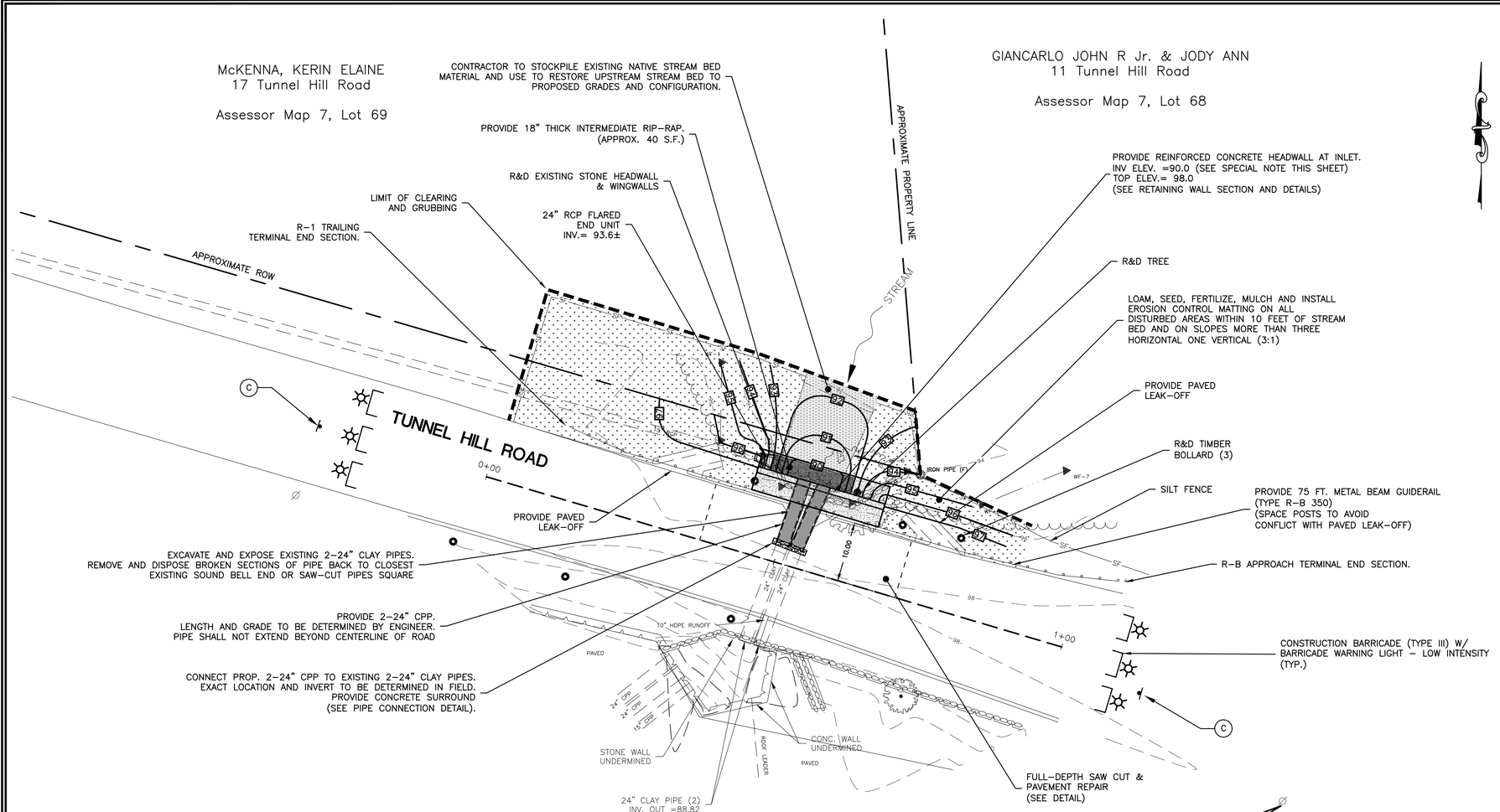
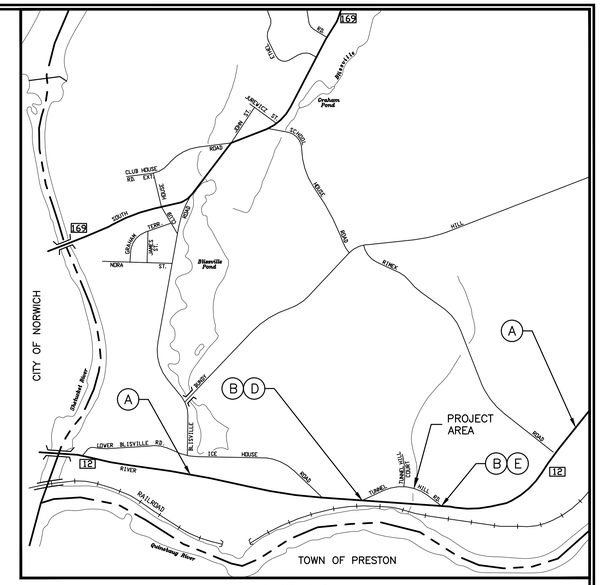




DETOUR PLAN

SCALE: 1"=±1,000'

SIGN LEGEND

A	FURNISH & INSTALL CT DOT #80-0277	ROAD CLOSED AHEAD LOCAL TRAFFIC ONLY
B	FURNISH & INSTALL CT DOT #80-9079	TUNNEL HILL ROAD CLOSED TO THRU TRAFFIC FROM 00/00 TO 00/00
C	FURNISH & INSTALL CT DOT #80-9080	ROAD CLOSED
D	FURNISH & INSTALL CT DOT #80-9701	DETOUR →
E	FURNISH & INSTALL CT DOT #80-9702	← DETOUR

LEGEND TO DRAWINGS

EXISTING		PROPOSED
	PROPERTY LINE	
126	CONTOUR	126
124.2 x	SPOT ELEVATION	124.2 x
∅	UTILITY POLE	
E	ELECTRIC	
T	TELEPHONE	
	SILT FENCE	SF
	HAY BALES	
x x	FENCE	
	RETAINING WALL	
	STONE WALL	
	TREE/SHRUB LINE	
WFx	WETLAND FLAGS/LIMITS	
	GUIDE RAIL	
	RIP RAP	

10' 0 10' 20'

SCALE: 1"=10'

GENERAL NOTES

1. PRIOR TO BIDDING THE PROJECT, THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS.
2. EXISTING PROPERTY LINES AND RIGHT-OF-WAY LINES WHERE SHOWN ARE APPROXIMATE AND ARE INTENDED FOR GENERAL INFORMATION ONLY.
3. GROUND LINE AS SHOWN ON THESE PLANS IS BASED ON FIELD SURVEY.
4. CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1-800-922-4455 PRIOR TO THE START OF CONSTRUCTION.
5. INFORMATION SHOWN ON THE DRAWINGS RELATING TO MATERIALS, CONDITIONS, AND OR LOCATIONS OF EXISTING STRUCTURES AND UTILITIES HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING FIELD SURVEY, UTILITY COMPANY AND TOWN RECORD MAPS AND DRAWINGS, AND IS NOT GUARANTEED ACCURATE OR COMPLETE. ALL UTILITIES SHALL BE LOCATED IN THE FIELD BY THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER WARRANTS OR GUARANTEES THE CONDITIONS SHOWN ON THE PLANS.
6. PASSAGE OF TRAFFIC ON ROADWAYS: THE CONTRACTOR SHALL PERFORM HIS OPERATIONS TO MINIMIZE DISRUPTIONS TO TRAFFIC WITHIN THE PROJECT SITE.
7. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL MAINTENANCE AND PROTECTION OF TRAFFIC, TRAFFIC CONTROL, TEMPORARY SIGNING OR BARRICADES AND LANE CLOSURES. CONTINUOUS ACCESS FOR BUSES AND EMERGENCY VEHICLES SHALL BE MAINTAINED AT ALL TIMES.
8. CONSTRUCTION SIGNS MUST CONFORM TO THE SIGNING REQUIREMENTS OUTLINED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)". ALL SIGN FACES SHALL BE REFLECTORIZED.
9. ALL PROPOSED WORK MAY BE VARIED IN THE FIELD BY THE OWNER TO MATCH EXISTING CONDITIONS.
10. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS AND ACTIVITIES FOR CONSTRUCTION PURPOSES WITHIN THE STREET LINES AND/OR EASEMENTS AS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING PAVEMENT, ROADWAY, SIDEWALKS, ETC., OUTSIDE OF THE WORK AREA AND SHALL REPAIR SUCH DAMAGE AT NO ADDITIONAL COST TO THE OWNER.
11. UPON COMPLETION OF THE WORK, ALL DISTURBED AREAS SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTED PRIOR TO CONSTRUCTION.
12. ALL STREET SIGNS, MAILBOXES, PLANTINGS, ORNAMENTAL OBJECTS, LIGHTS, LANDSCAPE SHRUBBERY, ETC., SHALL BE PROTECTED FROM DAMAGE AND SHALL BE REPLACED IN THE SAME OR BETTER CONDITION BY THE CONTRACTOR IF DISTURBED OR DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION.
13. RESIDENTS WITH DRIVES AFFECTED BY CONSTRUCTION SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 48 HOURS BEFORE CONSTRUCTION BEGINS AND SHALL BE ALLOWED ACCESS TO THEIR PROPERTY.
14. THE CONTRACTOR SHALL MAINTAIN A SET OF RECORD DRAWINGS WHICH SHALL BE SUBMITTED TO THE ENGINEER AT THE COMPLETION OF THE PROJECT.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY AND PERMANENT SUPPORT OF ALL EXISTING UTILITY POLES IN AN ADJACENT TO THE CONSTRUCTION AREA AND SHALL COMPLY WITH ALL THE REQUIREMENTS AND SPECIAL DETAILS FOR THE SUPPORT OF UTILITIES REQUIRED BY UTILITY AGENCIES. ALL COSTS FOR TEMPORARILY SUPPORTING UTILITY POLES DURING CONSTRUCTION AND ADJUSTMENTS TO THE PERMANENT SUPPORT FOR UTILITY POLES SHALL BE INCLUDED IN OTHER ITEMS.
16. IF IT IS DEEMED NECESSARY BY THE OWNER THAT THE CONTRACTOR EXECUTE WORK AT CERTAIN POINTS IN THE CONTRACT AT CERTAIN TIMES AND SEASONS, THE CONTRACTOR SHALL PERFORM SAID WORK AT NO ADDITIONAL EXPENSE TO THE OWNER, WITHIN THE TIME SET FORTH IN THE CONTRACT.
17. MATERIAL STOCKPILE AND STAGING AREAS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING STOCKPILE, MATERIAL STORAGE AND EQUIPMENT STORAGE AREAS. PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL IDENTIFY THESE AREAS AND PROVIDE EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED.
18. DISPOSAL OF CONSTRUCTION MATERIALS: PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL BE REQUIRED TO IDENTIFY ALL LOCATIONS WITHIN THE TOWN TO BE USED FOR DISPOSAL OF UNSUITABLE CONSTRUCTION MATERIALS.
19. CLEARING AND GRUBBING: ALL TREES, BRUSH, VEGETATION, ETC. SHALL BE CUT DOWN BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL GIVE ABUTTING PROPERTY OWNERS THE OPPORTUNITY TO TAKE CUT WOOD FOR THEIR PRIVATE USE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL REMAINING STUMPS, CUT-UP TREES & LIMBS, ETC. WITHIN THE CONTRACT LIMITS. ALL COSTS ASSOCIATED WITH THE ABOVE WORK SHALL BE INCLUDED IN OTHER ITEMS CONTRACTOR SHALL PROTECT REMAINING TREES FROM DAMAGE DURING CONSTRUCTION. TREES UNNECESSARILY CUT OR DAMAGED BY THE CONTRACTOR'S FORCES SHALL BE REPLACED, OF COMPARABLE SIZE AND TYPE, BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
20. IF BLASTING IS PERFORMED A PRE-BLAST SURVEY WILL BE REQUIRED. ANY AND ALL BLASTING SHALL CONFORM TO THE REGULATIONS SET FORTH BY THE TOWN. BLASTING SHALL BE APPROVED BY THE APPROPRIATE TOWN AGENCIES AND ADJACENT UTILITY OWNERS.
21. CONTINUOUS DUST CONTROL USING WATER, CALCIUM CHLORIDE OR EQUAL SHALL BE PROVIDED FOR ALL EARTH STOCK PILES, EARTH PILED ALONG EXCAVATIONS, ROADWAY SURFACES AND SURFACES OF REFILLED TRENCHES.
22. WHERE EXISTING FOOTING DRAINS, FOUNDATION DRAINS, YARD DRAINS, ETC. ARE ENCOUNTERED DURING CONSTRUCTION, THEY SHALL BE RECONNECTED TO THE PROPOSED DRAINAGE SYSTEM.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESETTING TO GRADE ALL FRAMES, GRATES, COVERS, VALVE BOXES, ACCESS COVERS, AND ALL OTHER ITEMS WHICH NORMALLY MUST HAVE A FIXED RELATION TO FINISHED GRADE.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SURVEY AND STAKEOUT AS THEY NEED.
25. ALL WORK TO CONFORM TO THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES AND INCIDENTAL CONSTRUCTION SUPPLEMENTED FORM 817, DATED JULY 2017.

Sheet Index

SPECIAL NOTE

1. THE UPSTREAM INVERT ELEVATION OF THE EXISTING CLAY PIPE HAS NOT BEEN VERIFIED. IT IS THE INTENT THAT THE UPSTREAM INVERT ELEVATION OF THE PROPOSED DRAINAGE PIPE SHALL MATCH THAT OF THE EXISTING PIPE AS CLOSELY AS POSSIBLE.
2. PRIOR TO ANY WORK COMMENCING, THE CONTRACTOR SHALL VERIFY THE INVERT ELEVATION OF THE EXISTING CLAY PIPES AS CLOSE TO THE EXISTING STONE HEADWALL AS POSSIBLE. THE CONTRACTOR SHALL SUBMIT THIS INFORMATION TO THE ENGINEER FOR REVIEW AND IF REQUIRED, ADJUSTMENTS TO THE PROPOSED INVERT ELEVATION SHALL BE MADE.
3. CONTRACTOR TO STOCKPILE EXISTING NATIVE STREAMBED MATERIAL FOR STREAM BED RESTORATION (SEE SHEET 5)

No.	DATE	REVISION

CLA Engineers, Inc.
CIVIL · STRUCTURAL · SURVEYING
317 Main Street Norwich, CT 06360
(860) 886-1966 Fax (860) 886-9165

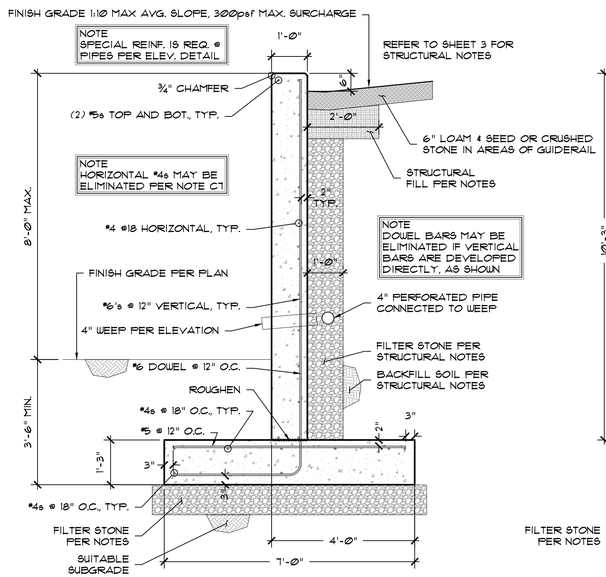
TOWN OF LISBON

TUNNEL HILL ROAD CULVERT REPAIRS

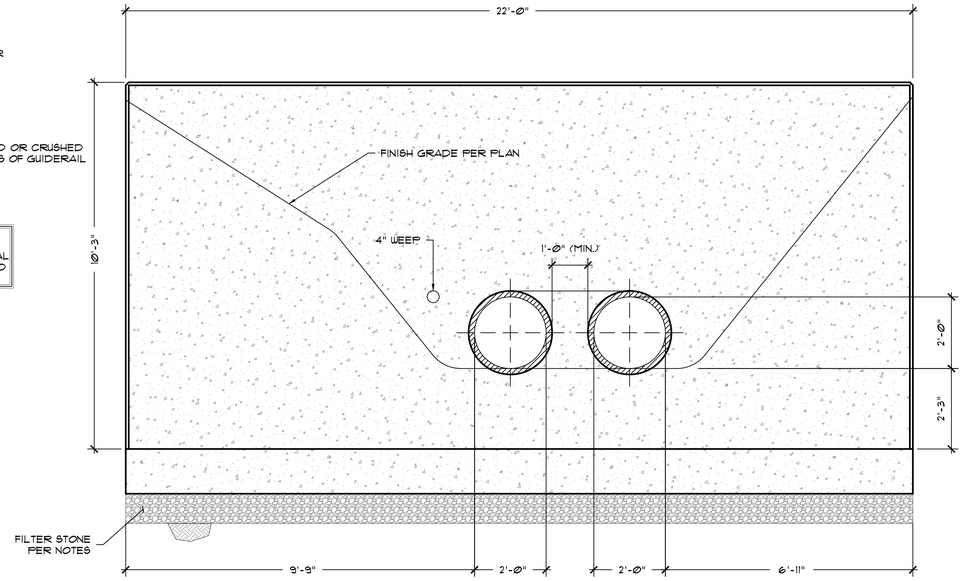
SITE PLAN

Project No. CLA-8097
Proj. Engineer D.P.H
Date: 03/15/18
Sheet No. 1

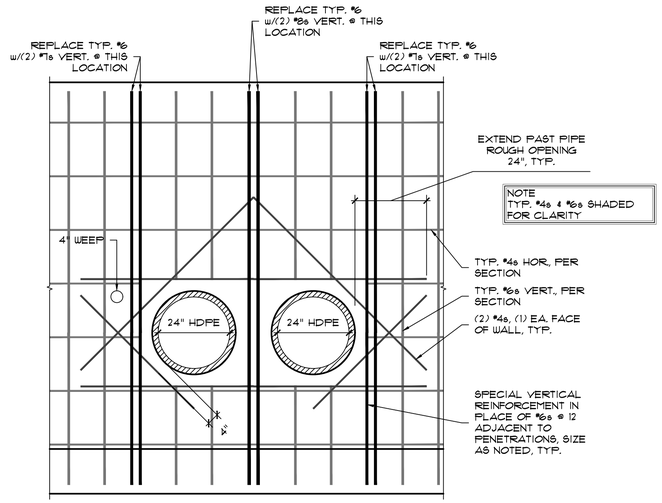
CLA



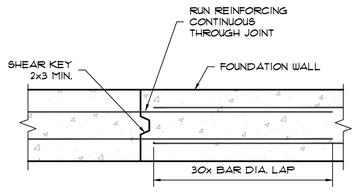
TYPICAL HEADWALL SECTION
SCALE 1/2" = 1'-Ø"



HEADWALL ELEVATION
NOT TO SCALE

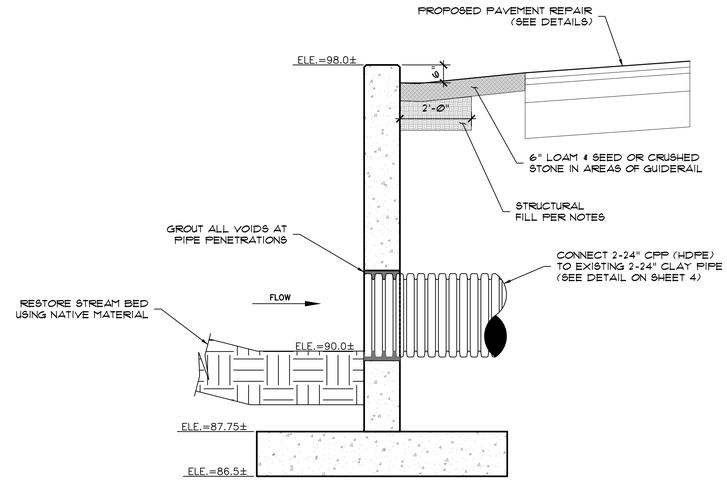


WALL REINF. @ PIPE PENETRATIONS ELEVATION DETAIL



TYP. WALL CONSTRUCTION JOINT
SCALE: 1" = 1'-Ø"

NOTE
RECOMMEND VERTICAL CONTROL JOINTS BE INSTALLED AT 30' ON CENTER MAX. FOR SHRINKAGE CONTROL



HEADWALL SECTION
NOT TO SCALE

No.	DATE	REVISION

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TOWN OF LISBON

TUNNEL HILL ROAD CULVERT REPAIRS

HEADWALL DETAILS

Project No. CLA-6097
Proj. Engineer D.P.H
Date: 03/15/18
Sheet No. 2

CLA

GENERAL STRUCTURAL NOTES

G1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2012 INTERNATIONAL BUILDING CODE, AS AMENDED FOR THE 2016 CONNECTICUT BUILDING CODE.

G2. THE OWNER/CONTRACTOR SHALL SUBMIT 2 COPIES MINIMUM OF SHOP DRAWINGS FOR ALL COMPONENTS OF THE PRIMARY STRUCTURAL SYSTEM FOR REVIEW BY THE STRUCTURAL ENGINEER OF RECORD. THE OWNER/CONTRACTOR SHALL ALLOW A MINIMUM OF TWO (2) WEEKS FOR THE REVIEW BY THE STRUCTURAL ENGINEER OF RECORD.

G3. THE GENERAL CONTRACTOR SHALL BEAR SOLE RESPONSIBILITY FOR MEANS AND METHODS OF CONSTRUCTION AND SAFETY ON THE JOB SITE.

G4. ALL DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE SHOWN FOR REFERENCE ONLY CONTRACTOR IS TO VERIFY ALL DIMENSIONS, ANGLES, ELEVATIONS, etc. PRIOR TO THE START OF CONSTRUCTION OR THE FABRICATION OF BUILDING COMPONENTS.

G5. THE GENERAL CONTRACTOR SHALL FURNISH COMPLETE SETS OF DRAWINGS TO ALL SUBCONTRACTORS FOR USE IN SHOP DRAWING PREPARATION.

G6. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS AND ANY OTHER RELEVANT DRAWINGS.

CONCRETE / REINFORCED CONCRETE

C1. GENERAL: ALL CONCRETE WORK SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTES "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301–95).

C2. CONCRETE MIXES SHALL INCLUDE MID–RANGE WATER REDUCING ADMIXTURE OR PLASTICIZER AND SHALL HAVE A DESIGN SLUMP OF 5" WITH A MAXIMUM WITH A MAXIMUM PLACEMENT SLUMP OF 6.5". HIGHER SLUMPS ARE ALLOWABLE IF HIGH RANGE PLASTICIZERS ARE USED.

CONCRETE FOR FOUNDATIONS WALLS AND FOOTINGS:
f'c = 4000 PSI AT 28 DAYS
w/c RATIO = 0.47 (MAX)
AIR ENTRAINMENT = 6%

C3. REINFORCING STEEL: ASTM A615 – GRADE 60.

C4. BAR DETAILING: IN ACCORDANCE WITH THE "ACI DETAILING MANUAL – 1988". PLACING DRAWINGS SHALL SHOW THE NUMBER AND LOCATION OF ALL BAR SUPPORTS AND ACCESSORIES.

C5. MINIMUM DEVELOPMENT LENGTH AND LAP SPLICE LENGTH OF REINFORCING BARS SHALL BE AS FOLLOWS (IF f'c=3000 PSI):

BAR SIZE	DEVELOPMENT LENGTH*	LAP SPLICE LENGTH
#4	22"	29"
#5	28"	36"
#6	33"	43"
#7	48"	63"
#8	55"	72"
#9	62"	81"

*INCREASE BAR DEVELOPMENT LENGTH BY 50% FOR EPOXY COATED REBAR.

C6. MINIMUM CONCRETE COVER UNLESS NOTED OTHERWISE:
SHALL BE AS FOLLOWS: CONCRETE POURED AGAINST EARTH..... 3"
CONCRETE POURED IN FORMS BUT EXPOSED TO EARTH OR WEATHER:
5 BARS AND SMALLER..... 1–1/2"
LARGER THAN #5 BARS..... 2"

C7. HORIZONTAL #4 BARS MAY BE ELIMINATED FROM THE STEM IF THE CONCRETE MIX CONTAINS BOTH MACRO–FIBER, SUCH AS GRACE STRUX 90/40 OR EQUAL, AT A DOSAGE RATE HIGHER THAN 3lb/CY, AND MICROFIBER AT A DOSAGE RATE HIGHER THAN 0.5lb/CY.

ABBREVIATIONS LEGEND

AoR =	ARCHITECT OF RECORD
ARCH. =	ARCHITECTURAL
BLDG. =	BUILDING
BTWN. =	BETWEEN
℄ =	CENTER LINE
COORD.=	COORDINATE
CONC. =	CONCRETE
CONT. =	CONTINUOUS
DEG. = ° =	DEGREES
DIA. = ø =	DIAMETER
DWG. =	DRAWING
EA. =	EACH
EoR =	ENGINEER OF RECORD
ELEV. =	ELEVATION
EMBED. =	EMBEDMENT
EPS =	EXPAND. POLYSTYRENE
EQ. =	EQUAL
EXIST. =	EXISTING
EXT. =	EXTERIOR
f'c =	CONC. COMPRESSIVE STRENGTH
FT. =	FOOT OR FEET
FTG. =	FOOTING
GA. = ga. =	GAUGE (THICKNESS)
H.D.G. =	HOT DIPPED GALVANIZED
HORIZ. =	HORIZONTAL
IN. =	INCH
INT. =	INTERIOR
K = KIP =	1,000 POUNDS
L.L.H. =	LONG LEG HORIZONTAL
L.L.V. =	LONG LEG VERTICAL
ld =	DEVELOPMENT LENGTH
MAX. =	MAXIMUM
MECH. =	MECHANICAL
MIN. =	MINIMUM
MFR. =	MANUFACTURER
O.C. =	ON CENTER
O.H. =	OPPOSITE HAND
PSF =	POUNDS PER SQ. FT.
PSI =	POUNDS PER SQ. IN.
PT =	PRESSURE TREATED
t =	PLATE
REINF. =	REINFORCEMENT
R.O. =	ROUGH OPENING
REQ. =	REQUIRED
SIM. =	SIMILAR
SQ. =	SQUARE
STD. =	STANDARD
STL. =	STEEL
T.B.D =	TO BE DEMOLISHED
T.B.R =	TO BE REMOVED
T.O.C. =	TOP OF CONCRETE ELEV.
T.O.t =	TOP OF PLATE ELEV.
T.O.S. =	TOP OF STEEL ELEV.
T/ WALL =	TOP OF WALL ELEV.
T/ SHELF =	TOP OF SHELF ELEV.
T/ FTG. =	TOP OF FOOTING ELEV.
TYP. =	TYPICAL
SQ. FT. =	SQUARE FEET
U.N.O.= U.O.N. =	UNLESS NOTED OTHERWISE
VERT. =	VERTICAL
V.I.F. =	VERIFY IN FIELD
w/ =	WITH
W.W.F. =	WELDED WIRE FABRIC
XPS =	EXTRUD. POLYSTYRENE

FOUNDATION / SOILS

F1. FOUNDATION ELEMENTS SHALL BE DESIGNED FOR THE FOLLOWING ALLOWABLE BEARING CAPACITY, TO BE VERIFIED IN THE FIELD:
ALLOWABLE SOIL BEARING PRESSURE = 3000 P.S.F.

F2. THE FOOTINGS MAY FALL IN BEDROCK. WHERE BLASTING IS NECESSARY, THE BEDROCK SHOULD BE BLASTED TO A DEPTH OF AT LEAST 2 FEET BELOW THE FOOTINGS AND SLABS ON GRADE. PREPARATION OF THE BLASTED ROCK SURFACE FOR FOOTINGS WILL INCLUDE EXCAVATING THE ROCK SUFFICIENTLY TO PERMIT PLACEMENT OF A MINIMUM 8" LAYER OF ¾" CRUSHED STONE BENEATH THE FOOTINGS AND SLABS ON GRADE. THE ¾" STONE LAYER SHALL BE COMPACTED WITH A VIBRATORY ROLLER TO FILL THE FRACTURES IN THE ROCK AND TO PROVIDE A UNIFORMLY STIFF SURFACE TO RECEIVE FOOTINGS AND SLABS. LARGE PIECES OF LOOSE BLASTED ROCK SHOULD BE REMOVED AND REPLACED WITH ¾" CRUSHED STONE AND PROOF ROLLED. A PRECONDITION BLAST SURVEY SHALL BE MADE FOR ANY PROPERTIES THAT MAY BE AFFECTED BY BLASTING.

F3. WHERE THE GROUNDWATER TABLE IS ENCOUNTERED, A MINIMUM OF 6" OF ⅜" CRUSHED STONE SHALL BE PLACED UNDER FOOTINGS.

F4. ALL FOOTINGS SHALL BE BELOW UNSUITABLE EXISTING FILLS AND ORGANIC MATERIALS.

F5. ALL EXCAVATION WORK SHALL CONFORM TO OSHA 29CFR 1926 SUBPART P–EXCAVATIONS.

F6. ESTIMATED ELEVATIONS OF BOTTOM OF FOOTINGS ARE AS SHOWN ON FOUNDATION PLANS AND ARE APPROXIMATE. THESE ELEVATIONS SHALL BE ADJUSTED TO ACTUAL LEVELS OF APPROVED BEARING STRATA FOUND UPON EXCAVATION. ANY UNUSUAL CONDITIONS SHALL BE CALLED TO THE ATTENTION OF THE STRUCTURAL ENGINEER.

SUBGRADE / STRUCTURAL EARTHWORK

E1. IN ABSENCE OF A SUB–SURFACE EXPLORATION AND GEOTECHNICAL REVIEW, THESE DESIGNS REQUIRE THAT IT BE FIELD VERIFIED THAT NO MATERIALS CONTAINING ORGANICS, VOIDS, DEBRIS, RUBBLE, PLASTICS, FATTY CLAYS, ASH, OR SOLUBLE MATERIAL BE PRESENT WITHIN THE BEARING AREA, WHICH IS TO BE TAKEN AS 10' BEYOND THE OUTER FOOTING EDGE. THIS MAY BE VERIFIED VIA TEST PITS OR BORINGS, AS NECESSARY.

E2. FROM BOTTOM OF FOOTING TO UNDERSIDE OF SLAB, FILL SHALL BE PLACED IN 8" LOOSE LAYERS AND COMPACTED TO 95% MAXIMUM DENSITY PER ASTM D–1557 (3–POINT CURVE ACCEPTABLE).

E3. FROM STRIPLINE TO BOTTOM OF FOOTING, FILL SHALL BE PLACED IN 8"LOOSE LAYERS AND COMPACTED TO 95% MAXIMUM DENSITY AS PER NOTE 1.

E4. FOUNDATIONS ARE DESIGNED FOR A SOIL BEARING VALUE OF 3000 P.S.F..

E5. ALL STRUCTURAL FILL IS TO BE COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY AS PER ASTM D–1557 (3–POINT CURVE ACCEPTABLE) AND IS TO CONFORM TO THE FOLLOWING GRADATION:

Sieve Size	% Passing
6"	100
1 ½"	85 – 100
½"	50 – 85
3/8"	40 – 80
#10	30 – 75
#40	10 – 40
#200	0 – 10

E6. WASHED CRUSHED STONE WHERE USED AS DRAINAGE STONE SUCH AS LEVELING PADS, BELOW SLABS/FOOTINGS AND DRAINAGE STONE BEHIND FOUNDATION/RETAINING WALLS TO BE FILTER STONE, WHICH SHALL BE WASHED, CRUSHED STONE (FREE OF DEBRIS, ORGANICS AND VOIDS) WITH NO MORE THAN 5% PASSING A #40 SIEVE MEETING THE FOLLOWING GRADATION REQUIREMENTS:

Sieve Size	% Passing
6"	100
3"	55 – 100
1 ½"	30 – 100
½"	20 – 60
3/8"	15 – 45
#10	10 – 20
#40	0 – 5

E7. RECLAIMED ASPHALT, IS TO BE COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY AS PER ASTM D–1557 (3–POINT CURVE ACCEPTABLE), AND SHALL BE 100% RECLAIMED ASPHALTIC CONCRETE, WITH NO MORE THAN 7% ASPHALT BINDER, MEETING THE FOLLOWING GRADATION:

Sieve Size	% Passing
1 ½"	100
½"	50 – 100
3/8"	40 – 95
#10	20 – 65
#30	10 – 40
#40	0 – 5

RETAINING WALL DESIGN NOTES

1. ALL WALL CONSTRUCTION IS TO BE DOCUMENTED IN ORDER TO PROVE CONFORMANCE TO THESE CONSTRUCTION DOCUMENTS, PARTICULARLY THE PLACEMENT OF REINFORCEMENT, DIMENSIONS OF CONCRETE AS FORMED, PROPER COMPACTION OF SOILS AND THE PRESENCE OF DRAINAGE MATERIALS. COORDINATING THIS DOCUMENTATION IS THE RESPONSIBILITY OF THE CONTRACTOR. IT IS OUR RECOMMENDATION THAT THE GEOMETRIES AND REINFORCEMENT BE VERIFIED BY THE INSPECTING AGENCY DURING FIELD INSPECTION OF CONCRETE. IN ADDITION TO DOCUMENTATION BY THIRD PARTY INSPECTION, ALL ELEMENTS OF THE WALL SYSTEM SHOULD BE THOROUGHLY PHOTOGRAPHED FOR DOCUMENTATION.

2. CONCRETE USED FOR RETAINING WALLS SHALL HAVE A 28–DAY COMPRESSIVE STRENGTH OF 3 K.S.I.. WALL UNITS SHALL HAVE 4½% – 7½% ENTRAINED AIR, 3"–5" SLUMP, AND MUST BE PLACED AT A MINIMUM OF 50°F. HIGHER SLUMPS ARE ALLOWABLE IF PLASTICIZER IS USED.

3. ALL REQUIRED UNDERDRAINS/DRAINS BEHIND WALL SHALL BE PERFORATED, 4" DIAMETER AND SHALL MEET THE REQUIREMENTS OF AASHTO M252 AND/OR ASTM F949. ALL DRAINS ARE TO PITCH A MINIMUM OF 1/8" PER FOOT. UNDERDRAINS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DRAINS NOT SPECIFIED TO TIE INTO THE SITE DRAINAGE SHALL DRAIN TO DAYLIGHT. NOTE THAT THE PRIMARY PURPOSE OF DRAINS BEHIND THE WALLS IS TO KEEP THE STONE CLEAR OF FINES FOR A LONGER PERIOD, INCREASING LONGEVITY OF THE STRUCTURE.

4. RETAINED SOIL SHALL BE DETERMINED TO MEET OR EXCEED THE REQUIREMENTS BELOW IN THE ABSENCE OF A GEOTECHNICAL ENGINEERING STUDY. IF A GEOTECHNICAL STUDY IS PERFORMED, THE GEOTECHNICAL ENGINEER MUST VERIFY THE SOIL IN THE AREA AS MEETING THE REQUIREMENTS BELOW. SOILS NOT MEETING THESE REQUIREMENTS SHALL BE EXCAVATED AND REPLACED WITH ACCEPTABLE SOILS. THE UNDERLYING SOILS SHALL BE INVESTIGATED FOR THE PRESENCE OF WEAK SOILS, LOOSE SOILS, OR LOAMS TO A DEPTH OF 1.5 TIMES THE HEIGHT OF THE RETAINING WALL. IF WEAK SOILS ARE PRESENT, THEY SHALL BE EXCAVATED AND REPLACED WITH ACCEPTABLE SOILS.

ONCE THE ELEVATION OF THE BOTTOM OF THE 6" STONE LEVELING PAD IS ACHIEVED, THE AREA IS TO BE PROOF COMPACTED WITH VIBRATORY COMPACTION EQUIPMENT PRIOR TO PLACING THE LEVELING PAD. FREE DRAINING BACKFILL SOIL SHALL BE CRUSHED STONE PLACED DIRECTLY BEHIND WALL FOR THE DEPTHS SPECIFIED ON PLANS (1'–0" MIN.) AND SHALL EXTEND VERTICALLY FROM LEVELING PAD TO BETWEEN 0" & 4" BELOW TOP OF WALL. EXPOSED DRAINAGE STONE SHALL BE PROTECTED FROM FINE SOIL MIGRATION THROUGHOUT CONSTRUCTION. THE LEVELING PAD AND DRAINAGE STONE BEHIND THE WALL ARE TO BE FILTER STONE, WHICH SHALL BE WASHED, CRUSHED STONE (FREE OF DEBRIS, ORGANICS AND VOIDS) WITH NO MORE THAN 5% PASSING A #40 SIEVE MEETING THE FOLLOWING GRADATION REQUIREMENTS:

Sieve Size	% Passing
6"	100
3"	55 – 100
1 ½"	30 – 100
½"	20 – 60
3/8"	15 – 45
#10	10 – 20
#40	0 – 5

ALL STRUCTURAL FILL IS TO BE COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY AS PER ASTM D–1557 (3–POINT CURVE ACCEPTABLE) AND IS TO CONFORM TO THE FOLLOWING GRADATION:

Sieve Size	% Passing
6"	100
1 ½"	85 - 100
½"	50 - 85
3/8"	40 - 80
#10	30 - 75
#40	10 - 40
#200	0 - 10

BACKFILL SOIL BEYOND DRAINAGE ZONE SHALL BE CLEAN "BANK RUN GRAVEL" (USCS SW OR SW/SM) WITH NO MORE THAN 10% PASSING THE #200 SIEVE AND SHALL MEET OR EXCEED THE REQUIREMENTS BELOW. ORGANIC AND FROST SUSCEPTIBLE SOILS ARE NOT PERMITTED WITHIN A MIN. DISTANCE BEHIND THE WALL EQUAL TO THE HEIGHT OF THE WALL.

5. ALL DRAINAGE AND FOUNDATION SOIL SHALL BE COMPACTED TO 95% OF ITS MAX. DRY DENSITY, AS DETERMINED BY ASTM D1557 (3–POINT CURVE ACCEPTABLE), USING HAND–OPERATED PLATE COMPACTION EQUIPMENT. BACKFILL SOIL BEYOND CONSOLIDATION ZONE SHALL ALSO BE COMPACTED TO 95%. CONTRACTOR SHALL ENSURE THAT FOUNDATION SOIL IS CAPABLE OF SUPPORTING A MIN. OF 3 K.S.F..

6. THE FOLLOWING MINIMUM SOIL PROPERTIES WERE USED IN THE DESIGN:

	SOIL WEIGHT (P.C.F.)	MINIMUM FRICTION ANGLE (DEG)
BACKFILL/INFILL SOIL*	135 MAX.	34
RETAINED SOIL	135 MAX.	34
FOUNDATION SOIL	125 MIN.	30
LEVELING PAD	125 MIN.	40
FREEDRAINING BACKFILL	130 MAX.	40

*BACKFILL SOIL IS DEFINED AS ALL SOIL PLACED IN LIFT BEHIND THE WALL, EXCEPTING THE FREE DRAINING BACKFILL, INFILL SOIL IS DEFINED AS THE SOIL PLACED WITHIN THE VOIDS WITHIN WALL CONSTRUCTION.

7. CONTRACTOR AND ENGINEER–OF–RECORD SHALL APPROVE/PROVIDE ALL ELEVATIONS AND INVERTS IN THESE PLANS PRIOR TO ORDERING MATERIAL.

8. WALLS SHALL MATCH PLAN WHEN STEPPING UP OR DOWN. WALL ANGLES SHALL BE SLIGHTLY ADJUSTED TO ACCOMMODATE PROPERTY LINES AND OBSTRUCTIONS.

9. IF NECESSARY, THE WALL MAY BE PINNED TO LEDGE. ANY SEGMENT OF WALL PINNED TO LEDGE MUST BE ISOLATED FROM THE SURROUNDING WALL WITH FULL HEIGHT, VERTICAL EXPANSION/CONTRACTION JOINTS. PINNING IS TO BE ACOMPLISHED BY EPOXY ANCHORING #5 BARS 12" INTO SOUND, DURABLE STONE, AND DEVELOPING THE PIN A MINIMUM OF 12" INTO THE NEWLY CAST CONCRETE: THE CONCRETE IS TO BE POURED ON CLEAN LEDGE, FREE OF DEBRIS.

10. SEE REINFORCED CONCRETE NOTES FOR ADDITIONAL INFORMATION.

11. LEVELING PADS MUST EXTEND A MINIMUM OF 4" PAST THE FACE OF CONCRETE WALL ON BOTH SIDES.

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TOWN OF LISBON

TUNNEL HILL ROAD CULVERT REPAIRS

STRUCTURAL NOTES

Project No. CLA–6097
Proj. Engineer D.P.H
Date: 03/15/18
Sheet No. 3

CLA

EROSION & SEDIMENTAION CONTROL NARRATIVE

1. THE EROSION & SEDIMENTATION CONTROL PLAN AND DETAILS HAVE BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CONNECTICUT DEP."

2. THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL MEASURES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROVIDE SILT FENCE, STONE CHECK DAMS AND/OR OTHER EROSION CONTROL MEASURES AS NEEDED OR DIRECTED BY THE ENGINEER OR TOWN STAFF TO ADEQUATELY PREVENT SEDIMENT TRANSPORT.

3. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SITE DISTURBANCE. TOWN STAFF SHALL REVIEW AND APPROVE THE INSTALLATION PRIOR TO EXCAVATION.

4. THE CONTRACTOR SHALL INSPECT, REPAIR AND/OR REPLACE EROSION CONTROL MEASURES EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT. SEDIMENT DEPOSITS MUST BE REMOVED WHEN WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.

5. STAKED HAY BALE SILT BARRIERS OR SILT FENCE SHALL BE INSTALLED AROUND ANY TEMPORARY STOCKPILE AREAS. TEMPORARY VEGETATIVE COVER MAY BE REQUIRED (SEE NOTE).

6. INLET SEDIMENTATION CONTROL DEVICES SHALL BE INSTALLED UNDER THE GRATES OF ALL NEW CATCH BASINS AT THE TIME OF INSTALLATION, AND UNDER THE GRATES OF EXISTING CATCH BASINS IN THE CONSTRUCTION AREA.

7. CONTINUOUS DUST CONTROL USING WATER, CALCIUM CHLORIDE OR APPROVED EQUAL SHALL BE PROVIDED FOR ALL EARTH STOCKPILES, EARTH PILED ALONG EXCAVATIONS, SURFACES OF BACKFILLED TRENCHES AND GRAVELED ROADWAY SURFACES.

8. IF DEWATERING IS NECESSARY DURING ANY TIME OF CONSTRUCTION A CLEAR WATER DISCHARGE SHALL BE PROVIDED.

9. ALL DISTURBED AREAS SHALL BE RESTORED PER THE SLOPE STABILIZATION AND PERMANENT VEGETATION DETAILS. ALL DISTURBED AREAS THAT ARE SLOPED LESS THAN THREE HORIZONTAL TO ONE VERTICAL (3:1) SLOPE SHALL BE LOAMED, SEEDED, FERTILIZED AND MULCHED PER THE PERMANENT VEGETATIVE COVER SPECIFICATIONS. EROSION CONTROL MATTING SHALL BE PROVIDED ON ALL DISTURBED AREAS WITHIN 10 FEET OF THE STREAM BED AND THAT ARE SLOPED MORE THAN THREE HORIZONTAL TO ONE VERTICAL (3:1).

10. IF FINAL SEEDING OF DISTURBED AREAS IS NOT TO BE COMPLETED BEFORE OCTOBER 15, THE CONTRACTOR SHALL PROVIDE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY PERMANENT SEEDING.

11. WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISHED GRADED SHALL BE COMPLETED PRIOR TO OCTOBER 15.

12. ANY EROSION WHICH OCCURS WITHIN THE DISTURBED AREAS SHALL BE IMMEDIATELY REPAIRED AND STABILIZED. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT SHALL BE RETURNED TO THE SITE. POST SEEDING, INTERCEPTED SEDIMENT, IF ANY, SHALL BE DISPOSED OF IN A MANNER APPROVED BY THE TOWN AND ENGINEER.

13. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL VEGETATION IS RE-ESTABLISHED OR SLOPES ARE STABILIZED AND REMOVAL IS APPROVED BY THE TOWN.

14. UNFORESEEN PROBLEMS WHICH ARE ENCOUNTERED IN THE FIELD SHALL BE SOLVED ACCORDING TO THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CONNECTICUT DEP."

15. IF NECESSARY, THE PUBLIC WORKS DEPARTMENT OR THE OWNER WILL BE PREPARED TO STEP IN AND TAKE ACTION TO ADDRESS ANY POTENTIAL EROSION PROBLEMS. ANY WORK DONE BY THE PUBLIC WORKS DEPARTMENT OR THE OWNER WILL BE BACK CHARGED TO THE CONTRACTOR.

16. THE CONTRACTOR SHALL PROVIDE THE NAME AND EMERGENCY CONTACT INFORMATION FOR THE PROJECT PERSONNEL RESPONSIBLE FOR EROSION AND SEDIMENTATION CONTROLS.

PERMANENT VEGETATIVE COVER

TOPSOIL WILL BE REPLACED ONCE THE EXCAVATIONS HAVE BEEN COMPLETED AND THE SLOPES ARE GRADED AS SHOWN ON THE PLANS. PROVIDE SLOPE PROTECTION AS CALLED FOR ON THE PLANS AND DETAILS. TOPSOIL SHALL BE SPREAD AT A MINIMUM COMPACTED DEPTH OF 4 INCHES. ONCE THE TOPSOIL HAS BEEN SPREAD, ALL STONES TWO INCHES OR LARGER IN ANY DIMENSION WILL BE REMOVED AS WELL AS DEBRIS, APPLY AGRICULTURAL GROUND LIMESTONE AT THE RATE OF TWO TONS PER ACRE OR 100 LBS. PER 1000 S.F. APPLY 10-10-10 FERTILIZER OR EQUIVALENT AT A RATE OF 300 LBS. PER ACRE OR 7.5 LBS. PER S.F.. WORK LIMESTONE INTO THE SOIL TO A DEPTH OF 6 INCHES. INSPECT SEEDBED BEFORE SEEDING. IF TRAFFIC HAS COMPACTED THE SOIL, RETILL COMPACTED AREAS. APPLY THE FOLLOWING GRASS SEED MIX:

SEED MIXTURE

2:1 SLOPES OR GREATER	LBS./ACRE	LBS./1000 S.F.
DEP SEED MIX NO. 3:		
CREEPING RED FESCUE (PENNLAWN, WINTERGREEN)	20	0.45
BIRD'S FOOT TREFOIL (EMPIRE, VIKING) W/ INOCULANT	8	0.20
TALL FESCUE (KENTUCKY 31) OR		
SMOOTH BROMEGRASS (SARATOGA, LINCOLN)	20	0.45
	45	1.00

REMAINDER OF DISTURBED AREAS	LBS./ACRE	LBS./1000 S.F.
KENTUCKY BLUEGRASS	20	0.45
CREEPING RED FESCUE	20	0.45
PERENNIAL RYEGRASS	5	0.10
	45	1.00

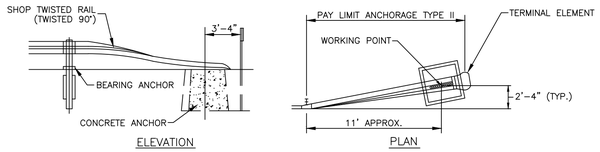
THE RECOMMENDED SEEDING DATES ARE:

- APRIL 1 – JUNE 15
- AUGUST 15 – OCTOBER 15

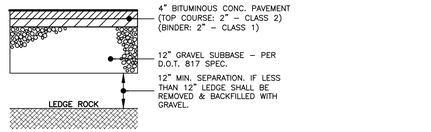
IMMEDIATELY FOLLOWING SEEDING, FIRM SEED BED WITH A ROLLER AND MULCH WITH WEED FREE STRAW. IF PERMANENT VEGETATIVE COVER IS HAS NOT BEEN ESTABLISHED BY SEPTEMBER 30, APPLY A TEMPORARY VEGETATIVE COVER ON THE TOPSOIL.

TEMPORARY VEGETATIVE COVER

A TEMPORARY SEEDING OF RYE GRASS WILL BE COMPLETED WITHIN 15 DAYS OF THE FORMATION OF STOCKPILES. IF THE SOIL IN THE STOCKPILES HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS IT SHALL BE LOOSENED TO A DEPTH OF 2 INCHES BEFORE THE FERTILIZER, LIME AND SEED IS APPLIED. 10-10-10 FERTILIZER AT A RATE OF 7.5 POUNDS PER 1000 S.F. LIMESTONE AT A RATE OF 90 LBS. PER 1000 S.F. SHALL BE USED. RYE GRASS APPLIED AT A RATE OF 1 LB. PER 1000 S.F. SHALL PROVIDE THE TEMPORARY VEGETATIVE COVER. STRAW, FREE FROM WEEDS AND COARSE MATTER SHALL BE USED AT A RATE OF 70-90 LBS. PER 1000 S.F. AS A TEMPORARY MULCH. APPLY MULCH AND DRIVE TRACKED EQUIPMENT UP AND DOWN SLOPE OVER ENTIRE SURFACE SO CLEAT MARKS ARE PARALLEL TO THE CONTOURS.



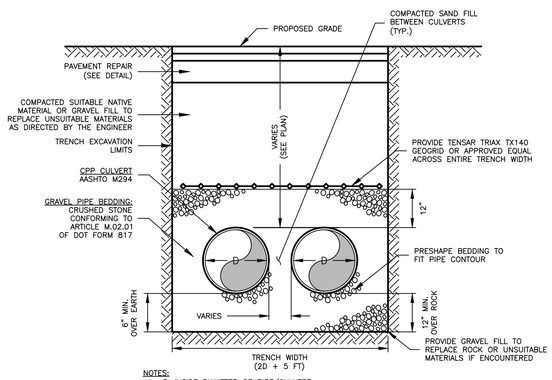
RB END ANCHORAGE - TYPE II



NOTES:
1. PROVIDE CONTINUOUS TACK COAT ALONG EDGE WHEN MATCHING EXISTING PAVEMENT.
2. MATCH EXISTING ROADWAY GRADES AND CROWN.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY DISTURBED PAINTED PAVEMENT MARKINGS.
4. CONTRACTOR TO PROVIDE COMPACTION ON ALL TRENCH BACKFILLS, EXCAVATIONS AND PAVEMENT BASES TO NOT LESS THAN 95% OF THE DRY DENSITY FOR THAT MATERIAL WHEN TESTED IN ACCORDANCE WITH AASHTO T180, METHOD D.

PAVEMENT REPAIR DETAIL

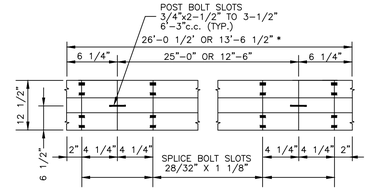
NOT TO SCALE



NOTES:
1. D=INSIDE DIAMETER OF PIPE/CULVERT.
2. TRENCH WIDTHS NOTED ARE SET TO ESTABLISH PAY LIMITS ONLY.
3. ALL EXCAVATIONS MUST MEET OSHA STANDARDS.
4. CONTRACTOR TO PROVIDE COMPACTION ON ALL TRENCH BACKFILLS, EXCAVATIONS AND PAVEMENT BASES TO NOT LESS THAN 95% OF THE DRY DENSITY FOR THAT MATERIAL.

TRENCH DETAIL: 2-24" DRAINAGE CULVERT

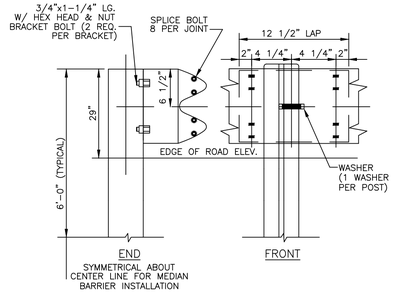
NOT TO SCALE



* AT THE OPTION OF THE CONTRACTOR

TYPICAL RAIL ELEMENT (GALVANIZED)

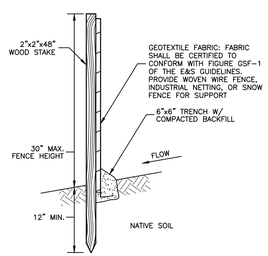
CLASS A (12 GA.)



NOTES:
1. INSTALLATION OF RAIL AND ANCHORAGES TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF CT DOT.
2. METAL BEAM RAIL TO BE DOT TYPE RB-350 PER DOT SPECIFICATIONS.
3. PROVIDE RB-TYPE II END ANCHORAGES PER DOT SPECIFICATIONS.

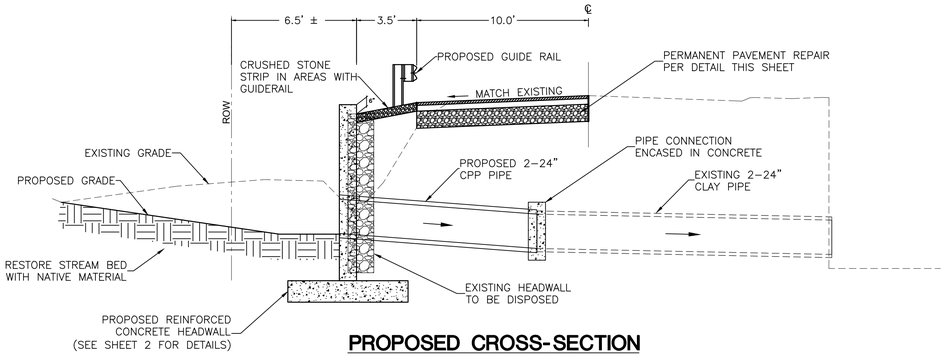
METAL BEAM RAIL AND END ANCHORAGE

NOT TO SCALE



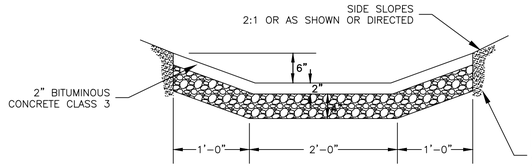
SILT FENCE SECTION

NOT TO SCALE



PROPOSED CROSS-SECTION

NOT TO SCALE

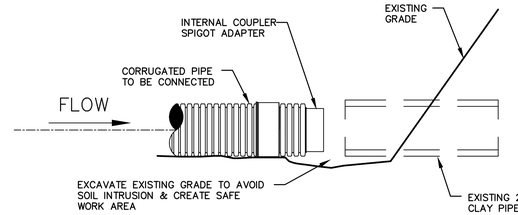


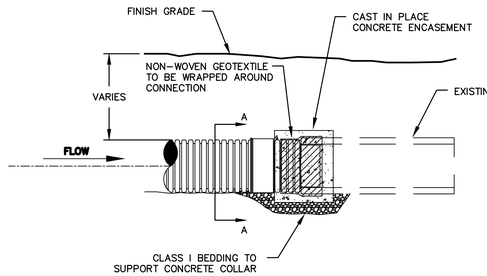
PAVED LEAK OFF DETAIL

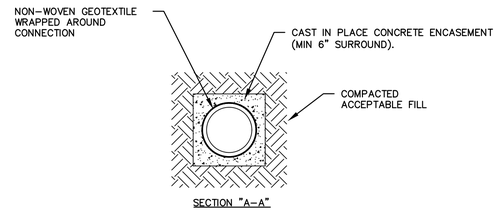
NOT TO SCALE

THE CONTRACTOR SHALL CONTINUALLY STORE THE FOLLOWING MATERIALS ONSITE DURING CONSTRUCTION TO MEET UNEXPECTED EROSION NEEDS

- 100 LF OF SILT FENCE
- 10 HAY BALES
- WOOD CHIPS OR CRUSHED STONE



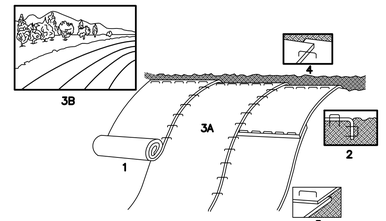




PIPE CONNECTION DETAIL

NOT TO SCALE

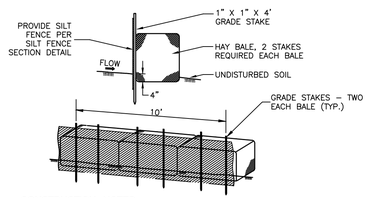
NOTES:
1. CONNECTION AND PIPE TO BE BACKFILLED PER ASTM D2321.
2. IN LIEU OF AN INTERNAL COUPLER SPIGOT ADAPTER, AT THE APPROVAL OF THE ENGINEER, AN ALTERNATE ATERTIGHT REPAIR COUPLER CAN BE USED TO CONNECT PIPES.



1. EROSION CONTROL MATTING SHALL BE INSTALLED FOR ALL SLOPES WITHIN 10 FEET OF STREAM BED AND SLOPES MORE THAN THREE HORIZONTAL TO ONE VERTICAL (3:1).
2. PROVIDE 6" THICKNESS OF TOPSOIL OVER CLEAN FILL. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED MIX PER PERMANENT VEGETATIVE COVER NOTES.
3. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP x 6" WIDE TRENCH, BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
4. 3. ROLL THE BLANKET (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE.
5. 4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
6. 5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.

NOTE: ALL PERMANENT EROSION CONTROL BLANKETS ARE TO BE NORTH AMERICAN GREEN BIONET C125BN OR APPROVED EQUAL.

EROSION CONTROL MATTING DETAIL



CONSTRUCTION NOTES:
1. SILT FENCE FILTER CLOTH TO BE SECURELY FASTENED TO GRADE STAKE WITH STAPLES, 6" ON CENTER.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN ONE ANOTHER THEY SHALL OVERLAP BY 6" AND BE FOLDED.
3. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.

HAY BALE/SILT FENCE EROSION PROTECTION

NOT TO SCALE

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TOWN OF LISBON

TUNNEL HILL ROAD CULVERT REPAIRS

CONSTRUCTION DETAILS

Project No. CLA-6097
Proj. Engineer D.P.H
Date: 03/15/18
Sheet No. 4

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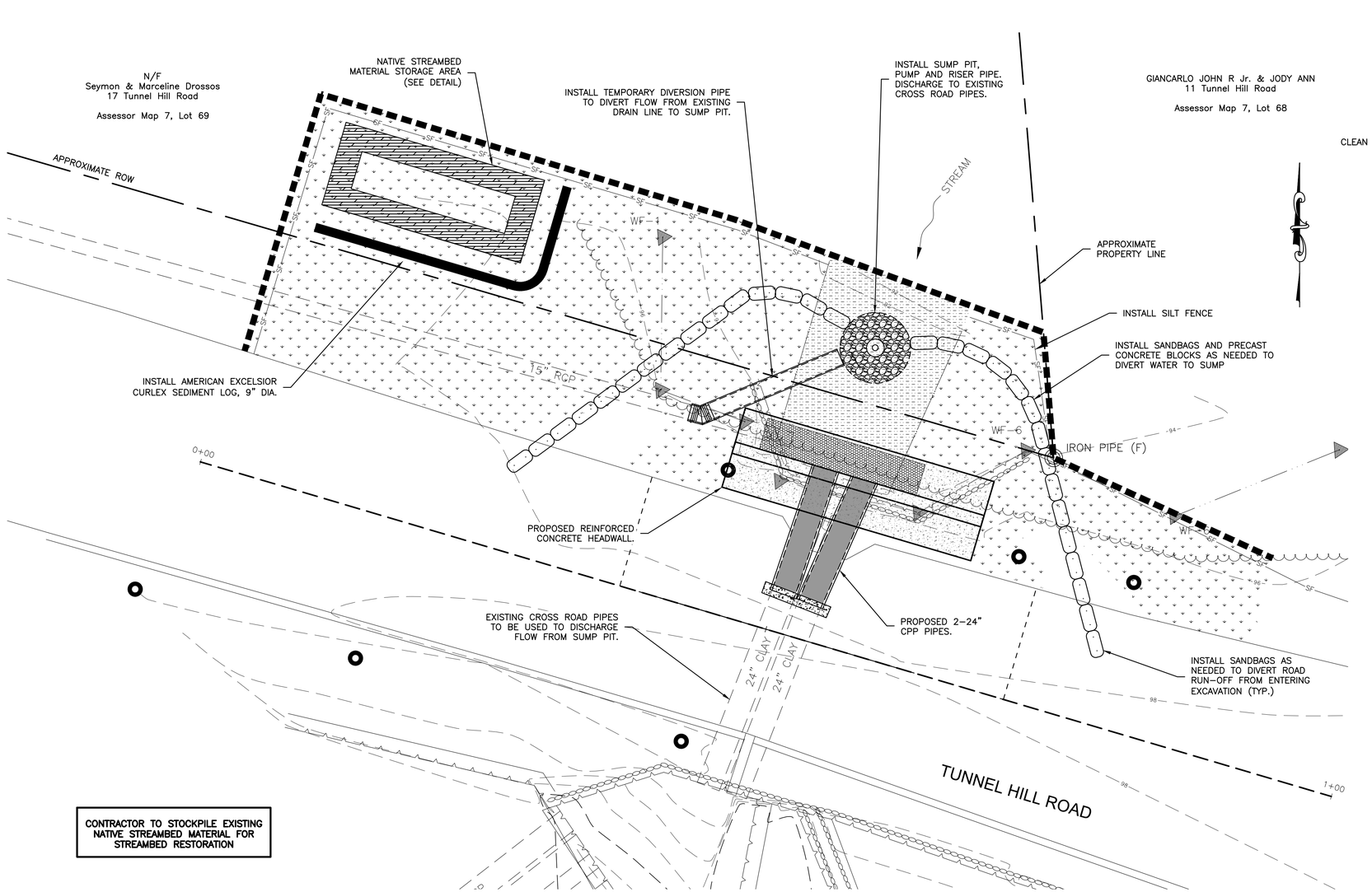
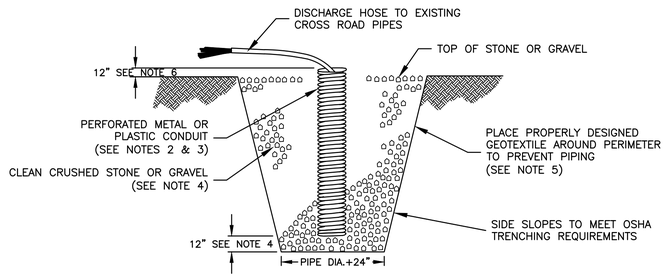


CONTRACTOR TO STOCKPILE EXISTING NATIVE STREAMBED MATERIAL FOR STREAMBED RESTORATION

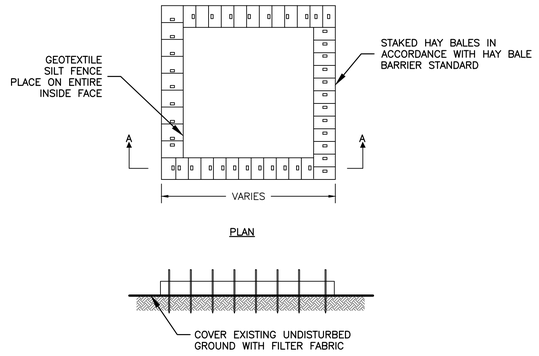
PLAN



TYPICAL SECTION OF SUMP PIT DETAIL

NOT TO SCALE

1. OVERALL SUMP PIT DIMENSIONS SHALL BE COMPATIBLE WITH ANTICIPATED SEEPAGE RATES AND PUMP SIZE TO BE USED.
2. THE STANDPIPE DIAMETER AND NUMBER OF PERFORATIONS SHALL BE COMPATIBLE THE PUMP SIZE BEING USED.
3. PERFORATIONS IN THE STANDPIPE SHALL BE EITHER CIRCULAR OR SLOTS. PERFORATION SIZE SHALL NOT EXCEED ½" IN DIAMETER.
4. CRUSHED STONE OR GRAVEL SHALL BE NO SMALLER THAN CT. DOT #67 SIZE NOR LARGER THAN CT. DOT #3 SIZE. CRUSHED STONE SHALL EXTEND A MINIMUM OF 12" BELOW THE BOTTOM OF THE STANDPIPE.
5. IF EXCESSIVE MOVEMENT OF FINE SOIL PARTICLES FROM THE SURROUNDING EXISTING SOILS IS ANTICIPATED, A PROPERLY DESIGNED GEPTEXTILE SHALL BE PLACED BETWEEN THE EXISTING SOILS AND THE CRUSHED STONE OR GRAVEL BACKFILL.
6. THE STANDPIPE SHALL EXTEND A MINIMUM OF 12" ABOVE THE SURROUNDING GROUND.



NATIVE STREAMBED MATERIAL STORAGE AREA

NOT TO SCALE

DE-WATERING & CONTROL OF WATER

1. THE EXCAVATIONS FOR WORK REQUIRED BY THIS CONTRACT ARE BELOW EXISTING GROUND WATER LEVELS. THE CONTRACTOR SHALL PROVIDE, OPERATE AND MAINTAIN ALL PUMPS, DRAINS, WELL POINTS, SCREENS AND OTHER FACILITIES NECESSARY FOR THE CONTROL, COLLECTION, DISPOSAL AND/OR DIVERSION OF ALL SURFACE AND SUB-SURFACE WATER ENCOUNTERED. ALL EXCAVATIONS SHALL BE PERFORMED IN THE DRY.
2. TEMPORARY CONSTRUCTION ACCESS HAS BEEN SECURED TO 17 TUNNEL HILL ROAD. THE CONTRACTOR SHALL NOT ENCROACH BEYOND THE LIMITS SHOWN ON THE PLANS.
3. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF THE DEWATERING AND WATER DIVERSION OPERATIONS.
4. IT IS SUGGESTED THE CONTRACTOR EMPLOY A COMBINATION OF EXCAVATION DEWATERING AND WATER DIVERSION OPERATIONS TO ENSURE THE CONSTRUCTION REQUIREMENTS OF THIS CONTRACT ARE MET. SPECIFIC REQUIREMENTS FOR THE DEWATERING OF EXCAVATIONS AND DIVERSION OF WATER ARE STIPULATED IN THE CONTRACT TECHNICAL SPECIFICATIONS.
5. THE FOLLOWING SEQUENCE OF WORK MAY BE UTILIZED BY THE CONTRACTOR OR MODIFIED TO ENSURE THE CONTRACT SPECIFIC REQUIREMENTS OF THIS PROJECT ARE MET.
6. SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE TOWN OF LISBON FOR 1 WEEK IN ADVANCE OF CONSTRUCTION.
7. NOTIFY THE TOWN OF LISBON INLAND WETLANDS AGENTS OF START OF CONSTRUCTION A MINIMUM OF 48 HOURS IN ADVANCE.
8. CUT TREES AND CLEAR VEGETATION FROM DESIGNATED LIMITS OF CLEARING ALONG APPROACHES TO THE PROPOSED CULVERT LOCATION.
9. ESTABLISH ALL EROSION AND SEDIMENTATION CONTROLS. DO NOT STUMP UNTIL E&S IS PROPERLY INSTALLED AND INSPECTED BY THE TOWN.
10. STABILIZE EXISTING AREAS FOR WORKING AND SUSCEPTIBLE TO EROSION BY RE-GRADING & INSTALLING CRUSHED STONE.
11. INSTALL DETWATERING PIT AND PUMP TO INTERCEPT STREAM FLOW (SEE TYPICAL DETAIL THIS SHEET). EXISTING CLAY PIPE(S) SHALL BE UTILIZED TO DISCHARGE FLOW FROM SUMP PIT.
12. EXCAVATE AND INSTALL HEADWALL AND FOUNDATION (REFER TO STRUCTURAL NOTES ON SHEET 3).
13. DEWATERING AND PLACEMENT OF FOOTINGS AND RETAINING WALL WILL BE MONITORED BY A QUALIFIED ENVIRONMENTAL PROFESSIONAL TO MAINTAIN SUITABLE QUALITY OF DISCHARGE FROM THE ENCLOSURE AND TO ENSURE REMOVAL OF ACCUMULATED SEDIMENTS AT APPROPRIATE INTERVALS. SEDIMENTS WILL BE DISPOSED OF AT AN APPROPRIATE OFF-SITE LOCATION.
14. IF POSSIBLE, UNCONFINED IN-STREAM HEADWALL CONSTRUCTION SHALL TAKE PLACE ONLY DURING SUMMER LOW FLOW CONDITIONS BETWEEN JULY 1 – SEPTEMBER 30.
15. THROUGHOUT CONSTRUCTION AND DE-WATERING, MONITOR WEATHER TO AVOID WORKING IN HIGH FLOWS AND MOVE MATERIAL AS FORECAST WARRANTS.
16. UPON COMPLETION OF DE-WATERING, THE DE-WATERING ENCLOSURES WILL BE REMOVED AND THE AREAS RESTORED USING THE ORIGINAL EXCAVATED NATIVE STREAMBED MATERIAL.
17. SEED AND PLANT VEGETATION IN DISTURBED AREAS. MAINTAIN E&S UNTIL ALL VEGETATION HAS BECOME ESTABLISHED.
18. REMOVE AND DISPOSE E&S CONTROLS

5' 0 5' 10'
SCALE: 1"=5'

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TOWN OF LISBON

TUNNEL HILL ROAD CULVERT REPAIRS

DEWATERING AND CONTROL OF WATER

Project No.	CLA-6097
Proj. Engineer	D.P.H
Date:	03/15/18
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