WOODLAND HILLS DEVELOPMENT AND CONSTRUCTION STANDARDS

WOODLAND HILLS CITY

JANUARY 2026

WOODLAND HILLS

Woodland Hills Development and Construction Standards

Table of Contents

2.6.5 Compacting Earth Materials

2.6.6 Road Subgrade Preparation

2.6.7 Slope Safety

2.6.8 Water Settling

2.6.9 Removal and Replacement Of Defective Fill

2.7 Excavation and Backfill For Trenches

2.7.1 General

2.7.2 Trench Safety

2.7.3 Dewatering Excavation Area

2.7.4 Gravel Foundation for Pipe

2.7.5 Disposal of Materials

2.7.6 Trench Backfill

2.7.7 Backfill for Pipe on Hard Foundations

2.7.8 Backfilling Above Pipe Zone and Consolidation Of Backfill

2.7.9 Compaction and Consolidation Of Backfill

2.7.10 Cutting of Asphalt

2.7.11 Testing

2.7.12 Blasting

2.8 Water Lines

2.8.1 General

2.8.2 Pipe Installation

2.8.3 Ductile Iron Pipe

2.8.4 Polyvinyl Chloride Pipe

2.8.5 Valves

2.8.6 Fire Hydrants

2.8.7 Water Main Locations

2.13.9 Forms

2.13.10 Slip Forming

2.13.11 Finishing

2.13.12 Curing

2.13.13 Cold Weather Concrete

2.13.14 Clean Gutter

2.13.15 Right-Of-Way

2.14 Hillside Site Development

2.14.1 Average Slope - Definition

2.14.2 Certified Report Required

2.14.3 Certified Report Specifications

2.14.4 Liability

Standard Drawings

1. Typical Street Intersection
2. 56’ Collector Street Cross Section with Swale
3. 56” Collector Street Cross Section with Curb
4. Typical Driveway Cross Section
5. Cul-De-Sac Detail
6. 1” Water Service Detail
7. Standard Fire Hydrant Detail
8. Concrete Manhole Sump
9. Pre-Treatment Stormwater Box Detail
10. Trail Section Detail
11. Rock Lined Ditch Detail
12. Curb Detail
13. Curb Crossing Options at Driveways

WOODLAND HILLS DEVELOPMENT AND CONSTRUCTION STANDARDS

TECHNICAL SPECIFICATIONS

WOODLAND HILLS

2.1 General Improvement Requirements

2.1.1 General

The provisions of these Development Standards are supplementary to the Subdivision Ordinance of Woodland Hills City found in Section 11 of the municipal code. These standards provide general requirements for subdivision development improvements, including city-owned infrastructure and facilities.

The improvements shall include all street improvements in front of all lots and along all dedicated streets and any public utility easement that connects to existing improvements of the same kind or to the boundary of the subdivision nearest the existing improvements. The layout must provide for future extension to adjacent development and be compatible with the contour of the ground for proper drainage. All improvements and any buried conduit shall be installed to the boundary lines of the subdivision or development.

The city adopts the American Public Works Association (APWA) standards for infrastructure development to include roadways, storm drains, water systems, sewer systems, underground electrical, landscaping, and traffic control, along with any existing or future amendments that are made. Some supplemental conditions specific to the city are included in these provisions. Both references should be used side-by-side.

HISTORY:

(Ord. passed 04-28-20)

2.1.2 Fees

Fees may be charged by the Mayor and City Council for defraying expenses of all work performed by the city or its agent in connection with processing or approving the application for subdivision or for inspecting or installing any fixtures or apparatus in any subdivision. Such fees shall in no case be less than the fee charged for similar services provided by the city to persons who are not subdividers.

2.1.3 Improvement Installations

All improvements shall be installed in accordance with the "Development Standards". The expense of all such improvements and installations, including but not limited to expenses for all of the foregoing items and for area-wide topographical drainage, engineering, ecological or other work or study, shall be borne by the owner or sub-divider or developer subject to such terms and conditions as may be required by the City Council by way of ordinance, resolution, contract, development agreement, or otherwise.

The failure of any owner or sub-divider to comply with the terms of this provision or their failure to complete the installation of all foregoing installations, fixtures, or improvements, or such others as may be required by the City Council from time to time, shall, upon declaration of the City Council, result in the forfeiture of the bond or other security posted.

No construction, installation, improvement or other permit shall be issued to any developer, builder, sub-divider or to any business entity having a full or limited partner, owner, shareholder or officer who has once failed to comply with the provisions hereof or who has failed to complete the installation of all improvements, fixtures and installations required by this section or by the City Council on any previous construction or improvement project or subdivision. Any subdivision not in full compliance with this section shall not be connected to or receive any of its municipal services, including but not limited to water, sewer, electricity, or refuse removal services.

2.2 Concept Plan, Preliminary Plan, And Final Plat

2.2.1 Concept Plan

The subdivider may submit to the planning commission and/or city staff a concept plan of a subdivision, including any items listed in the concept plan application and checklist. The purpose of the concept plan is to provide the subdivider an opportunity to meet with the planning commission for advice and assistance from the city

2.2.2 Final Plat

Whenever a subdivision final plat is filed, one (1) 24x36 copy, one (1) 11x17 copy, and one electronic copy of the plat shall be prepared and submitted. All other required documentation and fees shall be submitted along with the plat as outlined in Title 11 of the Woodland Hills City ordinance. Only complete applications will be considered.

2.3 Streets

2.3.1 General

The developer shall construct all streets required by the subdivision as specified by the City Council in accordance with the city's "Development Standards". All public and private streets shall be constructed pursuant to standards recommended by the city engineer or his/her designee. The developer shall be responsible for constructing all streets required in the final plat, and as a condition of final plat approval, to the standards required by the city engineer or their designee. The developer shall be required to provide an engineered design for the street sub-grade construction.

2.3.2 Street Widths

Arterial and collector streets shall conform to the width assigned on the major street plan whenever applicable to the proposed subdivision. For a territory where such a street plan has not been completed at the time of submission of the plans, street width shall be provided as directed by the Planning Commission:

1. Minor street dedications shall have a minimum width of *fifty-six (56) feet.
2. Collector street dedications shall have a minimum width of fifty-six (56) feet.
3. Arterial street dedications shall have a minimum width of sixty-six (66) feet.
4. Minimum width of the paved portion of a street shall be as follows:
    A. Minor Streets: 32 feet
    B. Collector Streets: 32 feet
    C. Arterial Streets: 42 feet
    D. Cul-de-sacs: 32 feet

*Dedication of minor streets in the real property described in the *Annexation and Development Agreement for the Villages at Woodland Meadows Project, Woodland Hills, Utah County, Utah*, dated December 19, 1997, shall have a minimum width of 50 feet.

2.3.3 Trails and Walkways

All trails shall conform to the width and type assigned in Woodland Hills City's general plan. Refer to the city's standard detail for construction and design details of an asphalt trail. Any deviations must be approved by the city engineer.

All hiking trails as designated in the general plan shall conform to standards as set forth by the United States Forest Service.

2.3.4 Access to Property

Access to property shall be in accordance with 11-5-2-D of the Woodland Hills City Code.

2.3.5 Cul-De-Sacs

Where required for the full and best utilization of the property, cul-de-sacs may be allowed. The maximum permissible length of a cul-de-sac shall be 1000 feet and shall have a minimum width of *56 feet right-of-way for the entrance. Each cul-de-sac shall be provided at its closed end with a turnaround having a diameter at the outside of the roadway pavement of at least 100 feet, and a property line diameter of at least one hundred (120) feet. Surface water must drain away from the turnaround or toward catch basins at the discretion of the city engineer. Emergency exits may be required at the end of any cul-de-sac at the discretion of the city engineer. The maximum grade on a cul-de-sac bulb shall not exceed 5%.

The length of a cul-de-sac shall be measured from the centerline of the adjoining street to the center of the bulb of the cul-de-sac.

*Cul-de-sacs within the real property described in the *Annexation and Development Agreement for the Villages at Woodland Meadows Project, Woodland Hills, Utah County, Utah*, dated December 19, 1997, shall have a minimum right-of-way of 50 feet.

Refer to the city Construction Standards for cul-de-sac layout.

2.3.6 Half Streets

Half streets shall be in accordance with 11-5-2-E of the Woodland Hills City Code.

2.3.7 Dead-End Streets/Temporary Turnarounds

Temporary turnarounds are to be provided on all streets that are more than one (1) lot from a road intersection. The turnaround is to be 100 feet in diameter and recorded as an easement with the final plat. The turnaround must be constructed consistently with the asphalt, road-base, and sub-base of the adjoining street, with the following exception:

If the roadway is expected to continue before the end of the durability period, the developer may choose to install a turnaround consisting of 6 inches of road base and 2.5 inches of asphalt. Should the roadway not be extended before the end of the durability period, the developer will be responsible for reinstalling the turnaround consistently with the asphalt, road-base, and sub-base of the adjoining street prior to release of the durability retainer.

2.3.8 Curves

Reverse curves shall have a tangent of at least 100 feet unless, in the opinion of the Planning Commission, it is not necessary. Two curves in the same direction shall be separated by a tangent of at least 200 feet, except that the Planning Commission may authorize a tangent of less than 200 feet where it can be shown that no appreciable traffic hazard will result there from.

2.3.9 Street Intersections

Streets shall intersect each other as near as possible at right angles. Street jogs with centerline offsets of less than 125 feet shall be prohibited. Where streets intersect major arteries, their alignment shall be continuous. Minor streets shall approach arterial or collector streets at an angle of not less than 80 degrees for a distance of at least 100 feet. Streets converging at one point shall be reduced to the least practical number.

2.3.10 Clear Vision Area

The unobstructed corner shall mean a triangular area formed by the street rights-of-way lines connecting them at points 35 feet from the intersection of the street lines, or in the case of a rounded property corner, from the intersection of the street lines, produced along the sub-tangents of the curve to said point of the intersection.

HISTORY:

(amd. Ord. 2022-24, 08-23-2022)

2.3.11 Street Grades

Minimum street grades of 0.5% shall be required and a maximum grade of 10% will be allowed, except that the Planning Commission may allow up to a maximum of 12% for a total distance not greater than 1000 feet in any 2000 feet of street distance; and further, up to 500 feet of said 1,000 feet may exceed 12%, but not more than 14% when, in the opinion of the Planning Commission and the city engineer, it is in the best and safest development of the land. The maximum grade on a cul-de-sac bulb shall not exceed 5%.

Intersection shall be designed with a flat grade, where required by the city engineer. In hilly or rolling areas, at the approach to an intersection, a leveling area shall be provided along minor streets having less than a 2% slope for a distance of 60 feet, measured from the nearest rights-of-way line of the intersecting street.

2.3.12 Street Curves

Where the street lines within a block deflect from each other at any one point more than 10 degrees, there shall be a connecting curve. The radius of the curve for the inner street line shall be not less than 350 feet for arterial streets, 250 feet for collector streets, and 100 feet for minor streets.

2.3.13 Horizontal Alignment

The centerline of pavement shall coincide with the centerline of the rights-of-way, except for irregular rights-of-way.

2.3.14 Survey Monuments

Survey monuments shall be placed in the subdivision as required by the city engineer.

All property corners shall be marked with a rebar corner marker. Corners must be marked before acceptance of a subdivision's improvements by the city. The rebar must be offset 2 to 4 inches by a steel T-post 4 feet out of the ground on the property line alignment. Where a curb is present, the alignment of the side property line for each lot in the subdivision shall be marked on the top back of the curb with a lot line witness marker.

2.3.15 Bridges and Culverts

All bridges and culverts shall be constructed to support a gross vehicle weight of 75,000 pounds minimum.

2.3.16 Parking Lots

Parking shall meet the requirements of the zoning ordinance and the city Construction Standards.

Parking lots shall be designed to meet appropriate engineering standards, including the number of parking stalls, handicap stalls, drainage, and load capacity. All drive and parking lot drainage, asphalt, and base design shall be reviewed by the city engineer or their designee before approval.

2.3.17 Intersection Radius

All intersections shall have a radius of 25 feet as measured at the edge of the asphalt. All culverts are to be extended to provide and accommodate the asphalt radius and the installation of required road base, shoulder, and rock-lined ditch.

2.3.18 Geotechnical Design

All roadways to be constructed within Woodland Hills City shall be improved according to a geotechnical investigation and pavement design as prepared by a licensed professional geotechnical engineer in the State of Utah. All pavement designs shall include traffic study results and/or traffic assumptions, which must be submitted to the city engineer for review and approval. The city engineer may require higher traffic counts based on future development and planning requirements.

2.3.19 Street Signs

See APWA 32 01 05 & 32 01 06

Additionally, Street name Signs shall be an earth brown color with white lettering. All street sign bases shall be incased in concrete. Concrete bases shall use class 4000 concrete, be a minimum of 24 inches in diameter, a minimum of 6 inches thick and use a No. 4 rebar hoop that is 16 inches in diameter.

2.4 Inspection

2.4.1 All Work Subject to Inspection

All construction work involving the installation of improvements in subdivisions that shall be dedicated to the city shall be subject to inspection by the city. The developer shall be responsible for providing inspection and certified reports from a qualified testing lab or engineering firm for the following inspections:

1. Compaction of all trenches.
2. Pressure tests on water mains.
3. Inspection and testing of sewer and other utilities as required by the city.
4. Slump tests, compression tests, and air entrainment on all concrete work.
5. Compaction test on all sub-base, untreated base course, and bituminous surface course.

Certain types of construction shall have continuous inspection, while others may have only periodic inspections. It shall be at the discretion of the city engineer for the continuous inspections. It is the responsibility of the developer/subdivider to ensure that all contractors give the city appropriate notice to allow scheduling of the inspections. Inspections shall be required on the following types of work:

1. Laying of street surfacing.
2. Installation of drainage pipe, water pipe, sewer lines, valves, fire hydrants, and testing.
3. Sub-grade.
4. Street grading and gravel base.
5. Excavations for structures.
6. Trenches for installing pipe.
7. Forms for structures. No work shall be started except in the presence of, or with the prior approval of the city engineer or their designee.

2.4.2 Inspection Fees

Inspection fees and/or connection fees required by city ordinance shall be paid, and required permits shall be obtained before the recording of the final plat.

2.4.3 Security for Improvements Required

All requirements for the security for improvements shall be in accordance with Section 11-4-4 of the Woodland Hills City Code.

2.4.4 Acceptance of Improvements

Inspections made by the city to determine compliance with the specifications do not imply acceptance of the work. The city requires completion of all facilities before any are accepted for maintenance. Final acceptance of improvements will be made by the city engineer, following inspection and written approval by the city engineer. All improvements shall operate as intended, be tested, and be free from defects or damage at the time of inspection.

2.4.5 Underground Utilities

All private utilities, including electrical, telephone, and cable television lines, shall be underground except when the city feels that such underground lines are not in the best interest of the City. Refer to Section 11-5-8 of the Woodland Hills City code.

HISTORY:

(amd Ord. 2021-16, 06-22-2021)

2.4.6 Access to Premises

See APWA 00 72 00 part 13.2

2.4.7 Requests for Inspection

Requests for inspection shall be made to the city by the person responsible for the construction. Requests for inspection on work requiring continuous inspection shall be made three (3) days before the commencement of the work. Notice shall also be given one (1) day in advance (excluding weekends) of the start of work requiring periodic inspection.

2.4.8 Pre-Construction Meeting

See APWA 01 31 19

2.4.9 Construction Completion Inspection

See APWA 00 72 00 part 13.3

In addition to APWA:

One (1) year after the Contractor or Developer passes the end of construction inspection, he or she must schedule a formal acceptance inspection.

It is further agreed and understood that the determination of the necessity of repairs and maintenance of the work rests with the city engineer or their designee. Their decision upon the matter shall be final and binding upon the developer, and the warranty hereby stipulated shall extend to and include, but shall not be limited to the entire street base, and all pipes, joints, valves, backfill and compaction as well as the working surface, curb, gutter and other accessories that are, or may be affected by the construction operations, and whenever in the judgment of the city engineer or their designee, shall cause a written notice to be served to the developer and thereupon the developer shall undertake and complete such repairs, maintenance or rebuilding. If the developer fails to do so within ten (10) days from the date of the service of such notice, the city engineer or their designee shall have such repairs made, and the cost of such repairs shall be paid by the developer together with an additional 20% for stipulated damages for such failure on the part of the developer to make the repairs.

2.4.10 Work Without Inspection

Any work performed without proper inspections, as required above, will give the city the option to hold the bond covering that portion of the improvements in violation or require removal and replacement of the work not inspected. The city shall have the option of retaining part or the entire bond for two (2) years after installation of improvements in violation of this chapter. It is pertinent that the developer ensures their contractors request all necessary inspections.

2.4.11 Record Documents

See APWA 01 78 39

2.4.12 Testing

See APWA 01 45 00

In addition to APWA:

1. Submittals
    A. Field Test Report: When possible, submit the original report immediately to the engineer or inspector, but in no case later than the end of the current day.
    B. Laboratory Test Report: Submit the original report to the engineer within 48 hours after test results are determined.
2. Sampling

A. The city engineer or city Inspector may require that sampling be performed in their presence, in which case the developer or contractor shall be notified of this requirement in writing at the time the building permit is issued, or at the preconstruction meeting, or when construction drawings are released by the city for construction, as applicable.

B. The presence of a city Inspector shall not relieve the developer/contractor of any requirement in Section 2.4.9.

C. Each sample or test shall be accompanied by the following written data, which shall be reported to the city with test results:

    a. Name of Project

    b. Name of Developer/Contractor

    c. Project Street Address

    d. Appropriate Test Name

    e. Date of Sampling

    f. Sample Number (if more than one sample per day)

    g. Name of technician who performed the testing

    h. Location of sample

3. Testing Agency

    A. All materials testing, whether in a laboratory or in the field, shall be conducted by a testing agency approved by the city.

2.4.13 Occupancy

Occupancy shall be in accordance with 10-4-7 of the Woodland Hills City Code.

2.5 Prerequisites of Contractors

2.5.1 Licensed Contractor

All work performed in accordance with this title shall be performed by a contractor licensed to perform such work by the State of Utah.

2.5.2 Prequalification

1. Insurance

A. The contractor shall not commence work on city property, streets, easements, or rights-of-way until he has obtained, as a minimum, the insurance required hereunder, and evidence of such insurance has been submitted to and approved by the city. The submittal of said evidence to the city shall not relieve or decrease the liability of the contractor hereunder.

B. Workers' Compensation & Employers' Liability Insurance.
   a. As required by State law.
   b. Commercial General Liability Insurance - ISO Form CG 00 01 (11/85) or equivalent, occurrence policy, with the following information:
      (i) Limits of not less than –
         i. General Aggregate - $1,000,000
         ii. Products - Comp/OPS Aggregate - $1,000,000
         iii. Personal and Advertising Injury - $500,000
         iv. Each Occurrence - $500,000
         v. Fire Damage (any one fire) - $50,000
         vi. Medical Expense (any one person) - $5,000

      (ii) Endorsements attached thereto, including the following or their equivalent:
         i. ISO Form CG 25 03 (11/85), Amendment of Limits of Insurance (Designated Project or Premises), describing the subject contract and specifying limits as shown above.
         ii. ISO Form CG 20 10 (11/85), Additional Insured-Woodland Hills, Lessees, or Contractors (Form B), naming the City as additional insured and containing the following statement, "This Endorsement Also Constitutes Primary Coverage in the Event of any Occurrence, Claim, or Suit".
         iii. Automobile Liability Insurance, with
            a. Limits of not less than $1,000,000 Combined Single Limit per accident.
            b. Coverage applying to any auto.

Woodland Hills City requires all contractors doing work in or on any city property, street, easement, or right-of-way to pre-qualify. A current contractor's license, insurance information, and an information sheet must be on file with the engineer's office before any construction in present or proposed city streets.

A bond will be required with each project. Prior to any construction being completed in or on city property, streets, easements, or rights-of-way, a permit must be submitted and approved. The permit must be completed forty-eight (48) hours before construction. A notice must be given to the city engineer or their designee 24 hours before inspections. Failure to obtain a permit or proceeding without notification shall constitute grounds for legal action. The city will inspect all work. The contractor must make arrangements with the city for inspections. If work is performed without proper inspections or without pre-qualifying, the city may hold that portion of the bond for five (5) years after completion of the improvements or require reinstallation.

Before starting construction, the developer shall schedule, with the city engineer or their designee, a pre-construction meeting with all contractors and subcontractors. Contractors are required to meet with the city engineer or his/her designee before commencing construction.

2.5.3 Street Encroachment Permits

For a street encroachment permit to be approved, Woodland Hills City requires the following information: (1) Copy of contractor’s license; (2) Certificate of Insurance; (3) Surety Bond of $5,000.00; and (4) Detailed drawing of proposed work and traffic control (4 copies).

The contractor is given a copy of the signed permit and the signed/approved plan after the city engineer or their designee has approved and signed the application. Time limits may be set, and the permit can be suspended for non-compliance.

2.6 Earthwork

2.6.1 General

This section defines the requirements for excavation and backfill for structures, construction requirements for embankments and fills, and sub-grade preparation for pavements and other surface improvements.

2.6.2 Sub-grade Soil

See APWA 31 23 23

2.6.3 Backfill Around Structures

See APWA 31 23 23

2.6.4 Construction of Embankments and Fills

See APWA 32 05 10 part 3.5

2.6.5 Compacting Earth Materials

See APWA 31 23 26

2.6.6 Road Subgrade Preparation

See APWA 31 23 26 & 32 05 10

Additionally, in both cut and fill areas, the paving sub-grade shall be scarified to a depth of 10 inches. Rough sub-grades shall be shaped and graded to within a tolerance of 0.15 feet of design grade, and drainage shall be maintained at all times. The developer shall provide to the city engineer or their designee the results of a sub-surface investigation performed by the developer's engineer and the recommendation as to whether existing material is adequate for road construction. Sub-surface investigations should be done to determine if a bank run is needed under the road base.

During the rolling operation, the moisture content of the sub-grade layer shall be maintained at no less than ninety-seven (97) or more than 105% of the optimum moisture content. Rolling shall be continued until the entire roadbed (to one foot back of road) is compacted to the specified density to a minimum depth of 10 inches.

2.6.7 Slope Safety

All slope construction shall be in accordance with all city, state, and federal regulations. Plans and specifications for structures must be approved by the city if the excavation is greater than 5 feet. No permanent slopes steeper than 3:1 shall be allowed

without a retaining structure unless otherwise approved in writing by the city engineer or their designee. The width of the excavation shall be increased if necessary to provide space for sheeting, bracing, shoring, and/or other supporting installations. Unsafe slopes will be the cause for the immediate shutdown of the project.

2.6.8 Water Settling

Water settling may be permitted with pre-approval by the city engineer or their designee, depending upon the type of soil and location. When water settling is approved, a city representative shall be at the job site during the compaction. When the material has dried sufficiently to allow compaction tests, the contractor shall dig test holes for compaction tests at locations and depths required by the city engineer or their designee.

2.6.9 Removal and Replacement Of Defective Fill

Fill not conforming to the requirements of this specification shall be reworked to the requirements or removed and replaced with acceptable fill.

2.7 Excavation and Backfill for Trenches

2.7.1 General

These specifications cover excavation and backfill of trenches for the installation of storm sewer, sanitary sewer, and water lines in streets and subdivisions.

2.7.2 Trench Safety

See APWA 00 72 00 part 6.12

Additionally, all construction shall be done in accordance with the provisions of the Utah State Industrial Commission and OSHA regulations. No trenches shall be left open at any time unless guarded with adequate barricades, warning lamps, and signs.

When required, excavation shall be braced and shored to support the walls of the excavation to eliminate sliding and settling, and as may be required to protect the workers, the work in progress, and existing utilities and improvements. All such sheeting, bracing, and shoring shall comply with the requirements of the Utah State Industrial Commission and OSHA.

Any injury or damage resulting from lack of adequate bracing and shoring shall be the responsibility of the developer/contractor, and the developer/contractor shall, at their own expense, effect all necessary repairs or reconstruction resulting from such damage. No inspections will be done in unsafe trenches, and this will be the cause for immediate shutdown of the project.

2.7.3 Dewatering Excavation Area

See APWA 31 23 16 part 3.6

2.7.4 Gravel Foundation for Pipe

See APWA 33 05 20 and APWA plan 382

2.7.5 Disposal of Materials

See APWA 31 23 16, part 1.5

Additionally, storm ditches shall always be kept clean of excavated material.

2.7.6 Trench Backfill

See APWA 33 05 20 and APWA plan 381 & 382

2.7.7 Backfill for Pipe on Hard Foundations

In no case shall pipe be laid directly on rock, hard clay, shale, or other hard material. Where foundations are of this nature, the contractor shall excavate a space below the pipe and backfill it with bedding material. Under these circumstances, the depth of the bedding material shall not be less than one-half inch (½") per foot of height of fill above the pipe, with a minimum allowable thickness of 4 inches. The remaining backfill shall be in accordance with the procedure outlined in Section 2.7.4.

2.7.8 Backfilling Above Pipe Zone and Consolidation Of Backfill

See APWA 33 05 20 & 31 23 26

2.7.9 Compaction and Consolidation of Backfill

See APWA 33 05 20 & 31 23 26

1. Consolidation of Backfill

    A. When authorized by the city engineer or their designee, the work shall be accomplished by those methods in which water is used as the essential agent to produce the desired condition of density and stability. Water shall be applied by jetting unless flooding is specifically authorized by the city engineer or his/her designee. Authorization by the city engineer or their designee to use any consolidation method does not relieve the contractor of their responsibility to meet the specified density requirements. Water for consolidation shall be furnished by the contractor at their own expense.

    B. In the jetting procedure, the jets shall be inserted at not more than 4-foot intervals (staggered) throughout the length of the backfilled area and shall be slowly forced down to the bottom of the trench or top of the previously jetted lift and held until the trench backfill is completely saturated with water. Depth of the jetted lift shall not exceed 5 feet. All water consolidation shall be performed as per Section 2.6.9.

2.7.10 Cutting of Asphalt

See APWA 02 41 14

Additionally, cutting of the asphalt will be made with an asphalt saw.

2.7.11 Testing

See APWA 00 72 00 part 13.3

2.7.12 Blasting

See APWA 31 23 17

Additionally, blasting will not be allowed except by permission from the city engineer or their designee. The contractor shall comply with all laws, ordinances, and applicable safety code requirements and regulations relative to the handling, storage, and use of explosives and protection of life and property. The contractor shall be fully responsible for all damage attributable to their blasting operations.

Excessive blasting or overshooting will not be permitted, and any material outside the authorized cross-section that may be shattered or loosened by blasting shall be removed by the contractor.

2.8 Water Lines

2.8.1 General

These specifications cover the installation of culinary water lines. Special and unusual piping and plumbing for equipment or structures are treated as separate items and are not included in this specification.

See APWA Division 33

2.8.2 Pipe Installation

See APWA 33 11 00

Additionally:

1. General
    A. Under no circumstances will any pipe be laid until inspection is complete and selected samples have adequately passed the requirements of the applicable specification
2. Connection to Existing Water Lines
    A. Information on the drawings regarding existing water lines is taken from "as-constructed" drawings from the city or utility company files and may or may not be accurate as to size, type of material, or location.
    B. The contractor will be responsible for determining the proper fittings and materials required, obtaining the city engineer’s or their designee's approval of the planned connection, and suitably performing the construction.
    C. Where fitting sizes, such as Tees and Crosses, are shown on the plans, those sizes will be used. However, no attempt has been made to show all the needed fittings or materials.

2.8.3 Ductile Iron Pipe

See APWA 33 05 05

2.8.4 Polyvinyl Chloride Pipe

See APWA 33 05 07.

2.8.5 Valves

See APWA 33 12 16

2.8.6 Fire Hydrants

See APWA 33 12 19

2.8.7 Water Main Locations

Water mains shall be located on either the north or east sides of a roadway and ten feet from the centerline.

Water mains shall be minimum one (1) foot vertical above the sewer. Separation between water and sewer mains shall be 10 feet (horizontally) minimum unless authorized in writing by the City engineer or their designee.

2.8.8 Water Meters and Service Lines

See APWA 33 12 33 & 33 11 00

Additionally:

(Water Meters to be provided and installed by the city unless otherwise noted)

Prior to the installation of the water service line, the engineer retained by the developer shall stake out the water meter location and provide the grade at which the lid is to be set. All water service lines shall be a minimum of 1 1/2" in diameter and shall start with a corporation stop at the main and shall be of SDR-9 CTS 200 PSI Blue Polypropylene Pipe or type "K" copper if approved by the city engineer, and meter setters of twenty-one (21) inch or taller and are braced and meet height specs in a twenty-four (24) inch can with four (4) inch ring lid and shall be used and installed with the top of the setter at a depth of not less than eighteen inches and not more than twenty- two (22) inches from the lid of the meter box. Setters shall have dual check valves. Meter boxes shall be placed in the city right-of-way within two (2) feet of the property line. All water meter lids shall have a hole for the touch pad also known as pit pak module. Hole shall be 1 ¾ "to 1 7/8 "in diameter. Meter boxes shall be in good repair and relatively free from obstruction to ensure ease in maintenance and reading (not full of dirt past the base of the meter, having trash present, and being badly bent to create a hazard). Damaged boxes shall be replaced. Meter boxes shall be from level to one inch high from the final grade. See detail. Water meter lids placed within the driveway or driveway approach must be 18" cast iron lids.

HISTORY:

(amd. Ord. 2022-20, 06-14-2022)

2.8.9 Water Meter Standards

If a water meter must be moved, the maximum lateral movement is 24 inches. If it must be moved more than 24 inches, a new service line must be installed, and the old service lines must be shut off and abandoned.

HISTORY:

(amd. Ord. 2022-20, 06-14-2022)

2.8.10 Tapping of Water Lines

See APWA 33 11 00

Additionally, tapping valves may only be used when previously approved by the City engineer or his/her designee. Tapping saddles with an "O" ring may be used if the water main line to be tapped is larger than the new water main line.

Service taps shall be a minimum of 24 inches apart. No taps will be allowed within 24 inches of the end of the pipe.

2.8.11 Water Supply

Each developer shall connect the subdivision to the city water system with all appurtenances and shall make such water available to each lot within the subdivided area. The city engineer or their designee shall establish the adequacy of supply and the sizes of water mains. Workmanship and details of construction shall be in accordance with the city's "Development Standards" and/or standards adopted by the city. All work in connection with water services shall be done as directed and under the supervision of the city engineer or their designee.

2.8.12 Testing and Flushing

A minimum pressure 50% more than the maximum line operation pressure shall be maintained on the portion being tested for a minimum period of two (2) hours, using either pneumatic or hydraulic means to maintain the pressure.

After pressure testing, all pipelines shall be flushed. Flushing shall be accomplished through hydrants or, if a hydrant does not exist at the end of the line, the contractor shall install a tap sufficient in size to provide for a 2.5 feet-per-second flushing velocity in the line.

A leakage test shall be conducted concurrently with the pressure test.

1. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of the specified

test pressure after the air in the pipeline has been expelled and the pipe has been filled with water.

2. Allowable leakage - No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{SD\,(P)^{0.5}}{133{,}200}$$

in which L is the allowable leakage, in gallons per hour; S is the length of pipeline tested in feet; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test, in pounds per square inch gage.

A. Allowable leakage at various pressures is shown in Table 1.

B. When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078gal/hr/in. of nominal valve size shall be allowed.

C. When hydrants are in the test section, the test shall be made against the closed hydrant.

3. Acceptance of Installation - Acceptance shall be determined based on allowable leakage. If any test of pipe laid discloses leakage greater than specified, the contractor shall, at its own expense, locate and repair the defective material until the leakage is within the specified allowance. All visible leaks are to be repaired regardless of the amount of leakage.

4. All new water systems or extensions to existing systems shall be thoroughly flushed before being placed in service. Flushing shall be accomplished through hydrants or end-of-line blow-off assemblies at a minimum flushing velocity of 2.5 feet-per-second.

5. The following is the flow quantity required to provide a 2.5 feet-per-second flushing velocity.

Pipe Size (Inches)	Flow (G.P.M)
4	100
6	220
8	390
10	610
12	880

2.8.13 Disinfection of Water Lines

Disinfection of water mains shall be done in accordance with the latest edition of AWWA C651.

The pipe shall be clean before disinfection. If, in the opinion of the city, contamination is such that it cannot be removed by flushing, the pipe shall be cleaned by mechanical means and then swabbed with a one percent (1%) hypochlorite disinfection solution.

The pipeline shall be disinfected as outlined in AWWA C651. The tablet method shall consist of placing calcium hypochlorite tablets at the specified rate in the main during construction at the upstream end of each section of pipe. The tablet shall be attached with an adhesive, such as Permatex No. 1 or equal. The line shall then be filled slowly (velocities less than 1 ft/sec), expelling all air pockets and maintaining the disinfection solution in the line for at least twenty-four (24) hours, forty-eight (48) hours if the water temperature is less than forty-one degrees (41) F. The disinfection solution shall have a concentration of at least twenty-five (25) mg/l of available chlorine. The continuous feed shall be done exactly as outlined in AWWA C651 and shall have twenty-five mg/l available Chlorine after twenty-four (24) hours. Under both methods, the contractor shall not be allowed to flush the line until the chlorine residual test has been passed by the city.

After the chlorination, the line shall be thoroughly flushed with velocities greater than 2.5 feet-per-second with clean water, and if necessary, re-chlorinated until satisfactory bacteriological testing is obtained. If any of the tests fail, the contractor shall be responsible for the fees of additional tests. All new lines shall be isolated from existing lines when tested.

Following the approval of the testing and installation of a water main, the entire water line will be flushed through the end of the main via an approved outlet.

1. The developer shall take bacteria samples at the sites designated by the City engineer or his/her designee for each job, based on the following formula:
    A. Minimum of 1 sample up to 200 feet.
    B. Minimum of 2 samples up to 600 feet. (One in the middle and one on the end).
    C. Minimum of 1 sample every 600 feet.

    D. Sampling points to be established during the pre-construction meeting for each project.

2. If any sample point fails on the first test, the line will be flushed and re-tested at all sample points.
3. If any sample point fails a second time the complete line will re-disinfected and re-tested at all sample points.
4. If any samples come back marked “presence”, which means coliform bacteria is present, the line will be re-disinfected and re-tested at all sample sites.

Water services will not be installed until bacteria sample results have been approved by the city engineer or their designee.

2.9 Sanitary Sewer

2.9.1 General

See APWA 33 31 00,

Additionally:

1. Dry Pipe - Developers are required to install the specified sewer facilities regardless of whether sanitary sewage treatment facilities are available.
2. Size - The city must approve the sizes of all proposed sewer lines. The minimum size of pipe is 8-inch diameter for main lines and 4-inch diameter for services.
3. Location - Sanitary Sewer mains shall be located on either the south or west sides of a street 10 feet from the centerline. Separation from culinary water pipelines shall be consistent with the State Code. A maximum of 400 feet of pipe shall be allowed between manholes.
4. Minimum Slopes - Slopes shall be designed to have a 2-feet-per-second velocity unless otherwise approved by the city engineer. The following table lists the minimum slopes for sanitary sewer for each size of pipe:

MINIMUM SANITARY SEWER SLOPES	
Pipe Diameter (inches)	**Minimum Slopes (%)**
4	2.000
6	1.000
8	0.334
10	0.248
12	0.194
14	0.158
15	0.144
16	0.132
18	0.113
21	0.092

24	0.077

5. Sewer Lift Stations - Sewer lift stations, which are required in a development, shall be designed by the developer's engineer, and the design shall be submitted to the city engineer or his/her designee for review. Lift stations will only be allowed when it is demonstrated that no option is available for a gravity feed system. Lift stations, if allowed, will be the wet well/dry well type, will have standby power, telemetry, and will be designed for large areas, not individual subdivisions.
6. Unusual Piping and Plumbing - Special and unusual piping and plumbing for equipment or structures are treated as separate items and are not included in these standards. Any such items must be submitted to the city engineer or his/her designee for review and approval.

2.9.2 Sanitary Sewer and Sanitary Sewage Facilities

All new developments within the "Master Plan Development Area" as depicted by the Woodland Hills Sewer Master Plan Map are required to install sanitary sewer lines according to Section 2.9 Sanitary Sewer of Woodland Hills Development and Construction Standards. Each lot must have the capability to discharge sanitary sewer to a sewer main fronting each lot, either by gravity through a lateral or by an individual lift station. Until such time as a city sewer treatment facility is available, septic tank/fill drain systems will be allowed on each lot pursuant to Utah County health department regulations.

Further, new builds on existing property or remodels that will exceed fifty (50) percent of the current residential floor space and are used for human occupancy shall be required to connect to the city's sewer system as part of the building permitting process if the property line is within three hundred feet (300) of the city's sewer system line. The connection will include running the main sewer line to the property and connecting the sewer lateral from the residential property to the main sewer line.

2.9.3 Installation

See APWA 33 31 00

2.9.4 Reinforced Concrete Pipe

See APWA 33 05 02

2.9.5 Polyvinyl Chloride Pipe

See APWA 33 05 07

2.9.6 Manholes and Appurtenances

APWA 33 31 00 and Plan 411

2.9.7 Services

See APWA 33 31 00

Clean-outs - Any bend in a service line between the main line and the property line greater than 22.5° requires a clean-out.

Temporary Plugs - Manholes shall be installed at each end of a new development unless otherwise approved by the city engineer. Suitable temporary plugs shall be installed at the receiving or discharging ends of these manholes.

2.9.8 Cleaning

1. General - After sewer lines have been laid and trench back-filled, they shall be thoroughly cleaned and tested for leakage and alignment in the presence of the city engineer or their designee before acceptance by the city. Cleaning shall be done using a high-pressure jet cleaning machine, producing a minimum of 800 p.s.i. Wastewater and debris shall not be permitted to enter sewer lines in service, but shall be removed at the lowest manhole of the extension. Such cleaning shall be done by private crews at the expense of the owner.
2. Displacement Test - The displacement test shall be conducted by the developer and inspector in the presence of the engineer. All sewer mains shall be washed and inspected using a television inspection unit. The city must approve the video inspection company. The TV inspection of any mains that reveal broken, misaligned, or displaced pipe, or other defects, as designated by the city engineer or their designee, shall be remedied by the contractor. A tape of video inspection and log report shall be submitted by the inspection company to the City Engineer. After cleaning and inspection have been completed, the line shall be tested for leakage.
3. Leakage Tests - The Low-Pressure Air Test shall be conducted by the following method under the direction of the city engineer or their designee with equipment equal to Cherne Industrial, Inc. All wyes, tees, or ends of lateral stubs shall be suitably capped and braced to withstand the internal test pressures. Caps shall be easily removable for future lateral connections or extensions. After a manhole-to-manhole section of line has been backfilled and cleaned, it shall be plugged at each manhole with pneumatic plugs.

A. Low-pressure air shall be introduced into the sealed line until the internal air pressure reaches 4 PSIG greater than the average back pressure of any groundwater that may be over the pipe. At least two (2) minutes shall be allowed for the air pressure to stabilize.

B. The pipe section being tested will be accepted if it does not lose air at a rate higher than 0.003 cubic feet per minute for each square foot of internal pipe surface. The minimum allowable air loss is 2.0 cubic feet per minute, and the test must be done at an average of 3.0 PSIG higher than any groundwater pressure above the pipe.

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

Pipe Diameter (inches)	Time (min)
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
15	7.5
18	8.5
21	10.0
24	11.5

D. If the installation fails to meet this requirement, the contractor shall determine at their own expense the source of the leakage. They shall repair all defective materials and /or workmanship.

See APWA 33 31 00 & 33 08 00,

2.10 Stormwater

2.10.1 General

These specifications will cover the installation of storm drains when required. Excavation and backfill of trenches are covered in Section 2.7. All developments will be responsible for providing a storm drain system on-site that will contain a specific storm event, depending on the type of system installed. The maximum allowable stormwater discharge from any development will be limited to 0.2 cfs/acre of development.

The following rainfall intensities (inches/hour) for 10-year, 25-year, and 100-year storms shall be used in determining storm runoff quantities:

Time (min)	10-Year (inches/hr)	25-Year (inches/hr)	100-Year (inches/hr)
5	3.55	4.62	6.67
10	2.71	3.52	5.08
15	2.24	2.91	4.20
30	1.51	1.96	2.83
60	0.93	1.21	1.75
120	0.54	0.70	0.99
180	0.40	0.50	0.69
360	0.24	0.29	0.38
720	0.15	0.18	0.23
1440	0.09	0.11	0.13

2.10.2 Drainage

The developer shall install a storm water drainage system pursuant to standards recommended by the city engineer or their designee. Potential groundwater of subsurface drainage problems may require additional requirements; further requirements will be reviewed and approved by the city engineer or his/her designee. Pumping of groundwater across sidewalks or into gutters will not be allowed.

No building permit will be allowed before approval of said facilities.

2.10.3 Pipe

See APWA 33 41 00

1. Pipe Markings

    A. Mark pipes continuously to identify:

        a. Manufacturer's name (or trademark) and code.

        b. Nominal size.

        c. Polyethylene code designation.

        d. SDR rating. (Not applicable to corrugated polyethylene.)

        e. Date of manufacture.

        f. Pressure class. (Not applicable to corrugated polyethylene.)

        g. ASTM or AWWA designation number.

2.10.4 Laying

See APWA 33 41 00

2.10.5 Manholes

See APWA 33 41 00

2.10.6 Manhole Base

See APWA 33 41 00

2.10.7 Minimum Slopes

Minimum slopes for different-sized pipes are as follows:

Pipe Diameter (inches)	Minimum Slope (%)
12	0.194
14	0.158
15	0.144
16	0.132
18	0.113

21	0.092
24	0.077
27	0.066
30	0.057
36	0.045

2.10.8 Cleaning

Cleaning shall be done using a high-pressure jet cleaning machine, producing a min. of 800 psi.

See APWA 33 41 00

2.10.9 Sumps

Sumps shall be located as staked in the field and indicated on the plans. They shall be to the grade indicated by the cut-sheets and as staked in the field. Excavation and backfill shall conform to Section 2.7 of these specifications. If the sump is located in an area where the earth is stratified with gravel layers, care shall be taken during backfill to be sure that these layers are not sealed off from the sump, beginning three (3) feet below the bottom of the sump up to the top of the sub-grade. Two (2) to four (4) inch diameter drain rock shall be used. The original material shall be removed, and the total backfill shall be done with imported drain rock. After backfilling is completed, the entire excavation shall be thoroughly flooded to ensure that settlement is complete. Grates shall be set in place and adjusted for final elevation and alignment. The city may require a fabric barrier between the drain rock and road base (or other backfill) when there is the possibility of road base moving into the void space of the drain rock.

Sumps will be constructed of reinforced concrete, pre-cast sections, and shall meet the requirements of ASTM C478-73 in accordance with standard detail drawing. Either class shall have eccentric lids to ensure adjustments in alignment.

2.10.10 Inlet Structures

See APWA 33 41 00 and Plan 315-317.

1. Inlet Grates and Frames.

    A. Material. All castings shall be of ASTM A-48, Class 35 iron free from blowholes and shrinkage defects. Castings shall be free from fins and burrs and shall be shot-blasted to remove sand and other foreign matter. Freedom

from cracks and defects shall be ascertained by the engineer prior to installation.

B. The type of grate and frame shall be D&L 1-3516 or approved equivalent.

2. Each inlet structure shall have a minimum 12" drainpipe extending to the storm drain main line.

2.10.11 Retention/Detention Basins

1. Retention Basin

   A. All retention basins shall be constructed with a maximum water depth of 36 inches. All retention basins shall have a series of interconnected sumps connected to curb inlet boxes or storm drain main lines. All retention basins shall be landscaped in accordance with city Standards.

   B. All retention basins shall be constructed for drainage areas designated in the flood study. Basins for smaller areas may be allowed only with prior written approval of the city engineer or their designee.

2. Detention Basins

   A. All detention basins shall be constructed with a maximum water depth of 36 inches; with that depth remaining for no longer than a 48-hour period. Detention basins may be constructed in landscape or parking areas.

2.10.12 Low Impact Development (LID)

1. Refer to Section 12, Chapter 7 of the Woodland Hills City Code for design guidelines.

2.10.13 Design Storm

1. Frequency

   A. Minor system facilities shall be designed to collect and convey stormwater runoff from a storm with a return frequency of 10 years. Minor system facilities include local catch basins, storm drainpipes, and manholes.

   B. Major system facilities shall be designed to collect and convey storm runoff from a storm with a return frequency of 100 years. Major system facilities include streets, storm drainpipes to regional facilities, open channels, and culverts and bridges.

C. Detention basins shall be designed to detain runoff from a storm with a return frequency of 25 years. Retention basins shall be designed to retain runoff from a storm with a return frequency of 100 years.

2. Depth and Intensity

    A. Rainfall depth and intensity shall be obtained from the table listed above in Section 2.10.1

3. Distribution and Duration

    A. The rational method is to be used to evaluate and design the storm drain conveyance facilities (i.e. pipes, culverts). The 10-year 24-hour storm duration shall be evaluated.

    B. The rational method is to be used to evaluate and design the storm drain storage facilities (i.e. detention and retention basins). The 10, 25, and 100-year 24-hour storm durations shall be evaluated. The maximum peak volume from these three storm durations shall be used to evaluate and design the storage facility.

2.11 Restoration of Surface Improvements

2.11.1 General

The contractor shall be responsible for the protection and the restoration or replacement of any improvements existing on public or private property at the start of work or placed there during the progress of the work.

Existing improvements shall include, but are not limited to, permanent surfacing, ditches, driveways, culverts, fences, walls, and landscaping. All improvements shall be reconstructed to equal or better, in all respects. The contractor shall be responsible for maintaining a road surface suitable for travel by the public. The contractor shall be responsible for all dust control and all claims and damages resulting from failure to maintain the construction area. All road cuts shall be repaired within two (2) working days unless otherwise approved by the city engineer.

2.11.2 Road Base

1. Where trenches are excavated through gravel-surfaced areas, such as roads and driveways, etc., the gravel surface shall be restored and maintained as follows:
2. The gravel shall be placed deep enough to provide a minimum of 6 inches of material.
3. The gravel shall be placed in the trench at the time it is backfilled. The surface shall be maintained by blading, sprinkling, rolling, adding gravel, etc., to maintain a safe, uniform surface satisfactory to the city engineer. Excess material shall be removed from the premises immediately.
4. Material for use on gravel surfaces shall be obtained from sound, tough, durable gravel or rock meeting AASHTO T-27 requirements. The following requirements for grading shall be met:

Sieve Size	Percent Passing
1-inch	100%
3/4 inch	85%-100%
No. 4	45%-65%
No. 10	30%-30%
No. 200	5%-10%

2.11.3 Bituminous Surface

See APWA 33 05 25 and plan 255.

2.11.4 Cold Weather Patching

Trenches cut during winter months or when asphalt plants are not operating shall be patched the same day of the cut with a good-quality cold mix and maintained until asphalt plants open. When asphalt plants open, the cold patch shall be removed, and a new patch of hot mix asphalt shall be placed within twenty (20) days of plant opening.

See APWA 32 12 16.19 & 33 05 25

2.11.5 Concrete Surfaces

See APWA 33 05 25

2.12 Street Surfacing

2.12.1 General

These specifications cover the preparation of sub-grade, the placing of base gravel, and the placing of asphalt surface on any city street.

See APWA 32 12 05

2.12.2 Traffic Control

See APWA 01 55 26

2.12.3 Excavation and Fill

See APWA Division 32

2.12.4 Sub-Grade Preparation

See APWA 32 11 23

2.12.5 Gravel Base

See APWA 32 11 23

2.12.6 Bituminous Surface Course

See APWA 32 12 03 & 32 12 05

2.12.7 Manholes and Valve Boxes

All manhole covers and valve boxes shall be raised to the proper grade after the placement of pavement. The cover shall be removed and raised to the proper elevation, with concrete setting the frame 1/4" below the pavement grade. Concrete rings need to be around valve boxes and manholes.

See APWA 33 05 14

2.12.8 Cross Gutters

Bituminous surface course shall be three (3) inches thick within thirty (30) feet of a cross gutter.

2.13 Concrete

2.13.1 General

The work shall consist of curb and gutter, sidewalk, combination curb, gutter, and sidewalk, cross gutters, curb, and other related concrete return constructed where indicated on the plans or as directed by the engineer and conforming in all respects to the specified lines, grades, and dimensions. A minimum slope along any curb and gutter shall be .4%, and on cross-gutter shall be 0.4%.

2.13.2 Concrete Materials

See APWA 03 30 04

2.13.3 ADA Requirements

All pedestrian facilities will conform to the current Federal ADA Standards.

2.13.4 Base Material

There shall be a minimum of 4" crushed gravel road base under all concrete.

2.13.5 Testing and Inspection

See APWA 03 30 05

Flow Tests - All curb and gutter and cross-gutters will have a flow test before final inspection to determine any low or high spots. (The city will be present)

2.13.6 Concrete Mixes

See APWA 03 30 04

2.13.7 Mixing, Conveying, and Placing

See APWA 03 30 10

2.13.8 Excavation and Backfill

See APWA 31 23 23

2.13.9 Forms

See APWA 03 11 00

2.13.10 Slip Forming

Strike lines are every 10 feet. The #4 rebar, 2' O.C., is 12 inches in length, placed 4 inches into the curb and 8" into the sidewalk. This is placed 2.5" below the finished top-back-curb.

2.13.11 Finishing

See APWA 03 35 00

2.13.12 Curing

See APWA 03 39 00

2.13.13 Cold Weather Concrete

Concrete shall not be placed when a descending air temperature in the shade and away from artificial heat falls below 35°F. Concrete shall not be poured on frozen ground. Where high temperatures are likely to descend below 32°F, concrete shall be covered or otherwise protected against freezing; add mixtures that are allowed.

2.13.14 Clean Gutter

Once the curb and gutter and surface course are in place, they shall be kept as clean as possible. When equipment is required to cross over the sidewalk, bridging will be provided to protect the concrete. Dirt and gravel will not be placed in the gutter or on the street. Gutter will always flow freely.

2.13.15 Right-of-Way

1. Construction within Right-of-Way - To the extent feasible, Utility's distribution and transmission lines and appurtenances will be constructed within the right-of-way boundaries of streets, roads, and alleys. Whenever, in the opinion of Utility, it is not practical to construct and install its facilities within the limits of streets, alleys, and other public thoroughfares, Utility will construct and install such facilities on private rights-of-way.
2. Furnishing of the Right-of-Way - Whenever a utility must occupy private rights-of-way, the property owner shall furnish or assist in acquiring, without charge to utility, such right-of-way as is necessary and will assist the utility in securing such other right-of-way as may be necessary to provide service to the consumer.

2.14 Hillside Site Development

2.14.1 Average Slope - Definition

For this chapter, the definition of "average" slope shall be as follows: The average slope of the parcel of land or any portion thereof shall be computed by applying the formula,

$$S = \frac{0.00229 \ I \ L}{A}$$

to the natural slope of the land before any grading is commenced, as determined from a topographic map having a scale of not less than one-inch equals 100 feet and a contour interval of not less than 5 feet, where:

0.00229 = A conversion factor of square feet to acres

S = Average percent slope

I = Contour interval, in feet

L = Summation of the length of contour lines, in feet, within the subject parcel

A = Areas in acres of the parcel being considered.

2.14.2 Certified Report Required

It shall be unlawful for the owner, developer, or any contractor or other person to excavate, grade, level, or build upon any property within the city when the average slope of the lot exceeds twenty (20) percent, nor shall any person grade, level, or improve in any manner any parcel of land which is crossed by a natural or manmade water course or existing utility, before such person has submitted to the chief building official a certified report from a qualified civil engineer licensed in the State of Utah containing the information outlined in the following section.

2.14.3 Certified Report Specifications

1. The certified report required in the previous section shall contain at least the following information:
    A. A plat of the property showing the following:
    B. Contour lines at two (2) foot intervals. Existing contours shall be indicated by dashed lines and proposed contours by solid lines.
    C. Elevations at the corners of foundations and at the corners of driveways.

D. Show or reference any existing or potential groundwater flows that may cause unstable conditions, such as debris flow or slides.

2. Assessment of the civil engineer as to the seriousness of any development problems, such as erosion, drainage, flood, and geologic hazards or unstable soil conditions, and their potential effect on adjoining properties and on any proposed improvements to be built on the property.

3. The proposed method for handling the problems noted in “#2" above. No grading shall take place on a hillside area until the proposed method of handling said problems is submitted to and approved by the city engineer. Owner, developer, or contractor shall comply with the following conditions:

    A. Any subdivision containing a hillside area (any areas within the subdivision with slopes exceeding 25 percent) shall comply with the provisions of this section, as well as this chapter.

    B. No grading shall take place on a hillside area until a grading plan has been submitted to and approved by the city engineer.

    C. Any area within a subdivision that has a slope of thirty-five (35%) or greater shall remain ungraded, unless approved by the planning commission and city council.

    D. Any area within a subdivision which has a percent slope between twenty (20%) and thirty-four (34%) may be graded: provided, however, the grading area shall be less than one-half of the area of such slope.

    E. Any fill material shall be prepared and compacted as specified in the Construction Standards and Specifications for Woodland Hills City.

    F. Cut slopes shall be no steeper than one and one-half feet horizontal to one foot vertical (1 ½:1) and shall be designed with an acceptable erosion control system. An erosion control system is generally composed of a combination of long-term non-degradable erosion mat, structural geogrid, and/or geo-textile. These materials can be used alone or in combination.

    G. Fill slopes shall be no steeper than two feet horizontal to one foot vertical (2:1) and shall be designed with an acceptable erosion control system. An erosion control system is generally composed of a combination of long-term non-degradable erosion mat, structural geo-grid and/or geo-textile. These materials can be used alone or in combination.

H. Tops or toes of slopes shall be set back from property boundaries a minimum distance of five (5) feet. (Excluding Roads).

I. Areas which have been graded shall be planted with stabilizing plant materials within one hundred twenty (120) days after the completion of final grading. If an area has been determined by the city as being an area subject to erosion danger, then the subdivider shall plant acceptable stabilizing plant material. If final grading is completed between October 15 and March 15 of the next year, then organic cover material shall be placed on the graded area to eliminate erosion until the soil can be permanently planted.

J. Natural vegetation shall remain in areas where grading is not permitted. The city may require additional landscaping in areas that were graded in order to supplement the natural vegetation and to prevent erosion and slope failures.

K. Surface water runoff drainage improvements shall be designed and installed to prevent both on-site flooding and erosion. Such drainage design shall channel water runoff away from cut and fill slopes and away from all buildings.

L. Any buildable area or portion of a buildable area shall not be closer than thirty feet (30') to the high-water flow area of any man-made or natural drainage channel as determined by field investigation, engineering analysis, or otherwise approved by the city engineer.

M. All drainage areas shall be kept free of debris and soil sedimentation during subdivision development and building construction.

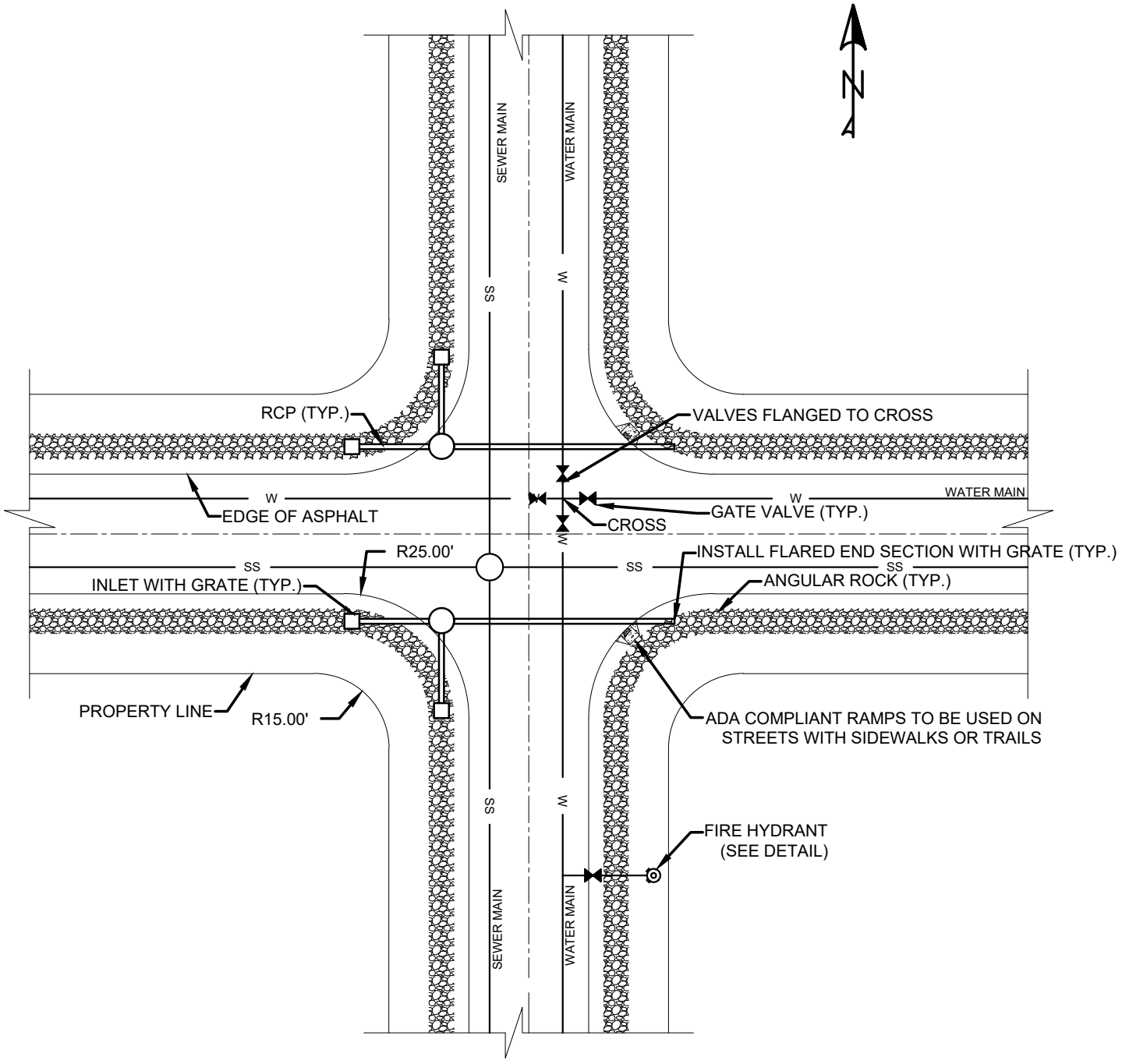
2.14.4 Liability

The purpose of this chapter is to point out to the owner and/or developer of any property that the liability and responsibility of such persons to protect the integrity of their own and adjoining properties, existing water courses, and utilities lies upon the person doing the development and upon the owner of the property being developed and not upon the city or any other person. The city may require additional information on any development or building that may have potential hazards.

WOODLAND HILLS DEVELOPMENT AND CONSTRUCTION STANDARDS

STANDARD DRAWINGS

WOODLAND HILLS



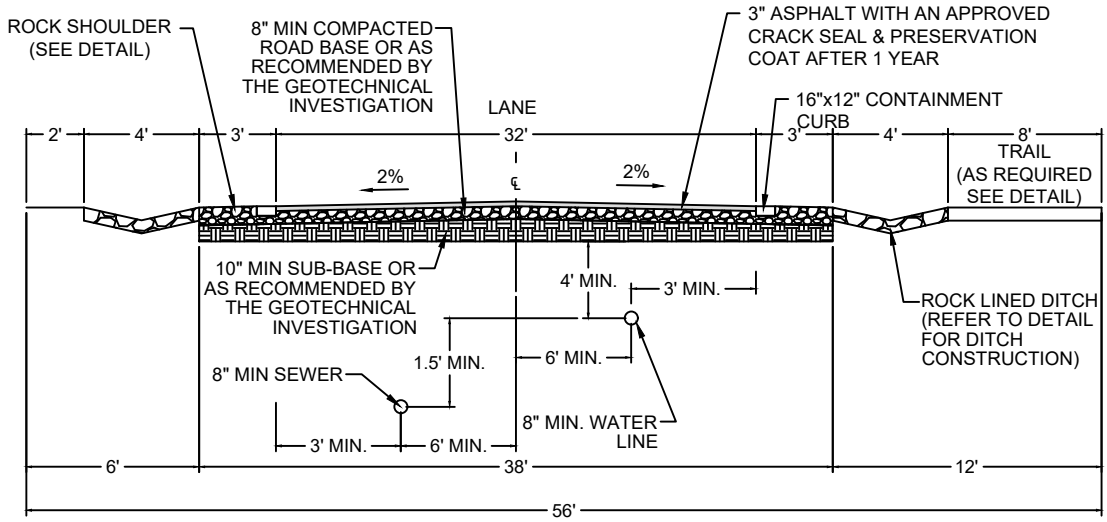
NOTES:

1. WATER MAINS TO BE LOCATED ON THE NORTH & EAST SIDES OF THE STREETS.
2. WATER MAIN AND SEWER MAIN SHALL BE 3' MIN FROM CURB
3. WATER MAIN SHALL BE 10' MIN FROM SEWER MAIN

STANDARD #	DRAWN BY:	CONSTRUCTION STANDARDS	
1	JSB	TYPICAL STREET INTERSECTION (56' RIGHT OF WAY)	
	CHECKED BY: MDH		
	SCALE: N.T.S.		
	DATE: 12/5/2025		

680 S. Woodland Hills Dr.
Woodland Hills, UT 84653
Phone: 801-423-1962
Fax: 801-423-3501
www.woodlandhills-ut.gov

WOODLAND HILLS



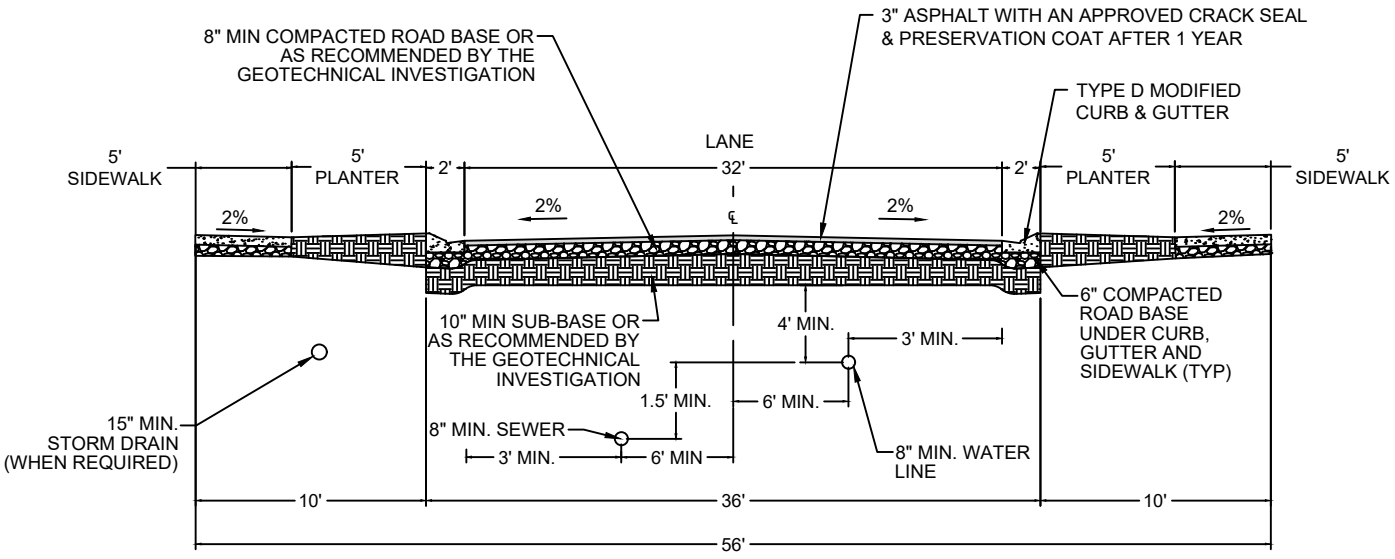
NOTE: 1. WATER MAINS TO BE LOCATED ON THE NORTH & EAST SIDES OF THE STREETS.

2. SEWER MAINS TO BE LOCATED ON THE SOUTH & WEST SIDES OF THE STREETS.

STANDARD #	DRAWN BY:	CONSTRUCTION STANDARDS	
2	JSB		
	CHECKED BY: MDH		
	SCALE: N.T.S.	56' COLLECTOR STREET CROSS SECTION WITH SWALE	
	DATE: 12/5/2025		

680 S. Woodland Hills Dr.
Woodland Hills, UT 84653
Phone: 801-423-1962
Fax: 801-423-3501
www.woodlandhills-ut.gov

WOODLAND HILLS



NOTE: 1. WATER MAINS TO BE LOCATED ON THE NORTH & EAST SIDES OF THE STREETS.

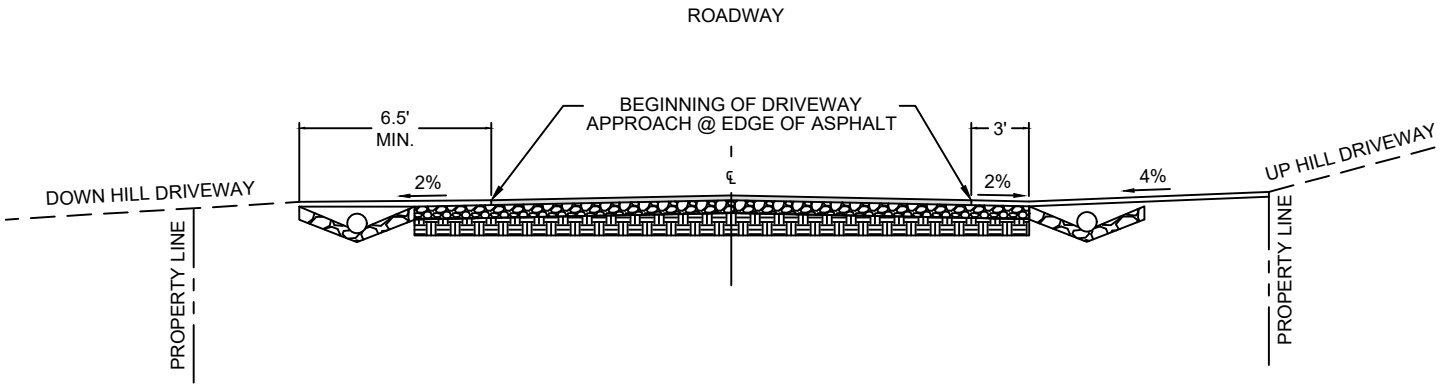
2. SEWER MAINS TO BE LOCATED ON THE SOUTH & WEST SIDES OF THE STREETS.

3. INSTALL SUMPS ON THE SOUTH & WEST SIDE OF THE STREET PER DETAIL AS REQUIRED BY ENGINEER

STANDARD #	DRAWN BY:	CONSTRUCTION STANDARDS	
3	JSB		
	CHECKED BY: MDH		
	SCALE: N.T.S.	56' COLLECTOR STREET CROSS SECTION WITH CURB	
	DATE: 12/5/2025		

680 S. Woodland Hills Dr.
Woodland Hills, UT 84653
Phone: 801-423-1962
Fax: 801-423-3501
www.woodlandhills-ut.gov

WOODLAND HILLS



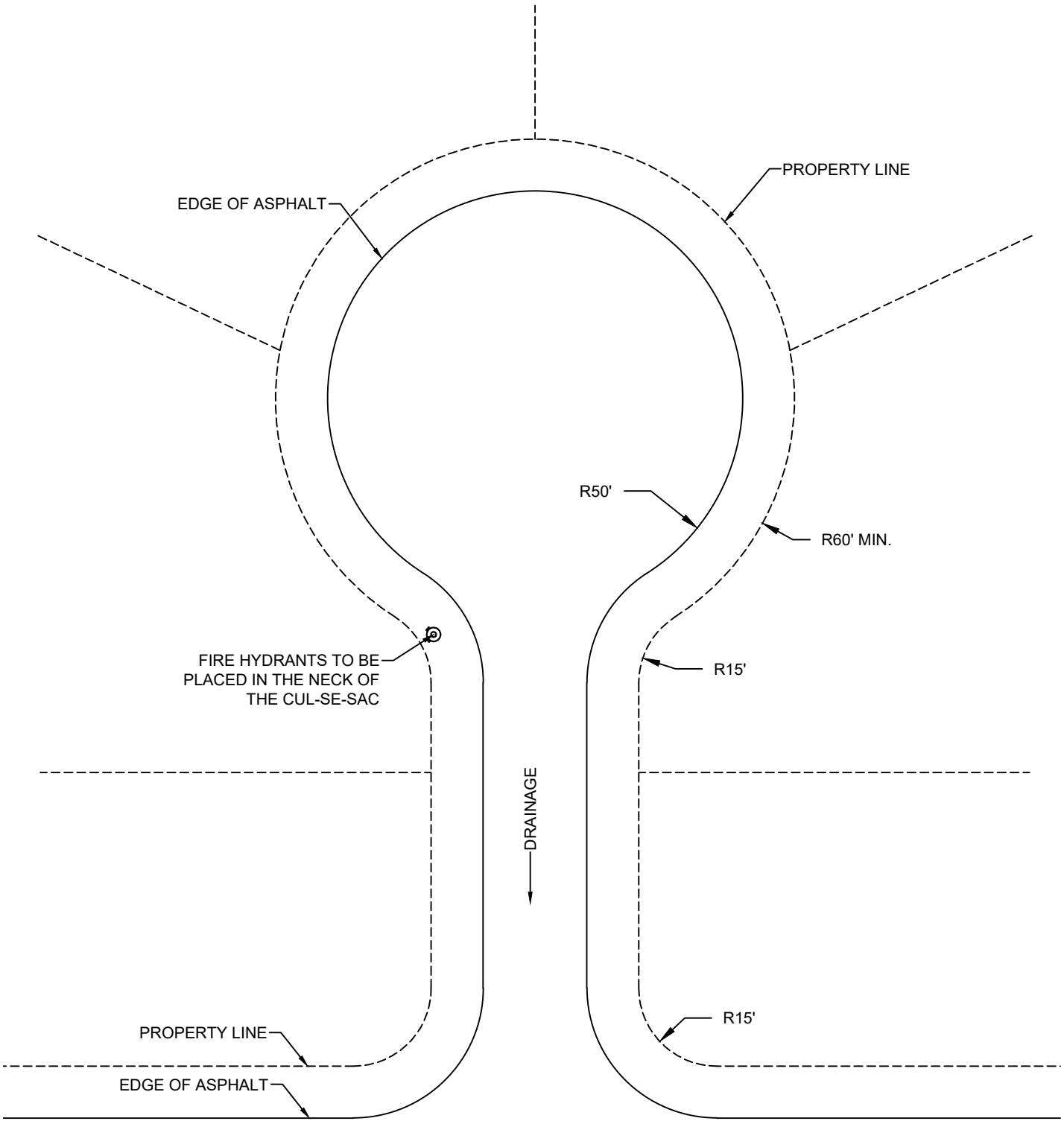
NOTES:

1. DRIVEWAY APPROACHES SHALL SLOPE AWAY FROM ASPHALT AT 2% FOR A MINIMUM 6.5' BEYOND THE EDGE OF ASPHALT FOR DOWNHILL LOTS AND A MINIMUM OF 3' FOR UPHILL LOTS.

2. DRIVEWAY APPROACHES WITHIN THE CITY RIGHT OF WAY SHALL NOT EXCEED A GRADE OF 4%

STANDARD #	DRAWN BY:			
4	JSB	**CONSTRUCTION STANDARDS**		680 S. Woodland Hills Dr. Woodland Hills, UT 84653 Phone: 801-423-1962 Fax: 801-423-3501 www.woodlandhills-ut.gov
	CHECKED BY: MDH			
	SCALE: N.T.S.	**TYPICAL DRIVE WAY CROSS SECTION**		
	DATE: 12/5/2025			

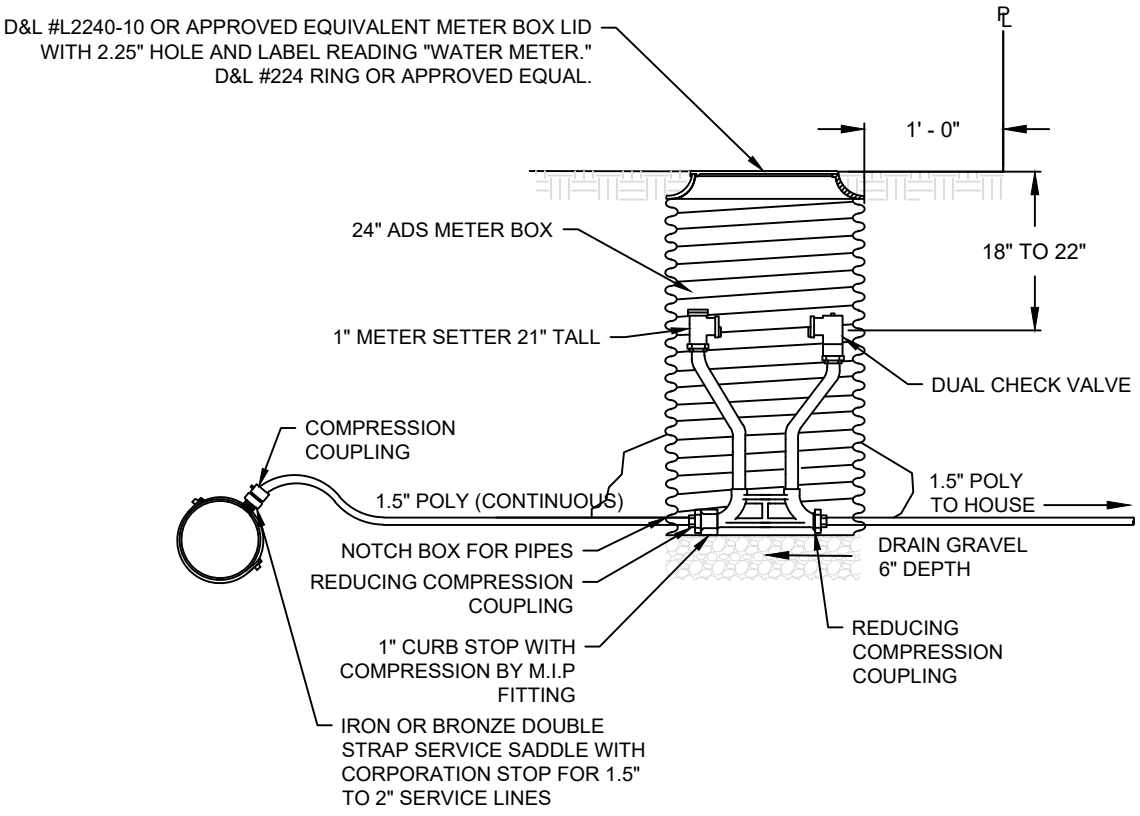
WOODLAND HILLS



STANDARD #	DRAWN BY:	CONSTRUCTION STANDARDS	
5	JSB		
	CHECKED BY: MDH	CUL-DE-SAC DETAIL	
	SCALE: N.T.S.		
	DATE: 12/5/2025		

680 S. Woodland Hills Dr.
Woodland Hills, UT 84653
Phone: 801-423-1962
Fax: 801-423-3501
www.woodlandhills-ut.gov

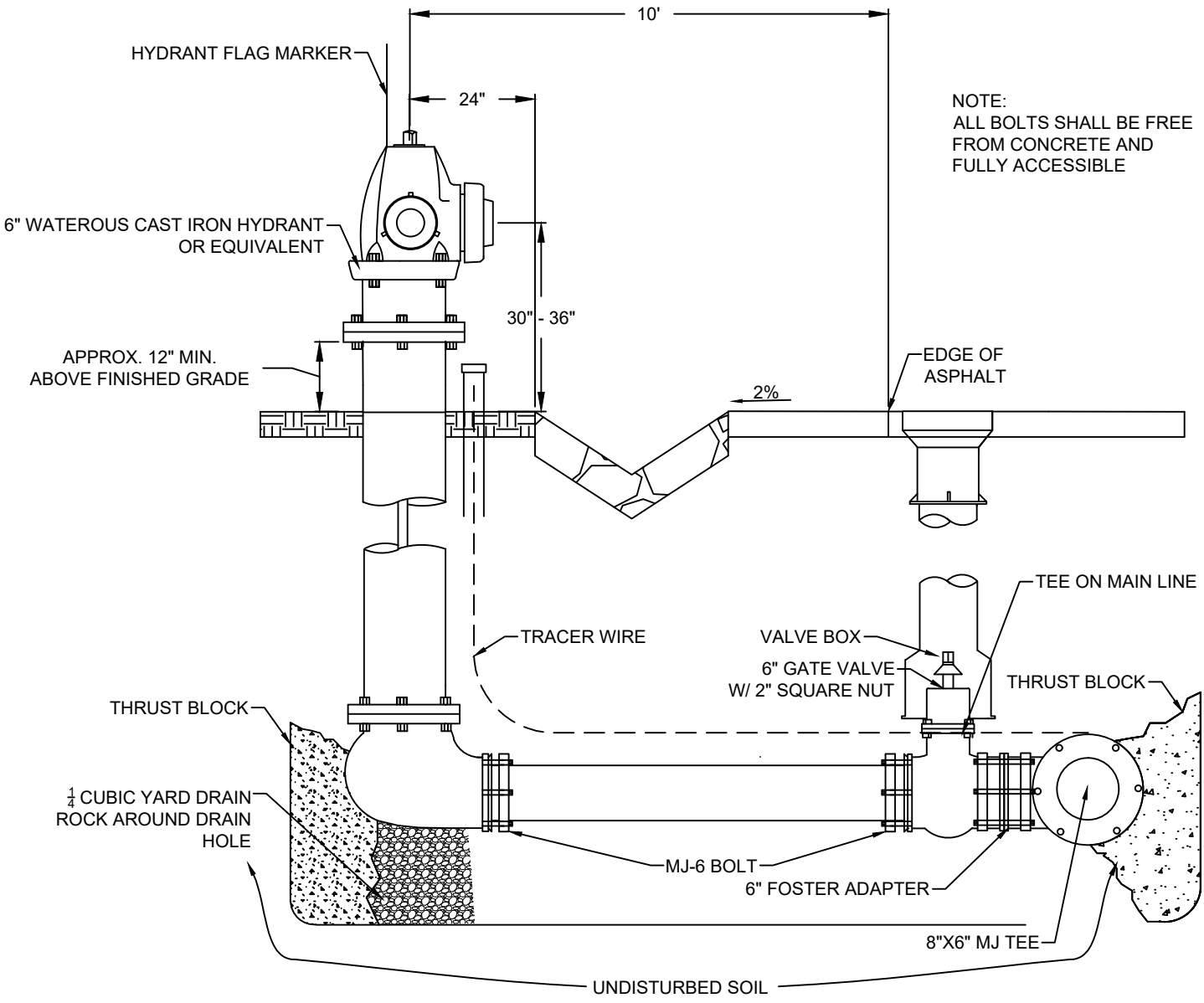
WOODLAND HILLS



NOTE:
1. 1.5" AND LARGER WATER METERS SHALL CONFORM TO STANDARDS FOR LARGE METERS.
2. TRACER WIRE SHALL BE CONTINUOUS THROUGHOUT.

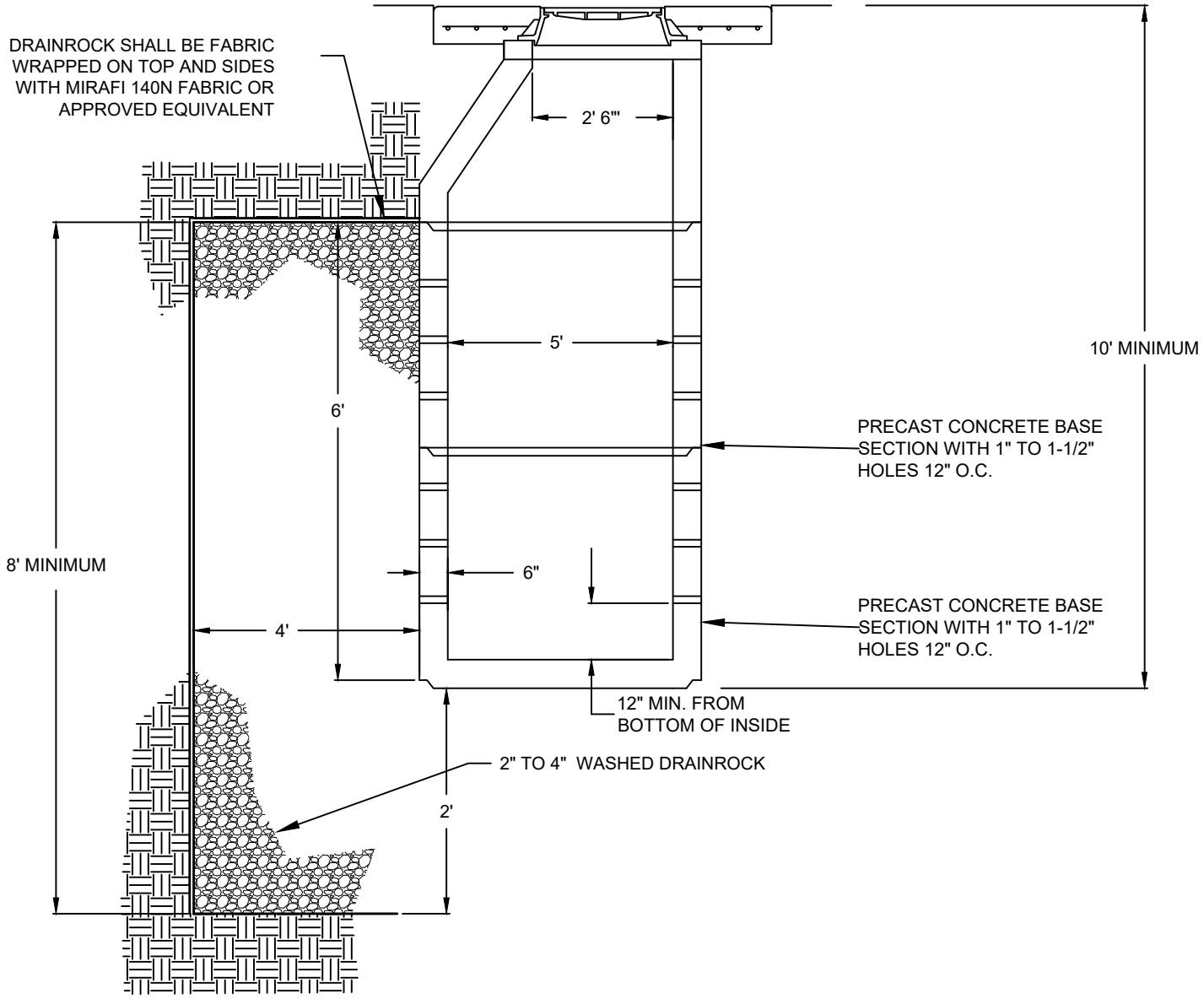
STANDARD #	DRAWN BY:			
6	JSB	**CONSTRUCTION STANDARDS**		680 S. Woodland Hills Dr. Woodland Hills, UT 84653 Phone: 801-423-1962 Fax: 801-423-3501 www.woodlandhills-ut.gov
	CHECKED BY: MDH			
	SCALE: N.T.S.	**WATER SERVICE DETAIL**		
	DATE: 12/9/2025			

WOODLAND HILLS



NOTES:
1. HYDRANT VALVE TO BE PLACED AT THE MAIN LINE TEE
2. TRACER WIRE TO BE ATTACHED TO A 1.5" X 24" PVC PIPE WITH CAP PLACED WITHIN 6" OF THE HYDRANT.

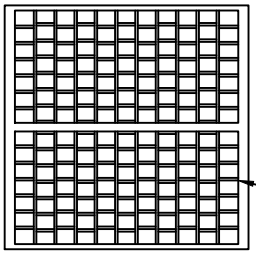
STANDARD #	DRAWN BY:		
7	JSB	**CONSTRUCTION STANDARDS**	680 S. Woodland Hills Dr. Woodland Hills, UT 84653 Phone: 801-423-1962 Fax: 801-423-3501 www.woodlandhills-ut.gov
	CHECKED BY: MDH		
	SCALE: N.T.S.	**STANDARD FIRE HYDRANT DETAIL**	WOODLAND HILLS
	DATE: 12/9/2025		



NOTES:

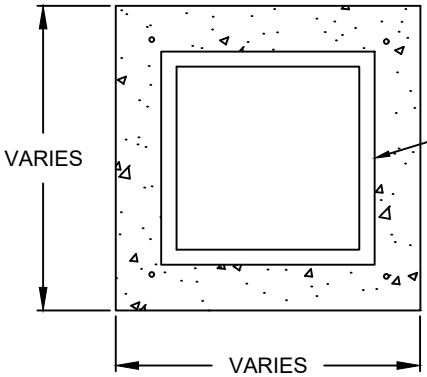
1. THERE SHALL BE NO DIRECT INLET INTO SUMPS. WATER MUST FIRST BE COLLECTED IN IN A CURB FACE DROP INLET BOX WITH OIL AND DEBRIS SEPARATION (SEE STANDARD DRAWING).
2. SUMP MANHOLES SHALL BE MADE OF REINFORCED CONCRETE
3. THERE SHALL BE A 4' WIDE GRAVEL ENVELOPE AROUND THE BOTTOM 6' OF THE SUMP. GRAVEL SHALL BE 2" TO 4" IN SIZE.
4. CONCRETE SECTIONS SHALL HAVE 1" TO 1.5" HOLES 12" O.C.
5. MANHOLE MUST MEET ALL THE REQUIREMENTS FOR A STANDARD MANHOLE IN ADDITION TO THE DROP MANHOLE REQUIREMENTS.

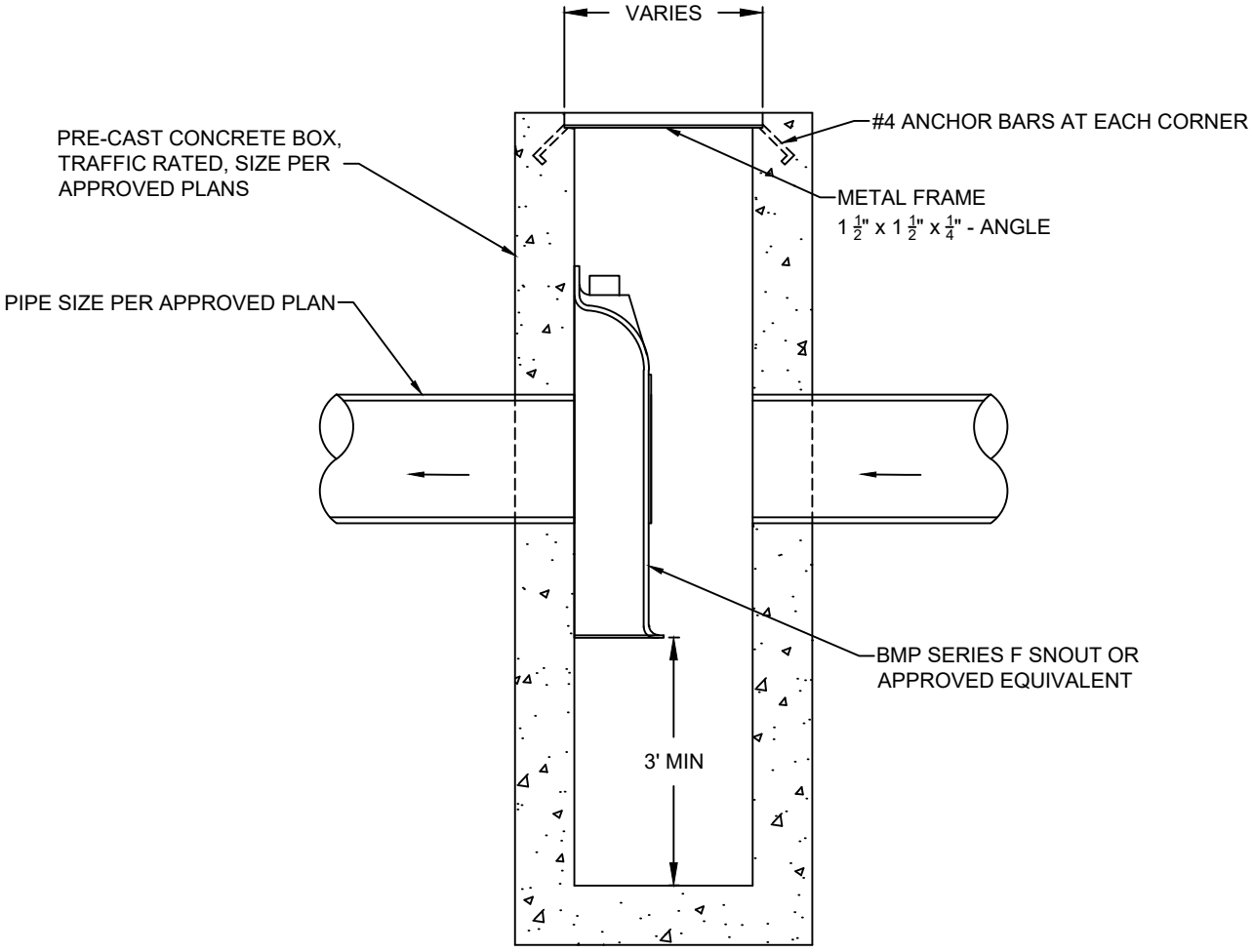
STANDARD #	DRAWN BY:		
8	JSB	**CONSTRUCTION STANDARDS**	680 S. Woodland Hills Dr. Woodland Hills, UT 84653 Phone: 801-423-1962 Fax: 801-423-3501 www.woodlandhills-ut.gov
	CHECKED BY: MDH		
	SCALE: N.T.S.	**CONCRETE MANHOLE SUMP DETAIL**	WOODLAND HILLS
	DATE: 12/9/2025		



D&L I-9040 GRATE OR EQUIVALENT

NOTE: BICYCLE SAFE GRATE TRAFFIC RATED

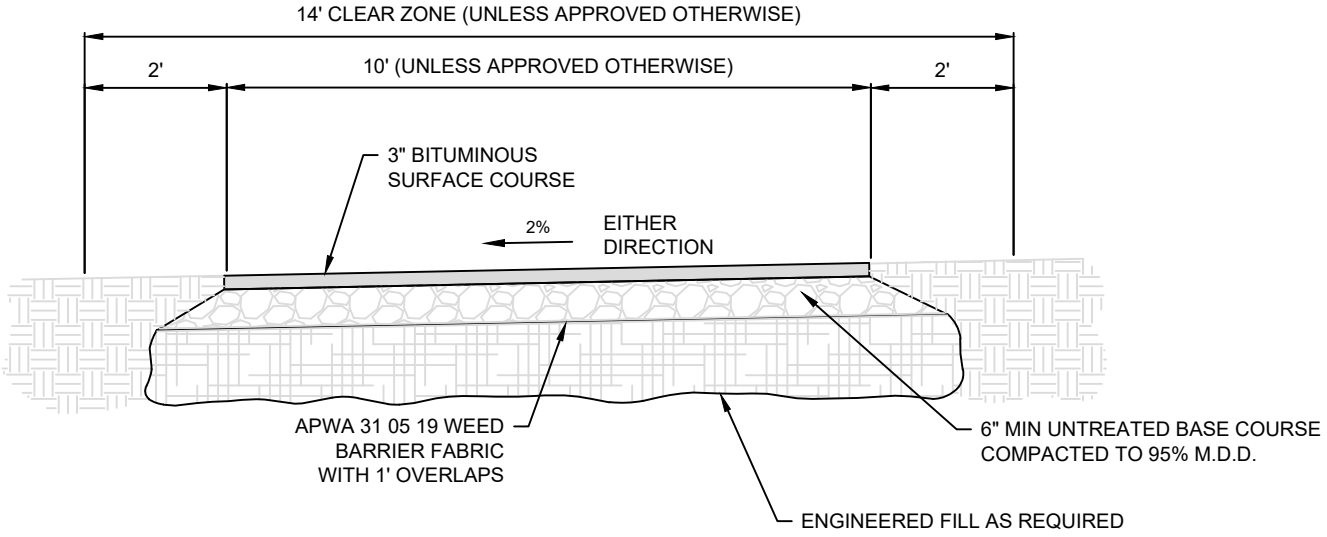




STANDARD #	DRAWN BY:	CONSTRUCTION STANDARDS	
9	JSB		
	CHECKED BY: MDH	PRE-TREATMENT STORMWATER BOX DETAIL	
	SCALE: N.T.S.		
	DATE: 12/9/2025		

680 S. Woodland Hills Dr.
Woodland Hills, UT 84653
Phone: 801-423-1962
Fax: 801-423-3501
www.woodlandhills-ut.gov

WOODLAND HILLS



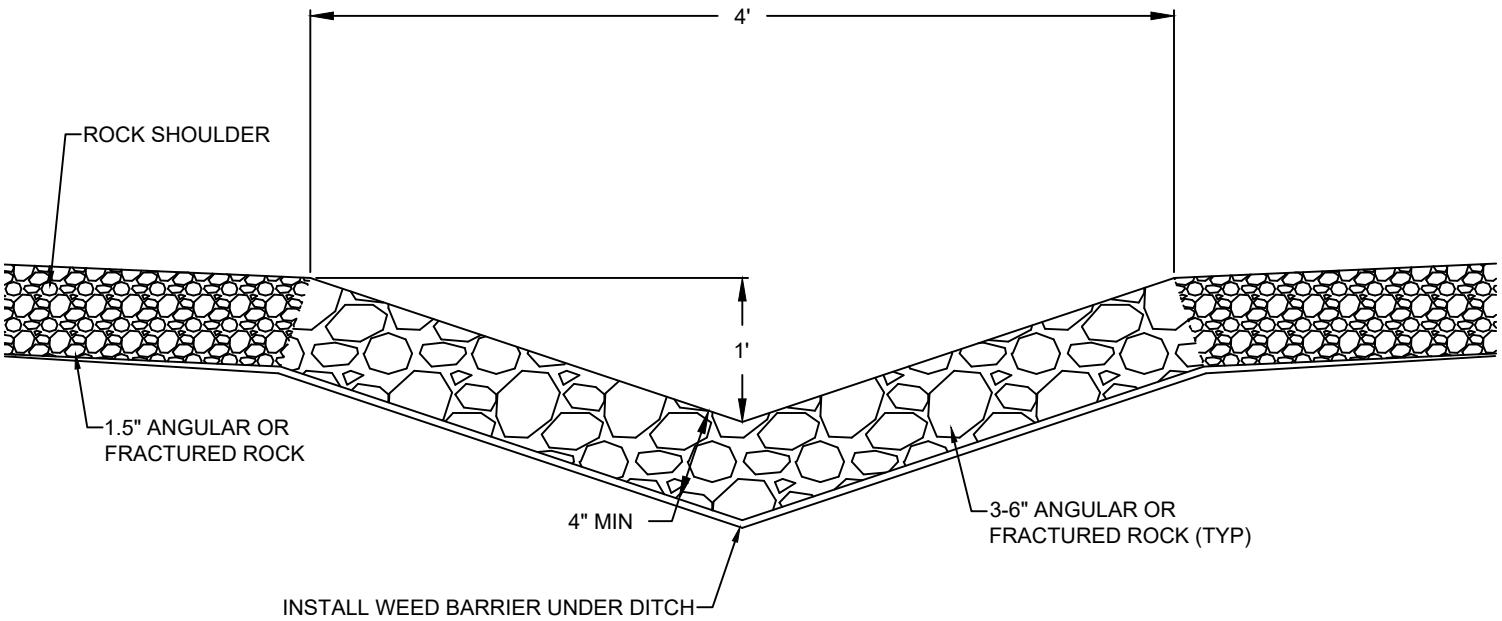
NOTES:

1. CROSS SECTION MAY BE ADJUSTED DEPENDING ON EXISTING CONSTRAINTS AS APPROVED BY THE CITY ENGINEER.
2. SLOPE TRAIL AS NECESSARY TO AVOID PONDING. PROVIDE DRAINAGE IMPROVEMENTS ALONG TRAIL AS REQUIRED TO CONVEY POSSIBLE STORM FLOWS.
3. ALL TREES, SHRUBS, AND OTHER VEGETATION SHALL BE REMOVED FROM THE CLEAR ZONE.
4. ALL WEEDS SHALL BE SPRAYED & KILLED w/ ROUNDUP OR APPROVED EQUIVALENT ONE WEEK BEFORE ANY WORK MAY BE PERFORMED, & WITHIN 3 WEEKS OF THE PLACEMENT OF UNTREATED BASE COURSE.

STANDARD #	DRAWN BY:	CONSTRUCTION STANDARDS	
10	JSB		
	CHECKED BY: MDH	TRAIL SECTION DETAIL	
	SCALE: N.T.S.		
	DATE: 12/9/2025		

680 S. Woodland Hills Dr.
Woodland Hills, UT 84653
Phone: 801-423-1962
Fax: 801-423-3501
www.woodlandhills-ut.gov

WOODLAND HILLS



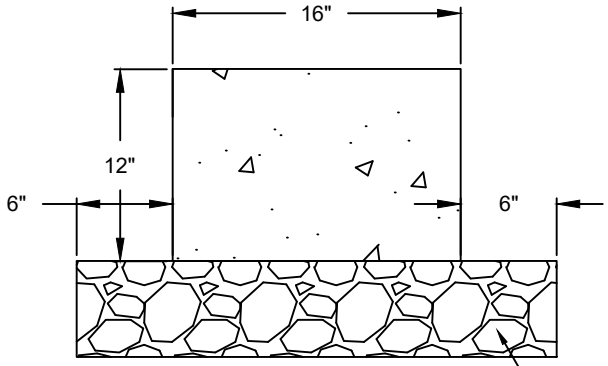
NOTES:

1. ROCK LINED DITCHES MAY BE REQUIRED TO BE DEEPER AT DRIVEWAY CULVERT CROSSINGS. REFER TO STANDARD DETAIL 13 FOR GRADING REQUIREMENTS AT DRIVEWAY CULVERT CROSSINGS.

STANDARD #	DRAWN BY:	CONSTRUCTION STANDARDS	
11	JSB		
	CHECKED BY: MDH	ROCK LINED DITCH DETAIL	
	SCALE: N.T.S.		
	DATE: 12/9/2025		

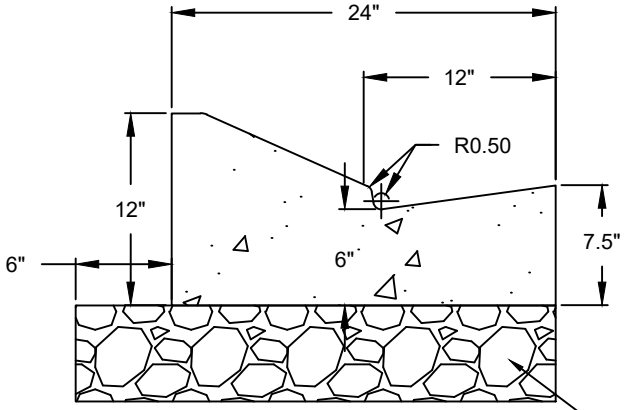
680 S. Woodland Hills Dr.
Woodland Hills, UT 84653
Phone: 801-423-1962
Fax: 801-423-3501
www.woodlandhills-ut.gov

WOODLAND HILLS



CONTAINMENT CURB

UNTREATED BASE COURSE (6" MIN.) COMPACTED TO 95% M. D. D.



TYPE D MODIFIED CURB

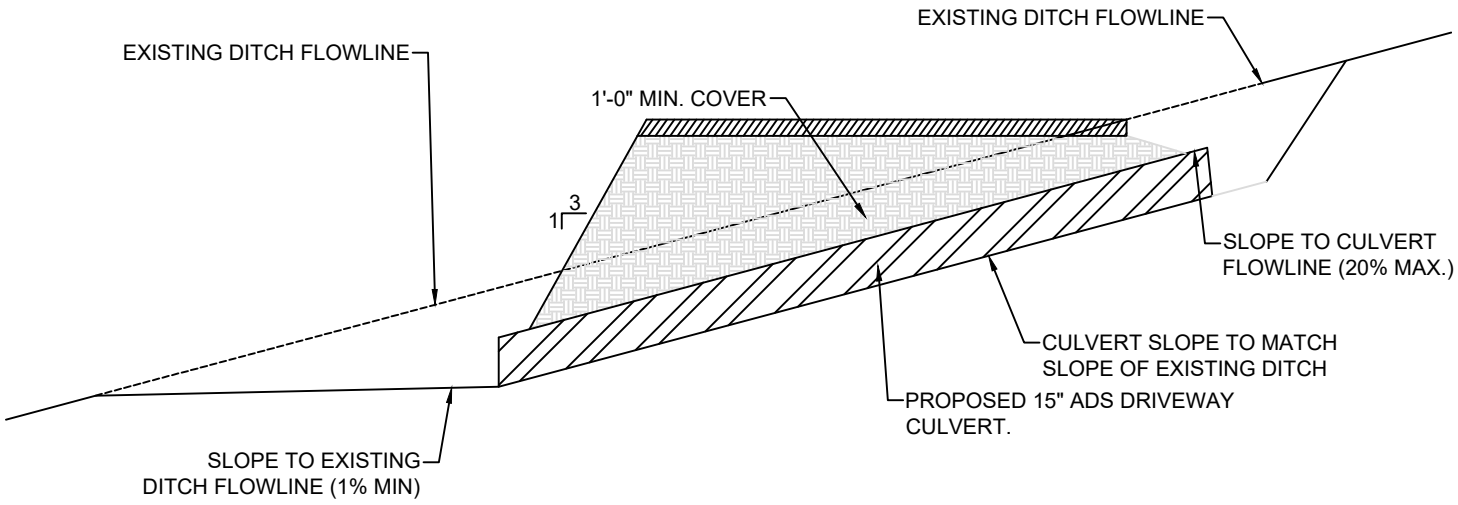
UNTREATED BASE COURSE (6" MIN.) COMPACTED TO 95% M. D. D.

STANDARD #	DRAWN BY:		
12	JSB	**CONSTRUCTION STANDARDS**	
	CHECKED BY: MDH		
	SCALE: N.T.S.	**CURB DETAILS**	
	DATE: 12/9/2025		

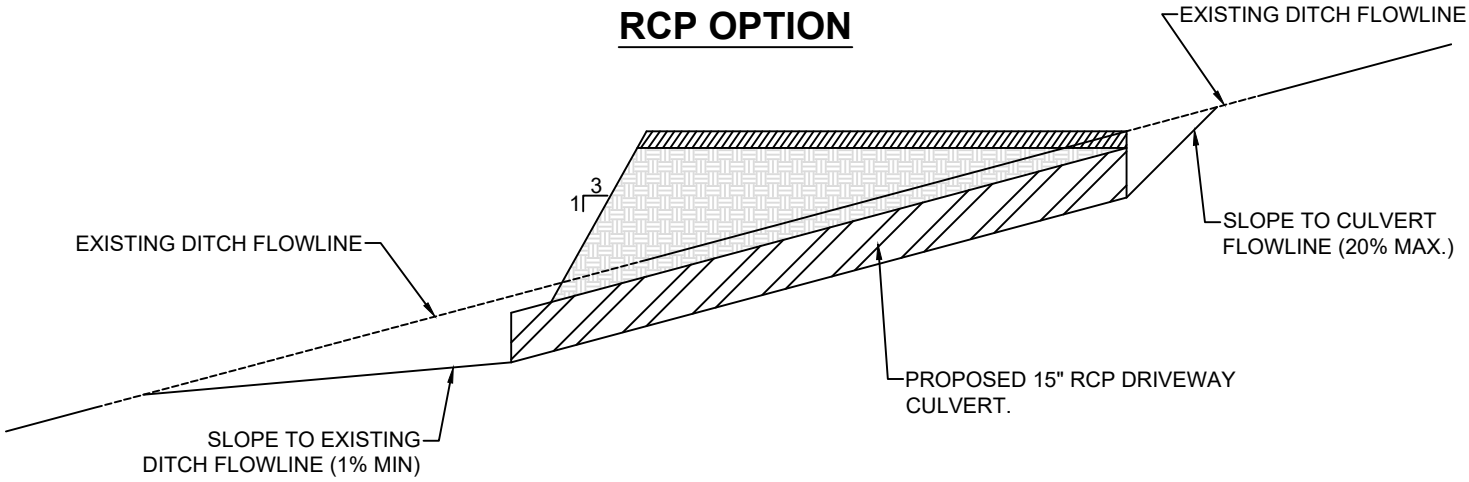
680 S. Woodland Hills Dr.
Woodland Hills, UT 84653
Phone: 801-423-1962
Fax: 801-423-3501
www.woodlandhills-ut.gov

WOODLAND HILLS

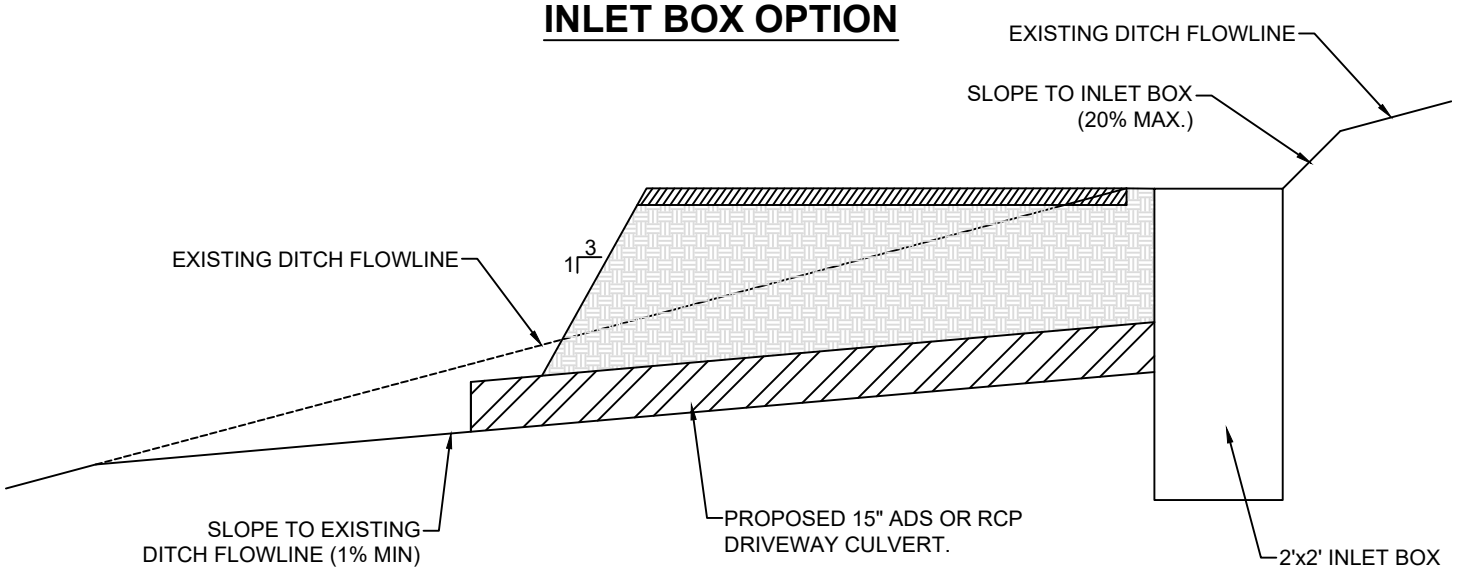
ADS OPTION



RCP OPTION



INLET BOX OPTION



STANDARD #	DRAWN BY:	CONSTRUCTION STANDARDS	
13	JSB		
	CHECKED BY: MDH		
	SCALE: N.T.S.	CULVERT CROSSING OPTIONS AT DRIVEWAYS	
	DATE: 12/9/2025		

680 S. Woodland Hills Dr.
Woodland Hills, UT 84653
Phone: 801-423-1962
Fax: 801-423-3501
www.woodlandhills-ut.gov

WOODLAND HILLS