RESOLUTION NO. 1183.3

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SCOTTS VALLEY
ADOPTING REVISED STANDARD DETAILS AND SPECIFICATIONS

WHEREAS, the City Council of the City of Scotts Valley adopted the “City of Scotts Valley Standard Details” (the “Standards”) on May 17, 1989 by Resolution No. 1183; and

WHEREAS, the City Council of the City of Scotts Valley adopted minor revisions to the Standards on July 25, 1990 by Resolution No. 1183.1 and February 15, 2015 by Resolution No. 1183.2; and

WHEREAS, materials and methods for construction have improved significantly; and

WHEREAS, the Public Works Department regulates the design and implementation of public infrastructure projects and related facilities; and

WHEREAS, to facilitate these projects the Public Works Department has developed revised Standards to provide a consistent approach for designing public improvements and related facilities; and

WHEREAS, adopting these Standards will provide design professionals guidance for design and implementation of public infrastructure projects and related facilities, and will provide the Public Works Department a uniform method for reviewing and approving these projects.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED that the City Council of the City of Scotts Valley hereby adopts the revised Standard Details and Specifications in substantially similar form as attached hereto and incorporated herein as Exhibit A.

The above and foregoing resolution was duly and regularly adopted by the City Council of the City of Scotts Valley at a regular meeting held on the 6th day of December, 2017 by the following vote:

AYES: AGUILAR, DILLES, JOHNSON, LIND, REED
NOES: NONE
ABSENT: NONE
ABSTAIN: NONE

Approved: 
Randy Johnson, Mayor

Attest: 
Tracy A. Ferrara, City Clerk
CITY OF SCOTTS VALLEY
STANDARD DETAILS AND SPECIFICATIONS

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STANDARD DETAILS AND SPECIFICATIONS  
CITY OF SCOTTS VALLEY

SECTION I  
GENERAL REQUIREMENTS

I-1. PURPOSE

The purpose of these Standard Details and Specifications (Standards) is to provide certain minimum standards for the design, construction, repair and alteration for streets, storm drains, sanitary sewers, and all appurtenances thereto within the City of Scotts Valley. Any items which are not included in these Standards shall be designed in accordance with the State Highway Design Manual, State Traffic Manual, Subdivision Ordinance or Zoning Ordinance, the General Plan, Master Plans, and any applicable Specific Plan of the City of Scotts Valley, generally accepted engineering practice, or as directed by the Public Works Director/City Engineer.

I-2. IMPROVEMENT PLAN PREPARATION

General formatting, copying, and submittal processes shall include:

A. Plans shall be drawn on vellum or high-quality bond plan sheets or plan and profile sheets, 36 inches horizontal by 24 inches vertical.

B. Each sheet shall include:

1. The project title appearing in the title block along with the street address for private development projects.
2. Sealed and signed by a Professional Civil Engineer or Surveyor, as appropriate for the project, licensed in the State of California.
3. Scale, north arrow, datum, legend, date, and general notes.
4. Description, location and elevation of all bench mark data available on the project site or adjacent to site.
5. Improvements to be constructed shall be shown with solid lines.
6. Future improvements shall be shown and labeled with dotted lines.
7. Existing improvements shall be shown with screened lines.

C. Engineering design drawings shall be submitted in accordance with this standard system:

1. Cover Sheet including the following:
   a) An overall drawing of the proposed construction area including street names and lot numbers.
   b) Vicinity map showing the proximity of the project to major roadways or
cities. Project shall be outlined on map.

c) Name of Developer.
d) Name of Engineer.
e) General notes.
f) Benchmark and Basis of Bearings.
g) Signature blocks of all involved agencies.
h) Index of plan sheets.

2. Detail Sheet showing all design details and specifications for construction.
3. Separate Sheet for storm drainage, water, sewer, grading, demolition, horizontal control, utility, and street design. Scale shall be 1" = 20' for design sheets.

D. Storm Drainage/Sanitary Sewer/Water Quality Treatment/Detention Plan and Profile

1. Label all cleanouts, manholes, and catch basins in sequential number indicating size, location, and type on the Plans. In profiles, label rim and invert elevations as well as catch basin or manhole size and type.
2. Include flow direction arrows on all storm drain pipes.
3. Label pipe size, length, material and slope in plan or profile.
4. Include horizontal and vertical datum and benchmark information on each plan and/or profile sheet.
5. Show spot elevations of pavement in parking lots, and runoff flow direction arrows.
6. Show all stub-out locations for future connections.
7. Show location of outfalls and include section details for outfalls in grading or street improvement plans.
8. Show and label the following for all stormwater facilities:

a) At least two cross-sections through detention pond. One cross-section shall show the control structure.
b) Location and detail of emergency overflows and spillways
c) Invert elevations of all pipes, inlets, tanks, vaults and spot elevations of the pond bottom. Call out pond volume and dimensions, and design surface elevation.
d) Plan and section views and details of all rock protection and energy dissipaters.
e) Section and plan view on restrictor/control structure; detailed, including size and elevation of orifices.
f) Show length, width, and bottom width dimensions for all bio-filtration and water quality swales and stormwater conveyance swales. Include sectional view, showing side slopes and design depth of flow.
g) Include seeding material information for erosion control.
E. Engineering design calculations shall be submitted for review where applicable:

1. Water and sewer pipe sizing.
2. Hydrologic and hydraulic analysis and report.
4. Design of roadway section.
5. Traffic Impact Study.
6. Structural, foundation, and stability calculations for retaining walls, bridges, embankments, etc.

F. Erosion control plans for construction shall be submitted for review:

1. Temporary erosion and sedimentation control plan, showing the control measures intended to minimize the effects of erosion due to construction operations shall be submitted with the plans.
2. Traffic control plan.
3. Timing schedules and sequence of development clearing, including stripping, rough grading, construction, final grading, and vegetative stabilization.

G. Before final acceptance, the Applicant shall provide the City with certified as-builts vellum stamped by a registered civil engineer licensed in the State of California within 30 days of the final inspection.

All final as-built drawings shall also be submitted as Autocad release 2016 LT or later version. The submittal shall be electronic or on a CD.

The as-built drawings shall include final plat information including right of ways and easements. The as-built drawings shall certify that the facility has been constructed as shown on the as-built plans and meets approved plans and specifications. They shall include but not be limited to the information as outlined in the individual Sections of these Standards.

H. All work shall be performed in accordance with the current edition of Standard Specifications and Plans prepared by the State of California Department of Transportation and the American Public Works and the City of Scotts Valley Standard Details.

I-3. IMPROVEMENT PLAN PROCESSING

A. Initial submittal of 2 sets of improvement plans for checking shall be made to the Public Works Director/City Engineer. The applicant shall submit with the improvement plans a
signed copy of the conditions of approval for the project from the Planning Department and the approved tentative map or other exhibits relevant to the development approval. All reports and letters of compliance from third parties required by the conditions of approval shall also be submitted with the improvement plans.

B. Upon completion of the checking process, the original drawings shall be submitted for approval signatures. The original plan submittal shall be accompanied by an engineer’s estimate to be used to establish bond requirements. After the Public Works Director/City Engineer has approved the plans, the original plans will be returned to the engineer who prepared the plans.

C. Prior to issuing occupancy, the applicant shall have the Professional Engineer of record submit a letter stating that the improvements have been constructed per plan. As-built plan(s) shall be submitted along with the letter for any changes made during construction.

I-4. **EROSION CONTROL**

A. Between October 15 and April 15, exposed soil shall be protected from erosion at all times. During construction such protection may consist of mulching and/or planting of native vegetation of adequate density. Before completion of any project, the exposed soil on disturbed slopes shall be permanently protected from erosion.
I-5. GENERAL NOTES

GENERAL NOTES FOR STREET IMPROVEMENT PLANS

1. All work shall be done in accordance with the City of Scotts Valley’s Standard Details, Caltrans Standard Specifications, and Standard Specifications for Public Works construction, current edition with supplements (APWA).

2. All existing pavement to be removed shall be removed to clean, straight lines.

3. Existing pavement shall be coated with asphaltic emulsion at all locations where new pavement joins existing pavement.

4. All existing P.C.C. shall be saw cut prior to removal.

5. The contractor shall maintain dust control at all times by watering or other methods approved by the Public Works Director/City Engineer.

6. The contractor is responsible for the protection and adjustment of all gas valves, water valve boxes and covers, drains, clean-outs, etc.

7. An approved soil sterilizer shall be used on all natural-ground subgrades when placing A.C. pavement directly on subgrade.

8. No work shall be undertaken without obtaining an encroachment permit from the City of Scotts Valley Public Works Department.

9. Paving contractor shall reset manhole rings 1/8-inch below grade after placement of A.C. pavement.

10. Contractor shall satisfy himself that quantities shown are correct before bidding on any item.

11. All A.C. pavement over 3-inches thick shall be placed in two lifts. Asphalt shall be Type A ½” maximum, medium gradation. A prime coat shall be applied prior to paving.

12. All areas which are to receive A.C. overlay shall be edge-ground for a smooth conform prior to the placement of the overlay.

13. All temporary patches shall be of the “hot mix” variety. “Cold mix” shall not be allowed under any circumstances.
14. All trees within pavement area shall be removed, including root system. Backfill of the hole after removal shall be accomplished in accordance with the City of Scotts Valley provisions for trench compaction. A soils report shall be required with respect to compaction of these holes.

15. Contractor shall furnish the Public Works Director/City Engineer with accurate “as-built” drawings. Bonds will not be released by the City until after satisfactory submittal of “as-built” drawings has been made.

16. No item shall exceed 6 inches height above the top of curb within 18 inches from the face of curb.

17. Demolished A.C. pavement shall not be used in fill material unless ground to a maximum size of 3/4" diameter and shall be mixed with other fill material to the satisfaction of the engineer.

18. Whenever lane closures or any form of traffic diversions are in place, a 6-foot wide lane for pedestrian and bicycle traffic must be provided. During times of heavy pedestrian traffic (i.e. school children, etc.) the use of a flag person for public safety is necessary. A traffic control plan shall be submitted for review if required by the Public Works Director/City Engineer.

19. All types of work activity shall be diligently and continuously pursued to final condition. Work suspension while there are rough or open trenches, unfinished tie-in paving, temporary guardrails, and other intermediate conditions shall not be allowed for any reason.

20. Work hours shall be limited to 8:00 AM to 5:00 PM, Monday through Friday, 9:00 AM to 5:00 PM Saturday. Saturday work shall require approval by the Public Works Director/City Engineer. No work shall be permitted on Sunday.
ADDITIONAL NOTES FOR SEWER CONSTRUCTION PLANS

1. All pipe shall be PVC SDR-35 or approved equal as approved by the Public Works Director/City Engineer.

2. Laterals are to be constructed with top of pipe three feet below top of curb grade unless otherwise noted.

3. The minimum pipe size for sanitary sewer is 6” in diameter.

4. Wyes must be constructed with 1 pipe length of station shown on the plans and all laterals laid 90 degrees to main except in cul-de-sacs where laterals shall be laid either at 90 degrees or 45 degrees to the main line.

5. The “as-built” drawings shall include the location of all laterals as constructed.

6. Contractor shall secure approval from the City Inspector before backfilling over pipe.

7. Trench compaction shall be in accordance with City of Scotts Valley provisions for trench compaction. The contractor shall employ a certified soils firm to take soils tests at locations directed by the City. Soils tests shall be submitted to the City.

8. Each new sanitary sewer lateral not immediately connected to a dwelling unit shall be marked with a 2”x4”x5’ redwood stake marker, to 12” above finish grade, at the end of each new lateral stub-out. An “S” shall be painted on the marker and the end of each lateral shall be properly capped. All laterals installed in new development shall also be marked by stamping an “S” on the curb face at sewer lateral location.

9. All sewer pipe shall be air pressure tested at 5 pounds pressure for 15 minutes, mandrelled, televised and one electronic format copy delivered to the City of Scotts Valley.

10. For proposed construction to existing sanitary sewer laterals, the applicant shall inspect and record existing laterals and submit a video recording to the Public Works Department for review and approval.

11. Insulated copper wire (No. 10) shall be placed along the top of all gravity and force mains. The wire shall run between manholes, cleanouts, or other appropriate facilities, brought to the surface and bolted or otherwise securely affixed to the manhole or cleanout cover or other appropriate metal structure.
12. Backflow prevention devices shall be installed on all lateral where finished floor elevation is less than one foot above the rim elevation of the nearest upstream manhole or cleanout. The valves shall be located in such a way as to prevent any damage to adjacent property as a result of sewage released from the device (Figure SS-05).

13. Sanitary manhole covers shall have enclosed pickholes. Sanitary sewer manholes, subject to surface or Stormwater, shall have water-tight lids.
ADDITIONAL GENERAL NOTES FOR UTILITY PLANS

1. The top of water mains in public rights-of-way shall be constructed at a minimum depth of 36 inches below finish street surface.

2. A copper wire, #10 AWG, is to be laid on top of the public water mains when constructed of plastic pipe. Wire is to be connected to the gate valves and wrapped around the main at 10 feet + intervals to source.

3. All water mains shall be as approved by the Scotts Valley Water District.

4. A valve box and cover shall be installed at each gate valve. Valve boxes and accessories shall be installed as approved by the Scotts Valley Water District.

5. Pressure testing and chlorination shall be performed in accordance with Scotts Valley Water District specifications and standards.

6. Gas lines to be constructed by Pacific Gas and Electric Company.

7. Fire hydrant assemblies shall be installed per Scotts Valley Water District standards and specifications

8. All water meters shall be set behind the curb, or in areas protected from vehicular or pedestrian traffic, as approved by the Public Works Director/City Engineer.

9. It shall be the responsibility of the contractor to locate and identify all underground lines and substructures of every nature and protect them from damage.

10. A “W” shall be stamped on the curb face at water lateral location where water meter boxes are not installed immediately behind the curb.

11. All hot-taps shall be performed by contractor after a minimum 48-hour notice to Scotts Valley Water District, and under the direction of the Scotts Valley Water District.
SECTION II
STREET DESIGN

II-1. STREET WIDTHS

A. Recommended standard and minimum rights-of-way and elements of geometric cross section shall be as shown in Figures ST-01.

B. Existing city streets within the improvement shall be improved to the geometric, right-of-way and structural standards of these design criteria. In the event an existing city street is on the boundary of a proposed improvement, the half of the road adjacent to the improvement shall be improved to the standards of these design criteria.

C. A 6-foot wide P.U.E. shall be dedicated on both sides of the right-of-way in all instances.

II-2. STREET ALIGNMENT AND GRADES

A. General requirements shall be no less than the minimum set forth in Figure ST-2.

B. Vertical curves are required for all grade breaks of 1 percent or more.

C. The gradient of the street entering an intersection shall not be more than 3 percent within a distance of 20 feet from the curb lines of the intersected street.

D. Streets shall be super elevated only if required by the Public Works Director/City Engineer.

E. Minimum curb return radii shall be 32 feet, measured at face of curb, for industrial, collector and four-lane street; and 24 feet for residential streets.

F. Minimum cul-de-sac radii shall be 32 feet measured at face of curb.

G. Temporary paved turnarounds of 32-foot minimum radius and a standard barricade shall be provided at ends of dead-end streets longer than 150 feet.

H. Dead-end streets shall not exceed 500 feet in length unless an emergency exit road, acceptable to the Fire Marshal and the Public Works Director/City Engineer.

I. Streets and highways shall intersect one another at angles as near to a right angle as is practical and no intersections shall be at angles of less than 30 degrees from the perpendicular.
J. Streets intersecting at an angle other than 90 degrees may require the use of setback lines, special rounding of corners, or other device to assure desirable results as to traffic movement, visibility and safety, as required by the Public Works Director/City Engineer.

K. If the center lines of two streets intercepting the same street from opposite directions are offset from each other, said offset shall be a minimum distance of 250 feet measured along the center line of the street intercepted.

L. No item shall exceed 6 inches height above the top of curb within 18 inches from the face of curb.

M. Driveway grades shall not exceed 3 percent behind the standard driveway ramp and within public right-of-way.

N. Minimum grade for drainage on all streets shall be 0.6 percent.

II-3. **STRUCTURAL SECTION**

A. The total structural section shall be designed by R-value (Test Method California 301).

B. Traffic index values for new roads shall be based on the type of road and number of lots served in ultimate developments. These values are given in Figure ST-3.

C. Traffic index value for existing city roads to be improved shall be determined by the Public Works Director/City Engineer.

D. Figure ST-3 gives the minimum structural section requirements.

E. Except for minor private roads and driveways, the minimum required surface course shall be 3 inches Type B asphalt concrete, ½ inch maximum, medium aggregate gradation. A prime coat shall be applied before paving.

F. Except for minor private roads and driveways, minimum required base course shall be Class 2 aggregate base, 9 inches thick, for all non-engineered road sections.

G. With the approval of the Public Works Director/City Engineer, the minimum structural section for minor private roads and driveways shall be 2” asphalt concrete Type B on 6” of Class 2 aggregate base.

H. The number and location of soils tests shall be subject to the approval of the Public Works Director/City Engineer, the minimum being one test for each 1500 linear feet of proposed streets. The R-value used for design purpose shall be the lowest test results,
unless sufficient tests and soils investigations are made to determine the limit of the various soil types tested.

I. In addition to R-value tests to determine the structural section, further soils tests may be required by the Public Works Director/City Engineer to determine erosion control, stability or subdrainage requirements.

J. All soils tests shall be performed by a registered civil engineer experienced and knowledgeable in the application of the principles of soil mechanics in the investigation, evaluation and design of civil works involving the use of earth materials and the inspection and testing of the construction thereof.

K. Relative compaction shall conform to the latest Caltrans specification. As a minimum standard the top 6 in” of subgrade and the aggregate base material shall be compacted to a minimum 95% relative compaction.

L. All base courses, vertical surfaces of existing pavements, curbs, gutters, and construction joints in the surfacing against which additional material is to be placed, and pavement to be surfaced shall be prime coated with MC 70 or coated with paint binder SS1, 50% cut with water, at a rate of 0.25 gallons per square yard, all in accordance with the latest edition of Caltrans Standard Specifications.

M. All work within the public right-of-way shall have tests performed at applicant’s sole expense to determine relative compaction. Relative compaction shall be a minimum of 95% and test results submitted to the Public Works Department prior to acceptance. Testing shall be performed by a firm regularly engaged in the inspection and testing of compaction and as approved by the Public Works Director/City Engineer.

II-4. GRADING

A. City of Scotts Valley grading requirements as set forth in Chapter 15.06 of the City Municipal Code shall regulate all excavation, grading and filling of land within the City.

II-5. PLANTING

A. All cut or fill slopes shall be seeded and/or planted.

II-6. CURB AND GUTTER

A. Concrete curbs and gutters shall be required for all subdivisions with lots of less than 1 acre. Curb ramps shall meet current ADA requirements and shall be provided on Type A
curb (vertical face) at all returns. Asphalt curbs shall be required on any project which does not require concrete curbs.
SECTION III
STORM DRAINAGE

III-1. ITEMS REQUIRED TO BE SUBMITTED WITH IMPROVEMENT PLANS

It is the general purpose of these standards that waters generated by storms, springs or other sources be contained and treated on the area to be developed or carried through a system of waterways and conduits designed in such a manner that adjacent improvements, existing or planned, will be free from flood hazard and will not receive a greater volume and intensity of stormwater runoff than pre-existing conditions. Flood hazard is defined as potential damage by water having sufficient depth or velocity to damage improvements or to deposit or scour soil.

The diversion of natural drainage will be allowed only within the limits of a proposed improvement. All natural drainage must leave the improved area at its original horizontal and vertical alignment unless a special agreement, approved by the Public Works Director/City Engineer, has been executed with adjoining property owners.

All proposed storm drainage facilities shall include provisions for future upstream development and no development shall discharge at a rate which exceeds the capacity of any portion of the existing downstream system. Calculations for storm drainage design within a development as well as calculations for runoff generated by upstream areas within the contributing watershed shall be submitted to the Public Works Director/City Engineer for approval. These calculations are to be based upon the ultimate watershed development and shall include:

A. Topographic maps showing the boundaries of the drainage area used for design.

B. Map of the proposed development indicating:
   1. All applicable existing and proposed improvements.
   2. Runoff coefficients for all areas where runoff was calculated.
   3. Time of concentration and intensity of rainfall at each hydraulic structure. The magnitude and direction (indicated by arrows) of flow in each pipe and flow to each structure contributed by its tributary area. All flow rates shall be in cubic feet per second (cfs).
   4. Elevation of pipe inverts at structures and the top of structure elevation at each structure.
   5. Slopes of all stormwater conveyance structures and conduits

C. Tabulation sheet which includes all of the above information and summarizes the design in a clear, concise, professional format.

III-2. DESIGN REFERENCES
A. The design of storm drainage facilities shall conform to standard accepted engineering practice. Common reference texts are:


B. Requirements set forth in this design criteria shall prevail over those set forth in the above of any other publications.

III-3. HYDROLOGY REQUIREMENTS

A. Minimum return periods (Design storm)

1. Single family dwelling (off stream) 10 year
2. Multi-family and commercial (off stream) 25 year
3. In-stream facilities and structures 100 year

B. Stormwater run-off shall be calculated by the Rational Method (Q=C*I*A*Ca). Other methods may be used with the approval from the Public Works Director/City Engineer.

C. Run-off coefficients to be used are given in Table 3-1 and shall be based on the probable future land use. Future land use shall be determined by the Planning Director.

<table>
<thead>
<tr>
<th>Type of Area</th>
<th>Run-Off Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural, park, forested, agricultural</td>
<td>0.20-0.30</td>
</tr>
<tr>
<td>Low residential (single family dwellings)</td>
<td>0.40-0.50</td>
</tr>
<tr>
<td>High residential (multi-family dwellings)</td>
<td>0.55</td>
</tr>
<tr>
<td>Business and commercial</td>
<td>0.80</td>
</tr>
<tr>
<td>Industrial</td>
<td>0.70</td>
</tr>
<tr>
<td>Impervious</td>
<td>0.90</td>
</tr>
</tbody>
</table>
D. Rainfall intensity shall be determined by using the rainfall intensity duration curve given in Figure SD-01.

E. Minimum time of concentration used for intensity calculations shall be 10 minutes to the first inlet or culvert entrance.

III-4. HYDRAULIC REQUIREMENTS

A. Generally, Mannings Equation shall be used to determine flows in pipes or channels. Values for Mannings Roughness Coefficient (n) shall be as shown in Table 3-2.

<table>
<thead>
<tr>
<th>Type of Conduit or Channel</th>
<th>Roughness Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic (PVC, ABS &amp; HDPE)</td>
<td>0.010</td>
</tr>
<tr>
<td>Concrete gutters</td>
<td>0.015</td>
</tr>
<tr>
<td>Corrugated metal pipe</td>
<td>0.024</td>
</tr>
<tr>
<td>Reinforced concrete pipe 12&quot; to 21&quot;</td>
<td>0.015</td>
</tr>
<tr>
<td>Reinforced concrete pipe 24&quot; to 33&quot;</td>
<td>0.013</td>
</tr>
<tr>
<td>Asbestos cement pipe</td>
<td>0.011</td>
</tr>
<tr>
<td>Lined channels</td>
<td>---</td>
</tr>
<tr>
<td>Concrete</td>
<td>0.014</td>
</tr>
<tr>
<td>Air blown mortar</td>
<td>0.016</td>
</tr>
<tr>
<td>Bituminous</td>
<td>0.018</td>
</tr>
<tr>
<td>Sacked concrete</td>
<td>0.025</td>
</tr>
</tbody>
</table>

B. Available head, governed by the permissible limits of upstream ponding, may be used at the culvert entrance. Entrance slope protection shall be provided to prevent scour when utilizing available head.

C. The design of drainage pipe systems shall allow for a minimum freeboard of 1.00 feet between the top of inlet grade or manhole cover and the design water surface elevation.

D. Minimum velocity at design flow shall be 2 Fps.

E. Gutter flow shall not exceed 4 ½ inches in depth.

III-5. STORM DRAINAGE FACILITIES

A. General

1. Concrete valley gutters will not be permitted across collector streets.
B. Pipe Systems

1. Minimum pipe diameter shall be 18 inches inside the City right-of-way. Smaller pipe may be used with the approval from the Public Works Director/City Engineer.
2. Maximum spacing of access openings - 500 feet
3. Access openings shall be provided at all horizontal angle points and changes in grade.

C. Curves will be allowed in pipe systems only when pipe diameter is 36 inches or larger.

D. Culverts

1. Minimum pipe size - 36 inches for road culverts
2. Minimum pipe size - 18 inches for driveway culverts

E. Energy dissipaters and/or adequate slope protection shall be required for. Energy dissipation devices shall be designed by the project Civil Engineer to withstand flow rates and velocities of the design storm events.

III-6. RIGHT-OF-WAY AND EASEMENT DEDICATIONS

A. The minimum width of right-of-way or easement to be dedicated for watercourses shall be:

1. Conduits up to 24 inches diameter 10 feet
2. Conduits over 24 inches diameter O.D. + 8 feet
3. Earth channels Top width + 18 feet
4. Lined channels Top width + 12 feet

III-7. STORMWATER QUALITY

A. The City has a Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit with the California Regional Water Quality Control Board. As part of that permit, the City must ensure that all new development must incorporate stormwater quality measures both during construction and post-construction. All erosion control and stormwater quality measures must be designed in accordance with the most recent NPDES permit.

B. Erosion Control/SWPPP
1. An Erosion Control Plan shall be included with the improvement plans. All projects shall include erosion control measures during construction. Typical erosion control measures shall include but not be limited to:

   a) Stabilized construction site access
   b) Perimeter protection, such as with fiber rolls or straw wattles
   c) Protection of drain inlets
   d) Protection of slopes

2. A Stormwater Pollution & Prevention Plan (SWPPP) shall be prepared for all projects that meet a minimum threshold in project size. The main elements of a SWPPP shall include the above measures found within the Erosion Control Plan, including the following:

   a) Concrete washout areas
   b) Material storage areas
   c) Waste disposal areas

   The SWPPP shall also include the following information:

   a) WDID Number associated with the Notice of Intent filed with the State Water Resources Control Board
   b) Site and Vicinity Map
   c) Site Description and Construction Activities
   d) Construction Site Pollutants and Control Practices
   e) Erosion and Sediment Control Practices
   f) Construction Monitoring Program and Reporting

   The SWPPP shall be kept onsite and made available for review at all times.

III-8. POST-DEVELOPMENT STORMWATER QUALITY

A. All new development and redevelopment projects shall be designed to treat post-development stormwater to the maximum extent practicable, in accordance with the City’s most recent NPDES permit and the latest edition of the “City of Scotts Valley Stormwater Technical Guide.”

B. All stormwater treatment practices shall have an enforceable operation and maintenance agreement to ensure the system functions as designed. This agreement will include any and all maintenance easements required to access and inspect the stormwater treatment practices, and to perform routine maintenance as necessary to ensure proper functioning of the stormwater treatment practice. All applicable building permits shall have, as a
requirement of the permit, an enforceable operation and maintenance agreement. In addition, a legally binding covenant specifying the parties responsible for the proper maintenance of all stormwater treatment practices shall be secured prior to issuance of occupancy.
SECTION IV
SANITARY SEWER

IV-1. LINE SIZE AND SERVICE POLICY

A. The line size and service policy requires that the minimum size of any new public sewer shall be 6 inches in diameter.

B. All side sewers (lateral) 8 inches and larger shall be connected by or at a manhole.

C. The minimum lateral size is 4 inches where grade requirements can be met and the lateral's intended use is to serve single family residences. Six inch or larger laterals shall be installed where intended use is industrial, commercial or greater than single family residential flows. Joint use of laterals will not be permitted except in multi-family residential uses or commercial developments if approved by the Public Works Director/City Engineer.

D. Laterals connecting houses having a finished floor elevation 12 inches or less above the highest elevation of the nearest upstream structure shall require installation of an approved backflow prevention device next to and immediately upstream of the cleanout.

IV-2. SEPARATION OF SEWER AND WATER LINES

A. Sanitary sewer design shall comply with the standards for the separation of water mains and sanitary sewers as stipulated by the California Department of Public Health and outlined in Section 64572, Title 22, of the California Administrative Code and in accordance with Scotts Valley Water District specifications and standards. Where the horizontal separation between sewer and water lines is less than 10 feet or where a sewer crosses over the top of a water line, special requirements shall apply for the type of pipe used and the location of joints.

IV-3. RIGHT OF WAY POLICY

A. The right of way policy requires that all public sewers be in easements or rights of way granted or dedicated for sewers and/or public use. In the case of public right-of-way for streets, further dedication is not necessary.

B. Easements for sanitary sewers shall meet both of the following width criteria:

1. Minimum width of any easement shall be 10 feet.
2. All easements shall have a minimum width in feet equal to the required trench width according to the standard detail for trench backfill plus 2 additional feet of width for every foot of depth of the pipe as measured from the bottom of the pipe to finished grade. All sewer pipes shall be centered within their easements.
3. Public sewer lines shall not be located between residential lots, unless otherwise approved by the Public Works Director/City Engineer.
IV-4. PIPE COVER AND CLEARANCES

A. Minimum pipe cover and clearance shall be maintained in the design of sanitary sewers. If certain conditions exist which make it impractical to meet the minimum cover and clearance requirements, the conditions and locations shall be specifically noted above the sewer profile on the plans. Each location not meeting the minimum cover and clearance requirements will require special approval. Any planned condition being specially approved with less than minimum cover will require special pipe, bedding and/or backfill as directed by the Public Works Director/City Engineer. Other utilities shall not, under any circumstances, be installed directly over and parallel to any sanitary sewer line installation.

B. Main and trunk sewers shall have a minimum depth of 6 feet as measured from the top of the pipe to the finished grade.

C. Laterals shall have a minimum cover of 5 feet from the top of the pipe to the top of curb at the face of curb.

D. Pipe shall be laid with a minimum of 12 inches vertical clearance from water lines and 6 inches clearance from all other improvements and utilities, unless otherwise approved by the Public Works Director/City Engineer.

IV-5. LATERAL SEWERS

A. Laterals are segment of pipe, appurtenances and fixtures that connect the building sewer to the sewer main. The entire lateral, from the building connection to and including the wye connection or other-tie-in to the sewer main, shall fall within the owner’s responsibility for installation, maintenance and repair. In all cases, City maintained sewer lines will lie in a street right-of-way or dedicated public easement. In all new subdivision work, the house lateral line including cleanout from the sewer main to the property line shall be installed at the time the sewer main is constructed. Whenever a sanitary sewer is installed which will serve existing houses or other buildings, a lateral line shall be constructed for each existing individual house or building. Each lateral line shall be referenced to the improvement plan stationing. Each individual single-family residential building shall be serviced by a separate lateral to the sewer main.

IV-6. APPURTENANCES

A. Manholes - Normal maximum spacing for manholes shall be 350 feet. Where the location of two manholes is determined by intersecting lines, the distances between intervening manholes shall be approximately equal. Sewers on curved alignment with a radius of less than 400 feet shall have manholes spaced at a maximum of 300 feet on the BC or EC of the curve or adjusted to fit the individual case.

B. Manholes shall be used at the termination of all sewer mains including cul-de-sacs and
those lines which may be extended in the future. Laterals may be connected to this manhole for services to adjacent properties within the cul-de-sac.

C. Permanent means for safe and convenient access shall be provided to all sewer manholes.

IV-7. **UNUSUAL DESIGN**

Special design of sewer lift stations, force mains or other unusual features or structures require individual study and approval by the Public Works Director/City Engineer.
1. PUBLIC AND PRIVATE RESIDENTIAL STREETS MAY CONSIST OF TWO 12' LANES. AN ADDITIONAL 6' IS REQUIRED TO ALLOW PARKING ON ONE SIDE, 12' TO ALLOW FOR PARKING ON BOTH SIDES.

2. SIDEWALK SHALL BE A MINIMUM OF 4' WIDE IF REQUIRED ON A RESIDENTIAL STREET.
## General Street Requirements

<table>
<thead>
<tr>
<th>Type of Street</th>
<th>Minimum Radius Curves (feet)</th>
<th>Minimum Sight Distance Vertical Curves (feet)</th>
<th>Minimum Length Vertical Curves (feet)</th>
<th>Maximum Grades (%)</th>
<th>Minimum Grades (%)</th>
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<tbody>
<tr>
<td>Over 500 Lots Served or Industrial</td>
<td>650</td>
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<td>100</td>
<td>50</td>
<td>15–20**</td>
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* SIGHT DISTANCE CONTROLS OVER MINIMUM LENGTH OF VERTICAL CURVE WHERE THERE IS A CONFLICT.

** 15% STREET SLOPE IS ALLOWED FOR UNLIMITED DISTANCE, 15 TO 17% STREET SLOPE IS ALLOWED FOR DISTANCE NOT EXCEEDING 500 FEET. 17 TO 20% STREET SLOPE IS ALLOWED FOR DISTANCE NOT EXCEEDING 200 FEET. STREET SLOPES MAY EXCEED 15% IN A SEGMENT NOT EXCEEDING 500 FEET IN LENGTH. STREET SEGMENTS ADJACENT TO THAT IN WHICH THE STREET SLOPE EXCEEDS 15% SHALL BE 15% OR LESS, AND THESE SEGMENTS SHALL BE AT LEAST THE SAME LENGTH AS THE SEGMENTS IN WHICH THE STREET SLOPE EXCEEDS 15%. IN ANY 2000 FOOT LENGTH OF STREET, THE AVERAGE STREET SLOPE OVER THE ENTIRE 2000 FOOT LENGTH SHALL NOT EXCEED 16%.
### Flexible Pavement Sections Structural Design Table

The following flexible pavement sections were calculated using Test Method No. Calif. 301-F procedures (1978) in which gravel equivalent GE = 0.0032 (T.I.)(100-R) = (0.384") (T.I.)(100-R).

**Aggregate Base (AB) R=178**

**Aggregate Subbase (ASB) R=200**

<table>
<thead>
<tr>
<th><strong>Traffic Index (T.I.)</strong></th>
<th><strong>Materials</strong></th>
<th><strong>Pavement Section in Inches</strong></th>
<th><strong>Subgrade R-Values</strong></th>
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</table>

### General Guidelines for Design:

- Residential Streets with less than 10 Dwelling Units: T.I. = 5.0
- Residential Streets with 10-25 Dwelling Units: T.I. = 5.5
- Residential Streets with 26-50 Dwelling Units: T.I. = 6.0
- Residential Collector: T.I. = 6.5
- Residential Arterial: T.I. = 7.0
- Commercial: T.I. = 7.5
- Industrial: T.I. = 8.0
- Scotts Valley Drive & Mt. Hermon Road: T.I. = 9.0

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**City of Scotts Valley Standard Detail**

**Drawing No:** ST-03

**Scott Hamby**

Director of Public Works

**Scale:** None

**Date:** 12/06/17
1. TYPE A, B & C CURB, GUTTER & SIDEWALK ARE TO BE CONSTRUCTED OF CLASS A CONCRETE

2. WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED AT 12' INTERVALS, AND AT THE ENDS OF RETURNS. EXPANSION JOINTS SHALL BE AT MAXIMUM 60 FEET SPACING.

3. TYPE B CURB TO BE USED ONLY TO CONFORM TO EXISTING TYPE B CURB OR FOR REPLACEMENT IN KIND. TYPE B CURB MAY NOT BE USED IN NEW CONSTRUCTION.

4. IF SIDEWALK IS NOT INSTALLED MONOLITHICALLY WITH CURB & GUTTER, PLACE #4 DOWELS 18" LONG AT 4' O.C. IN BACK OF CURB 3" DOWN FROM TOP OF CURB, 6" IN CONCRETE.

CITY OF SCOTTS VALLEY STANDARD DETAIL
CURB, GUTTER, SIDEWALK AND A.C. DIKE

SCOTT HAMBY
DIRECTOR OF PUBLIC WORKS

DRAWING NO: ST-04
SCALE: NONE
DATE: 12/06/17
1. TYPE A CURB & 6" THICK CLASS B P.C.C. SPANDRELS & CROSS GUTTER ON 6" CLASS 2 AGGREGATE BASE.
2. MAXIMUM DEPRESSION IN CROSS GUTTER AT FLOW LINE IS 3/4".
3. THIS DETAIL IS ONLY REQUIRED WHEN DROP INLETS ARE NOT PROVIDED AT THE RETURN AT POSITION "A".
1. SIDEWALK AREA ADJACENT TO DRIVEWAY APPROACH SHALL HAVE A < 2% CROSS SLOPE

2. ALL CONCRETE TO BE CLASS "B" CONCRETE
1. PROVIDE A DRIVEWAY PROFILE SHOWING EXISTING AND PROFILE GRADES FOR APPROVAL
2. BEYOND THE ROAD RIGHT-OF-WAY, THE DRIVEWAY SURFACE SHALL BE AN ALL WEATHER TYPE
3. DRIVEWAY PAVEMENT MATERIAL TYPE AND STRUCTURE SECTION ARE SUBJECT TO APPROVAL BY THE DIRECTOR OF PUBLIC WORKS
3" DIAMETER YLW REFLECTOR

3/4" CAR. BOLTS WITH CUT WASHERS

2"X8" REDWOOD PAVEMENT HEADER

6"X6"X5'-4" DENSE STRUCT. REDWOOD

4"X4"X8'-0" DENSE STRUCT. REDWOOD

Q OF STREET

W31 (CA) END SIGN

12d NAILS

NOTE:

APPLY ONE COAT OF PRIMER AND THREE COATS OF EXTERIOR WHITE PAINT.
1. ALL CAPACITIES ARE BASED ON:
   A) S = 2%
   B) N = 0.011

2. METAL DUCT FORM SHALL BE SUPPORTED FROM DISTORTION DURING POUR OF CONCRETE BY FILLING WITH SAND, TEMPORARY SUPPORT WEDGED IN PLACE OR OTHER SUITABLE MEANS.
1. Monument frame and cover shall be gray cast iron, free of blisters, blowholes, warpage, and cold shuts.
2. Monument shall be furnished and installed as per plans and Section B1 of the standard specifications, complete with marker.
3. Bearing surfaces of frame & cover shall fit with positive pressure on all surfaces & shall be non-rocking.
4. All concrete shall be constructed in accordance with Class "B" of the standard specifications.
5. Ring and cover shall be cast iron–Phoenix Iron Works Cat. No. P–2001, or approved equal.
1. CONCRETE FOOTINGS SHALL BE PREFORMED 8" SQUARE

2. 2-1/2" AND 2-1/4" SLEEVES SHALL BE WRAPPED WITH DUCT TAPE PRIOR TO THE EMBEDMENT IN CONCRETE. SLEEVES SHALL BE EMBEDDED TO 20".

3. FOR APPLICATIONS WHERE TOTAL SIGN AREA IS GREATER THAN 1300 IN² (36"x36"), A 30" DEEP FOOTING SHALL BE UTILIZED.

4. ALL SIGNAGE SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN CONFORMANCE WITH THE MUTCD, CURRENT EDITION.

5. ALL SIGN FOOTINGS SHALL BE VISUALLY INSPECTED PRIOR TO BACKFILLING AND COMPACTION.
RAINFALL INTENSITY DURATION CURVES
FOR 10 YEAR RETURN PERIOD

TO CONVERT INTENSITIES TO RETURN PERIODS OTHER THAN 10 YEARS, MULTIPLY BY THE FOLLOWING FACTORS:

<table>
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<th>RETURN PERIOD</th>
<th>FACTOR</th>
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<tr>
<td>2 YEARS</td>
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<tr>
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<tr>
<td>100 YEARS</td>
<td>1.50</td>
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</tbody>
</table>

INTENSITY IN INCHES PER HOUR

DURATION IN MINUTES

\[
\text{Intensity} = \frac{(4.29112)(1.1952^{P_{60}})}{\text{Duration}^{(0.60924)(0.78522^{P_{60}})}}
\]

NOTE: SCOTTS VALLEY $P_{60} = 1.8 \text{ IN./HR.}$
1. This method of connecting a new curb inlet is to be used only if the existing catch basin and lateral are in good condition and the lateral is at least 12" I.D. Otherwise, the existing catch basin shall be removed or filled in and a new lateral installed from the new curb inlet to the nearest manhole.

2. Construct new curb inlet on the downstream side of new driveway or shortest upstream side of driveway if original catch basin is constructed at a low point.

3. Frame and grate for modified drop inlet shall be equal to Phoenix Iron Works No. P-6203 on 24" x 36" catch basin. Use existing grate and frame when modifying 24" x 36" catch basin.

4. Precast concrete structures shall not be used.

View showing connection & location of catch basins

Section of modified catch basin
1. REAR OPENING HOOD TO BE SOUTH BAY FOUNDRY CAST IRON HOOD ITEM # C2010.

2. FRAME AND GRATE TO BE HOT DIPPED GALVANIZED STEEL, HEAVY TRAFFIC BICYCLE PROOF SOUTH BAY FOUNDRY GRATE ITEM # E2020, FRAME ITEM # E2060.

3. BUTTER FLOWLINE SHALL DROP 2" MIN FROM 6' ON EACH SIDE OF CATCH BASIN.

4. FRAME AND GRATE TO BE STATE BICYCLE PROOF GRATE TYPE 24-13.

5. CONCRETE SHALL BE CLASS "A", 6 SACK MIN.

6. UNLESS SPECIFICALLY SHOWN ON THE IMPROVEMENT PLANS, ALL DROP INLETS SHALL BE CAST IN PLACE. WHERE THE USE OF PRECAST CONCRETE STRUCTURES IS SPECIFIED OR ALLOWED BY THE IMPROVEMENT PLANS OR BY THE CITY ENGINEER, THE PRECAST PORTION SHALL TERMINATE NOT LESS THAN 1-FOOT BELOW THE GUTTER FLOWLINE AND THE REMAINING PORTION OF THE DROP INLET STRUCTURE SHALL BE CAST IN PLACE. UNDER NO CIRCUMSTANCES SHALL MONOLITHIC PRECAST STRUCTURES BE USED.

7. THE UPPER 1-FOOT OF THE DROP INLET STRUCTURE (MEASURED DOWN FROM THE GUTTER FLOWLINE) SHALL BE FORMED AND POURED CONCURRENT WITH OR SUBSEQUENT TO THE INSTALLATION OF ADJACENT PORTIONS OF CURB AND GUTTER.
1. OTHER METHODS OF TRENCH BACKFILL MAY BE USED ONLY WITH WRITTEN PERMISSION FROM THE DIRECTOR OF PUBLIC WORKS.

2. CUT EXISTING PAVEMENT TO PRODUCE A STRAIGHT VERTICAL FACE AGAINST WHICH TO BUTT THE TRENCH PAVEMENT OR DEEP LIFT AC PLUG TO SAME DEPTH AS AC AND COMPACTED BASE.

3. TRENCH SHALL BE CAPPED WITH 3’ A.C, TYPE B MINIMUM, WHERE THE EXISTING PAVEMENT IS GREATER THAN 3’ THICK, IT SHALL BE REPLACED IN KIND.

4. CEMENT/SAND SLURRY SHALL BE MIXED IN A TRANSIT MIXER (CERTIFICATION TAGS REQUIRED), SHALL CONSIST OF 188 LBS. OF CEMENT FOR EACH CUBIC YARD OF MATERIAL, AND SHALL HAVE A 7–9 INCH SLUMP.

5. PRECAUTION SHALL BE TAKEN TO AVOID FLOATING CONDUITS.

6. OPTIONAL: SHAPED BEDDING OR SAND CRADLE TO 6’ ABOVE PIPE.

7. FOR TRENCHES LESS THAN FIVE FEET DEEP, SLURRY BACKFILL SHALL EXTEND FROM 6” ABOVE TOP OF PIPE TO AC PAVEMENT.
1. PAVEMENT SHALL BE REPLACED IN KIND, HOWEVER, MINIMUM STANDARDS ARE AS FOLLOWS:
   A. PAVED ROADS— 3" AC TYPE B OVER 9" PRIME COATED AB CLASS 2
   B. NON-PAVED ROADS— SINGLE SEAL COAT OVER 6" AB CLASS 2 IN TRENCH AREA, THEN SINGLE SEAL COAT ENTIRE ROAD SECTION.

2. CUT EXISTING PAVEMENT TO PRODUCE A STRAIGHT VERTICAL FACE AGAINST WHICH TO BUTT THE TRENCH PAVEMENT OR DEEP LIFT AC PLUG TO SAME DEPTH AS AC AND COMPACTED BASE.

3. LONGITUDINAL TRENCHES WITHIN A PAVED AREA OR ROAD RIGHT-OF-WAY SHALL BE BACKFILLED AS SHOWN ABOVE.

4. TRENCHES OUTSIDE A PAVED AREA OR ROAD RIGHT-OF-WAY SHALL HAVE BACKFILL COMPACTED TO NOT LESS THAN 90% RELATIVE COMPACTION.

5. AN INSPECTOR, APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE ON SITE DURING ALL COMPACTION WORK TO OBSERVE UNIFORM COMPACTION METHODS AND MATERIALS.

1. ALL JOINTS BETWEEN PRECAST SECTIONS SHALL BE SEALED, INSIDE AND OUTSIDE.

2. INTERIOR OF MANHOLE SHALL HAVE A SMOOTH TROWELED SURFACE,

3. PIPES LARGER THAN 48" REQUIRE SPECIAL DESIGN.
1. Mulch depth 2-3", use of mulch below ponding high water mark is optional. Preferred mulch type: aged, stabilized, non-floating.

2. Minimum curb depth along city right-of-way shall be 24". Steel reinforcement is required for planter walls installed along city right-of-way.

3. Bioretention soil media (BSM): minimum infiltration rate 5 in/hr. Use concrete sand (60-70%) meeting ASTM C33 specifications and stable, weed-free compost (30-40%) mixture.

4. Scarify subgrade before installing bioretention area aggregate and BSM.

5. Use min. 4" dia. PVC SDR36 perforated pipe. Install near the top of aggregate layer with holes facing down.

6. Underdrain discharge shall be no lower than the top of the aggregate layer. Underdrain slope may be flat.

7. Provide 4" min. diameter capped and threaded PVC cleanout for underdrain, with sweep bend.
1. All reinforcing, #4 bars as shown.
1. OTHER METHODS OF TRENCH BACKFILL MAY BE USED ONLY WITH WRITTEN PERMISSION FROM THE DIRECTOR OF PUBLIC WORKS.

2. CUT EXISTING PAVEMENT TO PRODUCE A STRAIGHT VERTICAL FACE AGAINST WHICH TO BUTT THE TRENCH PAVEMENT OR DEEP LIFT AC PLUG TO SAME DEPTH AS AC AND COMPACTED BASE.

3. TRENCH SHALL BE CAPPED WITH 3' A.C. TYPE B MINIMUM, WHERE THE EXISTING PAVEMENT IS GREATER THAN 3' THICK, IT SHALL BE REPLACED IN KIND.

4. CEMENT/SAND SLURRY SHALL BE MIXED IN A TRANSIT MIXER (CERTIFICATION TAGS REQUIRED), SHALL CONSIST OF 188 LBS. OF CEMENT FOR EACH CUBIC YARD OF MATERIAL, AND SHALL HAVE A 7-9 INCH SLUMP.

5. PRECAUTION SHALL BE TAKEN TO AVOID FLOATING CONDUITS.

6. OPTIONAL SHAPED BEDDING OR SAND CRADLE TO 6' ABOVE PIPE.

7. FOR TRENCHES LESS THAN FIVE FEET DEEP, SLURRY BACKFILL SHALL EXTEND FROM 6" ABOVE TOP OF PIPE TO AC PAVEMENT.
1. PAVEMENT SHALL BE REPLACED IN KIND, HOWEVER, MINIMUM STANDARDS ARE AS FOLLOWS:
   A. PAVED ROADS— 3" AC TYPE B OVER 9" PRIME COATED AB CLASS 2
   B. NON-PAVED ROADS— SINGLE SEAL COAT OVER 6" AB CLASS 2 IN TRENCH AREA, THEN SINGLE SEAL COAT ENTIRE ROAD SECTION.

2. CUT EXISTING PAVEMENT TO PRODUCE A STRAIGHT VERTICAL FACE AGAINST WHICH TO BUTT THE TRENCH PAVEMENT OR DEEP LIFT AC PLUG TO SAME DEPTH AS AC AND COMPACTED BASE.

3. LONGITUDINAL TRENCHES WITHIN A PAVED AREA OR ROAD RIGHT-OF-WAY SHALL BE BACKFILLED AS SHOWN ABOVE.

4. TRENCHES OUTSIDE A PAVED AREA OR ROAD RIGHT-OF-WAY SHALL HAVE BACKFILL COMPACTED TO NOT LESS THAN 90% RELATIVE COMPACTION.

5. AN INSPECTOR, APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE ON SITE DURING ALL COMPACTION WORK TO OBSERVE UNIFORM COMPACTION METHODS AND MATERIALS.

1. Standard fittings for transition slope with full bedding throughout.

2. Locate a cleanout box in the concrete sidewalk or driveway. Cleanout box in driveway shall be traffic rated. Locate cleanout box 12" behind curb if in vegetated area.
1. An overflow system is required and shall be installed where the finish floor elevation of the building to be connected is less than one foot above the rim of the nearest upstream manhole.

2. The installation of the backwater overflow device shall be made after the final grading around the building is completed. The backwater overflow device shall be as detailed, or an approved equal.

3. Consideration must be given to the damage potential to adjacent property by sewage released through the backwater overflow device.
1. All steel reinforcement shall have 3" minimum concrete cover.
2. Water tight covers with bottom mounted gaskets shall be required to prevent storm water inflow.
FRAME & COVER (SEE DWG. # 4)

18" MAX.

(E) STREET SECTION

(F) PRECAST ADJUSTMENT RINGS

USE OF ECCENTRIC CONES WILL ONLY BE ALLOWED WITH SPECIAL APPROVAL BY THE ENGINEER. IF USED, VERTICAL WALL SHALL BE SITUATED OPPOSITE OUTLET PIPE

PRECAST TAPERED SECTION

D" WIDE RAMNEK OR APPROVED EQUAL (TYP. ALL JOINTS).

PRECAST SECTION

4'-0" (SEE NOTE 7)

8"

SAW CUT TOP 1/2 OF PIPE IN MANHOLE

INSTALATION DETAIL

SET 5/8" BELOW INCOMING PIPE

1. MANHOLE BASE SHALL BE CAST IN PLACE (SIX SACK 3/4" ROCK MIX) OR PRECAST REINFORCED CONCRETE. IF PRECAST ALTERNATIVE IS USED, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF EACH MANHOLE TO THE ENGINEER FOR APPROVAL.

2. MANHOLE BASES SHALL BE CAST OR PLACED AGAINST 12" OF CRUSHED STONE.

3. SHELF SHALL BE VERTICAL FROM PIPE SPRINGLINE TO HEIGHT OF CROWN. THE SHELF (SLOPED AT 2" / FT.) SHALL HAVE A BROOM FINISH.

4. VERTICAL PIPE AND TAPER SECTIONS TO BE REINFORCED CONCRETE A.S.T.M. C-76 CLASS II.

5. FOR SANITARY SEWERS PROVIDE DROP INLET WHERE GRADE OF ENTERING LINE IS 24" OR MORE ABOVE THE FLOW LINE OF THE SEWER MANHOLE.

6. HOUSE LATERALS ARE NOT TO CONNECT TO THE MANHOLE WITHOUT THE PERMISSION OF THE CITY ENGINEER.

7. MANHOLES WITH PIPE GREATER THAN 24" SHALL HAVE DIAMETER OF 5'-0".

8. FALSE CHANNELS SHALL BE INSTALLED AS NEEDED TO ALLOW INSERTION OF VIDEO CAMERA INTO PIPES.

9. PRESS-SEAL GASKET CORPORATION, WS SERIES WATERSTOP GRouting RINGS OR APPROVED EQUAL TO BE INSTALLED.
NO LATERAL CONNECTIONS TO BE MADE IN DOWNSTREAM HALF OF MANHOLE

MAXIMUM NUMBER OF SIDE SEwers ALLOWED = 5

TOP SECTION SAME AS STANDARD MANHOLE

TOP OF SIDE SEwers SHALL MATCH TOP OF OUTLET PIPE

FLOW

3" MIN.

FLOW

SIDE SEwer
1. In unimproved areas, the top of cover shall be placed a minimum of 4" above ground with protection from storm water intrusion.

2. See standard main manhole for marker posts.

3. Frame and cover to be D&L Supply Model H6520 or approval equal.