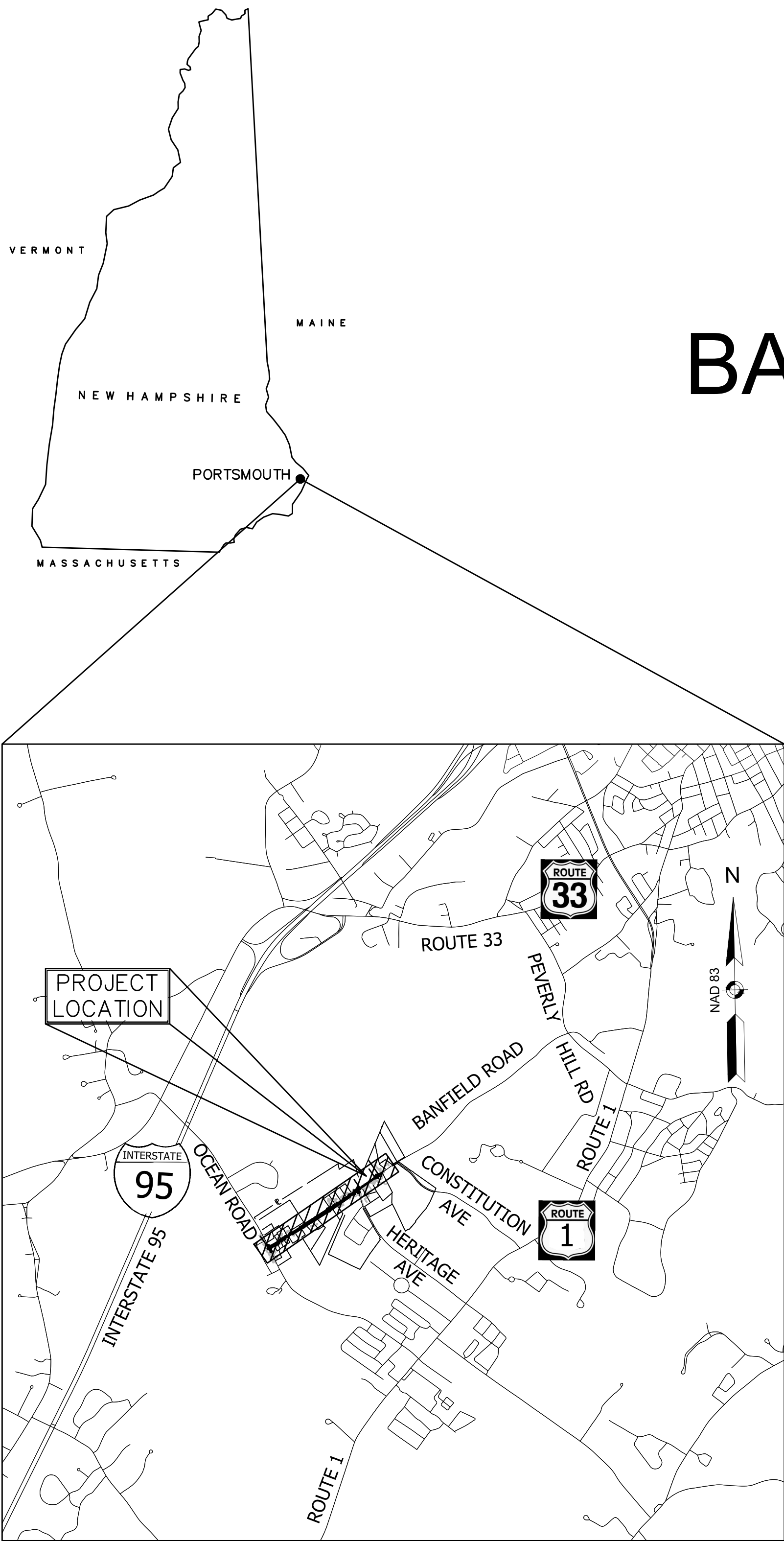


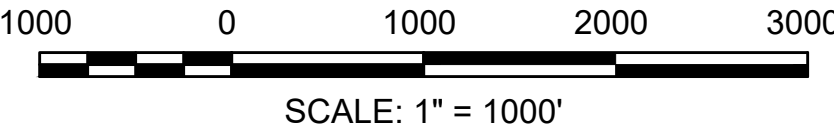
CITY OF PORTSMOUTH
PORTSMOUTH, NEW HAMPSHIRE

PROPOSED IMPROVEMENT DRAWINGS FOR
PERMITTING OF

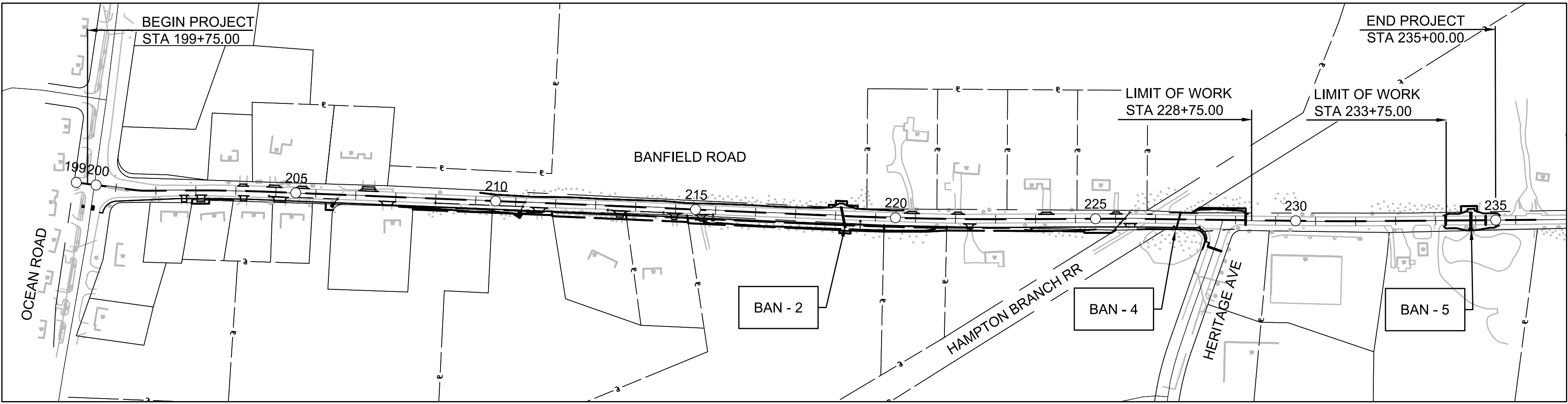
BANFIELD ROAD IMPROVEMENTS
& CULVERT CONSTRUCTION
MARCH 27, 2019



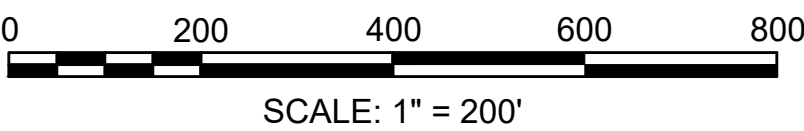
LOCATION PLAN



INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	GENERAL NOTES, LEGEND & ABBREVIATIONS
3 - 4	TYPICAL SECTIONS
5 - 11	GENERAL PLAN & PROFILE
12 - 16	CONSTRUCTION DETAILS



VICINITY MAP



TEC, Inc.

65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

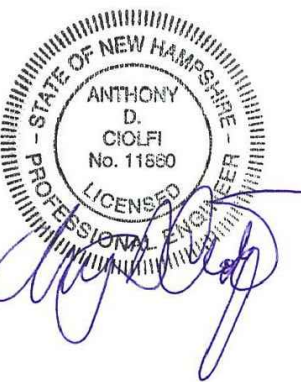
REVISIONS

ISSUED FOR
Permitting

PROJECT TITLE
Roadway Improvements
& Culvert Construction

PROJECT LOCATION
Banfield Road
Portsmouth, NH

DRAWING TITLE
Title Sheet & Index



PROJECT NO.
N0620

TEC CAD FILE
N0620_(Permit_Title).dwg

DRAWING NO.
1

SHEET 1 OF 16

SURVEY NOTES

1. THESE PLANS ARE BASED ON FIELD SURVEY CONDUCTED IN NOVEMBER 2016 BY NORTH EASTERLY SURVEY INC.
2. HORIZONTAL DATUM = NAD83 NH SPC U.S. FOOT
VERTICAL DATUM = NAVD88
3. WETLANDS WERE DELINEATED IN APRIL 2016 BY NORMANDEAU ASSOCIATES INC. A NORMANDEAU ASSOCIATES INC. CWS STAMP IS PROVIDED NEAR THE WETLAND IMPACT AREA TABLE ON THIS SHEET.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SURVEY LAYOUT. ENGINEER TO PROVIDE ALL ELECTRONIC FILES FOR LAYOUT PURPOSES.
5. ROW LINES WERE OBTAINED FROM RESEARCH AND FIELD SURVEY. PROPERTY LINES WERE OBTAINED FROM GIS DATA AND ADJUSTED TO MATCH FIELD INFORMATION.

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS.
2. CONTRACTOR SHALL NOTIFY DIG-SAFE (1-888-344-7233), GAS COMPANY, AND THE LOCAL MUNICIPAL WATER & SEWER DEPT. AT LEAST 72 HOURS BEFORE EXCAVATING.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS. A 6-FOOT TEMPORARY CHAINLINK FENCE SHALL BE PROVIDED AROUND ALL CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LEAVE NO UNSECURED OPEN EXCAVATIONS.
4. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALK, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
5. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) (2009 OR LATER).
6. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
7. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
8. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
9. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.
10. ALL PRIVATELY OWNED UTILITY STRUCTURES (GAS GATES, ELECTRIC/TELEPHONE MANHOLES, ETC.) SHALL BE ADJUSTED TO FINISHED GRADE BY THE PRIVATE UTILITY COMPANY, UNLESS DIRECTED OTHERWISE. THE CONTRACTOR SHALL COORDINATE PAYMENT FROM PRIVATE UTILITY COMPANIES FOR ADJUSTMENT OF PRIVATE UTILITY STRUCTURES DONE BY THE CONTRACTOR.
11. CONTRACTOR SHALL BE AWARE OF OVERHEAD UTILITIES AND MAKE THE NECESSARY ARRANGEMENTS TO PERFORM ANY WORK NEAR THE OVERHEAD UTILITIES, PRIOR TO THE START OF CONSTRUCTION.
12. EXISTING UTILITY POLES IN CLOSE PROXIMITY TO CONSTRUCTION MAY REQUIRE TEMPORARY SUPPORT BY THE UTILITY COMPANY. INCLUDE COST UNDER THE PRICES BID FOR VARIOUS ITEMS OF WORK.
13. TAKE ALL NECESSARY MEASURES AND PROVIDE ALL NECESSARY CONTINUOUS BARRIERS OF SUFFICIENT TYPE, SIZE, AND STRENGTH, TO PREVENT ACCESS TO ALL OPEN EXCAVATIONS AT THE COMPLETION OF EACH DAY'S WORK.
14. PROVIDE TO THE OWNER AND LOCAL FIRE/POLICE/SCHOOL AUTHORITIES A DETAILED PLAN OF APPROACH INDICATING METHODS OF PROPOSED TRAFFIC ROUTING ON A DAILY BASIS WHEN WORKING IN THE ROAD. PROVIDE COORDINATION TO ENSURE COMMUNICATION AND COORDINATION BETWEEN OWNER, CONTRACTOR, AND LOCAL FIRE/POLICE/SCHOOL AUTHORITIES THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.
15. CONTRACTOR TO PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CONTRACTOR SHALL PAY CLOSE ATTENTION TO DRIVEWAY ENTRANCES.
16. EXISTING MANHOLES AND CATCHBASINS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE ADJUSTED TO FINISH GRADES.
17. STORM DRAIN PIPING, UNLESS OTHERWISE NOTED, SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR APPROVED EQUAL).
18. PROPOSED CATCHBASINS SHALL BE EQUIPPED WITH OIL/WATER SEPARATOR HOODS AND 2' SUMPS.
19. STORM DRAIN CONSTRUCTION BE IN ACCORDANCE WITH THE CITY OF PORTSMOUTH AND THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
20. AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS, AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES, AND JOINTS.

GENERAL NOTES

21. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UNDERGROUND UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR ITS REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATION, SIZES, AND ELEVATION OF EXISTING UTILITIES.
22. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT. FAILURE TO PROVIDE OR PERFORM THE ABOVE PRIOR TO PERFORMING ANY WORK SHALL NOT BE GROUNDS FOR EXTRA PAYMENTS TO THE CONTRACTOR.
23. ALL UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE PAVEMENT FINISH GRADE UNLESS OTHERWISE NOTED.
24. CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, WATER, GAS, AND OTHER UTILITY FACILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO ORIGINAL CONDITION (AT NO ADDITIONAL COST TO THE OWNER) BY THE CONTRACTOR.
25. THE CONTRACTOR SHALL REMOVE ALL EROSION CONTROL BARRIERS AFTER REVEGETATION OF DISTURBED AREAS AND AFTER APPROVAL BY THE LOCAL APPROVING AUTHORITY.
26. STOCKPILED TOPSOIL SHALL BE PLACED NEATLY IN AN AREA APPROVED BY THE OWNER/REPRESENTATIVE.
27. THE CONTRACTOR SHALL SCHEDULE THEIR WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH SUBGRADE AND/OR SURFACE PAVING.
28. CONTRACTOR SHALL PERFORM TEST PITS PRIOR TO INSTALLING GUARDRAIL ADJACENT TO EXISTING GAS AND WATER UTILITY LINES WITHIN THE PROJECT LIMITS.

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CATCH BASIN
		DRAIN MANHOLE
		SEWER MANHOLE
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		MANHOLE
		HANDHOLE
		BOLLARD
		WATER GATE
		FIRE HYDRANT
		GAS GATE
		STREET SIGN
		LIGHT POLE
		WALL MOUNTED LIGHT
		UTILITY POLE
		GUY POLE
		GUY WIRE
		MONITORING WELL
		TEST PIT (W/ I.D.)
		MAIL BOX
		EDGE OF PAVEMENT
		MONOLITHIC CONCRETE CURB
		VERTICAL GRANITE CURB (TYPE VB)
		SLOPED GRANITE CURB
		BITUMINOUS BERM
		GUARD RAIL
		CHAINLINK FENCE
		DRAINAGE LINE
		SEWER LINE
		WATER LINE
		GAS LINE
		UNDERGROUND ELECTRIC LINE
		UNDERGROUND TELEPHONE LINE
		ELEC., TELE., CATV, CONDUIT
		OVERHEAD WIRE
		STONE WALL
		TREE LINE
		BASELINE
		TOWN LAYOUT
		PROPERTY LINE
		HIGHWAY/PROPERTY BOUND (TYPE NOTED)
		TREE (SIZE AND TYPE NOTED)
		WHEELCHAIR RAMP (SEE ALSO CONSTRUCTION DETAILS)
		ADA DETECTABLE WARNING PANEL

PAVEMENT MARKINGS AND SIGNING SYMBOLS

EXISTING	PROPOSED

CROSSWALK, 12" WHITE LINE (WDTH NOTED)

STOP LINE, 12" WHITE LINE 4' BEHIND CW (TYP.)

SOLID WHITE LINE-4"

SOLID YELLOW LINE-4"

DOUBLE YELLOW CENTER LINE- 2-4" LINES

SOLID WHITE BROKEN LINE- 8" (2' LONG W/ 3' GAP)

RETROREFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS

HATCH LEGEND

PROP HBP DRIVEWAY	
PROP 4" CEM CONC SIDEWALK (NHDOT ITEM # 608.24).....	
PROP ROCK FILL SLOPE & OUTLET PROTECTION	
TEMP WETLAND IMPACT.....	
PERM WETLAND IMPACT.....	
TEMP PRIME WETLAND IMPACT....	
PERM PRIME WETLAND IMPACT....	
TEMP PRIME WETLAND BUFFER IMPACT.....	
PERM PRIME WETLAND BUFFER IMPACT.....	

ABBREVIATIONS

GENERAL	UTILITIES
ABAN	ABANDON
AC	ACRES
ADJ	ADJUST
APPROX	APPROXIMATE
BLDG	BUILDING
BO	BY OTHERS
BOC	BOTTOM OF CURB
BOS	BOTTOM OF SLOPE
CC	CONCRETE CURB
CEM	CEMENT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
DIA	DIAMETER
ELEV	ELEVATION
EXIST	EXISTING
FND	FOUNDATION
GC	GRANITE CURB
HBP	HOT BITUMINOUS PAVEMENT
HDWL	HEADWALL
HMA	HOT MIX ASPHALT
LA	LANDSCAPE AREA
LF	LINEAR FEET
MAX	MAXIMUM
MCC	MONOLITHIC CONCRETE CURB
MB	MAIL BOX
MIN	MINIMUM
NTS	NOT TO SCALE
PCC	PRECAST CONCRETE CURB
PROP	PROPOSED
PERM	PERMANENT
PVMT	PAVEMENT
R	RADIUS
REL	RELOCATE
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RR	RAILROAD
SGC	SLOPE GRANITE CURB
SW	SIDEWALK
TEMP	TEMPORARY
TOC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP
WQU	WATER QUALITY UNIT
ACCMP	ASPHALT COATED CORRUGATED METAL PIPE
BC	BOTTOM OF CHANNEL
CB	CATCH BASIN
CAP	CORRUGATED ALUMINUM PIPE
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CLDI	CEMENT LINED DUCTILE IRON
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED PLASTIC PIPE
COND	CONDUIT
DCB	DOUBLE CATCH BASIN
DIP	DUCTILE IRON PIPE
DMH	DRAINAGE MANHOLE
ETC	ELECTRIC, TELEPHONE, & CABLE
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
GV	GAS VALVE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HYD	HYDRANT
INV	INVERT ELEVATION
PVC	POLYVINYL CHLORIDE PIPE
PWW	PAVED WATER WAY
RCP	REINFORCED CONCRETE PIPE (CLASS III)
SMH	SEWER MANHOLE
TSV	TAPPING SLEEVE AND VALVE
UP	UTILITY POLE
VCP	VITRIFIED CLAY PIPE
WV	WATER VALVE

ALIGNMENT/GRADING

CC	CENTER OF CURVE
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PI	POINT OF INTERSECTION
PNT	POINT
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENT

WETLAND IMPACTS SUMMARY

BANFIELD ROAD WETLAND IMPACT SUMMARY								
IMPACT AREA ID	PRIME WETLANDS		NON-PRIME WETLANDS		PRIME WETLAND UPLAND BUFFER		NON-PRIME WETLAND UPLAND BUFFER	
	TEMP	PERM	TEMP	PERM	TEMP	PERM	TEMP	PERM
A			176					
B				53				
C				971				
D			846					
E		7055						
F	3094							
G	594							
H		206						
I				1554				
J			537					
K				362				
L	790							
M		753						
N			782					
O				143				
P				75				
Q					28212			
R					5153			
S					2019			
T					753			
U						700		
V						2323		
W						1572		
X						262		
Y					4769			
Z						3515		
AA						205		
BB						667		
CC					3447			
DD					6367			
EE						508		
FF						459		
GG					600			
HH							30	
II							79	
JJ							20	
KK							25	
LL							140	
MM							351	
NN							186	
OO							616	
TOTALS	4478	8014	2341	3158	51320	10211	1071	376
TOTAL WETLAND IMPACTS =		17991	TOTAL PRIME BUFFER IMPACTS =		61531	TOTAL NON PRIME BUFFER IMPACTS =		1447



TEC, Inc.

65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR

City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

ISSUED FOR

Permitting

PROJECT TITLE

Roadway Improvements
& Culvert Construction

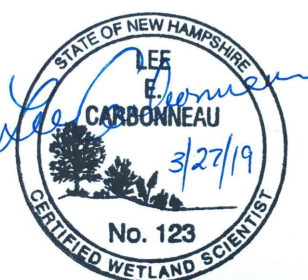
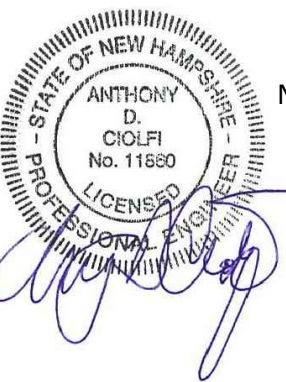
PROJECT LOCATION

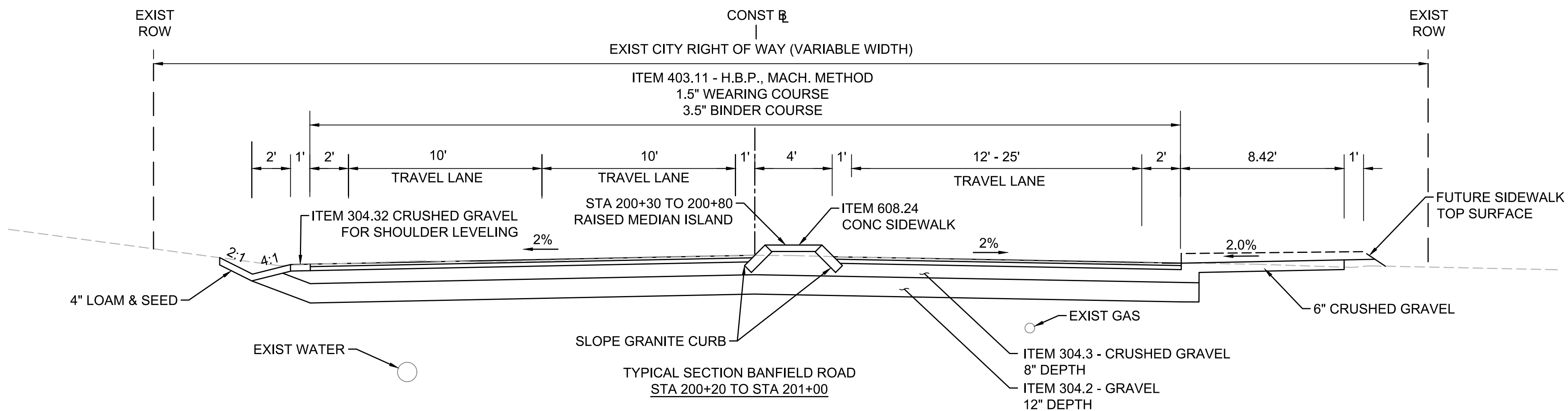
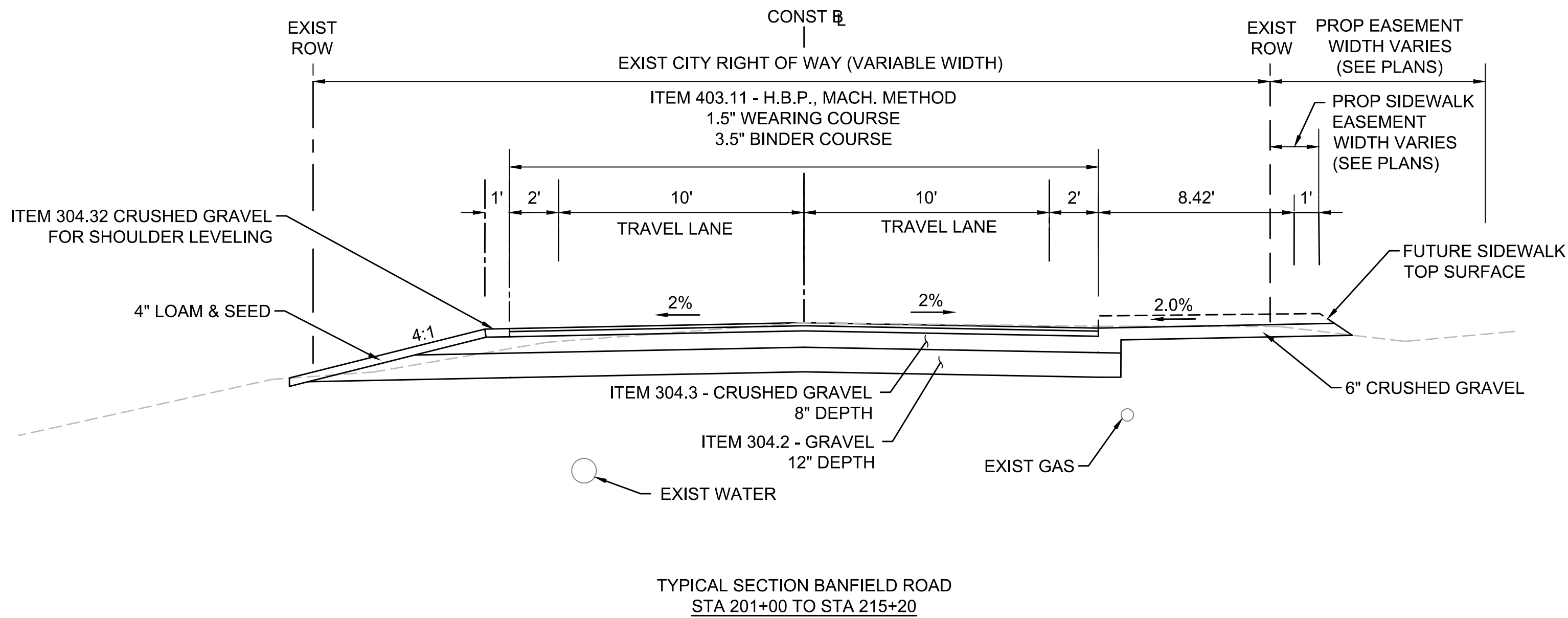
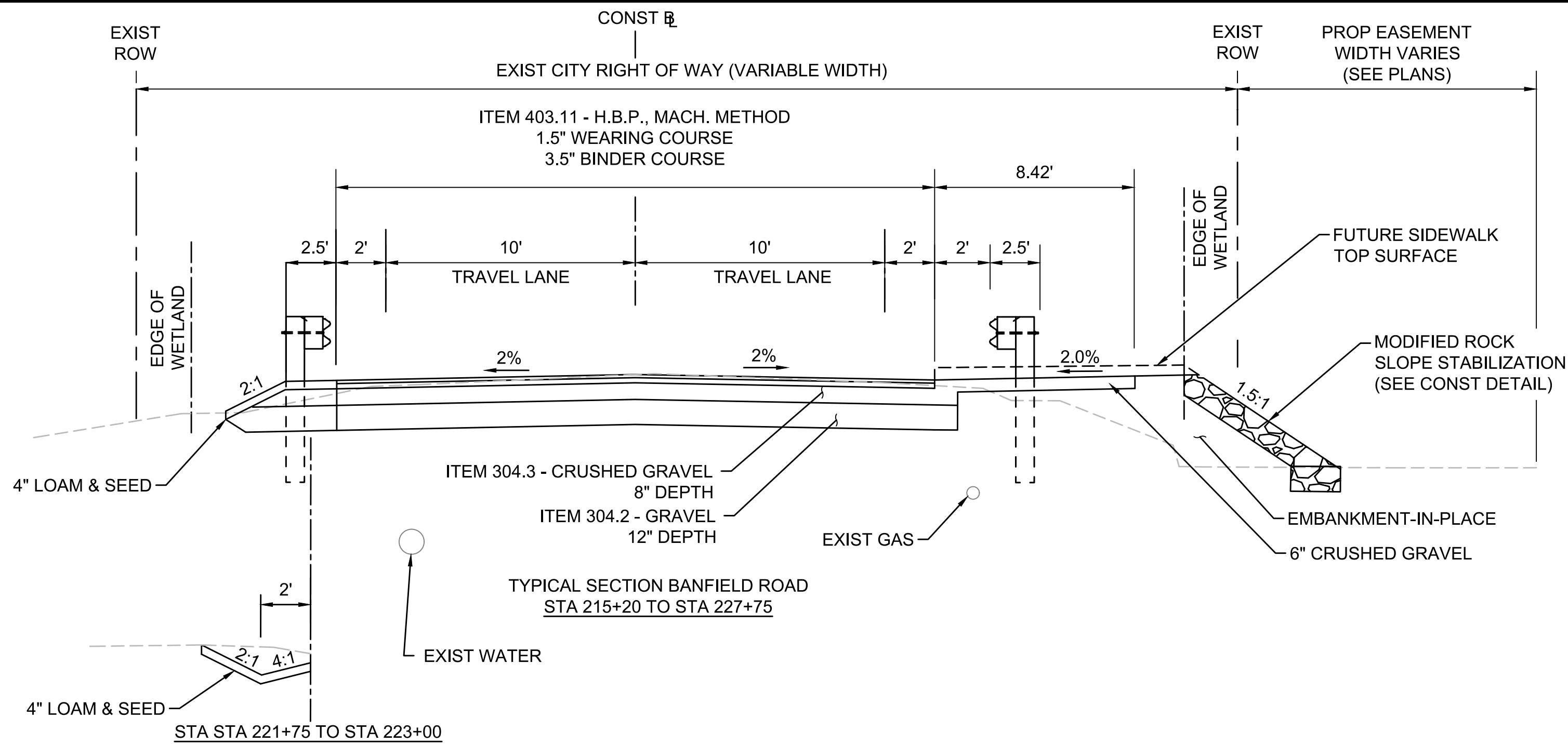
Banfield Road
Portsmouth, NH

DRAWING TITLE

General Notes, Legend
& Abbreviations

PROJECT NO.	N0620
TEC CAD FILE	N0620_(Permit_Legend).dwg
DRAWING NO.	2
SHEET	2 OF 16





PAVEMENT NOTES

PROPOSED COLD PLANE (MILL) & HBP OVERLAY

SURFACE: 1½" HOT BITUMINOUS PAVEMENT (NHDOT ITEM 403.11) OVER 1½" COLD PLANING OF BITUMINOUS SURFACES

PROPOSED FULL DEPTH PAVEMENT

SURFACE: 1½" HBP (MACHINE METHOD) WEARING COURSE, (3/8" 75 GYRATION) (ITEM 403.11) OVER 3½" HBP (MACHINE METHOD) BINDER COURSE, (3/4" GYRATION) IN 2 LIFTS (ITEM 403.11)

BASE: 8" CRUSHED GRAVEL, COMPACTED (ITEM 304.3) OVER

SUBBASE: 12" GRAVEL, COMPACTED (ITEM 304.2)

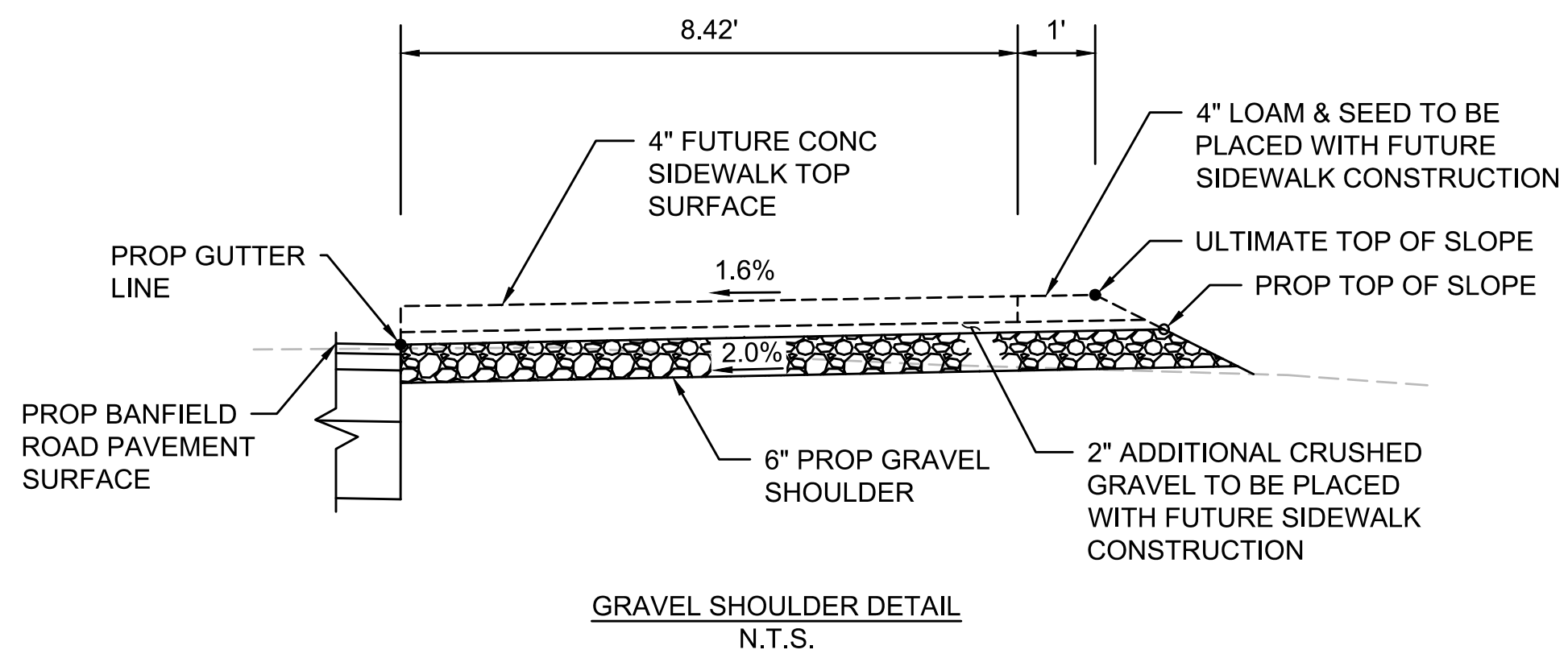
PROPOSED HBP DRIVEWAY (TO MATCH EXIST)

SURFACE: 1½" HBP (HAND METHOD) WEARING COURSE, (3/8" 75 GYRATION) (ITEM 403.12) OVER 1½" HBP (HAND METHOD) BINDER COURSE (3/4" 50 GYRATION) (ITEM 403.12) OVER

BASE: 8" CRUSHED GRAVEL, COMPACTED (ITEM 304.3)

GENERAL PAVEMENT NOTES:

1. ASPHALT EMULSION FOR TACK COAT (ITEM 410.22) SHALL BE APPLIED BETWEEN ALL ASPHALT SURFACES AND SAWCUT JOINTS BEFORE PAVING TO BOND PAVEMENT LAYERS. PAVEMENT JOINT ADHESIVE (ITEM 403.6) SHALL BE APPLIED TO ALL COLD JOINTS (LONGITUDINAL AND TRANSVERSE) BEFORE PAVING SURFACE COURSE. ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED AT A RATE OF 0.05 GAL/SY, EXCEPT OVER MILLED AND CEMENT CONCRETE SURFACES, WHERE THE APPLICATION RATE SHALL BE 0.07 GAL/SY. ALL SURFACES SHALL BE CLEAN OF ALL ORGANICS, DEBRIS, AND SAND PRIOR TO PAVING.



TEC, Inc.

65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR

City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

ISSUED FOR

Permitting

PROJECT TITLE

Roadway Improvements
& Culvert Construction

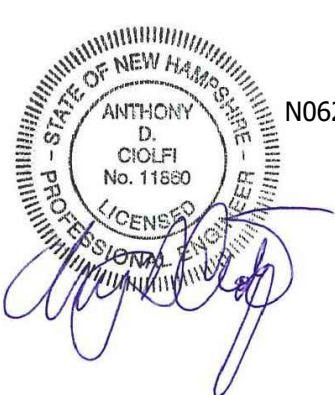
PROJECT LOCATION

Banfield Road
Portsmouth, NH

DRAWING TITLE

Typical Sections

PROJECT NO.	N0620
TEC CAD FILE	N0620_(Permit_TypSect).dwg
DRAWING NO.	3
SHEET	3 OF 16





TEC, Inc.

65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

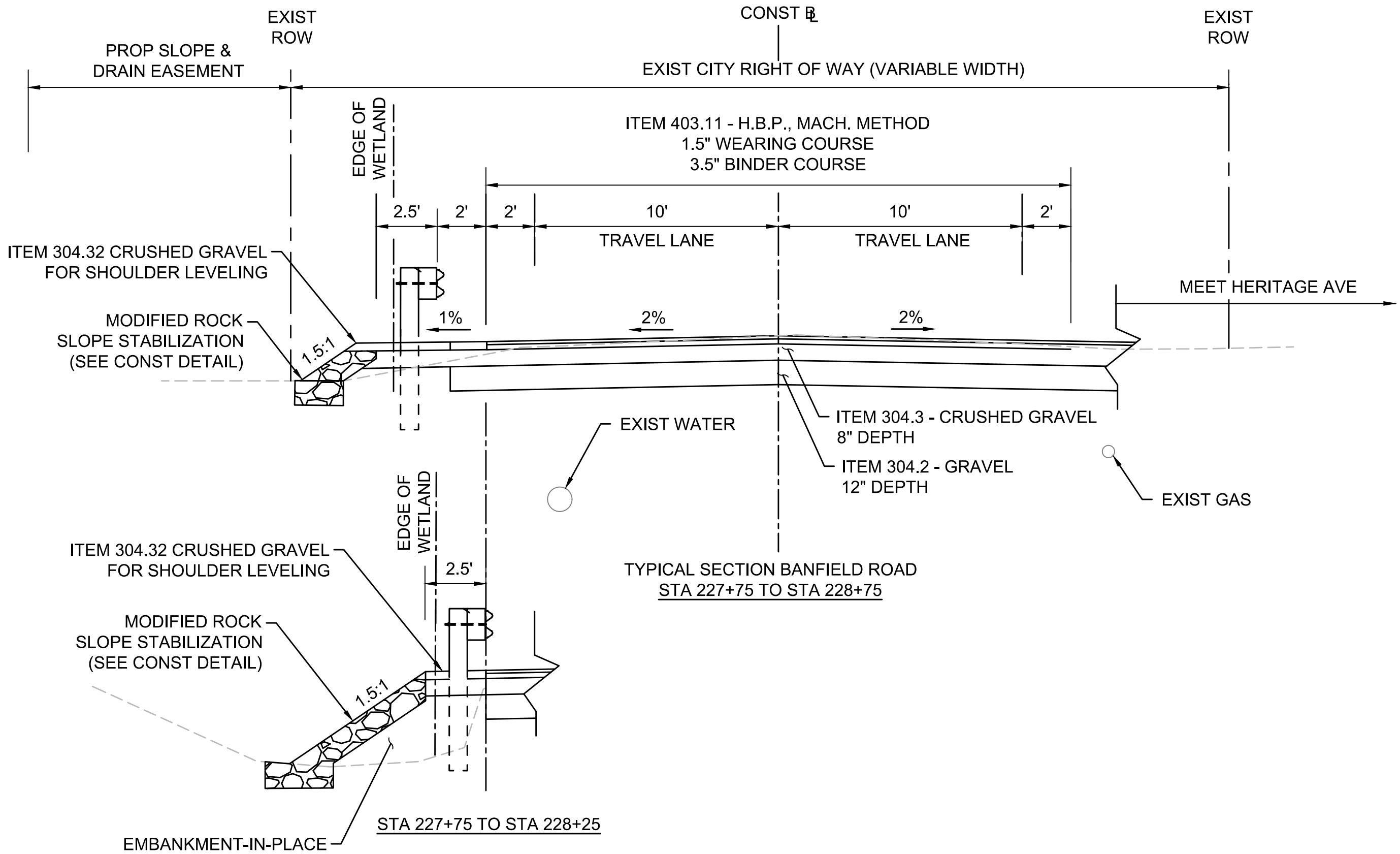
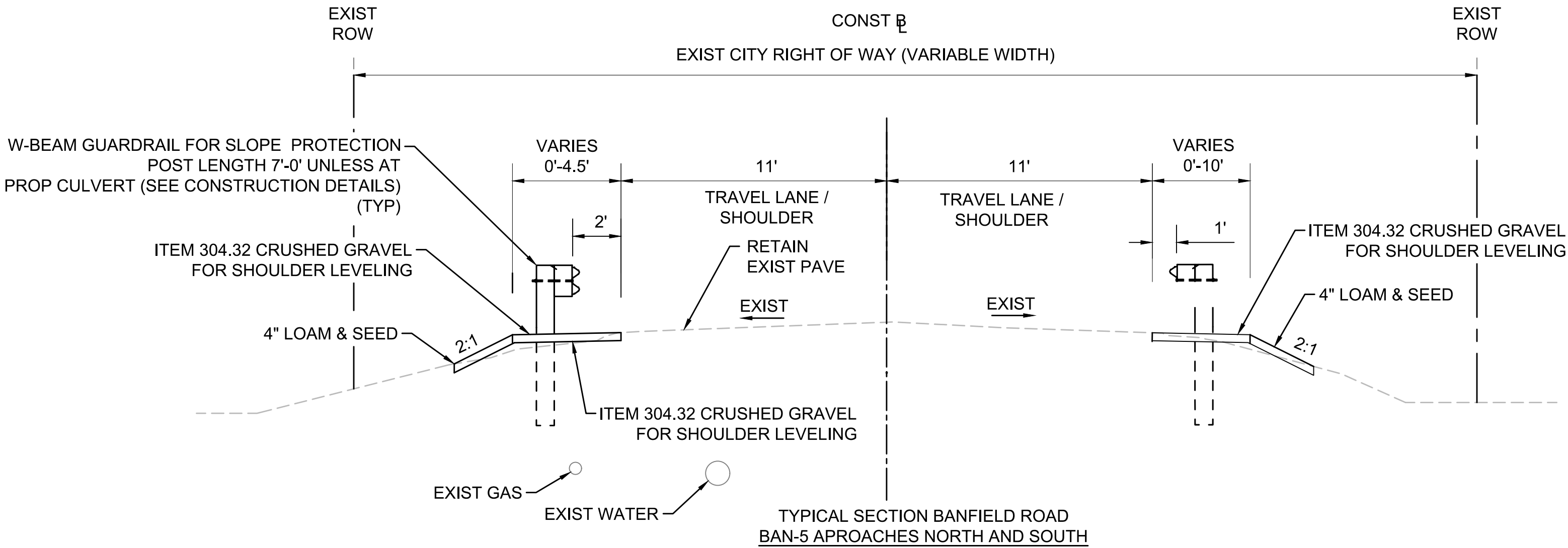
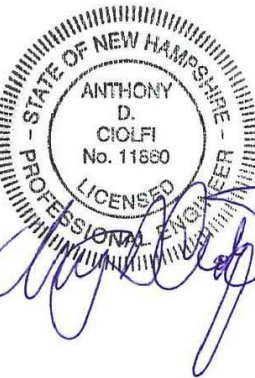
ISSUED FOR
Permitting

PROJECT TITLE
Roadway Improvements
& Culvert Construction

PROJECT LOCATION
Banfield Road
Portsmouth, NH

DRAWING TITLE
Typical Sections

PROJECT NO.	N0620
TEC CAD FILE	N0620_(Permit_TypSect).dwg
DRAWING NO.	4
SHEET	4 OF 16



MAP 283 LOT 38
N/F
SHIRLEY E. MACDONALD REVOCABLE TRUST
SHIRLEY E. MACDONALD, TRUSTEE
RCRD. BOOK 5380 PAGE 2195

24" X 21.5" CB
RIM: 46.4'
42.7' (I) 8" CMP
42.9' (I) 8" CMP
44.9' (I) 6" CMP

5/8"Ø IRON ROD
FOUND FLUSH
W/ CAP #738

TBM#5

SPIKE SET IN U.P. 2
NAVD88 ELEV.=47.86'

MAP 283 LOT 19
N/F
CITY OF PORTSMOUTH
RCRD. BOOK 5907 PAGE 1795

TEMP PRIME WETLAND -
BUFFER IMPACT - S

PERM PRIME WETLAND -
BUFFER IMPACT - Z

MP PRIME WETLAND -
BUFFER IMPACT - Q



65 Glenn Street | 169 Ocean Boulevard
Lawrence, MA 01843 | Unit 101, PO Box 249
(978) 794-1792 | Hampton, NH 03842
www.TheEngineeringCorp.com

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

Permitting

Roadway Improvements & Culvert Construction

Banfield Road
Portsmouth, NH

General Plan & Profile

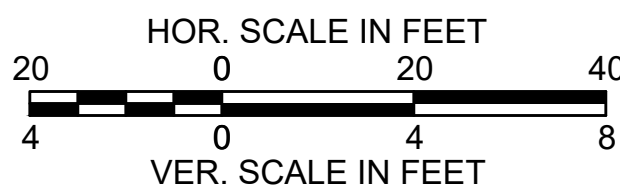
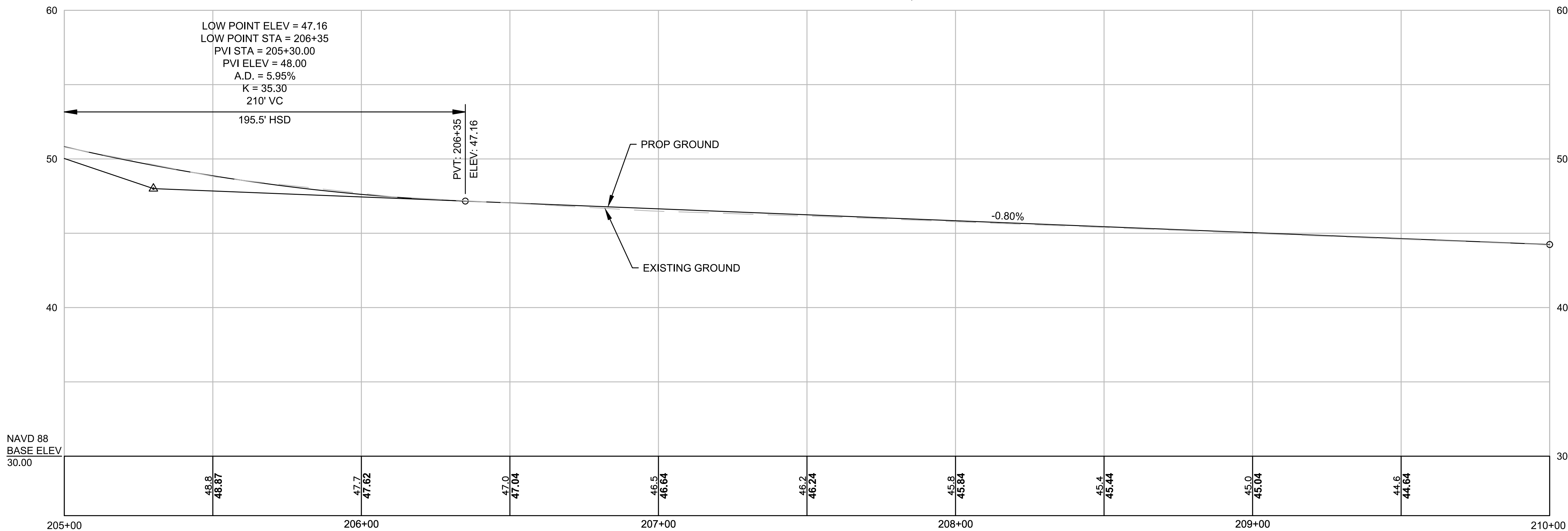
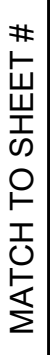
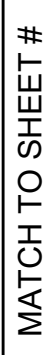
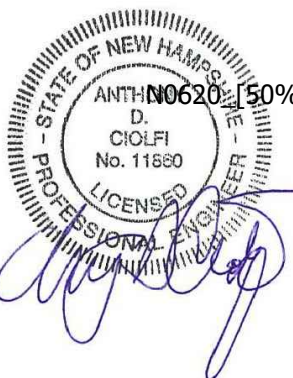
PROJECT NO. N0620

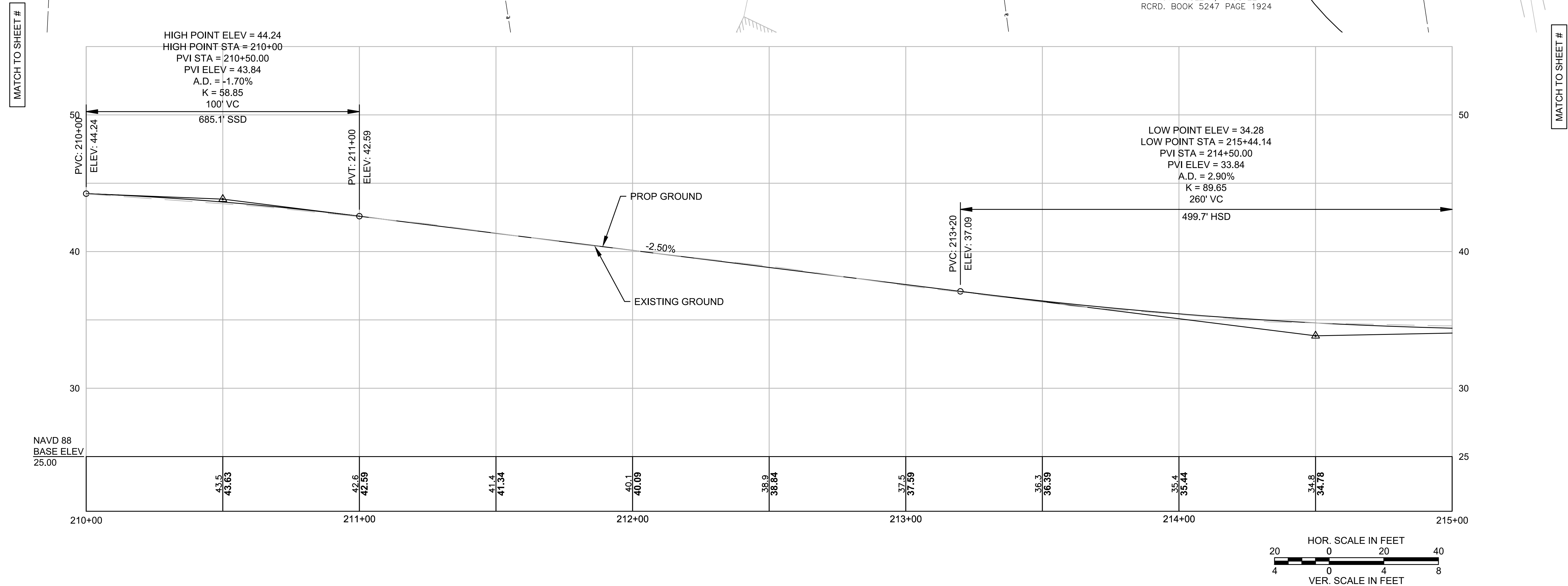
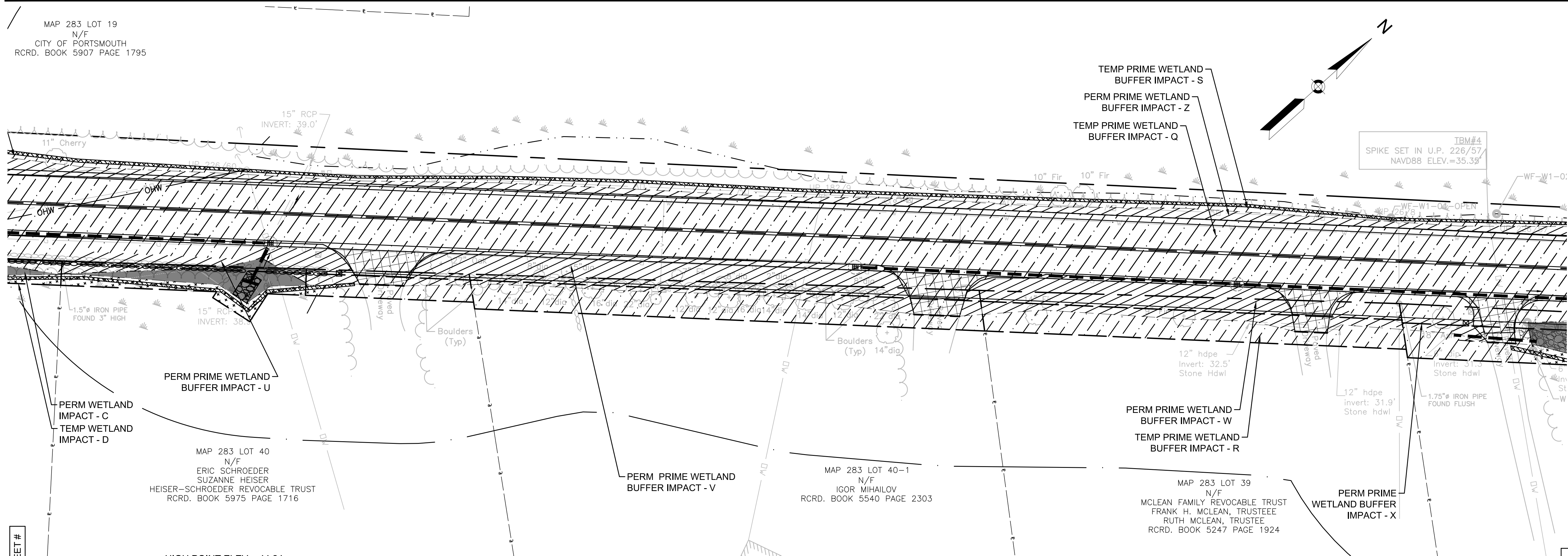
TEC CAD FILE
Permit_PlanProf).dwg

DRAWING NO.

6

SHEET 6 OF 16





TEC, Inc.

65 Glenn Street | 169 Ocean Boulevard
Lawrence, MA 01843 | Unit 101, PO Box 249
(978) 794-1792 | Hampton, NH 03842
www.TheEngineeringCorp.com

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

ISSUED FOR

Permitting

PROJECT TITLE

Roadway Improvements & Culvert Construction

PROJECT LOCATION

Banfield Road
Portsmouth, NH

General Plan & Profile

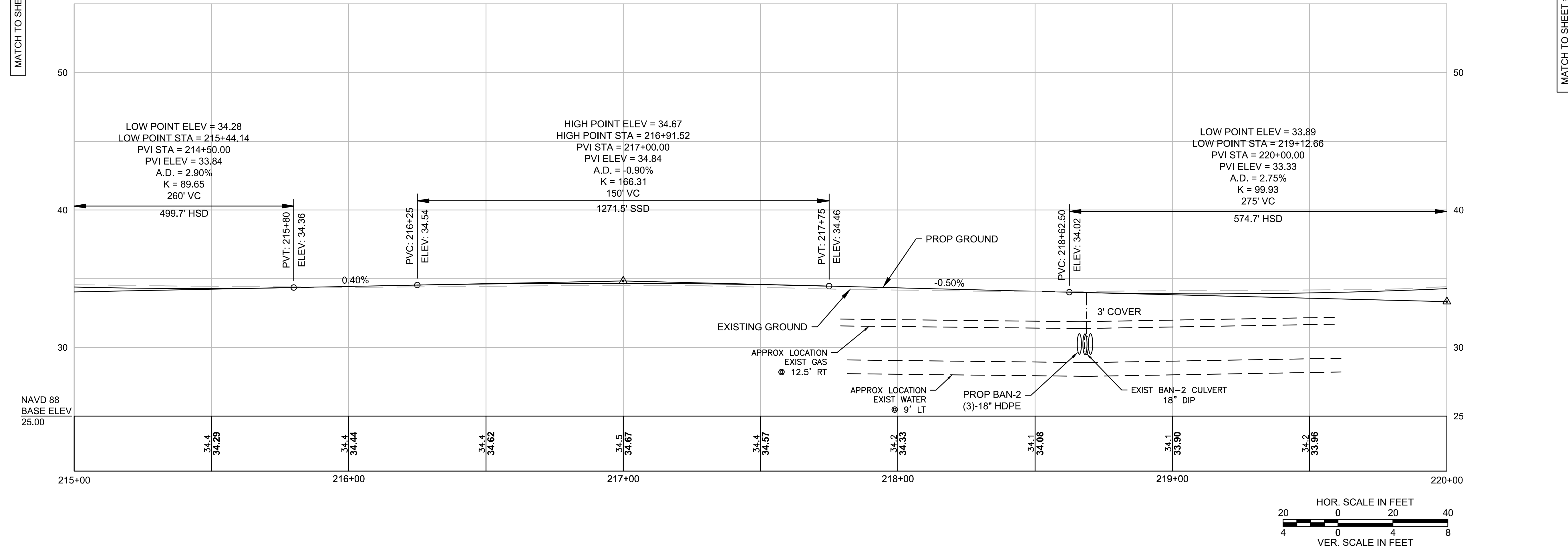
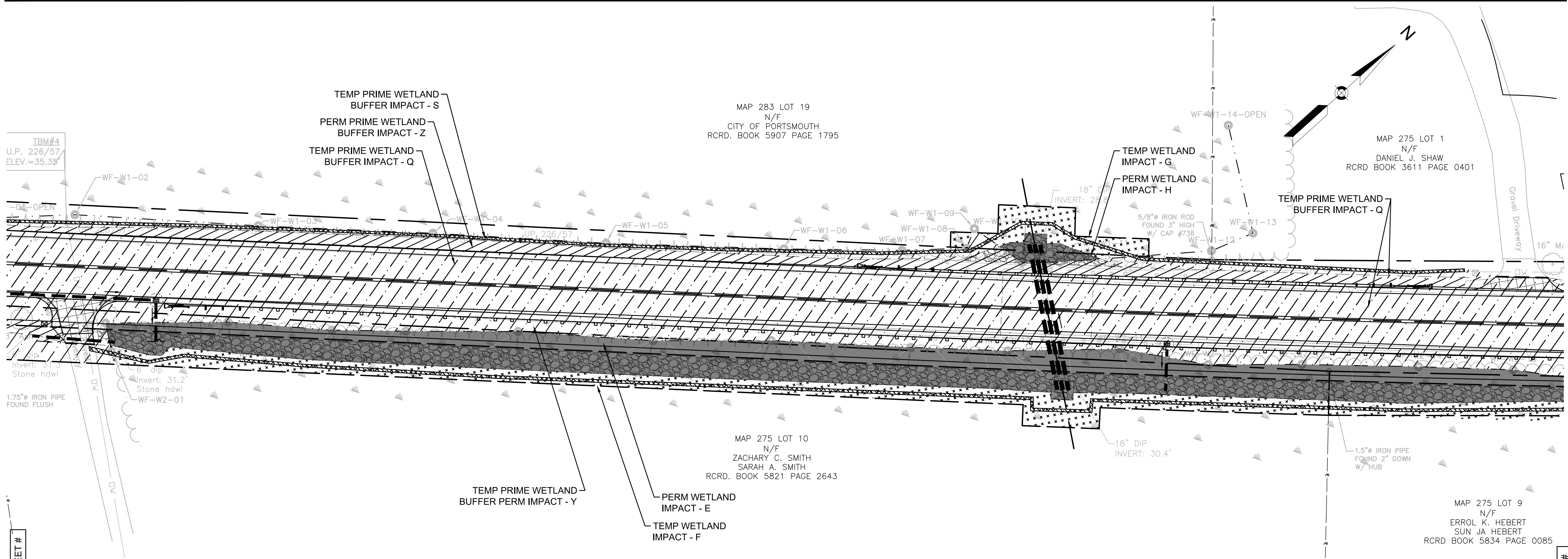
PROJECT NO.
N0620

TEC CAD FILE
[Permit_PlanProf].dwg

DRAWING NO.
7

SHEET 7 OF 17





TEC, Inc.
65 Glenn Street | 169 Ocean Boulevard
Lawrence, MA 01843 | Unit 101, PO Box 249
(978) 794-1792 | Hampton, NH 03842
www.TheEngineeringCorp.com

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

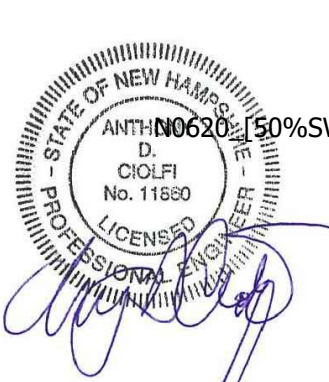
REVISIONS

ISSUED FOR
Permitting

PROJECT TITLE
Roadway Improvements
& Culvert Construction

PROJECT LOCATION
Banfield Road
Portsmouth, NH

DRAWING TITLE
General Plan & Profile

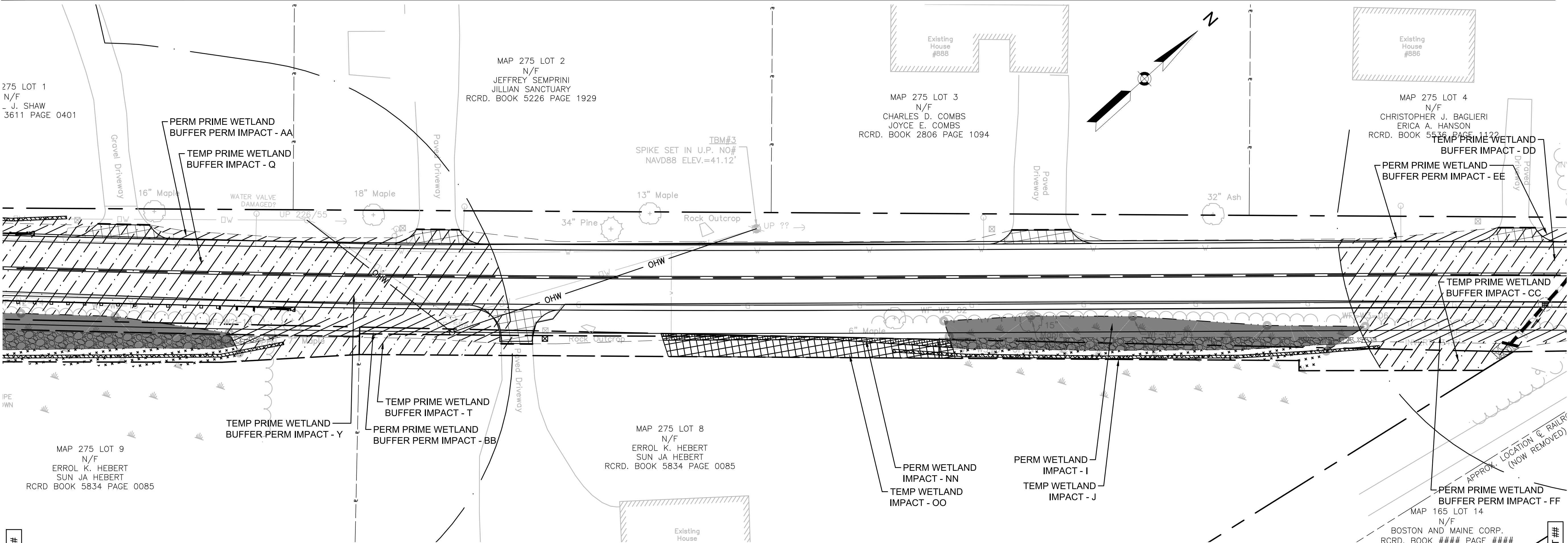


PROJECT NO.
N0620

TEC CAD FILE
N0620150%SW1_(Permit_PlanProf).dwg

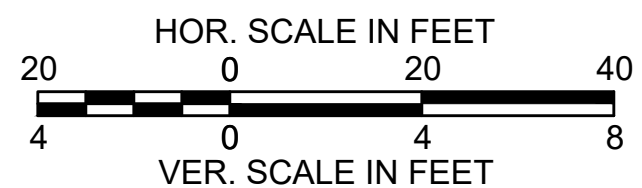
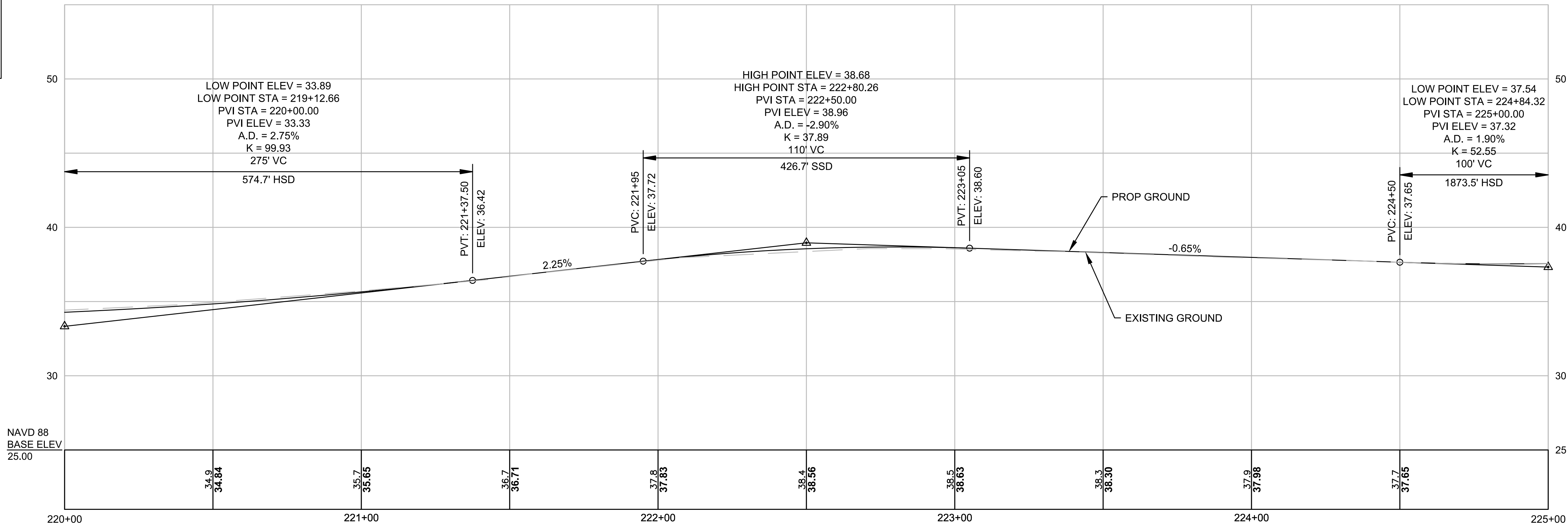
DRAWING NO.
8

SHEET 8 OF 16



MATCH TO SHEET #

MATCH TO SHEET #



TEC, Inc.

65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY ADC
DRAWN BY DGR
CHECKED BY RJF
DATE 3/27/19
SCALE 1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

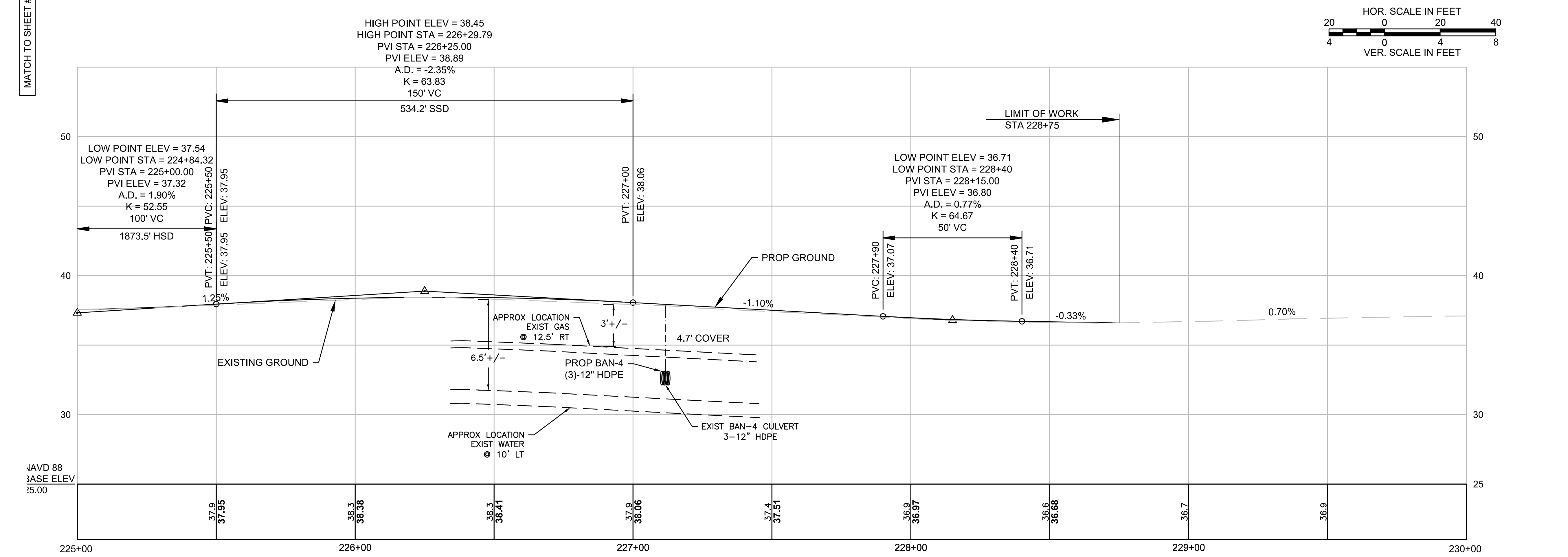
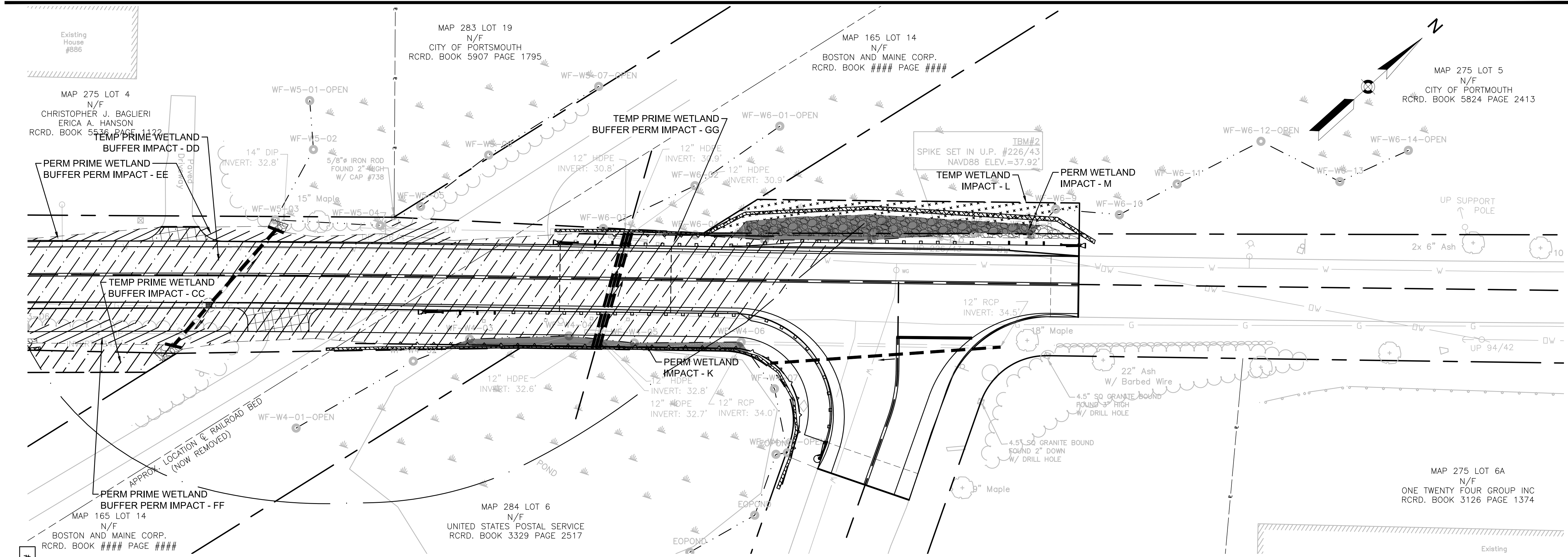
ISSUED FOR
Permitting

PROJECT TITLE
Roadway Improvements
& Culvert Construction

PROJECT LOCATION
Banfield Road
Portsmouth, NH

DRAWING TITLE
General Plan & Profile

PROJECT NO. N0620
TEC CAD FILE
D. CIOFI
No. 11650
LICENSED PROFESSIONAL ENGINEER
DRAWING NO. 9
SHEET 9 OF 16



TEC, Inc.
65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

ISSUED FOR
Permitting

PROJECT TITLE
Roadway Improvements
& Culvert Construction

PROJECT LOCATION
Banfield Road
Portsmouth, NH

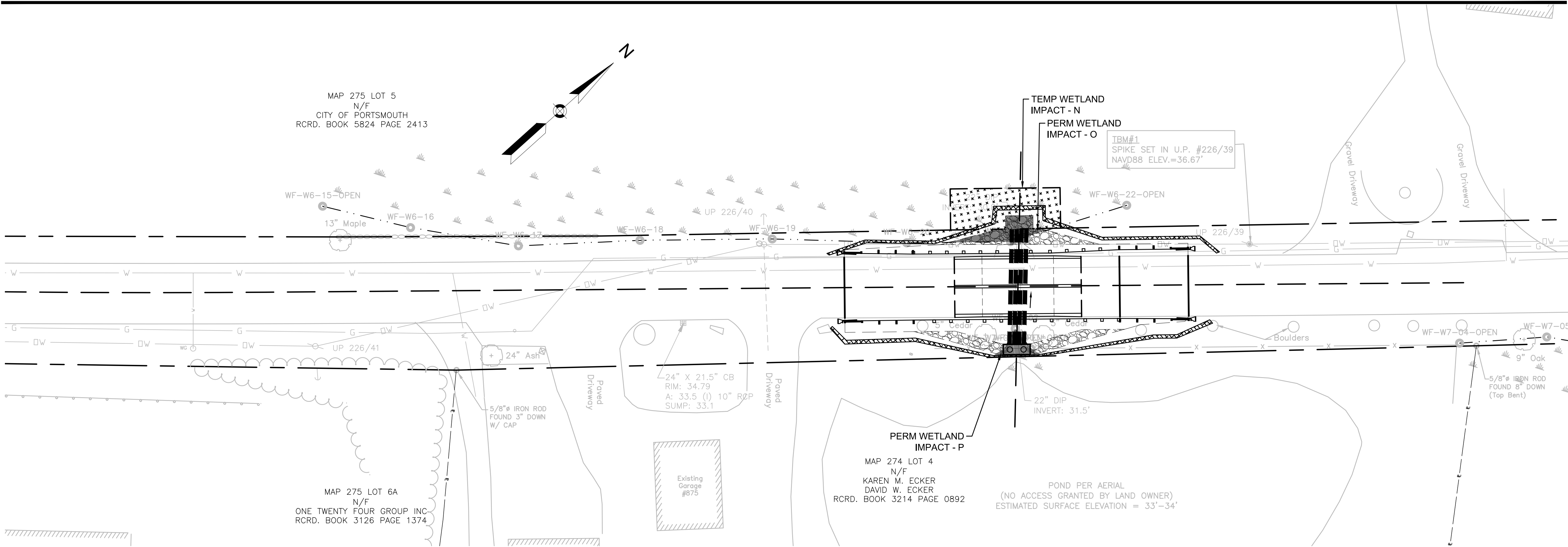
DRAWING TITLE
General Plan & Profile

PROJECT NO.
N0620

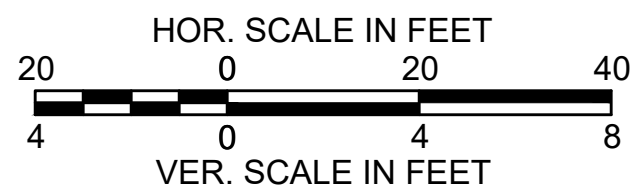
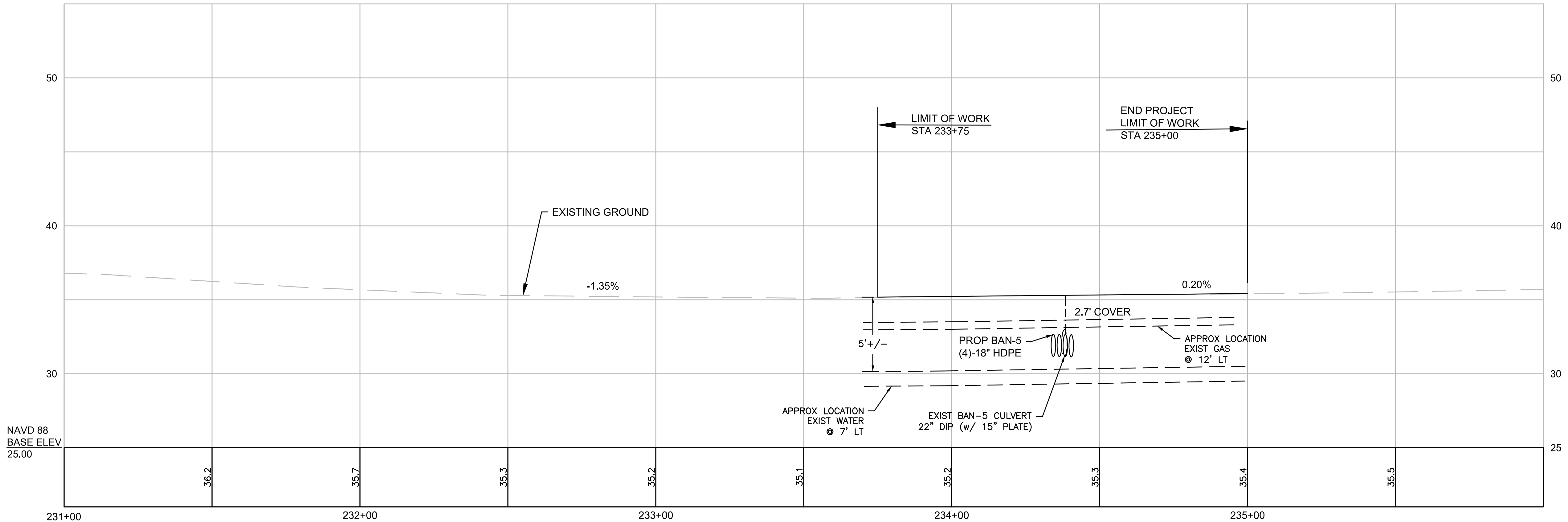
TEC CAD FILE
N0620_150%SW1_(Permit_PlanProf).dwg

DRAWING NO.
10

SHEET 10 OF 16



MATCH TO SHEET #



TEC, Inc.
65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY ADC
DRAWN BY DGR
CHECKED BY RJF
DATE 3/27/19
SCALE 1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

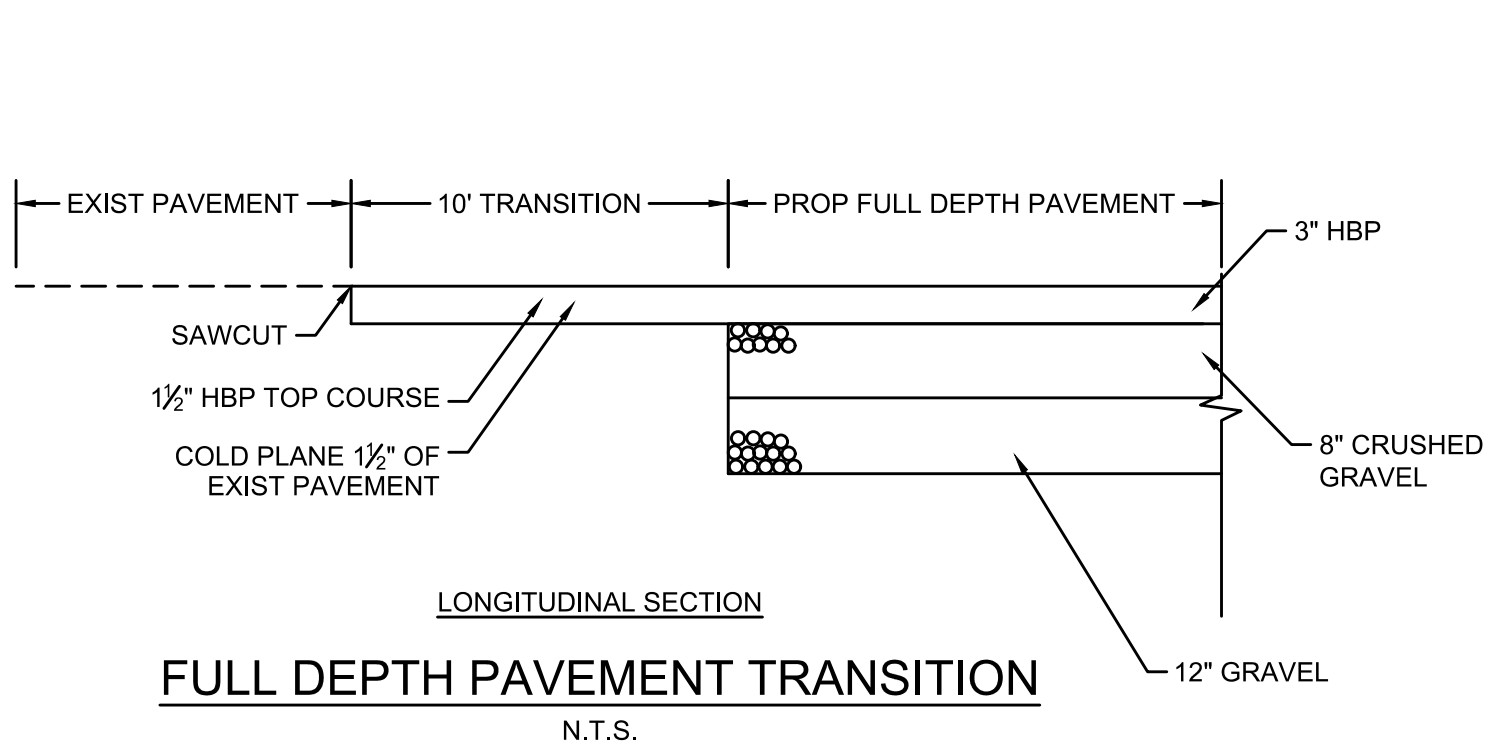
ISSUED FOR
Permitting

PROJECT TITLE
Roadway Improvements
& Culvert Construction

PROJECT LOCATION
Banfield Road
Portsmouth, NH

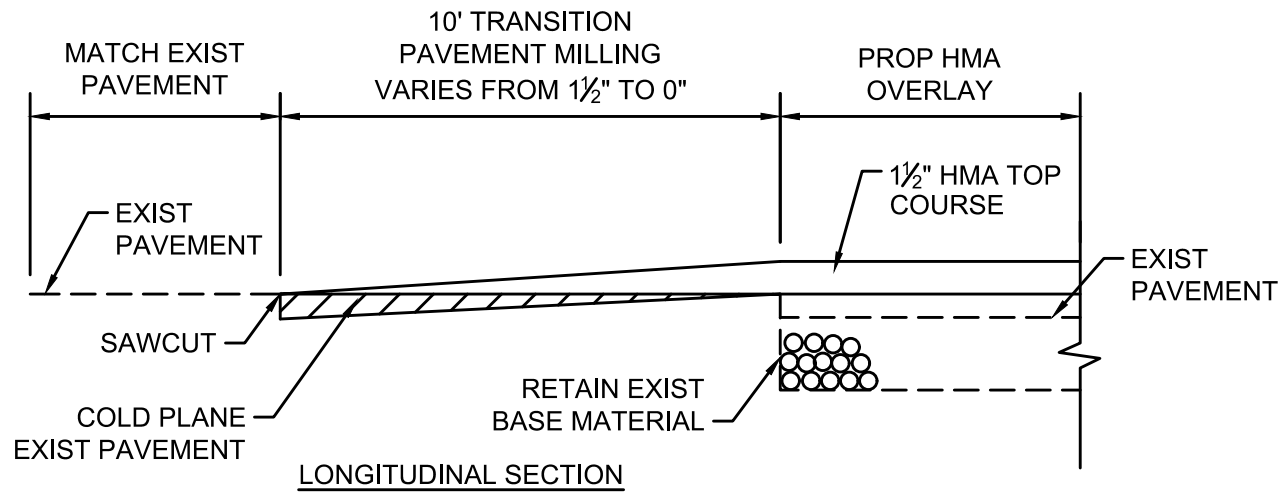
DRAWING TITLE
General Plan & Profile

PROJECT NO. N0620
TEC CAD FILE
D. CIOFFI
No. 11680
LICENSED PROFESSIONAL ENGINEER
WITH STATE OF NEW HAMPSHIRE
DRAWING NO. 11
SHEET 11 OF 16



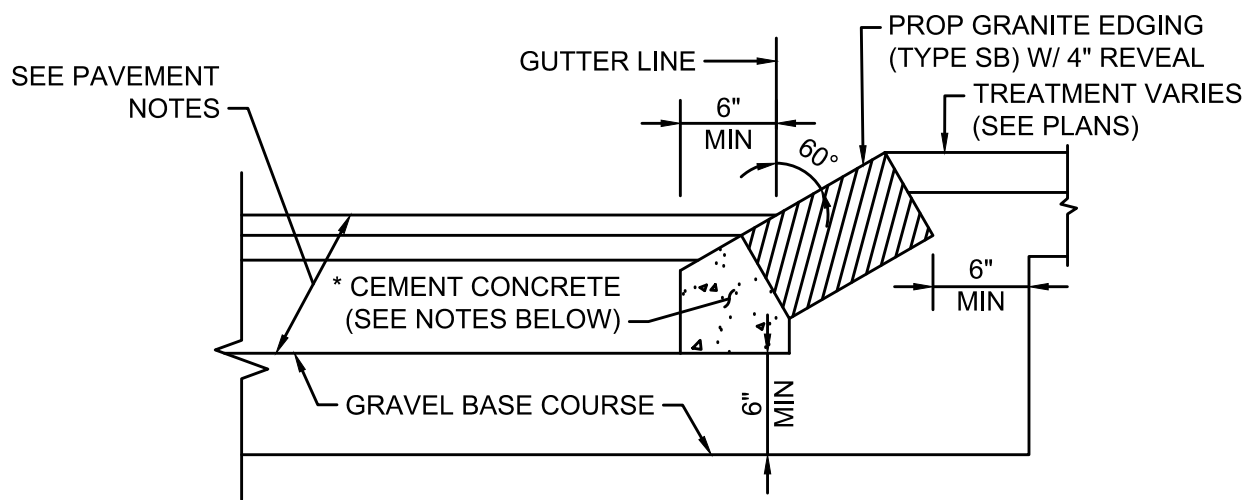
FULL DEPTH PAVEMENT TRANSITION

N.T.S.



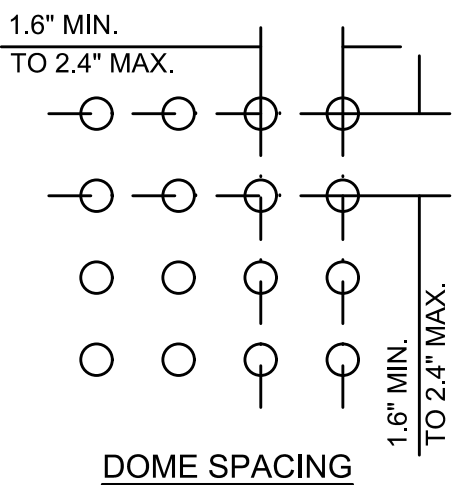
PAVEMENT OVERLAY TRANSITION

N.T.S.

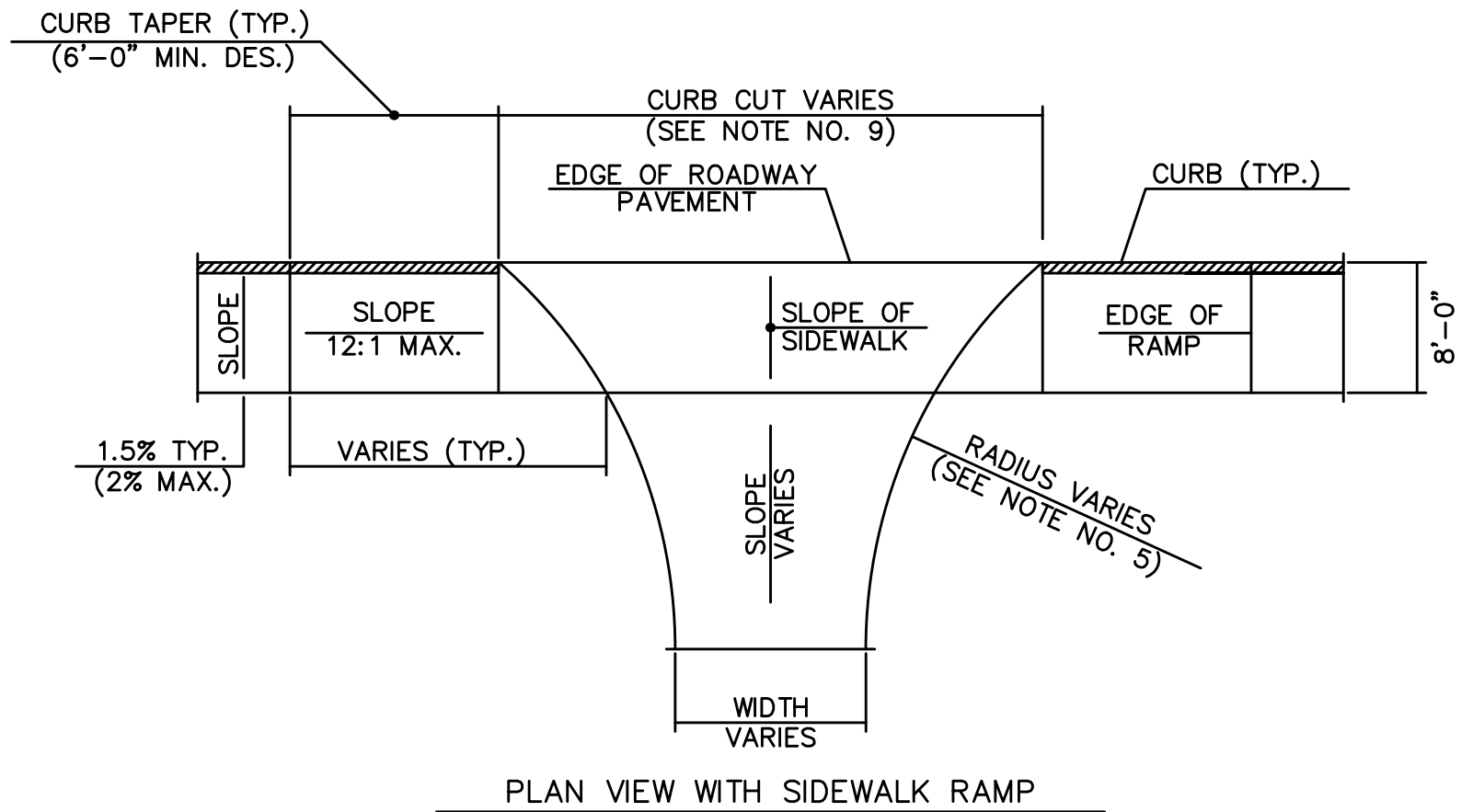


SLOPED GRANITE CURB
IN FULL DEPTH PAVEMENT

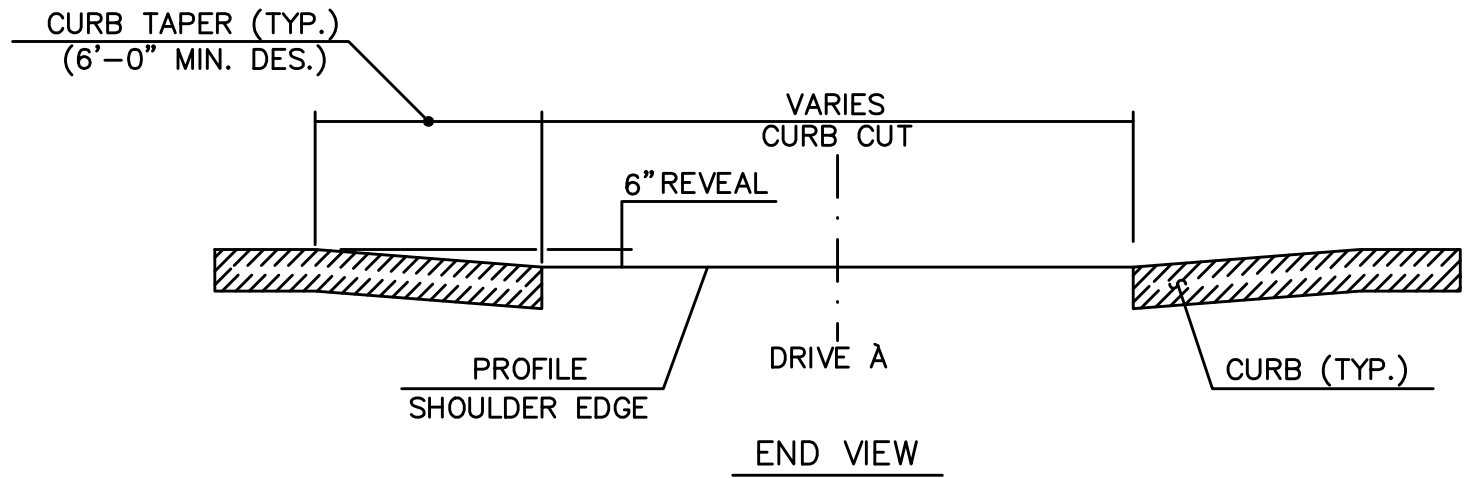
CONCRETE SHALL BE INCLUDED IN PRICE BID FOR VARIOUS GRANITE EDGING ITEMS FOR 6" OFFSET FROM FACE OF CURB.



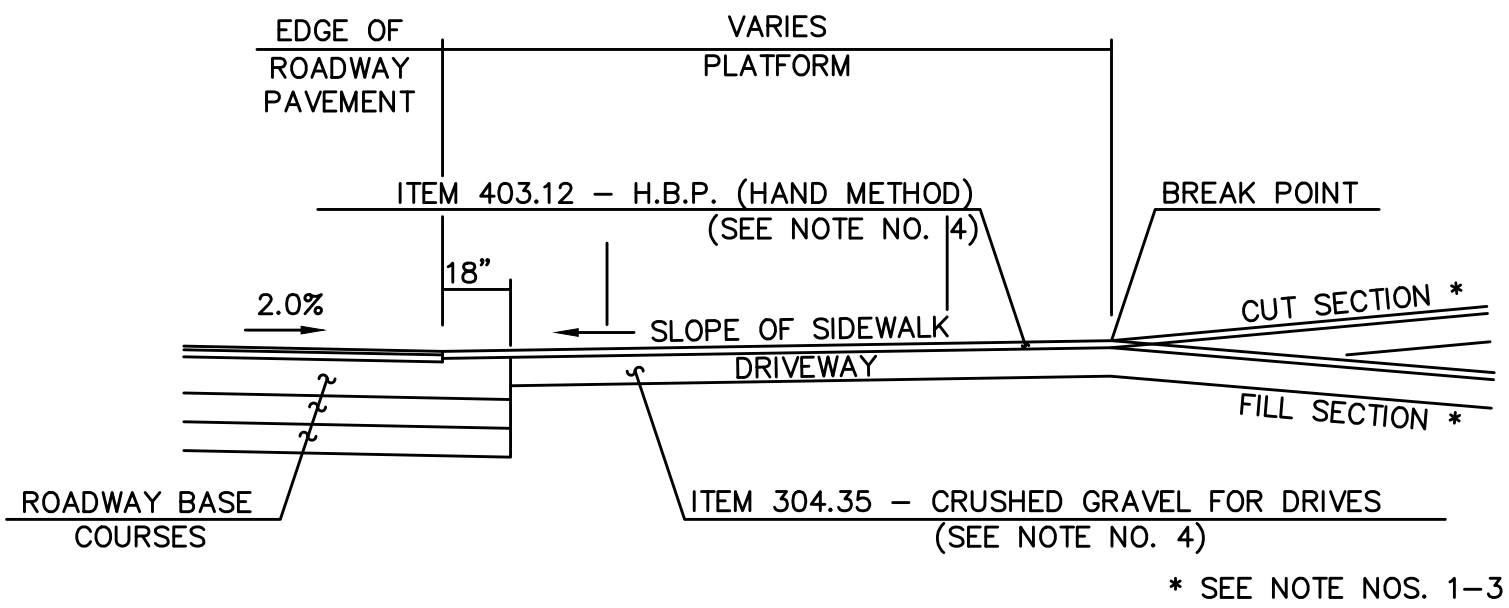
DETECTABLE WARNING PANEL



PLAN VIEW WITH SIDEWALK RAMP



END VIEW



TYPICAL CURBED DRIVE IN CUT/FILL SECTION

WHEELCHAIR RAMP NOTES:

1. THE MAXIMUM RUNNING SLOPE OF ANY SIDEWALK CURB RAMP IS 12:1. THE MAXIMUM CROSS SLOPE IS 2%. THE SLOPE OF THE LANDING SHALL NOT EXCEED 2% IN ANY DIRECTION.

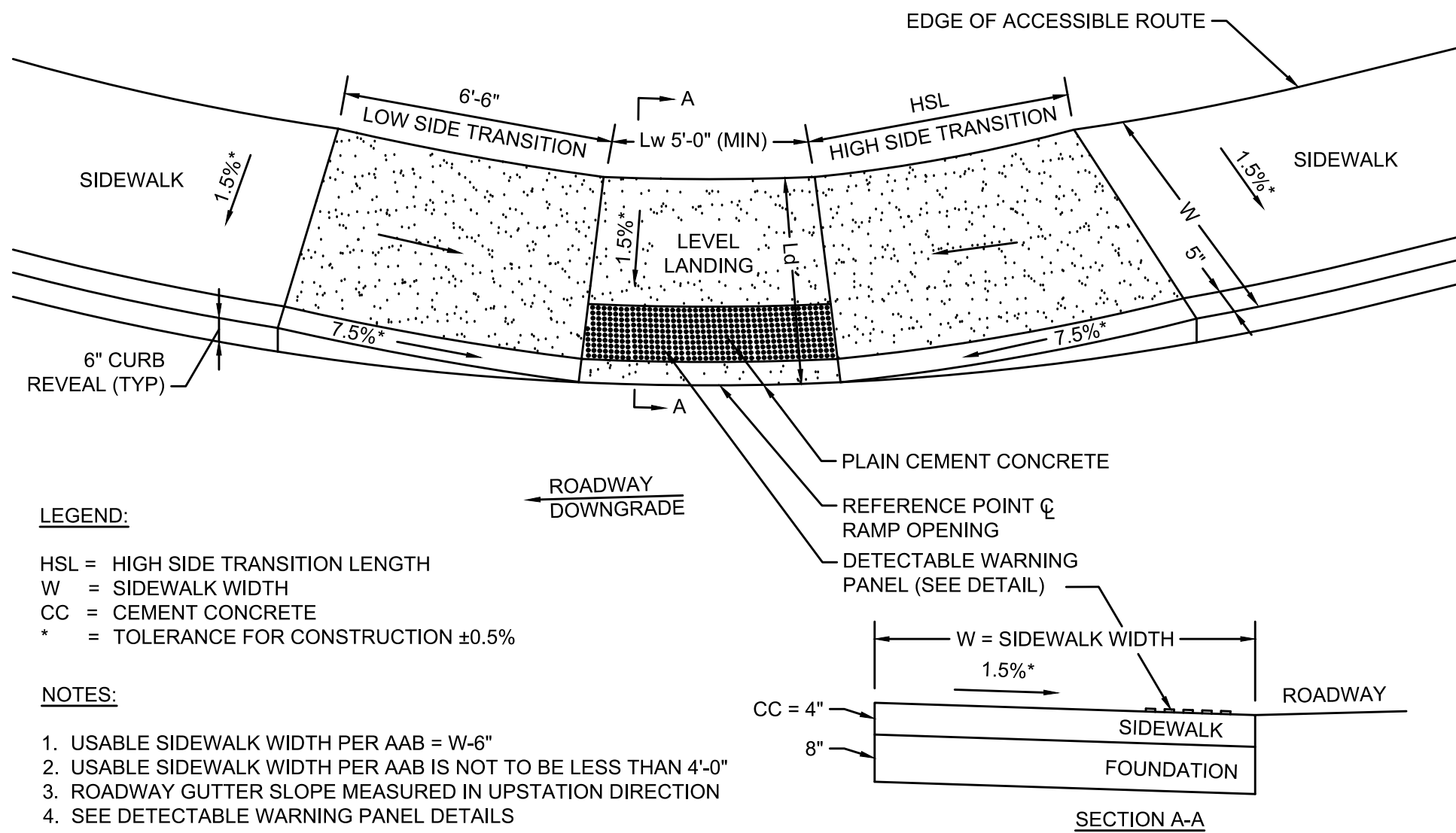
RAMP RUNNING SLOPE EXCEPTION: A GREATER THAN 8.33% RAMP RUNNING GRADE IS ALLOWED WHERE THE THE ROADWAY AND THE SIDEWALK(S) ARE PARALLEL AND VERY CLOSE TOGETHER, WITH THE SAME GRADE, AND USING A GRADE OF 8.33% WOULD RESULT IN A RAMP LENGTH LONGER THAN 15'. IN THOSE CIRCUMSTANCES USE A MAXIMUM RAMP LENGTH OF 15' AND THE ALLOWABLE RUNNING SLOPE OF THE RAMP(S) IS GREATER THAN 8.33%.
2. TRANSITIONS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. ROADWAY SHOULDER SLOPES ADJOINING SIDEWALK CURB RAMPS SHALL BE A MAXIMUM OF 5% (FULL WIDTH) FOR A DISTANCE OF 2 FT. FROM THE ROADWAY CURBLINE.
3. INTERCEPT DRAINAGE ALONG THE CURB IN ADVANCE OF SIDEWALK CURB RAMPS OR LANDINGS. CATCH BASINS, MANHOLES, ETC. SHALL NOT BE LOCATED IN, OR AT THE BASE OF, SIDEWALK CURB RAMPS OR LANDINGS.
4. THE BOTTOM OF THE SIDEWALK CURB RAMP OR LANDING, EXCLUSIVE OF THE FLARED SIDES, SHALL BE WHOLLY CONTAINED WITHIN THE CROSSWALK MARKINGS.
5. THE SURFACE OF A PERPENDICULAR SIDEWALK CURB RAMP OR THE LANDING OF A PARALLEL SIDEWALK CURB RAMP SHALL CONTRAST VISUALLY WITH THE ADJOINING SIDEWALK SURFACE, EITHER ASPHALT/LIGHT-COLORED CONCRETE OR LIGHT-COLORED CONCRETE/DARK-STAINED CONCRETE. THE CONCRETE SURFACE SHALL BE SLIP RESISTANT.
6. DETECTABLE WARNING PANELS SHALL BE THE FULL WIDTH OF THE LANDING, BLENDED TRANSITION, OR CURB RAMP THEY ARE A PART OF AND SHALL BE A MINIMUM OF 2 FEET IN DEPTH. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP, BLENDED TRANSITION, OR LANDING AND THE STREET.

WHEELCHAIR RAMP NOTES

N.T.S.

DRIVEWAY NOTES:

1. GRADES OF MAJOR ENTRANCES BEYOND THE PLATFORM SHOULD NOT EXCEED 8%.
2. GRADES OF OTHER DRIVES BEYOND THE PLATFORM SHOULD NOT EXCEED 15%.
3. THE ALGEBRAIC DIFFERENCE BETWEEN TWO ADJACENT GRADES SHOULD NOT EXCEED 10%.
4. PAVEMENT AND BASE COURSE DEPTHS ARE:
A. TYPICALLY 8" CRUSHED GRAVEL WITH 3" HBP (HAND METHOD, PLACED IN 2 COURSES) FOR RESIDENTIAL DRIVES ADJACENT TO ROADWAYS WITH CONVENTIONAL CRUSHED GRAVEL, GRAVEL, AND SAND STRUCTURAL BOX. IF THE DRIVE IS ADJACENT TO A ROADWAY WITH A CRUSHED STONE STRUCTURAL BOX, 6" OF CRUSHED STONE FINE GRADATION MAY BE SUBSTITUTED FOR THE 8" OF CRUSHED GRAVEL NOTED ABOVE.
B. TYPICALLY 12" CRUSHED GRAVEL WITH 3" HBP (HAND METHOD, PLACED IN 2 COURSES) FOR COMMERCIAL DRIVES WITH FREQUENT HEAVY TRUCK TRAFFIC THAT ARE ADJACENT TO ROADWAYS WITH CONVENTIONAL CRUSHED GRAVEL, GRAVEL, AND SAND STRUCTURAL BOX. IF THE DRIVE IS ADJACENT TO A ROADWAY WITH A CRUSHED STONE STRUCTURAL BOX, 9" OF CRUSHED STONE FINE GRADATION MAY BE SUBSTITUTED FOR THE 12" OF CRUSHED GRAVEL NOTED ABOVE.
5. FOR DESIGN CRITERIA AND OTHER ADDITIONAL INFORMATION, REFER TO THE NHDOT DRIVEWAY MANUAL.
6. DITCHES ARE RECOMMENDED FOR UNCURBED DRIVEWAYS IN CUT SLOPES.
7. USE SLOPED END SECTIONS ON DRIVE PIPES FOR UNCURBED DRIVEWAYS.
8. CURBING CAN BE FLARED TO FIT DRIVE RADII IF APPROPRIATE OR ENDED AS DETAILED ABOVE.
9. CURB CUTS VARY TO MATCH EXISTING CONDITIONS. CURB CUTS FOR RESIDENTIAL DRIVES WITH ANGLES OF ENTRY OF 75°-90° ARE TYPICALLY 25°-0°.



LEGEND:

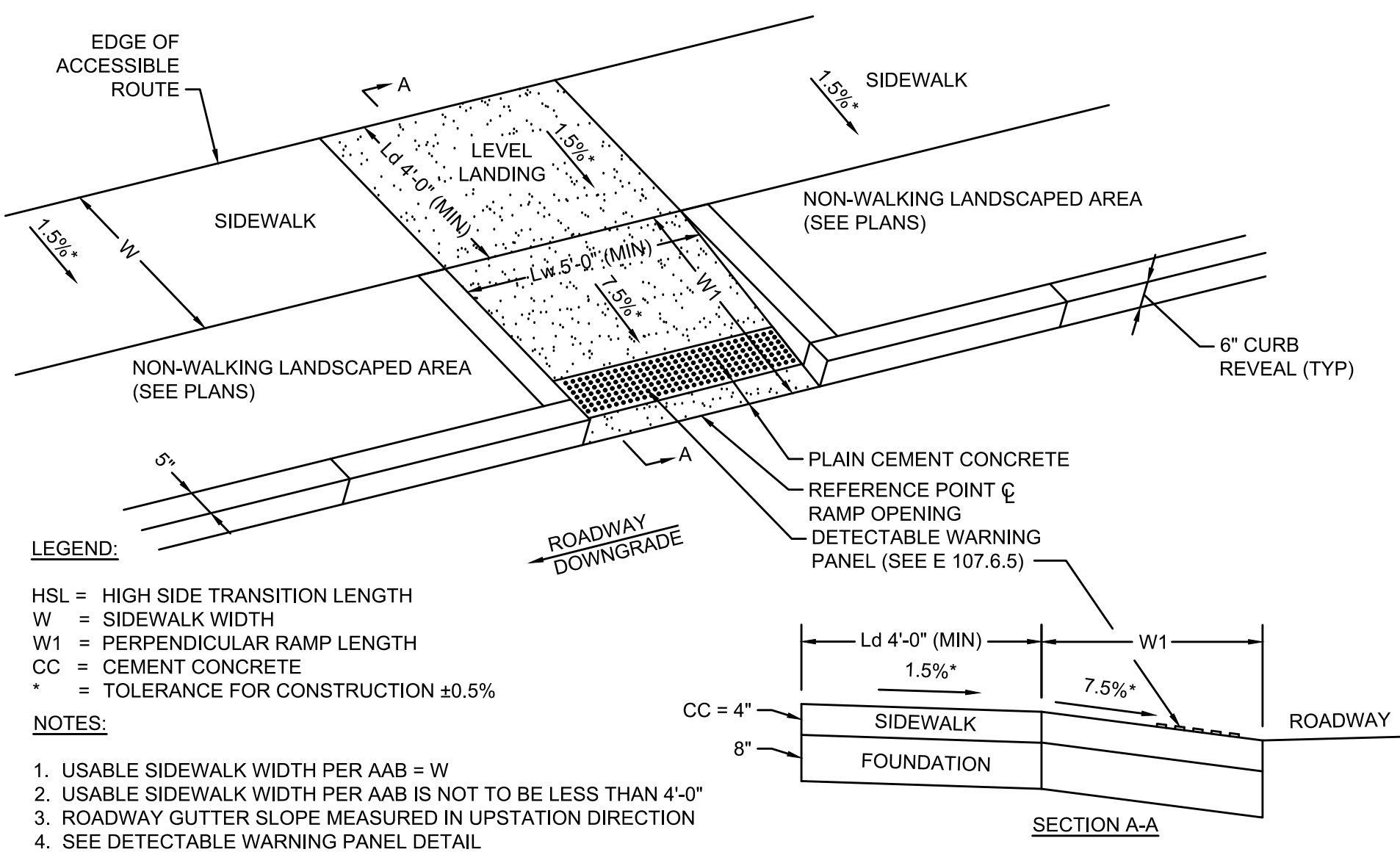
HSL = HIGH SIDE TRANSITION LENGTH
W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W-6"
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED IN UPSTATION DIRECTION
4. SEE DETECTABLE WARNING PANEL DETAILS

WHEELCHAIR RAMP TYPE B

N.T.S.



LEGEND:

HSL = HIGH SIDE TRANSITION LENGTH
W = SIDEWALK WIDTH
W1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED IN UPSTATION DIRECTION
4. SEE DETECTABLE WARNING PANEL DETAIL

WHEELCHAIR RAMP TYPE A

N.T.S.



TEC, Inc.

65 Glenn Street | 169 Ocean Boulevard
Lawrence, MA 01843 | Unit 101, PO Box 249
(978) 794-1792 | Hampton, NH 03842
www.TheEngineeringCorp.com

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR

City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

ISSUED FOR

Permitting

PROJECT TITLE

Roadway Improvements
& Culvert Construction

PROJECT LOCATION

Banfield Road
Portsmouth, NH

DRAWING TITLE

Construction Details

PROJECT NO. N0620

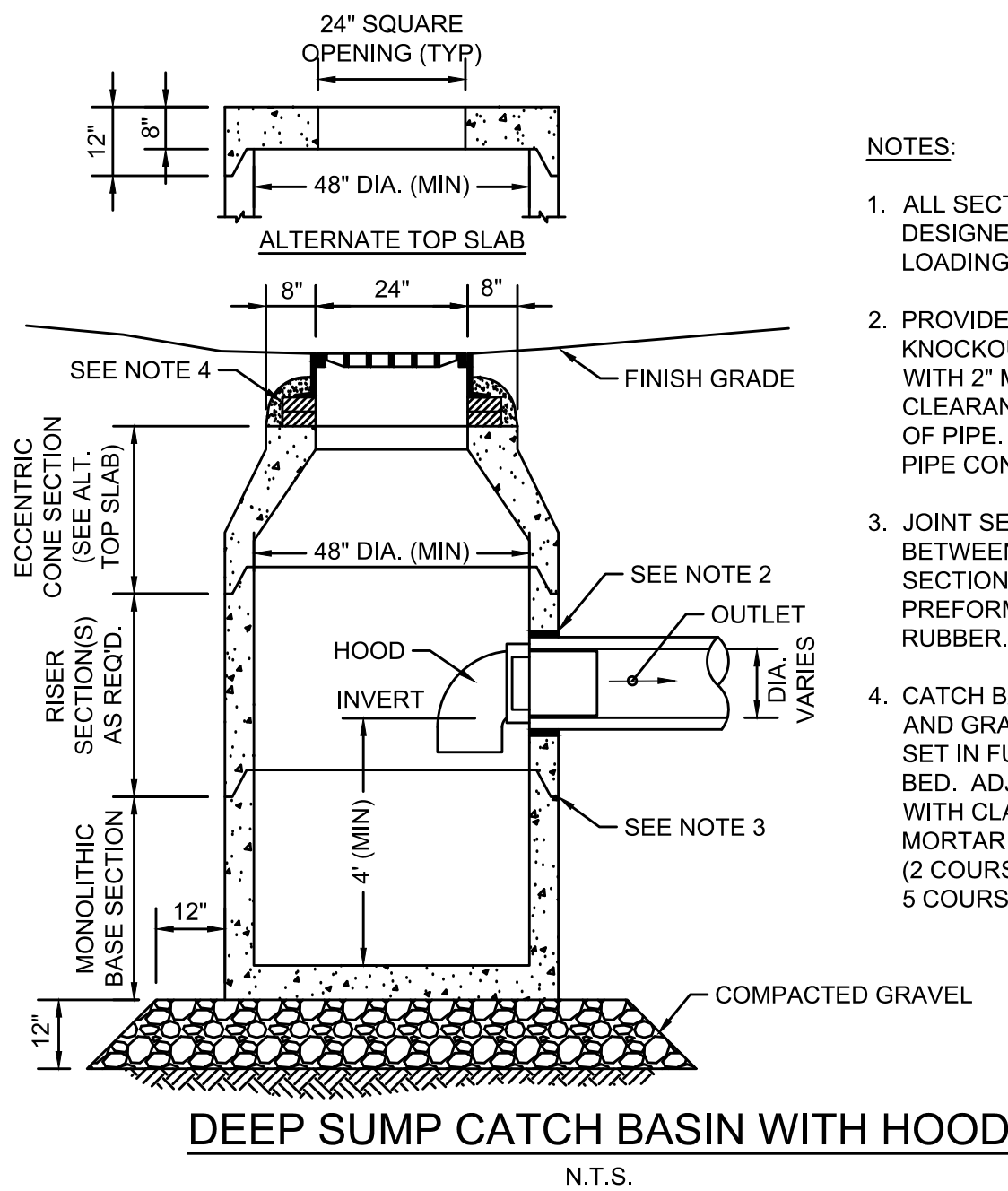
TEC CAD FILE

N0620_(Permit_Details).dwg

DRAWING NO.

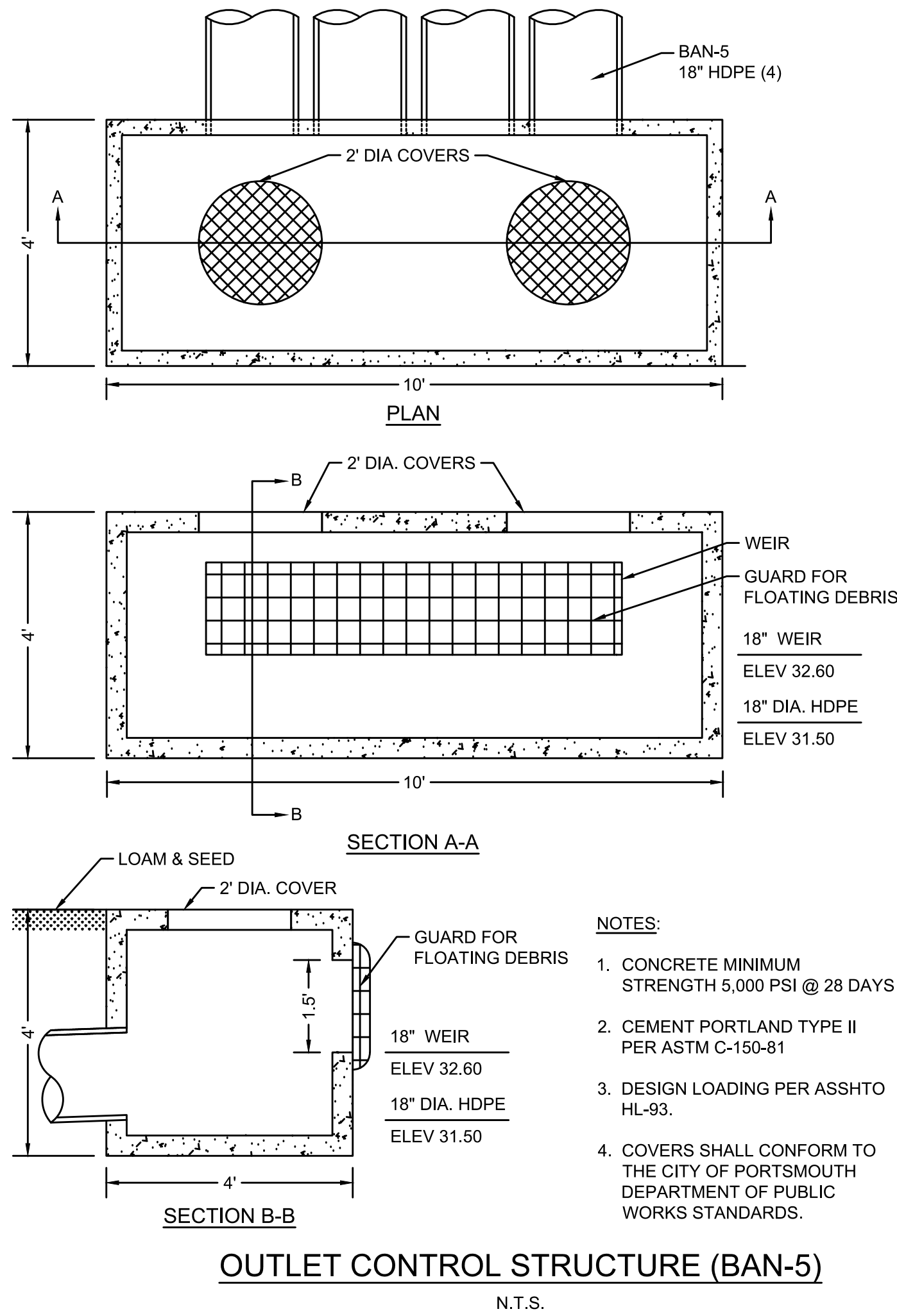
12

SHEET 12 OF 16



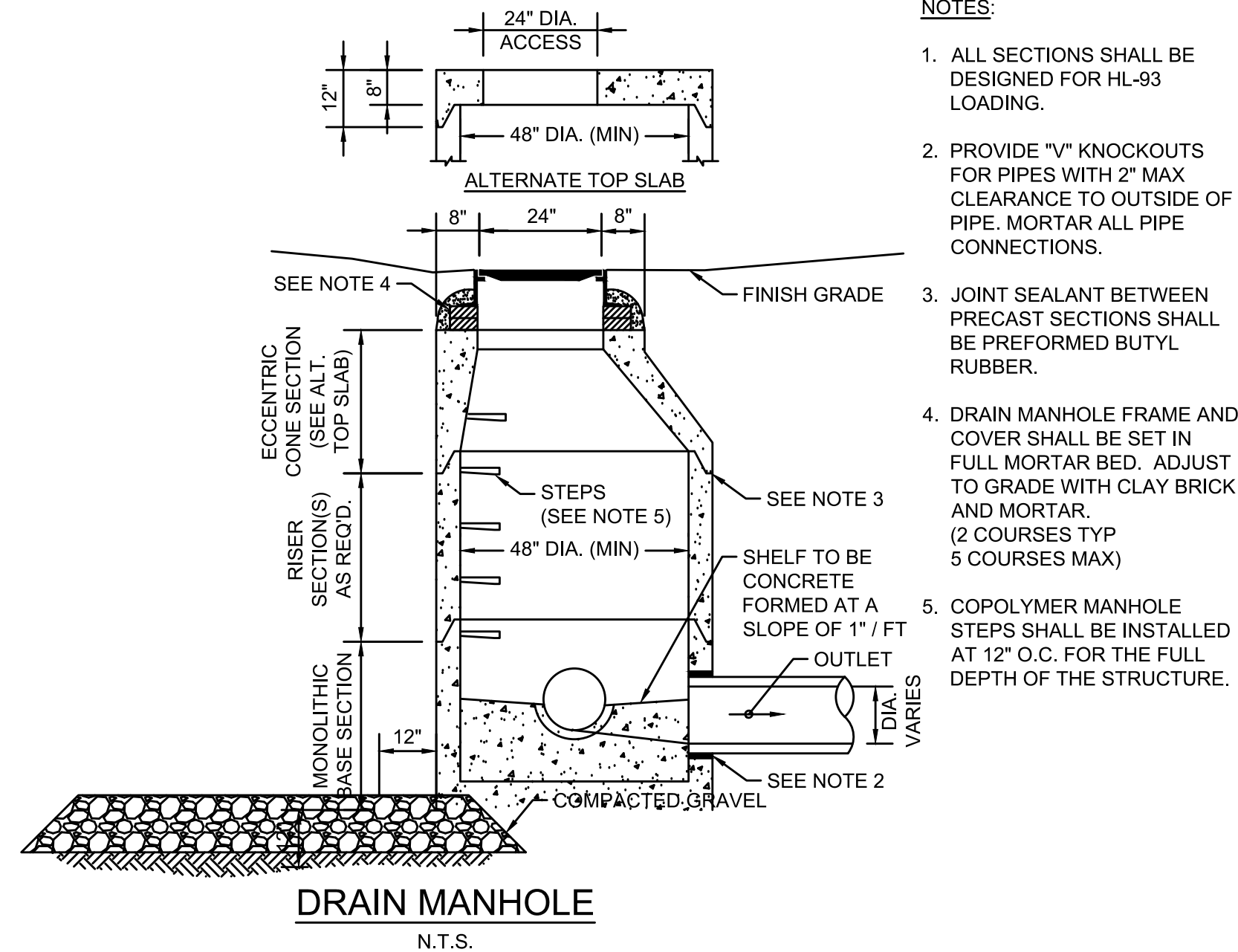
NOTES:

1. ALL SECTIONS SHALL BE DESIGNED FOR HL-93 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP 5 COURSES MAX)



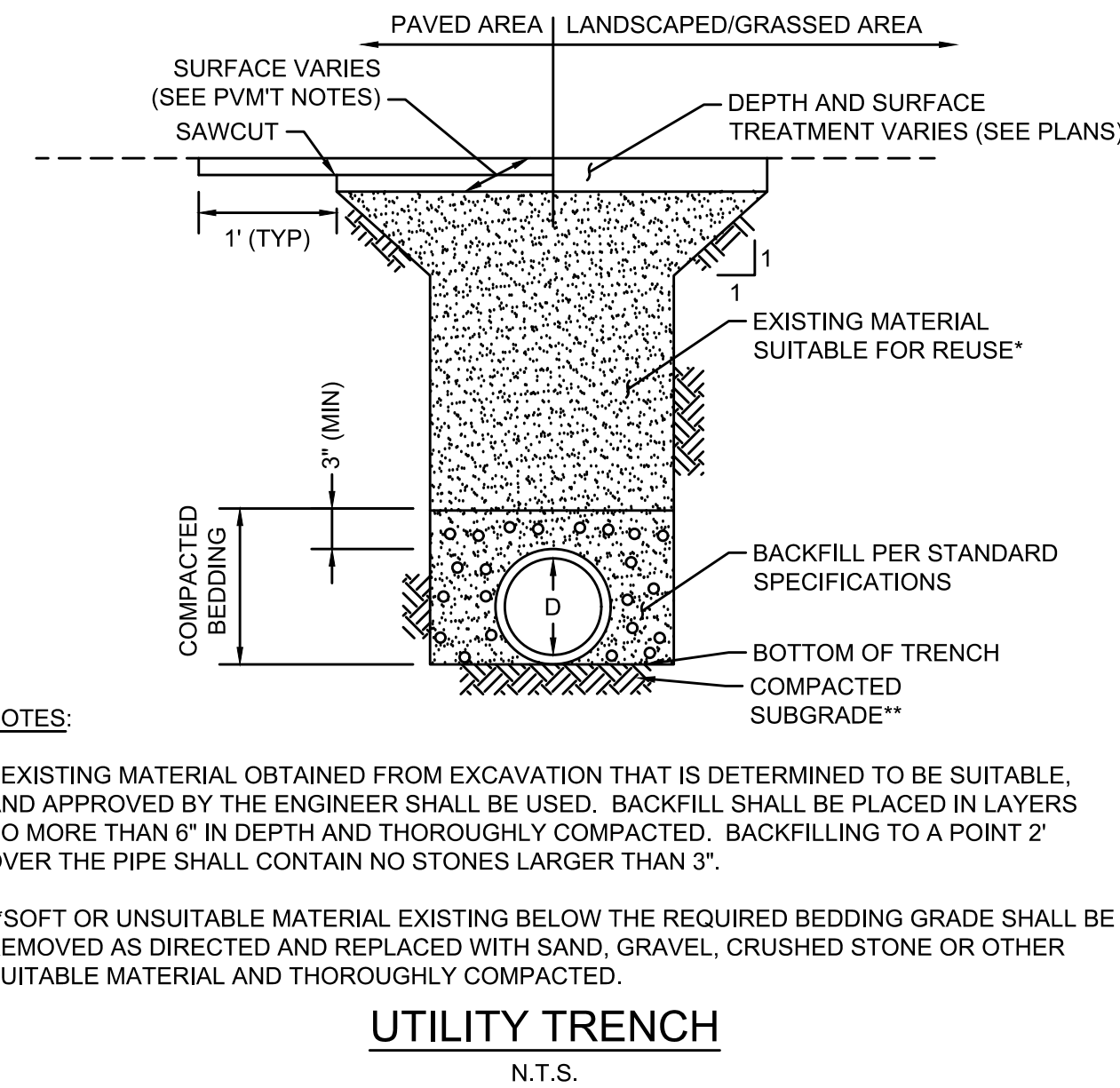
NOTES:

1. CONCRETE MINIMUM STRENGTH 5,000 PSI @ 28 DAYS
2. CEMENT PORTLAND TYPE II PER ASTM C-150-81
3. DESIGN LOADING PER ASSHTO HL-93.
4. COVERS SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS STANDARDS.



NOTES:

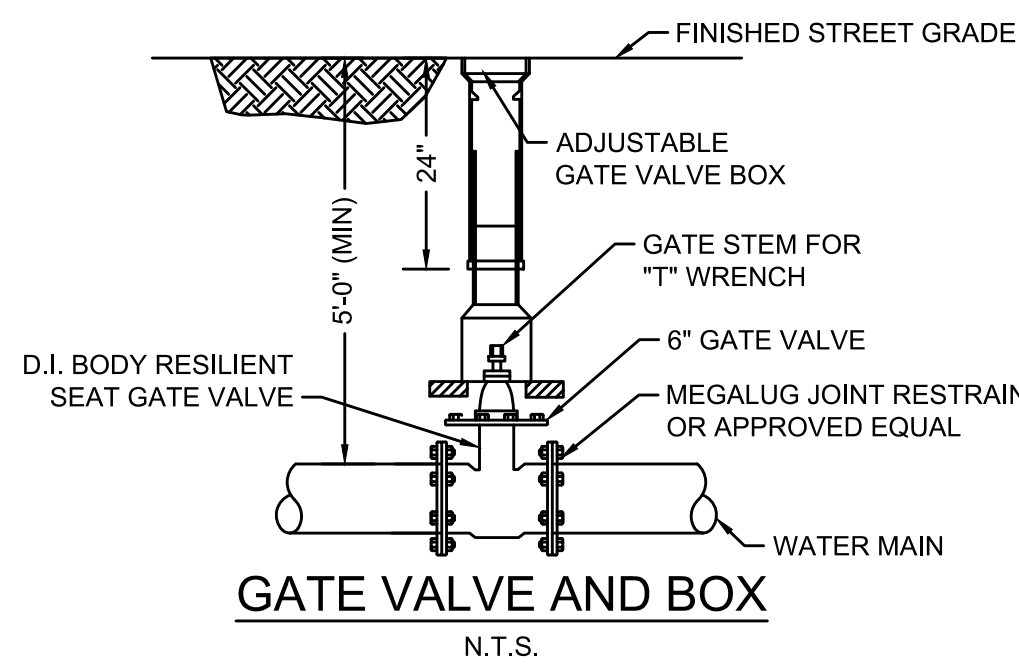
1. ALL SECTIONS SHALL BE DESIGNED FOR HL-93 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP 5 COURSES MAX)
5. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.



NOTES:

* EXISTING MATERIAL OBTAINED FROM EXCAVATION THAT IS DETERMINED TO BE SUITABLE, AND APPROVED BY THE ENGINEER SHALL BE USED. BACKFILL SHALL BE PLACED IN LAYERS NO MORE THAN 6" IN DEPTH AND THOROUGHLY COMPACTED. BACKFILLING TO A POINT 2' OVER THE PIPE SHALL CONTAIN NO STONES LARGER THAN 3".

**SOFT OR UNSUITABLE MATERIAL EXISTING BELOW THE REQUIRED BEDDING GRADE SHALL BE REMOVED AS DIRECTED AND REPLACED WITH SAND, GRAVEL, CRUSHED STONE OR OTHER SUITABLE MATERIAL AND THOROUGHLY COMPACTED.



TEC, Inc.

65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

ISSUED FOR
Permitting

PROJECT TITLE
Roadway Improvements
& Culvert Construction

PROJECT LOCATION
Banfield Road
Portsmouth, NH

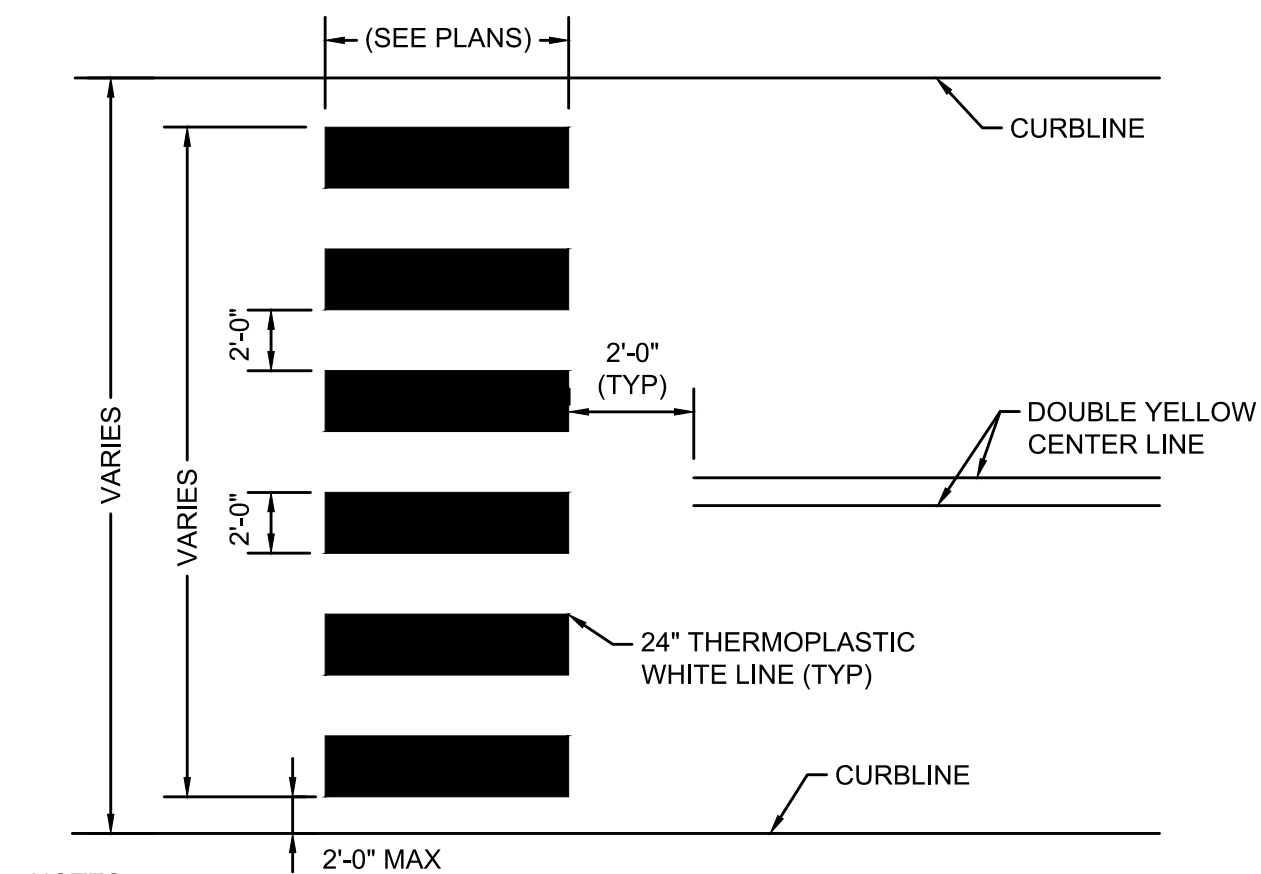
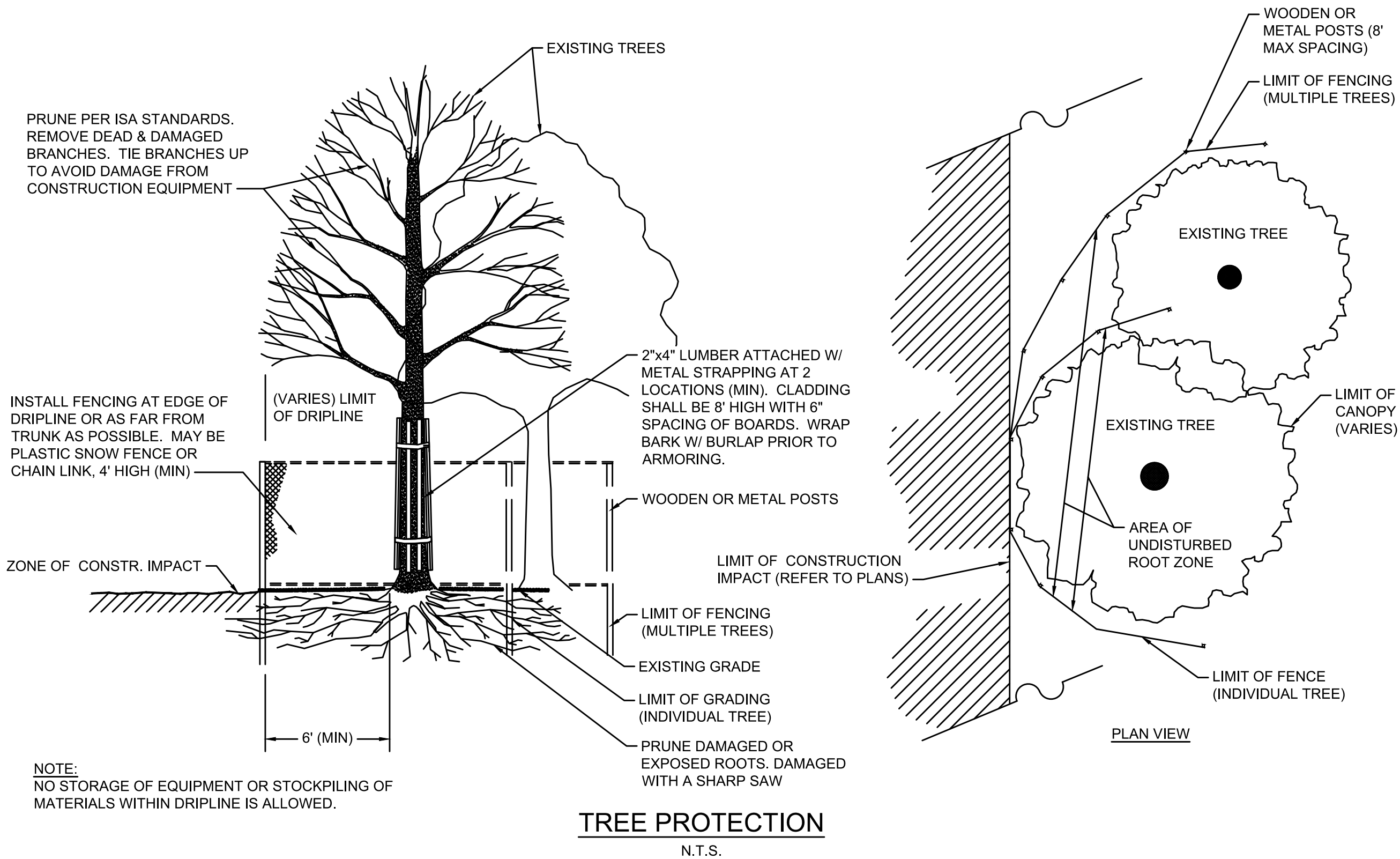
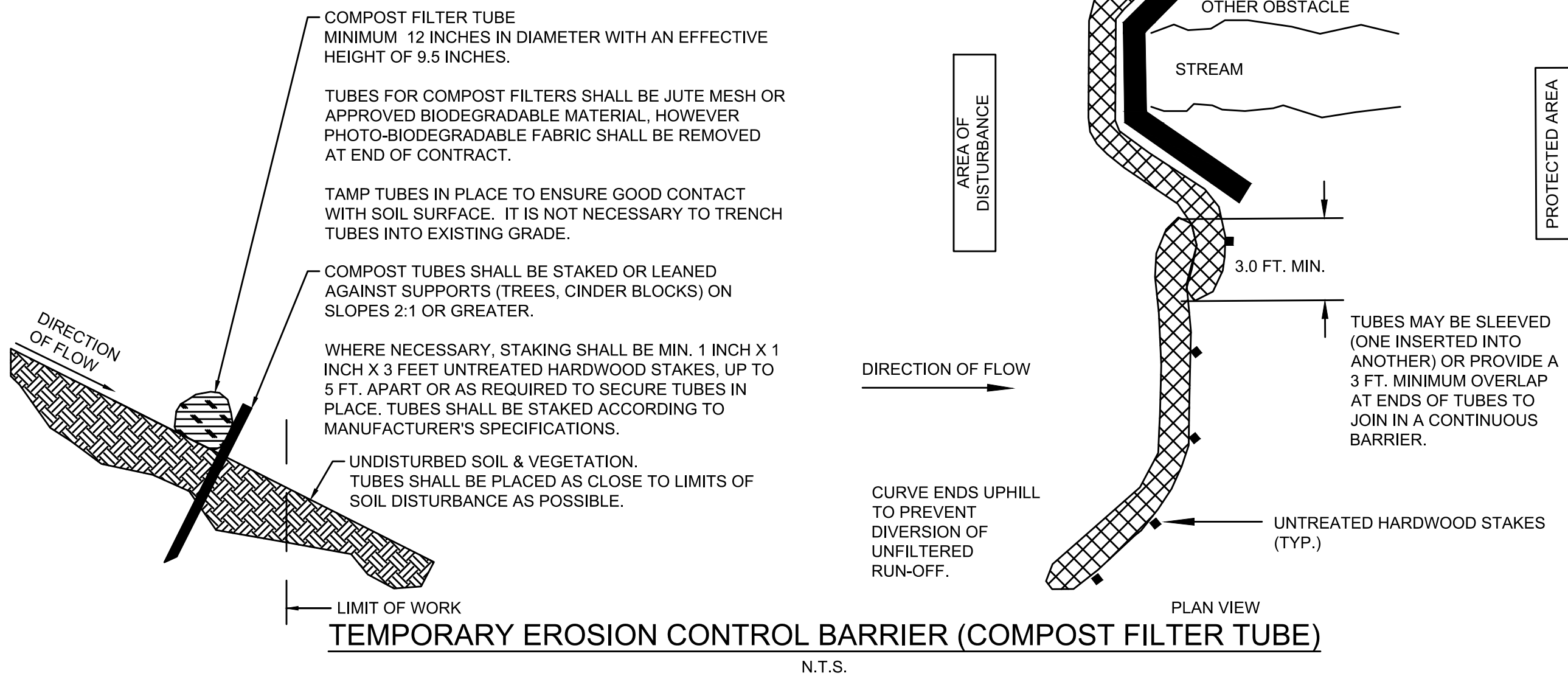
DRAWING TITLE
Construction Details

PROJECT NO.	N0620
TEC CAD FILE	N0620_(Permit_Details).dwg
DRAWING NO.	13
SHEET	13 OF 16



NOTES:

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.
4. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
5. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER.



NOTES:

1. ALL 12" LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED. ALL 24" LINES MAY BE EITHER ONE 24" LINE OR A COMBINATION OF TWO - 12" LINES.
2. LAYOUT OF CROSSWALKS SHALL BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION.
3. CROSSWALK BARS SHALL BE PLACED OUTSIDE THE VEHICULAR WHEEL PATH WHEREVER POSSIBLE.

CROSSWALK PAVEMENT MARKING

N.T.S.



TEC, Inc.

65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR

City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

ISSUED FOR

Permitting

PROJECT TITLE

Roadway Improvements
& Culvert Construction

PROJECT LOCATION

Banfield Road
Portsmouth, NH

DRAWING TITLE

Construction Details

PROJECT NO. N0620

TEC CAD FILE

N0620_(Permit_Details).dwg

DRAWING NO.

14

SHEET 14 OF 16



TEC, Inc.

65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

ISSUED FOR
Permitting

PROJECT TITLE
Roadway Improvements
& Culvert Construction

PROJECT LOCATION
Banfield Road
Portsmouth, NH

DRAWING TITLE
Construction Details

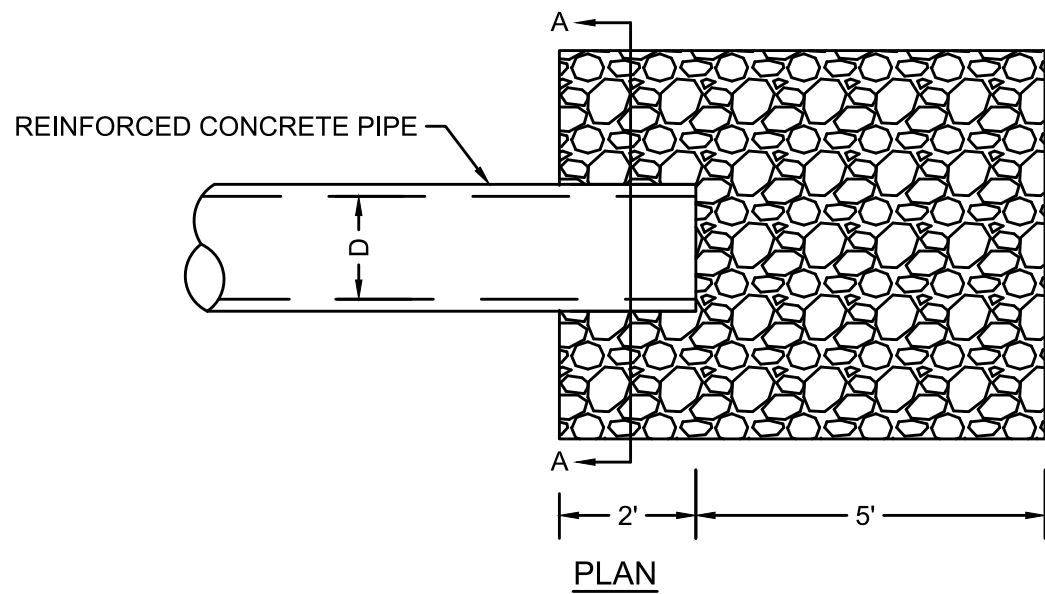
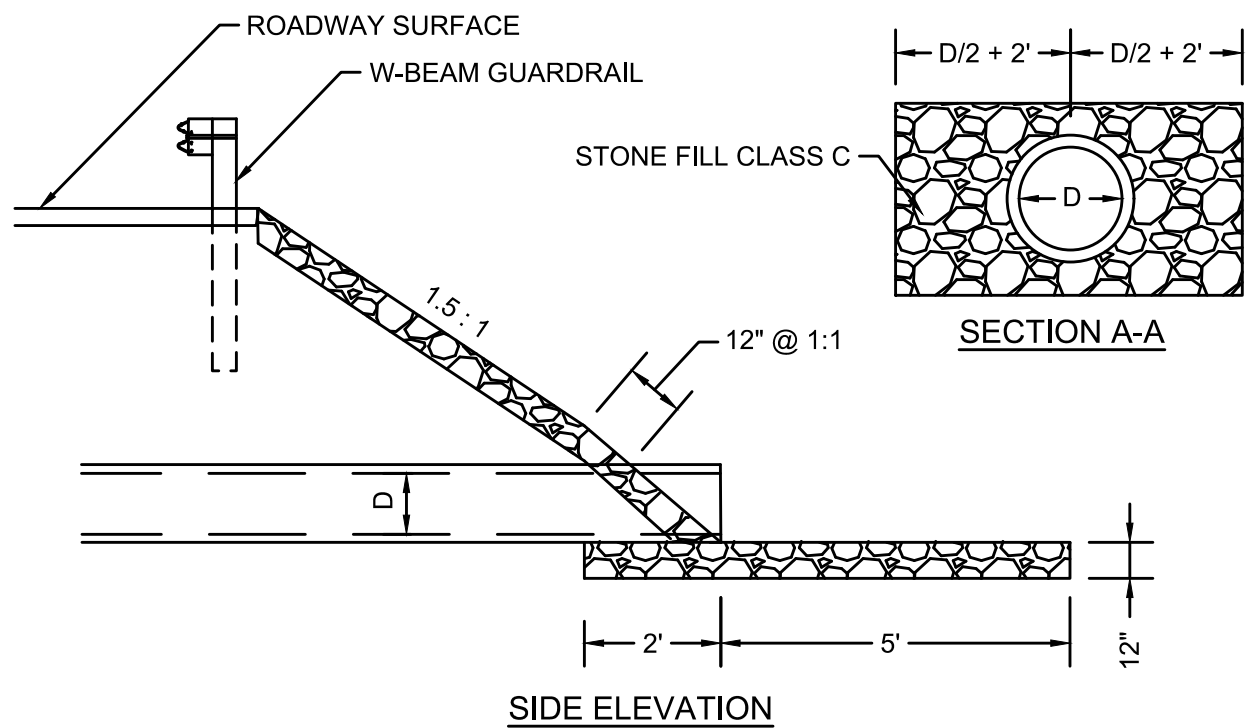
PROJECT NO.
N0620

TEC CAD FILE
N0620_(Permit_Details).dwg

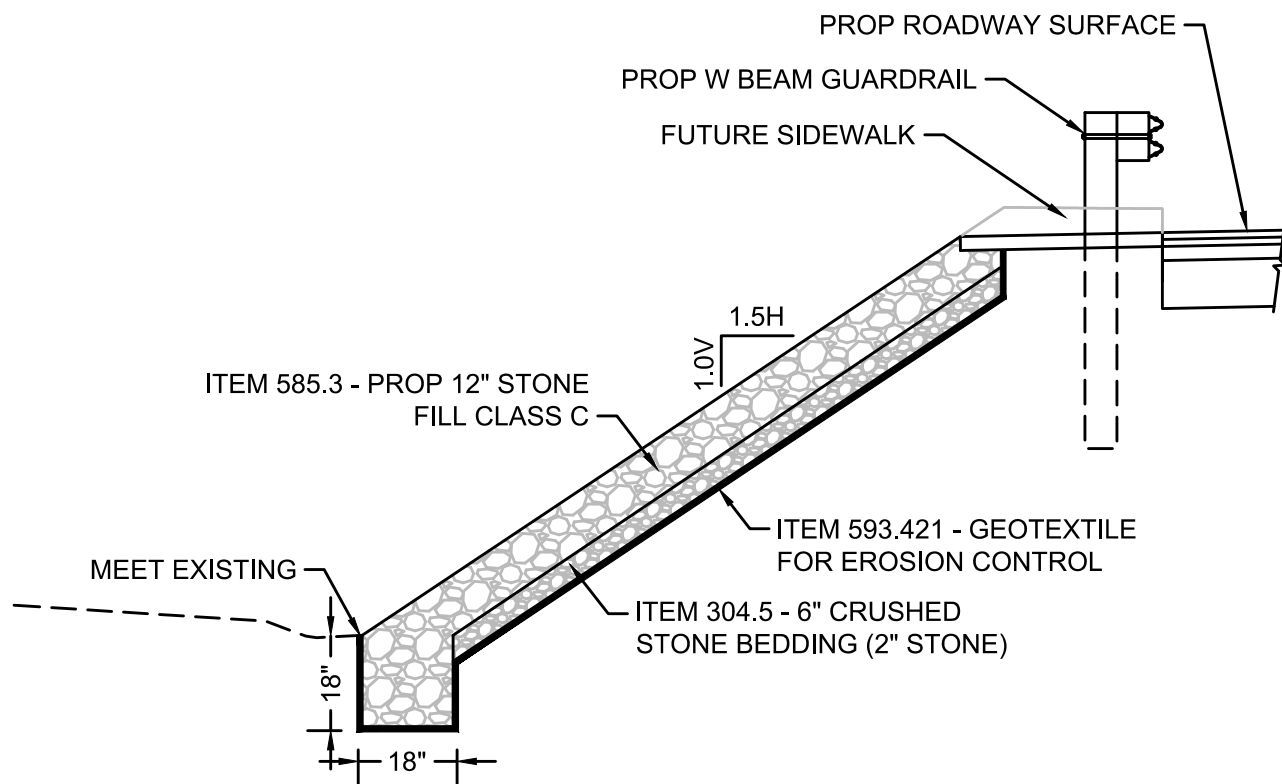
DRAWING NO.

15

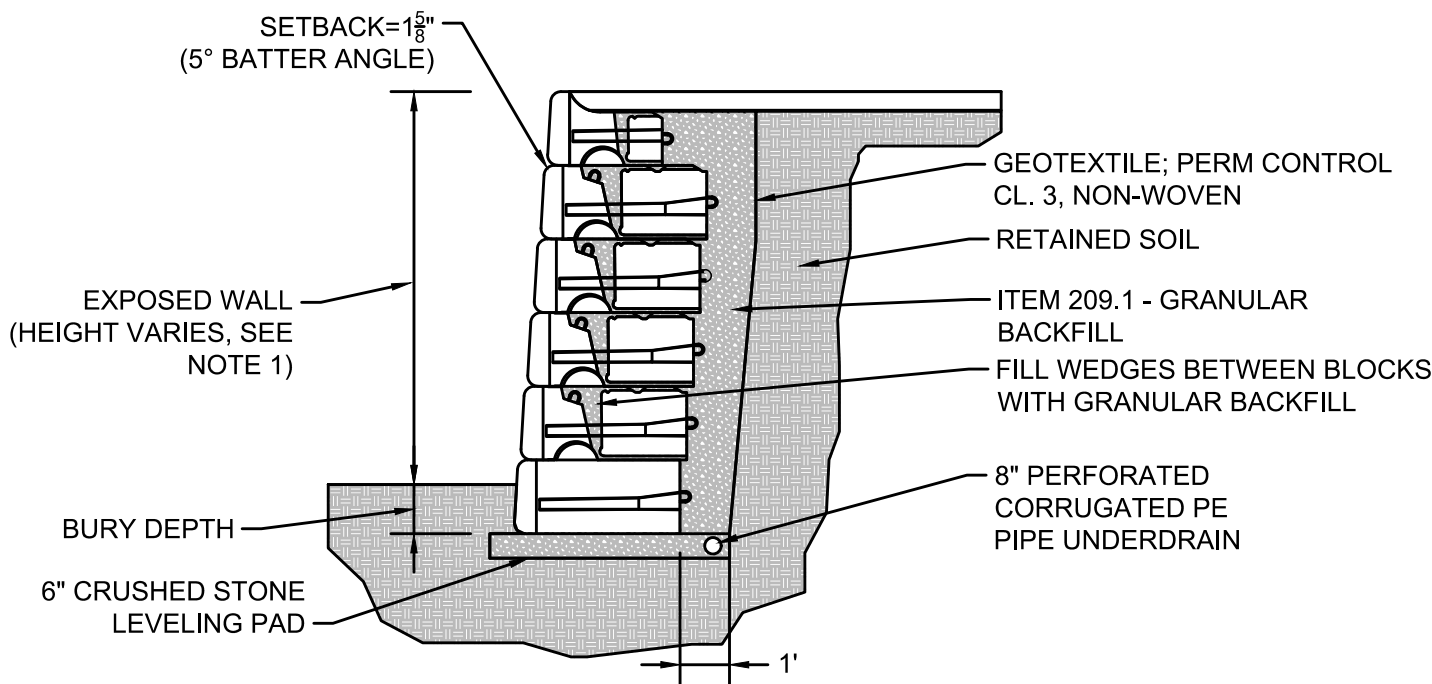
SHEET 15 OF 16



OUTLET PROTECTION
N.T.S.

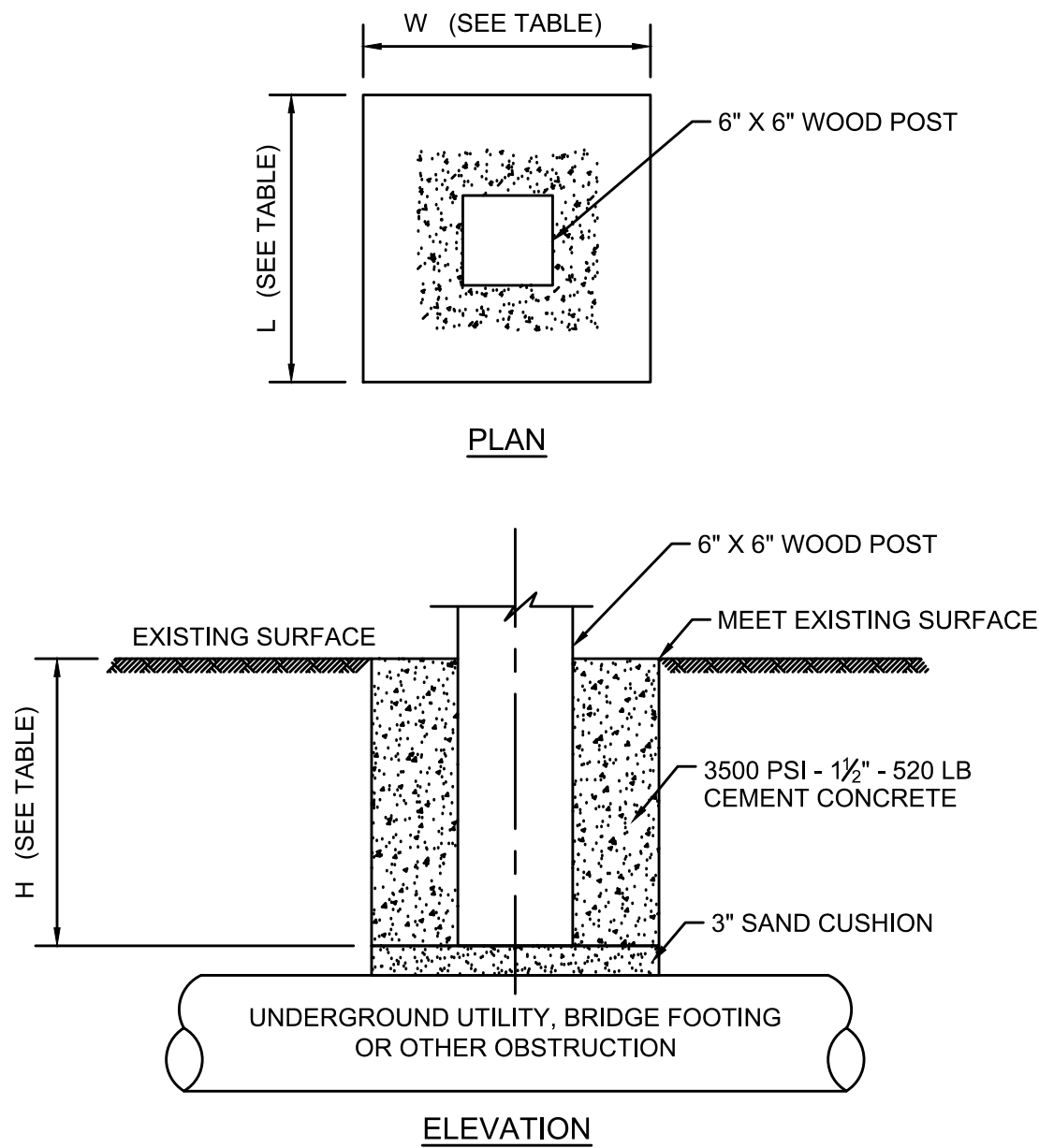


MODIFIED ROCKFILL SLOPE STABILIZATION
N.T.S.



- NOTES:
1. WALL HEIGHTS OVER 4 FEET WILL REQUIRE A FINAL WALL DESIGN STAMPED BY A STRUCTURAL ENGINEER.
 2. FINAL WALL DESIGN TO BE SUBJECT TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER INCLUDING DESIGN ON LATERAL EARTH PRESSURES, GLOBAL STABILITY, FILL MATERIALS ADJACENT TO THE WALLS AND REQUIRED GEOGRID REINFORCEMENT.
 3. FINAL DESIGN SHALL BE REVIEWED BY CITY.

ITEM 592.31 - PRECAST CONCRETE MODULAR RETAINING WALL
N.T.S.

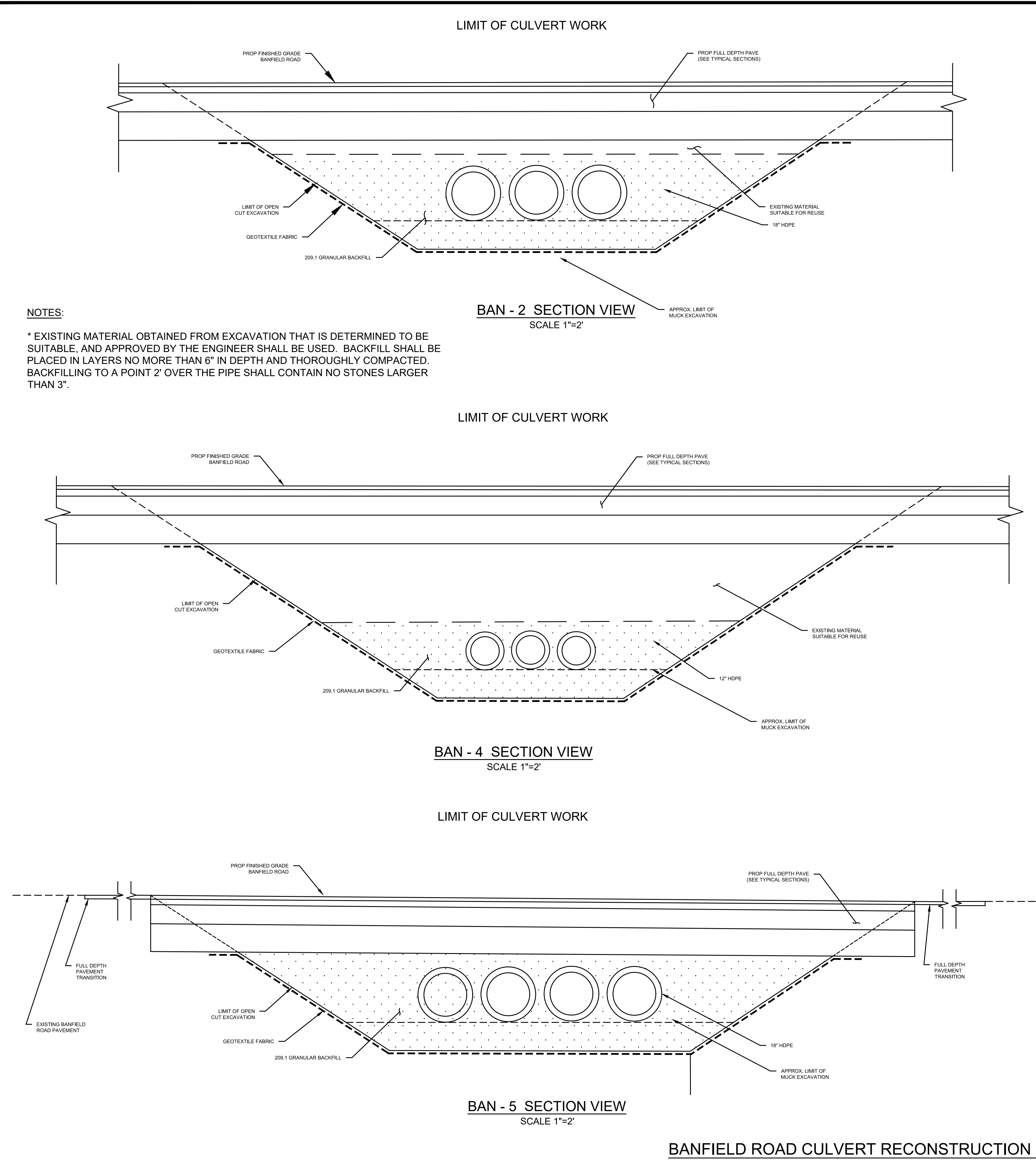


HEIGHT OF EXISTING SURFACE ABOVE TOP OF SAND CUSHION	DIMENSION OF CONCRETE ENVELOPE		
	H HEIGHT OF SURFACE ABOVE SAND CUSHION	W	L
1'-0" TO 1'-6"	VARIES 1'-0" TO 1'-6"	2'-6"	2'-6"
1'-6" TO 2'-0"	VARIES 1'-0" TO 1'-6"	2'-0"	2'-0"
OVER 2'-6"	2'-6"	1'-6"	1'-6"

NOTE:

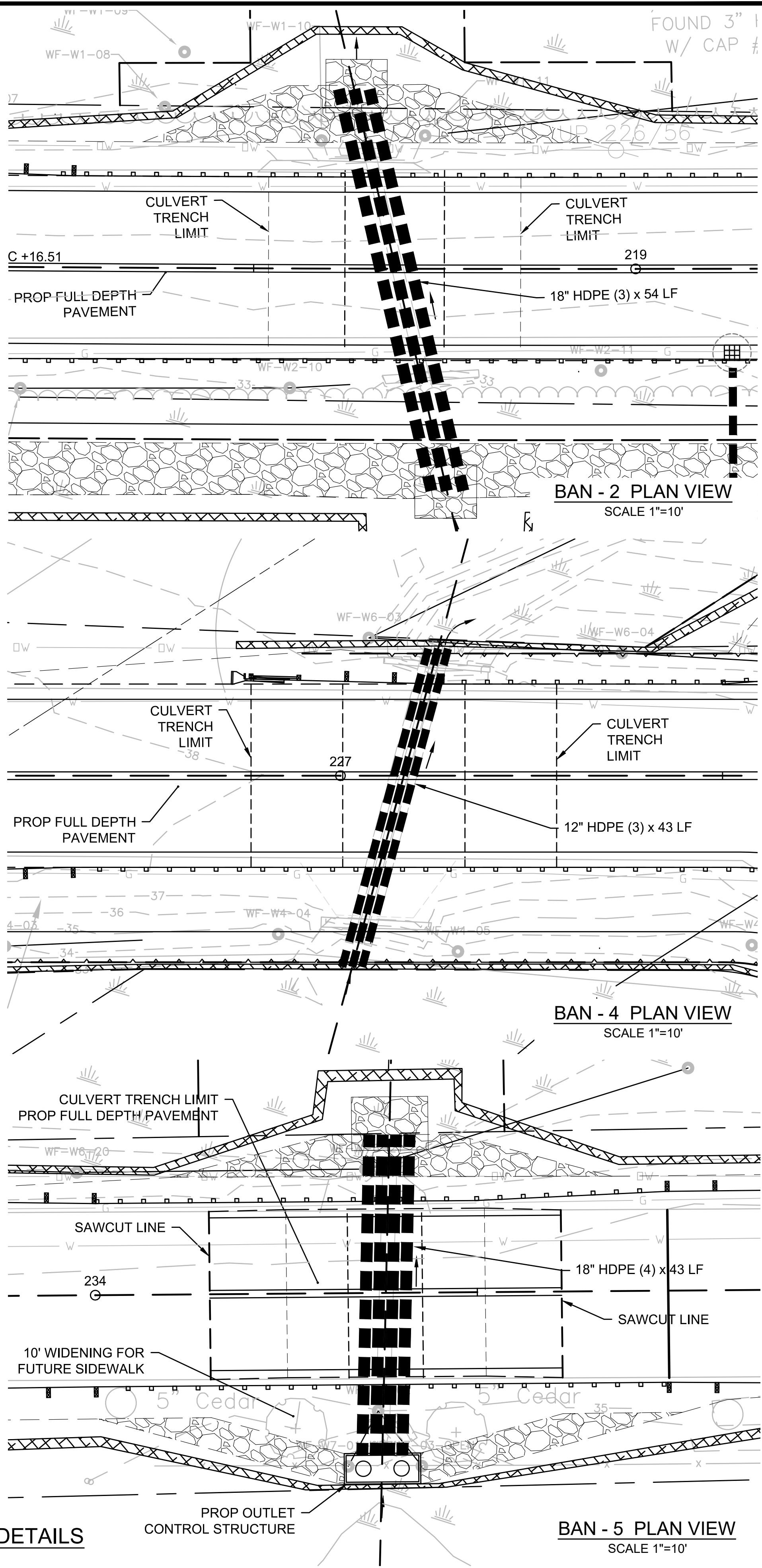
NOT TO BE USED ON MORE THAN 2 POSTS IN A ROW.

SHALLOW GUARDRAIL POST DETAIL
N.T.S.



NOTES:

* EXISTING MATERIAL OBTAINED FROM EXCAVATION THAT IS DETERMINED TO BE SUITABLE, AND APPROVED BY THE ENGINEER SHALL BE USED. BACKFILL SHALL BE PLACED IN LAYERS NO MORE THAN 6" IN DEPTH AND THOROUGHLY COMPACTED. BACKFILLING TO A POINT 2' OVER THE PIPE SHALL CONTAIN NO STONES LARGER THAN 3".



TEC, Inc.

65 Glenn Street
Lawrence, MA 01843
(978) 794-1792
www.TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

DESIGNED BY	ADC
DRAWN BY	DGR
CHECKED BY	RJF
DATE	3/27/19
SCALE	1" = 20'

PREPARED FOR
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

REVISIONS

ISSUED FOR
Permitting

PROJECT TITLE
Roadway Improvements
& Culvert Construction

PROJECT LOCATION
Banfield Road
Portsmouth, NH

DRAWING TITLE
Construction Details

PROJECT NO. N0620
TEC CAD FILE N0620_(Permit_Details).dwg
DRAWING NO. 16
SHEET 16 OF 16

