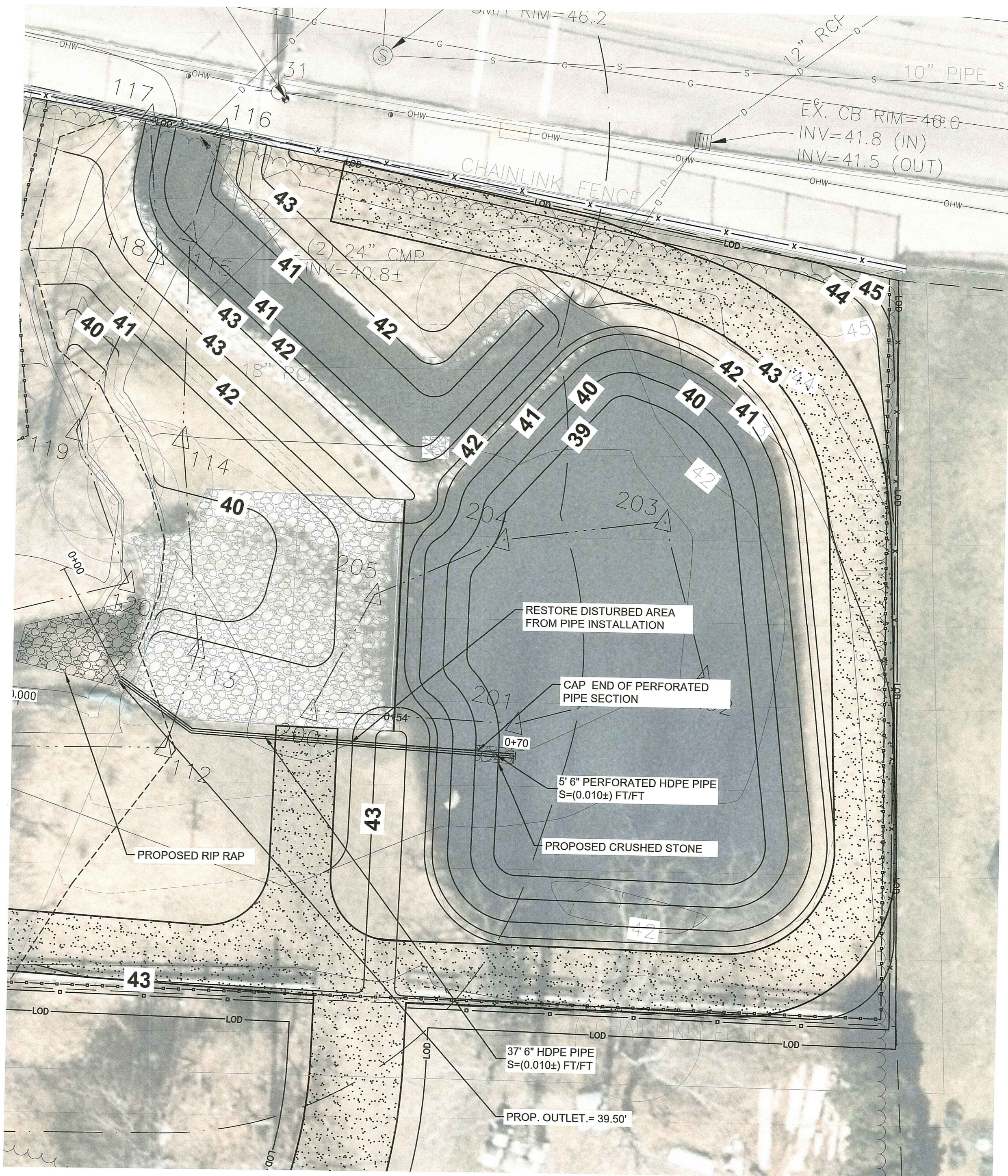


N:\61008\6174 - STATE STREET RESERVOIR\AUTOCAD FILES\PLAN SET\6174 CONSTRUCTION PLAN WITH AERIAL.DWG Plot Date: 9/12/2023 10:09 AM

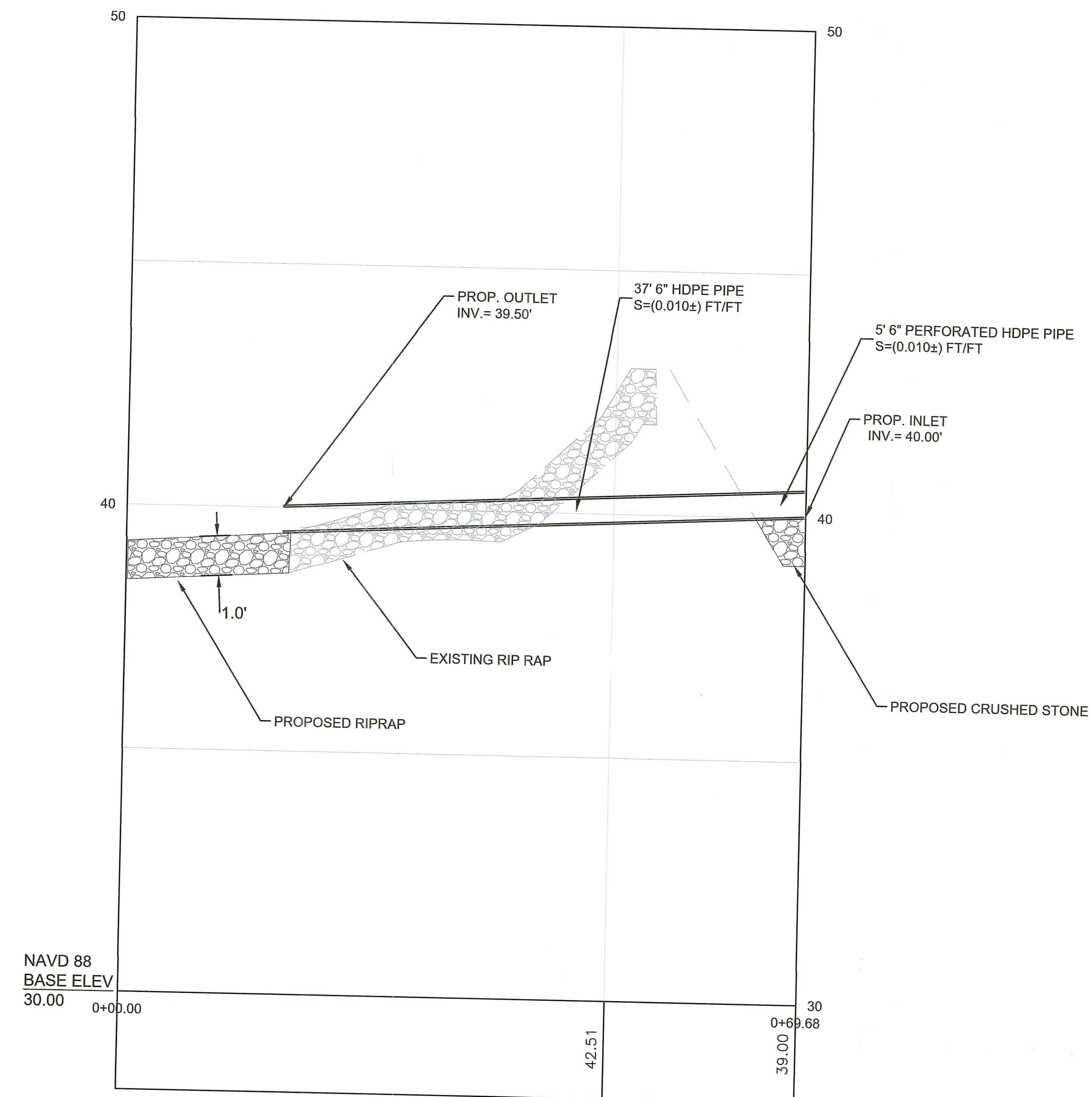


PLAN VIEW

**NOTES:**

1. INSTALL PIPE WITH 4" OF  $\frac{3}{4}$ " CRUSHED STONE SURROUNDING ENTIRE LENGTH.

**PROP. ALTERNATIVE OUTLET  
STA (0+00 TO 0+70)**



PROFILE VIEW

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL  
JAN 25 2024 FILE # 20-002  
DO NOT USE AT CONSTRUCTION SITE  
*Martin D. Wenczek*

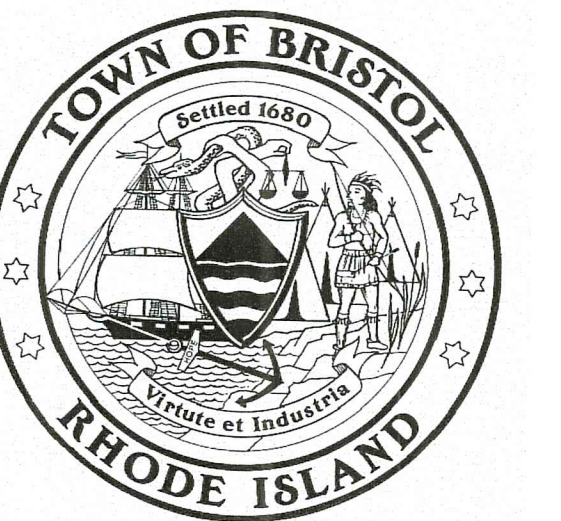
Engineered by: email: BETA@BETA-inc.com



P.E. Stamp:



Client:



Project

Tanyard Reservoir  
Flood Prevention and  
Mitigation Project  
Bristol, Rhode Island

Title

Construction Sketch

Revisions

No.	Description	Date

File: 6174 CONSTRUCTION PLAN WITH AERIAL.DWG

Drawn By: LTD

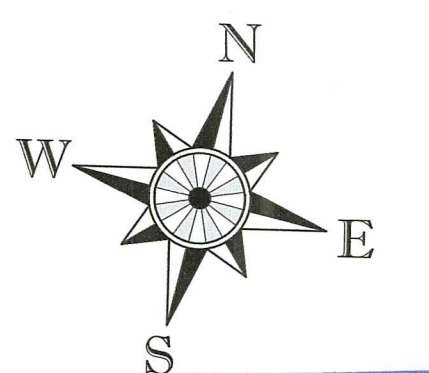
Dept. Ckd. By: JML

Project Ckd. By: NBI

Job No: 6174

Issue Date: 2021

North Arrow



Scale  
10 0 10 20  
SCALE IN FEET: 1"=10'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

Sheet No.:

1 of 1

# TOWN OF BRISTOL, RHODE ISLAND

## TANYARD RESERVOIR FLOOD PREVENTION AND MITIGATION PROJECT

Environmental Management  
 JAN 25 2021  
 Office of Water Resources

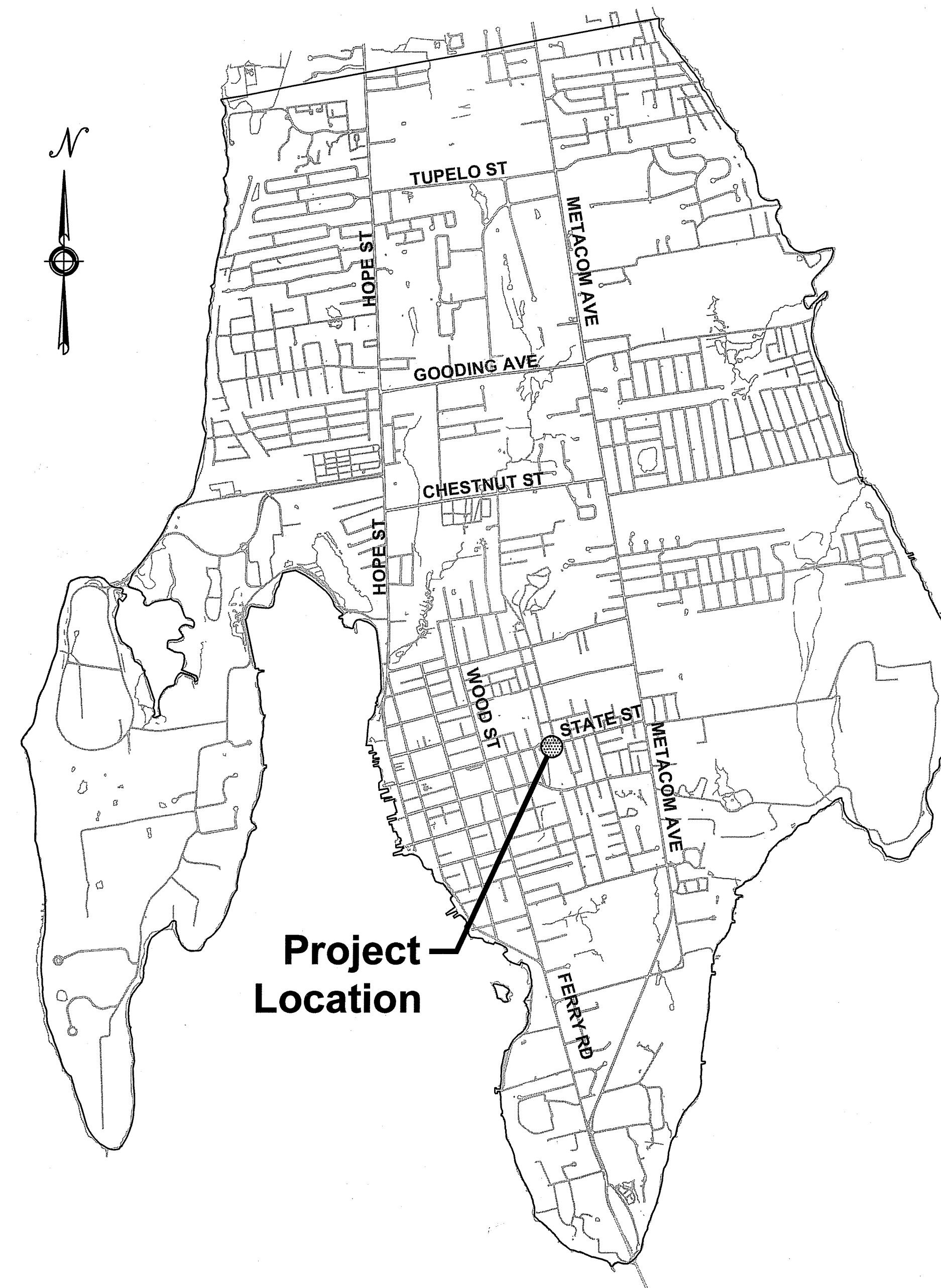
DECEMBER 2019  
 REVISED JANUARY 2021



Steven Contente  
 Town Administrator

Diane Williamson  
 Director of Community Development

Edward Tanner  
 Principal Planner



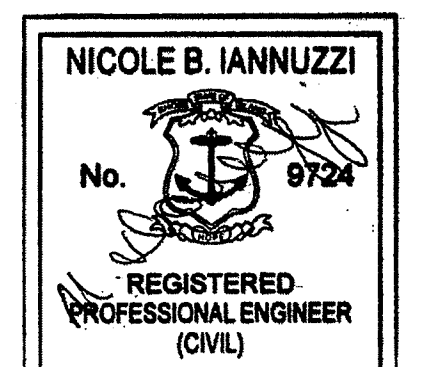
LOCUS MAP  
 APPROX. SCALE: 1"=2000'

### PLAN INDEX

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	LEGEND AND ABBREVIATIONS
3	EXISTING CONDITION PLAN
4	CONSTRUCTION PLAN
5	LANDSCAPE PLAN
6	CONSTRUCTION DETAILS
7	WATERSHED PLAN

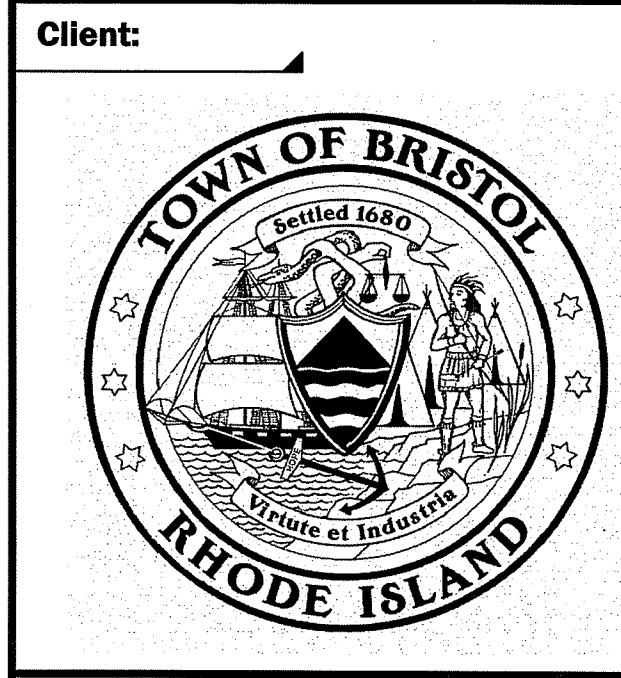
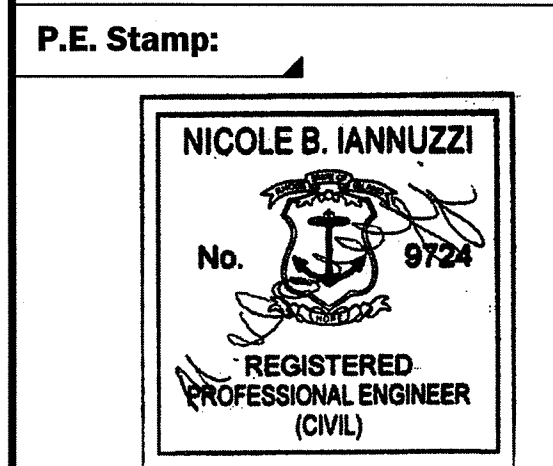
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
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 DATED JUL 23 2021 FILE # 20-0002  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE  
*Yarlan K. Senechal*



PREPARED BY:  
 BETA  
 www.BETA-Inc.com

ISSUE DATE: DECEMBER, 2019  
 REVISION DATE: JANUARY, 2021



Client: \_\_\_\_\_  
 Project: **Tanyard Reservoir  
 Flood Prevention and  
 Mitigation Project**  
 Bristol, Rhode Island

Title: **Legend and  
 Abbreviations**

Revisions		
No.	Description	Date
1	RIDEM COMMENTS	1/25/2021

File: 6174 LEGEND AND ABBREVIATIONS.DWG  
 Drawn By: LTD  
 Dept. Ckd. By: JML  
 Project Ckd. By: NBI  
 Job No: 6174 Issue Date: 2019

North Arrow  
 Scale  
 20 0 20 40  
 SCALE IN FEET: 1"=20'  
 UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
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**2 of 7**

# LEGEND

## GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
=====	=====	CURB (TYPE AS NOTED)
=====	=====	BERM
-----	-----	EDGE OF PAVEMENT / LIMIT OF PAVEMENT
□ CB	□ CB	CATCH BASIN (OR GUTTER INLET, DROP INLET, CATCH BASIN CURB INLET)
○ EHH	○ EHH	ELECTRIC HANDHOLE (NUMBER AS NOTED)
⊙	⊙	ELECTRIC MANHOLE
⊙	⊙	TELEPHONE MANHOLE (TYPE NOTED)
⊙	⊙	WATER MANHOLE (TYPE NOTED)
⊙	⊙	SEWER MANHOLE (TYPE NOTED)
⊙	⊙	DRAINAGE MANHOLE (TYPE NOTED)
○ GG	○ GG	GAS GATE / GAS SHUT OFF
○ WG	○ WG	WATER GATE / WATER SHUT OFF
○ HYD	○ HYD	HYDRANT
□ FA	□ FA	FIRE ALARM BOX
⊙ LP	⊙ LP	STREET LIGHT POLE
○ UP	○ UP	UTILITY POLE
○ GUY	○ GUY	GUY POLE
-----	-----	ABANDONED UTILITY LINE (TYPE AS NOTED)
-----	-----	DRAIN PIPE (SIZE AND SLOPE AS NOTED)
-----	-----	SEWER MAIN (SIZE AS NOTED)
-----	-----	SEWER SERVICE LINE
-----	-----	ELECTRIC DUCT
-----	-----	GAS MAIN (SIZE AS NOTED)
-----	-----	GAS SERVICE LINE
-----	-----	WATER MAIN (SIZE AS NOTED)
-----	-----	WATER SERVICE LINE
-----	-----	TELEPHONE DUCT (SIZE AS NOTED)
□ MB	□ MB	MAIL BOX
-----	-----	WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
-----	-----	STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
-----	-----	STONE WALL
-----	-----	RETAINING WALL (TYPE NOTED)
-----	-----	HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
-----	-----	STATE HIGHWAY LAYOUT LINE (S.H.L.)
-----	-----	CITY, TOWN, COUNTY OR STATE BOUNDARY LINE
-----	-----	PROPERTY LINE
-----	-----	TEMPORARY EASEMENT LINE
-----	-----	PERMANENT EASEMENT LINE
-----	-----	CONSTRUCTION BASELINE
-----	-----	SURVEY LINE
-----	-----	RAILROAD OR STREET RAILWAY TRACKS WITH SIDELINES
-----	-----	WHEELCHAIR RAMP
-----	-----	TREE (SIZE AND TYPE AS NOTED)
-----	-----	HEDGE
-----	-----	FENCE (SIZE AND TYPE AS NOTED)
-----	-----	EDGE OF WETLAND W/ FLAGGED NUMBER
-----	-----	EDGE OF RIVER/STREAM LINE
-----	-----	50 FT. WETLAND BUFFER LIMIT
-----	-----	100 FT. WETLAND BUFFER LIMIT
-----	-----	100 FT. RIVER FRONT LIMIT
-----	-----	200 FT. RIVER FRONT LIMIT
-----	-----	WOODED AREA / LIMIT OF CLEARING
-----	-----	SPOT GRADE
-----	-----	SAW CUT LINE
-----	-----	COMPOST FILTER SOCK

EXISTING	PROPOSED	DESCRIPTION
-----	-----	Building
-----	-----	CONTOUR MAJOR
-----	-----	CONTOUR MINOR
-----	-----	DRIVEWAY DIRT
-----	-----	DRIVEWAY PAVED
⊕ TP	⊕ TP	TEST PIT "QUALITY LEVEL A" DATA POINT
⊕ BH-15'	⊕ BH-15'	BORING
⊕ P-10'	⊕ P-10'	PROBE
⊕ MW	⊕ MW	MONITORING WELL
-----	-----	CAP / PLUG PIPE

## ABBREVIATIONS

GENERAL		UTILITIES	
ABAN.	ABANDON	RT.	RIGHT
ADJ.	ADJUST	ROW	RIGHT-OF-WAY
AADT	ANNUAL AVERAGE DAILY TRAFFIC	RD.	ROAD
APPROX.	APPROXIMATE	SHT.	SHEET
BL.	BASELINE	SHLD.	SHOULDER
BM	BENCH MARK	SDWK.	SIDEWALK
BIT.	BITUMINOUS	SB	SOUTH BOUND OR STONE BOUND
BB	BITUMINOUS BERM	SHLL	STATE HIGHWAY LAYOUT LINE
BC	BITUMINOUS CURB	STA.	STATION
BOS	BOTTOM OF SLOPE	ST.	STREET
BOW	BOTTOM OF WALL	TAN	TANGENT
BD OR BND	BOUND	T	TANGENT DISTANCE OF CURVE/TRUCK PERCENTAGE
BLDG.	BUILDING	TEB	TEMPORARY EASEMENT BOUNDARY
CEM.	CEMENT	TEMP.	TEMPORARY
CL	CENTER LINE	TOS	TOP OF SLOPE
CLF	CHAIN LINK FENCE	TOW	TOP OF WALL
CONC.	CONCRETE	TP	TURNING POINT
CC	CONCRETE CURB	TP.	TYPICAL
CONT.	CONTINUOUS	VAR.	VARIABLE
CONST.	CONSTRUCTION	VERT.	VERTICAL
CO.	COUNTY	VC	VERTICAL CURVE
CS	COMBINED SEWER PIPE	VGC	VERTICAL GRANITE CURB
CD	DELTA ANGLE (CENTRAL ANGLE OF HORIZ. CURVE)	WB	WEST BOUND
DWY.	DRIVEWAY	WCR	WHEELCHAIR RAMP
EB	EAST BOUND		
EP, EOP	EDGE OF PAVEMENT	CB	CATCH BASIN
EL.	ELEVATION	CBCI	CATCH BASIN WITH CURB INLET
ETW	EDGE OF TRAVEL WAY	CIP	CAST IRON PIPE
EXIST.	EXISTING	CIT	CHANGE IN TYPE
FLDSTN	FIELDSTONE	CL.	CLASS (PIPE, CONCRETE, EXCAVATION, ETC.)
FDN.	FOUNDATION	COND.	CONDUIT
GAR.	GARAGE	CAP	CORRUGATED ALUMINUM PIPE
GRAN.	GRANITE	CMP	CORRUGATED METAL PIPE
GC	GRANITE CURB	CPP	CORRUGATED PLASTIC PIPE
GE	GRANITE EDGING	CSP	CORRUGATED STEEL PIPE
GRAV.	GRAVEL	CULV.	CULVERT
GD	GROUND	CI	CURB INLET
HOR.	HORIZONTAL	DI	DROP INLET
HMA	HOT MIX ASPHALT	DIP	DUCTILE IRON PIPE
HO	HOUSE	DMH	DRAIN MANHOLE
IP	IRON PIPE	EL. (OR ELEV.)	ELEVATION
JCT	JUNCTION	FM	FORCE MAIN
LT.	LEFT	F&G	FRAME AND COVER
LP	LOW POINT	F&G	FRAME AND GRATE
MB	MAIL BOX	GIP	GALVANIZED IRON PIPE
MAX.	MAXIMUM	GG	GAS GATE
MIN.	MINIMUM	GI	GUTTER INLET
NB	NORTH BOUND	HDW	HEADWALL
NTS	NOT TO SCALE	HYD.	HYDRANT
OC	ON CENTER	INV.	INVERT ELEVATION
PVMT.	PAVEMENT	LP	LIGHT POLE
PGL	PROFILE GRADE LINE	MH	MANHOLE
PROJ.	PROJECT	PVC	POLY-VINYL-CHLORIDE PIPE
R OR PROP. LINE	PROPERTY LINE	PWW	PAVED WATER WAY
PROP.	PROPOSED	R&D	REMOVE & DISPOSE
R	RADIUS OF CURVATURE	RCF	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
RR	RAILROAD	SMH	SEWER MANHOLE
R&D	REMOVE & DISPOSE	SD	SUBDRAIN
REM.	REMOVE	TSV&B	TAPPING SLEEVE, VALVE AND BOX
REMOD.	REMODEL	TS	TRAFFIC SIGNAL
RET.	RETAINING	TSC	TRAFFIC SIGNAL CONDUIT
R&R	REMOVE AND RESET	UP	UTILITY POLE
R&S	REMOVE AND STACK	VCP	VITRIFIED CLAY PIPE
		WG	WATER GATE
		WM	WATER METER/WATER MAIN
		WIP	WROUGHT IRON PIPE

## GENERAL NOTES:

- VERTICAL DATUM - NAVD 88.
- THE STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION (AMENDED AUGUST 2013) AND ALL APPROVED REVISIONS IN THE COMPILATIONS OF APPROVED SPECIFICATIONS, THE LATEST EDITION OF THE RHODE ISLAND STANDARD DETAILS WITH REVISIONS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE RIDOT TRAFFIC DESIGN MANUAL (OCTOBER 2004), THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z-60.1-1986) AND ALL AMENDMENTS WILL GOVERN.
- THE LOCATION OF SUBSURFACE UTILITIES SHOWN IS APPROXIMATE AND NOT GUARANTEED TO BE COMPLETE OR ACCURATE. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITY LINES AND STRUCTURES PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR MUST NOTIFY DIG SAFE PRIOR TO ANY EXCAVATION, DEMOLITION OR EXPLOSION WORK IN PUBLIC OR PRIVATE WAYS OR UTILITY COMPANY RIGHT OF WAYS OR EASEMENTS.
- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR THE RESOLUTION OF THE CONFLICT.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- DEWATERING IS ANTICIPATED FOR THIS WORK AND DISCHARGE OF FINES OR SEDIMENTS IS NOT PERMITTED. SEE SOIL EROSION AND SEDIMENTATION CONTROL NOTES.
- CONTRACTOR SHALL VERIFY EXISTING GRADE ELEVATIONS. IF ANY ADJUSTMENT IS REQUIRED DUE TO DIFFERENT EXISTING GRADES FOUND IN THE FIELD, THE CONTRACTOR SHALL NOTIFY AND OBTAIN THE APPROVAL OF THE ENGINEER PRIOR TO PERFORMING THE WORK.

## TREE PRESERVATION:

- TREES WITHIN THE LIMITS OF GRADING SHALL NOT BE REMOVED UNLESS APPROVED BY THE ENGINEER
- PRIOR TO CONSTRUCTION PROTECT TREES WITHIN THE LIMIT OF DISTURBANCE BY INSTALLING WOOD FRAMING AROUND TREES, AS INDICATED IN THE CONTRACT DRAWINGS
- PRIOR TO CONSTRUCTION DETERMINE REQUIRED CLEARANCES AND CONTRACT LICENSED ARBORIST TO PRUNE TREES.
- BRANCHES OR LIMBS DAMAGED DURING CONSTRUCTION SHALL BE CUT BACK TO THE TRUNK OR A LATERAL BRANCH.
- MAKE EVERY EFFORT TO MAINTAIN EXCAVATION ACTIVITIES OUTSIDE LIMITS OF THE TREE CANOPY.
- ROOTS LARGER THAN 1.5" IN DIAMETER ENCOUNTERED IN EXCAVATIONS SHALL BE CUT OFF SQUARELY USING A SHARP ARBORIST SAW.
- STRIP AND SEGREGATE TOPSOIL PRIOR TO EXCAVATING IN UNPAVED AREAS. FOLLOWING BACKFILL OPERATIONS PLACE TOPSOIL BACK IN THE APPROPRIATE PLACE WITHOUT COMPACTION AND VERTICALLY MULCH ROOT SYSTEM. NO AMENDMENTS SHALL BE ADDED.
- IMMEDIATELY FOLLOWING BACKFILL OPERATIONS PROVIDE DEEP WATERING OF THE ROOT SYSTEM, APPLICATION OF FERTILIZER, AND VERTICAL MULCHING.
- MAINTAIN STORAGE OF EQUIPMENT AND MATERIALS A DISTANCE AT LEAST TWO (2) TIMES THE DISTANCE OF THE RADIUS OF THE TREE CANOPY.

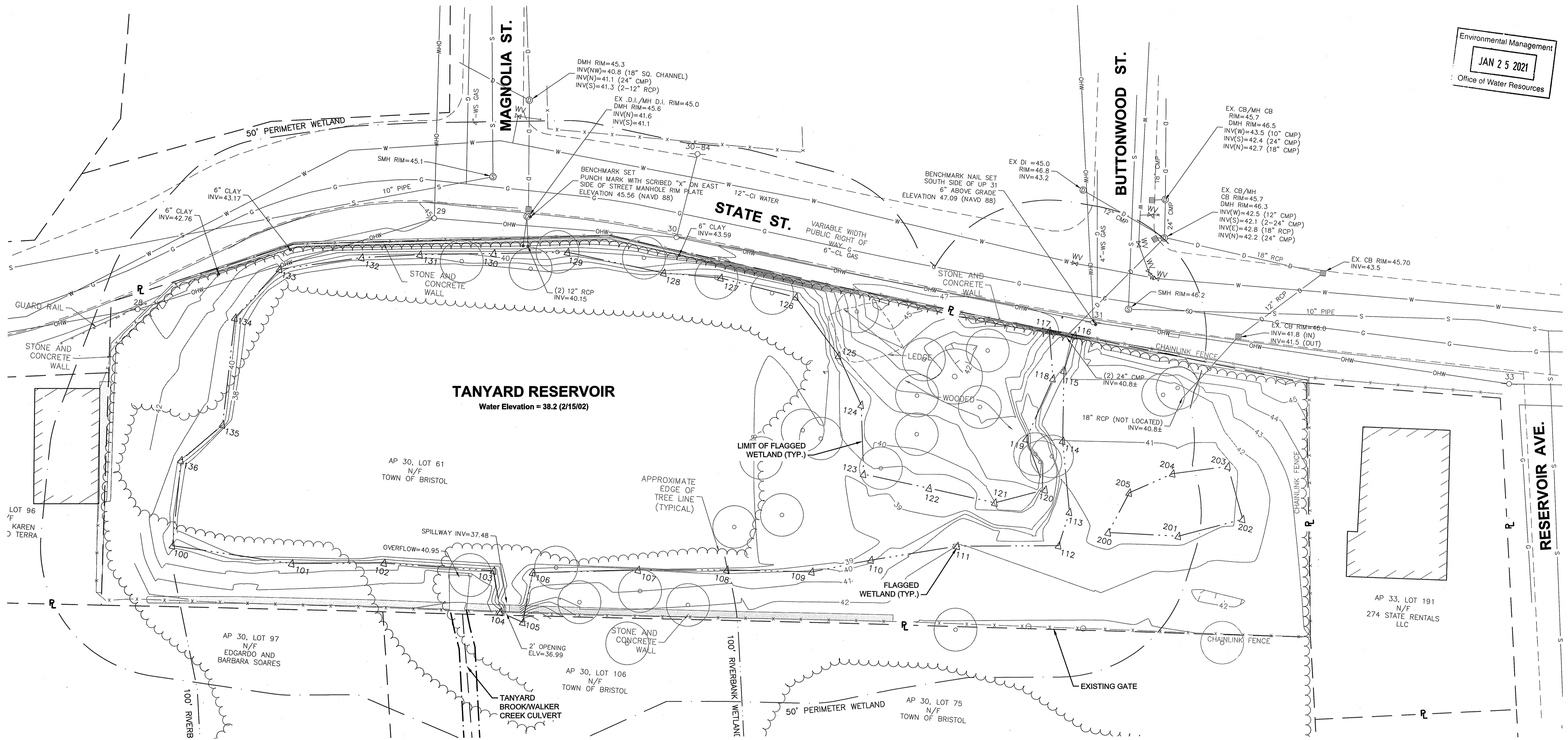
## SOIL EROSION AND SEDIMENTATION CONTROL:

- ALL EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES WILL BE INSTALLED AND INSPECTED PRIOR TO THE START OF CONSTRUCTION. THE E&S CONTROLS SHALL BE CLEANED AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION OPERATIONS AND UNTIL ALL DISTURBED AREAS ARE STABILIZED AFTER CONSTRUCTION IS COMPLETE. E&S CONTROLS SHALL BE INSPECTED AND CLEANED AFTER ALL STORM EVENTS AND UPON THE REQUEST OF THE OWNER OR ENGINEER. CONTRACTOR WILL MAINTAIN AN ADEQUATE SUPPLY OF SILT SOCK ON SITE TO BE INSTALLED IN AREAS WHERE EXISTING E&S CONTROLS HAVE FAILED OR AS DETERMINED NECESSARY BY THE ENGINEER. NO WORK OR STORAGE OF CONSTRUCTION EQUIPMENT WILL BE PERMITTED OUTSIDE THE LIMIT OF DISTURBANCE ADJACENT TO THE WETLAND. TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROLS (SILT SOCKS, ETC.) SHALL BE MAINTAINED UNTIL ALL EXPOSED SOILS ARE SATISFACTORILY STABILIZED.
- ALL CATCH BASINS SHALL BE PROTECTED WITH FILTER FABRIC INSERTS IN UNPAVED LOCATIONS AND PAVED OR OTHERWISE IMPERVIOUS AREAS FOR THE DURATION OF THE PROJECT.
- CONSTRUCTION ENTRANCES CONSISTING OF STONE STABILIZED PAD SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR TO PREVENT TRACKING OF OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS.
- ALL REFERENCED SOIL EROSION AND SEDIMENTATION CONTROLS INCLUDING MATERIALS USED, APPLICATION RATES AND THE INSTALLATION PROCEDURES SHALL BE PERFORMED PER THE "RHODE ISLAND SOIL EROSION AND SEDIMENTATION CONTROL HANDBOOK", LATEST EDITION, WITH ALL SOIL CONSERVATION SERVICE, AND/OR THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
- UPON COMPLETION AND ACCEPTANCE OF SITE PREPARATION AND INITIAL INSTALLATION OF EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES, THE OPERATOR SHALL INITIATE APPROPRIATE STABILIZATION PRACTICES DURING ALL PHASES OF CONSTRUCTION ON ALL DISTURBED AREAS AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED.
- ANY DISTURBED AREAS THAT WILL NOT HAVE ACTIVE CONSTRUCTION ACTIVITY OCCURRING WITHIN 14 DAYS MUST BE STABILIZED USING THE CONTROL MEASURES, SUCH AS EROSION CONTROL MATTING, AND IN ACCORDANCE WITH APPLICABLE MEASURES SPECIFIED IN THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK (AS AMENDED).
- ONLY AREAS THAT CAN BE REASONABLY EXPECTED TO HAVE ACTIVE CONSTRUCTION WORK BEING PERFORMED WITHIN 14 DAYS OF DISTURBANCE WILL BE CLEARED/GRUBBED AT ANY ONE TIME. IT IS NOT ACCEPTABLE TO CLEAR AND GRUB THE ENTIRE CONSTRUCTION SITE IF PORTIONS WILL NOT BE ACTIVE WITHIN THE 14-DAY TIME FRAME. PROPER PHASING OF CLEARING AND GRUBBING ACTIVITIES SHALL INCLUDE TEMPORARY STABILIZATION TECHNIQUES FOR AREAS CLEARED AND GRUBBED THAT WILL NOT BE ACTIVE WITHIN THE 14-DAY TIME FRAME.
- SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN TWENTY FOUR HOURS AFTER AN EVENT WHICH GENERATES 0.25 INCHES OF RAIN IN A TWENTY FOUR HOUR PERIOD. CLEANOUT OF ACCUMULATED SEDIMENT BEHIND THE SILT SOCK SHALL BE PERFORMED WHEN 1/2 THE ORIGINAL HEIGHT OF THE SILT SOCK BECOMES FILLED WITH SEDIMENT. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE HAS BEEN REMOVED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.
- VEGETATIVE PRACTICES ON DISTURBED SOILS, INCLUDING STOCKPILES, SHALL BEGIN AS SOON AS POSSIBLE BUT NO LATER THAN 14 DAYS AFTER THE LAST ACTIVITY IN THAT AREA UNLESS ACTIVITY IS TO RESUME WITHIN 21 DAYS.
- AREAS HAVING SLOPES GREATER THAN OR EQUAL TO 3H:1V SHALL BE STABILIZED WITH EROSION CONTROL MATS OR BLANKETS IN COMBINATION WITH SEEDING, AS INDICATED ON THE DRAWINGS AND SPECIFIED.
- EXCESS SOIL, STUMPS, TREES, ROCKS, BOULDERS, AND OTHER REFUSE SHALL BE DISCARDED OFF-SITE IN AN APPROPRIATE UPLAND LOCATION, OUTSIDE OF ALL REGULATED WETLAND AREAS.
- CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY SOIL AND EROSION CONTROL TO PREVENT SEDIMENTS AND DEBRIS FROM ENTERING THE RESERVOIR. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FLOW WITHIN THE EXISTING CHANNEL AT ALL TIMES.

## DEWATERING:

- THE CONTRACTOR IS RESPONSIBLE FOR THE ADEQUATE DESIGN AND IMPLEMENTATION OF THE DEWATERING SYSTEM.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE STATE AND LOCAL AUTHORITIES REGARDING THE OPERATION AND DISCHARGE OF THE DEWATERING SYSTEM.
- DISPOSE OF ALL PUMPED WATER IN ACCORDANCE WITH RIDEM REQUIREMENTS.
- DISCHARGE WATER THROUGH SETTLING BASINS OR METHOD APPROVED BY THE ENGINEER.
- OPERATE DEWATERING SYSTEMS TO LOWER THE GROUNDWATER LEVEL IN EXCAVATIONS AND MAINTAIN 2' BELOW SUBGRADE ALLOWING ALL SUBSEQUENT WORK TO BE DONE ON A STABLE DRY SUBGRADE.
- MODIFY DEWATERING PROCEDURES WHICH CAUSE, OR THREATEN TO CAUSE, DAMAGE TO NEW OR EXISTING FACILITIES, TO PREVENT FURTHER DAMAGE. MODIFICATIONS TO BE MADE AT NO ADDITIONAL EXPENSE TO THE OWNER. REPAIR DAMAGED FACILITIES AT CONTRACTOR'S EXPENSE.
- DISCHARGE WATER IN A MANNER THAT WILL NOT CAUSE EROSION, FLOODING, DAMAGE TO PUBLIC OR PRIVATE AREAS, COMPLETED WORK, IMPROVED OR OTHERWISE.
- REMOVE ALL MATERIAL AND EQUIPMENT FROM THE SITE UPON COMPLETION OF DEWATERING OPERATIONS.
- REMOVE ALL DEWATERING WELLS OR SUMPS UPON COMPLETION OF THE WORK.

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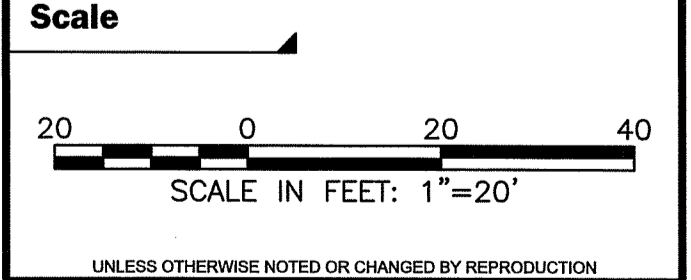
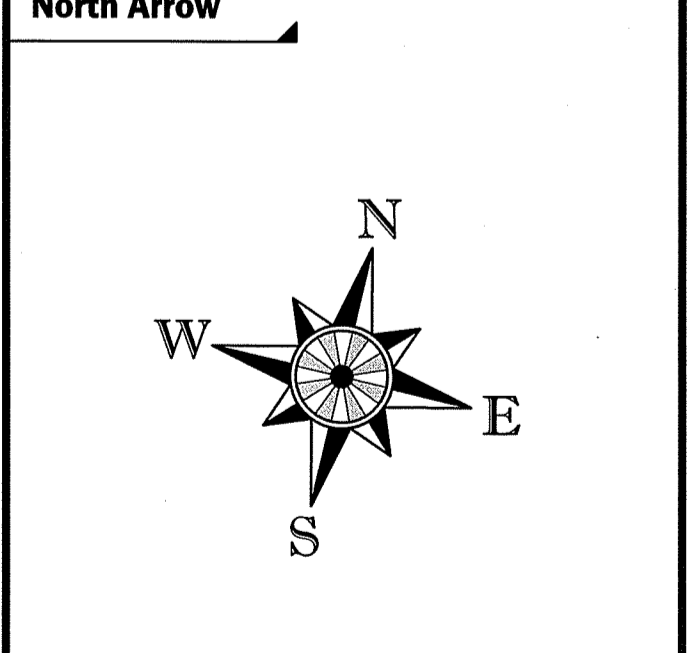
Project  
**Tanyard Reservoir  
 Flood Prevention and  
 Mitigation Project**  
 Bristol, Rhode Island

Title  
**Existing  
 Conditions  
 Plan**

Revisions

No.	Description	Date
1	RIDEM COMMENTS	1/25/2021

File: 6174 EXIST CONDITIONS.DWG  
 Drawn By: LTD  
 Dept. Ckd. By: JML  
 Project Ckd. By: NBI  
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
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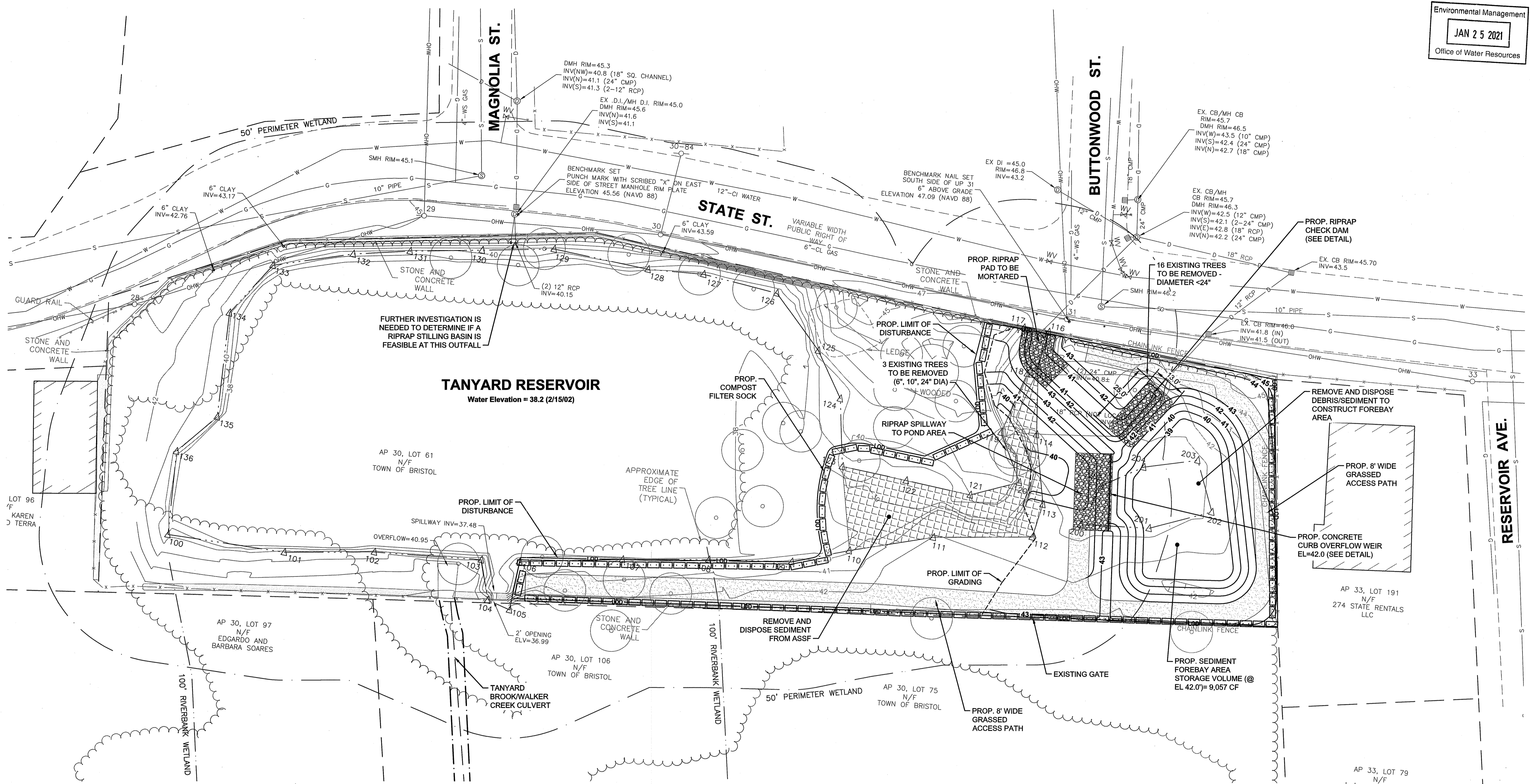
*Martin D. Wenzel*

Permit Plans

Sheet No.:

**3 of 7**

N:\61008\6174 - STATE STREET RESERVOIR\AUTOCAD FILES\PLAN SET\6174 CONSTRUCTION PLAN.DWG Plot Date: 1/25/2021 10:00 AM



Environmental Management  
**JAN 25 2021**  
 Office of Water Resources

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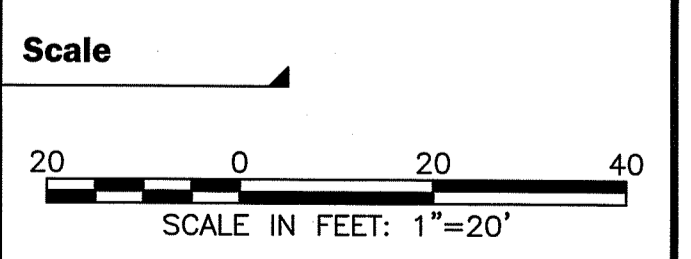
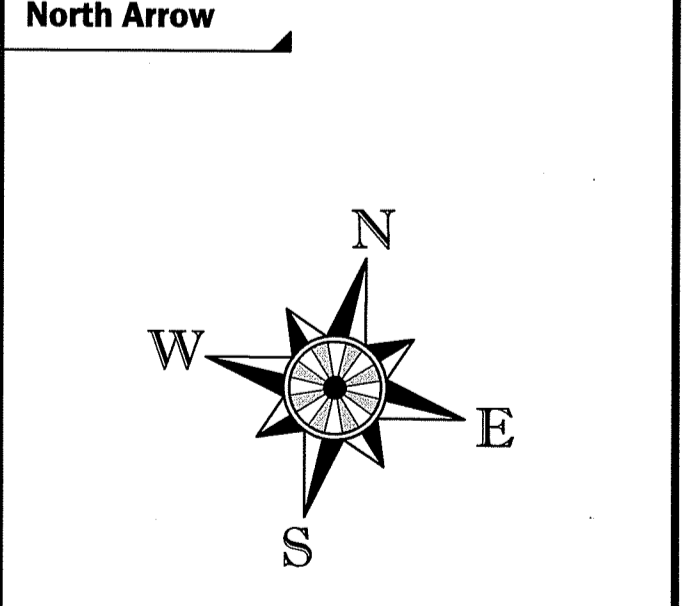
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Title  
**Construction Plan**

Revisions

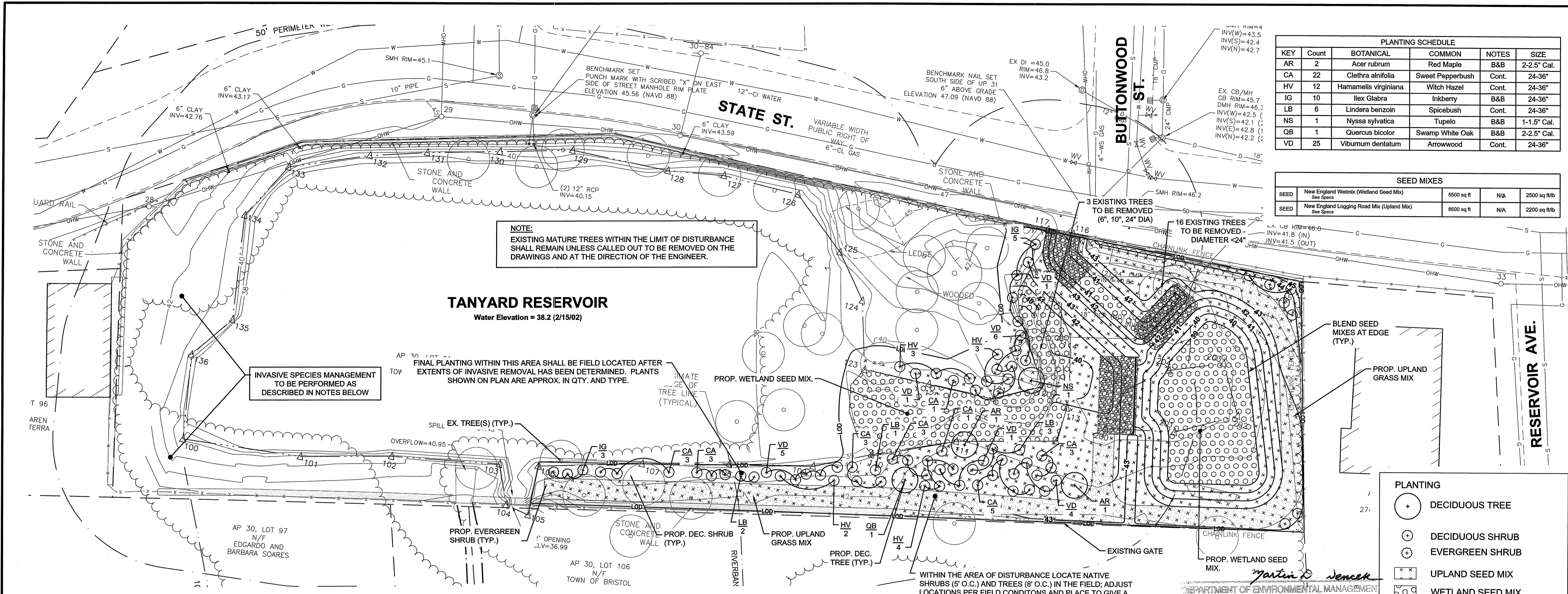
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File: 6174 CONSTRUCTION PLAN.DWG  
 Drawn By: LTD  
 Dept. Ckd. By: JML  
 Project Ckd. By: NBI  
 Job No: 6174 Issue Date: 2019



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED JUL 23 2021 FILE # 20-0002  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE  
*Martin D. Wemesch*

Permit Plans  
 Sheet No:  
**4 of 7**



PLANTING SCHEDULE					
KEY	Count	BOTANICAL	COMMON	NOTES	SIZE
AR	2	Acer rubrum	Red Maple	B&B	2-2.5" Cal.
CA	22	Clethra alnifolia	Sweet Pepperbush	Cont.	24-36"
HV	12	Hamamelis virginiana	Witch Hazel	Cont.	24-36"
IG	10	Ilex glabra	Inkberry	B&B	24-36"
LB	6	Lindera benzoin	Spicebush	Cont.	24-36"
NS	1	Nyssa sylvatica	Tupelo	B&B	1-1.5" Cal.
QB	1	Quercus bicolor	Swamp White Oak	B&B	2-2.5" Cal.
VD	25	Viburnum dentatum	Arrowwood	Cont.	24-36"

SEED MIXES			
SEED	Seed Species	6500 sq ft	2500 sq ft/b
SEED	New England Wetmix (Wetland Seed Mix)	N/A	2500 sq ft/b
SEED	New England Logging Road Mix (Upland Mix)	N/A	2200 sq ft/b

**NOTE:**  
EXISTING MATURE TREES WITHIN THE LIMIT OF DISTURBANCE SHALL REMAIN UNLESS CALLED OUT TO BE REMOVED ON THE DRAWINGS AND AT THE DIRECTION OF THE ENGINEER.

**TANYARD RESERVOIR**  
Water Elevation = 38.2 (2/15/02)

INVASIVE SPECIES MANAGEMENT TO BE PERFORMED AS DESCRIBED IN NOTES BELOW

FINAL PLANTING WITHIN THIS AREA SHALL BE FIELD LOCATED AFTER EXTENTS OF INVASIVE REMOVAL HAS BEEN DETERMINED. PLANTS SHOWN ON PLAN ARE APPROX. IN QTY. AND TYPE.

**PLANTING**

- DECIDUOUS TREE
- DECIDUOUS SHRUB
- EVERGREEN SHRUB
- UPLAND SEED MIX
- WETLAND SEED MIX

**INVASIVE MANAGEMENT NOTES (RIDEM RULES AND REGULATIONS):**

- DEBRIS REMOVAL OUTSIDE THE CONSTRUCTION LIMIT OF DISTURBANCE SHALL ADHERE TO RIDEM RULE 6.03 J LIMITED MAINTENANCE AND REPAIR ACTIVITIES REMOVAL OF MANMADE TRASH FROM WATERCOURSES AND OTHER WETLANDS SHALL BE DONE WITHOUT CAUSING ANY CHANGE IN THE PROFILE OR GENERAL CHARACTER OF ANY WATERCOURSE OR OTHER WETLANDS. REMOVAL SHALL BE PERFORMED MANUALLY, OR BY EQUIPMENT WHEN CHAINS OR CABLES ARE ATTACHED TO THE ITEM TO BE REMOVED AND THE EQUIPMENT IS OPERATED FROM A ROAD, PARKING AREA, OR OTHER SIMILAR LOCATION. REMOVAL OF NATURAL MATERIAL SUCH AS LOGS, BRUSH, OR TREES FROM THE WATERCOURSES AND OTHER WETLANDS SHALL BE LIMITED TO PROBLEM LOCATIONS WHERE LACK OF REMOVAL WILL RESULT IN EROSION OR BLOCKAGE OF CULVERTS, OBSTRUCTION OF EXISTING PATHS, OR PREVENTION OF CANOEING ACCESS.
- INVASIVE MANAGEMENT OUTSIDE THE CONSTRUCTION LIMIT OF DISTURBANCE SHALL ADHERE TO RIDEM RULE 6.02 K LIMITED CUTTING OR CLEARING OF VEGETATION WITH THE EXCEPTION THAT HERBICIDE TREATMENT (CHEMICAL CONTROL) WILL BE USED ON AN AS NEEDED BASIS BY A LICENSED PESTICIDE APPLICATOR. THE APPLICATOR SHALL HAVE THE APPROPRIATE PERMIT IN PLACE FROM THE RIDEM DEPT. OF AGRICULTURE.
- INVASIVE PLANT REMOVAL SHALL INCLUDE GLOSSY BUCKTHORN (FRANGULA ALNUS), MULTIFLORA ROSE (ROSA MULTIFLORA), JAPANESE BARBERRY (BERBERIS THUNBERGII), ORIENTAL BITTERSWEET (CELASTRUS ORBICULATUS), JAPANESE KNOTWEED (POLYGONUM CUSPIDATUM), REED CANARY GRASS (PHALARIS ARUNDINACEA), PURPLE LOOSESTRIPE (LYTHRUM SALICARIA), AND COMMON REED (PHRAGMITES AUSTRALIS).
- TARGETED INVASIVE REMOVAL SHALL INCLUDE: PHRAGMITES, BITTERSWEET AND MULTIFLORA ROSE. EXISTING BLACK LOCUST ON SITE SHALL NOT BE TARGETED FOR REMOVAL.
- PLANTING OUTSIDE THE CONSTRUCTION LIMIT OF DISTURBANCE SHALL ADHERE TO RIDEM RULE 6.18 PLANTING IN PERIMETER WETLAND OR RIVERBANK WETLAND AND SHALL ADHERE TO THE FOLLOWING CONDITIONS:
  - ALL PLANTINGS SHALL BE NATIVE SPECIES AND SUITABLE FOR THE SITE CONDITION;
  - NO EXCAVATION, FILLING, DRAINING OR GRADING SHALL BE ALLOWED EXCEPT FOR A MINIMAL ADDITION OF TOPSOIL FOR EACH NEW PLANT AND THE APPLICATION OF A LAYER OF MULCH OR WOODCHIPS LESS THAN THREE INCHES DEEP AROUND EACH NEW PLANT;
  - ALL DISTURBED SOILS SHALL BE STABILIZED WITH A SOUTHERN NEW ENGLAND NATIVE SEED MIX;
  - ALL PLANTINGS SHALL BE MAINTAINED UNTIL THEY ARE ESTABLISHED;
  - PLANTING WINDOW SHALL BE LIMITED TO MAY 1-15 AND SEPTEMBER 15-30 AND NO SOIL DISTURBANCE SHALL BE ALLOWED FROM MAY 15 THROUGH SEPTEMBER 15 TO SAFEGUARD POTENTIAL TURTLE NESTING AREAS.
  - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT'S WATER QUALITY AND WETLAND RESTORATION TEAM, IN WRITING, WITHIN TEN (10) DAYS AFTER COMPLETION OF THE PLANTINGS.

**INVASIVE MANAGEMENT NOTES (HERBICIDE TREATMENT AND MONITORING):**

- AN INVASIVE PLANT MANAGEMENT STRATEGY (IPMS) FOR THEIR CONTROL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL AND THE IPMS SHALL BE IMPLEMENTED ON SITE. PLANT SPECIES TARGETED FOR MANAGEMENT UNDER THIS ITEM SHALL BE AS DETERMINED IN THE FIELD PER THE SITE WALK AND AS SPECIFIED IN THE IPMS. AREAS IDENTIFIED FOR VEGETATION CONTROL MEASURES SHALL BE AS SHOWN ON THE PLANS AND AS DETERMINED IN THE FIELD BY THE ENGINEER AND LANDSCAPE ARCHITECT OR BIOLOGIST.
- HERBICIDE SHALL BE APPLIED DURING DAY TIME HOURS ONLY. CONTRACTOR SHALL NOT SPRAY 2 HOURS PRIOR TO PRECIPITATION, DURING RAIN, OR DURING WINDY CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING WEATHER CONDITIONS AND ADJUSTING THE WORK SCHEDULE AS APPROPRIATE FOR THE HERBICIDE AND APPLICATION METHOD TO BE USED.
- COMPANY MUST PROVIDE PROOF OF QUALIFICATIONS BY PROVIDING THE FOLLOWING:
  - NARRATIVE DESCRIBING COMPANY, ITS EXPERTISE AND EXPERIENCE WITH INVASIVE PLANT CONTROL.
  - DEMONSTRATE EXPERIENCE WITH HERBICIDE TREATMENT AS PART OF RESTORATIONS AND IN SENSITIVE AREAS
  - DESCRIBE COMPANY'S TECHNICAL QUALIFICATIONS AND PAST PERFORMANCE.
- ALL HERBICIDE APPLICATION SHALL CONFORM TO RIDEM PESTICIDE LAWS AND REGULATIONS PER THE DEPARTMENT OF AGRICULTURE.
- TARGETED VEGETATION SHALL BE IDENTIFIED AND MARKED PRIOR TO TREATMENT. PLANTS TREATED BY FOLIAR SPRAY, INJECTION OR GLOVE APPLICATION OR OTHER METHODS THAT LEAVE STANDING VEGETATION, AS OPPOSED TO CUT-STUMP APPLICATION, SHALL REMAIN CLEARLY MARKED FOR IDENTIFICATION THROUGH THE CONTRACT PERIOD. DESIRABLE VEGETATION SHALL BE PROTECTED FROM BOTH SPRAY AND OTHER PHYSICAL DAMAGE.
- CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO VEGETATION NOT DESIGNATED FOR REMOVAL OR TREATMENT. VEGETATION DAMAGED SHALL BE RESTORED. COST OF REPLACEMENT PLANTS AND/OR RESTORATION SHALL BE BORNE BY THE CONTRACTOR. CONTRACTOR SHALL ENSURE THAT THE PUBLIC DOES NOT ENTER A WORK AREA WHILE HERBICIDE APPLICATION OR SPRAYING IS UNDERWAY.
- THE CONTRACTOR SHALL TAKE MEASURES TO PREVENT VIABLE PLANT MATERIAL FROM LEADING TO FURTHER INFESTATIONS (SEEDS, ROOTS, WOODY MATERIAL, ETC.) WHILE STOCKPILED, IN TRANSIT, OR AT FINAL DISPOSAL LOCATIONS. ALL PRECAUTIONS SHALL BE TAKEN TO AVOID CONTAMINATION OF NATURAL LANDSCAPES WITH INVASIVE PLANTS OR INVASIVE PLANT MATERIAL.
- AFTER INITIAL HERBICIDE TREATMENT, ALL TREATED PLANTS AND AREAS SHALL BE MONITORED FOR A PERIOD NOT LESS THAN TWO YEARS THROUGH VISUAL OBSERVATION AND RE-TREATED AS NECESSARY AND APPROPRIATE THROUGHOUT THE MONITORING PERIOD PER THE IPMS.
- THE EXPECTATION IS A MINIMUM OF 85-95 PERCENT CONTROL ACHIEVED AFTER THE FIRST TREATMENT, DEPENDING ON PLANTS TARGETED AND EXTENT OF POPULATION, AND BASED ON THE EXPECTATIONS LAID OUT IN THE IPMS. THE EXPECTATION FOR THE CONTRACT DURATION IS 95-100% ERADICATION BY THE END OF THE TREATMENT PERIOD, UNLESS OTHERWISE SPECIFIED IN THE IPMS.

**NEW ENGLAND WETMIX (WETLAND SEED MIX):**

THE WETLAND SEEDS IN THIS MIX CAN BE SOWN BY HAND, WITH A HAND HELD SPREADER, OR HYDRO-SEEDED ON LARGE OR HARD TO REACH SITES. LIGHTLY RAKE TO INSURE GOOD SEED TO SOIL CONTACT. SEEDING CAN TAKE PLACE ON FROZEN SOIL, AS THE FREEZING AND THAWING WEATHER OF LATE FALL AND LATE WINTER WILL WORK THE SEED INTO THE SOIL. IF SPRING CONDITIONS ARE DRIER THAN USUAL WATERING MAY BE REQUIRED. IF SOWING DURING THE SUMMER MONTHS SUPPLEMENTAL WATERING WILL LIKELY BE REQUIRED UNTIL GERMINATION. A LIGHT MULCH OF CLEAN, WEED FREE STRAW IS RECOMMENDED.

APPLICATION RATE: 1 LB./2500 SQ. FT.; 18 LBS./ACRE

SPECIES: FOX SEDGE (CAREX VULPINOIDEA), LURID SEDGE (CAREX LURIDA), BLUNT BROOM SEDGE (CAREX SCOPARIA), BLUE VERVAIN (VERBENA HASTATA), FOWL BLUEGRASS (POA PALUSTRIS), HOP SEDGE (CAREX LUPULINA), GREEN BULRUSH (SCIRPUS ATROVIRENS), CREEPING SPIKE RUSH (LEOCHARIS PALUSTRIS), FRINGED SEDGE (CAREX CRINITA), SOFT RUSH (JUNCUS EFFUSUS), SPOTTED JOE PYE WEED (EUPATORIUM MACULATUM), RATTLESNAKE GRASS (GLYCERIA CANADENSIS), SWAMP ASTER (ASTER PUNICEUS), BLUEFLAG (IRIS VERSICOLOR), SWAMP MILKWEED (ASCLEPIAS INCARNATA), SQUARE STEMMED MONKEY FLOWER (MIMULUS RINGENS).

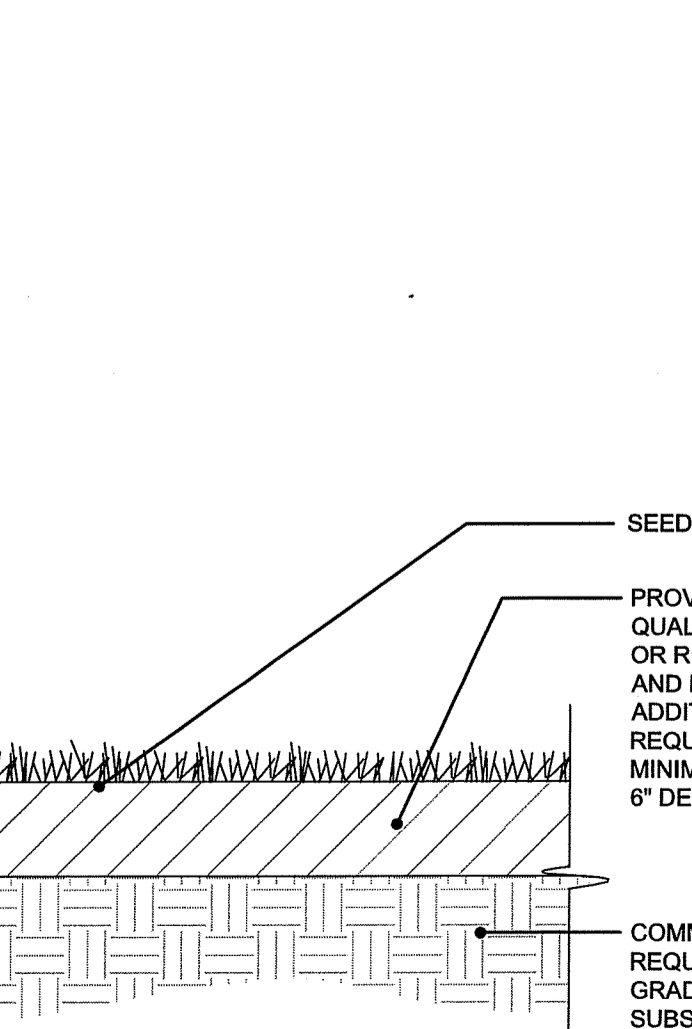
**NEW ENGLAND LOGGING ROAD MIX (UPLAND SEED MIX):**

THE NEW ENGLAND LOGGING ROAD SEED MIX HAS APPLICATION ON OTHER TYPES OF RESTORATION SITES. PROVIDES NATIVE PLANT COVER IN LOW FERTILITY AND COMPACTED SOILS. ALWAYS APPLY ON CLEAN BARE SOIL. THE MIX MAY BE APPLIED BY HYDRO-SEEDED, BY MECHANICAL SPREADER, OR ON SMALL SITES IT CAN BE SPREAD BY HAND. LIGHTLY RAKE, OR ROLL TO ENSURE PROPER SEED TO SOIL CONTACT. BEST RESULTS ARE OBTAINED WITH A SPRING OR LATE SUMMER SEEDING. LATE SPRING AND EARLY SUMMER SEEDING WILL BENEFIT FROM A LIGHT MULCHING OF WEED FREE STRAW TO CONSERVE MOISTURE. IF CONDITIONS ARE DRIER THAN USUAL, WATERING MAY BE REQUIRED. LATE FALL AND WINTER DORMANT SEEDING REQUIRE AN INCREASE IN THE SEEDING RATE. FERTILIZATION IS NOT REQUIRED UNLESS THE SOILS ARE PARTICULARLY INFERTILE. PREPARATION OF A CLEAN WEED FREE SOIL SURFACE IS NECESSARY FOR OPTIMAL RESULTS.

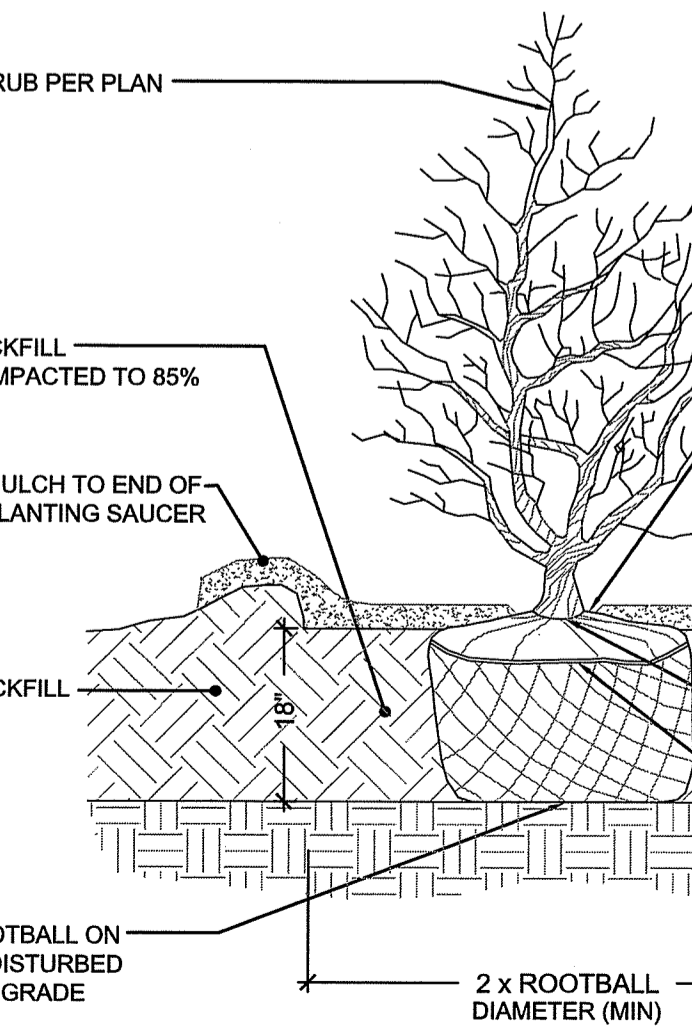
APPLICATION RATE: 20 LBS./ACRE | 2200 SQ FT/LB

SPECIES: RED FESCUE (FESTUCA RUBRA), LITTLE BLUESTEM (SCHIZACHYRIUM SCOPARIUM), SWITCH GRASS (PANICUM VIRGATUM), VIRGINIA WILD RYE (ELYMUS VIRGINICUS), BIG BLUESTEM (ANDROPOGON GERARDII), INDIAN GRASS (SORGHASTRUM NUTANS), PARTRIDGE PEA (CHAMAECRISTA FASCICULATA), SOFT RUSH (JUNCUS EFFUSUS), PATH RUSH (JUNCUS TENUIS), UPLAND BENTGRASS (AGROSTIS PERENNANS)

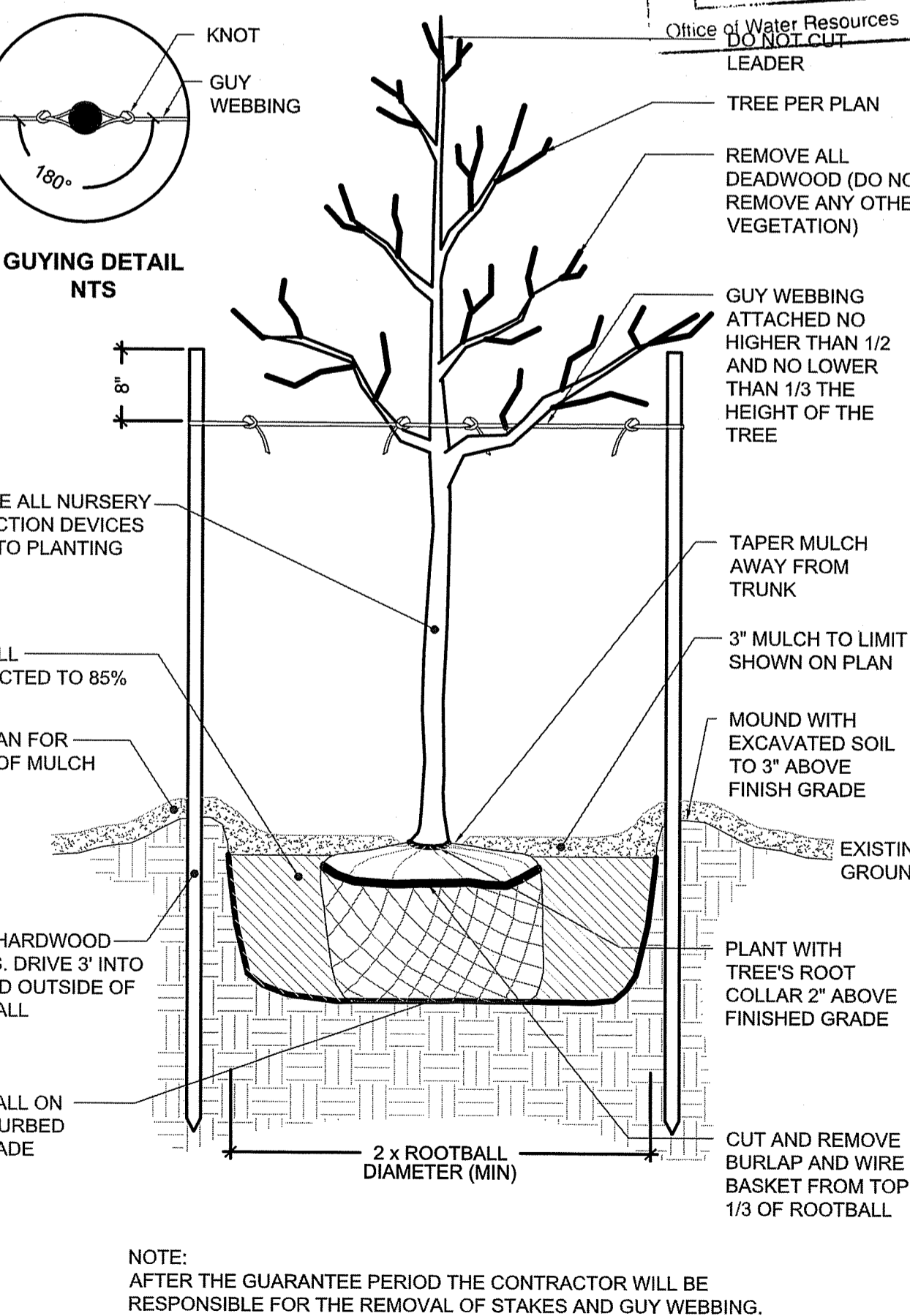
**LOAM AND SEED**  
SCALE: NOT TO SCALE



**SHRUB PLANTING**  
SCALE: NOT TO SCALE



**DECIDUOUS TREE STAKING & PLANTING**  
SCALE: NOT TO SCALE



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Environmental Management  
JAN 25 2021  
Office of Water Resources  
DO NOT CUT

Engineered by: BETA  
email: BETA@BETA-Inc.com



P.E. Stamp:



Client:



Project:

**Tanyard Reservoir  
Flood Prevention and  
Mitigation Project**  
Bristol, Rhode Island

Title:

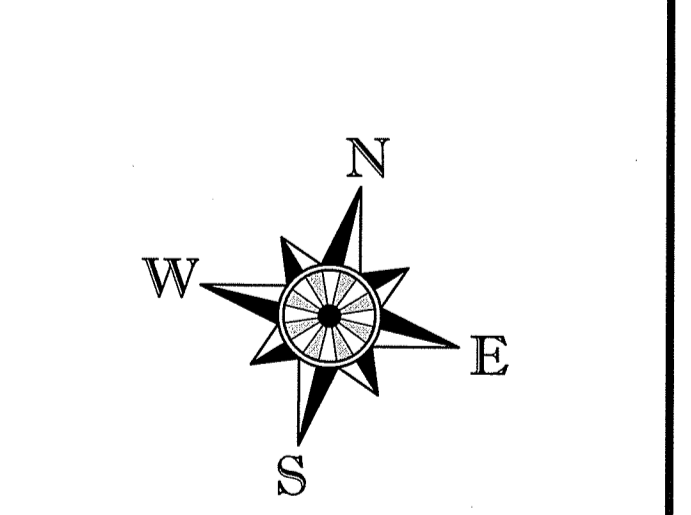
**Planting Plan**

**Revisions**

No.	Description	Date
1	RIDEM COMMENTS	1/25/2021

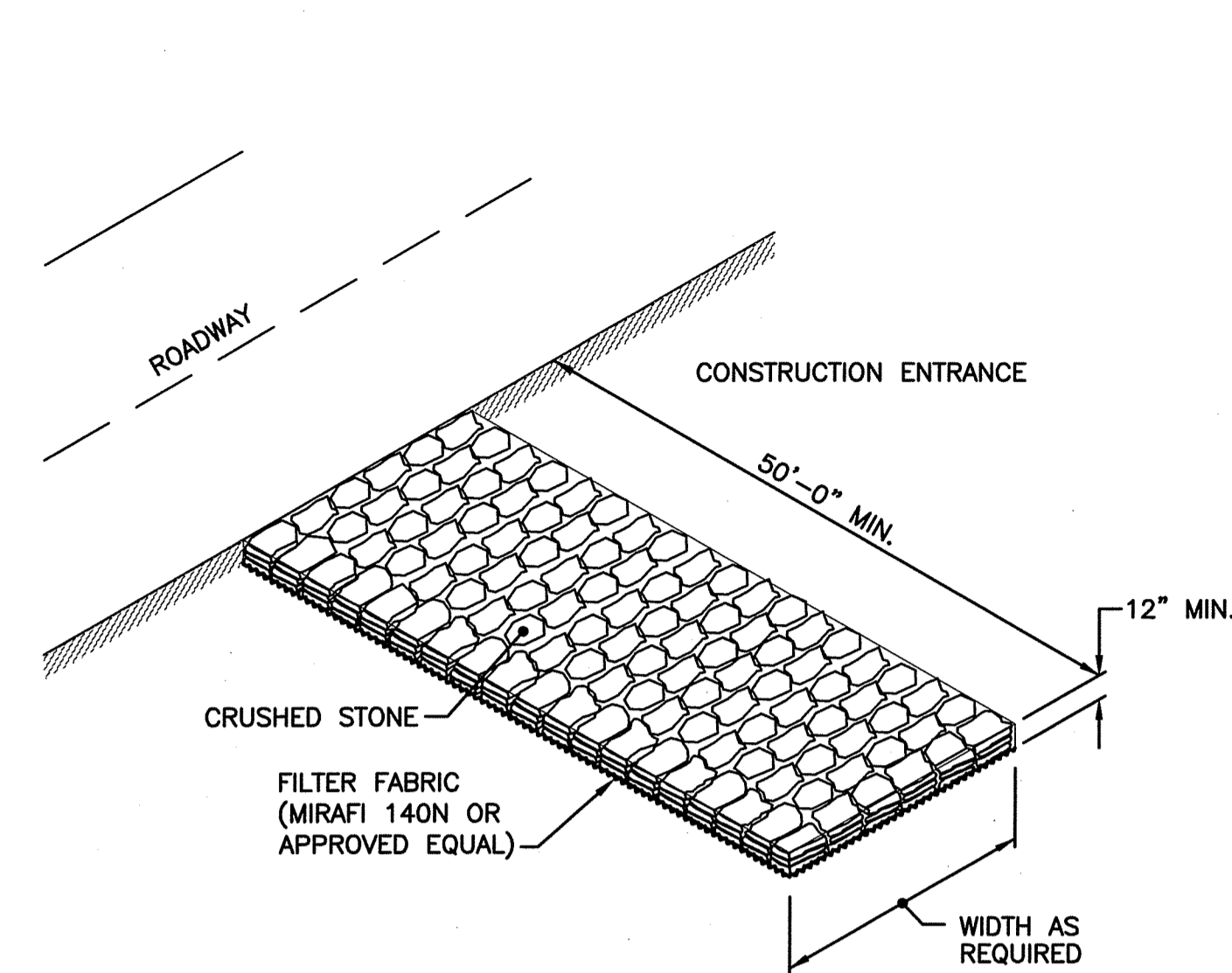
File: 6174 LANDSCAPE PLAN.DWG  
Drawn By: LTD  
Dept. Ckd. By: JML  
Project Ckd. By: NBI  
Job No: 6174 Issue Date: 2019

North Arrow



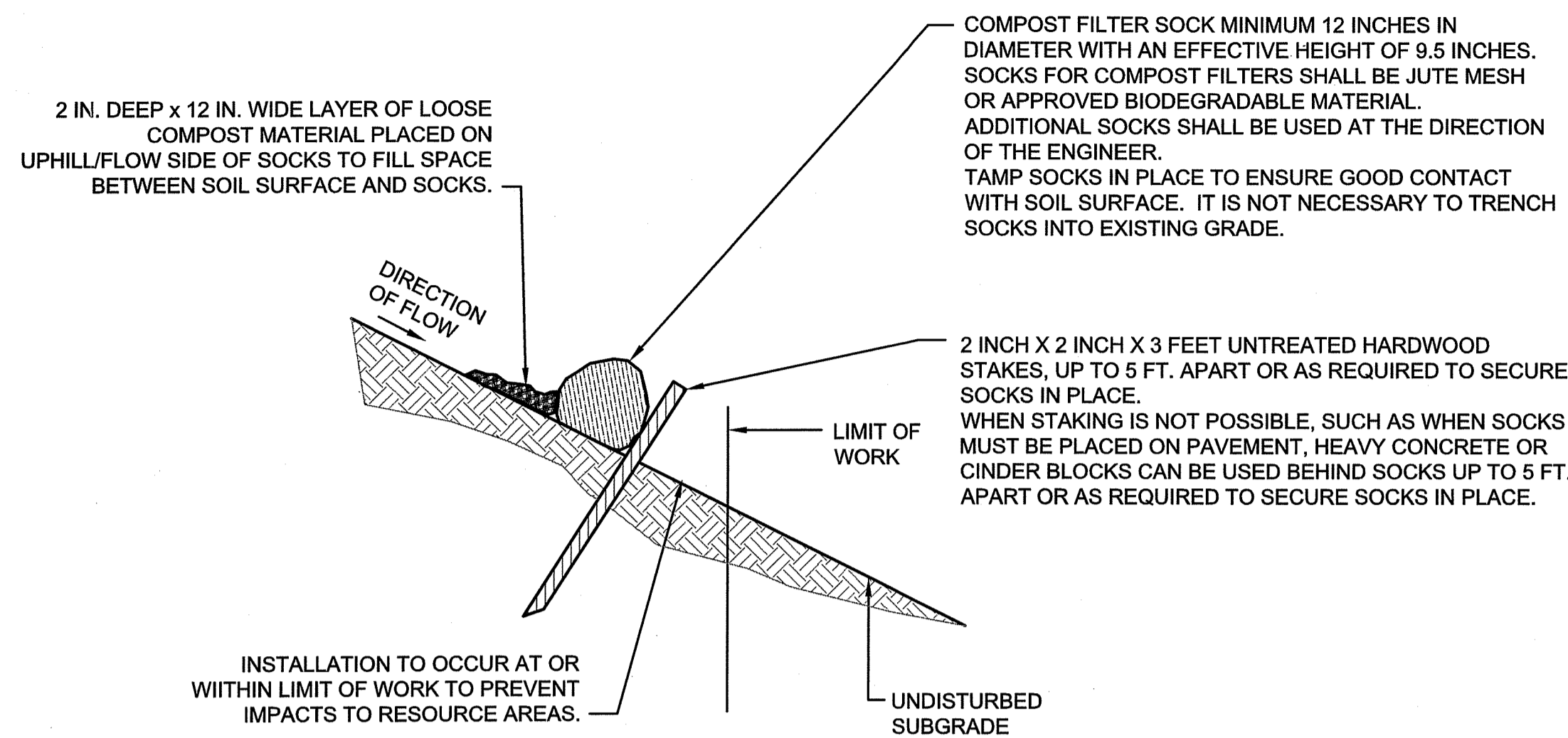
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Permit Plans  
Sheet No.:



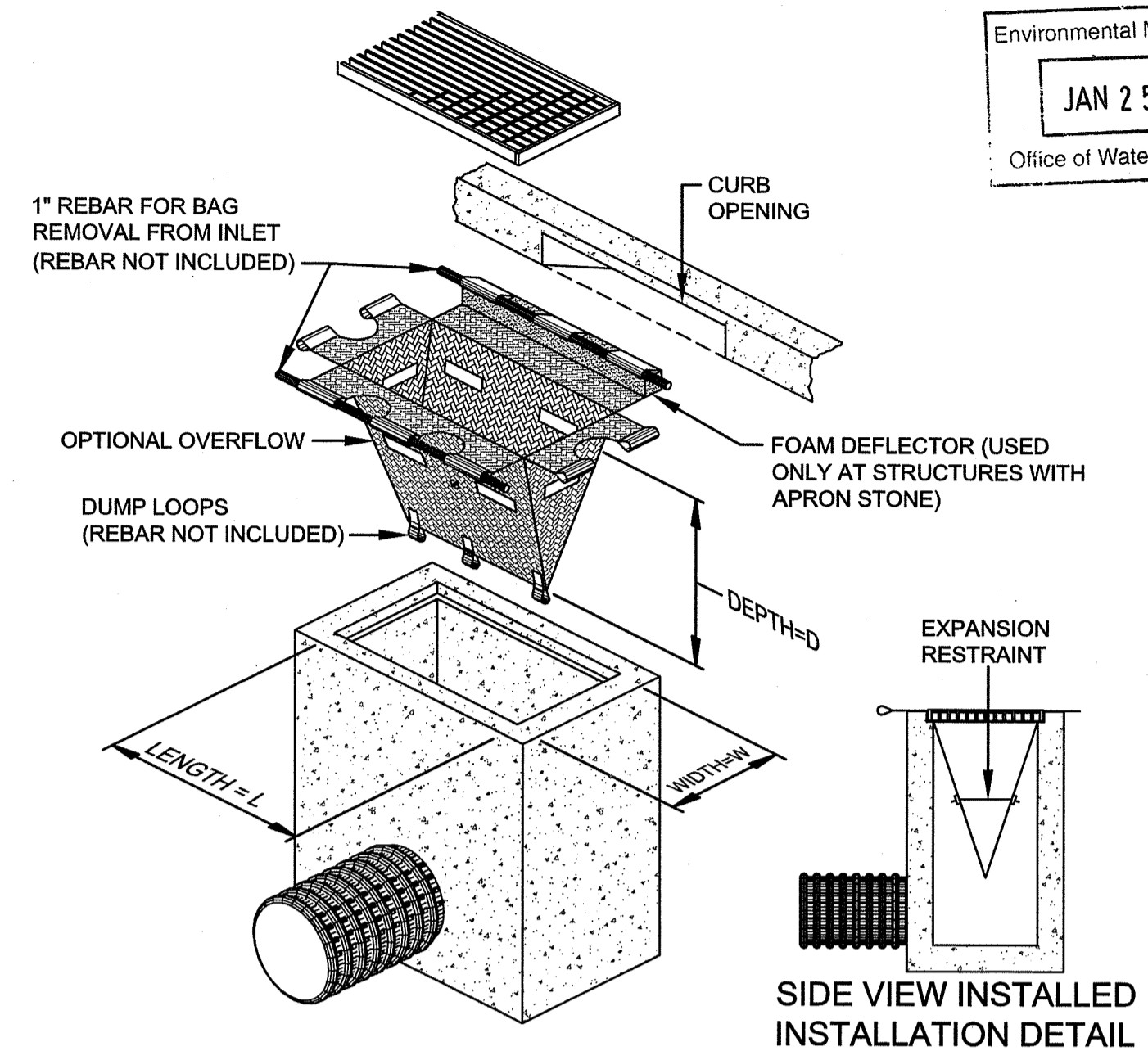
NOTE:  
SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

**CONSTRUCTION ACCESS**  
NOT TO SCALE

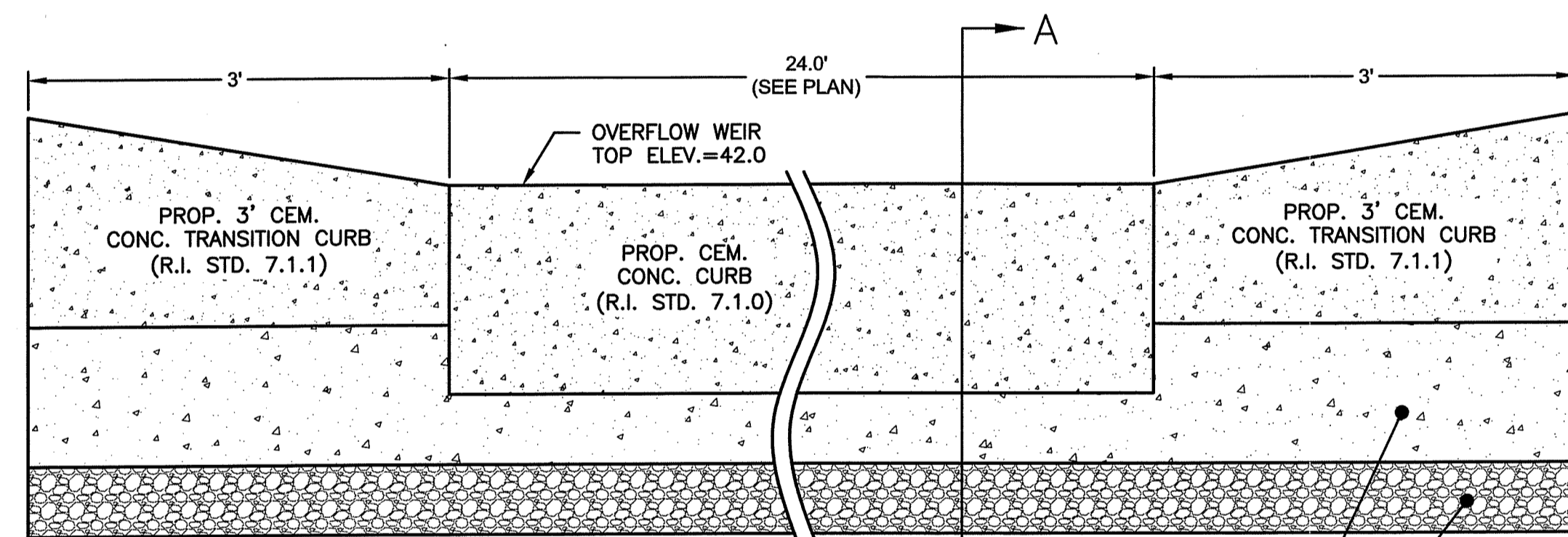


- NOTES:
1. PROVIDE A MINIMUM SOCK DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER SOCK DIAMETER OR ADDITIONAL COURSING OF FILTER SOCKS TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
  2. INSTALL SOCKS ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
  3. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
  4. CONFIGURE SOCKS AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN-OFF.

**COMPOST FILTER SOCK**  
NOT TO SCALE

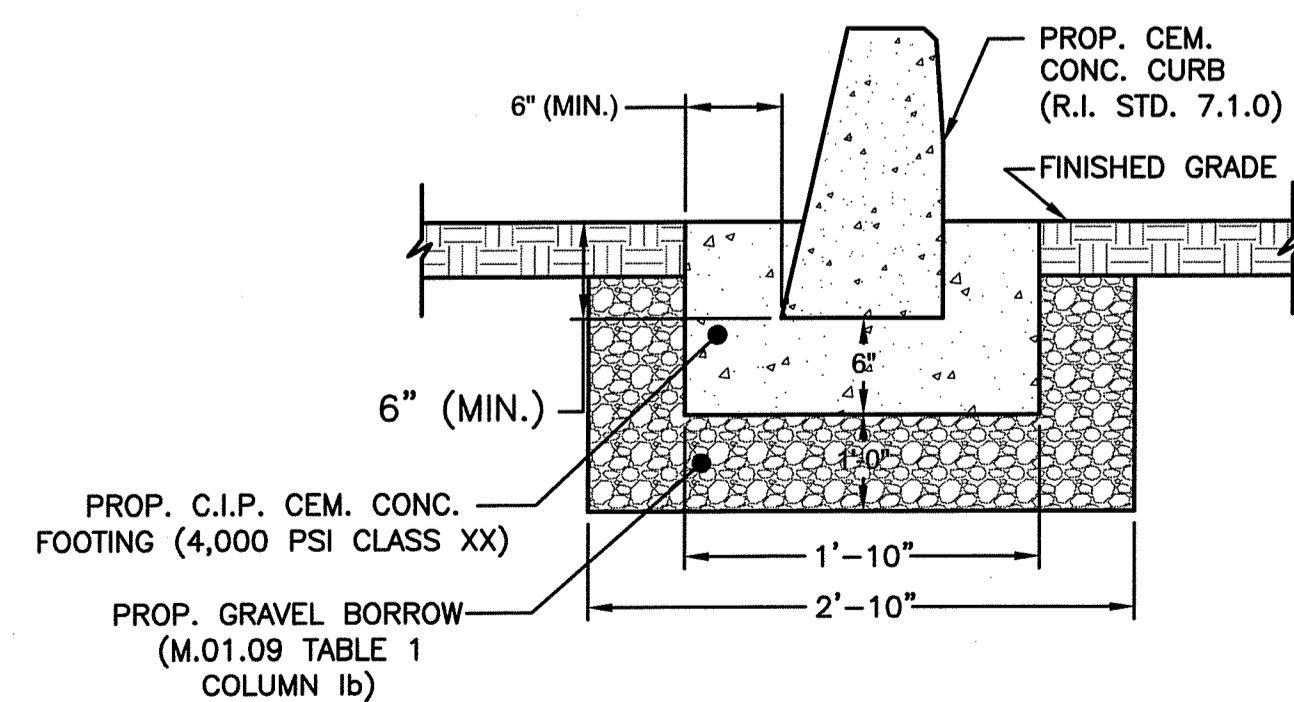


**INLET SEDIMENT CONTROL DEVICE (WITH OPTIONAL CURB DEFLECTOR)**  
NOT TO SCALE



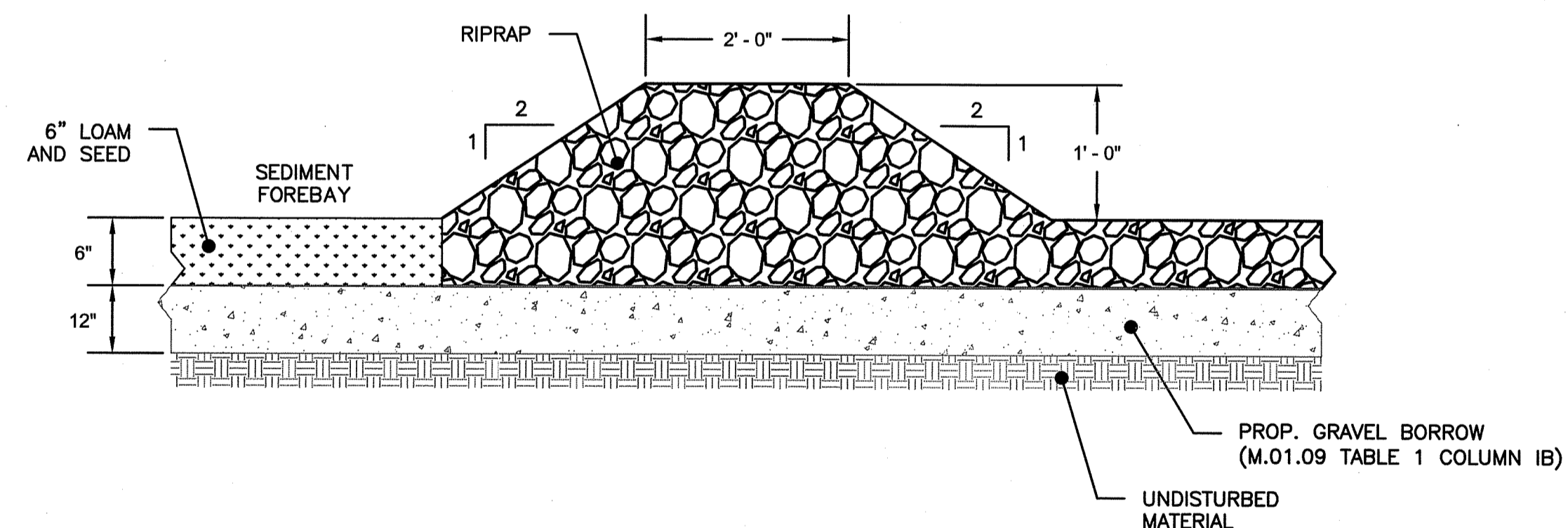
NOTE:  
REFER TO PLANS FOR LOCATION AND ELEVATIONS.

PROP. C.I.P. CEM. CONC. FOOTING (4,000 PSI CLASS XX)  
PROP. GRAVEL BORROW (M.01.09 TABLE 1 COLUMN 1b)



SECTION A-A

**CONCRETE CURB OVERFLOW WEIR DETAILS**  
NOT TO SCALE



- NOTES:
- 1.) GRAVEL BORROW PER RIDOT STD. SPECIFICATION M.01.09, TABLE 1.
  - 2.) LOAM SHALL BE IN ACCORDANCE WITH M.18.02 - PLANTABLE LOAM OF THE RIDOT STD. SPECIFICATIONS. SEEDING SHALL BE IN ACCORDANCE WITH THE LANDSCAPE PLAN.
  - 3.) RIPRAP PER RIDOT STD. SPECIFICATION M.10.02.2, CLASS R-3.
  - 4.) CARE SHALL BE TAKEN TO PREVENT THE COMPACTION OF SOILS IN THE SEDIMENT FOREBAY AREA BY MATERIALS AND/OR EQUIPMENT DURING ALL STAGES OF CONSTRUCTION, AS ANY SUCH COMPACTION MAY COMPROMISE THE ABILITY OF THE UNDERLYING SOILS TO RECEIVE AND INFILTRATE STORMWATER RUNOFF. CONTRACTOR SHALL IMPLEMENT PROTECTION MEASURES INCLUDING ERECTING SIGNAGE AND TEMPORARY BARRIERS AROUND THE PERIMETER OF THE BASIN.

**TYPICAL RIPRAP CHECK DAM DETAIL**  
NOT TO SCALE

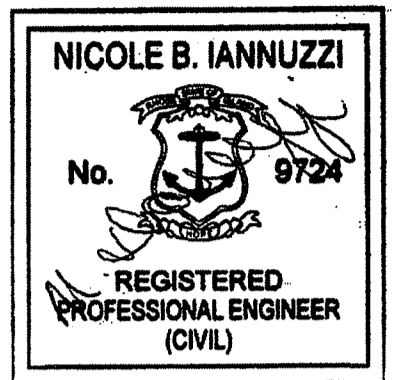
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Engineered by: email: BETA@BETA-inc.com

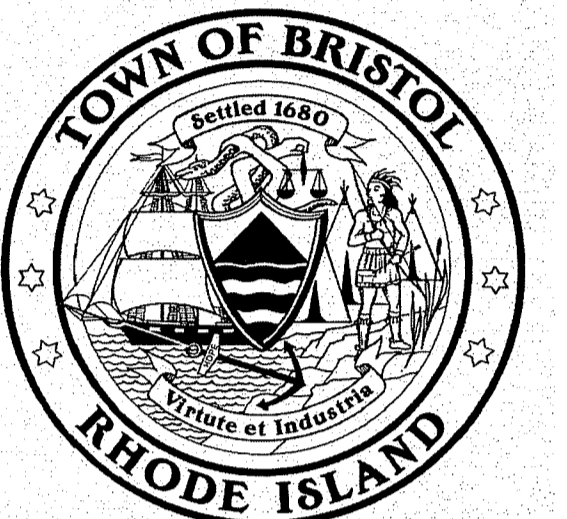


Environmental Management  
JAN 25 2021  
Office of Water Resources

P.E. Stamp:



Client:



Project:

Tanyard Reservoir  
Flood Prevention and  
Mitigation Project  
Bristol, Rhode Island

Title:

**Construction  
Details**

Revisions

No.	Description	Date
1	RIDEM COMMENTS	1/25/2021

File: 6174 CONSTRUCTION DETAILS.DWG

Drawn By: LTD

Dept. Ckd. By: JML

Project Ckd. By: NBI

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North Arrow

Scale

None

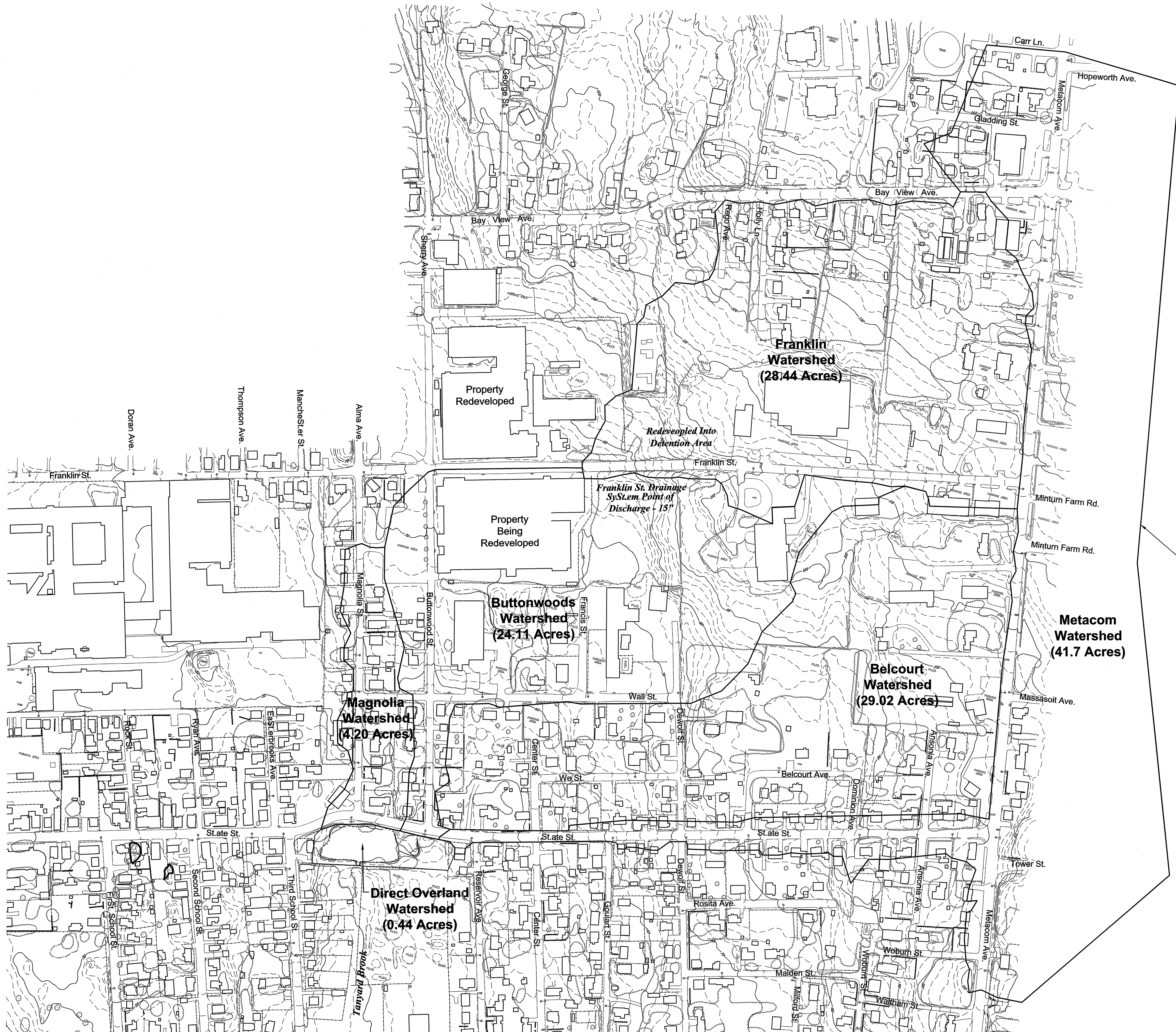
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

Permit Plans

Sheet No.:

**6 of 7**

N:\61008\6174 - STATE STREET RESERVOIR\AUTOCAD FILES\PLAN SET\6174 WATERSHED PLAN.DWG Plot Date: 1/25/2021 10:01 AM

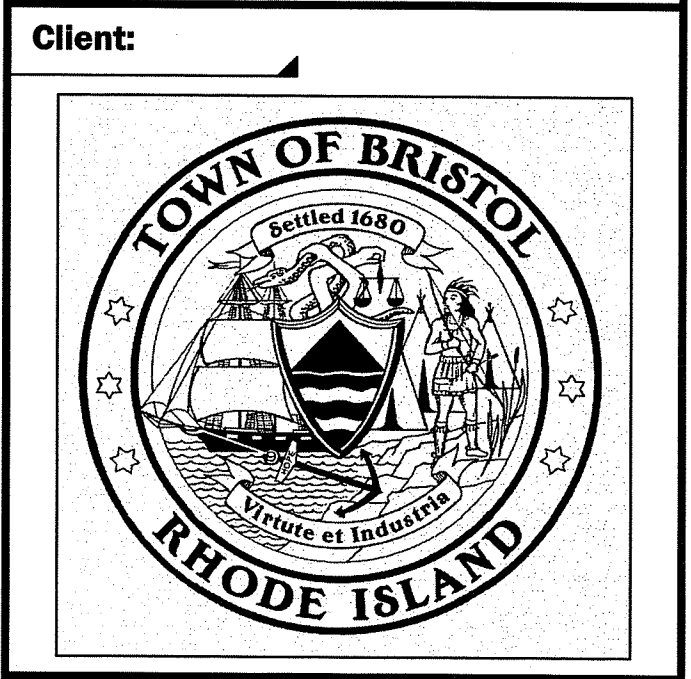


Overall Watershed Boundary Line

Environmental Management  
Office of Water Resources  
JAN 25 2021

Engineered by: email: BETA@BETA-inc.com  
  
 www.BETA-inc.com

P.E. Stamp:  
  
 NICOLE B. IANNUZZI  
 No. 9724  
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)



Project  
 Tanyard Reservoir  
 Flood Prevention and  
 Mitigation Project  
 Bristol, Rhode Island

Title  
 Watershed Plan

Revisions

No.	Description	Date
1	RIDEM COMMENTS	1/25/2021

File: 6174 WATERSHED PLAN.DWG  
 Drawn By: LTD  
 Dept. Ckd. By: JML  
 Project Ckd. By: NBI  
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North Arrow  
  
 Scale

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**7 of 7**  
 Plot Date: 1/25/2021 10:01 AM