

CITY OF SALEM, MA

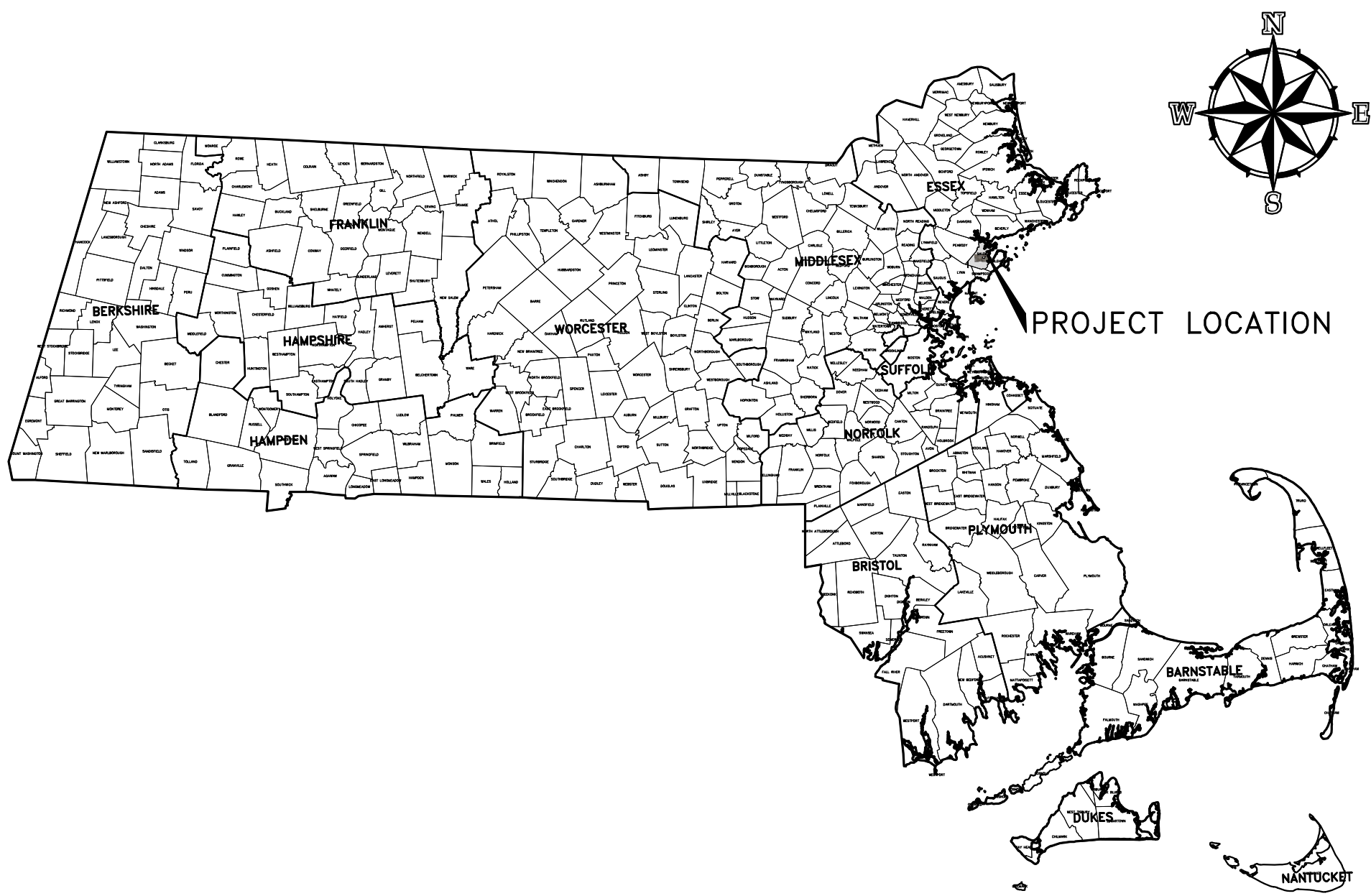
ROSIES POND & JEFFERSON AVENUE

FLOOD MITIGATION PROJECT

ISSUED FOR BID

CONTRACT NO. T-47

JUNE 2018



PROJECT LOCATION MAP



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40 Shattuck Road, Suite 110
Andover, Massachusetts 01810
866.702.6371 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

WC PROJECT NO. 224405.01



SOURCE: USGS TOPOGRAPHIC MAP

SITE LOCATION MAP

GENERAL NOTES:

1. BASE PLAN INFORMATION FROM PLAN ENTITLED "EXISTING CONDITIONS SURVEY – CANAL STREET – SALEM, MA" PREPARED BY WSP SELLS – 155 MAIN DUNSTABLE RD. NASHUA, NH 03030, TEL. 603.595.7900, DATED 12/23/2008. ADDITIONAL CULVERT DATA TAKEN FROM DRAWING NAMED "083105–SEW–BASE–2.dwg" ALSO PREPARED BY WSP SELLS. ADDITIONAL DATA FROM SURVEY OF BROOKS STREET NAMED "1430117–4–W&C.DWG" ALSO PREPARED BY WSP SELLS, DATED 5/19/15.

2. THE HORIZONTAL COORDINATES REFER TO NAD 83 AND VERTICAL COORDINATES REFER TO "SALEM SEWER BASE" AS REFERENCED WITHIN BASE MAP DRAWING.

3. WETLAND DELINEATION WAS CONDUCTED BY LEC ENVIRONMENTAL CONSULTANT, INC. – 14 RESNICK ROAD, SUITE 1 PLYMOUTH, MA 02360. SURVEY OF WETLAND FLAGS BY WSP SELLS – 155 MAIN DUNSTABLE RD. NASHUA, NH 03030, TEL. 603.595.7900. ON–THE GROUND FIELD SURVEY WAS PERFORMED 11/18/14 – 11/20/14 AND FINAL PLAN PREPARED 12/4/2014.

4. AERIAL PHOTOS PROVIDED BY U.S. GEOLOGIC SURVEY, DATED 04/2013 AND DOWNLOADED FROM <http://viewer.nationalmap.gov/viewer/>.

5. SUBSURFACE UTILITY LINES, AS SHOWN HEREON, WERE COMPILED ACCORDING TO AVAILABLE RECORD INFORMATION FROM THE REFERENCED UTILITY COMPANIES AND THE CITY OF SALEM. THE LOCATIONS ARE APPROXIMATE ONLY. CONTRACTOR TO VERIFY ACTUAL LOCATIONS VIA TEST PITS IN FIELD PRIOR TO ORDERING DRAIN STRUCTURES. CONTACT THE CITY IMMEDIATELY UPON DISCOVERING ANY CONFLICTS WITH EXISTING AND PROPOSED UTILITY LOCATIONS. NOT ALL EXISTING UTILITIES ARE SHOWN ON PLANS.

6. PRE–CONSTRUCTION VIDEO SURVEY IS TO BE COMPLETED BY CONTRACTOR BEFORE START OF WORK.

7. CLEAN AND/OR FLUSH ALL MANHOLES, CATCH BASINS, AND ASSOCIATED PIPING WITHIN LIMIT OF WORK AFTER THE WORK HAS BEEN COMPLETED.

8. COORDINATE CONSTRUCTION ACTIVITY WITH UTILITY COMPANIES, EMERGENCY SERVICES AND CITY. CONTRACTOR SHALL NOTIFY ALL UTILITIES PRIOR TO COMMENCING WORK, ALLOWING SUFFICIENT TIME TO LOCATE AND MARK THE LOCATION OF BURIED UTILITIES. CONTRACTOR SHALL CONTACT "DIG SAFE", TELEPHONE 811, PRIOR TO EXCAVATION.

9. RESTORE ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL FINISH (GRAVEL, PAVEMENT, GRASS, ETC.) UNLESS NOTED OTHERWISE ON THE PLANS. RESTORATION OF PAVED SURFACES, GRAVEL SURFACES, DRIVEWAYS, AND LAWNS DAMAGED BY CONSTRUCTION ACTIVITIES OUTSIDE OF LIMITS OF WORK INDICATED ON THE PLANS SHALL BE PERFORMED AT NO ADDITIONAL COST TO OWNER. ANY CURB DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED IN KIND AND SHALL CONFORM TO CITY OF SALEM AND MASSACHUSETTS DOT SPECIFICATIONS AT NO ADDITIONAL COST TO OWNER.

10. PROPERLY PROTECT AND DO NOT DISTURB PROPERTY IRONS AND MONUMENTS. IF DISTURBED, THE PROPERTY MONUMENT SHALL BE RESET AT THE CONTRACTOR'S EXPENSE BY A LICENSED LAND SURVEYOR ACCEPTABLE TO THE CITY.

11. EXISTING FACILITIES (I.E. TREES, POLES, LIGHT POSTS, CATCH BASINS, STONE FROM CULVERT, ETC.) SHALL BE REMOVED AND PROTECTED DURING CONSTRUCTION. THE CITY RETAINS RIGHT TO KEEP ANY AND ALL REMOVED FACILITIES. CONTRACTOR SHALL DISPOSE OF ANY REMOVED FACILITY AT THE REQUEST OF THE CITY AT NO ADDITIONAL COST TO OWNER.

12. ALL TREES NOT NOTED TO BE REMOVED OR RELOCATED SHALL BE PROTECTED BY CONTRACTOR DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER IF ANY TREES NOT IDENTIFIED FOR REMOVAL ARE FOUND TO BE IN CONFLICT WITH THE WORK.

13. THE CONTRACTOR SHALL SUBMIT A PROPOSED TRAFFIC CONTROL PLAN TO THE CITY ENGINEER AT LEAST 7 DAYS BEFORE BEGINNING CONSTRUCTION. THE TRAFFIC CONTROL PLAN SHALL PROVIDE FOR SAFE MOVEMENT OF BOTH VEHICLES AND PEDESTRIANS DURING CONSTRUCTION ACTIVITIES. THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE SUBJECT TO APPROVAL BY THE CITY ENGINEER, WHO MAY ATTACH SPECIAL CONDITIONS TO, OR REQUIRE MODIFICATIONS OF, THE TRAFFIC CONTROL PLAN. WORK SHALL NOT BEGIN UNTIL THE PLAN IS APPROVED BY THE CITY ENGINEER.

14. DO NOT PARK, IMPEDE ACCESS TO, OR STORE EQUIPMENT BEYOND LIMIT OF WORK, UNLESS PERMISSION HAS BEEN GRANTED IN WRITING BY CITY AND/OR LAND OWNER.

15. COORDINATE DISRUPTION OF PRIVATE UTILITY SERVICES WITH LANDOWNERS AT LEAST TWO DAYS (48 HOURS) PRIOR TO DISRUPTION. ALL UTILITY COORDINATION IS RESPONSIBILITY OF CONTRACTOR.

16. RESTRICT ACCESS TO SITE THROUGH THE USE OF APPROPRIATE SIGNAGE, BARRIERS, FENCES, ETC. SITE SHALL BE LEFT WITH APPROPRIATE SAFETY MEASURES IN PLACE DURING NON–WORKING HOURS. SITE SAFETY IS THE RESPONSIBILITY OF CONTRACTOR, DURING BOTH WORKING AND NON–WORKING HOURS.

17. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS. PERMIT APPLICATIONS, INCLUDING "PERMIT TO OPEN OR OCCUPY STREET/ SIDEWALK" FROM THE CITY. PERMIT APPLICATIONS SHALL BE SUBMITTED WITH ADEQUATE TIME SO AS NOT TO DELAY CONSTRUCTION.

18. ALL WORK ASSOCIATED WITH THE PROJECT SHALL BE COMPLETED IN ACCORDANCE WITH THE CITY OF SALEM BYLAW AND LOCAL REGULATIONS AND MASSACHUSETTS DOT STANDARD SPECIFICATIONS.

19. UPON COMPLETION OF CONSTRUCTION, A COMPLETE SET OF "RECORD" DRAWINGS THAT REFLECT ANY AND ALL MODIFICATIONS TO THE FLOOD MITIGATION SYSTEM AND ANY OTHER UTILITY INSTALLATIONS OR ALTERATIONS WITHIN THE PROJECT LIMITS BE SUBMITTED TO THE CITY ENGINEER. THESE DRAWINGS SHALL BE SUBMITTED IN BOTH DIGITAL AND HARD COPY FORMAT AS DEFINED IN THE SPECIFICATIONS PRIOR TO PAYMENT OF FINAL RETAINAGE.

20. WORK IS IN CLOSE PROXIMITY TO EXISTING UTILITIES. PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION SHALL BE PROVIDED AT NO ADDITIONAL COST.

21. ALL DEWATERING ACTIVITIES SHALL MEET LOCAL, STATE, AND FEDERAL REGULATIONS.

22. THE CONTRACTOR IS RESPONSIBLE FOR ALL LABOR AND EQUIPMENT REQUIRED TO PERFORM THE WORK INCLUDING BUT NOT LIMITED TO PROPER SHORING, DEWATERING EQUIPMENT, AND WATER TREATMENT EQUIPMENT IN ACCORDANCE WITH THE SPECIFICATIONS AND ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

23. PROPERTY AND RIGHT OF WAY LOCATIONS SHOWN ARE APPROXIMATE AND DO NOT REPRESENT A PROPERTY SURVEY. PROPERTY BOUNDARIES BASED UPON ASSESSOR PLANS ON FILE WITH SALEM, MASSACHUSETTS GIS DEPARTMENT. A BOUNDARY SURVEY WILL BE COMPLETED AND EASEMENTS FOR ENCROACHMENTS ONTO PRIVATE PROPERTIES WILL BE EXECUTED PRIOR TO CONSTRUCTION. NO WORK SHALL BE PERFORMED UNTIL ALL REQUIRED EASEMENTS ARE OBTAINED.

24. ALL DISTURBANCE TO THE SITE SHALL BE WITHIN THE DEFINED LIMIT OF WORK. IF A CONFLICT OR SITE CONDITION REQUIRES THAT THE LIMIT OF WORK BE CHANGED, CONTRACTOR SHALL COORDINATE WITH THE ENGINEER.

SYMBOLS

DESCRIPTION

EXISTING

PROPOSED

SANITARY SEWER MANHOLE

STORM DRAIN MANHOLE

CATCH BASIN

UTILITY POLE W/GUY

UTILITY POLE

LIGHTPOST

HYDRANT

SIGN

WETLAND HATCHING

CONIFEROUS TREE

DECIDUOUS TREE

SURVEY STATION

LINE TYPES

DESCRIPTION

EXISTING

PROPOSED

CONTOUR (1' INTERVAL)

CONTOUR (INDEX)

SANITARY SEWER

STORM DRAIN

WATER MAIN

UNDERGROUND ELECTRIC

GAS LINE

OVERHEAD ELECTRIC

PROPERTY LINE

EDGE OF VEGETATION

FENCE

RETAINING WALL

CURB

EDGE OF PAVEMENT

EDGE OF GRAVEL

GUARDRAIL

100–FOOT BVW BUFFER ZONE

100–FOOT IWV BUFFER ZONE

200–FOOT RIVERFRONT AREA

BORDERING VEGETATED WETLAND/ INLAND VEGETATED WETLAND

MAHW (MEAN ANNUAL HIGH WATER/BANK

LAND SUBJECT TO COASTAL STORM FLOWAGE

WETLAND IMPACT TABLE

Resource Area Impacts

Resource Area	Impact	Restoration
Riverfront Area ¹	±61,118 sf (22,836 sf Existing Natural Vegetation)	26,099 sf (Proposed Natural Vegetation)
Bank ²	±20 lf	±48 lf (Creation)
Land Under Water (LUW) ³	±315 sf	±280 sf (Creation) ±315 sf (Restored)
Land Subject to Coastal Storm Flowage (LSCSF)	±61,118 sf (23,271 sf Natural Vegetation)	26,099 sf (Natural Vegetation)
Coastal Bank ⁴	ND	ND

1. RIVERFRONT AREA IMPACTS INCLUDE VEGETATED AND DEVELOPED/DEGRADED AREAS.

2. BANK IMPACTS ARE ASSOCIATED WITH RIP–RAP TO BE PLACED IN STREAMBED LOCATED DOWNGRADIENT & UPGRADIENT OF EXISTING CULVERTS AT THE ROSIES POND OUTLET. BANK CREATION IS ASSOCIATED WITH REMOVAL OF EXISTING CULVERTS.

3. CREATED LUW IS ASSOCIATED WITH THE REMOVAL OF THE CULVERTS AND REPLACEMENT WITH RIP–RAP. RESTORED LUW IS ASSOCIATED WITH RIP–RAP TO BE PLACED WITHIN THE STREAMBED ADJACENT TO THE EXISTING CULVERTS, WHICH WILL MAINTAIN THE PRESENCE OF LUW IN THESE LIMITS.

4. IMPACTS TO COASTAL BANK ARE PROPOSED. DUE TO THE PROJECT TYPE, LENGTH OF THE PROJECT AND LOCATION IN AN URBAN LANDSCAPE, THE COASTAL BANK LIMITS WERE NOT CONFIRMED (SEE BELOW REGULATORY IMPLICATIONS FOR FURTHER INFORMATION).

ABBREVIATIONS

&
A.G.

AND
ABOVE GROUND

B
BIT.
BM
BVW

BORING
BITUMINOUS
BENCHMARK
BORDERING VEGETATED WETLAND

CB
CMP
COMM
CONC
COND.

CATCH BASIN
CORRUGATED METAL PIPE
COMMUNICATION
CONCRETE
CONDUIT

DI
DIA.
DMH
DS

DUCTILE IRON
DIAMETER
DRAIN MANHOLE
DOWN–SPOUT

E
EL.
EMBED.
EX.

UNDERGROUND ELECTRICAL
ELEVATION
EMBEDMENT
EXISTING

FF
FIN.
FL
FT

FINISH FLOOR
FINISH FLOOR
FOOT/FEET

GALV.
GRAN.

GALVANIZED
GRANITE

HDPE
HWY
HYD

HIGH DENSITY POLYETHYLENE
HIGHWAY
HYDRANT

IN
INV.
IWV

INCH
INVERT
INLAND VEGETATED WETLAND

LP
LF
LUW

LIGHT POST
LINEAR FEET
LAND UNDER WATER

MAHW
MAX.
MIN.
MON

MEAN ANNUAL HIGH WATER
MAXIMUM
MINIMUM
MONUMENT

NBWV
NR
N.T.S.

NON–BORDERING VEGETATED WETLAND
NUMBER
NO REFUSAL
NOT TO SCALE

O.U.
OE
OH

OUTSIDE DIAMETER
OVERHEAD ELECTRIC
OVERHEAD

±
PLS
PVC

PLUS OR MINUS
PROFESSIONAL LAND SURVEYOR
POLYVINYL CHLORIDE

R.O.W.
RCF
REINF.
REQ'D
RET
RLS
RTE

RIGHT–OF–WAY
REINFORCED CONCRETE PIPE
REINFORCED
REQUIRED
RETAINING
REGISTERED LAND SURVEYOR
ROUTE

S
S
SD
SMH
SCH
SDR
STA.

SLOPE
SEWER
STORM DRAIN
SEWER MANHOLE
SCHEDULE
STANDARD DIMENSION RATIO
STATION

TYP.
T.O.W.

TYPICAL
TOP OF WALL

UC
U.N.O.

UNDERGROUND CABLE
UNLESS NOTED OTHERWISE

W
W/
WV
WWM

WEST
WITH
WATER VALVE
WELDED WIRE MESH

PROJECT INDEX PLAN

SCALE: 1"=200'

200' 0 200' 400'

BAR SCALE
1" = 200'
CHECK GRAPHIC SCALE BEFORE USING

GENERAL NOTES, LEGEND, ABBREVIATIONS & PROJECT INDEX PLAN

CITY OF SALEM, MASSACHUSETTS

ROSIES POND & JEFFERSON AVENUE FLOOD MITIGATION PROJECT

JOB NO.: 224405.01

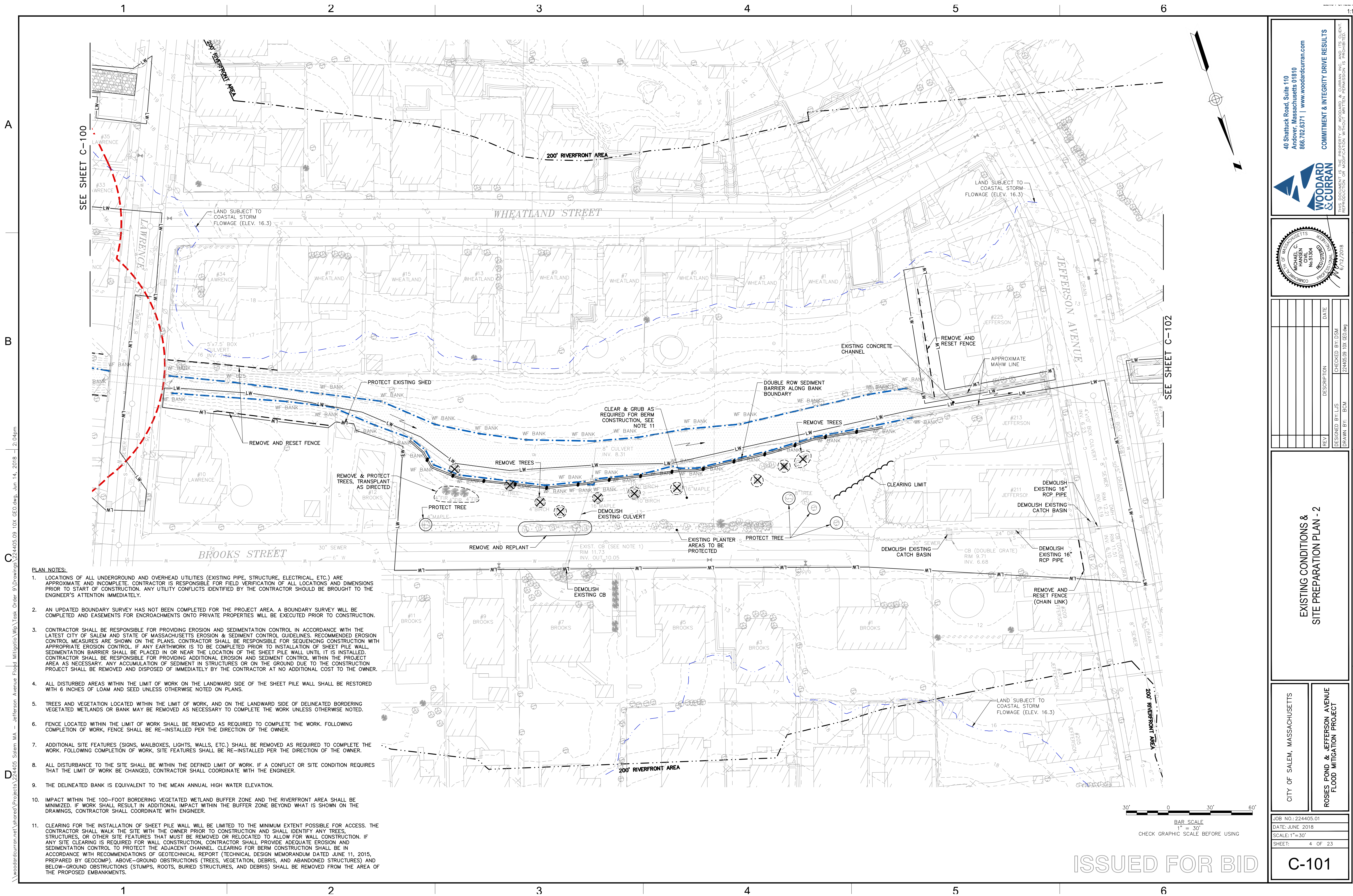
DATE: JUNE 2018

SCALE: AS NOTED

SHEET: 2 OF 23

G-001





- PLAN NOTES:**
1. LOCATIONS OF ALL UNDERGROUND AND OVERHEAD UTILITIES (EXISTING PIPE, STRUCTURE, ELECTRICAL, ETC.) ARE APPROXIMATE AND INCOMPLETE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL LOCATIONS AND DIMENSIONS PRIOR TO START OF CONSTRUCTION. ANY UTILITY CONFLICTS IDENTIFIED BY THE CONTRACTOR SHOULD BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY.
 2. AN UPDATED BOUNDARY SURVEY HAS NOT BEEN COMPLETED FOR THE PROJECT AREA. A BOUNDARY SURVEY WILL BE COMPLETED AND EASEMENTS FOR ENCROACHMENTS ONTO PRIVATE PROPERTIES WILL BE EXECUTED PRIOR TO CONSTRUCTION.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING EROSION AND SEDIMENTATION CONTROL IN ACCORDANCE WITH THE LATEST CITY OF SALEM AND STATE OF MASSACHUSETTS EROSION & SEDIMENT CONTROL GUIDELINES. RECOMMENDED EROSION CONTROL MEASURES ARE SHOWN IN THE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR SEQUENCING CONSTRUCTION WITH APPROPRIATE EROSION CONTROL. IF ANY EARTHWORK IS TO BE COMPLETED PRIOR TO INSTALLATION OF SHEET PILE WALL, SEDIMENTATION BARRIER SHALL BE PLACED IN OR NEAR THE LOCATION OF THE SHEET PILE WALL UNTIL IT IS INSTALLED. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADDITIONAL EROSION AND SEDIMENT CONTROL WITHIN THE PROJECT AREA AS NECESSARY. ANY ACCUMULATION OF SEDIMENT IN STRUCTURES OR ON THE GROUND DUE TO THE CONSTRUCTION PROJECT SHALL BE REMOVED AND DISPOSED OF IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
 4. ALL DISTURBED AREAS WITHIN THE LIMIT OF WORK ON THE LANDWARD SIDE OF THE SHEET PILE WALL SHALL BE RESTORED WITH 6 INCHES OF LOAM AND SEED UNLESS OTHERWISE NOTED ON PLANS.
 5. TREES AND VEGETATION LOCATED WITHIN THE LIMIT OF WORK, AND ON THE LANDWARD SIDE OF DELINEATED BORDERING VEGETATED WETLANDS OR BANK MAY BE REMOVED AS NECESSARY TO COMPLETE THE WORK UNLESS OTHERWISE NOTED.
 6. FENCE LOCATED WITHIN THE LIMIT OF WORK SHALL BE REMOVED AS REQUIRED TO COMPLETE THE WORK. FOLLOWING COMPLETION OF WORK, FENCE SHALL BE RE-INSTALLED PER THE DIRECTION OF THE OWNER.
 7. ADDITIONAL SITE FEATURES (SIGNS, MAILBOXES, LIGHTS, WALLS, ETC.) SHALL BE REMOVED AS REQUIRED TO COMPLETE THE WORK. FOLLOWING COMPLETION OF WORK, SITE FEATURES SHALL BE RE-INSTALLED PER THE DIRECTION OF THE OWNER.
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 9. THE DELINEATED BANK IS EQUIVALENT TO THE MEAN ANNUAL HIGH WATER ELEVATION.
 10. IMPACT WITHIN THE 100-FOOT BORDERING VEGETATED WETLAND BUFFER ZONE AND THE RIVERFRONT AREA SHALL BE MINIMIZED. IF WORK SHALL RESULT IN ADDITIONAL IMPACT WITHIN THE BUFFER ZONE BEYOND WHAT IS SHOWN ON THE DRAWINGS, CONTRACTOR SHALL COORDINATE WITH ENGINEER.
 11. CLEARING FOR THE INSTALLATION OF SHEET PILE WALL WILL BE LIMITED TO THE MINIMUM EXTENT POSSIBLE FOR ACCESS. THE CONTRACTOR SHALL WALK THE SITE WITH THE OWNER PRIOR TO CONSTRUCTION AND SHALL IDENTIFY ANY TREES, STRUCTURES, OR OTHER SITE FEATURES THAT MUST BE REMOVED OR RELOCATED TO ALLOW FOR WALL CONSTRUCTION. IF ANY SITE CLEARING IS REQUIRED FOR WALL CONSTRUCTION, CONTRACTOR SHALL PROVIDE ADEQUATE EROSION AND SEDIMENTATION CONTROL TO PROTECT THE ADJACENT CHANNEL. CLEARING FOR BERM CONSTRUCTION SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF GEOTECHNICAL REPORT (TECHNICAL DESIGN MEMORANDUM DATED JUNE 11, 2015, PREPARED BY GEOCOMP). ABOVE-GROUND OBSTRUCTIONS (TREES, VEGETATION, DEBRIS, AND ABANDONED STRUCTURES) AND BELOW-GROUND OBSTRUCTIONS (STUMPS, ROOTS, BURIED STRUCTURES, AND DEBRIS) SHALL BE REMOVED FROM THE AREA OF THE PROPOSED EMBANKMENTS.

40 Shattuck Road, Suite 110
Andover, Massachusetts 01810
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WOODARD & CURRAN

COMMITMENT & INTEGRITY DRIVE RESULTS

REV.	DESCRIPTION	DATE

DESIGNED BY: LUS

CHECKED BY: DSM

DRAWN BY: BCM

224405.09

10X E04.dwg

6/12/2018

EXISTING CONDITIONS & SITE PREPARATION PLAN - 2

CITY OF SALEM, MASSACHUSETTS

ROSES POND & JEFFERSON AVENUE FLOOD MITIGATION PROJECT

JOB NO.: 224405.01

DATE: JUNE 2018

SCALE: 1"=30'

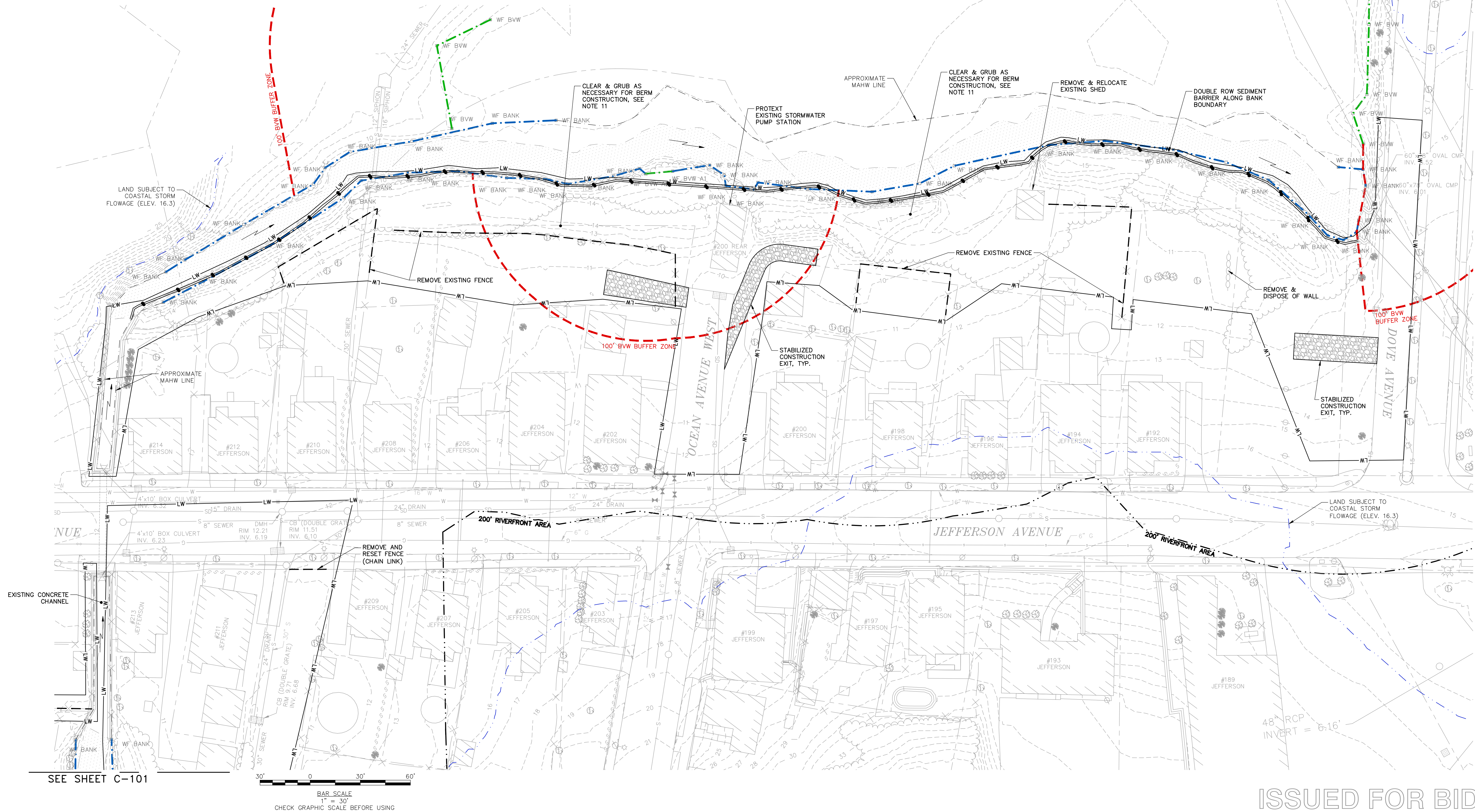
SHEET: 4 OF 23

C-101

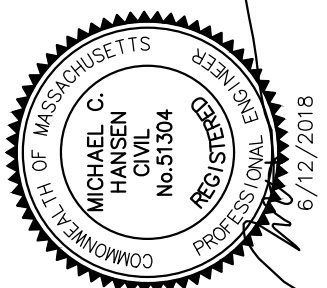
ISSUED FOR BID

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REV	DESCRIPTION	DATE
	DESIGNED BY: LJS	CHECKED BY: DSM
	DRAWN BY: BOM	224405.09 10X GEODIG

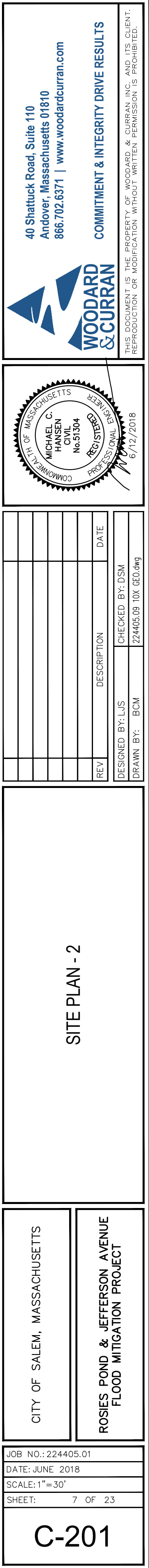
EXISTING CONDITIONS & SITE PREPARATION PLAN-3

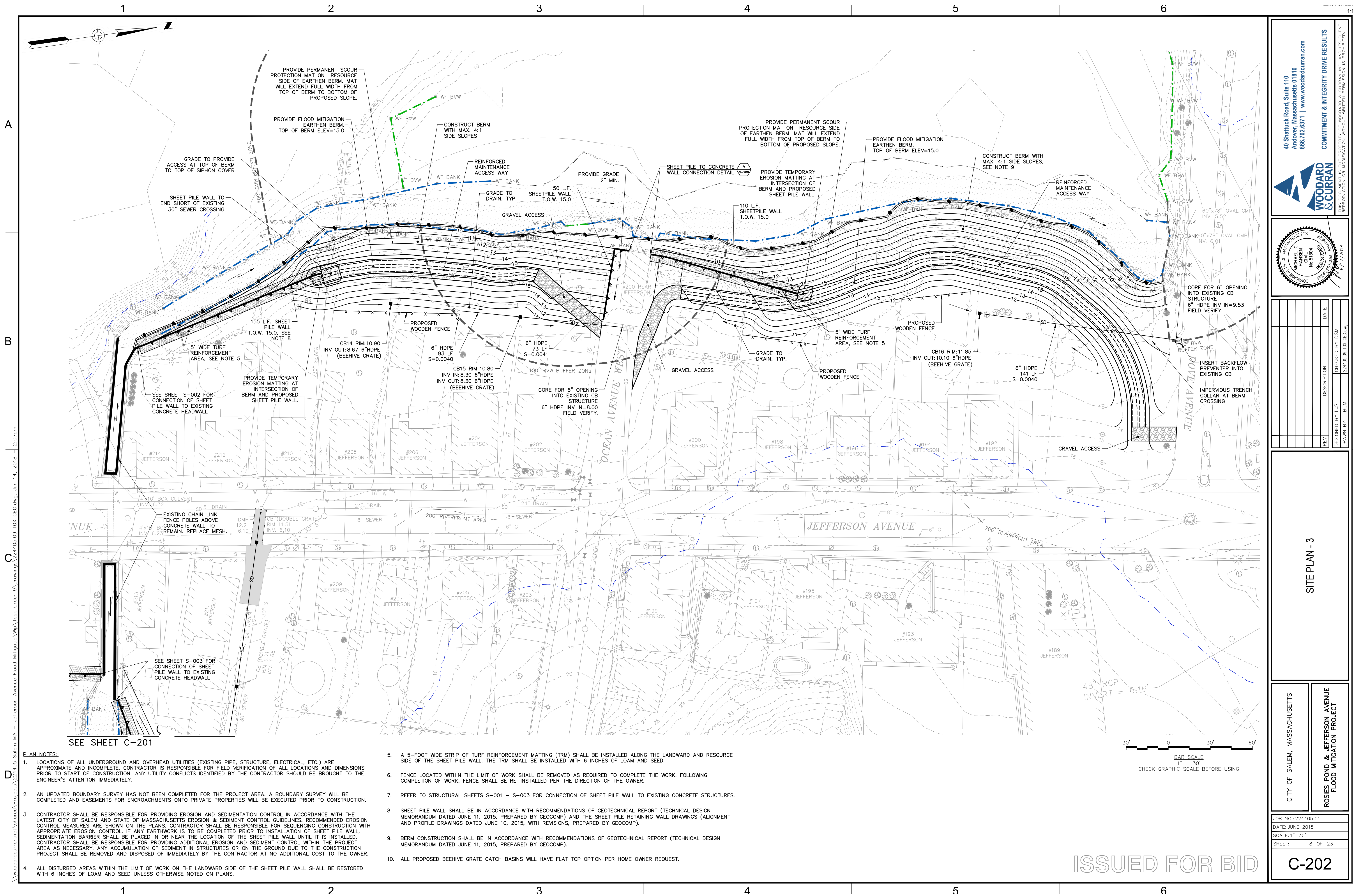
CITY OF SALEM, MASSACHUSETTS

ROSIES POND & JEFFERSON AVENUE
FLOOD MITIGATION PROJECT

JOB NO.: 224405.01
DATE: JUNE 2018
SCALE: 1"=30'
SHEET: 5 OF 23

C-102





- PLAN NOTES:**
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 - AN UPDATED BOUNDARY SURVEY HAS NOT BEEN COMPLETED FOR THE PROJECT AREA. A BOUNDARY SURVEY WILL BE COMPLETED AND EASEMENTS FOR ENCROACHMENTS ONTO PRIVATE PROPERTIES WILL BE EXECUTED PRIOR TO CONSTRUCTION.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING EROSION AND SEDIMENTATION CONTROL IN ACCORDANCE WITH THE LATEST CITY OF SALEM AND STATE OF MASSACHUSETTS EROSION & SEDIMENT CONTROL GUIDELINES. RECOMMENDED EROSION CONTROL MEASURES ARE SHOWN ON THE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR SEQUENCING CONSTRUCTION WITH APPROPRIATE EROSION CONTROL. IF ANY EARTHWORK IS TO BE COMPLETED PRIOR TO INSTALLATION OF SHEET PILE WALL, SEDIMENTATION BARRIER SHALL BE PLACED IN OR NEAR THE LOCATION OF THE SHEET PILE WALL UNTIL IT IS INSTALLED. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADDITIONAL EROSION AND SEDIMENT CONTROL WITHIN THE PROJECT AREA AS NECESSARY. ANY ACCUMULATION OF SEDIMENT IN STRUCTURES OR ON THE GROUND DUE TO THE CONSTRUCTION PROJECT SHALL BE REMOVED AND DISPOSED OF IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
 - ALL DISTURBED AREAS WITHIN THE LIMIT OF WORK ON THE LANDWARD SIDE OF THE SHEET PILE WALL SHALL BE RESTORED WITH 6 INCHES OF LOAM AND SEED UNLESS OTHERWISE NOTED ON PLANS.

- A 5-FOOT WIDE STRIP OF TURF REINFORCEMENT MATTING (TRM) SHALL BE INSTALLED ALONG THE LANDWARD AND RESOURCE SIDE OF THE SHEET PILE WALL. THE TRM SHALL BE INSTALLED WITH 6 INCHES OF LOAM AND SEED.
- FENCE LOCATED WITHIN THE LIMIT OF WORK SHALL BE REMOVED AS REQUIRED TO COMPLETE THE WORK. FOLLOWING COMPLETION OF WORK, FENCE SHALL BE RE-INSTALLED PER THE DIRECTION OF THE OWNER.
- REFER TO STRUCTURAL SHEETS S-001 - S-003 FOR CONNECTION OF SHEET PILE WALL TO EXISTING CONCRETE STRUCTURES.
- SHEET PILE WALL SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF GEOTECHNICAL REPORT (TECHNICAL DESIGN MEMORANDUM DATED JUNE 11, 2015, PREPARED BY GEOCOMP) AND THE SHEET PILE RETAINING WALL DRAWINGS (ALIGNMENT AND PROFILE DRAWINGS DATED JUNE 10, 2015, WITH REVISIONS, PREPARED BY GEOCOMP).
- BERM CONSTRUCTION SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF GEOTECHNICAL REPORT (TECHNICAL DESIGN MEMORANDUM DATED JUNE 11, 2015, PREPARED BY GEOCOMP).
- ALL PROPOSED BEEHIVE GRATE CATCH BASINS WILL HAVE FLAT TOP OPTION PER HOME OWNER REQUEST.

ISSUED FOR BID

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STATE OF MASSACHUSETTS
REGISTERED PROFESSIONAL ENGINEER
MICHAEL C. HANSEN
CIVIL
No. 93304
EXPIRATION DATE: 6/30/2018

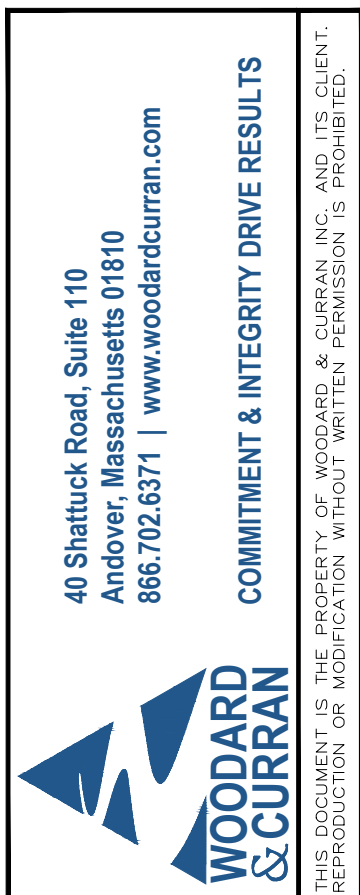
REV.	DESCRIPTION	DATE

CHECKED BY: DSM
DESIGNED BY: LUS
DRAWN BY: BCM
JOB NO.: 224405.01
DATE: JUNE 2018
SCALE: 1"=30'
SHEET: 8 OF 23

CITY OF SALEM, MASSACHUSETTS

ROSES FOND & JEFFERSON AVENUE
FLOOD MITIGATION PROJECT

C-202

[illegible]

SHEET PILE
RETAINING WALL
ALIGNMENTS

CITY OF SALEM, MASSACHUSETTS

ROSIES POND & JEFFERSON AVENUE
FLOOD MITIGATION PROJECT

JOB NO.: 224405.01
DATE: JUNE 2018
SCALE: AS NOTED
SHEET: 9 OF 23

C-300



C-301

CITY OF SALEM, MASSACHUSETTS

SHEET PIPE

[illegible]

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1. INSTALL ALL SHEETS UP TO THE EDGE OF THE PIPE.
2. EXTEND TWO SHEETS BY 3' ON EITHER SIDE OF THE PIPE.
3. CUT SHORT THE SHEET OR SHEETS THAT WILL BE DIRECTLY ABOVE THE SEWER LINE.
4. TRIM THE PILING TO WITHIN 2" OF THE O.D. OF THE PIPE ON THE SIDE AND TOP.
5. DRIVE THE LONGER SHEET PILES.
6. OVERLAP THE OPENINGS ON ALL SIDES BY APPROXIMATELY 6". WOOD FORM WORK WILL BE NECESSARY.
7. INSTALL A DOUBLE WALER TO CONNECT 6 SHEETS AT 3' BGS.
10. SEAL AROUND THROUGH BOLT HOLES WITH ELASTOMERIC CAULK OR HYDRAULIC SEALANT.



NOTE:
MHW MAX HGL = MEAN HIGH WATER MAXIMUM HYDRAULIC GRADIENT LINE.

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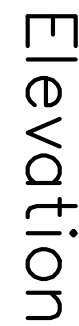
SHEET PILE RETAINING WALL PROFILES

CITY OF SALEM, MASSACHUSETTS

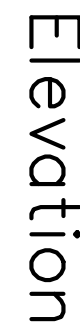
ROSIES POND & JEFFERSON AVENUE
FLOOD MITIGATION PROJECT

JOB NO.: 224405.01
DATE: JUNE 2018
SCALE: AS NOTED
SHEET: 11 OF 23

C-302



VERT SCALE: 1" = 2'
HOR SCALE: 1" = 40'



ISSUED FOR BID



VERT SCALE: 1" = 2'
HOR SCALE: 1" = 40'

ISSUED FOR BID



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WALL SECTION #7
PROFILE VIEW



WALL SECTION #8
PROFILE VIEW

NOTE:
MHW MAX HGL = MEAN HIGH WATER MAXIMUM HYDRAULIC GRADIENT LINE.

VERT SCALE: 1" = 2'
HOR SCALE: 1" = 40'



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	REV	DESCRIPTION	CHECKED BY:	DATE
			DESIGNED BY:	
			DRAWN BY:	
			224005.09 C-201 -	
			2017.dwg	

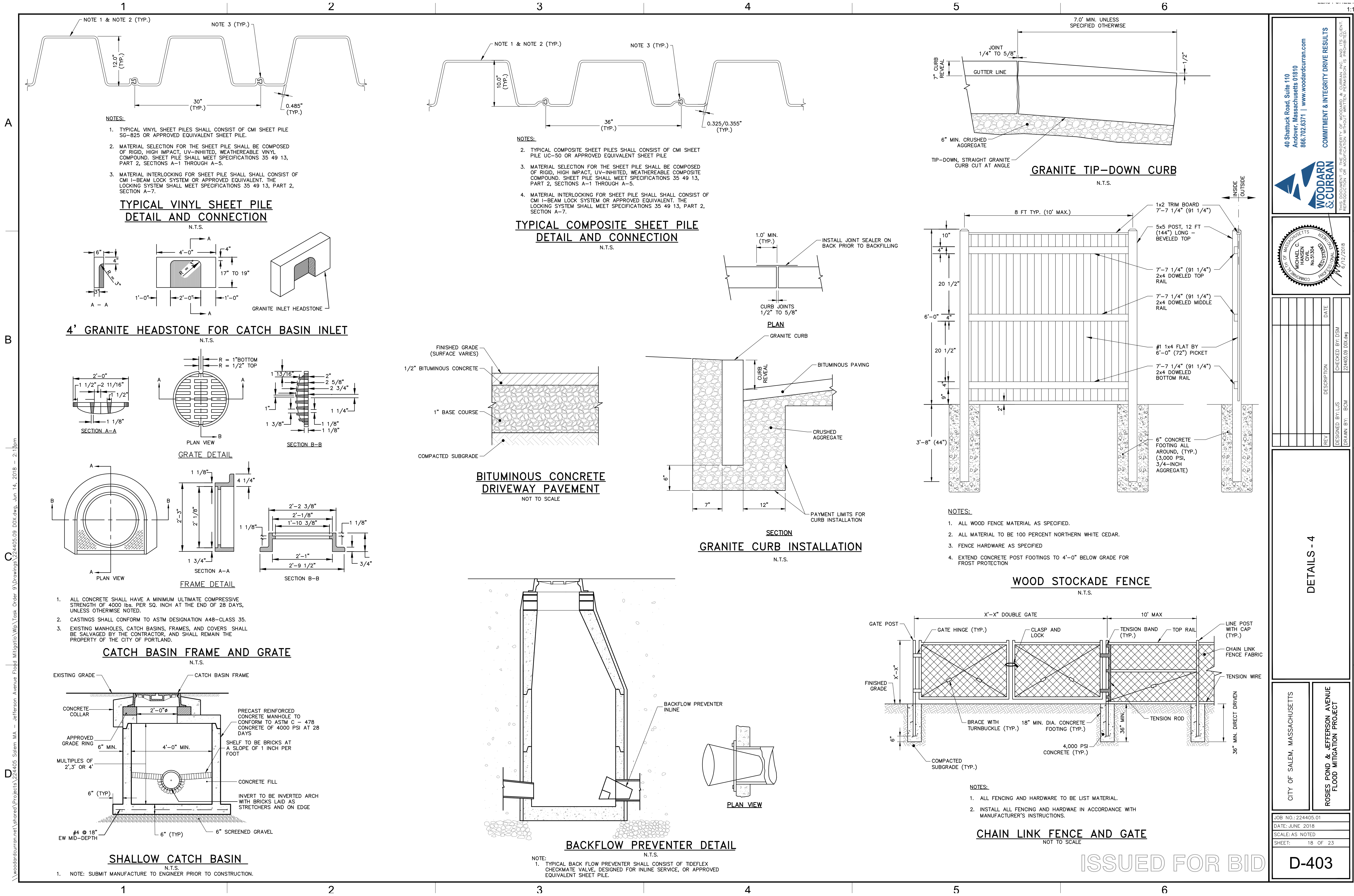
SHEET PILE RETAINING WALL PROFILES

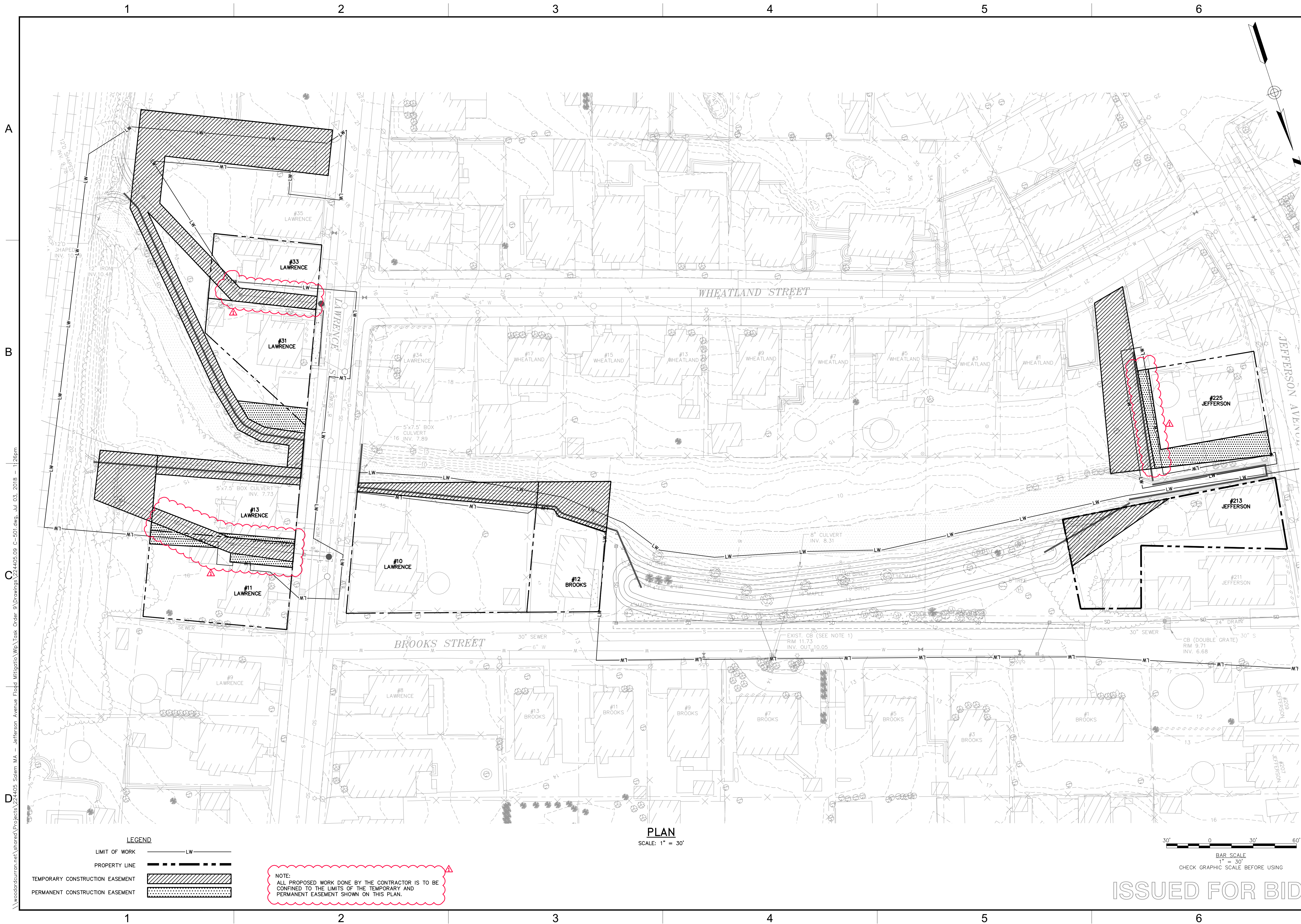
CITY OF SALEM, MASSACHUSETTS

ROSIES POND & JEFFERSON AVENUE
FLOOD MITIGATION PROJECT

JOB NO.: 224405.01
DATE: JUNE 2018
SCALE: AS NOTED
SHEET: 14 OF 23

C-305





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6/17/2018

REVISIONS

REV.	DESCRIPTION	DATE
1	ADDENDUM #1	17/03/2018

DESIGNED BY: LJS CHECKED BY: DSM |

DRAWN BY: BCM 224405.09 C-501.dwg |

EASEMENT PLAN 1

CITY OF SALEM, MASSACHUSETTS

ROSES POND & JEFFERSON AVENUE
FLOOD MITIGATION PROJECT

JOB NO.: 224405.01

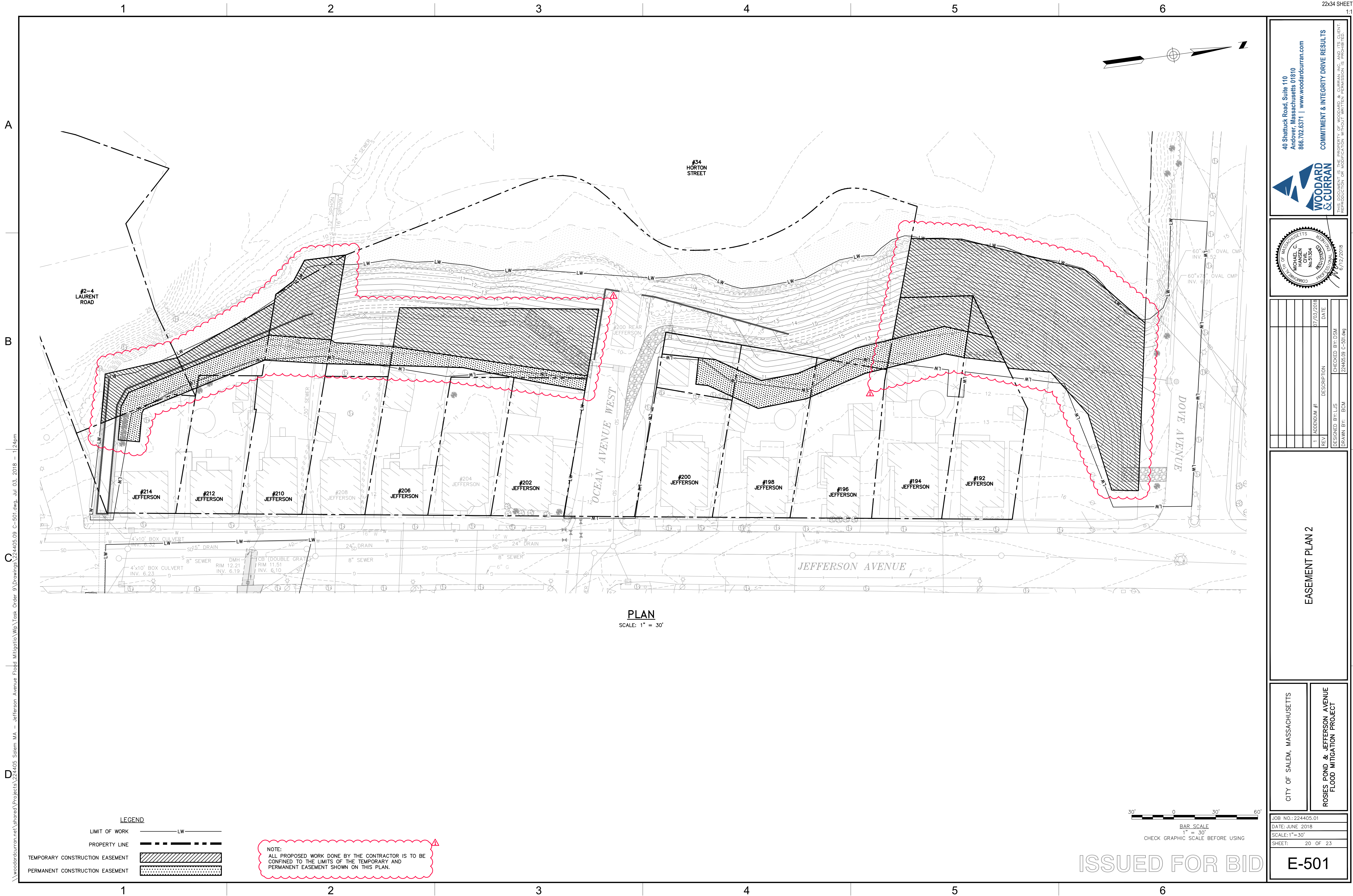
DATE: JUNE 2018

SCALE: 1"=30'

SHEET: 19 OF 23

E-500

woodardcurran.net\shared\Projects\224405 Salem MA - Jefferson Avenue Flood Mitigation\Wp\Task Order 9\Drawings\224405.09 C-501.dwg, Jul 03, 2018 - 1:26pm



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STATE OF MASSACHUSETTS
MICHAEL C. HANSEN
No. 51304
REGISTERED PROFESSIONAL ENGINEER
6/12/2018

REV.	DATE	DESCRIPTION
1	07/03/2018	

DESIGNED BY: LJS	CHECKED BY: DSM
DRAWN BY: BCM	
224405.09 C-501.dwg	

EASEMENT PLAN 2

CITY OF SALEM, MASSACHUSETTS

**ROSES POND & JEFFERSON AVENUE
FLOOD MITIGATION PROJECT**

JOB NO.: 224405.01
DATE: JUNE 2018
SCALE: 1"=30'
SHEET: 20 OF 23

E-501

REPAIR TYPE SPECIFICATIONS & NOTES:

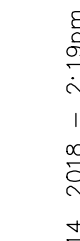
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|-----------|-------------------------------|
| + & Ø | AND AT DIAMETER |
| CONC CONT | CONCRETE CONTINUOUS, CONTINUE |
| DEMO DIA | DEMOLISH DIAMETER |
| DWG(S) | DRAWING(S) |
| EMBED EXG | EMBEDMENT EXISTING |
| FV | FIELD VERIFY |
| GALV | GALVANIZED |
| HDW H | HARDWARE HEIGHT |
| HOR HP | HORIZONTAL HIGH POINT |
| INT | INTERIOR |
| LF LP | LINEAR FOOT (FEET) LOW POINT |
| MAX MIN | MAXIMUM MINIMUM |
| OC | ON CENTER |
| SF SS | SQUARE FEET STAINLESS STEEL |
| TQ | SQUARE |
| SY | TYPICAL |
| VERT | VERTICAL |
| W W/ | WIDTH, WIDE WITH |

1. REPAIR TYPE 'A' - CONCRETE SPALL REPAIR (TROWEL APPLIED, SEE DETAIL B SHEET S-003): DEPTH OF REPAIR IS VARIABLE - THIS BID ITEM SHALL APPLY FOR SPALL REPAIR DEPTHS OF 3 INCHES OR LESS (IF THERE IS EXPOSED REBAR, THIS MEASURED TO THE DEPTH OF THE REBAR DEPTH BETWEEN REBAR NOT CHIPPED TO EXPOSED REBAR WILL BE REBAR DEPTH). REPAIR IS CHIPPED OUT BEHIND REBAR). AS SHOWN ON THE PLANS AND AS SCHEDULED, ALL HOLLOW, UNSOUND, DETERIORATED, AND/OR SPALLED CONCRETE SURFACES OR ANY PITS, VOIDS, EXPOSED REBAR, OR OTHERWISE RECESSED (NON-FLUSH) AREAS OF CONCRETE WALLS SHALL BE PREPARED BY SAW-CUTTING THE SPALLS TO THE TOP OF THE SPALLS AND CHIPPING OUT THE CONCRETE WITHIN PERIMETER SAW-CUT TO A MINIMUM DEPTH OF 1/4 INCH. ANY EXPOSED REBAR SHALL HAVE CONCRETE CHIPPED OUT BEHIND AND AROUND THE BARS AND BE PRIMED AS SPECIFIED. PATCH PREPARED, SPALLED AREA WITH HIGH-PERFORMANCE REPAIR MORTAR EQUAL TO MASTEREMARK 1061 BY BASF, OR EQUIV. 123 1/2" FLUSH WITH SURFACE. CONSTRUCTION SHALL BE EQUAL USING MULTIPLE THIN LIFTS AS PER MANUFACTURER'S RECOMMENDATIONS. REPAIR SHALL HAVE A STEEL-TROWEL FINISH PLUMB, SQUARE, AND/OR FLUSH WITH ALL ADJACENT CONCRETE SURFACES. ALL TRANSITIONS ALONG LIMITS OF REPAIR SHALL BE GROUND AND/OR PATCHED AS REQUIRED TO ACHIEVE A SMOOTH, UNIFORM TRANSITION ACROSS THE ENTIRE REPAIR. FOR REPAIRS TO THE SPECIFICATION SECTION 03 01 05 FOR FURTHER REQUIREMENTS AND FOR TREATMENT OF EXPOSED REBAR. SURFACE PREPARATION, APPLICATION, AND CURING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS. REPAIRS MAY BE DONE IN LAYERS, BUT THE THICKNESS WHICH SHALL BE INCLUDED IN UNIT COST. 6000 PSI CONCRETE MAY BE SUBSTITUTED FOR REPAIR MORTAR FOR LARGER/DEEPER REPAIRS, AS APPROVED BY THE ENGINEER. UPON COMPLETION OF PATCH REPAIRS, ENGINEER SHALL HAMMER SOUND ALL PATCH AREAS. ANY PATCHES THAT ARE HOLLOW, UNSOUND, OR CRACKED SHALL BE RECHIPPED AND REPAIRED. THE OWNER, AS REQUIRED TO ACHIEVE A SOUND, WELL-BONDED REPAIR PATCH.

- SALVAGE EXISTING REBAR WHERE POSSIBLE AND PREPARE/TREAT AS SPECIFIED.
- ANY EXISTING REBAR THAT HAS GREATER THAN 20% CROSS-SECTIONAL LOSS DUE TO CORROSION SHALL BE REPLACED IN KIND WITH NEW REBAR, AS DIRECTED BY THE ENGINEER.
- IN NO CASE SHALL THE QUANTITY, SIZE, AND SPACING OF REINFORCING BE LESS THAN THAT PROVIDED IN THE ORIGINAL DESIGN, WHICH WILL NEED TO BE FIELD VERIFIED.

2. REPAIR TYPE 'B' - CRACK ROUT & SEAL (SEE DETAIL C SHEET S-003): AS SHOWN ON THE PLANS AND AS SCHEDULED, THIS REPAIR SHALL APPLY TO CRACKS IN CONCRETE. REMOVE EXISTING JOINT SEALANT AND/OR REPAIR MATERIAL WITHIN CRACK, WHERE APPLICABLE, DOWN TO A RECENT CONCRETE SURFACE IN THE FLOW AND AS DIRECTED. PREPARE CRACK BY WET BRUSHING AND ROUTING A MINIMUM 1/4" DEEP V-GROOVE ALONG CRACK, PROVIDE SUBSTRATE PRIMER EQUAL TO "SIKAFLEX 429 PRIMER" BY SIKA CORPORATION. FILL V-GROOVE WITH CONTINUOUS POLYURETHANE SEALANT "SIKAFLEX 2C-NS" BY SIKA CORPORATION, "SONOLASTIC NP2" BY BASF, OR AN EQUAL EQUIV. EQUIV. SHALL BE USED. REPAIR SHALL MATCH COLOR OF EXISTING CONCRETE COLOR. CONTRACTOR SHALL COMPLETE ONE CRACK REPAIR AS A "MOCK UP" FOR OWNER AND ENGINEER TO REVIEW COLOR MATCH AND APPROACH PRIOR TO PROCEEDING WITH MORE SEALANT REPAIRS. SURFACE PREPARATION AND APPLICATION SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS AND STANDARD REPAIR DETAILS.
3. REPAIR TYPE 'C' - CRACK INJECTION REPAIR: AS SHOWN ON THE PLANS AND AS SCHEDULED, ALL EXISTING CRACKS IN CONCRETE WALLS WHICH SHOW EVIDENCE OF PAST OR ACTIVE LEAKAGE SHALL BE CONTINUALLY INJECTED WITH "SIKAFIX HH-LV" BY SIKA CORPORATION, "MOUNTAIN GROUT - FLEX CLASSIC" BY GREEN MOUNTAIN INTERNATIONAL, LLC, OR APPROVED EQUAL, A HIGH-SOLIDS, HYDROPHOBIC, POLYURETHANE, LIQUID CHEMICAL SEALANT. CRACKS WITH VISIBLE ACTIVE LEAKAGE, INJECTION SHALL BE REPEATED UNTIL NO VISIBLE MOISTURE/LEAKAGE HAS BEEN COMPLETELY ELIMINATED. REFER TO SPECIFICATION SECTION 03 74 20 FOR FURTHER REQUIREMENTS. ANY VISIBLE STAINING AND DEPOSITS ALONG EXISTING CRACKS SHALL BE GROUND OFF OR OTHERWISE REMOVED, AS SHALL ALL INJECTION RESIDUE. SURFACE PREPARATION AND APPLICATION SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS.

CONCRETE REPAIR TYPE SCHEDULE				
LOCATION	REPAIR TYPE 'A' CONCRETE SPALL REPAIR	REPAIR TYPE 'B' CRACK ROUT & SEAL	REPAIR TYPE 'C' CRACK INJECTION	SHEET REFERENCE
REPAIR TYPE QUANTITY	SF	LF	LF	---
LAWRENCE STREET (WEST WALL)	---	30	5	S-002
LAWRENCE STREET (EAST WALL)	---	20	5	S-002
JEFFERSON STREET (WEST WALL)	10	120	20	S-003
JEFFERSON STREET (EAST WALL)	---	130	30	S-003
MISCELLANEOUS ALLOWANCE	40	50	40	---
TOTAL QUANTITIES	50 SF	350 LF	100 LF	---
TYPE OF BID ITEM	UNIT PRICE	UNIT PRICE	UNIT PRICE	---

C/STB

Dr.

D



LAWRENCE STREET -



LAWRENCE STREET -



JEFFERSON AVE

10' 0 10'

BAR SCALE
1" = 10'

CHECK GRAPHIC SCALE BEFORE USING

$$1\frac{1}{2}' \quad 1' \quad 1\frac{1}{2}' \quad 0 \quad 1' \quad 3'$$

LOOKED FOR DIB

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JOB NO: 224405.01

DATE: JUNE 2018

SCALE: AS NOTED

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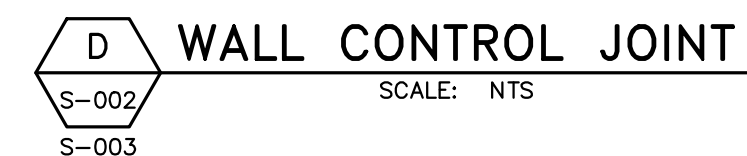
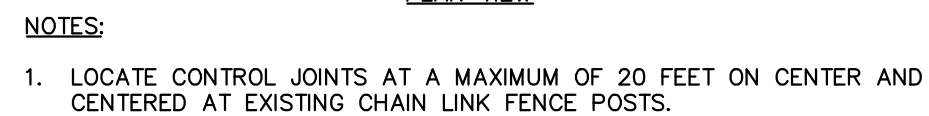
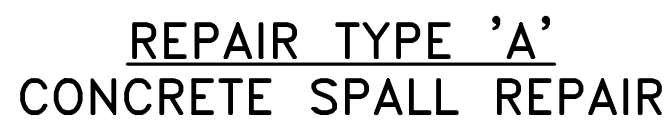
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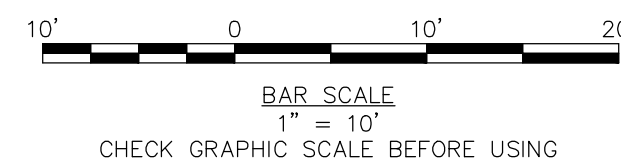
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1. SEE SHEET S-001 FOR GENERAL NOTES, REPAIR TYPE SCHEDULES, REPAIR LOCATIONS, REPAIR QUANTITIES, AND SPECIFICATIONS.
2. SEE SHEET S-002 FOR CONCRETE WALL ELEVATION SCHEDULE & NOTES.



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