CONTRACT PLANS

For The

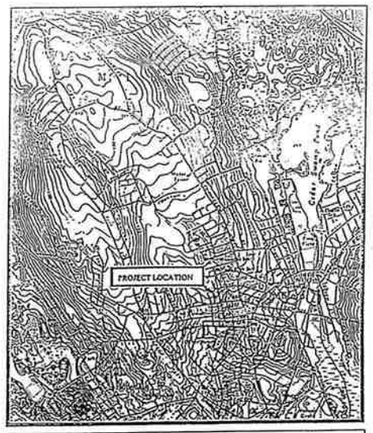
GODFREY BROOK FLOOD MITIGATION PROJECT

Prepared For The

TOWN OF MILFORD, MASSACHUSETTS
OFFICE OF PLANNING AND ENGINEERING

RENO DE LUZIO
TOWN PLANNER

MICHAEL SANTORA, P.E.
TOWN ENGINEER



UNITED STATES GEOLOGICAL SURVEY (U.S.G.S.) QUADRANGLE

MILFORD, MASSACHUSETTS

LOCUS MAP
GODFREY BROOK
FLOOD MITIGATION PROJECT

SCALE: 1"=2000'

April, 1999
Issued for Bidding, August 12, 1999

PROJECT FUNDING ASSISTANCE PROVIDED BY:

COMMONWEALTH OF MASSACHUSETTS

THE DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
MASSACHUSETTS COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM

THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATERWAYS

PREPARED BY

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers — Environmental Scientists
295 North Main Street — East Longmeadow, MA 01028

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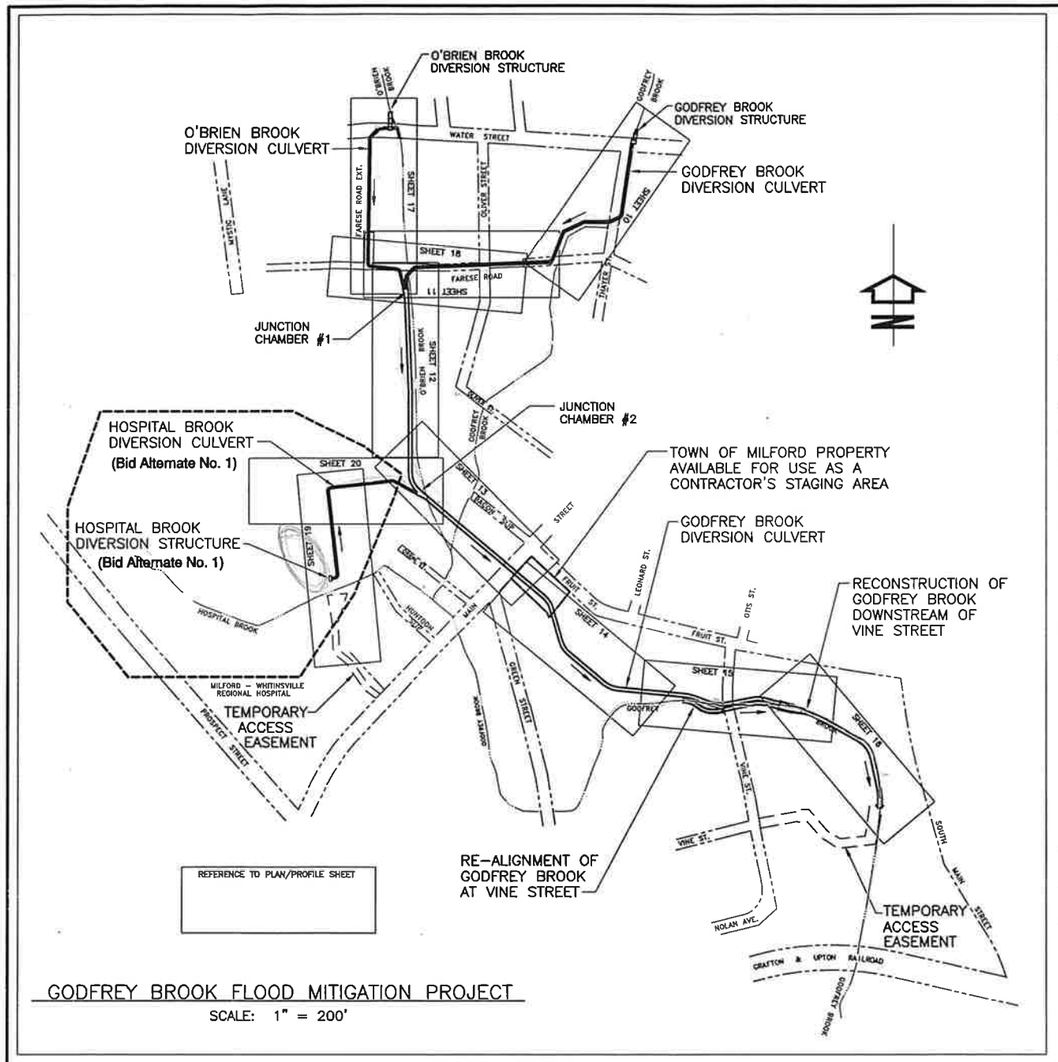
ALL MATERIALS AND CONSTRUCTION METHODS AND DETAILS FOR THIS PROJECT SHALL CONFORM TO THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES", MASSACHUSETTS HIGHWAY DEPARTMENT (MHD), AS AMENDED, REFERRED TO HEREIN AS THE "STANDARD SPECIFICATIONS".

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



GODFREY BROOK FLOOD MITIGATION PROJECT

SCALE: 1" = 200'

GENERAL NOTES

1. BASE SURVEY FOR THIS PROJECT WAS PROVIDED BY GUERRIERE AND HALNON, INC., MILFORD, MASSACHUSETTS. COMPLETE TOPOGRAPHICAL PLANS FROM THIS SURVEY WORK CAN BE OBTAINED FROM THE TOWN OF MILFORD.
2. THE ACCURACY AND COMPLETENESS OF UNDERGROUND AND OVERHEAD UTILITIES AS SHOWN ON THE PLANS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION, SIZE, TYPE, ETC. OF ALL UTILITIES THAT MAY BE AFFECTED BY THE WORK OF THIS PROJECT. ALL DRAIN AND SANITARY SEWER STRUCTURES OWNED BY THE TOWN OF MILFORD SHALL BE ADJUSTED TO NEW LINE AND GRADE BY THE CONTRACTOR, AS DIRECTED BY THE PLANS OR BY THE ENGINEER. ANY UTILITY POLES OR GUY POLES WITHIN AREAS AFFECTED BY THE WORK OF THIS PROJECT SHALL BE REMOVED AND RESET BY THE APPLICABLE UTILITY COMPANY. ALTERATIONS TO UTILITIES NOT OWNED BY THE TOWN OF MILFORD SHALL BE MADE BY THE APPLICABLE UTILITY OWNERS, AS COORDINATED BY THE CONTRACTOR.
3. ALL MATERIALS AND CONSTRUCTION METHODS AND DETAILS FOR THIS PROJECT SHALL CONFORM TO THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES", MASSACHUSETTS HIGHWAY DEPARTMENT (MHD), AS AMENDED, REFERRED TO HEREIN AS THE "STANDARD SPECIFICATIONS".
4. PRIOR TO ANY OTHER WORK TAKING PLACE, THE CONTRACTOR SHALL ERECT SILT FENCE EROSION CONTROL BARRIER ALONG THE TEMPORARY EASEMENT LINES AT ALL UNPAVED OR UNSURFACED AREAS THROUGHOUT THE PROJECT AREA. EROSION CONTROL BARRIER INSTALLATION MAY BE PHASED BUT NO GROUND DISTURBANCE SHALL BE ALLOWED WITHOUT AN ADEQUATE EROSION CONTROL BARRIER IN PLACE.
5. THE CONTRACTOR MAY USE THE TOWN OF MILFORD PROPERTY AT THE CORNER OF MAIN ST. AND FRUIT ST. AS A STAGING AREA. AT THE END OF THIS PROJECT, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PAVING, INTERIOR FENCING, AND OTHER INTERIOR IMPROVEMENTS AND SHALL GRADE THE SITE LEVEL, ADDING GRAVEL BORROW AS NECESSARY TO FILL ANY LOW AREAS. ALL OTHER STAGING AREAS SHALL BE PROCURED BY THE CONTRACTOR.
6. ALL PROPOSED CATCH BASIN AND DROP INLET FRAMES AND COVERS SHALL BE AS LEBARON FOUNDRY, INC. MODEL NO. LF-248-2, OR EQUIVALENT. ALL PROP. CATCH BASINS SHALL BE AS SHOWN IN MHD (SD) 201.4.0 EXCEPT THAT THE SUMP SHALL BE 4'-0" DEEP. ALL CATCH BASINS SHALL BE EQUIPPED WITH HOODS AS PER MHD (SD) 201.12.0.
7. ALL PROP. DRAINAGE AND SAN. SEWER STRUCTURES SHALL BE SUPPORTED WITH A 12" CRUSHED STONE (M2.01.1) FOUNDATION.
8. ALL REINFORCED CONCRETE PIPE USED ON THIS PROJECT SHALL BE CLASS III, UNLESS OTHERWISE DESIGNATED ON THE PLANS.
9. ALL EXISTING DRAIN AND SAN. SEWER LINES TO BE REPLACED SHALL BE ABANDONED IN PLACE, IF THEY CONFLICT WITH ANY PROP. WORK THEY SHALL BE REMOVED.
10. WHERE LINES OR STRUCTURES ARE ABANDONED IN PLACE, THE CONTRACTOR SHALL ENSURE THAT ALL CONNECTING PIPES, INLETS, AND OUTLETS ARE PLUGGED. ALL LIVE CONNECTIONS SHALL BE CONNECTED TO NEW WORK TO THE SATISFACTION OF THE ENGINEER.
11. CATCH BASIN, DROP INLET, AND MANHOLE FRAMES AND GRATES/COVERS SHALL CLEARLY ALIGN WITH THE OPENINGS IN THE PRECAST STRUCTURES.
12. ALL EXISTING PAVEMENT MARKINGS SHALL BE REPLACED IN KIND AFTER FINAL PAVING OF ROAD RECONSTRUCTION AREAS.
13. ALL STRUCTURE STATIONS AND OFFSETS ARE TO THE CENTER POINT OF THE PROP. GRATE OR COVER.
14. ALL PROPOSED GRANITE CURBING SHALL BE MHD TYPE VB AND SHALL INCLUDE REMOVAL OF EXISTING GRANITE CURBING, WHERE APPLICABLE. REMOVE AND RESET OF GRANITE CURBING SHALL BE LIMITED TO AREAS OUTSIDE OF THE PUBLIC RIGHT OF WAY.
15. NEW SIDEWALKS, WHEELCHAIR RAMPS, PRIVATE WALKS AND DRIVEWAYS SHALL BE CONSTRUCTED TO THE NEAREST SCORE LINE OR EXPANSION JOINT IN THE EXISTING ADJACENT SURFACES OR AS DIRECTED BY THE ENGINEER. PROP. CEMENT CONCRETE SIDEWALKS SHALL INCLUDE REMOVAL OF EXISTING SIDEWALK SURFACES.
16. ALL WHEELCHAIR RAMPS SHALL MEET THE LATEST REQUIREMENTS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD AND THE LATEST STANDARDS OF THE MASSACHUSETTS HIGHWAY DEPARTMENT.
17. ALL DRIVEWAY REPAIRS SHALL BE "TYPICAL DRIVEWAYS" AS SHOWN IN THE DETAILS.
18. ALL UNSURFACED AREAS WITHIN THE PERMANENT EASEMENT SHALL BE CLEARED AND GRUBBED. ALL OTHER TREES, SHRUBS, AND OTHER VEGETATION OUTSIDE OF THE PERMANENT EASEMENTS BUT WITHIN THE TEMPORARY EASEMENT LINES SHALL BE REMOVED AS THE CONTRACTOR REQUIRES TO COMPLETE THE WORK OF THIS PROJECT, WITH THE EXCEPTION OF TREES DESIGNATED ON THE PLANS AS TO REMAIN. GRUBBING WITHIN THE TEMPORARY EASEMENTS SHALL NOT BE REQUIRED BUT WILL BE ALLOWED, EXCEPT FOR WITHIN WETLAND AREAS, IF THE CONTRACTOR DESIRES IN ORDER TO FACILITATE THE WORK.
19. ALL PROPOSED RETAINING WALLS AND END WALLS SHALL BE CEMENTED FIELD STONE MASONRY (MHD SD 302.2.0) OR CEMENT CONCRETE MASONRY (MHD SD 302.1.0) OR AS OTHERWISE SHOWN ON THE PLANS. EXACT HEIGHTS OF THESE WALLS SHALL BE AS SHOWN ON THE CROSS SECTIONS OR DETAILS OR AS DIRECTED IN THE FIELD BY THE ENGINEER.
20. IN EXCAVATION AREAS, ALL TOPSOIL SHALL BE REMOVED TO A DEPTH OF 12" (MINIMUM) OR AS DIRECTED BY THE ENGINEER AND SHALL BE STOCKPILED FOR RESPREADING AFTER BACKFILLING IS COMPLETED.
21. MAILBOXES, FENCES, STREET SIGNS, ETC. THAT NEED TO REMOVED AND RESET OR RELOCATED SHALL BE DONE SO TO THE SATISFACTION OF THE OWNER. ALL ITEMS SHALL BE SET TO MHD STANDARDS.
22. CONTRACTOR SHALL COMPLY IN ALL RESPECTS WITH ALL ENVIRONMENTAL PERMITS ISSUED FOR THIS PROJECT.

TRAFFIC MANAGEMENT NOTES

1. PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A TRAFFIC MANAGEMENT PLAN FOR APPROVAL BY THE ENGINEER IN WRITING.
2. ANY REQUIRED TEMPORARY CHANNELIZATION OF TRAFFIC SHALL BE ACCOMPLISHED THROUGH THE USE OF REFLECTORIZED PLASTIC DRUMS WITH STEADY BURN LIGHTS TYPE "C", EXCEPT THAT THE FIRST THREE DRUMS USED AT EACH END OF A STRING OF DRUMS SHALL HAVE ATTACHED FLASHER TYPE "A".
3. MAXIMUM SPACING OF DRUMS SHALL BE 20 FEET ON TAPER, 40 FEET ON TANGENT.
4. ALL SIGNS SHALL BE BLACK LEGEND ON A REFLECTIVE ORANGE BACKGROUND AND IN ACCORDANCE WITH MHD STANDARDS. ALL CONSTRUCTION SIGNS SHALL BE ATTACHED TO THEIR OWN INDEPENDENT SUPPORTS.
5. ALL CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL BE IMMEDIATELY REMOVED WHEN NO LONGER NEEDED. ADVANCE WARNING SIGNS NO LONGER APPLICABLE SHALL BE EITHER COVERED OR REMOVED.
6. THE CONTRACTOR SHALL MAINTAIN ACCESS AND EGRESS AT ALL TIMES TO ALL PROPERTIES ABUTTING THE WORK AREA.
7. AT THE END OF EACH WORKDAY, ALL ROADWAYS SHALL BE OPEN FOR TWO-WAY TRAFFIC BY FILLING EXCAVATIONS TO GRADE OR BY THE USE OF STEEL PLATES.
8. DURING NON-WORKING HOURS, NO LATERAL DROP-OFF WILL BE PERMITTED WITHIN THE AREA OF EXCAVATION ADJACENT TO ANY TRAVELLED WAY.
9. IT IS ANTICIPATED THAT SHORT-TERM DETOURS (3 DAYS OR LESS) MAY BE ALLOWABLE FOR PORTIONS OF WATER STREET, THAYER STREET, TAYLOR STREET, FARESE ROAD AND FARESE ROAD EXTENSION, AND VINE STREET. ALL PROPOSED DETOURS MUST BE REVIEWED IN DETAIL WITH THE ENGINEER AND WRITTEN APPROVAL OF THE DETOUR PLAN MUST BE OBTAINED PRIOR TO IMPLEMENTATION.
10. NO DETOUR OF MAIN STREET TRAFFIC WILL BE ALLOWED.

GENERAL CONSTRUCTION SEQUENCING

1. THE CONTRACTOR SHALL SUBMIT A WRITTEN PROJECT SEQUENCE AND SCHEDULE FOR APPROVAL BY THE ENGINEER IN WRITING PRIOR TO ANY CONSTRUCTION ACTIVITIES TAKING PLACE.
2. THE CONTRACTOR SHALL GENERALLY PROCEED IN A DOWNSTREAM TO UPSTREAM FASHION.
3. SEQUENCING FOR WORK IN THE VINE STREET AREA HAS BEEN DESCRIBED IN DETAIL FOR PERMITTING PURPOSES AND IS INCLUDED IN THE CONSTRUCTION PLANS.
4. UNDER NO CIRCUMSTANCES SHALL ANY DIVERSION STRUCTURE BE PLACED INTO OPERATION BEFORE ALL DOWNSTREAM WORK HAS BEEN ACCEPTED FOR USE.

LEGEND

EXISTING

FIRE HYDRANT
WATER GATE
SEWER MANHOLE
CATCH BASIN
DRAIN MANHOLE
PIPE OUTLET
GAS GATE
UTILITY POLE
GUY WIRE
SPOT GRADES
B-3 204.16 — APPROX. BORING LOCATION WITH APPROX. GROUND SURFACE ELEVATION
SHRUB OR MISC. TREE
HEDGE LINE
TREE LINE
WETLAND AREA

APPROX. STREET LINES
APPROX. PROPERTY LINES
EDGE OF PAVEMENT
PAVED WALKS
CURB LINES
EDGE OF DRIVES
FENCE
STONE WALL
CONCRETE WALL
OVERHEAD WIRES
GAS LINE
SEWER LINE
DRAIN LINE
WATER LINE
TELEPHONE LINE
BUILDING
WETLAND BOUNDARY
STREAMS
100' WETLAND BUFFER ZONE

PROPOSED

SUPPLEMENTARY EROSION CONTROL BARRIER — F/7
REQUIRED PERMANENT EASEMENT
REQUIRED TEMPORARY EASEMENT
12+00 — 13+00 — CONSTRUCTION BASELINES
DIVERSION CULVERTS
CATCH BASIN (OR DROP INLET)
MH#4 — DRAINAGE MANHOLE
SMH #2 — SAN. SEWER MANHOLE
DIRECTION OF FLOW
CURB (OR BERM) - TYPE NOTED
EDGE OF PAVING OR SIDEWALK
45 LF-42"RCP — DRAIN PIPE (DOUBLE LINE 24" AND OVER)
22 LF- 8" PVCP — SEWER MAIN
SAN. SEWER
+ 300.0 — SPOT GRADE
(TOP) (BOTTOM) — SLOPE
A/8 — DETAIL "A" AS SHOWN ON SHEET NO. 8 (TYP.)

ABBREVIATIONS

Aban.	Abandon	Hyd.	Hydrant	Rem.	Remove
Approx.	Approximately	Inv	Invert Elevation	Ret.	Retain
BB	Bituminous Berm	LP	Low Point	Ret. Wall	Retaining Wall
Bit. Conc.	Bituminous Concrete	Lt.	Left	R.O.W.	Right-of-Way
℄	Baseline	M.H.	Manhole	R.R.	Railroad
Bldg.	Building	M.H.D.	Mass. Highway Department	Rt.	Right
B.M.	Bench Mark	Min.	Minimum	R/W	Right-of-Way
C.B.	Catch Basin	Max.	Maximum	San.	Sanitary
CEM.	Cement	NTS	Not to Scale	Sec.	Section
C.I.	Curb Inlet	O.C.	On Centers	Sects.	Sections (End sections for pipes)
C.I.P.	Cast Iron pipe	P.C.	Point of Curvature	Sh.	Sheet
℄	Center Line	P.C.C.	Point of Compound Curvature	S.M.H.	Sewer Manhole
Conc.	Concrete	P.I.	Point of Intersection	Sq. Yds.	Square Yards
Const.	Construct(ion)	℄ (or Prop. Line)	Property Line	St.	Street
Culv.	Culvert	P.R.C.	Point of Reverse Curvature	Sta.	Station
Cu. Yds.	Cubic Yards	PVCP	Poly-Vinyl-Chloride Pipe	Surf.	Surfacing or Surface
D.I.	Drop Inlet	Proj.	Project	S.W.	Sidewalk
D.I.P.	Ductile Iron Pipe	Prop.	Proposed	T, Tan.	Tangent
Dr.	Drive	P.T.	Point of Tangency	Temp.	Temporary
Elev. (or EL.)	Elevation	R	Radius of Curvature	Typ.	Typical
Exc.	Excavation	R&R	Remove and Reset or Rebuild	Var.	Variable
Exist. (or Ex.)	Existing	R&S	Remove and Stack	V.C.	Vertical Curve
GC	Granite Curb	RCP	Reinforced Concrete Pipe	V.C.P.	Vitrified Clay Pipe
Gar.	Garage	Rd.	Road	Vert.	Vertical
Gran.	Granite	Rdwy.	Roadway	Wd.	Wood
				X-Sect.	Cross Section

SHEET TITLE: Index Plan

PROJECT: Godfrey Brook Flood Mitigation Project, Milford, Massachusetts

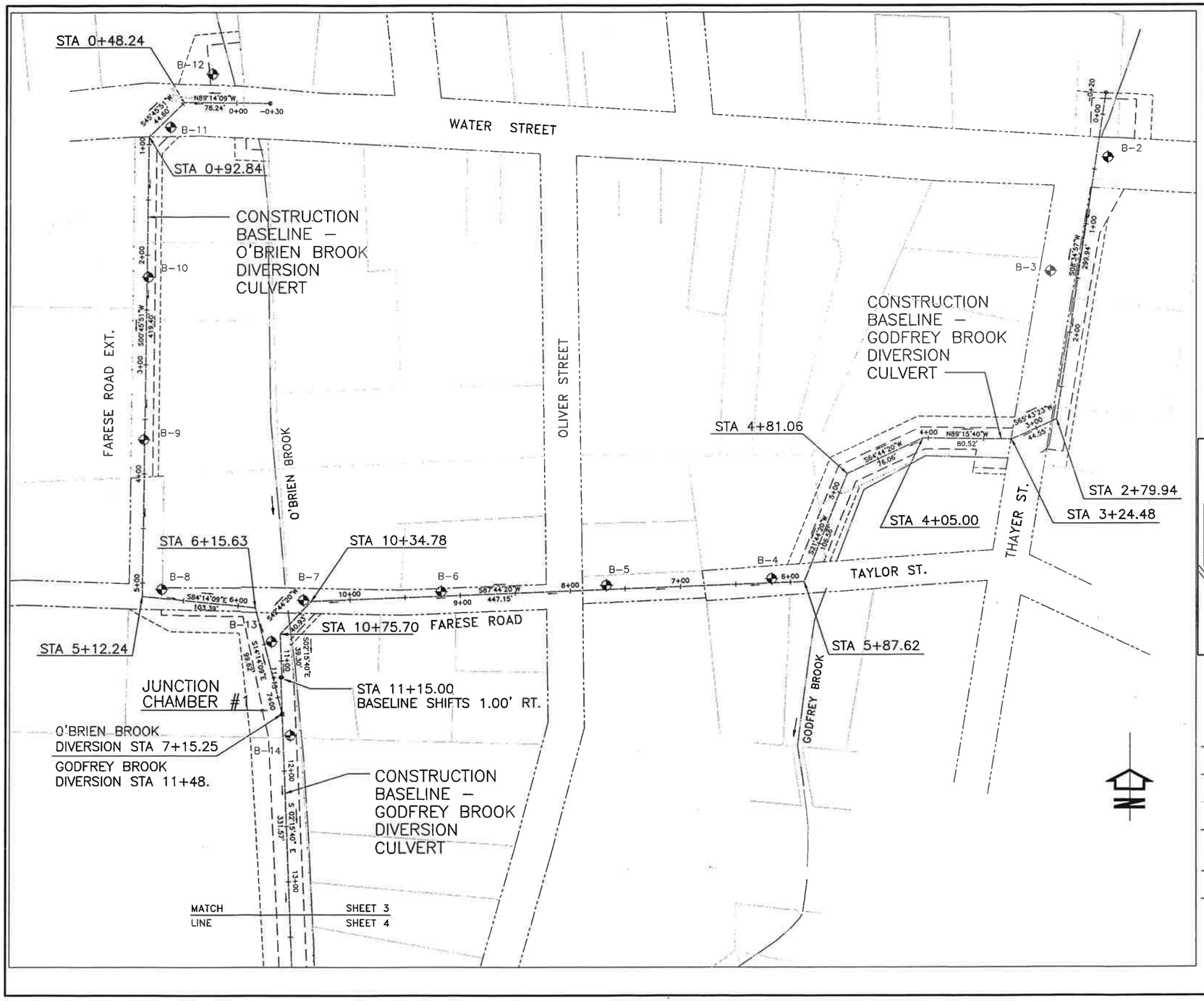
NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

DRAWING NO. 2 OF 35 SHTS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



NOTE:
LOCAL COORDINATED CONTROL POINTS WILL BE PROVIDED TO THE CONTRACTOR.

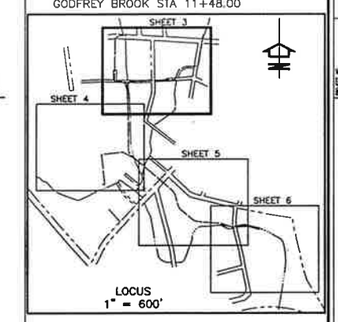
CONSTRUCTION BASELINE COORDINATE LISTINGS

GODFREY BROOK DIVERSION CULVERT:

STATION	COORDINATES
–0+20.00 (BEGIN)	N 414802.98 E 593331.85
11+15.00	N 414270.22 E 592584.68
BASELINE SHIFTS 1.00' RT. AT GODFREY BROOK STA 11+15.00	
11+15.00 1.00'R	N 414270.68 E 592583.68

O'BRIEN BROOK DIVERSION CULVERT:

STATION	COORDINATES
–0+30.00 (BEGIN)	N 414794.08 E 592573.40
7+15.25 (END)	N 414237.70 E 592584.99
INTERSECTION AT GODFREY BROOK STA 11+48.00	



COORDINATES SHOWN ARE MASSACHUSETTS COORDINATE SYSTEM GRID NORTH – MAINLAND ZONE

LEGEND

- EXISTING STREAM CHANNELS
- APPROXIMATE STREET LINES
- APPROXIMATE PROPERTY LINES
- CONSTRUCTION BASELINES, WITH FLOW DIRECTION
- REQ'D. TEMPORARY EASEMENTS
- REQ'D. PERMANENT EASEMENTS
- B-29 APPROXIMATE BORING LOCATION
  BORING LOGS INCLUDED WITH SPECIFICATIONS

NO.	DATE	REVISION	BY
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PROJECT

Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

Layout Plan No. 1

PROJECT NO. 4-1215
SCALE 1" = 40'
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

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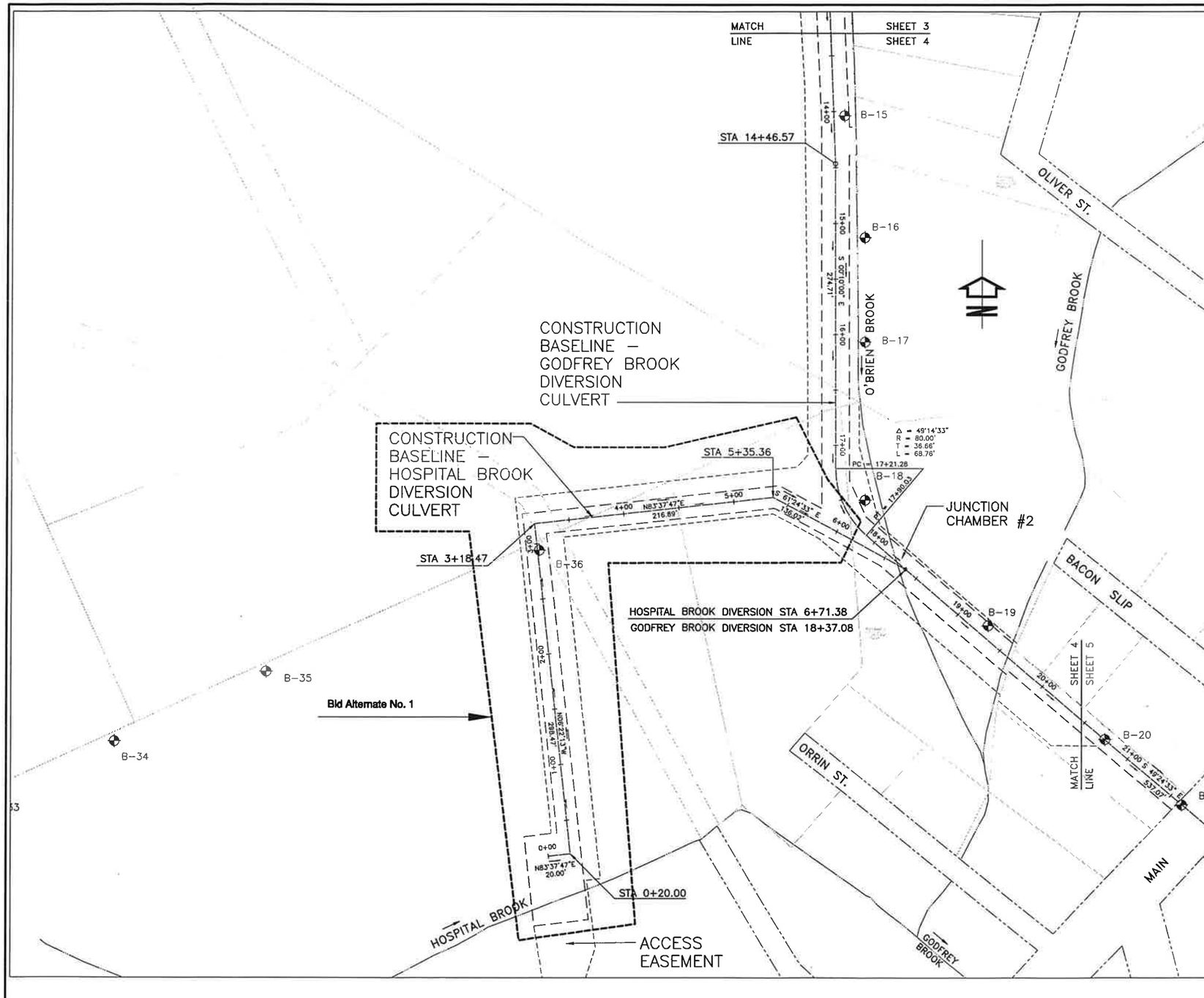

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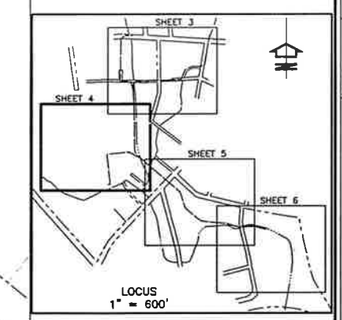
CONSTRUCTION BASELINE COORDINATE LISTINGS

HOSPITAL BROOK DIVERSION CULVERT:

STATION	COORDINATES
0+00.00 (BEGIN)	N 413315.71 E 592339.50
6+71.38 (END)	N 413573.53 E 592661.24

INTERSECTION AT GODFREY BROOK STA 18+37.08



COORDINATES SHOWN ARE MASSACHUSETTS COORDINATE SYSTEM GRID NORTH – MAINLAND ZONE

LEGEND

- EXISTING STREAM CHANNELS
- APPROXIMATE STREET LINES
- APPROXIMATE PROPERTY LINES
- CONSTRUCTION BASELINES, WITH FLOW DIRECTION
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BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE 1" = 40'
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

SHEET TITLE: Layout Plan No. 2

NO.	DATE	REVISION	BY
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SHEET 4 OF 35 SHTS

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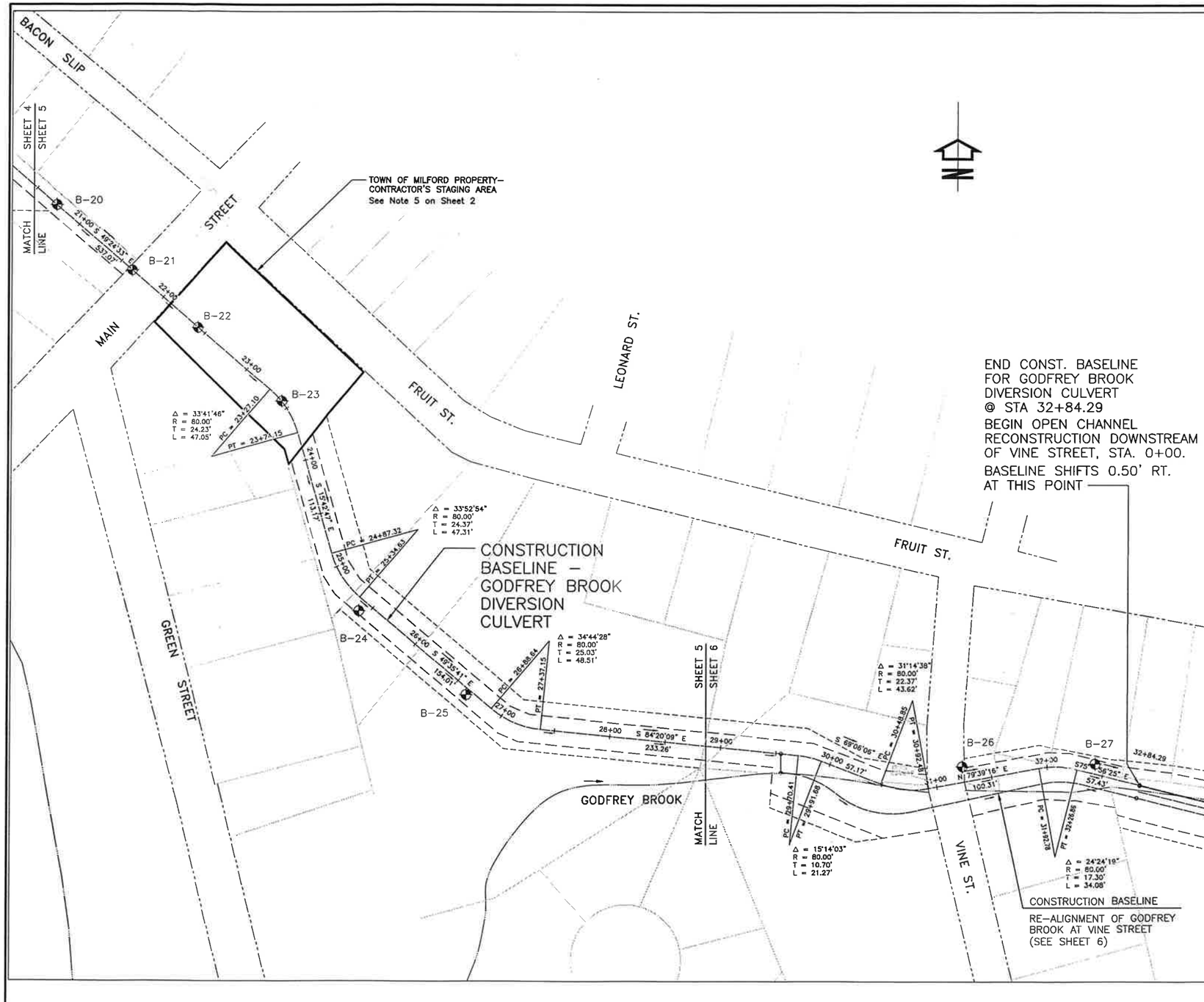

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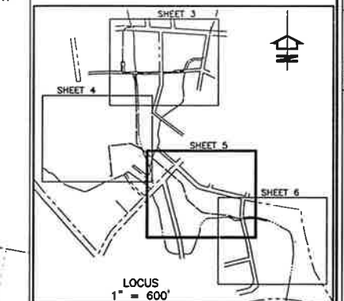
CONSTRUCTION BASELINE COORDINATE LISTINGS

GODFREY BROOK
DIVERSION CULVERT:

STATION	COORDINATES
–0+20.00 (BEGIN)	N 414802.98 E 593331.85
32+84.29 (END)	N 412899.62 E 593812.61

BASELINE SHIFTS 0.50' RT.
AT GODFREY BROOK STA 32+84.29
= RECONSTRUCTION OF
GODFREY BROOK, STA 0+00.



COORDINATES SHOWN ARE
MASSACHUSETTS COORDINATE SYSTEM
GRID NORTH – MAINLAND ZONE

LEGEND

- EXISTING STREAM CHANNELS
- APPROXIMATE STREET LINES
- APPROXIMATE PROPERTY LINES
- CONSTRUCTION BASELINES, WITH FLOW DIRECTION
- REQ'D. TEMPORARY EASEMENTS
- REQ'D. PERMANENT EASEMENTS
- B-29 APPROXIMATE BORING LOCATION
  BORING LOGS INCLUDED WITH SPECIFICATIONS

SHEET 5 OF 95 SHEETS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

PROJECT NO. 91-1215
SCALE 1" = 40'
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SHEET TITLE: Layout Plan No. 3

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

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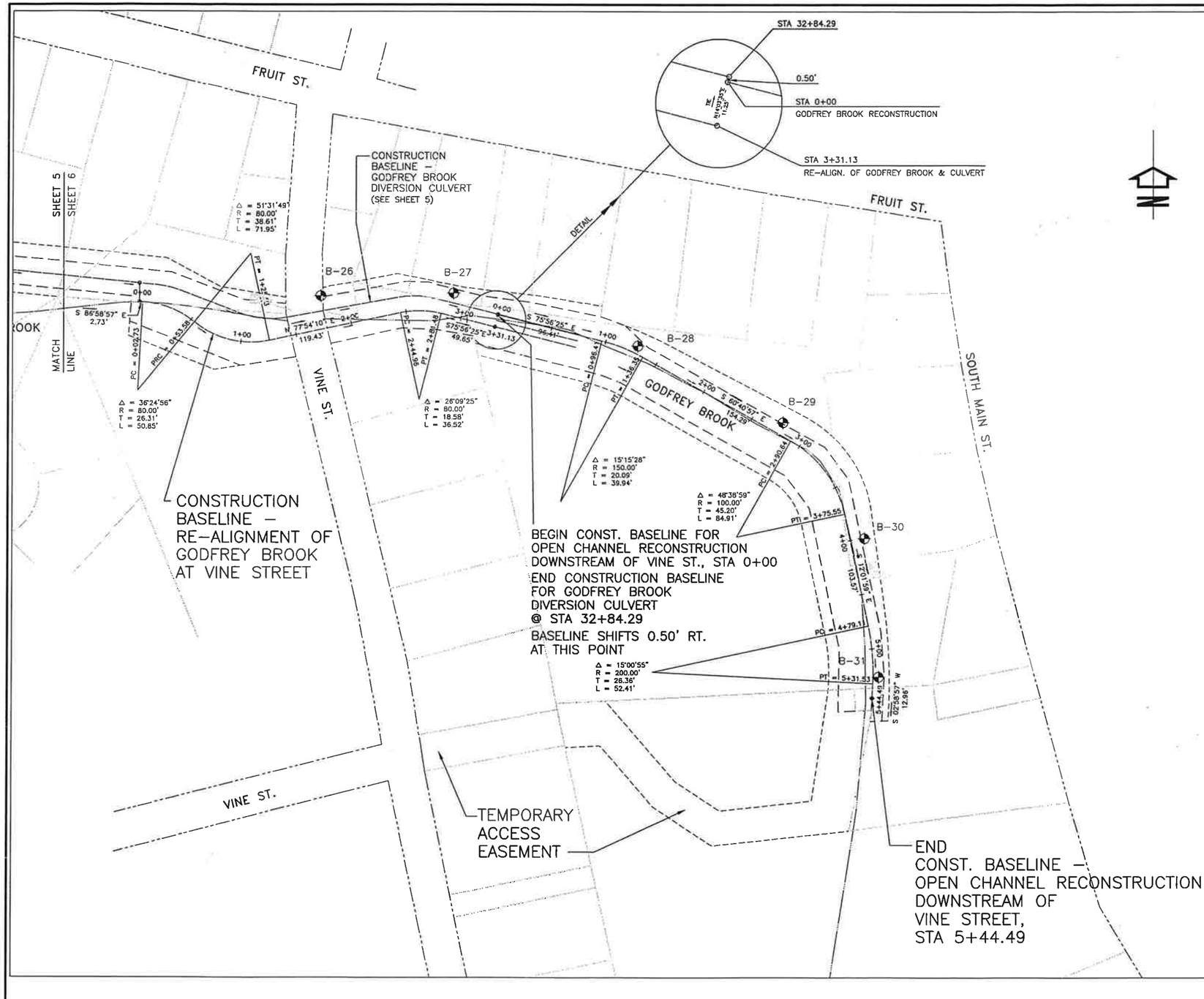

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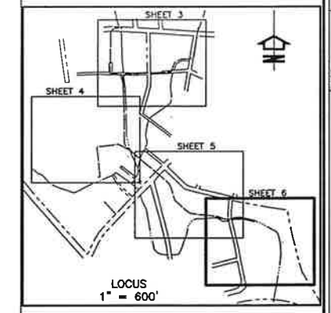
CONSTRUCTION BASELINE COORDINATE LISTINGS

RE-ALIGNMENT OF GODFREY BROOK AT VINE STREET:

STATION	COORDINATES
0+00.00 (BEGIN)	N 412910.55 E 523491.71
3+31.13 (END)	N 412888.22 E 593809.76

RECONSTRUCTION OF GODFREY BROOK DOWNSTREAM OF VINE STREET:

STATION	COORDINATES
0+00.00 (BEGIN)	N 412899.13 E 593812.49
5+44.49 (END)	N 412552.75 E 594151.42



COORDINATES SHOWN ARE MASSACHUSETTS COORDINATE SYSTEM GRID NORTH – MAINLAND ZONE

LEGEND

- EXISTING STREAM CHANNELS
- APPROXIMATE STREET LINES
- APPROXIMATE PROPERTY LINES
- CONSTRUCTION BASELINES, WITH FLOW DIRECTION
- REQ'D. TEMPORARY EASEMENTS
- REQ'D. PERMANENT EASEMENTS
- B-29 APPROXIMATE BORING LOCATION
  BORING LOGS INCLUDED WITH SPECIFICATIONS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
295 North Main Street East Longmeadow, MA 01028

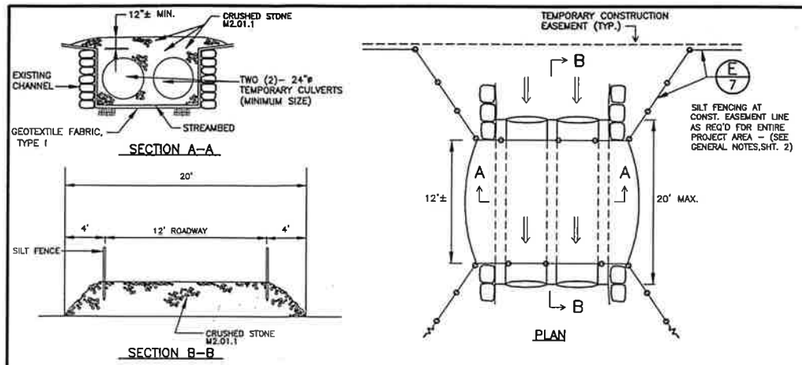
PROJECT No. 94-1215
SCALE 1" = 40'
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

SHEET TITLE: Layout Plan No. 4

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

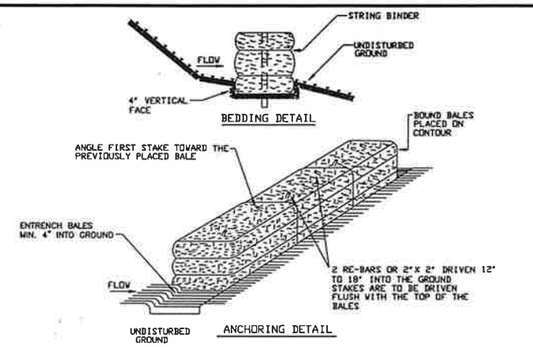
NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



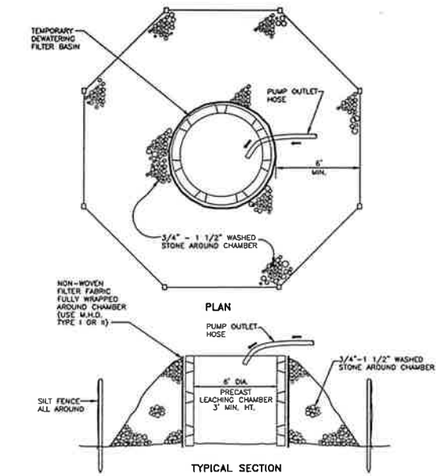
A 7 TEMPORARY BROOK CROSSING
TYPICAL DETAIL – APPLIES TO CROSSINGS OF HOSPITAL, O'BRIEN, & GODFREY BROOKS

NTS



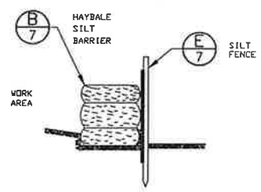
B 7 HAYBALE SILT BARRIER

NTS



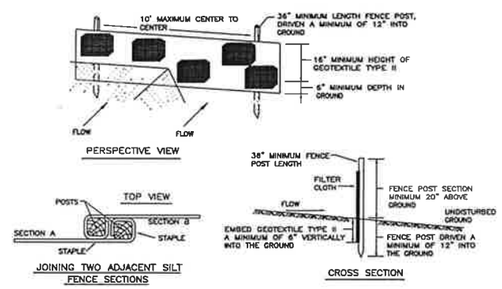
C 7 TEMPORARY DEWATERING FILTER BASIN

NTS



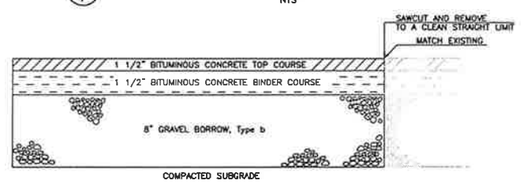
F 7 SUPPLEMENTARY EROSION CONTROL BARRIER

NTS



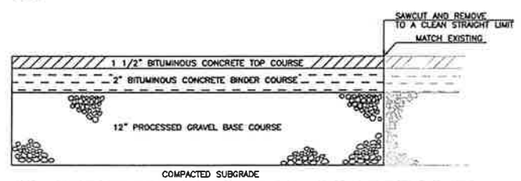
E 7 SILT FENCE DETAIL

NTS



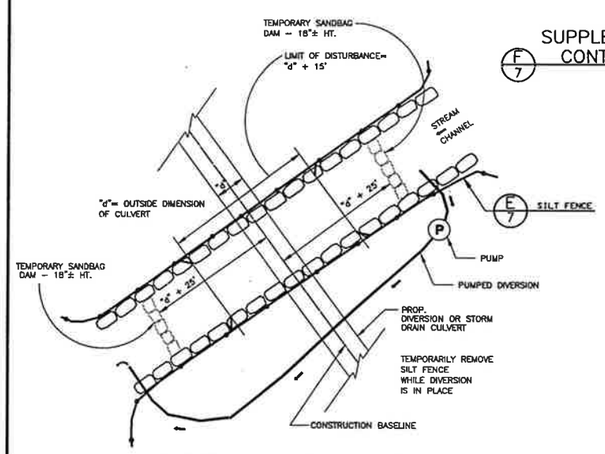
J 7 TYPICAL BIT. CONC. DRIVEWAY RECONSTRUCTION

NTS



K 7 TYPICAL BIT. CONC. ROAD RECONSTRUCTION

NTS

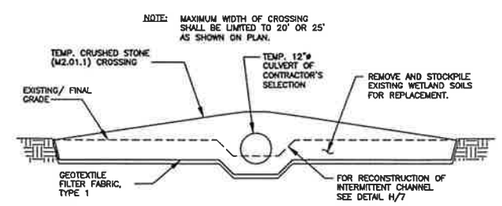


D 7 DIVERSION CULVERT CROSSINGS UNDER EXISTING STREAM CHANNELS
TYPICAL DETAIL

NTS

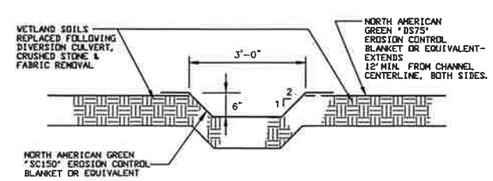
NOTES FOR TEMPORARY DIVERSIONS:

1. EROSION CONTROL BARRIERS SHALL BE IN PLACE PRIOR TO ANY OTHER WORK TAKING PLACE.
2. HAVE PUMP IN PLACE PRIOR TO PLACING TEMPORARY SANDBAG DAMS.
3. PUMPS SHALL BE CAPABLE OF DISCHARGING 1,500 GPM (3.3±CFS) UNDER THE INSTALLED CONDITIONS. PRIOR TO INSTALLING THE DIVERSION, A STANDBY PUMP OF EQUAL OR GREATER CAPACITY SHALL BE ON SITE FOR SUBSTITUTION IN CASE OF MALFUNCTION OR FOR DUPLEX USE IN CASE OF HIGH FLOWS IN THE STREAM CHANNEL.
4. ONCE STARTED, THE PUMPED DIVERSION SHALL REMAIN IN PLACE UNTIL THE WORK IS COMPLETE. PUMPS SHALL BE ATTENDED 24–HOURS PER DAY DURING THE PERIOD OF PUMPED DIVERSION.
5. ACTUAL DISTURBANCE TO THE STREAM CHANNEL SHALL BE LIMITED TO FIFTEEN FEET (15') GREATER THAN THE OUTSIDE DIMENSION OF THE CULVERT BEING INSTALLED.
6. FOLLOWING INSTALLATION OF THE CULVERT AND PROPER BACKFILL, THE CHANNEL WALLS AND FLOOR SHALL BE RECONSTRUCTED IN KIND TO THE SATISFACTION OF THE ENGINEER.
7. PRIOR TO REMOVING THE DIVERSION, THE STREAM CHANNEL IN THE WORK AREA SHALL BE THOROUGHLY CLEANED, WITH ALL DEBRIS AND EXTRANEOUS MATERIAL REMOVED.
8. REMOVE ALL TEMPORARY SANDBAGGING AT THE COMPLETION OF THE PUMPED DIVERSION.



G 7 TEMPORARY CROSSING OF INTERMITTENT CHANNEL/ WETLAND AREA

NTS



H 7 RECONSTRUCTION OF DISTURBED INTERMITTENT CHANNELS

NTS

APPROX. LIMITS OF ROAD RECONSTRUCTION

NOTE: CONTRACTOR SHALL RECORD EXIST. ELEVATIONS AT EACH STATION AND OFFSET LISTED BELOW FOR REFERENCE AND RE–ESTABLISHMENT DURING ROAD RECONSTRUCTION. POINTS REPRESENT FINISHED EDGE OF PAVING.

TAYLOR ST. GODFREY BROOK DIVERSION BASELINE		FARESE ROAD O'BRIEN BROOK DIVERSION BASELINE		FARESE RD. EXT. O'BRIEN BROOK DIVERSION BASELINE	
5+66.8	14.3' Lt	8+17.0	14.3' Rt	0+86.0	5.5' Lt
5+85.8	14.9' Lt	8+17.6	8.8' Lt	0+93.1	9.0' Rt
6+00.0	5.6' Lt	8+18.0	10.2' Rt	1+37.1	5.9' Rt
6+05.1	14.4' Rt	8+21.7	7.3' Rt	1+43.9	8.8' Lt
6+13.0	15.3' Rt	8+22.1	7.6' Lt	1+44.6	9.2' Lt
6+19.4	15.0' Rt	8+25.0	6.4' Rt	1+71.4	3.8' Rt
6+25.0	6.4' Lt	8+50.0	8.0' Lt	2+50.5	3.9' Rt
6+50.0	7.1' Lt	8+50.0	4.6' Rt	3+36.4	2.3' Rt
6+51.7	13.9' Rt	8+75.0	7.2' Lt	3+91.8	2.9' Rt
6+60.3	7.4' Lt	8+75.0	4.2' Rt	4+44.8	4.4' Rt
6+64.2	9.5' Lt	9+00.0	6.4' Lt	4+80.5	2.5' Rt
6+65.7	10.7' Lt	9+00.0	4.3' Rt	4+86.1	6.2' Rt
6+75.0	10.2' Rt	9+25.0	7.1' Lt	4+87.6	9.6' Rt
6+81.9	10.2' Rt	9+25.0	3.9' Rt	4+94.9	10.0' Lt
6+82.7	13.0' Rt	9+35.4	7.7' Lt	5+06.8	9.5' Rt
6+83.0	10.5' Lt	9+46.5	9.3' Lt	5+25.4	11.0' Lt
6+84.2	8.3' Lt	9+50.0	12.2' Lt	5+27.7	5.6' Lt
6+86.6	7.8' Lt	9+50.0	5.0' Rt		
7+00.0	7.5' Lt	9+75.0	6.2' Rt		
7+11.3	12.7' Rt	9+92.6	12.5' Lt	–0+27.7	454.8' Lt
7+14.4	9.0' Rt	9+95.2	8.2' Lt	5+06.4	108.4' Lt
7+25.0	7.2' Lt	10+00.0	10.0' Rt	5+44.0	10.0' Lt
7+25.0	8.8' Rt	10+25.0	11.9' Rt	5+83.3	4.5' Lt
7+50.0	7.3' Lt	10+28.1	8.5' Lt	6+03.1	15.3' Lt
7+50.0	8.7' Rt	10+44.0	10.0' Rt		
7+89.2	8.4' Rt	10+51.5	6.2' Rt		
7+89.3	7.6' Lt	10+51.8	9.1' Rt		
		10+67.2	10.9' Lt		

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

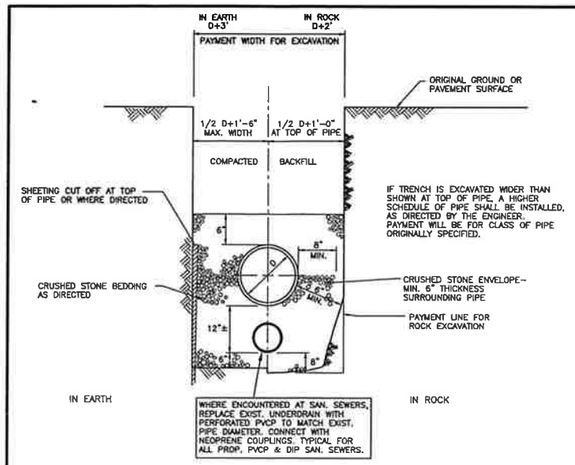
PROJECT: Godfrey Brook Flood Mitigation Project, Milford, Massachusetts

SHEET TITLE: Construction Details No. 1

PROJECT NO. 94–1215 | SCALE AS NOTED | DATE APRIL 1999 | DRAWN BY SMR | CHECKED BY TEJ

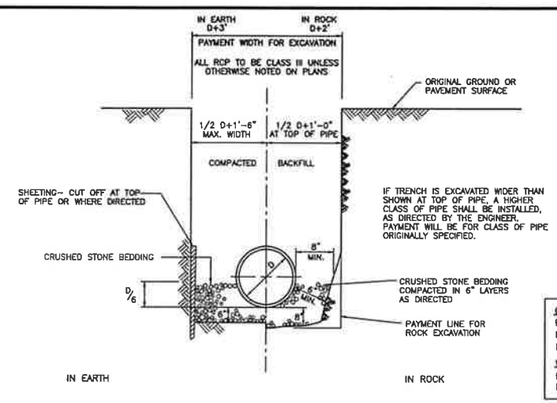
BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
236 North Main Street East Longmeadow, MA 01028

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



A/8 TYPICAL TRENCH DETAIL– PVC PIPE

NTS



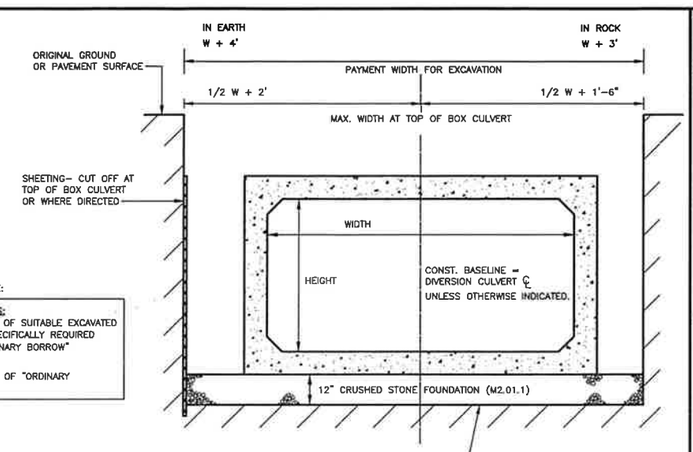
B/8 TYPICAL TRENCH DETAIL
–REINFORCED CONCRETE PIPE
–DUCTILE IRON PIPE

NTS

BACKFILL TO SUBGRADE:

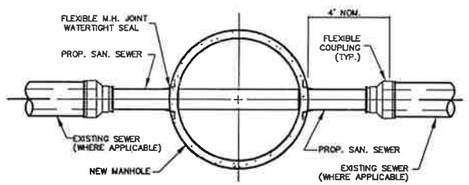
OUTSIDE OF PAVED AREAS:
BACKFILL SHALL CONSIST OF SUITABLE EXCAVATED MATERIAL OR, WHERE SPECIFICALLY REQUIRED BY THE ENGINEER, "ORDINARY BORROW"

WITHIN PAVED AREAS:
BACKFILL SHALL CONSIST OF "ORDINARY BORROW"



C/8 TYPICAL TRENCH DETAIL
PRECAST BOX CULVERT

NTS



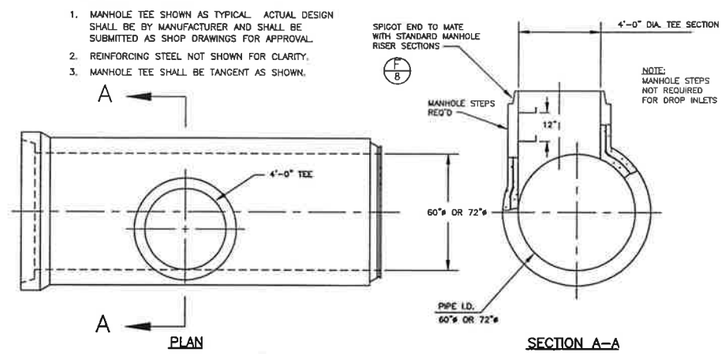
ALL SAN. SEWER MANHOLES SHALL HAVE FLEXIBLE WATERTIGHT SEALS AT ALL PIPE ENTRANCES

D/8 CONNECTION OF SANITARY SEWERS TO NEW MANHOLES

NTS

NOTES:

1. MANHOLE TEE SHOWN AS TYPICAL. ACTUAL DESIGN SHALL BE BY MANUFACTURER AND SHALL BE SUBMITTED AS SHOP DRAWINGS FOR APPROVAL.
2. REINFORCING STEEL NOT SHOWN FOR CLARITY.
3. MANHOLE TEE SHALL BE TANGENT AS SHOWN.



E/8 MANUFACTURED ECCENTRIC MANHOLE TEE

NTS

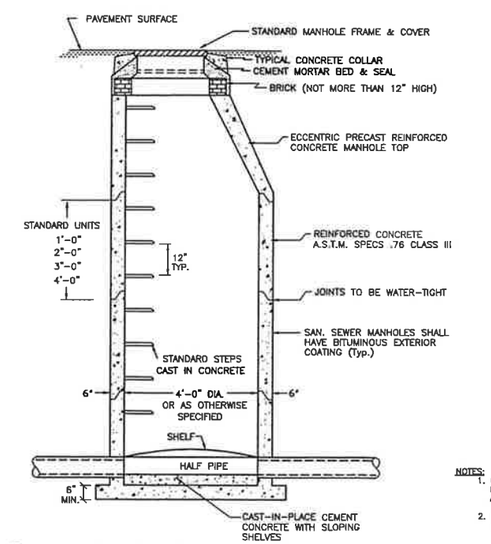
PRECAST BOX CULVERT DESIGN NOTES

CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
STEEL REINFORCEMENT – ASTM A615, GRADE 60
WHEEL LOADING – AASHTO HS25–40
COVER TO STEEL – 1.5 INCHES
EARTH COVER – 0'–0" MINIMUM, 13'–6" MAXIMUM
UNIT WEIGHT OF EARTH – 125 POUNDS PER CUBIC FOOT
ACTIVE PRESSURE COEFFICIENT – 0.25 MIN., 0.5 MAX.
2'–0" LIVE LOAD SURCHARGE APPLIED TO 13'–6" DEPTH
EXTERIOR GROUND WATER AT FINISHED GRADE
DESIGN SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES, ACI 318–83, AND LOAD FACTOR DESIGN (AASHTO)

LOAD FACTORS
DEAD LOAD 1.5
LIVE LOAD 2.17
HYDROSTATIC PRESSURE 1.4
EARTH PRESSURE, HORIZ. 1.7

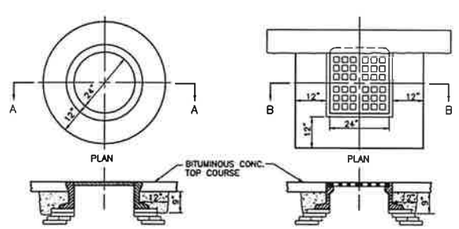
CAPACITY REDUCTION FACTORS
SHEAR 0.85
MOMENT 0.90

WEEP HOLES IN BOX CULVERT SECTIONS– EACH PRECAST SECTION SHALL CONTAIN A MINIMUM OF TWO (2) 4"ø WEEP HOLES.



F/8 PRECAST MANHOLE – TYPICAL DETAIL

NTS



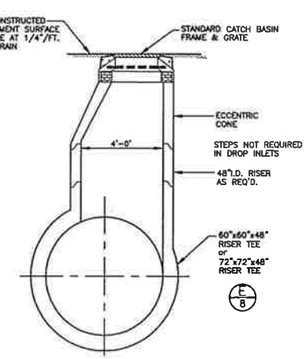
SECTION A–A
MANHOLES

SECTION B–B
CATCH BASINS

NOTES:
1. COLLARS TO BE CLASS A CEMENT CONCRETE MASONRY REGULAR OR HIGH EARLY STRENGTH AS DIRECTED.
2. NO CONCRETE COLLAR REQUIRED IN CONCRETE PAVEMENT.

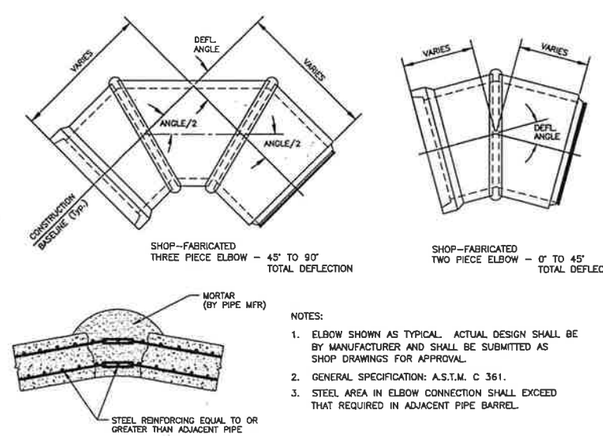
G/8 CONCRETE COLLARS

NTS



H/8 DROP INLET

NTS



SHOP–FABRICATED
THREE PIECE ELBOW – 45° TO 90°
TOTAL DEFLECTION

SHOP–FABRICATED
TWO PIECE ELBOW – 0° TO 45°
TOTAL DEFLECTION

NOTES:
1. ELBOW SHOWN AS TYPICAL. ACTUAL DESIGN SHALL BE BY MANUFACTURER AND SHALL BE SUBMITTED AS SHOP DRAWINGS FOR APPROVAL.
2. GENERAL SPECIFICATION: A.S.T.M. C 361.
3. STEEL AREA IN ELBOW CONNECTION SHALL EXCEED THAT REQUIRED IN ADJACENT PIPE BARREL.

J/8 TWO AND THREE PIECE ELBOW
60"ø & 72"ø REINFORCED CONCRETE PIPE

NTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1995
DRAWN BY SMR
DESIGNED BY TEJ

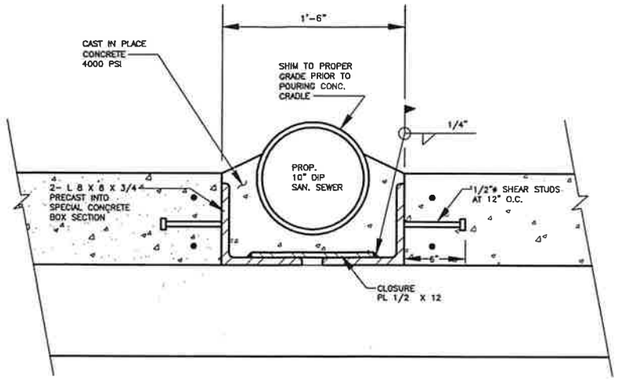
PROJECT TITLE: Construction Details No. 2

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	6/12/99	ISSUED FOR BIDDING	TEJ

SHEET NO. 8 OF 35 SHTS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



SECTION B–B
NTS

LAYOUT INFORMATION:

PIPE END #1 GODFREY BROOK BASELINE

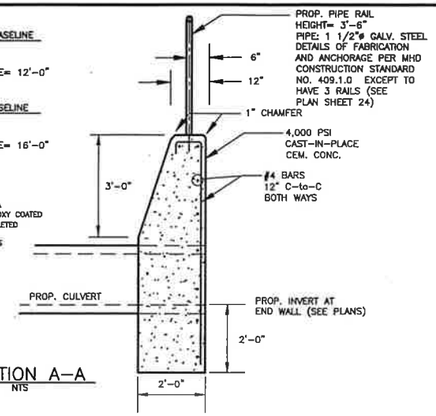
STA. 3+28.4, 11.2' LT
STA. 3+30.2, 23.1' LT
TOTAL LENGTH OF FRONT FACE= 12'-0"
TOP OF WALL ELEV.= 302.50

PIPE END #2 O'BRIEN BROOK BASELINE

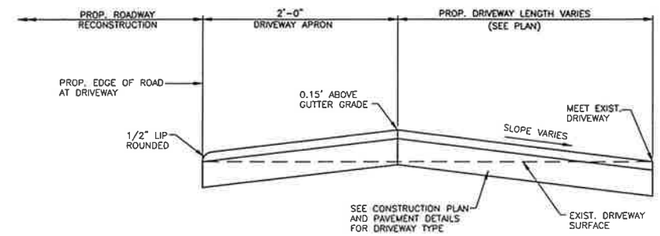
STA. -0+11.3, 32.2' LT
STA. -0+27.2, 32.8' LT
TOTAL LENGTH OF FRONT FACE= 16'-0"
TOP OF WALL ELEV.= 307.80

CONCRETE NOTES:

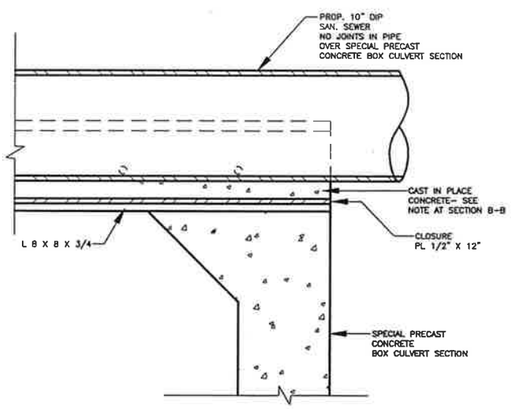
1. CONCRETE f_c = 4,000 psi, Class A
2. REINF.- ASTM A-61 GRADE 60, EPOXY COATED
3. ALL SURFACES VISIBLE WHEN COMPLETED SHALL HAVE RUBBED FINISH.
4. 1"x1" CHAMFER ALL CONC. CORNERS



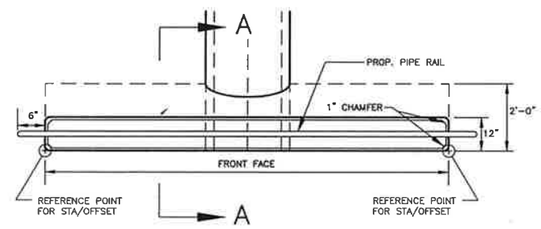
SECTION A–A
NTS



E/9 SECTION FOR DRIVEWAY WITHOUT SIDEWALK (EXIST. DRIVEWAY SLOPING AWAY FROM ROAD)
NTS

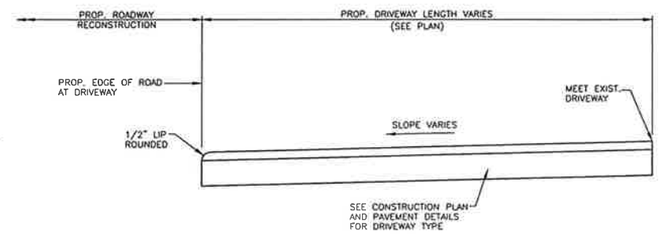


SECTION A–A
NTS

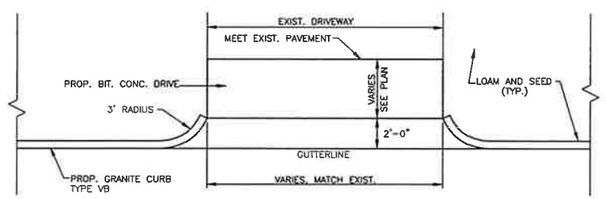


PLAN
NTS

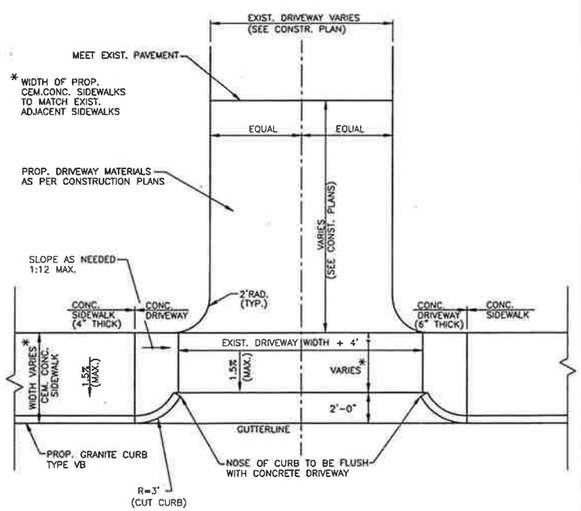
B/9 CEM. CONC. MASONRY PIPE ENDS



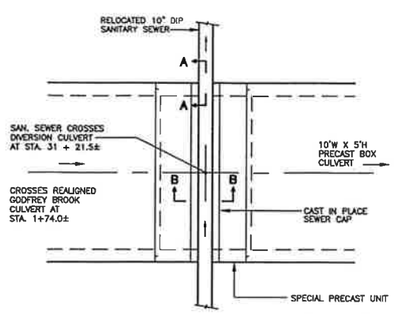
F/9 SECTION FOR DRIVEWAY WITHOUT SIDEWALK (EXIST. DRIVEWAY SLOPING TOWARD ROAD)
NTS



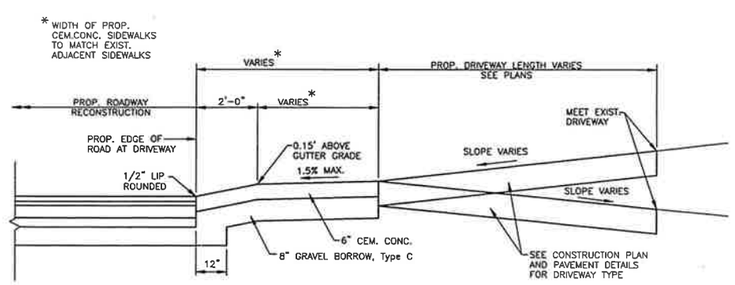
C/9 DETAIL FOR DRIVEWAY WITHOUT SIDEWALK
NTS



G/9 DETAIL FOR DRIVEWAY WITH SIDEWALK
NTS



A/9 SPECIAL PRECAST BOX UNIT WITH CAST–IN–PLACE TOP
NTS



D/9 DETAIL FOR TYPICAL DRIVEWAY SECTION
NTS

SHEET NO. 9 OF 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

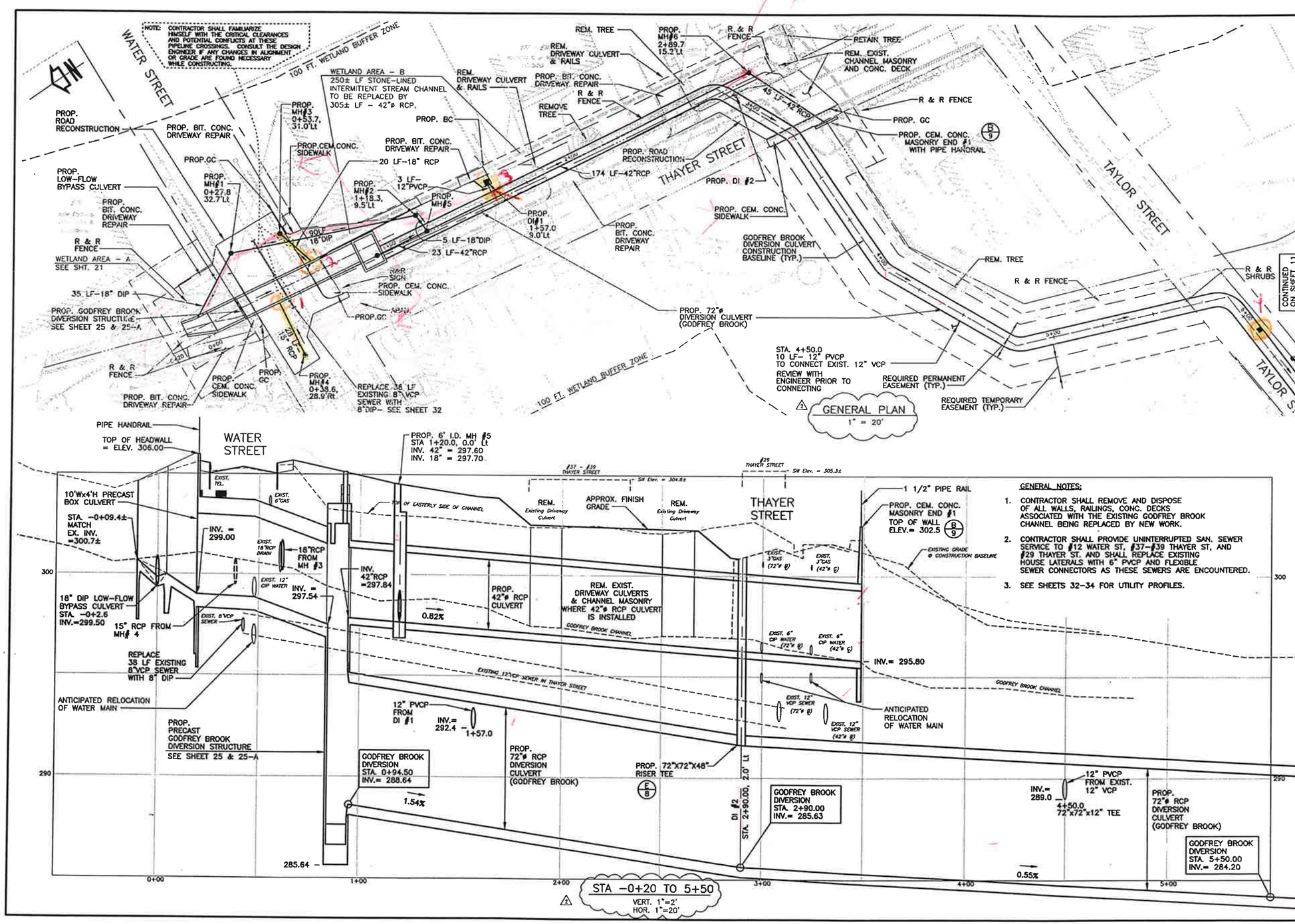
PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY SMR
CHECKED BY TEJ

Construction Details No. 3

PROJECT
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



GENERAL NOTES:

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL WALLS, RAILINGS, CONC. DECKS ASSOCIATED WITH THE EXISTING GODFREY BROOK CHANNEL BEING REPLACED BY NEW WORK.
2. CONTRACTOR SHALL PROVIDE UNINTERRUPTED SAN. SEWER SERVICE TO #12 WATER ST, #37–#39 THAYER ST, AND #29 THAYER ST. AND SHALL REPLACE EXISTING HOUSE LATERALS WITH 6" PVCP AND FLEXIBLE SEWER CONNECTORS AS THESE SEWERS ARE ENCOUNTERED.
3. SEE SHEETS 32–34 FOR UTILITY PROFILES.

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TCJ
2	11/13/00	GODFREY BROOK DIVERSION STRUCTURE; MISC. EDITS	TCJ

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

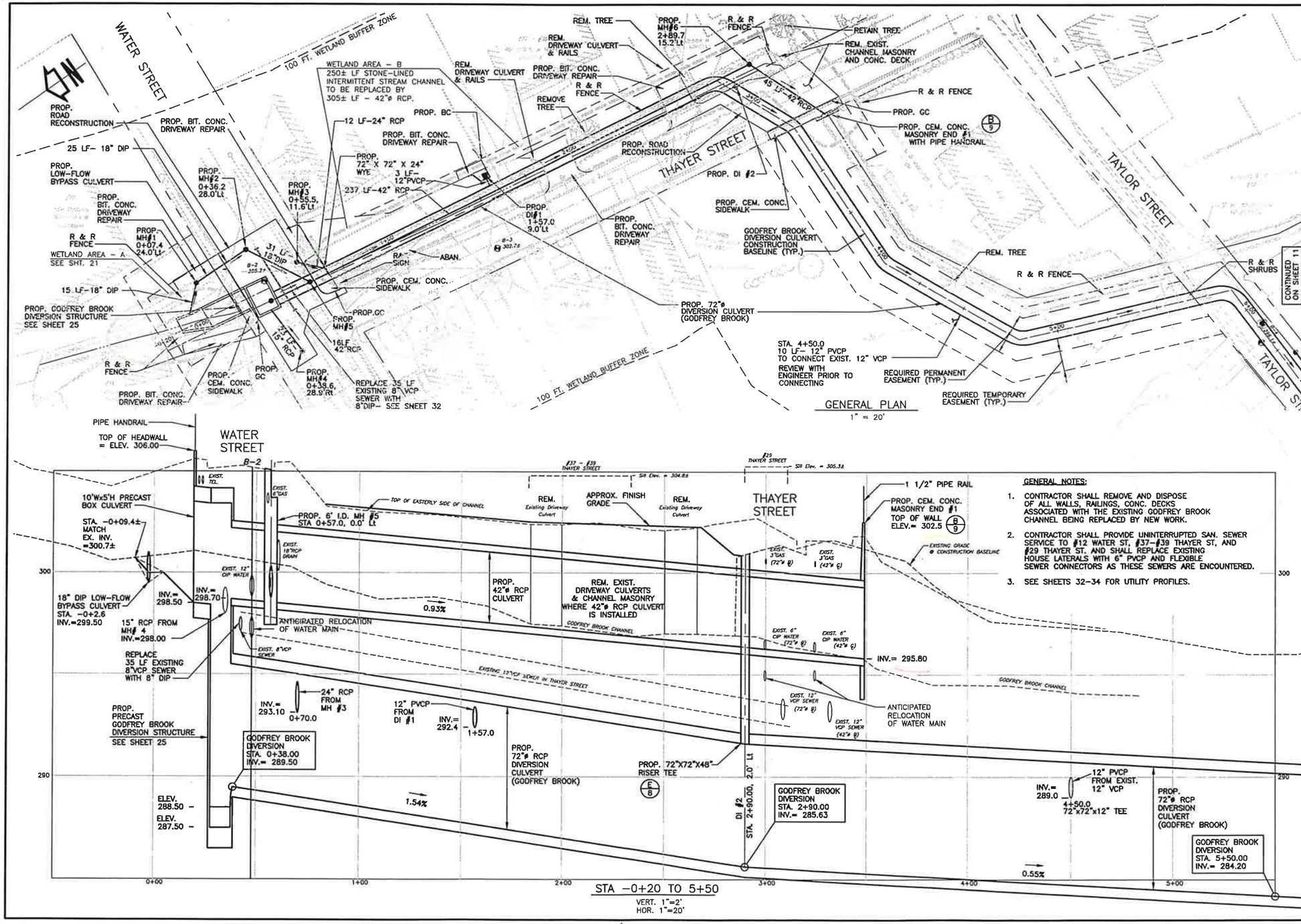
SHEET TITLE: Plan / Profile
Sta. -0+20 to 5+50
Godfrey Brook Diversion Culvert

PROJECT NO. 98-1315
SCALE: AS NOTED
DATE: APRIL 1999
DRAWN BY: EDM
DESIGNED BY: TCJ

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

10 OF 35 SHTS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE



GENERAL NOTES:

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL WALLS, RAILINGS, CONC. DECKS ASSOCIATED WITH THE EXISTING GODFREY BROOK CHANNEL BEING REPLACED BY NEW WORK.
2. CONTRACTOR SHALL PROVIDE UNINTERRUPTED SAN. SEWER SERVICE TO #12 WATER ST, #37–#39 THAYER ST, AND #29 THAYER ST. AND SHALL REPLACE EXISTING HOUSE LATERALS WITH 6" PVCP AND FLEXIBLE SEWER CONNECTORS AS THESE SEWERS ARE ENCOUNTERED.
3. SEE SHEETS 32–34 FOR UTILITY PROFILES.

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGNED BY TEJ

Plan / Profile Sta. -0+20 to 5+50 Godfrey Brook Diversion Culvert

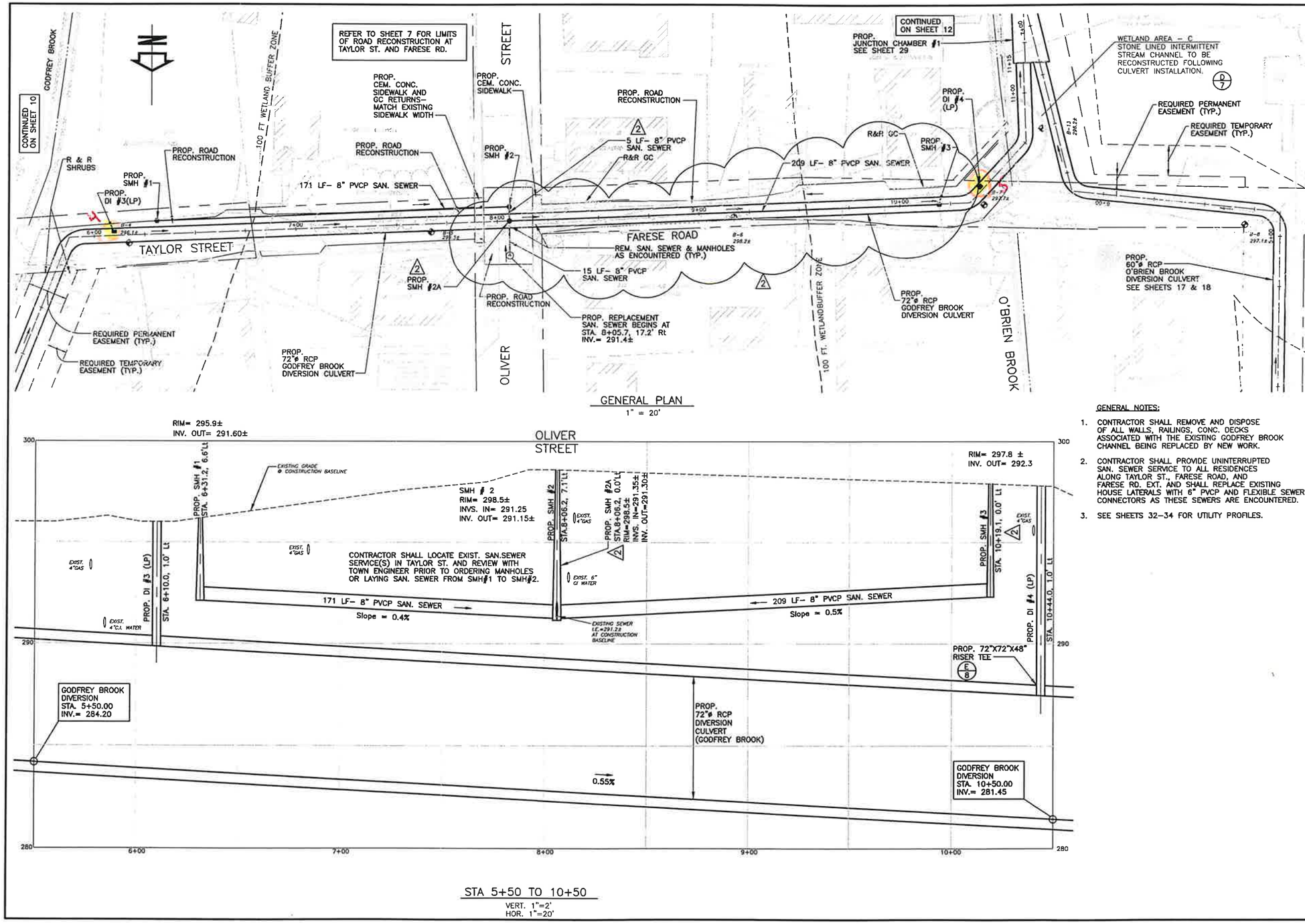
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

10 OF 35 SHTS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.

THIS SHEET IS OBSOLETE - SEE REV. 2 DATED 11/13/00



GENERAL PLAN
1" = 20'

STA 5+50 TO 10+50
VERT. 1"=2'
HOR. 1"=20'

GENERAL NOTES:

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL WALLS, RAILINGS, CONC. DECKS ASSOCIATED WITH THE EXISTING GODFREY BROOK CHANNEL BEING REPLACED BY NEW WORK.
2. CONTRACTOR SHALL PROVIDE UNINTERRUPTED SAN. SEWER SERVICE TO ALL RESIDENCES ALONG TAYLOR ST., FARESE ROAD, AND FARESE RD. EXT. AND SHALL REPLACE EXISTING HOUSE LATERALS WITH 6" PVCP AND FLEXIBLE SEWER CONNECTORS AS THESE SEWERS ARE ENCOUNTERED.
3. SEE SHEETS 32–34 FOR UTILITY PROFILES.

11 of 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA. 01028

PROJ. NO. 1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

SHEET TITLE
Plan / Profile
Sta. 5+50 to 10+50
Godfrey Brook Diversion Culvert

PROJECT
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
2	10/16/00	SEWER LOCATION IN FARESE ROAD	TEJ
1	5/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE

GENERAL PLAN
1" = 20'

STA 5+50 TO 10+50
VERT. 1"=2'
HOR. 1"=20'

GENERAL NOTES:

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL WALLS, RAILINGS, CONC. DECKS ASSOCIATED WITH THE EXISTING GODFREY BROOK CHANNEL BEING REPLACED BY NEW WORK.
2. CONTRACTOR SHALL PROVIDE UNINTERRUPTED SAN. SEWER SERVICE TO ALL RESIDENCES ALONG TAYLOR ST., FARESE ROAD, AND FARESE RD. EXT. AND SHALL REPLACE EXISTING HOUSE LATERALS WITH 6" PVCP AND FLEXIBLE SEWER CONNECTORS AS THESE SEWERS ARE ENCOUNTERED.
3. SEE SHEETS 32–34 FOR UTILITY PROFILES.

11 OF 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
295 North Main Street East Longmeadow, MA 01028

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

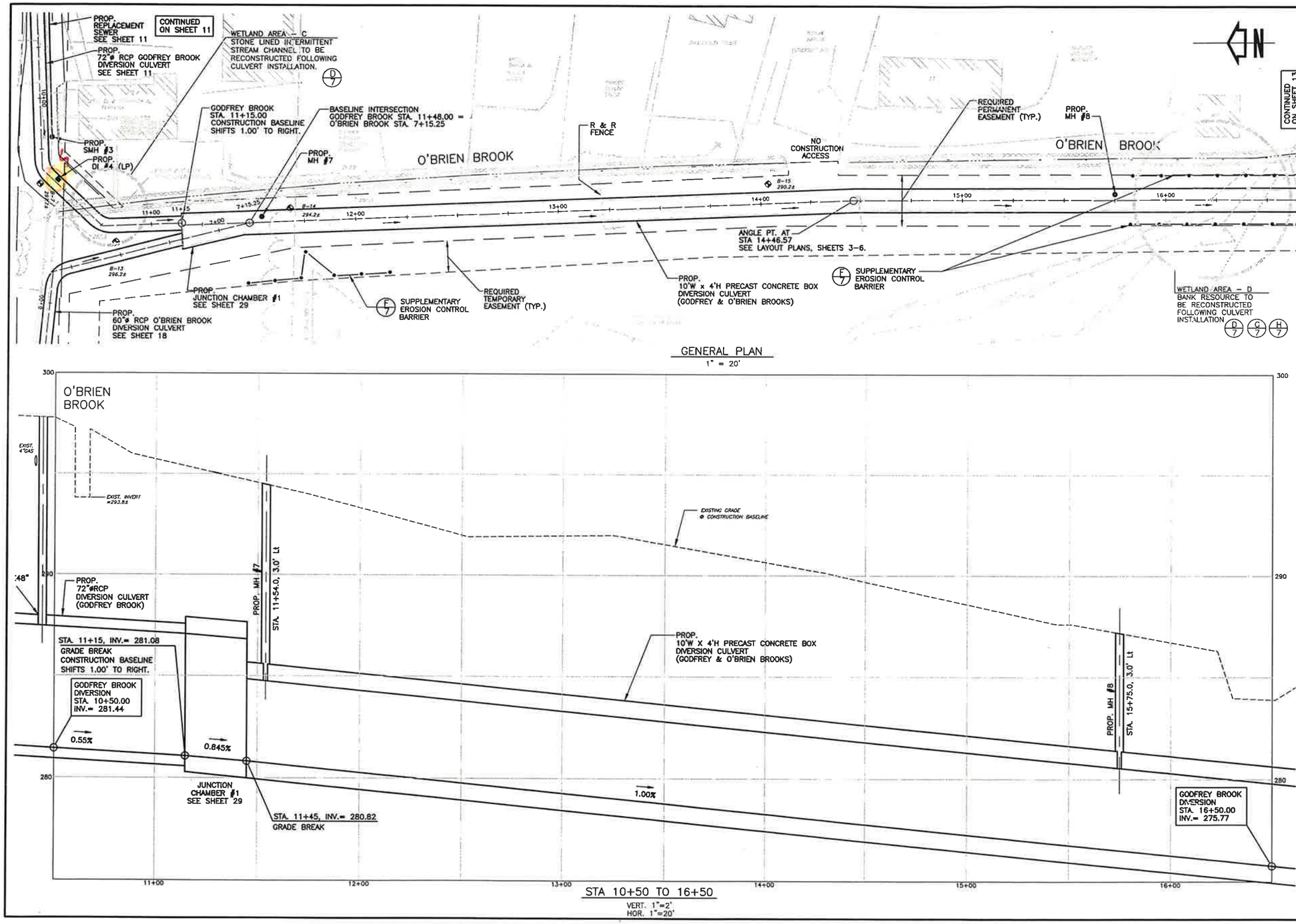
PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

SHEET TITLE: Plan / Profile
Sta. 5+50 to 10+50
Godfrey Brook Diversion Culvert

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.

THIS SHEET IS OBSOLETE - SEE REV. 2 DATED 10/16/00



12 of 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

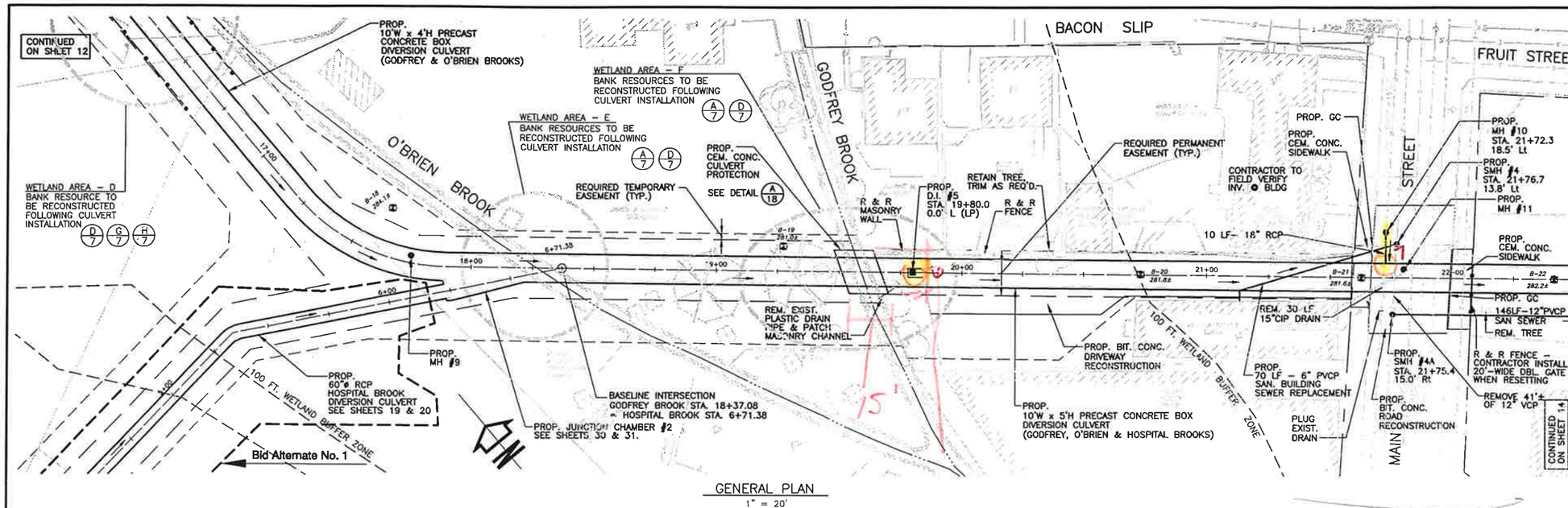
PROJECT NO. 1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGN BY TEJ

SHEET TITLE: Plan / Profile Sta. 10+50 to 16+50 Godfrey Brook Diversion Culvert

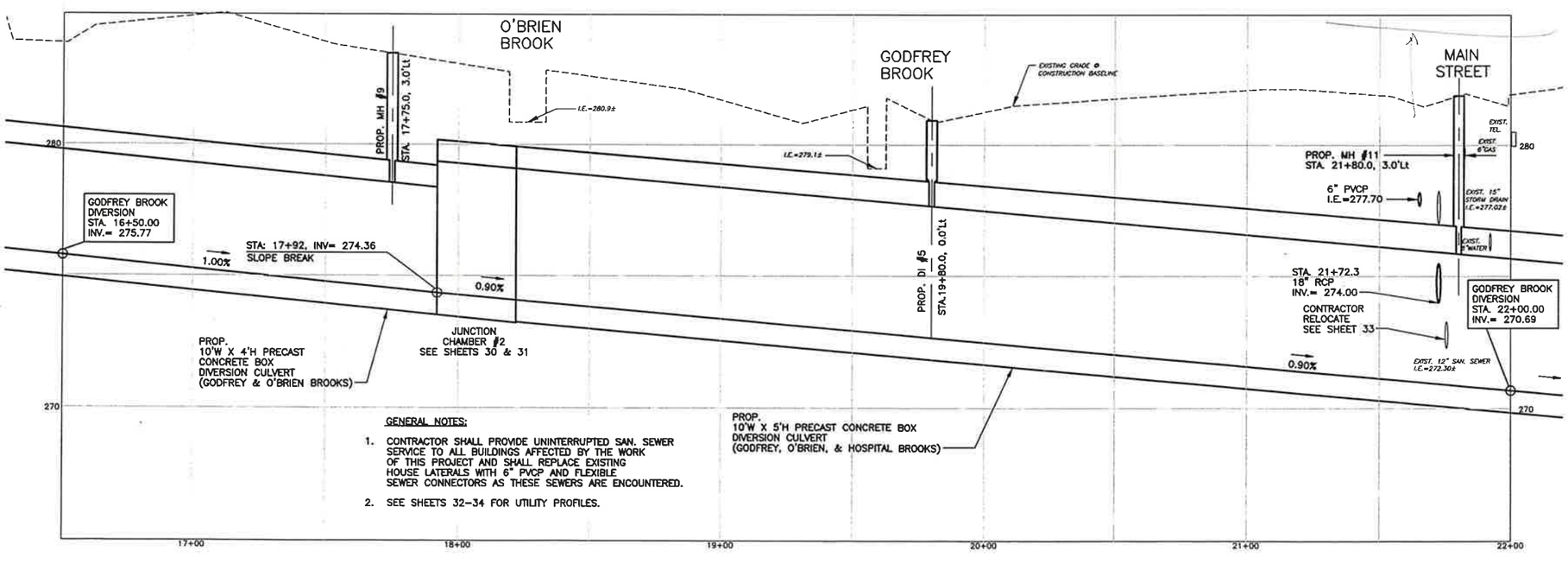
PROJECT: Godfrey Brook Flood Mitigation Project Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



GENERAL PLAN
1" = 20'



GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE UNINTERRUPTED SAN. SEWER SERVICE TO ALL BUILDINGS AFFECTED BY THE WORK OF THIS PROJECT AND SHALL REPLACE EXISTING HOUSE LATERALS WITH 6" PVCP AND FLEXIBLE SEWER CONNECTORS AS THESE SEWERS ARE ENCOUNTERED.
2. SEE SHEETS 32–34 FOR UTILITY PROFILES.

STA 16+50 TO 22+00
VERT. 1"=2'
HOR. 1"=20'

13 OF 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA. 01028

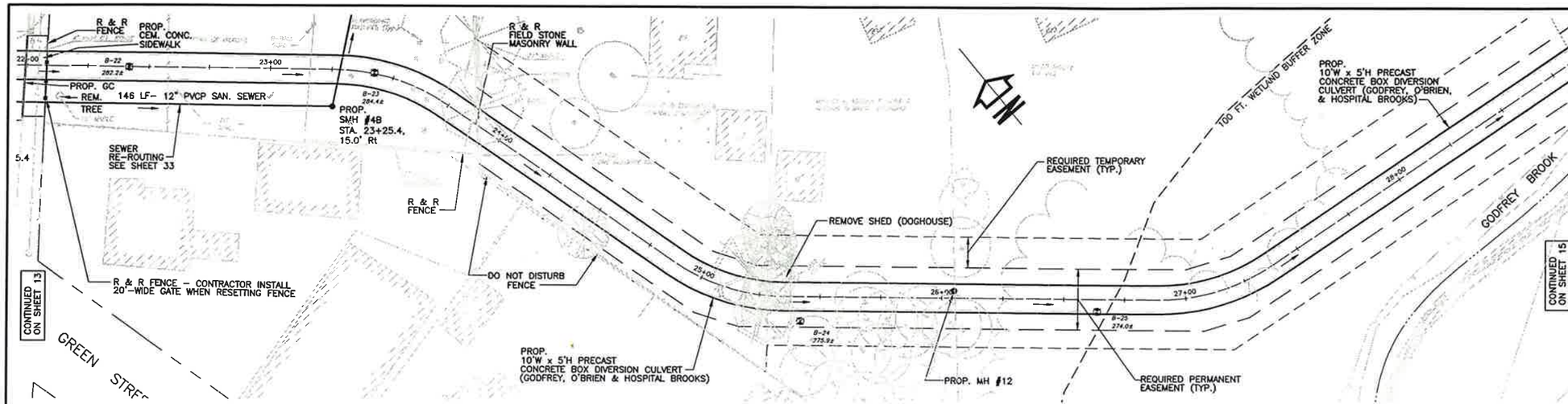
PROJECT NO. 94-1315
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

Plan / Profile
Sta. 16+50 to 22+00
Godfrey Brook Diversion Culvert

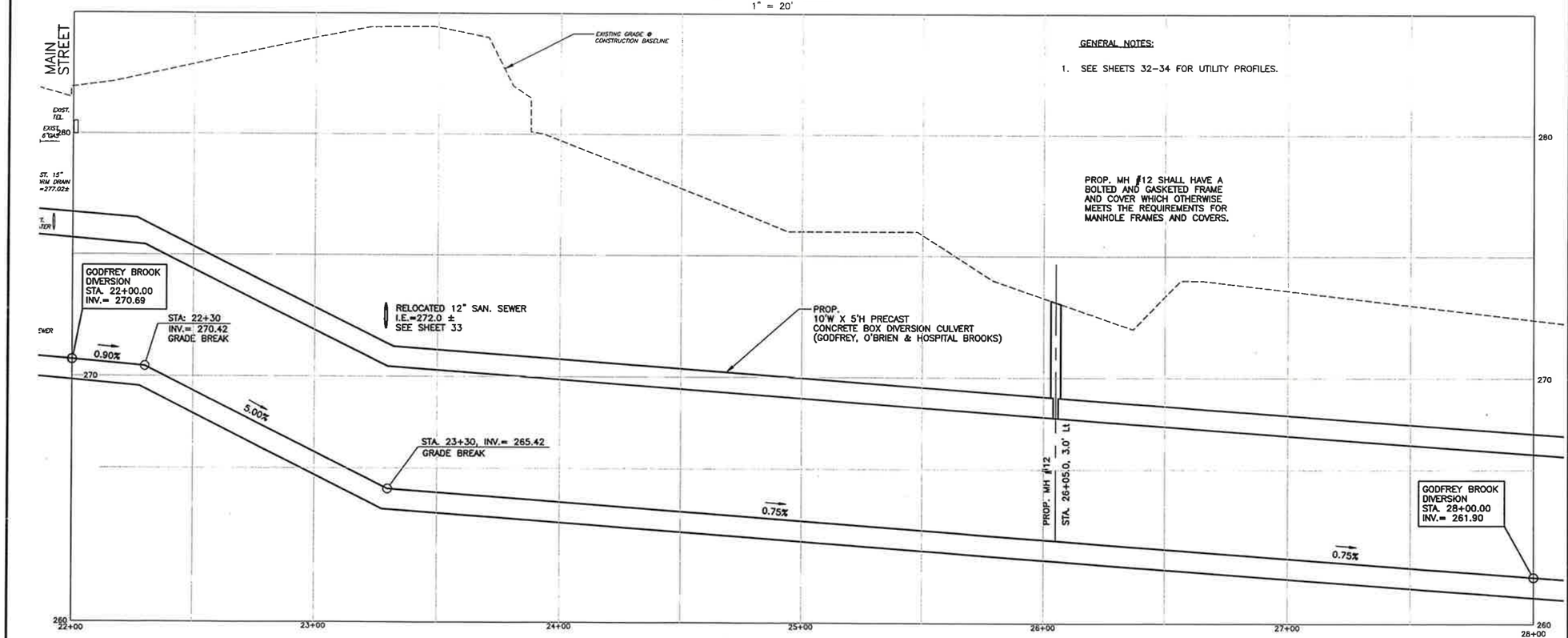
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	9/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



GENERAL PLAN
1" = 20'



GENERAL NOTES:

1. SEE SHEETS 32-34 FOR UTILITY PROFILES.

STA 22+00 TO 28+00
VERT. 1"=2'
HOR. 1"=20'

14 of 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

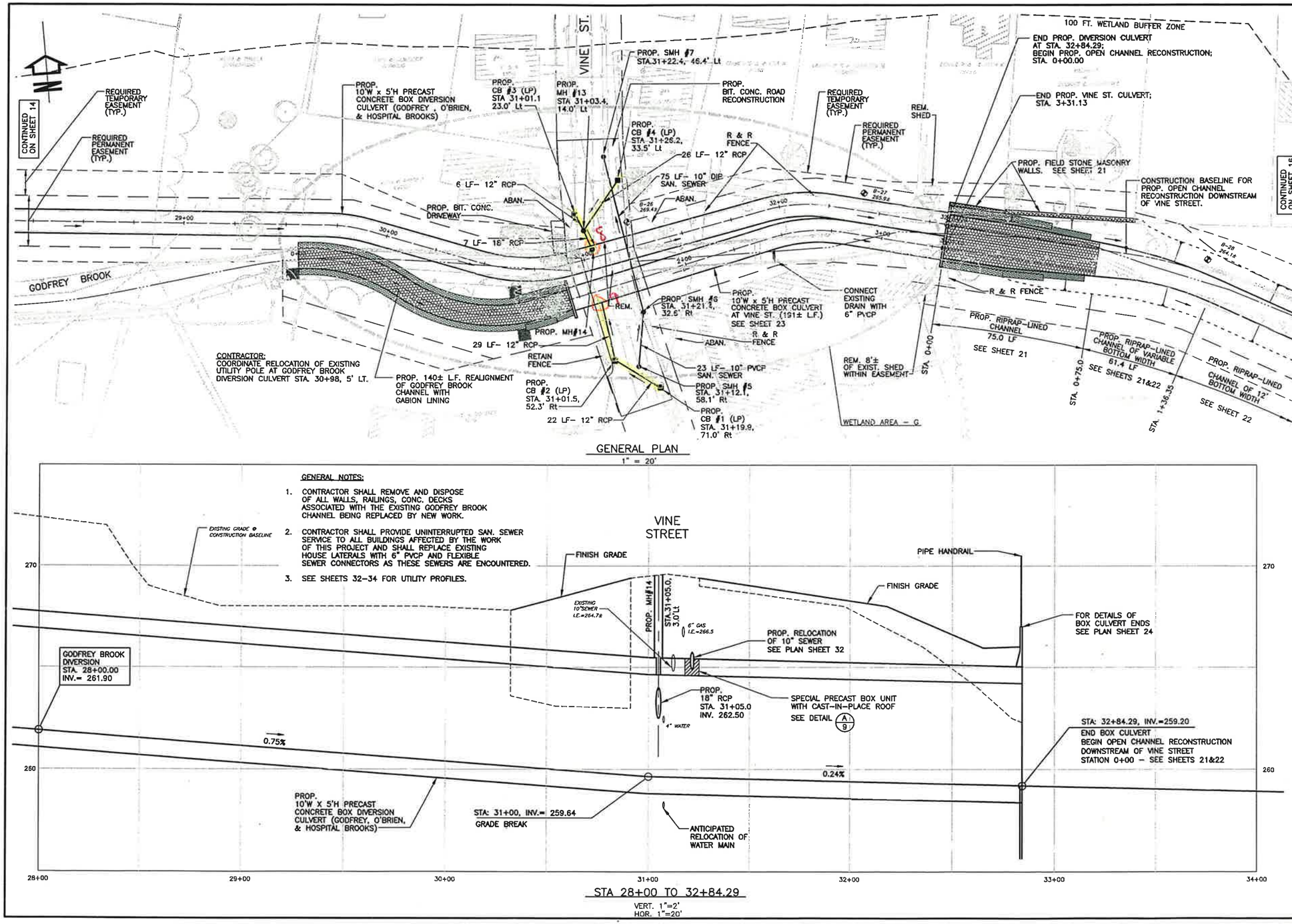
PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN EDM
DESIGNED TEJ

SHEET TITLE: Plan / Profile Sta. 22+00 to 28+00 Godfrey Brook Diversion Culvert

PROJECT: Godfrey Brook Flood Mitigation Project Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



GENERAL PLAN

1" = 20'

GENERAL NOTES:

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL WALLS, RAILINGS, CONC. DECKS ASSOCIATED WITH THE EXISTING GODFREY BROOK CHANNEL BEING REPLACED BY NEW WORK.
2. CONTRACTOR SHALL PROVIDE UNINTERRUPTED SAN. SEWER SERVICE TO ALL BUILDINGS AFFECTED BY THE WORK OF THIS PROJECT AND SHALL REPLACE EXISTING HOUSE LATERALS WITH 6" PVCP AND FLEXIBLE SEWER CONNECTORS AS THESE SEWERS ARE ENCOUNTERED.
3. SEE SHEETS 32-34 FOR UTILITY PROFILES.

STA 28+00 TO 32+84.29

VERT. 1"=2'
HOR. 1"=20'

15 OF 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

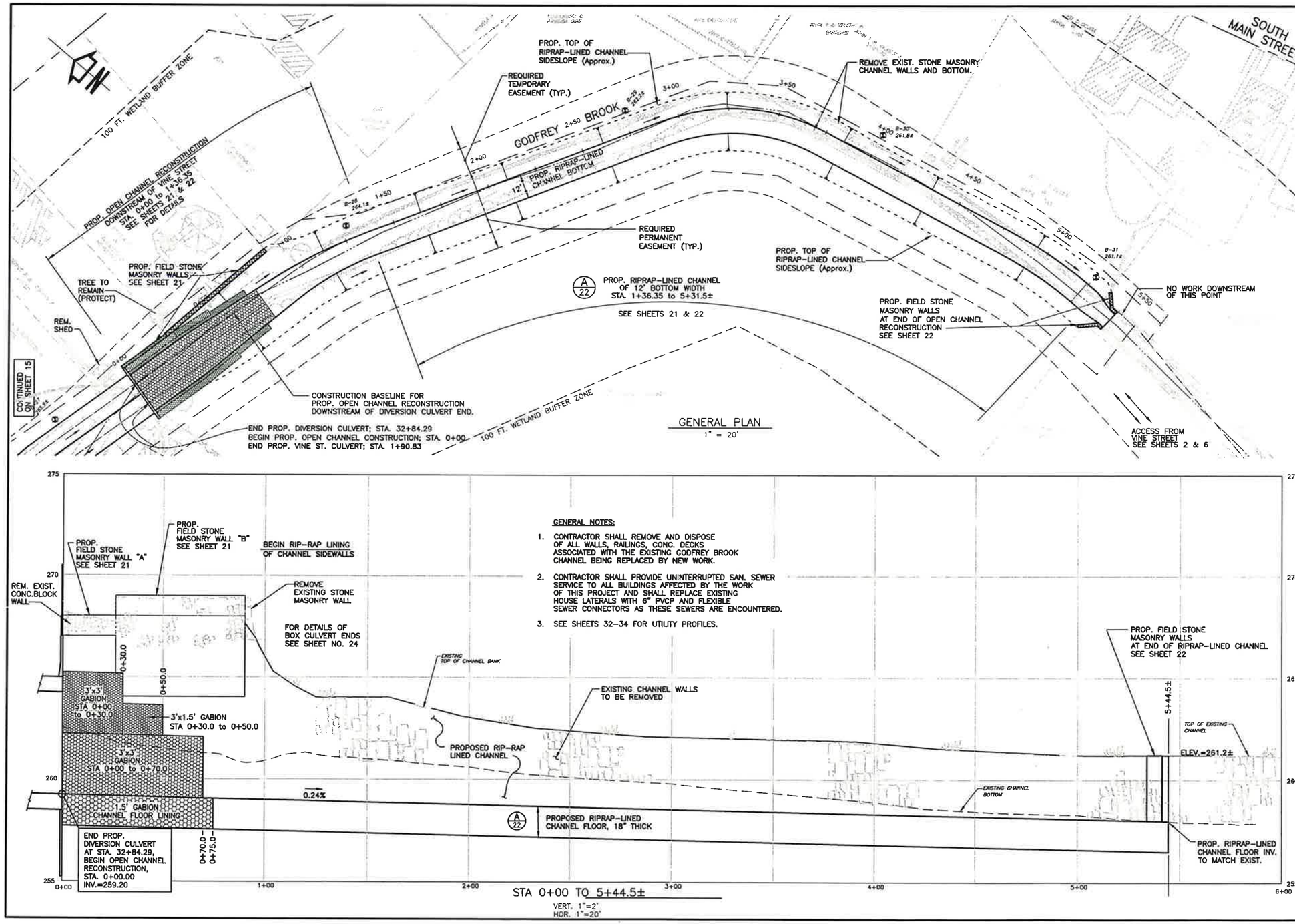
PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGNED BY TEJ

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

SHEET TITLE: Plan / Profile
Sta. 28+00 to 32+84.29
Godfrey Brook Diversion Culvert

NO.	DATE	REVISION	BY
1	9/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



GENERAL NOTES:

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2. CONTRACTOR SHALL PROVIDE UNINTERRUPTED SAN. SEWER SERVICE TO ALL BUILDINGS AFFECTED BY THE WORK OF THIS PROJECT AND SHALL REPLACE EXISTING HOUSE LATERALS WITH 6" PVCP AND FLEXIBLE SEWER CONNECTORS AS THESE SEWERS ARE ENCOUNTERED.
3. SEE SHEETS 32-34 FOR UTILITY PROFILES.

SHEET NO. 16 OF 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

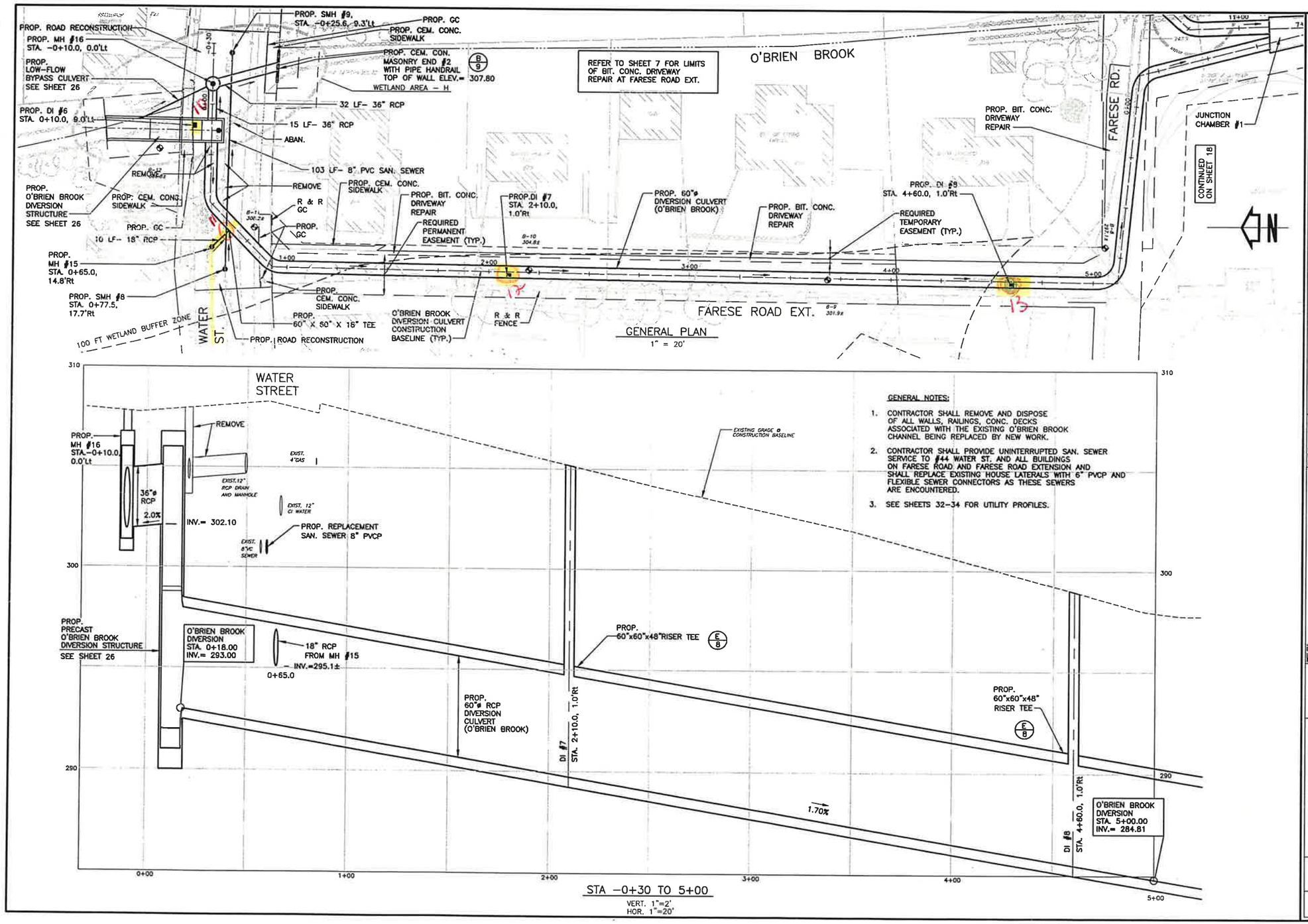
PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGN BY TEJ

SHEET TITLE Plan / Profile of Sta. 0+00 to 5+44.5± Open Channel Reconstruction Downstream of Vine Street

PROJECT Godfrey Brook Flood Mitigation Project Milford, Massachusetts

NO.	DATE	REVISION	BY
1	6/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



GENERAL NOTES:

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL WALLS, RAILINGS, CONC. DECKS ASSOCIATED WITH THE EXISTING O'BRIEN BROOK CHANNEL BEING REPLACED BY NEW WORK.
2. CONTRACTOR SHALL PROVIDE UNINTERRUPTED SAN. SEWER SERVICE TO #44 WATER ST. AND ALL BUILDINGS ON FARESE ROAD AND FARESE ROAD EXTENSION AND SHALL REPLACE EXISTING HOUSE LATERALS WITH 6" PVCP AND FLEXIBLE SEWER CONNECTORS AS THESE SEWERS ARE ENCOUNTERED.
3. SEE SHEETS 32-34 FOR UTILITY PROFILES.

17 of 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Scientists Surveyors
Engineers East Longmeadow, MA 01028
236 North Main Street

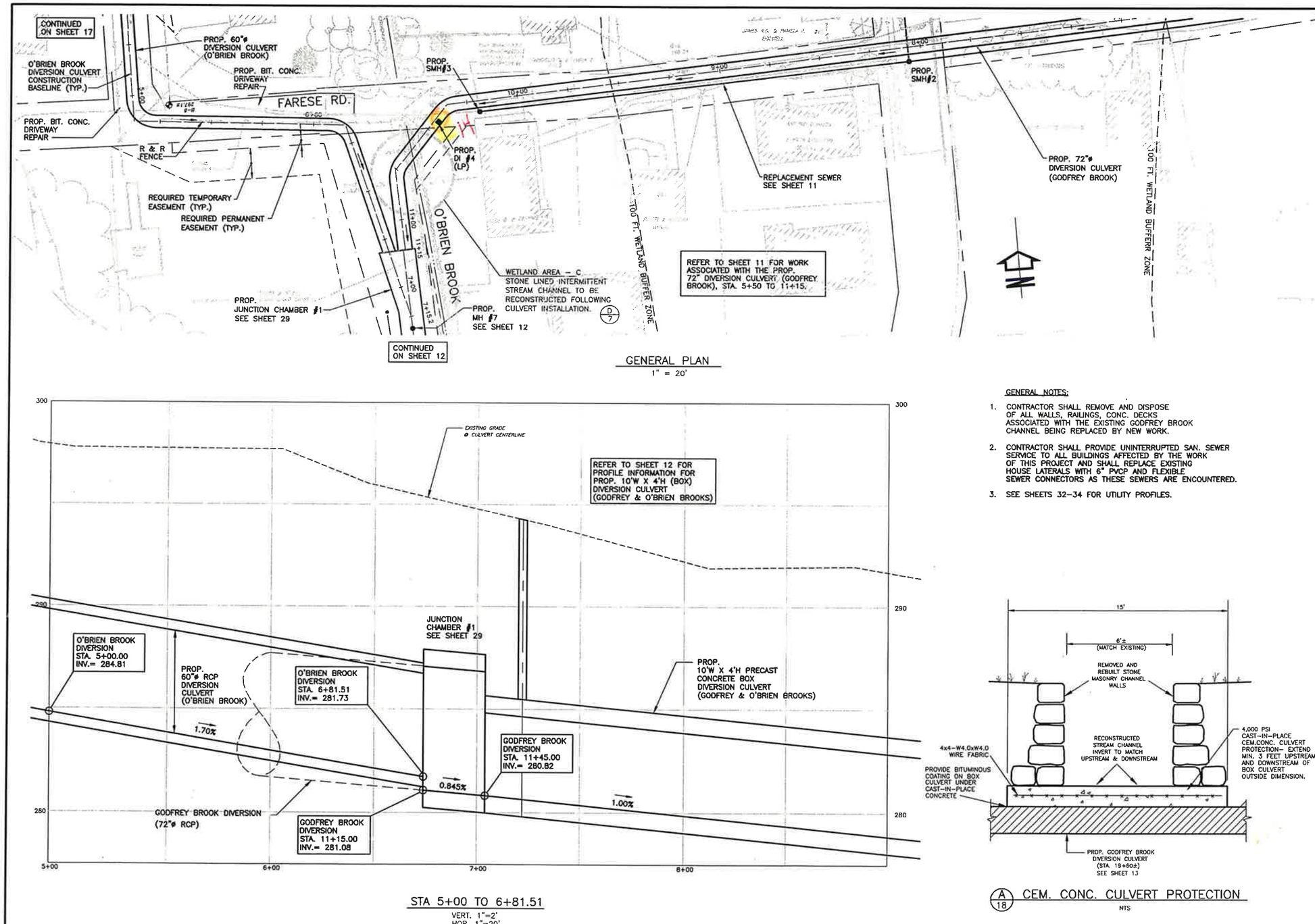
PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGNED BY TEJ

Plan / Profile
Sta. -0+30 to 5+00
O'Brien Brook Diversion Culvert

Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



GENERAL PLAN
1" = 20'

STA 5+00 TO 6+81.51
VERT. 1"=2'
HOR. 1"=20'

A/18 CEM. CONC. CULVERT PROTECTION
NTS

GENERAL NOTES:

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3. SEE SHEETS 32–34 FOR UTILITY PROFILES.

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

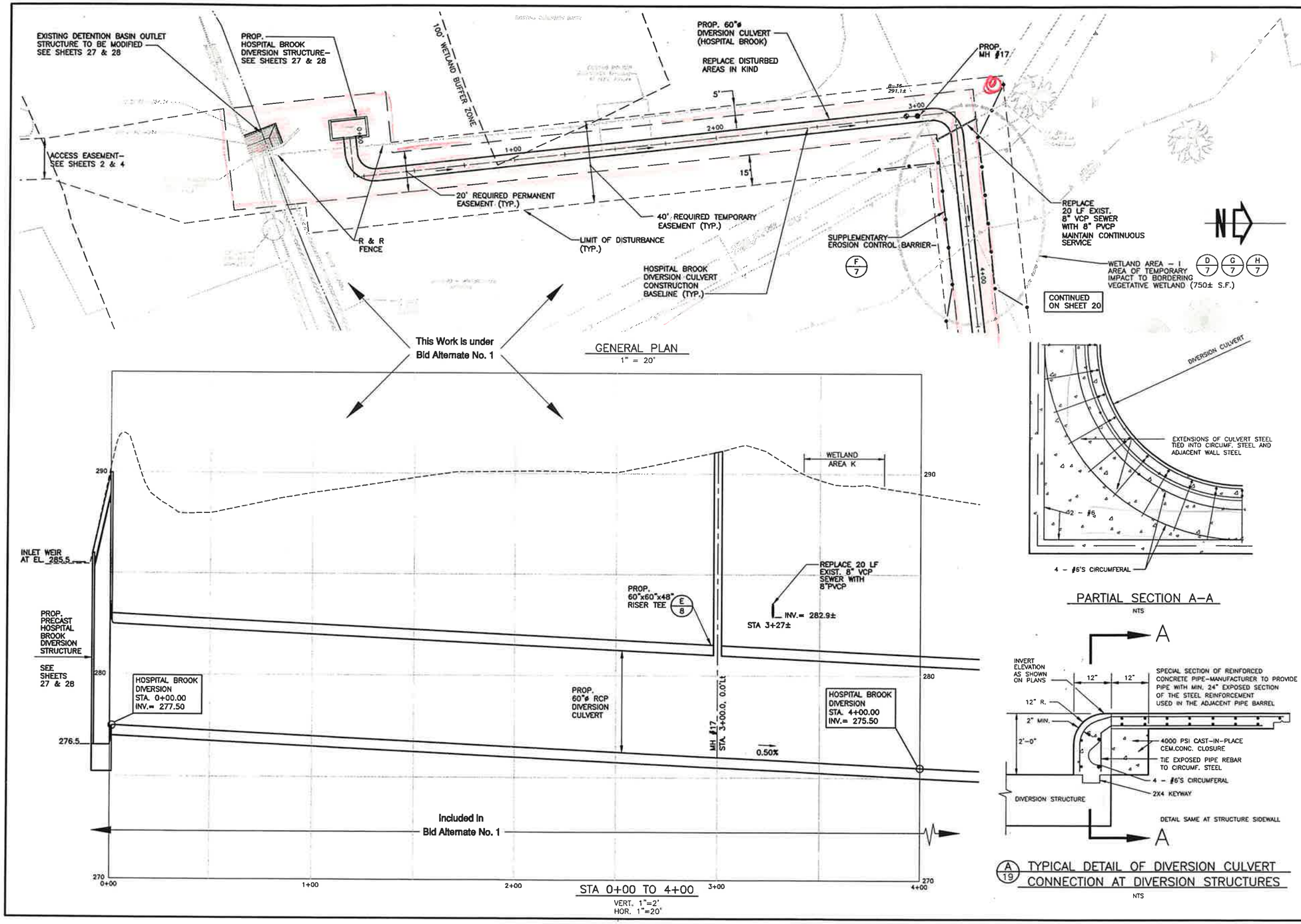
PROJECT No. 84-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

SHEET TITLE
Plan / Profile
Sta. 5+00 to 6+81.51
O'Brien Brook Diversion Culvert

PROJECT
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
236 North Main Street East Longmeadow, MA 01028

Plan / Profile
Sta. 0+00 to 4+00
Hospital Brook Diversion Culvert

Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

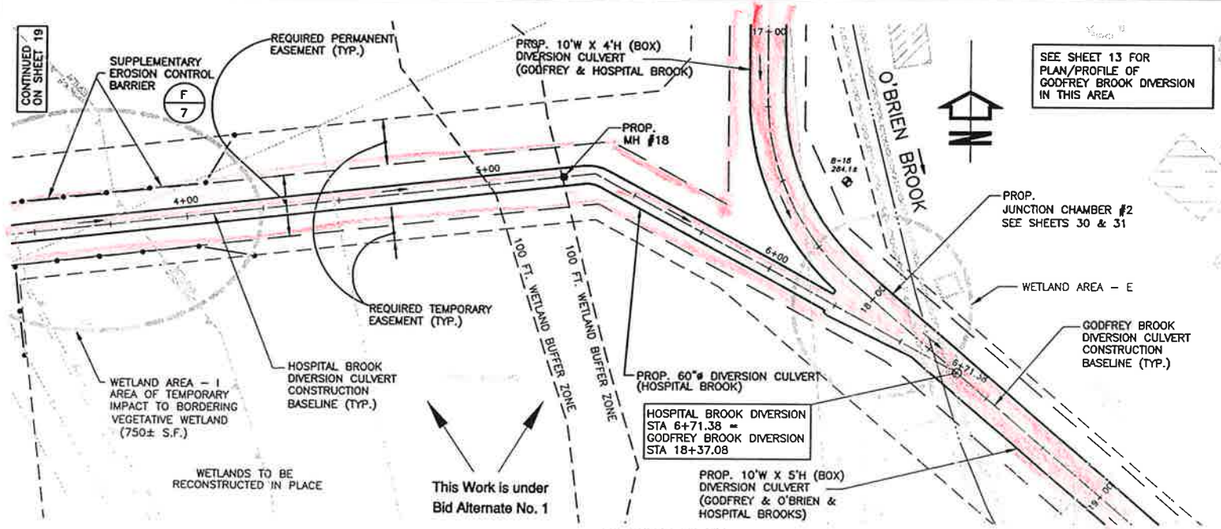
PROJECT NO. 94–1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGN BY TEJ

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

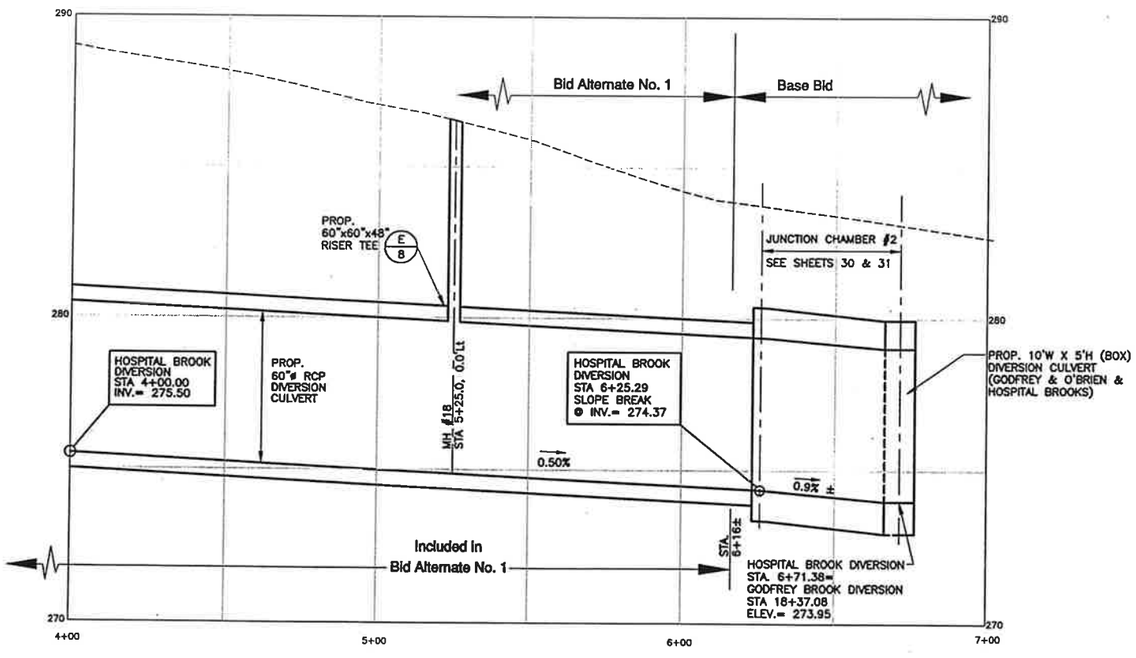
SHEET TITLE
PROJECT

19 of 35 SHTS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



GENERAL PLAN
1" = 20'



STA 4+00 TO 6+71.38
VERT. 1"=2'
HOR. 1"=20'

A/20 STRUCTURE SCHEDULE

NOTE: ALL CATCH BASINS SHALL HAVE 4" SUMPS AND HOODS AS PER MHD (SD) 201.12.0. CONTRACTOR VERIFY ALL RIM & INVERT ELEVATIONS.

	PLAN/PROFILE SHEET NO.	STRUCTURE TYPE NO.	REFERENCE BASELINE	STATION	OFFSET LT/RT	APPROX. RIM ELEV.	INVERTS
	15	CB 1	GODFREY	31+19.9	71.0 ' RT	268.9	263.80
	15	CB 2	GODFREY	31+01.5	52.1 ' RT	268.1	12" IN = 263.40 18" OUT = 263.10
	15	CB 3	GODFREY	31+01.1	23.0 ' LT	268.9	263.90
	15	CB 4	GODFREY	31+26.2	33.5 ' LT	269.2	264.20
	10	DI 1	GODFREY	1+57.0	9.0 ' LT	301.0	296.00
	10	DI 2	GODFREY	2+90.0	1.0 ' LT	300.8	ON 72" RISER TEE, INV. = 295.63
	11	DI 3	GODFREY	6+10.0	1.0 ' LT	295.8	ON 72" RISER TEE, INV. = 293.87
	11	DI 4	GODFREY	10+44.0	1.0 ' LT	297.3	ON 72" RISER TEE, INV. = 291.48
	13	DI 5	GODFREY	19+80.0	0.0 ' LT	280.8	ON 10 x 5 BOX CULVERT
	17	DI 6	O'BRIEN	0+10.0	9.0 ' RT	306.6	ON O'BRIEN BROOK DIVERSION STRUCTURE
	17	DI 7	O'BRIEN	2+10.0	1.0 ' RT	305.2	ON 60" RISER TEE, INV. = 289.74
	17	DI 8	O'BRIEN	4+60.0	1.0 ' RT	299.0	ON 60" RISER TEE, INV. = 285.49
	10	PIPE END 1	GODFREY	3+28.4	11.2 ' LT	TOP OF WALL = 307.60	
	10	PIPE END 1	GODFREY	3+30.2	23.1 ' LT		
	17	PIPE END 2	O'BRIEN	-0+11.3	32.2 ' LT	TOP OF WALL = 307.50	
	17	PIPE END 2	O'BRIEN	-0+27.2	32.8 ' LT		
	10	MH 1	GODFREY	1 0+27.8	32.7 ' LT	305.5	18" = 298.25
	10	MH 2	GODFREY	1+18.3	9.5 ' LT	305.0	18" = 297.80
	10	MH 3	GODFREY	0+53.7	31.0 ' LT	305.1	18" EXIST. = 300.2 18" OUT = 300.10
	10	MH 4	GODFREY	0+38.6	28.9 ' RT	305.1	12" EXIST. = 299.80 15" OUT = 299.70
	10	MH 5	GODFREY	1 1+20.0	0.0 ' LT	305.0	18" IN = 297.70 42" = 297.60
	10	MH 6	GODFREY	2+89.7	15.2 ' LT	301.8	296.50
	10	MH 6	GODFREY	2+89.7	15.2 ' LT	301.8	296.50
	12	MH 7	GODFREY	11+54.0	3.0 ' LT	290.5	ON 10 x 4 BOX CULVERT
	12	MH 8	GODFREY	15+75.0	3.0 ' LT	287.2	ON 10 x 4 BOX CULVERT
	13	MH 9	GODFREY	17+75.0	3.0 ' LT	283.5	ON 10 x 4 BOX CULVERT
	13	MH 10	GODFREY	21+72.3	18.5 ' LT	281.9	15" IN = 277.10 18" OUT = 274.50
	13	MH 11	GODFREY	21+60.0	3.0 ' LT	281.8	ON 10 x 5 BOX CULVERT
	14	MH 12	GODFREY	26+05.0	3.0 ' LT	273.0	ON 10 x 5 BOX CULVERT
	15	MH 13	GODFREY	31+03.4	14.0 ' LT	269.3	INVS. IN = 263.80 18" OUT = 262.70
	15	MH 14	GODFREY	31+05.0	3.0 ' LT	269.4	ON 10 x 5 BOX CULVERT
	17	MH 15	O'BRIEN	0+65.0	14.8 ' Rt	308.5	12" IN = 305.30 18" OUT = 297.00
	17	MH 16	O'BRIEN	0+10.0	0.0 ' LT	307.0	18" IN = 322.00 36" OUT = 322.00
*	19	MH 17	HOSPITAL	3+00.0	0.0 ' LT	291.1	ON 60" RISER TEE, INV. = 276.00
*	19	MH 18	HOSPITAL	5+25.0	0.0 ' LT	286.5	ON 60" RISER TEE, INV. = 274.88
	11	SMH 1	GODFREY	6+31.2	6.6 ' LT	295.8	292.30
	11	SMH 2	GODFREY	8+06.2	7.1 ' LT	298.5	IN (3) = 291.25, OUT = 291.15
	11	SMH 3	GODFREY	10+19.1	5.4 ' LT	297.8	292.30
	13	SMH 4	GODFREY	21+76.7	13.8 ' LT	282.4	272.30
	15	SMH 5	GODFREY	31+12.1	58.1 ' Rt	268.8	265.00
	15	SMH 6	GODFREY	31+21.4	32.6 ' Rt	269.0	264.95
	15	SMH 7	GODFREY	31+22.4	46.4 ' LT	269.4	264.80
	17	SMH 8	O'BRIEN	0+77.5	17.7 ' Rt	309.0	301.30
	17	SMH 9	O'BRIEN	-0+25.6	9.3 ' LT	306.9	299.90
	13	SMH 4A	GODFREY	21+75.4	15.0 ' Rt	282.0	IN = 272.34 OUT = 272.24
	14	SMH 4B	GODFREY	23+25.4	15.0 ' Rt	284.5	IN = 271.80 OUT = 271.70
	14	SMH 4C	GODFREY	23+36.0	93.0 ' LT	282.5	12" IN = 271.44 15" IN/OUT = 271.34

* = UNDER BID ALTERNATE No.1

DRAWING NO. 20 OF 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

SHEET TITLE
Plan / Profile
Sta. 4+00 to 6+71.38
Hospital Brook Diversion Culvert

PROJECT
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	11/13/00	GODFREY BROOK DIVERSION STRUCTURE; MISC. EDITS	TEJ
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE

GENERAL PLAN
1" = 20'

STA 4+00 TO 6+71.38
VERT. 1"=2'
HOR. 1"=20'

A/20 STRUCTURE SCHEDULE

NOTE: ALL CATCH BASINS SHALL HAVE 4' SUMPS AND HOODS AS PER MHD (SD) 201.12.0. CONTRACTOR VERIFY ALL RIM & INVERT ELEVATIONS.

PLAN/PROFILE SHEET NO.	STRUCTURE TYPE NO.	REFERENCE BASELINE	STATION	OFFSET Lt/Rt	APPROX. RIM ELEV.	INVERTS
15	CB 1	GODFREY	31+19.9	71.0 ' Rt	268.9	263.80
15	CB 2	GODFREY	31+01.5	52.3 ' Rt	268.1	12" IN = 263.40 18" OUT = 263.10
15	CB 3	GODFREY	31+01.1	23.0 ' Lt	268.9	263.90
15	CB 4	GODFREY	31+26.2	33.5 ' Lt	269.2	264.20
10	DI 1	GODFREY	1+57.0	9.0 ' Lt	301.0	296.00
10	DI 2	GODFREY	2+90.0	1.0 ' Lt	300.8	ON 72" RISER TEE, INV. = 285.63
11	DI 3	GODFREY	6+10.0	1.0 ' Lt	295.8	ON 72" RISER TEE, INV. = 283.87
11	DI 4	GODFREY	10+44.0	1.0 ' Lt	297.3	ON 72" RISER TEE, INV. = 281.48
13	DI 5	GODFREY	19+80.0	0.0 ' Lt	280.8	ON 10 x 5 BOX CULVERT
17	DI 6	O'BRIEN	0+10.0	9.0 ' Rt	306.6	ON O'BRIEN BROOK DIVERSION STRUCTURE
17	DI 7	O'BRIEN	2+10.0	1.0 ' Rt	305.2	ON 60" RISER TEE, INV. = 289.74
17	DI 8	O'BRIEN	4+60.0	1.0 ' Rt	299.0	ON 60" RISER TEE, INV. = 285.49
10	PIPE END 1	GODFREY	3+28.4	11.2 ' Lt	TOP OF WALL = 307.80	
10	PIPE END 1	GODFREY	3+30.2	23.1 ' Lt		
17	PIPE END 2	O'BRIEN	-0+11.5	32.2 ' Lt	TOP OF WALL = 302.50	
17	PIPE END 2	O'BRIEN	-0+27.2	32.8 ' Lt		
10	MH 1	GODFREY	0+07.4	~~34.0~~ 32.7 ' Lt	~~306.8~~ 305.5	18" INV = ~~299.35~~ 299.15
10	MH 2	GODFREY	0+36.2	~~28.0~~ 9.5 ' Lt	305.2	18" INV = 299.09 298.25
10	MH 3	GODFREY	0+55.5	11.6 ~~31.0~~ ' Lt	305.1	18" EXIST. = 300.10 ~~20~~ 300.10 24" OUT = ~~299.60~~ 299.70
10	MH 4	GODFREY	0+38.6	28.9 ' Rt	305.1	12" EXIST. = 299.80 15" OUT = ~~298.50~~
10	MH 5	GODFREY	0+57.0	0.0 ' Lt	305.0	18 IN = 299.80 42" = 298.52
10	MH 6	GODFREY	2+89.7	15.2 ' Lt	301.8	296.50
10	MH 6	GODFREY	2+89.7	15.2 ' Lt	301.8	296.50
12	MH 7	GODFREY	11+54.0	3.0 ' Lt	290.5	ON 10 x 4 BOX CULVERT
12	MH 8	GODFREY	15+75.0	3.0 ' Lt	287.2	ON 10 x 4 BOX CULVERT
13	MH 9	GODFREY	17+75.0	3.0 ' Lt	283.5	ON 10 x 4 BOX CULVERT
13	MH 10	GODFREY	21+72.3	18.5 ' Lt	281.9	15" IN = 277.10 18" OUT = 274.50
13	MH 11	GODFREY	21+80.0	3.0 ' Lt	281.9	ON 10 x 5 BOX CULVERT
14	MH 12	GODFREY	26+05.0	3.0 ' Lt	273.0	ON 10 x 5 BOX CULVERT
15	MH 13	GODFREY	31+03.4	14.0 ' Lt	269.3	INVS. IN = 263.80 18" OUT = 262.70
15	MH 14	GODFREY	31+05.0	3.0 ' Lt	269.4	ON 10 x 5 BOX CULVERT
17	MH 15	O'BRIEN	0+65.0	14.8 ' Rt	308.5	12" IN = 305.30 18" OUT = 297.00
17	MH 16	O'BRIEN	0+10.0	0.0 ' Lt	307.0	18" IN = 302.00 36" OUT = 302.00
* 19	MH 17	HOSPITAL	3+00.0	0.0 ' Lt	291.1	ON 60" RISER TEE, INV. = 278.00
* 19	MH 18	HOSPITAL	5+25.0	0.0 ' Lt	286.5	ON 60" RISER TEE, INV. = 274.88
11	SMH 1	GODFREY	6+31.2	6.6 ' Lt	295.9	292.30
11	SMH 2	GODFREY	8+06.2	7.1 ' Lt	298.5	IN (3) = 291.25, OUT = 291.15
11	SMH 3	GODFREY	10+19.1	5.4 ' Lt	297.8	292.30
13	SMH 4	GODFREY	21+76.7	13.8 ' Lt	282.4	272.30
15	SMH 5	GODFREY	31+12.1	56.1 ' Rt	268.8	265.00
15	SMH 6	GODFREY	31+21.4	32.6 ' Rt	269.0	264.95
15	SMH 7	GODFREY	31+22.4	46.4 ' Lt	269.4	264.80
17	SMH 8	O'BRIEN	0+77.5	17.7 ' Rt	309.0	301.30
17	SMH 9	O'BRIEN	-0+25.0	9.3 ' Lt	306.9	299.90
13	SMH 4A	GODFREY	21+75.4	15.0 ' Rt	282.0	IN = 272.34 OUT = 272.24
14	SMH 4B	GODFREY	23+25.4	15.0 ' Rt	284.5	IN = 271.80 OUT = 271.70
14	SMH 4C	GODFREY	23+36.0	93.0 ' Lt	282.5	12" IN = 271.44 15" IN/OUT = 271.34

* = UNDER BID ALTERNATE No.1

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Scientists Surveyors
Engineers 296 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

Plan / Profile
Sta. 4+00 to 6+71.38
Hospital Brook Diversion Culvert

PROJECT
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

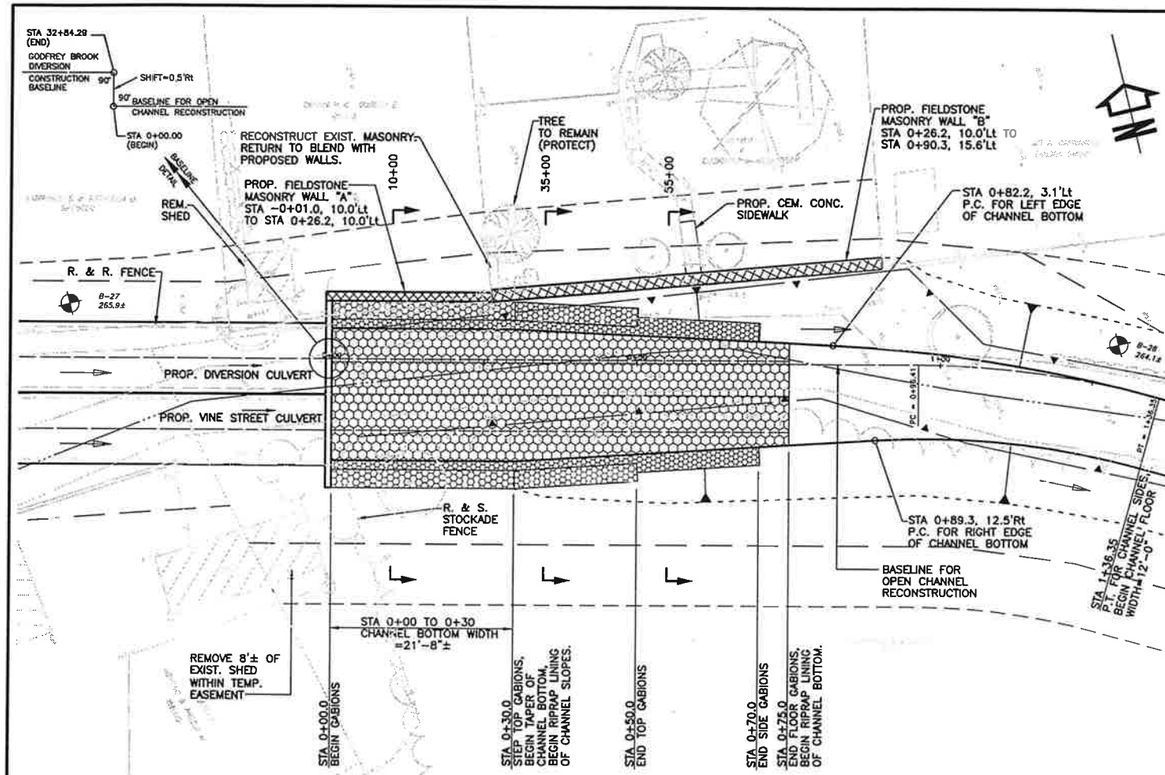
NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

DRAWING NO. 20 OF 35 SHTS

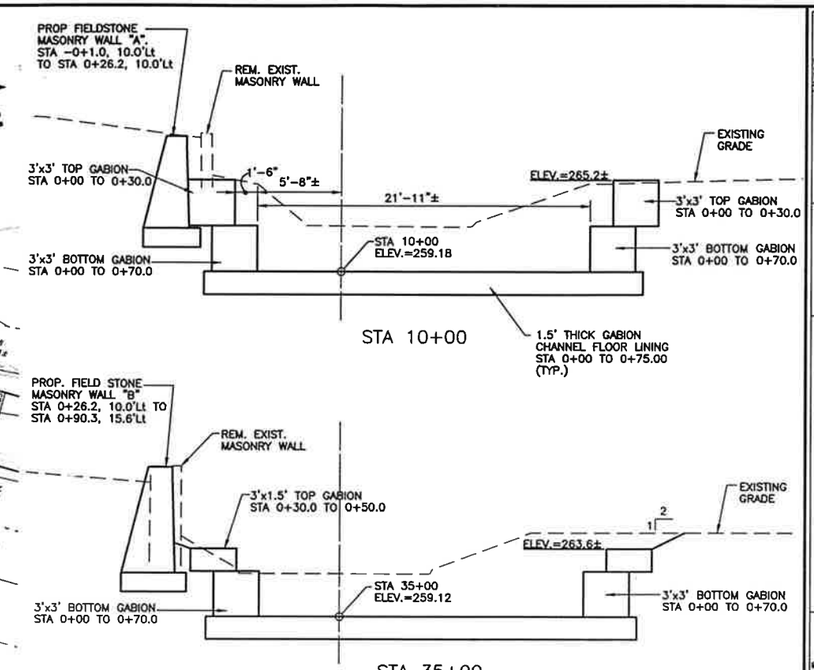
Cho 1 prf

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.

THIS SHEET IS OBSOLETE - SEE REV. 2 DATED 11/13/00



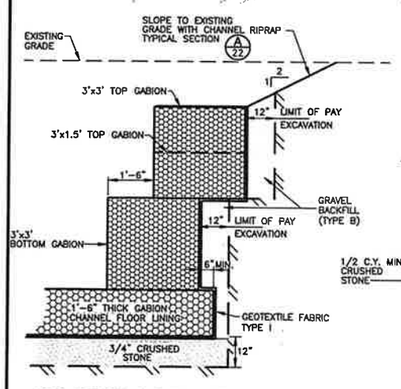
PROPOSED LAYOUT OF GABIONS
OPEN CHANNEL BASELINE STA 0+00 TO 0+75
1"=10'



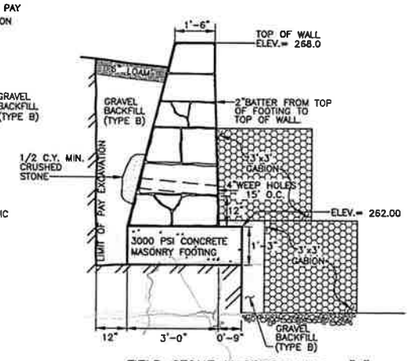
CROSS SECTIONS OF PROPOSED GABION CONSTRUCTION
NTS

NOTES:

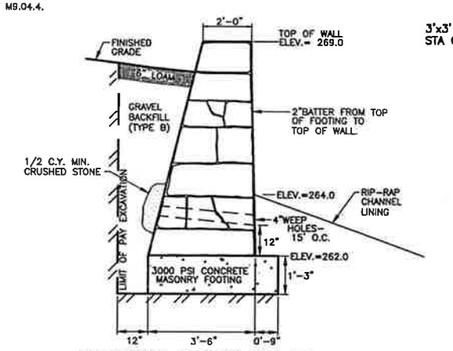
1. COPING TO BE NATIVE MILFORD GRANITE WITH THERMAL FINISH FOR ENTIRE LENGTH OF WALL.
2. FIELDSTONE MASONRY TO BE COMPOSED OF NATIVE MILFORD GRANITE OTHERWISE MEETING THE REQUIREMENTS OF M9.04.4.



A/21 TYPICAL GABION INSTALLATION
NTS



FIELD STONE MASONRY WALL "A"
OPEN-CHANNEL BASELINE STA -0+01.0 TO 0+26.2, 10.0'Lt
NTS



FIELD STONE MASONRY WALL "B"
OPEN-CHANNEL BASELINE STA 0+26.2, 10.0'Lt TO 0+90.3, 15.6'Lt
NTS

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

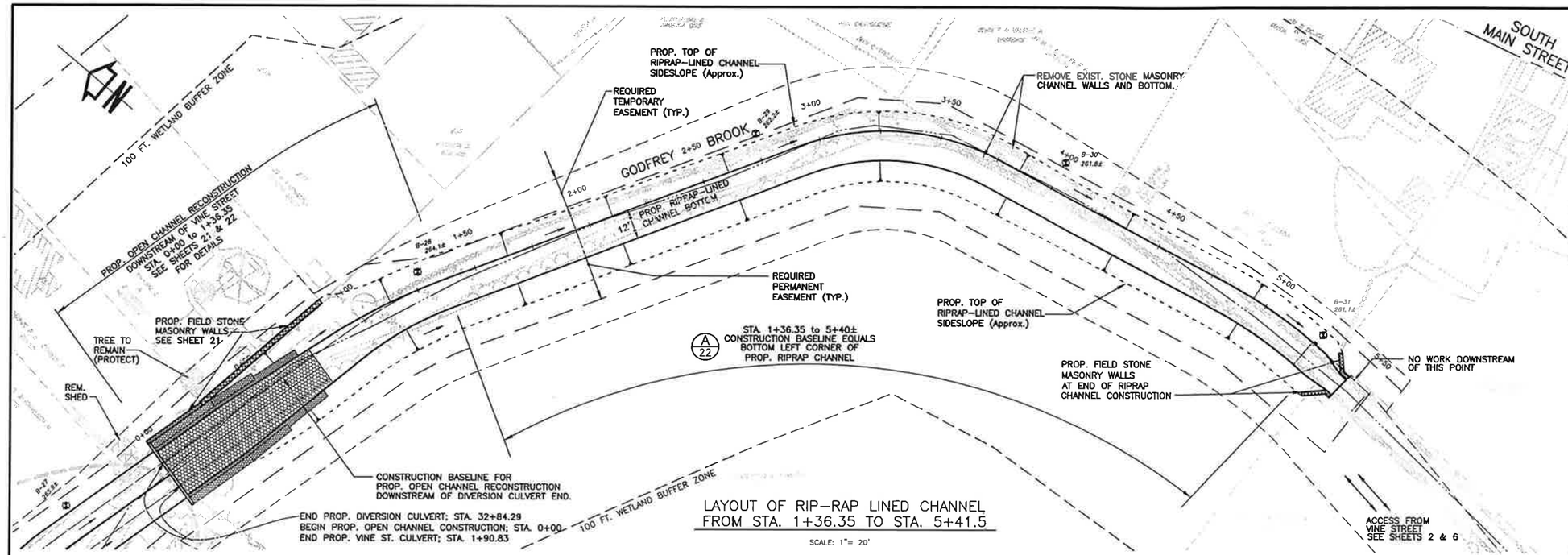
SHEET TITLE: Plan & Details - Sta. 0+00 to 1+36.35
Open Channel Reconstruction
Downstream of Vine Street

PROJECT NO. 31-1215
SCALE: AS NOTED
DATE: APRIL 1999
DRAWN BY: SMR
CHECKED BY: TEJ

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
236 North Main Street East Longmeadow, MA 01028

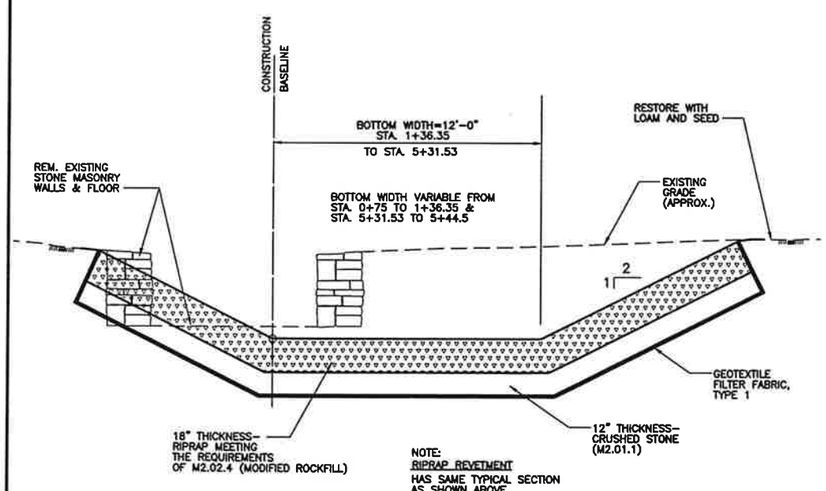
DRAWING NO. 21 of 35 SHEETS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



LAYOUT OF RIP-RAP LINED CHANNEL FROM STA. 1+36.35 TO STA. 5+41.5

SCALE: 1"= 20'

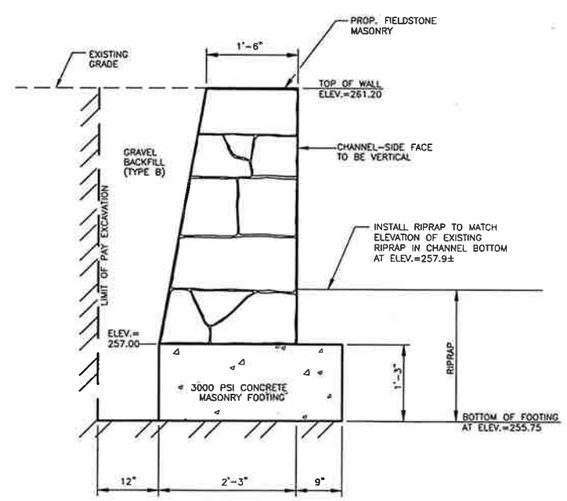


NOTE:
RIPRAP REVETMENT
HAS SAME TYPICAL SECTION AS SHOWN ABOVE

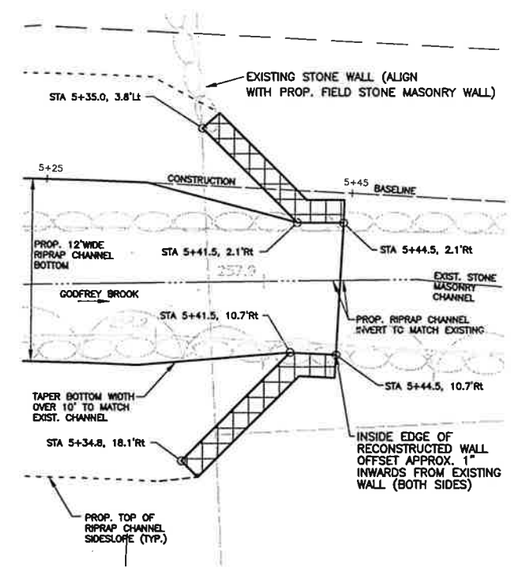
A 22 PROPOSED RIPRAP CHANNEL CONSTRUCTION
TYPICAL SECTION
NTS

NOTES:

1. FIELDSTONE MASONRY TO BE COMPOSED OF NATIVE MILFORD GRANITE OTHERWISE MEETING THE REQUIREMENTS OF M9.04.4.



PROPOSED FIELD STONE WALLS AT END OF RIPRAP CHANNEL
TYPICAL SECTION
NTS



PROPOSED FIELD STONE WALLS AT END OF RIPRAP CHANNEL
DETAIL PLAN
1"=4'

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

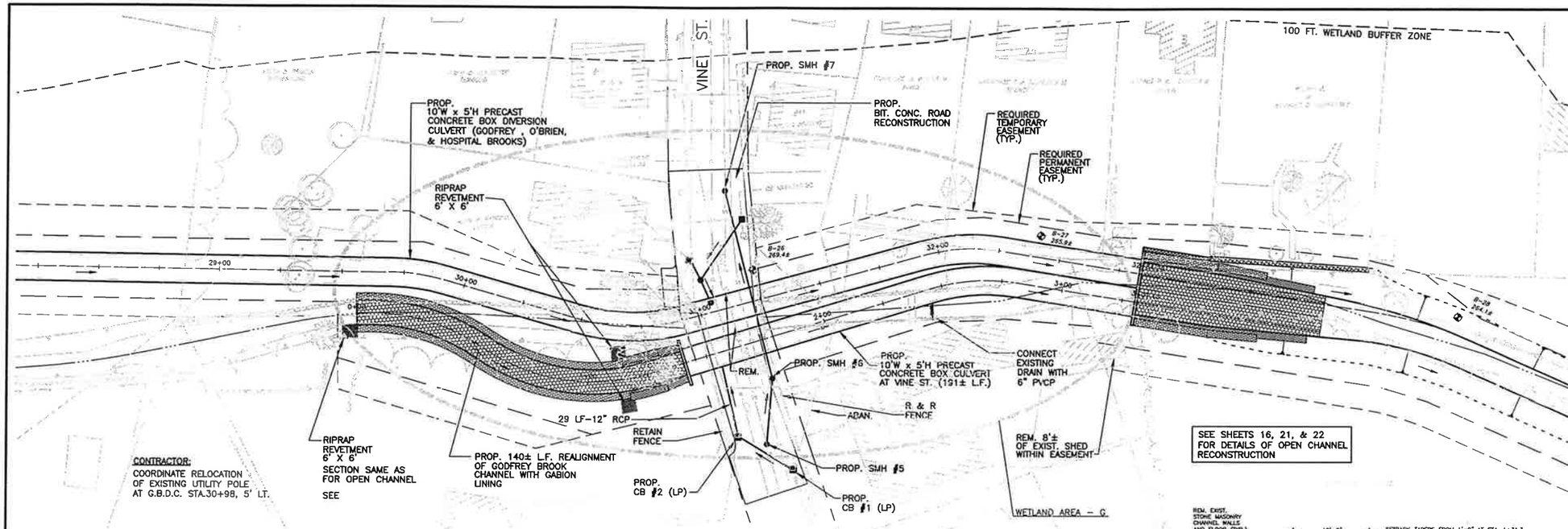
PROJECT No. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGNED BY TEJ

SHEET TITLE: Plan & Details - Sta. 1+36.35 to 5+44.5± Open Channel Reconstruction Downstream of Vine Street

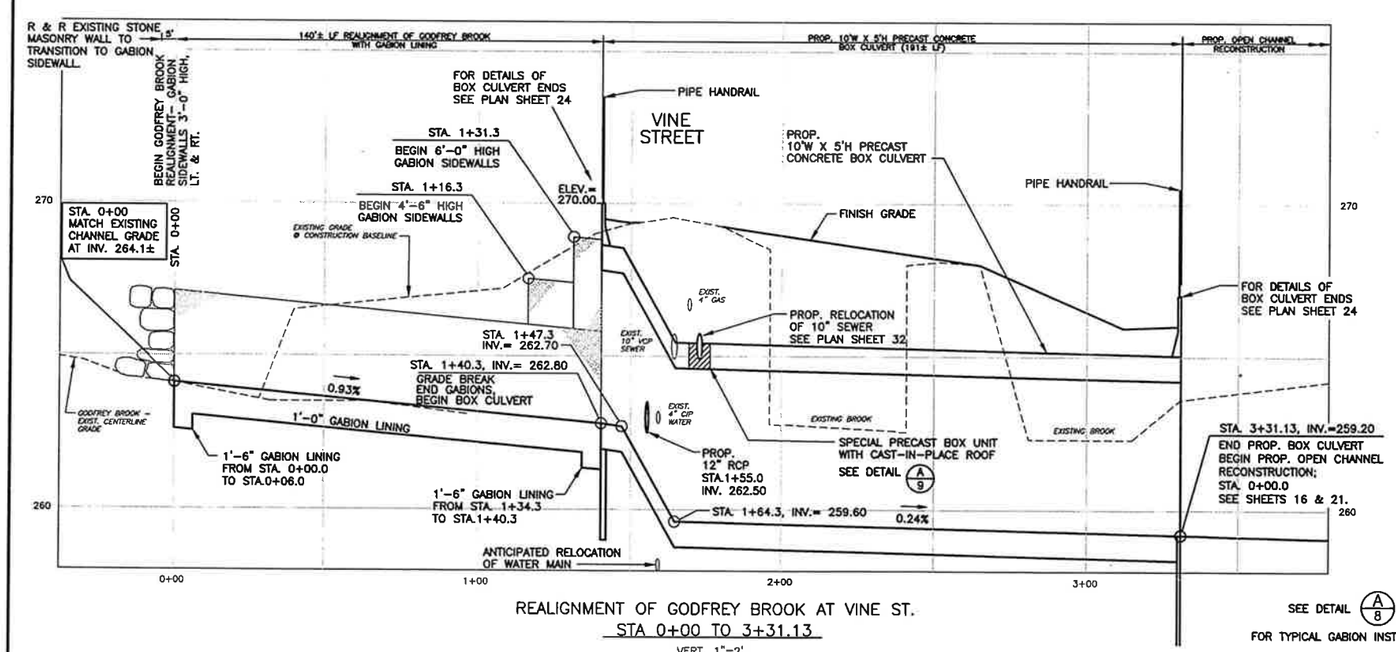
PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.

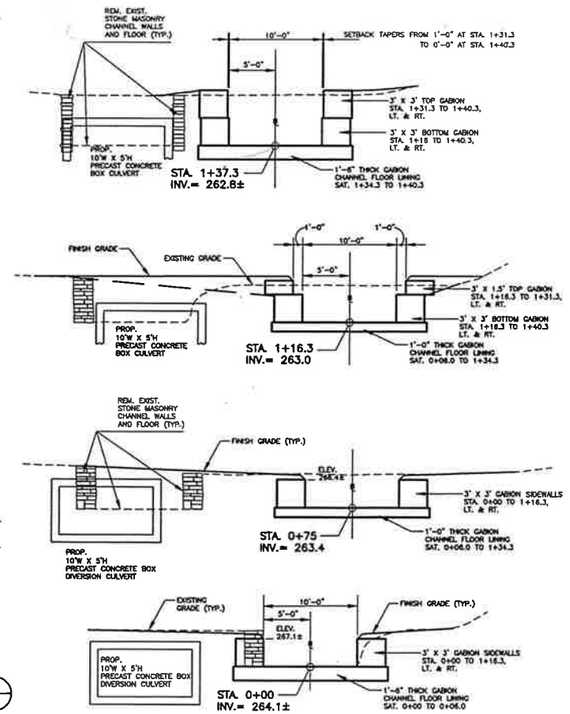


GENERAL PLAN
1" = 20'



REALIGNMENT OF GODFREY BROOK AT VINE ST.
STA 0+00 TO 3+31.13
VERT. 1"=2'
HOR. 1"=20'

SEE DETAIL A/8
FOR TYPICAL GABION INSTALLATION



CROSS SECTIONS OF CHANNEL WITH GABION LINING
NTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN EDM
DESIGN TEJ
SHEET TITLE
Plan / Profile
Sta. 0+00 to 3+31.13
ReAlignment of Godfrey Brook at Vine St.
PROJECT
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.

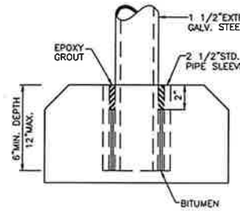
PRECAST CULVERT & STRUCTURE DESIGN NOTES

CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
STEEL REINFORCEMENT – ASTM A615, GRADE 60
WHEEL LOADING – AASHTO HS25-40
COVER TO STEEL – 1.5 INCHES
EARTH COVER – 0'-0" MINIMUM, 13'-6" MAXIMUM
UNIT WEIGHT OF EARTH – 125 POUNDS PER CUBIC FOOT
ACTIVE PRESSURE COEFFICIENT – 0.25 MIN., 0.5 MAX.
2'-0" LIVE LOAD SURCHARGE APPLIED TO 13'-6" DEPTH
EXTERIOR GROUND WATER AT FINISHED GRADE
DESIGN SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES, ACI 318-83, AND LOAD FACTOR DESIGN (AASHTO)

LOAD FACTORS
DEAD LOAD 1.5
LIVE LOAD 2.17
HYDROSTATIC PRESSURE 1.4
EARTH PRESSURE, HORIZ. 1.7

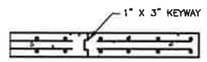
CAPACITY REDUCTION FACTORS
SHEAR 0.85
MOMENT 0.90

NO WEEP HOLES IN CULVERT SECTIONS OR DIVERSION STRUCTURES

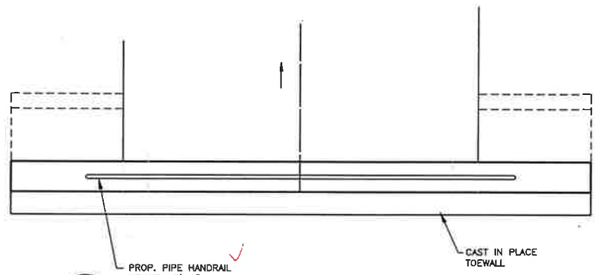


A/24 TYP. HANDRAIL ANCHORAGE
NTS

NOTES:
1. GALV. STEEL PIPE FENCE & HAND RAIL TO FOLLOW GRADE OF COPING OR STRUCTURE.
2. JOINTS SHALL BE WELDED AND GROUND SMOOTH.
3. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE STANDARD SPECIFICATIONS.

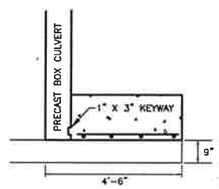


SECTION E-E
1/2" = 1'



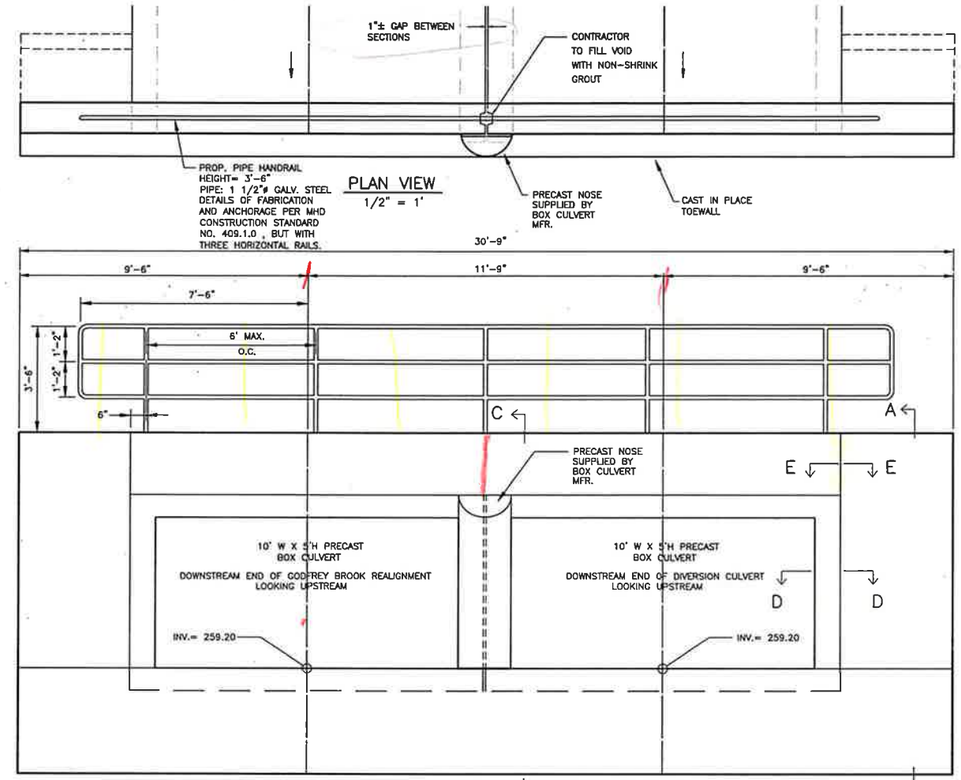
A/24

PLAN VIEW
1/2" = 1'



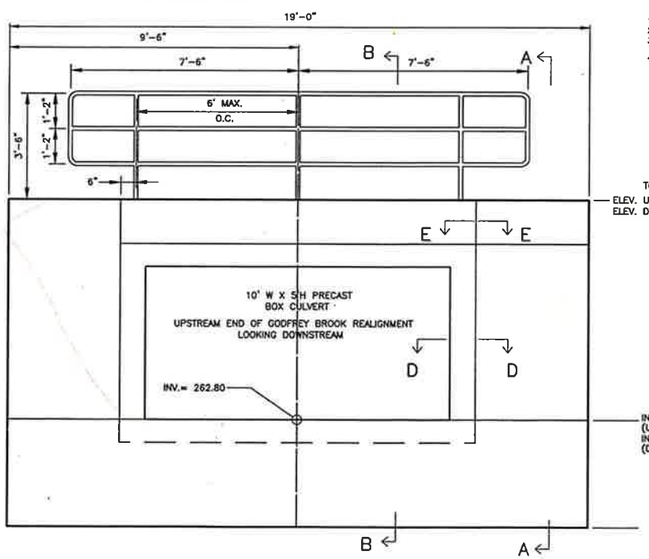
SECTION D-D
1/2" = 1'

CAST-IN-PLACE CONCRETE NOTES:
1. CONCRETE f'_c = 4,000 psi, Class A
2. REINF.– ASTM A-615 GRADE 60, EPOXY COATED
3. ALL SURFACES VISIBLE WHEN COMPLETED SHALL HAVE RUBBED FINISH.
4. 1"x1" CHAMFER ALL CONC. CORNERS

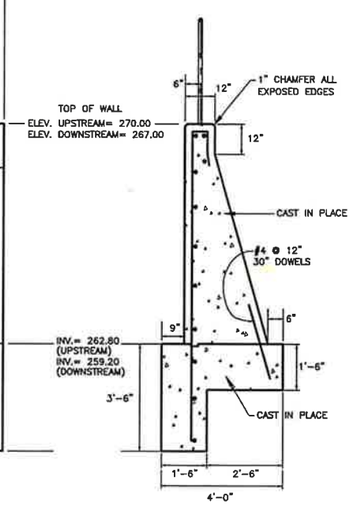


PLAN VIEW
1/2" = 1'

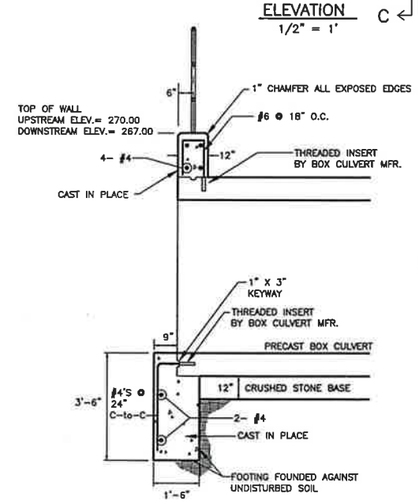
ELEVATION
1/2" = 1'



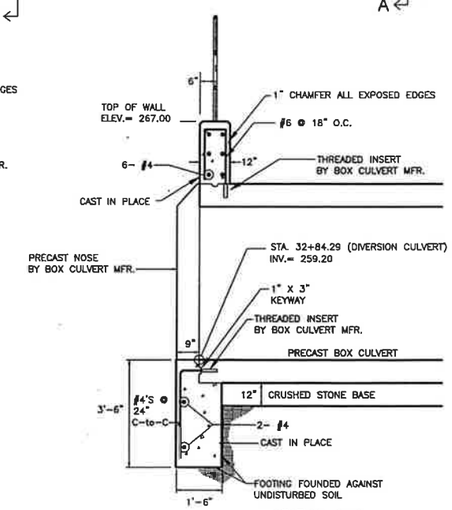
ELEVATION
1/2" = 1'



SECTION A-A
1/2" = 1'



SECTION B-B
1/2" = 1'



SECTION C-C
1/2" = 1'

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

PROJECT: Box Culvert Ends Details and Sections
PROJECT: Godfrey Brook Flood Mitigation Project Milford, Massachusetts

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
256 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGNED BY TEJ

SHEET NO. 24 of 35 SHTS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.

2

REFER TO THE NEW PLAN SHEET NO. 25-A
FOR
PLAN, PROFILE, AND DETAILS OF THE
GODFREY BROOK DIVERSION STRUCTURE

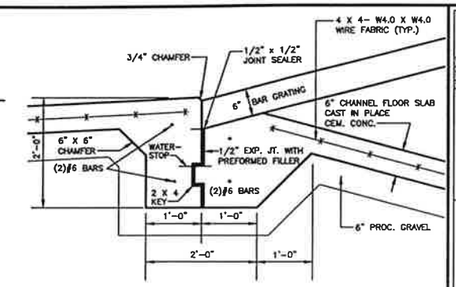
PRECAST CULVERT & STRUCTURE DESIGN NOTES

CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
STEEL REINFORCEMENT – ASTM A615, GRADE 60
WHEEL LOADING – AASHTO HS25-40
COVER TO STEEL – 1.5 INCHES
EARTH COVER – 0'-0" MINIMUM, 13'-6" MAXIMUM
UNIT WEIGHT OF EARTH – 125 POUNDS PER CUBIC FOOT
ACTIVE PRESSURE COEFFICIENT – 0.25 MIN., 0.5 MAX.
2'-0" LIVE LOAD SURCHARGE APPLIED TO 13'-6" DEPTH
EXTERIOR GROUND WATER AT FINISHED GRADE
DESIGN SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES, ACI 318-83, AND LOAD FACTOR DESIGN (AASHTO)

LOAD FACTORS
DEAD LOAD 1.5
LIVE LOAD 2.17
HYDROSTATIC PRESSURE 1.4
EARTH PRESSURE, HORIZ. 1.7

CAPACITY REDUCTION FACTORS
SHEAR 0.85
MOMENT 0.90

WEEP HOLES SHALL BE SUPPLIED IN CULVERT SECTIONS AND DIVERSION STRUCTURES AT RATE OF ONE (1) 4"ø WEEP PER 8 LINEAR FEET OF VERTICAL FACE.



B 25 SLAB JOINT DETAIL
N.T.S.

SIDEWALL LAYOUT INFORMATION:

LEFT SIDEWALL:	BOTTOM OF FOOTING:
STA. –0+11.5 TO 0+04.60	ELEV. 297.00
STA. 0+02.6 TO 0+19.1±	ELEV. 296.00

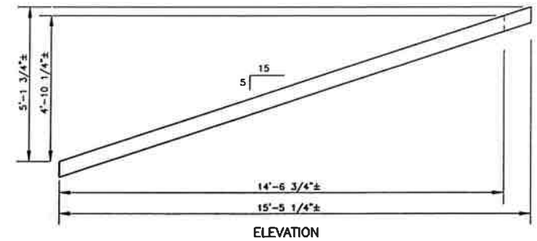
2 (CONSISTENT WITH APPROVED SHOP DRAWINGS)

RIGHT SIDEWALL:	BOTTOM OF FOOTING:
STA. –0+11.5 TO 0+04.60	ELEV. 297.00
STA. 0+02.6 TO 0+20.1±	ELEV. 296.00

2 (CONSISTENT WITH APPROVED SHOP DRAWINGS)

BAR GRATING NOTES:

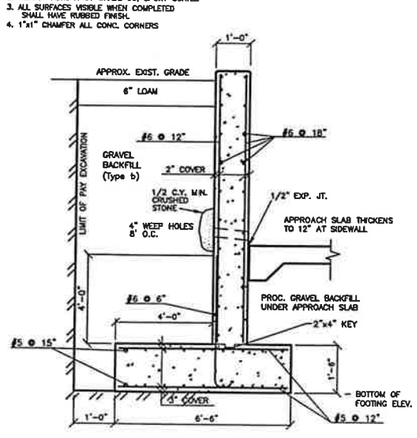
1. ALL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO–M183
2. BAR GRATING PANELS SHALL BE FABRICATED IN FULL LENGTH PANELS. MINIMUM PANEL WIDTH = 3'-0".
3. BAR GRATING PANELS SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION AND TEST FITTING. GALVANIZING SHALL MEET THE REQUIREMENTS OF AASHTO–M11 "ZINC (HOT–GALVANIZED) COATINGS ON PRODUCTS FABRICATED FROM ROLLED, PRESSED, AND FORGED STEEL SHAPES, PLATES, BARS, AND STRIP."



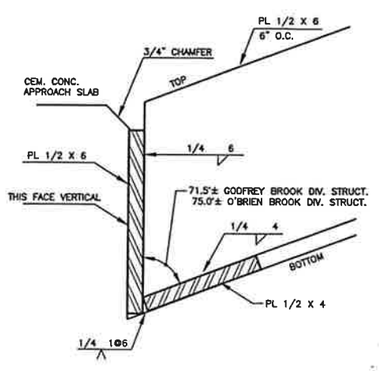
ELEVATION

CAST–IN–PLACE CONCRETE NOTES:

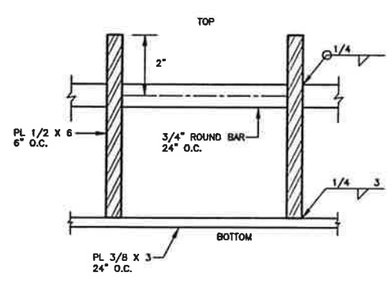
1. CONCRETE f'_c = 4,000 psi, Class A
2. REINF.– ASTM A–81 GRADE 60, EPOXY COATED
3. ALL SURFACES VISIBLE WHEN COMPLETED SHALL HAVE RUBBED FINISH.
4. 1"x1" CHAMFER ALL CONC. CORNERS



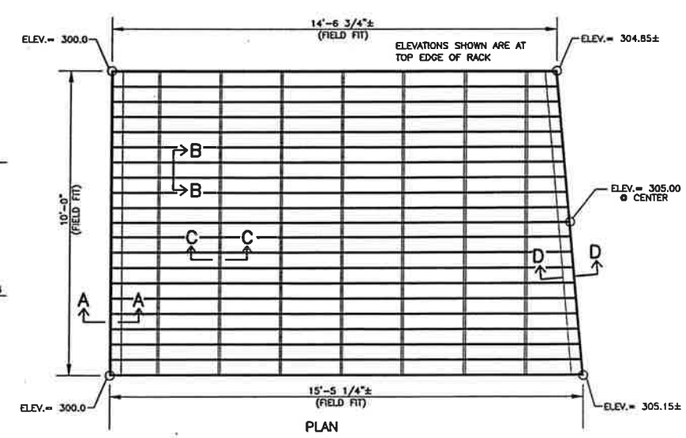
A 25 CHANNEL SIDEWALL TYPICAL SECTION
N.T.S.



BAR GRATING NO. 1 & 2 – SECTION A–A
1"=2"



BAR GRATING NO. 1 & 2 – SECTION B–B
1"=2"



PLAN

BAR GRATING NO. 1
GODFREY BROOK DIVERSION STRUCTURE
1/2"= 1'

SEE SHEET 26 FOR C–C & D–D

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

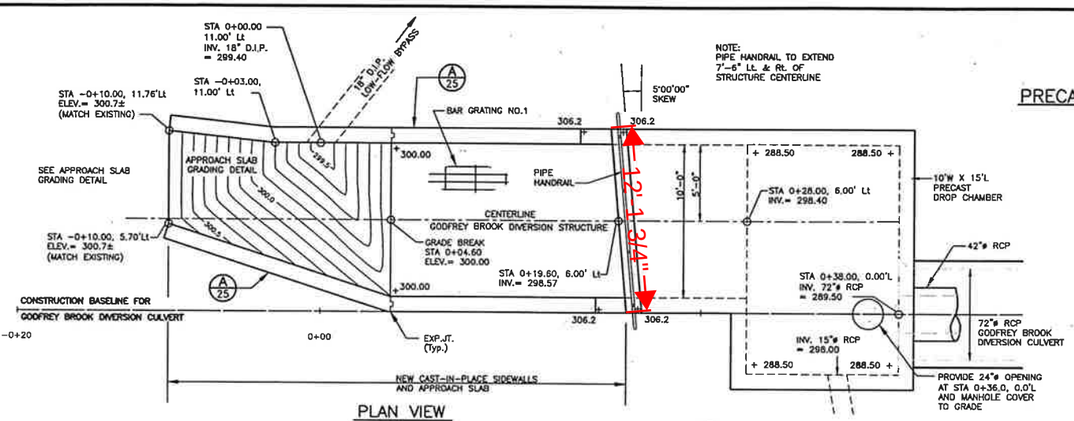
PROJECT NO. 94–1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

PROJ. TITLE: Godfrey Brook Diversion Structure
DRAWING: Godfrey Brook Flood Mitigation Project Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ
2	11/13/00	GODFREY BROOK DIVERSION STRUCTURE; MISC. DWGS	TEJ

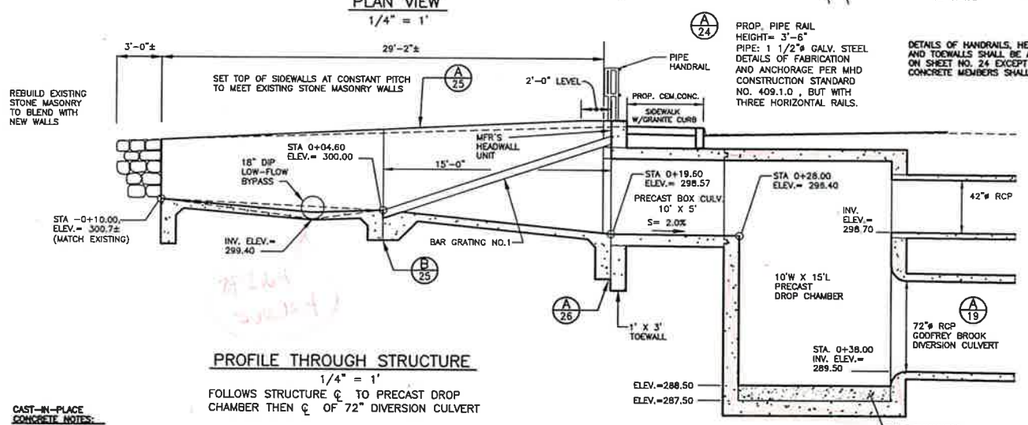
DRAWING NO. 25 OF 35 SHTS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE



PLAN VIEW

1/4" = 1'



PROFILE THROUGH STRUCTURE

1/4" = 1'

FOLLOWS STRUCTURE ℄ TO PRECAST DROP CHAMBER THEN ℄ OF 72" DIVERSION CULVERT

A 24 PROP. PIPE RAIL HEIGHT= 3'-6" PIPE: 1 1/2"ø GALV. STEEL DETAILS OF FABRICATION AND ANCHORAGE PER MHD CONSTRUCTION STANDARD NO. 409.1.0 , BUT WITH THREE HORIZONTAL RAILS.

DETAILS OF HANDRAILS, HEADWALLS, AND TOEWALLS SHALL BE AS SHOWN ON SHEET NO. 24 EXCEPT THAT CONCRETE MEMBERS SHALL BE PRECAST

CAST-IN-PLACE CONCRETE NOTES:

1. CONCRETE ℄ = 4,000 psi, Class A
2. REINF.- ASTM A-61 GRADE 60, EPOXY COATED
3. ALL SURFACES VISIBLE WHEN COMPLETED SHALL HAVE RUBBED FINISH.
4. 1"x1" CHAMFER ALL CONC. CORNERS

PRECAST CULVERT & STRUCTURE DESIGN NOTES

CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
STEEL REINFORCEMENT – ASTM A615, GRADE 60
WHEEL LOADING – AASHTO HS25-40
COVER TO STEEL – 1.5 INCHES
EARTH COVER – 0'-0" MINIMUM, 13'-6" MAXIMUM
UNIT WEIGHT OF EARTH – 125 POUNDS PER CUBIC FOOT
ACTIVE PRESSURE COEFFICIENT – 0.25 MIN., 0.5 MAX.
2'-0" LIVE LOAD SURCHARGE APPLIED TO 13'-6" DEPTH
EXTERIOR GROUND WATER AT FINISHED GRADE
DESIGN SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES, ACI 318-83, AND LOAD FACTOR DESIGN (AASHTO)

LOAD FACTORS
DEAD LOAD 1.5
LIVE LOAD 2.17
HYDROSTATIC PRESSURE 1.4
EARTH PRESSURE, HORIZ. 1.7

CAPACITY REDUCTION FACTORS
SHEAR 0.85
MOMENT 0.90

WEEP HOLES SHALL BE SUPPLIED IN CULVERT SECTIONS AND DIVERSION STRUCTURES AT RATE OF ONE (1) 4"ø WEEP PER 8 LINEAR FEET OF VERTICAL FACE.

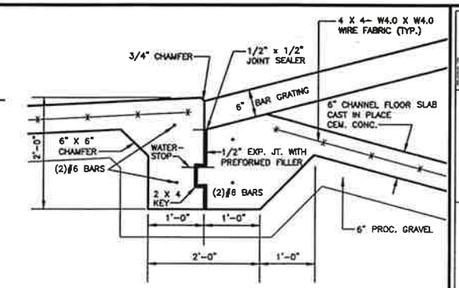
SIDEWALL LAYOUT INFORMATION:

LEFT SIDEWALL:	BOTTOM OF FOOTING:
STA. -0+11.5 TO 0+04.60	ELEV. 297.50
STA. 0+02.6 TO 0+19.1±	ELEV. 296.00

RIGHT SIDEWALL:	BOTTOM OF FOOTING:
STA. -0+11.5 TO 0+04.60	ELEV. 297.50
STA. 0+02.6 TO 0+20.1±	ELEV. 296.00

297

297

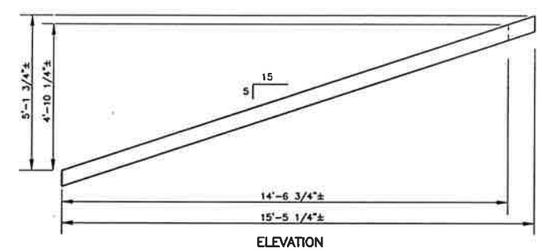


B 25 SLAB JOINT DETAIL

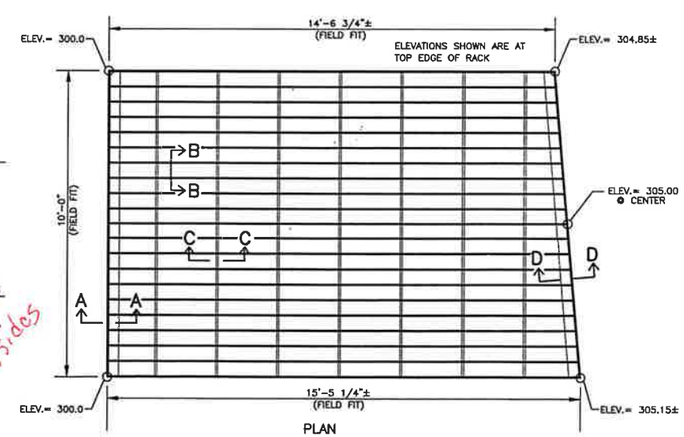
N.T.S.

BAR GRATING NOTES:

1. ALL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO-M183.
2. BAR GRATING PANELS SHALL BE FABRICATED IN FULL LENGTH PANELS. MINIMUM PANEL WIDTH = 3'-0".
3. BAR GRATING PANELS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION AND TEST FITTING. GALVANIZING SHALL MEET THE REQUIREMENTS OF AASHTO-M11 "ZINC (HOT-GALVANIZED) COATINGS ON PRODUCTS FABRICATED FROM ROLLED, PRESSED, AND FORGED STEEL SHAPES, PLATES, BARS, AND STRIP."



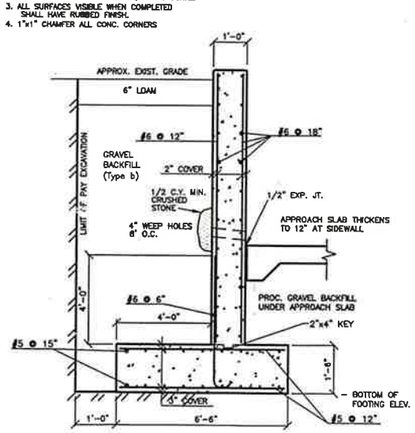
ELEVATION



PLAN

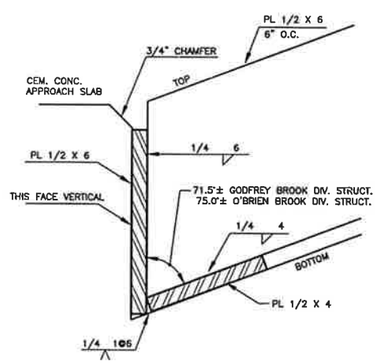
BAR GRATING NO. 1
GODFREY BROOK DIVERSION STRUCTURE

1/2"= 1'



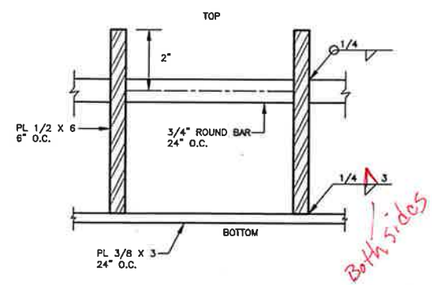
A 25 CHANNEL SIDEWALL TYPICAL SECTION

N.T.S.



BAR GRATING NO. 1 & 2 – SECTION A–A

1"=2"



BAR GRATING NO. 1 & 2 – SECTION B–B

1"=2"

SEE SHEET 26 FOR C–C & D–D

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
296 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN EDM
CHECKED BY TEJ

SHEET TITLE: Godfrey Brook Diversion Structure

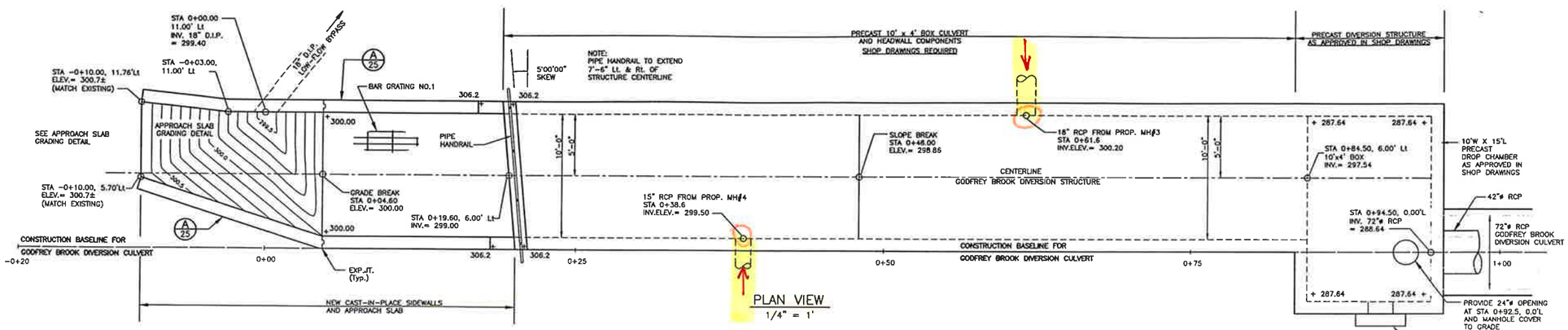
PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

DRAWING NO. 25 OF 35 DWGS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.

THIS SHEET IS OBSOLETE - SEE REV. 2 DATED 11/13/00



PLAN VIEW
1/4" = 1'

PRECAST CULVERT & STRUCTURE DESIGN NOTES

CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
STEEL REINFORCEMENT – ASTM A615, GRADE 60
WHEEL LOADING – AASHTO HS25-40
COVER TO STEEL – 1.5 INCHES
EARTH COVER – 0'-0" MINIMUM, 13'-6" MAXIMUM
UNIT WEIGHT OF EARTH – 125 POUNDS PER CUBIC FOOT
ACTIVE PRESSURE COEFFICIENT – 0.25 MIN., 0.5 MAX.
2'-0" LIVE LOAD SURCHARGE APPLIED TO 13'-6" DEPTH
EXTERIOR GROUND WATER AT FINISHED GRADE
DESIGN SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS
FOR HIGHWAY BRIDGES, ACI 318-83, AND LOAD FACTOR DESIGN (AASHTO)

LOAD FACTORS
DEAD LOAD 1.5
LIVE LOAD 2.17
HYDROSTATIC PRESSURE 1.4
EARTH PRESSURE, HORIZ. 1.7

CAPACITY REDUCTION FACTORS
SHEAR 0.85
MOMENT 0.90

WEEP HOLES SHALL BE SUPPLIED IN CULVERT SECTIONS AND DIVERSION STRUCTURES AT RATE OF ONE (1) 4"ø WEEP PER 8 LINEAR FEET OF VERTICAL FACE.

CAST-IN-PLACE
CONCRETE NOTES:

1. CONCRETE f'_c = 4,000 psi, Class A
2. REINF.– ASTM A-61 GRADE 60, EPOXY COATED
3. ALL SURFACES VISIBLE WHEN COMPLETED SHALL HAVE RUBBED FINISH.
4. 1"x1" CHAMFER ALL CONC. CORNERS

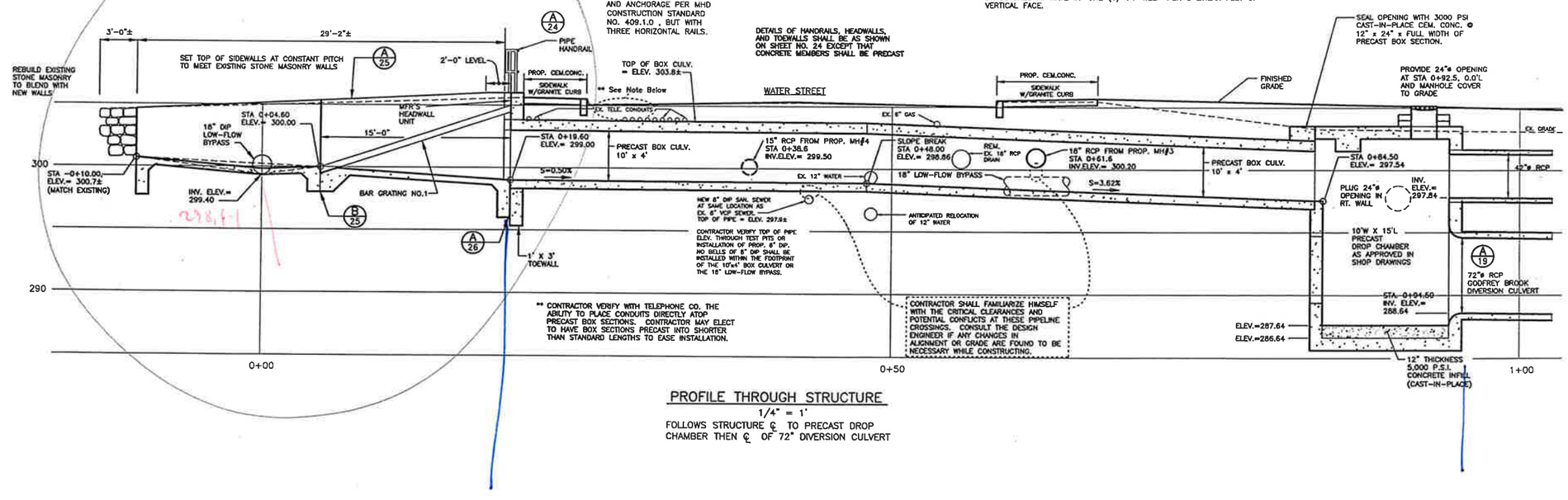
SIDEWALL LAYOUT INFORMATION:

LEFT SIDEWALL:	BOTTOM OF FOOTING:
STA. -0+11.5 TO 0+04.60	ELEV. 297.00
STA. 0+02.6 TO 0+19.1±	ELEV. 296.00

RIGHT SIDEWALL:	BOTTOM OF FOOTING:
STA. -0+11.5 TO 0+04.60	ELEV. 297.00
STA. 0+02.6 TO 0+20.1±	ELEV. 296.00

PROP. PIPE RAIL
HEIGHT= 3'-6"
PIPE: 1 1/2"ø GALV. STEEL
DETAILS OF FABRICATION
AND ANCHORAGE PER MHD
CONSTRUCTION STANDARD
NO. 409.1.0 , BUT WITH
THREE HORIZONTAL RAILS.

DETAILS OF HANDRAILS, HEADWALLS, AND TOEWALLS SHALL BE AS SHOWN ON SHEET NO. 24 EXCEPT THAT CONCRETE MEMBERS SHALL BE PRECAST



** CONTRACTOR VERIFY WITH TELEPHONE CO. THE ABILITY TO PLACE CONDUITS DIRECTLY ATOP PRECAST BOX SECTIONS. CONTRACTOR MAY ELECT TO HAVE BOX SECTIONS PRECAST INTO SHORTER THAN STANDARD LENGTHS TO EASE INSTALLATION.

CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE CRITICAL CLEARANCES AND POTENTIAL CONFLICTS AT THESE PIPELINE CROSSINGS. CONSULT THE DESIGN ENGINEER IF ANY CHANGES IN ALIGNMENT OR GRADE ARE FOUND TO BE NECESSARY WHILE CONSTRUCTING.

PROFILE THROUGH STRUCTURE

1/4" = 1'

FOLLOWS STRUCTURE ℄ TO PRECAST DROP CHAMBER THEN ℄ OF 72" DIVERSION CULVERT

DRAWING NO. 25-A — OF 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE NOV. 2000
DRAWN BY EDM
DESIGNED BY TEJ

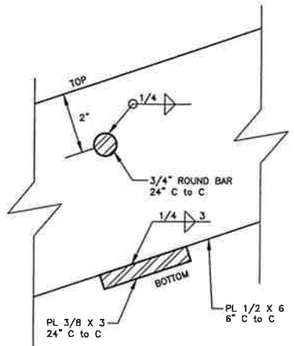
SHEET TITLE: Godfrey Brook Diversion Structure

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

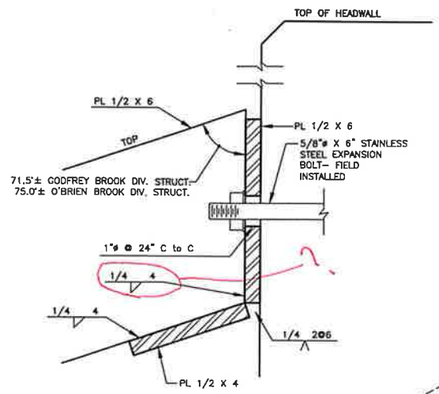
NO.	DATE	DRAWING ISSUED	REVISION	BY
1	11/13/00		TEJ	

THIS REDUCED PLAN SET IS 40% OF FULL SIZE

too high



BAR GRATING NO. 1 & 2 – SECTION C–C
1"=2"

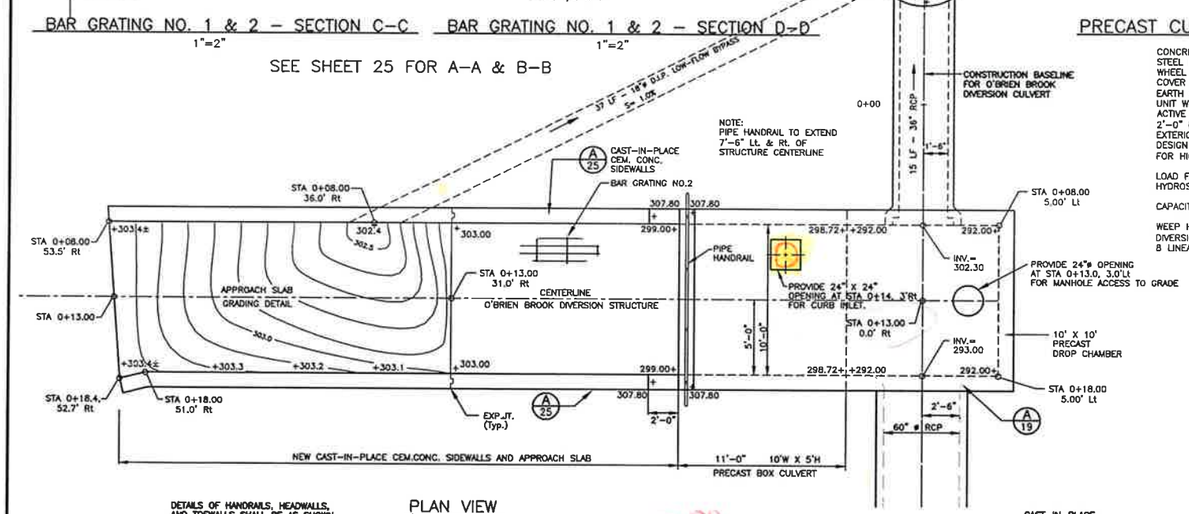


BAR GRATING NO. 1 & 2 – SECTION D–D
1"=2"

SEE SHEET 25 FOR A–A & B–B

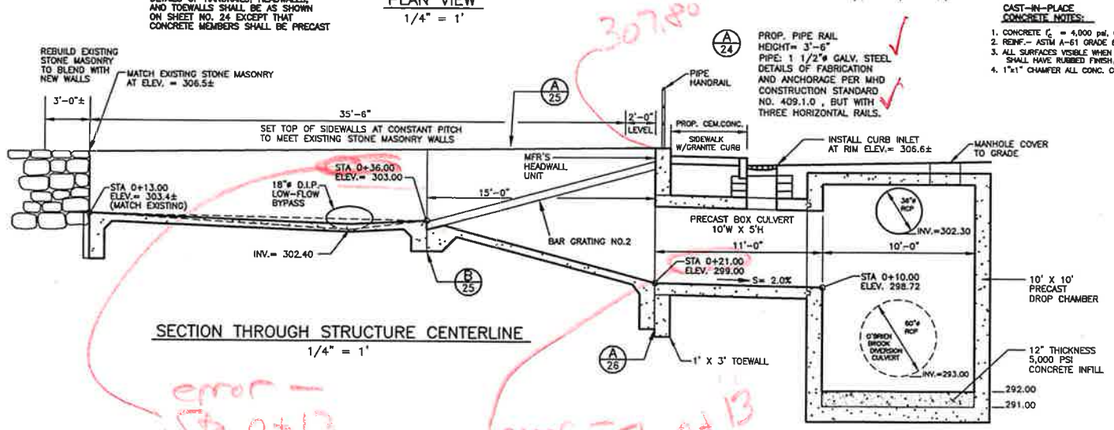
LEFT SIDEWALL:	BOTTOM OF FOOTING:
STA. 0+08.0, 55.0'Rt TO 31.0'Rt	ELEV. 300.50
STA. 0+08.0, 33.0'Rt TO 21.0'Rt	ELEV. 296.50

RIGHT SIDEWALL:	BOTTOM OF FOOTING:
STA. 0+18.4, 54.2'Rt TO STA. 0+18.0, 31.0'Rt	ELEV. 300.50
STA. 0+18.0, 33.0'Rt TO 21.0'Rt	ELEV. 296.50



PLAN VIEW
1/4" = 1'

DETAILS OF HANDRAILS, HEADWALLS, AND TOEWALLS SHALL BE AS SHOWN ON SHEET NO. 24 EXCEPT THAT CONCRETE MEMBERS SHALL BE PRECAST



SECTION THROUGH STRUCTURE CENTERLINE
1/4" = 1'

error – Sta 0+13 28' Rt

error – Sta 0+13 16' Rt.

307.80

A 24 PROP. PIPE RAIL HEIGHT= 3'–6" PIPE: 1 1/2"ø GALV. STEEL DETAILS OF FABRICATION AND ANCHORAGE PER MHD CONSTRUCTION STANDARD NO. 409.1.0 , BUT WITH THREE HORIZONTAL RAILS.

CAST-IN-PLACE CONCRETE NOTES:

1. CONCRETE f'_c = 4,000 psi, Class A
2. REINF.– ASTM A-61 GRADE 60, EPOXY COATED
3. ALL SURFACES VISIBLE WHEN COMPLETED SHALL HAVE RUBBED FINISH.
4. 1"x1" CHAMFER ALL CONC. CORNERS

PRECAST CULVERT & STRUCTURE DESIGN NOTES

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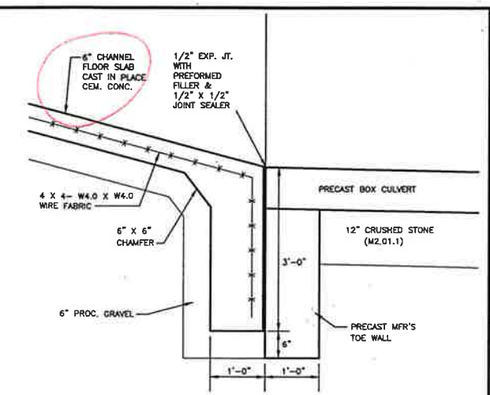
WHEEL LOADING – AASHTO HS25-40
COVER TO STEEL – 1.5 INCHES
EARTH COVER – 0'–0" MINIMUM, 13'–6" MAXIMUM
UNIT WEIGHT OF EARTH – 125 POUNDS PER CUBIC FOOT
ACTIVE PRESSURE COEFFICIENT – 0.25 MIN., 0.5 MAX.
2'–0" LIVE LOAD SURCHARGE APPLIED TO 13'–6" DEPTH
EXTERIOR GROUND WATER AT FINISHED GRADE
DESIGN SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES, ACI 318-83, AND LOAD FACTOR DESIGN (AASHTO)

LOAD FACTORS: DEAD LOAD 1.5 LIVE LOAD 2.17
HYDROSTATIC PRESSURE 1.4 EARTH PRESSURE, HORIZ. 1.7

CAPACITY REDUCTION FACTORS: SHEAR 0.85 MOMENT 0.90

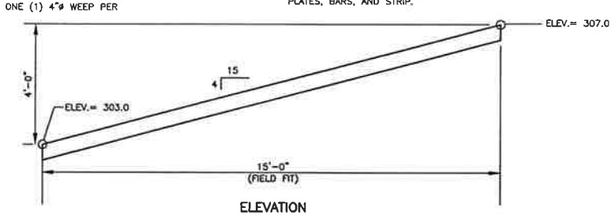
WEEP HOLES SHALL BE SUPPLIED IN CULVERT SECTIONS AND DIVERSION STRUCTURES AT RATE OF ONE (1) 4"ø WEEP PER 8 LINEAR FEET OF VERTICAL FACE.



A 26 SLAB JOINT DETAIL
N.T.S.

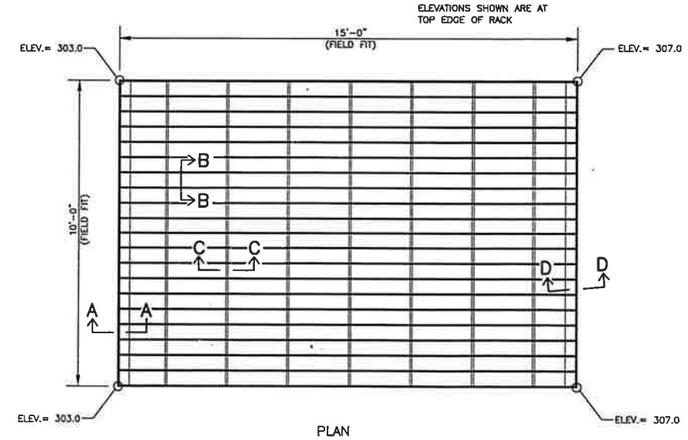
BAR GRATING NOTES:

1. ALL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO–M183.
2. BAR GRATING PANELS SHALL BE FABRICATED IN FULL LENGTH PANELS. MINIMUM PANEL WIDTH = 3'–0".
3. BAR GRATING PANELS SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION AND TEST FITTING. GALVANIZING SHALL MEET THE REQUIREMENTS OF AASHTO–M11 "ZINC (HOT–GALVANIZED) COATINGS ON PRODUCTS FABRICATED FROM ROLLED, PRESSED, AND FORGED STEEL SHAPES, PLATES, BARS, AND STRIP."



ELEVATION

ELEVATIONS SHOWN ARE AT TOP EDGE OF RACK



PLAN

BAR GRATING NO. 2
O'BRIEN BROOK DIVERSION STRUCTURE
1/2"= 1'

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

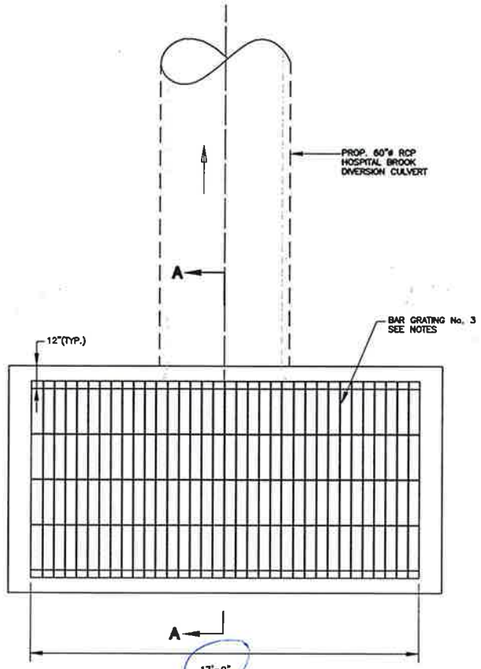
PROJECT TITLE: O'Brien Brook Diversion Structure

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

DRAWING NO. 26 OF 35 SHTS

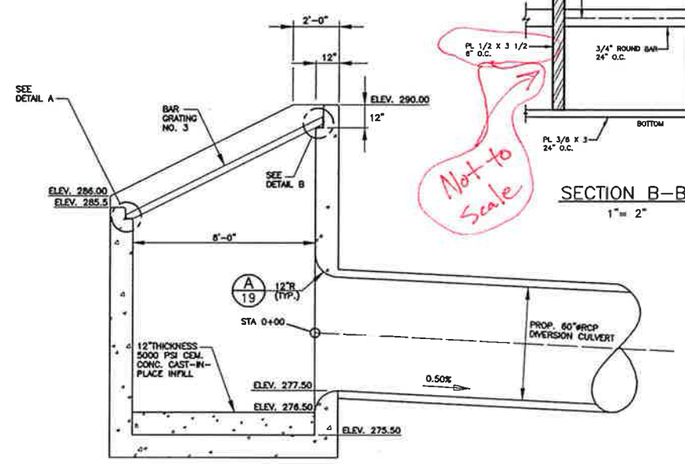
THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



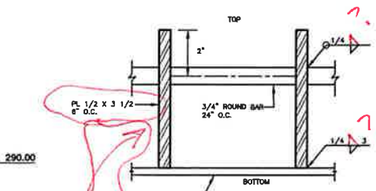
BAR GRATING NOTES:

1. ALL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO-M183.
2. BAR GRATING PANELS SHALL BE FABRICATED IN FULL LENGTH PANELS. MINIMUM PANEL WIDTH = 3'-0".
3. BAR GRATING PANELS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION AND TEST FITTING. GALVANIZING SHALL MEET THE REQUIREMENTS OF AASHTO-M11 "ZINC (HOT-GALVANIZED) COATINGS ON PRODUCTS FABRICATED FROM ROLLED, PRESSED, AND FORGED STEEL SHAPES, PLATES, BARS, AND STRIP."

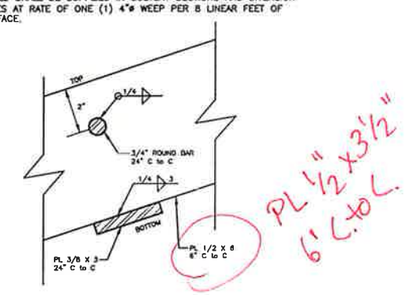
PLAN VIEW
3/8" =1'-0"



SECTION A-A
3/8" =1'-0"



SECTION B-B
1"= 2"



SECTION C-C
1"= 2"

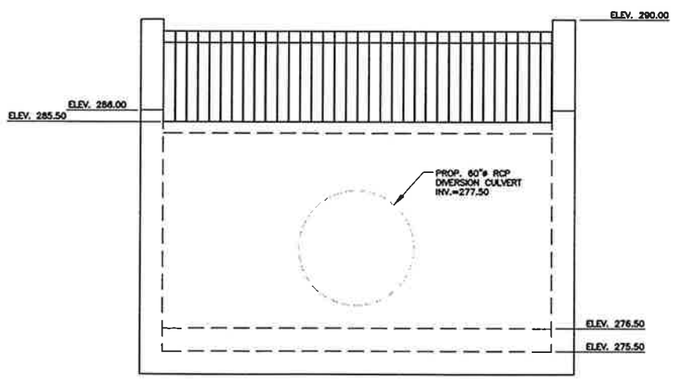
PRECAST STRUCTURE DESIGN NOTES

CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
STEEL REINFORCEMENT – ASTM A615, GRADE 60
WHEEL LOADING – AASHTO HS25-40
COVER TO STEEL – 1.5 INCHES
EARTH COVER – 0'-0" MINIMUM, 13'-6" MAXIMUM
UNIT WEIGHT OF EARTH – 125 POUNDS PER CUBIC FOOT
ACTIVE PRESSURE COEFFICIENT – 0.25 MIN., 0.5 MAX.
2'-0" LIVE LOAD SURCHARGE APPLIED TO 13'-6" DEPTH
EXTERIOR GROUND WATER AT FINISHED GRADE
DESIGN SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES, ACI 318-83, AND LOAD FACTOR DESIGN (AASHTO)

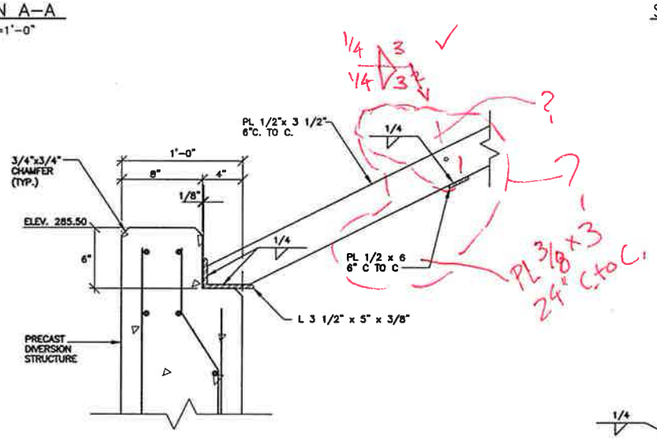
LOAD FACTORS
DEAD LOAD 1.5
LIVE LOAD 2.17
HYDROSTATIC PRESSURE 1.4
EARTH PRESSURE, HORIZ. 1.7

CAPACITY REDUCTION FACTORS
SHEAR 0.85
MOMENT 0.90

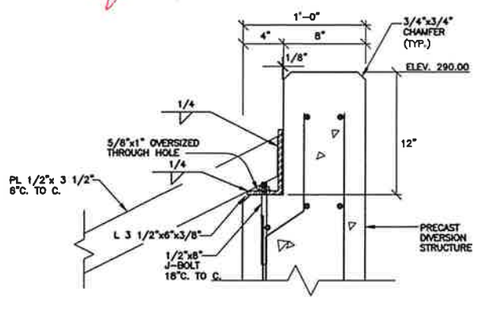
WEEP HOLES SHALL BE SUPPLIED IN CULVERT SECTIONS AND DIVERSION STRUCTURES AT RATE OF ONE (1) 4"ø WEEP PER 8 LINEAR FEET OF VERTICAL FACE.



FRONT ELEVATION
3/8" =1'-0"



BAR GRATING NO. 3
DETAIL A
3/8" =1'-0"



BAR GRATING NO. 3
DETAIL B
3/8" =1'-0"

Entire Sheet to be Included Under Bid Alternative No. 1

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

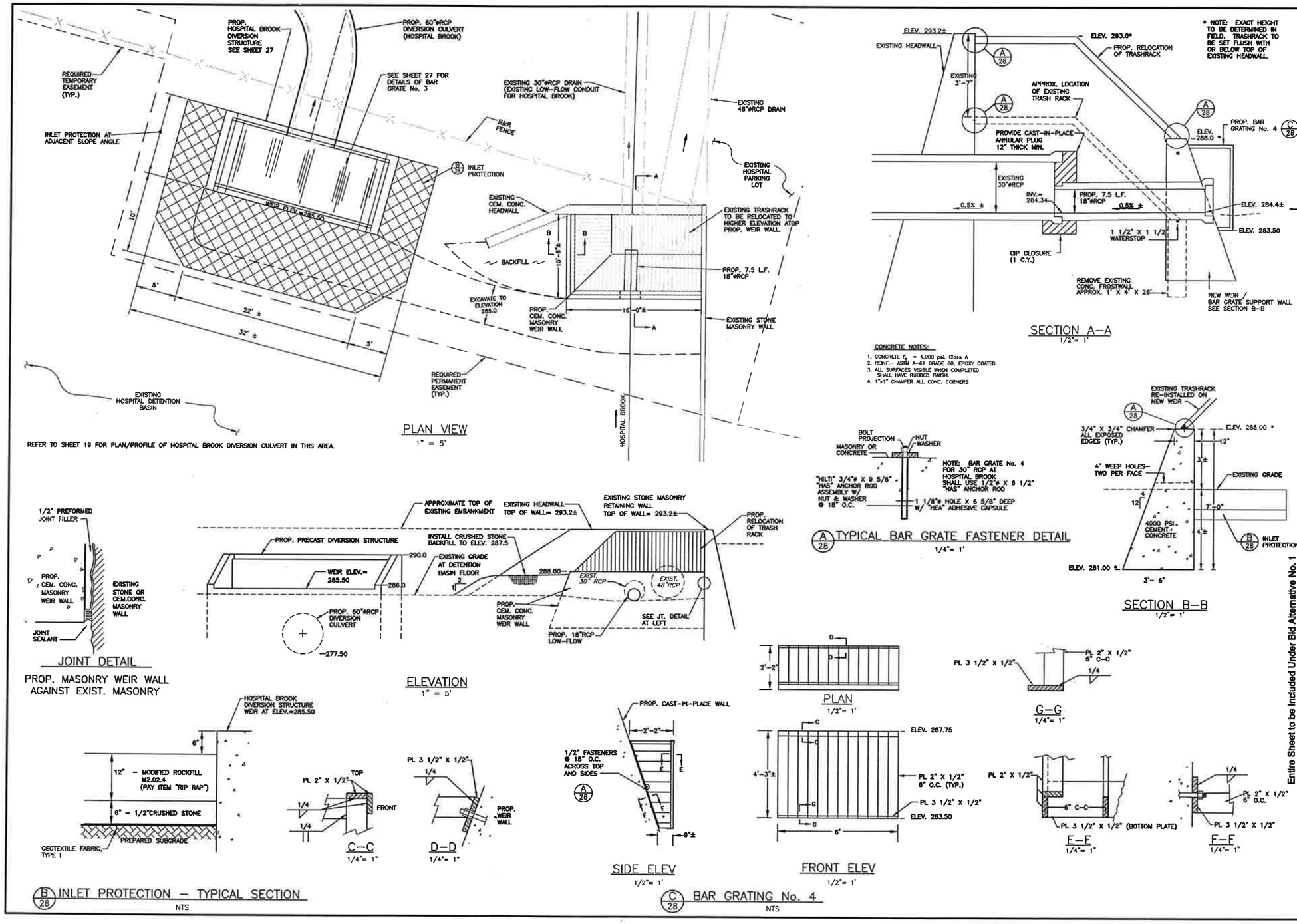
PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

SHEET TITLE: Hospital Brook Diversion Structure

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



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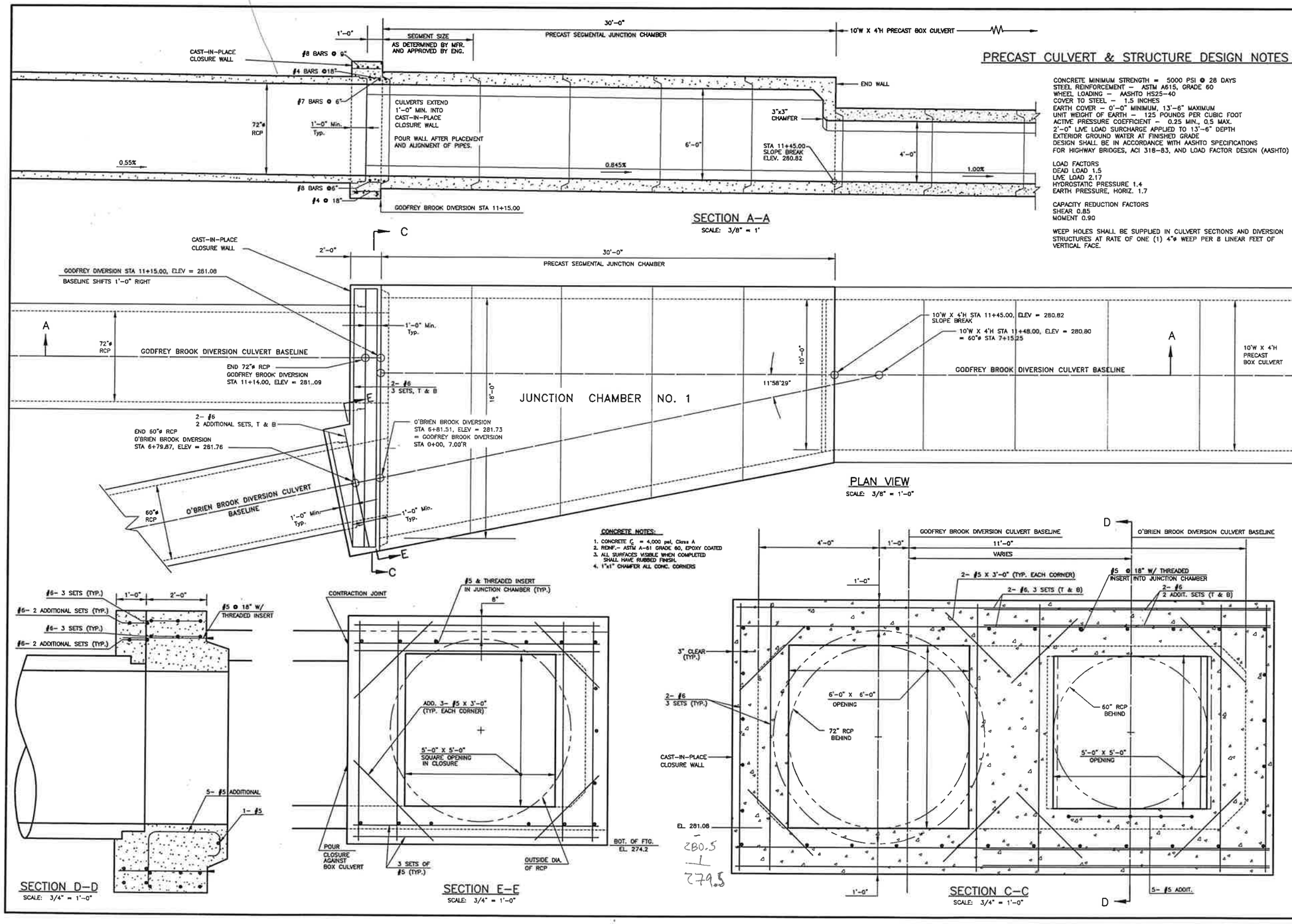

PRECAST CULVERT & STRUCTURE DESIGN NOTES

CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
STEEL REINFORCEMENT – ASTM A615, GRADE 60
WHEEL LOADING – AASHTO HS25-40
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LIVE LOAD 2.17
HYDROSTATIC PRESSURE 1.4
EARTH PRESSURE, HORIZ. 1.7

CAPACITY REDUCTION FACTORS
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MOMENT 0.90

WEEP HOLES SHALL BE SUPPLIED IN CULVERT SECTIONS AND DIVERSION STRUCTURES AT RATE OF ONE (1) 4"ø WEEP PER 8 LINEAR FEET OF VERTICAL FACE.

29 of 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

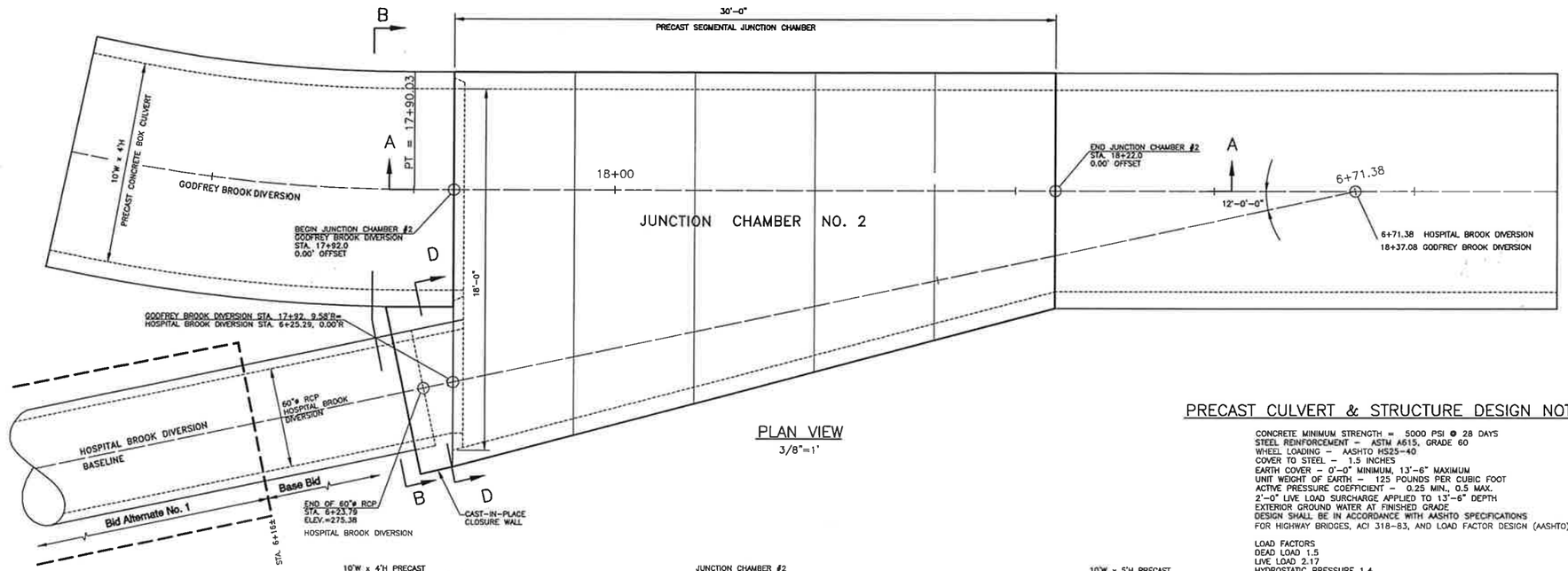
PROJECT No. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

Junction Chamber No. 1
Plan and Sections

PROJECT
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



PLAN VIEW
3/8"=1'

PRECAST CULVERT & STRUCTURE DESIGN NOTES

CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
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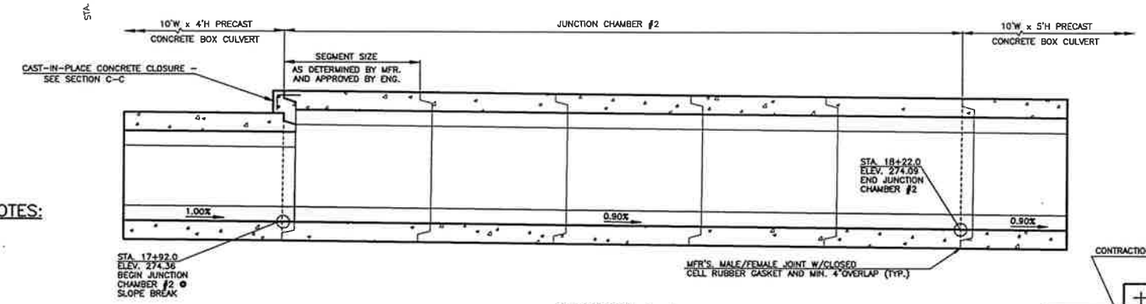
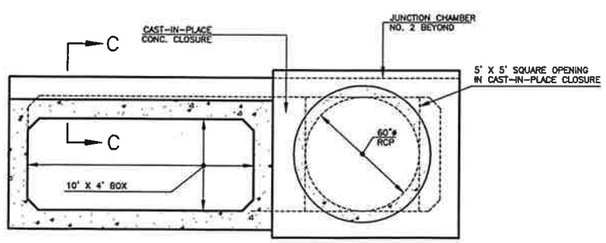
NOTE: IF BID ALTERNATE No.1 IS NOT SELECTED, BASE BID SHALL INCLUDE 8' X 8' X 1.5' CAST-IN-PLACE TEMPORARY PLUG (3000 psi CEM. CONC.) AT HOSPITAL BROOK DIVERSION, STA. 6+16±.

CAST-N-PLACE CONC. NOTES:

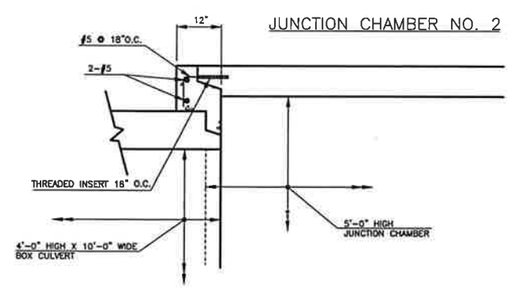
1. Fc' = 4,000 psi – CLASS A CONC.
2. REINF. – ASTM A-615 GRADE 60.
3. REINF. – 2" COVER MIN.
4. REINF. – MIN. SPLICE= 18"
5. 1" X 1" CHAMFER ALL CORNERS.



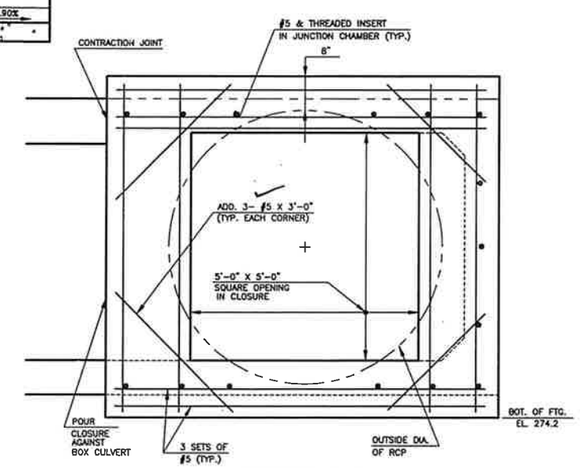
SECTION A-A
3/8"=1'



SECTION B-B
3/8"=1'



SECTION C-C
3/4"=1'



SECTION D-D
3/4"=1'

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
258 North Main Street East Longmeadow, MA 01028

SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGNED BY TEJ

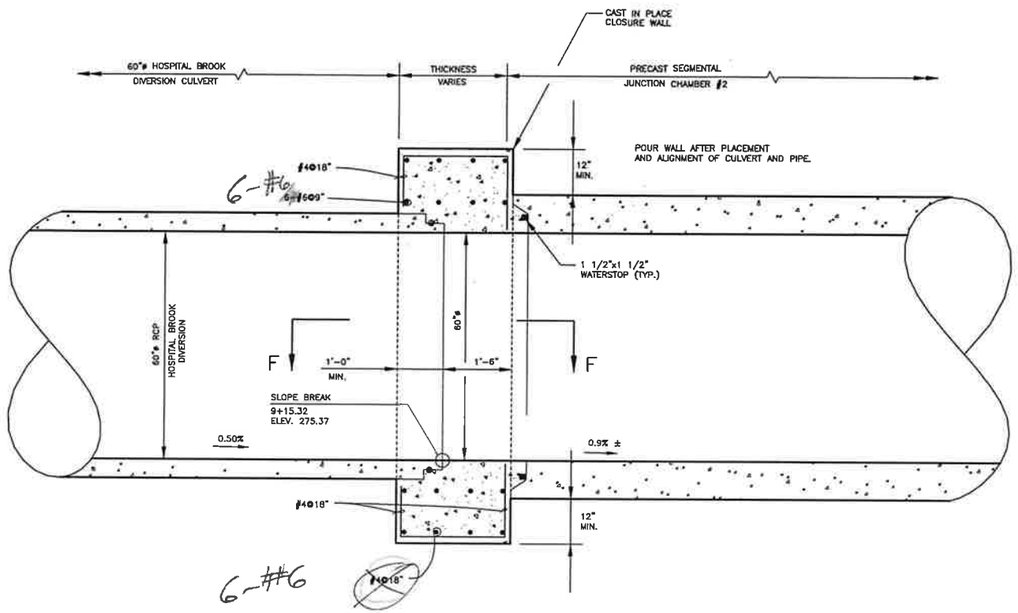
PROJECT
Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

SHEET TITLE
Junction Chamber No. 2
Plan and Sections

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

DRAWING NO. 30 of 35 sms

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.



SECTION B-B
3/4"=1'

CAST-N-PLACE CONC. NOTES:

1. Fc' = 4,000 psi – CLASS A CONC.
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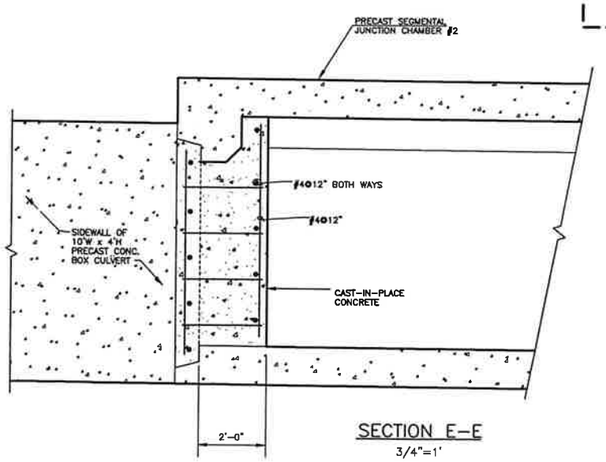

SECTION E-E
3/4"=1'

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EARTH PRESSURE, HORIZ. 1.7

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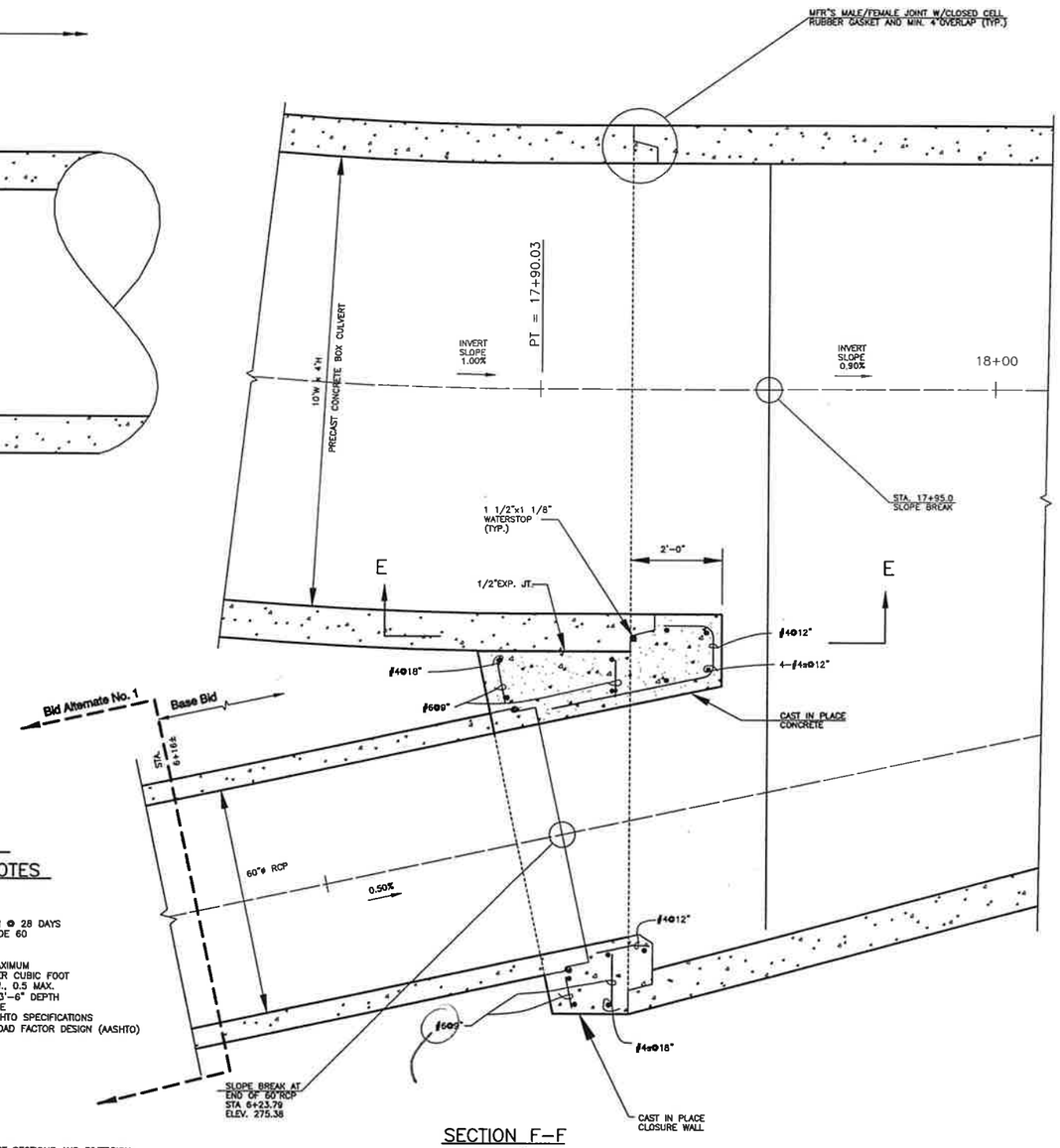
MOMENT 0.90

WEEP HOLES SHALL BE SUPPLIED IN CULVERT SECTIONS AND DIVERSION STRUCTURES AT RATE OF ONE (1) 4"ø WEEP PER 8 LINEAR FEET OF VERTICAL FACE.



SECTION F-F
3/4"=1'

31 OF 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
398 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGNED BY TEJ

Junction Chamber No. 2 Sections

Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

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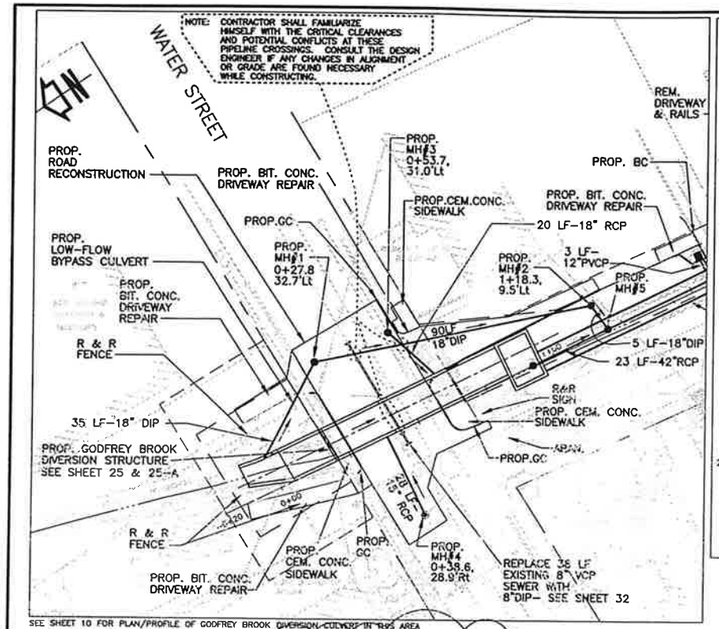
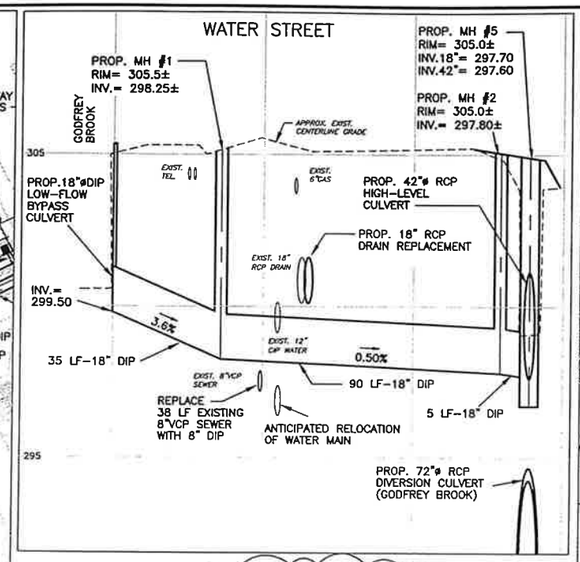
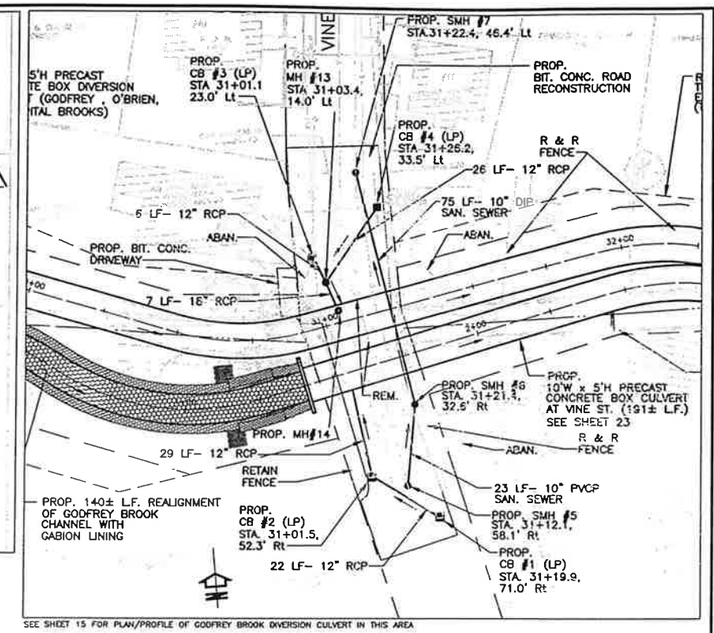


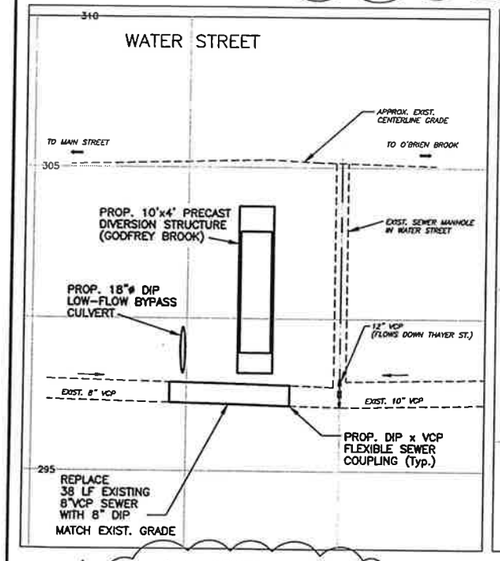
PARTIAL PLAN OF WATER ST./THAYER ST. AREA
1" = 20'



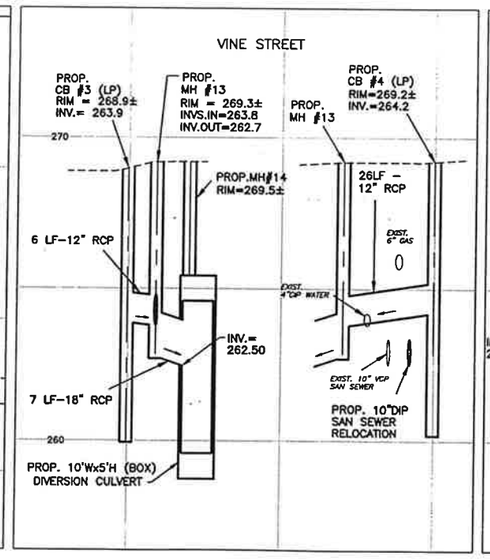
– DRAIN PROFILE –
GODFREY BROOK LOW-FLOW BYPASS
PROP. MH#1 TO MH#2 TO MH#5
VERT. 1"=2'
HOR. 1"=20'



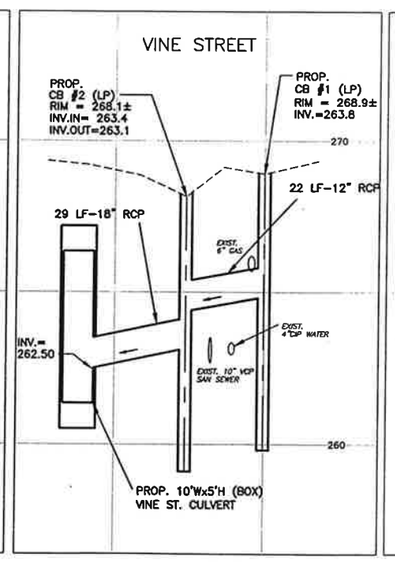
PARTIAL PLAN OF VINE STREET AREA
1" = 20'



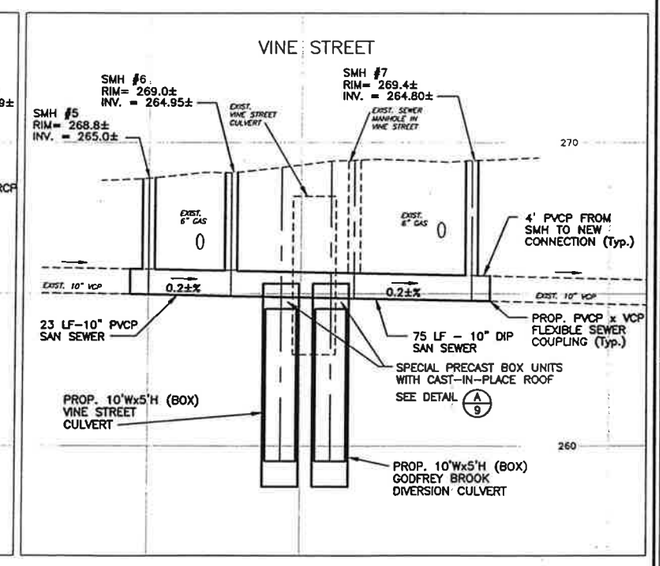
– SAN. SEWER PROFILE –
REPLACEMENT SEWER AT
GODFREY BROOK DIVERSION AREA
VERT. 1"=2'
HOR. 1"=20'



– DRAIN PROFILE –
PROP. CB#4 TO MH#13 &
PROP. CB#3 TO MH#13 TO DIV. CULVERT
VERT. 1"=2'
HOR. 1"=20'



– DRAIN PROFILE –
PROP. CB#1 TO CB#2 TO VINE ST. CULVERT
VERT. 1"=2'
HOR. 1"=20'



– SAN. SEWER PROFILE –
PROP. SMH#5 TO SMH#6 TO SMH#7
VERT. 1"=2'
HOR. 1"=20'

32 OF 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
395 North Main Street East Longmeadow, MA 01028

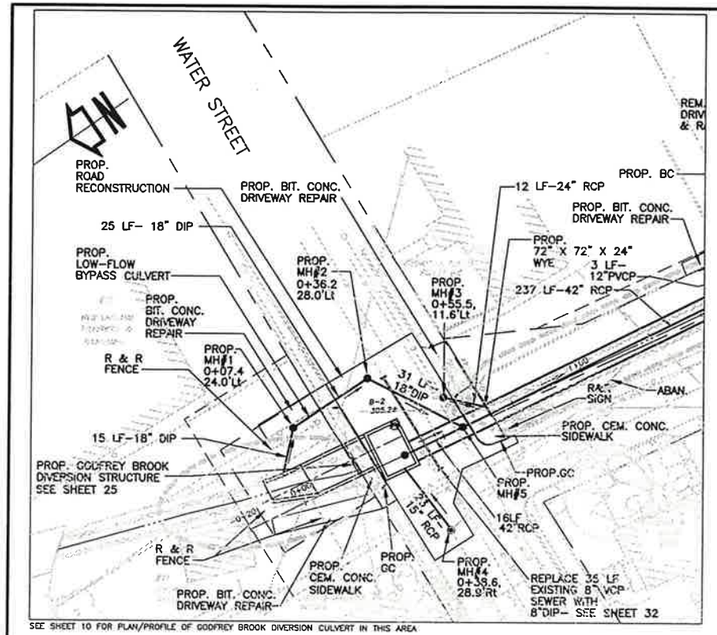
PROJECT #94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

PROJECT TITLE: Godfrey Brook Flood Mitigation Project Milford, Massachusetts

SHEET TITLE: Utility Profiles No. 1 Proposed Drains and Sanitary Sewers

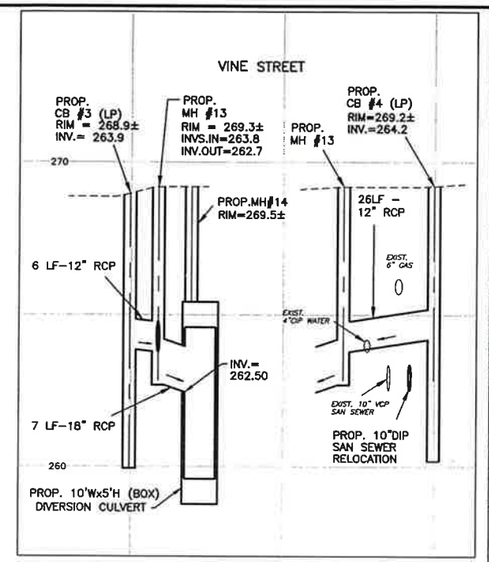
NO.	DATE	REVISION	BY
1	11/13/00	GODFREY BROOK DIVERSION STRUCTURE, MISC. EDITS	TEJ
	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE

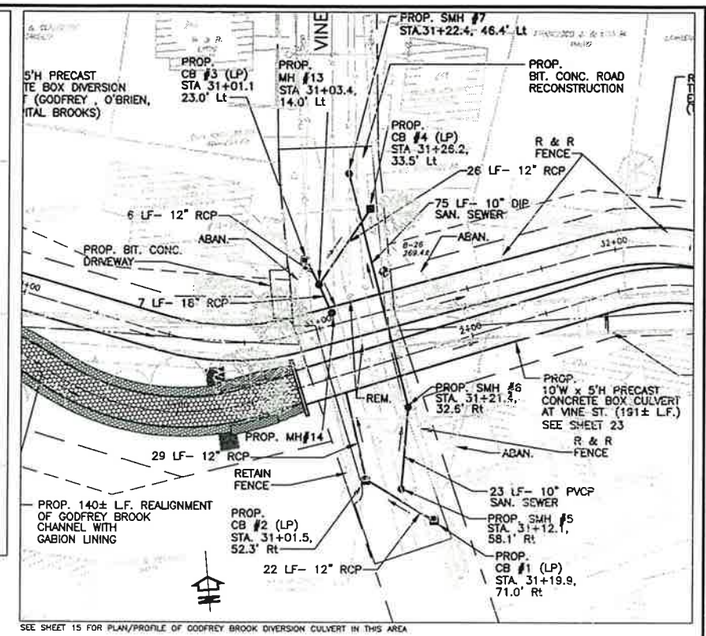


SEE SHEET 10 FOR PLAN/PROFILE OF GODFREY BROOK DIVERSION CULVERT IN THIS AREA

PARTIAL PLAN OF
WATER ST./THAYER ST. AREA
1" = 20'

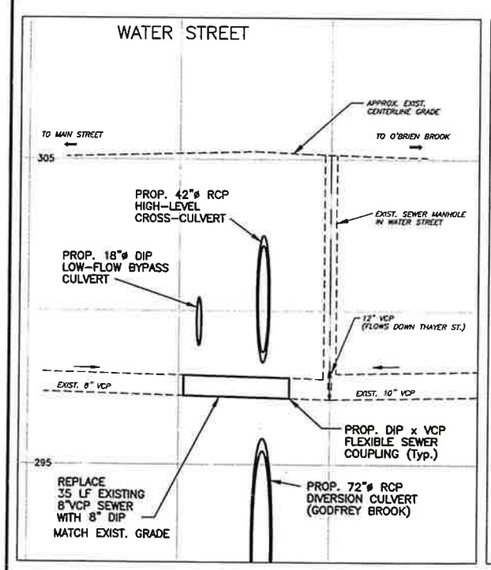


– DRAIN PROFILE –
PROP. CB#4 TO MH#13 &
PROP. CB#3 TO MH#13 TO DIV. CULVERT
VERT. 1"=2'
HOR. 1"=20'

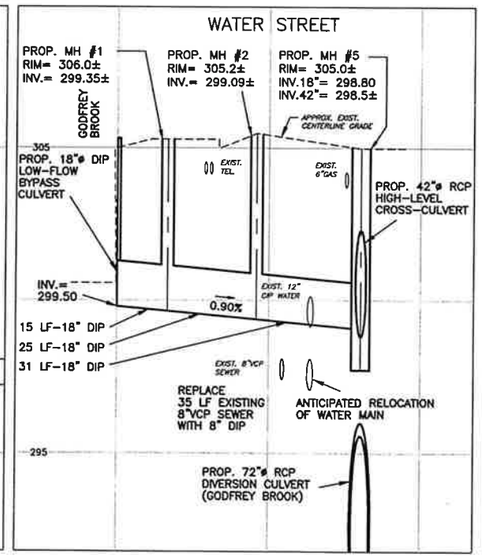


SEE SHEET 15 FOR PLAN/PROFILE OF GODFREY BROOK DIVERSION CULVERT IN THIS AREA

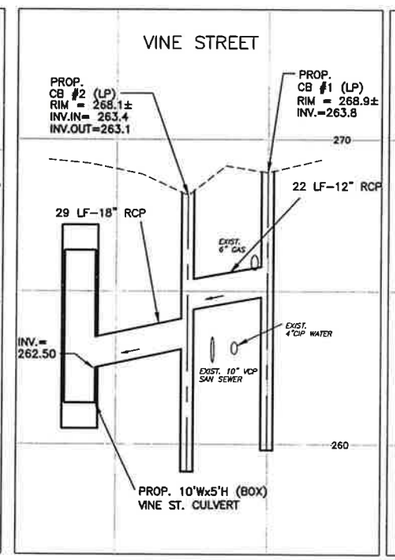
PARTIAL PLAN OF
VINE STREET AREA
1" = 20'



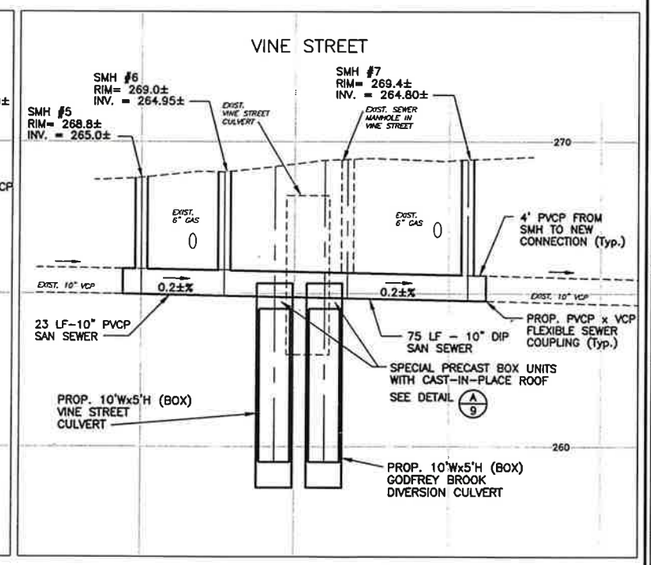
– SAN. SEWER PROFILE –
REPLACEMENT SEWER AT
GODFREY BROOK DIVERSION AREA
VERT. 1"=2'
HOR. 1"=20'



– DRAIN PROFILE –
GODFREY BROOK LOW–FLOW BYPASS
PROP. MH#1 TO MH#2 TO MH#5
VERT. 1"=2'
HOR. 1"=20'



– DRAIN PROFILE –
PROP. CB#1 TO CB#2 TO VINE ST. CULVERT
VERT. 1"=2'
HOR. 1"=20'



– SAN. SEWER PROFILE –
PROP. SMH#5 TO SMH#6 TO SMH#7
VERT. 1"=2'
HOR. 1"=20'

32 of 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
286 North Main Street East Longmeadow, MA 01028

PROJECT NO. 94–1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGNED BY TEJ

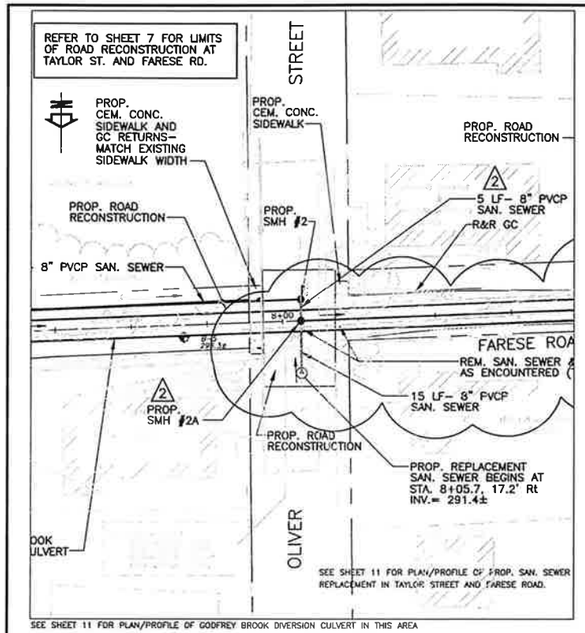
SHEET TITLE: Utility Profiles No. 1
Proposed Drains and Sanitary Sewers

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

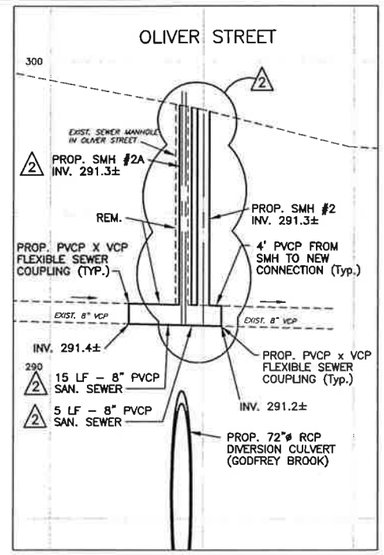
NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.

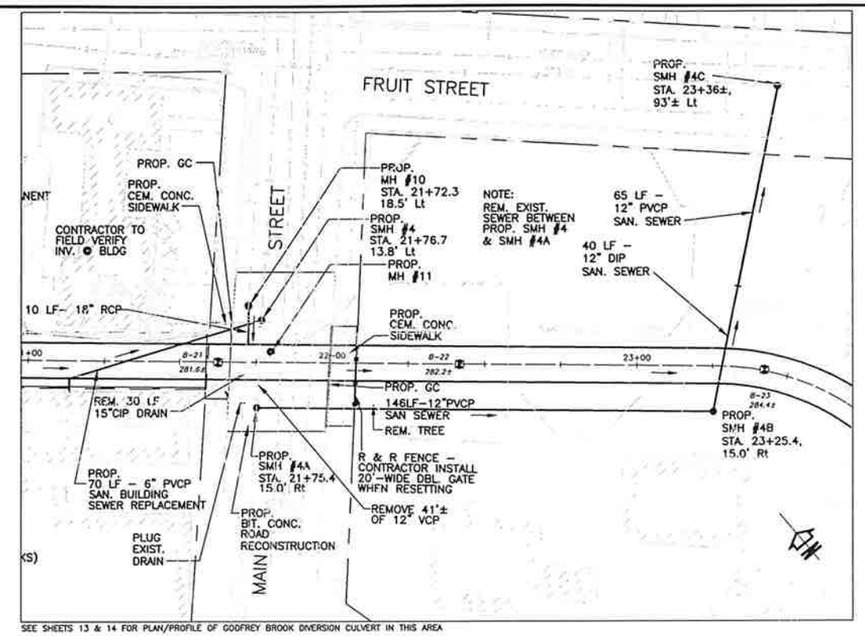
THIS SHEET IS OBSOLETE - SEE REV. 2 DATED 11/13/00



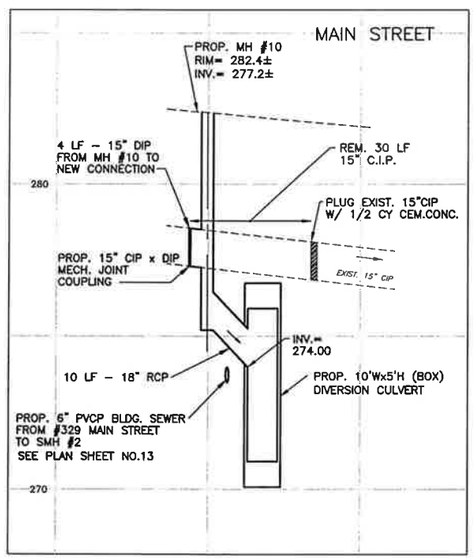
PARTIAL PLAN OF
OLIVER STREET AREA
1" = 20'



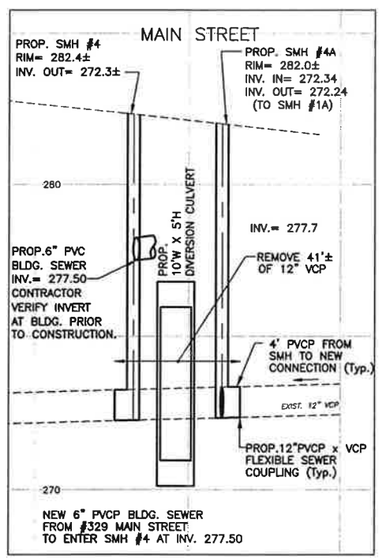
– DRAIN PROFILE –
PROP. SAN. SEWER REPLACEMENT
AND SMH #2 IN OLIVER STREET
VERT. 1"=2'
HOR. 1"=20'



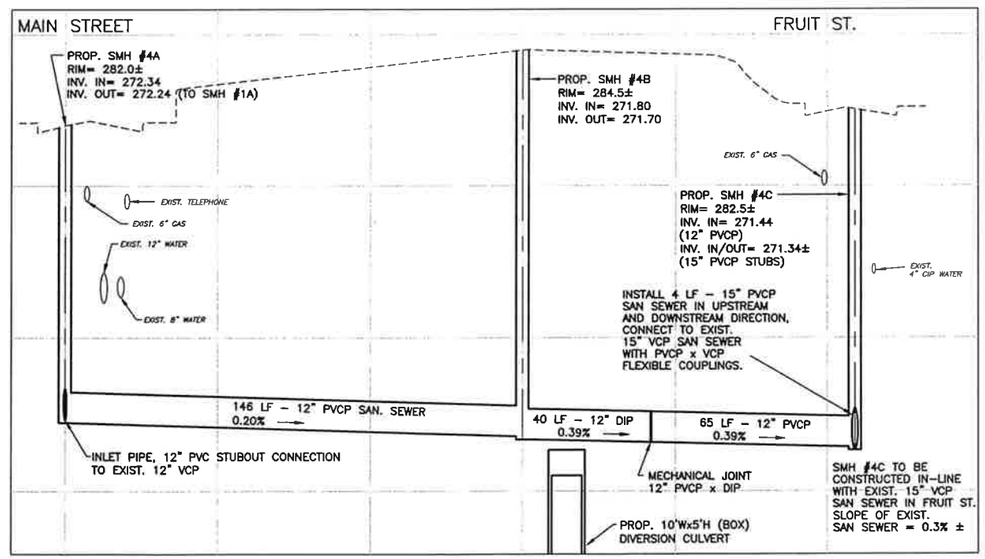
PARTIAL PLAN OF
MAIN STREET AREA
1" = 20'



– DRAIN PROFILE –
PROP. MH #10 TO DIVERSION CULVERT
VERT. 1"=2'
HOR. 1"=20'



– SAN. SEWER PROFILE –
PROP. SMH #4 AND SMH #4A
VERT. 1"=2'
HOR. 1"=20'



– SAN. SEWER PROFILE –
PROP. SMH #4A TO SMH #4B TO SMH #4C
VERT. 1"=2'
HOR. 1"=20'

NO.	DATE	REVISION	BY
2.	10/15/00	SEWER LOCATION IN FARESE ROAD	TEJ
1.	8/12/99	ISSUED FOR BIDDING	TEJ

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

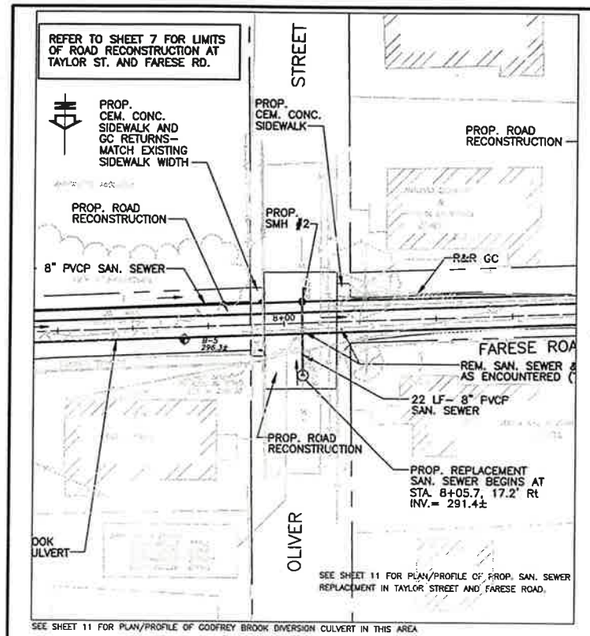
SHEET TITLE: Utility Profiles No. 2
Proposed Drains and Sanitary Sewers

PROJECT NO. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

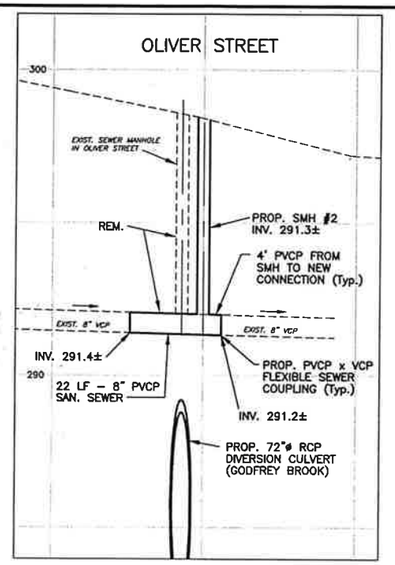
BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
236 North Main Street East Longmeadow, MA 01028

DRAWING NO. 33 of 35 SHTS

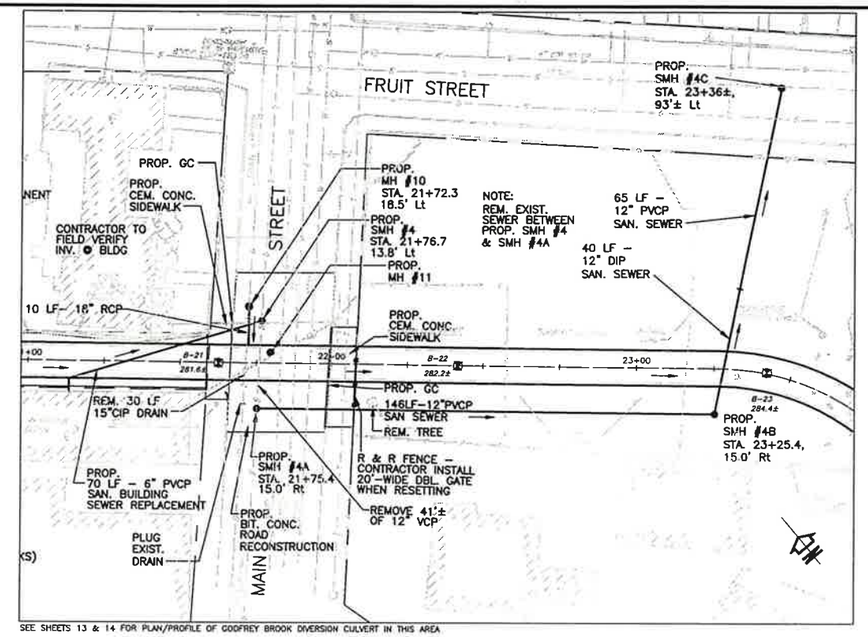
THIS REDUCED PLAN SET IS 40% OF FULL SIZE



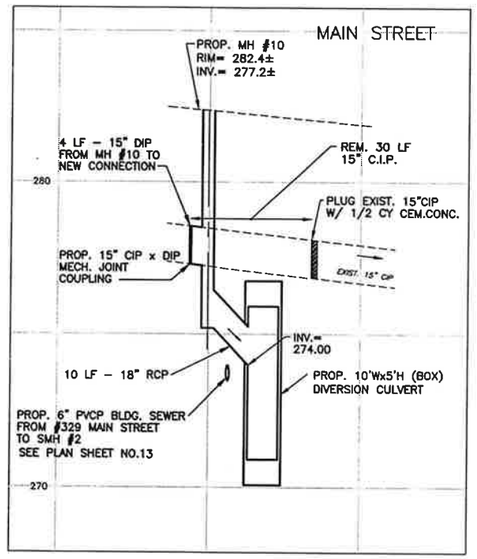
PARTIAL PLAN OF
OLIVER STREET AREA
1" = 20'



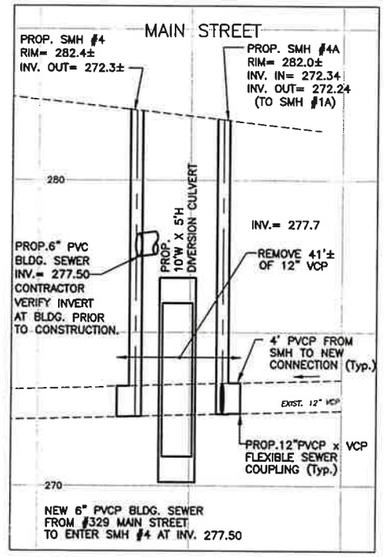
– DRAIN PROFILE –
PROP. SAN. SEWER REPLACEMENT
AND SMH #2 IN OLIVER STREET
VERT. 1"=2'
HOR. 1"=20'



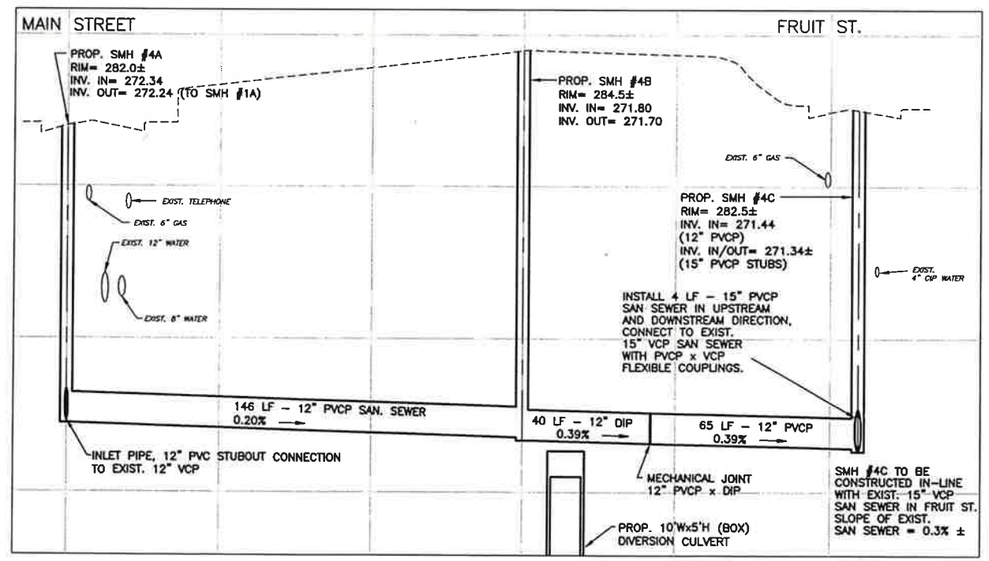
PARTIAL PLAN OF
MAIN STREET AREA
1" = 20'



– DRAIN PROFILE –
PROP. MH #10 TO DIVERSION CULVERT
VERT. 1"=2'
HOR. 1"=20'



– SAN. SEWER PROFILE –
PROP. SMH #4 AND SMH #4A
VERT. 1"=2'
HOR. 1"=20'



– SAN. SEWER PROFILE –
PROP. SMH #4A TO SMH #4B TO SMH #4C
VERT. 1"=2'
HOR. 1"=20'

33 of 35 SHTS

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
259 North Main Street East Longmeadow, MA 01028

PROJECT No. 94-1215
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
CHECKED BY TEJ

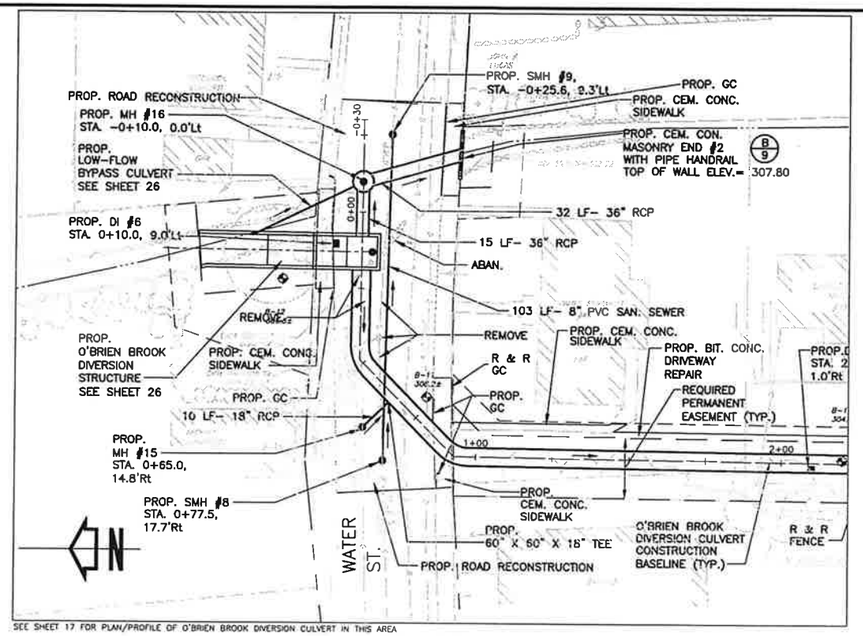
SHEET TITLE: Utility Profiles No. 2
Proposed Drains and Sanitary Sewers

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

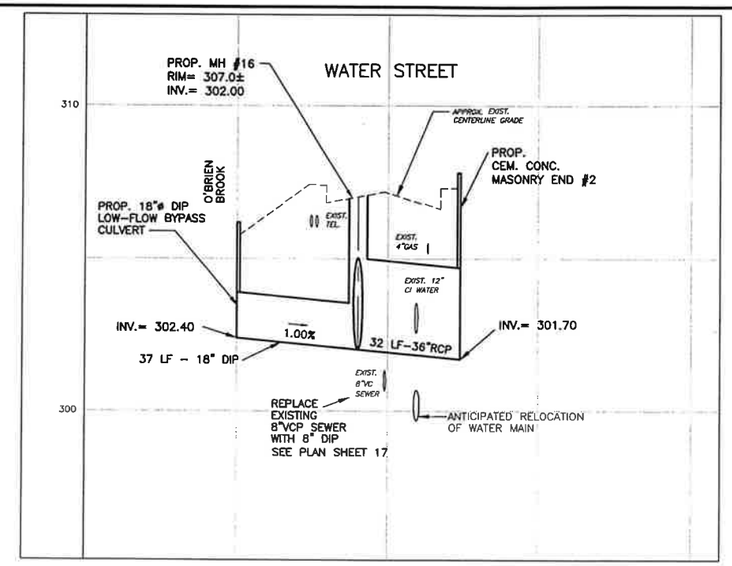
NO.	DATE	REVISION	BY
1	5/12/99	ISSUED FOR BIDDING	TEJ

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.

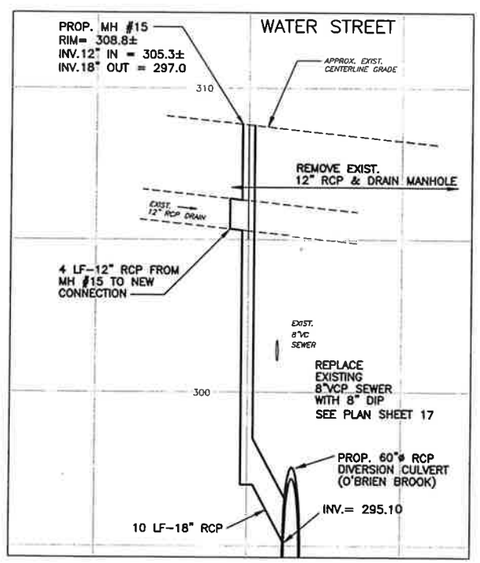
THIS SHEET IS OBSOLETE - SEE REV. 2 DATED 10/16/00



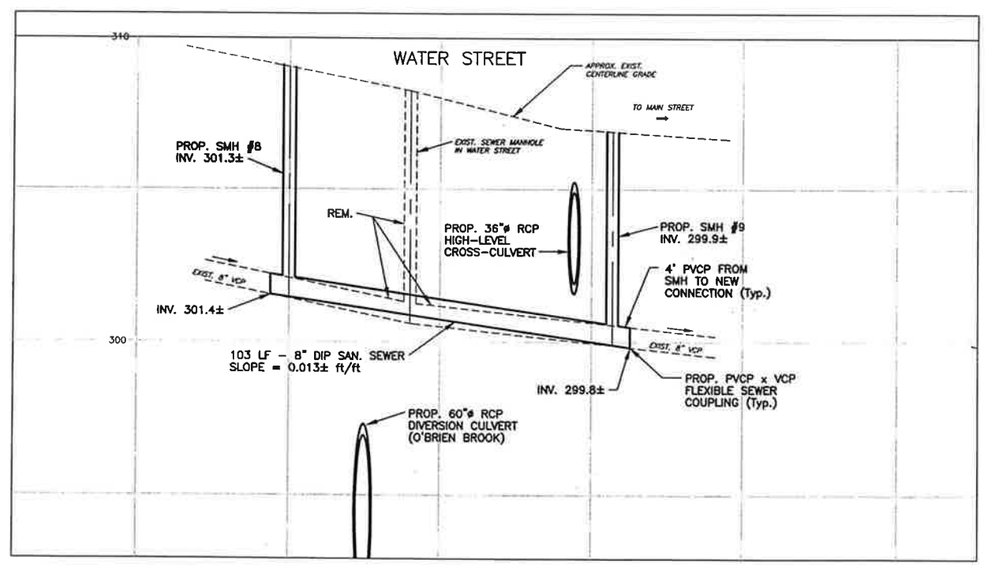
PARTIAL PLAN OF
O'BRIEN BROOK DIVERSION AREA
1" = 20'



– DRAIN PROFILE –
PROP. OBRIEN BROOK LOW-FLOW BYPASS
CULVERT, MH #16, & FIELDSTONE MASONRY END
VERT. 1"=2'
HOR. 1"=20'



– DRAIN PROFILE –
PROP. MH #15 TO DIVERSION CULVERT
VERT. 1"=2'
HOR. 1"=20'



– SAN. SEWER PROFILE –
PROP. SMH #8 TO SMH #9, WATER STREET
VERT. 1"=2'
HOR. 1"=20'

NO.	DATE	REVISION	BY
1	8/12/98	ISSUED FOR BIDDING	TJJ

PROJECT: Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

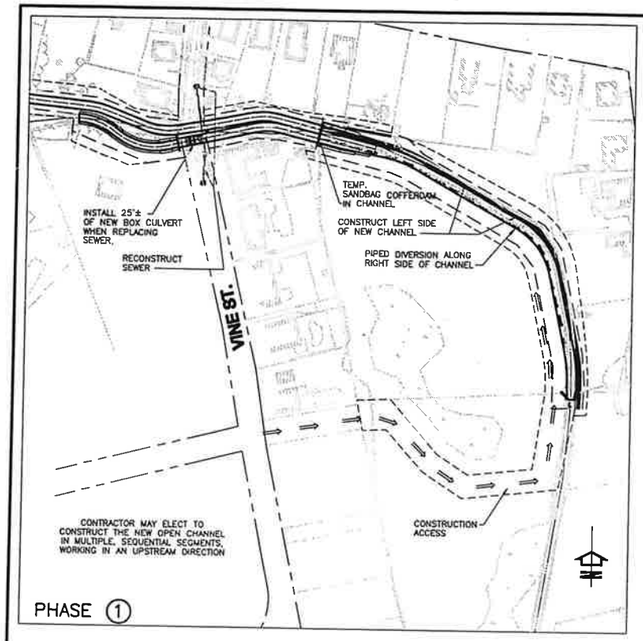
SHEET TITLE: Utility Profiles No. 3
Proposed Drains and Sanitary Sewers

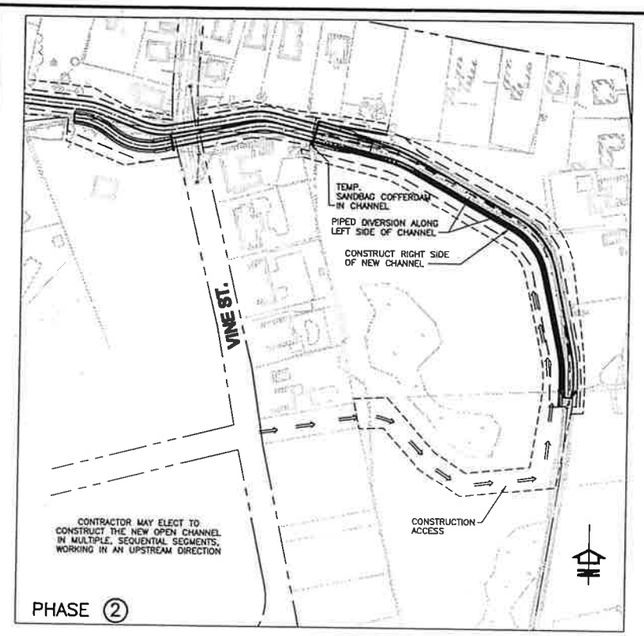
PROJECT NO. 94-1215
SCALE: AS NOTED
DATE: APRIL 1999
DRAWN BY: EDM
DESIGNED BY: TEJ

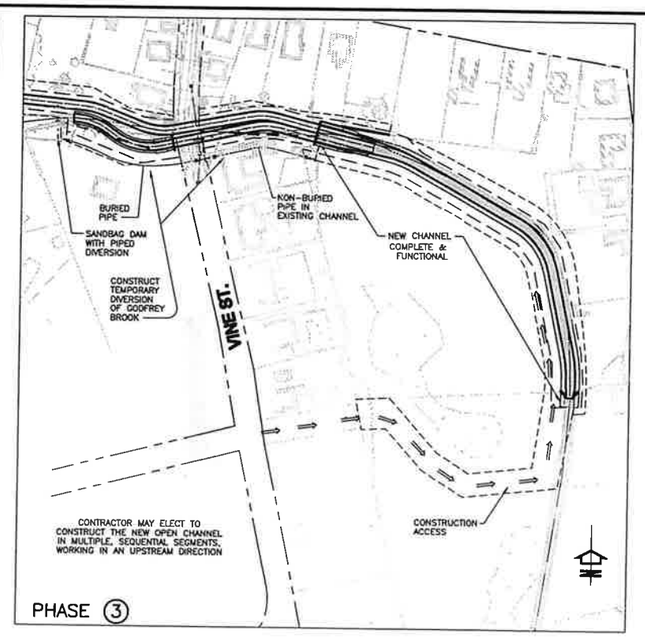
BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
236 North Main Street East Longmeadow, MA 01028

DRAWING NO. 34 OF 35 SHTS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.







CONSTRUCTION IN CURRENT PHASE

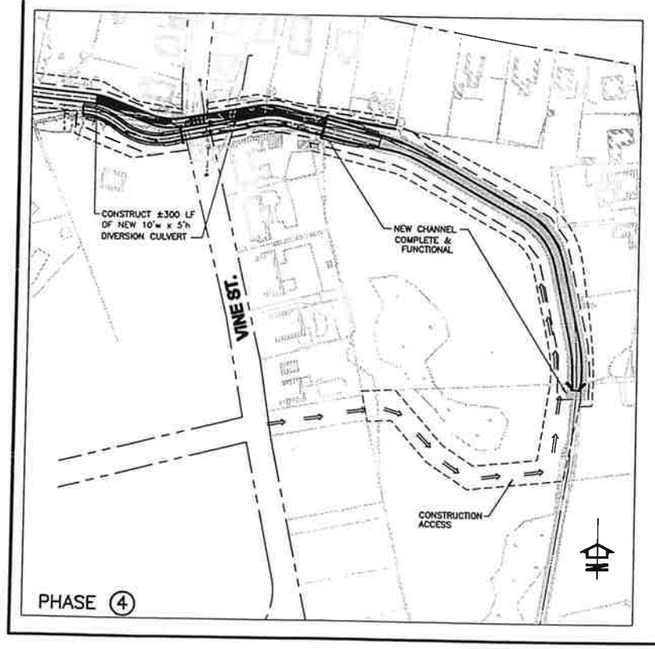
CONSTRUCTED IN PREVIOUS PHASES

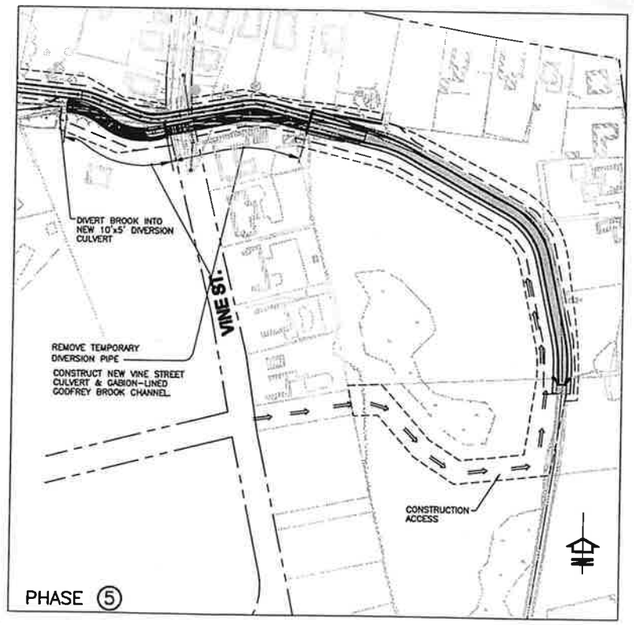
REFER TO SHEET NO.2 FOR GENERAL SEQUENCING NOTES

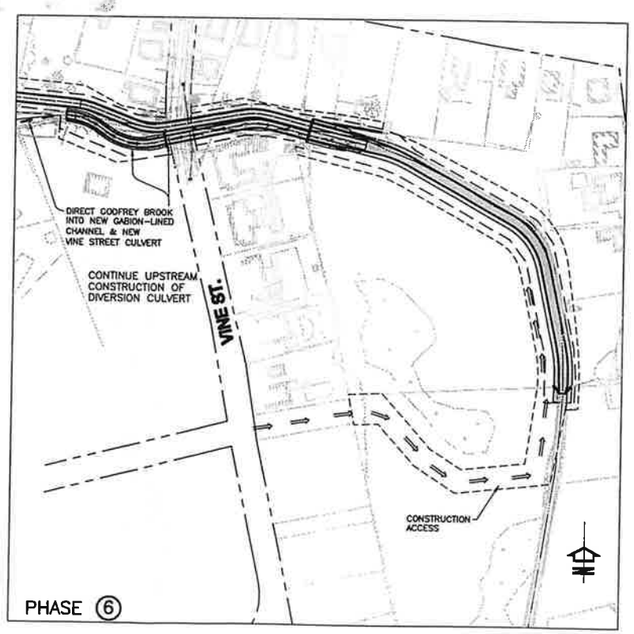
GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.







NO.	DATE	REVISION	BY
1	8/12/99	ISSUED FOR BIDDING	TEJ

SHEET TITLE

Construction Sequencing Plan
Vine Street Area

PROJECT

Godfrey Brook Flood Mitigation Project
Milford, Massachusetts

PROJECT NO. 84-1315
SCALE AS NOTED
DATE APRIL 1999
DRAWN BY EDM
DESIGNED BY TEJ

BAYSTATE ENVIRONMENTAL CONSULTANTS INC.
Engineers Scientists Surveyors
284 North Main Street East Longmeadow, MA 01028

DRAWING NO. 35 OF 35 SHTS

THIS REDUCED PLAN SET IS 40% OF FULL SIZE.