



TOWN OF WAKEFIELD

DEPARTMENT OF PUBLIC WORKS

Engineering Division

Street and Parking Lot Impervious Cover Report

NPDES MS₄ Year 4 Report



September 2022



Development - Parking Lots

Parking lot design criteria are outlined with *Chapter 190 – Zoning, Article VII – Parking and Loading Requirements*. Section 190-37 - Location and Design Parking Lots outlines the requirements for Construction, Size of Parking Spaces and Aisles. Section 190-41 is the Table of Required Offsite Parking.

- Construction Section - Allows for parking facilities to be sited under proposed buildings reducing the other impervious footprint required for a development site. **No Changes Recommended.**
- Size of Parking Spaces – Requires all parking facilities to be full size spaces 9'x18' (perpendicular) or 9'x22' (parallel). **Recommend development of criteria for compact spaces to reduce overall pavement area.**
- Aisles – Minimum aisle widths reduced to only 20' for two-way and 11' for certain one-way traffic. Aisle widths are also required to be no larger than 24' in width. As constituted the requirements are the bare minimum to allow for proper operation of vehicles and minimize the total impervious areas. **No Changes Recommended**
- Offsite Parking Table – The totals within the offsite parking table are well within peer communities totals with some requirements being on the lower side. The Zoning Bylaw are has exemptions from its offset parking requirements for Small Establishments, Business District and Sidewalk Cafes.
 - *Small Establishment* - Off-street parking space shall not be required for nonresidential uses when the computed requirement results in four spaces or fewer for all the nonresidential uses on the lot.
 - *Business District* - When the literal application of the standards for off-street parking and loading required herein proves to be infeasible in the Business District or the Municipal District, the Board of Appeals may reduce the requirements by issuance of a special permit. Any such reductions shall be supported by evidence of infeasibility due to lack of suitable land, design considerations or other similar factors. The Board of Appeals must also find that the granting of such special permit will not adversely affect the health, safety, convenience, character or welfare of the neighborhood or district or of the Town.
 - *Sidewalk Cafes* - Sidewalk cafes with less than 10 seats are exempt from off-street parking requirements.

These exceptions can provide significant relief on the requirements and reduce overall site imperviousness when appropriate. Due to the flexibility within the exemptions, **No Changes Recommended.**

Development - Roadways

The Planning Board's Subdivision Rules and Regulations outline the design criteria for new roadways. Section 320-18-outline a minimum roadway width of 26 feet and a requirement of 5' wide sidewalk on both sides. The Planning Board often grants waivers from these requirements, reducing the overall pavement width to 16'-24' and eliminating the construction of one of the sidewalks. The last two approved subdivisions for Salem Street and Clyde Court included reduced pavement widths and sidewalks. In practice the reductions are being provided, so **No Changes Recommended.**

Town Programs:

The Public Works-Engineering Division is responsible for the development and redevelopment of all Town capital infrastructure programs generating stormwater from impervious cover. These programs include but are not limited to rehabilitations and reconstructions of roadways, sidewalks, parking facilities, paths, parks, etc.

During the planning and design stages of every project, the Town Engineer and the Engineering Division's design team review the project to determine if there are any opportunities to reduce impervious areas, or repair stormwater infrastructure or incorporate new or retrofit Best Management Practices to enhance stormwater treatment. Opportunities that are determined to be feasible based on site specific conditions (soils, groundwater elevation, roadway use, regulatory requirements) are included as part of the capital improvements construction contract.

While the Year 4 of the 2019 NPDES MS4 permit requires permittees to identify 5 BMP or impervious area reductions locations, Wakefield's Engineering Division has already advanced several projects over the permit term through either Planning Phase, Design Phase, or Construction Phase. The following is a list of projects that have been initiated by the Engineering Division with their status and anticipated construction date: Gertrude Spaulding

1. Gertrude Spaulding Park Rehabilitation
Constructed 2019
 - Bioretention area retrofit
2. Albion Street Streetscape Enhancement
Constructed 2020
 - Bump-out pavement reduction, New plantings and trees installed
3. Veterans Field Tennis Court/Path Enhancements –
Constructed 2021
 - Bioretention area and grass swale retrofit
4. 2022 Roads Program Lowell Street/Salem Street intersection realignment
Design Phase – Construction Planned 2023
 - Pavement reduction, New plantings and trees, Bioretention area retrofit
5. Green Street/Oak Street Intersection Realignment –
Planning Phase – Construction Planned 2024
 - Pavement reduction, New plantings and trees, Bioretention area retrofit
6. Quannapowitt Parkway
Design Phase – Construction Planned 2024
 - Bioretention Area Retrofit
7. Main Street Reconstruction
Planning Phase – Construction Planned 2026
 - Bioretention area retrofits, Media filter retrofits, Tree box filter retrofits

Plans for all projects noted above can be found as an attachment to this report.



TOWN OF WAKEFIELD

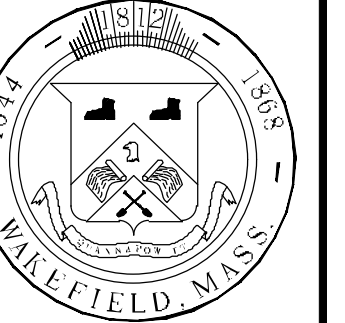
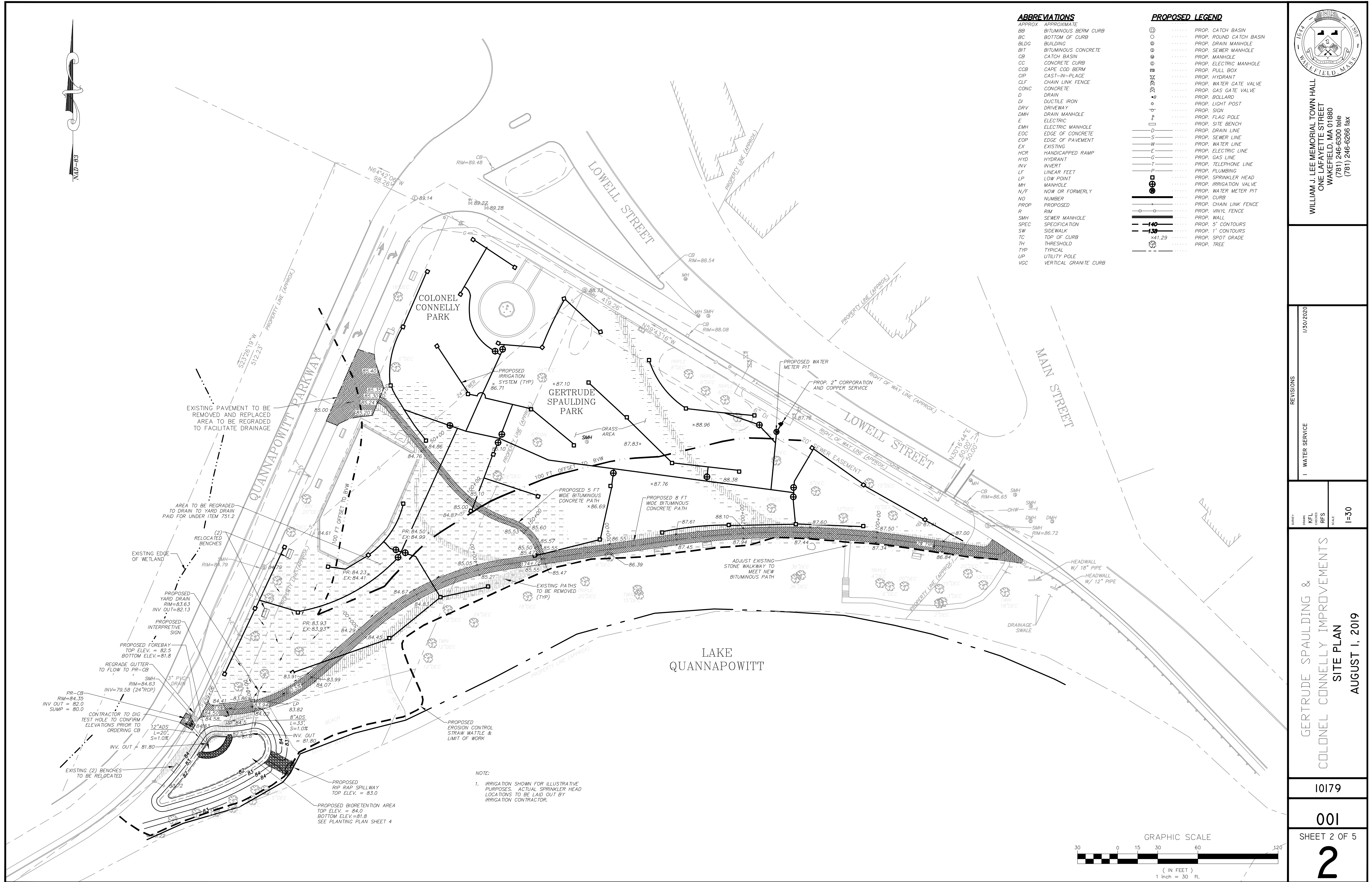
DEPARTMENT OF PUBLIC WORKS

Engineering Division

Attachment 1 – Gertrude Spaulding Park Rehabilitation



MAD-83



WILLIAM J. LEE MEMORIAL TOWN HALL
ONE LAFAYETTE STREET
WAKEFIELD, MA 01880
(781) 246-6300 tele
(781) 246-6266 fax

REVISIONS
1 WATER SERVICE 1/30/2020

DRAWN BY: KFL
CHECKED BY: RFS
SCALE: 1"=30'

GERTRUDE SPAULDING &
COLONEL CONNELLY IMPROVEMENTS
SITE PLAN
AUGUST 1, 2019

10179

001

SHEET 2 OF 5

2

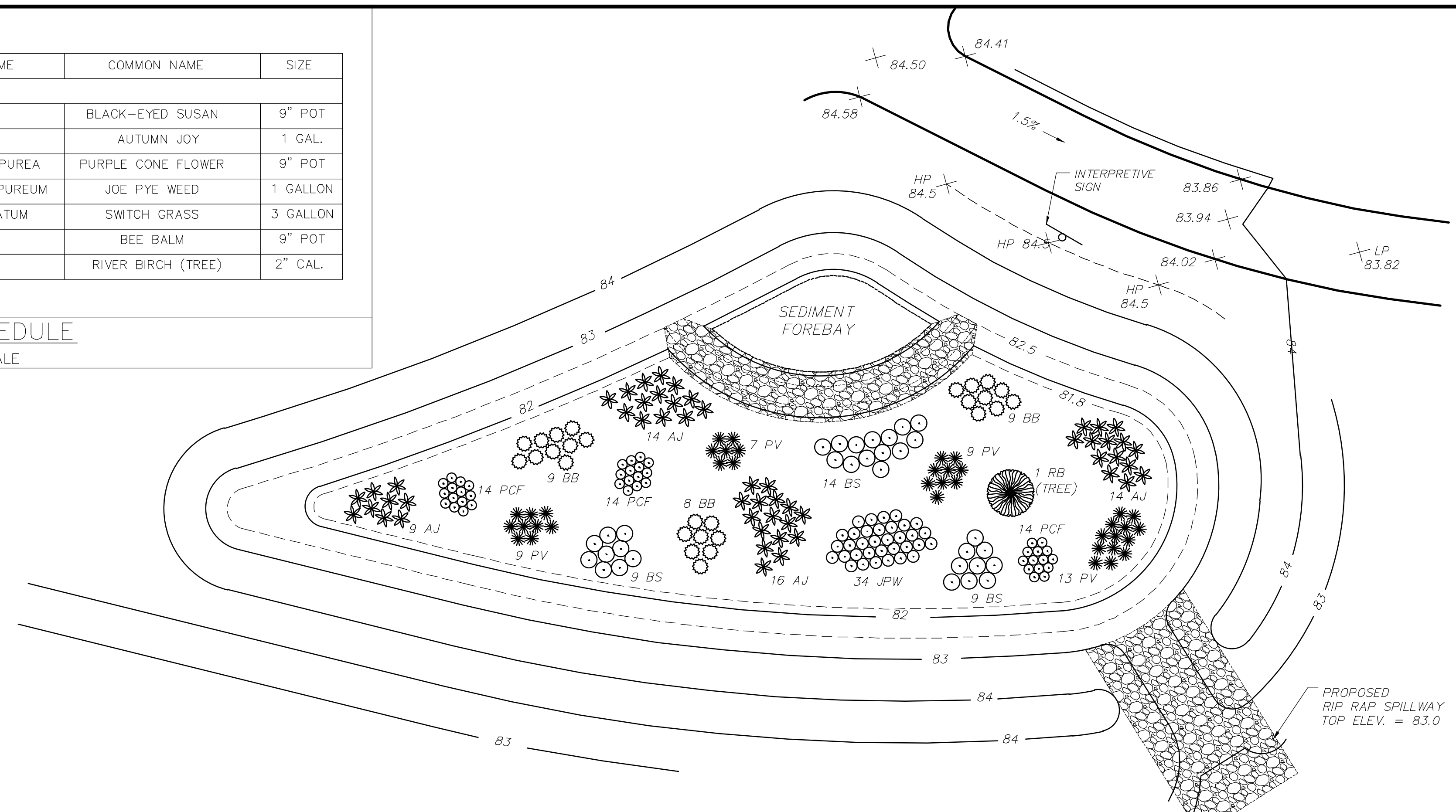


INTERPRETIVE SIGN DETAIL

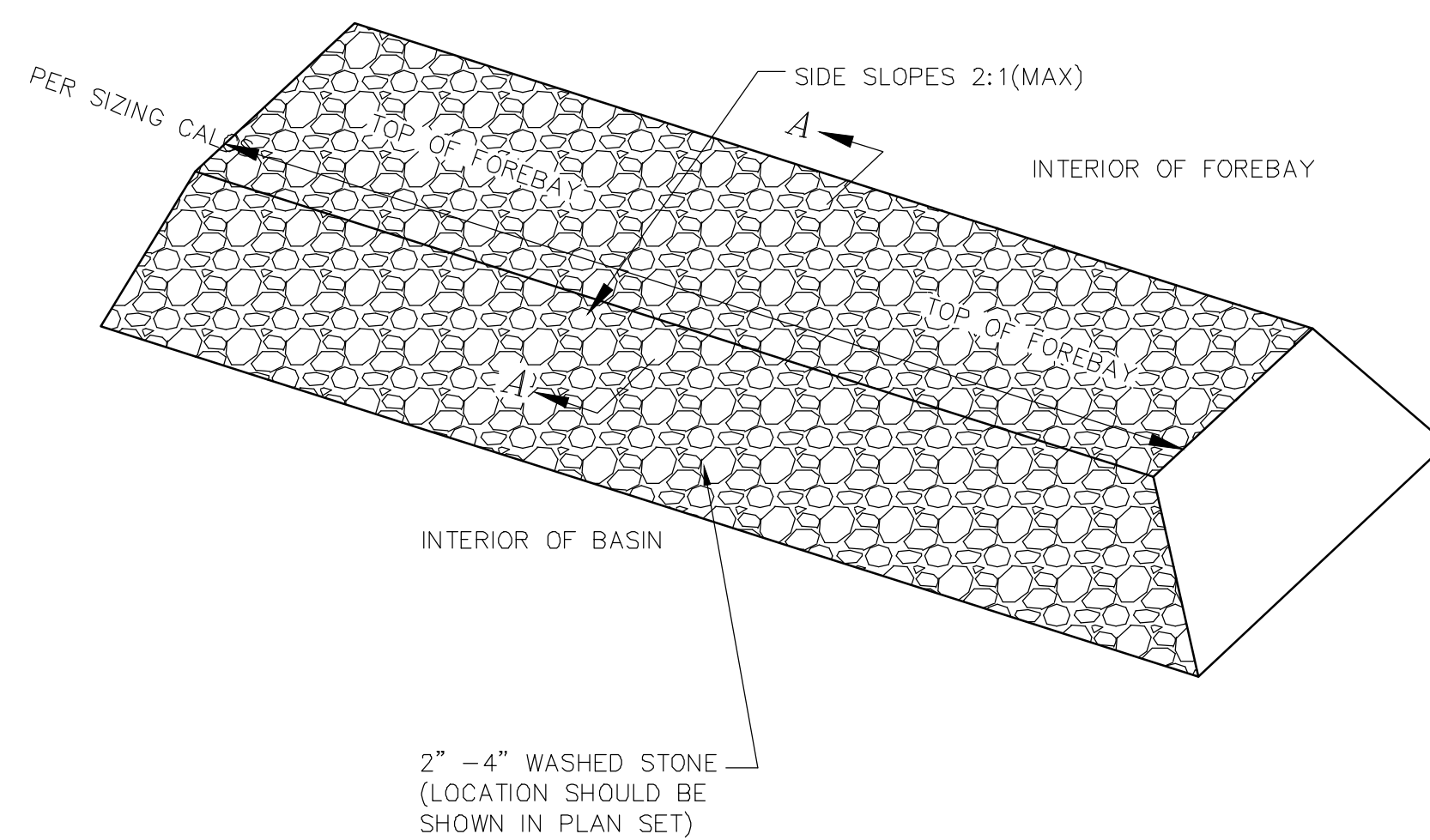
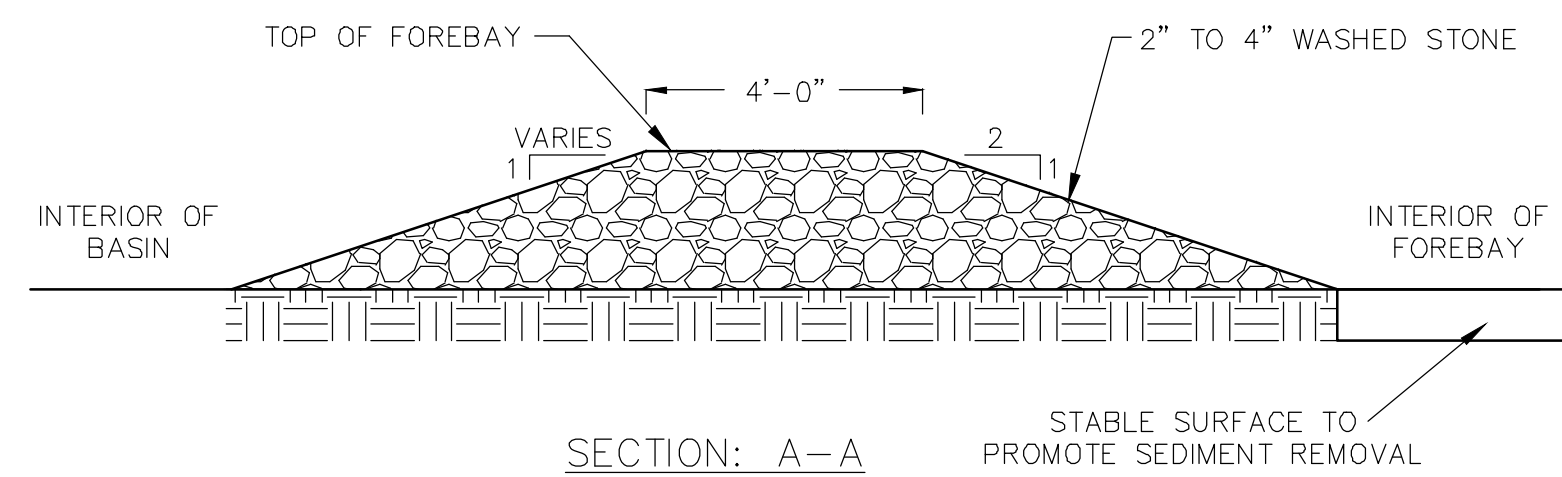
NOT TO SCALE

ABBREVIATION	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	
LANDSCAPE AREA (BIORETENTION AREA)					
	BS	32	RUDBECKIA	BLACK-EYED SUSAN	9" POT
	AJ	53	SEDUM	AUTUMN JOY	1 GAL.
	PCF	42	ECHINACHIA PURPUREA	PURPLE CONE FLOWER	9" POT
	JPW	34	EUPATORIUM PURPUREUM	JOE PYE WEED	1 GALLON
	PV	38	PANICUM VIRGATUM	SWITCH GRASS	3 GALLON
	BB	26	MONARDA	BEE BALM	9" POT
	RB	1	BETULA NIGRA	RIVER BIRCH (TREE)	2" CAL.

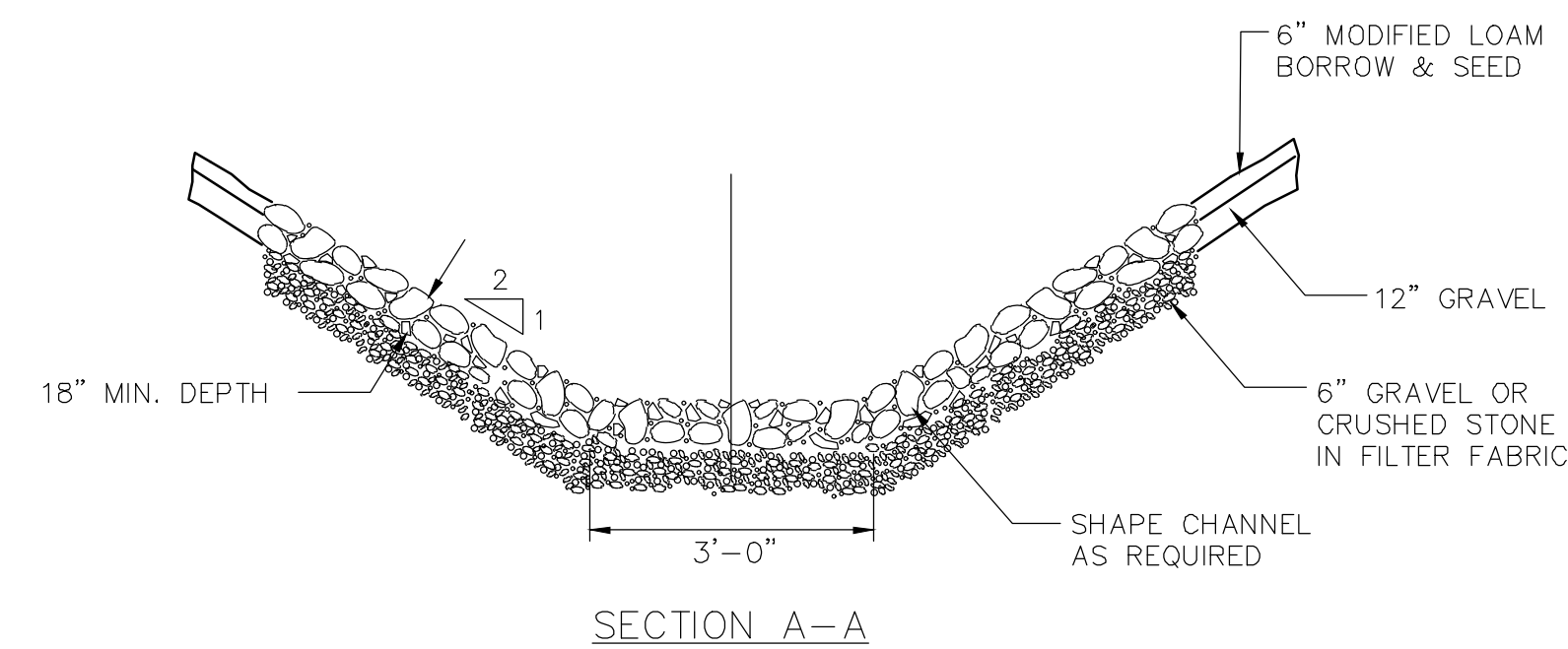
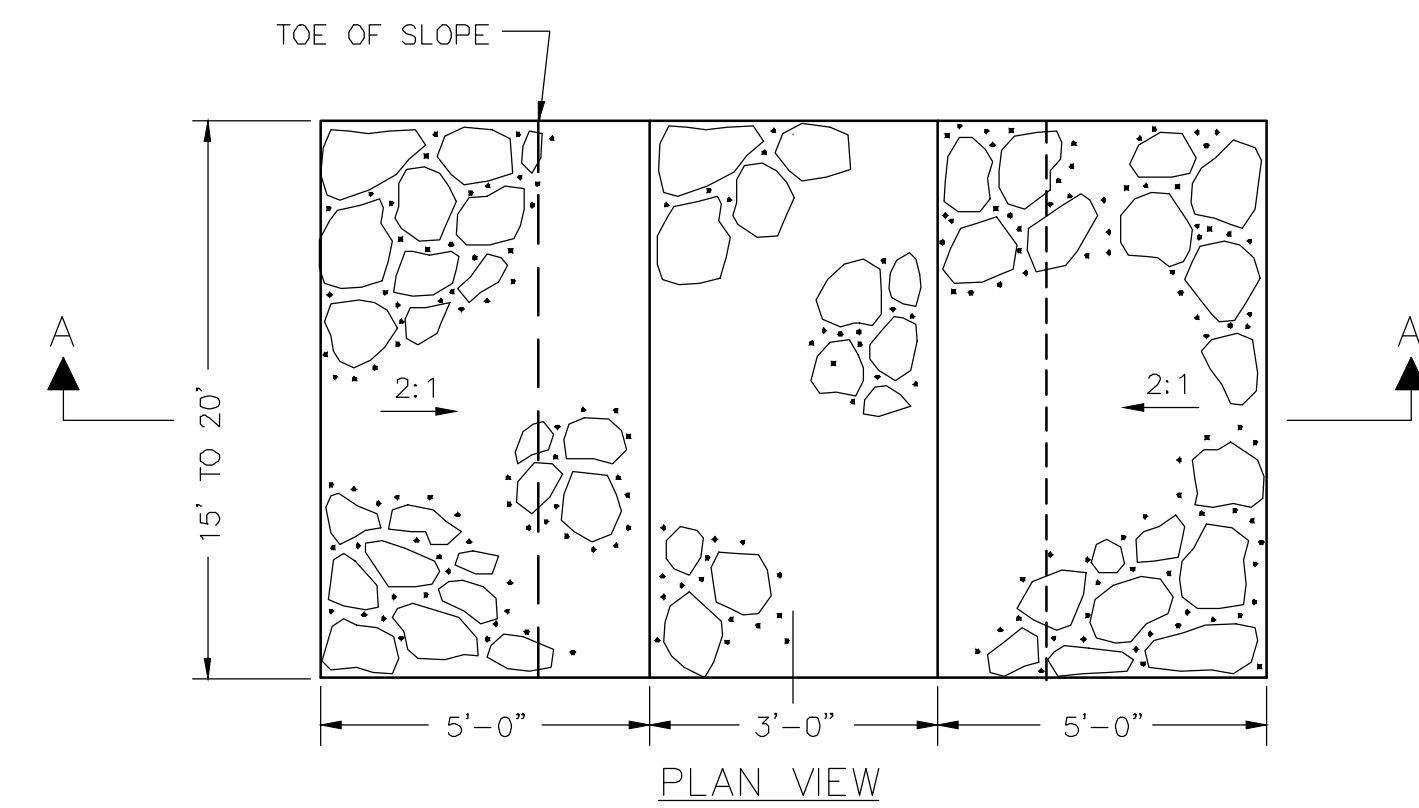
PLANT SCHEDULE
NOT TO SCALE



SEDIMENT FOREBAY / BIORETENTION AREA (RAIN GARDEN)
NOT TO SCALE

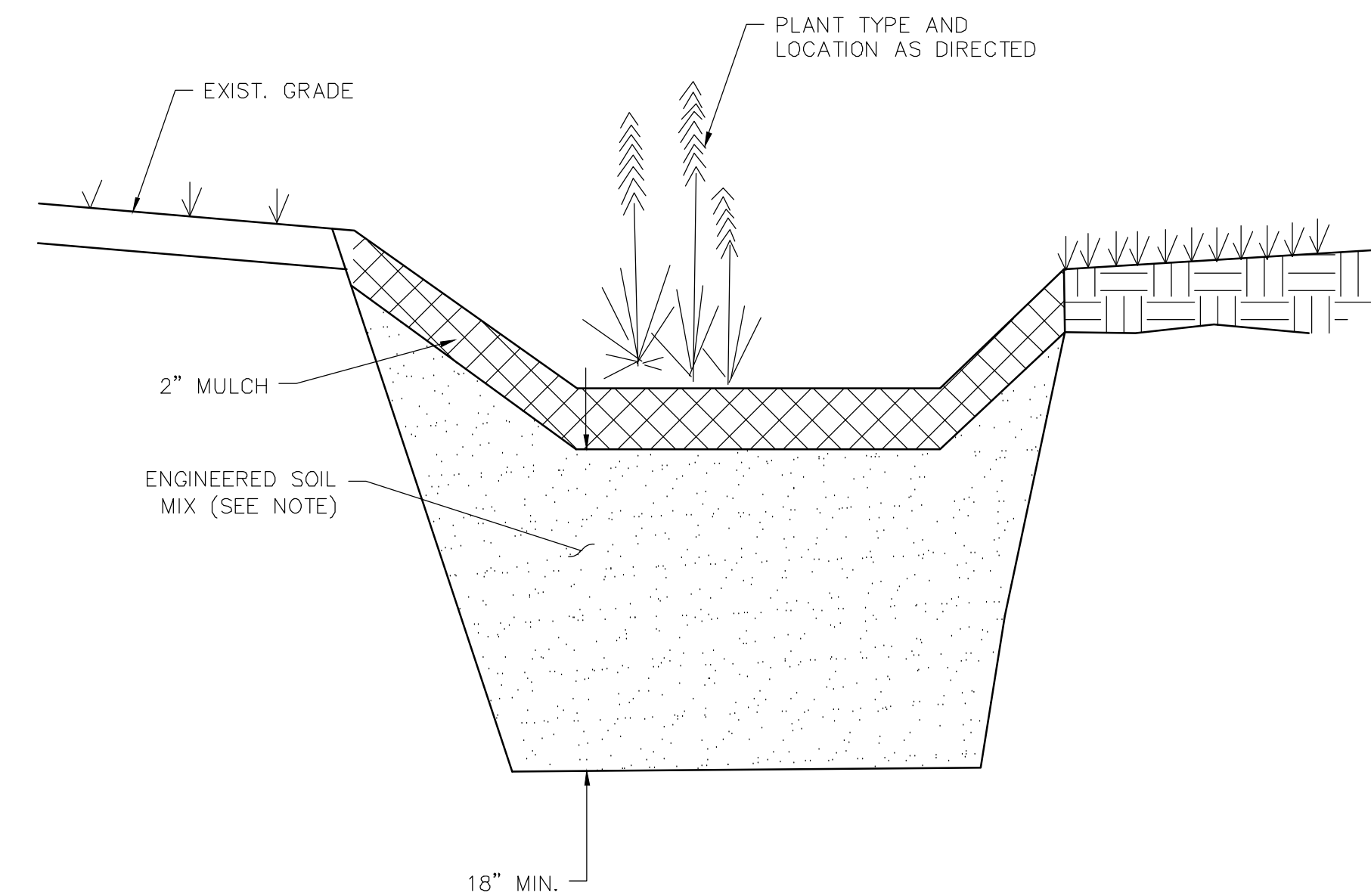


FOREBAY BERM DETAIL
NOT TO SCALE



NOTE:
RIPRAP SHALL BE COMPOSED OF A WELL-GRADED MIXTURE OF AGGREGATE SIZE SO THAT 50% OF THE PIECES, BY WEIGHT, SHALL BE LARGER THAN THE D_{50} SIZE DETERMINED AS 18". THE DIAMETER OF THE LARGEST AGGREGATE SIZE SHALL BE 1.2 TIMES THE D_{50} SIZE.

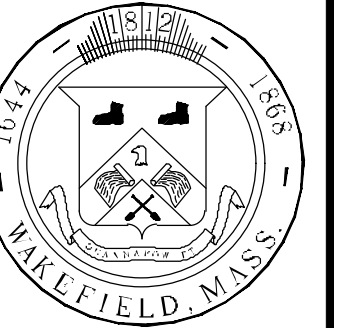
STONE SWALE
NOT TO SCALE



NOTE:

1. SNOW SHOULD NEVER BE STORED IN BIO-RETENTION AREAS.
2. THE SOIL MIX FOR BIO-RETENTION AREAS SHOULD BE A MIX OF SAND, COMPOST AND SOIL
 - 40% SAND
 - 20% TO 30% TOPSOIL AND
 - 30% TO 40% COMPOSTAND SHALL CONFORM TO THE SPECIFICATIONS IN THE STORMWATER HANDBOOK VOL. 2 CH.2 PAGE 26.
3. BOTTOM OF BIO-RETENTION AREA SHALL BE 2 FEET MINIMUM ABOVE GROUNDWATER.

BIORETENTION AREA (RAIN GARDEN)
NOT TO SCALE



WILLIAM J. LEE MEMORIAL TOWN HALL
ONE LAFAYETTE STREET
WAKEFIELD, MA 01880
(781) 246-6300 tele
(781) 246-6266 fax

WATER SERVICE | 1/30/2020

DRAWN: KFL
CHECKED: RFS
SCALE: 1"=30'

GERTRUDE SPAULDING &
COLONEL CONNELLY IMPROVEMENTS
DETAILS
JUNE 13, 2019

NNELLY IMP
 DETAILS
 JUNE 13, 2019

0179

001

SHEET 3 OF 5

3



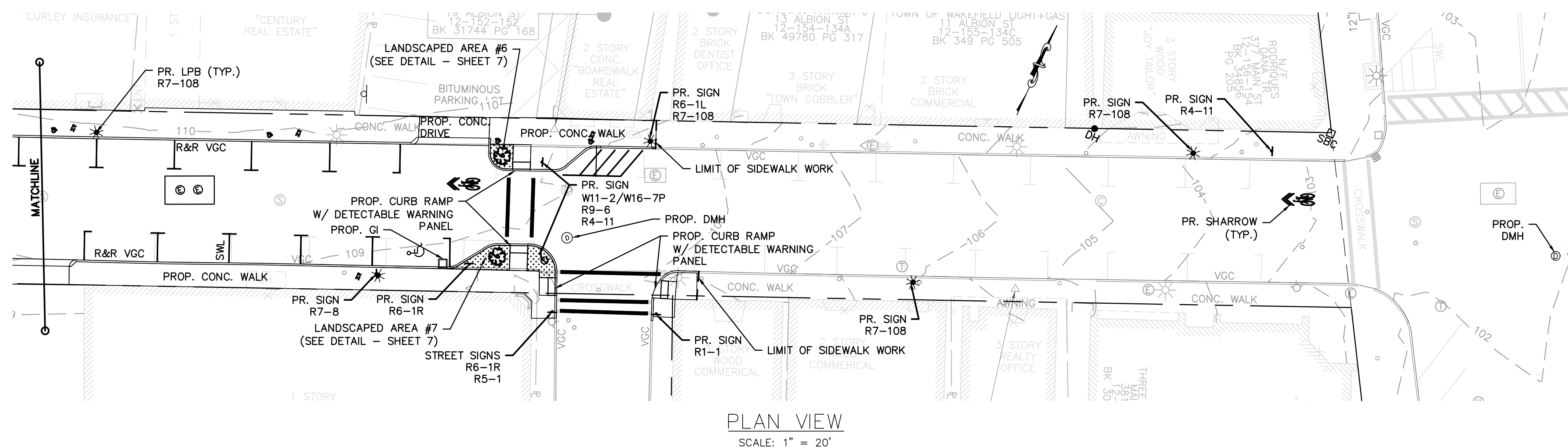
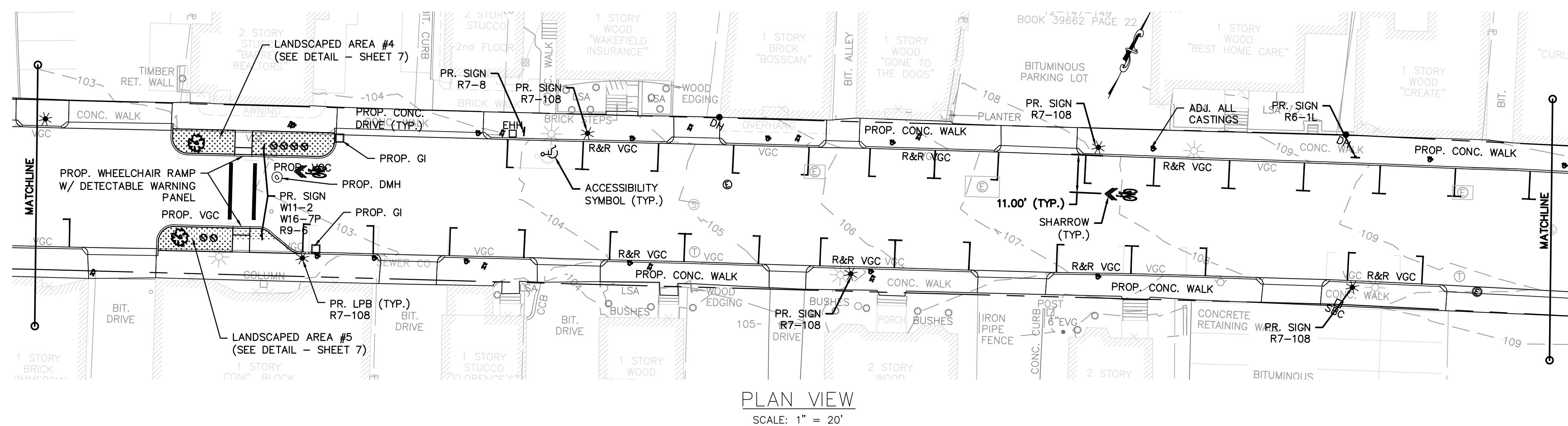
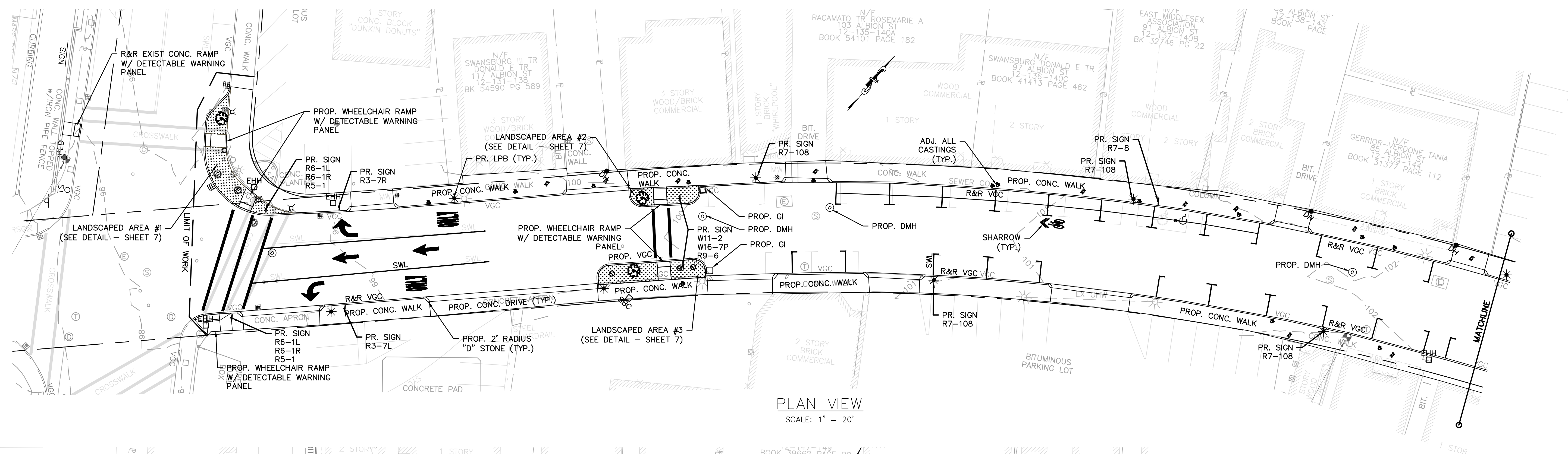
TOWN OF WAKEFIELD

DEPARTMENT OF PUBLIC WORKS

Engineering Division

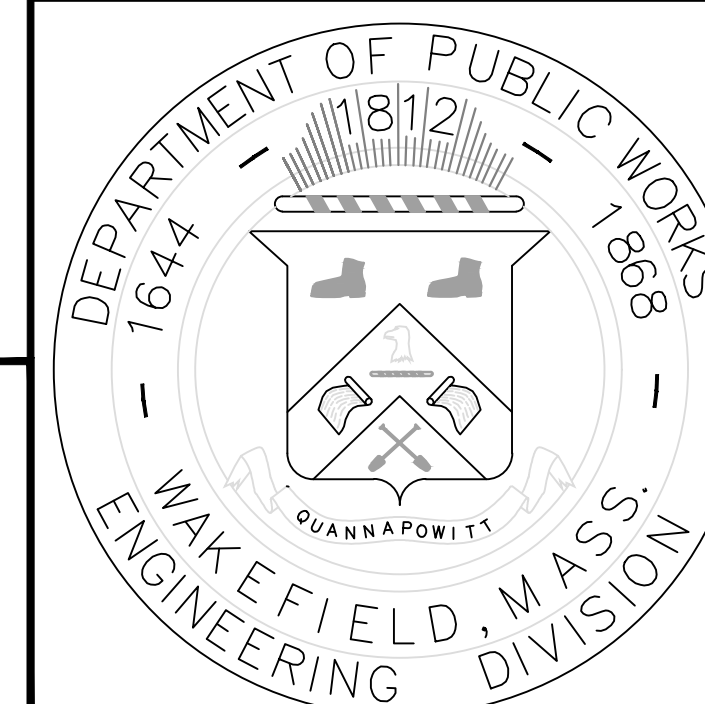
Attachment 2 – Albion Street Streetscape Enhancement





TOWN OF WAKEFIELD PUBLIC WORKS
ALBION STREET

PROPOSED CONDITIONS PLAN



DRAWN BY: TWW

DESIGNED BY: TWW

REVIEWED BY: WJR

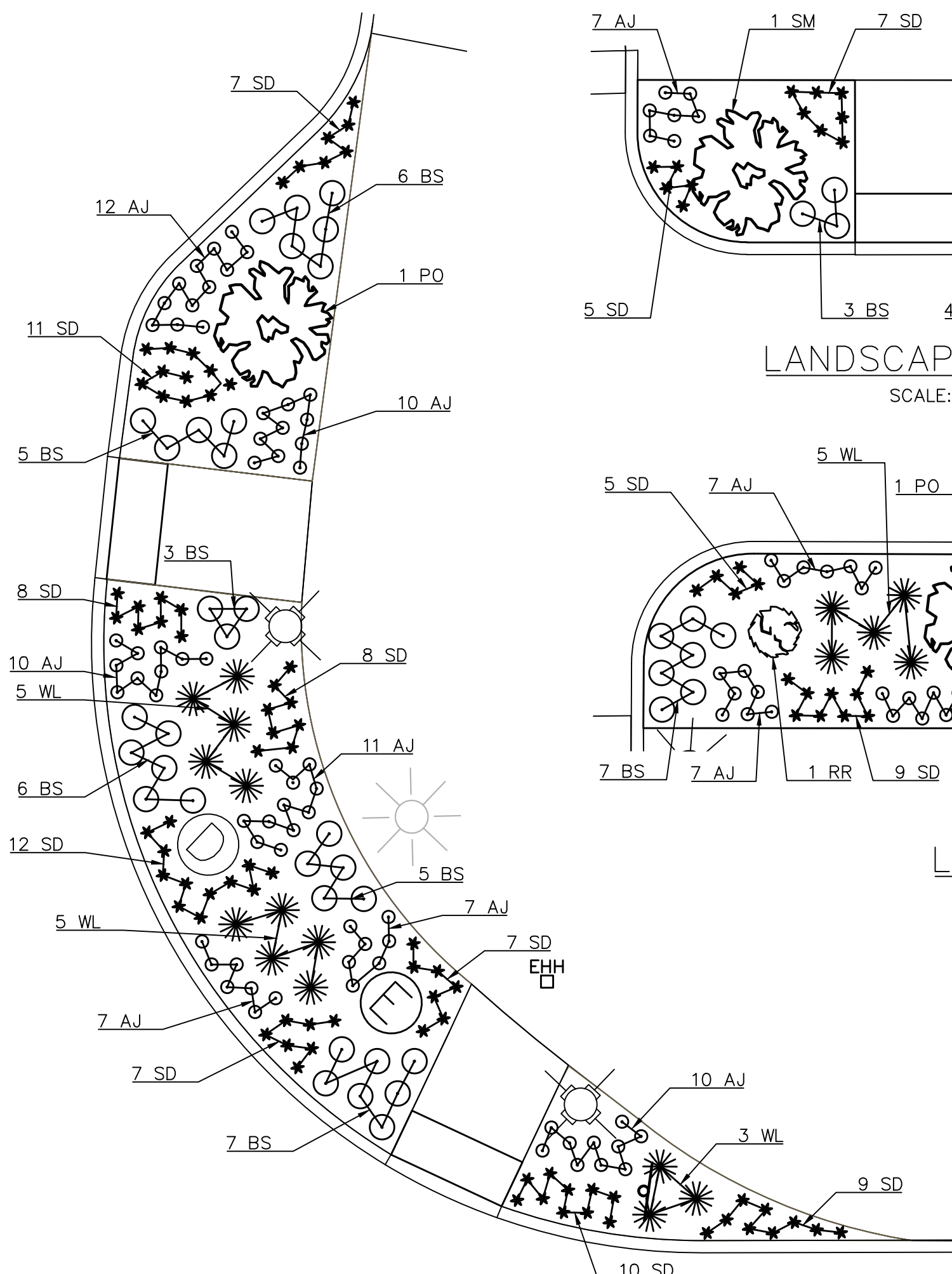
APPROVED BY: WJR

DATE: 11/20/2020

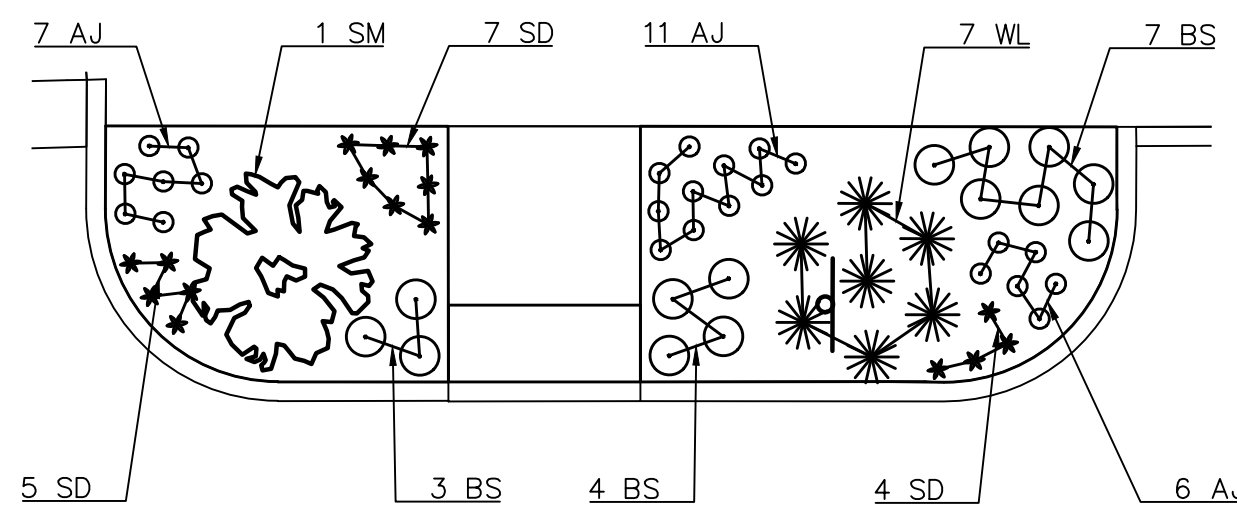
REVISÉ 1: ---

SCALE: AS NOTED

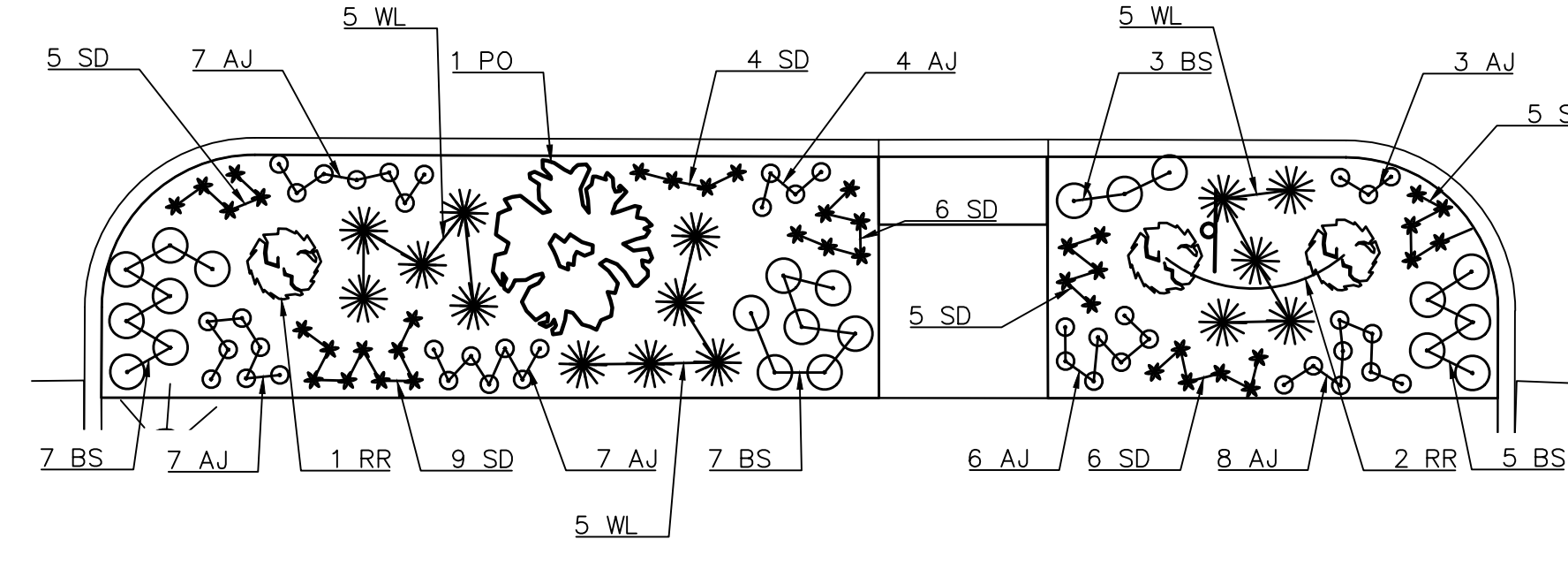
FILE: 10143-ALBIONST



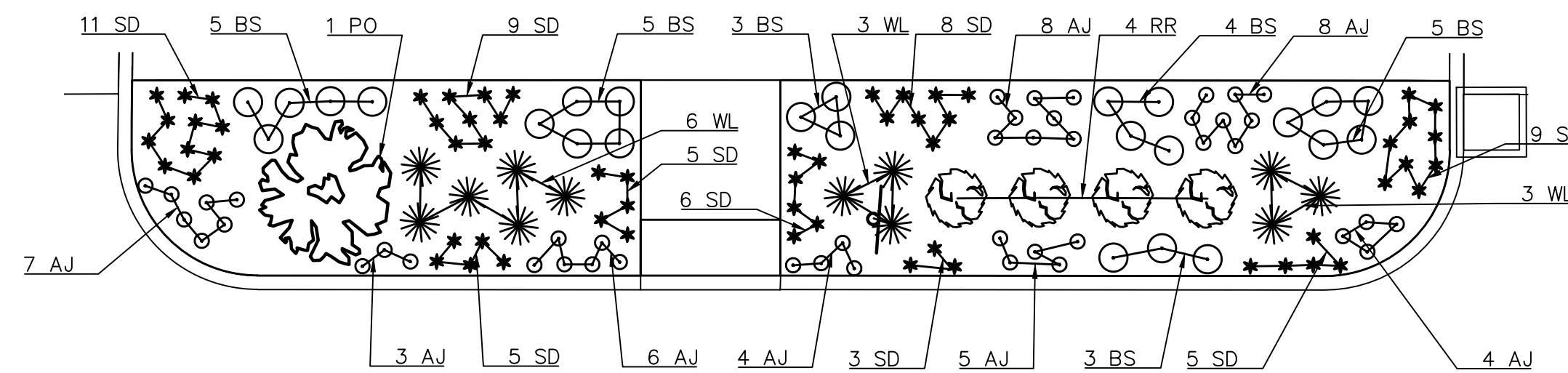
LANDSCAPE AREA #1
SCALE: 1" = 5'



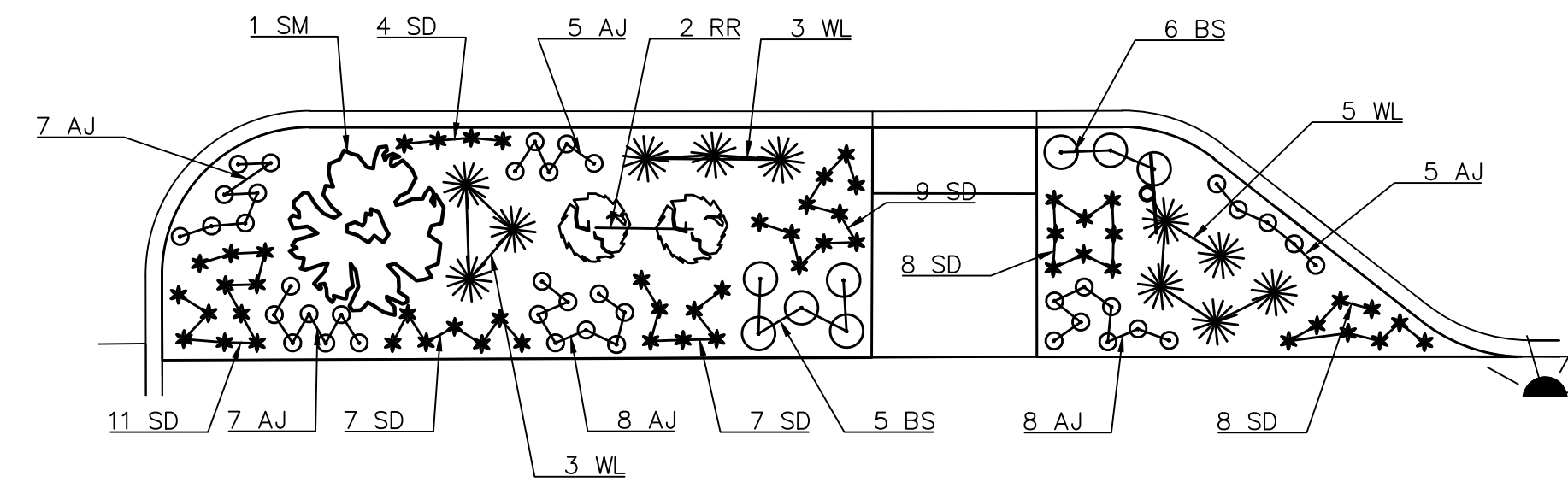
LANDSCAPE AREA #2
SCALE: 1" = 5'



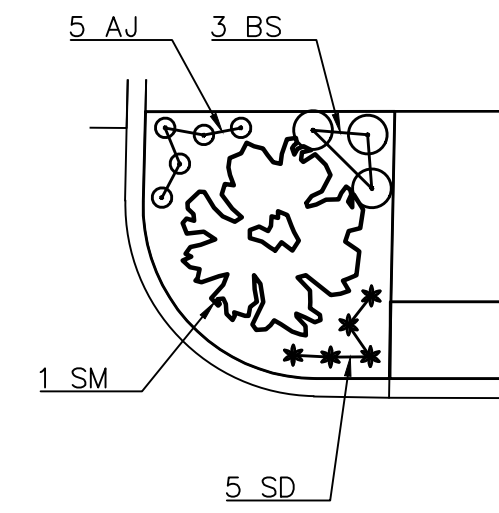
LANDSCAPE AREA #3
SCALE: 1" = 5'



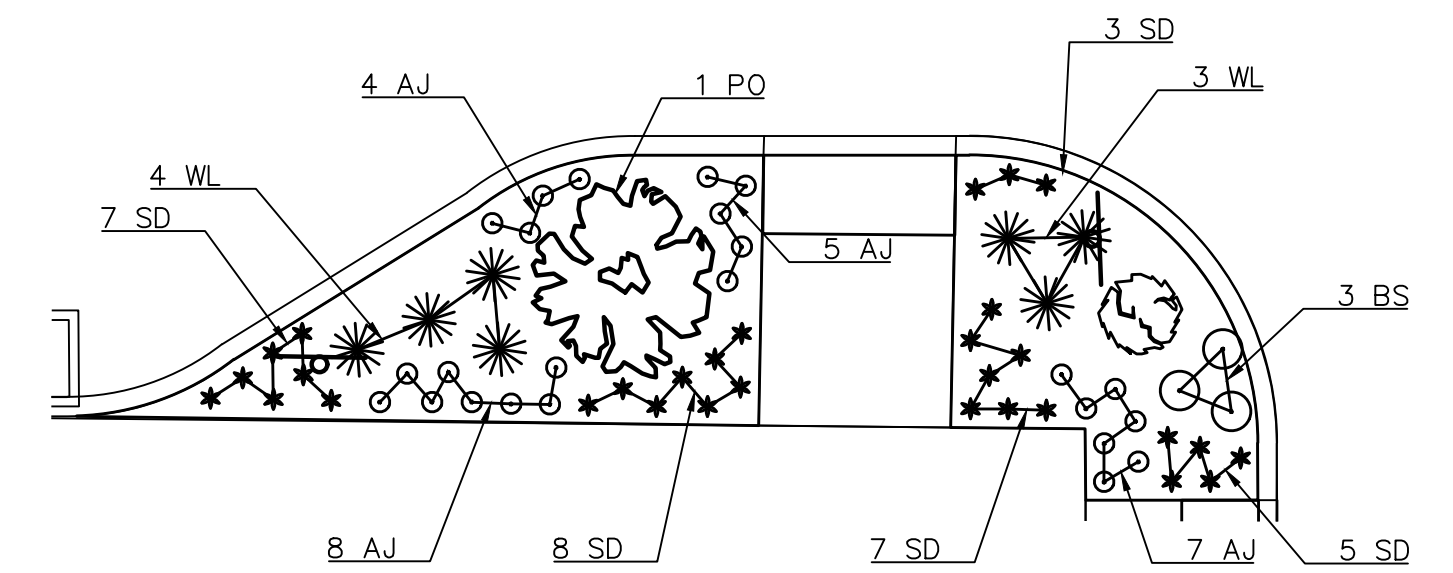
LANDSCAPE AREA #4
SCALE: 1" = 5'



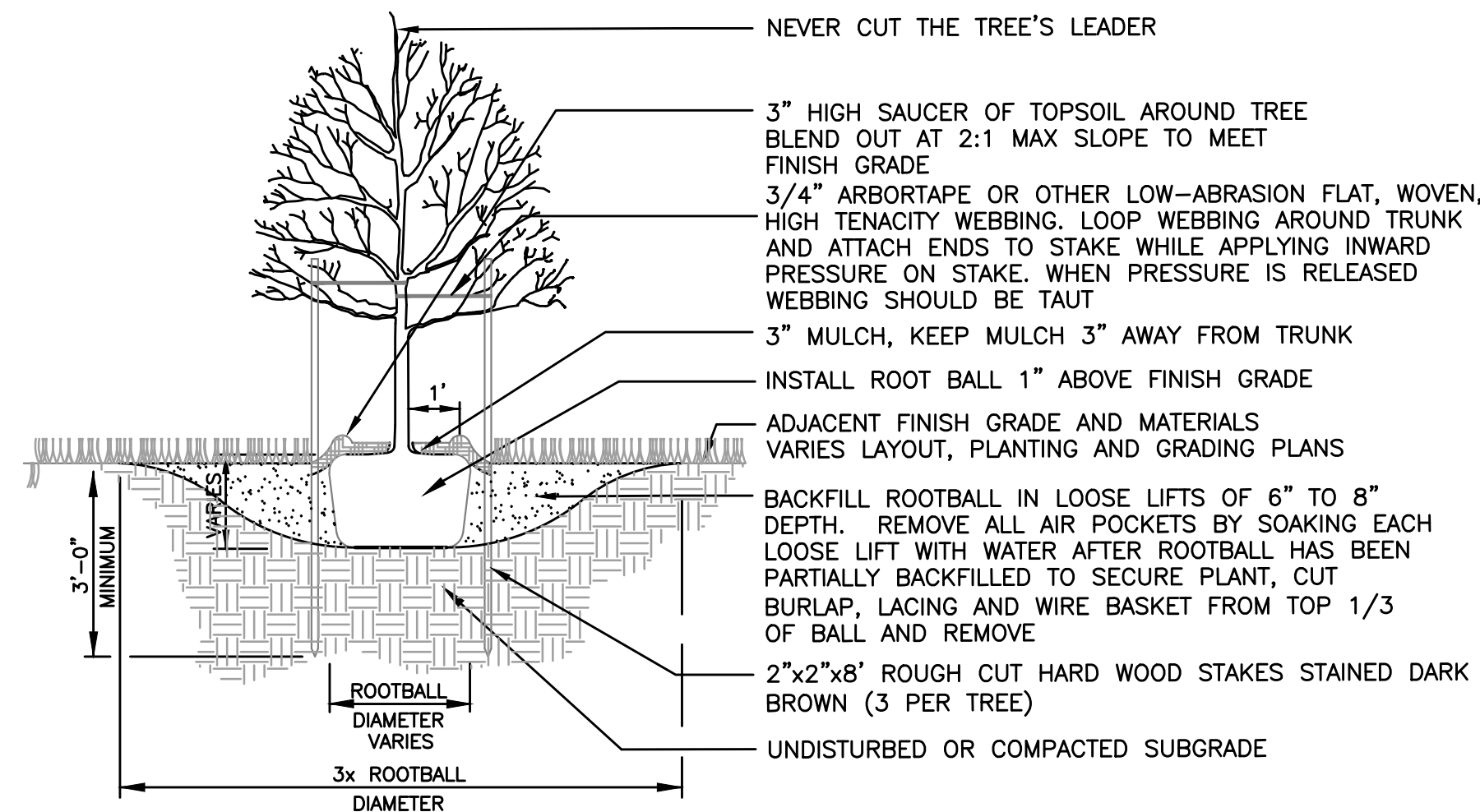
LANDSCAPE AREA #5
SCALE: 1" = 5'



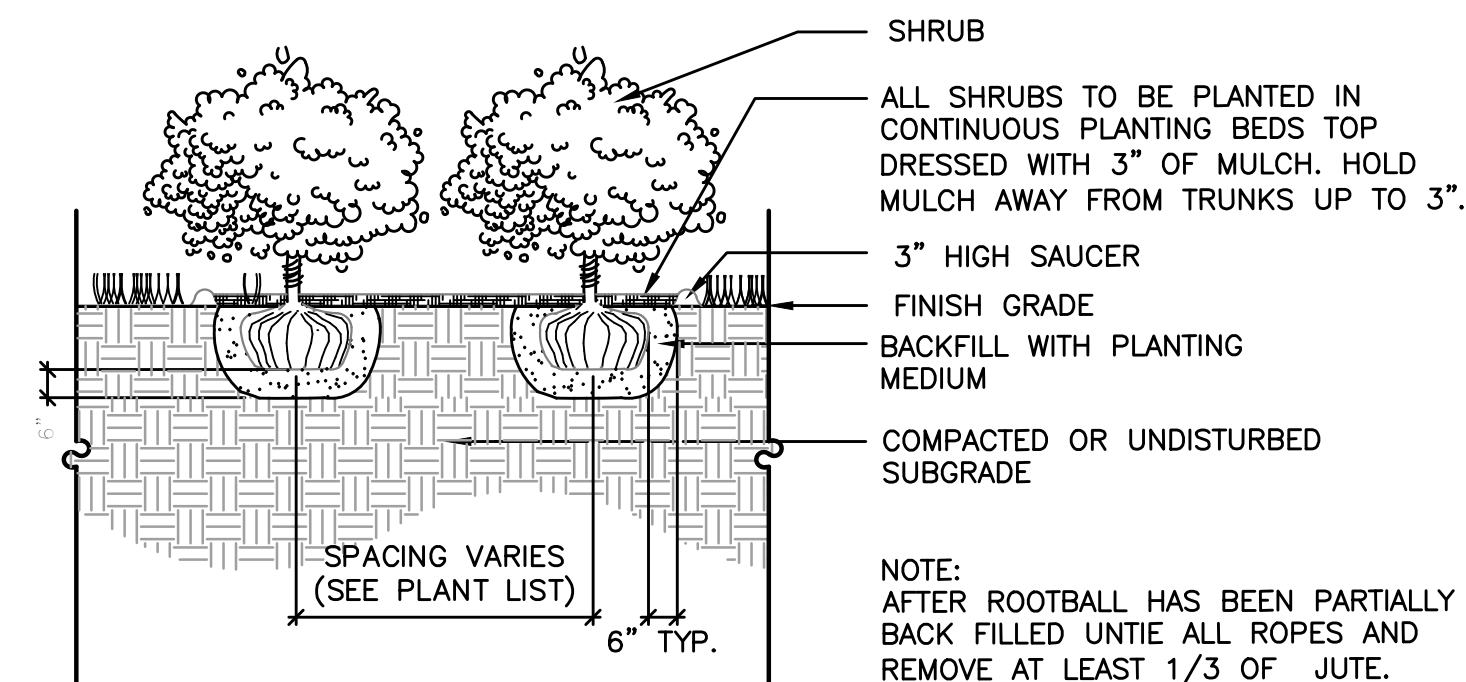
LANDSCAPE AREA #6
SCALE: 1" = 5'



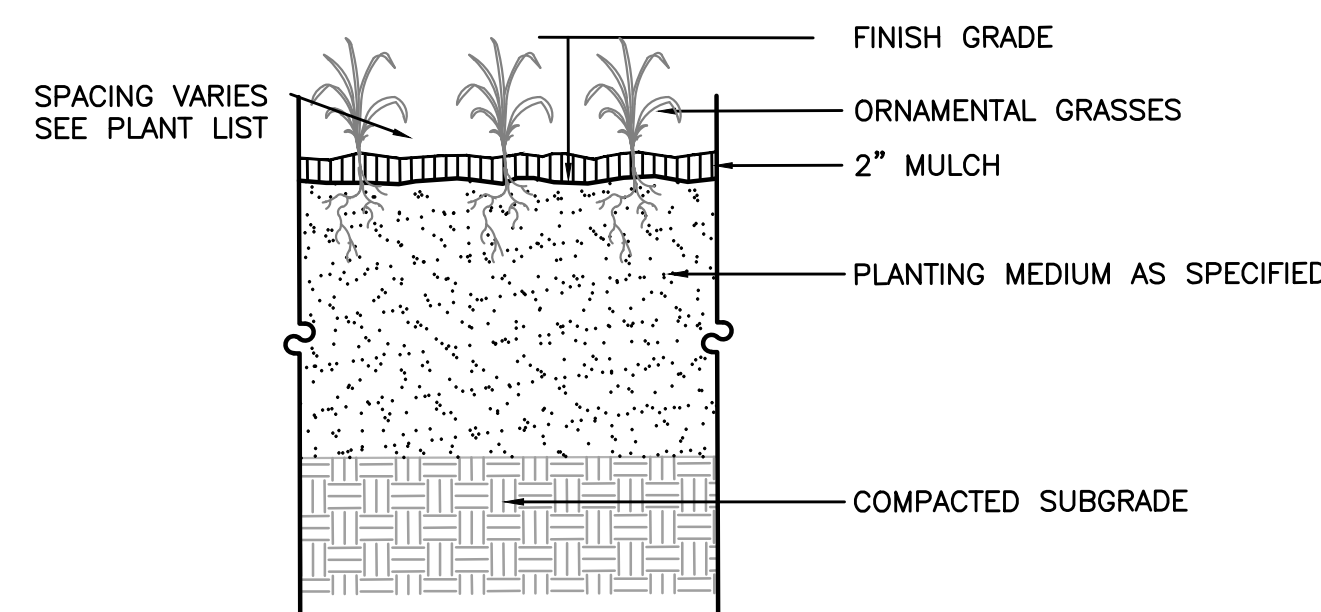
LANDSCAPE AREA #7
SCALE: 1" = 5'



DECIDUOUS TREE IN LANDSCAPED AREA
NOT TO SCALE



SHRUB PLANTING
NOT TO SCALE



GROUNDCOVER AND PERENNIAL PLANTING
NOT TO SCALE

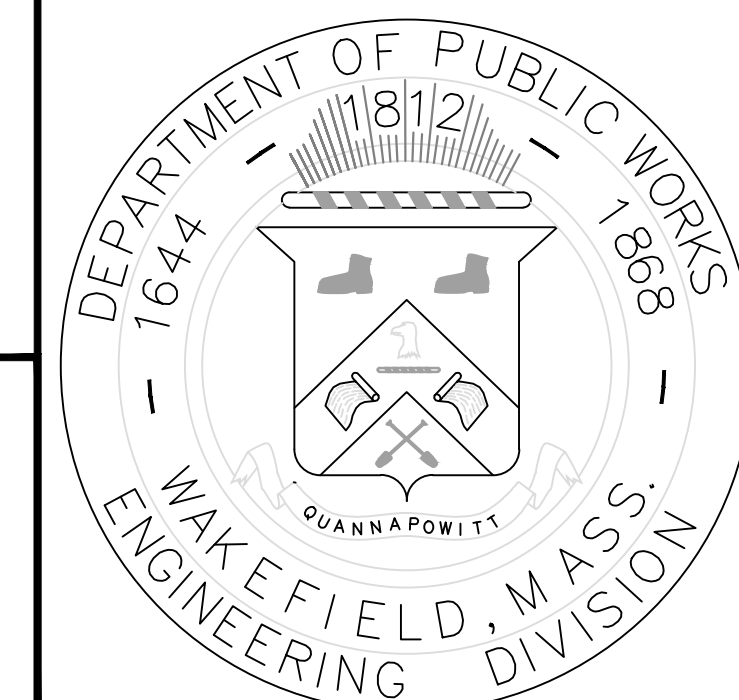
PLANTING SCHEDULE						
SYMBOL	ABREV.	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
	RR	10	ROSA RADRAZZ	KNOCKOUT ROSE	3' POT	3' O.C.
	WL	65	NEPETA X FAASSENII	WALKER'S LOW CATMINT	½ GAL.	2'–3' O.C.
	BS	107	RUDBECKIA	BLACK-EYED SUSAN	9" POT	1.5'–2' O.C.
	AJ	250	SEDUM	AUTUMN JOY	1 GAL.	1' O.C.
	SD	285	HEMEROCALLIS	STELLA D'ORO DAY LILY	½ GAL.	1' O.C.
	PO	4	QUERCUS PALUSTRIS	PIN OAK	2–2.5" CAL.	N/A
	SM	3	ACER PSEUDOPLATANUS	SYCAMORE MAPLE	2–2.5" CAL.	N/A

PLANTING NOTES:

- CONTRACTOR SHALL LAYOUT PLANTS FOR FINAL LOCATION APPROVAL BY THE ENGINEER PRIOR TO PLANTING.
- ALL EXPOSED SOIL INBETWEEN PLANTINGS SHALL BE COVERED BY 2" OF BLACK BARK MULCH AND WATERED THOROUGHLY.
- CONTRACTOR MAY REMOVE, STOCKPILE, AND REUSE EXISTING PLANTINGS SITUATED WITHIN THE LANDSCAPED AREAS.

TOWN OF WAKEFIELD PUBLIC WORKS
ALBION STREET

PLANTING PLAN



DRAWN BY: TWW
DESIGNED BY: TWW
REVIEWED BY: WJR
APPROVED BY: WJR
DATE: 11/20/2020
REVISED 1: ---
SCALE: AS NOTED
FILE: 10143-ALBIONST



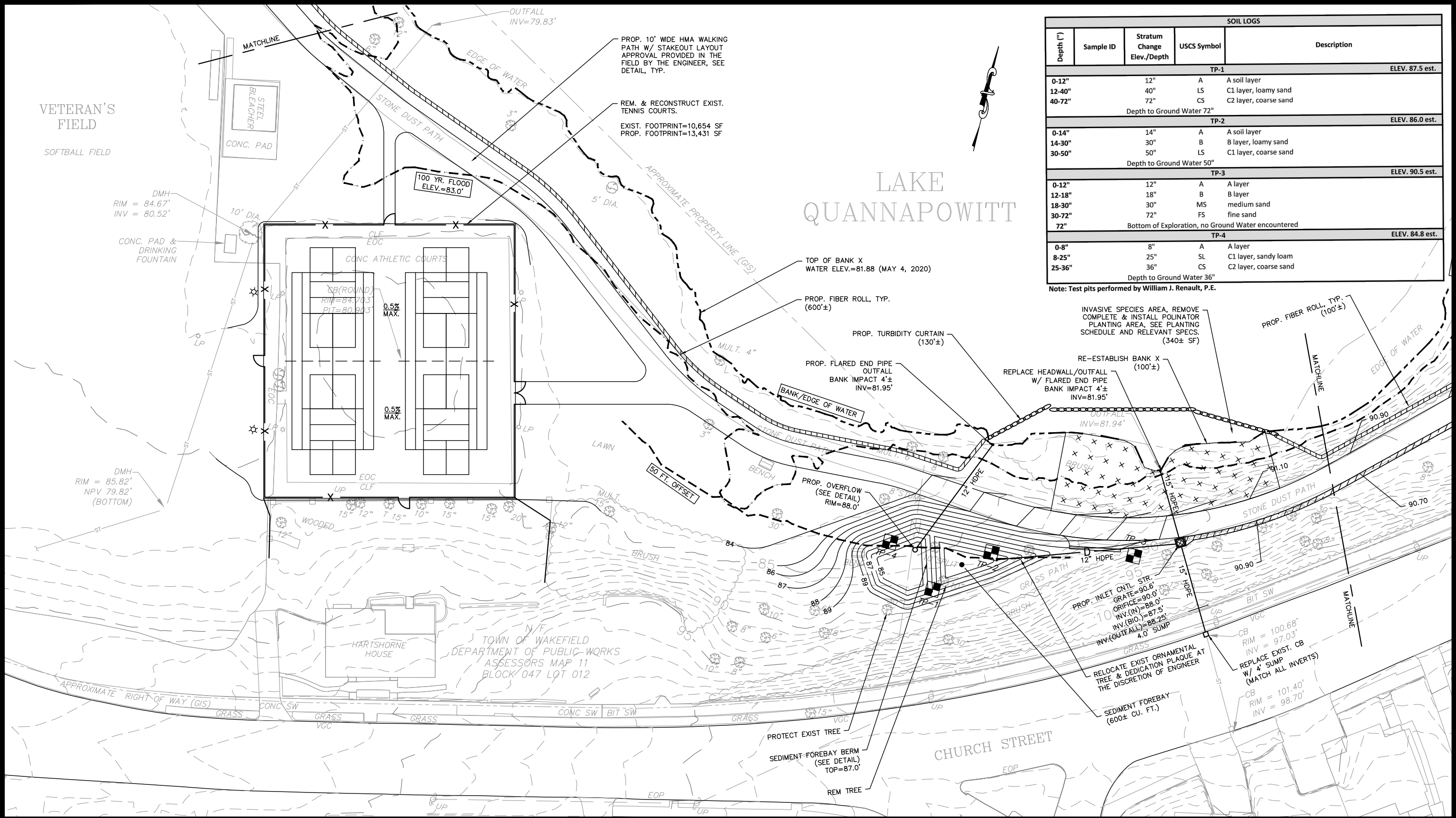
TOWN OF WAKEFIELD

DEPARTMENT OF PUBLIC WORKS

Engineering Division

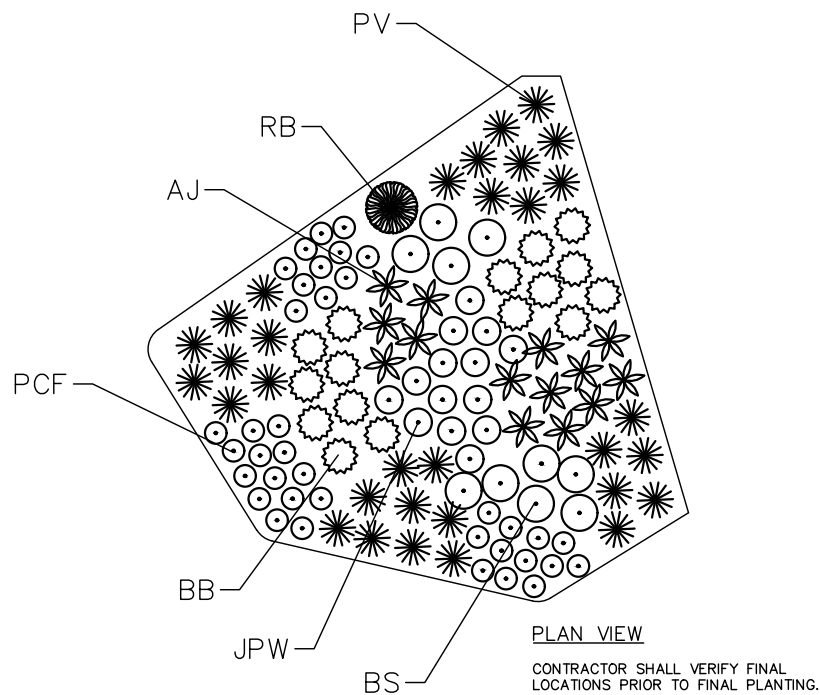
Attachment 3 – Veterans Field Tennis Court/Path Enhancements





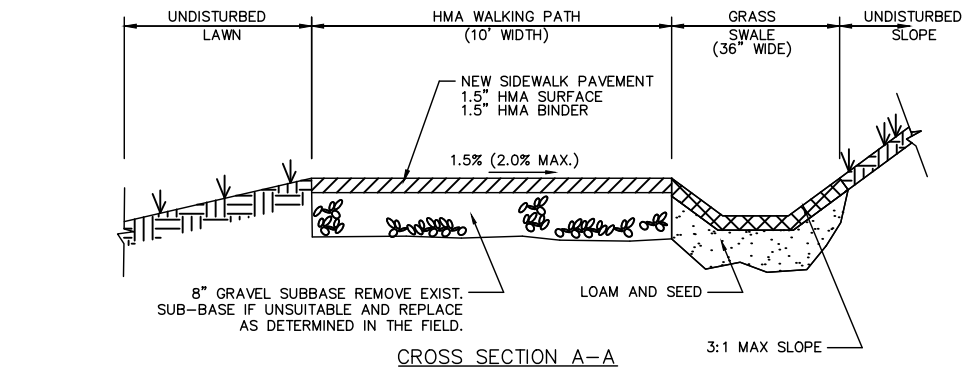
SOIL LOGS				
Depth (")	Sample ID	Stratum Change Elev./Depth	USCS Symbol	Description
TP-1 ELEV. 87.5 est.				
0-12"		12"	A	A soil layer
12-40"		40"	LS	C1 layer, loamy sand
40-72"		72"	CS	C2 layer, coarse sand
Depth to Ground Water 72"				
TP-2 ELEV. 86.0 est.				
0-14"		14"	A	A soil layer
14-30"		30"	B	B layer, loamy sand
30-50"		50"	LS	C1 layer, coarse sand
Depth to Ground Water 50"				
TP-3 ELEV. 90.5 est.				
0-12"		12"	A	A layer
12-18"		18"	B	B layer
18-30"		30"	MS	medium sand
30-72"		72"	FS	fine sand
Bottom of Exploration, no Ground Water encountered				
TP-4 ELEV. 84.8 est.				
0-8"		8"	A	A layer
8-25"		25"	SL	C1 layer, sandy loam
25-36"		36"	CS	C2 layer, coarse sand
Depth to Ground Water 36"				

Note: Test pits performed by William J. Renault, P.E.

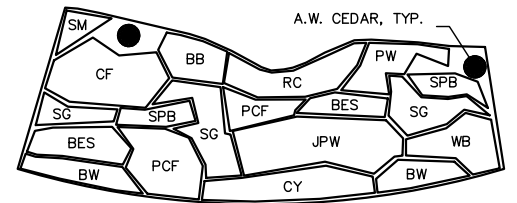


ABBREVIATION	QTY.	BOTANICAL NAME	COMMON NAME	SIZE
LANDSCAPE AREA (BIORETENTION AREA)				
BS	10	RUDBECKIA	BLACK-EYED SUSAN	9" POT
AJ	14	SEDUME	AUTUMN JOY	1 GAL.
PCF	37	ECHINACHIA PURPUREA	PURPLE CONE FLOWER	9" POT
JPW	14	EUPATORIUM PURPUREUM	JOE PYE WEED	1 GALLON
PV	34	PANICUM VIRGATUM	SWITCH GRASS	3 GALLON
BB	16	MONARDA	BEE BALM	9" POT
RB	1	BETULA NIGRA	RIVER BIRCH (TREE)	2" CAL.

BIO RETENTION AREA PLANTING SCHEDULE
N.T.S.



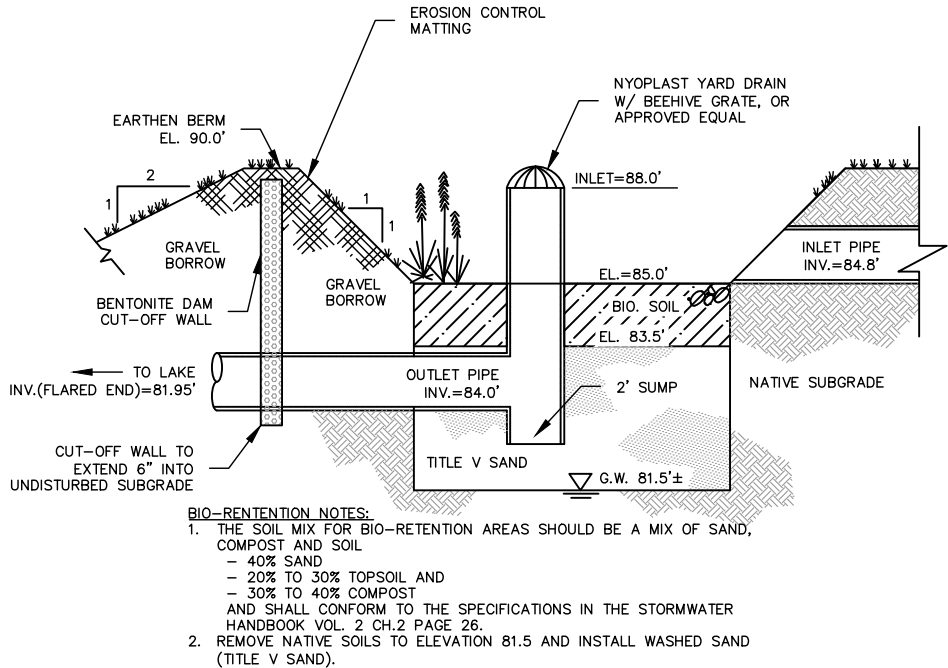
HMA WALKING PATH & SWALE
NOT TO SCALE



PLAN VIEW
CONTRACTOR SHALL VERIFY FINAL LOCATIONS PRIOR TO FINAL PLANTING.

PLANTING SCHEDULE - POLLINATOR AREA					
CODE	COMMON NAME	SCIENTIFIC NAME	HEIGHT	SPACING	QUANTITY
BB	Buttonbush	<i>Cephalanthus occidentalis</i>	3'-4'	3'-4'	7
SPB	Sweet pepperbush	<i>Clethra alnifolia</i>	3'-4'	4'-6'	10
RC	Red Chokeberry	<i>Photinia pyrifolia</i>	3'-4'	4'-6'	5
OW	Pussy Willow	<i>Salix discolor</i>	3'-4'	5'-10'	3
AWC	Atlantic White Cedar	<i>Chamaecyparis thyoides</i>	4'-6'	6'-8'	2
SM	Swamp milkweed	<i>Asclepias incarnata</i>	2"	1.5'	200
JPW	Joe Pye Weed	<i>Eutrochinium fistulosum</i>	2"	1'-2'	45
CF	Cardinal Flower	<i>Lobelia cardinalis</i>	2"	1'-2'	75
CY	Common Yarrow	<i>Archillea millefolium</i>	2'-4'	1'-2'	30
PCF	Purple Coneflower	<i>Echinacea purpurea</i>	2"	1.5'-2'	100
BES	Black-eyed Susan	<i>Rudbeckia hirta</i>	2'	1.5'-2'	75
SG	Switchgrass	<i>Panicum virgatum</i>	2"	1'-1.5'	125
WB	Wild Bergamot	<i>Monarda fistulosa</i>	2"	1'-1.5'	100
WL	Wild Lupine	<i>Lupinus perrennis</i>	2"	1-1.5'	25
BW	Butterfly Weed	<i>Asclepias tuberosa</i>	2"	1.5'	125

POLLINATOR AREA PLANTING SCHEDULE
N.T.S.



BIORETENTION AREA & INLET CONTROL STRUCTURE
NOT TO SCALE

- BIO-RETENTION NOTES:
- THE SOIL MIX FOR BIO-RETENTION AREAS SHOULD BE A MIX OF SAND, COMPOST AND SOIL
 - 40% SAND
 - 20% TO 30% TOPSOIL AND
 - 30% TO 40% COMPOSTAND SHALL CONFORM TO THE SPECIFICATIONS IN THE STORMWATER HANDBOOK VOL. 2 CH.2 PAGE 26.
 - REMOVE NATIVE SOILS TO ELEVATION 81.5 AND INSTALL WASHED SAND (TITLE V SAND).





TOWN OF WAKEFIELD

DEPARTMENT OF PUBLIC WORKS

Engineering Division

Attachment 4 – 2022 Roads Program Lowell Street/Salem Street Intersection Realignment





TOWN OF WAKEFIELD

DEPARTMENT OF PUBLIC WORKS

Engineering Division

Attachment 5 – Green Street/Oak Street Intersection Realignment







TOWN OF
WAKEFIELD

Public Works • Engineering Division • Lafayette Street • Wakefield, MA 01880

REVISIONS

SURVEY
GIS

DRAWN
TWW

CHECKED
WJR

SCALE
1" = 30'

OAK ST & GREEN ST
INTERSECTION REALIGNMENT
EXISTING CONDITIONS

FEBRUARY 2, 2022

10260

EXIST
2022-XX

3 SHEETS
1



- SIDEWALK
- DRIVEWAY
- WHEELCHAIR RAMP
- GRASS AREA



TOWN OF
WAKEFIELD
Public Works • Engineering Division • Lafayette Street • Wakefield, MA 01880

3/3/22

ADDED STOPS

REVISIONS

3/3/22

SCALE

1" = 30'

10260

CNCPT

2022-XX

3 SHEETS

OAK ST & GREEN ST

INTERSECTION REALIGNMENT

PREFERRED OPTION

FEBRUARY 2, 2022

2



- SIDEWALK
- DRIVEWAY
- WHEELCHAIR RAMP
- GRASS AREA
- MOUNTABLE CENTER ISLAND



TOWN OF
WAKEFIELD
Public Works • Engineering Division • Lafayette Street • Wakefield, MA 01880

REVISIONS

SURVEY
GIS

DRAWN
TWW

CHECKED
WJR

SCALE
1" = 30'

OAK ST & GREEN ST
INTERSECTION REALIGNMENT
ROUNDABOUT OPTION
FEBRUARY 2, 2022

10260
CNCPT
2022-XX
3 SHEETS
3



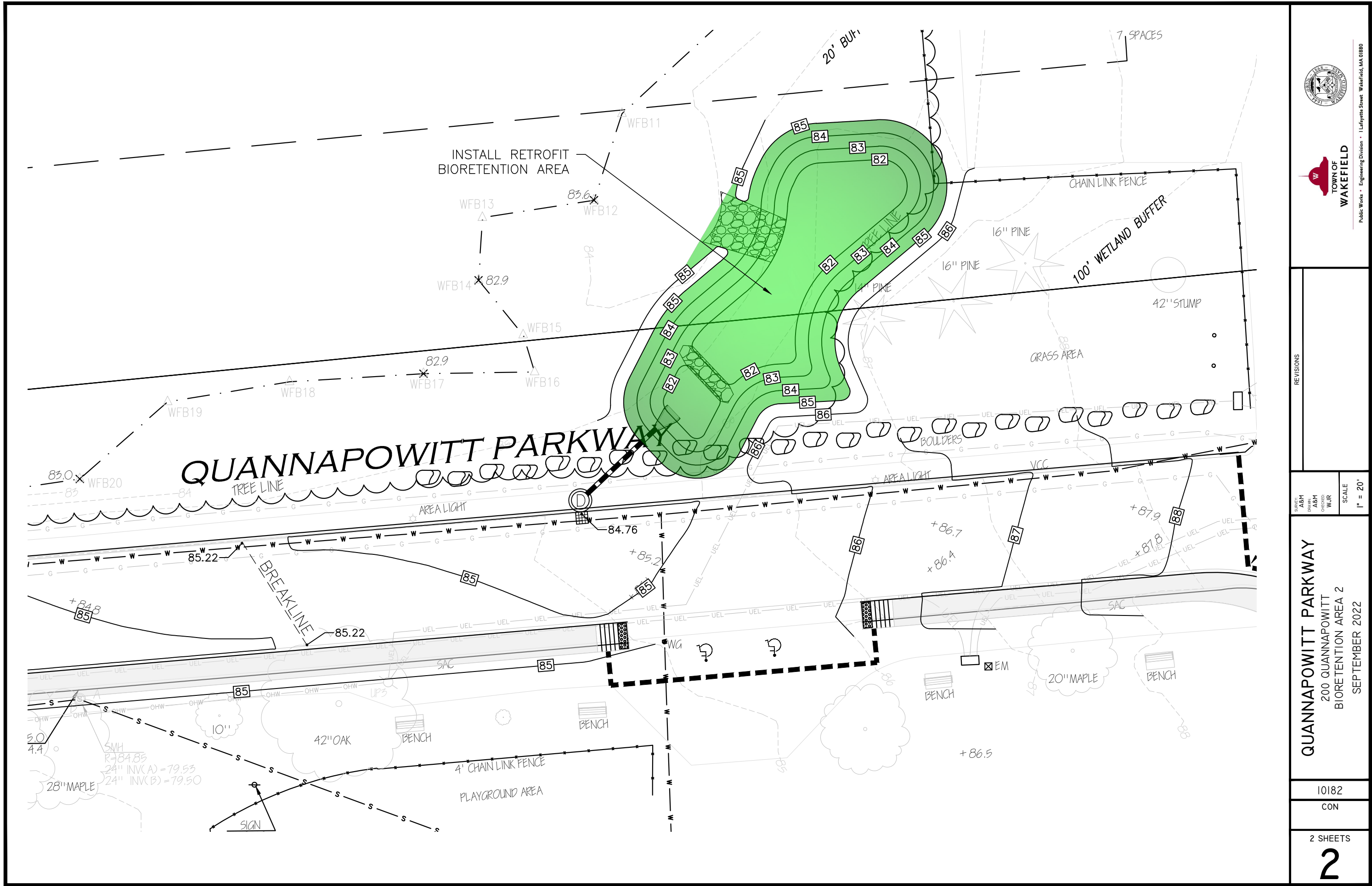
TOWN OF WAKEFIELD

DEPARTMENT OF PUBLIC WORKS

Engineering Division

Attachment 6 - Quannapowitt Parkway







TOWN OF
WAKEFIELD
Public Works • Engineering Division • Lafayette Street • Wakefield, MA 01880

REVISIONS

SURVEY
ASB

DESIGN
WJM

CHECK
WJR

SCALE
1" = 20'

QUANNAPOWITT PARKWAY
200 QUANNAPOWITT
BIORETENTION AREA 2

SEPTEMBER 2022

10182

CON

2 SHEETS
2



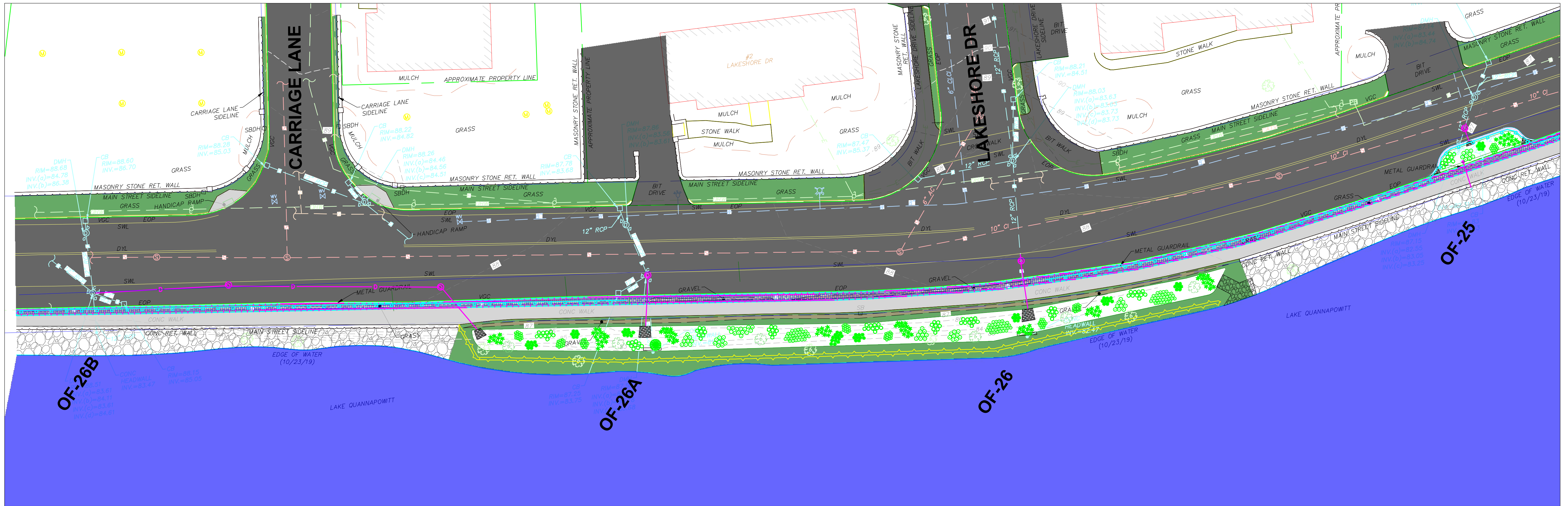
TOWN OF WAKEFIELD

DEPARTMENT OF PUBLIC WORKS

Engineering Division

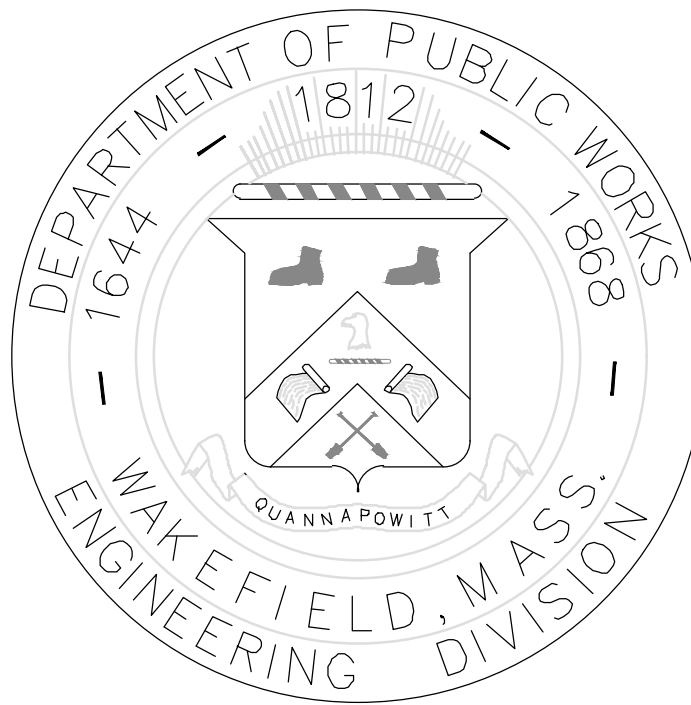
Attachment 7 – Main Street Reconstruction



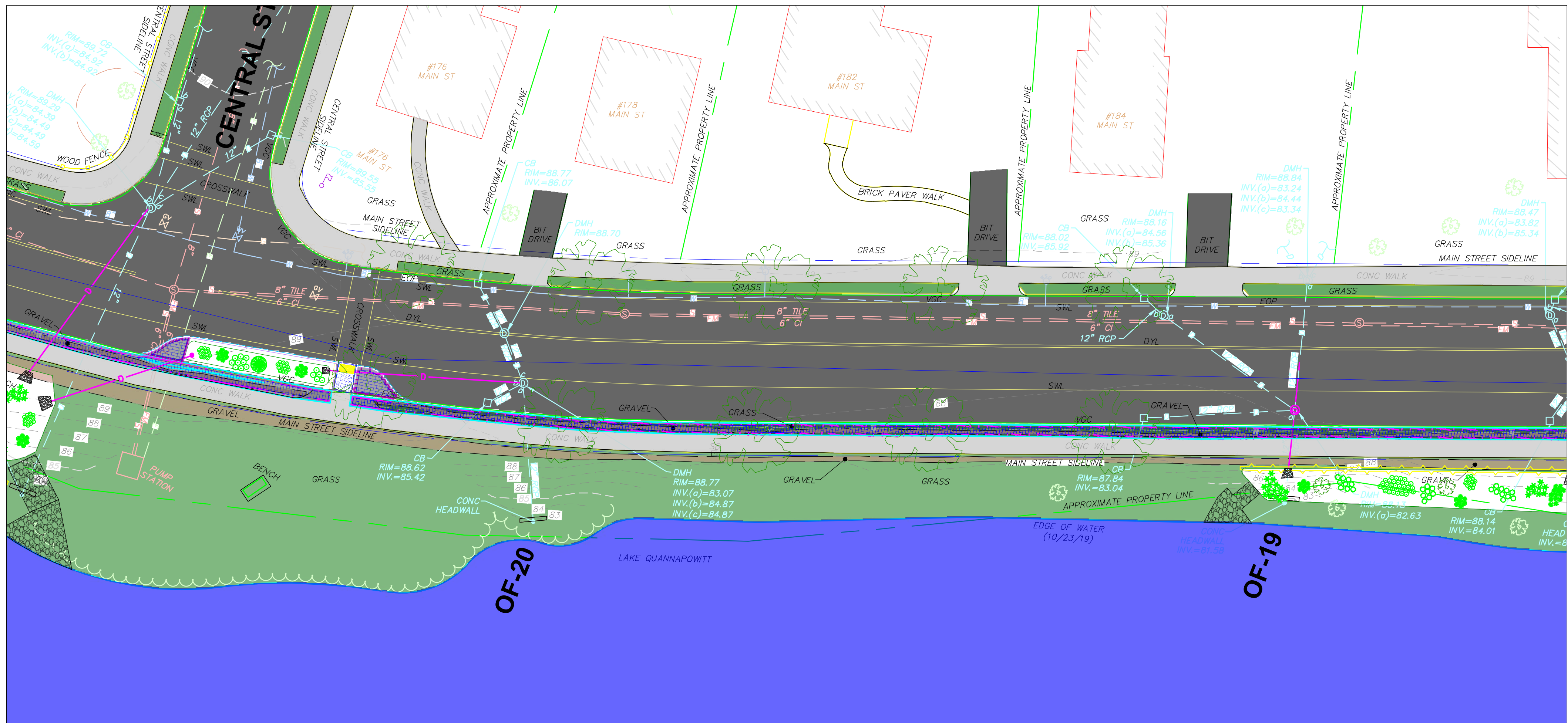
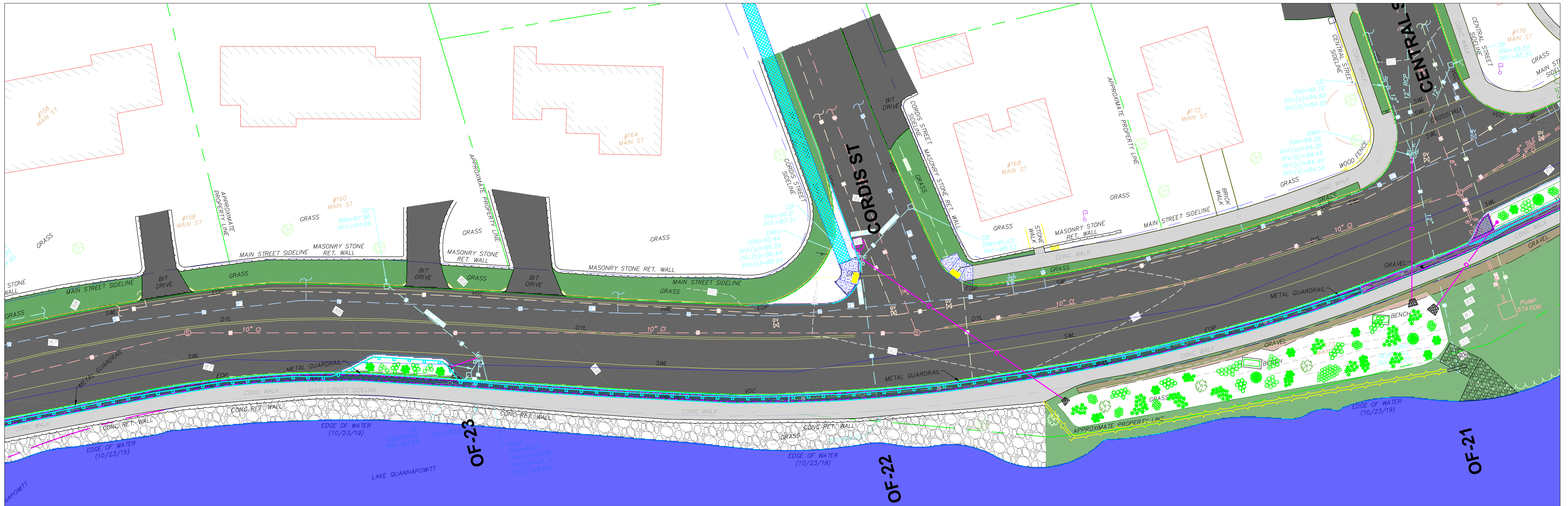


TOWN OF WAKEFIELD PUBLIC WORKS
MAIN STREET

LAKE Q IMPROVEMENTS

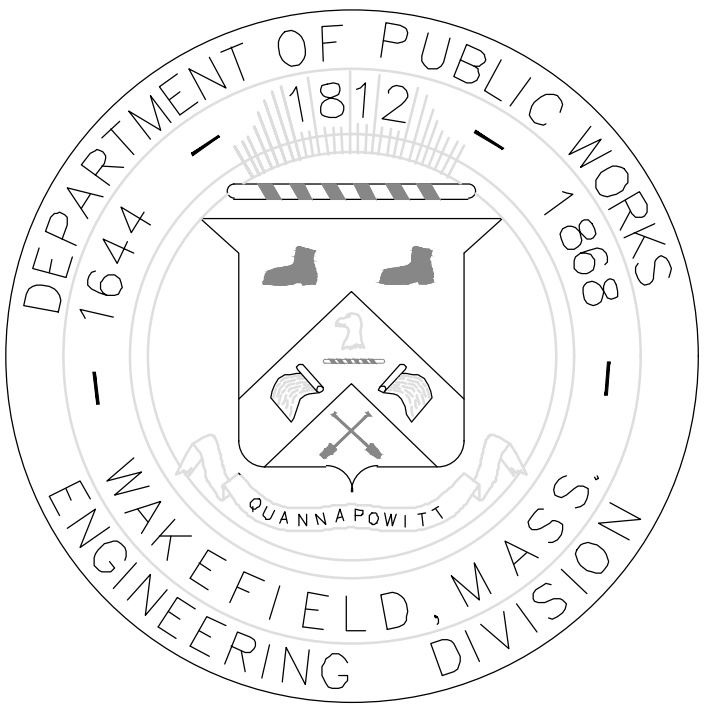


DRAWN BY: TWW
DESIGNED BY: TWW
REVIEWED BY: WJR
APPROVED BY: WJR
DATE: 12/05/2019
REVISED 1: ---
SCALE: 1" = 20'
FILE: 10199-MAINST

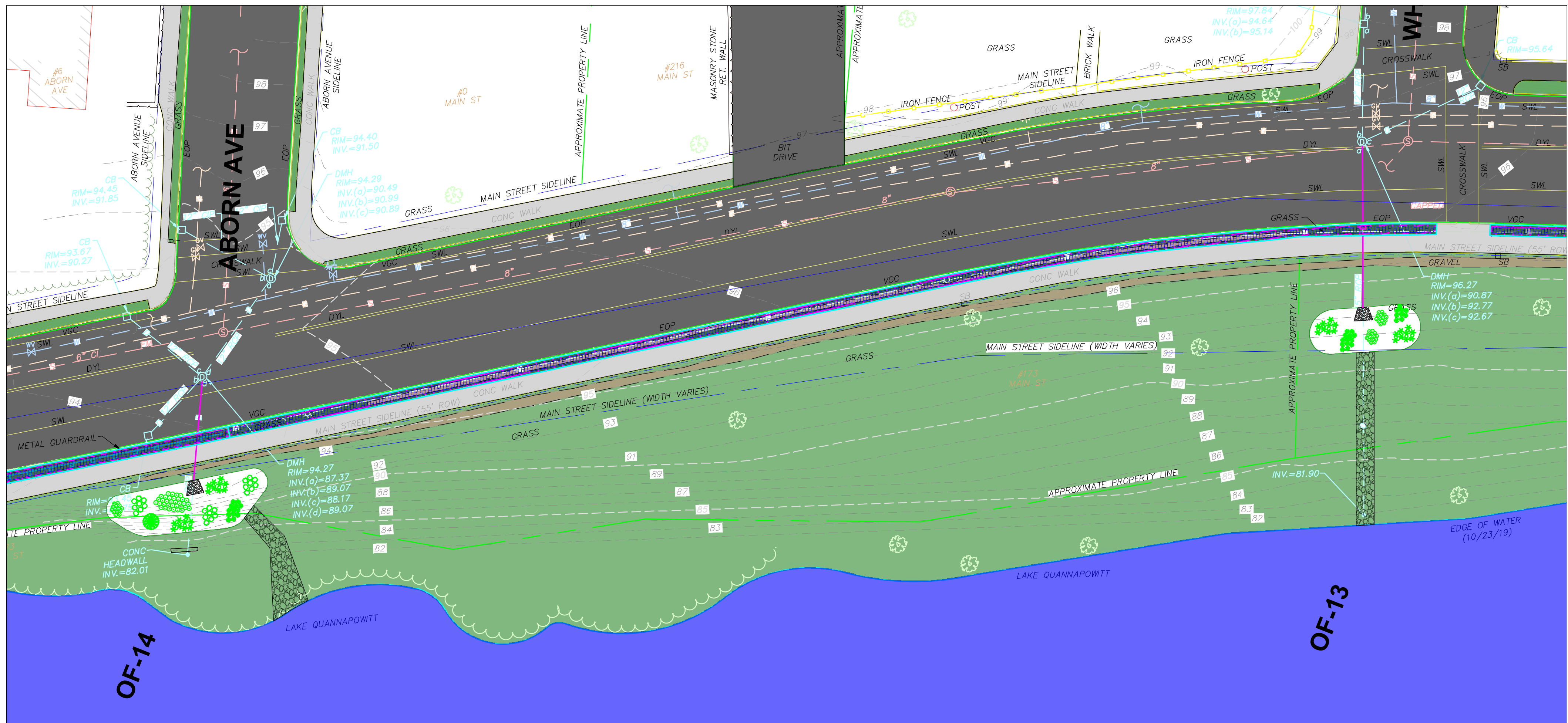
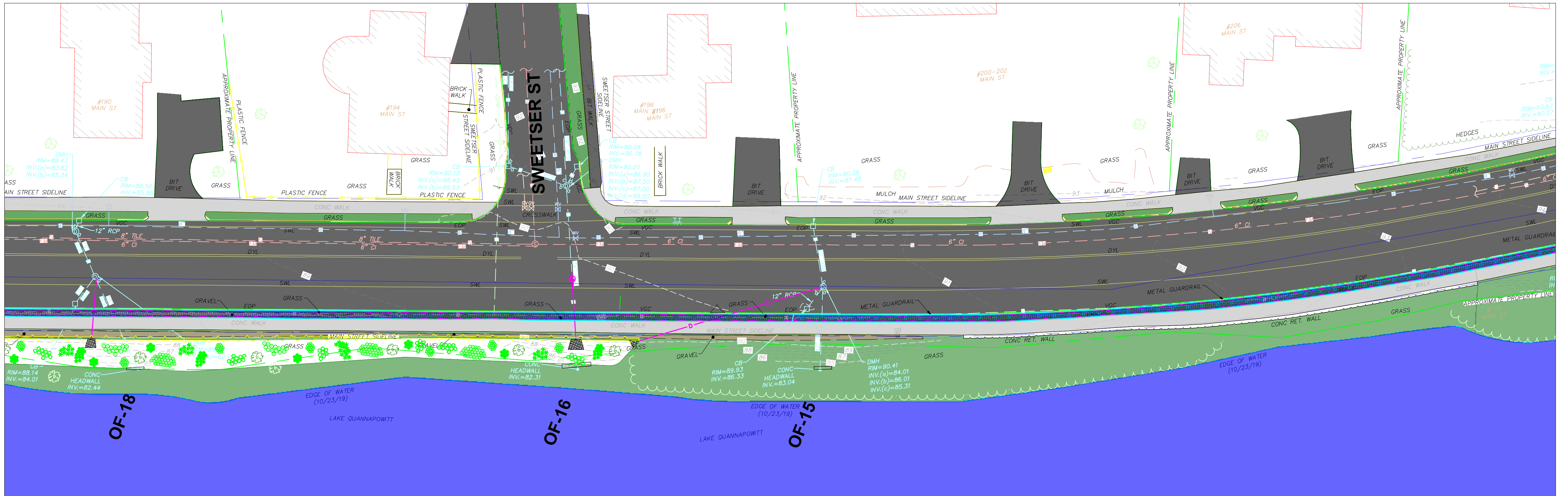


TOWN OF WAKEFIELD PUBLIC WORKS MAIN STREET

LAKE Q IMPROVEMENTS

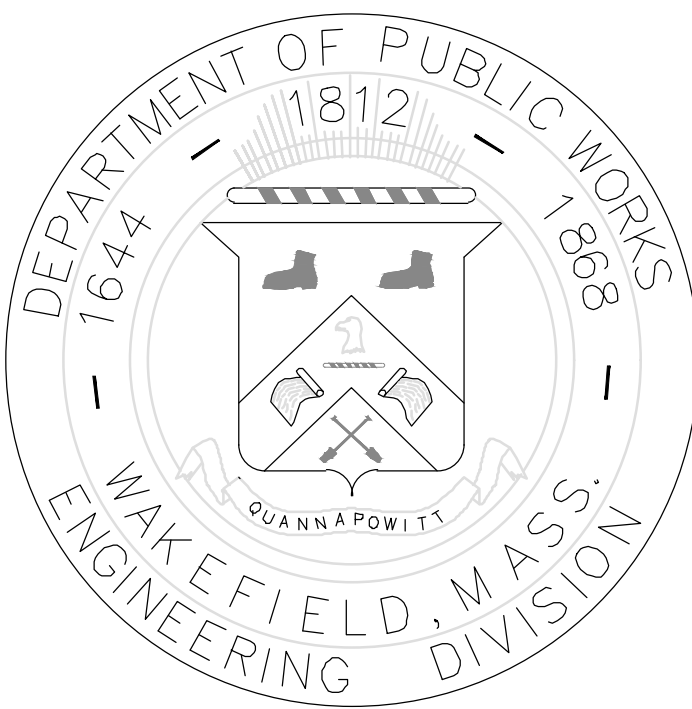


DRAWN BY: TWW
DESIGNED BY: TWW
REVIEWED BY: WJR
APPROVED BY: WJR
DATE: 12/05/2019
REVISED 1: ---
SCALE: 1" = 20'
FILE: 10199-MAINST

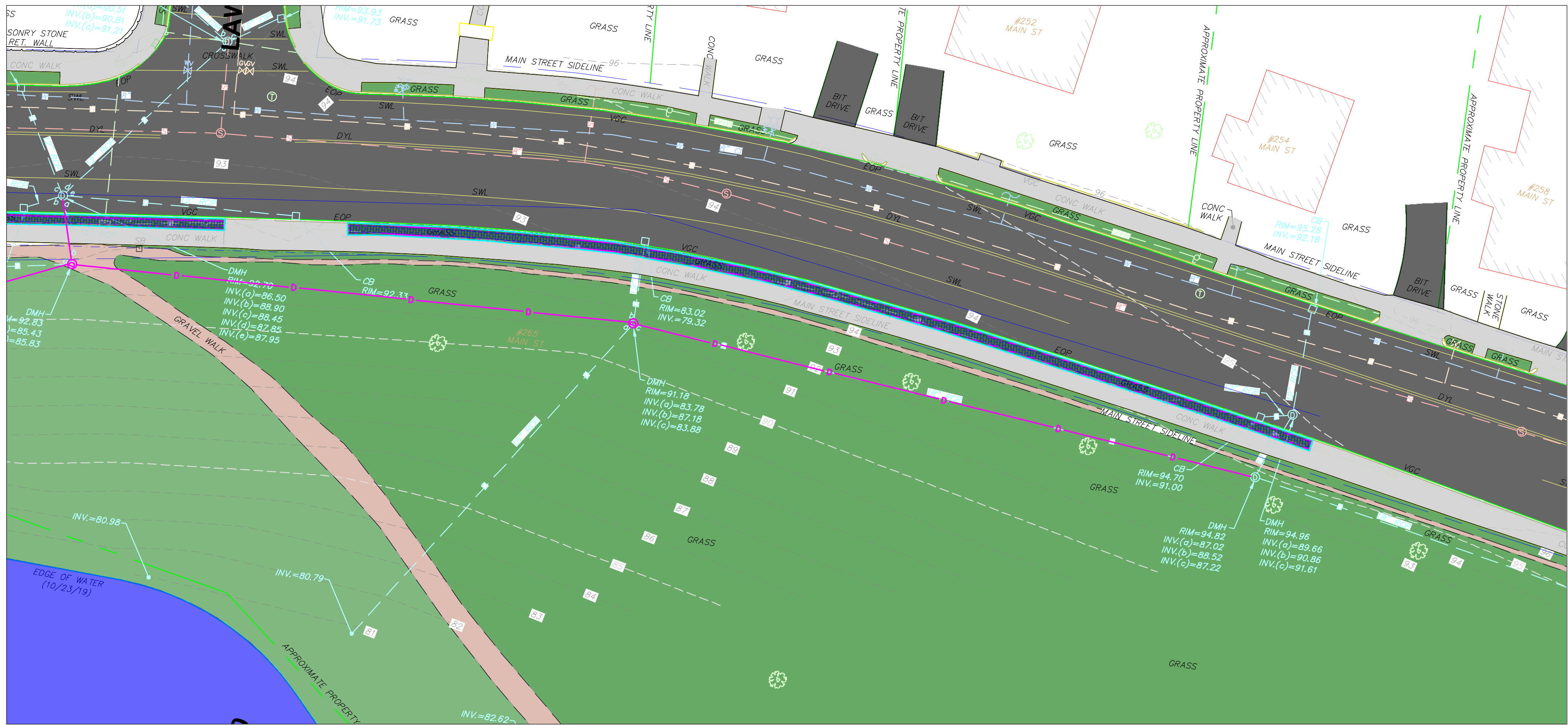
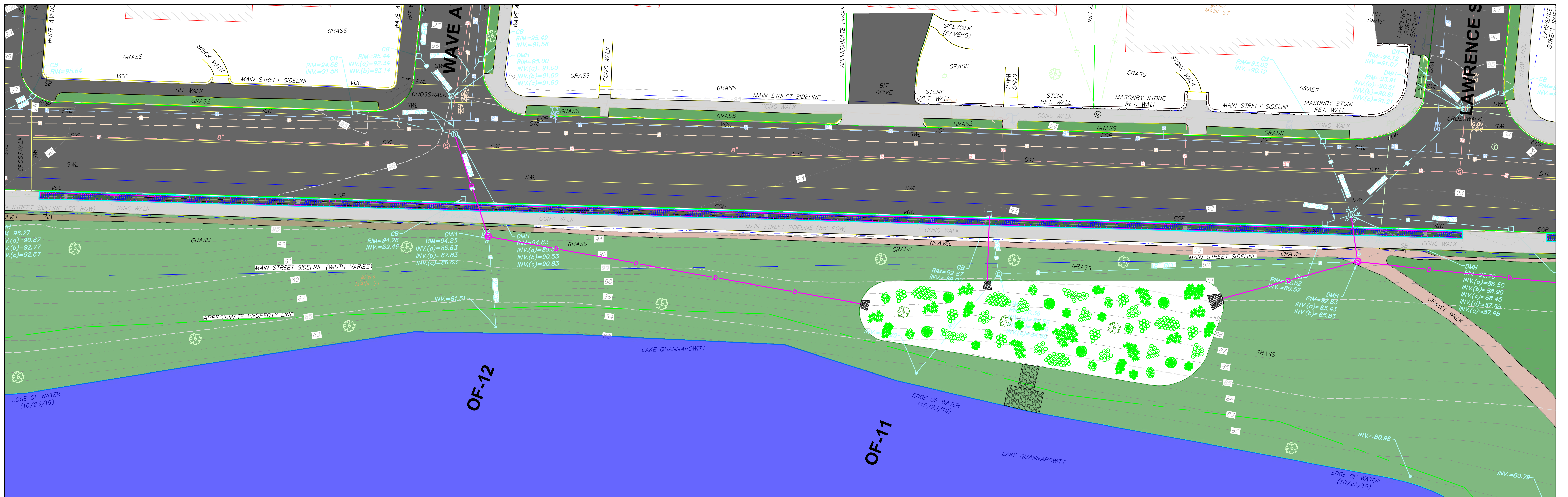


TOWN OF WAKEFIELD PUBLIC WORKS
MAIN STREET

LAKE Q IMPROVEMENTS

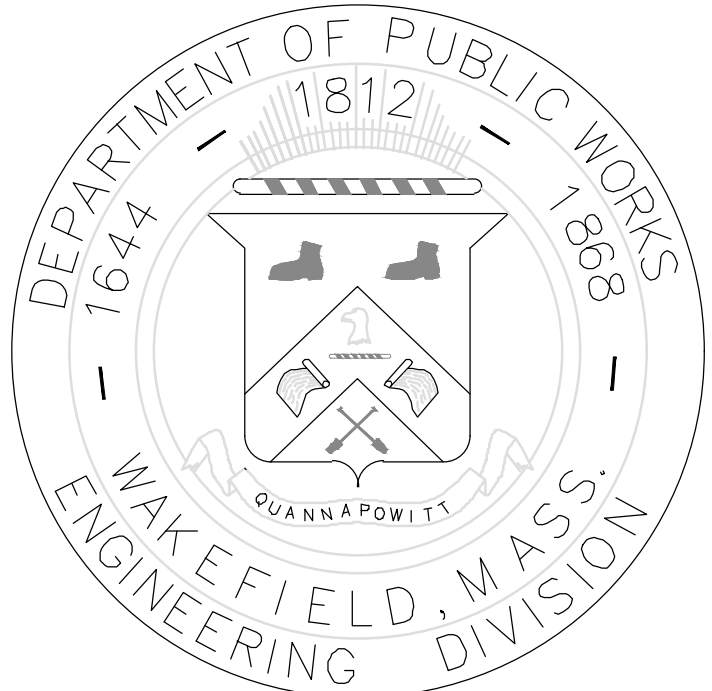


DRAWN BY: TWW
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REVIEWED BY: WJR
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DATE: 12/05/2019
REVISED 1: ---
SCALE: 1" = 20'
FILE: 10199-MAINST



TOWN OF WAKEFIELD PUBLIC WORKS MAIN STREET

LAKE Q IMPROVEMENTS



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 SCALE: 1" = 20'
 FILE: 10199-MAINST

Catchments for Outfalls 9-26B

