STONY CREEK TOWN WHARF SEAWALL & CONCRETE DECK REPAIRS

Owner: Town of Branford 1019 Main Street Branford, CT 06405

July 25, 2022



VICINITY MAP

Location: Stony Creek Town Wharf Foot of Indian Point Road Branford, CT 06405





AERIAL PHOTO

LIST OF DRAWINGS

DWG. No.

DRAWING TITLE

1	TITLE SHEET
2	PROJECT NOTES
3	EXISTING / DEMOLITION PLAN & SECTIONS
4	WHARF REPAIR PLAN & SECTIONS
5	TYPICAL DETAILS

	FOR BID PURPOSES ONLY NOT FOR CONSTRUCTION				
	Reference611 Access Road Stratford, CT 06615 Tel.: 203-377-0663 racecoastal.com				
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Prepared for TOWN OF BRANFORD 1019 MAIN STREET BRANFORD, CT 06405 Project STONY CREEK TOWN WHARF SEAWALL & CONCRETE DECK REPAIRS FOOT OF INDIAN POINT ROAD BRANFORD, CT 06405					
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NSED NOT	Designed ZMV/SCS Drawn ZMV Checked SCS Job No. 2021069 Date 07/25/2022 Drawing No. 1 of 5				
IT ENGINEER'S SEAL					

DESCRIPTION

REV DATE

PROJECT NOTES

DESCRIPTION OF WORK:

- THE WORK COVERED UNDER THESE CONTRACT DOCUMENTS. INCLUDING THE DRAWINGS, PROJECT NOTES, AND ALL AMENDMENTS, CONSISTS OF PROVIDING ALL PLANT, LABOR, SUPERVISION, EQUIPMENT APPLIANCES AND MATERIALS AND IN PERFORMING ALL OPERATIONS IN CONNECTION WITH AT LEAST, BUT NOT NECESSARILY LIMITED TO, THE FOLLOWING ITEMS:
- DEMOLITION & DISPOSAL OF EXISTING CONCRETE DECK
- TEMPORARY REMOVAL & RE-INSTALLATION OF ALUMINUM GANGWAY REPAIR OF BITUMINOUS CONCRETE PAVEMENT
- FURNISH & INSTALL PIPE RAIL
- REPOINT STONE SEAWALL REBUILD TOP OF STONE SEAWALL
- THE CONTRACTOR SHALL PROVIDE ALL ITEMS AND ACCESSORIES REQUIRED TO COMPLETE ALL ASPECTS OF THE WORK NEEDED FOR A COMPLETE AND PROPER INSTALLATION, ALL IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS.

GENERAL NOTES:

- ALL ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD) UNLESS NOTED OTHERWISE.
- SITE INFORMATION WAS BEEN OBTAINED BY RACE COASTAL ENGINEERING, LLC (RACE) ON 06/24/2019 AND ONLY REPRESENT THE SITE CONDITIONS OBSERVED AT THAT TIME
- TIDAL ELEVATION DATA HAS BEEN TAKEN FROM BENCH MARK SHEET FOR BRANFORD RIVER, CT STA. 8465233 FROM THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION TIDES AND CURRENTS WEBSITE.

PROJECT TIDAL ELEVATIONS			
DATUM	NAVD 88 (FT)		
COASTAL JURISDICTION LIMIT (CJL)	+4.3		
HIGH TIDE LINE (HTL)	+4.3		
MEAN HIGH WATER (MHW)	+2.7		
NAVD 88	0.0		
NGVD 29	-1.0		
MEAN LOW WATER (MLW)	-3.2		

- PROJECT DESIGN PER CONNECTICUT STATE BUILDING CODE (IBC AND THE CONNECTICUT SUPPLEMENT) FOLLOWING LOADS:
- 3.1. 250 PSF VERTICAL LIVE LOAD.
- 3.2. HS-20 WHEEL LOAD
- WORK SHALL COMPLY WITH FEDERAL, STATE, AND LOCAL LAWS AND STATUTES AND THE REQUIREMENTS AND CONDITIONS OF ALL REGULATORY PERMITS ISSUED FOR THE WORK. THE CONTRACTOR IS ADVISED THAT THE REGULATORY PERMITS FOR THIS PROJECT MAY CONTAIN ADDITIONAL REQUIREMENTS THAT, AFTER ANY ADDENDUM. SUPERSEDE THE DRAWING NOTES. THE CONTRACTOR IS FURTHER ADVISED THAT IN THE CASE OF ANY DISCREPANCIES WITHIN THE CONTRACT DOCUMENTS FOUND BEFORE CONSTRUCTION, THE FINAL DECISION AS TO WHAT INFORMATION TAKES PRECEDENCE WILL BE MADE BY THE ENGINEER OF RECORD ON THE BASIS OF THAT INTENT. THE CONTRACTOR SHALL NOT CONSTRUCT ANY PORTION OF THE WORK THAT HAS NOT BEEN AUTHORIZED BY THE REGULATORY AGENCIES. APPLICABLE PERMITS INCLUDE BUT ARE NOT LIMITED TO:

4.1. CT DEEP LICENSE #202103807-COP 4.2. USACE PERMIT NUMBER: NAE-2021-00832

- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, LICENSES, CERTIFICATES OF INSPECTION, AND PAY ALL LEGAL FEES IN CONNECTION WITH THE WORK OF THIS CONTRACT. THE OWNER HAS OBTAINED NECESSARY STATE & FEDERAL REGULATORY PERMITS REQUIRED FOR THE WORK IN REGULATED AREAS. THE CONTRACTOR SHALL REQUEST COPIES OF THOSE REGULATORY PERMITS AND MAKE PROVISION IN THIS WORK AND IN THE COSTS OF THE WORK FOR ALL APPLICABLE CONDITIONS OF THOSE PERMITS. FAILURE TO CONSIDER ANY CONDITION OF THE REGULATORY PERMITS AS A PART OF THE BID SHALL NOT RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITY TO APPLY THOSE CONDITIONS TO HIS WORK AT NO ADDITIONAL COST TO THE OWNER.
- EXISTING CONDITIONS AND DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND FABRICATION OR ORDERING OF ANY CONSTRUCTION MATERIALS.
- SECTIONS AND DETAILS APPLY TO SAME AND SIMILAR CONDITIONS UNLESS SPECIFICALLY NOTED OTHERWISE HEREIN.
- DAMAGE TO ANY PROPERTY, PRIVATE OR OF PUBLIC TRUST, OCCURRING DURING THE CONSTRUCTION BY THE CONTRACTOR, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AT THE EXPENSE OF THE CONTRACTOR.
- 9. THE CONTRACTOR SHALL SAFEGUARD AND PROTECT ALL EXCAVATIONS.
- 10. THE CONTRACTOR SHALL USE ADEQUATE NUMBERS OF SKILLED WORKMEN WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND METHODS NEEDED FOR PROPER PERFORMANCE OF THE WORK.
- 11. THE CONTRACTOR SHALL USE EQUIPMENT ADEQUATE IN SIZE, CAPACITY, AND NUMBERS, AND MAINTAINED TO THE REQUIREMENTS OF ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS TO ACCOMPLISH THE WORK.
- 12. THE CONTRACTOR SHALL PROTECT ALL WETLANDS AND COASTAL RESOURCES FROM INTRUSION BY TURBID WATERS, CONSTRUCTION DEBRIS, CONSTRUCTION EQUIPMENT, OR PERSONNEL DURING ALL WORK ACTIVITIES.
- 13. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PROTECT FROM DAMAGE ALL UTILITIES, UTILITY STRUCTURES, FUEL LINES & TANKS OR ANY UNKNOWN UTILITIES OR STRUCTURES PRIOR TO ANY WORK, EXCEPT THOSE SPECIFIED FOR DEMOLITION. CONTRACTOR SHALL COORDINATE WITH CALL BEFORE YOU DIG AND RECEIVE REQUIRED MARK OUTS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
- 14. LABOR, EQUIPMENT, AND MATERIALS REQUIRED TO PERFORM THE WORK THAT, UPON COMPLETION ARE NOT APART OF THE WORK SHALL BE FURNISHED, INSTALLED, AND SUBSEQUENTLY REMOVED FROM THE SITE BY THE CONTRACTOR.
- 15. TEMPORARY WORK SHALL BE SUBJECT TO THE REQUIREMENTS OF THE STATE AND APPLICABLE LOCAL BUILDING CODES.
- 16. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IN WRITING IF CONTRACTOR OBSERVES ANY DISCREPANCIES OR ERRORS WHICH WOULD MATERIALLY AFFECT THE PROJECT.
- 17. THE CONTRACTOR SHALL BE RESPONSIBLE TO LAYOUT THE PROPOSED WORK IN ACCORDANCE WITH THE PLANS. LAYOUT SHALL BE CONDUCTED BY A LICENSED LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
- 18. ANY STRUCTURES CONSTRUCTED IN POSITIONS OTHER THAN THE LOCATIONS DEPICTED ON THE PROJECT PLANS SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

EROSION & SEDIMENTATION CONTROLS:

- THE CONTRACTOR IS ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING EROSION AND SEDIMENT CONTROL, INCLUDING DUST CONTROL. THE RESPONSIBILITY INCLUDES SUPERVISING THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, NOTIFYING THE CONSERVATION STAFF PERSON OF ANY TRANSFER OF THIS RESPONSIBILITY AND CONVEYING A COPY OF THE CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.
- THE CONTRACTOR SHALL. THROUGHOUT THE DURATION OF THE CONTRACT. CONTROL AND ABATE SILTATION, SEDIMENTATION AND POLLUTION OF ALL WATERS, INCLUDING BUT NOT LIMITED TO UNDER-GROUND WATER SYSTEMS, INLAND WETLANDS, TIDAL WETLANDS, AND COASTAL OR NAVIGABLE WATERS.

EROSION & SEDIMENTATION CONTROLS (CONT.):

- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSISTENT WITH THOSE MEASURES SET FORTH IN THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" AND THE "2004 CONNECTICUT STORMWATER QUALITY MANUAL", AND ALL ENVIRONMENTAL LAWS AND REGULATIONS ESTABLISHED BY FEDERAL, STATE OR MUNICIPAL AGENCIES.
- 4. THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENTATION CONTROLS AT LEAST WEEKLY, IMMEDIATELY AFTER EACH RAINFALL EVENT OF AT LEAST 0.1 INCH, AND DAILY DURING PERIODS OF PROLONGED RAINFALL. THE CONTRACTOR SHALL MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL DEVICES IN A FUNCTIONAL CONDITION. IN ACCORDANCE WITH THE CONTRACT PLANS. RELEVANT PERMITS. SPECIAL PROVISIONS, AND "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL". IN THE EVENT THAT THE CONTRACTOR FAILS TO MAINTAIN SUCH DEVICES IN ACCORDANCE WITH SAID DOCUMENTS, AND THE CONTRACTOR DOES NOT CORRECT SUCH A FAILURE WITHIN 24 HOURS AFTER RECEIPT OF WRITTEN NOTICE OF SUCH A FAILURE FROM THE ENGINEER, THE OWNER MAY PROCEED WITH ITS OWN OR OTHER FORCES TO REMEDY SUCH FAILURES. THE COST TO THE DEPARTMENT OF CURING ANY SUCH SPECIFIED FAILURE WILL BE DEDUCTED FROM MONIES OWED TO THE CONTRACTOR UNDER THE CONTRACT OR UNDER ANY OTHER STATE CONTRACT.
- WASHOUT OF APPLICATORS, CONTAINERS, VEHICLES, AND EQUIPMENT THAT HAVE BEEN USED WITH CONCRETE (INCLUDING BITUMINOUS CONCRETE), PAINT OR OTHER SUCH POSSIBLE CONTAMINANTS SHALL BE CONDUCTED: (I) AT LEAST 50 FEET FROM ANY STREAM. WETLAND OR OTHER SENSITIVE RESOURCE: AND (II) IN AN ENTIRELY SELF-CONTAINED WASHOUT SYSTEM. SUCH MATERIALS SHALL BE COLLECTED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND MUNICIPAL LAWS AND REGULATIONS.
- 6. NO MATERIALS RESULTING FROM PROJECT CONSTRUCTION ACTIVITIES SHALL BE PLACED IN OR ALLOWED TO CONTRIBUTE TO THE DEGRADATION OF A WETLAND. WATERCOURSE OR STORM DRAINAGE SYSTEM. GOOD HOUSEKEEPING OF THE SITE BY THE CONTRACTOR FOR THE PURPOSE OF PREVENTING CONSTRUCTION-RELATED DEBRIS OR RUNOFF FROM ENTERING A REGULATED AREA IS REQUIRED. THE CONTRACTOR SHALL NOT LEAVE WASTE OR DEBRIS WITHIN THE TRAVEL WAY OR ROADSIDE WHERE IT MIGHT CREATE A SAFETY HAZARD TO THE TRAVELING PUBLIC. THE CONTRACTOR SHALL DISPOSE OF ALL CONSTRUCTION-RELATED MATERIALS IN ACCORDANCE WITH FEDERAL, STATE AND MUNICIPAL LAWS AND REGULATIONS.
- IN ACCORDANCE WITH CGS 22a-38, THE CONTRACTOR SHALL NOT WITHDRAW WATER FROM ANY WATERCOURSE SYSTEM. EXCEPT AS ALLOWED BY APPLICABLE PERMITS.
- WHEN DEWATERING IS NECESSARY, THE CONTRACTOR MUST NOT ALLOW PUMPS USED FOR SAME TO DISCHARGE DIRECTLY INTO A WETLAND OR WATERCOURSE. PRIOR TO ANY DEWATERING, THE CONTRACTOR MUST SUBMIT TO THE ENGINEER A WRITTEN PROPOSAL FOR SPECIFIC METHODS AND DEVICES TO BE USED FOR SAME INCLUDING, BUT NOT LIMITED TO PUMPING OF WATER INTO A TEMPORARY SEDIMENTATION BASIN, PROVIDING SURGE PROTECTION AT THE INLET OR OUTLET OF PUMPS. FLOATING THE INTAKE OF A PUMP. OR ANY OTHER METHOD FOR MINIMIZING OR RETAINING THE SUSPENDED SOLIDS. IF THE ENGINEER DETERMINES THAT A PUMPING OPERATION IS CAUSING TURBIDITY IN A REGULATED AREA, THE CONTRACTOR SHALL HALT SAID OPERATION UNTIL A MEANS OF CONTROLLING THE TURBIDITY IS IMPLEMENTED.
- WHENEVER POSSIBLE, WORK WITHIN OR ADJACENT TO WATERCOURSES SHALL BE CONDUCTED DURING PERIODS OF LOW FLOW. THE ENGINEER SHALL REMAIN AWARE OF FLOW CONDITIONS DURING THE CONDUCT OF SUCH WORK, AND SHALL ORDER SUCH WORK STOPPED IF FLOW CONDITIONS THREATEN TO CAUSE EXCESSIVE EROSION, SILTATION OR TURBIDITY. BEFORE PREDICTED MAJOR STORMS (I.E., A STORM PREDICTED BY NOAA WEATHER SERVICE. WITH WARNINGS OF FLOODING SEVERE THUNDERSTORMS, OR SIMILARLY SEVERE WEATHER CONDITIONS OR EFFECTS), THE CONTRACTOR SHALL MAKE EVERY EFFORT TO SECURE THE SITE TO THE SATISFACTION OF THE ENGINEER. UNLESS ALLOWED BY A DEEP PERMIT. THE CONTRACTOR SHALL STORE NO MATERIALS AND PLACE NO STAGING AREAS BELOW THE 100-YEAR ELEVATION. THE CONTRACTOR SHALL NOT STORE BELOW THE 500-YEAR FLOOD LEVEL ANY MATERIALS WHICH ARE BUOYANT, HAZARDOUS, FLAMMABLE EXPLOSIVE SOLUBLE EXPANSIVE RADIOACTIVE OR ANY OTHER MATERIALS THAT COULD BE INJURIOUS TO HUMAN, ANIMAL OR PLANT LIFE IN THE EVENT OF A FLOOD.
- 10. UPON COMPLETION OF THE ASSOCIATED WORK, THE CONTRACTOR SHALL IMMEDIATELY CLEAR ALL AREAS OF ALL FORMS, FALSE WORK, PILING, DEBRIS, OR OTHER OBSTRUCTIONS CREATED OR CAUSED BY CONSTRUCTION OPERATIONS.
- 11. CONTRACTOR SHALL PROTECT FROM DISTURBING OR DAMAGE, WETLAND AREAS ADJACENT TO WORK.
- 12. THE CONTRACTOR SHALL UTILIZE APPROVED METHODS/MATERIALS FOR PREVENTING THE BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES ONTO ADJACENT PROPERTIES AND SITE AREAS.
- 13. THE CONTRACTOR SHALL MAINTAIN A SUPPLY OF SILT FENCE ON SITE FOR EMERGENCY PURPOSES.
- 14. DUMPING OF OIL. CHEMICALS OR OTHER DELETERIOUS MATERIALS ON THE GROUND OR INTO A WATERCOURSE IS FORBIDDEN. THE CONTRACTOR SHALL PROVIDE A MEANS OF CATCHING, RETAINING, AND PROPERLY DISPOSING OF DRAINED OIL, REMOVED OIL FILTERS, AND OTHER DELETERIOUS MATERIAL. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SPILLS OF SUCH MATERIALS TO THE ENGINEER AND THE CT DEEP.

SELECTIVE DEMOLITION:

- SELECTIVE DEMOLITION AND DISPOSAL SHALL BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL PERMIT AND BUILDING CODE REQUIREMENTS.
- 2. THE CONTRACTOR SHALL REMOVE AND DISPOSE THOSE STRUCTURES AND DERELICT COMPONENTS REQUIRED TO PERFORM THE WORK.
- SELECTIVE DEMOLITION INCLUDES BUT IS NOT LIMITED TO REMOVAL OF EXISTING MATERIALS, UTILITIES, AND OTHER COMPONENTS ESSENTIAL FOR A COMPLETE PROJECT
- 4. THE CONTRACTOR SHALL TAKE REASONABLE CARE IN REMOVING ELEMENTS SELECTED TO BE DEMOLISHED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. DAMAGE OR DESTRUCTION BY THE CONTRACTOR TO EXISTING ELEMENTS DESIGNATED TO REMAIN SHALL BE REPAIRED OR REPLACED IN-KIND AT THE DISCRETION OF THE OWNER AT NO ADDITIONAL COST.
- ITEMS TO BE REMOVED AND REUSED SHALL BE PLACED IN A STAGING AREA ACCESSIBLE FOR INSPECTION BY THE OWNER.
- PRIOR TO COMMENCEMENT OF SELECTIVE DEMOLITION, THE CONTRACTOR SHALL SUBMIT A DISPOSAL PLAN FOR ITEMS TO BE DEMOLISHED. DEMOLITION MATERIAL DESIGNATED BY THE OWNER TO BE REMOVED FROM THE SITE SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE DEBRIS DISPOSAL PLAN SHALL ACKNOWLEDGE THIS OWNERSHIP AND SHALL IDENTIFY THE MEANS AND METHODS AND FINAL DISPOSITION FOR DISPOSAL MATERIALS.
- PRIOR TO COMMENCEMENT OF DEMOLITION, THE CONTRACTOR SHALL CLEARLY MARK THE LIMITS OF THE DEMOLITION FOR REVIEW AND APPROVAL BY THE ENGINEER.
- COMPLETELY REMOVE ITEMS DESIGNATED LEAVING SURFACES CLEAN, SOUND, AND READY TO RECEIVE NEW MATERIALS AS SPECIFIED IN THE CONTRACT DOCUMENTS.
- 9. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE STABILITY OF THE STRUCTURES DURING THE COURSE OF DEMOLITION.
- 10. THE CONTRACTOR SHALL SUBMIT A DISPOSAL CERTIFICATE TO THE OWNER'S REPRESENTATIVE CERTIFYING LEGAL AND PROPER DISPOSAL.
- 11. ALL DEMOLITION AND CONSTRUCTION WASTE MATERIALS SHALL BE DISPOSED OF LEGALLY OFFSITE BY THE CONTRACTOR, AT THE EXPENSE OF THE CONTRACTOR.

CRUSHED STONE:

- CRUSHED STONE SHALL BE PLACED TO A UNIFORM DEPTH, TO THE LIMITS AND FOR THE DEPTH SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- THE AREA ON WHICH THE CRUSHED STONE IS TO BE PLACED SHALL BE SHAPED TO A REASONABLY TRUE SURFACE PRIOR TO PLACING THE CRUSHED STONE. THE STONE SHALL BE SPREAD BY ANY SUITABLE MEANS WHICH WILL NOT CRUSH THE STONE AND SHALL BE SHAPED TO A SMOOTH UNIFORM FINISHED GRADE.
- GEOTEXTILE FABRIC SHALL BE PLACED AND SECURED PRIOR TO THE INSTALLATION OF CRUSHED STONE.

CRUSHED STONE (CONT.):

CRUSHED STONE MUST BE UNIFORM IN CONSISTENCY AND ONLY CONTAIN CLEAN, HARD TOUGH, DURABLE FRAGMENTS MEETING THE FOLLOWING CRITERIA:

CRUSHED STONE CRITERIA BY PIT/QUARRY SOURCE			
TITLE	AASHTO TEST METHOD	CRITERIA	
MATERIAL PASSING NO. 200 SIEVE	T 11	1% MAX.	
LOSS OF ABRASION	T 96	40% MAX.	
SOUNDNESS BY MAGNESIUM SULFATE	T 104	10% MAX. @ 5 CYCLES	

CRUSHED STONE SHALL MEET THE FOLLOWING GRADATION: 5.

CRUSHED STONE GRADATION (CT DOT NO. 6 COARSE AGGREGATE)			
SQUARE MESH SIEVES PERCENT PASSING BY WEIGH			
PASS 1 INCH	100		
PASS 3/4 INCH	90-100		
PASS 1/2 INCH	20-55		
PASS 3/8 INCH	0-15		
PASS NO. 4	0-5		

CRUSHED STONE MUST NOT HAVE EXPANSIVE OR REACTIVE PROPERTIES.

- STOCKPILES MUST BE LOCATED ON SMOOTH, HARD SLOPED/WELLDRAINED AREAS
- EACH SOURCE AND GRADATION OF CRUSHED STONE MUST HAVE AN INDIVIDUAL STOCKPILE OR BIN. STOCKPILES MUST BE MANAGED TO MINIMIZED SEGREGATION AND CONTAMINATION WITH FOREIGN MATERIALS.

CAST-IN-PLACE CONCRETE:

- CAST-IN-PLACE CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301 - LATEST EDITION, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS."
- DETAILING, FABRICATION, AND ERECTION OF REINFORCING STEEL SHALL CONFORM WITH ACI-318 AND ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING, REINFORCED CONCRETE STRUCTURES."
- READY MIX PLANT EQUIPMENT AND FACILITIES SHALL CONFORM TO THE "CHECK LIST FOR CERTIFICATION OF READY MIXED CONCRETE PRODUCTION FACILITIES" OF THE NRMCA
- SUBMIT CONCRETE MIX DESIGN, WITH KNOWN TEST RESULTS. TO THE ENGINEER FOR REVIEW. THE CONCRETE MIX DESIGN SUBMITTAL SHALL CONSIST OF AT LEAST THE FOLLOWING:
- A. TYPE OF CEMENT.
- B. DRY WEIGHT OF CEMENT.
- C. SATURATED SURFACE-DRY WEIGHTS OF FINE AND COARSE AGGREGATES.
- D. SPECIFIC GRAVITY OF FINE AND COARSE AGGREGATES.
- E. QUANTITIES, TYPE, NAME AND PRODUCER OF ADMIXTURES, AS APPLICABLE.
- F. TOTAL WEIGHT OF WATER, INCLUDING THE WATER WHICH IS ABSORBED BY AND ON THE SURFACE OF THE AGGREGATES.
- G. WATER TO CEMENT RATIO.
- H. SLUMP: MAXIMUM SLUMP, TAKEN AT THE TRUCK, WILL BE DETERMINED BASED ON THE PUMP HOSE LENGTH. THE MIX DESIGNS SHALL INCLUDE THE ANTICIPATED LOSS OF SLUMP PER 100 FOOT LENGTH OF SPECIFIED HOSE SIZE.
- I. STRENGTH TEST DATA OF THE PROPOSED MIX DESIGN AS SPECIFIED HEREIN.
- SUBMIT CONCRETE BATCH TICKETS FOR EACH TRUCK DELIVERED TO SITE. EACH TICKET SHALL NOTE AT LEAST THE FOLLOWING DATA: DESIGN MIX STRENGTH: BATCH PROPORTIONS INCLUDING ACTUAL WATER AND AGGREGATE MOISTURE CONTENTS: DATE AND BATCH TIME; ARRIVAL TIME AT SITE; DISCHARGE TIME; CONCRETE VOLUME; AND ANY CHANGE TO CONCRETE MADE AT THE SITE.
- CONFORM TO THE RECOMMENDATIONS OF ACI 304 LATEST EDITION, "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE."
- CONCRETE SHALL CONSIST OF THE FOLLOWING MATERIALS:
- A. PORTLAND CEMENT: TYPE II LOW ALKALI CONFORMING TO ASTM C 150, "STANDARD SPECIFICATION FOR PORTLAND CEMENT."
- B. COARSE AND FINE AGGREGATE SHALL BE NORMAL WEIGHT AND UNIFORMLY GRADED AND CLEAN CONFORMING TO ASTM C33, "STANDARD SPECIFICATION FOR CONCRETE AGGREGATES." DO NOT USE AGGREGATE KNOWN TO CAUSE EXCESSIVE SHRINKAGE.
- C. COARSE AGGREGATE SHALL BE CRUSHED ROCK OR WASHED GRAVEL WITH A MAXIMUM SIZE OF 3/4".
- D. FINE AGGREGATE SHALL BE NATURAL WASHED SAND OF HARD AND DURABLE PARTICLES VARYING FROM FINE TO PARTICLES PASSING A 3/8" SCREEN, OF WHICH AT LEAST 12% SHALL PASS A 50-MESH SCREEN.
- E. WATER SHALL BE CLEAN AND POTABLE.
- AIR ENTRAINING ADMIXTURE SHALL CONFORM TO ASTM C260, "STANDARD SPECIFICATION FOR AIR ENTRAINING ADMIXTURE FOR CONCRETE." THE AIR ENTRAINING AGENT SHALL BE A NON-TOXIC CONCENTRATED SOLUTION OF NEUTRALIZED VINSOL RESIN, SUCH AS "DARAVAIR" AS MANUFACTURED BY W.R. GRACE COMPANY OR EQUIVALENT ACCEPTED BY THE ENGINEER.
- WATER REDUCING ADMIXTURE SHALL CONFORM TO ASTM C494 "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE." WATER REDUCING AGENT SHALL BE OF TYPE A, B, C, D, E, F, OR G (AS NOTED IN CONCRETE MIX DESIGN) SUCH AS DARACEM-100" OR WRDA-19" AS MANUFACTURED BY W.R. GRACE COMPANY OR EQUIVALENT ACCEPTED BY THE ENGINEER.
- REINFORCING STEEL SHALL CONFORM TO ASTM 615 GRADE 60, "SPECIFICATION FOR DEFORMED AND PLAIN BILLET STEEL BARS FOR CONCRETE REINFORCEMENT" AND SHALL BE EPOXY COATED IN COMPLIANCE WITH ASTM A 775.
- FABRICATE REINFORCEMENT TO THE REQUIRED SHAPES AND DIMENSIONS, WITHIN FABRICATION TOLERANCES STATED IN THE CRSI "MANUAL OF STANDARD PRACTICES."
- 10. CURING MATERIALS SHALL CONFORM TO ASTM C309. "STANDARD SPECIFICATION FOR LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE", WET BURLAP, OR PLASTIC MEMBRANE.
- REINFORCING STEEL SHALL BE ADEQUATELY TIED WITH TIE WIRE AND SUPPORTED WITH CHAIRS THAT HOLD THE BARS TO THE SPECIFIED CLEARANCE. ONE CHAIR SAMPLE SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. NO CLAY OR CONCRETE BRICKS OR ANY OTHER MATERIAL OTHER THAN APPROVED CHAIRS SHALL BE PERMITTED TO SUPPORT REINFORCING STEEL.
- 12. CONCRETE SHALL BE NORMAL WEIGHT WITH A MINIMUM COMPRESSIVE STRENGTH OF <u>5000 </u>PSI AT 28 DAYS.
- 13. CONCRETE SHALL HAVE A MAXIMUM WATER TO CEMENT RATIO OF 0.40.
- 14. CONCRETE SHALL BE PROPORTIONED TO HAVE A SLUMP OF 4 INCHES, + 1 INCH, AT THE DISCHARGE END OF THE PUMP HOSE. USE WATER REDUCING AGENT AS REQUIRED TO ACHIEVE DESIRED SLUMP RANGE. ADDITION OF WATER AT SITE WILL NOT BE PERMITTED. ANY VARIATION TO SLUMP RANGE RESULTING FROM PROPOSED ADMIXTURES SHALL BE NOTED IN MIX DESIGN AND SUBMITTED TO ENGINEER FOR APPROVAL, PRIOR TO ORDERING CONCRETE.

CAST-IN-PLACE CONCRETE (CONT.):

- 15. CONCRETE SHALL CONTAIN 4% TO 6% ENTRAINED AIR.
- 16. DESIGN, ERECT, SUPPORT, BRACE, AND MAINTAIN FORMWORK SO IT WILL SAFELY SUPPORT VERTICAL AND LATERAL LOADS WHICH MIGHT BE APPLIED UNTIL SUCH LOADS CAN BE SUPPORTED SAFELY BY THE CONCRETE STRUCTURE IN ACCORDANCE WITH ACI 347 - LATEST EDITION.
- 17. FORM COATING OR WATER SHALL BE APPLIED TO ALL FORMS. IF COATING IS USED, IT SHALL BE APPLIED PRIOR TO PLACEMENT OF REINFORCING STEEL.
- 18. FORM TIES AND SPREADERS SHALL BE OF SUCH TYPE AS TO LEAVE NO METAL CLOSER THAN 3 INCHES FROM ANY EXPOSED CONCRETE SURFACE.
- 19. PLACE REINFORCEMENT TO OBTAIN THE REQUIRED COVERAGE FOR CONCRETE PROTECTION. MINIMUM CONCRETE COVER FOR ALL REINFORCING SHALL BE 3 INCHES EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- 20. CLEAN REINFORCEMENT AND REMOVE LOOSE DUST, EARTH, AND OTHER MATERIALS WHICH REDUCE BOND OR DESTROY BOND WITH CONCRETE.
- 21. POSITION, SUPPORT, AND SECURE REINFORCEMENT AGAINST DISPLACEMENT BY FORMS, CONSTRUCTION, AND THE CONCRETE PLACEMENT OPERATIONS.
- 22. REINFORCING STEEL SHALL BE CONTINUOUS UNLESS SPECIFICALLY DETAILED OTHERWISE ON THE CONTRACT DRAWINGS. PROVIDE DOWELS OR LAP SPLICES OF THE APPROPRIATE CLASS TO MAINTAIN CONTINUITY, UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS LAP BARS ACCORDING TO THE FOLLOWING TABLE WITH NO MORE THAN 60% OF THE TOTAL NUMBER OF BARS SPLICED AT ONE LOCATION.

MINIMUM SPLICE LENGTH (5,000 PSI CONCRETE)				
	SIZE	UNCOATED/GALVANIZED	EPOXY-COATED	
	#4	17	21	
	#5 21		26	
	#6	25	30	
	#7 37		45	
	#8	42	51	

- 23. SLEEVES, INSERTS, ANCHORS, AND EMBEDDED ITEMS REQUIRED FOR ADJOINING WORK OR FOR ITS SUPPORT SHALL BE PLACED PRIOR TO CASTING CONCRETE. ALL EMBEDDED ITEMS SHALL BE POSITIONED ACCURATELY AND SUPPORTED AGAINST DISPLACEMENT
- TRANSIT MIX THE CONCRETE IN ACCORDANCE WITH PROVISIONS OF ASTM C94 -LATEST EDITION
- 25. DO NOT USE CONCRETE AFTER 90 MINUTES FROM TIME OF INTRODUCTION OF WATER TO THE MIX.
- 26. CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-LATEST EDITION, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
- 27. REMOVE FOREIGN MATTER ACCUMULATED IN THE FORMS.
- 28. RIGIDLY CLOSE OPENINGS LEFT IN THE FORMWORK.
- 29. WET WOOD FORMS IMMEDIATELY PRIOR TO CONCRETE PLACEMENT. WET WOOD FORMS SUFFICIENTLY TO TIGHTEN UP CRACKS. WET OTHER MATERIAL SUFFICIENTLY TO MAINTAIN WORKABILITY OF THE CONCRETE.
- 30. USE ONLY CLEAN TOOLS.
- 31. PERFORM CONCRETE PLACING AT SUCH A RATE THAT CONCRETE WHICH IS BEING INTEGRATED WITH FRESH CONCRETE IS STILL PLASTIC. 32. DEPOSIT CONCRETE AS NEARLY AS PRACTICABLE IN ITS FINAL LOCATION SO AS TO
- AVOID SEPARATION DUE TO REHANDLING AND FLOWING. 33. DO NOT USE CONCRETE WHICH BECOMES NON-PLASTIC AND UNWORKABLE, OR DOES
- NOT MEET REQUIRED QUALITY CONTROL LIMITS, OR HAS BEEN CONTAMINATED BY FOREIGN MATERIALS 34. REMOVE REJECTED AND EXCESS CONCRETE FROM THE JOB SITE.
- 35. FREE-FALL OF CONCRETE DURING PLACEMENT GREATER THAN EIGHT FEET IS PROHIBITED. THE CONTRACTOR SHALL PLACE CONCRETE WITH A TREMIE TUBE FOR DROPS GREATER THAN EIGHT FEET.
- 36. DEPOSIT CONCRETE IN HORIZONTAL LAYERS NOT DEEPER THAN 24 INCHES, AND AVOID INCLINED CONSTRUCTION JOINTS.
- 37. REMOVE TEMPORARY SPREADERS IN FORMS WHEN CONCRETE HAS REACHED THE ELEVATION OF THE SPREADERS.
- 38. CONSOLIDATE EACH LAYER OF CONCRETE IMMEDIATELY AFTER PLACING, BY USE OF INTERNAL CONCRETE VIBRATORS SUPPLEMENTED BY HAND SPADING, RODDING, OR TAMPING.
- 39. DO NOT USE VIBRATORS TO TRANSPORT CONCRETE INSIDE THE FORMS.
- 40. DO NOT USE HORIZONTAL CONSTRUCTION JOINTS, UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS.
- BEGINNING IMMEDIATELY AFTER PLACEMENT, CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL DAMAGE AND SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT A RELATIVE CONSTANT TEMPERATURE FOR THE PERIOD NECESSARY FOR HYDRATION OF THE CEMENT AND HARDENING OF THE CONCRETE.
- IF COLD WEATHER CONCRETING IS ANTICIPATED, THE CONTRACTOR SHALL FOLLOW THE REQUIREMENTS OF ACI 306.1 - LATEST EDITION, "STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING", AND A PRE-CONSTRUCTION MEETING SHOULD BE HELD TO DEFINE HOW COLD WEATHER CONCRETING METHODS WILL BE USED. COLD WEATHER IS DEFINED AS A PERIOD WHEN FOR MORE THAN THREE SUCCESSIVE DAYS THE AVERAGE DAILY OUTDOOR TEMPERATURE DROPS BELOW 40 DEGREES F. THE AVERAGE DAILY TEMPERATURE IS THE AVERAGE OF THE HIGHEST AND LOWEST TEMPERATURE DURING THE PERIOD FROM MIDNIGHT TO MIDNIGHT. WHEN TEMPERATURES ABOVE 50 DEGREES F OCCUR DURING MORE THAN HALF OF ANY 24 HR DURATION, THE PERIOD SHALL NO LONGER BE REGARDED AS COLD WEATHER.
- 43. IF HOT-WEATHER CONCRETING IS ANTICIPATED, THE CONTRACTOR SHALL FOLLOW THE REQUIREMENTS OF ACI 305.1 - LATEST EDITION, "SPECIFICATION FOR HOT WEATHER CONCRETING". AND A PRE-CONSTRUCTION MEETING SHOULD BE HELD TO DEFINE HOW HOT WEATHER CONCRETING METHODS WILL BE USED. HOT WEATHER IS DEFINED AS JOBSITE CONDITIONS THAT ACCELERATE THE RATE OF MOISTURE LOSS OR RATE OF CEMENT OF HYDRATION OF FRESHLY MIXED CONCRETE. INCLUDING AN AMBIENT TEMPERATURE OF 80 DEGREES F OR HIGHER, AND AN EVAPORATION RATE THAT EXCEEDS 1 kg/m²/h.
- 44. FORM TIES SHALL BE PLUGGED SOLID WITH REWORKED CEMENT MORTAR OF THE SAME PROPORTIONS AS THAT USED IN THE CONCRETE.
- 45. TESTS OF CONCRETE SHALL BE MADE BY AN INDEPENDENT TESTING AGENCY AT THE EXPENSE OF THE OWNER. THAT CONTRACTOR SHALL SCHEDULE TESTS AND NOTIFY THE OWNER AND ENGINEER OF THE TESTING SCHEDULE. TEST SPECIMENS SHALL BE TAKEN FOR EACH 50 CUBIC YARDS, OR PORTION THEREOF, AND EACH DAY'S POUR. TWO SETS OF FOUR, 4x8 IN CYLINDERS SHALL BE PREPARED FOR EACH ROUND OF TESTING. ONE SET SHALL BE FIELD CURED AND ONE SET SHALL BE LAB CURED. SPECIMENS SHALL BE PREPARED AND TESTED IN ACCORDANCE WITH ASTM C39. ASTM C31, AND ASTM C172. CONCRETE SLUMP, AIR CONTENT, AND TEMPERATURE SHALL BE MEASURED FOR EACH BATCH IN ACCORDANCE WITH ASTM C143 AND ASTM C231.

CONCRETE PAVEMENT:

- 1. CONCRETE FOR CONCRETE PAVEMENT SHALL MEET THE REQUIREMENTS FOR CAST-IN-PLACE CONCRETE.
- 2. FORMS SHALL BE SET BY THE CONTRACTOR TO TRUE LINE AND GRADE. THE SPECIFIED GRADE SHALL BE SET AND COMPACTED PRIOR TO THE SETTING OF FORMS
- THE SUBGRADE OR BASE COURSE SHALL BE BROUGHT TO PROPER CROSS-SECTION. 3. HIGH AREAS SHALL BE TRIMMED TO PROPER ELEVATION. LOW AREAS SHALL BE FILLED AND COMPACTED TO A CONDITIONS SIMILAR TO THAT OF SURROUDNING GRADE. THE FINISHED GRADES SHALL BE MAINTAINED IN A SMOOTH AND COMPACTED CONDITION UNTIL THE PAVEMENT IS PLACED.

CONCRETE PAVEMENT (CONT.):

- 4. CONCRETE SHALL BE THOROUGHLY CONSOLIDATED AGAINST AND ALONG THE FACES OF ALL FORMS AND ALONG THE FULL LENGTH AND ON BOTH SIDES OF ALL JOINT ASSEMBLIES, BY MEANS OF VIBRATORS INSERTED IN THE CONCRETE. VIBRATORS SHALL NOT BE PERMITTED TO COME IN CONTACT WITH A JOINT ASSEMBLY, THE GRADE, OR A SIDE FORM. IN NO CASE SHALL THE VIBRATOR BE OPERATED LONGER THAN 5 SECONDS IN ANY LOCATION.
- - 6. IN ORDER THAT THE CONCRETE MAY BE PROPERLY PROTECTED FROM RAIN BEFORE THE CONCRETE IS SUFFICIENTLY HARDENED, THE CONTRACTOR WILL BE REQUIRED TO HAVE AVAILABLE AT ALL TIMES MATERIALS FOR THE PROTECTION OF THE EDGES AND SURFACE OF THE UNHARDENED CONCRETE.
 - THE SEQUENCE OF OPERATIONS SHALL BE THE STRIKE-OFF AND CONSOLIDATION FLOATING AND REMOVAL OF LAITANCE, AND FINAL SURFACE FINISH. WORK BRIDGES OR OTHER DEVICES NECESSARY TO PROVIDE ACCESS TO THE PAVEMENT SURFACE FOR THE PURPOSE OF FINISHING, STRAIGHT-EDGING, AND MAKING CORRECTIONS AS HEREINAFTER SPECIFIED, SHALL BE PROVIDED BY THE CONTRACTOR. IN GENERAL THE ADDITION OF SUPERFICIAL WATER TO THE SURFACE OF THE CONCRETE TO ASSIST IN FINISHING OPERATIONS WILL NOT BE PERMITTED. IF THE APPLICATION OF WATER TO THE SURFACES IS PERMITTED, IT SHALL BE APPLIED AS A FOG SPRAY BY MEANS OF APPROVED SPRAY EQUIPMENT.
 - 8. CONCRETE, AS SOON AS PLACED, SHALL BE STRUCK OFF AND SCREEDED. AN APPROVED PORTABLE SCREED SHALL BE USED. AFTER THE CONCRETE HAS BEEN STRUCK OFF AND CONSOLIDATED IT SHALL BE FURTHER SMOOTHED, TRUED, AND CONSOLIDATED BY MEANS OF A FLOAT.
 - 9. WHEN ALL IRREGULARITIES HAVE BEEN REMOVED, AND THE EDGES OF THE SLABS AND JOINTS GIVEN THEIR INITIAL EDGING, THE PAVEMENT SHALL BE GIVEN A SKID-RESISTANT TEXTURE BY EITHER BURLAP OR BROOM DRAGGING, TRANSVERSE TO THE PATH OF TRAVEL

GEOTEXTILE (MEDIUM SURVIVABILITY) FABRIC:

- 3. THE GEOTEXTILE SHOULD BE RESISTANT TO UV DEGRADATION AND BIOLOGICAL AND CHEMICAL ENVIRONMENTS NORMALLY ENCOUNTERED IN SOILS.
- 4. GEOTEXTILE ROLLS SHALL BE DELIVERED TO THE JOBSITE WRAPPED IN A PROTECTIVE PLASTIC SHEETING TO PROTECT THE GEOTEXTILE FROM DAMAGE DURING SHIPMENT, CONTAMINATION BY SOIL AND MUD DURING ON-SITE STORAGE, AND FROM ULTRAVIOLET (UV) DEGRADATION DUE TO SUNLIGHT. STORE ROLLS OFF THE GROUND WHEN NOT BEING USED.
- GEOTEXTILE SHALL HAVE THE MINIMUM PROPERTIES PRESENTED IN THE TABLE BELOW. ALL VALUES WITH THE EXCEPTION OF APPARENT OPENING SIZE (AOS), ARE PRESENTED AS A MINIMUM AVERAGE ROLL VALUE (MARV). VALUES OF AOS ARE MAXIMUM AVERAGE ROLL:

GRAB TE CBR PUN TRA

PE WATE UV

- INSTALL GEOTEXTILE FABRIC IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CLEAR, GRUB, AND EXCAVATE/FILL INSTALLATION SITE TO DESIGN GRADE. REMOVE TOPSOIL, VEGETATION, AND OTHER UNSUITABLE MATERIAL PRIOR TO PLACEMENT.
- 7. SOFT SPORTS AND UNSUITABLE AREAS SHALL BE IDENTIFIED AND DURING SITE PREPARATION OR SUBSEQUENT PROOF ROLLING. THESE AREAS SHALL BE EXCAVATED AND BACKFILLED WITH SELECT MATERIALS AND COMPACTED USING NORMAL PROCEDURES.
- THE GEOTEXTILE SHALL BE LAID SMOOTH WITHOUT WRINKLES OR FOLDS ON THE PREPARED SUBGRADE IN THE DIRECTION OF CONSTRUCTION TRAFFIC. ADJCAENT GEOTEXTILE ROLLS SHALL BE OVERLAPPED A MINIMUM 24".
- 9. ON CURVES, THE GEOTEXTILE SHALL MAY BE FOLDED OR CUT TO CONFORM TO THE CURVES. THE FOLD OR OVERLAP SHALL BE IN THE DIRECTION OF CONSTRUCTION AND HELD IN PLACE BY PINS, STAPLES, OR PILES OF FILL ROCK.
- 10. PRIOR TO COVERING, THE GEOTEXTILE SHALL BE INSPECTED BY THE ENGINEER TO ENSURE THAT IT HAS NOT BEEN DAMAGED DURING INSTALLATION. DAMAGED AREAS SHALL BE REPAIRED IMMEDIATELY BY COVERING THE DAMAGED AREA WITH A GEOTEXTILE PATCH THAT EXTENDS AN AMOUNT EQUAL TO THE REQUIRED OVERLAP BEYOND THE DAMAGED AREA.
- THE SUBBASE SHALL BE PLACED BY END DUMPING ONTO THE GEOTEXTILE, OR OVER PREVIOUSLY PLACED SUBBASE AGGREGATE SUCH THAT AT LEAST THE MINIMUM SPECIFIED LIFT THICKNESS SHALL BE BETWEEN THE CONSTRUCTION EQUIPMENT TIRES OR TRACKS AND THE GEOTEXTILE AT ALL TIMES.
- 12. IF REQUIRED, STAPLE OR PIN GEOTEXTILE AT OVERLAPS TO MAINTAIN POSITION DURING CONSTRUCTION ACTIVITIES. USE 250 TO 300 MM (10 TO 12 IN) LONG NAILS PLACED AT MINIMUM 15 M (50 FT) ON CENTER FOR PARALLEL ROLLS AND 1.5 M (5 FT) ON CENTER FOR ROLL ENDS.

- SPECIFIED REQUIREMENTS.

CONCRETE SHALL BE DEPOSITED AS CLOSE TO EXPANSION AND CONTRACTION JOINTS AS POSSIBLE WITHOUT DISTURBING THEM, BUT SHALL NOT BE DUMPED FROM THE DISCHARGE BUCKET OR HOPPER ON TO A JOINT ASSEMBLY UNLESS THE HOPPER IS WELL CENTERED ON THE JOINT ASSEMBLY.

- 1. GEOTEXTILE FABRIC SHALL BE WOVEN (MEDIUM SURVIVABILITY) GEOTEXTILE.
- GEOTEXTILE CONSTRUCTION SHALL BE WOVEN, SILT FILM POLYPROPYLENE GEOTEXTILE; INDIVIDUAL SILT FILMS WOVEN TOGETHER IN A MANNER TO PROVIDE THE DIMENSIONAL STABILITY RELATIVE TO EACH OTHER INCLUDING SELVAGES.

PROPERTY	ASTM	UNIT	PROPERTY REQUIREMENT
ENSILE STRENGTH	D 4632	Ν	890
LONGATION	D 4632	%	15
ICTURE STRENGTH	D 6241	Ν	3115
PEZOID TEAR	D 4533	Ν	333.8
AOS	D 4751	mm	0.425
ERMITTIVITY	D 4481	SEC -1	0.05
ER FLOW RATE	D 4491	1/MIN/M ²	163
RESISTANCE	D 4355	%	70% AFTER 500 HRS EXP.

- 13. DO NOT PLACE OVERLAPS ALONG ANTICIPATED PRIMARY WHEEL PATH LOCATIONS. PLACE OVERLAPS AT END OF ROLLS IN DIRECTION OF AGGREGATE PLACEMENT WITH PREVIOUS ROLL ON TOP.
- WHEN GEOTEXTILE INTERSECTS AN EXISTING PAVEMENT AREA, EXTEND GEOTEXTILE TO EDGE OF OLD SYSTEM. FOR WIDENING OR INTERSECTING EXISTING ROADS WHERE GEOTEXTILES HAVE BEEN USED, ANCHOR GEOTEXTILE AT ROADWAY EDGE.
- 15. COMPACT FIRST LIFT OF BASE AGGREGATE WITH A TRACKING DOZER AND THEN COMPACT WITH SMOOTH-DRUM VIBRATORY ROLLER TO OBTAIN MINIMUM COMPACTED DENSITY. COMPACTION OF PERMEABLE BASES SHALL MEET THE
- 16. PERFORM CONSTRUCTION PARALLEL TO ROAD ALIGNMENT.
- 17. FILL RUTS FORMED DURING CONSTRUCTION TO MAINTAIN ADEQUATE COVER OVER GEOTEXTILE. DO NOT BLADE RUTS DOWN.
- 18. PLACE REMAINING BASE AGGREGATE IN LIFTS NOT EXCEEDING 10 IN IN LOOSE THICKNESS AND COMPACT TO SPECIFIED DENSITY.

METAL RAILING:

- 1. ALL PIPE FOR RAILING AND POSTS SHALL BE STANDARD WEIGHT 1 1/2-INCH STANDARD IPS, WELDED AND SEAMLESS STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53, TYPE E OR S, GRADE A, SCHEDULE 40. PIPE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITHE REQUIREMENTS OF ASTM A123.
- 2. RAIL FITTINGS SHALL BE ANODIZED SPEED-RAIL TYPE AS MANUFACTURED BY HOLLAENDER MANUFACTURING CO., CINCINNATI, OH.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF RAILING SYSTEM INCLUDING POST LOCATIONS AND FITTINGS TO ENGINEER TO REVIEW AND APPROVAL PRIOR TO INSTALLATION.

CEMENT RUBBLE STONE MASONRY & REPOINTING:

- RUBBLE MASONRY STONE SHALL CONFORM TO THE REQUIREMENTS OF C615 AND SHALL BE OF APPROVED QUALITY, SOUND, DURABLE AND FREE FROM STRUCTURAL DEFECTS OR IMPERFECTIONS TENDING TO DESTROY ITS RESISTANCE TO THE WEATHER. THE INDIVIDUAL PIECES SHALL BE ROUGHLY RECTANGULAR IN SHAPE. WITH AT LEAST 1 FAIRLY EVEN FACE, AND SHALL HAVE A VOLUME OF NOT LESS THAN 4 C.F. EXCEPT WHERE SMALLER PIECES ARE REQUIRED FOR CLOSURE OR WHERE THE CHARACTER OF THE CONSTRUCTION MAKES THE USE OF SMALLER PIECES NECESSARY.
- MORTAR SHALL BE TYPE "M", EITHER PRE-BLENDED OR PRE-PACKAGED MATERIAL MEETING THE FOLLOWING REQUIREMENTS:
- ASTM C1714 STANDARD SPECIFICATION FOR PRE-BLENDED DRY MORTAR MIX 2.1. FOR UNIT MASONRY 2.2. ASTM C387 - STANDARD SPECIFICATION FOR PACKAGED, DRY COMBINED
- MATERIALS FOR MORTAR AND CONCRETE; OR 2.3. BE COMPOSED OF 1 PART PORTLAND CEMENT AND 2 PARTS, BY VOLUME, OF
- SURFACE DRY FINE AGGREGATE BLENDED ON SITE. HYDRATED LIME, IN AN AMOUNT NOT TO EXCEED 4 LB. OF LIME TO EACH BAG OF CEMENT. MAY BE ADDED WHEN THE MATERIAL IS BLENDED ON SITE AT THE OPTION OF THE ENGINEER. CEMENT AND HYDRATED LIME SHALL MEET THE FOLLOWING REQUIREMENTS:
- 2.3.1. PORTLAND CEMENT, TYPE I, II, OR IS, AND WATER SHALL BE POTABLE.
- 2.3.2. HYDRATED LIME SHALL MEET THE REQUIREMENTS OF ASTM C6.
- 2.3.3. WHEN MORTAR IS MIXED ON THE PROJECT SITE, FINE AGGREGATE SHALL CONFORM TO GRADING A OR B AS INDICATED IN THE TABLE OF GRADATION, FINE AGGREGATE FOR MORTAR, PER SECTION M.11.04 OF CT DOT FORM 818. FOR LAYING STONE, PRECAST UNITS, OR FOR SHOTCRETE, FINE AGGREGATE SHALL CONFORM TO GRADING A. FOR POINTING STONE OR THE PRECAST UNITS AND FOR LAYING BRICK OR SEALING PIPE JOINTS. THE FINE AGGREGATE SHALL CONFORM TO GRADING B.
- 3. MORTAR SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,500 PSI, WHEN TESTED IN ACCORDANCE WITH ASTM C109.
- 4. TO REDUCE THE WASHOUT OF CEMENT AND FINE AGGREGATES, MORTAR SUBJECT TO TIDAL INUNDATION DURING CURING PERIOD SHALL BE SUPPLEMENTED WITH AN ANTI-WASHOUT ADMIXTURE MEETING THE REQUIREMENTS OF ASTM C494, TYPE S.
- 5. THE MASONRY SHALL BE CONSTRUCTED IN THE LOCATION AND TO THE DIMENSIONS SHOWN ON THE PLANS OR AS ORDERED.
- 6. ALL NECESSARY DRESSING OR SHAPING SHALL BE DONE BEFORE THE STONE IS LAID IN THE WALL, NO DRESSING OR HAMMERING WHICH WILL LOOSEN THE STONE WILL BE PERMITTED AFTER IT IS PLACED. STONE AT ANGLES OR AT ENDS OF WALLS SHALL BE ROUGHLY SQUARED AND DRESSED TO THE REQUIRED LINES.
- STONE SHALL NOT BE LAID WHEN THE AIR TEMPERATURE IN THE SHADE AND AWAY FROM ARTIFICIAL HEAT IS 40°F OR BELOW AND FALLING. EXCEPT WITH THE APPROVAL OF THE ENGINEER AND SUBJECT TO SUCH CONDITIONS AS THE ENGINEER MAY IMPOSE
- THE MASONRY SHALL BE LAID TO LINE AND IN COURSES ROUGHLY LEVELED UP. THE BOTTOM OR FOUNDATION COURSES SHALL BE COMPOSED OF LARGE, SELECTED STONES; AND ALL COURSES SHALL BE LAID WITH BEARING BEDS PARALLEL TO THE NATURAL BED OF THE MATERIAL.
- 9. EACH STONE SHALL BE CLEANED AND THOROUGHLY SATURATED WITH WATER BEFORE BEING SET. STONE SHALL NOT BE DROPPED OR SLID OVER THE WALL BUT SHALL BE CAREFULLY SET WITHOUT JARRING STONE ALREADY LAID. ALL STONE SHALL BE WELL BEDDED IN FRESHLY MADE MORTAR. THE MORTAR JOINTS SHALL BE FULL AND THE STONES CAREFULLY SETTLED IN PLACE BEFORE THE MORTAR HAS SET. NO SPALLS WILL BE PERMITTED IN THE BEDS. JOINTS AND BEDS SHALL HAVE AN AVERAGE THICKNESS OF NOT MORE THAN 1 1/2 INCHES.
- 10. HEADERS SHALL BE PLACED IN EACH COURSE AND SHALL HAVE A WIDTH OF NOT LESS THAN 1 1/2 TIMES THEIR THICKNESS. THEY SHALL BOND WITH THE CORE OR BACKING NOT LESS THAN 12 INCHES; AND IN WALLS 2 FEET OR LESS IN THICKNESS. THEY SHALL EXTEND ENTIRELY THROUGH THE WALL. HEADERS SHALL OCCUPY NOT LESS THAN 1/5 OF THE FACE AREA OF THE WALL AND SHALL BE EVENLY DISTRIBUTED.
- 11. WHENEVER POSSIBLE THE FACE JOINTS SHALL BE PROPERLY POINTED BEFORE THE MORTAR BECOMES SET, JOINTS WHICH CANNOT BE SO POINTED SHALL BE PREPARED FOR POINTING BY RAKING THEM OUT TO A DEPTH OF ABOUT 2 INCHES BEFORE THE MORTAR HAS SET. THE FACE SURFACES OF STONES SHALL NOT BE SMEARED WITH THE MORTAR FORCED OUT OF THE JOINTS OR THAT USED IN POINTING.
- 12. THE VERTICAL JOINTS IN EACH COURSE SHALL BREAK JOINTS WITH THOSE IN ADJOINING COURSES AT LEAST 6 INCHES. IN NO CASE SHALL VERTICAL JOINTS BE SO LOCATED AS TO OCCUR DIRECTLY ABOVE OR BELOW A HEADER.
- 13. IN CASE ANY STONE IS MOVED OR THE JOINT BROKEN, THE STONE SHALL BE TAKEN UP, THE MORTAR THOROUGHLY CLEANED FROM BED AND JOINTS, AND THE STONE RESET IN FRESH MORTAR
- 14. POINTING SHALL NOT BE DONE IN FREEZING WEATHER OR WHEN THE STONES CONTAIN FROST. JOINTS NOT POINTED AT THE TIME THE STONES ARE LAID SHALL BE THOROUGHLY WET WITH WATER AND FILLED WITH MORTAR. THE MORTAR SHALL BE WELL DRIVEN INTO THE JOINTS AND FINISHED WITH AN APPROVED POINTING TOOL. THE WALL SHALL BE KEPT WET WHILE POINTING IS BEING DONE: AND IN HOT OR DRY WEATHER THE POINTED MASONRY SHALL BE PROTECTED FROM THE SUN AND KEPT WET FOR A PERIOD OF AT LEAST 3 DAYS AFTER COMPLETION.
- 15. AFTER THE POINTING IS COMPLETED AND THE MORTAR SET, THE WALL SHALL BE THOROUGHLY CLEANED AND LEFT IN A NEAT AND WORKMAN-LIKE CONDITION.

DATE



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TOWN OF BRANFORD 1019 MAIN STREET BRANFORD, CT 06405

STONY CREEK TOWN WHARF SEAWALL & CONCRETE DECK REPAIRS FOOT OF INDIAN POINT ROAD BRANFORD, CT 06405

PROJECT NOTES

HIH	Designed		Drawn		Checked		
14.		ZMV/SCS		ZMV		e e	SCS
	Job No.		Date		Drawing No.	2	
SEAL		2021069		07/25/2022		Ζ	of 5









