

**OGDEN CITY'S  
ENGINEERING STANDARDS  
AND  
AMENDMENTS  
FOR  
PUBLIC WORKS PROJECTS**

**2008 EDITION**



**PREPARED  
BY  
OGDEN CITY ENGINEERING  
2549 WASHINGTON BOULEVARD  
OGDEN, UT 84401**

**MAY 2008**

**ADMINISTRATIVE ORDER NO. 2008-12**

**ADMINISTRATIVE ORDER OF OGDEN CITY APPROVING REGULATIONS, STANDARDS AND SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION PROJECTS AND EXCAVATION PERMITS.**

**WHEREAS**, the Mayor, MATTHEW R. GODFREY, as Chief Executive Officer and pursuant to the authority granted by Section 2-6-1 of the Ogden Municipal Code, is authorized to approve administrative orders for Ogden City;

**WHEREAS**, the City Engineer is responsible for supervising the construction of public works projects within the City and all construction occurring within the Public Ways of the City;

**WHEREAS**, the City Engineer is authorized under Section 7-6-1 of the Ogden Municipal code to adopt regulations, design standards, construction specifications, and traffic regulations for all work performed in the Public Way, including reasonable inspection and testing procedures to insure compliance with such specifications;

**WHEREAS**, the City Engineer is charged by ordinance with the permitting and acceptance of the construction, repair or replacement of public improvements required as a condition of development or subdivision approvals;

**WHEREAS**, it will benefit the bidding and contracting process for public works projects performed under contract with third parties to adopt standardized contract provisions subject to final approval of the City Attorney;

**WHEREAS**, the City Engineer has determined that the 2007 Edition of the Manual of Standard Specifications and the 2007 Edition of the Manual of Standard Plans, prepared and recommended by the Utah State Chapter of the American Public Works Association, as such manuals have been amended herein by the City Engineer, provide adequate regulations, standards and specifications for the City of Ogden, while providing to the greatest extent possible some degree of uniformity in the application of public works standards across the State.

**NOW THEREFORE, IT IS HEREBY ORDERED** that

**A. Amendments and Clarifications to Manuals.**

1. The 2007 Edition of the Manual of Standard Specifications is hereby adopted as per this Administrative Order and subject to the Amendments and Clarifications set forth in Exhibit A, entitled 2008 Edition of Ogden City's Amendments and Clarifications, a Supplement to the 2007 Edition of the Manual of Standard Specifications by Utah Chapter of APWA, attached hereto and incorporated by reference.
2. The 2007 Edition of the Manual of Standard Plans is hereby adopted as per this Administrative Ordinance and subject to Ogden City's Amendments, a Supplement to the 2007 Edition of the Manual of Standard Plans by Utah Chapter of APWA, set forth in Exhibit B, entitled STANDARD DRAWINGS, 2008 EDITION attached hereto and incorporated by reference, which exhibit adopts either revised plans contained in the Manual or additional plans not provided in the Manual.



**Exhibit A**

**OGDEN CITY'S  
STANDARDS FOR DESIGN  
OF  
PUBLIC WORKS PROJECTS,  
2008**

**ADOPTED BY ADMINISTRATIVE ORDER OF**

**THE OGDEN CITY ENGINEER  
And  
THE MAYOR OF OGDEN CITY**

**JULY 7, 2008**

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## INTRODUCTION

**This Manual sets forth the standards for the preparation and processing of improvement plans of all related public work projects to be constructed under permit through Ogden City Engineering and Building Services Divisions, and all documents supplemental to the improvement plans required by Ogden City Engineering Division for construction of improvements under the jurisdiction of said Division.**

**The preparation of plans and specifications in conformity with these standards will expedite the processing, reviewing and filing of the submitted improvement plans and plats with Ogden City and thus shorten the time necessary for plan approval through the City Engineer's Office.**

**Changes, Amendments or Revisions may occur to these standards and specifications. It is the intent of Ogden City to be in the mode of constantly improving this document. On a periodic basis proposed changes, revisions or amendments will be reviewed and incorporated as necessary into this document. Vertical bold lines in the right hand margin of each edition will point out significant changes in the text adopted since the preceding edition.**

**Copies of APWA Manual of Standard Specifications, Manual of Standard Plans, Ogden City Standards and amendments to Specifications and Standard Plans are available for purchase, during normal working hours, from Ogden City Public Services Department, Engineering Division, 2549 Washington Blvd, Suite 760, Ogden, Utah.**

**DOCUMENT 00 00 03**  
**INSTRUCTIONS TO DEVELOPER**  
**2008**

***PART 1 GENERAL***

**1.1 DOCUMENT INCLUDES**

- A. A summary of the process for obtaining plan approval and AGENCY acceptance of public improvements installed by the developer in the AGENCY'S jurisdiction.**

**1.3 REFERENCE STANDARDS**

- A. Engineering Standards. The standards cover, but are not limited to: platting, survey control, roadway design, culinary water, drainage, sanitary sewer, and permitting requirements.**

***PART 2 PLAT APPROVAL REQUIREMENTS***

**2.1 PLANNING COMMISSION**

- A. Submit preliminary subdivision plat and application to the AGENCY'S planning department. The planning staff will distribute the documents to the appropriate site plan review committee members for their review and comments. After comments are received, the planning staff will prepare a staff report and submit it to the planning commission. The planning commission will review the report. As a recommending body, their recommendations will then be forwarded and reviewed by the Mayor who holds the approving authority.**
- B. Initial application must also include an initial public improvement plan which
  - 1. Identifies generally how the sub-divider intends to extend water and sanitary sewer services, provide storm drainage and storm detention facilities, and extend public streets to and through the subdivision. All or some portions of the plan may be depicted on the preliminary plat. The plan shall:
    - a. Identify the proposed location and size of all proposed sanitary sewers, water mains, storm sewers and storm detention basins, and their connection to existing facilities, including manholes, fire hydrants, and valves, and identifying the water pressure in existing******

- water mains;
- b. Identify proposed grades and widths of streets;
- c. Provide sufficient information to show how proposed mains and lines will be fed by gravity;
- d. Identify proposed variations from the standards for public improvements adopted under chapter 3 of the Subdivision Regulations; and
- e. Identify all private streets and any or all portions of water, sanitary sewer, or storm sewer facilities within private streets, which the subdivider is requesting to be owned and maintained by the City.

## **2.2 IMPROVEMENT PLANS**

**(SEE DOCUMENT 00 00 04 Section 1.07)**

**A. Final civil improvements plans includes, but are not limited to, a grading plan, utility plan and profile sheets, roadway plan and profile sheets and an erosion and storm water management plan.**

**B. The format, size and content must comply with standards published in the AGENCY'S Engineering Standards.**

## **2.3 PLAT APPROVAL**

- A. The subdivision plat is to be reviewed by the AGENCY'S CITY ENGINEER, PLANNING MANAGER and CITY ATTORNEY.**
- B. Improvement plans are approved. Development Agreement is executed.**
- C. Appropriate fees have been paid**
- D. Current title report is submitted and Plat reflects easements and ownership therein contained**
- E. Taxes have been brought current.**
- F. Utility Companies who have existing easements within plat boundaries have already signed the plat.**
- G. After all corrections and above requirements are met the Plat shall be recorded.**

## **2.4 DEVELOPMENT AGREEMENT**

- A. The DEVELOPER must enter into a development agreement with the AGENCY. This includes providing a security to guarantee completion of the public improvements, drainage improvements and landscaping.**
- B. The amount of the security is based on the estimated quantities supplied to the City Engineer by the Developer's Engineer with the costs for those estimated quantities assigned by the City Engineer. The security can be a letter of credit, escrow or bond.**
- C. The DEVELOPER must pay the AGENCY a fee for the review of the improvement drawings and any applicable subdivision plat as well as the**

subsequent construction inspection of such improvements. \_\_\_\_\_

- D. The DEVELOPER must also have paid the utility fees and enter into agreements required by the utility companies.

### ***PART 3 CONSTRUCTION REQUIREMENTS***

#### **3.1 PRECONSTRUCTION MEETING (SEE DOCUMENT 00 00 04 Section 1.09)**

- A. The meeting is held to review the project requirements with the DEVELOPER and its contractors and utility companies.
- B. APWA Specifications and the testing requirements applicable to the project will be explained at this meeting as well as any applicable security releases.

#### **3.2 ENGINEERING PERMIT (SEE DOCUMENT 00 00 04 Section 1.10)**

- A. The CONTRACTOR is required to obtain a permit prior to commencing any portion of the work.
- B. Adequate and up to date Insurance and Permit Bonding must be on file with the CITY prior to issuance of any permit to work in the public way or on public projects.

#### **3.3 CONSTRUCTION (SEE DOCUMENT 00 72 00, EXHIBIT B AND EXHIBIT C, FOR OGDEN CITY AMENDMENTS TO APWA STANDARDS)**

- A. Project improvement must be installed in accordance with the approved plans and the APWA Standard Plans and Standard Specifications. AGENCY will assign a Public Works Inspector to monitor construction.
- B. The DEVELOPER is required to provide and pay for material testing during construction.
- C. Acceptance of the work is based on material test results meeting or exceeding minimum standards defined by APWA.
- D. Upon completion of the project improvements, a substantial completion date is assigned which begins the one-year correction period. The CITY will hold 10% of the security device during the warrantee period.
- E. Record Documents or "As-Built Plans" must be submitted to the AGENCY prior to obtaining acceptance of the work.
- F. The improvements are to be completed within two years of the recordation of the subdivision plat or within the time period indicated in the security escrow document, whichever is less.

#### **3.4 SECURITY RELEASES**

- A. Requests for release of the security or any portions thereof must be received in

- \_\_\_\_\_ writing from the DEVELOPER. The request must itemize in detail the items being requested for release.
- B. Releases will be processed at a frequency not exceeding one per month.
- C. Only items, which have been inspected and authorized for release by the Public Works Inspector, will be considered.
- D. 10% of the authorized released will be retained until the end of the warrantee period.

### 3.5 ONE-YEAR CORRECTION PERIOD

- A. The improvements must remain in good condition during the one-year correction period. *Landscaping warranty period differs from that of other improvements in that it is for one-year plus one continuous growing season.* At the end of the period, a final warrantee review of the project will be made. If any of the improvements have failed during the period, the defective work must be replaced at no expense to the AGENCY. The remaining 10% of the security will be released and the AGENCY will accept the project upon successful replacement of defective work. During the correction period, DEVELOPER will perform required maintenance of improvements installed and landscaping

**DOCUMENT 00 00 04**  
**Ogden City**  
**Engineering Design Standards**  
**2008**

**SECTION 1**  
**GENERAL IMPROVEMENT REQUIREMENTS**

**1.01 Scope of Work.** This section defines the general requirements for Commercial and Public improvements to be designed and constructed as public infrastructure.

The improvements **shall** include all public utilities (ie; sanitary sewer, culinary water, storm sewer, irrigation) grading, erosion control, traffic signing, traffic control and street improvements adjacent to and in front of all lots. Such improvements **shall** also be and along all dedicated streets, alleys or other easements which connect with existing improvements of the same kind or to the boundary of the development nearest existing improvements. Layout must provide for future extension beyond proposed development and must be compatible with the contour of the ground for proper drainage and for servicing future development. All utility lines and street improvements **shall** be installed at least to the boundary lines of the development.

When development occurs beyond the reach of available utilities or streets it **shall** be the responsibility of the developer to extend any and all required utilities or streets to service the developer's property. Such utilities or streets **shall** be constructed of sufficient size and capacity to accommodate all property that has the potential to be served by such utility or street. All necessary right-of-ways or easements must also be acquired by the developer for the benefit of Ogden City and at no cost to the City except as covered in other applicable City Ordinances. The developer is encouraged to work with adjacent property owners that may benefit from said utility or roadway improvements for the purpose of mutual participation. The developer however is responsible for all up front costs associated with the design, acquisition and construction of the offsite improvements. Options may be available to the developer upon request to Ogden City in the establishment of a reimbursement district or payback agreement, which include undeveloped areas that may benefit directly or indirectly from utility or street improvements. Such districts **shall** be accomplished by means of mutual agreements.

**1.02 Improvement Plan Submittal Requirements**

1. Copy of preliminary plat and title report

2. Three sets of the complete improvement plans and final plat
3. Drainage Calculations
4. Engineer's estimates of construction costs
5. Survey notes
6. Escrow Agreement
7. Easement Agreements
8. Master Plan layout plan if development is to be constructed in phases
9. Soils report and boring logs
10. Associated studies (geological, flood plain, or other hazard studies)
11. Other information or documents as deemed necessary

**1.03 Subdivision Plats-Contents.** The following instructions are for the purpose of standardizing the preparation of plat drawings to obtain uniformity in appearance, clarity, size and style. Compliance with Subdivision Ordinance 14-2-6 shall govern should any disparities between these standards and the ordinance exist.

All plats **shall** be clear and legible and conform to accepted engineering and drafting practice, AutoCAD drawing, plotted on Mylar sheets (4 mil). Size of plat sheets shall be 24" x 36" with 1½ inch border on the left side and ½ inch on the remaining three (3) sides. Additionally, an electronic submission **shall** be required as well as the plotted mylar

The title (subdivision name) of the plat **shall** appear across the top of the page along with Section, Township and Range information. The boundary of the platted land **shall** be shown with bearings and distances, and the basis of the Point of Beginning **shall** be shown and tied to Ogden City Monumentation, using Utah State Plane North Zone, NAD 83. The plat **shall** include a narrative describing the intended purpose of the plat and for whom it is being prepared, along with any other pertinent information. The plat **shall** include certifications of the Planning Manager, City Engineer, City Attorney and Ogden City Acceptance by the Mayor. A block for Weber County recording information **shall** appear in the bottom right hand corner of the plat sheet. In all other aspects with respect to Surveyors Certification, written legal description, dedications, existing easements, addresses and acknowledgement, etc., the plat **shall** conform to applicable State Statutes for plat preparation. All owners of record shall be required to sign the plat, and an appropriate notary acknowledgement, for an individual, corporation or partnership **shall** be included. An electronic spreadsheet containing the above information shall also be required. Addresses **shall** be included on the final plat. These may be incorporated either by table or directly indicated on the specific lot.

**1.04 Construction Drawings.** Complete and detailed construction plans and drawings of all proposed improvements **shall** be submitted to the City Engineering Division for review and approval prior to issuance of a permit by said Division. Prior to receiving final plat approval for subdivisions, said completed and approved construction drawings **shall** be submitted electronically to Ogden City Engineering and Building Services Division. The plans containing the appropriate approval signatures and the current adopted specifications **shall** be the only valid documents from which the contractor shall construct the permitted improvements. The contractor **shall** have available, at all times, at the construction site a copy of the approved plans and permit and **shall** make them available

to the City's representative upon request

### **1.05 Requirements for Electronic Deliverables for all construction and as-built drawings**

Prior to probationary acceptance, as-built drawings in electronic format **shall** be submitted and accepted by the Ogden City Engineering and Building Services Divisions.

The electronic drawings **shall** be in either Computer Aided Drafting (CAD) or Geographic Information Systems (GIS) file format. The acceptable formats are AutoCAD. The deliverables for CAD submittals are AutoCAD drawing files and Microsoft Excel files. The deliverables for GIS submittals will be ArcInfo export files or ArcView shapefiles.

All CAD and GIS files shall be registered to the North American Datum 83 (NAD 83) Utah State Plane North Zone coordinate system (grid) with ties to two public monuments. Information on monuments is available through Ogden City Surveyor or Weber County Surveyor.

#### **A. File Content and Layering**

*The files submitted to the City **shall** only contain the information listed in the feature and attribute table. Referenced existing utilities need not conform to this standard regarding attribute definition but **shall** be drawn on appropriate layers (gas, electric, etc)*

#### **B. Geometry**

All files **shall** be constructed in a format that is geometrically correct meaning that all lines that intersect are snapped together at a common point (no overlapping lines or short shots.) Street centerlines **shall** be segmented to be a continuous polyline from intersection centerline to intersection centerline. When a median exists, a centerline of each side of the divided roadway **shall** be surveyed.

Structures (bridges, box culverts and arch culverts) **shall** be surveyed at the four corners of the structure and shall be drawn to form an enclosed polygon for each structure. Bridges **shall** be surveyed at the top of the bridge abutments on the four corners.

Storm and sanitary sewer pipes **shall** be drawn in the direction of flow and **shall** be a continuous polyline from structure to structure and snapped together at the centerline of the structure. Water lines **shall** be segmented to be a continuous polyline from pipe intersection to pipe intersection or at changes in pipe size. Water line shall be drawn without curves. A series of lines **shall** be used to represent smooth curves.

The edge of pavement, curb and gutter, sidewalks, and street centerlines **shall** be 3D polylines representing their actual horizontal and vertical location.

Where text is being placed for a polygon feature, the text justification point **shall** be placed within the boundary of the polygon. It is acceptable to have the text overwrite one another

### C. Attributes

Attributes for the as-built survey entities are to be compiled using AutoCAD and Microsoft Excel. Attributes for point and line features **shall** be assigned as follows:

LINE-attributes for line features (e.g., street centerlines and pipes) **shall** be defined by placing a text entry with a unique identifier number (e.g. stclno=1,2,3,etc.) centered on the line. This unique identifier will then be input into an Excel spreadsheet with its associated attributes listed. This process will be used for all lines that require attributes. All lines within the file that require Excel attributes (street centerlines, storm drainage pipes, water lines, and sanitary sewer pipes, etc) **shall** have a unique identifier number with its associated attribute entered in the Excel files. A separate Excel file **shall** be created for each line feature type (e.g., street centerline and storm drainage pipes), for which attribute data is required. The City will provide an Excel file to be used. This information will be available on Ogden City's website. One record **shall** be entered for each feature in the drawing. For example, if 100 street centerlines are shown, then the populated attribute table for street centerlines will contain 100 records.

POINT-Using the blocks created for point features (e.g., manholes and inlet) in the prototype-drawing files, blocks will be inserted for all point features and a unique identifier number (e.g., STMM=1,2,3,etc) will be added as an attribute to the block. This unique identifier number will be input into an Excel spreadsheet with its associated attributes listed. This process will be used for all points that require attributes. A separate Excel file shall be created for each entity type (e.g., manholes and inlets), for which attributes data is required. The City will provide an Excel file to be used. One record **shall** be entered for each feature in the drawing. For example, if 50 manholes are shown, then the populated attribute table for manholes will contain 50 records. Signs **shall** be placed as a piece of text, the sign number, with its justification point at the actual surveyed sign location. The sign number should correspond to the number in the Excel files.

In order to standardize the attribute entries into the City's database, the required lists should be used to complete the Excel attribute files. Entries should be in uppercase or lower case depending on how they are shown in the list.

**1.06 Engineer's Seal required on plans, specifications, reports, maps, sketches, surveys, drawings, and plats.** This is a State requirement and applies to all documents filed with Ogden City for final approval. Additionally, the signature of the individual named on the seal and the date, **shall** appear across the face of each original seal.

**1.07 Standards of Construction Drawings.** The following instructions are for the purpose of standardizing the preparation of drawings to obtain uniformity in appearance, clarity, size and style. These plans and designs shall meet the standards defined in the specifications and drawings herein outlined. The minimum information required on drawings for improvements are as follows:

All drawings and/or prints **shall** be clear and legible and conform to good engineering and drafting

practice, Auto CAD drawings shall be plotted on Mylar sheets (4 mil). Size of drawings sheet shall be 24" X 36" with 1/2" border on left side and 1/2" on the remaining three (3) sides. An electronic copy of the drawings shall be submitted along with the final mylar being appropriately stamped & signed.

- A. In general, the following **shall** be included on all sub division drawings and as directed by Engineering Division on Commercial Site Plans.
1. North arrow (plan)
  2. Scale. 1" = 40' horizontal, 1" = 4' vertical (other appropriate scales as approved by the City Engineer)
  3. Elevations referenced to Utah State Plane North Zone, NGVD 88 (**No assumed elevations will be acceptable without an equation to tie the assumed elevations back to actual elevations.**)
  4. Stationing and elevations for profiles
  5. Location map
  6. Index map
  7. General and Construction notes
  8. Title block, located in lower right corner of sheet to include.
    - a. Name of City
    - b. Project title (subdivision, etc.)
    - c. Specific type and location of work
    - d. Signature block for approval signature of City Engineer and date
    - e. Name, address, phone, etc. of engineer or firm preparing drawings with license number, stamp and signature
  9. Utility depiction on project plans
    - a. **Quality Level A** (positive location of position in x, y and z) for all points of potential conflict between the proposed construction and subsurface features.
    - b. **Quality Level B** (positive location of position in x and y) for all features within the project limits.
    - c. **Quality Level C or D** approximate locations using above ground, visible, references such as manholes, "as built" or oral recollection for features outside of project limits.
- B. Curb and gutter, drains and drainage structures, sidewalks and street surfacing drawings **shall** show
1. Minimum scale: 1" = 40' horizontal, 1" = 4' vertical
  2. Plan and profile views must be shown for top back of curbs and centerline. (Profiles of both top back of curbs and centerline are required only where approved deviations from standard cross section are proposed)
  3. Where no curb is proposed, profile of edge of pavement must be shown
  4. Existing profile of centerline and at both right-of-ways and labeled accordingly
  5. All existing elevations **shall** be shown in parentheses - ie; (ex. elevation)
  6. All existing utilities within and adjacent to area proposed for construction must

include actual existing elevations obtained from field survey/pot hole where potential conflicts, cover or clearance requirements exists.

7. Stationing, top back of curb elevations, centerline elevations, curve data
8. Flow direction and type of cross drainage structures at intersections with adequate flow line elevations
9. Typical cross section for all street sizes and variations
10. Details at 1" = 10' or other appropriate scale to adequately provide required information
11. 100' minimum of existing plan and profile design when connection to existing improvements
12. 300' minimum of future plan and profile design when roadway is to be extended (must also include 300' of existing profile along future R/W lines)
13. Benchmark location and elevation (use Utah State Plane North Zone, NAVD 83, and NGVD 88)
14. General and Construction notes
15. Soil Boring Log along centerline

C. Sewer drawings shall show

1. Minimum scale: 1" = 40' horizontal, 1" = 4' vertical
2. Location, size and slope of mains. Slopes shall be indicated in increments of 0.04%
3. Stationing of manhole center lines, lateral connections and crossings
4. Plan and Profile, bearings and lengths of segments when not parallel with centerline of road or easement.
5. Manhole size, location and flow line elevation, lid elevations
6. Type of mainline pipe material
7. Profile crossings of all other existing or proposed utilities with invert elevation with type and size of utility
8. All existing utilities within and adjacent to area proposed for construction. Must include actual existing elevations obtained from field survey/pot hole where potential conflicts, cover or clearance requirements exists.
9. Details at 1" = 10' or other appropriate scale to adequately provide required information
10. Benchmark location and elevation (use Utah State Plane North Zone, NAVD 83, NGVD 88)
11. An overall development plan view of the sewer (Horizontal scale 1" = 200')
12. General and Construction notes
13. Lateral locations and station for each lot or building served

D. Culinary Water drawings shall show

1. Minimum scale: 1" = 40' horizontal
2. Location and size of water mains, valves, hydrants, etc.
3. Type of pipe material
4. Details at 1" = 10' or other appropriate scale to adequately provide required

information.

5. Benchmark location and elevation (use Utah State Plane North Zone, NAVD 83, NGVD 88)
6. When development occurs across pressure zones include PRV stations into improvement designs.
7. All existing utilities within and adjacent to area proposed for construction and must include actual existing elevations obtained from field survey/pot hole where potential conflicts, cover or clearance requirements exists.
8. General and Construction notes
9. Current pressure readings and fire flow test results from adjacent fire hydrant(s)
10. Calculated pressure(s) and fire flow(s) at proposed and existing fire hydrant(s)
11. Stationing of valves, manhole center lines, lateral connections and crossings.

E. Storm Sewer drawings shall show

1. Minimum scale: 1" = 40' horizontal, 1" = 4' vertical
2. Location, size and slope of mains and lateral connections
3. Location, size and details of inlets, junction boxes, etc.
4. Stationing of manhole center lines, inlet structures, control structures, lateral connections, and crossings
5. Manhole size, location and flow line elevation, lid elevations
6. Flow rate (10 yr storm), HGL and velocity (all indicated in profile for each pipe section)
7. Type of mainline pipe material
8. Profile crossings of all other existing or proposed utilities with invert elevation with type and size of utility
9. All existing utilities within and adjacent to area proposed for construction. Must include actual existing elevations obtained from field survey/pot hole where potential conflicts cover or clearance requirements exists.
10. Details at 1" = 10' or other appropriate scale to adequately provide required information
11. Benchmark location and elevation (use Utah State Plane North Zone, NAVD 83, NGVD 88)
12. General and Construction notes
13. On one sheet show proposed storm drain system, including sub-drain areas, inlets and other structures.

F. Drainage and Grading Plans

1. Minimum scale: 1" = 40' horizontal
2. Plans showing site general layout and drainage patterns with spot elevations of final grades
3. Existing and proposed contours at one foot intervals, five foot intervals for steep terrain..

4. Details at 1" = 10' or other appropriate scale to adequately provide required information
5. All existing utilities within and adjacent to area proposed for grading. Must include actual existing elevations obtained from field survey/pot hole where potential conflicts cover or clearance requirements exists.
6. Detention facility details as well as inlets, outlets and piping facilities
7. Calculations to substantiate design (include in submittal but not to be included on plans)
8. Include erosion control plans for all projects
9. General, Grading and Construction notes
10. Proposed Pad elevation(s) for each lot or building location
11. Swales or other drainage conveyance devices to allow for multi-lot or cross lot drainage
12. Drainage arrows showing general direction and slope of drainage routes.
13. Standard Industry Code Designation (SIC) for commercial and industrial sites listed on the plan.

G. Storm Water Pollution Prevention Plan (Erosion Control Plans)

1. Minimum scale: 1" = 40' horizontal
2. Plans showing site general layout and drainage patterns and outlets for water exiting construction site
3. Details at 1" = 10' or other appropriate scale to adequately provide required information. These may include, but are not limited to, check dams, berms, de-silting fences, sand bag and/or hay bale details and other BMPs as may be applicable.
4. De-silting basin details as well as inlets, outlets and piping facilities
5. Calculations to substantiate design (include in submittal but not required to be shown on plans)
6. Erosion Control Construction notes
7. Plan shall include an emergency phone number and name of the developer's responsible person who will be available 24 hrs a day should an emergency situation arise.
8. Construction Entrance/Exit Stabilization details
9. Storm Drain Inlet Protection
10. Dust Control measures
11. Show all BMP's being used on the general layout
12. Indicate construction and BMP sequencing for project on plan.

H. Traffic Signing and Traffic Control Plans.

1. All traffic signing and traffic control plans **shall** be designed and installed according to current (MUTCD) the Manual on Uniform Traffic Control Devices.

2. All traffic signing and traffic control plans **shall** be submitted to Ogden City Transportation Engineer for review and approval prior to field installation.

Each set of plans, as identified above, **shall** be accompanied by a separate sheet of details for structures which are to be constructed. All structures **shall** be designed in accordance with the requirements established by Ogden City Engineering Standards.

- I. Drawing size. 24" x 36"
- II. Scale of each detail
- III. Title block, lower right hand corner (same format on all sheets) including the name of the development, etc.
- IV. Completely dimensioned and described
- V. Plans stamped, signed and dated by Registered Engineer, Architect, Landscape Architect or Surveyor as applicable
- VI. Record Drawings or "As-Built" are required on all projects and infrastructure installations or modifications.
- VII. Electronic Database Spreadsheets.
- VIII. Signature Block for City Engineer in lower right hand corner of all sheets

#### **1.08 Approval Procedure.**

**A Subdivision or City Improvement** After receiving preliminary approval for the subdivision of the land and prior to obtaining permits from Engineering for construction of the required improvements, the developer **shall** submit to Ogden City Engineering Division (3) three copies of the improvement plans and (4) four copies of the plat.

As the plat **is** be reviewed addresses and street names will be assigned and approved by City personnel. The improvement plans **shall** be reviewed for conformity with these standards and the conditions of approval. Redlined copies of the plat and improvement plans and/or any written comments, **shall** be returned to the private design engineer for corrections. After the plat and improvement plans are revised, consistent with the review comments, the final plat containing the surveyor's and owner's signatures along with the improvement plans, **may** then be submitted on Mylar for approval by the City. Additionally the final plat and improvement plans **shall** be submitted in electronic form on a CD.

Upon approval of the improvement plans by The City Engineer, **The Developer shall make Nine (9) copies. Two sets of the copies will be retained by the City and one will be issued along with the permit to the Contractor, the balance to be used for the pre-construction meeting.** The approved set and the issued permit shall be kept available at the construction site and be made available to the City's Representative at their request.

The Developer **shall** provide a reproducible copy on 4 mil Mylar and in electronic format of all drawings containing all as-built drawing information to the City Engineer at the time of final

inspection. Such record drawing **shall** be signed and stamped by PE or PLS (where applicable) with certification that the as-built drawings are true and accurate. No acceptance of improvements by the City or final release of the posted security will occur until such as-built drawing submittal has been received and accepted by the City Engineer.

**B Commercial Site Improvement.** Prior to obtaining permits from Engineering for construction of the required improvements, the developer **shall** submit to Ogden City Engineering Division (3) three copies of the improvement plans.

The improvement plans **shall** be reviewed for conformity with these standards and the conditions of approval. Redlined copies of the plat and improvement plans and/or any written or verbal comments **shall** be returned to the private design engineer for corrections. After revision the Developer **shall** submit three (3) final stamped plans, containing the Professional Engineer/Architect signatures along with the improvement plans, **shall** then be submitted on hard copy for approval by the City

Upon approval of the improvement plans, The Developer **shall** provide Three (3) copies. Two sets of the plan will be retained by the City and one will be issued along with the permit to the Contractor, the balance to be used for the pre-construction meeting. The approved set and the issued permit **shall** be kept available at the construction site and be made available to the City's Representative at their request.

The Developer **shall** provide a reproducible copy on 4 mil Mylar and, in electronic format of all drawings containing all as-built drawing information to the City Engineer at the time of final inspection. Such record drawing **shall** be signed and stamped by PE or PLS (where applicable) with certification that the as-built drawings are true and accurate. No acceptance of improvements by the City or final release of the posted security will occur until such as-built drawing submittal has been received and accepted by the City Engineer

**1.09 Pre-construction Conference.** A determination, either during the plan review process or at the time of permit issuance, **shall** be made by the City Engineer as to whether a certain project will or will not require a pre-construction conference. When required a pre-construction conference **shall** be held before any excavation or other work is begun in the development. Subdivisions and other projects of significant magnitude and complexity will generally require a pre-construction meeting. The meeting will be held at Ogden City offices and will include: (a) City Engineer or his representative (Inspector or Engineer); (b) developer; (c) developer's design engineer; (d) all contractors and subcontractors involved with installing the development improvements; (e) representatives of the affected utility companies; (f) others as may be necessary.

It will be the responsibility of the developer to schedule with the City the pre-construction conference and to notify his contractors that are required to attend. Such scheduling can be accomplished by calling (801) 629-8986 Monday through Friday 8 am. to 5 pm.

The meeting will be conducted by the City Engineer or his representative. Items to be discussed

**shall** relate to project scheduling, materials used, coordination with all affected parties and other important items as may be deemed necessary by the City Engineer. Minutes will be taken and distributed to all in attendance. Contractor will not be permitted to proceed with construction unless this meeting takes place and those responsible for all construction activities are in attendance.

**1.10 Engineering Permits.** Any Person desiring to perform work of any kind in a Public Way, or on City Owned Property, or Infrastructure within the City **shall** make application for a permit. The decision by the City to issue a permit shall include, among other factors determined by the City, the following: (see Ogden City Ordinance 7-5-2)

- A. The capacity of the Public Way to accommodate the Side walks or drive approaches proposed to be installed in the Public Way;
- B. The capacity of the Public Way to accommodate multiple utilities, such as electrical, telephone, gas, sewer, water or other conduits or pipes.
- C. The damage or disruption, if any, of public or private, improvements, or landscaping previously existing in the Public Way;
- D. The public interest in minimizing the cost and disruption of construction from numerous excavations in the Public Way

No person **shall** be eligible to apply for or receive permits to do work within the Public Ways of the City, save and except they are one of the following:

- 1. Contractors licensed by the State of Utah to perform the type of work requested.
- 2. Providers (Utility Companies), provided that all work **shall** be performed by a contractor licensed by the State of Utah and identified on the permit.
- 3. The City acting through its Public Services Department.
- 4. Property owners who are replacing sidewalk in front of their own residence in accordance with the current cost sharing program.
- 5. All permittees **shall** have the required insurance and permit bonds in place prior to the issuance of a permit.

The City Engineer may deny the issuance of permits to applicants, including providers, who have shown by past performance that in the opinion of the City Engineer they will not consistently conform to the Engineering Regulations, Specifications, Design Standards, or the other City requirements.

It **shall** be unlawful for any Person to commence work upon any Public Way until the City Engineer, or his designee, has approved the application and until a permit has been issued for such work.

A permit is not required from the City Engineer for hand digging excavations for the installation or

repair of sprinkler systems mailboxes and landscaping.

**1.11 Inspection.** All construction work involving the installation of private or public improvements within developments or within the public rights-of-way, **shall** be subject to inspection by the City. It **shall** be the responsibility of the permittee to ensure that inspections take place where and when required as indicated in the specifications, on the permit or as discussed in the pre-construction conference. Certain types of construction may, at the discretion of Engineering personnel, require continuous inspection, while others will only require periodic inspections.

- A. Continuous inspection may be required on the following types of work:
1. Placement of street surfacing
  2. Placing of concrete for curb and gutter, sidewalks, and other structures
  3. Laying of sewer pipe, drainage pipe, water pipe, valves and hydrants
  4. Backfilling and Testing as per approved specifications
  5. Any connections to Ogden City Utilities
  6. Street grading and gravel base placement and compaction

On construction requiring continuous or periodic inspection, no work **shall** start until an inspection request has been made to the City by the person responsible for the construction and the required submittals received and approved by the City. Requests for inspection on work requiring continuous inspection **shall** be made at least two (2) working days prior to the commencing of the work. Notice **shall** also be given 24 hours in advance of the starting of work requiring periodic inspection, unless specific approval is given otherwise.

Work done by the Contractor which requires periodic or continuous inspection beyond the normal working hours of Ogden City (8 am to 5 pm Monday thru Friday), on weekends or City holidays **shall** require prior payment of current Ogden City overtime rates by the contractor.

**1.12 Development Safety.** It **shall** be the responsibility of the developer and/or his development representative to maintain and enforce all federal, state and local safety codes involved with the development.

All excavations **shall** be conducted in a manner resulting in a minimum amount of interference or interruption of street or pedestrian traffic. Inconvenience to residents and businesses fronting on the Public Way shall be minimized. Suitable, adequate and sufficient barricades, trench support boxes and/or other structures will be available and used where necessary to prevent accidents involving property or persons. Barricades must be in place and maintained until all the excavation has been backfilled and proper temporary gravel surface is in place, and equipment is removed from the site. From sunset to sunrise, all barricades and excavations must be clearly outlined by adequate signal lights, torches, etc. The Police Department and Fire Department **shall** be notified at least 24 hours in advance of any planned excavation requiring street closure or traffic detour.

**1.13 Construction Completion Inspection.** A FINAL INSPECTION **SHALL** be made by the City Engineer or his representative after all construction work is completed. Any faulty or defective work **shall** be corrected by the persons responsible for the work within a period of thirty (30) days of the date of the inspection report defining the faulty or defective work. Should the contractor fail to complete the required work, the City Engineer, at his discretion, and/or request funds held in escrow, bonds, or letter of credit. may withhold future permits from the affected contractor or subcontractor (See APWA Manual of Standard Plans Section, Plan 1.10

**1.14 Guarantee of Work.** The developer **shall** warrant and guarantee (a retainage of an escrow, letter of credit or approved bond in the amount as dictated by applicable city ordinances) that the improvements and every part thereof, will remain in good and serviceable condition for a period, as dictated by applicable city ordinances, after the date of the final inspection and acceptance by the City Engineer or his representative. Additionally the developer **shall** make all repairs to and maintain the improvements and every part thereof in good condition during that warrantee period at no cost to the city

It is further agreed and understood that the determination for necessity of repairs and maintenance of the work rests with the City Engineer. His decision upon the matter **shall** be final and binding upon the developer, and the guarantee hereby stipulated **shall** extend to and include, but shall not be limited to, the entire street base and all pipes, joints, valves, backfill and compaction, as well as the working surface, curbs, gutters, sidewalks, and other accessories that are or may be affected by the construction operations; and whenever, in the judgment of the City Engineer, said work **shall** be in need of repairs, maintenance, or rebuilding, he **shall** cause a written notice to be served upon the developer and or permittee or both, and there upon the responsible party(s) **shall** undertake and complete such repairs, maintenance, or rebuilding.

If the responsible party(s) fails to do so within thirty (30) days from the date of the service of such notice, the City Engineer shall have such repairs made, and the cost of such repairs **shall** be paid by the responsible party(s), together with any additional costs incurred by the City, as per **City Ordinance 14-3-7**, for such failure on the part of the responsible party(s) to make the repairs. Additionally the City Engineer may withhold future permits from the affected contractor or subcontractor for failure to comply with city requirements. A final close out inspection **shall** occur prior to the completion of the 12-month warrantee period to verify compliance with the above stipulated conditions.

**SECTION 2  
DESIGN REQUIREMENTS**

**2.01 Street Design**

- 1 The Vertical alignment **shall** be such as to minimize grade breaks along the centerline and curb lines. Allowable grade breaks **shall** not exceed 1% for local streets and 0.5% for collectors and arterials. Eliminate grade breaks in excess of the above criteria by means of a vertical curve of a seventy feet (70') minimum in length for local streets and three hundred (300') feet for collectors and arterials. All vertical curve lengths **shall** be dependant upon three factors: Design speed, algebraic differences in grades and a design constant (k).
2. Minimum slope allowed is 0.4% (applies to all gutter grades)
- 3 Maximum longitudinal slope along centerline, **shall** be 8 % on arterial public streets; 10 % on local and collector streets, unless justification is submitted and approval is granted for a steeper slope by the City Engineer
4. Intersecting street angles may vary between 85 and 95 degrees.
5. Roadway structural section shall be determined by developer's soil test engineer. A soils investigation **shall** be submitted that includes:
  - a. Soil borings along roadway centerline and other areas as may be needed
  - b. Analysis on the overall bearing capacity of the soil
  - c. Recommendation for structural street cross section
  - d. Recommendation as to the requirements for land drains to adequately collect groundwater which could adversely affect development
  - e. Cut and fill slope requirements
  - f. Compaction requirements
6. Curve data is required for all centerline and curb line curves and also for all curb returns within intersections.
7. Horizontal curve design.
  1. The minimum centerline street radius, with standard 2% crown, shall be:

a. Minor-Subdivision	<25 mph	R=215'
b. Feeder- Subdivision	<30 mph	R=310'
c. Collector-	<40 mph	R=550'
d Arterial-	<45 mph	R=696'
  2. Minimum centerline radius of 200' with a standard crown **shall** be 200'  
Local streets shall be designed with a minimum centerline radius of 100'  
unless otherwise waived by the City Engineer to provide a means for traffic

calming. No angle points **shall** be allowed along centerlines except as allowed within intersections.

8. Compound Curves, Broken Back Curves and Spiral Curves are not allowed on any roads within Ogden City
9. The distance of the tangent runout between curves for any city street must be approved by the City Engineer
10. Temporary turnarounds **shall** be required on all streets which shall be extended in the future and which exceed 300 lineal feet from the centerline intersections of the closest intersecting street. Additional right-of-ways or easements necessary to construct and maintain the temporary turnaround are also required. Such turnaround **shall** have a minimum constructed radii of 40'
11. If possible the horizontal alignment should be straight through the intersections, but where horizontal curves cannot be avoided, the following should be observed:
  - a. Use a curve of sufficient radius to provide adequate sight distance and minimize the need for super elevation. Under no condition should the curve radius be less than that required for the street classification.
  - b. Do not begin or end a curve within an intersection.
  - c. Eliminate angle points in excess of 2 degrees on major or secondary roads by use of a large radius curve.
  - d. Angle points up to 5 degrees are permissible at the intersection of two local streets.
  - e. Curve radii and super elevation should consider the design speed for the given road.
12. Jogs between intersecting centerlines of streets **shall** not be less than 150' for Local Streets with other Local Streets and shall not be less than 300' for any street classification intersecting a Collector or Arterial Street without Planning and City Engineers approval.
13. Curb Return of Radius = 20' for intersections local to local, collector or arterial streets.  
Curb Return of Radius = 30' for intersections collector to collector or arterial streets.  
Curb Return of Radius = 30' for intersections arterial to arterial streets
14. **Street Arrangement.** The arrangement of streets in new developments **shall** make provisions for the continuation of the existing streets in adjoining areas (or their proper protection where adjoining land is not subdivided), insofar as such may be deemed necessary for public use by the Ogden City Planning Commission. The street arrangement shall not cause unnecessary hardship to owners of adjoining property when they plat their own land and seek to provide for convenient access to it. Minor streets shall approach the arterial or collector streets at an angle of not less than eight degrees. (See Ogden City Ordinance 14-3-1)

- a. Major Streets - Arterial and collector streets **shall** conform to the width designated on the Major Street Plan wherever a development falls in an area for which a Master Street Plan has been adopted. For areas where the street plan has not been completed at the time the preliminary plan is submitted to the Planning Commission, arterial or collector streets **shall** be provided as required by the Planning Commission.
- b. Collector Streets – Minimum right-of-way width of 66 feet.
- c. Minor Streets - Minor streets abutting residentially zoned properties shall have a minimum right-of-way width of 56 feet. All other minor streets shall have a 60 right-of-way width.
- d. Minor Terminal Streets - Cul-de-sacs and dead end streets **shall** be limited in length only by the total number of units served by that street as determined by the Fire Code without a second access and approved by the Fire Marshall and Ogden City Engineer. Such streets must be terminated by a turnaround of 100 feet in diameter at the property line and 40.5 feet radius to back of curb. If surface water drains into the turnaround due to the grade of the street, necessary catch basins and drainage systems and easements **shall** be provided. Should potential drainage from these streets exceed the capacity of the installed drainage system or otherwise have the potential to contribute to flooding of the terminus area, appropriate grading and drainage structure placement **shall** occur to eliminate any potential flood damage to structures or property and convey the floodwaters to an approved public drainage system.
- e. Turning Area - Where a street longer than 300 feet is designed to remain only temporarily as a dead-end street, an adequate turning area **shall** be provided as follows:
  - i. Where the street dead-ends into a subsequent phase of the same development, a temporary, all weather 80-foot diameter turnaround and a permanent easement or right-of-way on the subsequent phase property **shall** be provided.
  - ii. Where a street dead-ends against property which is not part of a subsequent development phase, either an asphalted 80-foot diameter turnaround inside the subdivision as shown in the Standard Drawings, or an all weather 80-foot diameter turnaround, along with a permanent easement or right-of-way from the adjacent property owner, **shall** be installed.
  - iii. In either case, if the temporary turnabout is not extended in one year, it must be asphalted.
- f. Intersections - The intersection of more than two streets at one point **shall** not be allowed. Where such occur round-a-bouts or traffic circles may be appropriate. Streets shall intersect at a 90 degree angle, or as near to a right angle as practicable, but not to exceed 5 degree deviation. Street intersections **shall** be rounded with a radius of 20 feet measured at the back of curbs for local streets and 30 feet for arterials and collectors.

- g. Standard Street Sections - All proposed streets, whether public or private, **shall** conform to the City Street Cross Section Standards as adopted by the city. (See **Ogden City Standard Plan RD-1**)
  
- h. Street Grades - Street grades over a sustained (500') length **shall** not exceed the following percentages: on arterial public streets, 8 %; on local and collector streets, 10 %. In no event **shall** the street grades exceed those indicated, except where the topography makes it impracticable to keep within such grade, where excessive cut or fill slopes would be required, and where evidence, which is satisfactory to the City Engineer, is given that a lower grade is not possible. Street grades near intersections **shall** be designed for adequate stopping and starting by adjusting grades on both sides of the intersection. Grades of all streets **shall** be a minimum of 0.4% unless specifically authorized by the City Engineer. The cross slope of the street cross section is defined on the standard drawings. The maximum difference in curb elevations **shall** not exceed 1 foot, and then only with the approval of the City Engineer
  
- i. Alleys - Alleys **shall** have a minimum width of 20 feet. Alleys may be required in the rear of business lots, but will not be accepted in residential blocks except under unusual conditions where such alleys are considered necessary by the Planning Commission. All alleys are to be privately owned and maintained.
  
- j. Landings - A landing is defined as the area between the through street roadway and the point at which the side street grade begins to exceed 3%. The required minimum lengths of the landings are as follows:
 

Arterial	200 feet
Collector	100 feet
Local street	50 feet
Cul-de-sac	25 feet
  
- k. Bridges - Design and construction of new bridges, whether essential for the overall circulation plan of the city or required only to serve a development, **shall** be approved in advance by the city. For bridges identified as essential structures to the city and/or on roadways which have a right-of-way width greater than 66', the city **may** participate financially, and in the case of a bridge required to serve only a development, the developer **shall** pay the total cost of construction. The developer shall comply with all the conditions imposed by the City relative to the bridge location, design & construction. All bridge design **shall** be performed by a professional engineer as per applicable state laws.
  
- l. Extra capacity improvements - Where developments install public improvements which benefit other properties and which exceed the minimum size required of his/her

development, the developer **may** enter into a pay back agreement with Ogden City Protection or holding strips are no longer acceptable. A pay back agreement, approved by the City Attorney, between the developer and Ogden City shall be executed. The duration of said agreement shall normally not exceed 10 years. The developer has a 10-year period in which to receive reimbursement from the affected properties. After expiration of the 10-year period or payment by adjacent property owner of the applicable consideration the agreement **shall** be considered fulfilled. All property owned by the developer **shall** be included on both the preliminary and final plan.

- m. Names and Numbers · Names of new streets **shall** not duplicate existing or platted street names unless a new street is a continuation of, or in the alignment with, the existing or platted street. House numbers **shall** be assigned in accordance with the house numbering system now in effect in the city. All new streets shall be numbered if they are in alignment with the grid. They **shall** be named if not in alignment with the grid or are not easily aligned by their curved nature. All street names and house numbers **shall** be approved and assigned by the Ogden City Engineer
- n. Street Grading and Surfacing · All public streets **shall** be graded and surfaced in accordance with the standards and specifications of Ogden City.
- o. Curbs and Gutters - Curbs and gutters **shall** be installed by the developer through its contractor on existing and proposed streets in accordance with all the appropriate specifications of Ogden City. Curb and gutter **shall** be 30 inches wide Type A standard style, or standard roll curb if recommended by the City Engineer, and shall be placed on 4 inches of compacted untreated base course as foundation materials. **This provision applies to all developments.**
- p. ADA Ramps - ADA ramps, as per the approved APWA Standard plan, **shall** be constructed where any portion of the curb at a legal pedestrian crossing or marked crosswalk or any portion of the sidewalk in immediate contact with such curb is removed, except where there is an existing ADA ramp, then replacement of such portions removed **shall** occur.
- q. Street Drainage - Street drainage and drainage structures **shall** be required where necessary in the opinion of the City Engineer.
- r. Sidewalks - All new projects require the installation of sidewalks. Unless otherwise approved, sidewalks **shall** be located according to City Standards with a park strip located between the curb and the sidewalk. Sidewalks **shall** be installed according to the specifications of Ogden City. Sidewalks **shall** be a minimum of 4 feet wide with a minimum of 4 inches of compacted untreated base course material as foundation materials. Depth of sidewalks **shall** be 4 inches, except at residential driveways, which **shall** be 6 inches (Industrial/Commercial shall be a minimum of 8 inches thick) with a

minimum of 4 inches of compacted untreated base course material as foundation materials. When approved by Ogden City, sidewalks adjacent to curbs **shall** provide for sufficient area for pedestrian safety while simultaneously providing areas for snow storage during winter months. These sidewalks **shall** be a minimum of 6 feet in width.

- s. Driveway Approaches All driveway approaches **shall** meet the following specifications:

	<b>Residential R-1, R-2</b>	<b>Residential R-3, R-4</b>	<b>Residential R-5</b>
<b>Minimum Width</b>	10 feet	16 feet	24 feet
<b>Maximum Width</b>	32' or 50% of lot frontage whichever is less	32' or 50% of lot frontage whichever is less	35' or 50% of lot frontage whichever is less
<b>Minimum Concrete Thickness</b>	6 inches	6 inches	6 inches
<b>Minimum Base Course Thickness</b>	4 inches	4 inches	4 inches
<b>Minimum Distance Between Driveways</b>	see Driveway offsets	see Driveway offsets	see Driveway offsets

	<b>Commercial/ Manufacturing (Tractor/Trailer use only)</b>	<b>Commercial/ Manufacturing (general use)</b>
<b>Minimum Width</b>	35 feet	24 feet
<b>Maximum Width</b>	50' (see Ordinance 15-12-11 for exceptions)	35' (see Ordinance 15-12-11 for exceptions)
<b>Minimum Concrete Thickness</b>	8 inches	8 inches
<b>Minimum Base</b>	4 inches	4 inches

<b>Course Thickness</b>		
<b>Minimum Distance Between Driveways</b>	20 feet	20 feet

- r.1 Single-family or duplex lots **shall** be allowed one access-way onto the public street for each lot. One additional access may be permitted for single-family homes if it is used to service a circular driveway or accessory vehicle parking slab. For corner lots with more than two hundred fifty feet (250') of combined street frontage a third access for circular drives is allowed provided the area between the driveway and the street is landscaped at a minimum with shrubs in addition to any approved ground cover
- r.2 All other uses **shall** have one access-way to a public street per one hundred feet (100') or fraction thereof of street frontage.
- r.3 No more than two (2) driveways will be permitted per parcel fronting on any collector or arterial street as defined on the adopted street plan for the city. In parcels accommodating twenty (20) or more parking spaces, driveways must be separated by at least two hundred fifty feet (250'). In parcels with less than twenty (20) parking spaces, driveways must be separated by at least one hundred feet (100').
- r.4 Lots are encouraged to have a shared access guaranteed by a recorded reciprocal access easement. If shared access occurs, the driveway width maximum may be increased by ten feet (10') in commercial and manufacturing zones, and the ten foot (10') setback from the interior property line is waived on the side the shared access exists in all zones.
- s. Driveway Location – Driveways for all uses except single-family homes **shall** not be closer than eight feet (8') to an adjacent interior property line and **shall** be set back a minimum of eighty feet (80') from the intersection of two (2) arterial streets and fifty feet (50') from any other street classification intersection.
- t. Driveway Offsets · All single family residential driveways **shall** be offset from other driveways by no less than twice the flare width as per standard plan CG-3. All others **shall** have a minimum separation of 20'
- u. Common Driveways - Driveways along the property lines may be installed for common use of both adjacent properties only upon approval by the City Engineer and guaranteed by a recorded access agreement. Such driveway width **shall** be limited to the maximum allowable individual driveway width. Common driveway width may be extended by up to 10' for Commercial and Industrial zones.
- v. Slopes - All cut and fill slopes **shall** not exceed a maximum 2:1 unless otherwise

justified by a detailed soils investigation and analysis.

- w. Street Trees - Street trees are required along all streets within Ogden City. Tree varieties shall be selected from an approved list provided by Ogden City Urban Forester and caliper so designated. Spacing **shall** provide for at least one tree per lot with typical spacing of 40 feet on center. All landscaping **shall** be provided with a pressurized irrigation system and shall be connected to the adjacent lot's water system. Upon completion of the 12-month warranty period the street trees become property of Ogden City. The adjacent property owner is required to maintain the trees or shrubs according to applicable city ordinances.
  
- x. Monuments - Permanent survey monuments **shall** be accurately set and established at the intersections of centerlines of streets within the development and intersections with centerlines of existing streets and the beginning and ends of curves on centerlines or points of intersections or tangents. All permanent survey monuments **shall** remain in place, or be reset at the developer's expense when approved by the City Engineer, after curbs and gutter, sidewalks, base and pavement are installed. Monuments **shall** be of a type specified in City standards, and all development plans **shall** be tied to a section corner or monument of record, as established by the Weber County Surveyor.

16. **Electric Power System**

- a. The developer **shall** pay the cost of electric system extensions and street lights, to service the development.

17. **Street Lighting**

- a. The developer **shall** provide street lighting in all new residential, commercial and manufacturing subdivisions or developments. The lighting **shall** conform to the goals and policies of Ogden City and as indicated on the Ogden City Street Lighting Standard Maps. The developer is responsible for all coordination with Rocky Mountain Power Company relating to design and installation of the street lighting system.

! **Goals**

- i. The intent and objective of the Ogden City Street Lighting Plan is to provide street lighting which is adequate for the safe flow of nighttime vehicular and pedestrian traffic on streets, whether dedicated or private.
  
- ii. In specially designated areas of the City, provide a level of street lighting which will contribute to economic growth, a sense of community identity, a

reduction in street crime, and a feeling of security among the citizenry

! Policies

- i. The Street Lighting Standards Maps (SLSM) shall serve as a practical guide to lighting levels along state roads and city streets within the corporate limits of Ogden City. The SLSM shall be amended as necessary to reflect significant changes in City goals, lighting costs or lighting technology.
- ii. Amendments to the Street Lighting Standards Goals and Policies or to the Street Lighting Standards Maps **shall** be reviewed by the Planning Commission.
- iii. Provide street lighting at a level which reflects traffic safety needs as shown on the SLSM.
- iv. Provide multiple lights along each standard block of the Central Business District as shown on the SLSM. Where a minor roadway is not addressed on the SLSM, follow the residential standard.
- v. Provide historical district lighting as outlined in current City policy.
- vi. Provide one 100 watt, 5600 lumen, high pressure Sodium Street light at each residential roadway intersection. These intersections include only those roadway junctions which carry through traffic or which are formed by roadways which serve more than five residences.
- vii. The Public Services Director shall administer all City street lighting.
- viii. The Public Services Director is at liberty to install additional street lighting in order to satisfy foreseen traffic safety needs or to eliminate safety hazards. These traffic safety considerations may include the following;
  - < half block street intersection
  - < cul-de-sacs
  - < bending roadways
  - < parking lot entrances and exists
  - < busy intersections
  - < bridges
  - < busy private (commercial) roadway intersections

18. **Street Signs**

- a. The developer **shall** install and pay the cost of traffic control signs, street name and other street signs required of his/her development. All signs and traffic control devices **shall** be designed and installed according to (MUTCD) the Manual on Uniform Traffic Control Devices. The required signage **shall** be included in the escrow for improvements of the development and will not be released until installed by the developer

19. **Blocks.**

- a. The maximum length of blocks **shall** be 1300 feet and the minimum length of blocks shall be 300 feet.
- b. The width of blocks **shall** be sufficient to allow at least two tiers of lots, or as otherwise approved by the Planning Commission because of design, terrain, or other unusual conditions.
- c. Blocks intended for business or industrial use **shall** be designed specifically for such purposes, with adequate space set aside for off-street parking and delivery facilities.

20. **Lots.**

- a. The lot arrangement and design **shall** be such that lots will provide satisfactory and desirable sites for buildings, and be properly related to topography and to existing and probable future utilities, right-of-ways and other requirements.
- b. All lots shown on the development plan must conform to the minimum area, depth and width requirements of the Zoning Ordinance for the zone in which the development is located, unless:
  - i. A variance is granted by the Board of Adjustment and Appeal, or
  - ii. Where it conforms to the Cluster Subdivision or Condominium Project Provisions.
- c. Each lot shall have frontage on a public street dedicated by the development plan or an existing publicly dedicated street, or on a street which has become public by right of use. Interior lots having frontage on two streets **shall** be prohibited, except where unusual conditions make any other design undesirable.

- d. Buildings constructed on corner lots **shall** comply with the minimum setback for both streets, as provided in the city Zoning Ordinance.
- e. Side lines of lots shall be at approximately right angles to the street line, or radial to the street line.
- f. Remnants of lots less than the minimum size required by the zoning after the subdividing of a larger tract **shall** be added to adjacent lots rather than allowed to remain as unusable parcels. In no event **shall** the development of land create a lot which does not conform to the Zoning Ordinance requirements of Ogden City. No remnant parcel may be used for the purpose of detaining storm water.
- g. Where the land included in a development includes two or more parcels in separate ownership and the lot arrangement is such that a property ownership line divides one or more lots, the land in each lot so divided **shall** be transferred by deed to either single or joint ownership before approval of the final plan, and such transfer recorded by the County Recorder.
- h. Lots deemed by the Planning Commission to be uninhabitable **shall** not be platted for occupancy, nor for such other uses as may increase danger to health, life or property, but such land within the plat **shall** be set aside for such uses as shall not produce unsatisfactory conditions.

## 2.02 Sanitary Sewer Design

- 1 Sewer manhole spacing **shall** be 400 feet maximum.
- 2. Minimum mainline size **shall** be 8" diameter.
- 3 Allowable sanitary sewer pipe material is as follows:
  - a) PVC (Poly Vinyl Chloride) SDR 35 or other approved wall thickness for mainlines and laterals. Sewer pipe shall be green in color.
  - b) ABS schedule 40, white in color for laterals only
  - c) No concrete pipe will be acceptable except by special approval by Ogden City Engineer
- 4. Sewer mainlines **shall** be marked with 6" detectable green colored locator tape, and shall display on it "Sanitary Sewer" or "Underground Utility"
- 5 Standard centerline alignment within the public right-of-way **shall** be 10' west or 10' south of centerline.

6. Minimum depth of mainline **shall** provide for 7' of cover to finished grade.
7. Horizontal clearance to any culinary water line **shall** be at least 10 feet.
8. Sewers **shall** be laid with uniform slope between manholes.
9. No vertical or horizontal curves **shall** be allowed.
10. Minimum grades required to provide a minimum velocity of (2 fps) two feet per second when flowing full, are as follows:
 

8 inch diameter	0.40%
10 inch diameter	0.32%
12 inch diameter	0.24%
15 inch diameter	0.16%
18 inch diameter	0.12%
21 inch diameter	0.10%
24 inch diameter	0.08%

(grades less than those shown above may be allowed upon submittal and approval of detailed hydraulic analysis proving the minimum velocities can be met.)
11. Sewer grades **shall** be indicated in increments of 0.04%.
12. Where sewers are anticipated to flow less than one-half full, consideration must be given to increasing the slope of sewer to provide two-feet (2') per second velocity in the pipe for the anticipated flow
13. When a smaller sewer joins a large one, the invert of the larger sewer should be lowered sufficiently to maintain the same energy gradient. An approximate method for securing these results is to place the 0.8 depth point of both sewers at the same elevation. The following table represents the allowable normal drops between pipe sizes:

**Normal Drops (in feet) straight through Manholes at inverts for minimum grades or greater  
Except as noted below**

INLET size		8"	10"	12"	15"	18"
OUTLET size	8"	0.10	---	---	---	---
	10"	0.17	0.10	---	---	---
	12"	0.33	0.17	0.10	---	---
	15"	0.58	0.42	0.25	CL	---
	18"	0.80	0.71	0.63	0.50	CL

Notes.

- 1 For all connection less than 135 degrees, add 0.10 of a foot to each of the above values.
2. When pipes on both sides of the manhole are the same size and the average of the grades on both sides exceeds 2.50%, an average drop **shall** be taken across the manhole, not to exceed 0.60 feet, instead of the values in the above table.
- 3 CL indicates no drop across the manhole and the elevation to be shown at the center of the manhole.
4. Permission for deviations from the above values to be approved by the City Engineer
14. No lateral **shall** be allowed to be constructed so as to enter a manhole directly
- 15 Sewer taps into existing 8" diameter sanitary sewer pipes shall not be greater than 4" When a 6" connection is required, a wye must be installed by the contractor and inspected by Ogden City
16. Developer will stub into each lot a minimum of one lateral with a factory wye from the sewer main. Lateral size will depend on usage and on current and future zoning for the lot. Buildings or lots with more than one lateral will require special permission by the City Engineer
17. No common use laterals **shall** be allowed to connect multiple building sewers together Such practice of common use lateral shall be eliminated as redevelopment occurs or as repairs or replacement is needed to these existing aging common laterals.
18. Minimum sewer lateral size **shall** be 4" in diameter for single family residential uses. For all commercial, manufacturing and multi-family uses the minimum sewer lateral size shall be 6" in diameter and shall be based upon the actual project flows but in no case **shall** the lateral size be less than 6" in diameter
- 19 No drop manholes **shall** be allowed to be constructed.
20. Sewage Collection - The developer **shall** connect to the sanitary sewer and provide adequate individual lateral lines to the property line of each lot. All sewers intended for public use **shall** connect directly to other public sewers and **shall** not be allowed connection to any private sewer system. Such sewer connections and sewer systems **shall** comply with the regulations and specifications approved by the City All sewer lines within the public right-

of-way or public easements **shall** be a minimum of 8 inches in diameter, and one 4-inch diameter line **shall** be installed for each residential unit, and 6-inch minimum diameter lines **shall** be installed for multi-family, industrial and commercial developments. All sewer lines must be extended across the entire frontage of all existing streets and to the boundary of the development on all existing or proposed city streets unless such evidence can be provided to the satisfaction of the City Engineer that such future extension would not be practical.

21. Sewer laterals should generally be installed on the lower 1/4 of the lot frontage. Joint trench with the water service (if approved by City Engineer) **shall** maintain a minimum of 1 foot clearance with stepped trench, water above sewer, and only when approved by the City Engineer Sewer lateral material **shall** be PVC and shall be clearly marked in order to avoid confusion with other drainage systems. Location of service laterals **shall** be clearly marked on the face of the adjacent curb with approved plastic marker with a nail. Location of extended service lateral towards building **shall** be located via a 2 x 4 with a green colored end visibly extended above adjacent surface a minimum of 2' and maximum of 4'. Laterals **shall** also be marked with 6" detectable green colored locator tape, that displays on it "Sanitary Sewer", or "Underground Utility"
22. Easements - Should easements be necessary for the installation and maintenance of public sewer systems such easements **shall** be a minimum of 20 feet in width with the sewer line centered within the easement. No buildings, utilities or structures shall be erected or constructed within such easements as to interfere with the activities necessary to properly access and maintain or replace such lines or sewer structures.
23. Access – Both legal and physical access are required to all sewer manholes. Physical access **shall** consist of an all-weather surface sufficient to provide the needs of all routine maintenance and repair equipment.
24. Should the installation of a sanitary sewer system require easements to Ogden City, the developer of such system **shall** convey such easements by deed to Ogden City
25. A manhole must be constructed upstream of any lateral connection (No cleanouts allowed). If no lateral connection is made to the mainline above a manhole the terminus of the line may be properly plugged and location noted on the as-builts.
26. All 4" diameter sanitary sewer laterals must be constructed at a minimum of 2% for grade from mainline to the property line. All 6" diameter sanitary sewer laterals must be constructed at a minimum of 1% grade from mainline to the property line.
27. All other utilities crossing the sewer main **shall** do so at as close to a right angle as possible.

28. Perpendicular or skewed crossings between other utilities and sewer mains **shall** have clearance of at least 18 inches. Closer tolerances require a reinforcement concrete cradle in combination with no mechanical joints of either utility within 10 feet horizontally of the crossing or additional separation is required. Reinforcement **shall** be as per the current specifications.
29. Covers over utilities and between rail road tracks or roadways **shall** be sufficient to adequately protect such utilities from potential loading of track or roadway either during construction or final finished surface. Encasement or casings **shall** be provided to protect the affected utility.
30. Sewer manholes **shall** be 4' diameter for in-line manholes where grade changes occur 5' diameter manholes are required when deflection angle is greater than or equal to 45 degrees, when the manhole is a junction manhole of three or more lines, for sewers whose inside diameter is 12" or greater, or when the cover above invert elevations is 14 feet or greater All manholes **shall** be constructed with steps for maintenance access.
31. All sanitary sewer installation **shall** comply with the City's Sanitary Sewer Master Plan.

### **2.03 Storm Sewer Design**

1. Storm Sewer pipes **shall** be designed for a 10-year frequency, 2-hour duration storm.
2. Allowable storm sewer pipe material for all project, whether developer constructed or Ogden City constructed is as follows:
  - a) Concrete (Class III or greater, reinforced for 15" or greater. Design strengths and bedding **shall** conform to Standard Installation Direct Design method (ASTM C1479) or other acceptable method in atypical conditions.
  - b) PVC (SDR 35)
3. Allowable Sub-Drain pipe materials are as follows:
  - a) Concrete (Class III or greater, reinforced for 12" or greater or non reinforced for 10" or less)
  - b) PVC (SDR 35)
  - c) HDPE (High Density Polyethylene) smooth interior walled pipe for service laterals only
4. Storm Sewer manhole spacing **shall** be 400 feet maximum.

5. Pipe size shall be determined by required capacity but in no instance **shall** the minimum mainline size be less than 15" diameter
6. All storm sewer taps, either public or private, into existing storm sewer piping shall be limited to 4" and 6" and **shall** be constructed by the contractor and inspected by Ogden City. All connections greater than 6" **shall** require either a cleanout or a storm drain manhole to be constructed. Location of service laterals **shall** be clearly marked on the face of the adjacent curb with approved plastic marker with a nail.
7. Storm Sewer manholes **shall** be a minimum of 5' in diameter for in-line manholes since the minimum required line size is 12" in diameter. All manholes shall be constructed with steps for maintenance access.
8. Storm water from commercial and residential developments **shall** generally be required to flow into a regional detention facility. Regional detention basins must be sized using a 25 year, 1-hour duration storm and located according to the Ogden City master storm drain plan. Where a public regional detention basin is required, it **shall** be located on a separate parcel which complies with Ogden City Zoning Ordinance or is within an easement dedicated to Ogden City, but only when approved by the City Engineer and **shall** provide adequate maintenance access.
9. Individual site detention basins are generally not allowed. Consistent with the regional detention design, all commercial and residential developments must pay a fee in lieu of the individual site improvement that is proportionate to their share of the regional detention basin cost. This cost will be determined by the City Engineer and will include the cost of land, detention basin and the collection system. Underground, individual site detention basins in CBD areas may be required by the City Engineer, if regional detention basins are not available.
10. Underground detention facilities **shall** have a metered outlet equivalent to or less than the normal historical undeveloped flow. An optional method is to assume 0.2 cfs/acre as an outlet flow. (The previous assumption may provide higher than required detention amounts for developments in soils which normally produce a very high runoff)
11. Underground detention facilities **shall** be designed to provide the following:
  - a. Soils test are to be performed and **shall** indicate soil type and location of the high ground water level.
  - b. Detention system will have an isolator row, hydraulic separator system, or other low maintenance pretreatment system to handle sediment, debris, and other particles that Underground could plug the system or decrease the systems optimum service life.
  - c. System **shall** be accessible through manholes, inlets, inspection ports, or by other

- outside entry means for inspection, maintenance, or repair of the facility
- d. Control structures **shall** provide a means that if the control portion of the structure becomes clogged or otherwise inoperable; the detention facility will **still** operate in an emergency flow operation.
  - e. Detention **shall** be designed to handle a 1 hour duration design storm without relying on percolation into the soil.
12. Regional detention basins **shall** be designed to provide the following:
- a. Side slopes of 3:1 maximum
  - b. All weather vehicular maintenance access around the entire basin (min 10 foot width)
  - c. Heavy Truck (40,000 lbs.) access into basin for maintenance purposes **shall** be constructed of concrete with a maximum slope of 10:1
  - d. Heavy Truck (40,000 lbs.) access to the inlet and outlet structures **shall** be constructed of asphalt/base or concrete/base
  - e. Lot shall provide normal frontage requirements
  - f. No flag lots **shall** be used for detention facilities
  - g. Flow through design which eliminates “wet basin”
  - h. Pressurized irrigation system and landscaping compatible with the surrounding area. Irrigation system **shall** comply with Ogden City’s Standards and shall include electric controllers
  - i. Cross slope within basin shall provide adequate drainage. Under no circumstances **shall** the slope be less than 1% across any portion of the basin
  - j. All detention lots or easements shall be properly surveyed and corners permanently marked prior to acceptance of improvements
  - k. Controlled Emergency overflow structures **shall** be provided (1’ minimum freeboard)
  - l. Emergency overflows **shall** be adequately routed to a public right-of-way or public drainage way, river, stream or other acceptable water course without damaging or adversely impacting private or public property
13. Sumps designed as part of the development’s detention systems **shall** only be allowed when approved by the City Engineer and only when no available outlet exists and the soil conditions are such that will adequately permit the water to infiltrate properly. Sumps **shall** be designed for a 100 year frequency, 24-hour duration storm event.
14. The capacity of sumps can only include the void area in calculating the required storage volume available. Percolation tests submitted by the developer must demonstrate that sumps can adequately dissipate the generated storm runoff in a reasonable time period, but **shall** not exceed a 24 hour period following the passing of the storm.
15. Storm water design and construction methods must adequately address potential problems which may arise during construction or by design so as not to pollute, erode, deposit

sediment or cause any other degradation to existing natural condition.

16. All storm water installation shall comply with the City's Storm Water Master Plan. Storm water developed on site will need to be conveyed to City storm drain systems. Storm water **shall** not drain directly into any canal, irrigation ditch, or subdrain system.
17. Should the installation of a storm water system require easements to Ogden City, the developer of such system **shall** convey such easements by deed to Ogden City
18. Clearance between other utilities **shall** be at least 18 inches. Closer tolerances require reinforcement concrete cradle or other acceptable separation. Reinforcement **shall** be as per the current specifications.
19. Cover over utilities and between railroad tracks or roadways **shall** be sufficient to adequately protect such utilities from potential loading of track or roadway both during construction and after final finished surfacing. Should cover be insufficient to adequately protect utility, encasement or casings shall be provided to protect affected utility.
20. All runoff is required to be detained in detention facilities prior to outlet into any major water course. Private facilities **may** be allowed but only upon approval of the City Engineer. The developments required to provide such detention facilities include all those with a total land area in excess of 30,000 square feet, plus any others of lesser area which would produce significant polluted runoff, as determined by the City Engineer, to possibly cause flooding problems or add to already existing flooding problems.
21. All detention facilities must be designed to accommodate an emergency overflow that safely conveys flood waters to a nearby street or other acceptable facility
22. The use of pumps to drain detention facilities will not be allowed due to excessive and continual maintenance costs.
23. Easements - Should easements be necessary for the installation and maintenance of public storm sewer systems such easements **shall** be a minimum of 10 feet in width with the storm sewer line centered within the easement. No buildings, utilities or structures **shall** be erected or constructed within such easements as to interfere with the activities necessary to properly access and maintain or replace such lines or storm sewer structures.
24. Access - Both legal and physical access are required to all sewer manholes. Physical access **shall** consist of all-weather surface sufficient to provide the need of all routine maintenance and repair equipment.

## 2.04 Subsurface Drainage Design

- 1 Subsurface drainage systems **shall** be of adequate capacity to intercept and convey the drainage so as not to detrimentally effect adjacent properties or public infrastructure.
2. Subsurface drainage manhole spacing **shall** be 400 feet maximum.
- 3 Mainline pipe size **shall** be determined by required capacity but in no instance shall the minimum mainline size be less than 12" diameter.
- 4 Subsurface drainage manholes shall be 5' diameter for all in-line manholes since the minimum required line size is 12" in diameter All manholes **shall** be constructed with steps for maintenance access.
- 5 Connection to sumps as part of the development's subsurface drainage system **shall** only be allowed when approved by the City Engineer and only when no available outlet exists and the soil conditions are such that will adequately permit the water to infiltrate properly
6. Subsurface drainage design and construction methods must adequately address potential problems which may arise during construction or by design so as not to pollute, erode, deposit sediment or cause any other degradation to existing natural condition.
- 7 All subsurface drainage installation **shall** comply with the City's Specifications.
- 8 Should the installation of a subsurface drainage system require easements to Ogden City, the developer of such system shall convey such easements by deed to Ogden City.
- 9 Clearance between other utilities **shall** be at least 18 inches. Closer tolerances require reinforcement concrete cradle or other acceptable separation. Reinforcement **shall** be as per the current specifications.
10. Covers over utilities and between rail road tracks or roadways **shall** be sufficient to adequately protect such utilities from potential loading of track or roadway either during construction or final finished surface. Encasement or casings **shall** be provided to protect the affected utility
- 11 Subsurface drainage lateral material **shall** be HDPE and shall be clearly marked with identifiable tape or other approved method in order to avoid confusion with other drainage systems. Connections to the mainline **shall** be accomplished via adapters provided by the manufacturer Location of subsurface drainage laterals **shall** be clearly marked on the face of

the adjacent curb with approved plastic marker with a nail

12. Easements - Should easements be necessary for the installation and maintenance of public storm sewer systems such easements **shall** be a minimum of 10 feet in width with the subsurface drainage line centered within the easement. No buildings, utilities or structures **shall** be erected or constructed within such easements as to interfere with the activities necessary to properly access and maintain or replace such lines or storm sewer structures.

## 2.05 Water System Design

1. Standard centerline alignment within the public right-of-way **shall** be 10' north or 10' east of the centerline.
2. All culinary water systems **shall** be constructed of ductile iron pipe or C900.
3. All new ductile iron pipes and fittings **shall** be wrapped with Poly Wrap to minimize corrosion from surrounding "hot" soils. Exceptions may only be granted by the City Engineer where soil conditions are such that corrosion of the water mains is deemed to be very low
4. Valves **shall** be located in all intersections and shall equal number of legs minus one.
5. Arterial roads **shall** have fire hydrants placed on both sides of the roadway to provide for Fire Department access to such hydrants. All valves larger than 12" **shall** be butterfly design
6. Fire Hydrant spacing **shall** not exceed 300 feet in areas of multi-family dwellings, commercial and manufacturing uses. In single family dwelling use areas hydrant spacing **shall** not exceed 500 feet.
7. All newly constructed fire hydrants **shall** be flow tested, then painted according to the following color-coding. This **shall** be the responsibility of the developer or contractor to accomplish.
8. Permanent dead-end lines will require a flush hydrant. Use flush hydrants in lieu of blowoffs (including phased "temporary turnaround" developments
9. All fire hydrants shall be classified based upon the actual flow-rate and **shall** be painted based upon the following color-coding per NFPA:

Green - 1000 gpm or more

Orange - 500 to 999 gpm

Red – 0 to 449 gpm

10. Minimum mainline diameter **shall** be 8 inches except for short dead end systems that do not provide service to fire hydrants. Such dead end systems **shall** have a minimum size of 6 inch diameter and will require approval from Culinary Water, City Engineer, and Fire Marshall. System demand requirements will dictate actual size requirements.
11. Service line **shall** be constructed of type K copper pipe. Minimum size **shall** be 1 inch diameter for residential connections. All taps will be completed by Ogden City Water Utility. Location of water service **shall** generally be located 10 to 15 feet from either property line of the lot served. No meter box **shall** be allowed in any driveway, driveway flare or sidewalk. Joint trench with the sewer lateral ( if approved ) **shall** maintain a minimum of 1 foot clearance with stepped trench, water above sewer, and only when approved by the City Engineer. Location of service line **shall** be clearly marked onto the face of the adjacent curb. Location of extended service lateral towards building shall be located via a 2 x 4 with a blue colored end visibly extended above adjacent surface.
12. Minimum cover required **shall** be 48 inches.
13. Minimum static pressure allowed to each individual service **shall** not drop below 50 PSI as measured at the water main.
14. Should the installation of a water system require easements to Ogden City, the developer of such system **shall** convey such easements by deed for Ogden City
15. All other utilities crossing the water main **shall** do so at as close to a right angle as possible.
16. Perpendicular or skewed crossings between other utilities and water mains **shall** have clearance of at least 18 inches. Closer tolerances require a reinforcement concrete cradle in combination with no mechanical joints of either utility within 10 feet horizontally of the crossing or additional separation. Reinforcement **shall** be as per the current specifications.
17. Cover over utilities and between rail road tracks or roadways **shall** be sufficient to adequately protect such utilities from potential loading of track or roadway either during construction or final finished surface. Should cover be insufficient to adequately protect utility, encasement or casings **shall** be provided to protect affected utility
18. Easements - Should easements be necessary for the installation and maintenance of public culinary water systems such easements **shall** be a minimum of 15 feet in width with the water line centered within the easement. No buildings, utilities or structures **shall** be erected or constructed within such easements as to interfere with the activities necessary to properly access and maintain or replace such lines or water structures.

## 2.06 Grading and Drainage Design

- 1 All grading design and earthwork **shall** comply with currently adopted International Building Code and its appendix(s) on EXCAVATION AND GRADING.
2. Fill slopes **shall** be no steeper than 2 horizontal to 1 vertical (2:1), or as determined by a soils engineer All fills **shall** be compacted to a minimum of 90 percent of maximum density
- 3 Cut slopes **shall** be no steeper than 2 horizontal to 1 vertical (2:1), or as determined by a soils engineer
4. An Erosion Control plan must be incorporated into the project to minimize soil erosion and to avoid sedimentation transport or tracking into the City storm sewer system, public ways or public streets.
- 5 All public streets **shall** be maintained free of dust sediment and mud caused by grading or construction operations.
6. Compaction tests are required on all engineered fills and other locations which will be load bearing. All testing **shall** comply with the specification of Ogden City
- 7 All building pads at rough grade shall have a 1% slope from pad towards the street or designed drainage outlet.
8. Groundwater - Test holes **shall** be dug at a location which represents the development site adequately to determine the depth of the groundwater table. A preliminary soils investigation and groundwater report **shall** be submitted to the City Engineer If the City Engineer determines that groundwater is a problem, land drains, including a lateral to each lot for footing or foundation drains, **shall** be installed to city specifications. All land drains must be tied into approved sub-drain or storm drain facilities.
- 9 Dust **shall** be controlled during all phases of construction either by means of a water truck or other approved method.
10. The minimum finished slope of any designed grade **shall** be 1% for soil, asphalt or gravel and 0.50% for concrete.

## 2.07 Erosion Control Design

Projects disturbing 5 acres or more must file a Notice of Intent with the Utah Division of Water Quality prior to construction. Projects disturbing greater than 5000 ft<sup>2</sup> must apply for and obtain a Storm Water Runoff Control Permit from Ogden City Engineering as a condition of approval. A

copy of the erosion control plan and permit must be kept on site and producible on request until construction is complete. Projects disturbing greater than 1 acre must file annoy with the State and provide a Storm Water Pollution Prevention Plan (SWPPP)

- 1 A Storm Water Pollution Prevention Plan (SWPPP) must be incorporated into projects disturbing more than 1 acre to minimize soil erosion and to avoid sedimentation into the City storm sewer system, onto adjacent properties or into natural drainage courses.
2. All grading and earthwork **shall** comply with the currently adopted International Building Code and its appendix(s) on EXCAVATION AND GRADING.
- 3 Erosion control devices **shall** consist of one or more of the following BMPs: check dams, sand bags, hay bales, desilting basins, silt fences, berms, dikes, contour grading or other approved devices.
4. Erosion control devices **shall** be modified as needed as the project progresses, and plans of these changes submitted for approval as required.
- 5 Plans **shall** indicate sequencing of construction activities and phasing of all BMPs operations.
6. All public streets and storm drain facilities **shall** be maintained free of mud and debris caused by grading or construction operations.
- 7 Graded areas adjacent to fill slopes located at the site perimeter must drain away from the top of the slope at the conclusion of each working day
8. All loose soil and debris which may create a potential hazard to offsite property shall be fully protected onsite to prevent any damage or be removed from the site as directed by the Inspector
- 9 De-silting basins or excavated pits are required prior to discharge into any private or public street, into any City, State or County storm sewer system, onto adjacent properties or into natural drainage courses.
10. De-silting basins may not be removed or made inoperable without the approval of the Inspector
- 11 All silt and debris **shall** be removed from all devices within 24 hours after each storm event.
12. All utilities must be protected to prevent damage due to erosion. Should damage occur, it **shall** be the responsibility of the developer to repair such damage at no cost to such utility and within a reasonable period.

- 13 Erosion control devices shown on the approved plan may be removed when in compliance with phasing plan and approved by the Inspector if the grading operation has progressed to the point where they are no longer required.

## 2.08 Irrigation Water Design

1. Irrigation Water No new gravity flow irrigation ditches **shall** be permitted within the boundary of a development. All necessary irrigation ditches, whether used for the purpose of transporting irrigation or waste flow water, must be replaced with a pipe culvert. The developer must provide for the rights and continuation of use of all irrigation users both upstream and downstream of the proposed development. Irrigation tail water will not be permitted to drain into Ogden City's storm drain or sub-drain systems
2. All design and construction must comply with the requirements and standards of the Irrigation Utility
3. Should the installation of an irrigation system require easements to Ogden City, the developer of such system **shall** convey such easements by deed to Ogden City
4. Existing irrigation ditches or canals, of significant flow, must either be piped or fenced on both sides when adjacent to or contained within property to be developed.
5. Clearance between other utilities **shall** be at least 18 inches. Closer tolerances require reinforcement concrete cradle or separation. Reinforcement shall be as per the current specifications.
6. Covers over utilities and between railroad tracks or roadways **shall** be sufficient to adequately protect such utilities from potential loading of track or roadway either during construction or final finished surface. Should cover be insufficient to adequately protect utility, encasement or casings **shall** be provided to protect affected utility.

## 2.09 Easements.

- 1 Easements for culinary water, sewer, power, irrigation water, storm water drainage, wetlands and/or other utilities or purposes **shall** be provided by the developer and designated on the improvement plans and final plat or separate document as required to accommodate the utility systems in the development. Where natural drainage channels, interceptor systems, or flood hazard or sensitive area overlay zones cross the development, the developer must obtain the necessary permits to modify such drainage facilities, and designate the channels, systems, or flood hazard zones, and any associated restrictions, on the plat as well as provide the necessary easement dedication.

2. Easements and area descriptions **shall** be of sufficient width to completely identify and provide for access and maintenance of the utility or identified restricted area.
3. Easements to be dedicated to Ogden City which are not shown and described on the dedication plat **shall** be submitted to the City Engineer. Said easements **shall** include, by attachment, a stamped drawing of the easement being dedicated and a complete legal description of the easement. The final easement document will then be prepared by the Legal Department of the City, signed by the owner(s), then recorded.
4. Under no circumstance **shall** permits be issued or construction allowed without the proper easements in place to accomplish the work.
5. Should easements become necessary to cross abutting private property to permit drainage or utility access of the development, it **shall** be the responsibility of the developer to acquire such easements at no cost to the City.
6. Access – Both legal and physical access are required to all manholes, cleanouts, valves or other structures requiring periodic maintenance. Physical access shall consist of all weather surface sufficient to provide the need of all routine maintenance and repair equipment.

#### **2.10 Surveying/Staking**

1. Survey stakes **shall** be placed at both front and back lot corners to completely identify the lot boundaries on the ground.
2. All surveying, both horizontal and vertical, **shall** be tied to Ogden City Monumentation, using Utah State Plane North Zone, NAD 83.
3. Hubs set for the construction of inlet boxes, manholes or other structures **shall** include a minimum of at least two hubs to adequately locate and align structures.
4. Back lot corners **shall** be marked with a metal pipe or rod driven into the ground, and projected front lot corners shall be identified with permanent plugs in the back of the curb or front property corner when no curb exists.
5. All lot corners must be in place prior to the issuance of building permits and after the completion of all development improvements.
6. It **shall** be the responsibility of the lot owner to ensure that all lot corners are in place prior to the final inspection. The City is not responsible to replace survey stakes or markers.
7. Care must be taken to not disturb, remove or alter any existing monumentation found,

recorded or otherwise encountered during the development of property

8. New Monumentation is required in all new developments and **shall** include all intersections, PIs and/or PCs, PTs.
9. All Monumentation must be installed by the developer as required of the subdivision or as removed or disturbed during construction.
10. All new or replaced Monumentation must be installed prior to final inspection and acceptance of any development or project.

END OF DOCUMENT



## **Exhibit B**

### **2008 EDITION of Ogden City's AMENDMENTS AND CLARIFICATIONS, A SUPPLEMENT TO THE:**

### **2007 EDITION OF THE MANUAL OF STANDARD SPECIFICATIONS by the Utah Chapter of APWA**

(Throughout this document there are vertical lines drawn to the right of the text. These vertical lines identify locations where changes or additions were made to the previous edition. Deletions are not indicated.)

#### **SUMMARY of CHANGES TO DOCUMENT 00 72 00 GENERAL CONDITIONS**

#### **PART 1 GENERAL**

- 1.1 DEFINED TERMS** *Amended or added definitions*
- 1.2 TERMS** *New article 1 2*
- 1.3 APPLICABILITY** *New article 1 3*

#### **PART 2 PRELIMINARY MATTERS**

**2.2 COPIES OF DOCUMENTS** *Article 2.2 of the General Conditions is augmented by addition of paragraph*

#### **PART 3 CONTRACT DOCUMENTS, INTENT, AMENDING, REUSE**

- 3.1 INTENT** *Amend paragraph B*

#### **PART 5 BONDS AND INSURANCE**

**5.1 PERFORMANCE, PAYMENT AND OTHER BONDS** *Article 5 1 of the General Conditions is hereby repealed and new Article is substituted*

**5.2 INSURANCE** *Article 5.2 of the General Conditions is hereby repealed and the following is substituted therefore*

**PART 6 CONTRACTOR'S RESPONSIBILITIES**

**6.2 LABOR, MATERIALS AND EQUIPMENT** *Amend Paragraph C*

**6.3 PERMITS AND LICENSES** *Article 6.7 of the General Conditions is augmented by addition of paragraphs*

**6.15 CONTINUING THE WORK** *Paragraph B is hereby repealed and the following new paragraph is added*

**6.17 INDEMNIFICATION** *Amend Paragraphs A and B*

**PART 14 PAYMENTS TO CONTRACTOR AND COMPLETION**

**14.11 POST CONSTRUCTION CONFERENCE** *New article 14.11*

**PART 15 SUSPENSION OF WORK AND TERMINATION**

*Amends paragraph F.*

# CHANGES TO DOCUMENT 00 72 00 GENERAL CONDITIONS

## PART 1 GENERAL

### 1.1 DEFINED TERMS

*Amended or added definitions*

A.1 **Addenda:** Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the Contract Documents. The term Addendum shall include bulletins and all other types of written notices issued to potential bidders prior to opening of Bids.

A.2a. **AGENCY:** The public body with which the DEVELOPER has entered into a Development Agreement and for whom the Work is to be provided. The AGENCY is also known as the OWNER.

A.13 **Construction Contract:** The entire and integrated compact between the OWNER and CONTRACTOR or AGENCY and DEVELOPER, memorialized in the Contract Documents concerning the Work to be performed which supersedes prior negotiations, representations or agreements, either written or oral.

A.14 **Contract Documents:** The Bid Documents, Agreement, Agreement Supplement, Development Agreement (for Developer related projects or subdivisions), General Conditions, Supplementary Conditions, Specifications, Standard Specifications, Drawings, Standard Plans together with all Modifications issued pursuant to Article 3.3 herein after the Effective Date of Construction Contract or Development Agreement (for Developer related projects or subdivisions).

A.17 **Contractor:** The person, firm or corporation named as such in the Agreement. If the provisions are applicable to work performed by City personnel, under a permit or as a condition of development, the term shall also include the person, firm or corporation responsible for such work.

A.20a. **DEVELOPER:** The person, firm or corporation named as such in the Development Agreement.

A.20b. **Development Agreement:** A written instrument which is signed by the AGENCY and DEVELOPER, and when executed, establishes a contractual relationship between the two parties as to each parties responsibilities related to the development of a specific project or projects.

A.23 **ENGINEER:** The person, firm or corporation designated in the Agreement as the OWNER's representative and agent for the Construction Contract, acting within the scope of the particular duties entrusted to such person, firm or corporation. The person may be a licensed architect, licensed landscape architect, licensed engineer, licensed land surveyor or other individual. For Subdivisions and other development projects constructed under an Engineering permit with Ogden City, the responsibilities of ENGINEER shall reside with Ogden City Engineer. Such developments may have also entered into a Development Agreement, which may include additional language providing further definitions or responsibilities of the ENGINEER.

A.27a **Public Works Inspector:** The Resident Project Representative furnished by the ENGINEER and assigned the duties of "inspection"

A.36a. **OWNER:** Ogden City, a Utah Municipal Corporation, the public body with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided. Also known as the AGENCY when involving projects with which DEVELOPER has entered into the Development Agreement for Work to be provided.

A. 40. **Plans:** Graphic and pictorial productions of the ENGINEER or DEVELOPER, prepared or approved by the AGENT, showing the design, location and dimensions of the WORK, and generally include, the plan, elevations, sections, details, schedules and diagrams. Plans are also known as drawings.

A.50 **Standard Plans:** The drawings (both graphical and text) contained in the latest edition of the Manual of Standard Plans published by the Utah Chapter of the American Public Works Association, also in the Amendments to the Manual of Standard Plans entitled "Standard Drawings" amended by Ogden City

*Added*

A.61 **Schedule of Values:** The Contractor's best estimate of costs associated with various portions of the Work.

A.62. **Measurement of Failure:** The act of performing quality assurance through measurement by the City Engineer in accordance with the Specifications for Work which meet the definition of Failure as defined in City Ordinance 97-70 or **Defective** as defined in the Standard Specifications.

## 1.2TERMS

*New article 1.2:*

- A. Unless otherwise stated, the words *directed, required, permitted, ordered, instructed, designated, considered necessary, prescribed, approved, acceptable, satisfactory*, or words of like meaning, refer to actions, expressions, and prerogatives of the ENGINEER.

## 1.3 APPLICABILITY

*New article 1.3:*

- A. Document 00 70 00, GENERAL CONDITIONS and Division 1, GENERAL REQUIREMENTS shall apply to all public works projects performed under contract with the City and also projects done under permit with Ogden City Engineering for work done on City property or within the City right-of-way, except as otherwise required by City Ordinance or recommended by the City Attorney. Except for definitions and terms applicable to other provisions of the manual, its provisions shall have no application to other work not performed under contract or permit with the City as indicated above.

## PART 2 PRELIMINARY MATTERS

### 2.2 COPIES OF DOCUMENTS

*Article 2 2 of the General Conditions is augmented by addition of the following paragraphs*

- B. OWNER shall not furnish to CONTRACTOR published Contract Documents which include the Manual of Standard Plans and the Manual of Standard Specifications. Such documents shall be purchased separately by the CONTRACTOR.
- C. Copies of all Contract Documents including the Manual of Standard Plans and the Manual of Standard Specifications shall be provided on site by the CONTRACTOR.

## PART 3 CONTRACT DOCUMENTS, INTENT, AMENDING, REUSE

### 3.1 INTENT

*Amend paragraph B to read as follows.*

- B. **Contract Documents are Complementary:** The Contract Documents are complementary and cooperative and are intended to describe and provide for a complete project; what is required by one document or provisions thereof is binding as if required by all the documents or provisions thereof. Anything in the Specifications and not on the Plans, or on the Plans and not in the Specifications, shall be as though shown or mentioned in both.

## PART 5 BONDS AND INSURANCE

### 5.1 PERFORMANCE, PAYMENT AND OTHER BONDS

*Article 5 1 of the General Conditions is hereby repealed and the following is substituted therefore.*

- A. Prior to OWNER executing the Agreement, CONTRACTOR shall file with the OWNER a good and sufficient performance Bond and a payment Bond, each in the sum of not less than 100 percent of the Contract Price.
- B. The Bonds shall be executed by the CONTRACTOR and secured by a company duly and regularly authorized to do a general surety business in the State of Utah and named in the current list of Companies holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies as published in current Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department, with an

underwriting limitation equal to or greater than the Contract Price which the Bond guarantees or with a current "A-" rating or better in A.M. Best Co., Inc.'s, Best Insurance Reports, Property and Casualty Edition.

- C. Said Bonds shall guarantee the faithful performance of the Construction Contract by the CONTRACTOR and payment of labor and materials. They shall inure by their terms to the benefit of the OWNER. Neither this nor any other provision requiring a performance Bond shall be construed to create any rights in any third party Claimant as against the OWNER for performance of the Work under the Construction Contract.
- C. If the surety on any Bond furnished by CONTRACTOR is subject to any proceeding under the Bankruptcy Code (Title 11, United States Code) or becomes insolvent or its right to do business is terminated in the State of Utah or it ceases to meet the requirements of this Article, CONTRACTOR shall, within 15 days thereafter, substitute another Bond and surety, both of which must be acceptable to OWNER.

## 5.2 INSURANCE

*Article 5 2 of the General Conditions is hereby repealed and the following is substituted therefore*

- A. **In General:** All policies of insurance provided shall be issued by insurance companies qualified to do business in the State of Utah and listed on the U.S. Treasury Department's current Department of Treasury Fiscal Services List 570, or having a general policy holder's rating of not less than "A-" in the most current available A. M. Best Co., Inc.'s, Best's Insurance Report.
  - a. Each insurance policy required by the Agreement, excepting policies for Workers' Compensation and Professional Liability, shall contain the following clause: "*Ogden City, its elected and appointed officials, employees, agents and volunteers are to be named as additional insured as respect to operations and activities of, or on behalf of, the named insured as performed under Agreement with the City.*"
  - b. Insurance is to be placed with insurers acceptable to and approved by the CITY. CONTRACTOR's insurer must be authorized to do business in Utah at the time the contract is executed and throughout the time period the contract is maintained, unless otherwise agreed to in writing by the CITY. Failure to maintain or renew coverage or to provide evidence of renewal will be treated by CITY as a material breach of contract.
  - c. The CITY shall be furnished with original certificated of insurance and endorsements effecting coverage required within, signed by a person authorized by that insurer to bind coverage on its behalf. All certificates and endorsements are to be received by the CITY before signing the Agreement.
  - d. Any deductibles or self-insured retentions must be declared to and approved by the CITY. At the option of the CITY, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the CITY, its elected and appointed officials, employees, agents and volunteers; or CONTRACTOR shall provide a financial guarantee satisfactory to the CITY guaranteeing payment of losses and related investigations, claim administration and defense expenses.
  - e. In addition to any other remedies CITY may have if CONTRACTOR fails to provide or maintain any insurance policies or policy endorsements to the extent and within the time limits required, CITY may, at its option: a) obtain such insurance, deduct and retain the amount of premiums for such insurance from any sums due under the Agreement, b) order CONTRACTOR to stop work under this Agreement and/or withhold any payment(s) which become due to CONTRACTOR until CONTRACTOR demonstrates

compliance with requirements, c) terminate this Agreement, or d) other reasonable remedy

- f. CONTRACTOR shall include all subcontractors and insured under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.
- g. Nothing contained herein shall be construed as limiting in any way the extent to which CONTRACTOR may be held responsible for payments of damages to persons or property resulting from CONTRACTOR's or its subcontractor's performance of the work covered under this Agreement.
- h. If requested, CONTRACTOR shall also furnish copies of the insurance policies secured for the Work. The CITY reserves the right to require complete, certified copies of all required insurance policies at any time. CONTRACTOR shall procure and maintain for the duration of the contract, insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the work hereunder by the CONTRACTOR, his agents, representatives, employees or subcontractors. The cost of such insurance shall be included in CONTRACTOR's Bid. The amount of the insurance shall not be less than the following:

- B. **Worker's Compensation Insurance:** In addition to other required insurance, the CONTRACTOR shall obtain and maintain during the life of the Construction Contract, worker's compensation insurance as required by Laws and Regulations for all of CONTRACTOR's employees employed at the site of the Work, and in case any Work is subcontracted, the CONTRACTOR shall require the Subcontractor similarly to provide worker's compensation insurance for all of the latter's employees, unless such employees are covered by protection as required by Laws and Regulations. Worker's compensation limits as required by the Labor Code of the State of Utah and employers' liability limits are \$1,000,000 per accident.
- C. **Business Automobile Liability:** \$1,000,000.00 combined single limit per accident for bodily injury and property damage for owned, non-owned and hired vehicles.
- D. **Commercial General Liability Insurance:** CONTRACTOR shall secure and maintain during the life of the Construction Contract and at all times thereafter when CONTRACTOR may be correcting, removing or replacing Defective Work, a comprehensive commercial general liability insurance policy. The policy shall protect the CONTRACTOR, the OWNER, the ENGINEER, and any Subcontractor performing work covered by the Construction Contract from claims for damages for personal injury, including accidental death, and from claims for property damage which may arise from CONTRACTOR's operations under this Construction Contract, whether such operations be by itself or by any Subcontractor or by anyone directly or indirectly employed by either of them. Unless specified otherwise in the Supplementary Conditions, the minimum amounts of such insurance for combined single limit per occurrence shall be \$1,000,000.00 for bodily injury, personal injury and property damage and \$2,000,000 general aggregate.

The policies are to contain, or be endorsed to contain, the following provisions: The Contractor's insurance coverage shall be primary insurance and any insurance or self-insurance maintained by the City, its officers, official, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with insurance provided by this policy. Each policy shall be endorsed to state that coverage shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.

Policy to include coverage for premises and operations. Contractual liability, personal injury liability, products/completed operations liability, broad-form property damage (if applicable)

and independent contractor's liability (if applicable) written on an occurrence form.

Any deductibles or self-insured retention must be declared to and approved by the City Insurance is to be placed with insurers acceptable to and approved by the City. The City shall be furnished with certificates of insurance and with original endorsements affecting coverage required within, signed by a person authorized by the insurer to bind coverage on its behalf. All certificates and endorsements are to be received and approved by the City before work commences. The City reserves the right to require complete, certified copies of all required insurance policies at any time.

The CONTRACTOR shall include all subcontractors as insured under its policies or shall furnish separated certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

- E. **Automotive Public Liability Insurance:** Whenever CONTRACTOR or any Subcontractor shall use and operate automobiles, trucks or other vehicles on public streets and highways in complying with the terms and conditions of the Construction Contract, CONTRACTOR or each Subcontractor shall carry automobile public liability insurance with limits not less than \$1,000,000.00 for any one accident or loss.
- F. **Insurance Non-cancelable for 30 Days:** Each policy of insurance provided in the Contract Documents shall be absolutely non-cancelable for a period of not less than 30 days after notice and shall contain the following provisions or one substantially the same as the following:  
"This policy shall not be subject to cancellation, change, or reduction of coverage by the other party or parties hereto, unless notice, as defined herein is sent to the OWNER, with a copy to the ENGINEER and the OWNER's attorney."
- G. **Builder's Risk:** CONTRACTOR agrees to and assumes the risk of loss for any damage or loss to the Work and Project by any means or occurrence until Substantial Completion. CONTRACTOR further agrees to obtain builder's risk or course of construction insurance in the total amount of the Contract Price.
- H. **Ogden City Corporation Additional Insured** Each policy of insurance provided in the Contract Documents shall also protect the government of O.C.C. during the life of the Construction Contract and at all times thereafter from public liability and property damage claims indicated in paragraph 5.2D, and automotive public liability damage claims indicated in paragraph 5.2E above.

## PART 6 CONTRACTOR'S RESPONSIBILITIES

### 6.2 LABOR, MATERIALS AND EQUIPMENT

*Amend Paragraph C to read as follows*

- C. **Overtime:** If CONTRACTOR permits overtime work beyond the standard hours of operation for Ogden City Engineering employees or permits the performance of Work on Saturday, Sunday or any Ogden City legal holiday CONTRACTOR shall do so at no increase to the Contract Price and shall give prior written notice to ENGINEER. CONTRACTOR shall be responsible for all additional costs associated with overtime incurred by OWNER, ENGINEER or their representatives or assistants. Said costs may be considered as deductions from the amounts payable to the CONTRACTOR at the discretion of the ENGINEER.

## 6.7 PERMITS AND LICENSES

*Article 6.7 of the General Conditions is augmented by addition of the following paragraphs*

- H. Ogden City Permits: In addition to any other permits required for the Work, the CONTRACTOR shall obtain permits from Ogden City Corporation for Work on the Project.
  - 1 OWNER-Paid Permits: CONTRACTOR shall be responsible for submitting plans, scheduling inspections and paying all costs incidental to such actions as required for any building, plumbing, mechanical, electrical, water, sewer or drainage permit required by Ogden City Corporation. Except for construction water meter fees, the fees for these permits shall be paid by the OWNER and shall not be included in CONTRACTOR's bid. The following listed permit is not exclusive and does not relieve CONTRACTOR of the responsibility of obtaining all permits.
    - a. Permit for Work in the Public Way: From Ogden City's Engineering and Building Services Division, Engineer's One Stop Counter, 2549 Washington Boulevard, Suite 240, Ogden City, Utah 84401 Phone 629-8974.
  - 2. CONTRACTOR-Paid Permits: The fees for permits not paid for by the OWNER shall be included in the CONTRACTOR's Bid. The following list is not exclusive and does not relieve CONTRACTOR of the responsibility of obtaining all permits:
    - a. Construction Water: If water for construction is required to be taken from fire hydrants or from a new water service, Contractor shall be solely responsible for obtaining and paying for necessary permits and water usage to Ogden City. Construction water permits to connect to a new water service can be obtained, along with a description of backflow requirements at Ogden City One Stop Counter, 2549 Washington Boulevard, Ogden City, Utah 84401 629-8950. Construction water obtained from a fire hydrant must be metered from an Ogden City hydrant meter. Meters can be rented with a deposit from Ogden City Utilities 133 W 29<sup>th</sup> St. Ogden City, Utah 84401 629-8321. Connections made without proper backflow prevention or hydrants connected without an Ogden City hydrant meter may be subject to penalties or fines.
    - b. Building, Electrical and Plumbing Permits: From Ogden City Engineering and Building Services Division, Inspections office, 2549 Washington Boulevard, Ogden City, Utah, 84401 Phone 629-8950.
    - c. Permit and Fees for Tap of Water Mains: From Ogden City One Stop Counter, 2549 Washington Boulevard, Suite 240, Ogden, Utah 84401, 629-8974 or Ogden City Water Utility, 175 West 29th Street, Ogden, Utah, 629-8325
    - d. Permit and Fees for Tap of Sewer Mains: From Ogden City One Stop Counter, 2549 Washington Boulevard, Suite 240, Ogden, Utah 84401, 629-8974
- I. Other Permits: All other permit fees required by Ogden City, the State of Utah, the United States of America, and any of their agencies, or by any private utility companies, shall be paid for and obtained by the CONTRACTOR and included in the CONTRACTOR's Bid. The following list is not exclusive and does not relieve CONTRACTOR of the responsibility of

obtaining all permits:

- 1 UDOT Digging Permit. From Permits Officer; State of Utah, District 1 Phone (801)-620-1664
  2. Private Property Owner Permit: Written permission to use private water
  - 3 Private Property Owner Permit: Written permission to store product, equipment materials and supplies outside of Work site boundaries.
  4. General Permit for Storm Water Discharge:
    - a. *Between 1 acre and 5 acres*: From Ogden City One Stop Counter, 2549 Washington Boulevard, Suite 240, Ogden, Utah 84401, 629-8974
    - b. *5 acres or more*: From the State of Utah, Department of Environmental Quality, Division of Water Quality Fee varies; contact the State for a quote.
  5. Flood Control Permit: From Weber County, Department of Public Works, Engineering, Ogden City, Utah.
- J Ogden City Business Licenses: In addition to any other licenses required for the Work, the CONTRACTOR shall obtain a business license from Ogden City Corporation for Work on the Project.
- 1 A general contractor who performs labor will be required to show evidence of a current Ogden City Business License, if he/she has a business in Ogden City Only those major subcontractors, i.e. mechanical, electrical, and plumbing that are required to secure permits from the Ogden City Inspection Division will be required to secure an Ogden City Business License, if they have a business in Ogden City

### 6.15.1 CONTINUING THE WORK

*Paragraph B is hereby repealed and the following is substituted therefore.*

#### B. No Damage for Delay

- 1 In all cases where CONTRACTOR is delayed, hindered, or obstructed in the execution of the work, or any part thereof, for any reason whatsoever, the CONTRACTOR shall not be entitled to claim or recover any damages or additional payment from the OWNER or ENGINEER. It is however, the intent of this contract that in all cases where the CONTRACTOR is substantially delayed, hindered, or obstructed in the execution of the work through no fault of the CONTRACTOR and because of conditions beyond the CONTRACTOR's control, the contract time shall be extended by change order by such amount as conditions, in the judgement of the ENGINEER, justify, and such extension of Contract Time shall be the exclusive remedy of the CONTRACTOR.
2. Claims relating to time shall be made in accordance with the applications provisions of Article 12.1 CONTRACTOR'S plea that insufficient time was specified is not a valid reason for extension of Contract Time. Contract Time shall not be extended for any weather-related delays.
3. Permitting the CONTRACTOR to continue and finish the work or any part of it after the time fixed for its completion, or after that date to which the time may have been extended, will in no way operate as a waiver on the part of the OWNER of any of its

rights under the Contract.

## 6.17 INDEMNIFICATION

*Amend Paragraphs A and B to read as follows*

- A. **Indemnification of OWNER:** CONTRACTOR shall indemnify, defend and hold harmless OWNER and ENGINEER, and their elected officials, officers, agents, employees, and volunteers from and against any and all claims, damages, losses and expenses, direct, indirect or consequential (including, but not limited to fees and charges of engineers, architects, attorneys and other professionals and court costs) arising out of or resulting from the negligent acts or omissions in performance of Work by CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not the claim, damage, loss, etc. arising from the act or omission is caused in part by a party indemnified hereunder or arises by or is imposed by Law and regulations regardless of the negligence of any such party
- B. **Indemnification Not Limited:** In any claims against OWNER or ENGINEER or any of their elected officials, officers, agents, employees or volunteers by any employees of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.16A shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor or other person or organization under workers' compensations acts, disability benefit acts or other employee benefit acts.

## PART 14 PAYMENTS TO CONTRACTOR AND COMPLETION

*New article 14 11 as follows.*

### 14.11 POST CONSTRUCTION CONFERENCE

- A. Within 20 days after the CONTRACTOR has completed all Punch list Work to the satisfaction of the ENGINEER and after the ENGINEER has indicated that the Work is acceptable, but prior to final application for payment, the CONTRACTOR shall attend a conference with the ENGINEER and others:
1. to discuss the project's successes and failures;
  2. to discuss project procedures;
  3. to discuss change orders or work directives from the project;
  4. to discuss retainage and final payment;
  5. to discuss procedures pertaining to the processing of payments;
  6. to discuss the submittal of the as-builts; and
  7. to review or discuss other items deemed necessary by ENGINEER or CONTRACTOR.
- B. The conference will be held at a mutually agreed time and place attended by CONTRACTOR,

..... its superintendent, and its Subcontractors as appropriate. Other attendees will be: .....

1. ENGINEER and/or Resident Project Representative.
2. Representatives of OWNER.
3. Governmental representatives as appropriate.
4. Others as requested by CONTRACTOR, OWNER, or ENGINEER.

- C. The purpose of the conference is to review the project's successes and shortcomings, and to discuss improvements for future projects and improved communications.
- D. ENGINEER will preside at the Post-Construction Conference and will arrange for recording and distributing minutes to all persons in attendance.

## **PART 15   SUSPENSION OF WORK AND TERMINATION**

### **15.2 OWNER MAY TERMINATE**

*Amend paragraph F as follows*

- F **Termination for OWNER'S Convenience:** Upon 10 day's written notice to CONTRACTOR, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Construction Contract. In such case, CONTRACTOR shall be paid for all Work executed and any expense sustained plus reasonable termination expenses, which will include, but is not limited to, direct, indirect and consequential costs, less OWNER'S costs. Anticipated profit upon terminated Work shall not be included as part of CONTRACTOR'S termination costs.

SUMMARY OF CHANGES  
TO  
DOCUMENT 00 72 00  
DIVISIONS

**DIVISION 01 THRU 30.....No change**

**DIVISION 31 .....Earth Work**

SECTION 31 05 13 ....COMMON FILL  
PART 2 PRODUCTS  
2.5 Native *Add new paragraph B.*

SECTION 31 05 13.....SELECT FILL  
PART 2 PRODUCTS  
*Add to Article 2 8, paragraph B, Table 4*

SECTION 31 25 00 EROSION SCD DEDIMENTATION  
PART 3 EXECUTION  
3.6 EROSION CONTROL *Add paragraph D*

**DIVISION 32 .....Exterior Improvements**

SECTION 32 01 14.....CHIP SEAL  
PART 2 PRODUCTS  
2.2 COVER AGGREGATE  
B. Gradation. *Add Subparagraph 1*

SECTION 32 12 06.....SUPERPAVE  
PART 1 GENERAL  
1.6 ACCEPTANCE *Amend Paragraph B*

SECTION 32 12 16.....PLANT MIX ASPHALT PAVING  
PART 1 GENERAL  
1.5 WEATHER *Amend Paragraph A*  
1.7 ACCEPTANCE  
C Instalation  
2. Compaction and Thickness  
f. *Table 1 "Compaction Pay Factor" is amended*

PART EXECUTION  
3.5 PLACE PAVEMENT MIXTURE  
**A. General**  
1. *The table augments the existing table for lower ambient air temperature ranges*

SECTION 32 12 17.....COLD MIX ASPHALT PAVING

PART 1 GENERAL  
1.4 Weather Amend Paragraph A

SECTION 32 16 13.....CONCRETE DRIVEWAY, SIDEWALK,  
CURB AND GUTTER

PART 3 EXECUTION  
3.5 CONTRACTION JOINTS  
3.6 EXPANSION JOINTS

**DIVISION 33.....Utilities**

SECTION 33 05 03 COPPER PIPE  
PART 2 PRODUCTS  
2.2 CONNECTIONS Amend paragraph A

SECTION 33 05 06 POLYETHYLENE PIPE  
PART 2 PRODUCTS New Article 2.4

SECTION 33 05 20 BACKFILLING TRENCHES  
PART 2 PRODUCTS  
2.1 BACKFILL MATERIALS

SECTION 33 05 25 PAVEMENT RESTORATION  
PART 3 EXECUTION  
3.4 ASPHALT CONCRETE PATCH

SECTION 33 08 00 COMMISSIONING WATER PIPELINES  
*Major rewrite*

SECTION 33 11 00 WATER DISTRIBUTION AND TRANSMISSION  
SYSTEMS  
*Major Rewrite*

SECTION 33 12 19 HYDRANTS  
PART 3 EXECUTION  
3.4 PAINT

SECTION 33 31 00 SANITARY SEWERAGE SYSTEMS  
PART 2 PRODUCTS

SECTION 33 41 00 STORM DRAINAGE SYSTEMS  
PART 2 PRODUCTS  
2.1 PIPING AND FITTINGS *New paragraph D*

# DIVISION 31 EARTH WORK

## SECTION 31 05 13 COMMON FILL

### PART 2 PRODUCTS

#### 2.5 NATIVE

*Add new paragraph B*

- B. Maximum particle size shall not exceed 6" in the longest direction. All other larger native material, which must be removed, shall be deposited offsite from work zone at no additional cost to the OWNER. Native material meeting the above specification of maximum particle size shall not be removed from the work zone until ENGINEER has made a written determination that said material would not be reused in any application within the scope of the project.

## SECTION 31 05 13

### SELECT FILL

### PART 2 PRODUCTS

*Add the following to Article 2 8, paragraph B, Table 4*

#### 2.8 GRAVEL

US Sieve Size	Gravel (% passing by weight)
2"	
1 ½"	100%
1"	75%
¾"	15%
½"	10%
3/8"	
No. 4	
No. 16	
No. 200	

**PART 3 EXECUTION**

**SECTION 31 05 13**

**EROSION AND SEDIMENTATION CONTROL**

**PART 3 EXECUTION**

**3.6 EROSION CONTROL**

*Add paragraph D to read as follows*

- D. CONTRACTOR must implement construction site erosion controls sufficient to meet the requirements of the EPA Phase II Storm Water Pollution Control requirements as authorized in the Clean Water Act. CONTRACTOR may select whichever best management practices will, in his opinion, best address these requirements. CONTRACTOR must formalize these measures into an erosion Control Plan and submit such to the City for review and approval. CONTRACTOR may not commence any site work, except mobilization, until the approved erosion control plan has been installed and the ENGINEER concurs with its proper installation.

**DIVISION 32  
EXTERIOR IMPROVEMENTS**

**SECTION 32 01 14  
CHIP SEAL**

**PART 2 PRODUCTS**

**2.2 COVER AGGREGATE**

- B. Gradation.

*Add Subparagraph 1 to read as follows*

- 1 Grade A is the only acceptable cover aggregate in Ogden City

**SECTION 32 12 06  
SUPERPAVE**

**PART 1 GENERAL**

**1.6 ACCEPTANCE**

*Amend Paragraph B to read as follows*

- B. Temperature: Reject mixes that have exceeded 315 degrees F. Maintain temperature of the HMA between established limits. Do not overheat the materials or cause thermal damage to the asphalt cement. CONTRACTOR shall submit a certification document verifying conformance with this specification. Minimum temperatures shall comply with Section 02745, 1.7 Acceptance.

## SECTION 32 12 16 PLANT MIX ASPHALT PAVING

### PART 1 GENERAL

#### 1.5 WEATHER

*Amend Paragraph A to read as follows*

- A. Temperature: Temperature restrictions may be waived only upon written authorization from ENGINEER.
1. Pave only when air and roadbed temperatures in the shade are greater than 40 deg.F and rising.
  2. Cease paving if air temperature falls below 40 deg. F

#### 1.7 ACCEPTANCE

- C Installation
2. Compaction and Thickness
    - f.

*Table 1 "Compaction Pay Factor" is amended to read as follows*

Table 1 –Compaction Pay Factor					
Criteria	Pay Factor	Marshal Method Basis (ASTM D 5581)		Rice Method Basis – optional method upon approval of ENGINEER (ASTM D 2041)	
		Average of all Tests	Lowest of all Tests	Average of all Tests	Lowest of all Tests
Density, % ASTM D 2950	0.70	> 98		> 97	
	1.0	95 to 98	92 or Greater	93 to 97	89 or Greater
	.90	95 to 98	Less than 92	93 to 97	Less than 89
	.80	Less than 95	92 or Greater	Less than 93	89 or Greater
	.50(a)	Less than 95	Less than 92	Less than 93	Less than 93

Note: (a) ENGINEER will determine whether the material will be rejected and removed or allowed to

remain at the 0.50 pay factor.

### **PART 3 EXECUTION**

#### **3.5 PLACE PAVEMENT MIXTURE**

##### **A. General**

1

*The following table augments the existing table for lower ambient air temperature ranges.*

Ambient Air Temperature	Compacted Paving Mat Thickness					
	¾"	1"	1 ½"	2"	3"	4"
40 - 45 deg F	-	305	300	290	275	260
45 - 50	-	300	295	285		
50 - 59	-	295	290			
60 - 69	-	290				

*Paragraph C amended as follows*

C. Compact the mix to the following requirements: (do not over-compact or under-compact)

- 1 To an average relative density of 95 percent per ASTM D 5581 (Marshal method) with no density test result less than 92 percent; or
2. To an average relative density of 93 percent per ASTM D 2041 (Rice method) with no density test result less than 89 percent. This method only to be used upon approval of ENGINEER.
- 3 Complete compaction before temperature drops to 180 deg. F

## **SECTION 32 12 17 COLD MIX ASPHALT PAVING**

### **PART 1 GENERAL**

*Amend Article 1.4 title*

#### **1.4 Weather**

*Paragraph A to read as follows*

##### **A. Weather**

- 1 Construct road mix bituminous surface course only when air temperature in the shade and roadbed temperature are less than 40 degrees. F The temperature restrictions may be waived only upon written authorization from ENGINEER.
2. Cease use of cold – mix – asphalt concrete when air temperature rises above 40 degrees F

**SECTION 32 16 13**  
**CONCRETE DRIVEWAY, SIDEWALK,**  
**CURB AND GUTTER**

**PART 3 EXECUTION**

**3.5 CONTRACTION JOINTS**

- C. Curb, Gutter, Waterway  
*Subparagraph 1 is amended to read as follows*
  - 1 Place joints at intervals not exceeding 10 feet.

**3.6 EXPANSION JOINTS**

*Amend paragraph C by adding the following subparagraph.*

- C. Curb, Gutter, Waterway
  - 4. For all form placed curb and gutter, place expansion joints at intervals not exceeding 40 feet. Use preformed expansion material, type FI. Refer to 3.6.B.4 and 3.6.D for Slip Form Work.

**DIVISION 33  
UTILITIES**

**SECTION 33 05 03  
COPPER PIPE**

**PART 2 PRODUCTS**

**2.2 CONNECTIONS**

*Amend paragraph A to read as follows.*

- A. Compression only

**SECTION 33 05 06  
POLYETHYLENE PIPE**

**PART 2 PRODUCTS**

*New Article 2.4 to read as follows*

**2.4 HDPE (High Density Polyethylene) Pipe**

- A. Material: AASHTO M-252 & M-294 Corrugated Polyethylene Pipe, solid or perforated. Smooth Inner Wall Type S, 4" to 36" inside diameter
- 1 4" to 10" inside diameter meeting AASHTO M-252, and 12" to 36" inside diameter meeting AASHTO M-294.
  2. The appropriate material specification to be embossed on the pipe every 10 feet.
  - 3 Slots or perforations shall be in corrugation valleys only and should be clean and free of burrs.
  - 4 The longitudinal green stripe is simply a logo and its location has nothing to do with the pipe installation. However, use of these lines may help in avoiding misalignment.
- B. Fittings: Separate couplings and fittings should be marked with pipe mfg. name or logo. Tape shall not be used to join pipe sections unless intended for temporary use and then only as approved by the Engineer
- C. Joint: Joints specified to have gaskets per ASTM F-477 have a rubber gasket seated in a groove on the spigot end. Foam-type weather stripping material is not in compliance.

**PART 3 EXECUTION**

### 3.1 INSTALLATION

*New paragraph F to read as follows:*

F Installation of HDPE pipe shall be as follows:

- 1 Handle the larger sizes (24"-48") with slings, not chains, preferably at 2 pick-up points. When unloading do not drop pipe on end.
2. HDPE corrugated pipe is lightweight, which makes handling easy. However, it can be shifted laterally in the trench or may float if not held in place with soil or other methods.
- 3 The pipe depends on a combination of pipe stiffness and select and common backfill strength to perform as a structure. Select material in the pipe-zone should be compacted to at least 90% in non-traffic easement areas and 95% in traffic areas and should contain no particles, which do not comply with the gradation of untreated base course, Grade 1
4. Heavy construction equipment and vehicles should not be permitted to pass over the pipe unless a minimum of 2 feet or one pipe diameter (whichever is greater) of well compacted (min. 90% Proctor) soil or gravel is covering the pipe.
- 3 High-energy compactors such as Hydro-Hammers should not be used until the pipe is covered by at least 4 feet of soil.
- 4 In the absence of a special provision provided by the CITY, use ASTM D-2321 as a recommended installation guide.
- 5 To ensure adequate compaction in the haunches, lift thickness prior to compaction from the bedding to the pipe spring line shall not exceed 4" and shall be worked in around the pipe by hand to ensure uniform support.

## SECTION 33 05 20 BACKFILLING TRENCHES

### PART 2 PRODUCTS

#### 2.1 BACKFILL MATERIALS

*Amend paragraphs A & B to read as follows.*

- A. Common fill; Section 31 05 13 Sand is prohibited for use as backfill material in the pipe zone or trench above the pipe zone. Sand may be used immediately adjacent to some pipes and/or pipe coverings requiring protection from damage, which may be caused by larger aggregate backfill material. An exception to this prohibition may be granted by the ENGINEER if adjacent native material consists entirely of a sandy material as defined by Section 2055, paragraph 2.4. Common fill used as bedding and backfill material must be of a granular composition, non expansive material, well graded material containing a wide range of sizes and possesses the qualities to meet the required compaction requirements.

- B. Gravel; Section 31.05.13. Pea Gravel and Squeegee material are prohibited for use as backfill material in the pipe zone or trench above the pipe zone. No exception to this prohibition may be granted by the ENGINEER. Gravel used as bedding and backfill material must be of a granular composition, non expansive material, well graded material containing a wide range of sizes and possesses the qualities to meet the required compaction requirements.

## 2.2 ACCESSORIES

- C. Identification Tape

*Amend subparagraph 4 to read as follows*

- 4. Blue: Potable water Installed 12" – 18" vertically above the centerline of the potable water lines

*Add paragraph D to read as follows*

- D. Tracer Wire: Required for all installations of C909 potable water lines or other non-metallic water lines.

- 1. Tracer wire shall be installed above and in immediately contact with and along the pipe centerline. Tracer wire shall be attached to pipeline to minimize movement during backfill process. Attachments shall be by means of zip ties at 10 foot increments.
- 2. Tracer wire shall be extended to and rise to the surface with valve box installation.
- 3. An additional 12" loop will be added at each end of the tracer wire to allow for slack during adjustment in road elevation.
- 4. S curves in the tracer wire, equal to the diameter of the pipe, shall be installed and added to at each bell to allow for the wire to be moved during tapping or additional maintenance or repair work on the water main. When the pipe consists of a continuous material lacking joints or bells, provide S curves at 10 foot increments.

## PART 3 EXECUTION

### 3.3 PIPE ZONE

*Amend section by adding paragraph E.*

E. Tracer Wire shall be installed in the pipe zone directly above the pipe centerline and in contact with the pipe for all installations of C909 potable water lines or other non-metallic potable water lines. Tracer wire shall be attached to pipeline to minimize movement during backfill process. Attachments shall be by means of zip ties at 10 foot increments.

### 3.4 TRENCH ABOVE PIPE ZONE

*Amend paragraph D*

- D. Install continuous identification tape directly over buried lines 12 to 18-inches above the top of pipe.

**SECTION 33 05 25  
PAVEMENT RESTORATION**

**PART 3 EXECUTION**

**3.4 ASPHALT CONCRETE PATCH**

*Amend paragraph D as follows*

D Compaction:

1. 92% of ASTM D 2041 (Rice) optimum; or
1. 95% of ASTM D 5581 (Marshall) optimum.

**SECTION 33 08 00  
COMMISSIONING WATER PIPELINES**

**PART 1 GENERAL**

**1.2 DEFINITIONS**

*Add paragraph C to read as follows*

C. ANSI/NSF 60 Drinking Water Treatment Chemicals.

**1.4 SUBMITTALS**

A. Pipeline Test Report: Submit the following.

*Modify subparagraph 5 to read as follows.*

5. Video Cassette and log of visual examination (only required for all gravity systems).  
CONTRACTOR shall provide said video inspection which shall include the actual footage of the line being inspected and shall be accomplished by a 3<sup>rd</sup> Party approved by the ENGINEER and at no additional costs to the OWNER.

**PART 2 PRODUCTS**

*Add article 2.2 to read as follows*

**2.2 DISINFECTANTS**

A. All chemicals used in performing the disinfection test shall conform to ANSI/NSF 60. Chemical containers shall bear the ANSI/NSF 60 certification mark.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

*Modify paragraph C to read as follows*

- C. Remove debris, sediment and/or other material from installed pipe prior to testing, leaving pipe in a clean manner. All material collected shall be removed from pipe prior to connecting to existing piping system. It is forbidden to discharge or flush sand, gravel, concrete, debris or other foreign material into existing pipeline system. Flushing with clean water only will be allowed but with minimal flows to eliminate exceeding capacities of the existing gravity systems. Flushing into existing pressurized water systems will not be allowed.

### **3.2 ALIGNMENT AND GRADE TEST**

*Add paragraph D to read as follows*

- D. Do not exceed deflections allowed by pipe manufacturer

### **3.3 PRESSURE TEST**

*Amend paragraphs A & B in their entirety to read as follows*

- A. Air Test: The low pressure air test shall be conducted by the following method under the direction of the ENGINEER.
  - 1. All wyes, tees, or ends of lateral stubs shall be suitably capped and braced to withstand the internal test pressures. Caps shall be easily removable for future lateral connections or extensions.
  - 2. After manhole-to-manhole section of line has been backfilled and cleaned, it shall be plugged at each manhole with pneumatic plugs. One of the plugs shall have three hose connections. Air for inflation of the triple connection pneumatic plug shall be supplied through a factory-equipped control panel. There shall be three hose connections from the control panel to the pneumatic plug. The second hose shall be used for continuous reading of the air pressure in the sealed line. The third hose shall be used for introducing low pressure air into the sealed line.
  - 3. There shall be a 3 1/2-inch or larger diameter, 0.30 psig gauge for reading of the internal pressure in the line being tested. Calibrations from the 0-10 psig range shall be in tenths of pounds and the 0-10 psig portion shall cover 90 percent of the complete dial range.
  - 4. Low pressure air shall be introduced into the sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any groundwater that may be over the pipe. Groundwater's contribution to the head pressure shall be at a rate of 0.433 psi per foot of head. At least 2 minutes shall be allowed for the air pressure to stabilize. After the stabilization period (3.5 psig minimum pressure in the pipe), the third hose shall be disconnected from the control panel.

- 5 The pipe and joints shall be considered acceptable when the time required in minutes for pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any groundwater that may be over the pipe) shall not be less than the time shown for the given diameters in the following tables:

<u>Pipe Diameter in Inches</u>	<u>Minutes</u>
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
15	7.5
18	8.5
21	10.0
24	11.5

6. If the installation fails to meet these requirements, the Contractor shall determine at his own expense the source of leakage and shall repair or replace all defective materials and/or workmanship.

B. Hydrostatic test:

- 1 Pressure During Test. After the pipe has been laid and partially backfilled, all newly laid pipe, or any valve section of it shall, unless otherwise specified, be subjected to hydrostatic pressure of 225 psi.
2. Duration of Pressure Test. The duration of each pressure test shall be at least two (2) hours.
- 3 Procedure. Each valved section of pipe shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a pump connected to the pipe in a satisfactory manner. Testing against closed valves will be allowed as long as the valved section is not physically connected to the existing potable water system. No pressure testing may occur against a valve connected to any existing piping system. The pump, pipe connection and all necessary apparatus including gauges and meters shall be furnished by the Contractor. The Owner will make all taps into the pipe, but the Contractor shall furnish all necessary assistance for conducting the tests.
4. Expelling Air Before Test. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, air release mechanisms shall be installed, if necessary, at points of highest elevation, and afterwards tightly capped.
- 5 Examination Under Pressure. All pipes, fittings, valves, hydrants and joints will be subject to examination under pressure during the hydrostatic test. Any defective pipes, fittings, hydrants or valves discovered in consequence of this pressure test shall be removed and replaced by the Contractor with sound material, at no expense to the Owner, and the test shall be repeated until satisfactory to the Engineer

6. No piping installation will be acceptable until the leakage is less than the amount allowed by industry standards for the type of pipe material being tested.
7. No piping installation will be acceptable until the leakage is less than the amount allowed by industry standards for the type of pipe material being tested or if no standard prevails, than the number of gallons per-hour is determined by the formula:

$$Q = \frac{LD \times (P)^{1/2}}{133,200}$$

- Where: Q = allowable leakage, in gallons per-hour  
 L = length of pipe under test in feet  
 D = diameter of pipe in inches  
 P = average test pressure, in pounds per square inch (gage).

*Amend Article 3 4 in its entirety to read as follows*

### **3.4 OBSTRUCTION AND DEFLECTION TESTS**

- A. Visually examine pipe internally for obstructions, reductions in pipe shape, grade, infiltration and required lateral connections by means of a closed circuit televised recording. Said inspection shall be by closed circuit video inspection of the completed section or sections and shall log the location of all service taps and problem areas which shall include the actual footage of the line being inspected. Videotape shall become the property of CITY Any defective workmanship indicated by video inspection shall be repaired by the CONTRACTOR at no expense to the Owner
- B. Prior to commencement of Obstruction and Deflection tests, the pipe must be water flushed to clean and remove all debris. All debris must be trapped on a screen and/or blocked and removed from the downstream manhole and not allowed to enter the existing piping network.
- C. For all flexible pipes, i.e., PVC, HDPE, CMP or other flexible materials, Deflection testing is required.
- D. Obstructions: Maximum protuberance is 1-inch.
- E. Deflections: Maximum reduction of internal diameter in any plane when measured not less than 30 calendar days following the installation, backfill and compaction with compaction results which are acceptable to the City Engineer are as follows:

Use ASTM D 3034 for determining mandrel size.

Polyvinyl Chloride Pipe – 7 5%  
 High Density Polyethylene Pipe – 5%  
 Corrugate Metal Pipe – 5%

The CONTRACTOR, with INSPECTOR present, shall pull a “Go/No-Go” Mandrel, inspected and approved by the ENGINEER, through the full length of the installed flexible pipe. The Mandrel shall be fabricated from suitable metal with a minimum of nine (9) properly sized radial fins mounted upon a center pulling shaft. In any case, the Mandrel shall be provided with an odd number of rigidly mounted radial fins. The Mandrel shall be

provided with a proof-sizing ring that can demonstrate that the Mandrel's minimum outside diameter (OD) is not less than 100% minus the above specified deflection limit of the specified minimum inside diameter of the installed flexible pipe. The Mandrel shall be pulled by the CONTRACTOR through one-hundred percent (100%) of the installed flexible pipe without using mechanical equipment. Failure of the Mandrel to pass through a pipeline shall be deemed evidence of inadequate installation by the CONTRACTOR not in compliance with the Project Specifications. Where mandrel testing would damage pipe coatings, an alternative method of deflection measurement shall be submitted by the CONTRACTOR and may be approved by the ENGINEER.

The ENGINEER may require, if deemed appropriate or necessary, additional proof testing of designated lengths of buried flexible pipe approximately on year (1yr) after installation by prior to the expiration of the CONTRACTOR's Warrantee Period. The flexible pipeline shall be cleaned adequately prior to performing the deflection proof test. If pipeline deflection exceeds deflection limits during proof testing, the pipeline shall be removed and replaced at the CONTRACTOR's expense.

### 3.6 PIPE TESTING SCHEDULE

B. Irrigation – Pressure System.

*Add new subparagraph 4*

4. Obstruction and deflection tests. (See 3.4)

C. Sanitary Sewers:

*Add new subparagraph 6 to read as follows.*

6. Air Pressure test. (See 3.3)

D. Subdrains:

*Revise subparagraph 2 to read as follows:*

3 Obstructions and deflection test (3.4)

F. Potable Water System.

*Subparagraph 1 and 2 amended as follows*

1. Hydrostatic Test (See 3.3)

2. Disinfection test (See 3.7)

3. Hydrant Flow test (See 3.8)

*New Article 3.7:*

### 3.7 DISINFECTION TEST

A. The disinfection test shall be performed by Ogden City Water Utility with cooperation from the CONTRACTOR in performing any necessary excavation and subsequent backfilling at no additional cost to the CITY

B. Chlorination of Completed Water Line. The new water line shall be disinfected by

chlorination. All work and materials necessary to perform this function will be furnished by Ogden City Water Utility. The Contractor will be responsible for all related costs and fees related to the chlorination of the completed water line. This test shall be performed prior to connection of the new water lines to the existing Ogden City culinary water system. The CONTRACTOR shall notify Ogden City Water Utility at least 24 hours before the chlorination is desired.

*New Article 3 8.*

### **3 7 HYDRANT FLOW TEST**

- A. The flow test of each fire hydrant shall be performed by the CONTRACTOR and witnessed by personnel from Ogden City Water Utility or Ogden City Fire Department and performed at no additional cost to the CITY
- B. Flow test shall be completed prior to construction of any structures dependent upon such hydrant for fire protection.
- C. Flow test shall be conducted according to the requirements of the Water Utility and shall be at a time and date to correspond with Water Utility or Fire Department personnel schedules.
- D. As a result of the flow test the fire hydrant shall be painted in accordance with the colors indicated in Section 02512

## **SECTION 33 11 00 WATER DISTRIBUTION AND TRANSMISSION SYSTEMS**

### **PART 1 GENERAL**

#### **1.2 REFERENCES**

*Add paragraphs H and I to read as follows*

- H. AWWA C900: AWWA Standard for Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe (ULTRA BLUE), 4 In. Through 12 In. for Water
- I. ANSI/NSF 61 Drinking Water System Components – Health Effects

### **PART 2 PRODUCTS**

#### **2.6 TAPPING SADDLES**

*Add paragraphs C and D as follows*

- C. Contractor provided tapping saddles (sizes less than 2”) shall be FORD brass Saddles, style S70 and S90.
- D. Tapping Saddles for sizes 2” and greater shall be ROMAC, double strap service saddles, style 202N.

## 2.7 SERVICE CONNECTIONS

*Amend paragraph A in its entirety to read as follows*

- A. Type K copper pipe per Section 33 05 03 with compression type 200 psi fittings in accordance with AWWA C800. If materials used in main line are non-copper, provide a plastic nipple to separate the metals.

*Add paragraph B as follows*

- E. All pipe fittings, valves, or other components that will come into contact with drinking water shall conform to ANSI/NSF 61, and shall bear either the ANSI/NSF 61 or ANSI/NSF -pw certification mark.

## 2.8 ACCESSORIES

*Add paragraphs H and I as follows:*

### H Wires:

- 1 General. Wire shall conform to applicable requirements of NEMA WC 3-80, WC 5-73 and WC 7-88.
2. Test Wires:
  - a) No. 12 AWG wire for prepackaged galvanic anode and test leads and No. 14 AWG reference electrode lead wires shall be single-conductor, stranded copper wire with 600-volt, TW, THWN, THHN or HMWPE insulation.
  - b) No.2 AWG, No.4 AWG and No.8 AWG for bond and pipe lead wires shall be single-conductor, stranded copper wire with 600-volt, HMWPE insulation.
6. Tracer Wire:
  - a) No.10 AWG wire for tracer wire shall be single-conductor, solid copper wire with 600-volt, TW, THWN, THHN or HMWPE insulation.
- 7 Wire Identification.
  - a) Wire insulation color shall indicate the function of each wire and shall be as shown on the Drawings and as follows:
    - 1) Pipeline test wires:
      - I. Water Pipeline: Blue
      - II. Other Pipeline: White or as requested by ENGINEER
      - III. Unprotected Pipe: Black
    - b) Casings: Orange
    - c) Anode lead wires. Black
    - d) Reference electrode wires: Yellow
    - e) Tracer wires: Green

### I. Thermite Weld Materials

- 1 Electrical connection of copper wire or copper strap to metallic (steel, ductile iron, and cast iron ) fittings and pipe shall be by the thermite weld (caldweld) method.

## **PART 3 EXECUTION**

### **3.2 PREPARATION**

*Amend paragraph B to read as follows.*

- B. Remove stones larger than 2-inches or other hard matter that could damage pipe or impede backfilling or compaction except as follows: maximum ¾" particle size for trench backfill when installing C909 pipe.

### **3.7 INSTALLATION – TAPS**

*Amend paragraph C to read as follows*

- C. The minimum centerline distance between taps is 18 inches. Do not make service taps within 18 inches of the end of pipe or of any joint or another corporation stop. Install taps at angle authorized by the ENGINEER.

*Amend article in its entirety to read as follows*

### **3.8 INSTALLATION - SERVICE CONNECTIONS**

- A. Apply for and pay applicable connection fees to Ogden City for the indicated size and location of tap to water main. Comply with all requirements of Ogden City relating to excavation, traffic control, backfill and protection of the water main as related to the water main tap. Ogden City Water Utility will perform tap to water main.
- B. Install service lines as indicated or directed by ENGINEER to meter. Additionally extend Type K copper to 3 feet beyond sidewalk towards structure being serviced. Provide a 2 x 4 wooden stake at the end of the service line, visibly extended above the finished ground surface and having a blue colored painted end.
- C. When relocating water service lines, replace non-copper pipe with type K copper per Section 33 05 03
- D. Prior to Ogden City Water Utility performing the water main tap, the CONTRACTOR shall supply, at CONTRACTOR's expense, any required tapping saddles for taps less than two inches in diameter
- E. When existing meter and meter boxes are relocated, CONTRACTOR is required to reconnect the existing service line from property side to the new meter box location.

### **3.10 BACKFILLING**

*New paragraph D as follows*

- D. Prior to the execution of backfilling procedures for ductile iron pipe or other metallic pipe and fittings CONTRACTOR must request inspection by OWNER'S representative to verify compliance with poly wrap installation **per paragraph 3.13** and concrete thrust block installation.

*Add the following article to read as follows*

### **3.12 INSTALLATION - METER BOXES**

- A. Ensure all parts are in working order
- B. Where water lines are located below paved streets or public right-of-ways containing curbs, install valves and meter boxes at the back of the curb **per standard plan W-3**. Such installation shall be in accessible locations beyond limits of walks and driveway approaches or other pedestrian and vehicular interference.
- C. Where no curbing exists, install valves and boxes in accessible locations beyond limits of street surfacing, walks and driveway approaches or to other location with no pedestrian or vehicular interference.
- D. Meters shall not be installed in any driveway, pedestrian sidewalk or other location which locations may be a life/safety concern regarding access and maintenance of such meters.

*Add the following article to read as follows.*

### **3.13 POLY WRAP**

- A. Unless otherwise directed by the ENGINEER, the pipe (ductile iron) and associated fittings and valves will be encased in an 8 mil polyethylene wrap. The wrap may be in either tube or sheet form and installed as described in *Installation Guide for Ductile Iron Pipe* by DIPRA. Locations for service taps must be prepared by fully taping the location following re-excavation. All holes must be recovered and properly sealed prior to burial.

## **SECTION 33 12 19 HYDRANTS**

### **PART 3 EXECUTION**

#### **3.4 PAINT**

*Amend paragraph B as follows:*

- B. Paint hydrant barrel and caps with one coat primer and final coat per the Water Division and NFPA standards as follows:
  - 1. Hydrant barrel color shall be **yellow**
  - 2. Hydrant cap color shall be as follows, based upon the results of the flow test per Section 01815, Part 3
    - i. **Green** - Flow measured at 1000 gpm or more
    - ii. **Orange** - Flow measured between 500 and 999 gpm
    - iii. **Red** - Flow measured between 0 and 499 gpm

**SECTION 33 31 00**  
**SANITARY SEWERAGE SYSTEMS**

**PART 2 PRODUCTS**

**2.3 MANHOLES**

*Amend paragraphs B and C as follows:*

- B. Steps. required.  
1 material shall be plastic.
- C. Offset cone or offset flat slab concrete.

**SECTION 33 41 00**  
**STORM DRAINAGE SYSTEMS**

**PART 2 PRODUCTS**

**2.1 PIPING AND FITTINGS**

*New paragraph D as follows*

- D. For all Sub-Drains, lateral piping for individual service connections shall be HDPE or similar product, from the mainline to the edge of the public right-of-way. When Sub-Drain mainline piping is of a material other than HDPE, provide appropriate adapter to the 4" or 6" HDPE lateral.

*New paragraph E as follows*

- E. For all Storm Drains and Sub-Drains, material for piping shall be concrete, except as noted in paragraph D above. Pressurized Irrigation may use material for appropriate pressure rating requirements.

**2.5 CLEANOUTS AND MANHOLES**

*Paragraphs B and C amended as follows.*

- B. Steps: required.  
1. material shall be plastic.
- C. Offset cone or offset flat slab concrete.

**3.5 INSTALLATION – SUB DRAIN SYSTEMS**

*Add paragraphs E and F as follows*

- E. Laterals for all sub drain systems shall be extended from the mainline to the property line and shall be connected to the mainline by means of an appropriate adapter
- F. Location of sub drain system laterals shall be permanently marked or etched into the curb face and the lateral terminus shall be indicated at the ground surface by a means, which is easily recognizable.



**Exhibit C**

**OGDEN CITY'S AMENDMENTS,**

**A SUPPLEMENT TO THE**

**"2007 MANUAL OF STANDARD PLANS**  
***by Utah Chapter of APWA"***

**ENTITLED**

**"STANDARD DRAWINGS,**

**2008 EDITION"**

**ADOPTED BY ADMINISTRATIVE ORDER**

**2008**

## INTRODUCTION

The following contains the 2008 Edition Amendments A Supplement to the 2007 Edition of the **Manual of Standard Plans** as adopted by Ogden City entitled **Standard Drawings, 2008 Edition**.

These 2008 edition amendments are effective as of the date indicated in the specific administrative order

These amendments set forth supplementary standard plans for construction related to all public works projects to be constructed under permit through Ogden City Engineering Division and all other public works improvements or repairs under the jurisdiction of the Public Works Department.

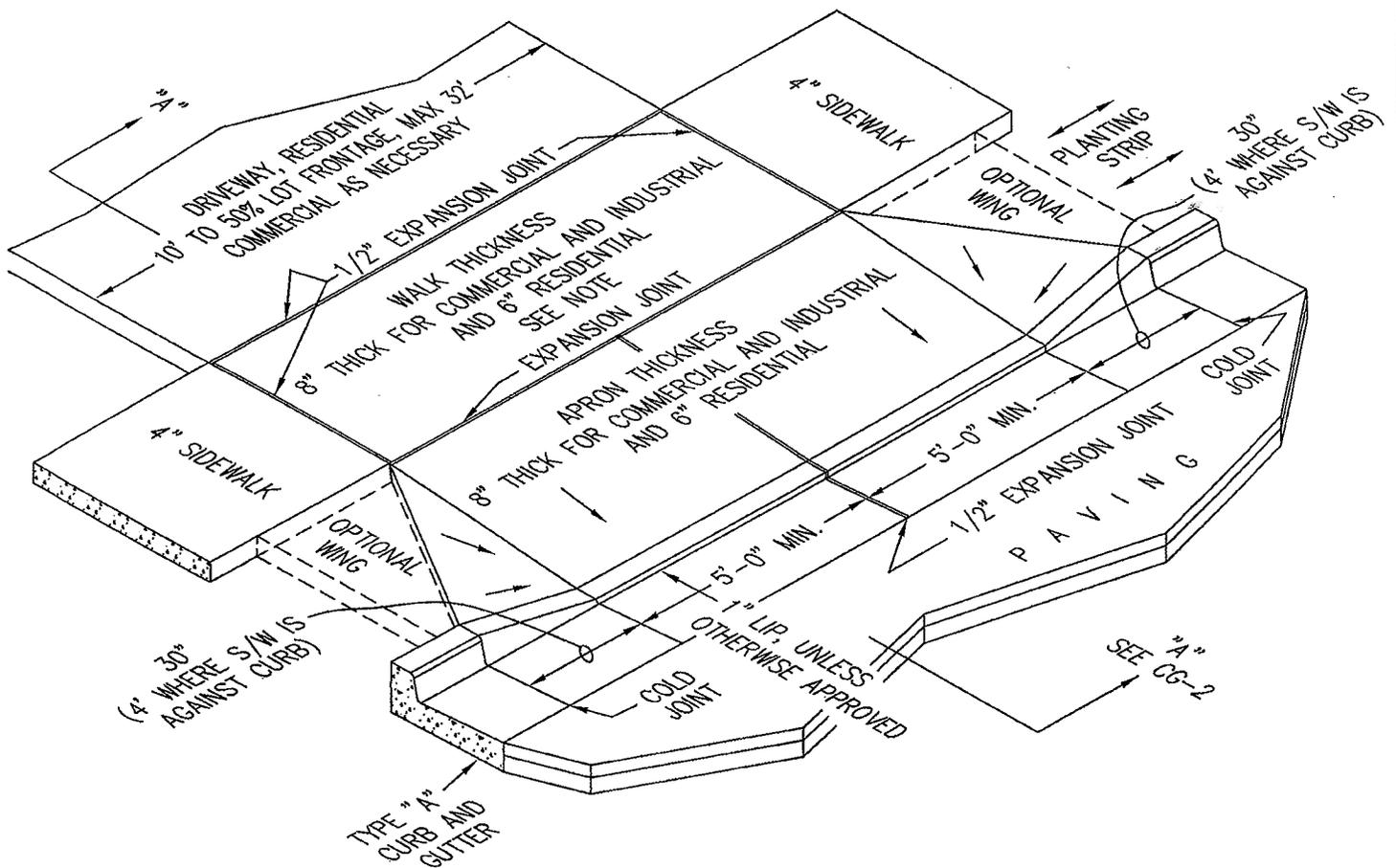
Should there be conflicts between the **Manual of Standard Plans** and the **Standard Drawings, 2008 Edition** the later shall govern and take precedent.

The construction of projects in conformity with these standard plans will expedite the completion and acceptance of the work permitted under direction of the Ogden City Engineer

All work within Ogden City right-of-ways, public easements or for other Ogden City Public Works Projects shall conform to these as contained within this document and also project specific **Supplementary Conditions**, where applicable.

Copies of the above referenced Amendments, Specifications and Amendments and Standard Plans are available for purchase from Ogden City Engineering, 2549 Washington Blvd, Suite 760, Ogden, Utah, during normal working hours.

NOTE. FOR EXTRA HEAVY TRAFFIC  
SPECIAL DESIGN WILL BE  
NEEDED.



STANDARD FLARED DRIVEWAY APPROACH  
ISOMETRIC VIEW

JGDEN CITY  
ENGINEERING

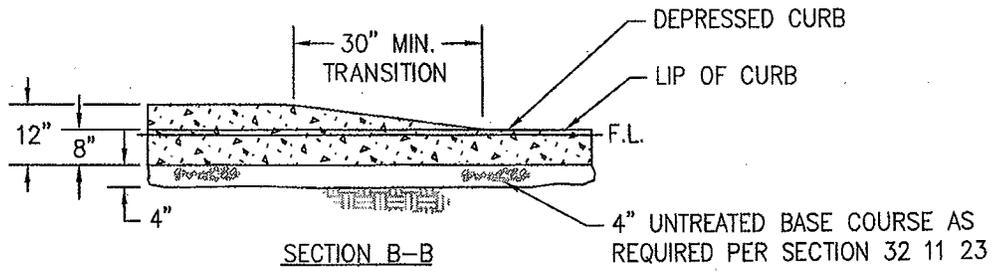
5/13/02

# Isometric Driveway Approach

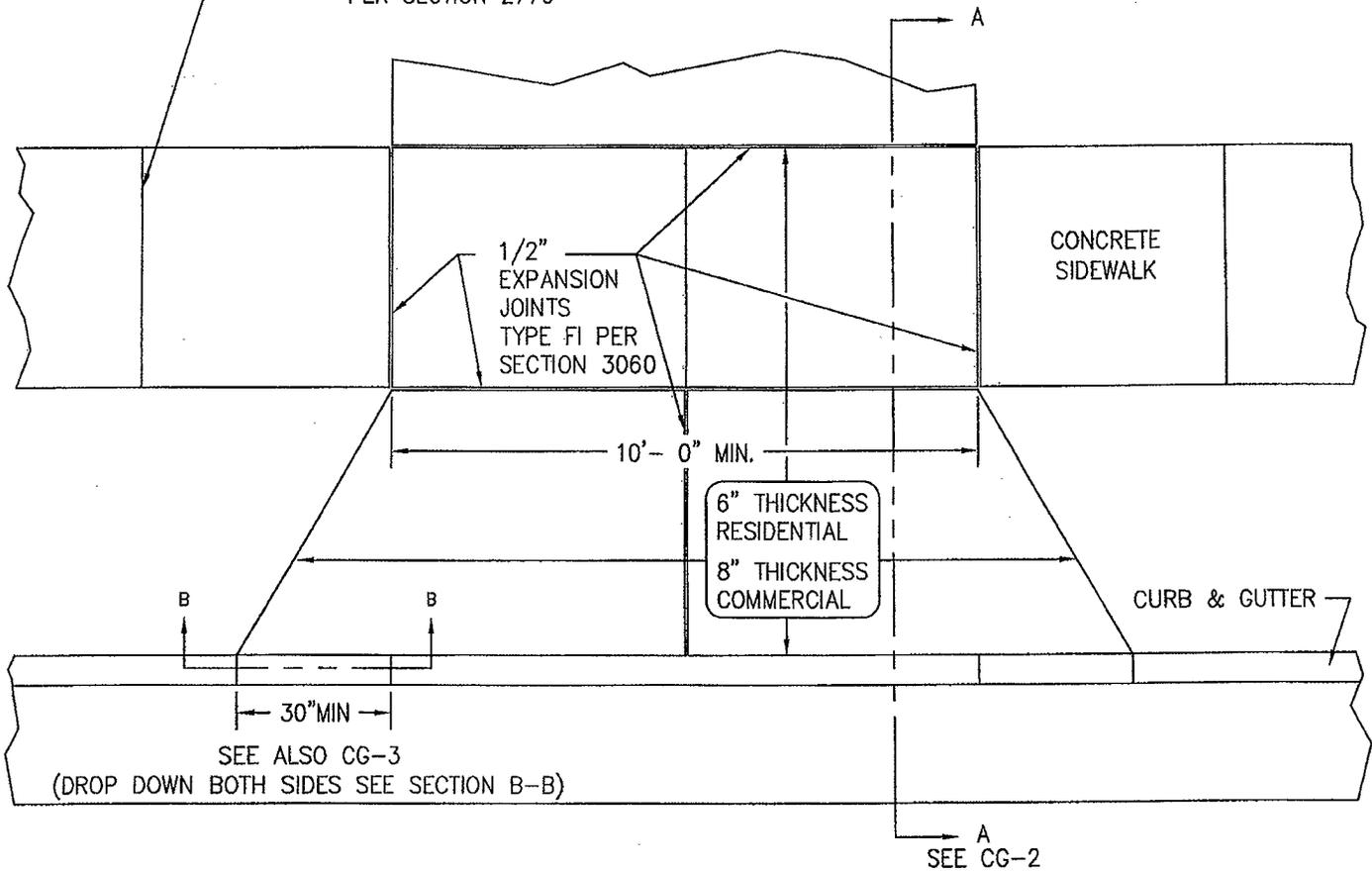
STANDARD PLANS

CG-3

SHEET 1 OF 1



NOTE. SCRIBE SIDEWALK 1/2" DEPTH AT EACH 4'-0" EXPANSION JOINT AT EACH 40'-0" PER SECTION 2770



TYPE B DRIVEWAY APPROACH

JGDEN CITY  
ENGINEERING

5/13/02

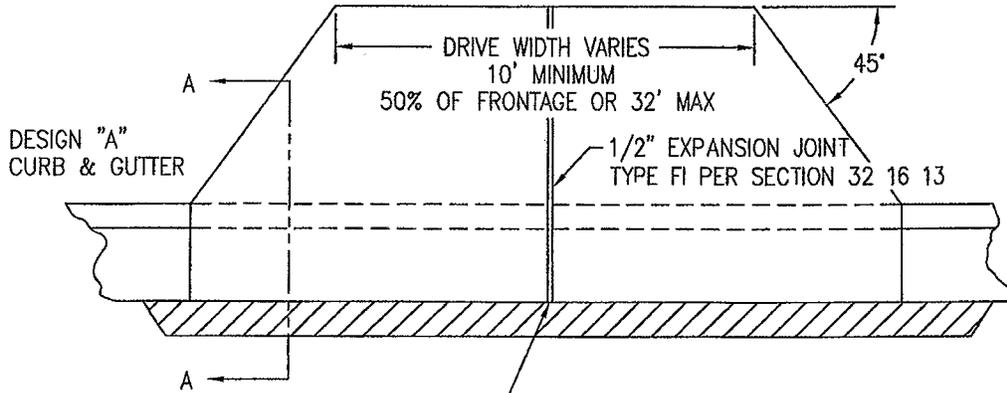
Driveway Approach - Plan View

STANDARD PLANS

CG-4

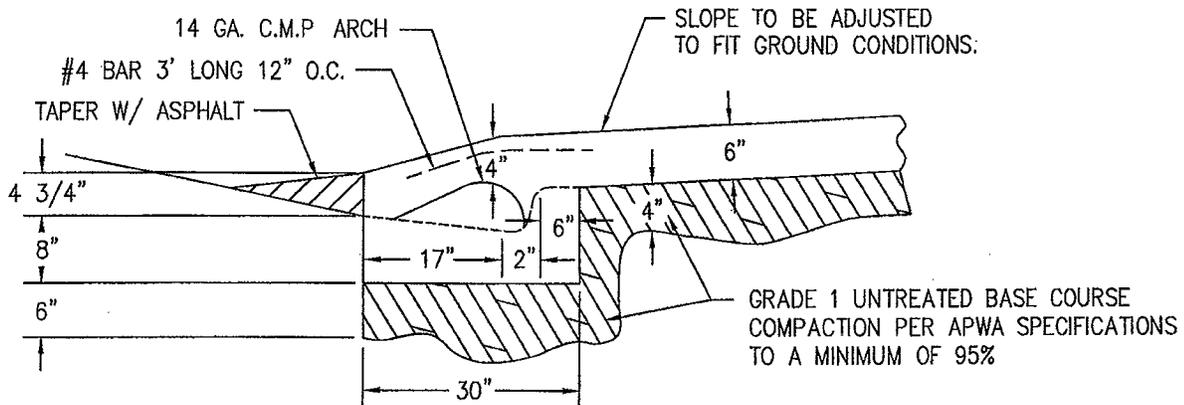
SHEET 1 OF 1

**CAUTION:** INSTALLATION ON PUBLIC R.O.W OF AN OVERHEAD DRIVEWAY ENTRANCE REQUIRES SPECIAL APPROVAL OF THE CITY ENGINEER.



**NOTE:** ON DRIVEWAY OVER 16', 2 OR MORE EXPANSION JOINTS SHALL BE INSTALLED AS DIRECTED.

PAVEMENT IN FRONT OF THE OVERHEAD DRIVE TO BE BUILT UP AS DIRECTED BY THE CITY ENGINEER.



**JGDEN CITY ENGINEERING**

5/09/08

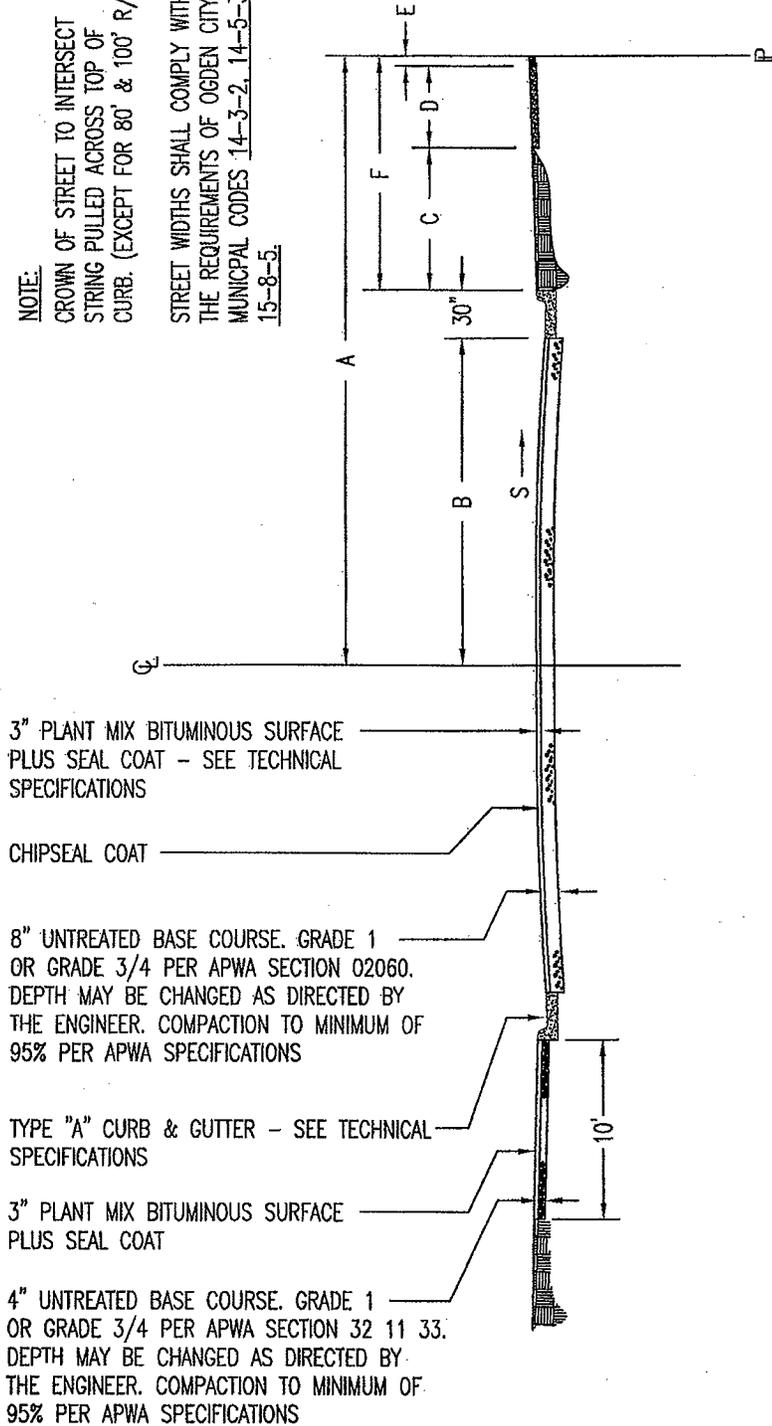
# Residential Overhead Driveway

STANDARD PLANS

**CG-5**

SHEET 1 OF 1

**NOTE:**  
 CROWN OF STREET TO INTERSECT  
 STRING PULLED ACROSS TOP OF  
 CURB. (EXCEPT FOR 80' & 100' R/W)  
 STREET WIDTHS SHALL COMPLY WITH  
 THE REQUIREMENTS OF OGDEN CITY  
 MUNICIPAL CODES 14-3-2, 14-5-3,  
15-8-5.



3" PLANT MIX BITUMINOUS SURFACE  
 PLUS SEAL COAT - SEE TECHNICAL  
 SPECIFICATIONS

CHIPSEAL COAT

8" UNTREATED BASE COURSE, GRADE 1  
 OR GRADE 3/4 PER APWA SECTION 02060.  
 DEPTH MAY BE CHANGED AS DIRECTED BY  
 THE ENGINEER. COMPACTION TO MINIMUM OF  
 95% PER APWA SPECIFICATIONS

TYPE "A" CURB & GUTTER - SEE TECHNICAL  
 SPECIFICATIONS

3" PLANT MIX BITUMINOUS SURFACE  
 PLUS SEAL COAT

4" UNTREATED BASE COURSE, GRADE 1  
 OR GRADE 3/4 PER APWA SECTION 32 11 33.  
 DEPTH MAY BE CHANGED AS DIRECTED BY  
 THE ENGINEER. COMPACTION TO MINIMUM OF  
 95% PER APWA SPECIFICATIONS

WIDTH OF R.O.W.	80'	A	40'	B	28'	C	5'-0"	D	4'-0"	E	0'-6"	F	9'-6"	S	ft/ft	.0200
--------------------	-----	---	-----	---	-----	---	-------	---	-------	---	-------	---	-------	---	-------	-------

**OGDEN CITY  
 ENGINEERING**

05/13/2008

# Roadway & Trail Section

STANDARD PLANS

**SPECIAL**

SHEET 1 OF 1

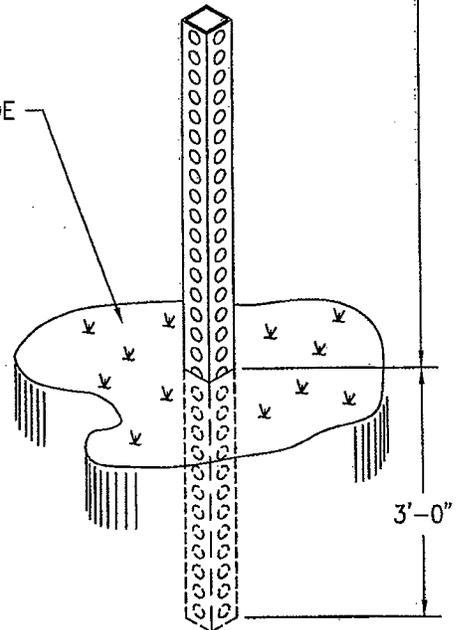
SIGNS TO BE PER  
OGDEN CITY STANDARDS  
(SEE SIGN DETAIL)



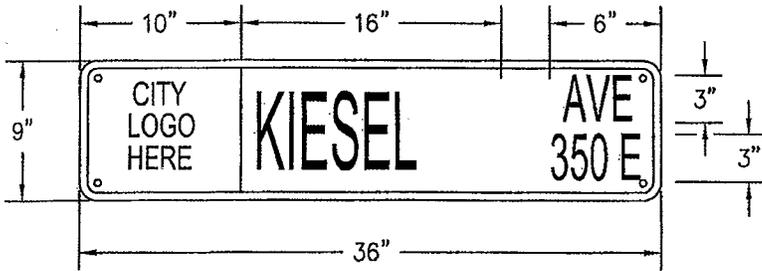
GALVANIZED STEEL TUBE  
12' x 1 3/4" x 1 3/4"  
7/16" DIAMETER HOLES  
1" ON CENTER  
(FULL LENGTH OF POST)

7'-9"

FINISHED GRADE



3'-0"



SIGN DETAIL

CITY STREET SIGN TO BE GREEN ON WHITE BACKGROUND  
PRIVATE STREET SIGN TO BE BLUE ON WHITE BACKGROUND

**OGDEN CITY  
ENGINEERING**

5/13/2008

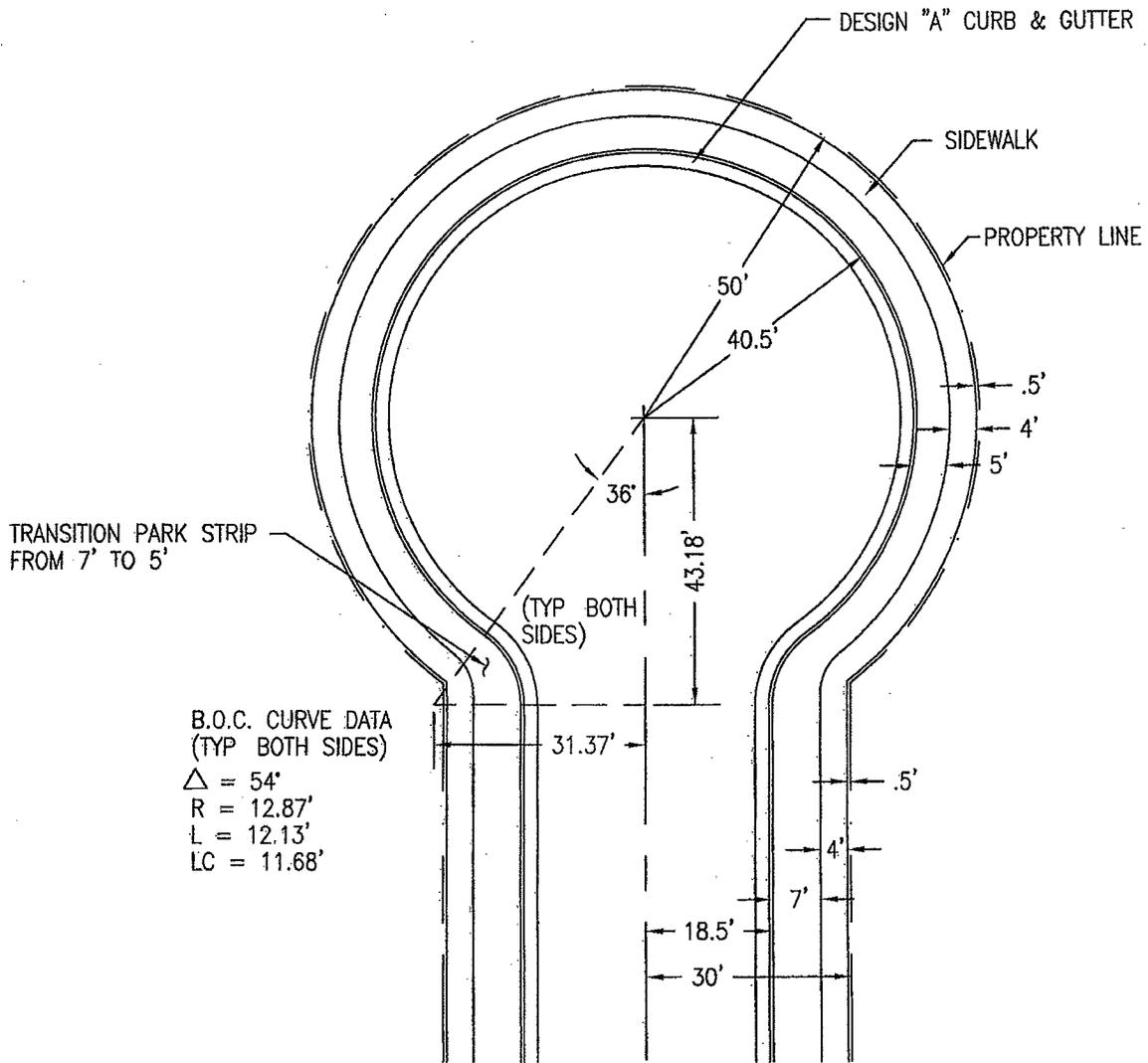
# Standard Street Sign

STANDARD PLANS

**SIGN-1**

SHEET 1 OF 1

SUPERCEDES #292



NOTES:

- 1 CURB & SIDEWALK TRANSITION SECTIONS WILL VARY

OGDEN CITY  
ENGINEERING

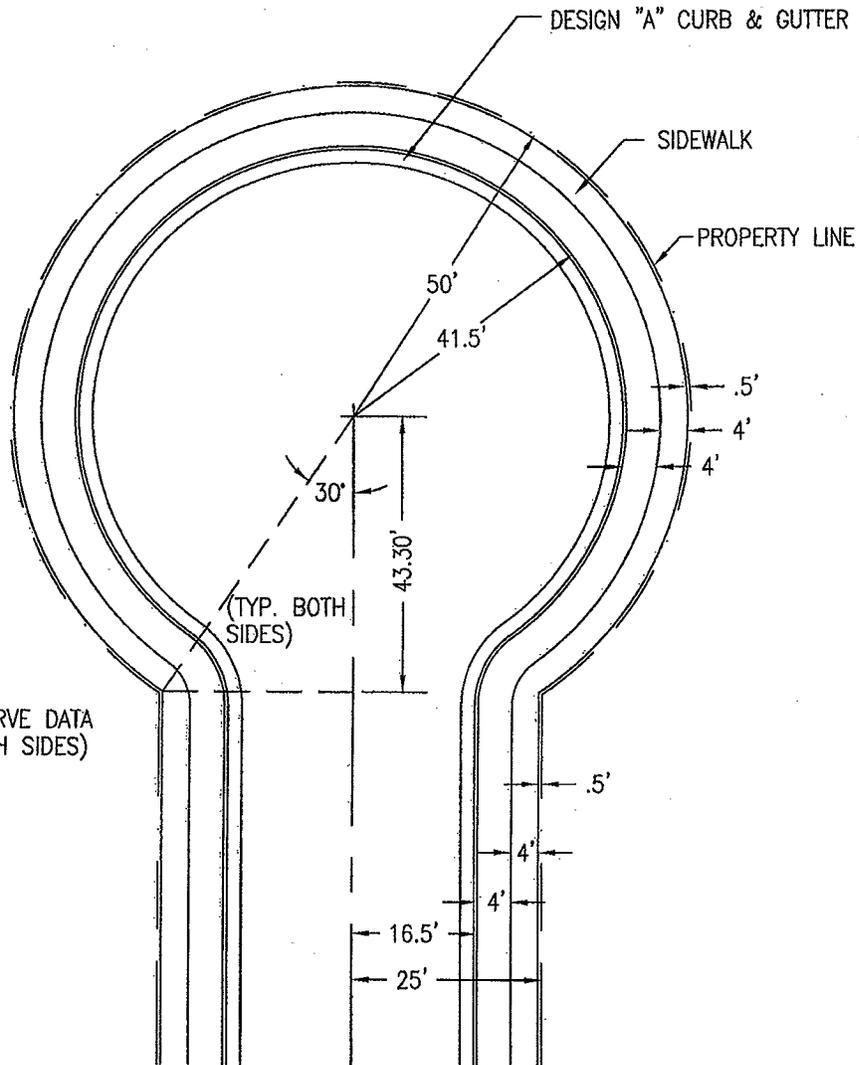
5/13/2008

Standard Cul - De - Sac

STANDARD PLANS

RD-2

SHEET 1 OF 1



B.O.C. CURVE DATA  
 (TYP. BOTH SIDES)  
 $\Delta = 60^\circ$   
 $R = 8.5'$   
 $L = 8.9'$   
 $LC = 8.5'$

**OGDEN CITY  
 ENGINEERING**

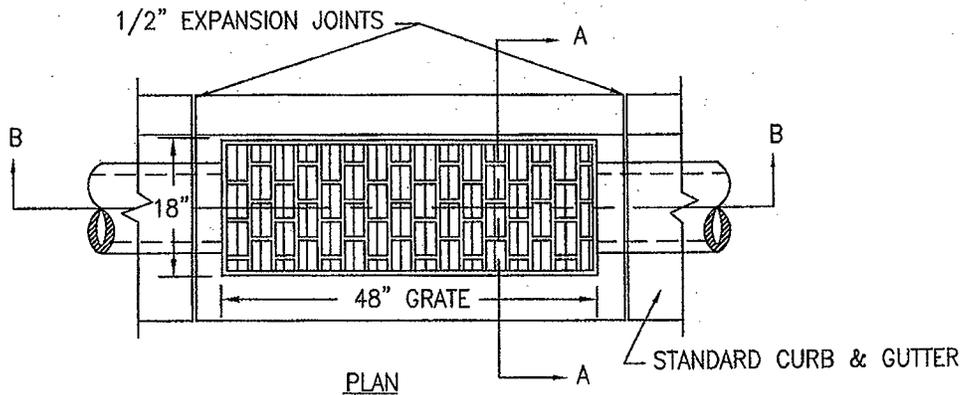
5/13/2008

**50' ROW Cul - De - Sac**

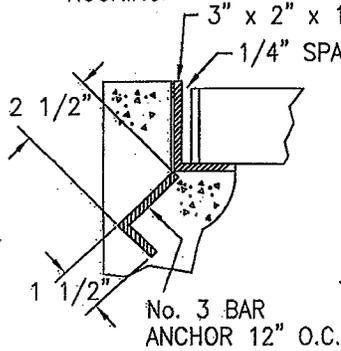
STANDARD PLANS

**RD-2.50**

SHEET 1 OF 1

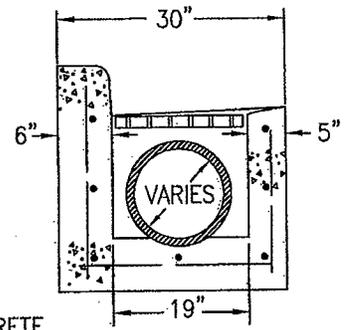
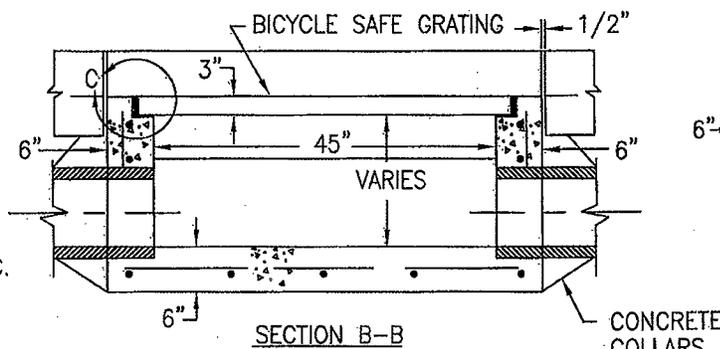


SET ANGLE IRON SEATS FOR GRATE LEVEL, TO ELIMINATE ROCKING.

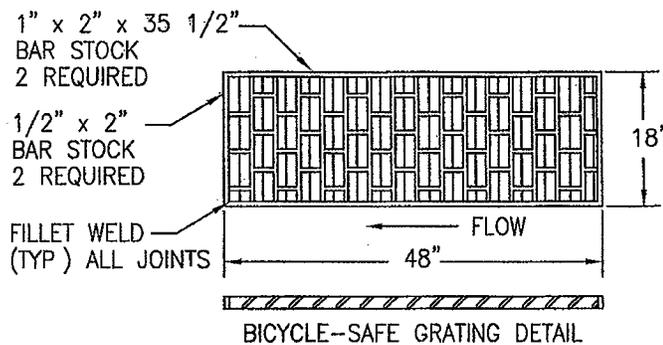


DETAIL C

NOTE: SET GRATE 1/4" BELOW FLOW LINE OF GUTTER



SECTION A-A



STANDARD CURB TYPE CATCH BASIN

NOTE: PIPE LOCATION INTO BOX SHOWN ON THIS PLAN IS PICTORIAL ONLY PIPE MAY ENTER BOX FROM ANY SIDE AS INDICATED ON CONSTRUCTION PLAN.

NOTE: PIPE SIZE AND DEPTH VARIES

REINFORCE BOX WITH #4 RODS, 6" O.C. BOTH WAYS AT CENTER OF WALLS AND BOTTOM.

NOTE: ON STEEP GRADES WARP CURB FLOW LINE TO PERMIT HORIZONTAL INSTALLATION OF GRATING.

OGDEN CITY ENGINEERING

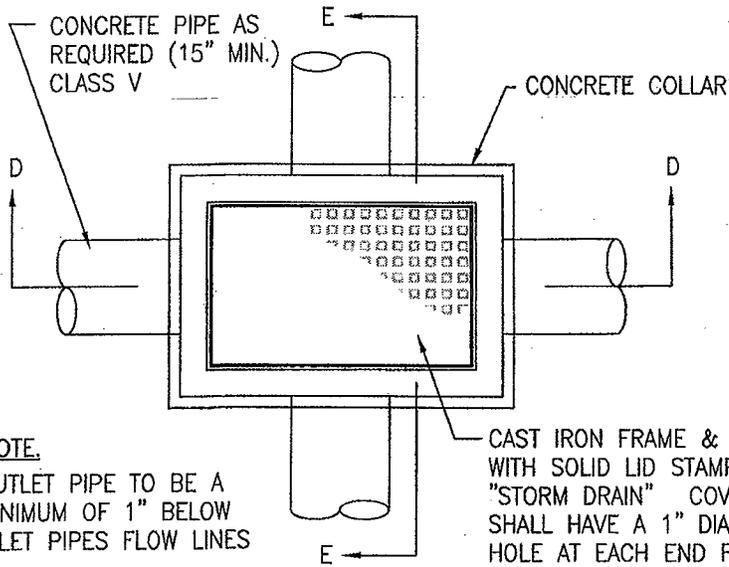
5/13/2008

# Standard Inlet Box

STANDARD PLANS

## SD-1

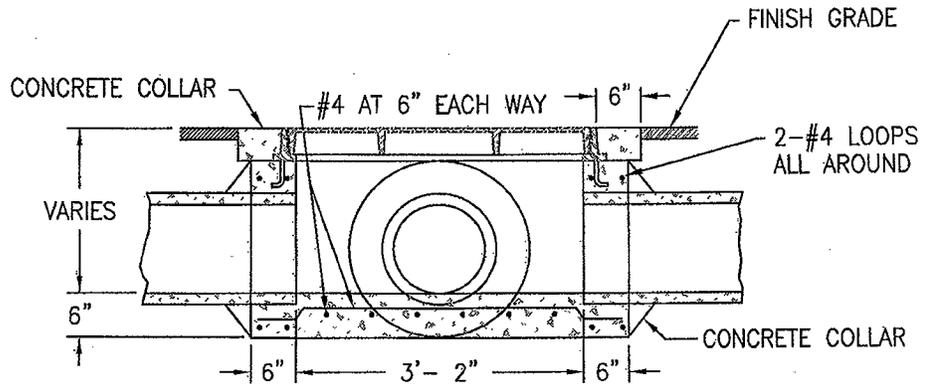
SHEET 1 OF 1



**NOTE.**  
 OUTLET PIPE TO BE A  
 MINIMUM OF 1" BELOW  
 INLET PIPES FLOW LINES

CAST IRON FRAME & COVER  
 WITH SOLID LID STAMPED  
 "STORM DRAIN" COVER  
 SHALL HAVE A 1" DIA. PICK  
 HOLE AT EACH END FOR  
 EASY REMOVAL

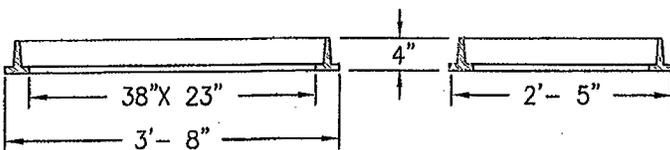
TYPICAL DIPSTONE  
 PIPE CLEANOUT



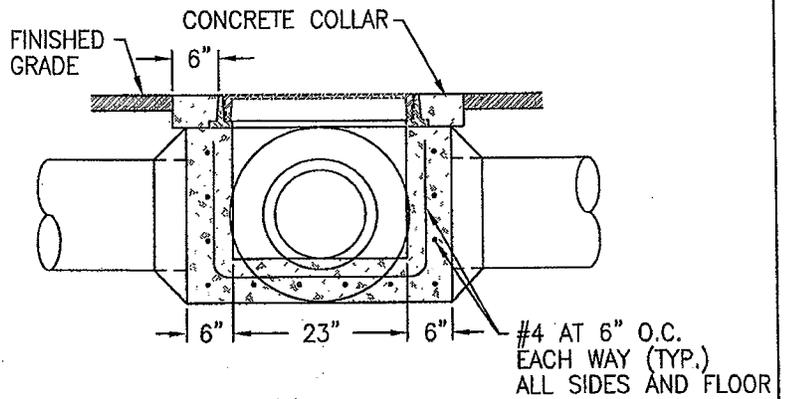
SECTION D-D



CAST IRON COVER



CAST IRON FRAME



SECTION E-E

**OGDEN CITY  
 ENGINEERING**

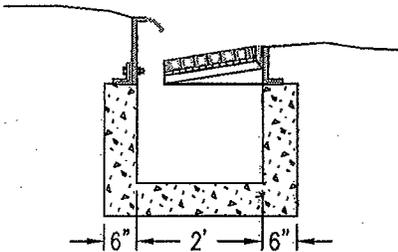
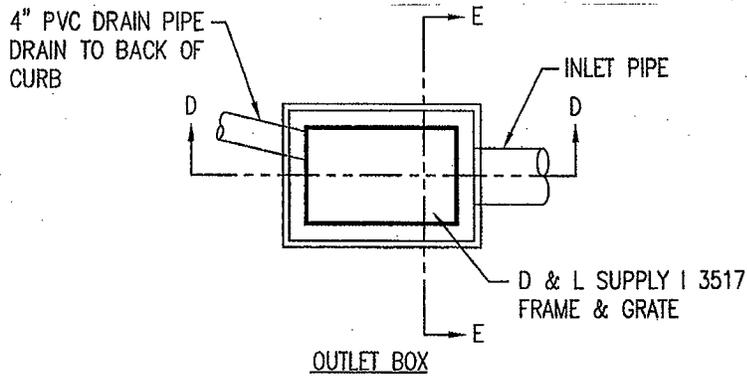
5/13/2008

**Dipstone Cleanout Box**

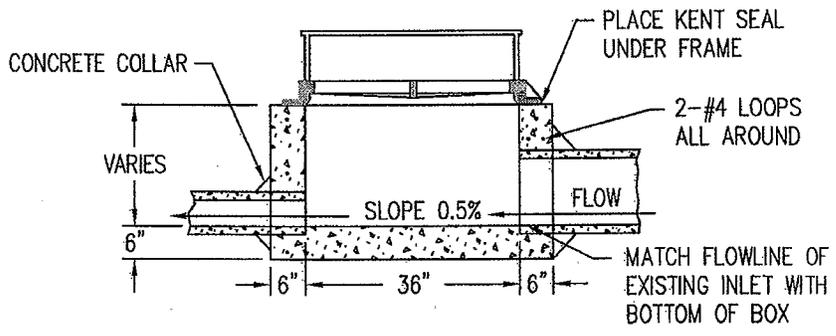
STANDARD PLANS

**SD-2**

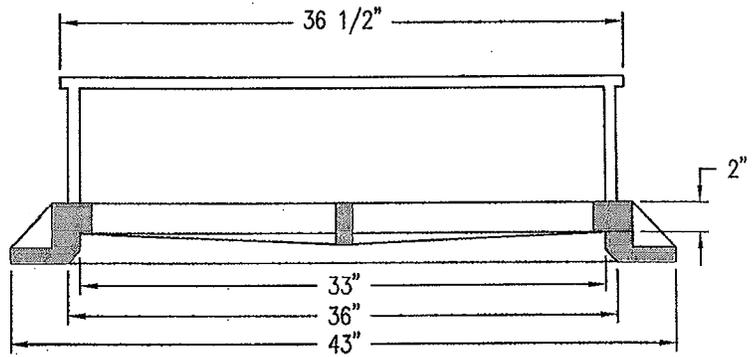
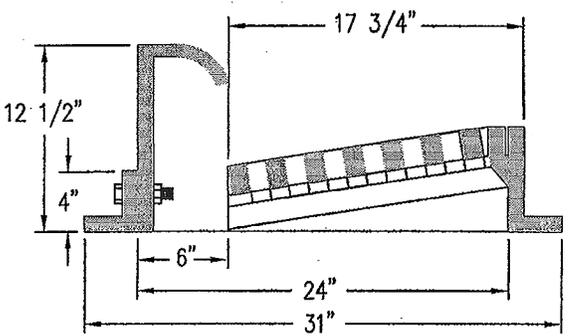
SHEET 1 OF 1



SECTION E-E

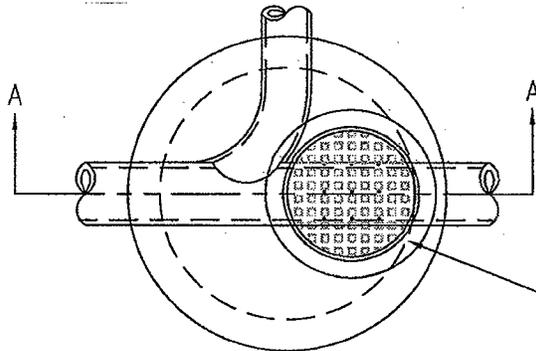


SECTION D-D



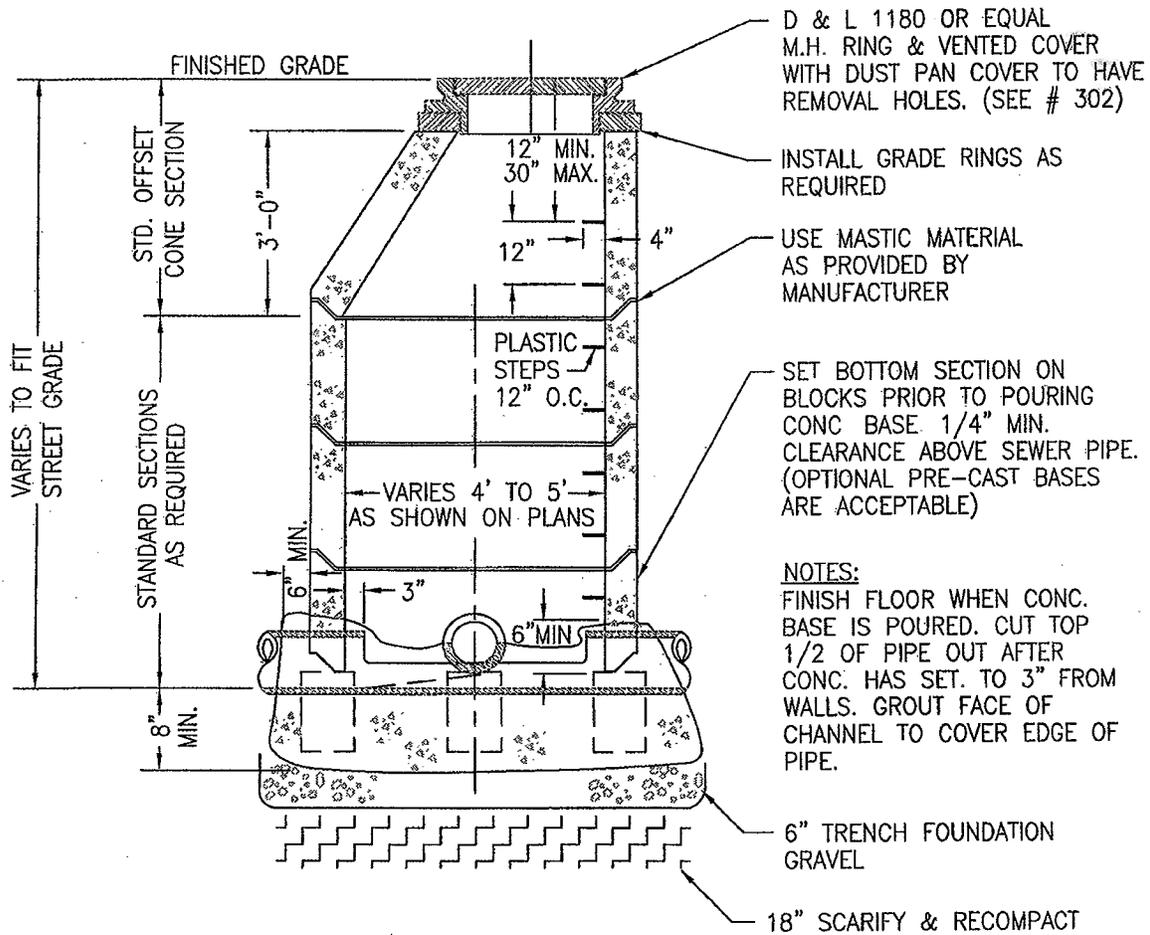
INLET FRAMES AND GRATES  
(D & L SUPPLY I-3517 OR EQUAL)

<b>OGDEN CITY ENGINEERING</b>  5 / 13 / 2008	<h2 style="margin: 0;">Inlet Box w/ Curb Overflow</h2> <p style="margin: 0;">(For all sump areas, may be used as multiple inlets)</p>	STANDARD PLANS  <h1 style="margin: 0;">SD-3</h1>
	SHEET 1 OF 1	



PLAN

STANDARD DESIGN "A"  
MANHOLE CASTING  
D & L 1180 OR  
AN APPROVED EQUIVALENT  
WITH REMOVAL HOLES



D & L 1180 OR EQUAL  
M.H. RING & VENTED COVER  
WITH DUST PAN COVER TO HAVE  
REMOVAL HOLES. (SEE # 302)

INSTALL GRADE RINGS AS  
REQUIRED

USE MASTIC MATERIAL  
AS PROVIDED BY  
MANUFACTURER

SET BOTTOM SECTION ON  
BLOCKS PRIOR TO POURING  
CONC. BASE 1/4" MIN.  
CLEARANCE ABOVE SEWER PIPE.  
(OPTIONAL PRE-CAST BASES  
ARE ACCEPTABLE)

NOTES:  
FINISH FLOOR WHEN CONC.  
BASE IS POURED. CUT TOP  
1/2 OF PIPE OUT AFTER  
CONC. HAS SET. TO 3" FROM  
WALLS. GROUT FACE OF  
CHANNEL TO COVER EDGE OF  
PIPE.

6" TRENCH FOUNDATION  
GRAVEL

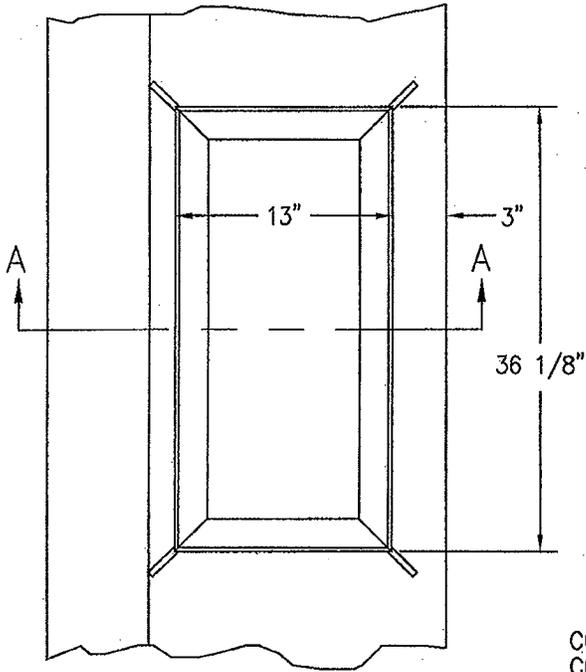
18" SCARIFY & RECOMPACT

SECTION A-A  
STANDARD MANHOLE

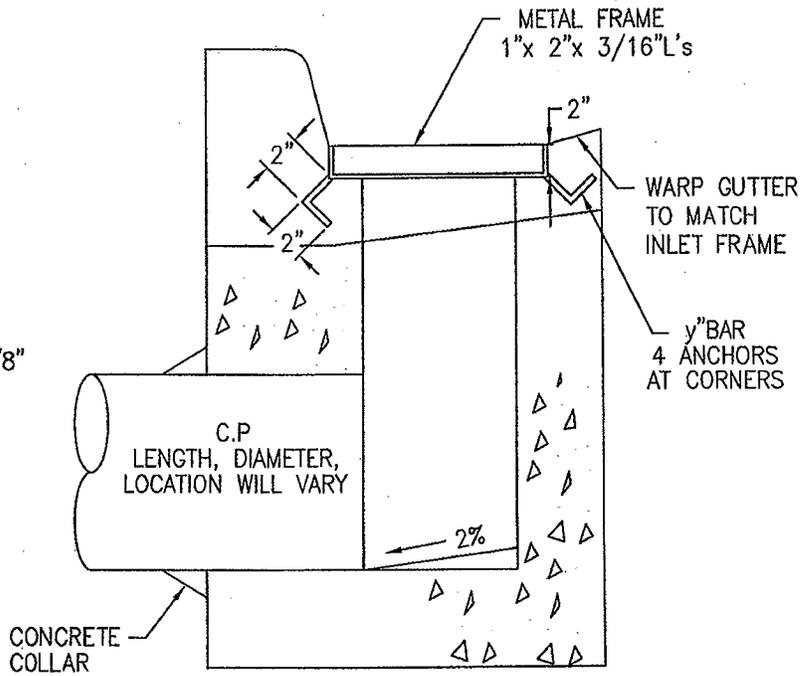
**OGDEN CITY  
ENGINEERING**  
5/13/2008

**Manhole Detail**

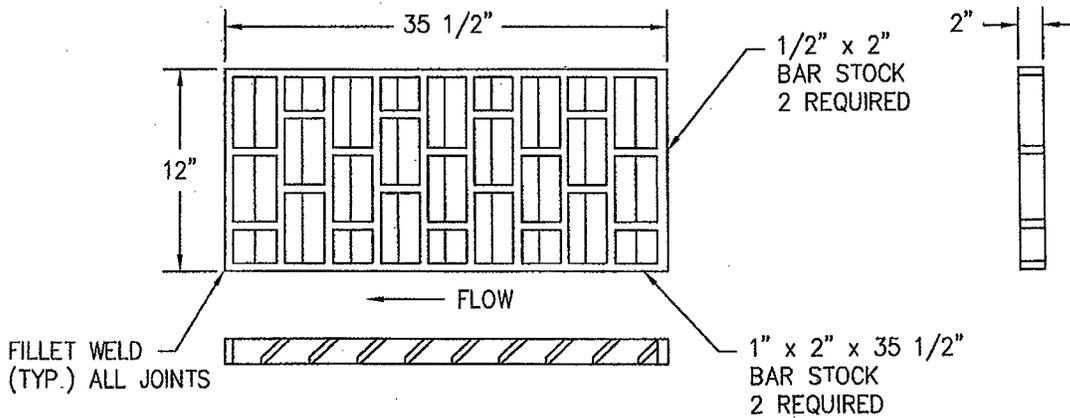
STANDARD PLANS		
<b>SD-4</b>		
SHEET	1	OF 1



INLET BOX



SECTION A-A



INLET BOX GRATE  
DIRECTIONAL GRATE

**OGDEN CITY  
ENGINEERING**

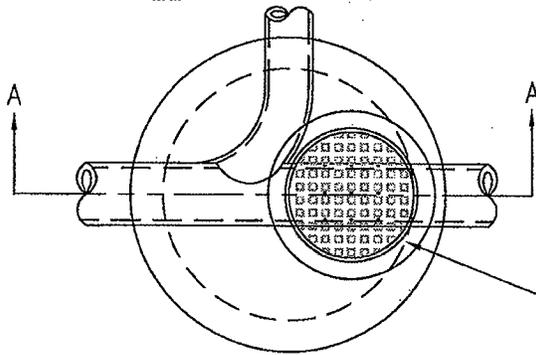
5/13/2008

**Directional Grate**

STANDARD PLANS

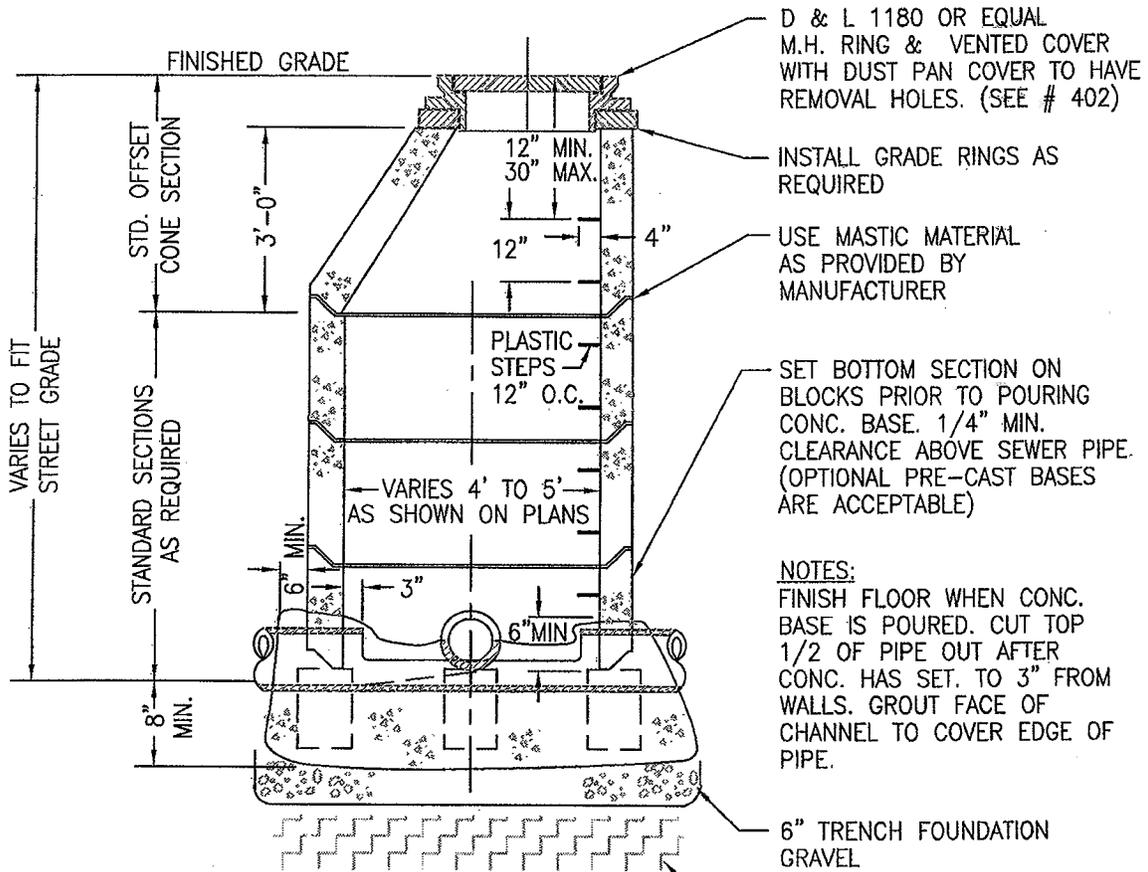
**SD-5**

SHEET 1 OF 1



PLAN

STANDARD DESIGN "A"  
MANHOLE CASTING  
D & L 1180 OR  
AN APPROVED EQUIVALENT  
WITH REMOVAL HOLES



D & L 1180 OR EQUAL  
M.H. RING & VENTED COVER  
WITH DUST PAN COVER TO HAVE  
REMOVAL HOLES. (SEE # 402)

INSTALL GRADE RINGS AS  
REQUIRED

USE MASTIC MATERIAL  
AS PROVIDED BY  
MANUFACTURER

SET BOTTOM SECTION ON  
BLOCKS PRIOR TO POURING  
CONC. BASE. 1/4" MIN.  
CLEARANCE ABOVE SEWER PIPE.  
(OPTIONAL PRE-CAST BASES  
ARE ACCEPTABLE)

**NOTES:**  
FINISH FLOOR WHEN CONC.  
BASE IS POURED. CUT TOP  
1/2 OF PIPE OUT AFTER  
CONC. HAS SET. TO 3" FROM  
WALLS. GROUT FACE OF  
CHANNEL TO COVER EDGE OF  
PIPE.

6" TRENCH FOUNDATION  
GRAVEL

18" SCARIFY & RECOMPACT

STANDARD MANHOLE

SECTION A-A

OGDEN CITY  
ENGINEERING

5/13/2008

Manhole Detail

STANDARD PLANS

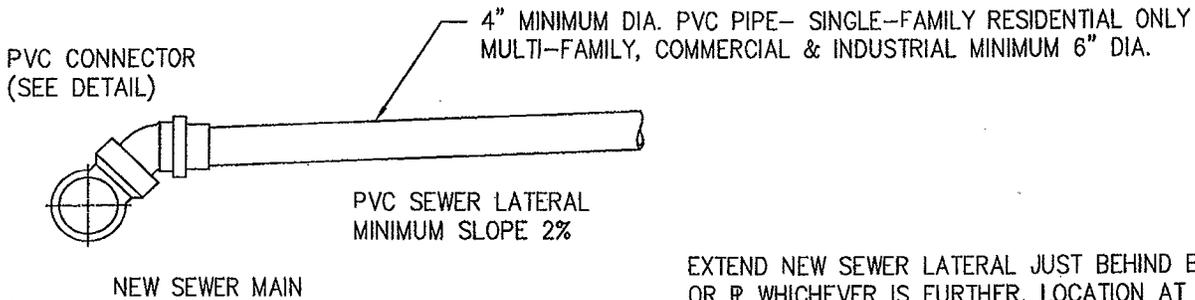
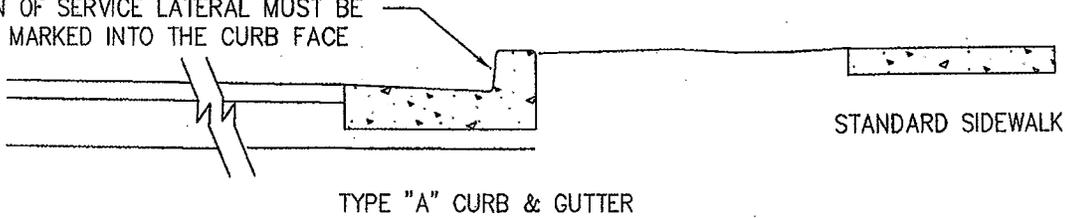
SS-1

SHEET 1 OF 1

REPLACES: # 411

## TYPICAL SEWER LATERALS CONNECTION

LOCATION OF SERVICE LATERAL MUST BE CLEARLY MARKED INTO THE CURB FACE

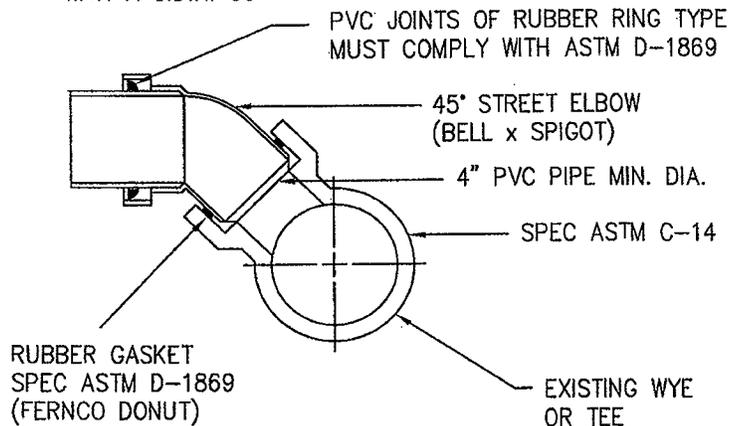


EXTEND NEW SEWER LATERAL JUST BEHIND BACK OF SIDEWALK OR R<sub>1</sub> WHICHEVER IS FURTHER. LOCATION AT END OF LATERAL MUST BE MARKED WITH A 2x4, SET IN GROUND & WITH END COLORED GREEN. PVC JOINTS OF RUBBER RING TYPE MUST COMPLY WITH ASTM D-1869

### PVC CONNECTOR DETAIL

NOTE.

PVC PIPE FITTINGS ASTM D-3034 WITH A S.D.R. 35



**OGDEN CITY  
ENGINEERING**

5/13/2008

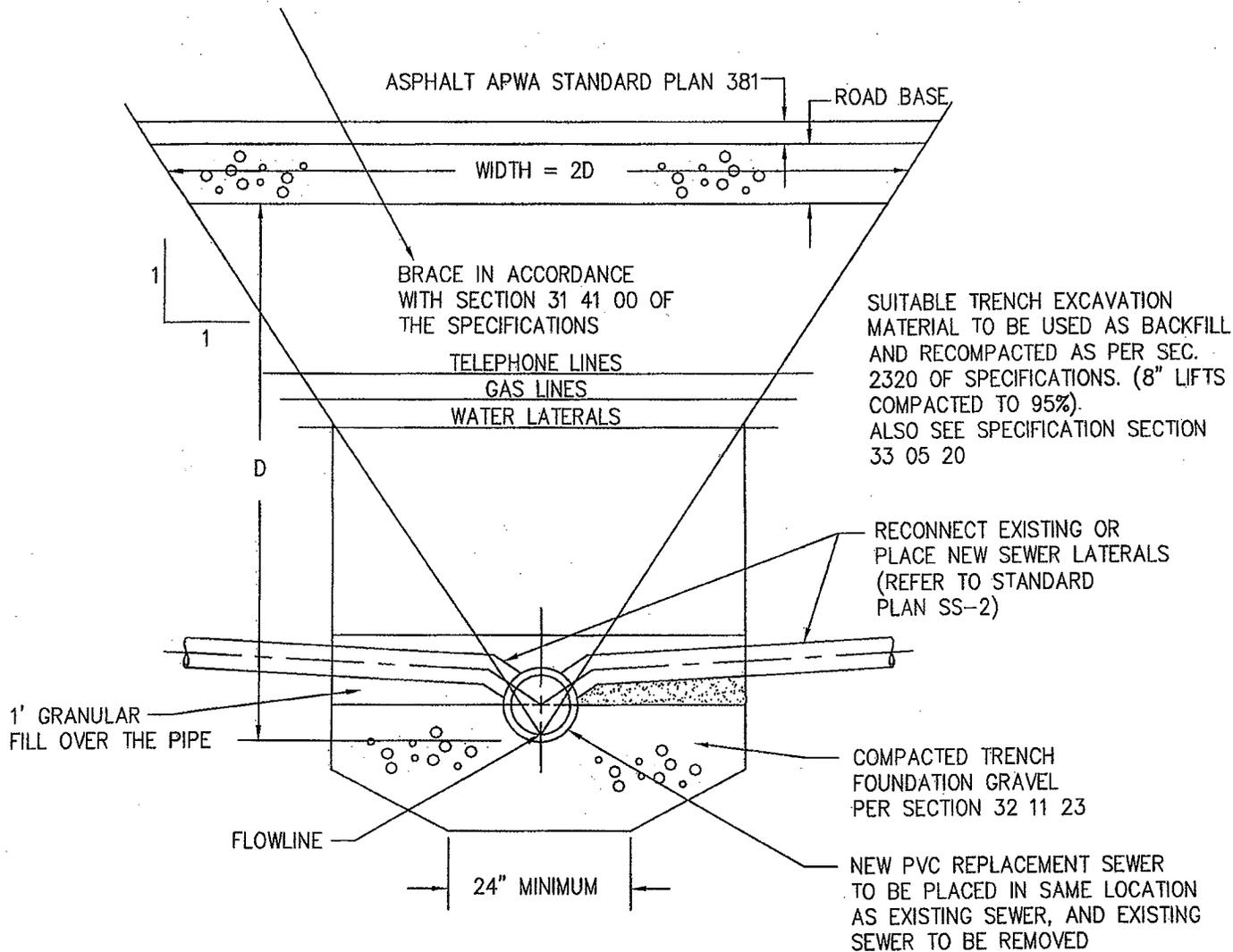
# Sewer Lateral Connection

STANDARD PLANS

## SS-2

SHEET 1 OF 1

**NOTE.** IMPORTED GRANULAR BACKFILL PAYMENT LIMIT FOR SANITARY SEWER MAIN AND LATERALS IS SHOWN BELOW (REFER TO SPECIAL PROVISIONS)



TRENCH CROSS SECTION OF REPLACEMENT SEWER

**OGDEN CITY  
ENGINEERING**

5/13/2008

# Sewer Replacement Trench

STANDARD PLANS

**SS-3**

SHEET 1 OF 1

CLOW MODEL F2500  
OR MUELER CENTURION

AS DIRECTED BY  
ENGINEER OR 2'-6"  
BACK  
OF CURB TO FACE OF  
HYDRANT

COMPACTED BACKFILL

UNDISTURBED  
EARTH

DESIGN "A" GUTTER

2'-6"

2" MIN.

VALVE BOX

8" x 6"  
M.J x FLG. TEE

INSTALL 6" VALVE WITH BOX  
AT CONNECTION TO MAIN

6" DI SUPPLY LINE  
FROM MAIN

CONC. THRUST BLK.  
1/3 YARD MIN.  
SEE PLAN # 561

6" GATE VALVE  
FL x MJ

18"x18"x4"  
CONC. BLOCK

CONCRETE THRUST BLOCK  
SEE TABLE & NOTES  
ON STANDARD PLAN 561  
FOR MIN. BEARING AREA

15 LB. BLDG. FELT

SEWER ROCK  
1/2 YARD MIN.  
PER SEC. 32 11 23

TYPICAL WATER HYDRANT  
INSTALLATION DETAIL

**JGDEN CITY  
ENGINEERING**

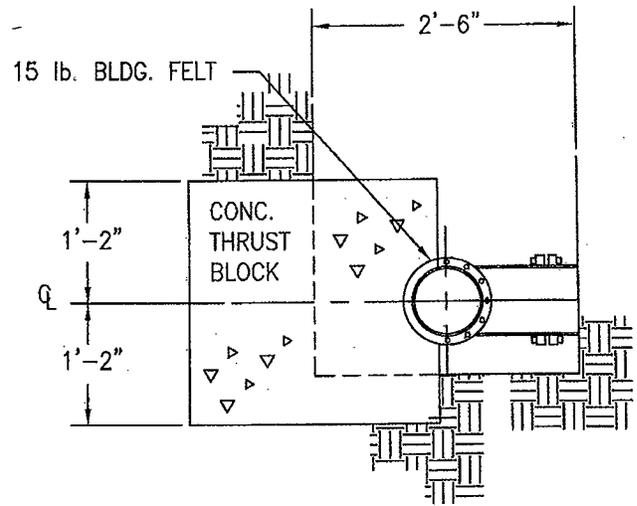
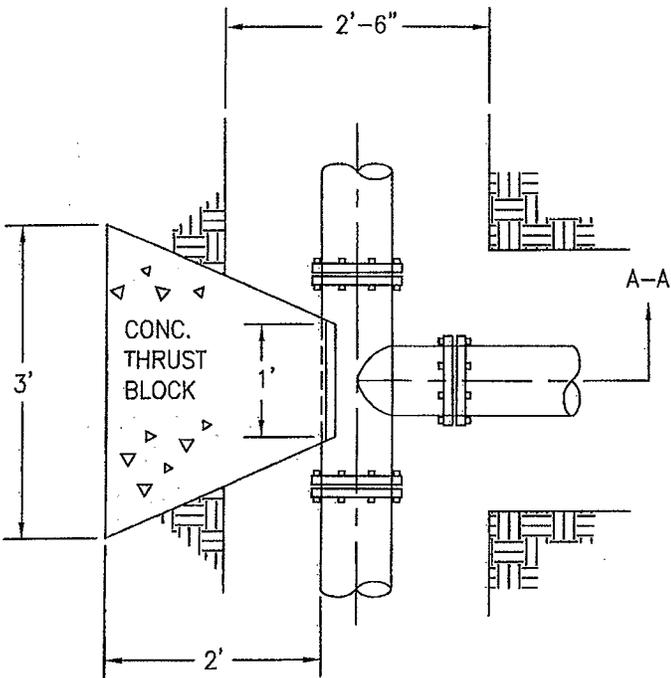
**Fire Hydrant**

STANDARD PLANS

**W-1**

5/14/2008

SHEET 1 OF 1



SECTION A-A

REACTION BACKING DETAIL  
 FOR WATERLINES  
 SEE NOTES FOR PLAN # 561

JGDEN CITY  
 ENGINEERING

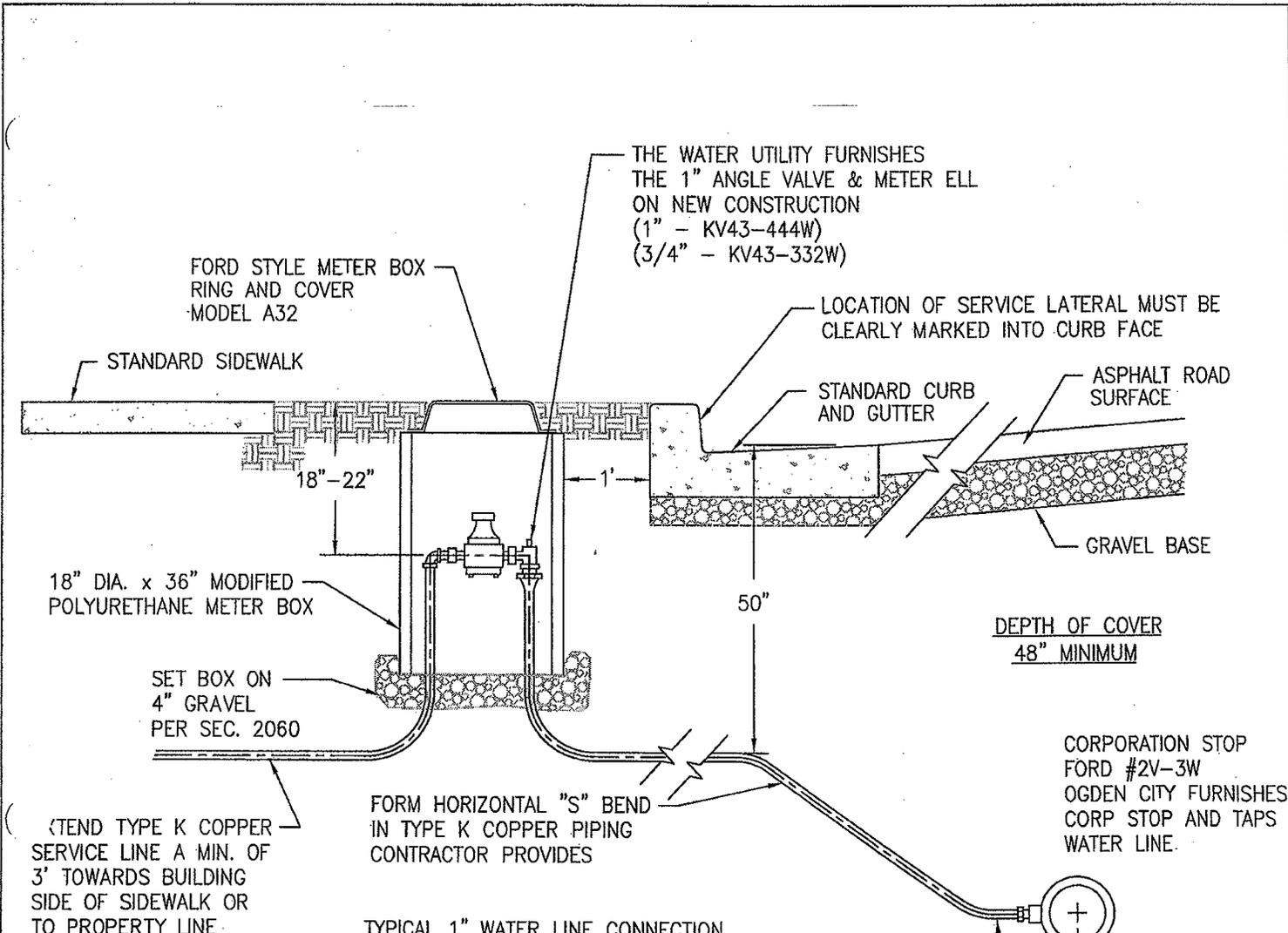
5/14/2008

Standard Thrust Block

STANDARD PLANS

W-2

SHEET 1 OF 1



THE WATER UTILITY FURNISHES  
THE 1" ANGLE VALVE & METER ELL  
ON NEW CONSTRUCTION  
(1" - KV43-444W)  
(3/4" - KV43-332W)

FORD STYLE METER BOX  
RING AND COVER  
MODEL A32

LOCATION OF SERVICE LATERAL MUST BE  
CLEARLY MARKED INTO CURB FACE

STANDARD SIDEWALK

STANDARD CURB  
AND GUTTER

ASPHALT ROAD  
SURFACE

18"-22"

18" DIA. x 36" MODIFIED  
POLYURETHANE METER BOX

GRAVEL BASE

50"

DEPTH OF COVER  
48" MINIMUM

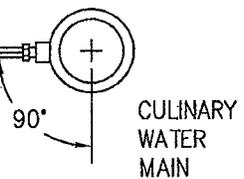
SET BOX ON  
4" GRAVEL  
PER SEC. 2060

CORPORATION STOP  
FORD #2V-3W  
OGDEN CITY FURNISHES  
CORP STOP AND TAPS  
WATER LINE.

FORM HORIZONTAL "S" BEND  
IN TYPE K COPPER PIPING  
CONTRACTOR PROVIDES

ATTEND TYPE K COPPER  
SERVICE LINE A MIN. OF  
3' TOWARDS BUILDING  
SIDE OF SIDEWALK OR  
TO PROPERTY LINE.  
WHEN NO SIDEWALK IS  
PROPOSED FOR DEVELOPMENT  
END OF EXTENDED LATERAL  
SHALL BE CLEARLY MARKED  
WITH A 2x4 COLORED BLUE  
& VISIBLY EXTENDED ABOVE  
ADJACENT SURFACE.

TYPICAL 1" WATER LINE CONNECTION



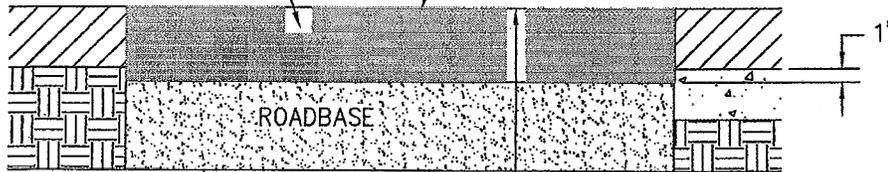
WATER LINE CONNECTION NOTES

1. OGDEN CITY WILL SUPPLY ANY NEW METERS AS NEEDED.
2. CONTRACTOR MAY REUSE METER BOXES, RING AND COVER, AND METERS WHEN MOVING METERS TO WITHIN ONE FOOT OF BACK OF CURB. CONTRACTOR MUST FURNISH ANY DAMAGED METER BOXES, RINGS AND COVERS.
3. CONTRACTOR TO EXCAVATE A LARGE ENOUGH SPACE AROUND MAIN TO PERMIT OGDEN CITY CREWS TO TAP MAIN. (1' CLEAR AROUND MAIN & 6' x 8' MIN. SIZE)
4. ALL EXCAVATED MATERIAL IS TO BE DISCARDED, SELECT BACKFILL SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 33 05 20 OF APWA SPECIFICATIONS.
5. NO SOLDER JOINTS OR OTHER CONNECTION TYPES ALLOWED BETWEEN CORP STOP AND ANGLE VALVE. NO SOLDER JOINTS OF ANY KIND ALLOWED!

<b>OGDEN CITY ENGINEERING</b>  5/14/2008	<h1 style="margin: 0;">Water Lateral Connection</h1>	STANDARD PLANS  <h2 style="margin: 0;">W-3</h2>
		SHEET 1 OF 1

SEE STANDARD PLAN # 255  
FOR DETAILS

MATCH EXISTING PAVEMENT THICKNESS PLUS 1" BUT  
NO LESS THAN 4" ASPHALT & 8" OF ROAD BASE



VERTICAL SIDE SLOPE  
PAY LIMITS

2'-6"  
4' COVER  
MIN.

NOTE. PAYMENT LIMITS FOR  
IMPORTED GRANULAR BACKFILL  
ARE AS SHOWN. (REFER TO  
SPECIAL PROVISIONS)

NEW WATERMAIN

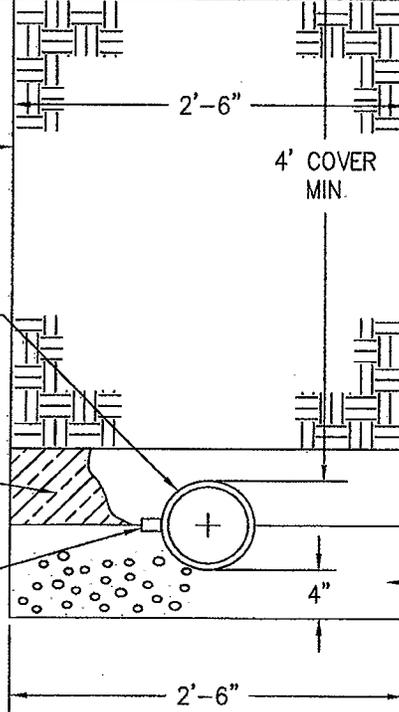
SUITABLE TRENCH SELECT BACKFILL  
MATERIAL TO BE USED. COMPACTED  
TO SPECIFICATION PER SECTION 33 05 20

GRADE 1 UNTREATED  
BASE COURSE OVER  
THE PIPE PER SEC. 02060

EXISTING WATERMAIN

OGDEN CITY WATERWORKS  
TO TAP MAIN AND PROVIDE  
CORPORATION STOP

TRENCH FOUNDATION GRAVEL  
TO EXTEND FROM MIDDLE OF  
MAIN TO 4" BELOW NEW  
WATERMAIN. SEE SPECIFICATION  
SECTION 32 11 23



WATERMAIN  
TRENCH DETAIL

OGDEN CITY  
ENGINEERING

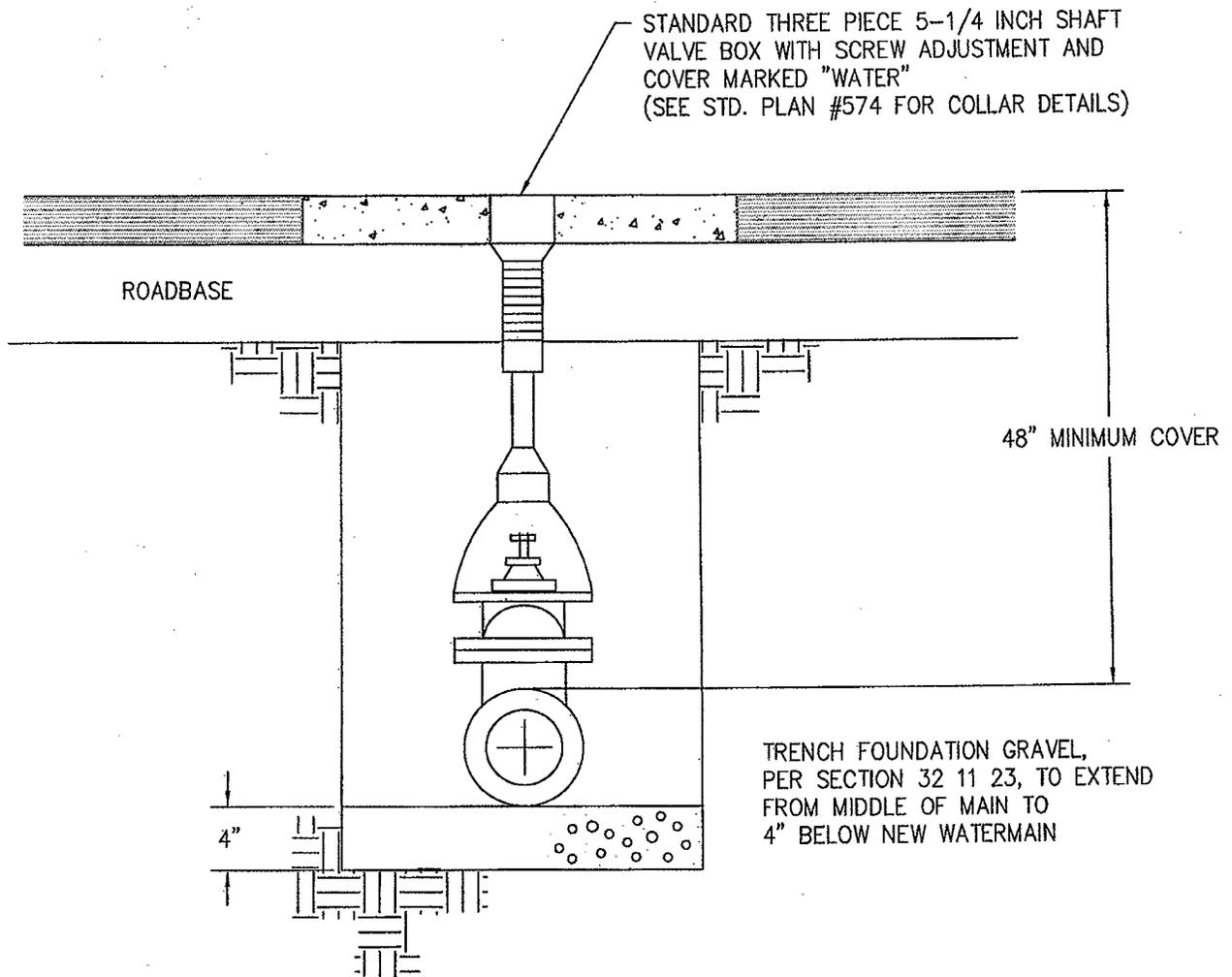
# Standard Water Trench

STANDARD PLANS

W-4

5/14/2008

SHEET 1 OF 1



VALVE BOX DETAIL  
FOR WATERMAIN CONSTRUCTION

**OGDEN CITY  
ENGINEERING**

5/14/2008

# Standard Watermain Valve

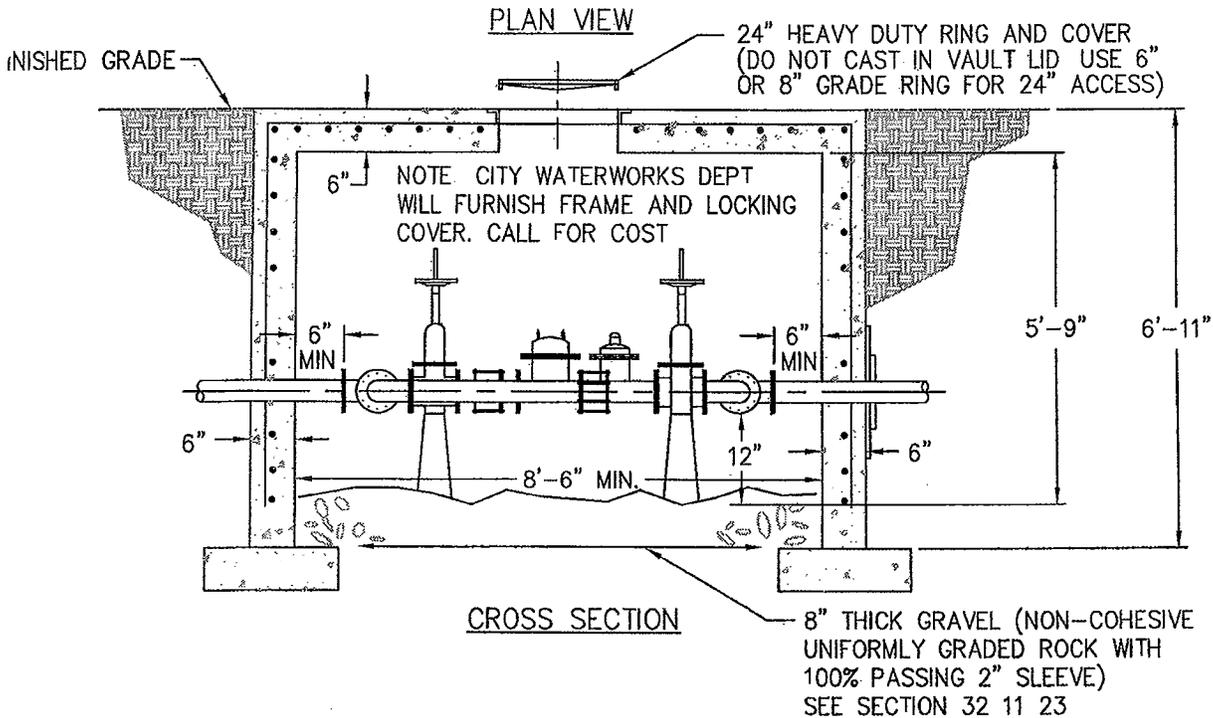
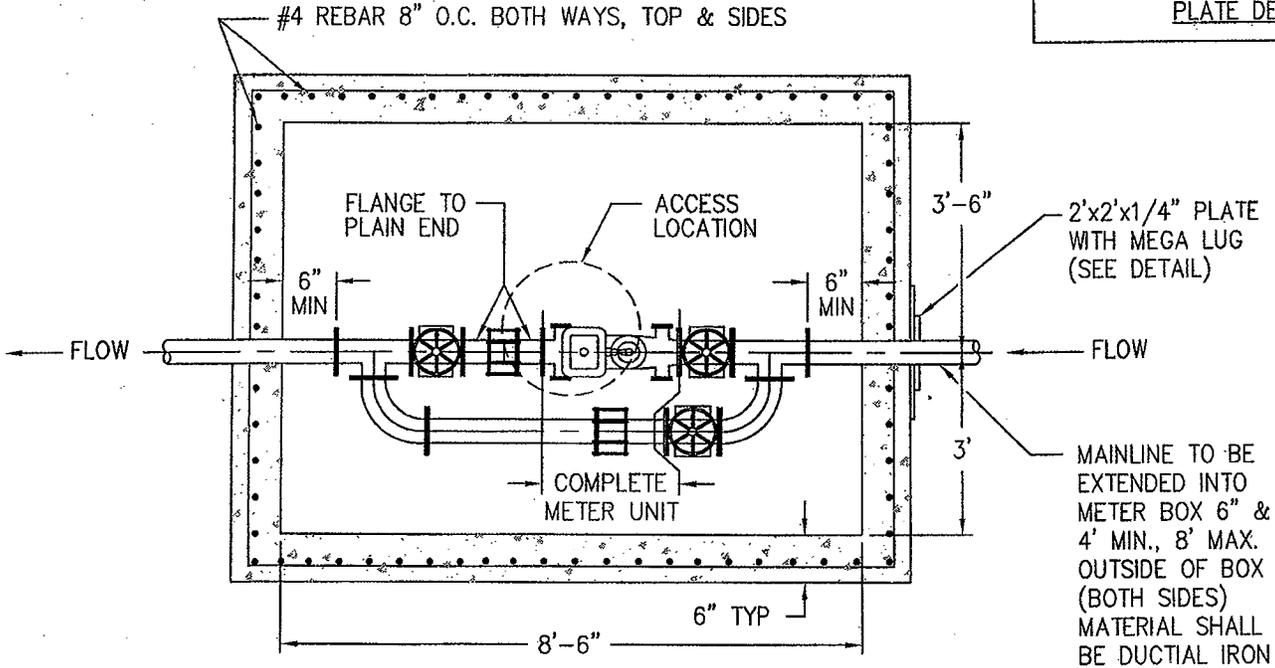
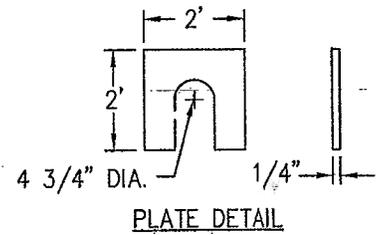
STANDARD PLANS

## W-5

SHEET 1 OF 1

MASTER 3 & 4 INCH  
WATER METER

NOTE:  
CITY WATERWORKS DEPT. WILL  
FURNISH FRAME AND LOCKING  
COVER AT CONTRACTOR'S EXPENSE.



JGDEN CITY  
ENGINEERING

5/15/2008

3" & 4" Water Meter

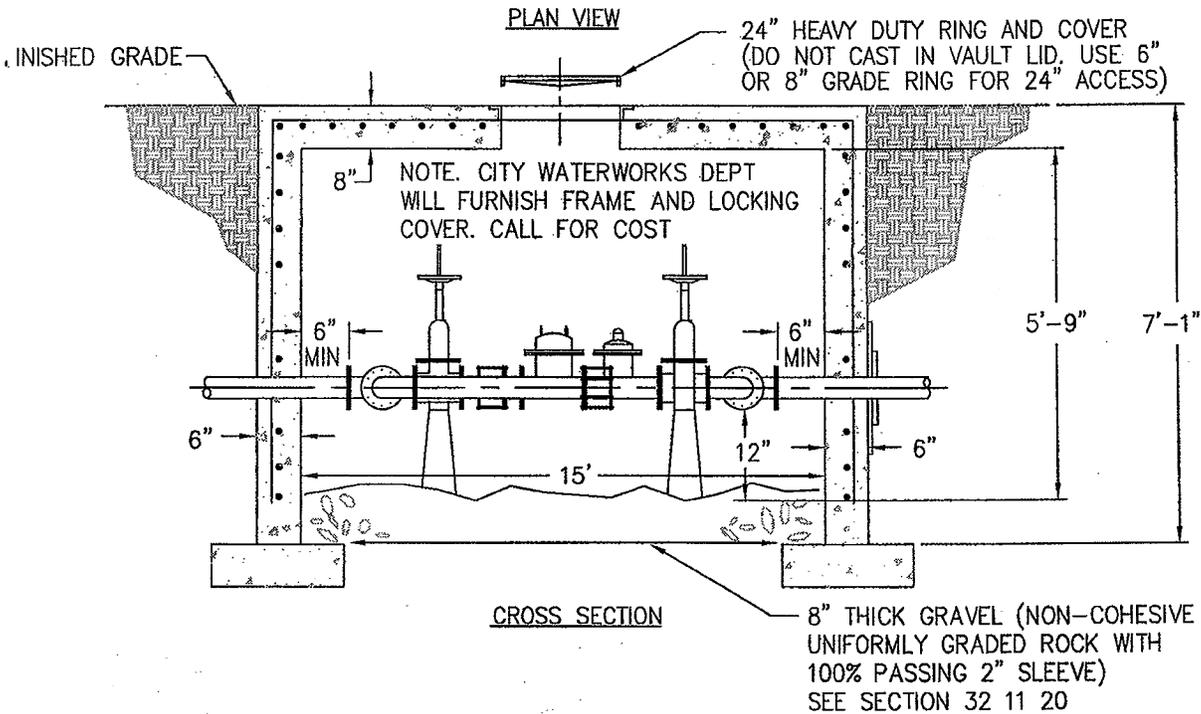
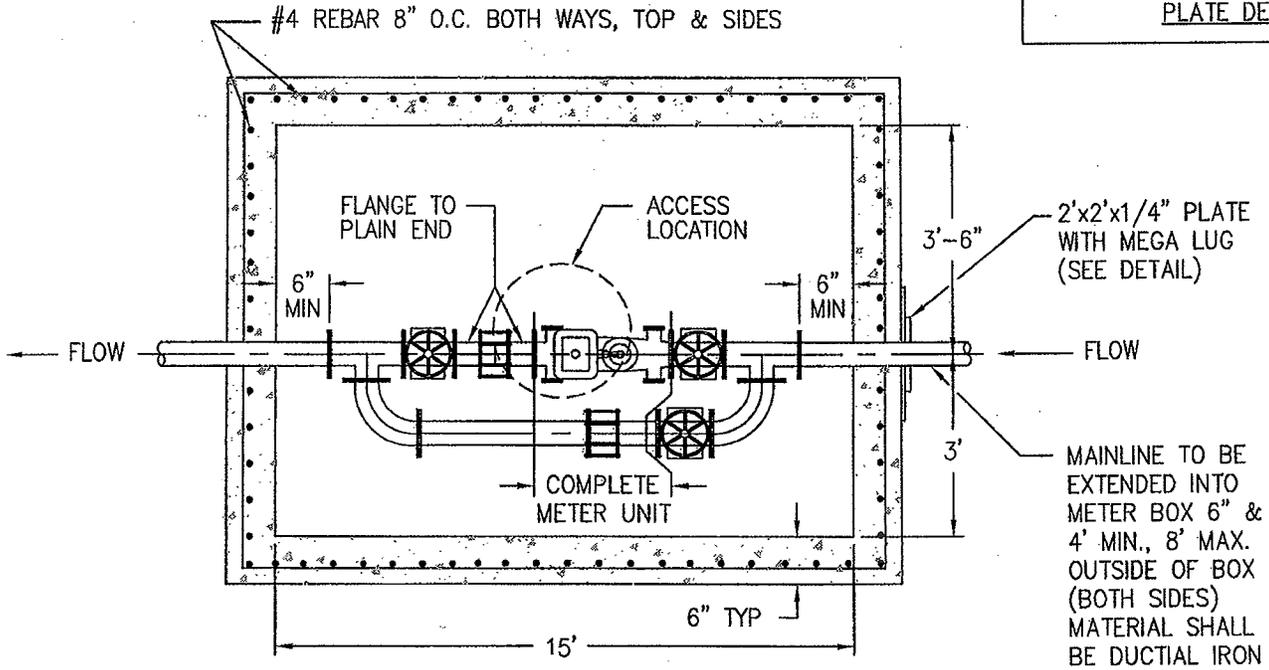
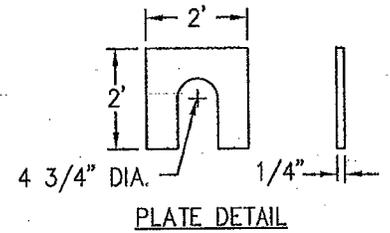
STANDARD PLANS

W-6

SHEET 1 OF 1

MASTER 6 & 8 INCH  
WATER METER

NOTE:  
CITY WATERWORKS DEPT WILL  
FURNISH FRAME AND LOCKING  
COVER AT CONTRACTOR'S EXPENSE.



JGDEN CITY  
ENGINEERING

5/17/2008

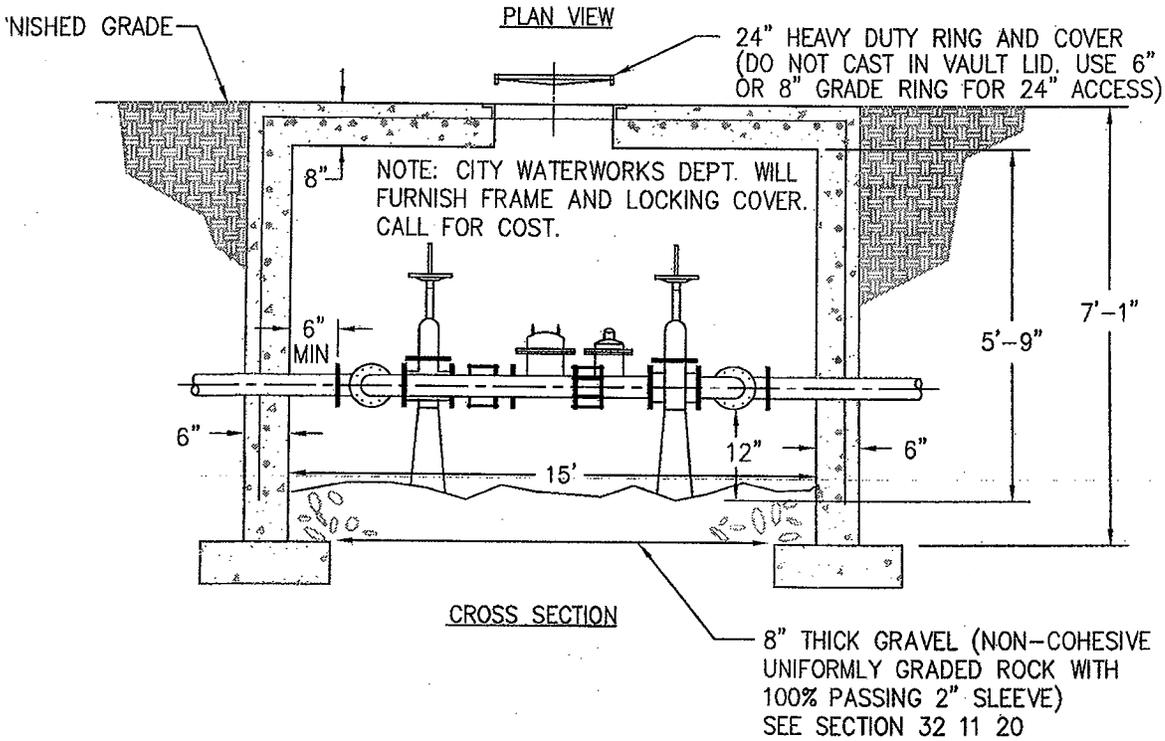
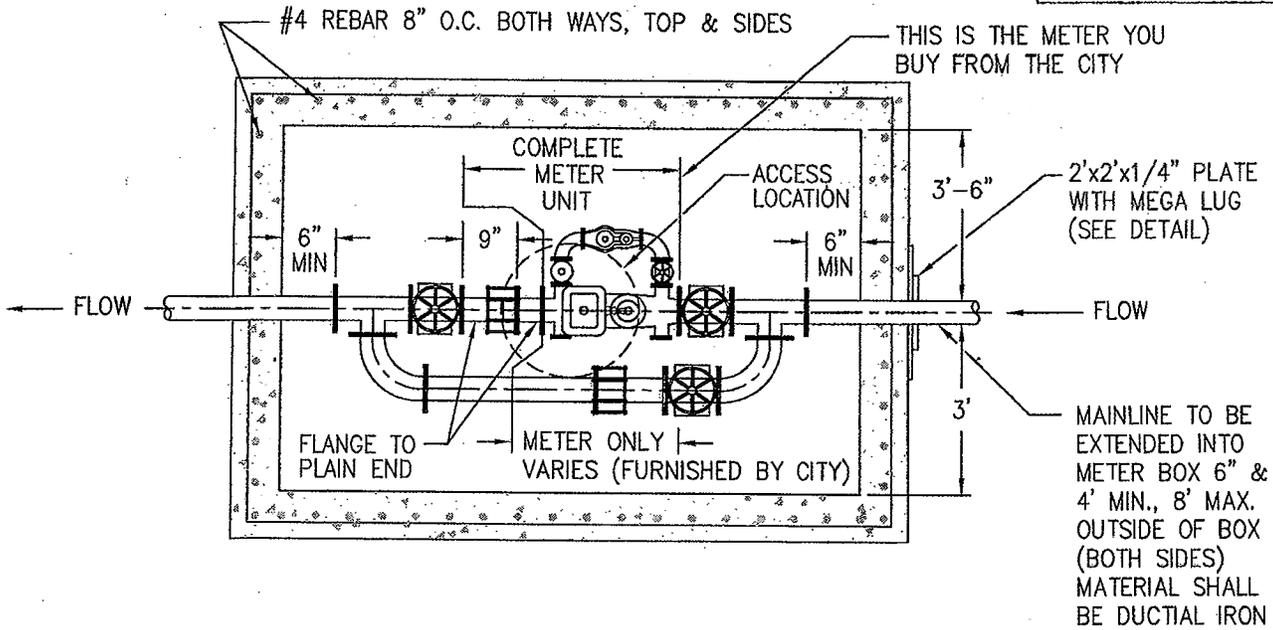
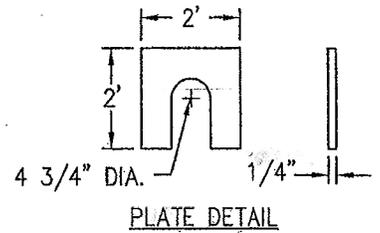
6" & 8" Water Meter

STANDARD PLANS

W-7

SHEET 1 OF 1

**NOTE:**  
CITY WATERWORKS DEPT WILL  
FURNISH FRAME AND LOCKING  
COVER AT CONTRACTOR'S EXPENSE.



**OGDEN CITY  
ENGINEERING**

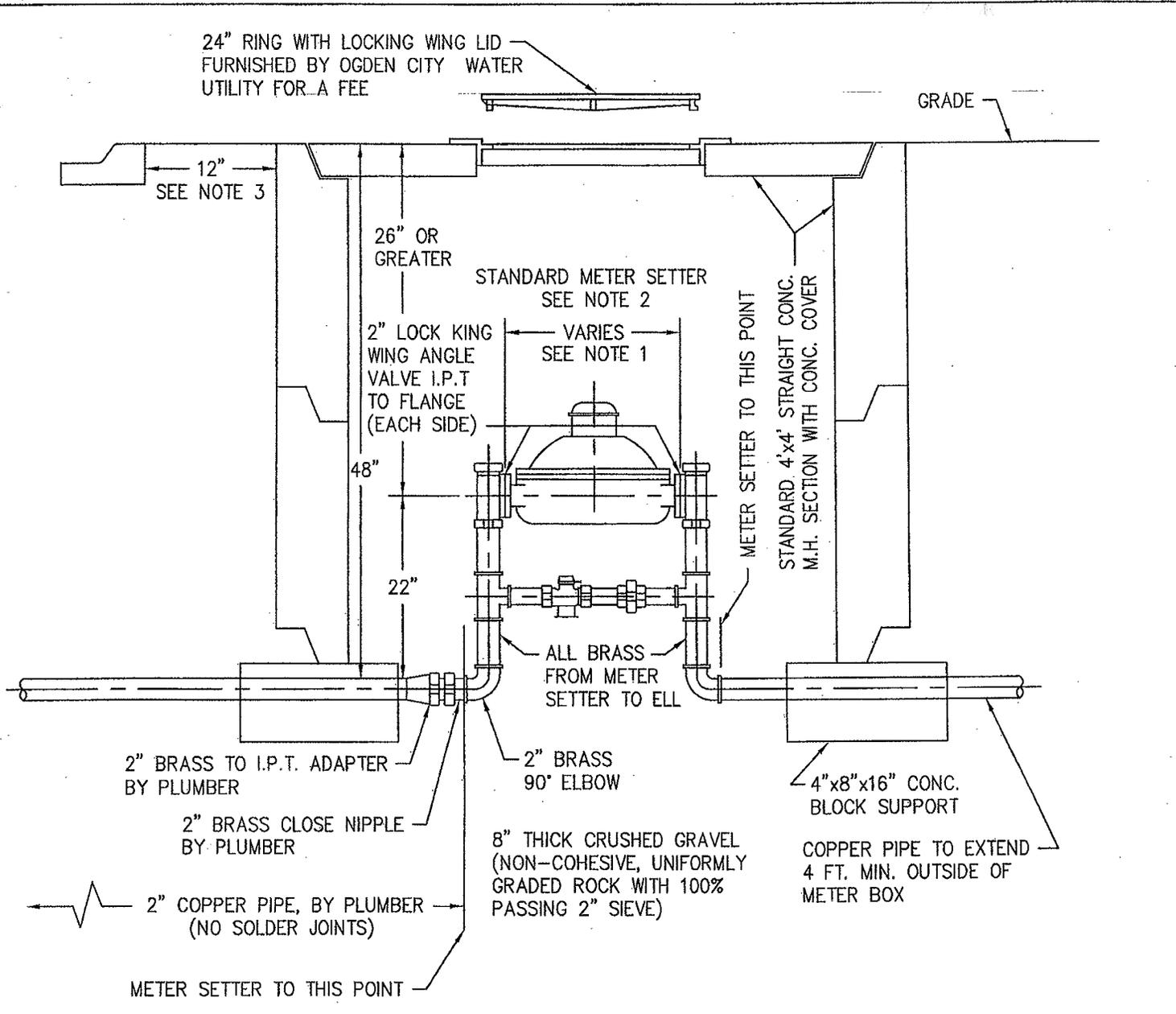
5/16/2008

# 6" & 8" Fire Service Water Meter

STANDARD PLANS

**W-8**

SHEET 1 OF 1



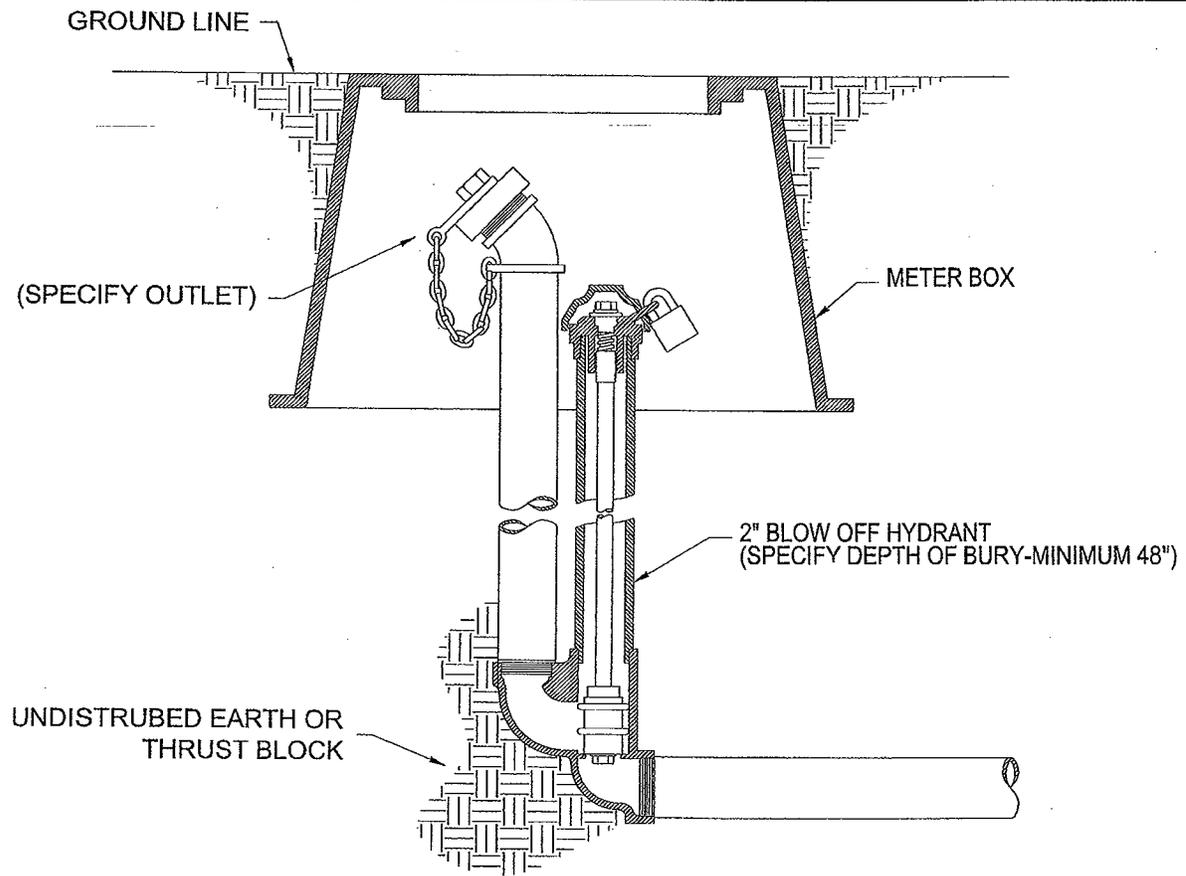
**NOTES:**

- 1 STANDARD 2" METER SETTER REQUIRED FOR 2" OR 1-1/2" METERS. FLANGE TO FLANGE DISTANCE FOR A 1-1/2" METER = 13" FOR A 1-1/2" METER, A 4" FLANGED SPACER IS REQUIRED.
2. COMPLETE METER SETTER IS AVAILABLE FROM THE UTILITY FOR A FEE.
3. UTILITY MUST APPROVE LOCATION OF METER BOX IF DISTANCE BACK OF CURB EXCEEDS 1 FOOT

**REFERENCES - ORDINANCES**

- 9-2-5 A & B SERVICE PIPES, INSTALLATION OF
- 9-2-5 C & D CONNECTION PROCEDURE
- 9-2-5 I, J & K NEW SERVICE REQUIRES DISCONNECT OF ABANDONED ONE
- 9-2-6 A METERS AND METER BOXES
- 9-2-6 B METER BOX FOR METERS OVER 1" PROVIDED BY OWNER
- 9-2-6 D METER NOT TO BE LARGER THAN TAP
- 9-2-6 E PLACEMENT OF BOX 12" FROM CURB
- 9-2-6 B ANGLE VALVE REQUIRED WITHIN 12" OF CURB OTHERWISE CURB STOP REQUIRED

<b>OGDEN CITY ENGINEERING</b>	<b>1-1/2 OR 2" WATER METER</b>	STANDARD PLANS <b>W-9</b>
5/17/02		SHEET 1 OF 1



BLOW OFF HYDRANTS SHALL BE NON-FREEZING, SELF DRAINING TYPE, OF VARIABLE LENGTH. SET UNDERGROUND IN A PLASTIC OR CONCRETE METER BOX WITH HEAVY DUTY RING AND COVER, THESE HYDRANTS WILL BE FURNISHED WITH A 2" IPT INLET, A NON-TURNING OPERATING ROD, AND SHALL OPEN TO THE LEFT ALL OF THE WORKING PARTS SHALL BE OF BRONZE-TO-BRONZE DESIGN, AND BE SERVICABLE FROM ABOVE GRADE WITH NO DIGGING.

THE OUTLET SHALL ALSO BE BRONZE AND BE 2-1/2" NST HYDRANTS SHALL BE LOCKABLE TO PREVENT UNAUTHORIZED USE. SPECIFY OVERALL LENGTH 6" SHORTER THAN NORMAL DEPTH OF BURY MINIMUM OPENING IN METER BOX SHOULD BE 10" A VALVE SHALL BE PLACED A MINIMUM OF 18 FEET PRIOR TO THE FLUSH HYDRANT AND AFTER THE LAST SERVICE TAP ON THE CULINARY MAIN.

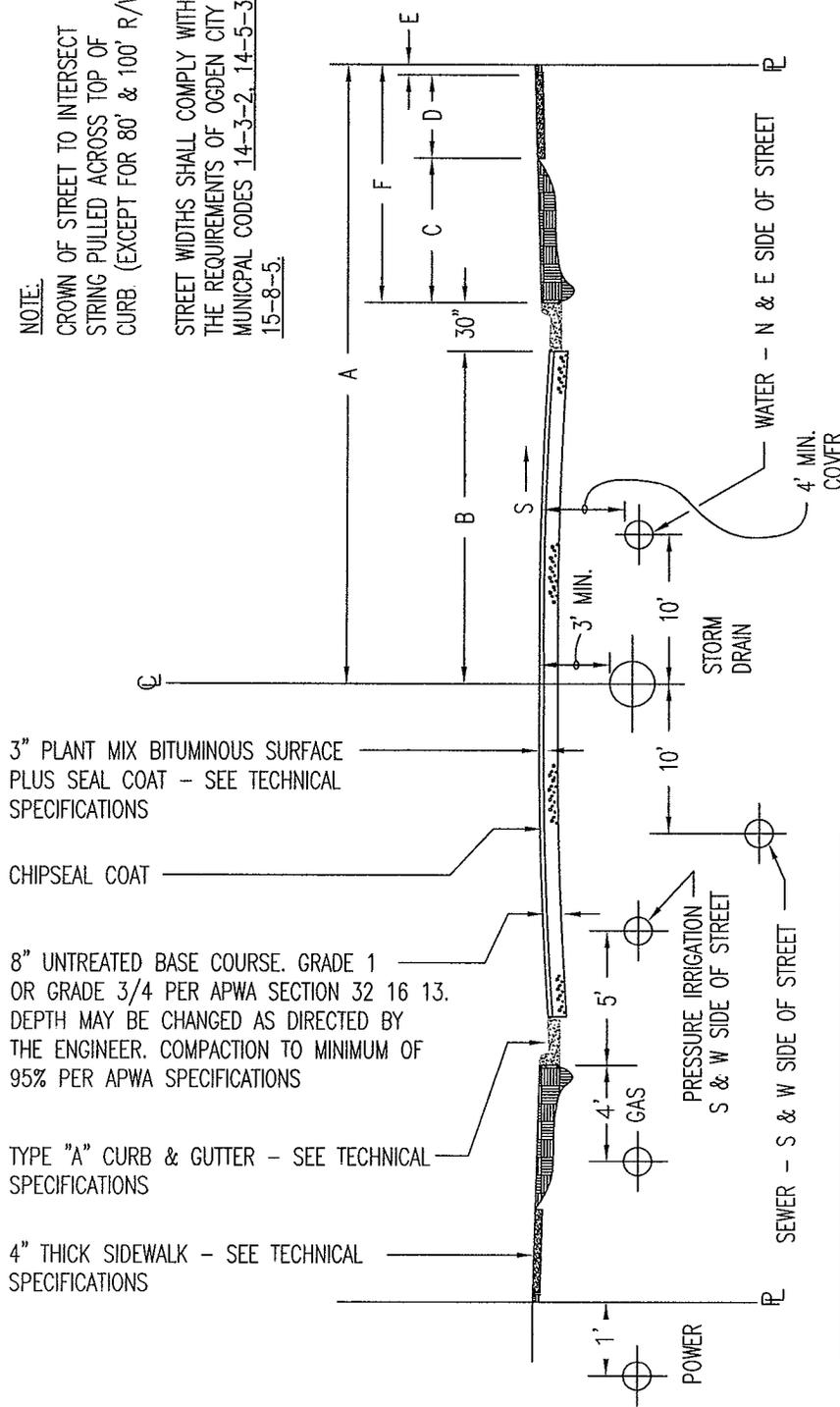
FLUSH HYDRANTS SHALL BE PLACED OUTSIDE OF THE TRAVELED WAY FOR PROJECTS WHICH PROMOTE FUTURE EXTENSION OR FOR PHASED PROJECTS WHICH TERMINATE TEMPORARILY. FOR ALL OTHER SCENARIOS, THE FLUSH HYDRANT SHALL BE PLACED WITHIN THE PARK STRIP

**OGDEN CITY  
ENGINEERING**  
5/20/08

# 2" FLUSH HYDRANT

STANDARD PLANS  
**W10**  
SHEET 1 OF 1  
REPLACES STD PLAN #571

**NOTE:**  
CROWN OF STREET TO INTERSECT  
STRING PULLED ACROSS TOP OF  
CURB. (EXCEPT FOR 80' & 100' R/W)  
STREET WIDTHS SHALL COMPLY WITH  
THE REQUIREMENTS OF OGDEN CITY  
MUNICIPAL CODES 14-3-2, 14-5-3,  
15-8-5.



**NOTE:**  
ROADWAY SECTIONS WITHIN THE  
BUSINESS DEPT OGDEN (BDO) VARY  
SEE CITY ENGINEER FOR SPECIFIC DETAILS.

SECTION	WIDTH OF R.O.W.	A	B	C	D	E	F	S
1*	50'	25'	16'	2'-0"	4'-0"	0'-6"	6'-6"	.0210
2**	-	-	18 1/2'	varies	4'-0"	0'-6"	varies	.0180
3***	56'	28'	14'	7'-0"	4'-0"	0'-6"	11'-6"	.0240
4	60'	30'	16'	7'-0"	4'-0"	0'-6"	11'-6"	.0210
5	66'	33'	18'	8'-0"	4'-0"	0'-6"	12'-6"	.0180
6	80'	40'	28'	5'-0"	4'-0"	0'-6"	9'-6"	.0200
7	100'	50'	37'	6'-0"	4'-0"	0'-6"	10'-6"	.0200

\* = PRUD - PUBLIC LOCAL STREET  
 \*\* = PRUD - PRIVATE LOCAL STREET (B=16 1/2' FOR ONE WAY TRAFFIC)  
 \*\*\* = FOR MINOR PUBLIC STREETS ABUTTING RESIDENTIAL ZONED PROPERTIES ONLY.