

METHOD

FRESHWATER
FUNCTIONAL MECHANISM: MOISTURE WETS PARTICLES, THEREBY INCREASING THEIR MASS AND BINDING THEM TOGETHER.
ADVANTAGES: USUALLY READILY AVAILABLE, LOW MATERIAL COST AND EASY TO APPLY.
LIMITATIONS: FREQUENT LIGHT APPLICATIONS MAY BE NECESSARY DURING HOT DRY WEATHER AND CAN BE LABOR INTENSIVE. OVER APPLICATION MAY RESULT IN LOSS OF TRACTION, EROSION OR POINTS OF ROAD FAILURE.
IDEAL SOIL CHARACTERISTICS: NONE
RELATIVE COST COMPARISON (AVERAGE LIFE EXPECTANCY): LOW INITIAL COST, HIGH LONG-TERM MAINTENANCE COST (6 MONTHS)
ENVIRONMENTAL CONSIDERATIONS: MINIMAL ENVIRONMENTAL HAZARD, IF APPLIED EXCESSIVELY, MAY RESULT IN EROSION AND SEDIMENT RUNOFF. SUPPLY MAY BE LIMITED IN SOME AREAS AND, DEPENDING ON THE SOURCE, MAY REQUIRE A WATER RIGHT PERMIT.

CALCIUM CHLORIDE
FUNCTIONAL MECHANISM: AT A RELATIVE HUMIDITY GREATER THAN APPROXIMATELY 30% (77%), THE SALTS WITHIN THE SOIL WILL PULL MOISTURE FROM THE AIR ABOVE AND RETAIN IT IN THE SOIL.
ADVANTAGES: REDUCES EVAPORATION RATE OF SURFACE MOISTURE, LOWERS THE FREEZING POINT OF WATER, WHICH REDUCES FROST HEAVE AND FREEZE-THAW CYCLES, THEREBY REDUCING ROAD MAINTENANCE. CALCIUM CHLORIDE ALSO INCREASES THE COMPACTED DENSITY OF EXISTING ROAD BASE MATERIAL. EFFECTIVENESS IS RETAINED AFTER REBLADING.
LIMITATIONS: EFFECTIVENESS IN ARID AND SEMI-ARID REGIONS MAY BE LIMITED DUE TO LOW RELATIVE HUMIDITY. IT IS VERY CORROSIVE TO ALUMINUM ALLOYS AND SLIGHTLY CORROSIVE TO STEEL. SOLUBILITY OF CALCIUM CHLORIDE RESULTS IN LEACHING DURING HEAVY PRECIPITATION. RELEASES HEAT WHEN MIXED WITH WATER.
IDEAL SOIL CHARACTERISTICS: PLASTICITY INDEX<8, 10-20 PERCENT FINES PASSING THE NO. 200 SIEVE.
RELATIVE COST COMPARISON (AVERAGE LIFE EXPECTANCY): LOW INITIAL COST, MEDIUM LONG-TERM MAINTENANCE COST (1-6 MONTHS).
ENVIRONMENTAL CONSIDERATIONS: REPEATED APPLICATIONS AND LONG TERM USE MAY HARM ADJACENT AND NEARBY VEGETATION (SEE THE MANUFACTURER'S PRODUCT INFORMATION).

MAGNESIUM CHLORIDE
FUNCTIONAL MECHANISM: AT A RELATIVE HUMIDITY GREATER THAN APPROXIMATELY 30% (77%), THE SALTS WITHIN THE SOIL WILL PULL MOISTURE FROM THE AIR ABOVE AND RETAIN IT IN THE SOIL.
ADVANTAGES: REDUCES EVAPORATION RATE OF SURFACE MOISTURE, LOWERS THE FREEZING POINT OF WATER, WHICH REDUCES FROST HEAVE AND FREEZE-THAW CYCLES, THEREBY REDUCING ROAD MAINTENANCE. MAGNESIUM CHLORIDE INCREASES THE COMPACTED DENSITY OF EXISTING ROAD BASE MATERIAL MORE THAN CALCIUM CHLORIDE. EFFECTIVENESS IS RETAINED AFTER REBLADING.
LIMITATIONS: EFFECTIVENESS IN ARID AND SEMI-ARID REGIONS MAY BE LIMITED DUE TO LOW RELATIVE HUMIDITY. IT IS VERY CORROSIVE TO ALUMINUM ALLOYS AND SLIGHTLY CORROSIVE TO STEEL. SOLUBILITY OF MAGNESIUM CHLORIDE RESULTS IN LEACHING DURING HEAVY PRECIPITATION.
IDEAL SOIL CHARACTERISTICS: PLASTICITY INDEX<8, 10-20 PERCENT FINES PASSING THE NO. 200 SIEVE.
RELATIVE COST COMPARISON (AVERAGE LIFE EXPECTANCY): LOW INITIAL COST, MEDIUM LONG-TERM MAINTENANCE COST (1-6 MONTHS).
ENVIRONMENTAL CONSIDERATIONS: REPEATED APPLICATIONS AND LONG TERM USE MAY HARM ADJACENT AND NEARBY VEGETATION (SEE THE MANUFACTURER'S PRODUCT INFORMATION).

LIGNIN DERIVATIVES
FUNCTIONAL MECHANISM: ACT AS ADHESIVES BY BINDING SOIL PARTICLES TOGETHER AND CURING.
ADVANTAGES: GREATLY INCREASES DRY STRENGTH OF SOIL, NOT HUMIDITY DEPENDENT, IMPARTS SOME PLASTICITY TO ROAD SURFACES, AND LOWERS FREEZING POINT OF ROAD SURFACE AND BASE. EFFECTIVENESS IS RETAINED AFTER REBLADING.
LIMITATIONS: HIGH SOLUBILITY RESULTS IN LEACHING DURING HEAVY PRECIPITATION. IT IS CORROSIVE TO ALUMINUM ALLOYS DUE TO ACIDITY (CO₂ CAN NEUTRALIZE THE ACIDITY). PROPER AGGREGATE MIX IS IMPORTANT TO PERFORMANCE. BECOMES BRITTLE WHEN WET AND BRITTLE WHEN DRY.
IDEAL SOIL CHARACTERISTICS: PLASTICITY INDEX<8, 10-30 PERCENT FINES PASSING THE NO. 200 SIEVE.
RELATIVE COST COMPARISON (AVERAGE LIFE EXPECTANCY): MEDIUM INITIAL COST, LOW LONG-TERM MAINTENANCE COST (3-12 MONTHS).
ENVIRONMENTAL CONSIDERATIONS: LIGNIN PRODUCTS HAVE HIGH BOD (BIOLOGICAL OXYGEN DEMAND) IN AQUATIC SYSTEMS. SPILLS OR RUNOFF INTO SURFACE OR GROUNDWATERS MAY CREATE LOW DISSOLVED OXYGEN CONDITIONS RESULTING IN FISH KILLS OR INCREASES IN GROUND WATER CONCENTRATIONS OF IRON, SULFUR COMPOUNDS AND OTHER POLLUTANTS. (SEE THE PRODUCT MSDS FOR SPECIFIC INFORMATION).

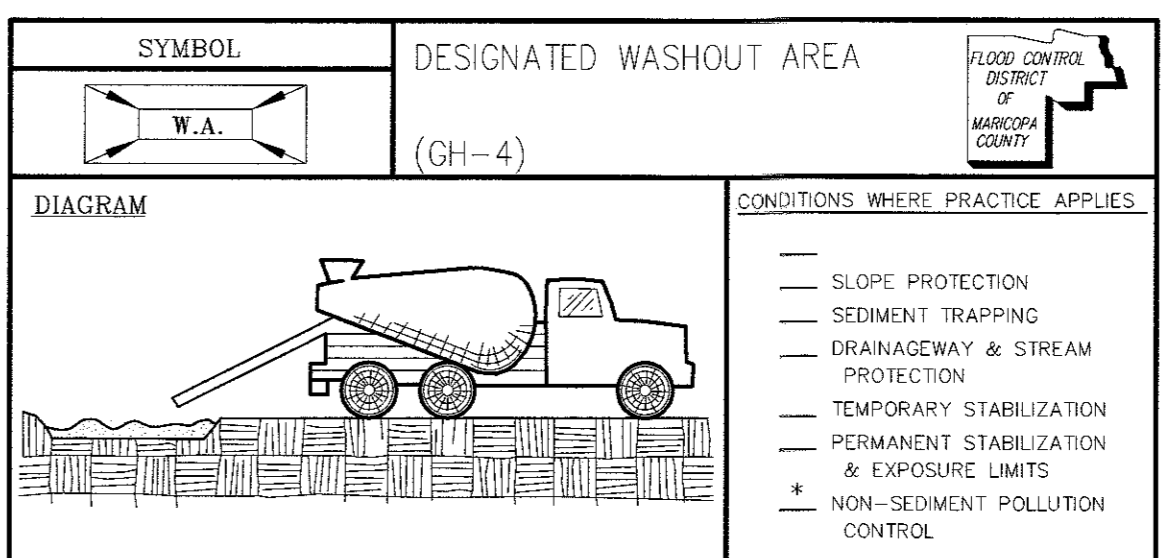
TREE RESIN EMULSIONS (TALL OIL)
FUNCTIONAL MECHANISM: ACT AS ADHESIVES BY BINDING SOIL PARTICLES TOGETHER AND CURING.
ADVANTAGES: LOW SOLUBILITY AFTER CURING MINIMIZES LEACHING AND PROVIDES DEGREE OF SURFACE WATERPROOFING. IMPARTS SOME PLASTICITY TO ROAD SURFACES. HAS A HIGH BONDING STRENGTH, AND IS NON-CORROSIVE.
LIMITATIONS: REQUIRES PROPER WEATHER AND TIME TO CURE. NO RESIDUAL EFFECTIVENESS AFTER REBLADING. EQUIPMENT REQUIRES PROMPT CLEANUP TO AVOID CURING OF RESIN IN HOSES AND PIPES.
IDEAL SOIL CHARACTERISTICS: PLASTICITY INDEX<3, 10-20 PERCENT FINES PASSING THE NO. 200 SIEVE.
RELATIVE COST COMPARISON (AVERAGE LIFE EXPECTANCY): MEDIUM INITIAL COST, LOW LONG-TERM MAINTENANCE COST (1-6 MONTHS).
ENVIRONMENTAL CONSIDERATIONS: (SEE THE MANUFACTURER'S PRODUCT INFORMATION).

SYNTHETIC POLYMER
FUNCTIONAL MECHANISM: BIND SOIL PARTICLES TOGETHER BY FORMING A POLYMERIZING MATRIX, A FUNCTION SIMILAR TO ADHESIVES.
ADVANTAGES: APPLICABLE TO A RANGE OF EMISSION SOURCES AND FUNCTION WELL IN SANDY SOIL CONDITIONS. SOME TYPES ALLOW SEEDED VEGETATION TO GROW THROUGH THE POLYMER MATRIX.
LIMITATIONS: SURFACE CRACKING, FRACTURING AND POTHOLES MAY DEVELOP. LONG-TERM APPLICATION MAY CAUSE ROAD TO BECOME TOO HARD FOR REBLADING. BITUMENS WON'T LOWER FREEZING POINT AND PETROLEUM OIL PRODUCTS LACK ADHESIVE CHARACTERISTICS.
IDEAL SOIL CHARACTERISTICS: PLASTICITY INDEX<3, 5-20 PERCENT FINES PASSING THE NO. 200 SIEVE.
RELATIVE COST COMPARISON (AVERAGE LIFE EXPECTANCY): HIGH INITIAL COST, LOW LONG-TERM MAINTENANCE COST (1-3 MONTHS).
ENVIRONMENTAL CONSIDERATIONS: (SEE THE MANUFACTURER'S PRODUCT INFORMATION).

BITUMENS, TARS AND RESINS
FUNCTIONAL MECHANISM: ASPHALT AND RESINOUS PRODUCTS ARE ADHESIVE BINDING SOIL PARTICLES TOGETHER. PETROLEUM OIL PRODUCTS COAT SOIL PARTICLES, INCREASING THEIR MASS AND BINDING THEM TOGETHER.
ADVANTAGES: WATER INSOLUBLE WHEN DRY; PROVIDE A DEGREE OF SURFACE WATERPROOFING. GOOD RESIDUAL EFFECTIVENESS.
LIMITATIONS: SURFACE CRACKING, FRACTURING AND POTHOLES MAY DEVELOP. LONG-TERM APPLICATION MAY CAUSE ROAD TO BECOME TOO HARD FOR REBLADING. BITUMENS WON'T LOWER FREEZING POINT AND PETROLEUM OIL PRODUCTS LACK ADHESIVE CHARACTERISTICS.
IDEAL SOIL CHARACTERISTICS: PLASTICITY INDEX<3, <20 PERCENT FINES PASSING THE NO. 200 SIEVE.
RELATIVE COST COMPARISON (AVERAGE LIFE EXPECTANCY): HIGH INITIAL COST, HIGH LONG-TERM MAINTENANCE COST (1-3 MONTHS).
ENVIRONMENTAL CONSIDERATIONS: USE OF OILS PROHIBITED. SOME PETROLEUM BASED PRODUCTS MAY CONTAIN CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS (PAHs). (SEE THE MANUFACTURER'S PRODUCT INFORMATION).

CEMENTITIOUS BASED BINDERS
FUNCTIONAL MECHANISM: HIGH PURITY GYPSUM MIXES WITH WATER AND MULCH TO FORM A THIN CEMENT-LIKE CRUST ON THE SOIL SURFACE.
ADVANTAGES: FLEXIBLE, DURABLE, WATER PERMEABLE, AND RESISTS SOIL CHEMICALS. REDUCES AMOUNT OF AGGREGATE REQUIRED DURING INITIAL CONSTRUCTION AND HAS LOWER MAINTENANCE COSTS THAN OTHER DUST SUPPRESSANTS.
LIMITATIONS: CEMENTITIOUS BASED BINDERS ARE ONLY EFFECTIVE FOR DUST CONTROL IN NON-TRAFFIC AREAS. INSTEAD, CONSIDER MIXING CEMENTITIOUS BASED BINDERS WITH SUB-BASE SOILS FOR GREATER SOIL STRENGTH.
IDEAL SOIL CHARACTERISTICS: DEPENDING ON THE TYPE OF CEMENTITIOUS BASED BINDER, WILL WORK WITH BOTH HIGH AND LOW PLASTICITY INDEX SOILS.
RELATIVE COST COMPARISON (AVERAGE LIFE EXPECTANCY): LOW INITIAL COST, MEDIUM LONG-TERM MAINTENANCE COST (3-6 MONTHS).
ENVIRONMENTAL CONSIDERATIONS: NONE

* ALL PERCENT PASSING PERCENTAGES BY WEIGHT



RECOMMENDED STANDARDS AND SPECIFICATIONS
ECC AND AC WASTES

PCC AND AC WASTE SHOULD NOT BE ALLOWED TO ENTER STORM DRAINS OR WATERCOURSES. INSTEAD, PCC AND AC WASTE SHOULD BE COLLECTED AND PROPERLY DISPOSED OF OUTSIDE THE HIGHWAY RIGHT-OF-WAY OR PLACED IN A TEMPORARY CONCRETE WASHOUT STRUCTURE.

INSTALL A SIGN ADJACENT TO EACH TEMPORARY CONCRETE WASHOUT STRUCTURE TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE INSTALLED STRUCTURES.

A FOREMAN AND/OR CONSTRUCTION SUPERVISOR SHOULD MONITOR ON-SITE CONCRETE WORKING TASKS, SUCH AS SAW CUTTING, CORING, GRINDING AND GROOVING TO ENSURE PROPER METHODS ARE IMPLEMENTED.

SAW CUTTING RESIDUE SHOULD NOT BE ALLOWED TO FLOW ACROSS THE PAVEMENT, AND SHOULD NOT BE LEFT ON THE SURFACE OF THE PAVEMENT. VACUUM SLURRY RESIDUE AND DISPOSE IN A TEMPORARY FACILITY AND ALLOW SLURRY TO DRY. DISPOSE OF DRY SLURRY RESIDUE IN ACCORDANCE WITH GH-2, SOLID WASTE MANAGEMENT.

SIMILARLY, RESIDUE FROM GRINDING OPERATIONS SHOULD BE PICKED UP BY MEANS OF A VACUUM ATTACHMENT TO THE GRINDING MACHINE.

ON-SITE TEMPORARY CONCRETE WASHOUT FACILITY PROCEDURES

TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE LOCATED A MINIMUM OF 50 FEET FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, AND WATERCOURSES, UNLESS DETERMINED INFEASIBLE BY THE SITE SUPERVISOR. EACH FACILITY SHOULD BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OR ACCESS AREAS TO PREVENT DISTURBANCE OR TRUCKING.

TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE CONSTRUCTED ABOVE GRADE OR BELOW GRADE AT THE OPTION OF THE CONTRACTOR AND HAVE SUFFICIENT QUANTITY AND SEE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

PERFORM WASHOUT OF CONCRETE MIXER TRUCKS IN DESIGNATED AREAS ONLY. A SIGN SHOULD BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.

WASH CONCRETE ONLY FROM MIXER TRUCK CHUTES INTO APPROVED CONCRETE WASHOUT FACILITY. WASHOUT MAY BE COLLECTED IN AN IMPERMEABLE BAG FOR DISPOSAL.

ABOVE GRADE TEMPORARY CONCRETE WASHOUT STRUCTURE

ABOVE GRADE TEMPORARY CONCRETE WASHOUT STRUCTURES SHOULD HAVE A MINIMUM LENGTH AND WIDTH OF 10 FEET OR LARGER TO PROVIDE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. IF DEEMED NECESSARY, THE LENGTH AND WIDTH OF THE WASHOUT STRUCTURE MAY BE EXPANDED FOR MORE CAPACITY.

STRAW BALES, WOOD STAKES, AND SANDBAG MATERIALS SHOULD CONFORM TO THE SPECIFICATIONS IN SPC-11: ORGANIC FILTER BARRIER AND SPC-2: SAND BAG BARRIER.

PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10-MIL POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

BELOW GRADE TEMPORARY CONCRETE WASHOUT STRUCTURE

BELOW GRADE TEMPORARY CONCRETE WASHOUT SHOULD HAVE A MINIMUM LENGTH AND WIDTH OF 10 FEET OR LARGER TO PROVIDE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. IF DEEMED NECESSARY, THE LENGTH AND WIDTH OF THE WASHOUT STRUCTURE MAY BE EXPANDED FOR MORE CAPACITY.

PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10-MIL POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

ENSURE THAT THE SOIL BASE IS FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE PLASTIC LINING MATERIAL.

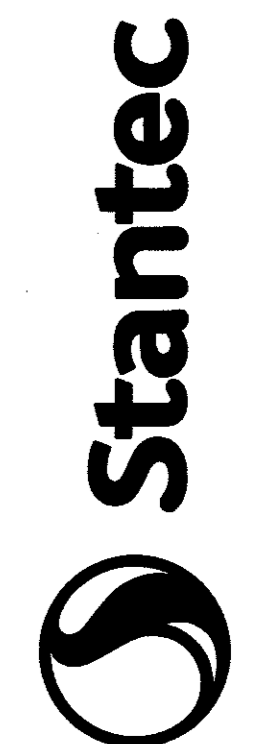
REMOVAL OF TEMPORARY CONCRETE WASHOUT FACILITIES

WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, AS DETERMINED BY THE SITE SUPERVISOR, HARDENED CONCRETE SHOULD BE BROKEN UP, REMOVED, AND DISPOSED OF IN ACCORDANCE WITH GH-2: SOLID WASTE MANAGEMENT.

HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED.

RECOMMENDED MAINTENANCE AND INSPECTION

MONITOR ON SITE CONCRETE WASTE STORAGE AND DISPOSAL PROCEDURES AT LEAST WEEKLY. MONITOR CONCRETE WORKING TASKS, SUCH AS SAW CUTTING, CORING, GRINDING AND GROOVING TO ENSURE PROPER METHODS ARE EMPLOYED.



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NOTICE OF EXTENDED CERTIFICATION AND APPROVAL PERIOD PROVISION
THIS CONTRACT ALLOWS THE OWNER TO CERTIFY AND APPROVE BILLINGS AND ESTIMATES FOR PROGRESS PAYMENTS WITHIN 25 DAYS AFTER THE BILLINGS AND ESTIMATES ARE RECEIVED FROM THE CONTRACTOR. FOR RELEASE OF RETENTION WITHIN 45 DAYS AFTER THE BILLINGS AND ESTIMATES ARE RECEIVED FROM THE CONTRACTOR AND FOR FINAL PAYMENT WITHIN 45 DAYS AFTER THE BILLINGS AND ESTIMATES ARE RECEIVED FROM THE CONTRACTOR.

NOTICE OF EXTENDED PAYMENT PROVISION
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 20 DAYS AFTER CERTIFICATION AND APPROVAL OF BILLINGS AND ESTIMATES FOR PROGRESS PAYMENTS, WITHIN 45 DAYS AFTER CERTIFICATION AND APPROVAL OF BILLINGS AND ESTIMATES FOR RELEASE OF RETENTION AND WITHIN 45 DAYS AFTER CERTIFICATION AND APPROVAL OF BILLINGS AND ESTIMATES FOR FINAL PAYMENT.

Client/Project
CRESCENT COMMUNITIES
CRESCENT RIO
801 WEST 1ST STREET, TEMPE, AZ

Title
STORM WATER POLLUTION PREVENTION PLAN
DETAILS
EN170054

Permit Seal
89116
KELLY J.
BELL
7/1/2021

EXPIRES 03-31-2021
Project Number: 2220-10676
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