TOWN OF TRUCKEE PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

(PIES)

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SECTION 1 - GENERAL REQUIREMENTS

Section 1.01 - Purpose

It is the purpose of these Public Improvement and Engineering Standards to set minimum design, construction, and improvement standards for public improvements and private improvements affecting public infrastructure under the jurisdiction of the Town of Truckee, California, or affecting other responsible entities tasked with ownership and/or maintenance of improvements that may be affected by development. These standards shall also apply to all roadways and Driveways providing access to all properties within Truckee regardless of whether those roadways or Driveways are located on public or private property, or who the responsible maintenance entity is. These standards shall apply to improvements that are constructed in the Town from and after the date of their adoption by the Town Council. It is the intent of the Town Council that all such Town required improvements, whenever constructed, be covered by the design immunity provisions of California Government Code Section 830.6 or any successor sections thereto.

These Public Improvement and Engineering Standards shall set guidelines for the design, planning, preparation, construction, maintenance and/or repair of roads, drainage, utility placement, and related improvements. These standards are not meant to apply to work within any other governmental jurisdiction unless adopted separately or by reference by that jurisdiction. The following are minimum standards, and they shall in no way relieve the Design Engineer from designing facilities to meet actual conditions and/or other governing requirements.

It will be the policy of the Town to adhere to these standards. However, if in the opinion of the Design Engineer, the design criteria cannot be followed as contained herein, due to unique characteristics of the Project, the Town will consider alternate solutions substantiated by appropriate data. It shall be at the Town Engineering Division's sole discretion to deviate from these standards based on information provided by a Design Engineer and it shall be the Town Engineering Division’s goal to place common sense above all else.

Section 1.02 - Definitions

A. **Aggregate Base (AB)**: Aggregate Base, Class 2 as specified in Section 26 of the current version of the Caltrans Standard Specifications.

B. **Asphalt Concrete (AC)**: The following AC specification is required for roadways and recommended for Driveways: Type A, conforming to the provisions in Section 39-2, "Hot Mix Asphalt" of the Standard Specifications and these special provisions. The grade of asphalt binder to be mixed with aggregate for Type A asphalt concrete shall be Grade PG 64-28 conforming to the provisions in Section 92, "Asphalt Binders" of the Standard Specifications. The aggregate for Type A asphalt concrete shall be 1/2 in max-med and shall be lime treated with 1.5% lime using the lime marination method. Aggregate from the Teichert Martis Valley Pit does not require lime treatment. Asphalt Concrete shall be placed at a maximum lift height of 3 in after compaction.

C. **Applicant**: A person, corporation, partnership, association, or other entity that submits a Project for review. The applicant may be the legal owner, prospective buyer, or authorized representative.

D. **Arterial Roadway**: Any street or road identified in the General Plan as a Major Arterial Roadway or Minor Arterial Roadway or classified as Arterial by the Town Engineer. Arterial roadways will require special determination by the Town Engineer for the number of traffic lanes, design speed, and right-of-way.

E. **CA-MUTCD**: California Manual on Uniform Traffic Control Devices.

F. **Collector Roadway**: Any street or road identified in the General Plan as a Collector roadway or classified as Collector by the Town Engineer.

G. **Construction General Permit:** The General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Board, NPDES No. CAS000002, as it currently exists or may be amended and reissued from time to time.

H. **Contiguous**: Parcels having any point or line common to both Parcels. Properties sharing the same Assessor's Parcel Number shall be considered as contiguous units even if separated by roads, streets, utility Easements or railroad right-of-way.

I. **County**: As referred to herein shall mean the County of Nevada, State of California.

J. **Cul-De-Sac**: Any No Outlet Road with a bulb-shaped end, which connects to another road only at one end.

K. **No Outlet Road**: A road which has only one point of vehicular ingress/egress, including Cul-De-Sacs and looped roads.

L. **Design Engineer**: The responsible Professional Engineer or designer in responsible charge of the Project in question.

M. **Developer**: Any person or persons, firm, partnership, corporation, or combination thereof financially responsible for the development improvements.

N. **Development Code**: A reference document consisting of Title 18, Truckee Municipal Code, and containing the Town's zoning, land use, and subdivision regulations.

O. **Driveway**: Any surface, not otherwise defined in this document as a roadway, which is used, or intended to be used, for vehicular or trailer maneuvering, parking, vehicular access, or as a drive aisle. Vehicular access shall be designed and constructed pursuant to Chapter 3 of the Development Code and the PIES Standard Drawings.

P. **Easement**: The grant of a nonpossessory property interest that grants the easement holder permission to use another entity's land for a specified purpose.

Q. **Encroachment**: The advancement of improvements into areas other than the subject property such as rights-of-way, public or Private Roadways, wetlands or neighboring properties. Typical encroachments include, but are not limited to: Driveways, frontage improvements, utilities, roadways, etc.

R. **Engineering Division**: A Division of the Town of Truckee serving under the Town Engineer.

S. **Engineer's Determination**: A subjective opinion from the Town Engineer in the form of guidance in engineering matters.

T. **Excavation**: A human-made cut, cavity, trench, or depression in an earth surface that is formed by earth removal.

U. **Final Map**: Refers to a map prepared in accordance with the provisions of this document, Development Code, Subdivision Map Act, and any other applicable local ordinance which is designed to be placed on record in the Office of the County Recorder for the purpose of creating Lots or Parcels.

V. **Flood Hazard**: The possibility of occurrence of overflow storm water causing flooding of land or improvements or having sufficient velocity to transport or deposit debris, to scour the surface soil, to dislodge or damage buildings or to cause erosion of banks or channels.

W. **Freeboard**: Is the vertical distance from the water level in a ditch, basin, or channel to the top of the bank, berm, weir, bridge, outlet, or other structure.

X. **Fuel Modification Zone**: An area where the volume of flammable vegetation has been reduced, providing reduced fire intensity and duration.

Y. **General Plan**: Town of Truckee 2040 General Plan, or the most current adopted Town of Truckee General Plan

Z. **Grade**: The planned and finalized degree of inclination of a slope, road, or other surface.

AA. **Grading Plan**: An engineering plan, prepared by a licensed professional, showing contours and grade elevations for existing and proposed ground surface elevations at a given site.

BB. **Hydromodification Management Project**: A Project that has a significant opportunity to change runoff characteristics within a watershed by changes in land use conditions. Hydromodification results in an artificially altered rate of natural channel erosion and sedimentation processes. These Projects are defined by the MS4 Permit as any Project that creates or replaces one acre or more of impervious surface. A Project that does not increase impervious surface area over the pre-Project condition is not a hydromodification Project.

CC. **Improvement Plans**: Engineering plans prepared by or under the direction of a civil engineer registered in the State of California, showing the location and construction details of all improvements required for the subdivision or development Project.

DD. **Inundation**: Ponded stormwater or stormwater in motion of sufficient depth to damage property.

EE. **Local Road**: Any street or road identified in the General Plan as a Local Roadway or classified as a Local Roadway by the Town Engineer.

FF. **Lot or Parcel**: A recorded Lot or Parcel of real property under single ownership, lawfully created as required by the Subdivision Map Act and Town ordinances, including this Development Code.

GG. **Municipal Separate Storm Sewer System (MS4):** Conveyance or system of conveyances (including roads with drainage systems, municipal roadways, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned by a state, County, city, or other public body, that is designed or used for collecting or conveying stormwater, which is not a combined sewer, and which is not a part of a publicly owned treatment works.

HH. **National Pollutant Discharge Elimination System (NPDES)**: Primary permitting program under the Clean Water Act (33 U.S.C. Section 1251 et seq.) which regulates most discharges to surface water. Permits under this program include the Construction General Permit, Industrial General Permit, and the Municipal Stormwater Permits (MS4s).

II. **NPDES Municipal Stormwater Permit (MS4 Permit):** Statewide permit issued to local government agencies (Dischargers) placing provisions on allowable discharges of municipal stormwater to Waters of the State and Water of the United States.

JJ. **Off-site**: Areas lying outside the boundaries of a private Parcel owned by a Project Proponent.

KK. **Parcel Map**: A map, prepared in accordance with the provisions of this document, Development Code, Subdivision Map Act, and any other applicable local ordinance, which is designed to be placed on record in the office of the County Recorder for the purpose of creating Lots or Parcels. Refer to Chapter 18.98 of the Development Code.

LL. **Planning Commission**: The Planning Commission of the Town of Truckee, appointed by the Truckee Town Council as provided by Government Code Section 65101.

MM. **Private Road**: Any Parcel of land or exclusive/nonexclusive Easement not owned by the Town, County, or State of California, nor offered for dedication to the public which is used or intended to be used for access to five or more Lots or Parcels.

NN. **Project**: Proposed improvements associated with development.

OO. **Project Proponent**: The legal representative for a Project or development.

PP. **Public Road**: The road for which the fee title, roadway Easement, or right-of-way is owned by the Town, offered for dedication to the public and is accepted by the Town. This may include roads that are accepted for public use and public maintenance by Town or roads that are accepted for public use and rejected for public maintenance by Town.

QQ. **Town**: The Town of Truckee, State of California, referred to in this PIES as the "Town".

RR. **Town Council**: The governing local body of elected officials, representing the Town of Truckee.

SS. **Town Engineer**: The Director of Public Works/Town Engineer for the Town of Truckee or their designee.

TT. **Watercourse**: A permanent or intermittent stream or other body of water, either natural or humanmade, which gathers or carries surface water.

UU. **Waters of the State**: All surface Watercourses and water bodies, including lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, marshes, inlets, canals, and all other bodies of surface waters as defined by state law, and which are within the Town of Truckee. This definition includes, but is broader than, waters of the United States.

VV. **Waters of the United States**: Surface Watercourses and water bodies as defined by federal law, including all natural waterways and definite channels and depressions in the earth that may carry water, even though such waterways may only carry water during rains and storms and may not carry stormwater at and during all times and seasons.

WW. **Wet Season**: As defined in Chapter 11 of the Town Municipal Code: Stormwater Quality Ordinance, "Wet Season" for the Town of Truckee, the Wet Season is the calendar period beginning October 15 and ending April 30 of each year.

Section 1.03 - Interpretations/Design Expectations

The Town Engineer determines that the meaning or applicability of any of the requirements of the Public Improvements and Engineering Standards are subject to interpretation and may issue an official interpretation typically titled "Engineer's Determination". The following definitions apply:

A. Request for Interpretation: A request shall be made in writing specifically stating the provision in question and provide any information to assist in the review;

B. Record of Interpretations: Official interpretations shall be in writing and shall quote the section/requirements in question and explain its meaning or applicability; and

C. Appeal: Any interpretations made by the Town Engineer may be appealed to the Town Council.

The Town recognizes the existence of developments with site conditions that would make it impractical or create an extreme hardship for a Project Proponent to conform to all requirements of these standards. At the sole discretion of the Town Engineer a design exception may be granted if it is found that it would be beneficial to the health, safety, peace, or welfare of the Town; will not adversely impact public or private rights-of-way; is a minimum departure from the standards and is in compliance with the requirements of the California Environmental Quality Act.

For discretionary Projects being considered by the Town Council or Planning Commission, major design exceptions need to be identified prior to discretionary approval by the approval body. Major design exceptions could include but are not limited to: right-of-way width, roadway width, longitudinal roadway gradient, and design speed. Minor design exceptions may still be approved by the Town Engineer subsequent to discretionary approval.

Section 1.04 - Order of Precedence for Design of Improvements within the Town Right-of-Way

In case of conflict between the Standard Specifications, the Town of Truckee Public Improvement and Engineering Standards, AASHTO design geometrics, the CA-MUTCD, the following shall be the order of precedence:

A. Project specifications;

B. Project plans;

C. Town of Truckee Public Improvement and Engineering Standards;

D. Standard Specifications (State of California), latest edition;

E. State of California Highway Design Manual, latest edition;

F. A Policy on Geometric Design of Highways and Streets by AASHTO (American Association of State Highway & Transportation Officials), latest edition;

G. CA-MUTCD (Manual on Uniform Traffic Control Devices), latest edition; and

H. "Greenbook" Standard Specifications for Public Works Construction, latest edition.

Section 1.05 - Design Documents Adopted by the Town of Truckee

The following documents have been adopted by the Town of Truckee for use in designing improvements within the Town's jurisdiction:

A. Caltrans Traffic Manual, latest edition;

B. Caltrans Highway Capacity Manual, latest edition;

C. State of California Standard Plans, latest edition;

D. State of California Standard Specifications, latest edition;

E. CA-MUTCD (Manual on Uniform Control Devices), latest edition;

F. A Policy on Geometric Design of Highways and Streets by AASHTO (American Association of State Highway & Transportation Officials), latest edition;

G. Town of Truckee Bikeways and Trails Master Plan;

H. Town of Truckee Particulate Matter Air Quality Management Plan; and

I. Town of Truckee Development Code.

Section 1.06 – Contractor's Licenses, Supervision, and Guarantee

Any contractor performing work under these standards and specifications is required to possess a valid California Contractor's License to perform such work unless otherwise permitted by law. The contractor or their duly appointed representative must be available on the job site during the time when any work is in progress. If such is not the case, the work may be stopped at the direction of the Town Engineer or their duly appointed representative.

All work within the right-of-way or that is offered for dedication shall be guaranteed by the contractor against defective workmanship and materials furnished by the contractor for a period of one year from the date the work was completed and accepted by the Town. The contractor shall replace or repair any such defective work in a manner satisfactory to the Town Engineer, after notice to do so from the Town Engineer, and within the time specified in the notice, the Town may perform this work and the contractor shall be liable for the cost thereof.

SECTION 2 - IMPROVEMENT PLANS

Section 2.01 - Departmental Review Process

The Design Engineer shall abide by the Uniform Building Code, Subdivision Map Act, the Conditions of Approval and all typical professional standards of quality, completeness and neatness when preparing Improvement Plans. The Town reserves the right to reject submissions not conforming to the standards of this section.

All plans submitted to the Town shall be submitted as an electronic PDF that has been electronically flattened and reduced or, at the request of the Town, as two physical sets size 24 in x 36 in and 11 in x 17 in and shall bear the seal and signature of the Design Engineer. The minimum margins are 1.5 in on the left and 0.75 in on the remaining sides. The minimum font size for lettering and numerals is 10. Existing and proposed improvements shall be clearly differentiated by use of differing shades of grayscale, linetypes, and/or line weights to the satisfaction of the Town.

All designs, details, technical specifications, Easements, dedications and information developed or specified by the Design Engineer for the design of the improvements shall be submitted with or shown on the plans as directed by the Town. The final copies of all supplemental information prepared and submitted shall display the seal and original signature of the appropriate engineer(s).

An estimate shall be prepared showing the calculated quantities, unit cost, description, and total of each item of work and shall include a 20% contingency for the total value of the civil work to be done. The estimate shall be submitted prior to submittal of the plans for estimation of plan check and inspection fees. Plan check fees shall be paid at plan submittal, and inspection fees shall be paid prior to permit issuance, or as determined by the Town

Following Town review, a digital or physical copy, or written comments, shall be returned to the Design Engineer with the required changes noted. Once the required changes have been made, the Design Engineer shall resubmit to the Town for further review with written responses to each comment. Once final approval is reached, a final set bearing the seal and signature of the Design Engineer and the Town's seal of approval (Building Division stamp or Town Engineer's signature) shall be retained by both parties.

The Town's approval of any plans and specifications does not constitute approval of any features of the plans that do not conform to any federal or state law, Town ordinance or resolution, or generally accepted engineering practice, even though such errors, omissions or conflicts may have been overlooked during the review process.

All revisions, whether pre or post approval, shall be reviewed and approved by the Town prior to construction, and include a revision block, written description of changes and all new data shall be bordered by a red revision cloud adjoined by the revision number within a triangle.

The Town may require field review at any point and a copy of the most recent and up to date plan set shall be available on the jobsite for inspection by Town staff at all times.

The Town requires approval of plans and issuance of permits by affected utility companies or other governmental agencies prior to Town approval of the improvement plans. The Town also requires

improvements to be accepted by way of written correspondence from the affected utility companies prior to Town acceptance of the constructed improvements.

A development agreement, performance bond, and/or labor bond may also be required as necessary to guarantee compliance with the approved plans. If the Town Engineer allows a Project Proponent to bond for future improvements, the bond amount shall be consistent with the Development Code and shall conform to any conditions of approval on the Project.

Section 2.02 - Project Completion

Prior to Certificate of Occupancy, the applicant shall provide to the Town record drawings for all public improvements required by the Project, final plans, and survey control documents in digital PDF, AutoCAD 2018 (or older) .dwg files and ArcGIS-compatible shape files meeting the following requirements:

A. PDFs shall be digitally flattened so as to reduce the file size as much as practical without loss of fidelity and signed by both the contractor and the engineer of record;

B. DWGs shall be an export containing all necessary external references as linework;

C. Shapefiles shall meet the FGDC (Federal Geographic Data Committee) CSDGM (Content Standard for Digital Geospatial Metadata) standard; and

D. Both DWGs and Shapefiles shall have projected coordinate systems (PCS) and geo-referenced TIFFs as applicable. The preferred PCS is NAD 83/ CA State Plane Zone II (ft US), EPSG:2226, NAVD 88 unless otherwise specified by the Town Engineer.

The record drawings shall show the as-built conditions of the site and be referenced to at least three points on the drawing that have noted horizontal and vertical datum information. These three points may be existing control, new control, or Parcel corners, but the drawing shall show a 1:1 relationship between them.

No changes to the approved plans are to be implemented until reviewed and approved by the Town Engineer or their designee. Post approval changes shall be submitted to the Town Engineer for review and determination as major or minor. If deemed major, the entire set of plans shall be resubmitted. If deemed minor, a working copy of the revision may be used in the field and then shown on the record drawings along with a revision block with revision number, description, date of revision and approval date by the Town Engineer. An index of all revisions shall be included on the title sheet of the record drawings.

When changes are made to the original set of plans; superseded data shall not be removed nor covered over by new data but instead shall be crossed out clearly. Extensive changes may need to be shown on a new supplemental sheet to be signed by the Design Engineer and included with the record drawing set along with the superseded version which shall be labeled as superseded by the replacement sheet number. The final record drawing set shall be signed by both the Design Engineer and Contractor and provided to the Town along with a copy of the survey control prior to scheduling the Engineering Final Inspection.

The following data shall be shown on the record plans:

A. Contract change order number where applicable;

B. Revision in alignment and right-of-way Grade revisions in excess of 0.1 foot for paved areas and in designated drainage ways where such deviations affect drainage;

C. Drainage changes including but not limited to the length, size, flow line elevation and stations of culverts;

D. All underground utilities and appurtenant features;

E. Location of monuments, benchmarks, and freeway fences; and

F. Change in pavement including lanes, tapers, ramps, frontage roads, road connections, Driveways, sidewalks, islands, median openings, and curb and gutter.

Section 2.03 - Plans Requirements

At a minimum, details and information are to be shown on plans submitted for approval in conformance with this Section.

Section 2.03.A - General

Improvement Plans shall clearly show the beginning and end of work by station and coordinates and include the following on each sheet (as applicable):

A. Title block to include:

1. Project name and title;
2. Sheet number;
3. Date;
4. Scale;
5. Revision block; and
6. Name and registration number of the Design Engineer.

B. North arrow;

C. Township, range and section numbers (as applicable);

D. Land owner's name(s);

E. Edge of existing pavement;

F. Cut / fill slopes to include design slope and limits;

G. Right-of-way limits;

H. Curve data;

I. Stationing, bearings and control points;

J. Survey monuments;

K. Street name signs;

L. Traffic signs;

M. Existing and new drainage features;

N. Existing Watercourses;

O. Details shown and referenced;

P. Fences;

Q. Retaining walls;

R. Connection details shown at the beginning and end of Project; and

S. Road approaches to include:

1. Location;
2. Type; and
3. Grade.

Section 2.03.B - Title Sheet

The first sheet of any Improvement Plans shall include the following information (if applicable for submitted Project):

A. Project name;

B. The entire subdivision or Project;

C. Project adjacent Town boundaries;

D. Planning and building department Project numbers on upper right corner;

E. Section lines, property lines, and corners;

F. Section, township, range, and Assessor's Parcel Numbers for the Project site;

G. A location map showing the Project site, road names, north arrow, scale, and associated landmarks;

H. Date of survey data;

I. Index of sheets;

J. Legend and abbreviations;

K. Name, address, and telephone number of the Project Proponent and of their representative(s) who will act in authority of the Project Proponent;

L. The signature blocks for the Town Engineer and all other applicable officials;

M. General notes and other notices required by the Town Engineer;

N. Record drawings certificate;

O. Instructions to contractors; and

P. Developer's right-of-way certificate.

Plans exceeding three sheets per set, excluding cross sections, shall include the above information on a separate title sheet.

Section 2.03.C - Detail Sheets

Town of Truckee Standard Drawings and any other required detail drawings including those from the State Standard Plans shall be included in the Improvement Plans. All detail drawings and associated plan sheets shall be fully dimensioned.

Section 2.03.D - Topography

All existing and proposed features shall be shown and identified in relation to topography and elevations, including but not limited to:

A. Existing contours at a 2 ft max interval;

B. Edge of pavement;

C. Curbs;

D. Sidewalks;

E. Shoulders;

F. Location and size of storm drain and sanitary sewer facilities;

G. High water and frequent Inundation/flooding levels;

H. Water distribution;

I. Gas lines;

J. Electrical lines;

K. Communication lines;

L. Structures;

M. Wooded areas;

N. Other foliage;

O. Drainage features;

P. Utility poles;

Q. Fire hydrants; and

R. Fences.

All other features within or adjacent to the Project, which may affect the design or construction requirements, shall be included. Topographic features, including existing contours, shall be extended as necessary beyond the Project site and/or construction limits as needed to define intercepted drainage or other features. All existing topographic features shall be extended a minimum of 100 ft outside of any future road right-of-way.

Section 2.03.E - Erosion and Pollution Control

The plans shall provide for erosion control and the prevention of pollution during and after construction in accordance with federal and state laws, Town ordinances, and this document. All temporary and permanent erosion control measures and revegetation methods for disturbed areas shall be shown on the plans.

Section 2.03.F – Signage, Striping, and Traffic Control

Public safety and traffic control shall be provided in accordance with Town requirements and as directed by the Town Engineer. Safe vehicular and pedestrian access shall be provided at all times during construction.

All signage and striping shall comply with the current version of the CA-MUTCD and when applicable, a separate roadway signage and striping plan shall be prepared showing proposed striping conforming to existing.

When proposed striping within a roadway conforms to existing striping, the striping plan shall show existing striping a minimum of 200 ft past the conform point. If an existing turn lane or other change in striping occurs within 300 ft of the conform point, the existing striping shall be shown a minimum of 350 ft past the conform point.

A traffic control plan shall be included as part of the plans when work is proposed within an existing Town right-of-way and where a traffic control plan is required by the Town Engineer. When the work requires phased construction, or is otherwise controlled by the Contractor's Order of Work, the Contractor may request to defer the preparation of the traffic control plan. If the traffic control plan is deferred, the Contractor shall then be required to obtain approval of the traffic control plan from the Town prior to implementation. This plan shall be reviewed and approved by the Town Engineer. All temporary traffic control devices shall comply with the CA-MUTCD.

Section 2.03.G - Orientation and Stationing

The plans shall be arranged such that North shall be at the top or at the right edge of the sheet. The stationing on plan and profile shall be from West to East or South to North.

The beginning and ending stations shall be shown for all roadway and utility centerlines.

Section 2.03.H - Typical Sections

A typical section shall be shown for each type of roadway within the improvement including detour roads and Driveways. The typical section shall show the applicable dimensions of:

A. Profile grade points;

B. Crown;

C. Slope;

D. Lanes;

E. Shoulder;

F. Median;

G. Curbs;

H. Gutter and sidewalk widths;

I. Clearing and seeding limits; and

J. Cut/fill rounding details.

Label the typical sections with stationing. Existing and proposed utilities shall be shown. Show structural section and details including number of lifts required for asphalt placement. Where necessary include footnotes and a table of curves.

Section 2.03.I - Cross Sections

Supplemental cross sections shall be submitted with the plans on 100 ft intervals or as required by Town to show necessary details. Additional cross sections may be required for culverts, utility and other roadway crossings. Cross sections shall be provided for all widening/reconstruction improvements of existing and new publicly and privately maintained roads. The scale for cross sections shall be 1 in=10 ft horizontal and 1 in=5 ft vertical unless otherwise approved by the Town Engineer.

Section 2.03.J - Profiles

The plans shall clearly show the existing and proposed centerline profiles of all roadways, pipe networks, culverts and all areas of possible conflict between underground utilities. This requirement is also applicable for all Driveways constructed as part of the Improvement Plans. These features shall be shown, scaled and labeled in agreement with the site plan.

Section 2.03.K - Horizontal & Vertical Control

Permanent benchmarks and datum shall both be clearly shown on the plans using the California State Plane coordinate system, zone 2 and North American Datum, 1983 (NAD83) for horizontal control and NAVD 88 for vertical control. Arbitrary vertical benchmarks may be used for individual residential construction.

If the permanent vertical control benchmark is further than 500 ft from the construction site, additional temporary benchmarks shall be shown on the plans. Temporary benchmarks shall be provided at 500 ft intervals prior to construction.

The Project improvements shall have ties to a minimum of three survey monuments of record shown on the plans with a 1:1 relationship. Sufficient dimensioning and survey control shall be shown on the plans so that the Project can be constructed directly from the plans.

Section 2.03.L - Existing Features

All pertinent features that may affect the design and construction shall be shown on the plans including, but not limited to:

A. Roadway lines;

B. Existing utility infrastructure (stormwater, gas, fuel, water, electric, communications, and other), such as:

1. Lines;
2. Fire hydrants;
3. Vaults, valves, and manholes; and
4. Poles and guy wires.

C. Gates;

D. Curbs;

E. Structures (buildings and fences);

F. Pavements markings;

G. Sidewalks;

H. Bollards;

I. Trees;

J. Signs;

K. Shoulders;

L. Drainage features; and

M. Light poles.

Section 2.03.M - Driveway Labeling Requirements

The following information shall be labeled and shown for all Driveways within the Town boundary. See Section 4.06 of this document and Standard Drawings 15-19 for more information.

A. Location of retaining walls related to site grading, property lines, and/or the Driveway;

B. Location of animal resistant garbage can enclosure;

C. Driveway cross slopes and longitudinal slopes;

D. Location and design geometry of cut and fill slopes;

E. All Driveway Grades in and out of the right-of-way;

F. Driveway width;

G. Roadway interface radii or tapers; and

H. Driveway centerline profile from roadway to parking area.

Section 2.04 - Grading Plans

A separate Grading Plan is required for all development Projects that disturb more than either 500 ft^2 or 20-$yards^3$ including landscaping Projects. Grading sheets shall include the following information:

A. North arrow and engineering scale;

B. Existing topography and right-of-way/property lines;

C. Tops and toes of cut/fill on the plan view with applicable slope labeled;

D. Existing and proposed drainage features with applicable sizes, lengths, slopes, elevations, material types and references to applicable details;

E. The location and associated grading of any borrow sites or disposal sites for excess material;

F. Earthwork volumes of cut/fill;

G. Location and dimensioned design sections and profiles for retaining walls to include:

1. Structural elements;
2. Top of wall elevations;
3. Top of footing elevations;
4. Existing Grade;
5. Proposed Grades at face of wall;
6. Other pertinent design information at the end of the walls;
7. All angle points;
8. Points of change in wall height; and
9. Spot elevations shown on the plan view at:
    a. The top of wall;
    b. Top of footing; and
    c. Finish Grade at the face of the wall.

H. Location of existing and proposed buildings or structures on and adjacent to the site;

I. Pad and/or finish floor elevations;

J. Erosion control adequate to stabilize graded areas and prevent stormwater runoff from the site;

K. Profiles or elevations of warped surfaces at 10 in intervals or one-fourth the internal angle, whichever is less (e.g. gutter flow lines at Cul-De-Sacs, knuckles, curb returns, etc.);

L. Low points; and

M. Trees to be removed (Site design should maximize opportunities to retain trees to the maximum extent feasible. The Town Engineer may require additional trees to be removed for reasons of safety or maintenance.)

Early grading permits may be issued at the discretion of the Chief Building Official and the Town Engineer on a case-by-case basis and are subject to varying availability. All early grading permits are required to provide an erosion control deposit for 125% of the engineer's estimate for erosion control.

Section 2.05 - Composite Utility Location Plans

All existing and proposed utilities within and 50 ft adjacent to the Project limits or affected by the Project construction shall be shown on plans including the location of all joint trenches (typical details and sections shall be included with the detail sheets). Refer to Section 6 for utility standards.

All utilities within the subdivision or shown on a Parcel Map shall stub out services to each Lot. All services shall be placed at the corner or as near as possible to the corner of the Town right-of-way and Parcel.

The following shall be shown for all existing and proposed improvements including slopes and invert elevation where applicable:

A. Water meters;
B. Water mains;
C. Water services;
D. Loops;
E. Gate valves;
F. Air releases;
G. Blow-off valves;
H. Fire hydrants;
I. Irrigation controllers;
J. Backflow devices;
K. Bollards;
L. Traffic signal poles;
M. Associated controllers;
N. Utility boxes;
O. Pull boxes;
P. Splice boxes;
Q. Transformers;
R. Conduit runs;
S. Hand holds;
T. Sewer mains;
U. Sewer laterals;
V. Manholes;
W. Storm drains;
X. Catch basins; and
Y. Vaults.

Sewer, water, cable, electric, telephone, gas, and storm drain may be combined on a separate utility sheet(s) if each utility is easily identifiable. Utility sheets shall not be combined with roadway design sheets.

Manholes and vaults shall not be placed in vehicle “wheel paths”. See Standard Drawing 08 for more information.

Section 2.06 - Roadway Plans

Roadway plans shall exhibit all relevant information including, but not limited to:

A. Catch basins;
B. Drop inlets;
C. Labels & stationing for:
    1. Horizontal beginnings; and
    2. Curves.
D. Limits of paving;
E. Roadway dimensioning;
F. Cross sections;
G. Existing topography;
H. Curbs;
I. Gutters;
J. Trees;
K. Poles;
L. Structures;
M. Survey monuments;
N. Street name signs; and
O. Traffic signals.

Section 2.07 - Landscape Plans

Landscaping plans for all medians, parkways, detention basins, open spaces, or other areas affecting or within the Town right-of-way shall be prepared as part of the Improvement Plans and be of the same sheet size. Sight distance diagrams shall be superimposed over the landscaping at all roadway intersections and Driveway intersections. Soil amendments for landscaping areas may be required to

make the soil a viable growing medium or an appropriate stormwater treatment feature, as determined by the Town.

Section 2.08 - Soils and Geotechnical Reports

A soils report, when required, shall be prepared by a California Registered Civil Engineer or Geotechnical Engineer. Geotechnical and soils reports will be required on all commercial Projects, subdivisions, Parcel Maps, at discovery of groundwater and where otherwise required by the Town Engineer. The report shall address and make recommendations for the specific Project to include, but not be limited to:

A. Roadway and pavement structural sections;

B. Parking area designs;

C. Structural foundations criteria;

D. Retaining wall design;

E. Recommendations for grading practices;

F. Erosion/winterization;

G. Slope stability;

H. Infiltration rates;

I. Special problems discovered on-site including:

1. Groundwater;
2. Frost heave; and
3. Expansive/unstable soils.

J. Additional information that may be required for the specific Project.

Contaminated soil and other hazardous wastes on-site shall be considered and appropriate measures recommended in conjunction with the Nevada County Department of Environmental Health and the Lahontan Regional Water Quality Control Board (LRWQCB). The report shall recommend shrink/swell factors to be applied for earthwork calculations. Refer to the Project conditions of approval, Development Code, Uniform Building Code, and Subdivision Map Act for additional requirements pertinent to the Project.

Earth slopes with typical ground cover stabilization shall be two to one (2:1) or flatter. Slopes with rock slope protection shall be allowed up to 1:1 slope. Slopes steeper than 1:1 shall be an engineered rock stack retaining wall or other type of retaining wall that meets applicable codes. A Geotechnical Report and engineering design is required for earth slopes greater than 2:1 or rock slopes greater than 1:1.

Section 2.09 - Right-of-Way, Property Lines, and Easements

The following items, both existing and proposed, shall be shown properly dimensioned on the plans:

A. Right-of-way lines;

B. Boundaries of Lots fronting the roadway;

C. Drainage Easements;

D. Slope Easements;

E. Snow storage Easements;

F. Access Easements;

G. Utility Easements;

H. Section lines and corners;

I. Property lines; and

J. All other legal boundaries.

Section 2.10 - Tentative Map Information

Tentative map submissions shall include Improvement Plans required by the document and the tentative map shall contain the following information at a minimum:

A. Title, scale, vicinity map, construction phasing and North arrow;

B. Names and addresses of the owner, subdivider, Design Engineer and map author;

C. Topographic contour map including approximate finish Grade information for existing and proposed: roads, drainage channels, culverts, major structures and other improvements ;

D. Contour intervals, not greater than 5 ft, within and outside the subdivision boundaries (2 ft contour intervals may be required within the subdivision;)

E. Spot elevations expressed to the nearest 0.1 ft;

F. The outline of any existing earthen slips, or areas subject to Inundation/flooding or avalanche;

G. Existing boundary lines and Easements;

H. Proposed Parcel lines and Easements;

I. Existing and proposed utility facilities;

J. Roadway layouts, names, widths, approximate Grades, contours, typical sections and curve data;

K. Existing and proposed drainage feature locations, approximate Grades, and flow paths;

L. Pertinent high and low water and floodplain information;

M. Names of adjacent property owners; and

N. Approximate top of cuts and toe of fills.

Rear-Lot, pass-through, or cross-country storm drains associated with Lot grading shall be included within Easements and shown on the plans. It shall be noted on the Final Map that these are to be maintained by the respective property owner.

Permanent BMP maintenance plans are required per the MS4 Permit and shall be recorded against the property with the requirement for annual inspection reports provided by the property owner to the Town. The review and signing of the Improvement Plans by the Town shall be a condition of approval of the Final Map for the subdivision by the Town Council when improvements are required.

Section 2.11 Phased Projects

Where the Improvement Plans submitted for approval cover only a portion of the complete development, the plans submitted shall be accompanied by the approved overall preliminary plan, showing all topographic features of the complete development at an adequate scale to clearly show the proposed phased improvements and how they conform with the complete development.

SECTION 3 - WORKMANSHIP, INSPECTIONS, AND ENFORCEABILITY

Section 3.01 - Workmanship and Materials

Workmanship and materials shall be in accordance with this document, the current version of the Caltrans Standard Specifications, and, if applicable, Town-approved contract documents.

No stockpiling or materials storage shall be allowed within the Town right-of-way without written permission from the Town Engineer and hot asphalt mix shall not be deposited nor stockpiled onto any asphalt concrete surface at any time. Stockpiling or materials storage on private property may require a temporary use permit from the Community Development Department.

Section 3.02 - Changes

Field changes shall not be made without prior written approval by the Town Engineer. See Section 2 for more information on documentation requirements.

Section 3.03 - Start of Work

The contractor shall notify the Town Engineer at least 48-hours prior to the start of work. The Project Proponent shall arrange a coordination meeting with the Town Engineer and representatives for all affected agencies regarding all work within the Town right-of-way prior to the notification by the Contractor.

Prior to commencing construction, the contractor is responsible for contacting all utility companies for verification at the construction site of the locations of all underground facilities where such facilities may possibly lie within the area of disturbance proposed by these plans. Call “Underground Service Alert” at 1-800-227-2600 2 days minimum to 14 days maximum before Excavation activities begin.

Section 3.04 – Construction Fencing

Efforts shall be made to save trees where feasible and in conformance with Development Code Section 18.30.155. This may include the use of retaining walls, planter islands, pavers, or other techniques commonly associated with tree preservation.

The Applicant shall install a 4 ft tall, brightly colored (usually yellow or orange), synthetic mesh material fence at the following locations prior to any construction equipment being moved on-site or any construction activities taking place:

A. Adjacent to any and all wetland preservation Easements that are within 50 ft of any proposed construction activity;

B. Around trees that are to be preserved;

C. Around any and all “special protection” areas as discussed in the Project’s environmental review documents; and

D. Around any areas designated on the construction documents as naturally vegetated area used for stormwater treatment.

Section 3.05 - Field Staking

All field staking shall be done by a registered Civil Engineer or licensed Land Surveyor. The owner shall provide and maintain at least one set of construction control stakes.

Contractor shall employ a surveyor licensed in the State of California to set all Project control points and to verify Contractor's modeling throughout the Project. If a disagreement between the Town's design survey and the Contractor's site survey occurs, the Town at its discretion, shall obtain the services of a professional land surveyor to validate the design survey versus the Contractor's survey. If the result of the comparison shows that the Town's design survey was correct, Contractor shall be responsible for any additional costs borne by the Town for the additional survey work.

Section 3.06 - Material Testing

Material testing and inspections may be required by the Town Engineer for all materials and methods utilized during construction of improvements in the Town right-of-way. Relative compaction tests shall be made by the Project Proponent on subgrade material, base course material and any other compactable material placed within Town right-of-way as directed by the Town Engineer. Concrete compression and various asphalt concrete testing may be required as determined by the Town Engineer. Test results shall be submitted at the requested frequency to the Town Engineer.

Section 3.07 - Seasonal Requirements

No Excavation shall occur between October 15th and May 1st of any year within the Town right-of-way or on a Project site without written approval by the Community Development Director (Director) and Town Engineer. Single Family Residential (SFR) construction during the Wet Season does not require the written approvals described above; however, SFR Projects proposing to start construction during the Wet Season are required to pass a BMP "100" inspection prior to beginning work. The Director and Town Engineer may modify this seasonal shutdown of construction based upon weather forecasts, ground moisture conditions, and proximity to Watercourses. Temporary erosion control measures shall be in place prior to and maintained throughout construction operations on all Projects. Temporary improvements to "winterize" the Project shall be as shown on the approved erosion control sheet and as directed by the Town Engineer during construction.

The Town may order work to stop on any Project until the Project Proponent installs erosion control measures as directed to the satisfaction of the Town Engineer. If the required erosion control measures are not installed as directed within 24-hours of notice by the Town (or at the timing specified by the Town under a Stop Work Order/Notice of Violation) the Town shall have the option, but not the obligation, of installing the necessary devices and recouping the cost from the Project Proponent. Refer to Section 8.02 and the Development Code for more information.

Section 3.08 - Shoring

The manner of bracing Excavations shall be as set forth in the rules, ordinances, and regulations of the United States Department of Labor Occupational Safety and Health Administration (OSHA).

A detailed plan showing the design of shoring, bracing, or sloping of all trenches 5 ft deep or deeper must be completed and on site prior to commencing such trenching operations. If the plan varies from the standards established by OSHA, the plan shall be prepared and stamped by a registered Civil or Structural Engineer. When trenching and Excavations are necessary permittees must provide a competent person, as defined by OSHA, to oversee compliance with regulations.

Section 3.09 – Signage, Striping, and Traffic Control Devices

The contractor shall immediately reinstall any traffic signs removed in the course of construction. Any signs lost or damaged by the contractor shall be replaced or repaired by and at the expense of the contractor, to the satisfaction of the Town Engineer.

The contractor shall provide temporary traffic striping if existing delineation is destroyed during trenching or other work. Painted markings or striping tape may be used. The temporary striping shall be approved for material and layout by the Town Engineer before trenching or other work begins. All temporary painted markings that are to be removed shall be sandblasted by the contractor at the expense of the Developer.

The contractor shall remove all road markings, pavement markers, and other roadway delineation in a manner approved by the Town Engineer that are in conflict with the roadway delineation shown on the approved plans or as directed by the Town Engineer. The contractor shall layout all pavement markings for approval by the Town Engineer.

Permanent traffic signs shall conform to the current version of the State of California Department of Transportation Traffic Sign Specifications and CA-MUTCD for “standard” size, character, dimensions, and letter stroke width. All stop signs shall be 30 in minimum size constructed of high intensity grade sheeting. A weather-resistant coating, such as a 3M coating, shall be applied to all permanent signs to be installed within the Town right-of-way.

Prior to any activity within the Town right-of-way, the contractor shall install temporary traffic control devices consistent with CA-MUTCD. The signs shall be replaced or repaired by the contractor if stolen or damaged. The placement, type, and location of all traffic control devices shall be prepared by a qualified professional for review and approval by the Town Engineer. The Town Engineer may request additional installation or specific changes to signs, striping, cones and barricades during the course of construction for traffic safety.

Section 3.10 - Noise

Construction noise shall be subject to the provisions of Section 18.44 of the Town Development Code.

Section 3.11 - Driveway Subgrade Inspection

To ensure proposed Grades can be met during construction, a Driveway subgrade inspection is required prior to any foundation inspections or construction thereof. The Town maintains the right to require the demolition and removal of improvements performed without, or as a result of, a Driveway subgrade inspection.

Section 3.12 - Engineering Final Inspection

Engineering Division approval of an Engineering Final Inspection is required prior to scheduling a Building Division Final Inspection. This inspection includes the Driveway, permanent BMPs, site improvements and site stabilization measures. No certificate of occupancy may be issued until this inspection has been passed.

The Town may require the contractor to uncover any improvements that have been completed without proper Town inspection and/or approval. If installation is found not to meet Town standards or previously approved alternatives shown on the plans, the contractor may be required to remove and replace such improvements at contractor's expense. It is recommended that Contractor document all construction activity during the Project with photos that demonstrate conformance with approved plans and applicable Town requirements.

Section 3.13 - Stop Work Orders / Notices of Violation

When work is in violation of any Town standards the Town may issue an administrative citation, sometimes referred to as a Stop Work Order or Notice of Violation and referred to as a stop work order hereinafter, at which time all work shall cease immediately. Within 24-hours or as dictated by the stop work order the Project Proponent shall provide the Town with a list of remedies to bring work into compliance and a schedule to complete said work to the satisfaction of the Town. The Town may issue a provisional release of the stop work order to allow the implementation of said remedies. During this provisional release no other work may take place on the Project site.

Daily fines consistent with the Town's Code Compliance Division may be assessed for stop work orders. Violation of a stop work order is a criminal offense and may be prosecuted. Refer to Development Code Section 18.200.060.

SECTION 4 - ROADS/ROADWAYS

Section 4.01 - General

Section 4.01.A - Roadways

Design of roadways and their ancillary facilities shall conform to this document, the Truckee Trails and Bikeways Master Plan, applicable ADA requirements, and the Caltrans Highway Design Manual.

All roadways shall be paved with AC. Where Driveways interface with a roadway and there are no PCC curb, gutter, and/or sidewalk present, AC shall be utilized for at minimum the first 4 ft of Driveway to provide a continuous asphalt apron.

Expansive properties of the soil shall be considered in design. Expansive soils shall be excavated to a minimum depth of 2 ft below subgrade elevation for all roadways unless alternatives are proposed by the Design Engineer or Geotechnical Engineer and subject to the approval of the Town Engineer. The Town Engineer shall have the final authority on approving methods to address unsuitable soils.

Section 4.01.B - Roadway Snow Storage

Snow storage Easements shall be required on all newly constructed roadways per Standard Drawings 04, 05, 09, and 10.

Section 4.01.C - Sidewalks and Bikeways

Refer to Section 4.04.A (Typical Sections) for locations and types of required bikeway improvements and the current version of the Caltrans Highway Design Manual / CA-MUTCD for specifications on construction details for each type of bikeway. Class 1 Trails shall be offset a minimum of 10 ft from edge of adjacent roadway. All sidewalks shall have a minimum width of 6 ft with a minimum 6 ft clear path of travel. In areas with signage or other streetscape improvements, sidewalks shall be 8 to 10 ft wide to provide a 2 to 4 ft amenity zone, as determined necessary by the Town Engineer.

Section 4.01.D - Materials and Construction Methods

Materials and construction methods shall be as specified by the current version of the Caltrans Standard Specifications unless otherwise identified in these PIES or by the Town Engineer.

“Clear-cutting” within the right of way is not allowed. Limits of tree removal shall only be that which is necessary to accommodate construction of the roadway corridor plus 10 ft on either side of the improvements. Projects shall minimize land disturbance wherever possible.

Section 4.01.E - Emergency Access and Egress

A Fuel Modification Zone 10 ft on each side of all roads shall be provided and at the sole discretion of the Town Engineer or as otherwise advised by the Truckee Fire Protection District and Truckee Police Department. The Fuel Modification Zone shall be free of all vegetation greater than 18 in tall, and from 5 ft to 10 ft is allowed to have trees greater than 24 in dbh. The Town Engineer may consider exceptions for

street trees, such as in Master Planned areas or downtown Truckee. In addition, secondary emergency access may be required to any and all subdivisions as recommended or required by the Truckee Fire Protection District.

All Cul-De-Sac and No Outlet Roads shall comply with the current version of California Code of Regulations Title 14 Section 1273.08.

Section 4.01.F - Roadway Lighting

Lighting is required at intersections of Arterial-to-Arterial roads, at all major crosswalks, or as otherwise determined necessary by the Town Engineer. Luminaries shall conform to Article 3 Chapter 18.30.060: Exterior Lighting and Night Sky of the Town Development Code.

Section 4.01.G - Sight Distance

The minimum sight distances over any segment of the roadway shall be based upon the design speed of the road, but shall in no case be less than 150 ft. Sight distances shall be determined as outlined in Section 201 of the California Highway Design Manual. See Standard Drawing 12 for more information.

Section 4.01.H - Trenches/Roadway Repairs

Encroachment permits are required prior to beginning any work within the Town right-of-way. Limits of roadway repairs, including limits of pavement and shoulder repair, will be determined by the Town Engineer on a case-by-case basis, as detailed on the approved encroachment permit. Minimum restoration widths for longitudinal roadway trenches as measured from the edge of roadway pavement are roadway shoulder, bike lane, half travel lane, or full travel lane, as determined necessary by the Town Engineer.

Contractor shall perform continual maintenance of all Excavations during construction to ensure a safe environment for the public. Trenches shall not be left open farther than 200 ft in advance or 200 ft to the rear of operations. Limits of open trench may be required to be decreased at the discretion of the Town Engineer. Contractor is responsible for securing the Project site, including open trenches in roadways, at all times to ensure public safety.

To prevent greater surface damage, no opening in a paved surface shall be increased by trench wall sloping or benching in lieu of the use of trench boxes, shoring, or other authorized protective systems.

To prevent heat transfer damage, fresh hot mix shall not be deposited nor stockpiled onto any asphalt concrete surface at any time.

In the event of inclement weather, the encroachment permit holder shall be responsible for snow removal and traffic safety within any active construction zone of the Project. The Applicant and/or permittee will also be responsible for surface water damage to storm drain infrastructure, including but not limited to culverts, drainage inlets and roadside ditches, resulting from the permitted work. This includes the cleaning of storm drain infrastructure and maintaining the integrity of trenches and backfill materials within the construction zone, until such time that permanent asphalt has been applied and trench materials removed.

If any part of the completed installation interferes with the use of the roads by the general public, or needs adjusting to match the Grade of the roadway, or is in conflict with any future Town improvement Projects, it must be relocated or removed as determined by the Town Engineer.

Section 4.01.I - Signage and Striping

Refer to the current version of the CA-MUTCD.

Section 4.02 - Classes of Roads

All Public Roads shall be designed for a minimum of 25 mph posted speed limit and maintain a minimum 25 mph sight distance. Roadways within the Town boundary shall comply with Table 4.02.1 and the Standard Drawings. Roadway typical sections used in commercial areas, mixed-use areas, or areas identified by the Town Engineer, such as the Downtown area, may require modified lane widths. Approval from the Town is required prior to use of any typical sections. See Table 4.03.1 for Grades and cross slopes.

4.02.1 - Roadway Design Parameters by Type

Type	Minimum Right-of-Way Width (ft)	Standard Lane Width (ft)	Min Lane #	Standard Shoulder Width and Material (ft)	Standard Design Speed (mph)	Min Horizontal Curve Radius (ft)
Arterial	80	12	2	4 paved, 2 gravel	45	650
Collector	60	12	2	2 gravel	35	390
Local						
Public	60	12	2	2 gravel	25 (2)	200
Private (10+ Lots)	40	10 (1)	2	2 gravel	25 (2)	125
Private (5-9 Lots)	40	9	2	1 gravel	20	125
Driveways						
Residential	n/a	12 min 24 max	1	n/a	n/a	n/a
Commercial	n/a	12	2	n/a	n/a	n/a
Shared Residential	30 ft access Easement	12 min 24 max	1	n/a	n/a	n/a

Table Notes:

A. *20-miles per hour design speed may be used under the following conditions:*

1. *Curves with delta greater than 45-degrees and R less than 390 ft shall be required at maximum spacing of 500 ft; and*
2. *Curves with delta greater than 45-degrees and R less than 200 ft shall be limited to a 6% maximum longitudinal gradient throughout the curve where the curve is located at the bottom of a Grade in excess of 6%.*

B. *Slopes greater than 8%, but less than or equal to 10%, are allowable for 500 ft maximum lengths under the following conditions:*

1. *Curves with R less than 200 ft and delta greater than 45-degrees shall be limited to a 6% maximum longitudinal gradient throughout the curve where the curve is located at the bottom of a Grade in excess of 8%;*
2. *Curves with R between 210 ft and 650 ft and delta greater than 45-degrees shall be limited to an 8% maximum longitudinal gradient through the curve where the curve is located at the bottom of a Grade in excess of 8%;*
3. *Approaches within 100 ft of curves with R between 200 ft and 650 ft and delta greater than 45-degrees shall be limited to 8% maximum longitudinal gradient where the curve is located at the bottom of a Grade in excess of 8%; and*
4. *Sag vertical curves approaching stop-controlled intersection approaches shall be a minimum of 150 ft long at the bottom of a Grade in excess of 8%.*

C. *Driveway Slopes in right-of-way shall be limited to 6%;*

1. *Where slopes on private property (onsite) are excessively steep forcing the driveway grades to be excessively steep, or the right-of-way is wider than typical for the classification of roadway, the Town Engineer may consider an exception to allow the driveway grade in the right-of-way (offsite) to increase to 10%. (This exception will only be considered after all other alternatives to improve the driveway grades are exhausted, such as adjusting the location, elevation, and size of the proposed structure on the lot.)*

D. *Driveway slopes out of the right-of-way shall be limited to 16%;*

E. *When a new road is designed to extend an existing road, the right-of-way width of the new portion shall not be less than the existing right-of-way width or shall meet the widths identified in Table 4.02.1, whichever is less; and*

F. *Roadway type definitions are available in Chapter 1 of this document.*

Section 4.03 - Geometrics and Profiles

4.03.1 - Grades and Slopes		
	Longitudinal Grades	
Type	Min	Max
All Roadways	1%	10%
Town Dedicated Roadways	1%	8%
Non-Dedicated Roadways	1%	10%
Gutters	1%	Same as associated roadway.
Cul-De-Sacs	1%	6%
Residential Driveways	n/a	16%
Commercial Driveways	n/a	12%
Shared Residential Driveways	n/a	16%

Table Notes:

A. *All roads shall have a cross slope of 2% from crown to edge. This cross slope shall be maintained by Driveway Encroachments for 2 ft beyond the edge of roadway except in locations where an AC curb exists;*

1. *If an AC curb exists the existing flow line may not be raised, lowered or otherwise obstructed.*

B. *Driveways are recommended to have a 2% cross slope as necessary for drainage;*

C. *When two roads intersect, the minor / stop-controlled road shall not have a Grade greater than 3% average for a minimum distance of 30 ft0 ft measured from the curb line of the intersected road and 6% on the non-stop controlled leg; and*

D. *The vertical alignment of the major road in a controlled intersection shall govern over the vertical alignment of any minor road when designing the intersection.*

E. *On local, low-speed Town Deidcated Roadways, the maximum longitudinal grade may be allowed to increase up to 10% for short segments no longer than 200 ft.*

Section 4.03.A - Valley Gutters

Valley gutters perpendicular to the roadway are not permissible on publicly maintained roadways and culverts or gravel underdrains shall be used to cross Driveways in preference to valley gutters, where feasible.

Section 4.03.B - Vertical Curves & Grade Breaks

Vertical curve design for roads shall be as specified in the current version of the Caltrans Highway Design Manual or American Association of State Highway and Transportation Officials (AASHTO) Geometric Design Manual to provide the minimum stopping sight distance for the design speed and shall not have a

length of less than 100 ft. The minimum vertical curve length may be reduced to 50’ on low-volume, low-speed Local Roadways, such as Cul-de-Sacs and Dead End Roads, if adequate sight distance is provided.

Vertical Grade breaks at Local Road intersections shall not exceed 5%, and a straight Grade shall continue for at least 50 ft along the intersecting roadway before the use a vertical curve. Grade breaks at Driveway intersections shall not exceed 8% (6% max Driveway and 2% roadway cross slope) for 20 ft or to the property line, whichever is less. For drainage purposes and upon approval of the Engineer, vertical Grade breaks, not exceeding a 2% algebraic Grade difference (1% preferred), shall be allowed without a vertical curve on roads of design speed up to and including 25 mph. The Grade breaks shall be placed a minimum distance of 200 ft apart and shall provide the equivalent vertical sight distance of a vertical curve for the same design speed.

Section 4.03.C - Horizontal Curves

Changes in direction of roads shall be made with horizontal curves with the edges of the pavement and curb lines parallel to and equidistant from the centerline of the right-of-way and shall comply with the most recent version of the Caltrans Highway Design Manual or AASHTO roadway design standards.

Compound curves shall be avoided where feasible and under no circumstances will a low-speed curve be introduced at the end of a long tangent where high speeds are anticipated (i.e. no curve tightening).

Section 4.03.D - Cul-De-Sacs

Cul-De-Sacs or No Outlet Roads are discouraged and the Town Engineer may deny the development of new Cul-De-Sacs or No Outlet Roads. When allowed, they shall conform to Standard Drawings 9 and 10.

Section 4.03.E - Gate Entrances

Gates are not permissible on new roadways and are strongly discouraged on privately maintained Driveways. New gates shall not be installed on existing roadways. Gate entrances shall be at least 2 ft wider than the width of the traffic lane(s) serving that gate and shall allow for emergency access. All gates require approval by the Truckee Fire Protection District.

All gates providing access from a road to a Driveway shall be located at least 30 ft from the edge of the travel way, entirely on private property, meet all Development Code standards, and shall open to allow a vehicle to stop without obstructing traffic on that road.

Section 4.03.F - Roadway Intersections

All roads shall intersect as close to perpendicular as possible, with at minimum the first 20 ft from the proposed stop bar occurring perpendicular to the adjoining roadway. After the first 20 ft (enough room for a single car to stage) the allowable curvature of the roadway will be dictated by the design speed and related design curves.

Road intersections on opposite sides of any given road shall share a common centerline or shall be offset based on the road type as shown in Standard Drawing 11.

Intersection designs with left-turn lanes shall conform to requirements outlined in the current edition of the Caltrans Highway Design Manual for layout and sight distance.

Section 4.04 - Section Design

Frontage improvements and roadway designs required of new and/or modified land uses shall be in accordance with the current version of the PIES, Development Code, General Plan, Trails and Bikeways Master Plan/Active Transportation Plan, approved Specific Plans or Master Plans, and/or the Town Engineer's directives.

Section 4.04.A - Typical Sections

The Town Engineer may require bike lanes, recreational paths, and/or pedestrian facilities (shared use paths) along the frontage of any Project at their discretion to implement connectivity within the Town. Design sections shall, at a minimum, conform to Standard Drawings 1-6 and the following:

A. No proposed road shall have a right-of-way and improved width less than the continued road;

B. Sidewalks shall be required as frontage improvements on all the following developments:

1. Commercial developments;
2. Multi-family developments;
3. Within the Historical District;
4. Along Donner Pass Road from Coldstream to central Truckee;
5. Where sidewalks are present on adjacent properties; and
6. As identified in the most current version of the Trails and Bikeways Master Plan, Active Transportation Plan, or approved Specific Plan or Master Plan.

C. Paved Class 1 shared use paths may be required in lieu of or in conjunction with sidewalks; and

D. Frontage improvements may be required to be located entirely on private property, within the right-of-way or within a public access Easement.

Section 4.04.B - Structural Sections

The minimum structural section of all roadways shall conform to the following:

4.04.1 | Minimum Structural Section by Roadway Type		
Road Type	**Minimum Structural Section**	**Minimum Traffic Index**
Local	3 in AC on 8 in AB	**6.5**
Collector	3 in AC on 8 in AB	**7.5**
Arterial	4 in AC on 8 in AB	**8.5**
Industrial	4 in AC on 8 in AB	**8.5**

Table Notes:
Resistance value (R-Value) testing shall be performed by the Project Proponent. The location of the tests within the area shall be selected so that an average R-Value may be determined for the entire development area. Materials shall conform to Section 3 of the PIES.

Roadway shoulders shall be ¾ in Class 2 AB or recycled, pulverized asphalt concrete as approved by the Town Engineer, compacted to 90% relative compaction with depth equal to adjacent roadway base depth and be installed flush with the top and edge of the roadway pavement.

In those areas determined by the Town Engineer to have unsuitable soil conditions the structural section shall be designed by a California Registered Civil or Geotechnical Engineer based on the resistance factor (R-Value). This design shall be supported by a soils report.

In all cases, the traffic index shall be furnished by the Design Engineer for review and approval by the Town Engineer.

Section 4.05 - Driveways

Driveway is defined as any surface, not otherwise defined in this document as a roadway, which is used, or intended to be used, for vehicular or trailer maneuvering, parking, vehicular access, or as a drive aisle. Vehicular access shall be designed and constructed pursuant to Article 3 of the Development Code and the PIES Standard Drawings.

A single Driveway Encroachment is defined as a vehicular access, including drivable surfaces and parking pads, that serves no more than one residential Parcel with no more than two dwellings. For the purposes of this section, a shared Driveway is defined as a vehicular access that serves a maximum of four Parcels.

Applicants for any subdivision must demonstrate these standards can be met prior to tentative approval of the subdivision map. Refer to section 18.48.080 of the Development Code for additional information.

In situations where existing developed sites do not meet current Town encroachment standards and where those sites are proposed for intensification through either building additions, construction of second units, additions of ancillary buildings, expansions of onsite parking, or combinations thereof, the

Public Works Director/Town Engineer has identified minimum thresholds to be used in determining when it is appropriate to require that substandard encroachments be modified to meet current encroachment standards as follows:

A. Residential development permit applications with additions or new structures that are under 500 square feet (SF): Minimal modifications will be required, including the relocation of any bear boxes (animal resistant garbage can enclosure) out of the public Right-of-Way (ROW) and minor drainage improvements for treatment of any additional impervious surface areas on-site, and correction of any existing drainage characteristics that are resulting in damage to the public drainage system or roadway; and

B. Residential development permit applications with residential additions over 500 SF in size, detached structures that are over 500 SF in size, or a garage (attached or detached) of any size, or combinations thereof: In addition to the requirements in number 1 above, the encroachment (driveway, drainage, and associated structures) shall be required to be improved so as to meet current Town encroachment and drainage standards as a part of the permit requirements for the respective Building Permit that is being requested. These modifications may include, but are not limited to: adjusting driveway widths and grades; provision of drainage and stormwater treatment, establishment of minimum driveway distances from side property lines; reducing the number of encroachments; requiring an all-weather surface (paving) on driveways; reduction in coverage of snow storage easements if over 50% covered by driveway; removal of ancillary structures from the public ROW, and other standards that would typically be applicable to new residential construction on undeveloped lots that would be required at the time of Building Permit issuance. Minor exceptions to the standards may be granted by the Public Works Director/Town Engineer based on significant site constraints and potential impacts to the environment, ROW, safety, adjacent property owners, or other factors determined to be appropriate. Cost of improvements are not considered to be a constraint or a reason to grant an exception.

Maintenance Responsibility for Driveways and Encroachments

Maintenance of driveways, driveway drainage pathways and structures, and all other private encroachments within the Town right-of-way is the sole responsibility of the adjacent private property owner. Property owners must keep these encroachments in a safe and serviceable condition at all times.

Driveways and encroachments shall not be allowed to fall into disrepair or create hazards to public safety. This includes, but is not limited to, conditions such as slipperiness, disrepair, or the accumulation of trash, debris, or snow. Driveway drainage systems—including surface flow paths, culverts, swales, and other appurtenant drainage structures—must be maintained to ensure proper function and prevent water-related hazards or damage.

The intent of this section is to protect all users, including typical pedestrian, cyclist, vehicular and other, from potential injury or obstruction.

Town Authority to Perform Repairs

While the responsibility for ongoing maintenance lies with the adjacent private property owner, the Town reserves the right to perform repairs, maintenance, or removals within the public right-of-way as necessary to ensure public safety, preserve roadway integrity, or maintain proper right-of-way operation.

In such cases, the Town may recover costs or require reimbursement from the responsible property owner in accordance with applicable ordinances or policies.

Section 4.05.A - General Requirements for All Driveways

4.05.A.1 - General Driveway Requirements		
Standard	**Exceptions**	**Notes**
One Driveway Encroachment for each Parcel two acres or less in size.	One additional Encroachment for Parcels over two acres in size.	Unless the Town Engineer finds that more than one driveway encroachment is necessary to accommodate traffic volumes, circulation, or emergency access for the development and the additional driveway encroachment will not be detrimental to traffic flow or sight distance on the roadway.
Access shall be limited to the lowest volume road.	None.	When a property has access to more than one road.
All objects which protrude above the roadways surface, including retaining walls, shall be located a minimum of 10 ft from edge of roadway.	Or 4 ft from back of curb where a curb exists.	None.
Garbage can enclosures shall be located on private property and outside of the Town right-of-way.	None	Enclosures may be placed within Snow Storage Easements at risk of the owner. Garbage can enclosures are not required by the Town, but if used shall conform to this standard.
Driveway cross slopes shall drain to appropriately sized infiltration features.	None	See Standard Drawing 14 & 15
Top of cut, toe of fill, and design slope for all side slopes shall be labeled.	None	See Standard Drawings 15 & 16
If any portion of the Driveway exceeds 10% Grade, a Driveway centerline profile from roadway to parking area is required.	None.	See Standard Drawing 18
Acceptable Driveway materials include: AC, Portland Cement Concrete (PCC) or concrete pavers capable of supporting H-20 loading. However, **AC shall be utilized for first 4 ft of Driveway to provide continuous apron with roadway AC.** Where used, a minimum structural section of 2 in AC on 4 in Class 2 AB is required.	Alternative materials may be considered by the Town Engineer.	The Town and utility providers reserve the right to replace any material installed within the right-of-way with AC if Driveway Encroachments are in conflict with future Projects, maintenance activities, and/or utility Projects.
Driveway paving shall not cover more than 50% of any snow storage Easement.	None.	None.
Minimum Driveway centerline radius shall meet the requirements of California Fire Code (Title 24, Part 9) and may be modified by the Truckee Fire Protection District or the Town Engineer.	At the discretion of the Town Engineer and Truckee Fire Protection district.	None.
Capable of supporting a 40,000 pound (H-20) load		None.
Unobstructed 15 ft vertical clearance.		Along the entire length of Driveway.
Driveways over 150 ft in length or those with a Driveway gate require written approval from the Truckee Fire Protection District.	None.	Consult with Truckee Fire Protection District (TFPD) for approval before applying to Town.
All Driveways shall remain 5 ft from side property lines and remain within the limits of the side Lot lines extended to the roadway being encroached upon within the right-of-way.	Unless shared Driveway access has been approved by the Town.	None.
Within the right-of-way the Driveway shall encroach at a 90° angle (+/- 30°).	None.	None.
Proposed Driveways over 150 ft may be subject to review by the Truckee Fire Protection District.	None.	None.
Driveways shown on Improvement Plans shall include all applicable labeling requirements listed in Section 2.03.M of the PIES.	None.	Section 2.03.M of PIES.

4.05.A.2 - Driveway Grades within the Town Right-of-Way		
Standard	**Exceptions**	**Notes**
Extend roadways cross slope (2%) for minimum 2 ft beyond edge of roadway pavement.	Not required where an AC curb exists. The existing roadside hydraulic Grade line may not be altered.	To the edge of shoulder or a minimum of 2 ft past edge of roadway.
For Driveways sloping down from the roadway, any off-site or pass through flows that may be received, channelized, or altered by the Driveway, shall be anticipated by the designer.	None.	Consider the use of a valley swale, curb section, or crest, and subsequent energy dissipation measures. Provide positive drainage away from all structures.
Minimum Grade of 2% and maximum of 6% in the Town right-of-way.	None.	None.

4.05.A.3 - Driveway Side Slopes		
Standard	**Exceptions**	**Notes**
Slopes shall be no steeper than is safe for intended use.	None.	None.
Slopes shall be no steeper than 2H:1V without rock slope protection.	At the discretion of the Town Engineer a 2H:1V slope may be required even with rock slope protection.	None.
Slopes shall be no steeper than 1H:1V with rock slope protection.		None.
Cut surfaces shall be no closer than 1/5 vertical height of cut to side property line.	Minimum of 2 ft and maximum of 10 ft	None.
Fill surfaces shall be no closer than 1/2 vertical height of fill to the side property line.	Minimum of 2 ft and maximum of 20 ft	None.

Section 4.05.B - Commercial Driveway Requirements

4.05.B – Commercial/Multi-Family Driveway Requirements		
Standard	**Exceptions**	**Notes**
No paving within 5 ft of the side or rear property lines or within 5 ft of structures or fences.	Unless shared Driveways are approved, Project lies within a Specific Plan area that allows for reduction, or unless otherwise approved by the Town Engineer.	None.
Minimum separation distance of 150 ft from nearest intersection.	May be reduced where site constraints make this infeasible, as determined by the Town Engineer.	Measured from the nearest edge of Driveway to the centerline of nearest travel lane.
Minimum one-way width of 12 ft	May vary on private property to accommodate parking, turnarounds and/or access.	Within the Town right-of-way. Not including radii or tapers at the roadway interface.
Minimum two-way width of 24 ft		
Maximum width of 35 ft (if 3 lanes wide only)		
A minimum 20 ft separation between adjacent Driveways is required.	May be reduced where site constraints make this infeasible as determined by the Town Engineer.	Measured at the right-of-way / property line.
A minimum structural section of 3 in AC on 6 in Class 2 AB is required.	None.	AB shall be compacted to 95% relative density.

Section 4.05.C - Residential Driveway Requirements

4.05.C - Residential Driveway Requirements		
Standard	**Exceptions**	**Notes**
No paving within 5 ft of the side or rear property lines.	Unless shared Driveways are approved.	In order to provide drainage, snow storage, and separation between two adjacent uses.
Minimum separation distance of 20 ft from nearest roadways intersection.	None.	Measured from nearest edge of Driveway to nearest perpendicular stop bar.
Minimum width of 12 ft.	May vary on private property to accommodate parking, turnarounds and access.	Within Town right-of-way. Not including radii or tapers at the roadway interface.
Maximum width of 24 ft at property line and at least 1 ft onto the property.		
A minimum structural section of 2 in AC on 4 in Class 2 AB is required.	None.	AB shall be compacted to 95% relative density.
Access Easements may not be blocked in any manner and cannot be used for parking, unless otherwise approved as an allowable use.	None.	None.
No structures, fences or required parking shall be allowed within the snow storage Easement.	Driveway retaining walls, bridges, at grade concrete landings and animal resistant garbage can enclosures may be allowed. A Hold Harmless and Maintenance Agreement may be required by the Town for any structures within the snow storage Easement.	None.
Maximum Driveway Grades are 6% in the right-of-way and 16% on private property.	None.	See Standard Drawing 16. Driveway grades exceeding 12% are subject to review and approval by TFPD.
Roadway interface radii or tapers shall be between 3 ft and 6 ft.		See Standard Drawing 16

Section 4.06 – Names and Signage

Section 4.06.A - Roadway Names

All roads within a development shall be named by the subdivider / Project Proponent in accordance with Article 5 Chapter 18.92.140 of the Town Development Code, these PIES, and the addressing policy approved by the Town. Names already in use or previously proposed will not be approved. Extensions of Collector or Arterial Roadways shall continue with existing road names and the names shall not change when crossing intersections.

Section 4.06.B – Signage

Signage and other traffic control devices shall be designed in accordance with the current version of the Standard Drawings, Caltrans Standard Specifications, and CA-MUTCD and furnished / installed in accordance with the approved plans or as required by the Town Engineer. Appropriate warning signs shall be installed when the design speed for any portion of the road is less than 25-mph.

Road name signs, stop signs, and snow poles shall be designed in accordance with Standard Drawing 13. Road name signs shall be visible and legible from both directions of vehicle travel for a distance not less than the stopping sight distances required for the design speed.

SECTION 5 - DRAINAGE

Section 5.01 - General Information

Attention is directed to the Stormwater Quality Ordinance (Title 11 of Truckee Municipal Code).

It is the intent of Section 5 of the PIES to provide general guidelines for minimum design and construction standards for drainage systems to deliver operable public drainage infrastructure and to comply with Title 11 of the Town Municipal Code and State of California water quality requirements. The implementation of these minimum standards does not relieve the Project Proponent of meeting all drainage related rules and regulations established by Titles 11 & 18 of the Town Municipal Code, the National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit (MS4), the NPDES Construction General Permit, or any other regulatory framework pertaining to stormwater or surface waters.

Drainage is a regional phenomenon that does not respect jurisdictional or property boundaries. This makes it necessary to formulate a program that incorporates both public and private involvement with a regional focus. It is the aim of this document to create a framework to that end.

All Watercourses, Waters of the State, and Waters of the United States shall be identified by the Project Proponent prior to any activity that may result in any impacts, discharges, or alterations to the Watercourse. Prior to proceeding with any activity within a Watercourse, approval shall be obtained from all authorities having jurisdiction over the Watercourse.

The designer shall consider any off-site or pass-through flows that may be altered by the development, including those waters from public and Private Roadways and Driveways. Special consideration shall be given to any areas where these flows may become channelized, and the designer shall provide the appropriate energy dissipation measures. Positive drainage shall be provided away from all structures.

A Technical Drainage Study, as outlined in this section, is required for all commercial Projects, subdivisions, Parcel Maps and where directed by the Town Engineer. A Drainage Management Plan, also outlined in this section, is required for all proposed developments.

The drainage system shall control flows to prevent Flood Hazards, roadway overflow, ponding and Inundation of existing and future improvements of the subject and adjacent properties by stormwater runoff while maintaining the character of historic flows on and off site. This includes ensuring there is no post-development increase in peak flows leaving the site and that acceleration of flows does not cause property damage.

All runoff holding facilities shall drain within 48-hours of a storm event; ponding and stagnation shall not be allowed; and all daylights, inlets and outlets shall be protected with vector prevention measures. Installers of BMPs or treatment systems that impound water may be required to notify the appropriate mosquito and vector control agency to determine appropriate operation and management controls. The Town shall not be responsible for any resultant vector control issues.

Section 5.01.A - Water Rights and Maintenance

All drainage systems shall be designed and constructed with consideration of existing water rights, applicable water laws and maintenance needs. All pass-through ("cross-country") drainages shall be located within an appropriate Easement dedicated to the entity responsible for maintenance. A maintenance plan, which names the responsible party, is required for commercial Projects (all Projects are required to provide a notarized maintenance plan except Single-Family Residential Projects, in which case the notarization requirement is removed) with Structural BMP drainage facilities including but not limited to basins, underground chambers, swales, drainage inlets and bio-facilities prior to Certificate of Occupancy or otherwise determined by Project conditions of approval.

Section 5.01.B - Water Quality

Storm drainage leaving a development shall be safe-released in a manner consistent with pre-development characteristics, have water quality/clarity equal to or better than pre-development characteristics, and shall not contain visible sediment and shall not adversely affect downstream waters or Best Management Practices (BMP) in accordance with Town requirements. The Town requires the use of Low Impact Design concepts in accordance with state and local regulation. The most recent information regarding the Town's stormwater requirements may be found on the Town website and Town Municipal Code Chapter 11.

Section 5.01.C - Floodplain Requirements

Attention is directed to Development Code Chapter 18.34 Floodplain Management.

When it is necessary for development to occur in the floodplain, a Conditional Letter of Map Revision (CLOMR) shall be required before permit issuance and a Letter of Map Revision (LOMR) shall be required before issuance of a certificate of occupancy. These processes shall be completed in accordance with requirements set forth by the Federal Emergency Management Agency (FEMA).

If the proposed Project may result in dredging or filling materials located within the boundaries of:

A. Waters of the State - an approved 401 Permit with Lahontan Regional Water Quality Control Board shall be required;

B. Waters of the United States including Wetlands - an approved 404 Permit with the U.S. Army Corps of Engineers shall be required.

Section 5.02 - Design Requirements and Hydrology

All drainage facilities shall be designed to convey the peak runoff for the 10-year, 24-hour design storm, and all development shall provide an emergency flow path with no Inundation of structures for a storm with a 100-year return period.

When a Technical Drainage Study is required, projects shall ensure no post-development increase in peak flows leaving the site for the 10-year, 24-hour and 100-year, 24-hour Design Storms. For smaller projects that are part of a larger development for which a Technical Drainage Study already exists, the Design Engineer may provide documentation showing compliance with this attenuation requirement if the post-

development conditions of the smaller site were considered as part of the existing Technical Drainage Study for the larger development. Hydromodification Management Projects shall also ensure no post-development increase in peak flows for the 2-year, 24-hour Design Storm.

Rainfall depth and intensity data for Design Storms shall be collected from National Oceanic and Atmospheric Administration's Hydrological Design Studies Center Precipitation Frequency Data Server, except for the Design Storm for treatment which is listed in Section 5.03.A.

Regardless of Project size and/or type, runoff created by all new impervious surfaces from the 85th percentile, 24 hour Design Storm shall be treated on the site where it was generated unless otherwise modified by a required master plan.

All BMPs shall conform to all state, regional, local, and Town requirements. The most recent information regarding the Town's stormwater requirements may be found on the Town website and Town Municipal Code Chapter 11.

Stormwater runoff rates for commercial developments and roadways may be determined using the HEC-1 (SCS Unit Hydrograph or Kinematic Wave), HEC-HMS, TR-20 or TR-55 methods. Properties of 320-acres or less may also use the Modified Rational Method. Model parameters may be sourced from Natural Resources Conservation Service or the Caltrans Highway Design Manual.

Section 5.02.A - Roadways

Calculations and designs shall prove that the following requirements have been met for all proposed roadways being used for storm drainage:

A. There shall never be curb overtopping;

B. Gutters shall have a minimum slope of 0.5%;

C. Max velocity for curb flows shall be 10 fps and shall not cause damages;

D. If Roadway Slope is > 10% with, Radius < 400 ft, design flow shall not exceed 4 in at the curb;

E. Finished floor elevations shall be 1 ft above the elevation of roadway flows, unless the property downslopes away from the roadway. In this case, 1 ft Freeboard within a roadside ditch is required; and

F. For Local Roadways with continuous Grade:

1. During a 10-year event, the traveled way shall remain open and may not carry water.
2. During a 100-year event, the maximum stormwater elevation is 4 in above the top of curb. Maximum velocity shall be 3 fps.

G. For Local Roadways at sag points:

1. During a 10-year event, stormwater elevation shall not exceed the top back of sidewalk.
2. During a 100-year event, stormwater shall be, at minimum, 1 ft below bottom of building pads. Ponding is not allowed more than 120 ft from each inlet.

H. For Collector Roadways:

1. During a 10-year event, the traveled way shall remain open and may not carry any water
2. During a 100-year event, 12 ft wide dry lane, regardless of overall driving width, is required during emergency storm events. Maximum velocity shall be 3 fps.

I. For Arterial Roadways:

1. During a 10-year event, no stormwater encroachment is allowed.
2. During a 100-year event, all travel lanes shall remain clear, bike lanes may be inundated, and a maximum depth of 6" will be allowed on sidewalks.

Section 5.02.B - Single-Family Residential (SFR)

SFR Design Storm Calculations Method

Design Storm Volume (V_{Demand}) is the proposed impervious surface area **(A_{imp})** multiplied by volume of the 85th percentile 24hr storm event **(V_{85})** identified in Section 5.03.A. As the design storm depth is reported in inches, the formula includes a 1/12 adjustment to convert to feet.

Formula: $V_{Demand} = A_{imp} * V_{85} * (1/12)$

Retention Volume of BMP(s) shall be equal to or greater than Design Storm Volume.
The Town provides a staff developed LIDS/BMP Calculator to aid in these SFR calculations available the Town website.

This formula is applicable to volume capture treatment devices, but not flow through treatment devices. Refer to the Town's Fact Sheets for flow through treatment device design considerations.

Stormwater management and BMPs used as part of SFR designs shall be supported by calculations, designs and language proving the following requirements have been met:

A. For infiltration facilities:

1. Void Volume shall be 40% or less;
2. Infiltration shall take place at least 10 ft from all structure foundations. This separation distance may be reduced if a Geotechnical Engineer or qualified Civil Engineer determines, upon a site-specific analysis and with concurrence from the Chief Building Official, that there will be no adverse impacts to the structure foundation. Infiltration facilities located within 5 ft of the foundation shall be limited to a depth of 10 in;
3. Driveway infiltration trenches may be located within 10 ft of unconditioned spaces provided that the driveway slopes away from the foundation;
4. Naturally vegetated areas used for infiltration shall have slopes of 10% or less; and
5. Adequate vertical and horizontal separation from water supply wells, on-site waste treatment systems, and groundwater shall be considered within the design. All separation distances shall comply with state, regional, and local requirements.

B. For dripline armoring:

1. Dripline armoring minimum dimensions shall be 18 in wide and 3 in deep for a single story;
2. Each additional story adds 6 in to the width requirement; and
3. Dripline armoring may not be utilized to meet infiltration capacity requirements.

Section 5.02.C - Culverts

Culverts shall be installed where natural or man-made drainage channels are crossed by roads, Driveways, or parking areas.

The use of a valley swale (even above a Driveway culvert) is required where roadside ditches cross private Driveways.

Culverts shall be designed to prevent sedimentation.

Maximum spacing between storm drain manholes or drop inlets shall be 300 ft.

Cross culvert and inlet spacing for roadside drainage shall be designed to satisfy the requirements of section 5.02.A.

When inlet or outlet velocities exceed allowable velocities for the soil, adequate riprap shall be provided. When outlet velocities exceed allowable velocities for the downstream drainage way or Watercourse suitable protection shall be provided.

Sizing and Materials

Circular pipes shall be designed to convey 150% of the hydraulic capacity of the ditch they support but have a minimum diameter of no less than 15 in for High Density Polyethylene (HDPE) or 18 in for Corrugated Metal Pipe (CMP). Where pipes are non-circular, calculations proving equivalent flow are required. When a ditch exceeds the capacity of a 48 in pipe only 100% of the hydraulic capacity is required.

All roadway culverts shall be smooth wall interior, externally corrugated HDPE.

Headwater Design

Maximum headwater for design storms shall be the lesser of 5 ft or 1.5 times the culvert height and in all cases a minimum of 12 in of Freeboard shall be provided.

Maximum headwater shall be below the bottom of the adjacent road subgrade.

Multiple culverts may be used to satisfy fill height and headwater constraints.

Outlet Design

Outlet hydraulics shall be designed to a tailwater depth of 50% capacity of the receiving facility. No increase in erosion or turbidity will be allowed.

Structural Requirements

All culverts shall be designed to withstand a minimum of H-20 loading in accordance with the design procedures in the current version of the AASHTO "Standard Specifications for Highway Bridges" and pipe manufacturer's recommendations and be covered to the minimum depth specified.

Section 5.02.D - Storm Drains

Storm drains shall be located to minimize potential contamination and disturbance of water and sanitary sewer utilities as determined by the individual utility providers, appropriate agencies, and/or the Town Engineer. Inlets shall include a drain inlet marker in accordance with Caltrans Standard Plan D71.

Hydraulic Analysis

Hydraulic analysis including capacity calculations of all storm drains shall be performed and submitted with the Technical Drainage Study. The storm drain capacity calculation shall begin at the storm drain inlet and proceed upstream accounting for all energy losses. The available energy at all junctions and transitions shall be checked.

Pipe Surcharge

If any section of the storm drain is pressurized due to backwater effects, the system shall be designed to convey the design storm under surcharged conditions. The storm drain shall be considered surcharged when the depth of flow in the storm drain is greater than 80 percent of full flow depth. The maximum level of surcharging shall be limited to maintaining the hydraulic gradient line (HGL) to 1 ft below the final improvements grade above the storm drain.

Size and Materials

The maximum storm drain velocity shall ensure no damage is caused. All storm drain calculations shall be performed using the Manning's Formula and minimum pipe size shall be 15 in in diameter for HDPE round pipes or an equivalent flow area for other pipe shapes.

Structural Requirements

All storm drain pipe covers shall be designed to withstand a minimum of H-20 loading in accordance with the design procedures in the most current version of the AASHTO "Standard Specifications for Highway Bridges" and with pipe manufacturers recommendations.

Structure Placement

Manholes shall be located at all changes in pipe size, direction, elevation, and grade for all pipes. Maximum spacing between manholes on storm drains shall be 300 ft. All storm drains shall be placed within the right-of-way dedicated for Public Roadways unless otherwise approved by the Town Engineer. Manholes shall be located outside of the wheel path on Collector and Arterial roads where possible.

Sand / Oil Interceptors

Sand/oil interceptors may be required for certain development Projects and shall meet the following requirements, unless otherwise determined necessary by the Town Engineer:

A. Be sized to treat the first half-inch of a storm event, or as otherwise required to meet treatment requirements, and remove 80% of total suspended solids;

B. Have a by-pass for flows that exceed the treatment capacity; and

C. Include a sampling port for post treatment water.

Sand/oil interceptors shall be installed on private property and maintained by the property owner. An annual report sent to the Engineering Division describing the condition of the unit and any maintenance that occurred over the past year is required. Pretreatment should be considered if the level of total suspended solids (TSS) in the inlet flow would cause clogging or otherwise impair the long-term efficiency of the separator.

Section 5.02.E - Drainage Channels

Drainage channels and associated flow velocities shall be such that erosion, sediment transport and sediment deposition do not occur and shall provide adequate capacity to convey the 100-year design storm with 1 ft of Freeboard. All drainage channels that are not located within the public right-of-way shall be located within drainage Easements dedicated to the appropriate entity. No cobble-lined drainage ditches shall be allowed within the right-of-way.

Section 5.03 - Treatment and Attenuation Facilities

The purpose of an attenuation facility is to ensure the rate of post-development runoff does not exceed the pre-development rates leaving the site for the Design Storms listed in Section 5.03.A. All runoff holding facilities shall drain within 48 hours of a storm event; ponding and stagnation shall not be allowed; and all daylights, inlets and outlets shall be protected with vector prevention measures.

A treatment facility's purpose is to allow the removal of contaminants, including sediment, prior to release into downstream waters. The treatment facility shall infiltrate all stormwater from the 85th percentile, 24-hour storm within 48-hours of the end of said storm event.

Inlets and junction structures shall utilize sumps with weepholes for vector control.

Sand / oil separators shall be located upstream of the facilities as determined necessary by the Town Engineer, or if tied to sanitary sewer, as approved by Nevada County Environmental Health Truckee Sanitary District, and Tahoe Truckee Sanitation Agency.

Any snow storage areas required by Development Code shall not be located within or above, of any treatment or attenuation facilities. Refer to Development Code Section 18.30.130 for Snow Storage requirements.

Section 5.03.A - Sizing Design

All facilities shall be designed to the following Design Storms and shall have the ability to pass excess flows through an emergency spillway designed with all downstream impacts considered:

A. For attenuation:

1. 10-year, 24-hour storm and 100-year, 24-hour storm;
2. 2-year, 24-hour storm for Hydromodification Management Projects

B. For treatment:

1. 85th percentile, 24-hour storm.

For stormwater treatment: the 85th percentile, 24-hour Design Storm Volume to be used depends on Project location:

Design Storm west of SR-89 and north of I-80 = 1.1 inches
Design Storm east of SR-89 and south of I-80 = 0.9 inches

Section 5.03.B - Outlet and Structural Design

There shall be protection of outlet structures from debris and for the control and removal of sedimentation in the treatment or attenuation basin. There shall be measures implemented to mitigate trash from entering the basins. All treatment/attenuation pond embankments shall be protected from structural failing or overtopping. All attenuation facilities shall be designed to minimize maintenance, allow access by equipment and workers to perform maintenance, and be located in a manner on-site to minimize potential impacts on public safety.

Section 5.04 - Technical Drainage Study Outline

The following outline presents the minimum information required for Drainage Studies/Reports and Drainage Plans being submitted to the Town. This information is meant to be used as a guide and in no way alleviates the Design Professional from the responsibilities of design effectiveness and ensuring compliance with the standards of the profession. The Town does not accept any responsibility for designs by others, whether or not the following outline was referenced.

Technical Drainage Study

A. Title page;

1. Project name, type of study, date of preparation, date of revisions; and
2. Preparer's name, seal and signature.

B. Project information;

1. Property location;
    a. Street address and APN;
    b. Township, Range, Section and ¼;
    c. Drainage basin encompassing the development;
    d. Location of existing drainages in relation to proposed development;

e. Names / descriptions of surrounding developments; and

f. Vicinity map.

2. Property description; and

a. Area in acres; and

b. Existing site conditions.

i. Existing improvements, topography, soil type, drainage features, ground cover, floodplains and other site conditions that may impact the Project.

3. Proposed developments.

a. Purpose and nature of land disturbing activity;

b. General description of post development drainage;

c. Estimated grading volume;

d. Critical drainage and erosion concerns on site; and

e. Total area of proposed impervious surfaces.

C. Existing hydrology;

1. KSAT value (NRCS or field test);

2. Floodplain information;

a. Include FIRMETTE and any LOMR / CLOMR.

3. Historic drainage patterns and flows leaving property;

4. Off-site flows entering property;

5. Downstream developments and infrastructure including capacities; and

6. Pre-development model parameters.

a. Source (i.e. HDM, NRCS).

D. Proposed Hydrology; and

1. Drainage path description including path to treatment for all impervious surfaces;

2. Discussion of compliance with FEMA floodplain regulations;

a. Include FEMA zone type and base flood elevation if Project is in a flood zone.

3. Methodology and assumptions;

a. Formulas and technique descriptions;

b. Reference appendix containing calculations;

c. Precipitation data; and

i. Source (NOAA); and

ii. Tables.

d. Post-development model parameters.

i. Source (i.e. HDM, NRCS).

4. Detention facilities;
    a. Calculated requirements;
    b. Provided storage capacity;
    c. Outlet structure sizing; and
    d. Outlet flow path description.
5. Retention facilities; and
    a. Calculated requirements;
    b. Provided storage; and
    c. Infiltration rates.
6. Emergency overflow path.

E. Appendices.

1. Calculations; and
2. Drainage plan.

Drainage Plan Requirements

A detailed drainage plan(s) for the subject site shall be submitted with the technical drainage study at an appropriate scale so as to depict all necessary information including the following:

A. Property lines and roadways including right-of-way widths within 100 ft of the development;

B. Existing and proposed drainage Easements;

C. Roadway names, Grades and widths;

D. Existing and proposed contours sufficient to analyze drainage patterns extending a minimum of 100 ft past property lines of the Project limits. If requested by the Engineering Division more extensive off-site topography shall be required;

E. Limits of existing floodplains as determined by Flood Insurance Rate Maps;

F. Proposed on-site drainage basin boundaries. Include off-site drainage basins if runoff enters Project site;

G. Proposed on-site and off-site flow paths for all design storms;

H. Proposed roadway and ditch flow paths and slopes;

I. Proposed storm drain locations, sizes, capacities, depths of flow and slope. Include inlet types, sizes and locations and manhole locations;

J. Proposed channel alignment with typical cross section;

K. All proposed and existing hydraulic structures and features including:

1. Curb cuts;

2. Drop inlets;
3. Outlet structures; and
4. Culvert locations, types and sizes.

L. Existing and proposed Easement widths and boundaries;

M. Ditch and channel sections with lining as required;

N. Legend for all symbols used in drawing;

O. Scale, bar scale, north arrow, date, title block, Professional Engineer's signature and seal;

P. Energy grade lines and hydraulic grade lines for storm drain and channel storm runoff;

Q. Emergency overflow paths for 100-year peak storm both on-site and downstream to point of discharge;

R. Construction details; and

S. Reference to design calculations as necessary.

SECTION 6 - UTILITIES

Section 6.01 - General

Subdivision Improvement Plans shall include composite utility plans showing electrical, telephone, gas, cable TV, sewer, water, stormdrain, irrigation, traffic signal equipment, roadway lighting (if applicable), and any other utility infrastructure proposed or affected by the Project. All newly constructed utility infrastructure shall be placed below ground, unless otherwise approved by the Town Engineer based on infeasibility. The onus of proof of infeasibility shall be on the designer and subject to Town Engineer approval.

The following shall, at a minimum, be shown on utility plans:

A. All utilities in detail on the typical sections including depth, trench dimensions, number, and size of conduits;

B. Complete utility layout including line locations, road crossings, utility boxes, manholes, service connections, cleanouts, vaults, poles, guy wires, fire hydrants, traffic loops, and bollards; and

C. The Project Proponent shall obtain the signature of all affected utilities approving the Improvement Plans for construction prior to the Town approving the plans.

Section 6.02 - Utility Line Completion

A. All utility construction shall conform with the adopted standards of each utility provider in addition to the standards set forth in these PIES.

B. All water lines shall be approved by Truckee Donner Public Utility District prior to paving or completing trench restorations;

C. All sewer lines shall be inspected and verified per Truckee Sanitary District requirements prior to paving or completing trench restorations;

D. Utility companies shall accept improvements by way of written correspondence prior to the Town's final acceptance of the Project;

E. Lids for all manholes, boxes, vaults, cleanouts, etc. shall be set ¼ in to ½ in below finish pavement grade. In aggregate base shoulder, the manhole cover shall be set 3 in below the finish grade; and

F. Refer to Standard Drawing #8 for information on utility locations within the public right-of-way.

Section 6.03 - Encroachment Permits

A. Encroachment permits, blanket or unique, are required for all work within the Town right-of-way, Public Roadway Easements, public access Easements, and on roads that have been offered to the Town for dedication; and

B. Blanket encroachment permits issued by the Town Engineer are required to perform routine maintenance work on utility infrastructure within the Town right-of-way. Utility companies shall make annual requests to the Town for such permits.

Section 6.04 - Fire Hydrants

A. Fire hydrants and associated bollards shall be constructed and located in accordance with the specifications of the Truckee Fire Protection District, Truckee Donner Public Utility District and the following criteria:

1. 6 ft minimum from the edge of pavement to closest point of obstruction (bollard or hydrant); and
2. 2 ft minimum from the back of curb or sidewalk to closest point of obstruction (bollard or hydrant).

Section 6.05 - Mail Boxes

A. All mailboxes shall be placed in accordance with the rules and regulations of the United States Post Office, but no box shall be placed within the public right-of-way in a manner that endangers the life safety of the general public. Mailboxes are permitted in Town right-of-way if they are not on a permanent foundation (i.e. moveable base required). Any damage by Town operations to a mailbox shall be repaired at the owner's expense; and

B. All new subdivisions shall have clustered mailboxes, unless otherwise approved by the Town Engineer.

SECTION 7 - SURVEY MONUMENTS

Section 7.01 - Monuments

The contractor is responsible for the protection of all existing monuments and other survey markers. Monuments and survey markers destroyed during construction shall be replaced at the contractor's expense.

Survey Monuments shall be set in accordance with the current version of the California Land Surveyors' Act, the Subdivision Map Act, local standards, and the following:

Section 7.01.A - Materials and Workmanship

When Lots or Parcels are created, all Lot lines and corners shall be marked at a maximum spacing of 1000 ft.

Section and quarter section corners shall be not less than 2 in inside diameter galvanized iron pipe 30 in long. The pipe is to be capped and marked in accordance with Chapter 4 of the current version of the Manual of Instructions prepared by the Bureau of Land Management. Section or quarter corners that are being set in asphalt surfaced, Town maintained roads, shall be placed in a monument box capable of having a grade ring attached to accommodate pavement overlays. All monument boxes shall be Christ Concrete Products G5 Water Box or equivalent.

Property corner and right-of-way monuments shall be galvanized iron pipes having an inside diameter of ¾ in or ⅝ in and a minimum length of 18 in. When improvements are constructed with the back of sidewalk or curb near to or contiguous with the right-of-way line a brass nail and survey tag, or 1 in brass disk shall be set flush with the improvement.

In all cases monuments shall be driven vertically with their tops flush with the ground except within roadways where they shall be driven ¼ in below the traveled surface or recessed within monument boxes. In cultivated areas they shall be set at a proper depth for their protection. Wooden stakes identifying the corner will be placed adjacent to the monument where practical.

All survey tags, monuments or brass disks shall be permanently marked with the Surveyor or Engineer's registration number and monuments which are used to establish lines of a property being surveyed shall be rehabilitated to Town standards when found in poor condition.

Section 7.01.B - Ties to Existing Monuments

Find and show on the survey map (with ties) all existing monuments in the immediate area which either have or might have a significant bearing on the confirmation or establishment of the lines of the property being surveyed. Identify on the map the monuments used for the basis of the bearings for the survey.

Section 7.01.C – Monument Establishment on Roads (Public & Private)

The following items shall be monumented:

A. For public & Private Roads;

1. Right-of-way lines at property line intersections with:
    a. The centerline or right of way line; and
    b. Roadways.

B. For major subdivisions;

1. The right-of-way line of all existing public highways fronting the subdivision boundaries;
2. Property line intersection points; and
3. Centerline of off-site dedications.

C. Easement lines when Easement is adjacent and within a property where it is not possible to monument the property line;

D. Property lines when purchased or dedicated for public use; and

E. When required to determine setbacks of improvements.

Section 7.01-D - Exemptions to Monument Establishment Policy

Monuments are not required if they pertain to a non-surveyed divided Parcel segment conforming to the requirements of Section 66445(d)(2) of the current version of the Subdivision Map Act.

Monuments are not required if they are located in Caltrans right-of-way.

Monuments are not required if they are not practical to set at their precise locations because of a fixed permanent improvement, such as a building or concrete sidewalk. In these situations, an offset reference monument shall be set at a suitable distance along the property line. Reference monuments may be set if required by field conditions and shall be shown in appropriate manner on the survey map.

Monuments are not required if they are not practical to set at their precise location because of a substantial natural obstacle, such as a Watercourse, tree, or unstable bank. In these situations, an offset monument shall be provided at a suitable distance. Reference monuments to inaccessible property corners shall be placed at a maximum 500 ft intervals along the property line and as close as possible to the actual Parcel corner and shall be shown in an appropriate manner on the survey map.

These guidelines are intended to present minimum monumenting standards. Professional judgment shall be exercised to determine the monuments and methods that will provide the most durable property corner monument.

SECTION 8 - EROSION CONTROL

Section 8.01 - General

It is the intent of Section 8 of the PIES to provide general guidelines for minimum standards for construction site BMPs required to satisfy Title 11 of the Town Municipal Code. The implementation of these minimum standards does not relieve the Project Proponent of meeting all stormwater related rules and regulations established by Titles 11 & 18 of the Town Municipal Code, the National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit (MS4), the NPDES Construction General Permit, or any other regulatory framework pertaining to stormwater or surface waters.

An Erosion Control Plan designed to control temporary and long-term erosion of all disturbed soils shall be submitted with Improvement Plans to be reviewed by the Town Engineer.

The following shall apply to the control of erosion and sediment:

A. Grading operations during the Wet Season shall be such that at no stage of the work will there be any substantial risk of increased sediment discharge from the site;

B. If grading is permitted during the Wet Season, the smallest practical area of erodible land shall be exposed at any one time during grading operations;

C. Natural features, including vegetation, terrain, Watercourses, and similar resources shall be preserved whenever possible;

D. Limits of grading shall be clearly defined and marked to prevent damage by construction equipment;

E. Permanent vegetation and structures for erosion and sediment control shall be installed as soon as possible;

F. Adequate provision shall be made for long-term maintenance of permanent erosion and sediment control structures and vegetation;

G. No topsoil shall be removed from the site unless otherwise directed or approved by the Town Engineer. Topsoil overburden shall be stockpiled and redistributed where appropriate within the graded area after rough grading to provide a suitable base for seeding and planting;

1. Runoff from the stockpiled area shall be controlled to prevent erosion and resultant sedimentation of receiving waters; and
2. Landscaped areas may require additional soil preparation.

H. Runoff shall not be discharged from the site in quantities or at velocities above those which occurred before grading except into drainage facilities whose design has been specifically approved by the Town Engineer;

I. The Project Proponent shall not allow vehicles to track or spill earthen materials off-site or into any roadway and shall immediately remove such materials if spilling occurs;

J. All disturbed areas shall be revegetated or stabilized with pine needles, mulch, gravel, and/or other material as approved by the Town Engineer;

K. Adequate dust control shall be maintained per section 10 of the current version of the Caltrans Standard Specifications;

L. A Dust Control Plan must be prepared and approval obtained from the Northern Sierra Air Quality Management District's ("AQMD") Air Pollution Control Officer before topsoil is disturbed on any Project where more than one (1) acre of natural surface area is to be altered or where the natural ground cover is removed. AQMD can be reached at (530) 274-7546.

M. After stripping the debris, any existing loose fill, unsuitable soil, silty sand deposits, or disturbed natural soils shall be excavated and properly disposed of to the satisfaction of the Town Engineer.

N. No construction shall be done between October 15 and May 1 without a Town approved sediment/erosion control plan to prevent soil erosion. All erosion and sedimentation control measures shall be in accordance with the Lahontan Regional Water Quality Board Best Management Practices; and

O. Installation and maintenance of erosion control measures are the responsibility of the contractor. The contractor shall be responsible for the prevention of significant erosion and siltation entering the storm drain system, natural drainage courses and/or intruding upon adjacent roadways and properties. Winterization and erosion control shown on these plans is intended as a guide. Additional erosion control measures may be required as determined in the field by the Town Engineer. This responsibility shall apply throughout the course of construction and until all disturbed areas have become stabilized and shall not be limited to wet weather periods.

Section 8.02 - Wet Season Requirements

If starting construction during the "Wet Season" a pre –land disturbance inspection is required (BMP-100 inspection). Contact the Engineering Division or Building Division to schedule the inspection.

All Sites must be winterized during the Wet Season. Winterized means implementing erosion and/or sediment controls that will prevent the discharge of earthen materials from the site. This includes but is not limited to:

A. Stabilizing bare disturbed soils with mulch, erosion protection blankets, or other suitable materials;

B. Installing perimeter sediment controls such as wire-backed silt fence or other similar materials that will remain effective during significant rain and snow events;

C. Cleaning up and removing construction debris and spoil piles;

D. Removing or covering dirt stockpiles with tackifier;

E. Installing permanent mechanical stabilization and drainage improvements where feasible;

F. Restricting parking and storage to paved areas and/or Driveways that have track off control; and

G. For sites that will be active during the Wet Season where the Driveway will be used for material storage and/or vehicular access, Driveways with slopes in excess of 10% shall be paved.

Section 8.03 - Emergency Conditions

Should increased sediment discharge occur or become imminent, the Project Proponent shall take all necessary steps to control or reduce such discharge. Such steps may include construction of additional facilities or removal or alteration of facilities required by approved erosion and sediment control plans.

Facilities removed or altered shall be restored as soon as possible after the discharge event has ended. The Project Proponent shall take prompt action to resolve emergency conditions; otherwise the Town Engineer may institute abatement proceedings pursuant to provisions of this section at the Project Proponent's expense.

Section 8.04 Erosion and Sediment Control Plans

Erosion and sediment control plans shall comply with all the following:

A. The erosion and sediment control plan need not be a separate sheet if all facilities and measures can be shown on the grading sheets without obscuring the clarity of either the Grading Plan or the erosion and sediment control plan;

B. All disturbed areas where grading has been completed between April 1 and October 15 shall be planted or otherwise stabilized by October 15. Graded areas completed during other times of the year shall be planted within 15 days;

C. Erosion and sediment control plans shall be designed to prevent the discharge of sediment at all stages of grading and development from initial disturbance of the ground to Project completion. Every feasible effort shall be made to ensure that site stabilization is permanent. Plans shall indicate the implementation period and the stage of construction where applicable;

D. If revegetation is infeasible or cannot be expected to stabilize an erodible area with assurance during any part of the rainy season, additional erosion and sediment control measures or irrigation of planted slopes may be required;

E. Erosion and sediment control plans shall comply with the recommendations of the Civil Engineer, Geotechnical Engineer, Engineering Geologist, or Landscape Architect involved in preparation of the Grading Plans;

F. The structural and hydraulic adequacy of all storm water containment or conveyance facilities shown on the erosion and sediment control plans shall be verified by a Civil Engineer, and they shall so attest on the plans;

G. Sufficient calculations and supporting material to demonstrate such adequacy shall accompany the plans when submitted;

H. Erosion and sediment control plans shall be designed to meet anticipated field conditions;

I. The Project Proponent shall ensure daily inspections of erosion and sediment control facilities are conducted. Any damage or deficiency shall be repaired immediately upon discovery; and

J. Erosion and sediment control plans shall comply with any and all standards and specifications adopted herein for the control of erosion and sedimentation on grading sites. These standards and specifications shall be in general compliance with the current versions of the following:

1. Revegetation Guidance Document for Erosion Control Projects in the Tahoe Basin by the Tahoe Conservancy;
2. Sediment Source Control Handbook by the Sierra Business Council & Lahontan Regional Water Quality Control Board; and
3. Construction BMP Handbook by California Stormwater Quality Association.

TOWN OF TRUCKEE
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

STANDARD DRAWINGS

TOWN OF TRUCKEE
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS
STANDARD DRAWING INDEX

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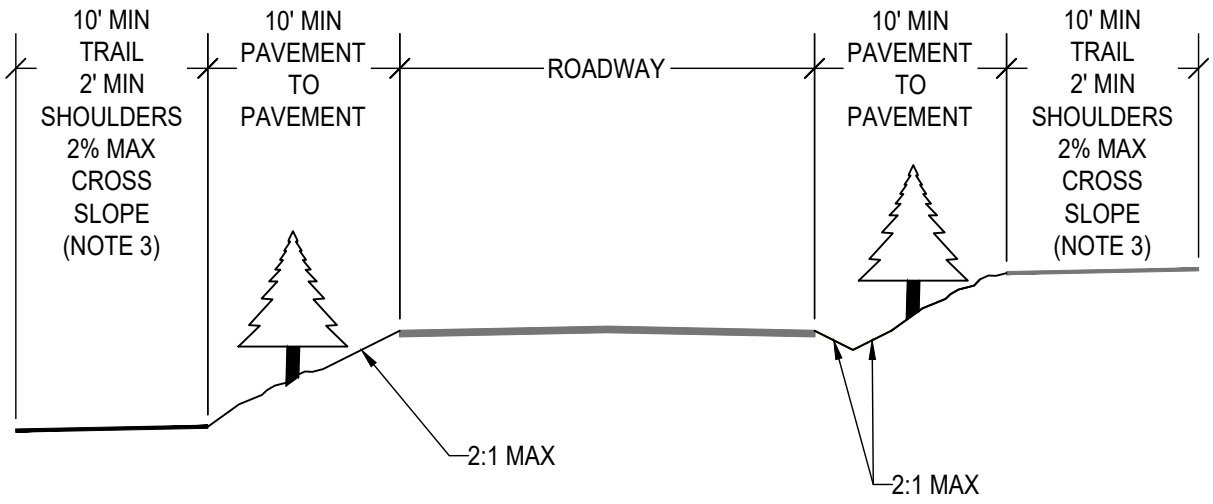
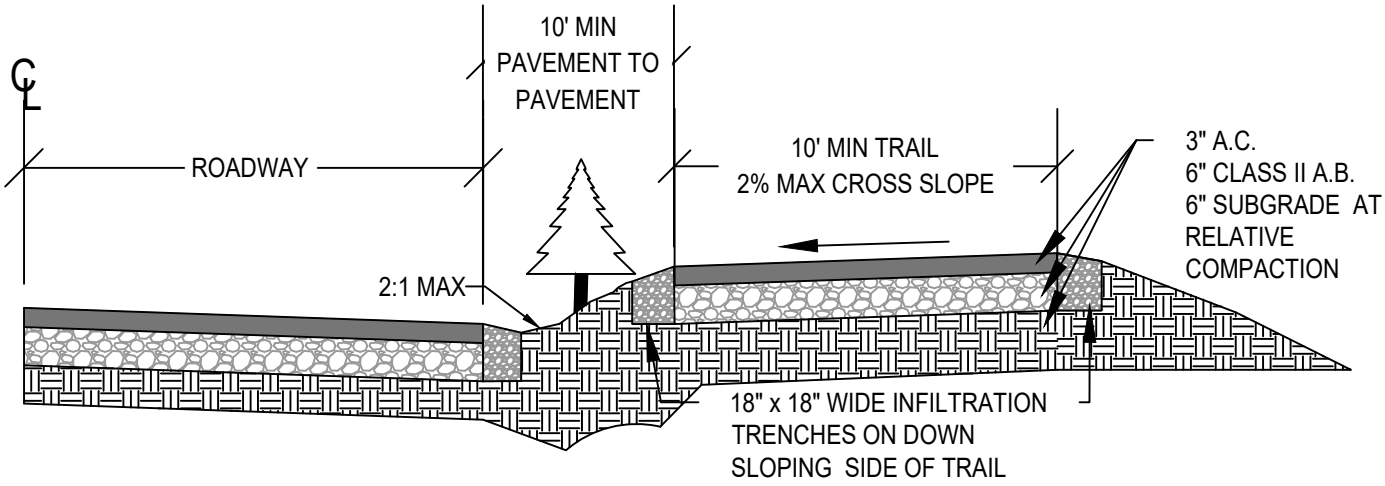
CLASS I SHARED USE TRAIL



DETAILED EDGE CONDITION



NOTES:

1. REFER TO THE CURRENT TOWN OF TRUCKEE TRAILS AND BIKEWAYS MASTER PLAN FOR IMPLEMENTATION LOCATIONS.
2. REFER TO SECTION 4 OF PUBLIC IMPROVEMENT ENGINEERING STANDARDS FOR PAVING/CONSTRUCTION MATERIALS.
3. CLASS I SHARED-USE PATHS SHALL MEET CURRENT PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES.

REGISTERED PROFESSIONAL ENGINEER
REBECCA LYN BUCAR
C 68253
EXP. 09/30/27
CIVIL
STATE OF CALIFORNIA
11/14/2025

TOWN OF TRUCKEE
ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

CLASS I SHARED USE TRAIL

NOT TO SCALE

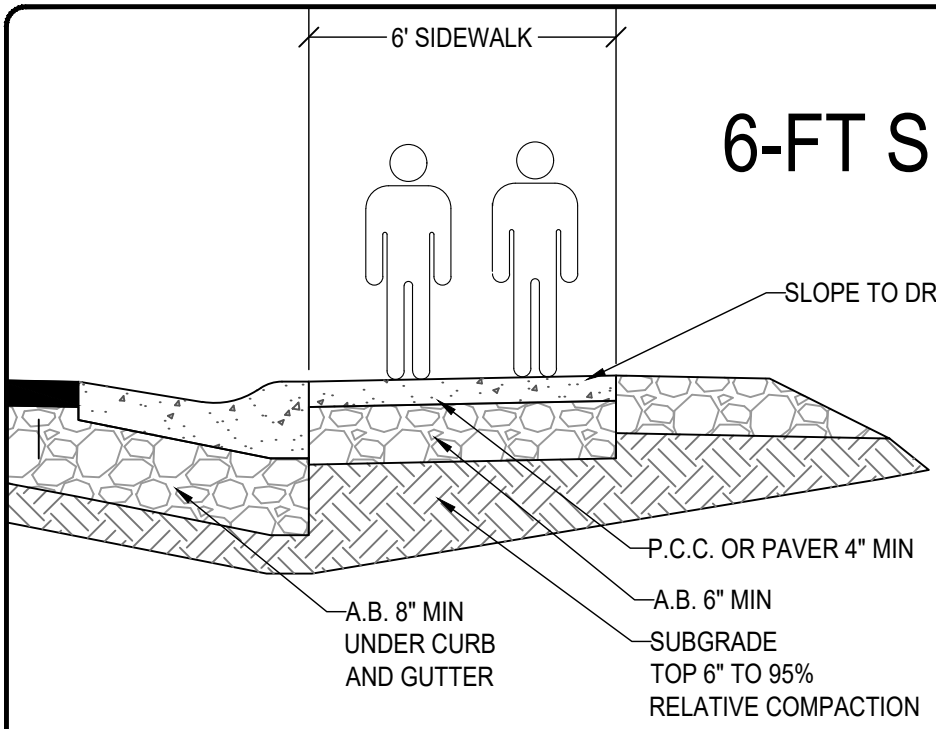
NOV 2025

APPROVED BY:
Rebecca Bucar, PE
TOWN ENGINEER

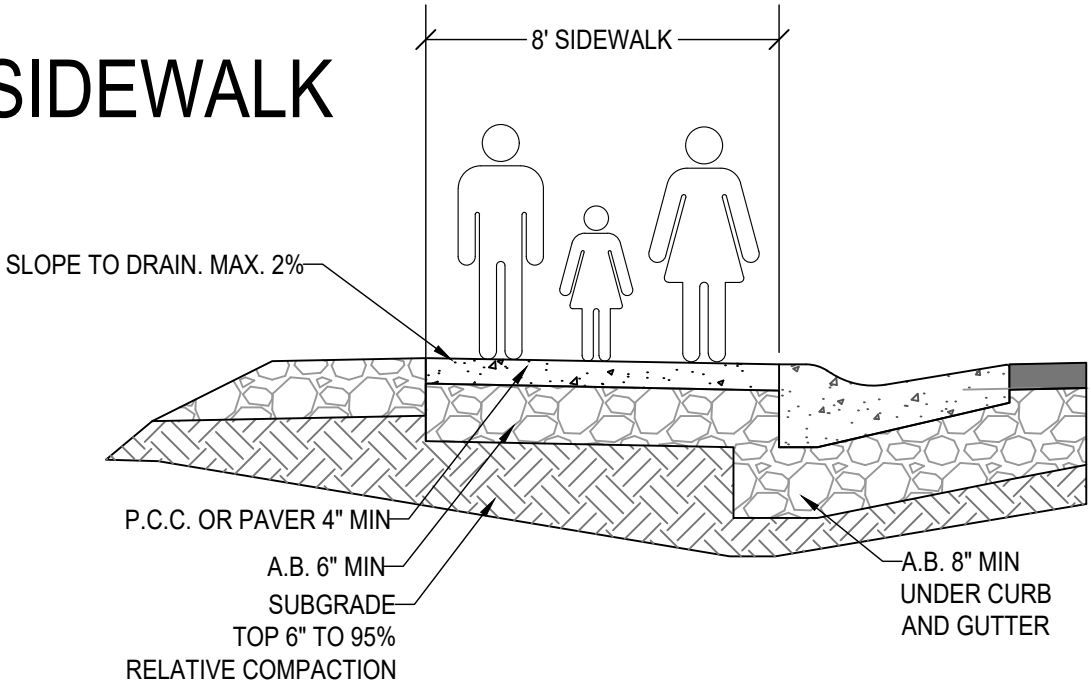
TOWN OF TRUCKEE

STANDARD DRAWING 01

6-FT SIDEWALK



8-FT SIDEWALK



NOTES:

1. CONTROL JOINTS (WEAKENED PLANE JOINTS) SHALL BE INSTALLED WITH A CONCRETE TOOL AT 6-FOOT MAXIMUM INTERVALS, 1.5-INCHES DEEP. ALL EDGES OF JOINTS SHALL BE ROUNDED.
2. STRUCTURAL THICKNESS SHOWN ARE MINIMUM. INCREASED SECTIONS MAY BE REQUIRED BASED ON ACTUAL SOIL CONDITIONS.
3. ALL BROOMING SHALL BE PERPENDICULAR TO THE CURB AND OF MEDIUM FINISH UNLESS OTHERWISE SPECIFIED.
4. SIDEWALKS SHALL MEET CURRENT PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES.

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11/14/2025

TOWN OF TRUCKEE
ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

SIDEWALK DETAILS

NOT TO SCALE

NOV 2025

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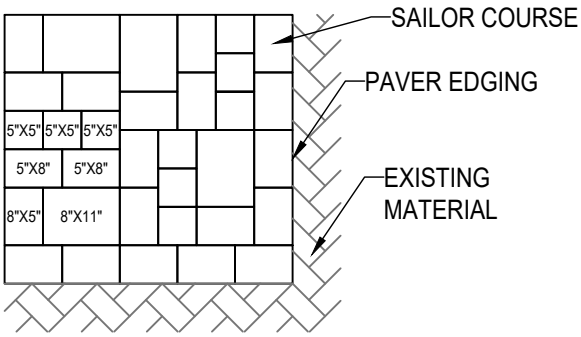
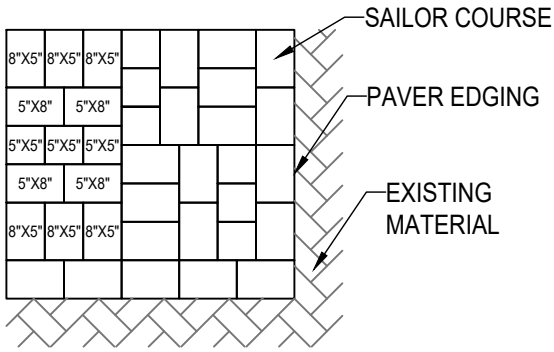
TOWN OF TRUCKEE

STANDARD DRAWING 02

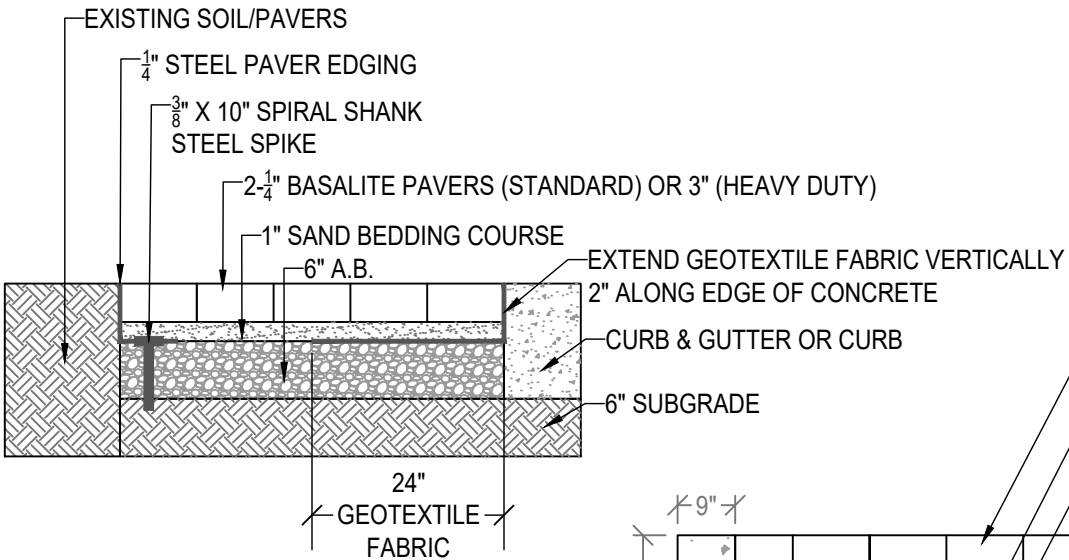


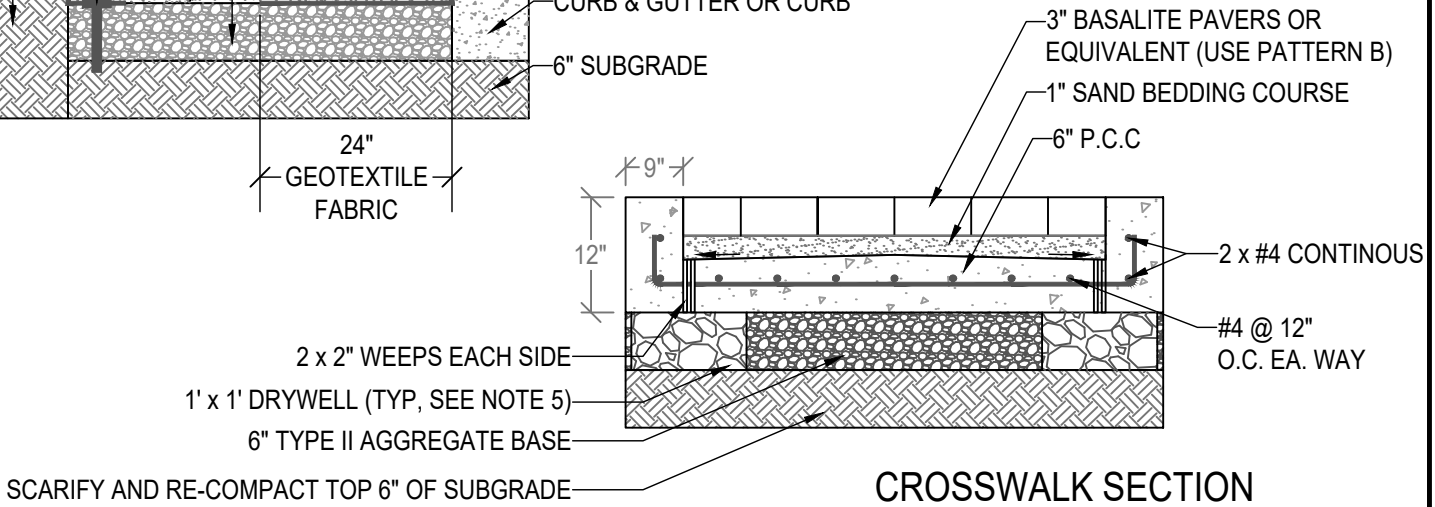
PATTERN A



PATTERN B (HEAVY DUTY)

PAVER SECTIONS





CROSSWALK SECTION

NOTES:

1. SOFT AND UNSUITABLE SUBGRADE MATERIAL SHALL BE OVER EXCAVATED & BACKFILLED WITH EQUIVALENT DEPTH OF AGGREGATE BASE OR STRUCTURAL FILL.
2. PATTERN A
   - 2.1. BASALITE PAVER STYLE: ITALIAN RENAISSANCE
   - 2.2. COLOR: POSITANO
   - 2.3. PATTERN: RANDOM 2 (29% MEGA, 42% RECTANGLE, 29% SQUARE)
3. PATTERN B (HEAVY DUTY)
   - 3.1 BASALITE PAVER STYLE: ITALIAN RENAISSANE
   - 3.2 COLOR: POSITANO
   - 3.3 PATTERN: AS SHOWN
   - 3.4 HEAVY DUTY 3"
4. DRYWELL TO BE INSTALLED USING FILTER FABRIC WRAPPED CLEAN DRAIN ROCK. SEE THE TOWN OF TRUCKEE ENGINEERING DIVISIONS LOW IMPACT DESIGN FACT SHEETS FOR MORE INFORMATION ON DRYWELL INSTALLATION AT HTTPS://WWW.TOWNOFTRUCKEE.GOV/174/EROSION-PREVENTION-STANDARDS

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11/14/2025

TOWN OF TRUCKEE
ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

PAVER DETAILS

NOT TO SCALE

NOV 2025

APPROVED BY:
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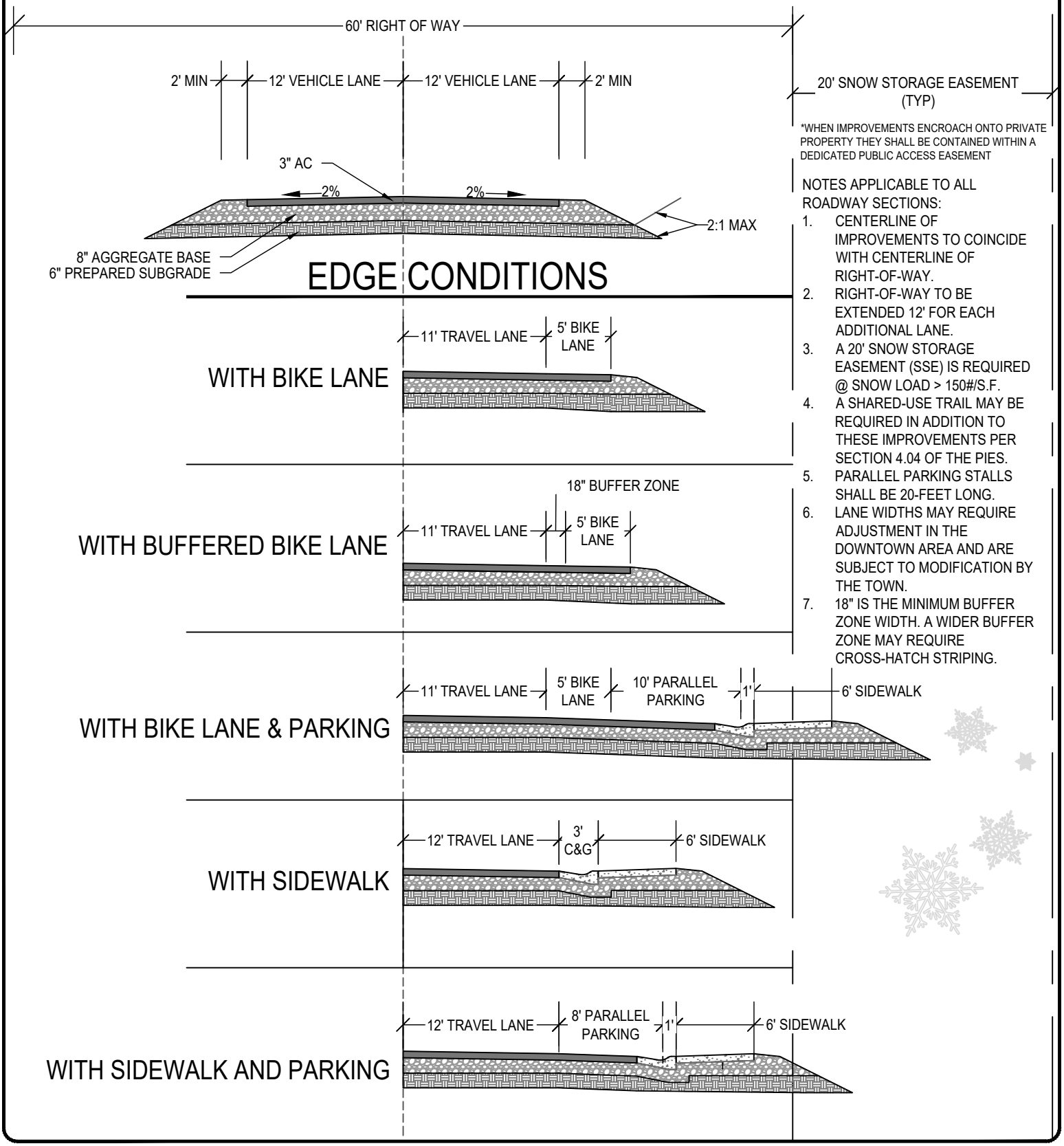
TOWN OF TRUCKEE

STANDARD DRAWING 03



*WHEN IMPROVEMENTS ENCROACH ONTO PRIVATE PROPERTY THEY SHALL BE CONTAINED WITHIN A DEDICATED PUBLIC ACCESS EASEMENT

NOTES APPLICABLE TO ALL ROADWAY SECTIONS:

1. CENTERLINE OF IMPROVEMENTS TO COINCIDE WITH CENTERLINE OF RIGHT-OF-WAY.
2. RIGHT-OF-WAY TO BE EXTENDED 12' FOR EACH ADDITIONAL LANE.
3. A 20' SNOW STORAGE EASEMENT (SSE) IS REQUIRED @ SNOW LOAD > 150#/S.F.
4. A SHARED-USE TRAIL MAY BE REQUIRED IN ADDITION TO THESE IMPROVEMENTS PER SECTION 4.04 OF THE PIES.
5. PARALLEL PARKING STALLS SHALL BE 20-FEET LONG.
6. LANE WIDTHS MAY REQUIRE ADJUSTMENT IN THE DOWNTOWN AREA AND ARE SUBJECT TO MODIFICATION BY THE TOWN.
7. 18" IS THE MINIMUM BUFFER ZONE WIDTH. A WIDER BUFFER ZONE MAY REQUIRE CROSS-HATCH STRIPING.

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CIVIL
STATE OF CALIFORNIA
11/14/2025

TOWN OF TRUCKEE
ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

LOCAL & COLLECTOR SECTIONS

NOT TO SCALE

NOV 2025

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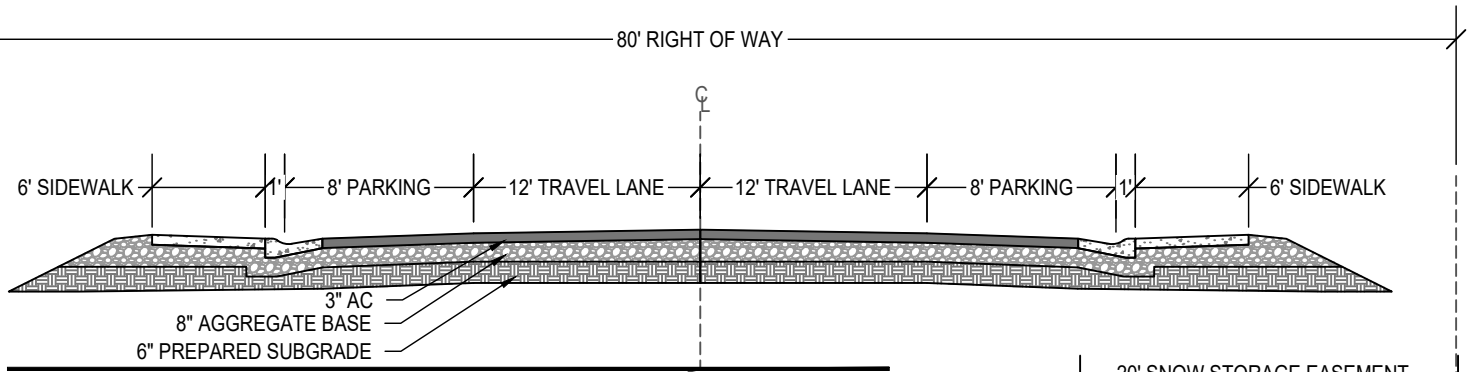
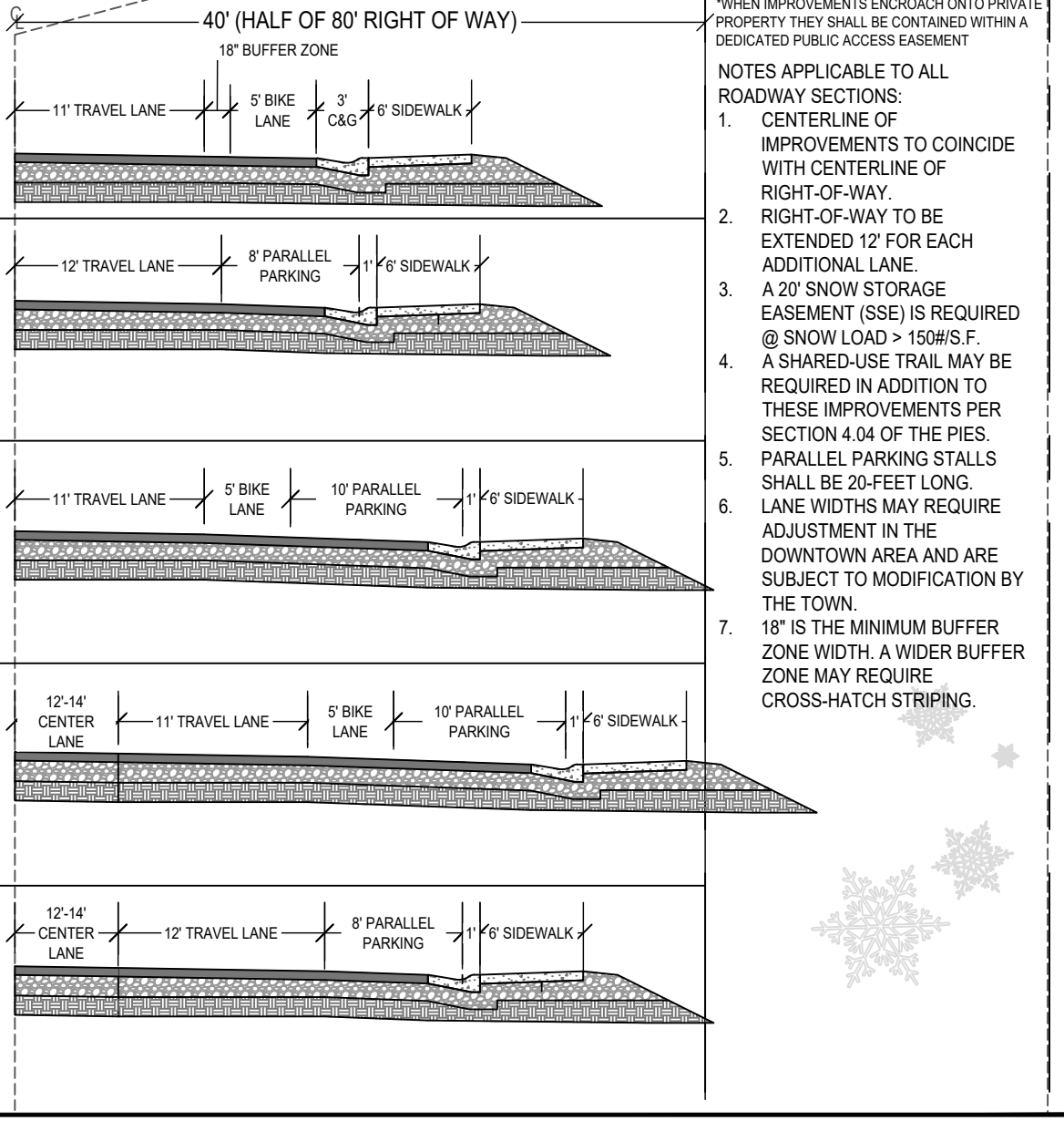
TOWN ENGINEER

TOWN OF TRUCKEE

STANDARD DRAWING 04



EDGE CONDITIONS



WITH BUFFERED BIKE LANE AND SIDEWALK

WITH SIDEWALK AND PARKING

WITH BIKE LANE AND PARKING

WITH CENTER LANE, BIKE LANE AND PARKING

WITH CENTER LANE, SIDEWALK AND PARKING

*WHEN IMPROVEMENTS ENCROACH ONTO PRIVATE PROPERTY THEY SHALL BE CONTAINED WITHIN A DEDICATED PUBLIC ACCESS EASEMENT

NOTES APPLICABLE TO ALL ROADWAY SECTIONS:

1. CENTERLINE OF IMPROVEMENTS TO COINCIDE WITH CENTERLINE OF RIGHT-OF-WAY.
2. RIGHT-OF-WAY TO BE EXTENDED 12' FOR EACH ADDITIONAL LANE.
3. A 20' SNOW STORAGE EASEMENT (SSE) IS REQUIRED @ SNOW LOAD > 150#/S.F.
4. A SHARED-USE TRAIL MAY BE REQUIRED IN ADDITION TO THESE IMPROVEMENTS PER SECTION 4.04 OF THE PIES.
5. PARALLEL PARKING STALLS SHALL BE 20-FEET LONG.
6. LANE WIDTHS MAY REQUIRE ADJUSTMENT IN THE DOWNTOWN AREA AND ARE SUBJECT TO MODIFICATION BY THE TOWN.
7. 18" IS THE MINIMUM BUFFER ZONE WIDTH. A WIDER BUFFER ZONE MAY REQUIRE CROSS-HATCH STRIPING.

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ARTERIAL SECTIONS

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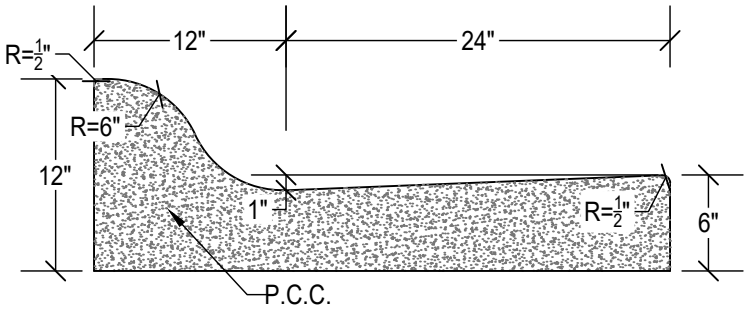
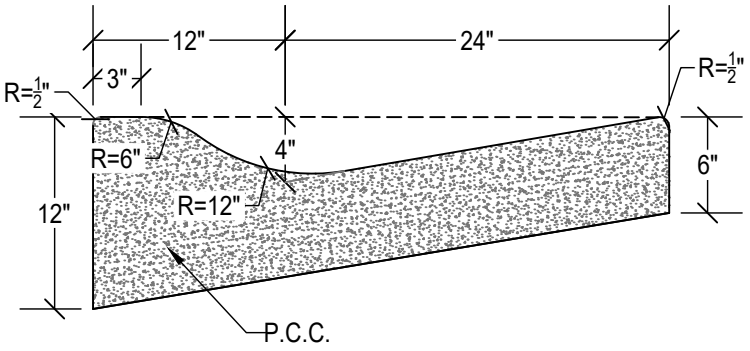
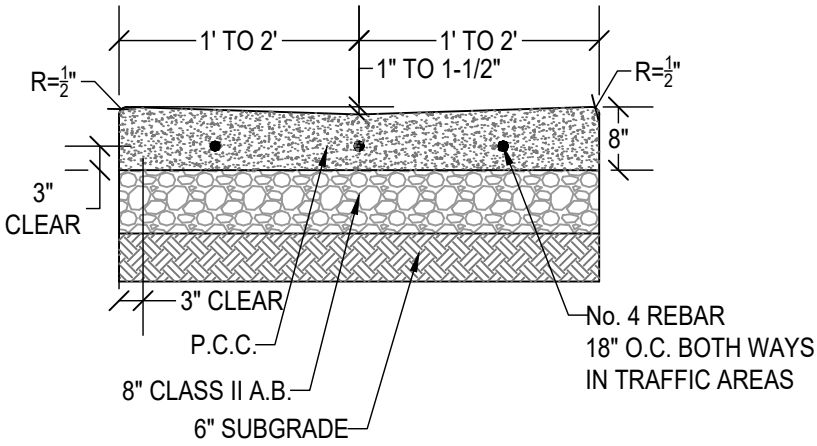
STANDARD DRAWING 05



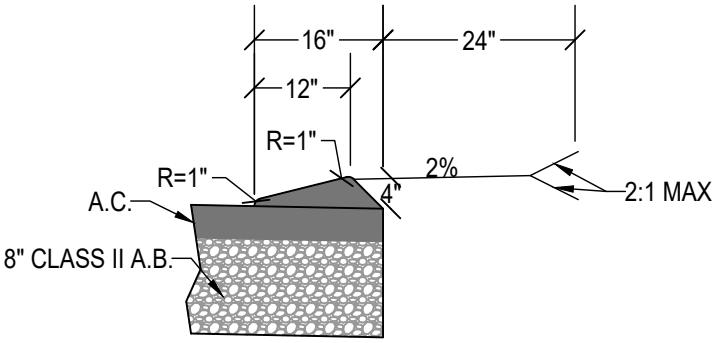
ROTATED TYPE E CURB



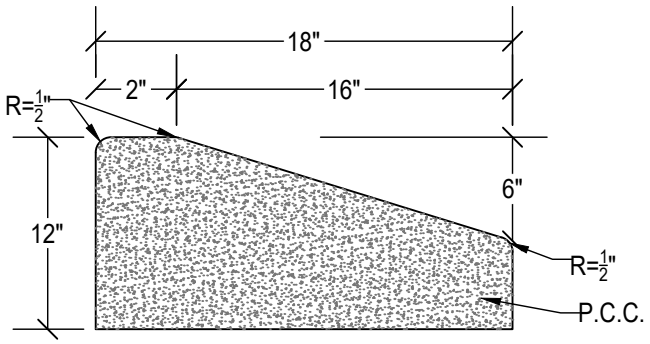
TYPE E CURB



VALLEY GUTTER



TYPE E A.C. CURB



MODIFIED TYPE D-6 CURB

NOTES:

1. CONTROL JOINTS (WEAKENED PLANE JOINTS) SHALL BE INSTALLED WITH A CONCRETE TOOL AT 6-FOOT MAXIMUM INTERVALS, 1.5-INCHES DEEP AND ALIGN / CORRESPOND WITH ADJACENT CONCRETE JOINTS IN SIDEWALK. ALL EDGES OF JOINTS SHALL BE ROUNDED.
2. A MINIMUM OF 8" CLASS 2 AGGREGATE BASE SHALL BE PLACED UNDER CURB AND GUTTER. A MINIMUM OF 6" CLASS 2 AGGREGATE BASE SHALL BE PLACED UNDER SIDEWALK.
3. STRUCTURAL THICKNESS FIGURES SHOWN ARE MINIMUM. INCREASED SECTIONS MAY BE REQUIRED BASED ON ACTUAL SOIL CONDITIONS.
4. ALTERNATIVE CURB & GUTTER DESIGNS MAY BE APPROVED BY TOWN ENGINEER.
5. CONCRETE CURBS SHALL HAVE MEDIUM BROOM FINISH.

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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

CURB & GUTTER

NOT TO SCALE

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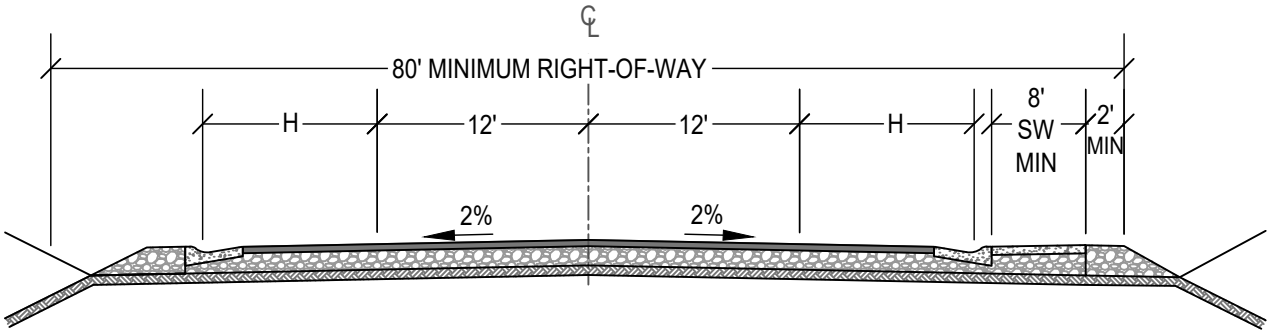
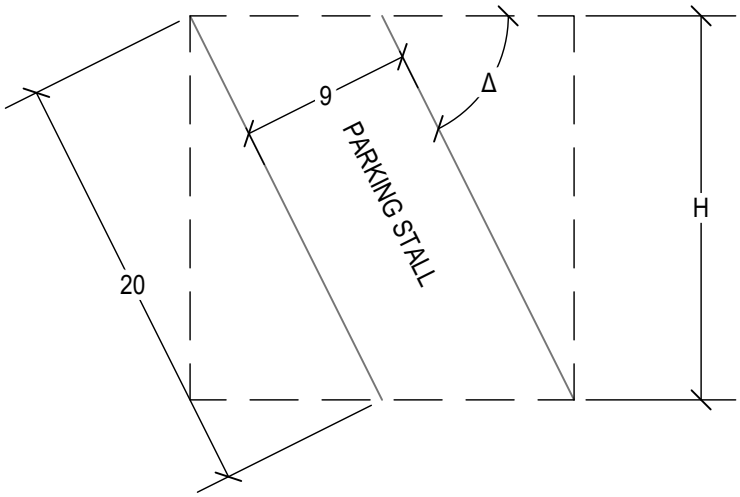
STANDARD DRAWING 06



ROADWAY TYPICAL WITH ANGLE PARKING



PLAN VIEW

DIMENSIONS TABLE	
Δ	H
30°	10'
45°	14.2'
60°	17.3'
90°	20'

NOTES:
1. CENTERLINE OF IMPROVEMENTS TO COINCIDE WITH CENTERLINE OF RIGHT-OF-WAY.
2. ALTERNATIVE TYPICAL SECTIONS FOR URBAN/INFILL AREAS MAY BE APPROVED BY THE TOWN ENGINEER.
3. SIDEWALK SHALL BE A MINIMUM OF 8-FEET WHEN ADJACENT TO ANGLE PARKING TO ACCOMMODATE A 2-FOOT BUMPER OVERHANG.

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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

ANGLE PARKING

NOT TO SCALE

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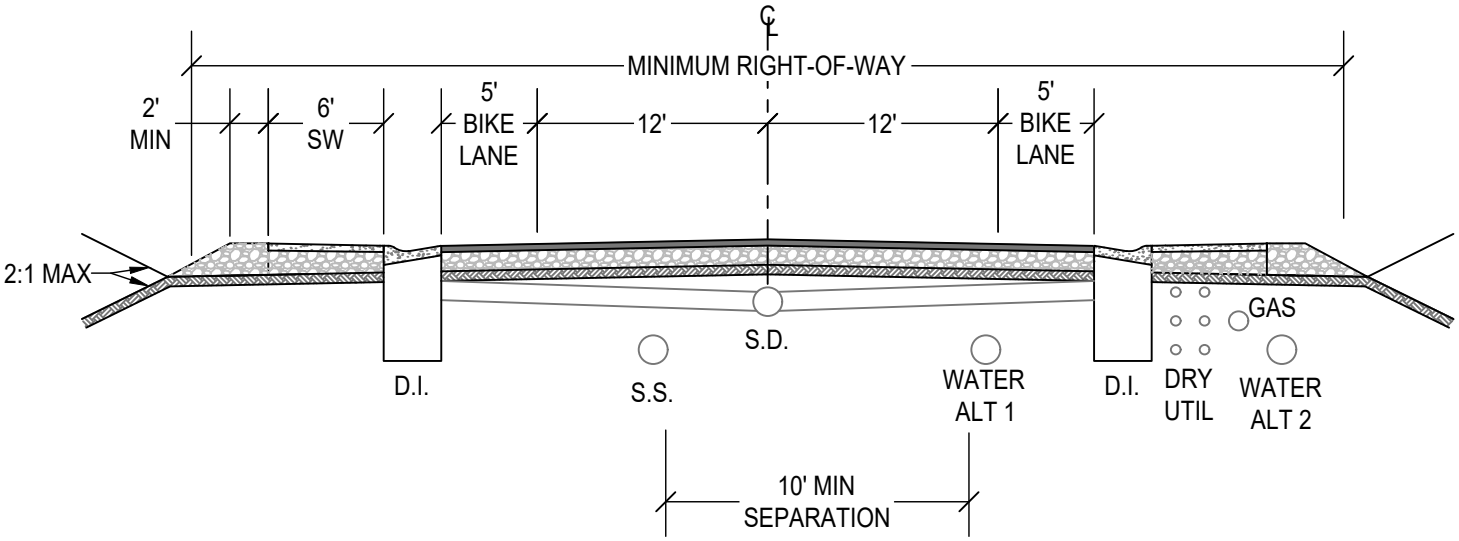
TOWN OF TRUCKEE

STANDARD DRAWING 07



NOTES:

1. ALL UTILITY SERVICE LINES SHALL STUB OUT TO THE PROPERTY LINES.
2. REFER TO UTILITY SPECIFIC TRENCHING DETAILS AND REQUIRED SEPARATIONS.
3. AVOID PLACING UTILITY LIDS IN WHEEL PATHS OF ROADWAY.
4. MINIMUM HEIGHT TO TOP UTILITY SHALL BE 24" BELOW FINISHED GRADE (BFG).
5. ALL UTILITIES TO BE INSTALLED PER APPROPRIATE UTILITY AUTHORITIES INCLUDING:
   - 5.1. WATER PER TRUCKEE DONNER PUBLIC UTILITY DISTRICT (TDPUD)
   - 5.2. SANITARY SEWER PER TRUCKEE SANITARY DISTRICT (TSD)
   - 5.3. DRY UTILITIES PER TDPUD, ATT, OPTIMUM OR ANY OTHER DRY UTILITY PROVIDERS WITH INFRASTRUCTURE PRESENT

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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

UTILITIES IN ROADWAY

NOT TO SCALE

NOV 2025

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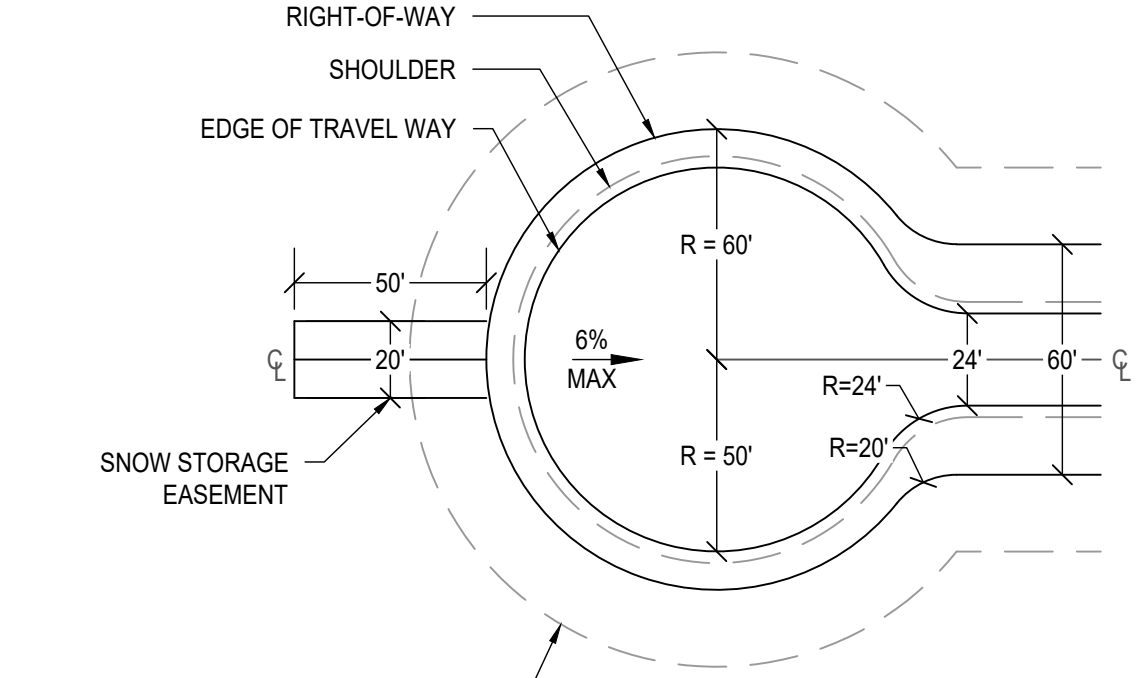
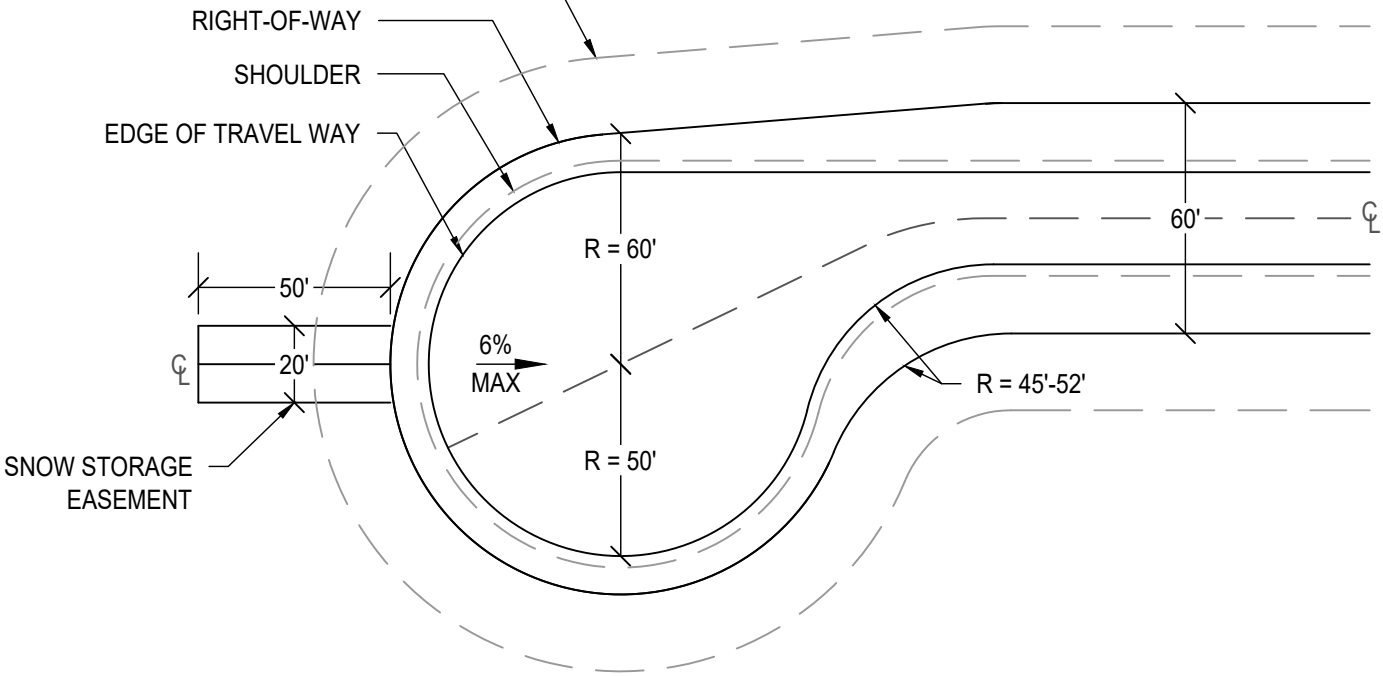
TOWN OF TRUCKEE

STANDARD DRAWING 08



20' SNOW STORAGE EASEMENT

CUL-DE-SAC



OFFSET CUL-DE-SAC

NOTES:
1. COMMERCIAL AND INDUSTRIAL APPLICATIONS MAY REQUIRE A SPECIAL DESIGN APPROVED BY THE TOWN ENGINEER.
2. REQUIRED SNOW STORAGE EASEMENT SIZE AND LOCATION MAY VARY AS APPROVED BY TOWN ENGINEER.
3. CUL-DE-SACS OR NO OUTLET ROADS ARE DISCOURAGED AND THE TOWN ENGINEER MAY DENY THE DEVELOPMENT OF NEW CUL-DE-SACS OR NO OUTLET ROADS.

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ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

PUBLIC CUL-DE-SAC

NOT TO SCALE

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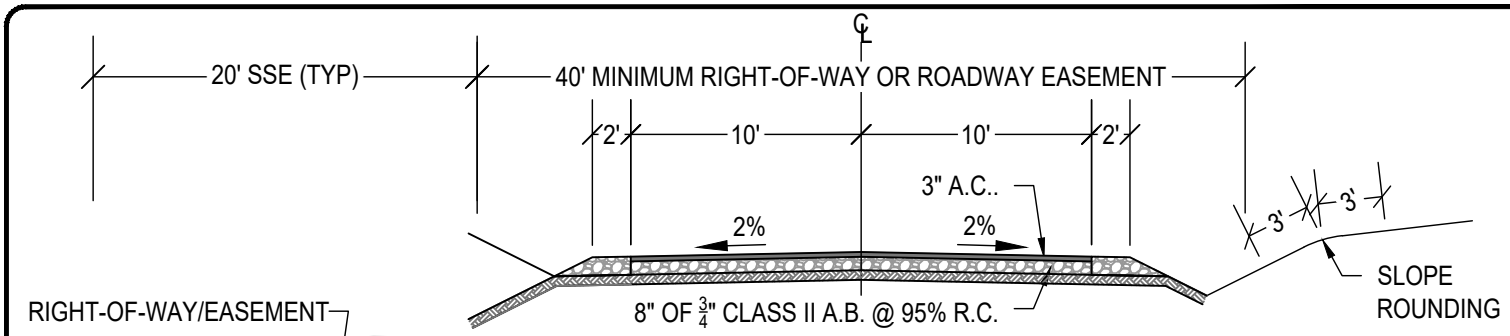
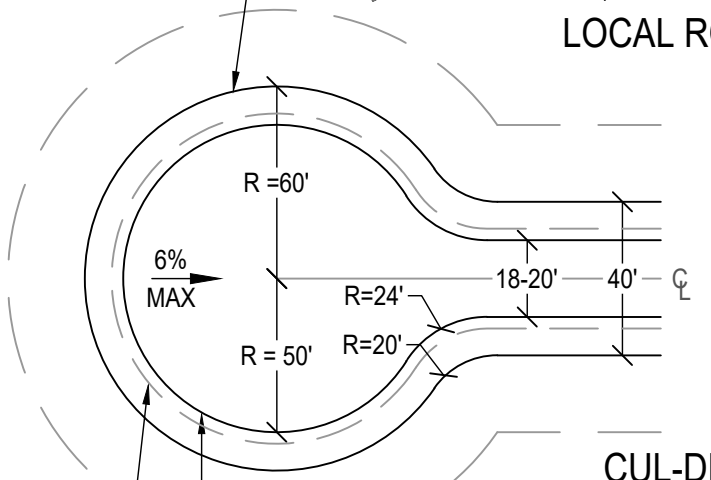
TOWN OF TRUCKEE

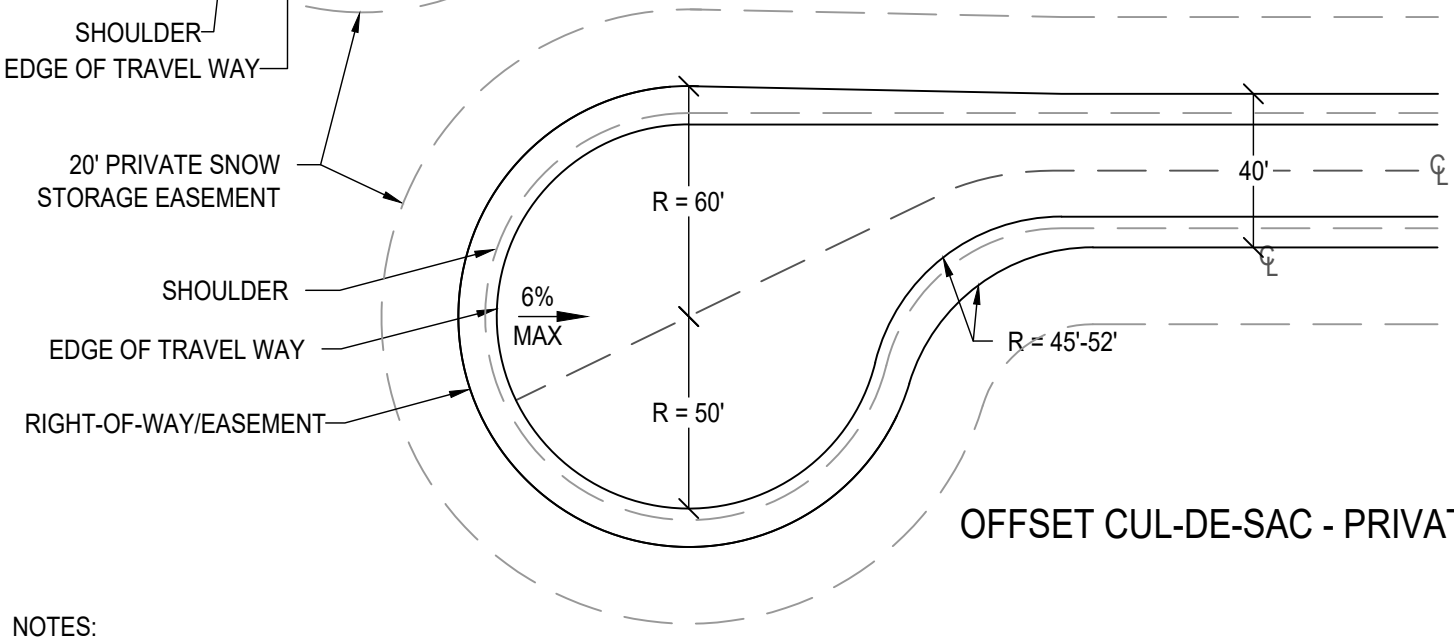
STANDARD DRAWING 09



LOCAL ROAD - PRIVATE



CUL-DE-SAC - PRIVATE



OFFSET CUL-DE-SAC - PRIVATE

NOTES:

1. CENTERLINE OF IMPROVEMENTS TO COINCIDE WITH CENTERLINE OF RIGHT-OF-WAY / ACCESS EASEMENT.
2. REFER TO SECTION 4 IN PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS FOR DESIGN CRITERIA.
3. COMMERCIAL AND INDUSTRIAL APPLICATIONS MAY REQUIRE A SPECIAL DESIGN APPROVED BY THE TOWN ENGINEER.
4. REQUIRED SNOW STORAGE EASEMENT SIZE AND LOCATION MAY VARY AS APPROVED BY TOWN ENGINEER.
5. CUL-DE-SACS OR NO OUTLET ROADS ARE DISCOURAGED AND THE TOWN ENGINEER MAY DENY THE DEVELOPMENT OF NEW CUL-DE-SACS OR NO OUTLET ROADS.

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TOWN OF TRUCKEE
ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

PRIVATE CUL-DE-SAC

NOT TO SCALE

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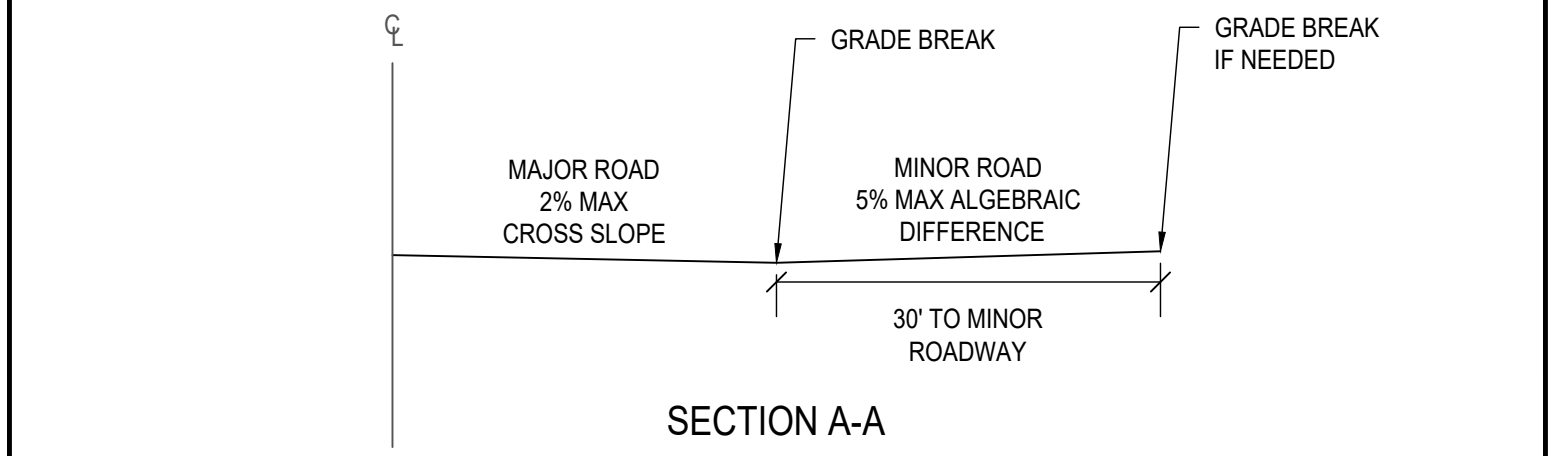
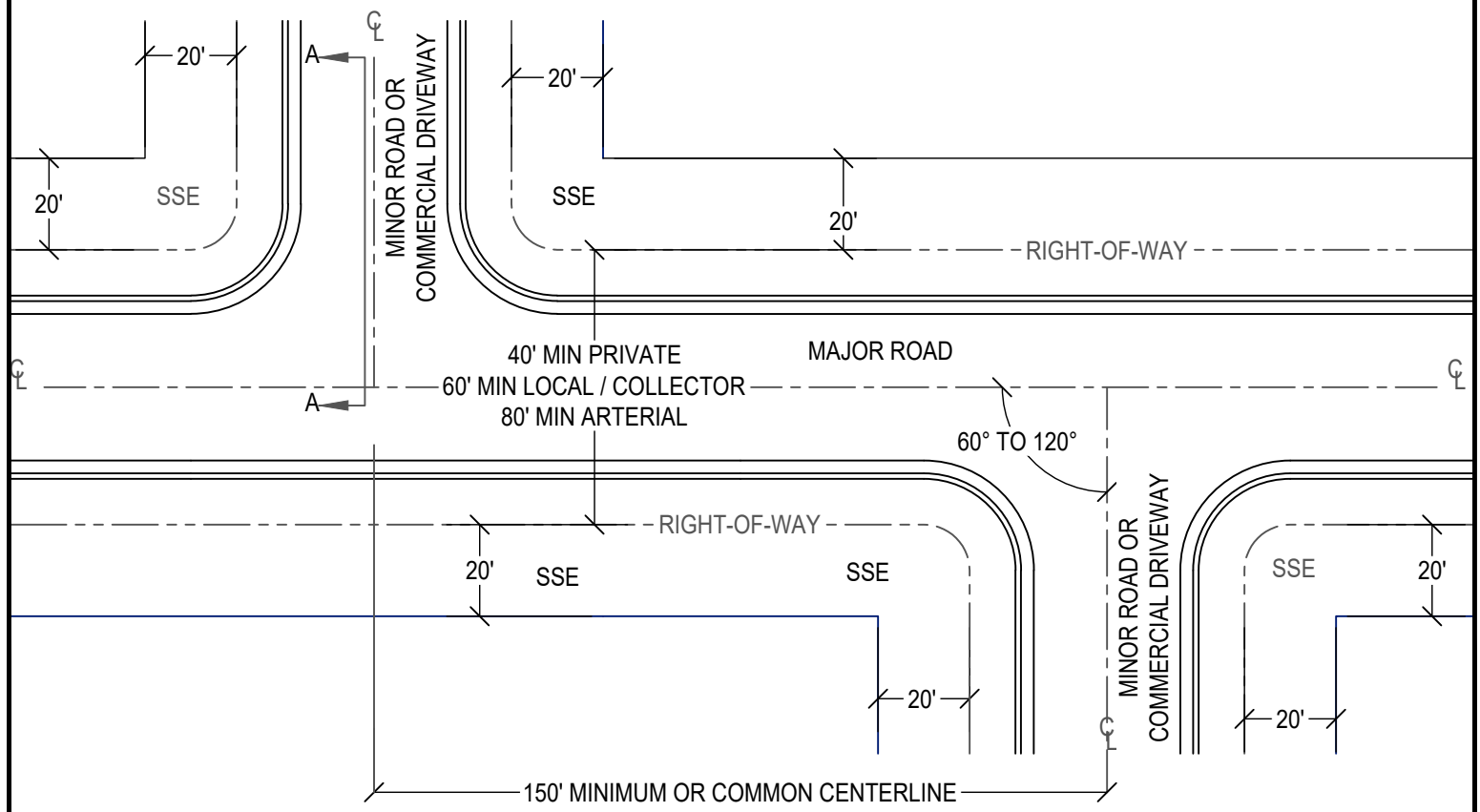
TOWN OF TRUCKEE

STANDARD DRAWING 10



SECTION A-A



PLAN VIEW

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11/14/2025

TOWN OF TRUCKEE
ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

INTERSECTION SEPARATIONS & GRADE BREAKS

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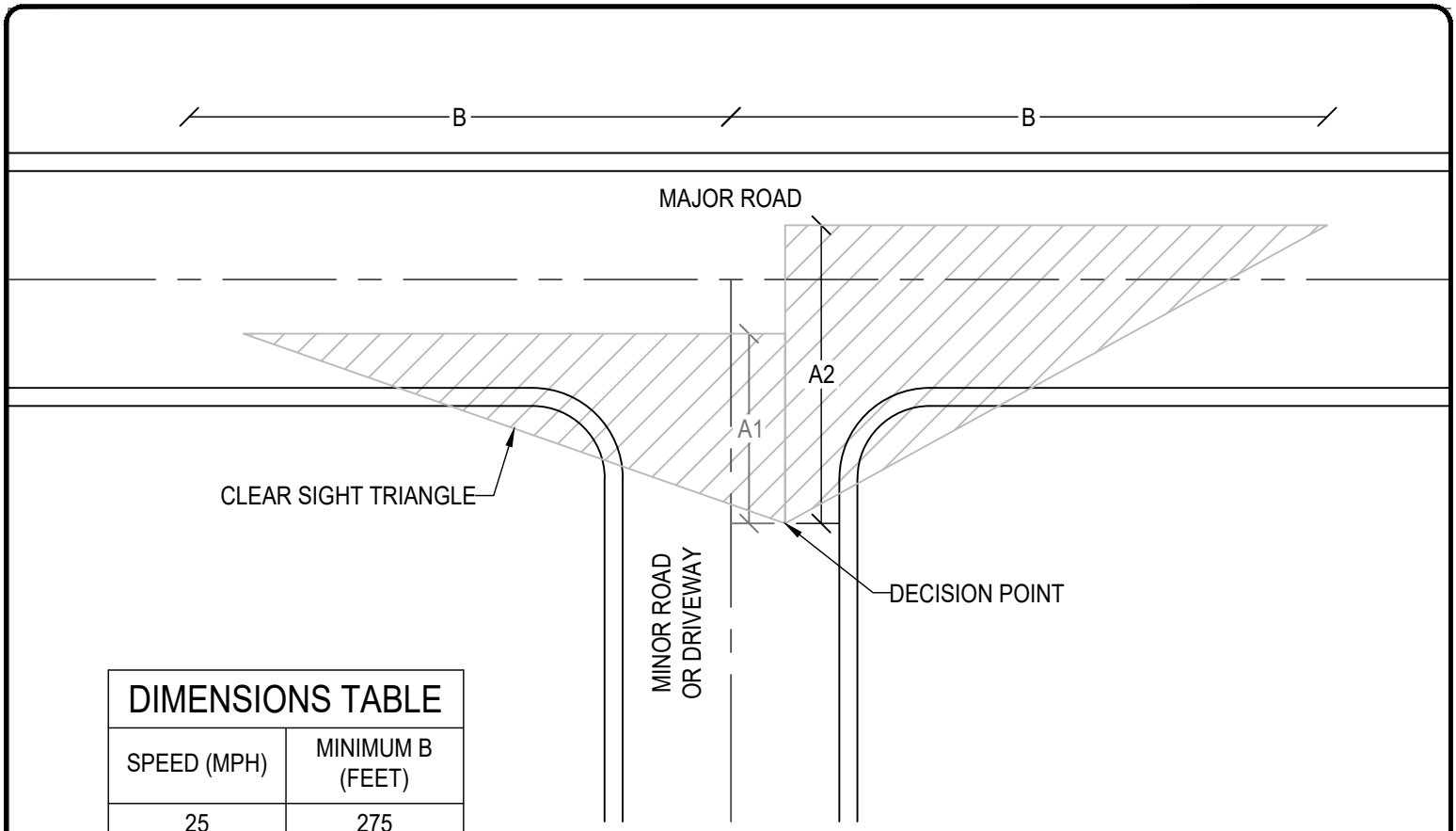
TOWN OF TRUCKEE

STANDARD DRAWING 11



DIMENSIONS TABLE	
SPEED (MPH)	MINIMUM B (FEET)
25	275
30	330
35	385
40	440
45	495
50	550
55	605
60	660

NOTES:

1. INTERSECTING RIGHT-OF-WAY LINES AT ROADWAY CONNECTIONS SHALL BE JOINED BY A 25' OR GREATER RADIUS TO ALLOW FOR ROADWAY IMPROVEMENTS.
2. A1 AND A2 (CROSSING DISTANCE) ARE MEASURED FROM THE CENTER OF THE FARTHEST MAJOR ROAD TRAVEL LANE FOR EACH TURNING MOVEMENT TO THE DECISION POINT. THE DECISION POINT IS SETBACK FROM THE EDGE OF THE NEAREST MAJOR ROAD TRAVEL LANE BY A DISTANCE OF 10' PLUS THE WIDTH OF THE MAJOR ROAD SHOULDER AND 15' MINIMUM.
3. IN BOTH DIRECTIONS OF TRAVEL ALONG THE MAJOR ROAD, B (INTERSECTION SIGHT DISTANCE) IS TO BE MEASURED ALONG THE MAJOR ROAD CENTERLINE FOR TWO-LANE MAJOR ROADS AND ALONG THE CENTERLINE OF THE NEAREST LANE TO THE MINOR ROAD FOR MULTI-LANE ROADS.
4. WHERE RESTRICTIVE CONDITIONS DO NOT ALLOW COMPLIANCE WITH THE SPECIFIED SIGHT DISTANCE REQUIREMENTS, THE TOWN ENGINEER MAY APPROVE A REDUCTION OF THE CORNER SIGHT DISTANCE AS OUTLINED IN THE CALTRANS HIGHWAY DESIGN MANUAL.

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TOWN OF TRUCKEE
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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

INTERSECTION SIGHT DISTANCE

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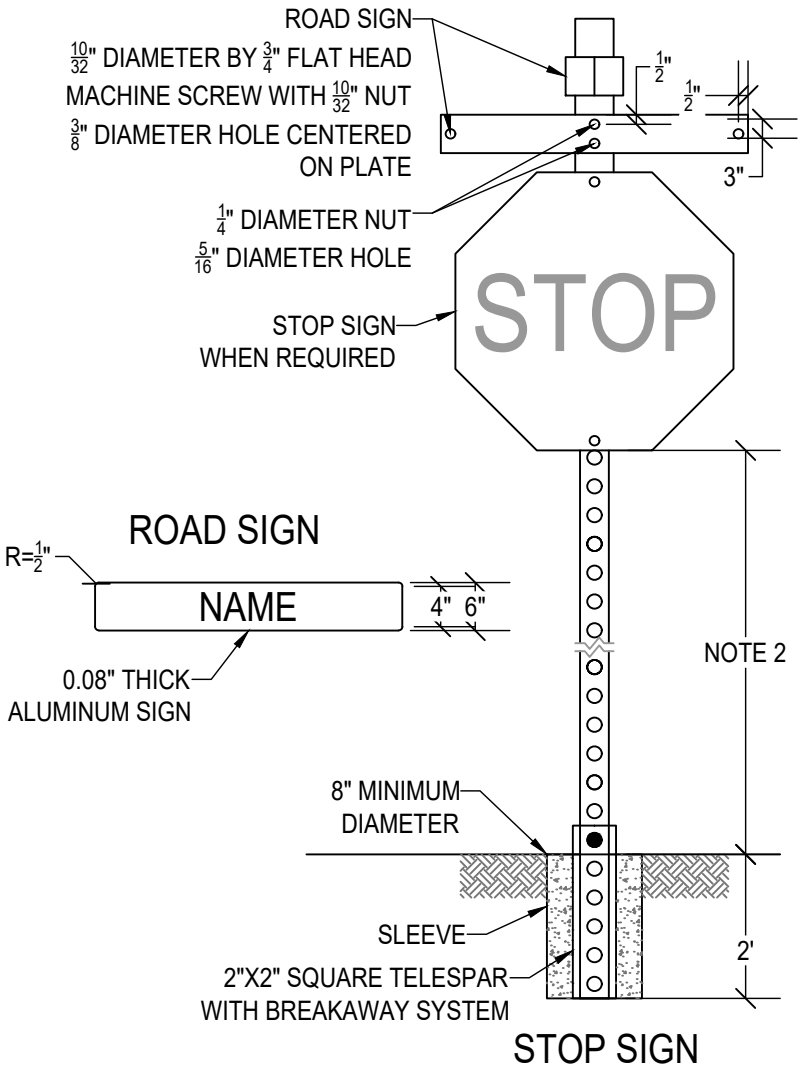
STANDARD DRAWING 12



STOP SIGN

NOTES:

1. SIGNS SHALL BE RETROREFLECTIVE OR ILLUMINATED TO SHOW THE SAME SHAPE AND SIMILAR COLOR BY DAY AND NIGHT AND BE COATED IN 3M WEATHER RESISTANT COATING OR EQUIVALENT.
2. REFER TO THE CALIFORNIA MUTCD FOR PLACEMENT AND HEIGHT REQUIREMENTS WHICH INCLUDE:
   - 2.1. THE MINIMUM HEIGHT, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF THE PAVEMENT, OF SIGNS INSTALLED AT THE SIDE OF THE ROAD IN RURAL AREAS SHALL BE 5-FEET.
   - 2.2. THE MINIMUM HEIGHT, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO WHERE PEDESTRIANS ARE ASSUMED TO PRESENT SHALL BE 7.5'.
   - 2.3. THE MINIMUM LATERAL OFFSET FROM EDGE OF TRAVEL LANE SHALL BE 6-FEET.
   - 2.4. WHERE IT IS IMPRACTICAL TO LOCATE A SIGN WITH THE LATERAL OFFSET PRESCRIBED ABOVE, A LATERAL OFFSET OF AT LEAST 2-FEET MAY BE USED.
3. POSTS SHALL BE POWDER COATED BLACK OR ALTERNATIVES AS ALLOWED BY THE TOWN ENGINEER.
4. STREET NAME SIGNS SHALL BE GREEN WITH WHITE LETTERING.

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ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

STOP SIGN & ROAD SIGN

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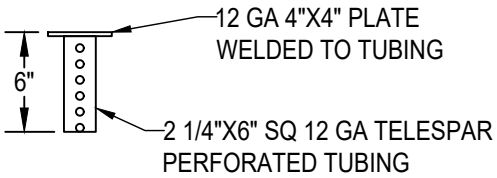
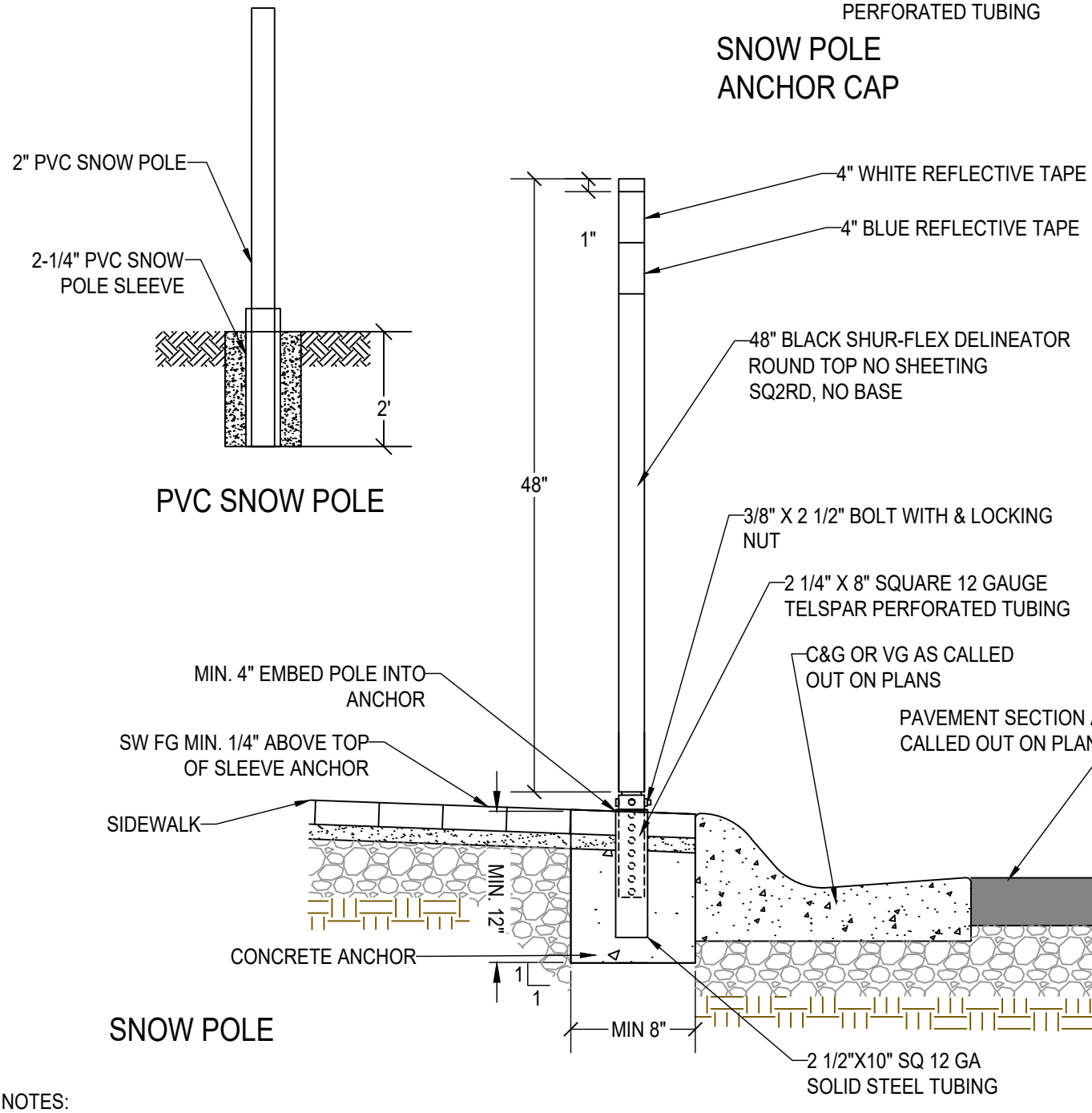
TOWN OF TRUCKEE

STANDARD DRAWING 13



SNOW POLE
ANCHOR CAP



SNOW POLE

NOTES:

1. INSTALL SNOW POLES AT TOP BACK OF CURB AT ALL CURB RETURNS, EACH SIDE OF DRIVEWAY OPENINGS, AT THE MID POINT OF PARKING SEGMENTS OR OTHER FEATURES, AND AT A MINIMUM EVERY 100' ON STRAIGHT SECTIONS.
2. FINAL SNOW POLE LOCATIONS & TAPE PATTERNS TO BE REVIEWED BY ENGINEER IN FIELD PRIOR TO PLACEMENT

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ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

SNOW POLES

NOT TO SCALE

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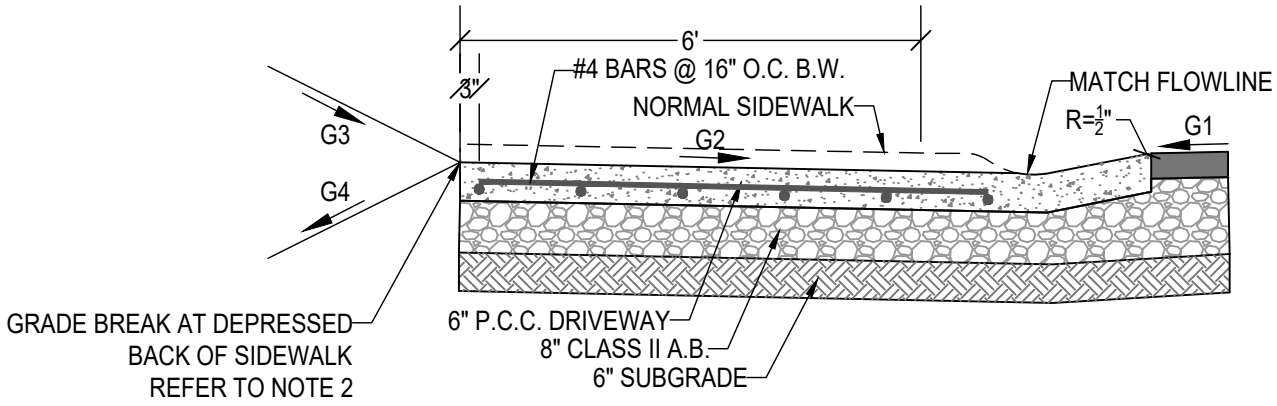
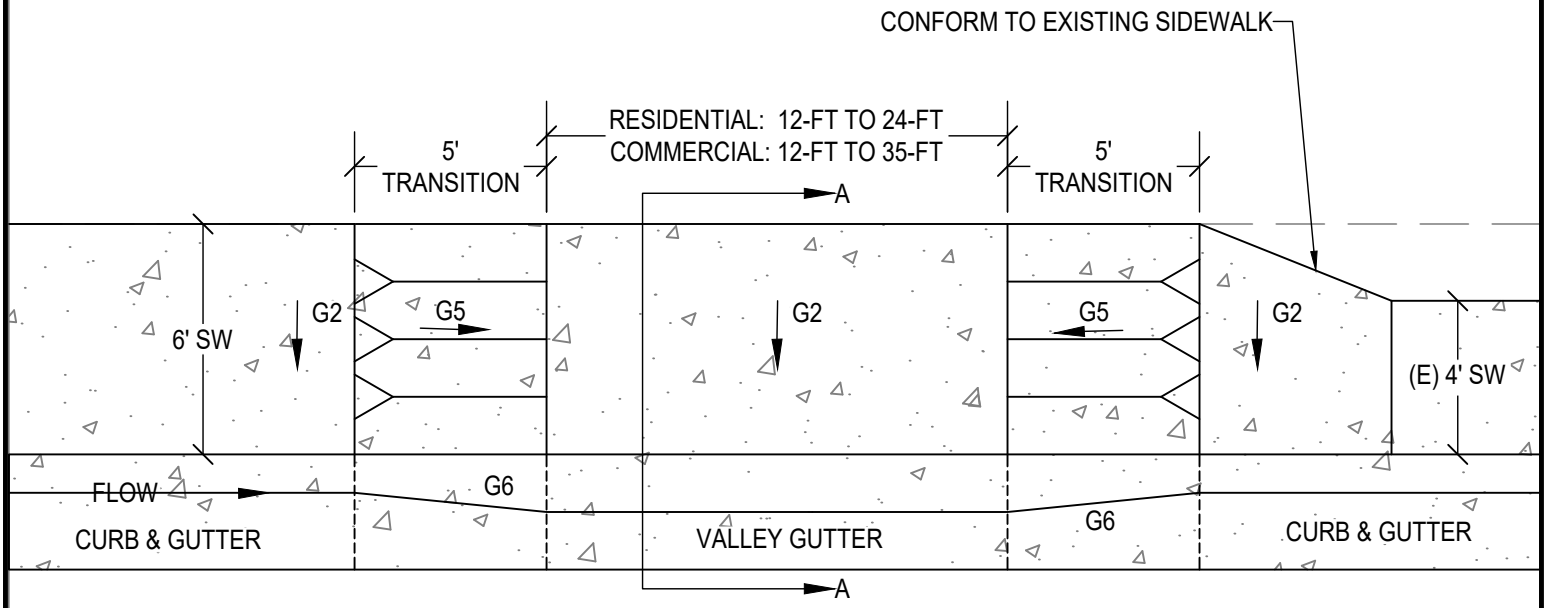
STANDARD DRAWING 14



SECTION A-A



PLAN VIEW

NOTES:

1. MAXIMUM GRADES FOR DRIVEWAYS SHALL BE AS FOLLOWS
   G1 = -2% ROAD CROSS SLOPE
   G2 = +2% MAXIMUM ON SIDEWALK
   G3 & G4 = AS DETERMINED BY A MAXIMUM 5% ALGEBRAIC GRADE DIFFERENCE FOR A GRADE BREAK OR GRADIENT OF A VERTICAL CURVE (L = 30' MINIMUM BEGINNING AT GRADE BREAK).
   G5 ≤ 8.33%
   G6 TRANSITION FROM TYPE E CURB TO VALLEY GUTTER
2. CONTROL JOINTS (WEAKENED PLANE JOINTS) SHALL BE INSTALLED WITH A CONCRETE TOOL AT 6-FOOT MAXIMUM INTERVALS, 1.5-INCHES DEEP OR ⅓ DEPTH OF SLAB. ALL EDGES OF JOINTS SHALL BE ROUNDED.
3. NEW SIDEWALKS REQUIRE 6' MINIMUM WIDTH. DETAIL SHOWS EXAMPLE OF CONFORM TO AN EXISTSING 4' SIDEWALK.

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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

DRIVEWAY APRON DETAILS

NOT TO SCALE

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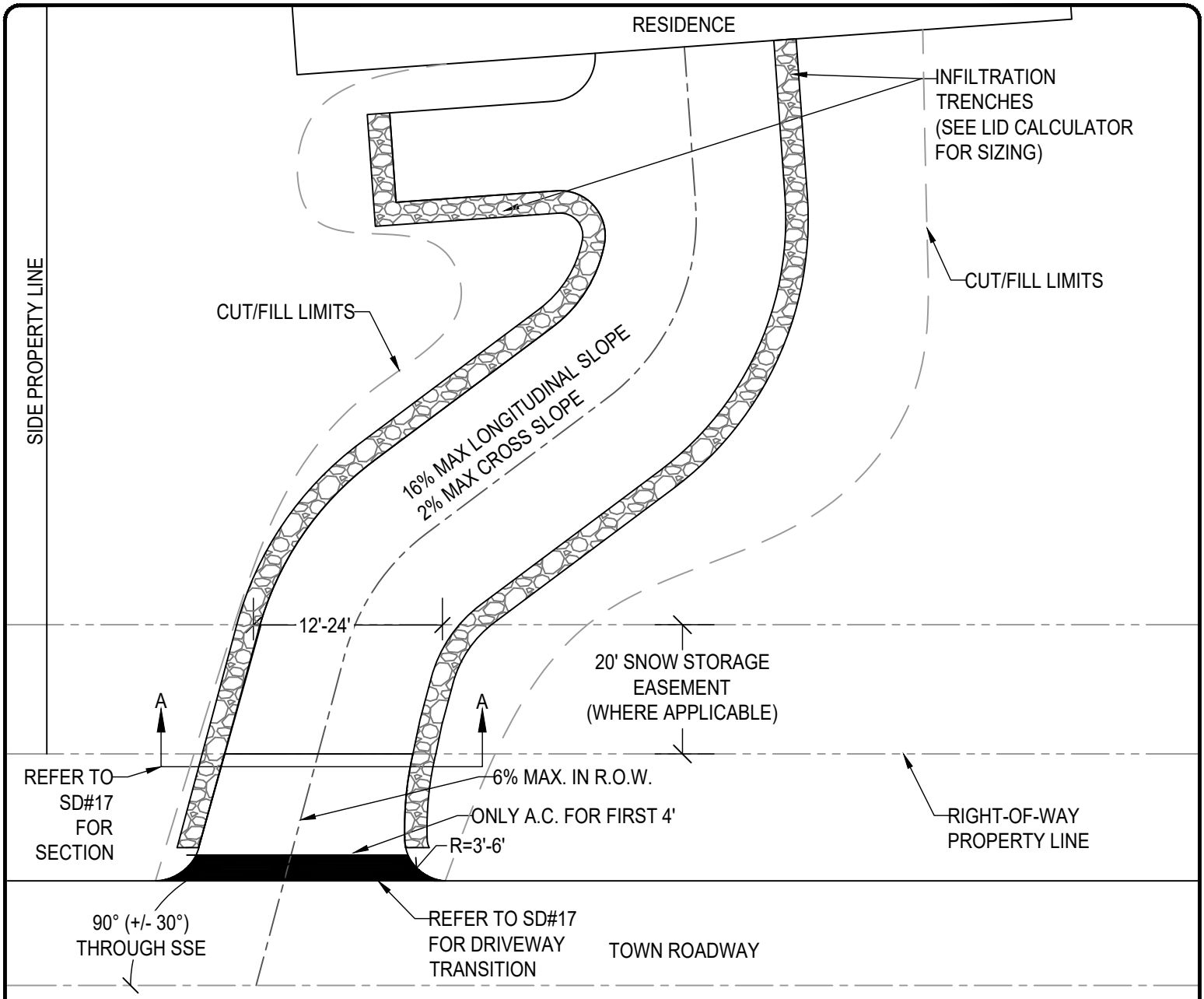
TOWN OF TRUCKEE

STANDARD DRAWING 15



NOTES:

1. THIS DRAWING APPLIES TO DRIVEWAYS THAT SERVE UP TO FOUR PARCELS.
2. REFER TO STANDARD DRAWINGS 16 AND 17 FOR RESIDENTIAL DRIVEWAY SECTION AND TRANSITION REQUIREMENTS.
3. SEE SECTION 4 OF THE PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS FOR DRIVEWAY PAVEMENT REQUIREMENTS.
4. A.C., P.C.C., OR PAVERS ARE ALLOWED WITHIN RIGHT-OF-WAY. THE FIRST 4' OF DRIVEWAY FROM EDGE OF ROADWAY EXTENDED ACROSS DRIVEWAY SHALL BE A.C.
5. HYDRONIC HEATING IS RECOMMENDED FOR DRIVEWAY SLOPES IN EXCESS OF 11%.
6. DOWNSLOPING LOTS SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM GARAGE.
7. PROVIDE STATIONING FOR DRIVEWAY, LONGITUDINAL SLOPES, CROSS SLOPES, CUT/FILL SLOPES, WIDTH, AND RETURN RADII.
8. THE TOWN AND UTILITY PROVIDERS RESERVE THE RIGHT TO REPLACE ANY MATERIAL INSTALLED WITHIN THE RIGHT-OF-WAY WITH A.C. IF DRIVEWAY ENCROACHMENTS ARE IN CONFLICT WITH FUTURE PROJECTS, MAINTENANCE ACTIVITIES, AND/OR UTILITY PROJECTS.

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ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

RESIDENTIAL DRIVEWAY

NOT TO SCALE

NOV 2025

APPROVED BY:
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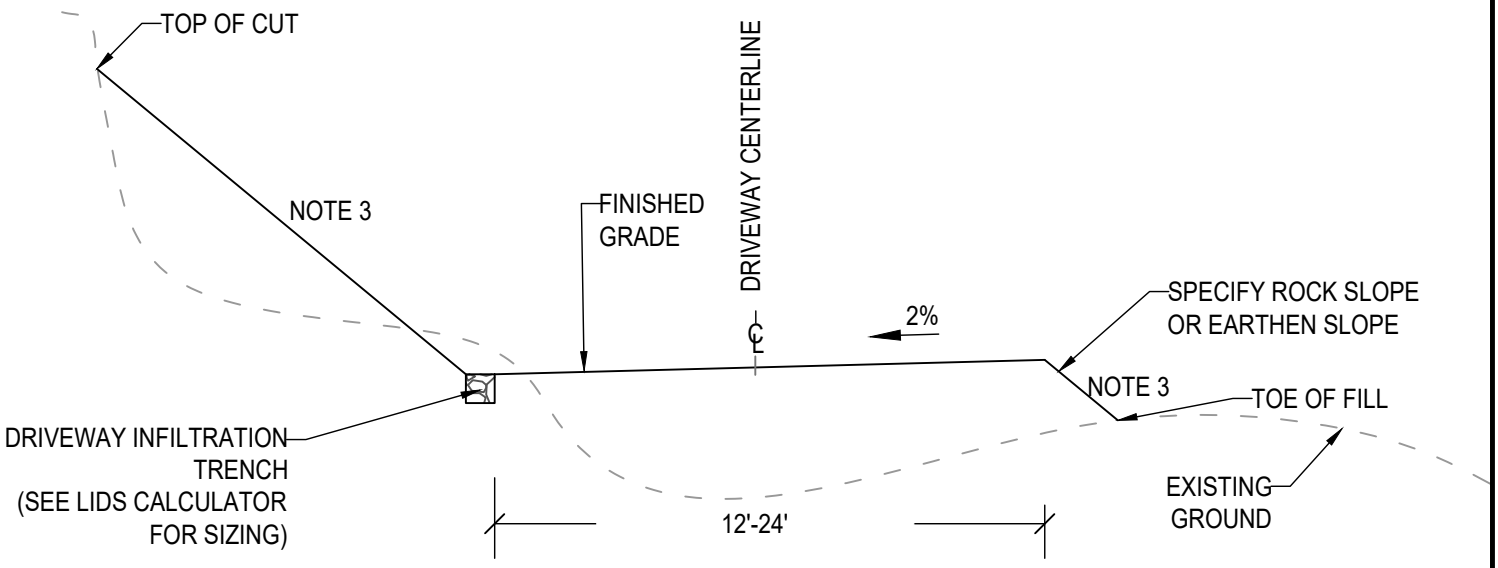
TOWN ENGINEER

TOWN OF TRUCKEE

STANDARD DRAWING 16

SECTION A-A



NOTES:

1. LABEL DRIVEWAY WIDTH, CROSS SLOPE AND CENTERLINE.
2. LABEL DRIVEWAY SIDE SLOPES AND CONSTRUCTION LIMITS.
3. A GEOTECHNICAL REPORT AND ENGINEERING DESIGN IS REQUIRED FOR EARTH SLOPES GREATER THAN 2:1 (H:V) OR ROCK PROTECTED SLOPES GREATER THAN 1:1.

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TOWN OF TRUCKEE
ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

RESIDENTIAL DRIVEWAY SECTION

NOT TO SCALE

NOV 2025

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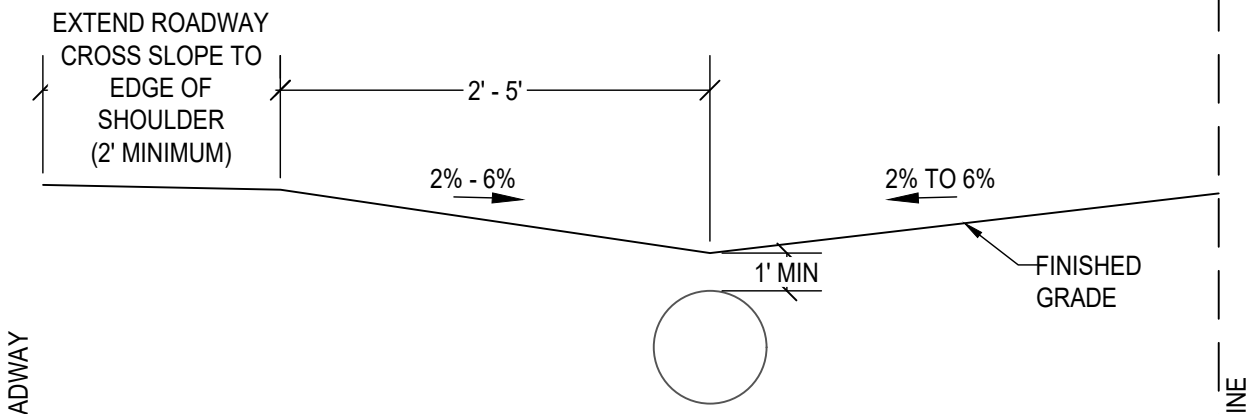
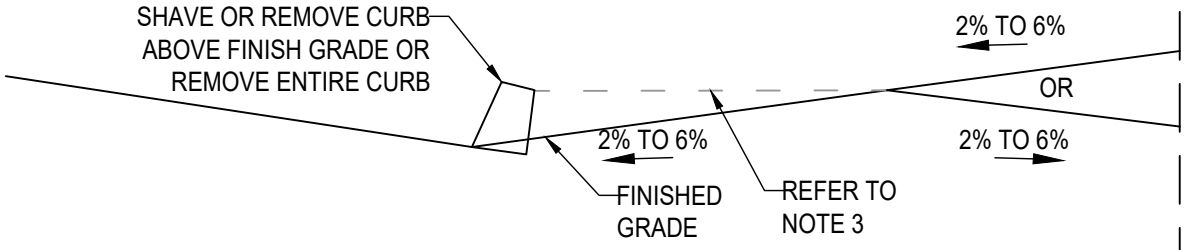
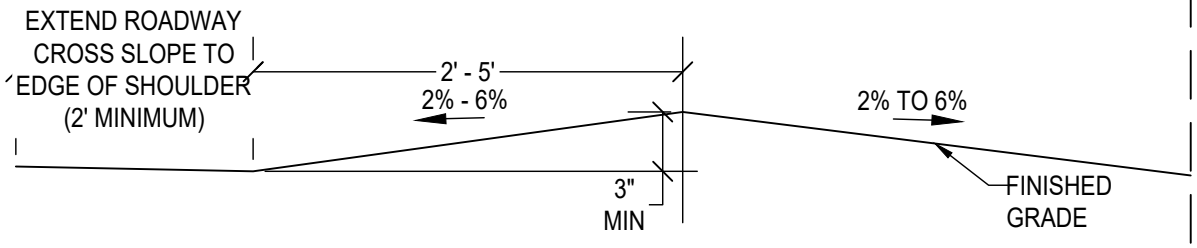
STANDARD DRAWING 17



VALLEY SWALE WITH OR WITHOUT CULVERT (UP SLOPING LOTS)



PAVED DITCH WITH ASPHALT CURB



CREST (PARKING BELOW ROADWAY GRADE)

NOTES:

1. CULVERT SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) WITH A MINIMUM DIAMETER OF 15" OR CORRUGATED METAL PIPE (CMP) WITH A MINIMUM DIAMETER OF 18".
2. HEADWALLS MAY BE REQUIRED BY THE TOWN ENGINEER FOR CULVERTS.
3. PAVE FROM TOP BACK OF CURB OR FORM CURB ALONG EDGES OF DRIVEWAY TO TOP ELEVATION OF ROADSIDE CURB.

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RESIDENTIAL DRIVEWAY TRANSITIONS

NOT TO SCALE

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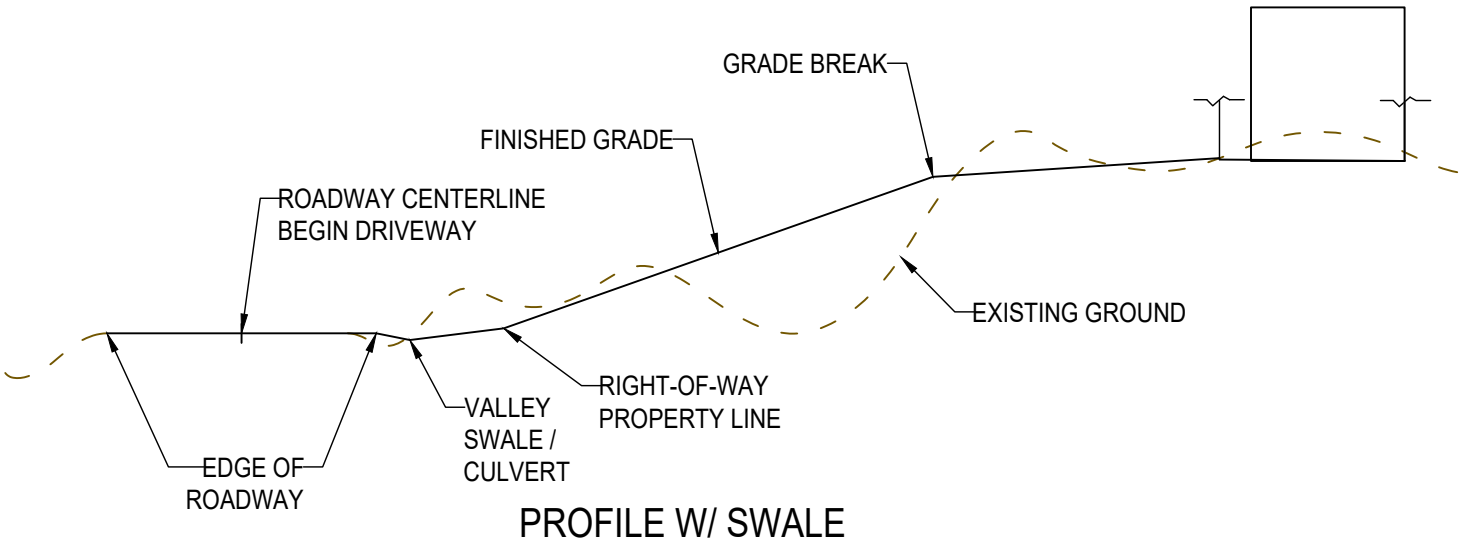
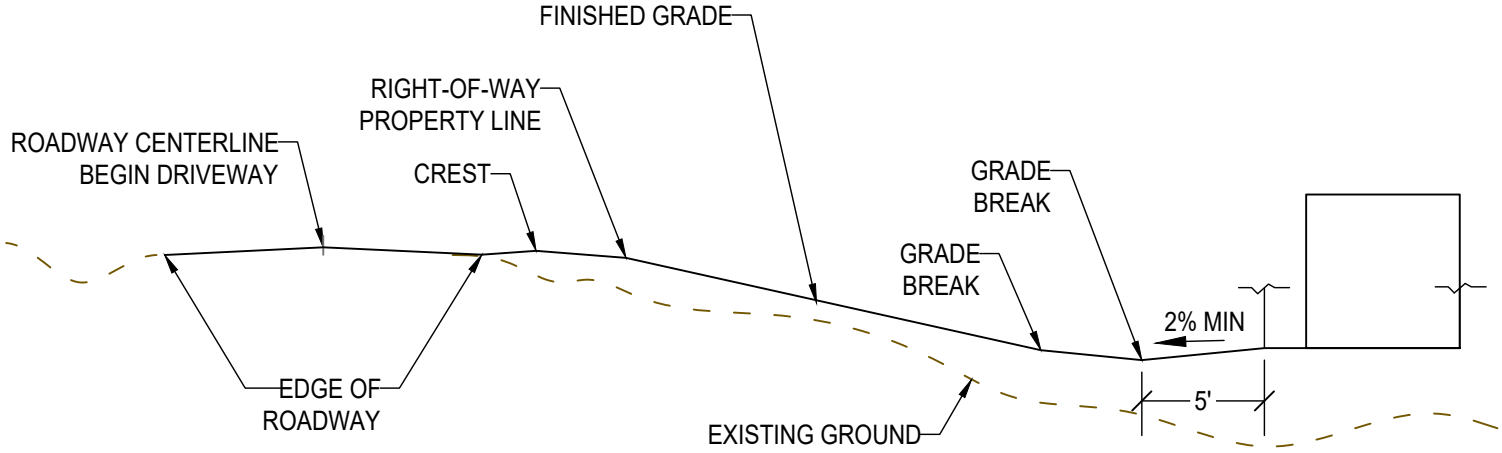
STANDARD DRAWING 18



PROFILE W/ SWALE
(UPSLOPING LOT)



PROFILE W/ CREST
(DOWNSLOPING LOT)

NOTES:
1. LABEL GRADES FROM RIGHT-OF-WAY CENTERLINE TO PARKING LOCATION BETWEEN ALL GRADE BREAKS.
2. LABEL THE DRIVEWAY GRADE BETWEEN EACH GRADE BREAK, AS A PERCENT (%).
3. REFER TO TRANSITION DETAILS ON SD #17.

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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

RESIDENTIAL DRIVEWAY PROFILES

NOT TO SCALE

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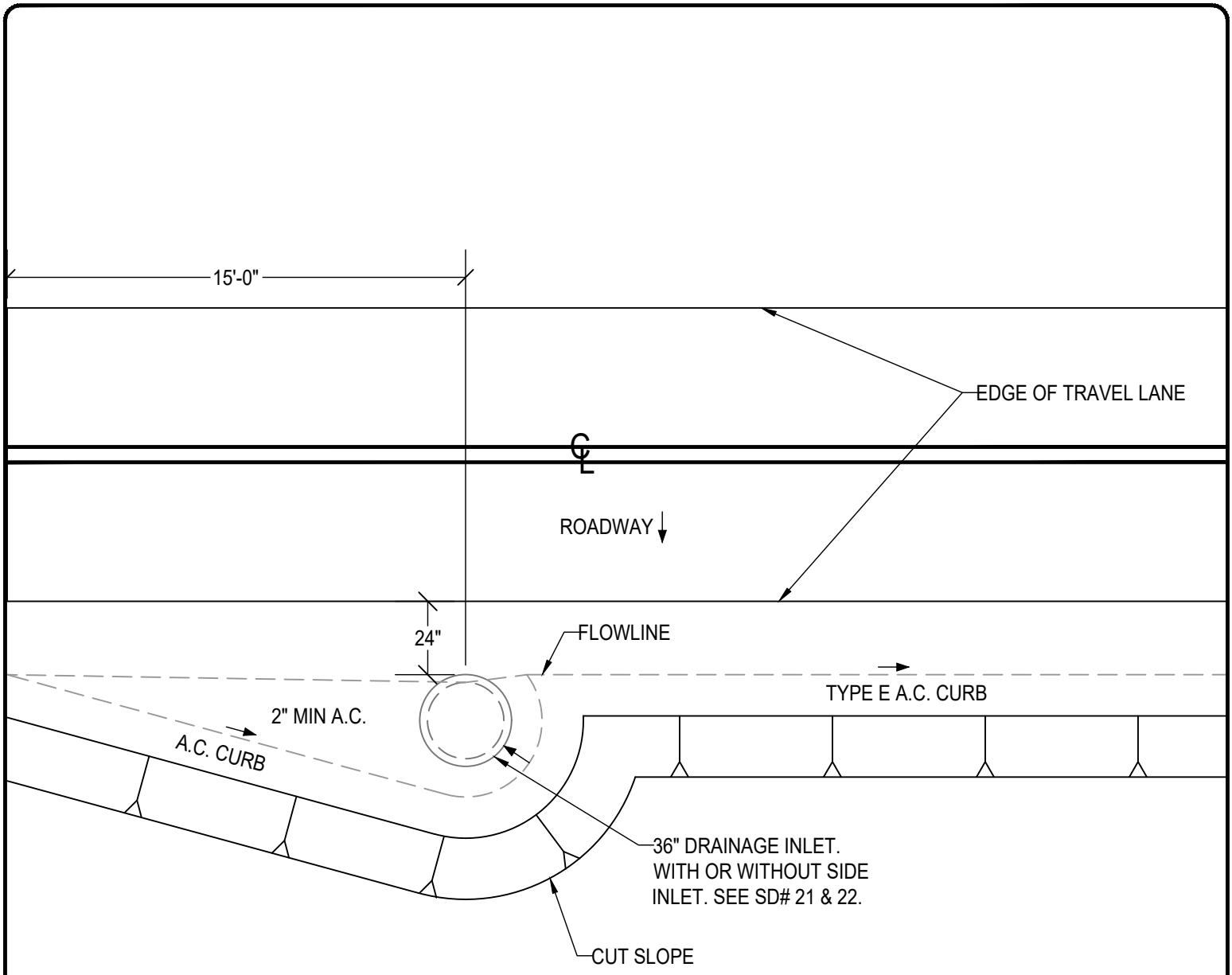
STANDARD DRAWING 19



NOTES:

1. PAVED APRON TO BE FIELD FIT.
2. REFER TO STANDARD DRAWINGS 21-23 FOR MORE INFORMATION.

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PAVED ROADSIDE CATCH BASIN

NOT TO SCALE

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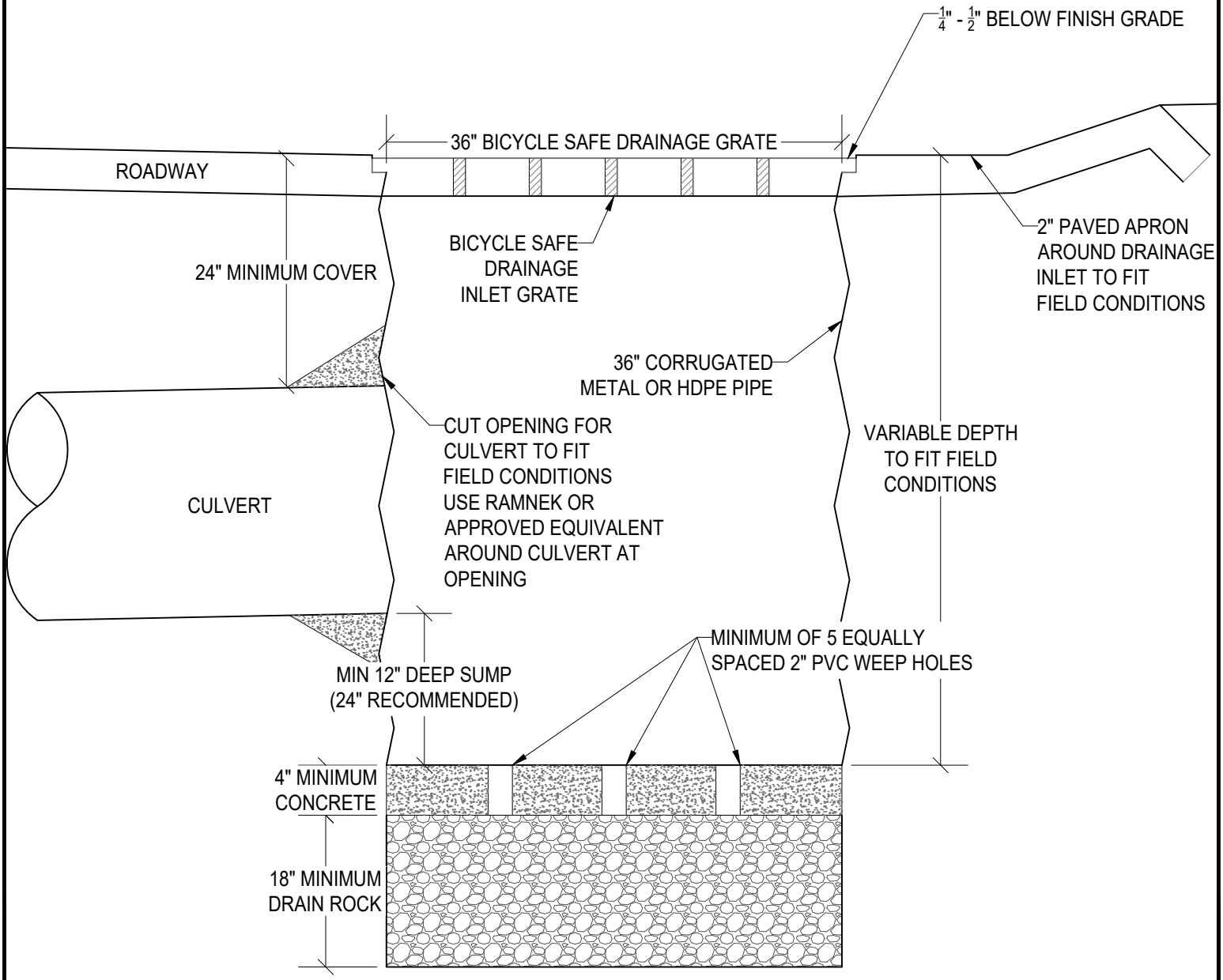
STANDARD DRAWING 20



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TOWN OF TRUCKEE
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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

36" DRAINAGE INLET

NOT TO SCALE

NOV 2025

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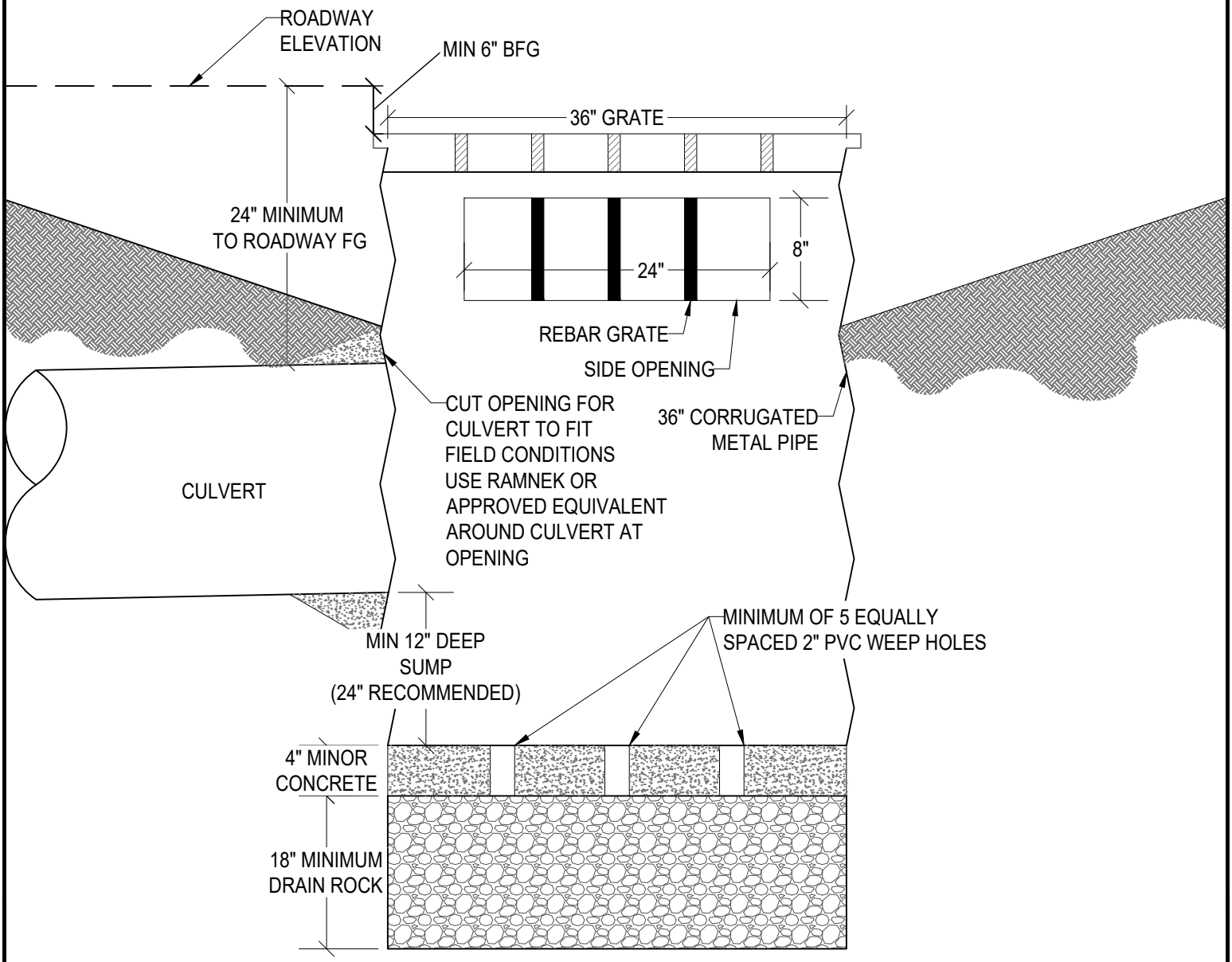
TOWN OF TRUCKEE

STANDARD DRAWING 21



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TOWN OF TRUCKEE
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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

36" DRAINAGE INLET W/ SIDE INLET

NOT TO SCALE

NOV 2025

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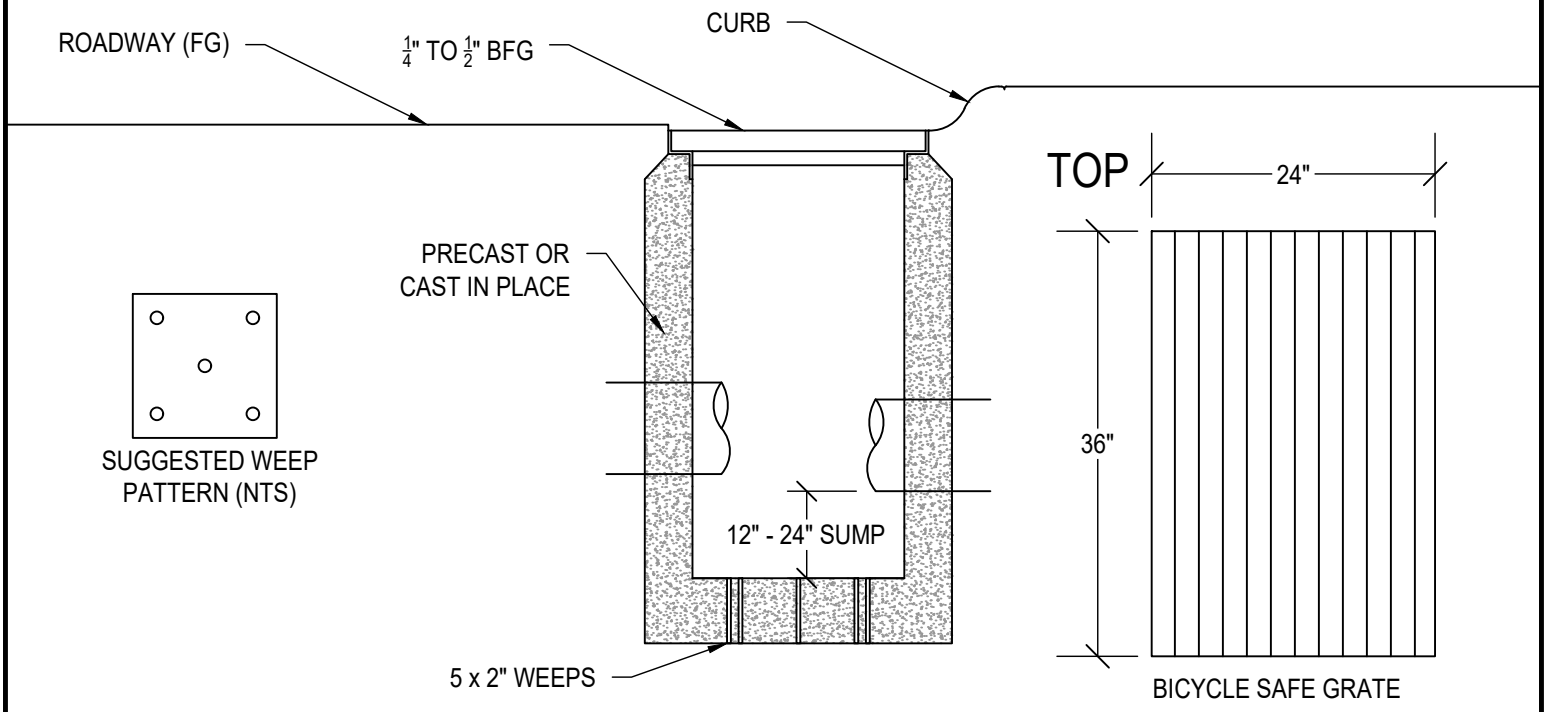
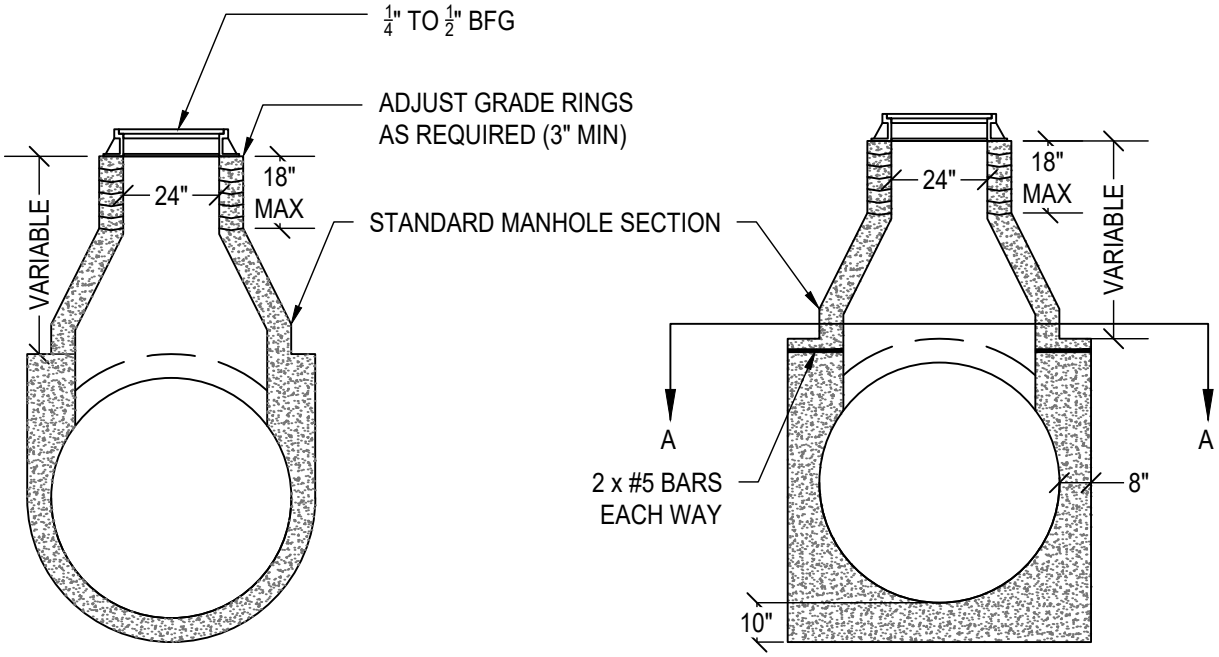
TOWN OF TRUCKEE

STANDARD DRAWING 22





NOTES:

1. PLACE RISER SECTION AFTER CONCRETE HAS SET.
2. ALL STRUCTURES, LIDS, GRATES AND FRAMES SHALL BE H20 TRAFFIC RATED.
3. ALL LIDS LABELED "STORM DRAIN" OR "SD".
4. OPEN MOUTH COMBINED INLET MAY BE REQUIRED BY TOWN ENGINEER. REFER TO CALTRANS D73E TYPE GO.
5. INLETS SHALL INCLUDE A DRAIN INLET MARKER IN ACCORDANCE WITH CALTRANS STANDARD PLAN D71.

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TOWN OF TRUCKEE
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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

STORMDRAIN STRUCTURES

NOT TO SCALE

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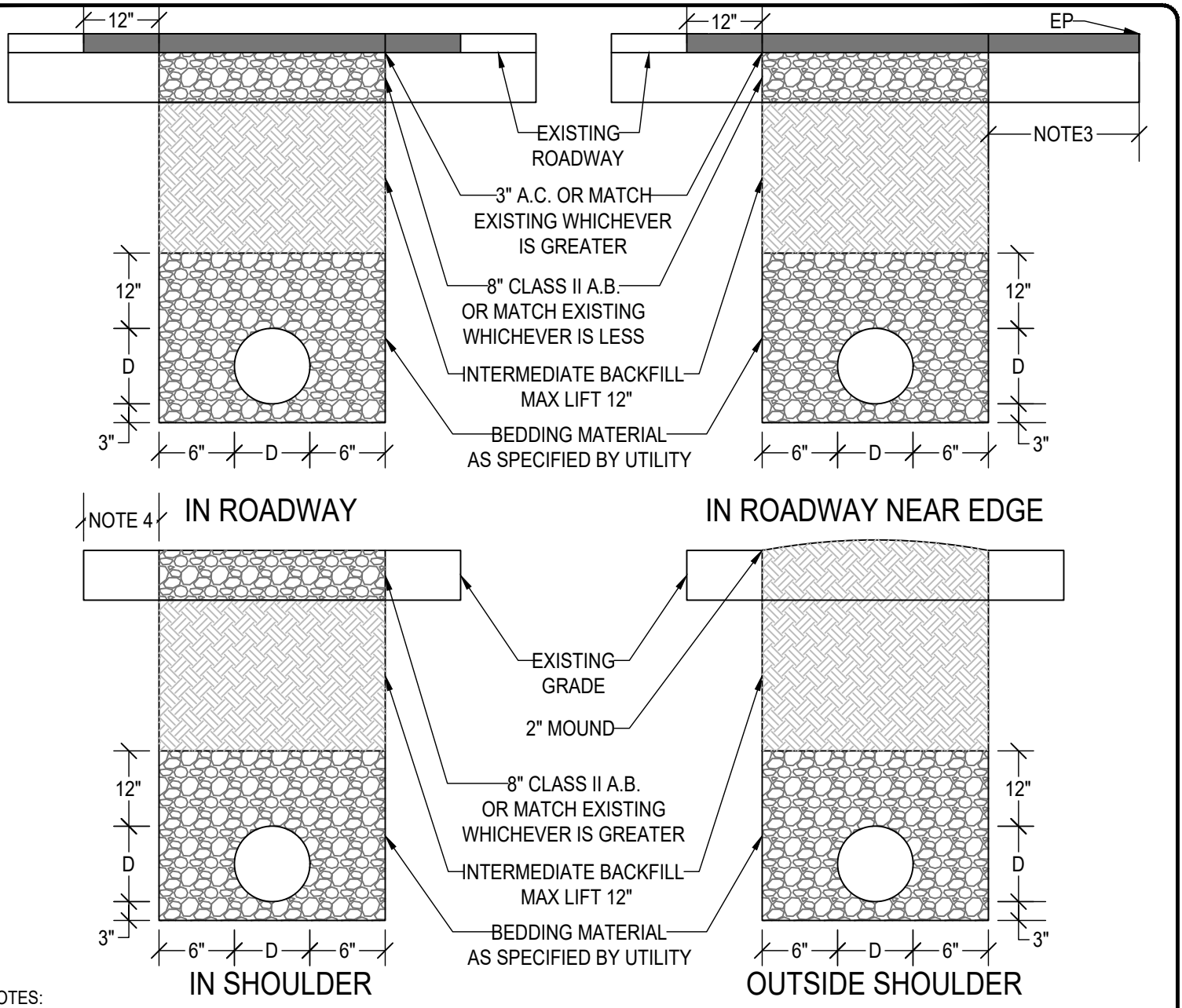
TOWN OF TRUCKEE

STANDARD DRAWING 23



NOTES:

1. THE BASE COURSE AND UPPER 12-IN OF SUBGRADE SHALL BE COMPACTED TO UTILITY COMPANY STANDARDS OR 95% RC AT OPTIMAL MOISTURE CONTENT, WHICHEVER IS GREATER.
2. SAWCUT AND REMOVE OR FULL DEPTH GRIND PAVEMENT A MINIMUM OF 1- FOOT BEYOND EACH SIDE OF THE LONGITUDINAL OR TRANSVERSE EXCAVATION.
3. REMOVE AND REPLACE PAVEMENT ALL THE WAY TO THE EDGE OF PAVEMENT (EP) IF THE NEW T-PATCH SECTION IS WITHIN 2 FEET OF EP.
4. PLACE AGGREGATE BASE AT THE TOP OF THE EXCAVATION, AS INDICATED. WHERE THE EXCAVATION IS WITHIN 2' OF EP OR IF AGGREGATE BASE PRESENTLY EXISTS ABOVE THE EXCAVATION.
5. MINIMUM T-PATCH WIDTH IS 4-FEET.
6. TRENCHES LESS THAN 18-IN WIDE IN PAVEMENT SECTION REQUIRE 3 SACKS EXCAVATABLE SLURRY BACK FILLED TO BOTTOM OF T-PATCH.
7. LONGITUDINAL EXCAVATION MAY HAVE THE FOLLOWING “ENHANCED RESTORATION” REQUIREMENTS WITHIN THE ROADWAY: ALL TRENCHES SHALL BE BASE PAVED FROM THE BOTTOM OF EXISTING ASPHALT TO AN ELEVATION 2” BELOW THE TOP OF EXISTING ASPHALT. THE ENTIRE ASPHALT SURFACE FROM THE CENTERLINE OF THE STREET (OR THE CENTERLINE OF THE LANE, AS DETERMINED BY THE TOWN) TO THE EDGE OF PAVEMENT (OR EDGE OF LANE, AS DETERMINED BY TOWN) SHALL BE REMOVED TO A DEPTH OF 2” THROUGH COLD MILLING OR OTHER APPROPRIATE METHODS. THE MILLED SURFACE SHALL BE OVERLAYED WITH A NEW 2" LIFT OF A.C.

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TRENCH BACKFILL SECTION

NOT TO SCALE

NOV 2025

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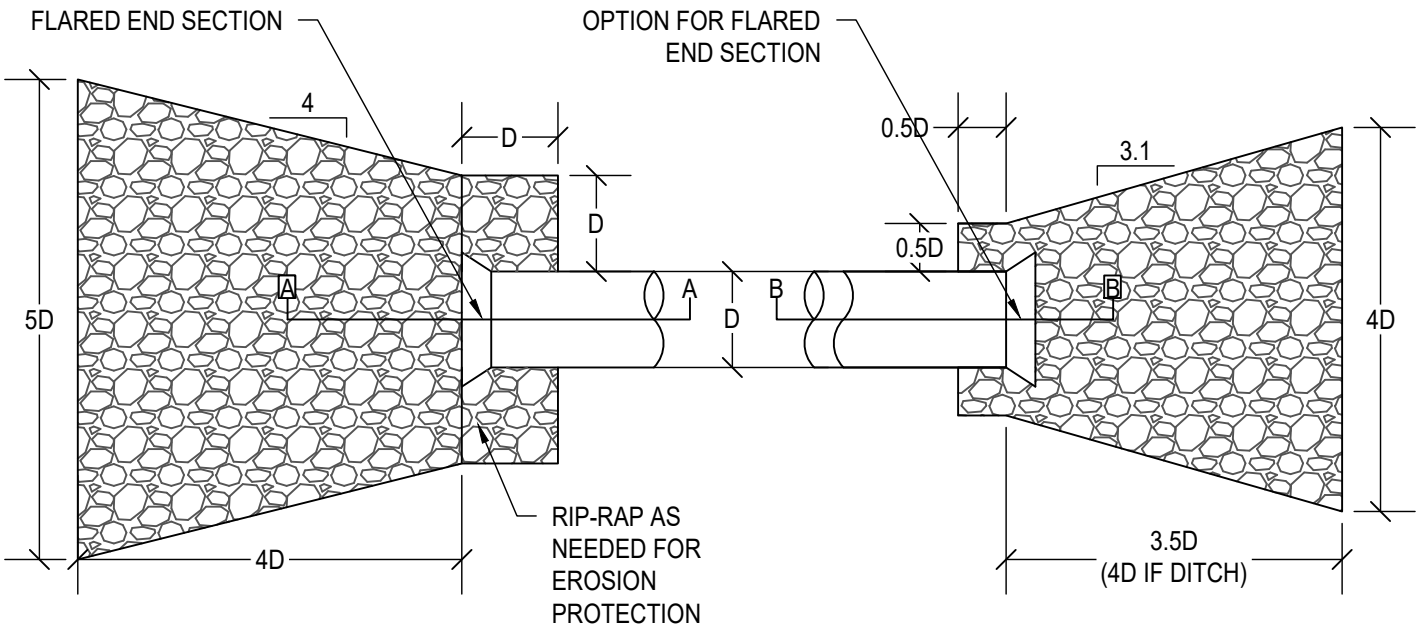
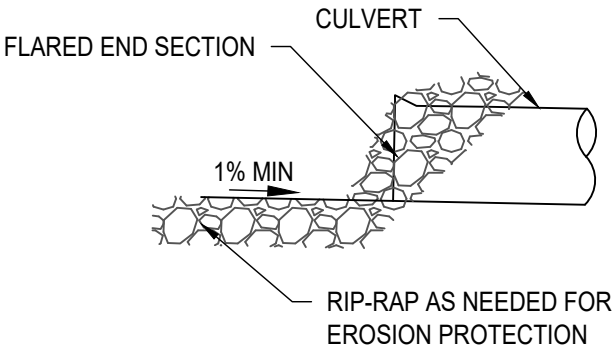
STANDARD DRAWING 24

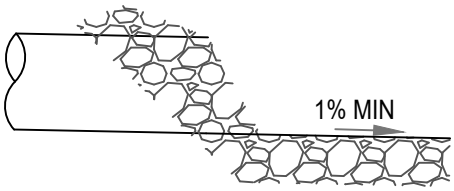


INLET PROTECTION PLAN VIEW

OUTLET PROTECTION PLAN VIEW



SECTION A-A



SECTION B-B

NOTES:

1. ALL ROCKS SHALL BE ANGULAR.
2. WHERE SLOPES OF OUTLETS EXCEEDS 5%, A SEDIMENT BOWL OR ENERGY DISSIPATER IS REQUIRED.
3. ALL CULVERTS OF 48" OR LARGER SHALL BE INSTALLED WITH REINFORCED CONCRETE HEADWALLS AND END WALLS WITH CUTOFF WALLS UNLESS OTHERWISE APPROVED BY THE TOWN ENGINEER.
4. ON INLET APPLICATIONS, 50% OF THE ROCKS SHALL HAVE A DIAMETER OF 12" OR HIGHER.
5. ON OUTLET APPLICATIONS, 50% OF THE ROCKS SHALL BE LARGER THAN HALF THE DIAMETER OF THE PIPE.
6. THESE DETAILS ARE NOT APPLICABLE TO RESIDENTIAL DRIVEWAY CULVERTS UNLESS REQUIRED BY THE TOWN ENGINEER.

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TOWN OF TRUCKEE
ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

INLET / OUTLET PROTECTION

NOT TO SCALE

NOV 2025

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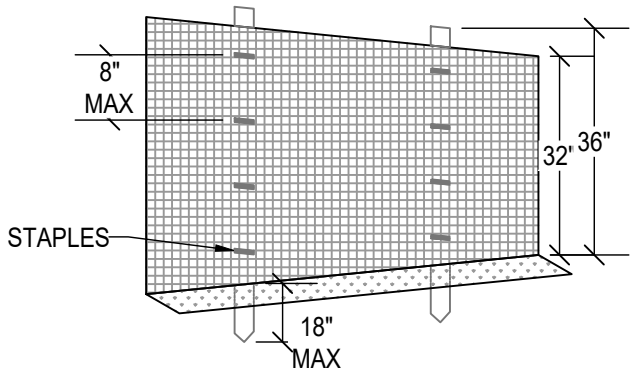
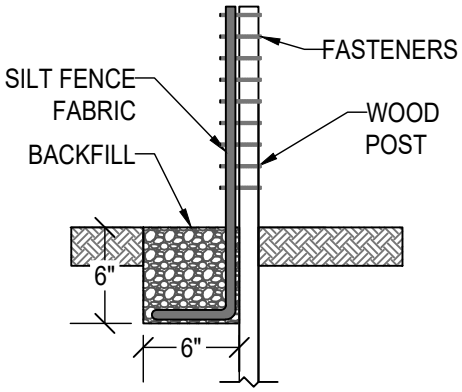
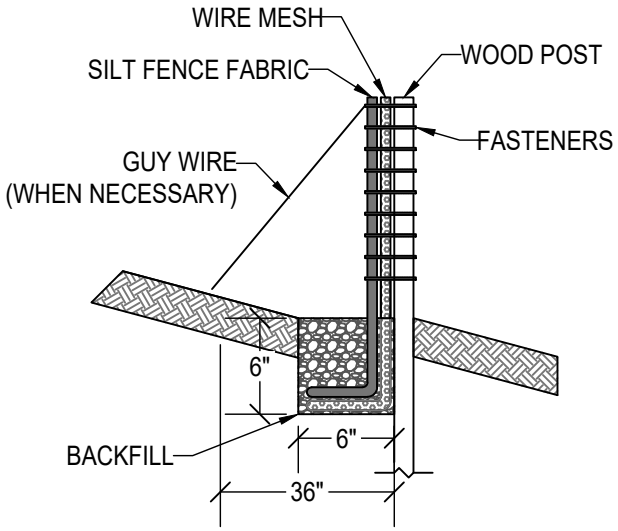
STANDARD DRAWING 25



TEMPORARY SILT FENCE



UN-REINFORCED SECTION



REINFORCED SECTION (PREFERRED)

NOTES:

1. THE CONTRACTOR SHALL INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. THE DOWN STREAM END OF THE TEMPORARY SILT FENCE SHALL HAVE THE LAST 8' ANGLED UP SLOPE.
5. SETBACK DIMENSIONS MAY VARY TO FIT FIELD CONDITIONS.
6. POSTS SHALL BE DRIVEN TIGHTLY TOGETHER TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT THE JOINT.
7. FOR EACH END POST, FENCE FABRIC SHALL BE FOLDED AROUND TWO POSTS ONE FULL TURN AND SECURED WITH FOUR STAPLES.
8. MINIMUM OF FOUR STAPLES SHALL BE INSTALLED PER POST. DIMENSIONS SHOWN ARE TYPICAL.
9. MAINTENANCE OPENINGS SHALL BE CONSTRUCTED IN A MANNER TO ENSURE THAT SEDIMENT IS RETAINED BY THE TEMPORARY SILT FENCE.
10. JOINT SECTIONS SHALL NOT BE PLACED AT SUMP LOCATIONS.

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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

TEMPORARY SILT FENCE

NOT TO SCALE

NOV 2025

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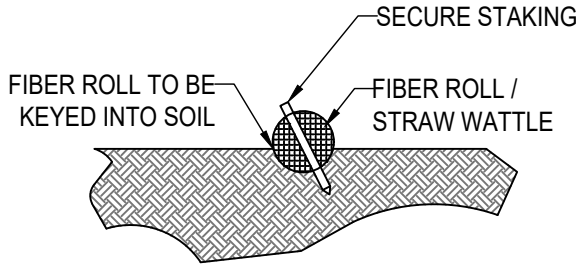
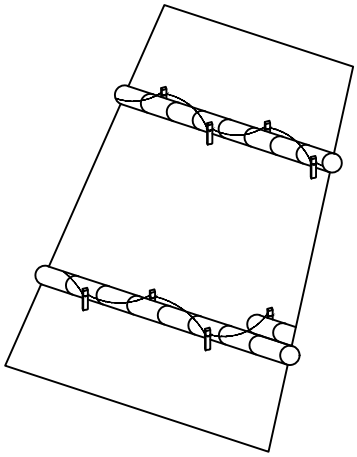
STANDARD DRAWING 26



ALT 1
(CALTRANS TYPE 1)

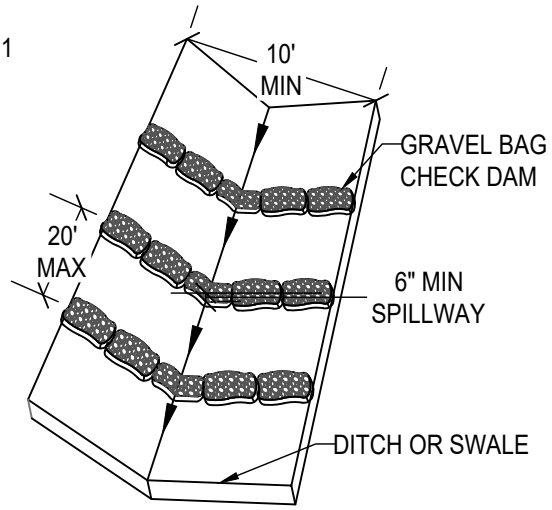


ALT 2
(CALTRANS TYPE 2)

TEMPORARY FIBER ROLL

NOTES:

1. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"-6" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND THE ROLL. REFER TO CALTRANS T56.
2. USE BONTERRA BIOLOGS OR EQUAL WITH 100% COCONUT FIBER YARN. WT = 3-LB PER LINEAR FOOT.
3. WEIGHTED FIBER ROLLS MAY BE SUBSTITUTED FOR TEMPORARY EROSION PROTECTION ON HARD SURFACES.
4. SPACING SHALL BE DETERMINED BY SLOPE (H:V) AS FOLLOWS:
   - 4.1. 10-FT FOR SLOPES GREATER THAN OR EQUAL TO 2:1
   - 4.2. 15-FT FOR SLOPES 4:1 TO 2:1
   - 4.3. 20-FT FOR SLOPES 4:1 TO 10:1
   - 4.4. 50-FT FOR SLOPES LESS THAN 10:1



TEMPORARY CHECK DAM

NOTES:

1. KEY GRAVEL BAGS INTO THE DITCH BANKS A MINIMUM OF 18" TO PREVENT OVERFLOW AROUND THE DAM.

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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

TEMPORARY CHECK DAM & FIBER ROLL

NOT TO SCALE

NOV 2025

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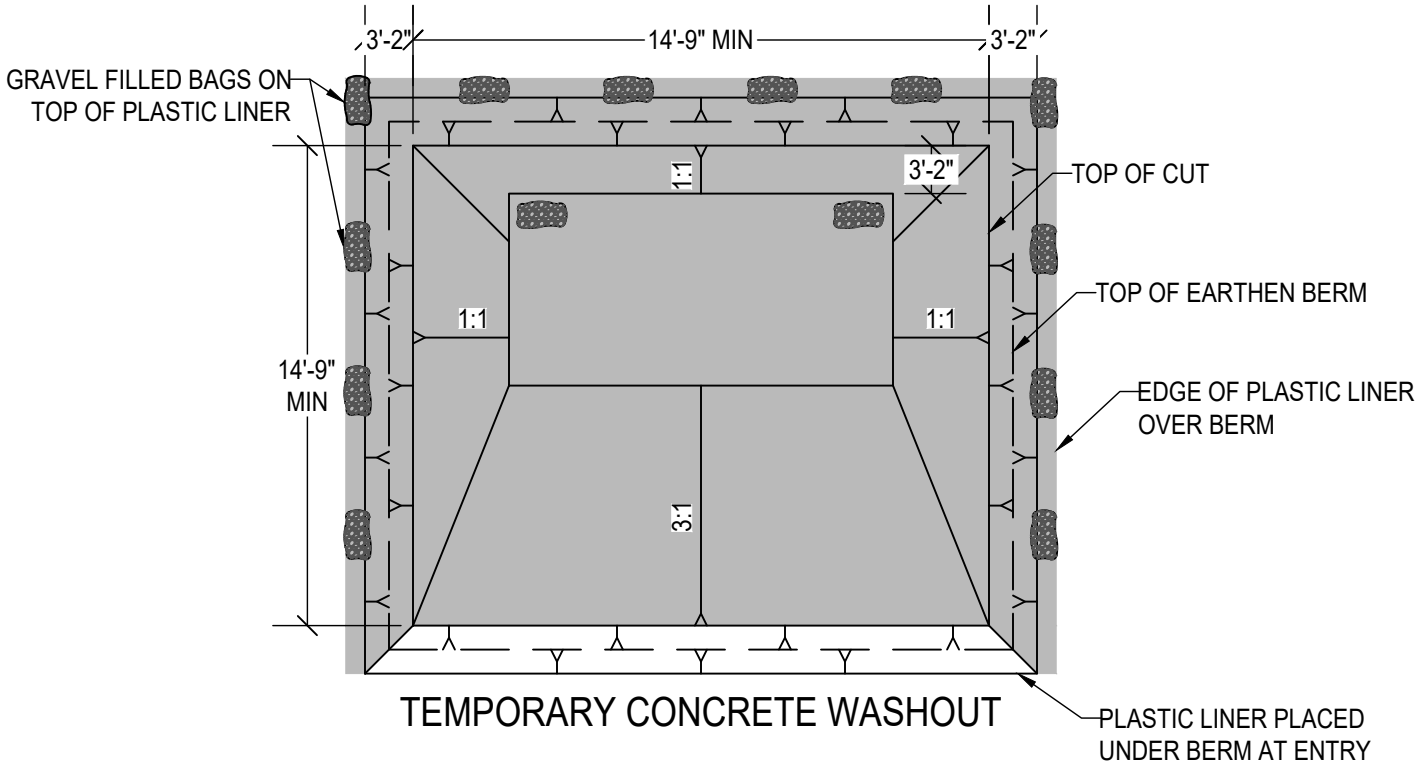
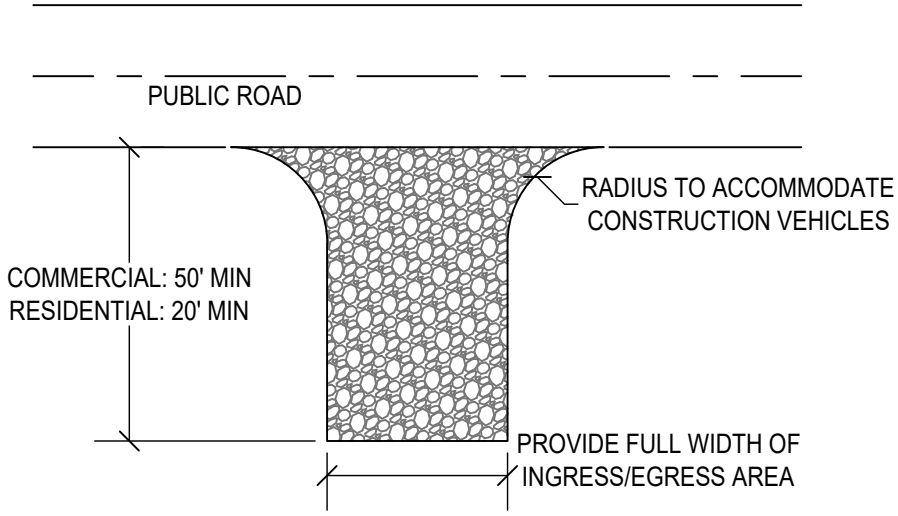
STANDARD DRAWING 27



TEMPORARY CONCRETE WASHOUT



TEMPORARY CONSTRUCTION ENTRANCE

NOTES:

1. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE USED AT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS.
2. THE AGGREGATE SHALL BE 6" THICK OF 3/4" TO 3" DIAMETER WASHED WELL-GRADED GRAVEL.
3. THE ENTRANCE SHALL BE PROPERLY GRADED TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
4. DAILY MAINTENANCE OF CONSTRUCTION ENTRANCE SHALL BE PROVIDED TO ENSURE THE INTEGRITY OF THE ENTRANCE DURING CONSTRUCTION.
5. CRUSHED ROCK MATERIAL SHALL BE ADDED WHEN SURFACE VOIDS ARE NOT VISIBLE.
6. ALL SEDIMENT DEPOSITS ON PAVED ROADWAYS SHALL BE REMOVED WITHIN 24 HOURS.
7. ENHANCED TRACK OFF TECHNIQUES TO BE UTILIZED IF PERFORMANCE IS NOT MET (RUMBLE STRIPS, TIRE WASH STATION, ETC).

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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

CONSTRUCTION ENTRANCE & WASHOUT

NOT TO SCALE

NOV 2025

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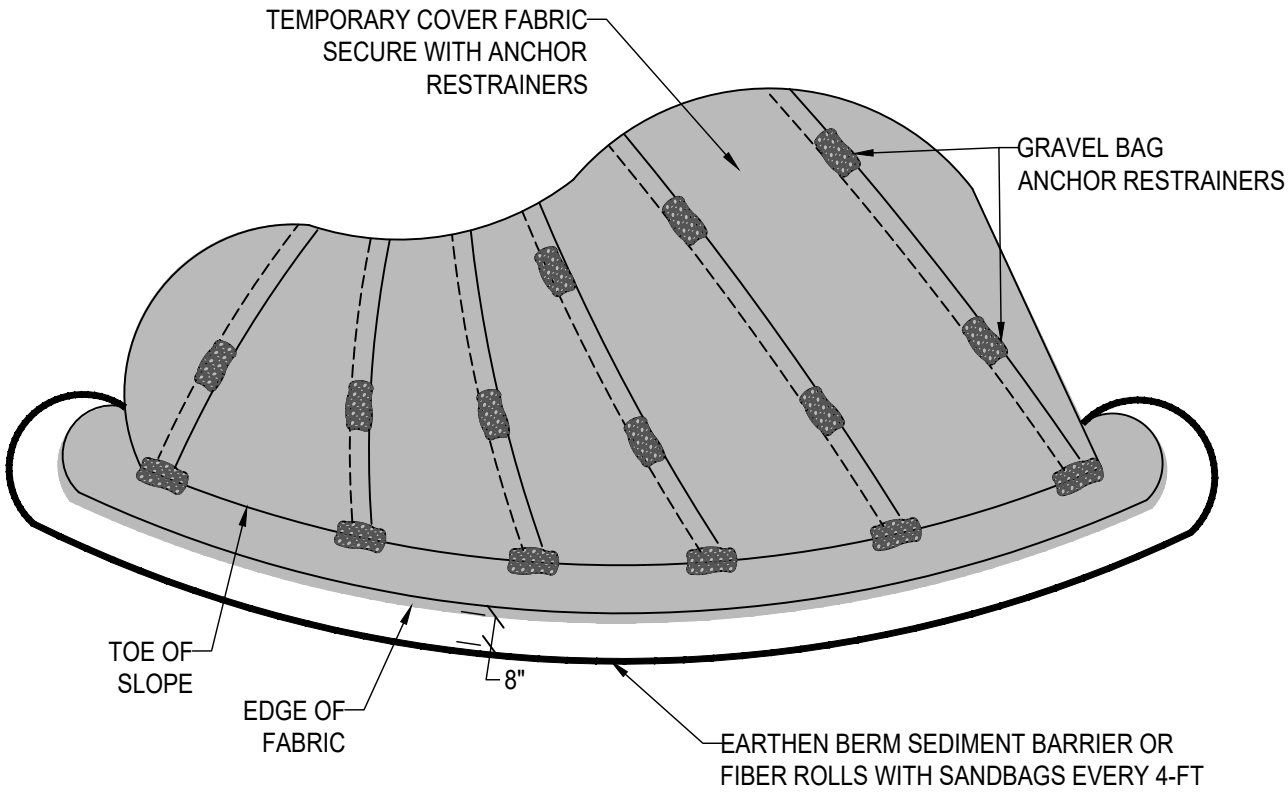
STANDARD DRAWING 28



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TOWN OF TRUCKEE
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PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

STOCKPILE COVER

NOT TO SCALE

NOV 2025

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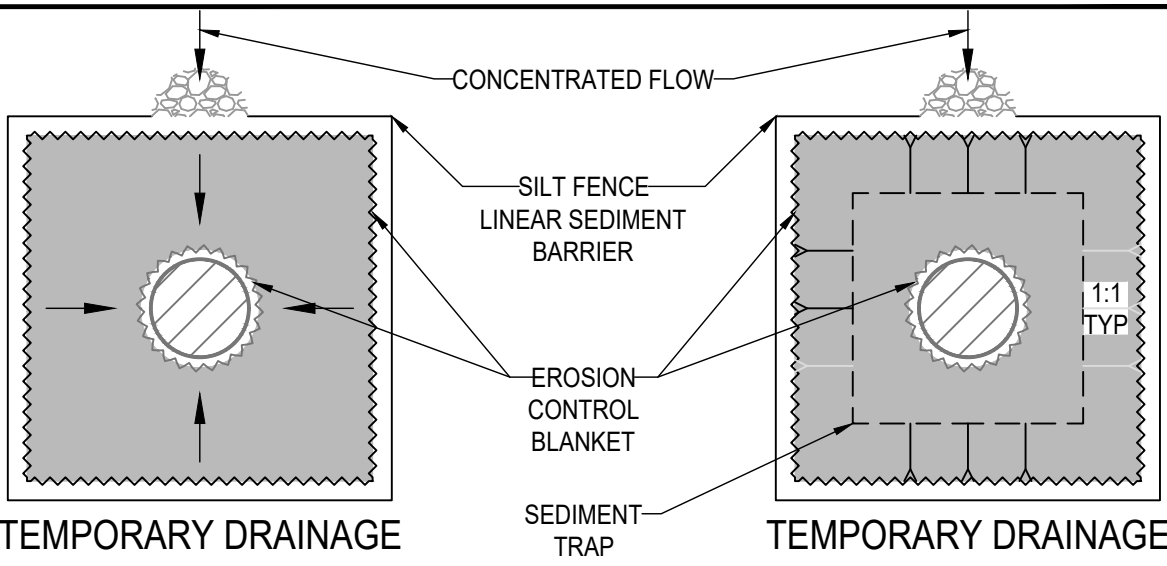
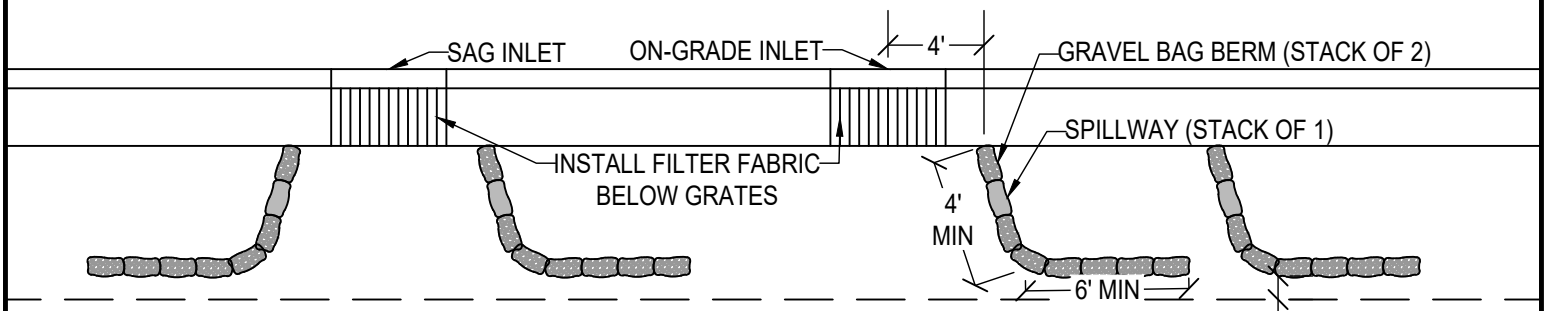
STANDARD DRAWING 29



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 2)



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3)

NOTES:

1. CONSTRUCT ON GENTLY SLOPING STREETS WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE OUT OF SUSPENSION.
2. PLACE SEVERAL LAYERS OF SANDBAGS OVER THE FIRST, OVERLAPPING BAGS AND PACK THEM TIGHTLY TOGETHER TO MINIMIZE THE SPACE BETWEEN BAGS.
3. LEAVE A GAP OF ONE SACK IN THE MIDDLE OF THE TOP ROW OF SACKS TO SERVE AS THE SPILLWAY. SPILLWAY HEIGHT SHALL BE LOWER THAN CURB HEIGHT AND SUFFICIENT SIZE TO PASS FLOWS FROM SEVERE STORM EVENTS.
4. INSPECT AND REPAIR BARRIER AFTER EACH STORM EVENT. REMOVE SEDIMENT WHEN IT REACHES TOP OF SPILLWAY (CURB HEIGHT).
5. SEDIMENT SHALL BE DEPOSITED IN AN AREA TRIBUTARY TO A SEDIMENT BASIN OR OTHER PROTECTIVE MEASURE AND WILL NOT ENTER STORM DRAIN.
6. SEDIMENT AND GRAVEL SHALL BE IMMEDIATELY REMOVED FROM ROADWAY.
7. SANDBAG SACKS TO BE FILLED WITH $\frac{3}{4}$" DRAIN ROCK OR $\frac{1}{4}$" PEA GRAVEL.
8. SANDBAGS SHALL BE WOVEN GEOTEXTILE FABRIC.
9. PLACE SAFETY CONES ADJACENT TO DRAINAGE INLET PROTECTION.
10. DIMENSIONS MAY VARY TO FIT FIELD CONDITIONS.
11. INSTALL A MINIMUM OF 3 GRAVEL BAG BERMS UPSTREAM OF EACH DRAINAGE INLET TO BE PROTECTED.

REGISTERED PROFESSIONAL ENGINEER
REBECCA LYN BUCAR
C 68253
EXP. 09/30/27
CIVIL
STATE OF CALIFORNIA
11/14/2025

TOWN OF TRUCKEE
ENGINEERING DIVISION
PUBLIC IMPROVEMENT AND ENGINEERING STANDARDS

TEMP DRAINAGE INLET PROTECTION

NOT TO SCALE

NOV 2025

APPROVED BY:
Rebecca Bucar, PE
TOWN ENGINEER

TOWN OF TRUCKEE

STANDARD DRAWING 30