

CITY OF WOONSOCKET, RHODE ISLAND

WOONSOCKET WATER DIVISION

COPY NO. _____

CUMBERLAND INTERCONNECTION WATER SYSTEM IMPROVEMENTS CONTRACT NO. 2

MAYOR

LISA BALDELLI-HUNT

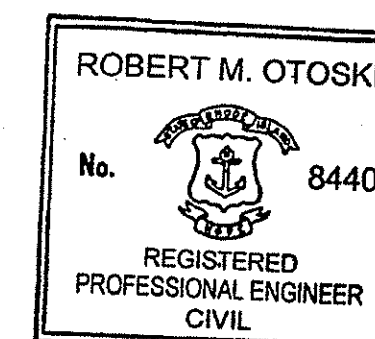
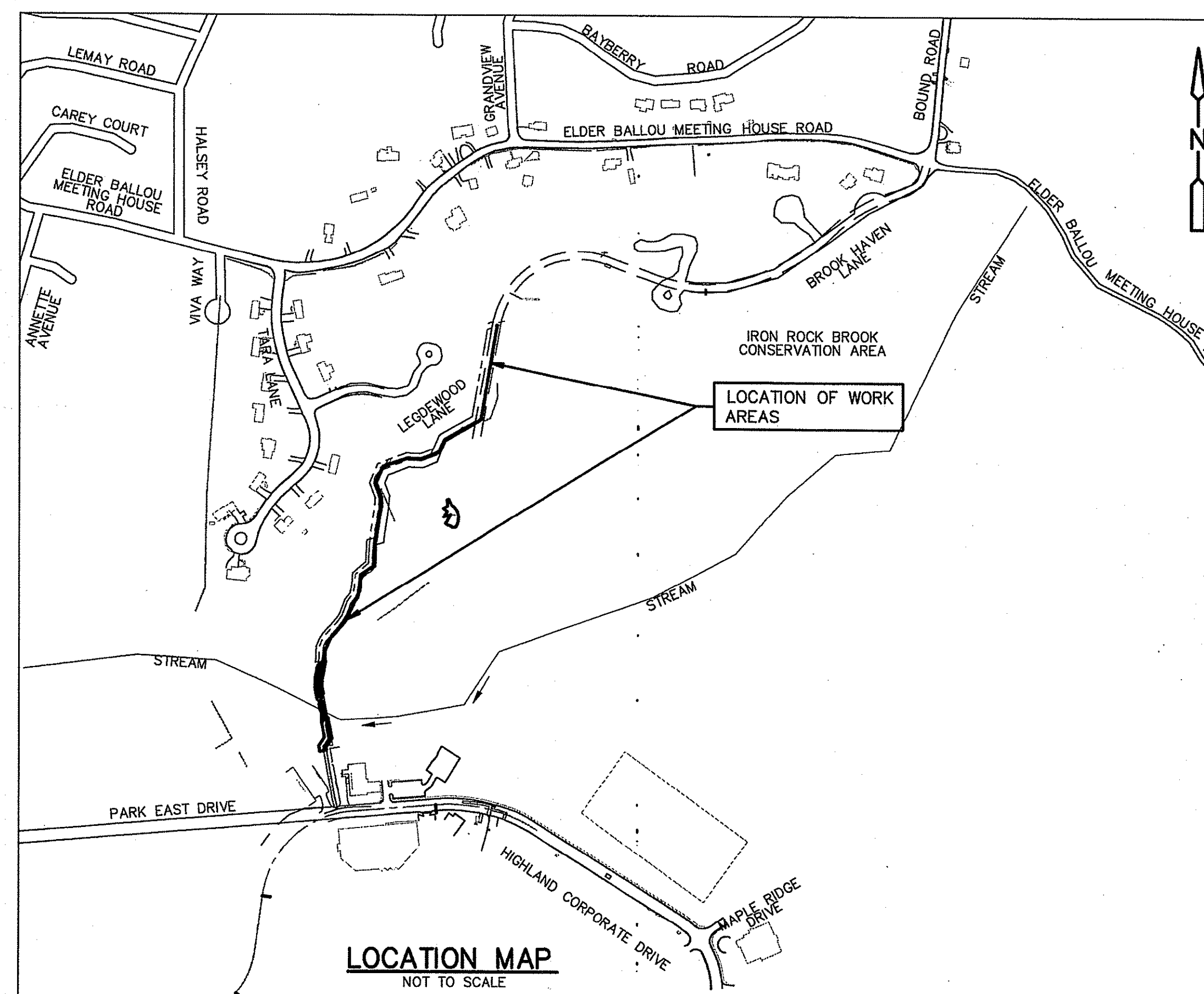
DIRECTOR OF PUBLIC WORKS

STEVEN D'AGOSTINO

WATER DIVISION SUPERINTENDENT

MARC VIGGIANI

SEPTEMBER 2015



Print 9-11-15

**CDM
Smith**

PROVIDENCE, RHODE ISLAND

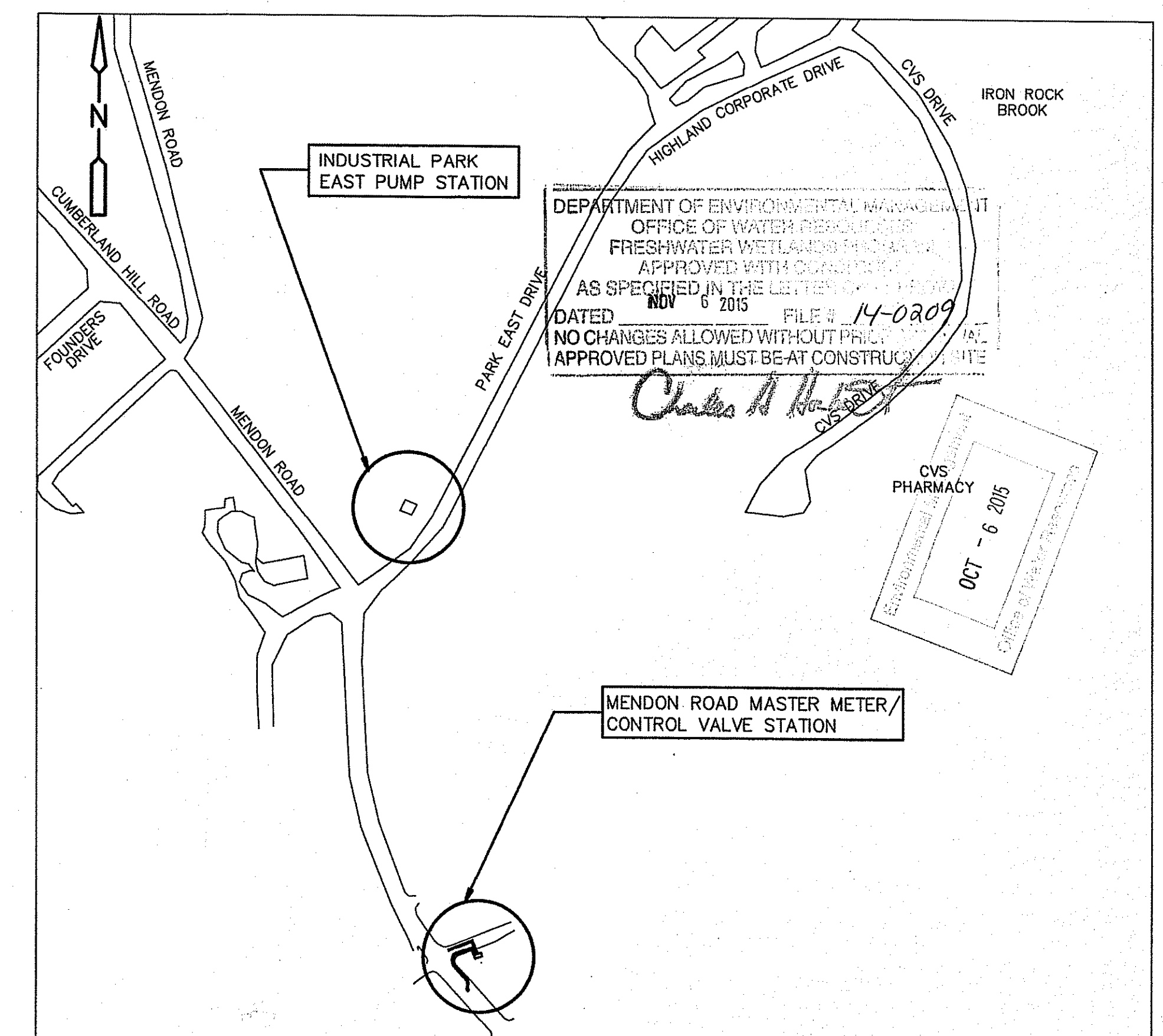
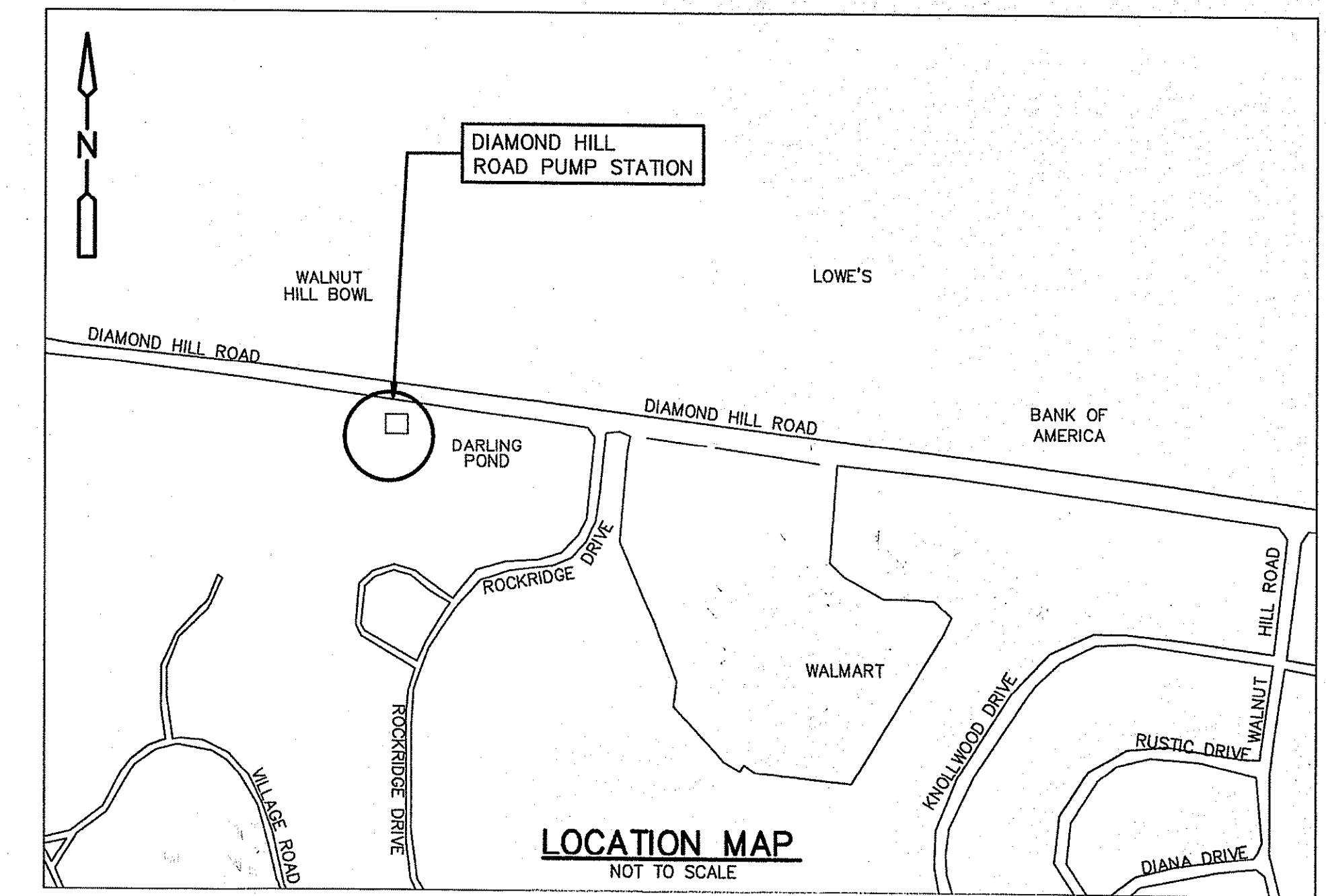
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Environment

Transportation

Energy

Facilities



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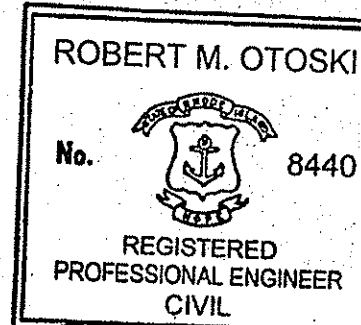
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER MANAGEMENT
FRESHWATER WATER RESOURCES
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER
DATED NOV 6 2015 FILE # 14-0209
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Harte



PROJECT NO. 0669-72635/C2
FILE NAME: GINDX001.DWG
SHEET NO.
G-1
Accession No: 0669-P-2980

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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. KERSHAW
DRAWN BY: J. CABRERA
SHEET CHK'D BY: J. LYNCH
CROSS CHK'D BY: J. KEANEY
APPROVED BY: CADELSBERGER
DATE: SEPTEMBER 2015

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CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
CUMBERLAND INTERCONNECTION
WATER SYSTEM IMPROVEMENTS
CONTRACT 2

DRAWING INDEX

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LEGEND

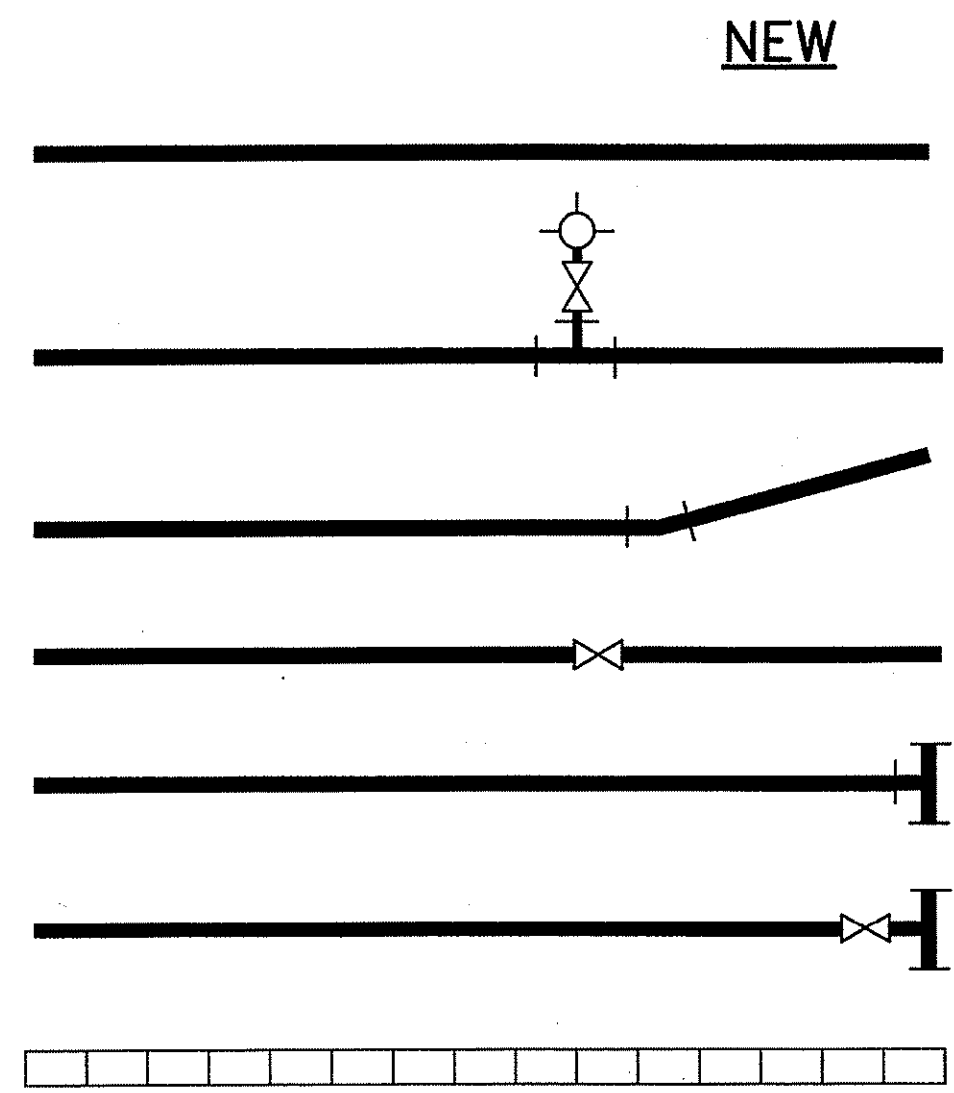
EXISTING (CONTINUED)

GENERAL NOTES

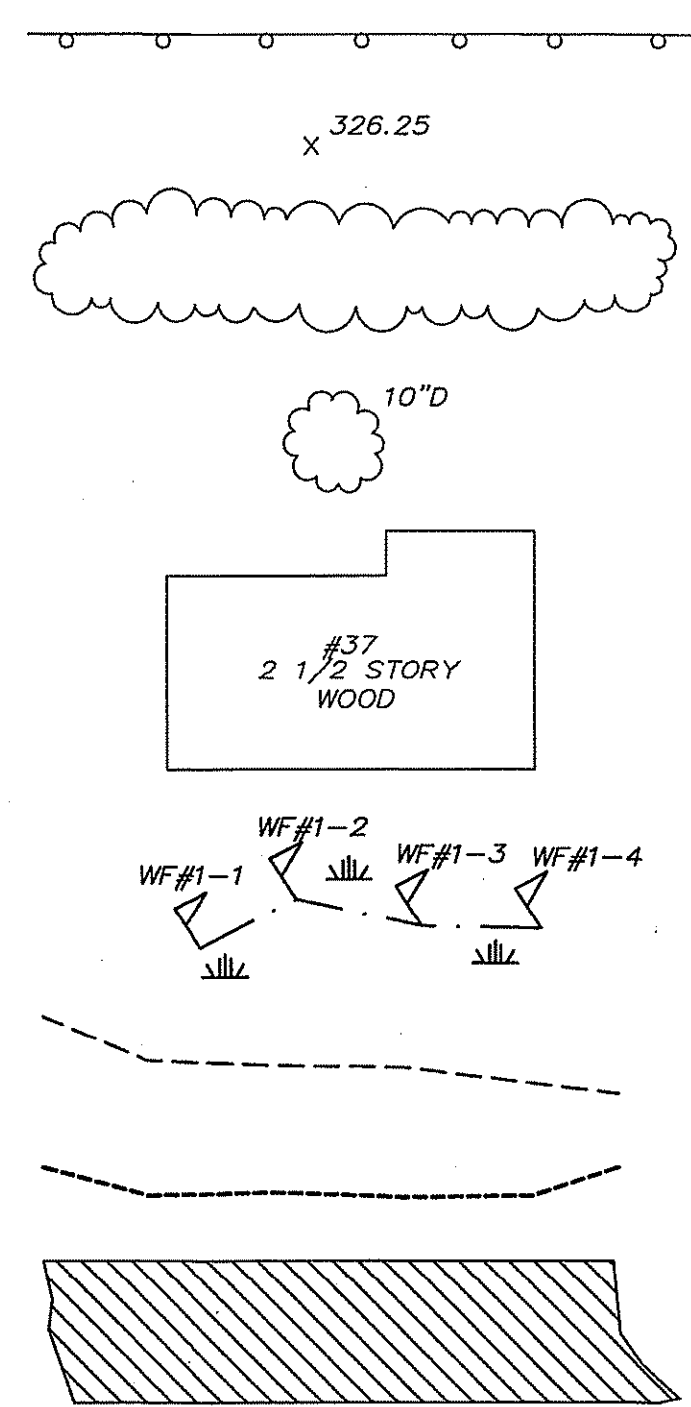
1. EXACT LOCATION OF NEW PIPES, VALVES, FITTINGS, ETC. TO BE DETERMINED IN THE FIELD BY THE OWNER'S REPRESENTATIVE. VERTICAL BENDS SHALL BE INSTALLED WHERE REQUIRED.
2. THE LOCATIONS, MATERIALS AND SIZES OF EXISTING PIPES, DUCTS, CONDUITS, AND OTHER UNDERGROUND STRUCTURES SHOWN ON THE DRAWINGS ARE NOT WARRANTED TO BE EXACT NOR IS IT WARRANTED THAT ALL UNDERGROUND STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR OBTAINING ALL LOCATIONS AND SIZES OF EXISTING UNDERGROUND STRUCTURES AND UTILITIES BEFORE BEGINNING CONSTRUCTION.
3. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT DIG-SAFE AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION.
4. THE CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE BETWEEN THE WATER MAIN AND ALL OTHER EXISTING UTILITIES OF AT LEAST 12-INCHES.
5. NEW WATER MAINS SHALL PASS UNDER ALL EXISTING UTILITIES UNLESS OTHERWISE NOTED ON THE DRAWINGS OR DIRECTED BY THE ENGINEER.
6. PLANS PREPARED BY CDM SMITH INC., PROVIDENCE, RHODE ISLAND ARE BASED ON FIELD SURVEY PERFORMED BY SURVEYING AND MAPPING CONSULTANTS, SEPTEMBER 2009, NATIONAL SURVEY, MAY 2013 AND THE WOONSOCKET WATER DIVISION GIS DATA BASE.
7. EXISTING WATER MAIN INFORMATION PROVIDED BY THE WOONSOCKET WATER DIVISION
8. NOTES PERTAINING TO NEW WORK SHOWN AS:
9. ALL NEW WATER MAINS SHALL HAVE A MINIMUM OF 5 FEET OF COVER UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR DIRECTED BY THE ENGINEER.
10. CONTRACTOR SHALL OBTAIN ALL PERMITS AND APPROVALS REQUIRED FOR THE CONSTRUCTION OF THE WATER MAINS.
11. THE CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS WHILE WORKING IN OR NEAR WETLANDS. ALL WORK MUST MEET WITH ALL REGULATIONS AND REQUIREMENTS OF THE CITY OF WOONSOCKET, ALL STATE AGENCIES, AND THE U.S. ARMY CORPS OF ENGINEERS.
12. ALL NEW WATER MAIN FITTINGS SHALL BE RESTRAINED WITH RESTRAINED JOINTS AS SPECIFIED. HYDRANT BRANCH CONNECTIONS SHALL BE RESTRAINED WITH RESTRAINED JOINTS AND THRUST BLOCKS. SEE MISCELLANEOUS DETAIL SHEET CSD-2 FOR THRUST BLOCK REQUIREMENTS AND RESTRAINED JOINT LENGTHS.
13. THE CONTRACTOR SHALL EXCAVATE TEST PITS TO LOCATE EXISTING WATER MAINS WHERE NEW WATER MAINS WILL BE CONNECTED, AT ALL INTERSECTIONS, AND OTHER LOCATIONS AS REQUIRED TO FACILITATE INSTALLATION OF NEW WATER MAIN.
14. ELEVATIONS SHOWN ON THESE DRAWINGS ARE NGVD.
15. EXISTING WATER MAIN AND WATER SERVICE INFORMATION PROVIDED BY THE WOONSOCKET WATER DIVISION. IT IS NOT WARRANTED THAT ALL WATER SERVICES AND WATER MAINS ARE SHOWN ON THE DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT LOCATION, SIZE, AND TYPE OF ALL EXISTING WATER SERVICE CONNECTIONS BEFORE CONSTRUCTION. EXISTING WATER MAINS ARE ASSUMED C.I. OR D.I. UNLESS OTHERWISE NOTED.
16. CONTRACTOR MUST MINIMIZE DISRUPTIONS IN EASEMENTS AND PRIVATE PROPERTIES, TO THE EXTENT POSSIBLE, AND SHALL NOT WORK, STOCKPILE MATERIALS, OR OTHERWISE DISTURB THE AREA OUTSIDE OF THE EASEMENTS.
17. CONTRACTOR TO ABANDON EXISTING WATER MAINS IN PLACE WHERE POSSIBLE. WHERE A CONFLICT BETWEEN NEW AND EXISTING MAINS OCCUR CONTRACTOR SHALL REMOVE EXISTING MAIN AND DISPOSE OF PROPERLY.
18. WHEN UNDERGROUND PIPING IS TO BE ALTERED OR REMOVED THE REMAINING PIPING SHALL BE PROPERLY CAPPED. ABANDONED UNDERGROUND PIPING WILL BE LEFT IN PLACE UNLESS IT INTERFERES WITH NEW WORK OR IS SHOWN OR SPECIFIED TO BE REMOVED. ABANDONED PIPE SHALL HAVE OPEN ENDS PLUGGED WITH CONCRETE.
19. THE LOCATION OF NEW HYDRANTS IS SHOWN SCHEMATICALLY. THE EXACT LOCATION OF NEW PIPES, VALVES, FITTINGS, HYDRANTS, AIR RELEASE VALVE MANHOLE ASSEMBLIES ETC. SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER AND THE WATER DIVISION FOR APPROVAL.
20. CONTRACTOR IS RESPONSIBLE FOR DISTRIBUTING WRITTEN NOTIFICATION TO ALL AFFECTED HOMES AND BUSINESSES AT LEAST 48 HOURS PRIOR TO INTERRUPTION OF EXISTING WATER SERVICE. WRITTEN NOTIFICATION MUST BE APPROVED BY WATER DEPARTMENT PRIOR TO DISTRIBUTION.
21. CONTRACTOR SHALL COMPLETE WORK IN ACCORDANCE WITH SEQUENCE OF CONSTRUCTION DETAILED IN SPECIFICATION SECTION 01010 UNLESS ALTERNATIVE SEQUENCE PROPOSED BY CONTRACTOR HAS BEEN APPROVED BY ENGINEER. CONTRACTOR MUST PREPARE AN ANTICIPATED SEQUENCE OF CONSTRUCTION AND FORMALLY SUBMIT THE SEQUENCE TO ENGINEER PRIOR TO THE PRE-CONSTRUCTION MEETING.
22. CONTRACTOR SHALL MINIMIZE DISRUPTIONS TO EXISTING FENCES, WALLS, WALKWAYS, LANDSCAPING AND OTHER SURFACE FEATURES DURING CONSTRUCTION. RESTORE DISTURBED FEATURES AS DIRECTED BY ENGINEER.
23. WHERE NEW WATER MAIN PASSES UNDER SEWER, OR WHERE WATER MAIN PASSES OVER SEWER WITH LESS THAN 18" SEPARATION, WATER MAIN SHALL BE SLEEVED WITH CONCRETE PIPE WITH ACCEPTABLE BULK HEAD FOR A MINIMUM OF 10-FT TO EITHER SIDE OF THE RESPECTIVE CENTER LINES.
24. ALL NEW HYDRANTS NOT YET ACTIVATED AND EXISTING HYDRANTS WHOSE WATER SUPPLY HAS BEEN TURNED OFF ARE TO BE SECURELY COVERED WITH A BAG INDICATING THAT THE HYDRANT IS NOT IN SERVICE. THE BAG SHALL BE MAINTAINED UNTIL THE HYDRANT IS ACTIVATED OR REMOVED. THE CONTRACTOR SHALL CONTACT THE WATER DEPARTMENT TO DEACTIVATE HYDRANTS WHEN NEEDED.
25. PRIOR TO THE START OF CONSTRUCTION, CONTRACTOR SHALL COORDINATE ALL UTILITY RELOCATIONS WITH THE CITY OF WOONSOCKET AND THE RESPECTIVE UTILITY AGENCIES IF REQUIRED. LOCATIONS FOR RELOCATED UTILITY ARE TO BE DETERMINED BY THE RESPECTIVE UTILITY AGENCIES.
26. WHERE INOPERABLE VALVES PREVENT WATER SHUT DOWNS FOR NEW WATER MAIN CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE THE SHUT DOWN TO ISOLATE THE MAIN, EXCAVATE A TEST PIT, CUT INTO THE EXISTING WATER MAIN AND INSERT A TEMPORARY CAP OR PLUG. THE CONTRACTOR SHALL CONTACT THE WATER DEPARTMENT TO OPERATE ALL VALVES.
27. ALL CATCH BASINS LOCATED WITHIN PROJECT LIMITS SHALL REQUIRE SILTATION CONTROL DEVICES, AS SPECIFIED IN SECTION 02270 OF THE SPECIFICATIONS AND AS SHOWN ON MISCELLANEOUS DETAILS SHEET.
28. CONTRACTOR SHALL UTILIZE GEOTEXTILE FILTER BAGS DURING DEWATERING FOR SEDIMENT CONTROL, AS SPECIFIED IN SECTION 02270 OF THE SPECIFICATIONS.
29. CONTRACTOR SHALL DIG TEST PITS WHERE REQUIRED TO FIND EXISTING WATER MAINS AND WHERE REQUIRED BY ENGINEER.
30. CONTRACTOR SHALL RESTRAIN ALL EXISTING WATER MAINS WHERE REQUIRED BY ENGINEER.
31. THE CONTRACTOR SHALL INSTALL INITIAL TRENCH WIDTH AND FULL WIDTH OVERLAY WHERE WATER MAINS ARE INSTALLED AS SPECIFIED IN SECTION 02576.

ABBREVIATIONS

SMH	SEWER MANHOLE
PVC	POLYVINYL CHLORIDE PIPE
PVCO	MOLECULARLY ORIENTED POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
CI	CAST IRON
AC	ASBESTOS CEMENT
ACC	ASBESTOS CEMENT CONCRETE
DI	DUCTILE IRON
WG	WATER GATE VALVE
DMH	DRAIN MANHOLE
TMH	TELEPHONE MANHOLE
WMH	WATER MANHOLE
STL	STEEL LINE PIPE
CABL	CABLE LINE

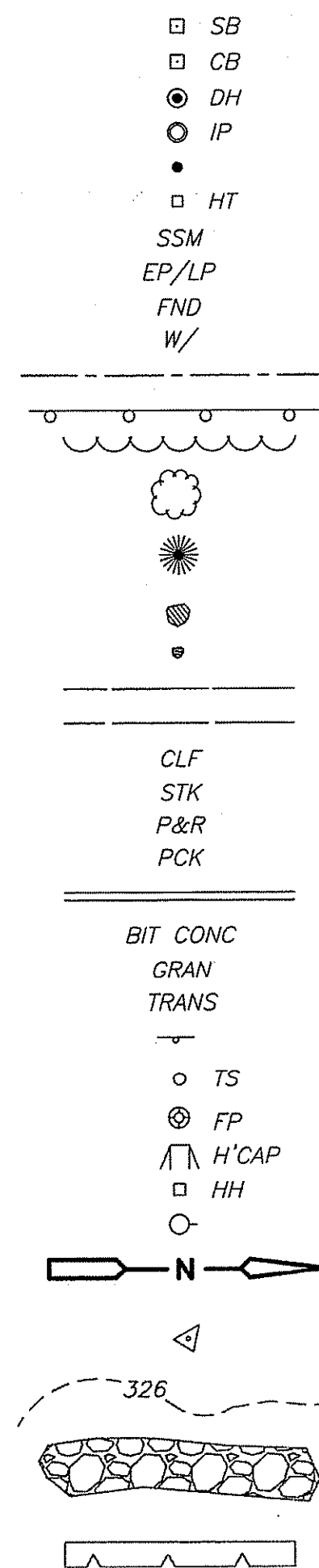


NEW WATER MAIN
NEW HYDRANT WITH HYDRANT ASSEMBLY
NEW HORIZONTAL BEND
NEW GATE VALVE AND BOX
NEW TEE
NEW TAPPING SLEEVE AND VALVE
HAY BALES



GUARD RAIL WITH WOOD POSTS
SPOT ELEVATION
HEDGE
DECIDUOUS TREE
HOUSES WITH STREET NUMBER AND DESCRIPTION
WETLAND AREA
100-FT RIVER BANK
50-FT PERIMETER WETLAND
LIMIT OF WORK
COFFERDAM
LEDGE
ELECTRIC MANHOLE
SANITARY SEWER MANHOLE
STORM WATER/DRAIN MANHOLE
TELEPHONE MANHOLE
UTILITY POLE
SIGN
TOPO POST
CATCH BASIN
HYDRANT

EXISTING



STONE BOUND
CONCRETE BOUND
DRILL HOLE
IRON PIPE
PK. REBAR, NAIL, SPIKE
HUB & TACK
STEEL SURVEY MARKER
ESCUTCHEON PIN/LEAD PLUG
FOUND
WITH
PROPERTY LINE
GUARD RAIL WITH WOOD POSTS
TREE LINE
DECIDUOUS TREE
EVERGREEN TREE
BOULDER
DECORATIVE STONES
CHAIN LINK FENCE
WOOD FENCE TYPES
CHAIN LINK FENCE
WOOD STOCKADE FENCE
WOOD POST & RAIL FENCE
WOOD PICKET FENCE
CURBING(TYPE)
BITUMINOUS CONCRETE
GRANITE
TRANSFORMER
SIGN
TRAFFIC SIGNAL
FLAG POLE
HANDICAP RAMP
HANDHOLE
GUY POLE
NORTH ARROW
BENCH MARK
CONTOUR LINE
STONE WALL
RETAINING WALL

UP#
UP/LP
LP
E
E
E
CB
CI
R
I
HSS
RCP
CIP
W=
S=
N.P.V.
(CU)
TOP
ABAN.
TELE MP
TELE RSR
CABLE RSR
CIP
RCP
CIP
PVC
WG
WG
WM
12"DI W
8"VCP S
TEL
4"PVC E
12"RCP D
4"STL G
CABL
x 200.15
BRK
STN
CSE

GUY WIRE
UTILITY POLE
UTILITY POLE/LIGHT POLE
LIGHT POLE
TELEPHONE MANHOLE
ELECTRIC MANHOLE
DRAIN MANHOLE
CATCH BASIN
CURB INLET
RIM
INVERT
HOLLOW STEEL SECTION (SHAPE)
REINFORCED CONCRETE PIPE
CAST IRON PIPE
WATER ELEVATION
SUMP
NO PIPES VISIBLE
CONNECTION UNDETERMINED
TOP OF PIPE
ABANDONED
TELEPHONE MARKER POST
TELEPHONE RISER
CABLE TELEVISION RISER
CAST IRON PIPE
REINFORCED CONCRETE PIPE
CAST IRON PIPE
POLYVINYL CHLORIDE
WATER GATE
HYDRANT
WATER METER
WATER LINE
SEWER LINE
TELEPHONE LINE
ELECTRIC LINE
DRAIN LINE
GAS LINE
CABLE LINE
SPOT ELEVATION
BRICK
STONE
COBBLE STONE EDGING

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. KERSHAW
DRAWN BY: J. CABRERA
SHEET CHK'D BY: J. LYNCH
CROSS CHK'D BY: J. KEANEY
APPROVED BY: CADELSBERGER
DATE: JUNE 2015

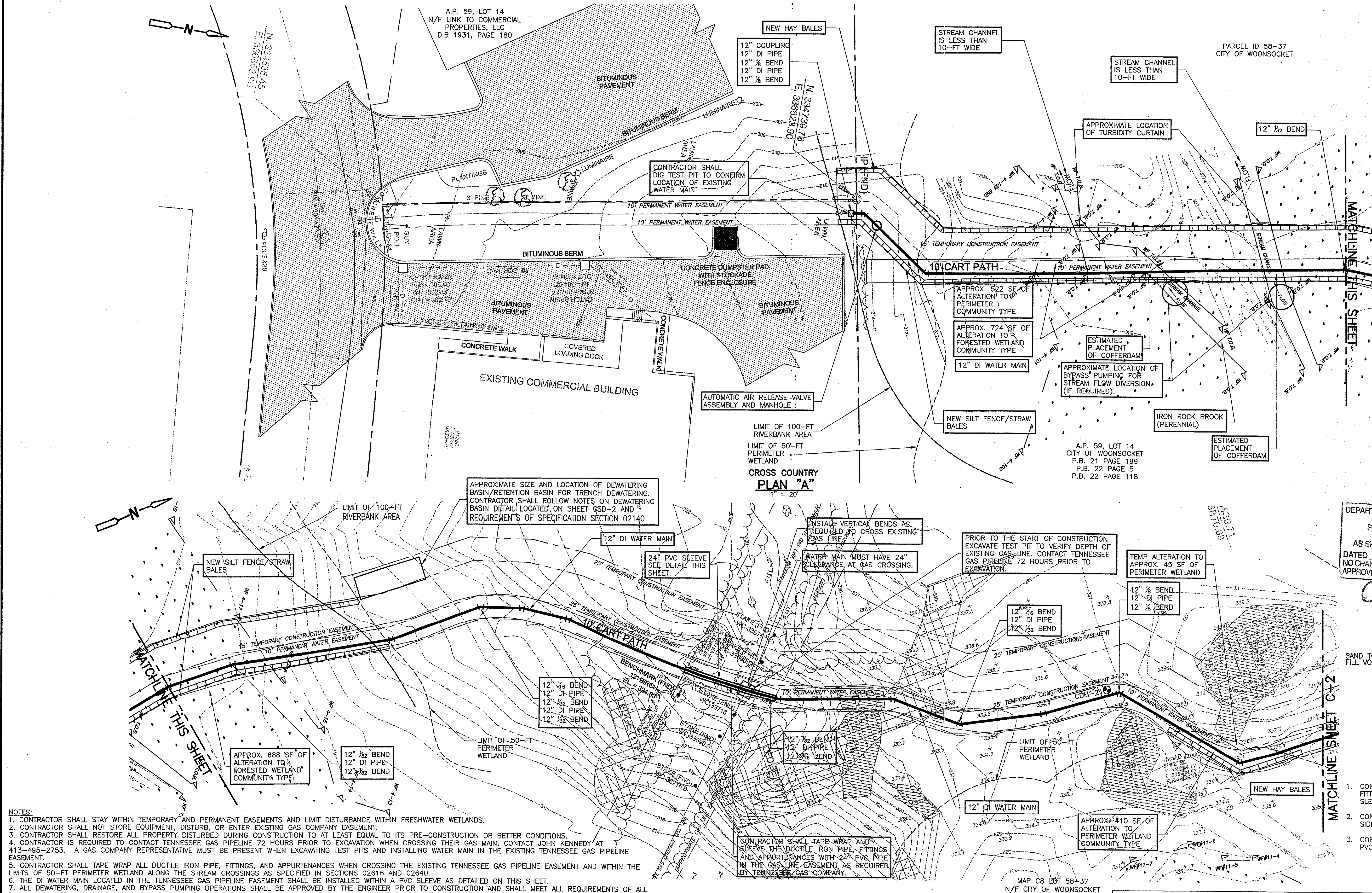
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CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
CUMBERLAND INTERCONNECTION
WATER SYSTEM IMPROVEMENTS
CONTRACT 2

LEGEND AND GENERAL NOTES

ROBERT M. OTOSKI
No. 8440
REGISTERED PROFESSIONAL ENGINEER
CIVIL
PROJECT NO. 0669-72635/C2
FILE NAME: LEGEND.DWG
SHEET NO.
LGN
Accession No: 0669-P-2981

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- NOTES:
1. CONTRACTOR SHALL STAY WITHIN TEMPORARY AND PERMANENT EASEMENTS AND LIMIT DISTURBANCE WITHIN FRESHWATER WETLANDS.
 2. CONTRACTOR SHALL NOT STORE EQUIPMENT, DISTURB, OR ENTER EXISTING GAS COMPANY EASEMENT.
 3. CONTRACTOR SHALL RESTORE ALL PROPERTY DISTURBED DURING CONSTRUCTION TO AT LEAST EQUAL TO ITS PRE-CONSTRUCTION OR BETTER CONDITIONS.
 4. CONTRACTOR IS REQUIRED TO CONTACT TENNESSEE GAS PIPELINE 72 HOURS PRIOR TO EXCAVATION WHEN CROSSING THEIR GAS MAIN, CONTACT JOHN KENNEDY AT 413-495-2753. A GAS COMPANY REPRESENTATIVE MUST BE PRESENT WHEN EXCAVATING TEST PITS AND INSTALLING WATER MAIN IN THE EXISTING TENNESSEE GAS PIPELINE EASEMENT.
 5. CONTRACTOR SHALL TAPE WRAP ALL DUCTILE IRON PIPE, FITTINGS, AND APPURTENANCES WHEN CROSSING THE EXISTING TENNESSEE GAS PIPELINE EASEMENT AND WITHIN THE LIMITS OF 50-FT PERIMETER WETLAND ALONG THE STREAM CROSSINGS AS SPECIFIED IN SECTIONS 02616 AND 02640.
 6. THE DI WATER MAIN LOCATED IN THE TENNESSEE GAS PIPELINE EASEMENT SHALL BE INSTALLED WITHIN A PVC SLEEVE AS DETAILED ON THIS SHEET.
 7. ALL DEWATERINGS, DRAINAGE, AND BYPASS PUMPING OPERATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION AND SHALL MEET ALL REQUIREMENTS OF ALL REGULATORY AGENCIES.
 8. BYPASS PUMPING SYSTEMS FOR STREAM DIVERSION SHALL BE DESIGNED TO MEET THE FLOW REQUIREMENTS OF THE STREAM AT THE TIME OF CONSTRUCTION AND MUST BE APPROVED BY THE ENGINEER. CONTRACTOR SHALL LOCATE ALL BYPASS PUMPING COMPONENTS WITHIN THE LIMITS OF THE CONSTRUCTION EASEMENTS.
 9. CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE ENGINEER THE METHOD AND APPROACH FOR DISSIPATING FLOW AND ENERGY DOWNSTREAM OF THE CONSTRUCTION CAUSED BY THE INSTALLATION OF BYPASS PUMPING UPSTREAM.
 10. AS REQUIRED BY RIDEM FRESHWATER WETLANDS PROGRAM, CONTRACTOR SHALL LIMIT ALL CONSTRUCTION ACTIVITIES TO THE DESIGNATED PERMANENT AND TEMPORARY EASEMENTS. CONTRACTOR SHALL NOT DISTURB EXISTING WETLANDS OUTSIDE OF DESIGNATED WORK AREAS.
 11. CONTRACTOR MUST RECEIVE APPROVAL ON THE LOCATION AND TYPE OF PROPOSED COFFERDAM AND TURBIDITY CURTAINS FROM ENGINEER PRIOR TO INSTALLATION.
 12. CONTRACTOR SHALL RECEIVE APPROVAL FROM ENGINEER ON THE LOCATION OF DEWATERING/RETENTION BASIN AND METHOD FOR DEWATERING OF WATER MAIN TRENCH PRIOR TO CONSTRUCTION IN WETLANDS.

REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. LYNCH
DRAWN BY: J. LYNCH
SHEET CHK'D BY: J. KEANEY
CROSS CHK'D BY: J. LYNCH
APPROVED BY: C. ADLSEBERGER
DATE: SEPTEMBER 2015

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CROSS COUNTRY
PLAN "B"
1" = 20'

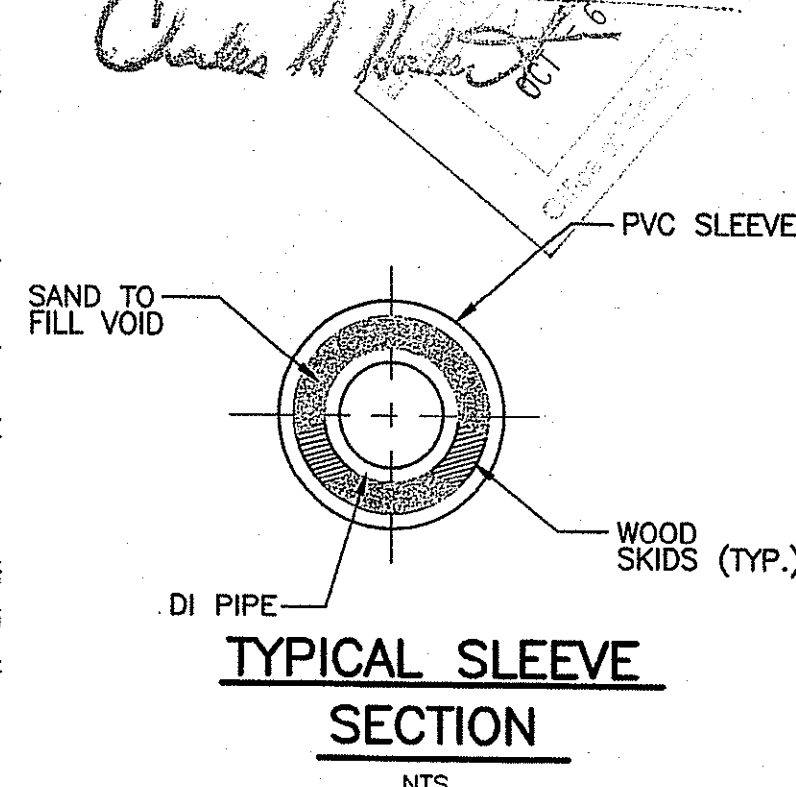
CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
CUMBERLAND INTERCONNECTION
WATER SYSTEM IMPROVEMENTS
CONTRACT 2

ESTIMATED IMPACTS TO RESOURCE AREAS				
Wetland Resource Area	Temporary Alteration (sq. ft.)	Alteration of Community Type (sq. ft.)	Temporary Alteration (linear ft.)	Permanent Alteration (linear ft.)
FORESTED WETLAND	3,160	1,413	-	-
RIVER	-	-	50	-
INTERMITTENT STREAM	-	-	25	-
100-FT RIVERBANK	4,560	3,064	-	-
PERIMETER WETLAND	3,677	3,223	-	-

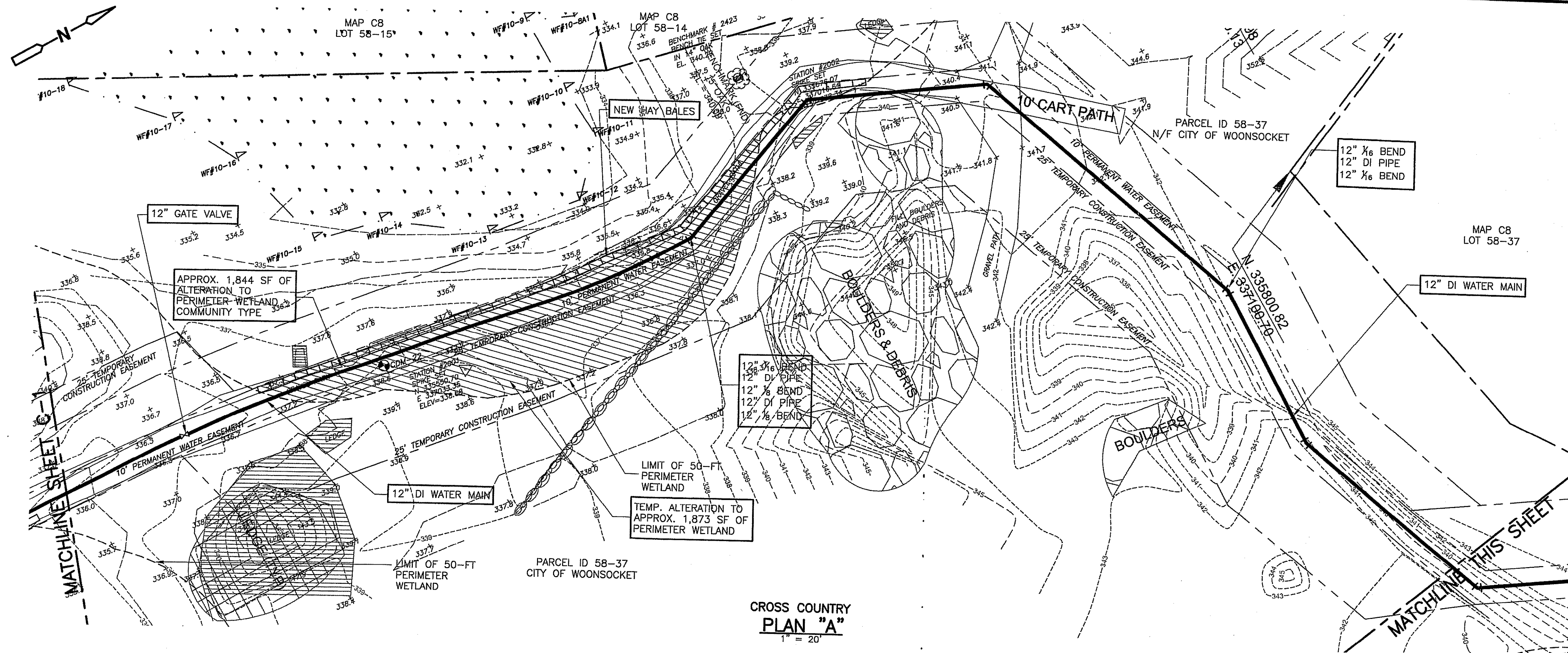
ROBERT M. OTOSKI
No. 8440
REGISTERED PROFESSIONAL ENGINEER
CIVIL

PROJECT NO. 0669-72635/C2
FILE NAME: CSTPL001.DWG
SHEET NO.
C-1
Accession No: 0669-P-2983

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLAND PERMIT
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE PERMIT
DATED NOV 6 2015 FILE # 14-0209
NO CHANGES ALLOWED WITHOUT THE APPROVED PLANS MUST BE AT CONSTRUCTION.



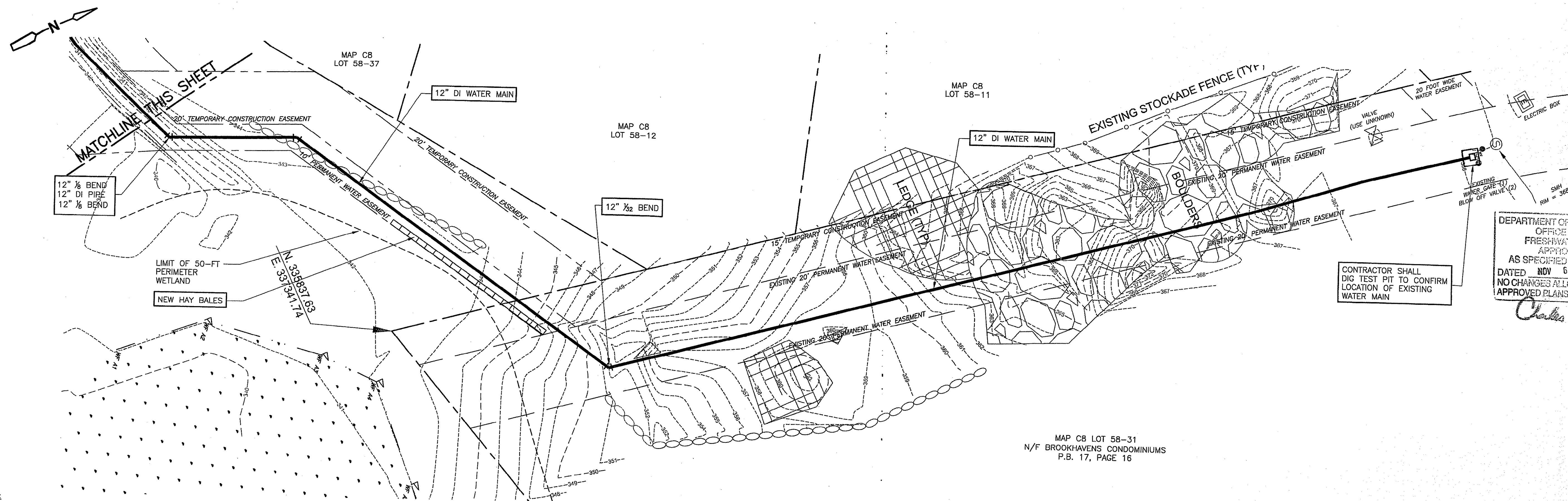
1. CONTRACTOR SHALL TAPE WRAP ALL DI PIPE, FITTINGS AND APPURTENANCES WITHIN THE PVC SLEEVE.
2. CONTRACTOR SHALL LOCATE DI JOINTS ON EITHER SIDE OF THE BRICK BULKHEAD.
3. CONTRACTOR SHALL BRICK BULKHEAD EACH END OF PVC SLEEVE.



LEGEND:

1. FORESTED WETLAND (TEMPORARY AND COMMUNITY TYPE).
2. RIVERBANK WETLAND (TEMPORARY AND COMMUNITY TYPE).
3. PERIMETER WETLAND (TEMPORARY AND COMMUNITY TYPE).

CROSS COUNTRY
PLAN "A"
1" = 20'



NOTES:

1. CONTRACTOR SHALL STAY WITHIN TEMPORARY AND PERMANENT EASEMENTS AND LIMIT DISTURBANCE WITHIN FRESHWATER WETLANDS.
2. CONTRACTOR SHALL RESTORE ALL PROPERTY DISTURBED DURING CONSTRUCTION TO AT LEAST EQUAL TO ITS PRE-CONSTRUCTION OR BETTER CONDITIONS.
3. ALL Dewatering, Drainage, and Bypass Pumping Operations shall be approved by the Engineer prior to construction and shall meet all requirements of all regulatory agencies.
4. As required by RIDEM Freshwater Wetlands Program, Contractor shall limit all construction activities to the designated permanent and temporary easements. Contractor shall not disturb existing wetlands outside of designated work areas.

CROSS COUNTRY
PLAN "B"
1" = 20'

CDM Smith

DESIGNED BY: J. LYNCH
DRAWN BY: J. CABRERA
SHEET CHK'D BY: J. LYNCH
CROSS CHK'D BY: J. KEANEY
APPROVED BY: CADELSBERGER
DATE: JUNE 2015

CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
**CUMBERLAND INTERCONNECTION
WATER SYSTEM IMPROVEMENTS
CONTRACT 2**

CROSS COUNTRY II

ROBERT M. OTOSKI

No.  8440

REGISTERED
PROFESSIONAL ENGINEER
CIVIL

PROJECT NO. 0669-72635/C2
FILE NAME: CSTPL002.DWG

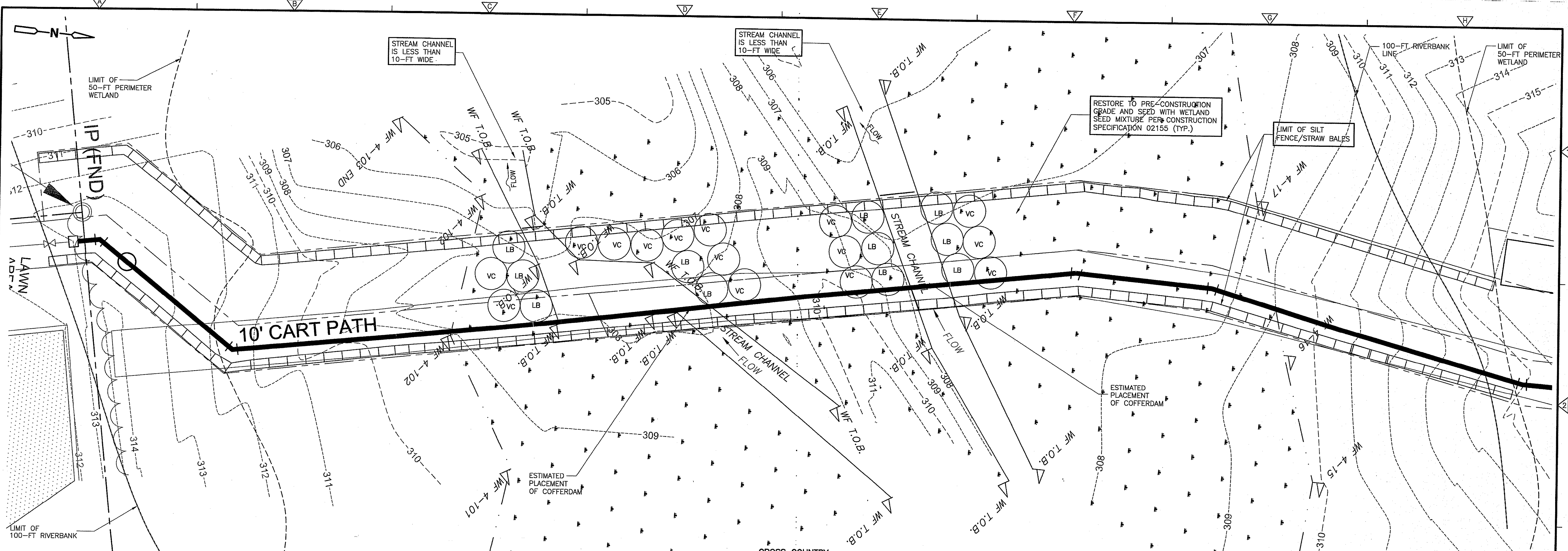
SHEET NO.

C-2

Accession No: 0669-P-2983

Sheet 5 of 1

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- NOTE:
1. WETLAND SEED MIXTURE; NEW ENGLAND WETLAND PLANTS INC. NEW ENGLAND WETMIX (OR APPROVED EQUAL) APPLIED AT A RATE OF 1.25 POUND PER 2,500 SQUARE FEET UNLESS OTHERWISE INDICATED BY SUPPLIER FOR THIS USE.
 2. THE AREA WITHIN THE TEMPORARY EASEMENT WILL BE ALLOWED TO REVEGETATE NATURALLY WITHOUT ANY FUTURE DISTURBANCE.

PLANTING SCHEDULE				
KEY	QUAN	BOTANICAL NAME	COMMON NAME	SIZE
LB	11	LINDERA BENZOIN	COMMON SPICEBUSH	3'-4', 1-GAL. CONT.
VC	15	VACCINIUM CORYMBOSOM	HIGHBUSH BLUEBERRY	3'-4', 1-GAL. CONT.

ESTIMATED IMPACTS TO RESOURCE AREAS				
Wetland Resource Area	Temporary Alteration (sq. ft.)	Alteration of Community Type (sq. ft.)	Temporary Alteration (linear ft.)	Permanent Alteration (linear ft.)
FORESTED WETLAND	3,160	1,413	-	-
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INTERMITTENT STREAM	-	-	25	-
100-FT RIVERBANK	4,560	3,064	-	-
PERIMETER WETLAND	3,677	3,223	-	-

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF AGREEMENT
DATED NOV 6 2015 FILE # 14-0209
NO CHANGES ALLOWED WITHOUT PERMISSION
APPROVED PLANS MUST BE USED
Charles A. Hest

OCT 6 2015

ROBERT M. OTOSKI
No. 8440
REGISTERED PROFESSIONAL ENGINEER
CIVIL

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: D. LEMOI
DRAWN BY: J. LYNCH
SHEET CHK'D BY: C. ADELSBERGER
CROSS CHK'D BY: J. LYNCH
APPROVED BY: C. ADELSBERGER
DATE: JUNE 2015

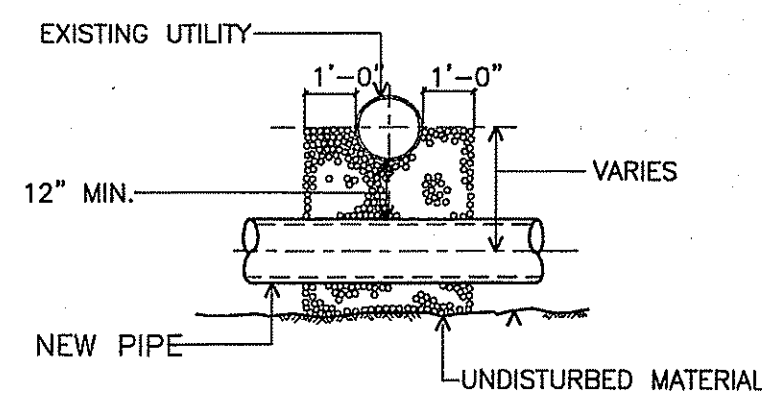
CDM Smith
280 West Exchange Street, Suite 300
Providence, RI 02903
Tel: (401) 751-5360

CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
CUMBERLAND INTERCONNECTION
WATER SYSTEM IMPROVEMENTS
CONTRACT 2

WETLAND RESTORATION PLAN

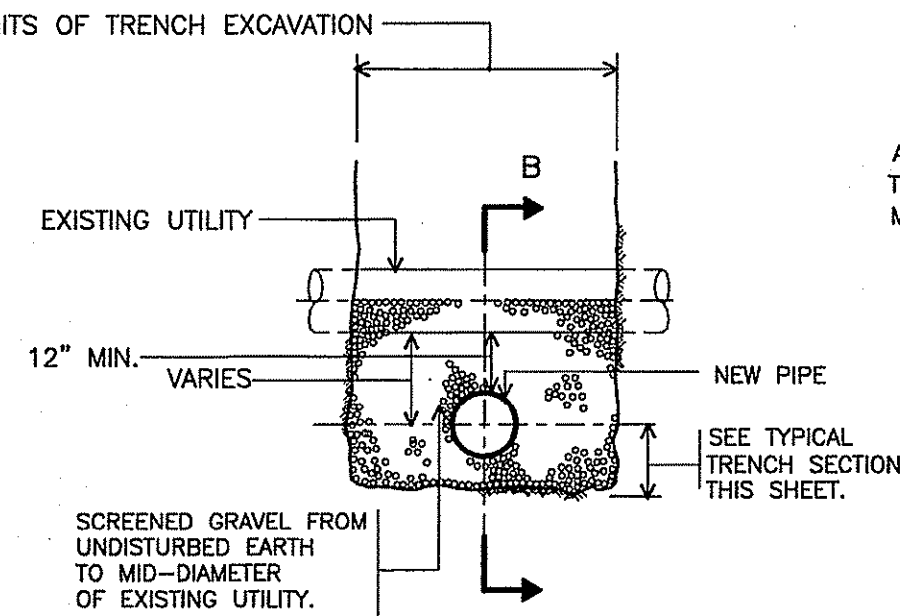
PROJECT NO. 0669-72635/C2
FILE NAME: CSTPLOW1.DWG
SHEET NO.
W-1
Accession No: 0669-P-2993

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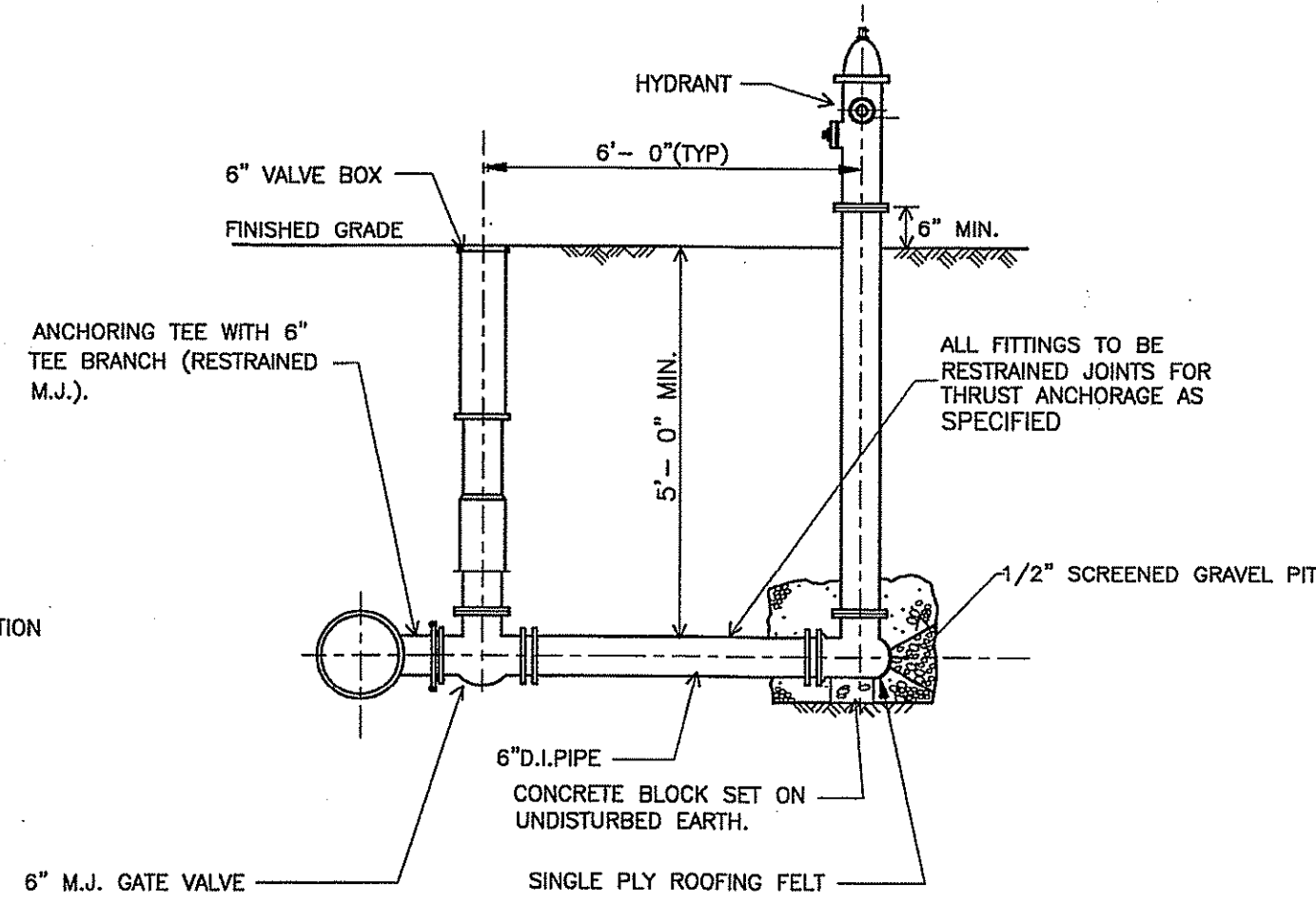


SECTION "B"- "B"

UTILITIES CROSSING DETAIL
NTS

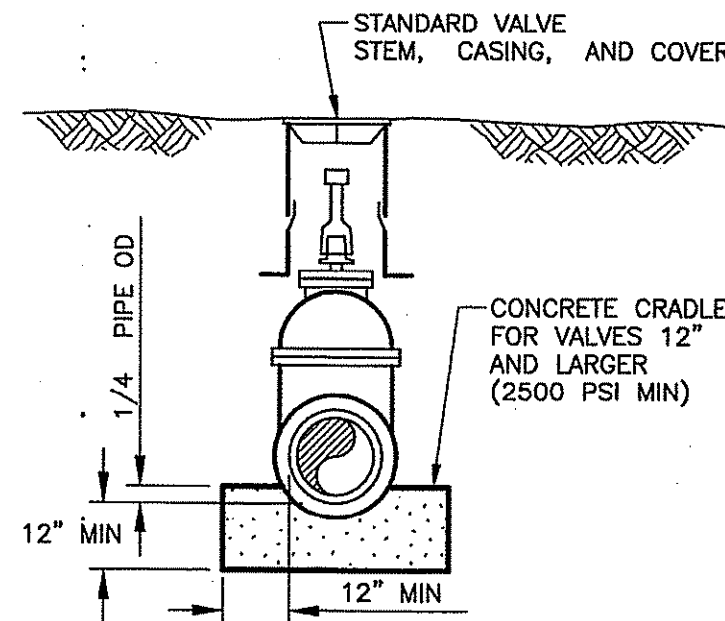


TYPICAL SECTION

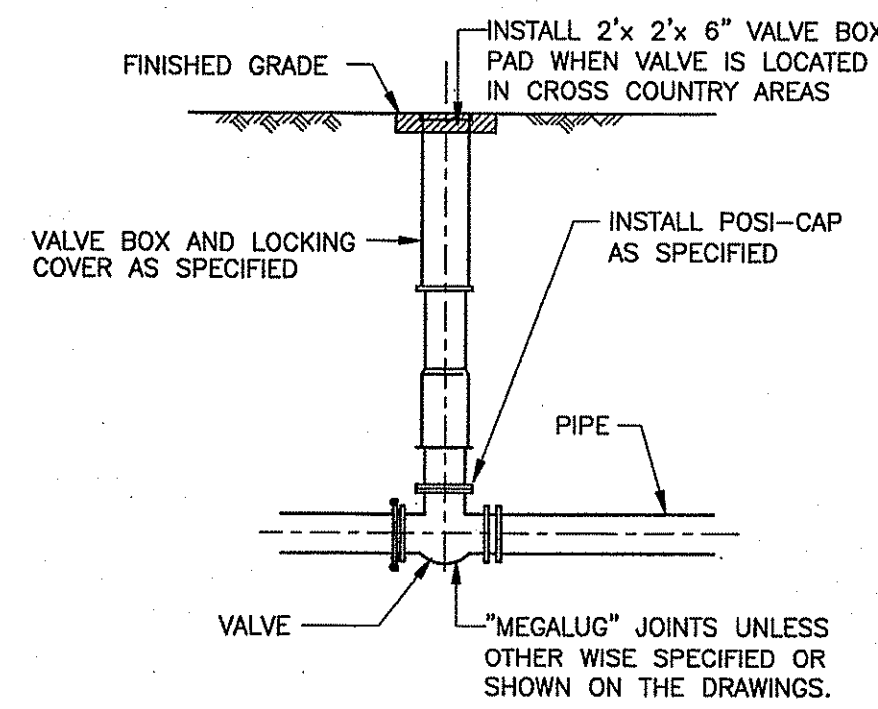


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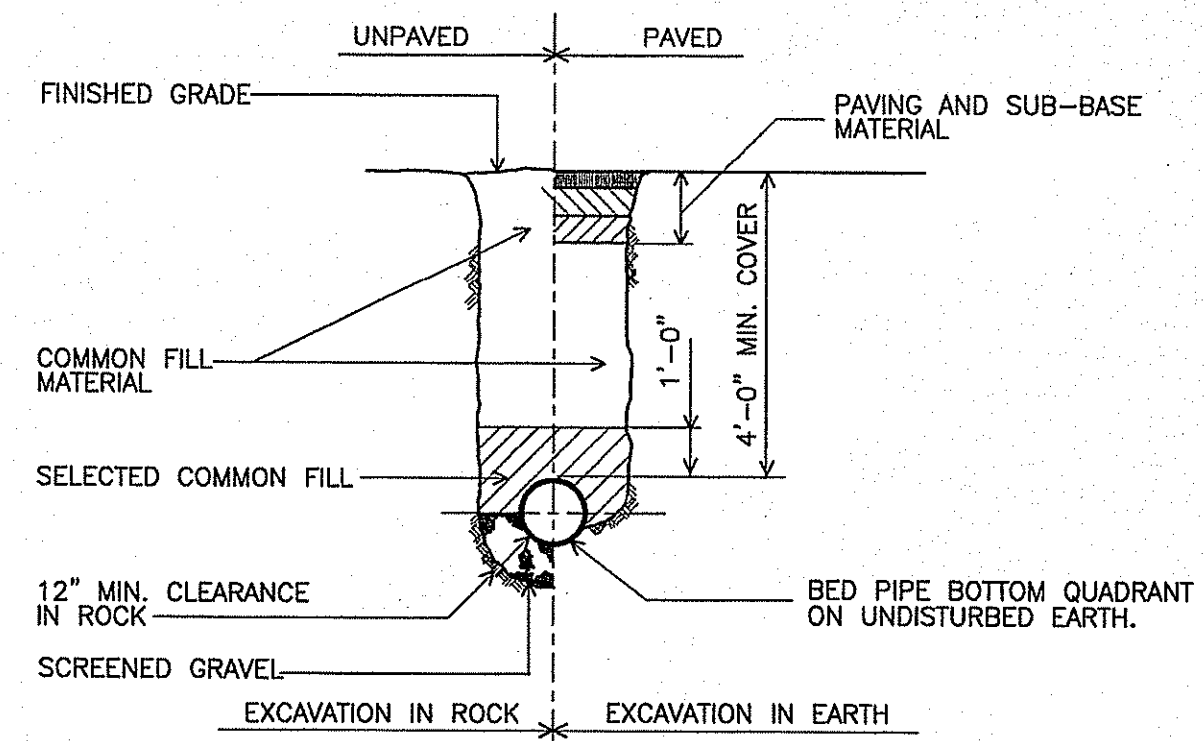
TYPICAL HYDRANT DETAIL
NTS



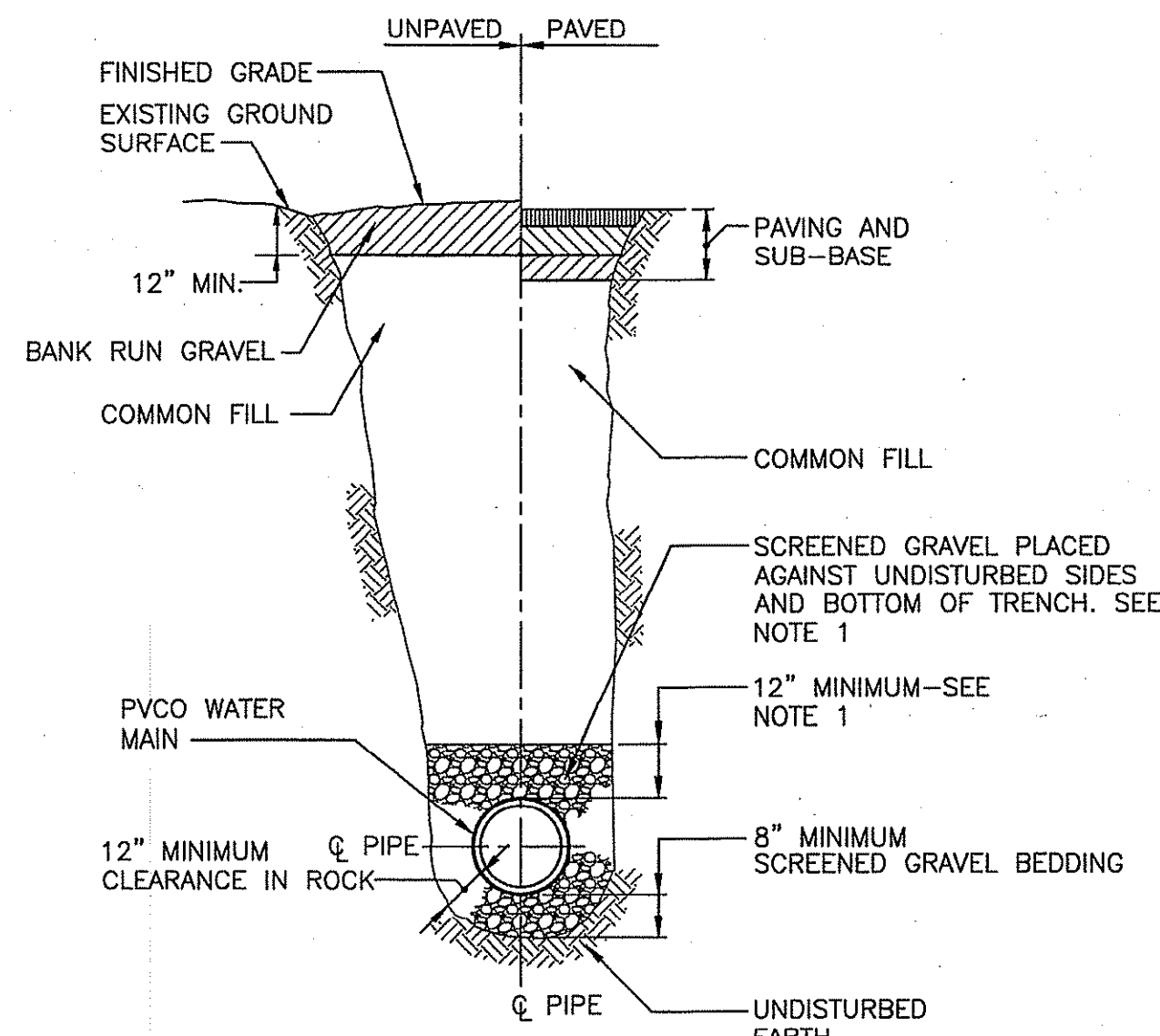
VERTICAL GATE VALVE INSTALLATION DETAIL
NTS



TYPICAL GATE VALVE AND BOX DETAIL
NTS



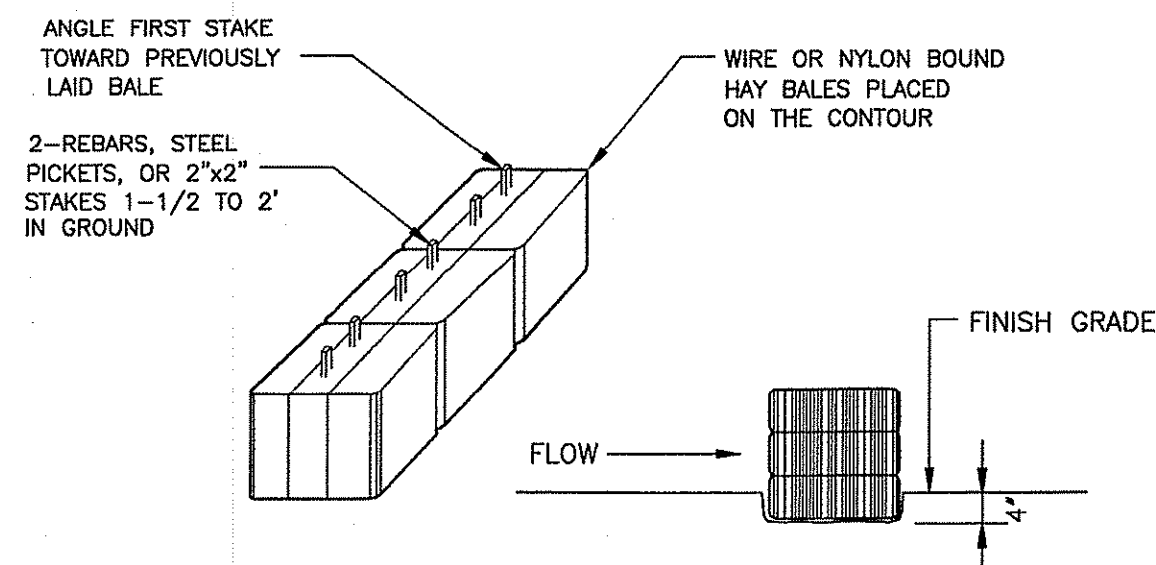
TYPICAL TRENCH DETAIL
FOR D.I. PIPE
NTS



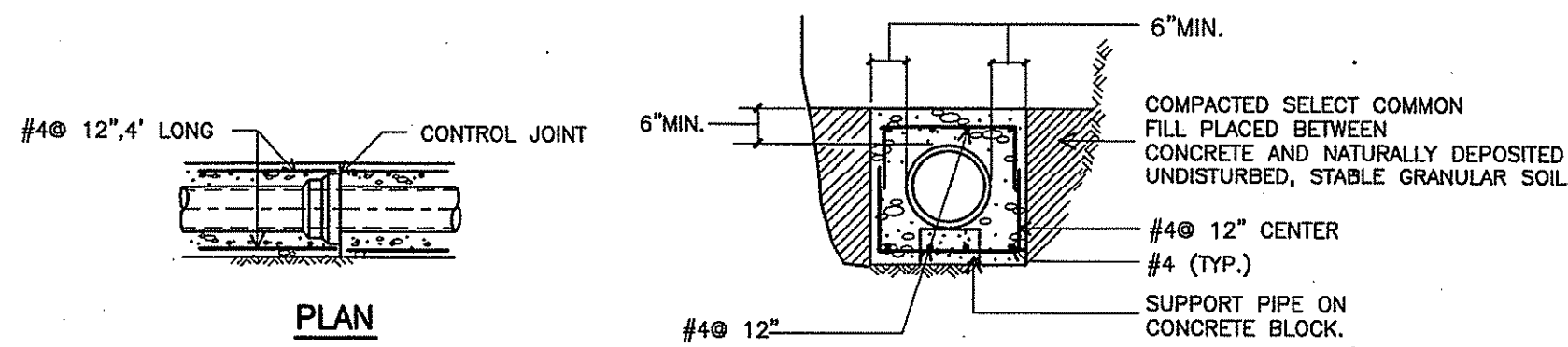
NOTES:

1. FOR PIPES OTHER THAN PVC, SELECT COMMON FILL MAY BE USED FROM MID-DIAMETER OF PIPE TO 12" ABOVE TOP OF PIPE.
2. WHEN CROSSING THE EXISTING GAS MAIN IN THE CROSS COUNTRY AREA, THE WATER MAIN MUST BE SAND PADDED 12" AROUND THE PIPE FOR THE ENTIRE WIDTH OF THE TENNESSEE GAS EASEMENT.
3. UNDERGROUND WARNING TAPE SHALL BE INSTALLED APPROXIMATELY 24" ABOVE THE TOP OF THE WATER MAIN AS SPECIFIED IN SECTION 02622.

TYPICAL TRENCH DETAIL FOR PVC PIPE
NTS



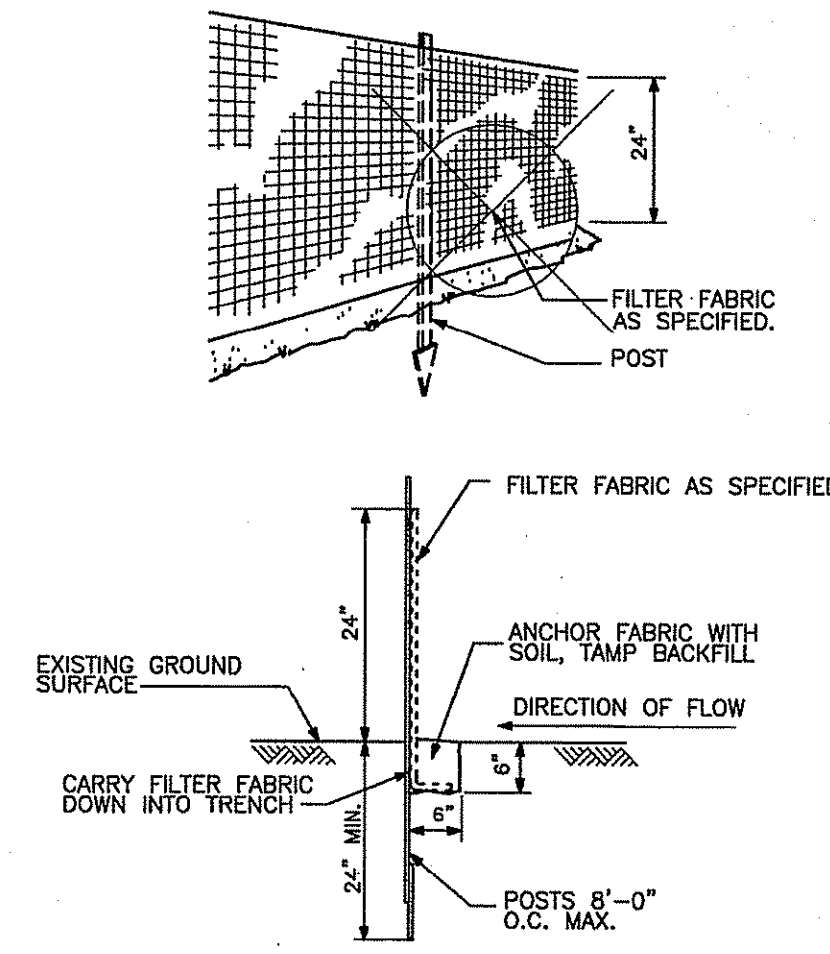
HAY BALE DETAIL
NTS



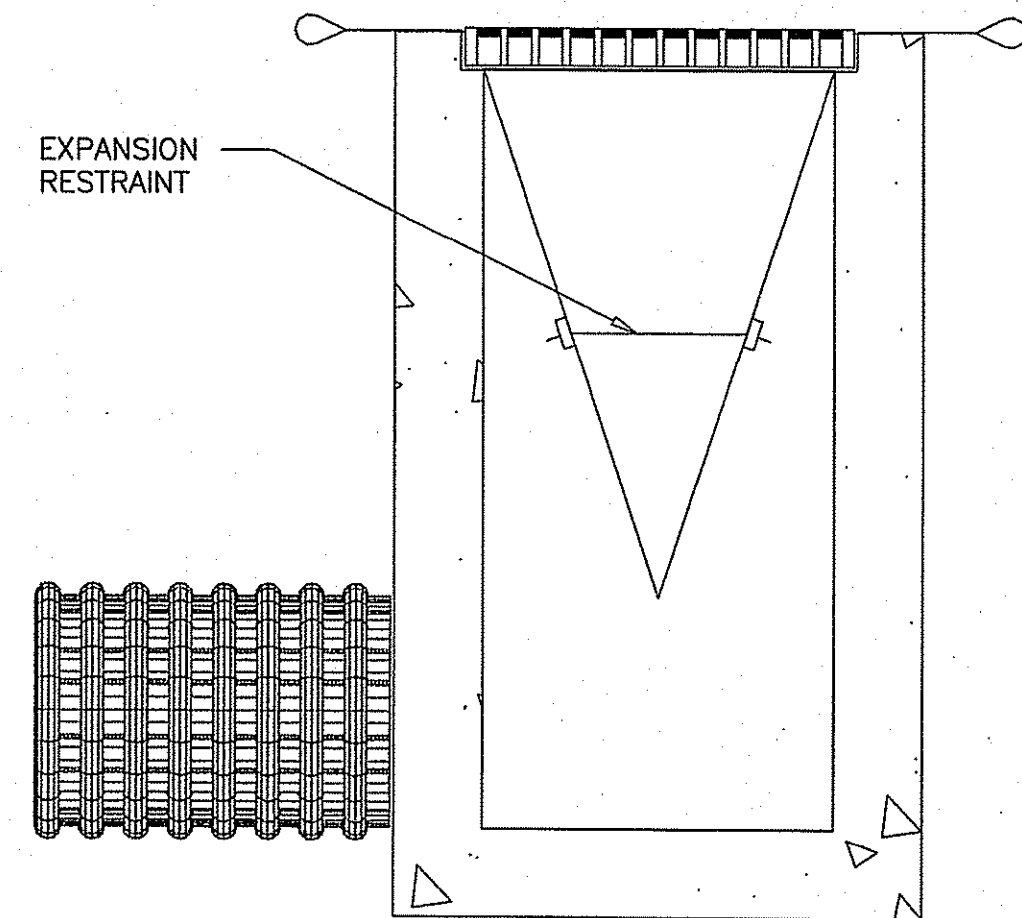
NOTES:

1. CONTROL JOINTS AND PIPE JOINTS FOR ENCASEMENT SHALL COINCIDE FOR SPACING. MAX. DISTANCE BETWEEN CONTROL JOINTS SHALL BE 24".
2. REINFORCING STEEL TO BE USED ONLY WHEN DEPTH OF COVER TO TOP OF SURFACE OF CONCRETE IS 4'-0" OR LESS.

CONCRETE ENCASEMENT
NOT TO SCALE

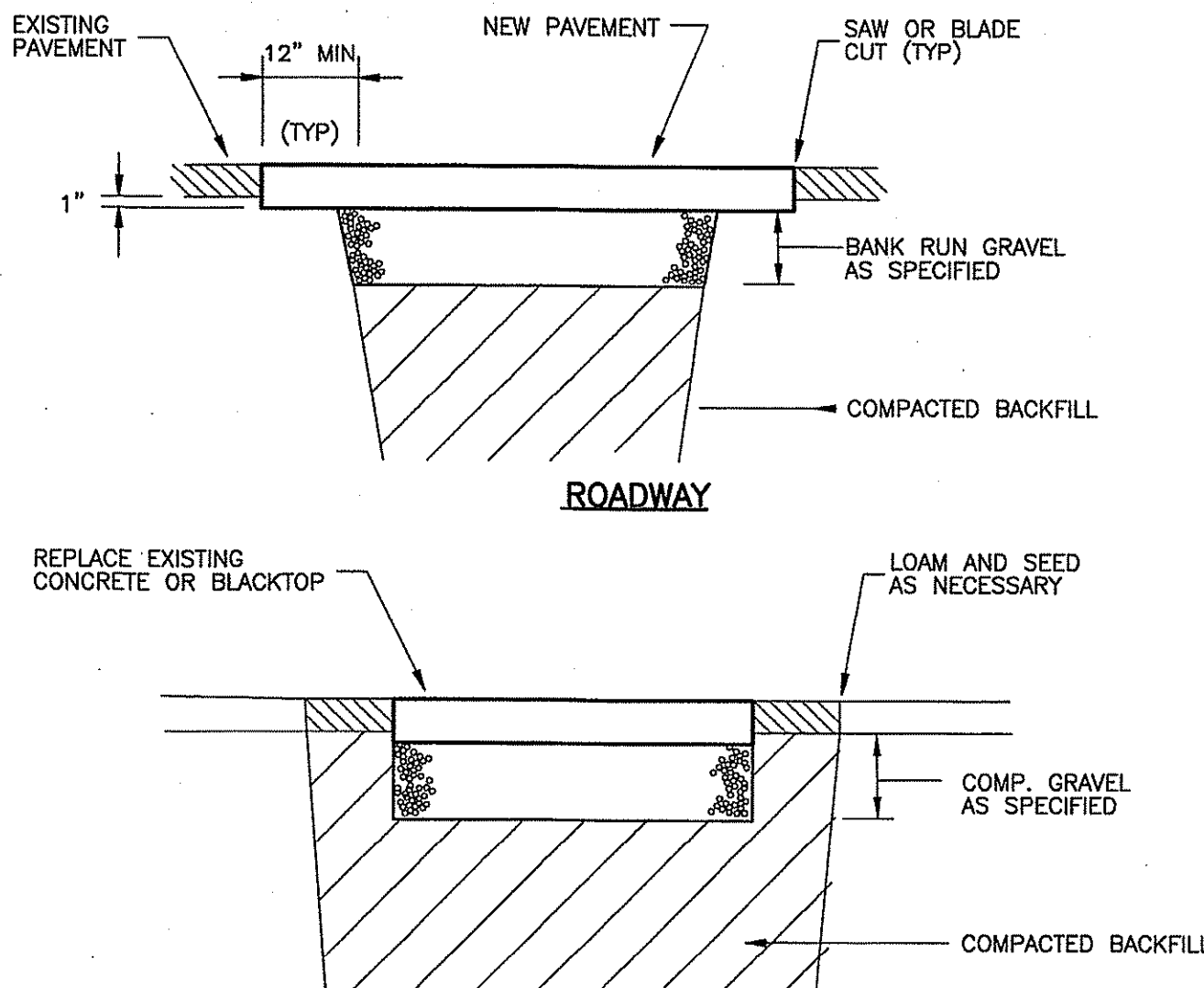


SILT/SEDIMENT FENCE
NTS

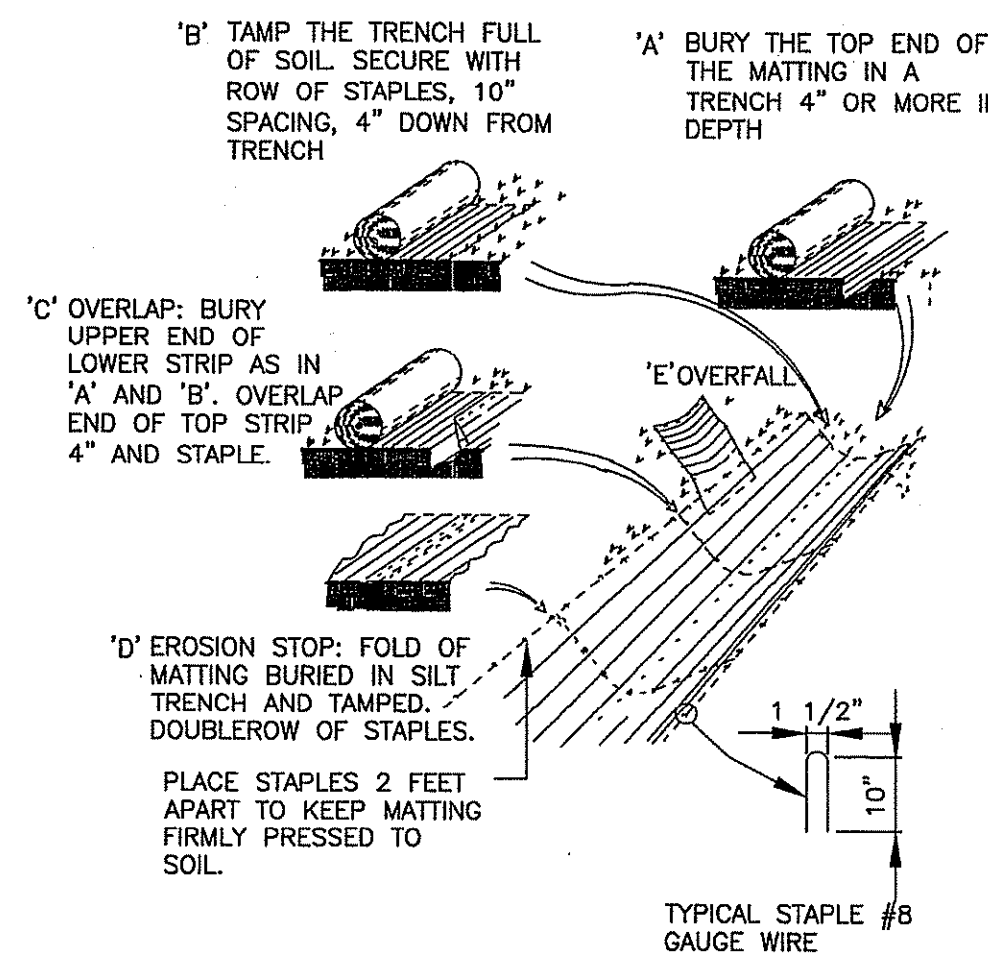


TYPICAL SILTATION CONTROL DEVICE
NTS

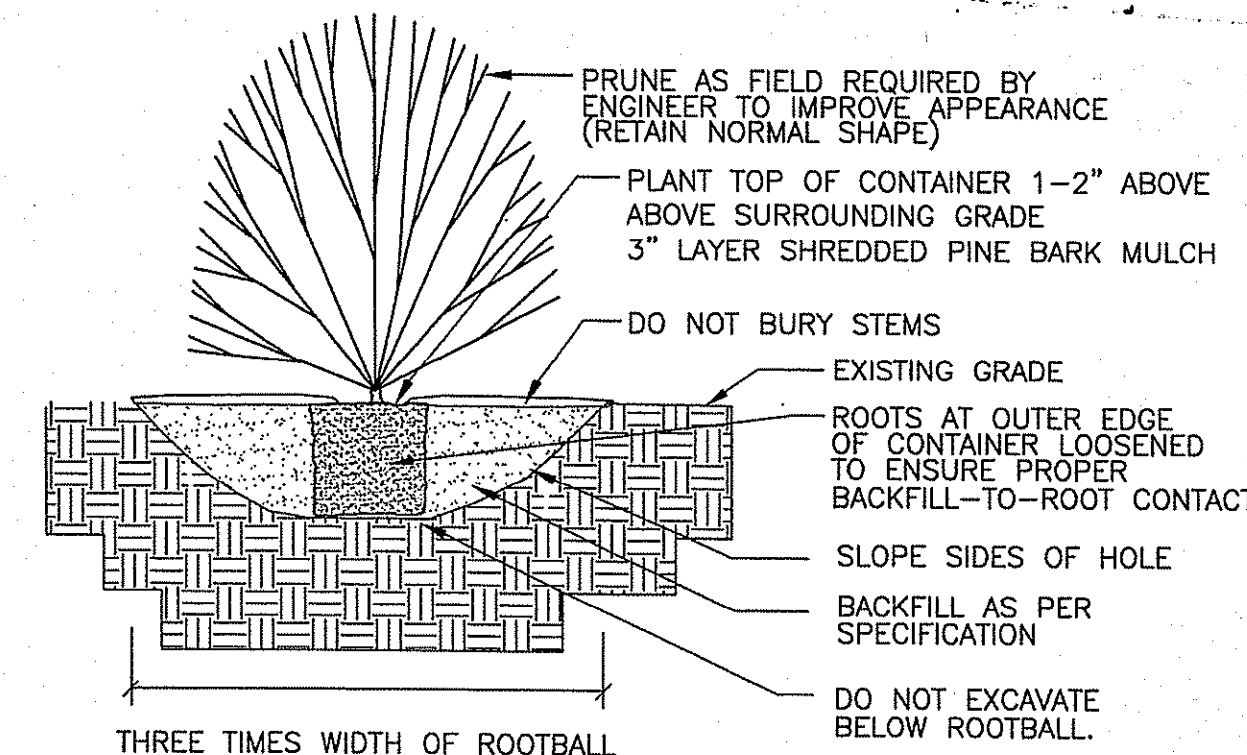
APPROVED FOR CONSTRUCTION
DATE: NOV 6 2015
FILE: 14-0209
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Hackett



STANDARD PAVEMENT REPAIR DETAILS
NTS



EROSION CONTROL BLANKET
NTS



SHRUB PLANTING
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. KERSHAW
DRAWN BY: J. CABRERA
SHEET CHK'D BY: J. LYNCH
CROSS CHK'D BY: J. KEANEY
APPROVED BY: CADELSBERGER
DATE: JUNE 2015

CDM Smith
260 West Exchange Street, Suite 300
Providence, RI 02903
Tel: (401) 751-5360

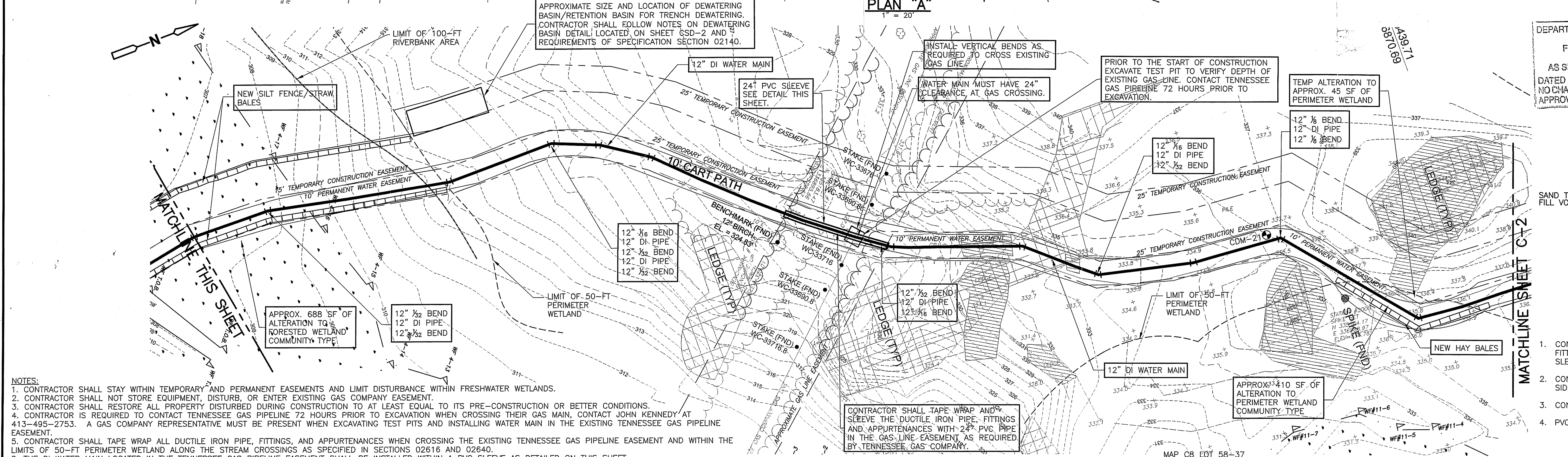
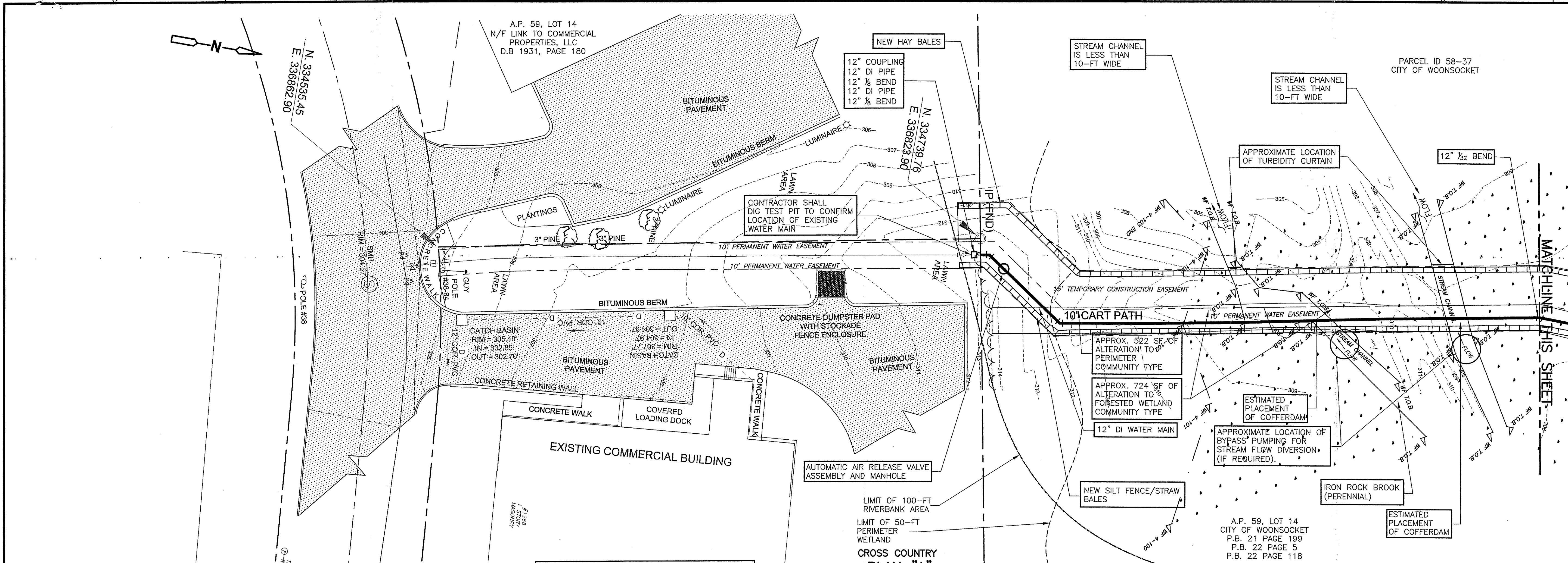
CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
CUMBERLAND INTERCONNECTION
WATER SYSTEM IMPROVEMENTS
CONTRACT 2

STANDARD CIVIL DETAILS I

ROBERT M. OTOSKI
No. 8440
REGISTERED PROFESSIONAL ENGINEER
CIVIL

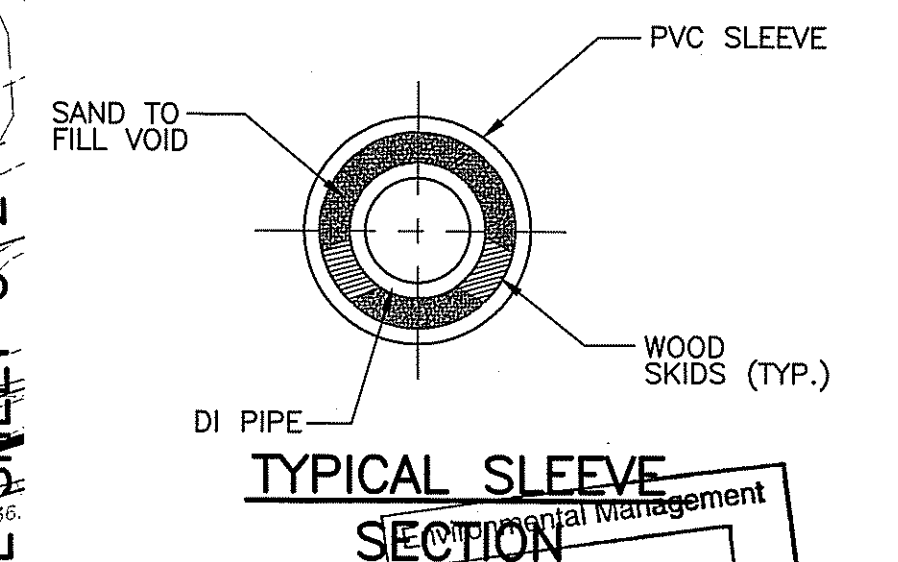
PROJECT NO. 0669-72635/C2
FILE NAME: CSTD001.DWG
SHEET NO.
CSD-1
Accession No: 0669-P-2994

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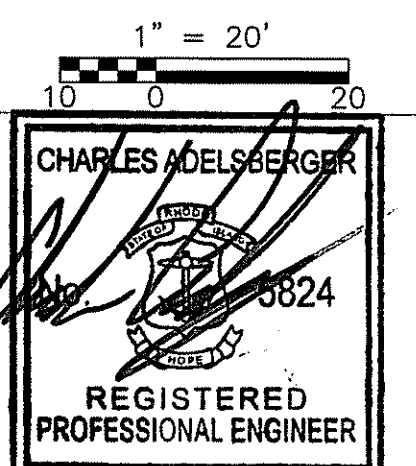
- NOTES:
1. CONTRACTOR SHALL STAY WITHIN TEMPORARY AND PERMANENT EASEMENTS AND LIMIT DISTURBANCE WITHIN FRESHWATER WETLANDS.
 2. CONTRACTOR SHALL NOT STORE EQUIPMENT, DISTURB, OR ENTER EXISTING GAS COMPANY EASEMENT.
 3. CONTRACTOR SHALL RESTORE ALL PROPERTY DISTURBED DURING CONSTRUCTION TO AT LEAST EQUAL TO ITS PRE-CONSTRUCTION OR BETTER CONDITIONS.
 4. CONTRACTOR IS REQUIRED TO CONTACT TENNESSEE GAS PIPELINE 72 HOURS PRIOR TO EXCAVATION WHEN CROSSING THEIR GAS MAIN, CONTACT JOHN KENNEDY AT 413-495-2753. A GAS COMPANY REPRESENTATIVE MUST BE PRESENT WHEN EXCAVATING TEST PITS AND INSTALLING WATER MAIN IN THE EXISTING TENNESSEE GAS PIPELINE EASEMENT.
 5. CONTRACTOR SHALL TAPE WRAP ALL DUCTILE IRON PIPE, FITTINGS, AND APPURTENANCES WHEN CROSSING THE EXISTING TENNESSEE GAS PIPELINE EASEMENT AND WITHIN THE LIMITS OF 50-FT PERIMETER WETLAND ALONG THE STREAM CROSSINGS AS SPECIFIED IN SECTIONS 02616 AND 02640.
 6. THE DI WATER MAIN LOCATED IN THE TENNESSEE GAS PIPELINE EASEMENT SHALL BE INSTALLED WITHIN A PVC SLEEVE AS DETAILED ON THIS SHEET.
 7. ALL DEWATERING, DRAINAGE, AND BYPASS PUMPING OPERATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION AND SHALL MEET ALL REQUIREMENTS OF ALL REGULATORY AGENCIES.
 8. BYPASS PUMPING SYSTEMS FOR STREAM DIVERSION SHALL BE DESIGNED TO MEET THE FLOW REQUIREMENTS OF THE STREAM AT THE TIME OF CONSTRUCTION AND MUST BE APPROVED BY THE ENGINEER. CONTRACTOR SHALL LOCATE ALL BYPASS PUMPING COMPONENTS WITHIN THE LIMITS OF THE CONSTRUCTION EASEMENTS.
 9. CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE ENGINEER THE METHOD AND APPROACH FOR DISSIPATING FLOW AND ENERGY DOWNSTREAM OF THE CONSTRUCTION CAUSED BY THE INSTALLATION OF BYPASS PUMPING UPSTREAM.
 10. AS REQUIRED BY RIDEM FRESHWATER WETLANDS PROGRAM, CONTRACTOR SHALL LIMIT ALL CONSTRUCTION ACTIVITIES TO THE DESIGNATED PERMANENT AND TEMPORARY EASEMENTS. CONTRACTOR SHALL NOT DISTURB EXISTING WETLANDS OUTSIDE OF DESIGNATED WORK AREAS.
 11. CONTRACTOR MUST RECEIVE APPROVAL ON THE LOCATION AND TYPE OF PROPOSED COFFERDAM AND TURBIDITY CURTAINS FROM ENGINEER PRIOR TO INSTALLATION.
 12. CONTRACTOR SHALL RECEIVE APPROVAL FROM ENGINEER ON THE LOCATION OF DEWATERING/RETENTION BASIN AND METHOD FOR DEWATERING OF WATER MAIN TRENCH PRIOR TO CONSTRUCTION IN WETLANDS.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED MAY 14, 2015 FILE # 14-0309
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Nancy L. Freeman



1. CONTRACTOR SHALL TAPE WRAP ALL DI PIPE, FITTINGS AND APPURTENANCES WITHIN THE PVC SLEEVE.
2. CONTRACTOR SHALL LOCATE DI JOINTS ON EITHER SIDE OF THE BRICK BULKHEAD.
3. CONTRACTOR SHALL BRICK BULKHEAD EACH END OF SLEEVE.
4. PVC SLEEVE.

ESTIMATED IMPACTS TO RESOURCE AREAS				
Wetland Resource Area	Temporary Alteration (sq. ft.)	Alteration of Community Type (sq. ft.)	Temporary Alteration (linear ft.)	Permanent Alteration (linear ft.)
FORESTED WETLAND	3,160	1,413	-	-
RIVER	-	-	50	-
INTERMITTENT STREAM	-	-	25	-
100-FT RIVERBANK	4,560	3,064	-	-
PERIMETER WETLAND	3,677	3,223	-	-



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. LYNCH	
DRAWN BY: J. LYNCH	
SHEET CHK'D BY: J. KEANEY	
CROSS CHK'D BY: J. LYNCH	
APPROVED BY: C. DELSBERGER	
DATE: MAY 2015	

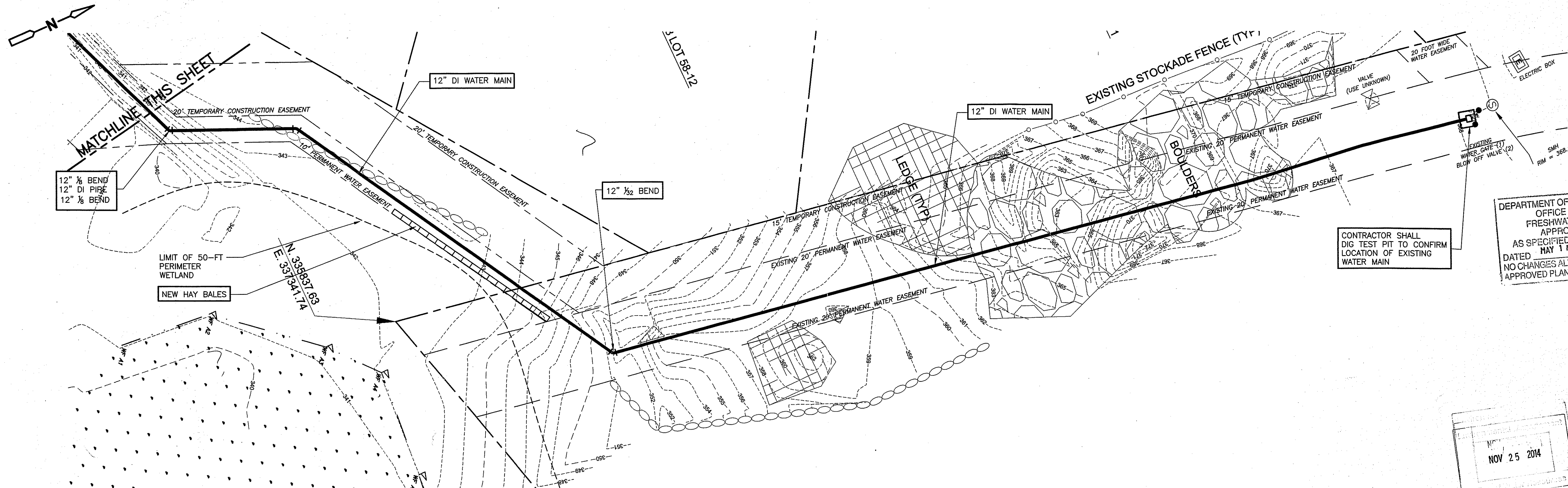
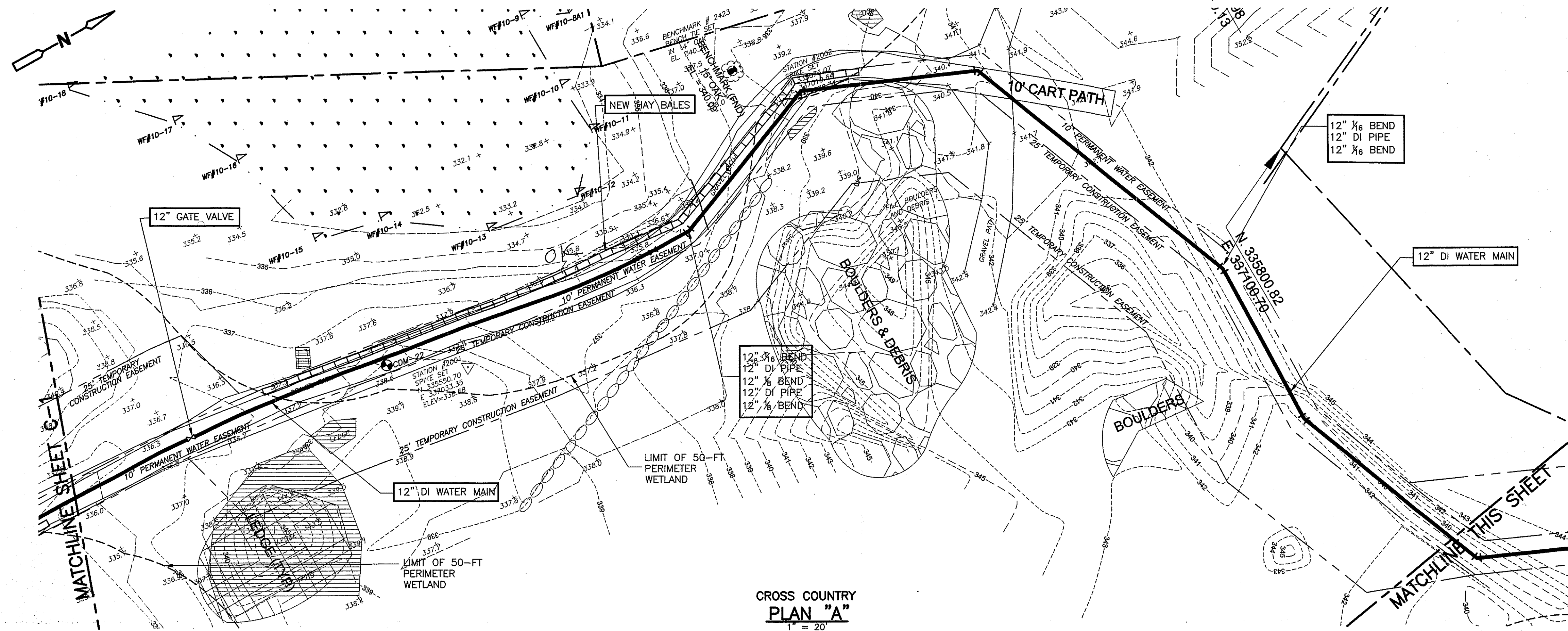
CDM Smith
280 West Exchange Street, Suite 300
Providence, RI 02903
Tel: (401) 751-5360

CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
CUMBERLAND INTERCONNECTION
WATER SYSTEM IMPROVEMENTS
CONTRACT 2

CROSS COUNTRY I

PROJECT NO. 0669-72635/C2
FILE NAME: CSTPL001.DWG
SHEET NO.
C-1
1 of 5
Accession No. 0669-P-2983

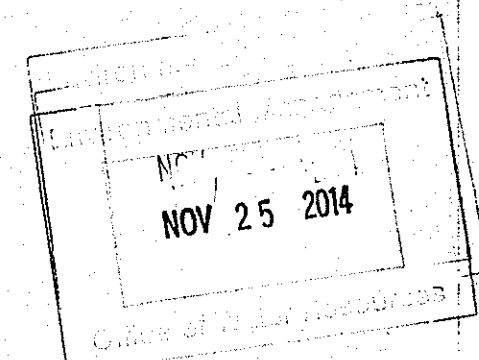
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 3. ALL DEWATERING, DRAINAGE, AND BYPASS PUMPING OPERATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION AND SHALL MEET ALL REQUIREMENTS OF ALL REGULATORY AGENCIES.
 4. AS REQUIRED BY RIDEM FRESHWATER WETLANDS PROGRAM, CONTRACTOR SHALL LIMIT ALL CONSTRUCTION ACTIVITIES TO THE DESIGNATED PERMANENT AND TEMPORARY EASEMENTS. CONTRACTOR SHALL NOT DISTURB EXISTING WETLANDS OUTSIDE OF DESIGNATED WORK AREAS.

CONTRACTOR SHALL
DIG TEST PIT TO CONFIRM
LOCATION OF EXISTING
WATER MAIN

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED MAY 14, 2015 FILE # 14-0209
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SEE
Kenny L. Freeman



CHARLES ADELSBERGER
5824
REGISTERED
PROFESSIONAL ENGINEER

REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. LYNCH
DRAWN BY: J. CABRERA
SHEET CHK'D BY: J. LYNCH
CROSS CHK'D BY: J. KEANEY
APPROVED BY: C. ADELSBERGER
DATE: JULY 2013

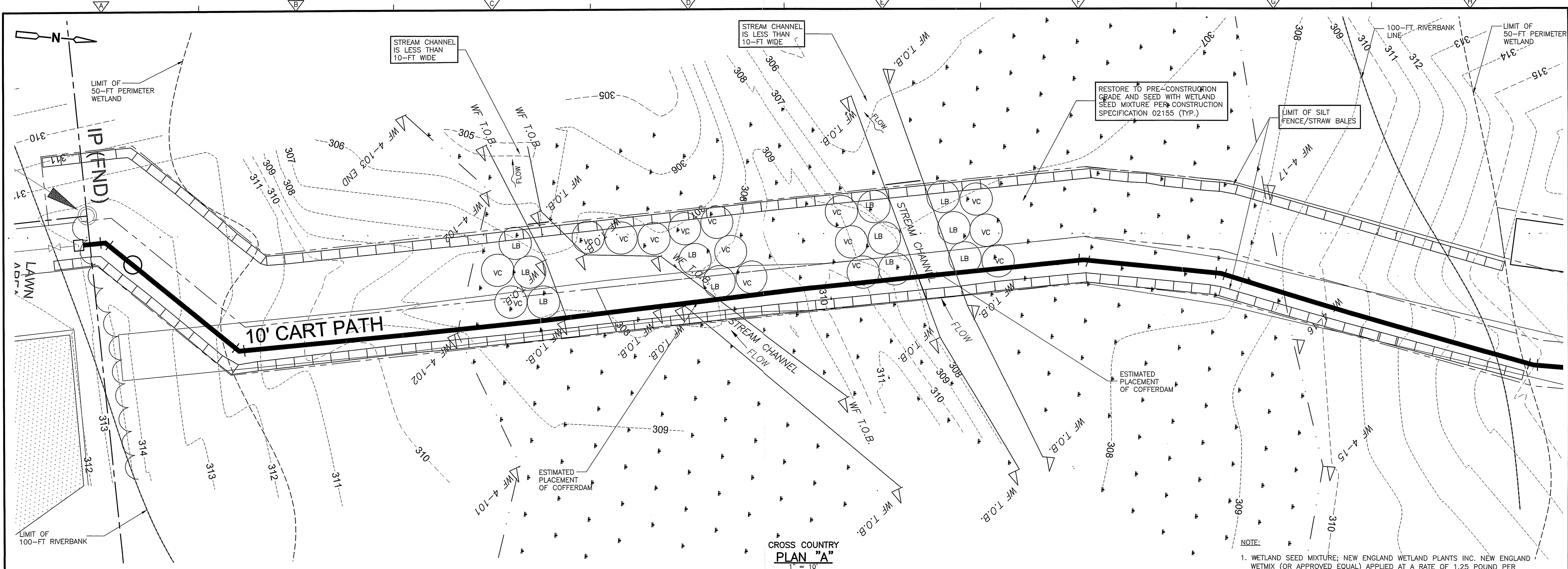
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280 West Exchange Street, Suite 300
Providence, RI 02903
Tel: (401) 751-5360

CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
2010 WATER SYSTEM IMPROVEMENTS
CONTRACT 2

CROSS COUNTRY II

PROJECT NO. 0669-72635/C2
FILE NAME: CSTPL002.DWG
SHEET NO.
C-2
2 of 3
Accession No: 0669-P-2993

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
MAY 11 2015
FILE # 14-0209
DATED
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Adams
Charles A. Adams
Charles A. Adams

REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: D. LEMOI
DRAWN BY: J. LYNCH
SHEET CHK'D BY: C. ADELSBERGER
CROSS CHK'D BY: J. LYNCH
APPROVED BY: C. ADELSBERGER
DATE: MAY 2015

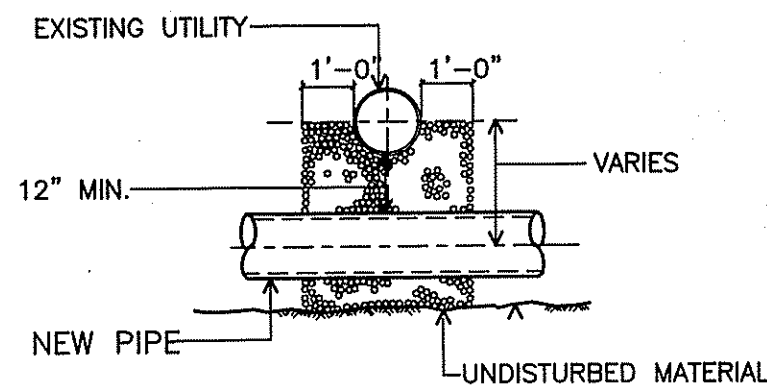
CDM Smith
260 West Exchange Street, Suite 300
Providence, RI 02903
Tel: (401) 751-5360

CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
CUMBERLAND INTERCONNECTION
WATER SYSTEM IMPROVEMENTS
CONTRACT 2

WETLAND RESTORATION PLAN

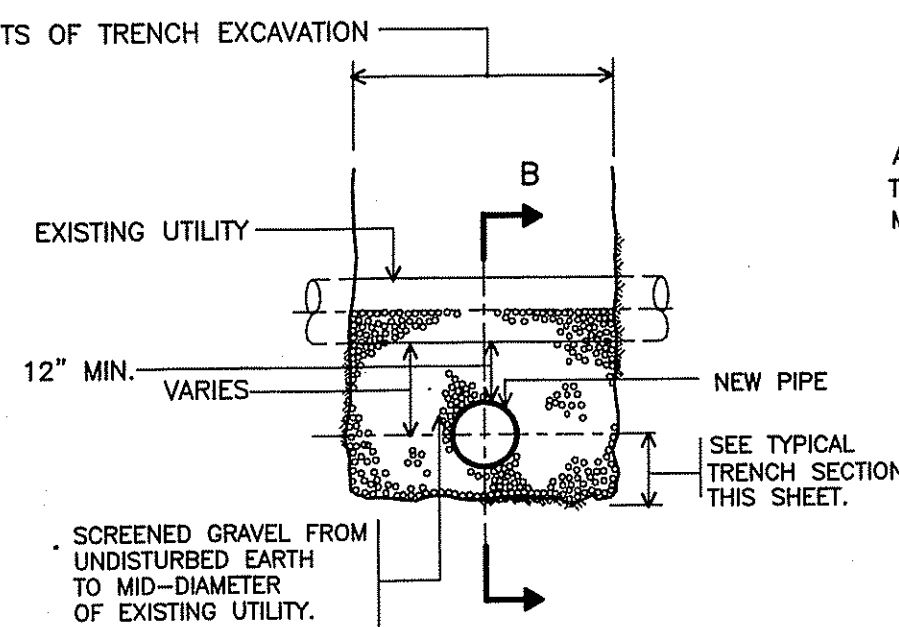
CHARLES ADELSBERGER
REGISTERED PROFESSIONAL ENGINEER
PROJECT NO. 0669-72635/C2
FILE NAME: CSTPLOW1.DWG
SHEET NO.
W-1
3 of 5
Accession No: 0669-P-2993

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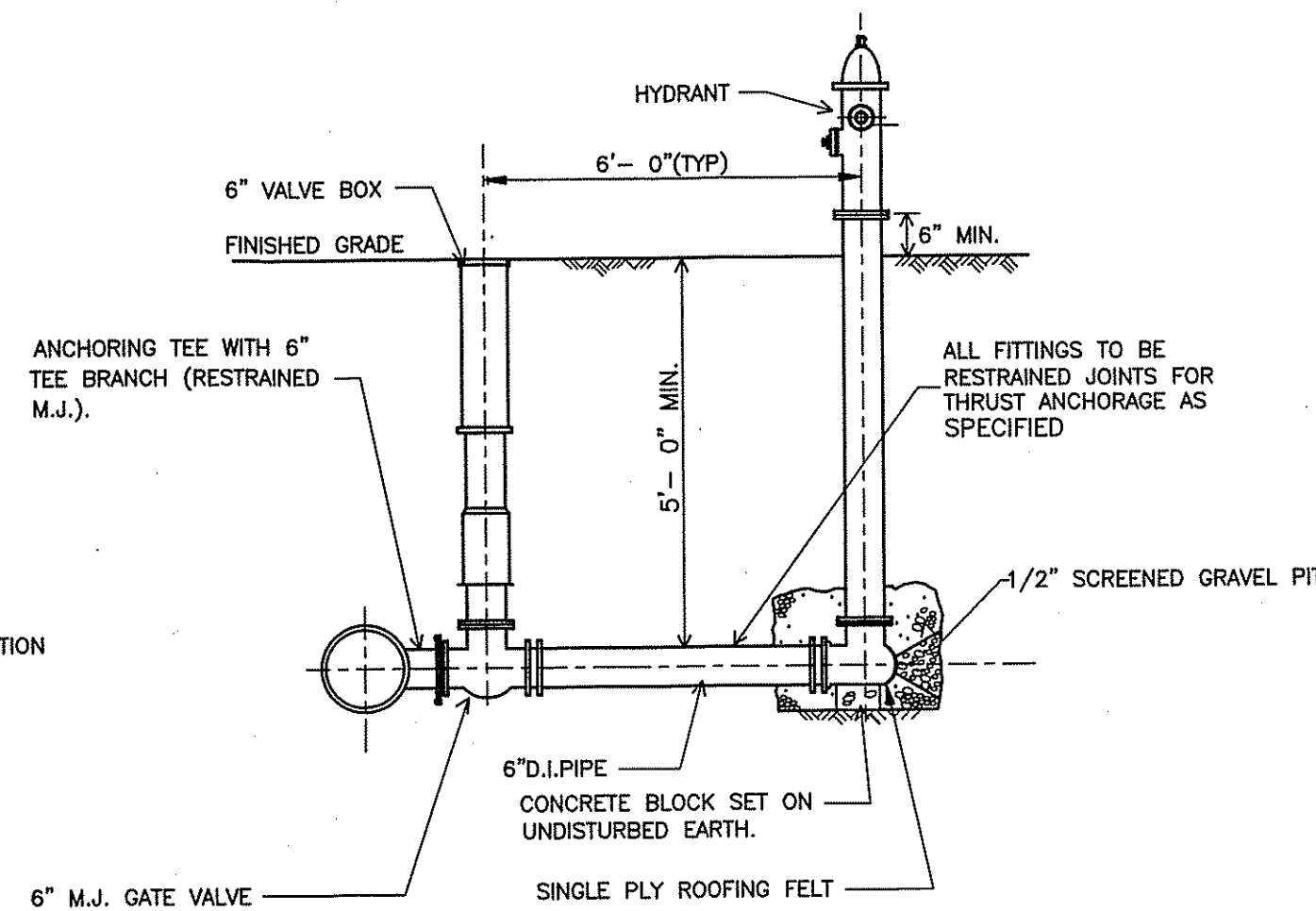


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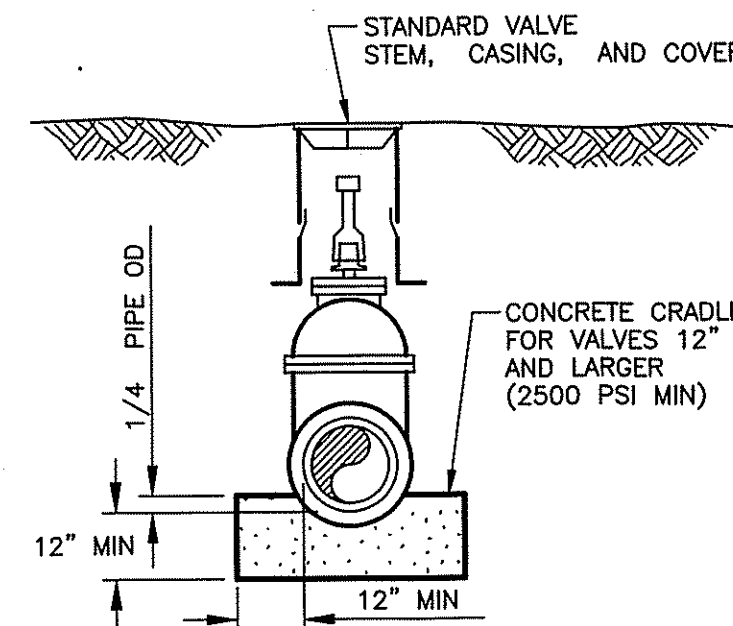
UTILITIES CROSSING DETAIL
NTS



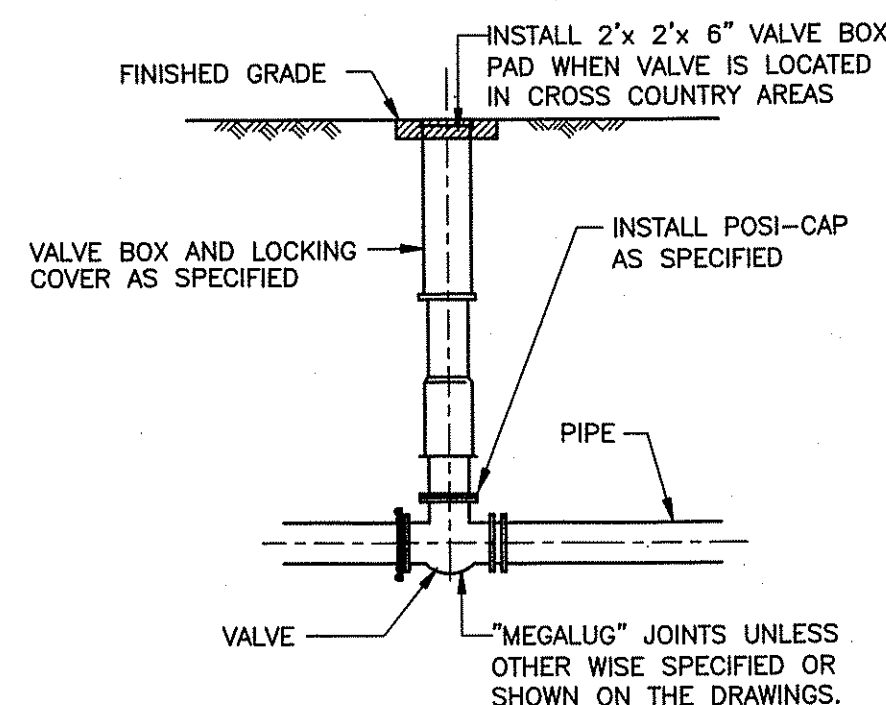
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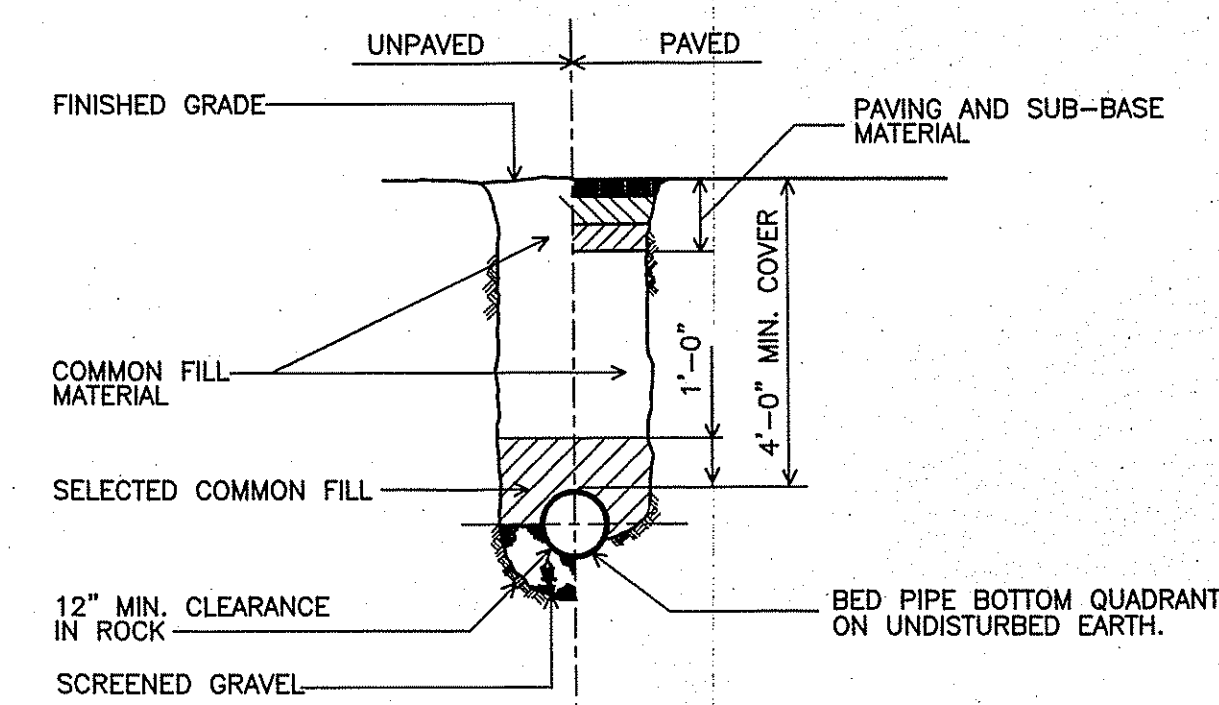
STANDARD CONNECTION
TYPICAL HYDRANT DETAIL
NTS



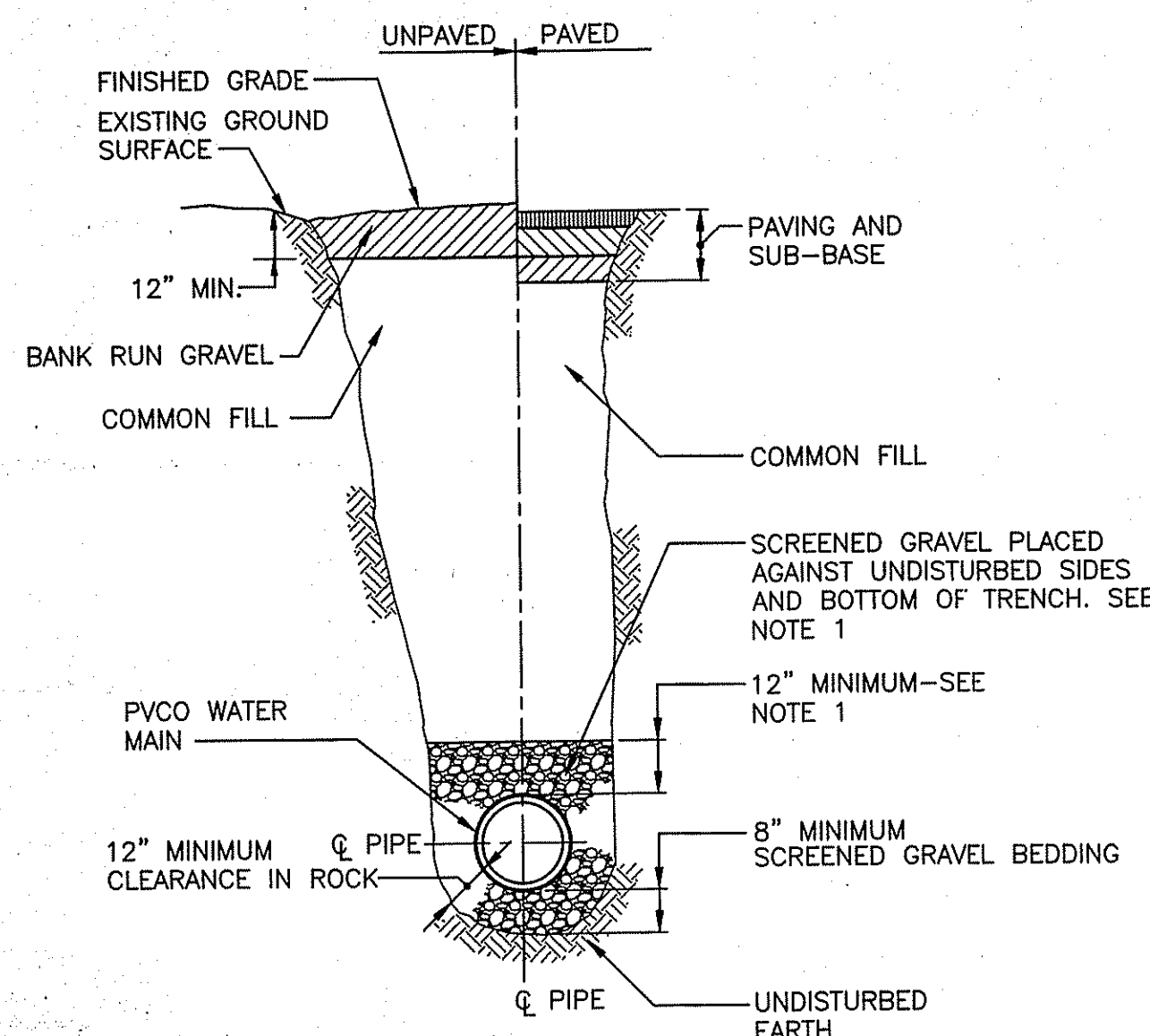
VERTICAL GATE VALVE INSTALLATION DETAIL
NTS



TYPICAL GATE VALVE AND BOX DETAIL
NTS



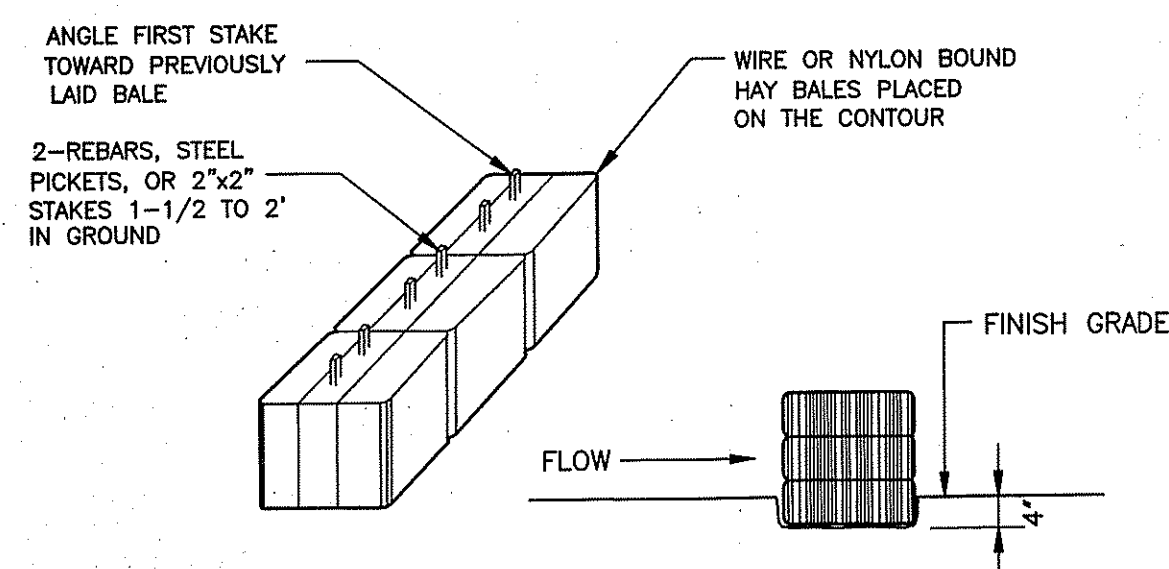
TYPICAL TRENCH DETAIL
FOR D.I. PIPE
NTS



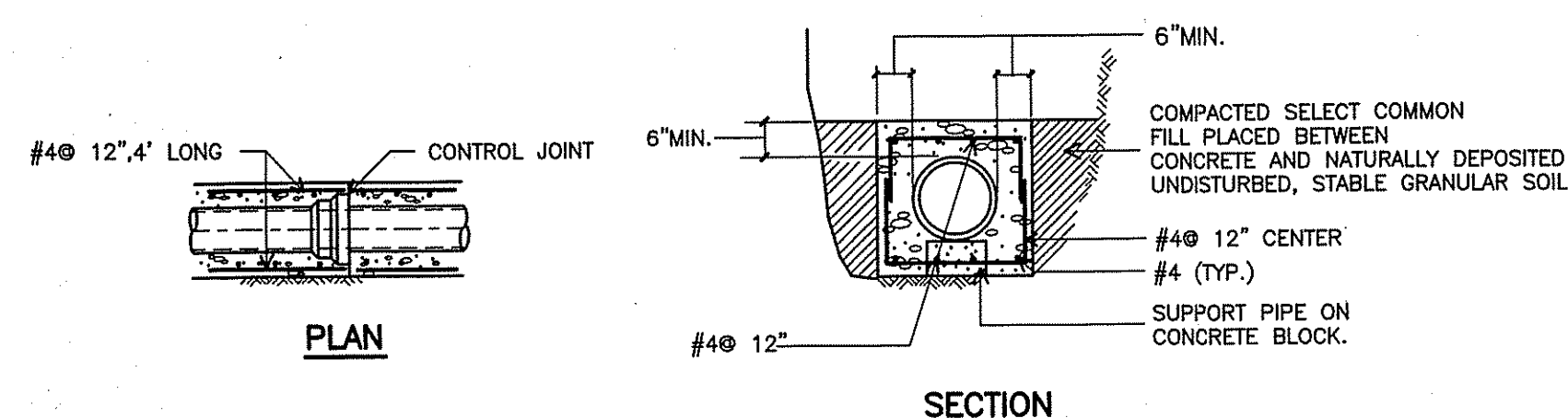
NOTES:

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2. WHEN CROSSING THE EXISTING GAS MAIN IN THE CROSS COUNTRY AREA, THE WATER MAIN MUST BE SAND PADDED 12" AROUND THE PIPE FOR THE ENTIRE WIDTH OF THE TENNESSEE GAS EASEMENT.
3. UNDERGROUND WARNING TAPE SHALL BE INSTALLED APPROXIMATELY 24" ABOVE THE TOP OF THE WATER MAIN AS SPECIFIED IN SECTION 02622.

TYPICAL TRENCH DETAIL FOR PVC PIPE
NTS



HAY BALE DETAIL
NTS

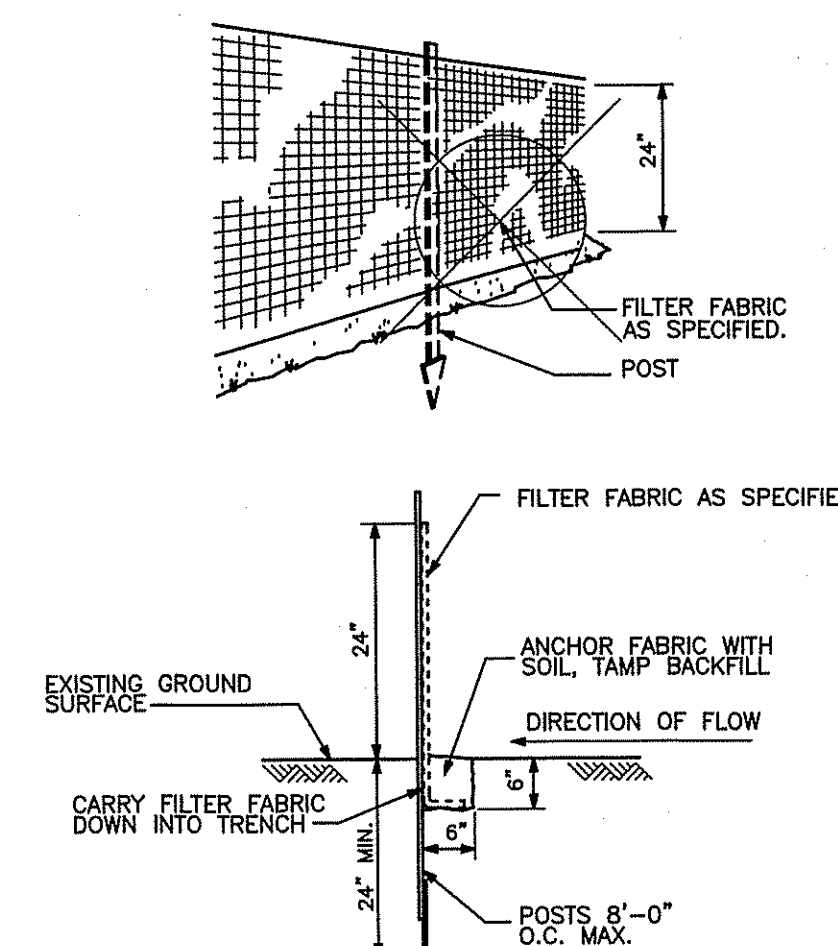


PLAN

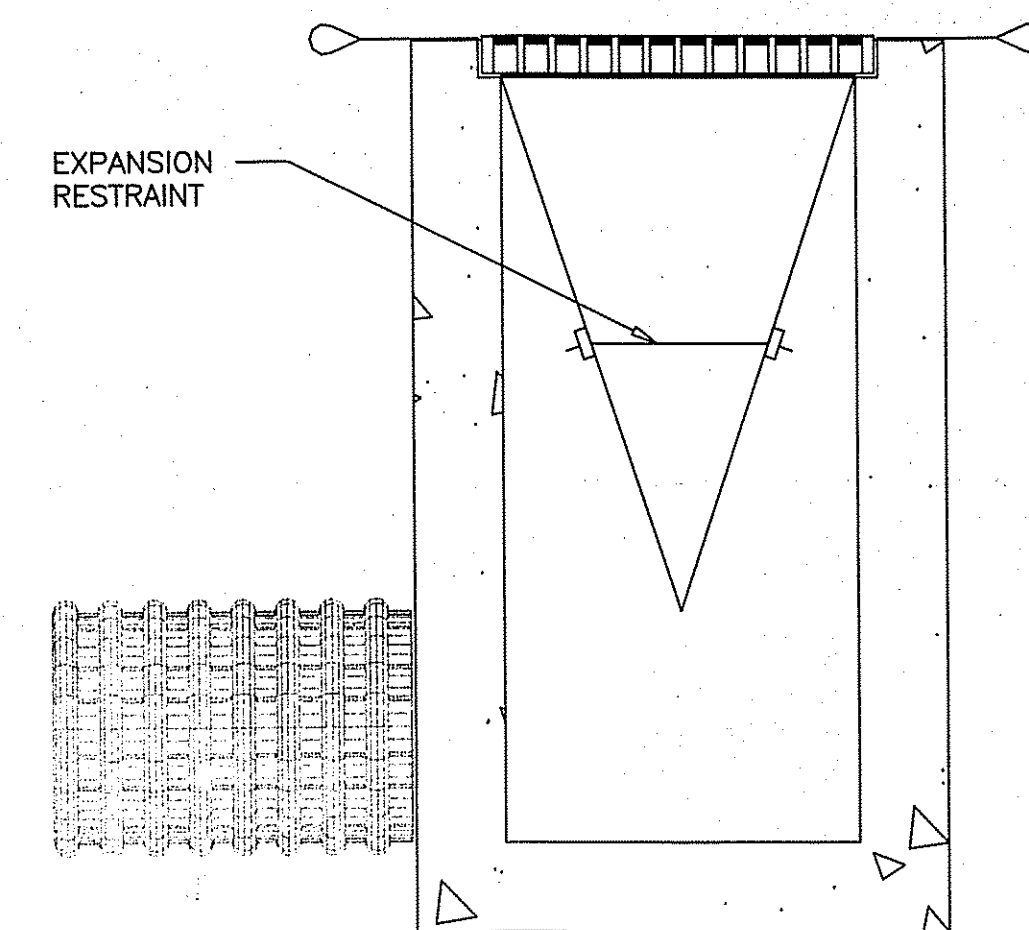
SECTION

- NOTES:
1. CONTROL JOINTS AND PIPE JOINTS FOR ENCASEMENT SHALL COINCIDE FOR SPACING. MAX. DISTANCE BETWEEN CONTROL JOINTS SHALL BE 24'.
 2. REINFORCING STEEL TO BE USED ONLY WHEN DEPTH OF COVER TO TOP OF SURFACE OF CONCRETE IS 4'-0" OR LESS.

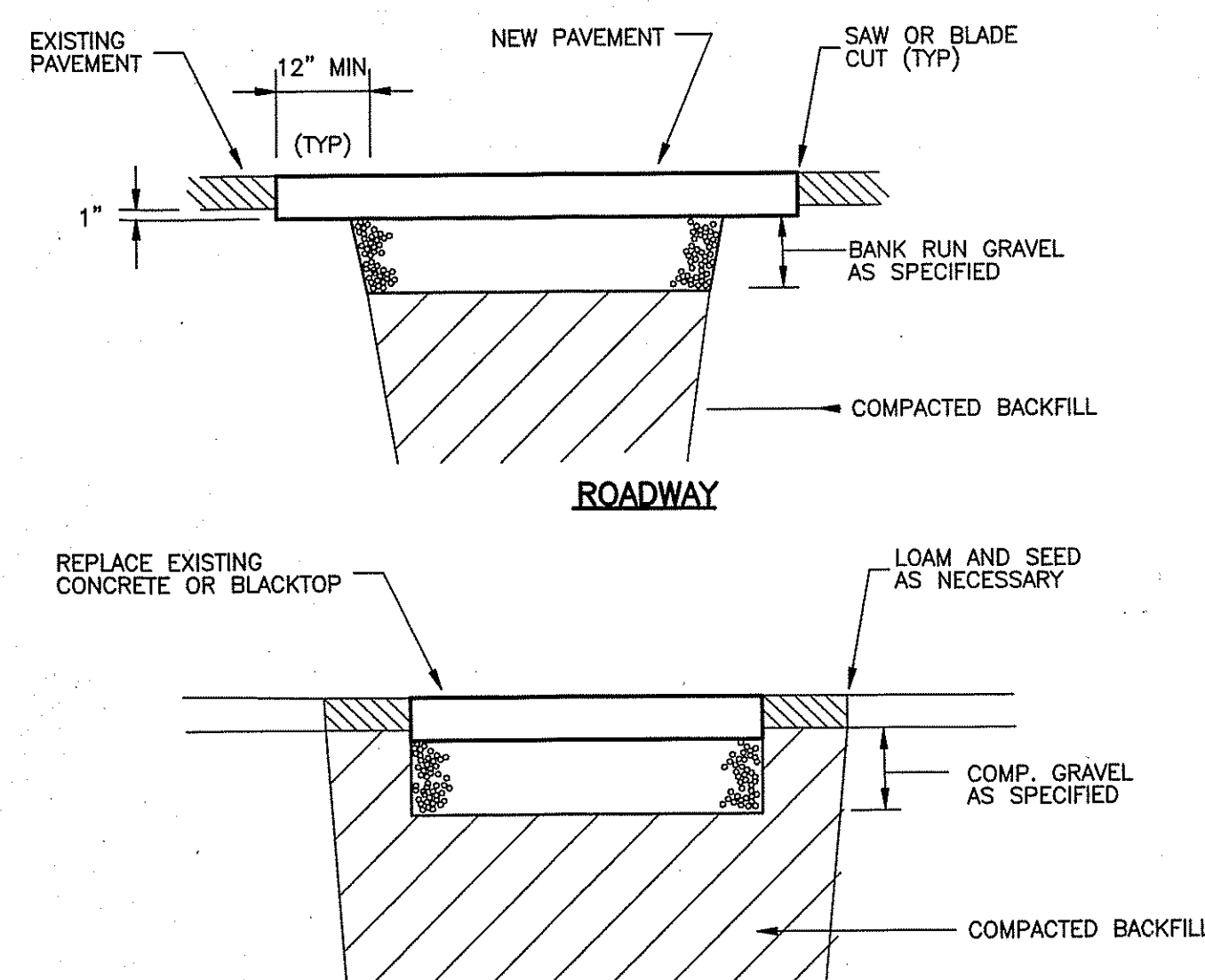
CONCRETE ENCASEMENT
NOT TO SCALE



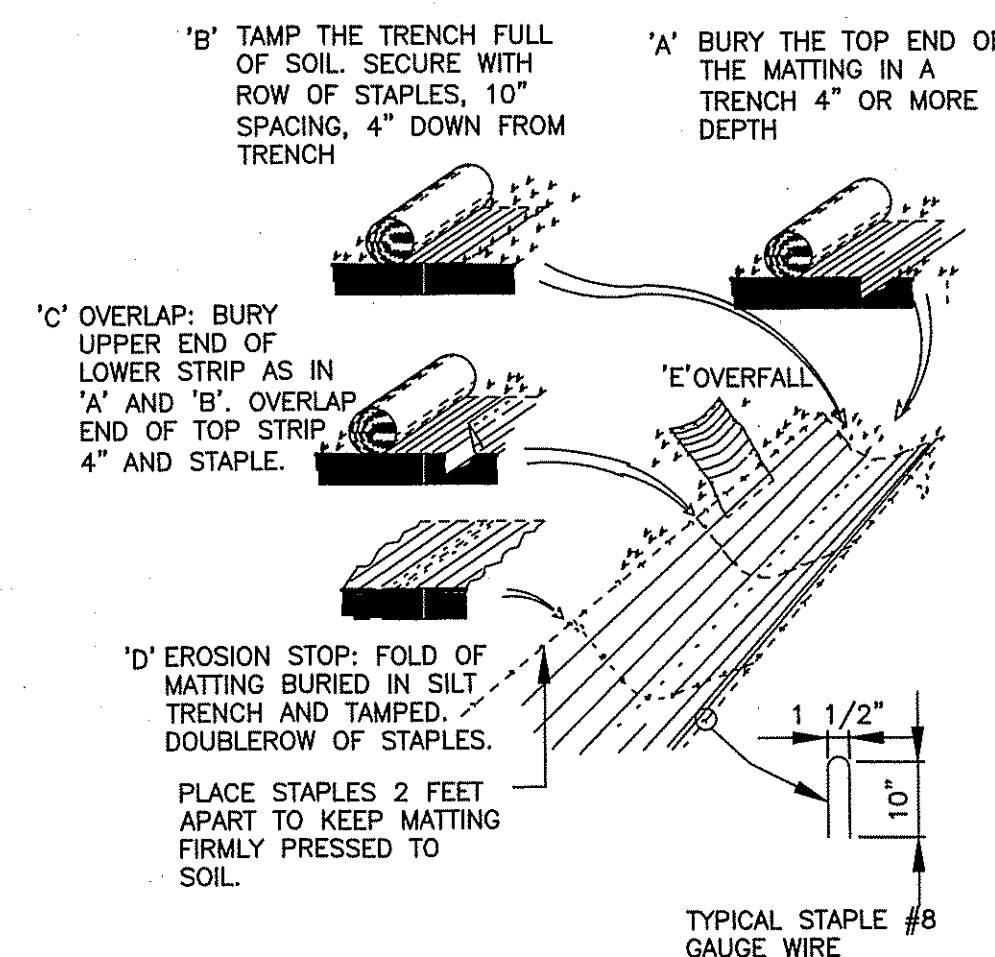
SILT/SEDIMENT FENCE
NTS



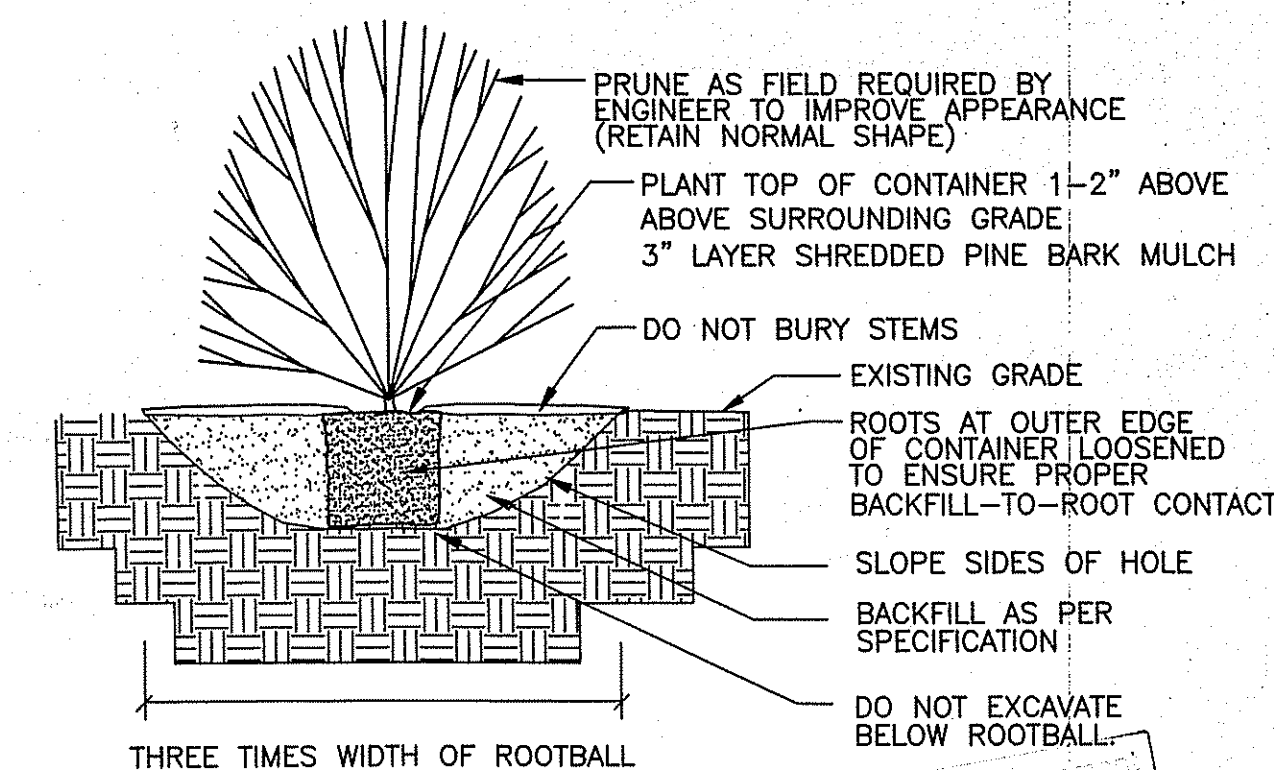
TYPICAL SILTATION CONTROL DEVICE
NTS



STANDARD PAVEMENT REPAIR DETAILS
NTS



EROSION CONTROL BLANKET
NTS



SHRUB PLANTING
NTS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF
DATE MAY 14, 2015 FILE # 14-0209
NO CHANGES ALLOWED WITHOUT PRIOR
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Nancy L. Freeman

NOV 25 2014
CITY OF WOONSOCKET

CHARLES ADELSBERGER
REGISTERED
PROFESSIONAL ENGINEER
6824

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. KERSHAW
DRAWN BY: J. CABRERA
SHEET CHK'D BY: J. LYNCH
CROSS CHK'D BY: J. KEANEY
APPROVED BY: C. ADELSBERGER
DATE: JULY 2013

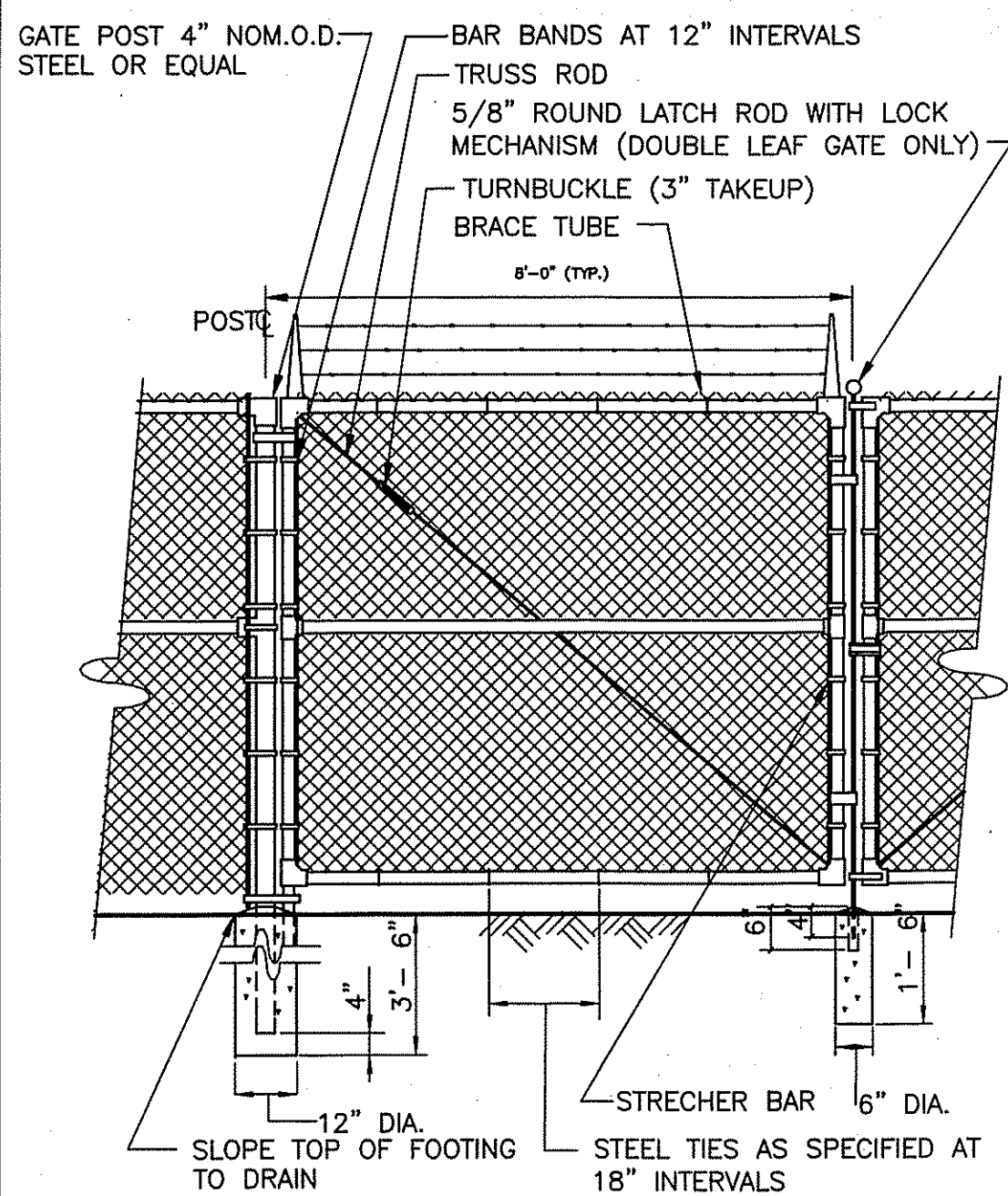
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260 West Exchange Street, Suite 300
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CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
2010 WATER SYSTEM IMPROVEMENTS
CONTRACT 2

STANDARD CIVIL DETAILS I

PROJECT NO. 0669-72635/C2
FILE NAME: CSTD001.DWG
SHEET NO.
CSD-1
Accession No. 0669-P-2994

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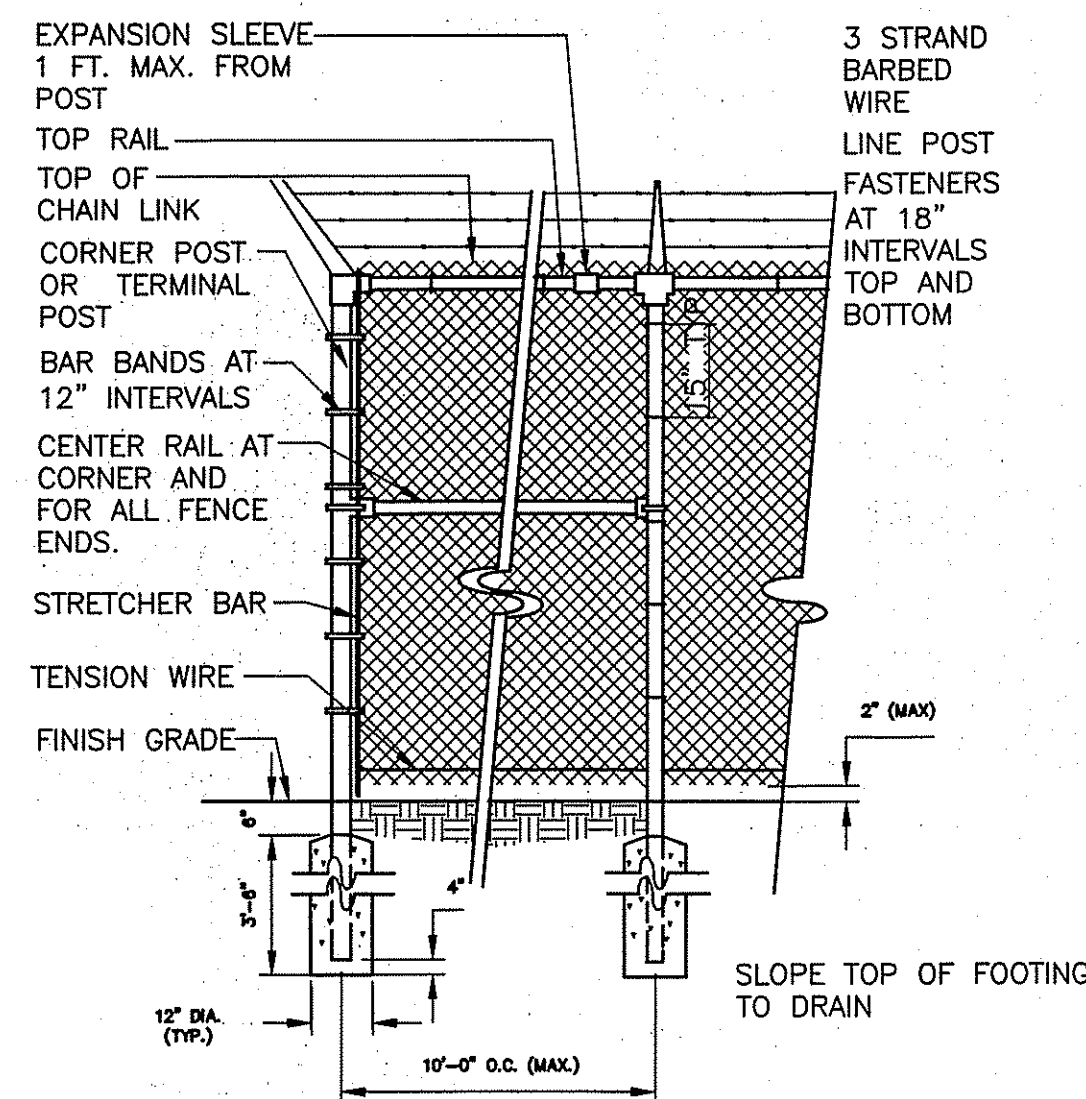


16' WIDE CHAIN LINK FENCE-DBL LEAF SWING GATE

DETAIL

NOT TO SCALE

- NOTES:
1. A DOUBLE SWING GATE WILL BE REQUIRED AT BOTH THE DIAMOND HILL AND INDUSTRIAL PARK PUMP STATIONS.
 2. HEIGHT OF SWING GATE SHALL BE AS SPECIFIED IN SECTION 02830.

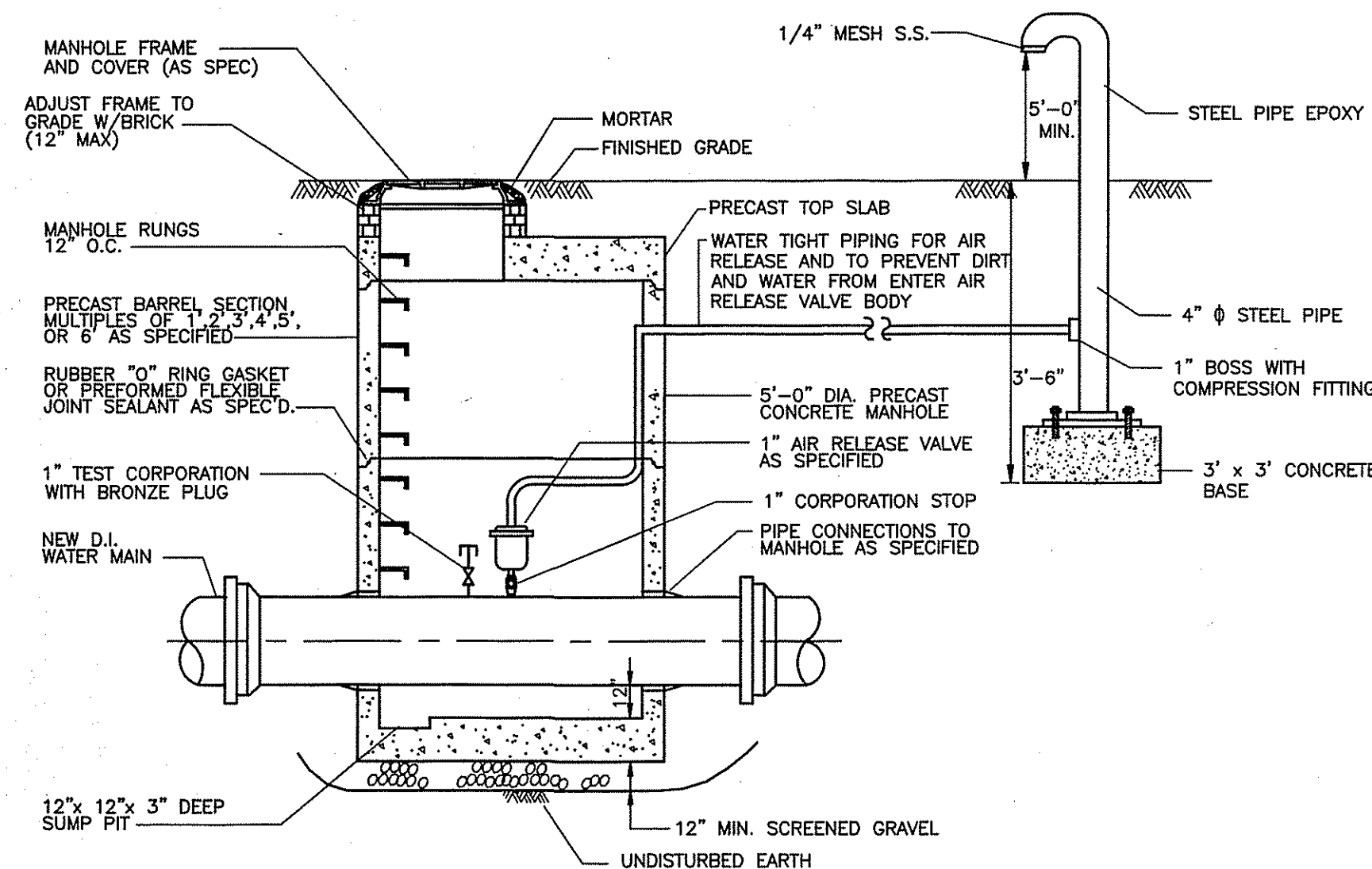


CHAIN LINK FENCE

DETAIL

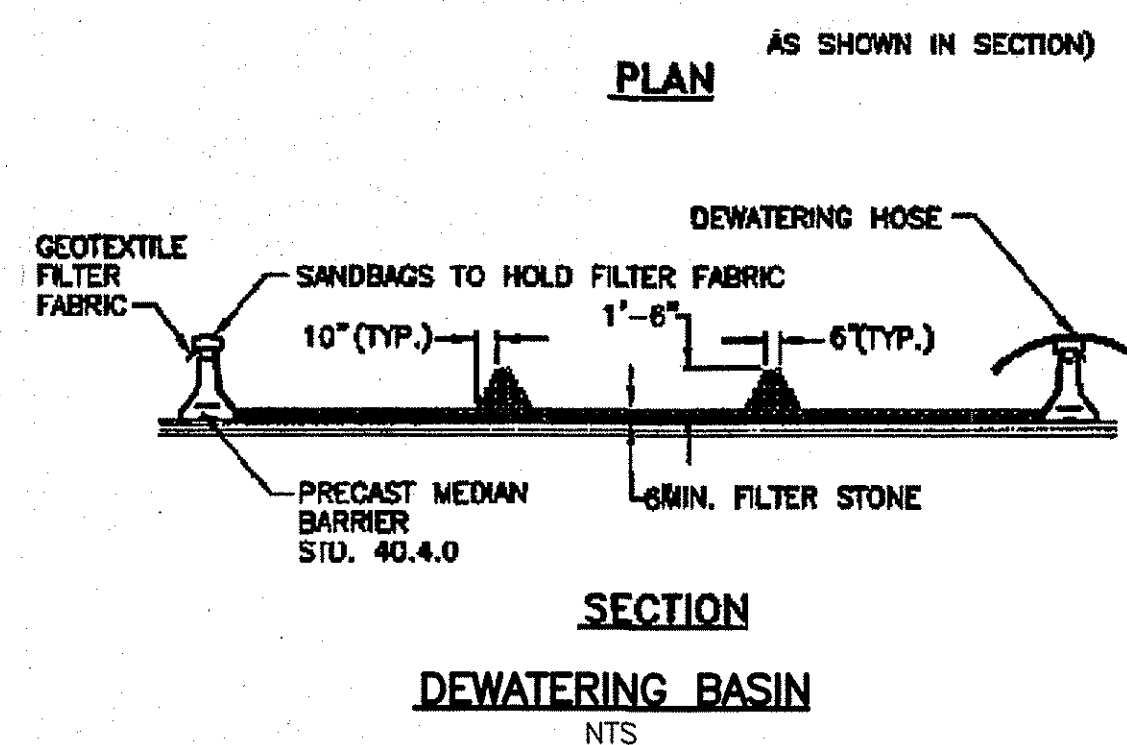
NOT TO SCALE

- NOTES:
1. FENCE HEIGHT SHALL BE AS SPECIFIED
 2. FABRIC SHALL BE ON OUTSIDE OF FENCE.
 3. FABRIC SHALL BE KNUCKLED ALONG TOP AND BOTTOM EDGES.
 4. FENCING SHALL BE INSTALLED AT BOTH THE DIAMOND HILL AND INDUSTRIAL PARK PUMP STATIONS AS SPECIFIED IN SECTION 02830.



AIR RELEASE VALVE MANHOLE DETAIL

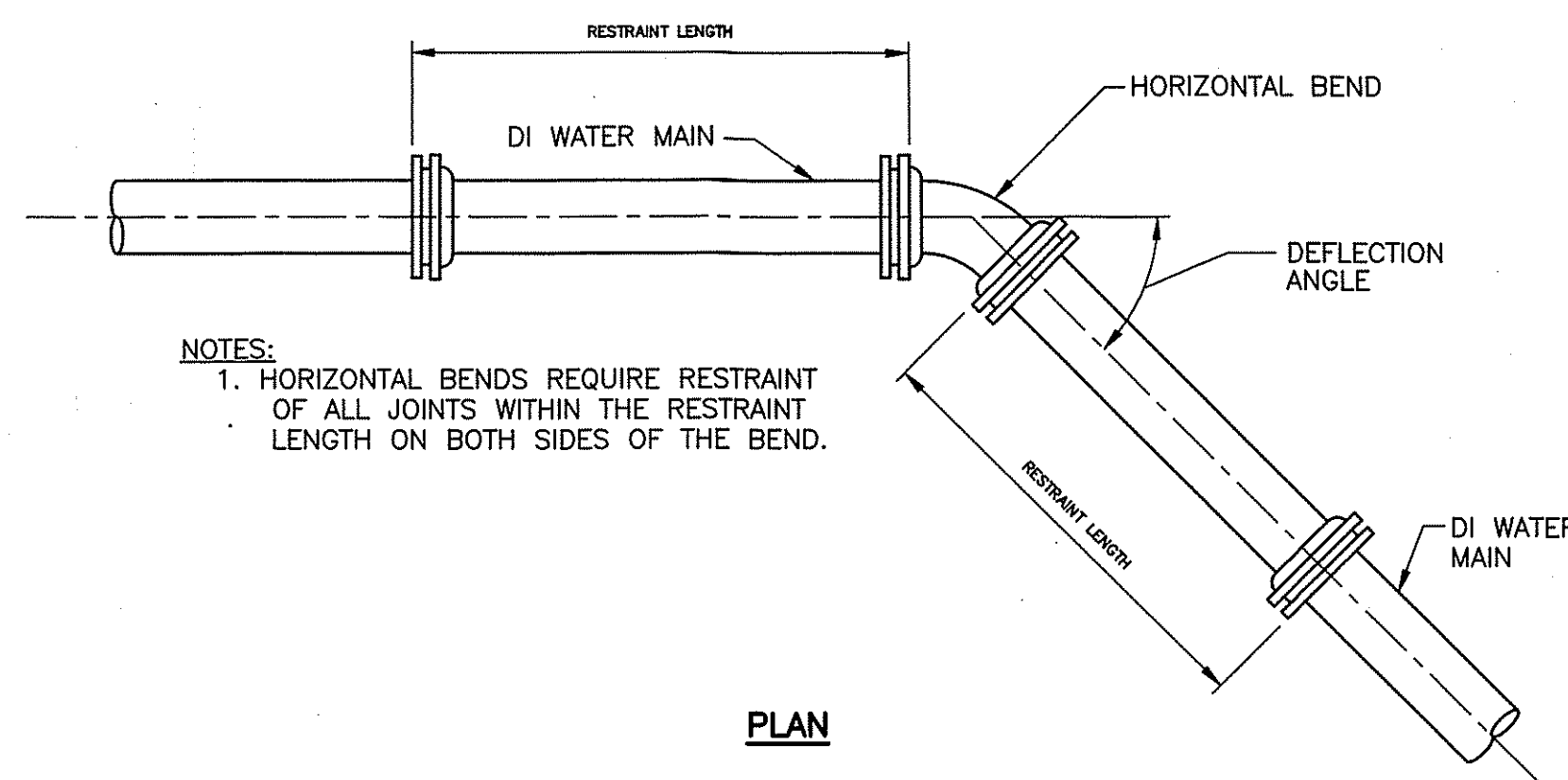
NOT TO SCALE



DEWATERING BASIN

NTS

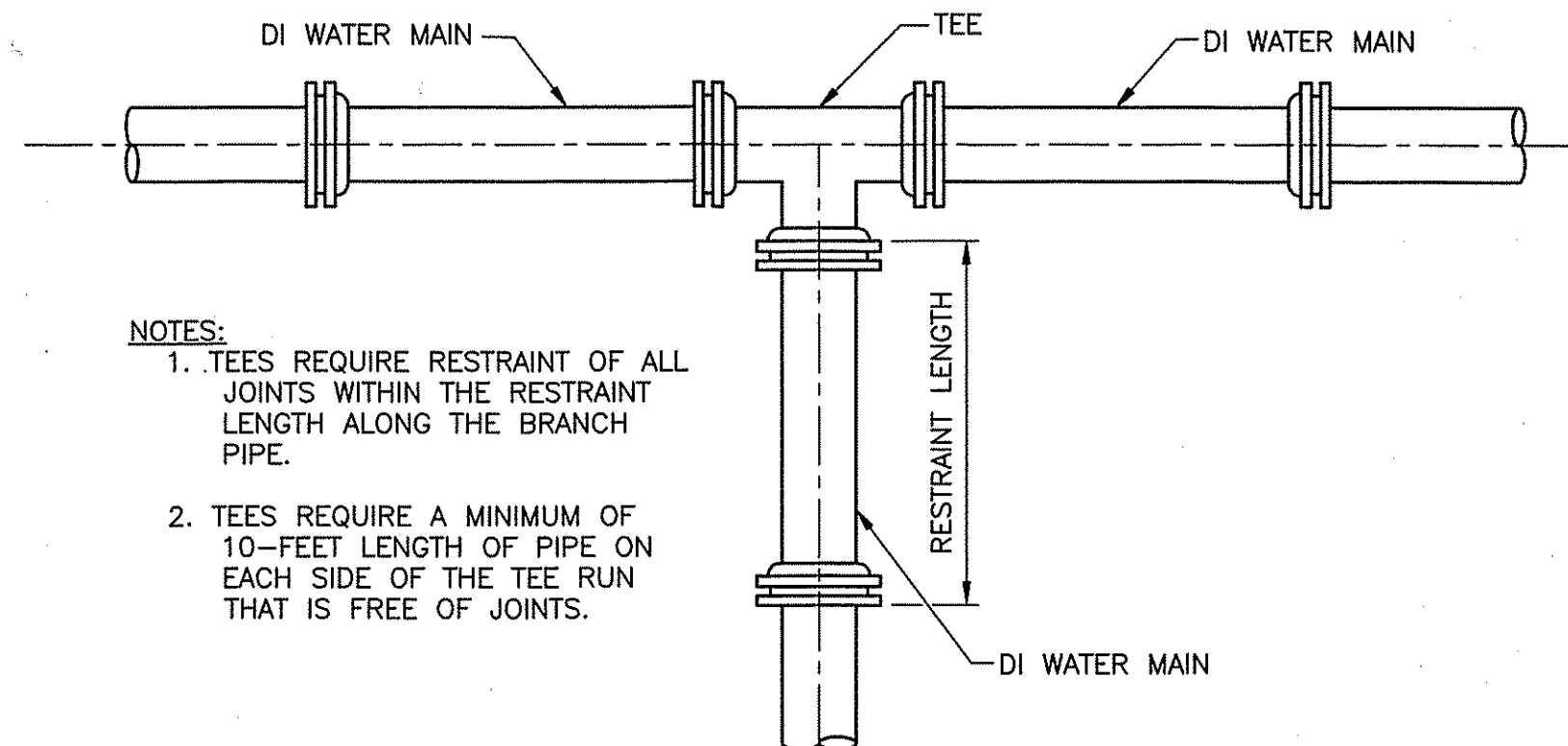
- NOTES:
1. DEWATERING BASIN SIZE SHALL BE IN DETERMINED BY THE FORMULA 16X GAL/MIN OF PUMP = CU. FT. OF STORAGE CAPACITY.
 2. PROVIDE ADDITIONAL SAND BAGS AS REQUIRED TO FILL SPACE BETWEEN ADJACENT BARRIERS.
 3. THIS WORK SHALL CONSIST OF THE CONSTRUCTION OF A DEWATERING BASIN FOR THE PURPOSE OF RECEIVING SEDIMENT-LADEN WATER PUMPED FROM THE EXCAVATION AND STREAM TO ALLOW FOR FILTRATION BEFORE IT REENTERS THE WATERWAY. PUMPING INTO THESE BASINS SHALL CEASE WHEN THE FLOW FROM THE BASIN BECOMES SEDIMENT LADEN.
 4. SURFACE WATER FLOW SHALL BE DIVERTED AROUND THIS DEVICE.
 5. THE OUTFALL FROM THE BASIN(S) SHALL HAVE A STABILIZED CONVEYANCE TO RECEIVING WATERS.
 6. ONCE THE DEWATERING BASIN BECOMES FILLED TO HALF OF THE EXCAVATED DEPTH, ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN.
 7. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED AND THE ENGINEER APPROVES THEIR REMOVAL. GROUND CONTOURS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION UNLESS SPECIFICALLY APPROVED OTHERWISE BY THE ENGINEER.
 8. LOCATION OF DEWATERING BASINS CAN NOT BE PLACED IN FRESHWATER WETLANDS AND MUST BE UTILIZED IN AN UPLAND AREA. LOCATION SHALL BE AS SHOWN ON THE PLANS OR AS OTHERWISE APPROVED BY THE ENGINEER.



DETAIL FOR HORIZONTAL BENDS

NTS

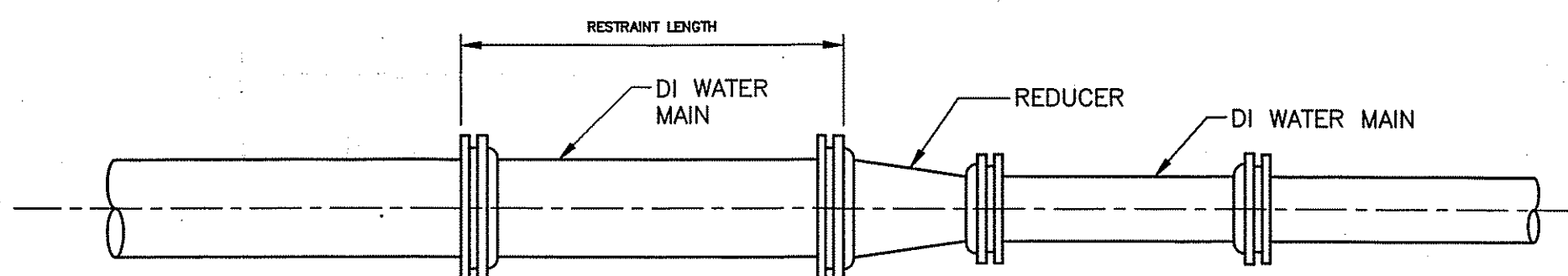
- NOTES:
1. HORIZONTAL BENDS REQUIRE RESTRAINT OF ALL JOINTS WITHIN THE RESTRAINT LENGTH ON BOTH SIDES OF THE BEND.



DETAIL FOR TEES

NTS

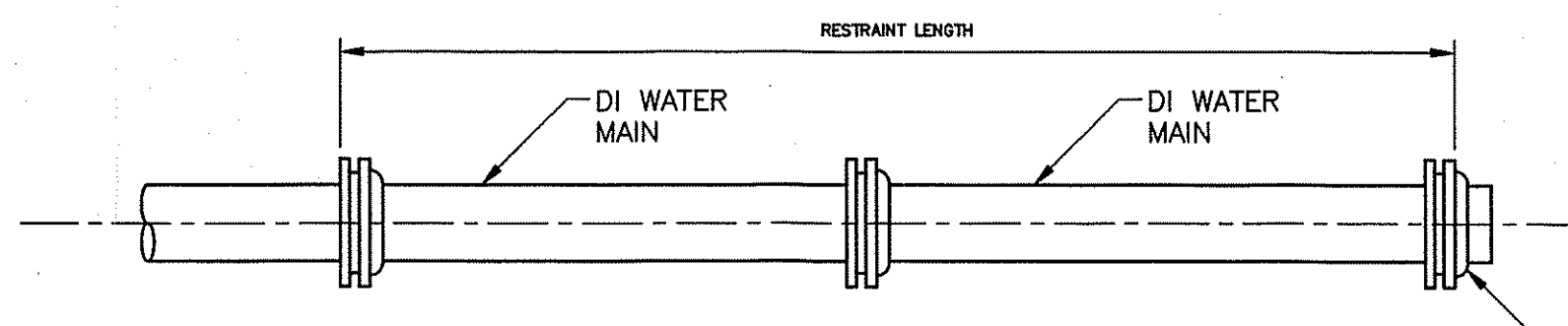
- NOTES:
1. TEES REQUIRE RESTRAINT OF ALL JOINTS WITHIN THE RESTRAINT LENGTH ALONG THE BRANCH PIPE.
 2. TEES REQUIRE A MINIMUM OF 10-FOOT LENGTH OF PIPE ON EACH SIDE OF THE TEE RUN THAT IS FREE OF JOINTS.



DETAIL FOR REDUCERS

NTS

- NOTES:
1. REDUCERS REQUIRE RESTRAINT OF ALL JOINTS WITHIN THE RESTRAINT LENGTH EXTENDING FROM THE REDUCER ALONG THE SIDE OF THE LARGER PIPE.



DETAIL FOR CAPS AND PLUGS

NTS

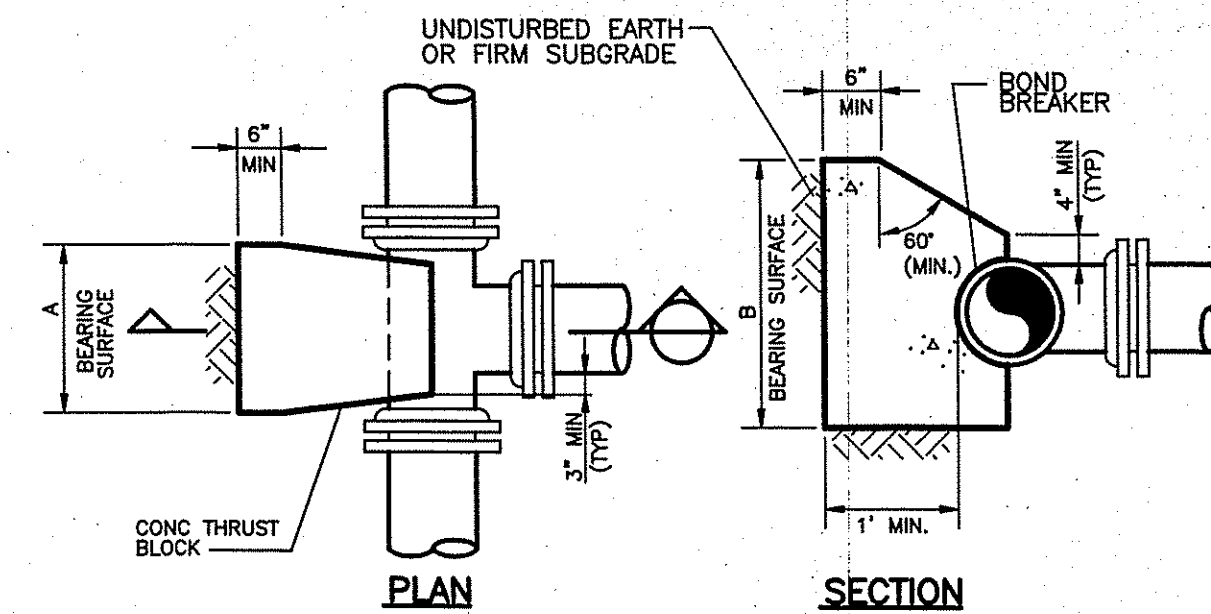
- NOTES:
1. CAPS AND PLUGS REQUIRE RESTRAINT OF ALL JOINTS WITHIN THE RESTRAINT LENGTH EXTENDING FROM THE CAP OR PLUG.

RESTRAINED PIPE LENGTH REQUIREMENTS	
DUCTILE IRON FITTING	LENGTH OF RESTRAINED PIPE (SEE NOTE 1)
12"-1/4 BEND	16
12"-1/8 BEND	7
12"-1/16 BEND	3
12"-1/32 BEND	2
16"x12" TEE	27
12"x12" TEE	29
12" VALVE	33

LIMITS OF RESTRAINED JOINTS

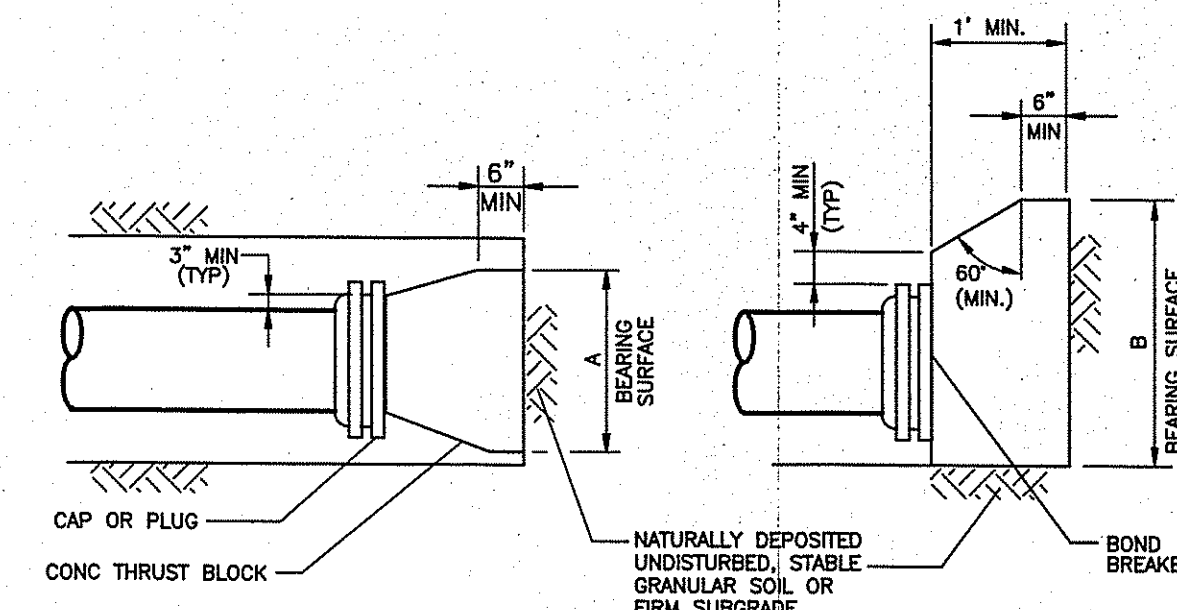
NOTES:

1. MINIMUM LINEAR FEET OF WATER MAIN TO BE RESTRAINED ON EACH SIDE OF VALVES, BENDS AND REDUCERS, ON THE BRANCH SIDE OF TEES AND FROM PLUGS AND CAPS.
2. ALL CONNECTIONS TO SIDE STREET MAINS AND NEW HYDRANTS SHALL BE RESTRAINED FOR THE ENTIRE LENGTH. THIS LENGTH SUPERSEDES THE LENGTH GIVEN ABOVE FOR THE BRANCH SIDE OF THEES.



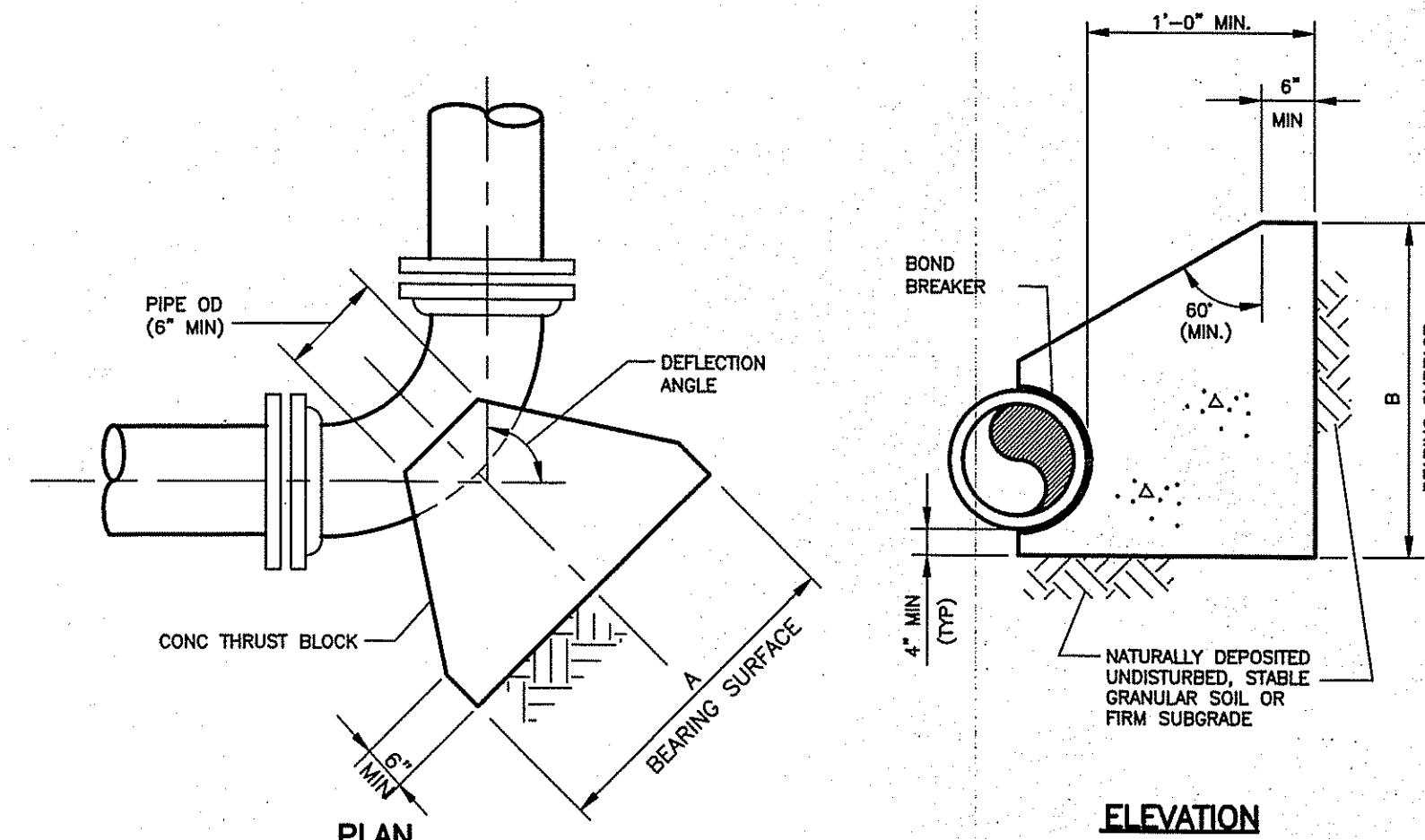
DETAIL FOR TEES

NOT TO SCALE



DETAIL FOR CAPS AND PLUGS

NOT TO SCALE

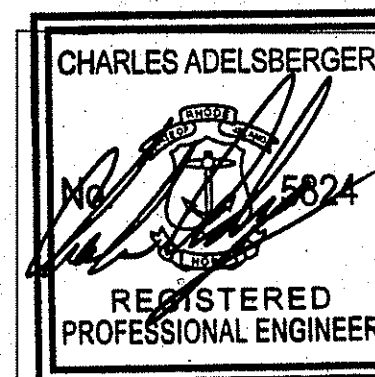
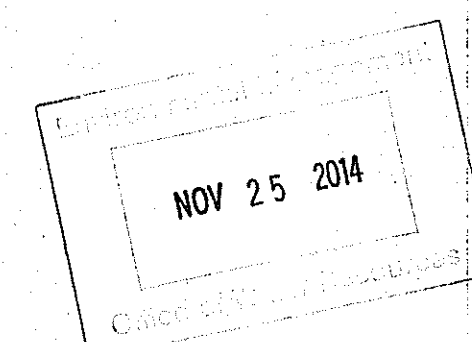


DETAIL FOR HORIZONTAL BENDS

- NOTES:
1. ALL CONCRETE TO BE PLACED AND FINISHED UNDER UNDISTURBED EARTH CONDITIONS.
 2. A POLYETHYLENE BARRIER SHOULD BE LOCATED BETWEEN THE THRUST BLOCK AND FLOODING SPECIFIED IN THE LETTER OF APPROVAL.
 3. THRUST BLOCKS TO BE USED AT ALL 12\"/>

CONCRETE THRUST BLOCK REQUIREMENTS	
DUCTILE IRON FITTING	MIN. BEARING AREA (A x B)
12"-1/4 BEND	9 SQ. FT.
12"-1/8 BEND	5 SQ. FT.
12"-1/16 BEND	3 SQ. FT.
12"-1/32 BEND	2 SQ. FT.
16"x12" TEE	7 SQ. FT.
12"x12" TEE	7 SQ. FT.
12" VALVE	7 SQ. FT.

THRUST BLOCK DETAIL



REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. KERSHAW
DRAWN BY: J. CABRERA
SHEET CHK'D BY: J. LYNCH
CROSS CHK'D BY: J. KEANEY
APPROVED BY: CADELSBERGER
DATE: JULY 2013

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CITY OF WOONSOCKET, RHODE ISLAND
WOONSOCKET WATER DEPARTMENT
2010 WATER SYSTEM IMPROVEMENTS
CONTRACT 2

STANDARD CIVIL DETAILS II

PROJECT NO. 0669-72635/C2
FILE NAME: CSTD002.DWG
SHEET NO.
CSD-2
5 of 3
Accession No: 0669-P-2995