Residential Building Inspection Guidelines

City of Richmond

Inspections and Permits

March 26, 2021

Preface

The following information has been arranged as a guideline for the construction process for builders and contractors working within the inspection jurisdiction of the City of Richmond. Some items are clearly defined within the current City of Richmond Ordinance, Unified Development Code, and Public Works Infrastructure Design Manual while others are standard procedures set forth by the Inspections and Permits Division of the City of Richmond.

This material is to be used as a guideline only and may not include all circumstances or building practices that occur in the field.

In order to provide for quality, cost effective construction, please familiarize yourself with these guidelines

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Inspection Descriptions

The City Noise Ordinance considers the construction of any building or structure between the hours of 7:00 p.m. and 7:00 a.m. a nuisance. Please review the noise ordinance in detail on the city's website at www.richmondtx.gov

Layout (emailed to permits@richmondtx.gov)
Foundation form boards to be in place and "form survey" to be posted on site and emailed to richmondtx.gov). String lines shall be allowed to mark property lines if the geographical layout of the property permits. Trash/building material containers shall be in place for every two work sites if using a "roll off" type dumpster or, every single work site if using a minimum eight foot by eight foot (8' x 8') plywood box, constructed to withstand its purpose. Safety fence shall be in place when construction site is adjacent to a building completed or near completion. Silt fence shall be in place if deemed necessary for erosion control. Tree protection shall be in place. Address posted, visible from the street. Inspections will not be down without proper addressing.

Temporary Electric Loop
The visual inspection of a temporary power pole or pedestal located at the work site, according to the 2017 National Electrical Code.

Water/Sewer Yard Lines
A visual inspection and testing of the building sewer and water service installed from the structure to the utility taps. This inspection requires proper separation of services and burial depths as required by the 2015 International Codes. Sewer line tests shall consist of a ten-foot head (10') of water column above the highest fitting. Backwater valves are required on applications deemed necessary by the 2015 International Codes. Water meter boxes/vaults shall be properly installed for proper placement of meter(s). Water meter boxes shall not be damaged or missing. Required backflow devices and customer shut-off valves shall be in place. Pressure reducing valves shall be in place, if required.

Plumbing Rough
The visual inspection and testing of proper installation according to the current adopted Plumbing Code (2015 International Codes). This inspection requires a water test with a ten-foot head (10') of water. Plumbing system shall not be buried or covered up.

Engineer's Pre-Pour Report (emailed to permits@richmondtx.gov)
This inspection is currently being performed by the Engineer of record for said construction. The Engineer's approved inspection report shall be on site and emailed on permits@richmondtx.gov). A "foundation letter" from the Engineer of record is required to be submitted prior to the scheduling of concrete pour inspection.

Pre-Pour Inspection
The visual inspection and testing of the water distribution lines within the foundation of the structure. The pressure test required for this inspection shall maintain a minimum fifty pounds per square inch (50 psi). All DWV shall remain under water test. This inspection will be performed AFTER the installation of reinforcing rods and/or cables within the foundation area. The underground shall be in place at time of inspection.

Sheathing
This inspection is a compliance check for the correct exterior sheathing materials as well as the sealing and protection of the exterior envelope prior to any masonry and or lath. At the same time the visual inspection of soffit and covered porches to show compliance of correct framing materials and correct uplift hardware before being covered. THIS IS A 3RD PARTY INSPECTION

Plumbing Top-Out
Visual inspection and test of the water supply and building drainage system, in accordance with the 2015 International Codes, within the building envelope. The water supply shall maintain a minimum 50 psi gauge test. The DWV shall be water tested above the highest fitting. Tubs/showers shall be tested to the flood rim level and/or overflow drain.

Gas Test (if applicable)
A visual inspection and testing of the gas piping in accordance with the 2015 International Fuel Gas Codes. The inspection requires a minimum 20 psi gauge test with all valves in the open position. Bubble testing shall be required if deemed necessary by the Building Inspector.

Electrical Rough
A visual inspection of the electrical wiring and panel(s) in accordance with the 2017 National Electrical Code.

Mechanical Rough
A visual inspection of the mechanical ducts and equipment in accordance with the 2015 International Mechanical Code.

Frame
A visual inspection of the structural components of the building envelope. The Frame Pack inspection shall be approved prior to the installation of masonry and/or insulation.

Sheetrock
Not currently a required inspection but may be performed if deemed necessary by the Building Inspector. All required fire rated walls shall be inspected by the Building Inspector and/or the Fire Marshal.

Insulation
A visual inspection in accordance with the 2015 International Energy Conservation Codes.

Sidewalk/Driveway Pre-Pour
Please see Detail Sheets attached at the end of these guidelines.

Masonry/Lath/Wall Tie Inspection
The visual inspection of exterior wall materials to make sure it meets masonry requirements on first (1st) floor and second (2nd) floor. Correct number of design features according to the zoning type. Includes wall tie inspection (32 inches horizontally and 24 inches vertically maximum). A second part inspection for lath is also required when felt, stapled/nailed wire, expansion joints, weep screen and appropriate flashing have been installed and is ready for 1st coat.

Permanent Power (Meter Release)
A visual inspection in accordance with the 2017 National Electrical Code. All wiring shall be properly terminated or contained within a covered outlet box prior to the issuance of a permanent electric meter. This inspection may be scheduled any time after the installation of electrical trim components. All equipment and panels (including meter can) shall be properly bonded. Panels shall be labeled.

2nd Gas (Meter Release)
The visual inspection and testing of the gas piping system prior to the release of the gas meter. The system shall maintain a minimum 20 psi gauge test. All gas stops shall be in place at this time.

Soil Certificate (email to permits@richmondtx.gov)
A delivery receipt and a soil analysis report verifying the soil blend meets the ordinance requirements.

Plumbing Final
Visual inspection and testing of the plumbing system in accordance with the 2015 International Plumbing Code.

Electric Final
Visual inspection and testing of electrical components in accordance with the 2017 National Electrical Code.

Mechanical Final
Visual inspection and testing of mechanical components in accordance with the 2015 International Mechanical Code. Air conditioning and heat start-up is required.

Landscaping
Visual inspection for compliance with the current City of Richmond Landscape Ordinance unless your Development Agreement states otherwise. All landscaping shall be completed at the time of Building Final. (email permits@richmondtx.gov final landscape materials invoice prior to scheduling Landscape Inspection)

Site
Visual inspection for completion of required/necessary components of the property. This shall include, but not limited to, sidewalks, flatwork, site is free of construction debris, etc.

Building Final
Includes visual inspection of the proper completion, allowing for the issuance of a Certificate of Occupancy.

Backflow Prevention
Backflow prevention assembly test and maintenance report is required for all homes with an Irrigation System. Use City of Richmond Backflow form.

Energy Compliance Testing (emailed to permits@richmondtx.gov)
Test reports need to be compliant with the following:

- ☐ A completed Envelope Leakage Test Report
- ☐ A completed Duct Leakage Test Report

All inspections must be completed, and fees paid prior to the Water Department switching users on a utility account.

Common Turndowns

Approved Construction Plans not on site and accessible to inspectors

LAYOUT

- ☐ Form survey not emailed
- ☐ Trash receptacle not provided
- ☐ Safety fence not provided
- ☐ Erosion control not in place
- ☐ Trees not protected

TEMPORARY ELECTRIC LOOP

- ☐ Not supported / secure properly
- ☐ Ground termination not to code
- ☐ Provide 220 A receptacle
- ☐ Receptacle(s) not GFCI protected
- ☐ Damaged / needs repair
- ☐ Missing / not complete
- ☐ Not ready

PLUMBING ROUGH

- ☐ Buried/covered, unable to inspect
- Provide 10' head of water
- ☐ Water test on DWV not holding
- ☐ Building drain not sleeved through exterior beam(s)
- Maintain ¼ inch per foot on Branch Lines
- ☐ Provide proper bed/fill material
- ☐ Clear debris from trench
- ☐ Damaged / needs repair
- ☐ Missing / not complete
- ☐ Not ready

WATER / SEWER YARDLINES

- ☐ Separate water and sewer
- ☐ Burial depth not to code
- ☐ Maintain 1/8 inch per foot
- Provide 10' head on DWV
- ☐ Clean trench
- ☐ Provide proper bed/fill material
- ☐ Pipe not supported properly
- ☐ Backflow not installed
- ☐ Damaged / needs repair
- ☐ Missing / not complete
- ☐ Not ready

PRE-POUR

- ☐ Air/water test not holding
- ☐ Crimped / cut, needs repair
- ☐ Unapproved joints in slab
- ☐ Copper not sleeved in concrete
- ☐ Rough plumbing test not holding
- ☐ UFER ground not in place
- ☐ Missing / not complete
- ☐ Not ready

PLUMBING TOP OUT

- ☐ Venting requirements not met
- ☐ Water test on DWV not holding
- ☐ Air/water test on copper not holding
- ☐ Tub drains not open for proper test
- ☐ Copper in contact with dissimilar metal
- ☐ Gas vents not to code
- ☐ Gas test not holding at 20 psi
- ☐ Gas piping not protected through masonry
- ☐ Pipe not supported or properly secured
- ☐ Protect pipe
- ☐ Damaged / needs repair
- ☐ Missing / not complete
- ☐ Not ready

ELECTRICAL ROUGH

- ☐ Wire to be in raceway
- ☐ Wire damaged, needs repair
- • Receptacles spaced greater than 12'
- ☐ Nail plates required at studs/plates
- ☐ Secure wires in panel
- ☐ Smoke detector placement not to code
- ☐ Stairway lighting not to code
- ☐ Wire not supported or properly secured
- ☐ Protect wire
- ☐ Ground termination not to code
- ☐ Missing / not complete
- ☐ Not ready

MECHANICAL ROUGH

- ☐ Crimped duct
- ☐ Duct not properly sealed
- ☐ Not supported / secure properly
- ☐ Dryer vent not to code
- ☐ Vent hood duct not to code
- ☐ Exhaust fans not to code
- ☐ Plenums not properly sealed
- ☐ Combustion air not to code
- ☐ Return / supply air too close to gas burning appliance
- ☐ Damaged / needs repair
- ☐ Missing / not complete
- ☐ Not ready

GAS TEST

- ☐ Pipe not protected through masonry
- ☐ Test not holding at 20 psi
- ☐ Damaged / Needs repair
- ☐ Not Ready

Common Turndowns

FRAME

- ☐ Seal/secure exterior sheathing
- ☐ Seal untreated lumber
- ☐ Not ready

- ☐ Seal/secure exterior penetrations
- ☐ Engineered trusses not installed per design
- • Provide Engineer's repair detail
- ☐ Over cut studs/plates
- ☐ Glue/shim headers
- ☐ Rafters not to code
- ☐ Joist hangers missing
- ☐ Double studs where required
- ☐ Windows do not meet egress
- ☐ Windbrace not to code
- ☐ Attic access not to code
- ☐ Tempered glass where required
- ☐ Stair risers/treads not to code
- ☐ Fire block not to code
- ☐ Not supported / secure properly
- ☐ Masonry requirements not met
- ☐ Headers/joists over spanned
- ☐ Draft stop not to code
- ☐ Provide moisture barrier
- ☐ Bottom plates not secured
- ☐ Fireplace clearances not met
- ☐ Truss hangers / ledgers not to code
- ☐ Make site safe and sanitary
- ☐ Strap plates / studs
- ☐ Nail schedule not to code
- ☐ Attic ventilation requirements not met
- ☐ Vent termination not to code
- ☐ Damaged / needs repair
- ☐ Missing / not complete
- ☐ Not ready

MASONRY

- ☐ Incorrect percentage (%) of masonry per submitted plans

SOIL CERTIFICATE

- ☐ Soil certificate not emailed

PERMANENT POWER

- ☐ Wire termination not to code
- ☐ Exposed wire
- ☐ Fixture / cover plates missing
- ☐ Wire not properly secured
- ☐ Service equipment not properly bonded

2nd GAS TEST

- ☐ Provide 20 psi gauge test
- ☐ Gas stub-out not connected to riser
- ☐ Damaged pipe / riser

PLUMBING FINAL

- Paint plumbing vents
- ☐ Provide anti-siphon device on hose bibs
- ☐ Water heater drain termination not to code
- ☐ Water heater not to code
- ☐ Drain pan required
- ☐ Expansion tank required
- ☐ Leak in DWV
- ☐ Leak in water supply
- ☐ T & P relief not to code
- ☐ Gas vents in contact with combustibles
- ☐ Copper in contact with dissimilar metal
- ☐ Low water pressure
- ☐ Water closet / faucets / valves run continuous
- ☐ Clean / repair meter box
- ☐ Insulate copper
- ☐ Damaged / needs repair
- ☐ Missing / not complete
- ☐ Not ready

ELECTRICAL FINAL

- ☐ Wire termination not to code
- ☐ Smoke detectors not to code
- ☐ Smoke detectors beeping or not functioning (low or bad battery)
- ☐ ARC fault not to code
- ☐ Fixture/cover plates missing
- ☐ Stairway illumination not to code
- ☐ Wire not properly secured
- ☐ Power not on
- • Label GFCI's
- ☐ Label electrical panel(s)
- ☐ Label panel with ground termination locations
- ☐ Caulk around exterior devices
- ☐ Duplex receptacle not permitted for vent hood
- ☐ Wire damaged
- ☐ Ground / bond termination not to code
- ☐ Provide knock-out plug(s)
- ☐ Provide panel cover
- ☐ Not ready

MECHANICAL FINAL

- ☐ SEER requirements not met
- ☐ Energy Efficiency requirements not met
- ☐ Not supported / secure properly
- ☐ Gas vent in contact with combustibles
- ☐ Gas vent termination not to code
- ☐ Drain pan required

- ☐ Condensate drain not to code
- ☐ Combustion air not to code
- ☐ Dryer vent to code
- ☐ Crimped duct
- ☐ Raise / level A/C pad
- ☐ Protect duct
- ☐ Missing / not complete
- ☐ Damaged / needs repair
- ☐ Not ready

BUILDING FINAL

- ☐ Seal/secure exterior penetrations
- ☐ Landscape requirements not met
- ☐ Flatwork damaged / needs repair
- ☐ Clean flatwork
- ☐ Clean site/street
- ☐ Exterior seal not complete
- ☐ Screens missing
- ☐ Occupied prior to finals
- Weep holes to be 33" on center
- Maintain 6" clearance from finished floor to grade
- ☐ Provide weather strips
- ☐ Provide insulation certificate
- ☐ Finish yard / grade to drain
- ☐ Provide street address
- ☐ Provide anti-tip device on range
- ☐ Attic access not to code
- ☐ Catwalk not to code
- ☐ Adjust doors
- ☐ Hardware missing
- ☐ Provide fire rated attic access
- ☐ Address not posted
- ☐ Work in progress
- ☐ Missing / not complete
- ☐ Damaged / needs repair
- ☐ Not Ready

Contact Information
City of Richmond

Approval of permits by the City of Richmond does not exempt you from complying with current or federal, state, or regional development requirements.

Permits/Building Inspections

- Building Official – Lori Bownds (281)232-6871
- Permit Clerks –(281)232-6871
- Plumbing/Building Inspector – Greg Ross (832)473-3804
- Building Inspector/Flatwork – Oscar Govea (832)473-0587
- Zoning – Jose Abraham (281—342-0559
- Building Department – 600 Morton Street – Richmond Texas – 77469 Phone (281)-232-6871 Fax (281)238-1215 email permits@richmondtx.gov
- Water Department – 302 Morton Street – Richmond Texas 77469 Phone 281-342-5456

Contact Information Outside Entities

U.S. Department of Energy (ResCheck Form/Information)
www.energycodes.gov

Federal Emergency Management Agency (FEMA)

- Flood Plain Information 1-800-638-6620

Drainage

- City of Richmond follows Fort Bend County Drainage Criteria.

NOTES:

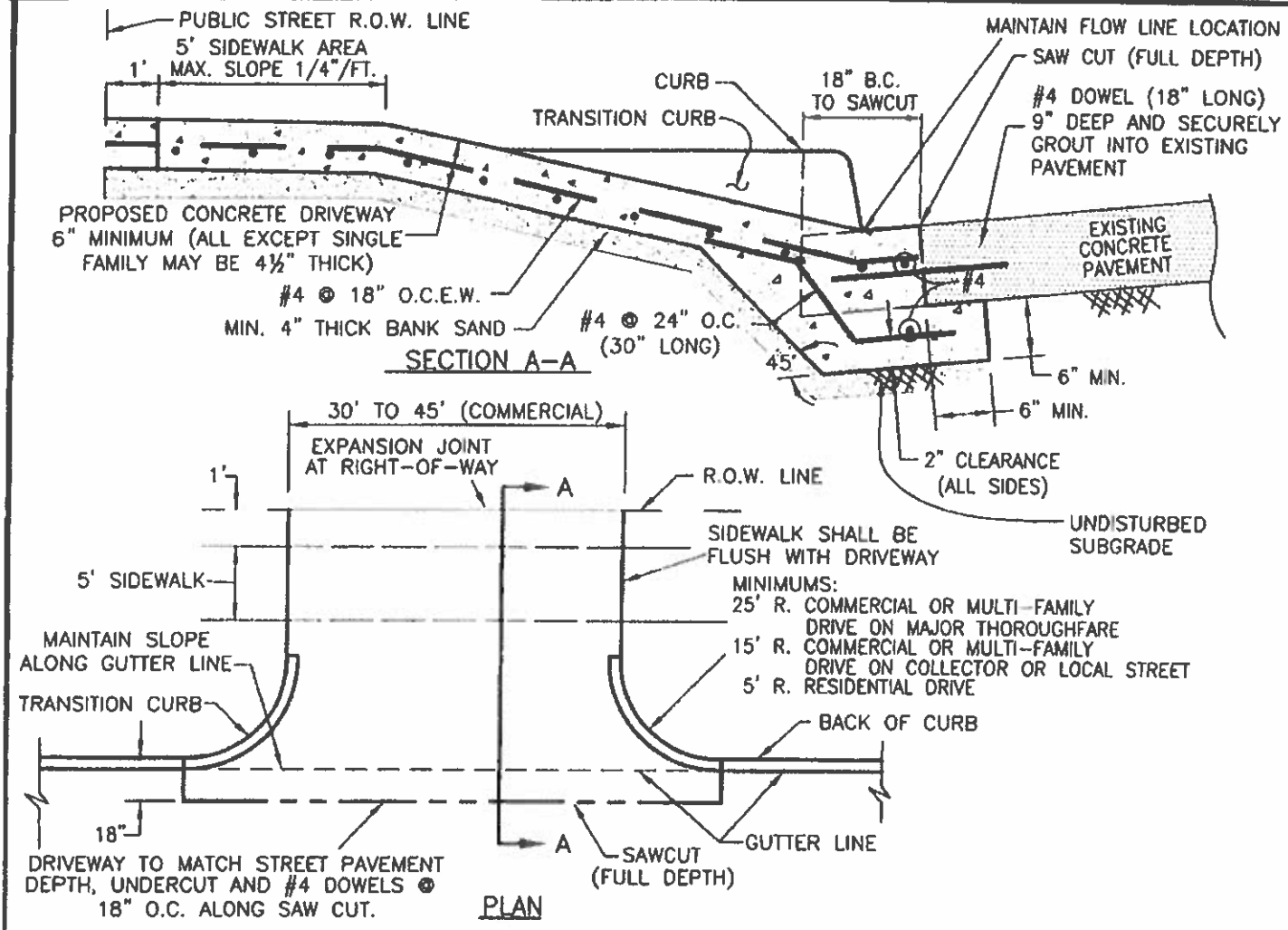
1. Double Permit Fees will be charged for any work started before receiving the permit.
2. Reinspection Fees - $25.00 for first, $37.50 for second and $50.00 thereafter.
3. Reinspection fees shall be paid prior to requesting additional inspections.

Driveway Specifications

Special Notes:

- *Driveway design and construction must comply with the City of Richmond standard specifications (Diagrams provided below)*
- *It is the applicant's responsibility to contact all utility companies for the location of underground utilities. The applicant is responsible for any damage to existing utilities.*

3. TYPICAL SINGLE ROADWAY SECTION FOR CONCI



DRIVEWAY NOTES:

1. SAW CUT & BREAKOUT NO MORE THAN 48 HOURS PRIOR TO PROPOSED CONCRETE PLACEMENT.
2. UNACCEPTABLE SUBGRADE SHALL BE OVEREXCAVATED AND REPLACED WITH CONCRETE.
3. EDGE ALL SIDES WITH EDGING TOOL AND BROOM FINISH.
4. PROVIDE BARRICADES AND TRAFFIC WARNING DEVICES DURING CONSTRUCTION.
5. PORTLAND CEMENT CONCRETE CONTAIN A MINIMUM 5½ SACKS PER CUBIC YARD (3500 P.S.I. AT 28 DAYS).
6. REINFORCING SHALL BE ASTM A-615 GRADE WITH 10" MINIMUM OVERLAP AT JOINTS.
7. COMPACT SUBGRADE TO 95% OF STANDARD PROCTOR DENSITY (+/- 2% OF OPTIMUM MOISTURE).
8. EXTEND EXPANSION JOINT FROM STREET TO THE RIGHT-OF-WAY.

6. CONCRETE DRIVEWAY

Zoning Compliance Inspections

Section A-111.1, Certificate of Occupancy:

A building or structure shall not be used or occupied, and a change in the existing use or **occupancy** classification of a building or structure or portion thereof shall not be made, until the building official has issued a **certificate of occupancy** therefor as provided herein. Issuance of a Certificate of Occupancy shall not be construed as an approval of a violation of the provisions of the code or of other ordinances of the jurisdiction.

A recommended construction inspection sequence follows:

1. Plan your inspection

Obtain and review permit requirements if applicable, site map with BMP locations marked if available, and any other necessary information needed to plan how you will conduct the site inspection. Use the inspection checklist during the inspection. Before entering the construction site, take note of the surroundings and stages of construction. The inspector should begin at a low point and work uphill, making sure to observe all discharge points and any off-site support activities.

2. Inspect perimeter controls

The inspector should examine all perimeter controls (such as silt fences) to determine whether they are adequate for the drainage area they were designed to treat, and that they have been properly installed and maintained. The structural integrity of the BMP should be checked to determine whether portions of the BMP need to be replaced. Slopes and temporary stockpiles should be inspected to determine if sediment and erosion controls are effective; look for tracking of stockpiled materials to other parts of the site.

3. Compare BMPs in the SWPPP with construction site conditions

The City's Stormwater Specialist will conduct this step during a SWP3 audit. Determine whether BMPs are in place as specified in the site plan and evaluate whether those BMPs have been adequately installed and maintained. Document any potential violations and their location and look for areas where additional BMPs are needed that are not specified in the site plan.

4. Inspect site entrances/exits

Inspect the vehicle construction entrance/exit and surrounding streets to determine if there has been excessive tracking of sediment from the site. Look for evidence of additional areas where vehicles are entering or exiting that are not on the site plan and are not stabilized.

5. Inspect sediment controls

Inspect sediment basins and look for signs that sediment has accumulated beyond one-third to one-half the original capacity of the basin. If so, document that maintenance is required.

6. Inspect pollution prevention and good housekeeping practices

Inspect trash areas and material storage and staging areas to ensure that materials are properly maintained and that pollutant sources are not exposed to rainfall or runoff. Where applicable, verify that concrete washouts are being used properly and are correctly sized for the volume of wash water generated at the site. Inspect vehicle/equipment fueling and maintenance areas for the presence of spill control measures and for evidence of leaks or spills.

7. Inspect discharge points and downstream, off-site areas for signs of impact

Inspect all discharge points and downstream areas to determine if erosion and sediment control practices are effective in preventing offsite impacts. Walk down the street if necessary to look for evidence of discharges from the site. This is particularly important in areas with existing curb and gutter. Inspect down-slope catch basins to determine whether they are adequately protected and identify whether sediment buildup has occurred. The inspector should document any violations or evidence of offsite impacts on the inspection form and with photographs.

Common compliance problems at construction sites

The following compliance problems are commonly found at small construction sites.

Keep these common problems in mind as you conduct inspections

Problem #1 – No temporary or permanent cover

All exposed soil areas must be stabilized no later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Ask the contractor when particular exposed soils were last worked to help you determine if there is compliance.

Problem #2 – No sediment controls on site
The permit requires established sediment control practices (e.g., sediment traps/basins, down-gradient silt fences or sediment barriers, check dams, etc.) on down-gradient perimeters before up-gradient land disturbing activities begin.

Problem #3 – No sediment control for temporary stockpiles
Temporary stockpiles must have silt fence or other effective sediment controls and cannot be placed in surface waters (or curb and gutter systems.)

Problem #4 – No inlet protection
All storm drain inlets that receive a discharge from the construction site must be protected before construction begins and must be maintained until the site is stabilized. Inlet protection may be removed for a particular inlet if a specific safety concern has been identified.

Problem #5 – No BMPs to minimize vehicle tracking on to the road
Vehicle exits must use BMPs such as stone pads, concrete or steel wash racks, or equivalent systems to prevent vehicle tracking of sediment.

Problem #6 – Sediment on the road
If BMPs are not adequately keeping sediment off the street, then the permit requires tracked sediment to be removed (e.g., street sweeping.)

Problem #7 – Improper solid waste or hazardous materials management
Solid waste must be disposed of properly, and hazardous materials (including oil, gasoline, and paint) must be properly stored (which includes secondary containment.)

Problem #8 – Dewatering at the construction site
Typically dewatering occurs where building footings are being constructed. Have measures been taken to ensure that the pumped discharge is not causing erosion? Is the discharge turbid and if so is it treated before discharging from the site? Has ditching been used to dewater and if so is that water resulting in the discharge of sediment and causing water quality impairments?

Problem #9 – Concrete washout area
All liquid and solid wastes generated by concrete washout operations must be discharged in a properly maintained containment area with no signs of runoff.