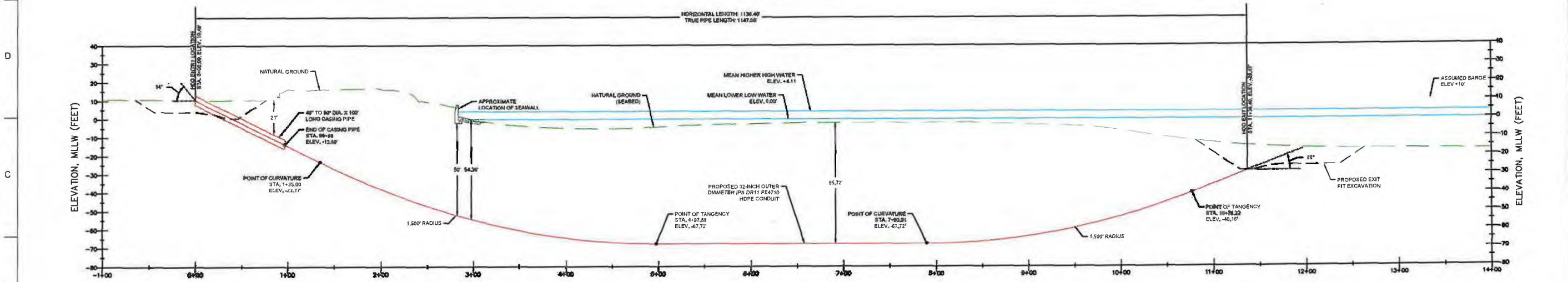


HDD EAST SITE PLAN
SCALE BAR
50' 25' 0' 50'



STATION (FEET)
PROFILE
HORIZ. SCALE: 1"=50'
VERT. SCALE: 1"=25'

- CROSSING SPECIFIC HDD NOTES:**
1. ALL EQUIPMENT SHALL BE STAGED WITHIN THE IDENTIFIED WORK SPACE.
 2. ELEVATIONS REFERENCED TO 0.00' MLLW = 4.11' MHHW, 3.66' MHW, 2.24' NAVD83, 1.87' MSL, and 0.16' MLLW. HORIZONTAL DATUM REFERS TO NAD83 UTM ZONE 19 US FOOT CENTRAL MERIDIAN 69D W.
 3. DIMENSIONS PROVIDED ON THE DRAWING ARE IN FEET, UNLESS OTHERWISE NOTED.
 4. ALIGNMENT STATIONING IS HORIZONTAL.
 5. METHOD OF HDPE CONDUIT INSTALLATION SHALL BE BY HORIZONTAL DIRECTIONAL DRILL.
 6. CONTRACTOR SHALL DETERMINE FINAL LOCATIONS AND DIMENSIONS OF ALL MUD PITS NECESSARY TO ACCOMMODATE THEIR MEANS AND METHODS.
 7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND PROTECT ANY FOREIGN UTILITY THAT MAY BE AFFECTED BY THE OPERATIONS. CONTRACTOR SHALL CALL DIG SAFE PRIOR TO CONSTRUCTION. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING PRIVATE SERVICES, ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION OPERATIONS. CONTRACTOR TO STAGE ALL PERSONNEL AND EQUIPMENT WITHIN THE PERMITTED LIMIT OF DISTURBANCE, UNLESS OTHERWISE AUTHORIZED BY THE CLIENT.
 8. CONTRACTOR SHALL DETERMINE DIAMETER, GRADE, WALL THICKNESS AND ANY ADDITIONAL LENGTH OF THE TEMPORARY CONDUIT CASING. ANY INSTALLED TEMPORARY CONDUIT CASING AND OFFSHORE GOAL POSTS SHALL BE FULLY REMOVED UPON COMPLETION OF PULLBACK OPERATIONS. CONTRACTOR TO DETERMINE OFFSHORE GOAL POST SUPPORTS NECESSARY FOR SUPPORTING THE CASING PIPE.
 9. HDD EXIT POINT IS LOCATED WITHIN AN EXCAVATION. THIS EXCAVATION WILL HELP ACHIEVE THE REQUIRED BURIAL DEPTH OF THE HDPE CONDUIT. DEPTH AND EXTENT OF EXCAVATION SHOWN ON DRAWINGS SUBJECT TO CHANGE.
 10. APPROXIMATE EXIT PIT LOCATION MAY INCLUDE TEMPORARY SUPPORT STRUCTURES, TEMPORARY SUPPORT STRUCTURES INCLUDING BUT NOT LIMITED TO CONDUIT SUPPORT PILES AND SECONDARY PROTECTION MAY BE INSTALLED AT THE EXIT PIT LOCATION TO AID IN THE INSTALLATION OF THE HDD. THESE FEATURES WILL BE REMOVED UPON COMPLETION OF THE CASING INSTALLATION.
 11. THE INITIAL EXIT PIT EXCAVATION SHALL BE CONDUCTED WITH TOOTHED BUCKET. DREDGED SEDIMENT SHALL BE PLACED IN A HOPPER SCOW(S) OR SIMILAR FOR TEMPORARY STORAGE. THE

- SCOW(S) MAY REQUIRE OCCASIONAL DECANTING TO REMOVE EXCESS WATER DURING DREDGING OPERATIONS. UPON COMPLETION OF THE HDD INSTALLATION, THE DREDGED SEDIMENT SHALL BE USED TO BACKFILL AND RESTORE THE EXIT PIT TO ITS PRE-EXCAVATION CONDITIONS. IF ADDITIONAL FILL IS NECESSARY TO RESTORE THE AREA TO ITS PRE-EXCAVATION CONDITIONS, CLEAN FILL OF - SIMILAR GRAIN SIZE SHALL BE ACQUIRED FROM AN UPLAND SOURCE AND PLACED AS BACKFILL.
12. STEEL CASING AT EXIT LOCATION SHALL BE INSTALLED OVER THE DRILL PIPE ONCE THE PILOT BORE HAS BEEN COMPLETED.
13. THE MINIMUM ALLOWABLE DRILLING RADIUS SHALL BE 900 FEET BASED ON A 3-JOINT AVERAGE.
14. HDD OPERATIONS SHALL BE CONDUCTED IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.
15. DOWNHOLE ANNUAL DRILLING FLUID PRESSURES SHALL BE MONITORED AT ALL TIMES DURING THE PILOT BORE DRILLING PROCESS. LOCATION OF MONITORING SHALL BE AS CLOSE TO THE DRILL BIT AS POSSIBLE. CONTRACTOR SHALL MAINTAIN FLUID PRESSURES AS LOW AS POSSIBLE AND REACT TO CLEAN THE BORE SHOULD FLUID PRESSURES DIFFER FROM CALCULATED VALUES.
16. PILOT BORE SHALL BE CONTINUOUSLY TRACKED AT ALL TIMES. NO BLIND SECTIONS SHALL BE PERMITTED, EVEN WHEN THE DRILL BIT IS UNDER WATER.
17. ROCK BAGS OR EQUIVALENT MAY BE TEMPORARILY PLACED WITHIN EXCAVATION TO PREVENT INFILLING DURING HDD OPERATIONS.
18. PRIOR TO CABLE PULL IN THE DREDGED AREA AT THE END OF THE HDPE CONDUIT MAY REQUIRE TARGETED REMOVAL/CLEARING OF ACCUMULATED SEDIMENT DUE TO INFILLING, TO AVOID DAMAGING THE CONDUIT. THIS WORK SHALL BE CONDUCTED WITH THE USE OF AN AIRLIFT, CONTROLLED FLOW EXCAVATION, AND/OR SUCTION DREDGING OR SIMILAR EQUIPMENT.
19. SOIL IN VICINITY OF THE HDD ENTRY LOCATION SHALL BE COMPACTED FOLLOWING COMPLETION OF HDD OPERATIONS TO AVOID FUTURE SETTLEMENT.
20. SPILL PREVENTION: REFUELING OF ALL EQUIPMENT SHALL BE COMPLETED IN ACCORDANCE WITH CONTRACTORS JOB SAFETY PLAN.
21. THE HDPE CONDUIT SHALL BE FABRICATED WITHIN THE APPROVED PRODUCT PIPE STRINGING AND FABRICATION AREA.

22. HDPE CONDUIT SHALL BE INTERNALLY AND EXTERNALLY DEBEADED AS IT IS FABRICATED.
23. PRE-INSTALLATION LOW PRESSURE AIR TEST AND MANDREL TEST SIZED 90 PERCENT OF THE HDPE CONDUIT INTERNAL DIAMETER SHALL BE COMPLETED PRIOR TO TOWING TO HDD EXIT LOCATION.
24. POST-INSTALLATION TEST SHALL CONSIST OF PULLING A CALIBRATION TOOL WITH A GAUGING PLATE, SIZED TO 90 PERCENT OF HDPE INNER DIAMETER THROUGH THE INSTALLED CONDUIT. MANDREL TO BE SIZED TO 90 PERCENT OF THE HDPE CONDUIT INTERNAL DIAMETER.
25. CONTRACTOR SHALL FULLY FILL THE HDPE CONDUIT WITH WATER DURING PULLBACK OPERATIONS. CONDUIT TO BE LEFT FULL OF WATER.
26. EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH SOIL EROSION AND CONTROL PLAN.
27. CLEANUP / STABILIZATION / RESTORATION: ALL DISTURBED AREAS ON-SHORE SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS OFF-SHORE SHALL BE RETURNED TO ORIGINAL CONDITION OR BETTER.
28. AERIAL IMAGERY PROVIDED BY ESRI BASEMAP IMAGERY, 2020.
29. THIS DRAWING IS BASED ON TOPOGRAPHIC SURVEY DATA PROVIDED BY VHS SEPTEMBER, 2020 AND BATHYMETRY PROVIDED BY NOAA APRIL, 2021. THIS DATA IS USED AS IS AND HAS NOT BEEN VERIFIED BY MOTT MACDONALD.
30. SPILL KITS SHALL BE STAGED AT THE HDD ENTRY AND EXIT LOCATIONS.
31. WATER SOURCE: CONTRACTOR IS RESPONSIBLE FOR SOURCING A RELIABLE WATER SOURCE FOR ALL HDD OPERATIONS. DRILL WATER SHALL BE OBTAINED FROM COMPANY APPROVED SOURCE.
32. DRILL PATH SHOWN ON THE DRAWINGS REFERS TO THE CENTERLINE OF THE PROPOSED HDD INSTALLATION. DRILLING TOLERANCES MAY RESULT IN SLIGHT DEVIATIONS FROM THESE STATIONS AND ELEVATIONS. PILOT BORE DRILLING TOLERANCES ARE AS INDICATED IN TOLERANCE TABLE.

LEGEND:			
NATURAL GAS	WATER LINE	ELECTRIC & POLE	STORM MANHOLE
PROPERTY LINE	SANITARY SEWER	LIGHTING ELECTRIC	SIGN
MINOR CONTOUR	EXISTING FENCE	RETAINING WALL	ELECTRIC BOX
MINOR CONTOUR	COMMUNICATIONS LINE	STORM DRAIN	CATCH BASIN

ITEM	TOLERANCE
PILOT ENTRY ANGLE	INCREASE ANGLE UP TO 1° (STEEPER), BUT NO DECREASE IN ANGLE ALLOWED.
PILOT ENTRY LOCATION	AS STAKED BY OWNER. NO CHANGES WITHOUT OWNER APPROVAL.
PILOT EXIT ANGLE	DECREASE ANGLE UP TO 2° (FLATTER), BUT NO INCREASES IN EXIT ANGLE ALLOWED.
PILOT EXIT LOCATION	UP TO FIVE (5) FEET SHORTER AND 15 FEET LONGER.
PILOT DEPTH	UP TO THREE (3) FEET SHALLOWER ALLOWED. UP TO EIGHT (8) FEET DEEPER ALLOWED.
PILOT ALIGNMENT	UP TO FIVE (5) FEET LEFT OR RIGHT OF THE OWNER SURVEY CENTERLINE BUT NOT WITHIN THREE (3) FEET OF THE RIGHT-OF-WAY/EASEMENT BOUNDARY.

0	06/18/21	ML	GD	ISSUED FOR PERMIT
1	06/18/21	ML	GD	ISSUED FOR FURTHER REVIEW
2	06/18/21	ML	GD	ISSUED FOR FURTHER REVIEW
3	06/18/21	ML	GD	ISSUED FOR REVIEW
Rev	Date	By	Appr	Appr
06/18/21	ML	GD	GD	GD
Scale	1" = 100'	Size	D-SIZE	27918963
Supplier				
HDD PLAN & PROFILE HDD EAST LANDFALL NORTH KINGSTOWN, RHODE ISLAND DRAWING NUMBER: 07015963				