



LEEDS, UTAH

LEEDS
Standard Specifications
for
Design
And
Construction

Ordinance Number 05-04

Adopted JULY 27, 2005

This document identifies Standard Specifications for Design and Construction within
the Town of Leeds

SECTION 2

SECTION 2

GENERAL REQUIREMENTS

2.1 INTRODUCTION. This section defines the general requirements for development work and other related construction of infrastructure improvements within the City of St. George. It covers such items as drawing requirements, inspections, traffic control, cooperation with others, use of explosives and other miscellaneous requirements.

The improvements shall include all public and private infrastructure, including, but not limited to streets, water, sewer, traffic and drainage.

- ▶ Required improvements shall extend from the nearest acceptable point of existing improvements.
- ▶ Layouts must provide for future extension to adjacent properties and shall be compatible with appropriate City of St. George master plans.
- ▶ All underground improvements shall be installed to the boundary lines of the development and in some cases extended beyond boundary to assure system reliability.
- ▶ Required geotechnical investigation recommendations shall be followed.

2.2 CONSTRUCTION DRAWINGS. Complete and detailed construction plans, drawings of improvements, and all necessary reports shall be submitted to the City for review and acceptance. All plans, drawings and reports submitted shall be stamped and signed by a professional Civil Engineer licensed in the State of Utah.

The instructions contained herein are for the purpose of standardizing the preparation of drawings and to obtain uniformity in appearance, clarity, size and style. The plans and drawings shall meet the standards hereinafter outlined.

All drawings and/or prints shall be clear and legible and conform to standard engineering and professional drafting practice.

The standard drawing size shall be twenty-four by thirty-six inches.

Note: Construction work shall not begin until the appropriate construction plans and reports have been reviewed for compliance with City requirements and released for construction by the City Engineer or his appropriate City Representative(s).

2.2.1 GENERAL. The following shall be included on the drawings. The City may require additional information as it deems necessary:

A. North arrow.

B. Scale - Standard engineering scales shall be used. Uncommon scales generated by CAD systems shall not be used. Graphic scales should be used where drawings may be reduced.

C. Stationing and elevations for profiles - Profiles should be drawn directly below plan view when possible. Bench marks and elevations must be referenced to latest revision of USGS datum or other datum as may be approved.

D. Title block, located on the right side of the sheet to include:

1. Project title;
2. Type of project;
3. Professional Engineers stamp (licensed in the State of Utah) and signature.
4. Name, address and phone number of firm preparing drawings.
5. Date, drawing number, drawn by, checked by, and other appropriate information.
6. Name, address and telephone number of Owner/Developer and contact person.

E. Revision block, located in or above title block containing the revision number, description, date, and revisor's name.

F. Drawings shall have a heavy border outlining the entire sheet situated approximately 1/2 inch from the top and sides and 1 inch from the bottom.

G. Additional information as required by the Joint Utility Committee (JUC) shall also be required on the drawings. (See the JUC for requirements).

2.2.2 CURB AND GUTTER, DRAINAGE, SIDEWALKS AND STREETS. The drawings for curb and gutter, drainage, sidewalks and streets shall contain:

- A. Plan view showing all necessary information to completely detail the work to be constructed including, but not limited to, all existing improvements, right-of-way lines, easement boundaries roadway centerline, curb and gutter location, sidewalks, cross drains, cut and fill slopes, drainage pipes, etc. for each street.

- B. Top back of curb, and street centerline elevations at one hundred (100) foot intervals or at every lot line and at all P.C.s, mid-points and P.T.'s. At all street intersections, elevations shall be shown at the half delta points (minimum).

- C. Standard engineering stationing and all curve data.

- D. Plan and profile and details of drainage system showing flow directions, pipe grades, inlets, cleanouts, invert elevations, and types of pipe, etc.

- E. Bench mark locations and elevations (latest revisions of USGS datum must be used).

- F. Typical street cross section from right-of-way line to right-of-way line, showing type of curb, sidewalk and pavement section.

- G. Gradient center line of roads, top, back of curbs (if different from centerline), or edge of pavement (if different from centerline and no curb exists), and flow-lines of drainage pipes and channels. Profiles shall be shown at all intersections to assure that street grades transition smoothly. Transition grades shall not be left to be worked out in the field!

- H. Location of existing and proposed permanent survey monuments.

- I. Profiles shall show existing ground profile at the centerline and each right of way line.

- J. When matching into existing improvements, profiles shall be extended for a minimum of two hundred and fifty (250) feet to assure that road transitions are smooth. When matching into existing improvements across the street, cross-sections shall be shown indicating how the new portion will match.

2.2.3 SEWER. Sewer drawings shall show:

- A. Plan and profile sheets showing location, size, and grade of main lines, submains, and service laterals (existing and proposed).
- B. Manhole size, type, station (location) and elevation at top of manhole and flow-line (in and out).
- C. Type of pipe (in accordance with City's standards).
- D. Bench mark locations and elevations (latest revision of U.S.G.S. datum shall be used).
- E. Trench details showing bedding backfill, compaction and shoring requirements.

2.2.4 CULINARY WATER. Culinary water drawings shall show:

- A. Size, location and type of all existing and proposed water mains, valves and hydrants, service laterals and all necessary appurtenances.
- B. Type of pipe (in accordance with City standards).
- C. Profile drawings showing high and low elevation with respect to grade.
- D. Minimum cover shown (thirty-six inches to top of pipe).
- E. Typical and special trench details showing bedding, backfill, compaction and shoring requirements.
- F. Backflow protections devices.

2.2.5 POWER. Power drawings shall show:

- A. Point of interconnect (to be determined by City's Representative before plans are prepared and submitted).
- B. Location of existing and proposed transformers, service boxes, street lights, etc.
- C. Primary, secondary and service lines and phasing details.

- D. Topography and proposed grading unless shown on grading plans.
- E. Sizes, capacities and characteristics of all components (e.g., wire, transformers, etc.).
- F. Approval block for respective utility.

2.2.6 DETAIL SHEETS. Each set of plans shall be accompanied by a separate sheet of details (unless already shown on standard drawings) for structures which will be constructed. Detail sheets shall include the following information:

- A. Drawing size: twenty-four by thirty-six inches.
- B. Scale of each detail.
- C. Title block on the right side of the sheet (same format on all sheets).
- D. Information required in section 2.2.1.D., E. and F.
- E. All details must be properly dimensioned and labeled.
- F. All details shall conform to the details shown in the standard drawing section of these standards. All details not in conformance with the standard details shall require individual approval.

2.2.7 GRADING PLAN. All development projects and projects requiring installation of public and private improvements, are required to obtain a grading permit. A grading plan shall be submitted showing, at a minimum, the details outlined in Appendix Chapter 33 of the Uniform Building Code (UBC). The grading plan should be included with the Construction Drawings when submitted to the City Representative for review.

A Soils Engineering Report and an Engineering Geology Report addressing the adequacy for the intended use of the proposed development shall be submitted with the grading plan.

When Construction Drawings, including the grading plan, are approved by the City's Representative, a grading permit will be issued upon payment of the required grading plan review and permit fees in accordance with the fee schedule included in Appendix Chapter 33 of the UBC.

2.2.8 GENERAL UTILITY LOCATION INFORMATION.

The following information is provided as a general guide in laying out utilities during the preparation of construction drawings. This information is to be used as a guide and may be changed by the City as required. For more precise information contact the Joint Utility Committee (JUC) and the City Engineering Division.

A. A proximity detail and street locations will be required for all utility drawings.

B. The sewer, drainage and power layouts should be the first utilities designed.

C. For joint trench details, placement and layout of utilities and burial depths, see standard drawings.

D. A joint trench for phone, cable and power shall be located on the north and west side of the roadway behind the sidewalk (whenever possible) or opposite gas. In planned developments without sidewalks, joint utility trenches shall be thirty-six inches from back of curb.

E. Water and gas lines shall be located on the south and east side of the roadway with the gas line located behind sidewalk and water line located five feet into roadway measured from the lip of curb (whenever possible) or opposite power. In planned developments, gas lines shall be located at lip of curb. The water location would remain the same.

F. Sewer lines will generally be located fifteen (15) feet from the curb and gutter on the same side of the road as the power system.

G. Storm drain lines will be placed at the inside lip of curb and gutter as per standard drawing detail.

H. The cable and phone boxes will be located on the right and left side of power transformers and secondary boxes. The cable shall be on the left and phone on the right when looking from the street at the lot to be served.

I. Gas mains shall be located a minimum of five feet off the back of the sidewalk on public streets.

J. Gas and water "long side stubs" will be placed five and three feet, respectively, to the right or left of the property line, with gas on the left and

water on the right, looking from the street at the lot to be served. See standard drawings for details.

K. Color coding for utility conduits/lines shall be as follows:

Power	-	Black with red stripe or gray
Water	-	Blue or white or ductile iron
Sewer	-	Green or white
Gas	-	Orange or yellow
Phone	-	White or gray and labeled
Reuse Water-		Purple
<u>Cable TV</u>		
Falcon	-	Dark green 2" stripe with company label

2.2.9 DRAWING SUBMITTALS. Four (4) sets of construction plans and drawings shall be submitted to the City Engineer's Representative for review. Additional sets of drawings in accordance with JUC requirements shall also be submitted to the JUC for review. When all revisions required by the City have been made and the plans accepted, seventeen (17) complete sets shall be submitted to the City Engineer's Representative for processing. Five sets of plans that have been appropriately stamped as released for construction will be returned to the applicant. One stamped set shall be kept available at the construction site at all times during the construction of the project.

2.3 INSPECTION, TESTING AND QUALITY CONTROL. All construction work involving the installation of improvements in St. George City shall be subject to Owner inspection and testing as outlined in the quality control section of each specification.

2.3.1 REQUESTS FOR INSPECTION. A request for inspection shall be made to the City by the person responsible for the construction. Notice shall be given at least twenty-four hours (or as otherwise directed) in advance of the starting of work. Any work requiring backfill or cover shall not be backfilled or covered prior to inspection. It should be noted that any inspection or observation by the City is for the City's sole use and does not relieve the Contractor or Developer from complying with City standards. The City provides 'spot' inspections throughout the course of work. These inspections should not be confused with that of providing full time observation or inspection. It is recommended that the Developer retain the use of a professional engineering firm during the course of construction to provide the necessary full time inspections to ensure that said standards are met and to certify as such. Said certification is required for private developments.

2.3.2 CONSTRUCTION COMPLETION INSPECTION (FINAL INSPECTION).

After all construction work is complete, the Developer shall request a "Construction Completion Inspection". Upon receipt of the request the City shall schedule this inspection with the appropriate parties. Any faulty or defective work shall be detailed in the City's inspection report. All faulty and defective work shall be corrected within 30 days from the date of the City's inspection report. If, after thirty days, the faulty or defective work has not been completed, another "final inspection" may be conducted by the City to determine if additional corrective work is required. The development will not be released and the guarantee period will not commence until all faulty work has been corrected.

2.3.3. GUARANTEE OF WORK. All work shall be warranted and guaranteed to remain in good condition for a period of one year after the date indicated in Section 2.3.2 or as directed by the City Engineer. The responsible party shall agree to make all repairs to and maintain the improvements and every part thereof in good condition during the specified time at no cost to the City. A 10% financial guarantee provided by the Developer of improvements will be required by the City Engineer for the period of the one-year guarantee.

The determination for the necessity of repairs and maintenance of the work shall rest with the City Engineer. His decision upon the matter shall be final and binding. The guarantee hereby stipulated shall extend to and include, but shall not be limited to the entire road base, power system, all pipes, joints, valves, backfill and compaction as well as the working surface, curbs, gutters, sidewalks, and other accessories that shall be constructed. Whenever, in the judgment of the City Engineer, said work shall be in need of repairs, maintenance, or rebuilding, he shall cause a written or other notice to be served the responsible party and thereupon the responsible party shall undertake and complete such repairs, maintenance or rebuilding. If the responsible party fails to do so within thirty days from the date of the service of such notice, the City Engineer may have such repairs made, and the cost of such repairs shall be paid by the responsible party together with 25 percent of the cost of the repairs in addition thereto, for stipulated damages for such failure on the part of the responsible party to make the repairs. Any omission on the part of the City Engineer, or his designated representative, to condemn defective work or material at the time of construction shall not be deemed an acceptance. The Contractor will be required to correct defective work or material at any time within the one-year before final acceptance.

Prior to the end of the one-year guarantee period, a final walk through for final acceptance will be conducted. All work found to be defective shall be repaired immediately. Upon completion of these final repairs, the work will be accepted by the City and all appropriate bonds released.

2.3.4 QUALITY CONTROL TESTING. Material testing shall be conducted by an independent testing laboratory. The testing laboratory used for this purpose shall be one that is approved by the City. All testing shall comply with current ASTM, AASHTO, AWWA, Public Drinking Water Regulation standards, or other applicable standards and these specifications. All testing shall meet the minimum testing requirements as outlined in the specifications. The cost of any and all re-testing required to bring materials into compliance shall not be borne by the City. If determined necessary by the City, additional testing may be required.

2.3.5 TEST REPORTS. Written test results will be required for review by the City after each portion of the work (i.e. pipeline construction, earthwork, curb, gutter and sidewalk, roadway construction) has been tested.

A final report of compliance will be required upon completion of the project. This report will include all test results, and any other items required in the plans and specifications.

A certification of compliance with minimum inspection and testing requirements as set forth herein, must be submitted for any private subdivision, planned unit development and/or other developments which contain private streets. This certification must be on a form approved by the City and certified to by a Professional Engineer licensed in the State of Utah.

2.4 DRAWINGS OF RECORD. Upon completion of the project and prior to final inspection, a complete set of Drawings of Record that includes all items specified in SECTION 2.2 Construction Drawings shall be submitted to the City. The Drawings of Record shall show all improvement dimensions as they were constructed in the field. The Drawings of Record shall be submitted on twenty-four inch by thirty-six inch mylar sheets and in electronic format in AutoCAD .dxf or .dwg format in accordance with City policy (unless otherwise directed by the City's Representative). Improvements and any bond held by the City shall not be released until drawings of record are received.

The Developer's Project Engineer shall be required to submit drawings of record containing the signatures of the contractor and the developer's engineer. They shall include a transmittal letter, in duplicate, containing the submittal date, project title, and signature of the Contractor, or Contractor's authorized representative indicating concurrence by the Contractor. The Developer's Project Engineer shall be responsible for the accuracy of the record drawings and shall include a certification by the Professional Engineer, that each drawing of record is complete and accurate.

The submitter shall also provide all drawings of record in AutoCAD format latest update, on a three and one-half inch floppy disk with a .dxf or .dwg file format, or as otherwise directed by the City's Representative upon completion of the project.

2.5 BARRICADES AND WARNING SIGNS - WORK AREA PROTECTION. The Contractor shall provide, erect, and maintain all necessary barricades, channelizing devices, lights, warning signs, and other traffic control devices. All necessary precautions shall be taken to protect the work area and to safeguard the public and construction workers. Streets closed to traffic shall be protected by proper barricades, and obstructions shall be illuminated during hours of darkness. Suitable warning and detour signs shall be provided to control and direct traffic properly. All traffic control operations and signing shall be performed in accordance with the instructions outlined in the "Manual on Uniform Traffic Control Devices (MUTCD)", latest edition. A traffic control plan shall be required on each project.

2.5.1 GENERAL TRAFFIC CONTROL REQUIREMENTS

The Contractor shall at all times so conduct his work as to assure the least possible obstruction to traffic and adjacent residents. The safety, convenience, and the protection of persons, property, general public, and residents along the street, highway, and areas adjacent to the work area shall be provided for by the Contractor.

Temporary traffic control devices shall be used to guide and channel traffic through construction areas. Devices shall include cones, portable barricades, vertical panels and other approved devices. Metal vertical panels shall not be used as channelization devices. Traffic cones shall not be permitted as traffic channelizing devices during the hours of darkness.

Advance warning devices shall be used to alert the motorist of an obstruction in the roadway. They include diamond-shaped signs, flags, and flasher type high level warning devices.

All temporary traffic control devices used during hours of darkness shall be properly reflectorized and lighted, in accordance with requirements of the MUTCD. Devices shall have adequate maintenance to retain the reflection and lighting capability. At all times, traffic control devices shall be erect, properly positioned, clean, and in full view of the intended traffic movement.

All traffic control devices shall be immediately removed from roadway or sidewalk when no longer needed.

A traffic lane should be a minimum of ten feet wide. Additional width may be necessary depending on the conditions encountered.

A minimum of two traffic lanes, one for each direction, shall be maintained open to traffic at all times on all major streets unless otherwise approved by the City Engineer.

When two-way traffic cannot be maintained, flag persons shall be provided. Flag persons must be certified and suitably equipped and properly clothed.

Unless otherwise approved by the City's Representative, all existing traffic lanes on major streets shall be maintained open to traffic during peak hours, generally from 7:30 AM to 8:30 AM and 4:30 PM to 5:30 PM weekdays.

Local access shall be maintained to all properties on the project at all possible times. When local access cannot be maintained, the Contractor must notify the affected property owner at least twenty-four hours in advance. Access shall be restored the same day of completion of work which caused loss of access.

A temporary traffic lane shall not be open to traffic unless it is paved with hot mix or cold mix asphalt or graded reasonably smooth and maintained dust free as directed by the City's Representative.

Arrangements for partial or complete street closure permits shall be obtained through the City Engineer or his designated representative. An advance notice of forty-eight hours for major streets and twenty-four hours for local streets and alleys is required. The Contractor shall be required to notify all emergency services (ambulance, fire, etc.) and all other necessary parties as dictated by the City's Representative.

The Contractor is responsible for all barricading, 24-hours a day, 7-days a week. In the event of inclement weather conditions, such as windstorms, rainstorms, etc. the Contractor (or his authorized representative) shall immediately inspect his work area and take all necessary actions to insure that public access and safety are maintained. In general, trenches and excavations shall not be left open or uncovered over night. Special conditions may be given consideration by the City's designated representative.

The Contractor shall maintain all existing STOP, YIELD, street name signs and other traffic control devices until such time as construction requires their removal. At that time the Contractor shall obtain authorization from the City to remove said signs and posts without damage and deliver them to a storage site as directed by the City Representative. When required, the Contractor may need to install temporary signs (i.e., regulatory signs) until such time as permanent signs can be reinstalled. The City will reinstall all traffic signs.

If at any time project construction shall require the closure or disruption of traffic in any roadway or alley such that normal refuse collection will be interfered with, the Contractor shall, prior to causing such closure or disruption, make arrangements with the appropriate refuse removal service in order that collection service can be maintained.

The Contractor shall provide the City's Representative with a 24-hour emergency phone number of his representative(s) responsible for maintenance of barricades, warning signs and other traffic control devices.

2.6 COOPERATION WITH UTILITIES. The Contractor will notify all utility companies, all pipe line owners, or other parties affected, and endeavor to have all necessary adjustments of the public or private utility fixtures, pipe lines, and other appurtenances within or adjacent to the limits of construction, made as soon as practicable.

The Contractor shall comply with the requirements of the Blue Stake one call system, in notification to the interested utility owners prior to start of construction. The Contractor shall resolve all problems with the utility owners concerned.

Where water users association facilities obstruct construction of the work, the Contractor shall contact officials of the association relative to the shutdown of irrigation water and shall acquaint himself with and conform to the requirements of the association.

Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cable ways, signals and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted by or under the direction of the facility owners at no expense to the City.

2.7 COOPERATION BETWEEN CONTRACTORS. The City reserves the right at any time to contract for and perform other or additional work on or near the work being done.

When separate contracts are let within the limits of any one project, each Contractor shall conduct his work so as not to interfere with or hinder the progress or completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed by the City's Representative.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with his contract and shall protect and save harmless the Public Agency from any and all damages or claims that may arise because of inconvenience, delay, or loss experienced by him because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange his work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. He shall join his work with that of others in an acceptable manner and shall perform it in proper sequence to that of the others.

2.8 CONSTRUCTION STAKES, LINES AND GRADES. The Project Engineer will set construction stakes establishing lines and grades for road work, curbs, gutters, sidewalks,

structures and centerlines for utilities and necessary appurtenances as may be deemed necessary. The Project Engineer (or the Developer) will furnish the Contractor all necessary information relating to the lines and grades. Such stakes and marks shall constitute the field control by and in accordance with which the Contractor shall establish other necessary controls and perform the work. A copy of the field notes shall be submitted to the City's Representative upon request.

The Contractor shall perform the work in accordance with construction stakes and marks, and shall be charged with full responsibility for conformity and agreement of the work with such construction markings. When obvious errors or conflicts occur in the staking, the Contractor shall stop work and immediately notify the Project Engineer or the City's Representative.

The Contractor shall be held responsible for the preservation of all stakes and marks. If the construction stakes or marks have been carelessly or willfully destroyed or disturbed by the Contractor, the cost for replacing them will be borne by the Contractor.

2.9 USE OF EXPLOSIVES. The use of explosives or blasting is generally not allowed within the City, however, if explosives or blasting are permitted, their use is controlled by the Uniform Fire Code. The Contractor shall obtain a special permit from the City's Fire Chief for the use of explosives. A copy of this permit shall be delivered to the City's Representative prior to the use of explosives. The approval by the City's Representative for the use of explosives shall not relieve the Contractor from his responsibilities for proper use and handling of the explosives or for any and all damages resulting from their use.

Explosives shall be transported, stored, handled and used in accordance with the provisions and requirements of all applicable laws, ordinances and regulations.

2.9.1 PERMITS AND BLAST PLAN. When any blasting is to occur within the city a permit for such activity shall be applied for at least three working days prior to the desired blasting day. A detailed blast plan shall be submitted for review at the time of application for a permit. The blast plan shall contain the following information:

- A. Number of holes per blast.
- B. Blast pattern.
- C. Depth of holes.
- D. Maximum holes per delay.
- E. Numbers of the delays used.
- F. Type of explosives used.
- G. Total pounds of explosives.
- H. Maximum pounds per delay.
- I. Method of detonation.
- J. Proximity to nearest structure.
- K. Expected duration of blasting activity.
- L. Name of independent monitoring company.
- M. Whether or not pre-blast survey is required and the name of the company doing such a survey.
- N. Plan outline for notification of Fire Marshall, Fire Chief or governing agency one hour prior to detonation of each blast and approximate time of each blast.

2.9.2 GENERAL BLASTING CRITERIA

A. Blasting activity that is to occur within one thousand (1,000) feet of any school (public or private), university, day care center, church, library, medical facility, or any public building shall be conducted during off hours where possible and shall require seismic monitoring of each blast to insure the integrity of the building as well as the safety of the occupants of said buildings. Since there is a wide variety in the type density, specific gravity, velocity and

general characteristics within the graphical area of southern Utah, there are varied methods that can be employed to attain the desired results. These methods, if used and however varied, shall adhere to the appropriate limit criteria.

B. Any blasting that is intended within five hundred (500) feet of any structure (building, tunnel, underground utilities, gas lines, overhead transmission lines, pump station, piping, radio tower, or any other structure of any kind) requires that the blast be monitored with a seismograph capable of measuring peak particle velocities in three spatial components of horizontal, vertical and transverse and be capable of printing this data into a permanent record as digital as well as wave form and air blast overpressure in terms of millibar, PSI or decibel (dB) recording of each event. Any structure such as residential homes, commercial buildings, public buildings, storage facilities, or any other permanent structure that lies within five hundred (500) feet of blasting activity shall be required to have a pre-blast survey performed at the expense of the Contractor and/or the blaster by an independent company whose primary nature of business is to conduct and perform these types of services. The said company shall furnish to the Fire Chief a copy of the pre-blast survey report prior to issuance of the blasting permit. A certificate of insurance issued by an underwriter legally doing business within the State of Utah showing Contractor and/or blaster to be properly insured for the express purpose of blasting and showing the issuing agency as additional insured, shall be submitted with the application of the blasting permit. The amount of insurance shown on the certificate of insurance shall be in the amount required by City's Fire Department or Owner's Representative. A blasting permit shall be site specific and expire thirty days from issuance.

C. Furnish and erect special signs to warn the public of blasting operations. Said signs shall be located and maintained so as to be clearly evident to the public during all critical periods of blasting operations.

D. Notify each public utility company, having structures or facilities adjacent to the work, of his intention to use explosives. Such notice shall be given sufficiently in advance to enable the companies to advise the Contractor of any precautions that should be taken to protect their structures from damage.

E. Make a survey of adjacent properties, before commencing blasting operations, locating on drawings and by photographs all existing cracks and damages to structures. A copy shall be filed with the Representative, including a report of any property owners who refused to cooperate and permit entry and inspection.

F. Blasting shall be accomplished in such a manner that nearby buildings, structures, railways, highways, etc. will be safe from rocks and other projectiles. Adequate blasting mats or other means of protection shall be employed when blasting in congested area or close proximity to any of the above improvements. Steel mats shall not be allowed within two thousand (2,000) feet of powerlines.

G. Immediately prior to the time of firing, the Contractor shall station certified flaggers along the road(s) at sufficient distance from the blasting operation to control traffic as required.

H. The City reserves the right to order the discontinuance of blasting operations at any time.

2.9.3 LOGS. The blaster shall, at the request of The City, surrender logs and records, or a copy thereof, for review within twenty-four hours of receiving such request. Failure to keep current and/or surrender the logs to the City will result in the immediate cancellation of any and all permits issued. No further permits will then be issued within thirty days of submission of said records.

2.10 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE. The Contractor shall be responsible for the preservation of all public and private property and shall protect from disturbance or damage all survey control land monuments and boundary marks. Prior to disturbing any monuments, the Contractor shall notify the City Surveyor who shall require said Contractor to hire a licensed Surveyor to properly reference the monument, unless otherwise directed.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, defective work or materials, or misconduct in his manner or method of executing the work, or in consequence of the non-execution thereof by the Contractor, he shall restore, at his expense and at no cost to the City, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or he shall make good such damage or injury in an acceptable manner. Said responsibility shall not be released until the project has been completed and accepted.

The Contractor shall not dump spoil or waste material on private property without first obtaining written permission from the property owner. All such dumping shall be in strict conformance with the Grading and Drainage Ordinances.

Prior to any construction in front of driveways the Contractor shall notify the property owner twenty-four hours in advance. Inconvenience caused by construction across driveways and sidewalks shall be kept to a minimum by restoring the serviceability within twenty-four hours, or as otherwise approved by City's Representative. If it is necessary to leave open excavation for a longer period of time the Contractor shall provide structurally adequate steel plates to bridge the excavation.

2.11 SURVEY MONUMENTS. Class I or Class II survey control monuments (as shown in the standard drawings of these specifications) shall be installed on all dedicated and private streets. All survey control monuments shall be installed in strategic locations (as determined by the City's Representative) so as to insure adequate survey control required for subsequent resurvey in the area.

All Class I monuments shall be cross tied and referenced to permanent features and mapped sufficiently for future use in relocation and replacement. All cross tie information shall be submitted to the City Surveyor and should also be kept in a permanent record by the Professional Surveyor doing the work.

Any section, witness or reference corners which fall within roadway or parking lot construction areas shall be reset with a Class I type monument with appropriate cap (as shown in the standard drawings). All corners being replaced shall be referenced in a manner as to accurately reset the corner. A copy of the field notes shall be

submitted to the appropriate public agency surveyors for approval before corners are destroyed. The appropriate public agency surveyors (city or county) shall give direction on requirements for referencing of corner(s) to be replaced and the method of reinstallation prior to corner(s) being destroyed.

2.12 HAZARDOUS MATERIALS DISCOVERIES. If suspected hazardous materials (including chemicals, petroleum products, etc.) are encountered, construction operations shall be immediately stopped in the vicinity of the discovery and the proper authority shall be notified of the nature and exact location of the findings. The Contractor shall secure the site of the discovery and shall provide written confirmation of the discovery and proper notification to the City's Representative within twenty-four hours. The written confirmation shall include a statement regarding responsibility to report the discovery to the local health district and the Utah Department of Environmental Response and Remediation within twenty-four hours as required by Federal Statute (40 CFR 280.50) as adopted by the State of Utah. The Contractor or the Property Owner shall then report the discovery as specified in the law.

After operations in the vicinity of the discovery have been restricted, the Property Owner shall keep the City informed concerning the status of the restriction. The time necessary for the Property Owner and appropriate Regulatory Agency to arrange for an acceptable solution to the discovered hazardous material situation is variable and dependent upon the nature and extent of the discovered materials. After clearance is received from the appropriate Regulatory Agency, the Property Owner shall inform the Contractor and the City Representative when work may be continued in the vicinity of the discovery. Written confirmation shall be provided within two calendar days.

2.13 IMPROVEMENT SEQUENCE. Improvements shall generally be installed in the following sequence, unless otherwise directed or approved by the City's Representative.

- A. Construction Traffic Control
- B. Rough grading
- C. Sanitary Sewer
- D. Storm Drainage
- E. Culinary Water
- F. Electrical Service
- G. Telephone
- H. Cable T.V.
- I. Natural Gas
- J. Sub Grade
- K. Sub Base
- L. Road Base
- M. Curb and Gutter
- N. Asphalt and/or Sidewalks
- O. Street Signs and Pavement Markings
- P. Manholes frames & covers and Valve boxes and covers raised to Grade
- Q. Survey Monuments
- R. Clean-up

Please note that this is a general sequence and is not intended to cover all aspects or steps of the construction work.