City of Rockwall
The New Horizon

CITY OF ROCKWALL CONSTRUCTION NOTES

"Construction Briefing Only"

Refer to the "City of Rockwall
Standards of Design and Construction"
For Detailed Construction Specifications
(Standards of Design can be downloaded at http://www.rockwall.com)

&

North Central Texas Council of Governments
Standard Specifications for Public Works Construction
Fifth Edition

Revised January 2026

City of Rockwall – "Standards of Design" may be downloaded at:
http://www.rockwall.com

I. Preliminary Site Preparation:

A. Site Preparation - The below noted site preparation items are to be in place, inspected and approved by the City, prior to the start of any clearing, grubbing or grading operations.

1. Protected trees which are designated to remain on site - are to be identified, tagged and banded with bright orange or red bands.

2. Protected trees which are designated to be removed from the site are to be identified tagged and banded with blue bands or blue paint markings.

3. Tree identification tags – are to consist of metal tags which have the tree identification number stenciled or stamped or engraved on the tag. The numbers used to identify the protected trees shall correspond to the tree identification number noted on the approved treescape plans.

4. Protected Tree - Barrier Fencing:
   - Chain link barrier fencing – shall be placed around the drip lines of the individual protected trees or groups of protected trees, which are designated to remain at the site if they are located within 10-feet of any cut/fill grading location.
   - Plastic mesh barrier fencing - shall be placed around the drip lines of individual protected trees or groups of protected trees, which are located over 10-feet or more outside a cut/fill grading location.

5. Silt fence along with construction entrance must be installed and inspected. No silt fencing may be installed at the site until the trees have been identified, banded, tagged, fenced and inspected by the City.

6. Portable toilet facilities must be on site and verified. All units must be staked to the ground and cannot face the roadway.

7. Trash receptacle must be on site and verified. Units must be plastic or metal bins, and have a lid/ cover.

8. Traffic control plan – Prepared by a professional engineer.

9. Construction working hours and noise control signage must be on site and verified.

10. Site address must be on display and verified.

11. The floodplain boundary shall be staked and silt fence installed along the floodplain boundary.

II. Portable Toilet Facilities:

A. Portable toilet facilities will be required on all construction sites or as otherwise deemed necessary by the City of Rockwall. It is essential that adequate on-site restroom facilities be available for all construction workers.

B. It will be the responsibility of the contractor to install and maintain the facilities through the completion of the project. These facilities must be in place prior to moving personnel on site and before construction can begin. All units must be staked to the ground and cannot face the roadway.

III. Trash Receptacles:

A. A portable trash receptacle is to remain on the job site through the course of construction. The site is to remain free of construction litter and debris. Construction workers shall place all lunch trash in "trash containers" immediately after lunch. Units must be plastic or metal bins, and have a lid/ cover.

IV. Construction Site Working Hours and Noise Control Ordinance:

A. Construction Site Working Hours and Noise Control Ordinance:
   a. City Ordinance 05-45 – limits construction and construction related activities to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday and 8:00 a.m. to 7:00 p.m. on Saturday. No Sunday construction allowed. The City of Rockwall requires that a sign be posted at each Commercial/Residential development construction site.

(Construction Site Sign - Example)

Ordinance # 05-45
Construction Site Working Hours and Noise Control

City Ordinance – No. 05-45 limits construction and construction related activities to the hours of 7:00 a.m. - 7:00 p.m. Monday through Friday, and 8:00 a.m. - 7:00 p.m. on Saturday. (No Sunday construction allowed).

ORDENANZA #05-45
HORAS DE TRABAJO EN EL SITIO DE CONSTRUCCION Y EL CONTROL DE RUIDO

La Ordenanza de la Ciudad – No. 05-45 limita la construcción y las actividades relacionadas con la construcción a las horas de 7:00 a.m. – 7:00 p.m. de Lunes a Viernes, y de 8:00 a.m. – 7:00 p.m. los Sábados. (No se permitirá construcción los Domingo).

Noise Ordinance Sign
(Sign Size – 3' wide x 2' tall)

B. The construction related activities are to include but not be limited to the following:
   a. Maintenance, servicing and fueling of construction equipment.
   b. The delivery of construction related materials and/or construction equipment.
   c. At locations where compliance to Ordinance 05-45 is not being observed, the City of Rockwall may issue written orders to stop work or further regulate the site construction work hours. The City may also issue citations if it is determined that a violation of the construction ordinance exist.

V. Inspection Scheduling – Engineering Department:

It is the responsibility of the contractor to schedule inspections prior to construction. Inspections may be scheduled and coordinated in the field or by cell phone directly with the Engineering Inspector. Inspection of construction and verification of compliance to plans and specifications shall be conducted by the City of Rockwall Engineering Inspector. The general contractor shall notify all of his construction contractors of this requirement. Items to be inspected must be sufficiently ready for inspection at the time of your requested inspection appointment as inspector's time is limited. Failure to be ready for inspections may result in inspection rescheduling to the following day. No development will be accepted by the City of Rockwall until all construction has been approved by the City of Rockwall inspectors.

A. Saturday Inspections:
   a. The contractor shall be charged a minimum 2 hours inspection charge for all Saturday inspections. All Saturday inspections must be scheduled in writing to the Engineering Department by noon on the Thursday before the inspection date. A signed Saturday Engineering Inspection Request form must be emailed to the Amy Williams (awilliams@rockwall.com) and Steve Salazar (ssalazar@rockwall.com). Approval/disapproval will be emailed back to the requesting contractor with the Saturday inspector's information. All cancellations must be given verbally and written to the Saturday inspector no later than 8 am on day of inspection. Two hours of overtime inspection will be charged to the contractor if no cancellation is given prior to the inspector arriving at the project site. Contractor must sign Engineering Inspector's Report of Overtime form to finalize the inspection. No acceptance and/or certification of occupancy will be given until all overtime engineering inspection fees are paid in full.

B. Before/After Weekday Hours Inspections:
   a. Contractor will be charged on 15-minute intervals for any before/after hour's inspections. Contractor must sign Engineering Inspector's Report of Overtime form to finalize the inspection. No acceptance and/or certification of occupancy will be given until all overtime engineering inspection fees are paid in full.

C. Observed Holidays:
   a. No site construction inspection will be conducted during City observed holidays.
      - If the observed holiday falls on a Friday, the Saturday following the observed holiday will be designated as a No Inspection Holiday.
      - If the observed holiday falls on a Monday, the Saturday preceding the holiday will be designated as a No Inspection Holiday.

VI. Construction Site Crime Prevention – Rockwall Police Department:

A. Rockwall Police Department (Crime Prevention Unit). The City of Rockwall Police Department periodically patrols the identified active construction sites in an effort to reduce construction site crime activity.
   1. Theft.
   2. Vandalism.
   3. Arson.

B. Construction Site Contact List – Rockwall Police Department.
   1. Provide project information and contact information as requested on the check list and forward to the City of Rockwall Police Department.
   2. Submit the checklist to the Police Department prior to placing equipment, construction materials on site.
   3. A copy of the form for the Construction Site Contact List may be obtained at the pre-construction meeting or obtained through the City of Rockwall Police Department and/or Engineering Department.

C. Display a 24-hour emergency contact number and name for the fire department somewhere on the construction site (coordinate with the fire department).

VII. Fire Lane Access to The Building Site – Vertical Construction Permit:

No Vertical (above slab) construction will be allowed until such time as the following minimum site requirements have been addressed at the site and a vertical above slab construction permit has been issued by the City.

A. The fire lane pavement shall be installed, tested and approved for use.
B. The fire lane is to be painted and marked to City specifications so as to be identified as fire lane.
C. The site water lines are to be installed painted and approved for use.
D. The fire hydrants are to be installed, painted to the City of Rockwall line size color codes, and approved for use.
E. See additional requirements as noted on the Vertical Above Slab Construction Checklist.
F. Schedule "vertical construction meeting" with Engineering Department and Fire Marshal.
    a. Coordinate the site work and schedule the meeting with the designated construction inspector for the site-work.
    b. Vertical permit will be issued by the Engineering/Fire Department during the meeting, pending that all applicable issues have been resolved.

*Note** Full fire lane access is to be provided at all times. The fire lane shall not be used as a hard surface storage area. No parking or placement of machinery or equipment will be allowed in designated fire lane areas. Further access requirements may be required if deemed necessary by the City Engineer or Fire Marshall.

Minimum Requirements for Above Slab Vertical Construction - Checklist

City of Rockwall
Minimum Requirements
Above Slab – Vertical Construction *(Sample Copy)*
(Check List)

Project Name: _____]

No vertical above slab construction will be allowed at the above noted project until the following minimum site requirements have been field verified and the "Approval for Vertical Construction" permit has been issued by the City, engineering and fire departments. Minimum requirements for vertical construction are subject to but not necessarily limited to the below noted items:

1. Fire lane pavement, installed tested and approved for use. Yes___] No___]

2. Fire lane pavement painted and marked to City specifications. Yes___] No___]

3. Site water lines installed, tested, and approved for use. Yes___] No___]

4. Fire hydrants installed and ready for use. Yes___] No___]

5. Fire hydrant nozzle and bonnets painted as per line size color code. Yes___] No___]

- Solid silver – for 6-inch water mains.
- Blue nozzle and bonnet for 8-inch water mains.
- Yellow nozzle and bonnet for 10-inch water mains and above.

6. Reflective hydrant locater buttons in place at hydrant pavement locations. Yes___] No___]

7. Fire hydrants flow tested to verify flow at designated hydrant locations. Yes___] No___]

8. Fire hydrant nozzle diameter verified. Yes___] No___]

- Two hose nozzles measuring two and one-half inches (2-1/2) nominal I.D.
- One pumper nozzle measuring four and one-half inches (4-1/2) nominal I.D.
- All nozzles are to have National Standard Hose Threads.

9. Fire hydrant clearance – minimum of 5-feet radius clearance at each hydrant Yes___] No___]

10. Fire hydrant nozzle height - minimum 19-inches to 28-inches above final grade. Yes___] No___]

11. Silt fence placed above the fire lane if it is deemed necessary at positive flow area. Yes___] No___]

12. Exterior building material mock up confirming compliance with approved Planning and Zoning approved elevations. Yes___] No___]

Date of Site Inspection: _____]

Engineering Department Inspector: _____]

Fire Department Inspector: _____]

Contractor Representative: _____]

VIII. Fire Hydrant – Flow Testing:

A. Rating Pressure:
   a. For the purpose of uniform marking of fire hydrants, the ratings should be based on a residual pressure of 20 psi (1.4 bars) for all hydrants having a static pressure in excess of 40 psi (2.8 bars).
   b. Hydrants having a static pressure of less than 40 psi (2.8 bars) should be rated at one-half of the static pressure.
   c. It is required that a minimum residual pressure of 20 psi (1.4 bar) should be maintained at hydrants when delivering the fire flow.

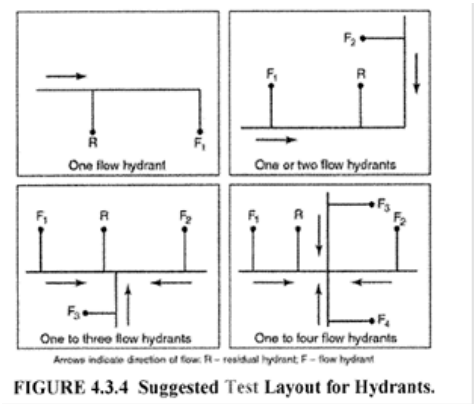

FIGURE 4.3.4 Suggested Test Layout for Hydrants.

B. Procedure:
    a. Test should be made during a period of ordinary demand.
    b. The procedure consists of discharging water at a measured rate of flow from the system at a given location and observing the corresponding pressure drop in the mains.

C. Layout of Test
    a. After the location where the test is to be run has been determined, a group of fire hydrants in the vicinity is selected.
    b. Once selected, due consideration should be given to potential interference with traffic patterns, damage to surroundings (e.g., roadways, sidewalks, landscapes, vehicles, and pedestrians), and potentla1 flooding problems both local and remote from the test site
    c. One hydrant, designated as the residual hydrant, is chosen to be the hydrant where the normal static pressure will be observed with the other hydrants in the group closed, and where the residual pressure will be observed with the other hydrants flowing.
    d. This Hydrant is chosen so it will be located between the hydrant to be flowed and the large mains that constitute the immediate sources of water supply in the area. In Figure 4.3.4, test layouts are indicated showing the residual hydrant designated with the letter R and hydrants to be flowed with the letter F.
    e. The number of hydrants to be used in any test depends upon the strength of the distribution system in the vicinity of the test location.
    f. To obtain satisfactory test results sufficient discharge should be achieved to meet the predetermined needed fire flow requirements for fire-fighting purposes and a minimum flow at each hydrant of 1,000 gpm with a residual of no less than 20psi.

D. Equipment
    a. The equipment necessary for field work consists of the following: 200 psi bourdon pressure gauge with 1psi graduations, number of pitot tubes, hydrant wrenches, or other equipment needed for flow testing.
    b. All pressure gauges shall be calibrated at least every 12 months and testing certificates available if requested by the Fire Official.
    c. When more than one hydrant is flowed, it is desirable and could be necessary to use portable radios to facilitate communication between team members.
    d. It is preferred to use stream straightener with a known coefficient of discharge when testing hydrants due to a more streamlined flow and more accurate pitot reading.

E. Test Procedure.
    a. In a typical test, the 200 PSI (1 4 bar) gauge is attached to one of the 21/2 in (6 4 cm) outlets of the residual hydrant using the special cap,
    b. The cock on the gauge piping is opened, and the hydrant valve is opened full.
    c. As soon as the air is exhausted from the barrel, the cock is closed.
    d. A reading (static pressure) is taken when the needle comes to rest.
    e. At a given signal, each of the other hydrants is opened in succession, with discharge taking place directly from the open hydrant butt.
    f. Hydrants should be opened one at a time.
    g. With all hydrants flowing, water should be allowed to flow for a sufficient time to clear all debris and foreign substances from the stream(s).
    h. At that time, a signal is given to the people at the hydrants to read the pitot pressure of the streams simultaneously while the residual pressure is being read.

i. The final magnitude of the pressure drop can be controlled by the number of hydrants used and the number of outlets opened on each.
j. After the readings have been taken, hydrants should be shut down slowly, one at a time, to prevent undue surges in the system.

F. Pitot Readings.
a. When measuring discharge from open hydrant butts, it is always preferable from the standpoint of accuracy to use 21/2 in (64 cm) outlets rather than pumper outlets.
b. In practically all cases, the 21/2 in (64 cm) outlets are filled across the entire cross-section during flow, while in the case of the larger outlets there is very frequently a void near the bottom.
c. When measuring the pitot pressure of a stream of practically uniform velocity, the orifice in the pitot tube is held downstream approximately one-half the diameter of the hydrant outlet or nozzle opening, and In the center of the stream.
d. The center line of the orifice should be at right angles to the plane of the face of the hydrant outlet.
e. The air chamber on the pitot tube should be kept elevated.
f. Pitot readings of less than 10 psi (0.7 bar) and more than 30 PSI (2.0 bar) should be avoided, if possible.
g. Opening additional hydrant outlets will aid in controlling the pitot reading.
h. With dry barrel hydrants, the hydrant valve should be wide open to minimize problems with underground drain valves.
i. With wet barrel hydrants, the valve for the flowing outlet should be wide open to give a more streamlined flow and a more accurate pitot reading (See figure 4.6.9 Pitot Tube Position).

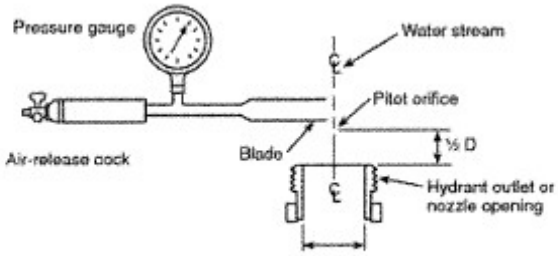

FIGURE 4.6.9 Pitot Tube Position.

G. Determination of Discharge
a. At the hydrants used for flow during the test, the discharges from the open butts are determined from measurements of the diameter of the outlets flowed, the pitot pressure (velocity head) of the streams as indicated by the pitot gauge readings, and the coefficient of the outlet being flowed as determined from Figure 4.7.1

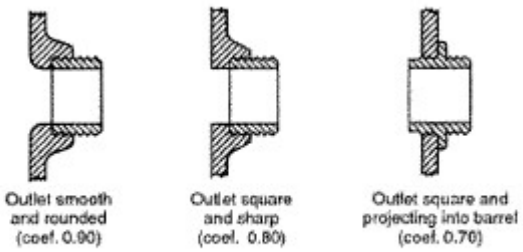

FIGURE 4.7.1 Three General Types of Hydrant Outlets and Their Coefficients of Discharge.

b. If flow tubes (stream straighteners) are being utilized, a coefficient of 0.95 is suggested unless the coefficient of the tube is known.
c. The formula used to compute the discharge, Q, in gpm from these measurements is as follows:

$Q=29.8cd^2\sqrt{p}$

c = coefficient of discharge (see Figure4.7.1)

d = diameter of the outlet in Inches.

p = pitot pressure (velocity head) in PSI.

IX. Fire Department – General Site Work Requirements:

A. Underground Fire Line Inspection – The underground fire line shall be inspected by City Fire Department Personnel only. All fire line inspections are to be scheduled with the Rockwall Fire Department. Engineering inspectors will not schedule these inspections. Please have the contractor schedule directly with the fire department.
   - Fire Department Telephone No. (972) 771-7770.
   - Fire Department Inspection Request Line. (972) 771-7774.

B. Installation of Underground Fire Line – The underground fire line shall be installed by a contractor who is licensed with the State of Texas Fire Marshal's Office for such work.

C. Posting of Site Address – The building address shall be posted at the site for 911 location identification purposes. The numbers shall be visible from the street and have a minimum number size of 12-inches in height.

D. Above Ground Fuel Storage Tanks - A permit must be obtained from the Fire Department, prior to placing any above ground fuel tanks at the site. Contact Ariana Kistner – City of Rockwall, Fire Marshall at the Rockwall Fire Department at telephone number (972) 771-7770 for more information.

E. Have a contact business card in window of construction trailer for after-hours emergencies.

X. Underground Plan Submittals - Fire Department:

A. Shall contain a title block and appropriate signatures of the general RME and the underground fire main RME.
B. This may require two title blocks.
C. One plan may contain two submitting companies.
D. Embedment detail.
E. Thrush Block detail.
F. Use class 200 PVC pipe. Ductile Iron required below building and into building or other class pipe that is acceptable to NFPA.
G. Poly wrap all Ductile Iron Pipe and fittings.
H. Fire department connections shall be a separate and independent service main from the underground water line.
I. Underground piping shall have a 10-foot minimum separation from all other utilities and placed in a separate trench. Underground piping within 5 feet of the building may be combined with other utilities for entrance to the building.
J. Acceptance test must be completed by the Rockwall Fire Department to include a visual and 2-hr hydrostatic.

VII. Utility Line Locates:

A. The City of Rockwall (City-Utilities) is not part of the Dig-Tess line locate system. Dig-Tess requires a minimum 72-hour locate request notice prior to the start of any digging.
   a. Dig-Tess (1-800-DIG-Tess.)
   b. Texas One Call System Inc. (1800-245-4545)

B. Call the above noted line locate services for the below noted utility line locates:
   a. AT&T Telephone
   b. ATMOS Energy
   c. ONCOR - Electric Delivery
   d. Charter Communications
   e. Other Franchise Utility Companies

C. All City of Rockwall utility line locates are to be scheduled with the City, at the City of Rockwall– Service Center. A 48-hour advanced notice is required for all non-emergency line locates. The telephone number for the Service Center is (972) 771-7730.

VIII. Minimum Detention Pond Requirements Prior to Paving:

A. The detention system is to be fully installed (including erosion control on sides and bottom) along with the associated storm sewer and outflow structures, prior to the start of any paving operations (Including Foundation).
B. Erosion protection is to be placed at the ponds outflow structure along with any the associated erosion BMP's noted on the erosion control plan.
C. The detention pond floors and slopes are to be stabilized with seeded erosion control material or grass sod. The matting or sod shall be anchored at high velocity locations if deemed necessary.

IX. Minimum Concrete Requirements:

A. **Submit batch designs, for Engineering items only, to your designated construction inspector for the project via email** with a history of recent cylinder breaks for each separate strength requirement (Machine placement and hand pour) for review and approval.
   - Submit batch designs, for Engineering items only, to your assigned project inspector via email a minimum of (10) working days prior to the projected placement date to allow time for review. Batch designs must be date, project, and use specific.
   - If pre-cast structures are to be placed, a batch design is to be included with the pre-cast submittals which are to be provided by the manufacturer.

B. Residential Street Pavement and Fire Lane Pavement– class "C" reinforced concrete 6.0 sack minimum cement 3,600 psi minimum – Note*- An additional ½ sack cement per cubic yard is to be added at hand pour locations. (28-day concrete strength requirements note minimum requirements. If a higher strength concrete is specified on the construction plans then the higher strength concrete is applicable to that project).
   - Hand Pour – 6.5 sack minimum cement.

C. Alley Pavement – 3,600 psi reinforced concrete 6.0 sack minimum cement
   - Hand Pour – 6.5 sack minimum cement.

D. Drainage and Utility Structures – Class "F" concrete 7.0 sack minimum 4,200 psi minimum.

- Pre-cast structures – submit shop drawings to City Engineer for approval. The structures must be manufactured with class "F" concrete. A copy of the manufactures batch design is to be included with the pre-cast submittals.

E. Sidewalks (located Within the Public Right-of-Ways). Class "A" reinforced concrete 5.5 sack minimum 3,000 psi minimum.

F. Barrier Free Ramps – Class "C" concrete 6.5 sack - 3,600 psi minimum. All barrier free ramps which are located within the public right-of-ways of the project are to consist of colored truncated dome plates or pavers (must be approved by City of Rockwall Engineering Dept).

G. Fly Ash Requirements.
   - Fly Ash in Pavement Concrete – (NCTCOG Item 2.2.2 Standard Specifications, **Fifth Edition**). Fly ash may be used in concrete pavement locations provided that the maximum cement reduction does not exceed 20% by weight per cubic yard of Concrete. The fly ash replacement shall be 1.25 pounds per 1.0 pound of cement reduction.

H. All reinforcing steel installed within the fire lane pavement shall be **Grade 60** steel. Reinforcement shall be fully tied and properly supported with chairs to maintain required placement. No equipment or loads of any kind shall be placed on top of the reinforcing steel, including but not limited to trucks, concrete trucks, or concrete placing equipment. Any reinforcing steel that is displaced, bent, or otherwise damaged due to loads placed on it shall be subject to removal and replacement at the contractor's expense.

I. All fill is to be compacted using a sheep's foot roller to a minimum density of 95% of the standard proctor.

X. Hot Weather Concrete Placement:

Hot Weather Concrete - Concrete placement shall cease if:
- Concrete temperature meets or exceeds 95° Fahrenheit.
- If in the opinion of the owner/City of Rockwall a combination of temperature, wind, and humidity create conditions which are adversely affecting the condition of the concrete.

XI. Cold Weather Concrete Placement:

Cold Weather Concrete - Concrete placement shall cease if:
- Concrete temperature is below 40° Fahrenheit and falling.
- Except by specific written authorization of the owner/City of Rockwall no concrete shall be placed when the air temperature is less that 40°F and falling but may be placed when the air temperature is above 35° and rising, "Pending No Freezing Weather is Imminent" with the temperature being taken in the shade away from artificial heat. When and if such permission is granted, the contractor shall furnish sufficient protective material and devices to enclose and protect the fresh concrete in such a way as to maintain the temperature of 50°F for a period of at least 5-days. It is to be distinctly understood that the contractor is responsible for the quality and strength of the concrete placed under any weather conditions. No concrete shall be placed on frozen subgrades.
- If in the opinion of the owner/City of Rockwall a combination of temperature, wind, and humidity create conditions which are adversely affecting the condition of the concrete.

XII. Concrete Placement – Time Intervals:

Maximum time intervals between the addition of mixing water and/or cement to the batch, and the placing of concrete in the forms shall not exceed the following:

Air or Concrete Temperature Which Ever is Higher	Maximum Time from Addition of Water to Placement
Non-Agitated Concrete	
Up to 80° F	30 Minutes
Above 80° F	15 Minutes
Agitated Concrete	
Up to 75° F	90 Minutes
75° to 89° F	60 Minutes
Over 89° F	45 Minutes

The use of an approved set-retarding admixture will permit the extension of the above time maximums, by 30 minutes "*for agitated concrete only".*

The City of Rockwall may stop concreting operations if the quality of the concrete being placed is not acceptable or due to adverse climate conditions.

XIII. Laboratory Testing Requirements for Pavement:

The Contractor shall employ a qualified commercial testing laboratory approved by the City of Rockwall. Lab shall be given advanced notice of construction to allow proper testing of material. Laboratory testing is required on all pavements and structure placement pours.

A. Compression cylinders – Prepare a minimum of four cylinders for each 150 cubic yards of concrete. Placement of smaller areas of concrete less than 150 cubic yards will require a daily set of cylinders. No Averaging of Cylinders.
   - One Cylinder broken at 7 days.
   - One Cylinder broken at 14 days.
   - Two Cylinders broken at 28 days.

B. Failing 28-day cylinder breaks – Core testing to be done within 10 days of failed 28-day cylinder break date.

C. Testing labs are to fax copies of all cylinder breaks that do not meet 28-day minimum break specifications or notify the below noted construction inspector by telephone.

D. Tests data and copies of laboratory reports for site work are to be directed to the attention of the designated construction inspector for assigned to the project. The contact and mailing information for the City of Rockwall, Engineering Department is as follows. Telephone Number (972) 771-7746. The Mailing Address is "City Hall 385 S. Goliad Rockwall Texas 75087".

XIV. Traffic Control:

If required, the Contractor shall submit an Engineer's signed and sealed traffic control design to the City of Rockwall prepared by a registered professional engineer. Design shall be submitted to the Engineering Department before construction begins. The Contractor shall provide signs and barricades in construction areas and comply with the Texas Department of Transportation standards of work zone traffic control.

Employees exposed to public vehicular traffic, shall be provided with and wear warning vest or other suitable garments marked with or made of reflective or high visibility material. Contractor shall provide flagman as necessary when working inside of active street right-of-ways where necessary.

XV. Disposal of Excess Materials:

The contractor shall properly dispose of all excess material by removing from the job site all brush, trash, debris, etc. upon completion of construction. All materials shall be properly disposed. Trash receptacles are to be on site throughout the course of project construction.

XVI. Construction Site Safety:

Construction site safety measures are to be in place at all construction projects located within the City of Rockwall. All necessary measures required to ensure that safe work zones exist for the protection of construction workers and general public living in or near such construction zones.

A. Construction zones shall comply with work zone traffic control specifications and requirements.
B. Compliance with all applicable O.S.H.A. requirements and regulations.
C. Temporary construction fencing (orange mesh fencing secured with t-post) is to be placed around open trenches, brush burn pits or other locations deemed necessary by the City of Rockwall.
D. Any miscellaneous items that may pose direct or potential hazard to workers or the general public that is known by the contractor or brought to the attention of the contractor shall be addressed as soon as possible. The Contractor shall follow up with the appropriate safety measures in a timely and efficient manner.

It is the responsibility of the contractors to establish and maintain construction site safety measures. However, the City of Rockwall will temporarily suspend work at a construction site if it is deemed necessary due to unsafe or hazardous conditions until such conditions have been corrected.

In each circumstance where it is deemed that proper safety measures are not being followed, a warning will be issued by the project construction inspector. Construction may be temporarily suspended if deemed necessary until items responsible for issuance of the safety warning have been properly addressed. Issuance of three (3) or more safety warning tags will require that the designated construction be suspended until such time that a safety meeting is scheduled with construction contractors, ownership, management, safety manager, or other appropriate personnel along with City or Rockwall representatives to discuss the appropriate measures to correct the identified problems and determine any further possible actions which may be necessary.

XVII. Burning Brush – Burn Pits:

Brush may be burned under certain conditions; however, permission must be obtained through the City of Rockwall Fire Marshall's office. Locations, conditions, and permission to burn are subject to the approval of the Rockwall Fire Department. A permit from the TCEQ must also be obtained along with any other permits or requirements deemed necessary by the Fire Marshall's office prior to approval to burn.

All burn pits are to have portable safety fencing placed around the perimeter of the pit and secured with T-Post at the end of each day.

XVIII. Street Address Markers:

Street address markers shall be installed for each lot in the subdivision. The markers shall be located at the center of the lot on the face of the curbs. The address markers shall have a deep green background with reflective white numbers. The number size shall be four (4) inches in height. The background of the address marker shall be eighteen (18) inches in length and from the top of the curb to the gutter flow line. The address marker shall show the full numerical portion of the address of the lot.

XIX. Testing and Quality Control:

During construction, the Contractor shall furnish the following at his own expense:

- Batch plant control from a qualified commercial laboratory. Laboratory personnel shall be competent to determine free moisture in aggregates and make needed adjustments in control of the mix and slump.
- Prepare a minimum four compression cylinders for each 150 cubic yards of concrete or fraction thereof, with one-cylinder break at 7 days, one at 14 days, and a minimum of two cylinders broken at 28 days. Note* No averaging on cylinder breaks.
- Testing labs are to fax copies of any and all concrete cylinder breaks tat do not meet 28-day break specifications. Cores are to be taken within ten (10) days of any 28-day cylinder break failures.
- Reporting of test results to the developer and the City of Rockwall (refer to the City of Rockwall standard of design) for further information under extreme hot temperatures or humid conditions, the City of Rockwall may require the use of a set retarding agent.

The City of Rockwall may suspend concreting operations if the quality of the concrete being placed is not acceptable or due to adverse climate conditions.

XX. Submittal of Concrete Mix Design:

Submit batch designs with history of recent cylinder breaks for each separate strength requirement (Machine placement and hand pour). Submit batch designs minimum of (10) working days prior to the projected placement date to allow time for review. The batch design shall be date, project, and use specific. If pre-cast structures are to be placed, a batch design is to be included with the pre-cast submittals which are to be provided by the manufacturer.

XXI. Reinforcing Steel:

Reinforcing steel placed within the public right-of-ways shall be grade 60 steel and comply with Texas Department of Transportation Specification Item 440.2. See Standards of Design and Construction.

XXII. Construction Meters:

A. All construction meters are to be equipped with a double check valve backflow prevention device with dual test ports and double check valves.
B. Customers may use their own meter and backflow prevention assembly after placing a $850 deposit with the city. Prior to installation, customer must bring their meters to the city service center to be inspected and tagged. A current backflow test report must accompany customer owned meters and backflow prevention assemblies. Customers will be billed for usage at the established irrigation rate.

C. All construction meters are to be approved and tagged by the City of Rockwall. The tag is to remain on meter at all times. If tag is damaged or lost, immediately notify the City of Rockwall Public Service Department. Any construction meter in use without a tag will be removed by City personnel. The use of the non-approved meters will result in the City of Rockwall charging for an estimated water use and possible fines.
D. Failure to have the city's identification tag securely attached on the meter, or meter and/or backflow prevention assembly numbers not matching the tag, will result in a $250 fine.
E. The irrigator shall ensure that backflow prevention device is tested by a licensed backflow prevention assembly tester prior to being placed in service and the test results proved to the city and the irrigation system's owner or owner's representative within ten (10) business days of the testing of the backflow prevention device. The test results shall be submitted to the City's third-party vendor.
F. Meter reads are accepted between the first and the tenth of the month via pictures sent by email to servicecenter@rockwall.com. After the 10th of the month, any accounts that have not submitted the meter readings via emailed pictures will result in the following:
    a. The account is closed and the customer will forfeit the $850 deposit; and
    b. The customer will be billed the minimum of 100,000 gallons usage at the established irrigation rate.
    c. When the account is re-established, the city will assess a $250 reconnection fee to re-open the account.

XXIII. Connecting to Fire Hydrants – Water for Construction:

Water for Construction – Connecting to Fire Hydrants (Ordinance # 03-37 and # 26-01):

A. Construction Meter Backflow Prevention – all construction meters are to be equipped with a backflow prevention device with double check valves and dual test ports. All backflow devises shall have a *Backflow Prevention Assembly Test and Maintenance Report* from a certified backflow tester, when registering meter at the City of Rockwall - Service Center.

B. City of Rockwall Construction Meter Rental:
    - A monthly rental fee charge of $1000.00 per assembly will be required for City owned rental meters and backflow devices.
    - Meter rental is subject to availability. To check for meter availability, call the City of Rockwall – Service Center at telephone number (972) 771-7730.

C. Construction Meter Deposit – a deposit of $850.00 will be required for a City owned rented meter or a customer owned meter.

XXIV. Collection and Delivery of Water Samples:

A. Effective December 1, 2006 it will be required that a City Representative accept construction water samples per the request of the North Texas Municipal Water District (NTMWD).

B. The North Texas Municipal Water District (NTMWD) requires that all waters samples taken within the City of Rockwall be delivered to their facility by a City employee.

C. Contact the City of Rockwall Service Center at (972) 771-7730 to arrange for the sampling. A 24-hour advanced notice is required. You will need to provide the jobsite and sample site location at the time of scheduling.

D. The hours of acceptance are as follows;

- Monday – Thursday 10:00 am to 12:00 pm.
- No Samples will be scheduled for Friday.

XXV. Erosion Control:

Required Documents and Permits:

A. Storm Water Pollution Prevention Plan (SWP3) – A copy of the (SWP3) is to be submitted to the City, If the project disturbs 1-acre or more. (New 2013 updates).

B. Storm Water Notice of Intent (NOI) - A copy of the NOI will be required if the disturbed area at the project is (5-Acers or more) or if the project will disturb 1 or more acres, but less than 5-acres and is part of a larger common plan of development or sale that will disturb 5-acres. (New 2013 updates)

C. TPDES General Permit No. TXR 150000 - Provide a copy of the general permit to the City of Rockwall if the project is 1 to less than 5-acres disturbed. (New 2013 updates)

D. Administrative Policy (97-03) - To be signed by the owner and the design engineer. This is a City of Rockwall – Administrative Policy. A copy of this policy will be presented at the pre-construction meeting.

Maintenance of Erosion Control Devices:

A. Maintain the silt fencing, and the construction entrance along with all other approved construction site erosion BMP's that is installed at the site.

B. Keep dirt and or mud off public streets and fire lanes. Have sufficient equipment and materials on site to safely remove mud/dirt from the roadway when necessary. The materials should include:

- Traffic flags, brooms shovels, safety vest, traffic cones, vertical panels or other approved traffic channeling devices.

XXVI. General Fill Material Placement:

A. Provide a geotechnical report for the project. A copy of the report is to be prepared by a registered professional engineer and submitted to the City prior to the start of dirt work operations.
B. All general fill material is to be compacted with a sheep's foot roller.
C. Mechanical tamping is allowed for trench backfill.
D. All fill material is to be compacted to a achieve a uniform density of not less than ninety-five percent (95%) of the standard proctor density, with the moisture range of -2 percent to +4 percent of optimum moisture.

XXVII. Backfill Under ROW:

Mechanical Tamping: The backfill material shall be placed in layers not exceeding 8" loose thickness. The moisture content shall be uniform and near the optimum moisture content for the material. In cases where the materials being placed do not have the proper moisture, the material shall be dried out or additional moisture shall be added by satisfactory methods such that the additional water is distributed uniformly throughout the material being placed. The layers of backfill shall be reduced in thickness when satisfactory compaction cannot be obtained with the equipment being used. In all cases a density of not less than 95% of the standard proctor density must be obtained.

The Contractor shall arrange for the necessary laboratory testing, at his expense, to determine the density of the material. The Contractor shall schedule his operations and shall use methods and construction operations established by the City of Rockwall so that uniform test of compaction can be obtained.

Rolling Compaction Methods: The backfill material shall be placed in layers not exceeding 8" loose thickness. The moisture content in the material being rolled shall be uniform and near the optimum moisture content for the material. In cases where the material shall be dried out or additional moisture shall be added by satisfactory methods such that the additional water is distributed uniformly throughout the materials being placed. The layers of backfill should be reduced in thickness when satisfactory compaction cannot be obtained with equipment being used. In all cases a density of not less than 95% of the standard proctor density must be obtained. Note* All outside utilities working within the right-of-ways of streets or alleys shall also comply with the above noted specifications with laboratory testing results provided to the City of Rockwall. Easement locations under pavement shall also have density control backfill to 95% of the standard proctor density.

*Note** Laboratory density reports are required at all utility locations where the trench excavation exceeds a width of ten (10) inches. Trenches for both site civil and franchise utilities are to be compacted to 95% of the standard proctor density with laboratory soil test results submitted to the City of Rockwall. All densities are to be within the acceptable moisture range of (-2 to +4) percent of optimum moisture unless otherwise approved by the City Engineer.

XXVIII. Inlets & Manholes:

Inlets and manholes within the proposed paving width shall be backfilled as specified in Backfill Under Pavement R.O.W.

XXIX. Vacuum Testing – Sanitary Sewer Manholes:

Vacuum test and spark test shall be conducted on all sanitary sewer manholes. All testing shall comply with City of Rockwall specifications.

XXX. Backfilling for Box Culverts & Wing Walls:

Backfilling for and wing walls shall consist of crushed limestone Type I embedment or Gravel Type II embedment for a distance of approximately two (2) feet in back of the entire wall, and suitable excavated material for the remainder of the backfill. The material shall be compacted to a minimum of 95% standard proctor density.

XXXI. Slopes:

All slopes should be 4:1 or greater with the maximum slope allowed being a 4:1 slope. In locations where a 4:1 slope is not possible or feasible, retaining walls, gabion baskets, concrete slope protection or other approved retaining methods may be required. Retaining methods must be approved by the City of Rockwall.

XXXII. Retaining Walls

A. All retaining walls which are three (3) feet in height or taller are to have an engineered design which has been submitted to and approved by the City Engineer.
B. All retaining walls which are eighteen (18) inches in height or taller must be rock or stone faced. Smooth faced concrete is not allowed.

C. The design engineer for the retaining walls or his/her designated representative shall conduct periodic inspections of the retaining wall instillation to verify the walls are constructed to the approved design and construction methods. A signed and sealed verification letter from the design engineer will be required prior to project acceptance by the City.
D. Retaining walls/footings shall not encroach the right-of-way, designated utility easement locations or sight visibility triangles, unless otherwise approved by the City Engineer.
E. Retaining walls that are to be installed with the initial phase of the development shall have construction plans sealed by a registered structural engineer and approved by the City of Rockwall Engineering Department before construction may begin. All retaining walls shall be placed according to offset hubs set by certified professional surveyors noting grade cuts, wall elevations and stop points for each wall end. Property lines and right-of-ways shall also be noted. Wall locations and elevations shall match those shown on approved site grading plans.
F. The City of Rockwall will conduct periodic non-scheduled inspections of the retaining wall construction and backfill procedures.

XXXIII. Storm Sewer Inlets & Junction Boxes - Forms

All inlets and drainage structures shall be double formed. No earth forms will be allowed. All structural concrete is to be 4,200 psi strength minimum (7.0 sack mix). All pre-fabricated structures are to be approved by the City engineer prior to use.

XXXIV. Grade & Alignment:

At the beginning of the project the Developer will provide offset stakes at intervals of 50 feet. These stakes will offset from the back of the outside curb, a convenient distance to permit all operations, to be completed without disturbing these stakes.

Information on these stakes will be as follows:

- Station number
- Offset distance from back of curb.
- Elevations of hub, which will be given in tabular form separately.

It will be the Contractors responsibility to maintain these stakes, and use the information for all other horizontal and vertical control required. The Contractor will be required to furnish experienced personnel to do this work. The Contractor will set all forms using the data shown on plans. Blue tops for final grading and all other vertical and horizontal control are required.

XXXV. Soil Treatment – Lime Subgrades

Construction Procedures:

Lime Subgrade Test – Requirements for mixing and pulverizing of materials and compaction shall be as specified in the various items of the City of Rockwall Standard of Design and Specifications.

- Scarification
- Addition of treatment material
- Preliminary mixing
- Curing time up to 72 hours
- Final mixing
- Pulverizing testing
- Compaction operations

- In place moisture density and thickness test
- Protect subgrade surface
- *Lime Stabilization Only

XXXVI. Testing & Television Inspection Requirements:

A. All sanitary sewer pipe along with storm sewers and laterals shall be visually inspected by photographic means (television and DVD) prior to final acceptance and after the franchise utilities on the project have been completed. Sanitary sewer is to receive sewer television inspection again at twenty (20) months in to the two (2) year maintenance warranty. No separate payment or payments shall be provided for the video inspection. The Contractor shall furnish a DVD to the City of Rockwall.

B. All storm sewers shall be visually inspected by photographic means (television and videotaped/DVD) at the contractor's expense prior to final acceptance by the City of Rockwall. Any sags, open joints, cracked piper, etc. shall be repaired or removed by the contractor at Contractor's expense. Pipes shall be cleaned prior to televising the pipe. The contractor shall furnish a DVD to the City of Rockwall.

XXXVII. Twenty Month Maintenance Site Review:

Review of the site shall be conducted at twenty (20) months into the two (2) year maintenance period. The Design Engineer or his/her designated representative shall be present to walk the site with City of Rockwall Engineering Department Personnel. A second television inspection of the sanitary sewer pipe is also to be conducted during review with a DVD furnished to the City of Rockwall. The City of Rockwall will track the twenty-month timeline.

XXXVIII. P-5 Inspection – Release of Electric & Gas Meter:

A. It will be necessary for Developer/Owner and the General Contractor to strategically coordinate the construction phasing process.
   - The site work construction and the building construction shall be scheduled and coordinated so as to have the site work substantially completed prior to requesting the City release of the electric or gas meter for the building.

B. Building Inspection Department (P-5 inspection) is required for the release of the electric and or gas meter for the building.
   - The P-5 inspection will not be conducted until such time as the site-work has been completed and approved by the Engineering Department. (All site-work is to be complete including final grading). The City will temporarily wave the normal requirement to have the grass and landscaping installed at the site prior to the P-5 inspection if mandatory water restrictions are in effect at the time the P-5 inspection is requested.

XXXIX. Letter of Concurrence:

The City of Rockwall requires that the Design Engineer provide a letter of concurrence. The letter of concurrence shall verify that the drainage flow patterns, grade to drain locations and drainage structures, including the volume of the surface and/or subsurface detention system and detention outlet structure, located at the project were installed to the general elevations as shown on the approved plans. The letter of concurrence shall also verify that the project was constructed to meet the approved design requirements or is within acceptable design tolerances. **The Design Engineer, or his/her designated representative, shall direct all "survey-work" necessary to**

verify elevations and design compliance. The letter of concurrence is to have the seal and signature of the Design Engineer.

Example of Letter of Concurrence verbiage which will not be accepted by the City:

"A representative of this company visited the site and has visually verified to the best of the engineer's professional opinion, knowledge and belief, the final grading and site drainage comply with the City approved plans and details".

Example of Letter of Concurrence verbiage which will be accepted by the City:

"A representative of this company visited the site and has visually verified to the best of the engineer's professional opinion, knowledge and belief, that based on my observations along with survey work conducted at the site, the final grading, site drainage, and detention outfall with required volume comply with the City approved plans and details".

XL. General Construction Project – Acceptance Requirements:

A. Prior to the completion of each project, a site-specific check list will be generated detailing the necessary items to be completed to bring each project into compliance with City specifications and therefore final acceptance by the City of Rockwall.

B. All construction projects must complete a final walk-through with your designated inspector a minimum of 30 days before applying for a TCO/CO.

C. No T.C.O. or C.O. will be considered until all site items are complete and inspected

The following items will be required on all projects located within the city limits of the City of Rockwall.

XLI. Check List – Prior to Final Walk Through:

Prior to applying for a Certificate of Occupancy or Temporary Certificate of Occupancy, notify your inspector to provide a checklist (site work status update) and administrative documentation for project release. Acceptance of your project is subject to, but not necessarily limited to, the following punch list items:

Commercial Sites:

Water and Sanitary Sewer Items:

- All water and sanitary sewer systems to be installed.
- Touch up and repaint valve boxes, curb marks, and fire hydrants as necessary.
- Install valve pads and paint the valve lids. Valve lids are to be painted as follows:
    - Main line valve lids are blue;
    - 2-inch valves are white/blue striped;
    - Fire hydrant and fire line valves are red;
    - Stub-out (dead end) valve lids are to be white;
- Adjust meter cans and valve stacks to final grade elevation.
- Raise all operating valve nuts to a height of 3-feet, if the operating nut is 4-feet or lower.

- All valve stacks located outside of paving are to have a 2'x2', four-inch thick reinforced concrete pad around them.
- Adjust all manholes to final grade elevations as necessary. All manholes located within the pavement which are subject to storm water drainage flow, are to have sealed manhole lids installed. All manholes located outside of pavement areas, which are subject to storm water drainage flow, shall be elevated to where the manhole ring and cover are a minimum of 1-foot above the final grade elevation.
- Adjust fire hydrants to grade. All fire hydrants must have the center nozzle between 19 and 28 inches above the adjacent final grade elevation. All fire hydrants which are located within unpaved areas shall have a 3' x 3' reinforced concrete pad. The pad shall have a minimum thickness of 4-inches and be placed between a minimum depth of 6-inches to a maximum depth of 12-inches below the final grade elevation. The pad shall be constructed of reinforced class "A" concrete.
- Place a blue stimsonite reflector at all fire hydrant locations, six (6) inches off-center of the fire lane, towards the fire hydrant.
- All fire hydrants are to have a clearance radius of five (5) feet in all directions. No structures, traffic bollards, barricades, guardrail, landscaping, light poles, etc., are to be placed within the clearance area.
- Re-paint, as necessary, all fire hydrants located at the site to City specifications. A minimum of two coats of aluminum paint, Mobile 11-A-19 or Tnemec 2-color Tnemec-Gloss or approved equal, are to be applied to each hydrant. The fire hydrant body shall be painted silver. The hydrant nozzle and bonnet are to be painted to comply with the following line size color code. The color indicating the line size shall be as follows:
    - Solid silver for 6-inch water mains
    - Blue for 8-inch water mains
    - Yellow for 10-inch and larger water mains
- Water valve and waste water manhole curb cuts marks- the pavement curbs are to be marked at all water valve and waste water manhole locations. The curb marks are to be sawn into the pavement curb. The curb cut marks are to consist of the following:
    - Valves- place a "V" mark on the curb to note the valve locations, (blue paint for main line valves, red paint for fire hydrant and fire line valves, and white paint for stub-out valves). Cut the "V" pointing towards the valve.
    - Manholes- place a "MH" mark on the pavement curb to indicate manhole locations (green paint).
    - Curb Stops- place a "I" mark on the pavement curb to indicate curb stop locations (blue paint).
    - Cleanout- place a "II" mark on the pavement curb to indicate sewer service cleanout locations (green paint).
    - Dead End Cleanout- place a "CO" on the pavement curb to indicated dead-end cleanout on the main sanitary sewer line (green paint).
- Seal and vacuum test all manholes. All manholes which require grade adjustments are to be re-tested after adjustment.
- Perform a television camera inspection of all sanitary sewer and storm sewers, along with the associated storm sewer laterals. Copies of the inspection video footage are to be in DVD format. They will be submitted to the inspector with the City of Rockwall Engineering Department.

<u>Drainage Systems and Storm Lines Items:</u>

- All drainage and storm sewer facilities to be installed.
- Need coordinates (x, y, and z) on all storm sewer outfall structures.
- Remove forms and miscellaneous construction debris from inside of curb inlets.
- Grout and wipe the inside structure face and the seams of all manholes, inlet boxes, and junction boxes. Also grout connections joint locations where the storm sewer RCP is connected to the drainage structure's outlet pipe. All areas are to be grouted with non-shrink grout. All joints are to be wiped smooth and completely sealed. The bottom floor of all inlets shall be sloped towards outlet.

- Clean mud/silt from concrete flume in detention pond. The bottom and sides of the detention pond shall have anchored seeded curlex or sod. Install the 4-foot black tubular steel fence, with gate, around the detention pond.
- All grouted rip-rap to be installed.

Grading, Paving, and Erosion Items:

- Maximum slopes allowed by the City of Rockwall shall be a 4:1 slope. All slope areas which exceed the above noted slope requirements are to be re-graded or retained unless otherwise approved by the City Engineer. All slopes are to be graded so as to achieve the most gradual slope possible, unless otherwise noted on the approved construction plans.
- Final Grading- re-establish all drainage swales, as necessary, to achieve conformance to the drainage patterns shown on the approved grading plans. Grade to drain any locations which may hold water or obstruct approved drainage flow patterns. All graded area, including slopes, are to be brought to a final grade surface that is smooth and uniform, being relatively free of erosion washouts, tire ruts, dirt clods, silt deposits, etc. Care should be taken to re-grade any rough surface areas prior to the application of erosion matting, grass seeding, or sod.
- Interior erosion protection (only necessary if grass is not established at the site)- the fire lane and interior paving sections of the project shall have sufficient erosion protection. Silt fencing, erosion matting, or other approved erosion BMP's are to be in place and maintained to contain silt and stabilize the soil were necessary.
- Grass is to be established in all disturbed areas. Grass shall be at least 1-inch in height with 75%-80% coverage of all disturbed areas.
- Install and maintain a 10-foot clear path around the building with a maximum slope of 5%.
- Engineered retaining wall inspection– The City requires that the design engineer for any retaining wall which is three-feet in height or taller, shall periodically inspect, or plan for his designated representative to periodically inspect, the retaining wall construction to verify that wall is compliant with design and construction methods. The letter shall contain the seal and signature of the design engineer.
- All paving to be installed.
- All pavement curbs shall be backfilled.
- Address any miscellaneous water pockets in the parking area or fire lanes. The parking areas and fire lanes should be relatively free of any "bird baths" or standing water.
- The fire lane is to be re-painted, where necessary, if there are locations where the fire lane is scuffed or is flaking. The locations requiring re-painting shall be sandblasted, prior to re-painting.
- All fire lanes are to be sawn and crack sealed. All miscellaneous random cracks are to be routed and sealed. All expansion joints are to be sealed in the fire lane.
- All parking lot and handicap striping along with all associated signs, must be installed.
- Repair all "nicks" and "gouges" in the fire lane curbs.

Miscellaneous Items:

- Any and all construction done within the TXDOT right-of-way will need to meet TXDOT specifications and City of Rockwall standards and specifications.
- Landscape must be substantially completed before the P-5 inspection can be released. The Director of Planning and Zoning or his designated representative shall conduct an inspection of the landscaping and project screening upon completion.

- Remove all construction related trash, material, brush, concrete, and asphalt debris, etc., from the site and properly disposed.
- Complete construction of the dumpster enclosure

Residential Sites:

Water, Sanitary Sewer, Drainage, and Storm Sewer Items:

- All water, sanitary sewer, drainage, and storm sewer systems to be installed.
- Touch up and repaint valve boxes, curb marks, and fire hydrants as necessary.
- Install valve pads and paint the valve lids. Valve lids are to be painted as follows:
    - Main line valve lids are blue;
    - 2-inch valves are white/blue striped;
    - Fire hydrant and fire line valves are red;
    - Stub-out (dead end) valve lids are to be white;
- Adjust meter cans and valve stacks to final grade elevation.
- Raise all operating valve nuts to a height of 3-feet, if the operating nut is 4-feet or lower.
- All valve stacks located outside of paving are to have a 2'x2', four-inch thick reinforced concrete pad around them.
- Adjust all manholes to final grade elevations as necessary. All manholes located within the pavement which are subject to storm water drainage flow, are to have sealed manhole lids installed. All manholes located outside of pavement areas, which are subject to storm water drainage flow, shall be elevated to where the manhole ring and cover are a minimum of 1-foot above the final grade elevation.
- Adjust fire hydrants to grade. All fire hydrants must have the center nozzle between 19 and 28 inches above the adjacent final grade elevation. All fire hydrants which are located within unpaved areas shall have a 3' x 3' reinforced concrete pad. The pad shall have a minimum thickness of 4-inches and be placed between a minimum depth of 6-inches to a maximum depth of 12-inches below the final grade elevation. The pad shall be constructed of reinforced class "A" concrete.
- Place a blue stimsonite reflector at all fire hydrant locations. The reflective markers are to be placed at all hydrant locations which are adjacent to street locations. The reflective marker is to be placed at a distance of six (6) inches off of the centerline of the street and be located on the fire hydrant side of the pavement centerline. When a fire hydrant is located at a street intersection, markers are to be placed at each intersecting street.
- All fire hydrants are to have a clearance radius of five (5) feet in all directions. No structures, traffic bollards, barricades, guardrail, landscaping, light poles, etc., are to be placed within the clearance area.
- Re-paint, as necessary, all fire hydrants located at the site to City specifications. A minimum of two coats of aluminum paint, Mobile 11-A-19 or Tnemec 2-color Tnemec-Gloss or approved equal, are to be applied to each hydrant. The fire hydrant body shall be painted silver. The hydrant nozzle and bonnet are to be painted to comply with the following line size color code. The color indicating the line size shall be as follows:
    - Solid silver for 6-inch water mains
    - Blue for 8-inch water mains
    - Yellow for 10-inch and larger water mains
- Water valve and waste water manhole curb cuts marks- the pavement curbs are to be marked at all water valve and waste water manhole locations. The curb cur marks are to be sawn into the pavement curb. The curb cut marks are to consist of the following:
    - Valves- place a "V" mark on the curb to note the valve locations, (blue paint for main line valves, red paint for fire hydrant and fire line valves, and white paint for stub-out valves) Cut the "V" pointing towards the valve.
    - Manholes- place a "MH" mark on the pavement curb to indicate manhole locations (green paint).
    - Curb Stops- place a "I" mark on the pavement curb to indicate curb stop locations (blue paint).
    - Cleanout- place a "II" mark on the pavement curb to indicate sewer service cleanout locations (green paint).

    - Dead End Cleanout- place a "CO" on the pavement curb to indicated dead-end cleanout on the main sanitary sewer line (green paint).
- All sanitary PVC lateral riser pipes for the sanitary sewer cleanouts are to be capped and left at a minimum of two-feet above the finished grade elevation. At the time of building construction at each lot, the plumber shall cut the cleanout riser to install a combination wye to correspond with the grade of the pipe leading from the building. After the installation of the wye, the plumber shall insert the cleanout into the top of the riser.
- The lift station shall be operational and approved for use, by the design engineer and the City of Rockwall.
- Grout and wipe the inside structure face and the seams of all manholes, inlet boxes, and junction boxes. Also grout connections joint locations where the storm sewer RCP is connected to the drainage structures outlet pipe. All areas are to be grouted with non-shrink grout. All joints are to be wiped smooth and completely sealed. The bottom floor of all inlets shall be sloped towards outlet.
- Remove forms and miscellaneous construction debris from inside of curb inlets.
- Construct concrete overflow flumes per the approved plans.
- Need coordinates (x, y, and z) on all storm sewer outfall structures.
- Adjust all manholes to final grade elevations as necessary. All manholes located in the pavement which are subject to storm water drainage flow, are to have sealed manhole lids installed. All manholes located outside of pavement areas, which are subject to storm water drainage flow, shall be elevated to where the manhole ring and cover are a minimum of 1-foot above the final grade elevation.
- Seal and vacuum test all manholes. All manholes which require grade adjustments are to be re-tested after adjustment.

- Perform a television camera inspection of all sanitary sewer and storm sewers, along with the associated storm sewer laterals. Copies of the inspection video footage are to be in DVD format. They will be submitted to the inspector with the City of Rockwall Engineering Department.
- Clean mud/silt from concrete flume in detention pond. The bottom and sides of the detention pond shall have anchored seeded curlex or sod.
- All grouted rip-rap to be installed.

<u>Grading, Paving, and Erosion Items:</u>

- Right-of-way Compaction and Density Reports– Final grade densities are to be conducted at approximately 500–foot intervals on both sides of each street and alleys in the general fill areas of the right-of-ways. Full depth trench densities are to be taken at all utility trenching locations where trenching operations consisted of cutting trench 10-inches wide or wider. All final grade right-of-way and easement compaction density tests are to be a minimum of 95% (-2 to +4 moisture content) of the Standard Proctor Density. Copies of the compaction tests performed for the developer's contractors as well as by the franchise utility company's contractors shall be provided to the City prior to project acceptance.
- Final Grading- re-establish all drainage swales, as necessary, to achieve conformance to the drainage patterns shown on the approved grading plans. Grade to drain any location which may hold water or obstruct approved drainage flow patterns. All graded area, including slopes, are to be brought to a final grade surface that is smooth and uniform being relatively free of erosion washouts, tire ruts, dirt clods, silt deposits, etc. <u>Care should be taken to re-grade any rough surface areas prior to the application of erosion matting, grass seeding, or sod.</u>
- Slopes located at the project shall not exceed a 4:1 slope ratio with the most gradual slope obtainable acquired when possible. <u>The maximum slope allowed by the City will be a 4:1 slope.</u> Retaining walls or other City approved retaining methods will be required where it is not possible or feasible to comply with the 4:1 maximum slope requirement. All slopes are to be compacted to 95% of the Standard Proctor Density.

- Random Pavement Depth Checks– random depth core test are to be conducted at various street and alley locations, as directed by the engineering inspector. The location of the test and the number of the test necessary will be left to the discretion of the engineering inspector.
- Interior Erosion Protection– install reinforced silt fencing which complies with the NCTCOG standard drawing 1020A, Third Addition. Silt fencing is to be installed at the back of the street pavement curbs and at 1-foot off the outside pavement edge of the alleys. The silt fence should contain the entire perimeter of the disturbed lot areas.
- When installing the silt fence at the street and alley locations take care to address the following issues:
    - Allow for a clearance radius of 5-feet around each fire hydrant.
    - Block the silt fence around and to the backside of each water meter.
    - When placing the silt fence at an alley intersection be sure to transition the silt fence to allow a turning radius for vehicles.
    - Do place the silt fence within the sight visibility easements which are located at street and alley intersections.
- Maintain existing or install additional construction site erosion BMP's, as necessary, to stabilize the disturbed soil or contain silt migration.
- All street and alley parkways and right-of-way locations are to be graded so as to obtain a 2% grade (1/4-inch per foot) slope. All parkways and right-of-way locations are to have positive drainage flow towards the street or alley to the right-of-way. The transitional grading from the right-of-way to the existing natural grade is to match the approved grading plans prior to installation of silt fence.
- Address any miscellaneous water pockets in the roadways and alleys. The roadways and alleys should be free of any "bird baths" or standing water.
- Grass is to be established in all disturbed areas. Grass shall be at least 1-inch in height with 75%-80% coverage of all disturbed areas.
- Engineered retaining wall inspection– The City requires that the design engineer for any retaining wall which is three-feet in height or taller, shall periodically inspect, or plan for his designated representative to periodically inspect the retaining wall construction to verify that wall is compliant with design and construction methods. The letter shall contain the seal and signature of the design engineer.
- All paving installed.
- All pavement curbs shall be backfilled.
- Install all pavers in medians.
- Rout and seal all miscellaneous random cracks in the streets and alleys.
- Repair all "nicks" and "gouges" in the street curbs.
- Complete construction of all "common" sidewalks along all areas not designated as residential lots.
- Complete the construction of all barrier free ramps located in the public right-of-ways of the project. Barrier free ramps shall be colored (brick red) truncated domes. Contact the engineering inspector for specifications.

Miscellaneous Items:

- Any and all construction done within the TXDOT right-of-way will need to meet TXDOT Specifications and City of Rockwall Standards and Specifications.
- Director of Planning and Zoning or his designated representative shall conduct an inspection of the landscaping and project screening upon completion and prior to completion.
- Remove all construction related trash, material, brush, concrete, and asphalt debris, etc. from the site and properly disposed.
- Install guard rail at all locations as noted on the approved plans.

- The City of Rockwall– Elevation Survey Monuments which are to be installed at the project. Shall be tied to the City of Rockwall monument coordinates both horizontally and vertically. The information shall be transferred to the City of Rockwall. **Elevations and monument locations are to be shown on the as built mylar's on both the paving plans and the storm sewer plans and also be submitted to the City in letter-form.** The monuments are to be purchased from the City of Rockwall and installed by the utility contractor. Contact the engineering inspector for location.
- Street Address Marker Blocks– shall be painted on the curbs in the center of each lot and comply with the City of Rockwall specifications. The street address markers are to be installed at each lot in the subdivision. The markers shall be located at the center of the lot on the face of the street curb. The address markers shall have a Forest Green background with **reflective** white numbers. The number size shall be four-inches in height. The background of the address marker shall be eighteen-inches in length and be located from the top of the curb to the gutter flow line. The address marks shall show the full numerical portion of the address of the lot.
- Install floodway monument markers. The developer will purchase floodway marker caps from the City, which are to be set in concrete as directed by the City of Rockwall. The developers designated representative shall install the marker prior to project acceptance. Monument installation shall meet City of Rockwall specifications.
    - **The monument marker location is to be shown on the record drawing mylar's on the grading plan.**
- Gas and electric facilities are to be installed at the site and be ready to provide service to each lot.
    - A letter of verification will be required from the manager of new construction for Atmos Energy. The letter is to verify that gas facilities are in place and ready to provide service. Atmos Energy Corporation is located at 1310 Highway 66, Garland, Texas (75040).
    - A letter of verification will be required the manager of new construction for Oncor Electric Delivery. Oncor Electric Delivery is located at 400 W. Virginia Parkway, McKinney, TX (75069).
    - The letters may be from the above noted parties or their designated representatives

XLII. General Requirements for Early Lot Releases – Residential Subdivision:

1. The amount of lots approved for early release by the City of Rockwall "if any" will be at the discretion of the City Engineer. As a general rule early release lots will be limited to (10-lots) or less. Once the targeted lots have been approved for early release by the City Engineer, the released lots may not be exchanged for other lots nor will any other lots be released at the project until such time as the project has achieved final acceptance by the City, unless otherwise noted by the City Engineer.

2. The developer shall identify the lots to be targeted for early release. Once the lots have been identified, the developer shall submit a copy of the plat having the targeted lots highlighted or marked along with a letter. The letter shall contain lot and block number of the requested lots along with the corresponding street address number for each specific lot requested.

3. The design engineer shall submit a signed and sealed letter, verifying that the lots targeted for early release, comply with the approved pad elevations and have established drainage swales which correspond to the drainage patterns as shown on the approved grading plans. The design engineer shall direct all surveying necessary for verifying pad elevations, and drainage patterns.

4. Lots Including Retaining Walls - The design engineer for the retaining walls shall submit a signed and sealed letter to verify that the retaining walls at each early release lot location was inspected by the design engineer or their designated representative. The retaining walls shall not encroach any right-of-way locations or designated utility easements. The walls shall not encroach any portion of the visibility easements which are located at street and alley intersections.

5. Gas and Electric facilities are to be installed at the site and be ready to provide service to each lot. A letter of verification will be required from the manager of new construction for electric. The letter of verification is to be directed to the City of Rockwall prior to project acceptance or any early lot releases. A letter of verification will also be required the manager of new construction for Atmos Energy verifying that gas facilities are in place and ready to provide service. The letter may be from the above noted parties or their designated representatives.

6. Interior erosion control is to be in place within the sub-division. Reinforced silt fencing, with steel post is to be placed behind the street curb and at the outside pavement edge of each alley.

7. Site Working Hours and Noise Control Signage **- Ordinance No. 05-45 -** Signs are to be placed at each residential street which provides an access entry way into the subdivision. The signs are to note allowed hours of construction as mandated by the City Ordinance. The signs must be installed prior to project acceptance or prior to the start of any early lot release construction. The signs may be placed in the City right-of-way provided that they are not placed within visibility easement clips, which are located at all street and alley intersections. The signs are to be placed in an area between the back of street curb and the inside edge of proposed sidewalk locations which should be a distance of 3.5 feet behind the back of the street curb. The signs must remain in place and be maintained as often as necessary throughout the residential building construction phases of the project. Upon final residential build-out of the subdivision the signs are to be removed from the project. Each posted sign shall contain the following ordinance information and contain both the English and the Spanish version of the ordinance. The face of the signs shall be a minimum of 3-feet wide by 2-feet tall with the sign post being 24–30 inches tall when measured from the top of the ground to the bottom of the sign face. The maximum height of the sign shall not exceed a height of 6-feet when measured from the top of the ground to the top of the sign. The sign face and post shall be white with blue or black lettering. The letters shall be of sufficient size so as to be readily visible to all vehicular traffic entering the subdivision.

Ordinance # 05-45
Construction Site Working Hours and Noise Control

City Ordinance – No. 05-45 limits construction and construction related activities to the hours of 7:00 a.m. - 7:00 p.m. Monday through Friday, and 8:00 a.m. - 7:00 p.m. on Saturday. (No Sunday construction allowed).

ORDENANZA #05-45
HORAS DE TRABAJO EN EL SITIO DE CONSTRUCCION Y EL CONTROL DE RUIDO

La Ordenanza de la Ciudad – No. 05-45 limita la construcción y las actividades relacionadas con la construcción a las horas de 7:00 a.m. – 7:00 p.m. de Lunes a Viernes, y de 8:00 a.m. – 7:00 p.m. los Sábados. (No se permitirá construcción los Domingo).

Noise Ordinance Sign

8. All fire hydrants are to be flow-tested, and be painted to City of Rockwall specifications.

9. Fire hydrant locator reflector markers are to be placed at each fire hydrant location. The markers are to be placed at 6-inches of the center of the street and be located on the same side of the street as the fire hydrant. At locations where a fire hydrant are located at street intersections, the reflector shall be placed on each intersecting street and be located on the fire hydrant side of the street centerline.

10. Street address marker blocks are to be painted on the street curbs to City specifications.

11. The water services are to be installed at each lot and be verified for flow.

12. Perform vacuum test on all sanitary sewer manholes.

13. Permanent street barricading and guard rails are to be in place at all locations specified on the approved construction plans or as otherwise directed by the City of Rockwall.

14. Street and regulatory signs are to be installed by the developer/owner prior to project acceptance.

15. If a sanitary sewer lift station is part of the scope of work for the subdivision, the lift station is to be fully operational and approved for use by the City of Rockwall.

16. Traffic Control – any turn lanes, deceleration lanes, traffic channeling buttons, pavement striping, etc which are included in the approved construction plans for the project shall be fully implemented prior to any early lot releases at the project.

XLIII. Required Documents Check List – Prior to Final Acceptance (Commercial):

1. The City of Rockwall requires that the Design Engineer provide a letter of concurrence. The letter of concurrence shall verify that the drainage flow patterns, grade to drain locations and drainage structures, including the volume of the surface and/or subsurface detention system and detention outlet structure, located at the project were installed to the general elevations as shown on the approved plans. The letter of concurrence shall also verify that the project was constructed to meet the approved design requirements or is within acceptable design tolerances. **The Design Engineer, or his/her designated representative, shall direct all "survey-work" necessary to verify elevations and design compliance. The letter of concurrence is to have the <u>seal and signature</u> of the Design Engineer.**

Example of Letter of Concurrence verbiage which will <u>not</u> be accepted by the City:

"A representative of this company visited the site and has visually verified to the best of the engineer's professional opinion, knowledge and belief, the final grading and site drainage comply with the City approved plans and details".

Example of Letter of Concurrence verbiage which will be accepted by the City:

"A representative of this company visited the site and has visually verified to the best of the engineer's professional opinion, knowledge and belief, that based on my observations along with survey work conducted at the site, the final grading, site drainage, and detention outfall with required volume comply with the City approved plans and details".

2. The Design Engineer shall furnish **<u>1 hard copy full size plan set of Record Drawings</u>** containing copies of **<u>all</u>** plan sheets. The Record Drawings shall include any and all landscaping plans, retaining wall plans, and construction detail sheets. The hard copy plan set will be reviewed by the construction inspector for the project **<u>PRIOR</u>** to producing the Record Drawing digital files. This will allow any revisions to be addressed prior to producing the digital files.

The Design Engineer shall also furnish **<u>digital files</u>** of the Record Drawings formatted in Auto Cad 14, or 2000 format or newer **<u>and</u>** Adobe Acrobat (pdf.) format with a CD-ROM or flash drive. The digital files shall also

include any and all landscaping plans, retaining wall plans, and construction detail sheets.

The required Record Drawings shall have the Design Engineer's seal, signature and must be stamped and dated as "Record Drawings" or "As Built Drawings" on all sheets.

The City of Rockwall will not accept any Record Drawings which include a disclaimer with the like or similar verbiage. A disclaimer shall not directly or indirectly state or indicate that the Design Engineer or the Design Engineers, surveyor/surveyors did not verify or grades after construction, or that the Record Drawings were based solely on information provided by the construction contractor/contractors. Any Record Drawings which include like or similar disclaimer verbiage will not be accepted by the City of Rockwall.

Example of Acceptable Disclaimer:

"To the best of our knowledge Smith Engineering, Inc., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor."

3. 4% Engineering Inspection Fee (Final As-Built Adjustments) – Prior to the start of construction, engineering inspection fees for the project were established. The preliminary inspection fee amounts were based upon the projected contract quantity and unit price amounts which were submitted to the City. A fee based on 4% of the projected quantity cost was paid to the City. The final fee amounts are to be adjusted, if necessary, to match the unit quantity and unit price amounts based on the as-built contract unit quantity amounts. **Please provide a copy of the as-built quantity amounts with total amounts for each item.** The as built amounts should be noted or stamped as **"as-built contract quantity and unit price amounts".** The engineering inspection fee charged by the City will be adjusted to match these amounts if necessary. The City is to receive payment on the adjusted cost amounts **prior to project acceptance**. As-built contract unit quantity and unit price amounts for the pavement (including fire lane if applicable), drive approaches, sidewalks, barrier free ramps, wastewater, storm sewer, drainage structures (including underground detention), water lines, along with all associated fixtures which are located within the defined right-of-way and easements of the project.

4. All weekday and weekend overtime engineering inspection fees are to be paid.

5. Flood study and lift station review fees are to be paid if there is an excess due over the initial review fee. If all of the initial fees were not utilized for the reviews, those monies will be refunded.

6. Storm Sewer Outfall Coordinates - The Design Engineer shall furnish coordinate information for **all** storm sewer outfalls installed during construction. The storm sewer outfall coordinates shall be submitted in letter form and shall show the x, y, and z coordinates.

7. Maintenance bonds are to be submitted to the City of Rockwall for the public paving and utilities installed during construction. The maintenance bonds shall be dated for a **two-year** timeline starting from the **"Date of the City of Rockwall's Acceptance"** for the project. There is to be no date in the starting timeline, only the above wording. The maintenance bond amount shall be **10% of the final as-built contract quantity and unit price amount.**

    A. The utility bond shall cover the following public utility systems:
        - Water
        - Wastewater
        - Storm sewer (including detention systems)

    B. The paving bond shall cover the following within the right-of-way:
        - Driveway Approaches

- Sidewalks
- Barrier free ramps

8. Engineered Retaining Wall Inspection & Letter of Concurrence – The City of Rockwall requires the Design Engineer for all retaining walls three-feet in height or taller, to periodically inspect, or have his/her designated representative periodically inspect, the retaining walls throughout the construction process to ensure they were built per the approved retaining wall plans. The Design Engineer shall submit a **letter of concurrence for all retaining walls three-feet in height or taller** to the City of Rockwall prior to project acceptance. The letter shall contain the **seal and signature of the retaining wall Design Engineer.**

9. City Council approved and owner signed final/replat plat mylars and tax certificates shall be submitted to the Planning and Zoning Department for filing, if not done so already.

XLIV. Required Documents Check List – Prior to Final Acceptance (Residential):

1. The City of Rockwall requires that the Design Engineer provide a letter of concurrence. The letter of concurrence shall verify that the drainage flow patterns, grade to drain locations and drainage structures, including the volume of the surface and/or subsurface detention system and detention outlet structure, located at the project were installed to the general elevations as shown on the approved plans. The letter of concurrence shall also verify that the project was constructed to meet the approved design requirements or is within acceptable design tolerances. **The Design Engineer, or his/her designated representative, shall direct all "survey-work" necessary to verify elevations and design compliance. The letter of concurrence is to have the seal and signature of the Design Engineer.**

Example of Letter of Concurrence verbiage which will not be accepted by the City:

"A representative of this company visited the site and has visually verified to the best of the engineer's professional opinion, knowledge and belief, the final grading and site drainage comply with the City approved plans and details".

Example of Letter of Concurrence verbiage which will be accepted by the City:

"A representative of this company visited the site and has visually verified to the best of the engineer's professional opinion, knowledge and belief, that based on my observations along with survey work conducted at the site, the final grading, site drainage, and detention outfall with required volume comply with the City approved plans and details".

2. The Design Engineer shall furnish **1 hard copy full size plan set of Record Drawings** containing copies of **all** plan sheets. The Record Drawings shall include any and all landscaping plans, retaining wall plans, and construction detail sheets. The hard copy plan set will be reviewed by the construction inspector for the project **PRIOR** to producing the Record Drawing digital files. This will allow any revisions to be addressed prior to producing the digital files.

The Design Engineer shall also furnish **digital files** of the Record Drawings formatted in Auto Cad 14, or 2000 format or newer **and** Adobe Acrobat (pdf.) format with a CD-ROM or flash drive. The digital files shall also include any and all landscaping plans, retaining wall plans, and construction detail sheets.

The required Record Drawings shall have the Design Engineer's seal, signature and must be stamped and dated as "Record Drawings" or "As Built Drawings" on all sheets.

The City of Rockwall will not accept any Record Drawings which include a disclaimer with the like or similar

verbiage. A disclaimer shall not directly or indirectly state or indicate that the Design Engineer or the Design Engineers, surveyor/surveyors did not verify or grades after construction, or that the Record Drawings were based solely on information provided by the construction contractor/contractors. Any Record Drawings which include like or similar disclaimer verbiage will not be accepted by the City of Rockwall.

Example of Acceptable Disclaimer:

"To the best of our knowledge Smith Engineering, Inc., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor."

3. 4% Engineering Inspection Fee (Final As-Built Adjustments) – Prior to the start of construction, engineering inspection fees for the project were established. The preliminary inspection fee amounts were based upon the projected contract quantity and unit price amounts which were submitted to the City. A fee based on 4% of the projected quantity cost was paid to the City. The final fee amounts are to be adjusted, if necessary, to match the unit quantity and unit price amounts based on the as-built contract unit quantity amounts. **Please provide a copy of the as-built quantity amounts with total amounts for each item.** The as built amounts should be noted or stamped as **"as-built contract quantity and unit price amounts".** The engineering inspection fee charged by the City will be adjusted to match these amounts if necessary. The City is to receive payment on the adjusted cost amounts **prior to project acceptance**. As-built contract unit quantity and unit price amounts for the pavement (including fire lane if applicable), drive approaches, sidewalks, barrier free ramps, wastewater, storm sewer, drainage structures (including underground detention), water lines, along with all associated fixtures which are located within the defined right-of-way and easements of the project.

4. All weekday and weekend overtime engineering inspection fees are to be paid.

5. Flood study and lift station review fees are to be paid if there is an excess due over the initial review fee. If all of the initial fees were not utilized for the reviews, those monies will be refunded.

6. Gas and Electric facilities are to be installed at the site and be ready to provide service to each lot. A letter of installation verification and operation will be required from electric and gas project managers and will need to be directed to the City of Rockwall prior to project acceptance or any early lot releases. The letter may be from the above noted parties or their designated representatives.

7. Storm Sewer Outfall Coordinates - The Design Engineer shall furnish coordinate information for **all** storm sewer outfalls installed during construction. The storm sewer outfall coordinates shall be submitted in letter form and shall show the x, y, and z coordinates.

8. The City of Rockwall – Elevation Survey Monuments which are to be installed at the project shall be tied to the City of Rockwall monument coordinates both horizontally and vertically. The information shall be transferred to the City of Rockwall. **Elevations and monument locations are to be shown on the as built mylars on both the paving plans and the storm sewer plans and shall also be submitted to the City in letter-form.** The monuments are to be supplied by the City of Rockwall and installed by the utility contractor. The monument locations are as follows:

    A. *(Location designated by engineering inspector)*
    B. *(Location designated by engineering inspector)*

9. Right-of-way Compaction and Density Reports – Final grade densities are to be conducted at approximately each 500 – foot intervals on both sides of each street in the general fill areas of the right-of-ways. Full Depth trench densities are to be taken at all utility trenching locations where trenching operations consisted of cutting trench 10-inches wide or wider. All final grade right-of-way and easement compaction density tests

are to be a minimum of 95% of the standard proctor density. Copies of the compaction tests performed for the developer's contractors as well as by the franchise utility company's contractors shall be provided to the City prior to project acceptance.

10. Maintenance bonds are to be submitted to the City of Rockwall for the public paving and utilities installed during construction. The maintenance bonds shall be dated for a **two-year** timeline starting from the **"Date of the City of Rockwall's Acceptance"** for the project. There is to be no date in the starting timeline, only the above wording. The maintenance bond amount shall be **10% of the final as-built contract quantity and unit price amount.**

    A. The utility bond shall cover the following public utility systems:
        - Water
        - Wastewater
        - Storm sewer (including detention systems)

    B. The paving bond shall cover the following within the right-of-way:
        - Driveway Approaches
        - Sidewalks
        - Barrier free ramps

11. Engineered Retaining Wall Inspection & Letter of Concurrence – The City of Rockwall requires the Design Engineer for all retaining walls three-feet in height or taller, to periodically inspect, or have his/her designated representative periodically inspect, the retaining walls throughout the construction process to ensure they were built per the approved retaining wall plans. The Design Engineer shall submit a **letter of concurrence for all retaining walls three-feet in height or taller** to the City of Rockwall prior to project acceptance. The letter shall contain the **seal and signature of the retaining wall Design Engineer.**

12. City Council approved and owner signed final/replat plat mylars and tax certificates shall be submitted to the Planning and Zoning Department for filing, if not done so already.

XLV. Street and Regulatory Signage (See Standards of Construction and Design):

The developer shall arrange for the installation of all pavement striping, regulatory, warning and guide signs, including posts, as shown on the plans or as directed by the City. Street name signs shall be installed at each intersection. Examples of regulatory, warning, information and guide signs are as follows:

- Regulatory signs shall include, but are not limited to, STOP, ALL-WAY, YIELD, KEEP RIGHT and speed limit signs.
- Warning signs shall include, but are not limited to, DEAD END, NO OUTLET, DIVIDED ROAD, DIP, and PAVEMENT ENDS.
- Guide signals shall include, but are not limited to, street name signs, DETOUR, direction arrow and advance arrow.

City of Rockwall – Standards of Design may be downloaded at:
http://www.rockwall.com