all substances not to exceed 50 gallons or 250 pounds dry weight, on a site at any one time as an accessory activity for nonresidential and nonagricultural principal activities		X		
• Parking area with 100 or more spaces capacity		X		
• Waste characteristics: Hazardous waste generation, treatment or storage in quantities not to exceed Very Small Quantity Generators (VSQGs) as defined in DEP 310 CMR 22.21(2)(a)(7) or subsequent equivalent regulation(s) currently in effect		X		
• On-site disposal of industrial waste		X		
• Grading resulting in exterior grades less than five feet		X		

Use	Proposed	Allowed in either Aquifer Protection or Water Resource District	Allowed only in Aquifer Protection District	Allowed only in Water Resource District
above maximum groundwater elevation				
• Estimated sewage flow greater than 6 gallons/day per 1,000 s.f. of lot area		X		
• Estimated sewage flow greater than 15,000 gallons per day	X	X		
• Use retaining less than 30% of lot area in natural state		X		
• Underground storage of gasoline or chemicals				X
• Storage of heating oil or petroleum in quantities greater than 500 gallons				X
• Disposal of snow from outside the district				X
• Storage of sludge and/or septage not stored in accordance with DEP 310 CMR 22.21(2)(b)(1)				X
<b>Impervious Surfaces</b>				
• Rendering impervious more than 20% but not less than 50% of any lot or parcel in Water Resource District				X
• Rendering impervious more than 15% or 2500 square feet of any lot or parcel but less than 30% in Aquifer District	X			X

**Application Review**  
**FOR PLANNING DEPARTMENT USE ONLY**

**§ 173-62(B) Special Permit Criteria**

- Groundwater quality performance rule met
- Location of water quality wells shown

**§ 173-63: Design and Operation Guidelines \***

- Safeguards against materials discharge or loss adequate
- Location of potential pollution source outside district where feasible
- Waste disposal provisions adequate
- Provision for on-site stormwater recharge or waived during site plan review\*
- Oil, grease, and sediment traps provided, if applicable\*
- Separate collection of drainage from loading areas for toxic or hazardous materials\*
- Monitoring adequate, if required
- Storage of ice control chemicals adequate

\*Provision shall be made for on-site recharge of stormwater runoff from impervious surfaces without degradation to groundwater if a special permit is to be granted for greater than 15 % coverage (but less than 30 %) in the Aquifer District and for impervious cover greater than 20% (but less than 50%) in the Water Resource District. Such recharge shall include (but not limited to) infiltration through methods as outlined in the Town of Littleton Low Impact Design/Best Management Practices Manual (latest edition) unless otherwise approved by the Planning Board during site plan review. Where dry wells or leaching basins are used, they shall be preceded by oil, grease and sediment traps. Drainage from loading areas for toxic or hazardous materials shall be separately collected for safe disposal.”





Form Updated 6/2014

**Town of Littleton**  
**AQUIFER AND WATER RESOURCE DISTRICT CHECKLIST**

**PRINCIPAL USE:**

A. In either Aquifer or Water Resource District:

- \_\_\_\_\_ Manufacture, use, transport, storage or disposal of toxic or hazardous materials as a principal activity NOT ALLOWED IN EITHER AQUIFER OR WATER RESOURCE DISTRICT
- \_\_\_\_\_ Vehicular retail sales as a principal use NOT ALLOWED IN EITHER AQUIFER OR WATER RESOURCE DISTRICT
- \_\_\_\_\_ Self-Storage Facility as a principal use

B. In Water Resource District ONLY (these principal uses are NOT ALLOWED in Aquifer District)

- \_\_\_\_\_ Truck terminal (4 or fewer trucks)
- \_\_\_\_\_ Sanitary landfill, junkyard, salvage yard, other solid waste disposal
- \_\_\_\_\_ Motor vehicle service or washing station

**ACCESSORY USE OR ACTIVITY:**

A. In either Aquifer or Water Resource Districts:

- \_\_\_\_\_ Manufacture, use, transport, storage or disposal of toxic or hazardous materials in excess of 5 gallons or 25 pounds dry weight of any substance or a total of all substances not to exceed 50 gallons or 250 pounds dry weight, on a site at any one time as an accessory activity for nonresidential and nonagricultural principal activities
- \_\_\_\_\_ Storage of ice-control chemicals, commercial fertilizers or animal manure not stored in accordance with DEP 310 CMR 22.21 (2)(b)(2), (b)(3) and (b)(4). NOT ALLOWED IN EITHER AQUIFER OR WATER RESOURCE DISTRICT
- \_\_\_\_\_ Parking area with 100 or more spaces capacity
- \_\_\_\_\_ Waste characteristics: Hazardous waste generation, treatment or storage in quantities not to exceed Very Small Quantity Generators (VSQGs) as defined in DEP 310 CMR 22.21(2)(a)(7) or subsequent equivalent regulation(s) currently in effect
- \_\_\_\_\_ On-site disposal of industrial waste
- \_\_\_\_\_ Grading resulting in exterior grades less than five feet above maximum groundwater elevation
- \_\_\_\_\_ Estimated sewage flow greater than 6 gallons/day per 1,000 s.f. of lot area
- ☒ \_\_\_\_\_ Estimated sewage flow greater than 15,000 gallons per day
- \_\_\_\_\_ Use retaining less than 30% of lot area in natural state

**Town of Littleton**  
**AQUIFER AND WATER RESOURCE DISTRICT CHECKLIST**

B. In Water Resource District Only (these accessory uses are NOT ALLOWED in the Aquifer District)

- \_\_\_\_\_ Underground storage of gasoline or chemicals
- \_\_\_\_\_ Storage of heating oil or petroleum in quantities greater than 500 gallons
- \_\_\_\_\_ Disposal of snow from outside the district
- \_\_\_\_\_ Storage of sludge and/or septage not stored in accordance with DEP 310 CMR 22.21(2)(b)(1)
- \_\_\_\_\_ Waste generation in quantities greater than VSQGs limits
- \_\_\_\_\_ On-site disposal of industrial waste, as defined in DEP 310 CMR 22.21 (2)(a)(6).

**IMPERVIOUS COVER:**

- \_\_\_\_\_ Rendering impervious more than 20% but not less than 50% of any lot or parcel in Water Resource District
- ☒ \_\_\_\_\_ Rendering impervious more than 15% or 2500 square feet of any lot or parcel but less than 30% in Aquifer District

**§ 173-62(B) Special Permit Criteria**

- \_\_\_\_\_ Groundwater quality performance rule met
- \_\_\_\_\_ Location of water quality wells shown

**§ 173-62 (D) Special Permit Submittals**

- ☒ \_\_\_\_\_ Complete list of potentially toxic or hazardous materials used or stored
- ☒ \_\_\_\_\_ Description of protective and preventive measures
- ☒ \_\_\_\_\_ Description of potentially toxic or hazardous wastes with storage and disposal method
- ☐ N/A \_\_\_\_\_ Evidence of DEP approval of waste system
- ☐ N/A \_\_\_\_\_ Evidence of qualified professional supervision of underground storage system design and installation
- ☐ N/A \_\_\_\_\_ Analysis by qualified engineer

**§ 173-63: Design and Operation Guidelines\***

**Not applicable since the proposed project results in 11% impervious coverage on the parcel.**

- \_\_\_\_\_ Safeguards against materials discharge or loss adequate
- \_\_\_\_\_ Location of potential pollution source outside district where feasible
- \_\_\_\_\_ Waste disposal provisions adequate
- \_\_\_\_\_ Provision for on-site stormwater recharge or waived during site plan review\*
- \_\_\_\_\_ Oil, grease, and sediment traps provided, if applicable\*

**Town of Littleton**  
**AQUIFER AND WATER RESOURCE DISTRICT CHECKLIST**

- \_\_\_\_\_ Separate collection of drainage from loading areas for toxic or hazardous materials\*
- \_\_\_\_\_ Monitoring adequate, if required
- \_\_\_\_\_ Storage of ice control chemicals adequate

\*Provision shall be made for on-site recharge of stormwater runoff from impervious surfaces without degradation to groundwater if a special permit is to be granted for greater than 15 % coverage (but less than 30 %) in the Aquifer District and for impervious cover greater than 20% (but less than 50%) in the Water Resource District. Such recharge shall include (but not limited to) infiltration through methods as outlined in the *Town of Littleton Low Impact Design/Best Management Practices Manual (latest edition)* unless otherwise approved by the Planning Board during site plan review. Where dry wells or leaching basins are used, they shall be preceded by oil, grease and sediment traps. Drainage from loading areas for toxic or hazardous materials shall be separately collected for safe disposal.”

## **Supplemental Information §173-62(D)**

### **Complete List of Potentially Toxic or Hazardous Materials Used or Stored:**

- Potassium hydroxide: 2,000 gallons
- Micro C (glycerin based supplemental carbon): 275-gallon IBC tote
- Citric acid: 1-2 55-gallon drums
- Sodium hypochlorite: 1-2 55-gallon drums

### **Description of Protective and Preventative Measures:**

The four main chemicals (potassium hydroxide, Micro C/glycerin based supplemental carbon, citric acid, and sodium hypochlorite) will be stored within the locked Water Resources Recovery Facility's (WRRF) process building which will require badge access for entry. Access to the overall site will be secured via a driveway gate that also require badge access to unlock. The potassium chloride hydroxide will be stored within a double walled storage tank. The supplemental carbon will be delivered to the site and stored in standard 275-gallon IBC totes and be placed on spill containment pallets. The citric acid and sodium hypochlorite will be delivered to the site and stored in 55-gallon drums and placed on spill containment pallets. There will be an emergency eyewash and shower station within the building for any accidental chemical exposure.

### **Description of Potentially Toxic or Hazardous Wastes with Storage and Disposal Method:**

The facility will not generate or store any potentially toxic or hazardous waste. Influent screenings will be collected and hauled offsite for disposal. Municipal wastewater sludge generated by the treatment process will be stored in an outdoor tank and hauled from the site periodically for offsite processing and treatment at another wastewater facility.



**TOWN OF LITTLETON  
SITE PLAN REVIEW CHECKLIST**

Littleton Town Offices  
37 Shattuck Street  
Room 303  
Littleton, MA 01460  
(978) 540-2425

Drawing # \_\_\_\_\_  
Drawing Date \_\_\_\_\_

Proposed Title Littleton Sewer Expansion Project Reviewer \_\_\_\_\_

Applicant Littleton Water Department

Application Date April 7, 2022

Date of Formal Review by Planning Board \_\_\_\_\_

Project Description: Construction of new water resources recovery facility (WRRF) at 242 King Street.

new 24-ft wide access drive from King Street, and site improvements including on-site stormwater management system.

**PLANNING BOARD ACTION**

\_\_\_\_\_ APPROVED

\_\_\_\_\_ APPROVED SUBJECT TO MODIFICATION

\_\_\_\_\_ DISAPPROVED

By vote of the Littleton Planning Board

\_\_\_\_\_ Date: \_\_\_\_\_

Date of Notice to Building Commissioner \_\_\_\_\_

**POLICY ON TRAFFIC & PEDESTRIAN MITIGATION**

Calculated Fee (\$100 per parking space) \_\_\_\_\_

\_\_\_\_\_ Fee Paid

Y \_\_\_\_\_ Fee Waived

DRAWING REQUIREMENT: §173-17: Littleton Zoning Bylaw

- ☒ Boundary Lines
- ☒ Adjacent streets and ways shown
- ☒ Topography, existing and proposed
- ☒ Structures, existing and proposed
- ☐ Walkways
- ☒ Principal drives
- ☒ Service entries
- ☐ Parking
- ☒ Landscaping
- ☒ Screening
- ☐ Park or recreation areas
- ☒ Utilities:
  - ☒ a. Water
  - ☒ b. Electricity
  - ☒ c. Gas
  - ☐ d. Telephone
- ☒ Sanitary sewerage
- ☒ Storm drainage
- ☒ Seal of registered Architect, Landscape Architect, or Professional Engineer

+++++

DESIGN REQUIREMENTS §173-18

- ☒ Internal Circulation safe
- ☒ Egress safe
- ☒ Access via minor streets minimized
- ☐ Visibility of parking areas minimized
- ☒ Lighting avoids glare
- ☒ Major topography change, tree removal minimized
- ☒ Adequate access to each structure for emergency equipment
- ☒ Utilities adequate
- ☒ Drainage adequate





N/A \_\_\_\_\_ Screened from abutting residential uses, public ways (§173-32, C.3) for 8 or more cars

§ 173-33: Loading Requirements

Y \_\_\_\_\_ No need for trucks to back onto or off a public way

Y \_\_\_\_\_ No need for trucks to park on a public way while loading, unloading, or waiting to do so

§ 173-34: Sign Regulation administered by Board of Selectmen, not included in Site Plan Review.

§ 173-43: Landscaping and Screening

N/A \_\_\_\_\_ Outdoor sales display, commercial outdoor recreation screened

N/A \_\_\_\_\_ Industrial “A” buffer provided

Y \_\_\_\_\_ Corner vision clear

Y \_\_\_\_\_ Exterior lighting complies

SPECIAL REGULATIONS

§ 173-52: Motor Vehicle Services

N/A \_\_\_\_\_ Requirements met, if applicable

§ 173-53: Accessory Uses

N/A \_\_\_\_\_ Floor and Land area requirements met, if applicable

173-61: Aquifer and Water Resource District

Y \_\_\_\_\_ Aquifer District applicable

Y \_\_\_\_\_ Water Resource District applicable

Y \_\_\_\_\_ Regulations met, if applicable (See separate checklist)

173-72: Wetlands and Flood Plain Regulations

Y \_\_\_\_\_ Wetlands and flood plain regulations met, if applicable

173-78: Noise Regulations

N/A \_\_\_\_\_ Applicant informed of existence of requirements



# Figure 1

## Project Location Map



April 8, 2022

1 inch = 555 Feet

www.cai-tech.com



Street Labels	Public Road	Wet Areas
Street Centerlines	Right of Way	Water-poly
Private Road	Wetland	
Property Line	WaterLines	

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.





# Figure 2

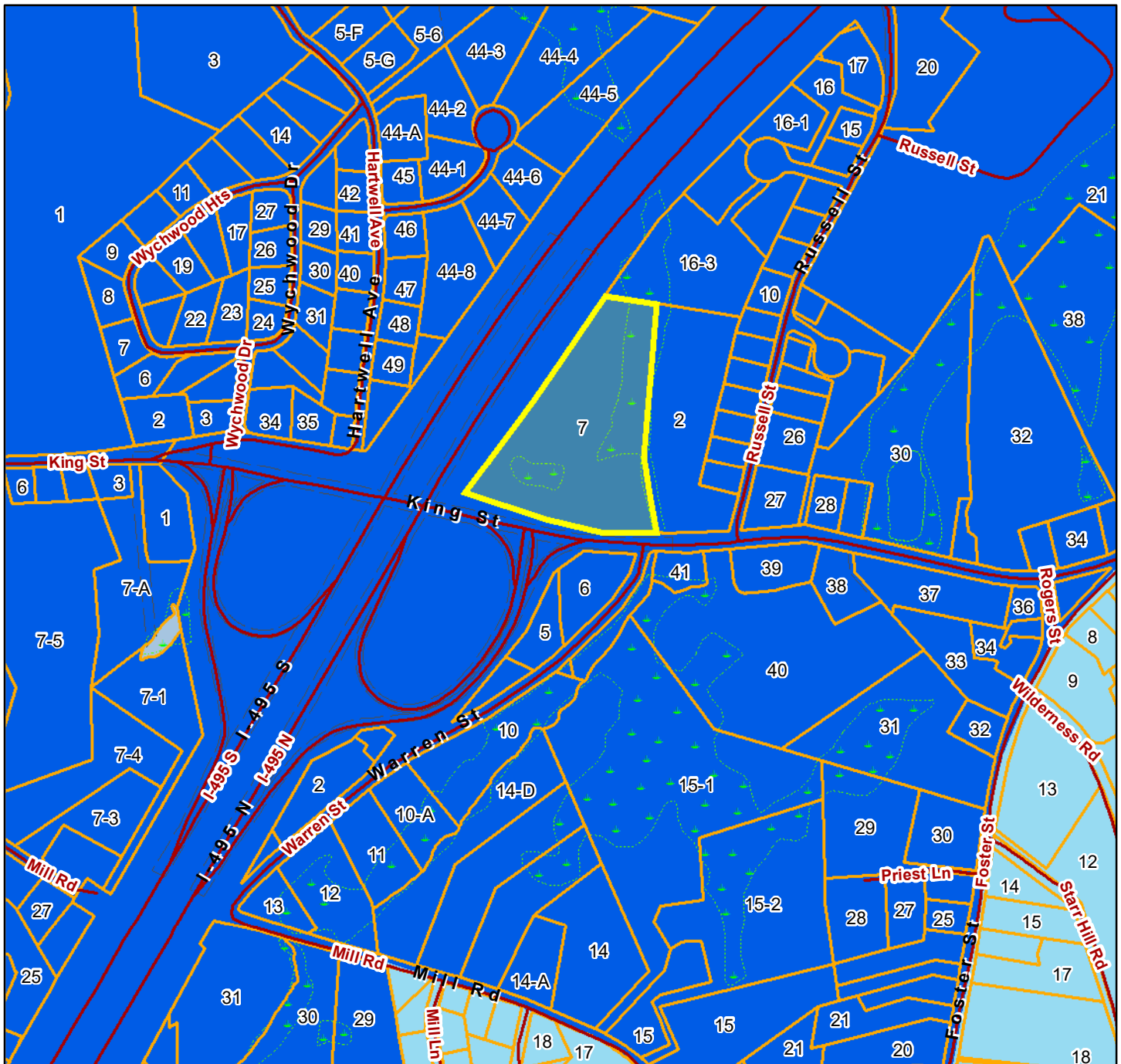
Aquifer and Water Resource Districts Map



April 8, 2022

1 inch = 555 Feet

www.cai-tech.com



Street Labels	Public Road	Wet Areas
Street Centerlines	Right of Way	Water-poly
Private Road	Wetland	Aquifer
Property Line	WaterLines	Water Resource

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

# **Attachment A**

## **Project Narrative**

# Project Narrative

## 1.0 Introduction

The Littleton Water Department (LWD) is submitting this Site Plan Review/Special Permit application for the proposed new centralized Water Resources Recovery Facility (WRRF) at 242 King Street (Parcel ID U36-7-0). This parcel is within the Residence District according to the "Zoning and Property Maps, Littleton, Mass.," originally dated May 10, 1980, as most recently amended. LWD is seeking a Special Permit to allow for the construction of the proposed WRRF within the Aquifer and Water Resource Districts. According to Littleton Zoning Bylaw (Article XIV Aquifer and Water Resource District), the proposed use of the parcel for a public water resources recovery facility is a permissible use (§173-61) but requires Special Permit authorization from the Littleton Planning Board since the proposed WRRF will render more 2,500 square feet impervious. The construction of a new WRRF on Parcel ID U36-7-0, also requires Site Plan approval.

The proposed construction of the new WRRF at 242 King Street is part of the proposed Phase 1A of the Littleton Sewer Expansion Project. Phase 1A also includes the following work (not subject to Site Plan/Special Permit approval):

- Approximately 24,400 linear feet of new sewer collection piping (ranging in diameter from 4 to 18 inches) within existing paved streets
- Two (2) new sewerage pumping stations, one at Great Road and the other at the High School, and upgrades to the existing Littleton Middle School Pumping Station
- Effluent recharge site at the Littleton High School property (outside Conservation Commission jurisdiction)

The proposed Great Road Pumping Station will pump flow from parcels north of King Street, along Great Road and White Street, to a new gravity sewer to be installed in King Street and Shattuck Street. Sewerage flow will flow via gravity to the upgraded Littleton Middle School pumping station and then be pumped to the new centralized WRRF at 242 King Street via a new force main within Russell Street and King Street.

The treated effluent will be pumped from the WRRF to the proposed recharge site at the Littleton High School, to be recharged in a new subsurface leaching system below the athletic fields. The Town currently maintains a groundwater discharge permit for a package style WRRF with a capacity of 17,600 gpd at Littleton High School (56 King Street). The current effluent recharge site is permitted through Massachusetts Department of Environmental Protection (MassDEP)'s groundwater discharge program, and an increased capacity of 208,854 gpd has been requested for proposed recharge site.

### 1.1 Zoning

The parcel identified as 242 King Street is located in the Residence District. "*Municipal use[s] not elsewhere more specifically cited*" in the Zoning Bylaw are permitted as of right in all zoning

districts. It is LWD's understanding that the proposed WRRF would be permitted as of right as a municipal use not elsewhere more specifically cited in the Zoning Bylaw and therefore a variance from §173-25 (Use Regulations) is not required.

## 2.0 Littleton Existing Public Wastewater Services

### 2.1 Background

The Littleton Water Department (LWD) currently owns and operates a wastewater system comprising 3,900-ft of gravity sewer, 10,350-ft of force main, one pumping station, and a package style water resource recovery facility (WRRF) with a capacity of 17,600 gpd located at Littleton High School, with a groundwater effluent recharge site located beneath the athletic fields at Littleton High School. The current system serves several Town-owned buildings including the Fire Station, Town Offices, Town Library, Alumni Field, Littleton High School, Littleton Middle School, and Russell Street Elementary School.

There are seven private package wastewater treatment plants in the Town of Littleton. The plants range in size and are limited to the amount of wastewater they can treat based on each specific discharge permit. The remaining parcels in the Town not currently connected to the existing system or a private package wastewater treatment plant have Title 5 Septic systems on each individual parcel. These systems were designed to remove organics, solids, and pathogens, however, they do very little to reduce nutrients in the liquid waste. The nitrogen levels in the liquid waste infiltrate into the groundwater resulting in degraded water quality. In addition, phosphorus remaining in the effluent, if not absorbed in the surrounding soils, can cause water quality issues in the Town's freshwater ponds and streams.

### 2.2 Wastewater Needs Assessment

In March 2020, CDM Smith was contracted by the LWD to perform a Wastewater Needs Assessment for the entire Town of Littleton, including the following tasks:

- Review and Confirm Wastewater Needs
- Review Collection and Treatment System Technologies
- Siting of Wastewater Treatment Facility
- Develop Recommended Plan

The Wastewater Needs Assessment reviewed environmental concerns including impact to drinking water Zone II areas, nitrate in wells, impaired water bodies, poor soils for infiltration, small lots that may inhibit the size of a septic system, high groundwater, flood zones, and wetland proximity. Additionally, the Wastewater Needs Assessment reviewed the Town's planning areas and historic sites.

The Wastewater Needs Assessment recommended areas to be serviced by sewer to be phased (Phases 1A, 1B, and 2 through 4), however Phases 3 (formerly Phase 2 in the Needs Assessment) and 4 which involve a combination of new sewer and pumping stations will be under adaptive management and may not be constructed. Continued monitoring of the results from previous

phases to meet the ultimate water quality goals of the Needs Assessment will determine if Phases 3 and 4 will be constructed. The Wastewater Needs Assessment is available via this web link <https://www.lclwd.com/sewer-department/>.

The Wastewater Needs Assessment developed a phased recommended plan for the Town of Littleton with a new centralized Water Resources Recovery Facility (WRRF) consisting of a Membrane Bioreactor (MBR) treatment system located at 242 King Street and expansion of the existing effluent recharge site at the Littleton High School (56 King Street) to be constructed under Phase 1A and a hybrid collection system comprising of gravity sewers, supplemented with pumping stations and force mains at low points (Phases 1A, 1B, and 2).

### 3.0 Existing Conditions

The property is an 8.9-acre parcel (Parcel ID U36-7-0) located at 242 King Street in Littleton, Massachusetts (See Figure 1 – USGS). The property is bounded by King Street to the south, Route 495 to the west and north, and Beaver Brook to the east. The parcel contains a former residence and warehouse adjacent to King Street, a former agricultural field in the center of the parcel, the remainder of the parcel is wooded except for the eastern side of the parcel which contains the Beaver Brook and associated emergent marsh wetlands. The parcel is zoned as residential and is located within both the Aquifer and Water Resource District (see Figure 2). A total of approximately 19,170 square feet (0.44 acre) of impervious area currently exist on the parcel.

A low-lying area is located at the southwestern corner of the parcel and collects stormwater from King Street and a small portion of Route 495 and exit ramps. Stormwater flows from a 36-inch concrete pipe and a 12-inch pipe beneath King Street discharges into the man-made basin.

#### Tree Inventory

Per request of the Littleton Conservation Commission, CDM Smith performed a tree inventory within the area of proposed disturbance on 242 King Street. Trees 6 inches diameter at breast height (DBH) or greater were included in the inventory and identified to genus and species (included as a separate attachment). A planting plan using native species has been developed and is included as Sheet C-7 of the Site Plans.

## 4.0 Proposed Work within the Aquifer and Water Resource District

### 4.1 Site Layout

The new centralized WRRF at 242 King Street will use membrane bioreactor (MBR) treatment technology and have an initial buildout average daily design flow capacity of 208,000 gpd. The proposed layout of the new WRRF maximizes the use of the open field to minimize tree clearing, also this avoids cutting into the slope leading up to Route 495 and avoids impacts to an existing natural swale at the base of the slope which conveys natural stormwater flow. Proposed structures include a submersible influent equalization tank with four 4-ft by 4-ft access hatches, wet well and valve vault with access hatches, bioreactor tanks, a 75-ft by 64-ft process building, effluent pumping station, and an emergency generator placed on a 12' by 6' concrete pad outside of the process building (see Sheet C-1 of the Site Plans). An MBR system is an activated sludge reactor with membrane filtration downstream of anoxic and aerobic bioreactors. The MBR option

is cost-effective, easily expandable, and able to treat to stringent permit limits. Access to the new WRRF will be from King Street at the via a new 24-ft wide paved driveway (see Sheet C-4 of the Site Plans). The existing warehouse on 242 King Street will be demolished prior to any site work. The new driveway will cross the existing low-lying area and be widened to allow for truck turn around at the new membrane process building. The existing stormwater basin will be retrofitted as part of the new stormwater management system described in the Stormwater Management Report. A chain link fence will be installed around the plant site with a security gate across the new driveway. All yard piping to the proposed plant (i.e., new 8-inch, 6-inch, and 4-inch diameter PVC force mains) will be installed within the footprint of the new driveway (see Sheet C-6 of the Site Plans).

Prior to commencement of work, a compost log barrier will be installed as shown on the Site Plans to prevent any sediment for entering adjacent wetlands or Beaver Brook. The compost log barrier will be inspected weekly and after all storm events of 0.5 inch or greater and repaired as needed. The barrier will be left in place until the area is permanently stabilized. A stockpile of compost logs will be maintained on site for routine maintenance and emergency repairs. Compost logs will be replaced as necessary due to sediment build-up and degradation.

## 4.2 Lighting Design

Only the process building will be equipped with exterior lighting as shown on Sheet E-19 in Attachment D. The exterior lighting complies with the requirements of the local Zoning Bylaw §173-49. The exterior lights will have die cast aluminum housing and fixtures mounted 10.5 feet up on the exterior wall. The fixture points down towards the ground, with shielding on top of the fixture so no lighting travels upwards and outwards towards any roadway or residential area. There will be no shadowing in residential zoning areas. The WRRF is set back in a forested area away from any residentially zoned areas, so lighting overspill is not a concern in this application. A lighting calculation confirms that the lighting will not be visible in any residential areas or roadways.

## 4.3 Traffic

Traffic generated from the new WRRF will be minimal. An 18-wheeler tanker trailer (WB50) will haul sludge away from the WRRF approximately twice per week. The new sludge tank will be equipped with a pump and sludge will be transferred to the tanker trailer via a hose. The paved area will be slightly sloped at the truck fill point to collect any drips from the hose. There will be chemical deliveries to the plant about once a month. The new WRRF will not be staffed continuously however LWD staff will visit plant daily to perform routine checks, daily sampling, and inspections.

## 4.4 New Impervious Area

A total of approximately 19,170 square feet (0.44 acre) of impervious area currently exist on the parcel. With the project site being within the Aquifer & Water Resource Overlay Districts, these Districts limit the total impervious cover on the site. The new WRRF and site improvements will increase the total impervious area on the site from 4.9% (0.44 acre) to 11% (0.97 acre) from the construction of the new process building and access road. This percentage is below the 30% maximum allowed coverage but does requires a Special Permit from the Planning Board since



more than 2,500 square feet of impervious area is proposed. The proposed WRRF and site improvements will render 42,253 square feet of the parcel impervious. Though there is an increase of impervious area on the total site, the proposed site improvements reduce the amount of untreated impervious cover and provide stormwater infiltration and recharge.

## 5.0 Compliance with MGL Chapt. 40A and Littleton Zoning Bylaw §173-7

In the case of a special permit, the following points, based on G.L. c. 40A and the § 173-7 of the Littleton Zoning Bylaw must be clearly identified and factually supported in the Application:

*(a) The use proposed for the land or structure, if any.*

The proposed use of the land is municipal for a new water resources recovery facility operated by the Littleton Water Department.

*(b) The conditions and character of operations of the proposed uses which show that it will be in harmony with the general purpose and intent of the district and the Zoning Bylaw.*

The proposed layout of the new WRRF maximizes the use of the open field to minimize tree clearing, and also minimizes topographic changes by avoiding cutting into the slope leading up to Route 495 and impacting an existing natural swale at the base of the slope which conveys natural stormwater flow. The proposed stormwater management system fully complies with the Town of Littleton Low Impact Design/Best Management Practices Manual as required by the local Zoning Bylaw. The new WRRF facility will generate minimal traffic and the exterior lighting design complies with §173-49. Net impervious area within the Aquifer and Water Resource District remains below 15% of the total parcel area.

*(c) The nature of the proposed use in relation to both the general and specific provisions of the Zoning Bylaw governing that use and the district in which it is located; and*

It is our understanding that the proposed WRRF is permitted as of right as a municipal use in the Residence District. The proposed project complies with the general and specific provisions of the Zoning Bylaw as described in this project narrative.

*(d) Satisfaction of the specific criteria and objectives set forth in § 173-7 of the Zoning Bylaw, as may be amended.*

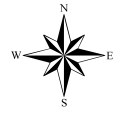
The proposed layout and design of the new centralized WRRF will not result in nuisance, hazard, or congestion, nor cause substantial harm to the neighborhood or derogation of the intent of the local Zoning Bylaw.

## 6.0 Summary

The proposed project will allow the Town of Littleton to meet its water and land resource management needs while achieving desired smart economic growth and improve impaired water resources.

## **Attachment B**

### **Certified Abutters List and Map**

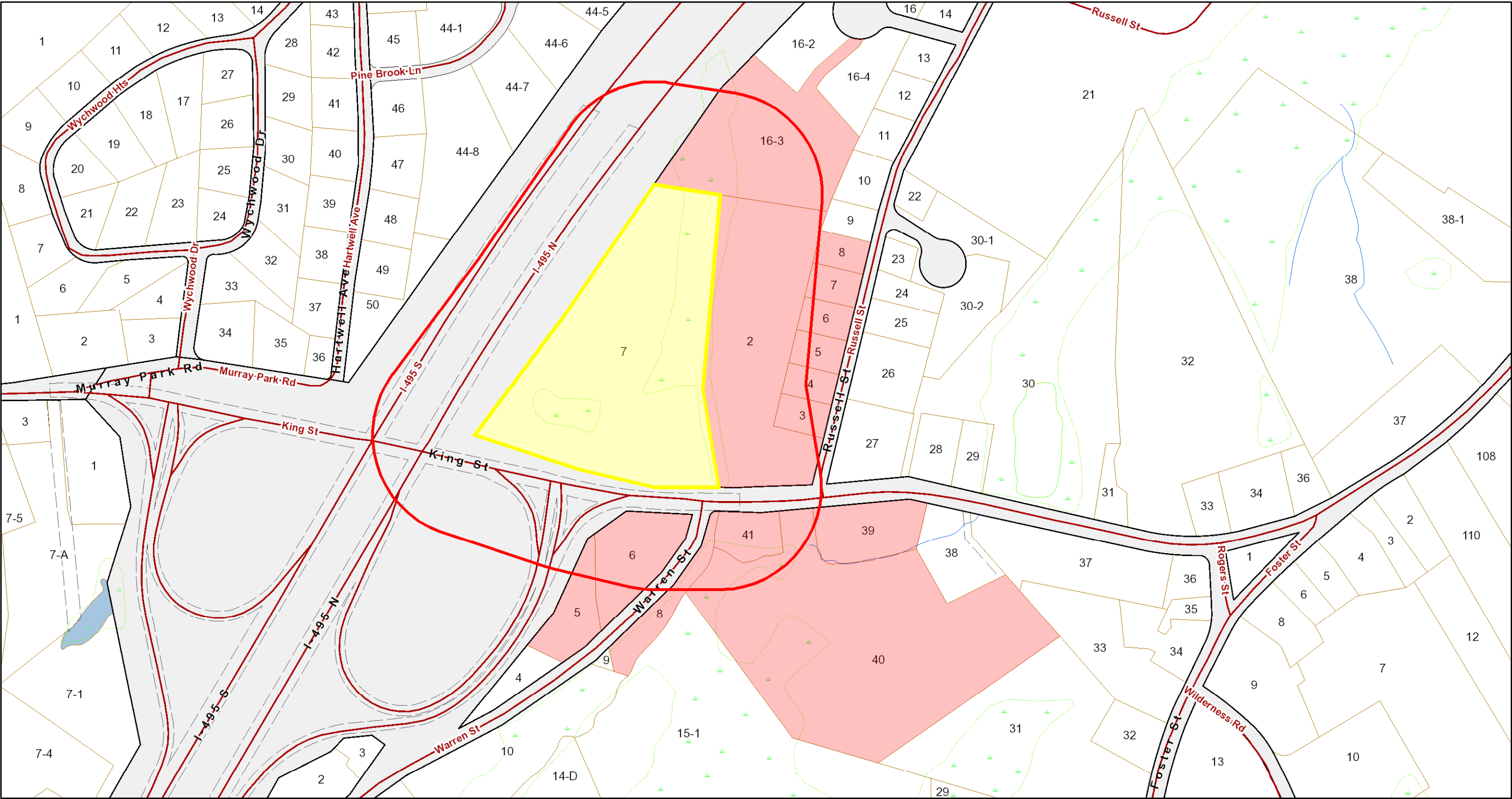


March 22, 2022

Littleton, MA

1 inch = 277 Feet

[www.cai-tech.com](http://www.cai-tech.com)



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

4 HIGHLAND LN U19 16 3  
LUC: 101  
PATHAK ARPITA  
PATHAK AMEET  
4 HIGHLAND LANE  
LITTLETON, MA 01460

250 KING ST U19 2 0  
LUC: 101  
DRISCOLL CHARLES  
P.O. BOX 416  
LITTLETON, MA 01460

6 RUSSELL ST U19 3 0  
LUC: 101  
O'LARI SCOTT A  
6 RUSSELL ST  
LITTLETON, MA 01460

10 RUSSELL ST U19 4 0  
LUC: 101  
SMITH GEORGE A & KRISTIN M TRS  
GEORGE & KRISTIN SMITH FAM TR  
10 RUSSELL ST  
LITTLETON, MA 01460

14 RUSSELL ST U19 5 0  
LUC: 101  
SOLLOWS KEVIN  
LEARY KIRSTEN  
14 RUSSELL ST  
LITTLETON, MA 01460

18 RUSSELL ST U19 6 0  
LUC: 101  
ST GELAIS BRIAN A  
ST GELAIS KASSANDRA S  
18 RUSSELL STREET  
LITTLETON, MA 01460

22 RUSSELL ST U19 7 0  
LUC: 101  
EDWARD WHITCOMB 2006 TRUST  
COLLEEN WHITCOMB 2006 TRUST  
265 HILL RD  
BOXBOROUGH, MA 01719

26 RUSSELL ST U19 8 0  
LUC: 101  
ERACLEO JOSEPH  
26 RUSSELL ST  
LITTLETON, MA 01460

267 KING ST U20 39 0  
LUC: 104  
CUPP & KIDS REALTY, LLC  
260 SECOND STREET  
CHELSEA, MA 02150

263 KING ST U20 40 0  
LUC: 071  
CUPP GERALD M  
CUPP LISA A  
198 SHADYSIDE AVE  
CONCORD, MA 01742

257 KING ST U20 41 0  
LUC: 971  
LITTLETON TOWN OF  
LIGHT & WATER DEPT  
PO BOX 1305  
LITTLETON, MA 01460

WARREN ST U36 5 0  
LUC: 132  
NASHOBA OIL CO INC  
C/O SHERRY GRANCEY  
197 EIGHTH ST #423  
CHARLESTOWN, MA 02129

WARREN ST U36 6 0  
LUC: 132  
WARRENS MILL REALTY LLC  
45 POWER RD  
WESTFORD, MA 01886

242 KING ST U36 7 0  
LUC: 104  
MONTANARI MARK J/RITA M - TRS  
242 KING STREET TRUST  
P.O. BOX 957  
LITTLETON, MA 01460

WARREN ST U36 8 0  
LUC: 932  
LITTLETON TOWN OF  
CONSERVATION COMMISSION  
PO BOX 1305  
LITTLETON, MA 01460

## **Attachment C**

### **Tree Inventory - 242 King Street**

Tag No.	Common Name	Scientific Name	Squared DBH in inches (for multi trunk trees only)	DBH in Inches	Condition	Notes
428	Eastern white pine	<i>Pinus strobus</i>	422.5	21	Good	Twin trunk
429	Eastern white pine	<i>Pinus strobus</i>	464.5	22	Good	Twin trunk
430	Northern catalpa	<i>Catalpa speciosa</i>		8	Good	
431	Red maple	<i>Acer rubrum</i>		24.5	Good	
432	American elm	<i>Ulmus americana</i>		10.5	Good	
433	Eastern white pine	<i>Pinus strobus</i>		35	Good	
434	Eastern white pine	<i>Pinus strobus</i>		21.5	Good	
435	Black cherry	<i>Prunus serotina</i>	94.5	9.7	Good	Multi trunk (4)
436	Box elder	<i>Acer negundo</i>	378.25	19.4	Good	Multi trunk (3)
437	Eastern white pine	<i>Pinus strobus</i>		15.5	Fair	
438	Red oak	<i>Quercus rubra</i>		16	Good	
439	Northern catalpa	<i>Catalpa speciosa</i>		6	Good	
440	Eastern white pine	<i>Pinus strobus</i>		17	Good	
441	Red oak	<i>Quercus rubra</i>		24.5	Good	
442	Eastern white pine	<i>Pinus strobus</i>	1241	35.2	Good	Twin trunk
443	Sugar maple	<i>Acer saccharum</i>		12	Good	
444	Sugar maple	<i>Acer saccharum</i>		8.5	Good	
445	Eastern white pine	<i>Pinus strobus</i>		17	Good	
446	Eastern white pine	<i>Pinus strobus</i>		15	Good	
447	Sugar maple	<i>Acer saccharum</i>		7	Good	
448	Eastern white pine	<i>Pinus strobus</i>	856.5	29.3	Good	Multi trunk (3)
449	Eastern white pine	<i>Pinus strobus</i>		29	Good	
450	Box elder	<i>Acer negundo</i>		13	Fair	
451	Red maple	<i>Acer rubrum</i>		20	Good	
452	Red maple	<i>Acer rubrum</i>		24	Good	
453						Tag not used
454	Red maple	<i>Acer rubrum</i>	501.25	22.4	Good	Twin trunk
455	Red maple	<i>Acer rubrum</i>		20.5	Good	
456	Red maple	<i>Acer rubrum</i>		11.5	Good	
457	Red maple	<i>Acer rubrum</i>		17	Good	
458	Red maple	<i>Acer rubrum</i>		11	Good	
459	Red maple	<i>Acer rubrum</i>		9.5	Good	
460	Red maple	<i>Acer rubrum</i>	254.25	15.9	Good	Twin trunk
461	Red maple	<i>Acer rubrum</i>		15	Good	
462	Red maple	<i>Acer rubrum</i>		10	Good	
463	Red maple	<i>Acer rubrum</i>		13	Fair	

Tag No.	Common Name	Scientific Name	Squared DBH in inches (for multi trunk trees only)	DBH in Inches	Condition	Notes
464	Red maple	<i>Acer rubrum</i>		9	Good	
465	Eastern white pine	<i>Pinus strobus</i>	100	10.0	Good	Twin trunk
466	Eastern white pine	<i>Pinus strobus</i>		13.5	Fair	
467	Eastern white pine	<i>Pinus strobus</i>	164	12.8	Fair	Twin trunk, branches dead 3/4 up from ground
468	Red maple	<i>Acer rubrum</i>		13	Good	
469	Sugar maple	<i>Acer saccharum</i>		8	Good	
470	Sugar maple	<i>Acer saccharum</i>	164	12.8	Good	Twin trunk
471	Sugar maple	<i>Acer saccharum</i>		9.5	Good	
472	Eastern white pine	<i>Pinus strobus</i>	596.25	24.4	Fair	Multi trunk (6)
473	Red maple	<i>Acer rubrum</i>		19.0	Good	
474	Red maple	<i>Acer rubrum</i>		15.0	Good	
475	Eastern white pine	<i>Pinus strobus</i>	662.5	25.7	Good	Twin trunk
476	Red maple	<i>Acer rubrum</i>		17.0	Good	
477	Eastern white pine	<i>Pinus strobus</i>		13.0	Good	
478	Eastern white pine	<i>Pinus strobus</i>		26.0	Good	
479	Eastern white pine	<i>Pinus strobus</i>		12.5	Good	
480	Eastern white pine	<i>Pinus strobus</i>		23	Fair	
481	Eastern white pine	<i>Pinus strobus</i>		10.5	Fair	
482	Red maple	<i>Acer rubrum</i>		6	Good	
483	Red maple	<i>Acer rubrum</i>		6	Fair	Lacking branches lower 3/4
484	Eastern white pine	<i>Pinus strobus</i>		20	Fair	Needles on top of crown only
485	Eastern white pine	<i>Pinus strobus</i>	250	16	Fair	Twin trunk, needles on top of crown only
486	Eastern white pine	<i>Pinus strobus</i>		13.5	Fair	Needles on top of crown only
487	Eastern white pine	<i>Pinus strobus</i>	286	17	Fair	Multi trunk (3), needles on top of crown only
488	Eastern white pine	<i>Pinus strobus</i>		12.5	Fair	Needles on top of crown only
489	Eastern white pine	<i>Pinus strobus</i>		16	Fair	Needles on top of crown only
490	Eastern white pine	<i>Pinus strobus</i>		10	Fair	
491	Eastern white pine	<i>Pinus strobus</i>	596	24	Good	Twin trunk, needles on top of crown only
492	Sugar maple	<i>Acer saccharum</i>		13.5	Good	
493	Sugar maple	<i>Acer saccharum</i>		14.5	Good	
494	Sugar maple	<i>Acer saccharum</i>		10	Good	
495	Eastern white pine	<i>Pinus strobus</i>	591.25	24	Good	Multi trunk (3)

Tag No.	Common Name	Scientific Name	Squared DBH in inches (for multi trunk trees only)	DBH in Inches	Condition	Notes
496	Eastern white pine	<i>Pinus strobus</i>		19	Fair	Needles on top of crown only
497	American elm	<i>Ulmus americana</i>		11	Good	
498	Northern catalpa	<i>Catalpa speciosa</i>		17.5	Good	
499	White ash	<i>Fraxinus americana</i>		12	Fair	Emerald ash borer
500	American elm	<i>Ulmus americana</i>		10	Good	
501	White ash	<i>Fraxinus americana</i>		12.5	Fair	
502	Box elder	<i>Acer negundo</i>		13	Good	
503	Northern catalpa	<i>Catalpa speciosa</i>		18	Good	
504	Red oak	<i>Quercus rubra</i>	357.25	19	Good	
505	Eastern white pine	<i>Pinus strobus</i>		22	Good	
506	Eastern white pine	<i>Pinus strobus</i>		30	Good	
507	White ash	<i>Fraxinus americana</i>		9	Good	
508	Sugar maple	<i>Acer saccharum</i>	202	14	Fair	Twin trunks, split trunks
509	Red maple	<i>Acer rubrum</i>		32	Good	
510	Eastern white pine	<i>Pinus strobus</i>		7	Good	
511	White ash	<i>Fraxinus americana</i>		7	Poor	Emerald ash borer
512	White ash	<i>Fraxinus americana</i>		7	Poor	Emerald ash borer
513	White ash	<i>Fraxinus americana</i>		6	Poor	Emerald ash borer
514	White ash	<i>Fraxinus americana</i>		13	Poor	Emerald ash borer
515	White ash	<i>Fraxinus americana</i>		5	Poor	Emerald ash borer
516	Red maple	<i>Acer rubrum</i>		18.5	Poor	Growing along the ground
517	White ash	<i>Fraxinus americana</i>		11	Poor	Emerald ash borer
518	Red maple	<i>Acer rubrum</i>		8	Poor	
519	White ash	<i>Fraxinus americana</i>		11	Poor	Emerald ash borer
520	White ash	<i>Fraxinus americana</i>		16	Poor	Emerald ash borer
521	Northern catalpa	<i>Catalpa speciosa</i>		6	Good	
522	Box elder	<i>Acer negundo</i>		6	Good	
523	Red maple	<i>Acer rubrum</i>	680	26	Good	Twin trunk
524	Box elder	<i>Acer negundo</i>		19	Good	
525	Box elder	<i>Acer negundo</i>		16.5	Good	
526	Box elder	<i>Acer negundo</i>		12	Good	
527	Box elder	<i>Acer negundo</i>		7.5	Good	
528	White ash	<i>Fraxinus americana</i>		9	Poor	Emerald ash borer
529	Black cherry	<i>Prunus serotina</i>	317	18	Good	Twin trunk
530	Box elder	<i>Acer negundo</i>	205	14	Good	Twin trunk
531	Box elder	<i>Acer negundo</i>		10	Good	



Tag No.	Common Name	Scientific Name	Squared DBH in inches (for multi trunk trees only)	DBH in Inches	Condition	Notes
532	Norway spruce	<i>Picea abies</i>		27	Good	
533	Norway spruce	<i>Picea abies</i>		23	Good	
534	Eastern white pine	<i>Pinus strobus</i>	369	19	Good	Twin trunk
535	Red maple	<i>Acer rubrum</i>		8	Fair	
536	Eastern white pine	<i>Pinus strobus</i>		15	Dead	
537	White ash	<i>Fraxinus americana</i>		8.5	Poor	Emerald ash borer
538	Eastern white pine	<i>Pinus strobus</i>	450	21	Good	Multi trunk (3)
539	American elm	<i>Ulmus americana</i>		9	Good	
540	White ash	<i>Fraxinus americana</i>		7	Poor	Emerald ash borer
541	American elm	<i>Ulmus americana</i>	292	17	Good	Twin trunk
542	Eastern white pine	<i>Pinus strobus</i>		7	Poor	
543	Crab apple	<i>Malus sp.</i>	56.25	8	Good	Twin trunk
544	Eastern white pine	<i>Pinus strobus</i>		23	Good	
545	American elm	<i>Ulmus americana</i>		8.5	Fair	Growing close to white pine tree
546	Black cherry	<i>Prunus serotina</i>		6	Poor	Appears dead
547	American elm	<i>Ulmus americana</i>		6.5	Fair	
548	White ash	<i>Fraxinus americana</i>	229.5	15	Fair	Multi trunk (4), emerald ash borer
549	Eastern white pine	<i>Pinus strobus</i>		11	Good	
550	Eastern white pine	<i>Pinus strobus</i>		16	Fair	Emerald ash borer
551	White ash	<i>Fraxinus americana</i>		10.5	Dead	Emerald ash borer
552	American elm	<i>Ulmus americana</i>		7	Dead	
553	Eastern white pine	<i>Pinus strobus</i>		11.5	Good	
554	White ash	<i>Fraxinus americana</i>		8	Dead	
555	White ash	<i>Fraxinus americana</i>	181.25	13	Dead	Twin trunk
556	Sugar maple	<i>Acer saccharum</i>	249	16	Good	Multi trunk (3)
557	Black cherry	<i>Prunus serotina</i>		6	Fair	
558	White ash	<i>Fraxinus americana</i>	80	9	Dead	Twin trunk
559	Unknown			8	Good	
560	Red maple	<i>Acer rubrum</i>	677	26	Good	Multi trunk (3)
561	Red maple	<i>Acer rubrum</i>	159.25	13	Good	Twin trunk
562	Red maple	<i>Acer rubrum</i>		6	Good	
563	Willow	<i>Salix sp.</i>		16	Good	
564	White ash	<i>Fraxinus americana</i>		11.5	Poor	Appears dead
565	White oak	<i>Quercus alba</i>		24	Good	
566	Eastern white pine	<i>Pinus strobus</i>		19.5	Good	
567	Eastern white pine	<i>Pinus strobus</i>		22	Good	





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REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M.DODSON  
DRAWN BY: J. BRONENKANT  
SHEET CHK'D BY: M.DODSON  
CROSS CHK'D BY:   
APPROVED BY: X  
DATE: FEBRUARY 2022

**CDM Smith**  
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LITTLETON  
WATER DEPARTMENT  
KING STREET WATER RESOURCE  
RECOVERY FACILITY

CIVIL EXISTING CONDITIONS PLAN  
C-2

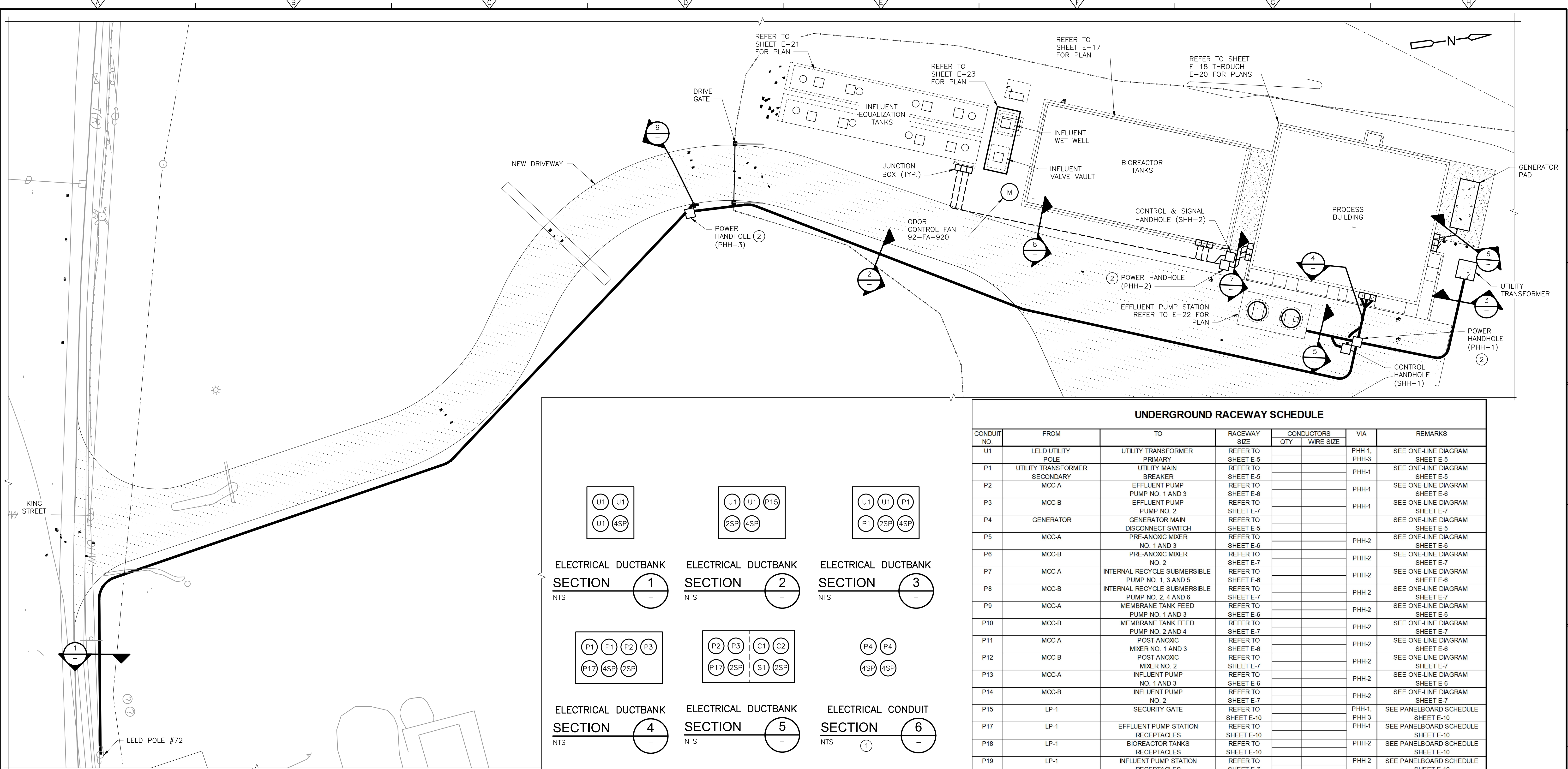
PROJECT NO. 263387-261886  
FILE NAME: C025STPL.dwg  
SHEET NO.  
C-2

## **Attachment D**

### **Lighting Site Plans and Lighting Fixture Cut Sheet**



XREFs: [CDWS-2436\_PHASE-1A\_CWP000ST\_Survey\_AWZ000PB\_2D Export, EWP000ST, CEZ001SS, CSTSU000, CYP0000, SWZ000BR, SWZ000EG] Images: []  
Last saved by: PARIN Time: 3/31/2022 12:38:16 PM  
C:\Users\parin\OneDrive\Documents\Littleton Water Resource Recovery Facility\Project Files\09 Electrical (E)\10 CAD\E004STPL.dwg  
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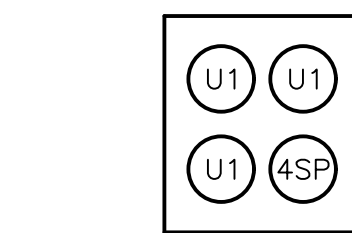


#### GENERAL NOTES:

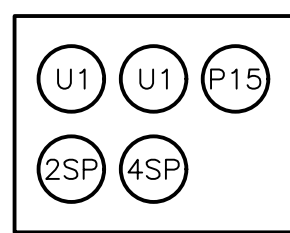
1. RACEWAY SIZES INDICATED ON THIS SHEET ONLY APPLY TO UNDERGROUND CONDUITS AND DUCTBANKS. SEE ONE-LINE DIAGRAMS FOR EXPOSED CONDUIT SIZES.

#### KEYED NOTES:

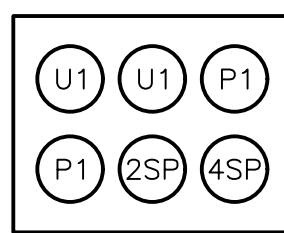
- ① SCHEDULE 80 PVC DIRECT BURIED CONDUITS. NOT IN CONCRETE ENCASED DUCTBANKS.
- ② PROVIDE SEPARATE HANDHOLES FOR POWER CONDUITS AND CONTROL/SIGNAL CONDUITS.



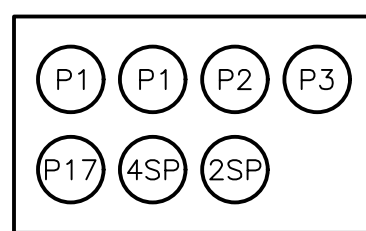
ELECTRICAL DUCTBANK  
SECTION 1  
NTS



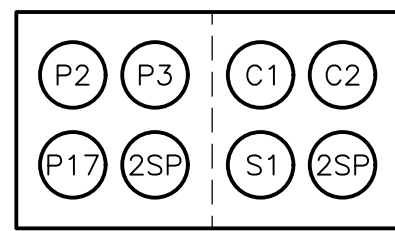
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SECTION 2  
NTS



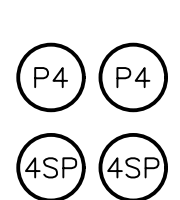
ELECTRICAL DUCTBANK  
SECTION 3  
NTS



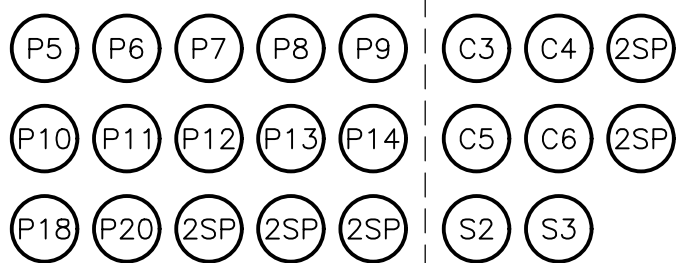
ELECTRICAL DUCTBANK  
SECTION 4  
NTS



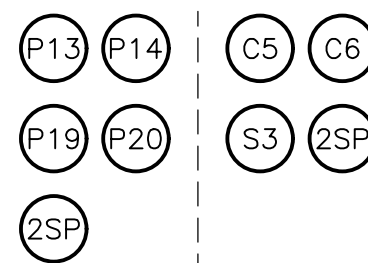
ELECTRICAL DUCTBANK  
SECTION 5  
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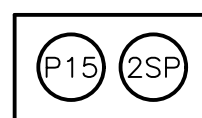
ELECTRICAL CONDUIT  
SECTION 6  
NTS



ELECTRICAL CONDUIT  
SECTION 7  
NTS



ELECTRICAL CONDUIT  
SECTION 8  
NTS



ELECTRICAL DUCTBANK  
SECTION 9  
NTS

#### UNDERGROUND RACEWAY SCHEDULE

CONDUIT NO.	FROM	TO	RACEWAY SIZE	CONDUCTORS		VIA	REMARKS
				QTY	WIRE SIZE		
U1	LELD UTILITY POLE	UTILITY TRANSFORMER PRIMARY	REFER TO SHEET E-5			PHH-1, PHH-3	SEE ONE-LINE DIAGRAM SHEET E-5
P1	UTILITY TRANSFORMER SECONDARY	UTILITY MAIN BREAKER	REFER TO SHEET E-5			PHH-1	SEE ONE-LINE DIAGRAM SHEET E-5
P2	MCC-A	EFFLUENT PUMP PUMP NO. 1 AND 3	REFER TO SHEET E-6			PHH-1	SEE ONE-LINE DIAGRAM SHEET E-6
P3	MCC-B	EFFLUENT PUMP PUMP NO. 2	REFER TO SHEET E-7			PHH-1	SEE ONE-LINE DIAGRAM SHEET E-7
P4	GENERATOR	GENERATOR MAIN DISCONNECT SWITCH	REFER TO SHEET E-5				SEE ONE-LINE DIAGRAM SHEET E-5
P5	MCC-A	PRE-ANOXIC MIXER NO. 1 AND 3	REFER TO SHEET E-6			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-6
P6	MCC-B	PRE-ANOXIC MIXER NO. 2	REFER TO SHEET E-7			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-7
P7	MCC-A	INTERNAL RECYCLE SUBMERSIBLE PUMP NO. 1, 3 AND 5	REFER TO SHEET E-6			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-6
P8	MCC-B	INTERNAL RECYCLE SUBMERSIBLE PUMP NO. 2, 4 AND 6	REFER TO SHEET E-7			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-7
P9	MCC-A	MEMBRANE TANK FEED PUMP NO. 1 AND 3	REFER TO SHEET E-6			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-6
P10	MCC-B	MEMBRANE TANK FEED PUMP NO. 2 AND 4	REFER TO SHEET E-7			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-7
P11	MCC-A	POST-ANOXIC MIXER NO. 1 AND 3	REFER TO SHEET E-6			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-6
P12	MCC-B	POST-ANOXIC MIXER NO. 2	REFER TO SHEET E-7			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-7
P13	MCC-A	INFLUENT PUMP NO. 1 AND 3	REFER TO SHEET E-6			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-6
P14	MCC-B	INFLUENT PUMP NO. 2	REFER TO SHEET E-7			PHH-2	SEE ONE-LINE DIAGRAM SHEET E-7
P15	LP-1	SECURITY GATE	REFER TO SHEET E-10			PHH-1, PHH-3	SEE PANELBOARD SCHEDULE SHEET E-10
P17	LP-1	EFFLUENT PUMP STATION RECEPTACLES	REFER TO SHEET E-10			PHH-1	SEE PANELBOARD SCHEDULE SHEET E-10
P18	LP-1	BIOREACTOR TANKS RECEPTACLES	REFER TO SHEET E-10			PHH-2	SEE PANELBOARD SCHEDULE SHEET E-10
P19	LP-1	INFLUENT PUMP STATION RECEPTACLES	REFER TO SHEET E-7			PHH-2	SEE PANELBOARD SCHEDULE SHEET E-10
P20	MCC-B	ODOR CONTROL FAN	REFER TO SHEET E-10			PHH-2	SEE PANELBOARD SCHEDULE SHEET E-10
C1	MCC-A & MCC-B	EFFLUENT PUMP STATION	REFER TO SHEET E-7 & 8			SHH-2	SEE ONE-LINE DIAGRAM SHEET E-7 & E-8
C2	CP-1-PLC	EFFLUENT PUMP STATION	REFER TO SHEET E-9			SHH-2	SEE ONE-LINE DIAGRAM SHEET E-9
C3	MCC-A & MCC-B	BIOREACTOR TANKS	REFER TO SHEET E-7 & 8			SHH-2	SEE ONE-LINE DIAGRAM SHEET E-7 & E-8
C4	CP-MBR-PLC	BIOREACTOR TANKS	REFER TO SHEET E-9			SHH-2	SEE ONE-LINE DIAGRAM SHEET E-9
C5	MCC-A & MCC-B	INFLUENT PUMP STATION	REFER TO SHEET E-7 & 8			SHH-2	SEE ONE-LINE DIAGRAM SHEET E-7 & E-8
C6	CP-MBR-PLC	EQUALIZATION TANKS	REFER TO SHEET E-9			SHH-2	SEE ONE-LINE DIAGRAM SHEET E-9
S1	CP-1-PLC	EFFLUENT PUMP STATION	REFER TO SHEET E-9			SHH-2	SEE ONE-LINE DIAGRAM SHEET E-9
S2	CP-MBR-PLC	BIOREACTOR TANKS	REFER TO SHEET E-8			SHH-2	SEE ONE-LINE DIAGRAM SHEET E-8
S3	CP-MBR-PLC	INFLUENT PUMP STATION	REFER TO SHEET E-8			SHH-2	SEE ONE-LINE DIAGRAM SHEET E-8
2SP			2"				2" SPARE CONDUIT WITH PULL STRING
3SP			3"				3" SPARE CONDUIT WITH PULL STRING
4SP			4"				4" SPARE CONDUIT WITH PULL STRING

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	T. BRENNEN
DRAWN BY:	N. PARI
SHEET CHK'D BY:	X
CROSS CHK'D BY:	X
APPROVED BY:	X
DATE:	APRIL 2022

**CDM Smith**  
75 State Street, Suite 701  
Boston, MA 02109  
Tel: (617) 452-6000

LITTLETON WATER DEPARTMENT

LITTLETON WATER RESOURCE  
RECOVERY FACILITY

ELECTRICAL  
SITE PLAN AND UNDERGROUND DUCT BANK  
SECTIONS AND SCHEDULE

PROJECT NO. 263387-261886  
FILE NAME: E004NFLG.dwg

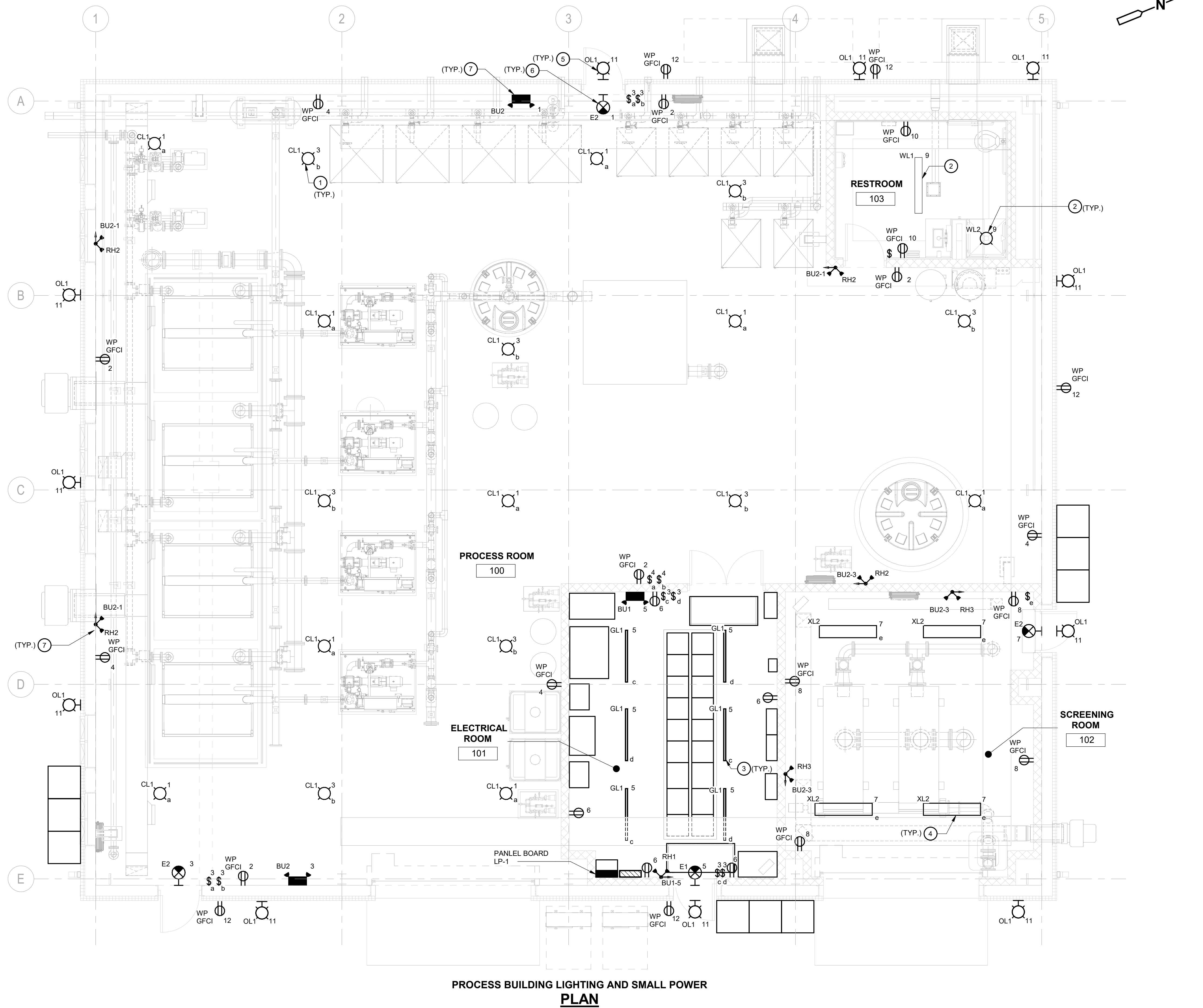
SHEET NO.

E-4

90% SUBMITTAL - NOT FOR CONSTRUCTION



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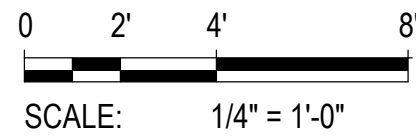
**GENERAL NOTES:**

1. ALL LIGHTING FIXTURES AND RECEPTACLE SHALL BE CONNECTED TO PANLEBOARD LP-1.
2. REFER TO SHEET E-9 FOR LIGHTING FIXTURE SCHEDULE.
3. REFER TO DRAWING G-6 FOR AREA CLASSIFICATION.

**KEYED NOTES:**

- ① ALL XL1 FIXTURES SHALL BE PENDANT MOUNTED 15'-0" A.F.F.
- ② SURFACE MOUNT WL1 & WL2 FIXTURE IN RESTROOM.
- ③ GL1 FIXTURES SHALL BE PENDANT MOUNTED AT 10'-0" A.F.F.
- ④ XL2 FIXTURES SHALL BE PENDANT MOUNTED AT 9'-0" A.F.F.
- ⑤ ALL EXTERIOR LIGHTING FIXTURES SHALL BE WALL-MOUNTED AT 10'-6" A.F.F. OR ABOVE THE DOOR.
- ⑦ WALL MOUNT THE EXIT SIGN SHALL BE AT 8'-0" OR ABOVE THE DOOR.
- ⑧ BATTERY UNIT AND REMOTE HEADS SHALL BE WALL-MOUNTED AT 8'-0" A.F.F.

**PROCESS BUILDING LIGHTING AND SMALL POWER PLAN**



DESIGNED BY: N. PARI  
DRAWN BY: K. NANDESWARA RAO  
SHEET CHKD BY: X  
CROSS CHKD BY: X  
APPROVED BY: X  
DATE: FEBRUARY 2022

**CDM Smith**  
75 State Street, Suite 701  
Boston, MA 02109  
Tel: (617) 452-6000

LITTLETON  
WATER DEPARTMENT  
**KING STREET WATER RESOURCE  
RECOVERY FACILITY**

**ELECTRICAL  
PROCESS BUILDING  
LIGHTING AND SMALL POWER PLAN**

PROJECT NO. 263387-261886  
FILE NAME: EVZ2000PB.rvt

SHEET NO.  
**E-19**



# WST LED

## Architectural Wall Sconce



Buy American

Catalog  
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

### Specifications

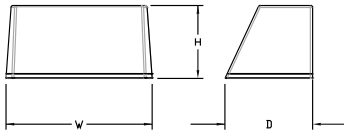
#### Luminaire

**Height:** 8-1/2"  
(21.59 cm)

**Width:** 17"  
(43.18 cm)

**Depth:** 10-3/16"  
(25.9 cm)

**Weight:** 20 lbs  
(9.1 kg)

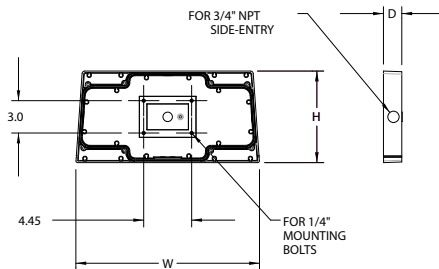


#### Optional Back Box (PBBW)

**Height:** 8.49"  
(21.56 cm)

**Width:** 17.01"  
(43.21 cm)

**Depth:** 1.70"  
(4.32 cm)

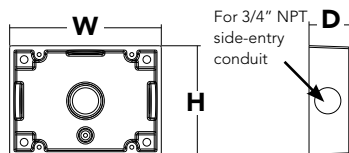


#### Optional Back Box (BBW)

**Height:** 4"  
(10.2 cm)

**Width:** 5-1/2"  
(14.0 cm)

**Depth:** 1-1/2"  
(3.8 cm)



### A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a shaded background. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability<sup>1</sup>
- This luminaire is part of an A+ Certified solution for ROAM® or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background<sup>1</sup>

To learn more about A+, visit [www.acuitybrands.com/aplus](http://www.acuitybrands.com/aplus).

See ordering tree for details.

A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL DLL](#)



COMMERCIAL OUTDOOR

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800-705-SERV (7378) • [www.lithonia.com](http://www.lithonia.com)  
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WST-LED  
Rev. 03/17/21

## Ordering Information

**EXAMPLE:** WST LED P1 40K VF MVOLT DDBTXD

WST LED					
Series	Performance Package	Color temperature	Distribution	Voltage	Mounting
WST LED	P1 1,500 Lumen package	27K 2700 K	VF Visual comfort forward throw	MVOLT 277 <sup>2</sup>	<b>Shipped included</b> (blank) Surface mounting bracket <b>Shipped separately</b> BBW Surface-mounted back box <sup>3</sup> PBBW Premium surface-mounted back box <sup>3,4</sup>
	P2 3,000 Lumen package	30K 3000 K	VV Visual comfort wide	120 <sup>2</sup> 347 <sup>2</sup>	
	P3 6,000 Lumen package	40K 4000 K		208 <sup>2</sup> 480 <sup>2</sup>	
		50K 5000 K		240 <sup>2</sup>	

Options				Finish (required)
NLTAIR2 PIR	nLIGHT AIR Wireless enabled motion/ambient sensor for 8'-15' mounting heights <sup>5,6,7</sup>	E7WC	Emergency battery backup, CA Title 20 Noncompliant (cold, 7W) <sup>7,12</sup>	DDBXD Dark bronze
NLTAIR2 PIRH	nLIGHT AIR Wireless enabled motion/ambient sensor for 15'-30' mounting heights <sup>5,6,7</sup>	E7WHR	Remote emergency battery backup, CA Title 20 Noncompliant (remote 7W) <sup>7,13</sup>	DBLXD Black
PE	Photoelectric cell, button type <sup>8</sup>	E20WH	Emergency battery pack 18W constant power, Certified in CA Title 20 MAEDBS <sup>7</sup>	DNAXD Natural aluminum
PER	NEMA twist-lock receptacle only (controls ordered separate) <sup>9</sup>	E20WC	Emergency battery pack -20°C 18W constant power, Certified in CA Title 20 MAEDBS <sup>7,12</sup>	DWHXD White
PER5	Five-wire receptacle only (controls ordered separate) <sup>9</sup>	E23WHR	Remote emergency battery backup, CA Title 20 Noncompliant (remote 20W) <sup>7,12,14</sup>	DSSXD Sandstone
PER7	Seven-wire receptacle only (controls ordered separate) <sup>9</sup>	LCE	Left side conduit entry <sup>15</sup>	DDBTXD Textured dark bronze
PIR	Motion/Ambient Light Sensor, 8'-15' mounting height <sup>5,6</sup>	RCE	Right side conduit entry <sup>15</sup>	DBLBXD Textured black
PIR1FC3V	Motion/ambient sensor, 8'-15' mounting height, ambient sensor enabled at 1fc <sup>5,6</sup>			DNATXD Textured natural aluminum
PIRH	180° motion/ambient light sensor, 15'-30' mounting height <sup>5,6</sup>			DWHGXD Textured white
PIRH1FC3V	Motion/ambient sensor, 15'-30' mounting height, ambient sensor enabled at 1fc <sup>5,6</sup>			DSSTXD Textured sandstone
SF	Single fuse (120, 277, 347V) <sup>2</sup>			
DF	Double fuse (208, 240, 480V) <sup>2</sup>			
DS	Dual switching <sup>10</sup>			
DMG	0-10V dimming extend out back of housing for external control (control ordered separate) <sup>11</sup>			
E7WH	Emergency battery backup, Non CEC compliant (7W) <sup>7</sup>			
			<b>Shipped separately</b>	
			RBPW Retrofit back plate <sup>3</sup>	
			VG Vandal guard <sup>15</sup>	
			WG Wire guard <sup>15</sup>	

## Accessories

Ordered and shipped separately.

WSTVCPBBW DDBXD U	Premium Surface - mounted back box
WSBBW DDBTXD U	Surface - mounted back box
RBPW DDBXD U	Retrofit back plate
DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) <sup>17</sup>
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) <sup>17</sup>
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) <sup>17</sup>

## NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- Also available as a separate accessory; see accessories information.
- Top conduit entry standard.
- Not available with VG or WG. See PER Table.
- Reference Motion Sensor table.
- Not available with 347/480V.
- Need to specify 120, 208, 240 or 277 voltage.
- Photocell ordered and shipped as a separate line item from Acuity Brands Controls. Shorting Cap included.

- Not available with Emergency options, PE or PER options.
- DMG option not available with standalone or networked sensors/controls.
- Battery pack rated for -20° to 40°C.
- Comes with PBBW.
- Warranty period is 3-years.
- Not available with BBW.
- Must order with fixture; not an accessory.
- Requires luminaire to be specified with PER, PER5 or PER7 option. See PER Table.

## Emergency Battery Operation

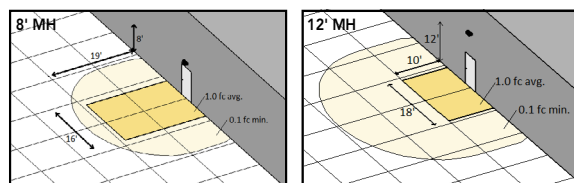
The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product.

All emergency backup configurations include an independent secondary driver with an integral relay to immediately detect AC power loss, meeting interpretations of [NFPA 70/NEC 2008 - 700.16](#)

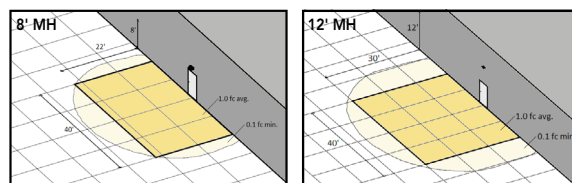
The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time supply power is lost, per [International Building Code Section 1006](#) and [NFPA 101 Life Safety Code Section 7.9](#), provided luminaires are mounted at an appropriate height and illuminate an open space with no major obstructions.

The examples below show illuminance of 1 fc average and 0.1 fc minimum of the P1 power package and VF distribution product in emergency mode.

10' x 10' Gridlines  
8' and 12' Mounting Height



WST LED P1 27K VF MVOLT E7WH



WST LED P2 40K VF MVOLT E20WH



## Performance Data

### Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
<b>25°C</b>	<b>77°F</b>	<b>1.00</b>
30°C	86°F	0.99
40°C	104°F	0.98

### Projected LED Lumen Maintenance

Values calculated according to IESNA TM-21-11 methodology and valid up to 40°C.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.95	>0.92	>0.87

### Electrical Load

Performance package	System Watts	Current (A)					
		120	208	240	277	347	480
P1	11	0.1	0.06	0.05	0.04	---	---
	14	---	---	---	---	0.04	0.03
P1 DS	14	0.12	0.07	0.06	0.06	---	---
P2	25	0.21	0.13	0.11	0.1	---	---
	30	---	---	---	---	0.09	0.06
P2 DS	25	0.21	0.13	0.11	0.1	---	---
P3	50	0.42	0.24	0.21	0.19	---	---
	56	---	---	---	---	0.16	0.12
P3 DS	52	0.43	0.26	0.23	0.21	---	---

### Motion Sensor Default Settings

Option	Dimmed State	High Level (when triggered)	Photocell Operation	Ramp-up Time	Dwell Time	Ramp-down Time
*PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	3 sec	5 min	5 min
PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	3 sec	5 min	5 min

\*for use with site wide Dusk to Dawn control

### PER Table

Control	PER (3 wire)	PER5 (5 wire)		PER7 (7 wire)		
			Wire 4/Wire5		Wire 4/Wire5	Wire 6/Wire7
Photocontrol Only (On/Off)	✓	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM	⊘	✓	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM with Motion	⊘	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof*	⊘	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof* with Motion	⊘	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture

✓ Recommended

⊘ Will not work

⚠ Alternate

\*Futureproof means: Ability to change controls in the future.

### Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts.

Performance Package	System Watts (MVOLT <sup>1</sup> )	Dist. Type	27K (2700K, 70 CRI)					30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	12W	VF	1,494	0	0	0	125	1,529	0	0	0	127	1,639	0	0	0	137	1,639	0	0	0	137
		VW	1,513	0	0	0	126	1,548	0	0	0	129	1,659	0	0	0	138	1,660	0	0	0	138
P2	25W	VF	3,163	1	0	1	127	3,237	1	0	1	129	3,469	1	0	1	139	3,468	1	0	1	139
		VW	3,201	1	0	0	128	3,276	1	0	0	131	3,512	1	0	0	140	3,512	1	0	0	140
P3	50W	VF	6,025	1	0	1	121	6,165	1	0	1	123	6,609	1	0	1	132	6,607	1	0	1	132
		VW	6,098	1	0	1	122	6,240	1	0	1	125	6,689	1	0	1	134	6,691	1	0	1	134

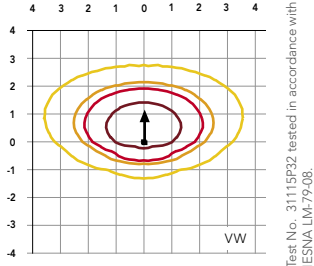
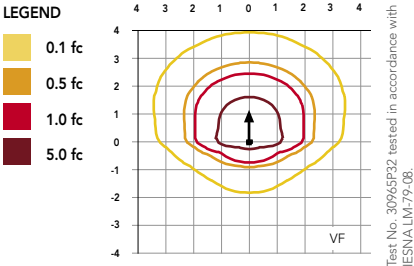


COMMERCIAL OUTDOOR

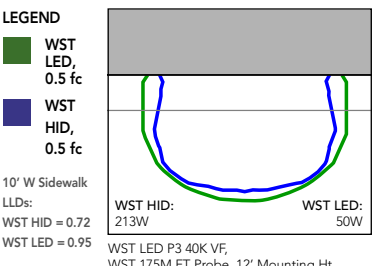
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WST-LED  
Rev. 03/17/21

Isofootcandle plots for the WST LED P3 40K VF and VW. Distances are in units of mounting height (10').



Distribution overlay comparison to 175W metal halide.



## FEATURES & SPECIFICATIONS

### INTENDED USE

The classic architectural shape of the WST LED was designed for applications such as hospitals, schools, malls, restaurants, and commercial buildings. The long life LEDs and driver make this luminaire nearly maintenance-free.

### CONSTRUCTION

The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

### FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

### OPTICS

Well crafted reflector optics allow the light engine to be recessed within the luminaire, providing visual comfort, superior distribution, uniformity, and spacing in wall-mount applications. The WST LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

### ELECTRICAL

Light engine(s) consist of 98 high-efficacy LEDs mounted to a metal core circuit board and integral aluminum heat sinks to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L87). Class 2 electronic driver has a power factor >90%, THD <20%. Easily-serviceable surge protection device meets a minimum Category B (per ANSI/IEEE C62.41.2).

### INSTALLATION

A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections.

### LISTINGS

CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. PIR and back box options are rated for wet location. Rated for -30°C to 40°C ambient.

DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at [www.designlights.org/QPL](http://www.designlights.org/QPL) to confirm which versions are qualified.

### BUY AMERICAN

This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FARS, DFARS and DOT. Please refer to [www.acuitybrands.com/resources/buy-american](http://www.acuitybrands.com/resources/buy-american) for additional information.

### WARRANTY

5-year limited warranty. Complete warranty terms located at: [www.acuitybrands.com/support/warranty/terms-and-conditions](http://www.acuitybrands.com/support/warranty/terms-and-conditions)

**Note:** Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

## **Attachment E**

### **Site Plans**

