MINUTES
CITY COUNCIL WORK SESSION AND REGULAR MEETING
G.L. Gilleland Council Chambers on 2nd Floor
Monday, July 15, 2019
5:30 P.M.

1. **CALL TO ORDER:** Mayor Mike Eason called the meeting to order at 5:30 pm.
2. **ROLL CALL:** Present were Councilmember Jason Power, Councilmember Mark French, Councilmember Stephen Tolson, Councilmember Caleb Phillips, City Attorney Dana Miles, Assistant City Attorney Alex Myers, City Manager Bob Bolz, Deputy City Clerk Tracy Smith, Utilities Director Gary Barr, Public Works Director Trampas Hansard and Finance Administrator Hayden Wiggins.
3. **INVOCATION AND PLEDGE:** Invocation and Pledge were led by Councilmember Tolson.
4. **ANNOUNCEMENTS:** No announcements
5. **APPROVAL OF THE AGENDA:** Motion approve the agenda as submitted made by M. French; second by J. Power. Vote carried unanimously in favor.
6. **PUBLIC INPUT:** No comments from the public.
7. **SEWERAGE SYSTEM MASTER PLAN – PRESENTATION BY CHRIS POJE:** Chris Poje from GBT Engineers provided a brief overview of the master plan. Motion to approve the sewerage system master plan made by S. Tolson; second by J. Power. Vote carried unanimously in favor.
8. **INTRODUCTION OF ORDINANCE AMENDMENTS:** Attorney Miles presented the introduction of the amendment to the Zoning ordinance and to the amendment of the Short-Term Rental Business Regulation ordinance; both will be presented for first and second readings and adoption at the August meetings.
9. **PROJECT UPDATES**
    a. **MAIN STREET PARK**
        i. **RESTROOM/CONCESSION BUILDING REBID:** City Manager Bob Bolz stated the bids came back for this project and the low bid was $550,259.59 which is considerably higher than expected. Staff would like to pursue redesign options for a more cost-effective building and re-bid the project.
        ii. **FENCE REBID:** City Manager Bob Bolz stated the bids came back for the fence with a low bid of $417,468.00 and again, staff agrees it is too costly and would like to consider different design options and re-bid the project.

Motion to authorize staff to redesign and rebid the Main Street Park Restroom/Concession Building and fence projects made by J. Power; second by C. Phillips. Vote carried unanimously in favor.

    b. **PARKING**
        i. **CITY HALL PARKING LOT PLAN:** Rachel Burton from Davis Engineering presented the design to maximize parking at City Hall which would provide 117 parking spots with 5 ADA spots. Two way and one-way traffic was considered with angled parking on the one-way entry. Sidewalks would be all around the property with connectivity to the Farmer's Market. Mayor Eason stated the cost estimates came in higher than expected; Councilmember Phillips stated the costs may have been high due to the concrete walls.
        ii. **ACADEMY AVENUE PARKING:** Rachel Burton presented the design to include angled parking with a total of 57 spots with 4 ADA spots with one-way traffic on the road. The design also includes a men and women's single stall restroom and sidewalks for connectivity to downtown.
        iii. **CONCEPT FOR DOWNTOWN PARKING:** Rachel Burton stated her firm is still working on the design and does not have an update.
    c. **NICHE COLUMBARIUM:** Rachel Burton stated she has been working with Trampas Hansard and a concept has been developed; a contractor has given an estimate which exceeds the budget. They are looking at revising the layout, using a different material for the wall and shrinking the footprint to reduce the cost.

City Manager Bob Bolz stated he'd like to see a redesign of the City Hall Parking Lot Plan without cutting into the bank and eliminating the wall. Regarding the Academy Avenue Parking he suggested perhaps scrapping this plan and look further into land acquisition to expand the concept. In regard to the Niche

Columbarium, he agreed with Rachel Burton to redesign to reduce the cost. Council directed staff to look further into the redesigning of these items to find a cost savings.

10. **GEORGIA MOUNTAIN REGIONAL COMMISSION PRIVATE CITIZEN APPOINTMENT:** Councilmember Tolson stated at the last meeting it was questioned whether or not the potential appointment of Betsy McGriff from the Chamber of Commerce would be eligible to receive the appointment; he contacted the GMRC's attorney and it was determined she would be eligible. Councilmember French also stated he followed up with some research and determined she would be eligible and would make an excellent representative.

    Motion to nominate Betsy McGriff as the GMRC private sector representative made by S. Tolson; second by J. Power. Mayor Eason reminded the Council that they do not select the representative they only refer a nomination; the County does the same. Councilmember French asked if the County was contacted to see if they objected to the City's nomination; Councilmember Tolson stated it was the County Commissioner's opinion that they'd like to stay with their current nomination, David Headley. Vote carried unanimously in favor.

11. **VEHICLE PROCUREMENT:** Motion to authorize the purchase of two vehicles, one for Planning and Zoning and one for Public Works, in the amount of $26,250.00 with funds available from the FY 2019-20 budget made by M. French; second by C. Phillips. Vote carried unanimously in favor.

12. **DAWSONVILLE HISTORY MUSEUM APPOINTMENTS**: Mayor Eason stated the Dawsonville History Museum Board has presented names for nomination to their Board; they are Calvin Byrd, James Bearden, Scott Adams, Tom Reed and Randy Harkness. He further stated the current members terms have expired; the staff will vet the nominees and consider appointment to be come the new Board members. He also said the current number of members is nine, but Council can fix the amount of Board members between three and twenty-one members.

    Motion to establish the number of board members to nine made by S. Tolson; second by C. Phillips. Mayor Eason again stated the current members terms have expired and no appointments have been made in three years which is the length of a term. Councilmember French recommended reappointing one or two current members for continuity purposes. Vote carried unanimously in favor.

13. An Ordinance By The City Of Dawsonville To Adopt And Enact Land Development Regulations For Street Standards, Water And Sewer Systems, Grading And Drainage, Lot And Block Standards, And Plat Specifications; To Adopt Standard Specifications For Water Distribution Systems And Sanitary Sewerage Systems; To Adopt Standard Specifications For Roadway And Drainage Systems; To Provide For Severability; To Provide For An Effective Date; And For Other Purposes. (First Reading: July 8, 2019; Second Reading and Adoption: July 15, 2019)

    Attorney Miles presented and read the second reading. Motion to approve the ordinance as presented made by S. Tolson; second by C. Phillips. Vote carried unanimously in favor. (Exhibit "A")

14. An Ordinance To Amend The Land Development Regulations Of The City Of Dawsonville So As To Provide For The Regulation Of Work Hours For When Development And Construction Activities May Take Place; To Provide For Emergency Exemptions; To Provide For Violation And Enforcement Of The Land Development Regulations; And For Other Purposes. (First Reading: July 8, 2019; Second Reading and Adoption: July 15, 2019)

    Attorney Miles presented and read the second reading. Motion to approve the ordinance as presented made by M. French; second by C. Phillips. Vote carried unanimously in favor. (Exhibit "B")

15. An Ordinance Repealing The Current Parades And Demonstrations Ordinance Of The City Of Dawsonville, Georgia; Adopting A New Public Assembly Ordinance; Providing For A Permitting Procedure For Special Events, Parades, Public Assemblies, And Public Demonstrations; Providing For Definitions; Providing For Enforcement; Providing For An Effective Date, And For Other Purposes. (First Reading: July 8, 2019; Second Reading and Adoption: July 15, 2019)

Attorney Miles presented and read the second reading. Motion to approve the ordinance as presented made by S. Tolson; second by C. Phillips. Vote carried unanimously in favor. (Exhibit "C")

16. An Ordinance By The City Of Dawsonville To Clarify Regulations On Vape Shops Regarding Display Of Inventory, Renewal Of License, Application Requirements, As Well As Provide Proper References To Code Sections; To Clarify Use Regulations Regarding Minors; And For Other Purposes. (First Reading: July 8, 2019; Second Reading and Adoption: July 15, 2019)

    Attorney Miles presented and read the second reading. Motion to approve the ordinance as presented made by J. Power; second by M. French. Vote carried unanimously in favor. (Exhibit "D")

17. An Ordinance Of The City Of Dawsonville, Georgia, To Repeal The Existing Records Management Plan; To Provide For A New Records Management Plan: To Adopt A Record Retention Schedule; And For Other Purposes. (First Reading: July 8, 2019; Second Reading and Adoption: July 15, 2019)

    Attorney Miles presented and read the second reading. Motion to approve the ordinance as presented made by J. Power; second by M. French. Vote carried unanimously in favor. (Exhibit "E")

18. **BOB BOLZ, CITY MANAGER:**
    - i. Paving of the trails at Main Street Park are complete, the playground is near completion and the final grading has been started.
    - ii. Farmers' Market is underway; stormwater installation is tomorrow, and the curb and gutter will be done at the end of the month. Construction of the building will be next.
    - iii. Food Truck Friday was very successful; a big thanks to all the staff who were involved. Next event will be August 2, 2019.
    - iv. Voting system will be in place hopefully by the next meeting so votes will be placed electronically and displayed on a monitor.
    - v. David Picklesimer has been selected for the new building inspector position and will start on July 26, 2019.

ADJOURNMENT:

At 6:12 p.m. a motion to adjourn the meeting was made by J. Power; second by C. Phillips. Vote carried unanimously in favor.

By: CITY OF DAWSONVILLE

Mike Eason, Mayor

Caleb Phillips, Councilmember Post 1

Stephen Tolson, Councilmember Post 2

Absent

Jason Power, Councilmember Post 3

Mark French, Councilmember Post 4

Attested:

Beverly A. Banister, City Clerk

First Reading: 07/08/2019

Second Reading: 07/15/2019

Adoption: 7-15 2019

AN ORDINANCE BY THE CITY OF DAWSONVILLE TO ADOPT AND ENACT LAND DEVELOPMENT REGULATIONS FOR STREET STANDARDS, WATER AND SEWER SYSTEMS, GRADING AND DRAINAGE, LOT AND BLOCK STANDARDS, AND PLAT SPECIFICATIONS; TO ADOPT STANDARD SPECIFICATIONS FOR WATER DISTRIBUTION SYSTEMS AND SANITARY SEWERAGE SYSTEMS; TO ADOPT STANDARD SPECIFICATIONS FOR ROADWAY AND DRAINAGE SYSTEMS; TO PROVIDE FOR SEVERABILITY; TO PROVIDE FOR AN EFFECTIVE DATE; AND FOR OTHER PURPOSES.

WHEREAS, the Mayor and Council of the City of Dawsonville (the "City") find that the adoption of standardized land development regulations to govern the construction and development of streets, water and sewer systems, grading and drainage, lot and block standards and plat specifications is proper and appropriate as these activities may affect the health, safety, welfare, peace, rest and repose, and tranquility of the citizens of the City;

WHEREAS, the Mayor and Council of the City find that the adoption of standard specifications for water distribution systems, sanitary sewerage systems and roadway and drainage systems is proper and appropriate as these activities may affect the health, safety, welfare, peace, rest and repose, and tranquility of the citizens of the City;

AND WHEREAS, in foregoing interests described above, the Mayor and Council of the City desire to exercise their authority to adopt this Ordinance.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF DAWSONVILLE HEREBY ORDAINS AS FOLLOWS:

SECTION 1.

The Dawsonville Land Development Regulations as contained in Subpart B of the Code of the City of Dawsonville, Georgia, are hereby amended by enacting new Chapters 109 through 113 as follows: Chapter 109: Street Standards; Chapter 110: Water and Sewer Systems; Chapter 111: Grading and Drainage: Chapter 112: Lot and Block Standards and Chapter 113: Plat Specifications, all of which shall have the text as attached hereto and shall be forwarded by the Clerk to Municode for inclusion in the existing Land Development Regulations as contained in Subpart B of the Code of the City of Dawsonville, Georgia.

SECTION 2.

Standard Specifications for the construction and development of Water Distribution Systems and Sanitary Sewerage Systems as attached hereto are adopted and shall be maintained by the Clerk on the City website (www.dawsonville-ga.gov) and by the City Department of Planning and Zoning for viewing and review by any interested party. These Standard Specifications may be modified from time to time by action of the Mayor and Council and are incorporated by reference in the Development Regulations of the Code of Ordinances as published by Municode.

EXHIBIT "A"

SECTION 3.

Standard Specifications for the construction and development of Roadway and Drainage Systems as attached hereto are adopted and shall be maintained by the Clerk on the City website (www.dawsonville-ga.gov) and by the City Department of Planning and Zoning for viewing and review by any interested party. These Standard Specifications may be modified from time to time by action of the Mayor and Council and are incorporated by reference in the Development Regulations of the Code of Ordinances as published by Municode.

SECTION 4.

If any section, provision or clause of any part of this Ordinance shall be declared invalid or unconstitutional, or if the provisions of any part of this Ordinance as applied to any particular situation or set of circumstances shall be declared invalid or unconstitutional, such invalidity shall not be construed to affect the portions of this Ordinance not so held to be invalid, or to the application of this Ordinance to other circumstances not so held to be invalid. It is hereby declared as the intent that this Ordinance would have been adopted had such invalid portion not been included herein.

SECTION 5.

All Ordinances or parts of ordinances in conflict with this ordinance are hereby repealed.

SECTION 6.

This ordinance shall become effective upon adoption, the public good demanding the same.

SO ADOPTED AND ORDAINED by the City Council of Dawsonville, Georgia, this 15 day of July, 2019.

MAYOR AND DAWSONVILLE CITY COUNCIL

By: _____
Mike Eason, Mayor

_____
Caleb Phillips, Council Member Post 1

_____
Stephen Tolson, Council Member Post 2

EXHIBIT "A"

Jason Power, Council Member Post 3

Mark French, Council Member Post 4

ATTESTED TO BY:

for Beverly A. Banister, City Clerk

By: Tracy Smith, Deputy City Clerk

EXHIBIT "A"

SUBPART B
LAND DEVELOPMENT REGULATIONS
CHAPTERS 109 TO 113

CITY OF DAWSONVILLE, GEORGIA

EXHIBIT "A"

SUBPART B
LAND DEVELOPMENT REGULATIONS
CHAPTERS 109 TO 113

CITY OF DAWSONVILLE, GEORGIA

415 Highway 53 East
Dawsonville, Georgia 30534

Office: (706) 265- 3256/ Fax: (706) 265- 4214

Prepared by:

TURNIPSEED ENGINEERS

Adopted: _____

CHAPTER 109: STREET STANDARDS

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- 109-17. Road Classification and Design Speed
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CHAPTER 109 – STREET STANDARDS

ARTICLE I – GENERAL PROVISIONS

Sec. 109-1. -Reserved.

Sec. 109-2.- Applicability.

(a) Streets, whether abutting or internal, existing or new, shall be constructed or improved under those circumstances and to the standards as established in these Regulations.

(b) In the event that a development has access to a substandard street and if that substandard street provides the primary means of access to the development, the substandard street, except as indicated below, shall be fully upgraded along the entire property frontage and continuing to the nearest standard paved road along the route of primary access. In the event that a development has access to a substandard street and if that substandard street is other than the primary means of access to the development, the substandard street, except as indicated below, shall be fully upgraded only along the entire property frontage and shall be paved on the both sides of the road.

The upgrading of substandard streets used for access will not be required if any of the following conditions are met:
(1) The development consists of a single one or two family residence on an existing recorded lot within the City;
(2) Total traffic on the substandard street is less than 200 vehicles per day including projected traffic volume from the development; or
(3) The development is a small business with ingress/egress of less than 100 vehicles per day.

(c) For any development which abuts a State or Federal highway, improvements to the highway and the location and design of any street or driveway providing access from the highway shall comply with the standards and requirements of the Georgia Department of Transportation. A copy of the approved Georgia DOT permit shall be provided to the City prior to issuance of building permits.

Sec. 109-3-109-16. -Reserved.

Sec. 109-17. -Road Classification and Design Speed.

Road classifications and design speeds shall be requested by the Developer and will be reviewed by the City during review of the Preliminary Plat.

Road Classification	Classification Code	Design Speed
Arterial – Primary	R010	50
Arterial – Secondary	R010	50
Collector – Primary	R020	45
Collector – Secondary	R030	40
Local – Non-Residential	R040	30

Local – Non-Residential Cul-de-sac	R080	N/A
Local – Residential	R040	20
Local – Residential Cul-de-sac	R080	N/A

Sec. 109-18. -Design Requirements.
The engineer shall design roadways to meet practices set forth in AASHTO's A Policy on Geometric Design of Highways and Street, latest edition. Some of the practices are detailed below but this does not relieve the engineer from meeting other practices specified by A Policy on Geometric Design of Highways and Street, latest edition.

ARTICLE II – DEFINITIONS

Sec. 109-19-109-29. Reserved.

ARTICLE III – RIGHT OF WAY AND ROADWAY WIDTHS

Sec. 109-30. –Minimum Requirements.
On any existing street having a right-of-way less than the minimum which abuts a property being developed, one-half of the required width of right-of-way, measured to the centerline of the existing right-of-way, shall be dedicated at no cost to the City along the entire property boundary abutting the existing street.

Additional street right-of-way width may be required to be dedicated at intersections or other locations fronting the property where turning lanes, storage lanes, medians, islands, or realignments are required for traffic safety and minimum right-of-way standards would be inadequate to accommodate these improvements.

Minimum widths for construction (new streets or widening sections) are specified in the table below. Roadway width dimensions are back of curb to back of curb.

Road Classification	Minimum Right of Way Width	Minimum Roadway Widths
Arterial – Primary	100'	66'
Arterial – Secondary	100'	52'
Collector – Primary	60'	52'
Collector – Secondary	60'	42'
Local – Non-Residential	60'	28'
Local – Non-Residential Cul-de-sac	120'	50' R
Local – Residential	50'	30'
Local – Residential Cul-de-sac	100'	40' R

Sec. 109-31. -Street Widening
When property fronting on an existing City street is to be developed and when the property is to be accessed from the existing City street, roadway improvements (pavement, curb and gutter and drainage) are required along the existing road across the entire property frontage. Required improvements shall not be less than provided in these Regulations for the designated street classification. Road widening, curb, gutter, and drainage shall be provided from the centerline of the existing roadway along the side of the road upon which the property abuts. The developer shall be responsible for the cost of relocating existing utilities to outside the new pavement if the required street improvements will pave over utilities currently outside pavement.

Sec. 109-32. –Extension of Existing Streets
If an existing street is extended, the proposed portion of the street shall be at least as wide as the existing street and in no case less than the width required by the Planning Director. The proposed portion of the street shall have the same name as the existing street.

Sec. 109-33. –Reserved.

ARTICLE IV – ACCESS

Sec. 109-34. -Dead-End Streets and Cul-de-sacs
The maximum length of dead end streets and streets terminating in cul-de-sacs shall be 1,500 feet.

Sec. 109-35. -Private Roads
Private Roads must be built to public street standards and shall have blue signs designating the street name.

Sec. 109-36. -Access to Public Roads
Access to every subdivision shall be provided over and through a public or private street built to public street standards based on the following minimum requirements:

- Subdivisions with 1 to 50 contiguous lots must have at minimum a single means of street access.
- Subdivisions with 51 to 124 contiguous lots must have at minimum two means of street access. Traffic study may be required by the director of public works. Traffic study may require additional street access points.
- Subdivisions with 125 or more contiguous lots must have at minimum two means of street access and perform a traffic study. Traffic study may require additional street access points.

Reserve strips controlling access to public streets shall not be permitted.

Sec. 109-37. –Entrance Monuments.
All street entrances to subdivisions with more than four lots must be landscaped per plans submitted to and approved as part of the Subdivision Plans. Entrance monuments must abide by the sign ordinance (Chapter 105). The proposed location of street entrance monuments must be shown on the final plat. Street entrance monuments must be setback ten feet from the right-of-way and

shall not obstruct sight distance. Entrance monument landscaping must be in place prior to the approval of a final plat.

Sec. 109-38. –Curb Cuts.
Curb cuts shall be located as far as practical from intersections. Curb cuts shall not be located within 100 feet of an intersection involving a non-local road. The distance for curb cuts to intersection shall be measured from the beginning of the curb cut to the closest travel lane edge.

ARTICLE V – ALIGNMENT

Sec. 109-39. -Street Jogs.
Street jogs with centerline offsets of less than 125 feet shall not be permitted.

Sec. 109-40. -Street Gradients.

(a) *Minimum Gradient.* The minimum street gradient shall be (1%) one percent without special approval from the Mayor and Council. A minimum street gradient of one half percent to one percent may be approved by the Mayor and Council, based on adequate engineering designs provided by the subdivider's engineer, where at least one percent cannot reasonably be achieved due to topographical limitations imposed by the land.

(b) *Maximum Gradient.* The maximum street gradient for roads are specified in the table below.

Road Classification	Maximum Street Gradient
Arterial – Primary	8%
Arterial – Secondary	10%
Collector – Primary	10%
Collector – Secondary	10%
Local – Non-Residential	10%
Local – Non-Residential Cul-de-sac	6%
Local – Residential	14%
Local – Residential Cul-de-sac	6%

Grades between 12 percent and 14 percent shall not exceed a length of 150 feet measured as the tangent length between points of vertical curvature.

Sec. 109-41. -Vertical Street Alignment.
All changes in street profile grades having an algebraic difference greater than one percent shall be connected by a parabolic curve having a minimum length (L) equal to the product of the algebraic difference between the grades in percent (A) and the design constant (K) assigned to the street according to its category (i.e., L = A*K).

(K) values shall be greater than or equal to the values specified in the table below for each road classification, but shall in no case be lower than the minimum K values in AASHTO's A Policy on

Geometric Design of Highways and Street, latest edition for height of eye at 3.5 ft and height of object at 0.5 feet and the design speed. The AASHTO values can be found on Exhibit 3-76, pg. 274; Exhibit 3-77, pg. 276; and Exhibit 3-79, pg. 280 of A policy on Geometric Design of Highways and Streets, 2001.

Road Classification	Minimum K Value on Crest Vertical Curves	Minimum K Value on Sag Vertical Curves
Arterial – Primary	110	90
Arterial – Secondary	90	70
Collector – Primary	60	60
Collector – Secondary	60	60
Local – Non-Residential	30	40
Local – Non-Residential Cul-de-sac	20	30
Local – Residential	20	30
Local – Residential Cul-de-sac	20	30

Sec. 109-42. -Horizontal Street Alignment.
All new streets shall conform to the horizontal centerline curvature and super elevation criteria specified in Exhibit 3-14, Minimum Radius for Design of Rural Highways, Urban Freeways, and High-Speed Urban Streets Using Limiting Values of e and f, AASHTO, A policy on Geometric Design of Highways and Streets, 2001 or latest edition. The minimum radius for local streets shall be 110 feet. The maximum superelevation on all streets shall be 6%.

Tangents between reverse horizontal curves shall not be less than those specified in the table below.

Road Classification	Minimum Tangent Length Between Reverse Horizontal Curves
Arterial – Primary	125
Arterial – Secondary	100
Collector – Primary	100
Collector – Secondary	75
Local – Non-Residential	50
Local – Non-Residential Cul-de-sac	50
Local – Residential	50
Local – Residential Cul-de-sac	50

Sec. 109-43. -Stopping Sight Distance.
All new streets shall have adequate stopping sight distance as specified in AASHTO's A policy on Geometric Design of Highways and Streets, 2001, Exhibit 3-1, page 112; and Exhibit 3-2, page 115; or latest edition. The stopping sight distance shall be based on a breaking reaction time of 2.5 seconds and wet pavement for the design speed.

Sec. 109-44. -Street Intersections.

(a) *Intersection Angles.* Intersecting streets shall meet at approximately a right angle and shall not be at an angle of less than 80 degrees unless approved by the City.

(b) *Approach Length.* Street intersections, including approaches, shall have a maximum vertical grade of five percent. The minimum approach length (distance from extended outer edge of the nearest through lane of the intersecting street to the point of vertical curvature in the approaching street) shall be provided in accordance with the table below.

Road Classification	Minimum Approach Length
Arterial – Primary	100'
Arterial – Secondary	100'
Collector – Primary	75'
Collector – Secondary	75'
Local – Non-Residential	50
Local – Non-Residential Cul-de-sac	50'
Local – Residential	50'
Local – Residential Cul-de-sac	50'

(c) *Intersection Radii.* Intersection radii for streets, measured at the back of the curb, and for rights-of-way shall be as shown in the table below. For intersecting streets of different classifications, the larger radii shall be provided. In all cases, sufficient right-of-way shall be provided to maintain at least ten feet from the back of curb. For intersecting rights-of-way, lines may be joined by either an arc having the minimum radius shown in the table below or by a chord connecting the end points of an arc having the minimum radius shown in the table below. Larger radii may be required for streets intersecting at angles less than 90 degrees.

Road Classification	Minimum Back of Curb Radius	Minimum Right of Way Radius
Arterial – Primary	40	29
Arterial – Secondary	40	29
Collector – Primary	40	29
Collector – Secondary	40	29
Local – Non-Residential	40	29
Local – Non-Residential Cul-de-sac	50	18
Local – Residential	25	18
Local – Residential Cul-de-sac	50	18

Sec. 109-45 –Islands.

In general use of raised traffic islands is discouraged in favor of painted islands supplemented with traffic buttons or other devices manufactured for traffic control. Where requested by the Mayor, traffic islands shall conform to the design guidance of the latest edition of "A Policy on Geometric

Design of Highways and Streets", published by the American Association of Highway and Transportation Officials. Improvements on islands within rights-of-way shall be limited to traffic control devices.

Sec. 109-46. -Turning Lanes.
Turning lanes shall be required by the City to meet projected traffic demand and/or safe operations. When provided, turning lanes shall meet the following criteria:

(a) Provide not less than 150 feet of storage length for arterial roadways. Provide not less than 100 feet of storage length for collector roadways.
(b) Provide taper lengths of not less than 50 feet.
(c) Longer storage and taper lengths may be required when traffic projections indicate they are justified.

Sec. 109-47. -Cul-de-Sac Streets.
Cul-de-sac streets shall be designed to meet requirements of International Fire Code (IFC2015), Appendix D, including circular turn around.

Sec. 109-48. -Shoulder Widths.
All streets shall have a shoulder, measured from the outer edge of the paved surface or back of curb to the inside edge of the ditch that is a minimum of 11 feet wide. The shoulder shall have a maximum slope of 6%.

Sec.109-49. -Acceleration/Deceleration Lanes
Except as indicated, acceleration and deceleration lanes shall be provided for new street and driveway connections to existing streets. The lanes will not be required if any of the following conditions are met:
(a) The driveway is for a one or two family residence;
(b) Total traffic on the existing roadway is less than 200 vehicles per day (count of existing traffic must have been made within one year of the development plan submittal date);
(c) The driveway is for a small business with ingress/egress of less than 10 vehicles per day

ARTICLE VI – PAVEMENT INSTALLATION

Sec. 109-50. -Specifications
Unless otherwise specifically set forth herein, all of the materials, methods of construction, and workmanship for street construction shall conform to the latest edition of the Georgia Department of Transportation Standard Specifications for Road and Bridge Construction including all amendments and the latest edition of the City of Dawsonville Standard Specification for Roadway and Drainage Systems and the latest edition of the City of Dawsonville Standard Details. The Standard Specifications and Details can be obtained as a separate document from the City website (www.dawsonville-ga.gov) or from the City Department of Planning and Zoning.

Street and alley subgrade shall be constructed in accordance with the following Georgia DOT specification sections:

a. Section 201- Clearing and Grubbing Right-of-Way
b. Section 205 - Roadway Excavation
c. Section 208 - Embankments
d. Section 209 - Subgrade Construction.

Street and alley bases shall be constructed in accordance with the following Georgia DOT specification sections:

a. Section 300 – General Specifications for Base and Subbase Courses
b. Section 310 - Graded Aggregate Construction

Street and alley surface and binder asphaltic paving courses, including prime, shall be constructed in accordance with Georgia DOT Specification Section 400 - Hot Mix Asphaltic Concrete Construction.

Sec. 109-51. –Alternate Materials

In the event the developer desires to utilize base or paving materials or systems not included in these Regulations, the developer shall provide an engineering study prepared by a Georgia registered professional civil engineer comparing the proposed material or system to the appropriate system which is included in these Regulations. The engineering study shall include a pavement structural design based on the AASHTO "Guide for Design of Pavement Structures" and suggested specifications for the materials and construction of the proposed system. The City will treat the developer's request through the appeals process described elsewhere in these Regulations.

Sec. 109-52. -Curb and Gutter

(a) All new streets or street widening sections shall be provided with curb and gutter, except as provided herein. All gutters shall drain smoothly with no areas of ponding. In lieu of installation of curbs and gutters and/or related improvements, the developer must have presented to and received approval by the City for a Street Improvements and Stormwater Drainage Plan for the development and its affected environs. Said plan must provide for adequate stormwater drainage, and will further address, as a minimum, street grading, paving, and curbs and gutters, and or other innovative provisions for said drainage. This plan must conform to the applicable standards and specification established by the City and be prepared, signed, and sealed by a Georgia registered professional civil engineer.
(b) In residential developments, the developer may use either a standard curb and gutter section or a roll back curb and gutter section. In other developments, the developer shall use a standard curb and gutter section. Both sections are shown in the City of Dawsonville Standard Details.

Sec. 109-53. –Sidewalks.

(a) If the proposed sidewalk will be an extension of an existing sidewalk the proposed sidewalk shall be at least as wide the existing sidewalk and be at minimum 5 feet wide.
(b) Sidewalks shall be provided along both sides of all roads within residential developments and along the entire length of the property where a road entrance is constructed. Sidewalks shall be provided along public streets for all multi-family, commercial, and industrial

developments, and in such other locations as deemed necessary by the city for safe pedestrian movement.

(c) The sidewalks must be constructed to conform to the Georgia DOT Sidewalk Standards.
(d) Sidewalks shall be five foot wide and 4 inches thick.
(e) Sidewalks shall have ADA compliant ramps and warning pads at intersections. The warning pads shall be screwed down and thermal coated.

Sec. 109-54. –Driveways.

All structures erected in the City must be served with access from a public street by an appropriate driveway in accordance with the specifications below. "Residential" shall apply to all residentially zoned property and "Commercial" shall apply to all non-residentially zoned property including, but not limited to, all industrial, highway business, institutional and commercially zoned properties.

All driveways shall have a landing. The landing is defined as the portion of the driveway that connects to the public street.

	Residential	Commercial
Minimum Width	9'	12' (one way entry/exit) 24' (two way entry/exit)
Apron Width Minimum	3' on each side	3' on each side
Slope Maximum	10%	5%
Minimum Landing Length	20'	30'
Maximum Landing Slope	5%	4%

All driveways shall be constructed at a minimum of 3.5" or more of 3,000 psi concrete or 2" or more of asphalt on a compacted base. All culverts under driveways shall be 12" or more in diameter and covered with a minimum of 4" of gravel.

All driveways shall be setback at least 6' from the side property line and shall meet the same elevation at the existing (or to be constructed) sidewalk. There shall be at least 20' between the entrances for a U-shaped or similar driveway located on a single lot.

Sec. 109-55. -Traffic Control Devices.

Traffic control devices consisting of street name signs, traffic control signs, traffic markings, and traffic signals shall be provided by the developer as appropriate to serve each development. All traffic control devices and installation thereof shall conform to the Manual on Uniform Traffic Control Devices, ANSI D6.1e. For residential developments, minimum traffic control devices shall consist of street name signs on each street intersection, stop or yield signs at each intersection, one speed limit sign per block, school or pedestrian crossing signs where appropriate, no parking where applicable, and limited pavement marking such as crosswalk lines for school or pedestrian crossings. Minimum traffic control devices for non-residential developments shall include those devices for residential developments and lane and centerline markings, stop lines, including fire lane and no parking, and parking space markings. Additionally, appropriate other signs and signals shall be provided by the developer.

Sec. 109-56. -Street Lighting
The developer shall provide a street light at each street intersection and at intervals not exceeding 150 feet along streets and within amenities.

ARTICLE VII – PLAN REQUIREMENTS

Sec.109-57 -Preparation of Street Improvement Plans
Street improvement plans for all new streets, street widenings, and existing street upgrades shall be prepared by a Georgia registered professional civil engineer.

(a) Information to be shown on the plans shall consist of not less than the following:
  (1) Profiles of existing ground levels along street centerlines and each right-of-way. Field determined elevations shall be indicated at intervals not exceeding 100 feet. Where cross sections are provided at least every 100 feet, only centerline elevations need be shown on the profile.
  (2) Existing facilities and features within and adjacent to rights-of-way which affect or could be affected by street improvement construction. Items include, but are not limited to, streets, rights-of-way, buildings, parking lots, driveways, fences, and tree lines.
  (3) All drainage ways, lakes, streams, creeks, channels, wetlands, and drainage facilities.
  (4) All existing utilities and appurtenances within and adjacent to rights-of-way which affect or could be affected by street improvement construction. The utility type, size, depth, material and location in relation to street improvements must be indicated.
  (5) Existing and proposed property and easement lines, land lot, and land district lines intersecting street rights-of-way.
  (6) Limits of new construction.
  (7) New road improvements, including but not limited to, curbs and gutters, sidewalks, pavements, driveways, wheel chair ramps, traffic control devices, and street lights (if any).
  (8) Profiles of each pavement edge or line of curb and gutter with new finished grade elevations at intervals not exceeding 100 feet.
  (9) Horizontal and vertical street geometry including street centerline angles of deflection, radii, degree of curvature, design speed, tangent lengths, arc lengths, bearings, street grades, and lengths of vertical curves. Stations for all points of curve, points of tangency, points of intersection, both horizontal and vertical, must be shown.
  (10) Benchmarks for vertical control.
  (11) Name of the development, names, addresses, and telephone numbers of developer and developer's engineer, engineer's seal, north arrow, scale, and date.

(b) Plans shall be prepared in conformance with the following:
  (1) Where specific design guidance is not given, in these regulations or other regulations, rules, ordinances, of the City, the AASHTO publication "A Policy on Geometric Design of Highways and Streets", latest edition, shall be followed.
  (2) All elevations shall be based on and tied to U.S. Coast and Geodetic Survey mean sea level datum.

(3) Plan drawings shall be at a scale of at least 1 inch equals 50 feet. In developed or congested areas, a scale of 1 inch equals 20 feet or less shall be utilized.
(4) For profile drawings, the horizontal scale shall be the same as that used for associated plan drawings. The vertical scale shall be at least 1 inch equals 10 feet. A 1 inch equals 10 feet vertical scale is often necessary to properly depict grade changes in flat areas.
(5) The desired drawing size is 24 inches by 36 inches. In no case shall drawings be larger than 30 inches by 42 inches nor smaller than 11 inches by 17 inches.

Sec. 109-58-109-78. -Reserved.

CHAPTER 110 - WATER AND SEWERAGE SYSTEMS

ARTICLE I – GENERAL PROVISIONS

Sec. 110-1-110-18. -Reserved.

ARTICLE II – DEFINITIONS

Sec. 110-19-110-29. Reserved.

ARTICLE III – DESIGN REQUIREMENTS

Sec. 110-30. -Design Requirements
Water and sewerage systems shall be designed and installed in accordance with the City of Dawsonville Standard Specifications and Details for Water and Sewerage Systems, latest edition. The Standard Specifications and Details can be obtained as a separate document from the City website (www.dawsonville-ga.gov) or from the City Department of Planning and Zoning.

Sec. 110-31. -Fees Paid by Developer

The Developer is responsible for all costs incurred by the City associated with the proposed development. These costs include:

a. Feasibility Study and Capacity Modeling

b. Engineering Plan Review

c. Regulatory Agency Application and Review Fees

d. Meter and Backflow Installation

e. Connection to Existing City of Dawsonville Water and Sewer Lines

f. Inspection

g. Testing

Sec. 110-32. -Looping Easement Requirements
The overall distribution plan adhered to by the City requires looping of water lines. This looping provides adequate fire flow protection while eliminating dead ends and stagnated water. It is the City's policy to require 20 foot wide utility easements between lots in new subdivisions where a loop cannot be installed to connect to another subdivision or main line in the future. The design engineer should determine the location of possible future development around the proposed

subdivision, consider the ease of construction of a loop to the future development, and discuss these with the City. All easements must be shown on the plans and on the final recorded plat as 20 foot utility easements dedicated to the City of Dawsonville. The Developer must lay the water line along the entire length of each required easement to the adjoining property with a dead-end gate valve at the end. No dead-end lines allowed over 1,000 feet unless approved by the City Engineer.

Sec. 110-33. -Permit Requirements
Contractors and subcontractors are required to possess a business license to work within the applicable jurisdiction. Proof of said license and all other applicable permits (Erosion Control, DOT, etc.) shall be on the job site. The Contractor shall have the state utility license.

Sec. 110-34. -Insurance Requirements
The Contractor shall submit proof of insurance to the City with a minimum general liability of $1,000,000. The Contractor shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the Contractor's execution of the work, whether such execution be by himself or by any Subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts of them may be liable:

(a) Claims under workmen's compensation, disability benefit and other similar employee benefit acts.
(b) Claims for damages because of bodily injury, occupational sickness or disease or death of his employees.
(c) Claims for damages because of bodily injury, sickness or disease or death of any person other than his employees.
(d) Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person.
(e) Claims for damages because of injury to or destruction of tangible property including loss of use resulting therefrom.
(f) Insurance shall be written with a limit of liability of not less than $500,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident and a limit of liability of not less than $500,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $200,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $200,000 aggregate for any such damage sustained by two or more persons in any one accident.

Sec. 110-35. -Wastewater Pre-Treatment
The following wastewater pre-treatment infrastructure is required:

(a) Sand traps and oil separators with sample station manholes shall be installed in all sanitary sewer service lines from service stations, garages, and similar operations. Domestic sewage shall not pass through sand traps or oil separators.

(b) Grease traps and sample station manholes shall be installed in process waste lines of all sanitary service sewers for commercial, industrial, and institutional establishments with food preparation areas.

(c) If dumpster pad drains are to be tied onto the sanitary sewer, a grease trap and sample station manhole shall be placed between the pad and the City sewer. Domestic wastewater shall be excluded from the trap. Food process waste streams may utilize the same trap if sized appropriately.

(d) Rainwater shall be prevented from entering the sanitary sewer at all dumpster pad locations. Method must be detailed on drawings.

(e) Grease trap and oil separator details shall appear on the project drawings and shall be approved prior to installation.

(f) Oil separators shall be sized to handle two (2) times the expected flow rate.

(g) Grease traps shall be sized as necessary with the minimum allowable size being 1,000 gallons. If a dumpster pad is tied into the grease trap the minimum size is 1,500 gallons.

(h) Sample station manholes may be required on all commercial, industrial, and institutional sanitary service sewers.

CHAPTER 111 - GRADING AND DRAINAGE

ARTICLE I – GENERAL PROVISIONS

Sec. 111-1-111-3. -Reserved.

Sec. 111-4. -Design References
Site grading shall be done in accordance with the finished grades shown on the approved Subdivision Plans. Soil erosion and sediment control measures shall be provided as required in the Soil Erosion and Sediment Control Ordinance (Chapter 106). Stormwater control shall be provided as required in the Stormwater Management Ordinance (Chapter 107) and in accordance with Georgia Stormwater Management Manual and the Georgia Department of Transportation Manual on Drainage Design for Highways.

Sec. 111-5-111-18. -Reserved.

ARTICLE II – DEFINITIONS

Sec. 111-19-111-29. Reserved.

ARTICLE III – DESIGN REQUIREMENTS

Sec. 111-30. –Maximum Slope
Site grades shall direct surface drainage away from buildings without causing adverse impact on adjacent properties. The maximum slopes for soil cut or fill shall be three feet of horizontal run for each foot of vertical rise or fall except for stable rock slopes. If actual soils encountered require a flatter slope for stability, the lesser slope shall be used.

Sec. 111-31. -Culverts and Piped System Design Criteria

(1) Culverts are to be designed for a 50 year frequency flood event. The area inundated by the design event is to be contained in a drainage easement.

(2) Piped storm drainage systems are to be designed for a 25 year frequency storm event in non-residential areas and for a 10 year frequency storm event in residential areas.

(3) Catch basins are to be spaced so that the maximum gutter spread is six feet or less for the design storm event.

(4) The minimum pipe size to be used as a culvert or in a piped system is 18inch diameter.

(5) The minimum velocity in a pipe flowing full is to be 2.0 feet per second. The maximum velocity in a pipe flowing full is to be 12.0 feet per second. The exit velocity of culvert and pipe systems is to be controlled and modified to prevent channel erosion or scour.

(6) The absolute minimum clearance between the bottom of the paving base or subbase and the exterior crown of the storm drain pipe or culvert is to be 1.0 foot. A clearance of 2.0 feet is considered more desirable and should be achieved if possible.

Sec. 111-32. –Drainage Piping under Roads
All stormwater and drainage piping under roads shall be reinforced concrete pipe that is at least 18 inches in diameter.

Sec. 111-33. –Access Points
The maximum distance between stormwater piping manholes or daylight shall be 300 linear feet.

Sec. 111-34. -Specifications for Drainage Construction
Grading and drainage systems shall be installed in accordance with the City of Dawsonville Standard Specifications Roadways and Drainage Systems, latest edition and the City of Dawsonville Standard Details, latest edition. The Standard Specifications and Details can be obtained as separate documents.

Sec. 111-35. -Preparation of Grading and Drainage Plans
Grading and drainage plans for all developments except individual one and/or two family dwelling units, shall be prepared by a Georgia registered professional engineer or landscape architect and submitted as part of the Subdivision Plans.

(1) Information to be shown on the plans shall consist of not less than the following:
   (a) Topographic map of the existing conditions for the development showing existing facilities and features which affect or could be affected by grading and drainage improvements. Utilize a contour interval of not greater than two feet with spot elevations as necessary to define existing ground surfaces.
   (b) All drainageways, lakes, streams, creeks, swales, ditches, channels, wetlands, and drainage facilities.
   (c) All existing utilities and appurtenances which affect or could be affected by grading and drainage improvements. The utility type, size and location in relation to grading and drainage improvements should be indicated.
   (d) All existing and proposed drainage basins
   (e) Existing and proposed property and easement lines and land lot and land district lines intersecting or bounding grading and drainage improvements.
   (f) Finished grades depicted by finished contours and/or spot elevations as necessary to define finished grade surfaces.
   (g) New drainage improvements including, but not limited to, pipes, culverts, catch basins, area drains, drop inlets, junction boxes, headwalls, berms, dikes and detention basins with outlet works. The drainage areas tributary to each drainage structure, design flow, and time of concentration shall be indicated.

(h) Profiles of storm drains showing existing and finished ground surfaces, pipes, drainage structures with top and flow line elevations, distances from centerline to centerline of drainage structures, pipe and ditch grades, crossing utilities, and limits of special construction.
(i) Benchmarks for vertical control.
(j) Name of the development, names, addresses and telephone numbers of developer and developer's design professional, design professional's seal, north arrow, scale, and date.

(2) Plans shall be prepared in conformance with the following:
(a) All elevations shall be based on and tied to U.S. Coast and Geodetic Survey mean sea level datum. Date for mean sea level datum must be provided.
(b) Plan drawings shall be at a scale of at least 1 inch equals 100 feet. In developed or congested areas, a scale of 1 inch equals 20 feet or less shall be utilized.
(c) For profile drawings, the horizontal scale shall be the same as that used for the associated plan drawings. The vertical scale shall be at least 1 inch equals 10 feet. A 1 inch equals 5 feet vertical scale is often necessary to properly depict drainage conditions.
(d) The desired drawing size is 24 inches by 36 inches. In no case shall drawings be larger than 30 inches by 42 inches nor smaller than 11 inches by 17 inches.
(e) Drainage construction may be shown on street or utilities improvements plans provided the resulting drawings are clear, legible and plainly show all necessary information.

CHAPTER 112 - LOT AND BLOCK STANDARDS

ARTICLE I – GENERAL PROVISIONS

Sec. 112-1-112-2. -Reserved.

Sec. 112-3. –Conformance to Zoning
All lots shall conform to the requirements of the City of Dawsonville Zoning Ordinance. Minimum lot sizes, widths, and setbacks are specified in the City of Dawsonville Zoning Ordinance.

Sec. 112-4. –Special Notation Required
The City requires a final plat notation stating that a site plan must be approved prior to issuance of a building permit for lots which include any of the following:

(1) particular or unusual difficulties to meet minimum setback limits
(2) unusual building sites due to easement configuration
(3) possible floodplain encroachment
(4) storm water detention facilities
(5) zoning imposed buffers
(6) unusual or severe topographic features

Sec. 112-5-110-18. -Reserved.

ARTICLE II – DEFINITIONS

Sec. 112-19-112-29. Reserved.

ARTICLE III – LAYOUT

Sec. 112-30. –Length to Width Ratio
In general, lots should be designed such that they are no more than four times as deep as they are wide at the building set back line.

Sec. 112-31. -Side Lot Lines
In so far as practical, side lot lines shall be at right angles to straight street lines or radial to curved street lines. Each lot must front for at least thirty (30) feet on a dedicated public street unless the lot upon which the building permit is requested is an approved lot in an approved Planned Unit Development.

Sec. 112-32. –Property Markers
Iron pins (1/2 inch in diameter) shall be installed by a registered land surveyor at all lot corners. The iron pins shall be shown on the Final Plat.

Sec. 112-33. -Corner Lots
Corner lots shall have extra width to permit prescribed set-back limits from all streets on which the lot has frontage.

Sec. 112-34. -Double Frontage Lots
Double frontage lots other than corner lots shall be required for residential subdivisions along arterial or primary collector streets where internal access can be provided. When approved by the Planning and Zoning Commission, double frontage lots can be used.

To properly separate residential subdivisions employing double frontage lots from traffic arteries, the Planning and Zoning Commission will require a planted buffer of ten foot minimum width along the lot line abutting the traffic artery. The easement for the buffer will be required to deny right of access to the lot on which it is located.

Sec. 112-35. -Panhandle or Flag Lots.
Panhandle or Flag lots, of required width and area, may be allowed where terrain makes standard design or frontage impossible or impractical. Where such lots are allowed, the street frontage of each panhandle access shall not be less than 30 feet wide, and the panhandle access shall not be more than 200 feet long. Not more than two (2) such panhandle access points shall abut each other, and if so combined the width of each panhandle may be reduced to not less than twenty four (24) feet. All such access points or combinations thereof shall be separated from each other by the frontage of a standard lot required under the applicable provisions of these Regulations.

Sec. 112-36. –Lot Remnants.
Lot remnants are not permitted. All lots less than minimum lot size which are left over after the subdividing of a larger tract, must be added to adjacent lots, rather than allowed to remain as unusable parcels. However, the lot remnants may be used for a specific purpose such as a detention pond, provided appropriate maintenance and ownership are clearly designated and abide by regulations set forth in Subpart B - LAND DEVELOPMENT REGULATIONS APPENDIX A - ZONING ARTICLE XIV. - PCS, PLANNED CONSERVATION SUBDIVISION DISTRICTS for open space. The remnant lots shall have access to a roadway through right of way or permanent easement.

Sec. 112-37. –Subdivision Buffers.
Each parcel that is being subdivided into more than 4 parcels shall have a minimum 20-foot wide vegetation buffer, where natural vegetation exists. Where no natural vegetation exists, a landscape strip with evergreen trees and a solid wooden fence of six feet in height shall be installed and maintained around the entire perimeter of the original parcel.

Sec. 112-38. –Drainage Easements.
Each proposed lot shall have a 10' drainage easement on all sides of the lot.

Sec. 112-39. –Blocks.
(a) The lengths, widths, and shapes of blocks shall be determined with regard to:
(1) Maximum length of block shall be 1,800 feet.

(2) Provision of adequate building sites suitable to the special needs of the type of use contemplated.
(3) Applicable zoning requirements as to lot size and dimensions.
(4) Needs for convenient access, circulation, control and safety of vehicular and pedestrian traffic.
(5) Limitations and opportunities of topography.

(b) The Planning and Zoning Commission may, when existing or proposed pedestrian/bicycle circulation patterns or public gathering places so justify, require pedestrian/bicycle ways or access easements through blocks.

Sec. 112-40. –Street and Subdivision Names.

Proposed streets in alignment with an existing street shall have the same name as the existing street. New streets and subdivisions shall not duplicate or closely approximate an existing street or subdivision name within Dawson, Forsyth, Cherokee, Hall, Lumpkin, Fannin, Gilmer and Pickens Counties. Street and subdivision names must be approved by Dawson County 911 and the City prior to the approval of Subdivision Plans.

CHAPTER 113 -PLAT SPECIFICATIONS

ARTICLE I – GENERAL PROVISIONS

Sec. 113-1-113-3. -Reserved.

Sec. 113-4 –Approval Process.

All construction involving any of the following:

(a) the subdivision of land
(b) construction of new buildings that require a building permit
(c) construction of new roads
(d) construction of new water or sewer lines

must go through an approval process as required by the Planning and Zoning Office.

Sec. 113-5-113-18. -Reserved.

ARTICLE II – DEFINITIONS

Sec. 113-19-113-29. Reserved.

ARTICLE III – PRELIMINARY PLAT

Sec. 113-30. –Drawing Scale.
The Preliminary Plat for a subdivision shall be clearly and legibly drawn at a scale of not less than 100 feet to one inch unless special approval is given. The sheet size shall not exceed 24 inches by 36 inches. The minimum sheet size shall be 11 inches by 17 inches.

Sec. 113-31. –Contents
The Preliminary Plat shall contain the following:

(a) Proposed name of the subdivision.
(b) Names, addresses and telephone numbers of the property owner of record and the developer or subdivider.
(c) All contiguous property under Developer's control
(d) Name, address and telephone number each professional firm associated with a Preliminary Plat.
(e) Date of survey, north point and graphic scale.
(f) Subdivision location including land lot(s) and land district(s), area in acres, internal and abutting zoning, proposed number of lots with minimum lot size, and proposed phasing, if any.
(g) A location sketch or vicinity map positioning the subdivision in relation to the surrounding area with regard to recognized permanent landmarks. The location sketch scale shall be not greater than 2,000 feet to the inch.
(h) Boundary lines of the overall property perimeter showing bearings in degrees, minutes and seconds and distances in feet and hundredths of a foot along all lines and the bearing and distances to an existing street intersection or other recognized permanent landmark. The source of boundary information shall be shown.
(i) Topography with mean sea level contours at intervals no greater than five feet. The source of topographic information shall be shown for ground run of aerial only.
(j) Natural features such as lakes, ponds, streams, creeks, State waters, wetlands, 100 year flood plains and other significant features. The source of flood plain information shall be shown.
(k) Cultural features such as rights-of-way, easements, pavements (including widths), bridges, culverts and storm drains, utility lines, appurtenances and structures, City and County jurisdictional limits, land lot and district lines, zoning districts and limits and other significant features.

(l) Proposed layout including lot lines with preliminary dimensions, lot numbers, block letters, street rights-of-way with names and widths, easements, public use facilities, facilities exclusively for subdivision uses, and all relevant conditions of zoning.
(m) Location of all existing or previous landfills.
(n) Proposed method of sewage disposal and water distribution.
(o) The following certification shall be shown and signed on the Preliminary Plat

I hereby submit this Preliminary Plat as authorized agent/owner of all property shown thereon, and certify that all contiguous property under my ownership or control is included within the boundaries of this Preliminary Plat, as required by the Subdivision Regulations. Signature of Authorized Agent/Owner Date

(p) The following approval statement shall be shown with space provided for the City of Dawsonville Planning Director to sign.

This Preliminary Plat has been reviewed and approved for general compliance with the Zoning Ordinance, Land Development Regulations of the City of Dawsonville, Georgia. Signature of Planning Director Date

Sec. 113-32. -Supplemental Information

In addition to the Preliminary Plat, the following information shall be provided to the Planning Commission with each Preliminary Plat submittal:

(a) A written summary of the proposed subdivision giving information as to the overall development plan including, as appropriate, the types and square footage's of structures, number of housing units, types of land uses, anticipated traffic generation, and other pertinent information so that the effects of the subdivision can be fully considered by the Planning and Zoning Commission.
(b) Description of the anticipated utility systems required to serve the proposed subdivision including projected average and peak demands or flows for potable water, fire protection, sewerage, and electrical power.
(c) Description of proposed stormwater management practices for the subdivision including the ownership and proper maintenance provisions of all stormwater detention facilities within the subdivision.
(d) Such additional information as may be reasonably required to obtain an adequate understanding of the subdivision.

ARTICLE IV – SUBDIVISION PLANS

Sec. 113-33. –Drawing Scale.

The Preliminary Plat for a subdivision shall be clearly and legibly drawn at a scale of not less than 100 feet to one inch unless special approval is given. The sheet size shall not exceed 24 inches by 36 inches. The minimum sheet size shall be 22 inches by 34 inches.

Sec. 113-34. –Contents

Subdivision development plans shall conform to the approved Preliminary Plat and may constitute only that portion of the Preliminary Plat which the developer or subdivider proposes to construct at one time as a single unit or phase, provided that such portion conforms to these regulations.

A number of sets as required by the Planning Director of subdivision plans consisting of not less than the following shall be submitted to the City:

(a) Erosion/Sediment Control Plan prepared in accordance with the City's Soil Erosion and Sediment Control Ordinance.
(b) Grading and Drainage Plans prepared in accordance with the City's Development Regulations.
(c) Stormwater Plans prepared in accordance with the City's Development Regulations.
(d) Street Improvement Plans prepared in accordance with the City's Development Regulations.
(e) The layout of all streets planned for future phases
(f) Utility Plans prepared in accordance with the City's Development Regulations.
(g) Landscape plan prepared by a registered landscape architect for all areas except residential lots (e.g. amenities, entrances, islands and open spaces).
(h) Other plans as requested by the City.
(i) Where construction is proposed on adjacent property, an encroachment agreement or easement shall be submitted to the City.
(j) The Subdivision plans shall bear the following notes:
    (1) The City of Dawsonville shall be notified 24 hours prior to any water or sewer line construction or repair. Call City Hall at (706) 265-3256.
    (2) All water main and sanitary sewer materials and workmanship shall be in accordance with the City of Dawsonville Design Criteria.
    (3) The Contractor shall be responsible for maintaining a marked-up set of design drawings showing "as-built" conditions. These "record drawings" shall be made available to the designer and/or the City Inspector upon request. The mark-ups shall be at the site at all times and shall be utilized to develop final record drawings.

Sec. 113-35. -Supplemental Information

In addition to the Subdivision plans the following shall be provided to the City:

(a) City of Dawsonville Water Distribution / Sanitary Sewer Addition Submittal Form
(b) Performance and Payment Bonds for 110% of Erosion Control, Street Improvements, Drainage System, Water and Sewerage Systems
(c) Hydrology Study
(d) Infrastructure Impact Study
(e) Maintenance Plan for Stormwater Infrastructure
(f) Maintenance Plan for Streets
(g) Maintenance Plan for Water and Sewerage Systems
(h) Maintenance Plan for Amenities

ARTICLE V – FINAL PLAT

Sec. 113-36. –Drawing Scale.
The Final Plat shall be clearly and legibly drawn in black ink on suitable permanent reproducible material. The scale of the Final Plat shall be 100 feet to one inch or larger. Sheet size shall not exceed 24 inches by 36 inches. The minimum sheet size shall be 8 & 1/2 inches by 11 inches.

Sec. 113-37. –Contents.
The Final Plat shall be based on a certified boundary survey delimiting the entirety of the property contained within the Final Plat, and tied to a point of reference with the same degree of accuracy as the boundary itself. The survey shall have an accuracy of no less than 1 in 10,000, and shall meet all requirements of Georgia Law regarding the recording of maps and plats.

The Final Plat shall substantially conform to the approved Preliminary Plat and it may constitute only a portion of the approved Preliminary Plat which the subdivider proposes to record at any one time, provided that such portion conforms to the requirements of these regulations, and said portion is not inconsistent with the health, safety, or welfare of the public. Any substantial deviation from the approved Preliminary Plat shall require that a revised Preliminary Plat be submitted to and approved by the Planning and Zoning Commission.

Three (3) hard copies, one (1) .pdf copy and one (1) .dwg file of the final plats and as-builts shall be submitted for review.

The Final Plat shall contain the following:

(a) Name of the subdivision and unit or phase number, if any.
(b) Rezone # and associated conditions
(c) Subdivision density
(d) Lot square footage
(e) Minimum street frontage, lot width and lot size
(f) Lot addresses that have been approved by 911
(g) Names, addresses and telephone numbers of the property owner of record and the developer or subdivider.
(h) Name, address and telephone number each professional firm associated with the portion of the subdivision depicted on the Final Plat.
(i) Engineer's stamp and signature
(j) Surveyor's precision / accuracy statement
(k) Date of plat and survey, north point and graphic scale.
(l) Subdivision location including land lot(s) and land district(s), area in acres, internal and abutting zoning, and number of lots, abutting property owner names, plat book number and plat book page number.
(m) A location sketch or vicinity map positioning the subdivision in relation to the surrounding area with regard to recognized permanent landmarks. The location sketch scale shall be not greater than 2,000 feet to the inch.
(n) Boundary lines of the subdivision property perimeter showing bearings in degrees, minutes and seconds and distances in feet and hundredths of a foot along all lines and the bearing

and distances to an existing street intersection or other recognized permanent landmark. The boundary information shall be tied and related to the State Plane Coordinates System, 1983 North American Datum, Georgia, West zone.

(o) Municipal or county jurisdictional lines tied to the lines of the subdivision by distance and angles when such lines traverse or adjoin the subdivision; land lot or land district lines traversing or adjoining the subdivision shall also be indicated.

(p) Locations, widths and names of all streets within and immediately adjoining the plat and all other public or utilities easements or rights-of-way.

(q) Lot lines with complete dimensions to the nearest one-hundredth of a foot and bearings to the nearest second, and radii, arc and chord lengths, and chord bearings of rounded corners.

(r) Building setback lines with dimensions. When lots are located on a curve or when side lot lines are at angles other than ninety degrees, the lot width at the building line shall be shown.

(s) Lots numbered in numerical order and blocks lettered alphabetically.

(t) Location, material and size of all drainage pipes, location and type of all drainage system appurtenances such as catch basins, headwalls and inlets, location and extent of detention ponds with 100 year event level noted, the location, material and size of all City water mains, the location of all fire hydrants, and the location, width and purpose of any easements, including slope easements.

(u) Location of any areas to be reserved, donated, or dedicated to public use with notes stating their purpose and limitations. Location of any areas to be reserved by private deed covenant for common use of all property owners, or dedicated to a homeowner's association.

(v) A statement of private covenants, if any, and if they are brief enough to be put directly on the Final Plat; otherwise, if covenants are separately recorded, a statement as follows: "This plat is subject to the covenants set forth in the separate document(s) attached hereto dated _____,, which hereby become a part of this plat, and which were recorded on _____."

(w) Accurate location, material and description of property corner or line monuments or markers. All monuments and markers shall be in place prior to approval of the Final Plat.

(x) Extent of the 100-year floodplain within the subdivision. When floodplain is present, a chart giving the areas within and outside of the floodplain for each lot containing any portion of the floodplain shall be on the Final Plat. The origin of the floodplain data shall be indicated.

(y) Individual lots which are deemed by the Mayor as requiring site plans shall be designated in a readily identifiable manner.

(z) The Final Plat shall contain a tabulation of the areas of street rights-of-way, stormwater easements, sanitary sewer easements, potable water easements, and other public facilities to be dedicated to the City.

(aa) The final plat shall contain any special construction requirements

(bb) The following certifications shall be shown and signed on the Final Plat:

(1) It is hereby certified that this plat is true and correct as to the property lines and all improvements shown thereon, and was prepared from an actual survey of the property made by me or under my supervision; that all monuments and markers shown thereon actually exist, and their location, size, type and material are correctly shown. The field data upon which this plat is based has a closure precision of one foot in feet and an angular error of per angle point, and was adjusted using rule. This plat has been calculated for closure and is found to be accurate within one foot in

feet, and contains a total of acres. The equipment used to obtain the linear and angular measurements herein was .

Georgia Land Surveyor Date

(2) The owner of the land shown on this plat and whose name is subscribed thereto, and in person or through a duly authorized agent, acknowledges that this plat was made from an actual survey, and dedicates by this Declaration to the use of the public forever all streets, street rights-of-way, sanitary sewers and appurtenances, sanitary sewer easements, potable water mains and appurtenances, potable water easements, storm drains and appurtenances within street rights-of-way, and other public facilities and appurtenances thereon shown for the purposes therein expressed.

Owner Date

(3) The lots shown hereon have been reviewed by the Dawson County Health Department and with the exception of lots are approved for development. Each lot is to be reviewed by the Health Department and approved for septic system installation prior to the issuance of a building permit.

Health Department Official Date

(4) This subdivision has been reviewed by the Planning Commission and the City and found to be in compliance with the Zoning Ordinance, Development Regulations and Subdivision Regulations. The Mayor and City Council hereby approve this Final Plat, subject to the provisions and requirements of the City's regulations.

Mayor Date

City Engineer Date

Sec. 113-38. -Supplemental Information

In addition to the Final Plat the following shall be provided to the City:

(a) Letter from registered professional engineer certifying that all improvements have been constructed

(b) Letter from Developer describing how all utilities, roads, stormwater infrastructure and amenities will be maintained

(c) A performance bond for those required improvements not yet completed (e.g., pavement topping), if such delay in completion of required improvements is permitted by the administrative officer. The performance bond shall be:

(1) Conditioned upon the faithful performance by the subdivider or developer of all work required within a specified time;

(2) Payable to, and for the indemnification of, the city;

(3) In an amount equal to the cost of construction of the required improvements not yet completed, plus an additional ten percent of said costs, as calculated by the city engineer;

(4) With surety by a company entered and licensed to do business in the state; and

(5) Approved as to form and content by the city attorney.

(d) A maintenance bond, cash deposit, escrow account or other guarantee/instrument of financial security as approved by the city attorney to ensure maintenance of required improvements in the subdivision for a period of one year, payable to the city and in the amount of ten percent of the city engineer's estimate of actual construction cost. If, upon being notified of failure of required improvements, the subdivider does not correct the

deficiency or commence work within ten days of notice, it shall be deemed to be a failure on the bond, and the city shall have the right to make the necessary repairs, either by public work or by private contract, and the bond or instrument of financial security shall be liable for the full amount of the cost of said repairs, as determined by the city engineer.

(e) As-built Record Drawings that shall include the following:

(i.) A .shp file showing the location of all stormwater inlets, stormwater pipes, stormwater detention basins, stormwater headwalls, sanitary sewer manholes, sanitary sewer pipes, sanitary sewer pumping stations, sanitary sewer force main, water lines, valves and fire hydrants;

(ii.) A .pdf file of the complete set of construction drawings showing as-built conditions for all grading, roadways, water lines, sanitary sewer lines, storm sewer lines, pumping stations, lighting and landscaping;

(iii.) Three (3) printed sets of the complete construction drawings showing as-built conditions for all grading, roadways, water lines, sanitary sewer lines, storm sewer lines, pumping stations, lighting and landscaping. Sets shall be printed on 24" x 36" sheets of paper.

STANDARD SPECIFICATIONS

for

WATER DISTRIBUTION SYSTEMS

and

SANITARY SEWERAGE SYSTEMS

CITY OF DAWSONVILLE, GEORGIA

EXHIBIT "A"

STANDARD SPECIFICATIONS

for

WATER DISTRIBUTION SYSTEMS

and

SANITARY SEWERAGE SYSTEMS

CITY OF DAWSONVILLE, GEORGIA
415 Highway 53 East
Dawsonville, Georgia 30534
Office: (706) 265- 3256/ Fax: (706) 265- 4214

Prepared by:

TURNIPSEED ENGINEERS

Adopted: July 15, 2019

Atlanta ▪ 2255 Cumberland Parkway ▪ Building 400 ▪ Atlanta, Georgia 30339 ▪ Tel: 770-333-0700
Augusta ▪ 4210 Columbia Road ▪ Building 3 ▪ Augusta, Georgia 30907 ▪ Tel: 706-863-8800

EXHIBIT "A"

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DETAILS

SECTION 1: POLICIES AND PROCEDURES

1.01 Scope and Intent

A. Purpose: The purpose of this document is to set forth the uniform policies, procedures, design requirements, material requirements and construction standards of the City of Dawsonville as to comply with all applicable state and federal laws for the installation of water distribution systems and sanitary sewerage systems.

B. Use: The Developer shall design and install all water and sewerage systems to comply with this document. The City will use this document to check plans for new water and sewerage systems and improvements to existing water and sewerage systems.

C. Variance: Under special conditions beyond the control of parties involved, the City of Dawsonville may vary from the specifications herein. The Superintendent or designee of the City shall authorize any variance in writing. The State of Georgia, Department of Natural Resources, Environmental Protection Division, shall be notified of any variance in writing.

D. Amendments to the Specifications:

1. The City shall amend the *Standard Specifications for Water Distribution Systems and Sanitary Sewerage Systems,* as determined necessary to improve the systems' performance and integrity. The Superintendent or designee of the City shall approve system performance and integrity amendments in writing.

2. The City shall amend the *Standard Specifications for Water Distribution Systems and Sanitary Sewerage Systems*, as required due to changes in applicable regulations. The State of Georgia, Department of Natural Resources, Environmental Protection Division, shall approve regulatory amendments in writing.

SECTION 2: DEFINITIONS

The listed words or acronyms shall mean the following:

- **ACI:** American Concrete Institute.
- **ANSI:** American National Standards Institute.
- **ASTM:** American Society for Testing and Materials.
- **AWWA:** American Water Works Association.
- **CRSI:** Concrete Reinforcing Steel Institute.
- **Design Engineer:** The engineer or surveyor under whose direction the development plans submitted for review were prepared. Design Engineer shall be a Georgia Licensed Professional Engineer.
- **Developer:** Any person, firm, corporation, association or partnership or any agent thereof who undertakes or proposes to undertake the development of land so as to constitute a residential subdivision, apartment complex, condominium or commercial/industrial/ institutional establishment.
- **DFT:** Dry Film Thickness
- **Diameter:** Nominal inside diameter of pipe excluding bituminous or epoxy bonded coating thickness
- **DIP:** Ductile iron pipe
- **DOC:** United States of America Department of Commerce
- **Easement:** Non-profitable interest in land owned by another that entitles its holder to a specific limited use
- **EPD:** Environmental Protection Division
- **Force Main:** Piping, valves and other components of a single pressurized line used to convey raw water, potable water or sewage. A force main conveying potable water may have a limited number of service connections.
- **FMR:** Factory Mutual Research
- **GEFA**: Georgia Environmental Finance Authority
- **Georgia EPD:** State of Georgia, Department of Natural Resources, Environmental Protection Division.
- **GFI:** Ground fault interrupt
- **gpm:** Gallons per minute
- **Gravity Sewer:** Piping and other components used to convey sanitary sewage in a non-pressurized system
- **Lateral:** Pipe extending from a sewer main to a street right-of-way or easement for the purpose of servicing a property (lot). The lateral shall be six (6") inches in diameter, shall not contain a manhole and shall be less than 250 feet in length.
- **NEC:** National Electrical Code, latest edition
- **NEMA:** National Electrical Manufacturers' Association

- **No. 57 Stone:** Class I embedment or backfill material consisting of manufactured aggregates (crushed stone) in accordance with ASTM D 2321-89 (Reapproved 1995) and ASTM D 2487-00. Percent passing sieve sizes are as follows: 100% passes 1-1/2", < or 10% passes No. 4 and < 5% passes No. 200.
- **Pavement:** Any asphalt, concrete, gravel or dirt surface including curbs and sidewalks used by vehicles and/or pedestrians
- **pcf:** Pounds per cubic foot
- **psi:** Pounds per square inch
- **Pump Station:** All pumps, valves, wetwells, controls and other components used to pump sanitary sewage into a force main
- **PVC:** Polyvinyl chloride
- **Rock:** Solid material being greater than one (1) cubic yard in size which by actual demonstration cannot, in the opinion of the City Engineer, be reasonably excavated with a minimum 135 horsepower backhoe, in good condition and equipped with manufacturer's standard boom and rock points or similar approved equipment; and which must be systematically drilled and blasted or broken by power-operated hammer, hydraulic rock breaker or expansive compounds.
- **Rock Excavation:** Removal of solid material, as the above specifies, and does not necessarily correspond to "rock" as implied by the names of geologic formations.
- **Sanitary Sewerage System:** Multiple pipes, manholes and other components that convey sewage and to which storm water, surface water and ground water are not intentionally admitted.
- **SCADA:** Supervisory Control and Data Acquisition system
- **Service Connection:** Fitting(s) connecting a service line or lateral from a property (lot) to a water main or sewer main
- **Service Line:** Pressurized pipe extending from a water main to a water meter or pressurized pipe extending from a water main to a fire hydrant.
- **Sewage:** The combination of water-carried wastes from residential housing, institutional facilities, and commercial and industrial complexes together with such groundwater, surface water, and storm water as may inadvertently be present.
- **Sewer:** A pipe or conduit that conveys sewage
- **Sewer Main:** Sewer to which one or more laterals are connected
- **Sewer Outfall:** Sewer to which one or more sewer mains are connected
- **Sewer Trunk:** Sewer to which one or more sewer mains or sewer outfalls are connected and discharges into a wastewater facility.
- **Suitable Soil:** Soil that conforms to and as recommended by ASTM D 2321-89 (Re-approved 1995) and ASTM D 2487-00 and that is free of organic and/or deleterious material, expansive clay and rock fragments larger than three (3") inches.
- **Superintendent:** Superintendent of Water
- **UL:** Underwriters Laboratory

- **Utility Contractor:** Georgia Licensed Utility Contractor in accordance with the Official Code of Georgia, Chapter 43
- **USEPA:** United States Environmental Protection Agency
- **Water Distribution System:** Pressurized pipes, valves and other components that convey potable water
- **Water Main:** Pressurized pipe used to convey potable water from a force main to a service line
- **WPCP:** Water Pollution Control Plant
- **WTP:** Water Treatment Plant
- **WWTP:** Wastewater Treatment Plant

SECTION 3: DESIGN APPROVAL

3.01 General

A. The design of water distribution systems and sanitary sewerage systems shall conform to the specifications herein.

B. Concurrent with plan submittal, the Design Engineer shall provide a completed *City of Dawsonville Water Distribution/Sanitary Sewer Addition Submittal* form to the City. The *City of Dawsonville Water Distribution/Sanitary Sewer Addition Submittal* form is enclosed as Appendix A.

C. After receiving approval of the plans from the City, the Developer will be required to submit any applicable forms and documentation to the Georgia Environmental Protection Division. Applicable forms may include but are not limited to, the EPD's *Drinking Water Project Submittal Form* and the EPD's *Sanitary Sewer Extension Submittal Form*, which can be found on the Georgia Environmental Protection Division's website. After receiving approval from the Georgia Environmental Protection Division the Developer shall submit three (3) printed sets of plans and one (1) electronic set of plans to the City with a letter detailing any changes required by the Georgia Environmental Protection Division.

3.02 Technical Review

A. Proposed water distribution system and sanitary sewerage system plans shall be reviewed by the City under the supervision of a Georgia Licensed Professional Engineer for technical adequacy and conformance to applicable requirements.

B. Upon receipt of a proposed development, the City shall perform a feasibility study to verify the project complies with the Service Delivery Strategy for Dawson County and determine whether the existing City water distribution system and/or sanitary sewerage system has sufficient capacity. The City will bill the Developer for all costs associated with review of the proposed development. The following review shall be completed.

1. Water Distribution System

   a. The latest 12 months of reported production from the system shall be examined to determine an average monthly production rate. A proposed development, whose supply requirement would cause the system to exceed the Georgia Environmental Protection Division permitted rate, shall not be connected to the City system.

   b. Pressure and flow from the contributing water distribution system shall be examined to determine whether the additional supply requirement will adversely affect the surrounding system. A proposed development, whose supply requirement would adversely

affect the surrounding system, shall not be connected to the City system.

2. Sanitary Sewerage system

a. The wastewater treatment facility must be in compliance with its *NPDES* permit. If the facility is not in compliance with the *NPDES* permit then the sewerage system connection will not be approved.

b. The latest 12 months of reported discharge from the receiving WPCP shall be examined to determine an average monthly flow rate. A proposed development, whose discharge would cause the receiving WPCP to exceed the Georgia EPD permitted flow rate, shall not be connected to the City system.

c. A capacity study shall be performed to determine whether the discharge from the development would exceed the capacity of the existing receiving sewers. A proposed development, whose discharge would exceed the capacity of the receiving sewers, shall not be connected to the City system.

C. City review comments shall be marked on Technical Review Checklists and noted on development plans in the color red (Red Line Comments). Technical Review Checklists used during the City review are included in Appendix B.

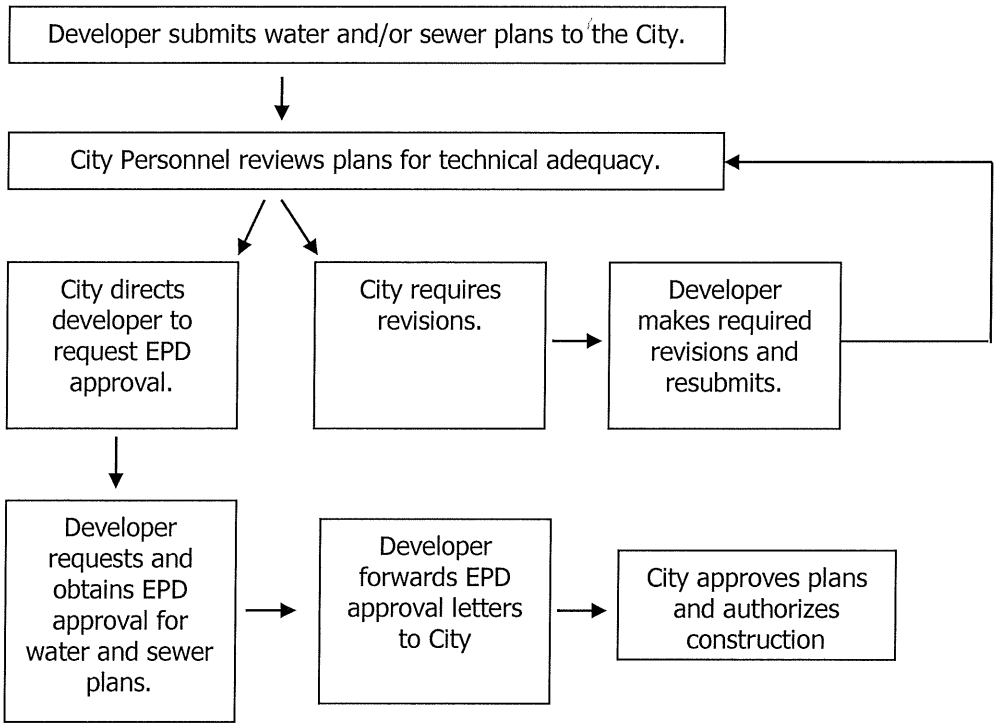
3.03 Plan Processing

A. Water distribution system and/or sanitary sewerage system plans shall be submitted to the City. If the development will be constructed in phases, the Developer shall submit an overall development plan and detailed plans for each phase. Three (3) printed sets and one (1) electronic set of water distribution system and/or sanitary sewerage system plans are required for each submittal during the City review process. A letter addressing previous comments will be required with all resubmittals.

B. The Design Engineer shall address City review comments. Plans containing the original Red Line Comments shall accompany each re-submittal to the City.

C. Soil Erosion and Sedimentation Control Plans pertaining to the overall Development shall be reviewed and approved by the local issuing authority. Construction of any kind shall not begin on a project prior to the issuance of a Land Disturbance Activity permit.

D. The City of Dawsonville's plan processing sequence is shown on the following chart.



3.04 Approval by Regulatory Agencies

A. The Developer's Engineer shall address all deficiencies and resubmit plans in accordance with Division I, Sections 3.02 and 3.03. Plans shall not be approved until all deficiencies have been addressed to the satisfaction of the City Engineer.

B. Note that plan approval by the City Engineer shall not be construed, in any manner, to relieve the Developer of his responsibility for strict compliance with the specifications herein and any applicable laws and regulations.

C. Installation of water distribution systems and/or sanitary sewerage systems shall not commence on any development until the City has granted final approval of water distribution system and/or sanitary sewer plans and the local issuing authority has issued a Land Disturbance Activity permit, and the Georgia Environmental Protection Division has written an approval letter.

D. Note that other agencies may have regulatory authority and the Developer is responsible for obtaining other agency approval. Other agencies could be, but are not limited to, State of Georgia Department of Natural Resources, State of Georgia Department of Transportation, United States Army Corps of Engineers, United States Environmental Protection Agency, electrical, phone, cable, and natural gas providers.

3.05 Period of Plan Approval

Approved water distribution system and/or sanitary sewerage system plans shall be valid for six (6) months. Approved plans that are not initiated or are inactive for a six (6) month period shall become invalid. Should an approved plan be invalidated, the City Engineer shall determine whether the plan must be resubmitted for approval.

SECTION 4: EASEMENTS AND DEEDED PROPERTY

4.01 General

A. Components of water distribution systems and sanitary sewerage systems, to be owned by the City, should be situated within streets' rights-of-way.

B. The following water distribution system and sanitary sewerage system components, to be owned by the City, shall be situated within an easement that is granted to the City, when a street right-of-way is not available.

1. Force main
2. Water main
3. Water meter/check valve assembly
4. Fire hydrant
5. Sewer main
6. Sewer outfall
7. Manhole
8. Other components required by the City

C. An easement shall not encroach into a structure's foundation and shall be clear of all obstructions not associated with the water and/or sanitary sewerage system including but not limited to construction debris, fencing and trees.

D. Property developed and occupied by a pump station and/or an access road, to be owned by the City, shall be platted and deeded to the City.

E. All property and easements shall meet requirements for final plats detailed in the City's *Land Development Regulations*.

4.02 On-Site Easement

A. "On-site" easements are those easements falling within the boundaries of the current phase of the development. "On-site" easements shall be shown on the plat and recorded through the process of recording the final plat.

B. Developer shall grant to the City, the exclusive right to construct, reconstruct, operate, maintain, repair, replace, improve, alter, remove, relocate and inspect water distribution systems and/or sanitary sewerage systems that are situated over, across and under the land wherein the water distribution systems and/or sanitary sewerage systems lie on the Developer's property.

4.03 Off-Site Easement

A. "Off-site" easements are those easements falling outside the boundaries of the current phase of the development. Easements through property owned by the

developer, including water and sewer lines that will be included in later phases of the same project, must be treated as off-site easements.

B. Off-site easements shall be negotiated and acquired by the Developer with the property owner.

C. Construction of the off-site water distribution systems and/or sanitary sewerage systems shall not begin until all off-site easements for system completion have been acquired by the Developer and recorded by the City.

4.04 Easement Size

A. The minimum width of a permanent on-site/off-site easement associated with water distribution system and sanitary sewerage system components shall be 20 feet.

B. The minimum size of an easement associated with a water meter/check valve assembly shall be 20' by 30'.

C. Easement width or size may be increased or decreased at the discretion of the City Engineer.

4.05 Deeded Property

A. The minimum size of deeded property associated with a pump station shall be 60' by 60'.

B. The minimum width of deeded property associated with an access road shall be 30'.

C. The size or width of deeded property may be increased or decreased at the discretion of the City Engineer.

SECTION 5: INSTALLATION

General

A. The installation of water distribution systems and sanitary sewerage systems shall be in accordance with the approved plans and specifications herein.

B. A set of plans stamped approved by the City shall be present on the job site whenever work is being performed on the water distribution system and/or sanitary sewerage system.

C. A representative of the Developer, the installation contractor, the County Fire Marshall and the City shall attend a pre-construction conference at the City at least ten (10) working days prior to the start of any construction. The Developer is responsible for scheduling the conference when all representatives can attend. The purpose of this conference will be to define roles and responsibilities for the correct execution of the proposed water and/or sewer line installations.

Utility Contractor

A. A licensed Utility Contractor shall install water distribution systems and sanitary sewerage systems.

B. Prior to commencing construction activities on a proposed water distribution system and/or sanitary sewerage system, the City Engineer shall receive a copy of the Utility Contractor's License.

City Installation

A. The City shall perform the following system components installation at a cost to the Developer/Owner:

1. Supply materials and labor to install water meter and check valve assemblies from ⅝-inch in diameter through 2-inches in diameter;
2. Supply labor to tap water main;
3. Supply materials and labor to install a sewer main tap for a private individual.

B. The installation of residential water service lines will be performed by the Developer's Utility Contractor with approval by the City.

Insurance Requirements

A. Utility Contractors performing work on City funded or partially funded projects shall comply with current City insurance and bonding requirements.

B. Companies such as railroads, electric power suppliers, natural gas suppliers, etc. may require Utility Contractors to furnish insurance, in addition to City

requirements when crossing their respective easements. The Utility Contractor shall provide such insurance as required.

5.05 Inspection

A. A City Inspector, under the supervision of a Georgia Licensed Professional Engineer, shall inspect water distribution systems and sanitary sewerage systems during all phases of construction to ensure the systems are being constructed in accordance with the plans approved by the City and specifications herein.

B. The Developer shall provide the City Engineer a 48-hour notice prior to commencing construction on a water distribution system and/or sanitary sewerage system.

C. The Developer/Utility Contractor shall, at all times, permit and facilitate inspection of work by the City. The presence of a City Inspector or City Engineer on the site of work shall not be construed to, in any manner, relieve the Developer/Utility Contractor of their responsibility for strict compliance with the approved plans and specifications herein.

D. The City Inspector shall not change or modify the approved water distribution and/or sanitary sewerage system plans or specifications herein without written approval from the City Engineer.

E. The City Inspector shall inform the Developer/Utility Contractor when construction is deficient from the approved plans and specifications herein. Deficiencies shall be addressed in a timely manner as determined by the City Inspector. Construction activities and other pertinent information shall be recorded on an Inspection Report included in Appendix C.

F. The City or County Building Department shall perform inspections relating to electric power supply.

G. Deficiencies not addressed in a timely manner shall be justification for the City to stop work on a project. The City Engineer shall issue a Stop Work Order to the Developer/Utility Contractor in writing. Continued work on a project after being issued a Stop Work Order shall be justification for necessary enforcement actions.

5.06 Testing

A. Details on testing procedures are included in Division IV. Testing shall be performed at the expense of the contractor.

B. Water distribution systems shall be subjected to bacteriological and hydrostatic tests.

C. Sanitary sewerage systems shall be subjected to pressure testing, televising and mandrel testing.

D. The City shall be given a 48-hour notice prior to any testing. A City Inspector shall witness all testing.

E. Testing for the compressive strength of concrete and density of compacted soil shall be performed at the expense of the Developer by City approved geotechnical and material testing companies. Materials not meeting required specification shall be removed, replaced and retested for compliance at the expense of the Developer.

F. Results of tests performed by testing companies shall be provided to the City Engineer. Testing forms used by the City are included in Appendices D and E.

SECTION 6: CONNECTING TO CITY SYSTEMS

6.01 General

A. Provided the Developer has complied with the terms of these Policies and Procedures and the installed water distribution system and/or sanitary sewerage system is in accordance with the approved plans and specifications herein, the City shall allow the Developer/Owner to connect the new system(s) into the City system(s). Copies of the City letters approving construction of the Developer's water distribution system and/or sanitary sewerage system are included in Appendices I and J.

B. City cannot authorize a wastewater conveyance plan which involves hauling of wastewater.

C. The conveyance of wastewater onto the ground or into a receiving stream is prohibited.

6.02 Connection to Existing Systems

A. The City Inspector shall be notified at least 48-hours in advance of connecting to the City systems.

B. A City Inspector shall be present during connection of the Developer's systems to the City systems. Prior to installation, a City Inspector shall approve all materials supplied by the Developer to be used in making the connection.

C. Upon completing a water distribution and/or sanitary sewer connection, the Developer's systems shall be valved-off and/or immediately plugged, respectively, until Final Acceptance.

D. Should an unauthorized connection or connection without the presence of the City Inspector be made to the City systems, the Developer shall be subject to a fine and/or refusal of service. Under any circumstance, the Developer shall expose and thoroughly clean all piping and components of the connection for inspection by the City. Noncompliant connections and/or damage to the City system shall be repaired or replaced in conformance with the approved plans and specifications herein at the expense of the Developer.

SECTION 7: SYSTEM ACCEPTANCE

7.01 General

Acceptance of the Developer's water distribution system and/or sanitary sewerage system shall be considered by the City at such time as the Developer has met all terms and conditions of the specifications herein.

7.02 Final Inspection

Prior to final acceptance, a City Inspector shall perform a final inspection of the water distribution system and/or sanitary sewerage system after all pavement is installed. The final inspection shall determine the proper installation of valve and meter boxes, the integrity of manholes, and the absence of debris in sewers and presence of proper curb markings. Results of the inspection shall be recorded on a Final Inspection Report and is included in Appendices G and H. Deficiencies encountered shall be immediately addressed and an additional final inspection shall be required.

All GEFA, SRF, ARRA, USEPA, DOC and Georgia Board of Regent funded projects will require State inspection of the construction.

7.03 Warranty

The Developer shall warrant the development's water distribution system and/or sanitary sewerage system and hold the City harmless against all costs, expenses and losses, including, without limitation, incidental and consequential damages, resulting from any defects in the Developer's water distribution system and/or sanitary sewerage system, including without limitation, defects in material and workmanship, which are discovered or arise within a minimum period of one (1) year beginning on the date of final acceptance by the City. A longer warranty period may be required on certain material requirements and/or construction standards as indicated in the specifications.

7.04 Final Acceptance

A. Final acceptance of the Developer's water distribution system and/or sanitary sewerage system by the City shall be when written, signed and dated by the City Engineer. A copy of the City Final Acceptance Letter is included in Appendix L.

B. Upon issuance of Final Acceptance Letter, the Developer's new system(s) may be opened to the City system(s).

SECTION 1: DESIGN REQUIREMENTS

1.01 General

The design and plan preparation of water distribution systems and sanitary sewerage systems shall conform to the specifications herein.

1.02 Licensed Professionals

A. Water distribution system and/or gravity flow sanitary sewerage system design and plan preparation for a residential subdivision or parts thereof on a Developer's property shall be performed by a Georgia Licensed Professional Engineer who has sufficient knowledge to properly perform the design.

B. Water distribution system and/or gravity flow sanitary sewerage system design and plan preparation for property off-site of a Developer's property shall be performed by a Georgia Licensed Professional Engineer who has sufficient knowledge to properly perform the design.

C. Water distribution system and/or gravity flow sanitary sewerage system design and plan preparation for commercial/industrial property shall be performed by a Georgia Licensed Professional Engineer who has sufficient knowledge to properly perform the design.

D. Force main and sanitary sewer pump station design and plan preparation shall be performed by a Georgia Licensed Professional Engineer who has sufficient knowledge to properly perform the design.

E. The professional performing the design and preparing the plans shall seal each plan sheet with their stamp and sign their name across the stamp.

1.03 Reference Documents and Standards

General methods of design and construction shall conform to the specifications herein and the following. When standards conflict with one another, the City Engineer shall determine the applicable standard.

A. Georgia Environmental Protection Division, Minimum Standards for Public Water Systems, May 2000.

B. Georgia Environmental Protection Division, Rules and Regulations for Water Quality Control, Chapter 391-3-6, latest effective date.

C. Water Environment Federation, Regulation of Sewer Use, WEF Manual of Practice No. 3, latest edition.

D. Mississippi River Board of State Public Health and Environmental Managers, generally referred to as the "Ten (10) States Standards for Sewage Works".

E. Gravity Sanitary Sewer Design and Construction, American Society of Civil Engineers Manuals and Reports on Engineering Practice No. 60, Water Environment Federal Manual of Practice No. FD-5, revised April 1982

F. Georgia Department of Transportation specifications and regulations, latest editions.

G. Utility Accommodations Policy and Standards, Georgia Department of Transportation, Office of Utilities, latest edition.

H. Manual on Uniform Traffic Control Devices (MUTCD)- FHWA

I. American Water Works Association Standards, latest editions

J. Soil Surveys of Dawson County, Georgia, by the United States Department of Agriculture, Natural Resource Conservation Service

K. American National Standards Institute Standards, latest editions

L. American Society for Testing and Materials Standards, latest editions.

M. Occupational Safety and Health Administration regulations, latest editions

N. American Society of Mechanical Engineers standards, latest editions

O. National Electrical Manufacturer's Association standards, latest editions

P. American Concrete Institute standards, latest editions

Q. City of Dawsonville, Standards

R. Dawson County, Standards

1.04 Plan Requirements

A. Water distribution system and/or sanitary sewerage system plans shall be comprised of the following sheets as required. Each sheet should be 24" by 36" in size. The detail sheets shall contain City of Dawsonville Standard Details.

1. Cover Sheet
2. Site Plan Sheet
3. Grading Plan
4. Overall Utilities Plan Sheet
5. Storm Water System Plan Sheet
6. Water Distribution System Plan Sheet
7. Water Distribution System Details and Construction Notes Sheet
8. Gravity Sewerage System Plan Sheet
9. Gravity Sewerage System Profile Sheet

10. Gravity Sewerage System Details and Construction Notes Sheet
11. Sanitary Sewer Pump Station Site Plan and Cross-Section Sheet
12. Sanitary Sewer Pump Station Electrical Plan Sheet
13. Sanitary Sewer Pump Station Details and Construction Notes Sheet
14. Force Main Plan Sheet
15. Force Main Profile Sheet
16. Force Main Details and Construction Notes Sheet
17. Soil Erosion, Sedimentation and Pollution Control Plan Sheet
18. Soil Erosion, Sedimentation and Pollution Control Details and Construction Notes Sheet

B. The drawings shall bear the following notes:

1. The City of Dawsonville shall be notified 48 hours prior to any water or sewer line construction or repair. Call City Hall at (706) 265 – 3256.
2. All water and sanitary sewer materials and workmanship shall be in accordance with the *City of Dawsonville Standard Specifications for Water and Sewerage Systems.*
3. The Contractor shall be responsible for maintaining a marked-up set of design drawings showing "as-built" conditions. These "as-built" drawings shall be updated daily and made available to the City Engineer and/or the City Inspector upon request. The mark-ups shall be at the site at all times and shall be used to develop final record drawings.

C. Water distribution and/or sanitary sewerage system plan sheets shall be prepared and include as a minimum the information detailed on the Technical Review Checklist included in Appendix B.

D. Concurrent with the initial submittal of water distribution system and/or sanitary sewerage system plans to the City, a completed City of Dawsonville *Water Distribution/Sanitary Sewer Addition Submittal* form shall be submitted. The City plan review process shall not commence until the City of Dawsonville *Water Distribution/Sanitary Sewer Addition Submittal* form is received. The City of Dawsonville *Water Distribution/Sanitary Sewer Addition Submittal* form is included in Appendix A.

1.05 Modifications to Plans

Water Distribution system and/or sanitary sewerage system plans approved by the City of Dawsonville shall not be modified or deviated from during construction unless the City's Superintendent approves modifications or deviations in writing.

1.06 As-Built Drawings

A. As-Built Drawings of the installed water distribution system and/or sanitary sewerage system shall be prepared and sealed in accordance with Division II, Section 1.02.

B. As-Built Drawings shall be completed upon connecting the development's water distribution system and/or sanitary sewerage system to the City system.

C. As-Built Drawings shall show all street names, right-of-way widths, related easements, lot number, location, size and material of all water distribution system and/or sanitary sewerage system components.

D. As-Built Drawings shall be prepared using a survey that ties the development's water distribution system and/or sanitary sewerage systems horizontally and vertically to the local USGS benchmarks or temporary benchmarks established by the City Engineer.

E. The following certification shall be included on the As-Built Drawings and signed by the Design Engineer:

"I certify that the water distribution system and/or sanitary sewerage system depicted by this As-Built Drawing was constructed in accordance with the plans approved by the City. The information submitted on this As-Built Drawing is to the best of my knowledge and belief, true, accurate and complete."

F. The Developer's water distribution system and/or sanitary sewerage system shall not be considered complete until the As-Built Drawings have been reviewed and approved by the City Engineer. Note that three (3) reproducible sets of the approved As-Built Drawings shall be submitted to the City Engineer.

SECTION 2: WATER DISTRIBUTION

2.01 General

A. The following section shall be used as a guideline for the design of water mains and service lines that will supply residential, apartment, commercial and industrial complexes.

B. The City may require the above referenced complexes to have multiple connection points to existing force mains or water mains.

C. The City will require a rain sensor shutoff on all irrigation systems that connect to City water lines.

D. The following certification shall be made by the Design Engineer and included with Water Distribution System construction notes:

"I certify that the proposed water distribution system has been designed in accordance with the City of Dawsonville Specification document titled "Standard Specifications for Water Distribution Systems and Sanitary Sewerage systems", Latest Edition including all amendments."

2.02 Design Usage Rates and Hydraulics

A. Design shall be based on the following average daily domestic usage rates. Daily usage rates may be increased at the discretion of the City Engineer.

• Residential House	300 gallons per day per connection
• Apartment and Mobile Home	233 gallons per day per unit
• Hotel and Motel	126 gallon per day per room
• Commercial and Industrial	Indicate as required

B. Design shall also provide for the following instantaneous demands:

Total Units Served	GPM Per Unit
0-5	6
6-10	4
11-20	3
21-100	2.5
101-200	2.0
201+	1.5

C. Indicate on plans whether structures require fire suppression systems. If so, then indicate the required fire suppression system usage rate (gallons per minute).

D. The designed system shall provide for the following fire flow demands in the development.

- Residential Area 750 gallons per minute
- Commercial/Industrial Area 1,000 gallons per minute

E. The following range of supply pressures shall be assumed when sizing system components:

- Pressure 20 psi to 150 psi

2.03 Water Line Material and Size

A. Water mains and associated fittings shall be ductile iron, in accordance with Division III of these specification, with a minimum diameter of eight (8") inches.

B. Water main pipe assembly shall be push-on joint unless indicated otherwise.

C. Water main pipe assembly in a bore casing shall be restrained joint unless indicated otherwise.

D. Service line supplying a single fire hydrant within the right-of way shall be ductile iron with a minimum diameter of six (6") inches.

E. Service line serving one (1) residential lot shall be CTSPE-340:SDR 9; pressure class 200 polyethylene with a minimum diameter of ¾-inch.

F. Service line serving two (2) residential lots shall be CTSPE-340:SDR 9; pressure class 200 polyethylene with a minimum diameter of one (1") inch. The service line shall be fitted with a tee. The tee and service lines, coming from the tee, shall have a minimum diameter of ¾-inch.

G. Service line serving commercial/industrial buildings shall be polyethylene with a minimum diameter of ¾-inch and a maximum diameter of three (3") inches or ductile iron sized as necessary for the demand.

H. All service lines crossing streets shall be installed inside Class 160 PVC casing. Casing shall extend to a minimum of 5 feet on each side of the curb/pavement.

2.04 Water Line Location

A. Situate water mains outside of pavement, within street right-of-way when possible, at five (5') feet beyond the back of curb or edge of pavement or at location approved by the City Engineer.

B. Situate water mains on the north and east sides of streets when possible.

C. Water mains shall have a minimum ten (10') foot horizontal separation from any sewer.

D. When water mains cross sewer lines, they shall cross perpendicular with the water line at least eighteen (18") inches above the sewer line. The pipes used in the crossing shall be laid so that the joints on the water line pipe are equidistant from the sewer line and the joints on the sewer line pipe are equidistance from the water line.

E. Water mains constructed parallel to streams shall be located such that the nearest area of disturbed soil is greater than fifty (50') feet from the stream bank.

F. Water mains crossing streams of widths greater than fifteen (15") feet shall have restrained joint piping.

G. A service line supplying a single lot shall be located as near a respective property boundary as practical.

H. A service line serving two (2) lots, from the water main to the meter, shall be located in-line with the lots' common property boundary.

I. No water main or service line shall be constructed on solid waste landfills.

J. No water main or service line shall be constructed to serve a structure that is constructed on or to be constructed on a solid waste landfill.

K. Each water main and service line shall be locatable.

L. A ¾-inch service tap and corporation stop for chlorination shall be shown on the plans and installed on the proposed water main within 3 to 5 feet of each connection to the City's water main.

M. Use Detail Nos. 1.1, 3.1, 5.1 and 10.1 when applicable.

2.05 Fire Hydrant Location and Spacing

A. Hydrants shall be situated within the street's right-of-way adjacent to the right-of-way boundary.

B. A hydrant shall be situated at the end of each cul-de-sac or dead-end street.

C. Fire hydrants servicing residential areas shall be spaced a maximum of 500 feet as measured along the edge of pavement. No lot shall be greater than 250 feet from a fire hydrant.

D. Fire hydrants servicing commercial and industrial areas shall be spaced a maximum of 300 feet as measured along the edge of pavement.

E. Fire hydrants on County ROW shall be a maximum of 1,000 feet spaced as measured along the edge of pavement.

F. Each fire hydrant shall have a 6-inch gate valve bolted directly to a hydrant tee.

G. Fire hydrants shall not be placed on water mains which are smaller than 8-inches in diameter unless the line is looped, and the Developer can show that the furthest hydrant can maintain a flow of 750 gpm at 20 psi.

H. Acceptable Manufacturers:

a. Mueller

b. M&H Valve

c. American Darling

I. Use Detail Nos. 4.1 and 5.1 when applicable.

2.06 Valve Size and Location

A. Valves shall be of the same size as the pipe in which the valve is situated, unless noted otherwise.

B. A corporation valve shall be situated at the tap location into a water main of a ¾-inch or 1-inch service line.

C. A ball valve shall be situated downstream of tapping saddle or tapping sleeve when tapping into a water main or force main with a 1½-inch or 2-inch service line. The ball valve shall be situated within a meter vault.

D. Gate valves shall be situated in-line with water mains as follows, unless noted otherwise. The placement of gate valves under pavement shall be allowed, unless noted otherwise. Valve location markers shall be installed for all valves (except hydrant lead valves). The markers shall be four feet high concrete posts with brass discs cast into one side. The marker shall extend 18 inches above finish grade.

1. Attach tapping gate valve immediately downstream of tapping saddle or tapping sleeve when tapping into water main or force main with a smaller water main or service line.

2. Situate gate valve immediately downstream of a tee when connecting into a water main.

3. Situate gate valve on each immediate side of a three (3)-way connection or four (4)-way connection.

4. Situate gate valve on the hydrant lead immediately upstream of a fire hydrant when hydrant is situated within street right-of-way.

5. All tees shall have two (2) valves away from the source, and every cross shall have three valves away from the source.

6. Tapping sleeves and tapping valves should not be used to connect a new line to an existing water line unless approved by the City Engineer. Instead, a tee with two valves shall be installed.

7. Situate gate valve on the hydrant lead within street right-of-way when fire service extends beyond right-of-way.

8. A gate valve shall be installed on the water main at every other hydrant.

9. Situate gate valve in water mains at a maximum spacing of 800 feet.

10. Gate valve shall be situated outside of vault immediately upstream and downstream of three (3") inch and larger water meter/check valve assemblies.

11. A slip type valve box shall be situated over a gate valve.

12. All stub-out valves and dead-end valves shall have a mechanical joint cap.

E. A curb stop shall be situated inside of meter box immediately upstream of ⅝-inch through two (2") inch water meter/check valve assemblies.

F. Use Detail Nos. 6.1, 6.2 and 6.3 when applicable.

2.07 Water Line Depth

A. Water mains and service lines to fire hydrants shall have a minimum suitable soil cover of four (4') feet. The depth of four (4') feet from finish grade to top of pipe shall be determined as follows.

1. As measured from edge of pavement (top back-of-curb) when the finish grade elevation of the pipe route is equal to or greater than adjacent pavement elevation.

2. As measured from finish grade elevation of the pipe route when the pipe route elevation is less than the adjacent pavement elevation.

3. Other depth approved by the City Engineer.

B. Water mains crossing under a creek or ditch shall have a minimum suitable soil cover of two (2') feet.

C. Water mains shall have a minimum 18-inch vertical separation from any sewer.

D. Service lines under pavement shall have a minimum suitable soil cover of 2.5 feet as measured from top of curb or top of pavement.

E. Service lines outside of pavement shall have a minimum suitable soil cover of 1.5 feet as measured from the meter.

F. Water mains 18-inches in diameter and larger shall be checked for buoyancy when submerged in groundwater or situated within the 100-year flood zone.

G. Use Detail Nos. 1.1, 2.1 and 3.1 when applicable.

2.08 Thrust Restraint

A. Thrust restraint shall be installed at all fittings, hydrants, valves and other locations deemed necessary by the City Engineer.

B. Thrust restraints at hydrants and valves shall be accomplished by installing a minimum of two (2) eyebolts on the hydrant or valve and tying to an adjacent fitting or concrete tie-back using three-quarter (3/4") inch stainless steel threaded rod.

C. Thrust restraint at fittings shall be accomplished by using one of the following methods.

1. Cast-in-place concrete blocking installed to dimensions as shown on thrust block detail.

2. Restrained joint pipe and fittings installed upon approval by City Engineer.

D. Use Detail Nos. 4.1, 7.1, 7.2 and 9.1 when applicable.

2.09 Water Meters and Backflow Prevention

A. All water usage including fire and irrigation shall be metered and have backflow prevention devices.

B. Fire sprinkler mains shall have double detector check valves. A double check backflow preventer and a detector check valve may be installed in lieu of the double detector check valve.

C. Establishments determined by the City or City Engineer to have a high backflow hazard shall have reduced pressure zone (RPZ) backflow preventers. RPZ backflow prevents shall be installed in an insulated enclosure above ground.

D. All water usage shall be metered using a single meter when possible.

E. Meters shall be sized according to the anticipated demand and Division III, Section 7 of this document.

F. Each meter shall have a backflow device consisting of double check valve assembly.

G. Water meters and backflow devices shall be housed in boxes or vaults.

H. Water meters and backflow devices shall be situated within the street right-of-way or in an easement area.

I. Use Detail Nos. 11.1, 12.1, 13.1, 14.1, 15.1 and 16.1 when applicable.

SECTION 3: GRAVITY FLOW SEWERS

3.01 General

A. The following section shall be used as a guideline for the design of gravity flow sanitary sewerage systems.

B. Sanitary sewerage system design shall incorporate the following City Sewer Use Ordinances:

1. Ordinance – Grease Management Program.
2. Ordinance – Oil/Water and Sand/Grit Interceptors.

C. The following certification shall be made by the Design Engineer and included with Sanitary Sewerage system construction notes:

"I certify that the proposed sanitary sewerage system has been designed in accordance with the City of Dawsonville Specification document titled "Standard Specifications for Water Distribution Systems and Sanitary Sewerage systems", Latest Edition including all amendments."

3.02 Design Flow Rates:

A. Design shall be based in the following average daily flow rates for single-family and multi-family residences. Daily flow rates may be increased at the discretion of the City Engineer.

- Residential House — 300 gallons per day per connection
- Apartment and Mobile Home — 233 gallons per day per unit
- Hotel and Motel — 126 gallons per day per room

B. Design of industrial and commercial sanitary sewer flow rates shall be a minimum of 1.5 times that of the design average daily water usage or as approved by the City Engineer

C. A peaking factor of 3.0 shall be used when determining a "Peak Design Flow". The peaking factor may be changed at the discretion of the City Engineer.

3.03 Hydraulics

A. Gravity sewer pipe should be designed to carry "Peak Design Flow" at half full.

B. Gravity sewer pipe shall have straight alignment and consistent grade change between manholes.

C. Sewers shall yield mean velocities of not less than 2.0 feet per second based on the Manning Formula using an "n" value of 0.013.

D. Recommended and absolute minimum pipe slopes for gravity sewer based on the size of pipe to be installed are summarized in the following table.

Slope Requirements

Diameter	Absolute Minimum	Recommended Minimum
8-inch	0.40%	0.70%
10-inch	0.29%	0.50%
12-inch	0.22%	0.40%
14-inch	0.22%	0.40%
15-inch	0.15%	0.30%
16-inch	0.15%	0.30%
18-inch	0.12%	0.24%
20-inch	0.12%	0.24%
21-inch	0.10%	0.20%
24-inch	0.08%	0.16%
27-inch	0.07%	0.14%
30-inch	0.06%	0.12%
36-inch	0.05%	0.10%

E. Sewers with slopes less than the recommended minimum may be accepted on a site by site basis.

F. The over sizing of pipe to meet minimum grade requirements shall be prohibited.

G. Outlet pipes connected to a terminal manhole shall have a minimum slope of 1.00%.

H. The maximum slope of a gravity sewer shall be 15.0%. When approved by the City Engineer, slopes between 15.0% and 20.0% may be used with the addition of concrete anchors (dead man). The Developer's Engineer shall determine the size and spacing of anchors. The City Engineer shall approve all anchor designs.

I. When increasing the size of gravity sewer pipe, pipe crowns shall be matched at manholes.

J. Angle formed by alignment of influent and effluent sewer pipe at manhole shall be greater than or equal ($\geq$) to 90° and less than or equal ($\leq$) to 270°.

K. The surcharging of manholes shall be prohibited.

3.04 Sewer Material and Size

A. Sewer outfall, sewer main and lateral pipe and associated fittings shall be ductile iron or PVC in accordance with Division III of these specifications.

B. Sewer pipe assembly shall be push-on joint unless indicated otherwise.

C. Transition coupling used to connect pipes of differing material shall be rigid and made of steel and/or ductile iron or other material approved by the City Engineer.

D. Sewer outfalls and sewer mains shall have a minimum diameter of eight (8") inches.

E. Laterals shall have a minimum diameter of six (6") inches.

F. Sewers of PVC shall not exceed eighteen (18") inches in diameter.

G. Sewers eighteen (18") inches in diameter and larger shall be checked for buoyancy when submerged in groundwater or situated within the 100-year flood zone.

3.05 Sewer Location

A. Situate sewer outfalls and mains at the centerline of a right-of-way when possible or at the centerline of an easement.

B. If the sewer main and outfall line cannot be situated in the right of way, a twenty (20') foot easement shall be provided. No permanent structures shall be built within the sewer easement. Easements shall have suitable soil compaction, bearing capacity, and slopes to allow a 25-ton sewer vacuum/jet truck to traverse the entire length.

C. Sewer outfalls and mains shall have a minimum ten (10') foot horizontal and eighteen (18") inch minimum vertical separation from any water main.

D. Lateral from the sewer main to the structure being served shall be located nearest the center of the property as practical. A separate lateral shall service each property.

E. A 6" cleanout with brass cap shall be installed inside a turf box on each service at the property line.

F. All laterals shall connect to sewer main rather than direct connection into a manhole.

G. Sewer outfalls, mains and laterals constructed parallel to streams shall be located such that the nearest area of disturbed soil is greater than fifty (50') feet from the stream bank.

H. Sewers shall not be installed under or over any lake, reservoir or detention pond.

I. No sewerage system component shall be constructed on solid waste landfills.

J. No sewerage system component shall be constructed to serve a structure that is constructed on or to be constructed on a solid waste landfill.

K. Each sewer outfall, sewer main and lateral shall be locatable by means of mylar tape, wire or other method approved by the City Engineer.

L. Use Detail No. 1.1, 2.2 and 2.3 when applicable.

3.06 Sewer Depth and Structural Integrity

A. Sewer outfalls and mains shall have a minimum suitable soil cover of four (4') feet or other depth approved by the City Engineer.

B. Sewer main shall be situated at a depth as to allow lateral to be constructed at a minimum two (2%) percent slope from sewer main to probable structure location on each lot to be served assuming lateral is three (3') feet in depth at probable structure location.

C. Vertical connection of a lateral into a sewer main shall be prohibited.

D. Top of pipe shall be two (2') feet below any stream or ditch when crossed or paralleled.

E. DIP shall be used for the following conditions:

A. Where depth of soil cover is less than four (4') feet before or after sewer installation.

B. Where depth of soil cover is greater than fifteen (15') feet before or after sewer installation.

C. Where sewer crosses over or under a storm drain pipe.

D. Where sewer crosses over or under a water main.

E. Where sewer crosses over or under a stream or ditch.

F. Other locations deemed necessary by the City Engineer or Engineer.

G. When a sewer crosses under a stream, a minimum of two (2) cast-in-place concrete collars shall be installed on the pipe, down gradient from the stream.

H. Sewers shall have a minimum 18-inch vertical separation from any water main.

I. Use Detail Nos. 18.1, 18.2, 19.1 and 20.1 when applicable.

3.07 Manhole Location and Spacing

A. Provide a manhole at each change in grade, pipe size, alignment, intersection and at terminal point of sewer.

B. Space manholes a maximum of 400 feet of continuous run for pipes 15 inches in diameter and smaller.

C. Space manholes a maximum of 500 feet of continuous run for pipes 18 inches in diameter and larger.

D. Manholes situated within the 100-year flood elevation zone shall have top of cover elevations above the 100-year flood elevation or cover shall be with gasket and bolted down.

E. Manholes situated within the 100-year flood elevation zone and/or the groundwater table shall be checked for buoyancy.

F. Manhole inverts shall be constructed to provide a smooth transition between influent and effluent piping.

G. Influent pipes with inverts greater than 2' above the outlet pipe invert shall be connected to the manhole by an outside drop.

H. Manholes situated in pavement shall have top of covers level with finished grade.

I. Manholes situated in non-paved areas shall have top of covers a minimum of twelve (12") inches above finished grade.

J. Elevation drop between the inlet and outlet should be a minimum of 0.2 feet.

K. Use Detail No. 21.1 when applicable.

SECTION 4: FORCE MAINS

4.01 General

The following section shall be used as a guideline for the design of sanitary sewer force mains.

4.02 Hydraulics

A. Force mains shall be sized to allow for a minimum velocity of 2 ft/s and a maximum velocity of 5 ft/s.

B. Sanitary sewer force mains shall not flow down grade into a receiving manhole.

C. Combination air release/vacuum valves shall be installed in force mains at all high points of elevation and spaced along apparent flat routes as determined by the City Engineer.

4.03 Force Main Material and Size

A. Force mains and associated fittings shall be ductile iron with a minimum diameter of four (4") inches.

B. Force main pipe assembly shall be push-on joint unless indicated otherwise.

C. Force main pipe assembly in a bore casing shall be restrained joint unless indicated otherwise.

4.04 Force Main Location

A. Force mains shall be situated outside of pavement within a street right-of-way near the boundary of the right-of-way or centered within an easement.

B. Gravity sewer lines and sewer force mains shall be located on the opposite side of pavement from water distribution and raw water force mains when possible and/or shall have a minimum ten (10') foot horizontal separation.

C. Force mains constructed parallel to streams shall be located such that the nearest area of disturbed soil is greater than fifty (50') feet from the stream bank.

D. Force mains crossing streams of width greater than 15' shall have restrained joint piping.

E. No force main shall be constructed on solid waste landfills.

F. No force main shall be constructed to serve a component that is constructed on or to be constructed on a solid waste landfill.

G. Each force main shall be locatable by means of detection tape or wire as approved by the City Engineer.

4.05 Force Main Depth

A. Force mains shall have a minimum suitable soil cover of four (4') feet. Depth from finish grade to top of pipe shall be determined as follows.

1. As measured from edge of pavement when pipe route existing/finish grade elevation is equal to or greater than adjacent pavement elevation.
2. As measured from pipe route existing/finish grade elevation when the route elevation is less than the adjacent pavement.
3. Other depth approved by the City Engineer

B. Force main crossing under a creek or ditch shall have a minimum suitable soil cover of two (2') feet.

C. Water distribution force mains shall have a minimum eighteen (18") inch vertical separation from any sewer.

D. Force mains eighteen (18") inches in diameter and larger shall be checked for buoyancy when submerged in groundwater or situated within the 100-year flood zone.

E. Use Detail Nos. 2.1 and 3.1 when applicable.

4.06 Thrust Restraint

A. Thrust restraint shall be installed at all fittings and other locations deemed necessary by the City Engineer.

B. Thrust restraint at fittings shall be accomplished by using one of the following methods.

1. Cast-in-place concrete blocking installed to dimensions as shown on thrust block detail.
2. Restrained Joint pipe and fittings installed upon approval by City Engineer.

C. Use Detail No. 9.1 when applicable.

4.07 Combination Air Vacuum/Release Valves

A. Combination air vacuum/release valves shall be sized according to the manufacturer's recommendations.

B. Valves designated for use with water or sewage shall be used on the respective system.

C. Valve shall be housed in a "dog house" style manhole.

D. Use Detail No. 22.1 when applicable.

SECTION 5: AERIAL PIPE

5.01 General

A. This section shall be used as a guideline for the design of aerial pipe that pertains to water distribution piping and sanitary sewers.

B. Requirements of Division II, Sections 2, 3 and 4, where applicable, shall apply to the design of aerial piping.

C. A pipe that crosses over a perennial or intermittent stream must not cause an impedance to navigation or cause water to pool upstream of the pipe.

5.02 Aerial Pipe Material

A. Aerial pipe shall be ductile iron or steel.

B. Aerial pipe assembly shall comply with manufacturers' recommendations.

C. Aerial pipe fittings shall comply with manufacturers' recommendations and specifications herein.

5.03 Aerial Pipe Support

A. Aerial pipe supports shall be situated on suitable soils. Prior to support design, soils beneath proposed aerial pipe route shall be examined by a soils testing company for bearing capacity and suitability for construction. A soils report shall accompany the proposed aerial route.

B. Aerial pipe support spacing shall not exceed 40 feet. Aerial pipe support spacing shall be based on results of the soil's bearing capacity and spacing recommendations of the pipe and fitting manufacturers.

C. Aerial pipe supports shall be comprised of concrete piers set atop concrete spread footings. Spread footing size shall be based on results of the soil's bearing capacity and reactive forces within the aerial pipe.

D. Minimum pier diameters and footing sizes shall be as summarized in Detail No. 24.1.

E. Pipe shall be secured to piers as indicated on Detail No. 24.1.

F. Use Detail No. 24.1 when applicable.

SECTION 6: PUMP STATIONS

6.01 General

A. This section shall be used as a guideline for the design of pump stations.

B. The preferred conveyance method for sewage is gravity. Pump stations will not be permitted unless the Developer can demonstrate that the development cannot be served solely by gravity sewer.

C. Pumps, motors and associated components that produce a complete pump station shall be furnished as a package by a single manufacturer.

D. A backup power system shall be provided for each pump station.

E. An emergency bypass connection shall be provided at all pump stations. Use Detail No. 17.1.

F. Pump stations shall be equipped with a remote terminal unit (RTU) compatible with the City's existing SCADA supplier. A single supplier shall furnish all components of the SCADA system.

G. Material requirements specific to pump stations, stand-by power and SCADA are included in this section.

H. A minimum of two (2) sets of operation and maintenance manuals for each component of the pump station, backup power system and SCADA system shall be provided prior to final acceptance.

I. The following information shall be submitted and approved prior to plan approval.

1. 100-year flood elevation contour; electrical and mechanical components shall be situated above the 100-year flood elevation.
2. Total Dynamic Head (friction loss through force main, static head, friction loss through pumps and suction piping)
3. Pump Net Positive Suction Head; available and required
4. Pump operating system curve plotted onto manufacturer's pump curve
5. Pump cycle time
6. Wet well buoyancy calculation
7. Radio communication path survey

J. A 2-inch SDR 21, Class 200 water line with RPZ backflow preventer and ¾" yard hydrant shall be installed at all pump stations. The backflow preventer shall be installed in an above ground insulated closure. Use Detail No. 12.2.

K. All gravity sewer and force main piping onsite shall be ductile iron pipe.

6.02 Pump Station Package

A. Pumps

1. A minimum of two (2) pumps shall be provided with capability to pump peak flows with one pump out of service.

2. Pumps shall be generally as follows:

   a. Pumps shall be submersible.

   b. Where acceptable to the City, the pumps shall be above ground self-priming.

3. Pumps shall be sized so that the operational system curve intersects the middle one-third portion of the pump operational curve. Each pump shall have the discharge capacity to overcome the development's peak discharge. Components shall be sized to provide two (2) to five (5) pump cycles per hour at average daily flow conditions.

4. Each pump shall be equipped with discharge pressure gauges mounted on a resilient panel. Pressure gauges shall be as follows.

   a. Four (4") inches in diameter.

   b. Glycerin filled for "no shock".

   c. Graduated from a 0-inch to 70-inch water column.

   d. Equipped with brass shut off valves and fittings.

5. City will determine list of spare pump parts that shall be provided for each pump station upon submitting.

6. Acceptable Manufacturers

   - Submersible Pump: Flygt
   - Above Ground: Smith & Loveless or Gorman-Rupp

B. Electrical

1. Each pump shall be equipped with a motor sized so that the pump operational system curve intersects the middle one-third portion of the pump operational curve. Motor shall not be overloaded at the design condition or at any head in the operational system curve.

2. Electrical control components shall be housed in a NEMA 3R stainless steel panel enclosure.

   a. Control components shall be mounted to a removable back panel that is secured to the enclosure.

b. Enclosure door shall be hinged, equipped with captive closing hardware and a neoprene gasket applied.

3. A circuit breaker shall be provided for each pump motor.

4. A padlocking operating mechanism shall be installed on each motor circuit breaker.

5. Operator handles for the mechanism shall be located on the exterior of the control compartment door with interlocks which permit the door to be opened only when circuit breakers are in the "Off" position.

6. A NEMA rated magnetic motor starter shall be provided for each pump motor.

   a. Power contacts shall be double-break and made of cadmium oxide silver.

   b. Motor starters shall be equipped to provide under voltage release and overload protection on all three phases.

   c. Motor starter contacts shall be easily replaceable without removing the motor starter from its mounted position.

   d. Motors having a 20-horse power rating or larger shall be equipped with soft start.

7. Motor overload relays shall be provided and have visual trip indication with trip-free operation. Reset buttons shall permit resetting of each motor without opening control panel door.

8. Control circuits shall be protected by a circuit breaker which shall be connected in such a manner as to allow control power to be disconnected from all control circuits.

9. A Hand-Off-Auto switch shall be provided for each pump to permit manual start and stop of each pump individually and to select automatic operation of each pump under control of the level control system.

10. A three-position sequence selector shall be provided to select the automatic alternation of the pumps or to select pump number 1 to be the lead pump for each pumping cycle or to select pump number 2 to be the lead pump for each pumping cycle.

11. A run indication light for each pump shall be mounted on the panel enclosure. Light shall indicate that the motor is or should be running.

12. A thermostat shall be mounted on each pump to detect high temperature. Should excessive temperature exist, protection circuitry shall override level control system and turn off pump motors to protect against excessive

temperatures. An indicator light shall be located on front of control panel. Pump shall remain locked out until pump motor is manually reset.

13. Elapsed time indicator shall be mounted on each motor to indicate total run time in hours and tenths of hours.

C. Liquid Level Control

1. Liquid Level in wet well shall be monitored via "Electronic Pressure Switch 2000" (EPS-2000 controller) and shall include integral components to sense pressure conditions. The controller shall be equipped as follows.

   a. Level control electrical enclosure: NEMA 1 stainless steel

   b. EMI and RFI suppression

   c. DC-current power supply and 108 – 132/60/1 AC-current

   d. Function in temperature range of 0° F through 131° F

   e. Control range from zero (0) to twelve (12) feet with a repeat capacity of +/- 0.1 feet

   f. Equipped with pump start delays preset at a fixed time delay of five (5) seconds to prevent simultaneous motor starts

2. Provide high water alarm visible indicator on control panel. Maintain alarm signal until manual reset.

3. Provide high water alarm audio indicator. Maintain alarm signal until manual reset of silence circuit.

4. Discrete output signal wiring shall be installed on pre-wired terminal blocks for SCADA monitoring. The signal output shall be for wet well high level, pump motor temperature and pump operation status.

5. Provide the following liquid level elevations on design drawings: Lead Pump "On", Lead Pump "Off", Lag Pump "On", Lag Pump "Off", High Water Alarm.

D. Discharge Piping

1. Piping shall be minimum 4-inch diameter, flanged, ductile iron.

2. Discharge pipe shall include flow meter capable of reading gallons per minute and capable 4-20mamp output.

E. Equipment Bids: See Details

6.03 Backup Power System

A. Each pump station shall be equipped with one (1) preassembled (factory built), skid-mounted, weatherproof, backup power system.

1. The backup power system shall monitor the incoming electrical utility and, should power from the utility be interrupted, supply the power required to operate all pump station pump motors and required controllers.

2. Backup power system shall perform using a maximum 85% of its rated capacity to operate two (2) motors in series or four (4) motors in staged series based on the pump motor's calculated load. System shall provide for a 10 to 15 second delay for start-up of the second motor(s); a 20 kw generator is a minimum.

3. Backup power system within 100 feet of an occupied structure shall be equipped with a sound attenuation device to reduce noise levels to less than 80 decibels.

4. A five (5) year warranty shall be provided for the backup power system

B. The backup power system shall supply three-phase power and be generally equipped as follows.

1. Enclosure; enclosure shall house all components of the backup power system and shall include as a minimum the following:

a. Seamless fiberglass cowling as follows:

1) Fiberglass shall have a gel coating of suitable thickness and density to provide durability, abrasion resistance, color fastness, gloss retention and shall be impervious to sewage, grease, oil, diesel or other common chemicals.

2) Walls and ceiling shall be solid fiberglass having minimum 3/16 inch thickness and constructed in accordance with ASTM D-579.

3) Enclosure shall be capable of withstanding a wind load of 85 miles per hour. The roof shall be capable of withstanding a minimum loading of 30 psf. All beams and trusses shall be fiberglass.

4) Exterior color of enclosure shall be approved by City.

5) Tip-up design equipped with mounted gas cylinders such that operator shall not exert more than 25 pounds of lifting force to tip the enclosure to the full open position.

6) Enclosure shall be hinged securely at one end to a steel base. Hinges shall be for heavy duty use, cadmium plated and epoxy coated.

b. Steel base as follows:

1) Base shall of size to accommodate fiberglass cowling.

2) Base shall be constructed of steel channel with transverse mid beams supporting a ¼ inch thick steel deck.

3) All steel surfaces shall be prepared to a SSPC –SP6 condition and finished with an epoxy coating system.

4) Steel base shall be fitted with an integral doubled wall fuel tank having such capacity as to supply engine/generator set for a 24-hour continuous operation period. Diesel fuel tank shall be furnished with a bacteria inhibitor to prevent bacteria buildup and shall be fitted with a water separator.

c. Louvers as follows:

1) Engine intake and exhaust louvers sized to provide sufficient air for both cooling and combustion.

2) Louvers shall be 2-inch multi-blade, minimum 12-gauge anodized aluminum, 6063-T5 alloy with removable 5/8 inch aluminum mesh.

3) A duct assembly shall be provided between the engine radiator and the exhaust louver.

4) Louvers and duct assemblies shall be factory installed.

2. Engine/Generator: Engine/generator set shall be manufactured by Onan/Cummings or Caterpillar and include as a minimum the following:

a. Electric starter

b. Positive displacement full pressure, lubrication oil pump with full flow lubrication oil filters

c. Engine speed governor

d. Battery and battery charging alternator with solid state regulator

e. Fuel system as follows:

1) No.2 diesel fuel.

2) Replaceable dry element air cleaner, air supply, return and vent lines.

3) Fuel filter with replacement element.

4) Engine driven displacement fuel pump.

5) Fuel system piping. Piping shall be black iron.

a. Engine mounted thermostatically controlled water jacket heaters.

b. Engine cooling system as follows:

1) Engine mounted radiator system

2) Belt driven pusher fan

3) Coolant liquid and pump

4) Thermostat temperature control

5) Radiator with duct adapter flange

c. Exhaust system as follows:

1) Spiral type exhaust muffler. Muffler weight shall not be supported by the engine.

2) Exhaust piping shall be routed through the side wall of the backup power system's base and terminated outside enclosure.

3) Piping outside enclosure shall be insulated with a minimum 2-inch thick calcium silicate thermal insulation with aluminum shroud.

4) Provide sound attenuation as required.

d. Engine protective devices to indicate alarm and engine shutdown as follows.

1) Provide as discreet outputs for SCADA monitoring.

2) Low coolant temperature alarm

3) Low coolant level shutdown

4) Low lubrication oil pressure alarm and shutdown

5) High coolant temperature alarm and shutdown

6) Over speed shutdown

7) Over crank lockout

8) Transfer switch off

9) External warning light. (outside cowling)

e. Alternator shall be as follows

1) 3-phase, broad range, able to be reconnected with 12 leads

2) Single bearing and directly coupled to the drive engine through a flexible coupling for self-alignment

3) 4-pole, revolving field type with static exciter and magnetic amplifier voltage regulator. Voltage regulation shall be within +/- 5% of the rated voltage. Sustained voltage dip shall be less than 12% of rated voltage when full load and rated power factor is applied. Recovery to stable operation shall occur within two (2) seconds

4) Alternator, exciter and voltage regulator shall be manufactured by the same manufacturer as the engine/generator

f. The following set controls shall be included on a lighted unit mounted control module:

1) Oil pressure gauge

2) Coolant temperature gauge

3) Running time meter

4) Charge rate ammeter

5) Manual reset field circuit breaker

6) Manual selector switch (Run-Stop-Remote)

7) Remote two (2) wire start control

8) Automatic engine shutdown

g. The following set control lamps shall be on a mounted control module:

1) Run

2) Fault

3) Overcrank

4) Overspeed

5) Switch Off

6) Low Engine Temperature

7) Low Oil Pressure

2. Automatic transfer switch shall be manufactured by the same engine/generator set manufacturer and include as a minimum the following:

a. Switch shall be rated for:

1) Continuous operation over an ambient temperature range of -25° to 125 ° Fahrenheit.

2) All classes of load, both inductive and noninductive at 600 volts and tungsten lamp loads at 250 volts.

3) To close on an inrush current up to and including 20 times the continuous rating of the switch without welding or excessive burning of the contacts.

4) To switch loads up to and including its interrupting current capacity.

5) To endure 6,000 cycles of operation at rated current at a rate of 6 cycles per minute without failure; one cycle shall consist of one complete opening and closing of both sets of contacts on an inrush current 10 times the continuous rating of the switch

b. Switch shall have the following mechanical characteristics:

1) Terminal lugs for either copper or aluminum wire with cadmium oxide contacts

2) Mechanical and electrical interlocks to prevent simultaneous energizing of both normal and emergency services

3) Mechanically held on both normal and emergency sides

4) 3-pole with solid neutral

5) 25-amp rated auxiliary contacts: two (2) on the line side, three (3) on the emergency side

c. Switch shall have the following control logic:

1) Signals engine/generator set to start in the event of a power interruption. A solid-state time delay start shall be provided adjustable from 0 to 6 seconds.

2) Monitors each ungrounded line with an adjustable voltage, solid state under voltage sensor to sense a decrease of voltage below a set point or a loss of voltage on any phase of the normal power source.

3) Retransfers the load to the line after normal power restoration

4) Signals engine/generator set to stop after load retransfer to normal source

5) Provides a battery float charger to maintain fully charged cranking batteries

6) Provides test switch to simulate an interruption of power from the normal source

7) Provides an exerciser clock and selector switch (Load/Without Load) to automatically start the engine/generator set at regular intervals and allows it to run for a preset time period with load or without load

d. Indicating lamps and meters shall be mounted for easy reading without opening doors.

1) Indicating lamps shall include Green lamp (normal) and Red lamp (emergency) to indicate which source is supplying power to the load.

2) Meter shall include Charge Meter to monitor battery charger output current.

e. The complete automatic transfer switch shall be mounted in a NEMA 1 rated enclosure, installed within the backup power system enclosure and wired to the engine/generator set at the manufacturer's facility.

f. Acceptable Manufacturer: Acceptable manufacturer shall be as follows.

- Cummins Onan
- Caterpillar

6.04 Telemetry

A. The pump station shall be equipped with a functioning radio-based telemetry system that is compatible with the existing City SCADA system.

B. The central computer system (CS) for the City SCADA system is located at City Hall.

C. The pump station SCADA system design shall be completed in two (2) phases.

1. Phase One. A radio survey shall be performed to determine the feasibility and scope of the radio communication path from the CS to the Pump station site. The radio survey shall be submitted to and approved by the City prior to City approval of the development's proposed sewerage system design.

2. Acceptable Supplier: J. K. Duren & Company

3. Phase Two. A single process instrumentation and control system supplier shall provide a complete SCADA system including but not limited to a remote terminal unit (RTU), radio communication equipment, and necessary

accessories. The system supplier shall provide all necessary hardware modifications and software programming of all computers and RTUs associated with SCADA system including necessary program modifications at the CS.

D. Radio Survey – Phase One

1. Complete a radio survey to determine communication path from central SCADA system to pump station site. Coordinate site activities with the City.

2. Record coordinates at each site and identifies their specific location on topography mapping software.

3. Generate terrain and radio path analysis profiles. Profiles shall be used to calculate the line-of-site radio path between the desired locations including projected tower height. Profiles shall then be used to identify potential interference and/or the feasibility of each potential radio path.

4. Transmit controlled radio signals between potential sites of interest and measure the quality and strength of the received signal. Use the specific radio to be used in the actual application using the same power level that will be used under normal operating conditions.

5. Provide results of radio survey and recommendations in the form of a report to the City for review. Include the following items (as a minimum) in the report.

   a. Topographic map showing central City SCADA system site, proposed pump station site and radio path including repeaters (if necessary).

   b. Test Methods

   c. Site Coordinates

   d. Test Equipment and Recommendations

   e. Radio Paths Measured

   f. Antenna Height Recommendations

   g. System Recommendation

6. The City shall approve the radio survey's results and recommendations prior to proceeding with the design of the pump station SCADA system.

E. Remote Terminal Unit – Phase Two

1. Remote Terminal Unit (RTU) shall provide the interface between field signals and the CS. The RTU shall distribute communication, acquire data

and control functions for the SCADA system. The following is a minimal list of functions required to be monitored; more functions may be required (i.e. for series staged station) or at the discretion of the City.

a. Generator Fail: Alarm if the generator is in a failed condition

b. Pumps 1 and 2 Run Status: Display the pump ON or OFF status. Calculate the pump elapsed runtime. Allow the runtime to be manually reset at the operator workstation.

c. Pumps 1 and 2 Remote Run/Stop: Provide for the pump to be remotely started and stopped. The remote start and stop function shall operate only if the pump local selector switch is in the AUTO position.

d. Pumps 1 and 2 High Temperature: Alarm on pump high temperature.

e. Pumps 1 and 2 Pressure: Display continuous and discharge pressures.

f. Pump station Level: Display continuous pump station wet well liquid level. Alarm on Low Level in wet well (Less than 4.25mA dc signal).

g. High Water Level Alarm: Display if the High Water Level switch is activated.

h. RTU Power Monitoring: Alarm on AC power failure or Low Battery Power.

i. Discharge Meter Monitoring: Display gallon per minute output.

2. Performance

a. RTU shall operate as a subordinate to the CS. RTU shall have all data acquisition, communication and control functions necessary to interface with CS.

b. RTU shall support full or partial scan by the CS.

c. Data acquisition functions shall include but are not limited to the following:

1) RTU shall scan all input points at least every second for current value.

2) Store in buffer memory: currents values of all I/O, pulse input accumulations and filtered values of analog inputs.

3) RTU response to interrogations shall use the buffer memory contents.

d. All analog inputs have first order exponential digital filtering with programmable filter constants downloaded from the CS.

1) Default values for filter constants stored in ROM.

2) Filter constants expressed as time constants, range from 10 to 100 seconds with corresponding sample intervals ranging from 1 to 10 seconds.

3) As a minimum, filter constants individually adjustable by RTU.

4) Individual filter constants not required per analog input point.

e. RTU shall utilize real-time, multitasking firmware to implement system communication protocol, local data acquisition and control functions.

1) Shutdown due to loss of power shall not result in the loss of programs.

2) Startup after restoration of power shall not require manual or CS intervention.

3) Upon startup, RTU shall configure itself for its connected inputs and outputs and use default values for all initializations. RTU shall indicate its power reset condition to the CS in its reply to the first scan after reset. The CS shall then download all revised initialization constants. Firmware design utilizes a watchdog timer to monitor proper operation.

f. All integrated circuits are second sourced.

3. Interfaces

a. Types

1) With communication circuits to the CS

2) With pump station input and output signals

3) With power source

b. RTU shall use a radio communication link utilizing a modem suitable for interface with the radio. Radio shall operate at a 4800 or 9,600 baud with characteristics to match limitations of the radio channel. The RTU communicates with the CS at 9,600 baud in a asynchronous or synchronous format in a half-duplex mode over a party line channel.

c. Input/Output

1) All Input/Output (I/O) points shall be in accordance with ANSI C37.90.

2) Discrete Inputs (DI) shall be external with normally open or normally closed contacts. RTU impresses a dc voltage on the contact to read their status. Internal RTU logic optically isolated from external contacts. Provide means to limit read current to 100 mA maximum. Noise filters or other techniques shall be utilized to reject short time constant noise, contact bounce and 60-Hz pickup.

3) Analog Inputs (AI) shall be 4 to 20 mA dc signals in accordance with ISA S50.1 and be fully isolated with a maximum impedance of 250 ohms. Accuracy shall be +/- 0.25% of full scale under all operating temperature conditions. Common mode rejection is at a 100 dB minimum. Normal mode noise rejection is at a 40 dB minimum for frequencies of 60Hz and above.

4) Discrete Outputs (DO) shall have interposing relays with SPDT contact. Relays shall have a 5-amp rating and suited for 100,000 operations at 25° C. DO shall be Latch Type or Momentary Type. Latch Type Output shall not change state on loss of power by RTU. Momentary Type Output shall be single pulse with an adjustable duration ranging from 0.2 to 2 seconds.

5) Analog Outputs (AO) shall be 4 to 20 mA dc signals in accordance with ISA S50.1, Type 2, Class L and be fully isolated. Accuracy shall be +/- 0.25% of full scale under all operating temperature conditions. Resolution shall be 0.1% of full scale or better.

d. Power

1) RTU shall operate on 117-volt rms. The RTU shall have internal power On/Off switch and an On status LED.

2) Power supply shall have an ac/dc converter, a battery charger and dc/dc converters. Power supply shall trickle charge battery when ac power is On and fail over to battery when ac power is Off.

3) Provide batteries sufficient to power RTU for a minimum of four (4) hours after loss of 117-volt ac power. Battery shall

be of the sealed lead acid/calcium gelled electrolyte maintenance free type with rated trickle charge life in excess of two (2) years.

4) RTU shall have an ac power fail detection circuit relay. A Discrete Input shall be created upon detection of an ac power failure.

5) Acceptable Manufacturer: J. K. Duren & Company.

F. Panel Fabrication – Phase Two

1. Panel including all components (i.e. instruments, wiring and enclosure) shall be fabricated at the Process Instrumentation and Control System Supplier's factory.

2. Provide temperature control as follows.

a. Panel shall be sized to adequately dissipate heat from components mounted inside panel or in panel face.

b. Panel shall have thermostatically controlled space heater to maintain internal panel temperature above dew point.

3. Provide electrical as follows:

a. Feeder Circuits

1) One or more 120V ac, 60Hz.

2) Provide for feeder circuit conduit entry.

3) Provide terminal board for termination of wires

b. Panel Power

1) Provide main circuit breaker and a circuit breaker on each individual branch circuit distributed from panel.

2) Branch circuit shall blow only branch breaker and not trip main breaker.

3) Breakers shall be located to provide clear view and accessibility when panel door is opened.

c. Circuit Wiring

1) A maximum of 20 devices shall be on a single circuit.

2) Multiple units shall perform parallel operations.

3) Provide for panel lighting and service duplex outlet on separate 15-amp 120V ac branch circuit.

d. Signal Distribution

1) 4 to 20 mA dc signals may be distributed as 1 to 5V dc within panel.

2) 4 to 20 mA dc signals shall be isolated outside panel.

3) Signal wiring shall be twisted, shielded pairs.

e. Signal Switching

1) Use dry circuit type relays or switches.

2) 4 to 20 mA loops shall not be interrupted during switching

f. Relays

1) General: Plug-in type socket to rail mounting.

2) Provide dust cover and hold-down clips with relay enclosure.

3) Signal switch relay with gold or silver contact material having an expected mechanical life of 10,000,000 operations and expected electrical life at rated load of 100,000 operations with an LED or neon indicator lamp.

4) Control circuit switch relay (non-latching) with silver cadmium oxide alloy contact having an expected mechanical life of 10,000,000 operations and expected electrical life at rated load of 100,000 operations with an LED or neon indicator lamp and push-to-test button.

5) Control circuit switch relay (latching) with silver cadmium oxide alloy contact having an expected mechanical life of 500,000 operations and expected electrical life at rated load of 50,000 operations with an LED or neon indicator lamp.

6) Control circuit switch relay (time delay) with silver cadmium oxide alloy contact having time delay set point and mode of operation with an integral potentiometer adjustment with knob external to dust cover

7) Acceptable Manufacturers:

- Potter and Brumfield
- Allen Bradley
- Omron

g. Power Supply

1) Provide as required to power instruments requiring external dc power including two-wire transmitters and dc relays.

2) Convert 120V ac, 60Hz power to dc power of appropriate voltage so that instruments will operate within required tolerances.

3) Provide output over voltage and over current protection devices.

4) Enclosure shall be NEMA 1 rated.

5) dc supply line to each individual two-wire transmitted shall be fitted with an indicating type fuse mounted for easy replacement

h. Internal Light and Service Outlet

1) Provide 100-watt incandescent light operated by switch.

2) Mount inside and in the top of back of panel.

3) Provide protective metal shield for light.

4) Provide three-wire, 120V, 15 amp duplex receptacle.

i. Use following table for standard pushbutton colors and inscriptions. Use black colored lettering on white and yellow buttons. Use white colored lettering on black, red and green buttons.

TABLE II-6.04.D-1

PUSHBUTTON STANDARD

COLORS AND INSCRIPTIONS

Tag Function	*Inscription*	*Color*
O/O	On / Off	Red / Green
O/C	Open / Close	Red / Green
O/C/A	Open / Close / Auto	Red / Green / White
O/O/A	On / off / Auto	Red / Green / White
M/A	Manual / Auto	Yellow / White
S/S	Start / Stop	Red / Green
Reset	Reset	Red
Emergency Stop	Emergency Stop	Red

j. Use following table for standard light colors and inscriptions. Use black colored lettering on white and amber lenses. Use white colored lettering on red and green lenses.

TABLE II-6.04.D-2

LIGHT STANDARD COLORS AND INSCRIPTIONS

Tag Function	*Inscription*	*Color*
On	On	Red
Off	Off	Green
Open	Open	Red
Closed	Closed	Green
Low	Low	Green
Fail	Fail	Amber
High	High	Red
Auto	Auto	White
Manual	Manual	Amber
Local	Local	White
Remote	Remote	Amber

4. Panel enclosure shall be as follows:

a. NEMA 4X rated and constructed of fiberglass. Size shall be 28"H x 20"W x 10"D.

b. Enclosure shall have a rubber-gasket door with a continuous hinge. Door shall be secured to enclosure with stainless steel lockable quick-release clamps.

c. Acceptable Manufacturers:

- Hoffman Engineering Co.
- Vynckier

G. Radio Communication Equipment – Phase Two

1. Transceiver

a. Transceiver shall contain FM transmitter and FM receiver suitable for operation in the 451.3625 MHz UHF.

b. Transceiver shall operate from power provided by the RTU; provide solid-state circuitry throughout.

c. Designate transmitter emission in accordance with FCC Rules and Regulations.

d. Acceptable Manufacturer is Dexter Fortson.

2. Transmission Cable

a. Cable shall have performance characteristics suited for overall system functional requirements.

b. Cable shall have a minimum bend radius of ten (10") inches.

c. Cable shall have a dielectric jacket and be suited for direct burial and other outdoor design environments.

d. Acceptable Manufacturer is Beldon RG8.

3. Antenna

a. Antenna shall be suited for outdoor environments.

b. Antenna shall provide a low resistance dc path to ground for lightning protection.

c. Acceptable Manufacturers:

- Omni (Antennex) – Model FG4503, 3dB Omnidirectional Antenna
- Yagi (Astron) – Model 460-6, 9dB Yagi Antenna

4. Tower and Mast

a. Tower and mast shall support antenna at an elevation to achieve functional requirements.

b. Tower shall be self-supporting (without guide wires).

c. Lightning arrestors shall be provided and connected to ground rods by cable.

d. Acceptable Manufacturers:

- Trylon Tital
- Rohn Industries

6.05 Wet Well

A. A wet well shall be provided with each pump station. Wet well shall have a minimum 6-foot inside diameter (or equivalent rectangular area).

B. Wet well shall be sized in conjunction with pump level control to provide 2 to 5 pump cycles per hour at average daily flow conditions.

1. Wet well shall resist floatation during and after construction.

2. Access to the wet well shall be provided via a 2-foot diameter manhole ring and light weight cover situated two (2') feet centered from inside edge of wet well or by a three (3') foot by three (3') foot H-20 aluminum hatch.

6.06 Equipment Pads

Backup power system shall be secured by expansion or cast-in anchors to a monolithically poured steel reinforced concrete slab. The slab shall have a minimum depth of eight (8") inches. The slab shall extend a minimum of six (6") inches beyond all sides of enclosure.

6.07 General Electrical Requirements:

A. Electrical service to pump station site area shall be 3-phase, AC current.

B. Service Entrance, main disconnect, mini-power center and SCADA panel shall be secured to a fabricated steel (galvanized) stand.

C. Service entrance shall meet the requirements of the local electric utility.

D. Main Disconnect and mini-power center shall be sized to meet NEC code.

E. Service wire to all components shall be stranded copper cable sized to meet NEC code and placed in conduit. Service wire within fenced site area shall be underground except where entering equipment.

1. Below grade conduit shall be rigid, schedule 40, PVC meeting requirements of NEMA TC-3 and UL 651. Joints shall be slip-on and glued in accordance with manufacturers instructions.

2. At-grade, above-grade and/or concrete encased conduit shall be rigid galvanized steel meeting the requirements of ANSI C80.1 and UL 6. Joints shall be threaded with galvanized fittings meeting the requirements of UL 514B. Set screw and thread less compression fittings shall not be permitted.

3. At-grade or above-grade conduit shall not have horizontal runs greater than 12 inches. Horizontal runs of conduit shall be supported by a minimum of two concrete anchored uni-struts (galvanized).

F. Area security light shall consist of a photocell having a minimum 150 watt metal halide fixture. The light shall be installed at a minimum height of 15 feet above finished grade. The light pole shall be tubular steel and factory finished with a dark

bronze color coating. The light pole shall be anchored in accordance with the manufacturer's recommendations.

G. All components shall be grounded to copper grounding rods in accordance with NEC code.

1. Ground rods shall be copper-clad having minimum diameter of 5/8-inch with a length of 10 feet.

2. Ground conductors shall be stranded copper.

3. Ground connections shall be of the exothermic weld type suitable for exposure to elements or direct burial.

H. Provide electrical site plan with design submittal.

6.08 Property and Site Area

A. A minimum 60-foot by 60-foot area of property, to be donated to the City, shall be provided for each pump station. The pump station and associated components shall be situated within 40-foot by 40-foot site area; a larger property/site area may be required.

B. A twelve (12') foot wide access drive situated within a thirty (30') foot wide strip of property, to be donated to the City, shall be provided for each pump station. The access drive shall intersect a public right-of-way. Road material may be changed as approved by the City Engineer.

C. The property boundary shall be situated no closer than fifty (50') feet from the nearest structure.

D. Corners of pump station site area shall be at same elevation.

E. Pump station site area shall be sloped away from slab covering the wet well at a minimum 1.0% slope.

F. Potable water and a non-freeze yard hydrant with RPZ Backflow Preventer shall be provided at each pump station.

G. Provide plug valve in force main at a maximum distance of 20 feet from pump station.

H. Site area (minimum 40-foot by 40-foot) shall be fenced with black vinyl coated chain link fence.

I. That portion of the pump station site area not in concrete shall be covered with crushed stone at a minimum depth of six (6") inches.

J. Property area outside fenced area shall be landscaped.

6.09 Fence and Landscaping

A. A minimum 5-foot clearance shall be provided from fence to major components (i.e. pump station, emergency bypass generator, SCADA tower, electrical stand).

B. Fence shall have height of six (6') feet with three (3) strands of galvanized barbed wire atop posts.

1. Fence mesh shall be 9-gauge wire (galvanized) and black vinyl coated.
2. Top rail shall be 1-⅝ inch diameter schedule SS40.
3. Intermediate post shall be 2-inch diameter schedule SS40.
4. Corner and gate posts shall be 3-inch minimum diameter schedule SS40.
5. Gate shall have a width of fourteen (14') feet, two 7-foot swing gates positioned in location approved by the City.
6. Gate shall be secured by the City with a keyed lock conforming to the City standard; sergeant lock.
7. "No Trespassing" signs to include pump station name, address and emergency phone numbers shall be installed on all fenced sides by the City conforming to the City standard.

C. Property outside of the fenced area shall be landscaped.

1. Install weed barrier fabric over all areas to receive landscaping.
2. Install evergreen shrubbery spaced not greater than five (5') feet apart around the fenced area. Shrubbery shall have a minimum height of three (3') feet at the time of planting and shall have a mature height of at least six (6') feet. Prepare soil in accordance with shrubbery planting instructions.
3. Install wood mulch, clean of dirt, around shrubbery and to the edge of the easement area. Mulch shall have a depth of three (3") inches.

D. Use Detail Nos. 28.1 and 29.1 when applicable for paving access roads and affected streets.

SECTION 7 – SOIL EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

7.01 General Requirements

Siltation and soil erosion shall be prevented by the installation of erosion control measures and practices prior to or concurrent with land-disturbing activities. The Contractor shall utilize silt fence, hay bales, mulch, grass, slope drains, and other erosion control devices or machines as necessary. All soil erosion and sedimentation control measures must be installed prior to initiation of construction activity. Siltation and erosion control shall be in compliance with the "Georgia Erosion and Sedimentation Act of 1975" as amended to date and these specifications. Any violations of the Act shall be subject to those penalties and fines as defined by the Act.

7.02 Plan

Provide an erosion and sedimentation control plan including Best Management Practices (BMP), details, legend, drawings and locations shown on the plans.

7.03 Standards and Specifications

All designs will conform to and all work will be performed in accordance with the standards and Specifications of the publication entitled "Manual For Erosion and Sediment Control in Georgia" and in compliance with the "Georgia Erosion and Sedimentation Act of 1975" as amended to date. All materials shall be first-class quality to withstand a 25-year storm event.

7.04 Site Conditions

A. Protect all adjacent public and private property from erosion and other pollutants due to construction activities.

B. Erosion control plan must comply with all local and state regulations.

C. Erosion control details and symbols may be taken directly from the "Manual for Erosion and Sediment Control in Georgia," latest edition.

D. Land disturbing activity shall not commence until the land disturbing permit has been issued.

E. If disturbance is an acre or more of land for the entire project, the owner must file a Notice of Intent (NOI) to be covered under one of the NPDES general construction permits (GAR 100001, GAR 100002 or GAR 100003). Information about filing requirements and copies of the general permits can be found at http://www.gaepd.org/Documents.techguide_wpd.html#sw. If you have any questions regarding this subject, please call the EPD district office listed in the general permit.

7.05 Erosion Control Program

Vegetation and mulch shall be applied to applicable areas **immediately** after grading is completed. Best Management Practices, BMP(s), shall be employed to prevent erosion in areas of bare soils and concentrated water flows. Diversions and dikes shall be installed to divert sediment-laden runoff into the sediment barriers and to protect cut and fill slopes from erosive water flows.

7.06 Temporary Erosion Control

Temporary erosion control shall consist of planting temporary grass of a quick growing species such as millet, rye grass, or cereal grasses suitable to the area. The Contractor shall use all means necessary to control dust on and near the work site and barrow areas when dust is caused by construction operations. The Contractor should thoroughly moisten all surfaces as required to prevent dust from being a nuisance to the public, neighbors and concurrent performance of work on the site. Water for irrigation and dust control shall be provided by the owner.

7.07 Rip Rap

Rip Rap shall consist of stone or bagged sand-cement to a thickness of approximately twelve inches (12"). Stone shall be hard quarry or fieldstone of such quality that it will not disintegrate on exposure to water or weathering. Stone shall range in weight from a minimum of 25-pounds to a maximum of 150-pounds with at least 75-percent of the pieces weighing more than 50-pounds. Bagged sand-cement Rip Rap shall consist of one part cement and five parts of sand in clean cloth bags, approximately one cubic foot in size.

7.08 Grassing of Disturbed Areas

A. Preparation: The Contractor shall grass all areas that were disturbed by clearing or construction operations. Grassing shall be by conventional seeding or hydroseeding. Before seeding commences, the Contractor shall spread the stored stock piled top soil over the entire area, working the better top soil into the more rocky areas. The entire area shall be smoothed with a drag and all clods broken up. All deleterious material, large stones, roots, limbs, and other debris shall be removed to leave a smooth area that would be suitable for mowing. Grassing (by seeding) shall be completed as soon as practical after finish grading is completed in order to minimize erosion from rainfall and run-off. Any erosion occurring in grassed areas shall be immediately repaired.

B. Grass Seed: Grass seed selection shall be in accordance with the "Manual for Erosion and Sediment Control in Georgia", as amended to date. Otherwise, the type of grass seed applied shall be determined by site and soil compatibility and City discretion.

C. Temporary and Permanent Seeding: Temporary seeding is required on any areas exposed longer than 14 days. Permanent seeding shall be done only if it can be completed between March 1 and April 15 or August 15 and November 15. Use temporary seeding during remaining periods. The work of spreading and

compacting topsoil shall be performed by the Contractor, as specified, prior to planting Rye grass. Replacing or repairing of eroded topsoil shall be done as necessary at time of later grassing.

D. Hydro-seeding: Mix the seed (inoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

E. Grassing Along Highway Right-of-Way: Grassing along highway right-of-way shall be in accordance with Department of Transportation, State of Georgia, Standard Specifications, Construction of Roads and Bridges, Latest Edition, Section 700.

F. Grassing through Established Pastures and Lawns: Grassing through established pastures and lawns shall be by seeding with the same type of grass as was disturbed or, if acceptable to the Owner, seeding may be as recommended by the local Soil Conservation Agent.

G. Grassing of Other Areas: Grassing of other areas shall be by planting grass of a quick growing species that will also give a permanent cover. Permanent seeding shall be a mixture of Bermuda and centipede.

H. Planting: Preparation of soil along highway right-of-way shall be as set out in highway specifications. The contractor shall use recognized equipment and materials in preparation of the soils. Before planting, a fertilizer of 6-12-12 composition or approved equal shall be evenly applied at the rate of 1,500 pounds per acre and disced or harrowed into the dampened soil.

I. Maintenance: Temporary grass may be intermixed with permanent grass. However, the contractor shall cut and maintain the temporary grass such that the permanent grass will become established and not be choked out. The contractor will be required to maintain the grass on the site until the job is accepted.

7.09 Seed, Fertilizer, Mulch

Seed, fertilizer, mulch and periodic watering shall be applied in adequate quantities to assure a satisfactory ground cover over the entire disturbed area of construction operations. Water thoroughly as soon as completed and at least twice daily, or more often if necessary to provide continuous growth without setback until all growth from seed is thoroughly established.

The mulching material will consist of dry straw or hay of good quality free of seeds of competing plants, and at the rate of two or two and a half tons per acre, respectively. Straw or hay mulch will be applied uniformly over the disturbed areas, to achieve 75-percent coverage. It must be spread within 24-hours after seeding is done. The spreading must be done by blower-type or other mulch- spreading equipment or by hand and anchored by pressing the mulch into the soil. Anchoring must be done immediately after the mulch is

spread. A disk harrow with the disk set straight or a special "packer disk" may be used. The disk may be smooth or aerated and should be 20-inches or more in diameter and 8- to 12-inches apart. The edges of the disk should be dull enough not to cut the mulch but sharp enough to press into the soil leaving much of it in an erect position.

7.10 Slope Stabilization

Sedimentation shall be controlled by the use of hay mulch on slopes 3:1 or less. On slopes greater than 3:1, the Contractor shall install blankets. Prior to placing the blanket, the grassing shall have been completed and the area left in a smooth, uniform condition, free from stones, lumps, roots, other material, which would prevent from making snug contact with the underlying soil.

A. Fiberglass Blanket: The fiberglass blanket shall be machine produced consisting of uniform layer of continuous, randomly-oriented glass fiber strands. The blanket shall be at least 48-inches wide and weighing a minimum of 0.2-pounds per square yard when used on slopes and 0.4 pounds per square yard when in waterways.

1. Securing and Stapling: All staples shall be driven flush with the ground. Staples for securing the blanket shall be made from cold drawn wire not less that 6-inch lengths of 14-gauge, to form a "U" of 1-inch in width. Longer staples may be required for loose soil.

   Each strip of the blanket shall be held firmly in place by means of three rows of staples; one row along each edge and one row along the middle. The staples shall be spaced no more than 3-feet apart in each row with the staples in the middle row spaced alternately with those at the edges. The edge staples shall be placed in the 2-inch overlap. At the end of each blanket, staples shall be placed in a row with spacing of approximately 12-inches.

   An anchor slot or trench, 9-inches in depth, shall be dug across the upgrade end of the site. The first 12-inches of the blanket shall be placed in the trench and the backfill tamped solidly in place. Adjacent strip ends shall overlap 2-inches and adjoining ends shall overlap 6-inches with the upstream section on top.

B. Organic Fiber Blanket:

1. Straw Blanket: A machine-produced blanket of clean, weed-free straw from agricultural crops with consistent thickness and the straw evenly distributed over the entire area of the blanket.

   a. Slopes: The top of each blanket shall be covered with a photodegradable plastic mesh having a maximum mesh size of 5/16 × 5/16-inch, which is sewn to the straw using biodegradable thread. The blanket shall be at least 48-inches

wide with a minimum thickness of 3/8-inch and a minimum dry weight of 0.5-pounds per square yard.

b. Waterways: The blanket shall be the same as for slopes except having the photodegradable plastic mesh on the top and bottom.

2. Excelsior Blanket: A machine produced mat of curled wood excelsior of which 80-percent has 6-inch or longer fiber length, with consistent thickness and the fiber evenly distributed over the entire area of the blanket. The blanket shall be smolder resistant. The top of the blanket shall be clearly labeled.

a. Slopes: The top of each blanket shall be covered with a photodegradable plastic mesh having a maximum mesh size of 1½ × 3-inch. The blanket shall be at least 48-inches wide with a minimum thickness of ¼-inch and a minimum dry weight of 0.8-pounds per square yard.

b. Waterways: The blanket shall be the same as for slopes except having the photodegradable plastic mesh on the top and bottom.

3. Securing and Stapling: Staples shall be driven vertically into the ground to anchor the plastic mesh. Staples shall be spaced approximately 2-yards apart on each side of the blanket and one row in the center alternately spaced between each side staple. Where blankets are laid side to side, the staples shall be placed with ½ of the staple anchoring mesh form each blanket. At the beginning of a blanket, staples shall be placed in a row with spacing of approximately 12-inches.

In waterways, there shall be no longitudinal seams unless overlapped at least 6-inches with the upgrade section on top. The first 12-inches of the first row of blankets shall be placed in a 6-inch deep anchor slot stapled in the bottom, the slot shall be backfilled and solidly tamped

7.11 Final Stabilization

When monitoring is required, stabilized means at least 70% of the soil surface is uniformly covered in permanent vegetation unlike the NPDES Storm Water Discharges Associated with Construction Activities, General Permit (GAR 100001, 100002, 100003), which includes installation of equivalent permanent stabilization measures (such as the use of rip-rap, gabions, permanent mulches, or geotextiles). Permanent vegetation consists of planted trees, shrubs, perennial vines; a crop of perennial vegetation appropriate for the season and

region; or a crop of annual vegetation and a seeding of target crop perennials appropriate for the region such that within the growing season a 70% coverage by the perennial crop is achieved. For linear construction projects on agricultural or silvicultural lands, stabilized means stabilizing it for its agricultural or silvicultural use.

Final acceptance of grassing is defined as a full cover, over the seeded area of live and growing grass, when at least 98% of the total areas has no bare spots exceeding one square foot and the ground surface is fully stabilized against erosion.

SECTION 1: DUCTILE IRON PIPE AND FITTINGS

1.01 Pipe Classification

A. Ductile iron (push-on) pipe four shall be Pressure Class 350 or thickness class 52 in accordance with ANSI/AWWA C151/A21.51, latest revisions.

B. Ductile iron flanged pipe shall have a minimum pressure rating of 250 psi in accordance with ANSI/AWWA C110/A21.10 and C115/A21.15, latest revisions.

C. Ductile iron restrained-joint pipe shall be of the flex-ring type having a welded bead lock ring having a minimum pressure rating of 250 psi in accordance with ANSI/AWWA C110/A21.10 and C151/A21.51, latest revisions.

1.02 Fitting Classification

A. Ductile iron fittings for use with push-on joint pipe shall be standard mechanical, compact series, with a minimum pressure rating of 250 psi in accordance with ANSI/AWWA C110/A21.10 and C153/A21.53, latest revisions.

B. Ductile iron flanged fittings shall be in accordance with ANSI/AWWA C110/A21.10, latest revision. Flanged fittings up to twelve (12") inches in size shall have a minimum pressure rating of 350 psi. Flanged fittings over twelve (12") inches in size shall have a minimum pressure rating of 250 psi.

C. Ductile iron restrained-joint fittings shall be of the flex-ring type having a minimum pressure rating of 250 psi in accordance with ANSI/AWWA C110/A21.10 and C153/A21.53, latest revisions.

1.03 Gaskets and Bolted Connections

A. Gaskets shall be as follows:

1. Gaskets for push-on and standard mechanical joints shall be plain rubber (Styrene Butadiene Copolymer) in accordance with ANSI/AWWA C111/A21.11, latest revisions.

2. Gaskets (FIELD LOK®) and (MJ FIELD LOK®) used to restrain push-on joint pipe and/or standard mechanical joint fittings, respectively, shall be plain rubber (Styrene Butadiene Copolymer) modified with stainless steel teeth in accordance with ANSI/AWWA C111/A21.11, latest revisions.

3. Gaskets for restrained joint pipe of the flex-ring type and restrained joint fittings of the flex-ring type shall be plain rubber (Styrene Butadiene Copolymer) modified with ductile iron segments in accordance with ANSI/AWWA C111/A21.11, latest revisions.

4. Gaskets for flanged joints shall be 1/8-inch thick, full-faced, clothed reinforced rubber in accordance with ANSI/AWWA C110/A21.10 and C115/A21.15, latest revisions.

B. Retaining glands and adapter coupling shall be as follows:

1. Retaining gland for use with standard mechanical joint fitting where joint restraint is not required shall be in accordance with ANSI/AWWA C110/A21.10 through C153/A21.53, latest revisions.

2. Retaining gland (MEGALUG®) for use with standard mechanical joint fitting, where the gland acts as the restraining mechanism, shall include gripping wedges with torque limiting twist-off nuts and shall be in accordance with ANSI/AWWA C110/A21.10 through C153/A21.53, latest revisions.

3. Retaining gland (MJ FIELD LOK®) for use with standard mechanical joint fitting, where the gasket acts as the restraining mechanism, shall be in accordance with ANSI/AWWA C110/A21.10 through C153/A21.53, latest revisions.

4. Adapter coupling (Foster Adapter®) shall be a bolt-through positive restraining connector between two standard mechanical joints. Adapter coupling shall be in accordance with ANSI/AWWA C153/A21.53, latest revisions.

C. Bolts shall be as follows:

1. Bolts and nuts used for standard mechanical connections shall be tee head type with heavy hex nut conforming to ASTM A563 in accordance with AWWA C111.

2. Bolts and nuts used for flanged connections shall be hex type of low carbon steel; cadmium plated or zinc plated conforming to ASTM A307 in accordance with AWWA C110 and C115.

1.04 Coatings and Linings

A. Ductile iron pipe and fittings placed on or beneath the ground surface shall have an exterior coating of asphalt (one mil) in accordance with ANSI/AWWA C151/A21.10, latest revisions.

B. Ductile iron pipe and fittings placed above the ground surface shall have an exterior manufacturer applied universal phenolic primer (one mil) capable of accepting an epoxy coating. Finish coat shall be in accordance with Division III, Section 12.

C. Ductile iron pipe that crosses or runs parallel to a gas transmission main, which is or may be catholically protected, shall be encased in polyethylene tubing, eight (8) mil minimum thickness, and taped in accordance with ANSI/AWWA C105/A21.5.

D. Ductile iron pipe and fittings used in the distribution of potable water shall be cement lined in accordance with ANSI/AWWA C104/A21.4, latest revisions.

E. Ductile iron pipe and fittings used in sanitary sewer systems shall be cement lined in accordance with ANSI/AWWA C104/A21.4, latest revision and cement lining sealed with asphalt in accordance with ANSI 21.10, latest revision and AWWA C110, C115, C151 or C153, latest revisions.

F. For sewer pipe applications, ductile iron pipe and fittings in lieu of an asphalt coating and cement lining may be lined with Protecto 401 Ceramic Epoxy. Lining shall be applied according to the manufacturer's recommendations. Protecto 401 lining cannot be used as a potable water lining.

G. Ductile iron fittings in lieu of an asphalt coating and cement lining may be coated and lined with five (5) to eight (8) mils of fusion bonded epoxy in accordance with AWWA/ANSI C550 and C121/A21.16. Fittings shall be listed by a certifying agency that the coating complies with ANSI/NSF 61.

1.05 Pipe Marking:

The following information shall be cast in or stamped on each pipe:

A. Weight, class or nominal thickness

B. Casting period

C. Manufacturer's identifying mark

D. Year the pipe was manufactured

E. The letters "DI" or "DUCTILE"

F. Acceptable Manufacturers: Ductile iron pipe and fittings shall be domestically manufactured. The following manufacturers are acceptable.

- American Cast Iron Pipe Company – pipe and fittings.
- U.S. Pipe Company – pipe and fittings.
- S&B Technical Products - FIELD LOK® and MJ FIELD LOK® gasket.
- EBAA Iron Sales, Inc. - MEGALUG® gland.
- U.S. Pipe Company, Tyler/Union - MJ FIELD LOK® gland.
- Infact Corporation - Foster Adapter®.
- Other Approved.

EXHIBIT "A"

SECTION 2: STEEL PIPE AND FITTINGS

2.01 Pipe Classification

A. Steel pipe shall have a minimum wall thickness of 0.25 inches and be in accordance with ASI standards.

B. Wall thickness shall be increased as necessary to minimize deflection and deformation.

2.02 Transition Coupling

A. Coupling used to connect pipes of differing material shall be as follows:

- Middle ring shall be carbon steel in accordance with ASTM A513, ASTM A635 or ASME SA675 GR60.

B. Followers shall be ductile iron.

C. Bolts and nuts shall be carbon steel in accordance with ANSI/AWWA C111/A21.11.

D. Gaskets shall be Buna (S blend).

2.03 Coatings and Linings

A. Steel pipe used for water distribution and sewer shall be coated and lined in accordance with Division III, Section 12.

B. Steel pipe used as casing shall not require a coating or lining unless otherwise indicated.

C. Acceptable Manufacturers: Steel pipe and fittings shall be domestically manufactured. Acceptable manufacturers are as follows:

- As approved – pipe.
- Dresser – Transition Coupling.
- Smith Blair – Transition Coupling.
- Other Approved.

SECTION 3: POLYETHYLENE PIPE AND FITTINGS

3.01 Polyethylene Tubing

A. Polyethylene tubing shall be AWWA C901, Copper Tubing Size (CTS), DR 9 with PE material PE 3408, 200 PSI pressure rated, NSF certified:

B. Fittings: AWWA C901 molded. No fittings allowed under roadway.

C. Joints: Compression type utilizing a totally confined grip seal and coupling nut. Stainless steel tube stiffener insert shall also be used for tubing services. No joints in pipe under roadway.

D. Markings: Tubing shall be fully labeled at intervals of not more than five (5') feet with brand name and manufacturer, the nominal size, PE 3408, the work TUBING and SDR9, PC200, AWWA C901-88, and the seal or mark of the testing agency.

E. Color: Black.

SECTION 4: PVC PIPE

4.01 Casing for Polyethylene Pipe

A. PVC pipe shall be used as a casing for polyethylene water service lines that are to be installed under pavement.

B. PVC pipe used as a casing shall be a minimum of Schedule 40, Class 200.

C. PVC casing pipe shall have a minimum diameter of two (2") inches.

4.02 Sewer Pipe Classification

A. PVC pipe used as sewer shall be SDR 26 push-on joint type with O-rings in accordance with ASTM 3034.

B. Gaskets shall be plain rubber.

4.03 Sewer Pipe Fitting Classification

A. PVC fittings shall be in accordance with ASTM 3034.

B. Acceptable Manufacturers: PVC pipe shall be domestically manufactured by approved acceptable manufacturers.

SECTION 5: VALVES

5.01 Gate Valve

A. Gate valves smaller than three (3") inches in diameter shall be as follows.

1. Valves shall be all brass or bronze construction.
2. Valves shall have solid wedge gate, rising stem, and threaded bonnet.
3. Valve end connections shall be compatible with pipe material in which valve is installed.

B. Gate valves three (3") inches in diameter and larger shall be as follows.

1. Water supply service shall be in accordance with AWWA 509 for resilient seated valves.
2. Water supply service shall be in accordance with AWWA 515 for reduced wall thickness resilient seated valves.
3. Valve body shall be ductile iron with all exterior surfaces coated with a fusion-bonded epoxy coating.
4. Valves shall be bronze mounted, beveled geared, with a non-rising stem and O-ring stem seals.
5. All exposed fasteners, nuts and bolts shall be stainless steel.
6. Valves shall open in a counter-clockwise direction.
7. Valve end connections shall be flanged or standard mechanical.
8. Buried valves shall be nut operated; non-buried valves shall have hand-wheel operators.

C. Gate valves used in conjunction with a tapping saddle shall be as follows:

1. Offset type that allows the tapping device to mount to the pipe and pass through the opened valve.
2. End connection to the tapping sleeve shall be flanged. End connection to accept pipe shall be mechanical joint.

D. Gate valves three (3") inches and larger shall be coated with six (6) to eight (8) mils of fusion bonded epoxy in accordance with AWWA/ANSI C550 and C121/A21.16. Fittings shall be listed by a certifying agency that the coating complies with ANSI/NSF 61.

E. All gate valves shall be rated for a minimum working pressure of 200 psi. Valves shall remain water tight at working pressure after installation.

F. All gate valve shall be installed in a valve box within a 18" square by 4" thick protective concrete pad. Provide extension stem where required to bring operating nut to within 12 inches of ground surface.

G. The following information shall be cast in or stamped on each gate valve:

1. Manufacturer's identifying mark
2. Pressure Class
3. The letters "DI" or DUCTILE
4. Place of Manufacturing

H. Acceptable Manufacturers: Valves shall be by a domestic manufacturer that produces only ductile iron bodied valves. Acceptable Manufacturers are as follows:

- American Darling
- U.S. Pipe Company
- Mueller Company - Ductile Iron Valves only
- M&H Valve Company - Ductile Iron Valves only.

5.02 Butterfly Valve

A. Valves shall be in accordance with AWWA C504.

B. Materials used in the fabrication of the valve shall meet all related requirements of ASTM.

C. Valve bodies shall be ductile iron with integrally cast flanged ends or standard mechanical ends. Flange drilling shall be in accordance with ANSI B16.1. Two (2) trunnions for shaft bearings shall be integrally cast with valve body.

D. Valves shall be bubble tight at 250 psi with flow in either direction and shall be capable of throttling service.

E. Valve disc shall rotate 90° from full open position to tight shut position.

F. Valves shall be tight closing, rubber seated with seats applied to the body or disc. Valve seats on 30 inch and larger diameter valves shall be field adjustable and replaceable without dismounting operator, disc or shaft and without removing valve from pipe. Mating seat shall be stainless steel or Monel.

G. Valves shall be fitted with sleeve type bearings contained in hubs of valve body. Bearings shall be corrosion resistant and self-lubricating.

H. Valve operators shall hold valve in any intermediate position between full open and full close without creeping or fluttering.

1. Manual operators shall be worm gear or traveling nut type and shall be fully enclosed.
2. Valves for buried service shall be furnished with a ground level valve position indicator unless otherwise approved by the City Engineer.
3. Valves for above ground service shall be furnished with a valve position indicator arrow to give valve position at any point from full open to full close.
4. Valves shall open when turning operator in a counter-clockwise direction.

I. Valves shall be coated as follows.

1. Valve placed on or beneath the ground surface shall have an exterior coating of asphalt (one mil) in accordance with ANSI/AWWA C151/A21.10, latest revisions.
2. Valve in lieu of an asphalt coating may be coated with six (6) to eight (8) mils of fusion bonded epoxy in accordance with AWWA/ANSI C550 and C121/A21.16.
3. Valve placed above the ground surface shall have an exterior manufacturer applied universal phenolic primer (one mil) capable of accepting an epoxy coating. Finish coat shall be in accordance with Division III, Section 12.
4. Acceptable Manufacturers: Acceptable manufacturers are as follows:

- M&H
- Pratt
- Mueller
- Clow
- Dezurik

5.03 Double Check Valve (Backflow Preventers)

A. Double check valves shall be in accordance with AWWA 506, ASSE 1013 and USC-FCCC. Check valves shall be UL listed and approved by FMR.

B. Double check valves ¾ inch in diameter through two (2") inches in diameter shall be bronze bodied having corrosion resistant moving parts with bronze threaded unions on both sides of the device.

C. Double check valves 2-1/2 inch in diameter and larger shall be bronze, cast iron or ductile iron bodied having corrosion resistant moving parts with flanged end connections.

D. Double check valves with reduced pressure zone assemblies shall have a sufficient air gap at the relief port and discharge shall drain away from the assembly.

E. Double check valve assemblies shall be equipped as standard with four (4) test cocks and two (2) resilient seated shut off valves.

F. Valve may be coated with six (6) to eight (8) mils of fusion bonded epoxy in accordance with AWWA/ANSI C550 and C121/A21.16.

G. Valve may have an exterior manufacturer applied universal phenolic primer (one mil) capable of accepting an epoxy coating. Finish coat shall be in accordance with Division III, Section 12.

H. Acceptable Manufacturers are as follows:

- Watts - Double Check (3/4" to 2"): U007QT.
- Watts - Double Check (3" to 10"): 709 or 757 w/OSY Valves.
- Wilkins - Double Check (3" to 10"): 350A or 950 w/OSY Valves.
- Conbraco/Apollo – Double Check (3/4" to 2"): 40-100 T Series.
- Conbraco/Apollo – Double Check (3" to 10"): 4S DC Series w/OSY Valves.
- Conbraco/Apollo – Double Check (3" to 10"): 4D-100 Defender w/OSY Valves.
- Watts - Reduced Pressure Zone Check Valve (3/4" to 2"): 909S-QT.
- Watts - Reduced Pressure Zone Check Valve (3" to 6"): 909 w/OSY Valves.
- Febco – Double Check (3/4" to 2"): 850 BV
- Wilkins - Reduced Pressure Zone Check Valve (3" to 6"): 375 or 975 w/OSY Valves.
- Conbraco/Apollo – Reduced Pressure Zone (3/4" to 2"): 40-200 T Series.
- Conbraco/Apollo – Reduced Pressure Zone (3" to 4"): 40-200 w/OSY Valves.
- Conbraco/Apollo – Reduced Pressure Zone (6" to 10"): 4S-RP w/OSY Valves.
- Other Approved.

5.04 Corporation Valve

A. Corporation valves shall be of the ball valve type and manufactured of bronze in conformance with ASTM B61, ASTM B62 and NSF 61.

B. Corporation valves shall withstand a working pressure of 150 psi.

C. Corporation valves shall have crosscut threading, for direct tap into pipe, and a compression copper outlet. If a tapping saddle is used, the valve shall be saddle thread by compression copper outlet.

D. Corporation valves shall be ¾ inch or one (1) inch in size as required by the service.

E. Acceptable Manufacturers: Corporation valves shall be domestically manufactured. Acceptable manufacturers are as follows:

- Ford Meter Box Co.
- Mueller Brass
- A.Y. McDonald Mfg.
- Other Approved

5.05 Curb Stop

A. Curb stops shall be of the ball valve type and manufactured of bronze in conformance with ASTM B61, ASTM B62 and NSF 61.

B. Curb stops shall withstand a working pressure of 150 psi.

C. The internal ball shall be manufactured of low carbon steel coated with brass.

D. Internal O-rings and seats shall be of Buna-N.

E. Curb stops shall be fitted with iron pipe threads on the influent side and appropriate meter nut on the discharge side.

F. Curb stops shall be fitted with wing locks suitable to accept a keyed padlock.

G. Curb stops shall be ¾ inch, one (1") inch or two (2") inches in size as required by the service.

H. Acceptable Manufacturers: Curb stops shall be domestically manufactured. Acceptable manufacturers are as follows:

- Ford Meter Box Co. for ¾ inch and 1 inch sizes.
- Mueller Brass.
- A.Y. McDonald Mfg.
- Other Approved.

5.06 Plug Valve

A. Plug shall be as follows.

1. Eccentric plug (non-lubricated) having a standard port design.
2. Plug shall be cast iron in accordance with ASTM A126.

3. Plug shall have a resilient facing of carboxylic acrylonitrile butadiene or chloropene.

B. Valve shall be generally comprised as follows:

1. Body shall be cast iron, Class B, in accordance with ASTM A126.

2. Seat shall be nickel, raised and welded to the body.

3. Bearings shall be oil impregnated permanently lubricated stainless steel Type 316 in accordance with ASTM A743 Grade CF-8M.

4. Packing shall be acrylonitrile butadiene V-type.

C. End connections shall be as follows:

1. Non-buried service shall have flanged ends having an ANSI 125/150 pound rating standard face and drilled.

2. Buried service shall have standard mechanical joint ends in accordance with AWWA C111-64 with retaining gland that acts as a restraining mechanism.

D. Actuator type shall be as follows:

1. Non-buried service shall have G-series worm gear with 8-inch diameter hand wheel actuator input, clockwise to close.

2. Buried service shall have G-series worm gear for buried service, with 2-inch square nut actuator input, clockwise to close.

E. Valve interior and exterior surfaces shall have one (1) coat, 4 to 5 mils of TNEMEC 140 Pota-Pox Plus epoxy paint, surface preparation of SSPC-SP10.

F. Acceptable Manufacturers: Acceptable manufacturers shall be as follows:

- Dezurik
- Other Approved

5.07 Combination Air/Vacuum Release Valve

A. Air/Vacuum release valves shall be installed at the following locations:

i. All high points along force mains

ii. At abrupt increases in down slope or abrupt decreases in up slope

iii. At intervals of a quarter mile to a half mile along long ascending or long descending sections of pipe lines

B. Valve shall automatically release large quantities of air during pipeline filling and automatically allow air to reenter the pipeline when internal pressure of the pipeline approaches a negative value (vacuum). Valve shall automatically release small quantities of air from the pipeline while under normal pressure conditions.

C. Valve shall be suitable for the respective service (water or sanitary sewer) having a working pressure of 150 psi and a test pressure of 225 psi.

D. Valve inlet and outlet shall be sized as required. Where the option permits, ANSI 125 pound flanged connections shall be utilized.

E. Valve body, cover and baffle shall be cast iron, Class B in accordance with ASTM A126.

F. Seat and orifice button shall be Buna-N.

G. All internal components shall be stainless steel T304 in accordance with ASTM A240, A269, A276 and PH 15-7 MO.

H. Acceptable Manufacturers: Combination Air/Vacuum Release Valve shall be domestically manufactured. Acceptable manufacturers are as follows:

- Crispin
- Other approved

5.08 Valve Box

A. Valve boxes shall be of the two-piece type and manufactured of ABS resin.

B. Valve boxes shall have an internal diameter of 5.25 inches.

C. Valve boxes shall be fitted with a cover with the word "WATER" or "SEWER" integrally cast in the cover depending on the service and compatible with the City's radio read meter equipment.

D. Acceptable Manufacturers: Acceptable manufacturers shall be as follows:

- Bingham-Taylor
- East Jordan
- Other approved.

SECTION 6: TAPPING SLEEVES

6.01 Tapping Sleeve

A. Tapping sleeves shall be of the split type and manufactured of ductile iron or stainless steel (preferred). Stainless steel sleeve shall be used when tapping cast iron pipe. Ductile iron shall conform to ANSI/AWWA standards. Stainless Steel shall be type 304 (18-8).

B. Gaskets shall be virgin nitrile (Buna-N, NBR).

C. Sleeve outlet shall be flanged or mechanical joint in accordance with ANSI/AWWA C110/A21.1.

D. Acceptable Manufacturers: Acceptable manufacturers shall be as follows:

- U.S. Pipe – T28 on ductile iron main only.
- Power Seal– Part No. 3490 (stainless steel) on cast iron and ductile iron mains
- Smith Blair – Part No. 663 or 665 (stainless steel) on cast iron and ductile iron mains
- Ford Meter Box– FTSS (stainless steel)
- Romac for 1-1/2 inch and 2 inch taps
- Other Approved.

6.02 Tapping Saddle

A. Tapping saddles shall be stainless steel. Ductile iron shall conform to ANSI/AWWA standards. Stainless Steel shall be type 304 (18-8).

B. Stainless steel saddles shall be used when tapping for 1-1/2 inch or 2 inch service lines.

C. Tapping saddles shall seal with pipe by an O-ring gasket virgin nitrile (Buna-N, NBR).

D. Saddle outlet to pipe shall be flanged or tapped with pipe threads.

E. Acceptable Manufacturers: Acceptable manufacturers are as follows:

- Smith Blair - 313 with 015 stainless steel bales (4" to 16") for 2" iron pipe threads
- Smith Blair - 366 with 015 stainless steel straps (18" to 40") for 2" iron pipe threads
- Smith Blair – 372 for pipe diameters 4 inches through 12 inches

- Powerseal – 3412AS for pipe diameters 3 inches through 12 inches
- Powerseal – 3416AS for pipe diameters 14 inches through 36 inches
- Ford Meter Box– FS 303
- Romac - 306 for pipe diameters 3 inches through 12 inches
- Romac - 305 for pipe diameters 14 inches through 24 inches
- Other Approved

SECTION 7: WATER METERS

7.01 Residential, Irrigation and Light Commercial

A. Water meters shall be positive displacement type with oscillating piston or rotating disk having a magnetic drive conforming to AWWA C-700 and a sealed register conforming to AWWA C-707.

B. Meters shall be capable of operating up to a working pressure of 150 psi and have an operating flow range shown on the following table.

TABLE 7-1

METER REQUIREMENTS

Size	*Operating Flow Range*	*Low Flow Registration*
5/8"	0.25 to 25 gpm	98.5% at ¼ gpm
¾"	0.75 to 35 gpm	97% at 3/8 gpm
1"	1.25 to 70 gpm	95% at ¾ gpm
1-½"	2.5 to 120 gpm	95% at 1-1/4 gpm
2"	2.5 to 170 gpm	95% at 2 1/2 gpm

C. Meter outer case shall be constructed of Water Works bronze (minimum 75% copper content) and shall be split case. External fasteners shall be corrosion resistant.

D. The size of the meter and a flow direction arrow shall be cast in raised figures on the outer casing. The manufacturer's serial number shall be permanently affixed to the outer case and shall be visible from the topside.

E. The sealed register shall be of the straight reading type and have a full test dial on the face. The register shall be fitted with an external or internal locking device so that the register can only be removed with specialized tools.

F. Meters shall have a corrosion resistant strainer that is easily removed without the meter itself being disconnected from the service line.

G. The register shall measure flow in gallons and shall be read by visual inspection and remote data relay. The electronic register shall be provided to function with reading devices as manufactured by Itron.

H. Meter connections to 5/8 inch and one (1") inch service lines shall be with a meter spud. Meter connections to 1-1/2 inch and two (2") inch service lines shall be with a two (2) bolt flange.

I. Acceptable Manufacturers: Acceptable manufacturers should be integrated and are acceptable as follows:

- Hersey

7.02 Commercial and Industrial

A. Water meters shall be Class I or II turbine type with magnetic drive, reduction gearing and straightening vanes conforming to AWWA C-700 and the register shall be permanently hermetically sealed conforming to AWWA C-707.

B. Meters shall be capable of operating up to a working pressure of 150 psi and have an operating flow range shown on the following table.

TABLE 7-2

METER OPERATION

Size	*Operating Flow Range (gpm)*	*Low Flow Registration*
* 1-½"	4 to 200	98.5% at 2.5 gpm
* 2"	4 to 310	95% at 2.5 gpm
3"	5 to 550	95% at 4 gpm
4"	4 to 1,250	95% at 2.5 gpm
6"	4 to 2,500	95% at 2.5 gpm
8"	4 to 4,500	95% at 2.5 gpm
10"	4 to 7,000	95% at 2.5 gpm

* For fire service in building and irrigation service only.

C. Meter outer case shall be constructed of Water Works bronze (minimum 75% copper content) and shall be split case. External fasteners shall be corrosion resistant.

D. The size and model of the meter and a flow direction arrow shall be cast in raised figures on both sides of the outer casing. The manufacturer's serial number shall be permanently affixed to the outer case and shall be visible from the topside.

E. Meters shall have a separate measuring chamber that shall be easily removable from the outer case. The measuring chamber shall be constructed of Water Works bronze (minimum 85% copper content).

F. The register shall be of the straight reading type and have a full test dial on the face. The register shall be fitted with an external or internal locking device so that the register can only be removed with specialized tools.

G. The register shall measure flow in gallons and shall be read by visual inspection and remote data relay. The electronic register shall be provided to function with reading devices as manufactured by Itron.

H. The meter shall have internal straightening vanes installed on the meters inlet. The straightening vanes shall be easily removable. The straightening vanes shall not be cast as part of the main case or molded as part of the measuring chamber.

I. The meter shall be equipped with either an internal or external strainer as shown in the following table and detailed in items "K" and "L".

TABLE 7-3

METER STRAINERS

Meter Strainer Size	*Strainer Configuration*
1-½" to 4"	Internal with Test Port
1-½" to 4"	External Bronze
6" to 10"	External Ductile Iron/Cast Iron

J. Where meters are equipped with an internal strainer, the strainer shall be cast as part of the meter's main case. The internal strainer screen and cover plate shall be located at the meter's inlet between the inlet flange and measuring chamber. The internal strainer screen shall be of the V-shape design and externally accessible without disturbing the meter's pipeline setting or measuring chamber assembly. A test port of adequate capacity shall be located on the meter's main case adjacent to the outlet flange. The strainer shall be listed by UL and approved by FM.

K. Where meters are equipped with an external strainer, the strainer and cover plate shall be located at the meter's inlet between the inlet flange and measuring chamber. The strainer screen shall be of the V-shape design and accessible without disturbing the meter's pipeline setting or measuring chamber assembly. The strainer shall be listed by UL and approved by FM.

L. Meter connection to the service line shall be flanged, Class 125# and conform to ANSI 16.1 for diameter, drilling pattern and thickness. Where companion flanges are required, flanges shall be cast iron and tapped with American Standard internal taper pipe threads. Bolts, nuts and gaskets associated with companion flanges shall be provided for connection to the meter only.

1. Acceptable Manufacturer: Hersey

7.03 Fire Service

A. Water meters shall be Class II turbine type with magnetic drive, reduction gearing and straightening vanes conforming to AWWA C-703 and the register shall be permanently hermetically sealed conforming to AWWA C-707.

B. Meters shall be capable of operating up to a working pressure of 150 psi and have an operating flow range shown on the following table.

TABLE 7-4 METER FLOW RANGE		
Size	*Operating Flow Range (gpm)*	*Low Flow Registration*
4"	10 to 1,250	95% at 6 gpm
6"	20 to 2,500	95% at 15 gpm
8"	30 to 4,500	95% at 20 gpm
10"	50 to 7,000	95% at 30 gpm

C. Meter outer case shall be constructed of Water Works bronze (minimum 75% copper content) and shall be split case. External fasteners shall be corrosion resistant.

D. The size and model of the meter and a flow direction arrow shall be cast in raised figures on both sides of the outer casing. The manufacturers' serial number shall be permanently affixed to the outer case and shall be visible from the topside.

E. Meters shall have a separate measuring chamber that shall be easily removable from the outer case. The measuring chamber shall be constructed of Water Works bronze (minimum 85% copper content).

F. The register shall be of the straight reading type and have a full test dial on the face. The register shall be secured by means of a locking device located in the interior of the outer case so that the register can only be removed with specialized tools.

G. The register shall measure flow in gallons and shall be read by visual inspection and remote data relay. The electronic register shall be provided to function with reading devices as manufactured by Itron.

H. The meter shall have internal straightening vanes installed on the meters inlet. The straightening vanes shall be easily removable. The straightening vanes shall not be cast as part of the main case or molded as part of the measuring chamber.

I. The meter shall be equipped with an external strainer as listed by UL and approved by FM. The strainer assembly shall be ductile iron and located upstream of the meter's inlet flange. The strainer screen shall be stainless steel and V-shape design. The strainer screen shall have a net open area at least four (4) times that of the pipe opening. The strainer screen shall be accessible without disturbing the meter's pipeline setting or measuring chamber assembly.

J. Meter connection to the service line shall be flanged, Class 125# and conform to ANSI 16.1 for diameter, drilling pattern and thickness. Where companion flanges are required, flanges shall be cast iron and tapped with American Standard internal taper pipe threads. Bolts, nuts and gaskets associated with companion flanges shall be provided for connection to the meter only.

K. Acceptable Manufacturer: Hersey

7.04 Fire/Domestic Combination Service

A. The fire portion of the combination service shall comply with Division III, Section 7.03.

B. The domestic portion of the combination service shall comply with Division III, Section 7.01 and be accomplished via by-pass piping. By-pass piping shall be brass with threaded connections. Domestic service piping shall be 1-1/2 inches in diameter for a four (4) inch fire service. Domestic service piping shall be two (2) inches in diameter for a six (6) inch and larger fire service.

C. The by-pass assembly shall be fitted with a bronze bodied check valve situated immediately downstream of the meter. The check valve shall be UL listed and approved by FM. The use of electronic switching devices or spring loaded check valves shall be prohibited.

D. The by-pass assembly shall be fitted with two (2) lockable bronze bodied ball valves; one (1) situated upstream of the meter and one (1) situated downstream of the check valve.

7.05 Water Meter Boxes (Residential and Light Commercial)

A. Meter assemblies ranging in size from 5/8 inch to two (2) inches shall be housed in meter boxes manufactured from high-density polyethylene or fiber reinforced plastic.

B. Meter box lids shall be fiber reinforced plastic. Minimum outside dimensions of the lid shall be 16-5/8 inches by 11-7/16 inches. Down legs on each corner shall be a minimum of 1-1/2 inches long.

C. Acceptable Manufacturers:

- D/FW Plastics.
- CDR – 24 inches by 60 inches for 1-1/2 inch and 2 inch meter assemblies.
- Other Approved.

7.06 Water Meter Vaults (Commercial and Industrial)

A. Vaults shall be constructed of precast concrete.

B. Vaults shall be designed to withstand a minimum H-10 Live Load. Additional design strength may be required.

C. Vaults for 3-inch and larger meter/back flow assemblies shall have a minimum 18" clearance between any flanges, piping, valves, meters and all walls. The minimum depth shall be 6 feet.

D. Meter vaults shall have a minimum six (6") inch thick concrete reinforced base slab. A 12 in x 12 in drain opening shall be cast in the slab. The drain shall be serviced by a 12 inch bed No. 57 stone wrapped with geofabric. The bed of No. 57 stone shall extend to the edges of the excavation.

E. Vaults constructed of concrete block are prohibited.

F. Vaults shall be constructed of polymer concrete, precast concrete or cast-in-place concrete.

G. Where vaults are constructed of pre-cast or cast-in-place concrete, the walls shall be a minimum of six (6) inches thick and steel reinforced. Wall reinforcing shall be tied to the slab reinforcing.

Vaults shall be covered with a removable pre-cast concrete cover. The cover shall be a minimum of six (6") inches thick and steel reinforced. Cover shall be sealed to top of walls using neoprene gasket material.

H. Where two (2) pre-cast vaults are situated together to form one (1) larger vault, each of the two (2) vaults shall have a separate cover.

I. An aluminum access hatch, minimum 36 inches by 36 inches in size shall be cast in the cover slab. The access hatch shall be situated as shown on details.

J. Bottom side of the meter assembly shall have a minimum twelve (18") inch clearance from the top of the floor slab.

K. Meter assembly shall be supported at a minimum of two (2) points by galvanized pipe saddles. Backflow assembly shall be supported at a minimum of one (1) point by galvanized pipe saddles. Pipe saddles shall be capable of carrying the weight of the assembly. Pipe saddle height shall be adjustable via screw jack. Pipe saddle shall have a minimum four (4") inch square base, one-quarter (¼") inch thick.

L. Pipe penetrations (annulus between concrete and outside face of pipe) shall be sealed with a mechanical type rubber modular seal or seal approved by the City Engineer such as LinkSeal.

M. Vault cover shall extend three (3") inches above finished grade.

7.07 Vault Access Hatches

A. Vault access shall be via aluminum double hatch having a minimum clear opening of 36 inches by 36 inches. Clear opening dimensions may be increased.

B. Access shall be rated to withstand a minimum H-10 Live Load. Design strength of access hatch may be increased.

C. Access hatch shall have a manual locking arm device to prevent hatch lids from closing.

D. Access hatch shall be capable of being secured using a keyed lock.

SECTION 8: HYDRANTS

8.01 Fire Hydrant

A. Fire hydrants shall be of the compression type, closing with line pressure, complying with AWWA C502 for 150 psi working pressure and NFPA, latest applicable revision.

B. Hydrants shall have a 5-¼ inch main valve and a non-freeze design with an automatic drain that closes fully when main valve is opened.

C. Hydrants shall be furnished having factory burying depths of 4'-6" or 5'-0". Deeper burying depths shall be accomplished using extension kits provided by same manufacturer. Break-away device shall be situated ± three (3") inches from finished grade.

D. Hydrant standpipe, fittings and upper barrel shall be ductile iron. Parts designed to break away may be cast iron.

E. Hydrant bolts below ground level shall be stainless steel.

F. Hydrant lead to main line connection shall be mechanical joint with thrust blocking or restrained joint.

G. The means of attaching the barrel to the standpipe shall permit 360° rotation of the barrel.

H. Hydrant barrel shall break away from the standpipe at an elevation above ground level without causing damage to the standpipe and stem. When barrel is broken away, internal valve shall function and repairs shall be permitted without excavating or turning off water supply.

I. Hydrants shall be bronze mounted and all internal working parts shall be bronze. Valve seat shall screw into retainer. However, stainless steel is preferred.

J. Internal working parts shall be removable without disturbing the barrel.

K. The operating nut situated atop the hydrant shall be hexagonal and constructed of ductile iron or cast iron and open in a counter clockwise direction. The threads shall be enclosed in an operating chamber separated from the hydrant barrel by a rubber O-ring stem seal lubricated by a grease or oil reservoir.

L. Hydrant shall be equipped with two 2-1/2 inch threaded (7.5 threads per inch) hose connections and one 4-1/2 inch threaded (4 threads per inch) hose connection. Hose and pump connections shall be threaded and pinned to seal the connection to the barrel. Threads shall comply with National Standard Threads. Each connection shall be equipped with a cap and chain.

M. Hydrants shall have all stainless steel stems.

N. Acceptable Manufacturers: Approved manufacturers must produce only ductile iron fire hydrants. Acceptable manufacturers are as follows:

- American - Darling
- Mueller Company
- M&H

8.02 Yard Hydrant

A. Yard hydrant shall be self-draining, non-freeze and operated by lever handle. Lever handle shall be capable of being secured with a keyed lock.

B. Yard hydrant shall be fitted for a standard three-quarter (¾") inch hose connection.

C. Exterior casing shall be schedule 40 galvanized steel and internal operating parts shall be of bronze and the plunger shall be neoprene.

D. Acceptable Mansufacturers: Acceptable manufacturers are as follows:

- Josam Series 71450
- Murdock
- Approved equal

SECTION 9: MANHOLES AND WET WELLS

9.01 General

A. Manholes and wet wells shall be cylindrical and constructed of steel reinforced pre-cast concrete or other concrete structure approved by the City Engineer.

B. Manholes shall have a minimum inside diameter of four (4') feet and be fitted at grade with a cast iron ring and cover.

C. Wet wells shall have a minimum inside diameter of six (6') feet and be accessed via an aluminum hatch that shall be lockable, and a minimum opening of 60" x 60".

D. An existing or newly installed manhole intersected by a sanitary sewer force main and the next downstream manhole shall be lined in accordance with Division III, Section 12 "Environmental Coatings".

E. A newly installed lift station wet well and underside of slab over wet well shall be lined in accordance with Division III, Section 12 "Environmental Coatings".

9.02 Pre-cast

A. Pre-cast sections shall be manufactured, tested and marked in accordance with ASTM C478.

B. Minimum compressive 28-day strength of concrete in all sections shall be 4,000 psi.

C. Maximum allowable absorption of moisture by concrete shall not exceed 8% of dry weight.

D. Pre-cast sections shall consist of a base section, riser section and eccentric cone top or flat slab top section, as conditions require. Top cone section of manhole housing for an air release valve shall be concentric. The sections shall form a continuous uniform assembly.

E. Joints between each section shall be tongue and groove type sealed with a preformed gasket meeting requirements of Federal Specification SS-S-00210, "Sealing Compound, Preformed Plastic for Pipe.

F. Each section shall have no more than two (2) holes for purposes of handling. The holes used for handling shall be tapered and shall be plugged with rubber stoppers or grout after installation.

G. Pipe openings in sections shall be fitted with an integrally cast flexible rubber boot or other approved flexible joint connector. A manufacturer supplied stainless steel band shall be used to seal boot to pipe.

H. Manhole sections shall be fitted with solid cast iron steps of standard pattern conforming to ASTM A-48 or polypropylene plastic coated steel steps conforming

to ASTM A615 and ASTM D-4101 and shall be integrally cast into manhole sections. Steps shall be twelve (12") inches wide and spaced at 1'0" on center.

I. Wet well sections shall not be fitted with steps.

J. Manhole base section's invert shall be constructed of cast-in-place concrete or brick and mortar. Invert shall have a "U" shaped channel that matches inverts of the influent and effluent pipes. Invert shelf above "U" shaped channel shall have a minimum 12:1 slope.

9.03 Precast "Dog House"

A. Precast and cast-in-place "Dog House" Manholes shall comply with this section.

B. Dog house opening shall be precast by the manufacturer. Field cutting-in dog house opening shall be prohibited.

C. Size of dog house opening shall be as recommended by the manhole manufacturer.

D. Annulus between pipe and opening shall be grouted water tight with non-shrink grout.

E. Dog house manholes used in gravity sewer shall have a reinforced concrete bottom slab. Dog house manholes used for air and vacuum release valves shall have gravel bottom.

9.04 Brick and Mortar

A. Brick used as part of manhole construction shall be either solid or cored, medium hard or better, Grade MA conforming to ASTM C-32 for sewer and manhole brick.

B. Mortar used as part of manhole construction shall be comprised of one (1) part Portland cement to two (2) parts clean sand. The sand shall conform to ASTM C-144.

C. Water shall be clean, potable and free from deleterious amounts of alkalis, acids and organic matter.

9.05 Frames and Covers

A. Manhole rims, toe pockets, frames and covers shall be cast iron conforming to ASTM A-48 for Class 35B Gray Iron Castings.

B. Manhole frames and covers shall be a nominal twenty-four (24") inches in diameter and weigh not less than 370 pounds.

C. Manhole covers shall have the word "SEWER", cast on top in letters two (2") inches high.

D. Manhole frames and covers shall be thoroughly cleaned and painted or coated with a bituminous paint. Defective castings that have been plugged or otherwise treated shall not be used.

E. Manhole covers required to be bolt-down shall be secured with not less than four (4) stainless steel bolts as provided by the manufacturer.

F. Covers situated in paved areas shall be raised to finished grade using no more than five (5) courses of brick and mortar.

G. Covers situated in non-paved areas shall be integrally cast in the top cone section.

H. Acceptable Manufacturers:

- Us Foundry, Model: 223 BN
- Neenah, Model: R-1423-BN
- East Jordan, Model: V1349

SECTION 10: CAST-IN-PLACE CONCRETE

10.01 Concrete Design

A. Concrete mix design shall be in accordance with ACI 318-89.

1. 28-Day Strength: 4,000 psi, unless otherwise noted.
2. Type: Normal Weight
3. Slump Range: 3 inch to 5 inch
4. Weight: 135 pcf to 160 pcf
5. Air Content: 5% to 7%
6. Water-Cement Ratio: 0.45 Maximum
7. Fly Ash: If Type I cement is used
8. Chlorides: Do Not Use
9. The use of admixtures shall require the approval of the City Engineer

B. Concrete materials shall be in accordance with applicable ASTM standards.

1. Portland Cement: Meeting ASTM C150, Type I/II natural color, domestic manufacturer. Use only one brand of cement throughout project.
2. Fine Aggregates: Meeting ASTM C33-86.
3. Coarse Aggregates: Meeting ASTM C33-86, No. 57 Stone.
4. Water: Clean, potable and free from deleterious amounts of alkalis, acids and organic matter.

10.02 Reinforcement

A. Reinforcement bars shall be in accordance with ASTM A615, Grade 60, deformed.

B. Welded wire fabric shall be in accordance with ASTM A185. Use size as indicated on drawings.

C. Bar supports, chairs and spacers shall comply with the CRSI Manual for Placing Reinforcing Bars.

D. Reinforcement shall be secured in proper position using No. 16-1/2 or No. 16 gauge black soft-annealed wire.

10.03 Formwork

A. Forms shall be as follows.

1. Pre-engineered steel
2. Pre-engineered reinforced fiberglass

3. Lumber: No. 2 Southern Yellow Pine
4. Plywood for exposed finish: HDO-EXT-APA overlay plywood or B-B Plyform-EXT-APA
5. Plywood for unexposed finish: C-C Ext-APA
6. Earth, provided earth is dry, level and stable.

B. Form ties shall be break-back type with 5/8 inch removable vinyl sleeve or one (1") inch diameter break-back cone type.

10.04 Curing and Sealing Compounds

A. Moisture retaining cover shall meet ASTM C171-69 (1980): Waterproof paper, polyethylene film or burlap.

B. Curing and sealing compound shall meet ASTM C309-81, Type 1, Class B: Clear acrylic base.

10.05 Epoxy Bonding Agent

A. The use of an epoxy, bonding agent shall require the approval of the City Engineer.

B. A bonding agent shall be used during the placement of reinforcing steel into existing concrete and shall be of a two (2) component, 100% epoxy resin adhesive system.

10.06 Acrylic Latex Bonding Agent

A. The use of an acrylic, latex, bonding agent shall require the approval of the City Engineer.

B. A bonding agent shall be used as an aid in applying a concrete surface patch or finish to existing concrete and shall be an acrylic polymer emulsion base chemical bonding system.

SECTION 11: MASONRY AND GROUT

11.01 Mortar and Grout Materials

A. Portland Cement shall meet ASTM C150, Type I, natural color, domestic manufacturer. Use only one brand of cement throughout project.

B. Masonry cement shall meet ASTM C91-89, non-staining, 22% maximum air content by volume.

C. Hydrated lime shall meet ASTM C207-79 (1988), Type S.

D. Aggregates for mortar shall meet ASTM C144-87 and ASTM C404-87, size 2 natural and shall be clean, hard and washed sand.

E. Aggregates for cement grout shall meet ASTM C404-87, fine aggregate, size 1.

F. Water reducing and plasticizing admixtures are acceptable.

G. Admixtures containing calcium chloride shall be prohibited.

H. Water shall be clean, potable and free from deleterious amounts of alkalis, acids and organic matter.

I. Non-shrink Grout: Submit products for approval by City Engineer.

11.02 Mortar and Grout Proportions

A. Proportion materials by volume in accordance with ASTM C270-88a or as follows:

1. Mortar: One (1) part Masonry cement to ½ part Portland cement to aggregate proportioned at not less than 2-1/4 nor more than three (3) times the volume of cementious material used.

2. Grout: One (1) part Portland cement and ¼ to ½ parts hydrated lime to aggregate proportioned at not less than three (3) times the combined volume cement and lime used.

11.03 Concrete Masonry Units

A. Concrete masonry units shall be in accordance with ASTM C90-85, light-weight, Grade N, Type 1.

B. Concrete masonry units shall have a nominal face dimension of 8" x 8" x16" or 8" x 12" x16".

C. Concrete masonry units shall have a minimum compressive strength of 2,500 psi, based on net area.

D. Concrete masonry units damaged in any manner shall not be used.

11.04 Joint Reinforcement

A. Horizontal joints between concrete masonry units shall be reinforced as follows:

1. Use cold drawn wire meeting ASTM A82-88.
2. Longitudinal rods shall be nine (9) gauge galvanized deformed wires with nine (9) gauge galvanized cross wires welded to form triangular style pattern.
3. Width of reinforcement shall be two (2") inches less than the total wall thickness.
4. Provide reinforcement in ten (10') foot lengths with prefabricated corners and tees at intersecting walls of same design and finish.

SECTION 12: ENVIRONMENTAL COATINGS

12.01 Materials Requiring Coatings

A. Materials for buried surface shall be coated as indicated in their respective section.

B. The following materials shall have exterior coatings manufacturer applied or field applied.

1. Piping and appurtenances
2. Supports
3. Pumps
4. Valves
5. Equipment and appurtenances

C. The following materials shall be lined by the manufacturer or field applied:

1. Manhole intersected by a sanitary sewer force main and next downstream manhole.
2. Lift station wet well and slab area above wet well.

12.02 Coating Schedule

A. Non-Submerged Ferrous Metal

Minimum Surface Preparation: SSPC – SP6

Generic System Type: Aliphatic Polyurethane

Coat No.	Induron		Tnemec	
	DFT	Product	DFT	Product
1	3.0	P-14	2.0	#69
2	3.0	Armorgaurd	2.0	#69
3	2.0	5500	2.0	#74

B. Submerged Ferrous Metal

Minimum Surface Preparation: SSPC – SP10

Generic System Type: Polyamide Epoxy

Coat No.	Induron		Tnemec	
	DFT	Product	DFT	Product
1	5.0	PE-54	5.0	#20 P-Pox

2	5.0	PE-54	5.0	#20 P-Pox

C. Non-Submerged Non-Ferrous and Galvanized Metal

Minimum Surface Preparation: SSPC – SP6 (non-ferrous); SP1 (galvanized)

Generic System Type: Aliphatic Polyurethane

Coat No.	Induron		Tnemec	
	DFT	Product	DFT	Product
1	0.5	VW Prime	5.0	#69
2	2.0	5500	2.0	#74

D. Submerged Non-Ferrous and Galvanized Metal

Minimum Surface Preparation: SSPC – SP10 (non-ferrous); galvanized per coating manufacturer.

Generic System Type: Polyamide Epoxy

Coat No.	Induron		Tnemec	
	DFT	Product	DFT	Product
1	0.5	VW Prime	5.0	#69-1211
2	5.0	PE-54	5.0	#69

E. Acceptable Manufacturers: Acceptable manufacturers are as follows:

- Induron
- Tnemec
- Carboline
- Sherwin Williams

12.03 Manhole and Wet Well Lining

C. Line existing concrete manhole with a modified aliphatic amine epoxy mortar or aggregate filled epoxy coating system or other coating system approved by the City Engineer.

D. Materials required for concrete surface preparation/restoration, lining and finishing shall be supplied by the same manufacturer.

E. Line new manhole, wet well and underside of slab over wet well with an integrally cast polyvinyl chloride or high density polyethylene liner.

F. Acceptable Manufacturers: Acceptable manufacturers are as follows:

- Madewell Mainstay ML-72 Microsilica and DS-5 Epoxy
- Raven 705 CA Calcium Aluminate and 405 Epoxy
- Sewpercoat
- A-LOK Products, Inc. - Duraplate 100 (new manhole, wet well, slab integrally cast liner)
- Agru America - AGRU Sure Grip (new manhole, wet well, slab integrally cast liner) as approved.

SECTION 13: MISCELLANEOUS MATERIALS

13.01 Stabilization Stone

A. Stabilization stone shall be No. 57 size and conform to ASTM C33-78 unless noted otherwise.

B. Maximum stone size shall be 1-½ inches unless noted otherwise.

C. Stone shall be clean, tough, uniform quality, durable fragments of crushed rock, free from flat, elongated, soft or disintegrated pieces, or other objectionable matter occurring either free or as coating on stone.

13.01 Detectable Underground Utility Marking Tape

A. Wire shall have a minimum overall gage of 10 gauge mils.

B. Tape shall be color coded in accordance with the American Public Works Association as follows:

1. "Blue" for potable water and associated lines.

2. "Green" for sanitary sewer and associated lines.

3. Acceptable Manufacturers: Acceptable manufacturers as approved.

13.02 Other Materials

Materials not covered in Division III, Material Requirements shall be in accordance with the approved plans.

SECTION 1: GENERAL

1.01 Contractor

A. A licensed Utility Contractor shall install any underground utility or component thereof.

B. Prior to commencing construction activities on a City approved project, the City Clerk or System Superintendent shall receive a copy of the Utility Contractor's License.

1.02 Utility Notification

A. The Official Code of Georgia, Title 25, Chapter 9 requires that existing utilities be located in the proposed work area prior to commencing any clearing, grading or excavation activity.

B. The Utilities Protection Center can be reached at 811.

C. The Utilities Protection Center shall be notified at least three (3) business days prior to commencing work.

1.03 Work Commencement

A. Clearing and grubbing activities shall not commence on any project until local issuing authority has issued a Land Disturbance Activity Permit.

B. Work on a water distribution system and/or sanitary sewerage system shall not begin until the City approves the development plans.

C. The City Engineer shall receive a 48-hour notice prior to commencing construction activities on a water distribution system and/or sanitary sewerage system.

D. A set of plans stamped approved by the City shall be present on the job site during all phases of construction of the water distribution system and/or the sanitary sewerage system.

E. The installation of water distribution piping shall not begin until curb and gutter has been installed, if applicable.

1.04 Miscellaneous Standards:

Construction standards not covered in Division IV, Construction Standards, shall be in accordance with the approved plans. Construction should comply with the Department of Labor, Occupational Safety and Health Administration, 29 Code of Federal Regulations Part 1926, Subpart P, and revised July 1, 1995.

SECTION 2: MATERIAL DISTRIBUTION

2.01 General

A. Work covered by this section shall include all labor, equipment and accessories required to distribute material.

B. All materials installed as part of an extension to the existing water distribution system and sanitary sewerage system shall be new.

2.02 Delivery:

Equipment and facilities shall be furnished for unloading and distributing pipe, equipment and materials.

2.03 Handling

A. Pipe shall be handled by use of forklift or excavator using choker straps or cable.

B. Any pipe, equipment or material dropped or dumped during handling procedures shall be subject to rejection by the City without further justification.

2.04 Storage

A. Pipe shall not be strung more than 1,000 feet beyond the point where pipe is being laid.

B. Drainage ditches shall not be obstructed.

C. Necessary arrangements shall be made to store pipe, fittings, valves and accessories that cannot be distributed along the route.

2.05 Maintenance and Protection

A. The contractor shall be responsible for maintenance and protection of all pipe, equipment and material.

B. All equipment shall be boxed, crated or otherwise completely enclosed and protected during transportation, handling and storage.

C. Equipment shall be stored above ground level and adequately supported on wood blocking or other approved support material.

D. All equipment shall be protected from exposure to elements and shall be kept dry at all times.

E. Pumps, motors, valves, control panels, instrumentation, electrical equipment and other equipment having anti-friction or sleeve bearings shall be stored in a weather-tight enclosure which is maintained at a minimum air temperature of 60°F.

F. Any pipe, equipment or material damaged by impact, vibration, abrasion, discoloration or other damage shall be repaired in accordance to manufacturer instructions or replaced at the discretion of the City.

SECTION 3: SITE PREPARATION

3.02 Clearing and Grubbing

A. Prior to commencing clearing activities, areas designated by the plans to be cleared shall be demarcated using survey ribbon, stakes or other suitable means.

B. In areas to be cleared, all trees, stumps, buried logs, brush, grass and other unsatisfactory materials shall be removed.

C. Trees to remain in or near work area shall be protected from clearing activities.

D. All damaged trees over three (3") inches in diameter shall be repaired by an experienced nursery expert.

E. Tap roots and other projections exceeding 1-inch in diameter shall be grubbed out to a depth of at least 18 inches.

F. All holes remaining after grubbing activities shall be filled with suitable material and properly compacted in layers to density required for in-place backfill.

G. All materials cleared and grubbed shall be disposed of off-site in accordance with applicable local, state and federal regulations.

H. Burning of any material or debris shall not be permitted on City property.

I. Prior to and upon completion of clearing and grubbing activities, install erosion control and sedimentation measures as identified on the Erosion Control and Sedimentation Plan prepared by the Design Engineer.

J. Prior to commencing any other job site activity, installed erosion control and sedimentation measures shall be inspected and approved by the local issuing authority.

3.03 Topsoil Stockpiling

A. Remove topsoil to full depth encountered in areas to be graded and stockpile soil and install erosion control devices as indicated on drawings.

B. Soil shall be placed such that the integrity of an excavation or proposed excavation is not jeopardized.

C. Soil shall not be stockpiled against tree trunks.

D. Stockpile shall be shaped to drain.

3.04 Removing Pavement

A. Removal of pavement shall be performed so as not to endanger roadway activity. Work shall be coordinated and be in compliance with the appropriate road and highway agencies.

B. Pavement shall be marked squarely and neatly to size of excavation.

C. Pavement shall be scored and broke along the marked lines using a rotary saw and jackhammer. Pavement shall not be machine pulled for initial brake.

D. Upon removal, pavement shall be loaded and disposed of off-site.

E. Adjacent pavement damaged during construction shall be removed as described above.

F. Driveways and sidewalks shall be removed to their full width from the edge of curb or road pavement to the nearest construction/control joint.

G. Curbs shall be removed for the entire length from control joint to control joint.

SECTION 4: EXCAVATION

4.01 Standards

The following publications, referred to hereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto:

- ASTM D448 "Standard Classification for Sizes of Aggregate for Road and Bridge Construction."
- ASTM D698 Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
- ASTM D1556 Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
- ASTM D2487 Classification of Soils for Engineering Purposes (Unified Soil Classification System)
- ASTM D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- ASTM D3017 Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
- ASTM D4253 Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
- ASTM D4254 Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density

Any other testing required by these specifications and not specifically referenced to a standard shall be performed under ASTM or other appropriate standards as designated by the Engineer.

Reference herein or on the drawings to soil classifications shall be understood to be according to ASTM D2487, Classification of Soils for Engineering Purposes (Unified Soil Classification System).

4.02 Definitions

A. Maximum Density: Maximum weight in pounds per cubic foot of a specific material.

B. Optimum Moisture: Percentage of water in a specific material at maximum density.

C. Muck: Materials unsuitable for foundation because of organic content, saturation to the extent that it is somewhat fluid and must be moved by dragline, dredge or other special equipment are designated as muck.

D. Unsuitable Material: Earth material unsatisfactory for its intended use and as classified by the soils technicians. In addition to organic matter, sod, muck, roots and rubbish, highly plastic clay soils of the CH and MH descriptions and organic soils of the OL and OH descriptions, as defined in the United Soil Classification System shall be considered as unsuitable material.

E. Suitable Material: Earth or materials designated as being suitable for their intended use by soils technicians or the soils engineer. Suitable material shall be designated as meeting the requirements of the Unified Soil Classification System types SW, GW, GC, SC, SM, ML, CI or as designated in these specifications.

F. Select Material: Granular material to be used where indicated on the drawings or where specified herein consisting of soils conforming to the Unified Soil Classification types SW, SM, GW or GM or as otherwise approved by the Engineer as select fill. Select material shall contain no stones or rubble larger than 1 ½ inch in diameter.

G. Crushed Stone (Gravel): No. 57 aggregate or equal conforming to ASTM C-33.

H. Excavation: Excavation of every description regardless of materials encountered.

4.03 Soil Excavation

A. Excavation shall include those measures necessary to establish grades indicated on drawings for utilities, structures and appurtenances.

B. Excavated soil shall be placed in a location such that the integrity of the excavation is not jeopardized.

C. Excavation walls shall be sloped or stepped in accordance with recognized industry standards.

D. The Contractor shall assume the responsibility for design and construction of excavation shoring and bracing capable of supporting excavations and construction loads.

E. The excavation shall provide space for foundation work and inspection.

F. Excavations shall be covered in accordance with applicable regulations and/or barricaded and roped-off with identifying tape during work progress.

4.04 Dewatering Trenches

A. Where groundwater is encountered, the Contractor shall make the effort necessary to secure a dry trench bottom before laying pipe.

B. In sandy and in other suitable type soils, dewatering shall be done by well pointing.

C. If, in the opinion of the Engineer, the Contractor has failed to obtain an absolutely dry trench bottom by insufficient use of all known methods of trench dewatering,

the Engineer may order the Contractor to excavate below grade and place not less than 6 inches of graded crushed stone fill material over the trench bottom to form trench drains to suitable located sumps and the water removed by bailing or pumping.

D. The graded crushed stone fill material shall be of such depth that there shall be no water in bell holes at the time of coupling pipe.

E. All unsuitable excavated material must be properly disposed of in a manner acceptable to the Engineer and in a manner that will not adversely impact the environment.

4.05 Crushed Stone Stabilization

A. Wherever the subgrade is by nature too soft or mucky, in the opinion of the Engineer, for the proper installation of the pipe, he may order the Contractor to undercut the trench and backfill with crusher run stone or crushed stone ¾-inch in size and less. The stone shall be brought to the subgrade required by the class of bedding for the particular location and compacted.

B. All unsuitable excavated material must be properly disposed of in a manner acceptable to the Owner public works department in a manner that will not adversely impact the environment.

4.06 Rock Excavation

A. Excavation shall include those measures necessary to establish grades indicated on drawings for utilities, structures and appurtenances.

B. Rock shall be excavated to a minimum depth of six (6") inches below grades indicated on drawings.

C. The Contractor shall be responsible for determining methods required for removal of rock or hard materials.

D. Perform blasting only after receiving written approval from the City Engineer and regulatory agencies.

E. A licensed explosive contractor shall perform blasting operations.

F. Blasting operations shall be conducted in accordance with all local, state and federal regulations.

G. Excavated rock shall not be used as backfill in the pipe trench.

4.07 Pipe Trench Excavation

A. Pipe trenching shall comply with excavation and rock excavation specifications.

B. Trench should be excavated to natural undisturbed soil.

C. Where unsuitable material is encountered, over excavate through unsuitable material and backfill to required grade with No. 57 stone. The City Inspector shall determine depth of over excavation.

D. Where encountered, remove rock to a minimum of six (6") inches below required bottom of trench elevation and backfill to required grade with No. 57 stone.

E. Bottom of trenches shall be prepared so that the entire length of the pipe barrel is supported.

F. Maintain trenches dry at all times using pumps, well points or other dewatering means.

G. Limit trenching to not greater than 300 feet ahead of completely backfilled work.

H. In populated areas, cover or barricade open trenches until completely backfilled.

I. Open trenches shall be made safe at all times.

SECTION 5: INSTALLATION

5.01 Pipe Bedding

A. PVC sewer shall be laid atop a minimum of four (4") inches of No. 57 stone. No. 57 stone shall be extended to the top of pipe. Stone shall be shovel sliced from beneath the pipe up to one-half (½) the pipe diameter. Bedding of PVC pipe shall be in accordance with ASTM D2321 as amended to date.

B. DIP shall be bedded according to details No. 8.1 for water and No. 8.2 for sewer.

C. Valves shall be laid atop a minimum of eight (8") inches of No. 57 stone. No. 57 stone shall be extended up to one-third (1/3) the valve diameter. Stone shall extend twelve (12") inches in all directions of valve. Stone shall be shovel sliced.

D. Fire hydrants shall be set atop a minimum of eighteen (18") inches of No. 57 stone. Stone shall extend up six (6") inches above drain holes. Stone shall extend eighteen (18") inches to the sides of the hydrant.

E. Yard hydrants shall be set atop a minimum of six (6") inches of No. 57 stone. Stone shall extend up six (6") inches above drain hole. Stone shall extend twelve (12") inches to the sides of the hydrant.

F. Class D Bedding is not allowed for use with gravity sewers.

G. Class I materials shall be used for bedding and haunching in all conditions. Class II, III, IV and V materials will not be permitted for bedding and haunching under any condition.

H. Bedding material shall be used to provide uniform longitudinal support for the pipe. Trench shall be undercut to allow for a minimum of six inches (6") of bedding material. Bell holes shall be excavated in the bedding material to allow for unobstructed assembly of the joint, but care shall be taken to ensure that bell hole is no larger than necessary to accomplish proper joint assembly. After joint assembly, material shall be placed underground around the entire length of pipe and compacted. Compaction to the springline of the pipe shall be of the same material used in the bedding. Backfill with Class I, II, III or IV material shall then be carried to a point six inches (6") above the top of pipe, using hand tools for tamping, Class IV material will not be allowed in a wet ditch. If the remaining backfill material contains large particles, which could damage the pipe from impact during placement, the initial backfill shall be increased to twelve inches (12") above the top of the pipe. Puddling will not be allowed as a method of compaction. The remaining backfill shall be as specified in "General Backfill" paragraph of these specifications. Pipe shall have at least thirty inches (30") of cover before wheel

loading and at least forty-eight inches (48") of cover before using heavy-duty tamping equipment such as a hydrohammer.

I. Class I, II, III, IV and V materials are defined as follows:

Class I	Angular ¼ to ¾-inches graded stone. Latest revision of ASTM C 33 - Gradation #67 (ASTM #67) or #57 (ASTM #57) are acceptable.
Class II	Coarse sands and gravels with maximum particle size of ¾-inches including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry.
Class III	Fine sand and clayey (clay filled) gravels, including fine sands, sand-clay mixtures and gravel-clay mixtures.
Class IV	Silt, silty clays and clays, including inorganic clays and silts of medium to high plasticity and liquid limits.
Class V	This class includes organic soils as well as soils containing frozen earth, debris, rocks larger than 1½-inches in diameter, and other foreign materials.

J. Ductile iron pipe for gravity sewers and force mains shall be laid as specified using the following type of bedding required for the depth of cover for the various sizes of pipe to be installed. Type 4 and 5 Bedding as shown and described in Ductile/Cast Iron Handbook - Fourth Addition Page 182-208 may be used for additional depths if approved by the Engineer.

1. Type 1 - Flat Bottom Trench: Flat bottom trench on undisturbed earth with excavation for Bells. Loose backfill shall be as specified in the "Selected Backfilling" and "General Backfilling" paragraphs.
2. Type 2 - Flat Bottom Trench: Flat Bottom Trench on undisturbed earth with excavation for Bells. Lightly consolidated backfill to centerline of pipe, additional backfill shall be as specified in the "Select Backfilling" and "General Backfilling" Paragraphs.
3. Type 3 - Loose Soil Bedding: Pipe bedded in 4-inch minimum Loose Soil. Backfill lightly consolidated to top of pipe. Additional Backfill shall be as specified in the "Select Backfill" and "General Backfill" Paragraphs.
4. Cover: Maximum depth of cover for ductile iron pipe of the various classes and sizes to be installed are as shown on the following page.

			Laying Condition - Maximum Depth of Cover (Feet)		
Pipe Size	Pressure Class (PSI)	Nominal Thickness (Inch)	Type1	Type2	Type3
4"	350	0.25	53	61	69
6"	350	0.25	26	31	37
8"	350	0.25	16	20	25
10"	350	0.26	11	15	19
12"	350	0.28	10	15	19

K. Bedding Classes A, B, C or crush stone as described in ASTM C12 shall be used and carefully compacted for all rigid pipe provided the proper strength pipe is used with the specified bedding to support the anticipated load based on the type soil encountered and potential groundwater conditions. Class D bedding is not allowed for use with gravity sewer.

1. Class A Bedding: This bedding shall consist of a continuous concrete cradle conforming to the plan details.

2. Class B Bedding: Material shall be excavated to a depth of 12-inches below the bottom of the pipe grade and to a width equal to the external diameter of the pipe plus 1-foot. The excavated area shall be backfilled with select fill material to form a bed that is at least 15 percent of the pipe height above the lower face (invert) of the pipe. The material shall be thoroughly compacted to provide a firm uniform foundation. The foundation shall then be shaped (cradled) to fit the lower part of the pipe, and the pipe shall be laid on a 3-inch thick layer of suitable granular material. The Contractor shall ensure that the cradle is constructed at an elevation such that after placing the 3-inches of granular material in the cradle, the flow line elevation of the pipe is correct. Select fill material shall then be placed in 6-inch layers and compacted with mechanical tampers to at least 30 percent of the overall pipe height.

   When the pipe foundation is entirely in new embankment constructed with select fill material, the 12-inch undercut will be waived.

3. Class C Bedding: This bedding shall consist of an earth or granular cradle of uniform density shaped to fit the lower part of the pipe for at least 10 percent of its overall height.

5.02 Pipe, Fitting, Valve and Fire Hydrant Installation

A. Prior to placement, the interior of pipes, fittings and valves shall be cleaned free of dirt and debris.

B. Pipe, fittings, valves and accessories shall not be laid or jointed while water is in the trench.

C. Pipe, fittings, valves and accessories shall be lowered into their respective positions using an excavator with choker straps or cables. A slight hole shall be dug where pipes are to be jointed to relieve pipe bell of any load. Pipe barrel shall be supported for its entire length.

D. Gravity flow pipe shall be laid to the consistent grade change as indicated on drawings and aligned straight using pipe laser or transit.

E. Pressure flow pipe shall be aligned to follow route. Pipe alignment shall not be deflected greater than 75% of the manufacturer's recommended maximum deflection.

F. Install compression type gaskets in accordance with manufacturer's instructions to ensure proper joint sealing.

G. Pipe shall be jointed in accordance with manufacturer's instructions. The mating ends (bell and spigot) shall be thoroughly cleaned and soaped before jointing. The mating ends shall be aligned and shoved together using a steady force.

H. Connections of fittings, valves and fire hydrants shall be with bolts and nuts as supplied with the component. Upon tightening, a minimum of two (2) bolt threads shall be exposed to ensure proper thread engagement.

I. Retaining gland of mechanical joint shall be evenly spaced from the fitting or valve for its entire circumference upon installation.

J. After jointing pipe, repair any damage to pipe's protective coating in accordance with manufacturer's instructions or replace pipe.

K. Prior to jointing consecutive pipe, backfill previously jointed pipe with sufficient material to prevent movement.

L. Place a plug in the open end of uncompleted laid piping at the end of each day.

M. Any component of a piping system disturbed after installation may be required to be taken up and reinstalled.

5.03 Thrust Blocking

A. Thrust blocking shall be installed at all bends, tees, valves, fire hydrants and points where thrust may develop in pressurized piping.

B. Thrust blocking shall consist of cast-in-place concrete, tie rods, combinations thereof or other method approved by the City Engineer.

C. Cast-in-place concrete blocking shall be formed to the required dimensions and installed against undisturbed earth. Blocking size may be increased based on soil bearing capacity.

D. Concrete shall have a minimum 3,000 psi compressive strength at 28 days.

E. Bolts and nuts shall be protected from concrete coverage.

5.04 Manhole and Wet Well Installation

A. Manholes and Wet Wells shall be set atop a twelve (12) inch bed of No. 57 stone that extends a minimum of twelve (12) inches beyond all exterior sides.

B. The bedding of No. 57 stone may be replaced with a six (6) inch layer of steel reinforced cast-in-place concrete.

C. The bed shall be prepared so that the manhole is set level.

D. Manhole sections shall be handled with lifting straps or hooked cables using a minimum of two (2) of the manufactured manhole lifting holes.

E. Manhole sections shall be positioned such that influent and effluent piping enter the center of their respective opening not pinching the rubber boot seal. Pipe shall not rest on invert of opening.

F. Stainless steel boot clamps shall be tightened in accordance with the manufacturer's instructions.

G. Annulus between pipe and rubber boot shall be grouted with non-shrink grout prior to commencing backfill operations.

H. An invert shall be built in each manhole to transition flow from the influent pipe to the effluent pipe.

I. The built invert shall be shaped as a "U" channel and match the inverts of the influent and effluent pipes.

J. Inverts shall be built of cast-in-place concrete or brick and mortar. Note that brick and mortar inverts shall be finished on top with a ½-inch layer of mortar.

K. Prior to jointing consecutive sections, tongue-and-grooved ends shall be cleaned free of dirt and debris.

L. Tongue-and-grooved ends shall be fitted with preformed gasket sealing compound.

M. Manhole sections shall be stacked level and plumb at all times.

N. Manhole sections shall be stacked such that interior steps are vertically aligned.

O. Manhole lifting holes shall be sealed using non-shrink grout throughout the entire depth of hole.

P. Upon bringing manhole to finished grade with brick and mortar (if applicable), set ring and cover with non-shrink grout.

Q. Manholes shall be kept free of dirt and debris.

R. Drop manholes will be used where there is greater than two (2') foot drop between influent and effluent pipe. See Detail Nos. 21.2 and 25.2.

S. Doghouse manholes shall be placed in accordance to Detail No. 21.3.

5.05 Meter Box and Vault Installation

A. Meter boxes shall be installed as follows.

1. Meter box shall be set atop undisturbed or compacted soil. Backfill around box shall be compacted using a hand tamp.
2. Top of meter box shall be set flush with finished grade. Meter box shall not be set in a depression.
3. Soil level within meter box shall be even with the bottom of the meter assembly and free of debris.

B. Meter vaults shall be installed as follows:

1. Meter vault shall be bedded atop undisturbed or compacted soil. Backfill around vault shall be compacted in accordance with Division IV, Section 6.
2. Vaults shall be set atop a minimum (12") inch layer of No. 57 stone that extends a minimum of twelve (12") inches beyond the outside face of all walls.
3. The bedding of No. 57 stone may be replaced with a six (6") inch layer of steel reinforced cast-in-place concrete.
4. The stone filled sump beneath vault drain shall be fully encased in a geo-fabric membrane.
5. The bed shall be prepared so that vault is set level.
6. Annulus between pipe and wall openings shall have a flexible water tight seal installed prior to commencing backfill operations.
7. Prior to installing vault cover, abutting ends shall be cleaned free of dirt and debris.
8. Abutting ends of vault and cover shall be fitted with preformed gasket sealing compound.

9. Vault lid lifting holes shall be sealed using non-shrink grout throughout the entire depth of hole.

10. Vault shall be kept free of dirt and debris.

11. Top of vault lid shall be set three (3") inches above finished grade. Vault shall not be set in a depression.

5.06 Borings and Casings

A. Construction shall be performed so as not to interfere with, interrupt or endanger roadway and railway surface and activity thereon, and minimize movement of the surface, structures and utilities above and in the vicinity of the casing.

B. Work shall be coordinated and be in compliance with the appropriate highway and railroad agencies and their policies.

C. Contractor shall monitor ground movement during construction. Contractor shall be responsible for all settlement or up heave resulting from casing operations and shall repair and restore moved or damaged property to its original condition.

D. Work shall not interfere with storm water drainage devices. Storm water and/or groundwater shall be controlled and shall not enter any excavation or boring.

E. Boring and jacking operations shall be performed from an excavation located at one end of the section to be bored. The excavation shall be kept dry at all times.

F. Boring and jacking of casings shall be completed by dry auger boring without jetting, sluicing or wet boring. Free boring (boring without casing) shall be prohibited. The boring diameter shall be essentially the same as the outside diameter of the casing.

G. Boring may be advanced slightly ahead of jacked casing in a manner that will prevent voids forming in the earth around the perimeter of the casing. Horizontal and vertical alignment of the casing shall be frequently checked.

H. When rock is encountered, the Utility Contractor at his option may continue to install the casing by removing the rock through the casing. Should the City or other governing agencies determine the rock cannot be removed through the casing then an alternate means of crossing shall be determined.

I. Casings damaged during installation shall be repaired. Should the damaged casing prevent the installation of the pipe, then that boring and casing shall be abandoned.

J. Casing lengths shall be as long as practical. Jointing shall be accomplished by single grooved butt welding for the entire circumference of the pipe.

K. Casing shall be cleaned free of dirt and debris prior to installing pipe.

L. After casing installation is complete, the proposed pipe can be installed. The pipe shall be installed to proper grade and alignment according to the contract documents.

M. Pipe shall be supported within casing to limit radial movement to a maximum of one (1") inch.

N. A minimum of one (1) spacer shall be provided for each nominal section of pipe. Casing spacers shall be attached to the pipe at a maximum of 18' to 20' intervals.

O. The annulus between the pipe and casing, at each end, shall be sealed using brick and mortar.

5.07 Pipe and Valve Identification

A. The marking of utilities immediately after installation is required as detailed in the Official Code of Georgia, Code 25-9 "Georgia Utility Facility Protection Act".

B. Install mylar detection tape and/or other detectable wire, during backfill operations, above nonferrous pipe or any pipe having more than six (6) feet of cover. Detection tape or wire shall be installed centered, approximately 12 to 18 inches above the pipe.

C. Service lines and valves shall be locatable via marked curbing or other City approved method. Adjacent street curb to service line and valves shall be marked via saw-cut as follows. Curb markings shall be a minimum of four (4") inches in height.

1. "W" for water service location
2. "V" for water valve location
3. "S" for sewer service location

SECTION 6: BACKFILL AND COMPACTION

6.01 Backfill

A. Excavations shall be backfilled using suitable material meeting the requirements of Class I, II or III backfill material as defined by ASTM D2487.

B. Place no backfill until any poured concrete has developed design compressive strength.

C. Place backfill against below grade walls in uniform level lifts to prevent wedging action.

D. Backfill shall not be placed on surfaces that are saturated, frozen or containing frost or ice.

E. Place backfill in excavations as follows.

1. Backfill in loose lifts not exceeding six (6") inches when compacting using manual tamping devices (jumping jack).

2. Backfill in loose lifts not exceeding twelve (12") inches when compacting using vibrating/ramming devices (sheep-foot vibratory roller).

F. Any settlement shall be filled and compacted to conform with adjacent surfaces.

G. Material remaining after completion of backfill operations shall be disposed off-site.

6.02 Compaction

A. Backfill shall be compacted using manual tamping devices or vibrating/ramming devices.

B. Use manual tamping devices as follows.

1. When area is inaccessible to vibrating devices and within five (5') feet of below grade walls (includes manholes).

2. From bottom of pipe trench to twelve (12") inches above the top of pipe.

C. Compaction requirements are as follows.

1. Backfill, beneath and within ten (10') feet of the building line of any structure, proposed structure or other area determined by the City, shall be compacted for the entire depth to a minimum of 100% of the maximum dry density as determined by a Standard Proctor Analysis.

2. Backfill, beneath any road, walk, proposed improvement or area determined by the City shall be compacted for the entire depth to a minimum of 100% of the maximum dry density as determined by a Standard Proctor Analysis.

3. Backfill in road right-of-way and not described above shall be compacted the entire depth to a minimum of 95% of the maximum dry density as determined by a Standard Proctor Analysis.

4. Backfill not described above shall be compacted for the entire depth to a minimum of 90% of the maximum dry density as determined by a Standard Proctor Analysis.

6.03 Compaction Testing

A. Soil samples from the proposed construction area shall be analyzed for maximum dry density in accordance with ASTM 698 – Method C.

B. The extent of testing required shall be dependent upon soil conditions, Contractor's methods of construction and regulatory requirements.

C. Minimum compaction testing shall be as follows.

1. Backfill in excavations shall be tested at 2-foot lift intervals per 1,000 square feet of fill or as deemed necessary by the City Inspector.

2. Backfill in trench excavations shall be tested at 2-foot intervals per 400 linear feet of fill or as deemed necessary by the City Inspector.

SECTION 7: SITE COMPLETION

7.01 Grading

A. Grade areas to lines and elevations indicated on drawings or to surrounding surface grades.

B. Graded areas shall be within 0.10 foot of required subgrade elevation and shall not permit the ponding of water.

C. In areas to receive grassing, redistribute stockpiled topsoil over graded areas to a minimum depth of four (4") inches. Provide additional topsoil to achieve required depth.

D. Where finish grade meets or abuts curbs, walks or pavement, uphill grades shall be slightly higher than curb or pavement to permit drainage.

E. Excess soil and debris shall be removed from the jobsite.

F. Stabilize site in accordance with the approved soil erosion and sedimentation control plan.

7.02 Replacing Pavement

A. Existing pavement shall be replaced in accordance to the standards required by Dawson County Department of Transportation and/or the Georgia Department of Transportation.

B. Construction shall be performed so as not to endanger roadway activity. Work shall be coordinated and be in compliance with the appropriate road and highway agencies.

C. Pavement shall be reinstalled immediately after completing backfill operations and compaction requirements.

D. Driveways and sidewalks shall be replaced to their full width from the edge of curb or road pavement to the nearest construction/control joint.

E. Curbs shall be replaced for the entire length from control joint to control joint.

F. Removed pavement shall be disposed offsite.

G. Use Detail Nos. 28.1 and 29.1 when applicable.

SECTION 8: TESTING

8.01 General

A. The following tests shall be performed as indicated at the expense of the Developer/Utility Contractor.

B. Water distribution systems and/or sanitary sewer systems failing the required tests shall be repaired at the expense of the Developer/Utility Contractor.

8.02 Hydrostatic (Water Main and Force Main)

A. Water distribution piping and force mains shall be subjected to a hydrostatic pressure test in accordance with AWWA Standard C600, latest revision.

B. Combination air/vacuum release valves, corporations and curb stops and fire hydrant shall be installed at the high point of elevation in the pipe line system to release air.

C. Pipe shall be filled with potable water to a pressure of 250 psi and pipe pressure allowed to stabilize.

D. Pressure shall be maintained, without the addition of water, for a minimum period of two (2) hours.

E. Test shall be considered acceptable when a water pressure of 250 psi is maintained for a period of two (2) hours.

8.03 Air Pressure (Gravity Flow)

A. All gravity sewer pipe shall be subjected to a low air pressure test in accordance with Unibell UNI-B-6-90.

B. Pipe shall be free of dirt and debris.

C. During testing, personnel shall not be permitted in manholes connected to pipe being testing.

D. The internal air pressure of the pipe shall be raised to approximately 10-15 psi.

E. The test shall begin when the stabilized pressure is at a minimum of 10 psi.

F. Test shall be considered acceptable when an air pressure equivalent to the stabilized pressure is maintained for a period of 10 minutes.

8.04 Televising (Gravity Flow)

A. Sanitary sewers shall be televised to ensure integrity.

B. Pipe shall be free of dirt and debris.

C. Televising cable attached to a video monitor shall be directed through pipe to view for the following deficiencies.

1. Cracks in pipe and liner material
2. Rolled gaskets
3. Leaking joints
4. Deviations from line and grade – Sewer pipe shall be viewed from one manhole to the next adjacent illuminated manhole. Pipeline shall show more than three-quarters (3/4) of the opening at the opposite end of the pipeline.
5. Pipe deformations
6. Other deficiencies.

D. Test shall be considered acceptable when the televised pipe does not reveal the deficiencies indicated in Item C.

8.05 Mandrel (Gravity Flow)

A. Sanitary sewers shall be tested for deformation using a mandrel in accordance with ASTM D 3034.

B. Pipe shall be tested when backfill and compaction are complete. Pipe shall be free of dirt and debris.

C. Chords shall be attached to each end of the mandrel. One chord shall be passed through the section of pipe being tested. One chord shall be used to retrieve the mandrel should the pipe not allow passage.

D. The mandrel shall be sized such that its outside dimension is 5% less than the actual inside diameter of the pipe.

E. Test shall be considered acceptable when mandrel passes freely through pipe.

8.06 Static Water Level (Wet Well)

A. Test wet well for infiltration/exfiltration after receiving field approval of wet well lining installation.

B. Visually inspected wet well for infiltration.

C. Fill wet well with potable water to a level equal to the high water alarm elevation and mark that elevation.

D. Test shall be considered acceptable when a water level drop of less than one-quarter (1/4") inch is measured after a 24 hour period.

E. Wet well sections exhibiting infiltration/exfiltration shall be replaced.

8.07 Vacuum Test (Sewer Manhole)

A. All manholes shall be vacuum tested in accordance with ASTM C 1244, "Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test" as amended to date. All pipes entering the manhole should be plugged, taking care to securely place the plug from being drawn into the manhole. The test head shall be placed near the top of the manhole frame and cover and the seal inflated in accordance with the manufacturer's recommendations. A vacuum pump of ten-inches (10") of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to nine-inches (9"). Following are minimum allowable test times for manhole acceptance at the specified vacuum drop:

Depth (Feet)	Time (Seconds)		
	48-inch Diameter	60-inch Diameter	72-inch Diameter
4	10	13	16
8	20	26	33
12	30	39	49
16	40	52	67
20	50	65	81
24	59	78	97
Add 2-ft. more depth	5	6.66	8

Note: These numbers have been taken from ASTM C 1244-93 (reapproved 2000).

1. If the manhole fails the initial test, repairs and adjustments necessary due to extenuating circumstances (i.e. pipe joint, plug sealing) should be made. Retesting shall proceed until a satisfactory test is obtained.
2. A final visual inspection shall be made by the Inspector and contractor. Any deficiencies noticed shall be repaired accordingly.
3. The cost for testing each manhole shall be included in the cost per vertical foot to install the pre-cast concrete manhole. Retest cost required due to defects in the Contractor's work, shall be paid by the Contract.
4. Testing shall be performed on all new or refurbished manholes.

SECTION 9: DISINFECTION

9.01 General

A. All newly installed water distribution piping and piping affected during construction shall be disinfected in accordance with AWWA C651.

B. All disinfection procedures shall be coordinated with the City inspector.

C. City personnel shall operate existing valves during disinfection procedures.

D. The City shall be involved in disinfecting the following in-place piping.

1. Water mains.

2. Service connections up to and including water meters and back flow prevention devices.

E. The City shall supply an appropriate chlorine solution and complete disinfection procedures.

F. Water for disinfection shall be provided by the City at no expense to the contractor. Excessive use of water during disinfection procedures, as determined by the City, may be reason for charges to be levied against the contractor.

G. Collection and testing of water samples shall be performed by the City.

H. No water piping system shall be placed in service until written approval is received from the City Engineer.

I. The Contractor shall be responsible for preventing soil erosion associated with disinfecting procedures.

9.02 Initial Flushing

A. Prior to disinfection, the Contractor shall flush piping system with sufficient water to create a minimum velocity in the pipe of 2.5 feet per second (fps).

B. Flushing shall be performed by pushing water through a laid section of pipe with one end of section open to the atmosphere above existing grade.

C. Piping shall be flushed until water sampled from the piping yields a turbidity measurement of 0.5 NTUs or less.

D. All piping and components associated with service connections shall be thoroughly flushed with fresh potable water prior to installation.

E. Upon completion of flushing, laid pipe with one end open to atmosphere shall be re-laid to depth indicated in Construction Drawings.

9.03 Chlorination and Flushing

A. The City shall introduce a chlorine solution having a concentration of 50 to 100 milligrams per liter (mg/l) into the water main.

B. Upon introducing the chlorine solution, all valves associated with the water main shall be fully operated to ensure complete disinfection.

C. All piping and components associated with service connections shall be thoroughly flushed with a 200 mg/l chlorine solution.

D. Water main shall have a minimum 25 mg/l chlorine residual after a 24-hour retention period.

E. After the 24-hour retention period, flush heavy chlorinated water from system through fire hydrants. When necessary, the Contractor shall provide sodium thiosulfate to neutralize the chlorine residual. Contractor shall apply sodium thiosulfate in accordance with manufacturer's recommendations.

F. Flushing shall continue until water in main has a residual chlorine concentration of 1 mg/l.

G. Water usage for filling and flushing will be billed at $6.78 per thousand (1,000) gallons based upon a minimum of four (4) times the volume of the pipe. (Example: 5,000 LF 8" pipe x 2.89 gallons/feet x $6.78/thousand gallons x 4 = $391.88)

9.04 Disinfection Testing

A. After chlorination and flushing is complete, the City shall collect water samples from the system and perform 24-hour analyses in accordance with the Georgia Rules for Safe Drinking Water.

B. After the initial 24-hour analysis is complete and acceptable, a volume of water determined by the City Inspector shall be flushed from the water system and water samples shall be collected for a second 24-hour analysis.

C. After the second 24-hour analysis is complete and acceptable, the water main may be put into service.

D. Disinfection of the water main shall be repeated until testing is acceptable.

E. Laboratory analyses shall be performed and certified by a laboratory selected by the City.

SECTION 10: CONCRETE

10.01 Formwork

A. Formwork shall comply with ACI 347R-94.

B. Contractor shall be responsible for design and construction of concrete formwork capable of supporting construction loads. Forms shall be as follows.

1. Pre-engineered steel
2. Pre-engineered reinforced fiberglass
3. Wood
4. Earth

C. Construct formwork to lines and elevations as shown on drawings.

D. Construct forms to be removed without hammering or prying against concrete.

E. Plug holes in existing forms to prevent leakage of cement.

F. Clean forms of dirt and debris prior to each use.

G. Form ties shall be as follows:

1. Break-back type with ⅝-inch removable sleeve or 1-inch cone type
2. For retaining walls and walls below liquid level, provide ties with positive water stop projection at center of wall.

H. Prior to placement of reinforcing steel, apply form release agent to formwork. Release agent shall be evenly applied and compatible with type form being used.

I. Construct bulkheads with shear keys at separation of pours.

J. Shear key width shall be 1/3 of the wall or slab thickness.

K. Removal of formwork shall take place only after concrete has developed sufficient strength to support itself and resist damage during removal.

L. Forms used below grade shall be removed prior to backfill.

10.02 Steel Reinforcement

A. Shop fabricate reinforcement to shape and dimensions as indicated on drawings.

B. Use no bars or wire mesh with kinks or bends not shown on the drawings.

C. Secure reinforcement in forms in accordance with the drawings, ACI 315, ACI 318 and CRSI "Recommended Practice for Placing Reinforcing Bars".

D. Steel reinforcement shall set atop concrete bricks and/or be spaced using steel highchairs. When highchairs are used as a form spacer, the highchair feet shall be plastic dipped.

E. Concrete coverage over reinforcing shall be as follows:

1. Concrete cast against earth.....3 inches
2. Formed concrete exposed to earth or weather.....2 inches
3. Slabs and walls exposed to wet conditions.....2 inches
4. Interior slabs and walls.....¾ inch

F. Splice reinforcement a minimum of 48 times (x) bar diameter. Mechanical splices shall be prohibited.

G. Steel reinforcement, at the time cement is placed, shall be free of dirt, rust and debris. Reinforcement with flaking rust shall not be used.

H. Conduits and pipes shall have same concrete coverage as reinforcing steel.

I. Tie wire shall be used to secure reinforcing.

J. Joints in wire mesh shall be lapped one wire spacing plus two (2") inches. Wire mesh shall have one (1") inch of concrete cover at forms.

10.03 Placement

A. Place concrete in accordance with ACI 301-89, Chapter 8.

B. Place no concrete until all embedded items and reinforcement have been placed in accordance with the plans.

C. A City Inspector shall approve formwork layout and placement of steel reinforcement prior to placing concrete. Provide 24-hour notice prior to placing concrete.

D. Concrete shall not be placed on loose, saturated or frozen soil.

E. Concrete shall not be placed in water unless approved by the City Engineer.

F. Concrete shall be placed only when ambient temperature is at 40° F and rising or place concrete in accordance with ACI 306-R88.

G. During hot weather (>80°F), place concrete in accordance with ACI 305-R89.

H. Saw control joints as soon as concrete can be traveled by foot without leaving impressions. Saw joint depth shall be ¼ of the slab depth.

I. Consolidate all placed concrete with vibrator of suitable vibrations per minute.

J. Do not pull or push concrete with vibrator.

K. Do not drop concrete more than four (4') vertical feet.

10.04 Finishing

A. Screed floor slabs or tops of walls by use of straight edge or screed board.

B. Concrete shall be finished as follows:

1. Interior slab to receive setting bed.....float finish
2. Interior slab exposed.....trowel finish
3. Exterior slab exposed.....broom finish
4. Exterior wall/column exposed.....rubbed finish
5. Unexposed concrete.....form finish

10.05 Curing

A. Prevent freshly placed concrete from premature drying and protect from excessive hot or cold temperatures.

B. Maintain freshly placed concrete, without drying, at a relatively constant temperature.

C. Begin curing after placement and finishing of concrete as soon as free water has disappeared from concrete surface.

D. Curing methods shall be by the continuous application of water or by applying a liquid membrane forming curing-sealing compound to the fresh concrete surface.

1. Curing by the continuous application of water shall occur for a period of not less than 72 hours.
2. After application of liquid membrane forming curing-sealing compound, maintain continuity of coating and recoat areas damaged during curing period. Curing period shall be not less than 72 hours.

E. Do not apply liquid curing sealing compound to concrete that is to be finished with a coating material such as paint, flooring material, etc.

SECTION 11: ENVIRONMENTAL COATINGS

11.01 Environmental Coatings

A. Priming, painting and special coating of all surfaces shall include but are not limited to the following.

1. Piping and appurtenances
2. Supports
3. Pumps
4. Valves
5. Equipment and appurtenances
6. Concrete and masonry
7. Structural and miscellaneous metals

B. Priming, painting and special coating of all surfaces shall be in accordance with the coating manufacturer's recommendations.

C. A manufacturer's representative of the approved coating system shall field approve all surface preparation and coating application when lining manholes and wet wells.

STANDARD SPECIFICATIONS

for

ROADWAY AND DRAINAGE SYSTEMS

CITY OF DAWSONVILLE, GEORGIA

EXHIBIT "A"

STANDARD SPECIFICATIONS

for

ROADWAY AND DRAINAGE SYSTEMS

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TURNIPSEED ENGINEERS

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EXHIBIT "A"

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SECTION 1: GENERAL CONDITIONS

1.01 Scope and Intent

The work covered by this Section of the Specifications consists of all materials and work necessary for clearing, excavating, trenching, backfilling, grading and installing stormwater piping, roadways and sidewalks within the City of Dawsonville.

1.02 Cleaning Up

Before the work shall be considered complete, all material not used and rubbish of every character must be removed from the streets and placed at point designated by the City; all streets, sidewalks, curbs, fences and other private or public facilities and structures disturbed must be essentially in as good condition as existed before the work was done. Any subsequent settlement of backfill or pavement over trenches shall be replaced by the Contractor and the surfaces brought to grade.

SECTION 2: CONTROL OF MATERIALS

2.01 Structural Steel

The following inspections are required for structural steel:

A. Any Quantity: Field inspection for rust, shape, and dimensions

B. 25 to 200 Tons: Independent shop inspection and certified copies of mill tests

C. For Structures and Buildings: See ASTM A-36

2.02 Concrete Reinforcement Steel

The following inspections are required for structural steel:

A. Up to 50,000 Pounds: Field inspection for rust, shape and dimensions

B. 50,000 Pounds and Up: Independent laboratory inspection as follows:

1. Billet Steel - ASTM A-615
2. Roll Steel - ASTM A-616
3. Cold-Drawn Steel Wire - ASTM A-82
4. Wire Fabric - ASTM A-185

2.03 Concrete Work

A. Concrete of the respective classes for bedding, blocking, walks, roads, headwalls, piers and other miscellaneous structures shall be as called for in the work to which they pertain.

B. Cement: Cement shall satisfy the requirements of ASTM C150, Type I or Type II, as amended to date.

C. Aggregate: Aggregate shall satisfy the requirements of ASTM C33, as amended to date.

D. Water: Water shall be fresh, clean and free from injurious amounts of oil, acid, alkali, and organic materials.

E. Mixing: Mixing shall be accomplished at a central mix plant unless prior approval is given by the Engineer for mixing on the job site.

F. Concrete from a Central Mix Plant: Concrete supplied from a central mix plant shall have 28-day compressive strengths not less than those listed below:

- Class A: 3,000-psi
- Class B: 2,200 psi
- Class C: 1,500 psi

G. Concrete Mixed on Jobsite: Concrete mixed on the jobsite shall have 28-day compressive strengths as above and shall contain not less than the following quantities of cement per cubic yard.

- Class A: 564 pounds (6 bags)
- Class B: 470 pounds (5 bags)
- Class C: 376 pounds (4 bags)

H. Concrete Cylinders: Concrete cylinders for testing purposes shall be made in accordance with the procedure described in ASTM C31 as amended to date. Compression tests shall be made at the age of 7 days and 28 days by the testing laboratory as per ASTM C39 as amended to date. Testing shall be done by a laboratory approved by the Engineer. All costs of testing will be paid by the Contractor. Each test shall consist of at least 4 specimens: 2 for field control and 2 for laboratory control. One initial test will be required and then 1 test for each 100 yards thereafter.

I. Placing of Concrete: Concrete shall be placed in daylight. Concrete mixed at a central plant shall be transported to the jobsite as per ASTM C94 as amended to date. Concrete when placed shall be compacted with mechanical, internal-vibrating equipment and/or with hand spading with a slicing rod. No concrete shall be placed when the atmospheric temperature is below 35° F. If the temperature drops below 35° after concrete is placed, the Contractor shall enclose, heat and protect the concrete. Earth fill shall not be placed on concrete until concrete has been allowed to set for 24 hours.

J. Form Work: Form work, where required, shall be built to conform to the shape, lines and dimensions of the concrete work as shown.

Forms shall be set to line and grade and shall be braced, tied and secured in a manner which will withstand placing of the concrete, and which will maintain shape and position. Forms shall be tight and be substantially assembled to prevent bulging and the leaking of concrete. Joints shall be arranged vertically or horizontally. Temporary openings shall be arranged, where required, at the bottoms of wall forms and elsewhere to facilitate cleaning and inspecting. Lumber used once in forms may be reused once nails are removed and surfaces are thoroughly cleaned. Wall sleeves, inserts and openings required in concrete work shall be properly set in form work. Chamfer strips shall be placed in forms for all exterior corners.

K. Removing Forms: Under normal conditions, the time elapsing before the forms may be stripped shall not be less than the following:

- Slabs: 14 days

- Columns and Pedestal: 7 days
- Walls and Vertical Faces Not Supporting Other Work: 2 days

L. Finishing: All exposed concrete work shall be kept wetted with water and shall be rubbed with a carborundum stone of medium fineness or with other equally as good abrasive to bring the surface to a smooth texture and to remove all form and other marks. The paste formed by the rubbing may be rubbed down by floating with a canvas float, a carpet-faced float, cork float or dry burlap.

SECTION 1: CLEARING

1.01 Description of Work

The extent of route clearing is the minimum degree of clearing necessary to install utilities and appurtenances, and such additional clearing as may be shown on the drawings or required by other documents. Route Clearing operations include, bur are not limited to, the following:

A. Protecting existing improvements, vegetation and persons

B. Protecting above-grade and underground improvements

C. Removing trees and other vegetation

D. Removing above-grade improvements

E. Removing underground improvements

F. Restoring damaged improvements

1.02 Protection of Existing Improvements

Existing improvements shall be protected. Provide barricades, coverings, or other types of protection necessary to prevent unnecessary damage to existing improvements. Protect improvements on adjoining properties as well as those along the project route. Restore improvements damaged by this work to their original condition as acceptable to the owners or other parties or authorities having jurisdiction. Any property line monuments (such as iron pins) removed or disturbed by clearing operations shall be replaced by a Georgia registered land surveyor.

1.03 Protection of Existing Trees and Vegetation

Existing trees and other vegetation shall be protected against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction material within drip lines, excess foot or vehicular traffic, or parking of vehicles or equipment within drip line. Provide temporary fences, barricades or guards as required to protect trees and vegetation to be left standing.

1.04 Protection of Existing Utilities, Persons and Property

Prior to commencing other work, accurately locate above and below ground utilities and structures which may be affected by the Work, using whatever means be appropriate. Mark the location of existing utilities and structures, not otherwise readily visible, with flagging, stakes, barricades, or other suitable means. Barricade open excavations and post warning lights for safety of persons. Operate warning lights during hours from dusk to dawn each day. Protect structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations, from damage caused by settlement, lateral movement, undermining, washout and other hazards.

1.05 Disposal of Waste Material

All waste materials resulting from clearing operations shall be disposed of in accordance with applicable regulations of the Georgia Department of Natural Resources, Environmental Protection Division.

SECTION 2: TRENCHING AND BACKFILLING

2.01 Description of Work

Trenching consists of removal and disposal of material encountered to obtain required sub-grade elevations, usually, but not necessarily limited to that incidental to installation or modification of underground pipelines and appurtenances. Unauthorized trenching consists of removal of materials beyond indicated sub-grade elevations or dimensions without specific authorization of the City. Do not permit any hazardous condition to result from trenching and backfilling operations. Pavement removal and replacement is specified in Division III, Sections 4.08 and 4.09.

2.02 Use of Explosives

Explosives are not permitted on site or for use in work without prior written permission from the City. Use explosives only as legally permitted and when other work methods are impractical. Contractor assumes sole responsibility for handling, storage, and use of any explosive materials

2.03 Stability of Excavation

Slope sides of excavations to comply with Subpart P of Part 1926 of the Occupational Safety and Health Act as amended. Shore and brace or use a trench box where sloping is not possible either because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

2.04 Bracing and Shoring

Take precautions and provide necessary bracing and shoring to guard against movement or settlement of existing improvements or new construction. Contractor is entirely responsible for strength and adequacy of bracing and shoring, and for safety and support of construction from damage or injury caused by the lack thereof or by movement or settlement. Use work methods and provide temporary facilities as necessary to prevent washing, erosion, siltation or dust damage, or hazard to persons and property, within and outside the work area. Place excavated material compactly alongside the trench, and keep such material trimmed up so as to present the least practicable inconvenience to the public.

Provide portable trench boxes and materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition. Provide trench boxes and/or shoring and bracing to comply with Subpart P of Part 1926 of the Occupational Safety and Health Act as amended.

2.05 Construction Along Highways, Streets and Roadways

The Contractor shall install pipe lines and appurtenances along highways, streets and roadways in accordance with the applicable regulations of the Georgia Department of

Transportation and the City with reference to construction operations, safety traffic control, road maintenance and repair.

A. Protection of Traffic: The Contractor shall provide suitable signs, barricades and lights for protection of traffic in locations where traffic may be endangered by construction operations. All highway signs removed due to construction shall be replaced as soon as the conditions permit. No highways, streets or roadways shall be closed without first obtaining permission from the proper authorities. Before any roadway is blocked, the Contractor shall notify the City/Engineer. The Contractor must obtain approval from the City before street signs are removed and reinstalled.

B. Construction Operations: The Contractor shall construct all work along highways, streets and roadways using the following sequence of construction operations so as to least interfere with traffic:

1. Stripping: Where the pipe line is laid along road shoulders, all sod, topsoil and other material suitable for shoulder restoration shall be stripped and stockpiled for replacement.

2. Trenching, Laying and Backfilling: The Contractor shall open trenches, install pipe line and backfill. The trench shall not be opened any further ahead of pipe laying operations than necessary for proper laying operations, and trenches shall be progressively backfilled and consolidated. Excess material shall be removed immediately behind the laying operations.

   The Contractor shall install pipe lines across highways in accordance with the applicable regulations of the Georgia Department of Transportation and railway authorities.

3. Shaping: The Contractor, immediately after completing backfilling operations, shall reshape any damaged cut and fill slopes, side ditches and ditch lines, and shall replace topsoil, sod and any other materials removed from shoulders in accordance with the requirements of and to the full and complete satisfaction of the Georgia Department of Transportation and the City. The Contractor, when installing pipe lines and appurtenances, will be required to provide sufficient personnel and equipment to simultaneously carry out all of the above operations.

   If required to accommodate Contractor's operation, construction easements shall be obtained. The Contractor shall pay all costs of any construction easements.

C. Excavated Material: Excavated material shall not be placed along highways, streets and roadways in such a manner as to obstruct traffic. No scattered

excavated material shall be allowed to remain on the pavement, and all such material shall be kept swept away.

D. Drainage Structures: All side ditches, culverts, cross drains and other drainage structures shall be kept clear of excavated material and be free to drain at all times.

E. Maintaining Highways, Streets, Roadways and Driveways: The Contractor shall furnish a road grader, which shall be available for use at all times, for maintaining highways, streets, and roadways upon which work is being performed. All such highways, streets, and roadways shall be maintained in suitable condition for movement of traffic until completion and final acceptance of the work.

F. Encroachment Permits: All costs for obtaining required Georgia Department of Transportation permits shall be paid by the Contractor. The Contractor shall be responsible for fully understanding and knowing all Department of Transportation regulations and conditions relating to pipe line installation.

2.06 Excavation for Trenches

Excavation of pipe trenches shall include all excavation of every description and whatever substance encountered and shall include disposal of all rock excavation and shall include disposal of excess earth excavation not required for backfilling of trenches. The area directly surrounding the excavation shall be graded to direct storm water runoff away from the trench.

A. Depth of Trenches: The minimum cover over the top of the pipe shall be 4' unless otherwise directed by the Engineer. Where obstructions are encountered, minimum depth may be changed to avoid interference.

B. Width of Trenches: Trenches shall be excavated sufficiently wide to allow proper installation of pipe, fittings and other materials and to not less than 6" clear of the outside barrel of the pipe on any side at any point.

C. Bell Holes: Bell holes of ample depth and width shall be excavated in pipe trenches at the location of each joint to permit the joint to be properly made.

D. Crushed Stone Stabilization: Wherever the subgrade is by nature too soft or mucky in the opinion of the Engineer for the proper installation of the pipe, the Engineer may order the Contractor to undercut the trench and backfill with crushed stone or gravel, ¾" in size and less. The stone shall be placed and brought to the grade required for the particular location and compacted.

2.07 Existing Underground Utilities and Obstructions

Where unforeseen underground utilities or obstructions are encountered, minimum depth of cover or the location and alignment may be changed upon written approval of the Engineer to avoid interference. The Contractor is responsible for determining the exact

location of all utilities before beginning construction. Damage to existing utility lines, services, poles and structures shall be repaired or replaced by the Contractor at his own expense.

The Contractor shall furnish and have available at all times an electronic pipe and cable locator in working order for the purpose of locating existing pipe lines or other obstructions in the way or are along the route of the new work.

2.08 Backfilling

Backfill excavations as promptly as work permits. Use acceptable trench excavated soil material, free of stumps, trees, roots, muck, trash and other objectionable matter. The Contractor shall furnish all equipment and labor, and when necessary the material, required for backfilling the pipe line trenches as follows:

A. Selected Backfilling: All trenches shall be backfilled immediately after pipes are laid therein, and joints have been inspected by the Engineer unless other protection of the pipe line is directed. Selected backfill material shall consist of finely divided earthstone dust, sand, crushed stone or other approved material carefully placed about the pipe and up to a height of at least 12" above the top of the pipe barrel, and in uniform layers not exceeding 6" in thickness, each layer thoroughly compacted with proper hand tools in a manner which will not disturb and/or injure the pipe. Backfilling shall be carried on simultaneously on both sides of the pipe and in a manner which will prevent injurious side pressures. If suitable select materials are not available from the trench excavation, the Contractor will be required to obtain the select materials elsewhere.

When testing for leaks in open trenches, backfilling shall not be done until after all testing has been completed and all leaks eliminated.

B. General Backfilling: After selected backfill material has been placed and tamped, the remainder of the trench may be backfilled with general excavated material provided such material does not contain more than ⅓ broken rock of which no single stone or boulder shall be larger than can easily be removed with a hand shovel. Backfill material shall be placed in uniform layers not exceeding 12" in thickness; each layer shall be thoroughly compacted with heavy-duty power tamping tools of the full satisfaction of the Engineer. The use of pneumatic power "Jumping Jack" tampers will not be permitted. Wherever the trenches have not been properly filled or if settlement occurs, they shall be refilled, smoothed off, and made to conform to the surface of the ground. Backfilling shall be carefully performed, and the original surface restored to the full satisfaction of the Engineer. Surplus material shall be disposed of by the Contractor.

C. Outside Streets, Roads, etc.: At locations outside streets, roads, walks or other traveled ways open to vehicular or pedestrian travel, the backfill material shall be

windrowed and maintained in a suitable manner to concentrate and pond rainfall runoff over the trench. After sufficient settlement has been obtained, the Contractor shall complete surface dressing, remove surplus material, and clean up in accordance with these Specifications. Wherever the trenches have not been properly filled or if settlement occurs, they shall be refilled, smoothed off, and made to conform to the surface of the ground. Backfilling shall be carefully performed, and the original surface restored to the full satisfaction of the Engineer. Surplus material shall be disposed of by the Contractor.

D. Areas Requiring Pavement Replacement: Mechanical tamping will be required of all backfilling of excavated portions. After backfilling and tamping as described above is completed the top 6" of the ditch shall be backfilled with compacted crushed stone, ASTM C33 gradation #67 or #57 as amended to date, with sufficient fines for compaction. Further compaction shall be accomplished by leaving the backfilled trench open to traffic while maintaining the surface with stone. Settlement in trenches shall be refilled with stone and such maintenance shall continue until replacement of pavement is authorized by the Engineer.

2.09 Surfacing of Trenches in Unpaved Streets and Driveways

Where pipe lines are constructed on unpaved streets, roads or driveways, the surfacing material shall be stripped and windrowed separately from the general material excavated from trenches. After the line has been installed and the backfill completed within 6" of the original street grade, the salvaged surface shall be replaced. This work shall be considered as general cleanup along with the removal of surplus excavation materials from the street surface and the restoring of the topsoil surfacing outside trench limits to its original condition.

2.10 Surfacing of Trenches in Paved Streets and Driveways

Where trenches are in paved streets and driveways, the remaining 6" of backfill up to the traveled surface shall be made with crushed stone, ASTM C33 Gradation #67 or #57 as amended to date, with sufficient fines for compaction. Trenches shall be compacted and maintained until pavement is replaced.

2.11 Excavation Along Roadway

Where necessitated by traffic conditions, remove from the roadway the first material excavated from a working length of trench so that further excavation is immediately used for backfilling, and thereby avoid stockpiling of material upon the roadway. Afterward, return first excavated material if needed for final backfilling. Maintain all streets, alleys, sidewalks, pipe crossings, fire hydrants, water and gas valves, and other utilities accessible for their intended use except while the work is steadily advancing in the immediate vicinity of each such facility. Keep every drain, gutter, culvert, sewer, and

surface drainage route encountered, open for both temporary and permanent flow unless other effective provision for drainage is made.

2.12 Dewatering

Perform earthwork in a manner to prevent surface water and minimize subsurface or ground water from flowing into excavations, and to prevent water from flooding project work and surrounding area. Do not allow water to accumulate in excavations. Remove water using dewatering methods which will prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of sub-grades and foundations. Provide and maintain pumps, sumps, suction and discharge lines, and other de-watering system components necessary to convey water away from excavations. Limit opening of additional trench length to that which can be de-watered with available equipment or methods.

2.13 Material Storage

Locate and retain materials away from edge of trench.

2.14 Excavation Length

Limit open trench excavation to a maximum of 300 feet ahead of completed backfill.

2.15 Removal of Unsatisfactory Soil Materials

To the extent necessary, over-excavate those soil materials which are unsatisfactory in the opinion of the City and backfill with approved materials.

2.16 Compaction

Control soil compaction during construction providing minimum percentage of density specified for each area classification. Percentage of Maximum Density Requirements: Achieve not less than the following percentages of maximum density of soil material compacted at optimum moisture content, for each layer of soil material-in-place as determined by ASTM D 698 (Standard Proctor) test procedures:

A. Rights-of-Way: Conform with the more stringent requirements of the permit issuing authority and the requirements herein.

B. Roadways: Under and within five feet horizontal distance of traffic using surfaces, compact each layer of backfill and fill material to 95 percent of maximum dry density.

C. Walkways: Under and within two feet horizontal distance of paved walks, compact top six inches of subgrade and each layer of backfill and fill material to 95% of maximum dry density.

D. Driveways and Parking Lots: Under and within two feet horizontal distance of traffic using surfaces, compact each layer of backfill and fill material to 95 percent of maximum dry density.

E. Lawn or Unpaved Areas: Compact each layer of backfill or fill material to 85 percent of maximum dry density.

F. Spoil Areas: Compact each layer of backfill or fill material to 85 percent of maximum dry density.

2.17 Grading

Uniformly grade areas within limits of earthwork, including adjacent transition areas. Smooth and compact finished surface within specified tolerances, with uniform levels or slopes between points where elevations are shown, or between such points and existing grades, or between existing grades.

A. Grading Outside Structures: Grade finished areas adjacent to structures to drain away from structures (except drainage inlets), and to prevent ponding. Finish surfaces free from irregular surface changes, and as follows:

B. Grassed or Landscaped Areas: Finish areas to within not more than 0.10 feet above or below the required elevations.

C. Walks and Pavements: Shape surface of areas under walks and pavements to line, grade and cross-section, with finish surface not more than 1.5 inches above or below the required subgrade elevation.

SECTION 1: STORM SEWER INSTALLATION

1.01 Description of Work

A. Foundation preparation

B. Furnishing and laying gravity storm sewer pipe.

C. Furnishing and/or constructing drainage structures and appurtenances.

D. Cleaning constructed work

E. Related Work Specified Elsewhere:

1. Route Clearing
2. Trenching and Backfilling
3. Pavement Removal and Repair

1.02 Job Conditions

A. Traffic Control: Schedule and conduct Work in a manner which will minimize inconvenience to vehicular and pedestrian traffic. Provide flaggers, barricades, warning signs, warning lights, and other warning means as appropriate. Flaggers, when utilized, must hold a valid Georgia D.O.T. flagging certificate. Maintain traffic on all roads and streets which must be crossed by sewer lines. All traffic controls during construction must conform to Part VI of the Manual on Uniform Traffic Control Devices, ANSI D6.le.

B. Weather Limitations: Conduct all operations during weather conditions appropriate to the work being performed.

1.03 Quality Assurance

A. Manufacturer Experience: Furnish manufactured products produced by firms having regularly produced such items as specified herein which have proven satisfactory in actual service over at least a two year period, as determined by the City.

B. Imperfections: Regardless of tolerances permitted by industry standards specified herein, the City may reject pipe or precast structures at the manufacturing plant or project site, which have cracks, chips, blisters, lack of smooth interior or exterior surface, evidence of structural weakness, porosity, joint defect, significant variation from theoretical shape, or other imperfection which might, in the opinion of the City, contribute to a reduced functional capability, accelerated deterioration, or reduced structural strength.

C. Repairs: Do not use patched or repaired pipe or precast structures unless each individual length or element has been approved and marked for repair by the City

at the manufacturing plant. Repairs, other than at the manufacturing plant, are not permitted.

1.04 Approved Products

A. Reinforced Concrete Drain Pipe: Class III Reinforced Concrete pipe shall be used for all storm drainage pipe where indicated on the drawings. Pipe may be either ball and spigot or tongue and groove.

1. Testing and Stamping: All pipe, joint materials, and made-up joints shall be tested by an independent laboratory approved by the Engineer. Pipe shall be stamped with laboratory's stamp. Such stamp shall be an indication that it was accepted in accordance with applicable ASTM Specifications, and that it was inspected and accepted in accordance with the requirements of this Section for special tests and for pipe quality. The results of required independent laboratory tests shall be promptly submitted to the Engineer.

2. Pipe shall be as follows and shall conform to the following ASTM Specifications:

a. Size 18" and Larger: All pipe shall be reinforced and shall be 'B' wall. Pipe 18" and above shall be furnished in lengths of at least 8'.

b. Cement and Coarse Aggregate: Cement shall be Type II or approved equal. Coarse aggregate shall be crushed granite or limestone.

c. Wire Reinforcement: Wire reinforcement used in the pipe shall conform to the standard Specifications.

d. Steam Curing: Steam curing of concrete pipe shall conform to the standard Specifications except when temperatures fall below an average of 40° F. Curing shall be continuous for 24-hour period, except for the interval when forms and/or rings are removed.

e. Minimum Crushing Strength: All pipe, when tested by the 3-edge bearing method in accordance with ASTM C 497, shall be minimum strength (defined as the load to produce a 0.01" crack for reinforced pipe) of not less than the following values:

MINIMUM STRENGTHS, POUNDS PER LINEAR FEET

Reinforced Pipe

	Table 3	Table 4 or 5	
Pipe Size	Class III	Class IV	Class V
15"		2,500	3,750
18"	2,025	3,000	4,500
21"	2,360	3,500	5,250
24"	2,700	4,000	6,000
30"	3,375	5,000	7,500
36"	4,050	6,000	9,000
42"	4,725	7,000	10,500
48"	5,400	8,000	12,000
54"	6,075	9,000	13,500
60"	6,750	10,000	15,000
66"	7,425	11,000	16,500
72"	8,100	12,000	18,000

f. Absorption: Absorption shall not exceed 6% when determined in accordance with ASTM C 497.

g. Joints: Pipe may have O-ring rubber gasket type joints conforming with the applicable provisions of ASTM C 443, or pipe may be tongue and groove with mastic or mortar joint.

h. Repaired Pipe: Repaired and patched pipe will not be acceptable unless each individual pipe, so repaired or patched, shall have first been inspected and approved by the Engineer for repair and patching at the pipe plant.

i. Shear Loading Test: Made-up gasketed joints shall be tested for shear loading at a total load of 100 pounds per inch of diameter including the weight of the pipe, water and test apparatus.

B. Corrugated Steel Drain Pipe: Corrugated steel drain pipe shall be furnished and constructed in accordance with the Department of Transportation, State of Georgia, Standard Specifications Constructions of Roads and Bridges, latest edition, and these Specifications. Pipe shall be galvanized and fully bituminous coated with a paved invert filling the corrugations for at least 25% of the circumference. The bituminous coating shall be a minimum thickness of 0.05″, measured to the crest of corrugations. Pipe corrugations shall be 2-⅔" x ½". Band shall be in accordance with WW-P-405-B 3.3.4.2. The projections of the

EXHIBIT "A"

bands shall conform substantially to the shape and depth of the pipe corrugations and shall be in circumferential rows with no less than seven projections per row. Required nuts and bolts shall be furnished with the band. Culvert pipe shall be 16-gauge through 24" diameter, 14 gauge for 30" and 36" diameter, 12 gauge for 42" through 54" diameter, 10 gauge for 50" through 72" diameter, and 8 gauge for 78" and 84" diameter.

The pipe shall have a duct tape (a type that will adhere and leave the heat number legible when removed) placed over one complete heat number before the bituminous coating is applied. This tape shall be located as close to the end of the pipe as the heat number will allow and from under the paved invert. All individual joints of pipe require this procedure.

Copies of certified mill test reports showing heat numbers, the chemical analysis and weight of spelter coated for each heat, lift of coil number, case, size and type of material used to fabricate this pipe will be mailed to the Engineer, City and Contractor within 5 calendar days of the delivery date of the pipe. Each copy will reference pipe size, number of sections, date of actual delivery to the job so that a positive identification can be made.

C. Corrugated Plastic Pipe: Corrugated flexible conduit with slip-on joints made of polyethylene conforming with ASTM F 405 and F 449. Subject to compliance with requirements, firms offering products which may be incorporated in the work include, but are not limited to, the following: ADS Inc. Hancor Inc.

1.05 Pipe Foundation

A. Foundation for Reinforced Concrete Pipe: Unless otherwise indicated, lay pipe in trenches and on foundations prepared as selected by the Contractor in conformance with the bedding class, trench width and depth, and pipe size tabulated below:

		Maximum Trench Depth in Feet					
		Class C Bedding			Class B Bedding		
Pipe Size Inches	Maximum Trench Width Ft-in.	Conc. Cl. 3	Conc. Cl. 4	Conc. Cl. 5	Conc. Cl. 3	Conc. Cl. 4	Conc. Cl. 5
18	3-3	9	15	30	12	24	30
21	3-6	9	16	30	13	26	30
24	4-0	10	16	30	13	23	30
27	4-0	11	19	30	15	29	30
30	4-6	11	18	30	14	25	30
36	5-6	11	17	29	14	23	30
42	6-0	12	16	26	15	21	30
48	7-0	12	18	28	15	23	30
54	7-6	13	18	29	16	24	30
60	8-6	13	19	28	16	23	30

B. Foundation for Corrugated Plastic: Unless otherwise approved, lay corrugated plastic pipe in trenches, or fills using not less than Class C Modified Bedding and in conformance with the maximum fill depth and pipe size tabulated below:

Pipe Size Inches	Maximum Fill Depth for Corrugated Plastic Pipe in Feet
18	11
24	7

C. Foundation for Bituminous Coated Corrugated Aluminum Pipe: Unless otherwise approved, lay corrugated plastic pipe in trenches, or fills using not less than Class C Modified Bedding and in conformance with the maximum fill depth and pipe size tabulated below:

Maximum Fill Depth In Feet For Bituminous Coated Corrugated Aluminum Pipe With Wall Thickness

Pipe Size Inches	0.06 In. (16 Ga.)	0.075 (14 Ga.)	0.105 (12 Ga.)	0.135 (10 Ga.)	0.164 (8 Ga.)
18	30	30	52	54	56
24	22	22	39	41	42
30	18	18	31	32	34
36	15	15	26	27	28
42		26	43	43	44
48			40	41	43

1.06 Bedding

A. Coarse Granular Material For Pipe Bedding: Crushed stone, crushed gravel, natural gravel, or crushed shell meeting ASTM C 33, and having No. 67 gradation (3/4 inch to No.4 sieve).

B. Fine Granular Material For Pipe Bedding: Uniformly graded natural or manufactured sand composed of hard, durable particles with 100 percent passing a No.4 sieve, not more than 25 percent passing a No. 100 sieve, and containing no more than 25 percent total of silt and clay.

C. Class B Bedding: Class B Bedding may be achieved by either of the following two construction methods:

1. Shaped Bottom with Tamped Backfill: Shape bottom of trench excavation to conform to a cylindrical surface with a radius at least 2 inches greater than the radius to the outside of the pipe and with a width sufficient to allow six-tenths of the width of the pipe barrel to be bedded in fine granular material fill placed in the shaped excavation. Carefully place and compact backfill at sides of pipe to a thickness of at least 12 inches above

top of pipe. Limit use of this bedding method to trenches with firm bottom and sides.

2. Compacted Coarse Granular Bedding With Tamped Backfill: Bed pipe in compacted coarse granular material placed on a flat trench bottom. Thickness of granular bedding must be at least one-fourth the outside pipe diameter, but not less than 4 inches thick under pipe barrel, and extend at least halfway up the pipe barrel at the sides. Carefully place compacted backfill above the granular material up a minimum depth of 12 inches over the top of pipe.

D. Class C Bedding: Class C Bedding may be achieved by either of the following two construction methods:

1. Shaped Bottom: Bed pipe with ordinary care in an earth foundation formed in the trench bottom by a shaped excavation which fits the pipe barrel with reasonable closeness for a width of at least 50 percent of the outside pipe diameter. Place compacted fill to a minimum depth of six inches above top of pipe.

2. Compacted Coarse Granular Bedding with a Tamped Backfill: Bed pipe in compacted granular material placed on a flat trench bottom. Thickness of granular material must be at least 4 inches under the barrel and must extend one-tenth to one-sixth of the outside diameter up the pipe barrel at the sides. Place compacted backfill above the granular material to a minimum depth of six inches over top of pipe.

E. Class C Modified Bedding: Class C Modified Bedding is defined as bedding pipe on a bedding blanket of sandy material roughly shaped to fit bottom of pipe. Thickness of bedding blanket must be not less than 0.1 of the nominal pipe diameter. Place compacted backfill above bedding blanket to a minimum depth of 12 inches over the top of pipe.

1.07 Pipe Laying

When either bituminous coated corrugated aluminum or corrugated plastic pipe is used, pipe installation must be observed by a Georgia registered professional engineer engaged by the contractor or developer. Upon completion of the pipe installation and prior to acceptance by the City, the observing engineer is to furnish to the City a certification that the storm drainage pipe has been installed in accordance with the approved plans and these specifications. Acceptance by the City will not be considered without the engineer's certification. Clean interior of pipe and all joints before laying.

When pipe laying activity is not in actual progress, tightly cover open ends of sewer. Avoid permitting mud or other material from entering sever at all times.

Avoid damage or shock in handling pipe and accessories. Inspect each length of pipe, and reject any defective piece. Carefully protect pipe in place from damage or displacement until backfilling operations are complete. Lay and joint pipe in strict conformance with manufacturer's written recommendations as submitted to and accepted by the City.

Where cement joints are used, provide wet burlap or earth protective cover for joints immediately after initial grout set. Maintain protective cover until joint is covered by backfilling.

Lay all pipe upgrade with spigots pointing downgrade. Control geometric position of pipe as necessary to ensure that pipe and fittings accurately conform with required grade and alignment after sewer is completed. Prevent water from accumulating or running in trench during pipe laying operations, and until the trench or excavation has been backfilled.

Remove and re-lay any length of pipe which does not accurately conform with required line or grade, is crushed, or is excessively deflected.

1.08 Pipe Connections

Make all pipe connections with standard fittings, manholes, structures, or special construction detailed on Drawings.

At manholes and structures, neatly cut all connecting pipe flush with inside surface, and provide flexible pipe joint within 18 inches of outer surface. Make pipe connections to manholes and structures by laying pipe in mortar bed or concrete. Use supplemental materials and techniques as required to obtain watertightness. Do not connect any flow to new work until authorized by the City.

1.09 Line Cleaning

Avoid permitting dirt, rubbish, surplus construction material, and other foreign matter to enter structures or pipe during construction. Use whatever means may be necessary to obtain a clean and internally smooth sewer system prior to final acceptance.

1.10 Leakage and Infiltration

Entire storm sewerage system shall be made as watertight as practicable. All visible points of ground water infiltration leakage shall be eliminated.

SECTION 2: GRASSING

2.01 General

The extent of grassing consists of those areas which are disturbed by operations of the Contractor and are not covered over by improvements, except where specifically noted otherwise, together with any additional areas shown on the drawings or designated by the City. Grassing operations include, but are not limited to, the following: Ground preparation, Seeding, Liming, Fertilizing, Mulching, Watering, and Maintenance of Grassed Areas.

2.02 Quality Assurance

Use grassing materials with certificates of inspection as required by governmental authorities. Comply with regulations governing grassing materials.

2.03 Grass Seed

Provide fresh, clean, new-crop seed complying with the tolerance for purity and germination established by the Official Seed Analysts of North America. Provide seed of the grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as specified below:

Common Name:	Sowing Rate lbs per acre	Min % Germ.	Min % Purity	Max % Weed
Bermuda Grass, Common	8	70	90	2

2.04 Soil Amendments

A. Lime: Natural limestone containing not less than 85 percent of total carbonates, ground so that not less than 90 percent passes a 10-mesh sieve and not less than 25 percent passes a 100-mesh sieve.

B. Fertilizer: Standard commercial grade fertilizer conforming to the standards of the Association of Official Agricultural Chemists. Provide either grade 4-12-12, 6-12-12 or 5-10-15 at Contractor's option.

C. Nitrogen: Standard commercial grade nitrogen conforming to state fertilizer laws. Provide in either granular or liquid form at Contractor's option.

D. Water: Water used to produce grass is to be free of excess and harmful chemicals, acids, alkalies and all other substances which are harmful to plant growth.

E. Wood Cellulose Fiber Mulch: Green colored wood cellulose fiber containing no germination or growth inhibiting ingredients, and suitable for uniform application by hydraulic mulching equipment. Mulch material to have the following packaged properties:

Property	Nominal Value
Percent Moisture Content	9.0% ± 3.0%
Percent Organic Matter (Oven Dried Basis)	99.2%±8.8%
Percent Ash Content	08%±02%
pH	4.8% ±0.5%
Water Holding Capacity (g/l000g)	1,150 Minimum

F. Natural Mulch: At Contractor's option, either threshed rye, oat or wheat straw or Bermuda grass hay free of noxious weed seeds.

G. Asphalt: Homogeneous emulsified asphalt meeting ASTM D 977 which contains no agents harmful or toxic to plant growth.

2.05 Execution

These Specifications set forth minimum operations and material applications which are acceptable. However, a satisfactory stand of grass must be obtained by using supplemental methods and/or materials as may be required.

A. Grassing By Private Property: Where grassing is required between curbs and sidewalks or behind sidewalks in areas adjacent to private residential or commercial property, the City may change the type of grassing required to match any type of grass which may be planted and growing on the adjacent lawn.

B. Ground Preparation: Plow area to be grassed to a depth of not less than 4 inches. After plowing disk and harrow area until soil is well pulverized to a depth of at least 4 inches. Completed surface must be smooth, uniform, loose and free of large clods, boulders, stumps, large roots, debris and other similar undesirable matter.

C. Lime and Fertilizer Application: Spread lime uniformly over the ground surface at the rate of 1,000 pounds per acre. Spread fertilizer uniformly over the ground surface at the rate of 1,000 pounds per acre. Once lime and fertilizer are placed, blend into top 4 inches of soil with suitable harrows, rotary tillers or other appropriate equipment. Restore surface areas to line and grade.

D. Application of Nitrogen: Make two applications of nitrogen to all grassed areas using mechanical spreading equipment. Apply at a uniform rate of not less than 70 pounds per acre per application. Make both applications only when weather conditions will permit uniform and even distribution and when moisture conditions will not cause harm to grass. Place first application of nitrogen when young grass reaches a height of at least one inch. Make the second application of nitrogen between 30 and 45 days after the first application.

E. Seeding: Sow seed within 24 hours following completion of placing lime and fertilizer using mechanical equipment that produces uniform application of seed. Once seed is sown, roll seeded areas before placing mulch. Sow seed only when weather conditions permit uniform distribution of seed and ground is not frozen, wet or otherwise non-tillable.

F. Mulching: Mulch all grassed areas using either wood cellulose fiber mulch or natural mulch with bituminous treatment at the following rates:

1. Wood Cellulose Fiber Mulch: 1,500 pounds per acre
2. Natural Mulch-Bituminous Treated: 3/4 inch to 1 ½ inch deep over entire area with sufficient asphalt material to hold mulch in place

Apply mulch only when weather conditions will permit uniform distribution of mulch. Exercise care at all times to protect the public, adjacent property, bridges, pavements, curbs, sidewalks and all other structures.

G. Water: Water grassed areas as required to obtain specified grass coverage.

H. Required Coverage: Grassed areas will be considered acceptable when a viable stand of grass covers at least 98 percent of the total area with no bare spots exceeding one square foot and the ground surface is fully stabilized against erosion.

I. Maintenance: Maintain grassed areas until the later of (1) final project acceptance, or (2) the required grass coverage is achieved. Maintain grassed areas by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth, acceptable stand of grass free of eroded or bare areas. Mow areas as required to keep grass not more than 8 inches above ground surface until grassing work is accepted.

J. Final Inspection and Acceptance: When the grassing work is completed, including maintenance, the City will, upon request, make an inspection to determine acceptability. Where inspected work does not comply with the requirements, replace rejected work and continue specified maintenance until re-inspected by the City and found to be acceptable.

SECTION 3: GRADED AGGREGATED BASE AND SUBBASE

3.01 Sampling and Testing

Provide quality control testing during construction as necessary to ensure the entire base or subbase including all courses meets contract requirements. Remove and reconstruct, or otherwise correct work which falls below specified density or is outside other specified limits. Provide quality control testing by an approved testing laboratory during construction as necessary to ensure the entire or subbase including all courses meets contract requirements. Remove and reconstruct, or otherwise correct work which falls below specified density or is outside other specified limits.

A. Minimum quality control testing to be provided by the contractor consists of the following:

1. Moisture-density relationship curve for graded aggregate to be used on project.
2. One-in-place density test (ASTM D 1556 or other method approved by the Engineer) per 1,200 square yards of base or subbase.
3. One thickness measurement normal to base or subbase surface per 1,200 square yards of base or subbase.
4. One surface tolerance measurement using a 15 foot straight edge per 250 square yards of base or subbase.

After completing street earthwork operations and before beginning street base construction, the developer shall file a copy of the quality control test results demonstrating compliance with these requirements with the City. At any time during the construction process, representative(s) of the City may request to review and the developer shall provide quality control test results.

3.02 Aggregate Properties

Graded aggregate shall meet standards set forth in the Georgia Department of Transportation Specifications for Coarse Aggregate, Section 800.

3.03 Execution

Clear and grub entire street right-of-way before commencing street earthwork construction. For specific technical requirements reference is made to Georgia DOT Specifications. Combustible material generated from clearing and grubbing operations may be burned only when authorized and permitted by the Dawson County Fire Marshall.

Complete utility and drainage earthwork before starting street subgrade construction. Ensure that subgrade and subbase conforms to specified compaction, line and grade and thickness requirements before commencing graded aggregate construction. Responsibility for placing the specified graded material lies with the Contractor. Approval by the

engineer of material, source of supply, etc. in no way relieves the Contractor of his responsibility of providing the specified graded aggregate material.

Place homogeneously and uniformly mixed graded aggregate on prepared subgrade or subbase. Spread material to a uniform depth not exceeding the thickness indicated on the Drawings nor 6 inches after compaction. Where graded aggregate base or subbase is indicated more than 6 inches in thickness, construct base or subbase in two or more courses of approximately equal thickness.

Control graded aggregate compaction during construction providing no less than minimum percentage of density specified. Achieve not less than 100 percent of maximum dry density as determined by ASTM D 698 (Standard Proctor) for each couse of material-in-place.

After compaction, shape surface to required line, grade, and cross section. Compact loosened material until the surface is smooth, closely knit, free from cracks, conforming to required line, grade and cross section. Obtain a finished surface with no variation from design requirements in excess of 1/4 inch when measured with a 15 foot straightedge.

Maintain graded aggregate base or subbase in a smooth, true to grade, compacted condition until it is covered by other construction.

Achieve compacted thickness which is no more than ½ inch less than the required thickness at any point. Correct any area deficient by more than ½ inch by adding additional graded aggregate and rebuilding the base or subbase to the required thickness in accordance with this section.

SECTION 4: PAVEMENT REMOVAL AND REPAIR

4.01 Scope

Pavement referred to under this Section, refers to asphaltic, cementious, brick, cobble or other large stone pavement materials together with underlying construction, irrespective of its composition. The extent of pavement work under this sections consists of the removal of pavement and repair of all pavement removed or damaged in the course of constructing the Project. Pavement patching includes repair of paved roads, streets, highways, walkways, driveways, patios, slabs on grade, and parking lots together with walls, curbing, gutters and headers, and other pavements and appurtenances. City of Dawsonville Standard Details associated with this specification are 28.1, 29.1, 38.1, 39.1 and 40.1.

4.02 Traffic Control

Schedule and conduct work in a manner which will minimize inconvenience to vehicular and pedestrian traffic. Provide flaggers, barricades, warning signs, warning lights, and other warning means as appropriate. Traffic Control: Immediately after new base construction, cover pavement cut with steel plates or similar devices of sufficient thickness to span the cut without noticeable deflection. Maintain plates in place for not less than 24 hours and not more than 7 days and until the concrete base has gained sufficient strength to withstand traffic loads. Traffic may resume after installation of metal plates. Traffic control devices in lieu of cover plates are permitted for pavement work longitudinal to the street centerline in excess of 20 feet. Use traffic barricades, warning signs and lights, flagmen, and other means as appropriate to continuously control traffic 24 hours per day. Use devices such that at least 12 feet wide, one-way through traffic access is provided at all times.

4.03 Weather Limitations

Conduct all operations during weather conditions appropriate to the Work being performed.

4.04 Grade Control

Establish and maintain lines and elevations which will ensure finished pavement having desirable appearance, function and strength.

4.05 Submittals

Submit detailed material descriptions when requested by the Engineer.

4.06 Materials

For products not described below, use materials and gradations which have locally exhibited a satisfactory record of previous usage, and which for finished visible surfaces

will permit obtaining appearance, color and texture reasonably matching remaining adjacent pavement of the same type.

A. Asphalt Concrete: Bituminous plant mixture of asphalt cement and aggregates complying with Superpave mixtures specified in Section 828, Hot Mix Asphaltic Concrete Mixtures of the Georgia Department of Transportation, "Standard Specifications for Road and Bridge Constructions".

B. Graded Aggregate Base: Uniform graded aggregate material complying with Section 815 of the Georgia Department of Transportation "Standard Specifications for Road and Bridge Construction".

C. Bituminous Prime: Cutback asphalt complying with Section 821 of the Georgia Department of Transportation "Standard Specifications for Road and Bridge Construction

D. Bituminous Tack Coat: Asphalt material complying with Section 413, topics 413.01 through 413.04 of the Georgia Department of Transportation "Standard Specifications for Road and Bridge Construction".

E. Portland Cement Concrete: Concrete mix of Portland cement, aggregates, water, and air entraining admixture to produce the following properties: 3500 psi minimum compressive strength at 28 days per ASTM C39, 4 inches maximum slump per ASTM C143, and air content between 3% and 6%.

F. Cold Mix: Cold Mix shall not be used for pavement patches.

4.07 Execution

A. Pavement Cuts: Saw cut trench edges in paved areas to neat, straight lines before starting to break the pavement slab. City of Dawsonville Standard Details No. 28.1 and 29.1 shall be used.

B. Backfill Placement: Place trench backfill materials in layers not more than six inches compacted thickness. Commence backfill immediately after utility is installed. Complete new replacement base construction immediately after trench backfill.

C. Inspection: Examine areas and conditions under which pavement patching will be conducted, giving special attention to stability of subbase. Do not proceed with pavement patching work until unsatisfactory conditions have been corrected.

D. Preparation: Saw cut any ragged edges of existing pavement, or in the case of concrete work, remove existing pavement to nearest joint. Remove all loose material from underlying and adjacent surfaces.

E. Strength and Stability: Use materials and construction techniques as necessary to obtain strength, stability and durability of pavement patch at least equal to that of remaining adjacent pavement of the same type. As a minimum, conform with

pavement patch details, if any, required elsewhere by the Contract Documents; and where such details are not provided, accomplish pavement patching utilizing strengths, thickness, etc. not less than that of remaining adjacent pavement of the same type.

F. Placing: Construct pavement using methods and equipment in general use for the type of work being performed. Monitor performance and repair or replace materials regularly to maintain smooth traffic surface until placement of permanent pavement surface materials. At Contractor's time selection prior to substantial completion, remove cold mix and bond breaker paper and provide new permanent pavement surface materials. If performance or maintenance of cold mix patch is unsatisfactory in the opinion of the City or Engineer, remove materials and provide new permanent pavement surface materials within 72 hours of notice by the City or Engineer. Upon removal of the metal plates or similar devices, provide new pavement surface in accordance with one of the following options:

- Immediately apply new permanent pavement surface materials indicated or immediately apply bituminous cold mixture over bond breaker paper over new base.
- Plates or other traffic control devices may be used before the permanent pavement surface is installed.

Contractor assumes all responsibility for maintaining repairing and or replacing concrete base that may be damaged during curing period.

For existing surface of Portland cement concrete, furnish new Portland cement concrete structure thickness, including base and pavement surface, of not less than eight inches; except for sidewalks which shall be not less than four inches thick.

Provide not less than eight inches thickness of new graded aggregate base for replacement of asphalt concrete pavement at driveways, sidewalks and parking lots.

For repair of asphalt concrete pavement, clean base and adjacent surfaces and apply bituminous tack coat or bituminous prime (as appropriate) to such surfaces before placing new asphalt concrete surface.

G. Finish: Accomplish pavement repair using materials and techniques which result in visible, finished surfaces having appearance, color, and texture reasonably matching remaining adjacent pavement of the same type. Do not permit the finished surface to have dips, objectionable roughness or discontinuity or non-draining areas. Do not create any unsafe pavement condition.

H. Repairs: If pavement patch or adjacent pavement settles or shows evidence of other distress resulting from the Work, cut pavement out, repair subgrade, and

reconstruct patch. Do not place additional pavement material on top of unsatisfactory previously repaired surfaces. At expense of Contractor, repair any pavement which he damages beyond that minimum amount necessary to construct the Work.

4.08 Removing Pavement

The Contractor shall remove pavement as necessary for installing the new pipe lines and appurtenances and for making connections to existing pipe lines.

A. Marking: Before removing any pavement, the pavement shall be marked for cuts neatly paralleling pipe lines and existing street lines. Tunneling will be permitted under existing sidewalks, curbs and gutters, but not under pavement.

Power saws shall be used to cut all types of pavement along marked lines. The pavement shall be sawed to a depth of at least 2" or deeper if directed by the Engineer.

B. Machine Pulling: No pavement shall be machine pulled until completely separated along the marked cuts.

C. Damage to Adjacent Pavement: The pavement adjacent to pipe line trenches must not be disturbed or damaged. If the adjacent pavement is disturbed or damaged due to any cause, such as caving ditch banks, indiscriminate use of construction machinery, etc., the Contractor shall remove the damaged pavement and shall replace at his own expense.

D. Stone or Precast Concrete Curb: The Contractor shall remove and replace or tunnel under any stone or precast concrete curb encountered.

4.09 Replacement Pavement

Upon completion of backfilling and consolidation of the backfill, the Contractor shall furnish all materials and labor and shall replace all pavement removed for construction of the pipe lines and appurtenances. The Contractor shall also remove and replace at his own expense any and all pavements adjacent to pipe trenches which may have been disturbed or damaged as the result of construction operations.

In the event weather conditions do not permit the permanent replacement of pavement immediately subsequent to the completion of pipe line construction, the Contractor will be required to maintain temporary surfacing until such time as the weather is suitable for paving operations. Any such delay will not be counted against the contract time for completion, provided that all other work to be performed under the Contract is completed within the specified time.

A. The various types of pavement removed shall be replaced as follows:

1. Pavement Replacement: Street pavement shall be replaced in accordance with the applicable provisions of the Standard Specifications Construction

of Transportation Systems, Georgia Department of Transportation, latest revision, and with the City of Dawsonville Standard Details.

2. Base: The base for the asphaltic concrete pavement shall be 8" of concrete.

3. Asphaltic Concrete: The concrete base shall be poured to the proper level after which it shall be primed and sealed in accordance with the appropriate standard specification. The wearing course shall consist of 2" of Superpave plant-mixed asphaltic concrete, conforming to the provisions of Section 400 of the Georgia Department of Transportation Specifications.

B. Sub-Grade Preparations: Under trench paving the sub-grade shall be thoroughly compacted by approved mechanical compaction equipment to 95% as determined by Modified Proctor Test. At least 2 compaction tests shall be made between manhole reaches equal to or less than 200' long. At least 3 compaction tests shall be provided for manhole reaches greater than 200' long. These tests shall be conducted by an approved soils testing company and shall be performed by an experienced soils technician. The costs of all tests shall be paid by the City.

C. Pavement Preparation: Before replacement of pavement, the pavement should be cut back at least 12" on each side of the trench or to visible overbreaks, whichever is greater, to a depth of 2" with a concrete saw. No cutback will be required on bituminous surface treatment pavement to insure a straight vertical edge for the patch. After making the saw cut, the pavement to be removed should be broken into small pieces and removed. The broken edge below the saw cut is left fairly rough and irregular but is approximately a vertical plane to provide an aggregate interlock between the patch and the existing pavement. The sub-base material should be carefully placed and shaped. Water should be added to provide a damp but not wet sub-base before the concrete base or soil cement base is placed. The new concrete base should then be poured or soil cement base placed before this surface dries out. The base should be placed with care, making sure it is worked back into all corners.

D. Concrete Base: After the concrete base has cured, the concrete surface and vertical edges of the existing paving must be clean and dry before the tack coat is applied. The tack coat should be applied to the surface of the new concrete base and brushed into the corners and on to the vertical edges of the old pavement to provide a bond and seal out water. The asphalt surface material should be immediately placed after the surface of the tack coat has dried to the point it is sticky to the touch.

E. Soil Cement Base: In lieu of the concrete base as described above, a soil cement base material consisting of approximately 12% Portland Cement by volume and a

friable local material must be used. The minimum depth for the soil cement should be 12". This material should be placed in at least 2 layers with no layers to exceed 6" in depth and compacted to 100% compaction. In lieu of the bituminous tack coat, a bituminous prime should be lightly sprayed or mopped onto the soil cement base as soon as it is completed.

F. Asphalt Surface: The asphalt surface material should be immediately placed after the surface of the bituminous prime has cured. A short period of time is required for the prime to penetrate into the base material.

G. Replacement of Concrete Curb and Gutter, Street, Driveway and Sidewalk: Concrete curb and gutter, street, driveway and sidewalk shall be replaced with Class 'A' 3,000 psi concrete of the same thickness and dimensions as was removed.

SECTION 5: ROADWAY AND WALK INSTALLATION

5.01 Roadway Surfacing

All paved access roads and parking areas, where shown on the Drawings, shall have a crushed stone base course, prime coat and sand asphalt surface course. The compacted depth of the base course shall be 6", and widths shall be as shown. Surface course shall be 1 ½" thick. Materials and construction methods shall conform to *the Standard Specifications for Highway Construction of the Georgia Department of Transportation* as follows:

- Section 310: Graded Aggregate Construction
- Section 412: Bituminous Prime
- Section 400: Hot Mix Asphaltic Concrete Construction
- Section 828: Hot Mix Asphaltic Concrete Mixtures

5.02 Quality Assurance

A. The developer shall provide quality control testing during base and pavement construction as necessary to ensure the entire pavement structure meets the minimum requirements of these Regulations. The minimum quality control testing to be provided consists of the following:

1. Moisture-density relationship curve for each base material used on project.
2. For soil cement base, conduct mix design to determine Portland cement content (percent of dry weight of the soil) to achieve a minimum compressive strength of 300 psi at seven days when testing in accordance with ASTM D 1632 and D 1633.
3. One in-place density test (ASTM D 1556 or other method acceptable to the City) per 1,200 square yards or fraction thereof of base. (4.9 (e) (2) and
4. One thickness measurement normal to base surface per 1200 square yards or fraction thereof of base.
5. For base course, one surface tolerance measurement using a 15 foot straight edge per 250 square yards or fraction thereof of base.
6. One asphalt extraction (ASTM D 2172) and aggregate gradation analysis (ASTM C 136) per 2400 square yards or fraction thereof of surface course and per 2400 square yards or fraction thereof of binder course (if any). Obtain samples for extraction and gradation tests in accordance with ASTM D 979.
7. One density and compacted thickness measurement per 1200 square yards or fraction thereof of each course placed. Density determined to be made in

accordance with ASTM D 1188. Remove not less than 3 inch diameter nor larger than 12 inch square test specimens. Repair test specimen holes with full depth application of fresh hot asphaltic plant mix.

8. For asphalt extraction, one surface tolerance measurement using 15 foot straight edge per 250 square yards or fraction thereof of surface course.

B. Base and/or paving construction which falls below specified minimum quality control limits shall be removed, reconstructed, and re-tested until compliance with specified requirements is achieved.

C. Report test results in writing to the Engineer promptly (normally same day tests are made). The Engineer and/or City may perform sampling, surveying, inspection or testing activity during construction for his use, but such activity does not relieve the Contractor from his responsibility to achieve specified results.

D. After completing base and paving construction, the developer shall file a copy of the quality control test results demonstrating compliance with these Regulations with the City. At any time during the construction process, representative(s) of the City may request to review and the developer shall provide quality control test results.

E. The City may perform compaction, surface tolerance and thickness check tests on graded aggregate work when the Contractor indicates such work meets contract requirements. If these tests demonstrate work fails to meet contract requirements, it is the Contractor's responsibility to determine the extent to which the deficiency is present, to correct the deficiency, and to demonstrate by tests made by an approved testing laboratory, compliance with contract provisions in the deficient area. Check testing activity by the City does not relieve the Contractor from his responsibility to achieve specified results. All costs of determining the extent to which a deficiency is present and of retesting to demonstrate compliance with specified results are to be assumed by the Contractor. The City will pay all other check testing costs.

5.03 Walks

Per GDOT section 441, walks shall be constructed of Class 'B' concrete (2,200 psi), shall be 4" deep and 5 feet wide unless otherwise specified. Transverse contraction joints shall be formed with a tool designed for forming a groove ⅓ the depth of the sidewalk, and on not more than 6'-0" centers. All edges shall be rounded with a 1-¼ edger. Expansion joints shall be located on not more than 20'-0" centers and at all intersections.

5.04 Walks Crossing Driveways

Walks crossing driveways shall be constructed of Class 'A' concrete (3,000 psi), shall be 8" deep and 5 feet wide unless otherwise specified. Transverse contraction joints shall be formed with a tool designed for forming a groove ⅓ the depth of the sidewalk, and on not

more than 6'-0" centers. All edges shall be rounded with a 1-¼ edger. Expansion joints shall be located on not more than 20'-0" centers and at all intersections. Valley gutters shall be installed according to Georgia Department of Transportation details.

5.05 Excavation

Excavation for roadways and walks shall be made to the lines, grades and typical sections approved by the City. Proper allowances shall be made for specified thickness of roadbed and walkway below the finish grade shown. Should rock be encountered in the subgrade, the road shall be excavated to a depth of 6" below subgrade and the resulting space backfilled with suitable material.

5.06 Existing Paved Surfaces

All existing paved surfaces shall be protected and repaired if damaged.

5.07 Curb and Gutter

Concrete used for curb and gutter construction shall have a minimum 3,000 psi compressive strength at 28 days (ASTM C 39); a 2 inch to 4 inch slump (ASTM C 143) and, 3 to 6 percent air content (ASTM C 231 or C 173) and shall comply with ASTM C 94.

Construct curb and gutter true to line, grade and cross section on properly prepared subgrade. Apply Georgia DOT Type 2 membrane curing compound.

Protect completed curb and gutter work from damage until dedication to the City. As soon as the curb and gutter will not be damaged, backfill, compact, stabilize and grass adjacent ground to achieve design line and grade.

Acceptably repair or replace broken or defective curbs and gutters.

5.08 Shoulders

Shoulders shall be constructed of selected topsoil in accordance with typical sections approved by the City and shall be grassed as specified elsewhere.

5.09 Construction on Embankments

Where roadways are constructed on fill, the embankment shall be placed in layers not over 6" deep as measured before compaction and be thoroughly rolled to a density of 98% of the Standard Proctor Dry Density with sheepsfoot or pneumatic tired roller. The work shall be executed in a manner which will ensure that no places too steep to roll are left in the embankment. Portions inaccessible to the roller shall be rammed by hand. All materials shall be visibly damp. Water shall be applied as directed to obtain close adhesion between layers and all parts of the material.

Sheepsfoot roller shall be of self-cleaning type, have feet projecting 7" from the shell and be of a weight so that the load of each tamper foot with the drum empty will be not less than 100 pounds per square inch of area in contact with a plane surface. Rolling shall be

executed until the feet leave no appreciable imprint when the shell is filled to a maximum weight.

Pneumatic tired rollers shall be suitable for ballast loading which will give a compression, under working conditions, of not less than 325 pounds per inch width of tire tread. Forward and rear tires shall make separate tracks. Compaction shall be equivalent to that required for the sheepsfoot roller.

Within the limits of the roadbed, the fill shall be constructed of selected clay materials from excavation and borrow and be free from stones larger than 4" in diameter. Slopes of roadway outside the above limits may be constructed of alternate layers of rock and clay; in no case shall rock be allowed in nests. The stones shall be uniformly distributed over the preceding clay layers, and the voids shall be completely filled with clay so as to form a solid compaction embankment.

First Reading: 07/08/2019

Second Reading: 07/15/2019

Adoption: 7-15-2019

AN ORDINANCE TO AMEND THE LAND DEVELOPMENT REGULATIONS OF THE CITY OF DAWSONVILLE SO AS TO PROVIDE FOR THE REGULATION OF WORK HOURS FOR WHEN DEVELOPMENT AND CONSTRUCTION ACTIVITIES MAY TAKE PLACE; TO PROVIDE FOR EMERGENCY EXEMPTIONS; TO PROVIDE FOR VIOLATION AND ENFORCEMENT OF THE LAND DEVELOPMENT REGULATIONS; AND FOR OTHER PURPOSES.

WHEREAS, the Mayor and Council of the City of Dawsonville find that the adoption of a development regulation to govern when development and construction activities may take place is proper and appropriate as these activities produce noise, dust, debris and other matters that may affect the health, safety, welfare, peace, rest and repose, and tranquility of the citizens of The City of Dawsonville;

WHEREAS, the Mayor and Council of the City of Dawsonville find that it is appropriate to set by ordinance the penalties for violation of the Land Development Regulations of the City as set forth in Subpart B of the City Code of Ordinances.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF DAWSONVILLE HEREBY ORDAINS AS FOLLOWS:

SECTION 1.

Subpart B Land Development Regulations of the Code of the City of Dawsonville, Georgia, is hereby amended by inserting a new section 101-4 and a new section 101-5 as follows:

Sec. 101-4. – Work Hours for Development and Construction Activities.

(a) Definitions:

(1) *Construction* means any site preparation, assembly, erection, substantial repair, alteration, demolition, or similar action for rights-of-way, buildings, structures, utilities, roadways, or similar items, whether public or private or any other activity for which a Building Permit is required by the City Land Development Regulations.

(2) *Development* means the clearing, grubbing or otherwise removing vegetation on land and grading the same for the purpose of installing infrastructure such as streets, utilities, building pads or any other activity for which a Land Disturbance Permit is required by the City Land Development Regulations.

(3) *Demolition* means any dismantling, destruction or removal of buildings, structures, or roadways.

EXHIBIT "B"

(4) *Emergency* means any occurrence or set of circumstances involving actual or imminent physical personal injury or property damage demanding immediate attention.

(5) *Emergency work* means any work outside of the permitted Hours of Work for the purpose of preventing physical personal injury or property damage threatened or caused by an Emergency.

(b) Hours of Work:
All Development and Construction activities or work shall be accomplished between the hours of 7:30 a.m. and dusk Monday through Friday and between the hours of 8:30 a.m. and dusk on Saturday. No Development and Construction activities or work shall be done on Sunday.

(c) Emergency Exception to Hours of Work:
In the event of an Emergency, Development and Construction activities may be initiated or continued beyond the Hours of Work set forth in sub-section (b) to prevent imminent physical personal injury or property damage that cannot be reasonably remediated during the Hours of Work. Any Emergency Work may only be continued for so long as is required to appropriately reduce the risk of imminent physical personal injury or property damage. The Director will be notified by the Permit Holder of the Emergency as soon as reasonably possible upon the occurrence of the Emergency.

Sec. 101-5. – Violations and Enforcement of the Land Development Regulations

(a) Any person or party who violates any provision of the Land Development Regulations shall be cited for a civil infraction. Each day the violation continues shall constitute a separate violation.

(b) The City Court of the City of Dawsonville may impose a penalty or fine not to exceed $1,000.00 per violation per day of the violation.

(c) *Other laws.* Any resolution or ordinance that may be applicable hereto and aid in carrying out or making effective the intent, purpose, and provisions hereof, which shall be liberally construed in favor of the City of Dawsonville, is hereby adopted as a part hereof.

SECTION 2.

If any section, provision or clause of any part of this Ordinance shall be declared invalid or unconstitutional, or if the provisions of any part of this Ordinance as applied to any particular situation or set of circumstances shall be declared invalid or unconstitutional, such invalidity shall not be construed to affect the portions of this Ordinance not so held to be invalid, or the application of this Ordinance to other circumstances not so held to be invalid. It is hereby declared as the intent that this Ordinance would have been adopted had such invalid portion not been included herein.

SECTION 3.

All Ordinances or parts of ordinances in conflict with this ordinance are hereby repealed.

SECTION 4.

This ordinance shall become effective upon adoption, the public good demanding the same.

EXHIBIT "B"

SO ADOPTED AND ORDAINED by the City Council of Dawsonville, Georgia, this 15 day of July, 2019.

MAYOR AND DAWSONVILLE CITY COUNCIL

By: _____
Mike Eason, Mayor

_____
Caleb Phillips, Council Member Post 1

_____
Stephen Tolson, Council Member Post 2

_____
Jason Power, Council Member Post 3

_____
Mark French, Council Member Post 4

ATTESTED TO BY:

_____
for Beverly A. Banister, City Clerk

By: Tracy Smith, Deputy City Clerk

EXHIBIT "B"

First Reading: 07/08/2019

Second Reading: 07/15/2019

Adoption: 7-15-2019

AN ORDINANCE REPEALING THE CURRENT PARADES AND DEMONSTRATIONS ORDINANCE OF THE CITY OF DAWSONVILLE, GEORGIA; ADOPTING A NEW PUBLIC ASSEMBLY ORDINANCE; PROVIDING FOR A PERMITTING PROCEDURE FOR SPECIAL EVENTS, PARADES, PUBLIC ASSEMBLIES, AND PUBLIC DEMONSTRATIONS; PROVIDING FOR DEFINITIONS; PROVIDING FOR ENFORCEMENT; PROVIDING FOR AN EFFECTIVE DATE, AND FOR OTHER PURPOSES.

WHEREAS, assemblages upon public spaces can interfere with the movement of emergency vehicles and other traffic and thereby endanger public safety; and

WHEREAS, unregulated assemblages such as special event, parades, public assemblies, demonstrations, road closings and rallies have been known to be accompanied by civil unrest and disturbance, accompanied in some cases by significant public injuries and property damage; and

WHEREAS, courts have recognized the right of municipalities to enact reasonable time, place and manner restrictions related to special event, parades, public assemblies, demonstrations, rallies, road closings, and similar activities such as those established hereby, while respecting and protecting in a content-neutral fashion the Free Speech rights of groups and individuals wishing to express their views by such methods; and

WHEREAS, the City of Dawsonville, Georgia, (the "City") is empowered to enact ordinances concerning the subject matter of this ordinance pursuant to its Charter at §§ 1.12(16), 1.12 (29), 1.12 (31), 1.12 (34), 1.12 (36), 1.12 (42)–(43), and 1.12 (49).

WHEREAS, it is reasonable and appropriate for the City to enact the regulations hereinafter provided to ensure the delivery of critical emergency services, protect public safety, maintain the orderly and safe flow of traffic, and ensure the safety of individuals and property while also respecting and ensuring Free Speech rights; and

AND WHEREAS, to properly protect the right of the public to engage in free speech, while balancing the City's need to have reasonable time, place and manner regulations on the same, it is necessary to repeal the current version of the Parades and Demonstrations Ordinance and adopt a new Assemblages Upon Public Spaces Ordinance.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF DAWSONVILLE HEREBY ORDAINS AS FOLLOWS:

SECTION 1.

Article II of Chapter 10 of the Code of the City of Dawsonville, Georgia is hereby amended by repealing existing Article II in its entirety and replacing it with a new Article II as follows:

EXHIBIT "C"

ARTICLE II. – PARADES AND DEMONSTRATIONS

Sec. 10-19. – Purpose.

(a) The Purpose of this ordinance is to establish an application and permitting procedure for every organization, group of persons, or entity which wishes to use public property, sidewalks, or public roads within the municipal limits of the City for an unofficial purpose or purposes in holding a special event, parade, public assembly, demonstration, rally, footrace, fun run, bicycle race, filming, road closing or other such assemblage or activity.

(b) Nothing in this Article shall be construed to limit, restrict, inhibit, reduce, or otherwise impact the right of the City or its Authorities to schedule, authorize, oversee, or otherwise facilitate any special event, parade, public assembly, demonstration, rally, footrace, fun run, bicycle race, road closing or other such event, if such events violate other laws, ordinances, or regulations of the City or the State of Georgia.

Sec. 10-20. – Definitions.

(a) *Demonstration* means a meeting or gathering of an organization, group of persons, or entity for a public display or for exhibiting feelings or concerns towards a person or a cause. This definition includes picketing.

(b) *Footrace, Fun run, and/or Bicycle Race* shall mean an organized race of any sort where public streets will either be closed or impacted.

(c) *Organization, Group of Persons, or Entity* shall mean any collection of persons, greater than twenty in number, who act together or as a unit.

(d) *Parade* means a procession of an organization, group of persons, or entity.

(e) *Public Assembly* means a meeting or gathering of an organization, group of persons, or entity to hold a meeting or an address.

(f) *Rally* means the public coming together of an organization, group of persons, or entity for an effort or a cause.

(g) *Filming* means creating motion picture images on public property, including the on-site/on-location pre-production activities associated therewith, where the final product is intended to be commercially released and/or commercially distributed. The term "filming" does not include activities performed as part of documenting current affairs or producing newscasts. Notwithstanding the previous, the term "filming" does not include location scouting.

(h) *For-Profit* means that the purpose of the event for which a permit is sought is solely for the benefit of a private shareholder, individual, or for-profit corporation.

(i) *Non-Profit* means that the event, for which a permit is sought, is organized and operated for charitable, religious, scientific, literary or educational purposes, or for the benefit of a 501(c)(3) corporation as that term is defined by the United States Internal Revenue Code and where no part of the net earnings of which inures to the benefit of any private shareholder, individual or for-profit corporation.

(j) *Road Closing* means an activity of an organization, group of persons, or entity which requires, even for a brief time, the closure of a city street or public way.

(k) *Special event* means the temporary use, with a valid permit, of public property, including streets, sidewalks, parks, city owned buildings or land and community centers for the purposes of conducting certain short-term events including, but not limited to, art shows, festivals, music concerts, fundraising events, sidewalk sales, amusements, attractions, circuses, carnivals, rodeos or sporting events.

(l) *Spontaneous Speech* refers to that speech which, because of the immediacy of the concern and the need for swift or immediate action cannot be expected to comply with the permitting process because prompt speech is required and/or application is not possible due to the unavailability of City officials or the City application process (i.e. unavailability resulting from business hours, weekends or holidays).

(m) *Unofficial Purpose* means any purpose not commanded or directed by statute, ordinance, or other regulation to be performed by the state, county, city, or other governmental entity.

Sec. 10-21. – Permit required.

(a) Every organization, group of persons, or entity who wishes to use public property, sidewalks, or public roads within the municipal limits of the City of Dawsonville for an unofficial purpose or purposes of holding a special event, parade, public assembly, demonstration, rally, footrace, fun run, bicycle race, filming, road closing, or other such activity is hereby required to have a permit from the City for the privilege of engaging in any such activity within the City, unless such a permit is prohibited under state law or the activity is otherwise exempted by law, ordinance, or other valid regulation. A funeral procession, and all other actives expressly noted, shall be exempt from permitting under this article.

(b) During the course of any permitted special event, parade, public assembly, demonstration, rally, footrace, fun run, bicycle race, filming, road closing, or other such event, there must at all times be some individual, authorized by the permit recipient, who possesses either the permit or a true copy thereof, and has such permit or copy available at the event for inspection on demand by persons authorized to enforce this Article, and has the authority to speak on behalf of and bind the permit recipient.

Sec. 10-22. – Duties of the City.

The City shall have, among others, the following duties:

(a) To prepare and provide the necessary forms for the application for a permit and for the submission of any required information as may be necessary to properly administer and enforce the provisions of this article.

(b) To review the application for completeness and collect whatever application fee may be required; to designate or coordinate sites and set time schedules; to coordinate with the appropriate authorities on all matters concerning such activities; and, where appropriate, to receive input from the department of transportation, state highway patrol, police chief, the sheriff, and emergency services, or any other necessary public officer, for the requested activity.

(c) To forward application material to appropriate public safety entities or individuals for their collective input as to the impact the proposed special event, parade, public assembly, demonstration, rally, footrace, fun run, bicycle race, filming, road closing, or other such activity shall have, if any, on the public's health, safety, and welfare. This assessment should include, but not be limited to the impact of the requested activity on the free flow of vehicular traffic, the free flow of pedestrian traffic, and the free movement of emergency vehicles.

(d) To consider, process, and decide whether to issue permits upon applications submitted pursuant to this ordinance within fifteen (15) days or less of the acceptance by the City, of a completed application.

Sec. 10-23. – Application Process.

(a) Every applicant for a permit under the provisions of this article shall submit an application for the permit to the City, which application shall conform to the requirements of this section in addition to any other provisions of this article.

(b) Unless otherwise provided herein, each application shall be a written statement upon forms provided by the City and submitted within a reasonable time prior to the event, at least fifteen (15) days prior to the planned activity for security checks, verifications, and arrangements to be made, as well as for input to be received from affected local and state entities.

(1) While fifteen (15) days is expressed as a minimum requirement for submission of an application under this ordinance, the City reserves its right to implement content-neutral time, place, and manner restrictions on First Amendment Activities, or to deny an application if insufficient time is available for the City to properly plan or prepare for the event requested in the application.

(2) While fifteen (15) days is expressed as a minimum requirement for submission of an application under this ordinance, all applicants for whom it is possible to submit an application under this ordinance prior to an event shall do so, even if the application will be submitted within thirty (30) days of the event at issue. In such circumstances, the City will endeavor with all deliberate speed to process and make a decision on the application prior to the date of the event at issue. Nothing contained herein waives the City's authority to implement content-neutral time, place, and manner restrictions on First Amendment Activities, or to deny an application if insufficient time is available for the City to properly plan or prepare for the event requested in the application.

(3) While fifteen (15) days is expressed as a minimum requirement for submission of an application under this ordinance, the City has no intention of suppressing spontaneous free speech activities which, because of their nature and/or need for immediate action, cannot conform to the application process. The foregoing notwithstanding, any spontaneous free speech activities must be preceded by at least twenty-four (24) hours advance notice to the City and the Dawson County Sheriff's Office. Nothing contained in this subsection shall be construed to limit, restrict, inhibit, reduce, or otherwise impact the right of the City or its authorities to enforce other local laws and/or the laws of the state of Georgia if such spontaneous speech activities violate said laws. Spontaneous free speech activities are exempt from permitting under this article.

(c) The City shall respond with a decision on the application within fifteen (15) days or less of receipt of the completed application, such time being necessary to process the application and obtain needed input from affected local and state agencies as hereinafter described.

(d) The application for any event at which it is proposed that alcohol will be served shall be submitted at least sixty (60) days prior to the event and the City shall respond with a decision on the application within thirty (30) days. Said event application shall be heard by the Mayor and Council and a decision to approve or deny issued by that body. In the event the application is approved, alcohol may be served only in accordance with all provisions of federal, state, and local law governing alcohol including, but not limited to, all City ordinances.

(e) Each application shall contain the following information:

(1) Applicant Information: the following information shall be collected only for the purpose of processing the application and shall not otherwise be released unless required by law.

(i) Name and home address of the applicant, or home office address if a corporation or partnership, and telephone where the applicant may be contacted;

(ii) Names and home addresses of the partners, if a partnership;

(iii) Names and home addresses of the officers and directors, if a corporation;

(iv) Identification of all prior special event, parade, public assembly, demonstration, footrace, fun run, bicycle race or filming permits applied for by the applicant for a special event, parade, pubic assembly, demonstration footrace, fun run or bicycle race within the City;

(v) Designation of event as For-Profit or Non-Profit;

(vi) Documentation of permitting for alcohol sales, if applicable;

(vii) Each application shall be signed and verified by the applicant.

(2) Event Information

(i) Date, time, and place where the proposed activity is to be carried on, including proposed routes of passage of special event, parades, footrace, fun run, bicycle race, filming or other proceedings;

(ii) Type and class of activity to be carried on, such as special event, parade, rally, etc.;

(iii) Information on the number of expected participants, the length of the requested activity, a physical description of the materials to be distributed, if any, and how, if at all, participants intend to interact with the general public;

(iv) Each application shall be signed and sworn to by the applicant, said signature to be by a partner if for a partnership, or by an officer if for a corporation;

(v) False statements in any application for a permit shall be grounds for immediate revocation of the permit, and/or denial of the application;

(vi) Omissions of required information in the application shall automatically disqualify any application, but such disqualification will not by itself bar any later application, be it for the same or a different activity.

(3) Application Fee: To offset time, material, and administrative costs, including personnel costs, of processing the application, no application shall be accepted without an accompanying payment for the amount determined by the Mayor and City Council and set forth in section 2-110. In the event that the applicant cannot afford the Application Fee, a pauper's affidavit may be filed by the applicant, seeking to be excused from the fee. The decision on whether the Application and Permit Fee is to be waived due to the pauper's affidavit shall be made concurrently with the decision on the Application itself and shall be contemporaneously communicated to the applicant.

Sec. 10-24. – Procedure for issuance.

(a) Review and recommendation.

(1) When this article provides for the review of an application for a permit by the City, a copy of the application shall be forwarded to those persons or entities from whom input is needed to assess the propriety of the requested event.

(2) The persons or entities from whom input is requested on any special event, parade, demonstration footrace, fun run, bicycle race or filming application may include, but are not necessarily limited to the following:

(i) The Georgia Department of Transportation;

(ii) The Georgia State Patrol;

(iii) The Dawson County Sheriff's Department;

(iv) Dawson County Emergency Services;

(v) Dawson County Health Department;

(vi) Any other public officer or entity whose input would bear on the propriety of issuing the requested permit.

(3) Each person or entity from whom input is sought shall make a recommendation thereon, favorable or otherwise, and shall be requested to return the recommendation to the City within seven (7) days after receiving a copy of the application.

(b) Action by City.

(1) The City, via the City Manager or designee, shall take action upon the application by either approving or denying the permit no later than fifteen (15) days after receiving

the completed application, such time being necessary to process the application and obtain needed input from affected local and state agencies.

(2) Applications containing requests for road closures of more than three (3) hours and those applications for for-profit events shall be approved by the City Council.

(3) *Form of Action:* The decision of the City shall be reflected on the face of the application itself in a space provided therefore. Any decision adverse to the applicant must be in writing and explain the reasons for denial. If the application is approved by the City, the City shall issue a permit to the applicant no later than five (5) days after the application has been approved, which permit shall state the nature of the activity authorized and shall bear the date of issuance and the signature of the City Manager or designee.

(c) Authority to set sites, routes, schedules, or cancel.

(1) Where more than one permit is sought for the same date or where the proposed route would result in interference with the orderly and free flow of traffic, including pedestrian traffic and emergency vehicles, the City shall have authority to designate reasonable sites and/or routes and set time schedules for the beginning and ending of the activity. The City shall have authority to cancel the permit where the activity fails to begin within a reasonable time after the time set for it to begin based on other activities for which permits have been granted or based on the unreasonable interference caused by such delay with the public welfare, peace, safety, health, and good order.

(2) Where the special event, parade, demonstration, footrace, fun run, bicycle race or filming may impact traffic on a State Route, the Georgia Department of Transportation shall be notified of the potential impact, and input from the Georgia Department of Transportation shall be sought.

(d) Criteria for approval. Unless one or more of the following situations or circumstances exists, the permit shall be granted:

(1) The proposed activity will create some compelling interference with the rights of nonparticipant citizens, such compelling interference to be expressly noted in the denial of the application;

(2) The proposed activity will unreasonably disrupt the orderly flow of traffic, be it vehicular or pedestrian;

(3) The proposed activity would create an endangerment to citizens of the City, such endangerment to be expressly noted in the denial of the application;

(4) The application is incomplete or contains a material falsehood or misrepresentation;

(5) The City or one of its Authorities is sponsoring an event, or a permit has been granted to an earlier applicant, for the same time and place, and no reasonable accommodations can be made to provide for both activities which will not trigger one or more of the other reasons for denying a permit;

(6) There is other compelling interference with the public welfare, peace, safety, health, and good order, such compelling interference to be expressly noted in the denial of the application.

(e) Restrictions relative to County Courthouse.

In no event shall any individual, organization, or group of persons be permitted to bring signs, banners, posters, leaflets, handbills, or any other printed material of any size or shape containing any message intended to influence any judge, juror, witness, or other officer in the discharge of his duty within one hundred (100) feet of the County Courthouse, unless those materials are to be used in a Court of Law for the purposes of judicial proceedings or functions.

(f) Late applications.

The city manager, where good cause is shown therefor, shall have the authority to consider any application hereunder which is filed less than fifteen (15) days before the date the special event, parade, public assembly, demonstration, rally, footrace, fun run, bicycle race, filming, road closing, or other such activity is proposed to be conducted.

(g) Exceptions for City-sponsored events.

No permit shall be required under this article for any event sponsored or co-sponsored by the City itself.

Sec. 10-25. – Financial responsibility and insurance.

(a) Nothing in this article shall relieve any person, or persons, or organization from responsibility for any injuries or damages to persons or property, private or public, occasioned by their acts or omissions arising from the activity for which any permit under this article was issued.

(b) Based upon review of the Application, the City may require that the Applicant be responsible for trash cleanup of affected areas littered during the activity for which a permit is sought, the provision of sufficient parking and storage areas for a large influx of motor vehicles occasioned by the permitted activity, provision of temporary toilet facilities, and other similar special and extraordinary items determined to be necessary for the permitted activity based upon the Application's contents. In no event shall the City require individuals, organizations or groups of persons to provide personnel for normal governmental functions, such as traffic control, police protection, or other expenses associated with the maintenance of public order. If additional requirements are placed on applicants in accordance with this subsection, and those requirements are not met despite assurances by the applicant, then failure to comply with the aforementioned requirements shall be grounds for revocation of the issued permit and/or denial of any subsequent permit requested by the applicant. The City shall be entitled to recover against the applicant the sums expended by the City for those extraordinary expenses agreed to but not provided by the applicant.

(c) Insurance requirements. An applicant for a permit under this ordinance shall obtain liability insurance from an insurer licensed in the State of Georgia for a special event, parade,

public assembly, demonstration, rally, footrace, fun run, bicycle race or filming in a public place if one or more of the following criteria exists:

(1) The use, participation, exhibition, or showing of live animals;

(2) The use, participation, exhibition, or showing of automobiles of any size or description, motorcycles, tractors, bicycles, or similar conveyances;

(3) The use of a stage, platform, bleachers or grandstands that will be erected for the event;

(4) The use of inflatable apparatus used for jumping, bouncing or similar activities;

(5) A special event, parade, demonstration, rally, road closing, or other such activity, for which primary attendance (that is, attendance primarily for said special event, parade, demonstration, rally, road closing, or other such activity, and not attendance which is the result of another event) is reasonably expected to meet or exceed one hundred (100) persons;

(6) The use of roller coasters, bungee jumping or similar activities;

(7) The use of vendors or concessions; or

(8) The use of public streets and rights of way.

(d) Any applicant required to provide insurance in accord with this section shall provide the City of Dawsonville with a copy of the Certificate of Insurance from an insurer authorized and licensed by the State of Georgia. The City of Dawsonville shall be added as an additional named insured party for the event on the Certificate of Insurance by the carrier. The minimum policy limits shall be $1,000,000 (one million) per incident and $2,000,000 (two million) aggregate for the entire event. All cost for insurance and naming the City of Dawsonville as an additional named insured party shall be borne solely by the applicant. Such insurance shall protect the City of Dawsonville from any and all claims for damages to property and/or bodily injury or death.

Sec. 10-26. – Public conduct during parades.

(a) *Interference.* No person shall unreasonably hamper, obstruct or impede, or interfere with any parade or parade assembly or with any person, vehicle or animal participating or used in a special event or parade.

(b) *Driving through parades.* No driver of any vehicle shall drive between the vehicles or persons comprising a parade when the vehicles or persons are in motion and are conspicuously designated as a parade.

(c) *Parking on parade route.* The City Street Department and the Dawson County Sheriff's Office shall have the authority, when reasonably necessary, to prohibit or restrict the parking of vehicles along a highway, street or part hereof constituting a part of the route of a parade. The City Street Department and the Dawson County Sheriff's Office may post signs restricting parking on a parade route, and it shall be unlawful for any person to park or leave unattended any vehicle in violation thereof.

Sec. 10-27. – Regulations for conduct of parades.

(a) For the purpose of controlling traffic and pedestrian congestion and of providing for the public health, safety and general welfare, the following regulations shall pertain to all parades conducted within the city:

(1) All parades shall be conducted along the route specified in the parade permit;

(2) Parades shall be conducted between the hours of 8:00 a.m. and 6:00 p.m. unless specifically approved by the Mayor and Council for other hours;

(3) All parade participants shall assemble for the parade at the time and location designated in the parade permit and shall disperse from public property immediately after the conclusion of the parade;

(4) No parade participant shall carry firearms or other weapons (or facsimiles thereof), nor bricks, bats, sticks, rocks, bottles or other items which may be used as weapons;

(5) No parade participant shall drink alcoholic beverages or be under the influence of any intoxicating beverages or drugs;

(6) Materials used in the construction of floats in the parade shall be of fire-retardant materials and shall be subject to such requirements concerning fire safety as may be determined by the Dawson County Fire Marshal;

(7) Once commenced, the parade shall not stop along the parade route, but shall continue to move at a fixed rate of speed, and any willful delay or willful stopping of said parade, except when reasonably required for the safe and orderly conduct of the parade, shall constitute a violation of the permit;

(8) It shall be the responsibility of the person, group or organization obtaining the parade permit to police the parade route for discarded literature, publications, or other written materials distributed along the parade route by participants of the parade and literature, publications, leaflets or other written material shall be distributed in such a manner as not to unduly delay or hinder the progress of the parade;

(9) Speeches shall be allowed only at a location designated in the parade permit;

(10) Speeches, rallies or other activity to be conducted during any time that the parade is on the public roads, streets or highways located within the corporate limits of the city shall be limited to a total time of thirty (30) minutes, after which the parade participants shall continue or disperse as designated in the parade permit;

(11) In no event shall speeches, rallies, etc. be conducted in the public streets, or along the sidewalks of the city;

(12) The permittee shall advise all participants in the parade, either orally or by written notice, of the terms and conditions of the permit prior to the commencement of the parade

and shall sign an acknowledgment that the permittee and the parade participants have read, understand and will comply with the regulations specified in this article and the conditions of the permit;

(13) The applicant shall be responsible for hiring and paying off-duty law enforcement officers or reimbursing the Dawson County Sheriff's Office for the costs of providing on-duty law enforcement officers, to appropriately police street closures for parades. For festivals or other special events, the applicant shall be additionally responsible for hiring and paying off-duty law enforcement officers or reimbursing the Sheriff's Office for the costs of providing on-duty law enforcement officers, to provide internal festival security and for hiring and paying necessary emergency medical technicians.

(14) The city manager or designee, in consultation with the county sheriff's office, shall determine the number of officers needed to appropriately police street closures and for internal security, and the number of emergency medical technicians needed, and the time when such services shall commence and end, taking into consideration the following:

(i) The proposed location for the special event or route of the parade;

(ii) The time of day that the public assembly or parade is to take place;

(iii) The date and day of the week proposed;

(iv) The general traffic conditions in the area requested, both vehicular and pedestrian. Special attention is given to the rerouting of the vehicles or pedestrians normally using the requested area;

(v) The number of marked and unmarked intersections along the route requested, together with the traffic control devices present;

(vi) If traffic must be completely rerouted from the area, then the number of marked and unmarked intersections and the traffic control devices are to be taken into consideration;

(vii) The estimated number of participants;

(viii) The estimated number of viewers;

(ix) The nature, composition, format, and configuration of the special event or parade;

(x) The anticipated weather conditions;

(xi) The estimated time for the special event or parade;

(xii) For festivals or other special events: whether alcohol will be served, live music offered, or retail sales stations provided along with the number and location of the alcohol service stands, music stages, and retail stands.

(b) Any other reasonable regulation or restriction deemed necessary by the Dawson County Sheriff's Office for the protection and safety of the parade participants, viewing public, or for the public health, safety and general welfare of the citizens of the city, may be imposed by the Dawson County Sheriff's Office. However, such additional regulations or restrictions shall be specified in writing to the applicant with all reasons therefor clearly enumerated.

(c) It shall be unlawful for any person to conduct a parade, procession or demonstration along, upon or over any street or public way other than those set out in the permit issued as provided in this article.

Sec. 10-28. – Special requirements for filming:

(a) The city may deny an application, regarding filming, only if the City Manager reasonably determines that one or more of the below-listed conditions exists. Prior to denial, the city shall make reasonable efforts to consult with the producer in an attempt to resolve issues and concerns, and/or find alternative ways to accommodate the producer's filming needs.

(1) The filming poses an unreasonable risk of personal injury or property damage to people or property not associated with the filming;

(2) The filming poses an unreasonable risk of damage to public property that could not be quickly and/or fully remediated;

(3) The date and time requested for a particular filming location conflicts with previously-issued permits or permissions for filming, outdoor events, or other activities;

(4) Use of the filming location, or use of the location during the date or time requested, would unreasonably interfere with the operation of city functions;

(5) Use of the filming location or the proposed activity at the location would violate a law, ordinance, statute or regulation, regardless of whether the illegal activity is part of the message or content of the filming. A permit shall not be denied based upon simulation of an illegal activity where the actual illegal activity is not being performed;

(6) The producer owes an outstanding debt to the city;

(7) The producer previously caused significant damage to public property and failed to adequately repair the damage or pay in full within thirty (30) days the City's invoice for damage repair and restoration services;

(8) The producer previously violated this article, including, without limitation, violating a material condition and/or restriction of a permit;

(9) The producer's prior entertainment industry work in the City violated a City ordinance or other applicable law; and

(10) The applicant made a material misrepresentation or gave incorrect material information on the application.

Sec. 10-29. – Interference with special event prohibited.

No person shall knowingly join or participate in any special event in violation of any of the terms, conditions or regulations of the permit issued therefor, or knowingly join or participate in any special event without the consent and over the objection of the permittee or in any manner interfere with the orderly conduct of such event.

Sec. 10-30. – Additional Requirements for Picketing and Public Demonstrations.

The following additional requirements shall apply to all picketing and public demonstrations:

(a) To be peaceful and unattended by excessive noise. All assemblies and picketing shall be orderly, taking into consideration the rights of any residents in the immediate area of the demonstration or picketing to the peaceable enjoyment of their residences. To the extent that any residence is located within three hundred (300) feet of the location of any demonstration/picketing, the demonstrators or picketers shall not use any sound amplification system, except for one (1) hand-held bullhorn; provided, however, that no hand-held bullhorn may be used in any such demonstration or picketing between sundown and sunrise.

(b) Use of sidewalks and streets. No picketing or demonstrating shall be conducted on that portion of the streets used primarily for vehicular traffic or block access and/or travel of non-picketing or non-demonstrating pedestrians.

(c) Method of marching. Marching by picketers or demonstrators shall not otherwise block access to a building or facility.

(d) Use of placards and signs. Pickets or demonstrators shall carry only cardboard or paper placards or signs and the words used thereon shall not be such that they would immediately incite violence. No metal or wood may be attached to the placards or signs and the placards or signs shall not be more than thirty-six (36) inches in length and not more than thirty-six (36) inches in width.

(e) Picketing and demonstrating prohibited in certain places. There shall be no picketing or demonstrating in front of any building in which the following are located, affecting the normal operations thereof:

(1) A hospital, nursing home or rest home, within two hundred feet of the boundary line;

(2) A school, within one hundred (100) feet;

(3) A residence, no longer than forty-five (45) minutes in a twenty-four-hour period;

(4) A state or federal highway or road unless there has been compliance with all rules, regulations, and requirements imposed by the appropriate state or federal governing authority for the use of a state or federal highway or road as a private route.

(f) Participation by persons under sixteen prohibited. No person under the age of sixteen (16) shall be permitted to absent themselves from school attendance in order to march, picket, or demonstrate within the corporate limits of the city during any time that such person is required by law to be in attendance at school, unless such person has obtained written

permission from the appropriate educational authority to be absent from school to attend and to participate in such march, picket, or demonstration.

(g) Notice of proposed picketing or demonstrating. The city manager and the Dawson County Sheriff's Office is to be given at least eighteen (18) hours' written notice of any person or persons planning to picket or demonstrate. This written notice shall include the name of the organization or organizations planning to picket and also shall include the names of the places of business or public facilities which will be picketed and the hours the picketing or demonstrating will be conducted.

(h) Duty to disperse as directed by police. Whenever the free passage of any street or sidewalk in the city shall be obstructed by a crowd, the persons composing such crowd shall disperse or move on when directed to do so by a police officer. It shall be unlawful for any person to refuse to so disperse or move on when so directed by a police officer as herein provided.

(i) Use of vehicles for picketing or demonstrating. No vehicles shall be used in any picket or demonstrating line, and all pickets or demonstrators shall be afoot.

(j) Time of picketing and public demonstrations. Picketing and demonstrations shall be conducted only between sunrise and sunset.

Sec. 10-31. – Appeals.

(a) Right of appeal. Any applicant whose application for a permit under this article is denied may appeal such denial to the Mayor and City Council, which shall consider such appeal at the next regularly scheduled meeting following the receipt of the applicant's appeal.

(b) Consideration of appeal. The Mayor and City Council shall consider the appeal and require the City Administrator to explain why the permit was denied. Unless the aforementioned explanation shows that the decision on the application was properly made in conformance with this article, the appeal shall be granted and the permit issued. The applicant shall have a right to be heard during this hearing and shall have the right to be represented by counsel. After hearing the appeal, the Mayor and City Council shall state the reason for granting or denying the appeal in writing within five (5) days of the appeal hearing. This requirement shall not be construed to limit the power of the Mayor and Council to announce its decision at the conclusion of the appeal hearing, so long as the writing requirement is subsequently satisfied. In the event that the Mayor and City Council grant the appeal and determine to issue a permit, the permit shall be issued as soon as practicable, so as not to delay the parade, rally, assembly, foot race, special event or other activity governed by this article. In the event the Mayor and City Council deny the appeal, the applicant may seek judicial review of that decision by writ of certiorari to Dawson County Superior Court.

Sec. 10-32. – Violations and penalties.

Any person or organization convicted of a violation of the terms of this article shall be guilty of a misdemeanor and punished pursuant to Section 1-8 of the Code of Ordinances of the City of Dawsonville.

Sec. 10-33. – Defense to prosecution.

It shall not be a defense to any prosecution under this article for failure to obtain a permit before engaging in any activity described in this article that a permit has in fact been issued unless, at trial (1) the accused produces in court a valid permit or a certified copy thereof, and (2) the permit or a true copy thereof was present at the event for inspection.

SECTION 2.

If any section, provision or clause of any part of this Ordinance shall be declared invalid or unconstitutional, or if the provisions of any part of this Ordinance as applied to any particular situation or set of circumstances shall be declared invalid or unconstitutional, such invalidity shall not be construed to affect the portions of this Ordinance not so held to be invalid, or the application of this Ordinance to other circumstances not so held to be invalid. It is hereby declared as the intent that this Ordinance would have been adopted had such invalid portion not been included herein.

SECTION 3.

All Ordinances or parts of ordinances in conflict with this ordinance are hereby repealed.

SECTION 4.

This ordinance shall become effective upon adoption, the public good demanding the same.

SO ADOPTED AND ORDAINED by the City Council of Dawsonville, Georgia, this 15 day of July, 2019.

MAYOR AND DAWSONVILLE CITY COUNCIL

By: _____
Mike Eason, Mayor

_____
Caleb Phillips, Council Member Post 1

_____
Stephen Tolson, Council Member Post 2

_____
Jason Power, Council Member Post 3

_____
Mark French, Council Member Post 4

ATTESTED TO BY:

_____
for Beverly Banister, City Clerk

By: Tracy Smith, Deputy City Clerk

EXHIBIT "C"

First Reading: 07/08/2019

Second Reading: 07/15/2019

Adoption: 7-15 2019

AN ORDINANCE BY THE CITY OF DAWSONVILLE TO CLARIFY REGULATIONS ON VAPE SHOPS REGARDING DISPLAY OF INVENTORY, RENEWAL OF LICENSE, APPLICATION REQUIREMENTS, AS WELL AS PROVIDE PROPER REFERENCES TO CODE SECTIONS; TO CLARIFY USE REGULATIONS REGARDING MINORS; AND FOR OTHER PURPOSES

WHEREAS, in accordance with Article IX, Section II, Paragraph II of the Constitution of the State of Georgia, approved by the voters of the State in November 1982, and effective July 1, 1983, and pursuant to O.C.G.A. § 36-35-3(a), the governing authority of each municipal corporation shall have legislative power to adopt clearly reasonable ordinances, resolutions, or regulations relating to its property, affairs, and local government; and

WHEREAS, the Mayor and City Council of Dawsonville, Georgia (hereinafter "the City") desire to identify and adopt rules and regulations to protect the public health, safety and welfare; and

WHEREAS, the Mayor and City Council of the City desire to compliment other licensing currently enforced in the City to ensure a more effective operation of government for the citizens of the City; and

WHEREAS, the Mayor and City Council of the City desire to clarify certain provisions related to applications, renewal process, and other provisions of the City's vaping ordinance.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF DAWSONVILLE HEREBY ORDAINS AS FOLLOWS:

SECTION 1.

Article X, Section 8-600 of Chapter 8 of the Code of the City of Dawsonville, Georgia, is hereby amended by repealing existing subsections 8-600(3) and 8-600(9) in their entirety and replacing them with new subsections 8-600(3) and 8-600(9) as follows:

Sec. 8-600. – Definitions.

(3) *"Applicant"* shall mean all persons who are required to sign an application for a Vape Shop license to sell alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia as set forth herein in section 8-602;

(9) Reserved.

EXHIBIT "D"

SECTION 2.

Article X of Chapter 8 of the Code of the City of Dawsonville, Georgia, is hereby amended by repealing existing sections 8-601 through 8-604 in their entirety and replacing them with new sections 8-601 through 8-604 as follows:

Sec. 8-601. – License required.

(a) Any person who wishes to operate a Vape Shop or offers for retail sale any item of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia shall immediately apply to the City of Dawsonville Planning and Zoning Department for a Vape Shop license and shall pay an annual license fee. The annual license fee shall be as set out in section 2-110 and as modified by the Mayor and City Council from time to time. Any person required to obtain a Vape Shop license and who also offers for sale any additional line of devices shall pay an additional annual license fee as set out in section 2-110, and as modified by the Mayor and City Council from time to time. For the purposes of this section, every person who obtains such a license shall be referred to as a "licensee."

(b) All applications shall be fully completed by the applicant and sworn to and signed by the applicant in the presence of a notary public or other officer authorized to administer oaths. If the application is filed on behalf of an entity, including, but in no way limited to, a partnership, corporation, nonprofit tax exempt civic, patriotic, or social club or corporation, a private club, a limited liability company, then the applicant must be an agent or officer of the entity with actual authority.

(c) An approved annual license shall be valid for the date issued and expire on December 31st of each year. The license fee for a vape shop license applied for, or issued, after July 1, 2019 and expiring on December 31, 2019 shall be half of such fee set out in section 2-110.

Sec. 8-602. – Application requirements.

(a) All applications shall be accompanied by the following:

(1) A survey (dated no more than 180 days prior to submission of the application to the City), certified by a registered surveyor of this state, showing a scaled drawing of the premises, the location on the premises where the applicant desires to sell any item of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia, and the distance in linear feet measured from the front door of the premise where any alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia is to be sold, to the property line of the tract upon which is located the nearest church building, school building, educational building, school grounds or college grounds, or college campus building. The distance referred to in this subsection shall be measured in the same manner as required by the section 3-122.

(2) As a prerequisite to the issuance of any license, the applicant shall furnish a complete set of fingerprints for all persons required to sign the application to be forwarded to the Georgia Bureau of Investigation and to the Federal Bureau of Investigation, as specified under Georgia law. Each person required to sign the application for an original license and/or renewal license, must authorize the City of Dawsonville or its designated representatives to secure from any state, county, municipal

or federal court, any police department and/or law enforcement agency his, her or its criminal history and civil history and further authorize the City, its officers and employees to use such information in determining whether or not a license for the sale of any item of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia will be issued to the applicant. Further, the applicant must authorize the City, its officers and employees to use such information in a public hearing if necessary, to determine whether or not the applicant's license should be denied, voided, cancelled and/or revoked. Each applicant waives any right or rights he, she or it may have under state or federal law, statute and/or court ruling to preclude the City from securing such criminal and/or civil history from any source and waives any right he, she or it may have to preclude the City from using such information publicly in determining whether the license will be issued to such applicant.

(3) The application shall be accompanied by the full amount of the license fee combined with the investigative fee as set out in section 2-110, and as modified by the Mayor and City Council from time to time, that may be paid with a check, credit or debit card for each individual fingerprinted. If the application is denied, or if the applicant withdraws the application prior to its approval, the license fee (without interest) shall be refunded to the applicant. All other fees paid to the City which were submitted as part of the application, including, but not limited to the investigative fee shall be retained by the City. If the applicant to be fingerprinted is also filing, at the same time as filing his/her application pursuant to this article, another application for another license, under this Chapter or Chapter 3, for which he/she must be fingerprinted only one investigative fee shall be required for all applications.

(4) The director may require any additional information and records he reasonably deems necessary. Failure to furnish such data shall automatically serve to deny the application. Any misstatement or concealment of fact in the application shall be grounds for denying a license or revoking an issued license, and shall make the applicant liable to prosecution for perjury under the laws of the State of Georgia.

(5) A valid email address and a valid mailing address that can be used for serving documents upon the applicant.

(6) Each applicant shall certify that he/she has read, understands, and will comply with this article and if the license is granted, each licensee shall maintain a copy of this article on the premises and shall require each of the licensee's employees to be familiar with this article. Furthermore, applicant agrees, by signing and filing the application, that applicant will maintain sales receipts and records and allow the director or his designee to inspect said records to ensure compliance with this article.

(b) No Vape Shop license may be issued to an applicant under the following circumstances:

(1) An applicant who is not at least 21 years old.

(2) An applicant who has been convicted under any federal or state law of a felony or any misdemeanor involving the usage, distribution, or possession of controlled substances, alcohol, or offenses involving moral turpitude within a five-year period immediately preceding application. For purposes of this subsection, a "conviction" shall include any plea of guilty or admission of guilt and subsequent sentence under the First

Offender Act of O.C.G.A. §§ 42-8-60, 16-13-2 or 3-3-23.1(c), or any similar sentencing provision for first time offenders of any other state or of the United States. A plea of nolo contendre for any felony or misdemeanor of any state or of the United States, or any municipal ordinance, except traffic violations, or the forfeiture of a bond (except traffic offenses) when charged with a crime is also considered a conviction under this article.

(3) An applicant who has been held in civil or criminal contempt by any federal, state or local court if such citation indicates to the Mayor and City Council that the applicant will not maintain the outlet for which the applicant is seeking a license in conformity with federal, state or local laws, rules, and regulations.

(4) An applicant who is not the owner of the premises for which the license is held or the holder of the lease thereon for the period covered by the license. The applicant for a Vape Shop license, whether it be an individual, a partnership, a corporation, a nonprofit tax exempt civic, patriotic, or social club, limited liability company, or a private club, shall be the owner of the premises for which the license is held or the holder of the lease thereon for the period covered by the license. If the premises are leased, then the applicant shall provide information regarding the owner or landlord of the premise.

(5) An applicant who seeks to sell alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia in premises that are in or within 100 yards of any church building or in or within 200 yards of any school building, educational building, school grounds, or college campus, except those applicants complying with section 8-609(e).

(6) An applicant whose intended sales, or actual sales for the previous license year, of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia products at that location will, or did, exceed twenty-five percent (25%) of said applicant's aggregate retail sales at that location.

(7) An applicant whom the Director or the Mayor and City Council determines, based upon an investigation into the applicant, the applicant's prior businesses or entities, (whether operating under the same establishment name or not) in the City of Dawsonville or in other jurisdictions, has him or herself, or has engaged employees and/or agents, who have sold cigarettes, tobacco products, tobacco related objects, alternative nicotine products, and/or vapor products in violation of state law or local ordinances, including but not limited to sales to minors.

(9) The City has suspended or revoked a business license and/or Vape Shop license, or any other license issued under this Chapter at the location where the applicant desires to sell any item of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia, within the previous 12 months for a suspension or within the previous 36 months for a revocation, for any reason related to the sale or bartering of cigarettes, tobacco products, tobacco related objects, alternative nicotine products, and/or vapor products.

Sec. 8-603. – Review and compilation of application by Planning Director.

(a) Once an application, the accompanying documents described in section 8-602, and the required investigative and license fees are submitted, the City shall conduct a criminal

investigation of the application and produce a written criminal investigation report concerning all information relating to fingerprinting, criminal history, arrest data, and other matters pertaining to law enforcement. In the event the failure to obtain fingerprinting information from state and federal authorities delays completion of the written report, the City may later supplement any fingerprinting information. If the fingerprinting information later reveals that the applicant fails to meet the requirements set by this article, this may be grounds for denying the application or revoking a license, despite an otherwise satisfactory written report. Upon production of the criminal investigation report, the Planning Director or his designee shall make a determination as to compliance with the requirements of this article as to the issues contained therein, and shall forward that determination to the Mayor and City Council. The Planning Director shall cause the application forms and all accompanying documents required for consideration of the Application to be assembled for review.

(b) If the criminal investigation report shows that the applicant fails to meet the requirements set by this article, or if the Planning Director finds that the applicant fails to meet other qualifications outlined by this article, then the Planning Director shall inform the applicant, in writing, that the application has been denied, and shall set forth in reasonable detail the reasons for the denial and shall notify the applicant of his/her right to appeal to the Mayor and City Council in accordance with section 8-602. If an applicant desires to appeal a denial by the Planning Director, the applicant must file a written request for an appeal hearing with the Planning Director within ten (10) business days of the date of the written notice informing the applicant of the denial by the Planning Director.

(c) Any application which the Planning Director determines to satisfy all the qualifications outlined in this article, including character requirements as contained in the criminal investigation report, shall be scheduled for review at the next regularly scheduled meeting of the Mayor and City Council.

Sec. 8-604. – Review by Mayor and City Council.

(a) In making its determination on whether to approve or deny the application, the Mayor and City Council shall look to the qualifications set forth in this article and consider the public interest and welfare. The Mayor and City Council shall have the sole discretion to grant or deny the application based on the information presented. A decision by the Mayor and City Council shall be made at or within thirty (30) days from the date of the City Council meeting, unless the decision is postponed for purposes of the Mayor and City Council obtaining additional information deemed necessary for consideration of the application. Notice of the decision by the Mayor and City Council shall be mailed or emailed to the applicant. In the event the application is denied, written notification of such denial shall set forth in reasonable detail the reasons for the denial and shall notify the applicant of his right to appeal as set forth in section 8-605.

(b) Upon approval by the Mayor and City Council of the application for a license, the Director shall issue a license in accordance with the approved application.

SECTION 3.

Article X of Chapter 8 of the Code of the City of Dawsonville, Georgia, is hereby amended by repealing existing section 8-606 in its entirety and replacing it with a new section 8-606 as follows:

Sec. 8-606. – Renewal of license.

(a) All licenses granted under this article shall be valid from the date issued and expire on December 31st of each year. An investigative fee as set out in section 2-110, and as modified by the Mayor and City Council from time to time, shall be required for renewal applications pertaining to licenses that are to be issued for odd years in order to complete a criminal history report. In instances where a new, named licensee has been designated, a criminal history report and investigative fee shall be required regardless of the year. Persons holding a license for more than any one establishment and desiring to renew the license for such establishments shall pay only one investigative fee charge.

(1) Renewal Applications must go before the Mayor and City Council for review and approval.

(2) Applicants shall be required to file a new application if changes have occurred in the information and data furnished with the original application. Any changes to an applicant's criminal history will be subject to sections 8-602 through 8-604.

(3) Each application for renewal will show the date of the original application and that the applicant or applicants for the renewal are familiar with applicable Georgia laws and regulations and with the rules and ordinances of the City. The renewal application must be signed and sworn to by all applicants in the presence of a notary public or other officer authorized to administer oaths. The applicant will furnish all information required by the renewal application and failure to furnish the information will be grounds for denying the application. A false statement made on the renewal application will void the application and shall make the applicant liable to prosecution for false swearing under the laws of the State of Georgia.

(4) Each application for renewal of a license shall be approved or denied in accordance with the procedures prescribed in this article.

(b) Current licensees will receive a renewal package by November 1st of each year. It is he licensee's responsibility to return renewal paperwork to the Director or his Designee by November 20th of each year.

(c) Any application received after November 20th of the year in which it is due shall be deemed late. Late applications will begin being processed at the time of receipt, but are not guaranteed renewal prior to January 1st. Should the license not be renewed prior to January 1st, the licensee shall suspend all retail sales of any item of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia until such time as their renewal license is issued.

(d) Any licensee who has not submitted the renewal application and required fee by 4:00 p.m. on November 20, shall pay a late charge as determined by the Mayor and City Council and set forth in section 2-110. If November 21st should fall on a Saturday or Sunday, this deadline shall be the following Monday.

(e) Any application received after 4:00 p.m. on December 31st shall be treated as an initial application and the applicant shall be required to comply with all rules and regulations for the granting of licenses as if no previous license had been held. This will include, but in no way be limited to, a reassessment of administrative fees and suspension of any and all retail sales of

any item of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia during the reapplication process.

SECTION 4.

Article X of Chapter 8 of the Code of the City of Dawsonville, Georgia, is hereby amended by repealing existing sections 8-608 through 8-609 in their entirety and replacing them with new sections 8-608 through 8-609 as follows:

Sec. 8-608. – Suspension, revocation, or forfeiture of license.

(a) Any suspension, revocation, or forfeiture of a license by the Mayor and City Council shall occur only after notice and opportunity for a hearing before the Mayor and City Council consistent with the procedures set for in section 8-605, above, and upon the following occurrences:

(1) Any licensed outlet that is found to be in violation of this article shall be subject to license revocation or suspension and shall also be subject to citation and prosecution as outlined in section 8-605(f).

(2) Every Vape Shop license issued by the City shall be immediately revoked in case of bankruptcy, receivership, levy of legal process, or failure to promptly account for and pay the excise tax levied on the sale of nontraditional tobacco paraphernalia.

(3) Except as provided for transfers under section 8-607 above, any change in the ownership of any entity owning a licensed outlet shall cause the Mayor and City Council to immediately revoke any license issued under this article.

(4) All licensees must, within six (6) months after the approval of said license, open for business the outlet referred to in the application for license, and begin the sale of the product or products authorized by the said license. Failure to open the outlet and begin the sales referred to within the six-month period, shall cause the Mayor and City Council to immediately revoke the license and no refund of any fees paid pursuant to this article shall be made.

(5) Any licensee who shall for a period of three consecutive months cease to operate the business and sale of the product or products authorized in the said license, shall, after said three months period, cause the Mayor and City Council to immediately revoke the license, and no refund of any fees paid pursuant to this article shall be made.

(6) A license may be immediately suspended or revoked by the Mayor and City Council upon learning that a licensee furnished fraudulent or untruthful information in the application for a license, or omits information required in the application for a license, or fails to pay all fees, taxes, or other charges imposed under the provisions of this article.

(7) Whenever the state shall revoke any permit or license to sell alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia, as is or may become applicable, the City license shall thereupon be immediately revoked.

(8) The Director and/or his designee shall have the right to inspect any and all records, including, but in no way limited to, sales receipts and financial documents of overall sales, to determine whether a licensee is in compliance with this article. The licensee shall allow the Director and/or his designee to inspect any and all records.

(9) The Mayor and City Council shall immediately suspend or revoke the license of any outlet which does not meet the licensing qualifications set forth in this article at any time such knowledge becomes known to the Mayor and City Council.

(10) The Mayor and City Council shall immediately suspend or revoke the license for any business whose retail sales of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia products at that location exceeds twenty-five percent (25%) of said business's aggregate retail sales at that location.

(11) The Mayor and City Council shall immediately suspend or revoke the license for any business engaged in the sale of vape juice containing any other chemical, substance, drug, or other harmful additive other than pharmaceutical grade vegetable glycerin, propylene glycol, nicotine, food-grade flavoring, and water.

(12) The Mayor and City Council shall immediately revoke the license for any premises where alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia have been sold or distributed during a period of suspension.

(13) It shall be a violation of this article for any licensee or any employee or agent of the licensee or licensed establishment to permit any person to engage in any activity on the premises for which the license is issued or within the place of business, which is in violation of the laws or regulations of any federal, state, county, or municipal governing authority or regulatory agency. A violation of this subsection shall subject the license to immediate suspension or revocation.

(14) An act or omission of a licensee which constitutes a violation of federal or state law or regulation, relating to the sale of alcoholic beverages, taxes, gambling, violation of the Georgia Controlled Substances Act, or constitutes a crime of moral turpitude, shall subject the license to immediate suspension or revocation.

(15) Any license shall automatically expire on December 31st of each year unless renewed in accordance with this article.

Sec. 8-609. – General regulation of business operations.

(a) No licensee, employee of any licensee, or other person shall sell or permit to be sold any item of non-traditional tobacco paraphernalia to any person who is a minor (i.e. has not reached the age of eighteen), either directly or indirectly.

(b) Each licensee shall maintain their entire inventory of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia and any additional line of devices in an area behind the sales counter where patrons of the licensee may not handle such products without first interacting with an employee of the licensee. Specifically, upon request to see any alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco

paraphernalia and any additional line of devices, employees of the licensee shall verify that the patron requesting such product is not a minor. Licensee and its employees shall not allow minor patrons to enter into the area behind the sales counter where alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia and any additional line of devices are displayed and/or stored, nor sell any alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia to any minor.

(c) The City of Dawsonville Code Enforcement Officers and the Planning Director (or his/her designee) shall have the authority to inspect the outlet and premises licensed under this article during the hours when the outlet is open for business. These inspections shall be made for the purpose of verifying compliance with the requirements of this article and state law. This section is not intended to limit the authority of any other municipal, county, state or federal officer to conduct inspections authorized by other provisions of law.

(d) Any license for the sale of alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia and any license for the sale of any additional line of devices shall be posted conspicuously in the place of business for which such license is issued.

(e) No tobacco products, alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia shall be sold in premises that are in or within 100 yards of any church building, or on any property owned or leased to a church, or in or within 200 yards of any school building, educational building, school grounds, or college campus, or on any property owned or leased to a public or private school or school board for elementary or secondary education; provided, however, that any premises permitted to sell tobacco products, alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia as of the effective date of this article that is located within such proximity of any church building, school building, educational building, school grounds, or college campus on the effective tobacco products, alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia in such premises provided that said permit holder remains in compliance with all other provisions of this section and the use of the premises to sell tobacco products, alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia remains ongoing and continuous. If the sale of tobacco products, alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia is discontinued, the grandfather entitlement under this paragraph shall be forfeited.

(f) No licensee shall sell any vape juice that contains any chemical, substance, drug, or other harmful additive other than pharmaceutical grade vegetable glycerin, propylene glycol, nicotine, food-grade flavoring, and water.

SECTION 5.

Article X of Chapter 8 of the Code of the City of Dawsonville, Georgia, is hereby amended by repealing existing section 8-612 in its entirety and replacing it with a new section 8-612 as follows:

Sec. 8-612. – Enforcement.

(a) Any violation of this article, excluding sales to underage persons, shall subject the licensee to the following progressive actions by the Mayor and City Council, except for those violations

and occurrences set forth in section 8-608 above that provide for immediate suspension or revocation upon notice and hearing:

(1) The first violation shall result in a warning or a license suspension for a period of up to sixty (60) days.

(2) The second violation within a consecutive 24-month period shall be punished as provided in section 1-8 and shall result in a license suspension for a period of not less than sixty (60) days nor more than ninety (90) days.

(3) The third violation within a consecutive 24-month period shall result in license revocation.

(b) Sales of non-traditional tobacco paraphernalia to underage persons shall subject the licensee to the following progressive actions by the Mayor and City Council:

(1) The first violation shall result in a mandatory hearing before the Mayor and City Council, a license suspension for a period of up to sixty (60) days, and a minimum fine in the City of Dawsonville Municipal Court of $500.00.

(2) The second violation within a consecutive 24-month period shall result in a mandatory hearing before the Mayor and City Council, a license revocation, and a minimum fine in municipal court of $1,000.00.

(c) For any vendor that is licensed to sell alcohol in the City of Dawsonville, Georgia, any violation of sections 8-600 through 8-609 that results in a conviction, license suspension, or license revocation, excluding the sale of non-traditional tobacco paraphernalia to a minor, shall also count as a violation with respect to those actions or sanctions provided for in section 3-3 of the City of Dawsonville ordinances governing alcoholic beverages. For purposes of this subsection, "conviction" shall have the same meaning as provided in section 8-602(b)(1).

(d) For any vendor that is licensed to sell alcohol in the City of Dawsonville, Georgia, any conviction, license suspension, or license revocation resulting from the sale of non-traditional tobacco paraphernalia to a minor shall also count as a violation with respect to those actions or sanctions provided for in section 3-3 of the City of Dawsonville ordinances governing alcoholic beverages. For purposes of this subsection, "conviction" shall have the same meaning as provided in section 8-602(b)(1).

(e) For any license suspension of less than thirty (30) days, the licensee will not be required to remove alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia from the premises, but shall be required to secure with lock and chain all alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia in an on-premise locked storage area out of view of the public. Nothing contained in this subsection shall be construed to preclude the Mayor and City Council from suspending or revoking a Vape Shop license for a period exceeding those periods identified in subsection (a) above, or from revoking the license if the Mayor and City Council determine in their discretion that such action is necessary and in the best interest of the public health, safety and welfare of the City. The suspension periods set forth above may be mitigated by the Mayor and City Council upon presentation of evidence that the licensee established practices and procedures to prevent

the violation from occurring and established procedures to properly train and supervise employees to prevent the violation from occurring.

(f) In addition to the available actions to be taken by the Mayor and City Council, any licensee, employee of a licensee, individual, or other person who violate this division shall be subject to citation and prosecution. Each violation of this article shall constitute a separate violation subject to a separate citation and penalties. The penalties may result in a fine not to exceed $1,000.00, imprisonment not to exceed sixty (60) days, or both.

SECTION 6.

Article X, Section 8-621 of Chapter 8 of the Code of the City of Dawsonville, Georgia, is hereby amended by repealing existing subsection 8-621(f) in its entirety and replacing it with a new subsection 8-621(f) as follows:

Sec. 8-621. – Prohibition.

(f) It shall be unlawful for any minor to:

(1) Purchase, attempt to purchase, possess for personal use, and/or use non-traditional tobacco paraphernalia; or

(2) Misrepresent such minor's identity or age or use any false identification of the purpose of purchasing or procuring any non-traditional tobacco paraphernalia; or

(3) Enter into the area on any premises of any establishment that offers tobacco products, alternative nicotine products, vape juice, vapor products, and/or non-traditional tobacco paraphernalia, where such products are stored and/or displayed for sale.

SECTION 7.

If any section, provision or clause of any part of this Ordinance shall be declared invalid or unconstitutional, or if the provisions of any part of this Ordinance as applied to any particular situation or set of circumstances shall be declared invalid or unconstitutional, such invalidity shall not be construed to affect the portions of this Ordinance not so held to be invalid, or the application of this Ordinance to other circumstances not so held to be invalid. It is hereby declared as the intent that this Ordinance would have been adopted had such invalid portion not been included herein.

SECTION 8.

All Ordinances or parts of ordinances in conflict with this ordinance are hereby repealed.

SECTION 9.

This ordinance shall become effective upon adoption, the public good demanding the same.

SO ADOPTED AND ORDAINED by the City Council of Dawsonville, Georgia, this 15 day of July, 2019.

EXHIBIT "D"

MAYOR AND DAWSONVILLE CITY COUNCIL

By: _____
Mike Eason, Mayor

_____
Caleb Phillips, Council Member Post 1

_____
Stephen Tolson, Council Member Post 2

_____
Jason Power, Council Member Post 3

_____
Mark French, Council Member Post 4

ATTESTED TO BY:

for _____
Beverly A. Banister, City Clerk

By: Tracy Smith, Deputy City Clerk

EXHIBIT "D"

First Reading: 07/08/2019

Second Reading: 07/15/2019

Adoption: 7-15-2019

AN ORDINANCE OF THE CITY OF DAWSONVILLE, GEORGIA, TO REPEAL THE EXISTING RECORDS MANAGEMENT PLAN; TO PROVIDE FOR A NEW RECORDS MANAGEMENT PLAN: TO ADOPT A RECORD RETENTION SCHEDULE; AND FOR OTHER PURPOSES.

WHEREAS, the Mayor and Council of the City of Dawsonville find that the adoption of a revised records management plan and common record retention schedule is in the best interest of the citizens of the City of Dawsonville;

WHEREAS, the revision of the records management plan will streamline and make more effective the operation of the government of the City of Dawsonville; and

WHEREAS, the Mayor and Council desire to adopt such revision to the records management plan.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF DAWSONVILLE HEREBY ORDAINS AS FOLLOWS:

SECTION 1.

Article V of Chapter 2 of the Code of the City of Dawsonville, Georgia, is hereby amended by repealing existing Article V in its entirety and replacing it with a new Article V as follows:

ARTICLE V. – RECORDS MANAGEMENT PLAN

Sec. 2-132. – Records coordinator.

(a) *Designation.* The city clerk shall be designated as the coordinator of the records management plan and shall be authorized in directing and coordinating all records management matters under the Georgia Records Act (O.C.G.A. § 50-18-90 et seq.) and records retention schedules approved by the city.

(b) *Duties.* The duties and responsibilities of the records management coordinator (the "Coordinator") shall include, but not be limited to, the following:

(1) Assist staff in determining applicability of common schedules to local records;

(2) Coordinate governing body approval of common schedules for local use;

(3) Check requests to dispose of records for state records committee-approved schedule authorization;

(4) Document records disposal;

(5) Become familiar with records management principles and practices and with the laws and regulations affecting local records keeping;

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(6) Maintain and protect records;

(7) Perform any other duties as may be required by the mayor and city council in relation to maintaining records of the city.

Sec. 2-133. – Inventory of records.

The Coordinator shall maintain an inventory of all records and their applicable retention schedule, including, but in no way limited to the date set for disposal, if any.

Sec. 2-134. – Records management plan and retention schedule.

The City adopts the records management plan and record retention schedules recommended by the Georgia Secretary of State, as amended from time to time, as the records management plan and record retention schedules for the City, unless otherwise specified by resolution of Mayor and Council.

Sec. 2-135. – Lawful disposal of records.

(a) *Disposal with authority and protection of law.* Upon completing and fulfilling the terms contained herein, records older than their approved retention time period shall be disposed of with the authority and protection of law. Specifically, records assigned for disposal shall be checked against the approved local schedule and the authorizing common schedule descriptions. The records shall have the same information content and purpose as the records described in the approved common schedule. Records of mixed series or mixed dates within a series shall all have met their minimum retention requirements.

(b) *Documents taking precedence over retention schedule.* The following documents shall take precedence over the approved retention schedule period:

(1) Records of an activity under legal investigation shall not be disposed of until the investigation is completed.

(2) Records involved in litigation shall not be disposed of until the litigation is settled.

(3) Records involved in a fiscal or program audit shall not be disposed of until the audit is final.

(4) All record series that survive a fire or other disaster shall be subjected as a unit to careful scrutiny. A series with an expired retention period may contain the only information and evidence about the government's decisions and actions for a specific program area.

(5) Records created before 1950 shall not be disposed of until a careful review determines that essential information and evidence survives in other records being maintained and protected.

(6) Records created prior to 1900 must be appraised by the department of archives and history before disposal authorization.

(c) *Inventories to be updated.* Inventories of the coordinator shall be updated to show the removal of the records from the inventory.

Secs. 2-136—2-157. – Reserved.

SECTION 2.

If any section, provision or clause of any part of this Ordinance shall be declared invalid or unconstitutional, or if the provisions of any part of this Ordinance as applied to any particular situation or set of circumstances shall be declared invalid or unconstitutional, such invalidity shall not be construed to affect the portions of this Ordinance not so held to be invalid, or the application of this Ordinance to other circumstances not so held to be invalid. It is hereby declared as the intent that this Ordinance would have been adopted had such invalid portion not been included herein.

SECTION 3.

All Ordinances or parts of ordinances in conflict with this ordinance are hereby repealed.

SECTION 4.

This ordinance shall become effective upon adoption, the public good demanding the same.

SO ADOPTED AND ORDAINED by the City Council of Dawsonville, Georgia, this 15 day of July, 2019.

MAYOR AND DAWSONVILLE CITY COUNCIL

By: _____
Mike Eason, Mayor

_____
Caleb Phillips, Council Member Post 1

_____
Stephen Tolson, Council Member Post 2

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Jason Power, Council Member Post 3

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Mark French, Council Member Post 4

ATTESTED TO BY:

_____
for Beverly Banister, City Clerk
By: Tracy Smith, Deputy City Clerk

EXHIBIT "E"