

Silver Street Improvements

July 2, 2014



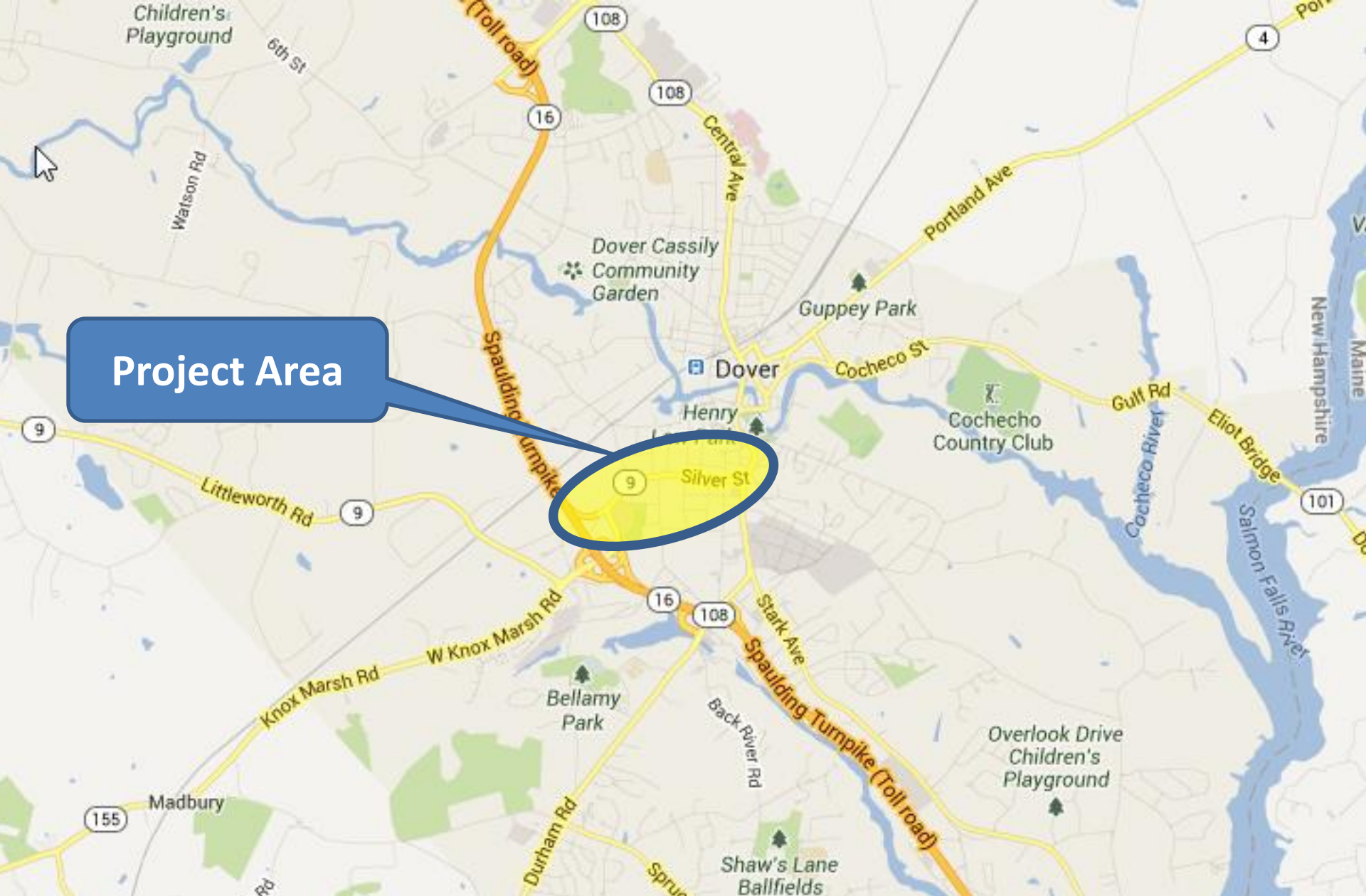
"A City with an emerging urban vibrancy guided by a small town sense of community."

Agenda

- Project
 - Utilities
 - Traffic
 - Streetscape/Gateway
 - Project Summary
- Construction Impacts
- Q&A

Project Overview

Project Area



Limit of Work 4,000 feet

Exit 8

Central Ave.





Plan of Work

- Infrastructure Improvements
 - Water, Sewer and Drainage Improvements
 - Road Reconstruction
 - Curbing and Sidewalk
- Traffic Improvements
 - Intersection Signalization
 - Traffic Calming

Plan of Work

- Pedestrian/Bike
 - Cross Walks
 - Bike Lanes
 - Bus Stops
- Visual Enhancements
 - Greenscape and Gateway
 - Signs and Amenities
- Future Improvements (Exit 8 and Court Street)

Courtesy – Dover Public Library



SILVER STREET FROM GENERAL AVENUE
DOVER, N.H.



Silver Street

Dover N.H. 19

Courtesy – Dover Public Library





NO
PARKING
ANY
TIME

50

NO
PARKING
ANY
TIME



Infrastructure

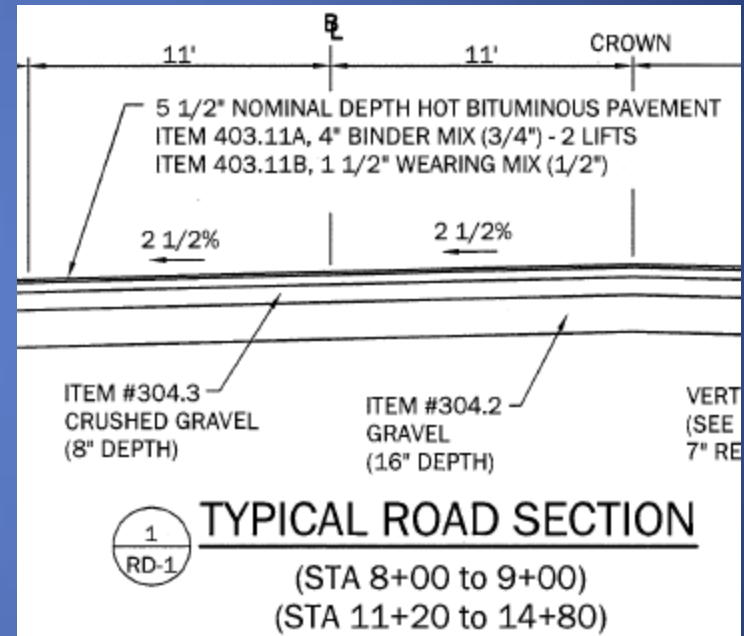
Road, Sidewalk and Utilities

Utilities

- Utilities
 - Sewer – Select areas only
 - Water – 50% of mains, 40 new services and Turnpike crossing
 - Drain – 4,000 feet and 60 new structures
 - Electrical – lighting (29) and traffic signal improvements
 - Conduits for future use

Roadway

- Road Section
 - 24" new gravel
 - 5-1/2" new pavement
- Road Width
 - 32' (typical)
 - Wider at intersections

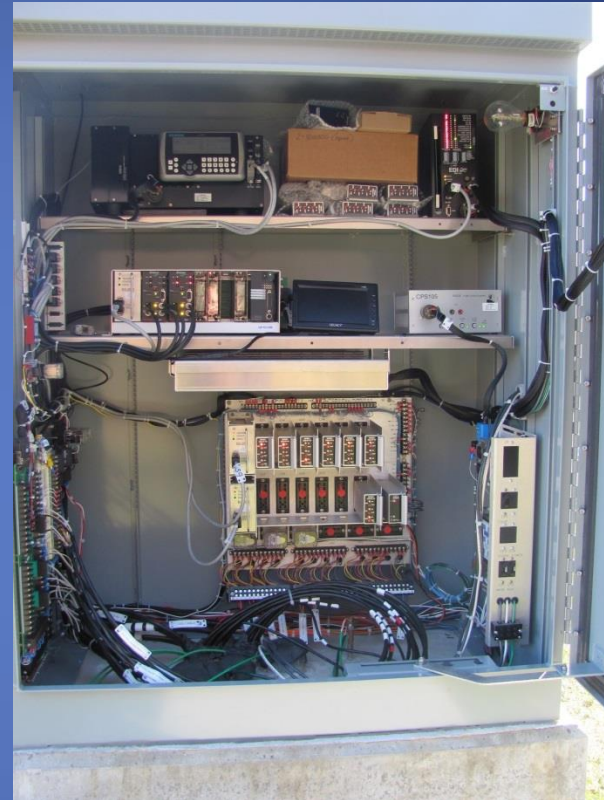


Major Intersections



Traffic Signals

- Optimize Signal Timings
- Signal Coordination

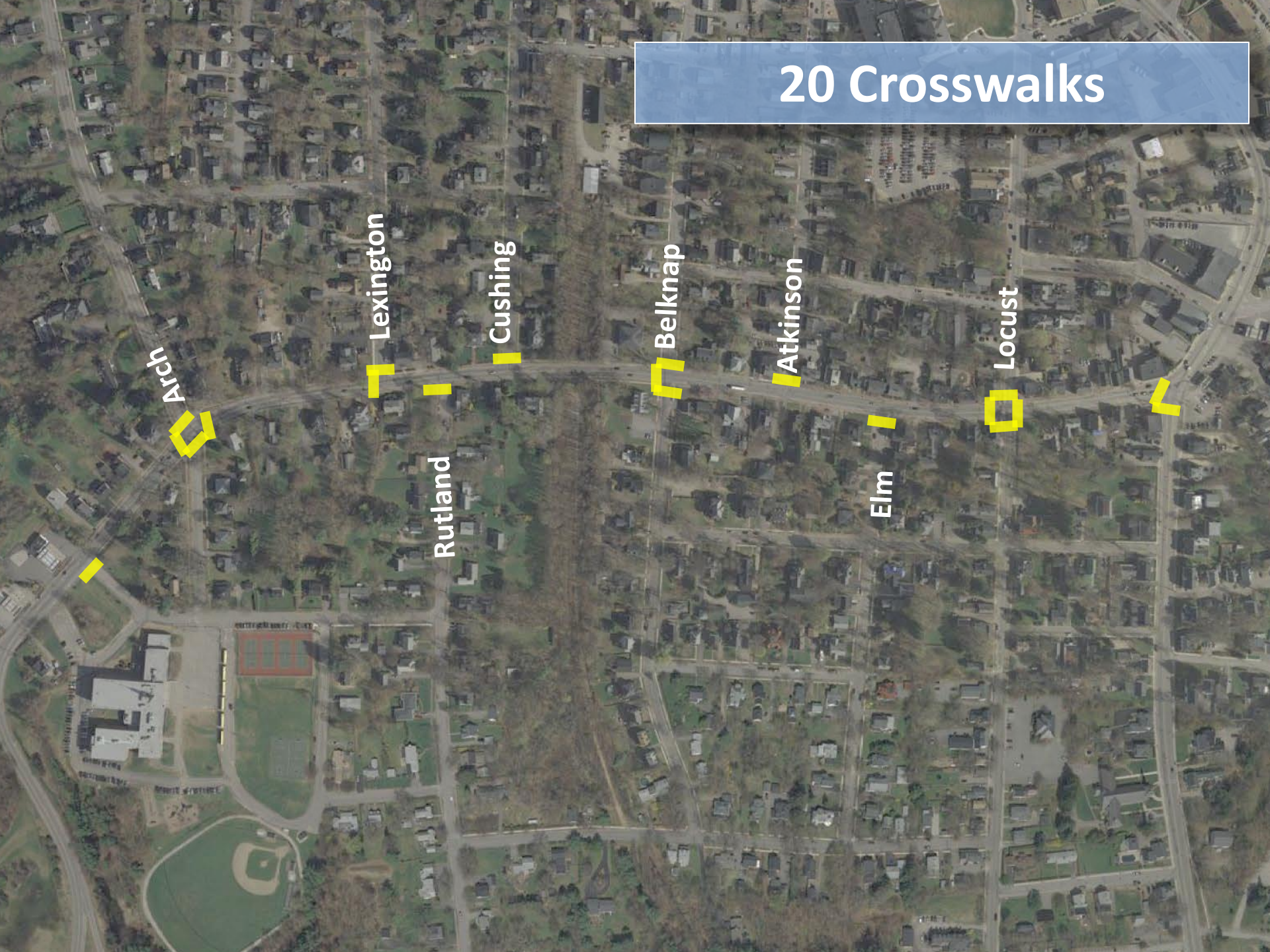


Pedestrian/Bicycle Improvements

- Count-down Displays
- Crosswalks
- Bike Lane



20 Crosswalks



Arch

Lexington

Rutland

Cushing

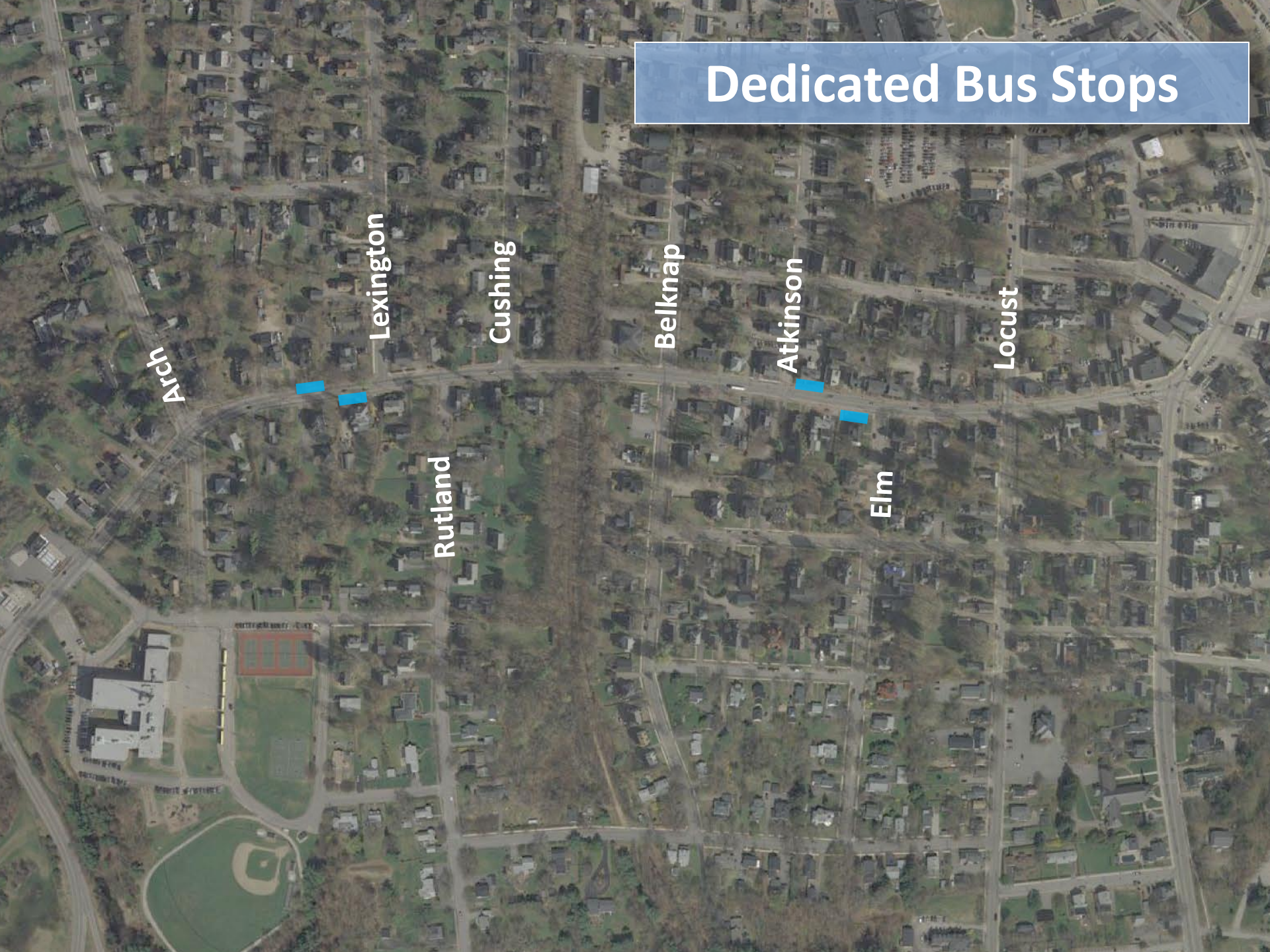
Belknap

Atkinson

Elm

Locust

Dedicated Bus Stops



Arch

Lexington

Cushing

Rutland

Belknap

Atkinson

Elm

Locust

No On Street Parking



Arch

Lexington

Cushing

Belknap

Atkinson

Locust

Rutland

Elm

Side Streets

- Neck downs
 - Elm
 - Atkinson
 - Belknap
 - Cushing
 - Rutland
 - Lexington



Streetscape/Gateway

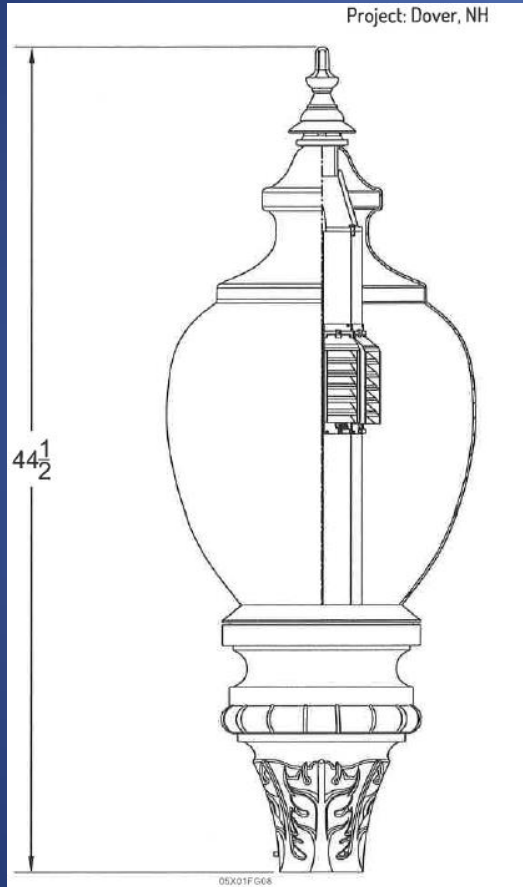
Streetscape Amenities



Streetscape Amenities



Lighting



This drawing is the property of Spring City Elect. Mfg. Co. and is loaned to the recipient with the understanding that it shall not be copied, duplicated, passed on to unauthorized parties, nor used for any purpose other than that for which it is specifically furnished except with Spring City's written permission.

9"

GFCI RECEPTACLE WITH WEATHER PROOF COVER (WEATHER PROOF WHILE IN USE) SEE SECTION BASE PLATE DETAIL FOR ORIENTATION

12'-0"

ACCESS DOOR

CUSTOM FLORAL DETAILS FOR SILVER STREET - DOVER, NH

16" DIA.

12" DIA.

OF A.D. AND GFCI

LAMP POST SPECIFICATIONS

STYLE:	HANCOCK-INT WITH LADDER REST
HEIGHT:	12'-0"
BASE:	16" DIAMETER
MATERIAL:	(D) 1 PIECE, CAST DUCTILE IRON PER A536-84 GRADE 65-45-12
FINISH:	PRIME PAINT THEN FINISH SHERWIN WILLIAMS ACROLON - CLASSIC BLACK
ACCESS DOOR:	LOCATED IN BASE SECURED WITH TAMPER PROOF HEX SOCKET SECURITY MACHINE SCREWS
GROUND STUD PROVISIONS:	DRILL AND TAP INSIDE WALL OF BASE OPPOSITE ACCESS DOOR TO ACCOMMODATE A 1/4"-20 GROUND STUD (STUD SUPPLIED BY OTHERS)
ANCHOR BOLTS:	(4) 3/4" DIA. X 2 1/2" LONG X 3" HOOK (FULLY GALVANIZED WITH 1 GALVANIZED NUT AND 1 GALVANIZED WASHER PER BOLT)
BOLT PROJECTION:	3" REQUIRED
TENON:	3 1/2" DIA. X 3 1/2" HIGH

Spring City Electrical Mfg. Co.

HALL AND MAIN STREETS - P.O. BOX 19 - SPRING CITY, PA. 19475
 PHONE (610) 948-4000 FAX (610) 948-5577
 E-mail ADDRESS: sales@springcity.com

DESCRIPTION	DPSH-NC-16-12.00-GP-W-323/11W-XX-CB	PDF
-------------	-------------------------------------	-----

Landscaping/Gateway

- 29 Ornamental lights including electrical system
- 12 Benches
- 1 Waste/recycling receptacle
- 2 Bike racks

Stormwater Management



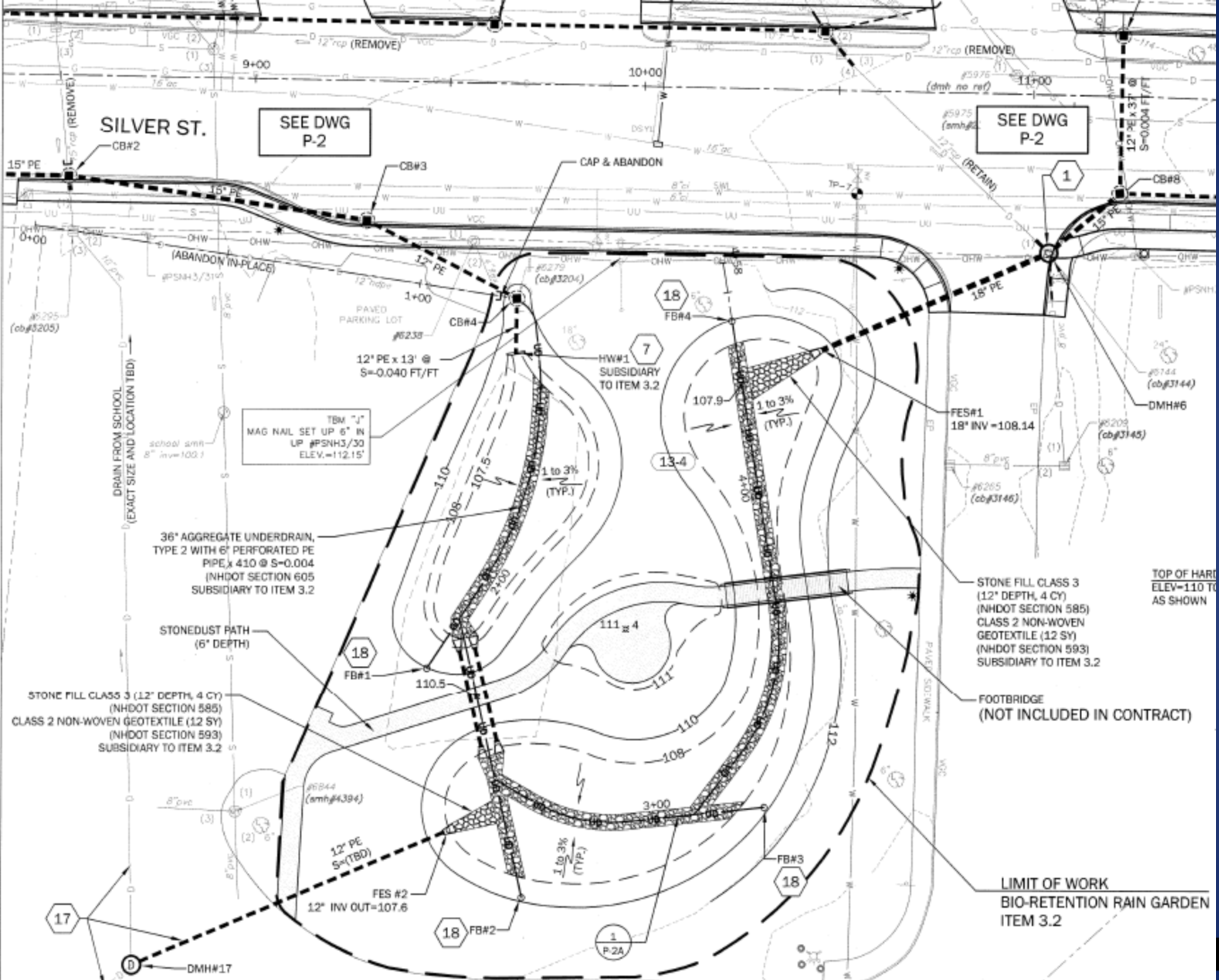
Ironwood
design group, LLC



Low Impact Design

- Rain Garden at Woodman School
- (6) Bio-retention tree ways along curb line with tree root growth zones





SILVER STREET RAIN GARDEN PLAN VIEW

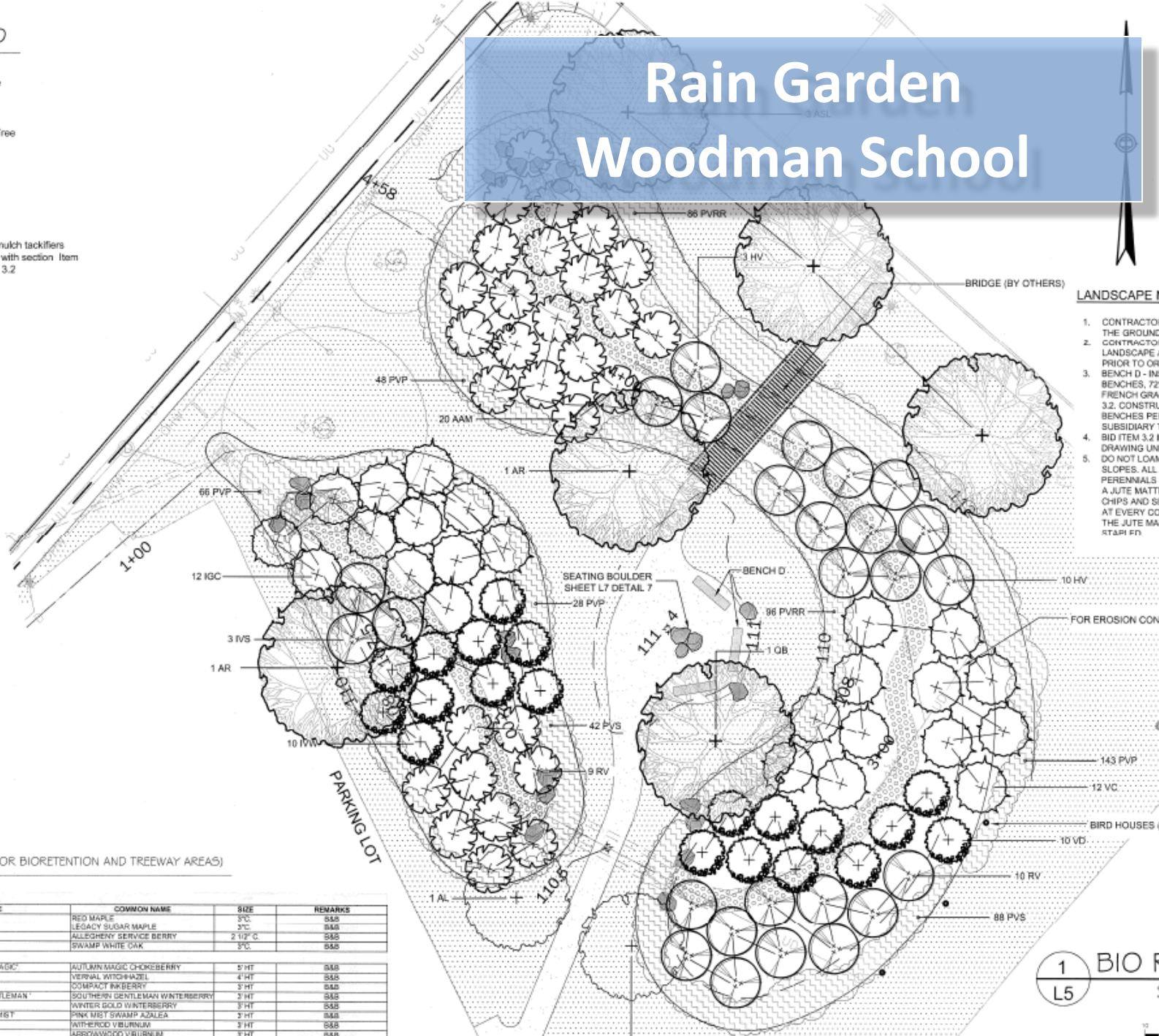
LANDSCAPE LEGEND

- Deciduous Shade Tree
- Deciduous Flowering Tree
- Shrub Planting
- Groundcover Planting
- Turf Establishment w/mulch tackifiers & Loam in accordance with section Item 646, subsidiary to item 3.2
- Existing Tree
- Trash & Recycling Receptacles
- Matchline
- Bio Retention Treeway

BENCH TABLE FOR SHEETS L1-L5

- BENCH A
- BENCH B
- BENCH C
- BENCH D SEE NOTE 3 ON SHEET L5

Rain Garden Woodman School



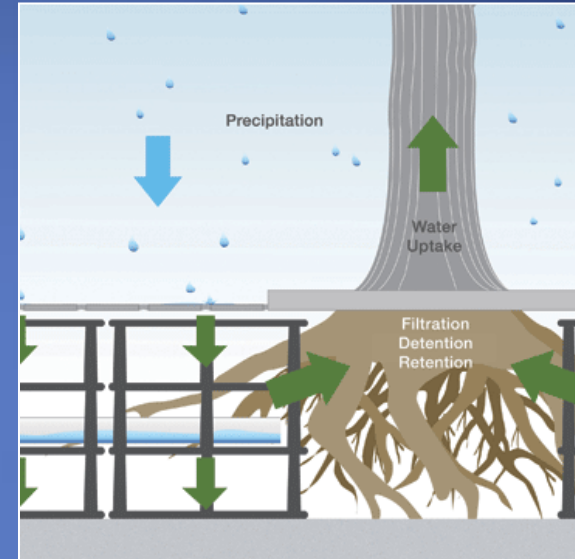
LANDSCAPE NOTES

1. CONTRACTOR TO PREPARE THE GROUND PLAN AND EROSION CONTROL PLAN PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO CONSTRUCT LANDSCAPE AT THE END OF EACH DAY OF WORK.
3. BENCH D - INST. 3.2. CONSTRUCTION PER SUBSIDIARY TO BID ITEM 3.2 IN DRAWING UNLESS OTHERWISE NOTED.
4. DO NOT LOAM SLOPES. ALL PERENNIALS SHALL BE PLANTED AT EVERY CORNER OF THE JUTE MAT STAFFED.

PLANT SCHEDULE (FOR BIORETENTION AND TREEWAY AREAS)

DECIDUOUS TREES					
QTY.	ABRV.	SCIENTIFIC NAME	COMMON NAME	SIZE	REMARKS
2	AR	ACER RUBRUM	RED MAPLE	3" C.	SSB
3	ABL	ACER BACHMANNI 'LEGACY'	LEGACY SUGAR MAPLE	3" C.	SSB
2	AL	AMELANCHIER LAEVIS	ALLEGHENY SERVICE BERRY	2 1/2" C.	SSB
1	OB	QUERCUS BICOLOR	SWAMP WHITE OAK	3" C.	SSB
SHRUBS					
20	AAM	ARONIA MELANOCARPA 'AUTUMN MAGIC'	AUTUMN MAGIC CHOKEBERRY	5' HT.	SSB
13	HV	HAMAMELIS VERNALIS	VERNAL WITCH-HAZEL	4' HT.	SSB
12	IGC	ILEX GLABRA COMPACTA	COMPACT HIBERNY	3' HT.	SSB
3	IVS	ILEX VERTICILLATA 'SOUTHERN GENTLEMAN'	SOUTHERN GENTLEMAN WINTERBERRY	3' HT.	SSB
10	IVW	ILEX VERTICILLATA 'WINTER GOLD'	WINTER GOLD WINTERBERRY	3' HT.	SSB
16	RV	RHODODENDRON VISCOSUM 'PINK MIST'	PINK MIST SWAMP AZALEA	3' HT.	SSB
12	VC	VIBURNUM CASSINOIDES	WITHEROD VIBURNUM	3' HT.	SSB
10	VD	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	3' HT.	SSB

Urban Horticulture



Purpose (isolated locations):

- Support root growth and extend tree life
- Reduce sidewalk impacts

Tree Selection

- Hardiness - ability to withstand NH climate, urban heat and pollution, salt tolerance, pest resistance, and longevity
- Form - Appropriate scale, branching height and existing condition such as oh/u
- Seasonal Interest – flowering, fall color and maintenance needs

Tree Varieties

- Maples
- Chestnuts
- Cherry
- Dogwood
- Crabapple



- Magnolia
- Sourwood
- Lilac
- Elm
- Zelkova



Trees and Shrubs

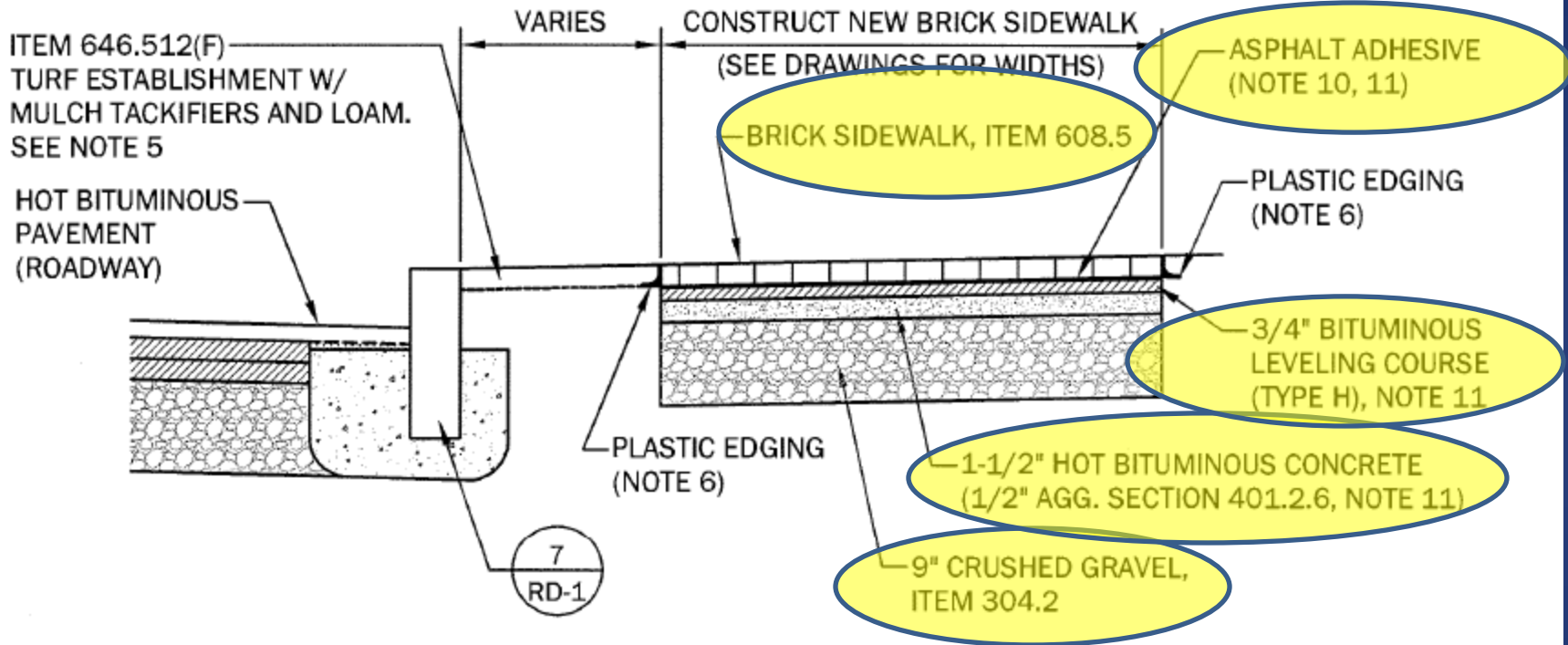
- 100+ Deciduous Trees
- ~50 Shrubs
- 1,300 groundcover plants and perennials
- Ornamental grasses

- Minimal Existing Tree Removal

Brick Sidewalks

- Clay Brick
- Oldest sidewalks are clay brick (Boston, Cambridge, Portland, and Newport) – 40 years
- Construction detail is similar as Portsmouth and Cambridge
- Local manufacturer





6 **BRICK SIDEWALK**
RD-1 NOT TO SCALE

Advantages of Clay Brick

- Less water absorptive
- Greater compressive strength
- Resists de-icing agents
- Repairs match better because brick can be reused
- Creates transition from new modern roadway design to historic structures along Silver

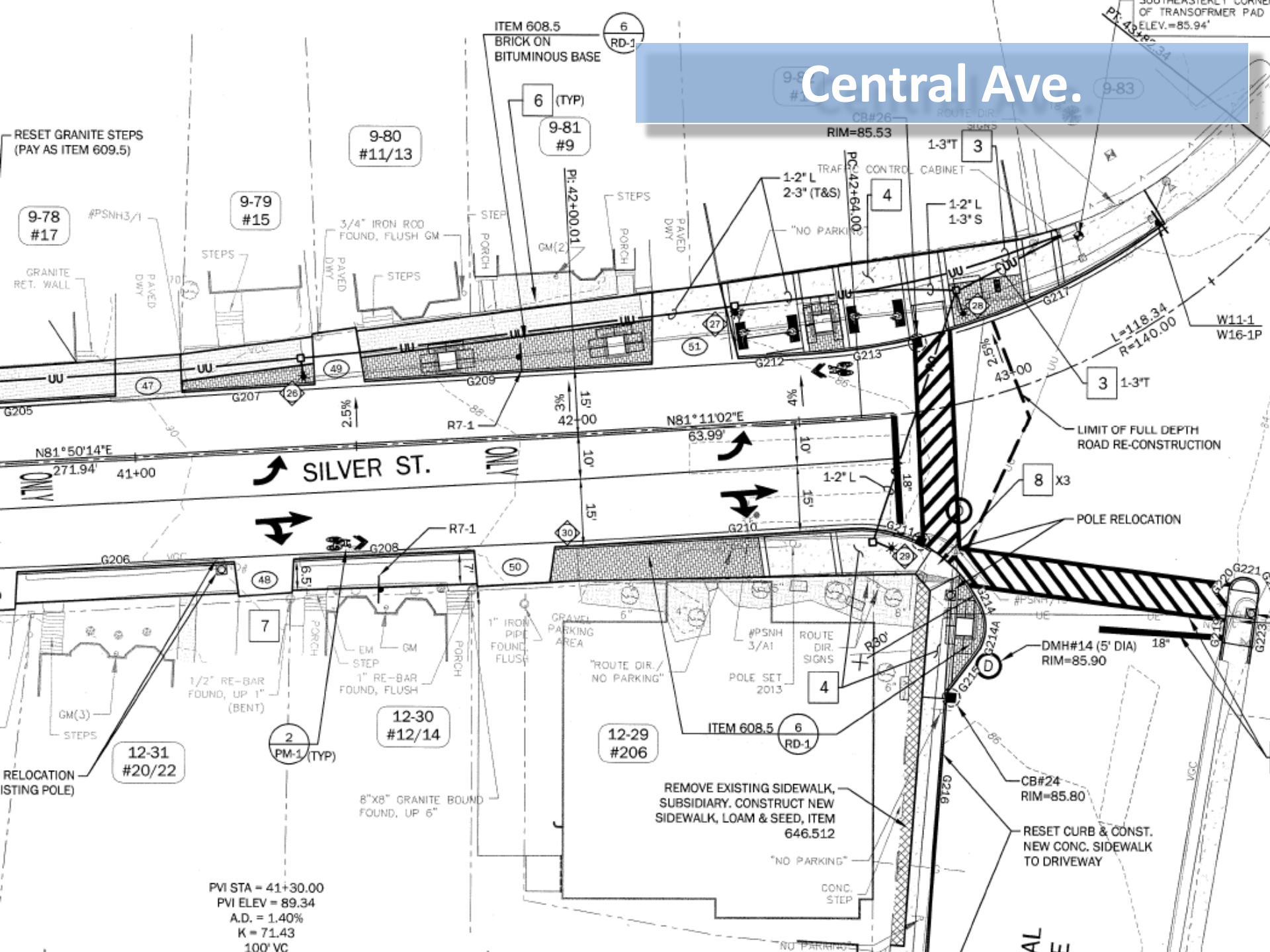
Disadvantages of Clay Brick

- Additional cost to install
- Additional cost to repair especially if brick needs to be replaced
- Limited use in Dover

The Project



Central Ave.



RESET GRANITE STEPS (PAY AS ITEM 609.5)

9-78 #17

9-79 #15

9-80 #11/13

9-81 #9

12-31 #20/22

12-30 #12/14

12-29 #206

ITEM 608.5 RD-1

DMH#14 (5' DIA) RIM=85.90

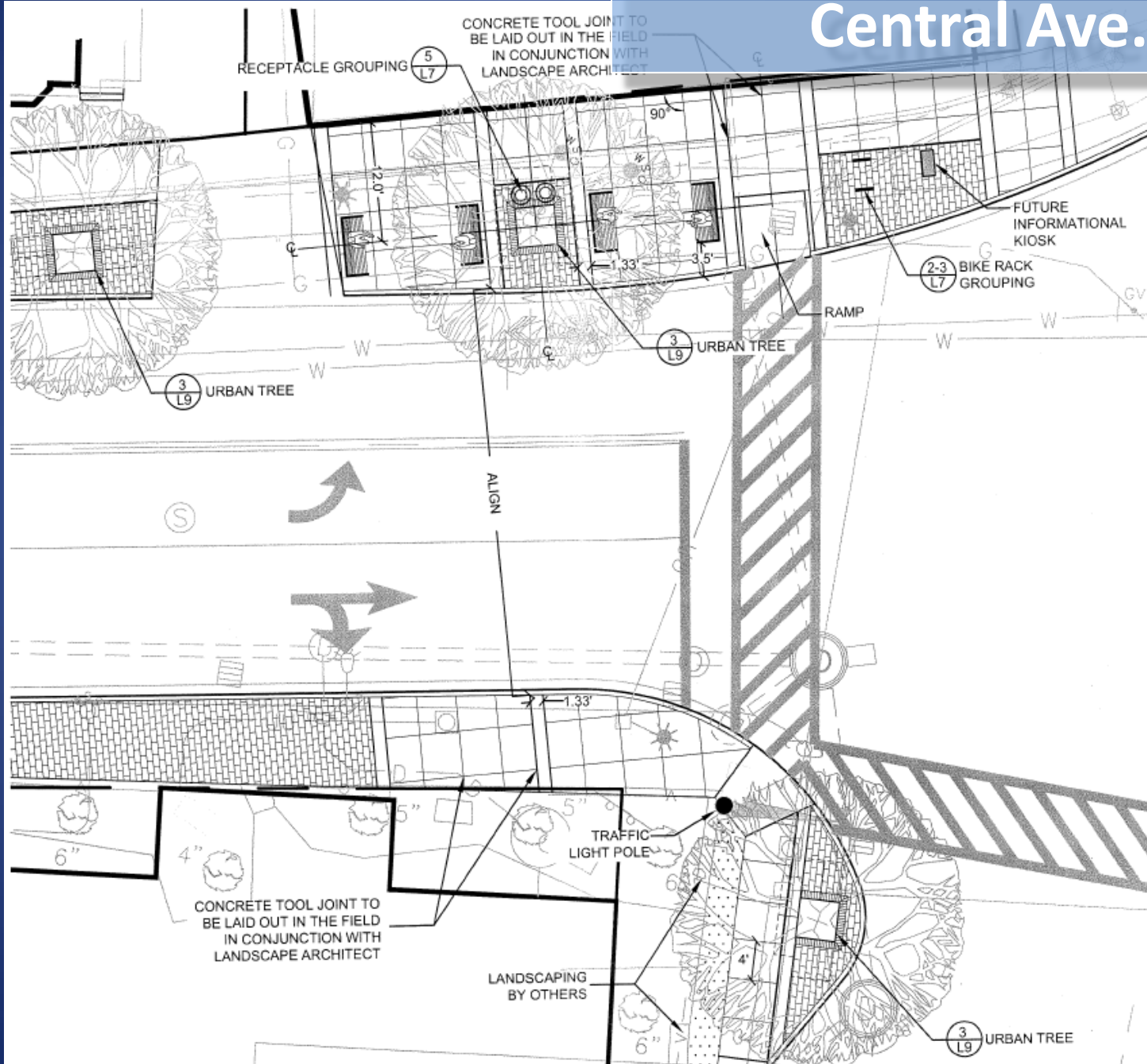
CB#24 RIM=85.80

RESET CURB & CONST. NEW CONC. SIDEWALK TO DRIVEWAY

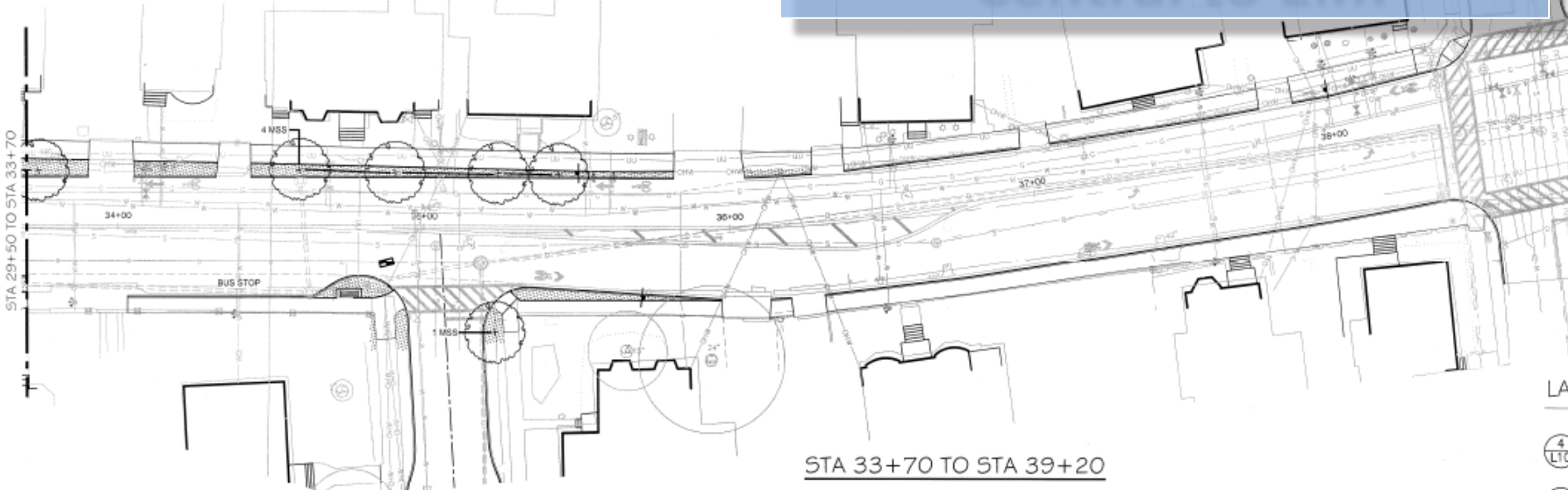
REMOVE EXISTING SIDEWALK, SUBSIDIARY. CONSTRUCT NEW SIDEWALK, LOAM & SEED, ITEM 646.512

PVI STA = 41+30.00
PVI ELEV = 89.34
A.D. = 1.40%
K = 71.43
100' VC

Central Ave.

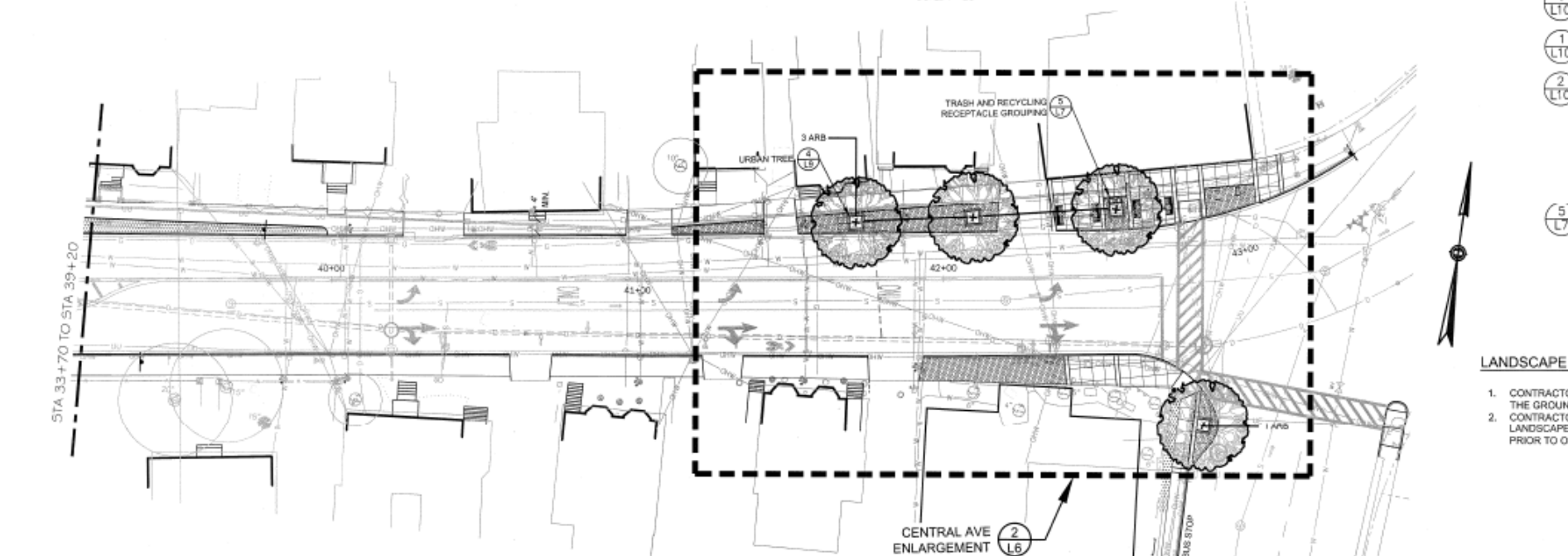


Central to Elm



STA 33+70 TO STA 39+20

SCALE: 1"=20'



LANDSCAPE PLAN

4 L10

4 L10

1 L10

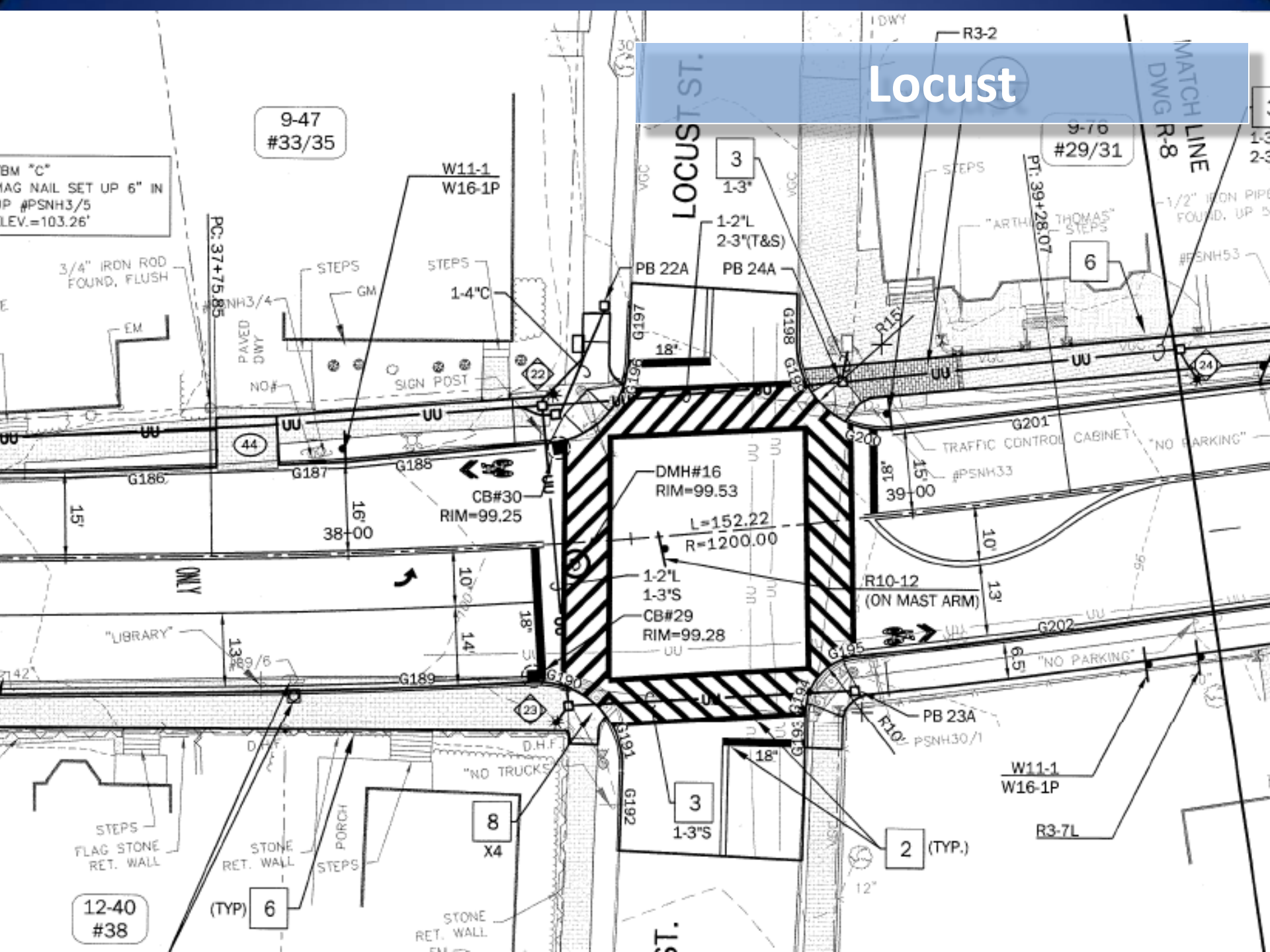
2 L10

5 L17

LANDSCAPE PLAN

1. CONTRACTOR TO VERIFY THE GROUND CONDITIONS PRIOR TO CONSTRUCTION
2. CONTRACTOR TO VERIFY LANDSCAPE CONDITIONS PRIOR TO CONSTRUCTION

Locust



9-47
#33/35

9-76
#29/31

12-40
#38

(TYP) 6

8
X4

3
1-3"S

2 (TYP.)

6

3
1-3"

1-2"L
2-3"(T&S)

PB 22A

PB 24A

PB 23A
PSNH30/1

W11-1
W16-1P

R3-7L

MATCH LINE
DWG R-8

BM *C*
FLAG NAIL SET UP 6" IN
TOP #PSNH3/5
LEV.=103.26'

3/4" IRON ROD
FOUND. FLUSH

PC: 37+75.85

PAVED
D.W.G.

NO#

W11-1
W16-1P

STEPS

STEPS

1-4"C

SIGN POST

CB#30
RIM=99.25

DMH#16
RIM=99.53

L=152.22
R=1200.00

1-2"L
1-3"S

CB#29
RIM=99.28

R10-12
(ON MAST ARM)

PB 23A
PSNH30/1

W11-1
W16-1P

R3-7L

MATCH LINE
DWG R-8

BM *C*
FLAG NAIL SET UP 6" IN
TOP #PSNH3/5
LEV.=103.26'

3/4" IRON ROD
FOUND. FLUSH

PC: 37+75.85

PAVED
D.W.G.

NO#

W11-1
W16-1P

STEPS

STEPS

1-4"C

SIGN POST

CB#30
RIM=99.25

DMH#16
RIM=99.53

L=152.22
R=1200.00

1-2"L
1-3"S

CB#29
RIM=99.28

R10-12
(ON MAST ARM)

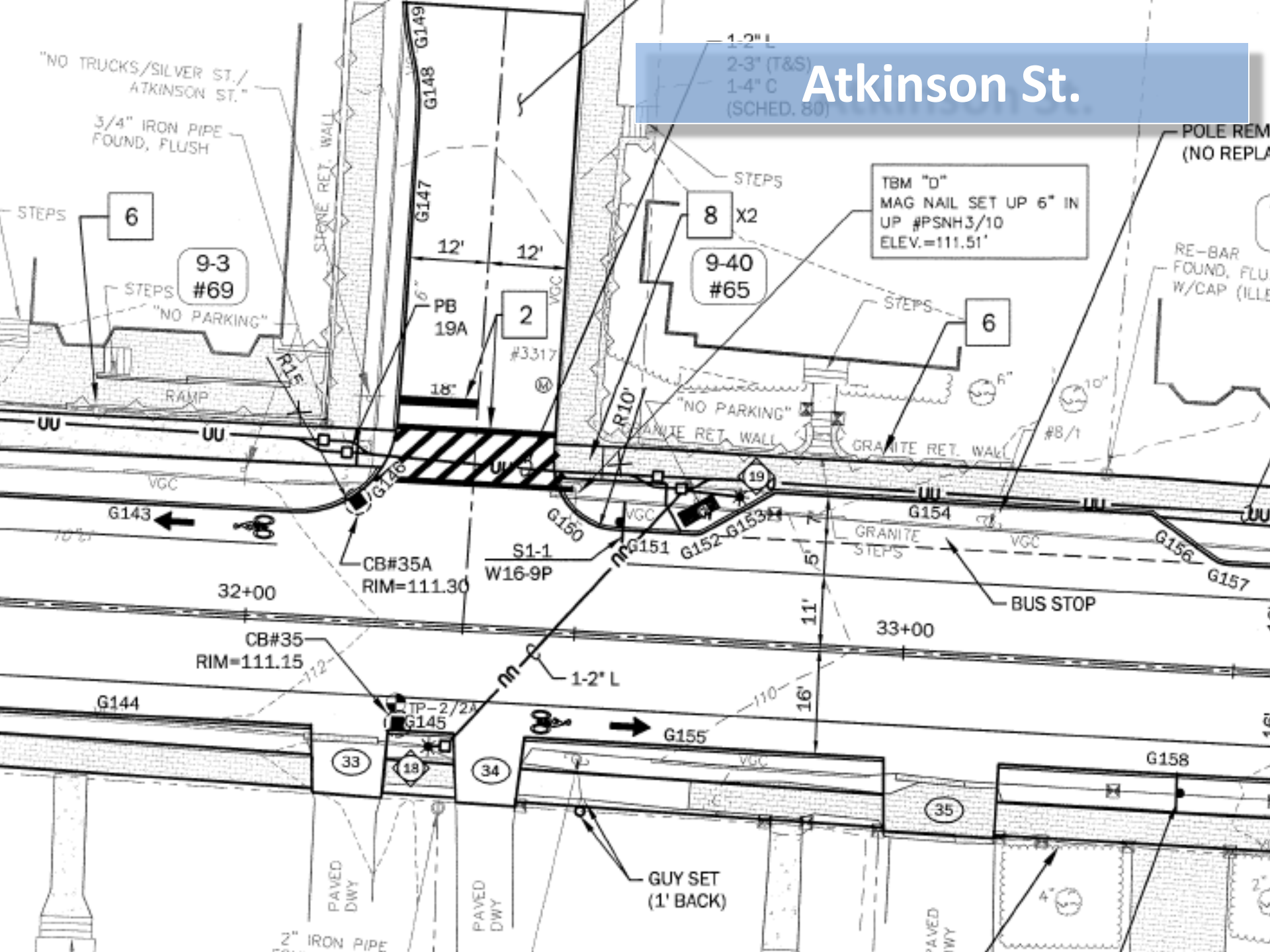
PB 23A
PSNH30/1

W11-1
W16-1P

R3-7L

MATCH LINE
DWG R-8

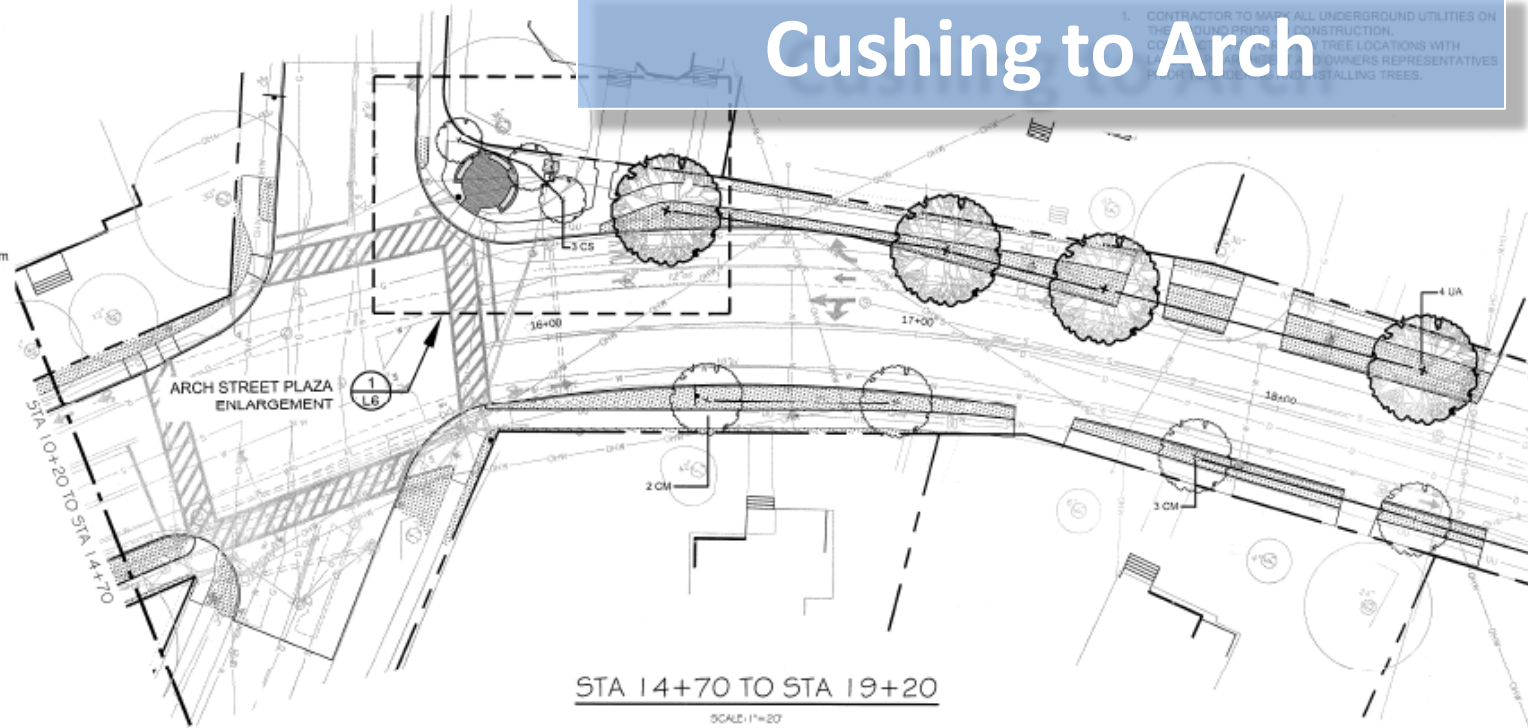
Atkinson St.



Cushing to Arch

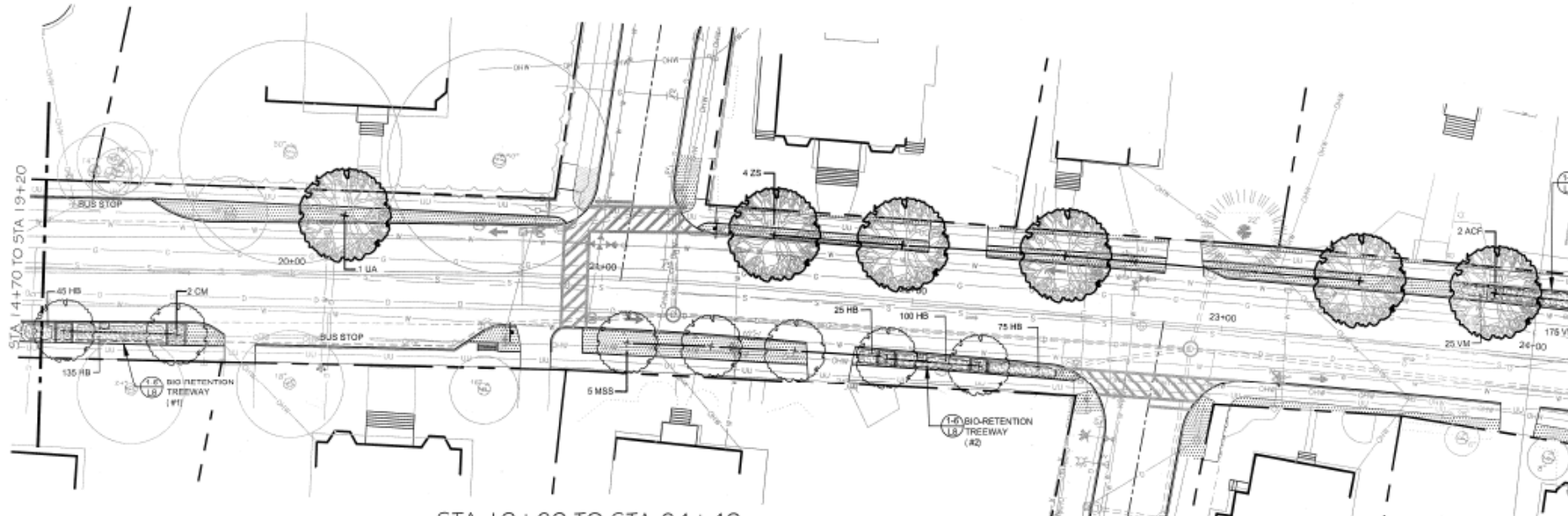
-  4 L10 Deciduous Shade Tree
-  4 L10 Deciduous Flowering Tree
-  1 L10 Shrub Planting
-  2 L10 Groundcover Planting
-  Turf Establishment w/mulch tackifiers & Loam in accordance with section Item 646, subsidiary to item 3.2
-  Existing Tree
-  5 L7 Trash & Recycling Receptacles
-  Matchline
-  Bio Retention Treeway

1. CONTRACTOR TO VERIFY ALL UNDERGROUND UTILITIES ON THE GROUND PRIOR TO CONSTRUCTION.
 2. VERIFY TREE LOCATIONS WITH PROPERTY OWNERS REPRESENTATIVES PRIOR TO INSTALLING TREES.



STA 14+70 TO STA 19+20

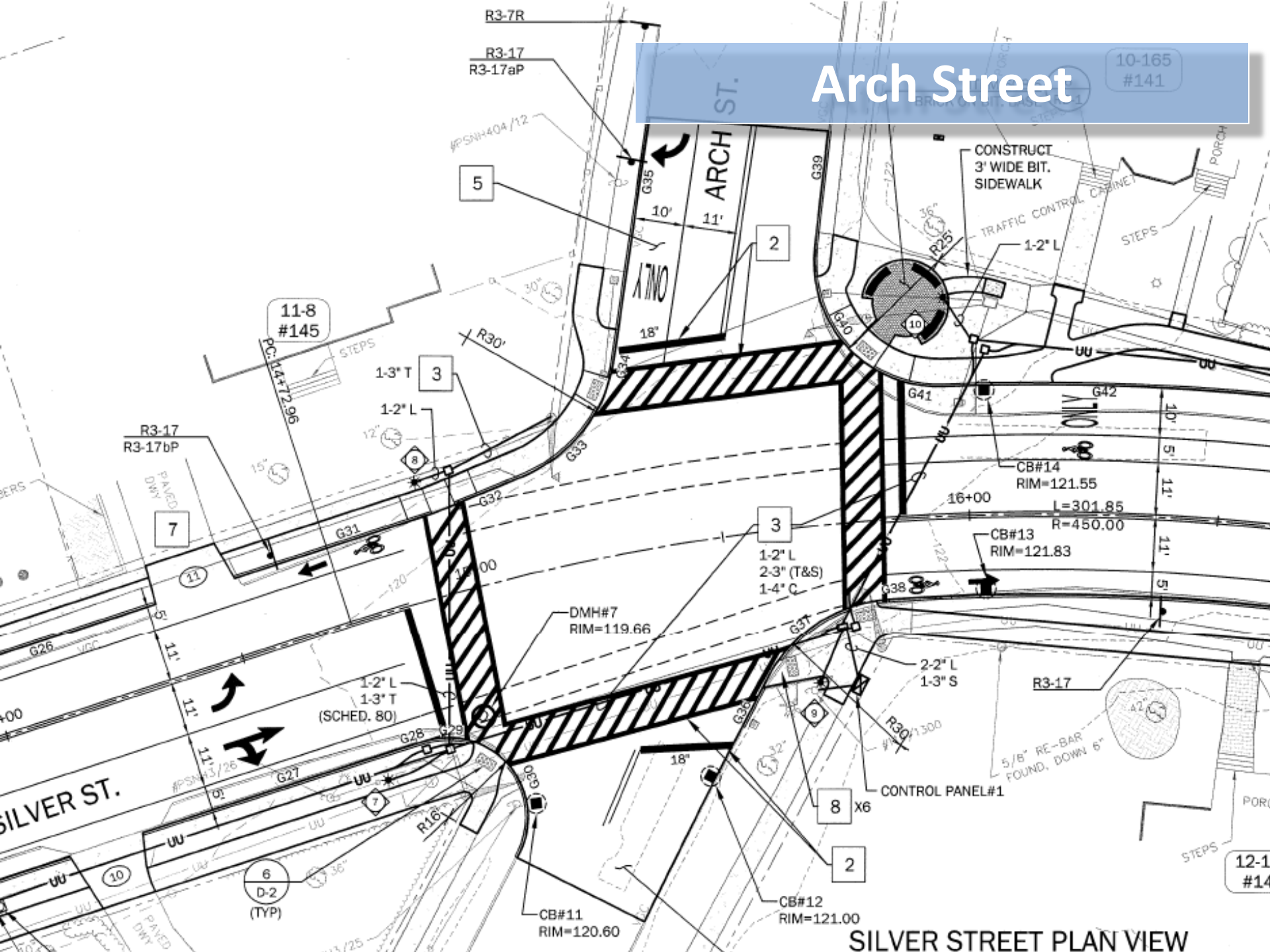
SCALE: 1"=20'



STA 19+20 TO STA 24+10

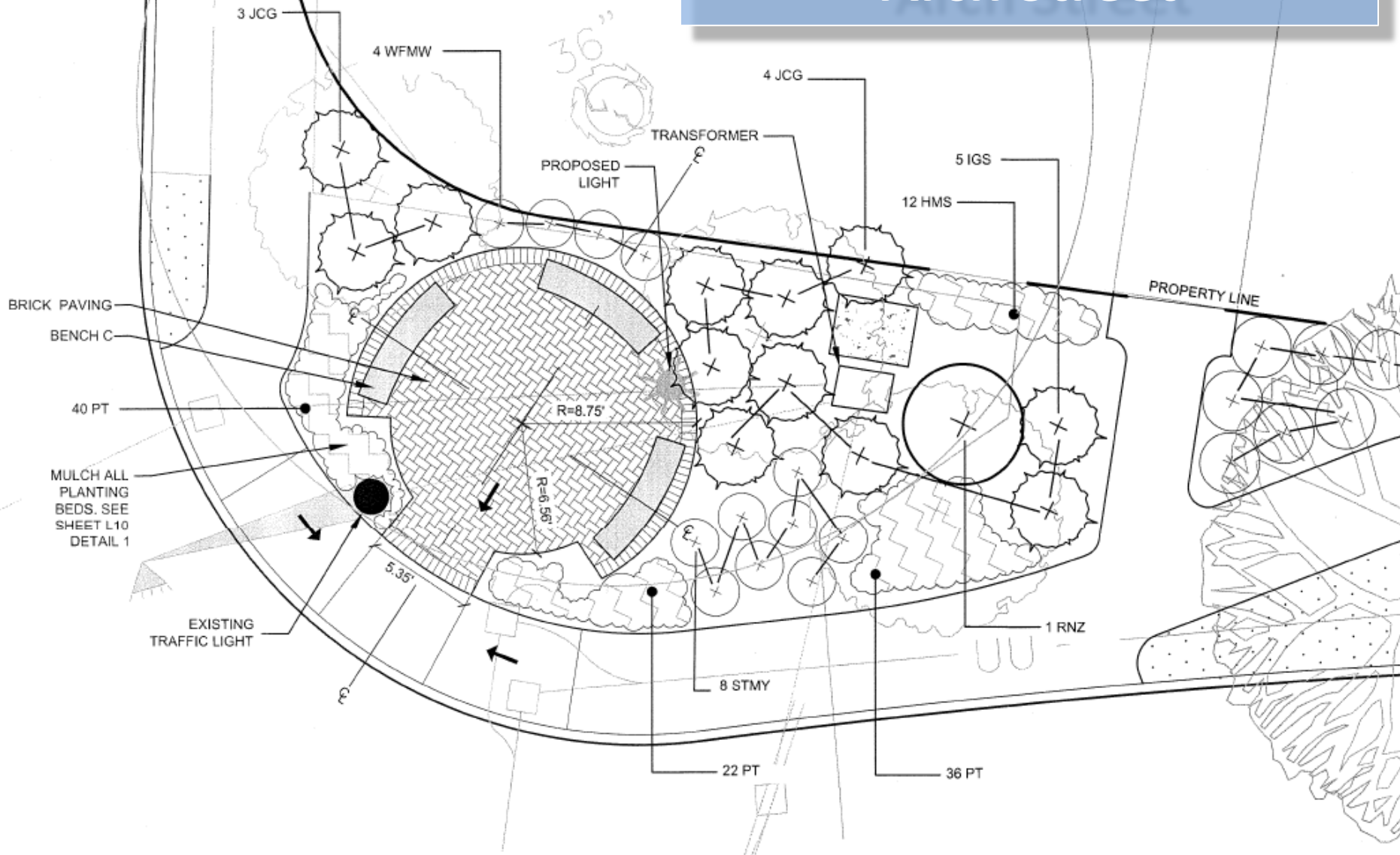
Arch Street

10-165
#141



SILVER STREET PLAN VIEW

Arch Street



BENCH TABLE
FOR SHEETS L1-L6

BENCH A



1

1

ARCH STREET PLAZA

DECIDUOUS TREES					
QTY.	ABRV.	SCIENTIFIC NAME	COMMON NAME	SIZE	REMARKS
4	AG	ACER GINNALA 'FLAME'	FLAME AMUR MAPLE	2 1/2" C	S&B
3	ACF	AESOLLUS CARNEA 'FORT MCNAIR'	FORT MCNAIR HORSECHESTNUT	2 1/2" C	S&B
13	ARB	ACER RUBRUM 'BURGUNDY BELLE'	BURGUNDY BELLE RED MAPLE	3 1/2" C	S&B
8	CM	CORNUS MAS	CORNELIAN CHERRY	2 1/2" C	S&B
3	CS	CORNUS x 'STELLAR PINK'	STELLAR PINK DOGWOOD	2 1/2" C	S&B
14	MS	MAULUS SPRING SNOW	SPRING SNOW CRABAPPLE	2 1/2" C	S&B
6	ME	MAGNOLIA X TELLASENIT	ELIZABETH MARGOLIA	2 1/2" C	S&B
3	OA	OWYDENDRON ARBORELM	SCOURWOOD	2 1/2" C	S&B
14	RR	RYMONTIA WITTO'S STA 'RUBY RED'	RUBY RED SPANISH PRUNELLA	3 1/2" F	S&B
17	LA	LIUMUS AMERICANA 'LIBERTY'	LIBERTY AMERICAN ELM	4" CAL.	S&B; AVAIL. FROM ELM RESEARCH KEENE, NH
11	ZS	ZELKOVA SERRATA 'GREEN VASE'	GREEN VASE ZELKOVA	3 1/2" C	
SHRUBS					
7	JCS	JUNIPER CHINENSIS 'GOLD STAR'	GOLD STAR JUNIPER	3 1/2" PD	CONTAINER
5	IGS	ILEX GLABRA 'SHAMROCK'	SHAMROCK HICKBERRY	3 1/2" PD	CONTAINER
1	NRZ	RODODENDRON 'NOVA ZEMBLA'	NOVA ZEMBLA RODODENDRON	3" HT	S&B
8	STMY	SPIREA TRILOBATA 'MELLOW YELLOW'	MELLOW YELLOW SPIREA	3 1/2" PD	CONTAINER
17	WFMW	WIGELA FLORIDA 'MIDNIGHT WINE'	MIDNIGHT WINE WIGELA	2 1/2" PD	CONTAINER
PERENNIALS AND GROUNDCOVERS					
600	VM	VINCA MINOR	MYRTLE	2 DT	PLANT 1" O.C.
835	H4	HEDERA HELIX 'BALTICA'	BALTIC IVY	2 DT	PLANT 1" O.C.
84	PT	PACHYSANDRA TERMINALIS	COMMON SPURGE	2 DT	PLANT 1" O.C.
12	HWS	HAWKNEIGHIA MACRO 'STRATA'	VAREGATED JAP. FOREST GRASS	2 DT	PLANT 1" O.C.

LANDSCAPE NOTES

1. GUN MARK TO MARK ALL UNDERGROUND UTILITIES ON THE GROUND PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS TO REVIEW TREE LOCATIONS WITH LANDSCAPE ARCHITECT AND OWNERS REPRESENTATIVES PRIOR TO ORDERING AND INSTALLING TREES.

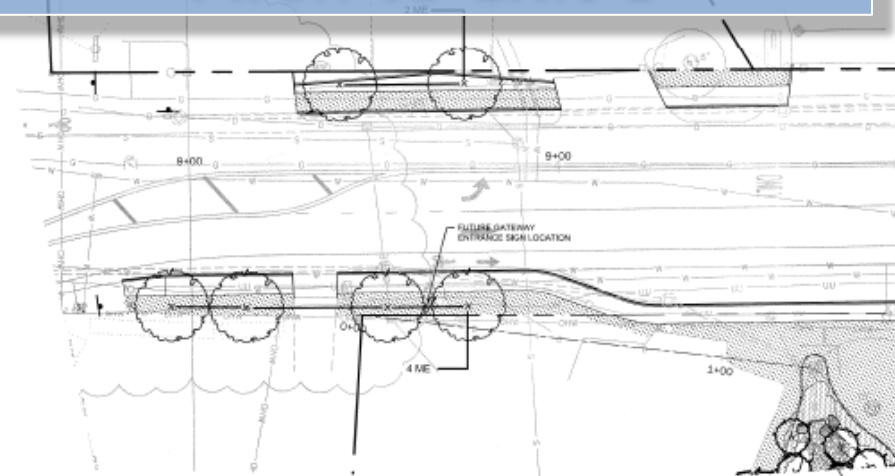
BENCH TABLE FOR SHEETS L1-L6

- BENCH A 1 L7
- BENCH B 4 L7
- BENCH C 6 L7
- BENCH D SEE NOTE 3 ON SHEET L5

LANDSCAPE LEGEND

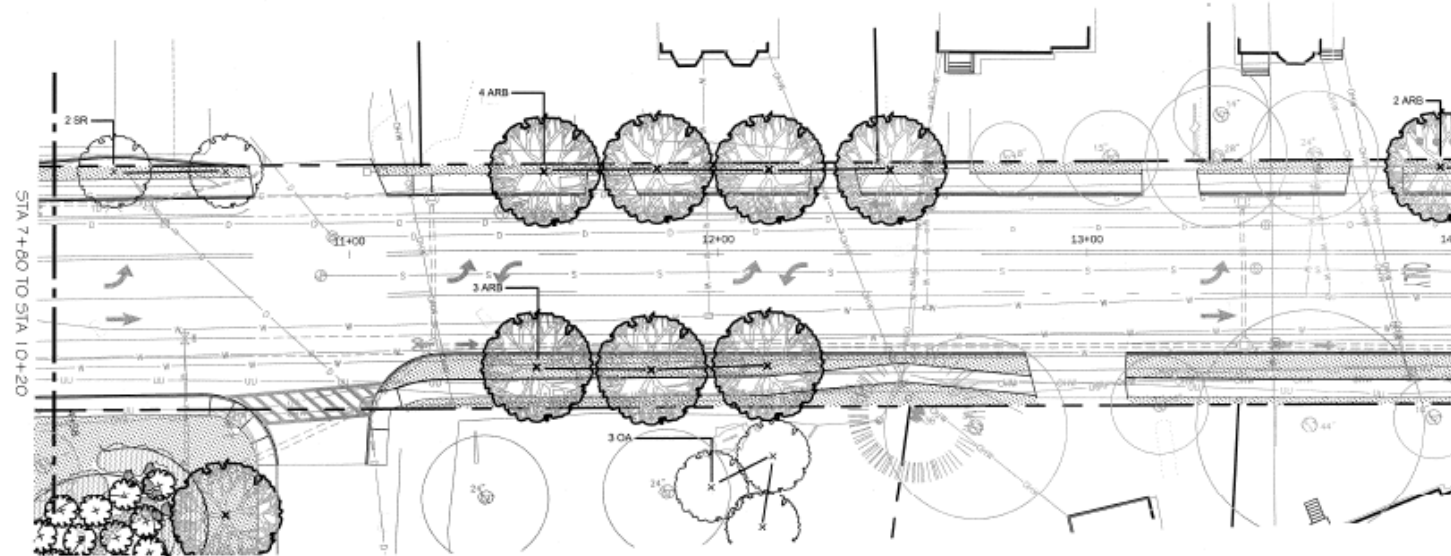
- Deciduous Shade Tree
- Deciduous Flowering Tree
- Shrub Planting
- Groundcover Planting
- Turf Establishment w/mulch tackifiers & Loam in accordance with section Item 646, subsidiary to item 3.2
- Existing Tree
- Trash & Recycling Receptacles
- Matchline
- Bio Retention Treeway

Arch to Exit 8



STA 7+80 TO STA 10+20

SCALE: 1"=20'

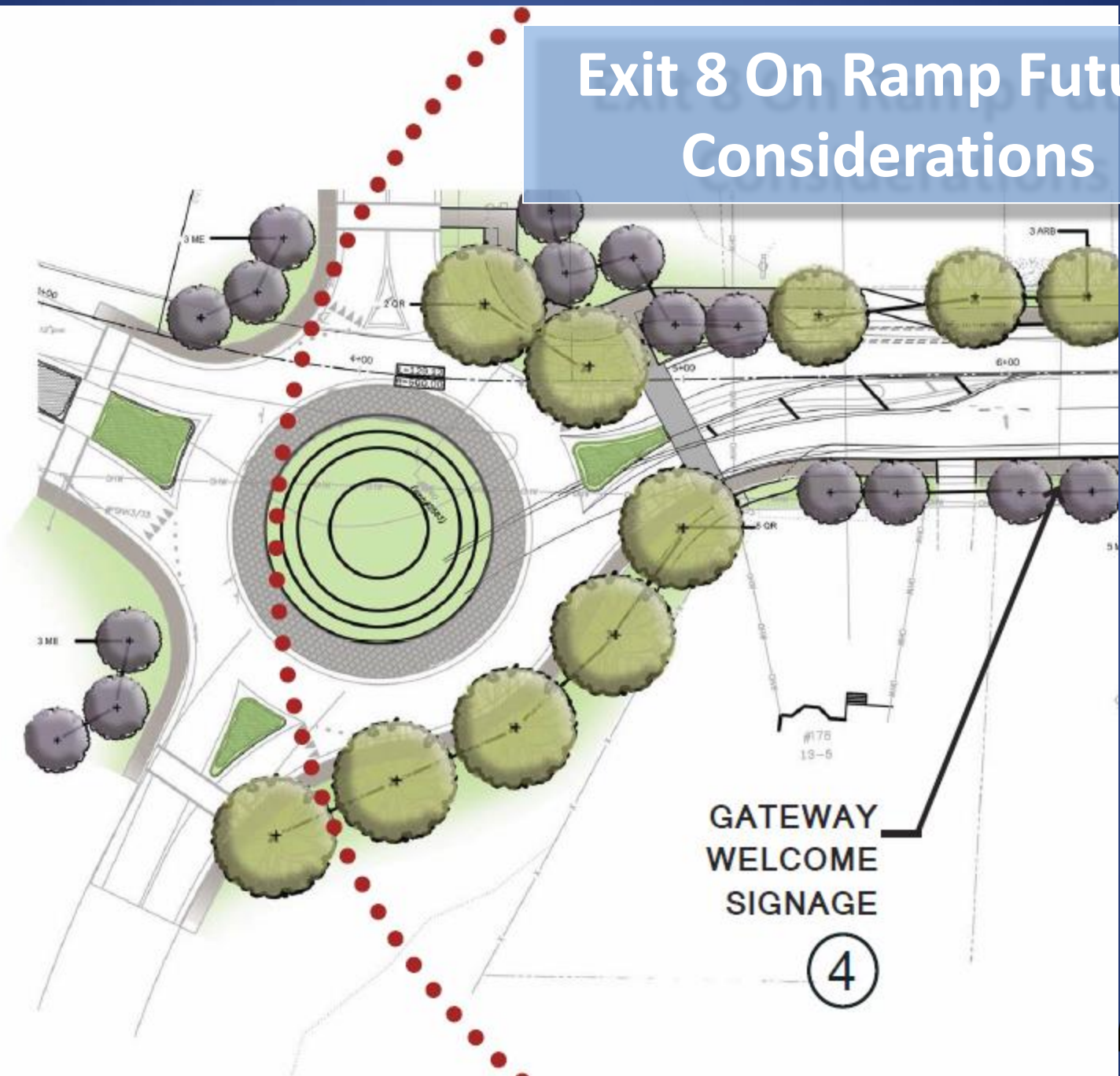


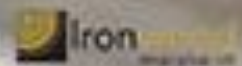
STA 10+20 TO STA 14+70

SCALE: 1"=20'

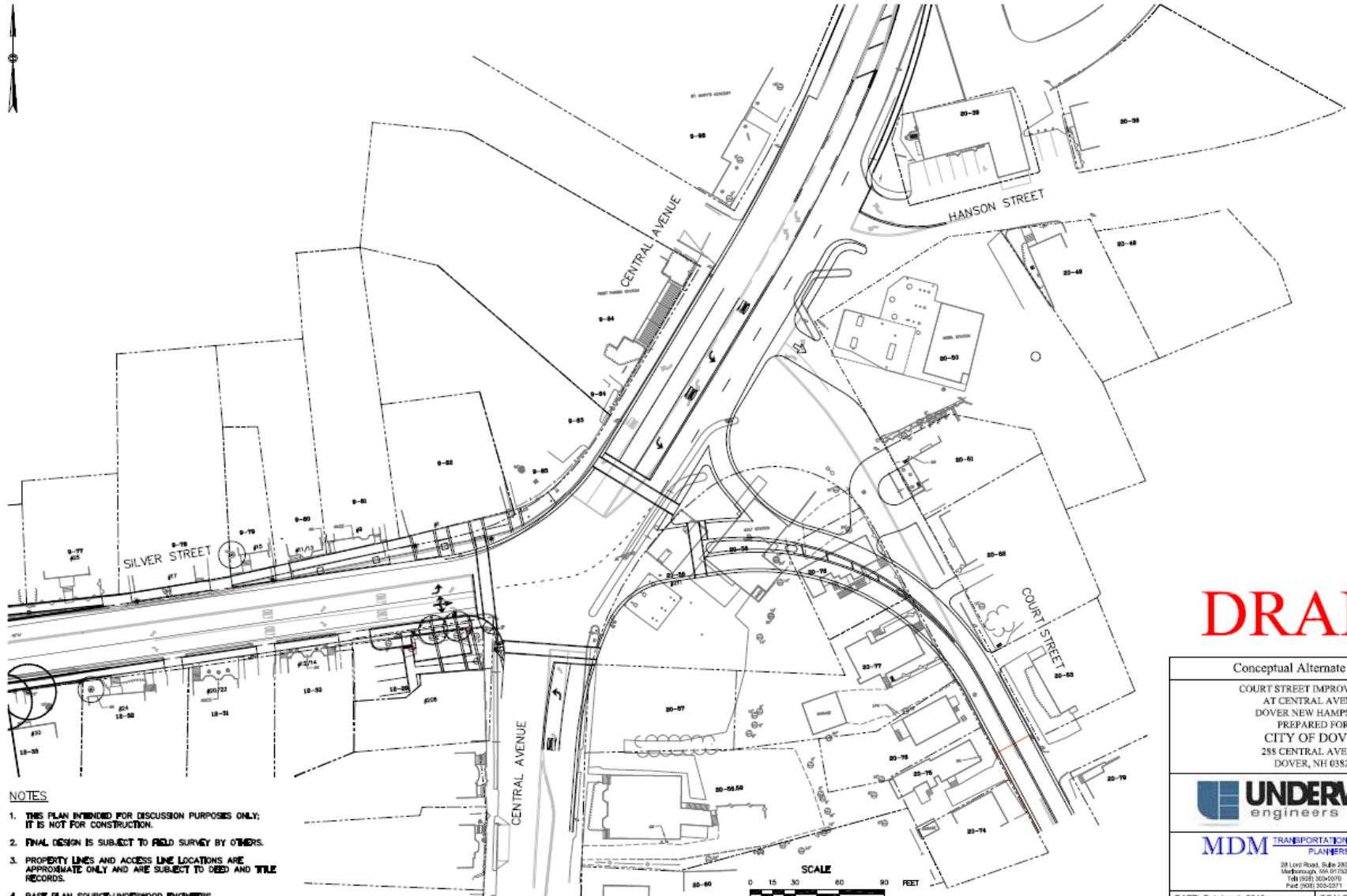
Future Considerations

Exit 8 On Ramp Future Considerations







Future Improvements - Court Street



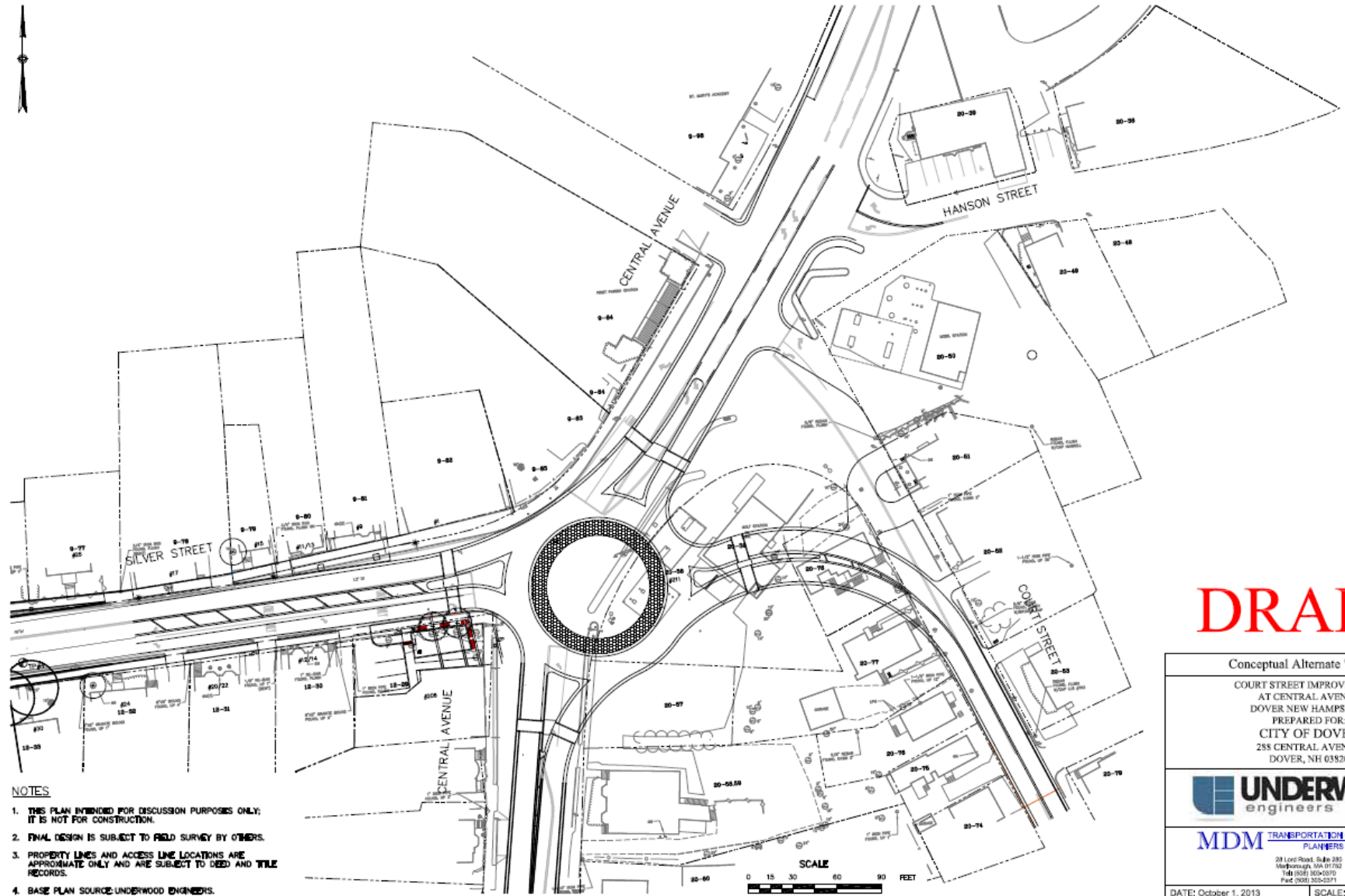
NOTES

1. THIS PLAN INTENDED FOR DISCUSSION PURPOSES ONLY; IT IS NOT FOR CONSTRUCTION.
2. FINAL DESIGN IS SUBJECT TO FIELD SURVEY BY OTHERS.
3. PROPERTY LINES AND ACCESS LINE LOCATIONS ARE APPROXIMATE ONLY AND ARE SUBJECT TO DEED AND TITLE RECORDS.
4. BASE PLAN SOURCE: UNDERWOOD ENGINEERS.

DRAFT

Conceptual Alternate "A" Plan COURT STREET IMPROVEMENTS AT CENTRAL AVENUE DOVER NEW HAMPSHIRE PREPARED FOR: CITY OF DOVER 285 CENTRAL AVENUE DOVER, NH 03820	
 UNDERWOOD engineers	
 MDM TRANSPORTATION CONSULTANTS, INC. PLANNERS & ENGINEERS	
28 Lord Road, Suite 200 Dover, NH 03820 Tel: 603.356.0070 Fax: 603.356.0371	
DATE: October 1, 2013	SCALE: As Noted
PROJECT No. 672	TB: 672 Concept - Court St at Central 10-1-2013.dwg
Sheet 1 of 1	

Future Improvements - Court Street



DRAFT

Conceptual Alternate "B" Plan

COURT STREET IMPROVEMENTS
AT CENTRAL AVENUE
DOVER NEW HAMPSHIRE
PREPARED FOR:
CITY OF DOVER
288 CENTRAL AVENUE
DOVER, NH 03820



MDM TRANSPORTATION CONSULTANTS, INC.
PLANNERS & ENGINEERS

28 Lord Road, Suite 280
Manchester, NH 03102
Tel: 603-556-0370
Fax: 603-556-0371

DATE: October 1, 2013 SCALE: As Noted

PROJECT No. 672 14107 Concept - Court St @ Central Ave @ Roundabout 15-12016.dwg Sheet 1 of 1

NOTES

1. THIS PLAN INTENDED FOR DISCUSSION PURPOSES ONLY; IT IS NOT FOR CONSTRUCTION.
2. FINAL DESIGN IS SUBJECT TO FIELD SURVEY BY OTHERS.
3. PROPERTY LINES AND ACCESS LINE LOCATIONS ARE APPROXIMATE ONLY AND ARE SUBJECT TO DEED AND TITLE RECORDS.
4. BASE PLAN SOURCE: UNDERWOOD ENGINEERS.

SCALE



Construction Impacts

CITY OF DOVER

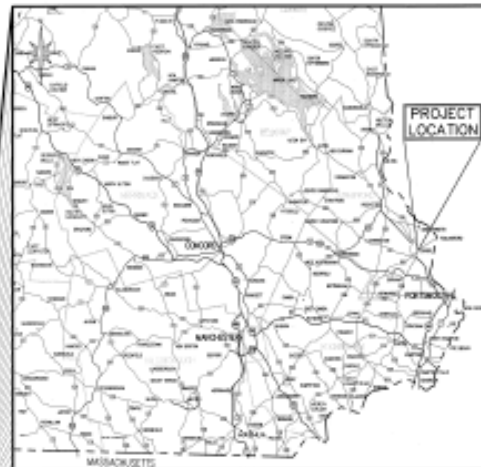
DOVER, NEW HAMPSHIRE

FOR CONSTRUCTION

SILVER STREET RECONSTRUCTION

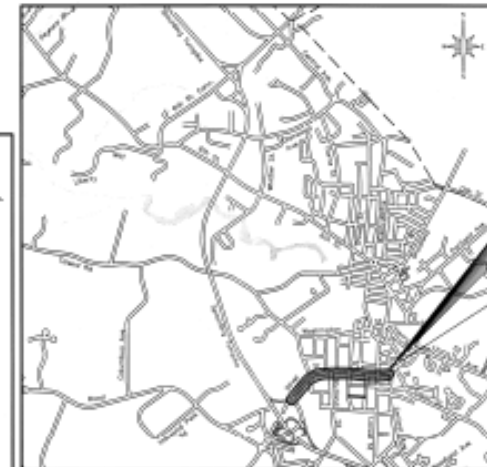
PREPARED BY
UNDERWOOD ENGINEERS
 PORTSMOUTH, NEW HAMPSHIRE

APRIL 2014



LOCATION PLAN

TABLE OF CONTENTS		
SHEET TITLE	FIG. NO.	SHT. NO.
COVER SHEET	-	-
GENERAL NOTES	D-1	1
INDEX, LEGEND, ABBREVIATION & TBM SHEET	D-2	2
SUMMARY OF QUANTITIES	D-3 to D-6	3-6
EXISTING STRUCTURE TABLES	ES-1	7
DRAINAGE IMPROVEMENTS EXT. & NO. RAMP - SHOULDER TURNPIKE	MTP-1	8
UTILITIES PLAN & PROFILE	P-1 to P-8	9-16
SILVER STREET RAIN GARDEN PLAN	P-2A	17
TYPICAL ROAD SECTION	SD-1	18
ROADWAY PLAN & PROFILE	R-1 to R-8	19-26
LANDSCAPING PLANS	L-1 to L-10	27-36
STANDARD DETAILS	D-1 to D-2	37-38
CROSS SECTIONS	C-1 to C-11	39-49
PAVEMENT MARKINGS	PM-1	50
SIGN GRAPHIC	SG-1	51
LIGHTING & ELECTRICAL DETAILS	E-1 & E-2	52-53
TRAFFIC SIGNAL PLANS	TS-1 to TS-3	54-56
<u>ADD ALTERNATE NO. 1 & 2 (See Night Plan)</u>		
SILVER STREET WATER MAIN REPLACEMENT		
COVER SHEET	-	-
GENERAL NOTES, LEGEND & ABBREVIATIONS	C-1	1
PLAN A & PROFILE STA. 1400 TO STA. 5482	C-2	2
PLAN-B-ALTERNATE-A- SILVER STREET EXTENSION		
PLAN-C-ALTERNATE-B- WEST KNOW NORTH ROAD		
DETAILS 1	C-3	3
EROSION CONTROL NOTES & DETAILS	C-4	4



VICINITY MAP

UE #1725



Project Schedule

- Contract Award – Mid July, 2014
- Public Meeting – July 16, 2014
- Substantial Completion – 270 Days
- Final Completion – 330 Days
- Winter Shut-down Period
- Construction Phasing and Sequencing

Traffic/Access Impacts

- Project will be disruptive/inconvenient
- Alternating or one way traffic
- Anticipation of detours
- Flagger and Police details
- Maintain access
 - Emergency Vehicles
 - Property Owners
- Maintain safe pedestrian corridor

Questions and Answers