SECTION 100

GENERAL INFORMATION

100 GENERAL NOTES CONCERNING THESE STANDARDS AND SPECIFICATIONS

These standards and specifications are provided by New Mexico State University (NMSU) as an aid in design and construction to entities working at NMSU. All main line utility design must be done under the direction of and stamped by an engineer registered in the State of New Mexico. These design standards are minimum standards applicable to City projects and permits and do not relieve the engineer of following sound engineering principles that protect the health, safety, and welfare of the public.

101 PROCEDURES FOR VARIANCE FROM STANDARDS

The Executive Director for Engineering and Project Development, or designee, may approve a request for variances from these standards. A variance from these standards shall not set any precedent for future variances. It is recommended that OFS Engineering staff be contacted prior to submitting a formal request for variance.

102 BACKFLOW PREVENTION

Backflow prevention is specifically addressed in NMSU Design Guidelines, and its revisions. All questions concerning backflow prevention should be referred to OFS Engineering

103 GREASE TRAPS

Grease traps fall under the International Plumbing Code. All questions concerning grease traps should be referred to OFS Engineering

104 UTILITY EXTENSION LIMITS

All NMSU owned utility mains that are extended for service to a project shall be extended to the most distant limits of they project that is being developed. In the event that a dedicated and paved right of way is constructed, all utilities must be constructed to paving limits of the project, or road limits plus 5 feet, as determined by OFS Engineering.

105 UTILITY SERVICE CONNECTION

Every building, structure, or consumer at NMSU shall have a separate NMSU-owned utility service connection, unless specifically authorized by OFS Engineering.

106 PERMITS

The Utility Contractor shall be responsible for all construction permits for the work site.

106.1 PROCEDURE FOR OBTAINING PERMITS TO PLACE NMSU OWNED UTILITIES IN THE NEW MEXICO STATE DEPARTMENT of TRANSPORTATION (NMDOT) RIGHT OF WAY

Permissions to place utilities in NMDOT Right of Way are granted to NMSU from the NMDOT. Consequently the permit application form must be reviewed and signed by the Board of Regents prior to being submitted to NMDOT.

The entity responsible for construction of the utilities may obtain a permit application form from NMDOT.

The entity responsible for construction of the utilities is responsible for completing the permit application form and for all expense associated with completing the form.

An archeological clearance must be obtained from the NMDOT prior to the review by OFS Engineering. The phone number and address for the NMDOT Archeology Department may be obtained from NMDOT.

Actual submission of the permit application form to the NMDOT is done by NMSU.

In compliance with NMDOT requirements, AS-BUILT drawings of utility installation within the Right of Way must be submitted to the NMDOT through NMSU within 30 days of completion of the permitted work on the project. Failure to submit AS-BUILT drawings will result in cancellation of the permit and withdrawal of approval of the utility installation. The AS-BUILT drawings must be submitted to OFS Engineering for review prior to being submitted to NMDOT. A copy of NMDOT requirements for AS-BUILT drawings may be obtained from NMDOT.

106.2 PROCEDURE FOR OBTAINING PERMITS TO PLACE CITY OWNED UTILITIES IN ELEPHANT BUTTE IRRIGATION DISTRICT (EBID) RIGHT OF WAY

Permissions to place utilities in EBID Right of Way are granted to NMSU from the EBID. Consequently the permit application form must be reviewed and signed by the Board of Regents prior to being submitted to EBID.

The entity responsible for construction of the utilities may obtain a permit application form either from EBID.\

The entity responsible for construction of the utilities is responsible for completing the permit application form and for all expense associated with completing the form.

107 EXISTING UTILITIES

Existing Utilities within the boundaries of a project shall be adjusted as required to conform with the final grades of a project. The entity responsible for construction of the utilities is responsible for all expense associated with all adjustments.

108 LIMITATIONS ON EASEMENT USE AND MINIMUM WIDTH

Use of land encumbered by NMSU Utility Easements is limited to uses that do not interfere with the operation, maintenance, or construction of the utilities within the easement.

Easement widths stated in these standards are minimum widths only. OFS Engineering may request greater widths than the stated minimums, when the extra width is necessary for operation, maintenance, or construction of the utilities within the easement.

Easements for utilities should be located such that the utilities can be maintained by wheeled light construction equipment. No permanent structures can be located on an easement without specific written approval from the Board of Regents. Utilities located through areas that will be expensive to repair or maintain (i.e. extensive landscaping, drainage ponds, etc.) will require sleeving of the utility. For utility easements in commercial areas, parking lots or paved drives are preferred.

109 GENERAL CONSTRUCTION SPECIFICATION

109.1 DEFINITIONS

1. ENTITIES:

OWNER – NMSU, Dona Ana County, New Mexico, a State University. The Owner's representative shall be the Project Manager (herein: **P.M.**), who shall be in charge for the Owner, acting personally or through any and all assistants duly authorized such as: Project Managers, Engineers, Inspectors (herein: **P.M., or designee**).

CONTRACTOR – The entity being in responsible charge of the construction improvements.

SUPERINTENDENT – That individual, or individuals, having authority to represent the Contractor on a daily basis regarding the project.

2. PROJECT – The permitted installation, alteration, or adjustment of any portions of NMSU water distribution system, or sewer collection system, or natural gas transmission or distribution systems, either by contract to NMSU or authorized by permit issued by NMSU.

3. CONTRACT DOCUMENTS – The set of plans, specifications, agreements, these Standards, and all referenced applicable standards and specifications and Ordinances appurtenant to the Project.

4. BRAND NAME OR EQUAL - Where the brand name or equal specification is shown within these standards, drawings, and specifications, the use of the brand name is for the purpose of describing the standard of quality, performance, and characteristics desired and is not intended to limit or restrict competition. All manufacturers' products listed are preferred. Others may be submitted to OFS Engineering, or designee,

for pre-approval, prior to bidding NMSU contracted projects.

109.2 ACCEPTANCE OF IMPROVEMENTS, SUBMITTALS, RECORD DRAWINGS, AND WARRANTIES

Utility Work Contracted Directly by NMSU: For preliminary acceptance of utility improvements, and prior to connection to NMSU utility system, the Contractor shall be required to submit utility blueline drawings, annotated with any and all Project changes ("As-Builts"), for review and approval by the P.M. Such drawings shall be submitted to the P.M., or designee, for approval and acceptance. Utility improvements cannot be tied into the existing system until As-Built working drawings (Contractor generated blue prints are acceptable) of the improvement have been submitted to, and accepted, by the P.M. on that project.

The P.M. shall be the final authority for acceptance or rejection of pipe and other materials installed. The entity responsible for construction (herein: Contractor), and their representative (herein: Superintendent), shall ensure that all materials and procedures are proper and in compliance with the NMSU Design Guidelines requirements in every respect. The Contractor shall be held responsible and accountable for everything that comes under or is related to the proper and complete execution of the utility systems installation, either directly or indirectly.

Submittals

Submittals for construction of water and sewer utility improvements may be required at the option of the P.M..

As-Builts / Record Drawings

The Contractor shall keep As-Builts (Project and Contract Documents annotated with any and all Project changes) on the construction site at all times. The drawings shall be maintained and kept current with all changes daily throughout the Project.

The following minimum information shall be indicated on the As-Builts / Record Drawings: The location of mainline and service lines with respect to right-of-way and property lines. All stopples, valves and fittings, etc., shall be adequately referenced to obvious, easily described, permanent objects.

The Record Drawings submittal shall be turned in to the P.M., or his designee, for approval and acceptance. Upon approval and acceptance by the P.M., the Record Drawings submittal become the Project's "Record Drawings".

Warranties

The Contractor shall provide warranties as per the applicable sections of NMSU Design Guidelines

109.3 CONCRETE MIX DESIGN

The Contractor shall submit a copy of an approved concrete mix design to be used on City projects and permits to the P.M., or designee. The approved copy of the mix design can be obtained from a concrete supplier. The concrete supplier should have in his file a copy of an NMSU approved mix design to be used.

The submitted mix design must be an original (no photocopies) and embossed with the seal of and signed by, the New Mexico Professional Engineer certifying the mix design.

The pre-approved copy of the mix design will be cross-checked against the copy that the supplier previously submitted, to ensure that they match and it is the current approved mix design.

No concrete shall be placed on any project until the P.M., or designee, has approved the concrete mix design.

109.4 ASPHALT MIX DESIGN

The Contractor shall submit an asphalt mix design to the P.M. for approval. No asphalt shall be placed on any project until the P.M. has approved the asphalt mix design.

The submitted mix design must be original (no photocopies) and embossed with the seal of, and signed by, the Professional Engineer certifying the mix design.

The asphaltic concrete classification to be placed on any project shall conform to NMSU Design Guidelines

109.5 REMOVALS

In accordance with the referenced NMSU General Conditions, the Contractor shall with the requirement that all removals shall be disposed of at a "permitted sanitary landfill", or NMSU approved site.

109.6 TRAFFIC CONTROL PLAN

The Contractor shall submit a Traffic Control Plan (TCP). The TCP shall meet the requirements of the latest edition of the Manual of Uniform Traffic Control Devices ("MUTCD"). The submittal shall be approved by the P.M., prior to commencing construction. TCP's shall be in conformance with MUTCD traffic control specifications and applicable NMSU Design Guidelines, where applicable.

109.7 SAW CUTTING AND PATCHING EXISTING PAVEMENT

The Contractor shall make pavement cuts for utility connections and other required operations by saw cutting the existing asphalt pavement in neat, straight lines as directed by the P.M. and by the Contract Documents. The method and equipment used for saw cutting shall be approved by the P.M. before any such cuts are made.

All pavement cuts shall be made producing square, clean and straight edges parallel to or at right angles with the street or roadway right-of-way line (whichever is appropriate) while being of uniform width throughout. No repaving (patching) shall be allowed until these pavement cut conditions are met.

Pavement cuts shall be kept to the minimum width necessary to perform the required utility, roadway, or drainage work, or to accommodate the Contractors paving equipment.

The Contractor shall not be allowed to leave more than 500 linear feet of utility trench asphalt patching incomplete. The P.M. shall stop any further removal of asphalt until such time as the Contractor has caught up with patching per the above limit.

Workmanship and materials will be in accordance with NMSU Design Guidelines

If the Contractor does not repave (patch) for a period during which the weather changes radically, or in excess of one (1) week, the P.M. shall retake density tests at the Contractor's expense. Any rework or further testing to bring the subgrade to the required 95 percent of Modified Proctor will be at the Contractor's sole expense. Base course must be primed and be in acceptable condition to allow for an excess of one week prior to patching.

109.8 LANDSCAPING

The Contractor shall minimize the removal or damage to any landscaping or improvements within or adjacent to the parkway and sidewalks. Any removal of landscaping or improvements will have to be approved by the P.M. prior to removal. Any removed/damaged landscaping or improvements shall be replaced to existing condition with like material. All replacement items shall be approved by the P.M. prior to installation. The installation of replacement items shall be to the P.M.'s satisfaction. Any replacement of damaged or removed items will be at the Contractor's expense, and shall be specifically included within supplied warranties.

109.9 SIGNAGE

The Contractor shall minimize the removal or damage to any signage within or adjacent to the parkway and sidewalks. Any removal of signage will have to be

approved by the P.M. prior to removal. Any removed/damaged signage shall be replaced to existing condition with like material. All replacement items shall be approved by the P.M. prior to installation. The installation of replacement items shall be to the P.M.'s satisfaction. Any replacement of damaged or removed items will be at the Contractor's expense.

109.10 GENERAL NOTES

The Contractor shall coordinate work schedules with NMSU work schedules while working in the temporary construction easements.

The Contractor shall repair all asphalt/gravel driveways and turnouts that are damaged during construction, to existing condition.

109.11 LAYOUT OF WORK

The Contractor shall employ registered professional surveyors to accomplish all project control staking and base line staking, as becomes necessary, and shall ensure proper locations of the pipeline and its appurtenances.

The Contractor shall be responsible for adherence to the lines and grades of the plans and profiles as designed. The method of adherence will be by placing cut stakes along the project and observing the directions of the cut stakes, as may be appropriate. It is the responsibility of the Contractor that professional standards of meeting lines and grades are required.

When any control or base line staking, triangulation station, benchmark, corner, monument, witness mark, or other similar reference point that becomes removed or obliterated by reason of the construction, out of accident or necessity, it shall be the Contractors responsibility to cause said points to be established by a registered surveyor and to record a plat of that survey to be recorded with the County Clerk, in conformance with applicable surveying standards.

109.12 PIPELINE ROUTE

The Contractor shall realize and consider that the pipeline and appurtenance routes will be intersected by underground and above ground obstructions. The Contractor is responsible for determining the existence and location of any obstructions and for adequately and properly avoiding and protecting any permanent obstructions, or obstructions having ownership or value, from harm or damage. The pipeline and appurtenances shall be installed along the routes and in the locations shown on the Contract Documents contained herein as specified herein or as specified by the P.M. The pipeline shall be laid along the centerline of those routes and at the depths specified.

The Contractor shall employ licensed surveyors to accomplish all project control staking and base line staking, as becomes necessary, and shall ensure proper locations of the pipeline and its appurtenances.

Accurate as-builts shall be maintained and kept current daily throughout the project. The as-built drawings shall indicate the location of mainline and service lines with respect to right-of-way and property lines. All stopples, valves and fittings, etc., shall be adequately referenced to obvious, easily described, permanent objects. The as-builts shall be turned in to the P.M. before a tie in to the existing system is allowed.

The Contractor shall return everything along the construction route to its original condition to the satisfaction of the P.M. All damage to property that occurs as a result of the Contractor's work shall be completely repaired or replaced to its original condition and to the satisfaction of the P.M.

109.13 GAS ROUTING UNDER & AROUND OBSTACLES

When the pipeline has to be routed under an existing or future utility or structure, the Contractor shall slope the trench bottom in both directions such that the pipeline is supported throughout and is able to naturally "sag" (with no stressing or forcing) under the existing utility or structure with a minimum of twelve (12) inch clearance. In situations where the top of pipe depth is required to exceed 6'-0" in order to go under a utility or structure, the Contractor may, only with the P.M.'s approval, use weld elbows to accomplish this "routing under" instead of having to "sag" the pipeline. This work will be incidental to the contract unless deemed otherwise by the P.M.

109.14 TRENCHING, EXCAVATIONS, AND BACKFILLING

All trenches shall be dug and maintained as per the requirements of the latest OSHA Trench Safety Standards and Specifications. The working conditions in the trench shall also conform to these Standards.

The Contractor shall utilize proper equipment and methods as are necessary to properly locate the trench or excavation along the lines required by the Contract Documents and to dig the trench or excavation to the proper depths in accordance with these Standards.

Removal of unknown, unforeseen, unidentified, underground obstacles (such as concrete, rocks, metal objects, wood objects, hard soil, etc.), if not addressed elsewhere in contractual documents with the Owner, shall be considered a change of conditions to the Project and shall be referred to the P.M. for concurrence.

The Contractor shall perform all excavations to the depths indicated in the permitted Project documents or specified herein. Any excavation beyond the authorized depths shall be filled with suitable compacted material

up to the proper depth (before installation of the pipeline) at the Contractor's expense.

Utility Soil Bedding and Backfilling shall conform to:

Utilities should be bedded in fine-grained granular material such as fine, poorly graded (uniform) sand in a fashion to avoid the development of any voids around utility lines placed. Embedment material shall be provided and installed such that a minimum of 90% Standard Proctor, per American Association of State Highway and Transportation Officials (AASHTO) T-99, densities are achieved for the pipe zone backfill. The following gradation ranges are acceptable for pipe bedding material:

Nominal Particle Size (in.) or Sieve Number	Percent Passing for sewer, water, PE gas lines.	Percent Passing for coated, steel gas lines.
¾	100	100
#4	70-100	100
#10	50-100	50-100
#200	0-35	0-35

All soil bedding materials used should be non-plastic. All soil bedding materials should extend a minimum of 4 inches in all directions, except for gas lines having 6” minimum above and below the pipe.

All utility trenches should be backfilled with compacted soil below structural elements, including foundations, interior and exterior flat concrete work, and paved parking or drive areas. Although the backfill should be compacted, care should be taken not to damage the utility during backfilling and subsequent compaction.

Backfill materials may be native soils free of contaminants such as debris and rubble, however, no material having a maximum individual particle size or agglomeration clod size greater than two and one-half (2½) inches shall be placed within twelve (12) inches of the utility piping installed.

Minimum Backfill Compaction Requirements

Utility Construction	Percent of Modified Proctor Density (ASTM D-1557)		
	Existing Surface Preparation	Fill or Backfill Placement	Maximum Finished Lift Thickness (in.)
In Roadway: Shallower than 36 " of Grade	N/A	95	6
In Roadway: Deeper than 36 " of Grade	N/A	95	12
Outside Roadway: Shallower than 36 " of Grade	N/A	90	12
Outside Roadway: Deeper than 36 " of Grade	N/A	90	18

Note: ASTM herein refers to the American Society for Testing and Materials.

During excavation, material suitable for backfilling must be stockpiled in an orderly manner. Materials unsuitable for back filling, as directed by the P.M., shall be wasted in a suitable location. Where material is excavated from a trench and piled adjacent to the trench that material shall be piled in such a way that the toe of the slope of the material is at least two (2) feet from the edge of the trench. Alongside streets or roadways, material excavated from the trench shall, wherever possible, be piled along the street or roadway (traffic) side of the trench.

Should any rock, coarse stone, boulders, gravel, or other materials be encountered which would prevent the obtainment of suitable bedding, the trench shall be excavated to at least six (6) inches, for coated steel gas lines, four (4) inches for all other utilities, of extra depth and backfilled and properly compacted to grade with suitable material.

The Contractor shall furnish all work and items necessary for the completion and maintenance of the

trench, including flood or water control, shoring, cofferdams, diversion dikes, sheeting, piling, bracing, sloping, etc.

All grading in the vicinity of trenches or other excavations shall be controlled to prevent surface water from flowing into the excavations or damaging other property. Any water accumulated in the excavations shall be removed by pumping or by other Owner's approved methods, at the Contractor's expense.

Should the trench or excavation bottom become unstable from the entrance of surface water into the open excavation, the saturated soil shall be removed and suitable backfill placed and compacted to grade, at the Contractor's expense.

All trenches shall be cut to the line and grade as shown on the permitted Project documents and as specified herein. The bottom of the trench shall be smooth, without discontinuities and shall provide uniform support along the entirety of the pipeline without allowing the pipe to bend or sag.

Trench sides shall be smooth, uniform, free of discontinuities and protrusions such as roots, limbs, abandoned utility lines, asphalt material or other matter which may present a hazard to either the pipe, pipe coating or personnel.

The minimum allowable trench width shall be as shown in the Contract Documents.

All coated and/or wrapped utilities damaged during trenching or other excavations shall be cleaned up and again coated and wrapped throughout the excavation (throughout the exposed length) in accordance with the applicable Standards at no added expense to the Owner. This coat and wrap shall be proven to be proper and complete by the Contractor. This shall be done in part by completely Holiday testing steel wrapped lines (jeeping). These recoated and rewrapped (or exposed)

lines shall be tested in the presence of the P.M., or designee, immediately prior to backfilling.

All harmful debris such as sharp stones, rocks, boulders, cans, paper, skids, stumps, roots, miscellaneous vegetation, tires, loose wire, and other extraneous matter shall be removed from the trench prior to lowering of the pipe and/or backfilling. No such debris which may be injurious to the pipe or pipe coating or which may create a corrosive cell or hot spot shall come in contact with the pipe or pipe coating before, during, or after backfilling.

Minimum density requirements within street, roadway, highway, or railroad rights-of-way shall be 95 percent of Modified Proctor maximum density. Backfill outside of street, roadway, highway, or railroad rights-of-way shall be 90 percent of Modified Proctor maximum density. In those areas requiring 95 percent of Modified Proctor maximum soil density, where it is found that 35 percent or more of the soil passes a #200 sieve, the soil density (compaction) requirement may, as directed by the P.M., be lowered to 90 percent of Modified Proctor maximum Density. Backfill for gas utility service lines in yards (min. four (4) inches wide, max. six (6) inches wide) shall be 85 percent of Modified Proctor maximum density.

Tamping to consolidate backfill shall be done by placing the backfill in layers and compacting with the proper tools. Compaction methods and equipment may utilize hand or mechanical tampers, rollers, etc. The equipment and procedures proposed shall be subject to the approval of the P.M. The use of "Hydro-Hammers" and other such "stampers" shall not be allowed.

Minimum soil densities on trenching work shall be as designated in NMSU Design Guidelines

The Contractor shall take extreme care and shall ensure that all drain ditches, spillways, watercourses, streets,

highways, roadways and railroads are kept open at all times. The Contractor shall at all times keep the construction area cleanup completed to within one (1) block of the completed backfill, or 1000 lineal feet of trench, as directed by the P.M..

The location of mechanical compression couplings in existing steel gas piping uncovered during construction shall be brought to the attention of the P.M., or designee, and shall be shown on as-built drawings.

Flowable fill may be used in shallow, narrow trench excavations. Flowable fill may not be used for utility embedment material unless authorized by the P.M., or designee. Use of flowable fill is discouraged in areas of collapse prone soils and expansive soils that are moisture sensitive and in areas of large excavations. The Contractor shall be responsible for all paving, repaving, and pavement patching in accordance with the said Road Construction Standards.

On streets and roadways having surfaces which have been graveled or stabilized with base material, the Contractor shall blade the surfacing material away from the area of the trench and stockpile such material in a windrow which is clear of the construction operations. After the utility line has been installed and the trench backfilled and compacted, the area shall be properly graded and the surfacing material shall be re-spread to its original lines and stabilized by watering and rolling to its original condition.

109.15 INTERFERENCE WITH SERVICE, NOTICE AND SCHEDULE OF WORK

The Contractor shall obtain the permission of the P.M., or designee, before making any connections with existing utility mains. The required operations of the existing system components will be performed by the P.M per NMSU Design Guidelines.

The Contractor shall submit a work plan, detailing the performance of necessary activities, for prior approval of the P.M. The Contractor shall notify the P.M. of all utility shutoffs that he plans to make, the day and time they are to be made, the estimated length of time the utility will be out of service, and manpower available for the performance of same. The Contractor may be required to perform certain work activities at night when, in the opinion of the P.M., or designee, it will be necessary for the convenience of the Owner and the general public. Work shall be started upon the direction of the P.M., or designee, and shall be completed in a prompt, efficient manner in coordination and cooperation with any and all other utilities concerned.

The Contractor, with prior approval of the P.M., shall notify the utility customers that will be affected of the impending shutoff. The utility customers shall be given ample time, minimum two weeks, to provide themselves with temporary supply measures. Notification shall be by personal contact and issued by OFS.

Any interruption of service shall be for as short a time as possible. No service shall be interrupted for a period longer than four hours except by permission of the P.M., or designee.

When construction work requires that service to NMSU customers be interrupted, the Contractor must request approval for the interruption from the P.M., or designee, at least two weeks in advance. The P.M., or designee, may adjust scheduled interruptions to occur during minimum use periods.

If an emergency interruption occurs, the Contractor shall immediately notify the P.M. and NMSU and shall restore service as soon as possible.

It shall be the P.M's. option to assist the Contractor in restoring service during scheduled or

emergency interruptions if, in their opinion, work to restore service is not progressing in a timely manner. Costs incurred by NMSU will be reimbursed to NMSU by the Contractor based upon NMSU's invoice.

109.16 PROCEDURES

Subgrade to be established 0.2 FT prior to any utility corridor being utilized.

Sewer corridor to be installed first, followed by water and gas. All main lines shall be installed, tested, and accepted by the P.M. prior to final subgrade elevations and lines being established.

109.17 UTILITY STUBOUTS

Locations of utility stubouts and services shall be marked on the curb top, once only, by branding as "S" for sewer, "W" for water, and "G" for gas. Failure to mark stubouts and services, within 18 inches of their horizontal placement, shall constitute grounds for rejection of the utility system extension.

109.18 CONSTRUCTION NOTES

CLEANUP – The Contractor shall leave the project in a clean and neat condition.

MATERIAL TESTING FAILURES – The cost of all density re-tests, due to failures, shall be paid for by the Contractor. A receipt from the testing lab indicating that the Contractor has met his obligations will be necessary prior to acceptance of the utility project by the P.M. A certificate will also be required from the testing lab certifying that all failures have been successfully retested.

"AS BUILT" and "RECORD" DRAWINGS – **For utility work on NMSU contracts**, the Contractor shall prepare an accurate, detailed set of "As Built" drawings for the utilities installed (water, sewer, and

gas). The Owner will provide the Contractor with a set of plans for the preparation of the "Record" drawings and the Contractor shall record thereon locations, depth, size, type of material, any other pertinent data, and all changes made in the utility system. The Contractor shall turn over the completed set of plans to the owner prior to acceptance of the project by NMSU.

VALVE BOX AND MANHOLE RAISING – The Contractor shall be responsible for raising all valve boxes and manhole rings and covers after roadway surface treatment.

109.19 CONNECTION TO EXISTING SYSTEM

At least 96 hours prior to starting any work involving connections to the existing system, the Contractor shall notify the P.M., or designee. Replacement of paving shall follow the backfill by not more than three (3) days, nor more than 500 lineal feet of trench width.

109.20 PUBLIC CONVENIENCE AND ACCESS

The Contractor shall conduct and schedule his work at all times so that a minimum of obstructions to traffic and other inconveniences to the public occurs. The Contractor shall maintain access to properties. The testing, purging, transfer of service and backfill of each section of line shall immediately follow the installation.

Where the pipeline routes cross secondary streets, the excavation shall be backfilled to provide a roadway prior to the end of the workday. Construction by open excavation across major streets and thoroughfares shall be carried and completed to approximately the roadway centerline and the trench backfilled prior to excavation across the remaining roadway section so that traffic will not be interrupted.

The Contractor shall provide and set barricades and flashing lights along all open excavations and at points

where the construction operation creates hazards to the public. Spacing of barricades and lights shall be adequate to insure the public a warning of the hazard, and shall be in compliance with the MUTCD Standards and directions of the P.M. Flares and/or lights shall be kept burning from sunset to sunup. Barricades shall be paint